

AUXIER & ASSOCIATES, INC.

PAP-KAN

**STANDARD LEVEL IV
REPORT OF ANALYSIS**

WORK ORDER #15-10090-OR

November 25, 2015

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

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STANDARD OPERATING PROCEDURE

Sample Receiving

MP-001, Rev. 15
Effective: 2/2/15
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Eberline Services – Oak Ridge Laboratory
LABORATORY DATA SUPPORT CHECKLIST

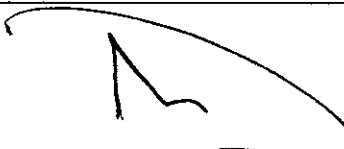

MP-001-3

Eberline Services Work Order # 15 - 10090

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

Date for Partial	Initials	Date	Initials	Checklist Items
		10-18-15	JEB	Sample Log-In
		11/11/15	JL	Data Compilation
		11-19-15	MSJ	First Technical Data Review
		11/20/15	MSJ	Second Technical Data Review
		11/23/15		Data Entry/Electronic Deliverable
		11/23/15	B	Case Narrative
		11/25/15	MSJ	Electronic Deliverable Proof
		11/25/15	MSJ	Samples Analyzed within Holding Time Yes? <input checked="" type="checkbox"/> No? <input type="checkbox"/>
		11/25/15	MSJ	QA/QC Review
				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:   11/25/15
 Laboratory Manager Date

Copy No. _____

Radiochemistry Services

: 000003

SECTION I
CHAIN OF CUSTODY

7133
No 7128

Chain of Custody Record

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax



EBERLINE
SERVICES

Project Name: PAP/HAZ
 Sampler (Print Name): Ashley Jabur
 Sampler (Print Name): _____
 Shipment Method: Fedex
 Airbill Number: _____
 Laboratory Receiving: _____

Field Sample ID: _____
 Sample Date: _____
 Sample Time: _____
 Sample Matrix: _____
 Number of Containers: _____

Comments, Special Instructions, etc.
 Lab Sample ID (to be completed by lab)

REC'D OCT 14 2015
15-10090

Purchase Order #:

Page ____ of ____

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
CP0603S03-04	10/9/15	1500	S	1	Technic Liquid	21 Day Granule	
CP0603S06-07	10/9/15	1510	S	1	Technic Liquid		
CP0603S09-10	10/9/15	1520	S	1	Technic Liquid		
CP0603S12-13	10/9/15	1530	S	1	Technic Liquid		
CP0603S14-15	10/9/15	1540	S	1	Technic Liquid		
CP0603S17-18	10/9/15	1550	S	1	Technic Liquid		
CP0603S19-20	10/9/15	1600	S	1	Technic Liquid		
CP0603S21-22	10/9/15	1610	S	1	Technic Liquid		
CP0603S24-25	10/9/15	1620	S	1	Technic Liquid		
CP0603S26-27	10/9/15	1630	S	1	Technic Liquid		
CP0603S29-30	10/9/15	1640	S	1	Technic Liquid	21 Day Granule	

Sample Custodian Remarks (Completed By Laboratory):
 QA/QC Level: _____
 Level I: Routine
 Level II: 24 Hour
 Level III: 1 Week
 Other:

Turnaround
 Total # Containers Received? _____
 COC Seals Present? _____
 COC Seals Intact? _____
 Received Containers Intact? _____
 Temperature? _____

Relinquished by: (Signature) _____ Date: 10/12/15 1300
 Received by: (Signature) _____ Date: 10-14-15 1400
 Relinquished by: (Signature) _____ Date: _____
 Received by: (Signature) _____ Date: _____



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #

15-10090

Lab Deadline

11/5/2015

Analysis

UIISO - Level 4

Sample Matrix

Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	36	K1.1
	05	37	K1.1
	06	40	K1.1
	07	35	K1.1
	08	35	K1.1
	09	37	K1.1
	10	38	K1.1
	11	29	K1.1
	12	37	K1.1
	13	32	K1.1
	14	35	K1.1

	Location (circle one)					Initials	Date
Received by	<u>Sample Storage</u>	<u>Rough Prep</u>	Prep	Separations	Count Room	1250 Keny Sej	10-09-15
Relinquished by	Sample Storage	<u>Rough Prep</u>	Prep	Separations	Count Room	0820 Keny Sej	10-20-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	800 J Pachula	10-20-15
Relinquished by	Sample Storage	Rough Prep	<u>Prep</u>	Separations	Count Room	J Pachula	10-20-15
Received by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room	J Pachula	10-20-15
Relinquished by	Sample Storage	Rough Prep	Prep	<u>Separations</u>	Count Room	J Pachula	11-3-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	J Pachula	11-3-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	J Pachula	11-3-15
Received by	<u>Sample Storage</u>	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		



EBERLINE
SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	15-10090
Lab Deadline	11/5/2015
Analysis	ThISO - Level 4
Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	36	K1.1
	05	37	K1.1
	06	40	K1.1
	07	35	K1.1
	08	35	K1.1
	09	37	K1.1
	10	38	K1.1
	11	29	K1.1
	12	37	K1.1
	13	32	K1.1
	14	35	K1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1250 <i>Kery Sci</i>	10-19-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0820 <i>Kery Sci</i>	10-20-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	800 <i>J. Pachelle</i>	10-20-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>J. Pachelle</i>	<i>10-20-15</i>
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>800 M</i>	<i>10-20-15</i>
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>800 M</i>	<i>11-3-15 0757</i>
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Count Room	11-3-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>KB</i>	<i>11/3/15 1226</i>
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		



Internal Chain of Custody

Work Order #	15-10090
Lab Deadline	11/5/2015
Analysis	Gamma - Level 4
Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
21 day ingrowth: Report Ac228, Bi214, Pb212/214, Ra226 from Bi214, Ra228 from Ac228, Tl208, Th234 & positives.	04	36	K1.1
	05	37	K1.1
	06	40	K1.1
	07	35	K1.1
	08	35	K1.1
	09	37	K1.1
	10	38	K1.1
	11	29	K1.1
	12	37	K1.1
	13	32	K1.1
	14	35	K1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1290	Kery sci	10-19-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1044	Kery sci	10-20-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KCB 10/20/15	1044
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KCB 11/10/15	1359
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	10/14/2015	28	15-10090																							
Project Name	Client WO	Sample Disp	Lab Deadline	Internal Deadline	Client Deadline																							
PAP-KAN	PAP-KAN	H	11/05/2015	11/10/2015	11/11/2015																							
Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	TH10	TH11	TH12	TH13	TH14	TH15	TH16	TH17	TH18	TH19	TH20	TH21	TH22	TH23	TH24	TH25	TH26	TH27	TH28	TH29	TH30	PL	
01	LCS	10/15/15	SO	K1.1	X	X																						
02	BLANK	10/15/15	SO	K1.1	X	X																						
03	DUP	10/15/15	SO	K1.1	X	X																						
04	CP0603S03-04	10/09/15 15:00	SO	K1.1	X	X																						
05	CP0603S06-07	10/09/15 15:10	SO	K1.1	X	X																						
06	CP0603S09-10	10/09/15 15:20	SO	K1.1	X	X																						
07	CP0603S12-13	10/09/15 15:30	SO	K1.1	X	X																						
08	CP0603S14-15	10/09/15 15:40	SO	K1.1	X	X																						
09	CP0603S17-18	10/09/15 15:50	SO	K1.1	X	X																						
10	CP0603S19-20	10/09/15 16:00	SO	K1.1	X	X																						
11	CP0603S21-22	10/09/15 16:10	SO	K1.1	X	X																						
12	CP0603S24-25	10/09/15 16:20	SO	K1.1	X	X																						
13	CP0603S26-27	10/09/15 16:30	SO	K1.1	X	X																						
14	CP0603S29-30	10/09/15 16:40	SO	K1.1	X	X																						
Totals Per Analysis (non QA samples)					11	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Invoice Accounts Payable Auxier & Associates, Inc. 9821 Cogdill Drive #1 Knoxville, TN 37932 Voice 865-675-3669 Fax 865-675-3677	Report Data Cecilia Greene Auxier & Associates, Inc. 9821 Cogdill Road, Suite 1 Knoxville, TN 37930 Voice 865-675-3669 Fax 865-675-3677	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: (865) 481-0683 Fax: (865) 483-4621 Sample Log In Report
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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 15-10090

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

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

WERE CHAIN OF CUSTODY SEALS:

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

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

REMARKS: _____

SIGNATURE: *James E. Bayler* DATE: 10-15-15

SECTION III
CASE NARRATIVE



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

EBS-OR-40005

November 25, 2015

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

CASE NARRATIVE
Work Order # 15-10090-OR

SAMPLE RECEIPT

This work order contains eleven soil samples received 10/14/2015. These samples were analyzed for Isotopic Uranium, Isotopic Thorium and by Gamma Spectroscopy.

<u>CLIENT ID</u>	<u>LAB ID</u>	<u>CLIENT ID</u>	<u>LAB ID</u>
CP0603S03-04	15-10090-04	CP0603S19-20	15-10090-10
CP0603S06-07	15-10090-05	CP0603S21-22	15-10090-11
CP0603S09-10	15-10090-06	CP0603S24-25	15-10090-12
CP0603S12-13	15-10090-07	CP0603S26-27	15-10090-13
CP0603S14-15	15-10090-08	CP0603S29-30	15-10090-14
CP0603S17-18	15-10090-09		

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.

ISOTOPIC URANIUM

Samples were prepared by removing a representative aliquot 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

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

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

ISOTOPIC THORIUM

Samples were prepared by removing representative aliquots followed by mixed acid digestions as appropriate. Thorium was selectively extracted by ion exchange. Thorium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Thorium-228, 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-228, Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Results for the Thorium-228, Thorium-230 and Thorium-232 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

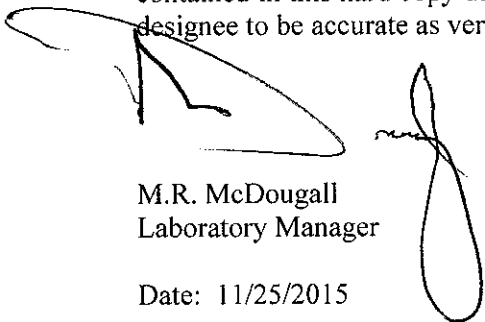
GAMMA SPECTROSCOPY

Samples were dried, homogenized and placed into appropriate gamma spectroscopy geometry containers. Samples were then sealed for 21 days to allow for ingrowth of Radon-222 and progeny. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors. Energy lines from Lead-214 and Bismuth-214 were analyzed for determinations of Radium-226 activity.

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: 11/25/2015

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

SECTION IV
ANALYTICAL RESULTS SUMMARY

Eberline Analytical

Final Report of Analysis

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

15-10090
PAP-KAN
ENVIRONMENTAL
SO

Work Order Details:

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Cobalt-60	LANL ER-130 Modified	1.37E+02	5.48E+00	1.27E-01	2.31E-01	9.75E-02	pCi/g
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Cesium-137	LANL ER-130 Modified	8.69E+01	3.48E+00	1.17E+01	1.51E+00	1.18E+00	pCi/g
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Cobalt-60	LANL ER-130 Modified	1.36E+02	9.37E+00	9.13E+00	2.05E+00	1.02E+00	pCi/g
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Cesium-137	LANL ER-130 Modified	8.36E+01	8.06E+00	1.27E-01	2.31E-01	9.75E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.33E-02	8.58E-02	8.58E-02	1.46E-01	6.57E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.30E-02	4.19E-01	4.19E-01	8.01E-01	3.28E-01	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	5.33E-02	5.89E-02	5.89E-02	9.56E-02	4.47E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.29E-02	7.58E-02	7.58E-02	1.25E-01	5.74E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	6.89E-03	8.58E-02	8.58E-02	1.46E-01	6.41E-01	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.30E-02	1.27E-01	1.27E-01	2.31E-01	9.75E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.33E-02	4.12E-01	4.12E-01	6.98E-01	3.35E-01	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	5.65E-01	1.17E-01	1.17E-01	1.72E-01	7.52E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	-3.92E-02	2.19E-01	2.19E-01	3.42E-01	1.62E-01	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.62E+00	2.19E-01	2.35E-01	3.42E-01	1.62E-01	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.12E+00	1.59E-01	1.65E-01	1.87E-01	8.98E-02	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	1.97E+01	2.25E+00	2.47E+00	1.19E+00	5.63E-01	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.71E+00	1.88E-01	2.07E-01	2.38E-01	1.10E-01	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.28E+00	1.61E-01	1.74E-01	2.04E-01	9.90E-02	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.12E+00	1.55E-01	1.65E-01	1.87E-01	1.01E+00	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.62E+00	2.19E-01	2.35E-01	3.42E-01	1.62E-01	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	1.96E+00	1.58E+00	1.58E+00	2.57E+00	1.27E+00	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.43E+00	1.70E-01	1.85E-01	1.97E-01	1.58E-01	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.48E+00	2.45E-01	2.57E-01	4.01E-01	1.92E-01	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.23E+00	1.65E-01	1.76E-01	2.03E-01	9.77E-02	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.11E+01	2.31E+00	2.56E+00	7.25E-01	3.30E-01	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.58E+00	1.77E-01	1.95E-01	2.26E-01	1.11E-01	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.25E+00	1.61E-01	1.73E-01	2.20E-01	1.07E-01	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.23E+00	1.65E-01	1.76E-01	2.03E-01	1.27E+00	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.48E+00	2.45E-01	2.57E-01	4.01E-01	1.92E-01	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	2.18E+00	1.60E+00	1.60E+00	2.65E+00	1.31E+00	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.20E+00	1.88E-01	1.98E-01	2.19E-01	1.91E-01	pCi/g

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



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EBERLINE ANALYTICAL CORPORATION

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Eberline Analytical

Final Report of Analysis

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

Work Order Details:

15-10090
 Project: PAP-KAN
 Analysis Category: ENVIRONMENTAL
 Sample Matrix: SO

Report To:

SDG:
 Method:
 Analyte:
 Batch ID:
 Analysis Date:
 Receipt Date:
 Sample Date:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.52E+00	2.17E-01	2.30E-01	3.67E-01	1.74E-01	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.37E+00	1.92E-01	2.04E-01	2.95E-01	1.43E-01	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.04E+01	2.56E+00	2.77E+00	8.70E-01	3.99E-01	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.53E+00	1.86E-01	2.02E-01	2.64E-01	1.30E-01	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.51E+00	1.65E-01	1.82E-01	2.03E-01	9.81E-02	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.37E+00	1.92E-01	2.04E-01	2.95E-01	1.09E+00	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.52E+00	2.17E-01	2.30E-01	3.67E-01	1.74E-01	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	1.50E+00	9.57E-01	9.60E-01	1.54E+00	7.51E-01	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.13E+00	1.58E-01	1.68E-01	1.66E-01	1.26E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.46E+00	2.85E-01	2.94E-01	5.24E-01	2.48E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.30E+00	2.09E-01	2.19E-01	2.80E-01	1.34E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.08E+01	2.47E+00	2.69E+00	1.12E+00	5.10E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.77E+00	1.94E-01	2.14E-01	3.04E-01	1.49E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.29E+00	1.72E-01	1.85E-01	2.74E-01	1.33E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.30E+00	2.09E-01	2.19E-01	2.80E-01	1.43E+00	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.46E+00	2.85E-01	2.94E-01	5.24E-01	2.48E-01	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	3.65E+00	2.09E+00	2.10E+00	3.43E+00	1.69E+00	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.42E+00	2.15E-01	2.27E-01	1.40E-01	1.51E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.51E+00	2.18E-01	2.32E-01	5.27E-01	2.54E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.40E+00	1.65E-01	1.80E-01	2.52E-01	1.22E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.24E+01	2.80E+00	3.02E+00	1.06E+00	4.91E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.58E+00	1.90E-01	2.07E-01	3.27E-01	1.61E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.65E+00	1.85E-01	2.03E-01	2.63E-01	1.28E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.40E+00	1.65E-01	1.80E-01	2.52E-01	1.28E+00	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.51E+00	2.18E-01	2.32E-01	5.27E-01	2.54E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	2.04E+00	1.00E+00	1.01E+00	1.63E+00	7.94E-01	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.19E+00	1.70E-01	1.81E-01	1.58E-01	1.58E-01	pCi/g

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



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Eberline Analytical

Final Report of Analysis

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

15-10090

PAP-KAN
ENVIRONMENTAL
SO

Work Order Details:

Report To:

SDG:
Project:
Analysis Category:
Sample Matrix:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.59E+00	2.73E-01	2.85E-01	4.58E-01	2.15E-01	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.53E+00	2.69E-01	2.81E-01	3.90E-01	1.89E-01	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.25E+01	2.66E+00	2.90E+00	9.61E-01	4.28E-01	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.79E+00	1.98E-01	2.18E-01	2.73E-01	1.34E-01	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.48E+00	1.87E-01	2.02E-01	3.06E-01	1.48E-01	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.53E+00	2.69E-01	2.81E-01	3.90E-01	1.69E+00	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.59E+00	2.73E-01	2.85E-01	4.58E-01	2.15E-01	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	-2.93E-01	1.81E+00	1.81E+00	2.27E+00	1.11E+00	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.42E+00	2.27E-01	2.39E-01	4.61E-02	2.01E-01	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.48E+00	2.35E-01	2.47E-01	4.73E-01	2.27E-01	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.34E+00	1.71E-01	1.84E-01	2.24E-01	1.08E-01	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.38E+01	2.59E+00	2.88E+00	7.96E-01	3.62E-01	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.61E+00	1.84E-01	2.02E-01	2.95E-01	1.45E-01	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.64E+00	1.67E-01	1.87E-01	1.97E-01	9.53E-02	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.34E+00	1.71E-01	1.84E-01	2.24E-01	1.60E+00	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.48E+00	2.35E-01	2.47E-01	4.73E-01	2.27E-01	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	1.88E+00	1.33E+00	1.34E+00	2.20E+00	1.08E+00	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.42E+00	1.96E-01	2.09E-01	2.26E-01	1.48E-01	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	2.14E+00	5.50E-01	5.61E-01	1.21E+00	5.80E-01	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.52E+00	3.65E-01	3.74E-01	6.56E-01	3.17E-01	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.21E+01	3.84E+00	4.00E+00	2.38E+00	1.08E+00	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	2.13E+00	3.90E-01	4.05E-01	4.72E-01	2.31E-01	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.47E+00	4.28E-01	4.35E-01	6.00E-01	2.92E-01	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.52E+00	3.65E-01	3.74E-01	6.56E-01	2.21E+00	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	2.14E+00	5.50E-01	5.61E-01	1.21E+00	5.80E-01	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	3.18E+00	1.56E+00	1.57E+00	2.49E+00	1.22E+00	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.46E+00	3.36E-01	3.45E-01	2.55E-01	2.95E-01	pCi/g

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



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Eberline Analytical

Final Report of Analysis

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

15-10090

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

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.30E+00	2.07E-01	2.18E-01	3.59E-01	1.70E-01	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.09E+00	1.59E-01	1.68E-01	2.22E-01	1.07E-01	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	1.96E+01	2.55E+00	2.75E+00	1.28E+00	6.02E-01	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.44E+00	1.76E-01	1.91E-01	3.06E-01	1.51E-01	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.14E+00	1.59E-01	1.69E-01	2.24E-01	1.08E-01	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.09E+00	2.07E-01	1.66E-01	2.22E-01	1.18E+00	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.30E+00	2.07E-01	2.18E-01	3.59E-01	1.70E-01	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	1.68E+00	1.72E+00	1.72E+00	2.87E+00	1.41E+00	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.06E+00	1.57E-01	1.66E-01	1.12E-01	1.51E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.35E+00	2.84E-01	2.92E-01	4.83E-01	2.27E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.22E+00	2.07E-01	2.17E-01	2.24E-01	1.53E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.15E+01	2.65E+00	2.87E+00	1.35E+00	6.21E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.65E+00	1.89E-01	2.07E-01	2.92E-01	1.43E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.09E+00	2.00E-01	2.07E-01	3.25E-01	1.58E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.22E+00	2.07E-01	2.17E-01	2.24E-01	1.62E+00	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.35E+00	2.84E-01	2.92E-01	4.83E-01	2.27E-01	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	1.99E+00	1.90E+00	1.90E+00	3.16E+00	1.56E+00	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.28E+00	2.31E-01	2.40E-01	4.79E-02	2.54E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Actinium-228	LANL ER-130 Modified	1.42E+00	2.47E-01	2.58E-01	4.16E-01	1.98E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.22E+00	1.72E-01	1.83E-01	2.48E-01	1.20E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	2.26E+01	2.57E+00	2.82E+00	1.25E+00	5.87E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.65E+00	1.89E-01	2.08E-01	2.43E-01	1.19E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.17E+00	1.55E-01	1.66E-01	2.57E-01	1.25E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.22E+00	1.72E-01	1.83E-01	2.48E-01	1.49E+00	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.42E+00	2.47E-01	2.58E-01	4.16E-01	1.98E-01	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	2.65E+00	1.93E+00	1.93E+00	3.19E+00	1.57E+00	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.38E+00	1.91E-01	2.04E-01	1.01E-01	1.58E-01	pCi/g

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



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Eberline Analytical

Final Report of Analysis

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

15-10090

PAP-KAN
ENVIRONMENTAL
SO

Work Order Details:

Report To:

SDG:
Project:
Analysis Category:
Sample Matrix:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Acinium-228	LANL ER-130 Modified	1.76E+00	4.56E-01	4.65E-01	9.37E-01	4.44E-01	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Bismuth-214	LANL ER-130 Modified	1.23E+00	2.89E-01	2.95E-01	4.91E-01	2.35E-01	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Potassium-40	LANL ER-130 Modified	1.99E+01	3.72E+00	3.86E+00	3.22E+00	1.51E+00	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Lead-212	LANL ER-130 Modified	1.88E+00	3.49E-01	3.62E-01	4.26E-01	2.09E-01	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Lead-214	LANL ER-130 Modified	1.49E+00	3.23E-01	3.32E-01	4.75E-01	2.30E-01	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Radium-226	LANL ER-130 Modified	1.23E+00	2.89E-01	2.95E-01	4.91E-01	2.30E-01	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Radium-228	LANL ER-130 Modified	1.76E+00	4.56E-01	4.65E-01	9.37E-01	4.44E-01	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Thorium-234	LANL ER-130 Modified	1.23E+00	1.43E+00	1.49E+00	2.22E+00	1.09E+00	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/10/2015	15-10090	Thallium-208	LANL ER-130 Modified	1.31E+00	3.13E-01	3.20E-01	9.27E-02	3.14E-01	pCi/g
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	4.72E+00	1.70E-01				pCi/g
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	5.65E+00	8.84E-01	1.03E+00	8.48E-02	1.47E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	2.08E-02	3.12E-02	3.13E-02	5.06E-02	6.76E-03	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.53E+00	3.52E-01	3.80E-01	5.87E-02	8.84E-03	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.47E+00	3.28E-01	3.56E-01	6.25E-02	1.37E-02	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.34E+00	3.18E-01	3.42E-01	5.12E-02	5.57E-03	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:30	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.38E+00	3.38E-01	3.62E-01	6.68E-02	1.13E-02	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:40	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.48E+00	3.32E-01	3.59E-01	4.47E-02	3.77E-03	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:50	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.47E+00	3.62E-01	3.88E-01	8.28E-02	2.07E-02	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 16:00	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.68E+00	4.48E-01	4.75E-01	1.66E-01	9.71E-02	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:10	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.43E+00	3.39E-01	3.64E-01	6.02E-02	9.05E-03	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:20	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.32E+00	3.03E-01	3.27E-01	5.91E-02	1.10E-02	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:30	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.33E+00	3.32E-01	3.55E-01	5.71E-02	6.22E-03	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.33E+00	3.45E-01	3.67E-01	8.26E-02	1.82E-02	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Thorium-228	EML Th-01 Modified	1.62E+00	4.49E-01	4.74E-01	1.11E-01	2.77E-02	pCi/g

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



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Eberline Analytical

Final Report of Analysis

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

15-10090
PAP-KAN
ENVIRONMENTAL

SDG:
 Project:
 Analysis Category:
 Sample Matrix:

Work Order Details:

Report To:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	5.38E+00	1.45E-01	1.22E+00	7.07E-02	7.49E-02	pCi/g
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	6.21E+00	9.54E-01	1.22E+00	7.07E-02	7.49E-02	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	4.34E-02	4.01E-02	4.05E-02	3.75E-02	4.68E-02	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.41E+00	3.29E-01	3.73E-01	6.30E-02	5.97E-02	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.32E+00	3.00E-01	3.42E-01	4.84E-02	4.91E-02	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.62E+00	3.68E-01	4.17E-01	5.71E-02	4.81E-02	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.63E+00	3.82E-01	4.32E-01	4.95E-02	5.59E-02	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.28E+00	3.01E-01	3.40E-01	6.26E-02	5.84E-02	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.58E+00	3.80E-01	4.27E-01	5.11E-02	5.79E-02	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.54E+00	4.13E-01	4.55E-01	9.34E-02	8.67E-02	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.32E+00	3.17E-01	3.59E-01	5.54E-02	5.61E-02	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.28E+00	2.90E-01	3.29E-01	4.94E-02	5.00E-02	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.17E+00	2.99E-01	3.32E-01	4.44E-02	5.58E-02	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.41E+00	3.57E-01	3.97E-01	7.15E-02	6.91E-02	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Thorium-230	EML Th-01 Modified	1.86E+00	4.94E-01	5.45E-01	8.99E-02	8.67E-02	pCi/g
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	4.72E+00	1.70E-01	9.49E-01	5.61E-02	3.19E-03	pCi/g
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	5.23E+00	8.30E-01	9.49E-01	5.61E-02	3.19E-03	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.64E-02	2.52E-02	2.52E-02	3.74E-02	2.12E-03	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.26E+00	3.04E-01	3.24E-01	9.31E-02	3.80E-02	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.44E+00	3.21E-01	3.45E-01	7.80E-02	2.82E-02	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.35E+00	3.18E-01	3.39E-01	5.99E-02	1.03E-02	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.29E+00	3.20E-01	3.40E-01	6.51E-02	1.12E-02	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	9.98E-01	2.90E-01	2.65E-01	4.78E-02	5.25E-03	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.32E+00	3.31E-01	3.51E-01	4.45E-02	2.53E-03	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.66E+00	4.35E-01	4.59E-01	7.40E-02	9.83E-03	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.26E+00	3.05E-01	3.25E-01	5.87E-02	8.97E-03	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.23E+00	2.83E-01	3.03E-01	4.93E-02	6.51E-03	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.23E+00	3.11E-01	3.29E-01	4.43E-02	2.52E-03	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.24E+00	3.24E-01	3.42E-01	5.95E-02	6.56E-03	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Thorium-232	EML Th-01 Modified	1.51E+00	4.20E-01	4.41E-01	9.77E-02	2.03E-02	pCi/g

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Eberline Analytical

Final Report of Analysis

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

SDG: 15-10090
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Report To:

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	8.03E+00	2.89E-01	1.33E+00	1.03E-01	1.54E-02	pCi/g
15-10090-02	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	7.82E+00	1.21E+00	3.08E-02	5.22E-02	5.66E-03	pCi/g
15-10090-03	MBL	BLANK	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	1.81E-02	3.08E-02	3.08E-02	4.87E-02	3.95E-03	pCi/g
15-10090-04	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	1.07E+00	2.66E-01	2.66E-01	7.40E-02	2.30E-02	pCi/g
15-10090-05	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	9.72E-01	2.14E-01	2.25E-01	3.98E-02	3.23E-03	pCi/g
15-10090-06	TRG	CP0603S06-07	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	1.11E+00	2.37E-01	2.50E-01	5.39E-02	1.02E-02	pCi/g
15-10090-07	TRG	CP0603S09-10	10/09/15 15:10	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	9.58E-01	2.05E-01	2.16E-01	5.39E-02	1.02E-02	pCi/g
15-10090-08	TRG	CP0603S12-13	10/09/15 15:20	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	1.29E+00	2.75E-01	2.90E-01	5.07E-02	5.39E-03	pCi/g
15-10090-09	TRG	CP0603S14-15	10/09/15 15:30	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	8.34E-01	2.03E-01	2.12E-01	4.77E-02	5.07E-03	pCi/g
15-10090-10	TRG	CP0603S17-18	10/09/15 15:40	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	1.29E+00	2.80E-01	2.94E-01	5.29E-02	5.63E-03	pCi/g
15-10090-11	TRG	CP0603S19-20	10/09/15 15:50	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	9.91E-01	2.23E-01	2.34E-01	4.66E-02	4.97E-03	pCi/g
15-10090-12	TRG	CP0603S21-22	10/09/15 16:00	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	7.54E-01	1.70E-01	1.78E-01	4.42E-02	6.63E-03	pCi/g
15-10090-13	TRG	CP0603S24-25	10/09/15 16:10	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	8.16E-01	2.02E-01	2.10E-01	4.90E-02	5.22E-03	pCi/g
15-10090-14	TRG	CP0603S26-27	10/09/15 16:20	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	1.23E+00	2.98E-01	3.11E-01	7.58E-02	1.14E-02	pCi/g
15-10090-15	TRG	CP0603S29-30	10/09/15 16:30	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified	9.39E-01	2.34E-01	2.44E-01	7.31E-02	1.37E-02	pCi/g
15-10090-16	TRG		10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Uranium-234	EML U-02 Modified						
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	6.48E-01	2.50E-01	2.54E-01	9.38E-02	4.30E-03	pCi/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	3.36E-02	4.68E-02	4.68E-02	7.07E-02	6.29E-03	pCi/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	1.13E-01	8.12E-02	8.16E-02	6.01E-02	2.78E-03	pCi/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	1.07E-01	7.77E-02	7.81E-02	9.13E-02	2.21E-02	pCi/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	6.65E-02	5.72E-02	5.74E-02	5.62E-02	3.86E-03	pCi/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	9.14E-02	6.30E-02	6.33E-02	5.05E-02	3.48E-03	pCi/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	1.00E-01	7.37E-02	7.41E-02	6.26E-02	4.31E-03	pCi/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	1.02E-01	7.37E-02	7.41E-02	6.94E-02	7.43E-03	pCi/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	5.00E-02	5.42E-02	5.44E-02	6.53E-02	4.49E-03	pCi/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	5.40E-02	5.35E-02	5.36E-02	6.31E-02	5.62E-03	pCi/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	2.71E-02	3.89E-02	3.90E-02	6.36E-02	9.80E-03	pCi/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	2.31E-02	3.54E-02	3.54E-02	5.27E-02	2.43E-03	pCi/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	6.63E-02	7.32E-02	7.33E-02	9.94E-02	9.04E-04	pCi/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Uranium-235	EML U-02 Modified	6.91E-02	6.34E-02	6.36E-02	5.97E-02	2.74E-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



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Eberline Analytical

Final Report of Analysis

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

Report To:

15-10090
PAP-KAN
ENVIRONMENTAL
SO

SDG:
 Project:
 Analysis Category:
 Sample Matrix:

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10090-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	7.83E+00	2.82E-01	1.26E+00	1.09E-01	1.44E-03	pC/g
15-10090-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	7.36E+00	1.15E+00	2.19E-02	5.20E-02	4.57E-03	pC/g
15-10090-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	7.18E-03	2.19E-02	3.02E-01	6.10E-02	6.85E-03	pC/g
15-10090-03	DUP	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.30E+00	2.88E-01	2.65E-01	8.18E-02	2.99E-02	pC/g
15-10090-04	DO	CP0603S03-04	10/09/15 15:00	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.25E+00	2.50E-01	2.45E-01	3.96E-02	2.36E-03	pC/g
15-10090-05	TRG	CP0603S06-07	10/09/15 15:10	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.09E+00	2.16E-01	2.28E-01	7.46E-02	2.54E-02	pC/g
15-10090-06	TRG	CP0603S09-10	10/09/15 15:20	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.09E+00	2.16E-01	2.28E-01	7.46E-02	2.54E-02	pC/g
15-10090-07	TRG	CP0603S12-13	10/09/15 15:30	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.21E+00	2.63E-01	2.77E-01	6.32E-02	9.82E-03	pC/g
15-10090-08	TRG	CP0603S14-15	10/09/15 15:40	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.13E+00	2.46E-01	2.59E-01	5.95E-02	7.88E-04	pC/g
15-10090-09	TRG	CP0603S17-18	10/09/15 15:50	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.33E+00	2.85E-01	3.00E-01	4.60E-02	2.75E-03	pC/g
15-10090-10	TRG	CP0603S19-20	10/09/15 16:00	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.13E+00	2.43E-01	2.56E-01	6.66E-02	1.40E-02	pC/g
15-10090-11	TRG	CP0603S21-22	10/09/15 16:10	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	9.03E-01	1.90E-01	2.01E-01	6.23E-02	1.78E-02	pC/g
15-10090-12	TRG	CP0603S24-25	10/09/15 16:20	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	8.96E-01	2.13E-01	2.22E-01	4.26E-02	2.59E-03	pC/g
15-10090-13	TRG	CP0603S26-27	10/09/15 16:30	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	1.01E+00	2.68E-01	2.74E-01	8.82E-02	1.70E-02	pC/g
15-10090-14	TRG	CP0603S29-30	10/09/15 16:40	10/14/2015	11/3/2015	15-10090	Uranium-238	EML U-02 Modified	8.12E-01	2.14E-01	2.22E-01	6.51E-02	8.76E-03	pC/g

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



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0023A

SECTION V
ANALYTICAL STANDARD

U-8

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

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

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

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

Description of Solution

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

Radioimpurities Refer to attached technical data sheet

Radioactive Daughters Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μ Ci/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

Eric Allas
ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed



ISOTOPE PRODUCTS LABORATORIES
3017 N. SAN FERNANDO BLVD.
BURBANK, CALIFORNIA 91504
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QUALITY CONTROL PROGRAM
MP-009

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

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

SOLUTION REFERENCE # IPL 479-50 CURRENT DATE 10/1/2015 0:00
SOLUTION # U-8

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

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

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

Chemical Composition of Standard Solution
Uranyl nitrate in dilute HNO₃

Dilution Instructions: Dilution Solvent Used 1M HNO₃
Dilute to a volume of 1000.00 milliliters

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

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

Expiration Date: July 27, 2016

Verified & Approved By [Signature]
QC Approval [Signature]

Date: 10/1/2015 0:00
Date: 10/1/15



QUALITY CONTROL PROGRAM
MP-009

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

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

Solution Reference # MP-009 PL 479-50 Date 10/1/2015 0:00
Solution # U-8a

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

Radionuclide of Interest ^{234, 235, 238}U Reference Date 1/1/1995 0:00
Parent Solution Conc. 1.7796E+04 dpm/ml

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO₃

Dilution Instructions: Dilution Solvent Used 1M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 4.0000 ml
Total Activity: 7.1182E+04 dpm Final Activity Concentration: 7.1182E+01 dpm/ml
Final Volume: 1000.00 ml

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.

NOTES:

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 27, 2016

Verified & Approved By [Signature]

Date: 10/1/2015 0:00

QC Approval [Signature]

Date: 10/1/15

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 **5.356 grams**
Volume of solution **5.035 millilitres**
Total activity of U-232 **3.61E+04 becquerels**
which is equivalent to **9.76E-01 microcuries**

Accuracy Method of measurement (see reverse of this certificate)
Random uncertainty is: $\pm 0.7\%$ Systematic uncertainty: $\pm 0.5\%$
Overall uncertainty in the radioactive concentration quoted above: $\pm 1.7\%$
Overall uncertainty is defined on the reverse of this certificate.

Radiometric 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.



QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

Radionuclide ²³²U Reference Date 3/1/2000 0:00
Certified Activity 9.760E-01 μCi
Certified Concentration $\mu\text{Ci per gram}$

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

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

Dilution Instructions: Dilution Solvent Used 2M HNO₃

Dilute to a volume of 1000.00 milliliters

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

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

Expiration Date: October 26, 2016

Verified & Approved By [Signature] Date: 10/27/2015 0:00
QC Approval [Signature] Date: 10/28/15



QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

Radionuclide of Interest ²³²U Reference Date 3/1/2000 0:00
Parent Solution Conc. 2.167E+03 dpm/ml

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

Dilution Instructions: Dilution Solvent Used 2M HNO₃

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.1670E+04 dpm
Final Volume: 1000.00 ml
Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

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

Expiration Date: October 26, 2016

Verified & Approved By [Signature]

Date: 10/27/2015 0:00

QC Approval [Signature]

Date: 10/28/15

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

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

Description of Solution

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

Radioimpurities: None detected (other than daughters).

Radioactive Daughters

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

Radionuclide Concentration

(Th-232) 0.00779 μ Ci/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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



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

Anna U. Khan
QUALITY CONTROL

Nov. 8, 1993
Date Signed



QUALITY CONTROL PROGRAM
MP-009

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

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

SOLUTION REFERENCE # IPL 435-104-2		CURRENT DATE 9/29/2015 0:00
SOLUTION # Th-8		
Principal Radionuclide 232Th, 228Th	Half Life, Years 1.405E+10	Half Life, Days 5.132E+12
Radionuclide 232 & 228Th	Certified Activity 9.330E-02 μ Ci	Reference Date 11/1/1993 0:00
Certified Concentration μ Ci per gram		
Ampoule /Solution Gross	18.8415	Weight, Grams
Empty Ampoule	6.9296	Weight, Grams
Solution Net	11.9119	Weight, Grams
Total Activity in Ampoule	0.0933	μ Ci
Chemical Composition of Standard Solution		
Th(NO ₃) ₄ in H ₂ O		

Dilution Instructions: Dilution Solvent Used **1% Nitric Acid**

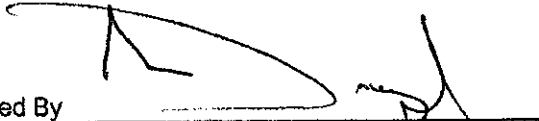
Dilute to a volume of **1000.00** milliliters


Certified Total Activity of 0.0933 μ Ci **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



QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

Dilution Instructions: Dilution Solvent Used 1% Nitric Acid

SECONDARY VOLUMETRIC DILUTION

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

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

Expiration Date: August 25, 2016

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

QA/QC REVIEWED

Date 10/14/91 Initials wt

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

Radionuclide Th-230
Half Life: $(7.54 \pm 0.03) \times 10^4$ years
Catalog No.: 7230
Source No.: 388-116

Customer: TMA EBERLINE
P.O.No.: TT4944
Reference Date: November 1 1991 12:00 PST.
Contained Radioactivity: 1.036 μ Ci.

Description of Solution

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

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 μ Ci/gram.

Method of Calibration

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

Uncertainty of Measurement

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

NIST Traceability

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

Notes

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



ISOTOPE PRODUCTS LABORATORIES
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Burbank, California 91504
(818) 843 - 7000

[Signature]
QUALITY CONTROL



QUALITY CONTROL PROGRAM

MP-009

Rev.14; 10/10/2012

Title: Radioactive Reference Standards Solutions & Records

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

SOLUTION REFERENCE # IPL 388-116 CURRENT DATE 4/15/2015 0:00
SOLUTION # Th-1

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

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

Ampoule /Solution Gross 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
²³⁰Th(NO₃)₄ in 0.1N HNO₃

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

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

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

Expiration Date: February 12, 2016

Recertified By [Signature]

Date: 4/15/2015 0:00

QC Approval [Signature]

Date: 4/15/15



QUALITY CONTROL PROGRAM
MP-009


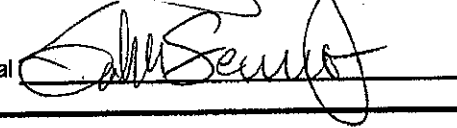
Rev.14; 10/10/2012
Title: Radioactive Reference Standards Solutions & Records

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

Solution Reference #		MP-009	Date	4/15/2015 0:00
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		
Parent Solution Conc.	2.30E+03 dpm/ml	11/1/1991 0:00		
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	Final Activity Concentration:	2.2999E+01 dpm/ml
Total Activity:	2.2999E+04 dpm		
Final Volume:	1000.00 ml		
NOTES:	This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.		

Expiration Date: February 12, 2016

Recertified By 
QC Approval 

Date: 4/15/2015 0:00
Date: 4/15/15



**Isotope Products
Laboratories**

An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

Th-18

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

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

Uncertainty of Measurement:

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

Notes:

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


Quality Control

9-Jan-02
Date Signed

IPL Ref. No.: 867-54

ISO 9001 CERTIFIED

Medical Imaging Laboratory
24937 Avenue Tibbitts Valencia, California 91355

Industrial Gauging Laboratory
1800 North Keystone Street Burbank, California 91504

: 00037



QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

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

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

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

And after dilution the activity of this solution is 2.249E+03 dpm/ml
This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: August 24, 2016

Verified & Approved By [Signature]
QC Approval [Signature]

Date: 9/29/2015 0:00
Date: 9/30/15



QUALITY CONTROL PROGRAM
MP-009

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

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

Solution Reference #		MP-009 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		Reference Date		
²²⁹ Th		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 HNO₃

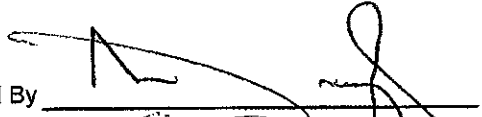
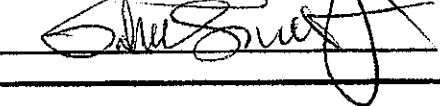
SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.2490E+04 dpm
Final Volume: 1000.00 ml
Final Activity Concentration: 2.2490E+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: August 24, 2016

Verified & Approved By 
QC Approval 

Date: 9/29/2015 0:00

Date: 9/30/15

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)



SECTION VI
QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10090	UJISO	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	97.37%	17.00%	100.00%	3.60%	8.03E+00	2.89E-01	7.82E+00	1.38E+00	U-8a	3.52E+01	3.60E+00	5.06E-01
U-238	94.06%	17.16%	100.00%	3.60%	7.83E+00	2.82E-01	7.36E+00	1.26E+00	U-8a	3.44E+01	3.60E+00	5.06E-01

Matrix Spike

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

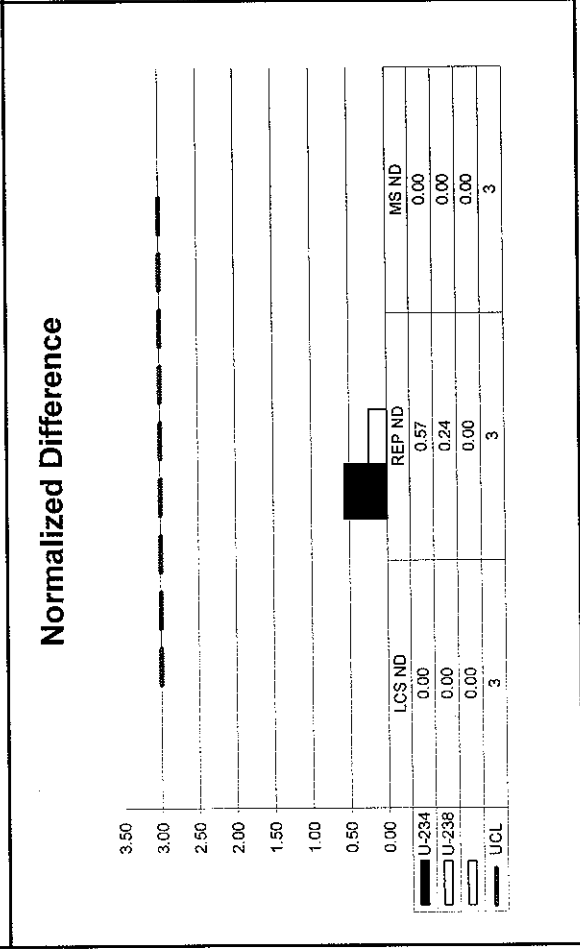
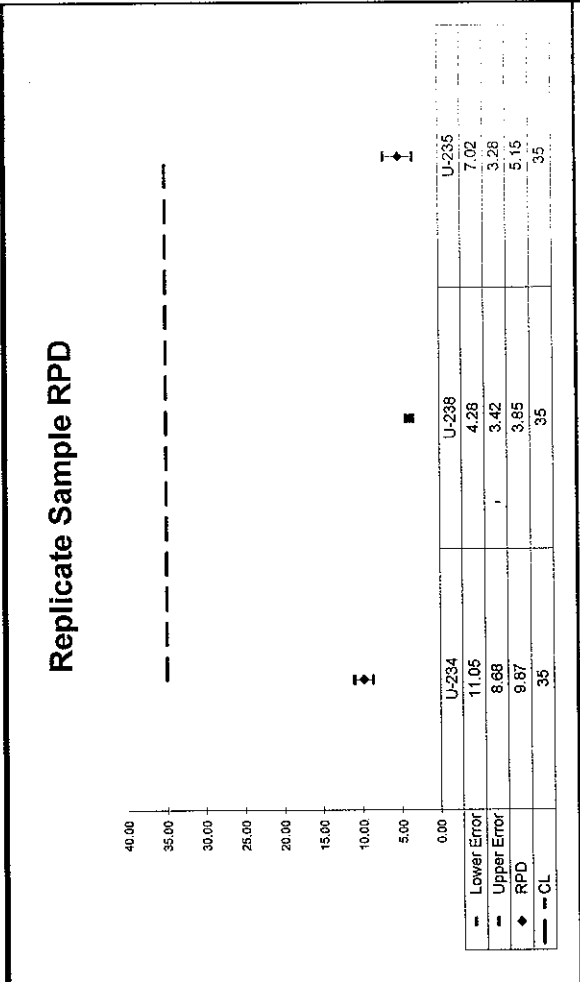
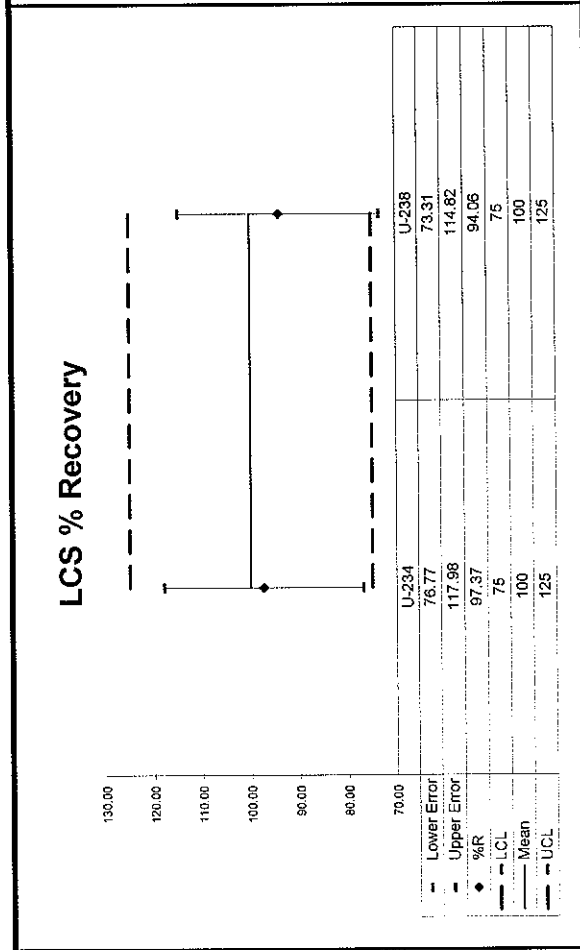
Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	0.57	9.87	9.72E-01	2.25E-01	1.07E+00	2.66E-01	0.97	OK			OK	OK
U-238	0.24	3.85	1.25E+00	2.65E-01	1.30E+00	3.02E-01	0.94	OK			OK	OK
U-235	0.10	5.15	1.07E-01	7.81E-02	1.13E-01	8.16E-02		OK			NA	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	0.57	9.87	9.72E-01	2.25E-01	1.07E+00	2.66E-01	0.97	OK			OK	OK
U-238	0.24	3.85	1.25E+00	2.65E-01	1.30E+00	3.02E-01	0.94	OK			OK	OK
U-235	0.10	5.15	1.07E-01	7.81E-02	1.13E-01	8.16E-02		OK			NA	OK

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10090	UUISO	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10090	THISO	1	pCi	9	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	119.76%	18.25%	100.00%	3.60%	4.72E+00	1.70E-01	5.65E+00	1.03E+00	Th-8b	1.04E+02	3.60E+00	1.01E-01
TH-230	115.33%	19.72%	100.00%	2.70%	5.38E+00	1.45E-01	6.21E+00	1.22E+00	Th-1b	2.35E+01	2.70E+00	5.08E-01
TH-232	110.80%	18.14%	100.00%	3.60%	4.72E+00	1.70E-01	5.23E+00	9.49E-01	Th-8b	1.04E+02	3.60E+00	1.01E-01

Matrix Spike

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

Replicate Sample

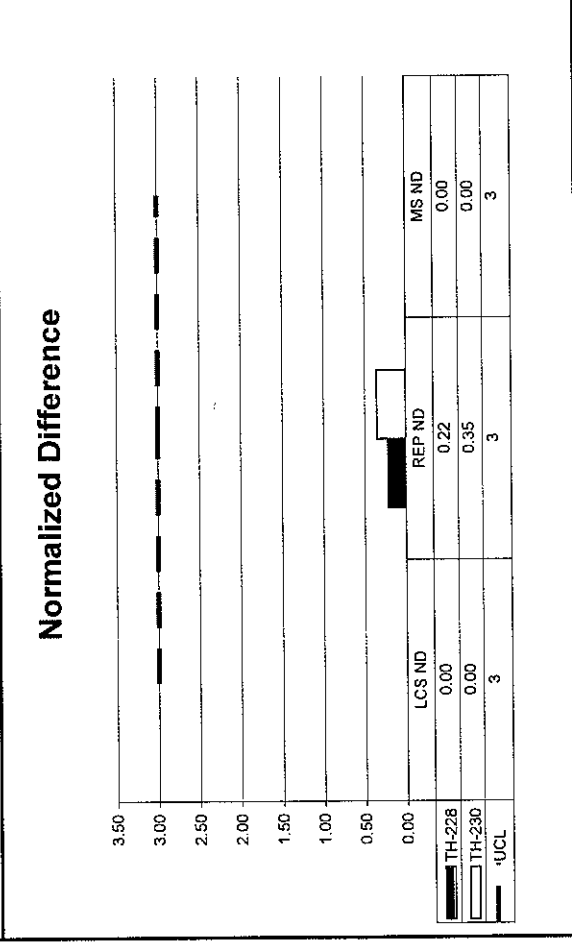
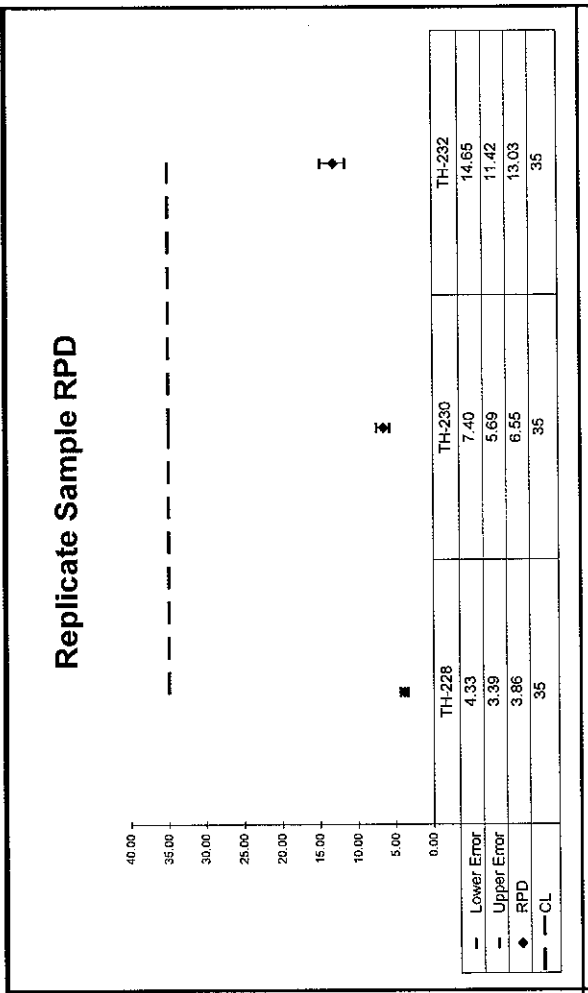
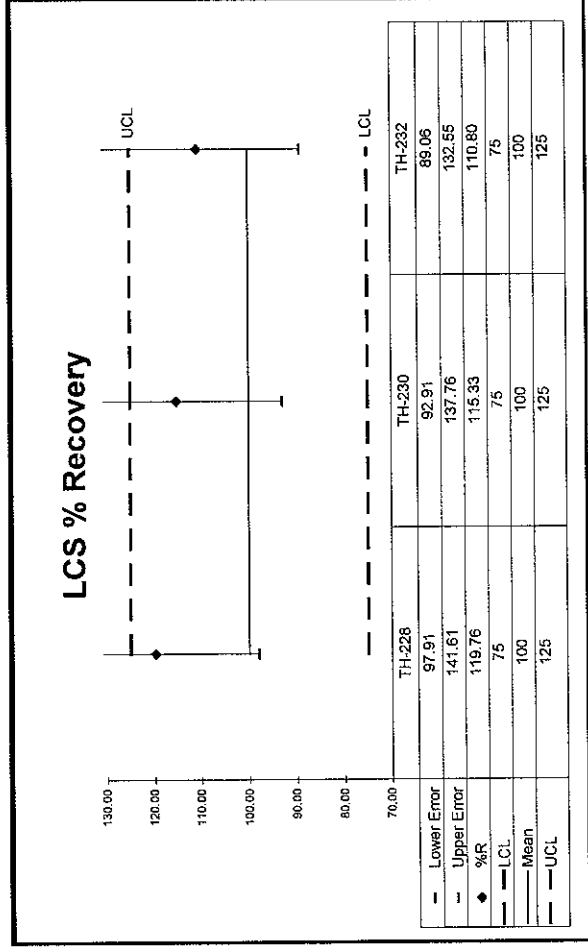
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.22	3.86	1.47E+00	3.56E-01	1.53E+00	3.80E-01	1.20	OK			OK	OK
TH-230	0.35	6.55	1.32E+00	3.42E-01	1.41E+00	3.73E-01	1.15	OK			OK	OK
TH-232	0.73	13.03	1.44E+00	3.45E-01	1.26E+00	3.24E-01	1.11	OK			OK	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.22	3.86	1.47E+00	3.56E-01	1.53E+00	3.80E-01	1.20	OK			OK	OK
TH-230	0.35	6.55	1.32E+00	3.42E-01	1.41E+00	3.73E-01	1.15	OK			OK	OK
TH-232	0.73	13.03	1.44E+00	3.45E-01	1.26E+00	3.24E-01	1.11	OK			OK	OK



WO	Analysis	Run	Activity Units	Allquot Units	Client Name
15-10090	THISO	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike



WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10090	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	98.96%	8.61%	100.00%	4.00%	1.37E+02	5.48E+00	1.36E+02	1.17E+01	GAS-1302	1.37E+02	5.48E+00	7.36E+02
CS-137	96.21%	10.91%	100.00%	4.00%	8.69E+01	3.48E+00	8.36E+01	9.13E+00	GAS-1302	8.69E+01	3.48E+00	7.36E+02

Matrix Spike

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

Replicate Sample

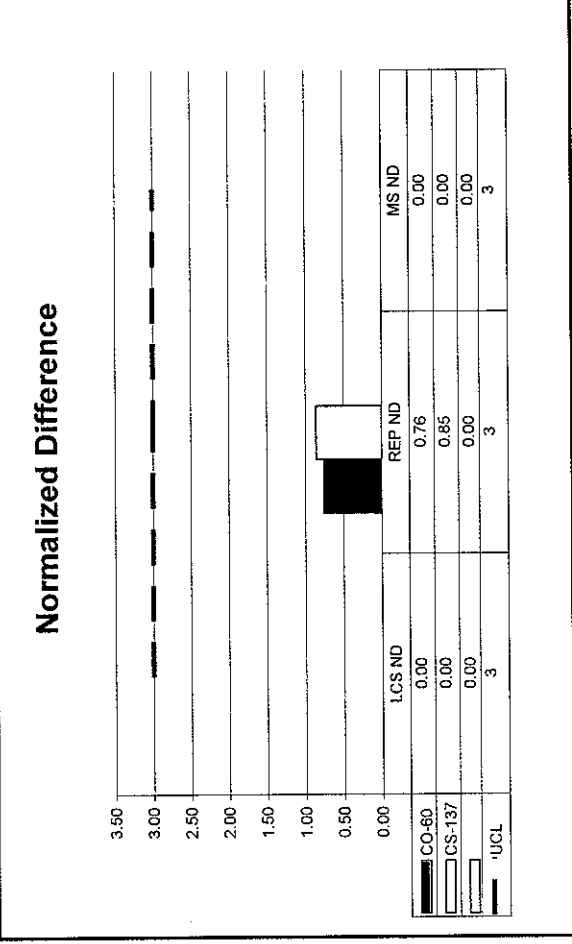
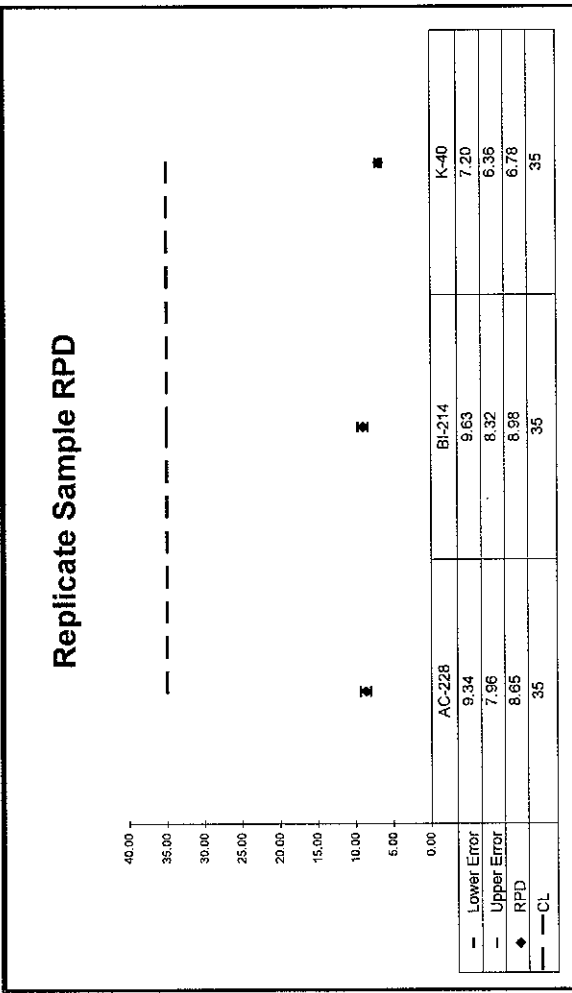
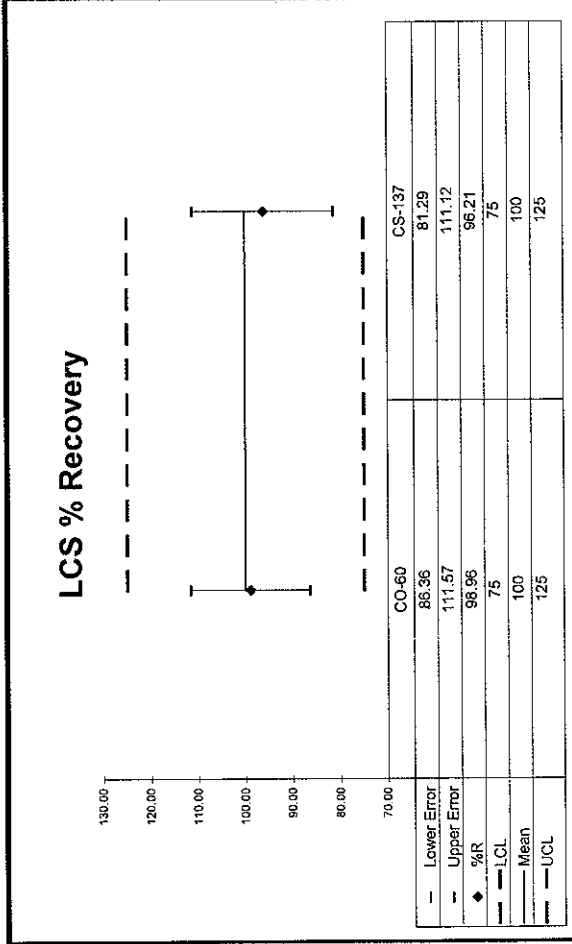
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
AC-228	0.76	8.65	1.48E+00	2.57E-01	1.62E+00	2.35E-01	0.99	OK	<CS-137	AC-228>	OK	
BI-214	0.85	8.98	1.23E+00	1.76E-01	1.12E+00	1.65E-01	0.96	OK	<CO-60	BI-214>	OK	OK
K-40	0.76	6.78	2.11E+01	2.55E+00	1.97E+01	2.47E+00				K-40>	OK	OK

QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
AC-228	0.76	8.65	1.48E+00	2.57E-01	1.62E+00	2.35E-01	0.99	OK	<CS-137	AC-228>	OK	
BI-214	0.85	8.98	1.23E+00	1.76E-01	1.12E+00	1.65E-01	0.96	OK	<CO-60	BI-214>	OK	OK
K-40	0.76	6.78	2.11E+01	2.55E+00	1.97E+01	2.47E+00				K-40>	OK	OK



WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10090	Gamma	1	pCi	g	Auxier & Associates, Inc.



No Matrix Spike


SECTION VII
LABORATORY TECHNICIAN'S NOTES
& RUN LOGS

ISO U NOTES

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10090
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:51	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.

10-20-15 JPachella

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10090
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:51	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	11/02/15 14:29	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl - 0.1N NH4I, 35 ml of 6.5N HCl - 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100 ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.

John Demelas
 m 11/2/15
 to 11/2/15

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10090
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:51	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	11/02/15 14:29	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	11/03/15 04:54	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

11-3-15
JM



Reagents Used in an Analysis

Internal Work Order

15-10090

Analysis Code

Run

UUISO


1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016569P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	10/20/2015
016519P	Nitric Acid	Reagent Grade	JPACHELLA	10/20/2015
016158P	Perchloric Acid	Reagent Grade	JPACHELLA	10/20/2015
016679P	Sulfuric Acid	Reagent Grade	JPACHELLA	10/20/2015
016862P	Anion Exchange Resin	Reagent Grade	JDEMELAS	11/2/2015
016948S	HCl - HF	6.5N - 0.04N	JDEMELAS	11/2/2015
016874D03	Hydrochloric Acid	0.5N	JDEMELAS	11/2/2015
016803S	Hydrochloric Acid	6.5N	JDEMELAS	11/2/2015
016796P	Hydrochloric Acid	Reagent Grade	JDEMELAS	11/2/2015
016959S	Hydrochloric Acid	8N	JDEMELAS	11/2/2015
016965S	HCl - NH4I	8N - 0.1M	JDEMELAS	11/2/2015
016569P	Hydrofluoric Acid	Reagent Grade	TSMITH	11/3/2015
016583S	Neodymium Carrier	1 mg/ml	TSMITH	11/3/2015
016514P	Reagent Alcohol	Reagent Grade	TSMITH	11/3/2015
016606P	Titanous Chloride	Reagent Grade	TSMITH	11/3/2015
016955S	Carbon substrate	Solution	TSMITH	11/3/2015

Alpha # 3

Date	Sample #	Client	Sample Time	Analysis	Test
10/30/15	1510091A(6-19)	Auxier	1430	2hr50-	UW KB
10/30/15	System Bkgd	Lab	1725	16:40 hr	KB
11/2	Philly Park	UW	0510	1	UW
11/2	1510086A(1-18)	Auxier	0828	2hr	UW 7hr50 -
11/2	1510086A(1-10)	Auxier	0829	2hr	7hr50 -
11/2/15	1510086A(1-10)	Auxier	1124	2hr50-	ISO-Th KB
11/2/15	1510145A(1-4)	Washburn	1125	2hr50-	ISO-PV KB
11/2/15	1510091A(4-19)	Auxier	1128	2hr50-	UW KB
11/2/15	1510105A(1-4)	ND	1625	2hr50-	Pale KB
11/7	Dewey Park	UW	0510	1	UW
11/7	1510087A(3-19)	Auxier	0821	2hr	7hr50 -
11/7	1510090A(1-14)	Auxier	0824	2hr	7hr50 -
11/7	1510122A(1-4)	UConn	0825	2hr	7hr50 -
11/3/15	1510071A(3-5)	Unitech	1132	2hr50-	ISO-PU KB
11/3/15	1510090A(1-14)	Auxier	1133	2hr50-	UW KB
11/3/15	1510092A(1-5)	Auxier	1135	2hr50-	UW KB
11/3/15	1510078A(1-6)	Env. Dimensions	1138	5hr30-	ISO-Th KB

ISO-TH NOTES

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10090
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:51	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.

10-20-19 JPachella

 EBERLINE <small>SERVICES</small> Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10090
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:51	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	11/02/15 10:30	CHEM	TSMITH	Followed steps 12.2.1 to 12.2.5 in AP-005 . (Column separation for Thorium by Eichrom Anion resin)
3	11/03/15 04:53	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

11-3-15
 TSM



Reagents Used in an Analysis

Internal Work Order

15-10090

Analysis Code

Run

ThISO

1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016569P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	10/20/2015
016519P	Nitric Acid	Reagent Grade	JPACHELLA	10/20/2015
016679P	Sulfuric Acid	Reagent Grade	JPACHELLA	10/20/2015
016158P	Perchloric Acid	Reagent Grade	JPACHELLA	10/20/2015
016862P	Anion Exchange Resin	Reagent Grade	TSMITH	11/2/2015
016951S	Hydrochloric Acid	8N	TSMITH	11/2/2015
016796P	Hydrochloric Acid	Reagent Grade	TSMITH	11/2/2015
016961S	Nitric Acid	8N	TSMITH	11/2/2015
016952S	Nitric Acid	8N	TSMITH	11/2/2015
016955S	Carbon substrate	Solution	TSMITH	11/3/2015
016869S	Cerrium Carrier	0.1mg/ml	TSMITH	11/3/2015
016569P	Hydrofluoric Acid	Reagent Grade	TSMITH	11/3/2015
016514P	Reagent Alcohol	Reagent Grade	TSMITH	11/3/2015

Alpha # 3

Date	Project	Client	Start Time	End Time	Analysis	Fee
10/30/15	1510091A(6-19)	Auxier	1430	2hr50-	UU	KB
10/30/15	System Bkgd	Lab	1725	16:40 hr	-	KB
11/2	Daily Pkgs	LAB	0510	1	nt	-
11/2	1510086A(1-18)	Auxier	0828	2hr	U4750	-
11/2	1510086AU(10)	Auxier	0829	2hr	74250	-
11/2/15	1510086A(18)	Auxier	1124	2hr50-	ISO-TN	KB
11/2/15	1510145A(1-4)	Washen	1125	2hr50-	ISO-PV	KB
11/2/15	1510091A(4-19)	Auxier	1128	2hr50-	UU	KB
11/2/15	1510155A(1-4)	ND	1625	2hr50-	Pale	KB
11/7	Daily Pkgs	LAB	0510	1	nt	-
11/7	1510087A(8-14)	Auxier	0821	2hr	74750	-
11/7	1510090A(1-10)	Auxier	0824	2hr	74750	-
11/7	1510122A(1-4)	UCON	0825	2hr	74750	-

GAMMA NOTES

GE 1

105

DATE	SAMPLE #	Client	Lead Time	CT Time	Analysis	Tech
11/9/15	1510088-14	Auxier	1635	1hr	Y	ICB
11/9/15	1511030-01	TDX	1736	30mins	Y	ICB
11/9/15	1511030-02	TDX	1907	1hr	Y	ICB
11/10/15	DAVE B60	LAB	0603	15min	X	AG
11/10/15	GAP-14	LAB	0621	15min	X	AG
12/10/15	1510090-03	Auxier	0946	1hr	Y	ICB
11/10/15	1510090-04	Auxier	1049	1hr	Y	ICB
11/10/15	1510090-09	Auxier	1151	1hr	Y	ICB
11/10/15	1510090-13	Auxier	1253	1hr	Y	ICB

GE 2

35

DATE	SAMPLE #	Client	LoadTime	CTTime	Analysis	Tech
11/10/15	1511030-09	TDX	0743	1 HR	Y	AC
11/10/15	1510090-05	Auxin	0946	1h	Y	KB
11/10/15	1510165-01	TDE	1049	15min	Ac	KB
11/10/15	1510090-07	Auxin	1104	1h	Y	KB
11/10/15	1510090-11	Auxin	1207	1h	Y	KB

GE 3

73

DATE	SAMPLE #	Client	LoadTime	CT.Time	Analysis	Tech
11/6/15	1510086-15	Auxin	1337	1hr	Y	KB
11/6/15	1511026-03	Toxicology Cons.	1441	1hr	Y	KB
11/6/15	1511026-04	Toxicology Cons.	1547	1hr	Y	KB
11/6/15	1511026-09	Toxicology Cons.	1649	2hr	Y	KB
11/7/15	System Dkset	Lab	0909	24hrs	Y	KB
11/9	GAS-1402	LAB	0520	15	Y	}
11/9	Daily R	LAB	0550	15	Y	
11/9	GAS-1402	LAB	0608	15	Y	
11/9	1511028-03	Farmer	0855	2L	Y	}
11/9	1511028-04	Farmer	0879	2L	Y	
11/9	1511028-05	Farmer	0941	2L	Y	}
11/9	1511028-06	Farmer	1042	2L	Y	
11/9	1511028-01	Farmer	1153	2L	Y	}
11/9	1511028-02	Farmer	1224	2L	Y	
11/9	1510083-05	Auxin	1326	2L	Y	}
11/9/15	1510088-07	Auxin	1427	1hr	Y		KB
11/9/15	1510088-09	Auxin	1528	1hr	Y	KB
11/9/15	1510088-13	Auxin	1628	1hr	Y	KB
11/9/15	1510088-17	Auxin	1729	1hr	Y	KB
11/9/15	1510088-20	Auxin	1830	1hr	Y	KB
11/10/15	Daily Bkgd	LAB	0602	15min	Y	AG
11/10/15	GAS-1402	LAB	0622	15min	Y	AG
11/10/15	1510090-06	Auxin	0947	1hr	Y	KB
11/10/15	1510165-02	TDE	1050	15mins	Be	KB
11/10/15	1510165-04	TDE	1104	15mins	Be	KB
11/10/15	1510090-08	Auxin	1123	1hr	Y	KB
11/10/15	1510090-12	Auxin	1225	1hr	Y	KB

GE 4

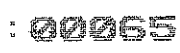
DATE	SAMPLE #	Client	LoadTime	CT Time	Analysis	Tech
11/9	ETW 14	LAB	0520	15	✓	C
11/9	Daily	LAB	0550	15	✓	C
11/9	1510087-06	Auxier	0609	2L	✓	
11/9	1510087-08	Auxier	0710	2L	✓	
11/9	1510087-11	Auxier	0816	2L	✓	
11/9	1510087-14	Auxier	0917	2L	✓	
11/9	1510087-17	Auxier	1021	2L	✓	
11/9	1510088-02	Auxier	1122	2L	✓	C
11/9	1510088-04	Auxier	1225	2L	✓	C
11/9	1510088-07	Auxier	1328	2L	✓	
11/9/15	1510088-02	Auxier	1429	1hr	✓	ICB
11/9/15	1510088-01	Auxier	1530	30mins	✓	ICB
11/9/15	1510088-11	Auxier	1602	1hr	✓	ICB
11/9/15	1510088-15	Auxier	1703	1hr	✓	ICB
11/9/15	1510088-19	Auxier	1905	1hr	✓	ICB
11/10/15	DAILY BKGD	LAB	0602	15min	✓	AG
11/10/15	GAW-14	LAB	0622	15min	✓	AG
11/10/15	1510090-02	Auxier	0946	1hr	✓	ICB
11/10/15	1510167-03	TBE	1050	15mins	Da	ICB
11/10/15	1510167-05	TBE	1104	15mins	Da	ICB
11/10/15	1510090-01	Auxier	1123	30mins	✓	ICB
11/10/15	1510090-10	Auxier	1155	1hr	✓	ICB
11/10/15	1510090-14	Auxier	1254	1hr	✓	ICB

SECTION VIII
ANALYTICAL DATA (ISOTOPIC URANIUM)

Work Order	15-10090
Analysis Code	UUISO
Run	1
Date Received	10/14/2015
Lab Deadline	11/5/2015
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)	18.64
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		10/15/15 00:00	1.0000E+00
02	MBL	BLANK		10/15/15 00:00	1.5000E+00
03	DUP	CP0603S03-04	36	10/09/15 15:00	1.5291E+00
04	DO	CP0603S03-04	36	10/09/15 15:00	1.5133E+00
05	TRG	CP0603S06-07	37	10/09/15 15:10	1.5353E+00
06	TRG	CP0603S09-10	40	10/09/15 15:20	1.5114E+00
07	TRG	CP0603S12-13	35	10/09/15 15:30	1.5576E+00
08	TRG	CP0603S14-15	35	10/09/15 15:40	1.5189E+00
09	TRG	CP0603S17-18	37	10/09/15 15:50	1.5090E+00
10	TRG	CP0603S19-20	38	10/09/15 16:00	1.5128E+00
11	TRG	CP0603S21-22	29	10/09/15 16:10	1.5114E+00
12	TRG	CP0603S24-25	37	10/09/15 16:20	1.5240E+00
13	TRG	CP0603S26-27	32	10/09/15 16:30	1.5204E+00
14	TRG	CP0603S29-30	35	10/09/15 16:40	1.5025E+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.



15-10090
UJISO
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	0.6551	12.2		0.00								
02	MBL	0.6557	12.2		0.00								
03	DUP	0.6533	12.2		0.00								
04	DO	0.6537	12.2		0.00								
05	TRG	0.6519	12.2		0.00								
06	TRG	0.6508	12.1		0.00								
07	TRG	0.6529	12.2		0.00								
08	TRG	0.6233	11.6		0.00								
09	TRG	0.6511	12.1		0.00								
10	TRG	0.6470	12.1		0.00								
11	TRG	0.6482	12.1		0.00								
12	TRG	0.6697	12.5		0.00								
13	TRG	0.6535	12.2		0.00								
14	TRG	0.6587	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.

15-10090
UJISO
Run 1

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep 10 Date/Time	Sep 10 By	Sep 11 Date/Time	Sep 11 By
01	LCS			10/20/15 11:00	JPACHELLA				
02	MBL			10/20/15 11:00	JPACHELLA				
03	DUP			10/20/15 11:00	JPACHELLA				
04	DO	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
05	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
06	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
07	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
08	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
09	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
10	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
11	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
12	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
13	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	JPACHELLA				
14	TRG	10/20/15 07:28	KSALLINGS	10/20/15 11:00	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.

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	7.82E+00	1.21E+00	1.03E-01	8.03E+00	97.37	OK		OK	
02	U-234	MBL	BLANK	pCi/g	1.81E-02	3.08E-02	5.22E-02					OK	OK
03	U-234	DUP	CP0603S03-04	pCi/g	1.07E+00	2.55E-01	4.87E-02				OK	OK	
04	U-234	DO	CP0603S03-04	pCi/g	9.72E-01	2.14E-01	7.40E-02					OK	
05	U-234	TRG	CP0603S06-07	pCi/g	1.11E+00	2.37E-01	3.98E-02					OK	
06	U-234	TRG	CP0603S09-10	pCi/g	9.58E-01	2.05E-01	5.39E-02					OK	
07	U-234	TRG	CP0603S12-13	pCi/g	1.29E+00	2.75E-01	5.07E-02					OK	
08	U-234	TRG	CP0603S14-15	pCi/g	8.34E-01	2.03E-01	4.77E-02					OK	
09	U-234	TRG	CP0603S17-18	pCi/g	1.29E+00	2.80E-01	5.29E-02					OK	
10	U-234	TRG	CP0603S19-20	pCi/g	9.91E-01	2.23E-01	4.66E-02					OK	
11	U-234	TRG	CP0603S21-22	pCi/g	7.54E-01	1.70E-01	4.42E-02					OK	
12	U-234	TRG	CP0603S24-25	pCi/g	8.16E-01	2.02E-01	4.90E-02					OK	
13	U-234	TRG	CP0603S26-27	pCi/g	1.23E+00	2.98E-01	7.58E-02					OK	
14	U-234	TRG	CP0603S29-30	pCi/g	9.39E-01	2.34E-01	7.31E-02					OK	

Client

Eberline Analytical Work Order

Analysis Code

Run

Auxier & Associates, Inc.

15-10090

UUISO

1

89000

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	U-234	LCS	10/15/15 00:00	1.00E+00	80.73	0.00	0.00			
02	U-234	MBL	10/15/15 00:00	1.50E+00	94.82	0.00	0.00			
03	U-234	DUP	10/09/15 15:00	1.53E+00	92.05	0.00	0.00			
04	U-234	DO	10/09/15 15:00	1.51E+00	100.47	0.00	0.00			
05	U-234	TRG	10/09/15 15:10	1.54E+00	97.81	0.00	0.00			
06	U-234	TRG	10/09/15 15:20	1.51E+00	109.62	0.00	0.00			
07	U-234	TRG	10/09/15 15:30	1.56E+00	92.49	0.00	0.00			
08	U-234	TRG	10/09/15 15:40	1.52E+00	87.73	0.00	0.00			
09	U-234	TRG	10/09/15 15:50	1.51E+00	86.54	0.00	0.00			
10	U-234	TRG	10/09/15 16:00	1.51E+00	102.27	0.00	0.00			
11	U-234	TRG	10/09/15 16:10	1.51E+00	126.32	0.00	0.00			
12	U-234	TRG	10/09/15 16:20	1.52E+00	103.07	0.00	0.00			
13	U-234	TRG	10/09/15 16:30	1.52E+00	76.40	0.00	0.00			
14	U-234	TRG	10/09/15 16:40	1.50E+00	99.89	0.00	0.00			



Run **1**

Analysis Code **UJISO**

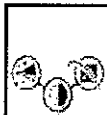
Eberline Analytical Work Order **15-10090**

Client **Auxier & Associates, Inc.**

09000

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	7.38E+00	1.15E+00	1.09E-01	7.83E+00	94.06	OK		OK	
02	U-238	MBL	BLANK	pCi/g	7.18E-03	2.19E-02	5.20E-02					OK	OK
03	U-238	DUP	CP0603S03-04	pCi/g	1.30E+00	2.88E-01	6.10E-02				OK	OK	
04	U-238	DO	CP0603S03-04	pCi/g	1.25E+00	2.50E-01	8.18E-02					OK	
05	U-238	TRG	CP0603S06-07	pCi/g	1.08E+00	2.32E-01	3.96E-02					OK	
06	U-238	TRG	CP0603S09-10	pCi/g	1.03E+00	2.16E-01	7.46E-02					OK	
07	U-238	TRG	CP0603S12-13	pCi/g	1.21E+00	2.63E-01	6.32E-02					OK	
08	U-238	TRG	CP0603S14-15	pCi/g	1.13E+00	2.46E-01	5.95E-02					OK	
09	U-238	TRG	CP0603S17-18	pCi/g	1.33E+00	2.85E-01	4.60E-02					OK	
10	U-238	TRG	CP0603S19-20	pCi/g	1.13E+00	2.43E-01	6.66E-02					OK	
11	U-238	TRG	CP0603S21-22	pCi/g	9.03E-01	1.90E-01	6.23E-02					OK	
12	U-238	TRG	CP0603S24-25	pCi/g	8.96E-01	2.13E-01	4.26E-02					OK	
13	U-238	TRG	CP0603S26-27	pCi/g	1.01E+00	2.65E-01	8.82E-02					OK	
14	U-238	TRG	CP0603S29-30	pCi/g	8.12E-01	2.14E-01	6.51E-02					OK	

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	15-10090
Analysis Code	UUISO
Run	1



Run

Analysis Code

Eberline Analytical Work Order

Client

1

UISO

15-10090

Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	U-238	LCS	10/15/15 00:00	1.00E+00	80.73	0.00	0.00			
02	U-238	MBL	10/15/15 00:00	1.50E+00	94.82	0.00	0.00			
03	U-238	DUP	10/09/15 15:00	1.53E+00	92.05	0.00	0.00			
04	U-238	DO	10/09/15 15:00	1.51E+00	100.47	0.00	0.00			
05	U-238	TRG	10/09/15 15:10	1.54E+00	97.81	0.00	0.00			
06	U-238	TRG	10/09/15 15:20	1.51E+00	109.62	0.00	0.00			
07	U-238	TRG	10/09/15 15:30	1.56E+00	92.49	0.00	0.00			
08	U-238	TRG	10/09/15 15:40	1.52E+00	87.73	0.00	0.00			
09	U-238	TRG	10/09/15 15:50	1.51E+00	86.54	0.00	0.00			
10	U-238	TRG	10/09/15 16:00	1.51E+00	102.27	0.00	0.00			
11	U-238	TRG	10/09/15 16:10	1.51E+00	126.32	0.00	0.00			
12	U-238	TRG	10/09/15 16:20	1.52E+00	103.07	0.00	0.00			
13	U-238	TRG	10/09/15 16:30	1.52E+00	76.40	0.00	0.00			
14	U-238	TRG	10/09/15 16:40	1.50E+00	99.89	0.00	0.00			

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	15-10090
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Run	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	11/03/15 11:33		A_Spec	Alpha_036	170	4.06 E+02	0.00 E+00	18.1
02	U-238	MBL	11/03/15 11:33		A_Spec	Alpha_037	170	6.60 E-01	2.00 E-03	17.1
03	U-238	DUP	11/03/15 11:33		A_Spec	Alpha_038	170	1.11 E+02	3.00 E-03	16.2
04	U-238	DO	11/03/15 11:33		A_Spec	Alpha_039	170	1.39 E+02	1.90 E-02	19.3
05	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_040	170	1.14 E+02	1.00 E-03	18.6
06	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_041	170	1.21 E+02	1.70 E-02	18.7
07	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_042	170	1.14 E+02	5.00 E-03	17.4
08	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_043	170	1.14 E+02	0.00 E+00	20
09	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_044	170	1.21 E+02	1.00 E-03	18.4
10	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_045	170	1.17 E+02	8.00 E-03	17.6
11	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_046	170	1.16 E+02	1.30 E-02	17.8
12	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_047	170	8.78 E+01	1.00 E-03	16.5
13	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_048	170	7.58 E+01	7.00 E-03	17
14	U-238	TRG	11/03/15 11:33		A_Spec	Alpha_049	170	7.03 E+01	4.00 E-03	15.3

Client	Auxier & Associates, Inc.
Eberline Analytical Work Order	15-10090
Analysis Code	UUISO
Run	1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	6.48E-01	2.50E-01	9.38E-02					OK	
02	U-235	MBL	BLANK	pCi/g	3.36E-02	4.66E-02	7.07E-02					OK	OK
03	U-235	DUP	CP0603S03-04	pCi/g	1.13E-01	8.12E-02	6.01E-02				NA	OK	
04	U-235	DO	CP0603S03-04	pCi/g	1.07E-01	7.77E-02	9.13E-02					OK	
05	U-235	TRG	CP0603S06-07	pCi/g	6.65E-02	5.72E-02	5.62E-02					OK	
06	U-235	TRG	CP0603S09-10	pCi/g	9.14E-02	6.30E-02	5.05E-02					OK	
07	U-235	TRG	CP0603S12-13	pCi/g	1.00E-01	7.37E-02	6.26E-02					OK	
08	U-235	TRG	CP0603S14-15	pCi/g	1.02E-01	7.37E-02	6.94E-02					OK	
09	U-235	TRG	CP0603S17-18	pCi/g	5.00E-02	5.42E-02	6.53E-02					OK	
10	U-235	TRG	CP0603S19-20	pCi/g	5.40E-02	5.35E-02	6.31E-02					OK	
11	U-235	TRG	CP0603S21-22	pCi/g	2.71E-02	3.89E-02	6.36E-02					OK	
12	U-235	TRG	CP0603S24-25	pCi/g	2.31E-02	3.54E-02	5.27E-02					OK	
13	U-235	TRG	CP0603S26-27	pCi/g	6.63E-02	7.32E-02	9.94E-02					OK	
14	U-235	TRG	CP0603S29-30	pCi/g	6.91E-02	6.34E-02	5.97E-02					OK	

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	U-235	LCS	10/15/15 00:00	1.00E+00	80.73	0.00	0.00			
02	U-235	MBL	10/15/15 00:00	1.50E+00	94.82	0.00	0.00			
03	U-235	DUP	10/09/15 15:00	1.53E+00	92.05	0.00	0.00			
04	U-235	DO	10/09/15 15:00	1.51E+00	100.47	0.00	0.00			
05	U-235	TRG	10/09/15 15:10	1.54E+00	97.81	0.00	0.00			
06	U-235	TRG	10/09/15 15:20	1.51E+00	109.62	0.00	0.00			
07	U-235	TRG	10/09/15 15:30	1.56E+00	92.49	0.00	0.00			
08	U-235	TRG	10/09/15 15:40	1.52E+00	87.73	0.00	0.00			
09	U-235	TRG	10/09/15 15:50	1.51E+00	86.54	0.00	0.00			
10	U-235	TRG	10/09/15 16:00	1.51E+00	102.27	0.00	0.00			
11	U-235	TRG	10/09/15 16:10	1.51E+00	126.32	0.00	0.00			
12	U-235	TRG	10/09/15 16:20	1.52E+00	103.07	0.00	0.00			
13	U-235	TRG	10/09/15 16:30	1.52E+00	76.40	0.00	0.00			
14	U-235	TRG	10/09/15 16:40	1.50E+00	99.89	0.00	0.00			

Client	Auxier & Associates, Inc.		
Eberline Analytical Work Order	15-10090		
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Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-UUISO-1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Blk CPM	Eff
01	U-235	LCS	11/03/15 11:33		A_Spec	Alpha_036	170	2.88 E+01	1.00 E-03	18.1
02	U-235	MBL	11/03/15 11:33		A_Spec	Alpha_037	170	2.49 E+00	3.00 E-03	17.1
03	U-235	DUP	11/03/15 11:33		A_Spec	Alpha_038	170	7.83 E+00	1.00 E-03	16.2
04	U-235	DO	11/03/15 11:33		A_Spec	Alpha_039	170	9.62 E+00	1.40 E-02	19.3
05	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_040	170	5.66 E+00	2.00 E-03	18.6
06	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_041	170	8.66 E+00	2.00 E-03	18.7
07	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_042	170	7.66 E+00	2.00 E-03	17.4
08	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_043	170	8.32 E+00	4.00 E-03	20
09	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_044	170	3.66 E+00	2.00 E-03	18.4
10	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_045	170	4.49 E+00	3.00 E-03	17.6
11	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_046	170	2.81 E+00	7.00 E-03	17.8
12	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_047	170	1.83 E+00	1.00 E-03	16.5
13	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_048	170	4.00 E+00	0.00 E+00	17
14	U-235	TRG	11/03/15 11:33		A_Spec	Alpha_049	170	4.83 E+00	1.00 E-03	15.3

Client	Auxier & Associates, Inc.		
Eberline Analytical Work Order	15-10090		
Analysis Code	UUISO		
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Count Room Report
Client: Auxier Associates, Inc.

15-10090-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	10/15/15 00:00	1.0000	0.6551	12.2111		0.00		
02	MBL	BLANK	10/15/15 00:00	1.5000	0.6557	12.2222		0.00		
03	DUP	CP0603S03-04	10/09/15 15:00	1.5291	0.6533	12.1775		0.00		
04	DO	CP0603S03-04	10/09/15 15:00	1.5133	0.6537	12.1850		0.00		
05	TRG	CP0603S06-07	10/09/15 15:10	1.5353	0.6519	12.1514		0.00		
06	TRG	CP0603S09-10	10/09/15 15:20	1.5114	0.6508	12.1309		0.00		
07	TRG	CP0603S12-13	10/09/15 15:30	1.5576	0.6529	12.1701		0.00		
08	TRG	CP0603S14-15	10/09/15 15:40	1.5189	0.6233	11.6183		0.00		
09	TRG	CP0603S17-18	10/09/15 15:50	1.5090	0.6511	12.1365		0.00		
10	TRG	CP0603S19-20	10/09/15 16:00	1.5128	0.6470	12.0601		0.00		
11	TRG	CP0603S21-22	10/09/15 16:10	1.5114	0.6482	12.0824		0.00		
12	TRG	CP0603S24-25	10/09/15 16:20	1.5240	0.6697	12.4832		0.00		
13	TRG	CP0603S26-27	10/09/15 16:30	1.5204	0.6535	12.1812		0.00		
14	TRG	CP0603S29-30	10/09/15 16:40	1.5025	0.6587	12.2782		0.00		

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Internal Work Order		Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials	
15-10090		1	UUIISO		10/20/2015 10:51		JPACHELLA					
LCS & Matrix Spikes												
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCS Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Added pCi	LCS Error Estimate	MSD Error Estimate
U-234	U-8a	35.240	10/20/2015	0.500	0.5059				8.03	0.00	0.000	0.00
U-238	U-8a	34.350	10/20/2015	0.500	0.5059				7.83	0.00	0.000	0.00

Tracers													
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer						LCS
01	U-232	U-10a	18.640	10/20/2015	0.6551	0.6500							
02	U-232	U-10a	18.640	10/20/2015	0.6557	0.6500							
03	U-232	U-10a	18.640	10/20/2015	0.6533	0.6500							
04	U-232	U-10a	18.640	10/20/2015	0.6537	0.6500							
05	U-232	U-10a	18.640	10/20/2015	0.6519	0.6500							
06	U-232	U-10a	18.640	10/20/2015	0.6508	0.6500							
07	U-232	U-10a	18.640	10/20/2015	0.6529	0.6500							
08	U-232	U-10a	18.640	10/20/2015	0.6233	0.6500							
09	U-232	U-10a	18.640	10/20/2015	0.6511	0.6500							
10	U-232	U-10a	18.640	10/20/2015	0.6470	0.6500							
11	U-232	U-10a	18.640	10/20/2015	0.6482	0.6500							
12	U-232	U-10a	18.640	10/20/2015	0.6697	0.6500							
13	U-232	U-10a	18.640	10/20/2015	0.6535	0.6500							
14	U-232	U-10a	18.640	10/20/2015	0.6587	0.6500							
Matrix Spike													

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Aliquot Worksheet

Work Order		Run	Analysis Code	Rpt Units	Lab Deadline	Technician	
15-10090		1	UUISO	grams	11/5/2015	JPACHELLA	

Lab Fraction	Auxier & Associates, Inc.		Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID			Ratio Post/Pre	No of Dilis	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq	
01	LCS		LCS						1.000E+00	1.000E+00				
02	BLANK		MBL						1.5000E+00	1.5000E+00				
03	CP0603S03-04		DUP						1.5291E+00	1.5291E+00				
04	CP0603S03-04		DO						1.5133E+00	1.5133E+00				
05	CP0603S06-07		TRG						1.5353E+00	1.5353E+00				
06	CP0603S09-10		TRG						1.5114E+00	1.5114E+00				
07	CP0603S12-13		TRG						1.5576E+00	1.5576E+00				
08	CP0603S14-15		TRG						1.5189E+00	1.5189E+00				
09	CP0603S17-18		TRG						1.5090E+00	1.5090E+00				
10	CP0603S19-20		TRG						1.5128E+00	1.5128E+00				
11	CP0603S21-22		TRG						1.5114E+00	1.5114E+00				
12	CP0603S24-25		TRG						1.5240E+00	1.5240E+00				
13	CP0603S26-27		TRG						1.5204E+00	1.5204E+00				
14	CP0603S29-30		TRG						1.5025E+00	1.5025E+00				

Comments	
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Technician: JPachella Date: 10/20/15

Rough Sample Preparation
 Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
15-10090	11/5/2015	10/19/2015	10/20/2015	10/21/2015	KSALLINGS

Eberline Fraction	Auxier & Associates, Inc. Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Dry Wt	Wet Wt	Dry Wt	Wet Wt	Dry Wt	Liquid	Solid	Dry Wt	LEPS Wt	
04	CP0603S03-04	14.1000	1091.0800	1336.3800	1091.0800	1322.2800	1076.9800	18.55%	81.45%	0.0000	0.0000	
05	CP0603S06-07	14.0200	830.9000	1052.2200	830.9000	1038.2000	816.8800	21.32%	78.68%	0.0000	0.0000	
06	CP0603S09-10	14.1100	869.3400	1051.5400	869.3400	1037.4300	855.2300	17.56%	82.44%	0.0000	0.0000	
07	CP0603S12-13	14.1700	779.5100	946.8600	779.5100	932.6900	765.3400	17.94%	82.06%	0.0000	0.0000	
08	CP0603S14-15	14.1500	824.7000	1000.0800	824.7000	985.9300	810.5500	17.79%	82.21%	0.0000	0.0000	
09	CP0603S17-18	14.5600	737.5300	919.6600	737.5300	905.1000	722.9700	20.12%	79.88%	0.0000	0.0000	
10	CP0603S19-20	14.5200	849.7200	1054.7200	849.7200	1040.2000	835.2000	19.71%	80.29%	0.0000	0.0000	
11	CP0603S21-22	14.5500	679.1800	846.5600	679.1800	832.0100	664.6300	20.12%	79.88%	0.0000	0.0000	
12	CP0603S24-25	14.5000	873.5000	1092.4000	873.5000	1077.9000	859.0000	20.31%	79.69%	0.0000	0.0000	
13	CP0603S26-27	14.5200	749.6800	944.2400	749.6800	929.7200	735.1600	20.93%	79.07%	0.0000	0.0000	
14	CP0603S29-30	14.4600	649.0800	823.4600	649.0800	809.0000	634.6200	21.56%	78.44%	0.0000	0.0000	

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

Kenny Seay





Apex-Alpha™

XB
11/3/15

Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_036
 Chamber Serial Number: 04026477B
 Detector Serial Number: 84167
 Env. Background: System Bkgd 133266
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
 Sample Date/Time: 11/3/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:35 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.655 mL
 Effective Efficiency: 0.1458 +/- 0.0091
 Counting Efficiency: 0.1806 +/- 0.0032 on 10/25/2014 2:38:17 PM
 Chem. Recovery Factor: 0.8073 +/- 0.0521

Control Certificate Name: NatU_U-8A
 Chem. Recov. of Control: U-238 0.916937 +/- 0.077985
 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 5.261	300.49	11.32	0.51	0.00E+000	8.2
U-234	4.723	429.32	9.47	0.68	0.00E+000	39.2
U-235	4.391	28.83	36.63	0.17	0.00E+000	4.5
U-238	4.143	406.00	9.74	0.00	0.00E+000	5.6

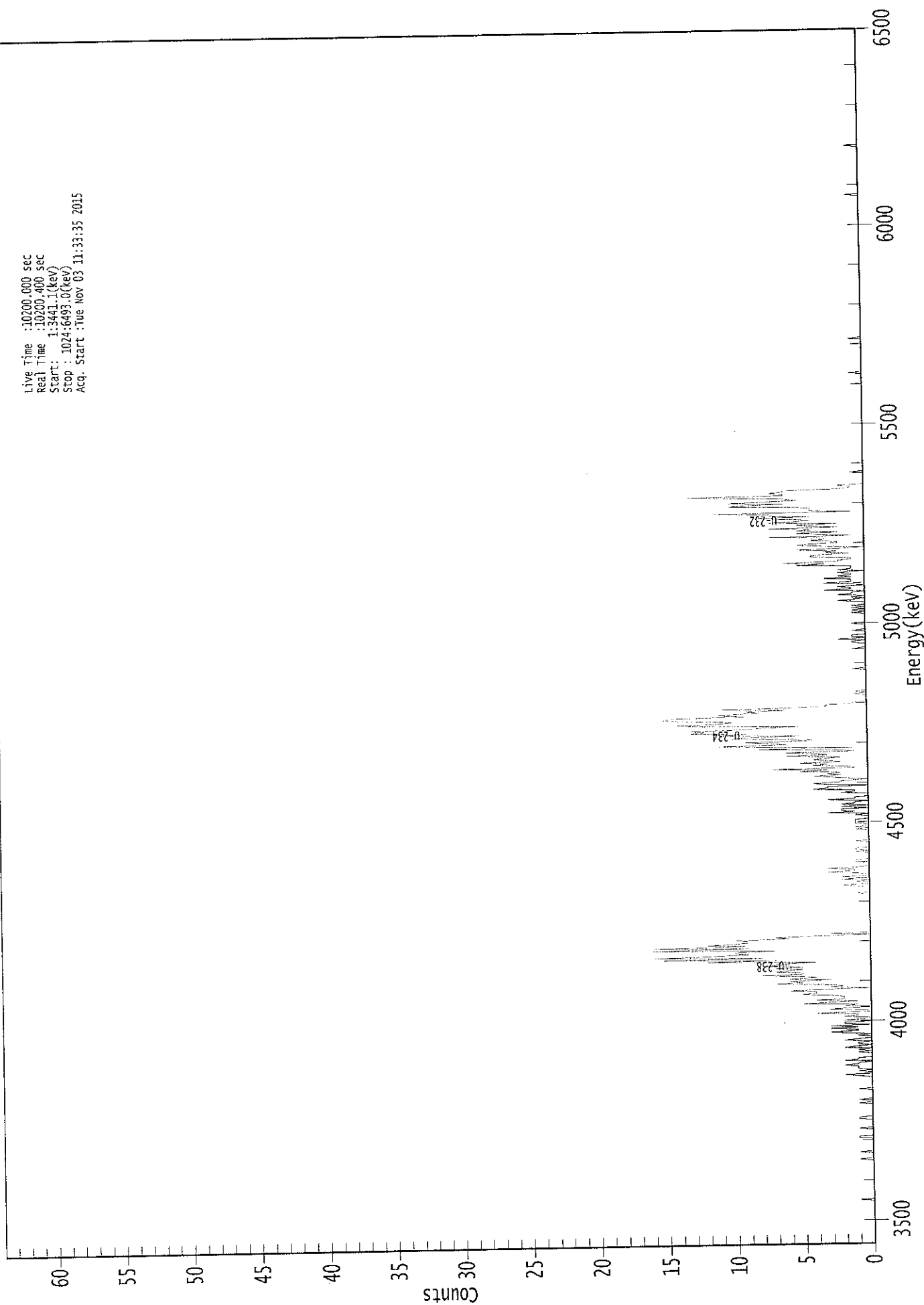
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.988	5302.50*	5.47E+000 +/- 6.67E-001	9.56E-002 +/- 1.16E-002
U-234	0.989	4761.50*	7.82E+000 +/- 1.21E+000	1.03E-001 +/- 1.25E-002
U-235	1.000	4385.50*	6.48E-001 +/- 2.50E-001	9.38E-002 +/- 1.14E-002
U-238	0.988	4184.40*	7.36E+000 +/- 1.15E+000	1.09E-001 +/- 1.32E-002

0000133037.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:3441.1(keV)
Stop : 1024:6493.0(keV)
Acq. Start : Tue Nov 03 11:33:35 2015



ROI Type: 1

ROI Type: 3

00000000

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

Sample Title: 01

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	1	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0	1
73:	0	0	0	0	0	1	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	1	1	0	0	0	0	0	0
97:	0	1	0	0	0	0	0	0	0
105:	0	1	1	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	0	0
121:	0	1	0	0	0	0	0	0	0
129:	0	0	1	0	0	1	2	0	0
137:	0	0	0	0	0	1	2	1	0
145:	0	1	0	1	1	1	2	0	0
153:	1	0	2	1	1	0	1	0	0
161:	0	1	0	1	0	2	0	1	0
169:	1	1	0	2	1	1	0	3	1
177:	0	2	3	1	1	3	0	2	0
185:	0	2	2	0	2	3	2	0	0
193:	1	1	4	0	0	4	2	2	0
201:	2	1	5	3	1	4	3	2	0
209:	2	3	5	4	4	6	3	6	0
217:	3	2	3	7	5	6	6	5	0
225:	4	5	8	5	5	7	6	7	0
233:	7	5	8	6	7	4	12	7	0
241:	16	8	16	12	9	10	10	7	0
249:	16	9	16	9	12	10	9	9	0
257:	10	6	7	4	0	3	0	0	0
265:	0	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	1
297:	0	0	0	0	0	1	2	0	0
305:	0	1	0	2	0	2	0	0	0
313:	1	3	1	1	3	1	0	0	0
321:	0	1	1	1	0	0	0	0	0
329:	0	0	1	0	1	1	0	0	0
337:	0	0	0	1	0	0	0	0	0
345:	0	0	0	0	0	1	0	1	0
353:	0	0	1	1	1	1	0	0	0
361:	0	1	0	3	1	2	2	0	0

369: 2 0 2 1 1 0 3 1

Sample Title: 01

Channel	1	2	3	4	5	6	7	8
377:	1	0	0	0	2	1	1	4
385:	3	3	0	3	4	2	2	0
393:	1	3	4	2	3	2	5	3
401:	7	1	1	4	3	5	2	3
409:	4	3	2	6	3	4	6	1
417:	2	8	1	7	11	6	7	9
425:	4	4	10	9	5	11	9	13
433:	12	13	9	8	5	12	14	11
441:	10	11	15	15	14	9	11	10
449:	8	9	6	11	5	3	3	1
457:	1	0	0	0	0	0	0	1
465:	0	1	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	1	0	0	0
489:	0	0	0	0	0	1	0	0
497:	0	0	0	0	0	2	0	1
505:	0	0	1	1	0	0	0	0
513:	1	0	0	0	1	0	0	0
521:	0	0	1	0	0	0	0	1
529:	0	0	0	1	0	1	0	0
537:	0	1	0	0	0	2	1	0
545:	1	0	2	1	1	0	3	1
553:	1	2	0	1	3	1	1	1
561:	3	1	2	1	1	2	0	2
569:	1	1	1	5	3	6	2	2
577:	1	1	4	4	3	1	3	2
585:	5	2	0	3	5	4	2	2
593:	4	3	3	7	1	3	5	2
601:	5	4	7	2	4	5	2	7
609:	5	4	6	8	4	7	7	11
617:	1	4	4	4	5	10	9	6
625:	10	7	5	6	9	13	6	6
633:	7	6	6	2	1	1	2	0
641:	0	0	0	0	0	0	0	0
649:	0	1	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	1	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	1	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: 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	1	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	1	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KB
11/3/15

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_037
 Chamber Serial Number: 04026478A
 Detector Serial Number: 91133
 Env. Background: System Bkgd 133267
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
 Sample Date/Time: 11/3/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:36 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.656 mL
 Effective Efficiency: 0.1620 +/- 0.0096
 Counting Efficiency: 0.1709 +/- 0.0030 on 10/25/2014 2:46:09 PM
 Chem. Recovery Factor: 0.9482 +/- 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 5.266	334.32	10.73	0.68	0.00E+000	15.8
U-234	4.695	1.66	169.38	0.34	0.00E+000	3.0
U-235	4.411	2.49	138.29	0.51	0.00E+000	3.0
U-238	4.263	0.66	305.43	0.34	0.00E+000	3.0

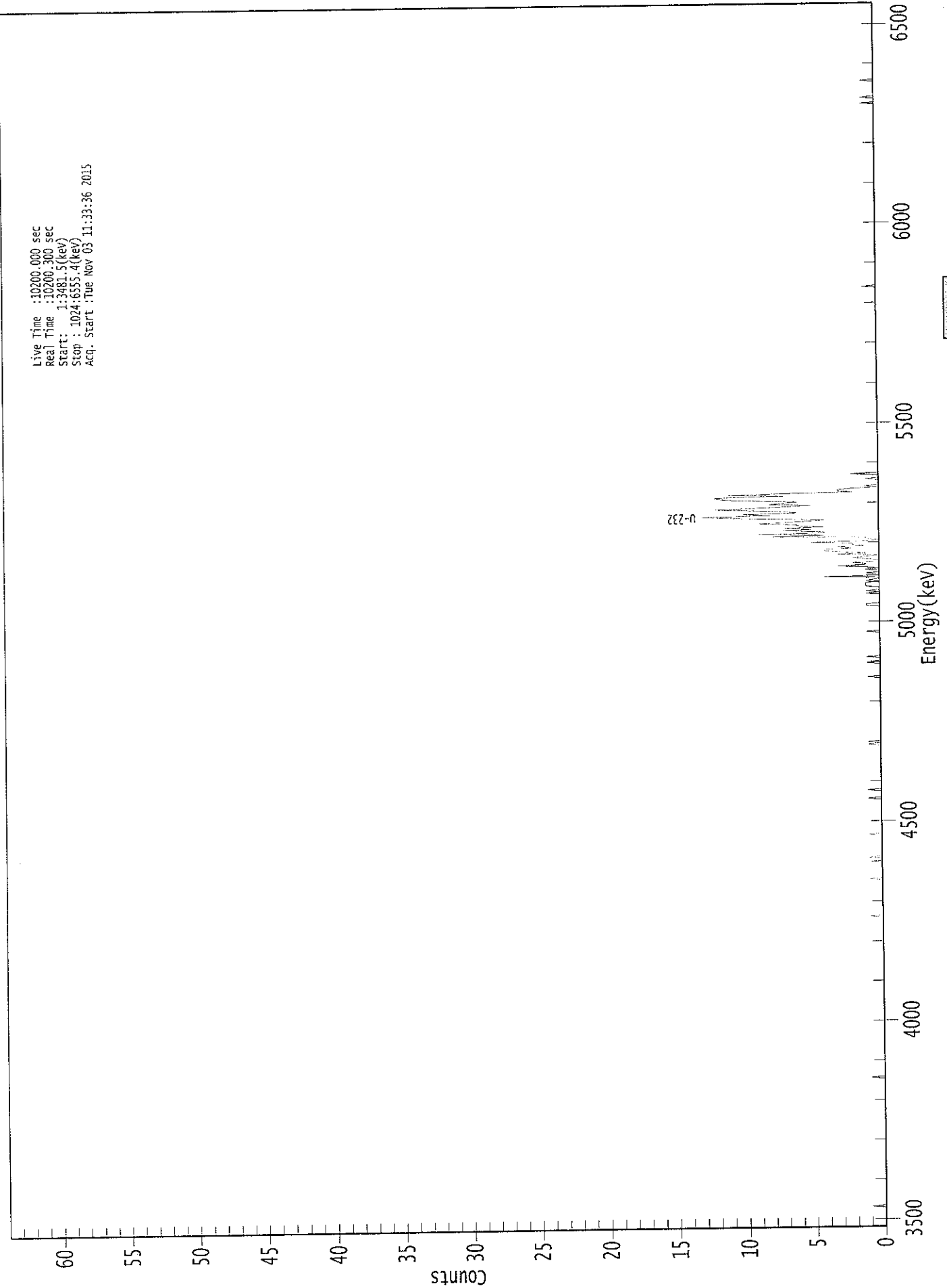
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	3.65E+000 +/- 4.25E-001	6.16E-002 +/- 7.17E-003
U-234	0.969	4761.50*	1.81E-002 +/- 3.08E-002	5.22E-002 +/- 6.08E-003
U-235	0.995	4385.50*	3.36E-002 +/- 4.66E-002	7.07E-002 +/- 8.23E-003
U-238	0.957	4184.40*	7.18E-003 +/- 2.19E-002	5.20E-002 +/- 6.05E-003

0000133028.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3481.5(keV)
Stop : 1024:6555.4(keV)
Acq. Start : Tue Nov 03 11:33:36 2015



0000133028

ROI Type: 1

ROI Type: 3

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

Sample Title: 02

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 0 0 0 0 0 0 0 0

Sample Title: 02

Channel	1	2	3	4	5	6	7	8
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	1	0	1	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	0	0	0	0
433:	0	0	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	1	0	0	0	1
465:	0	0	0	0	1	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	1	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	1
513:	0	0	0	0	0	0	0	0
521:	1	0	0	0	0	0	0	1
529:	0	1	0	1	0	0	0	4
537:	1	1	1	0	1	1	0	1
545:	0	0	1	0	0	0	1	2
553:	3	1	1	2	3	4	4	2
561:	1	0	3	1	5	1	0	1
569:	3	1	2	9	4	4	7	5
577:	1	8	4	6	9	7	5	4
585:	7	4	6	6	10	6	7	9
593:	8	11	13	8	8	7	6	9
601:	12	9	7	5	8	7	2	3
609:	11	12	12	7	11	7	0	0
617:	3	2	0	1	0	2	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	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	1	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 02

Channel								
809:	0	0	0	0	0	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	1	0	0	0	0	0
945:	0	0	0	0	0	1	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



Apex-Alpha™

KB
11/3/15

Sample Description: CP0603S03-04-DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_038
 Chamber Serial Number: 04026478B
 Detector Serial Number: 91134
 Env. Background: System Bkgd 133268
 Reagent Blank: <not performed>

Sample Size: 1.529E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:38 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: 0.1487 +/- 0.0092
 Counting Efficiency: 0.1615 +/- 0.0029 on 10/25/2014 2:50:18 PM
 Chem. Recovery Factor: 0.9205 +/- 0.0591

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 5.285	305.66	11.22	0.34	0.00E+000	24.0
U-234	4.731	91.83	20.48	0.17	0.00E+000	3.0
U-235	4.384	7.83	70.93	0.17	0.00E+000	3.0
U-238	4.152	111.49	18.61	0.51	0.00E+000	18.0

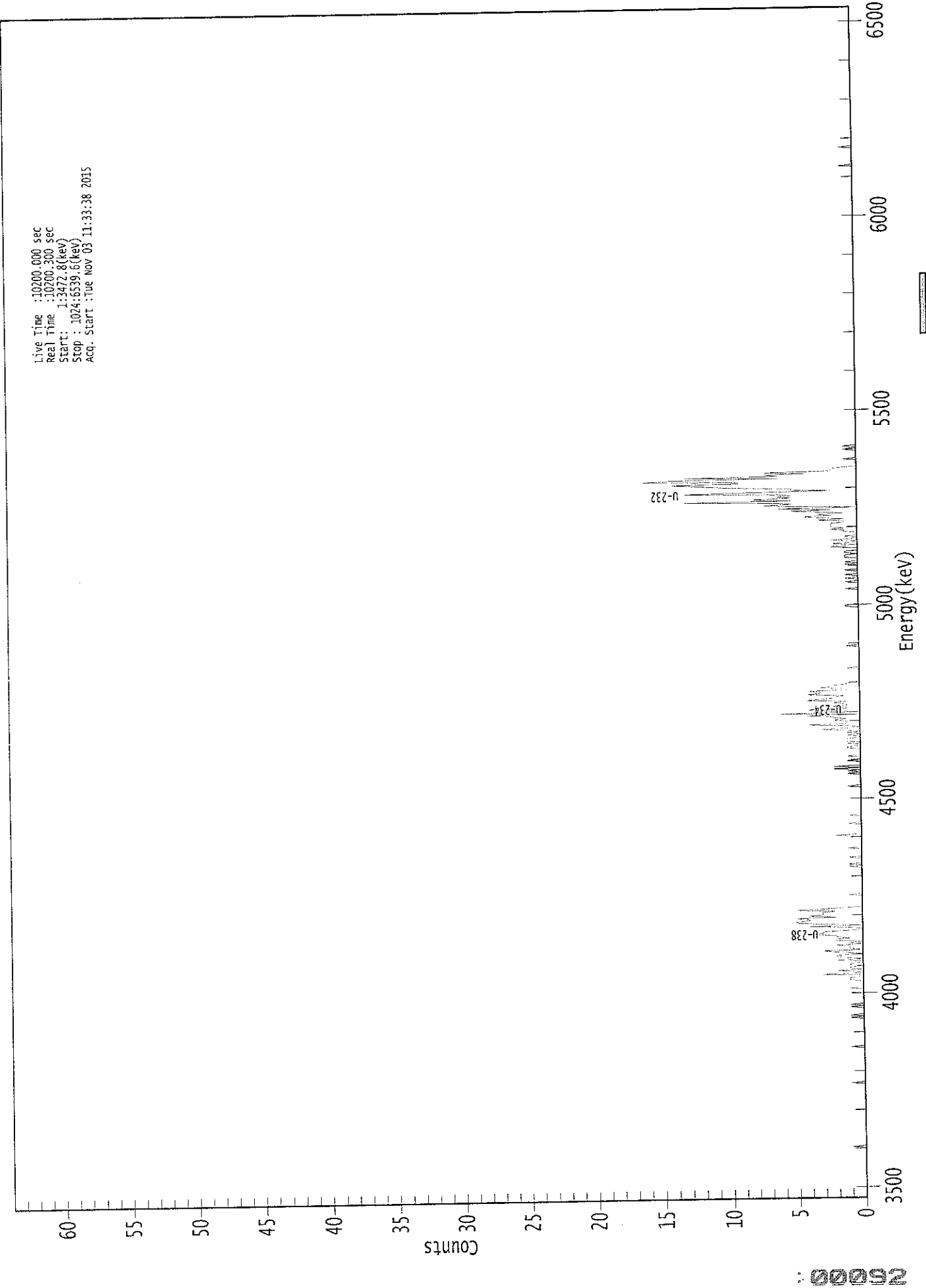
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	3.57E+000 +/- 4.32E-001	5.59E-002 +/- 6.76E-003
U-234	0.994	4761.50*	1.07E+000 +/- 2.55E-001	4.87E-002 +/- 5.89E-003
U-235	1.000	4385.50*	1.13E-001 +/- 8.12E-002	6.01E-002 +/- 7.27E-003
U-238	0.993	4184.40*	1.30E+000 +/- 2.88E-001	6.10E-002 +/- 7.38E-003

0000133038.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:34:22.8(keV)
Stop : 1024:05:39.6(keV)
Acq. Start : Tue Nov 03 11:33:38 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 03

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	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	1	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	1	0	0	0	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	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	1	0	1	0	0
161:	0	0	0	0	1	0	1	0
169:	0	0	0	0	0	0	0	0
177:	1	0	0	0	1	1	0	0
185:	0	0	0	1	1	1	1	0
193:	3	0	0	2	0	0	1	2
201:	1	1	0	0	2	0	1	1
209:	2	1	0	2	3	0	2	1
217:	1	2	0	1	0	2	0	0
225:	2	2	4	3	3	2	4	4
233:	1	4	0	3	5	5	2	5
241:	5	2	4	3	3	3	0	0
249:	3	1	0	0	0	0	0	0
257:	0	0	0	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	1	0	1	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	2
313:	0	0	0	0	0	0	0	0
321:	0	1	0	0	0	0	0	0
329:	1	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	1	0	0	0	0	0	0
361:	0	0	0	0	1	0	1	0

369: 2 0 2 0 0 0 0 1

Sample Title: 03

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

801: 0 0 0 0 0 0 0 0

Sample Title: 03

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

KB
11/3/15

Sample Description: CP0603S03-04
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_039
 Chamber Serial Number: 06027396A
 Detector Serial Number: 83109
 Env. Background: System Bkgd 133269
 Reagent Blank: <not performed>

Sample Size: 1.513E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:40 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.654 mL
 Effective Efficiency: 0.1943 +/- 0.0107
 Counting Efficiency: 0.1934 +/- 0.0034 on 10/25/2014 2:53:34 PM
 Chem. Recovery Factor: 1.0047 +/- 0.0582

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 5.276	399.77	9.85	3.23	0.00E+000	9.3
U-234	4.718	107.62	19.14	2.38	0.00E+000	4.2
U-235	4.387	9.62	71.76	2.38	0.00E+000	3.0
U-238	4.148	138.77	16.86	3.23	0.00E+000	3.5

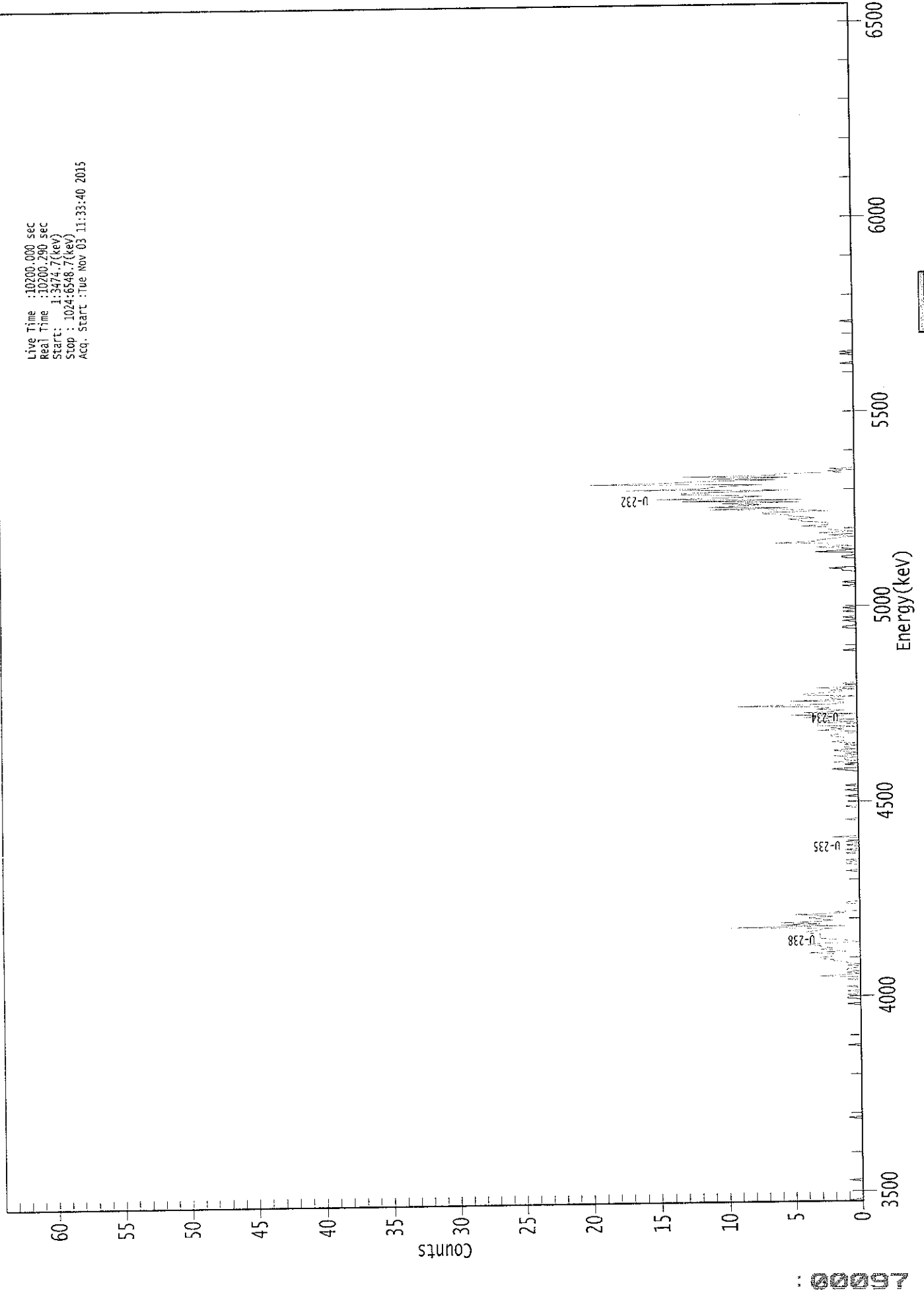
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	3.61E+000 +/- 3.91E-001	8.22E-002 +/- 8.91E-003
U-234	0.986	4761.50*	9.72E-001 +/- 2.14E-001	7.40E-002 +/- 8.02E-003
U-235	1.000	4385.50*	1.07E-001 +/- 7.77E-002	9.13E-002 +/- 9.89E-003
U-238	0.991	4184.40*	1.25E+000 +/- 2.50E-001	8.18E-002 +/- 8.86E-003

0000133018.CNF

Live Time : 10200.000 sec
Real Time : 10200.290 sec
Start : 1:34:47.7(keV)
Stop : 1024:6548.7(keV)
Acq. Start : Tue Nov 03 11:33:40 2015



ROI Type: 1

ROI Type: 3

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	1	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	1	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	1
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	1	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	1	1	0
169:	1	0	0	1	0	0	0	1
177:	1	0	0	1	0	1	0	0
185:	0	0	0	1	0	1	1	0
193:	3	1	0	1	1	2	2	3
201:	0	1	0	1	1	1	2	3
209:	3	2	2	2	4	3	1	1
217:	2	3	3	4	3	4	4	3
225:	3	3	3	3	3	4	4	3
233:	3	2	10	1	6	3	6	3
241:	2	3	4	2	3	5	1	2
249:	0	0	0	0	0	0	1	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	1	0	0	0	0	0
289:	1	1	0	1	0	0	0	0
297:	0	1	0	0	1	0	0	0
305:	1	0	0	1	0	0	0	2
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	1	0	0	0	0	0	0
345:	0	0	1	0	0	0	0	1
353:	0	0	0	1	0	0	0	0
361:	0	0	0	0	0	0	0	0

369: 1 2 0 0 0 1 0 2

Sample Title: 04

Channel	1	2	3	4	5	6	7	8
377:	0	1	1	0	2	0	1	0
385:	1	2	0	1	1	0	1	0
393:	2	1	1	1	1	2	2	1
401:	0	0	3	1	2	0	3	3
409:	3	0	3	0	2	4	1	5
417:	0	4	2	1	3	2	3	9
425:	2	1	1	5	1	2	2	0
433:	4	4	2	1	2	0	3	0
441:	0	1	1	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	1	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	1	1	0	0	0	0	1
497:	0	0	1	0	0	0	0	1
505:	0	0	1	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	1	0	0
529:	1	0	0	0	0	0	0	0
537:	0	0	1	1	2	0	0	0
545:	0	0	0	0	0	1	1	0
553:	0	0	3	1	0	1	3	0
561:	2	2	6	3	3	2	1	0
569:	2	0	3	0	1	2	2	2
577:	4	2	2	2	4	4	5	3
585:	4	5	5	7	7	2	4	11
593:	5	11	9	7	10	4	13	4
601:	15	9	7	10	13	13	9	5
609:	17	11	11	9	7	20	14	12
617:	6	11	5	13	6	6	1	2
625:	0	2	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	1	0	0	0	0
721:	0	0	0	1	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	1
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: 04

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	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
11/3/15

Sample Description: CP0603S06-07
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 05
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_040
 Chamber Serial Number: 06027396B
 Detector Serial Number: 91135
 Env. Background: System Bkgd 133270
 Reagent Blank: <not performed>

Sample Size: 1.535E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:41 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.652 mL
 Effective Efficiency: 0.1815 +/- 0.0103
 Counting Efficiency: 0.1856 +/- 0.0032 on 10/25/2014 2:57:14 PM
 Chem. Recovery Factor: 0.9781 +/- 0.0581

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	372.32	10.17	0.68	0.00E+000	8.3
U-234	4.726	116.83	18.15	0.17	0.00E+000	7.2
U-235	4.391	5.66	85.23	0.34	0.00E+000	3.0
U-238	4.144	113.83	18.39	0.17	0.00E+000	5.4

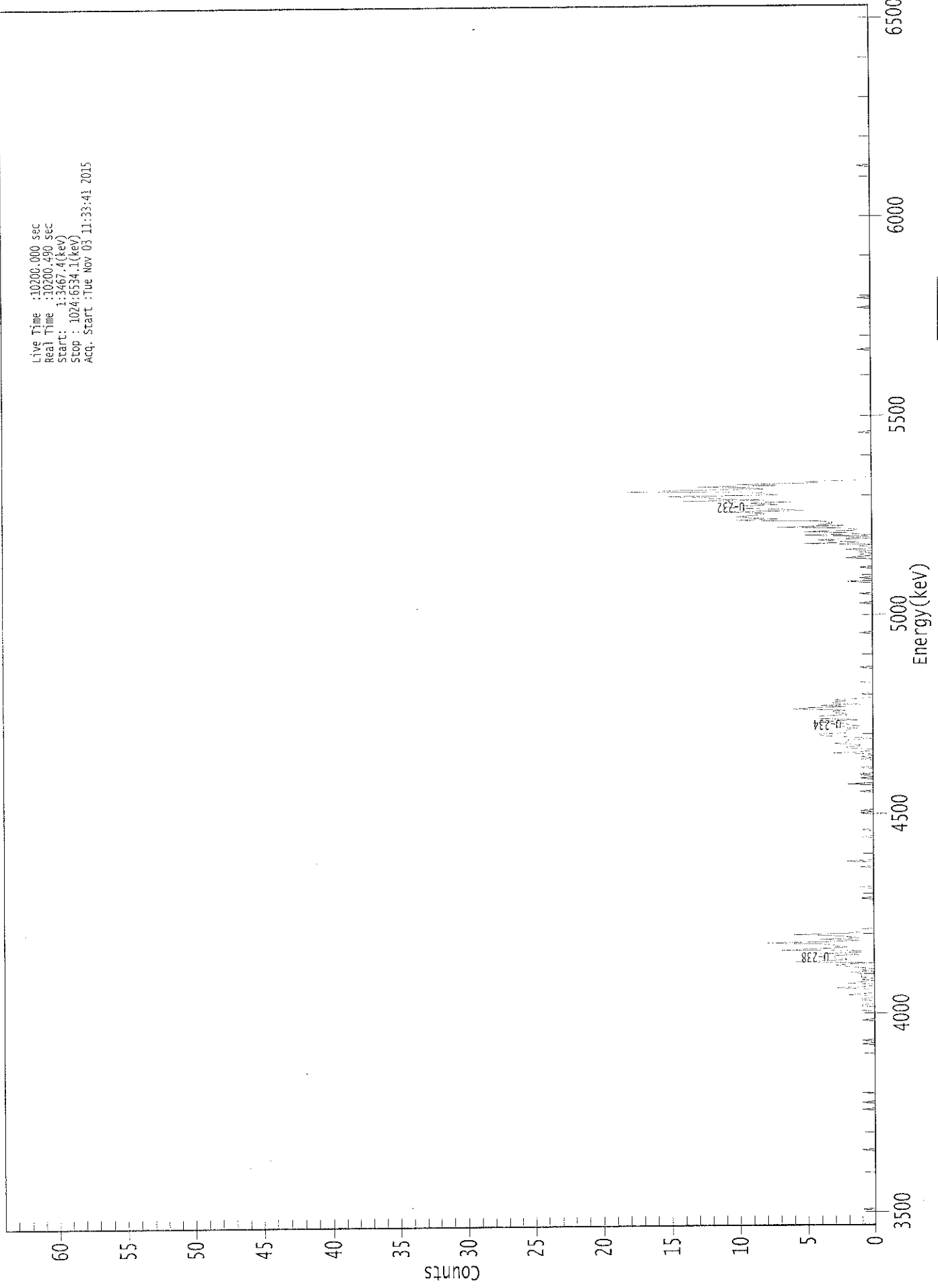
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	3.55E+000 +/- 3.95E-001	5.38E-002 +/- 5.98E-003
U-234	0.991	4761.50*	1.11E+000 +/- 2.37E-001	3.98E-002 +/- 4.42E-003
U-235	1.000	4385.50*	6.65E-002 +/- 5.72E-002	5.62E-002 +/- 6.25E-003
U-238	0.988	4184.40*	1.08E+000 +/- 2.32E-001	3.96E-002 +/- 4.40E-003

0000133039.CNF

Live Time :10200.000 sec
Real Time :10200.490 sec
Start : 1:3467.4(kev)
Stop : 1024:5534.1(kev)
Acq. Start : Tue Nov 05 11:33:41 2015



: 00102

ROI Type: 1
ROI Type: 3

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

Sample Title: 05

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 2 0 0 0 0 0 1 0

Sample Title: 05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	1	1	0	0	0	0	1
385:	0	0	0	0	0	0	1	0
393:	1	0	0	3	1	0	0	2
401:	2	1	1	3	2	2	2	0
409:	1	3	4	4	2	2	2	2
417:	1	3	1	2	2	4	3	1
425:	4	4	4	2	2	3	3	2
433:	6	5	2	4	1	3	3	2
441:	3	1	0	0	0	1	0	0
449:	0	0	0	0	0	0	0	1
457:	0	0	0	0	0	0	0	0
465:	0	0	0	1	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:	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	1	0	0	0	0	0	0
529:	0	1	0	0	0	0	0	0
537:	0	0	0	2	0	0	1	0
545:	0	0	0	0	0	0	0	1
553:	0	0	0	0	0	0	0	2
561:	1	0	1	0	1	0	2	0
569:	0	1	0	5	1	3	4	0
577:	2	0	5	1	2	5	1	1
585:	3	7	2	4	3	3	4	10
593:	7	9	10	9	8	8	11	5
601:	7	10	11	9	7	9	6	14
609:	8	12	12	15	7	8	8	18
617:	15	8	9	13	7	10	4	5
625:	1	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:	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	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	1	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:	1	0	0	0	0	0	0	0
777:	1	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 0

Sample Title: 05

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

10
11/3/15

Sample Description: CP0603S09-10
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 06
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_041
 Chamber Serial Number: 05026930A
 Detector Serial Number: 91087
 Env. Background: System Bkgd 133271
 Reagent Blank: <not performed>

Sample Size: 1.511E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:43 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.651 mL
 Effective Efficiency: 0.2053 +/- 0.0111
 Counting Efficiency: 0.1873 +/- 0.0033 on 10/25/2014 3:00:28 PM
 Chem. Recovery Factor: 1.0962 +/- 0.0621

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	420.49	9.57	0.51	0.00E+000	18.0
U-234	4.722	111.98	18.62	1.02	0.00E+000	11.2
U-235	4.418	8.66	68.12	0.34	0.00E+000	3.0
U-238	4.149	121.11	18.06	2.89	0.00E+000	9.2

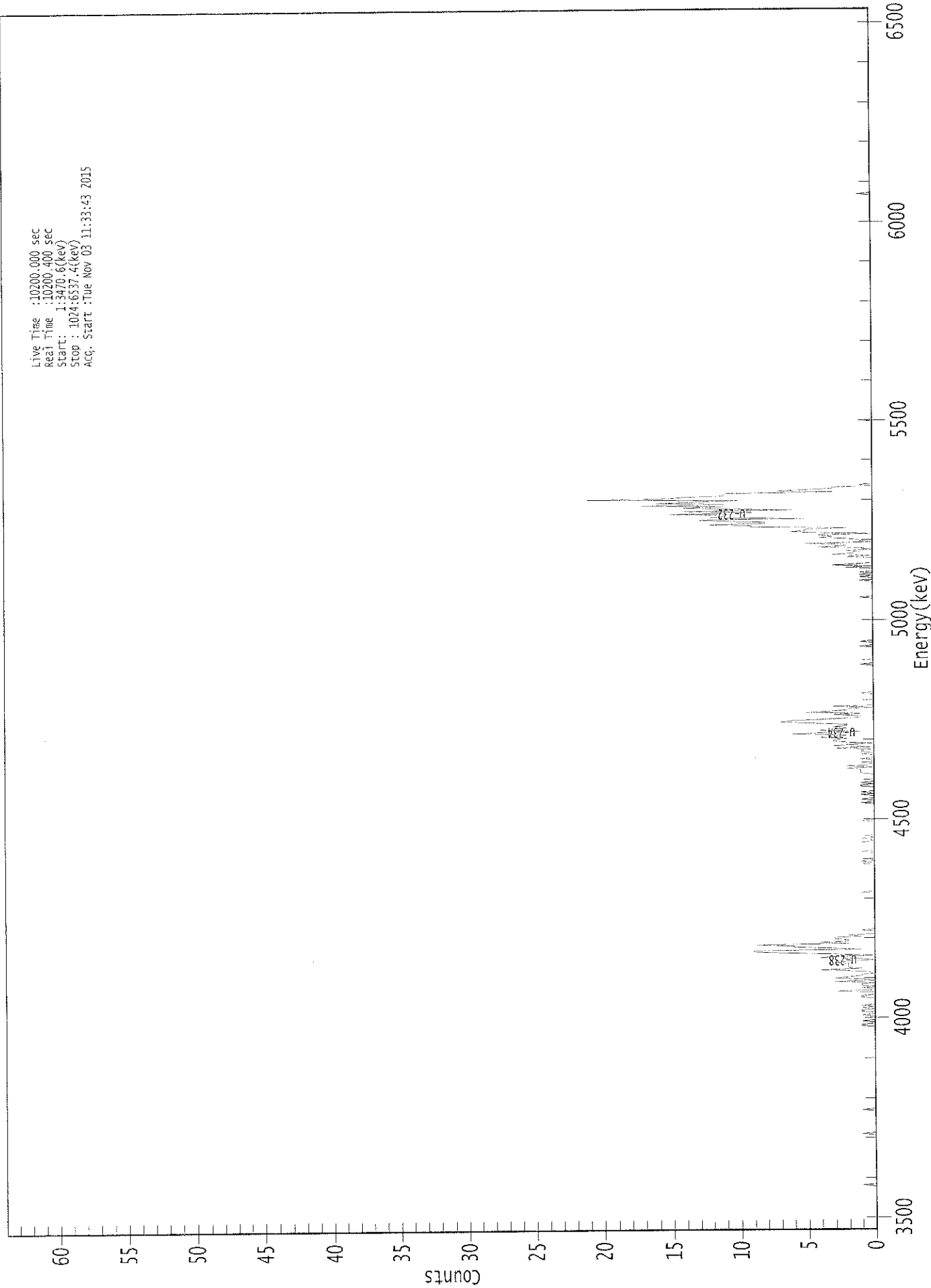
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	3.60E+000 +/- 3.81E-001	4.49E-002 +/- 4.75E-003
U-234	0.989	4761.50*	9.58E-001 +/- 2.05E-001	5.39E-002 +/- 5.70E-003
U-235	0.993	4385.50*	9.14E-002 +/- 6.30E-002	5.05E-002 +/- 5.34E-003
U-238	0.991	4184.40*	1.03E+000 +/- 2.16E-001	7.46E-002 +/- 7.89E-003

0000133027.CNF

Live Time : 10200.000 sec
Real Time : 10200.400 sec
Start : 1:3470.6(keV)
Stop : 1024.6337.4(keV)
Acq. Start : Tue Nov 03 11:33:43 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369: 0 0 0 1 1 0 1 0

Sample Title: 06

Channel	1	2	3	4	5	6	7	8
377:	0	0	0	0	0	0	1	1
385:	1	1	2	0	2	0	0	1
393:	0	0	1	0	0	0	1	0
401:	1	1	0	3	0	3	2	0
409:	2	3	3	2	4	3	2	6
417:	4	1	4	3	2	3	2	2
425:	5	7	6	4	2	1	1	3
433:	1	5	3	2	2	0	3	0
441:	0	0	0	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	0	0	0	0	0	0	0
473:	0	1	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	1	0	0	0	1	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	1	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	1
545:	0	0	1	0	1	0	1	0
553:	0	0	2	0	3	1	0	0
561:	0	0	0	2	0	3	1	1
569:	2	0	1	4	2	2	5	0
577:	1	1	2	4	3	4	0	4
585:	6	5	5	2	9	9	12	8
593:	8	11	13	5	12	11	11	15
601:	9	14	6	11	14	11	17	11
609:	16	13	10	21	15	14	11	11
617:	11	3	7	5	3	3	0	1
625:	0	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	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 0

Sample Title: 06

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



Apex-Alpha™

LB
11/3/15

Sample Description: CP0603S12-13
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 07
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_042
 Chamber Serial Number: 05026930B
 Detector Serial Number: 84185
 Env. Background: System Bkgd 133272
 Reagent Blank: <not performed>

Sample Size: 1.558E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:45 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: 0.1607 +/- 0.0096
 Counting Efficiency: 0.1737 +/- 0.0030 on 10/25/2014 3:04:21 PM
 Chem. Recovery Factor: 0.9249 +/- 0.0576

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	5.269	330.15	10.80	0.85	0.00E+000	26.8
U-234	4.718	121.66	17.80	0.34	0.00E+000	12.8
U-235	4.421	7.66	72.63	0.34	0.00E+000	3.0
U-238	4.139	114.15	18.42	0.85	0.00E+000	13.4

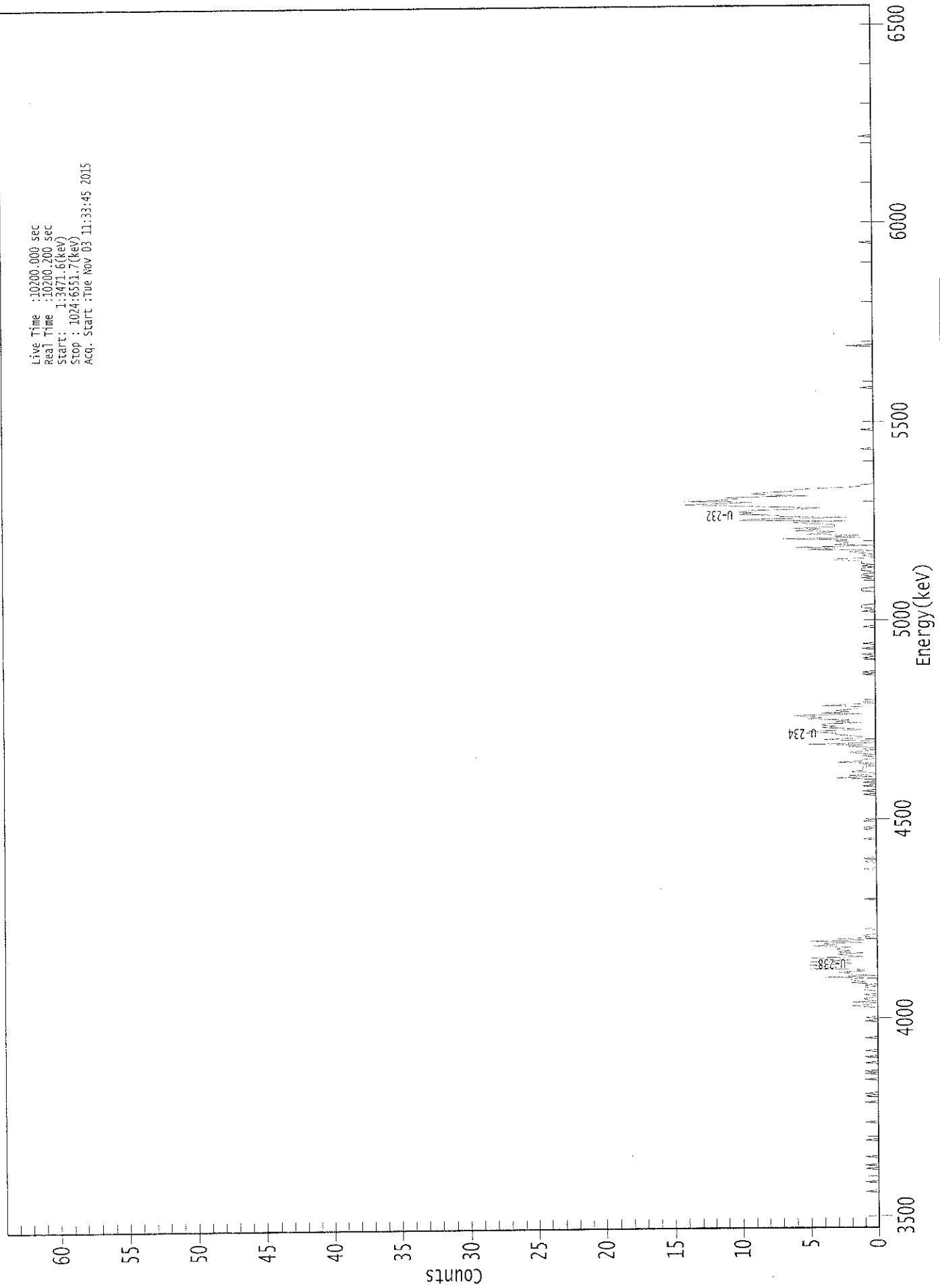
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	3.50E+000 +/- 4.10E-001	6.35E-002 +/- 7.44E-003
U-234	0.987	4761.50*	1.29E+000 +/- 2.75E-001	5.07E-002 +/- 5.94E-003
U-235	0.991	4385.50*	1.00E-001 +/- 7.37E-002	6.26E-002 +/- 7.32E-003
U-238	0.986	4184.40*	1.21E+000 +/- 2.63E-001	6.32E-002 +/- 7.40E-003

0000133043.CNF

Live Time : 10200.000 sec
Real Time : 10200.200 sec
Start : 1:3471.6(kev)
Stop : 1024:6551.7(kev)
Acq. Start : Tue Nov 03 11:33:45 2015



: 00112

ROI Type: 1
ROI Type: 3

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

Sample Title: 07

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 1 0 0 1 0 0 1

Sample Title: 07

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 07

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	1
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:	1	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™

LB
11/3/15

Sample Description: CP0603S14-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 08
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_043
 Chamber Serial Number: 04026481A
 Detector Serial Number: 91088
 Env. Background: System Bkgd 133273
 Reagent Blank: <not performed>

Sample Size: 1.519E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:46 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.623 mL
 Effective Efficiency: 0.1753 +/- 0.0103
 Counting Efficiency: 0.1998 +/- 0.0035 on 10/25/2014 3:08:45 PM
 Chem. Recovery Factor: 0.8773 +/- 0.0536

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.280	343.83	10.57	0.17	0.00E+000	5.5
U-234	4.730	83.66	21.48	0.34	0.00E+000	3.8
U-235	4.411	8.32	71.13	0.68	0.00E+000	3.0
U-238	4.152	114.00	18.44	0.00	0.00E+000	11.3

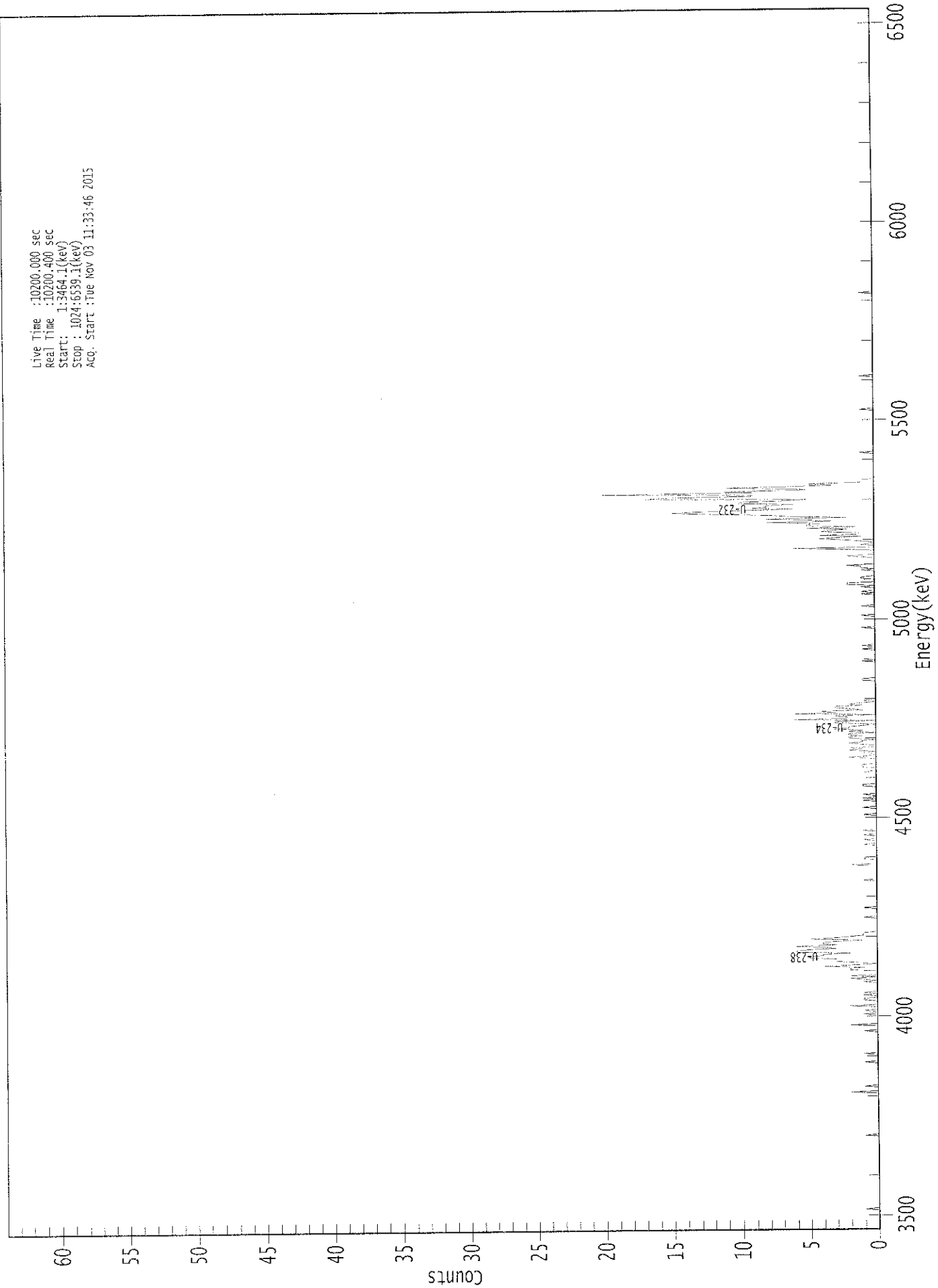
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.43E+000 +/- 3.94E-001	4.16E-002 +/- 4.79E-003
U-234	0.993	4761.50*	8.34E-001 +/- 2.03E-001	4.77E-002 +/- 5.48E-003
U-235	0.995	4385.50*	1.02E-001 +/- 7.37E-002	6.94E-002 +/- 7.98E-003
U-238	0.992	4184.40*	1.13E+000 +/- 2.46E-001	5.95E-002 +/- 6.84E-003

0000133041.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start: 1:3464.1(keV)
Stop : 1024:6539.1(keV)
Acq. Start :Tue Nov 03 11:33:46 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 08

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 0 0 1 1 0 0 0

Sample Title: 08

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 08

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



Apex-Alpha™

YB
11/3/15

Sample Description: CP0603S17-18
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 09
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_044
 Chamber Serial Number: 04026481B
 Detector Serial Number: 84168
 Env. Background: System Bkgd 133274
 Reagent Blank: <not performed>

Sample Size: 1.509E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:48 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.651 mL
 Effective Efficiency: 0.1589 +/- 0.0095
 Counting Efficiency: 0.1837 +/- 0.0032 on 10/25/2014 3:13:11 PM
 Chem. Recovery Factor: 0.8654 +/- 0.0541

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	325.66	10.87	0.34	0.00E+000	30.1
U-234	4.744	116.66	18.18	0.34	0.00E+000	5.2
U-235	4.408	3.66	107.87	0.34	0.00E+000	3.0
U-238	4.166	120.83	17.85	0.17	0.00E+000	5.4

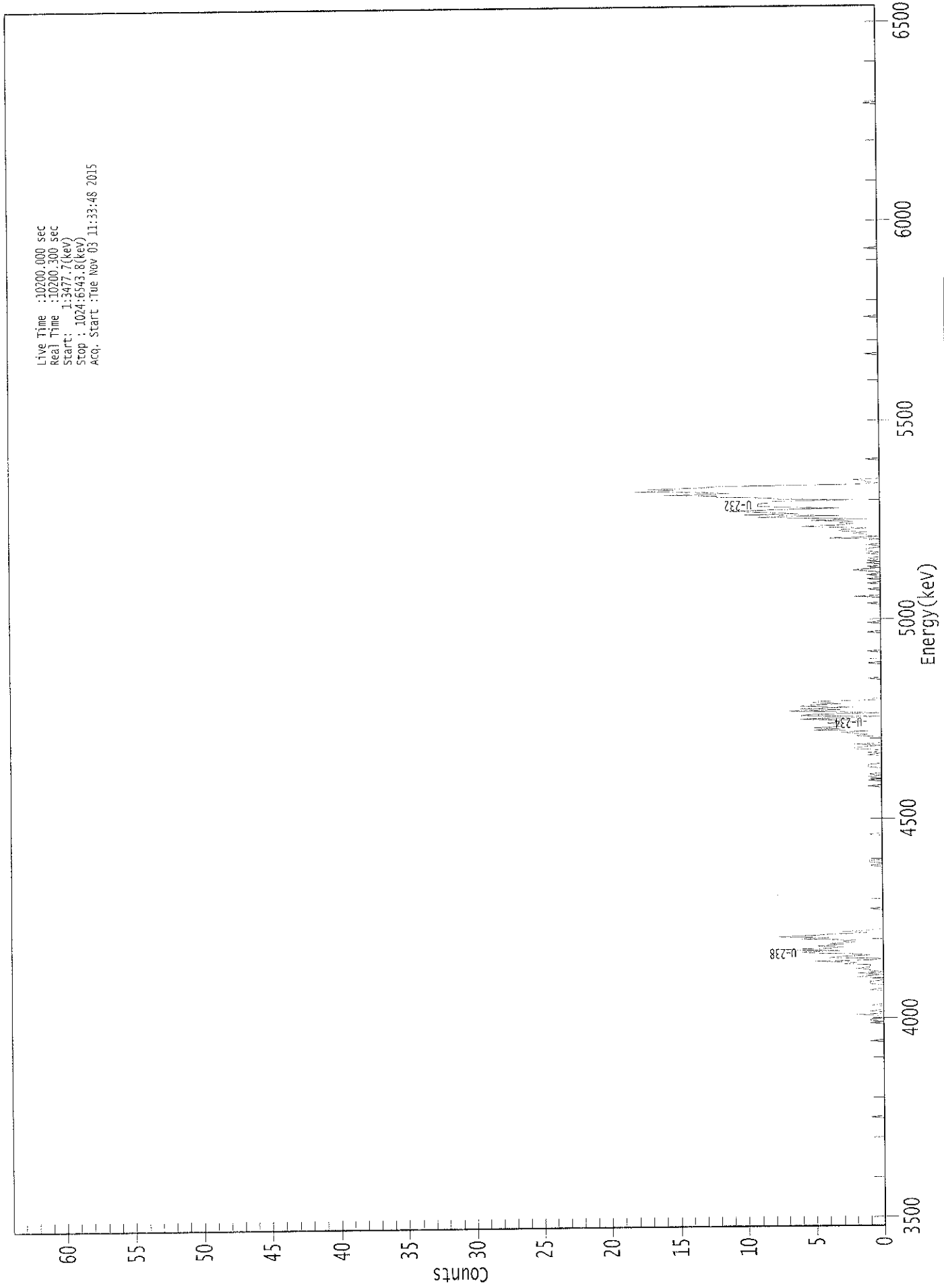
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.61E+000 +/- 4.24E-001	5.30E-002 +/- 6.23E-003
U-234	0.998	4761.50*	1.29E+000 +/- 2.80E-001	5.29E-002 +/- 6.23E-003
U-235	0.997	4385.50*	5.00E-002 +/- 5.42E-002	6.53E-002 +/- 7.68E-003
U-238	0.998	4184.40*	1.33E+000 +/- 2.85E-001	4.60E-002 +/- 5.41E-003

0000133042.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:3477.7(kev)
Stop : 1024:6543.8(kev)
Acq. Start :Tue Nov 03 11:33:48 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 09

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 1 0 0 0 0 1 0 0

Sample Title: 09

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 09

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

KB
11/3/15

Sample Description: CP0603S19-20
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 10
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_045
 Chamber Serial Number: 04026482A
 Detector Serial Number: 91131
 Env. Background: System Bkgd 133275
 Reagent Blank: <not performed>

Sample Size: 1.513E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:50 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.647 mL
 Effective Efficiency: 0.1800 +/- 0.0103
 Counting Efficiency: 0.1760 +/- 0.0031 on 10/25/2014 3:16:42 PM
 Chem. Recovery Factor: 1.0227 +/- 0.0611

Peak Match Tolerance: 0.150 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.293	366.49	10.25	0.51	0.00E+000	16.6
U-234	4.753	101.66	19.48	0.34	0.00E+000	12.2
U-235	4.369	4.49	98.45	0.51	0.00E+000	3.0
U-238	4.168	116.64	18.27	1.36	0.00E+000	6.0

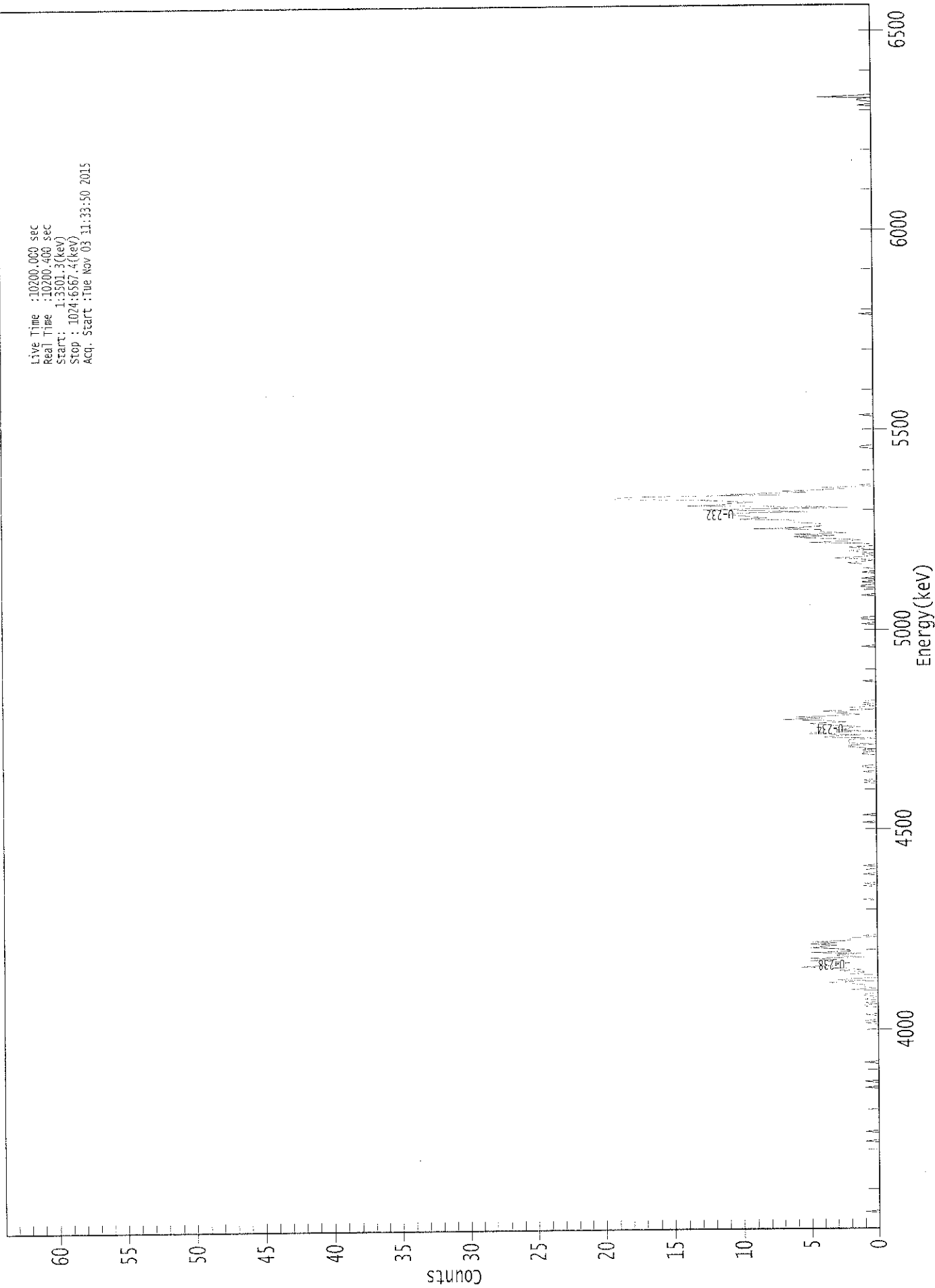
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.58E+000 +/- 4.00E-001	5.12E-002 +/- 5.73E-003
U-234	0.999	4761.50*	9.91E-001 +/- 2.23E-001	4.66E-002 +/- 5.22E-003
U-235	0.998	4385.50*	5.40E-002 +/- 5.35E-002	6.31E-002 +/- 7.07E-003
U-238	0.998	4184.40*	1.13E+000 +/- 2.43E-001	6.66E-002 +/- 7.45E-003

0000133026.CNF

Live Time :10200.069 sec
Real Time :10200.400 sec
Start: 1:33:01.3(keV)
Stop : 1024:6567.4(keV)
Acq. Start :Tue Nov 03 11:33:50 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 10

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 0 0 0 1 0 1 0

Sample Title: 10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	0	0	1	0	0
385:	0	1	1	0	0	0	0	0
393:	0	0	0	0	1	1	0	1
401:	0	1	2	2	0	2	2	2
409:	2	0	4	3	1	5	5	0
417:	3	2	2	1	3	4	5	2
425:	4	7	4	6	3	1	3	2
433:	4	1	1	2	0	1	0	1
441:	1	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	1	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	1	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	1	0	0	0	1	1	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	1	0	0	0	0	0	0
537:	1	1	0	0	1	0	0	1
545:	0	0	0	0	1	0	0	0
553:	1	1	1	1	2	1	0	1
561:	3	1	0	1	0	1	2	0
569:	1	2	0	0	1	5	2	1
577:	3	5	6	3	6	2	4	4
585:	4	9	5	4	4	4	6	6
593:	6	10	8	9	10	11	10	5
601:	9	13	2	5	14	11	11	9
609:	11	13	19	19	18	7	11	5
617:	7	4	2	4	0	1	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	1	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	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:	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	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	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 0

Sample Title: 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	1	0	0	0	1	1
945:	0	4	1	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	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
11/3/15

Sample Description: CP0603S21-22
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 11
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_046
 Chamber Serial Number: 04026482B
 Detector Serial Number: 58762
 Env. Background: System Bkgd 133276
 Reagent Blank: <not performed>

Sample Size: 1.511E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:51 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.648 mL
 Effective Efficiency: 0.2244 +/- 0.0117
 Counting Efficiency: 0.1776 +/- 0.0031 on 10/25/2014 3:20:08 PM
 Chem. Recovery Factor: 1.2632 +/- 0.0695

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	457.64	9.18	1.36	0.00E+000	16.1
U-234	4.729	96.32	20.05	0.68	0.00E+000	4.1
U-235	4.402	2.81	142.99	1.19	0.00E+000	3.0
U-238	4.143	115.79	18.42	2.21	0.00E+000	10.4

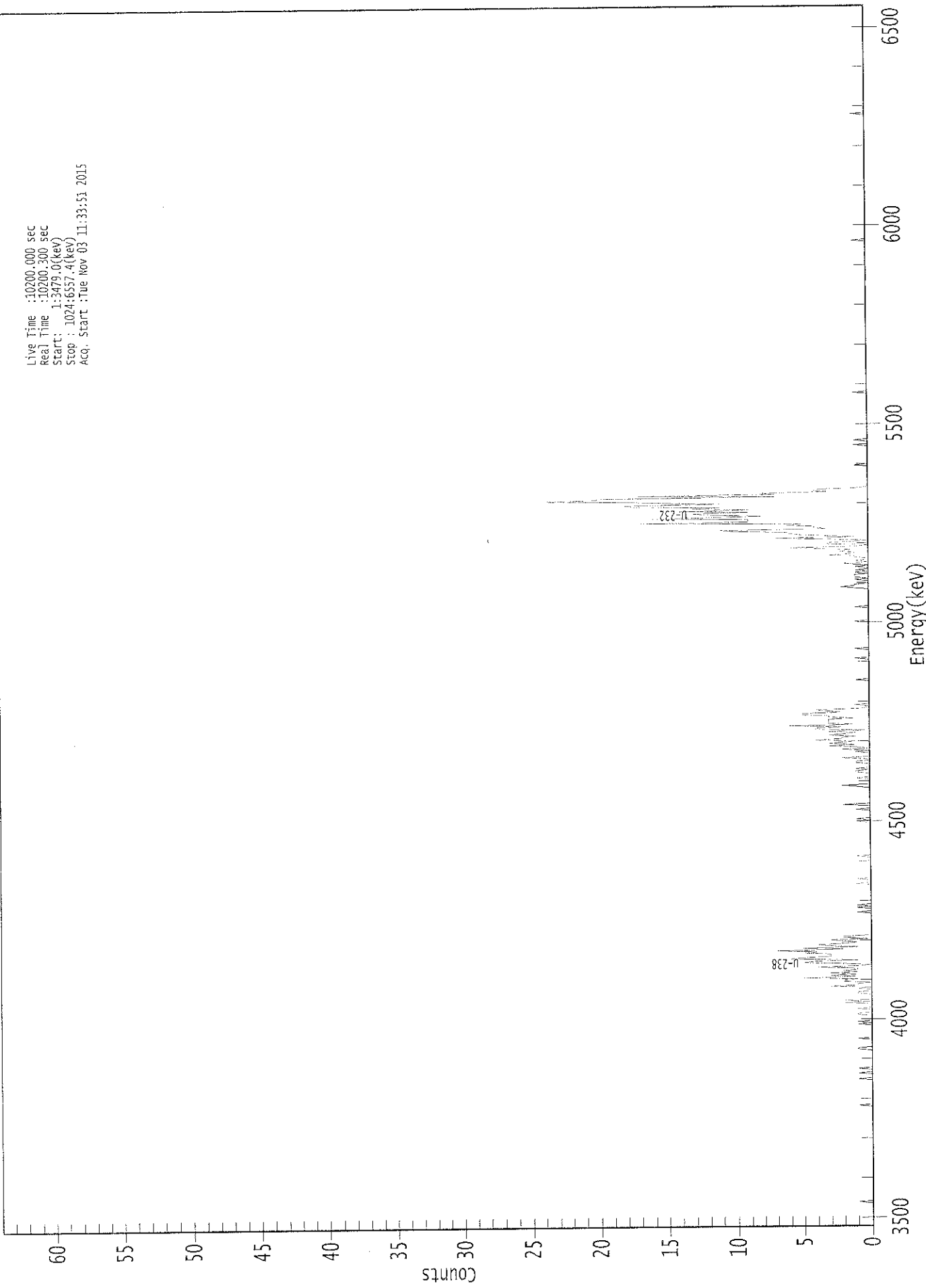
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	3.59E+000 +/- 3.67E-001	5.37E-002 +/- 5.49E-003
U-234	0.992	4761.50*	7.54E-001 +/- 1.70E-001	4.42E-002 +/- 4.52E-003
U-235	0.998	4385.50*	2.71E-002 +/- 3.89E-002	6.36E-002 +/- 6.51E-003
U-238	0.988	4184.40*	9.03E-001 +/- 1.90E-001	6.23E-002 +/- 6.38E-003

0000133035.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:3479.0(kev)
Stop : 1024:6557.4(kev)
Acq. Start :Tue Nov 03 11:33:51 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 11

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 1 2 0 0 0 0 0 0 1

Sample Title: 11

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	0	1	1	0	1	
385:	0	0	0	0	1	1	0	0	
393:	2	0	0	0	0	1	0	2	
401:	0	1	3	1	3	2	1	4	
409:	2	2	1	3	2	1	3	0	
417:	4	4	2	6	1	3	3	3	
425:	3	1	3	3	5	5	2	3	
433:	4	1	0	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	1	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	1	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	1	0	0	0	0	0	
513:	0	0	0	0	0	0	1	0	
521:	0	0	0	0	0	0	0	0	
529:	0	0	0	0	0	0	1	2	
537:	1	1	0	0	0	1	0	1	
545:	1	1	0	1	0	1	0	0	
553:	1	0	1	2	0	1	0	0	
561:	1	1	3	1	1	2	1	3	
569:	6	1	0	3	3	1	0	3	
577:	7	1	3	5	6	6	10	11	
585:	3	4	4	6	5	17	9	9	
593:	9	16	11	8	12	13	9	14	
601:	9	13	11	18	18	11	15	18	
609:	24	20	20	7	17	7	8	3	
617:	4	4	1	0	0	0	0	0	
625:	0	0	0	0	0	0	0	0	
633:	0	0	0	0	0	1	0	0	
641:	0	0	0	0	0	0	0	0	
649:	0	0	0	0	0	0	1	0	
657:	0	0	1	0	0	0	0	0	
665:	0	0	0	0	0	0	0	0	
673:	0	0	0	0	0	0	0	0	
681:	0	0	0	0	0	0	0	0	
689:	0	0	0	0	0	0	0	0	
697:	0	0	1	0	0	0	0	0	
705:	0	0	0	0	0	0	0	0	
713:	0	0	0	0	0	0	0	0	
721:	0	0	0	0	0	0	0	0	
729:	0	0	0	0	0	0	0	0	
737:	0	0	0	0	0	0	0	0	
745:	0	0	0	0	0	0	0	0	
753:	0	0	0	0	0	0	0	0	
761:	0	0	0	0	0	0	0	0	
769:	0	0	0	0	0	0	0	0	
777:	0	0	0	0	0	0	0	0	
785:	0	0	0	0	0	0	0	0	
793:	0	0	0	0	0	0	0	0	

801: 0 0 0 0 0 0 0 0 0

Sample Title: 11

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	1	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	1	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

ICS
11/3/15

Sample Description: CP0603S24-25
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 12
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_047
 Chamber Serial Number: 02030596A
 Detector Serial Number: 91086
 Env. Background: System Bkgd 133277
 Reagent Blank: <not performed>

Sample Size: 1.524E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:53 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232 UU-10A
 Tracer Quantity: 0.670 mL
 Effective Efficiency: 0.1701 +/- 0.0098
 Counting Efficiency: 0.1650 +/- 0.0029 on 10/25/2014 3:23:35 PM
 Chem. Recovery Factor: 1.0307 +/- 0.0622

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 5.269	358.49	10.36	0.51	0.00E+000	8.4
U-234	4.722	79.66	22.01	0.34	0.00E+000	5.9
U-235	4.389	1.83	152.56	0.17	0.00E+000	3.0
U-238	4.134	87.83	20.94	0.17	0.00E+000	4.3

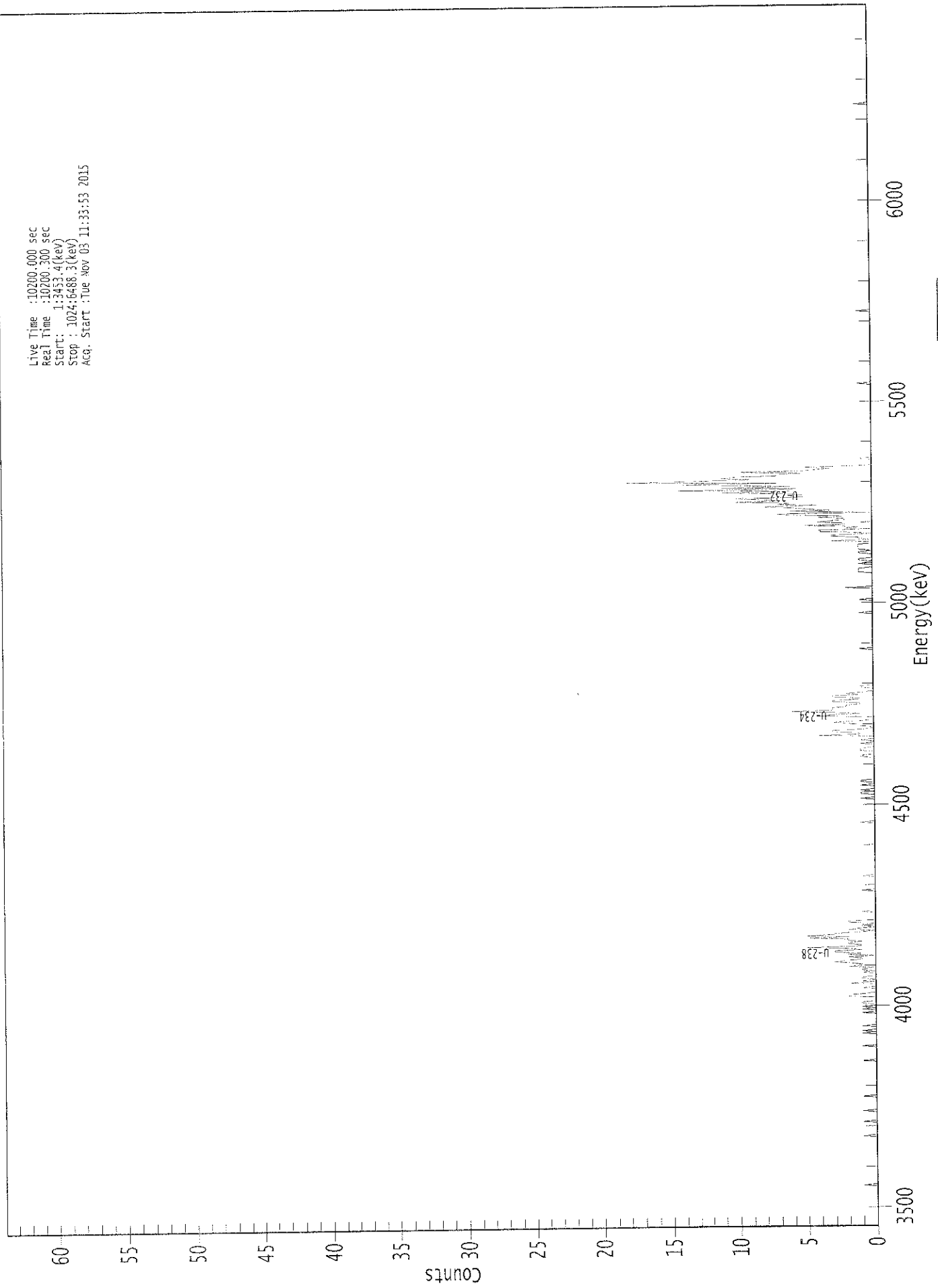
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	3.67E+000 +/- 4.15E-001	5.38E-002 +/- 6.08E-003
U-234	0.989	4761.50*	8.16E-001 +/- 2.02E-001	4.90E-002 +/- 5.53E-003
U-235	1.000	4385.50*	2.31E-002 +/- 3.54E-002	5.27E-002 +/- 5.96E-003
U-238	0.982	4184.40*	8.96E-001 +/- 2.13E-001	4.26E-002 +/- 4.81E-003

0000133034.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start: 1:34:53.4(keV)
Stop : 1024:6488.3(keV)
Acq. Start :Tue Nov 03 11:33:53 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 12

Elapsed Live time: 10200
 Elapsed Real Time: 10200

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	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	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:	0	0	0	1	0	0	0	0
81:	0	0	0	0	0	0	0	1
89:	0	0	0	0	0	0	0	0
97:	1	0	0	0	0	0	0	0
105:	0	0	0	0	1	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	1	0
153:	0	0	0	0	0	0	0	0
161:	0	1	0	1	0	0	0	1
169:	0	0	0	0	0	0	0	0
177:	0	0	1	0	0	1	0	1
185:	0	0	1	1	0	0	0	0
193:	2	2	1	0	0	0	0	1
201:	0	0	0	2	0	1	0	1
209:	1	0	0	0	1	0	1	1
217:	0	2	1	1	2	3	2	1
225:	1	2	0	2	1	3	3	1
233:	2	5	1	1	2	2	1	2
241:	2	5	2	5	3	3	1	0
249:	2	1	0	1	1	0	2	2
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	1	0	0	0	0	0	0
289:	0	0	0	0	0	1	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	1	0
361:	0	0	1	1	0	1	0	0

369: 0 1 0 0 1 1 0 0

Sample Title: 12

Channel	1	2	3	4	5	6	7	8
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	1	1	0	0	0	1	1
401:	1	0	0	0	1	0	0	1
409:	0	0	0	4	1	1	3	3
417:	1	0	0	1	1	2	3	1
425:	0	0	0	4	3	1	3	6
433:	3	3	3	2	2	1	1	3
441:	3	1	1	3	3	1	2	1
449:	0	0	0	1	1	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	1	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	1	0	0	0	0	0	0
521:	0	0	0	0	1	0	0	0
529:	0	0	0	0	0	0	2	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	1	1	1	1	0
553:	0	0	1	0	0	1	1	0
561:	0	0	0	1	1	0	1	1
569:	1	1	1	0	0	3	0	1
577:	1	3	3	0	1	4	4	0
585:	2	1	5	2	2	4	3	2
593:	2	4	2	6	7	0	6	3
601:	5	6	8	4	7	6	10	7
609:	8	10	5	6	5	7	11	6
617:	15	5	11	6	10	14	7	18
625:	13	9	11	10	7	7	5	10
633:	5	4	3	5	1	0	0	0
641:	0	0	1	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	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	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	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 0

Sample Title: 12

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

103
11/3/15

Apex-Alpha™

Sample Description: CP0603S26-27
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 13
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_048
 Chamber Serial Number: 02030596B
 Detector Serial Number: 83111
 Env. Background: System Bkgd 133278
 Reagent Blank: <not performed>

Sample Size: 1.520E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:55 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
 Tracer Quantity: 0.654 mL
 Effective Efficiency: 0.1299 +/- 0.0085
 Counting Efficiency: 0.1700 +/- 0.0030 on 10/25/2014 3:27:02 PM
 Chem. Recovery Factor: 0.7640 +/- 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 5.280	267.15	12.01	0.85	0.00E+000	16.1
U-234	4.724	91.32	20.60	0.68	0.00E+000	3.2
U-235	4.374	4.00	109.57	0.00	0.00E+000	3.0
U-238	4.153	75.81	22.72	1.19	0.00E+000	5.0

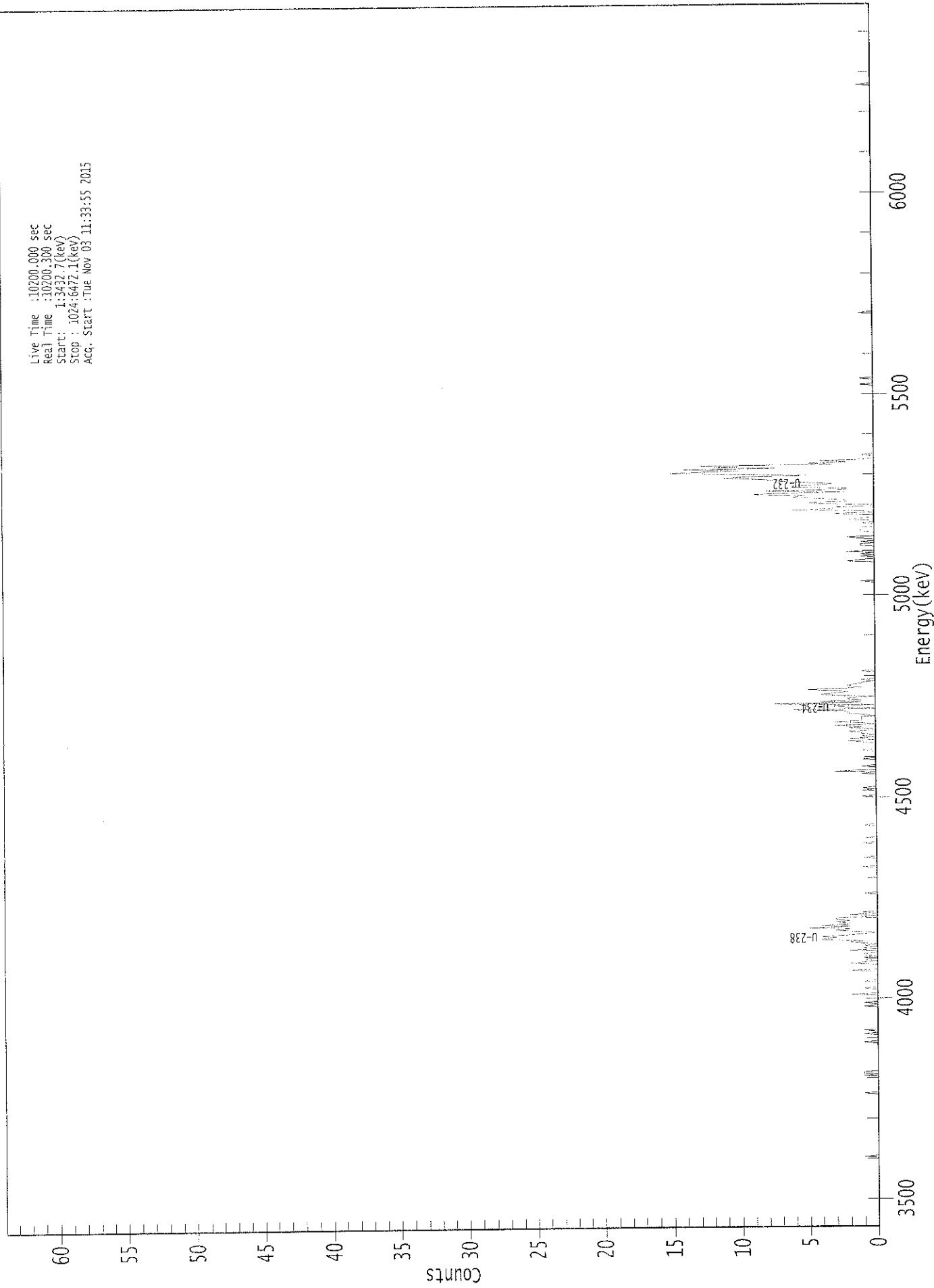
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	3.59E+000 +/- 4.61E-001	8.05E-002 +/- 1.03E-002
U-234	0.990	4761.50*	1.23E+000 +/- 2.98E-001	7.58E-002 +/- 9.73E-003
U-235	0.999	4385.50*	6.63E-002 +/- 7.32E-002	9.94E-002 +/- 1.28E-002
U-238	0.993	4184.40*	1.01E+000 +/- 2.65E-001	8.82E-002 +/- 1.13E-002

0000133019.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start: 1:3432.7(keV)
Stop : 1024:6472.1(keV)
ACQ. Start :TUE NOV 03 11:33:55 2015



ROI Type: 1

ROI Type: 3

00142

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

369: 0 0 0 0 0 0 0 0 0

Sample Title: 13

Channel	1	2	3	4	5	6	7	8	9
377:	0	0	0	1	0	3	0	0	
385:	0	1	0	0	0	0	0	1	
393:	0	0	0	0	0	0	1	0	
401:	0	0	0	0	0	1	2	0	
409:	2	0	1	0	1	1	2	0	
417:	0	2	1	3	0	1	3	1	
425:	1	1	1	0	1	2	2	2	
433:	6	0	2	3	0	8	1	4	
441:	1	2	2	0	3	4	3	2	
449:	3	5	2	1	2	2	1	1	
457:	0	1	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	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	0	
537:	0	0	0	1	0	0	0	0	
545:	0	0	0	0	0	0	0	0	
553:	0	0	0	0	2	1	0	0	
561:	1	0	1	0	2	0	0	0	
569:	0	1	1	0	1	0	0	1	
577:	2	0	0	0	0	1	1	1	
585:	1	0	0	0	1	0	0	2	
593:	1	0	0	1	3	0	1	6	
601:	3	3	0	0	4	5	2	2	
609:	3	5	6	5	9	7	2	8	
617:	2	2	6	6	4	3	5	7	
625:	7	9	11	9	5	10	15	13	
633:	10	14	7	11	13	3	5	2	
641:	4	1	0	0	0	1	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:	1	0	0	0	0	1	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 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	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	1	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

WCB
11/10/15

Apex-Alpha™

Sample Description: CP0603S29-30
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-UU
 Sample Identification: 14
 Sample Geometry: Shelf 2
 Procedure Description: U iso

Detector Name: Alpha_049
 Chamber Serial Number: 10006121A
 Detector Serial Number: 49
 Env. Background: System Bkgd 133279
 Reagent Blank: <not performed>

Sample Size: 1.503E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:28:31 AM
 Acquisition Date/Time: 11/3/2015 11:33:57 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: 0.1524 +/- 0.0093
 Counting Efficiency: 0.1525 +/- 0.0027 on 12/13/2014 2:45:02 PM
 Chem. Recovery Factor: 0.9989 +/- 0.0634

Peak Match Tolerance: 0.150 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.282	315.83	11.03	0.17	0.00E+000	17.0
U-234	4.738	80.98	21.94	1.02	0.00E+000	8.3
U-235	4.386	4.83	91.00	0.17	0.00E+000	3.0
U-238	4.154	70.32	23.50	0.68	0.00E+000	3.5

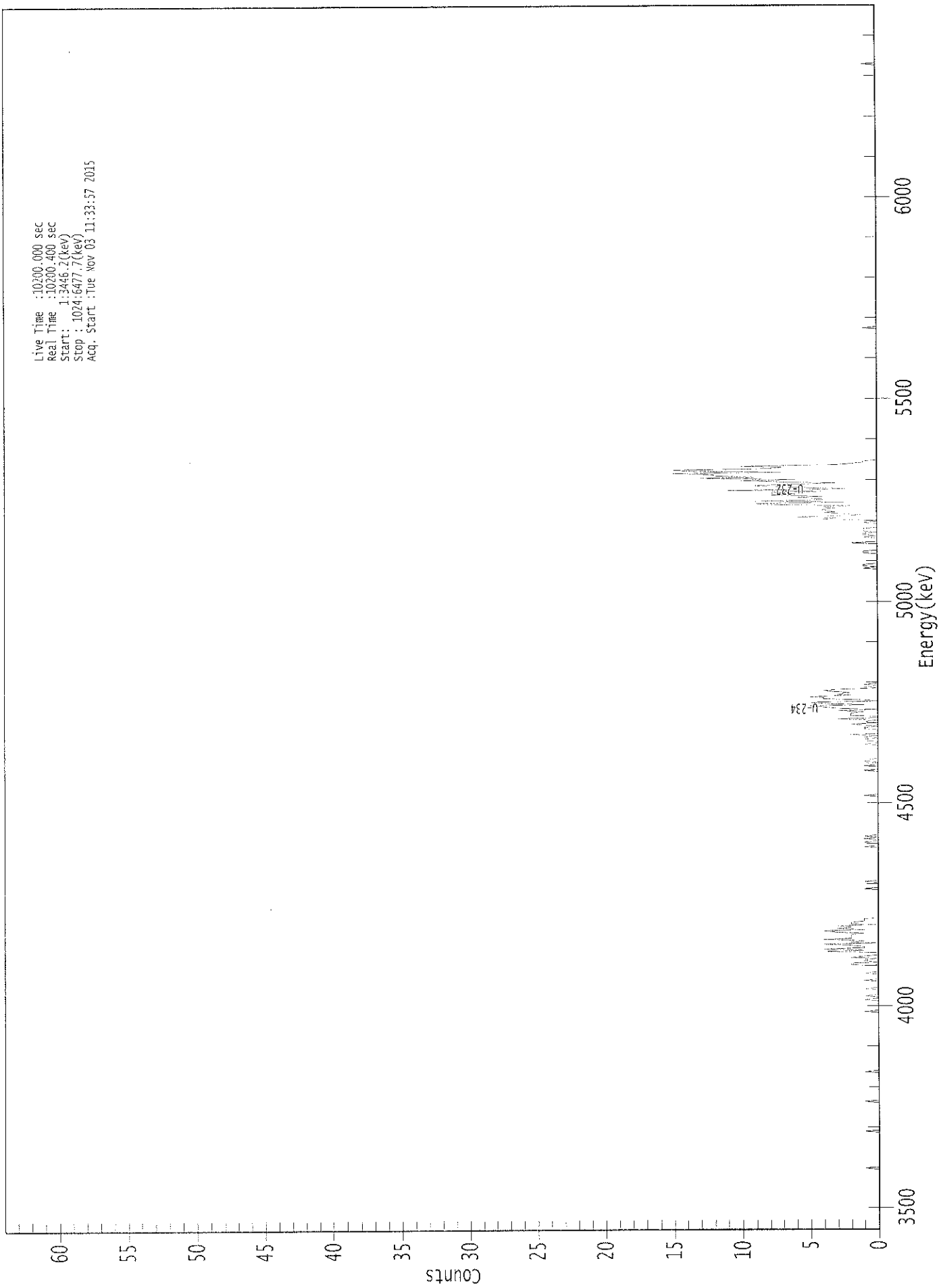
T = Tracer Peak used for Effective Efficiency

 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	3.67E+000 +/- 4.37E-001	4.84E-002 +/- 5.77E-003
U-234	0.996	4761.50*	9.39E-001 +/- 2.34E-001	7.31E-002 +/- 8.71E-003
U-235	1.000	4385.50*	6.91E-002 +/- 6.34E-002	5.97E-002 +/- 7.12E-003
U-238	0.994	4184.40*	8.12E-001 +/- 2.14E-001	6.51E-002 +/- 7.76E-003

0000133032.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:3446.2(kev)
Stop : 1024:6477.7(kev)
Acq. Start :Tue Nov 03 11:33:57 2015



ROI Type: 1

ROI Type: 3

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

Sample Title: 14

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 0 0 0 0 0 0 0 0

Sample Title: 14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	0	0	0	0	1
385:	0	0	0	1	0	0	0	1
393:	1	0	0	0	0	0	0	0
401:	0	0	0	0	0	1	0	0
409:	1	1	0	1	0	2	0	0
417:	0	0	1	1	0	1	2	0
425:	1	0	3	0	0	2	2	2
433:	1	3	0	3	4	5	1	4
441:	5	0	1	4	4	5	2	3
449:	2	3	4	3	0	1	0	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	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	1	0	1	1	0	0	0	0
561:	0	0	0	0	0	1	1	0
569:	0	0	0	0	0	2	0	0
577:	0	0	1	0	1	1	0	1
585:	1	1	0	0	0	0	1	0
593:	1	4	3	6	2	1	4	3
601:	4	4	3	4	2	8	9	2
609:	9	4	4	6	4	8	6	8
617:	4	11	2	5	7	9	7	3
625:	7	10	6	13	9	12	12	15
633:	7	14	15	8	7	10	3	2
641:	1	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:	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	0	0	0	0	0	0

801: 0 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:	0	0	0	0	0	1	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 11/3/2015
Time : 5:45:15 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	11/3/2015 5:19:43 AM
Alpha 004	21f	ALL	Passed	11/3/2015 5:19:44 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	11/3/2015 5:19:45 AM
Alpha 011	21f	ALL	Passed	11/3/2015 5:19:46 AM
Alpha 012	21f	ALL	Passed	11/3/2015 5:19:46 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	11/3/2015 5:19:47 AM
Alpha 015	21f	ALL	Passed	11/3/2015 5:19:48 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:49 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:51 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:52 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:54 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:55 AM
Alpha 038	Alpha Analyst100DC	Peak Energy	Action	11/3/2015 5:19:57 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:58 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:00 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:02 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:03 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:05 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:07 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:09 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:10 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:12 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:14 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:15 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:17 AM
Alpha 051	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:19 AM
Alpha 052	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:22 AM
Alpha 053	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:24 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:26 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:29 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:31 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:34 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:37 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:40 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:43 AM

APPROVED BY: C APPROVAL DATE: 11/3

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

Nuclide Library Title: Uranium

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

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

* = key line

TOTALS: 4 Nuclides 4 Energy Lines

SECTION IX
ANALYTICAL DATA (ISOTOPIC THORIUM)

Work Order	15-10090
Analysis Code	ThISO
Run	1
Date Received	10/14/2015
Lab Deadline	11/5/2015
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		10/15/15 00:00	1.0000E+00
02	MBL	BLANK		10/15/15 00:00	1.5000E+00
03	DUP	CP0603S03-04	36	10/09/15 15:00	1.5024E+00
04	DO	CP0603S03-04	36	10/09/15 15:00	1.5481E+00
05	TRG	CP0603S06-07	37	10/09/15 15:10	1.5188E+00
06	TRG	CP0603S09-10	40	10/09/15 15:20	1.5076E+00
07	TRG	CP0603S12-13	35	10/09/15 15:30	1.5293E+00
08	TRG	CP0603S14-15	35	10/09/15 15:40	1.5574E+00
09	TRG	CP0603S17-18	37	10/09/15 15:50	1.5407E+00
10	TRG	CP0603S19-20	38	10/09/15 16:00	1.5212E+00
11	TRG	CP0603S21-22	29	10/09/15 16:10	1.5223E+00
12	TRG	CP0603S24-25	37	10/09/15 16:20	1.5031E+00
13	TRG	CP0603S26-27	32	10/09/15 16:30	1.5125E+00
14	TRG	CP0603S29-30	35	10/09/15 16:40	1.5065E+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	0.4421	9.9		0.00								
02	MBL	0.2255	5.1		0.00								
03	DUP	0.2248	5.0		0.00								
04	DO	0.2246	5.0		0.00								
05	TRG	0.2248	5.0		0.00								
06	TRG	0.2244	5.0		0.00								
07	TRG	0.2250	5.1		0.00								
08	TRG	0.2251	5.1		0.00								
09	TRG	0.2247	5.0		0.00								
10	TRG	0.2249	5.1		0.00								
11	TRG	0.2239	5.0		0.00								
12	TRG	0.2252	5.1		0.00								
13	TRG	0.2247	5.0		0.00								
14	TRG	0.2241	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			10/20/15 10:42	JPACHELLA				
02	MBL			10/20/15 10:42	JPACHELLA				
03	DUP			10/20/15 10:42	JPACHELLA				
04	DO	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
05	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
06	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
07	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
08	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
09	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
10	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
11	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
12	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
13	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				
14	TRG	10/20/15 07:28	KSALLINGS	10/20/15 10:42	JPACHELLA				

* SAF 1 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.

151009

Client	Auxier & Associates, Inc.
	Eberline Services Work Order
	15-10090
Run	Analysis Code
	THISO
1	

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.55E+00	8.84E-01	8.48E-02	4.72E+00	119.76	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	2.08E-02	3.12E-02	5.06E-02					OK	OK
03	TH-228	DUP	CP0603S03-04	pCi/g	1.53E+00	3.52E-01	5.87E-02				OK	OK	
04	TH-228	DO	CP0603S03-04	pCi/g	1.47E+00	3.28E-01	6.25E-02					OK	
05	TH-228	TRG	CP0603S06-07	pCi/g	1.34E+00	3.18E-01	5.12E-02					OK	
06	TH-228	TRG	CP0603S09-10	pCi/g	1.38E+00	3.38E-01	6.68E-02					OK	
07	TH-228	TRG	CP0603S12-13	pCi/g	1.46E+00	3.32E-01	4.47E-02					OK	
08	TH-228	TRG	CP0603S14-15	pCi/g	1.47E+00	3.62E-01	8.28E-02					OK	
09	TH-228	TRG	CP0603S17-18	pCi/g	1.68E+00	4.48E-01	1.66E-01					OK	
10	TH-228	TRG	CP0603S19-20	pCi/g	1.43E+00	3.39E-01	6.02E-02					OK	
11	TH-228	TRG	CP0603S21-22	pCi/g	1.32E+00	3.03E-01	5.91E-02					OK	
12	TH-228	TRG	CP0603S24-25	pCi/g	1.33E+00	3.32E-01	5.71E-02					OK	
13	TH-228	TRG	CP0603S26-27	pCi/g	1.33E+00	3.45E-01	8.26E-02					OK	
14	TH-228	TRG	CP0603S29-30	pCi/g	1.62E+00	4.49E-01	1.11E-01					OK	

85100

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	TH-228	LCS	10/15/15 00:00	1.00E+00	98.57	0.00	0.00			
02	TH-228	MBL	10/15/15 00:00	1.50E+00	107.28	0.00	0.00			
03	TH-228	DUP	10/09/15 15:00	1.50E+00	104.90	0.00	0.00			
04	TH-228	DO	10/09/15 15:00	1.55E+00	112.46	0.00	0.00			
05	TH-228	TRG	10/09/15 15:10	1.52E+00	111.17	0.00	0.00			
06	TH-228	TRG	10/09/15 15:20	1.51E+00	99.96	0.00	0.00			
07	TH-228	TRG	10/09/15 15:30	1.53E+00	124.62	0.00	0.00			
08	TH-228	TRG	10/09/15 15:40	1.56E+00	111.78	0.00	0.00			
09	TH-228	TRG	10/09/15 15:50	1.54E+00	86.02	0.00	0.00			
10	TH-228	TRG	10/09/15 16:00	1.52E+00	110.65	0.00	0.00			
11	TH-228	TRG	10/09/15 16:10	1.52E+00	136.79	0.00	0.00			
12	TH-228	TRG	10/09/15 16:20	1.50E+00	114.40	0.00	0.00			
13	TH-228	TRG	10/09/15 16:30	1.51E+00	98.85	0.00	0.00			
14	TH-228	TRG	10/09/15 16:40	1.51E+00	77.13	0.00	0.00			

	Run	1
	Analysis Code	THISO
	Eberline Services Work Order	15-10090
Client	Auxier & Associates, Inc.	

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	11/03/15 08:24		A_Spec	Alpha_043	170	4.20 E+02	6.00 E-03	20
02	TH-228	MBL	11/03/15 08:24		A_Spec	Alpha_044	170	2.32 E+00	4.00 E-03	18.4
03	TH-228	DUP	11/03/15 08:24		A_Spec	Alpha_045	170	1.56 E+02	5.00 E-03	17.6
04	TH-228	DO	11/03/15 08:24		A_Spec	Alpha_046	170	1.67 E+02	9.00 E-03	17.8
05	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_047	170	1.37 E+02	3.00 E-03	16.5
06	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_048	170	1.30 E+02	6.00 E-03	17
07	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_049	170	1.56 E+02	2.00 E-03	15.3
08	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_050	170	1.34 E+02	1.10 E-02	14.3
09	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_051	170	1.25 E+02	4.30 E-02	15.2
10	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_052	170	1.42 E+02	5.00 E-03	16.1
11	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_053	170	1.47 E+02	7.00 E-03	14.6
12	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_054	170	1.22 E+02	3.00 E-03	14.5
13	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_055	170	1.14 E+02	9.00 E-03	15.6
14	TH-228	TRG	11/03/15 08:24		A_Spec	Alpha_056	170	1.11 E+02	1.10 E-02	16

	Run	1
	Analysis Code	THISO
Eberline Services Work Order	15-10090	
Client	Auxier & Associates, Inc.	

091001

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Client

Eberline Services Work Order

15-10090

THISO

Analysis Code

Run



Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	6.21E+00	9.54E-01	7.07E-02	5.38E+00	115.33	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	4.34E-02	4.01E-02	3.75E-02					OK	OK
03	TH-230	DUP	CP0603S03-04	pCi/g	1.41E+00	3.29E-01	6.30E-02				OK	OK	
04	TH-230	DO	CP0603S03-04	pCi/g	1.32E+00	3.00E-01	4.84E-02					OK	
05	TH-230	TRG	CP0603S06-07	pCi/g	1.62E+00	3.65E-01	5.71E-02					OK	
06	TH-230	TRG	CP0603S09-10	pCi/g	1.63E+00	3.82E-01	4.95E-02					OK	
07	TH-230	TRG	CP0603S12-13	pCi/g	1.28E+00	3.01E-01	6.26E-02					OK	
08	TH-230	TRG	CP0603S14-15	pCi/g	1.58E+00	3.80E-01	5.11E-02					OK	
09	TH-230	TRG	CP0603S17-18	pCi/g	1.54E+00	4.13E-01	9.34E-02					OK	
10	TH-230	TRG	CP0603S19-20	pCi/g	1.32E+00	3.17E-01	5.54E-02					OK	
11	TH-230	TRG	CP0603S21-22	pCi/g	1.26E+00	2.90E-01	4.94E-02					OK	
12	TH-230	TRG	CP0603S24-25	pCi/g	1.17E+00	2.99E-01	4.44E-02					OK	
13	TH-230	TRG	CP0603S26-27	pCi/g	1.41E+00	3.57E-01	7.15E-02					OK	
14	TH-230	TRG	CP0603S29-30	pCi/g	1.86E+00	4.94E-01	8.99E-02					OK	

15100

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	TH-230	LCS	10/15/15 00:00	1.00E+00	98.57	0.00	0.00			
02	TH-230	MBL	10/15/15 00:00	1.50E+00	107.28	0.00	0.00			
03	TH-230	DUP	10/09/15 15:00	1.50E+00	104.90	0.00	0.00			
04	TH-230	DO	10/09/15 15:00	1.55E+00	112.46	0.00	0.00			
05	TH-230	TRG	10/09/15 15:10	1.52E+00	111.17	0.00	0.00			
06	TH-230	TRG	10/09/15 15:20	1.51E+00	99.96	0.00	0.00			
07	TH-230	TRG	10/09/15 15:30	1.53E+00	124.62	0.00	0.00			
08	TH-230	TRG	10/09/15 15:40	1.56E+00	111.78	0.00	0.00			
09	TH-230	TRG	10/09/15 15:50	1.54E+00	86.02	0.00	0.00			
10	TH-230	TRG	10/09/15 16:00	1.52E+00	110.65	0.00	0.00			
11	TH-230	TRG	10/09/15 16:10	1.52E+00	136.79	0.00	0.00			
12	TH-230	TRG	10/09/15 16:20	1.50E+00	114.40	0.00	0.00			
13	TH-230	TRG	10/09/15 16:30	1.51E+00	98.85	0.00	0.00			
14	TH-230	TRG	10/09/15 16:40	1.51E+00	77.13	0.00	0.00			

	Run	1
	Analysis Code	THISO
Eberline Services Work Order	15-10090	
Client	Auxier & Associates, Inc.	

95100

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	11/03/15 08:24		A_Spec	Alpha_043	170	4.60 E+02	3.00 E-03	20
02	TH-230	MBL	11/03/15 08:24		A_Spec	Alpha_044	170	4.83 E+00	1.00 E-03	18.4
03	TH-230	DUP	11/03/15 08:24		A_Spec	Alpha_045	170	1.48 E+02	7.00 E-03	17.6
04	TH-230	DO	11/03/15 08:24		A_Spec	Alpha_046	170	1.54 E+02	4.00 E-03	17.8
05	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_047	170	1.70 E+02	0.00 E+00	16.5
06	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_048	170	1.58 E+02	2.00 E-03	17
07	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_049	170	1.41 E+02	8.00 E-03	15.3
08	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_050	170	1.48 E+02	2.00 E-03	14.3
09	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_051	170	1.17 E+02	9.00 E-03	15.2
10	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_052	170	1.34 E+02	4.00 E-03	16.1
11	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_053	170	1.43 E+02	4.00 E-03	14.6
12	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_054	170	1.10 E+02	1.00 E-03	14.5
13	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_055	170	1.24 E+02	6.00 E-03	15.6
14	TH-230	TRG	11/03/15 08:24		A_Spec	Alpha_056	170	1.30 E+02	6.00 E-03	16

	Run	1
	Analysis Code	THISO
	Eberline Services Work Order	15-10090
Client	Auxier & Associates, Inc.	

03100

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	5.23E+00	8.30E-01	5.61E-02	4.72E+00	110.80	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	1.64E-02	2.52E-02	3.74E-02					OK	OK
03	TH-232	DUP	CP0603S03-04	pCi/g	1.26E+00	3.04E-01	9.31E-02				OK		
04	TH-232	DO	CP0603S03-04	pCi/g	1.44E+00	3.21E-01	7.80E-02					OK	
05	TH-232	TRG	CP0603S06-07	pCi/g	1.35E+00	3.18E-01	5.99E-02					OK	
06	TH-232	TRG	CP0603S09-10	pCi/g	1.29E+00	3.20E-01	6.51E-02					OK	
07	TH-232	TRG	CP0603S12-13	pCi/g	9.98E-01	2.50E-01	4.78E-02					OK	
08	TH-232	TRG	CP0603S14-15	pCi/g	1.32E+00	3.31E-01	4.45E-02					OK	
09	TH-232	TRG	CP0603S17-18	pCi/g	1.66E+00	4.35E-01	7.40E-02					OK	
10	TH-232	TRG	CP0603S19-20	pCi/g	1.26E+00	3.05E-01	5.87E-02					OK	
11	TH-232	TRG	CP0603S21-22	pCi/g	1.22E+00	2.83E-01	4.93E-02					OK	
12	TH-232	TRG	CP0603S24-25	pCi/g	1.23E+00	3.11E-01	4.43E-02					OK	
13	TH-232	TRG	CP0603S26-27	pCi/g	1.24E+00	3.24E-01	5.95E-02					OK	
14	TH-232	TRG	CP0603S29-30	pCi/g	1.51E+00	4.20E-01	9.77E-02					OK	

	Run	1
	Analysis Code	THISO
	Eberline Services Work Order	15-10090
Client	Auxier & Associates, Inc.	

11/3/2015 1:24 PM

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	TH-232	LCS	10/15/15 00:00	1.00E+00	98.57	0.00	0.00			
02	TH-232	MBL	10/15/15 00:00	1.50E+00	107.28	0.00	0.00			
03	TH-232	DUP	10/09/15 15:00	1.50E+00	104.90	0.00	0.00			
04	TH-232	DO	10/09/15 15:00	1.55E+00	112.46	0.00	0.00			
05	TH-232	TRG	10/09/15 15:10	1.52E+00	111.17	0.00	0.00			
06	TH-232	TRG	10/09/15 15:20	1.51E+00	99.96	0.00	0.00			
07	TH-232	TRG	10/09/15 15:30	1.53E+00	124.62	0.00	0.00			
08	TH-232	TRG	10/09/15 15:40	1.56E+00	111.78	0.00	0.00			
09	TH-232	TRG	10/09/15 15:50	1.54E+00	86.02	0.00	0.00			
10	TH-232	TRG	10/09/15 16:00	1.52E+00	110.65	0.00	0.00			
11	TH-232	TRG	10/09/15 16:10	1.52E+00	136.79	0.00	0.00			
12	TH-232	TRG	10/09/15 16:20	1.50E+00	114.40	0.00	0.00			
13	TH-232	TRG	10/09/15 16:30	1.51E+00	98.85	0.00	0.00			
14	TH-232	TRG	10/09/15 16:40	1.51E+00	77.13	0.00	0.00			

 1 Run	THISO Analysis Code	15-10090 Eberline Services Work Order	Auxier & Associates, Inc. Client
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50760

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-THISO-1

Eberline Services
Oak Ridge Laboratory

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	11/03/15 08:24		A_Spec	Alpha_043	170	3.89 E+02	1.00 E-03	20
02	TH-232	MBL	11/03/15 08:24		A_Spec	Alpha_044	170	1.83 E+00	1.00 E-03	18.4
03	TH-232	DUP	11/03/15 08:24		A_Spec	Alpha_045	170	1.32 E+02	2.30 E-02	17.6
04	TH-232	DO	11/03/15 08:24		A_Spec	Alpha_046	170	1.68 E+02	1.90 E-02	17.8
05	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_047	170	1.42 E+02	6.00 E-03	16.5
06	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_048	170	1.25 E+02	6.00 E-03	17
07	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_049	170	1.09 E+02	3.00 E-03	15.3
08	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_050	170	1.24 E+02	1.00 E-03	14.3
09	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_051	170	1.26 E+02	4.00 E-03	15.2
10	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_052	170	1.28 E+02	5.00 E-03	16.1
11	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_053	170	1.39 E+02	4.00 E-03	14.6
12	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_054	170	1.16 E+02	1.00 E-03	14.5
13	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_055	170	1.09 E+02	3.00 E-03	15.6
14	TH-232	TRG	11/03/15 08:24		A_Spec	Alpha_056	170	1.06 E+02	8.00 E-03	16

	Run	1
Analysis Code	THISO	
Eberline Services Work Order	15-10090	
Client	Auxier & Associates, Inc.	

15-10090-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

Count Room Report
Client: Auxier Associates, Inc.

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	10/15/15 00:00	1.0000	0.4421	9.9296		0.00		
02	MBL	BLANK	10/15/15 00:00	1.5000	0.2255	5.0647		0.00		
03	DUP	CP0603S03-04	10/09/15 15:00	1.5024	0.2248	5.0490		0.00		
04	DO	CP0603S03-04	10/09/15 15:00	1.5481	0.2246	5.0445		0.00		
05	TRG	CP0603S06-07	10/09/15 15:10	1.5188	0.2248	5.0490		0.00		
06	TRG	CP0603S09-10	10/09/15 15:20	1.5076	0.2244	5.0400		0.00		
07	TRG	CP0603S12-13	10/09/15 15:30	1.5293	0.2250	5.0535		0.00		
08	TRG	CP0603S14-15	10/09/15 15:40	1.5574	0.2251	5.0557		0.00		
09	TRG	CP0603S17-18	10/09/15 15:50	1.5407	0.2247	5.0468		0.00		
10	TRG	CP0603S19-20	10/09/15 16:00	1.5212	0.2249	5.0513		0.00		
11	TRG	CP0603S21-22	10/09/15 16:10	1.5223	0.2239	5.0288		0.00		
12	TRG	CP0603S24-25	10/09/15 16:20	1.5031	0.2252	5.0580		0.00		
13	TRG	CP0603S26-27	10/09/15 16:30	1.5125	0.2247	5.0468		0.00		
14	TRG	CP0603S29-30	10/09/15 16:40	1.5065	0.2241	5.0333		0.00		

4
12380
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25

Internal Work Order		Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials		
15-10090		1	THISO		10/20/2015 10:34		JPACHELLA						
LCS & Matrix Spikes													
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCS Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Added pCi	LCS Error Estimate	MSD Error Estimate	
Th-228	Th-8b	103.560	10/20/2015	0.100	0.1012				4.72	0.170	0.00	0.000	
Th-230	Th-1b	23.520	10/20/2015	0.500	0.5079				5.38	0.145	0.00	0.000	
Th-232	Th-8b	103.560	10/20/2015	0.100	0.1012				4.72	0.170	0.00	0.000	
1C-99 MS 1C-2a 22043636 7/5/2014 0.1													
Tracers													
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer						LCS
01	Th-229	Th-18a	22.460	10/20/2015	0.4421	0.2200							
02	Th-229	Th-18a	22.460	10/20/2015	0.2255	0.2200							
03	Th-229	Th-18a	22.460	10/20/2015	0.2248	0.2200							
04	Th-229	Th-18a	22.460	10/20/2015	0.2246	0.2200							
05	Th-229	Th-18a	22.460	10/20/2015	0.2248	0.2200							
06	Th-229	Th-18a	22.460	10/20/2015	0.2244	0.2200							
07	Th-229	Th-18a	22.460	10/20/2015	0.2250	0.2200							
08	Th-229	Th-18a	22.460	10/20/2015	0.2251	0.2200							
09	Th-229	Th-18a	22.460	10/20/2015	0.2247	0.2200							
10	Th-229	Th-18a	22.460	10/20/2015	0.2249	0.2200							
11	Th-229	Th-18a	22.460	10/20/2015	0.2239	0.2200							
12	Th-229	Th-18a	22.460	10/20/2015	0.2252	0.2200							
13	Th-229	Th-18a	22.460	10/20/2015	0.2247	0.2200							
14	Th-229	Th-18a	22.460	10/20/2015	0.2241	0.2200							
Matrix Spike													

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-10090	1	THISO	grams	11/5/2015	JPACHELLA

Lab Fraction	Auxier & Associates, Inc.		Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID			Ratio Post/Pre	No. of Dis	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq	
01	LCS		LCS					1.000E+00	1.000E+00					
02	BLANK		MBL					1.500E+00	1.500E+00					
03	CP0603S03-04		DUP					1.5024E+00	1.5024E+00					
04	CP0603S03-04		DO					1.5481E+00	1.5481E+00					
05	CP0603S06-07		TRG					1.5188E+00	1.5188E+00					
06	CP0603S09-10		TRG					1.5076E+00	1.5076E+00					
07	CP0603S12-13		TRG					1.5293E+00	1.5293E+00					
08	CP0603S14-15		TRG					1.5574E+00	1.5574E+00					
09	CP0603S17-18		TRG					1.5407E+00	1.5407E+00					
10	CP0603S19-20		TRG					1.5212E+00	1.5212E+00					
11	CP0603S21-22		TRG					1.5223E+00	1.5223E+00					
12	CP0603S24-25		TRG					1.5031E+00	1.5031E+00					
13	CP0603S26-27		TRG					1.5125E+00	1.5125E+00					
14	CP0603S29-30		TRG					1.5065E+00	1.5065E+00					

Comments

Technician: J. Pachella Date: 10/20/15

**Rough Sample Preparation
 Log Book**

Work Order 15-10090		Lab Deadline 11/5/2015	Date Received in Prep 10/19/2015	Date Sealed 10/20/2015	Date Returned 10/21/2015	Technician KSALLINGS
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Eberline Fraction	Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Wet Wt	Dry Wt	Wet Wt	Dry Wt	Liquid	Solid	Dry Wt	LEPS Wt		
04	CP0603S03-04	14.1000	1336.3800	1091.0800	1322.2800	1076.9800	18.55%	81.45%	0.0000	0.0000		
05	CP0603S06-07	14.0200	1052.2200	830.9000	1038.2000	816.8800	21.32%	78.68%	0.0000	0.0000		
06	CP0603S09-10	14.1100	1051.5400	869.3400	1037.4300	855.2300	17.56%	82.44%	0.0000	0.0000		
07	CP0603S12-13	14.1700	946.8600	779.5100	932.6900	765.3400	17.94%	82.06%	0.0000	0.0000		
08	CP0603S14-15	14.1500	1000.0800	824.7000	985.9300	810.5500	17.79%	82.21%	0.0000	0.0000		
09	CP0603S17-18	14.5600	919.6600	737.5300	905.1000	722.9700	20.12%	79.88%	0.0000	0.0000		
10	CP0603S19-20	14.5200	1054.7200	849.7200	1040.2000	835.2000	19.71%	80.29%	0.0000	0.0000		
11	CP0603S21-22	14.5500	846.5600	679.1800	832.0100	664.6300	20.12%	79.88%	0.0000	0.0000		
12	CP0603S24-25	14.5000	1092.4000	873.5000	1077.9000	859.0000	20.31%	79.69%	0.0000	0.0000		
13	CP0603S26-27	14.5200	944.2400	749.6800	929.7200	735.1600	20.93%	79.07%	0.0000	0.0000		
14	CP0603S29-30	14.4600	823.4600	649.0800	809.0000	634.6200	21.56%	78.44%	0.0000	0.0000		

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

00170



Apex-Alpha™

Sample Description: SPIKE
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 01
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_043
 Chamber Serial Number: 04026481A
 Detector Serial Number: 91088
 Env. Background: System Bkgd 133273
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
 Sample Date/Time: 11/3/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:18 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.442 mL
 Effective Efficiency: 0.1970 +/- 0.0124
 Counting Efficiency: 0.1998 +/- 0.0035 on 10/25/2014 3:08:45 PM
 Chem. Recovery Factor: 0.9857 +/- 0.0644

Control Certificate Name: NatTh_Th-8
 Chem. Recov. of Control: TH-232 1.108033 +/- 0.095620
 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	5.800	22.83	41.20	0.17	0.00E+000	3.0
TH-228	5.350	419.98	9.58	1.02	0.00E+000	12.1
TH-229 T	4.867	332.49	10.76	0.51	0.00E+000	8.3
TH-230	4.619	460.49	9.14	0.51	0.00E+000	22.0
TH-232	3.935	388.83	9.94	0.17	0.00E+000	10.7

T = Tracer Peak used for Effective Efficiency

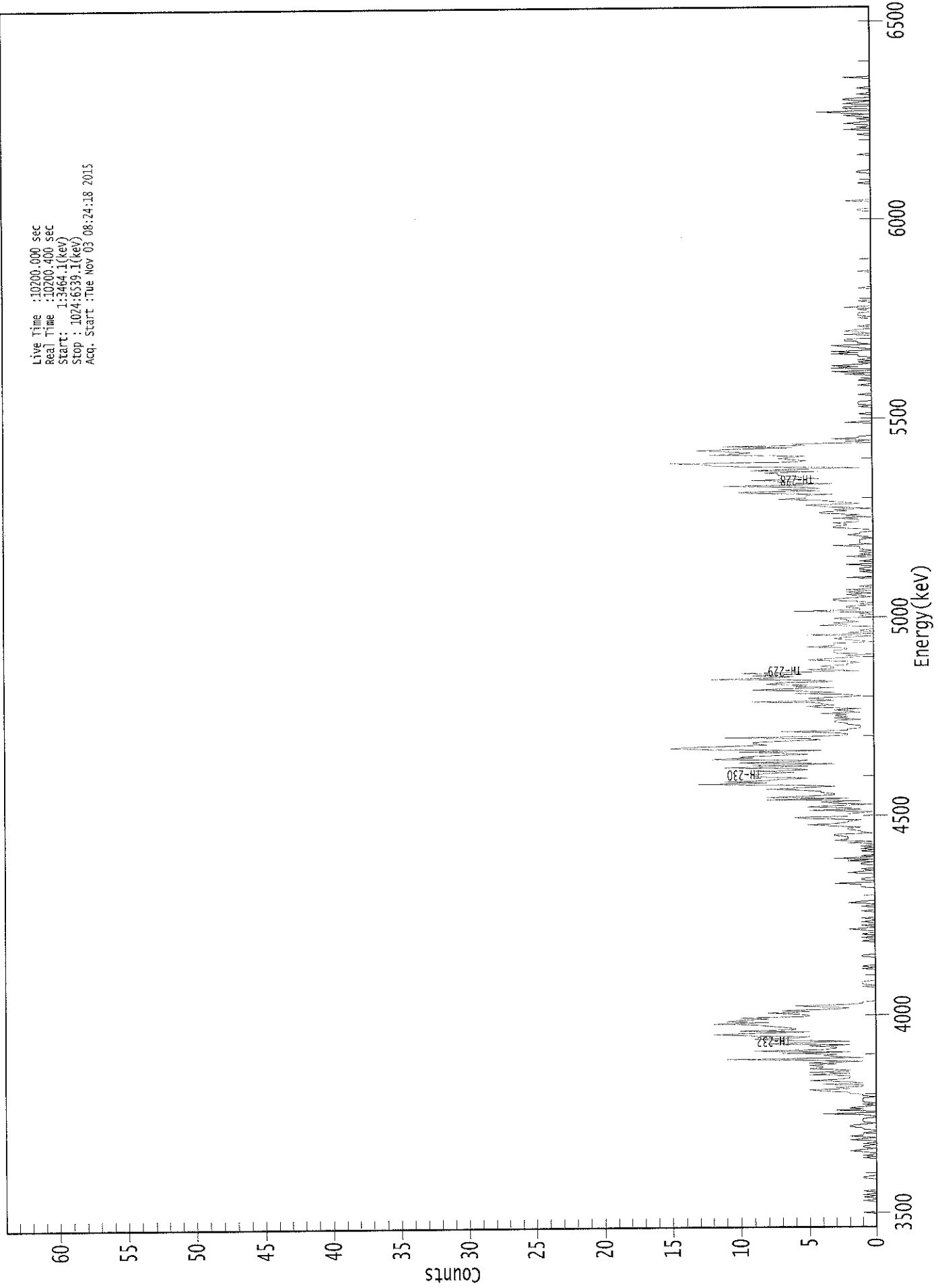
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.987	5850.00*	3.15E-001 +/- 1.35E-001	5.76E-002 +/- 7.11E-003
TH-228	0.987	5400.00*	5.65E+000 +/- 8.84E-001	8.48E-002 +/- 1.05E-002
TH-229	1.000	4872.00*	4.49E+000 +/- 5.55E-001	7.09E-002 +/- 8.76E-003
TH-230	0.985	4672.00*	6.21E+000 +/- 9.54E-001	7.07E-002 +/- 8.74E-003
TH-232	0.980	3997.00*	5.23E+000 +/- 8.30E-001	5.61E-002 +/- 6.94E-003

AG
 11/3/15

0000132997.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start: 1:3464.1(kev)
Stop : 1074.6339.1(kev)
Acq. Start :Tue Nov 03 08:24:18 2015



ROI Type: 3

ROI Type: 1

00172

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

Sample Title: 01

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 5 3 6 13 8 11 8 7

Sample Title: 01

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

0173A

801: 1 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	1	1	0	0	0
857:	0	0	0	2	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	1	0	0	0	0	0
881:	0	0	0	1	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	1	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	1	0	0	0	2
921:	0	1	0	0	2	1	0	0
929:	1	0	1	2	0	2	4	0
937:	0	2	2	0	0	2	1	0
945:	2	2	0	0	0	1	0	0
953:	0	0	1	0	0	0	0	0
961:	0	0	0	2	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
11/3/15

Sample Description: BLANK
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001329
 Batch Identification: 1510090A-TH
 Sample Identification: 02
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_044
 Chamber Serial Number: 04026481B
 Detector Serial Number: 84168
 Env. Background: System Bkgd 133274
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
 Sample Date/Time: 11/3/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:20 AM
 Acquisition Live Time: 170.0 minutes
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
 Tracer Quantity: 0.226 mL
 Effective Efficiency: 0.1970 +/- 0.0163
 Counting Efficiency: 0.1837 +/- 0.0032 on 10/25/2014 3:13:11 PM
 Chem. Recovery Factor: 1.0728 +/- 0.0909

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	5.799	5.49	88.08	0.51	0.00E+000	3.0
TH-228	5.317	2.32	149.12	0.68	0.00E+000	3.0
TH-229 T	4.891	169.66	15.07	0.34	0.00E+000	4.2
TH-230	4.647	4.83	91.00	0.17	0.00E+000	3.0
TH-232	3.911	1.83	152.56	0.17	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

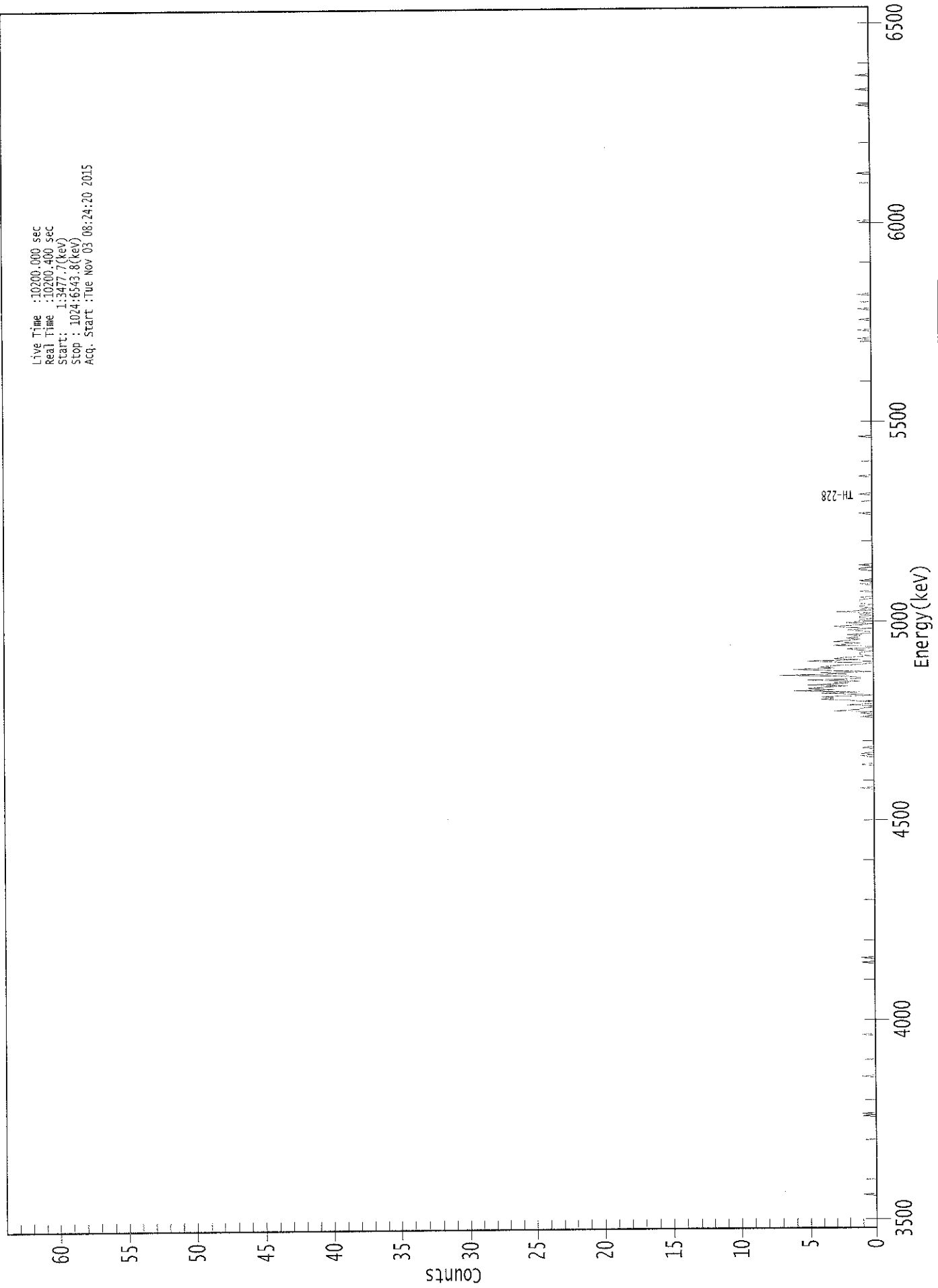
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.987	5850.00*	5.05E-002 +/- 4.52E-002	4.82E-002 +/- 7.84E-003
TH-228	0.965	5400.00*	2.08E-002 +/- 3.12E-002	5.06E-002 +/- 8.22E-003
TH-229	0.998	4872.00*	1.53E+000 +/- 2.48E-001	4.31E-002 +/- 7.00E-003
TH-230	0.997	4672.00*	4.34E-002 +/- 4.01E-002	3.75E-002 +/- 6.09E-003
TH-232	0.962	3997.00*	1.64E-002 +/- 2.52E-002	3.74E-002 +/- 6.08E-003

AG
11/3/15

0000132998.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start : 1:3477.7(kev)
Stop : 1024:6543.8(kev)
Acq. Start :Tue Nov 03 08:24:20 2015



00176

ROI Type: 1
ROI Type: 3

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

Sample Title: 02

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 1 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	1	0	0	0
393:	0	0	0	1	0	1	0	0
401:	0	0	1	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	1
433:	0	3	1	1	0	0	2	0
441:	0	1	2	4	3	4	0	1
449:	4	1	6	3	5	4	2	5
457:	2	3	1	5	1	1	2	7
465:	2	4	0	4	6	3	4	3
473:	1	0	3	5	1	3	2	0
481:	1	1	1	0	1	2	0	0
489:	3	2	1	3	2	1	2	1
497:	1	2	0	0	1	2	0	2
505:	3	1	0	2	1	1	0	1
513:	1	0	1	0	3	0	1	0
521:	1	1	0	1	1	1	1	0
529:	1	0	0	0	0	1	0	0
537:	0	0	0	1	0	0	1	0
545:	0	0	0	0	0	0	0	1
553:	1	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	0	1	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	1	0
617:	0	0	0	0	0	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	1	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	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:	1	0	0	0	0	0	0	1
753:	0	0	0	0	0	0	0	0
761:	1	0	0	0	0	0	0	0
769:	0	1	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	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 0

Sample Title: 02

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	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	1	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	1	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	0
961:	0	0	0	0	0	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™

KB
11/3/15

Sample Description: CP0603S03-04-DUP
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001329
 Batch Identification: 1510090A-TH
 Sample Identification: 03
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_045
 Chamber Serial Number: 04026482A
 Detector Serial Number: 91131
 Env. Background: System Bkgd 133275
 Reagent Blank: <not performed>

Sample Size: 1.502E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:22 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: 0.1846 +/- 0.0158
 Counting Efficiency: 0.1760 +/- 0.0031 on 10/25/2014 3:16:42 PM
 Chem. Recovery Factor: 1.0490 +/- 0.0915

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	5.905	11.47	62.23	1.53	0.00E+000	3.0
TH-228	5.362	156.15	15.73	0.85	0.00E+000	10.8
TH-229 T	4.878	158.49	15.60	0.51	0.00E+000	3.4
TH-230	4.619	147.81	16.20	1.19	0.00E+000	4.0
TH-232	3.954	132.09	17.35	3.91	0.00E+000	4.6

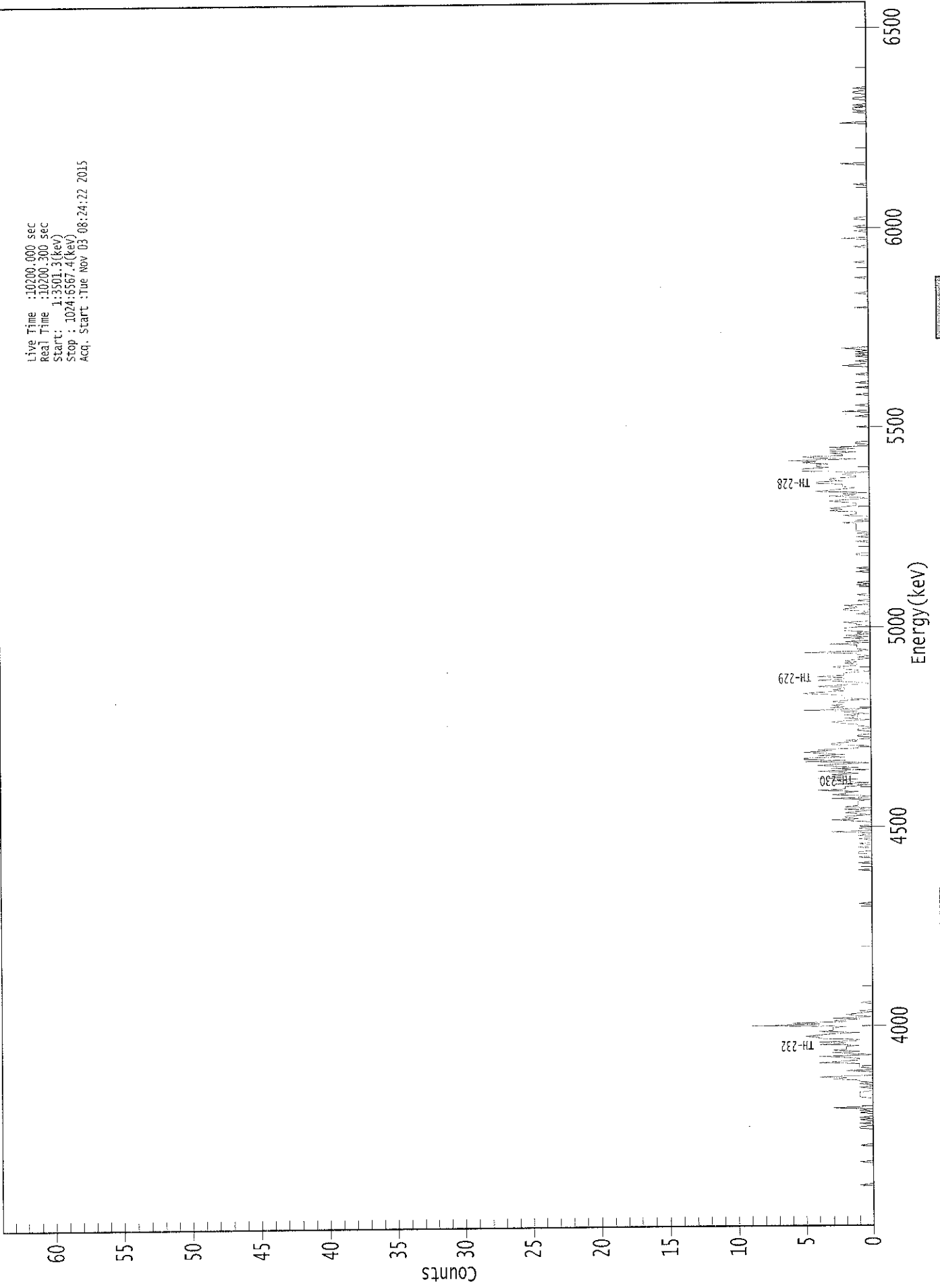
T = Tracer Peak used for Effective Efficiency

----- ----- NUCLIDE ANALYSIS RESULTS ----- -----						
Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)		MDA (pCi/gram)	
TH-227	0.984	5850.00*	1.13E-001 +/-	7.26E-002	6.98E-002 +/-	1.17E-002
TH-228	0.993	5400.00*	1.53E+000 +/-	3.52E-001	5.87E-002 +/-	9.82E-003
TH-229	1.000	4872.00*	1.52E+000 +/-	2.55E-001	5.04E-002 +/-	8.43E-003
TH-230	0.985	4672.00*	1.41E+000 +/-	3.29E-001	6.30E-002 +/-	1.06E-002
TH-232	0.991	3997.00*	1.26E+000 +/-	3.04E-001	9.31E-002 +/-	1.56E-002

AG
11/3/15

0000132999.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start: 1:3501.3(kev)
Stop : 1024:5567.4(kev)
Acq. Start :Tue Nov 03 08:24:22 2015



ROI Type: 1

ROI Type: 3

18181

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

Sample Title: 03

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 3 0 2 3 1 4 2

Sample Title: 03

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

801: 0 0 0 0 0 0 1 0 0

Sample Title: 03

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

KB
11/3/15

Apex-Alpha™

Sample Description: CP0603S03-04
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 04
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_046
 Chamber Serial Number: 04026482B
 Detector Serial Number: 58762
 Env. Background: System Bkgd 133276
 Reagent Blank: <not performed>

Sample Size: 1.548E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:23 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: 0.1997 +/- 0.0166
 Counting Efficiency: 0.1776 +/- 0.0031 on 10/25/2014 3:20:08 PM
 Chem. Recovery Factor: 1.1246 +/- 0.0953

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.802	10.81	63.34	1.19	0.00E+000	3.0
TH-228	5.356	167.47	15.23	1.53	0.00E+000	4.6
TH-229 T	4.851	171.30	15.06	1.70	0.00E+000	6.3
TH-230	4.616	154.32	15.82	0.68	0.00E+000	5.3
TH-232	3.930	167.77	15.30	3.23	0.00E+000	12.0

T = Tracer Peak used for Effective Efficiency

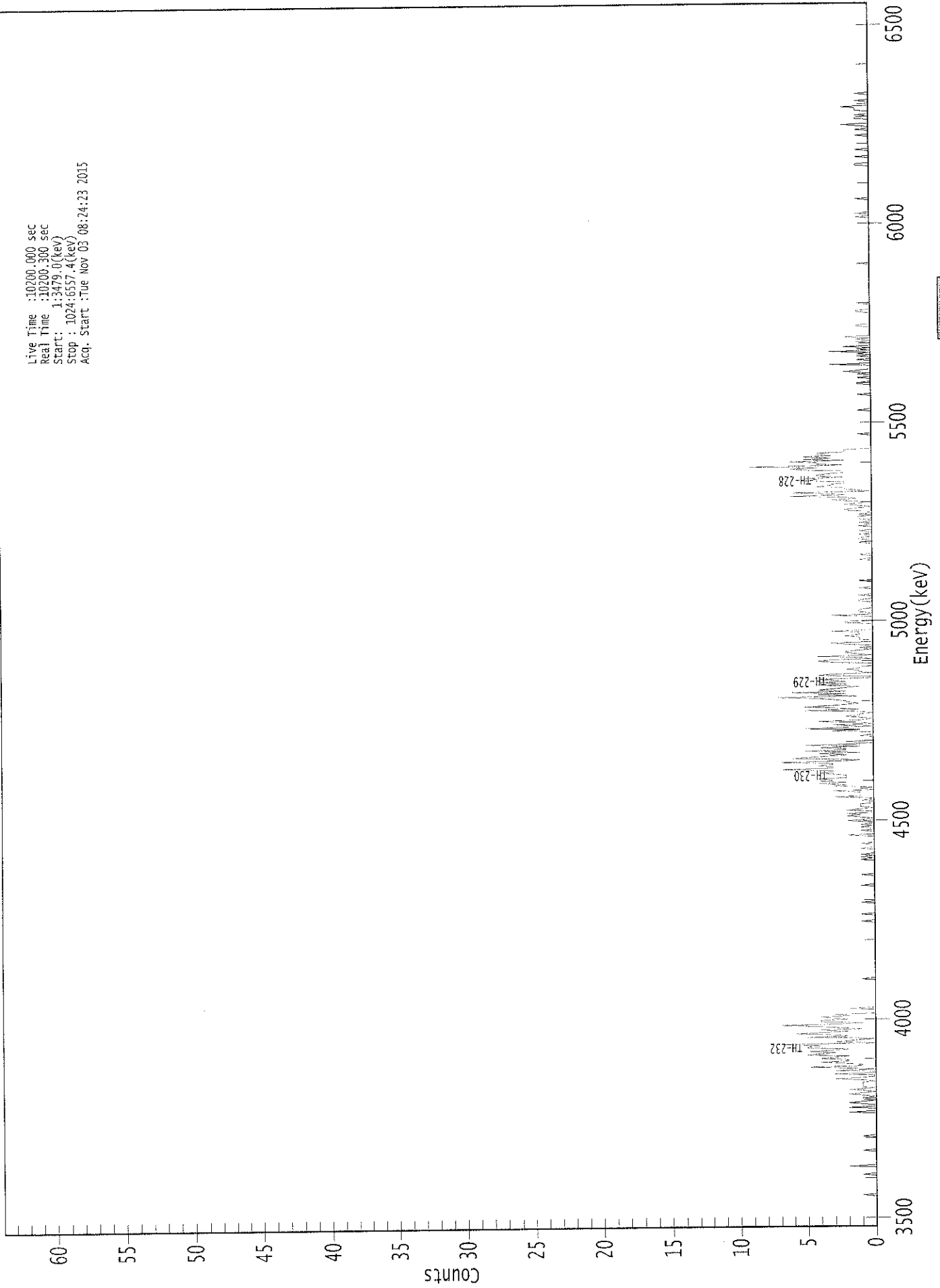
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	9.52E-002 +/- 6.23E-002	5.80E-002 +/- 9.42E-003
TH-228	0.990	5400.00*	1.47E+000 +/- 3.28E-001	6.25E-002 +/- 1.01E-002
TH-229	0.998	4872.00*	1.47E+000 +/- 2.40E-001	6.33E-002 +/- 1.03E-002
TH-230	0.984	4672.00*	1.32E+000 +/- 3.00E-001	4.84E-002 +/- 7.86E-003
TH-232	0.977	3997.00*	1.44E+000 +/- 3.21E-001	7.80E-002 +/- 1.27E-002

AG
11/3/15

0000133000.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:3479.0(kev)
Stop : 1024:6557.4(kev)
Acq. Start :Tue Nov 03 08:24:23 2015



00186

ROI Type: 1
ROI Type: 3

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

Sample Title: 04

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 3 2 4 2 4 3 4 2

Sample Title: 04

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

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	1	0	0	1	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	1
889:	0	0	0	0	0	1	0	0
897:	0	0	0	1	0	0	0	0
905:	0	0	0	0	0	0	0	1
913:	0	0	0	0	1	0	0	1
921:	2	0	0	0	0	1	1	0
929:	1	0	0	0	1	1	1	2
937:	0	0	0	0	1	0	0	0
945:	0	0	1	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	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
11/3/15

Apex-Alpha™

Sample Description: CP0603S06-07
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 05
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_047
 Chamber Serial Number: 02030596A
 Detector Serial Number: 91086
 Env. Background: System Bkgd 133277
 Reagent Blank: <not performed>

Sample Size: 1.519E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:25 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: 0.1835 +/- 0.0157
 Counting Efficiency: 0.1650 +/- 0.0029 on 10/25/2014 3:23:35 PM
 Chem. Recovery Factor: 1.1117 +/- 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	5.820	9.32	66.89	0.68	0.00E+000	3.0
TH-228	5.350	137.49	16.75	0.51	0.00E+000	5.5
TH-229 T	4.870	157.49	15.65	0.51	0.00E+000	20.8
TH-230	4.602	170.00	15.08	0.00	0.00E+000	5.7
TH-232	3.934	141.98	16.52	1.02	0.00E+000	4.3

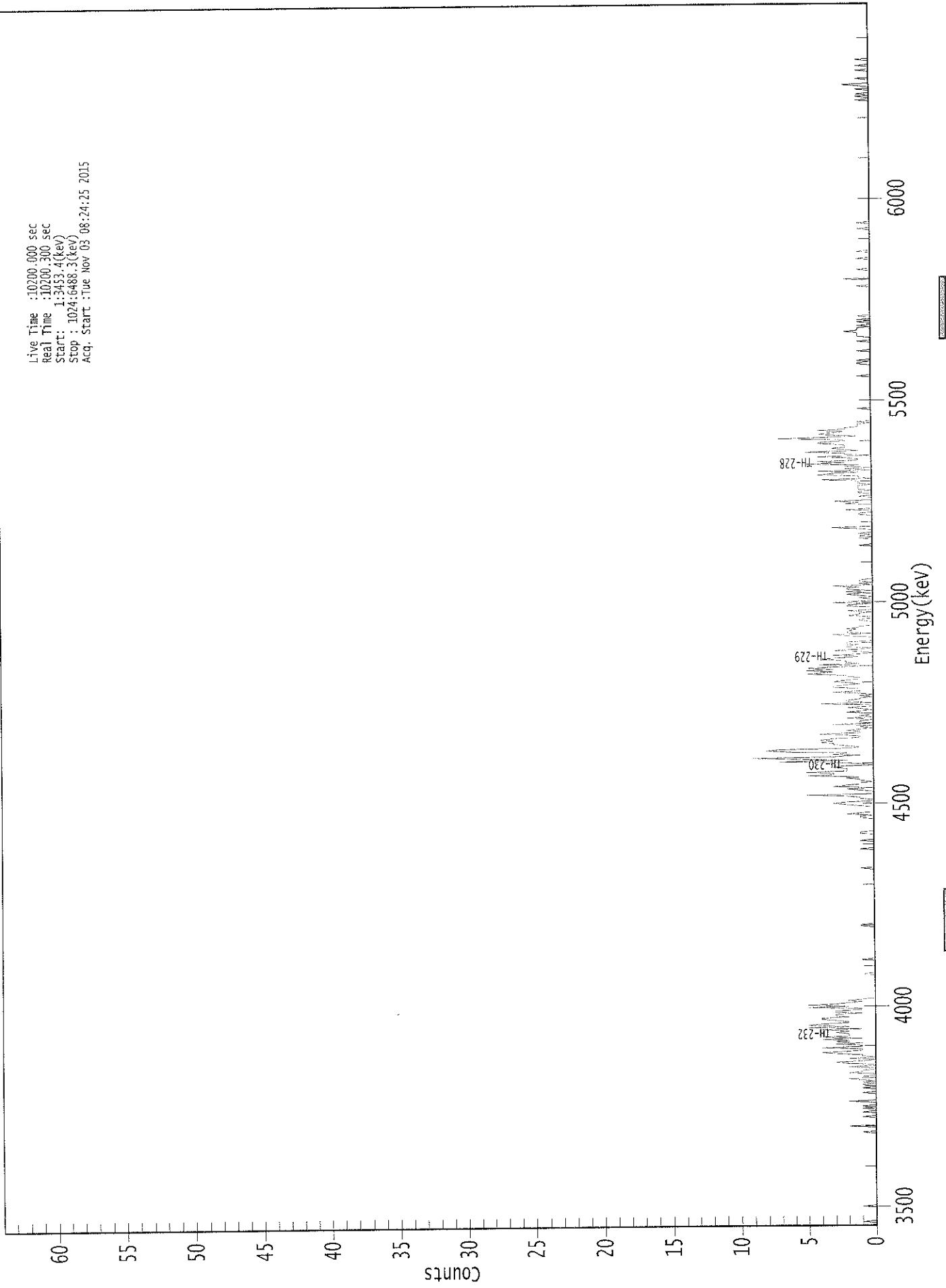
T = Tracer Peak used for Effective Efficiency

----- NUCLIDE ANALYSIS RESULTS -----						
Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)		
TH-227	0.995	5850.00*	9.11E-002 +/- 6.28E-002	5.51E-002 +/- 9.25E-003		
TH-228	0.987	5400.00*	1.34E+000 +/- 3.18E-001	5.12E-002 +/- 8.59E-003		
TH-229	1.000	4872.00*	1.50E+000 +/- 2.53E-001	5.01E-002 +/- 8.42E-003		
TH-230	0.975	4672.00*	1.62E+000 +/- 3.65E-001	5.71E-002 +/- 9.59E-003		
TH-232	0.980	3997.00*	1.35E+000 +/- 3.18E-001	5.99E-002 +/- 1.01E-002		

AG
11/3/15

0000133008.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start: 1:3453.4(kev)
Stop : 1024:0488.3(kev)
Acq. Start :Tue Nov 03 08:24:25 2015



ROI Type: 3

ROI Type: 1

161001

 ***** 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	1	0	0	0	0
1:	1	0	0	1	0	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	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	1	0
81:	0	0	0	2	0	0	0	0
89:	0	0	0	1	0	0	0	1
97:	0	0	1	0	1	0	0	0
105:	2	0	0	0	0	0	0	1
113:	0	0	0	1	0	0	1	0
121:	1	0	1	2	0	1	0	0
129:	2	1	1	0	0	2	0	0
137:	2	3	1	0	2	0	1	1
145:	3	4	2	1	1	4	1	1
153:	3	1	3	2	4	1	4	2
161:	2	2	3	2	4	1	5	2
169:	5	4	2	2	3	4	4	2
177:	3	3	1	3	3	1	1	5
185:	2	5	3	2	1	2	1	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	1	0	0	0	0
217:	0	0	0	0	0	0	0	1
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	1	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	1	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	1	0	0	0	0
321:	0	0	1	0	0	0	0	0
329:	1	1	0	0	0	0	0	0
337:	0	0	0	0	0	1	1	0
345:	2	1	0	0	0	0	0	1
353:	2	3	2	0	0	1	1	2
361:	5	0	0	0	1	2	0	3

369: 2 1 1 0 1 1 2 1

Sample Title: 05

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 05

Channel								
809:	1	0	0	0	0	0	1	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	1	0	0	0	0	1	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	1	0	0
945:	1	0	1	0	0	0	1	0
953:	0	1	2	0	0	0	0	1
961:	0	0	0	0	0	0	1	0
969:	0	0	1	0	0	0	0	1
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
11/3/15

Apex-Alpha™

Sample Description: CP0603S09-10
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 06
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_048
 Chamber Serial Number: 02030596B
 Detector Serial Number: 83111
 Env. Background: System Bkgd 133278
 Reagent Blank: <not performed>

Sample Size: 1.508E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:27 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: 0.1700 +/- 0.0151
 Counting Efficiency: 0.1700 +/- 0.0030 on 10/25/2014 3:27:02 PM
 Chem. Recovery Factor: 0.9996 +/- 0.0906

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.831	11.32	60.27	0.68	0.00E+000	3.0
TH-228	5.335	129.98	17.27	1.02	0.00E+000	9.2
TH-229 T	4.858	145.64	16.33	1.36	0.00E+000	3.7
TH-230	4.608	157.66	15.63	0.34	0.00E+000	3.4
TH-232	3.934	124.98	17.62	1.02	0.00E+000	5.2

T = Tracer Peak used for Effective Efficiency

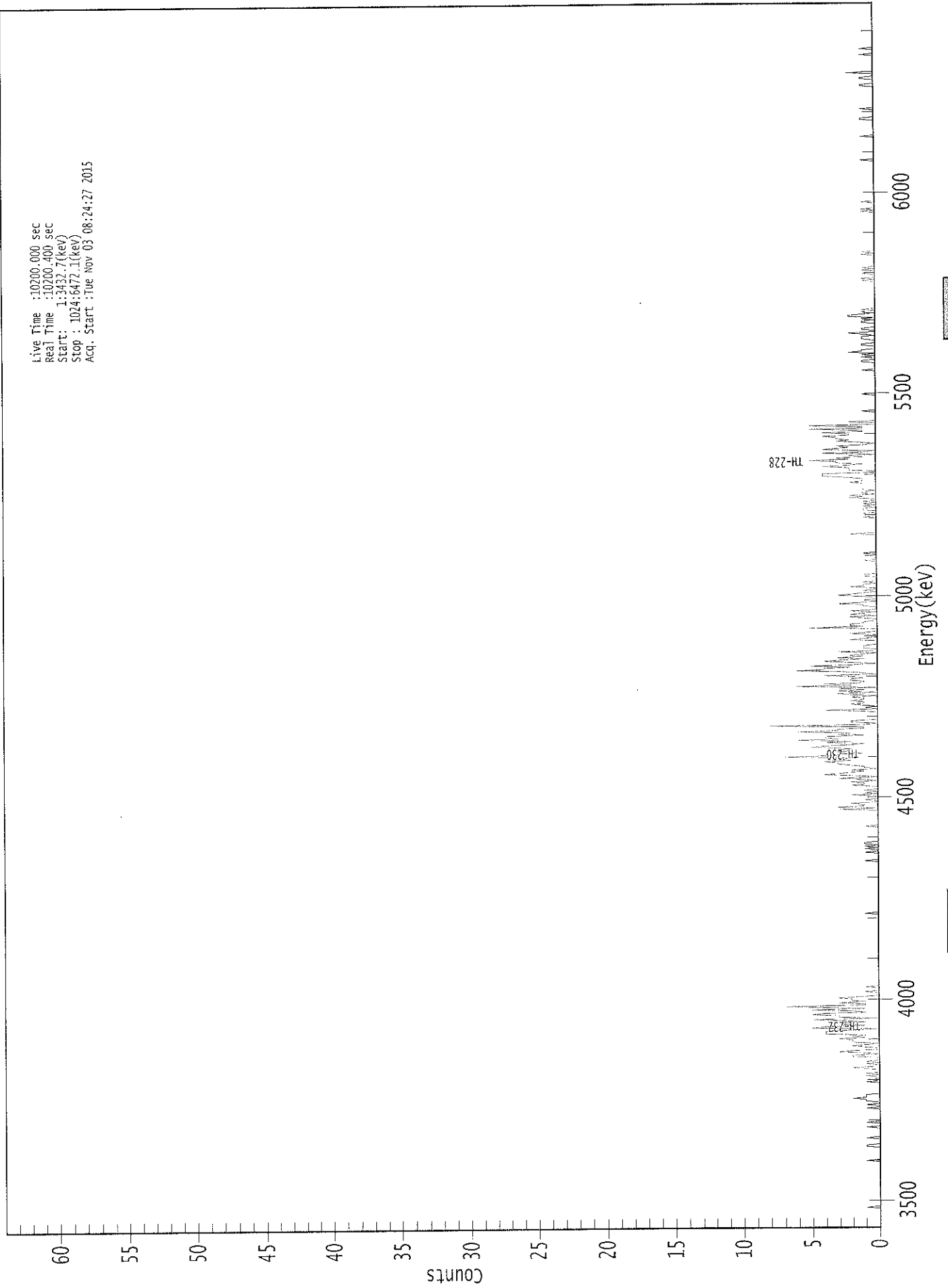
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.20E-001 +/- 7.55E-002	6.00E-002 +/- 1.04E-002
TH-228	0.978	5400.00*	1.38E+000 +/- 3.38E-001	6.68E-002 +/- 1.16E-002
TH-229	0.999	4872.00*	1.51E+000 +/- 2.64E-001	7.12E-002 +/- 1.24E-002
TH-230	0.979	4672.00*	1.63E+000 +/- 3.82E-001	4.95E-002 +/- 8.63E-003
TH-232	0.980	3997.00*	1.29E+000 +/- 3.20E-001	6.51E-002 +/- 1.14E-002

AG
11/3/15

0000133005.CNF

Live Time :10200.000 sec
Real Time :10200.400 sec
Start: 1:3432.7(kev)
Stop : 1024.6472.1(kev)
Acq. Start :Tue Nov 03 08:24:27 2015



ROI Type: 1

ROI Type: 3

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

Sample Title: 06

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 2 1 1 2 0 1 3

Sample Title: 06

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

801: 0 1 0 0 0 0 0 0 0

Sample Title: 06

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

KB
11/3/15

Apex-Alpha™

Sample Description: CP0603S12-13
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 07
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_049
 Chamber Serial Number: 10006121A
 Detector Serial Number: 49
 Env. Background: System Bkgd 133279
 Reagent Blank: <not performed>

Sample Size: 1.529E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:28 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: 0.1901 +/- 0.0160
 Counting Efficiency: 0.1525 +/- 0.0027 on 12/13/2014 2:45:02 PM
 Chem. Recovery Factor: 1.2462 +/- 0.1075

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	5.818	7.00	79.20	0.00	0.00E+000	3.0
TH-228	5.358	155.66	15.73	0.34	0.00E+000	3.1
TH-229	4.866	163.32	15.37	0.68	0.00E+000	5.9
TH-230	4.617	140.64	16.62	1.36	0.00E+000	10.1
TH-232	3.949	109.49	18.78	0.51	0.00E+000	3.7

T = Tracer Peak used for Effective Efficiency

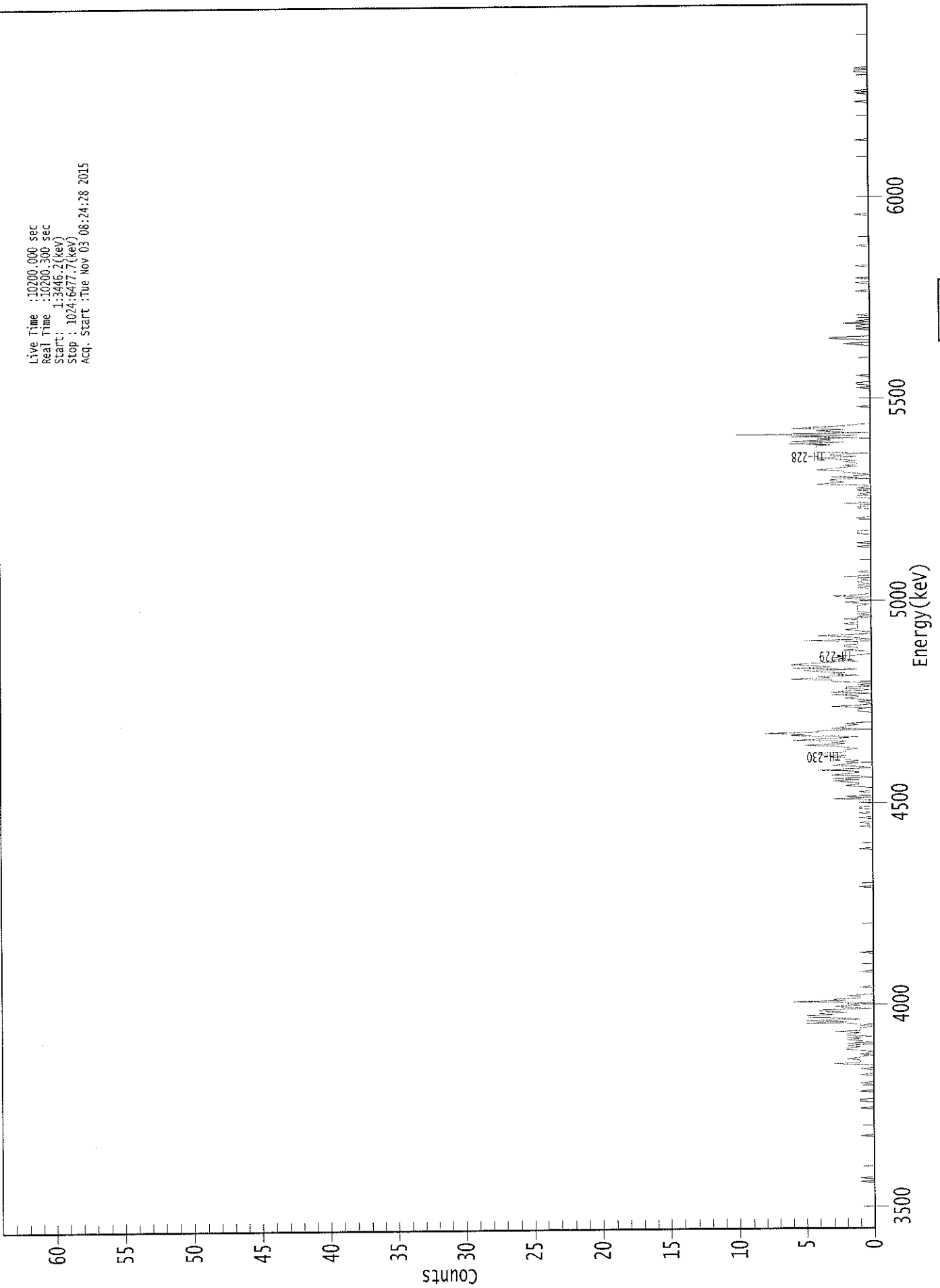
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	6.56E-002 +/- 5.31E-002	5.62E-002 +/- 9.29E-003
TH-228	0.991	5400.00*	1.46E+000 +/- 3.32E-001	4.47E-002 +/- 7.39E-003
TH-229	1.000	4872.00*	1.50E+000 +/- 2.47E-001	5.17E-002 +/- 8.54E-003
TH-230	0.984	4672.00*	1.28E+000 +/- 3.01E-001	6.26E-002 +/- 1.03E-002
TH-232	0.988	3997.00*	9.98E-001 +/- 2.50E-001	4.78E-002 +/- 7.91E-003

AG
 11/3/15

0000133001.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start: 1:3446.2(kev)
Stop : 1024:6477.7(kev)
Acq. Start :Tue Nov 03 08:24:28 2015



00201

ROI Type: 1

ROI Type: 3

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

Sample Title: 07

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 1 2 1 1 2 3 1

Sample Title: 07

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

801: 0 0 0 0 1 0 0 0

Sample Title: 07

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

Apex-Alpha™

KB
11/3/14

Sample Description: CP0603S14-15
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001329
 Batch Identification: 1510090A-TH
 Sample Identification: 08
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_050
 Chamber Serial Number: 10006121B
 Detector Serial Number: 50
 Env. Background: System Bkgd 133280
 Reagent Blank: <not performed>

Sample Size: 1.557E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:30 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: 0.1596 +/- 0.0145
 Counting Efficiency: 0.1428 +/- 0.0026 on 12/13/2014 2:43:59 PM
 Chem. Recovery Factor: 1.1178 +/- 0.1039

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	5.889	7.32	76.28	0.68	0.00E+000	3.0
TH-228	5.367	134.13	17.06	1.87	0.00E+000	14.8
TH-229 T	4.867	137.15	16.80	0.85	0.00E+000	5.7
TH-230	4.628	147.66	16.15	0.34	0.00E+000	5.0
TH-232	3.941	123.83	17.63	0.17	0.00E+000	8.1

T = Tracer Peak used for Effective Efficiency

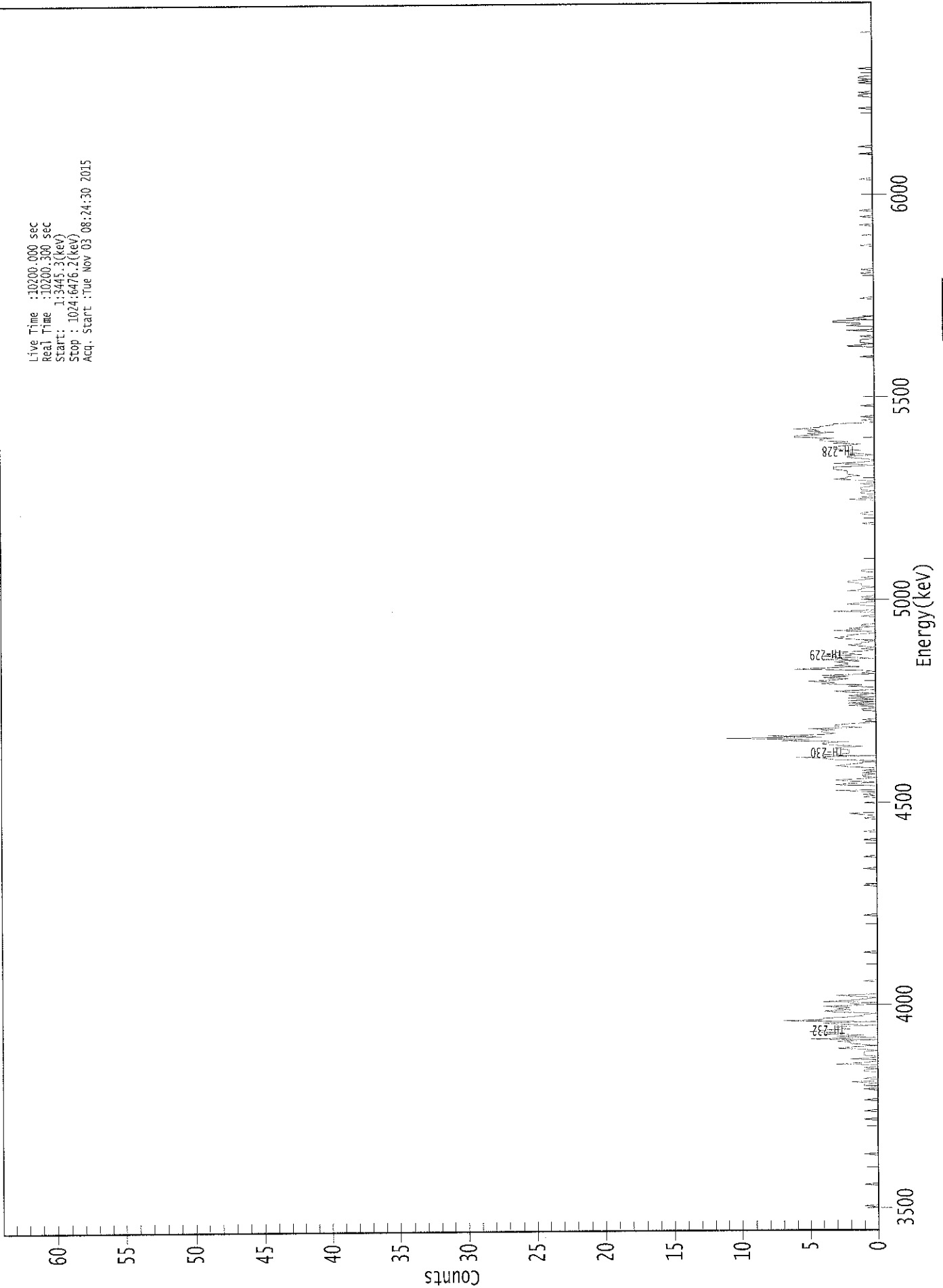
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.992	5850.00*	8.02E-002 +/- 6.28E-002	6.18E-002 +/- 1.10E-002
TH-228	0.994	5400.00*	1.47E+000 +/- 3.62E-001	8.28E-002 +/- 1.48E-002
TH-229	1.000	4872.00*	1.47E+000 +/- 2.62E-001	6.41E-002 +/- 1.15E-002
TH-230	0.990	4672.00*	1.58E+000 +/- 3.80E-001	5.11E-002 +/- 9.12E-003
TH-232	0.983	3997.00*	1.32E+000 +/- 3.31E-001	4.45E-002 +/- 7.95E-003

AG
11/3/15

0000132993.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start: 1:3445.3(keV)
Stop : 1024:6476.2(keV)
Acq. Start :Tue Nov 03 08:24:30 2015



ROI Type: 1

ROI Type: 3

: 00206

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

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369: 0 0 0 3 2 0 2 3

Sample Title: 08

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

801: 1 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	1	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	1	0	0
841:	0	0	0	0	1	0	0	0
849:	0	1	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	1	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	1	0	0	0	0	0	1	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	1	0
937:	0	0	0	0	0	0	0	0
945:	1	1	0	1	0	0	0	0
953:	0	0	0	1	0	1	0	1
961:	1	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

KCS
11/3/15

Apex-Alpha™

Sample Description: CP0603S17-18
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 09
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_051
 Chamber Serial Number: 10006123A
 Detector Serial Number: 51
 Env. Background: System Bkgd 133281
 Reagent Blank: <not performed>

Sample Size: 1.541E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:32 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: 0.1311 +/- 0.0131
 Counting Efficiency: 0.1524 +/- 0.0027 on 12/13/2014 2:42:37 PM
 Chem. Recovery Factor: 0.8602 +/- 0.0874

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	10.77	69.42	3.23	0.00E+000	0.0
TH-228	5.357	124.69	18.14	7.31	0.00E+000	12.6
TH-229 T	4.867	112.47	18.63	1.53	0.00E+000	4.0
TH-230	4.625	117.47	18.22	1.53	0.00E+000	4.1
TH-232	3.951	126.32	17.49	0.68	0.00E+000	4.0

T = Tracer Peak used for Effective Efficiency

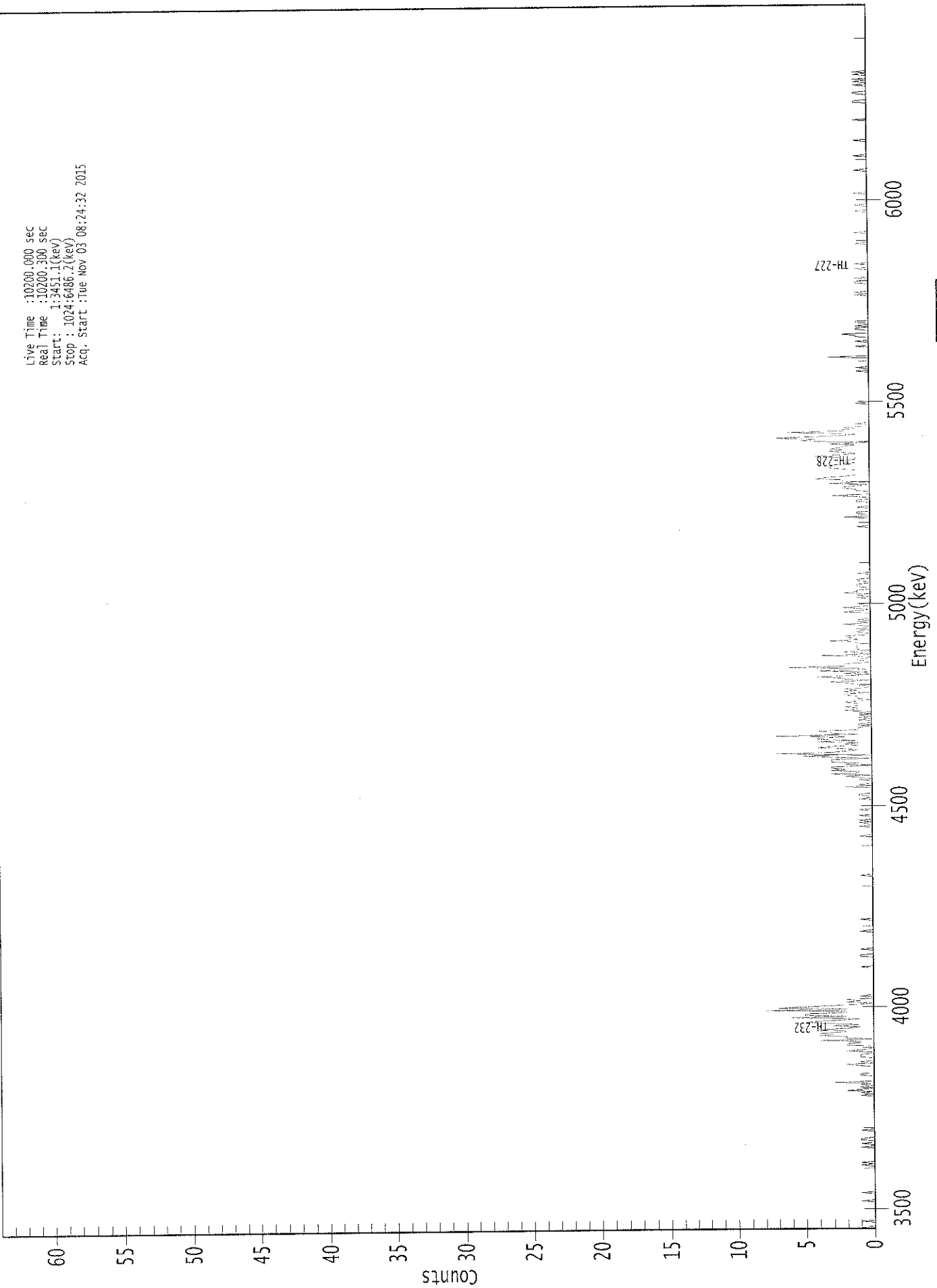
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.45E-001 +/- 1.05E-001	1.23E-001 +/- 2.40E-002
TH-228	0.990	5400.00*	1.68E+000 +/- 4.48E-001	1.66E-001 +/- 3.25E-002
TH-229	1.000	4872.00*	1.48E+000 +/- 2.91E-001	9.37E-002 +/- 1.84E-002
TH-230	0.989	4672.00*	1.54E+000 +/- 4.13E-001	9.34E-002 +/- 1.83E-002
TH-232	0.989	3997.00*	1.66E+000 +/- 4.35E-001	7.40E-002 +/- 1.45E-002

AG
 11/3/15

0000133002.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3451.1(rev)
Stop : 1024:6486.2(rev)
Acq. Start : Tue Nov 03 08:24:32 2015



ROI Type: 1

ROI Type: 3

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

Sample Title: 09

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 0 2 0 1 0 0 0 1

Sample Title: 09

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

801: 0 0 1 0 0 0 0 1 0

Sample Title: 09

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

LB
11/3/15

Apex-Alpha™

Sample Description: CP0603S19-20
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001329
 Batch Identification: 1510090A-TH
 Sample Identification: 10
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_052
 Chamber Serial Number: 10006123B
 Detector Serial Number: 52
 Env. Background: System Bkgd 133282
 Reagent Blank: <not performed>

Sample Size: 1.521E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:34 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: 0.1778 +/- 0.0154
 Counting Efficiency: 0.1607 +/- 0.0029 on 12/13/2014 2:40:57 PM
 Chem. Recovery Factor: 1.1065 +/- 0.0980

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	5.876	2.32	149.12	0.68	0.00E+000	2.9
TH-228	5.352	142.15	16.50	0.85	0.00E+000	7.4
TH-229 T	4.853	152.66	15.88	0.34	0.00E+000	3.9
TH-230	4.604	134.32	16.96	0.68	0.00E+000	3.7
TH-232	3.936	128.15	17.38	0.85	0.00E+000	3.7

T = Tracer Peak used for Effective Efficiency

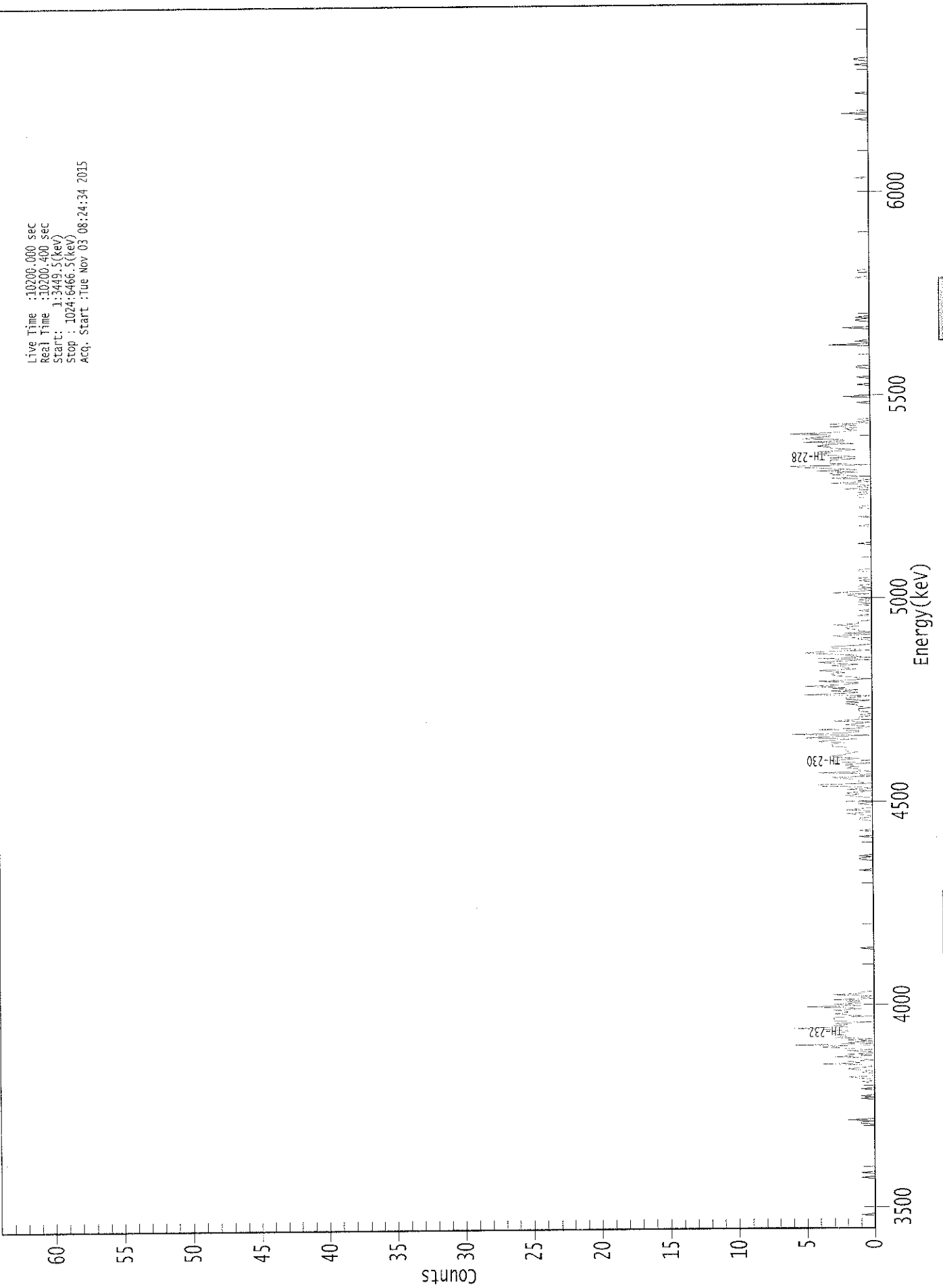
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	2.34E-002 +/- 3.51E-002	5.68E-002 +/- 9.66E-003
TH-228	0.988	5400.00*	1.43E+000 +/- 3.39E-001	6.02E-002 +/- 1.02E-002
TH-229	0.998	4872.00*	1.50E+000 +/- 2.56E-001	4.71E-002 +/- 8.01E-003
TH-230	0.976	4672.00*	1.32E+000 +/- 3.17E-001	5.54E-002 +/- 9.42E-003
TH-232	0.981	3997.00*	1.26E+000 +/- 3.05E-001	5.87E-002 +/- 9.98E-003

AG
11/3/15

0000132994.CNF

Live Time :10209.040 sec
Real Time :10209.400 sec
Start : 1:3449.5(kev)
Stop : 1024:6466.5(kev)
Acq. Start :Tue Nov 03 08:24:34 2015



: 00216

ROI Type: 1

ROI Type: 3

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

Sample Title: 10

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 1 4 4 0 1 1 1 2

Sample Title: 10

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

801: 0 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	1	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	2	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	1	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	1	0	0	0	1
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

KB
11/3/15

Apex-Alpha™

Sample Description: CP0603S21-22
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001329
 Batch Identification: 1510090A-TH
 Sample Identification: 11
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_053
 Chamber Serial Number: 10006122A
 Detector Serial Number: 53
 Env. Background: System Bkgd 133283
 Reagent Blank: <not performed>

Sample Size: 1.522E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:36 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: 0.1990 +/- 0.0165
 Counting Efficiency: 0.1455 +/- 0.0026 on 12/13/2014 2:39:33 PM
 Chem. Recovery Factor: 1.3679 +/- 0.1160

Peak Match Tolerance: 0.175 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.847	11.81	60.30	1.19	0.00E+000	3.0
TH-228	5.367	146.81	16.25	1.19	0.00E+000	4.1
TH-229 T	4.864	170.15	15.07	0.85	0.00E+000	4.0
TH-230	4.623	143.32	16.42	0.68	0.00E+000	5.2
TH-232	3.955	139.32	16.65	0.68	0.00E+000	4.2

T = Tracer Peak used for Effective Efficiency

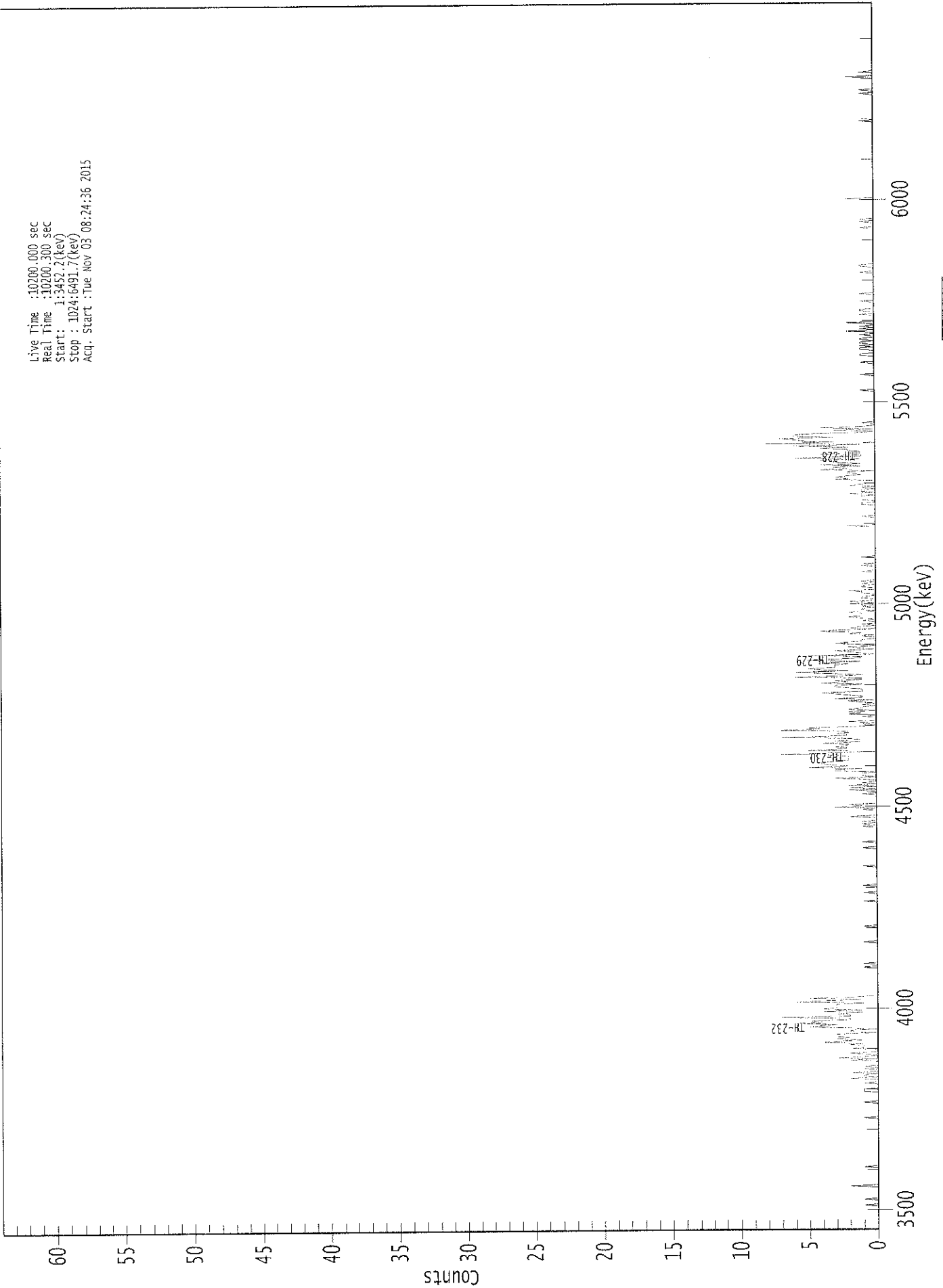
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.06E-001 +/- 6.63E-002	5.92E-002 +/- 9.62E-003
TH-228	0.994	5400.00*	1.32E+000 +/- 3.03E-001	5.91E-002 +/- 9.60E-003
TH-229	1.000	4872.00*	1.50E+000 +/- 2.43E-001	5.26E-002 +/- 8.55E-003
TH-230	0.988	4672.00*	1.26E+000 +/- 2.90E-001	4.94E-002 +/- 8.03E-003
TH-232	0.991	3997.00*	1.22E+000 +/- 2.83E-001	4.93E-002 +/- 8.02E-003

AG
11/3/15

0000132995.CNF

Live Time : 10200.000 sec
Real Time : 10200.300 sec
Start : 1:3452.2(keV)
Stop : 1024:6491.7(keV)
Acq. Start : Tue Nov 03 08:24:36 2015



: 00221

ROI Type: 3

ROI Type: 1

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

Sample Title: 11

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 2 0 2 0 1 0 0 1

Sample Title: 11

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

801: 0 0 1 1 0 0 0 0

Sample Title: 11

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

KCB
11/3/15

Apex-Alpha™

Sample Description: CP0603S24-25
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001329
 Batch Identification: 1510090A-TH
 Sample Identification: 12
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_054
 Chamber Serial Number: 10006122B
 Detector Serial Number: 54
 Env. Background: System Bkgd 133284
 Reagent Blank: <not performed>

Sample Size: 1.503E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:39 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: 0.1661 +/- 0.0148
 Counting Efficiency: 0.1452 +/- 0.0026 on 12/13/2014 2:38:19 PM
 Chem. Recovery Factor: 1.1440 +/- 0.1042

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.867	11.66	58.37	0.34	0.00E+000	3.0
TH-228	5.357	122.49	17.75	0.51	0.00E+000	3.6
TH-229 T	4.861	142.83	16.41	0.17	0.00E+000	3.7
TH-230	4.623	109.83	18.72	0.17	0.00E+000	3.7
TH-232	3.950	115.83	18.23	0.17	0.00E+000	3.2

T = Tracer Peak used for Effective Efficiency

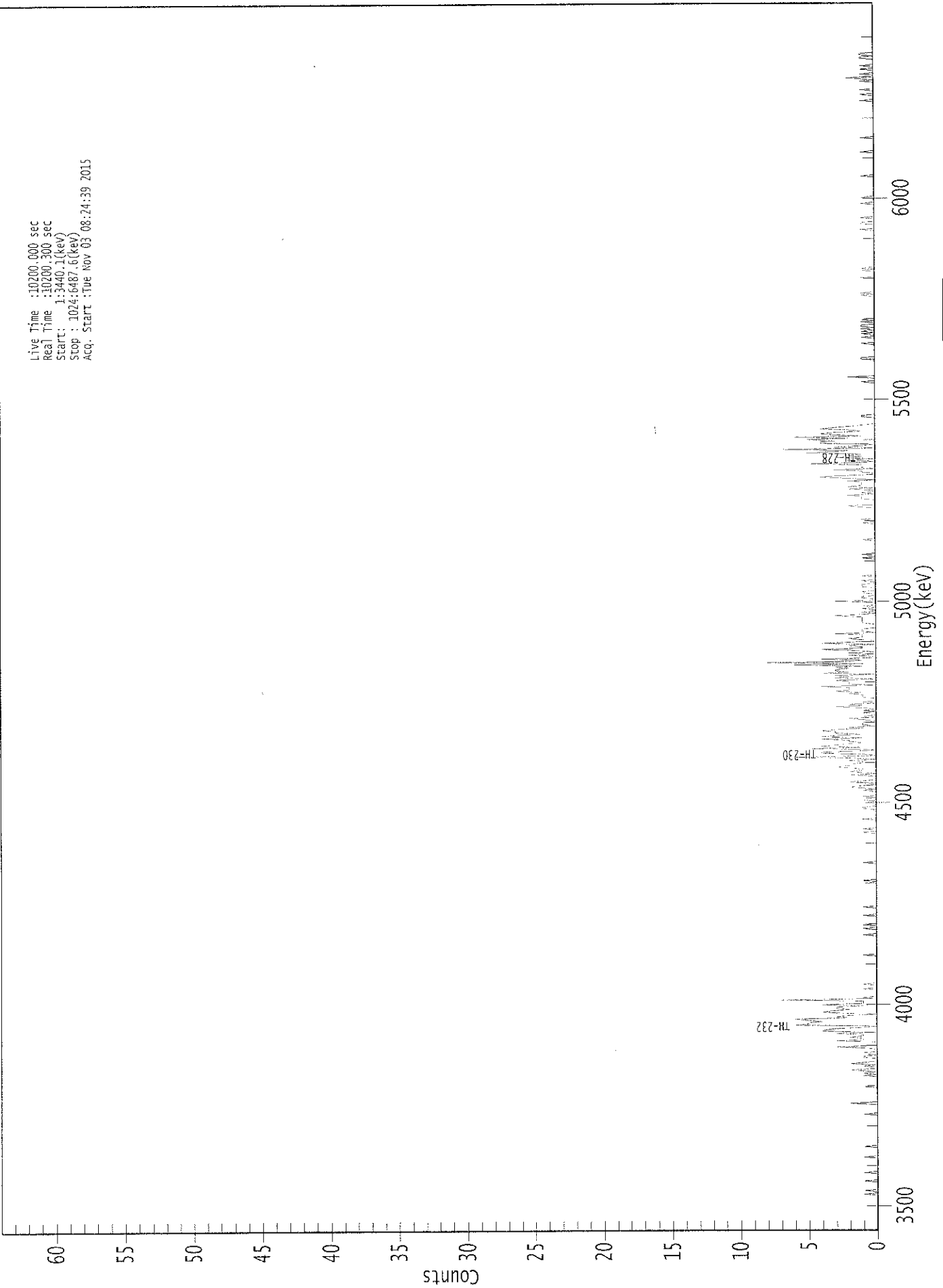
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.27E-001 +/- 7.75E-002	5.22E-002 +/- 9.13E-003
TH-228	0.991	5400.00*	1.33E+000 +/- 3.32E-001	5.71E-002 +/- 1.00E-002
TH-229	0.999	4872.00*	1.52E+000 +/- 2.67E-001	4.45E-002 +/- 7.79E-003
TH-230	0.987	4672.00*	1.17E+000 +/- 2.99E-001	4.44E-002 +/- 7.76E-003
TH-232	0.988	3997.00*	1.23E+000 +/- 3.11E-001	4.43E-002 +/- 7.75E-003

AG
 11/3/15

0000132996.CNF

Live Time :10200.000 sec
Real Time :10200.300 sec
Start : 1:3440.1(keV)
Stop : 1024:6487.6(keV)
Acq. Start :Tue Nov 03 08:24:39 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 12

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 1 2 1 0 0 2 1 0

Sample Title: 12

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

801: 0 1 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	1	0	0	0	0	1	1
841:	0	0	0	1	0	0	0	0
849:	0	0	0	0	0	0	0	1
857:	0	0	0	0	1	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	1	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	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	1	0	0
945:	0	0	1	0	0	0	1	0
953:	0	0	0	0	0	1	0	1
961:	2	0	0	1	0	0	0	1
969:	0	0	1	0	0	0	0	0
977:	1	1	0	1	1	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB
11/3/15

Sample Description: CP0603S26-27
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 13
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_055
 Chamber Serial Number: 10006124A
 Detector Serial Number: 55
 Env. Background: System Bkgd 133285
 Reagent Blank: <not performed>

Sample Size: 1.513E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:41 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: 0.1546 +/- 0.0143
 Counting Efficiency: 0.1564 +/- 0.0028 on 12/13/2014 2:35:48 PM
 Chem. Recovery Factor: 0.9885 +/- 0.0933

Peak Match Tolerance: 0.175 MeV

 PEAK AREA REPORT

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.844	9.49	65.59	0.51	0.00E+000	3.0
TH-228	5.339	114.47	18.46	1.53	0.00E+000	4.3
TH-229 T	4.862	132.64	17.12	1.36	0.00E+000	10.4
TH-230	4.615	123.98	17.69	1.02	0.00E+000	3.7
TH-232	3.937	109.49	18.78	0.51	0.00E+000	4.9

T = Tracer Peak used for Effective Efficiency

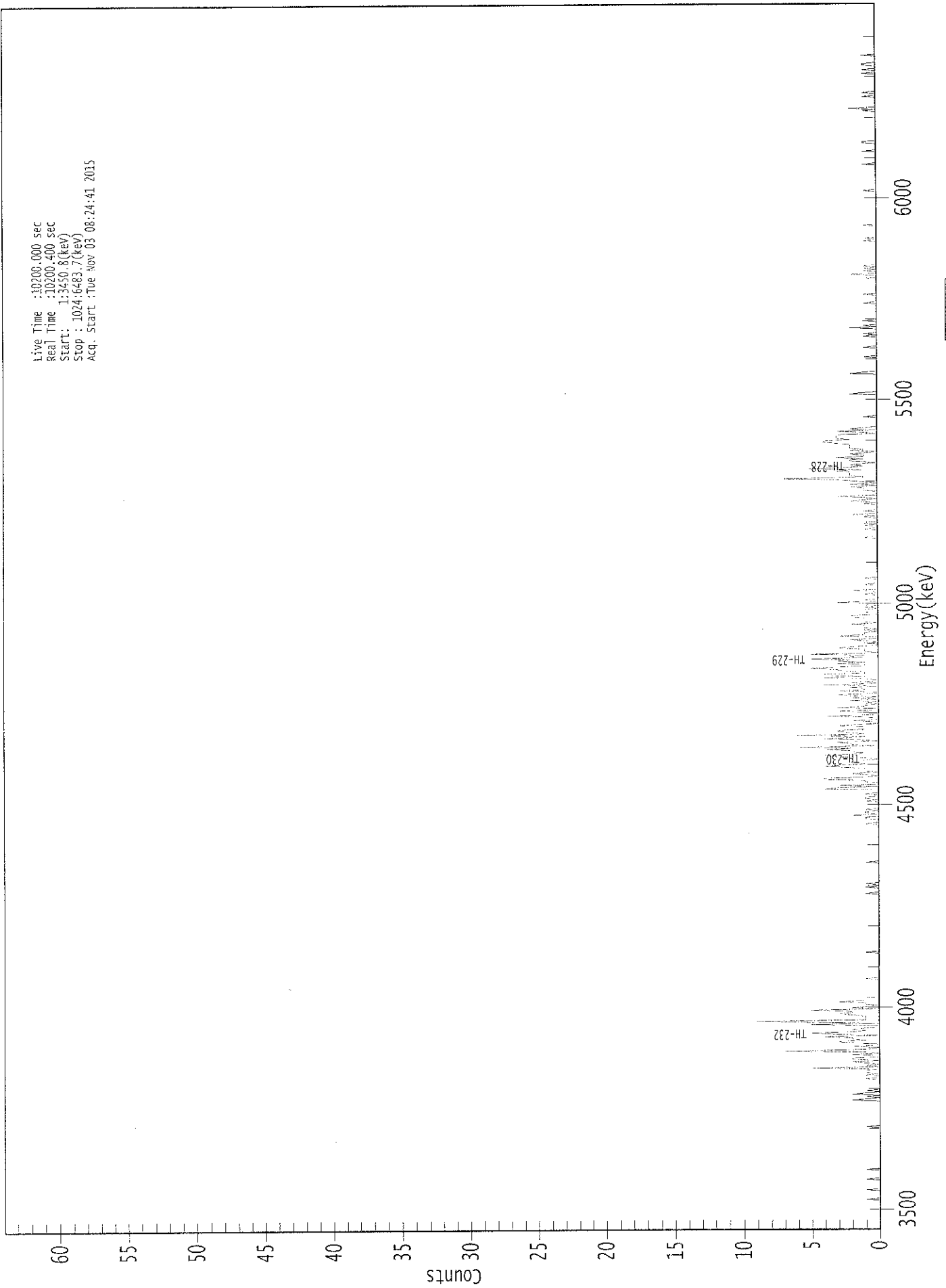
 NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.11E-001 +/- 7.52E-002	6.11E-002 +/- 1.11E-002
TH-228	0.981	5400.00*	1.33E+000 +/- 3.45E-001	8.26E-002 +/- 1.50E-002
TH-229	0.999	4872.00*	1.51E+000 +/- 2.74E-001	7.81E-002 +/- 1.42E-002
TH-230	0.983	4672.00*	1.41E+000 +/- 3.57E-001	7.15E-002 +/- 1.30E-002
TH-232	0.981	3997.00*	1.24E+000 +/- 3.24E-001	5.95E-002 +/- 1.08E-002

AG
11/3/15

0000133003.CNF

Live Time : 10200.000 sec
Real Time : 10200.460 sec
Start : 1:3450.8(keV)
Stop : 1024:6483.7(keV)
Acq. Start : Tue Nov 03 08:24:41 2015



ROI Type: 3

ROI Type: 1

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

Sample Title: 13

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

0231A

369: 3 0 3 0 0 1 1 4

Sample Title: 13

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

801: 0 1 0 1 0 0 0 0

Sample Title: 13

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

KB
11/3/15

Apex-Alpha™

Sample Description: CP0603S29-30
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001330
 Batch Identification: 1510090A-TH
 Sample Identification: 14
 Sample Geometry: Shelf 2
 Procedure Description: Th iso

Detector Name: Alpha_056
 Chamber Serial Number: 10006124B
 Detector Serial Number: 56
 Env. Background: System Bkgd 133286
 Reagent Blank: <not performed>

Sample Size: 1.507E+000 +/- 0.000E+000 gram
 Sample Date/Time: 10/9/2015 6:21:26 AM
 Acquisition Date/Time: 11/3/2015 8:24:43 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: 0.1234 +/- 0.0128
 Counting Efficiency: 0.1600 +/- 0.0028 on 12/13/2014 2:30:22 PM
 Chem. Recovery Factor: 0.7713 +/- 0.0809

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	5.802	6.47	87.07	1.53	0.00E+000	3.7
TH-228	5.329	111.13	18.77	1.87	0.00E+000	5.2
TH-229 T	4.852	105.62	19.32	2.38	0.00E+000	4.3
TH-230	4.601	129.98	17.27	1.02	0.00E+000	6.2
TH-232	3.931	105.64	19.21	1.36	0.00E+000	3.8

T = Tracer Peak used for Effective Efficiency

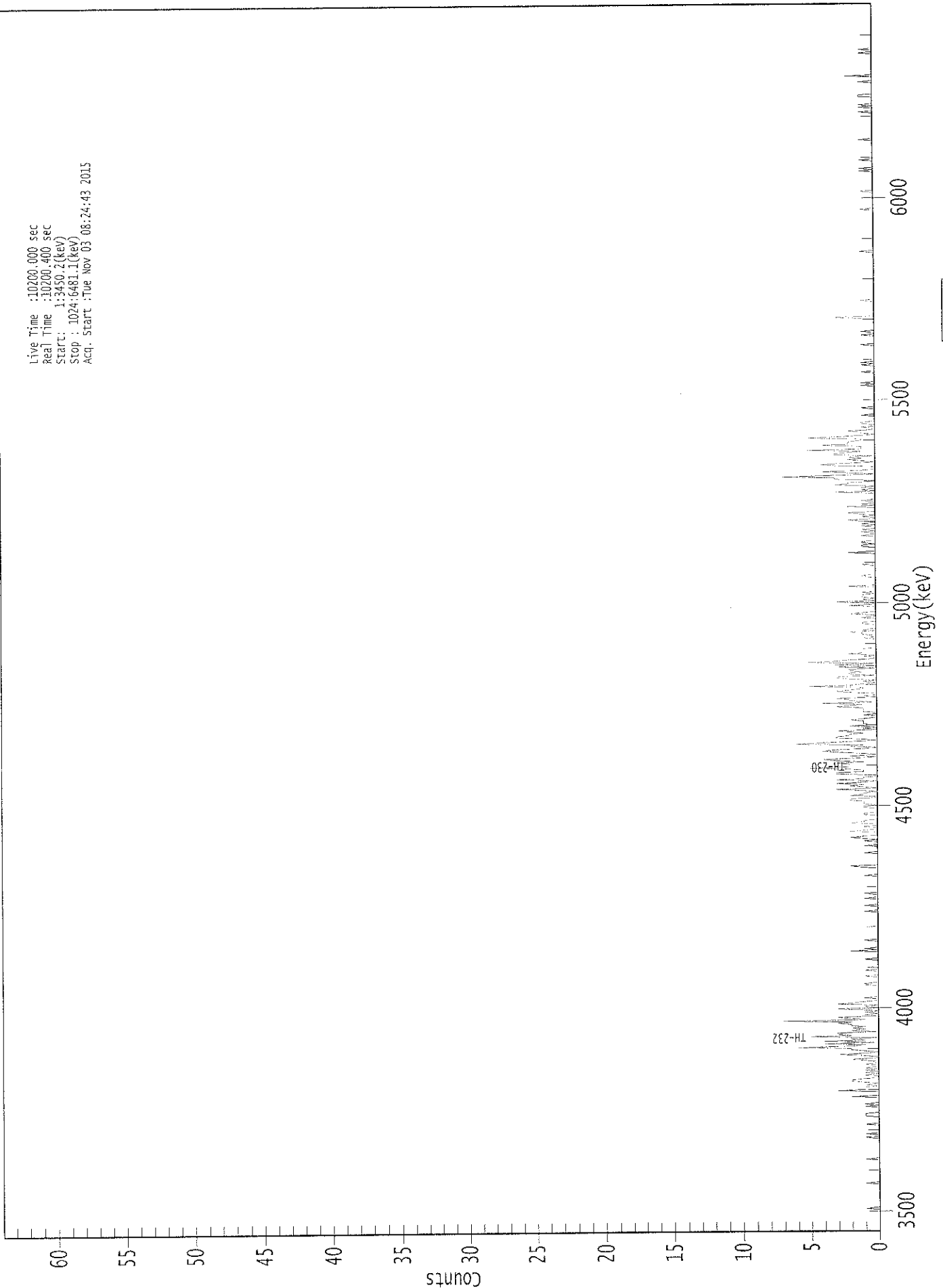
 ----- NUCLIDE ANALYSIS RESULTS -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	9.48E-002 +/- 8.47E-002	1.04E-001 +/- 2.11E-002
TH-228	0.974	5400.00*	1.62E+000 +/- 4.49E-001	1.11E-001 +/- 2.24E-002
TH-229	0.998	4872.00*	1.51E+000 +/- 3.06E-001	1.17E-001 +/- 2.38E-002
TH-230	0.974	4672.00*	1.86E+000 +/- 4.94E-001	8.99E-002 +/- 1.82E-002
TH-232	0.978	3997.00*	1.51E+000 +/- 4.20E-001	9.77E-002 +/- 1.98E-002

AG
11/3/15

0000133004.CNF

Live Time : 10200.000 sec
Real Time : 10200.460 sec
Start : 1:3450.2(keV)
Stop : 1024:6481.1(keV)
Acq. Start : Tue Nov 03 08:24:43 2015



ROI Type: 1

ROI Type: 3

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

Sample Title: 14

Elapsed Live time: 10200
 Elapsed Real Time: 10200

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

369: 3 0 1 2 1 3 1 0

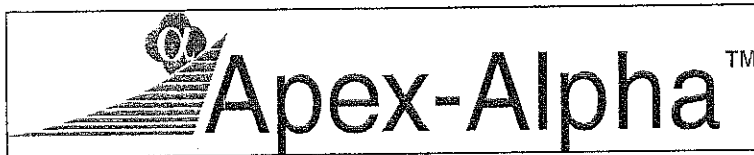
Sample Title: 14

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 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	0
849:	0	0	0	1	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	1	0	1	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	1	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	1	0	0	0
937:	1	0	1	0	0	0	0	0
945:	0	1	1	0	0	0	0	0
953:	0	0	0	0	0	1	0	0
961:	0	0	2	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	1	0	0
985:	1	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



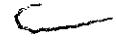
QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 11/3/2015
Time : 5:45:15 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	11/3/2015 5:19:43 AM
Alpha 004	21f	ALL	Passed	11/3/2015 5:19:44 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	11/3/2015 5:19:45 AM
Alpha 011	21f	ALL	Passed	11/3/2015 5:19:46 AM
Alpha 012	21f	ALL	Passed	11/3/2015 5:19:46 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	11/3/2015 5:19:47 AM
Alpha 015	21f	ALL	Passed	11/3/2015 5:19:48 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:49 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:51 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:52 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:54 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:55 AM
Alpha 038	Alpha Analyst100DC	Peak Energy	Action	11/3/2015 5:19:57 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:19:58 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:00 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:02 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:03 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:05 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:07 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:09 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:10 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:12 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:14 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:15 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:17 AM
Alpha 051	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:19 AM
Alpha 052	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:22 AM
Alpha 053	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:24 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:26 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:29 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:31 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:34 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:37 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:40 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	11/3/2015 5:20:43 AM

APPROVED BY:  _____

APPROVAL DATE: 11/3-

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

Nuclide Library Title: Thorium

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

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

* = key line

TOTALS: 5 Nuclides 5 Energy Lines

SECTION X
ANALYTICAL DATA (GAMMA SPECTROSCOPY)

Work Order	15-10090
Analysis Code	Gamma
Run	1
Date Received	10/14/2015
Lab Deadline	11/5/2015
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		10/15/15 00:00	1.0000E+00
02	MBL	BLANK		10/15/15 00:00	1.0000E+00
03	DUP	CP0603S03-04	36	10/09/15 15:00	5.8618E+02
04	DO	CP0603S03-04	36	10/09/15 15:00	5.8618E+02
05	TRG	CP0603S06-07	37	10/09/15 15:10	5.7232E+02
06	TRG	CP0603S09-10	40	10/09/15 15:20	5.6216E+02
07	TRG	CP0603S12-13	35	10/09/15 15:30	5.6004E+02
08	TRG	CP0603S14-15	35	10/09/15 15:40	5.4852E+02
09	TRG	CP0603S17-18	37	10/09/15 15:50	5.4073E+02
10	TRG	CP0603S19-20	38	10/09/15 16:00	5.1228E+02
11	TRG	CP0603S21-22	29	10/09/15 16:10	5.5210E+02
12	TRG	CP0603S24-25	37	10/09/15 16:20	5.2829E+02
13	TRG	CP0603S26-27	32	10/09/15 16:30	5.0570E+02
14	TRG	CP0603S29-30	35	10/09/15 16:40	5.7041E+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								

* 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								
02	MBL								
03	DUP								
04	DO	10/20/15 07:28	KSALLINGS						
05	TRG	10/20/15 07:28	KSALLINGS						
06	TRG	10/20/15 07:28	KSALLINGS						
07	TRG	10/20/15 07:28	KSALLINGS						
08	TRG	10/20/15 07:28	KSALLINGS						
09	TRG	10/20/15 07:28	KSALLINGS						
10	TRG	10/20/15 07:28	KSALLINGS						
11	TRG	10/20/15 07:28	KSALLINGS						
12	TRG	10/20/15 07:28	KSALLINGS						
13	TRG	10/20/15 07:28	KSALLINGS						
14	TRG	10/20/15 07:28	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: 15-10090-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	1.36E+02	9.37E+00	1.51E+00	1.37E+02	98.98	OK		10/15/15 00:00	1.00E+00	11/10/15 11:23	YES
01	CS-137	LCS	LCS	pCi/g	8.36E+01	8.06E+00	2.05E+00	8.69E+01	96.21	OK		10/15/15 00:00	1.00E+00	11/10/15 11:23	YES
02	AC-228	MBL	BLANK	pCi/g	1.33E-02	1.27E-01	2.31E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	BI-214	MBL	BLANK	pCi/g	1.30E-02	8.58E-02	1.46E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	K-40	MBL	BLANK	pCi/g	5.33E-02	4.19E-01	8.01E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	PB-212	MBL	BLANK	pCi/g	1.29E-02	5.89E-02	9.56E-02					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	PB-214	MBL	BLANK	pCi/g	6.89E-03	7.58E-02	1.25E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	RA-226	MBL	BLANK	pCi/g	1.30E-02	8.58E-02	1.46E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	RA-228	MBL	BLANK	pCi/g	1.33E-02	1.27E-01	2.31E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	TH-234	MBL	BLANK	pCi/g	5.65E-01	4.12E-01	6.98E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
02	TL-208	MBL	BLANK	pCi/g	-3.92E-02	1.17E-01	1.72E-01					10/15/15 00:00	1.00E+00	11/10/15 09:46	NO
03	AC-228	DUP	CP0603S03-04	pCi/g	1.62E+00	2.19E-01	3.42E-01				OK	10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	BI-214	DUP	CP0603S03-04	pCi/g	1.12E+00	1.55E-01	1.87E-01				OK	10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	K-40	DUP	CP0603S03-04	pCi/g	1.97E+01	2.25E+00	1.19E+00				OK	10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	PB-212	DUP	CP0603S03-04	pCi/g	1.71E+00	1.88E-01	2.36E-01					10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	PB-214	DUP	CP0603S03-04	pCi/g	1.28E+00	1.61E-01	2.04E-01					10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	RA-226	DUP	CP0603S03-04	pCi/g	1.12E+00	1.55E-01	1.87E-01					10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	RA-228	DUP	CP0603S03-04	pCi/g	1.62E+00	2.19E-01	3.42E-01					10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	TH-234	DUP	CP0603S03-04	pCi/g	1.96E+00	1.55E+00	2.57E+00					10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
03	TL-208	DUP	CP0603S03-04	pCi/g	1.43E+00	1.70E-01	1.97E-01					10/09/15 15:00	5.86E+02	11/10/15 09:46	YES
04	AC-228	DO	CP0603S03-04	pCi/g	1.48E+00	2.45E-01	4.01E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	BI-214	DO	CP0603S03-04	pCi/g	1.23E+00	1.65E-01	2.03E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	K-40	DO	CP0603S03-04	pCi/g	2.11E+01	2.31E+00	7.25E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	PB-212	DO	CP0603S03-04	pCi/g	1.58E+00	1.77E-01	2.26E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	PB-214	DO	CP0603S03-04	pCi/g	1.25E+00	1.61E-01	2.20E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	RA-226	DO	CP0603S03-04	pCi/g	1.23E+00	1.65E-01	2.03E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	RA-228	DO	CP0603S03-04	pCi/g	1.48E+00	2.45E-01	4.01E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	TH-234	DO	CP0603S03-04	pCi/g	2.18E+00	1.60E+00	2.65E+00					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
04	TL-208	DO	CP0603S03-04	pCi/g	1.20E+00	1.88E-01	2.19E-01					10/09/15 15:00	5.86E+02	11/10/15 10:49	YES
05	AC-228	TRG	CP0603S06-07	pCi/g	1.52E+00	2.17E-01	3.67E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	BI-214	TRG	CP0603S06-07	pCi/g	1.37E+00	1.92E-01	2.95E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	K-40	TRG	CP0603S06-07	pCi/g	2.04E+01	2.56E+00	8.70E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	PB-212	TRG	CP0603S06-07	pCi/g	1.53E+00	1.86E-01	2.64E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	PB-214	TRG	CP0603S06-07	pCi/g	1.51E+00	1.65E-01	2.03E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	RA-226	TRG	CP0603S06-07	pCi/g	1.37E+00	1.92E-01	2.95E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	RA-228	TRG	CP0603S06-07	pCi/g	1.52E+00	2.17E-01	3.67E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES
05	TH-234	TRG	CP0603S06-07	pCi/g	1.50E+00	9.57E-01	1.54E+00					10/09/15 15:10	5.72E+02	11/10/15 09:46	NO
05	TL-208	TRG	CP0603S06-07	pCi/g	1.13E+00	1.58E-01	1.66E-01					10/09/15 15:10	5.72E+02	11/10/15 09:46	YES

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-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	AC-228	TRG	CP0603S09-10	pCi/g	1.46E+00	2.85E-01	5.24E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	BI-214	TRG	CP0603S09-10	pCi/g	1.30E+00	2.09E-01	2.80E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	K-40	TRG	CP0603S09-10	pCi/g	2.08E+01	2.47E+00	1.12E+00					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	PB-212	TRG	CP0603S09-10	pCi/g	1.77E+00	1.94E-01	3.04E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	PB-214	TRG	CP0603S09-10	pCi/g	1.29E+00	1.72E-01	2.74E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	RA-226	TRG	CP0603S09-10	pCi/g	1.30E+00	2.09E-01	2.80E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	RA-228	TRG	CP0603S09-10	pCi/g	1.46E+00	2.85E-01	5.24E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	TH-234	TRG	CP0603S09-10	pCi/g	3.65E+00	2.09E+00	3.43E+00					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
06	TL-208	TRG	CP0603S09-10	pCi/g	1.42E+00	2.15E-01	1.40E-01					10/09/15 15:20	5.62E+02	11/10/15 09:46	YES
07	AC-228	TRG	CP0603S12-13	pCi/g	1.51E+00	2.18E-01	5.27E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	BI-214	TRG	CP0603S12-13	pCi/g	1.40E+00	1.65E-01	2.52E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	K-40	TRG	CP0603S12-13	pCi/g	2.24E+01	2.80E+00	1.06E+00					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	PB-212	TRG	CP0603S12-13	pCi/g	1.58E+00	1.90E-01	3.27E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	PB-214	TRG	CP0603S12-13	pCi/g	1.63E+00	1.85E-01	2.63E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	RA-226	TRG	CP0603S12-13	pCi/g	1.40E+00	1.65E-01	2.52E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	RA-228	TRG	CP0603S12-13	pCi/g	1.51E+00	2.18E-01	5.27E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
07	TH-234	TRG	CP0603S12-13	pCi/g	2.04E+00	1.00E+00	1.63E+00					10/09/15 15:30	5.60E+02	11/10/15 11:06	NO
07	TL-208	TRG	CP0603S12-13	pCi/g	1.19E+00	1.70E-01	1.58E-01					10/09/15 15:30	5.60E+02	11/10/15 11:06	YES
08	AC-228	TRG	CP0603S14-15	pCi/g	1.59E+00	2.73E-01	4.58E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	BI-214	TRG	CP0603S14-15	pCi/g	1.53E+00	2.69E-01	3.90E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	K-40	TRG	CP0603S14-15	pCi/g	2.25E+01	2.66E+00	9.61E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	PB-212	TRG	CP0603S14-15	pCi/g	1.79E+00	1.98E-01	2.73E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	PB-214	TRG	CP0603S14-15	pCi/g	1.48E+00	1.87E-01	3.06E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	RA-226	TRG	CP0603S14-15	pCi/g	1.53E+00	2.69E-01	3.90E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	RA-228	TRG	CP0603S14-15	pCi/g	1.59E+00	2.73E-01	4.58E-01					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
08	TH-234	TRG	CP0603S14-15	pCi/g	-2.93E-01	1.81E+00	2.27E+00					10/09/15 15:40	5.49E+02	11/10/15 11:23	NO
08	TL-208	TRG	CP0603S14-15	pCi/g	1.42E+00	2.27E-01	4.61E-02					10/09/15 15:40	5.49E+02	11/10/15 11:23	YES
09	AC-228	TRG	CP0603S17-18	pCi/g	1.48E+00	2.35E-01	4.73E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	BI-214	TRG	CP0603S17-18	pCi/g	1.34E+00	1.71E-01	2.24E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	K-40	TRG	CP0603S17-18	pCi/g	2.38E+01	2.59E+00	7.96E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	PB-212	TRG	CP0603S17-18	pCi/g	1.61E+00	1.84E-01	2.95E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	PB-214	TRG	CP0603S17-18	pCi/g	1.64E+00	1.67E-01	1.97E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	RA-226	TRG	CP0603S17-18	pCi/g	1.34E+00	1.71E-01	2.24E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	RA-228	TRG	CP0603S17-18	pCi/g	1.48E+00	2.35E-01	4.73E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	TH-234	TRG	CP0603S17-18	pCi/g	1.88E+00	1.33E+00	2.20E+00					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
09	TL-208	TRG	CP0603S17-18	pCi/g	1.42E+00	1.96E-01	2.26E-01					10/09/15 15:50	5.41E+02	11/10/15 11:51	YES
10	AC-228	TRG	CP0603S19-20	pCi/g	2.14E+00	5.60E-01	1.21E+00					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
10	BI-214	TRG	CP0603S19-20	pCi/g	1.52E+00	3.65E-01	6.56E-01					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES

Preliminary Data Report & Analytical Calculations
Work Order: 15-10090-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LSC %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
10	K-40	TRG	CP0603S19-20	pCi/g	2.21E+01	3.84E+00	2.38E+00					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
10	PB-212	TRG	CP0603S19-20	pCi/g	2.13E+00	3.90E-01	4.72E-01					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
10	PB-214	TRG	CP0603S19-20	pCi/g	1.47E+00	4.28E-01	6.00E-01					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
10	RA-226	TRG	CP0603S19-20	pCi/g	1.52E+00	3.55E-01	6.56E-01					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
10	RA-228	TRG	CP0603S19-20	pCi/g	2.14E+00	5.50E-01	1.21E+00					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
10	TH-234	TRG	CP0603S19-20	pCi/g	3.18E+00	1.56E+00	2.49E+00					10/09/15 16:00	5.12E+02	11/10/15 11:55	NO
10	TL-208	TRG	CP0603S19-20	pCi/g	1.46E+00	3.36E-01	2.55E-01					10/09/15 16:00	5.12E+02	11/10/15 11:55	YES
11	AC-228	TRG	CP0603S21-22	pCi/g	1.30E+00	2.07E-01	3.59E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	BI-214	TRG	CP0603S21-22	pCi/g	1.09E+00	1.56E-01	2.22E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	K-40	TRG	CP0603S21-22	pCi/g	1.96E+01	2.55E+00	1.28E+00					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	PB-212	TRG	CP0603S21-22	pCi/g	1.44E+00	1.76E-01	3.06E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	PB-214	TRG	CP0603S21-22	pCi/g	1.14E+00	1.59E-01	2.24E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	RA-226	TRG	CP0603S21-22	pCi/g	1.09E+00	1.56E-01	2.22E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	RA-228	TRG	CP0603S21-22	pCi/g	1.30E+00	2.07E-01	3.59E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	TH-234	TRG	CP0603S21-22	pCi/g	1.68E+00	1.72E+00	2.87E+00					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
11	TL-208	TRG	CP0603S21-22	pCi/g	1.06E+00	1.57E-01	1.12E-01					10/09/15 16:10	5.52E+02	11/10/15 12:07	YES
12	AC-228	TRG	CP0603S24-25	pCi/g	1.35E+00	2.84E-01	4.83E-01					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	BI-214	TRG	CP0603S24-25	pCi/g	1.22E+00	2.07E-01	2.24E-01					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	K-40	TRG	CP0603S24-25	pCi/g	2.15E+01	2.65E+00	1.35E+00					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	PB-212	TRG	CP0603S24-25	pCi/g	1.65E+00	1.89E-01	2.92E-01					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	PB-214	TRG	CP0603S24-25	pCi/g	1.09E+00	2.00E-01	3.25E-01					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	RA-226	TRG	CP0603S24-25	pCi/g	1.22E+00	2.07E-01	2.24E-01					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	RA-228	TRG	CP0603S24-25	pCi/g	1.35E+00	2.84E-01	4.83E-01					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	TH-234	TRG	CP0603S24-25	pCi/g	1.99E+00	1.90E+00	3.16E+00					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
12	TL-208	TRG	CP0603S24-25	pCi/g	1.28E+00	2.31E-01	4.79E-02					10/09/15 16:20	5.28E+02	11/10/15 12:25	YES
13	AC-228	TRG	CP0603S26-27	pCi/g	1.42E+00	2.47E-01	4.16E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	BI-214	TRG	CP0603S26-27	pCi/g	1.22E+00	1.72E-01	2.48E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	K-40	TRG	CP0603S26-27	pCi/g	2.26E+01	2.57E+00	1.28E+00					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	PB-212	TRG	CP0603S26-27	pCi/g	1.65E+00	1.89E-01	2.43E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	PB-214	TRG	CP0603S26-27	pCi/g	1.17E+00	1.55E-01	2.57E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	RA-226	TRG	CP0603S26-27	pCi/g	1.22E+00	1.72E-01	2.48E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	RA-228	TRG	CP0603S26-27	pCi/g	1.42E+00	2.47E-01	4.16E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	TH-234	TRG	CP0603S26-27	pCi/g	2.65E+00	1.93E+00	3.19E+00					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
13	TL-208	TRG	CP0603S26-27	pCi/g	1.38E+00	1.91E-01	1.01E-01					10/09/15 16:30	5.06E+02	11/10/15 12:52	YES
14	AC-228	TRG	CP0603S29-30	pCi/g	1.76E+00	4.56E-01	9.37E-01					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES
14	BI-214	TRG	CP0603S29-30	pCi/g	1.23E+00	2.89E-01	4.91E-01					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES
14	K-40	TRG	CP0603S29-30	pCi/g	1.99E+01	3.72E+00	3.22E+00					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES
14	PB-212	TRG	CP0603S29-30	pCi/g	1.88E+00	3.49E-01	4.26E-01					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
14	PB-214	TRG	CP0603S29-30	pCi/g	1.49E+00	3.23E-01	4.75E-01					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES
14	RA-226	TRG	CP0603S29-30	pCi/g	1.23E+00	2.89E-01	4.91E-01					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES
14	RA-228	TRG	CP0603S29-30	pCi/g	1.76E+00	4.66E-01	9.37E-01					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES
14	Th-234	TRG	CP0603S29-30	pCi/g	1.23E+00	1.43E+00	2.22E+00					10/09/15 16:40	5.70E+02	11/10/15 12:56	NO
14	Tl-208	TRG	CP0603S29-30	pCi/g	1.31E+00	3.13E-01	9.27E-02					10/09/15 16:40	5.70E+02	11/10/15 12:56	YES

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	10/15/15 00:00	1.0000				0.00		
02	MBL	BLANK	10/15/15 00:00	1.0000				0.00		
03	DUP	CP0603S03-04	10/09/15 15:00	586.1800				0.00		
04	DO	CP0603S03-04	10/09/15 15:00	586.1800				0.00		
05	TRG	CP0603S06-07	10/09/15 15:10	572.3200				0.00		
06	TRG	CP0603S09-10	10/09/15 15:20	562.1600				0.00		
07	TRG	CP0603S12-13	10/09/15 15:30	560.0400				0.00		
08	TRG	CP0603S14-15	10/09/15 15:40	548.5200				0.00		
09	TRG	CP0603S17-18	10/09/15 15:50	540.7300				0.00		
10	TRG	CP0603S19-20	10/09/15 16:00	512.2800				0.00		
11	TRG	CP0603S21-22	10/09/15 16:10	552.1000				0.00		
12	TRG	CP0603S24-25	10/09/15 16:20	528.2900				0.00		
13	TRG	CP0603S26-27	10/09/15 16:30	505.7000				0.00		
14	TRG	CP0603S29-30	10/09/15 16:40	570.4100				0.00		

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-10090	1	Gamma	grams	11/5/2015	KSALLINGS

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only Water Added (ml)	H3 Dist Aliq
			Ratio Post/Pre	No. of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv			
01	LCS	LCS						1.0000E+00	1.0000E+00				
02	BLANK	MBL						1.0000E+00	1.0000E+00				
03	CP0603S03-04	DUP						5.8618E+02	5.8618E+02				
04	CP0603S03-04	DO						5.8618E+02	5.8618E+02				
05	CP0603S06-07	TRG						5.7232E+02	5.7232E+02				
06	CP0603S09-10	TRG						5.6216E+02	5.6216E+02				
07	CP0603S12-13	TRG						5.6004E+02	5.6004E+02				
08	CP0603S14-15	TRG						5.4852E+02	5.4852E+02				
09	CP0603S17-18	TRG						5.4073E+02	5.4073E+02				
10	CP0603S19-20	TRG						5.1228E+02	5.1228E+02				
11	CP0603S21-22	TRG						5.5210E+02	5.5210E+02				
12	CP0603S24-25	TRG						5.2829E+02	5.2829E+02				
13	CP0603S26-27	TRG						5.0570E+02	5.0570E+02				
14	CP0603S29-30	TRG						5.7041E+02	5.7041E+02				

Comments

Technician: Kenny Seay Date: 10/20/15

**Rough Sample Preparation
 Log Book**

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
15-10090	11/5/2015	10/19/2015	10/20/2015	10/21/2015	KSALLINGS

Eberline Fraction	Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	CP0603S03-04	14.1000	1091.0800	1336.3800	1091.0800	1322.2800	1076.9800	18.55%	81.45%	0.0000	0.0000	
05	CP0603S06-07	14.0200	830.9000	1052.2200	830.9000	1038.2000	816.8800	21.32%	78.68%	0.0000	0.0000	
06	CP0603S09-10	14.1100	869.3400	1051.5400	869.3400	1037.4300	855.2300	17.56%	82.44%	0.0000	0.0000	
07	CP0603S12-13	14.1700	779.5100	946.8600	779.5100	932.6900	765.3400	17.94%	82.06%	0.0000	0.0000	
08	CP0603S14-15	14.1500	824.7000	1000.0800	824.7000	985.9300	810.5500	17.79%	82.21%	0.0000	0.0000	
09	CP0603S17-18	14.5600	737.5300	919.6600	737.5300	905.1000	722.9700	20.12%	79.88%	0.0000	0.0000	
10	CP0603S19-20	14.5200	849.7200	1054.7200	849.7200	1040.2000	835.2000	19.71%	80.29%	0.0000	0.0000	
11	CP0603S21-22	14.5500	679.1800	846.5600	679.1800	832.0100	664.6300	20.12%	79.88%	0.0000	0.0000	
12	CP0603S24-25	14.5000	873.5000	1092.4000	873.5000	1077.9000	859.0000	20.31%	79.69%	0.0000	0.0000	
13	CP0603S26-27	14.5200	749.6800	944.2400	749.6800	929.7200	735.1600	20.93%	79.07%	0.0000	0.0000	
14	CP0603S29-30	14.4600	649.0800	823.4600	649.0800	809.0000	634.6200	21.56%	78.44%	0.0000	0.0000	

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

00252

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* yps/gram	This Source yps	Uncertainty*, %			Calibration Method*
					u _A	u _B	U	
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)



NS
11/10/15Analysis Report for 1510090-01
GAS 1302

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-01
Sample Description : GAS 1302
Sample Type : SOIL

Sample Size : 7.360E+02 grams
Facility : Countroom

Sample Taken On : 7/1/2013 9:41:31AM
Acquisition Started : 11/10/2015 11:23:42AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 1800.0 seconds
Real Time : 1847.4 seconds

Dead Time : 2.56 %

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

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

Sample Number : 29390

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/11/15

Analysis Report for 1510090-01

GAS 1302

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 11:54:33AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
1	22.34	21.59	0.0000	0.00
2	31.99	31.24	0.0000	0.00
3	53.81	53.07	0.0000	0.00
4	59.43	58.69	0.0000	0.00
5	67.52	66.78	0.0000	0.00
6	87.87	87.15	0.0000	0.00
7	122.17	121.46	0.0000	0.00
8	136.56	135.85	0.0000	0.00
9	165.96	165.26	0.0000	0.00
10	391.27	390.67	0.0000	0.00
11	509.76	509.21	0.0000	0.00
12	661.87	661.40	0.0000	0.00
13	898.17	897.82	0.0000	0.00
14	915.16	914.83	0.0000	0.00
15	951.09	950.77	0.0000	0.00
16	1173.53	1173.33	0.0000	0.00
17	1290.56	1290.43	0.0000	0.00
18	1332.85	1332.75	0.0000	0.00
19	1497.74	1497.74	0.0000	0.00
20	1654.20	1654.30	0.0000	0.00
21	1836.33	1836.54	0.0000	0.00
22	1939.99	1940.27	0.0000	0.00
23	2196.21	2196.67	0.0000	0.00
24	2213.15	2213.62	0.0000	0.00
25	2506.12	2506.81	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-01

GAS 1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 11:54:33AM

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	22.34	19 -	25	21.59	7.06E+04	774.69	5.91E+04	2.59
2	31.99	29 -	34	31.24	1.05E+03	236.33	1.04E+04	2.18
M 3	53.81	43 -	63	53.07	1.83E+04	998.20	5.73E+04	6.63
m 4	59.43	43 -	63	58.69	5.56E+04	601.22	1.89E+04	2.35
5	67.52	64 -	70	66.78	6.77E+02	331.89	1.97E+04	3.62
6	87.87	81 -	93	87.15	2.56E+04	597.36	2.90E+04	2.47
7	122.17	117 -	126	121.46	5.34E+03	348.44	1.42E+04	2.54
8	136.56	132 -	140	135.85	6.69E+02	283.11	1.19E+04	2.45
9	165.96	161 -	169	165.26	8.04E+02	264.08	1.02E+04	2.62
10	391.27	387 -	394	390.67	2.03E+02	174.65	4.95E+03	2.89
11	509.76	504 -	513	509.21	2.47E+02	178.56	4.40E+03	5.44
12	661.87	656 -	667	661.40	1.18E+04	278.62	3.78E+03	2.61
13	898.17	893 -	901	897.82	1.39E+02	145.41	3.18E+03	2.13
14	915.16	912 -	917	914.83	1.03E+02	107.30	2.22E+03	3.00
15	951.09	948 -	955	950.77	1.20E+02	143.08	3.35E+03	2.40
16	1173.53	1168 -	1179	1173.33	9.96E+03	225.98	1.39E+03	2.87
17	1290.56	1283 -	1297	1290.43	7.57E+01	65.53	4.21E+02	11.86
18	1332.85	1325 -	1338	1332.75	8.98E+03	198.38	4.01E+02	2.84
19	1497.74	1492 -	1508	1497.74	3.78E+01	24.60	4.64E+01	4.13
20	1654.20	1652 -	1659	1654.30	1.17E+01	13.11	2.26E+01	1.98
21	1836.33	1832 -	1843	1836.54	8.54E+01	22.09	1.93E+01	2.66
22	1939.99	1930 -	1950	1940.27	2.53E+01	22.24	3.14E+01	18.32
23	2196.21	2187 -	2205	2196.67	2.34E+01	14.22	9.29E+00	8.69
24	2213.15	2207 -	2218	2213.62	1.54E+01	10.39	5.28E+00	5.26
25	2506.12	2501 -	2510	2506.81	3.60E+01	12.00	0.00E+00	1.60

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 1510090-01

GAS 1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 11:54:33AM

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	22.34	19 - 25	7.06E+04	774.69	5.91E+04	4.63E+02
	2	31.99	29 - 34	1.05E+03	236.33	1.04E+04	1.87E+02
M	3	53.81	43 - 63	1.83E+04	998.20	5.73E+04	3.94E+02
m	4	59.43	43 - 63	5.56E+04	601.22	1.89E+04	2.26E+02
	5	67.52	64 - 70	6.77E+02	331.89	1.97E+04	2.69E+02
	6	87.87	81 - 93	2.56E+04	597.36	2.90E+04	4.15E+02
	7	122.17	117 - 126	5.34E+03	348.44	1.42E+04	2.60E+02
	8	136.56	132 - 140	6.69E+02	283.11	1.19E+04	2.29E+02
	9	165.96	161 - 169	8.04E+02	264.08	1.02E+04	2.12E+02
	10	391.27	387 - 394	2.03E+02	174.65	4.95E+03	1.42E+02
	11	509.76	504 - 513	2.47E+02	178.56	4.40E+03	1.44E+02
	12	661.87	656 - 667	1.18E+04	278.62	3.78E+03	1.43E+02
	13	898.17	893 - 901	1.39E+02	145.41	3.18E+03	1.18E+02
	14	915.16	912 - 917	1.03E+02	107.30	2.22E+03	8.66E+01
	15	951.09	948 - 955	1.20E+02	143.08	3.35E+03	1.16E+02
	16	1173.53	1168 - 1179	9.96E+03	225.98	1.39E+03	8.70E+01
	17	1290.56	1283 - 1297	7.57E+01	65.53	4.21E+02	5.19E+01
	18	1332.85	1325 - 1338	8.98E+03	198.38	4.01E+02	4.83E+01
	19	1497.74	1492 - 1508	3.78E+01	24.60	4.64E+01	1.75E+01
	20	1654.20	1652 - 1659	1.17E+01	13.11	2.26E+01	9.20E+00
	21	1836.33	1832 - 1843	8.54E+01	22.09	1.93E+01	9.95E+00
	22	1939.99	1930 - 1950	2.53E+01	22.24	3.14E+01	1.63E+01
	23	2196.21	2187 - 2205	2.34E+01	14.22	9.29E+00	8.58E+00
	24	2213.15	2207 - 2218	1.54E+01	10.39	5.28E+00	5.61E+00
	25	2506.12	2501 - 2510	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 1510090-01

GAS 1302

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 11:54:33AM

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	22.34	19 -	25	21.59	7.06E+04	774.69	5.91E+04	.....
2	31.99	29 -	34	31.24	1.05E+03	236.33	1.04E+04	.....
M 3	53.81	43 -	63	53.07	1.83E+04	998.20	5.73E+04	.....
m 4	59.43	43 -	63	58.69	5.56E+04	601.22	1.89E+04	AM-241
5	67.52	64 -	70	66.78	6.77E+02	331.89	1.97E+04	TH-230 TA-182 TI-44 TM-171
6	87.87	81 -	93	87.15	2.56E+04	597.36	2.90E+04	CD-109 SN-126 LU-176
7	122.17	117 -	126	121.46	5.34E+03	348.44	1.42E+04	CO-57 EU-152 EU-154
8	136.56	132 -	140	135.85	6.69E+02	283.11	1.19E+04	CO-57 SE-75
9	165.96	161 -	169	165.26	8.04E+02	264.08	1.02E+04	CE-139
10	391.27	387 -	394	390.67	2.03E+02	174.65	4.95E+03	SN-113
11	509.76	504 -	513	509.21	2.47E+02	178.56	4.40E+03	.....
12	661.87	656 -	667	661.40	1.18E+04	278.62	3.78E+03	CS-137
13	898.17	893 -	901	897.82	1.39E+02	145.41	3.18E+03	Y-88
14	915.16	912 -	917	914.83	1.03E+02	107.30	2.22E+03	.....
15	951.09	948 -	955	950.77	1.20E+02	143.08	3.35E+03	.....
16	1173.53	1168 -	1179	1173.33	9.96E+03	225.98	1.39E+03	CO-60
17	1290.56	1283 -	1297	1290.43	7.57E+01	65.53	4.21E+02	.....
18	1332.85	1325 -	1338	1332.75	8.98E+03	198.38	4.01E+02	CO-60
19	1497.74	1492 -	1508	1497.74	3.78E+01	24.60	4.64E+01	.....
20	1654.20	1652 -	1659	1654.30	1.17E+01	13.11	2.26E+01	.....
21	1836.33	1832 -	1843	1836.54	8.54E+01	22.09	1.93E+01	Y-88
22	1939.99	1930 -	1950	1940.27	2.53E+01	22.24	3.14E+01	.....
23	2196.21	2187 -	2205	2196.67	2.34E+01	14.22	9.29E+00	.....
24	2213.15	2207 -	2218	2213.62	1.54E+01	10.39	5.28E+00	.....
25	2506.12	2501 -	2510	2506.81	3.60E+01	12.00	0.00E+00	.....

Analysis Report for 1510090-01

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 : 11/10/2015 11:54:33AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.34	7.06E+04	774.69	3.04E-02	1.78E-03
	2	31.99	1.05E+03	236.33	2.91E-02	1.78E-03
M	3	53.81	1.83E+04	998.20	2.49E-02	1.78E-03
m	4	59.43	5.56E+04	601.22	2.39E-02	1.78E-03
	5	67.52	6.77E+02	331.89	2.26E-02	1.74E-03
	6	87.87	2.56E+04	597.36	1.96E-02	1.63E-03
	7	122.17	5.34E+03	348.44	1.59E-02	1.53E-03
	8	136.56	6.69E+02	283.11	1.47E-02	1.42E-03
	9	165.96	8.04E+02	264.08	1.27E-02	1.21E-03
	10	391.27	2.03E+02	174.65	5.98E-03	7.37E-04
	11	509.76	2.47E+02	178.56	4.62E-03	5.63E-04
	12	661.87	1.18E+04	278.62	3.57E-03	3.40E-04
	13	898.17	1.39E+02	145.41	2.65E-03	2.08E-04
	14	915.16	1.03E+02	107.30	2.60E-03	2.06E-04
	15	951.09	1.20E+02	143.08	2.50E-03	2.01E-04
	16	1173.53	9.96E+03	225.98	2.05E-03	1.73E-04
	17	1290.56	7.57E+01	65.53	1.88E-03	2.04E-04
	18	1332.85	8.98E+03	198.38	1.83E-03	2.16E-04
	19	1497.74	3.78E+01	24.60	1.65E-03	1.81E-04
	20	1654.20	1.17E+01	13.11	1.51E-03	1.49E-04
	21	1836.33	8.54E+01	22.09	1.39E-03	1.11E-04
	22	1939.99	2.53E+01	22.24	1.33E-03	1.11E-04
	23	2196.21	2.34E+01	14.22	1.21E-03	1.11E-04
	24	2213.15	1.54E+01	10.39	1.20E-03	1.11E-04
	25	2506.12	3.60E+01	12.00	1.10E-03	1.11E-04

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

Analysis Report for 1510090-01

GAS 1302

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/10/2015 11:54:33AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	22.34	7.06E+04	774.69		7.06E+04	7.75E+02
	2	31.99	1.05E+03	236.33		1.05E+03	2.36E+02
M	3	53.81	1.83E+04	998.20		1.83E+04	9.98E+02
m	4	59.43	5.56E+04	601.22		5.56E+04	6.01E+02
	5	67.52	6.77E+02	331.89		6.77E+02	3.32E+02
	6	87.87	2.56E+04	597.36		2.56E+04	5.97E+02
	7	122.17	5.34E+03	348.44		5.34E+03	3.48E+02
	8	136.56	6.69E+02	283.11		6.69E+02	2.83E+02
	9	165.96	8.04E+02	264.08		8.04E+02	2.64E+02
	10	391.27	2.03E+02	174.65		2.03E+02	1.75E+02
	11	509.76	2.47E+02	178.56		2.47E+02	1.79E+02
	12	661.87	1.18E+04	278.62		1.18E+04	2.79E+02
	13	898.17	1.39E+02	145.41		1.39E+02	1.45E+02
	14	915.16	1.03E+02	107.30		1.03E+02	1.07E+02
	15	951.09	1.20E+02	143.08		1.20E+02	1.43E+02
	16	1173.53	9.96E+03	225.98		9.96E+03	2.26E+02
	17	1290.56	7.57E+01	65.53		7.57E+01	6.55E+01
	18	1332.85	8.98E+03	198.38		8.98E+03	1.98E+02
	19	1497.74	3.78E+01	24.60		3.78E+01	2.46E+01
	20	1654.20	1.17E+01	13.11		1.17E+01	1.31E+01
	21	1836.33	8.54E+01	22.09		8.54E+01	2.21E+01
	22	1939.99	2.53E+01	22.24		2.53E+01	2.22E+01
	23	2196.21	2.34E+01	14.22		2.34E+01	1.42E+01
	24	2213.15	1.54E+01	10.39		1.54E+01	1.04E+01
	25	2506.12	3.60E+01	12.00		3.60E+01	1.20E+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 1510090-01

GAS 1302

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 11:54:33AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.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	22.34	7.06E+04	774.69			7.06E+04	7.75E+02
	2	31.99	1.05E+03	236.33			1.05E+03	2.36E+02
M	3	53.81	1.83E+04	998.20			1.83E+04	9.98E+02
m	4	59.43	5.56E+04	601.22			5.56E+04	6.01E+02
	5	67.52	6.77E+02	331.89			6.77E+02	3.32E+02
	6	87.87	2.56E+04	597.36			2.56E+04	5.97E+02
	7	122.17	5.34E+03	348.44			5.34E+03	3.48E+02
	8	136.56	6.69E+02	283.11			6.69E+02	2.83E+02
	9	165.96	8.04E+02	264.08			8.04E+02	2.64E+02
	10	391.27	2.03E+02	174.65			2.03E+02	1.75E+02
	11	509.76	2.47E+02	178.56			2.47E+02	1.79E+02
	12	661.87	1.18E+04	278.62			1.18E+04	2.79E+02
	13	898.17	1.39E+02	145.41			1.39E+02	1.45E+02
	14	915.16	1.03E+02	107.30			1.03E+02	1.07E+02
	15	951.09	1.20E+02	143.08			1.20E+02	1.43E+02
	16	1173.53	9.96E+03	225.98			9.96E+03	2.26E+02
	17	1290.56	7.57E+01	65.53			7.57E+01	6.55E+01
	18	1332.85	8.98E+03	198.38			8.98E+03	1.98E+02
	19	1497.74	3.78E+01	24.60			3.78E+01	2.46E+01
	20	1654.20	1.17E+01	13.11			1.17E+01	1.31E+01
	21	1836.33	8.54E+01	22.09			8.54E+01	2.21E+01
	22	1939.99	2.53E+01	22.24			2.53E+01	2.22E+01
	23	2196.21	2.34E+01	14.22			2.34E+01	1.42E+01
	24	2213.15	1.54E+01	10.39			1.54E+01	1.04E+01
	25	2506.12	3.60E+01	12.00			3.60E+01	1.20E+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

: 00251

Analysis Report for 1510090-01
GAS 1302

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.949	122.06 *	85.51	7.26E+01	8.44E+00
		136.48 *	10.60	7.93E+01	3.45E+01
CO-60	0.981	1173.22 *	100.00	1.35E+02	1.18E+01
		1332.49 *	100.00	1.37E+02	1.64E+01
Y-88	0.714	898.02 *	93.40	3.12E+02	3.27E+02
		1836.01 *	99.38	3.43E+02	9.29E+01
CD-109	0.979	88.03 *	3.72	2.59E+03	2.71E+02
SN-113	0.693	255.12	1.93		
		391.69 *	64.90	1.92E+02	1.67E+02
SN-126	0.985	87.57 *	37.00	7.18E+01	6.20E+00
CS-137	0.992	661.65 *	85.12	8.36E+01	8.22E+00
CE-139	0.820	165.85 *	80.35	1.23E+02	4.21E+01
TM-171	0.897	66.72 *	0.14	1.02E+03	5.09E+02
AM-241	0.998	59.54 *	35.90	1.33E+02	9.97E+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 : 11/10/2015 11:54:33AM
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	22.34	3.92327E+01	0.55		
2	31.99	5.84413E-01	11.23		
M 3	53.81	1.01756E+01	2.72		
11	509.76	1.37307E-01	36.12		
14	915.16	5.70103E-02	52.28		
15	951.09	6.67837E-02	59.51		
17	1290.56	4.20455E-02	43.29		
19	1497.74	2.10109E-02	32.53		
20	1654.20	6.49758E-03	56.07		
22	1939.99	1.40583E-02	43.95		
23	2196.21	1.29762E-02	30.44		
24	2213.15	8.53395E-03	33.83		

Analysis Report for 1510090-01

GAS 1302

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
25	2506.12	2.00000E-02	16.67	Sum	

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	0.94	122.06 *	85.51	7.26E+01	8.44E+00
		136.48 *	10.60	7.93E+01	3.45E+01
CO-60	0.98	1173.22 *	100.00	1.35E+02	1.18E+01
		1332.49 *	100.00	1.37E+02	1.64E+01
Y-88	0.71	898.02 *	93.40	3.12E+02	3.27E+02
		1836.01 *	99.38	3.43E+02	9.29E+01
CD-109	0.97	88.03 *	3.72	2.59E+03	2.71E+02
SN-113	0.69	255.12	1.93		
		391.69 *	64.90	1.92E+02	1.67E+02
SN-126	0.98	87.57 *	37.00	7.18E+01	6.20E+00
CS-137	0.99	661.65 *	85.12	8.36E+01	8.22E+00
CE-139	0.82	165.85 *	80.35	1.23E+02	4.21E+01
TM-171	0.89	66.72 *	0.14	1.02E+03	5.09E+02
AM-241	0.99	59.54 *	35.90	1.33E+02	9.97E+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

Analysis Report for 1510090-01

GAS 1302

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
CO-57	0.949	7.30E+01	8.21E+00	
CO-60	0.981	1.36E+02	9.56E+00	
Y-88	0.714	3.41E+02	8.94E+01	
? CD-109	0.979	2.59E+03	2.71E+02	
SN-113	0.693	1.92E+02	1.67E+02	
? SN-126	0.985	7.18E+01	6.20E+00	
CS-137	0.992	8.36E+01	8.22E+00	
CE-139	0.820	1.23E+02	4.21E+01	
TM-171	0.897	1.02E+03	5.09E+02	
AM-241	0.998	1.33E+02	9.97E+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 1510090-01
 GAS 1302

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 11:54:33AM
 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	22.34	3.92327E+01	0.55		
2	31.99	5.84413E-01	11.23		
M 3	53.81	1.01756E+01	2.72		
11	509.76	1.37307E-01	36.12		
14	915.16	5.70103E-02	52.28		
15	951.09	6.67837E-02	59.51		
17	1290.56	4.20455E-02	43.29		
19	1497.74	2.10109E-02	32.53		
20	1654.20	6.49758E-03	56.07		
22	1939.99	1.40583E-02	43.95		
23	2196.21	1.29762E-02	30.44		
24	2213.15	8.53395E-03	33.83		
25	2506.12	2.00000E-02	16.67	Sum	

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	2.61E+05	6.85E+05	6.85E+05
+	NA-22	1274.54	99.94	-3.70E-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	1.00E+26		1.00E+26

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AL-26	1808.65	99.76	-2.47E-01	3.64E-01	3.64E-01
+	K-40	1460.81	10.67	1.76E+00	3.61E+00	3.61E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.50E+01	5.30E-01	5.30E-01
		78.34	96.00	-1.84E-01		5.77E-01
+	SC-46	889.25	99.98	3.91E+02	1.73E+03	1.77E+03
		1120.51	99.99	-6.52E+02		1.73E+03
+	V-48	983.52	99.98	7.46E+15	1.24E+16	2.64E+16
		1312.10	97.50	2.60E+15		1.24E+16
+	CR-51	320.08	9.83	-1.98E+09	1.77E+10	1.77E+10
+	MN-54	834.83	99.97	-3.20E+00	8.64E+00	8.64E+00
+	CO-56	846.75	99.96	3.23E+01	2.05E+03	2.61E+03
		1037.75	14.03	1.06E+04		2.11E+04
		1238.25	67.00	2.49E+01		2.21E+03
		1771.40	15.51	8.73E+02		4.71E+03
		2598.48	16.90	2.58E+02		2.05E+03
+	CO-57	122.06	* 85.51	7.26E+01	7.11E+00	7.11E+00
		136.48	* 10.60	7.93E+01		5.46E+01
+	CO-58	810.76	99.40	1.30E+02	5.66E+03	5.66E+03
+	FE-59	1099.22	56.50	-7.01E+05	1.05E+06	1.83E+06
		1291.56	43.20	4.25E+04		1.05E+06
+	CO-60	1173.22	* 100.00	1.35E+02	1.51E+00	2.40E+00
		1332.49	* 100.00	1.37E+02		1.51E+00
+	ZN-65	1115.52	50.75	1.49E+01	3.40E+01	3.40E+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	5.83E+03	1.30E+02	5.69E+02
		136.00	59.20	2.24E+02		1.30E+02
		264.65	59.80	-9.18E+01		1.70E+02
		279.53	25.20	5.60E+01		4.12E+02
		400.65	11.40	-2.79E+02		1.11E+03
+	RB-82	776.52	13.00	-6.05E+09	1.27E+11	1.27E+11
+	RB-83	520.41	46.00	8.85E+02	2.09E+03	2.09E+03
		529.64	30.30	-3.88E+02		3.17E+03
		552.65	16.40	-1.89E+03		5.71E+03
+	KR-85	513.99	0.43	-3.73E+01	2.58E+02	2.58E+02
+	SR-85	513.99	99.27	-1.41E+03	9.74E+03	9.74E+03
+	Y-88	898.02	* 93.40	3.12E+02	9.09E+01	5.36E+02
		1836.01	* 99.38	3.43E+02		9.09E+01
+	NB-93M	16.57	9.43	-2.27E+02	6.03E+00	6.03E+00
+	NB-94	702.63	100.00	-2.74E-01	1.02E+00	1.02E+00
		871.10	100.00	4.40E-01		1.42E+00
+	NB-95	765.79	99.81	-1.19E+07	2.87E+07	2.87E+07
+	@ NB-95M	235.69	25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18	43.70	3.76E+03	2.30E+04	2.78E+04
		756.72	55.30	-3.18E+03		2.30E+04

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@ MO-99	181.06	6.20	1.00E+26	1.00E+26	1.00E+26
	@	739.58	12.80	1.00E+26		1.00E+26
	@	778.00	4.50	1.00E+26		1.00E+26
+	RU-103	497.08	89.00	-4.72E+05	4.11E+06	4.11E+06
+	RU-106	621.84	9.80	1.93E+01	5.18E+01	5.18E+01
+	AG-108M	433.93	89.90	-1.53E-01	1.07E+00	1.07E+00
		614.37	90.40	-3.54E-01		1.10E+00
		722.95	90.50	-1.67E-01		1.20E+00
+	CD-109	88.03	* 3.72	2.59E+03	8.43E+01	8.43E+01
+	AG-110M	657.75	93.14	5.32E-01	1.90E+01	2.77E+01
		677.61	10.53	-5.14E+01		1.00E+02
		706.67	16.46	7.47E+00		6.81E+01
		763.93	21.98	-8.81E+00		5.66E+01
		884.67	71.63	1.31E+01		2.19E+01
		1384.27	23.94	6.33E+00		1.90E+01
+	CD-113M	263.70	0.02	-2.71E+02	3.39E+03	3.39E+03
+	SN-113	255.12	1.93	-3.26E+03	2.71E+02	6.39E+03
		391.69	* 64.90	1.92E+02		2.71E+02
+	TE123M	159.00	84.10	-3.72E+01	9.38E+01	9.38E+01
+	SB-124	602.71	97.87	-5.63E+03	1.62E+04	2.03E+04
		645.85	7.26	8.34E+04		2.92E+05
		722.78	11.10	-1.82E+04		1.96E+05
		1691.02	49.00	5.69E+03		1.62E+04
+	I-125	35.49	6.49	-2.29E+05	1.04E+05	1.04E+05
+	SB-125	176.33	6.89	-1.63E+00	5.69E+00	1.48E+01
		427.89	29.33	-2.07E+00		5.69E+00
		463.38	10.35	5.50E+00		1.82E+01
		600.56	17.80	6.77E-01		9.87E+00
		635.90	11.32	-3.89E+00		1.59E+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	7.18E+01	2.34E+00	2.34E+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	-4.39E+00	7.34E-01	7.34E-01
		33.60	13.20	-1.70E+00		2.40E+00
		39.58	7.52	-2.01E+01		4.72E+00
+	@ I-131	284.30	6.05	1.00E+26	1.00E+26	1.00E+26
	@	364.48	81.20	1.00E+26		1.00E+26
	@	636.97	7.26	1.00E+26		1.00E+26
	@	722.89	1.80	1.00E+26		1.00E+26
+	@ TE-132	49.72	13.10	1.00E+26	1.00E+26	1.00E+26
	@	228.16	88.00	1.00E+26		1.00E+26
+	BA-133	81.00	33.00	-5.94E-01	1.58E+00	1.97E+00
		302.84	17.80	9.57E-01		4.80E+00

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-133	356.01	60.00	5.28E-01	1.58E+00	1.58E+00
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	@ XE-133	81.00	38.00	1.00E+26	1.00E+26	1.00E+26
+	CS-134	563.23	8.38	1.02E+01	2.21E+00	2.48E+01
		569.32	15.43	-9.29E+00		1.32E+01
		604.70	97.60	-6.17E-02		2.21E+00
		795.84	85.40	-1.12E+00		3.11E+00
		801.93	8.73	-9.13E+00		3.02E+01
+	CS-135	268.24	16.00	2.84E+00	4.39E+00	4.39E+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	8.03E+19	6.59E+19	3.74E+20
		163.89	4.61	1.70E+19		6.54E+20
		176.55	13.56	-2.41E+19		2.19E+20
		273.65	12.66	6.09E+19		2.92E+20
		340.57	48.50	-2.02E+19		8.51E+19
		818.50	99.70	-4.88E+18		6.59E+19
		1048.07	79.60	-1.40E+19		9.73E+19
		1235.34	19.70	-3.57E+19		2.03E+20
+	CS-137	661.65	* 85.12	8.36E+01	2.05E+00	2.05E+00
+	LA-138	788.74	34.00	3.17E-02	5.47E-01	3.50E+00
		1435.80	66.00	-2.37E-01		5.47E-01
+	CE-139	165.85	* 80.35	1.23E+02	6.54E+01	6.54E+01
+	@ 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	-8.53E+07	1.02E+08	1.02E+08
+	@ 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	9.21E-02	3.94E+01	3.94E+01
+	PM-144	476.78	42.00	1.96E+00	5.27E+00	1.23E+01
		618.01	98.60	2.34E+00		5.27E+00
		696.49	99.49	-1.14E+00		5.29E+00
+	PM-145	36.85	21.70	-5.43E+00	9.08E-01	1.64E+00
		37.36	39.70	-3.67E+00		9.08E-01
		42.30	15.10	-4.45E+00		2.96E+00
		72.40	2.31	3.68E+00		2.46E+01
+	PM-146	453.90	39.94	-1.87E-01	3.38E+00	3.38E+00
		735.90	14.01	4.46E+00		1.04E+01
		747.13	13.10	8.14E+00		1.15E+01

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@ ND-147	91.11	28.90	1.00E+26	1.00E+26	1.00E+26
	@	531.02	13.10	1.00E+26		1.00E+26
+	@ PM-149	285.90	3.10	1.00E+26	1.00E+26	1.00E+26
+	EU-152	121.78	20.50	3.65E+01	2.97E+00	3.56E+00
		244.69	5.40	-6.52E+00		1.43E+01
		344.27	19.13	-1.99E+00		4.69E+00
		778.89	9.20	-1.07E+01		1.39E+01
		964.01	10.40	4.56E+00		1.74E+01
		1085.78	7.22	-1.59E+01		2.38E+01
		1112.02	9.60	2.22E+00		1.81E+01
		1407.95	14.94	3.14E-01		2.97E+00
+	GD-153	97.43	31.30	-7.47E+00	1.64E+01	1.64E+01
		103.18	22.20	1.44E+01		2.42E+01
+	EU-154	123.07	40.50	1.99E+01	1.93E+00	1.93E+00
		723.30	19.70	-9.15E-01		6.53E+00
		873.19	11.50	-4.88E-01		1.48E+01
		996.32	10.30	6.85E+00		1.75E+01
		1004.76	17.90	-2.39E+00		9.97E+00
		1274.45	35.50	-6.69E-01		2.37E+00
+	EU-155	86.50	30.90	1.18E+02	3.06E+00	4.11E+00
		105.30	20.70	-2.03E-01		3.06E+00
+	EU-156	811.77	10.40	3.20E+17	1.11E+18	1.43E+18
		1153.47	7.20	8.04E+17		2.11E+18
		1230.71	8.90	3.87E+17		1.11E+18
+	HO-166M	184.41	72.60	4.01E-01	8.34E-01	8.34E-01
		280.45	29.60	7.48E-01		2.40E+00
		410.94	11.10	1.67E+00		8.11E+00
		711.69	54.10	-3.76E-01		1.91E+00
+	TM-171	66.72	* 0.14	1.02E+03	8.20E+02	8.20E+02
+	HF-172	81.75	4.52	-1.25E+01	1.32E+01	3.04E+01
		125.81	11.30	-2.47E+00		1.32E+01
+	@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26
	@	810.06	16.63	1.00E+26		1.00E+26
	@	912.12	15.25	1.00E+26		1.00E+26
	@	1093.66	62.50	1.00E+26		1.00E+26
+	LU-173	100.72	5.24	-1.10E+01	1.10E+01	2.79E+01
		272.11	21.20	4.95E+00		1.10E+01
+	HF-175	343.40	84.00	-3.29E+02	4.82E+03	4.82E+03
+	LU-176	88.34	13.30	1.93E+02	7.38E-01	6.79E+00
		201.83	86.00	-6.02E-02		7.38E-01
		306.78	94.00	1.53E-01		7.88E-01
+	TA-182	67.75	41.20	-6.18E+03	2.19E+02	2.19E+02
		1121.30	34.90	-3.39E+02		7.30E+02
		1189.05	16.23	1.35E+02		1.17E+03
		1221.41	26.98	-2.42E+01		5.73E+02
		1231.02	11.44	4.60E+02		1.31E+03
+	IR-192	308.46	29.68	8.62E+02	6.95E+03	8.02E+03
		468.07	48.10	2.70E+03		6.95E+03
+	HG-203	279.19	77.30	4.61E+04	3.39E+05	3.39E+05

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-207	569.67	97.72	-6.97E-01	9.89E-01	9.89E-01
		1063.62	74.90	-2.73E-01		2.12E+00
+	TL-208	583.14	30.22	1.74E-01	7.49E-01	3.17E+00
		860.37	4.48	-1.69E+01		3.04E+01
		2614.66	35.85	3.19E-01		7.49E-01
+	BI-210M	262.00	45.00	3.46E-02	1.54E+00	1.54E+00
		300.00	23.00	8.81E-01		3.15E+00
+	PB-210	46.50	4.25	1.34E+01	1.35E+01	1.35E+01
+	PB-211	404.84	2.90	5.56E+00	3.05E+01	3.05E+01
		831.96	2.90	8.12E+00		4.46E+01
+	BI-212	727.17	11.80	4.65E+00	9.18E+00	9.18E+00
		1620.62	2.75	6.42E+00		1.57E+01
+	PB-212	238.63	44.60	6.62E-01	1.56E+00	1.56E+00
		300.09	3.41	5.94E+00		2.12E+01
+	BI-214	609.31	46.30	2.04E-02	2.12E+00	2.12E+00
		1120.29	15.10	-3.47E+00		9.18E+00
		1764.49	15.80	-4.22E-01		2.42E+00
		2204.22	4.98	-1.34E+00		6.40E+00
+	PB-214	295.21	19.19	-6.11E-01	2.18E+00	3.72E+00
		351.92	37.19	1.14E+00		2.18E+00
+	RN-219	401.80	6.50	-6.06E+00	1.33E+01	1.33E+01
+	RA-223	323.87	3.88	-1.43E+01	1.91E+01	1.91E+01
+	RA-224	240.98	3.95	6.91E+00	1.76E+01	1.76E+01
+	RA-225	40.00	31.00	-1.68E+18	3.93E+17	3.93E+17
+	RA-226	186.21	3.28	1.26E+01	1.87E+01	1.87E+01
+	TH-227	50.10	8.40	1.39E+01	6.06E+00	7.38E+00
		236.00	11.50	2.88E-01		6.06E+00
		256.20	6.30	6.03E+00		1.10E+01
+	AC-228	338.32	11.40	3.12E+00	5.64E+00	6.88E+00
		911.07	27.70	7.82E-01		5.64E+00
		969.11	16.60	-4.91E+00		9.11E+00
+	TH-230	48.44	16.90	8.30E+00	3.49E+00	3.49E+00
		62.85	4.60	7.98E+02		2.22E+01
		67.67	0.37	-3.71E+03		1.32E+02
+	PA-231	283.67	1.60	8.62E+00	3.18E+01	4.45E+01
		302.67	2.30	6.34E+00		3.18E+01
+	TH-231	25.64	14.70	-1.67E+01	6.25E+00	6.25E+00
		84.21	6.40	-1.22E+00		1.25E+01
+	PA-233	311.98	38.60	4.83E+08	7.92E+09	7.92E+09
+	PA-234	131.20	20.40	-7.46E-01	2.40E+00	2.40E+00
		733.99	8.80	3.11E+00		1.23E+01
		946.00	12.00	-3.42E+00		1.39E+01
+	PA-234M	1001.03	0.92	-3.97E+01	1.60E+02	1.60E+02
+	TH-234	63.29	3.80	4.00E+02	2.27E+01	2.27E+01
+	U-235	143.76	10.50	-2.52E+00	4.87E+00	4.87E+00
		163.35	4.70	3.17E-01		1.22E+01
		205.31	4.70	-4.83E+00		1.37E+01

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	12.60	2.08E+02	7.25E+00	7.25E+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	1.33E+02	3.18E+00	3.18E+00
+	AM-243	74.67	66.00	-8.09E-02	7.94E-01	7.94E-01
+	CM-243	209.75	3.29	5.88E+00	5.31E+00	2.14E+01
		228.14	10.60	1.68E+00		6.98E+00
		277.60	14.00	-2.94E+00		5.31E+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	6.85E+05	6.85E+05	2.61E+05	3.39E+05
NA-22	1274.54	99.94	1.31E+00	1.31E+00	-3.70E-01	6.28E-01
@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	2754.09	99.86	1.00E+26		1.00E+26	1.00E+20
AL-26	1808.65	99.76	3.64E-01	3.64E-01	-2.47E-01	1.62E-01
K-40	1460.81	10.67	3.61E+00	3.61E+00	1.76E+00	1.65E+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	5.30E-01	5.30E-01	-1.50E+01	2.64E-01
	78.34	96.00	5.77E-01		-1.84E-01	2.87E-01
SC-46	889.25	99.98	1.77E+03	1.73E+03	3.91E+02	8.75E+02
	1120.51	99.99	1.73E+03		-6.52E+02	8.48E+02
V-48	983.52	99.98	2.64E+16	1.24E+16	7.46E+15	1.30E+16
	1312.10	97.50	1.24E+16		2.60E+15	5.93E+15

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Analysis Report for 1510090-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CR-51	320.08	9.83	1.77E+10	1.77E+10	-1.98E+09	8.77E+09
MN-54	834.83	99.97	8.64E+00	8.64E+00	-3.20E+00	4.26E+00
CO-56	846.75	99.96	2.61E+03	2.05E+03	3.23E+01	1.29E+03
	1037.75	14.03	2.11E+04		1.06E+04	1.04E+04
	1238.25	67.00	2.21E+03		2.49E+01	1.07E+03
	1771.40	15.51	4.71E+03		8.73E+02	2.11E+03
	2598.48	16.90	2.05E+03		2.58E+02	7.28E+02
+ CO-57	122.06	* 85.51	7.11E+00	7.11E+00	7.26E+01	3.53E+00
	136.48	* 10.60	5.46E+01		7.93E+01	2.71E+01
CO-58	810.76	99.40	5.66E+03	5.66E+03	1.30E+02	2.79E+03
FE-59	1099.22	56.50	1.83E+06	1.05E+06	-7.01E+05	9.00E+05
	1291.56	43.20	1.05E+06		4.25E+04	5.02E+05
+ CO-60	1173.22	* 100.00	2.40E+00	1.51E+00	1.35E+02	1.18E+00
	1332.49	* 100.00	1.51E+00		1.37E+02	7.36E-01
ZN-65	1115.52	50.75	3.40E+01	3.40E+01	1.49E+01	1.67E+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	5.69E+02	1.30E+02	5.83E+03	2.83E+02
	136.00	59.20	1.30E+02		2.24E+02	6.48E+01
	264.65	59.80	1.70E+02		-9.18E+01	8.41E+01
	279.53	25.20	4.12E+02		5.60E+01	2.04E+02
	400.65	11.40	1.11E+03		-2.79E+02	5.50E+02
RB-82	776.52	13.00	1.27E+11	1.27E+11	-6.05E+09	6.23E+10
RB-83	520.41	46.00	2.09E+03	2.09E+03	8.85E+02	1.03E+03
	529.64	30.30	3.17E+03		-3.88E+02	1.57E+03
	552.65	16.40	5.71E+03		-1.89E+03	2.82E+03
KR-85	513.99	0.43	2.58E+02	2.58E+02	-3.73E+01	1.27E+02
SR-85	513.99	99.27	9.74E+03	9.74E+03	-1.41E+03	4.81E+03
+ Y-88	898.02	* 93.40	5.36E+02	9.09E+01	3.12E+02	2.65E+02
	1836.01	* 99.38	6.09E+01		3.43E+02	4.00E+01
NB-93M	16.57	9.43	6.03E+00	6.03E+00	-2.27E+02	3.00E+00
NB-94	702.63	100.00	1.02E+00	1.02E+00	-2.74E-01	5.00E-01
	871.10	100.00	1.42E+00		4.40E-01	7.02E-01
NB-95	765.79	99.81	2.87E+07	2.87E+07	-1.19E+07	1.41E+07
@ NB-95M	235.69	25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
ZR-95	724.18	43.70	2.78E+04	2.30E+04	3.76E+03	1.37E+04
	756.72	55.30	2.30E+04		-3.18E+03	1.13E+04
@ 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	4.11E+06	4.11E+06	-4.72E+05	2.03E+06
RU-106	621.84	9.80	5.18E+01	5.18E+01	1.93E+01	2.55E+01
AG-108M	433.93	89.90	1.07E+00	1.07E+00	-1.53E-01	5.30E-01
	614.37	90.40	1.10E+00		-3.54E-01	5.43E-01
	722.95	90.50	1.20E+00		-1.67E-01	5.88E-01
+ CD-109	88.03	* 3.72	8.43E+01	8.43E+01	2.59E+03	4.20E+01
AG-110M	657.75	93.14	2.77E+01	1.90E+01	5.32E-01	1.38E+01
	677.61	10.53	1.00E+02		-5.14E+01	4.94E+01
	706.67	16.46	6.81E+01		7.47E+00	3.35E+01
	763.93	21.98	5.66E+01		-8.81E+00	2.79E+01
	884.67	71.63	2.19E+01		1.31E+01	1.08E+01
	1384.27	23.94	1.90E+01		6.33E+00	8.76E+00

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Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CD-113M	263.70	0.02	3.39E+03	3.39E+03	-2.71E+02	1.68E+03
+	SN-113	255.12	1.93	6.39E+03	2.71E+02	-3.26E+03	3.16E+03
		391.69	* 64.90	2.71E+02		1.92E+02	1.34E+02
	TE123M	159.00	84.10	9.38E+01	9.38E+01	-3.72E+01	4.65E+01
	SB-124	602.71	97.87	2.03E+04	1.62E+04	-5.63E+03	1.00E+04
		645.85	7.26	2.92E+05		8.34E+04	1.44E+05
		722.78	11.10	1.96E+05		-1.82E+04	9.67E+04
		1691.02	49.00	1.62E+04		5.69E+03	7.30E+03
	I-125	35.49	6.49	1.04E+05	1.04E+05	-2.29E+05	5.14E+04
	SB-125	176.33	6.89	1.48E+01	5.69E+00	-1.63E+00	7.35E+00
		427.89	29.33	5.69E+00		-2.07E+00	2.81E+00
		463.38	10.35	1.82E+01		5.50E+00	8.98E+00
		600.56	17.80	9.87E+00		6.77E-01	4.86E+00
		635.90	11.32	1.59E+01		-3.89E+00	7.85E+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	2.34E+00	2.34E+00	7.18E+01	1.17E+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	7.34E-01	7.34E-01	-4.39E+00	3.65E-01
		33.60	13.20	2.40E+00		-1.70E+00	1.19E+00
		39.58	7.52	4.72E+00		-2.01E+01	2.35E+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	1.97E+00	1.58E+00	-5.94E-01	9.79E-01
		302.84	17.80	4.80E+00		9.57E-01	2.38E+00
		356.01	60.00	1.58E+00		5.28E-01	7.80E-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	2.48E+01	2.21E+00	1.02E+01	1.23E+01
		569.32	15.43	1.32E+01		-9.29E+00	6.49E+00
		604.70	97.60	2.21E+00		-6.17E-02	1.09E+00
		795.84	85.40	3.11E+00		-1.12E+00	1.53E+00
		801.93	8.73	3.02E+01		-9.13E+00	1.49E+01
	CS-135	268.24	16.00	4.39E+00	4.39E+00	2.84E+00	2.18E+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	3.74E+20	6.59E+19	8.03E+19	1.86E+20
		163.89	4.61	6.54E+20		1.70E+19	3.24E+20
		176.55	13.56	2.19E+20		-2.41E+19	1.09E+20
		273.65	12.66	2.92E+20		6.09E+19	1.45E+20
		340.57	48.50	8.51E+19		-2.02E+19	4.21E+19
		818.50	99.70	6.59E+19		-4.88E+18	3.24E+19
		1048.07	79.60	9.73E+19		-1.40E+19	4.78E+19
		1235.34	19.70	2.03E+20		-3.57E+19	9.77E+19

Analysis Report for 1510090-01

GAS 1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	CS-137	661.65	*	85.12	2.05E+00	2.05E+00	8.36E+01	1.02E+00
	LA-138	788.74		34.00	3.50E+00	5.47E-01	3.17E-02	1.72E+00
		1435.80		66.00	5.47E-01		-2.37E-01	2.49E-01
+	CE-139	165.85	*	80.35	6.54E+01	6.54E+01	1.23E+02	3.25E+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	1.02E+08	1.02E+08	-8.53E+07	5.08E+07
@	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	3.94E+01	3.94E+01	9.21E-02	1.95E+01
	PM-144	476.78		42.00	1.23E+01	5.27E+00	1.96E+00	6.08E+00
		618.01		98.60	5.27E+00		2.34E+00	2.60E+00
		696.49		99.49	5.29E+00		-1.14E+00	2.60E+00
	PM-145	36.85		21.70	1.64E+00	9.08E-01	-5.43E+00	8.17E-01
		37.36		39.70	9.08E-01		-3.67E+00	4.51E-01
		42.30		15.10	2.96E+00		-4.45E+00	1.47E+00
		72.40		2.31	2.46E+01		3.68E+00	1.22E+01
	PM-146	453.90		39.94	3.38E+00	3.38E+00	-1.87E-01	1.67E+00
		735.90		14.01	1.04E+01		4.46E+00	5.11E+00
		747.13		13.10	1.15E+01		8.14E+00	5.68E+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	3.56E+00	2.97E+00	3.65E+01	1.77E+00
		244.69		5.40	1.43E+01		-6.52E+00	7.09E+00
		344.27		19.13	4.69E+00		-1.99E+00	2.32E+00
		778.89		9.20	1.39E+01		-1.07E+01	6.82E+00
		964.01		10.40	1.74E+01		4.56E+00	8.58E+00
		1085.78		7.22	2.38E+01		-1.59E+01	1.17E+01
		1112.02		9.60	1.81E+01		2.22E+00	8.91E+00
		1407.95		14.94	2.97E+00		3.14E-01	1.37E+00
	GD-153	97.43		31.30	1.64E+01	1.64E+01	-7.47E+00	8.15E+00
		103.18		22.20	2.42E+01		1.44E+01	1.20E+01
	EU-154	123.07		40.50	1.93E+00	1.93E+00	1.99E+01	9.59E-01
		723.30		19.70	6.53E+00		-9.15E-01	3.21E+00
		873.19		11.50	1.48E+01		-4.88E-01	7.29E+00
		996.32		10.30	1.75E+01		6.85E+00	8.60E+00
		1004.76		17.90	9.97E+00		-2.39E+00	4.91E+00
		1274.45		35.50	2.37E+00		-6.69E-01	1.14E+00
	EU-155	86.50		30.90	4.11E+00	3.06E+00	1.18E+02	2.05E+00
		105.30		20.70	3.06E+00		-2.03E-01	1.52E+00
	EU-156	811.77		10.40	1.43E+18	1.11E+18	3.20E+17	7.02E+17
		1153.47		7.20	2.11E+18		8.04E+17	1.03E+18
		1230.71		8.90	1.11E+18		3.87E+17	5.34E+17
	HO-166M	184.41		72.60	8.34E-01	8.34E-01	4.01E-01	4.14E-01

Analysis Report for 1510090-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
HO-166M	280.45	29.60	2.40E+00	8.34E-01	7.48E-01	1.19E+00
	410.94	11.10	8.11E+00		1.67E+00	4.01E+00
	711.69	54.10	1.91E+00		-3.76E-01	9.38E-01
+ TM-171	66.72	* 0.14	8.20E+02	8.20E+02	1.02E+03	4.08E+02
HF-172	81.75	4.52	3.04E+01	1.32E+01	-1.25E+01	1.51E+01
	125.81	11.30	1.32E+01		-2.47E+00	6.57E+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	2.79E+01	1.10E+01	-1.10E+01	1.39E+01
	272.11	21.20	1.10E+01		4.95E+00	5.45E+00
HF-175	343.40	84.00	4.82E+03	4.82E+03	-3.29E+02	2.38E+03
LU-176	88.34	13.30	6.79E+00	7.38E-01	1.93E+02	3.38E+00
	201.83	86.00	7.38E-01		-6.02E-02	3.66E-01
	306.78	94.00	7.88E-01		1.53E-01	3.90E-01
TA-182	67.75	41.20	2.19E+02	2.19E+02	-6.18E+03	1.09E+02
	1121.30	34.90	7.30E+02		-3.39E+02	3.58E+02
	1189.05	16.23	1.17E+03		1.35E+02	5.72E+02
	1221.41	26.98	5.73E+02		-2.42E+01	2.77E+02
	1231.02	11.44	1.31E+03		4.60E+02	6.34E+02
IR-192	308.46	29.68	8.02E+03	6.95E+03	8.62E+02	3.97E+03
	468.07	48.10	6.95E+03		2.70E+03	3.44E+03
HG-203	279.19	77.30	3.39E+05	3.39E+05	4.61E+04	1.68E+05
BI-207	569.67	97.72	9.89E-01	9.89E-01	-6.97E-01	4.87E-01
	1063.62	74.90	2.12E+00		-2.73E-01	1.04E+00
TL-208	583.14	30.22	3.17E+00	7.49E-01	1.74E-01	1.56E+00
	860.37	4.48	3.04E+01		-1.69E+01	1.50E+01
	2614.66	35.85	7.49E-01		3.19E-01	3.03E-01
BI-210M	262.00	45.00	1.54E+00	1.54E+00	3.46E-02	7.62E-01
	300.00	23.00	3.15E+00		8.81E-01	1.56E+00
PB-210	46.50	4.25	1.35E+01	1.35E+01	1.34E+01	6.72E+00
PB-211	404.84	2.90	3.05E+01	3.05E+01	5.56E+00	1.51E+01
	831.96	2.90	4.46E+01		8.12E+00	2.20E+01
BI-212	727.17	11.80	9.18E+00	9.18E+00	4.65E+00	4.52E+00
	1620.62	2.75	1.57E+01		6.42E+00	7.18E+00
PB-212	238.63	44.60	1.56E+00	1.56E+00	6.62E-01	7.75E-01
	300.09	3.41	2.12E+01		5.94E+00	1.05E+01
BI-214	609.31	46.30	2.12E+00	2.12E+00	2.04E-02	1.04E+00
	1120.29	15.10	9.18E+00		-3.47E+00	4.51E+00
	1764.49	15.80	2.42E+00		-4.22E-01	1.09E+00
	2204.22	4.98	6.40E+00		-1.34E+00	2.74E+00
PB-214	295.21	19.19	3.72E+00	2.18E+00	-6.11E-01	1.84E+00
	351.92	37.19	2.18E+00		1.14E+00	1.08E+00
RN-219	401.80	6.50	1.33E+01	1.33E+01	-6.06E+00	6.59E+00
RA-223	323.87	3.88	1.91E+01	1.91E+01	-1.43E+01	9.46E+00
RA-224	240.98	3.95	1.76E+01	1.76E+01	6.91E+00	8.73E+00
RA-225	40.00	31.00	3.93E+17	3.93E+17	-1.68E+18	1.95E+17
RA-226	186.21	3.28	1.87E+01	1.87E+01	1.26E+01	9.26E+00
TH-227	50.10	8.40	7.38E+00	6.06E+00	1.39E+01	3.68E+00
	236.00	11.50	6.06E+00		2.88E-01	3.01E+00
	256.20	6.30	1.10E+01		6.03E+00	5.44E+00
AC-228	338.32	11.40	6.88E+00	5.64E+00	3.12E+00	3.41E+00

Analysis Report for 1510090-01

GAS 1302

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AC-228	911.07	27.70	5.64E+00	5.64E+00	7.82E-01	2.78E+00
	969.11	16.60	9.11E+00		-4.91E+00	4.49E+00
TH-230	48.44	16.90	3.49E+00	3.49E+00	8.30E+00	1.74E+00
	62.85	4.60	2.22E+01		7.98E+02	1.11E+01
	67.67	0.37	1.32E+02		-3.71E+03	6.55E+01
PA-231	283.67	1.60	4.45E+01	3.18E+01	8.62E+00	2.21E+01
	302.67	2.30	3.18E+01		6.34E+00	1.57E+01
TH-231	25.64	14.70	6.25E+00	6.25E+00	-1.67E+01	3.12E+00
	84.21	6.40	1.25E+01		-1.22E+00	6.22E+00
PA-233	311.98	38.60	7.92E+09	7.92E+09	4.83E+08	3.92E+09
PA-234	131.20	20.40	2.40E+00	2.40E+00	-7.46E-01	1.19E+00
	733.99	8.80	1.23E+01		3.11E+00	6.06E+00
	946.00	12.00	1.39E+01		-3.42E+00	6.86E+00
PA-234M	1001.03	0.92	1.60E+02	1.60E+02	-3.97E+01	7.86E+01
TH-234	63.29	3.80	2.27E+01	2.27E+01	4.00E+02	1.13E+01
U-235	143.76	10.50	4.87E+00	4.87E+00	-2.52E+00	2.42E+00
	163.35	4.70	1.22E+01		3.17E-01	6.05E+00
	205.31	4.70	1.37E+01		-4.83E+00	6.79E+00
NP-237	86.50	12.60	7.25E+00	7.25E+00	2.08E+02	3.62E+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	3.18E+00	3.18E+00	1.33E+02	1.58E+00
AM-243	74.67	66.00	7.94E-01	7.94E-01	-8.09E-02	3.95E-01
CM-243	209.75	3.29	2.14E+01	5.31E+00	5.88E+00	1.06E+01
	228.14	10.60	6.98E+00		1.68E+00	3.46E+00
	277.60	14.00	5.31E+00		-2.94E+00	2.63E+00

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date

Comment

User

: 00275

Analysis Report for 1510090-01
GAS 1302

No Data Review Comments Entered.

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

Sample Title: GAS 1302

Elapsed Live time: 1800
 Elapsed Real Time: 1847

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	407	1466	
17:	1612	1876	4844	16212	27976	22524	11698	9979	
25:	6922	2646	992	748	874	1003	1315	1198	
33:	994	861	947	961	971	1047	1072	1149	
41:	1320	1517	1567	1690	1889	2152	2491	3172	
49:	3559	3569	3663	3628	3645	4002	4231	4544	
57:	8700	19470	22563	11129	2635	1254	1207	1291	
65:	1440	1523	1600	1581	1541	1541	1519	1560	
73:	1517	1610	1506	1604	1535	1508	1540	1581	
81:	1529	1613	1706	1727	2321	5891	10522	8391	
89:	3009	978	751	844	801	740	810	750	
97:	786	779	796	765	767	810	802	772	
105:	805	826	798	711	745	807	762	796	
113:	758	820	816	785	799	761	857	1595	
121:	2597	2419	1273	731	719	671	614	702	
129:	648	690	679	649	723	659	864	911	
137:	798	670	664	689	632	624	629	601	
145:	666	639	623	639	635	657	666	648	
153:	660	603	585	630	588	620	635	583	
161:	582	601	622	716	831	751	636	601	
169:	572	539	557	561	581	562	586	563	
177:	536	611	556	579	584	593	592	621	
185:	615	582	635	674	583	611	631	594	
193:	563	582	557	573	605	581	569	593	
201:	569	514	567	611	583	561	568	633	
209:	586	614	606	573	626	596	579	626	
217:	591	623	632	580	582	610	596	566	
225:	564	571	583	536	578	597	513	557	
233:	524	517	536	527	562	543	517	489	
241:	501	509	501	456	508	454	468	462	
249:	485	448	466	425	479	402	477	447	
257:	471	424	474	483	426	397	406	430	
265:	414	449	422	420	445	417	446	438	
273:	412	407	413	400	385	395	416	380	
281:	428	409	430	396	397	371	376	407	
289:	398	380	413	345	363	356	372	373	
297:	363	348	416	362	343	383	396	403	
305:	354	360	368	346	386	373	381	381	
313:	331	391	374	378	349	368	325	348	
321:	343	333	353	342	347	350	315	356	
329:	370	348	355	319	349	288	365	342	
337:	400	364	349	356	317	368	343	291	
345:	365	383	363	344	338	324	392	348	
353:	340	351	313	311	327	317	348	352	
361:	315	305	370	332	318	304	325	306	

369: 336 330 290 301 296 315 306 316

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	331	300	295	308	315	313	333	322
385:	322	321	295	318	328	387	359	358
393:	323	310	311	299	301	292	323	315
401:	296	307	326	306	298	306	337	347
409:	276	323	344	301	316	305	301	307
417:	330	299	317	354	349	276	312	303
425:	287	317	308	322	281	336	323	308
433:	312	324	349	319	319	343	313	331
441:	332	322	348	313	323	335	305	319
449:	351	313	290	307	326	340	322	349
457:	331	330	313	356	307	362	315	335
465:	358	326	359	325	326	312	336	300
473:	307	315	318	299	291	276	243	269
481:	284	237	254	263	262	245	253	239
489:	255	245	239	258	249	240	225	229
497:	208	222	228	240	252	213	229	235
505:	229	239	259	244	279	260	241	252
513:	208	212	212	227	210	210	223	217
521:	229	222	211	205	187	223	204	208
529:	228	207	231	195	201	217	222	196
537:	214	199	186	201	192	192	201	211
545:	201	210	173	187	192	168	182	195
553:	169	184	194	171	168	197	191	196
561:	189	190	193	194	159	178	189	186
569:	182	163	137	192	180	188	173	196
577:	189	164	182	181	198	169	175	178
585:	184	155	202	181	174	174	173	183
593:	176	169	187	173	189	173	176	179
601:	165	161	198	163	175	177	161	190
609:	181	159	174	159	175	175	160	177
617:	178	186	184	170	182	167	151	170
625:	170	158	181	145	173	184	173	159
633:	160	171	168	154	181	160	159	164
641:	182	170	161	154	189	173	182	174
649:	167	157	180	176	180	169	174	171
657:	166	179	540	2087	4211	3929	1572	403
665:	147	142	145	145	131	146	138	172
673:	132	147	144	122	126	139	147	122
681:	146	125	146	150	157	141	131	127
689:	158	140	162	134	145	132	155	139
697:	142	137	145	145	145	133	140	129
705:	158	124	146	142	144	150	127	153
713:	120	135	142	145	150	151	153	127
721:	141	135	154	151	140	158	155	163
729:	128	155	133	124	156	147	139	150
737:	149	161	143	141	121	117	152	151
745:	167	162	138	138	155	156	147	140
753:	143	159	131	159	153	141	147	159
761:	164	128	155	146	153	151	141	143
769:	149	150	168	165	146	147	132	139
777:	144	138	148	155	133	134	153	139
785:	165	145	146	150	159	174	142	157
793:	159	147	184	156	150	141	138	165

801: 148 163 162 134 143 147 131 149

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	164	157	150	173	147	141	157	159
817:	146	154	159	173	159	170	164	146
825:	173	165	152	173	169	162	154	154
833:	157	152	154	193	161	134	174	152
841:	171	131	158	170	165	166	167	156
849:	188	181	157	157	176	169	191	150
857:	173	145	195	178	162	156	178	183
865:	172	182	191	177	191	180	165	148
873:	180	201	192	161	174	175	151	193
881:	178	168	156	186	184	169	173	203
889:	172	184	142	168	166	170	170	196
897:	229	215	182	209	190	179	171	187
905:	169	177	216	194	188	200	194	183
913:	193	232	198	224	181	183	204	199
921:	216	204	206	199	214	177	190	191
929:	211	209	200	210	201	223	195	204
937:	211	225	207	208	218	200	226	184
945:	221	223	194	199	221	241	261	233
953:	224	207	208	230	218	222	212	203
961:	228	211	180	186	186	164	177	163
969:	159	162	154	160	165	156	181	156
977:	155	133	158	150	153	153	149	162
985:	144	160	171	133	160	162	151	172
993:	162	149	154	127	148	156	155	157
1001:	138	134	137	155	140	146	173	154
1009:	170	146	142	157	156	149	144	162
1017:	161	151	158	158	142	150	137	152
1025:	147	130	155	130	154	135	144	140
1033:	153	153	150	127	127	167	131	137
1041:	140	130	132	123	142	137	140	139
1049:	128	158	136	116	120	148	156	130
1057:	131	147	136	129	130	135	141	153
1065:	142	133	143	153	148	131	135	159
1073:	143	143	151	153	121	138	145	151
1081:	127	137	119	109	131	127	168	148
1089:	129	146	151	148	158	122	146	137
1097:	133	153	143	152	135	142	143	159
1105:	159	149	152	134	145	133	133	146
1113:	122	135	136	106	130	106	101	115
1121:	95	93	104	93	91	102	95	102
1129:	82	102	88	87	81	88	92	100
1137:	96	78	82	84	87	91	91	80
1145:	84	76	90	68	79	83	82	96
1153:	91	69	74	69	84	67	79	74
1161:	78	87	84	81	90	91	72	53
1169:	78	132	492	1863	3260	3054	1288	281
1177:	75	46	39	70	44	70	56	50
1185:	57	50	55	56	51	54	53	44
1193:	38	40	42	47	48	41	47	41
1201:	49	38	46	42	50	33	49	42
1209:	33	38	40	37	33	29	32	33
1217:	41	24	33	29	34	32	31	28
1225:	30	39	29	28	30	28	27	34

1233: 23 36 27 21 18 24 19 23

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	26	28	23	22	21	18	23	23
1249:	21	21	24	29	20	17	29	22
1257:	25	19	24	17	16	21	20	16
1265:	20	16	15	22	25	21	28	19
1273:	23	22	14	21	12	20	19	21
1281:	29	13	14	13	25	21	22	19
1289:	18	15	19	17	24	15	24	26
1297:	14	15	19	17	16	21	27	16
1305:	17	16	18	15	27	18	14	18
1313:	7	18	21	23	11	18	19	17
1321:	16	23	17	26	18	20	21	22
1329:	47	216	1046	2453	3007	1757	500	61
1337:	8	1	9	7	6	8	6	2
1345:	5	4	5	5	4	3	2	3
1353:	3	8	8	4	5	5	2	0
1361:	5	4	6	5	4	3	3	5
1369:	3	5	7	7	3	4	5	1
1377:	3	4	6	7	5	5	1	7
1385:	6	8	3	9	3	6	4	4
1393:	0	4	8	4	4	6	2	4
1401:	5	2	4	8	6	5	5	3
1409:	4	7	3	3	3	4	8	3
1417:	5	4	3	2	5	6	3	4
1425:	3	4	8	5	2	6	5	5
1433:	5	6	1	4	5	3	3	3
1441:	6	8	4	3	4	2	2	2
1449:	3	1	2	4	7	4	3	3
1457:	2	5	5	5	6	3	5	2
1465:	6	1	2	3	3	6	6	4
1473:	4	8	6	1	2	4	2	0
1481:	4	2	3	0	6	4	4	2
1489:	2	4	1	0	3	6	8	4
1497:	7	3	4	4	4	3	1	2
1505:	4	3	3	2	2	2	0	3
1513:	2	2	3	2	5	4	3	2
1521:	7	4	4	6	5	4	1	6
1529:	3	3	1	4	5	1	4	5
1537:	1	1	2	4	5	3	4	6
1545:	1	1	8	5	3	4	3	2
1553:	6	4	2	4	2	3	5	8
1561:	5	8	7	8	3	4	3	2
1569:	5	2	1	2	2	3	5	1
1577:	2	4	4	4	5	1	2	4
1585:	3	3	3	3	3	2	4	2
1593:	4	3	1	4	2	5	5	4
1601:	2	3	3	3	3	6	6	5
1609:	5	1	0	3	4	1	1	5
1617:	7	4	0	5	6	5	5	6
1625:	3	5	1	5	5	1	2	4
1633:	2	5	2	4	4	1	4	3
1641:	0	1	0	1	3	5	2	6
1649:	5	1	1	0	4	7	4	2
1657:	3	2	1	3	2	1	5	4

1665: 5 2 1 3 1 1 2 3

Sample Title: GAS 1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1673:	4	4	3	1	2	3	3	4
1681:	4	3	3	2	1	2	3	4
1689:	3	6	3	1	2	3	5	5
1697:	2	1	2	4	2	4	1	6
1705:	3	2	2	5	3	0	3	7
1713:	2	3	3	3	4	3	1	0
1721:	2	3	1	0	2	3	4	3
1729:	0	1	1	2	1	2	2	5
1737:	4	5	1	5	4	3	4	5
1745:	1	3	2	4	1	2	2	2
1753:	3	1	1	2	1	5	2	2
1761:	3	5	4	2	3	2	2	3
1769:	1	0	1	6	2	2	2	3
1777:	3	2	1	1	3	0	2	0
1785:	2	0	1	1	1	1	6	1
1793:	3	0	2	3	0	5	2	4
1801:	6	3	5	3	4	2	1	2
1809:	1	4	2	2	2	0	2	2
1817:	5	4	0	5	3	4	2	3
1825:	1	2	3	2	4	2	0	1
1833:	0	5	14	26	27	10	4	4
1841:	2	1	1	1	3	4	3	4
1849:	0	2	2	3	3	3	1	6
1857:	3	2	3	1	3	1	4	2
1865:	2	0	6	2	3	3	3	2
1873:	3	2	0	2	1	0	3	2
1881:	1	2	2	2	0	1	2	1
1889:	1	1	1	1	3	3	1	0
1897:	3	4	0	1	0	1	2	0
1905:	1	2	2	3	3	1	0	2
1913:	2	0	2	2	2	0	0	0
1921:	2	4	2	1	2	2	2	1
1929:	1	0	3	2	2	1	0	2
1937:	1	4	2	5	1	3	1	2
1945:	1	2	2	3	4	0	2	3
1953:	2	2	0	3	0	0	3	1
1961:	2	2	1	1	1	1	1	2
1969:	1	0	0	0	2	2	2	2
1977:	2	1	1	0	0	0	0	1
1985:	1	0	1	1	3	1	5	1
1993:	1	2	0	2	1	0	2	3
2001:	1	2	4	1	1	1	2	1
2009:	0	1	3	0	2	1	0	3
2017:	4	2	0	2	2	1	2	4
2025:	1	2	2	0	1	2	2	2
2033:	1	1	2	1	0	0	0	1
2041:	2	2	2	3	1	2	2	0
2049:	1	1	2	0	3	1	2	5
2057:	1	1	0	1	1	2	3	1
2065:	2	2	1	1	1	3	1	3
2073:	1	0	1	1	1	3	3	2
2081:	2	3	4	0	2	0	2	3
2089:	0	1	3	1	5	1	0	2

2097: 1 0 5 1 0 1 3 1

Sample Title: GAS 1302

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

2529: 1 0 0 0 0 0 0 0

Sample Title: GAS 1302

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

2961: 0 0 0 0 0 0 0 0 0

Sample Title: GAS 1302

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

3393: 0 0 0 0 0 0 0 1 0

Sample Title: GAS 1302

Channel	1	0	0	0	0	0	0	0
3401:	1	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	2	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	1	0	0	0	0	0
3481:	1	0	0	0	1	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	1	0	0
3505:	0	0	0	0	0	0	0	1
3513:	0	0	0	0	0	0	0	0
3521:	0	1	0	0	0	0	0	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	1
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	1	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	1
3609:	0	0	0	0	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:	0	1	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	0	0	0	0	0
3697:	0	1	0	0	0	0	0	0
3705:	0	0	1	0	0	0	0	0
3713:	0	0	0	0	0	0	0	1
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	1	1	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	1
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	1

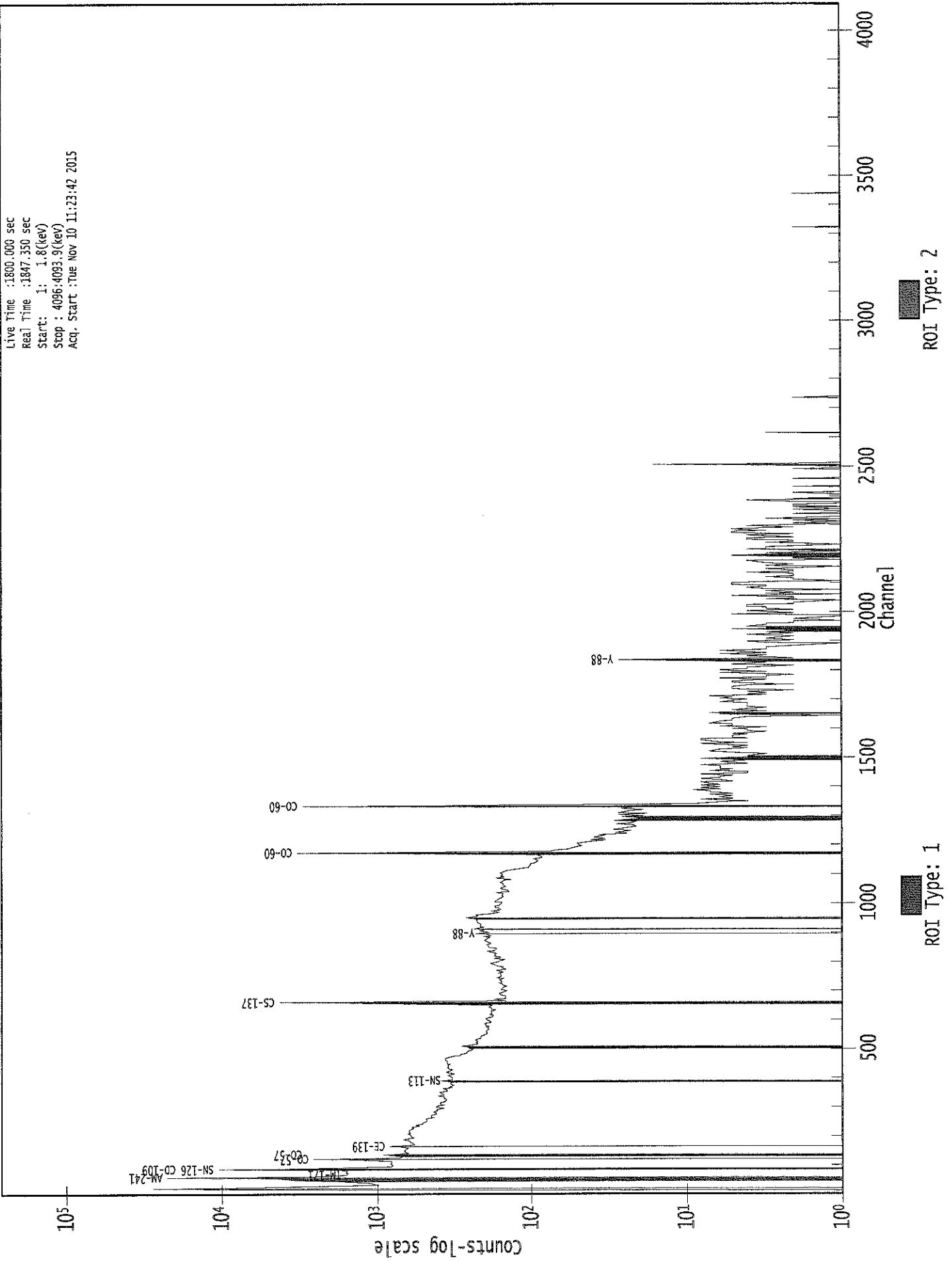
3825: 0 0 0 0 0 0 0 1 0

Sample Title: GAS 1302

Channel	1	0	0	0	0	0	0	0
3833:	1	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	1	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	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	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	1
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	0	0
4017:	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	2	0	0	0	0	0	0

0000029390.CNF

Live Time :1800.000 sec
Real Time :1847.350 sec
Start: 1: 1.8(keV)
Stop : 4096:4093.9(keV)
Acq. Start :Tue Nov 10 11:23:42 2015



KB
11/10/15Analysis Report for 1510090-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-02
Sample Description : BLANK
Sample Type : SOIL

Sample Size : 7.834E+02 grams
Facility : Countroom

Sample Taken On : 11/10/2015 9:41:51AM
Acquisition Started : 11/10/2015 9:46:22AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3640.8 seconds

Dead Time : 1.12 %

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 : 29379

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/11/15

Analysis Report for 1510090-02

BLANK

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 10:47:04AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
1	219.57	218.90	0.0000	0.00
2	242.40	241.73	0.0000	0.00
3	303.58	302.95	0.0000	0.00
4	569.91	569.40	0.0000	0.00
5	747.48	747.05	0.0000	0.00
6	1012.44	1012.15	0.0000	0.00
7	1074.04	1073.79	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 10:47:04AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	219.57	216 -	244	218.90	2.29E+01	21.29	9.65E+01	2.92
m	2	242.40	216 -	244	241.73	1.74E+01	21.66	4.77E+01	2.93
	3	303.58	299 -	307	302.95	3.37E+01	18.49	3.25E+01	4.32
	4	569.91	565 -	573	569.40	1.30E+01	13.00	1.80E+01	2.07
	5	747.48	742 -	750	747.05	1.16E+01	8.73	4.79E+00	1.93
	6	1012.44	1007 -	1015	1012.15	8.50E+00	9.62	9.00E+00	3.71
	7	1074.04	1070 -	1077	1073.79	6.00E+00	8.49	8.00E+00	1.45

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 : 11/10/2015 10:47:04AM

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
M	1	219.57	216 -	244	2.29E+01	21.29	9.65E+01	1.62E+01
m	2	242.40	216 -	244	1.74E+01	21.66	4.77E+01	1.14E+01
	3	303.58	299 -	307	3.37E+01	18.49	3.25E+01	1.18E+01
	4	569.91	565 -	573	1.30E+01	13.00	1.80E+01	8.89E+00
	5	747.48	742 -	750	1.16E+01	8.73	4.79E+00	4.49E+00
	6	1012.44	1007 -	1015	8.50E+00	9.62	9.00E+00	6.29E+00
	7	1074.04	1070 -	1077	6.00E+00	8.49	8.00E+00	5.70E+00

Analysis Report for 1510090-02

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 10:47:04AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

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

Peak Match Tolerance : 1.000 keV

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	219.57	216 -	244	218.90	2.29E+01	21.29	9.65E+01	.....
m	2	242.40	216 -	244	241.73	1.74E+01	21.66	4.77E+01	.....
	3	303.58	299 -	307	302.95	3.37E+01	18.49	3.25E+01	BA-133 PA-231
	4	569.91	565 -	573	569.40	1.30E+01	13.00	1.80E+01	BI-207 CS-134
	5	747.48	742 -	750	747.05	1.16E+01	8.73	4.79E+00	PM-146
	6	1012.44	1007 -	1015	1012.15	8.50E+00	9.62	9.00E+00	.....
	7	1074.04	1070 -	1077	1073.79	6.00E+00	8.49	8.00E+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 : 11/10/2015 10:47:04AM

Analysis Report for 1510090-02

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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	219.57	2.29E+01	21.29	1.01E-02	1.05E-03
m	2	242.40	1.74E+01	21.66	9.29E-03	9.75E-04
	3	303.58	3.37E+01	18.49	7.59E-03	8.34E-04
	4	569.91	1.30E+01	13.00	4.14E-03	4.75E-04
	5	747.48	1.16E+01	8.73	3.17E-03	2.92E-04
	6	1012.44	8.50E+00	9.62	2.36E-03	1.93E-04
	7	1074.04	6.00E+00	8.49	2.23E-03	1.85E-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 : 11/10/2015 10:47:04AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	219.57	2.29E+01	21.29			2.29E+01	2.13E+01
m	2	242.40	1.74E+01	21.66			1.74E+01	2.17E+01
	3	303.58	3.37E+01	18.49			3.37E+01	1.85E+01
	4	569.91	1.30E+01	13.00			1.30E+01	1.30E+01
	5	747.48	1.16E+01	8.73			1.16E+01	8.73E+00
	6	1012.44	8.50E+00	9.62			8.50E+00	9.62E+00
	7	1074.04	6.00E+00	8.49			6.00E+00	8.49E+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 1510090-02

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AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 10:47:04AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M 1	219.57	2.29E+01	21.29			2.29E+01	2.13E+01
m 2	242.40	1.74E+01	21.66			1.74E+01	2.17E+01
3	303.58	3.37E+01	18.49			3.37E+01	1.85E+01
4	569.91	1.30E+01	13.00			1.30E+01	1.30E+01
5	747.48	1.16E+01	8.73			1.16E+01	8.73E+00
6	1012.44	8.50E+00	9.62			8.50E+00	9.62E+00
7	1074.04	6.00E+00	8.49			6.00E+00	8.49E+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
BI-207	0.417	569.67 * 1063.62	97.72 74.90	3.08E-02	3.10E-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

Analysis Report for 1510090-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 10:47:04AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M 1	219.57	6.35039E-03	46.56		
m 2	242.40	4.83721E-03	62.20		
3	303.58	9.37222E-03	27.40	Tol.	BA-133 PA-231
5	747.48	3.22421E-03	37.62	Tol.	PM-146
6	1012.44	2.36111E-03	56.57		
7	1074.04	1.66667E-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
BI-207	0.41	569.67 * 1063.62	97.72 74.90	3.08E-02	3.10E-02

Analysis Report for 1510090-02

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

INTERFERENCE CORRECTED REPORT

<i>Nuclide Name</i>	<i>Nuclide Id Confidence</i>	<i>Wt mean Activity (pCi/grams)</i>	<i>Wt mean Activity Uncertainty</i>	<i>Comments</i>
BI-207	0.417	3.08E-02	3.10E-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 1510090-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 10:47:04AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	219.57	6.35039E-03		
m	2	242.40	4.83721E-03		
	3	303.58	9.37222E-03	Tol.	BA-133 PA-231
	5	747.48	3.22421E-03	Tol.	PM-146
	6	1012.44	2.36111E-03		
	7	1074.04	1.66667E-03		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	1.49E-01	4.94E-01	4.94E-01
+	NA-22	1274.54	99.94	-3.02E-02	4.68E-02	4.68E-02
+	NA-24	1368.53	99.99	1.10E-02	7.00E-02	9.19E-02
		2754.09	99.86	9.51E-03		7.00E-02
+	AL-26	1808.65	99.76	0.00E+00	1.85E-02	1.85E-02
+	K-40	1460.81	10.67	5.33E-02	8.01E-01	8.01E-01
+	AR-41	1293.64	99.16	2.84E-02	9.00E-02	9.00E-02
+	TI-44	67.88	94.40	-1.09E-02	2.65E-02	2.65E-02
		78.34	96.00	-2.88E-03		2.66E-02
+	SC-46	889.25	99.98	-2.39E-02	6.51E-02	6.51E-02
		1120.51	99.99	-8.94E-03		6.72E-02

Analysis Report for 1510090-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	V-48	983.52	99.98	1.53E-02	7.18E-02	7.18E-02
		1312.10	97.50	-2.41E-03		9.63E-02
+	CR-51	320.08	9.83	-1.13E-03	4.53E-01	4.53E-01
+	MN-54	834.83	99.97	-1.69E-02	5.87E-02	5.87E-02
+	CO-56	846.75	99.96	-2.36E-02	5.96E-02	5.96E-02
		1037.75	14.03	6.67E-02		4.70E-01
		1238.25	67.00	2.93E-03		9.60E-02
		1771.40	15.51	0.00E+00		1.17E-01
		2598.48	16.90	5.27E-02		3.88E-01
+	CO-57	122.06	85.51	-1.15E-02	3.20E-02	3.20E-02
		136.48	10.60	-9.27E-02		2.86E-01
+	CO-58	810.76	99.40	-1.80E-02	5.74E-02	5.74E-02
+	FE-59	1099.22	56.50	8.64E-04	1.10E-01	1.10E-01
		1291.56	43.20	4.28E-02		1.87E-01
+	CO-60	1173.22	100.00	3.47E-02	7.40E-02	8.79E-02
		1332.49	100.00	-6.12E-03		7.40E-02
+	ZN-65	1115.52	50.75	-2.30E-02	1.39E-01	1.39E-01
+	GA-67	93.31	35.70	9.23E-02	9.10E-02	9.10E-02
		208.95	2.24	-1.45E-01		1.67E+00
		300.22	16.00	-2.88E-02		2.58E-01
+	SE-75	121.11	16.70	-6.17E-02	5.05E-02	1.63E-01
		136.00	59.20	-2.06E-02		5.05E-02
		264.65	59.80	1.20E-03		7.34E-02
		279.53	25.20	-1.34E-02		1.61E-01
		400.65	11.40	-1.07E-01		3.74E-01
+	RB-82	776.52	13.00	-9.67E-02	4.86E-01	4.86E-01
+	RB-83	520.41	46.00	-2.67E-02	1.13E-01	1.13E-01
		529.64	30.30	-6.14E-02		1.43E-01
		552.65	16.40	1.64E-02		3.68E-01
+	KR-85	513.99	0.43	2.55E+01	2.12E+01	2.12E+01
+	SR-85	513.99	99.27	1.12E-01	9.28E-02	9.28E-02
+	Y-88	898.02	93.40	-1.38E-02	6.75E-02	6.75E-02
		1836.01	99.38	-2.01E-02		7.48E-02
+	NB-93M	16.57	9.43	2.82E-01	1.98E-01	1.98E-01
+	NB-94	702.63	100.00	8.80E-03	6.61E-02	6.98E-02
		871.10	100.00	1.85E-03		6.61E-02
+	NB-95	765.79	99.81	-2.67E-03	5.85E-02	5.85E-02
+	NB-95M	235.69	25.00	3.91E-02	1.78E-01	1.78E-01
+	ZR-95	724.18	43.70	-4.70E-02	8.32E-02	1.58E-01
		756.72	55.30	-3.98E-02		8.32E-02
+	MO-99	181.06	6.20	-2.15E-01	3.73E-01	6.20E-01
		739.58	12.80	0.00E+00		3.73E-01
		778.00	4.50	4.40E-02		1.50E+00
+	RU-103	497.08	89.00	-5.43E-03	5.80E-02	5.80E-02
+	RU-106	621.84	9.80	1.07E-01	6.19E-01	6.19E-01
+	AG-108M	433.93	89.90	-9.09E-03	5.56E-02	5.56E-02
		614.37	90.40	1.83E-02		7.54E-02

Analysis Report for 1510090-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-108M	722.95	90.50	-1.44E-02	5.56E-02	7.94E-02
+	CD-109	88.03	3.72	-9.39E-01	7.48E-01	7.48E-01
+	AG-110M	657.75	93.14	-1.79E-02	6.43E-02	6.43E-02
		677.61	10.53	-5.22E-02		6.40E-01
		706.67	16.46	8.28E-02		4.18E-01
		763.93	21.98	-3.03E-02		2.55E-01
		884.67	71.63	-3.51E-02		9.38E-02
		1384.27	23.94	3.78E-02		2.97E-01
+	CD-113M	263.70	0.02	-3.50E+01	1.81E+02	1.81E+02
+	SN-113	255.12	1.93	1.09E+00	8.04E-02	2.18E+00
		391.69	64.90	2.97E-02		8.04E-02
+	TE123M	159.00	84.10	-4.03E-04	3.97E-02	3.97E-02
+	SB-124	602.71	97.87	-2.67E-02	5.75E-02	5.75E-02
		645.85	7.26	-1.59E-01		6.79E-01
		722.78	11.10	-2.02E-01		6.20E-01
		1691.02	49.00	4.21E-02		1.73E-01
+	I-125	35.49	6.49	-4.45E-02	2.99E-01	2.99E-01
+	SB-125	176.33	6.89	-2.29E-01	1.80E-01	4.87E-01
		427.89	29.33	7.44E-03		1.80E-01
		463.38	10.35	1.80E-01		5.22E-01
		600.56	17.80	-6.39E-02		3.22E-01
		635.90	11.32	1.14E-01		4.99E-01
+	SB-126	414.70	83.30	-3.21E-03	5.69E-02	6.24E-02
		666.33	99.60	4.89E-02		8.10E-02
		695.00	99.60	-1.60E-02		5.69E-02
		720.50	53.80	2.53E-02		1.30E-01
+	SN-126	87.57	37.00	-9.41E-02	7.50E-02	7.50E-02
+	SB-127	473.00	25.00	-8.04E-02	1.94E-01	1.94E-01
		685.20	35.70	1.56E-02		2.06E-01
		783.80	14.70	1.95E-01		4.86E-01
+	I-129	29.78	57.00	1.54E-02	3.68E-02	3.68E-02
		33.60	13.20	-7.08E-02		1.45E-01
		39.58	7.52	-2.36E-01		2.50E-01
+	I-131	284.30	6.05	-1.70E-02	5.44E-02	6.75E-01
		364.48	81.20	-1.08E-02		5.44E-02
		636.97	7.26	1.67E-01		7.60E-01
		722.89	1.80	-1.25E+00		3.83E+00
+	TE-132	49.72	13.10	1.17E-01	4.75E-02	1.65E-01
		228.16	88.00	2.49E-02		4.75E-02
+	BA-133	81.00	33.00	-3.13E-02	7.79E-02	7.79E-02
		302.84	17.80	8.50E-02		2.47E-01
		356.01	60.00	1.20E-02		7.85E-02
+	I-133	529.87	86.30	-2.20E-02	5.12E-02	5.12E-02
+	XE-133	81.00	38.00	-2.73E-02	6.79E-02	6.79E-02
+	CS-134	563.23	8.38	6.74E-02	5.31E-02	6.28E-01
		569.32	15.43	1.31E-01		3.68E-01
		604.70	97.60	-7.32E-03		6.17E-02
		795.84	85.40	-6.28E-03		5.31E-02
		801.93	8.73	3.71E-02		6.47E-01

Analysis Report for 1510090-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CS-135	268.24	16.00	1.05E-02	2.88E-01	2.88E-01
+	I-135	1131.51	22.50	-7.81E-02	1.99E-01	2.56E-01
		1260.41	28.60	-1.52E-01		1.99E-01
		1678.03	9.54	2.14E-01		1.01E+00
+	CS-136	153.22	7.46	-7.59E-03	5.79E-02	4.48E-01
		163.89	4.61	-5.15E-02		7.14E-01
		176.55	13.56	-1.17E-01		2.48E-01
		273.65	12.66	1.94E-01		3.66E-01
		340.57	48.50	2.40E-02		1.05E-01
		818.50	99.70	-1.51E-02		5.79E-02
		1048.07	79.60	7.04E-03		7.45E-02
		1235.34	19.70	-7.46E-02		2.68E-01
+	CS-137	661.65	85.12	2.24E-02	8.47E-02	8.47E-02
+	LA-138	788.74	34.00	2.81E-02	1.02E-01	1.70E-01
		1435.80	66.00	-2.97E-02		1.02E-01
+	CE-139	165.85	80.35	-9.17E-03	4.10E-02	4.10E-02
+	BA-140	162.64	6.70	2.05E-01	1.86E-01	5.11E-01
		304.84	4.50	6.10E-01		1.01E+00
		423.70	3.20	5.13E-01		1.80E+00
		437.55	2.00	-4.88E-01		2.60E+00
		537.32	25.00	-4.81E-02		1.86E-01
+	LA-140	328.77	20.50	-9.33E-02	7.74E-02	2.16E-01
		487.03	45.50	-3.71E-02		1.03E-01
		815.85	23.50	9.46E-02		2.83E-01
		1596.49	95.49	-3.06E-02		7.74E-02
+	CE-141	145.44	48.40	1.41E-03	6.93E-02	6.93E-02
+	CE-143	57.36	11.80	-9.02E-02	1.02E-01	1.88E-01
		293.26	42.00	3.53E-02		1.02E-01
		664.55	5.20	2.34E-01		1.48E+00
+	CE-144	133.54	10.80	-5.77E-02	2.75E-01	2.75E-01
+	PM-144	476.78	42.00	1.62E-02	5.71E-02	1.22E-01
		618.01	98.60	-2.24E-02		6.24E-02
		696.49	99.49	-1.97E-02		5.71E-02
+	PM-145	36.85	21.70	1.35E-02	4.93E-02	9.06E-02
		37.36	39.70	-1.88E-03		4.93E-02
		42.30	15.10	5.47E-02		1.40E-01
		72.40	2.31	3.79E-01		1.10E+00
+	PM-146	453.90	39.94	-1.71E-02	1.16E-01	1.16E-01
		735.90	14.01	-1.36E-01		3.70E-01
		747.13	13.10	1.04E-01		4.64E-01
+	ND-147	91.11	28.90	1.08E-01	1.13E-01	1.13E-01
		531.02	13.10	-9.00E-02		3.32E-01
+	PM-149	285.90	3.10	6.26E-01	1.40E+00	1.40E+00
+	EU-152	121.78	20.50	-4.78E-02	1.33E-01	1.33E-01
		244.69	5.40	6.93E-03		7.35E-01
		344.27	19.13	6.05E-03		2.57E-01
		778.89	9.20	2.14E-02		7.30E-01
		964.01	10.40	1.94E-01		7.50E-01
		1085.78	7.22	6.01E-02		9.03E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	1112.02	9.60	1.16E-02	1.33E-01	7.34E-01
		1407.95	14.94	-3.99E-02		4.43E-01
+	GD-153	97.43	31.30	-2.42E-02	9.11E-02	9.11E-02
		103.18	22.20	-8.86E-02		1.16E-01
+	EU-154	123.07	40.50	-3.73E-02	6.65E-02	6.65E-02
		723.30	19.70	-6.62E-02		3.65E-01
		873.19	11.50	-4.25E-02		5.77E-01
		996.32	10.30	4.32E-02		6.47E-01
		1004.76	17.90	-1.07E-03		3.57E-01
		1274.45	35.50	-8.51E-02		1.32E-01
+	EU-155	86.50	30.90	-1.38E-01	8.79E-02	8.79E-02
		105.30	20.70	3.25E-02		1.39E-01
+	EU-156	811.77	10.40	-1.26E-01	5.10E-01	5.73E-01
		1153.47	7.20	-2.68E-01		8.37E-01
		1230.71	8.90	-3.02E-01		5.10E-01
+	HO-166M	184.41	72.60	3.29E-02	6.06E-02	6.06E-02
		280.45	29.60	-5.32E-02		1.33E-01
		410.94	11.10	4.54E-02		4.52E-01
		711.69	54.10	-3.20E-02		1.10E-01
+	TM-171	66.72	0.14	1.47E+00	1.86E+01	1.86E+01
+	HF-172	81.75	4.52	-1.80E-01	2.52E-01	5.67E-01
		125.81	11.30	-3.14E-02		2.52E-01
+	LU-172	181.53	20.60	1.08E-01	1.05E-01	2.03E-01
		810.06	16.63	-1.08E-01		3.44E-01
		912.12	15.25	-6.71E-02		4.03E-01
		1093.66	62.50	-2.67E-03		1.05E-01
+	LU-173	100.72	5.24	-3.61E-01	2.15E-01	4.93E-01
		272.11	21.20	1.75E-02		2.15E-01
+	HF-175	343.40	84.00	-4.55E-04	5.84E-02	5.84E-02
+	LU-176	88.34	13.30	6.80E-02	4.52E-02	2.32E-01
		201.83	86.00	2.33E-02		4.52E-02
		306.78	94.00	-5.43E-03		4.74E-02
+	TA-182	67.75	41.20	-2.49E-02	6.06E-02	6.06E-02
		1121.30	34.90	-5.31E-02		1.93E-01
		1189.05	16.23	2.77E-03		4.37E-01
		1221.41	26.98	-5.39E-02		2.16E-01
		1231.02	11.44	-2.35E-01		3.96E-01
+	IR-192	308.46	29.68	2.26E-03	1.08E-01	1.47E-01
		468.07	48.10	2.10E-02		1.08E-01
+	HG-203	279.19	77.30	-4.36E-03	5.24E-02	5.24E-02
+	BI-207	569.67	* 97.72	3.08E-02	4.86E-02	4.86E-02
		1063.62	74.90	-1.28E-02		9.02E-02
+	TL-208	583.14	30.22	-3.92E-02	1.72E-01	1.72E-01
		860.37	4.48	2.81E-01		1.29E+00
		2614.66	35.85	2.49E-02		1.84E-01
+	BI-210M	262.00	45.00	-8.57E-03	9.14E-02	9.14E-02
		300.00	23.00	-1.36E-03		1.79E-01
+	PB-210	46.50	4.25	5.57E-02	4.99E-01	4.99E-01
+	PB-211	404.84	2.90	1.96E-01	1.59E+00	1.59E+00

Analysis Report for 1510090-02

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	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
	PB-211	831.96	2.90	2.99E-01	1.59E+00	2.18E+00
+	BI-212	727.17	11.80	1.72E-01	6.12E-01	6.12E-01
		1620.62	2.75	-9.43E-02		2.72E+00
+	PB-212	238.63	44.60	1.29E-02	9.56E-02	9.56E-02
		300.09	3.41	-9.16E-03		1.20E+00
+	BI-214	609.31	46.30	1.30E-02	1.46E-01	1.46E-01
		1120.29	15.10	-5.92E-02		4.45E-01
		1764.49	15.80	1.41E-02		3.93E-01
		2204.22	4.98	0.00E+00		4.32E-01
+	PB-214	295.21	19.19	8.26E-03	1.25E-01	2.04E-01
		351.92	37.19	6.89E-03		1.25E-01
+	RN-219	401.80	6.50	-3.36E-01	6.45E-01	6.45E-01
+	RA-223	323.87	3.88	8.18E-01	1.26E+00	1.26E+00
+	RA-224	240.98	3.95	6.62E-02	1.07E+00	1.07E+00
+	RA-225	40.00	31.00	-5.76E-02	6.10E-02	6.10E-02
+	RA-226	186.21	3.28	7.11E-01	1.35E+00	1.35E+00
+	TH-227	50.10	8.40	1.83E-01	2.56E-01	2.56E-01
		236.00	11.50	8.48E-02		3.86E-01
		256.20	6.30	5.00E-03		6.40E-01
+	AC-228	338.32	11.40	2.77E-01	2.31E-01	4.71E-01
		911.07	27.70	1.33E-02		2.31E-01
		969.11	16.60	-1.37E-01		3.52E-01
+	TH-230	48.44	16.90	7.65E-02	1.27E-01	1.27E-01
		62.85	4.60	5.60E-01		5.70E-01
		67.67	0.37	-2.77E+00		6.75E+00
+	PA-231	283.67	1.60	-1.48E-02	1.91E+00	2.52E+00
		302.67	2.30	6.57E-01		1.91E+00
+	TH-231	25.64	14.70	-1.20E-02	1.42E-01	1.42E-01
		84.21	6.40	2.61E-01		4.31E-01
+	PA-233	311.98	38.60	-3.46E-02	9.61E-02	9.61E-02
+	PA-234	131.20	20.40	4.14E-02	1.49E-01	1.49E-01
		733.99	8.80	-2.56E-01		6.12E-01
		946.00	12.00	1.23E-01		6.94E-01
+	PA-234M	1001.03	0.92	6.41E-01	7.61E+00	7.61E+00
+	TH-234	63.29	3.80	5.65E-01	6.98E-01	6.98E-01
+	U-235	143.76	10.50	3.65E-02	3.20E-01	3.20E-01
		163.35	4.70	-5.04E-02		6.97E-01
		205.31	4.70	-2.47E-01		7.82E-01
+	NP-237	86.50	12.60	-3.38E-01	2.16E-01	2.16E-01
+	NP-239	106.10	22.70	3.00E-02	1.28E-01	1.28E-01
		228.18	10.70	8.28E-02		3.81E-01
		277.60	14.10	-1.17E-02		3.04E-01
+	AM-241	59.54	35.90	4.16E-02	6.83E-02	6.83E-02
+	AM-243	74.67	66.00	9.28E-03	3.85E-02	3.85E-02
+	CM-243	209.75	3.29	-1.14E-01	3.04E-01	1.15E+00
		228.14	10.60	2.06E-01		3.92E-01
		277.60	14.00	-1.17E-02		3.04E-01

Analysis Report for 1510090-02

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	4.94E-01	4.94E-01	1.49E-01	2.22E-01
NA-22	1274.54	99.94	4.68E-02	4.68E-02	-3.02E-02	1.66E-02
NA-24	1368.53	99.99	9.19E-02	7.00E-02	1.10E-02	3.85E-02
	2754.09	99.86	7.00E-02		9.51E-03	2.21E-02
AL-26	1808.65	99.76	1.85E-02	1.85E-02	0.00E+00	0.00E+00
K-40	1460.81	10.67	8.01E-01	8.01E-01	5.33E-02	3.28E-01
AR-41	1293.64	99.16	9.00E-02	9.00E-02	2.84E-02	3.64E-02
TI-44	67.88	94.40	2.65E-02	2.65E-02	-1.09E-02	1.26E-02
	78.34	96.00	2.66E-02		-2.88E-03	1.27E-02
SC-46	889.25	99.98	6.51E-02	6.51E-02	-2.39E-02	2.77E-02
	1120.51	99.99	6.72E-02		-8.94E-03	2.75E-02
V-48	983.52	99.98	7.18E-02	7.18E-02	1.53E-02	3.05E-02
	1312.10	97.50	9.63E-02		-2.41E-03	4.10E-02
CR-51	320.08	9.83	4.53E-01	4.53E-01	-1.13E-03	2.08E-01
MN-54	834.83	99.97	5.87E-02	5.87E-02	-1.69E-02	2.48E-02
CO-56	846.75	99.96	5.96E-02	5.96E-02	-2.36E-02	2.52E-02
	1037.75	14.03	4.70E-01		6.67E-02	1.95E-01
	1238.25	67.00	9.60E-02		2.93E-03	3.81E-02
	1771.40	15.51	1.17E-01		0.00E+00	0.00E+00
	2598.48	16.90	3.88E-01		5.27E-02	1.23E-01
CO-57	122.06	85.51	3.20E-02	3.20E-02	-1.15E-02	1.51E-02
	136.48	10.60	2.86E-01		-9.27E-02	1.35E-01
CO-58	810.76	99.40	5.74E-02	5.74E-02	-1.80E-02	2.43E-02
FE-59	1099.22	56.50	1.10E-01	1.10E-01	8.64E-04	4.43E-02
	1291.56	43.20	1.87E-01		4.28E-02	7.77E-02
CO-60	1173.22	100.00	8.79E-02	7.40E-02	3.47E-02	3.76E-02
	1332.49	100.00	7.40E-02		-6.12E-03	2.99E-02
ZN-65	1115.52	50.75	1.39E-01	1.39E-01	-2.30E-02	5.77E-02
GA-67	93.31	35.70	9.10E-02	9.10E-02	9.23E-02	4.36E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	2.24	1.67E+00	9.10E-02	-1.45E-01	7.82E-01
	300.22	16.00	2.58E-01		-2.88E-02	1.18E-01
SE-75	121.11	16.70	1.63E-01	5.05E-02	-6.17E-02	7.68E-02
	136.00	59.20	5.05E-02		-2.06E-02	2.38E-02
	264.65	59.80	7.34E-02		1.20E-03	3.42E-02
	279.53	25.20	1.61E-01		-1.34E-02	7.41E-02
	400.65	11.40	3.74E-01		-1.07E-01	1.67E-01
RB-82	776.52	13.00	4.86E-01	4.86E-01	-9.67E-02	2.10E-01
RB-83	520.41	46.00	1.13E-01	1.13E-01	-2.67E-02	5.02E-02
	529.64	30.30	1.43E-01		-6.14E-02	6.19E-02
	552.65	16.40	3.68E-01		1.64E-02	1.66E-01
KR-85	513.99	0.43	2.12E+01	2.12E+01	2.55E+01	9.96E+00
SR-85	513.99	99.27	9.28E-02	9.28E-02	1.12E-01	4.36E-02
Y-88	898.02	93.40	6.75E-02	6.75E-02	-1.38E-02	2.85E-02
	1836.01	99.38	7.48E-02		-2.01E-02	2.80E-02
NB-93M	16.57	9.43	1.98E-01	1.98E-01	2.82E-01	9.47E-02
NB-94	702.63	100.00	6.98E-02	6.61E-02	8.80E-03	3.11E-02
	871.10	100.00	6.61E-02		1.85E-03	2.83E-02
NB-95	765.79	99.81	5.85E-02	5.85E-02	-2.67E-03	2.50E-02
NB-95M	235.69	25.00	1.78E-01	1.78E-01	3.91E-02	8.36E-02
ZR-95	724.18	43.70	1.58E-01	8.32E-02	-4.70E-02	6.98E-02
	756.72	55.30	8.32E-02		-3.98E-02	3.41E-02
MO-99	181.06	6.20	6.20E-01	3.73E-01	-2.15E-01	2.92E-01
	739.58	12.80	3.73E-01		0.00E+00	1.55E-01
	778.00	4.50	1.50E+00		4.40E-02	6.55E-01
RU-103	497.08	89.00	5.80E-02	5.80E-02	-5.43E-03	2.59E-02
RU-106	621.84	9.80	6.19E-01	6.19E-01	1.07E-01	2.74E-01
AG-108M	433.93	89.90	5.56E-02	5.56E-02	-9.09E-03	2.51E-02
	614.37	90.40	7.54E-02		1.83E-02	3.39E-02
	722.95	90.50	7.94E-02		-1.44E-02	3.53E-02
	88.03	3.72	7.48E-01		7.48E-01	-9.39E-01	3.56E-01
AG-110M	657.75	93.14	6.43E-02	6.43E-02	-1.79E-02	2.83E-02
	677.61	10.53	6.40E-01		-5.22E-02	2.85E-01
	706.67	16.46	4.18E-01		8.28E-02	1.85E-01
	763.93	21.98	2.55E-01		-3.03E-02	1.09E-01
	884.67	71.63	9.38E-02		-3.51E-02	4.01E-02
	1384.27	23.94	2.97E-01		3.78E-02	1.18E-01
CD-113M	263.70	0.02	1.81E+02	1.81E+02	-3.50E+01	8.41E+01
SN-113	255.12	1.93	2.18E+00	8.04E-02	1.09E+00	1.02E+00
	391.69	64.90	8.04E-02		2.97E-02	3.69E-02
TE123M	159.00	84.10	3.97E-02	3.97E-02	-4.03E-04	1.87E-02
SB-124	602.71	97.87	5.75E-02	5.75E-02	-2.67E-02	2.54E-02
	645.85	7.26	6.79E-01		-1.59E-01	2.91E-01
	722.78	11.10	6.20E-01		-2.02E-01	2.74E-01
	1691.02	49.00	1.73E-01		4.21E-02	6.85E-02
	35.49	6.49	2.99E-01		2.99E-01	-4.45E-02	1.43E-01
SB-125	176.33	6.89	4.87E-01	1.80E-01	-2.29E-01	2.28E-01
	427.89	29.33	1.80E-01		7.44E-03	8.20E-02
	463.38	10.35	5.22E-01		1.80E-01	2.36E-01
	600.56	17.80	3.22E-01		-6.39E-02	1.42E-01
	635.90	11.32	4.99E-01		1.14E-01	2.19E-01
	414.70	83.30	6.24E-02		5.69E-02	-3.21E-03
SB-126	666.33	99.60	8.10E-02		4.89E-02	3.68E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-126	695.00	99.60	5.69E-02	5.69E-02	-1.60E-02	2.46E-02
	720.50	53.80	1.30E-01		2.53E-02	5.79E-02
SN-126	87.57	37.00	7.50E-02	7.50E-02	-9.41E-02	3.57E-02
SB-127	473.00	25.00	1.94E-01	1.94E-01	-8.04E-02	8.64E-02
	685.20	35.70	2.06E-01		1.56E-02	9.27E-02
	783.80	14.70	4.86E-01		1.95E-01	2.14E-01
I-129	29.78	57.00	3.68E-02	3.68E-02	1.54E-02	1.76E-02
	33.60	13.20	1.45E-01		-7.08E-02	6.90E-02
	39.58	7.52	2.50E-01		-2.36E-01	1.19E-01
I-131	284.30	6.05	6.75E-01	5.44E-02	-1.70E-02	3.11E-01
	364.48	81.20	5.44E-02		-1.08E-02	2.47E-02
	636.97	7.26	7.60E-01		1.67E-01	3.32E-01
	722.89	1.80	3.83E+00		-1.25E+00	1.70E+00
TE-132	49.72	13.10	1.65E-01	4.75E-02	1.17E-01	7.85E-02
	228.16	88.00	4.75E-02		2.49E-02	2.22E-02
BA-133	81.00	33.00	7.79E-02	7.79E-02	-3.13E-02	3.70E-02
	302.84	17.80	2.47E-01		8.50E-02	1.14E-01
	356.01	60.00	7.85E-02		1.20E-02	3.59E-02
I-133	529.87	86.30	5.12E-02	5.12E-02	-2.20E-02	2.22E-02
XE-133	81.00	38.00	6.79E-02	6.79E-02	-2.73E-02	3.23E-02
CS-134	563.23	8.38	6.28E-01	5.31E-02	6.74E-02	2.77E-01
	569.32	15.43	3.68E-01		1.31E-01	1.64E-01
	604.70	97.60	6.17E-02		-7.32E-03	2.74E-02
	795.84	85.40	5.31E-02		-6.28E-03	2.15E-02
	801.93	8.73	6.47E-01		3.71E-02	2.73E-01
CS-135	268.24	16.00	2.88E-01	2.88E-01	1.05E-02	1.34E-01
I-135	1131.51	22.50	2.56E-01	1.99E-01	-7.81E-02	9.91E-02
	1260.41	28.60	1.99E-01		-1.52E-01	7.46E-02
	1678.03	9.54	1.01E+00		2.14E-01	4.07E-01
CS-136	153.22	7.46	4.48E-01	5.79E-02	-7.59E-03	2.11E-01
	163.89	4.61	7.14E-01		-5.15E-02	3.35E-01
	176.55	13.56	2.48E-01		-1.17E-01	1.16E-01
	273.65	12.66	3.66E-01		1.94E-01	1.70E-01
	340.57	48.50	1.05E-01		2.40E-02	4.87E-02
	818.50	99.70	5.79E-02		-1.51E-02	2.44E-02
	1048.07	79.60	7.45E-02		7.04E-03	3.01E-02
	1235.34	19.70	2.68E-01		-7.46E-02	1.00E-01
CS-137	661.65	85.12	8.47E-02	8.47E-02	2.24E-02	3.81E-02
LA-138	788.74	34.00	1.70E-01	1.02E-01	2.81E-02	7.24E-02
	1435.80	66.00	1.02E-01		-2.97E-02	3.95E-02
CE-139	165.85	80.35	4.10E-02	4.10E-02	-9.17E-03	1.93E-02
BA-140	162.64	6.70	5.11E-01	1.86E-01	2.05E-01	2.40E-01
	304.84	4.50	1.01E+00		6.10E-01	4.69E-01
	423.70	3.20	1.80E+00		5.13E-01	8.27E-01
	437.55	2.00	2.60E+00		-4.88E-01	1.18E+00
	537.32	25.00	1.86E-01		-4.81E-02	8.14E-02
LA-140	328.77	20.50	2.16E-01	7.74E-02	-9.33E-02	9.90E-02
	487.03	45.50	1.03E-01		-3.71E-02	4.54E-02
	815.85	23.50	2.83E-01		9.46E-02	1.22E-01
	1596.49	95.49	7.74E-02		-3.06E-02	3.00E-02
CE-141	145.44	48.40	6.93E-02	6.93E-02	1.41E-03	3.28E-02
CE-143	57.36	11.80	1.88E-01	1.02E-01	-9.02E-02	8.94E-02
	293.26	42.00	1.02E-01		3.53E-02	4.70E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-143	664.55	5.20	1.48E+00	1.02E-01	2.34E-01	6.68E-01
CE-144	133.54	10.80	2.75E-01	2.75E-01	-5.77E-02	1.29E-01
PM-144	476.78	42.00	1.22E-01	5.71E-02	1.62E-02	5.49E-02
	618.01	98.60	6.24E-02		-2.24E-02	2.78E-02
	696.49	99.49	5.71E-02		-1.97E-02	2.47E-02
PM-145	36.85	21.70	9.06E-02	4.93E-02	1.35E-02	4.32E-02
	37.36	39.70	4.93E-02		-1.88E-03	2.35E-02
	42.30	15.10	1.40E-01		5.47E-02	6.67E-02
	72.40	2.31	1.10E+00		3.79E-01	5.26E-01
PM-146	453.90	39.94	1.16E-01	1.16E-01	-1.71E-02	5.17E-02
	735.90	14.01	3.70E-01		-1.36E-01	1.56E-01
	747.13	13.10	4.64E-01		1.04E-01	2.01E-01
ND-147	91.11	28.90	1.13E-01	1.13E-01	1.08E-01	5.44E-02
	531.02	13.10	3.32E-01		-9.00E-02	1.44E-01
PM-149	285.90	3.10	1.40E+00	1.40E+00	6.26E-01	6.46E-01
EU-152	121.78	20.50	1.33E-01	1.33E-01	-4.78E-02	6.28E-02
	244.69	5.40	7.35E-01		6.93E-03	3.41E-01
	344.27	19.13	2.57E-01		6.05E-03	1.18E-01
	778.89	9.20	7.30E-01		2.14E-02	3.19E-01
	964.01	10.40	7.50E-01		1.94E-01	3.24E-01
	1085.78	7.22	9.03E-01		6.01E-02	3.70E-01
	1112.02	9.60	7.34E-01		1.16E-02	3.04E-01
	1407.95	14.94	4.43E-01		-3.99E-02	1.72E-01
GD-153	97.43	31.30	9.11E-02	9.11E-02	-2.42E-02	4.33E-02
	103.18	22.20	1.16E-01		-8.86E-02	5.49E-02
EU-154	123.07	40.50	6.65E-02	6.65E-02	-3.73E-02	3.12E-02
	723.30	19.70	3.65E-01		-6.62E-02	1.62E-01
	873.19	11.50	5.77E-01		-4.25E-02	2.47E-01
	996.32	10.30	6.47E-01		4.32E-02	2.71E-01
	1004.76	17.90	3.57E-01		-1.07E-03	1.48E-01
	1274.45	35.50	1.32E-01		-8.51E-02	4.67E-02
EU-155	86.50	30.90	8.79E-02	8.79E-02	-1.38E-01	4.18E-02
	105.30	20.70	1.39E-01		3.25E-02	6.59E-02
EU-156	811.77	10.40	5.73E-01	5.10E-01	-1.26E-01	2.44E-01
	1153.47	7.20	8.37E-01		-2.68E-01	3.32E-01
	1230.71	8.90	5.10E-01		-3.02E-01	1.81E-01
HO-166M	184.41	72.60	6.06E-02	6.06E-02	3.29E-02	2.88E-02
	280.45	29.60	1.33E-01		-5.32E-02	6.13E-02
	410.94	11.10	4.52E-01		4.54E-02	2.05E-01
	711.69	54.10	1.10E-01		-3.20E-02	4.80E-02
TM-171	66.72	0.14	1.86E+01	1.86E+01	1.47E+00	8.90E+00
HF-172	81.75	4.52	5.67E-01	2.52E-01	-1.80E-01	2.70E-01
	125.81	11.30	2.52E-01		-3.14E-02	1.19E-01
LU-172	181.53	20.60	2.03E-01	1.05E-01	1.08E-01	9.60E-02
	810.06	16.63	3.44E-01		-1.08E-01	1.45E-01
	912.12	15.25	4.03E-01		-6.71E-02	1.69E-01
	1093.66	62.50	1.05E-01		-2.67E-03	4.31E-02
LU-173	100.72	5.24	4.93E-01	2.15E-01	-3.61E-01	2.33E-01
	272.11	21.20	2.15E-01		1.75E-02	1.00E-01
HF-175	343.40	84.00	5.84E-02	5.84E-02	-4.55E-04	2.69E-02
LU-176	88.34	13.30	2.32E-01	4.52E-02	6.80E-02	1.11E-01
	201.83	86.00	4.52E-02		2.33E-02	2.12E-02
	306.78	94.00	4.74E-02		-5.43E-03	2.19E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TA-182	67.75	41.20	6.06E-02	6.06E-02	-2.49E-02	2.89E-02
	1121.30	34.90	1.93E-01		-5.31E-02	7.89E-02
	1189.05	16.23	4.37E-01		2.77E-03	1.79E-01
	1221.41	26.98	2.16E-01		-5.39E-02	8.35E-02
	1231.02	11.44	3.96E-01		-2.35E-01	1.40E-01
IR-192	308.46	29.68	1.47E-01	1.08E-01	2.26E-03	6.74E-02
	468.07	48.10	1.08E-01		2.10E-02	4.88E-02
HG-203	279.19	77.30	5.24E-02	5.24E-02	-4.36E-03	2.42E-02
+ BI-207	569.67	* 97.72	4.86E-02	4.86E-02	3.08E-02	2.11E-02
	1063.62	74.90	9.02E-02		-1.28E-02	3.74E-02
TL-208	583.14	30.22	1.72E-01	1.72E-01	-3.92E-02	7.52E-02
	860.37	4.48	1.29E+00		2.81E-01	5.41E-01
	2614.66	35.85	1.84E-01		2.49E-02	5.80E-02
BI-210M	262.00	45.00	9.14E-02	9.14E-02	-8.57E-03	4.24E-02
	300.00	23.00	1.79E-01		-1.36E-03	8.19E-02
PB-210	46.50	4.25	4.99E-01	4.99E-01	5.57E-02	2.38E-01
PB-211	404.84	2.90	1.59E+00	1.59E+00	1.96E-01	7.16E-01
	831.96	2.90	2.18E+00		2.99E-01	9.34E-01
BI-212	727.17	11.80	6.12E-01	6.12E-01	1.72E-01	2.72E-01
	1620.62	2.75	2.72E+00		-9.43E-02	1.05E+00
PB-212	238.63	44.60	9.56E-02	9.56E-02	1.29E-02	4.47E-02
	300.09	3.41	1.20E+00		-9.16E-03	5.53E-01
BI-214	609.31	46.30	1.46E-01	1.46E-01	1.30E-02	6.57E-02
	1120.29	15.10	4.45E-01		-5.92E-02	1.82E-01
	1764.49	15.80	3.93E-01		1.41E-02	1.39E-01
	2204.22	4.98	4.32E-01		0.00E+00	0.00E+00
PB-214	295.21	19.19	2.04E-01	1.25E-01	8.26E-03	9.32E-02
	351.92	37.19	1.25E-01		6.89E-03	5.74E-02
RN-219	401.80	6.50	6.45E-01	6.45E-01	-3.36E-01	2.88E-01
RA-223	323.87	3.88	1.26E+00	1.26E+00	8.18E-01	5.85E-01
RA-224	240.98	3.95	1.07E+00	1.07E+00	6.62E-02	4.98E-01
RA-225	40.00	31.00	6.10E-02	6.10E-02	-5.76E-02	2.90E-02
RA-226	186.21	3.28	1.35E+00	1.35E+00	7.11E-01	6.41E-01
	50.10	8.40	2.56E-01	2.56E-01	1.83E-01	1.22E-01
	236.00	11.50	3.86E-01		8.48E-02	1.81E-01
	256.20	6.30	6.40E-01		5.00E-03	2.97E-01
AC-228	338.32	11.40	4.71E-01	2.31E-01	2.77E-01	2.19E-01
	911.07	27.70	2.31E-01		1.33E-02	9.75E-02
	969.11	16.60	3.52E-01		-1.37E-01	1.44E-01
TH-230	48.44	16.90	1.27E-01	1.27E-01	7.65E-02	6.06E-02
	62.85	4.60	5.70E-01		5.60E-01	2.73E-01
	67.67	0.37	6.75E+00		-2.77E+00	3.22E+00
PA-231	283.67	1.60	2.52E+00	1.91E+00	-1.48E-02	1.16E+00
	302.67	2.30	1.91E+00		6.57E-01	8.83E-01
TH-231	25.64	14.70	1.42E-01	1.42E-01	-1.20E-02	6.81E-02
	84.21	6.40	4.31E-01		2.61E-01	2.06E-01
PA-233	311.98	38.60	9.61E-02	9.61E-02	-3.46E-02	4.35E-02
PA-234	131.20	20.40	1.49E-01	1.49E-01	4.14E-02	7.02E-02
	733.99	8.80	6.12E-01		-2.56E-01	2.61E-01
	946.00	12.00	6.94E-01		1.23E-01	3.04E-01
PA-234M	1001.03	0.92	7.61E+00	7.61E+00	6.41E-01	3.21E+00
TH-234	63.29	3.80	6.98E-01	6.98E-01	5.65E-01	3.35E-01
U-235	143.76	10.50	3.20E-01	3.20E-01	3.65E-02	1.51E-01

Analysis Report for 1510090-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
U-235	163.35	4.70	6.97E-01	3.20E-01	-5.04E-02	3.27E-01
	205.31	4.70	7.82E-01		-2.47E-01	3.65E-01
NP-237	86.50	12.60	2.16E-01	2.16E-01	-3.38E-01	1.03E-01
NP-239	106.10	22.70	1.28E-01	1.28E-01	3.00E-02	6.09E-02
	228.18	10.70	3.81E-01		8.28E-02	1.78E-01
	277.60	14.10	3.04E-01		-1.17E-02	1.41E-01
AM-241	59.54	35.90	6.83E-02	6.83E-02	4.16E-02	3.27E-02
AM-243	74.67	66.00	3.85E-02	3.85E-02	9.28E-03	1.84E-02
CM-243	209.75	3.29	1.15E+00	3.04E-01	-1.14E-01	5.35E-01
	228.14	10.60	3.92E-01		2.06E-01	1.84E-01
	277.60	14.00	3.04E-01		-1.17E-02	1.41E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User
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No Data Review Comments Entered.

 ***** 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: 3641

Channel									
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	9	29	
17:	39	26	17	29	21	14	23	25	
25:	23	13	24	25	14	20	15	20	
33:	22	15	13	12	7	14	21	16	
41:	18	8	14	18	20	21	17	17	
49:	17	10	13	9	15	9	9	10	
57:	15	11	18	18	24	26	27	20	
65:	16	13	14	10	15	20	10	21	
73:	16	12	19	18	6	14	18	14	
81:	10	19	10	18	16	17	19	10	
89:	15	8	23	42	30	19	12	14	
97:	10	11	9	9	12	12	13	8	
105:	17	4	11	11	28	14	6	20	
113:	13	10	14	12	11	11	7	9	
121:	9	8	9	9	12	7	13	12	
129:	9	12	11	12	13	6	4	11	
137:	10	7	13	13	13	11	13	7	
145:	12	12	8	10	14	11	10	12	
153:	10	10	7	7	10	11	9	11	
161:	10	11	9	9	8	9	3	8	
169:	11	8	12	8	6	9	5	5	
177:	11	7	9	13	8	10	13	16	
185:	23	21	9	7	8	13	12	7	
193:	12	8	7	7	7	13	7	7	
201:	5	10	12	8	10	5	3	8	
209:	7	6	9	12	9	4	8	7	
217:	3	9	15	6	5	4	8	4	
225:	8	6	4	11	7	8	17	4	
233:	8	7	8	9	6	14	6	2	
241:	10	9	10	2	4	9	8	4	
249:	3	8	6	9	8	6	8	4	
257:	5	7	2	6	5	9	5	4	
265:	12	11	2	8	7	11	8	4	
273:	7	8	9	6	5	3	5	2	
281:	8	3	6	6	3	6	6	6	
289:	7	3	8	2	8	3	7	6	
297:	3	0	2	5	5	8	6	7	
305:	11	4	2	3	2	5	6	5	
313:	1	3	4	5	1	7	3	5	
321:	10	6	3	8	6	6	6	4	
329:	2	1	3	5	3	10	5	7	
337:	2	8	6	9	5	7	2	6	
345:	5	4	3	6	5	4	6	5	
353:	3	2	6	4	4	3	7	3	
361:	4	2	6	1	5	3	4	5	

369: 3 6 3 6 3 4 1 5

Sample Title: BLANK

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

801: 2 0 1 2 3 0 0 1

Sample Title: BLANK

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

1233: 0 0 0 0 3 0 0 1

Sample Title: BLANK

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

1665: 0 0 1 0 0 0 1 0

Sample Title: BLANK

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

2097: 1 0 0 0 3 0 3 0

Sample Title: BLANK

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

2529: 0 0 0 0 0 0 0 0 0

Sample Title: BLANK

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

2961: 0 0 0 0 0 0 0 0 0

Sample Title: BLANK

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: BLANK

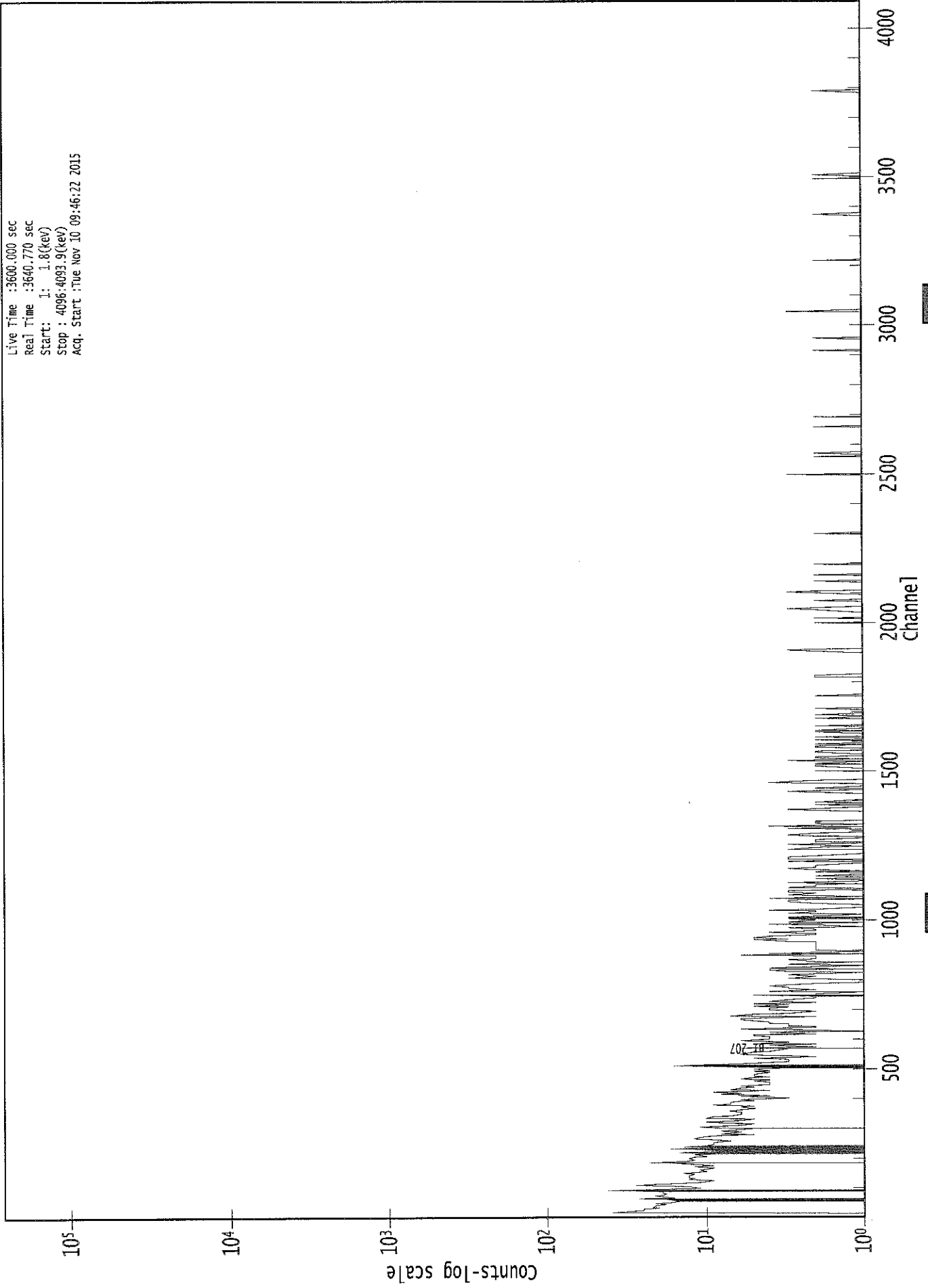
Channel	1	2	3	4	5	6	7	8
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	1	0	0	0	0	0
3425:	0	0	0	0	1	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	1	0	0	0	0	1	0	1
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	2	0	0	0
3497:	0	0	0	0	0	1	0	0
3505:	0	0	2	0	2	0	0	1
3513:	1	0	0	0	0	0	0	0
3521:	0	1	0	0	0	0	0	1
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	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	1	0	0	0	0	0	0	0
3577:	0	0	1	1	0	0	0	0
3585:	0	0	0	1	1	0	0	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	1
3609:	0	1	0	0	1	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	1	0	0	0	0
3641:	0	0	0	1	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	1	0	1	0	0	1	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	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	0	0	1	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	1	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	1	1	0	0	0
3777:	1	0	0	0	0	0	1	0
3785:	1	0	0	0	2	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	1	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825: 0 0 0 0 0 0 0 0 0

Sample Title: BLANK

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

0000029379.CNF



*red
11/10/15*

Analysis Report for 1510090-03
CP0603S03-04

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-03
Sample Description : CP0603S03-04
Sample Type : SOIL

Sample Size : 5.862E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:42:16AM
Acquisition Started : 11/10/2015 9:46:04AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.4 seconds

Dead Time : 0.04 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 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 : 29378

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*AG
11/10/15*

Analysis Report for 1510090-03
CP0603S03-04

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 10:46:09AM
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	63.10	63.45	0.0000	0.00
2	74.94	75.28	0.0000	0.00
3	77.43	77.77	0.0000	0.00
4	89.53	89.86	0.0000	0.00
5	92.53	92.86	0.0000	0.00
6	105.63	105.96	0.0000	0.00
7	185.94	186.24	0.0000	0.00
8	209.37	209.67	0.0000	0.00
9	238.78	239.07	0.0000	0.00
10	241.92	242.20	0.0000	0.00
11	255.12	255.40	0.0000	0.00
12	270.57	270.85	0.0000	0.00
13	295.28	295.55	0.0000	0.00
14	301.12	301.39	0.0000	0.00
15	328.35	328.61	0.0000	0.00
16	338.29	338.54	0.0000	0.00
17	352.04	352.29	0.0000	0.00
18	359.58	359.83	0.0000	0.00
19	463.36	463.57	0.0000	0.00
20	511.48	511.67	0.0000	0.00
21	579.83	580.00	0.0000	0.00
22	583.49	583.66	0.0000	0.00
23	609.51	609.68	0.0000	0.00
24	678.17	678.31	0.0000	0.00
25	691.44	691.57	0.0000	0.00
26	727.70	727.82	0.0000	0.00
27	768.50	768.60	0.0000	0.00
28	772.71	772.81	0.0000	0.00
29	784.22	784.32	0.0000	0.00
30	795.48	795.58	0.0000	0.00
31	861.03	861.10	0.0000	0.00
32	911.64	911.70	0.0000	0.00
33	927.22	927.27	0.0000	0.00
34	951.28	951.32	0.0000	0.00
35	965.28	965.32	0.0000	0.00
36	969.30	969.33	0.0000	0.00
37	1007.39	1007.41	0.0000	0.00
38	1033.43	1033.44	0.0000	0.00
39	1070.70	1070.70	0.0000	0.00
40	1121.50	1121.48	0.0000	0.00
41	1155.41	1155.38	0.0000	0.00
42	1234.08	1234.02	0.0000	0.00

Analysis Report for 1510090-03
CP0603S03-04

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1238.50	1238.44	0.0000	0.00
44	1378.31	1378.19	0.0000	0.00
45	1382.33	1382.22	0.0000	0.00
46	1385.90	1385.78	0.0000	0.00
47	1408.91	1408.79	0.0000	0.00
48	1426.17	1426.04	0.0000	0.00
49	1461.37	1461.23	0.0000	0.00
50	1470.70	1470.56	0.0000	0.00
51	1588.74	1588.55	0.0000	0.00
52	1638.83	1638.62	0.0000	0.00
53	1701.73	1701.50	0.0000	0.00
54	1725.92	1725.68	0.0000	0.00
55	1729.72	1729.48	0.0000	0.00
56	1761.39	1761.14	0.0000	0.00
57	1765.05	1764.79	0.0000	0.00
58	1830.94	1830.66	0.0000	0.00
59	1846.90	1846.61	0.0000	0.00
60	2101.14	2100.76	0.0000	0.00
61	2104.51	2104.13	0.0000	0.00
62	2119.18	2118.79	0.0000	0.00
63	2138.43	2138.03	0.0000	0.00
64	2204.36	2203.94	0.0000	0.00
65	2225.51	2225.08	0.0000	0.00
66	2294.07	2293.61	0.0000	0.00
67	2395.16	2394.67	0.0000	0.00
68	2401.66	2401.17	0.0000	0.00
69	2447.93	2447.41	0.0000	0.00
70	2615.01	2614.42	0.0000	0.00
71	2856.97	2856.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-03
CP0603S03-04

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 10:46:09AM

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	59 -	66	63.45	2.22E+02	115.33	2.08E+03	1.29
m	2	72 -	81	75.28	5.09E+02	102.70	1.52E+03	1.60
m	3	72 -	81	77.77	8.26E+02	110.07	1.45E+03	1.61
m	4	83 -	102	89.86	1.48E+02	70.48	9.34E+02	1.49
m	5	83 -	102	92.86	3.30E+02	72.50	8.59E+02	1.49
	6	103 -	109	105.96	9.76E+01	86.18	1.28E+03	1.94
	7	183 -	189	186.24	2.56E+02	75.18	8.45E+02	1.90
	8	206 -	213	209.67	1.31E+02	75.89	8.74E+02	1.50
M	9	234 -	246	239.07	1.17E+03	82.84	4.67E+02	1.51
m	10	234 -	246	242.20	2.99E+02	92.43	5.50E+02	2.31
	11	251 -	260	255.40	7.88E+01	71.83	6.72E+02	6.64
	12	265 -	275	270.85	1.42E+02	77.54	7.26E+02	1.84
	13	292 -	299	295.55	2.90E+02	71.67	6.68E+02	1.72
	14	300 -	304	301.39	6.92E+01	43.74	3.50E+02	2.78
	15	325 -	332	328.61	5.05E+01	55.89	4.85E+02	2.10
	16	334 -	343	338.54	2.52E+02	68.69	5.31E+02	1.84
	17	348 -	356	352.29	5.81E+02	70.19	4.00E+02	1.94
	18	357 -	363	359.83	3.70E+01	43.39	3.16E+02	1.19
	19	460 -	467	463.57	5.99E+01	43.50	2.74E+02	1.85
	20	511 -	517	511.67	2.26E+02	56.28	3.00E+02	2.28
M	21	577 -	589	580.00	1.77E+01	23.73	1.06E+02	1.78
m	22	577 -	589	583.66	3.79E+02	44.67	1.10E+02	1.82
	23	606 -	614	609.68	3.87E+02	54.92	2.28E+02	1.96
	24	676 -	681	678.31	3.40E+01	22.36	7.40E+01	3.14
	25	682 -	704	691.57	9.63E+01	74.27	3.83E+02	18.78
	26	723 -	733	727.82	1.07E+02	47.76	2.46E+02	2.12
M	27	765 -	777	768.60	4.74E+01	28.71	1.23E+02	2.28
m	28	765 -	777	772.81	3.57E+01	28.98	1.02E+02	2.29
	29	780 -	788	784.32	4.58E+01	31.22	1.22E+02	5.16
	30	791 -	799	795.58	5.66E+01	35.68	1.59E+02	1.97
	31	856 -	867	861.10	5.03E+01	40.55	1.81E+02	2.45
	32	908 -	916	911.70	2.43E+02	43.40	1.42E+02	1.88
	33	924 -	930	927.27	2.30E+01	20.99	6.39E+01	1.32
	34	947 -	955	951.32	3.26E+01	25.54	7.88E+01	2.99
M	35	963 -	985	965.32	4.21E+01	21.45	7.73E+01	2.06
m	36	963 -	985	969.33	1.40E+02	33.62	1.03E+02	1.93
	37	1005 -	1011	1007.41	2.34E+01	23.19	8.11E+01	3.56
	38	1029 -	1037	1033.44	2.14E+01	27.53	1.03E+02	2.74
	39	1068 -	1073	1070.70	1.60E+01	18.73	5.79E+01	1.14
	40	1114 -	1134	1121.48	1.08E+02	67.07	3.24E+02	2.01

Analysis Report for 1510090-03

CP0603S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1155.41	1152 - 1159		1155.38	2.16E+01	27.50	1.11E+02	1.77
M	42	1234.08	1233 - 1244		1234.02	8.71E+00	6.16	1.29E+01	3.05
m	43	1238.50	1233 - 1244		1238.44	4.56E+01	32.68	1.21E+02	3.39
M	44	1378.31	1375 - 1388		1378.19	2.44E+01	16.19	3.22E+01	2.38
m	45	1382.33	1375 - 1388		1382.22	1.02E+01	14.90	2.19E+01	2.38
m	46	1385.90	1375 - 1388		1385.78	1.11E+01	13.64	1.75E+01	2.38
	47	1408.91	1406 - 1413		1408.79	1.94E+01	17.89	4.13E+01	1.61
	48	1426.17	1418 - 1434		1426.04	4.81E+01	16.74	7.79E+00	13.15
	49	1461.37	1455 - 1466		1461.23	8.21E+02	63.69	9.76E+01	2.18
	50	1470.70	1468 - 1474		1470.56	1.46E+01	9.62	4.71E+00	2.82
	51	1588.74	1585 - 1591		1588.55	1.53E+01	17.64	4.54E+01	1.81
	52	1638.83	1634 - 1644		1638.62	2.32E+01	14.65	1.56E+01	3.97
	53	1701.73	1698 - 1705		1701.50	1.20E+01	6.93	0.00E+00	4.98
M	54	1725.92	1724 - 1734		1725.68	7.45E+00	5.66	7.11E+00	2.78
m	55	1729.72	1724 - 1734		1729.48	1.75E+01	11.66	8.30E+00	2.78
M	56	1761.39	1760 - 1767		1761.14	6.88E+00	4.72	1.10E-01	2.95
m	57	1765.05	1760 - 1767		1764.79	6.66E+01	17.00	3.48E+00	1.99
	58	1830.94	1827 - 1833		1830.66	1.03E+01	7.76	3.50E+00	3.75
	59	1846.90	1843 - 1852		1846.61	1.21E+01	16.19	3.18E+01	1.38
M	60	2101.14	2098 - 2110		2100.76	8.44E+00	8.43	7.03E+00	2.66
m	61	2104.51	2098 - 2110		2104.13	1.31E+01	11.66	1.18E+01	2.66
	62	2119.18	2114 - 2123		2118.79	1.90E+01	8.72	0.00E+00	3.99
	63	2138.43	2132 - 2144		2138.03	1.27E+01	10.31	6.63E+00	2.57
	64	2204.36	2200 - 2208		2203.94	2.35E+01	16.42	2.70E+01	1.62
	65	2225.51	2222 - 2228		2225.08	1.01E+01	7.76	3.83E+00	1.78
	66	2294.07	2290 - 2297		2293.61	9.27E+00	10.39	1.15E+01	3.66
	67	2395.16	2392 - 2396		2394.67	6.00E+00	4.90	0.00E+00	1.47
	68	2401.66	2398 - 2407		2401.17	8.71E+00	11.96	1.66E+01	1.33
	69	2447.93	2442 - 2451		2447.41	1.60E+01	11.58	9.90E+00	4.70
	70	2615.01	2610 - 2619		2614.42	1.36E+02	25.51	1.55E+01	2.55
	71	2856.97	2853 - 2859		2856.29	7.00E+00	5.29	0.00E+00	1.92

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.00sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 10:46:09AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

Analysis Report for 1510090-03

CP0603S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.10	59 -	66	2.22E+02	115.33	2.08E+03	9.16E+01
M	2	74.94	72 -	81	5.09E+02	102.70	1.52E+03	6.42E+01
m	3	77.43	72 -	81	8.26E+02	110.07	1.45E+03	6.26E+01
m	4	89.53	83 -	102	1.48E+02	70.48	9.34E+02	5.03E+01
m	5	92.53	83 -	102	3.30E+02	72.50	8.59E+02	4.82E+01
	6	105.63	103 -	109	9.76E+01	86.18	1.28E+03	6.90E+01
	7	185.94	183 -	189	2.56E+02	75.18	8.45E+02	5.59E+01
	8	209.37	206 -	213	1.31E+02	75.89	8.74E+02	5.95E+01
M	9	238.78	234 -	246	1.17E+03	82.84	4.67E+02	3.55E+01
m	10	241.92	234 -	246	2.99E+02	92.43	5.50E+02	3.85E+01
	11	255.12	251 -	260	7.88E+01	71.83	6.72E+02	5.72E+01
	12	270.57	265 -	275	1.42E+02	77.54	7.26E+02	6.07E+01
	13	295.28	292 -	299	2.90E+02	71.67	6.68E+02	5.18E+01
	14	301.12	300 -	304	6.92E+01	43.74	3.50E+02	3.33E+01
	15	328.35	325 -	332	5.05E+01	55.89	4.85E+02	4.44E+01
	16	338.29	334 -	343	2.52E+02	68.69	5.31E+02	2.06E+01
	17	352.04	348 -	356	5.81E+02	70.19	4.00E+02	4.19E+01
	18	359.58	357 -	363	3.70E+01	43.39	3.16E+02	3.42E+01
	19	463.36	460 -	467	5.99E+01	43.50	2.74E+02	3.34E+01
	20	511.48	507 -	517	2.26E+02	56.28	3.00E+02	3.91E+01
M	21	579.83	577 -	589	1.77E+01	23.73	1.06E+02	1.69E+01
m	22	583.49	577 -	589	3.79E+02	44.67	1.10E+02	1.72E+01
	23	609.51	606 -	614	3.87E+02	54.92	2.28E+02	3.15E+01
	24	678.17	676 -	681	3.40E+01	22.36	7.40E+01	1.57E+01
	25	691.44	682 -	704	9.63E+01	74.27	3.83E+02	1.55E+01
	26	727.70	723 -	733	1.07E+02	47.76	2.46E+02	3.54E+01
M	27	768.50	765 -	777	4.74E+01	28.71	1.23E+02	1.82E+01
m	28	772.71	765 -	777	3.57E+01	28.98	1.02E+02	1.66E+01
	29	784.22	780 -	788	4.58E+01	31.22	1.22E+02	2.31E+01
	30	795.48	791 -	799	5.66E+01	35.68	1.59E+02	2.66E+01
	31	861.03	856 -	867	5.03E+01	40.55	1.81E+02	3.12E+01
	32	911.64	908 -	916	2.43E+02	43.40	1.42E+02	2.48E+01
	33	927.22	924 -	930	2.30E+01	20.99	6.39E+01	1.53E+01
	34	951.28	947 -	955	3.26E+01	25.54	7.88E+01	1.88E+01
M	35	965.28	963 -	985	4.21E+01	21.45	7.73E+01	1.45E+01
m	36	969.30	963 -	985	1.40E+02	33.62	1.03E+02	1.67E+01
	37	1007.39	1005 -	1011	2.34E+01	23.19	8.11E+01	1.73E+01
	38	1033.43	1029 -	1037	2.14E+01	27.53	1.03E+02	2.13E+01
	39	1070.70	1068 -	1073	1.60E+01	18.73	5.79E+01	1.39E+01
	40	1121.50	1114 -	1134	1.08E+02	67.07	3.24E+02	1.71E+01
	41	1155.41	1152 -	1159	2.16E+01	27.50	1.11E+02	2.13E+01
M	42	1234.08	1233 -	1244	8.71E+00	6.16	1.29E+01	5.90E+00
m	43	1238.50	1233 -	1244	4.56E+01	32.68	1.21E+02	1.81E+01
M	44	1378.31	1375 -	1388	2.44E+01	16.19	3.22E+01	9.32E+00
m	45	1382.33	1375 -	1388	1.02E+01	14.90	2.19E+01	7.70E+00
m	46	1385.90	1375 -	1388	1.11E+01	13.64	1.75E+01	6.88E+00
	47	1408.91	1406 -	1413	1.94E+01	17.89	4.13E+01	1.28E+01
	48	1426.17	1418 -	1434	4.81E+01	16.74	7.79E+00	7.70E+00
	49	1461.37	1455 -	1466	8.21E+02	63.69	9.76E+01	2.28E+01
	50	1470.70	1468 -	1474	1.46E+01	9.62	4.71E+00	4.79E+00
	51	1588.74	1585 -	1591	1.53E+01	17.64	4.54E+01	1.30E+01

Analysis Report for 1510090-03
CP0603S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	1638.83	1634 -	1644	2.32E+01	14.65	1.56E+01	9.08E+00
	53	1701.73	1698 -	1705	1.20E+01	6.93	0.00E+00	0.00E+00
M	54	1725.92	1724 -	1734	7.45E+00	5.66	7.11E+00	4.38E+00
m	55	1729.72	1724 -	1734	1.75E+01	11.66	8.30E+00	4.74E+00
M	56	1761.39	1760 -	1767	6.88E+00	4.72	1.10E-01	5.44E-01
m	57	1765.05	1760 -	1767	6.66E+01	17.00	3.48E+00	3.07E+00
	58	1830.94	1827 -	1833	1.03E+01	7.76	3.50E+00	3.61E+00
	59	1846.90	1843 -	1852	1.21E+01	16.19	3.18E+01	1.20E+01
M	60	2101.14	2098 -	2110	8.44E+00	8.43	7.03E+00	4.36E+00
m	61	2104.51	2098 -	2110	1.31E+01	11.66	1.18E+01	5.65E+00
	62	2119.18	2114 -	2123	1.90E+01	8.72	0.00E+00	0.00E+00
	63	2138.43	2132 -	2144	1.27E+01	10.31	6.63E+00	6.12E+00
	64	2204.36	2200 -	2208	2.35E+01	16.42	2.70E+01	1.09E+01
	65	2225.51	2222 -	2228	1.01E+01	7.76	3.83E+00	3.67E+00
	66	2294.07	2290 -	2297	9.27E+00	10.39	1.15E+01	6.92E+00
	67	2395.16	2392 -	2396	6.00E+00	4.90	0.00E+00	0.00E+00
	68	2401.66	2398 -	2407	8.71E+00	11.96	1.66E+01	8.55E+00
	69	2447.93	2442 -	2451	1.60E+01	11.58	9.90E+00	6.87E+00
	70	2615.01	2610 -	2619	1.36E+02	25.51	1.55E+01	8.47E+00
	71	2856.97	2853 -	2859	7.00E+00	5.29	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 10:46:09AM

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	63.10	59 -	66	63.45	2.22E+02	115.33	2.08E+03	TH-234 TH-230
M	2	74.94	72 -	81	75.28	5.09E+02	102.70	1.52E+03	AM-243
m	3	77.43	72 -	81	77.77	8.26E+02	110.07	1.45E+03	TI-44
m	4	89.53	83 -	102	89.86	1.48E+02	70.48	9.34E+02	.....

Analysis Report for 1510090-03

CP0603S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	5	92.53	83 -	102	92.86	3.30E+02	72.50	8.59E+02	GA-67
	6	105.63	103 -	109	105.96	9.76E+01	86.18	1.28E+03	EU-155 NP-239
	7	185.94	183 -	189	186.24	2.56E+02	75.18	8.45E+02	RA-226
	8	209.37	206 -	213	209.67	1.31E+02	75.89	8.74E+02	CM-243 GA-67
M	9	238.78	234 -	246	239.07	1.17E+03	82.84	4.67E+02	PB-212
m	10	241.92	234 -	246	242.20	2.99E+02	92.43	5.50E+02	RA-224
	11	255.12	251 -	260	255.40	7.88E+01	71.83	6.72E+02	SN-113
	12	270.57	265 -	275	270.85	1.42E+02	77.54	7.26E+02	.....
	13	295.28	292 -	299	295.55	2.90E+02	71.67	6.68E+02	PB-214
	14	301.12	300 -	304	301.39	6.92E+01	43.74	3.50E+02	GA-67
	15	328.35	325 -	332	328.61	5.05E+01	55.89	4.85E+02	LA-140
	16	338.29	334 -	343	338.54	2.52E+02	68.69	5.31E+02	AC-228
	17	352.04	348 -	356	352.29	5.81E+02	70.19	4.00E+02	PB-214
	18	359.58	357 -	363	359.83	3.70E+01	43.39	3.16E+02	.....
	19	463.36	460 -	467	463.57	5.99E+01	43.50	2.74E+02	SB-125
	20	511.48	507 -	517	511.67	2.26E+02	56.28	3.00E+02	.....
M	21	579.83	577 -	589	580.00	1.77E+01	23.73	1.06E+02	.....
m	22	583.49	577 -	589	583.66	3.79E+02	44.67	1.10E+02	TL-208
	23	609.51	606 -	614	609.68	3.87E+02	54.92	2.28E+02	BI-214
	24	678.17	676 -	681	678.31	3.40E+01	22.36	7.40E+01	AG-110M
	25	691.44	682 -	704	691.57	9.63E+01	74.27	3.83E+02	.....
	26	727.70	723 -	733	727.82	1.07E+02	47.76	2.46E+02	BI-212
M	27	768.50	765 -	777	768.60	4.74E+01	28.71	1.23E+02	.....
m	28	772.71	765 -	777	772.81	3.57E+01	28.98	1.02E+02	.....
	29	784.22	780 -	788	784.32	4.58E+01	31.22	1.22E+02	SB-127
	30	795.48	791 -	799	795.58	5.66E+01	35.68	1.59E+02	CS-134
	31	861.03	856 -	867	861.10	5.03E+01	40.55	1.81E+02	TL-208
	32	911.64	908 -	916	911.70	2.43E+02	43.40	1.42E+02	LU-172 AC-228
	33	927.22	924 -	930	927.27	2.30E+01	20.99	6.39E+01	.....
	34	951.28	947 -	955	951.32	3.26E+01	25.54	7.88E+01	.....
M	35	965.28	963 -	985	965.32	4.21E+01	21.45	7.73E+01	.....
m	36	969.30	963 -	985	969.33	1.40E+02	33.62	1.03E+02	AC-228
	37	1007.39	1005 -	1011	1007.41	2.34E+01	23.19	8.11E+01	.....
	38	1033.43	1029 -	1037	1033.44	2.14E+01	27.53	1.03E+02	.....
	39	1070.70	1068 -	1073	1070.70	1.60E+01	18.73	5.79E+01	.....
	40	1121.50	1114 -	1134	1121.48	1.08E+02	67.07	3.24E+02	TA-182 SC-46
	41	1155.41	1152 -	1159	1155.38	2.16E+01	27.50	1.11E+02	.....
M	42	1234.08	1233 -	1244	1234.02	8.71E+00	6.16	1.29E+01	.....
m	43	1238.50	1233 -	1244	1238.44	4.56E+01	32.68	1.21E+02	CO-56
M	44	1378.31	1375 -	1388	1378.19	2.44E+01	16.19	3.22E+01	.....
m	45	1382.33	1375 -	1388	1382.22	1.02E+01	14.90	2.19E+01	.....
m	46	1385.90	1375 -	1388	1385.78	1.11E+01	13.64	1.75E+01	.....
	47	1408.91	1406 -	1413	1408.79	1.94E+01	17.89	4.13E+01	EU-152
	48	1426.17	1418 -	1434	1426.04	4.81E+01	16.74	7.79E+00	.....
	49	1461.37	1455 -	1466	1461.23	8.21E+02	63.69	9.76E+01	K-40
	50	1470.70	1468 -	1474	1470.56	1.46E+01	9.62	4.71E+00	.....
	51	1588.74	1585 -	1591	1588.55	1.53E+01	17.64	4.54E+01	.....
	52	1638.83	1634 -	1644	1638.62	2.32E+01	14.65	1.56E+01	.....
	53	1701.73	1698 -	1705	1701.50	1.20E+01	6.93	0.00E+00	.....
M	54	1725.92	1724 -	1734	1725.68	7.45E+00	5.66	7.11E+00	.....

Analysis Report for 1510090-03

CP0603S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	55	1729.72	1724 -	1734	1729.48	1.75E+01	11.66	8.30E+00	.....
M	56	1761.39	1760 -	1767	1761.14	6.88E+00	4.72	1.10E-01	.....
m	57	1765.05	1760 -	1767	1764.79	6.66E+01	17.00	3.48E+00	BI-214
	58	1830.94	1827 -	1833	1830.66	1.03E+01	7.76	3.50E+00	.....
	59	1846.90	1843 -	1852	1846.61	1.21E+01	16.19	3.18E+01	.....
M	60	2101.14	2098 -	2110	2100.76	8.44E+00	8.43	7.03E+00	.....
m	61	2104.51	2098 -	2110	2104.13	1.31E+01	11.66	1.18E+01	.....
	62	2119.18	2114 -	2123	2118.79	1.90E+01	8.72	0.00E+00	.....
	63	2138.43	2132 -	2144	2138.03	1.27E+01	10.31	6.63E+00	.....
	64	2204.36	2200 -	2208	2203.94	2.35E+01	16.42	2.70E+01	BI-214
	65	2225.51	2222 -	2228	2225.08	1.01E+01	7.76	3.83E+00	.....
	66	2294.07	2290 -	2297	2293.61	9.27E+00	10.39	1.15E+01	.....
	67	2395.16	2392 -	2396	2394.67	6.00E+00	4.90	0.00E+00	.....
	68	2401.66	2398 -	2407	2401.17	8.71E+00	11.96	1.66E+01	.....
	69	2447.93	2442 -	2451	2447.41	1.60E+01	11.58	9.90E+00	.....
	70	2615.01	2610 -	2619	2614.42	1.36E+02	25.51	1.55E+01	TL-208
	71	2856.97	2853 -	2859	2856.29	7.00E+00	5.29	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 : 11/10/2015 10:46:09AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.10	2.22E+02	115.33	2.49E-02	1.90E-03
M	2	74.94	5.09E+02	102.70	2.75E-02	2.30E-03
m	3	77.43	8.26E+02	110.07	2.78E-02	2.38E-03
m	4	89.53	1.48E+02	70.48	2.85E-02	2.71E-03
m	5	92.53	3.30E+02	72.50	2.86E-02	2.65E-03
	6	105.63	9.76E+01	86.18	2.82E-02	2.39E-03
	7	185.94	2.56E+02	75.18	2.24E-02	2.03E-03
	8	209.37	1.31E+02	75.89	2.09E-02	1.85E-03
M	9	238.78	1.17E+03	82.84	1.92E-02	1.64E-03
m	10	241.92	2.99E+02	92.43	1.91E-02	1.61E-03
	11	255.12	7.88E+01	71.83	1.84E-02	1.52E-03
	12	270.57	1.42E+02	77.54	1.77E-02	1.40E-03
	13	295.28	2.90E+02	71.67	1.67E-02	1.31E-03

Analysis Report for 1510090-03
CP0603S03-04

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty	
14	301.12	6.92E+01	43.74	1.65E-02	1.30E-03	
15	328.35	5.05E+01	55.89	1.55E-02	1.24E-03	
16	338.29	2.52E+02	68.69	1.52E-02	1.22E-03	
17	352.04	5.81E+02	70.19	1.48E-02	1.19E-03	
18	359.58	3.70E+01	43.39	1.45E-02	1.18E-03	
19	463.36	5.99E+01	43.50	1.21E-02	1.04E-03	
20	511.48	2.26E+02	56.28	1.12E-02	9.90E-04	
M	21	579.83	1.77E+01	23.73	1.02E-02	9.19E-04
m	22	583.49	3.79E+02	44.67	1.02E-02	9.15E-04
23	609.51	3.87E+02	54.92	9.82E-03	8.88E-04	
24	678.17	3.40E+01	22.36	9.04E-03	8.19E-04	
25	691.44	9.63E+01	74.27	8.90E-03	8.08E-04	
26	727.70	1.07E+02	47.76	8.55E-03	7.75E-04	
M	27	768.50	4.74E+01	28.71	8.19E-03	7.38E-04
m	28	772.71	3.57E+01	28.98	8.15E-03	7.35E-04
29	784.22	4.58E+01	31.22	8.06E-03	7.24E-04	
30	795.48	5.66E+01	35.68	7.97E-03	7.14E-04	
31	861.03	5.03E+01	40.55	7.48E-03	6.55E-04	
32	911.64	2.43E+02	43.40	7.14E-03	6.15E-04	
33	927.22	2.30E+01	20.99	7.05E-03	6.07E-04	
34	951.28	3.26E+01	25.54	6.91E-03	5.95E-04	
M	35	965.28	4.21E+01	21.45	6.83E-03	5.87E-04
m	36	969.30	1.40E+02	33.62	6.80E-03	5.85E-04
37	1007.39	2.34E+01	23.19	6.60E-03	5.65E-04	
38	1033.43	2.14E+01	27.53	6.47E-03	5.52E-04	
39	1070.70	1.60E+01	18.73	6.29E-03	5.32E-04	
40	1121.50	1.08E+02	67.07	6.06E-03	5.06E-04	
41	1155.41	2.16E+01	27.50	5.92E-03	4.88E-04	
M	42	1234.08	8.71E+00	6.16	5.63E-03	4.68E-04
m	43	1238.50	4.56E+01	32.68	5.61E-03	4.68E-04
M	44	1378.31	2.44E+01	16.19	5.18E-03	4.40E-04
m	45	1382.33	1.02E+01	14.90	5.17E-03	4.39E-04
m	46	1385.90	1.11E+01	13.64	5.16E-03	4.38E-04
47	1408.91	1.94E+01	17.89	5.10E-03	4.32E-04	
48	1426.17	4.81E+01	16.74	5.06E-03	4.28E-04	
49	1461.37	8.21E+02	63.69	4.97E-03	4.19E-04	
50	1470.70	1.46E+01	9.62	4.95E-03	4.17E-04	
51	1588.74	1.53E+01	17.64	4.69E-03	3.87E-04	
52	1638.83	2.32E+01	14.65	4.60E-03	3.75E-04	
53	1701.73	1.20E+01	6.93	4.49E-03	3.59E-04	
M	54	1725.92	7.45E+00	5.66	4.45E-03	3.53E-04
m	55	1729.72	1.75E+01	11.66	4.45E-03	3.52E-04
M	56	1761.39	6.88E+00	4.72	4.40E-03	3.44E-04
m	57	1765.05	6.66E+01	17.00	4.39E-03	3.43E-04
58	1830.94	1.03E+01	7.76	4.30E-03	3.27E-04	
59	1846.90	1.21E+01	16.19	4.28E-03	3.26E-04	
M	60	2101.14	8.44E+00	8.43	4.02E-03	3.26E-04
m	61	2104.51	1.31E+01	11.66	4.02E-03	3.26E-04
62	2119.18	1.90E+01	8.72	4.01E-03	3.26E-04	
63	2138.43	1.27E+01	10.31	3.99E-03	3.26E-04	
64	2204.36	2.35E+01	16.42	3.95E-03	3.26E-04	
65	2225.51	1.01E+01	7.76	3.94E-03	3.26E-04	
66	2294.07	9.27E+00	10.39	3.90E-03	3.26E-04	

Analysis Report for 1510090-03
 CP0603S03-04

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
67	2395.16	6.00E+00	4.90	3.85E-03	3.26E-04
68	2401.66	8.71E+00	11.96	3.85E-03	3.26E-04
69	2447.93	1.60E+01	11.58	3.83E-03	3.26E-04
70	2615.01	1.36E+02	25.51	3.79E-03	3.26E-04
71	2856.97	7.00E+00	5.29	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 : 11/10/2015 10:46:09AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	2.22E+02	115.33	7.80E+01	1.33E+01	1.44E+02	1.16E+02
M	2	5.09E+02	102.70	5.09E+00	4.37E+00	5.04E+02	1.03E+02
m	3	8.26E+02	110.07	9.75E+00	8.28E+00	8.16E+02	1.10E+02
m	4	1.48E+02	70.48			1.48E+02	7.05E+01
m	5	3.30E+02	72.50	1.34E+02	9.83E+00	1.96E+02	7.32E+01
	6	9.76E+01	86.18			9.76E+01	8.62E+01
	7	2.56E+02	75.18	6.41E+01	7.38E+00	1.92E+02	7.55E+01
	8	1.31E+02	75.89			1.31E+02	7.59E+01
M	9	1.17E+03	82.84	2.34E+01	6.34E+00	1.15E+03	8.31E+01
m	10	2.99E+02	92.43			2.99E+02	9.24E+01
	11	7.88E+01	71.83			7.88E+01	7.18E+01
	12	1.42E+02	77.54			1.42E+02	7.75E+01
	13	2.90E+02	71.67	4.17E+00	5.50E+00	2.86E+02	7.19E+01
	14	6.92E+01	43.74			6.92E+01	4.37E+01
	15	5.05E+01	55.89			5.05E+01	5.59E+01
	16	2.52E+02	68.69	2.22E-01	4.54E+00	2.51E+02	6.88E+01
	17	5.81E+02	70.19	8.83E+00	4.91E+00	5.72E+02	7.04E+01
	18	3.70E+01	43.39			3.70E+01	4.34E+01
	19	5.99E+01	43.50			5.99E+01	4.35E+01
	20	2.26E+02	56.28	8.12E+01	5.49E+00	1.45E+02	5.65E+01
M	21	1.77E+01	23.73			1.77E+01	2.37E+01
m	22	3.79E+02	44.67	6.34E+00	3.74E+00	3.72E+02	4.48E+01
	23	3.87E+02	54.92	5.20E+00	3.69E+00	3.82E+02	5.50E+01
	24	3.40E+01	22.36			3.40E+01	2.24E+01
	25	9.63E+01	74.27			9.63E+01	7.43E+01

Analysis Report for 1510090-03

CP0603S03-04

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	26	727.70	1.07E+02	47.76			1.07E+02	4.78E+01
M	27	768.50	4.74E+01	28.71			4.74E+01	2.87E+01
m	28	772.71	3.57E+01	28.98			3.57E+01	2.90E+01
	29	784.22	4.58E+01	31.22			4.58E+01	3.12E+01
	30	795.48	5.66E+01	35.68			5.66E+01	3.57E+01
	31	861.03	5.03E+01	40.55			5.03E+01	4.05E+01
	32	911.64	2.43E+02	43.40	3.28E+00	2.53E+00	2.40E+02	4.35E+01
	33	927.22	2.30E+01	20.99			2.30E+01	2.10E+01
	34	951.28	3.26E+01	25.54			3.26E+01	2.55E+01
M	35	965.28	4.21E+01	21.45			4.21E+01	2.14E+01
m	36	969.30	1.40E+02	33.62			1.40E+02	3.36E+01
	37	1007.39	2.34E+01	23.19			2.34E+01	2.32E+01
	38	1033.43	2.14E+01	27.53			2.14E+01	2.75E+01
	39	1070.70	1.60E+01	18.73			1.60E+01	1.87E+01
	40	1121.50	1.08E+02	67.07			1.08E+02	6.71E+01
	41	1155.41	2.16E+01	27.50			2.16E+01	2.75E+01
M	42	1234.08	8.71E+00	6.16			8.71E+00	6.16E+00
m	43	1238.50	4.56E+01	32.68			4.56E+01	3.27E+01
M	44	1378.31	2.44E+01	16.19			2.44E+01	1.62E+01
m	45	1382.33	1.02E+01	14.90			1.02E+01	1.49E+01
m	46	1385.90	1.11E+01	13.64			1.11E+01	1.36E+01
	47	1408.91	1.94E+01	17.89			1.94E+01	1.79E+01
	48	1426.17	4.81E+01	16.74			4.81E+01	1.67E+01
	49	1461.37	8.21E+02	63.69	6.46E+00	2.33E+00	8.15E+02	6.37E+01
	50	1470.70	1.46E+01	9.62			1.46E+01	9.62E+00
	51	1588.74	1.53E+01	17.64			1.53E+01	1.76E+01
	52	1638.83	2.32E+01	14.65			2.32E+01	1.47E+01
	53	1701.73	1.20E+01	6.93			1.20E+01	6.93E+00
M	54	1725.92	7.45E+00	5.66			7.45E+00	5.66E+00
m	55	1729.72	1.75E+01	11.66			1.75E+01	1.17E+01
M	56	1761.39	6.88E+00	4.72			6.88E+00	4.72E+00
m	57	1765.05	6.66E+01	17.00			6.66E+01	1.70E+01
	58	1830.94	1.03E+01	7.76			1.03E+01	7.76E+00
	59	1846.90	1.21E+01	16.19			1.21E+01	1.62E+01
M	60	2101.14	8.44E+00	8.43			8.44E+00	8.43E+00
m	61	2104.51	1.31E+01	11.66			1.31E+01	1.17E+01
	62	2119.18	1.90E+01	8.72			1.90E+01	8.72E+00
	63	2138.43	1.27E+01	10.31			1.27E+01	1.03E+01
	64	2204.36	2.35E+01	16.42			2.35E+01	1.64E+01
	65	2225.51	1.01E+01	7.76			1.01E+01	7.76E+00
	66	2294.07	9.27E+00	10.39			9.27E+00	1.04E+01
	67	2395.16	6.00E+00	4.90			6.00E+00	4.90E+00
	68	2401.66	8.71E+00	11.96			8.71E+00	1.20E+01
	69	2447.93	1.60E+01	11.58			1.60E+01	1.16E+01
	70	2615.01	1.36E+02	25.51	3.47E+00	1.48E+00	1.33E+02	2.56E+01
	71	2856.97	7.00E+00	5.29			7.00E+00	5.29E+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 1510090-03

CP0603S03-04

AREA CORRECTION REPORT

REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 10:46:09AM

Ref. Peak Energy : 0.00

Reference Date :

Peak Ratio : 0.00

Uncertainty : 0.00

Background File

: \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.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	63.10	2.22E+02	115.33	7.80E+01	1.33E+01	1.44E+02	1.16E+02
M	2	74.94	5.09E+02	102.70	5.09E+00	4.37E+00	5.04E+02	1.03E+02
m	3	77.43	8.26E+02	110.07	9.75E+00	8.28E+00	8.16E+02	1.10E+02
m	4	89.53	1.48E+02	70.48			1.48E+02	7.05E+01
m	5	92.53	3.30E+02	72.50	1.34E+02	9.83E+00	1.96E+02	7.32E+01
	6	105.63	9.76E+01	86.18			9.76E+01	8.62E+01
	7	185.94	2.56E+02	75.18	6.41E+01	7.38E+00	1.92E+02	7.55E+01
	8	209.37	1.31E+02	75.89			1.31E+02	7.59E+01
M	9	238.78	1.17E+03	82.84	2.34E+01	6.34E+00	1.15E+03	8.31E+01
m	10	241.92	2.99E+02	92.43			2.99E+02	9.24E+01
	11	255.12	7.88E+01	71.83			7.88E+01	7.18E+01
	12	270.57	1.42E+02	77.54			1.42E+02	7.75E+01
	13	295.28	2.90E+02	71.67	4.17E+00	5.50E+00	2.86E+02	7.19E+01
	14	301.12	6.92E+01	43.74			6.92E+01	4.37E+01
	15	328.35	5.05E+01	55.89			5.05E+01	5.59E+01
	16	338.29	2.52E+02	68.69	2.22E-01	4.54E+00	2.51E+02	6.88E+01
	17	352.04	5.81E+02	70.19	8.83E+00	4.91E+00	5.72E+02	7.04E+01
	18	359.58	3.70E+01	43.39			3.70E+01	4.34E+01
	19	463.36	5.99E+01	43.50			5.99E+01	4.35E+01
	20	511.48	2.26E+02	56.28	8.12E+01	5.49E+00	1.45E+02	5.65E+01
M	21	579.83	1.77E+01	23.73			1.77E+01	2.37E+01
m	22	583.49	3.79E+02	44.67	6.34E+00	3.74E+00	3.72E+02	4.48E+01
	23	609.51	3.87E+02	54.92	5.20E+00	3.69E+00	3.82E+02	5.50E+01
	24	678.17	3.40E+01	22.36			3.40E+01	2.24E+01
	25	691.44	9.63E+01	74.27			9.63E+01	7.43E+01
	26	727.70	1.07E+02	47.76			1.07E+02	4.78E+01
M	27	768.50	4.74E+01	28.71			4.74E+01	2.87E+01
m	28	772.71	3.57E+01	28.98			3.57E+01	2.90E+01
	29	784.22	4.58E+01	31.22			4.58E+01	3.12E+01
	30	795.48	5.66E+01	35.68			5.66E+01	3.57E+01
	31	861.03	5.03E+01	40.55			5.03E+01	4.05E+01
	32	911.64	2.43E+02	43.40	3.28E+00	2.53E+00	2.40E+02	4.35E+01
	33	927.22	2.30E+01	20.99			2.30E+01	2.10E+01
	34	951.28	3.26E+01	25.54			3.26E+01	2.55E+01
M	35	965.28	4.21E+01	21.45			4.21E+01	2.14E+01
m	36	969.30	1.40E+02	33.62			1.40E+02	3.36E+01
	37	1007.39	2.34E+01	23.19			2.34E+01	2.32E+01
	38	1033.43	2.14E+01	27.53			2.14E+01	2.75E+01
	39	1070.70	1.60E+01	18.73			1.60E+01	1.87E+01

Analysis Report for 1510090-03

CP0603S03-04

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	1121.50	1.08E+02	67.07			1.08E+02	6.71E+01
	41	1155.41	2.16E+01	27.50			2.16E+01	2.75E+01
M	42	1234.08	8.71E+00	6.16			8.71E+00	6.16E+00
m	43	1238.50	4.56E+01	32.68			4.56E+01	3.27E+01
M	44	1378.31	2.44E+01	16.19			2.44E+01	1.62E+01
m	45	1382.33	1.02E+01	14.90			1.02E+01	1.49E+01
m	46	1385.90	1.11E+01	13.64			1.11E+01	1.36E+01
	47	1408.91	1.94E+01	17.89			1.94E+01	1.79E+01
	48	1426.17	4.81E+01	16.74			4.81E+01	1.67E+01
	49	1461.37	8.21E+02	63.69	6.46E+00	2.33E+00	8.15E+02	6.37E+01
	50	1470.70	1.46E+01	9.62			1.46E+01	9.62E+00
	51	1588.74	1.53E+01	17.64			1.53E+01	1.76E+01
	52	1638.83	2.32E+01	14.65			2.32E+01	1.47E+01
	53	1701.73	1.20E+01	6.93			1.20E+01	6.93E+00
M	54	1725.92	7.45E+00	5.66			7.45E+00	5.66E+00
m	55	1729.72	1.75E+01	11.66			1.75E+01	1.17E+01
M	56	1761.39	6.88E+00	4.72			6.88E+00	4.72E+00
m	57	1765.05	6.66E+01	17.00			6.66E+01	1.70E+01
	58	1830.94	1.03E+01	7.76			1.03E+01	7.76E+00
	59	1846.90	1.21E+01	16.19			1.21E+01	1.62E+01
M	60	2101.14	8.44E+00	8.43			8.44E+00	8.43E+00
m	61	2104.51	1.31E+01	11.66			1.31E+01	1.17E+01
	62	2119.18	1.90E+01	8.72			1.90E+01	8.72E+00
	63	2138.43	1.27E+01	10.31			1.27E+01	1.03E+01
	64	2204.36	2.35E+01	16.42			2.35E+01	1.64E+01
	65	2225.51	1.01E+01	7.76			1.01E+01	7.76E+00
	66	2294.07	9.27E+00	10.39			9.27E+00	1.04E+01
	67	2395.16	6.00E+00	4.90			6.00E+00	4.90E+00
	68	2401.66	8.71E+00	11.96			8.71E+00	1.20E+01
	69	2447.93	1.60E+01	11.58			1.60E+01	1.16E+01
	70	2615.01	1.36E+02	25.51	3.47E+00	1.48E+00	1.33E+02	2.56E+01
	71	2856.97	7.00E+00	5.29			7.00E+00	5.29E+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 1510090-03
 CP0603S03-04

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.951	1460.81 *	10.67	1.97E+01	2.30E+00
GA-67	0.556	93.31 *	35.70	2.23E+02	9.66E+02
		208.95 *	2.24	3.24E+03	1.36E+04
		300.22 *	16.00	3.04E+02	1.33E+03
TL-208	0.978	583.14 *	30.22	1.55E+00	2.34E-01
		860.37 *	4.48	1.92E+00	1.56E+00
		2614.66 *	35.85	1.25E+00	2.63E-01
BI-212	0.730	727.17 *	11.80	1.36E+00	6.19E-01
		1620.62	2.75		
PB-212	0.891	238.63 *	44.60	1.71E+00	1.92E-01
		300.09	3.41		
BI-214	0.723	609.31 *	46.30	1.08E+00	1.83E-01
		1120.29	15.10		
		1764.49 *	15.80	1.23E+00	3.28E-01
		2204.22 *	4.98	1.53E+00	1.08E+00
PB-214	0.998	295.21 *	19.19	1.14E+00	3.01E-01
		351.92 *	37.19	1.33E+00	1.96E-01
RA-224	0.869	240.98 *	3.95	5.08E+00	1.63E+00
RA-226	0.988	186.21 *	3.28	3.34E+00	6.26E+00
AC-228	0.973	338.32 *	11.40	1.86E+00	5.31E-01
		911.07 *	27.70	1.55E+00	3.11E-01
		969.11 *	16.60	1.58E+00	4.05E-01
TH-234	0.994	63.29 *	3.80	1.96E+00	1.58E+00
AM-243	0.989	74.67 *	66.00	3.56E-01	7.85E-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 : 11/10/2015 10:46:09AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 3	77.43	2.26765E-01	6.76		
m 4	89.53	4.11741E-02	23.78		
6	105.63	2.71226E-02	44.13	Tol.	EU-155 NP-239
11	255.12	2.18902E-02	45.58	Tol.	SN-113

Analysis Report for 1510090-03
 CP0603S03-04

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
12	270.57	3.94444E-02	27.30		
15	328.35	1.40320E-02	55.32	Tol.	LA-140
18	359.58	1.02735E-02	58.66		
19	463.36	1.66258E-02	36.34	Tol.	SB-125
20	511.48	4.01579E-02	19.56	Sum	
M 21	579.83	4.92430E-03	66.92	Sum	
24	678.17	9.44836E-03	32.87	Tol.	AG-110M
25	691.44	2.67443E-02	38.57		
M 27	768.50	1.31661E-02	30.28	Sum	
m 28	772.71	9.90716E-03	40.63		
29	784.22	1.27336E-02	34.05	Tol.	SB-127
30	795.48	1.57108E-02	31.54	Sum	
33	927.22	6.40152E-03	45.54		
34	951.28	9.05864E-03	39.16	S-Esc	
M 35	965.28	1.16837E-02	25.50		
37	1007.39	6.50825E-03	49.49		
38	1033.43	5.95510E-03	64.20		
39	1070.70	4.45370E-03	58.43	Sum	
40	1121.50	3.00386E-02	31.01	Sum	
41	1155.41	6.00649E-03	63.58	Sum	
M 42	1234.08	2.41897E-03	35.39		
m 43	1238.50	1.26805E-02	35.79	Tol.	CO-56
M 44	1378.31	6.76531E-03	33.23		
m 45	1382.33	2.83362E-03	73.03		
m 46	1385.90	3.09683E-03	61.17		
47	1408.91	5.37500E-03	46.22	Tol.	EU-152
48	1426.17	1.33627E-02	17.40		
50	1470.70	4.06863E-03	32.83	Sum	
51	1588.74	4.24708E-03	57.69	Sum	
52	1638.83	6.44713E-03	31.57	Sum	
53	1701.73	3.33333E-03	28.87		
M 54	1725.92	2.07030E-03	37.95		
m 55	1729.72	4.85567E-03	33.36		
M 56	1761.39	1.90982E-03	34.30		
58	1830.94	2.84722E-03	37.86	Sum	
59	1846.90	3.36310E-03	66.85		
M 60	2101.14	2.34391E-03	49.93		
m 61	2104.51	3.64033E-03	44.49	S-Esc	
62	2119.18	5.27778E-03	22.94		
63	2138.43	3.52431E-03	40.62		
65	2225.51	2.80093E-03	38.49		
66	2294.07	2.57407E-03	56.07		
67	2395.16	1.66667E-03	40.82		
68	2401.66	2.41830E-03	68.68		
69	2447.93	4.45767E-03	36.07		
71	2856.97	1.94444E-03	37.80	Sum	

Analysis Report for 1510090-03
CP0603S03-04

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	0.95	1460.81 *	10.67	1.97E+01	2.30E+00
GA-67	0.55	93.31 *	35.70	2.23E+02	9.66E+02
		208.95 *	2.24	3.24E+03	1.36E+04
		300.22 *	16.00	3.04E+02	1.33E+03
TL-208	0.97	583.14 *	30.22	1.55E+00	2.34E-01
		860.37 *	4.48	1.92E+00	1.56E+00
		2614.66 *	35.85	1.25E+00	2.63E-01
BI-212	0.73	727.17 *	11.80	1.36E+00	6.19E-01
		1620.62	2.75		
PB-212	0.89	238.63 *	44.60	1.71E+00	1.92E-01
		300.09	3.41		
BI-214	0.72	609.31 *	46.30	1.08E+00	1.83E-01
		1120.29	15.10		
		1764.49 *	15.80	1.23E+00	3.28E-01
		2204.22 *	4.98	1.53E+00	1.08E+00
PB-214	0.99	295.21 *	19.19	1.14E+00	3.01E-01
		351.92 *	37.19	1.33E+00	1.96E-01
RA-224	0.86	240.98 *	3.95	5.08E+00	1.63E+00
RA-226	0.98	186.21 *	3.28	3.34E+00	6.26E+00
AC-228	0.97	338.32 *	11.40	1.86E+00	5.31E-01
		911.07 *	27.70	1.55E+00	3.11E-01
		969.11 *	16.60	1.58E+00	4.05E-01
TH-234	0.99	63.29 *	3.80	1.96E+00	1.58E+00
AM-243	0.98	74.67 *	66.00	3.56E-01	7.85E-02

Analysis Report for 1510090-03
CP0603S03-04

* = 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	0.951	1.97E+01	2.30E+00	
GA-67	0.556	2.87E+02	1.22E+03	
TL-208	0.978	1.43E+00	1.74E-01	
BI-212	0.730	1.36E+00	6.19E-01	
PB-212	0.891	1.71E+00	1.92E-01	
BI-214	0.723	1.12E+00	1.58E-01	
PB-214	0.998	1.28E+00	1.65E-01	
RA-224	0.869	5.08E+00	1.63E+00	
RA-226	0.988	3.34E+00	6.26E+00	
AC-228	0.973	1.62E+00	2.24E-01	
TH-234	0.994	1.96E+00	1.58E+00	
AM-243	0.989	3.56E-01	7.85E-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 1510090-03
CP0603S03-04

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 10:46:09AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.43	2.26765E-01	6.76	
m	4	89.53	4.11741E-02	23.78	
	6	105.63	2.71226E-02	44.13	Tol. EU-155 NP-239
	11	255.12	2.18902E-02	45.58	Tol. SN-113
	12	270.57	3.94444E-02	27.30	
	15	328.35	1.40320E-02	55.32	Tol. LA-140
	18	359.58	1.02735E-02	58.66	
	19	463.36	1.66258E-02	36.34	Tol. SB-125
	20	511.48	4.01579E-02	19.56	Sum
M	21	579.83	4.92430E-03	66.92	Sum
	24	678.17	9.44836E-03	32.87	Tol. AG-110M
	25	691.44	2.67443E-02	38.57	
M	27	768.50	1.31661E-02	30.28	Sum
m	28	772.71	9.90716E-03	40.63	
	29	784.22	1.27336E-02	34.05	Tol. SB-127
	30	795.48	1.57108E-02	31.54	Sum
	33	927.22	6.40152E-03	45.54	
	34	951.28	9.05864E-03	39.16	S-Esc
M	35	965.28	1.16837E-02	25.50	
	37	1007.39	6.50825E-03	49.49	
	38	1033.43	5.95510E-03	64.20	
	39	1070.70	4.45370E-03	58.43	Sum
	40	1121.50	3.00386E-02	31.01	Sum
	41	1155.41	6.00649E-03	63.58	Sum
M	42	1234.08	2.41897E-03	35.39	
m	43	1238.50	1.26805E-02	35.79	Tol. CO-56
M	44	1378.31	6.76531E-03	33.23	
m	45	1382.33	2.83362E-03	73.03	
m	46	1385.90	3.09683E-03	61.17	
	47	1408.91	5.37500E-03	46.22	Tol. EU-152
	48	1426.17	1.33627E-02	17.40	
	50	1470.70	4.06863E-03	32.83	Sum
	51	1588.74	4.24708E-03	57.69	Sum

Analysis Report for 1510090-03
CP0603S03-04

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	52	1638.83	6.44713E-03	31.57	Sum
	53	1701.73	3.33333E-03	28.87	
M	54	1725.92	2.07030E-03	37.95	
m	55	1729.72	4.85567E-03	33.36	
M	56	1761.39	1.90982E-03	34.30	
	58	1830.94	2.84722E-03	37.86	Sum
	59	1846.90	3.36310E-03	66.85	
M	60	2101.14	2.34391E-03	49.93	
m	61	2104.51	3.64033E-03	44.49	S-Esc
	62	2119.18	5.27778E-03	22.94	
	63	2138.43	3.52431E-03	40.62	
	65	2225.51	2.80093E-03	38.49	
	66	2294.07	2.57407E-03	56.07	
	67	2395.16	1.66667E-03	40.82	
	68	2401.66	2.41830E-03	68.68	
	69	2447.93	4.45767E-03	36.07	
	71	2856.97	1.94444E-03	37.80	Sum

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	5.15E-02	8.75E-01	8.75E-01
+	NA-22	1274.54	99.94	-5.43E-04	8.02E-02	8.02E-02
+	NA-24	1368.53	99.99	-8.11E+13	2.43E+13	1.57E+14
		2754.09	99.86	0.00E+00		2.43E+13
+	AL-26	1808.65	99.76	1.72E-02	5.37E-02	5.37E-02
+	K-40	1460.81	* 10.67	1.97E+01	1.19E+00	1.19E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-9.19E-06	6.52E-02	6.52E-02
		78.34	96.00	2.33E-01		8.79E-02
+	SC-46	889.25	99.98	-2.11E-02	8.30E-02	8.30E-02
		1120.51	99.99	2.05E-01		1.65E-01

Analysis Report for 1510090-03
CP0603S03-04

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	V-48	983.52	99.98	2.39E-03	2.70E-01	2.70E-01
		1312.10	97.50	-4.65E-02		2.85E-01
+	CR-51	320.08	9.83	-1.13E+00	9.72E-01	9.72E-01
+	MN-54	834.83	99.97	-3.00E-02	7.37E-02	7.37E-02
+	CO-56	846.75	99.96	2.70E-02	8.48E-02	8.48E-02
		1037.75	14.03	1.90E-01		6.93E-01
		1238.25	67.00	1.22E-01		2.11E-01
		1771.40	15.51	-9.98E-02		4.35E-01
		2598.48	16.90	6.17E-02		2.85E-01
+	CO-57	122.06	85.51	-1.62E-02	5.83E-02	5.83E-02
		136.48	10.60	4.47E-02		4.89E-01
+	CO-58	810.76	99.40	-4.65E-02	8.70E-02	8.70E-02
+	FE-59	1099.22	56.50	-1.58E-01	1.97E-01	1.97E-01
		1291.56	43.20	-7.50E-02		2.95E-01
+	CO-60	1173.22	100.00	4.14E-02	6.33E-02	9.93E-02
		1332.49	100.00	-2.10E-03		6.33E-02
+	ZN-65	1115.52	50.75	-4.76E-01	1.98E-01	1.98E-01
+	GA-67	93.31	* 35.70	2.23E+02	3.04E+02	4.11E+02
		208.95	* 2.24	3.24E+03		3.02E+03
		300.22	* 16.00	3.04E+02		3.04E+02
+	SE-75	121.11	16.70	8.41E-02	8.99E-02	3.32E-01
		136.00	59.20	5.06E-02		9.77E-02
		264.65	59.80	8.28E-03		8.99E-02
		279.53	25.20	-1.00E-01		2.26E-01
		400.65	11.40	-3.32E-01		5.09E-01
+	RB-82	776.52	13.00	-7.95E-02	1.07E+00	1.07E+00
+	RB-83	520.41	46.00	-4.73E-02	1.58E-01	1.58E-01
		529.64	30.30	-4.23E-02		2.59E-01
		552.65	16.40	-6.38E-02		4.51E-01
+	KR-85	513.99	0.43	4.06E+01	2.17E+01	2.17E+01
+	SR-85	513.99	99.27	2.48E-01	1.33E-01	1.33E-01
+	Y-88	898.02	93.40	9.82E-03	5.86E-02	9.26E-02
		1836.01	99.38	-4.16E-03		5.86E-02
+	NB-93M	16.57	9.43	-6.47E+01	7.03E+01	7.03E+01
+	NB-94	702.63	100.00	-8.53E-03	6.42E-02	6.42E-02
		871.10	100.00	3.20E-02		7.00E-02
+	NB-95	765.79	99.81	8.56E-03	1.48E-01	1.48E-01
+	NB-95M	235.69	25.00	-1.30E+03	1.18E+02	1.18E+02
+	ZR-95	724.18	43.70	3.63E-02	1.88E-01	2.76E-01
		756.72	55.30	-1.97E-02		1.88E-01
+	MO-99	181.06	6.20	4.88E+02	1.72E+03	2.49E+03
		739.58	12.80	3.16E+02		1.72E+03
		778.00	4.50	-3.08E+02		3.88E+03
+	RU-103	497.08	89.00	7.71E-03	1.18E-01	1.18E-01
+	RU-106	621.84	9.80	-2.20E-01	6.40E-01	6.40E-01
+	AG-108M	433.93	89.90	-2.88E-02	6.51E-02	6.51E-02
		614.37	90.40	2.22E-02		7.44E-02

Analysis Report for 1510090-03

CP0603S03-04

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-108M	722.95	90.50	2.86E-02	6.51E-02	8.22E-02
+	CD-109	88.03	3.72	-4.22E-01	1.85E+00	1.85E+00
+	AG-110M	657.75	93.14	-3.65E-02	7.19E-02	7.19E-02
		677.61	10.53	-1.11E-01		6.36E-01
		706.67	16.46	4.13E-02		4.23E-01
		763.93	21.98	1.47E-01		3.47E-01
		884.67	71.63	-2.30E-02		9.42E-02
		1384.27	23.94	-6.00E-02		2.83E-01
+	CD-113M	263.70	0.02	1.52E+01	1.88E+02	1.88E+02
+	SN-113	255.12	1.93	2.57E+00	9.28E-02	3.26E+00
		391.69	64.90	-3.19E-02		9.28E-02
+	TE123M	159.00	84.10	-3.00E-02	7.05E-02	7.05E-02
+	SB-124	602.71	97.87	6.76E-02	9.22E-02	9.22E-02
		645.85	7.26	5.30E-01		1.26E+00
		722.78	11.10	3.36E-01		9.69E-01
		1691.02	49.00	-5.03E-02		1.33E-01
+	I-125	35.49	6.49	1.29E+00	2.98E+00	2.98E+00
+	SB-125	176.33	6.89	1.42E-01	2.07E-01	7.47E-01
		427.89	29.33	8.42E-02		2.07E-01
		463.38	10.35	4.09E-01		6.81E-01
		600.56	17.80	-1.62E-01		3.50E-01
		635.90	11.32	3.26E-01		5.96E-01
+	SB-126	414.70	83.30	1.98E-02	4.00E-01	4.55E-01
		666.33	99.60	-7.54E-02		4.16E-01
		695.00	99.60	8.76E-02		4.00E-01
		720.50	53.80	1.11E-01		7.59E-01
+	SN-126	87.57	37.00	-4.05E-02	1.77E-01	1.77E-01
+	SB-127	473.00	25.00	1.20E+01	6.10E+01	7.62E+01
		685.20	35.70	2.49E+01		6.10E+01
		783.80	14.70	1.56E+02		1.64E+02
+	I-129	29.78	57.00	9.24E-02	4.54E-01	4.54E-01
		33.60	13.20	2.79E-01		1.21E+00
		39.58	7.52	8.68E-01		1.35E+00
+	I-131	284.30	6.05	1.10E+01	9.11E-01	1.36E+01
		364.48	81.20	-3.52E-01		9.11E-01
		636.97	7.26	6.72E+00		1.43E+01
		722.89	1.80	2.27E+01		6.53E+01
+	TE-132	49.72	13.10	-9.73E+02	5.28E+01	5.07E+02
		228.16	88.00	5.84E-01		5.28E+01
+	BA-133	81.00	33.00	-1.33E+00	8.17E-02	1.75E-01
		302.84	17.80	1.51E-01		3.08E-01
		356.01	60.00	-7.55E-01		8.17E-02
+	I-133	529.87	86.30	-1.52E+09	9.32E+09	9.32E+09
+	XE-133	81.00	38.00	-7.92E+01	1.04E+01	1.04E+01
+	CS-134	563.23	8.38	-8.73E-02	7.16E-02	7.46E-01
		569.32	15.43	3.62E-02		4.08E-01
		604.70	97.60	1.90E-02		7.16E-02
		795.84	85.40	1.00E-01		1.02E-01
		801.93	8.73	-3.69E-01		7.73E-01

Analysis Report for 1510090-03

CP0603S03-04

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CS-135	268.24	16.00	5.32E-01	3.67E-01	3.67E-01
+	@ 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	5.20E-01	3.56E-01	3.74E+00
		163.89	4.61	1.19E+00		6.07E+00
		176.55	13.56	3.82E-01		2.01E+00
		273.65	12.66	-3.52E+00		2.08E+00
		340.57	48.50	7.92E-01		7.68E-01
		818.50	99.70	1.87E-01		3.56E-01
		1048.07	79.60	-2.58E-01		4.56E-01
		1235.34	19.70	-3.58E-01		2.65E+00
+	CS-137	661.65	85.12	-1.71E-02	8.02E-02	8.02E-02
+	LA-138	788.74	34.00	-3.24E-03	7.76E-02	2.12E-01
		1435.80	66.00	-4.03E-03		7.76E-02
+	CE-139	165.85	80.35	2.43E-02	7.44E-02	7.44E-02
+	BA-140	162.64	6.70	2.99E+00	1.36E+00	4.40E+00
		304.84	4.50	-5.81E-01		6.02E+00
		423.70	3.20	-6.93E-01		1.01E+01
		437.55	2.00	8.77E+00		1.78E+01
		537.32	25.00	-2.22E-01		1.36E+00
+	LA-140	328.77	20.50	1.28E+00	4.07E-01	1.57E+00
		487.03	45.50	-2.69E-01		7.15E-01
		815.85	23.50	-4.90E-02		1.55E+00
		1596.49	95.49	1.99E-01		4.07E-01
+	CE-141	145.44	48.40	6.16E-02	2.03E-01	2.03E-01
+	CE-143	57.36	11.80	-3.51E+05	2.01E+06	5.50E+06
		293.26	42.00	5.92E+06		2.01E+06
		664.55	5.20	4.97E+06		1.42E+07
+	CE-144	133.54	10.80	1.17E-01	4.81E-01	4.81E-01
+	PM-144	476.78	42.00	-1.62E-01	6.77E-02	1.43E-01
		618.01	98.60	-5.33E-03		6.99E-02
		696.49	99.49	-4.10E-02		6.77E-02
+	PM-145	36.85	21.70	-3.16E-01	2.89E-01	5.47E-01
		37.36	39.70	-1.24E-01		2.89E-01
		42.30	15.10	-2.98E-01		5.91E-01
		72.40	2.31	-3.35E+00		3.33E+00
+	PM-146	453.90	39.94	-3.43E-02	1.42E-01	1.42E-01
		735.90	14.01	-1.22E-02		4.66E-01
		747.13	13.10	-2.11E-01		5.26E-01
+	ND-147	91.11	28.90	-2.28E+00	1.74E+00	1.74E+00
		531.02	13.10	-7.56E-01		3.47E+00
+	PM-149	285.90	3.10	8.77E+03	3.73E+04	3.73E+04
+	EU-152	121.78	20.50	-6.25E-02	2.25E-01	2.25E-01
		244.69	5.40	-6.74E-01		1.01E+00
		344.27	19.13	6.10E-02		2.62E-01
		778.89	9.20	-4.75E-02		6.31E-01
		964.01	10.40	-9.80E-02		9.36E-01
		1085.78	7.22	2.14E-01		1.13E+00

Analysis Report for 1510090-03

CP0603S03-04

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	EU-152	1112.02	9.60	2.82E-01	2.25E-01	8.83E-01
		1407.95	14.94	-6.40E-02		5.03E-01
+	GD-153	97.43	31.30	4.90E-02	1.76E-01	1.76E-01
		103.18	22.20	-1.68E-01		2.38E-01
+	EU-154	123.07	40.50	-6.66E-02	1.15E-01	1.15E-01
		723.30	19.70	1.32E-01		3.80E-01
		873.19	11.50	-3.01E-02		5.78E-01
		996.32	10.30	-6.00E-01		7.40E-01
		1004.76	17.90	-4.22E-02		4.45E-01
		1274.45	35.50	-1.50E-03		2.22E-01
+	EU-155	86.50	30.90	5.81E-02	2.15E-01	2.15E-01
		105.30	20.70	1.55E-01		2.47E-01
+	EU-156	811.77	10.40	-4.76E-01	2.68E+00	2.68E+00
		1153.47	7.20	-1.12E+00		5.24E+00
		1230.71	8.90	2.38E-01		4.52E+00
+	HO-166M	184.41	72.60	1.97E-01	8.83E-02	8.83E-02
		280.45	29.60	-1.01E-01		1.57E-01
		410.94	11.10	1.67E-01		5.95E-01
		711.69	54.10	-4.19E-02		1.15E-01
+	TM-171	66.72	0.14	-9.49E+00	4.57E+01	4.57E+01
+	HF-172	81.75	4.52	-2.27E+00	4.49E-01	1.30E+00
		125.81	11.30	-1.95E-01		4.49E-01
+	LU-172	181.53	20.60	1.90E+00	3.12E+00	6.51E+00
		810.06	16.63	2.79E+00		1.14E+01
		912.12	15.25	7.93E+01		2.69E+01
		1093.66	62.50	-9.18E-01		3.12E+00
+	LU-173	100.72	5.24	2.54E-02	2.95E-01	9.72E-01
		272.11	21.20	4.17E-01		2.95E-01
+	HF-175	343.40	84.00	2.45E-02	8.26E-02	8.26E-02
+	LU-176	88.34	13.30	9.73E-01	4.71E-02	5.04E-01
		201.83	86.00	2.12E-02		5.68E-02
		306.78	94.00	-4.32E-02		4.71E-02
+	TA-182	67.75	41.20	-2.56E-05	1.81E-01	1.81E-01
		1121.30	34.90	7.13E-01		4.44E-01
		1189.05	16.23	-3.68E-02		5.94E-01
		1221.41	26.98	-2.16E-02		3.94E-01
		1231.02	11.44	5.22E-02		9.90E-01
+	IR-192	308.46	29.68	5.26E-02	1.66E-01	2.15E-01
		468.07	48.10	-3.54E-02		1.66E-01
+	HG-203	279.19	77.30	-1.73E-02	9.95E-02	9.95E-02
+	BI-207	569.67	97.72	2.28E-02	6.30E-02	6.30E-02
		1063.62	74.90	1.63E-02		9.47E-02
+	TL-208	583.14	* 30.22	1.55E+00	1.97E-01	3.27E-01
		860.37	* 4.48	1.92E+00		2.49E+00
		2614.66	* 35.85	1.25E+00		1.97E-01
+	BI-210M	262.00	45.00	-2.02E-02	9.27E-02	9.27E-02
		300.00	23.00	-5.45E-01		2.52E-01
+	PB-210	46.50	4.25	1.25E+00	2.03E+00	2.03E+00
+	PB-211	404.84	2.90	3.65E-01	1.82E+00	1.82E+00

Analysis Report for 1510090-03
CP0603S03-04

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	PB-211	831.96	2.90	-4.69E-01	1.82E+00	2.33E+00
+	BI-212	727.17	* 11.80	1.36E+00	9.33E-01	9.33E-01
		1620.62	2.75	2.60E-01		2.20E+00
+	PB-212	238.63	* 44.60	1.71E+00	2.36E-01	2.36E-01
		300.09	3.41	-3.67E+00		1.70E+00
+	BI-214	609.31	* 46.30	1.08E+00	1.87E-01	1.87E-01
		1120.29	15.10	1.04E+00		8.37E-01
		1764.49	* 15.80	1.23E+00		1.95E-01
		2204.22	* 4.98	1.53E+00		1.60E+00
+	PB-214	295.21	* 19.19	1.14E+00	2.04E-01	4.28E-01
		351.92	* 37.19	1.33E+00		2.04E-01
+	RN-219	401.80	6.50	-3.94E-01	7.46E-01	7.46E-01
+	RA-223	323.87	3.88	3.57E-01	1.27E+00	1.27E+00
+	RA-224	240.98	* 3.95	5.08E+00	2.70E+00	2.70E+00
+	RA-225	40.00	31.00	9.19E-01	1.43E+00	1.43E+00
+	RA-226	186.21	* 3.28	3.34E+00	2.06E+00	2.06E+00
+	TH-227	50.10	8.40	-1.65E+00	5.46E-01	8.59E-01
		236.00	11.50	-6.05E+00		5.46E-01
		256.20	6.30	1.59E-01		7.80E-01
+	AC-228	338.32	* 11.40	1.86E+00	3.42E-01	7.64E-01
		911.07	* 27.70	1.55E+00		3.42E-01
		969.11	* 16.60	1.58E+00		1.31E+00
+	TH-230	48.44	16.90	5.90E-01	4.87E-01	4.87E-01
		62.85	4.60	3.00E+00		1.60E+00
		67.67	0.37	-2.35E-03		1.67E+01
+	PA-231	283.67	1.60	1.72E+00	2.37E+00	3.18E+00
		302.67	2.30	1.16E+00		2.37E+00
+	TH-231	25.64	14.70	2.99E-02	9.67E-01	3.96E+00
		84.21	6.40	-1.41E+00		9.67E-01
+	PA-233	311.98	38.60	8.48E-02	2.93E-01	2.93E-01
+	PA-234	131.20	20.40	-4.81E-02	2.40E-01	2.40E-01
		733.99	8.80	-1.71E-02		7.55E-01
		946.00	12.00	5.05E-02		5.73E-01
+	PA-234M	1001.03	0.92	1.05E-01	8.56E+00	8.56E+00
+	TH-234	63.29	* 3.80	1.96E+00	2.57E+00	2.57E+00
+	U-235	143.76	10.50	8.14E-02	4.69E-01	4.69E-01
		163.35	4.70	2.15E-01		1.10E+00
		205.31	4.70	-3.90E-01		1.01E+00
+	NP-237	86.50	12.60	1.41E-01	5.21E-01	5.21E-01
+	NP-239	106.10	22.70	1.74E+03	2.77E+03	2.77E+03
		228.18	10.70	6.56E+01		5.93E+03
		277.60	14.10	1.16E+03		4.31E+03
+	AM-241	59.54	35.90	-1.66E-01	1.79E-01	1.79E-01
+	AM-243	74.67	* 66.00	3.56E-01	1.58E-01	1.58E-01
+	CM-243	209.75	3.29	2.41E+00	3.50E-01	1.79E+00
		228.14	10.60	5.35E-03		4.84E-01
		277.60	14.00	9.43E-02		3.50E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	8.75E-01	8.75E-01	5.15E-02	4.16E-01
NA-22	1274.54	99.94	8.02E-02	8.02E-02	-5.43E-04	3.69E-02
NA-24	1368.53	99.99	1.57E+14	2.43E+13	-8.11E+13	6.96E+13
	2754.09	99.86	2.43E+13		0.00E+00	0.00E+00
AL-26	1808.65	99.76	5.37E-02	5.37E-02	1.72E-02	2.29E-02
+ K-40	1460.81	* 10.67	1.19E+00	1.19E+00	1.97E+01	5.63E-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	6.52E-02	6.52E-02	-9.19E-06	3.19E-02
	78.34	96.00	8.79E-02		2.33E-01	4.33E-02
SC-46	889.25	99.98	8.30E-02	8.30E-02	-2.11E-02	3.84E-02
	1120.51	99.99	1.65E-01		2.05E-01	7.87E-02
V-48	983.52	99.98	2.70E-01	2.70E-01	2.39E-03	1.25E-01
	1312.10	97.50	2.85E-01		-4.65E-02	1.29E-01
CR-51	320.08	9.83	9.72E-01	9.72E-01	-1.13E+00	4.61E-01
MN-54	834.83	99.97	7.37E-02	7.37E-02	-3.00E-02	3.44E-02
CO-56	846.75	99.96	8.48E-02	8.48E-02	2.70E-02	3.94E-02
	1037.75	14.03	6.93E-01		1.90E-01	3.21E-01
	1238.25	67.00	2.11E-01		1.22E-01	9.96E-02
	1771.40	15.51	4.35E-01		-9.98E-02	1.84E-01
	2598.48	16.90	2.85E-01		6.17E-02	1.07E-01
CO-57	122.06	85.51	5.83E-02	5.83E-02	-1.62E-02	2.83E-02
	136.48	10.60	4.89E-01		4.47E-02	2.38E-01
CO-58	810.76	99.40	8.70E-02	8.70E-02	-4.65E-02	4.05E-02
FE-59	1099.22	56.50	1.97E-01	1.97E-01	-1.58E-01	9.02E-02
	1291.56	43.20	2.95E-01		-7.50E-02	1.35E-01
CO-60	1173.22	100.00	9.93E-02	6.33E-02	4.14E-02	4.66E-02
	1332.49	100.00	6.33E-02		-2.10E-03	2.84E-02
ZN-65	1115.52	50.75	1.98E-01	1.98E-01	-4.76E-01	9.27E-02
+ GA-67	93.31	* 35.70	4.11E+02	3.04E+02	2.23E+02	2.04E+02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	*	2.24	3.02E+03	3.04E+02	3.24E+03
	300.22	*	16.00	3.04E+02		3.04E+02
SE-75	121.11		16.70	3.32E-01	8.99E-02	8.41E-02
	136.00		59.20	9.77E-02		5.06E-02
	264.65		59.80	8.99E-02		8.28E-03
	279.53		25.20	2.26E-01		-1.00E-01
	400.65		11.40	5.09E-01		-3.32E-01
RB-82	776.52		13.00	1.07E+00	1.07E+00	-7.95E-02
RB-83	520.41		46.00	1.58E-01	1.58E-01	-4.73E-02
	529.64		30.30	2.59E-01		-4.23E-02
	552.65		16.40	4.51E-01		-6.38E-02
KR-85	513.99		0.43	2.17E+01	2.17E+01	4.06E+01
SR-85	513.99		99.27	1.33E-01	1.33E-01	2.48E-01
Y-88	898.02		93.40	9.26E-02	5.86E-02	9.82E-03
	1836.01		99.38	5.86E-02		-4.16E-03
NB-93M	16.57		9.43	7.03E+01	7.03E+01	-6.47E+01
NB-94	702.63		100.00	6.42E-02	6.42E-02	-8.53E-03
	871.10		100.00	7.00E-02		3.20E-02
NB-95	765.79		99.81	1.48E-01	1.48E-01	8.56E-03
NB-95M	235.69		25.00	1.18E+02	1.18E+02	-1.30E+03
ZR-95	724.18		43.70	2.76E-01	1.88E-01	3.63E-02
	756.72		55.30	1.88E-01		-1.97E-02
MO-99	181.06		6.20	2.49E+03	1.72E+03	4.88E+02
	739.58		12.80	1.72E+03		3.16E+02
	778.00		4.50	3.88E+03		-3.08E+02
RU-103	497.08		89.00	1.18E-01	1.18E-01	7.71E-03
RU-106	621.84		9.80	6.40E-01	6.40E-01	-2.20E-01
AG-108M	433.93		89.90	6.51E-02	6.51E-02	-2.88E-02
	614.37		90.40	7.44E-02		2.22E-02
	722.95		90.50	8.22E-02		2.86E-02
CD-109	88.03		3.72	1.85E+00	1.85E+00	-4.22E-01
AG-110M	657.75		93.14	7.19E-02	7.19E-02	-3.65E-02
	677.61		10.53	6.36E-01		-1.11E-01
	706.67		16.46	4.23E-01		4.13E-02
	763.93		21.98	3.47E-01		1.47E-01
	884.67		71.63	9.42E-02		-2.30E-02
	1384.27		23.94	2.83E-01		-6.00E-02
CD-113M	263.70		0.02	1.88E+02	1.88E+02	1.52E+01
SN-113	255.12		1.93	3.26E+00	9.28E-02	2.57E+00
	391.69		64.90	9.28E-02		-3.19E-02
TE123M	159.00		84.10	7.05E-02	7.05E-02	-3.00E-02
SB-124	602.71		97.87	9.22E-02	9.22E-02	6.76E-02
	645.85		7.26	1.26E+00		5.30E-01
	722.78		11.10	9.69E-01		3.36E-01
	1691.02		49.00	1.33E-01		-5.03E-02
I-125	35.49		6.49	2.98E+00	2.98E+00	1.29E+00
SB-125	176.33		6.89	7.47E-01	2.07E-01	1.42E-01
	427.89		29.33	2.07E-01		8.42E-02
	463.38		10.35	6.81E-01		4.09E-01
	600.56		17.80	3.50E-01		-1.62E-01
	635.90		11.32	5.96E-01		3.26E-01
SB-126	414.70		83.30	4.55E-01	4.00E-01	1.98E-02
	666.33		99.60	4.16E-01		-7.54E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-126	695.00	99.60	4.00E-01	4.00E-01	8.76E-02	1.88E-01
	720.50	53.80	7.59E-01		1.11E-01	3.57E-01
SN-126	87.57	37.00	1.77E-01	1.77E-01	-4.05E-02	8.69E-02
SB-127	473.00	25.00	7.62E+01	6.10E+01	1.20E+01	3.63E+01
	685.20	35.70	6.10E+01		2.49E+01	2.88E+01
	783.80	14.70	1.64E+02		1.56E+02	7.74E+01
I-129	29.78	57.00	4.54E-01	4.54E-01	9.24E-02	2.20E-01
	33.60	13.20	1.21E+00		2.79E-01	5.88E-01
	39.58	7.52	1.35E+00		8.68E-01	6.57E-01
I-131	284.30	6.05	1.36E+01	9.11E-01	1.10E+01	6.54E+00
	364.48	81.20	9.11E-01		-3.52E-01	4.32E-01
	636.97	7.26	1.43E+01		6.72E+00	6.73E+00
	722.89	1.80	6.53E+01		2.27E+01	3.09E+01
TE-132	49.72	13.10	5.07E+02	5.28E+01	-9.73E+02	2.47E+02
	228.16	88.00	5.28E+01		5.84E-01	2.55E+01
BA-133	81.00	33.00	1.75E-01	8.17E-02	-1.33E+00	8.54E-02
	302.84	17.80	3.08E-01		1.51E-01	1.48E-01
	356.01	60.00	8.17E-02		-7.55E-01	3.89E-02
I-133	529.87	86.30	9.32E+09	9.32E+09	-1.52E+09	4.42E+09
XE-133	81.00	38.00	1.04E+01	1.04E+01	-7.92E+01	5.09E+00
CS-134	563.23	8.38	7.46E-01	7.16E-02	-8.73E-02	3.52E-01
	569.32	15.43	4.08E-01		3.62E-02	1.93E-01
	604.70	97.60	7.16E-02		1.90E-02	3.40E-02
	795.84	85.40	1.02E-01		1.00E-01	4.82E-02
	801.93	8.73	7.73E-01		-3.69E-01	3.61E-01
CS-135	268.24	16.00	3.67E-01	3.67E-01	5.32E-01	1.77E-01
@ 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	3.74E+00	3.56E-01	5.20E-01	1.82E+00
	163.89	4.61	6.07E+00		1.19E+00	2.95E+00
	176.55	13.56	2.01E+00		3.82E-01	9.74E-01
	273.65	12.66	2.08E+00		-3.52E+00	1.00E+00
	340.57	48.50	7.68E-01		7.92E-01	3.71E-01
	818.50	99.70	3.56E-01		1.87E-01	1.66E-01
	1048.07	79.60	4.56E-01		-2.58E-01	2.10E-01
	1235.34	19.70	2.65E+00		-3.58E-01	1.24E+00
CS-137	661.65	85.12	8.02E-02	8.02E-02	-1.71E-02	3.79E-02
LA-138	788.74	34.00	2.12E-01	7.76E-02	-3.24E-03	9.95E-02
	1435.80	66.00	7.76E-02		-4.03E-03	3.36E-02
CE-139	165.85	80.35	7.44E-02	7.44E-02	2.43E-02	3.61E-02
BA-140	162.64	6.70	4.40E+00	1.36E+00	2.99E+00	2.14E+00
	304.84	4.50	6.02E+00		-5.81E-01	2.87E+00
	423.70	3.20	1.01E+01		-6.93E-01	4.84E+00
	437.55	2.00	1.78E+01		8.77E+00	8.50E+00
	537.32	25.00	1.36E+00		-2.22E-01	6.43E-01
LA-140	328.77	20.50	1.57E+00	4.07E-01	1.28E+00	7.56E-01
	487.03	45.50	7.15E-01		-2.69E-01	3.39E-01
	815.85	23.50	1.55E+00		-4.90E-02	7.19E-01
	1596.49	95.49	4.07E-01		1.99E-01	1.81E-01
CE-141	145.44	48.40	2.03E-01	2.03E-01	6.16E-02	9.85E-02
CE-143	57.36	11.80	5.50E+06	2.01E+06	-3.51E+05	2.68E+06
	293.26	42.00	2.01E+06		5.92E+06	9.79E+05

Analysis Report for 1510090-03
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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	1.42E+07	2.01E+06	4.97E+06	6.74E+06
CE-144	133.54	10.80	4.81E-01	4.81E-01	1.17E-01	2.34E-01
PM-144	476.78	42.00	1.43E-01	6.77E-02	-1.62E-01	6.80E-02
	618.01	98.60	6.99E-02		-5.33E-03	3.31E-02
	696.49	99.49	6.77E-02		-4.10E-02	3.18E-02
PM-145	36.85	21.70	5.47E-01	2.89E-01	-3.16E-01	2.65E-01
	37.36	39.70	2.89E-01		-1.24E-01	1.40E-01
	42.30	15.10	5.91E-01		-2.98E-01	2.87E-01
	72.40	2.31	3.33E+00		-3.35E+00	1.64E+00
PM-146	453.90	39.94	1.42E-01	1.42E-01	-3.43E-02	6.73E-02
	735.90	14.01	4.66E-01		-1.22E-02	2.18E-01
	747.13	13.10	5.26E-01		-2.11E-01	2.47E-01
ND-147	91.11	28.90	1.74E+00	1.74E+00	-2.28E+00	8.55E-01
	531.02	13.10	3.47E+00		-7.56E-01	1.64E+00
PM-149	285.90	3.10	3.73E+04	3.73E+04	8.77E+03	1.79E+04
EU-152	121.78	20.50	2.25E-01	2.25E-01	-6.25E-02	1.09E-01
	244.69	5.40	1.01E+00		-6.74E-01	4.90E-01
	344.27	19.13	2.62E-01		6.10E-02	1.25E-01
	778.89	9.20	6.31E-01		-4.75E-02	2.92E-01
	964.01	10.40	9.36E-01		-9.80E-02	4.44E-01
	1085.78	7.22	1.13E+00		2.14E-01	5.25E-01
	1112.02	9.60	8.83E-01		2.82E-01	4.12E-01
	1407.95	14.94	5.03E-01		-6.40E-02	2.29E-01
GD-153	97.43	31.30	1.76E-01	1.76E-01	4.90E-02	8.57E-02
	103.18	22.20	2.38E-01		-1.68E-01	1.16E-01
EU-154	123.07	40.50	1.15E-01	1.15E-01	-6.66E-02	5.59E-02
	723.30	19.70	3.80E-01		1.32E-01	1.80E-01
	873.19	11.50	5.78E-01		-3.01E-02	2.69E-01
	996.32	10.30	7.40E-01		-6.00E-01	3.45E-01
	1004.76	17.90	4.45E-01		-4.22E-02	2.08E-01
	1274.45	35.50	2.22E-01		-1.50E-03	1.02E-01
EU-155	86.50	30.90	2.15E-01	2.15E-01	5.81E-02	1.05E-01
	105.30	20.70	2.47E-01		1.55E-01	1.21E-01
EU-156	811.77	10.40	2.68E+00	2.68E+00	-4.76E-01	1.25E+00
	1153.47	7.20	5.24E+00		-1.12E+00	2.44E+00
	1230.71	8.90	4.52E+00		2.38E-01	2.11E+00
HO-166M	184.41	72.60	8.83E-02	8.83E-02	1.97E-01	4.31E-02
	280.45	29.60	1.57E-01		-1.01E-01	7.51E-02
	410.94	11.10	5.95E-01		1.67E-01	2.86E-01
	711.69	54.10	1.15E-01		-4.19E-02	5.37E-02
TM-171	66.72	0.14	4.57E+01	4.57E+01	-9.49E+00	2.24E+01
HF-172	81.75	4.52	1.30E+00	4.49E-01	-2.27E+00	6.36E-01
	125.81	11.30	4.49E-01		-1.95E-01	2.19E-01
LU-172	181.53	20.60	6.51E+00	3.12E+00	1.90E+00	3.15E+00
	810.06	16.63	1.14E+01		2.79E+00	5.32E+00
	912.12	15.25	2.69E+01		7.93E+01	1.30E+01
	1093.66	62.50	3.12E+00		-9.18E-01	1.44E+00
LU-173	100.72	5.24	9.72E-01	2.95E-01	2.54E-02	4.74E-01
	272.11	21.20	2.95E-01		4.17E-01	1.43E-01
HF-175	343.40	84.00	8.26E-02	8.26E-02	2.45E-02	3.94E-02
LU-176	88.34	13.30	5.04E-01	4.71E-02	9.73E-01	2.47E-01
	201.83	86.00	5.68E-02		2.12E-02	2.75E-02
	306.78	94.00	4.71E-02		-4.32E-02	2.24E-02

Analysis Report for 1510090-03
CP0603S03-04

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	1.81E-01	1.81E-01	-2.56E-05	8.88E-02
	1121.30	34.90	4.44E-01		7.13E-01	2.12E-01
	1189.05	16.23	5.94E-01		-3.68E-02	2.75E-01
	1221.41	26.98	3.94E-01		-2.16E-02	1.83E-01
	1231.02	11.44	9.90E-01		5.22E-02	4.62E-01
IR-192	308.46	29.68	2.15E-01	1.66E-01	5.26E-02	1.03E-01
	468.07	48.10	1.66E-01		-3.54E-02	7.88E-02
HG-203	279.19	77.30	9.95E-02	9.95E-02	-1.73E-02	4.76E-02
BI-207	569.67	97.72	6.30E-02	6.30E-02	2.28E-02	2.98E-02
	1063.62	74.90	9.47E-02		1.63E-02	4.37E-02
+ TL-208	583.14	* 30.22	3.27E-01	1.97E-01	1.55E+00	1.58E-01
	860.37	* 4.48	2.49E+00		1.92E+00	1.19E+00
	2614.66	* 35.85	1.97E-01		1.25E+00	8.56E-02
BI-210M	262.00	45.00	9.27E-02	9.27E-02	-2.02E-02	4.42E-02
	300.00	23.00	2.52E-01		-5.45E-01	1.22E-01
PB-210	46.50	4.25	2.03E+00	2.03E+00	1.25E+00	9.91E-01
PB-211	404.84	2.90	1.82E+00	1.82E+00	3.65E-01	8.64E-01
	831.96	2.90	2.33E+00		-4.69E-01	1.09E+00
+ BI-212	727.17	* 11.80	9.33E-01	9.33E-01	1.36E+00	4.49E-01
	1620.62	2.75	2.20E+00		2.60E-01	9.64E-01
+ PB-212	238.63	* 44.60	2.36E-01	2.36E-01	1.71E+00	1.16E-01
	300.09	3.41	1.70E+00		-3.67E+00	8.20E-01
+ BI-214	609.31	* 46.30	1.87E-01	1.87E-01	1.08E+00	8.98E-02
	1120.29	15.10	8.37E-01		1.04E+00	4.00E-01
	1764.49	* 15.80	1.95E-01		1.23E+00	7.27E-02
	2204.22	* 4.98	1.60E+00		1.53E+00	7.10E-01
+ PB-214	295.21	* 19.19	4.28E-01	2.04E-01	1.14E+00	2.09E-01
	351.92	* 37.19	2.04E-01		1.33E+00	9.90E-02
RN-219	401.80	6.50	7.46E-01	7.46E-01	-3.94E-01	3.53E-01
RA-223	323.87	3.88	1.27E+00	1.27E+00	3.57E-01	6.05E-01
+ RA-224	240.98	* 3.95	2.70E+00	2.70E+00	5.08E+00	1.32E+00
RA-225	40.00	31.00	1.43E+00	1.43E+00	9.19E-01	6.95E-01
+ RA-226	186.21	* 3.28	2.06E+00	2.06E+00	3.34E+00	1.01E+00
TH-227	50.10	8.40	8.59E-01	5.46E-01	-1.65E+00	4.19E-01
	236.00	11.50	5.46E-01		-6.05E+00	2.65E-01
	256.20	6.30	7.80E-01		1.59E-01	3.75E-01
	338.32	* 11.40	7.64E-01	3.42E-01	1.86E+00	3.72E-01
+ AC-228	911.07	* 27.70	3.42E-01		1.55E+00	1.62E-01
	969.11	* 16.60	1.31E+00		1.58E+00	6.40E-01
	TH-230	48.44	16.90	4.87E-01	4.87E-01	5.90E-01	2.38E-01
TH-230	62.85	4.60	1.60E+00		3.00E+00	7.83E-01
	67.67	0.37	1.67E+01		-2.35E-03	8.15E+00
	PA-231	283.67	1.60	3.18E+00	2.37E+00	1.72E+00	1.53E+00
TH-231	302.67	2.30	2.37E+00		1.16E+00	1.14E+00
	25.64	14.70	3.96E+00	9.67E-01	2.99E-02	1.92E+00
PA-233	84.21	6.40	9.67E-01		-1.41E+00	4.74E-01
	311.98	38.60	2.93E-01	2.93E-01	8.48E-02	1.40E-01
PA-234	131.20	20.40	2.40E-01	2.40E-01	-4.81E-02	1.17E-01
	733.99	8.80	7.55E-01		-1.71E-02	3.54E-01
	946.00	12.00	5.73E-01		5.05E-02	2.65E-01
PA-234M	1001.03	0.92	8.56E+00	8.56E+00	1.05E-01	4.00E+00
+ TH-234	63.29	* 3.80	2.57E+00	2.57E+00	1.96E+00	1.27E+00
U-235	143.76	10.50	4.69E-01	4.69E-01	8.14E-02	2.28E-01

Analysis Report for 1510090-03
CP0603S03-04

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
U-235	163.35	4.70	1.10E+00	4.69E-01	2.15E-01	5.35E-01
	205.31	4.70	1.01E+00		-3.90E-01	4.90E-01
NP-237	86.50	12.60	5.21E-01	5.21E-01	1.41E-01	2.55E-01
NP-239	106.10	22.70	2.77E+03	2.77E+03	1.74E+03	1.35E+03
	228.18	10.70	5.93E+03		6.56E+01	2.86E+03
	277.60	14.10	4.31E+03		1.16E+03	2.07E+03
AM-241	59.54	35.90	1.79E-01	1.79E-01	-1.66E-01	8.77E-02
+ AM-243	74.67	* 66.00	1.58E-01	1.58E-01	3.56E-01	7.79E-02
CM-243	209.75	3.29	1.79E+00	3.50E-01	2.41E+00	8.71E-01
	228.14	10.60	4.84E-01		5.35E-03	2.34E-01
	277.60	14.00	3.50E-01		9.43E-02	1.68E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User
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No Data Review Comments Entered.

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

Sample Title: CP0603S03-04

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193	201	209	217	225	233	241	249	257	265	273	281	289	297	305	313	321	329	337	345	353	361																																																																																																																																																																																																																																																																																																																																																											
1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																																																						
9:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																																																						
17:	0	1	70	108	108	127	97	96	84	86	77	81	77	59	75	65	62	70	81	71	59	71	63	85	41:	75	87	68	84	89	94	173	107	49:	97	108	106	88	123	137	103	116	57:	97	111	114	117	145	135	183	285	65:	149	133	158	141	114	152	146	178	73:	183	201	466	389	468	619	157	141	81:	126	145	131	151	200	149	201	253	89:	142	201	193	135	312	221	111	107	97:	108	94	119	120	98	82	95	107	105:	92	124	128	97	96	92	116	85	113:	101	92	118	95	94	71	91	83	121:	71	93	84	85	87	104	99	94	129:	116	113	85	98	76	80	82	92	137:	78	90	73	82	69	81	83	98	145:	97	64	89	75	76	82	100	95	153:	91	74	91	87	75	76	82	79	161:	71	83	87	87	90	64	83	67	169:	63	80	50	61	58	60	80	78	177:	71	68	61	73	70	57	57	68	185:	81	191	161	66	54	72	68	64	193:	60	54	57	62	67	55	60	54	201:	51	60	70	51	45	61	50	59	209:	87	125	65	64	57	55	57	60	217:	53	58	61	91	41	58	63	41	225:	56	53	48	66	54	48	67	47	233:	61	53	58	51	56	175	811	282	241:	101	164	121	46	41	34	38	39	249:	45	51	36	43	55	48	50	52	257:	34	28	40	29	24	28	29	36	265:	30	32	39	38	42	78	90	29	273:	44	52	31	35	39	52	37	25	281:	24	35	45	39	37	42	44	31	289:	30	35	38	36	39	47	162	225	297:	45	37	33	58	67	45	37	37	305:	22	32	28	23	27	32	41	21	313:	34	36	31	33	38	28	29	17	321:	20	22	37	34	30	29	39	53	329:	49	28	33	32	26	26	38	28	337:	41	98	147	56	26	30	27	27	345:	38	26	25	20	28	30	72	308	353:	248	36	18	21	23	32	21	42	361:	29	22	26	20	16	35	18	26

369: 33 20 25 23 21 28 19 29

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8
377:	32	31	28	21	25	27	30	30
385:	20	20	19	26	25	30	23	18
393:	21	25	34	22	31	27	26	15
401:	18	25	22	27	27	27	23	23
409:	25	38	27	23	32	30	27	25
417:	18	23	16	24	17	23	19	20
425:	16	27	18	24	18	21	25	17
433:	16	24	16	23	20	27	27	23
441:	25	13	22	26	22	18	21	20
449:	13	25	20	20	18	21	15	13
457:	13	19	19	17	22	18	39	48
465:	22	18	13	20	23	15	17	25
473:	25	13	15	19	11	17	21	18
481:	28	21	13	15	13	15	19	21
489:	14	16	22	19	14	16	18	13
497:	20	17	19	16	14	19	24	18
505:	18	18	11	11	26	40	94	83
513:	35	21	24	17	14	12	18	17
521:	14	11	7	19	15	18	18	18
529:	10	17	11	18	19	16	19	14
537:	20	12	5	21	15	17	14	13
545:	19	13	14	18	14	10	10	18
553:	17	6	13	18	11	14	22	6
561:	15	15	26	15	8	16	10	16
569:	17	19	7	16	17	14	10	10
577:	11	16	9	20	16	33	141	199
585:	41	18	19	15	10	13	13	17
593:	16	14	6	19	24	10	9	17
601:	13	12	9	22	16	7	10	38
609:	145	204	56	12	18	11	16	21
617:	22	9	9	16	7	14	16	12
625:	7	7	18	8	18	15	9	14
633:	11	22	14	11	18	12	11	9
641:	10	9	13	13	8	15	16	12
649:	11	15	5	12	13	10	8	11
657:	15	10	16	15	5	23	11	14
665:	15	22	14	12	13	18	16	11
673:	17	9	5	5	15	15	18	11
681:	7	7	15	14	20	9	15	14
689:	11	13	14	15	12	12	6	12
697:	13	17	11	7	18	14	12	7
705:	12	9	14	15	7	13	11	13
713:	9	10	9	11	11	7	8	17
721:	16	15	9	14	19	13	51	45
729:	25	19	10	16	9	12	10	10
737:	12	12	9	11	9	13	18	10
745:	13	7	13	14	10	14	10	16
753:	9	10	18	18	12	14	11	10
761:	13	17	8	14	6	8	16	24
769:	29	13	12	13	25	12	8	11
777:	7	5	5	6	5	14	17	14
785:	11	19	13	8	8	13	9	13
793:	8	13	32	32	9	11	9	5

801: 10 11 10 11 10 13 17 6

Sample Title: CP0603S03-04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	10	9	10	11	9	5	9	9
817:	9	8	12	9	6	11	3	8
825:	7	5	7	6	12	11	11	8
833:	12	6	6	18	8	10	14	12
841:	13	4	10	7	8	11	8	9
849:	6	8	8	4	6	4	9	2
857:	6	10	11	16	25	19	13	9
865:	13	8	9	10	9	8	9	11
873:	12	7	7	4	6	10	8	6
881:	13	8	9	10	7	4	7	4
889:	6	9	14	8	8	10	6	10
897:	14	8	14	8	3	7	9	7
905:	14	12	8	6	8	12	97	134
913:	31	11	8	7	10	6	6	4
921:	8	5	2	5	4	13	8	8
929:	8	9	2	13	11	10	9	8
937:	14	9	13	9	5	10	8	7
945:	12	5	6	8	9	7	10	10
953:	12	5	5	2	5	11	14	11
961:	5	12	8	13	30	30	13	22
969:	78	51	12	8	7	7	9	8
977:	6	6	5	7	5	7	11	6
985:	4	10	6	4	13	8	14	11
993:	7	11	14	9	10	3	8	14
1001:	14	15	5	8	3	16	11	9
1009:	12	8	5	7	8	11	5	3
1017:	6	8	7	8	7	2	11	5
1025:	7	7	7	5	7	5	7	9
1033:	10	13	10	6	6	5	6	9
1041:	12	3	7	9	8	7	12	4
1049:	7	3	3	12	7	4	8	8
1057:	9	7	7	5	10	6	8	9
1065:	6	5	4	4	8	6	14	6
1073:	7	4	11	13	5	11	7	9
1081:	7	13	11	5	10	8	7	9
1089:	12	9	3	6	8	10	6	10
1097:	3	9	3	8	5	3	10	11
1105:	7	10	7	10	9	13	6	10
1113:	13	3	11	13	12	12	13	35
1121:	48	20	11	15	5	5	9	10
1129:	8	8	5	8	15	4	11	7
1137:	8	8	10	6	4	7	10	8
1145:	5	14	8	12	12	5	6	9
1153:	9	7	13	17	9	6	7	6
1161:	6	5	8	6	4	4	6	8
1169:	7	7	11	9	14	11	16	14
1177:	9	12	10	10	8	8	13	6
1185:	7	5	9	7	9	4	8	9
1193:	12	5	4	9	7	9	7	13
1201:	10	6	14	6	5	6	4	13
1209:	10	7	9	12	8	12	12	11
1217:	5	13	7	6	9	5	11	9
1225:	13	6	9	11	15	6	11	5

1233: 8 12 3 10 14 21 14 15

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1241:	13	7	9	8	3	7	14	10							
1249:	12	7	4	8	5	8	5	10							
1257:	6	6	6	8	10	4	7	3							
1265:	6	7	3	9	4	7	4	8							
1273:	5	7	6	7	7	10	4	4							
1281:	7	7	3	5	2	12	3	7							
1289:	9	5	5	3	9	4	6	8							
1297:	3	9	6	2	12	11	8	5							
1305:	6	8	5	6	3	5	2	5							
1313:	4	7	6	6	4	3	4	4							
1321:	4	2	6	5	6	6	6	3							
1329:	5	1	1	7	3	3	5	4							
1337:	2	4	2	6	2	2	1	4							
1345:	3	2	3	3	4	4	7	3							
1353:	2	6	5	2	5	6	1	3							
1361:	5	5	6	6	4	2	5	2							
1369:	3	3	2	2	6	3	3	1							
1377:	6	13	12	4	2	6	2	2							
1385:	3	6	2	1	1	4	3	2							
1393:	1	0	4	5	2	7	0	3							
1401:	7	5	9	4	3	1	6	12							
1409:	6	2	4	5	4	2	4	3							
1417:	0	1	1	5	6	4	1	4							
1425:	3	5	4	2	3	1	2	7							
1433:	3	0	0	1	3	5	2	4							
1441:	3	2	2	3	4	2	2	1							
1449:	11	1	5	6	3	8	7	4							
1457:	2	2	23	164	364	238	51	12							
1465:	3	0	1	1	4	5	4	1							
1473:	2	0	0	3	3	3	1	2							
1481:	2	2	6	4	0	1	0	0							
1489:	1	3	2	1	2	1	2	8							
1497:	2	1	1	4	6	5	2	4							
1505:	6	1	0	3	6	6	5	1							
1513:	6	1	3	1	2	0	1	1							
1521:	1	2	4	2	4	2	1	1							
1529:	1	2	2	4	3	3	3	3							
1537:	2	1	5	5	4	3	3	2							
1545:	2	2	4	3	2	1	2	0							
1553:	1	2	2	2	2	1	2	1							
1561:	2	1	2	3	1	0	1	3							
1569:	3	3	0	2	0	0	2	3							
1577:	3	0	1	2	2	2	2	8							
1585:	0	3	3	14	12	3	3	2							
1593:	7	3	2	3	1	4	3	1							
1601:	1	2	1	1	3	3	3	2							
1609:	1	0	2	0	1	1	3	3							
1617:	1	0	2	2	8	3	1	1							
1625:	1	0	0	3	1	5	1	1							
1633:	2	0	4	1	4	6	7	2							
1641:	4	2	1	0	1	0	1	2							
1649:	0	1	4	0	1	0	2	2							
1657:	1	1	1	2	2	3	4	1							

1665: 2 2 3 4 5 0 1 0

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8
1673:	0	1	2	0	1	2	2	3
1681:	2	3	2	3	2	1	3	2
1689:	3	1	2	0	0	0	3	1
1697:	0	0	2	1	3	2	3	1
1705:	0	0	2	0	0	4	1	2
1713:	1	1	0	1	5	3	2	1
1721:	1	1	2	0	1	4	1	1
1729:	7	7	3	2	1	0	0	1
1737:	0	1	1	1	1	0	2	2
1745:	0	3	1	0	0	0	3	1
1753:	1	1	0	1	3	2	0	0
1761:	3	2	4	26	24	14	0	1
1769:	2	5	1	0	1	0	0	0
1777:	1	0	1	0	0	1	3	2
1785:	2	2	2	1	0	0	3	0
1793:	0	2	2	1	2	0	3	3
1801:	0	0	1	1	2	1	1	0
1809:	3	2	2	0	1	2	1	1
1817:	2	1	1	2	2	0	3	3
1825:	0	1	0	1	3	1	3	4
1833:	0	0	1	3	1	0	3	0
1841:	2	0	2	2	5	0	5	9
1849:	1	1	2	1	3	0	1	1
1857:	3	1	1	3	0	1	1	1
1865:	2	1	1	1	0	1	0	2
1873:	0	0	2	3	0	1	2	0
1881:	0	0	0	0	0	1	1	2
1889:	0	3	2	1	0	2	1	1
1897:	0	1	2	1	2	1	1	1
1905:	2	2	0	0	2	0	0	1
1913:	2	2	1	0	0	1	1	2
1921:	0	1	1	1	1	1	1	1
1929:	1	0	2	1	1	1	3	0
1937:	2	0	3	0	1	0	0	0
1945:	0	0	0	0	1	4	0	1
1953:	5	0	0	1	0	2	0	0
1961:	1	0	0	1	2	1	0	0
1969:	2	3	0	0	2	1	0	2
1977:	1	1	1	2	0	0	1	1
1985:	0	0	0	1	0	0	2	2
1993:	0	0	3	1	0	0	0	1
2001:	1	0	1	0	0	1	0	0
2009:	0	1	2	2	1	0	1	3
2017:	1	0	1	4	1	0	1	1
2025:	2	1	0	3	1	1	0	0
2033:	2	0	1	0	1	1	3	3
2041:	2	1	0	2	1	1	2	1
2049:	1	1	1	0	0	1	0	1
2057:	2	2	0	3	1	0	0	1
2065:	0	0	1	0	0	1	0	0
2073:	0	1	2	0	0	1	3	0
2081:	0	0	3	1	1	0	1	3
2089:	3	0	0	1	1	1	2	1

2097: 0 1 1 0 4 2 3 6

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8
2105:	3	3	1	2	3	0	2	0
2113:	0	0	1	2	3	1	4	5
2121:	1	2	0	0	2	1	2	0
2129:	2	1	0	0	0	0	3	3
2137:	2	1	1	1	2	1	2	0
2145:	1	1	0	0	1	2	1	0
2153:	2	1	2	2	1	1	2	2
2161:	0	0	1	3	1	1	3	1
2169:	1	1	1	1	1	2	0	0
2177:	2	1	0	0	3	0	2	0
2185:	0	1	1	2	1	1	2	1
2193:	1	1	0	1	1	5	0	3
2201:	0	3	6	12	5	4	2	2
2209:	1	0	2	1	1	1	0	3
2217:	1	0	0	2	0	0	2	1
2225:	3	5	1	0	1	0	0	0
2233:	3	1	2	1	3	0	2	0
2241:	0	0	0	1	1	0	0	1
2249:	0	2	1	0	0	0	3	2
2257:	0	0	1	0	2	3	0	1
2265:	1	0	2	1	0	2	1	1
2273:	0	1	0	1	1	3	1	2
2281:	1	2	1	0	0	2	3	0
2289:	2	0	1	3	4	3	3	1
2297:	0	1	2	1	1	0	1	0
2305:	0	2	1	0	1	3	2	0
2313:	1	1	1	1	0	4	0	0
2321:	1	0	1	2	0	0	1	2
2329:	2	2	3	2	2	1	1	0
2337:	1	0	1	2	1	1	0	0
2345:	2	2	0	0	2	0	2	4
2353:	2	1	3	3	0	1	2	1
2361:	0	2	3	1	0	0	2	0
2369:	1	3	1	1	2	1	0	0
2377:	0	0	2	0	1	0	2	1
2385:	0	0	1	0	1	1	0	0
2393:	0	2	4	0	0	0	1	5
2401:	2	1	2	2	1	1	2	1
2409:	1	1	2	1	0	1	0	0
2417:	0	1	1	0	2	0	1	2
2425:	1	2	0	0	0	0	0	0
2433:	2	0	1	1	1	0	0	0
2441:	2	0	1	2	1	5	4	3
2449:	2	3	0	0	0	0	1	1
2457:	1	1	1	0	0	0	2	1
2465:	0	3	2	0	1	3	2	0
2473:	0	2	0	2	1	1	0	1
2481:	1	1	0	0	0	2	0	0
2489:	1	1	2	1	0	2	0	1
2497:	0	1	0	2	0	1	0	0
2505:	0	1	0	0	2	1	0	0
2513:	0	0	1	0	0	2	1	0
2521:	1	1	0	1	0	0	0	0

2529: 1 3 2 0 1 2 2 0

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8	9
2537:	0	2	0	0	0	0	0	0	1
2545:	1	0	0	1	0	1	1	1	0
2553:	1	0	0	0	0	0	0	0	0
2561:	0	0	1	0	1	1	0	0	0
2569:	0	0	3	0	0	0	0	0	1
2577:	0	0	0	0	1	0	1	1	0
2585:	0	0	1	1	0	1	0	0	0
2593:	0	0	0	0	0	0	0	0	1
2601:	1	1	0	0	1	0	0	0	2
2609:	1	0	1	4	25	43	50	13	13
2617:	7	1	0	2	0	0	1	1	1
2625:	0	0	2	0	1	0	1	1	0
2633:	0	0	0	0	1	0	1	1	0
2641:	2	1	0	0	0	0	1	1	1
2649:	0	0	0	0	0	0	0	0	0
2657:	0	0	0	0	0	2	0	0	0
2665:	0	0	0	1	1	0	0	0	0
2673:	1	0	0	0	1	0	0	0	0
2681:	0	0	0	0	1	0	0	0	1
2689:	2	0	0	0	1	2	0	0	0
2697:	0	1	0	0	1	1	1	1	0
2705:	0	0	1	0	1	0	0	0	0
2713:	1	0	0	0	1	1	0	0	0
2721:	0	0	1	1	0	0	0	0	1
2729:	2	1	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0	1
2745:	0	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	1	1	1
2769:	0	1	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	0	0
2785:	0	0	1	1	0	0	0	0	0
2793:	0	1	0	0	0	1	0	0	0
2801:	0	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	1	0	0	0
2817:	0	0	0	0	0	0	0	0	0
2825:	0	1	0	0	0	0	1	1	0
2833:	1	0	1	0	1	1	0	0	0
2841:	0	0	0	0	1	0	1	1	1
2849:	1	1	0	0	0	1	0	0	3
2857:	2	1	0	0	1	0	1	1	0
2865:	0	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	0	0
2881:	2	0	1	1	0	0	0	0	0
2889:	1	1	0	1	0	0	0	0	1
2897:	1	0	0	0	0	0	0	0	2
2905:	0	0	0	0	1	0	1	1	0
2913:	2	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0	1
2929:	0	0	0	1	0	0	1	1	0
2937:	2	0	0	0	0	0	2	0	0
2945:	1	0	1	1	2	0	0	0	0
2953:	0	0	1	0	0	0	0	0	0

2961: 3 0 0 1 1 0 0 0

Sample Title: CP0603S03-04

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S03-04

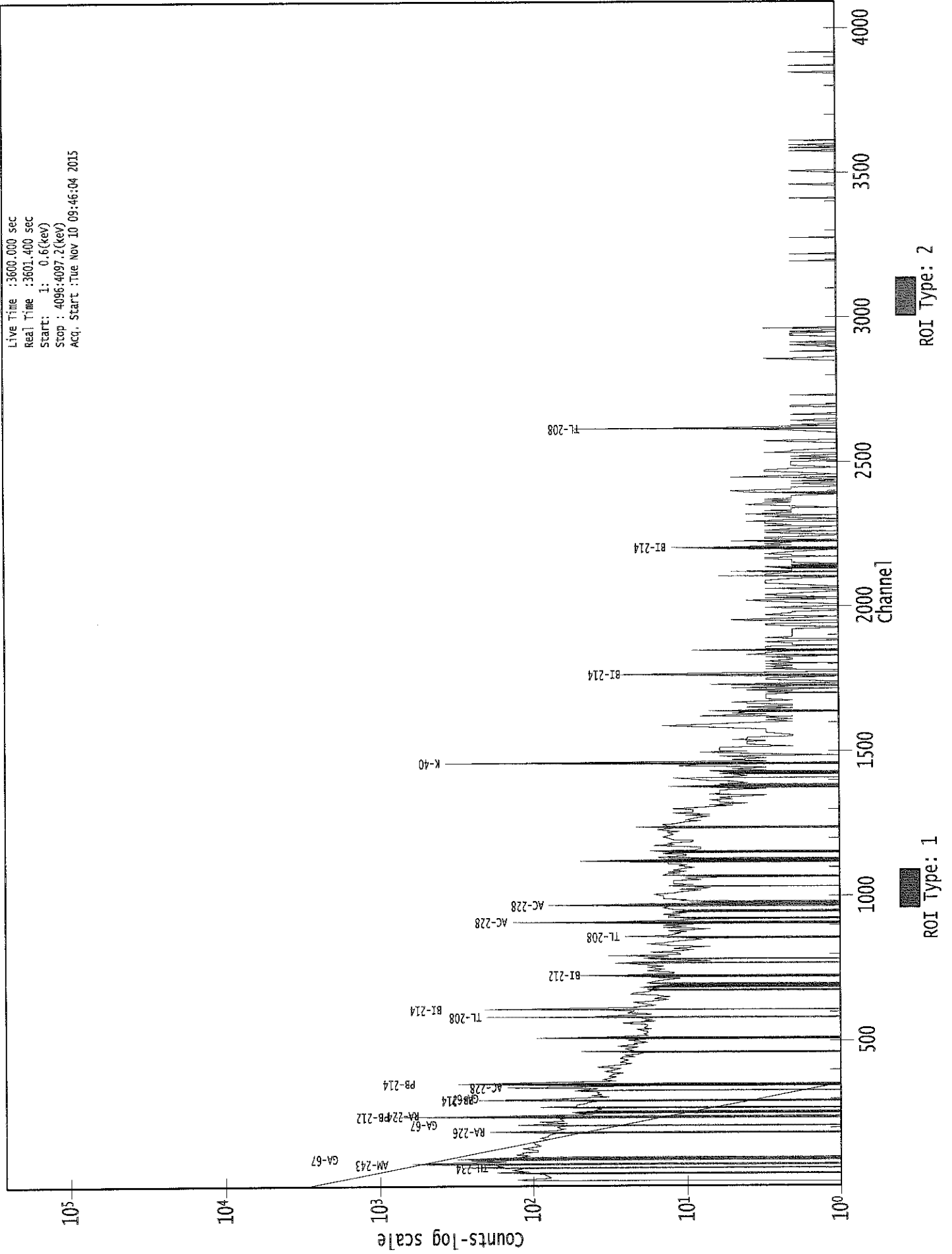
Channel	1	2	3	4	5	6	7	8	9
3401:	1	1	0	0	0	0	0	0	0
3409:	0	1	2	0	0	0	0	0	0
3417:	1	1	0	0	0	0	0	0	0
3425:	0	0	0	0	0	1	0	1	0
3433:	0	0	0	0	0	0	0	0	0
3441:	0	1	0	0	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0	0
3457:	0	0	2	0	1	0	0	0	0
3465:	0	0	0	0	0	0	0	0	0
3473:	0	0	0	1	0	0	0	1	0
3481:	0	0	0	0	1	0	0	0	0
3489:	1	0	0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

3825: 1 0 1 0 0 0 0 0 0

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8	9
3833:	1	0	0	0	0	0	0	1	0
3841:	0	0	1	0	2	0	0	2	1
3849:	0	0	0	0	1	0	0	0	0
3857:	0	1	0	0	0	0	0	0	0
3865:	0	0	0	0	0	2	0	0	0
3873:	0	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0	0
3889:	1	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0	0
3905:	1	1	0	0	0	0	0	0	0
3913:	0	0	0	2	0	0	0	0	0
3921:	0	0	0	1	0	0	0	0	0
3929:	1	0	0	0	0	0	0	0	0
3937:	0	1	0	0	0	0	0	0	1
3945:	0	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	1	1	0	0
3985:	0	0	0	0	1	0	0	0	0
3993:	0	0	0	0	0	0	0	0	0
4001:	0	0	0	0	1	0	0	0	0
4009:	0	0	1	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0	0
4033:	1	0	1	0	0	0	0	1	0
4041:	0	0	0	0	0	1	0	0	0
4049:	0	0	0	0	0	0	0	0	0
4057:	0	0	1	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0	1
4073:	0	1	0	0	0	0	0	0	0
4081:	0	0	0	1	0	0	0	0	0
4089:	0	0	0	1	1	1	0	0	0

0000029378.CNF



WBS
11/10/15Analysis Report for 1510090-04
CP0603S03-04

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-04
Sample Description : CP0603S03-04
Sample Type : SOIL

Sample Size : 5.862E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:42:46AM
Acquisition Started : 11/10/2015 10:49:29AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.4 seconds

Dead Time : 0.04 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 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 : 29382

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/11/15

Analysis Report for 1510090-04
CP0603S03-04

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 11:49:34AM
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	63.63	63.98	0.0000	0.00
2	74.94	75.28	0.0000	0.00
3	77.38	77.73	0.0000	0.00
4	88.18	88.51	0.0000	0.00
5	93.16	93.50	0.0000	0.00
6	185.81	186.11	0.0000	0.00
7	209.58	209.88	0.0000	0.00
8	238.73	239.01	0.0000	0.00
9	241.87	242.15	0.0000	0.00
10	270.50	270.77	0.0000	0.00
11	277.81	278.09	0.0000	0.00
12	295.24	295.51	0.0000	0.00
13	300.38	300.65	0.0000	0.00
14	328.08	328.34	0.0000	0.00
15	338.49	338.74	0.0000	0.00
16	352.07	352.32	0.0000	0.00
17	409.14	409.37	0.0000	0.00
18	463.38	463.59	0.0000	0.00
19	511.08	511.27	0.0000	0.00
20	583.56	583.73	0.0000	0.00
21	609.64	609.80	0.0000	0.00
22	657.07	657.21	0.0000	0.00
23	665.05	665.20	0.0000	0.00
24	727.87	727.99	0.0000	0.00
25	770.94	771.04	0.0000	0.00
26	785.76	785.85	0.0000	0.00
27	794.47	794.56	0.0000	0.00
28	806.92	807.02	0.0000	0.00
29	836.16	836.24	0.0000	0.00
30	841.80	841.88	0.0000	0.00
31	860.74	860.81	0.0000	0.00
32	911.63	911.68	0.0000	0.00
33	933.81	933.86	0.0000	0.00
34	969.51	969.55	0.0000	0.00
35	1005.25	1005.27	0.0000	0.00
36	1120.60	1120.58	0.0000	0.00
37	1131.66	1131.63	0.0000	0.00
38	1155.92	1155.89	0.0000	0.00
39	1238.69	1238.63	0.0000	0.00
40	1337.33	1337.23	0.0000	0.00
41	1378.02	1377.90	0.0000	0.00
42	1408.63	1408.51	0.0000	0.00

Analysis Report for 1510090-04
CP0603S03-04

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1461.40	1461.26	0.0000	0.00
44	1509.58	1509.42	0.0000	0.00
45	1514.36	1514.20	0.0000	0.00
46	1542.71	1542.54	0.0000	0.00
47	1730.97	1730.73	0.0000	0.00
48	1764.89	1764.64	0.0000	0.00
49	1847.91	1847.62	0.0000	0.00
50	1903.54	1903.24	0.0000	0.00
51	2004.79	2004.44	0.0000	0.00
52	2042.24	2041.88	0.0000	0.00
53	2104.23	2103.85	0.0000	0.00
54	2205.37	2204.95	0.0000	0.00
55	2266.91	2266.46	0.0000	0.00
56	2303.74	2303.28	0.0000	0.00
57	2330.61	2330.14	0.0000	0.00
58	2362.36	2361.88	0.0000	0.00
59	2494.34	2493.80	0.0000	0.00
60	2615.17	2614.59	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

0362A

Analysis Report for 1510090-04

CP0603S03-04

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 11:49:34AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.63	60 -	67	63.98	2.39E+02	119.80	2.24E+03	1.16
M	2	74.94	72 -	83	75.28	4.33E+02	100.86	1.55E+03	1.60
m	3	77.38	72 -	83	77.73	8.44E+02	109.58	1.48E+03	1.61
	4	88.18	86 -	91	88.51	1.99E+02	100.61	1.86E+03	1.25
	5	93.16	91 -	97	93.50	2.78E+02	109.35	1.87E+03	1.61
	6	185.81	182 -	190	186.11	2.49E+02	92.33	1.16E+03	1.79
m	7	209.58	204 -	213	209.88	1.05E+02	54.52	5.49E+02	1.65
M	8	238.73	233 -	245	239.01	1.10E+03	80.35	4.28E+02	1.68
m	9	241.87	233 -	245	242.15	2.13E+02	62.45	4.05E+02	1.68
	10	270.50	266 -	274	270.77	9.29E+01	66.81	6.28E+02	2.05
	11	277.81	275 -	281	278.09	5.55E+01	52.74	4.65E+02	1.41
	12	295.24	291 -	298	295.51	3.14E+02	69.14	5.86E+02	1.74
	13	300.38	299 -	304	300.65	5.66E+01	49.54	4.39E+02	1.69
	14	328.08	325 -	331	328.34	3.97E+01	49.66	4.13E+02	2.31
	15	338.49	335 -	343	338.74	2.19E+02	69.24	6.03E+02	1.94
	16	352.07	348 -	357	352.32	5.47E+02	72.35	4.36E+02	1.85
	17	409.14	405 -	414	409.37	7.77E+01	55.49	3.97E+02	2.32
	18	463.38	459 -	468	463.59	6.33E+01	53.00	3.65E+02	1.71
	19	511.08	506 -	516	511.27	2.35E+02	59.48	3.47E+02	2.15
	20	583.56	578 -	588	583.73	3.09E+02	65.47	4.05E+02	1.91
	21	609.64	605 -	614	609.80	4.21E+02	58.53	2.46E+02	1.88
	22	657.07	655 -	660	657.21	2.70E+01	22.32	7.80E+01	3.08
	23	665.05	661 -	671	665.20	6.37E+01	38.72	1.69E+02	5.97
	24	727.87	724 -	732	727.99	9.60E+01	39.78	1.84E+02	1.85
	25	770.94	766 -	776	771.04	6.98E+01	42.35	1.82E+02	7.37
	26	785.76	781 -	789	785.85	5.54E+01	30.36	1.07E+02	2.98
	27	794.47	791 -	799	794.56	4.66E+01	35.11	1.59E+02	3.66
	28	806.92	802 -	811	807.02	2.77E+01	32.23	1.27E+02	0.97
	29	836.16	833 -	838	836.24	3.24E+01	22.76	7.72E+01	2.11
	30	841.80	839 -	846	841.88	3.46E+01	26.83	9.88E+01	2.09
	31	860.74	857 -	865	860.81	4.70E+01	33.16	1.42E+02	1.74
	32	911.63	906 -	916	911.68	2.39E+02	47.26	1.70E+02	2.11
	33	933.81	930 -	938	933.86	3.83E+01	27.74	9.54E+01	5.06
	34	969.51	966 -	974	969.55	1.09E+02	47.03	2.41E+02	2.00
	35	1005.25	999 -	1010	1005.27	3.18E+01	33.35	1.14E+02	1.18
	36	1120.60	1116 -	1126	1120.58	1.05E+02	37.55	1.32E+02	2.04
	37	1131.66	1128 -	1135	1131.63	2.48E+01	23.92	7.64E+01	3.77
	38	1155.92	1152 -	1159	1155.89	3.13E+01	24.98	8.14E+01	1.79
	39	1238.69	1232 -	1247	1238.63	7.70E+01	48.87	2.08E+02	5.89
	40	1337.33	1335 -	1340	1337.23	1.11E+01	13.45	2.77E+01	1.39

Analysis Report for 1510090-04

CP0603S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1378.02	1371 - 1383		1377.90	3.29E+01	25.06	5.81E+01	2.92
42	1408.63	1404 - 1412		1408.51	1.79E+01	20.47	5.23E+01	1.99
43	1461.40	1456 - 1466		1461.26	8.78E+02	61.30	3.13E+01	2.15
M 44	1509.58	1507 - 1516		1509.42	1.33E+01	8.72	7.23E+00	2.64
m 45	1514.36	1507 - 1516		1514.20	1.13E+01	8.41	5.81E+00	2.90
46	1542.71	1539 - 1545		1542.54	1.25E+01	11.18	1.31E+01	1.70
47	1730.97	1724 - 1737		1730.73	2.90E+01	17.29	1.79E+01	2.26
48	1764.89	1758 - 1768		1764.64	7.30E+01	21.38	2.20E+01	2.97
49	1847.91	1844 - 1852		1847.62	1.75E+01	11.34	9.00E+00	3.82
50	1903.54	1900 - 1907		1903.24	7.00E+00	8.72	8.00E+00	1.73
51	2004.79	2001 - 2007		2004.44	9.00E+00	6.00	0.00E+00	3.24
52	2042.24	2039 - 2044		2041.88	7.61E+00	6.71	2.78E+00	1.12
53	2104.23	2099 - 2108		2103.85	2.60E+01	15.62	2.00E+01	1.52
54	2205.37	2199 - 2211		2204.95	3.36E+01	17.28	1.89E+01	3.47
55	2266.91	2264 - 2269		2266.46	5.29E+00	6.08	3.43E+00	2.62
56	2303.74	2299 - 2306		2303.28	1.00E+01	8.00	4.00E+00	2.77
57	2330.61	2325 - 2335		2330.14	1.73E+01	13.67	1.35E+01	1.24
58	2362.36	2357 - 2364		2361.88	8.73E+00	7.75	4.55E+00	1.26
59	2494.34	2491 - 2496		2493.80	5.00E+00	4.47	0.00E+00	2.75
60	2615.17	2609 - 2618		2614.59	1.24E+02	25.22	2.00E+01	2.73

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 : 11/10/2015 11:49:34AM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	63.63	60 -	67	2.39E+02	119.80	2.24E+03	9.51E+01
M 2	74.94	72 -	83	4.33E+02	100.86	1.55E+03	6.46E+01
m 3	77.38	72 -	83	8.44E+02	109.58	1.48E+03	6.33E+01
4	88.18	86 -	91	1.99E+02	100.61	1.86E+03	7.94E+01
5	93.16	91 -	97	2.78E+02	109.35	1.87E+03	8.56E+01
6	185.81	182 -	190	2.49E+02	92.33	1.16E+03	7.13E+01
m 7	209.58	204 -	213	1.05E+02	54.52	5.49E+02	3.85E+01
M 8	238.73	233 -	245	1.10E+03	80.35	4.28E+02	3.40E+01

Analysis Report for 1510090-04

CP0603S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	9	241.87	233 -	245	2.13E+02	62.45	4.05E+02	3.31E+01
	10	270.50	266 -	274	9.29E+01	66.81	6.28E+02	5.26E+01
	11	277.81	275 -	281	5.55E+01	52.74	4.65E+02	4.16E+01
	12	295.24	291 -	298	3.14E+02	69.14	5.86E+02	4.88E+01
	13	300.38	299 -	304	5.66E+01	49.54	4.39E+02	3.88E+01
	14	328.08	325 -	331	3.97E+01	49.66	4.13E+02	3.95E+01
	15	338.49	335 -	343	2.19E+02	69.24	6.03E+02	5.15E+01
	16	352.07	348 -	357	5.47E+02	72.35	4.36E+02	4.54E+01
	17	409.14	405 -	414	7.77E+01	55.49	3.97E+02	4.32E+01
	18	463.38	459 -	468	6.33E+01	53.00	3.65E+02	4.16E+01
	19	511.08	506 -	516	2.35E+02	59.48	3.47E+02	4.19E+01
	20	583.56	578 -	588	3.09E+02	65.47	4.05E+02	4.54E+01
	21	609.64	605 -	614	4.21E+02	58.53	2.46E+02	3.43E+01
	22	657.07	655 -	660	2.70E+01	22.32	7.80E+01	1.62E+01
	23	665.05	661 -	671	6.37E+01	38.72	1.69E+02	2.90E+01
	24	727.87	724 -	732	9.60E+01	39.78	1.84E+02	2.85E+01
	25	770.94	766 -	776	6.98E+01	42.35	1.82E+02	3.20E+01
	26	785.76	781 -	789	5.54E+01	30.36	1.07E+02	2.18E+01
	27	794.47	791 -	799	4.66E+01	35.11	1.59E+02	2.66E+01
	28	806.92	802 -	811	2.77E+01	32.23	1.27E+02	2.50E+01
	29	836.16	833 -	838	3.24E+01	22.76	7.72E+01	1.62E+01
	30	841.80	839 -	846	3.46E+01	26.83	9.88E+01	1.98E+01
	31	860.74	857 -	865	4.70E+01	33.16	1.42E+02	2.48E+01
	32	911.63	906 -	916	2.39E+02	47.26	1.70E+02	2.94E+01
	33	933.81	930 -	938	3.83E+01	27.74	9.54E+01	2.04E+01
	34	969.51	966 -	974	1.09E+02	47.03	2.41E+02	3.47E+01
	35	1005.25	999 -	1010	3.18E+01	33.35	1.14E+02	2.58E+01
	36	1120.60	1116 -	1126	1.05E+02	37.55	1.32E+02	2.59E+01
	37	1131.66	1128 -	1135	2.48E+01	23.92	7.64E+01	1.79E+01
	38	1155.92	1152 -	1159	3.13E+01	24.98	8.14E+01	1.84E+01
	39	1238.69	1232 -	1247	7.70E+01	48.87	2.08E+02	3.75E+01
	40	1337.33	1335 -	1340	1.11E+01	13.45	2.77E+01	9.60E+00
	41	1378.02	1371 -	1383	3.29E+01	25.06	5.81E+01	1.83E+01
	42	1408.63	1404 -	1412	1.79E+01	20.47	5.23E+01	1.53E+01
	43	1461.40	1456 -	1466	8.78E+02	61.30	3.13E+01	1.28E+01
M	44	1509.58	1507 -	1516	1.33E+01	8.72	7.23E+00	4.42E+00
m	45	1514.36	1507 -	1516	1.13E+01	8.41	5.81E+00	3.96E+00
	46	1542.71	1539 -	1545	1.25E+01	11.18	1.31E+01	7.12E+00
	47	1730.97	1724 -	1737	2.90E+01	17.29	1.79E+01	1.11E+01
	48	1764.89	1758 -	1768	7.30E+01	21.38	2.20E+01	1.06E+01
	49	1847.91	1844 -	1852	1.75E+01	11.34	9.00E+00	6.29E+00
	50	1903.54	1900 -	1907	7.00E+00	8.72	8.00E+00	5.70E+00
	51	2004.79	2001 -	2007	9.00E+00	6.00	0.00E+00	0.00E+00
	52	2042.24	2039 -	2044	7.61E+00	6.71	2.78E+00	3.14E+00
	53	2104.23	2099 -	2108	2.60E+01	15.62	2.00E+01	9.73E+00
	54	2205.37	2199 -	2211	3.36E+01	17.28	1.89E+01	1.05E+01
	55	2266.91	2264 -	2269	5.29E+00	6.08	3.43E+00	3.27E+00
	56	2303.74	2299 -	2306	1.00E+01	8.00	4.00E+00	4.03E+00
	57	2330.61	2325 -	2335	1.73E+01	13.67	1.35E+01	8.92E+00
	58	2362.36	2357 -	2364	8.73E+00	7.75	4.55E+00	4.12E+00
	59	2494.34	2491 -	2496	5.00E+00	4.47	0.00E+00	0.00E+00

Analysis Report for 1510090-04
 CP0603S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2615.17	2609 -	2618	1.24E+02	25.22	2.00E+01	9.73E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 11:49:34AM

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

Tentative NID Library : \\OR-GAMMA1\ApexRoot\Countroom\Library\TMA2.NLB
 Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	63.63	60 -	67	63.98	2.39E+02	119.80	2.24E+03	TH-234
M	2	72 -	83	75.28	4.33E+02	100.86	1.55E+03	TH-230
m	3	72 -	83	77.73	8.44E+02	109.58	1.48E+03	AM-243
	4	86 -	91	88.51	1.99E+02	100.61	1.86E+03	TI-44
								CD-109
								LU-176
								SN-126
	5	91 -	97	93.50	2.78E+02	109.35	1.87E+03	GA-67
	6	182 -	190	186.11	2.49E+02	92.33	1.16E+03	RA-226
m	7	204 -	213	209.88	1.05E+02	54.52	5.49E+02	CM-243
								GA-67
M	8	233 -	245	239.01	1.10E+03	80.35	4.28E+02	PB-212
m	9	233 -	245	242.15	2.13E+02	62.45	4.05E+02	RA-224
	10	266 -	274	270.77	9.29E+01	66.81	6.28E+02	.....
	11	275 -	281	278.09	5.55E+01	52.74	4.65E+02	CM-243
								NP-239
	12	291 -	298	295.51	3.14E+02	69.14	5.86E+02	PB-214
	13	299 -	304	300.65	5.66E+01	49.54	4.39E+02	GA-67
								PB-212
								BI-210M
	14	325 -	331	328.34	3.97E+01	49.66	4.13E+02	LA-140
	15	335 -	343	338.74	2.19E+02	69.24	6.03E+02	AC-228
	16	348 -	357	352.32	5.47E+02	72.35	4.36E+02	PB-214
	17	405 -	414	409.37	7.77E+01	55.49	3.97E+02	.....
	18	459 -	468	463.59	6.33E+01	53.00	3.65E+02	SB-125

Analysis Report for 1510090-04

CP0603S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
19	511.08	506 -	516	511.27	2.35E+02	59.48	3.47E+02	.....
20	583.56	578 -	588	583.73	3.09E+02	65.47	4.05E+02	TL-208
21	609.64	605 -	614	609.80	4.21E+02	58.53	2.46E+02	BI-214
22	657.07	655 -	660	657.21	2.70E+01	22.32	7.80E+01	AG-110M
23	665.05	661 -	671	665.20	6.37E+01	38.72	1.69E+02	CE-143
24	727.87	724 -	732	727.99	9.60E+01	39.78	1.84E+02	BI-212
25	770.94	766 -	776	771.04	6.98E+01	42.35	1.82E+02	.....
26	785.76	781 -	789	785.85	5.54E+01	30.36	1.07E+02	.....
27	794.47	791 -	799	794.56	4.66E+01	35.11	1.59E+02	.....
28	806.92	802 -	811	807.02	2.77E+01	32.23	1.27E+02	.....
29	836.16	833 -	838	836.24	3.24E+01	22.76	7.72E+01	.....
30	841.80	839 -	846	841.88	3.46E+01	26.83	9.88E+01	.....
31	860.74	857 -	865	860.81	4.70E+01	33.16	1.42E+02	TL-208
32	911.63	906 -	916	911.68	2.39E+02	47.26	1.70E+02	LU-172 AC-228
33	933.81	930 -	938	933.86	3.83E+01	27.74	9.54E+01	.....
34	969.51	966 -	974	969.55	1.09E+02	47.03	2.41E+02	AC-228
35	1005.25	999 -	1010	1005.27	3.18E+01	33.35	1.14E+02	EU-154
36	1120.60	1116 -	1126	1120.58	1.05E+02	37.55	1.32E+02	SC-46 BI-214 TA-182
37	1131.66	1128 -	1135	1131.63	2.48E+01	23.92	7.64E+01	I-135
38	1155.92	1152 -	1159	1155.89	3.13E+01	24.98	8.14E+01	.....
39	1238.69	1232 -	1247	1238.63	7.70E+01	48.87	2.08E+02	CO-56
40	1337.33	1335 -	1340	1337.23	1.11E+01	13.45	2.77E+01	.....
41	1378.02	1371 -	1383	1377.90	3.29E+01	25.06	5.81E+01	.....
42	1408.63	1404 -	1412	1408.51	1.79E+01	20.47	5.23E+01	EU-152
43	1461.40	1456 -	1466	1461.26	8.78E+02	61.30	3.13E+01	K-40
M 44	1509.58	1507 -	1516	1509.42	1.33E+01	8.72	7.23E+00	.....
m 45	1514.36	1507 -	1516	1514.20	1.13E+01	8.41	5.81E+00	.....
46	1542.71	1539 -	1545	1542.54	1.25E+01	11.18	1.31E+01	.....
47	1730.97	1724 -	1737	1730.73	2.90E+01	17.29	1.79E+01	.....
48	1764.89	1758 -	1768	1764.64	7.30E+01	21.38	2.20E+01	BI-214
49	1847.91	1844 -	1852	1847.62	1.75E+01	11.34	9.00E+00	.....
50	1903.54	1900 -	1907	1903.24	7.00E+00	8.72	8.00E+00	.....
51	2004.79	2001 -	2007	2004.44	9.00E+00	6.00	0.00E+00	.....
52	2042.24	2039 -	2044	2041.88	7.61E+00	6.71	2.78E+00	.....
53	2104.23	2099 -	2108	2103.85	2.60E+01	15.62	2.00E+01	.....
54	2205.37	2199 -	2211	2204.95	3.36E+01	17.28	1.89E+01	.....
55	2266.91	2264 -	2269	2266.46	5.29E+00	6.08	3.43E+00	.....
56	2303.74	2299 -	2306	2303.28	1.00E+01	8.00	4.00E+00	.....
57	2330.61	2325 -	2335	2330.14	1.73E+01	13.67	1.35E+01	.....
58	2362.36	2357 -	2364	2361.88	8.73E+00	7.75	4.55E+00	.....
59	2494.34	2491 -	2496	2493.80	5.00E+00	4.47	0.00E+00	.....
60	2615.17	2609 -	2618	2614.59	1.24E+02	25.22	2.00E+01	TL-208

Analysis Report for 1510090-04
CP0603S03-04

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 : 11/10/2015 11:49:34AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.63	2.39E+02	119.80	2.50E-02	1.92E-03
M	2	74.94	4.33E+02	100.86	2.75E-02	2.30E-03
m	3	77.38	8.44E+02	109.58	2.78E-02	2.38E-03
	4	88.18	1.99E+02	100.61	2.85E-02	2.74E-03
	5	93.16	2.78E+02	109.35	2.86E-02	2.64E-03
	6	185.81	2.49E+02	92.33	2.24E-02	2.03E-03
m	7	209.58	1.05E+02	54.52	2.09E-02	1.85E-03
M	8	238.73	1.10E+03	80.35	1.92E-02	1.64E-03
m	9	241.87	2.13E+02	62.45	1.91E-02	1.61E-03
	10	270.50	9.29E+01	66.81	1.77E-02	1.40E-03
	11	277.81	5.55E+01	52.74	1.74E-02	1.35E-03
	12	295.24	3.14E+02	69.14	1.67E-02	1.31E-03
	13	300.38	5.66E+01	49.54	1.65E-02	1.30E-03
	14	328.08	3.97E+01	49.66	1.55E-02	1.24E-03
	15	338.49	2.19E+02	69.24	1.52E-02	1.22E-03
	16	352.07	5.47E+02	72.35	1.48E-02	1.19E-03
	17	409.14	7.77E+01	55.49	1.33E-02	1.10E-03
	18	463.38	6.33E+01	53.00	1.21E-02	1.04E-03
	19	511.08	2.35E+02	59.48	1.12E-02	9.90E-04
	20	583.56	3.09E+02	65.47	1.02E-02	9.15E-04
	21	609.64	4.21E+02	58.53	9.82E-03	8.88E-04
	22	657.07	2.70E+01	22.32	9.27E-03	8.39E-04
	23	665.05	6.37E+01	38.72	9.18E-03	8.31E-04
	24	727.87	9.60E+01	39.78	8.55E-03	7.75E-04
	25	770.94	6.98E+01	42.35	8.17E-03	7.36E-04
	26	785.76	5.54E+01	30.36	8.05E-03	7.23E-04
	27	794.47	4.66E+01	35.11	7.98E-03	7.15E-04
	28	806.92	2.77E+01	32.23	7.88E-03	7.04E-04
	29	836.16	3.24E+01	22.76	7.66E-03	6.78E-04
	30	841.80	3.46E+01	26.83	7.62E-03	6.73E-04
	31	860.74	4.70E+01	33.16	7.48E-03	6.56E-04
	32	911.63	2.39E+02	47.26	7.15E-03	6.15E-04
	33	933.81	3.83E+01	27.74	7.01E-03	6.04E-04
	34	969.51	1.09E+02	47.03	6.80E-03	5.85E-04

Analysis Report for 1510090-04

CP0603S03-04

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1005.25	3.18E+01	33.35	6.61E-03	5.67E-04
	36	1120.60	1.05E+02	37.55	6.07E-03	5.07E-04
	37	1131.66	2.48E+01	23.92	6.02E-03	5.01E-04
	38	1155.92	3.13E+01	24.98	5.92E-03	4.88E-04
	39	1238.69	7.70E+01	48.87	5.61E-03	4.68E-04
	40	1337.33	1.11E+01	13.45	5.30E-03	4.50E-04
	41	1378.02	3.29E+01	25.06	5.18E-03	4.40E-04
	42	1408.63	1.79E+01	20.47	5.10E-03	4.32E-04
	43	1461.40	8.78E+02	61.30	4.97E-03	4.19E-04
M	44	1509.58	1.33E+01	8.72	4.86E-03	4.07E-04
m	45	1514.36	1.13E+01	8.41	4.85E-03	4.06E-04
	46	1542.71	1.25E+01	11.18	4.79E-03	3.99E-04
	47	1730.97	2.90E+01	17.29	4.45E-03	3.52E-04
	48	1764.89	7.30E+01	21.38	4.40E-03	3.44E-04
	49	1847.91	1.75E+01	11.34	4.28E-03	3.26E-04
	50	1903.54	7.00E+00	8.72	4.21E-03	3.26E-04
	51	2004.79	9.00E+00	6.00	4.11E-03	3.26E-04
	52	2042.24	7.61E+00	6.71	4.07E-03	3.26E-04
	53	2104.23	2.60E+01	15.62	4.02E-03	3.26E-04
	54	2205.37	3.36E+01	17.28	3.95E-03	3.26E-04
	55	2266.91	5.29E+00	6.08	3.91E-03	3.26E-04
	56	2303.74	1.00E+01	8.00	3.89E-03	3.26E-04
	57	2330.61	1.73E+01	13.67	3.88E-03	3.26E-04
	58	2362.36	8.73E+00	7.75	3.86E-03	3.26E-04
	59	2494.34	5.00E+00	4.47	3.82E-03	3.26E-04
	60	2615.17	1.24E+02	25.22	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 : 11/10/2015 11:49:34AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.63	2.39E+02	119.80	7.80E+01	1.33E+01	1.62E+02	1.21E+02
M	2	74.94	4.33E+02	100.86	5.09E+00	4.37E+00	4.28E+02	1.01E+02
m	3	77.38	8.44E+02	109.58	9.75E+00	8.28E+00	8.35E+02	1.10E+02
	4	88.18	1.99E+02	100.61			1.99E+02	1.01E+02

: 00369

Analysis Report for 1510090-04

CP0603S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	5	93.16	2.78E+02	109.35	1.34E+02	9.83E+00	1.44E+02	1.10E+02
	6	185.81	2.49E+02	92.33	6.41E+01	7.38E+00	1.85E+02	9.26E+01
m	7	209.58	1.05E+02	54.52		1.05E+02	5.45E+01	
M	8	238.73	1.10E+03	80.35	2.34E+01	6.34E+00	1.07E+03	8.06E+01
m	9	241.87	2.13E+02	62.45		2.13E+02	6.25E+01	
	10	270.50	9.29E+01	66.81		9.29E+01	6.68E+01	
	11	277.81	5.55E+01	52.74		5.55E+01	5.27E+01	
	12	295.24	3.14E+02	69.14	4.17E+00	5.50E+00	3.10E+02	6.94E+01
	13	300.38	5.66E+01	49.54		5.66E+01	4.95E+01	
	14	328.08	3.97E+01	49.66		3.97E+01	4.97E+01	
	15	338.49	2.19E+02	69.24	2.22E-01	4.54E+00	2.18E+02	6.94E+01
	16	352.07	5.47E+02	72.35	8.83E+00	4.91E+00	5.38E+02	7.25E+01
	17	409.14	7.77E+01	55.49		7.77E+01	5.55E+01	
	18	463.38	6.33E+01	53.00		6.33E+01	5.30E+01	
	19	511.08	2.35E+02	59.48	8.12E+01	5.49E+00	1.53E+02	5.97E+01
	20	583.56	3.09E+02	65.47	6.34E+00	3.74E+00	3.03E+02	6.56E+01
	21	609.64	4.21E+02	58.53	5.20E+00	3.69E+00	4.16E+02	5.86E+01
	22	657.07	2.70E+01	22.32		2.70E+01	2.23E+01	
	23	665.05	6.37E+01	38.72		6.37E+01	3.87E+01	
	24	727.87	9.60E+01	39.78		9.60E+01	3.98E+01	
	25	770.94	6.98E+01	42.35		6.98E+01	4.23E+01	
	26	785.76	5.54E+01	30.36		5.54E+01	3.04E+01	
	27	794.47	4.66E+01	35.11		4.66E+01	3.51E+01	
	28	806.92	2.77E+01	32.23		2.77E+01	3.22E+01	
	29	836.16	3.24E+01	22.76		3.24E+01	2.28E+01	
	30	841.80	3.46E+01	26.83		3.46E+01	2.68E+01	
	31	860.74	4.70E+01	33.16		4.70E+01	3.32E+01	
	32	911.63	2.39E+02	47.26	3.28E+00	2.53E+00	2.36E+02	4.73E+01
	33	933.81	3.83E+01	27.74		3.83E+01	2.77E+01	
	34	969.51	1.09E+02	47.03		1.09E+02	4.70E+01	
	35	1005.25	3.18E+01	33.35		3.18E+01	3.33E+01	
	36	1120.60	1.05E+02	37.55	2.28E+00	2.55E+00	1.03E+02	3.76E+01
	37	1131.66	2.48E+01	23.92		2.48E+01	2.39E+01	
	38	1155.92	3.13E+01	24.98		3.13E+01	2.50E+01	
	39	1238.69	7.70E+01	48.87		7.70E+01	4.89E+01	
	40	1337.33	1.11E+01	13.45		1.11E+01	1.35E+01	
	41	1378.02	3.29E+01	25.06		3.29E+01	2.51E+01	
	42	1408.63	1.79E+01	20.47		1.79E+01	2.05E+01	
	43	1461.40	8.78E+02	61.30	6.46E+00	2.33E+00	8.72E+02	6.13E+01
M	44	1509.58	1.33E+01	8.72		1.33E+01	8.72E+00	
m	45	1514.36	1.13E+01	8.41		1.13E+01	8.41E+00	
	46	1542.71	1.25E+01	11.18		1.25E+01	1.12E+01	
	47	1730.97	2.90E+01	17.29		2.90E+01	1.73E+01	
	48	1764.89	7.30E+01	21.38		7.30E+01	2.14E+01	
	49	1847.91	1.75E+01	11.34		1.75E+01	1.13E+01	
	50	1903.54	7.00E+00	8.72		7.00E+00	8.72E+00	
	51	2004.79	9.00E+00	6.00		9.00E+00	6.00E+00	
	52	2042.24	7.61E+00	6.71		7.61E+00	6.71E+00	
	53	2104.23	2.60E+01	15.62		2.60E+01	1.56E+01	
	54	2205.37	3.36E+01	17.28		3.36E+01	1.73E+01	
	55	2266.91	5.29E+00	6.08		5.29E+00	6.08E+00	
	56	2303.74	1.00E+01	8.00		1.00E+01	8.00E+00	
	57	2330.61	1.73E+01	13.67		1.73E+01	1.37E+01	
	58	2362.36	8.73E+00	7.75		8.73E+00	7.75E+00	

Analysis Report for 1510090-04

CP0603S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
59	2494.34	5.00E+00	4.47			5.00E+00	4.47E+00
60	2615.17	1.24E+02	25.22	3.47E+00	1.48E+00	1.21E+02	2.53E+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 : 11/10/2015 11:49:34AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.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	63.63	2.39E+02	119.80	7.80E+01	1.33E+01	1.62E+02	1.21E+02
M	2	74.94	4.33E+02	100.86	5.09E+00	4.37E+00	4.28E+02	1.01E+02
m	3	77.38	8.44E+02	109.58	9.75E+00	8.28E+00	8.35E+02	1.10E+02
	4	88.18	1.99E+02	100.61			1.99E+02	1.01E+02
	5	93.16	2.78E+02	109.35	1.34E+02	9.83E+00	1.44E+02	1.10E+02
	6	185.81	2.49E+02	92.33	6.41E+01	7.38E+00	1.85E+02	9.26E+01
m	7	209.58	1.05E+02	54.52			1.05E+02	5.45E+01
M	8	238.73	1.10E+03	80.35	2.34E+01	6.34E+00	1.07E+03	8.06E+01
m	9	241.87	2.13E+02	62.45			2.13E+02	6.25E+01
	10	270.50	9.29E+01	66.81			9.29E+01	6.68E+01
	11	277.81	5.55E+01	52.74			5.55E+01	5.27E+01
	12	295.24	3.14E+02	69.14	4.17E+00	5.50E+00	3.10E+02	6.94E+01
	13	300.38	5.66E+01	49.54			5.66E+01	4.95E+01
	14	328.08	3.97E+01	49.66			3.97E+01	4.97E+01
	15	338.49	2.19E+02	69.24	2.22E-01	4.54E+00	2.18E+02	6.94E+01
	16	352.07	5.47E+02	72.35	8.83E+00	4.91E+00	5.38E+02	7.25E+01
	17	409.14	7.77E+01	55.49			7.77E+01	5.55E+01
	18	463.38	6.33E+01	53.00			6.33E+01	5.30E+01
	19	511.08	2.35E+02	59.48	8.12E+01	5.49E+00	1.53E+02	5.97E+01
	20	583.56	3.09E+02	65.47	6.34E+00	3.74E+00	3.03E+02	6.56E+01
	21	609.64	4.21E+02	58.53	5.20E+00	3.69E+00	4.16E+02	5.86E+01
	22	657.07	2.70E+01	22.32			2.70E+01	2.23E+01
	23	665.05	6.37E+01	38.72			6.37E+01	3.87E+01
	24	727.87	9.60E+01	39.78			9.60E+01	3.98E+01
	25	770.94	6.98E+01	42.35			6.98E+01	4.23E+01
	26	785.76	5.54E+01	30.36			5.54E+01	3.04E+01

Analysis Report for 1510090-04

CP0603S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
27	794.47	4.66E+01	35.11			4.66E+01	3.51E+01
28	806.92	2.77E+01	32.23			2.77E+01	3.22E+01
29	836.16	3.24E+01	22.76			3.24E+01	2.28E+01
30	841.80	3.46E+01	26.83			3.46E+01	2.68E+01
31	860.74	4.70E+01	33.16			4.70E+01	3.32E+01
32	911.63	2.39E+02	47.26	3.28E+00	2.53E+00	2.36E+02	4.73E+01
33	933.81	3.83E+01	27.74			3.83E+01	2.77E+01
34	969.51	1.09E+02	47.03			1.09E+02	4.70E+01
35	1005.25	3.18E+01	33.35			3.18E+01	3.33E+01
36	1120.60	1.05E+02	37.55	2.28E+00	2.55E+00	1.03E+02	3.76E+01
37	1131.66	2.48E+01	23.92			2.48E+01	2.39E+01
38	1155.92	3.13E+01	24.98			3.13E+01	2.50E+01
39	1238.69	7.70E+01	48.87			7.70E+01	4.89E+01
40	1337.33	1.11E+01	13.45			1.11E+01	1.35E+01
41	1378.02	3.29E+01	25.06			3.29E+01	2.51E+01
42	1408.63	1.79E+01	20.47			1.79E+01	2.05E+01
43	1461.40	8.78E+02	61.30	6.46E+00	2.33E+00	8.72E+02	6.13E+01
M 44	1509.58	1.33E+01	8.72			1.33E+01	8.72E+00
m 45	1514.36	1.13E+01	8.41			1.13E+01	8.41E+00
46	1542.71	1.25E+01	11.18			1.25E+01	1.12E+01
47	1730.97	2.90E+01	17.29			2.90E+01	1.73E+01
48	1764.89	7.30E+01	21.38			7.30E+01	2.14E+01
49	1847.91	1.75E+01	11.34			1.75E+01	1.13E+01
50	1903.54	7.00E+00	8.72			7.00E+00	8.72E+00
51	2004.79	9.00E+00	6.00			9.00E+00	6.00E+00
52	2042.24	7.61E+00	6.71			7.61E+00	6.71E+00
53	2104.23	2.60E+01	15.62			2.60E+01	1.56E+01
54	2205.37	3.36E+01	17.28			3.36E+01	1.73E+01
55	2266.91	5.29E+00	6.08			5.29E+00	6.08E+00
56	2303.74	1.00E+01	8.00			1.00E+01	8.00E+00
57	2330.61	1.73E+01	13.67			1.73E+01	1.37E+01
58	2362.36	8.73E+00	7.75			8.73E+00	7.75E+00
59	2494.34	5.00E+00	4.47			5.00E+00	4.47E+00
60	2615.17	1.24E+02	25.22	3.47E+00	1.48E+00	1.21E+02	2.53E+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

: 00372

Analysis Report for 1510090-04
 CP0603S03-04

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.946	1460.81 *	10.67	2.11E+01	2.35E+00
GA-67	0.613	93.31 *	35.70	1.66E+02	7.27E+02
		208.95 *	2.24	2.63E+03	1.11E+04
		300.22 *	16.00	2.51E+02	1.11E+03
CD-109	0.997	88.03 *	3.72	2.52E+00	1.31E+00
SN-126	0.943	87.57 *	37.00	2.42E-01	1.24E-01
TL-208	0.966	583.14 *	30.22	1.26E+00	2.96E-01
		860.37 *	4.48	1.80E+00	1.28E+00
		2614.66 *	35.85	1.13E+00	2.57E-01
BI-212	0.704	727.17 *	11.80	1.22E+00	5.17E-01
		1620.62	2.75		
PB-212	0.998	238.63 *	44.60	1.60E+00	1.82E-01
		300.09 *	3.41	1.29E+00	1.13E+00
BI-214	0.912	609.31 *	46.30	1.17E+00	1.96E-01
		1120.29 *	15.10	1.44E+00	5.40E-01
		1764.49 *	15.80	1.35E+00	4.08E-01
		2204.22	4.98		
PB-214	0.998	295.21 *	19.19	1.24E+00	2.94E-01
		351.92 *	37.19	1.26E+00	1.97E-01
RA-224	0.882	240.98 *	3.95	3.62E+00	1.11E+00
RA-226	0.975	186.21 *	3.28	3.23E+00	6.13E+00
AC-228	0.967	338.32 *	11.40	1.62E+00	5.30E-01
		911.07 *	27.70	1.52E+00	3.33E-01
		969.11 *	16.60	1.23E+00	5.44E-01
TH-234	0.981	63.29 *	3.80	2.18E+00	1.63E+00
AM-243	0.989	74.67 *	66.00	3.02E-01	7.57E-02
CM-243	0.370	209.75 *	3.29	1.96E+00	1.03E+00
		228.14	10.60		
		277.60 *	14.00	2.93E-01	2.79E-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 : 11/10/2015 11:49:34AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
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Analysis Report for 1510090-04
CP0603S03-04

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.38	2.31866E-01		
	10	270.50	2.58043E-02		
	14	328.08	1.10157E-02	Tol.	LA-140
	17	409.14	2.15912E-02		
	18	463.38	1.75869E-02	Sum	
	19	511.08	4.26156E-02		
	22	657.07	7.50000E-03	Tol.	AG-110M
	23	665.05	1.77065E-02	Tol.	CE-143
	25	770.94	1.93901E-02		
	26	785.76	1.53874E-02		
	27	794.47	1.29409E-02	Sum	
	28	806.92	7.68620E-03		
	29	836.16	9.00626E-03		
	30	841.80	9.60979E-03		
	33	933.81	1.06331E-02		
	35	1005.25	8.84519E-03	Sum	
	37	1131.66	6.89153E-03	Tol.	I-135
	38	1155.92	8.69985E-03	Sum	
	39	1238.69	2.13889E-02		
	40	1337.33	3.09444E-03	Sum	
	41	1378.02	9.14875E-03		
	42	1408.63	4.96212E-03	Tol.	EU-152
M	44	1509.58	3.69240E-03		
m	45	1514.36	3.13031E-03		
	46	1542.71	3.46491E-03		
	47	1730.97	8.06652E-03	Sum	
	49	1847.91	4.86111E-03	Sum	
	50	1903.54	1.94444E-03		
	51	2004.79	2.50000E-03		
	52	2042.24	2.11420E-03	Sum	
	53	2104.23	7.22222E-03	S-Esc	
	54	2205.37	9.32171E-03		
	55	2266.91	1.46825E-03		
	56	2303.74	2.77778E-03		
	57	2330.61	4.79167E-03		
	58	2362.36	2.42424E-03		
	59	2494.34	1.38889E-03		

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

Analysis Report for 1510090-04

CP0603S03-04

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81 *	10.67	2.11E+01	2.35E+00
GA-67	0.61	93.31 *	35.70	1.66E+02	7.27E+02
		208.95 *	2.24	2.63E+03	1.11E+04
		300.22 *	16.00	2.51E+02	1.11E+03
		88.03 *	3.72	2.52E+00	1.31E+00
CD-109	0.99	87.57 *	37.00	2.42E-01	1.24E-01
SN-126	0.94	583.14 *	30.22	1.26E+00	2.96E-01
		860.37 *	4.48	1.80E+00	1.28E+00
		2614.66 *	35.85	1.13E+00	2.57E-01
TL-208	0.96	727.17 *	11.80	1.22E+00	5.17E-01
		1620.62	2.75		
BI-212	0.70	238.63 *	44.60	1.60E+00	1.82E-01
		300.09 *	3.41	1.29E+00	1.13E+00
PB-212	0.99	609.31 *	46.30	1.17E+00	1.96E-01
		1120.29 *	15.10	1.44E+00	5.40E-01
		1764.49 *	15.80	1.35E+00	4.08E-01
		2204.22	4.98		
BI-214	0.91	295.21 *	19.19	1.24E+00	2.94E-01
		351.92 *	37.19	1.26E+00	1.97E-01
PB-214	0.99	240.98 *	3.95	3.62E+00	1.11E+00
		186.21 *	3.28	3.23E+00	6.13E+00
RA-224	0.88	338.32 *	11.40	1.62E+00	5.30E-01
		911.07 *	27.70	1.52E+00	3.33E-01
RA-226	0.97	969.11 *	16.60	1.23E+00	5.44E-01
		63.29 *	3.80	2.18E+00	1.63E+00
AC-228	0.96	74.67 *	66.00	3.02E-01	7.57E-02
		209.75 *	3.29	1.96E+00	1.03E+00
TH-234	0.98	228.14	10.60		
		277.60 *	14.00	2.93E-01	2.79E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510090-04
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INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.946	2.11E+01	2.35E+00	
GA-67	0.613	1.23E+02	5.24E+02	
? CD-109	0.997	2.52E+00	1.31E+00	
? SN-126	0.943	2.42E-01	1.24E-01	
TL-208	0.966	1.20E+00	1.92E-01	
BI-212	0.704	1.22E+00	5.17E-01	
PB-212	0.998	1.58E+00	1.80E-01	
BI-214	0.912	1.23E+00	1.68E-01	
PB-214	0.998	1.25E+00	1.64E-01	
RA-224	0.882	3.62E+00	1.11E+00	
RA-226	0.975	3.23E+00	6.13E+00	
AC-228	0.967	1.48E+00	2.50E-01	
TH-234	0.981	2.18E+00	1.63E+00	
AM-243	0.989	3.02E-01	7.57E-02	
CM-243	0.370	4.00E-01	2.69E-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 1510090-04

CP0603S03-04

 UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 11:49:34AM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 3	77.38	2.31866E-01	6.58		
10	270.50	2.58043E-02	35.96		
14	328.08	1.10157E-02	62.61	Tol.	LA-140
17	409.14	2.15912E-02	35.69		
18	463.38	1.75869E-02	41.86	Sum	
19	511.08	4.26156E-02	19.47		
22	657.07	7.50000E-03	41.33	Tol.	AG-110M
23	665.05	1.77065E-02	30.37	Tol.	CE-143
25	770.94	1.93901E-02	30.33		
26	785.76	1.53874E-02	27.41		
27	794.47	1.29409E-02	37.69	Sum	
28	806.92	7.68620E-03	58.25		
29	836.16	9.00626E-03	35.10		
30	841.80	9.60979E-03	38.78		
33	933.81	1.06331E-02	36.23		
35	1005.25	8.84519E-03	52.36	Sum	
37	1131.66	6.89153E-03	48.20	Tol.	I-135
38	1155.92	8.69985E-03	39.88	Sum	
39	1238.69	2.13889E-02	31.73		
40	1337.33	3.09444E-03	60.38	Sum	
41	1378.02	9.14875E-03	38.05		
42	1408.63	4.96212E-03	57.29	Tol.	EU-152
M 44	1509.58	3.69240E-03	32.79		
m 45	1514.36	3.13031E-03	37.32		
46	1542.71	3.46491E-03	44.82		
47	1730.97	8.06652E-03	29.77	Sum	
49	1847.91	4.86111E-03	32.39	Sum	
50	1903.54	1.94444E-03	62.27		
51	2004.79	2.50000E-03	33.33		
52	2042.24	2.11420E-03	44.07	Sum	
53	2104.23	7.22222E-03	30.04	S-Esc	
54	2205.37	9.32171E-03	25.75		
55	2266.91	1.46825E-03	57.54		
56	2303.74	2.77778E-03	40.00		
57	2330.61	4.79167E-03	39.61		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
58	2362.36	2.42424E-03	44.38		
59	2494.34	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 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	2.67E-01	9.16E-01	9.16E-01
+	NA-22	1274.54	99.94	8.56E-03	8.81E-02	8.81E-02
+	NA-24	1368.53	99.99	1.16E+13	1.42E+14	1.42E+14
		2754.09	99.86	5.17E+13		1.42E+14
+	AL-26	1808.65	99.76	1.04E-02	4.45E-02	4.45E-02
+	K-40	1460.81	* 10.67	2.11E+01	7.25E-01	7.25E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.40E-02	6.78E-02	6.78E-02
		78.34	96.00	2.99E-01		8.86E-02
+	SC-46	889.25	99.98	3.06E-02	8.67E-02	8.67E-02
		1120.51	99.99	2.55E-01		1.60E-01
+	V-48	983.52	99.98	9.30E-03	2.88E-01	2.88E-01
		1312.10	97.50	-6.31E-02		2.97E-01
+	CR-51	320.08	9.83	1.59E-01	1.13E+00	1.13E+00
+	MN-54	834.83	99.97	7.80E-03	8.09E-02	8.09E-02
+	CO-56	846.75	99.96	9.96E-04	9.14E-02	9.14E-02
		1037.75	14.03	1.31E-01		6.87E-01
		1238.25	67.00	2.24E-01		2.30E-01
		1771.40	15.51	1.37E-01		4.16E-01
		2598.48	16.90	-2.65E-02		3.47E-01
+	CO-57	122.06	85.51	-1.65E-02	5.68E-02	5.68E-02
		136.48	10.60	-2.10E-01		4.83E-01
+	CO-58	810.76	99.40	-2.90E-03	7.54E-02	7.54E-02
+	FE-59	1099.22	56.50	-1.79E-01	2.14E-01	2.14E-01
		1291.56	43.20	1.00E-01		3.01E-01
+	CO-60	1173.22	100.00	1.99E-02	7.08E-02	8.64E-02
		1332.49	100.00	1.55E-02		7.08E-02

Analysis Report for 1510090-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	2.00E-02	1.81E-01	1.81E-01
+	GA-67	93.31	*	35.70	1.66E+02	2.05E+02	2.05E+02
		208.95	*	2.24	2.63E+03		3.40E+03
		300.22	*	16.00	2.51E+02		3.56E+02
+	SE-75	121.11		16.70	-2.13E-01	9.40E-02	3.21E-01
		136.00		59.20	3.37E-02		9.81E-02
		264.65		59.80	2.39E-04		9.40E-02
		279.53		25.20	9.00E-02		2.47E-01
		400.65		11.40	2.11E-01		5.33E-01
+	RB-82	776.52		13.00	-2.56E-01	1.03E+00	1.03E+00
+	RB-83	520.41		46.00	4.56E-02	1.77E-01	1.77E-01
		529.64		30.30	-1.11E-01		2.53E-01
		552.65		16.40	-6.82E-02		4.94E-01
+	KR-85	513.99		0.43	3.21E+01	2.20E+01	2.20E+01
+	SR-85	513.99		99.27	1.96E-01	1.35E-01	1.35E-01
+	Y-88	898.02		93.40	4.32E-02	6.44E-02	8.98E-02
		1836.01		99.38	3.16E-02		6.44E-02
+	NB-93M	16.57		9.43	-6.55E+01	6.14E+01	6.14E+01
+	NB-94	702.63		100.00	-3.71E-02	6.79E-02	6.79E-02
		871.10		100.00	2.16E-02		7.20E-02
+	NB-95	765.79		99.81	3.44E-02	1.56E-01	1.56E-01
+	NB-95M	235.69		25.00	-1.00E+03	1.24E+02	1.24E+02
+	ZR-95	724.18		43.70	5.95E-02	1.80E-01	2.56E-01
		756.72		55.30	9.77E-03		1.80E-01
+	MO-99	181.06		6.20	6.80E+02	1.63E+03	2.60E+03
		739.58		12.80	3.00E+02		1.63E+03
		778.00		4.50	-1.00E+03		4.18E+03
+	RU-103	497.08		89.00	-1.29E-03	1.13E-01	1.13E-01
+	RU-106	621.84		9.80	-9.95E-02	6.79E-01	6.79E-01
+	AG-108M	433.93		89.90	-3.59E-02	6.14E-02	6.14E-02
		614.37		90.40	-1.92E-02		6.87E-02
		722.95		90.50	2.85E-02		7.80E-02
+	CD-109	88.03	*	3.72	2.52E+00	2.05E+00	2.05E+00
+	AG-110M	657.75		93.14	-2.04E-02	6.94E-02	6.94E-02
		677.61		10.53	-3.54E-01		6.92E-01
		706.67		16.46	3.98E-01		5.11E-01
		763.93		21.98	1.19E-01		3.63E-01
		884.67		71.63	1.86E-03		9.77E-02
		1384.27		23.94	1.29E-02		3.04E-01
+	CD-113M	263.70		0.02	1.29E+01	1.98E+02	1.98E+02
+	SN-113	255.12		1.93	1.77E+00	9.58E-02	3.33E+00
		391.69		64.90	-5.26E-03		9.58E-02
+	TE123M	159.00		84.10	3.41E-02	7.27E-02	7.27E-02
+	SB-124	602.71		97.87	-6.26E-03	9.36E-02	9.36E-02
		645.85		7.26	1.59E-01		1.25E+00
		722.78		11.10	3.35E-01		9.19E-01
		1691.02		49.00	-8.62E-02		1.26E-01
+	I-125	35.49		6.49	-2.30E+00	3.06E+00	3.06E+00

Analysis Report for 1510090-04
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-125	176.33	6.89	-1.52E-01	2.02E-01	7.46E-01
		427.89	29.33	2.82E-02		2.02E-01
		463.38	10.35	7.10E-01		7.04E-01
		600.56	17.80	-8.03E-02		3.52E-01
		635.90	11.32	8.76E-02		5.61E-01
+	SB-126	414.70	83.30	1.14E-01	4.06E-01	4.43E-01
		666.33	99.60	4.40E-01		4.38E-01
		695.00	99.60	-1.14E-01		4.06E-01
		720.50	53.80	3.98E-01		7.81E-01
+	SN-126	87.57	* 37.00	2.42E-01	1.96E-01	1.96E-01
+	SB-127	473.00	25.00	-5.78E+01	6.66E+01	6.87E+01
		685.20	35.70	5.00E+01		6.66E+01
		783.80	14.70	5.96E+01		1.58E+02
+	I-129	29.78	57.00	1.27E-02	4.66E-01	4.66E-01
		33.60	13.20	5.28E-01		1.25E+00
		39.58	7.52	4.23E-01		1.45E+00
+	I-131	284.30	6.05	-1.45E+00	1.00E+00	1.25E+01
		364.48	81.20	5.04E-01		1.00E+00
		636.97	7.26	3.08E+00		1.35E+01
		722.89	1.80	2.27E+01		6.22E+01
+	TE-132	49.72	13.10	-8.13E+02	5.49E+01	4.93E+02
		228.16	88.00	1.86E+01		5.49E+01
+	BA-133	81.00	33.00	-1.38E+00	8.41E-02	1.71E-01
		302.84	17.80	2.00E-02		3.00E-01
		356.01	60.00	-5.95E-01		8.41E-02
+	I-133	529.87	86.30	-4.14E+09	9.44E+09	9.44E+09
+	XE-133	81.00	38.00	-8.25E+01	1.02E+01	1.02E+01
+	CS-134	563.23	8.38	2.41E-01	6.95E-02	7.96E-01
		569.32	15.43	3.87E-01		4.47E-01
		604.70	97.60	-4.45E-03		6.95E-02
		795.84	85.40	4.79E-02		9.73E-02
		801.93	8.73	1.20E-01		7.73E-01
+	CS-135	268.24	16.00	1.83E-01	3.43E-01	3.43E-01
+	@ 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	-1.27E-01	3.12E-01	3.72E+00
		163.89	4.61	1.27E+00		5.76E+00
		176.55	13.56	-4.10E-01		2.01E+00
		273.65	12.66	-2.75E+00		2.13E+00
		340.57	48.50	8.37E-01		7.94E-01
		818.50	99.70	-4.88E-02		3.12E-01
		1048.07	79.60	1.47E-01		5.52E-01
		1235.34	19.70	6.76E-02		2.89E+00
+	CS-137	661.65	85.12	-8.30E-02	7.29E-02	7.29E-02
+	LA-138	788.74	34.00	-9.42E-02	1.00E-01	2.18E-01
		1435.80	66.00	1.35E-02		1.00E-01
+	CE-139	165.85	80.35	-4.79E-03	7.06E-02	7.06E-02
+	BA-140	162.64	6.70	-1.13E+00	1.38E+00	4.15E+00

Analysis Report for 1510090-04

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	304.84	4.50	-1.44E+00	1.38E+00	6.18E+00
		423.70	3.20	2.29E+00		1.04E+01
		437.55	2.00	2.89E-01		1.60E+01
		537.32	25.00	-6.57E-01		1.38E+00
+	LA-140	328.77	20.50	5.61E-01	4.08E-01	1.52E+00
		487.03	45.50	1.67E-02		7.60E-01
		815.85	23.50	2.52E-01		1.44E+00
		1596.49	95.49	2.57E-01		4.08E-01
+	CE-141	145.44	48.40	1.17E-01	2.11E-01	2.11E-01
+	CE-143	57.36	11.80	-9.98E+04	1.99E+06	5.92E+06
		293.26	42.00	5.29E+06		1.99E+06
		664.55	5.20	1.91E+07		1.50E+07
+	CE-144	133.54	10.80	1.66E-02	4.75E-01	4.75E-01
+	PM-144	476.78	42.00	1.61E-02	6.41E-02	1.55E-01
		618.01	98.60	-1.23E-02		6.41E-02
		696.49	99.49	4.54E-02		7.39E-02
+	PM-145	36.85	21.70	-5.31E-01	3.12E-01	5.82E-01
		37.36	39.70	-3.08E-02		3.12E-01
		42.30	15.10	-6.60E-01		5.96E-01
		72.40	2.31	-4.24E+00		3.21E+00
+	PM-146	453.90	39.94	1.21E-02	1.53E-01	1.53E-01
		735.90	14.01	-5.00E-02		4.60E-01
		747.13	13.10	1.41E-01		5.20E-01
+	ND-147	91.11	28.90	-3.55E+00	1.75E+00	1.75E+00
		531.02	13.10	-1.35E+00		3.46E+00
+	PM-149	285.90	3.10	-2.17E+03	3.56E+04	3.56E+04
+	EU-152	121.78	20.50	-6.36E-02	2.19E-01	2.19E-01
		244.69	5.40	-7.12E-02		1.02E+00
		344.27	19.13	6.49E-03		2.67E-01
		778.89	9.20	-1.52E-01		6.09E-01
		964.01	10.40	-5.91E-02		8.91E-01
		1085.78	7.22	-5.28E-03		1.08E+00
		1112.02	9.60	-4.35E-02		8.31E-01
		1407.95	14.94	2.73E-01		5.23E-01
+	GD-153	97.43	31.30	1.46E-02	1.70E-01	1.70E-01
		103.18	22.20	-5.23E-02		2.36E-01
+	EU-154	123.07	40.50	-5.66E-03	1.13E-01	1.13E-01
		723.30	19.70	1.32E-01		3.61E-01
		873.19	11.50	-1.56E-01		6.14E-01
		996.32	10.30	-5.60E-02		6.76E-01
		1004.76	17.90	1.48E-02		3.99E-01
		1274.45	35.50	2.37E-02		2.44E-01
+	EU-155	86.50	30.90	-2.00E-02	2.14E-01	2.14E-01
		105.30	20.70	1.60E-01		2.37E-01
+	EU-156	811.77	10.40	3.99E-01	2.39E+00	2.39E+00
		1153.47	7.20	1.81E-01		5.17E+00
		1230.71	8.90	4.38E-01		4.24E+00
+	HO-166M	184.41	72.60	1.66E-01	8.83E-02	8.83E-02
		280.45	29.60	4.30E-04		1.64E-01

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<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
HO-166M	410.94	11.10	2.33E-01	8.83E-02	6.03E-01
	711.69	54.10	1.69E-02		1.35E-01
+ TM-171	66.72	0.14	-3.32E+00	4.80E+01	4.80E+01
+ HF-172	81.75	4.52	-2.89E+00	4.37E-01	1.26E+00
	125.81	11.30	-4.26E-01		4.37E-01
+ LU-172	181.53	20.60	1.77E+00	3.57E+00	6.83E+00
	810.06	16.63	-8.79E-01		1.05E+01
	912.12	15.25	7.64E+01		2.66E+01
	1093.66	62.50	9.18E-01		3.57E+00
+ LU-173	100.72	5.24	8.50E-02	2.79E-01	9.53E-01
	272.11	21.20	2.96E-01		2.79E-01
+ HF-175	343.40	84.00	2.33E-02	8.48E-02	8.48E-02
+ LU-176	88.34	13.30	7.21E-01	5.16E-02	5.06E-01
	201.83	86.00	1.18E-02		5.96E-02
	306.78	94.00	-1.40E-02		5.16E-02
+ TA-182	67.75	41.20	-3.91E-02	1.89E-01	1.89E-01
	1121.30	34.90	7.02E-01		4.29E-01
	1189.05	16.23	2.55E-01		6.89E-01
	1221.41	26.98	9.16E-03		3.97E-01
	1231.02	11.44	9.57E-02		9.27E-01
+ IR-192	308.46	29.68	4.85E-02	1.65E-01	2.28E-01
	468.07	48.10	-9.60E-03		1.65E-01
+ HG-203	279.19	77.30	7.06E-02	1.10E-01	1.10E-01
+ BI-207	569.67	97.72	2.63E-02	6.65E-02	6.65E-02
	1063.62	74.90	2.08E-02		1.10E-01
+ TL-208	583.14	* 30.22	1.26E+00	2.19E-01	3.93E-01
	860.37	* 4.48	1.80E+00		2.00E+00
	2614.66	* 35.85	1.13E+00		2.19E-01
+ BI-210M	262.00	45.00	-5.46E-02	9.69E-02	9.69E-02
	300.00	23.00	-4.69E-01		2.52E-01
+ PB-210	46.50	4.25	1.71E+00	1.96E+00	1.96E+00
+ PB-211	404.84	2.90	-3.03E-01	1.71E+00	1.71E+00
	831.96	2.90	1.22E+00		2.39E+00
+ BI-212	727.17	* 11.80	1.22E+00	7.57E-01	7.57E-01
	1620.62	2.75	3.30E-01		2.02E+00
+ PB-212	238.63	* 44.60	1.60E+00	2.26E-01	2.26E-01
	300.09	* 3.41	1.29E+00		1.83E+00
+ BI-214	609.31	* 46.30	1.17E+00	2.03E-01	2.03E-01
	1120.29	* 15.10	1.44E+00		7.67E-01
	1764.49	* 15.80	1.35E+00		4.40E-01
	2204.22	4.98	1.43E+00		2.04E+00
+ PB-214	295.21	* 19.19	1.24E+00	2.20E-01	4.04E-01
	351.92	* 37.19	1.26E+00		2.20E-01
+ RN-219	401.80	6.50	-3.04E-01	7.39E-01	7.39E-01
+ RA-223	323.87	3.88	3.81E-02	1.27E+00	1.27E+00
+ RA-224	240.98	* 3.95	3.62E+00	2.54E+00	2.54E+00
+ RA-225	40.00	31.00	4.49E-01	1.54E+00	1.54E+00
+ RA-226	186.21	* 3.28	3.23E+00	2.59E+00	2.59E+00

Analysis Report for 1510090-04

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-227	50.10		8.40	-1.37E+00	5.71E-01	8.27E-01
		236.00		11.50	-4.62E+00		5.71E-01
		256.20		6.30	7.77E-01		8.45E-01
+	AC-228	338.32	*	11.40	1.62E+00	4.01E-01	7.84E-01
		911.07	*	27.70	1.52E+00		4.01E-01
		969.11	*	16.60	1.23E+00		8.17E-01
+	TH-230	48.44		16.90	9.37E-02	4.60E-01	4.60E-01
		62.85		4.60	1.49E+00		1.60E+00
		67.67		0.37	-3.59E+00		1.73E+01
+	PA-231	283.67		1.60	-8.89E-01	2.31E+00	2.91E+00
		302.67		2.30	1.54E-01		2.31E+00
+	TH-231	25.64		14.70	-3.11E+00	9.49E-01	3.70E+00
		84.21		6.40	6.92E-01		9.49E-01
+	PA-233	311.98		38.60	1.35E-01	2.93E-01	2.93E-01
+	PA-234	131.20		20.40	-1.20E-01	2.41E-01	2.41E-01
		733.99		8.80	-1.03E-01		7.28E-01
		946.00		12.00	-2.85E-01		5.06E-01
+	PA-234M	1001.03		0.92	2.19E+00	8.07E+00	8.07E+00
+	TH-234	63.29	*	3.80	2.18E+00	2.65E+00	2.65E+00
+	U-235	143.76		10.50	1.27E-01	4.87E-01	4.87E-01
		163.35		4.70	2.30E-01		1.04E+00
		205.31		4.70	-5.27E-01		1.12E+00
+	NP-237	86.50		12.60	-4.85E-02	5.19E-01	5.19E-01
+	NP-239	106.10		22.70	1.81E+03	2.69E+03	2.69E+03
		228.18		10.70	2.10E+03		6.19E+03
		277.60		14.10	3.61E+03		4.71E+03
+	AM-241	59.54		35.90	-2.04E-02	1.86E-01	1.86E-01
+	AM-243	74.67	*	66.00	3.02E-01	1.85E-01	1.85E-01
+	CM-243	209.75	*	3.29	1.96E+00	4.53E-01	2.55E+00
		228.14		10.60	1.69E-01		4.98E-01
		277.60	*	14.00	2.93E-01		4.53E-01

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

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

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

Analysis Report for 1510090-04
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NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	9.16E-01	9.16E-01	2.67E-01	4.37E-01
NA-22	1274.54	99.94	8.81E-02	8.81E-02	8.56E-03	4.08E-02
NA-24	1368.53	99.99	1.42E+14	1.42E+14	1.16E+13	6.17E+13
	2754.09	99.86	1.42E+14		5.17E+13	5.81E+13
AL-26	1808.65	99.76	4.45E-02	4.45E-02	1.04E-02	1.82E-02
+ K-40	1460.81	*	10.67	7.25E-01	2.11E+01	3.30E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+26
TI-44	67.88	94.40	6.78E-02	6.78E-02	-1.40E-02	3.32E-02
	78.34	96.00	8.86E-02		2.99E-01	4.36E-02
SC-46	889.25	99.98	8.67E-02	8.67E-02	3.06E-02	4.02E-02
	1120.51	99.99	1.60E-01		2.55E-01	7.63E-02
V-48	983.52	99.98	2.88E-01	2.88E-01	9.30E-03	1.33E-01
	1312.10	97.50	2.97E-01		-6.31E-02	1.35E-01
CR-51	320.08	9.83	1.13E+00	1.13E+00	1.59E-01	5.40E-01
MN-54	834.83	99.97	8.09E-02	8.09E-02	7.80E-03	3.80E-02
CO-56	846.75	99.96	9.14E-02	9.14E-02	9.96E-04	4.27E-02
	1037.75	14.03	6.87E-01		1.31E-01	3.18E-01
	1238.25	67.00	2.30E-01		2.24E-01	1.09E-01
	1771.40	15.51	4.16E-01		1.37E-01	1.74E-01
	2598.48	16.90	3.47E-01		-2.65E-02	1.38E-01
CO-57	122.06	85.51	5.68E-02	5.68E-02	-1.65E-02	2.76E-02
	136.48	10.60	4.83E-01		-2.10E-01	2.35E-01
CO-58	810.76	99.40	7.54E-02	7.54E-02	-2.90E-03	3.47E-02
FE-59	1099.22	56.50	2.14E-01	2.14E-01	-1.79E-01	9.86E-02
	1291.56	43.20	3.01E-01		1.00E-01	1.38E-01
CO-60	1173.22	100.00	8.64E-02	7.08E-02	1.99E-02	4.02E-02
	1332.49	100.00	7.08E-02		1.55E-02	3.21E-02
ZN-65	1115.52	50.75	1.81E-01	1.81E-01	2.00E-02	8.45E-02
+ GA-67	93.31	*	35.70	2.05E+02	1.66E+02	1.01E+02
	208.95	*	2.24	3.40E+03	2.63E+03	1.67E+03
	300.22	*	16.00	3.56E+02	2.51E+02	1.72E+02
SE-75	121.11	16.70	3.21E-01	9.40E-02	-2.13E-01	1.56E-01
	136.00	59.20	9.81E-02		3.37E-02	4.77E-02
	264.65	59.80	9.40E-02		2.39E-04	4.51E-02
	279.53	25.20	2.47E-01		9.00E-02	1.19E-01
	400.65	11.40	5.33E-01		2.11E-01	2.53E-01
RB-82	776.52	13.00	1.03E+00	1.03E+00	-2.56E-01	4.76E-01
RB-83	520.41	46.00	1.77E-01	1.77E-01	4.56E-02	8.42E-02
	529.64	30.30	2.53E-01		-1.11E-01	1.20E-01
	552.65	16.40	4.94E-01		-6.82E-02	2.34E-01
KR-85	513.99	0.43	2.20E+01	2.20E+01	3.21E+01	1.06E+01
SR-85	513.99	99.27	1.35E-01	1.35E-01	1.96E-01	6.51E-02
Y-88	898.02	93.40	8.98E-02	6.44E-02	4.32E-02	4.17E-02
	1836.01	99.38	6.44E-02		3.16E-02	2.72E-02
NB-93M	16.57	9.43	6.14E+01	6.14E+01	-6.55E+01	2.84E+01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-94	702.63	100.00	6.79E-02	6.79E-02	-3.71E-02	3.20E-02
	871.10	100.00	7.20E-02		2.16E-02	3.36E-02
NB-95	765.79	99.81	1.56E-01	1.56E-01	3.44E-02	7.41E-02
NB-95M	235.69	25.00	1.24E+02	1.24E+02	-1.00E+03	6.03E+01
ZR-95	724.18	43.70	2.56E-01	1.80E-01	5.95E-02	1.22E-01
	756.72	55.30	1.80E-01		9.77E-03	8.48E-02
MO-99	181.06	6.20	2.60E+03	1.63E+03	6.80E+02	1.26E+03
	739.58	12.80	1.63E+03		3.00E+02	7.61E+02
	778.00	4.50	4.18E+03		-1.00E+03	1.94E+03
RU-103	497.08	89.00	1.13E-01	1.13E-01	-1.29E-03	5.33E-02
RU-106	621.84	9.80	6.79E-01	6.79E-01	-9.95E-02	3.20E-01
AG-108M	433.93	89.90	6.14E-02	6.14E-02	-3.59E-02	2.92E-02
	614.37	90.40	6.87E-02		-1.92E-02	3.24E-02
	722.95	90.50	7.80E-02		2.85E-02	3.68E-02
+ CD-109	88.03	*	3.72	2.05E+00	2.52E+00	1.01E+00
AG-110M	657.75	93.14	6.94E-02	6.94E-02	-2.04E-02	3.25E-02
	677.61	10.53	6.92E-01		-3.54E-01	3.26E-01
	706.67	16.46	5.11E-01		3.98E-01	2.42E-01
	763.93	21.98	3.63E-01		1.19E-01	1.71E-01
	884.67	71.63	9.77E-02		1.86E-03	4.52E-02
	1384.27	23.94	3.04E-01		1.29E-02	1.37E-01
CD-113M	263.70	0.02	1.98E+02	1.98E+02	1.29E+01	9.48E+01
SN-113	255.12	1.93	3.33E+00	9.58E-02	1.77E+00	1.61E+00
	391.69	64.90	9.58E-02		-5.26E-03	4.55E-02
TE123M	159.00	84.10	7.27E-02	7.27E-02	3.41E-02	3.54E-02
SB-124	602.71	97.87	9.36E-02	9.36E-02	-6.26E-03	4.42E-02
	645.85	7.26	1.25E+00		1.59E-01	5.90E-01
	722.78	11.10	9.19E-01		3.35E-01	4.33E-01
	1691.02	49.00	1.26E-01		-8.62E-02	5.16E-02
	I-125	35.49	6.49	3.06E+00	3.06E+00	-2.30E+00	1.48E+00
SB-125	176.33	6.89	7.46E-01	2.02E-01	-1.52E-01	3.62E-01
	427.89	29.33	2.02E-01		2.82E-02	9.61E-02
	463.38	10.35	7.04E-01		7.10E-01	3.38E-01
	600.56	17.80	3.52E-01		-8.03E-02	1.66E-01
	635.90	11.32	5.61E-01		8.76E-02	2.64E-01
SB-126	414.70	83.30	4.43E-01	4.06E-01	1.14E-01	2.12E-01
	666.33	99.60	4.38E-01		4.40E-01	2.07E-01
	695.00	99.60	4.06E-01		-1.14E-01	1.91E-01
	720.50	53.80	7.81E-01		3.98E-01	3.68E-01
+ SN-126	87.57	*	37.00	1.96E-01	2.42E-01	9.65E-02
SB-127	473.00	25.00	6.87E+01	6.66E+01	-5.78E+01	3.25E+01
	685.20	35.70	6.66E+01		5.00E+01	3.15E+01
	783.80	14.70	1.58E+02		5.96E+01	7.41E+01
I-129	29.78	57.00	4.66E-01	4.66E-01	1.27E-02	2.26E-01
	33.60	13.20	1.25E+00		5.28E-01	6.09E-01
	39.58	7.52	1.45E+00		4.23E-01	7.06E-01
I-131	284.30	6.05	1.25E+01	1.00E+00	-1.45E+00	5.97E+00
	364.48	81.20	1.00E+00		5.04E-01	4.77E-01
	636.97	7.26	1.35E+01		3.08E+00	6.36E+00
	722.89	1.80	6.22E+01		2.27E+01	2.93E+01
TE-132	49.72	13.10	4.93E+02	5.49E+01	-8.13E+02	2.40E+02
	228.16	88.00	5.49E+01		1.86E+01	2.66E+01
BA-133	81.00	33.00	1.71E-01	8.41E-02	-1.38E+00	8.34E-02

Analysis Report for 1510090-04

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	3.00E-01	8.41E-02	2.00E-02	1.44E-01
	356.01	60.00	8.41E-02		-5.95E-01	4.01E-02
I-133	529.87	86.30	9.44E+09	9.44E+09	-4.14E+09	4.47E+09
XE-133	81.00	38.00	1.02E+01	1.02E+01	-8.25E+01	5.00E+00
CS-134	563.23	8.38	7.96E-01	6.95E-02	2.41E-01	3.78E-01
	569.32	15.43	4.47E-01		3.87E-01	2.12E-01
	604.70	97.60	6.95E-02		-4.45E-03	3.29E-02
	795.84	85.40	9.73E-02		4.79E-02	4.60E-02
	801.93	8.73	7.73E-01		1.20E-01	3.61E-01
CS-135	268.24	16.00	3.43E-01	3.43E-01	1.83E-01	1.65E-01
@ 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	3.72E+00	3.12E-01	-1.27E-01	1.81E+00
	163.89	4.61	5.76E+00		1.27E+00	2.80E+00
	176.55	13.56	2.01E+00		-4.10E-01	9.75E-01
	273.65	12.66	2.13E+00		-2.75E+00	1.02E+00
	340.57	48.50	7.94E-01		8.37E-01	3.84E-01
	818.50	99.70	3.12E-01		-4.88E-02	1.44E-01
	1048.07	79.60	5.52E-01		1.47E-01	2.58E-01
	1235.34	19.70	2.89E+00		6.76E-02	1.36E+00
CS-137	661.65	85.12	7.29E-02	7.29E-02	-8.30E-02	3.43E-02
LA-138	788.74	34.00	2.18E-01	1.00E-01	-9.42E-02	1.02E-01
	1435.80	66.00	1.00E-01		1.35E-02	4.49E-02
CE-139	165.85	80.35	7.06E-02	7.06E-02	-4.79E-03	3.42E-02
BA-140	162.64	6.70	4.15E+00	1.38E+00	-1.13E+00	2.01E+00
	304.84	4.50	6.18E+00		-1.44E+00	2.95E+00
	423.70	3.20	1.04E+01		2.29E+00	4.97E+00
	437.55	2.00	1.60E+01		2.89E-01	7.62E+00
	537.32	25.00	1.38E+00		-6.57E-01	6.54E-01
LA-140	328.77	20.50	1.52E+00	4.08E-01	5.61E-01	7.28E-01
	487.03	45.50	7.60E-01		1.67E-02	3.61E-01
	815.85	23.50	1.44E+00		2.52E-01	6.66E-01
	1596.49	95.49	4.08E-01		2.57E-01	1.82E-01
CE-141	145.44	48.40	2.11E-01	2.11E-01	1.17E-01	1.03E-01
CE-143	57.36	11.80	5.92E+06	1.99E+06	-9.98E+04	2.89E+06
	293.26	42.00	1.99E+06		5.29E+06	9.67E+05
	664.55	5.20	1.50E+07		1.91E+07	7.13E+06
CE-144	133.54	10.80	4.75E-01	4.75E-01	1.66E-02	2.31E-01
PM-144	476.78	42.00	1.55E-01	6.41E-02	1.61E-02	7.40E-02
	618.01	98.60	6.41E-02		-1.23E-02	3.01E-02
	696.49	99.49	7.39E-02		4.54E-02	3.49E-02
PM-145	36.85	21.70	5.82E-01	3.12E-01	-5.31E-01	2.83E-01
	37.36	39.70	3.12E-01		-3.08E-02	1.52E-01
	42.30	15.10	5.96E-01		-6.60E-01	2.90E-01
	72.40	2.31	3.21E+00		-4.24E+00	1.58E+00
PM-146	453.90	39.94	1.53E-01	1.53E-01	1.21E-02	7.29E-02
	735.90	14.01	4.60E-01		-5.00E-02	2.15E-01
	747.13	13.10	5.20E-01		1.41E-01	2.44E-01
ND-147	91.11	28.90	1.75E+00	1.75E+00	-3.55E+00	8.59E-01
	531.02	13.10	3.46E+00		-1.35E+00	1.64E+00
PM-149	285.90	3.10	3.56E+04	3.56E+04	-2.17E+03	1.71E+04
EU-152	121.78	20.50	2.19E-01	2.19E-01	-6.36E-02	1.06E-01

Analysis Report for 1510090-04

CP0603S03-04

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	244.69	5.40	1.02E+00	2.19E-01	-7.12E-02	4.91E-01
	344.27	19.13	2.67E-01		6.49E-03	1.27E-01
	778.89	9.20	6.09E-01		-1.52E-01	2.81E-01
	964.01	10.40	8.91E-01		-5.91E-02	4.21E-01
	1085.78	7.22	1.08E+00		-5.28E-03	5.03E-01
	1112.02	9.60	8.31E-01		-4.35E-02	3.86E-01
	1407.95	14.94	5.23E-01		2.73E-01	2.39E-01
GD-153	97.43	31.30	1.70E-01	1.70E-01	1.46E-02	8.30E-02
	103.18	22.20	2.36E-01		-5.23E-02	1.15E-01
EU-154	123.07	40.50	1.13E-01	1.13E-01	-5.66E-03	5.49E-02
	723.30	19.70	3.61E-01		1.32E-01	1.70E-01
	873.19	11.50	6.14E-01		-1.56E-01	2.87E-01
	996.32	10.30	6.76E-01		-5.60E-02	3.13E-01
	1004.76	17.90	3.99E-01		1.48E-02	1.85E-01
EU-155	1274.45	35.50	2.44E-01	2.14E-01	2.37E-02	1.13E-01
	86.50	30.90	2.14E-01		-2.00E-02	1.05E-01
EU-156	105.30	20.70	2.37E-01	2.39E+00	1.60E-01	1.16E-01
	811.77	10.40	2.39E+00		3.99E-01	1.11E+00
HO-166M	1153.47	7.20	5.17E+00	8.83E-02	1.81E-01	2.41E+00
	1230.71	8.90	4.24E+00		4.38E-01	1.97E+00
	184.41	72.60	8.83E-02		1.66E-01	4.31E-02
	280.45	29.60	1.64E-01		4.30E-04	7.84E-02
TM-171	410.94	11.10	6.03E-01	4.80E+01	2.33E-01	2.90E-01
	711.69	54.10	1.35E-01		1.69E-02	6.39E-02
	66.72	0.14	4.80E+01		-3.32E+00	2.35E+01
HF-172	81.75	4.52	1.26E+00	4.37E-01	-2.89E+00	6.16E-01
	125.81	11.30	4.37E-01		-4.26E-01	2.13E-01
LU-172	181.53	20.60	6.83E+00	3.57E+00	1.77E+00	3.31E+00
	810.06	16.63	1.05E+01		-8.79E-01	4.88E+00
	912.12	15.25	2.66E+01		7.64E+01	1.29E+01
	1093.66	62.50	3.57E+00		9.18E-01	1.66E+00
LU-173	100.72	5.24	9.53E-01	2.79E-01	8.50E-02	4.64E-01
	272.11	21.20	2.79E-01		2.96E-01	1.35E-01
HF-175	343.40	84.00	8.48E-02	8.48E-02	2.33E-02	4.05E-02
LU-176	88.34	13.30	5.06E-01	5.16E-02	7.21E-01	2.48E-01
	201.83	86.00	5.96E-02		1.18E-02	2.89E-02
	306.78	94.00	5.16E-02		-1.40E-02	2.47E-02
TA-182	67.75	41.20	1.89E-01	1.89E-01	-3.91E-02	9.25E-02
	1121.30	34.90	4.29E-01		7.02E-01	2.05E-01
	1189.05	16.23	6.89E-01		2.55E-01	3.22E-01
	1221.41	26.98	3.97E-01		9.16E-03	1.85E-01
	1231.02	11.44	9.27E-01		9.57E-02	4.31E-01
IR-192	308.46	29.68	2.28E-01	1.65E-01	4.85E-02	1.09E-01
	468.07	48.10	1.65E-01		-9.60E-03	7.82E-02
HG-203	279.19	77.30	1.10E-01	1.10E-01	7.06E-02	5.28E-02
BI-207	569.67	97.72	6.65E-02	6.65E-02	2.63E-02	3.15E-02
	1063.62	74.90	1.10E-01		2.08E-02	5.12E-02
+ TL-208	583.14	* 30.22	3.93E-01	2.19E-01	1.26E+00	1.91E-01
	860.37	* 4.48	2.00E+00		1.80E+00	9.49E-01
	2614.66	* 35.85	2.19E-01		1.13E+00	9.67E-02
BI-210M	262.00	45.00	9.69E-02	9.69E-02	-5.46E-02	4.63E-02
	300.00	23.00	2.52E-01		-4.69E-01	1.22E-01
PB-210	46.50	4.25	1.96E+00	1.96E+00	1.71E+00	9.56E-01

Analysis Report for 1510090-04

CP0603S03-04

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84		2.90	1.71E+00	1.71E+00	-3.03E-01	8.10E-01
	831.96		2.90	2.39E+00		1.22E+00	1.12E+00
+ BI-212	727.17	*	11.80	7.57E-01	7.57E-01	1.22E+00	3.61E-01
	1620.62		2.75	2.02E+00		3.30E-01	8.75E-01
+ PB-212	238.63	*	44.60	2.26E-01	2.26E-01	1.60E+00	1.11E-01
	300.09	*	3.41	1.83E+00		1.29E+00	8.84E-01
+ BI-214	609.31	*	46.30	2.03E-01	2.03E-01	1.17E+00	9.77E-02
	1120.29	*	15.10	7.67E-01		1.44E+00	3.65E-01
	1764.49	*	15.80	4.40E-01		1.35E+00	1.95E-01
	2204.22		4.98	2.04E+00		1.43E+00	9.34E-01
+ PB-214	295.21	*	19.19	4.04E-01	2.20E-01	1.24E+00	1.97E-01
	351.92	*	37.19	2.20E-01		1.26E+00	1.07E-01
RN-219	401.80		6.50	7.39E-01	7.39E-01	-3.04E-01	3.50E-01
RA-223	323.87		3.88	1.27E+00	1.27E+00	3.81E-02	6.07E-01
+ RA-224	240.98	*	3.95	2.54E+00	2.54E+00	3.62E+00	1.25E+00
RA-225	40.00		31.00	1.54E+00	1.54E+00	4.49E-01	7.48E-01
+ RA-226	186.21	*	3.28	2.59E+00	2.59E+00	3.23E+00	1.27E+00
TH-227	50.10		8.40	8.27E-01	5.71E-01	-1.37E+00	4.03E-01
	236.00		11.50	5.71E-01		-4.62E+00	2.78E-01
	256.20		6.30	8.45E-01		7.77E-01	4.07E-01
+ AC-228	338.32	*	11.40	7.84E-01	4.01E-01	1.62E+00	3.82E-01
	911.07	*	27.70	4.01E-01		1.52E+00	1.92E-01
	969.11	*	16.60	8.17E-01		1.23E+00	3.93E-01
TH-230	48.44		16.90	4.60E-01	4.60E-01	9.37E-02	2.24E-01
	62.85		4.60	1.60E+00		1.49E+00	7.84E-01
	67.67		0.37	1.73E+01		-3.59E+00	8.48E+00
PA-231	283.67		1.60	2.91E+00	2.31E+00	-8.89E-01	1.39E+00
	302.67		2.30	2.31E+00		1.54E-01	1.11E+00
TH-231	25.64		14.70	3.70E+00	9.49E-01	-3.11E+00	1.80E+00
	84.21		6.40	9.49E-01		6.92E-01	4.65E-01
PA-233	311.98		38.60	2.93E-01	2.93E-01	1.35E-01	1.40E-01
PA-234	131.20		20.40	2.41E-01	2.41E-01	-1.20E-01	1.17E-01
	733.99		8.80	7.28E-01		-1.03E-01	3.41E-01
	946.00		12.00	5.06E-01		-2.85E-01	2.32E-01
PA-234M	1001.03		0.92	8.07E+00	8.07E+00	2.19E+00	3.75E+00
+ TH-234	63.29	*	3.80	2.65E+00	2.65E+00	2.18E+00	1.31E+00
U-235	143.76		10.50	4.87E-01	4.87E-01	1.27E-01	2.37E-01
	163.35		4.70	1.04E+00		2.30E-01	5.06E-01
	205.31		4.70	1.12E+00		-5.27E-01	5.43E-01
NP-237	86.50		12.60	5.19E-01	5.19E-01	-4.85E-02	2.55E-01
NP-239	106.10		22.70	2.69E+03	2.69E+03	1.81E+03	1.31E+03
	228.18		10.70	6.19E+03		2.10E+03	2.99E+03
	277.60		14.10	4.71E+03		3.61E+03	2.27E+03
AM-241	59.54		35.90	1.86E-01	1.86E-01	-2.04E-02	9.08E-02
+ AM-243	74.67	*	66.00	1.85E-01	1.85E-01	3.02E-01	9.14E-02
+ CM-243	209.75	*	3.29	2.55E+00	4.53E-01	1.96E+00	1.25E+00
	228.14		10.60	4.98E-01		1.69E-01	2.41E-01
	277.60	*	14.00	4.53E-01		2.93E-01	2.19E-01

Analysis Report for 1510090-04

CP0603S03-04

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S03-04

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	53	92	72	82	83	58
25:	87	72	82	71	94	68	67	76
33:	70	76	93	59	67	75	99	110
41:	76	80	92	81	81	99	161	84
49:	96	88	98	102	104	90	99	117
57:	118	124	124	135	141	144	167	292
65:	156	168	157	141	146	145	151	173
73:	163	193	408	372	468	637	178	130
81:	122	121	117	160	191	130	204	274
89:	141	212	168	134	332	244	138	103
97:	94	106	98	113	107	89	86	91
105:	94	129	99	89	86	92	91	92
113:	101	89	111	92	76	95	88	71
121:	74	80	81	89	82	90	97	86
129:	127	108	94	79	72	102	85	79
137:	75	84	82	81	97	87	74	106
145:	98	91	78	85	84	79	81	95
153:	74	91	97	75	91	79	77	89
161:	72	71	92	70	63	72	68	78
169:	57	56	77	66	63	66	74	69
177:	76	71	67	81	64	59	71	80
185:	90	183	134	79	74	60	74	80
193:	61	60	60	62	53	74	72	68
201:	69	71	53	55	64	80	62	66
209:	88	119	66	61	59	52	59	52
217:	57	63	51	59	50	66	59	68
225:	54	61	53	56	59	57	48	43
233:	46	50	45	60	56	220	727	287
241:	102	155	117	50	36	44	34	38
249:	45	40	42	39	51	48	53	54
257:	43	52	33	27	34	34	37	28
265:	43	30	44	35	37	64	70	44
273:	49	34	33	38	41	62	42	38
281:	34	32	35	35	30	32	39	35
289:	40	32	33	31	55	40	141	208
297:	62	37	45	64	70	24	35	38
305:	30	29	32	33	36	42	27	30
313:	35	30	24	21	22	35	39	27
321:	35	23	29	41	29	31	42	49
329:	38	35	22	29	38	32	35	35
337:	27	118	147	63	30	30	35	32
345:	37	22	23	20	32	33	56	296
353:	217	39	29	26	17	27	27	33
361:	19	25	36	29	27	20	27	26

369: 18 27 16 23 28 22 27 23

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8
377:	19	22	26	18	27	23	18	21
385:	22	26	26	30	20	22	28	26
393:	27	22	27	25	13	26	28	23
401:	18	26	22	16	22	26	25	29
409:	30	41	35	23	26	19	22	28
417:	29	21	21	19	18	25	17	26
425:	21	18	22	12	25	21	22	17
433:	17	15	18	13	23	19	25	15
441:	16	15	25	22	18	24	25	24
449:	19	24	19	17	24	25	18	21
457:	17	18	18	16	13	21	56	42
465:	19	22	20	19	18	13	15	18
473:	12	18	17	9	22	22	27	20
481:	25	18	23	22	18	13	27	19
489:	14	15	15	18	16	15	21	17
497:	10	20	9	16	13	16	10	25
505:	18	13	17	16	38	41	105	83
513:	38	23	16	18	14	17	25	16
521:	10	23	12	21	17	14	20	12
529:	8	14	18	21	13	22	19	20
537:	18	16	11	11	14	18	22	17
545:	17	19	17	19	13	23	14	13
553:	13	13	19	16	17	18	10	17
561:	15	17	23	15	11	18	16	13
569:	18	26	15	16	10	8	17	17
577:	24	20	15	13	18	20	150	184
585:	45	21	12	14	16	10	17	18
593:	18	12	15	15	13	14	11	14
601:	13	11	14	16	14	17	11	24
609:	154	222	56	21	16	9	11	16
617:	10	9	15	17	5	14	13	18
625:	10	18	17	10	10	11	14	11
633:	10	15	8	14	13	13	14	9
641:	12	10	11	12	16	14	15	11
649:	8	18	6	11	12	6	7	14
657:	16	14	10	5	8	16	13	17
665:	12	24	21	16	9	7	5	12
673:	13	10	11	18	11	15	13	8
681:	15	21	19	12	12	13	21	13
689:	4	15	17	10	12	16	13	17
697:	8	13	15	12	9	7	13	20
705:	13	15	19	18	10	20	12	10
713:	15	12	23	7	12	10	13	14
721:	20	13	11	10	9	15	39	57
729:	21	14	16	7	13	6	9	9
737:	13	13	9	16	5	6	11	10
745:	9	9	14	13	11	13	8	13
753:	10	12	10	16	13	12	11	11
761:	10	14	8	19	18	13	8	27
769:	24	15	14	19	18	7	13	3
777:	4	10	10	3	11	8	12	8
785:	9	19	17	20	5	5	15	7
793:	16	22	18	20	12	10	6	10

801: 13 6 11 8 12 6 23 5

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8
809:	9	8	3	5	7	7	10	5
817:	7	6	10	9	8	3	6	8
825:	9	9	4	9	11	8	15	12
833:	4	8	12	22	20	5	5	17
841:	17	10	4	12	13	6	8	9
849:	10	9	9	8	10	9	8	5
857:	7	10	6	16	32	20	8	9
865:	10	9	8	9	11	10	12	9
873:	7	12	10	6	13	10	11	8
881:	3	4	10	7	9	11	5	7
889:	12	6	11	5	5	5	8	4
897:	13	7	2	13	12	3	10	13
905:	9	8	8	10	9	22	97	108
913:	33	9	12	8	6	9	10	8
921:	7	2	8	11	10	9	7	5
929:	7	2	11	8	10	15	16	11
937:	7	6	6	11	5	6	8	5
945:	5	11	7	3	3	8	13	7
953:	9	10	5	4	7	3	6	12
961:	4	9	11	13	26	25	12	24
969:	68	61	17	8	8	6	7	5
977:	17	4	8	5	5	11	6	7
985:	6	10	11	9	9	5	5	10
993:	3	7	7	8	9	11	6	11
1001:	11	11	4	5	4	8	5	16
1009:	5	3	1	7	8	8	10	11
1017:	9	5	6	3	11	5	15	3
1025:	11	6	4	8	6	6	5	4
1033:	7	9	9	8	8	5	6	6
1041:	11	4	7	5	15	10	10	5
1049:	12	6	8	13	5	8	4	4
1057:	8	6	7	16	7	6	12	9
1065:	8	15	9	7	4	10	2	8
1073:	6	8	6	7	5	13	10	8
1081:	9	9	7	8	6	9	11	9
1089:	7	7	8	8	7	13	10	4
1097:	11	7	8	7	4	8	12	10
1105:	8	6	10	8	4	14	7	5
1113:	11	13	3	9	7	10	11	42
1121:	47	14	11	8	8	4	8	5
1129:	4	13	12	10	9	7	3	4
1137:	5	6	7	8	10	8	4	5
1145:	11	9	13	7	9	9	6	7
1153:	6	11	16	9	7	9	7	1
1161:	13	7	14	10	10	6	4	5
1169:	7	10	4	13	8	6	15	5
1177:	10	7	11	2	4	16	11	6
1185:	9	14	10	10	7	10	8	11
1193:	9	7	11	13	17	10	9	6
1201:	8	7	9	9	4	7	8	12
1209:	11	11	9	6	9	13	4	11
1217:	5	8	9	9	11	12	3	9
1225:	7	11	10	11	10	8	6	7

1233: 6 11 15 12 20 16 18 18

Sample Title: CP0603S03-04

Channel	6	11	15	12	20	16	18	18
1241:	8	7	9	9	10	10	5	8
1249:	9	5	11	10	8	9	6	4
1257:	13	9	5	3	3	8	10	4
1265:	6	6	3	8	12	3	12	7
1273:	5	6	10	6	8	11	3	10
1281:	13	6	6	5	6	7	7	9
1289:	4	4	6	11	4	6	5	1
1297:	5	3	1	8	7	7	4	1
1305:	5	6	5	2	7	4	5	7
1313:	2	6	4	6	9	4	4	3
1321:	2	4	2	2	5	5	4	7
1329:	6	8	4	7	3	1	3	3
1337:	9	5	4	1	4	5	3	3
1345:	5	4	7	3	3	7	4	2
1353:	7	2	3	5	1	2	2	3
1361:	9	3	2	4	2	2	3	1
1369:	3	4	0	3	3	5	4	1
1377:	11	8	9	5	4	6	3	2
1385:	7	2	3	3	2	4	5	4
1393:	3	2	2	2	5	3	4	4
1401:	4	5	3	5	3	1	3	12
1409:	10	5	3	2	2	3	1	2
1417:	4	1	4	6	1	3	4	5
1425:	5	1	4	4	3	4	2	3
1433:	2	4	5	4	4	3	3	4
1441:	3	3	2	1	2	4	5	4
1449:	3	5	1	2	1	2	5	1
1457:	2	6	22	143	381	279	48	9
1465:	3	0	0	3	1	5	1	3
1473:	3	2	2	0	3	3	2	1
1481:	4	1	1	2	1	1	2	3
1489:	4	3	1	3	2	0	3	5
1497:	0	2	3	2	2	4	4	2
1505:	3	2	0	2	4	10	2	2
1513:	1	6	4	0	1	2	2	2
1521:	2	1	1	2	1	1	1	3
1529:	0	5	4	0	0	2	2	2
1537:	1	0	0	3	2	1	5	7
1545:	1	3	2	2	1	1	2	1
1553:	1	2	4	3	4	2	0	3
1561:	1	1	1	1	0	1	3	0
1569:	2	5	0	2	0	2	1	1
1577:	1	4	4	1	3	2	3	2
1585:	2	1	2	9	5	8	1	4
1593:	8	5	0	6	1	2	1	0
1601:	1	2	1	2	1	2	2	1
1609:	2	2	3	0	2	3	3	1
1617:	1	1	2	1	4	2	3	1
1625:	1	0	0	0	4	3	6	1
1633:	1	2	2	3	3	4	3	1
1641:	1	1	1	1	3	1	1	1
1649:	3	2	2	0	5	1	1	0
1657:	1	1	2	3	4	3	3	1

1665: 2 1 1 0 2 1 0 1

Sample Title: CP0603S03-04

Channel	1	0	1	3	0	3	0	2
1673:	1	3	0	0	4	3	1	0
1681:	1	1	1	1	2	1	4	2
1689:	1	1	1	0	2	0	0	1
1697:	1	1	1	0	2	0	0	1
1705:	4	1	0	1	3	1	2	1
1713:	2	0	2	0	1	1	1	1
1721:	0	2	2	1	2	2	2	3
1729:	5	9	6	1	2	1	2	2
1737:	0	0	2	0	2	0	2	0
1745:	1	1	2	0	2	0	0	1
1753:	1	2	0	1	1	1	1	2
1761:	3	4	5	21	24	20	3	0
1769:	2	2	1	0	3	1	0	0
1777:	0	1	2	3	0	1	1	1
1785:	0	0	0	1	0	0	0	0
1793:	1	1	2	2	1	1	2	4
1801:	2	0	0	1	1	1	0	2
1809:	3	0	0	0	1	0	3	0
1817:	0	2	1	1	2	0	2	2
1825:	1	2	0	0	0	1	0	0
1833:	1	0	2	1	0	2	4	1
1841:	0	0	1	0	4	1	5	6
1849:	2	2	2	0	1	1	0	1
1857:	1	0	1	1	2	2	0	0
1865:	1	1	1	2	1	0	1	2
1873:	1	4	1	0	1	3	2	1
1881:	1	2	1	2	1	1	4	1
1889:	3	2	3	1	1	2	1	3
1897:	0	3	1	0	2	0	4	3
1905:	1	1	0	1	1	0	1	2
1913:	0	3	0	0	2	2	0	0
1921:	1	2	0	3	2	0	0	2
1929:	0	3	2	0	1	0	0	4
1937:	1	2	0	2	3	1	0	1
1945:	0	0	0	0	2	0	0	2
1953:	2	2	0	0	1	2	1	2
1961:	1	2	1	1	0	1	0	2
1969:	1	1	2	1	0	0	2	1
1977:	1	1	1	1	2	0	1	1
1985:	0	2	0	0	0	0	1	1
1993:	0	3	0	3	2	1	1	0
2001:	0	1	1	3	1	3	0	0
2009:	2	2	1	0	3	2	1	0
2017:	0	3	0	0	0	1	0	2
2025:	1	1	0	1	4	2	2	1
2033:	3	1	1	1	1	1	0	2
2041:	2	1	4	0	0	1	1	1
2049:	0	0	2	2	1	1	1	0
2057:	0	0	2	1	2	0	1	0
2065:	1	1	1	2	1	0	2	0
2073:	1	0	0	2	1	1	2	0
2081:	1	0	1	1	2	3	0	1
2089:	1	0	1	2	0	1	1	1

2097: 0 1 1 1 2 4 6 13

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

2529: 0 0 0 0 1 1 0 1

Sample Title: CP0603S03-04

Channel	1	2	3	4	5	6	7	8
2537:	0	0	1	1	0	0	2	0
2545:	0	0	0	1	0	0	0	0
2553:	0	0	1	2	1	0	0	0
2561:	0	0	1	1	1	0	0	0
2569:	1	0	0	0	0	0	2	0
2577:	0	1	1	0	0	0	1	2
2585:	0	0	0	0	0	0	1	0
2593:	1	0	0	2	1	1	0	0
2601:	1	0	0	2	0	0	2	1
2609:	1	1	0	1	23	36	47	20
2617:	5	0	2	0	0	1	0	1
2625:	0	1	0	0	0	0	0	1
2633:	2	0	0	0	0	0	0	0
2641:	0	0	1	1	1	0	1	0
2649:	1	0	1	1	0	0	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	1	0	1	2
2673:	1	0	0	1	0	0	1	0
2681:	1	1	0	0	0	0	0	0
2689:	0	1	0	0	1	1	0	1
2697:	0	1	2	0	0	2	0	1
2705:	0	0	1	1	0	1	1	0
2713:	0	0	1	0	0	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	1	1	1	1
2745:	0	0	0	0	0	2	0	1
2753:	0	1	1	1	1	0	0	1
2761:	0	0	1	1	0	0	1	0
2769:	1	0	0	0	0	1	1	2
2777:	0	0	0	0	0	0	0	0
2785:	1	0	1	0	1	1	1	0
2793:	0	0	0	1	0	2	0	0
2801:	0	0	0	0	0	0	1	0
2809:	0	0	0	0	0	0	1	0
2817:	1	0	0	0	0	0	0	0
2825:	0	0	1	0	2	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	1	0	1	0	0	0
2849:	2	1	0	0	0	0	1	0
2857:	1	0	0	0	0	0	0	1
2865:	0	0	0	0	0	1	1	1
2873:	0	0	0	0	0	0	0	0
2881:	0	1	0	1	1	0	0	0
2889:	0	0	2	0	1	0	0	0
2897:	0	0	0	0	1	0	0	0
2905:	1	0	0	0	2	0	0	0
2913:	0	0	0	0	0	0	1	1
2921:	0	0	0	1	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	1	1	0	0	1	0	0
2945:	0	1	0	0	0	1	0	1
2953:	0	0	0	0	1	0	0	0

2961: 2 1 0 0 0 0 0 1

Sample Title: CP0603S03-04

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

3393: 0 1 0 0 1 0 0 0

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

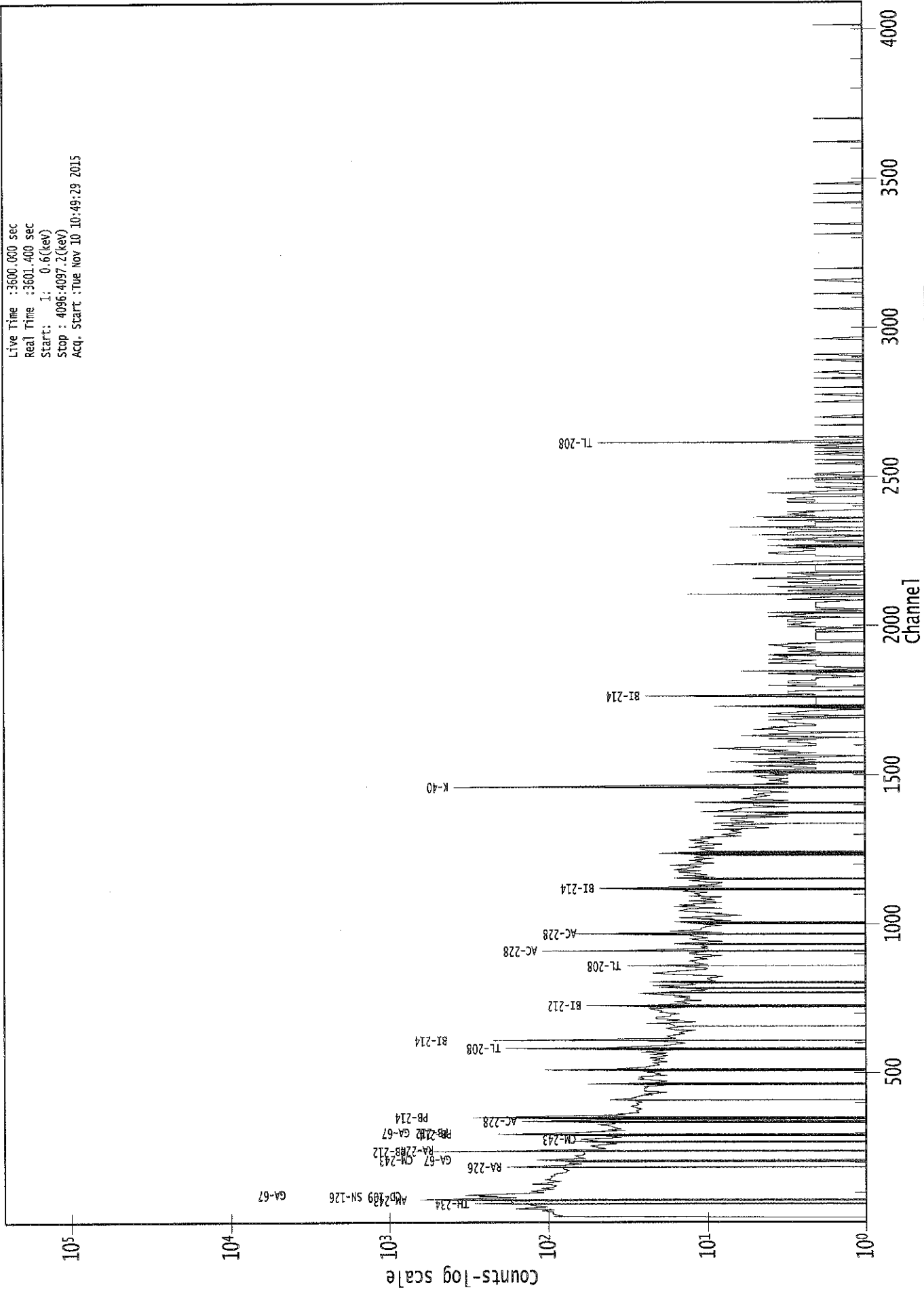
3825: 0 0 1 0 0 0 0 0 0

Sample Title: CP0603S03-04

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

0000029382.CNF

Live Time : 3600.000 sec
Real Time : 3601.400 sec
Start : 1. 0.6 (keV)
Stop : 4096.4097.2 (keV)
Acq. Start : Tue Nov 10 10:49:29 2015



ROI Type: 1

ROI Type: 2

Analysis Report for 1510090-05
CP0603S06-07

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-05
Sample Description : CP0603S06-07
Sample Type : SOIL

Sample Size : 5.723E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:43:16AM
Acquisition Started : 11/10/2015 9:46:35AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE2
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) : 6 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 29380

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/10/15

Analysis Report for 1510090-05
CP0603S06-07

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 10:46:39AM
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	46.63	46.73	0.0000	0.00
2	76.43	76.52	0.0000	0.00
3	87.45	87.53	0.0000	0.00
4	92.79	92.87	0.0000	0.00
5	107.07	107.14	0.0000	0.00
6	128.75	128.81	0.0000	0.00
7	186.19	186.21	0.0000	0.00
8	209.40	209.41	0.0000	0.00
9	238.82	238.82	0.0000	0.00
10	241.93	241.93	0.0000	0.00
11	253.86	253.85	0.0000	0.00
12	270.78	270.76	0.0000	0.00
13	278.08	278.06	0.0000	0.00
14	295.27	295.24	0.0000	0.00
15	300.11	300.08	0.0000	0.00
16	328.38	328.33	0.0000	0.00
17	338.35	338.29	0.0000	0.00
18	351.94	351.88	0.0000	0.00
19	464.00	463.88	0.0000	0.00
20	494.95	494.82	0.0000	0.00
21	503.96	503.82	0.0000	0.00
22	510.93	510.78	0.0000	0.00
23	520.23	520.08	0.0000	0.00
24	583.32	583.14	0.0000	0.00
25	609.60	609.40	0.0000	0.00
26	640.71	640.50	0.0000	0.00
27	724.49	724.25	0.0000	0.00
28	727.40	727.16	0.0000	0.00
29	768.28	768.02	0.0000	0.00
30	772.05	771.79	0.0000	0.00
31	787.88	787.61	0.0000	0.00
32	794.89	794.61	0.0000	0.00
33	806.78	806.50	0.0000	0.00
34	860.66	860.36	0.0000	0.00
35	911.47	911.14	0.0000	0.00
36	933.72	933.38	0.0000	0.00
37	965.09	964.74	0.0000	0.00
38	969.15	968.80	0.0000	0.00
39	1062.14	1061.75	0.0000	0.00
40	1120.72	1120.31	0.0000	0.00
41	1238.57	1238.12	0.0000	0.00
42	1282.53	1282.06	0.0000	0.00

Analysis Report for 1510090-05
CP0603S06-07

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1294.92	1294.45	0.0000	0.00
44	1307.19	1306.72	0.0000	0.00
45	1319.16	1318.68	0.0000	0.00
46	1325.12	1324.64	0.0000	0.00
47	1377.19	1376.70	0.0000	0.00
48	1461.06	1460.54	0.0000	0.00
49	1588.06	1587.50	0.0000	0.00
50	1593.06	1592.50	0.0000	0.00
51	1620.74	1620.18	0.0000	0.00
52	1626.91	1626.34	0.0000	0.00
53	1630.81	1630.24	0.0000	0.00
54	1637.59	1637.02	0.0000	0.00
55	1641.56	1640.99	0.0000	0.00
56	1764.44	1763.83	0.0000	0.00
57	1785.35	1784.74	0.0000	0.00
58	1847.12	1846.49	0.0000	0.00
59	2103.43	2102.75	0.0000	0.00
60	2174.33	2173.64	0.0000	0.00
61	2183.09	2182.40	0.0000	0.00
62	2204.05	2203.36	0.0000	0.00
63	2234.65	2233.95	0.0000	0.00
64	2240.67	2239.97	0.0000	0.00
65	2248.10	2247.40	0.0000	0.00
66	2258.39	2257.69	0.0000	0.00
67	2448.11	2447.38	0.0000	0.00
68	2614.23	2613.49	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-05
CP0603S06-07

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 10:46:39AM

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	46.63	43 -	50	46.73	2.12E+02	112.45	1.96E+03	1.34
2	76.43	72 -	80	76.52	1.24E+03	142.60	2.35E+03	3.91
3	87.45	85 -	89	87.53	9.84E+01	84.84	1.51E+03	1.59
4	92.79	90 -	96	92.87	3.14E+02	101.55	1.59E+03	1.45
5	107.07	104 -	110	107.14	8.80E+01	79.20	1.08E+03	4.10
6	128.75	126 -	132	128.81	7.11E+01	78.07	1.06E+03	1.17
7	186.19	183 -	189	186.21	2.17E+02	73.83	8.35E+02	1.57
8	209.40	207 -	212	209.41	7.72E+01	57.49	5.94E+02	2.35
M m 9	238.82	234 -	246	238.82	9.72E+02	79.48	4.78E+02	1.55
10	241.93	234 -	246	241.93	2.06E+02	58.39	4.56E+02	1.56
11	253.86	251 -	257	253.85	5.27E+01	51.65	4.45E+02	1.68
12	270.78	267 -	274	270.76	1.02E+02	58.10	4.92E+02	2.11
M m 13	278.08	275 -	281	278.06	7.52E+01	51.91	4.38E+02	1.61
14	295.27	291 -	317	295.24	3.73E+02	51.17	2.77E+02	1.52
M m 15	300.11	291 -	317	300.08	7.93E+01	37.98	2.40E+02	1.66
16	328.38	325 -	331	328.33	5.41E+01	48.95	3.98E+02	1.23
17	338.35	334 -	341	338.29	1.91E+02	59.57	4.64E+02	1.88
18	351.94	347 -	354	351.88	5.78E+02	66.18	3.45E+02	1.43
19	464.00	460 -	469	463.88	8.47E+01	45.59	2.45E+02	1.85
20	494.95	491 -	499	494.82	4.72E+01	34.36	1.52E+02	3.32
21	503.96	501 -	506	503.82	2.92E+01	27.55	1.28E+02	1.22
M m 22	510.93	507 -	524	510.78	2.05E+02	42.90	1.71E+02	2.60
23	520.23	507 -	524	520.08	2.82E+01	42.14	2.34E+02	3.46
24	583.32	579 -	586	583.14	3.04E+02	48.17	1.84E+02	1.99
25	609.60	605 -	619	609.40	4.28E+02	69.94	3.25E+02	1.78
26	640.71	636 -	644	640.50	3.41E+01	34.95	1.68E+02	6.09
M m 27	724.49	723 -	730	724.25	1.65E+01	15.41	5.49E+01	2.18
28	727.40	723 -	730	727.16	6.38E+01	32.64	1.35E+02	2.17
M m 29	768.28	763 -	775	768.02	3.77E+01	29.40	1.16E+02	2.22
M m 30	772.05	763 -	775	771.79	2.09E+01	28.92	1.14E+02	2.23
M m 31	787.88	782 -	798	787.61	2.40E+01	25.02	8.15E+01	2.24
32	794.89	782 -	798	794.61	5.29E+01	26.19	8.74E+01	2.25
33	806.78	803 -	810	806.50	3.24E+01	27.06	1.01E+02	1.56
34	860.66	857 -	863	860.36	5.24E+01	26.27	8.71E+01	2.21
35	911.47	907 -	915	911.14	1.81E+02	39.99	1.34E+02	1.73
36	933.72	930 -	937	933.38	2.60E+01	27.06	1.06E+02	1.52
M m 37	965.09	962 -	973	964.74	4.06E+01	23.11	6.21E+01	2.65
38	969.15	962 -	973	968.80	1.67E+02	31.40	6.77E+01	2.15
39	1062.14	1058 -	1066	1061.75	2.67E+01	24.50	7.46E+01	3.38
40	1120.72	1116 -	1124	1120.31	1.11E+02	36.32	1.34E+02	1.89

Analysis Report for 1510090-05

CP0603S06-07

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1238.57	1235 - 1242		1238.12	4.84E+01	28.64	1.05E+02	1.85
42	1282.53	1278 - 1286		1282.06	4.17E+01	20.55	3.67E+01	1.57
43	1294.92	1291 - 1299		1294.45	2.63E+01	18.49	3.73E+01	4.26
44	1307.19	1300 - 1315		1306.72	3.06E+01	32.92	9.68E+01	10.57
45	1319.16	1316 - 1321		1318.68	1.36E+01	12.81	1.88E+01	2.24
46	1325.12	1322 - 1327		1324.64	1.33E+01	12.08	1.94E+01	1.66
47	1377.19	1373 - 1381		1376.70	3.22E+01	22.34	5.35E+01	2.57
48	1461.06	1455 - 1465		1460.54	7.88E+02	58.65	3.85E+01	2.42
M 49	1588.06	1582 - 1598		1587.50	1.48E+01	17.38	3.87E+01	2.89
m 50	1593.06	1582 - 1598		1592.50	1.58E+01	17.72	3.17E+01	2.89
51	1620.74	1615 - 1624		1620.18	1.70E+01	14.42	2.00E+01	2.70
M 52	1626.91	1625 - 1634		1626.34	6.51E+00	5.17	5.56E+00	2.90
m 53	1630.81	1625 - 1634		1630.24	1.60E+01	12.00	1.18E+01	2.65
M 54	1637.59	1635 - 1643		1637.02	7.75E+00	5.34	3.00E+00	3.78
m 55	1641.56	1635 - 1643		1640.99	7.97E+00	7.62	6.00E+00	3.37
56	1764.44	1759 - 1769		1763.83	7.94E+01	21.04	1.71E+01	2.30
57	1785.35	1781 - 1787		1784.74	7.25E+00	9.21	9.50E+00	2.72
58	1847.12	1843 - 1849		1846.49	9.62E+00	8.75	6.77E+00	2.13
59	2103.43	2097 - 2107		2102.75	2.40E+01	9.80	0.00E+00	3.33
60	2174.33	2170 - 2177		2173.64	1.10E+01	6.63	0.00E+00	4.38
61	2183.09	2179 - 2184		2182.40	5.00E+00	4.47	0.00E+00	1.24
62	2204.05	2197 - 2209		2203.36	2.99E+01	19.88	3.21E+01	2.27
63	2234.65	2231 - 2236		2233.95	5.13E+00	7.07	5.75E+00	2.60
64	2240.67	2237 - 2244		2239.97	6.61E+00	7.21	4.78E+00	1.73
65	2248.10	2244 - 2250		2247.40	6.50E+00	8.03	7.00E+00	3.38
66	2258.39	2253 - 2262		2257.69	1.60E+01	8.00	0.00E+00	3.66
67	2448.11	2442 - 2452		2447.38	1.30E+01	7.21	0.00E+00	3.06
68	2614.23	2609 - 2617		2613.49	1.11E+02	22.37	8.85E+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 : 11/10/2015 10:46:39AM

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
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Analysis Report for 1510090-05

CP0603S06-07

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level	
1	46.63	43 -	50	2.12E+02	112.45	1.96E+03	8.93E+01	
2	76.43	72 -	80	1.24E+03	142.60	2.35E+03	1.02E+02	
3	87.45	85 -	89	9.84E+01	84.84	1.51E+03	6.78E+01	
4	92.79	90 -	96	3.14E+02	101.55	1.59E+03	7.82E+01	
5	107.07	104 -	110	8.80E+01	79.20	1.08E+03	6.32E+01	
6	128.75	126 -	132	7.11E+01	78.07	1.06E+03	6.27E+01	
7	186.19	183 -	189	2.17E+02	73.83	8.35E+02	5.57E+01	
8	209.40	207 -	212	7.72E+01	57.49	5.94E+02	4.50E+01	
M	9	238.82	234 -	246	9.72E+02	79.48	4.78E+02	3.59E+01
m	10	241.93	234 -	246	2.06E+02	58.39	4.56E+02	3.51E+01
	11	253.86	251 -	257	5.27E+01	51.65	4.45E+02	4.07E+01
	12	270.78	267 -	274	1.02E+02	58.10	4.92E+02	4.48E+01
	13	278.08	275 -	281	7.52E+01	51.91	4.38E+02	4.02E+01
M	14	295.27	291 -	317	3.73E+02	51.17	2.77E+02	2.74E+01
m	15	300.11	291 -	317	7.93E+01	37.98	2.40E+02	2.54E+01
	16	328.38	325 -	331	5.41E+01	48.95	3.98E+02	3.84E+01
	17	338.35	334 -	341	1.91E+02	59.57	4.64E+02	4.34E+01
	18	351.94	347 -	354	5.78E+02	66.18	3.45E+02	3.74E+01
	19	464.00	460 -	469	8.47E+01	45.59	2.45E+02	3.43E+01
	20	494.95	491 -	499	4.72E+01	34.36	1.52E+02	2.59E+01
	21	503.96	501 -	506	2.92E+01	27.55	1.28E+02	2.08E+01
M	22	510.93	507 -	524	2.05E+02	42.90	1.71E+02	2.15E+01
m	23	520.23	507 -	524	2.82E+01	42.14	2.34E+02	2.51E+01
	24	583.32	579 -	586	3.04E+02	48.17	1.84E+02	2.73E+01
	25	609.60	605 -	619	4.28E+02	69.94	3.25E+02	1.75E+01
	26	640.71	636 -	644	3.41E+01	34.95	1.68E+02	2.71E+01
M	27	724.49	723 -	730	1.65E+01	15.41	5.49E+01	1.22E+01
m	28	727.40	723 -	730	6.38E+01	32.64	1.35E+02	1.91E+01
M	29	768.28	763 -	775	3.77E+01	29.40	1.16E+02	1.77E+01
m	30	772.05	763 -	775	2.09E+01	28.92	1.14E+02	1.75E+01
M	31	787.88	782 -	798	2.40E+01	25.02	8.15E+01	1.48E+01
m	32	794.89	782 -	798	5.29E+01	26.19	8.74E+01	1.54E+01
	33	806.78	803 -	810	3.24E+01	27.06	1.01E+02	2.02E+01
	34	860.66	857 -	863	5.24E+01	26.27	8.71E+01	1.80E+01
	35	911.47	907 -	915	1.81E+02	39.99	1.34E+02	2.43E+01
	36	933.72	930 -	937	2.60E+01	27.06	1.06E+02	2.06E+01
M	37	965.09	962 -	973	4.06E+01	23.11	6.21E+01	1.30E+01
m	38	969.15	962 -	973	1.67E+02	31.40	6.77E+01	1.35E+01
	39	1062.14	1058 -	1066	2.67E+01	24.50	7.46E+01	1.83E+01
	40	1120.72	1116 -	1124	1.11E+02	36.32	1.34E+02	2.43E+01
	41	1238.57	1235 -	1242	4.84E+01	28.64	1.05E+02	2.06E+01
	42	1282.53	1278 -	1286	4.17E+01	20.55	3.67E+01	1.31E+01
	43	1294.92	1291 -	1299	2.63E+01	18.49	3.73E+01	1.26E+01
	44	1307.19	1300 -	1315	3.06E+01	32.92	9.68E+01	2.55E+01
	45	1319.16	1316 -	1321	1.36E+01	12.81	1.88E+01	8.60E+00
	46	1325.12	1322 -	1327	1.33E+01	12.08	1.94E+01	7.92E+00
	47	1377.19	1373 -	1381	3.22E+01	22.34	5.35E+01	1.58E+01
	48	1461.06	1455 -	1465	7.88E+02	58.65	3.85E+01	1.40E+01
M	49	1588.06	1582 -	1598	1.48E+01	17.38	3.87E+01	1.02E+01
m	50	1593.06	1582 -	1598	1.58E+01	17.72	3.17E+01	9.25E+00
	51	1620.74	1615 -	1624	1.70E+01	14.42	2.00E+01	9.73E+00

Analysis Report for 1510090-05
CP0603S06-07

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	52	1626.91	1625 -	1634	6.51E+00	5.17	5.56E+00	3.88E+00
m	53	1630.81	1625 -	1634	1.60E+01	12.00	1.18E+01	5.65E+00
M	54	1637.59	1635 -	1643	7.75E+00	5.34	3.00E+00	2.85E+00
m	55	1641.56	1635 -	1643	7.97E+00	7.62	6.00E+00	4.03E+00
	56	1764.44	1759 -	1769	7.94E+01	21.04	1.71E+01	9.19E+00
	57	1785.35	1781 -	1787	7.25E+00	9.21	9.50E+00	6.14E+00
	58	1847.12	1843 -	1849	9.62E+00	8.75	6.77E+00	5.07E+00
	59	2103.43	2097 -	2107	2.40E+01	9.80	0.00E+00	0.00E+00
	60	2174.33	2170 -	2177	1.10E+01	6.63	0.00E+00	0.00E+00
	61	2183.09	2179 -	2184	5.00E+00	4.47	0.00E+00	0.00E+00
	62	2204.05	2197 -	2209	2.99E+01	19.88	3.21E+01	1.36E+01
	63	2234.65	2231 -	2236	5.13E+00	7.07	5.75E+00	4.46E+00
	64	2240.67	2237 -	2244	6.61E+00	7.21	4.78E+00	4.16E+00
	65	2248.10	2244 -	2250	6.50E+00	8.03	7.00E+00	5.10E+00
	66	2258.39	2253 -	2262	1.60E+01	8.00	0.00E+00	0.00E+00
	67	2448.11	2442 -	2452	1.30E+01	7.21	0.00E+00	0.00E+00
	68	2614.23	2609 -	2617	1.11E+02	22.37	8.85E+00	6.27E+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 : 11/10/2015 10:46:39AM

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	46.63	43 -	50	46.73	2.12E+02	112.45	1.96E+03	PB-210
2	76.43	72 -	80	76.52	1.24E+03	142.60	2.35E+03	.....
3	87.45	85 -	89	87.53	9.84E+01	84.84	1.51E+03	SN-126 CD-109 LU-176 NP-237 EU-155
4	92.79	90 -	96	92.87	3.14E+02	101.55	1.59E+03	GA-67

Analysis Report for 1510090-05

CP0603S06-07

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	5	107.07	104 -	110	107.14	8.80E+01	79.20	1.08E+03	NP-239
	6	128.75	126 -	132	128.81	7.11E+01	78.07	1.06E+03	.....
	7	186.19	183 -	189	186.21	2.17E+02	73.83	8.35E+02	RA-226
	8	209.40	207 -	212	209.41	7.72E+01	57.49	5.94E+02	CM-243 GA-67
M	9	238.82	234 -	246	238.82	9.72E+02	79.48	4.78E+02	PB-212
m	10	241.93	234 -	246	241.93	2.06E+02	58.39	4.56E+02	RA-224
	11	253.86	251 -	257	253.85	5.27E+01	51.65	4.45E+02	.....
	12	270.78	267 -	274	270.76	1.02E+02	58.10	4.92E+02	.....
	13	278.08	275 -	281	278.06	7.52E+01	51.91	4.38E+02	CM-243 NP-239
M	14	295.27	291 -	317	295.24	3.73E+02	51.17	2.77E+02	PB-214
m	15	300.11	291 -	317	300.08	7.93E+01	37.98	2.40E+02	PB-212 GA-67 BI-210M
	16	328.38	325 -	331	328.33	5.41E+01	48.95	3.98E+02	LA-140
	17	338.35	334 -	341	338.29	1.91E+02	59.57	4.64E+02	AC-228
	18	351.94	347 -	354	351.88	5.78E+02	66.18	3.45E+02	PB-214
	19	464.00	460 -	469	463.88	8.47E+01	45.59	2.45E+02	SB-125
	20	494.95	491 -	499	494.82	4.72E+01	34.36	1.52E+02	.....
	21	503.96	501 -	506	503.82	2.92E+01	27.55	1.28E+02	.....
M	22	510.93	507 -	524	510.78	2.05E+02	42.90	1.71E+02	.....
m	23	520.23	507 -	524	520.08	2.82E+01	42.14	2.34E+02	RB-83
	24	583.32	579 -	586	583.14	3.04E+02	48.17	1.84E+02	TL-208
	25	609.60	605 -	619	609.40	4.28E+02	69.94	3.25E+02	BI-214
	26	640.71	636 -	644	640.50	3.41E+01	34.95	1.68E+02	.....
M	27	724.49	723 -	730	724.25	1.65E+01	15.41	5.49E+01	ZR-95
m	28	727.40	723 -	730	727.16	6.38E+01	32.64	1.35E+02	BI-212
M	29	768.28	763 -	775	768.02	3.77E+01	29.40	1.16E+02	.....
m	30	772.05	763 -	775	771.79	2.09E+01	28.92	1.14E+02	.....
M	31	787.88	782 -	798	787.61	2.40E+01	25.02	8.15E+01	LA-138
m	32	794.89	782 -	798	794.61	5.29E+01	26.19	8.74E+01	CS-134
	33	806.78	803 -	810	806.50	3.24E+01	27.06	1.01E+02	.....
	34	860.66	857 -	863	860.36	5.24E+01	26.27	8.71E+01	TL-208
	35	911.47	907 -	915	911.14	1.81E+02	39.99	1.34E+02	AC-228 LU-172
	36	933.72	930 -	937	933.38	2.60E+01	27.06	1.06E+02	.....
M	37	965.09	962 -	973	964.74	4.06E+01	23.11	6.21E+01	.....
m	38	969.15	962 -	973	968.80	1.67E+02	31.40	6.77E+01	AC-228
	39	1062.14	1058 -	1066	1061.75	2.67E+01	24.50	7.46E+01	.....
	40	1120.72	1116 -	1124	1120.31	1.11E+02	36.32	1.34E+02	SC-46 BI-214 TA-182
	41	1238.57	1235 -	1242	1238.12	4.84E+01	28.64	1.05E+02	CO-56
	42	1282.53	1278 -	1286	1282.06	4.17E+01	20.55	3.67E+01	.....
	43	1294.92	1291 -	1299	1294.45	2.63E+01	18.49	3.73E+01	.....
	44	1307.19	1300 -	1315	1306.72	3.06E+01	32.92	9.68E+01	.....
	45	1319.16	1316 -	1321	1318.68	1.36E+01	12.81	1.88E+01	.....
	46	1325.12	1322 -	1327	1324.64	1.33E+01	12.08	1.94E+01	.....
	47	1377.19	1373 -	1381	1376.70	3.22E+01	22.34	5.35E+01	.....
	48	1461.06	1455 -	1465	1460.54	7.88E+02	58.65	3.85E+01	K-40
M	49	1588.06	1582 -	1598	1587.50	1.48E+01	17.38	3.87E+01	.....
m	50	1593.06	1582 -	1598	1592.50	1.58E+01	17.72	3.17E+01	.....
	51	1620.74	1615 -	1624	1620.18	1.70E+01	14.42	2.00E+01	BI-212

Analysis Report for 1510090-05

CP0603S06-07

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	52	1626.91	1625 -	1634	1626.34	6.51E+00	5.17	5.56E+00	.....
m	53	1630.81	1625 -	1634	1630.24	1.60E+01	12.00	1.18E+01	.....
M	54	1637.59	1635 -	1643	1637.02	7.75E+00	5.34	3.00E+00	.....
m	55	1641.56	1635 -	1643	1640.99	7.97E+00	7.62	6.00E+00	.....
	56	1764.44	1759 -	1769	1763.83	7.94E+01	21.04	1.71E+01	BI-214
	57	1785.35	1781 -	1787	1784.74	7.25E+00	9.21	9.50E+00	.....
	58	1847.12	1843 -	1849	1846.49	9.62E+00	8.75	6.77E+00	.....
	59	2103.43	2097 -	2107	2102.75	2.40E+01	9.80	0.00E+00	.....
	60	2174.33	2170 -	2177	2173.64	1.10E+01	6.63	0.00E+00	.....
	61	2183.09	2179 -	2184	2182.40	5.00E+00	4.47	0.00E+00	.....
	62	2204.05	2197 -	2209	2203.36	2.99E+01	19.88	3.21E+01	BI-214
	63	2234.65	2231 -	2236	2233.95	5.13E+00	7.07	5.75E+00	.....
	64	2240.67	2237 -	2244	2239.97	6.61E+00	7.21	4.78E+00	.....
	65	2248.10	2244 -	2250	2247.40	6.50E+00	8.03	7.00E+00	.....
	66	2258.39	2253 -	2262	2257.69	1.60E+01	8.00	0.00E+00	.....
	67	2448.11	2442 -	2452	2447.38	1.30E+01	7.21	0.00E+00	.....
	68	2614.23	2609 -	2617	2613.49	1.11E+02	22.37	8.85E+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 : 11/10/2015 10:46:39AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.63	2.12E+02	112.45	1.35E-02	1.68E-03
	2	76.43	1.24E+03	142.60	2.74E-02	3.35E-03
	3	87.45	9.84E+01	84.84	2.84E-02	4.45E-03
	4	92.79	3.14E+02	101.55	2.85E-02	4.29E-03
	5	107.07	8.80E+01	79.20	2.79E-02	3.66E-03
	6	128.75	7.11E+01	78.07	2.61E-02	2.79E-03
	7	186.19	2.17E+02	73.83	2.11E-02	1.65E-03
	8	209.40	7.72E+01	57.49	1.95E-02	1.63E-03
M	9	238.82	9.72E+02	79.48	1.79E-02	1.60E-03
m	10	241.93	2.06E+02	58.39	1.77E-02	1.60E-03
	11	253.86	5.27E+01	51.65	1.71E-02	1.58E-03
	12	270.78	1.02E+02	58.10	1.64E-02	1.57E-03
	13	278.08	7.52E+01	51.91	1.61E-02	1.56E-03

Analysis Report for 1510090-05
CP0603S06-07

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	14	295.27	3.73E+02	51.17	1.55E-02	1.48E-03
m	15	300.11	7.93E+01	37.98	1.53E-02	1.46E-03
	16	328.38	5.41E+01	48.95	1.44E-02	1.32E-03
	17	338.35	1.91E+02	59.57	1.41E-02	1.27E-03
	18	351.94	5.78E+02	66.18	1.37E-02	1.21E-03
	19	464.00	8.47E+01	45.59	1.13E-02	9.46E-04
	20	494.95	4.72E+01	34.36	1.08E-02	9.15E-04
	21	503.96	2.92E+01	27.55	1.07E-02	9.05E-04
M	22	510.93	2.05E+02	42.90	1.06E-02	8.98E-04
m	23	520.23	2.82E+01	42.14	1.04E-02	8.89E-04
	24	583.32	3.04E+02	48.17	9.58E-03	8.25E-04
	25	609.60	4.28E+02	69.94	9.27E-03	7.98E-04
	26	640.71	3.41E+01	34.95	8.92E-03	7.66E-04
M	27	724.49	1.65E+01	15.41	8.11E-03	7.05E-04
m	28	727.40	6.38E+01	32.64	8.08E-03	7.03E-04
M	29	768.28	3.77E+01	29.40	7.74E-03	6.77E-04
m	30	772.05	2.09E+01	28.92	7.71E-03	6.74E-04
M	31	787.88	2.40E+01	25.02	7.59E-03	6.64E-04
m	32	794.89	5.29E+01	26.19	7.53E-03	6.60E-04
	33	806.78	3.24E+01	27.06	7.44E-03	6.52E-04
	34	860.66	5.24E+01	26.27	7.07E-03	6.17E-04
	35	911.47	1.81E+02	39.99	6.74E-03	5.86E-04
	36	933.72	2.60E+01	27.06	6.61E-03	5.75E-04
M	37	965.09	4.06E+01	23.11	6.44E-03	5.59E-04
m	38	969.15	1.67E+02	31.40	6.41E-03	5.57E-04
	39	1062.14	2.67E+01	24.50	5.95E-03	5.10E-04
	40	1120.72	1.11E+02	36.32	5.70E-03	4.80E-04
	41	1238.57	4.84E+01	28.64	5.27E-03	4.83E-04
	42	1282.53	4.17E+01	20.55	5.13E-03	5.03E-04
	43	1294.92	2.63E+01	18.49	5.09E-03	5.09E-04
	44	1307.19	3.06E+01	32.92	5.06E-03	5.15E-04
	45	1319.16	1.36E+01	12.81	5.02E-03	5.20E-04
	46	1325.12	1.33E+01	12.08	5.01E-03	5.23E-04
	47	1377.19	3.22E+01	22.34	4.87E-03	5.08E-04
	48	1461.06	7.88E+02	58.65	4.67E-03	4.73E-04
M	49	1588.06	1.48E+01	17.38	4.43E-03	4.21E-04
m	50	1593.06	1.58E+01	17.72	4.42E-03	4.19E-04
	51	1620.74	1.70E+01	14.42	4.38E-03	4.07E-04
M	52	1626.91	6.51E+00	5.17	4.37E-03	4.04E-04
m	53	1630.81	1.60E+01	12.00	4.36E-03	4.03E-04
M	54	1637.59	7.75E+00	5.34	4.35E-03	4.00E-04
m	55	1641.56	7.97E+00	7.62	4.35E-03	3.98E-04
	56	1764.44	7.94E+01	21.04	4.19E-03	3.48E-04
	57	1785.35	7.25E+00	9.21	4.16E-03	3.39E-04
	58	1847.12	9.62E+00	8.75	4.10E-03	3.18E-04
	59	2103.43	2.40E+01	9.80	3.95E-03	3.18E-04
	60	2174.33	1.10E+01	6.63	3.93E-03	3.18E-04
	61	2183.09	5.00E+00	4.47	3.93E-03	3.18E-04
	62	2204.05	2.99E+01	19.88	3.93E-03	3.18E-04
	63	2234.65	5.13E+00	7.07	3.93E-03	3.18E-04
	64	2240.67	6.61E+00	7.21	3.93E-03	3.18E-04
	65	2248.10	6.50E+00	8.03	3.93E-03	3.18E-04
	66	2258.39	1.60E+01	8.00	3.93E-03	3.18E-04

Analysis Report for 1510090-05
 CP0603S06-07

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
67	2448.11	1.30E+01	7.21	3.96E-03	3.18E-04
68	2614.23	1.11E+02	22.37	4.05E-03	3.18E-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 : 11/10/2015 10:46:39AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028942.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	46.63	2.12E+02	112.45	6.46E+01	1.16E+01	1.48E+02	1.13E+02
2	76.43	1.24E+03	142.60			1.24E+03	1.43E+02
3	87.45	9.84E+01	84.84	1.46E+00	7.88E+00	9.70E+01	8.52E+01
4	92.79	3.14E+02	101.55	5.70E+01	9.03E+00	2.57E+02	1.02E+02
5	107.07	8.80E+01	79.20			8.80E+01	7.92E+01
6	128.75	7.11E+01	78.07			7.11E+01	7.81E+01
7	186.19	2.17E+02	73.83	4.72E+01	7.97E+00	1.69E+02	7.43E+01
8	209.40	7.72E+01	57.49			7.72E+01	5.75E+01
M 9	238.82	9.72E+02	79.48	2.36E+01	1.35E+01	9.49E+02	8.06E+01
m 10	241.93	2.06E+02	58.39	6.38E+00	3.91E+00	2.00E+02	5.85E+01
11	253.86	5.27E+01	51.65	0.00E+00	0.00E+00	5.27E+01	5.17E+01
12	270.78	1.02E+02	58.10			1.02E+02	5.81E+01
13	278.08	7.52E+01	51.91			7.52E+01	5.19E+01
M 14	295.27	3.73E+02	51.17	8.57E+00	6.10E+00	3.64E+02	5.15E+01
m 15	300.11	7.93E+01	37.98			7.93E+01	3.80E+01
16	328.38	5.41E+01	48.95	0.00E+00	0.00E+00	5.41E+01	4.90E+01
17	338.35	1.91E+02	59.57			1.91E+02	5.96E+01
18	351.94	5.78E+02	66.18	1.40E+01	5.55E+00	5.64E+02	6.64E+01
19	464.00	8.47E+01	45.59			8.47E+01	4.56E+01
20	494.95	4.72E+01	34.36			4.72E+01	3.44E+01
21	503.96	2.92E+01	27.55			2.92E+01	2.75E+01
M 22	510.93	2.05E+02	42.90	8.41E+01	5.50E+00	1.21E+02	4.32E+01
m 23	520.23	2.82E+01	42.14			2.82E+01	4.21E+01
24	583.32	3.04E+02	48.17	7.32E+00	4.08E+00	2.97E+02	4.83E+01
25	609.60	4.28E+02	69.94	1.30E+01	3.89E+00	4.15E+02	7.00E+01
26	640.71	3.41E+01	34.95			3.41E+01	3.49E+01
M 27	724.49	1.65E+01	15.41			1.65E+01	1.54E+01
m 28	727.40	6.38E+01	32.64			6.38E+01	3.26E+01

Analysis Report for 1510090-05

CP0603S06-07

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	29	768.28	3.77E+01	29.40			3.77E+01	2.94E+01
m	30	772.05	2.09E+01	28.92			2.09E+01	2.89E+01
M	31	787.88	2.40E+01	25.02			2.40E+01	2.50E+01
m	32	794.89	5.29E+01	26.19			5.29E+01	2.62E+01
	33	806.78	3.24E+01	27.06			3.24E+01	2.71E+01
	34	860.66	5.24E+01	26.27			5.24E+01	2.63E+01
	35	911.47	1.81E+02	39.99	5.60E+00	3.32E+00	1.75E+02	4.01E+01
	36	933.72	2.60E+01	27.06			2.60E+01	2.71E+01
M	37	965.09	4.06E+01	23.11			4.06E+01	2.31E+01
m	38	969.15	1.67E+02	31.40			1.67E+02	3.14E+01
	39	1062.14	2.67E+01	24.50			2.67E+01	2.45E+01
	40	1120.72	1.11E+02	36.32	3.93E+00	2.96E+00	1.07E+02	3.64E+01
	41	1238.57	4.84E+01	28.64			4.84E+01	2.86E+01
	42	1282.53	4.17E+01	20.55			4.17E+01	2.05E+01
	43	1294.92	2.63E+01	18.49			2.63E+01	1.85E+01
	44	1307.19	3.06E+01	32.92			3.06E+01	3.29E+01
	45	1319.16	1.36E+01	12.81			1.36E+01	1.28E+01
	46	1325.12	1.33E+01	12.08			1.33E+01	1.21E+01
	47	1377.19	3.22E+01	22.34			3.22E+01	2.23E+01
	48	1461.06	7.88E+02	58.65	1.12E+01	2.55E+00	7.76E+02	5.87E+01
M	49	1588.06	1.48E+01	17.38			1.48E+01	1.74E+01
m	50	1593.06	1.58E+01	17.72			1.58E+01	1.77E+01
	51	1620.74	1.70E+01	14.42			1.70E+01	1.44E+01
M	52	1626.91	6.51E+00	5.17			6.51E+00	5.17E+00
m	53	1630.81	1.60E+01	12.00			1.60E+01	1.20E+01
M	54	1637.59	7.75E+00	5.34			7.75E+00	5.34E+00
m	55	1641.56	7.97E+00	7.62			7.97E+00	7.62E+00
	56	1764.44	7.94E+01	21.04	4.23E+00	2.21E+00	7.52E+01	2.12E+01
	57	1785.35	7.25E+00	9.21			7.25E+00	9.21E+00
	58	1847.12	9.62E+00	8.75			9.62E+00	8.75E+00
	59	2103.43	2.40E+01	9.80			2.40E+01	9.80E+00
	60	2174.33	1.10E+01	6.63			1.10E+01	6.63E+00
	61	2183.09	5.00E+00	4.47			5.00E+00	4.47E+00
	62	2204.05	2.99E+01	19.88	5.94E-01	1.16E+00	2.93E+01	1.99E+01
	63	2234.65	5.13E+00	7.07			5.13E+00	7.07E+00
	64	2240.67	6.61E+00	7.21			6.61E+00	7.21E+00
	65	2248.10	6.50E+00	8.03			6.50E+00	8.03E+00
	66	2258.39	1.60E+01	8.00			1.60E+01	8.00E+00
	67	2448.11	1.30E+01	7.21			1.30E+01	7.21E+00
	68	2614.23	1.11E+02	22.37	7.38E+00	1.57E+00	1.03E+02	2.24E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.00sigma

Analysis Report for 1510090-05
CP0603S06-07

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 10:46:39AM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028942.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	46.63	2.12E+02	112.45	6.46E+01	1.16E+01	1.48E+02	1.13E+02
2	76.43	1.24E+03	142.60			1.24E+03	1.43E+02
3	87.45	9.84E+01	84.84	1.46E+00	7.88E+00	9.70E+01	8.52E+01
4	92.79	3.14E+02	101.55	5.70E+01	9.03E+00	2.57E+02	1.02E+02
5	107.07	8.80E+01	79.20			8.80E+01	7.92E+01
6	128.75	7.11E+01	78.07			7.11E+01	7.81E+01
7	186.19	2.17E+02	73.83	4.72E+01	7.97E+00	1.69E+02	7.43E+01
8	209.40	7.72E+01	57.49			7.72E+01	5.75E+01
M 9	238.82	9.72E+02	79.48	2.36E+01	1.35E+01	9.49E+02	8.06E+01
m 10	241.93	2.06E+02	58.39	6.38E+00	3.91E+00	2.00E+02	5.85E+01
11	253.86	5.27E+01	51.65	0.00E+00	0.00E+00	5.27E+01	5.17E+01
12	270.78	1.02E+02	58.10			1.02E+02	5.81E+01
13	278.08	7.52E+01	51.91			7.52E+01	5.19E+01
M 14	295.27	3.73E+02	51.17	8.57E+00	6.10E+00	3.64E+02	5.15E+01
m 15	300.11	7.93E+01	37.98			7.93E+01	3.80E+01
16	328.38	5.41E+01	48.95	0.00E+00	0.00E+00	5.41E+01	4.90E+01
17	338.35	1.91E+02	59.57			1.91E+02	5.96E+01
18	351.94	5.78E+02	66.18	1.40E+01	5.55E+00	5.64E+02	6.64E+01
19	464.00	8.47E+01	45.59			8.47E+01	4.56E+01
20	494.95	4.72E+01	34.36			4.72E+01	3.44E+01
21	503.96	2.92E+01	27.55			2.92E+01	2.75E+01
M 22	510.93	2.05E+02	42.90	8.41E+01	5.50E+00	1.21E+02	4.32E+01
m 23	520.23	2.82E+01	42.14			2.82E+01	4.21E+01
24	583.32	3.04E+02	48.17	7.32E+00	4.08E+00	2.97E+02	4.83E+01
25	609.60	4.28E+02	69.94	1.30E+01	3.89E+00	4.15E+02	7.00E+01
26	640.71	3.41E+01	34.95			3.41E+01	3.49E+01
M 27	724.49	1.65E+01	15.41			1.65E+01	1.54E+01
m 28	727.40	6.38E+01	32.64			6.38E+01	3.26E+01
M 29	768.28	3.77E+01	29.40			3.77E+01	2.94E+01
m 30	772.05	2.09E+01	28.92			2.09E+01	2.89E+01
M 31	787.88	2.40E+01	25.02			2.40E+01	2.50E+01
m 32	794.89	5.29E+01	26.19			5.29E+01	2.62E+01
33	806.78	3.24E+01	27.06			3.24E+01	2.71E+01
34	860.66	5.24E+01	26.27			5.24E+01	2.63E+01
35	911.47	1.81E+02	39.99	5.60E+00	3.32E+00	1.75E+02	4.01E+01
36	933.72	2.60E+01	27.06			2.60E+01	2.71E+01
M 37	965.09	4.06E+01	23.11			4.06E+01	2.31E+01
m 38	969.15	1.67E+02	31.40			1.67E+02	3.14E+01
39	1062.14	2.67E+01	24.50			2.67E+01	2.45E+01
40	1120.72	1.11E+02	36.32	3.93E+00	2.96E+00	1.07E+02	3.64E+01
41	1238.57	4.84E+01	28.64			4.84E+01	2.86E+01

Analysis Report for 1510090-05
CP0603S06-07

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1282.53	4.17E+01	20.55			4.17E+01	2.05E+01
43	1294.92	2.63E+01	18.49			2.63E+01	1.85E+01
44	1307.19	3.06E+01	32.92			3.06E+01	3.29E+01
45	1319.16	1.36E+01	12.81			1.36E+01	1.28E+01
46	1325.12	1.33E+01	12.08			1.33E+01	1.21E+01
47	1377.19	3.22E+01	22.34			3.22E+01	2.23E+01
48	1461.06	7.88E+02	58.65	1.12E+01	2.55E+00	7.76E+02	5.87E+01
M	49	1588.06	1.48E+01			1.48E+01	1.74E+01
m	50	1593.06	1.58E+01			1.58E+01	1.77E+01
	51	1620.74	1.70E+01			1.70E+01	1.44E+01
M	52	1626.91	6.51E+00			6.51E+00	5.17E+00
m	53	1630.81	1.60E+01			1.60E+01	1.20E+01
M	54	1637.59	7.75E+00			7.75E+00	5.34E+00
m	55	1641.56	7.97E+00			7.97E+00	7.62E+00
	56	1764.44	7.94E+01	4.23E+00	2.21E+00	7.52E+01	2.12E+01
	57	1785.35	7.25E+00			7.25E+00	9.21E+00
	58	1847.12	9.62E+00			9.62E+00	8.75E+00
	59	2103.43	2.40E+01			2.40E+01	9.80E+00
	60	2174.33	1.10E+01			1.10E+01	6.63E+00
	61	2183.09	5.00E+00			5.00E+00	4.47E+00
	62	2204.05	2.99E+01	5.94E-01	1.16E+00	2.93E+01	1.99E+01
	63	2234.65	5.13E+00			5.13E+00	7.07E+00
	64	2240.67	6.61E+00			6.61E+00	7.21E+00
	65	2248.10	6.50E+00			6.50E+00	8.03E+00
	66	2258.39	1.60E+01			1.60E+01	8.00E+00
	67	2448.11	1.30E+01			1.30E+01	7.21E+00
	68	2614.23	1.11E+02	7.38E+00	1.57E+00	1.03E+02	2.24E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.990	1460.81	* 10.67	2.04E+01	2.62E+00
GA-67	0.599	93.31	* 35.70	2.99E+02	1.30E+03
		208.95	* 2.24	2.10E+03	8.88E+03
		300.22	* 16.00	3.84E+02	1.67E+03

Analysis Report for 1510090-05
CP0603S06-07

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CD-109	0.947	88.03 *	3.72	1.26E+00	1.13E+00
SN-126	0.998	87.57 *	37.00	1.21E-01	1.08E-01
TL-208	0.982	583.14 *	30.22	1.35E+00	2.48E-01
		860.37 *	4.48	2.17E+00	1.11E+00
		2614.66 *	35.85	9.32E-01	2.15E-01
PB-210	0.997	46.50 *	4.25	3.40E+00	2.63E+00
BI-212	0.993	727.17 *	11.80	8.77E-01	4.55E-01
		1620.62 *	2.75	1.85E+00	1.58E+00
PB-212	0.995	238.63 *	44.60	1.56E+00	1.93E-01
		300.09 *	3.41	1.99E+00	9.74E-01
BI-214	0.987	609.31 *	46.30	1.27E+00	2.40E-01
		1120.29 *	15.10	1.63E+00	5.72E-01
		1764.49 *	15.80	1.49E+00	4.38E-01
		2204.22 *	4.98	1.97E+00	1.34E+00
PB-214	1.000	295.21 *	19.19	1.61E+00	2.75E-01
		351.92 *	37.19	1.45E+00	2.13E-01
RA-224	0.866	240.98 *	3.95	3.75E+00	1.15E+00
RA-226	1.000	186.21 *	3.28	3.22E+00	6.05E+00
AC-228	0.987	338.32 *	11.40	1.56E+00	5.06E-01
		911.07 *	27.70	1.23E+00	3.01E-01
		969.11 *	16.60	2.06E+00	4.26E-01
NP-237	0.866	86.50 *	12.60	3.55E-01	3.17E-01
CM-243	0.353	209.75 *	3.29	1.58E+00	1.18E+00
		228.14 *	10.60		
		277.60 *	14.00	4.38E-01	3.05E-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 : 11/10/2015 10:46:39AM
 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	76.43	3.45662E-01	5.73		
5	107.07	2.44566E-02	44.98	Tol.	NP-239
6	128.75	1.97380E-02	54.94		
11	253.86	1.46500E-02	48.97		

Analysis Report for 1510090-05
CP0603S06-07

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
12	270.78	2.83333E-02	28.48		
16	328.38	1.50263E-02	45.25	Sum	
19	464.00	2.35306E-02	26.91	Sum	
20	494.95	1.31120E-02	36.39		
21	503.96	8.10484E-03	47.21	Sum	
M	22	510.93	3.35358E-02	17.91	
m	23	520.23	7.82535E-03	74.80	Sum
	26	640.71	9.48329E-03	51.18	
M	27	724.49	4.57744E-03	46.76	Tol. ZR-95
M	29	768.28	1.04713E-02	38.99	
m	30	772.05	5.80993E-03	69.13	
M	31	787.88	6.67644E-03	52.05	
m	32	794.89	1.46922E-02	24.76	Sum
	33	806.78	9.00100E-03	41.75	
	36	933.72	7.22574E-03	52.00	
M	37	965.09	1.12876E-02	28.43	
	39	1062.14	7.41970E-03	45.86	Sum
	41	1238.57	1.34378E-02	29.60	Tol. CO-56
	42	1282.53	1.15741E-02	24.66	
	43	1294.92	7.31790E-03	35.10	
	44	1307.19	8.49859E-03	53.81	Sum
	45	1319.16	3.78019E-03	47.05	
	46	1325.12	3.69565E-03	45.41	
	47	1377.19	8.95245E-03	34.66	
M	49	1588.06	4.11318E-03	58.68	Sum
m	50	1593.06	4.39845E-03	55.95	D-Esc
M	52	1626.91	1.80837E-03	39.72	
m	53	1630.81	4.44752E-03	37.47	
M	54	1637.59	2.15334E-03	34.43	
m	55	1641.56	2.21396E-03	47.78	
	57	1785.35	2.01389E-03	63.49	
	58	1847.12	2.67094E-03	45.48	
	59	2103.43	6.66667E-03	20.41	S-Esc
	60	2174.33	3.05556E-03	30.15	
	61	2183.09	1.38889E-03	44.72	
	63	2234.65	1.42361E-03	68.99	
	64	2240.67	1.83642E-03	54.54	Sum
	65	2248.10	1.80556E-03	61.78	
	66	2258.39	4.44444E-03	25.00	
	67	2448.11	3.61111E-03	27.74	

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 1510090-05
CP0603S06-07

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	2.04E+01	2.62E+00
GA-67	0.59	93.31	*	35.70	2.99E+02	1.30E+03
		208.95	*	2.24	2.10E+03	8.88E+03
		300.22	*	16.00	3.84E+02	1.67E+03
CD-109	0.94	88.03	*	3.72	1.26E+00	1.13E+00
SN-126	0.99	87.57	*	37.00	1.21E-01	1.08E-01
TL-208	0.98	583.14	*	30.22	1.35E+00	2.48E-01
		860.37	*	4.48	2.17E+00	1.11E+00
		2614.66	*	35.85	9.32E-01	2.15E-01
PB-210	0.99	46.50	*	4.25	3.40E+00	2.63E+00
BI-212	0.99	727.17	*	11.80	8.77E-01	4.55E-01
		1620.62	*	2.75	1.85E+00	1.58E+00
PB-212	0.99	238.63	*	44.60	1.56E+00	1.93E-01
		300.09	*	3.41	1.99E+00	9.74E-01
BI-214	0.98	609.31	*	46.30	1.27E+00	2.40E-01
		1120.29	*	15.10	1.63E+00	5.72E-01
		1764.49	*	15.80	1.49E+00	4.38E-01
		2204.22	*	4.98	1.97E+00	1.34E+00
PB-214	1.00	295.21	*	19.19	1.61E+00	2.75E-01
		351.92	*	37.19	1.45E+00	2.13E-01
RA-224	0.86	240.98	*	3.95	3.75E+00	1.15E+00
RA-226	1.00	186.21	*	3.28	3.22E+00	6.05E+00
AC-228	0.98	338.32	*	11.40	1.56E+00	5.06E-01
		911.07	*	27.70	1.23E+00	3.01E-01
		969.11	*	16.60	2.06E+00	4.26E-01
NP-237	0.86	86.50	*	12.60	3.55E-01	3.17E-01
CM-243	0.35	209.75	*	3.29	1.58E+00	1.18E+00
		228.14		10.60		
		277.60	*	14.00	4.38E-01	3.05E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510090-05
CP0603S06-07

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.990	2.04E+01	2.62E+00	
GA-67	0.599	2.39E+02	1.00E+03	
? CD-109	0.947	1.26E+00	1.13E+00	
? SN-126	0.998	1.21E-01	1.08E-01	
TL-208	0.982	1.13E+00	1.61E-01	
PB-210	0.997	3.40E+00	2.63E+00	
BI-212	0.993	9.52E-01	4.37E-01	
PB-212	0.995	1.53E+00	1.90E-01	
BI-214	0.987	1.37E+00	1.96E-01	
PB-214	1.000	1.51E+00	1.69E-01	
RA-224	0.866	3.75E+00	1.15E+00	
RA-226	1.000	3.22E+00	6.05E+00	
AC-228	0.987	1.52E+00	2.21E-01	
? NP-237	0.866	3.55E-01	3.17E-01	
CM-243	0.353	4.98E-01	2.96E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1510090-05
 CP0603S06-07

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 10:46:39AM
 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	76.43	3.45662E-01	5.73			
5	107.07	2.44566E-02	44.98	Tol.	NP-239	
6	128.75	1.97380E-02	54.94			
11	253.86	1.46500E-02	48.97			
12	270.78	2.83333E-02	28.48			
16	328.38	1.50263E-02	45.25	Sum		
19	464.00	2.35306E-02	26.91	Sum		
20	494.95	1.31120E-02	36.39			
21	503.96	8.10484E-03	47.21	Sum		
M	22	510.93	3.35358E-02	17.91		
m	23	520.23	7.82535E-03	74.80	Sum	
	26	640.71	9.48329E-03	51.18		
M	27	724.49	4.57744E-03	46.76	Tol.	ZR-95
M	29	768.28	1.04713E-02	38.99		
m	30	772.05	5.80993E-03	69.13		
M	31	787.88	6.67644E-03	52.05		
m	32	794.89	1.46922E-02	24.76	Sum	
	33	806.78	9.00100E-03	41.75		
	36	933.72	7.22574E-03	52.00		
M	37	965.09	1.12876E-02	28.43		
	39	1062.14	7.41970E-03	45.86	Sum	
	41	1238.57	1.34378E-02	29.60	Tol.	CO-56
	42	1282.53	1.15741E-02	24.66		
	43	1294.92	7.31790E-03	35.10		
	44	1307.19	8.49859E-03	53.81	Sum	
	45	1319.16	3.78019E-03	47.05		
	46	1325.12	3.69565E-03	45.41		
	47	1377.19	8.95245E-03	34.66		
M	49	1588.06	4.11318E-03	58.68	Sum	
m	50	1593.06	4.39845E-03	55.95	D-Esc	
M	52	1626.91	1.80837E-03	39.72		
m	53	1630.81	4.44752E-03	37.47		
M	54	1637.59	2.15334E-03	34.43		
m	55	1641.56	2.21396E-03	47.78		
	57	1785.35	2.01389E-03	63.49		

Analysis Report for 1510090-05
CP0603S06-07

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
58	1847.12	2.67094E-03	45.48		
59	2103.43	6.66667E-03	20.41	S-Esc	
60	2174.33	3.05556E-03	30.15		
61	2183.09	1.38889E-03	44.72		
63	2234.65	1.42361E-03	68.99		
64	2240.67	1.83642E-03	54.54	Sum	
65	2248.10	1.80556E-03	61.78		
66	2258.39	4.44444E-03	25.00		
67	2448.11	3.61111E-03	27.74		

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	1.96E-01	7.93E-01	7.93E-01
+	NA-22	1274.54	99.94	3.91E-03	8.28E-02	8.28E-02
+	NA-24	1368.53	99.99	1.17E+13	2.27E+13	1.94E+14
		2754.09	99.86	0.00E+00		2.27E+13
+	AL-26	1808.65	99.76	6.81E-03	4.77E-02	4.77E-02
+	K-40	1460.81	* 10.67	2.04E+01	8.70E-01	8.70E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	2.42E-02	5.31E-02	5.31E-02
		78.34	96.00	3.42E-01		7.82E-02
+	SC-46	889.25	99.98	2.89E-03	9.01E-02	9.01E-02
		1120.51	99.99	3.36E-01		1.87E-01
+	V-48	983.52	99.98	6.42E-02	3.07E-01	3.07E-01
		1312.10	97.50	1.31E-01		3.36E-01
+	CR-51	320.08	9.83	6.70E-01	1.17E+00	1.17E+00
+	MN-54	834.83	99.97	-4.57E-02	6.99E-02	6.99E-02
+	CO-56	846.75	99.96	-1.38E-02	9.12E-02	9.12E-02
		1037.75	14.03	1.16E-01		7.41E-01
		1238.25	67.00	2.12E-01		2.33E-01
		1771.40	15.51	1.10E-01		4.87E-01

Analysis Report for 1510090-05
CP0603S06-07

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	CO-56	2598.48	16.90	-8.49E-03	9.12E-02	3.06E-01
+	CO-57	122.06	85.51	-1.59E-03	6.09E-02	6.09E-02
		136.48	10.60	-1.12E-02		5.01E-01
+	CO-58	810.76	99.40	-3.17E-02	9.58E-02	9.58E-02
+	FE-59	1099.22	56.50	-1.30E-01	2.26E-01	2.26E-01
		1291.56	43.20	1.47E-02		2.88E-01
+	CO-60	1173.22	100.00	3.55E-02	5.82E-02	8.91E-02
		1332.49	100.00	-1.33E-03		5.82E-02
+	ZN-65	1115.52	50.75	-4.15E-02	1.81E-01	1.81E-01
+	GA-67	93.31	* 35.70	2.99E+02	1.89E+02	1.89E+02
		208.95	* 2.24	2.10E+03		2.52E+03
		300.22	* 16.00	3.84E+02		1.10E+03
+	SE-75	121.11	16.70	8.02E-03	9.78E-02	3.47E-01
		136.00	59.20	-1.79E-02		9.78E-02
		264.65	59.80	5.88E-02		1.06E-01
		279.53	25.20	5.19E-02		2.78E-01
		400.65	11.40	1.32E-01		5.81E-01
+	RB-82	776.52	13.00	5.56E-01	1.24E+00	1.24E+00
+	RB-83	520.41	46.00	9.39E-02	1.71E-01	1.71E-01
		529.64	30.30	-5.27E-02		2.22E-01
		552.65	16.40	2.00E-01		4.76E-01
+	KR-85	513.99	0.43	-1.44E+01	1.51E+01	1.51E+01
+	SR-85	513.99	99.27	-8.79E-02	9.27E-02	9.27E-02
+	Y-88	898.02	93.40	3.72E-03	6.89E-02	8.85E-02
		1836.01	99.38	1.48E-02		6.89E-02
+	NB-93M	16.57	9.43	-3.60E+03	5.45E+03	5.45E+03
+	NB-94	702.63	100.00	5.04E-02	7.59E-02	7.74E-02
		871.10	100.00	2.22E-02		7.59E-02
+	NB-95	765.79	99.81	8.29E-02	1.60E-01	1.60E-01
+	NB-95M	235.69	25.00	-1.19E+03	1.59E+02	1.59E+02
+	ZR-95	724.18	43.70	-9.00E-03	1.73E-01	2.92E-01
		756.72	55.30	2.18E-02		1.73E-01
+	MO-99	181.06	6.20	2.21E+02	1.77E+03	2.70E+03
		739.58	12.80	-1.62E+01		1.77E+03
		778.00	4.50	1.73E+03		4.67E+03
+	RU-103	497.08	89.00	-1.85E-02	9.46E-02	9.46E-02
+	RU-106	621.84	9.80	1.04E-02	6.53E-01	6.53E-01
+	AG-108M	433.93	89.90	4.74E-03	5.76E-02	5.76E-02
		614.37	90.40	-6.88E-01		7.57E-02
		722.95	90.50	-6.62E-03		8.70E-02
+	CD-109	88.03	* 3.72	1.26E+00	1.81E+00	1.81E+00
+	AG-110M	657.75	93.14	-1.87E-02	7.89E-02	7.89E-02
		677.61	10.53	5.63E-02		7.22E-01
		706.67	16.46	5.11E-02		5.01E-01
		763.93	21.98	4.03E-02		3.65E-01
		884.67	71.63	-4.97E-03		1.06E-01
		1384.27	23.94	-1.13E-01		2.77E-01
+	CD-113M	263.70	0.02	1.24E+02	2.34E+02	2.34E+02

Analysis Report for 1510090-05
CP0603S06-07

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	SN-113	255.12	1.93	9.51E-01	9.64E-02	3.28E+00
		391.69	64.90	6.32E-03		9.64E-02
+	TE123M	159.00	84.10	4.08E-02	7.47E-02	7.47E-02
+	SB-124	602.71	97.87	-2.87E-02	9.24E-02	9.24E-02
		645.85	7.26	5.34E-02		1.42E+00
		722.78	11.10	-7.80E-02		1.03E+00
		1691.02	49.00	-2.93E-02		1.88E-01
+	I-125	35.49	6.49	1.58E+00	5.70E+00	5.70E+00
+	SB-125	176.33	6.89	3.66E-01	1.94E-01	7.76E-01
		427.89	29.33	6.48E-02		1.94E-01
		463.38	10.35	6.09E-01		6.49E-01
		600.56	17.80	-2.90E-02		3.58E-01
		635.90	11.32	-1.49E-03		5.57E-01
+	SB-126	414.70	83.30	-1.49E-01	3.77E-01	3.77E-01
		666.33	99.60	1.28E-02		4.29E-01
		695.00	99.60	1.57E-02		4.57E-01
		720.50	53.80	-3.10E-01		7.85E-01
+	SN-126	87.57	* 37.00	1.21E-01	1.74E-01	1.74E-01
+	SB-127	473.00	25.00	1.00E+00	6.68E+01	6.68E+01
		685.20	35.70	1.77E+01		7.03E+01
		783.80	14.70	-7.42E+00		1.59E+02
+	I-129	29.78	57.00	2.19E-02	1.19E+00	1.19E+00
		33.60	13.20	-7.70E-03		2.57E+00
		39.58	7.52	4.69E-02		2.12E+00
+	I-131	284.30	6.05	5.23E+00	1.03E+00	1.43E+01
		364.48	81.20	-1.16E-01		1.03E+00
		636.97	7.26	-7.17E-02		1.40E+01
		722.89	1.80	-5.26E+00		6.92E+01
+	TE-132	49.72	13.10	-4.03E+02	5.56E+01	5.21E+02
		228.16	88.00	-8.24E+00		5.56E+01
+	BA-133	81.00	33.00	9.38E-03	8.28E-02	1.31E-01
		302.84	17.80	-3.08E-01		3.12E-01
		356.01	60.00	4.92E-03		8.28E-02
+	I-133	529.87	86.30	-2.91E+09	7.83E+09	7.83E+09
+	XE-133	81.00	38.00	5.59E-01	7.82E+00	7.82E+00
+	CS-134	563.23	8.38	2.06E-01	8.37E-02	7.14E-01
		569.32	15.43	-2.16E-02		3.95E-01
		604.70	97.60	-5.00E-03		8.37E-02
		795.84	85.40	6.31E-02		1.00E-01
		801.93	8.73	-1.03E-03		7.70E-01
+	CS-135	268.24	16.00	-2.61E-01	3.49E-01	3.49E-01
+	@ 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	1.39E+00	3.59E-01	3.70E+00
		163.89	4.61	2.32E+00		6.02E+00
		176.55	13.56	3.92E-01		2.06E+00
		273.65	12.66	-3.52E+00		2.19E+00
		340.57	48.50	3.74E-02		7.45E-01

Analysis Report for 1510090-05

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CS-136	818.50	99.70	-1.79E-01	3.59E-01	3.59E-01
	1048.07	79.60	1.15E-01		5.22E-01
	1235.34	19.70	2.51E-01		3.12E+00
+ CS-137	661.65	85.12	5.81E-02	8.57E-02	8.57E-02
+ LA-138	788.74	34.00	1.15E-02	1.03E-01	2.22E-01
	1435.80	66.00	5.83E-02		1.03E-01
+ CE-139	165.85	80.35	-1.62E-02	7.37E-02	7.37E-02
+ BA-140	162.64	6.70	1.21E+00	1.18E+00	4.36E+00
	304.84	4.50	3.94E+00		6.80E+00
	423.70	3.20	-5.77E+00		9.17E+00
	437.55	2.00	-1.87E+00		1.49E+01
	537.32	25.00	-5.42E-01		1.18E+00
+ LA-140	328.77	20.50	1.89E+00	4.74E-01	1.73E+00
	487.03	45.50	2.22E-01		6.31E-01
	815.85	23.50	1.72E-01		1.66E+00
	1596.49	95.49	0.00E+00		4.74E-01
+ CE-141	145.44	48.40	7.21E-02	2.12E-01	2.12E-01
+ CE-143	57.36	11.80	-8.96E+04	1.97E+06	4.59E+06
	293.26	42.00	9.41E+05		1.97E+06
	664.55	5.20	1.04E+06		1.40E+07
+ CE-144	133.54	10.80	1.64E-01	4.80E-01	4.80E-01
+ PM-144	476.78	42.00	3.40E-02	6.75E-02	1.38E-01
	618.01	98.60	6.17E-03		6.75E-02
	696.49	99.49	-1.69E-02		7.81E-02
+ PM-145	36.85	21.70	-2.24E-01	5.01E-01	9.76E-01
	37.36	39.70	-1.15E-01		5.01E-01
	42.30	15.10	3.57E-01		8.24E-01
	72.40	2.31	-6.97E-01		2.13E+00
+ PM-146	453.90	39.94	3.99E-02	1.42E-01	1.42E-01
	735.90	14.01	-5.14E-03		5.14E-01
	747.13	13.10	7.92E-02		5.40E-01
+ ND-147	91.11	28.90	-2.41E+00	1.65E+00	1.65E+00
	531.02	13.10	8.22E-01		3.13E+00
+ PM-149	285.90	3.10	2.66E+04	4.16E+04	4.16E+04
+ EU-152	121.78	20.50	-6.12E-03	2.35E-01	2.35E-01
	244.69	5.40	-2.46E+00		1.07E+00
	344.27	19.13	2.68E-02		2.72E-01
	778.89	9.20	2.67E-01		7.25E-01
	964.01	10.40	-3.45E+00		9.07E-01
	1085.78	7.22	-1.54E-01		1.14E+00
	1112.02	9.60	6.93E-02		9.05E-01
	1407.95	14.94	1.76E-01		5.56E-01
	97.43	31.30	-6.45E-03	1.63E-01	1.63E-01
	103.18	22.20	3.83E-02		2.24E-01
	+ EU-154	123.07	40.50	-2.77E-02	1.17E-01	1.17E-01
723.30		19.70	-3.06E-02		4.03E-01
873.19		11.50	1.62E-01		6.52E-01
996.32		10.30	-2.74E-01		7.61E-01
1004.76		17.90	1.09E-01		4.90E-01

Analysis Report for 1510090-05
CP0603S06-07

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	EU-154	1274.45	35.50	1.08E-02	1.17E-01	2.29E-01
+	EU-155	86.50	30.90	-7.55E-02	2.10E-01	2.10E-01
		105.30	20.70	-8.73E-02		2.28E-01
+	EU-156	811.77	10.40	2.30E-01	2.99E+00	2.99E+00
		1153.47	7.20	1.02E+00		5.20E+00
		1230.71	8.90	-7.31E-01		4.15E+00
+	HO-166M	184.41	72.60	-4.99E-02	8.57E-02	8.57E-02
		280.45	29.60	3.68E-02		1.97E-01
		410.94	11.10	5.75E-02		5.17E-01
		711.69	54.10	2.74E-02		1.40E-01
+	TM-171	66.72	0.14	-1.47E+00	3.73E+01	3.73E+01
+	HF-172	81.75	4.52	-6.93E-01	4.40E-01	9.94E-01
		125.81	11.30	5.71E-02		4.40E-01
+	LU-172	181.53	20.60	1.38E+00	4.04E+00	6.99E+00
		810.06	16.63	-3.80E+00		1.15E+01
		912.12	15.25	6.66E+01		2.58E+01
		1093.66	62.50	2.98E+00		4.04E+00
+	LU-173	100.72	5.24	6.69E-01	3.01E-01	9.30E-01
		272.11	21.20	3.12E-01		3.01E-01
+	HF-175	343.40	84.00	2.13E-02	8.60E-02	8.60E-02
+	LU-176	88.34	13.30	8.75E-01	5.46E-02	4.95E-01
		201.83	86.00	-1.54E-02		6.30E-02
		306.78	94.00	-1.36E-02		5.46E-02
+	TA-182	67.75	41.20	6.75E-02	1.48E-01	1.48E-01
		1121.30	34.90	7.94E-01		4.93E-01
		1189.05	16.23	-2.25E-01		6.24E-01
		1221.41	26.98	3.51E-02		4.09E-01
		1231.02	11.44	-2.00E-01		9.19E-01
+	IR-192	308.46	29.68	-8.34E-02	1.39E-01	2.33E-01
		468.07	48.10	-4.38E-02		1.39E-01
+	HG-203	279.19	77.30	9.84E-02	1.24E-01	1.24E-01
+	BI-207	569.67	97.72	-3.33E-03	6.08E-02	6.08E-02
		1063.62	74.90	3.61E-02		1.07E-01
+	TL-208	583.14	* 30.22	1.35E+00	1.66E-01	2.65E-01
		860.37	* 4.48	2.17E+00		1.61E+00
		2614.66	* 35.85	9.32E-01		1.66E-01
+	BI-210M	262.00	45.00	-1.09E-02	1.22E-01	1.22E-01
		300.00	23.00	9.69E-02		2.59E-01
+	PB-210	46.50	* 4.25	3.40E+00	4.23E+00	4.23E+00
+	PB-211	404.84	2.90	-1.06E+00	1.78E+00	1.78E+00
		831.96	2.90	-4.33E-02		2.30E+00
+	BI-212	727.17	* 11.80	8.77E-01	7.07E-01	7.07E-01
		1620.62	* 2.75	1.85E+00		2.42E+00
+	PB-212	238.63	* 44.60	1.56E+00	2.64E-01	2.64E-01
		300.09	* 3.41	1.99E+00		5.70E+00
+	BI-214	609.31	* 46.30	1.27E+00	2.95E-01	2.95E-01
		1120.29	* 15.10	1.63E+00		7.93E-01
		1764.49	* 15.80	1.49E+00		4.49E-01

Analysis Report for 1510090-05
CP0603S06-07

<i>Nuclide Name</i>	<i>Energy (keV)</i>		<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
	BI-214	2204.22	*	4.98	1.97E+00	2.95E-01
+	PB-214	295.21	*	19.19	1.61E+00	2.03E-01
		351.92	*	37.19	1.45E+00	2.03E-01
+	RN-219	401.80		6.50	3.22E-02	8.37E-01
+	RA-223	323.87		3.88	-1.86E-01	1.34E+00
+	RA-224	240.98	*	3.95	3.75E+00	2.97E+00
+	RA-225	40.00		31.00	4.89E-02	2.21E+00
+	RA-226	186.21	*	3.28	3.22E+00	2.22E+00
+	TH-227	50.10		8.40	-6.79E-01	7.37E-01
		236.00		11.50	-5.53E+00	7.37E-01
		256.20		6.30	-5.58E-01	8.17E-01
+	AC-228	338.32	*	11.40	1.56E+00	3.67E-01
		911.07	*	27.70	1.23E+00	3.67E-01
		969.11	*	16.60	2.06E+00	6.51E-01
+	TH-230	48.44		16.90	-5.96E-01	4.92E-01
		62.85		4.60	1.25E+00	1.28E+00
		67.67		0.37	6.19E+00	1.36E+01
+	PA-231	283.67		1.60	1.25E+00	2.40E+00
		302.67		2.30	-2.37E+00	2.40E+00
+	TH-231	25.64		14.70	-4.48E+00	7.19E-01
		84.21		6.40	9.69E-02	7.19E-01
+	PA-233	311.98		38.60	1.65E-02	3.26E-01
+	PA-234	131.20		20.40	1.77E-01	2.49E-01
		733.99		8.80	4.55E-01	8.42E-01
		946.00		12.00	-4.74E-02	6.27E-01
+	PA-234M	1001.03		0.92	4.59E+00	9.69E+00
+	TH-234	63.29		3.80	1.50E+00	1.54E+00
+	U-235	143.76		10.50	1.56E-01	4.83E-01
		163.35		4.70	3.04E-01	1.10E+00
		205.31		4.70	7.37E-01	1.17E+00
+	NP-237	86.50	*	12.60	3.55E-01	5.09E-01
+	NP-239	106.10		22.70	-1.46E+02	2.62E+03
		228.18		10.70	-9.24E+02	6.23E+03
		277.60		14.10	5.12E+03	5.24E+03
+	AM-241	59.54		35.90	1.49E-02	1.53E-01
+	AM-243	74.67		66.00	-1.79E-01	1.05E-01
+	CM-243	209.75	*	3.29	1.58E+00	4.85E-01
		228.14		10.60	-7.54E-02	5.09E-01
		277.60	*	14.00	4.38E-01	4.85E-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 1510090-05
CP0603S06-07

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	7.93E-01	7.93E-01	1.96E-01	3.73E-01
NA-22	1274.54	99.94	8.28E-02	8.28E-02	3.91E-03	3.79E-02
NA-24	1368.53	99.99	1.94E+14	2.27E+13	1.17E+13	8.76E+13
	2754.09	99.86	2.27E+13		0.00E+00	0.00E+00
AL-26	1808.65	99.76	4.77E-02	4.77E-02	6.81E-03	1.96E-02
+ K-40	1460.81	* 10.67	8.70E-01	8.70E-01	2.04E+01	3.99E-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	5.31E-02	5.31E-02	2.42E-02	2.58E-02
	78.34	96.00	7.82E-02		3.42E-01	3.84E-02
SC-46	889.25	99.98	9.01E-02	9.01E-02	2.89E-03	4.17E-02
	1120.51	99.99	1.87E-01		3.36E-01	8.93E-02
V-48	983.52	99.98	3.07E-01	3.07E-01	6.42E-02	1.42E-01
	1312.10	97.50	3.36E-01		1.31E-01	1.54E-01
CR-51	320.08	9.83	1.17E+00	1.17E+00	6.70E-01	5.57E-01
MN-54	834.83	99.97	6.99E-02	6.99E-02	-4.57E-02	3.23E-02
CO-56	846.75	99.96	9.12E-02	9.12E-02	-1.38E-02	4.23E-02
	1037.75	14.03	7.41E-01		1.16E-01	3.43E-01
	1238.25	67.00	2.33E-01		2.12E-01	1.10E-01
	1771.40	15.51	4.87E-01		1.10E-01	2.07E-01
	2598.48	16.90	3.06E-01		-8.49E-03	1.18E-01
CO-57	122.06	85.51	6.09E-02	6.09E-02	-1.59E-03	2.96E-02
	136.48	10.60	5.01E-01		-1.12E-02	2.43E-01
CO-58	810.76	99.40	9.58E-02	9.58E-02	-3.17E-02	4.46E-02
FE-59	1099.22	56.50	2.26E-01	2.26E-01	-1.30E-01	1.04E-01
	1291.56	43.20	2.88E-01		1.47E-02	1.31E-01
CO-60	1173.22	100.00	8.91E-02	5.82E-02	3.55E-02	4.13E-02
	1332.49	100.00	5.82E-02		-1.33E-03	2.55E-02
ZN-65	1115.52	50.75	1.81E-01	1.81E-01	-4.15E-02	8.38E-02
+ GA-67	93.31	* 35.70	1.89E+02	1.89E+02	2.99E+02	9.28E+01
	208.95	* 2.24	2.52E+03		2.10E+03	1.22E+03
	300.22	* 16.00	1.10E+03		3.84E+02	5.42E+02
SE-75	121.11	16.70	3.47E-01	9.78E-02	8.02E-03	1.69E-01
	136.00	59.20	9.78E-02		-1.79E-02	4.75E-02
	264.65	59.80	1.06E-01		5.88E-02	5.11E-02
	279.53	25.20	2.78E-01		5.19E-02	1.34E-01
	400.65	11.40	5.81E-01		1.32E-01	2.75E-01
RB-82	776.52	13.00	1.24E+00	1.24E+00	5.56E-01	5.79E-01

Analysis Report for 1510090-05
CP0603S06-07

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	1.71E-01	1.71E-01	9.39E-02	8.07E-02
	529.64	30.30	2.22E-01		-5.27E-02	1.04E-01
	552.65	16.40	4.76E-01		2.00E-01	2.24E-01
KR-85	513.99	0.43	1.51E+01	1.51E+01	-1.44E+01	7.18E+00
SR-85	513.99	99.27	9.27E-02	9.27E-02	-8.79E-02	4.40E-02
Y-88	898.02	93.40	8.85E-02	6.89E-02	3.72E-03	4.08E-02
	1836.01	99.38	6.89E-02		1.48E-02	2.91E-02
NB-93M	16.57	9.43	5.45E+03	5.45E+03	-3.60E+03	2.65E+03
NB-94	702.63	100.00	7.74E-02	7.59E-02	5.04E-02	3.65E-02
	871.10	100.00	7.59E-02		2.22E-02	3.54E-02
NB-95	765.79	99.81	1.60E-01	1.60E-01	8.29E-02	7.57E-02
NB-95M	235.69	25.00	1.59E+02	1.59E+02	-1.19E+03	7.75E+01
ZR-95	724.18	43.70	2.92E-01	1.73E-01	-9.00E-03	1.39E-01
MO-99	756.72	55.30	1.73E-01		2.18E-02	8.09E-02
	181.06	6.20	2.70E+03	1.77E+03	2.21E+02	1.30E+03
	739.58	12.80	1.77E+03		-1.62E+01	8.32E+02
	778.00	4.50	4.67E+03		1.73E+03	2.17E+03
RU-103	497.08	89.00	9.46E-02	9.46E-02	-1.85E-02	4.41E-02
RU-106	621.84	9.80	6.53E-01	6.53E-01	1.04E-02	3.05E-01
AG-108M	433.93	89.90	5.76E-02	5.76E-02	4.74E-03	2.71E-02
	614.37	90.40	7.57E-02		-6.88E-01	3.57E-02
	722.95	90.50	8.70E-02		-6.62E-03	4.11E-02
+ CD-109	88.03	*	1.81E+00	1.81E+00	1.26E+00	8.87E-01
AG-110M	657.75	93.14	7.89E-02	7.89E-02	-1.87E-02	3.71E-02
	677.61	10.53	7.22E-01		5.63E-02	3.40E-01
	706.67	16.46	5.01E-01		5.11E-02	2.36E-01
	763.93	21.98	3.65E-01		4.03E-02	1.71E-01
	884.67	71.63	1.06E-01		-4.97E-03	4.91E-02
	1384.27	23.94	2.77E-01		-1.13E-01	1.22E-01
	263.70	0.02	2.34E+02	2.34E+02	1.24E+02	1.13E+02
SN-113	255.12	1.93	3.28E+00	9.64E-02	9.51E-01	1.58E+00
	391.69	64.90	9.64E-02		6.32E-03	4.56E-02
TE123M	159.00	84.10	7.47E-02	7.47E-02	4.08E-02	3.63E-02
SB-124	602.71	97.87	9.24E-02	9.24E-02	-2.87E-02	4.34E-02
	645.85	7.26	1.42E+00		5.34E-02	6.68E-01
	722.78	11.10	1.03E+00		-7.80E-02	4.84E-01
	1691.02	49.00	1.88E-01		-2.93E-02	8.16E-02
I-125	35.49	6.49	5.70E+00	5.70E+00	1.58E+00	2.77E+00
SB-125	176.33	6.89	7.76E-01	1.94E-01	3.66E-01	3.76E-01
	427.89	29.33	1.94E-01		6.48E-02	9.18E-02
	463.38	10.35	6.49E-01		6.09E-01	3.09E-01
	600.56	17.80	3.58E-01		-2.90E-02	1.68E-01
	635.90	11.32	5.57E-01		-1.49E-03	2.61E-01
	414.70	83.30	3.77E-01	3.77E-01	-1.49E-01	1.78E-01
SB-126	666.33	99.60	4.29E-01		1.28E-02	2.02E-01
	695.00	99.60	4.57E-01		1.57E-02	2.16E-01
	720.50	53.80	7.85E-01		-3.10E-01	3.68E-01
	87.57	37.00	1.74E-01	1.74E-01	1.21E-01	8.51E-02
+ SN-126	473.00	25.00	6.68E+01	6.68E+01	1.00E+00	3.14E+01
	685.20	35.70	7.03E+01		1.77E+01	3.33E+01
	783.80	14.70	1.59E+02		-7.42E+00	7.43E+01
I-129	29.78	57.00	1.19E+00	1.19E+00	2.19E-02	5.76E-01
	33.60	13.20	2.57E+00		-7.70E-03	1.25E+00

Analysis Report for 1510090-05
CP0603S06-07

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	2.12E+00	1.19E+00	4.69E-02	1.03E+00
I-131	284.30	6.05	1.43E+01	1.03E+00	5.23E+00	6.85E+00
	364.48	81.20	1.03E+00		-1.16E-01	4.90E-01
	636.97	7.26	1.40E+01		-7.17E-02	6.55E+00
	722.89	1.80	6.92E+01		-5.26E+00	3.27E+01
TE-132	49.72	13.10	5.21E+02	5.56E+01	-4.03E+02	2.53E+02
	228.16	88.00	5.56E+01		-8.24E+00	2.68E+01
BA-133	81.00	33.00	1.31E-01	8.28E-02	9.38E-03	6.37E-02
	302.84	17.80	3.12E-01		-3.08E-01	1.49E-01
	356.01	60.00	8.28E-02		4.92E-03	3.92E-02
I-133	529.87	86.30	7.83E+09	7.83E+09	-2.91E+09	3.65E+09
XE-133	81.00	38.00	7.82E+00	7.82E+00	5.59E-01	3.80E+00
CS-134	563.23	8.38	7.14E-01	8.37E-02	2.06E-01	3.35E-01
	569.32	15.43	3.95E-01		-2.16E-02	1.86E-01
	604.70	97.60	8.37E-02		-5.00E-03	3.98E-02
	795.84	85.40	1.00E-01		6.31E-02	4.72E-02
	801.93	8.73	7.70E-01		-1.03E-03	3.57E-01
CS-135	268.24	16.00	3.49E-01	3.49E-01	-2.61E-01	1.68E-01
@ 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	3.70E+00	3.59E-01	1.39E+00	1.79E+00
	163.89	4.61	6.02E+00		2.32E+00	2.92E+00
	176.55	13.56	2.06E+00		3.92E-01	9.99E-01
	273.65	12.66	2.19E+00		-3.52E+00	1.05E+00
	340.57	48.50	7.45E-01		3.74E-02	3.58E-01
	818.50	99.70	3.59E-01		-1.79E-01	1.67E-01
	1048.07	79.60	5.22E-01		1.15E-01	2.41E-01
	1235.34	19.70	3.12E+00		2.51E-01	1.47E+00
CS-137	661.65	85.12	8.57E-02	8.57E-02	5.81E-02	4.04E-02
LA-138	788.74	34.00	2.22E-01	1.03E-01	1.15E-02	1.04E-01
	1435.80	66.00	1.03E-01		5.83E-02	4.59E-02
CE-139	165.85	80.35	7.37E-02	7.37E-02	-1.62E-02	3.57E-02
BA-140	162.64	6.70	4.36E+00	1.18E+00	1.21E+00	2.11E+00
	304.84	4.50	6.80E+00		3.94E+00	3.25E+00
	423.70	3.20	9.17E+00		-5.77E+00	4.32E+00
	437.55	2.00	1.49E+01		-1.87E+00	7.04E+00
	537.32	25.00	1.18E+00		-5.42E-01	5.48E-01
LA-140	328.77	20.50	1.73E+00	4.74E-01	1.89E+00	8.28E-01
	487.03	45.50	6.31E-01		2.22E-01	2.95E-01
	815.85	23.50	1.66E+00		1.72E-01	7.73E-01
	1596.49	95.49	4.74E-01		0.00E+00	2.13E-01
CE-141	145.44	48.40	2.12E-01	2.12E-01	7.21E-02	1.03E-01
CE-143	57.36	11.80	4.59E+06	1.97E+06	-8.96E+04	2.22E+06
	293.26	42.00	1.97E+06		9.41E+05	9.57E+05
	664.55	5.20	1.40E+07		1.04E+06	6.62E+06
CE-144	133.54	10.80	4.80E-01	4.80E-01	1.64E-01	2.33E-01
PM-144	476.78	42.00	1.38E-01	6.75E-02	3.40E-02	6.49E-02
	618.01	98.60	6.75E-02		6.17E-03	3.17E-02
	696.49	99.49	7.81E-02		-1.69E-02	3.68E-02
PM-145	36.85	21.70	9.76E-01	5.01E-01	-2.24E-01	4.74E-01
	37.36	39.70	5.01E-01		-1.15E-01	2.43E-01
	42.30	15.10	8.24E-01		3.57E-01	4.00E-01

Analysis Report for 1510090-05
CP0603S06-07

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	2.13E+00	5.01E-01	-6.97E-01	1.04E+00
PM-146	453.90	39.94	1.42E-01	1.42E-01	3.99E-02	6.72E-02
	735.90	14.01	5.14E-01		-5.14E-03	2.41E-01
	747.13	13.10	5.40E-01		7.92E-02	2.52E-01
ND-147	91.11	28.90	1.65E+00	1.65E+00	-2.41E+00	8.07E-01
	531.02	13.10	3.13E+00		8.22E-01	1.46E+00
PM-149	285.90	3.10	4.16E+04	4.16E+04	2.66E+04	2.00E+04
EU-152	121.78	20.50	2.35E-01	2.35E-01	-6.12E-03	1.14E-01
	244.69	5.40	1.07E+00		-2.46E+00	5.18E-01
	344.27	19.13	2.72E-01		2.68E-02	1.29E-01
	778.89	9.20	7.25E-01		2.67E-01	3.37E-01
	964.01	10.40	9.07E-01		-3.45E+00	4.27E-01
	1085.78	7.22	1.14E+00		-1.54E-01	5.28E-01
	1112.02	9.60	9.05E-01		6.93E-02	4.20E-01
	1407.95	14.94	5.56E-01		1.76E-01	2.53E-01
GD-153	97.43	31.30	1.63E-01	1.63E-01	-6.45E-03	7.93E-02
	103.18	22.20	2.24E-01		3.83E-02	1.09E-01
EU-154	123.07	40.50	1.17E-01	1.17E-01	-2.77E-02	5.68E-02
	723.30	19.70	4.03E-01		-3.06E-02	1.90E-01
	873.19	11.50	6.52E-01		1.62E-01	3.04E-01
	996.32	10.30	7.61E-01		-2.74E-01	3.53E-01
	1004.76	17.90	4.90E-01		1.09E-01	2.29E-01
	1274.45	35.50	2.29E-01		1.08E-02	1.05E-01
EU-155	86.50	30.90	2.10E-01	2.10E-01	-7.55E-02	1.03E-01
	105.30	20.70	2.28E-01		-8.73E-02	1.11E-01
EU-156	811.77	10.40	2.99E+00	2.99E+00	2.30E-01	1.40E+00
	1153.47	7.20	5.20E+00		1.02E+00	2.41E+00
	1230.71	8.90	4.15E+00		-7.31E-01	1.91E+00
HO-166M	184.41	72.60	8.57E-02	8.57E-02	-4.99E-02	4.17E-02
	280.45	29.60	1.97E-01		3.68E-02	9.48E-02
	410.94	11.10	5.17E-01		5.75E-02	2.45E-01
	711.69	54.10	1.40E-01		2.74E-02	6.58E-02
TM-171	66.72	0.14	3.73E+01	3.73E+01	-1.47E+00	1.81E+01
HF-172	81.75	4.52	9.94E-01	4.40E-01	-6.93E-01	4.82E-01
	125.81	11.30	4.40E-01		5.71E-02	2.14E-01
LU-172	181.53	20.60	6.99E+00	4.04E+00	1.38E+00	3.38E+00
	810.06	16.63	1.15E+01		-3.80E+00	5.35E+00
	912.12	15.25	2.58E+01		6.66E+01	1.24E+01
	1093.66	62.50	4.04E+00		2.98E+00	1.89E+00
LU-173	100.72	5.24	9.30E-01	3.01E-01	6.69E-01	4.52E-01
	272.11	21.20	3.01E-01		3.12E-01	1.45E-01
HF-175	343.40	84.00	8.60E-02	8.60E-02	2.13E-02	4.09E-02
LU-176	88.34	13.30	4.95E-01	5.46E-02	8.75E-01	2.43E-01
	201.83	86.00	6.30E-02		-1.54E-02	3.05E-02
	306.78	94.00	5.46E-02		-1.36E-02	2.60E-02
TA-182	67.75	41.20	1.48E-01	1.48E-01	6.75E-02	7.18E-02
	1121.30	34.90	4.93E-01		7.94E-01	2.36E-01
	1189.05	16.23	6.24E-01		-2.25E-01	2.88E-01
	1221.41	26.98	4.09E-01		3.51E-02	1.89E-01
	1231.02	11.44	9.19E-01		-2.00E-01	4.24E-01
IR-192	308.46	29.68	2.33E-01	1.39E-01	-8.34E-02	1.11E-01
	468.07	48.10	1.39E-01		-4.38E-02	6.50E-02
HG-203	279.19	77.30	1.24E-01	1.24E-01	9.84E-02	5.99E-02

Analysis Report for 1510090-05

CP0603S06-07

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	6.08E-02	6.08E-02	-3.33E-03	2.85E-02
	1063.62		74.90	1.07E-01		3.61E-02	4.95E-02
+ TL-208	583.14	*	30.22	2.65E-01	1.66E-01	1.35E+00	1.26E-01
	860.37	*	4.48	1.61E+00		2.17E+00	7.47E-01
	2614.66	*	35.85	1.66E-01		9.32E-01	7.06E-02
BI-210M	262.00		45.00	1.22E-01	1.22E-01	-1.09E-02	5.84E-02
	300.00		23.00	2.59E-01		9.69E-02	1.24E-01
+ PB-210	46.50	*	4.25	4.23E+00	4.23E+00	3.40E+00	2.09E+00
PB-211	404.84		2.90	1.78E+00	1.78E+00	-1.06E+00	8.40E-01
	831.96		2.90	2.30E+00		-4.33E-02	1.06E+00
+ BI-212	727.17	*	11.80	7.07E-01	7.07E-01	8.77E-01	3.35E-01
	1620.62	*	2.75	2.42E+00		1.85E+00	1.06E+00
+ PB-212	238.63	*	44.60	2.64E-01	2.64E-01	1.56E+00	1.30E-01
	300.09	*	3.41	5.70E+00		1.99E+00	2.81E+00
+ BI-214	609.31	*	46.30	2.95E-01	2.95E-01	1.27E+00	1.43E-01
	1120.29	*	15.10	7.93E-01		1.63E+00	3.76E-01
	1764.49	*	15.80	4.49E-01		1.49E+00	1.98E-01
	2204.22	*	4.98	2.02E+00		1.97E+00	9.21E-01
+ PB-214	295.21	*	19.19	1.01E+00	2.03E-01	1.61E+00	4.97E-01
	351.92	*	37.19	2.03E-01		1.45E+00	9.81E-02
RN-219	401.80		6.50	8.37E-01	8.37E-01	3.22E-02	3.97E-01
RA-223	323.87		3.88	1.34E+00	1.34E+00	-1.86E-01	6.38E-01
+ RA-224	240.98	*	3.95	2.97E+00	2.97E+00	3.75E+00	1.46E+00
RA-225	40.00		31.00	2.21E+00	2.21E+00	4.89E-02	1.07E+00
+ RA-226	186.21	*	3.28	2.22E+00	2.22E+00	3.22E+00	1.09E+00
TH-227	50.10		8.40	8.78E-01	7.37E-01	-6.79E-01	4.26E-01
	236.00		11.50	7.37E-01		-5.53E+00	3.60E-01
	256.20		6.30	8.17E-01		-5.58E-01	3.92E-01
+ AC-228	338.32	*	11.40	7.31E-01	3.67E-01	1.56E+00	3.54E-01
	911.07	*	27.70	3.67E-01		1.23E+00	1.74E-01
	969.11	*	16.60	6.51E-01		2.06E+00	3.09E-01
TH-230	48.44		16.90	4.92E-01	4.92E-01	-5.96E-01	2.39E-01
	62.85		4.60	1.28E+00		1.25E+00	6.25E-01
	67.67		0.37	1.36E+01		6.19E+00	6.59E+00
PA-231	283.67		1.60	3.41E+00	2.40E+00	1.25E+00	1.64E+00
	302.67		2.30	2.40E+00		-2.37E+00	1.15E+00
TH-231	25.64		14.70	1.44E+01	7.19E-01	-4.48E+00	7.00E+00
	84.21		6.40	7.19E-01		9.69E-02	3.49E-01
PA-233	311.98		38.60	3.26E-01	3.26E-01	1.65E-02	1.56E-01
PA-234	131.20		20.40	2.49E-01	2.49E-01	1.77E-01	1.21E-01
	733.99		8.80	8.42E-01		4.55E-01	3.96E-01
	946.00		12.00	6.27E-01		-4.74E-02	2.91E-01
PA-234M	1001.03		0.92	9.69E+00	9.69E+00	4.59E+00	4.54E+00
TH-234	63.29		3.80	1.54E+00	1.54E+00	1.50E+00	7.51E-01
U-235	143.76		10.50	4.83E-01	4.83E-01	1.56E-01	2.35E-01
	163.35		4.70	1.10E+00		3.04E-01	5.33E-01
	205.31		4.70	1.17E+00		7.37E-01	5.65E-01
+ NP-237	86.50	*	12.60	5.09E-01	5.09E-01	3.55E-01	2.50E-01
NP-239	106.10		22.70	2.62E+03	2.62E+03	-1.46E+02	1.27E+03
	228.18		10.70	6.23E+03		-9.24E+02	3.01E+03
	277.60		14.10	5.24E+03		5.12E+03	2.52E+03
AM-241	59.54		35.90	1.53E-01	1.53E-01	1.49E-02	7.45E-02
AM-243	74.67		66.00	1.05E-01	1.05E-01	-1.79E-01	5.14E-02

Analysis Report for 1510090-05
 CP0603S06-07

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	1.90E+00	4.85E-01	1.58E+00	9.22E-01
	228.14	10.60	5.09E-01		-7.54E-02	2.45E-01
	277.60 *	14.00	4.85E-01		4.38E-01	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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User
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No Data Review Comments Entered.

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

Sample Title: CP0603S06-07

Elapsed Live time: 3600
 Elapsed Real Time: 3601

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	1	0	193	
9:	566	1165	1080	427	625	1673	280	137	
17:	174	127	114	123	118	118	116	131	
25:	119	120	106	121	110	113	130	115	
33:	133	128	128	137	123	117	135	123	
41:	137	138	115	137	145	150	258	162	
49:	118	108	131	132	102	127	99	99	
57:	85	121	104	141	127	121	161	211	
65:	132	135	124	147	139	115	153	133	
73:	149	176	496	234	512	478	127	116	
81:	124	128	125	163	141	139	228	238	
89:	108	193	124	132	275	179	111	94	
97:	85	75	101	89	85	91	75	73	
105:	88	108	90	97	105	67	92	88	
113:	80	57	71	82	81	75	95	95	
121:	75	79	77	89	76	76	83	84	
129:	128	82	76	70	80	67	90	75	
137:	70	75	78	85	74	58	78	97	
145:	84	78	72	86	69	75	70	66	
153:	72	89	75	62	86	76	74	69	
161:	68	66	74	83	61	63	59	63	
169:	67	82	63	70	58	64	69	61	
177:	72	62	57	59	84	55	62	57	
185:	85	183	118	73	56	65	49	52	
193:	87	52	47	67	55	72	54	66	
201:	54	57	54	64	69	64	45	66	
209:	82	83	55	43	49	66	51	61	
217:	54	46	56	54	53	43	66	46	
225:	44	58	41	47	45	54	56	43	
233:	46	53	63	61	62	358	672	131	
241:	123	176	80	47	40	39	51	39	
249:	46	32	35	43	38	44	53	32	
257:	30	31	52	46	38	36	44	45	
265:	37	37	29	36	34	75	67	45	
273:	38	24	34	31	48	65	37	49	
281:	30	36	37	34	40	39	34	50	
289:	26	32	31	39	30	49	250	135	
297:	36	31	31	74	37	33	36	34	
305:	33	30	31	21	31	31	33	34	
313:	33	36	34	27	17	19	17	34	
321:	31	38	25	22	31	23	32	59	
329:	36	38	34	26	37	21	33	30	
337:	43	131	104	35	26	32	22	25	
345:	26	21	23	24	26	31	141	376	
353:	112	18	24	29	21	17	24	24	
361:	22	20	32	22	26	22	28	23	

369: 16 17 28 27 27 27 24 37

Sample Title: CP0603S06-07

Channel	16	17	28	27	27	27	24	37
377:	18	26	22	25	37	14	19	18
385:	23	30	21	23	19	21	18	17
393:	21	27	21	21	20	23	22	18
401:	29	28	18	19	22	18	22	24
409:	22	28	25	23	23	24	22	17
417:	13	24	23	22	29	21	17	19
425:	17	19	26	22	22	18	19	17
433:	24	18	20	11	22	11	28	13
441:	24	19	11	19	25	12	18	17
449:	26	14	16	28	17	16	25	14
457:	14	23	16	12	14	26	48	31
465:	16	19	17	15	9	13	10	18
473:	19	15	19	20	20	9	19	18
481:	10	10	17	13	13	12	21	12
489:	14	10	8	16	16	21	8	25
497:	9	15	5	11	12	17	12	25
505:	14	13	7	13	33	61	92	43
513:	24	11	16	20	12	15	26	15
521:	25	15	16	9	15	12	16	11
529:	14	13	13	13	20	14	9	14
537:	18	10	14	14	19	14	14	9
545:	11	8	18	13	16	16	14	20
553:	17	19	12	13	17	20	12	8
561:	11	13	26	10	17	15	15	10
569:	19	16	19	12	21	19	12	7
577:	12	16	11	13	18	64	161	108
585:	12	9	10	16	10	12	17	11
593:	12	13	10	13	14	10	15	10
601:	9	10	13	11	14	14	9	62
609:	236	141	23	9	18	9	16	9
617:	11	11	8	12	11	8	11	11
625:	10	8	14	13	17	11	10	15
633:	11	13	7	7	12	9	13	17
641:	16	19	16	9	14	11	15	10
649:	20	7	22	8	9	11	17	11
657:	6	12	13	12	11	14	17	17
665:	8	11	13	13	12	15	11	8
673:	10	12	12	10	12	11	12	15
681:	13	14	17	9	14	14	22	17
689:	14	12	14	18	17	13	17	9
697:	9	14	10	18	8	16	15	20
705:	12	7	9	16	14	8	18	10
713:	14	12	13	16	9	14	9	11
721:	17	8	10	18	10	24	43	38
729:	9	8	12	12	14	13	11	13
737:	9	10	7	8	13	16	9	11
745:	11	8	7	12	14	9	8	6
753:	4	10	11	17	9	9	6	12
761:	8	12	5	9	12	16	15	28
769:	19	12	13	19	8	9	3	13
777:	9	9	12	6	7	4	11	11
785:	11	16	13	17	8	7	5	13
793:	8	18	34	12	8	5	8	9

801: 9 4 7 9 9 17 11 12

Sample Title: CP0603S06-07

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	9	9	5	11	5	16	9	7
817:	11	7	5	10	6	9	12	7
825:	8	9	8	6	8	9	8	1
833:	7	9	12	10	7	5	11	14
841:	6	9	6	4	7	11	12	9
849:	7	11	9	7	8	13	9	5
857:	8	7	13	25	28	11	4	8
865:	11	8	8	8	10	8	7	7
873:	12	14	10	5	5	8	3	12
881:	8	8	14	7	7	3	6	9
889:	7	14	6	7	2	13	5	8
897:	8	9	5	4	9	5	7	13
905:	9	7	9	7	10	37	105	57
913:	10	4	9	5	5	6	5	7
921:	5	4	8	8	6	6	6	4
929:	7	4	4	10	25	15	12	5
937:	4	11	6	6	8	14	7	14
945:	7	5	5	5	13	4	9	8
953:	7	9	10	6	5	11	5	10
961:	3	7	11	17	21	15	13	54
969:	86	23	6	6	5	7	4	6
977:	3	6	11	7	6	8	10	4
985:	8	11	7	3	6	7	7	3
993:	5	7	13	9	5	7	9	13
1001:	14	11	8	11	8	8	9	4
1009:	10	7	3	11	13	10	6	4
1017:	13	3	5	8	5	5	4	5
1025:	3	5	12	11	7	5	6	5
1033:	5	8	2	6	12	9	8	7
1041:	9	7	7	2	7	8	6	5
1049:	7	7	9	7	7	6	3	2
1057:	8	2	10	6	13	9	7	7
1065:	7	3	4	7	7	4	7	5
1073:	10	9	7	4	9	9	9	6
1081:	4	7	9	7	11	8	4	7
1089:	6	15	8	8	9	13	4	10
1097:	8	1	5	6	13	3	10	10
1105:	6	11	6	6	6	11	10	8
1113:	6	6	10	7	11	5	22	62
1121:	40	16	8	7	6	11	14	11
1129:	9	5	8	6	16	4	10	4
1137:	10	8	8	9	6	9	5	4
1145:	5	4	9	6	10	6	7	5
1153:	5	15	9	7	4	7	4	15
1161:	7	7	6	6	9	5	7	6
1169:	4	9	11	5	7	9	10	3
1177:	8	4	9	12	7	11	7	8
1185:	9	9	6	6	8	5	5	8
1193:	11	6	4	13	6	5	7	8
1201:	9	11	7	15	6	8	14	7
1209:	12	8	11	8	9	5	11	6
1217:	4	5	8	4	7	11	7	12
1225:	8	11	6	7	7	4	6	10

1233: 7 7 5 10 18 29 15 5

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Channel	1	2	3	4	5	6	7	8	9
1241:	10	9	5	9	6	11	9	4	
1249:	11	6	1	12	4	7	7	5	
1257:	2	5	4	6	8	10	6	3	
1265:	6	8	11	7	6	7	3	7	
1273:	7	6	4	10	2	5	4	8	
1281:	15	6	8	5	7	2	0	7	
1289:	4	1	2	6	6	7	8	5	
1297:	4	3	4	1	4	8	9	3	
1305:	4	4	2	6	10	6	3	7	
1313:	4	4	4	3	4	6	7	3	
1321:	0	1	4	3	9	6	0	5	
1329:	2	2	5	2	1	3	2	2	
1337:	3	4	4	4	7	3	6	2	
1345:	1	5	3	2	4	6	2	2	
1353:	6	3	3	6	4	3	6	2	
1361:	6	2	3	3	5	5	2	0	
1369:	2	5	9	6	3	4	9	12	
1377:	16	9	3	2	1	3	2	0	
1385:	5	3	4	9	5	1	3	6	
1393:	1	3	2	4	4	2	6	4	
1401:	4	5	7	1	6	6	6	4	
1409:	8	4	1	2	2	1	1	4	
1417:	3	4	5	0	3	7	6	6	
1425:	2	2	1	3	1	1	2	6	
1433:	5	3	1	0	6	1	1	1	
1441:	1	6	3	2	4	3	4	2	
1449:	1	0	0	4	4	4	1	3	
1457:	4	8	105	278	285	99	20	3	
1465:	1	1	4	4	7	2	4	1	
1473:	3	2	2	4	0	0	6	1	
1481:	0	1	2	3	3	3	1	4	
1489:	6	2	4	2	5	3	3	5	
1497:	5	3	1	5	4	3	0	4	
1505:	2	1	3	11	1	4	2	2	
1513:	5	2	2	1	2	1	0	0	
1521:	1	1	2	1	5	2	2	1	
1529:	5	1	2	4	2	1	2	4	
1537:	2	1	4	0	3	2	3	3	
1545:	1	4	0	2	0	2	2	3	
1553:	6	0	2	2	0	3	1	2	
1561:	0	4	3	1	0	1	2	1	
1569:	1	1	1	3	3	1	3	3	
1577:	1	3	2	2	3	2	3	2	
1585:	4	4	5	8	3	1	5	7	
1593:	8	3	1	2	1	0	3	2	
1601:	2	4	1	0	3	1	1	0	
1609:	1	1	1	1	2	1	1	1	
1617:	2	2	3	7	5	4	1	1	
1625:	1	4	0	1	0	7	8	3	
1633:	1	0	1	1	4	0	3	1	
1641:	5	1	0	1	0	2	1	2	
1649:	0	2	2	2	1	1	1	4	
1657:	1	5	2	4	4	3	2	2	

1665: 2 0 5 2 1 2 1 1

Sample Title: CP0603S06-07

Channel	1	2	3	4	5	6	7	8	9
1673:	0	2	1	2	1	1	3	1	
1681:	1	1	1	2	3	1	1	2	
1689:	1	2	1	1	4	2	2	1	
1697:	1	1	3	2	2	1	2	2	
1705:	3	0	0	0	2	0	1	1	
1713:	1	0	1	1	1	1	0	2	
1721:	1	0	3	1	1	1	1	7	
1729:	4	3	2	2	0	1	0	1	
1737:	0	0	1	2	2	3	1	1	
1745:	2	1	1	0	0	1	2	2	
1753:	2	1	0	3	3	1	0	3	
1761:	3	6	20	30	15	5	5	1	
1769:	0	2	1	0	1	0	1	0	
1777:	0	0	2	1	2	0	1	3	
1785:	3	3	0	0	0	1	4	0	
1793:	1	0	0	1	2	2	2	1	
1801:	0	1	0	0	1	2	1	1	
1809:	1	0	1	0	0	1	1	1	
1817:	1	1	0	2	1	0	1	0	
1825:	3	2	1	2	1	0	1	2	
1833:	0	1	0	0	0	4	2	0	
1841:	1	0	0	0	1	5	5	2	
1849:	0	2	1	1	1	3	0	0	
1857:	1	0	0	2	1	2	1	0	
1865:	2	0	1	2	2	2	0	2	
1873:	2	0	0	0	2	0	3	0	
1881:	0	2	1	1	0	2	0	1	
1889:	2	0	0	1	1	0	2	1	
1897:	2	3	2	2	1	1	0	0	
1905:	1	0	2	0	1	0	1	1	
1913:	3	1	0	0	1	1	2	3	
1921:	1	4	3	3	1	1	2	0	
1929:	2	0	2	1	1	1	1	0	
1937:	1	1	0	2	1	1	1	2	
1945:	0	1	0	0	3	0	0	3	
1953:	1	0	2	2	0	2	2	1	
1961:	0	1	5	0	0	1	2	0	
1969:	2	2	2	1	1	2	2	1	
1977:	4	1	2	1	1	0	0	0	
1985:	2	0	0	2	2	2	1	0	
1993:	0	2	1	0	1	1	2	2	
2001:	0	0	1	1	1	0	0	2	
2009:	1	0	2	1	0	2	0	3	
2017:	2	2	1	1	1	1	4	1	
2025:	1	1	2	2	2	1	0	2	
2033:	0	0	0	4	0	1	0	3	
2041:	2	1	0	0	2	2	0	1	
2049:	3	3	0	2	0	2	1	1	
2057:	1	4	0	1	1	1	0	1	
2065:	1	2	0	3	2	1	0	0	
2073:	1	0	1	1	1	2	1	0	
2081:	1	2	1	0	0	0	0	2	
2089:	2	1	1	0	3	1	1	0	

2097: 0 1 1 1 3 3 6 4

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Channel	1	2	3	4	5	6	7	8
2105:	4	1	0	0	1	3	1	1
2113:	1	0	0	4	1	2	4	1
2121:	2	0	1	3	2	1	2	0
2129:	0	1	1	0	1	0	1	2
2137:	1	1	1	0	1	2	1	0
2145:	1	0	0	2	0	2	1	1
2153:	1	1	2	0	1	2	1	0
2161:	2	1	1	1	1	2	1	0
2169:	0	0	1	3	0	3	3	1
2177:	0	0	0	0	1	1	3	0
2185:	0	0	2	0	2	1	0	3
2193:	0	2	1	2	1	2	2	4
2201:	1	4	11	10	4	2	2	2
2209:	1	1	1	0	1	1	2	0
2217:	1	1	1	0	1	1	1	0
2225:	2	1	0	0	0	2	0	0
2233:	3	3	2	0	0	0	3	4
2241:	0	1	1	0	1	2	2	3
2249:	2	0	1	0	0	1	2	1
2257:	4	1	4	2	1	0	0	2
2265:	0	0	0	2	1	1	2	1
2273:	0	2	0	1	0	0	2	0
2281:	2	2	0	1	1	1	0	2
2289:	1	2	1	1	2	0	0	1
2297:	2	0	2	2	1	0	3	0
2305:	0	2	1	3	1	0	0	3
2313:	1	1	2	2	1	4	1	2
2321:	0	0	1	2	1	1	0	0
2329:	1	1	1	0	1	1	2	0
2337:	1	0	1	1	1	1	0	2
2345:	1	0	1	2	3	1	1	1
2353:	3	1	1	3	0	1	0	0
2361:	3	1	2	1	1	3	2	2
2369:	2	3	1	4	1	1	0	0
2377:	1	0	1	3	1	0	0	1
2385:	2	0	1	0	1	0	0	1
2393:	1	0	0	0	1	1	0	1
2401:	0	1	2	1	0	1	1	1
2409:	1	0	1	1	0	0	2	0
2417:	1	1	2	0	0	2	0	2
2425:	0	0	2	0	0	0	1	1
2433:	0	0	0	0	0	1	0	0
2441:	0	0	0	1	1	2	3	3
2449:	1	1	1	0	0	0	2	0
2457:	1	2	0	2	0	0	1	2
2465:	1	2	1	0	3	0	1	0
2473:	2	3	1	1	1	1	1	0
2481:	2	0	1	1	1	0	1	0
2489:	0	1	1	1	1	0	0	0
2497:	0	1	0	1	0	0	1	0
2505:	2	1	0	1	0	1	0	0
2513:	0	0	2	0	1	0	1	0
2521:	0	0	0	0	0	0	1	1

2529: 0 0 0 0 0 1 1 0

Sample Title: CP0603S06-07

Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	0	0	0	2	0	0	
2545:	1	1	0	0	0	0	1	0	
2553:	0	0	0	0	1	2	1	0	
2561:	0	0	2	0	0	0	1	1	
2569:	1	0	1	0	0	2	2	1	
2577:	0	0	1	0	1	0	0	0	
2585:	0	1	0	2	1	0	0	0	
2593:	0	2	0	0	0	1	0	1	
2601:	0	0	1	1	0	2	0	2	
2609:	0	4	3	21	28	37	15	7	
2617:	0	0	0	1	0	0	0	0	
2625:	0	0	2	0	1	0	0	0	
2633:	0	0	0	0	0	1	0	3	
2641:	1	0	0	0	0	0	0	0	
2649:	0	1	1	0	0	0	1	0	
2657:	1	0	0	0	0	0	0	0	
2665:	0	1	0	0	0	0	0	1	
2673:	1	0	0	0	0	0	0	0	
2681:	1	0	0	1	1	1	0	0	
2689:	0	0	1	0	0	1	0	0	
2697:	0	0	0	0	0	0	0	0	
2705:	2	1	1	0	1	0	0	0	
2713:	0	0	0	0	1	0	1	0	
2721:	0	0	0	1	0	0	1	0	
2729:	1	0	0	1	0	0	0	1	
2737:	0	0	1	1	0	1	0	1	
2745:	0	0	0	1	0	0	0	0	
2753:	0	0	0	0	0	0	0	0	
2761:	0	0	0	2	0	0	0	1	
2769:	0	1	0	0	0	0	0	0	
2777:	0	0	1	0	0	0	0	0	
2785:	0	0	0	1	1	0	0	0	
2793:	0	0	1	2	0	0	0	1	
2801:	0	0	1	0	0	0	0	0	
2809:	2	0	0	0	1	0	0	1	
2817:	0	0	0	0	0	2	0	1	
2825:	0	0	1	0	0	0	0	0	
2833:	0	2	0	0	0	1	0	0	
2841:	0	1	0	1	0	0	0	0	
2849:	0	0	0	0	0	1	0	1	
2857:	0	0	0	1	0	0	0	1	
2865:	0	0	0	1	1	0	0	0	
2873:	0	0	0	1	0	0	0	1	
2881:	0	0	0	0	0	0	0	1	
2889:	0	0	0	1	1	0	0	0	
2897:	1	0	0	1	0	0	0	0	
2905:	0	0	0	0	0	1	0	2	
2913:	0	0	1	1	0	0	0	0	
2921:	0	0	0	1	0	1	0	0	
2929:	0	0	0	0	1	0	0	0	
2937:	0	0	0	0	0	0	0	0	
2945:	0	0	0	0	0	0	0	1	
2953:	3	0	0	1	0	0	0	0	

2961: 0 0 0 1 1 1 0 1

Sample Title: CP0603S06-07

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

3393: 0 0 0 0 1 0 1 0

Sample Title: CP0603S06-07

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

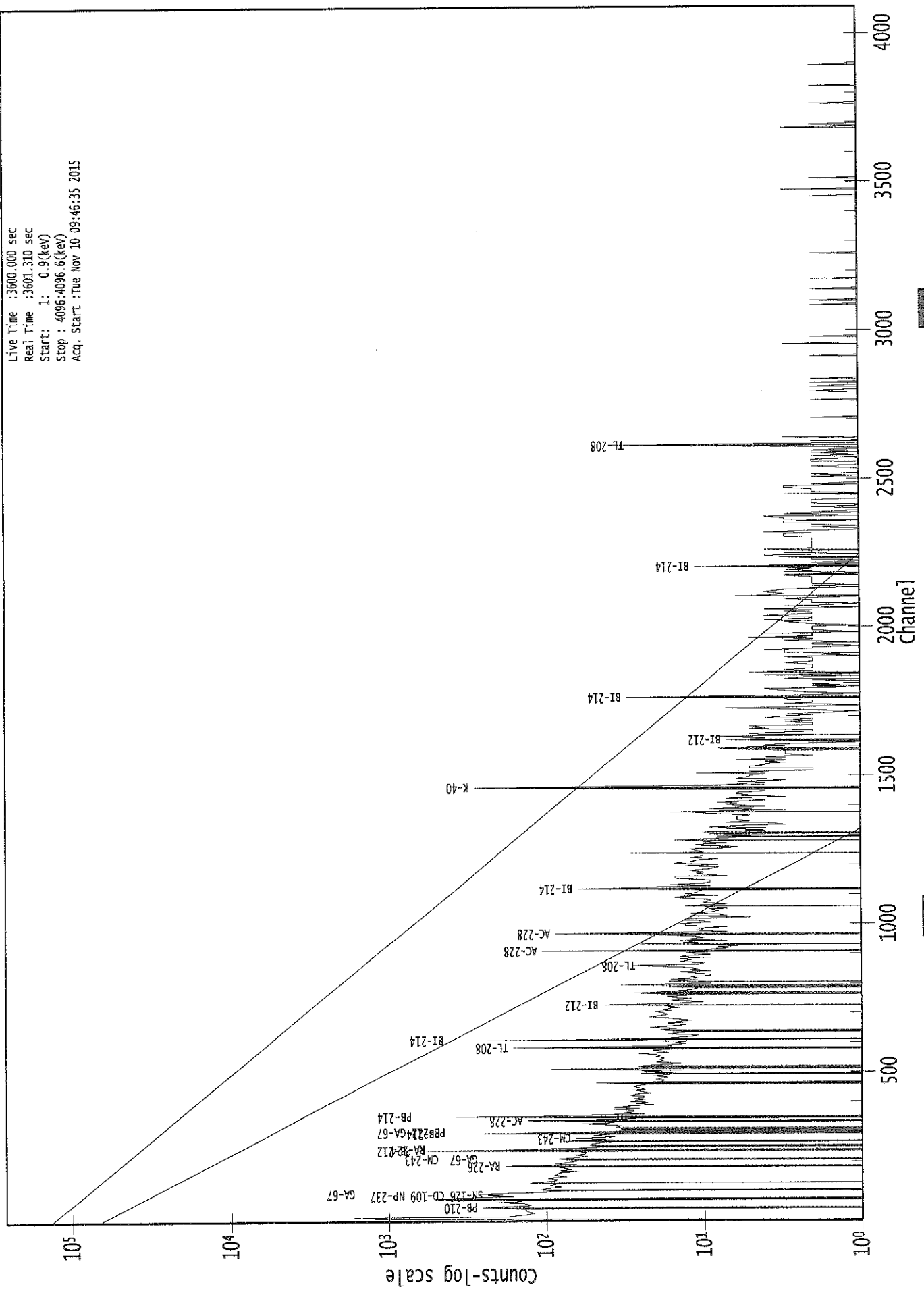
3825: 0 0 0 0 0 1 0 0

Sample Title: CP0603S06-07

Channel	1	2	3	4	5	6	7	8	9
3833:	0	1	0	0	0	1	0	0	0
3841:	0	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	1	0	0	0
3857:	0	0	0	0	0	0	0	0	0
3865:	0	1	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0	0
3889:	0	0	0	0	2	0	0	0	0
3897:	0	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0	0
3929:	0	1	0	0	1	0	0	0	0
3937:	0	0	0	0	0	0	0	0	0
3945:	0	1	0	0	0	0	0	0	0
3953:	0	0	0	1	0	1	0	0	0
3961:	0	0	0	0	0	0	0	0	0
3969:	0	0	0	0	1	0	0	0	0
3977:	0	0	0	0	1	1	0	0	0
3985:	0	0	0	0	1	1	0	0	0
3993:	0	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	1	1
4009:	0	0	0	0	0	0	1	1	1
4017:	0	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	1	0	0
4041:	0	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	1	1
4065:	0	0	0	0	0	0	0	0	0
4073:	0	0	0	1	0	0	0	0	0
4081:	0	0	0	0	0	1	0	1	1
4089:	0	0	0	1	1	0	0	0	0

0000029380.CNF

Live Time : 3600.000 sec
Real Time : 3601.310 sec
Start : 1: 0.9(keV)
Stop : 4096:4096.6(keV)
Acq. Start : Tue Nov 10 09:46:35 2015



*KJB
11/10/15*Analysis Report for 1510090-06
CP0603S09-10

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-06
Sample Description : CP0603S09-10
Sample Type : SOIL

Sample Size : 5.622E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:43:43AM
Acquisition Started : 11/10/2015 9:46:48AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3616.8 seconds

Dead Time : 0.46 %

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 : 29381

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*AG
11/10/15*

Analysis Report for 1510090-06
CP0603S09-10

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 10:47:19AM
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	63.74	63.96	0.0000	0.00
2	76.28	76.49	0.0000	0.00
3	86.44	86.64	0.0000	0.00
4	129.31	129.50	0.0000	0.00
5	163.23	163.40	0.0000	0.00
6	186.43	186.58	0.0000	0.00
7	209.36	209.50	0.0000	0.00
8	238.83	238.96	0.0000	0.00
9	242.01	242.14	0.0000	0.00
10	269.03	269.14	0.0000	0.00
11	277.75	277.86	0.0000	0.00
12	295.43	295.53	0.0000	0.00
13	300.34	300.43	0.0000	0.00
14	327.83	327.92	0.0000	0.00
15	338.63	338.71	0.0000	0.00
16	352.18	352.25	0.0000	0.00
17	463.43	463.44	0.0000	0.00
18	511.14	511.13	0.0000	0.00
19	583.45	583.40	0.0000	0.00
20	591.96	591.91	0.0000	0.00
21	609.81	609.76	0.0000	0.00
22	703.43	703.33	0.0000	0.00
23	727.20	727.09	0.0000	0.00
24	837.88	837.71	0.0000	0.00
25	911.32	911.13	0.0000	0.00
26	969.40	969.18	0.0000	0.00
27	1085.00	1084.73	0.0000	0.00
28	1120.52	1120.24	0.0000	0.00
29	1174.69	1174.38	0.0000	0.00
30	1408.78	1408.38	0.0000	0.00
31	1461.02	1460.60	0.0000	0.00
32	1466.45	1466.03	0.0000	0.00
33	1517.21	1516.77	0.0000	0.00
34	1533.78	1533.33	0.0000	0.00
35	1587.49	1587.02	0.0000	0.00
36	1593.19	1592.72	0.0000	0.00
37	1764.66	1764.13	0.0000	0.00
38	1836.02	1835.47	0.0000	0.00
39	1847.25	1846.69	0.0000	0.00
40	1875.51	1874.94	0.0000	0.00
41	2300.88	2300.18	0.0000	0.00
42	2614.39	2613.62	0.0000	0.00

Analysis Report for 1510090-06

CP0603S09-10

? = Adjacent peak noted
Errors quoted at 2.00sigma

Analysis Report for 1510090-06
CP0603S09-10

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 10:47:19AM

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	63.74	60 -	68	63.96	2.81E+02	128.92	2.37E+03	2.18
2	76.28	71 -	83	76.49	1.13E+03	184.92	3.46E+03	3.82
3	86.44	83 -	89	86.64	2.25E+02	103.36	1.79E+03	1.69
4	129.31	124 -	136	129.50	1.40E+02	129.80	1.91E+03	2.97
5	163.23	160 -	166	163.40	7.15E+01	70.00	8.37E+02	2.99
6	186.43	183 -	190	186.58	1.52E+02	80.52	9.79E+02	1.80
7	209.36	207 -	213	209.50	7.87E+01	65.79	7.33E+02	1.76
M 8	238.83	233 -	246	238.96	9.10E+02	73.91	4.10E+02	1.81
m 9	242.01	233 -	246	242.14	2.00E+02	77.43	4.01E+02	2.08
10	269.03	264 -	273	269.14	1.22E+02	67.47	5.82E+02	6.83
11	277.75	275 -	281	277.86	5.33E+01	50.34	4.19E+02	2.96
M 12	295.43	292 -	304	295.53	2.40E+02	46.36	2.93E+02	1.83
m 13	300.34	292 -	304	300.43	5.99E+01	49.24	3.98E+02	2.29
14	327.83	324 -	330	327.92	5.70E+01	44.98	3.22E+02	1.80
15	338.63	335 -	342	338.71	1.20E+02	55.96	4.38E+02	1.89
16	352.18	348 -	356	352.25	3.99E+02	63.44	3.74E+02	1.89
17	463.43	460 -	467	463.44	6.64E+01	36.82	1.77E+02	1.72
18	511.14	505 -	516	511.13	1.80E+02	51.81	2.45E+02	3.11
19	583.45	579 -	587	583.40	2.59E+02	43.35	1.29E+02	2.02
20	591.96	588 -	598	591.91	4.42E+01	38.29	1.76E+02	8.48
21	609.81	605 -	615	609.76	3.05E+02	51.89	1.91E+02	2.01
22	703.43	699 -	708	703.33	3.66E+01	37.13	1.79E+02	4.63
23	727.20	723 -	730	727.09	7.63E+01	32.37	1.23E+02	2.54
24	837.88	833 -	842	837.71	4.63E+01	29.17	9.55E+01	6.96
25	911.32	907 -	916	911.13	1.53E+02	38.96	1.28E+02	1.94
26	969.40	966 -	973	969.18	9.30E+01	33.41	1.16E+02	1.75
27	1085.00	1081 -	1089	1084.73	4.34E+01	22.33	5.13E+01	3.72
28	1120.52	1115 -	1124	1120.24	5.04E+01	31.73	1.15E+02	1.61
29	1174.69	1172 -	1177	1174.38	2.23E+01	17.64	4.34E+01	3.47
30	1408.78	1405 -	1413	1408.38	1.30E+01	16.91	3.60E+01	4.91
M 31	1461.02	1456 -	1470	1460.60	5.50E+02	47.51	1.40E+01	2.19
m 32	1466.45	1456 -	1470	1466.03	9.57E+00	21.19	1.80E+01	3.54
33	1517.21	1515 -	1519	1516.77	7.13E+00	6.18	1.75E+00	2.46
34	1533.78	1530 -	1536	1533.33	8.20E+00	7.23	3.60E+00	2.90
M 35	1587.49	1583 -	1596	1587.02	1.47E+01	16.00	4.55E+01	6.06
m 36	1593.19	1583 -	1596	1592.72	2.07E+01	15.56	2.35E+01	2.37
37	1764.66	1760 -	1768	1764.13	5.75E+01	17.80	1.31E+01	3.00
38	1836.02	1833 -	1837	1835.47	6.81E+00	6.18	2.38E+00	1.78
39	1847.25	1843 -	1851	1846.69	1.05E+01	8.50	5.08E+00	2.37
40	1875.51	1872 -	1878	1874.94	6.63E+00	6.65	2.75E+00	1.85

Analysis Report for 1510090-06

CP0603S09-10

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2300.88	2296 -	2304	2300.18	1.10E+01	6.63	0.00E+00	1.33
42	2614.39	2607 -	2618	2613.62	7.80E+01	17.66	0.00E+00	2.78

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 10:47:19AM

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	63.74	60 -	68	2.81E+02	128.92	2.37E+03	1.02E+02	
2	76.28	71 -	83	1.13E+03	184.92	3.46E+03	1.42E+02	
3	86.44	83 -	89	2.25E+02	103.36	1.79E+03	8.13E+01	
4	129.31	124 -	136	1.40E+02	129.80	1.91E+03	1.05E+02	
5	163.23	160 -	166	7.15E+01	70.00	8.37E+02	5.58E+01	
6	186.43	183 -	190	1.52E+02	80.52	9.79E+02	6.30E+01	
7	209.36	207 -	213	7.87E+01	65.79	7.33E+02	5.21E+01	
M	8	238.83	233 -	246	9.10E+02	73.91	4.10E+02	3.33E+01
m	9	242.01	233 -	246	2.00E+02	77.43	4.01E+02	3.29E+01
	10	269.03	264 -	273	1.22E+02	67.47	5.82E+02	5.24E+01
	11	277.75	275 -	281	5.33E+01	50.34	4.19E+02	3.96E+01
M	12	295.43	292 -	304	2.40E+02	46.36	2.93E+02	2.81E+01
m	13	300.34	292 -	304	5.99E+01	49.24	3.98E+02	3.28E+01
	14	327.83	324 -	330	5.70E+01	44.98	3.22E+02	3.48E+01
	15	338.63	335 -	342	1.20E+02	55.96	4.38E+02	4.23E+01
	16	352.18	348 -	356	3.99E+02	63.44	3.74E+02	4.05E+01
	17	463.43	460 -	467	6.64E+01	36.82	1.77E+02	2.71E+01
	18	511.14	505 -	516	1.80E+02	51.81	2.45E+02	3.64E+01
	19	583.45	579 -	587	2.59E+02	43.35	1.29E+02	2.39E+01
	20	591.96	588 -	598	4.42E+01	38.29	1.76E+02	2.95E+01
	21	609.81	605 -	615	3.05E+02	51.89	1.91E+02	3.15E+01
	22	703.43	699 -	708	3.66E+01	37.13	1.79E+02	1.44E+01
	23	727.20	723 -	730	7.63E+01	32.37	1.23E+02	2.24E+01
	24	837.88	833 -	842	4.63E+01	29.17	9.55E+01	2.12E+01
	25	911.32	907 -	916	1.53E+02	38.96	1.28E+02	2.48E+01

Analysis Report for 1510090-06
CP0603S09-10

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
26	969.40	966 -	973	9.30E+01	33.41	1.16E+02	2.24E+01
27	1085.00	1081 -	1089	4.34E+01	22.33	5.13E+01	1.48E+01
28	1120.52	1115 -	1124	5.04E+01	31.73	1.15E+02	2.33E+01
29	1174.69	1172 -	1177	2.23E+01	17.64	4.34E+01	1.22E+01
30	1408.78	1405 -	1413	1.30E+01	16.91	3.60E+01	1.26E+01
M 31	1461.02	1456 -	1470	5.50E+02	47.51	1.40E+01	6.15E+00
m 32	1466.45	1456 -	1470	9.57E+00	21.19	1.80E+01	6.97E+00
33	1517.21	1515 -	1519	7.13E+00	6.18	1.75E+00	2.57E+00
34	1533.78	1530 -	1536	8.20E+00	7.23	3.60E+00	3.63E+00
M 35	1587.49	1583 -	1596	1.47E+01	16.00	4.55E+01	1.11E+01
m 36	1593.19	1583 -	1596	2.07E+01	15.56	2.35E+01	7.96E+00
37	1764.66	1760 -	1768	5.75E+01	17.80	1.31E+01	7.66E+00
38	1836.02	1833 -	1837	6.81E+00	6.18	2.38E+00	2.73E+00
39	1847.25	1843 -	1851	1.05E+01	8.50	5.08E+00	4.53E+00
40	1875.51	1872 -	1878	6.63E+00	6.65	2.75E+00	3.46E+00
41	2300.88	2296 -	2304	1.10E+01	6.63	0.00E+00	0.00E+00
42	2614.39	2607 -	2618	7.80E+01	17.66	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 10:47:19AM

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	63.74	60 -	68	63.96	2.81E+02	128.92	2.37E+03	TH-234 TH-230
2	76.28	71 -	83	76.49	1.13E+03	184.92	3.46E+03	.....
3	86.44	83 -	89	86.64	2.25E+02	103.36	1.79E+03	EU-155 NP-237
4	129.31	124 -	136	129.50	1.40E+02	129.80	1.91E+03	.....
5	163.23	160 -	166	163.40	7.15E+01	70.00	8.37E+02	U-235 BA-140

Analysis Report for 1510090-06

CP0603S09-10

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
								CS-136	
6	186.43	183 -	190	186.58	1.52E+02	80.52	9.79E+02	RA-226	
7	209.36	207 -	213	209.50	7.87E+01	65.79	7.33E+02	CM-243	
								GA-67	
M	8	238.83	233 -	246	238.96	9.10E+02	73.91	4.10E+02	PB-212
m	9	242.01	233 -	246	242.14	2.00E+02	77.43	4.01E+02	.....
	10	269.03	264 -	273	269.14	1.22E+02	67.47	5.82E+02	CS-135
	11	277.75	275 -	281	277.86	5.33E+01	50.34	4.19E+02	CM-243
								NP-239	
M	12	295.43	292 -	304	295.53	2.40E+02	46.36	2.93E+02	PB-214
m	13	300.34	292 -	304	300.43	5.99E+01	49.24	3.98E+02	GA-67
								PB-212	
								BI-210M	
	14	327.83	324 -	330	327.92	5.70E+01	44.98	3.22E+02	LA-140
	15	338.63	335 -	342	338.71	1.20E+02	55.96	4.38E+02	AC-228
	16	352.18	348 -	356	352.25	3.99E+02	63.44	3.74E+02	PB-214
	17	463.43	460 -	467	463.44	6.64E+01	36.82	1.77E+02	SB-125
	18	511.14	505 -	516	511.13	1.80E+02	51.81	2.45E+02	.....
	19	583.45	579 -	587	583.40	2.59E+02	43.35	1.29E+02	TL-208
	20	591.96	588 -	598	591.91	4.42E+01	38.29	1.76E+02	.....
	21	609.81	605 -	615	609.76	3.05E+02	51.89	1.91E+02	BI-214
	22	703.43	699 -	708	703.33	3.66E+01	37.13	1.79E+02	NB-94
	23	727.20	723 -	730	727.09	7.63E+01	32.37	1.23E+02	BI-212
	24	837.88	833 -	842	837.71	4.63E+01	29.17	9.55E+01	.....
	25	911.32	907 -	916	911.13	1.53E+02	38.96	1.28E+02	AC-228
								LU-172	
	26	969.40	966 -	973	969.18	9.30E+01	33.41	1.16E+02	AC-228
	27	1085.00	1081 -	1089	1084.73	4.34E+01	22.33	5.13E+01	EU-152
	28	1120.52	1115 -	1124	1120.24	5.04E+01	31.73	1.15E+02	SC-46
								BI-214	
								TA-182	
	29	1174.69	1172 -	1177	1174.38	2.23E+01	17.64	4.34E+01	.....
	30	1408.78	1405 -	1413	1408.38	1.30E+01	16.91	3.60E+01	EU-152
M	31	1461.02	1456 -	1470	1460.60	5.50E+02	47.51	1.40E+01	K-40
m	32	1466.45	1456 -	1470	1466.03	9.57E+00	21.19	1.80E+01	.....
	33	1517.21	1515 -	1519	1516.77	7.13E+00	6.18	1.75E+00	.....
	34	1533.78	1530 -	1536	1533.33	8.20E+00	7.23	3.60E+00	.....
M	35	1587.49	1583 -	1596	1587.02	1.47E+01	16.00	4.55E+01	.....
m	36	1593.19	1583 -	1596	1592.72	2.07E+01	15.56	2.35E+01	.....
	37	1764.66	1760 -	1768	1764.13	5.75E+01	17.80	1.31E+01	BI-214
	38	1836.02	1833 -	1837	1835.47	6.81E+00	6.18	2.38E+00	Y-88
	39	1847.25	1843 -	1851	1846.69	1.05E+01	8.50	5.08E+00	.....
	40	1875.51	1872 -	1878	1874.94	6.63E+00	6.65	2.75E+00	.....
	41	2300.88	2296 -	2304	2300.18	1.10E+01	6.63	0.00E+00	.....
	42	2614.39	2607 -	2618	2613.62	7.80E+01	17.66	0.00E+00	TL-208

Analysis Report for 1510090-06
CP0603S09-10

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 : 11/10/2015 10:47:19AM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty	
1	63.74	2.81E+02	128.92	2.17E-02	1.72E-03	
2	76.28	1.13E+03	184.92	2.38E-02	2.14E-03	
3	86.44	2.25E+02	103.36	2.44E-02	2.47E-03	
4	129.31	1.40E+02	129.80	2.25E-02	1.70E-03	
5	163.23	7.15E+01	70.00	1.99E-02	1.52E-03	
6	186.43	1.52E+02	80.52	1.83E-02	1.42E-03	
7	209.36	7.87E+01	65.79	1.68E-02	1.31E-03	
M	8	238.83	9.10E+02	1.52E-02	1.18E-03	
m	9	242.01	2.00E+02	1.51E-02	1.17E-03	
10	269.03	1.22E+02	67.47	1.38E-02	1.04E-03	
11	277.75	5.33E+01	50.34	1.35E-02	1.00E-03	
M	12	295.43	2.40E+02	1.28E-02	9.74E-04	
m	13	300.34	5.99E+01	1.26E-02	9.67E-04	
14	327.83	5.70E+01	44.98	1.17E-02	9.28E-04	
15	338.63	1.20E+02	55.96	1.14E-02	9.12E-04	
16	352.18	3.99E+02	63.44	1.11E-02	8.93E-04	
17	463.43	6.64E+01	36.82	8.72E-03	7.66E-04	
18	511.14	1.80E+02	51.81	8.01E-03	7.18E-04	
19	583.45	2.59E+02	43.35	7.14E-03	6.46E-04	
20	591.96	4.42E+01	38.29	7.05E-03	6.37E-04	
21	609.81	3.05E+02	51.89	6.87E-03	6.20E-04	
22	703.43	3.66E+01	37.13	6.06E-03	5.34E-04	
23	727.20	7.63E+01	32.37	5.89E-03	5.14E-04	
24	837.88	4.63E+01	29.17	5.21E-03	4.24E-04	
25	911.32	1.53E+02	38.96	4.85E-03	3.72E-04	
26	969.40	9.30E+01	33.41	4.60E-03	3.61E-04	
27	1085.00	4.34E+01	22.33	4.19E-03	3.40E-04	
28	1120.52	5.04E+01	31.73	4.08E-03	3.33E-04	
29	1174.69	2.23E+01	17.64	3.92E-03	3.23E-04	
30	1408.78	1.30E+01	16.91	3.39E-03	2.77E-04	
M	31	1461.02	5.50E+02	47.51	3.29E-03	2.69E-04
m	32	1466.45	9.57E+00	21.19	3.28E-03	2.68E-04
33	1517.21	7.13E+00	6.18	3.20E-03	2.61E-04	
34	1533.78	8.20E+00	7.23	3.17E-03	2.58E-04	

Analysis Report for 1510090-06
CP0603S09-10

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	35	1587.49	1.47E+01	16.00	3.09E-03	2.50E-04
m	36	1593.19	2.07E+01	15.56	3.08E-03	2.50E-04
	37	1764.66	5.75E+01	17.80	2.86E-03	2.24E-04
	38	1836.02	6.81E+00	6.18	2.78E-03	2.13E-04
	39	1847.25	1.05E+01	8.50	2.77E-03	2.13E-04
	40	1875.51	6.63E+00	6.65	2.74E-03	2.13E-04
	41	2300.88	1.10E+01	6.63	2.40E-03	2.13E-04
	42	2614.39	7.80E+01	17.66	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 : 11/10/2015 10:47:19AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.74	2.81E+02	128.92	5.52E+01	2.05E+01	2.25E+02	1.31E+02
	2	76.28	1.13E+03	184.92			1.13E+03	1.85E+02
	3	86.44	2.25E+02	103.36			2.25E+02	1.03E+02
	4	129.31	1.40E+02	129.80			1.40E+02	1.30E+02
	5	163.23	7.15E+01	70.00			7.15E+01	7.00E+01
	6	186.43	1.52E+02	80.52	3.93E+01	6.56E+00	1.12E+02	8.08E+01
	7	209.36	7.87E+01	65.79			7.87E+01	6.58E+01
M	8	238.83	9.10E+02	73.91	1.34E+01	2.14E+00	8.97E+02	7.39E+01
m	9	242.01	2.00E+02	77.43	2.69E+00	1.46E+00	1.98E+02	7.74E+01
	10	269.03	1.22E+02	67.47			1.22E+02	6.75E+01
	11	277.75	5.33E+01	50.34			5.33E+01	5.03E+01
M	12	295.43	2.40E+02	46.36			2.40E+02	4.64E+01
m	13	300.34	5.99E+01	49.24			5.99E+01	4.92E+01
	14	327.83	5.70E+01	44.98			5.70E+01	4.50E+01
	15	338.63	1.20E+02	55.96			1.20E+02	5.60E+01
	16	352.18	3.99E+02	63.44	3.99E+00	4.73E+00	3.95E+02	6.36E+01
	17	463.43	6.64E+01	36.82			6.64E+01	3.68E+01
	18	511.14	1.80E+02	51.81	5.78E+01	4.60E+00	1.22E+02	5.20E+01
	19	583.45	2.59E+02	43.35	5.96E+00	3.46E+00	2.53E+02	4.35E+01
	20	591.96	4.42E+01	38.29			4.42E+01	3.83E+01
	21	609.81	3.05E+02	51.89	6.71E+00	3.44E+00	2.99E+02	5.20E+01
	22	703.43	3.66E+01	37.13			3.66E+01	3.71E+01

Analysis Report for 1510090-06

CP0603S09-10

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
23	727.20	7.63E+01	32.37			7.63E+01	3.24E+01
24	837.88	4.63E+01	29.17			4.63E+01	2.92E+01
25	911.32	1.53E+02	38.96	2.32E+00	2.73E+00	1.51E+02	3.91E+01
26	969.40	9.30E+01	33.41			9.30E+01	3.34E+01
27	1085.00	4.34E+01	22.33			4.34E+01	2.23E+01
28	1120.52	5.04E+01	31.73	2.00E+00	2.20E+00	4.85E+01	3.18E+01
29	1174.69	2.23E+01	17.64			2.23E+01	1.76E+01
30	1408.78	1.30E+01	16.91			1.30E+01	1.69E+01
M 31	1461.02	5.50E+02	47.51	2.36E+00	1.83E+00	5.47E+02	4.75E+01
m 32	1466.45	9.57E+00	21.19			9.57E+00	2.12E+01
33	1517.21	7.13E+00	6.18			7.13E+00	6.18E+00
34	1533.78	8.20E+00	7.23			8.20E+00	7.23E+00
M 35	1587.49	1.47E+01	16.00			1.47E+01	1.60E+01
m 36	1593.19	2.07E+01	15.56			2.07E+01	1.56E+01
37	1764.66	5.75E+01	17.80	1.45E+00	1.16E+00	5.60E+01	1.78E+01
38	1836.02	6.81E+00	6.18			6.81E+00	6.18E+00
39	1847.25	1.05E+01	8.50			1.05E+01	8.50E+00
40	1875.51	6.63E+00	6.65			6.63E+00	6.65E+00
41	2300.88	1.10E+01	6.63			1.10E+01	6.63E+00
42	2614.39	7.80E+01	17.66	2.66E+00	1.22E+00	7.53E+01	1.77E+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 : 11/10/2015 10:47:19AM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.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	63.74	2.81E+02	128.92	5.52E+01	2.05E+01	2.25E+02	1.31E+02
2	76.28	1.13E+03	184.92			1.13E+03	1.85E+02
3	86.44	2.25E+02	103.36			2.25E+02	1.03E+02
4	129.31	1.40E+02	129.80			1.40E+02	1.30E+02
5	163.23	7.15E+01	70.00			7.15E+01	7.00E+01
6	186.43	1.52E+02	80.52	3.93E+01	6.56E+00	1.12E+02	8.08E+01
7	209.36	7.87E+01	65.79			7.87E+01	6.58E+01
M 8	238.83	9.10E+02	73.91	1.34E+01	2.14E+00	8.97E+02	7.39E+01

: 00452

Analysis Report for 1510090-06

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	9	242.01	2.00E+02	77.43	2.69E+00	1.46E+00	1.98E+02	7.74E+01
	10	269.03	1.22E+02	67.47			1.22E+02	6.75E+01
	11	277.75	5.33E+01	50.34			5.33E+01	5.03E+01
M	12	295.43	2.40E+02	46.36			2.40E+02	4.64E+01
m	13	300.34	5.99E+01	49.24			5.99E+01	4.92E+01
	14	327.83	5.70E+01	44.98			5.70E+01	4.50E+01
	15	338.63	1.20E+02	55.96			1.20E+02	5.60E+01
	16	352.18	3.99E+02	63.44	3.99E+00	4.73E+00	3.95E+02	6.36E+01
	17	463.43	6.64E+01	36.82			6.64E+01	3.68E+01
	18	511.14	1.80E+02	51.81	5.78E+01	4.60E+00	1.22E+02	5.20E+01
	19	583.45	2.59E+02	43.35	5.96E+00	3.46E+00	2.53E+02	4.35E+01
	20	591.96	4.42E+01	38.29			4.42E+01	3.83E+01
	21	609.81	3.05E+02	51.89	6.71E+00	3.44E+00	2.99E+02	5.20E+01
	22	703.43	3.66E+01	37.13			3.66E+01	3.71E+01
	23	727.20	7.63E+01	32.37			7.63E+01	3.24E+01
	24	837.88	4.63E+01	29.17			4.63E+01	2.92E+01
	25	911.32	1.53E+02	38.96	2.32E+00	2.73E+00	1.51E+02	3.91E+01
	26	969.40	9.30E+01	33.41			9.30E+01	3.34E+01
	27	1085.00	4.34E+01	22.33			4.34E+01	2.23E+01
	28	1120.52	5.04E+01	31.73	2.00E+00	2.20E+00	4.85E+01	3.18E+01
	29	1174.69	2.23E+01	17.64			2.23E+01	1.76E+01
	30	1408.78	1.30E+01	16.91			1.30E+01	1.69E+01
M	31	1461.02	5.50E+02	47.51	2.36E+00	1.83E+00	5.47E+02	4.75E+01
m	32	1466.45	9.57E+00	21.19			9.57E+00	2.12E+01
	33	1517.21	7.13E+00	6.18			7.13E+00	6.18E+00
	34	1533.78	8.20E+00	7.23			8.20E+00	7.23E+00
M	35	1587.49	1.47E+01	16.00			1.47E+01	1.60E+01
m	36	1593.19	2.07E+01	15.56			2.07E+01	1.56E+01
	37	1764.66	5.75E+01	17.80	1.45E+00	1.16E+00	5.60E+01	1.78E+01
	38	1836.02	6.81E+00	6.18			6.81E+00	6.18E+00
	39	1847.25	1.05E+01	8.50			1.05E+01	8.50E+00
	40	1875.51	6.63E+00	6.65			6.63E+00	6.65E+00
	41	2300.88	1.10E+01	6.63			1.10E+01	6.63E+00
	42	2614.39	7.80E+01	17.66	2.66E+00	1.22E+00	7.53E+01	1.77E+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 1510090-06
CP0603S09-10

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.993	1460.81 *	10.67	2.08E+01	2.52E+00
CS-135	0.905	268.24 *	16.00	7.35E-01	4.11E-01
EU-155	0.360	86.50 *	30.90	4.04E-01	1.90E-01
		105.30	20.70		
TL-208	0.876	583.14 *	30.22	1.57E+00	3.04E-01
		860.37	4.48		
		2614.66 *	35.85	1.25E+00	3.18E-01
BI-212	0.770	727.17 *	11.80	1.47E+00	6.35E-01
		1620.62	2.75		
PB-212	0.993	238.63 *	44.60	1.77E+00	2.00E-01
		300.09 *	3.41	1.85E+00	1.53E+00
BI-214	0.908	609.31 *	46.30	1.25E+00	2.46E-01
		1120.29 *	15.10	1.05E+00	6.96E-01
		1764.49 *	15.80	1.66E+00	5.43E-01
		2204.22	4.98		
PB-214	0.990	295.21 *	19.19	1.30E+00	2.70E-01
		351.92 *	37.19	1.28E+00	2.31E-01
RA-226	0.993	186.21 *	3.28	2.50E+00	4.93E+00
AC-228	0.988	338.32 *	11.40	1.23E+00	5.82E-01
		911.07 *	27.70	1.50E+00	4.05E-01
		969.11 *	16.60	1.63E+00	5.98E-01
TH-234	0.968	63.29 *	3.80	3.65E+00	2.13E+00
NP-237	0.999	86.50 *	12.60	9.78E-01	4.60E-01
CM-243	0.366	209.75 *	3.29	1.90E+00	1.60E+00
		228.14	10.60		
		277.60 *	14.00	3.78E-01	3.58E-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 : 11/10/2015 10:47:19AM
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	76.28	3.12715E-01	8.21		
4	129.31	3.87823E-02	46.48		
5	163.23	1.98577E-02	48.96	Tol.	CS-136

Analysis Report for 1510090-06
CP0603S09-10

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
					BA-140 U-235
m 9	242.01	5.49240E-02	19.58		
14	327.83	1.58397E-02	39.44	Tol.	LA-140
17	463.43	1.84498E-02	27.72	Sum	
18	511.14	3.38100E-02	21.37		
20	591.96	1.22664E-02	43.35	Sum	
22	703.43	1.01587E-02	50.77	Sum	
24	837.88	1.28502E-02	31.53		
27	1085.00	1.20451E-02	25.75	Tol.	EU-152
29	1174.69	6.19949E-03	39.51		
30	1408.78	3.61111E-03	65.04	Tol.	EU-152
m 32	1466.45	2.65955E-03	110.66		
33	1517.21	1.97917E-03	43.40		
34	1533.78	2.27778E-03	44.08		
M 35	1587.49	4.07742E-03	54.50		
m 36	1593.19	5.74915E-03	37.60	D-Esc	
38	1836.02	1.89236E-03	45.39	Tol.	Y-88
39	1847.25	2.90598E-03	40.63	Sum	
40	1875.51	1.84028E-03	50.20		
41	2300.88	3.05556E-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
K-40	0.99	1460.81 *	10.67	2.08E+01	2.52E+00
CS-135	0.90	268.24 *	16.00	7.35E-01	4.11E-01
EU-155	0.36	86.50 *	30.90	4.04E-01	1.90E-01
		105.30	20.70		
TL-208	0.87	583.14 *	30.22	1.57E+00	3.04E-01
		860.37	4.48		
		2614.66 *	35.85	1.25E+00	3.18E-01

Analysis Report for 1510090-06
CP0603S09-10

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.77	727.17 *	11.80	1.47E+00	6.35E-01
		1620.62	2.75		
PB-212	0.99	238.63 *	44.60	1.77E+00	2.00E-01
		300.09 *	3.41	1.85E+00	1.53E+00
BI-214	0.90	609.31 *	46.30	1.25E+00	2.46E-01
		1120.29 *	15.10	1.05E+00	6.96E-01
		1764.49 *	15.80	1.66E+00	5.43E-01
		2204.22	4.98		
PB-214	0.99	295.21 *	19.19	1.30E+00	2.70E-01
		351.92 *	37.19	1.28E+00	2.31E-01
RA-226	0.99	186.21 *	3.28	2.50E+00	4.93E+00
AC-228	0.98	338.32 *	11.40	1.23E+00	5.82E-01
		911.07 *	27.70	1.50E+00	4.05E-01
		969.11 *	16.60	1.63E+00	5.98E-01
TH-234	0.96	63.29 *	3.80	3.65E+00	2.13E+00
NP-237	0.99	86.50 *	12.60	9.78E-01	4.60E-01
CM-243	0.36	209.75 *	3.29	1.90E+00	1.60E+00
		228.14	10.60		
		277.60 *	14.00	3.78E-01	3.58E-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	0.993	2.08E+01	2.52E+00	
CS-135	0.905	7.35E-01	4.11E-01	
? EU-155	0.360	4.04E-01	1.90E-01	
TL-208	0.876	1.42E+00	2.20E-01	
BI-212	0.770	1.47E+00	6.35E-01	
PB-212	0.993	1.77E+00	1.98E-01	
BI-214	0.908	1.30E+00	2.13E-01	
PB-214	0.990	1.29E+00	1.76E-01	

Analysis Report for 1510090-06
CP0603S09-10

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
RA-226	0.993	2.50E+00	4.93E+00	
AC-228	0.988	1.46E+00	2.90E-01	
TH-234	0.968	3.65E+00	2.13E+00	
? NP-237	0.999	9.78E-01	4.60E-01	
CM-243	0.366	4.51E-01	3.49E-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 1510090-06
CP0603S09-10

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 10:47:19AM
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	76.28	3.12715E-01	8.21		
4	129.31	3.87823E-02	46.48		
5	163.23	1.98577E-02	48.96	Tol.	CS-136 BA-140 U-235
m 9	242.01	5.49240E-02	19.58		
14	327.83	1.58397E-02	39.44	Tol.	LA-140
17	463.43	1.84498E-02	27.72	Sum	
18	511.14	3.38100E-02	21.37		
20	591.96	1.22664E-02	43.35	Sum	
22	703.43	1.01587E-02	50.77	Sum	
24	837.88	1.28502E-02	31.53		
27	1085.00	1.20451E-02	25.75	Tol.	EU-152
29	1174.69	6.19949E-03	39.51		
30	1408.78	3.61111E-03	65.04	Tol.	EU-152
m 32	1466.45	2.65955E-03	110.66		
33	1517.21	1.97917E-03	43.40		
34	1533.78	2.27778E-03	44.08		
M 35	1587.49	4.07742E-03	54.50		
m 36	1593.19	5.74915E-03	37.60	D-Esc	
38	1836.02	1.89236E-03	45.39	Tol.	Y-88
39	1847.25	2.90598E-03	40.63	Sum	
40	1875.51	1.84028E-03	50.20		
41	2300.88	3.05556E-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

Analysis Report for 1510090-06
CP0603S09-10

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	-4.57E-02	1.14E+00	1.14E+00
+	NA-22	1274.54	99.94	-7.87E-03	1.26E-01	1.26E-01
+	NA-24	1368.53	99.99	6.88E+13	1.75E+14	2.93E+14
		2754.09	99.86	4.87E+13		1.75E+14
+	AL-26	1808.65	99.76	1.64E-02	8.97E-02	8.97E-02
+	K-40	1460.81	* 10.67	2.08E+01	1.12E+00	1.12E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	8.59E-03	7.91E-02	7.91E-02
		78.34	96.00	2.59E-01		9.85E-02
+	SC-46	889.25	99.98	3.48E-02	1.26E-01	1.26E-01
		1120.51	99.99	1.92E-01		1.97E-01
+	V-48	983.52	99.98	-1.62E-01	3.57E-01	3.57E-01
		1312.10	97.50	1.45E-01		5.51E-01
+	CR-51	320.08	9.83	-2.49E-01	1.63E+00	1.63E+00
+	MN-54	834.83	99.97	-1.13E-01	1.02E-01	1.02E-01
+	CO-56	846.75	99.96	-4.03E-03	1.23E-01	1.23E-01
		1037.75	14.03	-3.63E-01		9.54E-01
		1238.25	67.00	-8.26E-03		2.79E-01
		1771.40	15.51	-1.02E-01		6.35E-01
		2598.48	16.90	9.33E-02		6.11E-01
+	CO-57	122.06	85.51	1.76E-03	6.84E-02	6.84E-02
		136.48	10.60	1.77E-01		5.55E-01
+	CO-58	810.76	99.40	-2.40E-02	1.17E-01	1.17E-01
+	FE-59	1099.22	56.50	-1.76E-02	3.31E-01	3.31E-01
		1291.56	43.20	-2.04E-01		4.29E-01
+	CO-60	1173.22	100.00	1.58E-02	1.15E-01	1.31E-01
		1332.49	100.00	-1.18E-02		1.15E-01
+	ZN-65	1115.52	50.75	-1.08E-02	2.26E-01	2.26E-01
+	GA-67	93.31	35.70	2.62E+02	1.79E+02	1.79E+02
		208.95	2.24	2.45E+03		3.25E+03
		300.22	16.00	-1.49E+03		4.56E+02
+	SE-75	121.11	16.70	1.67E-01	1.10E-01	3.99E-01
		136.00	59.20	-2.13E-03		1.10E-01
		264.65	59.80	-7.18E-03		1.44E-01
		279.53	25.20	-1.49E-03		3.64E-01
		400.65	11.40	3.47E-01		8.40E-01
+	RB-82	776.52	13.00	-6.09E-01	1.72E+00	1.72E+00
+	RB-83	520.41	46.00	4.94E-02	2.22E-01	2.22E-01
		529.64	30.30	5.29E-02		3.49E-01
		552.65	16.40	1.50E-01		6.53E-01
+	KR-85	513.99	0.43	2.04E+01	2.58E+01	2.58E+01
+	SR-85	513.99	99.27	1.25E-01	1.58E-01	1.58E-01

Analysis Report for 1510090-06
CP0603S09-10

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02	93.40	6.29E-03	9.93E-02	1.31E-01
		1836.01	99.38	1.79E-02		9.93E-02
+	NB-93M	16.57	9.43	9.97E+01	9.19E+01	9.19E+01
+	NB-94	702.63	100.00	1.18E-01	9.34E-02	1.10E-01
		871.10	100.00	-2.53E-02		9.34E-02
+	NB-95	765.79	99.81	2.82E-02	2.02E-01	2.02E-01
+	NB-95M	235.69	25.00	7.48E+02	2.47E+02	2.47E+02
+	ZR-95	724.18	43.70	3.90E-02	2.63E-01	3.81E-01
		756.72	55.30	2.18E-02		2.63E-01
+	MO-99	181.06	6.20	9.16E+02	2.26E+03	3.09E+03
		739.58	12.80	7.68E+02		2.26E+03
		778.00	4.50	1.00E+03		6.91E+03
+	RU-103	497.08	89.00	-4.55E-02	1.52E-01	1.52E-01
+	RU-106	621.84	9.80	3.54E-01	1.00E+00	1.00E+00
+	AG-108M	433.93	89.90	-2.02E-02	8.18E-02	8.18E-02
		614.37	90.40	-1.86E-02		1.03E-01
		722.95	90.50	3.01E-02		1.17E-01
+	CD-109	88.03	3.72	1.70E+00	2.17E+00	2.17E+00
+	AG-110M	657.75	93.14	9.73E-03	9.73E-02	9.73E-02
		677.61	10.53	5.28E-01		9.15E-01
		706.67	16.46	1.48E-01		7.16E-01
		763.93	21.98	-4.38E-01		4.76E-01
		884.67	71.63	2.48E-02		1.50E-01
		1384.27	23.94	-1.86E-02		4.36E-01
+	CD-113M	263.70	0.02	-1.96E+00	3.14E+02	3.14E+02
+	SN-113	255.12	1.93	-1.06E+00	1.44E-01	4.53E+00
		391.69	64.90	3.20E-02		1.44E-01
+	TE123M	159.00	84.10	-2.51E-03	8.26E-02	8.26E-02
+	SB-124	602.71	97.87	2.62E-02	1.38E-01	1.38E-01
		645.85	7.26	3.35E-01		1.86E+00
		722.78	11.10	3.54E-01		1.38E+00
		1691.02	49.00	6.69E-02		2.43E-01
+	I-125	35.49	6.49	1.28E-01	3.51E+00	3.51E+00
+	SB-125	176.33	6.89	-1.83E-01	2.60E-01	8.72E-01
		427.89	29.33	-4.25E-02		2.60E-01
		463.38	10.35	8.70E-01		8.94E-01
		600.56	17.80	-5.32E-02		5.16E-01
		635.90	11.32	-1.36E-01		7.73E-01
+	SB-126	414.70	83.30	-2.02E-01	5.15E-01	5.65E-01
		666.33	99.60	5.05E-02		5.15E-01
		695.00	99.60	5.06E-02		5.57E-01
		720.50	53.80	4.87E-01		1.06E+00
+	SN-126	87.57	37.00	1.63E-01	2.09E-01	2.09E-01
+	SB-127	473.00	25.00	1.79E+01	7.57E+01	1.02E+02
		685.20	35.70	-2.33E+01		7.57E+01
		783.80	14.70	6.30E+01		2.16E+02
+	I-129	29.78	57.00	6.48E-01	5.20E-01	5.20E-01
		33.60	13.20	-3.98E-03		1.41E+00

Analysis Report for 1510090-06
CP0603S09-10

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	9.77E-01	5.20E-01	1.69E+00
+	I-131	284.30	6.05	-1.11E+00	1.42E+00	1.80E+01
		364.48	81.20	-3.23E-01		1.42E+00
		636.97	7.26	8.24E+00		1.96E+01
		722.89	1.80	2.39E+01		9.33E+01
+	TE-132	49.72	13.10	-9.18E+02	7.65E+01	5.90E+02
		228.16	88.00	-9.68E+00		7.65E+01
+	BA-133	81.00	33.00	-9.20E-01	1.74E-01	1.89E-01
		302.84	17.80	5.03E-02		4.44E-01
		356.01	60.00	3.87E-02		1.74E-01
+	I-133	529.87	86.30	1.91E+09	1.26E+10	1.26E+10
+	XE-133	81.00	38.00	-5.48E+01	1.13E+01	1.13E+01
+	CS-134	563.23	8.38	1.44E-01	1.00E-01	1.07E+00
		569.32	15.43	-2.73E-02		5.76E-01
		604.70	97.60	-6.92E-03		1.00E-01
		795.84	85.40	8.96E-02		1.27E-01
		801.93	8.73	-2.86E-01		1.06E+00
+	CS-135	268.24	* 16.00	7.35E-01	6.49E-01	6.49E-01
+	@ 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	4.04E-01	4.71E-01	4.31E+00
		163.89	4.61	3.78E+00		7.15E+00
		176.55	13.56	-2.17E-01		2.34E+00
		273.65	12.66	-2.51E+00		3.38E+00
		340.57	48.50	1.37E-01		1.13E+00
		818.50	99.70	4.20E-02		4.71E-01
		1048.07	79.60	-2.82E-01		7.13E-01
		1235.34	19.70	1.00E-01		4.00E+00
+	CS-137	661.65	85.12	8.13E-03	1.00E-01	1.00E-01
+	LA-138	788.74	34.00	2.12E-02	1.39E-01	2.92E-01
		1435.80	66.00	-1.45E-02		1.39E-01
+	CE-139	165.85	80.35	-2.06E-03	8.62E-02	8.62E-02
+	BA-140	162.64	6.70	4.15E+00	1.81E+00	5.24E+00
		304.84	4.50	-2.78E+00		8.73E+00
		423.70	3.20	5.61E+00		1.47E+01
		437.55	2.00	1.22E+01		2.29E+01
		537.32	25.00	4.70E-01		1.81E+00
+	LA-140	328.77	20.50	-5.60E-01	7.38E-01	2.20E+00
		487.03	45.50	1.66E-02		9.99E-01
		815.85	23.50	-2.54E-01		2.01E+00
		1596.49	95.49	1.33E-01		7.38E-01
+	CE-141	145.44	48.40	3.19E-02	2.34E-01	2.34E-01
+	CE-143	57.36	11.80	7.10E+05	2.46E+06	7.05E+06
		293.26	42.00	2.22E+05		2.46E+06
		664.55	5.20	3.32E+06		1.71E+07
+	CE-144	133.54	10.80	-2.37E-01	5.54E-01	5.54E-01
+	PM-144	476.78	42.00	2.30E-02	9.12E-02	1.99E-01
		618.01	98.60	-3.30E-02		9.12E-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	696.49	99.49	1.91E-03	9.12E-02	9.65E-02
+	PM-145	36.85	21.70	-3.81E-01	3.61E-01	6.64E-01
		37.36	39.70	-1.23E-02		3.61E-01
		42.30	15.10	-6.07E-01		7.27E-01
		72.40	2.31	-5.20E+00		3.82E+00
+	PM-146	453.90	39.94	-5.13E-02	1.90E-01	1.90E-01
		735.90	14.01	5.53E-02		6.45E-01
		747.13	13.10	2.76E-02		7.41E-01
+	ND-147	91.11	28.90	1.40E+00	1.98E+00	1.98E+00
		531.02	13.10	-1.82E+00		4.48E+00
+	PM-149	285.90	3.10	-6.32E+03	5.16E+04	5.16E+04
+	EU-152	121.78	20.50	6.78E-03	2.64E-01	2.64E-01
		244.69	5.40	2.70E-01		1.57E+00
		344.27	19.13	4.33E-02		3.88E-01
		778.89	9.20	5.26E-01		1.10E+00
		964.01	10.40	3.69E-01		1.18E+00
		1085.78	7.22	1.76E+00		1.75E+00
		1112.02	9.60	-2.76E-02		1.09E+00
		1407.95	14.94	9.36E-02		7.69E-01
+	GD-153	97.43	31.30	-2.16E-01	1.91E-01	1.91E-01
		103.18	22.20	5.51E-03		2.77E-01
+	EU-154	123.07	40.50	-3.46E-02	1.33E-01	1.33E-01
		723.30	19.70	1.39E-01		5.43E-01
		873.19	11.50	-4.43E-02		8.20E-01
		996.32	10.30	-6.95E-01		1.00E+00
		1004.76	17.90	-2.92E-01		6.10E-01
		1274.45	35.50	-2.18E-02		3.50E-01
+	EU-155	86.50	* 30.90	4.04E-01	2.76E-01	2.97E-01
		105.30	20.70	7.19E-02		2.76E-01
+	EU-156	811.77	10.40	-1.96E+00	3.36E+00	3.36E+00
		1153.47	7.20	1.25E+00		7.09E+00
		1230.71	8.90	1.31E+00		6.64E+00
+	HO-166M	184.41	72.60	1.72E-01	1.02E-01	1.02E-01
		280.45	29.60	5.18E-02		2.56E-01
		410.94	11.10	1.38E-01		7.08E-01
		711.69	54.10	1.41E-02		1.63E-01
+	TM-171	66.72	0.14	-9.63E+01	5.56E+01	5.56E+01
+	HF-172	81.75	4.52	-6.56E+00	5.20E-01	1.44E+00
		125.81	11.30	-3.71E-01		5.20E-01
+	LU-172	181.53	20.60	1.02E+00	4.38E+00	7.76E+00
		810.06	16.63	2.47E+00		1.53E+01
		912.12	15.25	7.36E+01		3.36E+01
		1093.66	62.50	-2.16E+00		4.38E+00
+	LU-173	100.72	5.24	-2.82E-01	4.01E-01	1.11E+00
		272.11	21.20	2.03E-01		4.01E-01
+	HF-175	343.40	84.00	2.34E-02	1.27E-01	1.27E-01
+	LU-176	88.34	13.30	-1.02E-01	7.65E-02	5.93E-01
		201.83	86.00	9.62E-03		8.50E-02
		306.78	94.00	2.02E-02		7.65E-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75	41.20	2.39E-02	2.20E-01	2.20E-01
		1121.30	34.90	5.90E-01		5.29E-01
		1189.05	16.23	2.93E-01		1.01E+00
		1221.41	26.98	2.14E-01		5.74E-01
		1231.02	11.44	1.24E+00		1.55E+00
+	IR-192	308.46	29.68	3.61E-02	2.06E-01	3.23E-01
		468.07	48.10	-3.50E-02		2.06E-01
+	HG-203	279.19	77.30	8.70E-02	1.63E-01	1.63E-01
+	BI-207	569.67	97.72	2.28E-02	9.12E-02	9.12E-02
		1063.62	74.90	-6.17E-02		1.32E-01
+	TL-208	583.14	* 30.22	1.57E+00	1.40E-01	3.19E-01
		860.37	4.48	7.01E-01		2.30E+00
		2614.66	* 35.85	1.25E+00		1.40E-01
+	BI-210M	262.00	45.00	3.15E-02	1.63E-01	1.63E-01
		300.00	23.00	-1.15E+00		3.51E-01
+	PB-210	46.50	4.25	-2.22E-01	2.35E+00	2.35E+00
+	PB-211	404.84	2.90	-1.70E+00	2.59E+00	2.59E+00
		831.96	2.90	1.61E-01		3.56E+00
+	BI-212	727.17	* 11.80	1.47E+00	9.13E-01	9.13E-01
		1620.62	2.75	1.37E+00		3.92E+00
+	PB-212	238.63	* 44.60	1.77E+00	3.04E-01	3.04E-01
		300.09	* 3.41	1.85E+00		3.93E+00
+	BI-214	609.31	* 46.30	1.25E+00	2.80E-01	2.80E-01
		1120.29	* 15.10	1.05E+00		1.08E+00
		1764.49	* 15.80	1.66E+00		5.52E-01
		2204.22	4.98	1.67E+00		2.56E+00
+	PB-214	295.21	* 19.19	1.30E+00	2.74E-01	6.76E-01
		351.92	* 37.19	1.28E+00		2.74E-01
+	RN-219	401.80	6.50	8.04E-01	1.24E+00	1.24E+00
+	RA-223	323.87	3.88	3.43E-01	2.00E+00	2.00E+00
+	RA-224	240.98	3.95	2.40E+01	3.88E+00	3.88E+00
+	RA-225	40.00	31.00	1.04E+00	1.79E+00	1.79E+00
+	RA-226	186.21	* 3.28	2.50E+00	2.92E+00	2.92E+00
+	TH-227	50.10	8.40	-1.56E+00	1.00E+00	1.00E+00
		236.00	11.50	3.48E+00		1.15E+00
		256.20	6.30	1.02E-01		1.18E+00
+	AC-228	338.32	* 11.40	1.23E+00	5.24E-01	8.96E-01
		911.07	* 27.70	1.50E+00		5.24E-01
		969.11	* 16.60	1.63E+00		8.31E-01
+	TH-230	48.44	16.90	1.97E-01	5.53E-01	5.53E-01
		62.85	4.60	2.37E+00		1.93E+00
		67.67	0.37	2.19E+00		2.02E+01
+	PA-231	283.67	1.60	-2.66E-01	3.42E+00	4.30E+00
		302.67	2.30	3.87E-01		3.42E+00
+	TH-231	25.64	14.70	-9.95E-01	1.04E+00	3.62E+00
		84.21	6.40	-2.00E+00		1.04E+00
+	PA-233	311.98	38.60	1.43E-01	4.23E-01	4.23E-01
+	PA-234	131.20	20.40	2.97E-01	3.07E-01	3.07E-01

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
PA-234	733.99	8.80	2.43E-02	3.07E-01	1.02E+00
	946.00	12.00	-4.02E-01		8.43E-01
+ PA-234M	1001.03	0.92	3.90E+00	1.31E+01	1.31E+01
+ TH-234	63.29 *	3.80	3.65E+00	3.43E+00	3.43E+00
+ U-235	143.76	10.50	3.06E-01	5.51E-01	5.51E-01
	163.35	4.70	6.85E-01		1.30E+00
	205.31	4.70	1.10E-01		1.53E+00
+ NP-237	86.50 *	12.60	9.78E-01	7.19E-01	7.19E-01
+ NP-239	106.10	22.70	1.05E+03	3.10E+03	3.10E+03
	228.18	10.70	-1.09E+03		8.58E+03
	277.60	14.10	4.41E+03		6.81E+03
+ AM-241	59.54	35.90	-3.56E-02	2.28E-01	2.28E-01
+ AM-243	74.67	66.00	3.37E-01	1.58E-01	1.58E-01
+ CM-243	209.75 *	3.29	1.90E+00	5.81E-01	2.59E+00
	228.14	10.60	-8.86E-02		7.00E-01
	277.60 *	14.00	3.78E-01		5.81E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.14E+00	1.14E+00	-4.57E-02	5.39E-01
NA-22	1274.54	99.94	1.26E-01	1.26E-01	-7.87E-03	5.82E-02
NA-24	1368.53	99.99	2.93E+14	1.75E+14	6.88E+13	1.32E+14
	2754.09	99.86	1.75E+14		4.87E+13	6.54E+13
AL-26	1808.65	99.76	8.97E-02	8.97E-02	1.64E-02	3.84E-02
+ K-40	1460.81 *	10.67	1.12E+00	1.12E+00	2.08E+01	5.10E-01

Analysis Report for 1510090-06
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	7.91E-02	7.91E-02	8.59E-03	3.87E-02
	78.34	96.00	9.85E-02		2.59E-01	4.85E-02
SC-46	889.25	99.98	1.26E-01	1.26E-01	3.48E-02	5.84E-02
	1120.51	99.99	1.97E-01		1.92E-01	9.26E-02
V-48	983.52	99.98	3.57E-01	3.57E-01	-1.62E-01	1.62E-01
	1312.10	97.50	5.51E-01		1.45E-01	2.55E-01
CR-51	320.08	9.83	1.63E+00	1.63E+00	-2.49E-01	7.80E-01
MN-54	834.83	99.97	1.02E-01	1.02E-01	-1.13E-01	4.73E-02
CO-56	846.75	99.96	1.23E-01	1.23E-01	-4.03E-03	5.70E-02
	1037.75	14.03	9.54E-01		-3.63E-01	4.38E-01
	1238.25	67.00	2.79E-01		-8.26E-03	1.30E-01
	1771.40	15.51	6.35E-01		-1.02E-01	2.64E-01
	2598.48	16.90	6.11E-01		9.33E-02	2.43E-01
CO-57	122.06	85.51	6.84E-02	6.84E-02	1.76E-03	3.32E-02
	136.48	10.60	5.55E-01		1.77E-01	2.69E-01
CO-58	810.76	99.40	1.17E-01	1.17E-01	-2.40E-02	5.41E-02
FE-59	1099.22	56.50	3.31E-01	3.31E-01	-1.76E-02	1.53E-01
	1291.56	43.20	4.29E-01		-2.04E-01	1.96E-01
CO-60	1173.22	100.00	1.31E-01	1.15E-01	1.58E-02	6.10E-02
	1332.49	100.00	1.15E-01		-1.18E-02	5.25E-02
ZN-65	1115.52	50.75	2.26E-01	2.26E-01	-1.08E-02	1.04E-01
GA-67	93.31	35.70	1.79E+02	1.79E+02	2.62E+02	8.78E+01
	208.95	2.24	3.25E+03		2.45E+03	1.58E+03
	300.22	16.00	4.56E+02		-1.49E+03	2.20E+02
SE-75	121.11	16.70	3.99E-01	1.10E-01	1.67E-01	1.94E-01
	136.00	59.20	1.10E-01		-2.13E-03	5.32E-02
	264.65	59.80	1.44E-01		-7.18E-03	6.94E-02
	279.53	25.20	3.64E-01		-1.49E-03	1.76E-01
	400.65	11.40	8.40E-01		3.47E-01	4.01E-01
RB-82	776.52	13.00	1.72E+00	1.72E+00	-6.09E-01	7.99E-01
RB-83	520.41	46.00	2.22E-01	2.22E-01	4.94E-02	1.05E-01
	529.64	30.30	3.49E-01		5.29E-02	1.65E-01
	552.65	16.40	6.53E-01		1.50E-01	3.07E-01
KR-85	513.99	0.43	2.58E+01	2.58E+01	2.04E+01	1.24E+01
SR-85	513.99	99.27	1.58E-01	1.58E-01	1.25E-01	7.56E-02
Y-88	898.02	93.40	1.31E-01	9.93E-02	6.29E-03	6.07E-02
	1836.01	99.38	9.93E-02		1.79E-02	4.16E-02
NB-93M	16.57	9.43	9.19E+01	9.19E+01	9.97E+01	4.48E+01
NB-94	702.63	100.00	1.10E-01	9.34E-02	1.18E-01	5.19E-02
	871.10	100.00	9.34E-02		-2.53E-02	4.31E-02
NB-95	765.79	99.81	2.02E-01	2.02E-01	2.82E-02	9.48E-02
NB-95M	235.69	25.00	2.47E+02	2.47E+02	7.48E+02	1.21E+02
ZR-95	724.18	43.70	3.81E-01	2.63E-01	3.90E-02	1.81E-01
	756.72	55.30	2.63E-01		2.18E-02	1.23E-01
MO-99	181.06	6.20	3.09E+03	2.26E+03	9.16E+02	1.49E+03
	739.58	12.80	2.26E+03		7.68E+02	1.05E+03
	778.00	4.50	6.91E+03		1.00E+03	3.22E+03
RU-103	497.08	89.00	1.52E-01	1.52E-01	-4.55E-02	7.17E-02
RU-106	621.84	9.80	1.00E+00	1.00E+00	3.54E-01	4.73E-01
AG-108M	433.93	89.90	8.18E-02	8.18E-02	-2.02E-02	3.87E-02
	614.37	90.40	1.03E-01		-1.86E-02	4.86E-02
	722.95	90.50	1.17E-01		3.01E-02	5.53E-02

Analysis Report for 1510090-06
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-109	88.03	3.72	2.17E+00	2.17E+00	1.70E+00	1.07E+00
AG-110M	657.75	93.14	9.73E-02	9.73E-02	9.73E-03	4.54E-02
	677.61	10.53	9.15E-01		5.28E-01	4.28E-01
	706.67	16.46	7.16E-01		1.48E-01	3.38E-01
	763.93	21.98	4.76E-01		-4.38E-01	2.22E-01
	884.67	71.63	1.50E-01		2.48E-02	6.94E-02
	1384.27	23.94	4.36E-01		-1.86E-02	1.94E-01
CD-113M	263.70	0.02	3.14E+02	3.14E+02	-1.96E+00	1.52E+02
SN-113	255.12	1.93	4.53E+00	1.44E-01	-1.06E+00	2.19E+00
	391.69	64.90	1.44E-01		3.20E-02	6.86E-02
TE123M	159.00	84.10	8.26E-02	8.26E-02	-2.51E-03	4.00E-02
SB-124	602.71	97.87	1.38E-01	1.38E-01	2.62E-02	6.52E-02
	645.85	7.26	1.86E+00		3.35E-01	8.73E-01
	722.78	11.10	1.38E+00		3.54E-01	6.52E-01
	1691.02	49.00	2.43E-01		6.69E-02	1.03E-01
I-125	35.49	6.49	3.51E+00	3.51E+00	1.28E-01	1.71E+00
SB-125	176.33	6.89	8.72E-01	2.60E-01	-1.83E-01	4.22E-01
	427.89	29.33	2.60E-01		-4.25E-02	1.23E-01
	463.38	10.35	8.94E-01		8.70E-01	4.26E-01
	600.56	17.80	5.16E-01		-5.32E-02	2.43E-01
	635.90	11.32	7.73E-01		-1.36E-01	3.62E-01
SB-126	414.70	83.30	5.65E-01	5.15E-01	-2.02E-01	2.69E-01
	666.33	99.60	5.15E-01		5.05E-02	2.41E-01
	695.00	99.60	5.57E-01		5.06E-02	2.61E-01
	720.50	53.80	1.06E+00		4.87E-01	4.94E-01
SN-126	87.57	37.00	2.09E-01	2.09E-01	1.63E-01	1.02E-01
SB-127	473.00	25.00	1.02E+02	7.57E+01	1.79E+01	4.85E+01
	685.20	35.70	7.57E+01		-2.33E+01	3.52E+01
	783.80	14.70	2.16E+02		6.30E+01	1.01E+02
I-129	29.78	57.00	5.20E-01	5.20E-01	6.48E-01	2.53E-01
	33.60	13.20	1.41E+00		-3.98E-03	6.84E-01
	39.58	7.52	1.69E+00		9.77E-01	8.24E-01
I-131	284.30	6.05	1.80E+01	1.42E+00	-1.11E+00	8.66E+00
	364.48	81.20	1.42E+00		-3.23E-01	6.79E-01
	636.97	7.26	1.96E+01		8.24E+00	9.21E+00
	722.89	1.80	9.33E+01		2.39E+01	4.40E+01
TE-132	49.72	13.10	5.90E+02	7.65E+01	-9.18E+02	2.88E+02
	228.16	88.00	7.65E+01		-9.68E+00	3.70E+01
BA-133	81.00	33.00	1.89E-01	1.74E-01	-9.20E-01	9.23E-02
	302.84	17.80	4.44E-01		5.03E-02	2.14E-01
	356.01	60.00	1.74E-01		3.87E-02	8.41E-02
I-133	529.87	86.30	1.26E+10	1.26E+10	1.91E+09	5.94E+09
XE-133	81.00	38.00	1.13E+01	1.13E+01	-5.48E+01	5.50E+00
CS-134	563.23	8.38	1.07E+00	1.00E-01	1.44E-01	5.06E-01
	569.32	15.43	5.76E-01		-2.73E-02	2.71E-01
	604.70	97.60	1.00E-01		-6.92E-03	4.74E-02
	795.84	85.40	1.27E-01		8.96E-02	5.95E-02
	801.93	8.73	1.06E+00		-2.86E-01	4.88E-01
+ CS-135	268.24	* 16.00	6.49E-01	6.49E-01	7.35E-01	3.16E-01
@ 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	4.31E+00	4.71E-01	4.04E-01	2.09E+00

Analysis Report for 1510090-06

CP0603S09-10

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)		
CS-136	163.89	4.61	7.15E+00	4.71E-01	3.78E+00	3.47E+00		
	176.55	13.56	2.34E+00		-2.17E-01	1.13E+00		
	273.65	12.66	3.38E+00		-2.51E+00	1.63E+00		
	340.57	48.50	1.13E+00		1.37E-01	5.49E-01		
	818.50	99.70	4.71E-01		4.20E-02	2.17E-01		
	1048.07	79.60	7.13E-01		-2.82E-01	3.28E-01		
	1235.34	19.70	4.00E+00		1.00E-01	1.87E+00		
CS-137	661.65	85.12	1.00E-01	1.00E-01	8.13E-03	4.68E-02		
LA-138	788.74	34.00	2.92E-01	1.39E-01	2.12E-02	1.36E-01		
	1435.80	66.00	1.39E-01		-1.45E-02	6.15E-02		
CE-139	165.85	80.35	8.62E-02	8.62E-02	-2.06E-03	4.17E-02		
BA-140	162.64	6.70	5.24E+00	1.81E+00	4.15E+00	2.54E+00		
	304.84	4.50	8.73E+00		-2.78E+00	4.19E+00		
	423.70	3.20	1.47E+01		5.61E+00	7.03E+00		
	437.55	2.00	2.29E+01		1.22E+01	1.09E+01		
	537.32	25.00	1.81E+00		4.70E-01	8.53E-01		
LA-140	328.77	20.50	2.20E+00	7.38E-01	-5.60E-01	1.06E+00		
	487.03	45.50	9.99E-01		1.66E-02	4.73E-01		
	815.85	23.50	2.01E+00		-2.54E-01	9.22E-01		
	1596.49	95.49	7.38E-01		1.33E-01	3.34E-01		
CE-141	145.44	48.40	2.34E-01	2.34E-01	3.19E-02	1.14E-01		
CE-143	57.36	11.80	7.05E+06	2.46E+06	7.10E+05	3.45E+06		
	293.26	42.00	2.46E+06		2.22E+05	1.19E+06		
	664.55	5.20	1.71E+07		3.32E+06	7.99E+06		
CE-144	133.54	10.80	5.54E-01	5.54E-01	-2.37E-01	2.69E-01		
PM-144	476.78	42.00	1.99E-01	9.12E-02	2.30E-02	9.42E-02		
	618.01	98.60	9.12E-02		-3.30E-02	4.27E-02		
	696.49	99.49	9.65E-02		1.91E-03	4.51E-02		
PM-145	36.85	21.70	6.64E-01	3.61E-01	-3.81E-01	3.23E-01		
	37.36	39.70	3.61E-01		-1.23E-02	1.76E-01		
	42.30	15.10	7.27E-01		-6.07E-01	3.54E-01		
	72.40	2.31	3.82E+00		-5.20E+00	1.87E+00		
PM-146	453.90	39.94	1.90E-01	1.90E-01	-5.13E-02	8.99E-02		
	735.90	14.01	6.45E-01		5.53E-02	3.00E-01		
	747.13	13.10	7.41E-01		2.76E-02	3.46E-01		
ND-147	91.11	28.90	1.98E+00	1.98E+00	1.40E+00	9.70E-01		
	531.02	13.10	4.48E+00		-1.82E+00	2.11E+00		
PM-149	285.90	3.10	5.16E+04	5.16E+04	-6.32E+03	2.48E+04		
EU-152	121.78	20.50	2.64E-01	2.64E-01	6.78E-03	1.28E-01		
	244.69	5.40	1.57E+00		2.70E-01	7.64E-01		
	344.27	19.13	3.88E-01		4.33E-02	1.85E-01		
	778.89	9.20	1.10E+00		5.26E-01	5.15E-01		
	964.01	10.40	1.18E+00		3.69E-01	5.51E-01		
	1085.78	7.22	1.75E+00		1.76E+00	8.13E-01		
	1112.02	9.60	1.09E+00		-2.76E-02	5.01E-01		
	1407.95	14.94	7.69E-01		9.36E-02	3.49E-01		
	GD-153	97.43	31.30		1.91E-01	1.91E-01	-2.16E-01	9.29E-02
		103.18	22.20		2.77E-01		5.51E-03	1.35E-01
EU-154	123.07	40.50	1.33E-01	1.33E-01	-3.46E-02	6.45E-02		
	723.30	19.70	5.43E-01		1.39E-01	2.56E-01		
	873.19	11.50	8.20E-01		-4.43E-02	3.78E-01		
	996.32	10.30	1.00E+00		-6.95E-01	4.63E-01		
	1004.76	17.90	6.10E-01		-2.92E-01	2.82E-01		

Analysis Report for 1510090-06
CP0603S09-10

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-154	1274.45	35.50	3.50E-01	1.33E-01	-2.18E-02	1.61E-01
+ EU-155	86.50 *	30.90	2.97E-01	2.76E-01	4.04E-01	1.46E-01
	105.30	20.70	2.76E-01		7.19E-02	1.34E-01
EU-156	811.77	10.40	3.36E+00	3.36E+00	-1.96E+00	1.54E+00
	1153.47	7.20	7.09E+00		1.25E+00	3.27E+00
	1230.71	8.90	6.64E+00		1.31E+00	3.09E+00
HO-166M	184.41	72.60	1.02E-01	1.02E-01	1.72E-01	4.98E-02
	280.45	29.60	2.56E-01		5.18E-02	1.24E-01
	410.94	11.10	7.08E-01		1.38E-01	3.37E-01
	711.69	54.10	1.63E-01		1.41E-02	7.59E-02
TM-171	66.72	0.14	5.56E+01	5.56E+01	-9.63E+01	2.72E+01
HF-172	81.75	4.52	1.44E+00	5.20E-01	-6.56E+00	7.04E-01
	125.81	11.30	5.20E-01		-3.71E-01	2.53E-01
LU-172	181.53	20.60	7.76E+00	4.38E+00	1.02E+00	3.75E+00
	810.06	16.63	1.53E+01		2.47E+00	7.09E+00
	912.12	15.25	3.36E+01		7.36E+01	1.61E+01
	1093.66	62.50	4.38E+00		-2.16E+00	2.00E+00
LU-173	100.72	5.24	1.11E+00	4.01E-01	-2.82E-01	5.38E-01
	272.11	21.20	4.01E-01		2.03E-01	1.94E-01
HF-175	343.40	84.00	1.27E-01	1.27E-01	2.34E-02	6.08E-02
LU-176	88.34	13.30	5.93E-01	7.65E-02	-1.02E-01	2.91E-01
	201.83	86.00	8.50E-02		9.62E-03	4.13E-02
	306.78	94.00	7.65E-02		2.02E-02	3.67E-02
TA-182	67.75	41.20	2.20E-01	2.20E-01	2.39E-02	1.08E-01
	1121.30	34.90	5.29E-01		5.90E-01	2.49E-01
	1189.05	16.23	1.01E+00		2.93E-01	4.71E-01
	1221.41	26.98	5.74E-01		2.14E-01	2.65E-01
	1231.02	11.44	1.55E+00		1.24E+00	7.26E-01
IR-192	308.46	29.68	3.23E-01	2.06E-01	3.61E-02	1.55E-01
	468.07	48.10	2.06E-01		-3.50E-02	9.72E-02
HG-203	279.19	77.30	1.63E-01	1.63E-01	8.70E-02	7.86E-02
BI-207	569.67	97.72	9.12E-02	9.12E-02	2.28E-02	4.31E-02
	1063.62	74.90	1.32E-01		-6.17E-02	6.02E-02
+ TL-208	583.14 *	30.22	3.19E-01	1.40E-01	1.57E+00	1.51E-01
	860.37	4.48	2.30E+00		7.01E-01	1.07E+00
	2614.66 *	35.85	1.40E-01		1.25E+00	4.77E-02
BI-210M	262.00	45.00	1.63E-01	1.63E-01	3.15E-02	7.89E-02
	300.00	23.00	3.51E-01		-1.15E+00	1.69E-01
PB-210	46.50	4.25	2.35E+00	2.35E+00	-2.22E-01	1.15E+00
PB-211	404.84	2.90	2.59E+00	2.59E+00	-1.70E+00	1.23E+00
	831.96	2.90	3.56E+00		1.61E-01	1.66E+00
+ BI-212	727.17 *	11.80	9.13E-01	9.13E-01	1.47E+00	4.31E-01
	1620.62	2.75	3.92E+00		1.37E+00	1.74E+00
+ PB-212	238.63 *	44.60	3.04E-01	3.04E-01	1.77E+00	1.49E-01
	300.09 *	3.41	3.93E+00		1.85E+00	1.92E+00
+ BI-214	609.31 *	46.30	2.80E-01	2.80E-01	1.25E+00	1.34E-01
	1120.29 *	15.10	1.08E+00		1.05E+00	5.10E-01
	1764.49 *	15.80	5.52E-01		1.66E+00	2.36E-01
	2204.22	4.98	2.56E+00		1.67E+00	1.13E+00
+ PB-214	295.21 *	19.19	6.76E-01	2.74E-01	1.30E+00	3.31E-01
	351.92 *	37.19	2.74E-01		1.28E+00	1.33E-01
RN-219	401.80	6.50	1.24E+00	1.24E+00	8.04E-01	5.93E-01
RA-223	323.87	3.88	2.00E+00	2.00E+00	3.43E-01	9.61E-01

Analysis Report for 1510090-06
CP0603S09-10

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
	RA-224		240.98	3.95	3.88E+00	3.88E+00	2.40E+01	1.91E+00
	RA-225		40.00	31.00	1.79E+00	1.79E+00	1.04E+00	8.74E-01
+	RA-226	*	186.21	3.28	2.92E+00	2.92E+00	2.50E+00	1.43E+00
	TH-227		50.10	8.40	1.00E+00	1.00E+00	-1.56E+00	4.88E-01
			236.00	11.50	1.15E+00		3.48E+00	5.63E-01
			256.20	6.30	1.18E+00		1.02E-01	5.70E-01
+	AC-228	*	338.32	11.40	8.96E-01	5.24E-01	1.23E+00	4.34E-01
		*	911.07	27.70	5.24E-01		1.50E+00	2.48E-01
		*	969.11	16.60	8.31E-01		1.63E+00	3.92E-01
	TH-230		48.44	16.90	5.53E-01	5.53E-01	1.97E-01	2.70E-01
			62.85	4.60	1.93E+00		2.37E+00	9.46E-01
			67.67	0.37	2.02E+01		2.19E+00	9.89E+00
	PA-231		283.67	1.60	4.30E+00	3.42E+00	-2.66E-01	2.07E+00
			302.67	2.30	3.42E+00		3.87E-01	1.65E+00
	TH-231		25.64	14.70	3.62E+00	1.04E+00	-9.95E-01	1.76E+00
			84.21	6.40	1.04E+00		-2.00E+00	5.10E-01
	PA-233		311.98	38.60	4.23E-01	4.23E-01	1.43E-01	2.03E-01
	PA-234		131.20	20.40	3.07E-01	3.07E-01	2.97E-01	1.50E-01
			733.99	8.80	1.02E+00		2.43E-02	4.76E-01
			946.00	12.00	8.43E-01		-4.02E-01	3.90E-01
	PA-234M		1001.03	0.92	1.31E+01	1.31E+01	3.90E+00	6.12E+00
+	TH-234	*	63.29	3.80	3.43E+00	3.43E+00	3.65E+00	1.69E+00
	U-235		143.76	10.50	5.51E-01	5.51E-01	3.06E-01	2.67E-01
			163.35	4.70	1.30E+00		6.85E-01	6.29E-01
			205.31	4.70	1.53E+00		1.10E-01	7.41E-01
+	NP-237	*	86.50	12.60	7.19E-01	7.19E-01	9.78E-01	3.54E-01
	NP-239		106.10	22.70	3.10E+03	3.10E+03	1.05E+03	1.51E+03
			228.18	10.70	8.58E+03		-1.09E+03	4.16E+03
			277.60	14.10	6.81E+03		4.41E+03	3.28E+03
	AM-241		59.54	35.90	2.28E-01	2.28E-01	-3.56E-02	1.11E-01
	AM-243		74.67	66.00	1.58E-01	1.58E-01	3.37E-01	7.79E-02
+	CM-243	*	209.75	3.29	2.59E+00	5.81E-01	1.90E+00	1.26E+00
			228.14	10.60	7.00E-01		-8.86E-02	3.39E-01
		*	277.60	14.00	5.81E-01		3.78E-01	2.81E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1510090-06
CP0603S09-10

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S09-10

Elapsed Live time: 3600

Elapsed Real Time: 3617

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	9	202	197	160	154	92	110	119
17:	111	99	94	77	76	79	100	84
25:	105	91	70	95	91	95	94	102
33:	69	85	76	89	78	89	92	104
41:	102	87	86	102	90	115	156	103
49:	87	119	89	96	116	116	94	112
57:	132	116	140	140	136	167	212	234
65:	155	150	149	124	127	155	138	128
73:	169	188	426	314	430	509	121	108
81:	117	105	103	143	168	132	212	241
89:	122	176	175	133	247	194	91	78
97:	69	89	101	95	89	78	80	90
105:	115	90	78	83	90	85	81	82
113:	83	87	88	97	75	60	95	88
121:	75	62	81	70	80	80	81	100
129:	115	114	88	84	81	76	60	67
137:	77	63	78	68	58	75	68	90
145:	76	65	67	64	71	67	60	86
153:	75	83	66	74	75	66	58	65
161:	67	69	80	71	85	53	64	55
169:	62	54	66	59	69	64	65	63
177:	50	59	62	65	51	61	63	43
185:	69	132	151	56	61	66	55	59
193:	72	61	62	56	63	57	68	54
201:	57	56	49	61	44	56	44	55
209:	91	105	49	50	51	57	47	55
217:	55	57	39	57	44	49	68	34
225:	56	58	46	46	44	46	35	55
233:	40	47	42	64	53	196	581	228
241:	97	131	72	39	35	29	32	51
249:	36	32	44	32	46	37	42	31
257:	47	27	47	36	42	41	26	27
265:	42	45	24	37	44	58	60	48
273:	28	35	29	41	41	50	45	32
281:	25	32	27	37	23	29	26	28
289:	33	32	31	29	23	36	127	134
297:	36	22	38	49	52	31	23	25
305:	31	23	22	23	33	33	23	27
313:	25	21	22	28	19	20	15	31
321:	30	34	27	28	28	32	24	44
329:	45	17	22	23	29	34	29	20
337:	19	89	97	37	22	26	22	33
345:	17	26	18	22	19	22	66	225
353:	158	32	21	21	22	28	31	19
361:	22	29	16	23	23	18	19	17

369: 24 24 13 13 24 24 22 20

Sample Title: CP0603S09-10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	26	37	16	13	27	20	22	15
385:	14	26	25	17	20	22	17	19
393:	22	25	17	18	15	18	27	14
401:	29	22	20	16	22	14	17	16
409:	18	31	20	16	20	15	13	26
417:	20	24	17	21	24	16	25	24
425:	18	24	14	15	18	13	11	15
433:	11	16	18	18	18	14	23	14
441:	23	18	11	19	14	12	23	18
449:	17	14	15	10	20	16	13	14
457:	15	18	17	11	20	16	41	27
465:	17	15	8	10	15	10	18	18
473:	18	12	15	19	11	21	11	15
481:	11	11	19	17	13	12	4	19
489:	12	27	14	15	17	14	9	17
497:	9	12	18	13	11	18	11	13
505:	10	15	10	18	25	46	56	56
513:	22	21	14	9	9	14	14	9
521:	15	8	20	8	14	13	19	11
529:	13	20	11	9	10	9	14	13
537:	12	9	11	18	7	16	11	15
545:	7	16	10	9	17	14	10	15
553:	9	10	15	15	10	9	10	14
561:	10	16	15	14	15	11	18	12
569:	13	15	12	10	17	8	15	12
577:	18	11	7	11	11	35	125	96
585:	23	12	3	8	14	16	21	10
593:	7	7	8	11	20	10	10	12
601:	19	13	15	11	11	16	11	23
609:	129	133	26	15	14	12	11	3
617:	12	9	15	9	16	18	12	8
625:	12	10	11	10	11	11	8	9
633:	12	9	10	12	16	8	6	20
641:	7	8	12	14	13	10	11	13
649:	12	12	15	9	7	12	13	11
657:	7	8	9	10	6	12	4	11
665:	15	10	11	7	9	10	8	7
673:	8	6	9	8	12	9	12	6
681:	13	7	5	11	9	13	10	7
689:	12	11	13	12	13	8	11	11
697:	13	5	8	9	13	17	9	23
705:	14	18	6	9	13	15	7	12
713:	5	7	4	9	9	7	11	14
721:	14	10	7	10	13	23	36	26
729:	16	7	7	7	13	9	6	11
737:	9	5	8	6	12	11	4	9
745:	13	6	8	5	12	16	9	14
753:	9	11	10	12	16	9	11	9
761:	6	14	9	8	8	10	11	17
769:	20	11	13	10	7	8	6	8
777:	16	7	9	7	13	11	8	7
785:	9	13	7	5	11	13	10	8
793:	8	12	20	7	5	11	12	5

801: 4 6 8 3 14 7 12 12

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Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	4	7	6	9	5	3	7	6
817:	6	6	10	6	6	7	9	5
825:	9	7	14	7	6	13	14	3
833:	6	9	15	9	4	9	12	16
841:	12	2	8	6	12	11	4	6
849:	4	8	10	8	4	3	8	9
857:	6	6	7	16	11	9	7	6
865:	6	11	9	8	6	4	6	9
873:	8	8	8	6	5	10	7	3
881:	7	8	8	6	7	12	5	10
889:	6	4	10	4	4	7	6	8
897:	4	6	10	10	9	7	11	10
905:	12	5	9	7	9	36	79	46
913:	11	10	4	6	6	2	7	5
921:	6	4	7	4	8	6	6	7
929:	3	6	1	9	3	5	11	5
937:	4	3	4	5	11	7	6	11
945:	2	12	4	6	9	13	7	6
953:	9	9	5	4	6	8	11	9
961:	7	8	8	17	17	6	9	34
969:	55	21	13	8	5	4	6	10
977:	5	4	5	7	7	9	6	2
985:	2	2	9	7	7	3	8	6
993:	4	7	5	7	9	7	8	14
1001:	12	10	10	5	9	6	4	8
1009:	5	11	5	3	4	5	8	11
1017:	8	4	7	6	10	4	7	6
1025:	2	5	5	5	5	7	5	6
1033:	6	6	8	5	5	5	8	9
1041:	2	6	12	12	7	5	10	8
1049:	5	6	4	9	3	3	7	4
1057:	4	5	9	1	5	9	7	5
1065:	5	6	5	11	3	6	4	5
1073:	6	6	7	5	10	8	8	2
1081:	1	6	9	15	8	11	8	6
1089:	5	3	3	11	3	9	5	3
1097:	8	10	7	5	6	10	6	9
1105:	8	3	4	7	7	4	7	6
1113:	5	5	6	6	8	4	10	33
1121:	20	7	5	9	3	5	5	6
1129:	6	4	8	5	8	2	7	6
1137:	10	2	4	5	4	11	7	9
1145:	12	5	13	5	5	3	12	7
1153:	4	7	10	6	7	7	5	5
1161:	5	11	11	9	6	8	12	7
1169:	4	11	7	2	12	10	8	8
1177:	4	2	8	10	4	10	6	9
1185:	6	8	6	6	17	5	8	12
1193:	5	9	5	14	5	8	8	6
1201:	6	10	9	4	6	8	10	9
1209:	6	5	7	9	9	4	5	6
1217:	5	11	6	5	6	8	10	6
1225:	4	7	5	12	8	11	6	11

1233: 7 14 4 5 7 20 14 7

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Channel	1	2	3	4	5	6	7	8
1241:	6	10	6	3	5	12	2	5
1249:	11	8	8	6	6	8	4	5
1257:	6	5	6	4	7	4	4	5
1265:	4	5	3	7	6	2	10	3
1273:	1	3	8	5	5	8	2	6
1281:	10	6	5	3	5	3	3	6
1289:	2	4	4	5	3	4	5	6
1297:	8	4	3	2	4	2	4	3
1305:	6	3	4	6	6	4	7	7
1313:	3	7	5	6	5	6	3	5
1321:	2	2	3	6	6	3	6	2
1329:	6	3	3	6	1	5	5	4
1337:	5	3	4	4	4	0	4	3
1345:	3	2	1	1	6	4	2	2
1353:	1	2	8	1	7	2	2	2
1361:	2	1	2	6	1	5	1	6
1369:	6	2	0	4	3	4	1	3
1377:	5	5	3	4	3	2	0	3
1385:	1	4	4	1	1	2	1	2
1393:	2	2	1	8	6	7	3	1
1401:	5	7	2	1	3	3	6	4
1409:	6	3	5	1	0	4	3	5
1417:	3	2	1	1	1	3	1	2
1425:	3	6	1	3	4	3	3	2
1433:	1	0	5	3	2	0	3	2
1441:	1	3	0	3	0	2	1	1
1449:	3	6	0	3	3	1	1	1
1457:	1	5	56	192	218	77	3	2
1465:	5	1	1	2	1	0	2	1
1473:	3	2	2	0	2	3	1	1
1481:	2	1	2	0	1	0	0	3
1489:	2	3	4	3	0	2	1	4
1497:	2	1	3	4	1	4	1	1
1505:	1	1	4	4	2	0	2	6
1513:	1	1	0	4	2	2	0	0
1521:	0	1	1	2	2	1	0	3
1529:	0	0	1	2	1	4	2	0
1537:	1	2	4	2	1	1	3	0
1545:	1	3	5	2	0	1	2	0
1553:	2	1	2	1	3	1	1	0
1561:	1	1	2	1	2	0	1	2
1569:	3	3	0	0	1	1	1	0
1577:	2	1	2	1	3	3	4	3
1585:	0	2	5	9	3	2	3	11
1593:	6	7	1	0	2	0	2	2
1601:	0	0	1	0	1	0	2	2
1609:	0	1	3	1	2	2	2	1
1617:	2	1	0	5	8	3	1	1
1625:	1	1	1	0	1	0	4	3
1633:	1	2	2	1	2	2	1	2
1641:	1	0	1	1	1	4	1	1
1649:	1	1	0	1	0	3	1	2
1657:	3	2	1	5	2	1	0	1

1665: 1 2 2 2 1 0 3 1

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Channel	1	2	2	2	1	0	3	1
1673:	0	0	1	0	0	1	0	0
1681:	0	0	3	1	0	1	1	2
1689:	0	0	2	2	2	2	0	1
1697:	1	0	0	0	1	2	2	2
1705:	2	2	0	1	1	1	0	1
1713:	3	1	1	1	0	1	1	4
1721:	1	1	0	3	2	1	0	1
1729:	8	2	2	1	0	1	1	0
1737:	3	0	0	2	2	1	1	0
1745:	0	1	1	0	0	1	2	1
1753:	1	1	1	1	1	1	2	0
1761:	2	5	14	17	19	5	2	0
1769:	1	3	0	0	0	1	1	1
1777:	1	0	0	0	0	0	0	0
1785:	0	1	0	2	0	0	3	3
1793:	1	1	0	2	2	1	2	1
1801:	0	2	0	0	3	0	1	1
1809:	0	1	2	4	1	1	2	2
1817:	0	2	0	0	4	1	0	0
1825:	1	3	1	1	0	1	0	1
1833:	0	1	3	4	0	0	0	2
1841:	0	0	0	1	1	3	4	2
1849:	1	1	0	1	1	0	1	0
1857:	1	1	1	2	0	0	0	0
1865:	2	2	1	1	1	1	0	1
1873:	0	2	3	1	1	0	0	1
1881:	0	1	1	1	0	0	2	0
1889:	0	0	0	0	3	1	2	3
1897:	2	1	1	0	0	2	0	0
1905:	1	0	1	1	0	0	1	0
1913:	1	0	2	2	1	1	0	3
1921:	0	2	0	1	1	3	1	1
1929:	0	0	1	0	2	2	0	2
1937:	0	1	1	3	1	0	0	1
1945:	1	0	0	0	2	1	0	1
1953:	1	0	0	1	3	0	1	0
1961:	1	1	1	1	0	1	1	2
1969:	2	1	1	2	0	1	2	1
1977:	3	2	1	2	0	3	2	0
1985:	0	1	2	2	3	1	0	1
1993:	0	1	0	1	1	0	0	0
2001:	0	1	0	0	0	0	0	1
2009:	0	1	2	3	0	1	2	0
2017:	0	2	0	1	2	0	0	1
2025:	1	1	0	0	1	2	4	0
2033:	1	1	1	2	2	1	1	2
2041:	1	0	1	0	0	0	0	1
2049:	0	0	3	1	1	0	1	0
2057:	0	0	0	2	1	2	0	0
2065:	1	0	1	1	1	0	4	2
2073:	1	1	1	2	0	1	0	1
2081:	0	0	3	1	1	0	0	1
2089:	0	1	1	2	2	0	0	1

2097: 1 3 3 1 3 3 2 3

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

2529: 0 1 0 1 0 0 0 1

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Channel	1	2	3	4	5	6	7	8	9
2537:	0	1	0	0	0	0	0	0	1
2545:	0	0	0	0	0	0	0	0	0
2553:	0	0	0	0	0	0	0	0	0
2561:	0	0	0	0	0	1	0	0	0
2569:	0	2	0	0	1	0	0	0	0
2577:	0	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	0	1	0
2593:	0	1	2	0	1	1	0	0	0
2601:	0	0	1	0	0	0	0	0	2
2609:	1	1	2	5	26	18	15	0	6
2617:	2	0	0	0	0	0	1	0	0
2625:	0	0	0	0	0	1	0	0	2
2633:	0	1	0	0	0	0	1	0	0
2641:	0	0	0	1	0	0	1	0	1
2649:	0	0	0	0	0	1	0	0	0
2657:	0	0	0	0	0	0	1	0	0
2665:	0	0	1	0	0	1	0	0	0
2673:	1	0	0	0	1	0	0	0	0
2681:	0	0	0	0	0	0	0	0	1
2689:	0	0	0	0	0	0	0	0	1
2697:	0	0	0	0	0	1	0	0	0
2705:	0	2	1	0	1	0	0	0	0
2713:	0	0	0	0	0	1	0	0	0
2721:	1	1	0	0	1	0	0	0	1
2729:	1	0	0	0	0	2	0	0	0
2737:	0	0	0	0	0	0	0	0	0
2745:	0	0	0	0	1	0	0	0	0
2753:	0	0	0	2	0	0	0	0	0
2761:	0	0	0	0	2	0	0	0	0
2769:	0	0	0	0	0	0	0	0	1
2777:	0	0	1	1	1	0	1	0	0
2785:	0	0	0	0	0	0	0	0	0
2793:	0	0	0	1	0	0	0	0	1
2801:	0	1	0	0	0	0	0	0	1
2809:	0	0	0	1	1	0	0	0	0
2817:	0	0	0	0	1	1	0	0	0
2825:	0	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0	0
2849:	2	1	0	0	0	0	0	0	0
2857:	1	0	0	0	1	0	0	0	0
2865:	1	0	1	0	0	1	0	0	1
2873:	0	0	0	0	0	1	0	0	0
2881:	1	0	0	1	0	0	0	0	0
2889:	1	0	0	0	0	0	1	0	0
2897:	0	0	0	0	0	1	0	0	1
2905:	0	0	0	0	1	0	1	0	0
2913:	1	1	0	0	0	0	0	0	1
2921:	0	0	0	1	0	0	0	0	0
2929:	1	0	0	0	0	1	0	0	0
2937:	1	0	0	1	0	0	0	0	0
2945:	0	0	0	0	0	0	1	0	0
2953:	0	0	0	0	1	0	0	0	0

2961: 1 0 0 0 0 0 0 0 1

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

3393: 0 0 0 0 0 0 0 1 0

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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	1
3425:	1	0	0	0	0	0	1	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	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	1	0	0	1	1	0	0	0
3489:	1	0	0	1	0	0	0	0
3497:	0	0	0	0	0	1	0	0
3505:	0	0	0	0	0	0	0	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	1	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	1	0	0	0	2	0	0
3561:	0	1	0	1	0	0	0	1
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	1	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	2	1	0	0	0	0
3601:	0	0	0	0	0	1	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	1	0	0
3625:	0	1	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	1	0
3657:	0	0	0	0	0	1	0	0
3665:	1	0	0	1	1	0	0	1
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	1	0	0	0	0
3689:	1	0	0	0	0	0	0	0
3697:	1	0	0	0	1	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	1	1	0	0	1	0
3721:	0	0	1	0	0	1	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	1	1	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	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	1	0	1
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	1	0	0	0	0	1	0	0
3817:	0	0	0	0	0	0	0	0

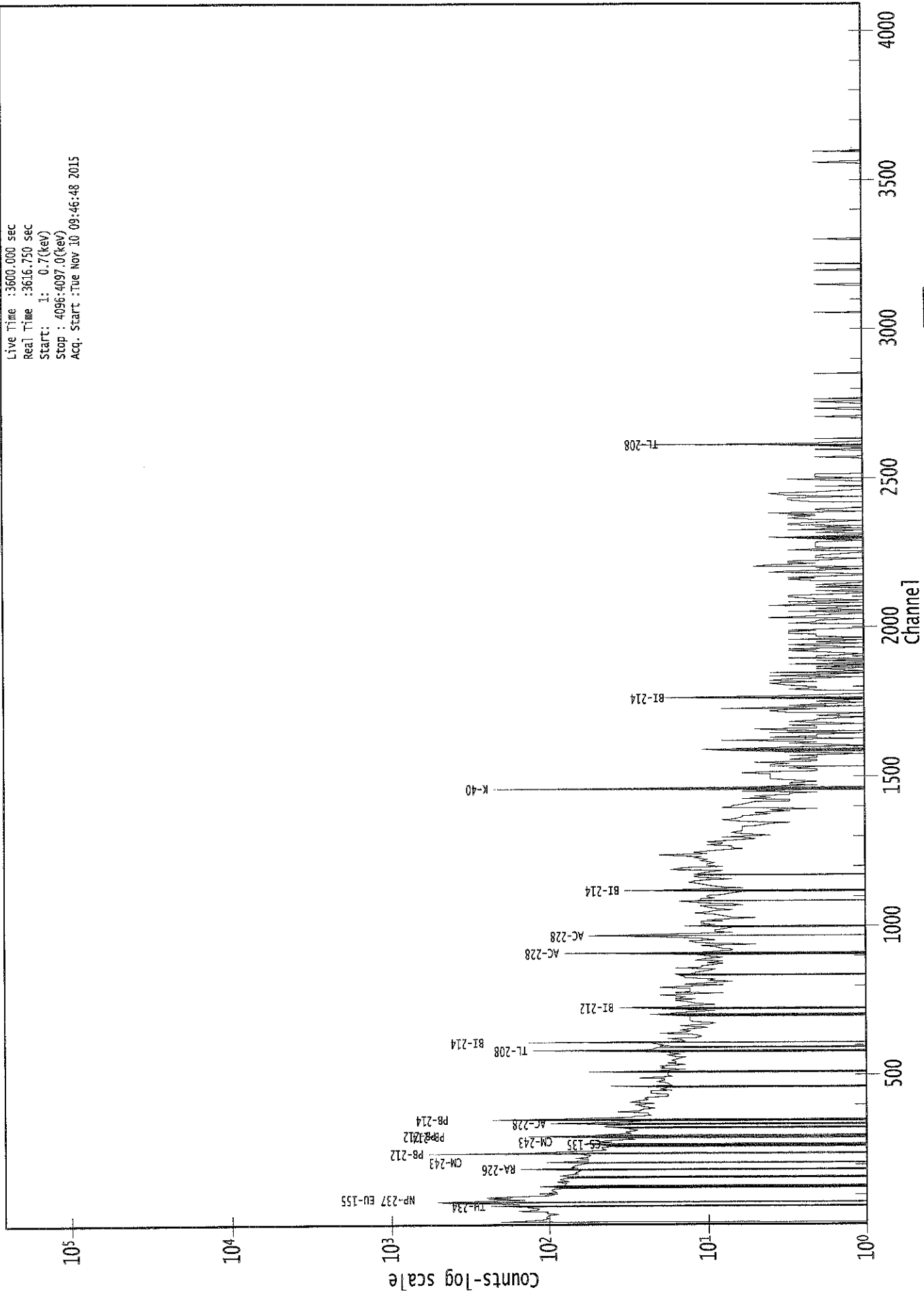
3825: 0 1 0 0 0 0 0 0

Sample Title: CP0603S09-10

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

0000029381.CNF

Live Time : 3600.000 sec
Real Time : 3616.750 sec
Start: 1: 0.7(keV)
Stop : 4096.4097.0(keV)
Acq. Start : Tue Nov 10 09:46:48 2015



*ICB
11/10/15*Analysis Report for 1510090-07
CP0603S12-13

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-07
Sample Description : CP0603S12-13
Sample Type : SOIL

Sample Size : 5.600E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:44:09AM
Acquisition Started : 11/10/2015 11:06:22AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE2
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) : 8 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 29386

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*AG
11/11/15*

Analysis Report for 1510090-07
CP0603S12-13

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 12:06:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	76.47	76.56	0.0000	0.00
2	87.36	87.44	0.0000	0.00
3	93.59	93.67	0.0000	0.00
4	128.40	128.46	0.0000	0.00
5	186.17	186.19	0.0000	0.00
6	209.78	209.80	0.0000	0.00
7	238.80	238.80	0.0000	0.00
8	241.93	241.93	0.0000	0.00
9	270.54	270.52	0.0000	0.00
10	278.79	278.76	0.0000	0.00
11	295.32	295.29	0.0000	0.00
12	299.87	299.83	0.0000	0.00
13	322.10	322.06	0.0000	0.00
14	329.07	329.01	0.0000	0.00
15	338.33	338.27	0.0000	0.00
16	351.96	351.90	0.0000	0.00
17	409.58	409.49	0.0000	0.00
18	460.12	460.00	0.0000	0.00
19	463.13	463.01	0.0000	0.00
20	511.18	511.04	0.0000	0.00
21	583.42	583.24	0.0000	0.00
22	604.10	603.91	0.0000	0.00
23	609.42	609.23	0.0000	0.00
24	727.35	727.10	0.0000	0.00
25	763.31	763.04	0.0000	0.00
26	767.98	767.72	0.0000	0.00
27	860.71	860.41	0.0000	0.00
28	901.32	901.00	0.0000	0.00
29	904.73	904.41	0.0000	0.00
30	911.28	910.96	0.0000	0.00
31	968.49	968.14	0.0000	0.00
32	1120.58	1120.17	0.0000	0.00
33	1377.57	1377.07	0.0000	0.00
34	1401.56	1401.06	0.0000	0.00
35	1407.50	1407.00	0.0000	0.00
36	1411.51	1411.00	0.0000	0.00
37	1421.59	1421.08	0.0000	0.00
38	1460.97	1460.45	0.0000	0.00
39	1505.79	1505.25	0.0000	0.00
40	1509.30	1508.77	0.0000	0.00
41	1546.99	1546.44	0.0000	0.00
42	1584.58	1584.03	0.0000	0.00

Analysis Report for 1510090-07
CP0603S12-13

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1589.06	1588.50	0.0000	0.00
44	1662.86	1662.28	0.0000	0.00
45	1696.29	1695.70	0.0000	0.00
46	1729.45	1728.85	0.0000	0.00
47	1764.74	1764.13	0.0000	0.00
48	1832.53	1831.91	0.0000	0.00
49	1849.53	1848.91	0.0000	0.00
50	1868.13	1867.50	0.0000	0.00
51	1944.75	1944.10	0.0000	0.00
52	2102.22	2101.55	0.0000	0.00
53	2117.61	2116.93	0.0000	0.00
54	2204.59	2203.90	0.0000	0.00
55	2614.44	2613.70	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-07
CP0603S12-13

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 12:06:26PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)	
1	76.47	72 -	81	76.56	1.30E+03	151.06	2.49E+03	3.71	
2	87.36	86 -	89	87.44	7.87E+01	70.29	1.17E+03	1.50	
3	93.59	91 -	97	93.67	1.76E+02	101.31	1.66E+03	1.49	
4	128.40	125 -	131	128.46	9.80E+01	80.04	1.10E+03	1.77	
5	186.17	182 -	189	186.19	2.41E+02	84.38	1.01E+03	1.64	
6	209.78	206 -	213	209.80	9.63E+01	74.30	8.47E+02	1.73	
M	7	238.80	234 -	250	238.80	9.63E+02	79.49	4.42E+02	1.55
m	8	241.93	234 -	250	241.93	1.82E+02	56.42	4.02E+02	1.56
9	270.54	267 -	274	270.52	6.77E+01	62.64	6.11E+02	1.32	
10	278.79	276 -	283	278.76	4.96E+01	60.96	5.75E+02	2.64	
M	11	295.32	290 -	303	295.29	3.92E+02	54.47	3.16E+02	1.64
m	12	299.87	290 -	303	299.83	8.98E+01	46.88	3.70E+02	1.84
13	322.10	318 -	325	322.06	4.58E+01	51.07	4.04E+02	4.41	
14	329.07	326 -	332	329.01	5.28E+01	48.12	3.84E+02	1.01	
15	338.33	335 -	342	338.27	1.57E+02	56.67	4.28E+02	1.66	
16	351.96	347 -	356	351.90	6.08E+02	76.54	4.89E+02	1.47	
17	409.58	405 -	413	409.49	6.61E+01	53.01	3.92E+02	1.71	
M	18	460.12	459 -	465	460.00	1.53E+01	17.87	8.23E+01	1.55
m	19	463.13	459 -	465	463.01	7.49E+01	30.71	1.32E+02	1.71
20	511.18	507 -	517	511.04	2.00E+02	55.66	3.01E+02	2.52	
21	583.42	578 -	587	583.24	3.03E+02	53.78	2.40E+02	1.58	
M	22	604.10	603 -	614	603.91	1.42E+01	13.60	5.21E+01	1.87
m	23	609.42	603 -	614	609.23	4.39E+02	48.37	1.33E+02	1.61
24	727.35	723 -	730	727.10	8.24E+01	33.05	1.25E+02	2.30	
M	25	763.31	760 -	770	763.04	3.79E+01	22.29	6.34E+01	3.25
m	26	767.98	760 -	770	767.72	4.80E+01	27.61	9.66E+01	2.33
27	860.71	857 -	863	860.41	4.22E+01	27.27	1.04E+02	1.85	
M	28	901.32	900 -	919	901.00	1.41E+01	8.77	1.23E+01	1.94
m	29	904.73	900 -	919	904.41	3.97E+01	22.10	4.62E+01	2.35
30	911.28	900 -	919	910.96	2.04E+02	34.70	5.96E+01	2.36	
31	968.49	963 -	972	968.14	1.70E+02	42.86	1.65E+02	1.72	
32	1120.58	1114 -	1126	1120.17	1.21E+02	42.50	1.54E+02	2.38	
33	1377.57	1373 -	1381	1377.07	3.33E+01	23.65	7.14E+01	1.75	
M	34	1401.56	1396 -	1416	1401.06	1.18E+01	17.86	3.79E+01	3.33
m	35	1407.50	1396 -	1416	1407.00	1.61E+01	20.07	3.43E+01	3.34
m	36	1411.51	1396 -	1416	1411.00	1.56E+01	14.89	2.21E+01	2.28
37	1421.59	1417 -	1425	1421.08	1.26E+01	12.85	1.67E+01	4.53	
38	1460.97	1454 -	1466	1460.45	8.45E+02	61.82	5.19E+01	2.35	
M	39	1505.79	1504 -	1515	1505.25	6.86E+00	5.74	6.00E+00	3.14
m	40	1509.30	1504 -	1515	1508.77	1.80E+01	15.23	2.00E+01	3.23

Analysis Report for 1510090-07

CP0603S12-13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1546.99	1543 -	1549	1546.44	8.28E+00	11.19	1.54E+01	2.77
M	42	1584.58	1582 -	1598	1584.03	9.11E+00	8.06	1.00E+01	3.64
m	43	1589.06	1582 -	1598	1588.50	2.23E+01	15.52	1.80E+01	2.89
	44	1662.86	1657 -	1667	1662.28	1.60E+01	15.13	2.20E+01	6.63
	45	1696.29	1692 -	1698	1695.70	8.25E+00	7.23	3.50E+00	3.04
	46	1729.45	1723 -	1733	1728.85	3.30E+01	11.49	0.00E+00	2.88
	47	1764.74	1759 -	1769	1764.13	8.60E+01	21.60	1.61E+01	3.25
	48	1832.53	1828 -	1834	1831.91	1.14E+01	9.19	7.20E+00	1.93
	49	1849.53	1844 -	1856	1848.91	1.69E+01	15.32	2.03E+01	6.05
	50	1868.13	1863 -	1870	1867.50	1.00E+01	6.32	0.00E+00	1.12
	51	1944.75	1940 -	1951	1944.10	1.07E+01	13.86	2.06E+01	5.23
	52	2102.22	2096 -	2105	2101.55	2.10E+01	12.41	1.00E+01	2.89
	53	2117.61	2112 -	2120	2116.93	8.37E+00	10.99	1.33E+01	5.09
	54	2204.59	2197 -	2210	2203.90	1.70E+01	17.89	2.80E+01	5.46
	55	2614.44	2609 -	2620	2613.70	1.21E+02	22.98	4.67E+00	2.63

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 12:06:26PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	76.47	72 -	81	1.30E+03	151.06	2.49E+03	1.09E+02
	2	87.36	86 -	89	7.87E+01	70.29	1.17E+03	5.59E+01
	3	93.59	91 -	97	1.76E+02	101.31	1.66E+03	8.04E+01
	4	128.40	125 -	131	9.80E+01	80.04	1.10E+03	6.37E+01
	5	186.17	182 -	189	2.41E+02	84.38	1.01E+03	6.45E+01
	6	209.78	206 -	213	9.63E+01	74.30	8.47E+02	5.89E+01
M	7	238.80	234 -	250	9.63E+02	79.49	4.42E+02	3.46E+01
m	8	241.93	234 -	250	1.82E+02	56.42	4.02E+02	3.30E+01
	9	270.54	267 -	274	6.77E+01	62.64	6.11E+02	4.97E+01
	10	278.79	276 -	283	4.96E+01	60.96	5.75E+02	4.88E+01
M	11	295.32	290 -	303	3.92E+02	54.47	3.16E+02	2.92E+01
m	12	299.87	290 -	303	8.98E+01	46.88	3.70E+02	3.16E+01
	13	322.10	318 -	325	4.58E+01	51.07	4.04E+02	4.05E+01

: 00486

Analysis Report for 1510090-07

CP0603S12-13

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	329.07	326 -	332	5.28E+01	48.12	3.84E+02	3.77E+01
	15	338.33	335 -	342	1.57E+02	56.67	4.28E+02	4.18E+01
	16	351.96	347 -	356	6.08E+02	76.54	4.89E+02	4.81E+01
	17	409.58	405 -	413	6.61E+01	53.01	3.92E+02	4.15E+01
M	18	460.12	459 -	465	1.53E+01	17.87	8.23E+01	1.49E+01
m	19	463.13	459 -	465	7.49E+01	30.71	1.32E+02	1.89E+01
	20	511.18	507 -	517	2.00E+02	55.66	3.01E+02	3.94E+01
	21	583.42	578 -	587	3.03E+02	53.78	2.40E+02	3.37E+01
M	22	604.10	603 -	614	1.42E+01	13.60	5.21E+01	1.19E+01
m	23	609.42	603 -	614	4.39E+02	48.37	1.33E+02	1.89E+01
	24	727.35	723 -	730	8.24E+01	33.05	1.25E+02	2.27E+01
M	25	763.31	760 -	770	3.79E+01	22.29	6.34E+01	1.31E+01
m	26	767.98	760 -	770	4.80E+01	27.61	9.66E+01	1.62E+01
	27	860.71	857 -	863	4.22E+01	27.27	1.04E+02	1.97E+01
M	28	901.32	900 -	919	1.41E+01	8.77	1.23E+01	5.76E+00
m	29	904.73	900 -	919	3.97E+01	22.10	4.62E+01	1.12E+01
m	30	911.28	900 -	919	2.04E+02	34.70	5.96E+01	1.27E+01
	31	968.49	963 -	972	1.70E+02	42.86	1.65E+02	2.79E+01
	32	1120.58	1114 -	1126	1.21E+02	42.50	1.54E+02	2.99E+01
	33	1377.57	1373 -	1381	3.33E+01	23.65	7.14E+01	2.36E+01
M	34	1401.56	1396 -	1416	1.18E+01	17.86	3.79E+01	1.01E+01
m	35	1407.50	1396 -	1416	1.61E+01	20.07	3.43E+01	9.63E+00
m	36	1411.51	1396 -	1416	1.56E+01	14.89	2.21E+01	7.73E+00
	37	1421.59	1417 -	1425	1.26E+01	12.85	1.67E+01	8.79E+00
	38	1460.97	1454 -	1466	8.45E+02	61.82	5.19E+01	1.73E+01
M	39	1505.79	1504 -	1515	6.86E+00	5.74	6.00E+00	4.03E+00
m	40	1509.30	1504 -	1515	1.80E+01	15.23	2.00E+01	7.35E+00
	41	1546.99	1543 -	1549	8.28E+00	11.19	1.54E+01	7.89E+00
M	42	1584.58	1582 -	1598	9.11E+00	8.06	1.00E+01	5.20E+00
m	43	1589.06	1582 -	1598	2.23E+01	15.52	1.80E+01	6.97E+00
	44	1662.86	1657 -	1667	1.60E+01	15.13	2.20E+01	1.06E+01
	45	1696.29	1692 -	1698	8.25E+00	7.23	3.50E+00	3.61E+00
	46	1729.45	1723 -	1733	3.30E+01	11.49	0.00E+00	0.00E+00
	47	1764.74	1759 -	1769	8.60E+01	21.60	1.61E+01	9.11E+00
	48	1832.53	1828 -	1834	1.14E+01	9.19	7.20E+00	5.13E+00
	49	1849.53	1844 -	1856	1.69E+01	15.32	2.03E+01	1.06E+01
	50	1868.13	1863 -	1870	1.00E+01	6.32	0.00E+00	0.00E+00
	51	1944.75	1940 -	1951	1.07E+01	13.86	2.06E+01	1.00E+01
	52	2102.22	2096 -	2105	2.10E+01	12.41	1.00E+01	6.88E+00
	53	2117.61	2112 -	2120	8.37E+00	10.99	1.33E+01	7.68E+00
	54	2204.59	2197 -	2210	1.70E+01	17.89	2.80E+01	1.30E+01
	55	2614.44	2609 -	2620	1.21E+02	22.98	4.67E+00	5.53E+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 1510090-07
CP0603S12-13

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 12:06:26PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

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

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
1	76.47	72 -	81	76.56	1.30E+03	151.06	2.49E+03	.....
2	87.36	86 -	89	87.44	7.87E+01	70.29	1.17E+03	SN-126 CD-109 NP-237 EU-155 LU-176	
3	93.59	91 -	97	93.67	1.76E+02	101.31	1.66E+03	GA-67	
4	128.40	125 -	131	128.46	9.80E+01	80.04	1.10E+03	.....
5	186.17	182 -	189	186.19	2.41E+02	84.38	1.01E+03	RA-226	
6	209.78	206 -	213	209.80	9.63E+01	74.30	8.47E+02	CM-243 GA-67	
M	7	238.80	234 -	250	238.80	9.63E+02	79.49	4.42E+02	PB-212
m	8	241.93	234 -	250	241.93	1.82E+02	56.42	4.02E+02	RA-224
	9	270.54	267 -	274	270.52	6.77E+01	62.64	6.11E+02	.....
	10	278.79	276 -	283	278.76	4.96E+01	60.96	5.75E+02	HG-203 SE-75
M	11	295.32	290 -	303	295.29	3.92E+02	54.47	3.16E+02	PB-214
m	12	299.87	290 -	303	299.83	8.98E+01	46.88	3.70E+02	BI-210M PB-212 GA-67
	13	322.10	318 -	325	322.06	4.58E+01	51.07	4.04E+02	.....
	14	329.07	326 -	332	329.01	5.28E+01	48.12	3.84E+02	LA-140
	15	338.33	335 -	342	338.27	1.57E+02	56.67	4.28E+02	AC-228
	16	351.96	347 -	356	351.90	6.08E+02	76.54	4.89E+02	PB-214
	17	409.58	405 -	413	409.49	6.61E+01	53.01	3.92E+02	.....
M	18	460.12	459 -	465	460.00	1.53E+01	17.87	8.23E+01	.....
m	19	463.13	459 -	465	463.01	7.49E+01	30.71	1.32E+02	SB-125
	20	511.18	507 -	517	511.04	2.00E+02	55.66	3.01E+02	.....
	21	583.42	578 -	587	583.24	3.03E+02	53.78	2.40E+02	TL-208
M	22	604.10	603 -	614	603.91	1.42E+01	13.60	5.21E+01	CS-134
m	23	609.42	603 -	614	609.23	4.39E+02	48.37	1.33E+02	BI-214
	24	727.35	723 -	730	727.10	8.24E+01	33.05	1.25E+02	BI-212
M	25	763.31	760 -	770	763.04	3.79E+01	22.29	6.34E+01	AG-110M
m	26	767.98	760 -	770	767.72	4.80E+01	27.61	9.66E+01	.....
	27	860.71	857 -	863	860.41	4.22E+01	27.27	1.04E+02	TL-208
M	28	901.32	900 -	919	901.00	1.41E+01	8.77	1.23E+01	.....
m	29	904.73	900 -	919	904.41	3.97E+01	22.10	4.62E+01	.....
m	30	911.28	900 -	919	910.96	2.04E+02	34.70	5.96E+01	AC-228

Analysis Report for 1510090-07

CP0603S12-13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	31	968.49	963 -	972	968.14	1.70E+02	42.86	1.65E+02	LU-172
	32	1120.58	1114 -	1126	1120.17	1.21E+02	42.50	1.54E+02	AC-228
									SC-46
									BI-214
									TA-182
	33	1377.57	1373 -	1381	1377.07	3.33E+01	23.65	7.14E+01	.....
M	34	1401.56	1396 -	1416	1401.06	1.18E+01	17.86	3.79E+01	.....
m	35	1407.50	1396 -	1416	1407.00	1.61E+01	20.07	3.43E+01	EU-152
m	36	1411.51	1396 -	1416	1411.00	1.56E+01	14.89	2.21E+01	.....
	37	1421.59	1417 -	1425	1421.08	1.26E+01	12.85	1.67E+01	.....
	38	1460.97	1454 -	1466	1460.45	8.45E+02	61.82	5.19E+01	K-40
M	39	1505.79	1504 -	1515	1505.25	6.86E+00	5.74	6.00E+00	.....
m	40	1509.30	1504 -	1515	1508.77	1.80E+01	15.23	2.00E+01	.....
	41	1546.99	1543 -	1549	1546.44	8.28E+00	11.19	1.54E+01	.....
M	42	1584.58	1582 -	1598	1584.03	9.11E+00	8.06	1.00E+01	.....
m	43	1589.06	1582 -	1598	1588.50	2.23E+01	15.52	1.80E+01	.....
	44	1662.86	1657 -	1667	1662.28	1.60E+01	15.13	2.20E+01	.....
	45	1696.29	1692 -	1698	1695.70	8.25E+00	7.23	3.50E+00	.....
	46	1729.45	1723 -	1733	1728.85	3.30E+01	11.49	0.00E+00	.....
	47	1764.74	1759 -	1769	1764.13	8.60E+01	21.60	1.61E+01	BI-214
	48	1832.53	1828 -	1834	1831.91	1.14E+01	9.19	7.20E+00	.....
	49	1849.53	1844 -	1856	1848.91	1.69E+01	15.32	2.03E+01	.....
	50	1868.13	1863 -	1870	1867.50	1.00E+01	6.32	0.00E+00	.....
	51	1944.75	1940 -	1951	1944.10	1.07E+01	13.86	2.06E+01	.....
	52	2102.22	2096 -	2105	2101.55	2.10E+01	12.41	1.00E+01	.....
	53	2117.61	2112 -	2120	2116.93	8.37E+00	10.99	1.33E+01	.....
	54	2204.59	2197 -	2210	2203.90	1.70E+01	17.89	2.80E+01	BI-214
	55	2614.44	2609 -	2620	2613.70	1.21E+02	22.98	4.67E+00	TL-208

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.00sigma

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/10/2015 12:06:26PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	76.47	1.30E+03	151.06	2.74E-02	3.36E-03
2	87.36	7.87E+01	70.29	2.84E-02	4.44E-03

: 00489

Analysis Report for 1510090-07
CP0603S12-13

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	3	93.59	1.76E+02	101.31	2.85E-02	4.26E-03
	4	128.40	9.80E+01	80.04	2.61E-02	2.80E-03
	5	186.17	2.41E+02	84.38	2.11E-02	1.65E-03
	6	209.78	9.63E+01	74.30	1.95E-02	1.63E-03
M	7	238.80	9.63E+02	79.49	1.79E-02	1.60E-03
m	8	241.93	1.82E+02	56.42	1.77E-02	1.60E-03
	9	270.54	6.77E+01	62.64	1.64E-02	1.57E-03
	10	278.79	4.96E+01	60.96	1.61E-02	1.56E-03
M	11	295.32	3.92E+02	54.47	1.55E-02	1.48E-03
m	12	299.87	8.98E+01	46.88	1.53E-02	1.46E-03
	13	322.10	4.58E+01	51.07	1.46E-02	1.35E-03
	14	329.07	5.28E+01	48.12	1.44E-02	1.32E-03
	15	338.33	1.57E+02	56.67	1.41E-02	1.27E-03
	16	351.96	6.08E+02	76.54	1.37E-02	1.21E-03
	17	409.58	6.61E+01	53.01	1.24E-02	1.00E-03
M	18	460.12	1.53E+01	17.87	1.14E-02	9.50E-04
m	19	463.13	7.49E+01	30.71	1.13E-02	9.47E-04
	20	511.18	2.00E+02	55.66	1.06E-02	8.98E-04
	21	583.42	3.03E+02	53.78	9.58E-03	8.25E-04
M	22	604.10	1.42E+01	13.60	9.33E-03	8.04E-04
m	23	609.42	4.39E+02	48.37	9.27E-03	7.98E-04
	24	727.35	8.24E+01	33.05	8.09E-03	7.03E-04
M	25	763.31	3.79E+01	22.29	7.78E-03	6.80E-04
m	26	767.98	4.80E+01	27.61	7.74E-03	6.77E-04
	27	860.71	4.22E+01	27.27	7.07E-03	6.17E-04
M	28	901.32	1.41E+01	8.77	6.81E-03	5.92E-04
m	29	904.73	3.97E+01	22.10	6.78E-03	5.90E-04
m	30	911.28	2.04E+02	34.70	6.74E-03	5.87E-04
	31	968.49	1.70E+02	42.86	6.42E-03	5.57E-04
	32	1120.58	1.21E+02	42.50	5.70E-03	4.80E-04
	33	1377.57	3.33E+01	23.65	4.87E-03	5.08E-04
M	34	1401.56	1.18E+01	17.86	4.81E-03	4.98E-04
m	35	1407.50	1.61E+01	20.07	4.79E-03	4.95E-04
m	36	1411.51	1.56E+01	14.89	4.78E-03	4.94E-04
	37	1421.59	1.26E+01	12.85	4.76E-03	4.90E-04
	38	1460.97	8.45E+02	61.82	4.67E-03	4.73E-04
M	39	1505.79	6.86E+00	5.74	4.58E-03	4.55E-04
m	40	1509.30	1.80E+01	15.23	4.57E-03	4.53E-04
	41	1546.99	8.28E+00	11.19	4.50E-03	4.38E-04
M	42	1584.58	9.11E+00	8.06	4.44E-03	4.22E-04
m	43	1589.06	2.23E+01	15.52	4.43E-03	4.20E-04
	44	1662.86	1.60E+01	15.13	4.31E-03	3.90E-04
	45	1696.29	8.25E+00	7.23	4.27E-03	3.76E-04
	46	1729.45	3.30E+01	11.49	4.23E-03	3.62E-04
	47	1764.74	8.60E+01	21.60	4.18E-03	3.47E-04
	48	1832.53	1.14E+01	9.19	4.12E-03	3.19E-04
	49	1849.53	1.69E+01	15.32	4.10E-03	3.18E-04
	50	1868.13	1.00E+01	6.32	4.08E-03	3.18E-04
	51	1944.75	1.07E+01	13.86	4.03E-03	3.18E-04
	52	2102.22	2.10E+01	12.41	3.95E-03	3.18E-04
	53	2117.61	8.37E+00	10.99	3.95E-03	3.18E-04
	54	2204.59	1.70E+01	17.89	3.93E-03	3.18E-04
	55	2614.44	1.21E+02	22.98	4.05E-03	3.18E-04

Analysis Report for 1510090-07

CP0603S12-13

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 : 11/10/2015 12:06:26PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028942.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	76.47	1.30E+03	151.06			1.30E+03	1.51E+02
2	87.36	7.87E+01	70.29	1.46E+00	7.88E+00	7.72E+01	7.07E+01
3	93.59	1.76E+02	101.31	5.70E+01	9.03E+00	1.19E+02	1.02E+02
4	128.40	9.80E+01	80.04			9.80E+01	8.00E+01
5	186.17	2.41E+02	84.38	4.72E+01	7.97E+00	1.94E+02	8.48E+01
6	209.78	9.63E+01	74.30			9.63E+01	7.43E+01
M 7	238.80	9.63E+02	79.49	2.36E+01	1.35E+01	9.39E+02	8.06E+01
m 8	241.93	1.82E+02	56.42	6.38E+00	3.91E+00	1.75E+02	5.66E+01
9	270.54	6.77E+01	62.64			6.77E+01	6.26E+01
10	278.79	4.96E+01	60.96			4.96E+01	6.10E+01
M 11	295.32	3.92E+02	54.47	8.57E+00	6.10E+00	3.83E+02	5.48E+01
m 12	299.87	8.98E+01	46.88			8.98E+01	4.69E+01
13	322.10	4.58E+01	51.07			4.58E+01	5.11E+01
14	329.07	5.28E+01	48.12			5.28E+01	4.81E+01
15	338.33	1.57E+02	56.67			1.57E+02	5.67E+01
16	351.96	6.08E+02	76.54	1.40E+01	5.55E+00	5.94E+02	7.67E+01
17	409.58	6.61E+01	53.01			6.61E+01	5.30E+01
M 18	460.12	1.53E+01	17.87			1.53E+01	1.79E+01
m 19	463.13	7.49E+01	30.71			7.49E+01	3.07E+01
20	511.18	2.00E+02	55.66	8.41E+01	5.50E+00	1.16E+02	5.59E+01
21	583.42	3.03E+02	53.78	7.32E+00	4.08E+00	2.96E+02	5.39E+01
M 22	604.10	1.42E+01	13.60			1.42E+01	1.36E+01
m 23	609.42	4.39E+02	48.37	1.30E+01	3.89E+00	4.26E+02	4.85E+01
24	727.35	8.24E+01	33.05			8.24E+01	3.30E+01
M 25	763.31	3.79E+01	22.29			3.79E+01	2.23E+01
m 26	767.98	4.80E+01	27.61			4.80E+01	2.76E+01
27	860.71	4.22E+01	27.27			4.22E+01	2.73E+01
M 28	901.32	1.41E+01	8.77			1.41E+01	8.77E+00
m 29	904.73	3.97E+01	22.10			3.97E+01	2.21E+01
m 30	911.28	2.04E+02	34.70	5.60E+00	3.32E+00	1.98E+02	3.49E+01
31	968.49	1.70E+02	42.86			1.70E+02	4.29E+01
32	1120.58	1.21E+02	42.50	3.93E+00	2.96E+00	1.17E+02	4.26E+01
33	1377.57	3.33E+01	23.65			3.33E+01	2.37E+01
M 34	1401.56	1.18E+01	17.86			1.18E+01	1.79E+01
m 35	1407.50	1.61E+01	20.07			1.61E+01	2.01E+01

Analysis Report for 1510090-07

CP0603S12-13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	36	1411.51	1.56E+01	14.89			1.56E+01	1.49E+01
	37	1421.59	1.26E+01	12.85			1.26E+01	1.28E+01
	38	1460.97	8.45E+02	61.82	1.12E+01	2.55E+00	8.34E+02	6.19E+01
M	39	1505.79	6.86E+00	5.74			6.86E+00	5.74E+00
m	40	1509.30	1.80E+01	15.23			1.80E+01	1.52E+01
	41	1546.99	8.28E+00	11.19			8.28E+00	1.12E+01
M	42	1584.58	9.11E+00	8.06			9.11E+00	8.06E+00
m	43	1589.06	2.23E+01	15.52			2.23E+01	1.55E+01
	44	1662.86	1.60E+01	15.13			1.60E+01	1.51E+01
	45	1696.29	8.25E+00	7.23			8.25E+00	7.23E+00
	46	1729.45	3.30E+01	11.49			3.30E+01	1.15E+01
	47	1764.74	8.60E+01	21.60	4.23E+00	2.21E+00	8.17E+01	2.17E+01
	48	1832.53	1.14E+01	9.19			1.14E+01	9.19E+00
	49	1849.53	1.69E+01	15.32			1.69E+01	1.53E+01
	50	1868.13	1.00E+01	6.32			1.00E+01	6.32E+00
	51	1944.75	1.07E+01	13.86			1.07E+01	1.39E+01
	52	2102.22	2.10E+01	12.41			2.10E+01	1.24E+01
	53	2117.61	8.37E+00	10.99			8.37E+00	1.10E+01
	54	2204.59	1.70E+01	17.89	5.94E-01	1.16E+00	1.64E+01	1.79E+01
	55	2614.44	1.21E+02	22.98	7.38E+00	1.57E+00	1.13E+02	2.30E+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 : 11/10/2015 12:06:26PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028942.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	76.47	1.30E+03	151.06			1.30E+03	1.51E+02
	2	87.36	7.87E+01	70.29	1.46E+00	7.88E+00	7.72E+01	7.07E+01
	3	93.59	1.76E+02	101.31	5.70E+01	9.03E+00	1.19E+02	1.02E+02
	4	128.40	9.80E+01	80.04			9.80E+01	8.00E+01
	5	186.17	2.41E+02	84.38	4.72E+01	7.97E+00	1.94E+02	8.48E+01
	6	209.78	9.63E+01	74.30			9.63E+01	7.43E+01
M	7	238.80	9.63E+02	79.49	2.36E+01	1.35E+01	9.39E+02	8.06E+01
m	8	241.93	1.82E+02	56.42	6.38E+00	3.91E+00	1.75E+02	5.66E+01

: 00492

Analysis Report for 1510090-07

CP0603S12-13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	9	270.54	6.77E+01	62.64			6.77E+01	6.26E+01
	10	278.79	4.96E+01	60.96			4.96E+01	6.10E+01
M	11	295.32	3.92E+02	54.47	8.57E+00	6.10E+00	3.83E+02	5.48E+01
m	12	299.87	8.98E+01	46.88			8.98E+01	4.69E+01
	13	322.10	4.58E+01	51.07			4.58E+01	5.11E+01
	14	329.07	5.28E+01	48.12			5.28E+01	4.81E+01
	15	338.33	1.57E+02	56.67			1.57E+02	5.67E+01
	16	351.96	6.08E+02	76.54	1.40E+01	5.55E+00	5.94E+02	7.67E+01
	17	409.58	6.61E+01	53.01			6.61E+01	5.30E+01
M	18	460.12	1.53E+01	17.87			1.53E+01	1.79E+01
m	19	463.13	7.49E+01	30.71			7.49E+01	3.07E+01
	20	511.18	2.00E+02	55.66	8.41E+01	5.50E+00	1.16E+02	5.59E+01
	21	583.42	3.03E+02	53.78	7.32E+00	4.08E+00	2.96E+02	5.39E+01
M	22	604.10	1.42E+01	13.60			1.42E+01	1.36E+01
m	23	609.42	4.39E+02	48.37	1.30E+01	3.89E+00	4.26E+02	4.85E+01
	24	727.35	8.24E+01	33.05			8.24E+01	3.30E+01
M	25	763.31	3.79E+01	22.29			3.79E+01	2.23E+01
m	26	767.98	4.80E+01	27.61			4.80E+01	2.76E+01
	27	860.71	4.22E+01	27.27			4.22E+01	2.73E+01
M	28	901.32	1.41E+01	8.77			1.41E+01	8.77E+00
m	29	904.73	3.97E+01	22.10			3.97E+01	2.21E+01
m	30	911.28	2.04E+02	34.70	5.60E+00	3.32E+00	1.98E+02	3.49E+01
	31	968.49	1.70E+02	42.86			1.70E+02	4.29E+01
	32	1120.58	1.21E+02	42.50	3.93E+00	2.96E+00	1.17E+02	4.26E+01
	33	1377.57	3.33E+01	23.65			3.33E+01	2.37E+01
M	34	1401.56	1.18E+01	17.86			1.18E+01	1.79E+01
m	35	1407.50	1.61E+01	20.07			1.61E+01	2.01E+01
m	36	1411.51	1.56E+01	14.89			1.56E+01	1.49E+01
	37	1421.59	1.26E+01	12.85			1.26E+01	1.28E+01
	38	1460.97	8.45E+02	61.82	1.12E+01	2.55E+00	8.34E+02	6.19E+01
M	39	1505.79	6.86E+00	5.74			6.86E+00	5.74E+00
m	40	1509.30	1.80E+01	15.23			1.80E+01	1.52E+01
	41	1546.99	8.28E+00	11.19			8.28E+00	1.12E+01
M	42	1584.58	9.11E+00	8.06			9.11E+00	8.06E+00
m	43	1589.06	2.23E+01	15.52			2.23E+01	1.55E+01
	44	1662.86	1.60E+01	15.13			1.60E+01	1.51E+01
	45	1696.29	8.25E+00	7.23			8.25E+00	7.23E+00
	46	1729.45	3.30E+01	11.49			3.30E+01	1.15E+01
	47	1764.74	8.60E+01	21.60	4.23E+00	2.21E+00	8.17E+01	2.17E+01
	48	1832.53	1.14E+01	9.19			1.14E+01	9.19E+00
	49	1849.53	1.69E+01	15.32			1.69E+01	1.53E+01
	50	1868.13	1.00E+01	6.32			1.00E+01	6.32E+00
	51	1944.75	1.07E+01	13.86			1.07E+01	1.39E+01
	52	2102.22	2.10E+01	12.41			2.10E+01	1.24E+01
	53	2117.61	8.37E+00	10.99			8.37E+00	1.10E+01
	54	2204.59	1.70E+01	17.89	5.94E-01	1.16E+00	1.64E+01	1.79E+01
	55	2614.44	1.21E+02	22.98	7.38E+00	1.57E+00	1.13E+02	2.30E+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 1510090-07
CP0603S12-13

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	0.996	1460.81 *	10.67	2.24E+01	2.85E+00
GA-67	0.605	93.31 *	35.70	1.43E+02	6.33E+02
		208.95 *	2.24	2.71E+03	1.15E+04
		300.22 *	16.00	4.49E+02	1.96E+03
CD-109	0.930	88.03 *	3.72	1.03E+00	9.57E-01
SN-126	0.993	87.57 *	37.00	9.85E-02	9.15E-02
HG-203	0.972	279.19 *	77.30	8.62E-02	1.06E-01
TL-208	0.990	583.14 *	30.22	1.37E+00	2.76E-01
		860.37 *	4.48	1.79E+00	1.17E+00
		2614.66 *	35.85	1.05E+00	2.28E-01
BI-212	0.762	727.17 *	11.80	1.16E+00	4.75E-01
		1620.62	2.75		
PB-212	0.995	238.63 *	44.60	1.58E+00	1.96E-01
		300.09 *	3.41	2.30E+00	1.22E+00
BI-214	0.993	609.31 *	46.30	1.33E+00	1.90E-01
		1120.29 *	15.10	1.82E+00	6.81E-01
		1764.49 *	15.80	1.66E+00	4.61E-01
		2204.22 *	4.98	1.12E+00	1.23E+00
PB-214	0.999	295.21 *	19.19	1.73E+00	2.98E-01
		351.92 *	37.19	1.56E+00	2.44E-01
RA-224	0.865	240.98 *	3.95	3.36E+00	1.13E+00
RA-226	1.000	186.21 *	3.28	3.76E+00	7.08E+00
AC-228	0.978	338.32 *	11.40	1.31E+00	4.87E-01
		911.07 *	27.70	1.42E+00	2.79E-01
		969.11 *	16.60	2.15E+00	5.71E-01
NP-237	0.890	86.50 *	12.60	2.89E-01	2.69E-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 1510090-07
CP0603S12-13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:06:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	76.47	3.59987E-01	5.83		
4	128.40	2.72246E-02	40.83		
9	270.54	1.87980E-02	46.28		
13	322.10	1.27218E-02	55.75		
14	329.07	1.46548E-02	45.60	Sum	
17	409.58	1.83561E-02	40.11		
M	18	460.12	4.25776E-03	58.28	
m	19	463.13	2.08117E-02	20.50	Tol. SB-125
	20	511.18	3.22741E-02	24.07	
M	22	604.10	3.93938E-03	47.95	Tol. CS-134
M	25	763.31	1.05371E-02	29.38	Tol. AG-110M
m	26	767.98	1.33237E-02	28.78	
M	28	901.32	3.92658E-03	31.04	
m	29	904.73	1.10258E-02	27.83	Sum
	33	1377.57	9.24584E-03	35.53	
M	34	1401.56	3.27121E-03	75.83	
m	35	1407.50	4.48108E-03	62.22	Tol. EU-152
m	36	1411.51	4.32449E-03	47.83	
	37	1421.59	3.51190E-03	50.80	
M	39	1505.79	1.90673E-03	41.84	
m	40	1509.30	4.99068E-03	42.39	
	41	1546.99	2.30035E-03	67.57	
M	42	1584.58	2.52942E-03	44.27	
m	43	1589.06	6.19492E-03	34.80	Sum
	44	1662.86	4.44444E-03	47.29	
	45	1696.29	2.29167E-03	43.81	Sum
	46	1729.45	9.16667E-03	17.41	Sum
	48	1832.53	3.16667E-03	40.32	
	49	1849.53	4.68107E-03	45.46	
	50	1868.13	2.77778E-03	31.62	
	51	1944.75	2.97619E-03	64.66	
	52	2102.22	5.83333E-03	29.55	Sum
	53	2117.61	2.32407E-03	65.67	Sum

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 1510090-07

CP0603S12-13

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	2.24E+01	2.85E+00
GA-67	0.60	93.31	*	35.70	1.43E+02	6.33E+02
		208.95	*	2.24	2.71E+03	1.15E+04
		300.22	*	16.00	4.49E+02	1.96E+03
CD-109	0.93	88.03	*	3.72	1.03E+00	9.57E-01
SN-126	0.99	87.57	*	37.00	9.85E-02	9.15E-02
HG-203	0.97	279.19	*	77.30	8.62E-02	1.06E-01
TL-208	0.99	583.14	*	30.22	1.37E+00	2.76E-01
		860.37	*	4.48	1.79E+00	1.17E+00
		2614.66	*	35.85	1.05E+00	2.28E-01
BI-212	0.76	727.17	*	11.80	1.16E+00	4.75E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.58E+00	1.96E-01
		300.09	*	3.41	2.30E+00	1.22E+00
BI-214	0.99	609.31	*	46.30	1.33E+00	1.90E-01
		1120.29	*	15.10	1.82E+00	6.81E-01
		1764.49	*	15.80	1.66E+00	4.61E-01
		2204.22	*	4.98	1.12E+00	1.23E+00
PB-214	0.99	295.21	*	19.19	1.73E+00	2.98E-01
		351.92	*	37.19	1.56E+00	2.44E-01
RA-224	0.86	240.98	*	3.95	3.36E+00	1.13E+00
RA-226	1.00	186.21	*	3.28	3.76E+00	7.08E+00
AC-228	0.97	338.32	*	11.40	1.31E+00	4.87E-01
		911.07	*	27.70	1.42E+00	2.79E-01
		969.11	*	16.60	2.15E+00	5.71E-01
NP-237	0.89	86.50	*	12.60	2.89E-01	2.69E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510090-07

CP0603S12-13

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.996	2.24E+01	2.85E+00	
GA-67	0.605	1.50E+02	6.37E+02	
? CD-109	0.930	1.03E+00	9.57E-01	
? SN-126	0.993	9.85E-02	9.15E-02	
HG-203	0.972	8.62E-02	1.06E-01	
TL-208	0.990	1.19E+00	1.74E-01	
BI-212	0.762	1.16E+00	4.75E-01	
PB-212	0.995	1.58E+00	1.94E-01	
BI-214	0.993	1.40E+00	1.69E-01	
PB-214	0.999	1.63E+00	1.89E-01	
RA-224	0.865	3.36E+00	1.13E+00	
RA-226	1.000	3.76E+00	7.08E+00	
AC-228	0.978	1.51E+00	2.23E-01	
? NP-237	0.890	2.89E-01	2.69E-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 1510090-07
CP0603S12-13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:06:26PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	76.47	3.59987E-01	5.83		
4	128.40	2.72246E-02	40.83		
9	270.54	1.87980E-02	46.28		
13	322.10	1.27218E-02	55.75		
14	329.07	1.46548E-02	45.60	Sum	
17	409.58	1.83561E-02	40.11		
M	18	460.12	4.25776E-03	58.28	
m	19	463.13	2.08117E-02	20.50	Tol. SB-125
20	511.18	3.22741E-02	24.07		
M	22	604.10	3.93938E-03	47.95	Tol. CS-134
M	25	763.31	1.05371E-02	29.38	Tol. AG-110M
m	26	767.98	1.33237E-02	28.78	
M	28	901.32	3.92658E-03	31.04	
m	29	904.73	1.10258E-02	27.83	Sum
33	1377.57	9.24584E-03	35.53		
M	34	1401.56	3.27121E-03	75.83	
m	35	1407.50	4.48108E-03	62.22	Tol. EU-152
m	36	1411.51	4.32449E-03	47.83	
37	1421.59	3.51190E-03	50.80		
M	39	1505.79	1.90673E-03	41.84	
m	40	1509.30	4.99068E-03	42.39	
41	1546.99	2.30035E-03	67.57		
M	42	1584.58	2.52942E-03	44.27	
m	43	1589.06	6.19492E-03	34.80	Sum
44	1662.86	4.44444E-03	47.29		
45	1696.29	2.29167E-03	43.81	Sum	
46	1729.45	9.16667E-03	17.41	Sum	
48	1832.53	3.16667E-03	40.32		
49	1849.53	4.68107E-03	45.46		
50	1868.13	2.77778E-03	31.62		
51	1944.75	2.97619E-03	64.66		
52	2102.22	5.83333E-03	29.55	Sum	
53	2117.61	2.32407E-03	65.67	Sum	

Analysis Report for 1510090-07
CP0603S12-13

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

NUCLIDE MDA REPORT

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

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	BE-7	477.59	10.42	-2.27E-01	7.93E-01	7.93E-01
+	NA-22	1274.54	99.94	-2.30E-02	8.46E-02	8.46E-02
+	NA-24	1368.53	99.99	-3.54E+13	8.44E+13	2.04E+14
		2754.09	99.86	1.82E+13		8.44E+13
+	AL-26	1808.65	99.76	1.59E-02	5.89E-02	5.89E-02
+	K-40	1460.81	* 10.67	2.24E+01	1.06E+00	1.06E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.34E-02	5.52E-02	5.52E-02
		78.34	96.00	3.32E-01		8.01E-02
+	SC-46	889.25	99.98	-2.31E-03	9.05E-02	9.05E-02
		1120.51	99.99	2.97E-01		1.85E-01
+	V-48	983.52	99.98	6.02E-02	3.09E-01	3.09E-01
		1312.10	97.50	5.19E-02		3.40E-01
+	CR-51	320.08	9.83	-1.73E-01	1.24E+00	1.24E+00
+	MN-54	834.83	99.97	-3.68E-02	8.05E-02	8.05E-02
+	CO-56	846.75	99.96	-3.05E-02	8.51E-02	8.51E-02
		1037.75	14.03	-1.15E-01		7.23E-01
		1238.25	67.00	5.51E-02		2.22E-01
		1771.40	15.51	-8.62E-02		5.16E-01
		2598.48	16.90	-7.81E-02		2.80E-01
+	CO-57	122.06	85.51	-8.07E-03	5.83E-02	5.83E-02
		136.48	10.60	-1.35E-01		5.24E-01
+	CO-58	810.76	99.40	-5.82E-02	9.42E-02	9.42E-02
+	FE-59	1099.22	56.50	1.96E-02	2.55E-01	2.55E-01
		1291.56	43.20	-7.23E-02		3.18E-01
+	CO-60	1173.22	100.00	2.54E-02	7.78E-02	9.63E-02
		1332.49	100.00	2.23E-02		7.78E-02
+	ZN-65	1115.52	50.75	7.08E-03	1.85E-01	1.85E-01
+	GA-67	93.31	* 35.70	1.43E+02	2.00E+02	2.00E+02
		208.95	* 2.24	2.71E+03		3.39E+03
		300.22	* 16.00	4.49E+02		6.98E+02
+	SE-75	121.11	16.70	9.48E-02	1.03E-01	3.38E-01

Analysis Report for 1510090-07
CP0603S12-13

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	SE-75	136.00	59.20	1.02E-01	1.03E-01	1.07E-01
		264.65	59.80	7.22E-03		1.03E-01
		279.53	25.20	1.40E-01		2.84E-01
		400.65	11.40	2.91E-01		6.17E-01
+	RB-82	776.52	13.00	-6.82E-01	1.34E+00	1.34E+00
+	RB-83	520.41	46.00	-4.37E-03	1.58E-01	1.58E-01
		529.64	30.30	3.74E-02		2.54E-01
		552.65	16.40	1.22E-01		4.59E-01
+	KR-85	513.99	0.43	-8.33E+00	1.58E+01	1.58E+01
+	SR-85	513.99	99.27	-5.10E-02	9.67E-02	9.67E-02
+	Y-88	898.02	93.40	-1.17E-02	8.85E-02	9.05E-02
		1836.01	99.38	-1.73E-02		8.85E-02
+	NB-93M	16.57	9.43	-8.53E+03	5.41E+03	5.41E+03
+	NB-94	702.63	100.00	-8.90E-03	6.76E-02	7.48E-02
		871.10	100.00	-1.39E-03		6.76E-02
+	NB-95	765.79	99.81	1.98E-01	1.79E-01	1.79E-01
+	NB-95M	235.69	25.00	-1.16E+03	1.65E+02	1.65E+02
+	ZR-95	724.18	43.70	-4.46E-03	1.88E-01	2.83E-01
		756.72	55.30	4.58E-02		1.88E-01
+	MO-99	181.06	6.20	-3.57E+01	1.80E+03	2.91E+03
		739.58	12.80	-1.35E+02		1.80E+03
		778.00	4.50	2.55E+02		5.38E+03
+	RU-103	497.08	89.00	1.40E-02	1.15E-01	1.15E-01
+	RU-106	621.84	9.80	1.27E-01	7.34E-01	7.34E-01
+	AG-108M	433.93	89.90	1.71E-03	6.33E-02	6.33E-02
		614.37	90.40	1.76E-02		8.19E-02
		722.95	90.50	-7.14E-03		8.59E-02
+	CD-109	88.03	* 3.72	1.03E+00	1.54E+00	1.54E+00
+	AG-110M	657.75	93.14	-1.78E-02	8.02E-02	8.02E-02
		677.61	10.53	9.71E-02		7.63E-01
		706.67	16.46	1.33E-01		5.02E-01
		763.93	21.98	-2.32E-01		4.06E-01
		884.67	71.63	1.23E-02		1.06E-01
		1384.27	23.94	1.44E-01		3.45E-01
+	CD-113M	263.70	0.02	-2.55E+01	2.23E+02	2.23E+02
+	SN-113	255.12	1.93	-1.19E+00	1.05E-01	3.19E+00
		391.69	64.90	-3.62E-03		1.05E-01
+	TE123M	159.00	84.10	-3.19E-02	7.12E-02	7.12E-02
+	SB-124	602.71	97.87	-2.12E-02	1.01E-01	1.01E-01
		645.85	7.26	-6.21E-01		1.37E+00
		722.78	11.10	-8.42E-02		1.01E+00
		1691.02	49.00	-1.92E-02		1.54E-01
+	I-125	35.49	6.49	-1.12E+00	5.67E+00	5.67E+00
+	SB-125	176.33	6.89	1.73E-01	2.05E-01	7.86E-01
		427.89	29.33	3.18E-02		2.05E-01
		463.38	10.35	5.73E-01		6.73E-01
		600.56	17.80	-8.74E-02		4.01E-01
		635.90	11.32	-2.02E-01		5.98E-01

Analysis Report for 1510090-07

CP0603S12-13

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	7.75E-03	4.03E-01	4.03E-01
		666.33	99.60	8.84E-02		4.60E-01
		695.00	99.60	5.81E-02		4.57E-01
		720.50	53.80	1.01E-01		8.38E-01
+	SN-126	87.57	* 37.00	9.85E-02	1.47E-01	1.47E-01
+	SB-127	473.00	25.00	2.81E+00	6.96E+01	7.10E+01
		685.20	35.70	3.35E+01		6.96E+01
		783.80	14.70	6.88E+01		1.90E+02
+	I-129	29.78	57.00	-7.66E-02	1.19E+00	1.19E+00
		33.60	13.20	7.50E-01		2.52E+00
		39.58	7.52	-1.81E-01		2.19E+00
+	I-131	284.30	6.05	3.46E+00	1.04E+00	1.40E+01
		364.48	81.20	1.36E-02		1.04E+00
		636.97	7.26	-2.51E+00		1.48E+01
		722.89	1.80	-5.70E+00		6.86E+01
+	TE-132	49.72	13.10	2.14E+02	5.80E+01	5.58E+02
		228.16	88.00	-3.15E+00		5.80E+01
+	BA-133	81.00	33.00	3.68E-02	8.72E-02	1.31E-01
		302.84	17.80	-9.96E-03		3.08E-01
		356.01	60.00	2.93E-02		8.72E-02
+	I-133	529.87	86.30	1.50E+09	9.44E+09	9.44E+09
+	XE-133	81.00	38.00	2.21E+00	7.86E+00	7.86E+00
+	CS-134	563.23	8.38	2.62E-01	8.70E-02	7.47E-01
		569.32	15.43	6.17E-03		3.58E-01
		604.70	97.60	-8.62E-01		8.70E-02
		795.84	85.40	7.92E-02		1.08E-01
		801.93	8.73	-5.61E-02		9.09E-01
+	CS-135	268.24	16.00	1.07E-01	3.79E-01	3.79E-01
+	@ 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	3.86E+00	3.81E-01	4.00E+00
		163.89	4.61	3.86E+00		6.40E+00
		176.55	13.56	-7.58E-02		2.11E+00
		273.65	12.66	-3.06E+00		2.42E+00
		340.57	48.50	-9.57E-01		6.99E-01
		818.50	99.70	-8.72E-03		3.81E-01
		1048.07	79.60	1.14E-01		5.64E-01
		1235.34	19.70	3.56E-01		3.00E+00
+	CS-137	661.65	85.12	-2.20E-02	8.27E-02	8.27E-02
+	LA-138	788.74	34.00	1.28E-01	1.01E-01	2.64E-01
		1435.80	66.00	3.87E-03		1.01E-01
+	CE-139	165.85	80.35	2.29E-02	7.69E-02	7.69E-02
+	BA-140	162.64	6.70	-3.88E-01	1.42E+00	4.54E+00
		304.84	4.50	1.81E+00		6.87E+00
		423.70	3.20	-1.87E+00		9.72E+00
		437.55	2.00	-2.66E+00		1.52E+01
		537.32	25.00	5.09E-01		1.42E+00
+	LA-140	328.77	20.50	8.28E-01	4.70E-01	1.71E+00

Analysis Report for 1510090-07
CP0603S12-13

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
LA-140	487.03	45.50	-1.73E-01	4.70E-01	7.29E-01
	815.85	23.50	-6.04E-01		1.62E+00
	1596.49	95.49	-1.21E-02		4.70E-01
+ CE-141	145.44	48.40	9.87E-02	2.21E-01	2.21E-01
+ CE-143	57.36	11.80	-1.37E+06	2.12E+06	5.08E+06
	293.26	42.00	-3.36E+05		2.12E+06
	664.55	5.20	1.16E+06		1.51E+07
+ CE-144	133.54	10.80	4.63E-02	5.24E-01	5.24E-01
+ PM-144	476.78	42.00	-3.95E-02	7.65E-02	1.38E-01
	618.01	98.60	1.23E-02		7.65E-02
	696.49	99.49	1.42E-02		8.23E-02
+ PM-145	36.85	21.70	-4.55E-01	5.06E-01	9.86E-01
	37.36	39.70	-2.34E-01		5.06E-01
	42.30	15.10	2.33E-01		8.82E-01
	72.40	2.31	-6.65E-01		2.22E+00
+ PM-146	453.90	39.94	7.55E-03	1.35E-01	1.35E-01
	735.90	14.01	-6.66E-02		4.96E-01
	747.13	13.10	-1.76E-01		5.72E-01
+ ND-147	91.11	28.90	-2.33E+00	1.68E+00	1.68E+00
	531.02	13.10	-1.96E+00		3.18E+00
+ PM-149	285.90	3.10	3.11E+04	4.21E+04	4.21E+04
+ EU-152	121.78	20.50	-3.11E-02	2.25E-01	2.25E-01
	244.69	5.40	-1.93E+00		1.07E+00
	344.27	19.13	1.55E-03		2.85E-01
	778.89	9.20	1.83E-01		8.17E-01
	964.01	10.40	-1.66E-01		9.51E-01
	1085.78	7.22	-3.69E-01		1.01E+00
	1112.02	9.60	8.56E-02		8.62E-01
	1407.95	14.94	-1.54E-01		5.68E-01
+ GD-153	97.43	31.30	4.14E-03	1.73E-01	1.73E-01
	103.18	22.20	-1.87E-01		2.35E-01
+ EU-154	123.07	40.50	1.94E-02	1.15E-01	1.15E-01
	723.30	19.70	-3.30E-02		3.97E-01
	873.19	11.50	7.11E-02		5.76E-01
	996.32	10.30	-3.51E-02		7.44E-01
	1004.76	17.90	-1.50E-02		4.35E-01
	1274.45	35.50	-6.36E-02		2.34E-01
+ EU-155	86.50	30.90	-2.13E-01	2.11E-01	2.11E-01
	105.30	20.70	1.10E-01		2.35E-01
+ EU-156	811.77	10.40	-6.92E-01	2.89E+00	2.89E+00
	1153.47	7.20	2.09E+00		5.89E+00
	1230.71	8.90	1.29E+00		4.98E+00
+ HO-166M	184.41	72.60	8.81E-03	9.39E-02	9.39E-02
	280.45	29.60	9.89E-02		2.01E-01
	410.94	11.10	5.83E-01		6.14E-01
	711.69	54.10	1.61E-02		1.34E-01
+ TM-171	66.72	0.14	-1.88E+01	3.80E+01	3.80E+01
+ HF-172	81.75	4.52	-1.08E+00	4.46E-01	9.41E-01
	125.81	11.30	-5.57E-01		4.46E-01

Analysis Report for 1510090-07
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	1.10E+00	3.63E+00	7.60E+00
		810.06	16.63	-7.01E+00		1.14E+01
		912.12	15.25	6.90E+01		2.72E+01
		1093.66	62.50	2.08E-01		3.63E+00
+	LU-173	100.72	5.24	4.69E-01	3.18E-01	9.82E-01
		272.11	21.20	1.52E-01		3.18E-01
+	HF-175	343.40	84.00	-9.51E-03	8.76E-02	8.76E-02
+	LU-176	88.34	13.30	5.80E-01	5.82E-02	4.96E-01
		201.83	86.00	-4.54E-03		6.42E-02
		306.78	94.00	2.96E-05		5.82E-02
+	TA-182	67.75	41.20	3.74E-02	1.54E-01	1.54E-01
		1121.30	34.90	7.94E-01		4.92E-01
		1189.05	16.23	-2.55E-01		7.31E-01
		1221.41	26.98	5.18E-02		4.25E-01
		1231.02	11.44	5.93E-01		1.10E+00
+	IR-192	308.46	29.68	-1.62E-02	1.54E-01	2.51E-01
		468.07	48.10	9.75E-03		1.54E-01
+	HG-203	279.19	* 77.30	8.62E-02	1.74E-01	1.74E-01
+	BI-207	569.67	97.72	9.47E-04	5.50E-02	5.50E-02
		1063.62	74.90	1.01E-02		1.14E-01
+	TL-208	583.14	* 30.22	1.37E+00	1.58E-01	3.29E-01
		860.37	* 4.48	1.79E+00		1.78E+00
		2614.66	* 35.85	1.05E+00		1.58E-01
+	BI-210M	262.00	45.00	-4.57E-02	1.13E-01	1.13E-01
		300.00	23.00	2.49E-01		2.80E-01
+	PB-210	46.50	4.25	4.11E+00	2.62E+00	2.62E+00
+	PB-211	404.84	2.90	9.07E-02	1.94E+00	1.94E+00
		831.96	2.90	1.16E-01		2.58E+00
+	BI-212	727.17	* 11.80	1.16E+00	6.76E-01	6.76E-01
		1620.62	2.75	2.20E-01		2.73E+00
+	PB-212	238.63	* 44.60	1.58E+00	3.27E-01	3.27E-01
		300.09	* 3.41	2.30E+00		3.58E+00
+	BI-214	609.31	* 46.30	1.33E+00	2.52E-01	2.52E-01
		1120.29	* 15.10	1.82E+00		9.82E-01
		1764.49	* 15.80	1.66E+00		4.56E-01
		2204.22	* 4.98	1.12E+00		1.99E+00
+	PB-214	295.21	* 19.19	1.73E+00	2.63E-01	6.28E-01
		351.92	* 37.19	1.56E+00		2.63E-01
+	RN-219	401.80	6.50	4.14E-01	9.08E-01	9.08E-01
+	RA-223	323.87	3.88	6.61E-01	1.46E+00	1.46E+00
+	RA-224	240.98	* 3.95	3.36E+00	3.68E+00	3.68E+00
+	RA-225	40.00	31.00	-1.90E-01	2.29E+00	2.29E+00
+	RA-226	186.21	* 3.28	3.76E+00	2.61E+00	2.61E+00
+	TH-227	50.10	8.40	3.56E-01	7.60E-01	9.30E-01
		236.00	11.50	-5.34E+00		7.60E-01
		256.20	6.30	-4.73E-01		8.20E-01
+	AC-228	338.32	* 11.40	1.31E+00	5.27E-01	7.20E-01
		911.07	* 27.70	1.42E+00		5.27E-01

Analysis Report for 1510090-07
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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	2.15E+00	5.27E-01	7.38E-01
+	TH-230	48.44		16.90	-5.31E-01	5.04E-01	5.04E-01
		62.85		4.60	1.70E+00		1.35E+00
		67.67		0.37	3.44E+00		1.41E+01
+	PA-231	283.67		1.60	8.23E-01	2.37E+00	3.32E+00
		302.67		2.30	-7.66E-02		2.37E+00
+	TH-231	25.64		14.70	1.51E+00	7.35E-01	1.53E+01
		84.21		6.40	9.30E-01		7.35E-01
+	PA-233	311.98		38.60	-5.77E-02	3.16E-01	3.16E-01
+	PA-234	131.20		20.40	8.36E-03	2.68E-01	2.68E-01
		733.99		8.80	3.20E-01		7.95E-01
		946.00		12.00	1.85E-01		6.87E-01
+	PA-234M	1001.03		0.92	-2.09E+00	8.38E+00	8.38E+00
+	TH-234	63.29		3.80	2.04E+00	1.63E+00	1.63E+00
+	U-235	143.76		10.50	2.64E-01	5.19E-01	5.19E-01
		163.35		4.70	-9.74E-02		1.14E+00
		205.31		4.70	1.37E-01		1.17E+00
+	NP-237	86.50	*	12.60	2.89E-01	4.32E-01	4.32E-01
+	NP-239	106.10		22.70	4.54E+01	2.64E+03	2.64E+03
		228.18		10.70	-3.55E+02		6.54E+03
		277.60		14.10	1.06E+03		5.46E+03
+	AM-241	59.54		35.90	-2.37E-02	1.60E-01	1.60E-01
+	AM-243	74.67		66.00	-2.63E-01	1.06E-01	1.06E-01
+	CM-243	209.75		3.29	2.00E+00	4.38E-01	1.91E+00
		228.14		10.60	-2.85E-02		5.25E-01
		277.60		14.00	8.50E-02		4.38E-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 1510090-07
CP0603S12-13

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	7.93E-01	7.93E-01	-2.27E-01	3.73E-01
NA-22	1274.54	99.94	8.46E-02	8.46E-02	-2.30E-02	3.87E-02
NA-24	1368.53	99.99	2.04E+14	8.44E+13	-3.54E+13	9.17E+13
	2754.09	99.86	8.44E+13		1.82E+13	2.99E+13
AL-26	1808.65	99.76	5.89E-02	5.89E-02	1.59E-02	2.51E-02
+ K-40	1460.81	* 10.67	1.06E+00	1.06E+00	2.24E+01	4.91E-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	5.52E-02	5.52E-02	1.34E-02	2.68E-02
	78.34	96.00	8.01E-02		3.32E-01	3.94E-02
SC-46	889.25	99.98	9.05E-02	9.05E-02	-2.31E-03	4.18E-02
	1120.51	99.99	1.85E-01		2.97E-01	8.85E-02
V-48	983.52	99.98	3.09E-01	3.09E-01	6.02E-02	1.43E-01
	1312.10	97.50	3.40E-01		5.19E-02	1.55E-01
CR-51	320.08	9.83	1.24E+00	1.24E+00	-1.73E-01	5.94E-01
MN-54	834.83	99.97	8.05E-02	8.05E-02	-3.68E-02	3.76E-02
CO-56	846.75	99.96	8.51E-02	8.51E-02	-3.05E-02	3.92E-02
	1037.75	14.03	7.23E-01		-1.15E-01	3.33E-01
	1238.25	67.00	2.22E-01		5.51E-02	1.04E-01
	1771.40	15.51	5.16E-01		-8.62E-02	2.21E-01
	2598.48	16.90	2.80E-01		-7.81E-02	1.05E-01
CO-57	122.06	85.51	5.83E-02	5.83E-02	-8.07E-03	2.83E-02
	136.48	10.60	5.24E-01		-1.35E-01	2.54E-01
CO-58	810.76	99.40	9.42E-02	9.42E-02	-5.82E-02	4.37E-02
FE-59	1099.22	56.50	2.55E-01	2.55E-01	1.96E-02	1.18E-01
	1291.56	43.20	3.18E-01		-7.23E-02	1.45E-01
CO-60	1173.22	100.00	9.63E-02	7.78E-02	2.54E-02	4.48E-02
	1332.49	100.00	7.78E-02		2.23E-02	3.52E-02
ZN-65	1115.52	50.75	1.85E-01	1.85E-01	7.08E-03	8.56E-02
+ GA-67	93.31	* 35.70	2.00E+02	2.00E+02	1.43E+02	9.85E+01
	208.95	* 2.24	3.39E+03		2.71E+03	1.66E+03
	300.22	* 16.00	6.98E+02		4.49E+02	3.42E+02
SE-75	121.11	16.70	3.38E-01	1.03E-01	9.48E-02	1.64E-01
	136.00	59.20	1.07E-01		1.02E-01	5.21E-02
	264.65	59.80	1.03E-01		7.22E-03	4.93E-02
	279.53	25.20	2.84E-01		1.40E-01	1.37E-01
	400.65	11.40	6.17E-01		2.91E-01	2.93E-01
RB-82	776.52	13.00	1.34E+00	1.34E+00	-6.82E-01	6.29E-01
RB-83	520.41	46.00	1.58E-01	1.58E-01	-4.37E-03	7.39E-02
	529.64	30.30	2.54E-01		3.74E-02	1.19E-01
	552.65	16.40	4.59E-01		1.22E-01	2.15E-01
KR-85	513.99	0.43	1.58E+01	1.58E+01	-8.33E+00	7.50E+00
SR-85	513.99	99.27	9.67E-02	9.67E-02	-5.10E-02	4.59E-02
Y-88	898.02	93.40	9.05E-02	8.85E-02	-1.17E-02	4.18E-02
	1836.01	99.38	8.85E-02		-1.73E-02	3.88E-02
NB-93M	16.57	9.43	5.41E+03	5.41E+03	-8.53E+03	2.63E+03
NB-94	702.63	100.00	7.48E-02	6.76E-02	-8.90E-03	3.52E-02
	871.10	100.00	6.76E-02		-1.39E-03	3.12E-02
NB-95	765.79	99.81	1.79E-01	1.79E-01	1.98E-01	8.49E-02
NB-95M	235.69	25.00	1.65E+02	1.65E+02	-1.16E+03	8.07E+01
ZR-95	724.18	43.70	2.83E-01	1.88E-01	-4.46E-03	1.34E-01
	756.72	55.30	1.88E-01		4.58E-02	8.82E-02

Analysis Report for 1510090-07
CP0603S12-13

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	2.91E+03	1.80E+03	-3.57E+01	1.41E+03
	739.58	12.80	1.80E+03		-1.35E+02	8.45E+02
	778.00	4.50	5.38E+03		2.55E+02	2.52E+03
RU-103	497.08	89.00	1.15E-01	1.15E-01	1.40E-02	5.40E-02
RU-106	621.84	9.80	7.34E-01	7.34E-01	1.27E-01	3.45E-01
AG-108M	433.93	89.90	6.33E-02	6.33E-02	1.71E-03	3.00E-02
	614.37	90.40	8.19E-02		1.76E-02	3.88E-02
	722.95	90.50	8.59E-02		-7.14E-03	4.05E-02
+ CD-109	88.03	*	1.54E+00	1.54E+00	1.03E+00	7.50E-01
AG-110M	657.75	93.14	8.02E-02	8.02E-02	-1.78E-02	3.77E-02
	677.61	10.53	7.63E-01		9.71E-02	3.59E-01
	706.67	16.46	5.02E-01		1.33E-01	2.36E-01
	763.93	21.98	4.06E-01		-2.32E-01	1.91E-01
	884.67	71.63	1.06E-01		1.23E-02	4.92E-02
	1384.27	23.94	3.45E-01		1.44E-01	1.55E-01
CD-113M	263.70	0.02	2.23E+02	2.23E+02	-2.55E+01	1.07E+02
SN-113	255.12	1.93	3.19E+00	1.05E-01	-1.19E+00	1.53E+00
	391.69	64.90	1.05E-01		-3.62E-03	4.99E-02
TE123M	159.00	84.10	7.12E-02	7.12E-02	-3.19E-02	3.45E-02
SB-124	602.71	97.87	1.01E-01	1.01E-01	-2.12E-02	4.78E-02
	645.85	7.26	1.37E+00		-6.21E-01	6.42E-01
	722.78	11.10	1.01E+00		-8.42E-02	4.77E-01
	1691.02	49.00	1.54E-01		-1.92E-02	6.46E-02
I-125	35.49	6.49	5.67E+00	5.67E+00	-1.12E+00	2.75E+00
SB-125	176.33	6.89	7.86E-01	2.05E-01	1.73E-01	3.81E-01
	427.89	29.33	2.05E-01		3.18E-02	9.73E-02
	463.38	10.35	6.73E-01		5.73E-01	3.21E-01
	600.56	17.80	4.01E-01		-8.74E-02	1.89E-01
	635.90	11.32	5.98E-01		-2.02E-01	2.81E-01
SB-126	414.70	83.30	4.03E-01	4.03E-01	7.75E-03	1.91E-01
	666.33	99.60	4.60E-01		8.84E-02	2.17E-01
	695.00	99.60	4.57E-01		5.81E-02	2.15E-01
	720.50	53.80	8.38E-01		1.01E-01	3.94E-01
+ SN-126	87.57	*	1.47E-01	1.47E-01	9.85E-02	7.18E-02
SB-127	473.00	25.00	7.10E+01	6.96E+01	2.81E+00	3.34E+01
	685.20	35.70	6.96E+01		3.35E+01	3.29E+01
	783.80	14.70	1.90E+02		6.88E+01	8.97E+01
I-129	29.78	57.00	1.19E+00	1.19E+00	-7.66E-02	5.77E-01
	33.60	13.20	2.52E+00		7.50E-01	1.22E+00
	39.58	7.52	2.19E+00		-1.81E-01	1.07E+00
I-131	284.30	6.05	1.40E+01	1.04E+00	3.46E+00	6.69E+00
	364.48	81.20	1.04E+00		1.36E-02	4.95E-01
	636.97	7.26	1.48E+01		-2.51E+00	6.98E+00
	722.89	1.80	6.86E+01		-5.70E+00	3.23E+01
TE-132	49.72	13.10	5.58E+02	5.80E+01	2.14E+02	2.71E+02
	228.16	88.00	5.80E+01		-3.15E+00	2.80E+01
BA-133	81.00	33.00	1.31E-01	8.72E-02	3.68E-02	6.35E-02
	302.84	17.80	3.08E-01		-9.96E-03	1.47E-01
	356.01	60.00	8.72E-02		2.93E-02	4.14E-02
I-133	529.87	86.30	9.44E+09	9.44E+09	1.50E+09	4.44E+09
XE-133	81.00	38.00	7.86E+00	7.86E+00	2.21E+00	3.81E+00
CS-134	563.23	8.38	7.47E-01	8.70E-02	2.62E-01	3.51E-01
	569.32	15.43	3.58E-01		6.17E-03	1.67E-01

Analysis Report for 1510090-07
 CP0603S12-13

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	8.70E-02	8.70E-02	-8.62E-01	4.15E-02
	795.84	85.40	1.08E-01		7.92E-02	5.10E-02
	801.93	8.73	9.09E-01		-5.61E-02	4.26E-01
CS-135	268.24	16.00	3.79E-01	3.79E-01	1.07E-01	1.82E-01
@ 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	4.00E+00	3.81E-01	3.86E+00	1.95E+00
	163.89	4.61	6.40E+00		3.86E+00	3.11E+00
	176.55	13.56	2.11E+00		-7.58E-02	1.02E+00
	273.65	12.66	2.42E+00		-3.06E+00	1.16E+00
	340.57	48.50	6.99E-01		-9.57E-01	3.35E-01
	818.50	99.70	3.81E-01		-8.72E-03	1.77E-01
	1048.07	79.60	5.64E-01		1.14E-01	2.62E-01
	1235.34	19.70	3.00E+00		3.56E-01	1.41E+00
CS-137	661.65	85.12	8.27E-02	8.27E-02	-2.20E-02	3.89E-02
LA-138	788.74	34.00	2.64E-01	1.01E-01	1.28E-01	1.25E-01
	1435.80	66.00	1.01E-01		3.87E-03	4.47E-02
CE-139	165.85	80.35	7.69E-02	7.69E-02	2.29E-02	3.73E-02
BA-140	162.64	6.70	4.54E+00	1.42E+00	-3.88E-01	2.20E+00
	304.84	4.50	6.87E+00		1.81E+00	3.28E+00
	423.70	3.20	9.72E+00		-1.87E+00	4.59E+00
	437.55	2.00	1.52E+01		-2.66E+00	7.17E+00
	537.32	25.00	1.42E+00		5.09E-01	6.69E-01
LA-140	328.77	20.50	1.71E+00	4.70E-01	8.28E-01	8.19E-01
	487.03	45.50	7.29E-01		-1.73E-01	3.44E-01
	815.85	23.50	1.62E+00		-6.04E-01	7.52E-01
	1596.49	95.49	4.70E-01		-1.21E-02	2.10E-01
CE-141	145.44	48.40	2.21E-01	2.21E-01	9.87E-02	1.07E-01
CE-143	57.36	11.80	5.08E+06	2.12E+06	-1.37E+06	2.46E+06
	293.26	42.00	2.12E+06		-3.36E+05	1.03E+06
	664.55	5.20	1.51E+07		1.16E+06	7.14E+06
CE-144	133.54	10.80	5.24E-01	5.24E-01	4.63E-02	2.55E-01
PM-144	476.78	42.00	1.38E-01	7.65E-02	-3.95E-02	6.48E-02
	618.01	98.60	7.65E-02		1.23E-02	3.61E-02
	696.49	99.49	8.23E-02		1.42E-02	3.88E-02
PM-145	36.85	21.70	9.86E-01	5.06E-01	-4.55E-01	4.78E-01
	37.36	39.70	5.06E-01		-2.34E-01	2.46E-01
	42.30	15.10	8.82E-01		2.33E-01	4.29E-01
	72.40	2.31	2.22E+00		-6.65E-01	1.08E+00
PM-146	453.90	39.94	1.35E-01	1.35E-01	7.55E-03	6.33E-02
	735.90	14.01	4.96E-01		-6.66E-02	2.32E-01
	747.13	13.10	5.72E-01		-1.76E-01	2.69E-01
ND-147	91.11	28.90	1.68E+00	1.68E+00	-2.33E+00	8.22E-01
	531.02	13.10	3.18E+00		-1.96E+00	1.49E+00
PM-149	285.90	3.10	4.21E+04	4.21E+04	3.11E+04	2.02E+04
EU-152	121.78	20.50	2.25E-01	2.25E-01	-3.11E-02	1.09E-01
	244.69	5.40	1.07E+00		-1.93E+00	5.14E-01
	344.27	19.13	2.85E-01		1.55E-03	1.36E-01
	778.89	9.20	8.17E-01		1.83E-01	3.83E-01
	964.01	10.40	9.51E-01		-1.66E-01	4.48E-01
	1085.78	7.22	1.01E+00		-3.69E-01	4.63E-01
	1112.02	9.60	8.62E-01		8.56E-02	3.98E-01

Analysis Report for 1510090-07
CP0603S12-13

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	5.68E-01	2.25E-01	-1.54E-01	2.59E-01
GD-153	97.43	31.30	1.73E-01	1.73E-01	4.14E-03	8.44E-02
	103.18	22.20	2.35E-01		-1.87E-01	1.14E-01
EU-154	123.07	40.50	1.15E-01	1.15E-01	1.94E-02	5.57E-02
	723.30	19.70	3.97E-01		-3.30E-02	1.87E-01
	873.19	11.50	5.76E-01		7.11E-02	2.65E-01
	996.32	10.30	7.44E-01		-3.51E-02	3.44E-01
	1004.76	17.90	4.35E-01		-1.50E-02	2.01E-01
	1274.45	35.50	2.34E-01		-6.36E-02	1.07E-01
EU-155	86.50	30.90	2.11E-01	2.11E-01	-2.13E-01	1.03E-01
	105.30	20.70	2.35E-01		1.10E-01	1.14E-01
EU-156	811.77	10.40	2.89E+00	2.89E+00	-6.92E-01	1.34E+00
	1153.47	7.20	5.89E+00		2.09E+00	2.75E+00
	1230.71	8.90	4.98E+00		1.29E+00	2.32E+00
HO-166M	184.41	72.60	9.39E-02	9.39E-02	8.81E-03	4.58E-02
	280.45	29.60	2.01E-01		9.89E-02	9.69E-02
	410.94	11.10	6.14E-01		5.83E-01	2.94E-01
	711.69	54.10	1.34E-01		1.61E-02	6.31E-02
TM-171	66.72	0.14	3.80E+01	3.80E+01	-1.88E+01	1.85E+01
HF-172	81.75	4.52	9.41E-01	4.46E-01	-1.08E+00	4.56E-01
	125.81	11.30	4.46E-01		-5.57E-01	2.17E-01
LU-172	181.53	20.60	7.60E+00	3.63E+00	1.10E+00	3.68E+00
	810.06	16.63	1.14E+01		-7.01E+00	5.27E+00
	912.12	15.25	2.72E+01		6.90E+01	1.31E+01
	1093.66	62.50	3.63E+00		2.08E-01	1.68E+00
LU-173	100.72	5.24	9.82E-01	3.18E-01	4.69E-01	4.78E-01
	272.11	21.20	3.18E-01		1.52E-01	1.53E-01
HF-175	343.40	84.00	8.76E-02	8.76E-02	-9.51E-03	4.17E-02
LU-176	88.34	13.30	4.96E-01	5.82E-02	5.80E-01	2.43E-01
	201.83	86.00	6.42E-02		-4.54E-03	3.11E-02
	306.78	94.00	5.82E-02		2.96E-05	2.78E-02
TA-182	67.75	41.20	1.54E-01	1.54E-01	3.74E-02	7.47E-02
	1121.30	34.90	4.92E-01		7.94E-01	2.35E-01
	1189.05	16.23	7.31E-01		-2.55E-01	3.40E-01
	1221.41	26.98	4.25E-01		5.18E-02	1.97E-01
	1231.02	11.44	1.10E+00		5.93E-01	5.16E-01
IR-192	308.46	29.68	2.51E-01	1.54E-01	-1.62E-02	1.20E-01
	468.07	48.10	1.54E-01		9.75E-03	7.26E-02
+ HG-203	279.19	* 77.30	1.74E-01	1.74E-01	8.62E-02	8.48E-02
BI-207	569.67	97.72	5.50E-02	5.50E-02	9.47E-04	2.56E-02
	1063.62	74.90	1.14E-01		1.01E-02	5.30E-02
+ TL-208	583.14	* 30.22	3.29E-01	1.58E-01	1.37E+00	1.58E-01
	860.37	* 4.48	1.78E+00		1.79E+00	8.35E-01
	2614.66	* 35.85	1.58E-01		1.05E+00	6.68E-02
BI-210M	262.00	45.00	1.13E-01	1.13E-01	-4.57E-02	5.40E-02
	300.00	23.00	2.80E-01		2.49E-01	1.35E-01
PB-210	46.50	4.25	2.62E+00	2.62E+00	4.11E+00	1.28E+00
PB-211	404.84	2.90	1.94E+00	1.94E+00	9.07E-02	9.22E-01
	831.96	2.90	2.58E+00		1.16E-01	1.20E+00
+ BI-212	727.17	* 11.80	6.76E-01	6.76E-01	1.16E+00	3.19E-01
	1620.62	2.75	2.73E+00		2.20E-01	1.22E+00
+ PB-212	238.63	* 44.60	3.27E-01	3.27E-01	1.58E+00	1.61E-01
	300.09	* 3.41	3.58E+00		2.30E+00	1.76E+00

Analysis Report for 1510090-07
CP0603S12-13

	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	2.52E-01	2.52E-01	1.33E+00	1.22E-01
		1120.29	*	15.10	9.82E-01		1.82E+00	4.70E-01
		1764.49	*	15.80	4.56E-01		1.66E+00	2.01E-01
		2204.22	*	4.98	1.99E+00		1.12E+00	9.01E-01
+	PB-214	295.21	*	19.19	6.28E-01	2.63E-01	1.73E+00	3.08E-01
		351.92	*	37.19	2.63E-01		1.56E+00	1.28E-01
	RN-219	401.80		6.50	9.08E-01	9.08E-01	4.14E-01	4.32E-01
	RA-223	323.87		3.88	1.46E+00	1.46E+00	6.61E-01	7.00E-01
+	RA-224	240.98	*	3.95	3.68E+00	3.68E+00	3.36E+00	1.82E+00
		40.00		31.00	2.29E+00	2.29E+00	-1.90E-01	1.12E+00
+	RA-226	186.21	*	3.28	2.61E+00	2.61E+00	3.76E+00	1.28E+00
		50.10		8.40	9.30E-01	7.60E-01	3.56E-01	4.52E-01
		236.00		11.50	7.60E-01		-5.34E+00	3.71E-01
		256.20		6.30	8.20E-01		-4.73E-01	3.93E-01
+	AC-228	338.32	*	11.40	7.20E-01	5.27E-01	1.31E+00	3.49E-01
		911.07	*	27.70	5.27E-01		1.42E+00	2.54E-01
		969.11	*	16.60	7.38E-01		2.15E+00	3.52E-01
	TH-230	48.44		16.90	5.04E-01	5.04E-01	-5.31E-01	2.45E-01
		62.85		4.60	1.35E+00		1.70E+00	6.61E-01
		67.67		0.37	1.41E+01		3.44E+00	6.86E+00
	PA-231	283.67		1.60	3.32E+00	2.37E+00	8.23E-01	1.59E+00
		302.67		2.30	2.37E+00		-7.66E-02	1.13E+00
	TH-231	25.64		14.70	1.53E+01	7.35E-01	1.51E+00	7.40E+00
		84.21		6.40	7.35E-01		9.30E-01	3.58E-01
	PA-233	311.98		38.60	3.16E-01	3.16E-01	-5.77E-02	1.51E-01
	PA-234	131.20		20.40	2.68E-01	2.68E-01	8.36E-03	1.31E-01
		733.99		8.80	7.95E-01		3.20E-01	3.72E-01
		946.00		12.00	6.87E-01		1.85E-01	3.20E-01
	PA-234M	1001.03		0.92	8.38E+00	8.38E+00	-2.09E+00	3.87E+00
	TH-234	63.29		3.80	1.63E+00	1.63E+00	2.04E+00	7.94E-01
	U-235	143.76		10.50	5.19E-01	5.19E-01	2.64E-01	2.52E-01
		163.35		4.70	1.14E+00		-9.74E-02	5.53E-01
		205.31		4.70	1.17E+00		1.37E-01	5.65E-01
+	NP-237	86.50	*	12.60	4.32E-01	4.32E-01	2.89E-01	2.11E-01
		106.10		22.70	2.64E+03	2.64E+03	4.54E+01	1.28E+03
		228.18		10.70	6.54E+03		-3.55E+02	3.15E+03
		277.60		14.10	5.46E+03		1.06E+03	2.63E+03
	AM-241	59.54		35.90	1.60E-01	1.60E-01	-2.37E-02	7.79E-02
	AM-243	74.67		66.00	1.06E-01	1.06E-01	-2.63E-01	5.19E-02
	CM-243	209.75		3.29	1.91E+00	4.38E-01	2.00E+00	9.25E-01
		228.14		10.60	5.25E-01		-2.85E-02	2.53E-01
		277.60		14.00	4.38E-01		8.50E-02	2.11E-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 1510090-07
CP0603S12-13

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S12-13

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	168
9:	513	1174	1032	392	580	1646	317	145	145
17:	142	126	129	143	135	131	145	110	110
25:	119	128	122	125	125	96	118	110	110
33:	103	121	131	109	127	132	140	125	125
41:	141	141	147	139	128	173	243	123	123
49:	119	147	119	113	125	136	112	103	103
57:	105	131	126	133	130	136	197	194	194
65:	130	140	120	144	161	130	159	127	127
73:	165	176	456	253	552	450	122	130	130
81:	111	109	102	169	159	97	235	225	225
89:	107	208	129	123	254	183	121	103	103
97:	91	82	99	106	97	88	82	86	86
105:	82	101	89	72	88	77	88	81	81
113:	109	86	83	85	76	82	83	69	69
121:	76	78	76	64	70	82	87	97	97
129:	126	105	82	95	80	87	92	83	83
137:	88	84	60	86	100	76	82	113	113
145:	88	79	62	76	81	70	100	73	73
153:	65	94	85	61	53	72	60	72	72
161:	65	80	72	67	80	76	63	57	57
169:	58	69	71	70	67	59	54	70	70
177:	76	63	56	68	79	71	70	68	68
185:	104	197	122	66	50	58	54	71	71
193:	70	65	54	54	56	77	48	64	64
201:	64	58	50	57	67	53	56	47	47
209:	108	98	48	59	51	44	57	51	51
217:	55	48	54	64	51	58	46	37	37
225:	55	47	55	43	56	49	48	66	66
233:	43	52	54	64	66	371	674	136	136
241:	117	153	69	52	39	42	40	35	35
249:	35	28	49	42	33	35	31	44	44
257:	34	39	52	30	40	34	36	31	31
265:	31	40	33	29	45	92	56	33	33
273:	52	33	46	38	59	51	50	34	34
281:	42	40	23	41	27	37	33	49	49
289:	31	34	29	48	31	76	234	169	169
297:	35	36	49	79	41	26	32	29	29
305:	33	32	33	25	37	34	33	24	24
313:	36	22	29	27	25	25	30	31	31
321:	29	36	37	36	24	27	25	61	61
329:	29	29	41	33	25	32	25	41	41
337:	28	117	83	24	24	29	22	31	31
345:	24	27	24	28	35	27	153	390	390
353:	128	24	25	18	29	20	15	29	29
361:	18	20	29	23	27	19	27	17	17

369: 19 24 25 21 28 20 17 27

Sample Title: CP0603S12-13

Channel	1	2	3	4	5	6	7	8
377:	21	25	22	29	28	22	34	21
385:	22	24	32	20	34	34	21	27
393:	18	19	19	15	20	15	21	30
401:	27	25	22	23	20	24	25	27
409:	39	53	27	23	24	20	18	25
417:	21	15	23	22	23	21	17	23
425:	23	16	24	19	24	32	17	23
433:	22	26	15	19	25	12	20	16
441:	18	16	17	27	20	18	14	21
449:	20	21	15	17	16	22	12	18
457:	16	15	13	23	14	32	52	32
465:	9	16	20	19	18	14	14	15
473:	14	25	18	22	13	16	14	20
481:	18	18	16	27	22	21	21	14
489:	15	23	18	19	19	19	28	15
497:	16	19	11	17	14	16	17	19
505:	12	17	14	9	29	73	92	56
513:	20	16	16	11	15	10	24	12
521:	13	18	22	13	16	14	17	28
529:	13	16	11	15	17	13	22	12
537:	18	19	21	17	13	13	11	10
545:	14	12	13	13	14	15	10	21
553:	18	12	11	14	20	13	15	19
561:	14	18	20	14	15	12	9	11
569:	16	13	12	15	7	15	13	13
577:	14	12	12	17	10	55	181	88
585:	11	20	17	5	14	9	20	11
593:	15	15	13	18	15	17	15	14
601:	11	14	12	21	11	11	20	49
609:	265	147	21	18	13	9	18	13
617:	15	10	14	7	20	17	11	10
625:	8	11	10	14	11	20	15	10
633:	11	10	4	14	15	14	12	15
641:	14	17	14	10	8	13	14	8
649:	17	13	16	16	13	19	10	13
657:	11	11	8	12	16	11	10	17
665:	20	11	11	17	14	15	10	8
673:	12	11	12	11	20	14	13	9
681:	14	13	18	10	13	17	11	16
689:	10	10	13	9	10	17	11	11
697:	17	17	12	14	13	10	10	13
705:	16	10	11	14	15	11	10	11
713:	13	7	12	10	10	13	17	11
721:	14	10	10	14	11	21	36	37
729:	11	5	7	11	7	12	12	12
737:	10	12	3	11	12	13	12	8
745:	13	9	17	13	5	13	8	19
753:	8	12	19	11	10	9	6	3
761:	10	11	15	19	10	14	13	34
769:	20	4	12	19	13	7	13	8
777:	10	8	12	12	11	13	8	9
785:	27	22	10	11	12	14	11	15
793:	12	16	32	13	8	12	11	8

801: 7 13 14 11 11 16 8 8

Sample Title: CP0603S12-13

Channel	1	2	3	4	5	6	7	8
809:	8	10	6	11	6	10	10	6
817:	7	10	5	12	9	13	5	12
825:	10	9	7	9	11	13	8	7
833:	7	6	14	13	7	12	13	14
841:	10	10	6	6	5	8	9	6
849:	6	9	5	12	7	8	6	11
857:	6	8	13	30	20	12	5	8
865:	11	11	5	8	8	6	8	7
873:	6	6	7	6	4	5	9	8
881:	10	7	6	9	5	8	6	4
889:	7	9	8	8	8	7	4	10
897:	7	11	1	5	10	5	5	23
905:	10	9	8	12	9	53	101	54
913:	12	7	9	9	4	12	6	5
921:	8	8	7	8	9	5	9	10
929:	7	7	5	7	6	15	6	7
937:	10	7	8	6	4	12	10	5
945:	7	9	11	14	9	11	4	7
953:	8	2	7	8	8	8	6	5
961:	9	7	9	19	21	14	13	46
969:	81	28	12	10	7	8	4	9
977:	2	9	5	9	4	9	8	10
985:	6	6	8	4	10	3	11	2
993:	9	7	5	7	9	8	5	11
1001:	5	6	7	9	8	10	6	6
1009:	8	8	8	3	9	7	8	12
1017:	7	8	9	7	4	6	4	6
1025:	7	6	4	6	8	7	8	8
1033:	7	6	11	11	4	5	6	4
1041:	9	6	13	3	8	12	10	5
1049:	4	9	7	8	4	8	7	7
1057:	8	15	4	8	4	9	5	10
1065:	13	8	6	6	6	12	10	3
1073:	4	5	6	5	6	8	6	12
1081:	3	6	6	4	7	2	5	9
1089:	7	7	10	7	2	9	7	8
1097:	5	7	11	8	10	8	5	10
1105:	11	10	8	5	6	4	11	6
1113:	9	5	8	10	9	6	33	53
1121:	36	10	7	7	8	6	4	11
1129:	7	9	7	12	4	5	12	5
1137:	6	7	8	7	11	11	8	7
1145:	5	9	4	9	6	6	10	4
1153:	9	12	14	12	8	7	7	8
1161:	6	7	12	5	6	10	11	8
1169:	7	7	4	9	12	9	7	13
1177:	6	8	9	14	9	3	7	14
1185:	9	5	13	6	5	11	11	12
1193:	11	10	8	10	8	9	7	8
1201:	11	9	6	14	10	8	12	10
1209:	12	8	5	8	12	13	7	12
1217:	7	7	5	7	12	9	6	10
1225:	6	5	13	9	14	3	8	11

1233: 8 15 4 5 14 18 15 13

Sample Title: CP0603S12-13

Channel	10	6	10	11	13	11	6	13
1241:	10	6	10	11	13	11	6	13
1249:	9	7	10	4	4	8	9	11
1257:	6	5	11	6	7	5	3	3
1265:	6	3	6	3	5	6	4	11
1273:	9	5	1	7	2	8	7	7
1281:	4	6	11	7	6	5	7	8
1289:	4	8	5	5	1	8	9	5
1297:	6	6	9	6	6	14	4	6
1305:	5	1	5	3	7	6	5	5
1313:	5	4	5	4	6	4	2	5
1321:	7	1	5	3	3	5	0	6
1329:	4	2	5	4	6	3	7	1
1337:	6	6	3	3	4	3	5	2
1345:	2	4	4	5	6	6	3	4
1353:	2	1	2	8	2	3	1	6
1361:	3	2	9	2	4	3	2	7
1369:	3	3	4	3	4	8	5	6
1377:	14	20	5	6	1	6	1	5
1385:	7	7	1	1	3	2	3	3
1393:	2	1	3	1	3	2	1	7
1401:	3	10	4	4	1	8	3	13
1409:	5	1	8	3	2	2	2	2
1417:	1	0	5	2	6	2	4	1
1425:	0	1	2	0	4	2	2	3
1433:	1	2	3	3	2	6	2	5
1441:	2	3	2	1	3	2	3	5
1449:	1	1	6	2	5	0	3	4
1457:	5	18	110	314	304	93	11	3
1465:	4	2	1	0	4	4	1	1
1473:	2	2	3	0	3	5	3	1
1481:	2	3	2	1	2	0	4	3
1489:	0	4	2	5	2	3	1	2
1497:	5	2	2	5	1	1	2	0
1505:	5	1	2	7	6	5	2	1
1513:	4	1	0	2	0	1	2	3
1521:	1	1	0	2	2	1	3	4
1529:	3	2	4	2	3	2	0	2
1537:	2	2	3	2	3	2	2	1
1545:	3	4	4	2	0	1	1	0
1553:	3	0	1	4	1	1	5	2
1561:	3	0	1	2	1	0	2	3
1569:	2	2	4	2	4	3	2	5
1577:	1	1	4	3	1	1	2	5
1585:	0	2	3	10	6	5	2	7
1593:	7	2	2	2	2	0	2	1
1601:	2	2	1	2	1	3	2	0
1609:	2	4	1	1	1	1	4	2
1617:	2	2	2	4	5	1	2	2
1625:	3	1	1	4	0	5	3	0
1633:	1	0	1	0	2	2	3	0
1641:	2	1	0	3	3	0	3	1
1649:	1	1	2	4	1	4	2	1
1657:	1	2	0	7	2	4	2	2

1665: 2 5 0 2 1 1 2 2

Sample Title: CP0603S12-13

Channel	1	2	3	4	5	6	7	8
1673:	2	2	1	0	2	2	3	2
1681:	0	4	2	4	2	0	2	2
1689:	2	0	1	0	1	1	3	2
1697:	3	0	0	0	2	0	1	1
1705:	2	0	2	1	2	2	1	2
1713:	0	1	0	0	1	0	1	2
1721:	0	0	0	1	1	1	2	7
1729:	7	11	2	1	0	0	0	1
1737:	0	2	1	3	0	1	2	1
1745:	0	0	1	1	2	1	1	1
1753:	0	1	1	1	2	1	1	2
1761:	0	7	25	24	20	10	3	2
1769:	0	1	2	1	3	0	0	2
1777:	2	1	1	3	0	3	1	3
1785:	1	1	2	0	3	1	1	0
1793:	2	1	0	2	1	0	1	0
1801:	1	2	0	0	2	2	0	1
1809:	1	1	2	2	1	0	0	1
1817:	3	1	3	4	0	2	2	2
1825:	3	1	2	0	1	3	2	4
1833:	5	0	0	2	2	1	1	2
1841:	1	1	1	0	2	2	4	5
1849:	2	1	1	4	2	2	1	1
1857:	1	2	2	1	1	0	0	1
1865:	1	1	1	1	5	0	0	0
1873:	3	1	1	1	0	2	0	0
1881:	0	3	1	4	1	0	1	0
1889:	1	1	0	0	2	2	0	1
1897:	2	0	1	2	1	1	0	3
1905:	0	2	0	3	0	0	1	2
1913:	2	2	1	1	0	0	1	0
1921:	1	2	0	2	0	0	2	1
1929:	1	1	2	0	1	1	1	1
1937:	2	3	0	0	1	2	3	4
1945:	3	1	3	1	2	1	0	3
1953:	1	1	0	3	1	0	2	0
1961:	1	3	1	0	0	2	3	2
1969:	1	2	2	2	0	0	0	0
1977:	2	1	2	2	2	0	2	0
1985:	0	1	1	2	2	1	0	2
1993:	1	2	1	0	0	2	0	0
2001:	2	3	1	1	1	2	1	1
2009:	0	1	0	2	1	2	2	1
2017:	2	1	0	2	2	1	0	0
2025:	1	1	2	3	0	1	0	0
2033:	1	1	1	2	0	0	2	1
2041:	1	0	2	1	0	1	0	1
2049:	0	0	2	1	1	2	0	1
2057:	4	0	0	0	1	3	1	0
2065:	1	1	2	2	2	0	2	1
2073:	1	0	1	2	2	1	0	0
2081:	0	1	0	0	3	1	0	2
2089:	1	1	1	2	1	1	1	0

2097: 2 1 2 1 5 6 7 2

Sample Title: CP0603S12-13

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

2529: 0 0 1 1 0 1 0 0

Sample Title: CP0603S12-13

Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	0	0	1	1	0	0	0
2545:	0	2	0	0	0	0	0	0	0
2553:	1	0	0	0	0	0	0	0	1
2561:	0	3	0	0	0	1	0	0	0
2569:	0	1	0	0	1	0	0	0	0
2577:	0	0	0	1	2	0	0	0	0
2585:	0	0	0	0	0	0	1	1	1
2593:	0	0	0	0	1	0	0	0	2
2601:	0	0	0	2	0	1	0	1	1
2609:	0	1	5	16	40	32	18	5	5
2617:	3	2	1	0	0	0	0	0	0
2625:	0	1	0	0	0	1	2	0	0
2633:	1	0	1	0	0	0	0	0	0
2641:	1	0	0	0	1	0	1	0	0
2649:	1	0	0	0	0	0	0	0	0
2657:	1	0	0	0	0	0	1	0	0
2665:	0	0	0	0	1	0	0	1	1
2673:	0	1	0	0	1	0	0	0	0
2681:	0	0	1	1	0	0	0	0	0
2689:	0	1	0	0	0	1	0	0	0
2697:	0	2	0	0	0	0	3	1	1
2705:	1	0	1	0	0	0	0	0	0
2713:	0	0	0	0	1	0	0	0	0
2721:	0	0	2	0	1	0	0	1	1
2729:	0	0	0	1	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0	0
2753:	1	0	1	0	0	0	0	0	0
2761:	2	0	0	0	0	0	0	1	1
2769:	0	1	0	0	1	1	0	0	0
2777:	1	1	1	0	0	0	0	0	0
2785:	0	0	0	0	0	1	1	0	0
2793:	0	0	0	1	0	0	1	0	0
2801:	0	0	0	0	0	0	3	0	0
2809:	0	1	0	0	0	1	0	0	0
2817:	0	1	0	0	0	0	0	1	1
2825:	0	0	0	1	1	0	0	0	0
2833:	1	1	0	0	0	0	0	0	0
2841:	0	0	2	0	0	0	1	0	0
2849:	0	1	0	0	0	0	0	1	1
2857:	1	0	0	0	1	0	1	0	0
2865:	0	0	1	1	0	2	0	0	0
2873:	0	1	0	0	0	1	0	1	1
2881:	0	0	0	0	1	0	0	0	0
2889:	1	0	0	2	0	1	0	0	0
2897:	0	1	0	0	0	0	0	1	1
2905:	0	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0	0
2921:	0	2	0	0	0	1	1	0	0
2929:	0	0	0	0	0	1	0	1	1
2937:	0	0	0	1	1	0	0	0	0
2945:	0	0	0	0	0	0	0	1	1
2953:	0	0	0	0	1	0	0	1	1

2961: 0 1 2 0 0 0 0 0

Sample Title: CP0603S12-13

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

3393: 0 0 0 0 1 1 0 0

Sample Title: CP0603S12-13

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

3825: 0 0 1 0 0 1 0 0

Sample Title: CP0603S12-13

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

*KB
11/10/15*

Analysis Report for 1510090-08
CP0603S14-15

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-08
Sample Description : CP0603S14-15
Sample Type : SOIL

Sample Size : 5.485E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:47:15AM
Acquisition Started : 11/10/2015 11:23:28AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3616.9 seconds

Dead Time : 0.47 %

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 : 29389

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*AG
11/11/15*

Analysis Report for 1510090-08
CP0603S14-15

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 12:23:46PM
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	67.25	67.47	0.0000	0.00
2	76.14	76.35	0.0000	0.00
3	129.26	129.45	0.0000	0.00
4	153.91	154.09	0.0000	0.00
5	186.18	186.33	0.0000	0.00
6	209.47	209.62	0.0000	0.00
7	238.85	238.98	0.0000	0.00
8	241.95	242.08	0.0000	0.00
9	261.80	261.92	0.0000	0.00
10	267.25	267.37	0.0000	0.00
11	270.92	271.04	0.0000	0.00
12	277.52	277.63	0.0000	0.00
13	295.61	295.71	0.0000	0.00
14	300.21	300.30	0.0000	0.00
15	328.66	328.74	0.0000	0.00
16	338.49	338.57	0.0000	0.00
17	352.18	352.25	0.0000	0.00
18	463.91	463.93	0.0000	0.00
19	492.82	492.82	0.0000	0.00
20	511.79	511.78	0.0000	0.00
21	583.47	583.42	0.0000	0.00
22	609.70	609.65	0.0000	0.00
23	646.50	646.43	0.0000	0.00
24	708.63	708.53	0.0000	0.00
25	727.67	727.56	0.0000	0.00
26	769.39	769.26	0.0000	0.00
27	795.20	795.06	0.0000	0.00
28	860.99	860.82	0.0000	0.00
29	911.38	911.18	0.0000	0.00
30	965.44	965.22	0.0000	0.00
31	969.00	968.78	0.0000	0.00
32	1065.27	1065.01	0.0000	0.00
33	1121.44	1121.15	0.0000	0.00
34	1377.21	1376.82	0.0000	0.00
35	1461.05	1460.62	0.0000	0.00
36	1633.78	1633.30	0.0000	0.00
37	1663.03	1662.54	0.0000	0.00
38	1677.94	1677.44	0.0000	0.00
39	1745.81	1745.29	0.0000	0.00
40	1765.19	1764.66	0.0000	0.00
41	1771.79	1771.25	0.0000	0.00
42	1871.33	1870.77	0.0000	0.00

Analysis Report for 1510090-08
CP0603S14-15

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1878.82	1878.25	0.0000	0.00
44	1925.64	1925.06	0.0000	0.00
45	2104.54	2103.90	0.0000	0.00
46	2173.99	2173.33	0.0000	0.00
47	2202.53	2201.86	0.0000	0.00
48	2258.97	2258.29	0.0000	0.00
49	2286.84	2286.14	0.0000	0.00
50	2457.45	2456.71	0.0000	0.00
51	2614.73	2613.95	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

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Analysis Report for 1510090-08

CP0603S14-15

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 12:23:46PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	1	67.25	61 -	70	67.47	1.22E+02	81.65	1.30E+03	1.79
	2	76.14	71 -	83	76.35	1.26E+03	182.85	3.35E+03	3.77
	3	129.26	126 -	132	129.45	1.03E+02	78.66	1.05E+03	2.56
	4	153.91	152 -	157	154.09	5.66E+01	63.37	7.61E+02	2.51
	5	186.18	181 -	190	186.33	2.87E+02	95.28	1.13E+03	2.08
	6	209.47	206 -	213	209.62	8.68E+01	71.22	7.86E+02	1.81
M	7	238.85	234 -	245	238.98	9.08E+02	73.19	4.01E+02	1.71
m	8	241.95	234 -	245	242.08	2.31E+02	82.00	5.17E+02	2.33
	9	261.80	259 -	265	261.92	4.60E+01	47.79	3.70E+02	2.43
M	10	267.25	266 -	282	267.37	3.93E+01	18.36	8.65E+01	2.11
m	11	270.92	266 -	282	271.04	1.04E+02	45.57	2.94E+02	2.12
m	12	277.52	266 -	282	277.63	5.55E+01	42.67	3.49E+02	2.09
M	13	295.61	290 -	303	295.71	2.80E+02	47.25	2.63E+02	1.62
m	14	300.21	290 -	303	300.30	5.40E+01	43.90	3.38E+02	2.15
	15	328.66	323 -	334	328.74	8.35E+01	68.61	5.49E+02	3.77
	16	338.49	335 -	342	338.57	1.31E+02	55.17	4.20E+02	1.90
	17	352.18	348 -	356	352.25	4.32E+02	68.01	4.47E+02	1.73
	18	463.91	461 -	467	463.93	5.61E+01	36.92	2.08E+02	1.89
	19	492.82	491 -	495	492.82	2.19E+01	24.32	1.08E+02	2.66
	20	511.79	507 -	517	511.78	1.19E+02	53.97	3.27E+02	2.04
	21	583.47	579 -	588	583.42	2.50E+02	49.41	2.08E+02	2.02
	22	609.70	604 -	616	609.65	3.42E+02	64.67	3.31E+02	2.01
	23	646.50	642 -	651	646.43	3.18E+01	34.86	1.56E+02	6.08
	24	708.63	705 -	713	708.53	2.45E+01	31.23	1.35E+02	8.54
	25	727.67	724 -	730	727.56	3.10E+01	29.90	1.40E+02	1.87
	26	769.39	764 -	773	769.26	3.08E+01	35.74	1.64E+02	3.55
M	27	795.20	792 -	807	795.06	4.13E+01	24.45	8.95E+01	2.32
	28	860.99	858 -	865	860.82	3.50E+01	27.78	1.08E+02	1.65
	29	911.38	906 -	914	911.18	1.65E+02	36.08	9.90E+01	2.03
M	30	965.44	962 -	977	965.22	3.33E+01	25.32	7.77E+01	2.42
m	31	969.00	962 -	977	968.78	9.31E+01	29.07	6.94E+01	2.42
	32	1065.27	1063 -	1068	1065.01	1.69E+01	18.73	5.62E+01	2.84
	33	1121.44	1115 -	1129	1121.15	8.51E+01	45.32	1.82E+02	3.07
	34	1377.21	1371 -	1382	1376.82	4.75E+01	19.49	2.29E+01	3.96
	35	1461.05	1454 -	1466	1460.62	5.80E+02	49.87	1.94E+01	2.31
	36	1633.78	1627 -	1640	1633.30	3.00E+01	10.95	0.00E+00	8.35
	37	1663.03	1657 -	1668	1662.54	1.84E+01	10.95	5.29E+00	6.39
	38	1677.94	1674 -	1680	1677.44	1.13E+01	8.02	3.31E+00	2.95
	39	1745.81	1742 -	1748	1745.29	7.00E+00	5.29	0.00E+00	1.92
	40	1765.19	1758 -	1768	1764.66	6.36E+01	19.56	1.88E+01	2.39

Analysis Report for 1510090-08

CP0603S14-15

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1771.79	1769 -	1774	1771.25	6.19E+00	6.40	3.63E+00	2.95
42	1871.33	1866 -	1874	1870.77	1.07E+01	8.50	4.54E+00	1.25
43	1878.82	1875 -	1881	1878.25	8.00E+00	5.66	0.00E+00	1.16
44	1925.64	1920 -	1927	1925.06	7.00E+00	8.72	8.00E+00	1.52
45	2104.54	2100 -	2107	2103.90	1.71E+01	9.59	3.79E+00	2.97
46	2173.99	2169 -	2178	2173.33	1.40E+01	9.43	4.06E+00	6.88
47	2202.53	2197 -	2206	2201.86	1.45E+01	9.64	5.00E+00	2.17
48	2258.97	2255 -	2261	2258.29	7.00E+00	5.29	0.00E+00	1.92
49	2286.84	2283 -	2288	2286.14	6.00E+00	7.35	6.00E+00	1.79
50	2457.45	2452 -	2461	2456.71	8.73E+00	8.31	4.55E+00	7.13
51	2614.73	2609 -	2617	2613.95	7.50E+01	17.32	0.00E+00	3.10

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 12:23:46PM

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
m	1	67.25	61 -	70	1.22E+02	81.65	1.30E+03	5.93E+01
	2	76.14	71 -	83	1.26E+03	182.85	3.35E+03	1.39E+02
	3	129.26	126 -	132	1.03E+02	78.66	1.05E+03	6.25E+01
	4	153.91	152 -	157	5.66E+01	63.37	7.61E+02	5.06E+01
	5	186.18	181 -	190	2.87E+02	95.28	1.13E+03	7.32E+01
	6	209.47	206 -	213	8.68E+01	71.22	7.86E+02	5.65E+01
M	7	238.85	234 -	245	9.08E+02	73.19	4.01E+02	3.29E+01
m	8	241.95	234 -	245	2.31E+02	82.00	5.17E+02	3.74E+01
	9	261.80	259 -	265	4.60E+01	47.79	3.70E+02	3.77E+01
M	10	267.25	266 -	282	3.93E+01	18.36	8.65E+01	1.53E+01
m	11	270.92	266 -	282	1.04E+02	45.57	2.94E+02	2.82E+01
m	12	277.52	266 -	282	5.55E+01	42.67	3.49E+02	3.07E+01
M	13	295.61	290 -	303	2.80E+02	47.25	2.63E+02	2.67E+01
m	14	300.21	290 -	303	5.40E+01	43.90	3.38E+02	3.02E+01
	15	328.66	323 -	334	8.35E+01	68.61	5.49E+02	5.44E+01
	16	338.49	335 -	342	1.31E+02	55.17	4.20E+02	4.13E+01
	17	352.18	348 -	356	4.32E+02	68.01	4.47E+02	4.42E+01

: 00524

Analysis Report for 1510090-08

CP0603S14-15

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
18	463.91	461 -	467	5.61E+01	36.92	2.08E+02	2.77E+01
19	492.82	491 -	495	2.19E+01	24.32	1.08E+02	1.85E+01
20	511.79	507 -	517	1.19E+02	53.97	3.27E+02	4.06E+01
21	583.47	579 -	588	2.50E+02	49.41	2.08E+02	3.12E+01
22	609.70	604 -	616	3.42E+02	64.67	3.31E+02	2.04E+01
23	646.50	642 -	651	3.18E+01	34.86	1.56E+02	2.71E+01
24	708.63	705 -	713	2.45E+01	31.23	1.35E+02	2.44E+01
25	727.67	724 -	730	3.10E+01	29.90	1.40E+02	2.28E+01
26	769.39	764 -	773	3.08E+01	35.74	1.64E+02	2.79E+01
M 27	795.20	792 -	807	4.13E+01	24.45	8.95E+01	1.56E+01
28	860.99	858 -	865	3.50E+01	27.78	1.08E+02	2.07E+01
29	911.38	906 -	914	1.65E+02	36.08	9.90E+01	2.09E+01
M 30	965.44	962 -	977	3.33E+01	25.32	7.77E+01	1.45E+01
m 31	969.00	962 -	977	9.31E+01	29.07	6.94E+01	1.37E+01
32	1065.27	1063 -	1068	1.69E+01	18.73	5.62E+01	1.38E+01
33	1121.44	1115 -	1129	8.51E+01	45.32	1.82E+02	3.40E+01
34	1377.21	1371 -	1382	4.75E+01	19.49	2.29E+01	1.13E+01
35	1461.05	1454 -	1466	5.80E+02	49.87	1.94E+01	1.06E+01
36	1633.78	1627 -	1640	3.00E+01	10.95	0.00E+00	0.00E+00
37	1663.03	1657 -	1668	1.84E+01	10.95	5.29E+00	5.61E+00
38	1677.94	1674 -	1680	1.13E+01	8.02	3.31E+00	3.57E+00
39	1745.81	1742 -	1748	7.00E+00	5.29	0.00E+00	0.00E+00
40	1765.19	1758 -	1768	6.36E+01	19.56	1.88E+01	9.31E+00
41	1771.79	1769 -	1774	6.19E+00	6.40	3.63E+00	3.31E+00
42	1871.33	1866 -	1874	1.07E+01	8.50	4.54E+00	4.45E+00
43	1878.82	1875 -	1881	8.00E+00	5.66	0.00E+00	0.00E+00
44	1925.64	1920 -	1927	7.00E+00	8.72	8.00E+00	5.70E+00
45	2104.54	2100 -	2107	1.71E+01	9.59	3.79E+00	3.99E+00
46	2173.99	2169 -	2178	1.40E+01	9.43	4.06E+00	4.73E+00
47	2202.53	2197 -	2206	1.45E+01	9.64	5.00E+00	4.86E+00
48	2258.97	2255 -	2261	7.00E+00	5.29	0.00E+00	0.00E+00
49	2286.84	2283 -	2288	6.00E+00	7.35	6.00E+00	4.50E+00
50	2457.45	2452 -	2461	8.73E+00	8.31	4.55E+00	4.80E+00
51	2614.73	2609 -	2617	7.50E+01	17.32	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 1510090-08

CP0603S14-15

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/10/2015 12:23:46PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

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

Peak Match Tolerance : 1.000 keV

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	1	67.25	61 -	70	67.47	1.22E+02	81.65	1.30E+03	TH-230 TA-182 TM-171 TI-44
	2	76.14	71 -	83	76.35	1.26E+03	182.85	3.35E+03	.....
	3	129.26	126 -	132	129.45	1.03E+02	78.66	1.05E+03	.....
	4	153.91	152 -	157	154.09	5.66E+01	63.37	7.61E+02	CS-136
	5	186.18	181 -	190	186.33	2.87E+02	95.28	1.13E+03	RA-226
	6	209.47	206 -	213	209.62	8.68E+01	71.22	7.86E+02	CM-243 GA-67
M	7	238.85	234 -	245	238.98	9.08E+02	73.19	4.01E+02	PB-212
m	8	241.95	234 -	245	242.08	2.31E+02	82.00	5.17E+02	RA-224
	9	261.80	259 -	265	261.92	4.60E+01	47.79	3.70E+02	BI-210M
M	10	267.25	266 -	282	267.37	3.93E+01	18.36	8.65E+01	CS-135
m	11	270.92	266 -	282	271.04	1.04E+02	45.57	2.94E+02	.....
m	12	277.52	266 -	282	277.63	5.55E+01	42.67	3.49E+02	CM-243 NP-239
M	13	295.61	290 -	303	295.71	2.80E+02	47.25	2.63E+02	PB-214
m	14	300.21	290 -	303	300.30	5.40E+01	43.90	3.38E+02	GA-67 PB-212 BI-210M
	15	328.66	323 -	334	328.74	8.35E+01	68.61	5.49E+02	LA-140
	16	338.49	335 -	342	338.57	1.31E+02	55.17	4.20E+02	AC-228
	17	352.18	348 -	356	352.25	4.32E+02	68.01	4.47E+02	PB-214
	18	463.91	461 -	467	463.93	5.61E+01	36.92	2.08E+02	SB-125
	19	492.82	491 -	495	492.82	2.19E+01	24.32	1.08E+02	.....
	20	511.79	507 -	517	511.78	1.19E+02	53.97	3.27E+02	.....
	21	583.47	579 -	588	583.42	2.50E+02	49.41	2.08E+02	TL-208
	22	609.70	604 -	616	609.65	3.42E+02	64.67	3.31E+02	BI-214
	23	646.50	642 -	651	646.43	3.18E+01	34.86	1.56E+02	SB-124
	24	708.63	705 -	713	708.53	2.45E+01	31.23	1.35E+02	.....
	25	727.67	724 -	730	727.56	3.10E+01	29.90	1.40E+02	BI-212
	26	769.39	764 -	773	769.26	3.08E+01	35.74	1.64E+02	.....
M	27	795.20	792 -	807	795.06	4.13E+01	24.45	8.95E+01	CS-134
	28	860.99	858 -	865	860.82	3.50E+01	27.78	1.08E+02	TL-208
	29	911.38	906 -	914	911.18	1.65E+02	36.08	9.90E+01	AC-228 LU-172
M	30	965.44	962 -	977	965.22	3.33E+01	25.32	7.77E+01	.....
m	31	969.00	962 -	977	968.78	9.31E+01	29.07	6.94E+01	AC-228
	32	1065.27	1063 -	1068	1065.01	1.69E+01	18.73	5.62E+01	.....
	33	1121.44	1115 -	1129	1121.15	8.51E+01	45.32	1.82E+02	TA-182

Analysis Report for 1510090-08

CP0603S14-15

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								SC-46
34	1377.21	1371 -	1382	1376.82	4.75E+01	19.49	2.29E+01	.....
35	1461.05	1454 -	1466	1460.62	5.80E+02	49.87	1.94E+01	K-40
36	1633.78	1627 -	1640	1633.30	3.00E+01	10.95	0.00E+00	.....
37	1663.03	1657 -	1668	1662.54	1.84E+01	10.95	5.29E+00	.....
38	1677.94	1674 -	1680	1677.44	1.13E+01	8.02	3.31E+00	I-135
39	1745.81	1742 -	1748	1745.29	7.00E+00	5.29	0.00E+00	.....
40	1765.19	1758 -	1768	1764.66	6.36E+01	19.56	1.88E+01	BI-214
41	1771.79	1769 -	1774	1771.25	6.19E+00	6.40	3.63E+00	CO-56
42	1871.33	1866 -	1874	1870.77	1.07E+01	8.50	4.54E+00	.....
43	1878.82	1875 -	1881	1878.25	8.00E+00	5.66	0.00E+00	.....
44	1925.64	1920 -	1927	1925.06	7.00E+00	8.72	8.00E+00	.....
45	2104.54	2100 -	2107	2103.90	1.71E+01	9.59	3.79E+00	.....
46	2173.99	2169 -	2178	2173.33	1.40E+01	9.43	4.06E+00	.....
47	2202.53	2197 -	2206	2201.86	1.45E+01	9.64	5.00E+00	.....
48	2258.97	2255 -	2261	2258.29	7.00E+00	5.29	0.00E+00	.....
49	2286.84	2283 -	2288	2286.14	6.00E+00	7.35	6.00E+00	.....
50	2457.45	2452 -	2461	2456.71	8.73E+00	8.31	4.55E+00	.....
51	2614.73	2609 -	2617	2613.95	7.50E+01	17.32	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 : 11/10/2015 12:23:46PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	1	67.25	1.22E+02	81.65	2.25E-02	1.84E-03
	2	76.14	1.26E+03	182.85	2.38E-02	2.13E-03
	3	129.26	1.03E+02	78.66	2.25E-02	1.70E-03
	4	153.91	5.66E+01	63.37	2.06E-02	1.57E-03
	5	186.18	2.87E+02	95.28	1.83E-02	1.42E-03
	6	209.47	8.68E+01	71.22	1.68E-02	1.31E-03
M	7	238.85	9.08E+02	73.19	1.52E-02	1.18E-03
m	8	241.95	2.31E+02	82.00	1.51E-02	1.17E-03
	9	261.80	4.60E+01	47.79	1.41E-02	1.08E-03
M	10	267.25	3.93E+01	18.36	1.39E-02	1.05E-03
m	11	270.92	1.04E+02	45.57	1.38E-02	1.03E-03

Analysis Report for 1510090-08
CP0603S14-15

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	12	277.52	5.55E+01	42.67	1.35E-02	1.00E-03
M	13	295.61	2.80E+02	47.25	1.28E-02	9.73E-04
m	14	300.21	5.40E+01	43.90	1.26E-02	9.67E-04
	15	328.66	8.35E+01	68.61	1.17E-02	9.27E-04
	16	338.49	1.31E+02	55.17	1.14E-02	9.13E-04
	17	352.18	4.32E+02	68.01	1.11E-02	8.93E-04
	18	463.91	5.61E+01	36.92	8.72E-03	7.65E-04
	19	492.82	2.19E+01	24.32	8.27E-03	7.36E-04
	20	511.79	1.19E+02	53.97	8.00E-03	7.17E-04
	21	583.47	2.50E+02	49.41	7.14E-03	6.46E-04
	22	609.70	3.42E+02	64.67	6.87E-03	6.20E-04
	23	646.50	3.18E+01	34.86	6.53E-03	5.83E-04
	24	708.63	2.45E+01	31.23	6.03E-03	5.29E-04
	25	727.67	3.10E+01	29.90	5.89E-03	5.14E-04
	26	769.39	3.08E+01	35.74	5.61E-03	4.80E-04
M	27	795.20	4.13E+01	24.45	5.45E-03	4.59E-04
	28	860.99	3.50E+01	27.78	5.09E-03	4.05E-04
	29	911.38	1.65E+02	36.08	4.85E-03	3.72E-04
M	30	965.44	3.33E+01	25.32	4.62E-03	3.62E-04
m	31	969.00	9.31E+01	29.07	4.60E-03	3.61E-04
	32	1065.27	1.69E+01	18.73	4.25E-03	3.44E-04
	33	1121.44	8.51E+01	45.32	4.07E-03	3.33E-04
	34	1377.21	4.75E+01	19.49	3.45E-03	2.82E-04
	35	1461.05	5.80E+02	49.87	3.29E-03	2.69E-04
	36	1633.78	3.00E+01	10.95	3.02E-03	2.43E-04
	37	1663.03	1.84E+01	10.95	2.98E-03	2.39E-04
	38	1677.94	1.13E+01	8.02	2.96E-03	2.37E-04
	39	1745.81	7.00E+00	5.29	2.88E-03	2.27E-04
	40	1765.19	6.36E+01	19.56	2.86E-03	2.24E-04
	41	1771.79	6.19E+00	6.40	2.85E-03	2.23E-04
	42	1871.33	1.07E+01	8.50	2.74E-03	2.13E-04
	43	1878.82	8.00E+00	5.66	2.73E-03	2.13E-04
	44	1925.64	7.00E+00	8.72	2.69E-03	2.13E-04
	45	2104.54	1.71E+01	9.59	2.54E-03	2.13E-04
	46	2173.99	1.40E+01	9.43	2.48E-03	2.13E-04
	47	2202.53	1.45E+01	9.64	2.46E-03	2.13E-04
	48	2258.97	7.00E+00	5.29	2.43E-03	2.13E-04
	49	2286.84	6.00E+00	7.35	2.41E-03	2.13E-04
	50	2457.45	8.73E+00	8.31	2.31E-03	2.13E-04
	51	2614.73	7.50E+01	17.32	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 1510090-08

CP0603S14-15

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/10/2015 12:23:46PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	1	67.25	1.22E+02	81.65	8.95E+00	4.87E+00	1.13E+02	8.18E+01
	2	76.14	1.26E+03	182.85			1.26E+03	1.83E+02
	3	129.26	1.03E+02	78.66			1.03E+02	7.87E+01
	4	153.91	5.66E+01	63.37			5.66E+01	6.34E+01
	5	186.18	2.87E+02	95.28	3.93E+01	6.56E+00	2.47E+02	9.55E+01
	6	209.47	8.68E+01	71.22			8.68E+01	7.12E+01
M	7	238.85	9.08E+02	73.19	1.34E+01	2.14E+00	8.95E+02	7.32E+01
m	8	241.95	2.31E+02	82.00	2.69E+00	1.46E+00	2.28E+02	8.20E+01
	9	261.80	4.60E+01	47.79			4.60E+01	4.78E+01
M	10	267.25	3.93E+01	18.36			3.93E+01	1.84E+01
m	11	270.92	1.04E+02	45.57			1.04E+02	4.56E+01
m	12	277.52	5.55E+01	42.67			5.55E+01	4.27E+01
M	13	295.61	2.80E+02	47.25			2.80E+02	4.73E+01
m	14	300.21	5.40E+01	43.90			5.40E+01	4.39E+01
	15	328.66	8.35E+01	68.61			8.35E+01	6.86E+01
	16	338.49	1.31E+02	55.17			1.31E+02	5.52E+01
	17	352.18	4.32E+02	68.01	3.99E+00	4.73E+00	4.28E+02	6.82E+01
	18	463.91	5.61E+01	36.92			5.61E+01	3.69E+01
	19	492.82	2.19E+01	24.32			2.19E+01	2.43E+01
	20	511.79	1.19E+02	53.97	5.78E+01	4.60E+00	6.08E+01	5.42E+01
	21	583.47	2.50E+02	49.41	5.96E+00	3.46E+00	2.44E+02	4.95E+01
	22	609.70	3.42E+02	64.67	6.71E+00	3.44E+00	3.35E+02	6.48E+01
	23	646.50	3.18E+01	34.86			3.18E+01	3.49E+01
	24	708.63	2.45E+01	31.23			2.45E+01	3.12E+01
	25	727.67	3.10E+01	29.90			3.10E+01	2.99E+01
	26	769.39	3.08E+01	35.74			3.08E+01	3.57E+01
M	27	795.20	4.13E+01	24.45			4.13E+01	2.45E+01
	28	860.99	3.50E+01	27.78			3.50E+01	2.78E+01
	29	911.38	1.65E+02	36.08	2.32E+00	2.73E+00	1.62E+02	3.62E+01
M	30	965.44	3.33E+01	25.32			3.33E+01	2.53E+01
m	31	969.00	9.31E+01	29.07			9.31E+01	2.91E+01
	32	1065.27	1.69E+01	18.73			1.69E+01	1.87E+01
	33	1121.44	8.51E+01	45.32			8.51E+01	4.53E+01
	34	1377.21	4.75E+01	19.49			4.75E+01	1.95E+01
	35	1461.05	5.80E+02	49.87	2.36E+00	1.83E+00	5.78E+02	4.99E+01
	36	1633.78	3.00E+01	10.95			3.00E+01	1.10E+01
	37	1663.03	1.84E+01	10.95			1.84E+01	1.10E+01
	38	1677.94	1.13E+01	8.02			1.13E+01	8.02E+00
	39	1745.81	7.00E+00	5.29			7.00E+00	5.29E+00
	40	1765.19	6.36E+01	19.56	1.45E+00	1.16E+00	6.22E+01	1.96E+01
	41	1771.79	6.19E+00	6.40			6.19E+00	6.40E+00
	42	1871.33	1.07E+01	8.50			1.07E+01	8.50E+00
	43	1878.82	8.00E+00	5.66			8.00E+00	5.66E+00
	44	1925.64	7.00E+00	8.72			7.00E+00	8.72E+00

Analysis Report for 1510090-08

CP0603S14-15

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	2104.54	1.71E+01	9.59			1.71E+01	9.59E+00
46	2173.99	1.40E+01	9.43			1.40E+01	9.43E+00
47	2202.53	1.45E+01	9.64			1.45E+01	9.64E+00
48	2258.97	7.00E+00	5.29			7.00E+00	5.29E+00
49	2286.84	6.00E+00	7.35			6.00E+00	7.35E+00
50	2457.45	8.73E+00	8.31			8.73E+00	8.31E+00
51	2614.73	7.50E+01	17.32			7.50E+01	1.73E+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 : 11/10/2015 12:23:46PM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	1	67.25	1.22E+02	81.65	8.95E+00	4.87E+00	1.13E+02	8.18E+01
	2	76.14	1.26E+03	182.85			1.26E+03	1.83E+02
	3	129.26	1.03E+02	78.66			1.03E+02	7.87E+01
	4	153.91	5.66E+01	63.37			5.66E+01	6.34E+01
	5	186.18	2.87E+02	95.28	3.93E+01	6.56E+00	2.47E+02	9.55E+01
	6	209.47	8.68E+01	71.22			8.68E+01	7.12E+01
M	7	238.85	9.08E+02	73.19	1.34E+01	2.14E+00	8.95E+02	7.32E+01
m	8	241.95	2.31E+02	82.00	2.69E+00	1.46E+00	2.28E+02	8.20E+01
	9	261.80	4.60E+01	47.79			4.60E+01	4.78E+01
M	10	267.25	3.93E+01	18.36			3.93E+01	1.84E+01
m	11	270.92	1.04E+02	45.57			1.04E+02	4.56E+01
m	12	277.52	5.55E+01	42.67			5.55E+01	4.27E+01
M	13	295.61	2.80E+02	47.25			2.80E+02	4.73E+01
m	14	300.21	5.40E+01	43.90			5.40E+01	4.39E+01
	15	328.66	8.35E+01	68.61			8.35E+01	6.86E+01
	16	338.49	1.31E+02	55.17			1.31E+02	5.52E+01
	17	352.18	4.32E+02	68.01	3.99E+00	4.73E+00	4.28E+02	6.82E+01
	18	463.91	5.61E+01	36.92			5.61E+01	3.69E+01
	19	492.82	2.19E+01	24.32			2.19E+01	2.43E+01
	20	511.79	1.19E+02	53.97	5.78E+01	4.60E+00	6.08E+01	5.42E+01
	21	583.47	2.50E+02	49.41	5.96E+00	3.46E+00	2.44E+02	4.95E+01

Analysis Report for 1510090-08

CP0603S14-15

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
22	609.70	3.42E+02	64.67	6.71E+00	3.44E+00	3.35E+02	6.48E+01
23	646.50	3.18E+01	34.86			3.18E+01	3.49E+01
24	708.63	2.45E+01	31.23			2.45E+01	3.12E+01
25	727.67	3.10E+01	29.90			3.10E+01	2.99E+01
26	769.39	3.08E+01	35.74			3.08E+01	3.57E+01
M 27	795.20	4.13E+01	24.45			4.13E+01	2.45E+01
28	860.99	3.50E+01	27.78			3.50E+01	2.78E+01
29	911.38	1.65E+02	36.08	2.32E+00	2.73E+00	1.62E+02	3.62E+01
M 30	965.44	3.33E+01	25.32			3.33E+01	2.53E+01
m 31	969.00	9.31E+01	29.07			9.31E+01	2.91E+01
32	1065.27	1.69E+01	18.73			1.69E+01	1.87E+01
33	1121.44	8.51E+01	45.32			8.51E+01	4.53E+01
34	1377.21	4.75E+01	19.49			4.75E+01	1.95E+01
35	1461.05	5.80E+02	49.87	2.36E+00	1.83E+00	5.78E+02	4.99E+01
36	1633.78	3.00E+01	10.95			3.00E+01	1.10E+01
37	1663.03	1.84E+01	10.95			1.84E+01	1.10E+01
38	1677.94	1.13E+01	8.02			1.13E+01	8.02E+00
39	1745.81	7.00E+00	5.29			7.00E+00	5.29E+00
40	1765.19	6.36E+01	19.56	1.45E+00	1.16E+00	6.22E+01	1.96E+01
41	1771.79	6.19E+00	6.40			6.19E+00	6.40E+00
42	1871.33	1.07E+01	8.50			1.07E+01	8.50E+00
43	1878.82	8.00E+00	5.66			8.00E+00	5.66E+00
44	1925.64	7.00E+00	8.72			7.00E+00	8.72E+00
45	2104.54	1.71E+01	9.59			1.71E+01	9.59E+00
46	2173.99	1.40E+01	9.43			1.40E+01	9.43E+00
47	2202.53	1.45E+01	9.64			1.45E+01	9.64E+00
48	2258.97	7.00E+00	5.29			7.00E+00	5.29E+00
49	2286.84	6.00E+00	7.35			6.00E+00	7.35E+00
50	2457.45	8.73E+00	8.31			8.73E+00	8.31E+00
51	2614.73	7.50E+01	17.32			7.50E+01	1.73E+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	0.991	1460.81 *	10.67	2.25E+01	2.72E+00

Analysis Report for 1510090-08
CP0603S14-15

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CS-135	0.856	268.24 *	16.00	2.42E-01	1.14E-01
TA-182	0.528	67.75 *	41.20	2.03E-01	1.48E-01
		1121.30 *	34.90	9.95E-01	5.36E-01
		1189.05	16.23		
		1221.41	26.98		
		1231.02	11.44		
TL-208	0.988	583.14 *	30.22	1.55E+00	3.44E-01
		860.37 *	4.48	2.10E+00	1.68E+00
		2614.66 *	35.85	1.28E+00	3.19E-01
BI-210M	0.994	262.00 *	45.00	9.89E-02	1.03E-01
		300.00 *	23.00	2.54E-01	2.07E-01
BI-212	0.738	727.17 *	11.80	6.11E-01	5.91E-01
		1620.62	2.75		
PB-212	0.993	238.63 *	44.60	1.81E+00	2.04E-01
		300.09 *	3.41	1.72E+00	1.40E+00
BI-214	0.643	609.31 *	46.30	1.44E+00	3.08E-01
		1120.29	15.10		
		1764.49 *	15.80	1.88E+00	6.12E-01
		2204.22	4.98		
PB-214	0.984	295.21 *	19.19	1.56E+00	2.89E-01
		351.92 *	37.19	1.42E+00	2.54E-01
RA-224	0.860	240.98 *	3.95	5.25E+00	1.93E+00
RA-226	1.000	186.21 *	3.28	5.65E+00	1.06E+01
AC-228	0.991	338.32 *	11.40	1.38E+00	5.90E-01
		911.07 *	27.70	1.65E+00	3.90E-01
		969.11 *	16.60	1.67E+00	5.37E-01
CM-243	0.369	209.75 *	3.29	2.15E+00	1.77E+00
		228.14	10.60		
		277.60 *	14.00	4.03E-01	3.11E-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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:23:46PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
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Analysis Report for 1510090-08

CP0603S14-15

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.14	3.48656E-01	7.28		
3	129.26	2.85076E-02	38.32		
4	153.91	1.57304E-02	55.95	Tol.	CS-136
m 11	270.92	2.87665E-02	22.00		
15	328.66	2.31863E-02	41.10	Sum	
18	463.91	1.55764E-02	32.92	Sum	
19	492.82	6.08918E-03	55.47		
20	511.79	1.68814E-02	44.56		
23	646.50	8.83838E-03	54.78	Tol.	SB-124
24	708.63	6.80556E-03	63.74		
26	769.39	8.54228E-03	58.10	Sum	
M 27	795.20	1.14787E-02	29.59	Sum	
M 30	965.44	9.25273E-03	38.00		
32	1065.27	4.69445E-03	55.43	Sum	
34	1377.21	1.32062E-02	20.50		
36	1633.78	8.33333E-03	18.26		
37	1663.03	5.09921E-03	29.84		
38	1677.94	3.15171E-03	35.32	Tol.	I-135
39	1745.81	1.94444E-03	37.80		
41	1771.79	1.71875E-03	51.74	Sum	
42	1871.33	2.98077E-03	39.61		
43	1878.82	2.22222E-03	35.36		
44	1925.64	1.94444E-03	62.27		
45	2104.54	4.75146E-03	28.04	S-Esc	
46	2173.99	3.88021E-03	33.77		
47	2202.53	4.02778E-03	33.25		
48	2258.97	1.94444E-03	37.80		
49	2286.84	1.66667E-03	61.24		
50	2457.45	2.42424E-03	47.59		

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 1510090-08

CP0603S14-15

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81 *	10.67	2.25E+01	2.72E+00
CS-135	0.85	268.24 *	16.00	2.42E-01	1.14E-01
TA-182	0.52	67.75 *	41.20	2.03E-01	1.48E-01
		1121.30 *	34.90	9.95E-01	5.36E-01
		1189.05	16.23		
		1221.41	26.98		
		1231.02	11.44		
TL-208	0.98	583.14 *	30.22	1.55E+00	3.44E-01
		860.37 *	4.48	2.10E+00	1.68E+00
		2614.66 *	35.85	1.28E+00	3.19E-01
BI-210M	0.99	262.00 *	45.00	9.89E-02	1.03E-01
		300.00 *	23.00	2.54E-01	2.07E-01
BI-212	0.73	727.17 *	11.80	6.11E-01	5.91E-01
		1620.62	2.75		
PB-212	0.99	238.63 *	44.60	1.81E+00	2.04E-01
		300.09 *	3.41	1.72E+00	1.40E+00
BI-214	0.64	609.31 *	46.30	1.44E+00	3.08E-01
		1120.29	15.10		
		1764.49 *	15.80	1.88E+00	6.12E-01
		2204.22	4.98		
PB-214	0.98	295.21 *	19.19	1.56E+00	2.89E-01
		351.92 *	37.19	1.42E+00	2.54E-01
RA-224	0.86	240.98 *	3.95	5.25E+00	1.93E+00
RA-226	1.00	186.21 *	3.28	5.65E+00	1.06E+01
AC-228	0.99	338.32 *	11.40	1.38E+00	5.90E-01
		911.07 *	27.70	1.65E+00	3.90E-01
		969.11 *	16.60	1.67E+00	5.37E-01
CM-243	0.36	209.75 *	3.29	2.15E+00	1.77E+00
		228.14	10.60		
		277.60 *	14.00	4.03E-01	3.11E-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

Analysis Report for 1510090-08
CP0603S14-15

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.991	2.25E+01	2.72E+00	
	CS-135	0.856	2.42E-01	1.14E-01	
X	TM-171	0.956			
	TA-182	0.528	2.59E-01	1.43E-01	
	TL-208	0.988	1.42E+00	2.32E-01	
	BI-210M	0.994	7.71E-02	9.25E-02	
	BI-212	0.738	6.11E-01	5.91E-01	
	PB-212	0.993	1.79E+00	2.02E-01	
	BI-214	0.643	1.53E+00	2.75E-01	
	PB-214	0.984	1.48E+00	1.91E-01	
	RA-224	0.860	5.25E+00	1.93E+00	
	RA-226	1.000	5.65E+00	1.06E+01	
	AC-228	0.991	1.59E+00	2.78E-01	
	CM-243	0.369	4.56E-01	3.07E-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 1510090-08
CP0603S14-15

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:23:46PM
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	76.14	3.48656E-01	7.28		
3	129.26	2.85076E-02	38.32		
4	153.91	1.57304E-02	55.95	Tol.	CS-136
m 11	270.92	2.87665E-02	22.00		
15	328.66	2.31863E-02	41.10	Sum	
18	463.91	1.55764E-02	32.92	Sum	
19	492.82	6.08918E-03	55.47		
20	511.79	1.68814E-02	44.56		
23	646.50	8.83838E-03	54.78	Tol.	SB-124
24	708.63	6.80556E-03	63.74		
26	769.39	8.54228E-03	58.10	Sum	
M 27	795.20	1.14787E-02	29.59	Sum	
M 30	965.44	9.25273E-03	38.00		
32	1065.27	4.69445E-03	55.43	Sum	
34	1377.21	1.32062E-02	20.50		
36	1633.78	8.33333E-03	18.26		
37	1663.03	5.09921E-03	29.84		
38	1677.94	3.15171E-03	35.32	Tol.	I-135
39	1745.81	1.94444E-03	37.80		
41	1771.79	1.71875E-03	51.74	Sum	
42	1871.33	2.98077E-03	39.61		
43	1878.82	2.22222E-03	35.36		
44	1925.64	1.94444E-03	62.27		
45	2104.54	4.75146E-03	28.04	S-Esc	
46	2173.99	3.88021E-03	33.77		
47	2202.53	4.02778E-03	33.25		
48	2258.97	1.94444E-03	37.80		
49	2286.84	1.66667E-03	61.24		
50	2457.45	2.42424E-03	47.59		

Analysis Report for 1510090-08
CP0603S14-15

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-4.65E-01	1.12E+00	1.12E+00
+	NA-22	1274.54	99.94	3.06E-02	1.37E-01	1.37E-01
+	NA-24	1368.53	99.99	-1.17E+14	1.93E+14	2.47E+14
		2754.09	99.86	1.99E+13		1.93E+14
+	AL-26	1808.65	99.76	7.29E-02	1.04E-01	1.04E-01
+	K-40	1460.81	* 10.67	2.25E+01	9.61E-01	9.61E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-9.81E-04	8.46E-02	8.46E-02
		78.34	96.00	2.93E-01		1.04E-01
+	SC-46	889.25	99.98	-1.40E-02	1.26E-01	1.26E-01
		1120.51	99.99	2.65E-01		2.28E-01
+	V-48	983.52	99.98	1.80E-01	4.19E-01	4.19E-01
		1312.10	97.50	3.27E-01		5.40E-01
+	CR-51	320.08	9.83	-1.59E-01	1.59E+00	1.59E+00
+	MN-54	834.83	99.97	-2.68E-02	1.15E-01	1.15E-01
+	CO-56	846.75	99.96	-1.83E-03	1.25E-01	1.25E-01
		1037.75	14.03	-6.79E-01		1.08E+00
		1238.25	67.00	7.80E-02		3.06E-01
		1771.40	15.51	-3.07E+00		7.15E-01
		2598.48	16.90	2.66E-02		5.15E-01
+	CO-57	122.06	85.51	1.13E-03	6.99E-02	6.99E-02
		136.48	10.60	-9.43E-02		5.89E-01
+	CO-58	810.76	99.40	-3.91E-03	1.39E-01	1.39E-01
+	FE-59	1099.22	56.50	-4.07E-02	2.99E-01	2.99E-01
		1291.56	43.20	2.00E-01		5.02E-01
+	CO-60	1173.22	100.00	2.85E-02	1.21E-01	1.37E-01
		1332.49	100.00	-3.13E-02		1.21E-01
+	ZN-65	1115.52	50.75	-1.56E-02	2.52E-01	2.52E-01
+	GA-67	93.31	35.70	2.06E+02	1.88E+02	1.88E+02
		208.95	2.24	2.52E+03		3.31E+03
		300.22	16.00	-1.95E+03		4.91E+02
+	SE-75	121.11	16.70	1.33E-01	1.14E-01	4.05E-01

Analysis Report for 1510090-08

CP0603S14-15

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	SE-75	136.00	59.20	-5.86E-02	1.14E-01	1.14E-01
		264.65	59.80	-1.69E-01		1.39E-01
		279.53	25.20	9.75E-02		3.68E-01
		400.65	11.40	1.64E-01		9.02E-01
+	RB-82	776.52	13.00	-9.03E-02	1.74E+00	1.74E+00
+	RB-83	520.41	46.00	-1.40E-01	2.54E-01	2.54E-01
		529.64	30.30	-8.23E-02		3.56E-01
		552.65	16.40	-1.61E-01		6.94E-01
+	KR-85	513.99	0.43	2.88E+01	2.74E+01	2.74E+01
+	SR-85	513.99	99.27	1.76E-01	1.68E-01	1.68E-01
+	Y-88	898.02	93.40	1.49E-02	1.19E-01	1.34E-01
		1836.01	99.38	2.91E-02		1.19E-01
+	NB-93M	16.57	9.43	3.61E+01	9.25E+01	9.25E+01
+	NB-94	702.63	100.00	2.42E-02	8.92E-02	9.94E-02
		871.10	100.00	-1.90E-02		8.92E-02
+	NB-95	765.79	99.81	-4.74E-02	2.00E-01	2.00E-01
+	NB-95M	235.69	25.00	7.36E+02	2.55E+02	2.55E+02
+	ZR-95	724.18	43.70	2.42E-02	2.56E-01	3.51E-01
		756.72	55.30	-5.90E-02		2.56E-01
+	MO-99	181.06	6.20	7.85E+01	2.57E+03	3.32E+03
		739.58	12.80	8.48E+02		2.57E+03
		778.00	4.50	1.69E+03		6.99E+03
+	RU-103	497.08	89.00	-4.47E-02	1.47E-01	1.47E-01
+	RU-106	621.84	9.80	1.06E-01	9.91E-01	9.91E-01
+	AG-108M	433.93	89.90	-6.55E-02	8.27E-02	8.27E-02
		614.37	90.40	-6.99E-01		1.20E-01
		722.95	90.50	1.17E-02		1.11E-01
+	CD-109	88.03	3.72	2.02E+00	2.23E+00	2.23E+00
+	AG-110M	657.75	93.14	-1.81E-02	1.13E-01	1.13E-01
		677.61	10.53	7.09E-02		8.72E-01
		706.67	16.46	-2.27E-01		6.22E-01
		763.93	21.98	4.11E-02		4.71E-01
		884.67	71.63	-2.05E-02		1.38E-01
		1384.27	23.94	4.27E-02		4.28E-01
+	CD-113M	263.70	0.02	3.32E+00	3.07E+02	3.07E+02
+	SN-113	255.12	1.93	3.49E-01	1.43E-01	4.59E+00
		391.69	64.90	-5.39E-02		1.43E-01
+	TE123M	159.00	84.10	2.10E-02	8.48E-02	8.48E-02
+	SB-124	602.71	97.87	-3.28E-03	1.29E-01	1.29E-01
		645.85	7.26	1.26E+00		1.93E+00
		722.78	11.10	1.37E-01		1.31E+00
		1691.02	49.00	8.80E-02		2.92E-01
+	I-125	35.49	6.49	-1.46E-01	3.79E+00	3.79E+00
+	SB-125	176.33	6.89	-4.31E-01	2.64E-01	8.79E-01
		427.89	29.33	-1.13E-01		2.64E-01
		463.38	10.35	7.32E-01		9.51E-01
		600.56	17.80	-3.12E-02		5.15E-01
		635.90	11.32	7.49E-02		7.72E-01

Analysis Report for 1510090-08
CP0603S14-15

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-126	414.70	83.30	-1.60E-01	5.59E-01	5.96E-01
		666.33	99.60	-4.16E-02		5.59E-01
		695.00	99.60	3.62E-02		5.72E-01
		720.50	53.80	3.37E-01		1.14E+00
+	SN-126	87.57	37.00	1.94E-01	2.14E-01	2.14E-01
+	SB-127	473.00	25.00	1.31E+01	8.36E+01	1.03E+02
		685.20	35.70	-4.44E+01		8.36E+01
		783.80	14.70	3.72E+01		2.27E+02
+	I-129	29.78	57.00	9.50E-02	5.25E-01	5.25E-01
		33.60	13.20	2.56E-01		1.52E+00
		39.58	7.52	9.27E-03		1.68E+00
+	I-131	284.30	6.05	4.14E+00	1.47E+00	1.89E+01
		364.48	81.20	-3.12E-01		1.47E+00
		636.97	7.26	9.84E+00		1.94E+01
		722.89	1.80	9.32E+00		8.89E+01
+	TE-132	49.72	13.10	-9.25E+02	8.17E+01	6.39E+02
		228.16	88.00	3.18E+01		8.17E+01
+	BA-133	81.00	33.00	-1.36E+00	1.77E-01	2.07E-01
		302.84	17.80	7.09E-02		4.82E-01
		356.01	60.00	-1.43E-03		1.77E-01
+	I-133	529.87	86.30	-3.12E+09	1.35E+10	1.35E+10
+	XE-133	81.00	38.00	-8.14E+01	1.24E+01	1.24E+01
+	CS-134	563.23	8.38	7.78E-03	1.07E-01	1.11E+00
		569.32	15.43	6.44E-02		5.78E-01
		604.70	97.60	1.38E-02		1.07E-01
		795.84	85.40	8.32E-02		1.28E-01
		801.93	8.73	-4.97E-01		1.01E+00
+	CS-135	268.24	* 16.00	2.42E-01	9.08E-01	9.08E-01
+	@ 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	1.02E+00	5.25E-01	4.41E+00
		163.89	4.61	-9.19E-01		7.15E+00
		176.55	13.56	2.88E-01		2.44E+00
		273.65	12.66	-1.53E-01		3.57E+00
		340.57	48.50	3.17E-02		1.13E+00
		818.50	99.70	-2.95E-02		5.25E-01
		1048.07	79.60	-1.71E-01		7.41E-01
		1235.34	19.70	3.63E-01		4.22E+00
+	CS-137	661.65	85.12	2.25E-02	1.18E-01	1.18E-01
+	LA-138	788.74	34.00	9.91E-02	1.46E-01	3.05E-01
		1435.80	66.00	-5.61E-02		1.46E-01
+	CE-139	165.85	80.35	5.58E-02	9.20E-02	9.20E-02
+	BA-140	162.64	6.70	7.62E-01	1.89E+00	5.19E+00
		304.84	4.50	7.63E-01		9.92E+00
		423.70	3.20	2.80E+00		1.42E+01
		437.55	2.00	5.65E+00		2.29E+01
		537.32	25.00	-8.13E-02		1.89E+00
+	LA-140	328.77	20.50	1.56E+00	6.64E-01	2.40E+00

Analysis Report for 1510090-08

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
LA-140	487.03	45.50	5.71E-02	6.64E-01	1.09E+00	
	815.85	23.50	1.22E+00		2.52E+00	
	1596.49	95.49	-3.46E-02		6.64E-01	
+ CE-141	145.44	48.40	6.30E-03	2.50E-01	2.50E-01	
+ CE-143	57.36	11.80	1.30E+06	2.65E+06	7.27E+06	
	293.26	42.00	5.78E+06		2.65E+06	
	664.55	5.20	5.87E+06		2.03E+07	
+ CE-144	133.54	10.80	-1.09E-02	5.67E-01	5.67E-01	
+ PM-144	476.78	42.00	1.29E-02	9.69E-02	2.00E-01	
	618.01	98.60	-6.52E-03		9.69E-02	
	696.49	99.49	2.03E-03		1.01E-01	
+ PM-145	36.85	21.70	7.47E-02	3.75E-01	7.07E-01	
	37.36	39.70	1.80E-01		3.75E-01	
	42.30	15.10	-4.03E-01		7.39E-01	
	72.40	2.31	-6.73E+00		3.88E+00	
+ PM-146	453.90	39.94	2.35E-02	2.12E-01	2.12E-01	
	735.90	14.01	1.88E-01		7.37E-01	
	747.13	13.10	-2.39E-01		7.00E-01	
+ ND-147	91.11	28.90	-1.61E+00	2.00E+00	2.00E+00	
	531.02	13.10	2.52E-01		4.86E+00	
+ PM-149	285.90	3.10	3.58E+03	5.38E+04	5.38E+04	
+ EU-152	121.78	20.50	4.36E-03	2.70E-01	2.70E-01	
	244.69	5.40	-3.62E-02		1.70E+00	
	344.27	19.13	4.19E-02		4.20E-01	
	778.89	9.20	-3.79E-01		1.03E+00	
	964.01	10.40	-2.63E+00		1.23E+00	
	1085.78	7.22	7.22E-01		1.51E+00	
	1112.02	9.60	-5.80E-02		1.18E+00	
	1407.95	14.94	-2.23E-01		6.66E-01	
	97.43	31.30	-1.14E-01		2.03E-01	2.03E-01
	103.18	22.20	-2.84E-01		2.62E-01	
	123.07	40.50	2.31E-02		1.39E-01	1.39E-01
+ EU-154	723.30	19.70	5.39E-02	1.39E-01	5.15E-01	
	873.19	11.50	-2.29E-01		7.74E-01	
	996.32	10.30	-3.63E-01		1.04E+00	
	1004.76	17.90	-4.62E-02		5.67E-01	
	1274.45	35.50	8.49E-02		3.80E-01	
+ EU-155	86.50	30.90	1.11E-01	2.57E-01	2.57E-01	
	105.30	20.70	1.26E-01		2.78E-01	
+ EU-156	811.77	10.40	1.26E+00	4.27E+00	4.27E+00	
	1153.47	7.20	2.78E-01		7.08E+00	
	1230.71	8.90	-5.47E-01		6.93E+00	
+ HO-166M	184.41	72.60	2.04E-01	1.13E-01	1.13E-01	
	280.45	29.60	-1.98E-03		2.54E-01	
	410.94	11.10	-3.82E-02		7.79E-01	
	711.69	54.10	-7.11E-03		1.66E-01	
+ TM-171	66.72	* 0.14	5.08E+01	9.46E+01	9.46E+01	
+ HF-172	81.75	4.52	-6.51E+00	5.15E-01	1.54E+00	
	125.81	11.30	4.86E-02		5.15E-01	

Analysis Report for 1510090-08
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	LU-172	181.53	20.60	-1.78E+01	4.46E+00	8.54E+00
		810.06	16.63	-5.35E+00		1.58E+01
		912.12	15.25	8.11E+01		3.53E+01
		1093.66	62.50	-2.62E+00		4.46E+00
+	LU-173	100.72	5.24	-2.31E-01	4.19E-01	1.09E+00
		272.11	21.20	2.69E-01		4.19E-01
+	HF-175	343.40	84.00	1.83E-03	1.34E-01	1.34E-01
+	LU-176	88.34	13.30	3.06E-01	8.39E-02	6.05E-01
		201.83	86.00	5.02E-02		8.94E-02
		306.78	94.00	1.12E-02		8.39E-02
+	TA-182	67.75	* 41.20	2.03E-01	3.78E-01	3.78E-01
		1121.30	* 34.90	9.95E-01		8.28E-01
		1189.05	16.23	3.64E-02		9.40E-01
		1221.41	26.98	-3.81E-01		5.94E-01
		1231.02	11.44	-7.70E-02		1.48E+00
+	IR-192	308.46	29.68	-1.23E-01	2.40E-01	3.50E-01
		468.07	48.10	-4.11E-02		2.40E-01
+	HG-203	279.19	77.30	6.33E-02	1.61E-01	1.61E-01
+	BI-207	569.67	97.72	1.29E-02	8.68E-02	8.68E-02
		1063.62	74.90	-1.44E-02		1.63E-01
+	TL-208	583.14	* 30.22	1.55E+00	4.61E-02	4.18E-01
		860.37	* 4.48	2.10E+00		2.64E+00
		2614.66	* 35.85	1.28E+00		4.61E-02
+	BI-210M	262.00	* 45.00	9.89E-02	1.68E-01	1.68E-01
		300.00	* 23.00	2.54E-01		6.08E-01
+	PB-210	46.50	4.25	-3.85E-01	2.47E+00	2.47E+00
+	PB-211	404.84	2.90	-2.30E+00	2.84E+00	2.84E+00
		831.96	2.90	-8.18E-01		3.51E+00
+	BI-212	727.17	* 11.80	6.11E-01	9.53E-01	9.53E-01
		1620.62	2.75	-5.59E-01		3.08E+00
+	PB-212	238.63	* 44.60	1.81E+00	2.73E-01	2.73E-01
		300.09	* 3.41	1.72E+00		4.10E+00
+	BI-214	609.31	* 46.30	1.44E+00	3.90E-01	3.90E-01
		1120.29	15.10	1.35E+00		1.16E+00
		1764.49	* 15.80	1.88E+00		6.63E-01
		2204.22	4.98	-1.12E-01		2.31E+00
+	PB-214	295.21	* 19.19	1.56E+00	3.06E-01	7.11E-01
		351.92	* 37.19	1.42E+00		3.06E-01
+	RN-219	401.80	6.50	-4.58E-02	1.30E+00	1.30E+00
+	RA-223	323.87	3.88	-2.22E-01	1.86E+00	1.86E+00
+	RA-224	240.98	* 3.95	5.25E+00	3.16E+00	3.16E+00
+	RA-225	40.00	31.00	9.86E-03	1.79E+00	1.79E+00
+	RA-226	186.21	* 3.28	5.65E+00	3.45E+00	3.45E+00
+	TH-227	50.10	8.40	-1.55E+00	1.07E+00	1.07E+00
		236.00	11.50	3.38E+00		1.17E+00
		256.20	6.30	-1.72E-01		1.13E+00
+	AC-228	338.32	* 11.40	1.38E+00	4.58E-01	8.95E-01
		911.07	* 27.70	1.65E+00		4.58E-01

Analysis Report for 1510090-08
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Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	AC-228	969.11	*	16.60	1.67E+00	4.58E-01	1.16E+00
+	TH-230	48.44		16.90	4.73E-01	5.97E-01	5.97E-01
		62.85		4.60	1.76E+00		1.89E+00
		67.67		0.37	-2.50E-01		2.16E+01
+	PA-231	283.67		1.60	9.82E-01	3.70E+00	4.50E+00
		302.67		2.30	5.46E-01		3.70E+00
+	TH-231	25.64		14.70	5.08E-01	1.10E+00	3.78E+00
		84.21		6.40	-9.20E-01		1.10E+00
+	PA-233	311.98		38.60	2.04E-01	4.63E-01	4.63E-01
+	PA-234	131.20		20.40	3.22E-01	3.13E-01	3.13E-01
		733.99		8.80	1.80E-01		1.16E+00
		946.00		12.00	-4.46E-01		7.97E-01
+	PA-234M	1001.03		0.92	-2.49E+00	1.13E+01	1.13E+01
+	TH-234	63.29		3.80	-2.93E-01	2.27E+00	2.27E+00
+	U-235	143.76		10.50	2.58E-01	5.93E-01	5.93E-01
		163.35		4.70	-1.66E-01		1.29E+00
		205.31		4.70	3.79E-02		1.58E+00
+	NP-237	86.50		12.60	2.69E-01	6.23E-01	6.23E-01
+	NP-239	106.10		22.70	1.48E+03	3.20E+03	3.20E+03
		228.18		10.70	3.58E+03		9.22E+03
		277.60		14.10	1.19E+03		6.87E+03
+	AM-241	59.54		35.90	2.39E-02	2.27E-01	2.27E-01
+	AM-243	74.67		66.00	2.79E-01	1.61E-01	1.61E-01
+	CM-243	209.75	*	3.29	2.15E+00	7.38E-01	2.87E+00
		228.14		10.60	2.87E-01		7.38E-01
		277.60	*	14.00	4.03E-01		1.11E+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

: 00542

Analysis Report for 1510090-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.12E+00	1.12E+00	-4.65E-01	5.26E-01
NA-22	1274.54	99.94	1.37E-01	1.37E-01	3.06E-02	6.35E-02
NA-24	1368.53	99.99	2.47E+14	1.93E+14	-1.17E+14	1.08E+14
	2754.09	99.86	1.93E+14		1.99E+13	7.21E+13
AL-26	1808.65	99.76	1.04E-01	1.04E-01	7.29E-02	4.55E-02
+ K-40	1460.81	* 10.67	9.61E-01	9.61E-01	2.25E+01	4.28E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	8.46E-02	8.46E-02	-9.81E-04	4.14E-02
	78.34	96.00	1.04E-01		2.93E-01	5.10E-02
SC-46	889.25	99.98	1.26E-01	1.26E-01	-1.40E-02	5.81E-02
	1120.51	99.99	2.28E-01		2.65E-01	1.08E-01
V-48	983.52	99.98	4.19E-01	4.19E-01	1.80E-01	1.93E-01
	1312.10	97.50	5.40E-01		3.27E-01	2.49E-01
CR-51	320.08	9.83	1.59E+00	1.59E+00	-1.59E-01	7.61E-01
MN-54	834.83	99.97	1.15E-01	1.15E-01	-2.68E-02	5.35E-02
CO-56	846.75	99.96	1.25E-01	1.25E-01	-1.83E-03	5.78E-02
	1037.75	14.03	1.08E+00		-6.79E-01	4.99E-01
	1238.25	67.00	3.06E-01		7.80E-02	1.43E-01
	1771.40	15.51	7.15E-01		-3.07E+00	3.02E-01
	2598.48	16.90	5.15E-01		2.66E-02	1.93E-01
CO-57	122.06	85.51	6.99E-02	6.99E-02	1.13E-03	3.39E-02
	136.48	10.60	5.89E-01		-9.43E-02	2.86E-01
CO-58	810.76	99.40	1.39E-01	1.39E-01	-3.91E-03	6.49E-02
FE-59	1099.22	56.50	2.99E-01	2.99E-01	-4.07E-02	1.36E-01
	1291.56	43.20	5.02E-01		2.00E-01	2.32E-01
CO-60	1173.22	100.00	1.37E-01	1.21E-01	2.85E-02	6.36E-02
	1332.49	100.00	1.21E-01		-3.13E-02	5.54E-02
ZN-65	1115.52	50.75	2.52E-01	2.52E-01	-1.56E-02	1.16E-01
GA-67	93.31	35.70	1.88E+02	1.88E+02	2.06E+02	9.21E+01
	208.95	2.24	3.31E+03		2.52E+03	1.61E+03
	300.22	16.00	4.91E+02		-1.95E+03	2.37E+02
SE-75	121.11	16.70	4.05E-01	1.14E-01	1.33E-01	1.97E-01
	136.00	59.20	1.14E-01		-5.86E-02	5.55E-02
	264.65	59.80	1.39E-01		-1.69E-01	6.69E-02
	279.53	25.20	3.68E-01		9.75E-02	1.77E-01
	400.65	11.40	9.02E-01		1.64E-01	4.31E-01
RB-82	776.52	13.00	1.74E+00	1.74E+00	-9.03E-02	8.07E-01
RB-83	520.41	46.00	2.54E-01	2.54E-01	-1.40E-01	1.20E-01
	529.64	30.30	3.56E-01		-8.23E-02	1.68E-01
	552.65	16.40	6.94E-01		-1.61E-01	3.27E-01
KR-85	513.99	0.43	2.74E+01	2.74E+01	2.88E+01	1.32E+01
SR-85	513.99	99.27	1.68E-01	1.68E-01	1.76E-01	8.06E-02
Y-88	898.02	93.40	1.34E-01	1.19E-01	1.49E-02	6.22E-02
	1836.01	99.38	1.19E-01		2.91E-02	5.12E-02
NB-93M	16.57	9.43	9.25E+01	9.25E+01	3.61E+01	4.51E+01
NB-94	702.63	100.00	9.94E-02	8.92E-02	2.42E-02	4.66E-02
	871.10	100.00	8.92E-02		-1.90E-02	4.09E-02
NB-95	765.79	99.81	2.00E-01	2.00E-01	-4.74E-02	9.37E-02
NB-95M	235.69	25.00	2.55E+02	2.55E+02	7.36E+02	1.25E+02
ZR-95	724.18	43.70	3.51E-01	2.56E-01	2.42E-02	1.65E-01
	756.72	55.30	2.56E-01		-5.90E-02	1.20E-01

Analysis Report for 1510090-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	3.32E+03	2.57E+03	7.85E+01	1.61E+03
	739.58	12.80	2.57E+03		8.48E+02	1.20E+03
	778.00	4.50	6.99E+03		1.69E+03	3.26E+03
RU-103	497.08	89.00	1.47E-01	1.47E-01	-4.47E-02	6.90E-02
RU-106	621.84	9.80	9.91E-01	9.91E-01	1.06E-01	4.66E-01
AG-108M	433.93	89.90	8.27E-02	8.27E-02	-6.55E-02	3.91E-02
	614.37	90.40	1.20E-01		-6.99E-01	5.71E-02
	722.95	90.50	1.11E-01		1.17E-02	5.22E-02
CD-109	88.03	3.72	2.23E+00	2.23E+00	2.02E+00	1.09E+00
AG-110M	657.75	93.14	1.13E-01	1.13E-01	-1.81E-02	5.30E-02
	677.61	10.53	8.72E-01		7.09E-02	4.05E-01
	706.67	16.46	6.22E-01		-2.27E-01	2.91E-01
	763.93	21.98	4.71E-01		4.11E-02	2.19E-01
	884.67	71.63	1.38E-01		-2.05E-02	6.33E-02
	1384.27	23.94	4.28E-01		4.27E-02	1.89E-01
CD-113M	263.70	0.02	3.07E+02	3.07E+02	3.32E+00	1.48E+02
SN-113	255.12	1.93	4.59E+00	1.43E-01	3.49E-01	2.21E+00
	391.69	64.90	1.43E-01		-5.39E-02	6.80E-02
TE123M	159.00	84.10	8.48E-02	8.48E-02	2.10E-02	4.11E-02
SB-124	602.71	97.87	1.29E-01	1.29E-01	-3.28E-03	6.07E-02
	645.85	7.26	1.93E+00		1.26E+00	9.06E-01
	722.78	11.10	1.31E+00		1.37E-01	6.15E-01
	1691.02	49.00	2.92E-01		8.80E-02	1.28E-01
I-125	35.49	6.49	3.79E+00	3.79E+00	-1.46E-01	1.85E+00
SB-125	176.33	6.89	8.79E-01	2.64E-01	-4.31E-01	4.25E-01
	427.89	29.33	2.64E-01		-1.13E-01	1.25E-01
	463.38	10.35	9.51E-01		7.32E-01	4.55E-01
	600.56	17.80	5.15E-01		-3.12E-02	2.42E-01
	635.90	11.32	7.72E-01		7.49E-02	3.61E-01
	414.70	83.30	5.96E-01		5.59E-01	-1.60E-01	2.84E-01
SB-126	666.33	99.60	5.59E-01	5.59E-01	-4.16E-02	2.62E-01
	695.00	99.60	5.72E-01		3.62E-02	2.68E-01
	720.50	53.80	1.14E+00		3.37E-01	5.36E-01
	87.57	37.00	2.14E-01		2.14E-01	1.94E-01	1.05E-01
SN-126	473.00	25.00	1.03E+02	8.36E+01	1.31E+01	4.89E+01
	685.20	35.70	8.36E+01		-4.44E+01	3.91E+01
	783.80	14.70	2.27E+02		3.72E+01	1.06E+02
I-129	29.78	57.00	5.25E-01	5.25E-01	9.50E-02	2.56E-01
	33.60	13.20	1.52E+00		2.56E-01	7.41E-01
	39.58	7.52	1.68E+00		9.27E-03	8.19E-01
I-131	284.30	6.05	1.89E+01	1.47E+00	4.14E+00	9.10E+00
	364.48	81.20	1.47E+00		-3.12E-01	6.99E-01
	636.97	7.26	1.94E+01		9.84E+00	9.07E+00
	722.89	1.80	8.89E+01		9.32E+00	4.17E+01
TE-132	49.72	13.10	6.39E+02	8.17E+01	-9.25E+02	3.12E+02
	228.16	88.00	8.17E+01		3.18E+01	3.96E+01
BA-133	81.00	33.00	2.07E-01	1.77E-01	-1.36E+00	1.01E-01
	302.84	17.80	4.82E-01		7.09E-02	2.32E-01
	356.01	60.00	1.77E-01		-1.43E-03	8.57E-02
I-133	529.87	86.30	1.35E+10	1.35E+10	-3.12E+09	6.37E+09
XE-133	81.00	38.00	1.24E+01	1.24E+01	-8.14E+01	6.07E+00
CS-134	563.23	8.38	1.11E+00	1.07E-01	7.78E-03	5.24E-01
	569.32	15.43	5.78E-01		6.44E-02	2.72E-01

Analysis Report for 1510090-08

CP0603S14-15

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	1.07E-01	1.07E-01	1.38E-02	5.07E-02
	795.84	85.40	1.28E-01		8.32E-02	5.98E-02
	801.93	8.73	1.01E+00		-4.97E-01	4.65E-01
+ CS-135	268.24	* 16.00	9.08E-01	9.08E-01	2.42E-01	4.46E-01
@ I-135	1131.51		1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41		1.00E+26		1.00E+26	1.00E+20
@	1678.03		1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	4.41E+00	5.25E-01	1.02E+00	2.14E+00
	163.89	4.61	7.15E+00		-9.19E-01	3.47E+00
	176.55	13.56	2.44E+00		2.88E-01	1.18E+00
	273.65	12.66	3.57E+00		-1.53E-01	1.73E+00
	340.57	48.50	1.13E+00		3.17E-02	5.47E-01
	818.50	99.70	5.25E-01		-2.95E-02	2.44E-01
	1048.07	79.60	7.41E-01		-1.71E-01	3.41E-01
	1235.34	19.70	4.22E+00		3.63E-01	1.98E+00
CS-137	661.65	85.12	1.18E-01	1.18E-01	2.25E-02	5.56E-02
LA-138	788.74	34.00	3.05E-01	1.46E-01	9.91E-02	1.43E-01
	1435.80	66.00	1.46E-01		-5.61E-02	6.47E-02
CE-139	165.85	80.35	9.20E-02	9.20E-02	5.58E-02	4.46E-02
BA-140	162.64	6.70	5.19E+00	1.89E+00	7.62E-01	2.52E+00
	304.84	4.50	9.92E+00		7.63E-01	4.77E+00
	423.70	3.20	1.42E+01		2.80E+00	6.77E+00
	437.55	2.00	2.29E+01		5.65E+00	1.09E+01
	537.32	25.00	1.89E+00		-8.13E-02	8.92E-01
LA-140	328.77	20.50	2.40E+00	6.64E-01	1.56E+00	1.15E+00
	487.03	45.50	1.09E+00		5.71E-02	5.18E-01
	815.85	23.50	2.52E+00		1.22E+00	1.17E+00
	1596.49	95.49	6.64E-01		-3.46E-02	2.96E-01
CE-141	145.44	48.40	2.50E-01	2.50E-01	6.30E-03	1.22E-01
CE-143	57.36	11.80	7.27E+06	2.65E+06	1.30E+06	3.55E+06
	293.26	42.00	2.65E+06		5.78E+06	1.29E+06
	664.55	5.20	2.03E+07		5.87E+06	9.55E+06
CE-144	133.54	10.80	5.67E-01	5.67E-01	-1.09E-02	2.75E-01
PM-144	476.78	42.00	2.00E-01	9.69E-02	1.29E-02	9.47E-02
	618.01	98.60	9.69E-02		-6.52E-03	4.55E-02
	696.49	99.49	1.01E-01		2.03E-03	4.72E-02
PM-145	36.85	21.70	7.07E-01	3.75E-01	7.47E-02	3.44E-01
	37.36	39.70	3.75E-01		1.80E-01	1.83E-01
	42.30	15.10	7.39E-01		-4.03E-01	3.60E-01
	72.40	2.31	3.88E+00		-6.73E+00	1.90E+00
PM-146	453.90	39.94	2.12E-01	2.12E-01	2.35E-02	1.01E-01
	735.90	14.01	7.37E-01		1.88E-01	3.46E-01
	747.13	13.10	7.00E-01		-2.39E-01	3.25E-01
ND-147	91.11	28.90	2.00E+00	2.00E+00	-1.61E+00	9.81E-01
	531.02	13.10	4.86E+00		2.52E-01	2.29E+00
PM-149	285.90	3.10	5.38E+04	5.38E+04	3.58E+03	2.58E+04
EU-152	121.78	20.50	2.70E-01	2.70E-01	4.36E-03	1.31E-01
	244.69	5.40	1.70E+00		-3.62E-02	8.26E-01
	344.27	19.13	4.20E-01		4.19E-02	2.01E-01
	778.89	9.20	1.03E+00		-3.79E-01	4.77E-01
	964.01	10.40	1.23E+00		-2.63E+00	5.76E-01
	1085.78	7.22	1.51E+00		7.22E-01	6.94E-01
	1112.02	9.60	1.18E+00		-5.80E-02	5.45E-01

Analysis Report for 1510090-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	6.66E-01	2.70E-01	-2.23E-01	2.96E-01
GD-153	97.43	31.30	2.03E-01	2.03E-01	-1.14E-01	9.90E-02
	103.18	22.20	2.62E-01		-2.84E-01	1.27E-01
EU-154	123.07	40.50	1.39E-01	1.39E-01	2.31E-02	6.76E-02
	723.30	19.70	5.15E-01		5.39E-02	2.41E-01
	873.19	11.50	7.74E-01		-2.29E-01	3.55E-01
	996.32	10.30	1.04E+00		-3.63E-01	4.79E-01
	1004.76	17.90	5.67E-01		-4.62E-02	2.60E-01
	1274.45	35.50	3.80E-01		8.49E-02	1.76E-01
EU-155	86.50	30.90	2.57E-01	2.57E-01	1.11E-01	1.26E-01
	105.30	20.70	2.78E-01		1.26E-01	1.35E-01
EU-156	811.77	10.40	4.27E+00	4.27E+00	1.26E+00	1.99E+00
	1153.47	7.20	7.08E+00		2.78E-01	3.26E+00
	1230.71	8.90	6.93E+00		-5.47E-01	3.23E+00
HO-166M	184.41	72.60	1.13E-01	1.13E-01	2.04E-01	5.50E-02
	280.45	29.60	2.54E-01		-1.98E-03	1.23E-01
	410.94	11.10	7.79E-01		-3.82E-02	3.72E-01
	711.69	54.10	1.66E-01		-7.11E-03	7.72E-02
TM-171	66.72	*	9.46E+01	9.46E+01	5.08E+01	4.67E+01
HF-172	81.75	4.52	1.54E+00	5.15E-01	-6.51E+00	7.53E-01
	125.81	11.30	5.15E-01		4.86E-02	2.50E-01
LU-172	181.53	20.60	8.54E+00	4.46E+00	-1.78E+01	4.14E+00
	810.06	16.63	1.58E+01		-5.35E+00	7.32E+00
	912.12	15.25	3.53E+01		8.11E+01	1.70E+01
	1093.66	62.50	4.46E+00		-2.62E+00	2.03E+00
LU-173	100.72	5.24	1.09E+00	4.19E-01	-2.31E-01	5.31E-01
	272.11	21.20	4.19E-01		2.69E-01	2.03E-01
HF-175	343.40	84.00	1.34E-01	1.34E-01	1.83E-03	6.41E-02
LU-176	88.34	13.30	6.05E-01	8.39E-02	3.06E-01	2.97E-01
	201.83	86.00	8.94E-02		5.02E-02	4.35E-02
	306.78	94.00	8.39E-02		1.12E-02	4.04E-02
+ TA-182	67.75	*	3.78E-01	3.78E-01	2.03E-01	1.87E-01
	1121.30	*	8.28E-01		9.95E-01	3.98E-01
	1189.05		9.40E-01		3.64E-02	4.34E-01
	1221.41		5.94E-01		-3.81E-01	2.75E-01
	1231.02		1.48E+00		-7.70E-02	6.88E-01
IR-192	308.46	29.68	3.50E-01	2.40E-01	-1.23E-01	1.68E-01
	468.07	48.10	2.40E-01		-4.11E-02	1.14E-01
HG-203	279.19	77.30	1.61E-01	1.61E-01	6.33E-02	7.76E-02
BI-207	569.67	97.72	8.68E-02	8.68E-02	1.29E-02	4.08E-02
	1063.62	74.90	1.63E-01		-1.44E-02	7.55E-02
+ TL-208	583.14	*	4.18E-01	4.61E-02	1.55E+00	2.01E-01
	860.37	*	2.64E+00		2.10E+00	1.24E+00
	2614.66	*	4.61E-02		1.28E+00	0.00E+00
+ BI-210M	262.00	*	1.68E-01	1.68E-01	9.89E-02	8.10E-02
	300.00	*	6.08E-01		2.54E-01	2.98E-01
PB-210	46.50	4.25	2.47E+00	2.47E+00	-3.85E-01	1.21E+00
PB-211	404.84	2.90	2.84E+00	2.84E+00	-2.30E+00	1.36E+00
	831.96	2.90	3.51E+00		-8.18E-01	1.63E+00
+ BI-212	727.17	*	9.53E-01	9.53E-01	6.11E-01	4.50E-01
	1620.62	2.75	3.08E+00		-5.59E-01	1.32E+00
+ PB-212	238.63	*	2.73E-01	2.73E-01	1.81E+00	1.34E-01
	300.09	*	4.10E+00		1.72E+00	2.01E+00

: 00546

Analysis Report for 1510090-08
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Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31 *	46.30	3.90E-01	3.90E-01	1.44E+00	1.89E-01
		1120.29	15.10	1.16E+00		1.35E+00	5.50E-01
		1764.49 *	15.80	6.63E-01		1.88E+00	2.90E-01
		2204.22	4.98	2.31E+00		-1.12E-01	1.01E+00
+	PB-214	295.21 *	19.19	7.11E-01	3.06E-01	1.56E+00	3.48E-01
		351.92 *	37.19	3.06E-01		1.42E+00	1.48E-01
	RN-219	401.80	6.50	1.30E+00	1.30E+00	-4.58E-02	6.20E-01
	RA-223	323.87	3.88	1.86E+00	1.86E+00	-2.22E-01	8.91E-01
+	RA-224	240.98 *	3.95	3.16E+00	3.16E+00	5.25E+00	1.55E+00
	RA-225	40.00	31.00	1.79E+00	1.79E+00	9.86E-03	8.72E-01
+	RA-226	186.21 *	3.28	3.45E+00	3.45E+00	5.65E+00	1.69E+00
	TH-227	50.10	8.40	1.07E+00	1.07E+00	-1.55E+00	5.22E-01
		236.00	11.50	1.17E+00		3.38E+00	5.75E-01
		256.20	6.30	1.13E+00		-1.72E-01	5.43E-01
+	AC-228	338.32 *	11.40	8.95E-01	4.58E-01	1.38E+00	4.34E-01
		911.07 *	27.70	4.58E-01		1.65E+00	2.15E-01
		969.11 *	16.60	1.16E+00		1.67E+00	5.55E-01
	TH-230	48.44	16.90	5.97E-01	5.97E-01	4.73E-01	2.92E-01
		62.85	4.60	1.89E+00		1.76E+00	9.24E-01
		67.67	0.37	2.16E+01		-2.50E-01	1.06E+01
	PA-231	283.67	1.60	4.50E+00	3.70E+00	9.82E-01	2.16E+00
		302.67	2.30	3.70E+00		5.46E-01	1.79E+00
	TH-231	25.64	14.70	3.78E+00	1.10E+00	5.08E-01	1.84E+00
		84.21	6.40	1.10E+00		-9.20E-01	5.39E-01
	PA-233	311.98	38.60	4.63E-01	4.63E-01	2.04E-01	2.22E-01
	PA-234	131.20	20.40	3.13E-01	3.13E-01	3.22E-01	1.53E-01
		733.99	8.80	1.16E+00		1.80E-01	5.43E-01
		946.00	12.00	7.97E-01		-4.46E-01	3.66E-01
	PA-234M	1001.03	0.92	1.13E+01	1.13E+01	-2.49E+00	5.18E+00
	TH-234	63.29	3.80	2.27E+00	2.27E+00	-2.93E-01	1.11E+00
	U-235	143.76	10.50	5.93E-01	5.93E-01	2.58E-01	2.88E-01
		163.35	4.70	1.29E+00		-1.66E-01	6.26E-01
		205.31	4.70	1.58E+00		3.79E-02	7.69E-01
	NP-237	86.50	12.60	6.23E-01	6.23E-01	2.69E-01	3.05E-01
	NP-239	106.10	22.70	3.20E+03	3.20E+03	1.48E+03	1.56E+03
		228.18	10.70	9.22E+03		3.58E+03	4.47E+03
		277.60	14.10	6.87E+03		1.19E+03	3.31E+03
	AM-241	59.54	35.90	2.27E-01	2.27E-01	2.39E-02	1.11E-01
	AM-243	74.67	66.00	1.61E-01	1.61E-01	2.79E-01	7.93E-02
+	CM-243	209.75 *	3.29	2.87E+00	7.38E-01	2.15E+00	1.40E+00
		228.14	10.60	7.38E-01		2.87E-01	3.58E-01
		277.60 *	14.00	1.11E+00		4.03E-01	5.44E-01

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

Analysis Report for 1510090-08
CP0603S14-15

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S14-15

Elapsed Live time: 3600
 Elapsed Real Time: 3617

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	4	184	181	151	144	122	125	102	
17:	113	78	95	78	75	87	101	91	
25:	104	95	83	91	83	100	85	104	
33:	93	99	77	97	94	97	94	83	
41:	87	85	86	114	87	117	174	112	
49:	92	124	113	97	117	103	85	108	
57:	102	130	127	139	141	125	162	215	
65:	179	139	186	180	150	114	139	159	
73:	168	182	383	310	461	495	153	121	
81:	126	118	114	147	187	127	198	247	
89:	109	201	162	117	235	209	108	88	
97:	104	78	79	118	72	62	80	82	
105:	85	96	94	89	84	88	78	70	
113:	63	82	87	82	67	67	82	76	
121:	89	65	80	64	87	62	79	90	
129:	117	116	94	70	81	70	67	78	
137:	65	75	85	82	74	93	72	90	
145:	82	77	76	68	80	71	55	67	
153:	76	88	79	72	55	75	73	64	
161:	65	64	64	71	80	59	70	77	
169:	59	57	66	69	68	48	51	62	
177:	59	71	67	62	61	65	67	69	
185:	80	166	150	73	67	53	51	60	
193:	56	49	55	60	48	58	63	60	
201:	67	52	60	59	50	50	49	55	
209:	82	95	50	53	46	51	48	55	
217:	57	50	53	43	54	49	43	42	
225:	54	49	60	48	50	44	46	56	
233:	38	47	51	48	53	205	574	214	
241:	100	130	96	53	33	39	38	44	
249:	45	35	45	43	45	29	32	35	
257:	29	42	27	38	43	42	28	30	
265:	23	19	39	33	30	59	76	47	
273:	38	33	30	34	41	55	30	29	
281:	26	31	32	29	35	28	26	24	
289:	28	21	35	26	22	22	129	173	
297:	45	31	31	55	47	32	29	29	
305:	43	28	27	31	33	28	23	36	
313:	27	34	29	25	21	18	35	25	
321:	22	19	19	26	22	25	33	40	
329:	39	38	27	32	33	24	29	22	
337:	37	71	91	36	27	28	24	29	
345:	28	21	27	21	24	24	75	268	
353:	162	38	23	20	31	16	19	26	
361:	19	18	19	20	20	35	18	15	

369: 21 24 18 19 26 22 29 14

Sample Title: CP0603S14-15

Channel	1	2	3	4	5	6	7	8
377:	17	20	19	23	21	29	20	20
385:	19	17	26	22	18	19	15	21
393:	18	27	15	23	18	26	23	29
401:	15	28	24	16	21	23	23	12
409:	30	33	21	18	21	23	20	26
417:	13	20	12	26	21	18	18	25
425:	18	9	18	12	18	19	17	14
433:	20	8	12	19	14	23	21	14
441:	18	15	18	21	17	19	20	17
449:	17	17	12	22	18	19	23	18
457:	11	21	12	18	10	22	40	32
465:	9	28	19	12	23	17	14	13
473:	19	16	14	11	9	14	14	22
481:	9	15	15	19	14	18	16	24
489:	12	15	13	22	16	16	9	9
497:	9	16	7	15	16	14	11	14
505:	17	12	15	13	12	40	60	36
513:	28	14	23	20	21	11	19	9
521:	18	18	16	21	18	12	15	15
529:	16	10	10	10	16	16	13	12
537:	12	16	12	8	13	13	15	5
545:	10	16	17	12	16	18	11	9
553:	16	15	15	11	12	20	12	8
561:	17	15	13	15	13	16	11	13
569:	10	11	9	17	12	8	8	13
577:	13	9	8	9	15	29	122	109
585:	24	16	9	13	11	11	10	17
593:	6	18	8	21	11	12	16	11
601:	9	11	17	9	13	10	6	43
609:	149	170	29	16	25	13	14	10
617:	15	9	10	15	8	9	15	14
625:	12	12	9	10	8	8	7	9
633:	7	7	13	7	8	13	14	12
641:	9	5	7	19	12	15	10	8
649:	16	13	5	12	9	11	14	10
657:	16	6	11	15	11	20	10	10
665:	13	11	13	7	11	10	6	6
673:	5	10	4	5	7	12	6	15
681:	10	7	10	10	11	14	9	10
689:	17	11	7	7	12	6	9	14
697:	13	12	6	16	9	14	16	4
705:	11	9	13	13	13	6	5	14
713:	8	7	9	9	7	14	11	13
721:	14	11	10	10	10	9	26	27
729:	11	8	12	9	8	12	9	9
737:	18	9	12	9	8	10	6	9
745:	8	13	9	7	4	8	11	12
753:	13	10	10	10	10	9	9	12
761:	9	12	11	7	11	3	8	19
769:	18	15	14	11	7	8	9	10
777:	6	11	8	9	9	5	10	13
785:	7	14	12	9	10	11	6	8
793:	6	10	25	15	6	6	4	5

801: 7 9 12 4 4 17 5 5

Sample Title: CP0603S14-15

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	7	14	6	12	6	13	7	8
817:	11	4	17	7	2	11	4	10
825:	9	7	8	11	5	10	8	8
833:	6	10	14	11	10	8	12	13
841:	9	12	6	7	8	9	8	6
849:	4	8	4	8	6	8	7	11
857:	6	3	3	19	31	11	6	9
865:	7	10	4	11	4	5	6	4
873:	7	5	6	8	6	8	6	5
881:	7	8	4	6	6	6	5	10
889:	5	10	6	6	11	6	7	9
897:	12	8	3	6	8	7	5	10
905:	9	2	11	5	10	22	80	65
913:	15	4	7	7	4	8	3	5
921:	9	5	13	7	8	7	5	13
929:	8	6	7	14	10	13	11	9
937:	5	6	5	4	3	8	6	8
945:	5	6	2	7	8	8	14	9
953:	6	5	13	7	8	5	12	10
961:	4	8	8	13	20	15	7	28
969:	45	26	9	8	6	6	5	6
977:	2	6	7	11	4	7	9	7
985:	7	2	4	3	7	4	8	8
993:	7	7	9	8	7	2	8	5
1001:	13	6	6	5	9	6	4	6
1009:	7	2	11	4	5	7	8	13
1017:	5	5	3	7	4	3	8	4
1025:	11	6	5	4	5	7	7	8
1033:	11	8	8	7	10	5	7	12
1041:	3	10	13	3	8	6	6	8
1049:	6	10	2	6	9	4	6	9
1057:	5	8	5	4	9	6	4	12
1065:	10	12	4	3	6	9	12	4
1073:	9	5	9	4	8	6	10	9
1081:	2	4	11	4	5	6	1	7
1089:	9	5	4	5	6	7	6	3
1097:	8	7	7	4	6	2	6	5
1105:	5	9	8	4	9	9	3	8
1113:	5	6	5	10	5	9	21	25
1121:	29	15	9	4	11	11	11	3
1129:	8	5	7	1	6	5	7	6
1137:	5	7	8	8	8	9	5	8
1145:	10	2	6	4	10	9	9	5
1153:	7	2	10	4	7	5	6	4
1161:	11	6	5	8	7	8	5	2
1169:	8	7	9	11	14	6	9	4
1177:	10	8	4	10	10	6	7	7
1185:	8	5	8	8	5	10	7	7
1193:	6	7	9	9	10	2	8	6
1201:	9	10	9	5	6	6	10	7
1209:	8	7	5	7	8	5	6	5
1217:	10	12	9	5	8	5	7	7
1225:	14	12	10	13	3	10	5	8

1233: 13 7 6 8 7 23 15 9

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Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	5	7	9	5	8	4	10	10
1249:	6	6	7	6	3	6	5	4
1257:	4	2	3	1	3	7	3	5
1265:	3	8	7	5	4	2	5	9
1273:	9	5	6	5	4	6	5	5
1281:	9	8	2	5	4	6	2	7
1289:	6	2	5	5	5	5	11	4
1297:	1	5	6	8	3	4	4	7
1305:	4	1	4	8	7	5	4	2
1313:	6	6	7	1	4	2	9	3
1321:	1	6	2	6	4	7	3	4
1329:	2	6	2	7	6	4	3	3
1337:	6	4	3	4	6	4	4	4
1345:	3	3	3	4	2	3	4	5
1353:	5	3	0	4	5	2	1	0
1361:	3	6	2	2	1	2	0	2
1369:	4	1	2	3	3	4	8	4
1377:	12	13	6	2	2	0	1	4
1385:	2	1	4	4	4	3	4	2
1393:	2	4	0	4	4	2	1	5
1401:	5	2	1	2	1	1	4	4
1409:	2	5	2	1	5	5	2	6
1417:	4	2	0	1	5	2	4	2
1425:	2	2	1	3	4	2	3	0
1433:	0	3	1	3	3	3	4	5
1441:	2	3	2	4	1	4	3	1
1449:	2	2	2	1	1	0	1	4
1457:	4	14	48	170	233	103	9	2
1465:	1	1	1	3	1	1	2	1
1473:	2	2	1	2	2	2	2	1
1481:	1	0	3	2	2	3	1	2
1489:	2	0	4	0	0	2	4	7
1497:	2	1	0	2	3	1	3	3
1505:	2	1	0	2	6	5	1	0
1513:	2	1	2	0	2	2	2	1
1521:	1	1	0	0	4	1	2	4
1529:	1	1	3	5	2	0	2	2
1537:	2	2	1	1	1	3	0	0
1545:	0	0	0	2	2	1	1	2
1553:	3	0	3	1	1	3	1	1
1561:	1	0	2	0	3	3	1	2
1569:	2	3	2	2	0	1	2	3
1577:	1	3	4	0	1	2	2	2
1585:	1	0	7	8	2	1	5	3
1593:	5	2	4	0	1	2	3	3
1601:	3	2	2	1	1	2	0	2
1609:	2	0	0	1	1	3	1	2
1617:	0	1	2	3	2	0	0	2
1625:	3	0	0	1	2	4	5	2
1633:	2	2	2	3	5	1	1	0
1641:	0	0	1	0	2	1	2	1
1649:	0	0	1	2	1	1	1	0
1657:	1	0	1	3	4	2	4	2

1665: 1 2 1 0 0 1 0 2

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Channel	1	2	3	4	5	6	7	8
1673:	1	0	1	2	5	2	3	0
1681:	0	1	0	0	1	1	1	4
1689:	1	2	0	5	1	1	1	1
1697:	2	1	1	2	2	1	0	2
1705:	3	2	0	1	0	1	1	0
1713:	1	1	1	1	1	1	1	0
1721:	1	2	0	2	2	1	0	2
1729:	3	3	1	1	0	0	1	0
1737:	0	0	0	0	0	0	1	0
1745:	3	2	1	0	0	1	2	1
1753:	1	1	0	2	2	1	2	1
1761:	1	2	7	20	26	12	1	0
1769:	0	3	0	4	1	0	1	0
1777:	0	1	0	3	0	1	1	1
1785:	1	0	2	0	0	1	3	0
1793:	2	2	1	1	0	0	2	2
1801:	1	0	0	3	2	1	3	3
1809:	0	2	1	1	0	0	0	2
1817:	2	1	1	3	4	0	0	2
1825:	0	1	0	0	0	1	3	1
1833:	0	1	3	2	0	1	2	0
1841:	2	2	2	3	1	0	4	3
1849:	1	2	2	2	1	2	2	1
1857:	3	0	0	0	1	1	1	2
1865:	1	0	1	1	0	5	2	2
1873:	2	0	0	1	2	0	4	1
1881:	0	0	0	2	0	2	0	0
1889:	2	2	4	0	0	1	1	1
1897:	1	1	0	1	2	2	1	1
1905:	1	0	0	1	0	0	0	1
1913:	3	0	0	2	0	1	1	0
1921:	1	1	0	1	3	5	0	1
1929:	3	2	2	0	1	1	3	2
1937:	0	2	3	0	2	2	1	0
1945:	1	1	0	1	2	1	0	0
1953:	3	1	1	0	1	1	0	1
1961:	1	0	0	1	1	0	2	0
1969:	0	0	1	0	3	0	0	0
1977:	0	1	1	2	5	1	1	1
1985:	2	2	0	1	1	2	3	1
1993:	0	0	1	0	1	3	1	2
2001:	2	2	1	0	1	4	3	0
2009:	0	0	2	0	0	0	1	0
2017:	4	0	0	2	1	0	0	0
2025:	0	2	1	1	1	0	1	0
2033:	1	1	0	1	1	0	1	2
2041:	2	1	1	1	0	0	1	0
2049:	0	2	1	1	0	2	0	0
2057:	0	0	0	2	1	2	1	1
2065:	1	0	0	0	0	1	1	1
2073:	0	2	2	2	2	1	2	0
2081:	0	1	1	0	1	0	4	0
2089:	0	0	2	1	1	0	0	3

2097: 1 1 1 0 2 3 2 6

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

2529: 0 0 0 1 0 0 1 0

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Channel								
2537:	0	0	0	0	1	0	0	3
2545:	0	0	0	2	0	0	0	1
2553:	0	0	1	0	0	1	1	1
2561:	0	0	1	0	0	0	0	0
2569:	0	0	0	0	0	0	0	1
2577:	0	0	0	0	0	1	0	0
2585:	1	0	0	0	0	0	0	0
2593:	0	0	0	0	0	0	2	1
2601:	0	0	0	1	1	0	0	0
2609:	0	1	2	7	15	23	19	8
2617:	0	0	0	1	0	0	0	1
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	1	0	0	0	0
2641:	0	1	0	1	0	0	0	0
2649:	1	0	1	0	0	0	1	1
2657:	0	1	0	0	1	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	1	0
2681:	0	0	0	0	0	0	0	1
2689:	1	0	0	0	0	0	0	0
2697:	0	0	0	0	0	1	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	1	1	0	0	0	1	0
2721:	0	0	0	0	0	0	0	0
2729:	0	1	0	0	0	0	0	0
2737:	0	0	0	1	0	0	0	0
2745:	3	0	0	0	1	0	0	0
2753:	1	0	1	0	0	1	0	0
2761:	0	0	2	1	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	1	0	0	0	1	1	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	1	0	0	1	0
2801:	0	0	0	0	1	2	0	2
2809:	0	0	1	0	0	0	0	0
2817:	1	0	0	0	1	1	0	0
2825:	1	0	0	0	0	0	0	0
2833:	0	1	0	0	0	0	0	0
2841:	0	0	0	0	1	1	0	0
2849:	0	1	0	0	0	1	0	1
2857:	0	1	0	0	0	0	0	0
2865:	0	0	2	0	0	1	2	0
2873:	2	0	0	0	0	0	0	0
2881:	0	0	0	1	0	0	0	0
2889:	0	0	0	1	0	0	0	0
2897:	0	0	0	0	0	2	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	1	0
2921:	0	0	0	0	0	0	0	1
2929:	1	1	0	0	0	2	0	0
2937:	0	0	0	0	0	0	0	2
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	1	0	0

2961: 0 1 0 0 0 0 0 0 0

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

3393: 0 0 0 0 0 0 0 0

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3401:	0	1	1	0	0	0	0	1
3409:	1	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	0	0
3425:	0	1	0	0	0	1	0	1
3433:	1	0	0	0	0	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	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:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	1	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	1	0	1	0	0	0	0
3521:	0	0	0	1	0	1	0	0
3529:	0	0	0	1	1	0	0	0
3537:	0	0	0	0	1	0	0	0
3545:	0	1	2	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
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	1	0
3593:	0	0	0	0	0	0	0	0
3601:	0	0	0	1	0	0	1	0
3609:	0	0	0	0	0	1	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	1	0	0	0	0	0	0	0
3641:	1	0	0	1	0	0	1	0
3649:	0	0	1	0	0	1	0	0
3657:	0	0	0	0	0	0	0	1
3665:	0	0	0	0	0	0	1	0
3673:	0	1	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	1	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	1	0	0	0	0
3713:	0	0	0	0	1	0	0	0
3721:	0	0	0	0	0	0	1	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	1	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	1	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	1	0	0	0	0
3793:	0	0	1	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	3	0	0	1	0
3817:	0	0	0	0	0	0	0	0

3825: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S14-15

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

KB
11/10/15Analysis Report for 1510090-09
CP0603S17-18

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-09
Sample Description : CP0603S17-18
Sample Type : SOIL

Sample Size : 5.407E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:47:42AM
Acquisition Started : 11/10/2015 11:51:43AM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.4 seconds

Dead Time : 0.04 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 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 : 29392

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/11/15

Analysis Report for 1510090-09
CP0603S17-18

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 12:51:47PM
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	46.44	46.79	0.0000	0.00
2	63.49	63.84	0.0000	0.00
3	74.94	75.28	0.0000	0.00
4	77.48	77.82	0.0000	0.00
5	88.06	88.40	0.0000	0.00
6	93.03	93.37	0.0000	0.00
7	186.54	186.85	0.0000	0.00
8	208.90	209.20	0.0000	0.00
9	238.77	239.05	0.0000	0.00
10	241.87	242.15	0.0000	0.00
11	270.44	270.72	0.0000	0.00
12	277.88	278.16	0.0000	0.00
13	295.41	295.68	0.0000	0.00
14	299.88	300.15	0.0000	0.00
15	338.53	338.79	0.0000	0.00
16	352.01	352.26	0.0000	0.00
17	379.77	380.01	0.0000	0.00
18	463.20	463.41	0.0000	0.00
19	510.93	511.13	0.0000	0.00
20	583.62	583.79	0.0000	0.00
21	609.64	609.80	0.0000	0.00
22	666.82	666.96	0.0000	0.00
23	727.28	727.40	0.0000	0.00
24	768.71	768.81	0.0000	0.00
25	772.94	773.04	0.0000	0.00
26	786.44	786.54	0.0000	0.00
27	795.82	795.92	0.0000	0.00
28	805.36	805.45	0.0000	0.00
29	861.59	861.67	0.0000	0.00
30	911.66	911.71	0.0000	0.00
31	950.67	950.71	0.0000	0.00
32	957.95	957.99	0.0000	0.00
33	965.04	965.08	0.0000	0.00
34	969.34	969.37	0.0000	0.00
35	1000.43	1000.45	0.0000	0.00
36	1105.36	1105.35	0.0000	0.00
37	1120.92	1120.90	0.0000	0.00
38	1127.23	1127.21	0.0000	0.00
39	1163.26	1163.23	0.0000	0.00
40	1305.17	1305.08	0.0000	0.00
41	1378.51	1378.40	0.0000	0.00
42	1401.12	1401.00	0.0000	0.00

Analysis Report for 1510090-09
CP0603S17-18

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1404.49	1404.37	0.0000	0.00
44	1408.69	1408.56	0.0000	0.00
45	1461.34	1461.19	0.0000	0.00
46	1510.36	1510.20	0.0000	0.00
47	1565.66	1565.48	0.0000	0.00
48	1588.41	1588.22	0.0000	0.00
49	1594.29	1594.10	0.0000	0.00
50	1662.39	1662.17	0.0000	0.00
51	1730.62	1730.38	0.0000	0.00
52	1764.97	1764.72	0.0000	0.00
53	1848.57	1848.28	0.0000	0.00
54	1867.88	1867.59	0.0000	0.00
55	1889.54	1889.24	0.0000	0.00
56	2103.98	2103.59	0.0000	0.00
57	2119.07	2118.68	0.0000	0.00
58	2204.53	2204.11	0.0000	0.00
59	2356.57	2356.08	0.0000	0.00
60	2382.80	2382.30	0.0000	0.00
61	2615.16	2614.58	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-09
CP0603S17-18

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 12:51:47PM

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	46.44	44 -	49	46.79	1.77E+02	73.63	9.47E+02	1.45
	2	63.49	61 -	66	63.84	2.07E+02	91.60	1.52E+03	1.22
M	3	74.94	72 -	83	75.28	4.86E+02	101.00	1.54E+03	1.60
m	4	77.48	72 -	83	77.82	7.40E+02	108.43	1.51E+03	1.61
	5	88.06	86 -	91	88.40	1.70E+02	102.18	1.96E+03	1.38
	6	93.03	91 -	97	93.37	2.95E+02	110.69	1.90E+03	1.64
	7	186.54	181 -	191	186.85	2.94E+02	106.95	1.35E+03	1.94
	8	208.90	205 -	212	209.20	1.23E+02	75.92	8.77E+02	1.22
M	9	238.77	235 -	250	239.05	1.03E+03	79.19	4.38E+02	1.68
m	10	241.87	235 -	250	242.15	2.23E+02	62.98	3.71E+02	1.68
	11	270.44	267 -	275	270.72	1.21E+02	68.50	6.46E+02	2.51
	12	277.88	275 -	282	278.16	5.69E+01	58.96	5.28E+02	1.57
M	13	295.41	291 -	304	295.68	3.74E+02	54.48	3.49E+02	1.55
m	14	299.88	291 -	304	300.15	6.94E+01	43.32	3.28E+02	1.80
	15	338.53	335 -	342	338.79	1.76E+02	63.50	5.52E+02	1.30
	16	352.01	348 -	355	352.26	6.69E+02	68.67	3.40E+02	1.81
	17	379.77	377 -	384	380.01	5.22E+01	43.63	2.88E+02	4.42
	18	463.20	460 -	468	463.41	6.19E+01	45.29	2.74E+02	1.94
	19	510.93	505 -	515	511.13	2.17E+02	59.55	3.56E+02	2.03
	20	583.62	580 -	588	583.79	3.28E+02	53.45	2.36E+02	1.90
	21	609.64	606 -	614	609.80	4.16E+02	58.89	2.73E+02	1.89
	22	666.82	664 -	671	666.96	4.58E+01	33.41	1.46E+02	5.07
	23	727.28	724 -	730	727.40	6.47E+01	32.09	1.41E+02	1.30
M	24	768.71	763 -	775	768.81	3.24E+01	26.31	1.08E+02	2.08
m	25	772.94	763 -	775	773.04	3.09E+01	24.74	9.21E+01	2.08
	26	786.44	784 -	790	786.54	3.48E+01	26.83	1.00E+02	4.43
	27	795.82	792 -	800	795.92	2.88E+01	35.92	1.82E+02	1.66
	28	805.36	801 -	809	805.45	3.21E+01	33.66	1.48E+02	3.55
	29	861.59	857 -	866	861.67	4.62E+01	39.18	1.88E+02	1.77
	30	911.66	906 -	917	911.71	2.23E+02	49.19	1.88E+02	2.02
	31	950.67	948 -	954	950.71	2.18E+01	22.84	7.63E+01	4.52
	32	957.95	955 -	961	957.99	2.25E+01	21.37	6.70E+01	2.73
M	33	965.04	962 -	973	965.08	4.52E+01	24.15	6.77E+01	2.64
m	34	969.34	962 -	973	969.37	1.18E+02	30.32	8.55E+01	2.00
	35	1000.43	997 -	1003	1000.45	3.24E+01	18.41	3.73E+01	1.93
	36	1105.36	1102 -	1108	1105.35	2.05E+01	23.71	8.71E+01	2.62
M	37	1120.92	1114 -	1130	1120.90	1.00E+02	28.87	7.70E+01	2.26
m	38	1127.23	1114 -	1130	1127.21	2.05E+01	22.12	7.70E+01	2.27
	39	1163.26	1159 -	1168	1163.23	2.76E+01	30.32	1.17E+02	2.35
	40	1305.17	1301 -	1310	1305.08	2.99E+01	23.15	5.82E+01	3.90

Analysis Report for 1510090-09

CP0603S17-18

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1378.51	1374 -	1382	1378.40	2.07E+01	22.80	6.65E+01	1.76
M	42	1401.12	1398 -	1406	1401.00	1.84E+01	14.63	2.85E+01	2.17
m	43	1404.49	1398 -	1406	1404.37	6.72E+00	8.00	9.16E+00	2.58
	44	1408.69	1406 -	1412	1408.56	1.32E+01	13.77	2.55E+01	1.78
	45	1461.34	1454 -	1467	1461.19	9.17E+02	62.61	2.80E+01	2.26
	46	1510.36	1507 -	1514	1510.20	1.47E+01	17.32	4.07E+01	2.46
	47	1565.66	1562 -	1568	1565.48	1.06E+01	9.84	8.80E+00	1.98
M	48	1588.41	1584 -	1598	1588.22	2.30E+01	13.00	1.82E+01	2.47
m	49	1594.29	1584 -	1598	1594.10	1.81E+01	12.21	7.29E+00	2.47
	50	1662.39	1657 -	1667	1662.17	2.30E+01	9.59	0.00E+00	7.83
	51	1730.62	1727 -	1733	1730.38	1.72E+01	9.39	3.58E+00	2.55
	52	1764.97	1760 -	1768	1764.72	7.14E+01	21.48	2.71E+01	2.58
	53	1848.57	1844 -	1852	1848.28	1.59E+01	14.47	2.21E+01	3.20
	54	1867.88	1864 -	1870	1867.59	7.50E+00	8.28	7.00E+00	2.23
	55	1889.54	1885 -	1894	1889.24	9.92E+00	8.54	4.17E+00	3.10
	56	2103.98	2099 -	2112	2103.59	2.74E+01	15.56	1.73E+01	5.11
	57	2119.07	2112 -	2125	2118.68	1.90E+01	14.21	1.40E+01	3.92
	58	2204.53	2199 -	2208	2204.11	2.95E+01	14.93	1.49E+01	2.64
	59	2356.57	2352 -	2360	2356.08	1.01E+01	11.35	1.38E+01	1.15
	60	2382.80	2378 -	2385	2382.30	1.39E+01	8.94	4.19E+00	3.54
	61	2615.16	2609 -	2619	2614.58	1.39E+02	26.05	1.64E+01	2.49

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 : 11/10/2015 12:51:47PM

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	46.44	44 -	49	1.77E+02	73.63	9.47E+02	5.64E+01
	2	63.49	61 -	66	2.07E+02	91.60	1.52E+03	7.15E+01
M	3	74.94	72 -	83	4.86E+02	101.00	1.54E+03	6.45E+01
m	4	77.48	72 -	83	7.40E+02	108.43	1.51E+03	6.39E+01
	5	88.06	86 -	91	1.70E+02	102.18	1.96E+03	8.12E+01
	6	93.03	91 -	97	2.95E+02	110.69	1.90E+03	8.65E+01
	7	186.54	181 -	191	2.94E+02	106.95	1.35E+03	8.33E+01

: 00564

Analysis Report for 1510090-09

CP0603S17-18

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	8	208.90	205 -	212	1.23E+02	75.92	8.77E+02	5.97E+01
M	9	238.77	235 -	250	1.03E+03	79.19	4.38E+02	3.44E+01
m	10	241.87	235 -	250	2.23E+02	62.98	3.71E+02	3.17E+01
	11	270.44	267 -	275	1.21E+02	68.50	6.46E+02	5.33E+01
	12	277.88	275 -	282	5.69E+01	58.96	5.28E+02	4.69E+01
M	13	295.41	291 -	304	3.74E+02	54.48	3.49E+02	3.07E+01
m	14	299.88	291 -	304	6.94E+01	43.32	3.28E+02	2.98E+01
	15	338.53	335 -	342	1.76E+02	63.50	5.52E+02	4.74E+01
	16	352.01	348 -	355	6.69E+02	68.67	3.40E+02	3.71E+01
	17	379.77	377 -	384	5.22E+01	43.63	2.88E+02	3.38E+01
	18	463.20	460 -	468	6.19E+01	45.29	2.74E+02	3.49E+01
	19	510.93	505 -	515	2.17E+02	59.55	3.56E+02	4.25E+01
	20	583.62	580 -	588	3.28E+02	53.45	2.36E+02	3.23E+01
	21	609.64	606 -	614	4.16E+02	58.89	2.73E+02	3.49E+01
	22	666.82	664 -	671	4.58E+01	33.41	1.46E+02	2.51E+01
	23	727.28	724 -	730	6.47E+01	32.09	1.41E+02	2.28E+01
M	24	768.71	763 -	775	3.24E+01	26.31	1.08E+02	1.71E+01
m	25	772.94	763 -	775	3.09E+01	24.74	9.21E+01	1.58E+01
	26	786.44	784 -	790	3.48E+01	26.83	1.00E+02	1.98E+01
	27	795.82	792 -	800	2.88E+01	35.92	1.82E+02	2.82E+01
	28	805.36	801 -	809	3.21E+01	33.66	1.48E+02	1.75E+01
	29	861.59	857 -	866	4.62E+01	39.18	1.88E+02	3.02E+01
	30	911.66	906 -	917	2.23E+02	49.19	1.88E+02	3.21E+01
	31	950.67	948 -	954	2.18E+01	22.84	7.63E+01	1.71E+01
	32	957.95	955 -	961	2.25E+01	21.37	6.70E+01	1.57E+01
M	33	965.04	962 -	973	4.52E+01	24.15	6.77E+01	1.35E+01
m	34	969.34	962 -	973	1.18E+02	30.32	8.55E+01	1.52E+01
	35	1000.43	997 -	1003	3.24E+01	18.41	3.73E+01	1.19E+01
	36	1105.36	1102 -	1108	2.05E+01	23.71	8.71E+01	1.80E+01
M	37	1120.92	1114 -	1130	1.00E+02	28.87	7.70E+01	1.44E+01
m	38	1127.23	1114 -	1130	2.05E+01	22.12	7.70E+01	1.44E+01
	39	1163.26	1159 -	1168	2.76E+01	30.32	1.17E+02	2.34E+01
	40	1305.17	1301 -	1310	2.99E+01	23.15	5.82E+01	1.68E+01
	41	1378.51	1374 -	1382	2.07E+01	22.80	6.65E+01	1.72E+01
M	42	1401.12	1398 -	1406	1.84E+01	14.63	2.85E+01	8.77E+00
m	43	1404.49	1398 -	1406	6.72E+00	8.00	9.16E+00	4.98E+00
	44	1408.69	1406 -	1412	1.32E+01	13.77	2.55E+01	9.62E+00
	45	1461.34	1454 -	1467	9.17E+02	62.61	2.80E+01	1.30E+01
	46	1510.36	1507 -	1514	1.47E+01	17.32	4.07E+01	1.28E+01
	47	1565.66	1562 -	1568	1.06E+01	9.84	8.80E+00	6.06E+00
M	48	1588.41	1584 -	1598	2.30E+01	13.00	1.82E+01	7.02E+00
m	49	1594.29	1584 -	1598	1.81E+01	12.21	7.29E+00	4.44E+00
	50	1662.39	1657 -	1667	2.30E+01	9.59	0.00E+00	0.00E+00
	51	1730.62	1727 -	1733	1.72E+01	9.39	3.58E+00	3.62E+00
	52	1764.97	1760 -	1768	7.14E+01	21.48	2.71E+01	1.09E+01
	53	1848.57	1844 -	1852	1.59E+01	14.47	2.21E+01	9.91E+00
	54	1867.88	1864 -	1870	7.50E+00	8.28	7.00E+00	5.10E+00
	55	1889.54	1885 -	1894	9.92E+00	8.54	4.17E+00	4.75E+00
	56	2103.98	2099 -	2112	2.74E+01	15.56	1.73E+01	9.46E+00
	57	2119.07	2112 -	2125	1.90E+01	14.21	1.40E+01	9.23E+00
	58	2204.53	2199 -	2208	2.95E+01	14.93	1.49E+01	8.42E+00

Analysis Report for 1510090-09
CP0603S17-18

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
59	2356.57	2352 -	2360	1.01E+01	11.35	1.38E+01	7.73E+00
60	2382.80	2378 -	2385	1.39E+01	8.94	4.19E+00	4.06E+00
61	2615.16	2609 -	2619	1.39E+02	26.05	1.64E+01	9.13E+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 : 11/10/2015 12:51:47PM

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	46.44	44 -	49	46.79	1.77E+02	73.63	9.47E+02	PB-210	
2	63.49	61 -	66	63.84	2.07E+02	91.60	1.52E+03	TH-234 TH-230	
M	3	74.94	72 -	83	75.28	4.86E+02	101.00	1.54E+03	AM-243
m	4	77.48	72 -	83	77.82	7.40E+02	108.43	1.51E+03	TI-44
	5	88.06	86 -	91	88.40	1.70E+02	102.18	1.96E+03	CD-109 LU-176 SN-126
	6	93.03	91 -	97	93.37	2.95E+02	110.69	1.90E+03	GA-67
	7	186.54	181 -	191	186.85	2.94E+02	106.95	1.35E+03	RA-226
	8	208.90	205 -	212	209.20	1.23E+02	75.92	8.77E+02	GA-67 CM-243
M	9	238.77	235 -	250	239.05	1.03E+03	79.19	4.38E+02	PB-212
m	10	241.87	235 -	250	242.15	2.23E+02	62.98	3.71E+02	RA-224
	11	270.44	267 -	275	270.72	1.21E+02	68.50	6.46E+02	.....
	12	277.88	275 -	282	278.16	5.69E+01	58.96	5.28E+02	CM-243 NP-239
M	13	295.41	291 -	304	295.68	3.74E+02	54.48	3.49E+02	PB-214
m	14	299.88	291 -	304	300.15	6.94E+01	43.32	3.28E+02	BI-210M PB-212 GA-67
	15	338.53	335 -	342	338.79	1.76E+02	63.50	5.52E+02	AC-228
	16	352.01	348 -	355	352.26	6.69E+02	68.67	3.40E+02	PB-214

Analysis Report for 1510090-09

CP0603S17-18

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
17	379.77	377 -	384	380.01	5.22E+01	43.63	2.88E+02	.....
18	463.20	460 -	468	463.41	6.19E+01	45.29	2.74E+02	SB-125
19	510.93	505 -	515	511.13	2.17E+02	59.55	3.56E+02	.....
20	583.62	580 -	588	583.79	3.28E+02	53.45	2.36E+02	TL-208
21	609.64	606 -	614	609.80	4.16E+02	58.89	2.73E+02	BI-214
22	666.82	664 -	671	666.96	4.58E+01	33.41	1.46E+02	SB-126
23	727.28	724 -	730	727.40	6.47E+01	32.09	1.41E+02	BI-212
M 24	768.71	763 -	775	768.81	3.24E+01	26.31	1.08E+02	.....
m 25	772.94	763 -	775	773.04	3.09E+01	24.74	9.21E+01	.....
26	786.44	784 -	790	786.54	3.48E+01	26.83	1.00E+02	.....
27	795.82	792 -	800	795.92	2.88E+01	35.92	1.82E+02	CS-134
28	805.36	801 -	809	805.45	3.21E+01	33.66	1.48E+02	.....
29	861.59	857 -	866	861.67	4.62E+01	39.18	1.88E+02	.....
30	911.66	906 -	917	911.71	2.23E+02	49.19	1.88E+02	LU-172 AC-228
31	950.67	948 -	954	950.71	2.18E+01	22.84	7.63E+01	.....
32	957.95	955 -	961	957.99	2.25E+01	21.37	6.70E+01	.....
M 33	965.04	962 -	973	965.08	4.52E+01	24.15	6.77E+01	.....
m 34	969.34	962 -	973	969.37	1.18E+02	30.32	8.55E+01	AC-228
35	1000.43	997 -	1003	1000.45	3.24E+01	18.41	3.73E+01	PA-234M
36	1105.36	1102 -	1108	1105.35	2.05E+01	23.71	8.71E+01	.....
M 37	1120.92	1114 -	1130	1120.90	1.00E+02	28.87	7.70E+01	TA-182 SC-46 BI-214
m 38	1127.23	1114 -	1130	1127.21	2.05E+01	22.12	7.70E+01	.....
39	1163.26	1159 -	1168	1163.23	2.76E+01	30.32	1.17E+02	.....
40	1305.17	1301 -	1310	1305.08	2.99E+01	23.15	5.82E+01	.....
41	1378.51	1374 -	1382	1378.40	2.07E+01	22.80	6.65E+01	.....
M 42	1401.12	1398 -	1406	1401.00	1.84E+01	14.63	2.85E+01	.....
m 43	1404.49	1398 -	1406	1404.37	6.72E+00	8.00	9.16E+00	.....
44	1408.69	1406 -	1412	1408.56	1.32E+01	13.77	2.55E+01	EU-152
45	1461.34	1454 -	1467	1461.19	9.17E+02	62.61	2.80E+01	K-40
46	1510.36	1507 -	1514	1510.20	1.47E+01	17.32	4.07E+01	.....
47	1565.66	1562 -	1568	1565.48	1.06E+01	9.84	8.80E+00	.....
M 48	1588.41	1584 -	1598	1588.22	2.30E+01	13.00	1.82E+01	.....
m 49	1594.29	1584 -	1598	1594.10	1.81E+01	12.21	7.29E+00	.....
50	1662.39	1657 -	1667	1662.17	2.30E+01	9.59	0.00E+00	.....
51	1730.62	1727 -	1733	1730.38	1.72E+01	9.39	3.58E+00	.....
52	1764.97	1760 -	1768	1764.72	7.14E+01	21.48	2.71E+01	BI-214
53	1848.57	1844 -	1852	1848.28	1.59E+01	14.47	2.21E+01	.....
54	1867.88	1864 -	1870	1867.59	7.50E+00	8.28	7.00E+00	.....
55	1889.54	1885 -	1894	1889.24	9.92E+00	8.54	4.17E+00	.....
56	2103.98	2099 -	2112	2103.59	2.74E+01	15.56	1.73E+01	.....
57	2119.07	2112 -	2125	2118.68	1.90E+01	14.21	1.40E+01	.....
58	2204.53	2199 -	2208	2204.11	2.95E+01	14.93	1.49E+01	BI-214
59	2356.57	2352 -	2360	2356.08	1.01E+01	11.35	1.38E+01	.....
60	2382.80	2378 -	2385	2382.30	1.39E+01	8.94	4.19E+00	.....
61	2615.16	2609 -	2619	2614.58	1.39E+02	26.05	1.64E+01	TL-208

Analysis Report for 1510090-09
CP0603S17-18

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 : 11/10/2015 12:51:47PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.44	1.77E+02	73.63	1.67E-02	1.78E-03
	2	63.49	2.07E+02	91.60	2.50E-02	1.92E-03
M	3	74.94	4.86E+02	101.00	2.75E-02	2.30E-03
m	4	77.48	7.40E+02	108.43	2.78E-02	2.39E-03
	5	88.06	1.70E+02	102.18	2.85E-02	2.74E-03
	6	93.03	2.95E+02	110.69	2.86E-02	2.64E-03
	7	186.54	2.94E+02	106.95	2.24E-02	2.02E-03
	8	208.90	1.23E+02	75.92	2.09E-02	1.86E-03
M	9	238.77	1.03E+03	79.19	1.92E-02	1.64E-03
m	10	241.87	2.23E+02	62.98	1.91E-02	1.61E-03
	11	270.44	1.21E+02	68.50	1.77E-02	1.40E-03
	12	277.88	5.69E+01	58.96	1.74E-02	1.35E-03
M	13	295.41	3.74E+02	54.48	1.67E-02	1.31E-03
m	14	299.88	6.94E+01	43.32	1.65E-02	1.30E-03
	15	338.53	1.76E+02	63.50	1.52E-02	1.22E-03
	16	352.01	6.69E+02	68.67	1.48E-02	1.19E-03
	17	379.77	5.22E+01	43.63	1.40E-02	1.14E-03
	18	463.20	6.19E+01	45.29	1.21E-02	1.04E-03
	19	510.93	2.17E+02	59.55	1.12E-02	9.90E-04
	20	583.62	3.28E+02	53.45	1.02E-02	9.15E-04
	21	609.64	4.16E+02	58.89	9.82E-03	8.88E-04
	22	666.82	4.58E+01	33.41	9.16E-03	8.30E-04
	23	727.28	6.47E+01	32.09	8.55E-03	7.75E-04
M	24	768.71	3.24E+01	26.31	8.19E-03	7.38E-04
m	25	772.94	3.09E+01	24.74	8.15E-03	7.34E-04
	26	786.44	3.48E+01	26.83	8.04E-03	7.22E-04
	27	795.82	2.88E+01	35.92	7.96E-03	7.14E-04
	28	805.36	3.21E+01	33.66	7.89E-03	7.05E-04
	29	861.59	4.62E+01	39.18	7.48E-03	6.55E-04
	30	911.66	2.23E+02	49.19	7.14E-03	6.15E-04
	31	950.67	2.18E+01	22.84	6.91E-03	5.95E-04
	32	957.95	2.25E+01	21.37	6.87E-03	5.91E-04
M	33	965.04	4.52E+01	24.15	6.83E-03	5.87E-04
m	34	969.34	1.18E+02	30.32	6.80E-03	5.85E-04

Analysis Report for 1510090-09

CP0603S17-18

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1000.43	3.24E+01	18.41	6.63E-03	5.69E-04
	36	1105.36	2.05E+01	23.71	6.13E-03	5.14E-04
M	37	1120.92	1.00E+02	28.87	6.06E-03	5.06E-04
m	38	1127.23	2.05E+01	22.12	6.04E-03	5.03E-04
	39	1163.26	2.76E+01	30.32	5.89E-03	4.84E-04
	40	1305.17	2.99E+01	23.15	5.40E-03	4.56E-04
	41	1378.51	2.07E+01	22.80	5.18E-03	4.40E-04
M	42	1401.12	1.84E+01	14.63	5.12E-03	4.34E-04
m	43	1404.49	6.72E+00	8.00	5.11E-03	4.33E-04
	44	1408.69	1.32E+01	13.77	5.10E-03	4.32E-04
	45	1461.34	9.17E+02	62.61	4.97E-03	4.19E-04
	46	1510.36	1.47E+01	17.32	4.86E-03	4.07E-04
	47	1565.66	1.06E+01	9.84	4.74E-03	3.93E-04
M	48	1588.41	2.30E+01	13.00	4.69E-03	3.87E-04
m	49	1594.29	1.81E+01	12.21	4.68E-03	3.86E-04
	50	1662.39	2.30E+01	9.59	4.56E-03	3.69E-04
	51	1730.62	1.72E+01	9.39	4.45E-03	3.52E-04
	52	1764.97	7.14E+01	21.48	4.40E-03	3.44E-04
	53	1848.57	1.59E+01	14.47	4.28E-03	3.26E-04
	54	1867.88	7.50E+00	8.28	4.26E-03	3.26E-04
	55	1889.54	9.92E+00	8.54	4.23E-03	3.26E-04
	56	2103.98	2.74E+01	15.56	4.02E-03	3.26E-04
	57	2119.07	1.90E+01	14.21	4.01E-03	3.26E-04
	58	2204.53	2.95E+01	14.93	3.95E-03	3.26E-04
	59	2356.57	1.01E+01	11.35	3.87E-03	3.26E-04
	60	2382.80	1.39E+01	8.94	3.86E-03	3.26E-04
	61	2615.16	1.39E+02	26.05	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 : 11/10/2015 12:51:47PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.44	1.77E+02	73.63	4.50E+01	8.46E+00	1.32E+02	7.41E+01
	2	63.49	2.07E+02	91.60	7.80E+01	1.33E+01	1.29E+02	9.26E+01
M	3	74.94	4.86E+02	101.00	5.09E+00	4.37E+00	4.81E+02	1.01E+02

: 00569

Analysis Report for 1510090-09

CP0603S17-18

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	4	77.48	7.40E+02	108.43	9.75E+00	8.28E+00	7.31E+02	1.09E+02
	5	88.06	1.70E+02	102.18			1.70E+02	1.02E+02
	6	93.03	2.95E+02	110.69	1.34E+02	9.83E+00	1.61E+02	1.11E+02
	7	186.54	2.94E+02	106.95	6.41E+01	7.38E+00	2.30E+02	1.07E+02
	8	208.90	1.23E+02	75.92			1.23E+02	7.59E+01
M	9	238.77	1.03E+03	79.19	2.34E+01	6.34E+00	1.01E+03	7.94E+01
m	10	241.87	2.23E+02	62.98			2.23E+02	6.30E+01
	11	270.44	1.21E+02	68.50			1.21E+02	6.85E+01
	12	277.88	5.69E+01	58.96			5.69E+01	5.90E+01
M	13	295.41	3.74E+02	54.48	4.17E+00	5.50E+00	3.70E+02	5.48E+01
m	14	299.88	6.94E+01	43.32			6.94E+01	4.33E+01
	15	338.53	1.76E+02	63.50	2.22E-01	4.54E+00	1.76E+02	6.37E+01
	16	352.01	6.69E+02	68.67	8.83E+00	4.91E+00	6.60E+02	6.88E+01
	17	379.77	5.22E+01	43.63			5.22E+01	4.36E+01
	18	463.20	6.19E+01	45.29			6.19E+01	4.53E+01
	19	510.93	2.17E+02	59.55	8.12E+01	5.49E+00	1.36E+02	5.98E+01
	20	583.62	3.28E+02	53.45	6.34E+00	3.74E+00	3.21E+02	5.36E+01
	21	609.64	4.16E+02	58.89	5.20E+00	3.69E+00	4.11E+02	5.90E+01
	22	666.82	4.58E+01	33.41			4.58E+01	3.34E+01
	23	727.28	6.47E+01	32.09			6.47E+01	3.21E+01
M	24	768.71	3.24E+01	26.31			3.24E+01	2.63E+01
m	25	772.94	3.09E+01	24.74			3.09E+01	2.47E+01
	26	786.44	3.48E+01	26.83			3.48E+01	2.68E+01
	27	795.82	2.88E+01	35.92			2.88E+01	3.59E+01
	28	805.36	3.21E+01	33.66			3.21E+01	3.37E+01
	29	861.59	4.62E+01	39.18			4.62E+01	3.92E+01
	30	911.66	2.23E+02	49.19	3.28E+00	2.53E+00	2.20E+02	4.93E+01
	31	950.67	2.18E+01	22.84			2.18E+01	2.28E+01
	32	957.95	2.25E+01	21.37			2.25E+01	2.14E+01
M	33	965.04	4.52E+01	24.15			4.52E+01	2.41E+01
m	34	969.34	1.18E+02	30.32			1.18E+02	3.03E+01
	35	1000.43	3.24E+01	18.41	4.17E+00	2.83E+00	2.82E+01	1.86E+01
	36	1105.36	2.05E+01	23.71			2.05E+01	2.37E+01
M	37	1120.92	1.00E+02	28.87	2.28E+00	2.55E+00	9.80E+01	2.90E+01
m	38	1127.23	2.05E+01	22.12			2.05E+01	2.21E+01
	39	1163.26	2.76E+01	30.32			2.76E+01	3.03E+01
	40	1305.17	2.99E+01	23.15			2.99E+01	2.32E+01
	41	1378.51	2.07E+01	22.80			2.07E+01	2.28E+01
M	42	1401.12	1.84E+01	14.63			1.84E+01	1.46E+01
m	43	1404.49	6.72E+00	8.00			6.72E+00	8.00E+00
	44	1408.69	1.32E+01	13.77			1.32E+01	1.38E+01
	45	1461.34	9.17E+02	62.61	6.46E+00	2.33E+00	9.11E+02	6.27E+01
	46	1510.36	1.47E+01	17.32			1.47E+01	1.73E+01
	47	1565.66	1.06E+01	9.84			1.06E+01	9.84E+00
M	48	1588.41	2.30E+01	13.00			2.30E+01	1.30E+01
m	49	1594.29	1.81E+01	12.21			1.81E+01	1.22E+01
	50	1662.39	2.30E+01	9.59			2.30E+01	9.59E+00
	51	1730.62	1.72E+01	9.39			1.72E+01	9.39E+00
	52	1764.97	7.14E+01	21.48			7.14E+01	2.15E+01
	53	1848.57	1.59E+01	14.47			1.59E+01	1.45E+01
	54	1867.88	7.50E+00	8.28			7.50E+00	8.28E+00
	55	1889.54	9.92E+00	8.54			9.92E+00	8.54E+00
	56	2103.98	2.74E+01	15.56			2.74E+01	1.56E+01
	57	2119.07	1.90E+01	14.21			1.90E+01	1.42E+01

Analysis Report for 1510090-09

CP0603S17-18

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
58	2204.53	2.95E+01	14.93			2.95E+01	1.49E+01
59	2356.57	1.01E+01	11.35			1.01E+01	1.13E+01
60	2382.80	1.39E+01	8.94			1.39E+01	8.94E+00
61	2615.16	1.39E+02	26.05	3.47E+00	1.48E+00	1.35E+02	2.61E+01

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

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 12:51:47PM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.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	46.44	1.77E+02	73.63	4.50E+01	8.46E+00	1.32E+02	7.41E+01
2	63.49	2.07E+02	91.60	7.80E+01	1.33E+01	1.29E+02	9.26E+01
M 3	74.94	4.86E+02	101.00	5.09E+00	4.37E+00	4.81E+02	1.01E+02
m 4	77.48	7.40E+02	108.43	9.75E+00	8.28E+00	7.31E+02	1.09E+02
5	88.06	1.70E+02	102.18			1.70E+02	1.02E+02
6	93.03	2.95E+02	110.69	1.34E+02	9.83E+00	1.61E+02	1.11E+02
7	186.54	2.94E+02	106.95	6.41E+01	7.38E+00	2.30E+02	1.07E+02
8	208.90	1.23E+02	75.92			1.23E+02	7.59E+01
M 9	238.77	1.03E+03	79.19	2.34E+01	6.34E+00	1.01E+03	7.94E+01
m 10	241.87	2.23E+02	62.98			2.23E+02	6.30E+01
11	270.44	1.21E+02	68.50			1.21E+02	6.85E+01
12	277.88	5.69E+01	58.96			5.69E+01	5.90E+01
M 13	295.41	3.74E+02	54.48	4.17E+00	5.50E+00	3.70E+02	5.48E+01
m 14	299.88	6.94E+01	43.32			6.94E+01	4.33E+01
15	338.53	1.76E+02	63.50	2.22E-01	4.54E+00	1.76E+02	6.37E+01
16	352.01	6.69E+02	68.67	8.83E+00	4.91E+00	6.60E+02	6.88E+01
17	379.77	5.22E+01	43.63			5.22E+01	4.36E+01
18	463.20	6.19E+01	45.29			6.19E+01	4.53E+01
19	510.93	2.17E+02	59.55	8.12E+01	5.49E+00	1.36E+02	5.98E+01
20	583.62	3.28E+02	53.45	6.34E+00	3.74E+00	3.21E+02	5.36E+01
21	609.64	4.16E+02	58.89	5.20E+00	3.69E+00	4.11E+02	5.90E+01
22	666.82	4.58E+01	33.41			4.58E+01	3.34E+01
23	727.28	6.47E+01	32.09			6.47E+01	3.21E+01
M 24	768.71	3.24E+01	26.31			3.24E+01	2.63E+01

Analysis Report for 1510090-09

CP0603S17-18

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	25	772.94	3.09E+01	24.74			3.09E+01	2.47E+01
	26	786.44	3.48E+01	26.83			3.48E+01	2.68E+01
	27	795.82	2.88E+01	35.92			2.88E+01	3.59E+01
	28	805.36	3.21E+01	33.66			3.21E+01	3.37E+01
	29	861.59	4.62E+01	39.18			4.62E+01	3.92E+01
	30	911.66	2.23E+02	49.19	3.28E+00	2.53E+00	2.20E+02	4.93E+01
	31	950.67	2.18E+01	22.84			2.18E+01	2.28E+01
	32	957.95	2.25E+01	21.37			2.25E+01	2.14E+01
M	33	965.04	4.52E+01	24.15			4.52E+01	2.41E+01
m	34	969.34	1.18E+02	30.32			1.18E+02	3.03E+01
	35	1000.43	3.24E+01	18.41	4.17E+00	2.83E+00	2.82E+01	1.86E+01
	36	1105.36	2.05E+01	23.71			2.05E+01	2.37E+01
M	37	1120.92	1.00E+02	28.87	2.28E+00	2.55E+00	9.80E+01	2.90E+01
m	38	1127.23	2.05E+01	22.12			2.05E+01	2.21E+01
	39	1163.26	2.76E+01	30.32			2.76E+01	3.03E+01
	40	1305.17	2.99E+01	23.15			2.99E+01	2.32E+01
	41	1378.51	2.07E+01	22.80			2.07E+01	2.28E+01
M	42	1401.12	1.84E+01	14.63			1.84E+01	1.46E+01
m	43	1404.49	6.72E+00	8.00			6.72E+00	8.00E+00
	44	1408.69	1.32E+01	13.77			1.32E+01	1.38E+01
	45	1461.34	9.17E+02	62.61	6.46E+00	2.33E+00	9.11E+02	6.27E+01
	46	1510.36	1.47E+01	17.32			1.47E+01	1.73E+01
	47	1565.66	1.06E+01	9.84			1.06E+01	9.84E+00
M	48	1588.41	2.30E+01	13.00			2.30E+01	1.30E+01
m	49	1594.29	1.81E+01	12.21			1.81E+01	1.22E+01
	50	1662.39	2.30E+01	9.59			2.30E+01	9.59E+00
	51	1730.62	1.72E+01	9.39			1.72E+01	9.39E+00
	52	1764.97	7.14E+01	21.48			7.14E+01	2.15E+01
	53	1848.57	1.59E+01	14.47			1.59E+01	1.45E+01
	54	1867.88	7.50E+00	8.28			7.50E+00	8.28E+00
	55	1889.54	9.92E+00	8.54			9.92E+00	8.54E+00
	56	2103.98	2.74E+01	15.56			2.74E+01	1.56E+01
	57	2119.07	1.90E+01	14.21			1.90E+01	1.42E+01
	58	2204.53	2.95E+01	14.93			2.95E+01	1.49E+01
	59	2356.57	1.01E+01	11.35			1.01E+01	1.13E+01
	60	2382.80	1.39E+01	8.94			1.39E+01	8.94E+00
	61	2615.16	1.39E+02	26.05	3.47E+00	1.48E+00	1.35E+02	2.61E+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

: 00572

Analysis Report for 1510090-09
CP0603S17-18

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.957	1460.81 *	10.67	2.38E+01	2.64E+00
GA-67	0.608	93.31 *	35.70	2.02E+02	8.85E+02
		208.95 *	2.24	3.34E+03	1.41E+04
		300.22 *	16.00	3.36E+02	1.47E+03
CD-109	1.000	88.03 *	3.72	2.33E+00	1.43E+00
SN-126	0.962	87.57 *	37.00	2.24E-01	1.36E-01
TL-208	0.855	583.14 *	30.22	1.45E+00	2.75E-01
		860.37	4.48		
		2614.66 *	35.85	1.38E+00	2.92E-01
PB-210	0.999	46.50 *	4.25	2.59E+00	1.48E+00
BI-212	0.764	727.17 *	11.80	8.90E-01	4.49E-01
		1620.62	2.75		
PB-212	0.997	238.63 *	44.60	1.63E+00	1.90E-01
		300.09 *	3.41	1.71E+00	1.08E+00
BI-214	0.971	609.31 *	46.30	1.25E+00	2.13E-01
		1120.29 *	15.10	1.49E+00	4.57E-01
		1764.49 *	15.80	1.43E+00	4.44E-01
		2204.22 *	4.98	2.09E+00	1.07E+00
PB-214	0.997	295.21 *	19.19	1.60E+00	2.69E-01
		351.92 *	37.19	1.67E+00	2.20E-01
RA-224	0.882	240.98 *	3.95	4.12E+00	1.21E+00
RA-226	0.982	186.21 *	3.28	4.35E+00	8.22E+00
AC-228	0.969	338.32 *	11.40	1.41E+00	5.23E-01
		911.07 *	27.70	1.54E+00	3.70E-01
		969.11 *	16.60	1.45E+00	3.93E-01
PA-234M	0.944	1001.03 *	0.92	6.41E+00	4.27E+00
TH-234	0.993	63.29 *	3.80	1.88E+00	1.36E+00
AM-243	0.989	74.67 *	66.00	3.68E-01	8.33E-02
CM-243	0.354	209.75 *	3.29	2.48E+00	1.55E+00
		228.14	10.60		
		277.60 *	14.00	3.25E-01	3.38E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:51:47PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

: 00573

Analysis Report for 1510090-09
CP0603S17-18

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.48	2.02927E-01	7.44		
	11	270.44	3.36562E-02	28.27		
	17	379.77	1.44969E-02	41.80		
	18	463.20	1.71957E-02	36.58	Tol.	SB-125
	19	510.93	3.77153E-02	22.02		
	22	666.82	1.27288E-02	36.45	Tol.	SB-126
M	24	768.71	8.98999E-03	40.64		
m	25	772.94	8.58235E-03	40.03	Sum	
	26	786.44	9.66667E-03	38.55		
	27	795.82	8.00926E-03	62.28	Sum	
	28	805.36	8.91509E-03	52.43		
	29	861.59	1.28204E-02	42.44	Sum	
	31	950.67	6.06481E-03	52.31	S-Esc	
	32	957.95	6.24752E-03	47.51	Sum	
M	33	965.04	1.25692E-02	26.68		
	36	1105.36	5.68359E-03	57.94		
m	38	1127.23	5.70077E-03	53.90		
	39	1163.26	7.67926E-03	54.83		
	40	1305.17	8.30038E-03	38.74		
	41	1378.51	5.76389E-03	54.94		
M	42	1401.12	5.12464E-03	39.65		
m	43	1404.49	1.86797E-03	59.48		
	44	1408.69	3.67521E-03	52.06	Tol.	EU-152
	46	1510.36	4.07143E-03	59.09		
	47	1565.66	2.94444E-03	46.40		
M	48	1588.41	6.39888E-03	28.22		
m	49	1594.29	5.02597E-03	33.73		
	50	1662.39	6.38889E-03	20.85		
	51	1730.62	4.78070E-03	27.29	Sum	
	53	1848.57	4.42901E-03	45.36	Sum	
	54	1867.88	2.08333E-03	55.18		
	55	1889.54	2.75463E-03	43.08		
	56	2103.98	7.60031E-03	28.43	S-Esc	
	57	2119.07	5.27778E-03	37.40		
	59	2356.57	2.80229E-03	56.24		
	60	2382.80	3.86285E-03	32.16		

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 1510090-09

CP0603S17-18

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	0.95	1460.81	*	10.67	2.38E+01	2.64E+00
GA-67	0.60	93.31	*	35.70	2.02E+02	8.85E+02
		208.95	*	2.24	3.34E+03	1.41E+04
		300.22	*	16.00	3.36E+02	1.47E+03
CD-109	1.00	88.03	*	3.72	2.33E+00	1.43E+00
SN-126	0.96	87.57	*	37.00	2.24E-01	1.36E-01
TL-208	0.85	583.14	*	30.22	1.45E+00	2.75E-01
		860.37		4.48		
		2614.66	*	35.85	1.38E+00	2.92E-01
PB-210	0.99	46.50	*	4.25	2.59E+00	1.48E+00
BI-212	0.76	727.17	*	11.80	8.90E-01	4.49E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.63E+00	1.90E-01
		300.09	*	3.41	1.71E+00	1.08E+00
BI-214	0.97	609.31	*	46.30	1.25E+00	2.13E-01
		1120.29	*	15.10	1.49E+00	4.57E-01
		1764.49	*	15.80	1.43E+00	4.44E-01
		2204.22	*	4.98	2.09E+00	1.07E+00
PB-214	0.99	295.21	*	19.19	1.60E+00	2.69E-01
		351.92	*	37.19	1.67E+00	2.20E-01
RA-224	0.88	240.98	*	3.95	4.12E+00	1.21E+00
RA-226	0.98	186.21	*	3.28	4.35E+00	8.22E+00
AC-228	0.96	338.32	*	11.40	1.41E+00	5.23E-01
		911.07	*	27.70	1.54E+00	3.70E-01
		969.11	*	16.60	1.45E+00	3.93E-01
PA-234M	0.94	1001.03	*	0.92	6.41E+00	4.27E+00
TH-234	0.99	63.29	*	3.80	1.88E+00	1.36E+00
AM-243	0.98	74.67	*	66.00	3.68E-01	8.33E-02
CM-243	0.35	209.75	*	3.29	2.48E+00	1.55E+00
		228.14		10.60		
		277.60	*	14.00	3.25E-01	3.38E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510090-09

CP0603S17-18

INTERFERENCE CORRECTED REPORT

<i>Nuclide Name</i>	<i>Nuclide Id Confidence</i>	<i>Wt mean Activity (pCi/grams)</i>	<i>Wt mean Activity Uncertainty</i>	<i>Comments</i>
K-40	0.957	2.38E+01	2.64E+00	
GA-67	0.608	1.54E+02	6.55E+02	
? CD-109	1.000	2.33E+00	1.43E+00	
? SN-126	0.962	2.24E-01	1.36E-01	
TL-208	0.855	1.42E+00	2.00E-01	
PB-210	0.999	2.59E+00	1.48E+00	
BI-212	0.764	8.90E-01	4.49E-01	
PB-212	0.997	1.61E+00	1.88E-01	
BI-214	0.971	1.34E+00	1.75E-01	
PB-214	0.997	1.64E+00	1.70E-01	
RA-224	0.882	4.12E+00	1.21E+00	
RA-226	0.982	4.35E+00	8.22E+00	
AC-228	0.969	1.48E+00	2.40E-01	
PA-234M	0.944	6.41E+00	4.27E+00	
TH-234	0.993	1.88E+00	1.36E+00	
AM-243	0.989	3.68E-01	8.33E-02	
CM-243	0.354	4.18E-01	3.30E-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 1510090-09
CP0603S17-18

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:51:47PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 4	77.48	2.02927E-01	7.44		
11	270.44	3.36562E-02	28.27		
17	379.77	1.44969E-02	41.80		
18	463.20	1.71957E-02	36.58	Tol.	SB-125
19	510.93	3.77153E-02	22.02		
22	666.82	1.27288E-02	36.45	Tol.	SB-126
M 24	768.71	8.98999E-03	40.64		
m 25	772.94	8.58235E-03	40.03	Sum	
26	786.44	9.66667E-03	38.55		
27	795.82	8.00926E-03	62.28	Sum	
28	805.36	8.91509E-03	52.43		
29	861.59	1.28204E-02	42.44	Sum	
31	950.67	6.06481E-03	52.31	S-Esc	
32	957.95	6.24752E-03	47.51	Sum	
M 33	965.04	1.25692E-02	26.68		
36	1105.36	5.68359E-03	57.94		
m 38	1127.23	5.70077E-03	53.90		
39	1163.26	7.67926E-03	54.83		
40	1305.17	8.30038E-03	38.74		
41	1378.51	5.76389E-03	54.94		
M 42	1401.12	5.12464E-03	39.65		
m 43	1404.49	1.86797E-03	59.48		
44	1408.69	3.67521E-03	52.06	Tol.	EU-152
46	1510.36	4.07143E-03	59.09		
47	1565.66	2.94444E-03	46.40		
M 48	1588.41	6.39888E-03	28.22		
m 49	1594.29	5.02597E-03	33.73		
50	1662.39	6.38889E-03	20.85		
51	1730.62	4.78070E-03	27.29	Sum	
53	1848.57	4.42901E-03	45.36	Sum	
54	1867.88	2.08333E-03	55.18		
55	1889.54	2.75463E-03	43.08		
56	2103.98	7.60031E-03	28.43	S-Esc	
57	2119.07	5.27778E-03	37.40		
59	2356.57	2.80229E-03	56.24		

Analysis Report for 1510090-09
CP0603S17-18

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
60	2382.80	3.86285E-03	32.16		

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	5.00E-01	9.24E-01	9.24E-01
+	NA-22	1274.54	99.94	1.54E-02	9.13E-02	9.13E-02
+	NA-24	1368.53	99.99	-3.58E+13	9.93E+13	1.90E+14
		2754.09	99.86	-1.07E+13		9.93E+13
+	AL-26	1808.65	99.76	1.80E-02	6.66E-02	6.66E-02
+	K-40	1460.81	* 10.67	2.38E+01	7.96E-01	7.96E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.65E-02	7.37E-02	7.37E-02
		78.34	96.00	2.58E-01		9.39E-02
+	SC-46	889.25	99.98	-1.99E-02	9.40E-02	9.40E-02
		1120.51	99.99	2.51E-01		1.74E-01
+	V-48	983.52	99.98	3.65E-02	2.72E-01	3.35E-01
		1312.10	97.50	-1.41E-01		2.72E-01
+	CR-51	320.08	9.83	-8.56E-01	1.12E+00	1.12E+00
+	MN-54	834.83	99.97	2.22E-02	8.77E-02	8.77E-02
+	CO-56	846.75	99.96	-4.43E-02	8.89E-02	8.89E-02
		1037.75	14.03	-2.75E-01		6.98E-01
		1238.25	67.00	3.27E-02		2.26E-01
		1771.40	15.51	1.22E-01		5.10E-01
		2598.48	16.90	1.09E-01		3.76E-01
+	CO-57	122.06	85.51	-3.71E-02	6.24E-02	6.24E-02
		136.48	10.60	1.85E-01		5.30E-01
+	CO-58	810.76	99.40	2.55E-03	8.92E-02	8.92E-02
+	FE-59	1099.22	56.50	9.37E-02	2.45E-01	2.45E-01
		1291.56	43.20	-1.27E-01		2.98E-01
+	CO-60	1173.22	100.00	-5.61E-03	7.56E-02	8.93E-02
		1332.49	100.00	8.53E-05		7.56E-02
+	ZN-65	1115.52	50.75	-6.64E-01	1.86E-01	1.86E-01

Analysis Report for 1510090-09
CP0603S17-18

	<i>Nuclide Name</i>	<i>Energy (keV)</i>		<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	GA-67	93.31	*	35.70	2.02E+02	2.26E+02	2.26E+02
		208.95	*	2.24	3.34E+03		3.33E+03
		300.22	*	16.00	3.36E+02		6.96E+02
+	SE-75	121.11		16.70	-2.25E-02	1.02E-01	3.53E-01
		136.00		59.20	-4.44E-02		1.02E-01
		264.65		59.80	3.85E-03		1.05E-01
		279.53		25.20	6.29E-02		2.59E-01
		400.65		11.40	-8.17E-02		5.90E-01
+	RB-82	776.52		13.00	-4.64E-01	1.18E+00	1.18E+00
+	RB-83	520.41		46.00	8.80E-03	1.89E-01	1.89E-01
		529.64		30.30	-5.96E-02		2.77E-01
		552.65		16.40	4.21E-01		5.66E-01
+	KR-85	513.99		0.43	-5.49E-01	2.23E+01	2.23E+01
+	SR-85	513.99		99.27	-3.36E-03	1.37E-01	1.37E-01
+	Y-88	898.02		93.40	-1.24E-02	6.98E-02	1.05E-01
		1836.01		99.38	1.98E-02		6.98E-02
+	NB-93M	16.57		9.43	-6.84E+01	7.00E+01	7.00E+01
+	NB-94	702.63		100.00	1.02E-02	7.63E-02	7.63E-02
		871.10		100.00	4.66E-02		7.70E-02
+	NB-95	765.79		99.81	1.19E-01	1.59E-01	1.59E-01
+	NB-95M	235.69		25.00	-1.20E+03	1.31E+02	1.31E+02
+	ZR-95	724.18		43.70	2.10E-02	1.93E-01	2.51E-01
		756.72		55.30	7.81E-02		1.93E-01
+	MO-99	181.06		6.20	2.90E+02	1.72E+03	2.91E+03
		739.58		12.80	-1.06E+03		1.72E+03
		778.00		4.50	-2.83E+03		4.54E+03
+	RU-103	497.08		89.00	1.77E-02	1.31E-01	1.31E-01
+	RU-106	621.84		9.80	-5.57E-03	7.48E-01	7.48E-01
+	AG-108M	433.93		89.90	-6.46E-03	6.79E-02	6.79E-02
		614.37		90.40	3.58E-03		7.71E-02
		722.95		90.50	2.20E-02		8.23E-02
+	CD-109	88.03	*	3.72	2.33E+00	2.27E+00	2.27E+00
+	AG-110M	657.75		93.14	-6.20E-02	7.94E-02	7.94E-02
		677.61		10.53	1.78E-01		6.94E-01
		706.67		16.46	5.97E-02		5.01E-01
		763.93		21.98	-2.25E-02		3.68E-01
		884.67		71.63	-2.95E-03		1.10E-01
		1384.27		23.94	9.62E-02		3.61E-01
+	CD-113M	263.70		0.02	-2.51E-01	2.20E+02	2.20E+02
+	SN-113	255.12		1.93	-4.72E-01	9.86E-02	3.23E+00
		391.69		64.90	1.51E-02		9.86E-02
+	TE123M	159.00		84.10	-1.47E-02	7.64E-02	7.64E-02
+	SB-124	602.71		97.87	1.74E-02	1.05E-01	1.05E-01
		645.85		7.26	-6.10E-03		1.36E+00
		722.78		11.10	2.59E-01		9.71E-01
		1691.02		49.00	-5.65E-02		1.37E-01
+	I-125	35.49		6.49	-2.16E+00	3.37E+00	3.37E+00
+	SB-125	176.33		6.89	-5.53E-01	2.18E-01	7.95E-01

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
SB-125	427.89	29.33	-3.22E-02	2.18E-01	2.18E-01
	463.38	10.35	6.46E-01		7.04E-01
	600.56	17.80	-9.83E-02		3.87E-01
	635.90	11.32	7.08E-02		6.40E-01
+ SB-126	414.70	83.30	-3.18E-01	4.17E-01	4.75E-01
	666.33	99.60	3.15E-01		4.87E-01
	695.00	99.60	-1.80E-01		4.17E-01
	720.50	53.80	-1.01E-01		7.50E-01
+ SN-126	87.57	* 37.00	2.24E-01	2.18E-01	2.18E-01
+ SB-127	473.00	25.00	2.25E+01	5.93E+01	8.07E+01
	685.20	35.70	-2.46E+01		5.93E+01
	783.80	14.70	1.60E+01		1.84E+02
+ I-129	29.78	57.00	-2.57E-02	4.96E-01	4.96E-01
	33.60	13.20	-5.14E-01		1.36E+00
	39.58	7.52	1.61E+00		1.57E+00
+ I-131	284.30	6.05	-1.44E+00	1.03E+00	1.31E+01
	364.48	81.20	2.75E-01		1.03E+00
	636.97	7.26	4.95E+00		1.56E+01
	722.89	1.80	1.76E+01		6.59E+01
+ TE-132	49.72	13.10	-1.06E+02	5.75E+01	5.44E+02
	228.16	88.00	2.30E+01		5.75E+01
+ BA-133	81.00	33.00	-1.33E+00	9.55E-02	1.92E-01
	302.84	17.80	8.02E-02		3.17E-01
	356.01	60.00	4.13E-02		9.55E-02
+ I-133	529.87	86.30	-2.30E+09	1.07E+10	1.07E+10
+ XE-133	81.00	38.00	-8.04E+01	1.15E+01	1.15E+01
+ CS-134	563.23	8.38	4.39E-02	7.80E-02	8.31E-01
	569.32	15.43	1.80E-01		4.59E-01
	604.70	97.60	2.24E-02		7.80E-02
	795.84	85.40	6.03E-02		1.04E-01
	801.93	8.73	-3.41E-01		9.49E-01
+ CS-135	268.24	16.00	2.28E-01	3.84E-01	3.84E-01
+ @ 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	3.54E+00	4.01E-01	4.03E+00
	163.89	4.61	8.14E-01		6.43E+00
	176.55	13.56	-1.49E+00		2.14E+00
	273.65	12.66	-3.67E+00		2.38E+00
	340.57	48.50	1.60E+00		8.70E-01
	818.50	99.70	-5.62E-03		4.01E-01
	1048.07	79.60	-7.04E-02		4.81E-01
	1235.34	19.70	-1.29E+00		2.91E+00
	+ CS-137	661.65	85.12		1.60E-02	9.25E-02	9.25E-02
+ LA-138	788.74	34.00	3.80E-02	9.61E-02	2.19E-01
	1435.80	66.00	-4.08E-02		9.61E-02
+ CE-139	165.85	80.35	4.29E-02	7.91E-02	7.91E-02
+ BA-140	162.64	6.70	6.87E-01	1.35E+00	4.62E+00
	304.84	4.50	-1.21E+00		6.35E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	423.70	3.20	-2.26E+00	1.35E+00	1.11E+01
		437.55	2.00	2.22E+00		1.72E+01
		537.32	25.00	-2.52E-01		1.35E+00
+	LA-140	328.77	20.50	1.32E+00	4.16E-01	1.70E+00
		487.03	45.50	-1.93E-01		7.52E-01
		815.85	23.50	8.95E-02		1.73E+00
		1596.49	95.49	1.86E-01		4.16E-01
+	CE-141	145.44	48.40	7.58E-02	2.24E-01	2.24E-01
+	CE-143	57.36	11.80	1.97E+06	2.24E+06	6.35E+06
		293.26	42.00	6.22E+06		2.24E+06
		664.55	5.20	2.04E+06		1.70E+07
+	CE-144	133.54	10.80	1.23E-01	5.00E-01	5.00E-01
+	PM-144	476.78	42.00	6.84E-02	7.47E-02	1.58E-01
		618.01	98.60	1.54E-03		7.55E-02
		696.49	99.49	-3.27E-02		7.47E-02
+	PM-145	36.85	21.70	-1.11E-01	3.44E-01	6.41E-01
		37.36	39.70	8.57E-02		3.44E-01
		42.30	15.10	-2.43E-01		6.40E-01
		72.40	2.31	-3.84E+00		3.54E+00
+	PM-146	453.90	39.94	5.31E-02	1.66E-01	1.66E-01
		735.90	14.01	-8.88E-02		4.99E-01
		747.13	13.10	1.27E-01		5.74E-01
+	ND-147	91.11	28.90	-3.68E+00	1.91E+00	1.91E+00
		531.02	13.10	-7.80E-01		3.71E+00
+	PM-149	285.90	3.10	-2.43E+03	3.81E+04	3.81E+04
+	EU-152	121.78	20.50	-1.43E-01	2.41E-01	2.41E-01
		244.69	5.40	-2.48E-01		1.13E+00
		344.27	19.13	-4.38E-02		2.76E-01
		778.89	9.20	-1.07E-01		7.31E-01
		964.01	10.40	-1.52E+00		9.15E-01
		1085.78	7.22	1.39E-01		1.10E+00
		1112.02	9.60	5.49E-02		9.08E-01
		1407.95	14.94	1.05E-01		4.75E-01
+	GD-153	97.43	31.30	4.24E-02	1.84E-01	1.84E-01
		103.18	22.20	1.24E-01		2.51E-01
+	EU-154	123.07	40.50	5.16E-02	1.26E-01	1.26E-01
		723.30	19.70	1.02E-01		3.81E-01
		873.19	11.50	-2.12E-01		6.42E-01
		996.32	10.30	5.94E-02		6.48E-01
		1004.76	17.90	-1.70E-02		3.88E-01
		1274.45	35.50	4.26E-02		2.53E-01
+	EU-155	86.50	30.90	3.48E-02	2.32E-01	2.32E-01
		105.30	20.70	1.29E-01		2.54E-01
+	EU-156	811.77	10.40	6.99E-01	2.79E+00	2.79E+00
		1153.47	7.20	1.88E+00		5.82E+00
		1230.71	8.90	8.27E-01		4.92E+00
+	HO-166M	184.41	72.60	2.02E-01	9.70E-02	9.70E-02
		280.45	29.60	-1.54E-01		1.65E-01
		410.94	11.10	3.20E-01		6.53E-01

Analysis Report for 1510090-09
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HO-166M	711.69	54.10	-4.32E-02	9.70E-02	1.37E-01
+	TM-171	66.72	0.14	-1.74E+00	5.14E+01	5.14E+01
+	HF-172	81.75	4.52	-1.67E+00	4.66E-01	1.43E+00
		125.81	11.30	-2.07E-01		4.66E-01
+	LU-172	181.53	20.60	-3.28E+00	3.92E+00	7.25E+00
		810.06	16.63	-1.48E+00		1.16E+01
		912.12	15.25	7.42E+01		2.80E+01
		1093.66	62.50	2.50E-01		3.92E+00
+	LU-173	100.72	5.24	2.55E-01	3.11E-01	9.84E-01
		272.11	21.20	3.38E-01		3.11E-01
+	HF-175	343.40	84.00	2.49E-02	9.00E-02	9.00E-02
+	LU-176	88.34	13.30	4.19E-01	5.27E-02	5.54E-01
		201.83	86.00	-5.95E-03		6.23E-02
		306.78	94.00	2.43E-03		5.27E-02
+	TA-182	67.75	41.20	1.02E-01	2.05E-01	2.05E-01
		1121.30	34.90	7.31E-01		4.62E-01
		1189.05	16.23	-3.22E-01		6.02E-01
		1221.41	26.98	-8.94E-02		4.40E-01
		1231.02	11.44	1.81E-01		1.07E+00
+	IR-192	308.46	29.68	-4.74E-02	1.67E-01	2.21E-01
		468.07	48.10	8.12E-03		1.67E-01
+	HG-203	279.19	77.30	1.22E-01	1.21E-01	1.21E-01
+	BI-207	569.67	97.72	-9.41E-03	6.80E-02	6.80E-02
		1063.62	74.90	3.75E-02		1.10E-01
+	TL-208	583.14	* 30.22	1.45E+00	2.26E-01	3.08E-01
		860.37	4.48	1.82E+00		2.15E+00
		2614.66	* 35.85	1.38E+00		2.26E-01
+	BI-210M	262.00	45.00	-6.82E-02	1.07E-01	1.07E-01
		300.00	23.00	-6.46E-01		2.65E-01
+	PB-210	46.50	* 4.25	2.59E+00	2.32E+00	2.32E+00
+	PB-211	404.84	2.90	-2.00E-01	1.98E+00	1.98E+00
		831.96	2.90	-3.11E-01		2.68E+00
+	BI-212	727.17	* 11.80	8.90E-01	6.65E-01	6.65E-01
		1620.62	2.75	1.41E+00		2.67E+00
+	PB-212	238.63	* 44.60	1.63E+00	2.95E-01	2.95E-01
		300.09	* 3.41	1.71E+00		3.55E+00
+	BI-214	609.31	* 46.30	1.25E+00	2.24E-01	2.24E-01
		1120.29	* 15.10	1.49E+00		1.09E+00
		1764.49	* 15.80	1.43E+00		4.90E-01
		2204.22	* 4.98	2.09E+00		1.38E+00
+	PB-214	295.21	* 19.19	1.60E+00	1.97E-01	6.28E-01
		351.92	* 37.19	1.67E+00		1.97E-01
+	RN-219	401.80	6.50	-1.79E-01	8.60E-01	8.60E-01
+	RA-223	323.87	3.88	-5.90E-01	1.34E+00	1.34E+00
+	RA-224	240.98	* 3.95	4.12E+00	3.32E+00	3.32E+00
+	RA-225	40.00	31.00	1.72E+00	1.67E+00	1.67E+00
+	RA-226	186.21	* 3.28	4.35E+00	3.25E+00	3.25E+00
+	TH-227	50.10	8.40	-1.76E-01	5.98E-01	9.05E-01

Analysis Report for 1510090-09
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-227	236.00	11.50	-5.48E+00	5.98E-01	5.98E-01
		256.20	6.30	-1.18E-01		8.09E-01
+	AC-228	338.32 *	11.40	1.41E+00	4.73E-01	7.86E-01
		911.07 *	27.70	1.54E+00		4.73E-01
		969.11 *	16.60	1.45E+00		7.17E-01
+	TH-230	48.44	16.90	-1.94E-02	5.14E-01	5.14E-01
		62.85	4.60	3.10E+00		1.68E+00
		67.67	0.37	9.33E+00		1.88E+01
+	PA-231	283.67	1.60	-3.37E-01	2.44E+00	3.03E+00
		302.67	2.30	6.17E-01		2.44E+00
+	TH-231	25.64	14.70	-2.24E+00	1.04E+00	4.04E+00
		84.21	6.40	6.63E-01		1.04E+00
+	PA-233	311.98	38.60	-1.14E-01	2.94E-01	2.94E-01
+	PA-234	131.20	20.40	-1.79E-01	2.45E-01	2.45E-01
		733.99	8.80	2.17E-01		8.28E-01
		946.00	12.00	1.78E-01		6.80E-01
+	PA-234M	1001.03 *	0.92	6.41E+00	6.34E+00	6.34E+00
+	TH-234	63.29 *	3.80	1.88E+00	2.20E+00	2.20E+00
+	U-235	143.76	10.50	1.68E-01	5.21E-01	5.21E-01
		163.35	4.70	1.47E-01		1.16E+00
		205.31	4.70	-1.30E-01		1.18E+00
+	NP-237	86.50	12.60	8.44E-02	5.61E-01	5.61E-01
+	NP-239	106.10	22.70	1.48E+03	2.91E+03	2.91E+03
		228.18	10.70	2.59E+03		6.49E+03
		277.60	14.10	3.42E+03		5.19E+03
+	AM-241	59.54	35.90	6.29E-02	1.95E-01	1.95E-01
+	AM-243	74.67 *	66.00	3.68E-01	2.01E-01	2.01E-01
+	CM-243	209.75 *	3.29	2.48E+00	5.17E-01	2.47E+00
		228.14	10.60	2.06E-01		5.17E-01
		277.60 *	14.00	3.25E-01		5.51E-01

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

Analysis Report for 1510090-09
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NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	9.24E-01	9.24E-01	5.00E-01	4.39E-01
NA-22	1274.54	99.94	9.13E-02	9.13E-02	1.54E-02	4.22E-02
NA-24	1368.53	99.99	1.90E+14	9.93E+13	-3.58E+13	8.47E+13
	2754.09	99.86	9.93E+13		-1.07E+13	3.52E+13
AL-26	1808.65	99.76	6.66E-02	6.66E-02	1.80E-02	2.89E-02
+ K-40	1460.81	* 10.67	7.96E-01	7.96E-01	2.38E+01	3.62E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	7.37E-02	7.37E-02	3.65E-02	3.61E-02
	78.34	96.00	9.39E-02		2.58E-01	4.63E-02
SC-46	889.25	99.98	9.40E-02	9.40E-02	-1.99E-02	4.36E-02
	1120.51	99.99	1.74E-01		2.51E-01	8.28E-02
V-48	983.52	99.98	3.35E-01	2.72E-01	3.65E-02	1.56E-01
	1312.10	97.50	2.72E-01		-1.41E-01	1.22E-01
CR-51	320.08	9.83	1.12E+00	1.12E+00	-8.56E-01	5.32E-01
MN-54	834.83	99.97	8.77E-02	8.77E-02	2.22E-02	4.12E-02
CO-56	846.75	99.96	8.89E-02	8.89E-02	-4.43E-02	4.12E-02
	1037.75	14.03	6.98E-01		-2.75E-01	3.21E-01
	1238.25	67.00	2.26E-01		3.27E-02	1.06E-01
	1771.40	15.51	5.10E-01		1.22E-01	2.18E-01
	2598.48	16.90	3.76E-01		1.09E-01	1.49E-01
CO-57	122.06	85.51	6.24E-02	6.24E-02	-3.71E-02	3.03E-02
	136.48	10.60	5.30E-01		1.85E-01	2.58E-01
CO-58	810.76	99.40	8.92E-02	8.92E-02	2.55E-03	4.13E-02
FE-59	1099.22	56.50	2.45E-01	2.45E-01	9.37E-02	1.13E-01
	1291.56	43.20	2.98E-01		-1.27E-01	1.36E-01
CO-60	1173.22	100.00	8.93E-02	7.56E-02	-5.61E-03	4.14E-02
	1332.49	100.00	7.56E-02		8.53E-05	3.42E-02
ZN-65	1115.52	50.75	1.86E-01	1.86E-01	-6.64E-01	8.65E-02
+ GA-67	93.31	* 35.70	2.26E+02	2.26E+02	2.02E+02	1.11E+02
	208.95	* 2.24	3.33E+03		3.34E+03	1.63E+03
	300.22	* 16.00	6.96E+02		3.36E+02	3.41E+02
SE-75	121.11	16.70	3.53E-01	1.02E-01	-2.25E-02	1.71E-01
	136.00	59.20	1.02E-01		-4.44E-02	4.97E-02
	264.65	59.80	1.05E-01		3.85E-03	5.03E-02
	279.53	25.20	2.59E-01		6.29E-02	1.24E-01
	400.65	11.40	5.90E-01		-8.17E-02	2.80E-01
RB-82	776.52	13.00	1.18E+00	1.18E+00	-4.64E-01	5.47E-01
RB-83	520.41	46.00	1.89E-01	1.89E-01	8.80E-03	8.98E-02
	529.64	30.30	2.77E-01		-5.96E-02	1.31E-01
	552.65	16.40	5.66E-01		4.21E-01	2.69E-01
KR-85	513.99	0.43	2.23E+01	2.23E+01	-5.49E-01	1.08E+01
SR-85	513.99	99.27	1.37E-01	1.37E-01	-3.36E-03	6.61E-02
Y-88	898.02	93.40	1.05E-01	6.98E-02	-1.24E-02	4.93E-02
	1836.01	99.38	6.98E-02		1.98E-02	2.95E-02
NB-93M	16.57	9.43	7.00E+01	7.00E+01	-6.84E+01	3.25E+01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-94	702.63	100.00	7.63E-02	7.63E-02	1.02E-02	3.60E-02
	871.10	100.00	7.70E-02		4.66E-02	3.59E-02
NB-95	765.79	99.81	1.59E-01	1.59E-01	1.19E-01	7.51E-02
NB-95M	235.69	25.00	1.31E+02	1.31E+02	-1.20E+03	6.35E+01
ZR-95	724.18	43.70	2.51E-01	1.93E-01	2.10E-02	1.18E-01
	756.72	55.30	1.93E-01		7.81E-02	9.09E-02
MO-99	181.06	6.20	2.91E+03	1.72E+03	2.90E+02	1.41E+03
	739.58	12.80	1.72E+03		-1.06E+03	8.04E+02
	778.00	4.50	4.54E+03		-2.83E+03	2.10E+03
RU-103	497.08	89.00	1.31E-01	1.31E-01	1.77E-02	6.22E-02
RU-106	621.84	9.80	7.48E-01	7.48E-01	-5.57E-03	3.53E-01
AG-108M	433.93	89.90	6.79E-02	6.79E-02	-6.46E-03	3.23E-02
	614.37	90.40	7.71E-02		3.58E-03	3.64E-02
	722.95	90.50	8.23E-02		2.20E-02	3.87E-02
+ CD-109	88.03	*	2.27E+00	2.27E+00	2.33E+00	1.12E+00
AG-110M	657.75	93.14	7.94E-02	7.94E-02	-6.20E-02	3.73E-02
	677.61	10.53	6.94E-01		1.78E-01	3.25E-01
	706.67	16.46	5.01E-01		5.97E-02	2.36E-01
	763.93	21.98	3.68E-01		-2.25E-02	1.72E-01
	884.67	71.63	1.10E-01		-2.95E-03	5.13E-02
	1384.27	23.94	3.61E-01		9.62E-02	1.64E-01
CD-113M	263.70	0.02	2.20E+02	2.20E+02	-2.51E-01	1.05E+02
SN-113	255.12	1.93	3.23E+00	9.86E-02	-4.72E-01	1.55E+00
	391.69	64.90	9.86E-02		1.51E-02	4.67E-02
TE123M	159.00	84.10	7.64E-02	7.64E-02	-1.47E-02	3.71E-02
SB-124	602.71	97.87	1.05E-01	1.05E-01	1.74E-02	4.96E-02
	645.85	7.26	1.36E+00		-6.10E-03	6.39E-01
	722.78	11.10	9.71E-01		2.59E-01	4.57E-01
	1691.02	49.00	1.37E-01		-5.65E-02	5.60E-02
	I-125	35.49	6.49	3.37E+00	3.37E+00	-2.16E+00	1.64E+00
SB-125	176.33	6.89	7.95E-01	2.18E-01	-5.53E-01	3.85E-01
	427.89	29.33	2.18E-01		-3.22E-02	1.04E-01
	463.38	10.35	7.04E-01		6.46E-01	3.37E-01
	600.56	17.80	3.87E-01		-9.83E-02	1.83E-01
	635.90	11.32	6.40E-01		7.08E-02	3.02E-01
	SB-126	414.70	83.30	4.75E-01	4.17E-01	-3.18E-01	2.27E-01
SB-126	666.33	99.60	4.87E-01		3.15E-01	2.31E-01
	695.00	99.60	4.17E-01		-1.80E-01	1.96E-01
	720.50	53.80	7.50E-01		-1.01E-01	3.51E-01
+ SN-126	87.57	*	2.18E-01	2.18E-01	2.24E-01	1.07E-01
SB-127	473.00	25.00	8.07E+01	5.93E+01	2.25E+01	3.83E+01
	685.20	35.70	5.93E+01		-2.46E+01	2.77E+01
	783.80	14.70	1.84E+02		1.60E+01	8.70E+01
I-129	29.78	57.00	4.96E-01	4.96E-01	-2.57E-02	2.41E-01
	33.60	13.20	1.36E+00		-5.14E-01	6.58E-01
	39.58	7.52	1.57E+00		1.61E+00	7.64E-01
I-131	284.30	6.05	1.31E+01	1.03E+00	-1.44E+00	6.24E+00
	364.48	81.20	1.03E+00		2.75E-01	4.92E-01
	636.97	7.26	1.56E+01		4.95E+00	7.35E+00
	722.89	1.80	6.59E+01		1.76E+01	3.10E+01
TE-132	49.72	13.10	5.44E+02	5.75E+01	-1.06E+02	2.65E+02
	228.16	88.00	5.75E+01		2.30E+01	2.77E+01
BA-133	81.00	33.00	1.92E-01	9.55E-02	-1.33E+00	9.38E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	3.17E-01	9.55E-02	8.02E-02	1.52E-01
	356.01	60.00	9.55E-02		4.13E-02	4.56E-02
I-133	529.87	86.30	1.07E+10	1.07E+10	-2.30E+09	5.05E+09
XE-133	81.00	38.00	1.15E+01	1.15E+01	-8.04E+01	5.64E+00
CS-134	563.23	8.38	8.31E-01	7.80E-02	4.39E-02	3.93E-01
	569.32	15.43	4.59E-01		1.80E-01	2.17E-01
	604.70	97.60	7.80E-02		2.24E-02	3.70E-02
	795.84	85.40	1.04E-01		6.03E-02	4.89E-02
	801.93	8.73	9.49E-01		-3.41E-01	4.46E-01
CS-135	268.24	16.00	3.84E-01	3.84E-01	2.28E-01	1.86E-01
@ 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	4.03E+00	4.01E-01	3.54E+00	1.96E+00
	163.89	4.61	6.43E+00		8.14E-01	3.12E+00
	176.55	13.56	2.14E+00		-1.49E+00	1.04E+00
	273.65	12.66	2.38E+00		-3.67E+00	1.14E+00
	340.57	48.50	8.70E-01		1.60E+00	4.21E-01
	818.50	99.70	4.01E-01		-5.62E-03	1.87E-01
	1048.07	79.60	4.81E-01		-7.04E-02	2.20E-01
	1235.34	19.70	2.91E+00		-1.29E+00	1.36E+00
CS-137	661.65	85.12	9.25E-02	9.25E-02	1.60E-02	4.39E-02
LA-138	788.74	34.00	2.19E-01	9.61E-02	3.80E-02	1.03E-01
	1435.80	66.00	9.61E-02		-4.08E-02	4.24E-02
CE-139	165.85	80.35	7.91E-02	7.91E-02	4.29E-02	3.84E-02
BA-140	162.64	6.70	4.62E+00	1.35E+00	6.87E-01	2.24E+00
	304.84	4.50	6.35E+00		-1.21E+00	3.03E+00
	423.70	3.20	1.11E+01		-2.26E+00	5.30E+00
	437.55	2.00	1.72E+01		2.22E+00	8.15E+00
	537.32	25.00	1.35E+00		-2.52E-01	6.35E-01
LA-140	328.77	20.50	1.70E+00	4.16E-01	1.32E+00	8.15E-01
	487.03	45.50	7.52E-01		-1.93E-01	3.56E-01
	815.85	23.50	1.73E+00		8.95E-02	8.09E-01
	1596.49	95.49	4.16E-01		1.86E-01	1.84E-01
CE-141	145.44	48.40	2.24E-01	2.24E-01	7.58E-02	1.09E-01
CE-143	57.36	11.80	6.35E+06	2.24E+06	1.97E+06	3.10E+06
	293.26	42.00	2.24E+06		6.22E+06	1.09E+06
	664.55	5.20	1.70E+07		2.04E+06	8.05E+06
CE-144	133.54	10.80	5.00E-01	5.00E-01	1.23E-01	2.43E-01
PM-144	476.78	42.00	1.58E-01	7.47E-02	6.84E-02	7.50E-02
	618.01	98.60	7.55E-02		1.54E-03	3.57E-02
	696.49	99.49	7.47E-02		-3.27E-02	3.51E-02
PM-145	36.85	21.70	6.41E-01	3.44E-01	-1.11E-01	3.11E-01
	37.36	39.70	3.44E-01		8.57E-02	1.67E-01
	42.30	15.10	6.40E-01		-2.43E-01	3.11E-01
	72.40	2.31	3.54E+00		-3.84E+00	1.74E+00
PM-146	453.90	39.94	1.66E-01	1.66E-01	5.31E-02	7.93E-02
	735.90	14.01	4.99E-01		-8.88E-02	2.33E-01
	747.13	13.10	5.74E-01		1.27E-01	2.70E-01
ND-147	91.11	28.90	1.91E+00	1.91E+00	-3.68E+00	9.38E-01
	531.02	13.10	3.71E+00		-7.80E-01	1.76E+00
PM-149	285.90	3.10	3.81E+04	3.81E+04	-2.43E+03	1.82E+04
EU-152	121.78	20.50	2.41E-01	2.41E-01	-1.43E-01	1.17E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	244.69	5.40	1.13E+00	2.41E-01	-2.48E-01	5.46E-01
	344.27	19.13	2.76E-01		-4.38E-02	1.31E-01
	778.89	9.20	7.31E-01		-1.07E-01	3.40E-01
	964.01	10.40	9.15E-01		-1.52E+00	4.31E-01
	1085.78	7.22	1.10E+00		1.39E-01	5.06E-01
	1112.02	9.60	9.08E-01		5.49E-02	4.22E-01
	1407.95	14.94	4.75E-01		1.05E-01	2.13E-01
GD-153	97.43	31.30	1.84E-01	1.84E-01	4.24E-02	8.98E-02
	103.18	22.20	2.51E-01		1.24E-01	1.22E-01
EU-154	123.07	40.50	1.26E-01	1.26E-01	5.16E-02	6.12E-02
	723.30	19.70	3.81E-01		1.02E-01	1.79E-01
	873.19	11.50	6.42E-01		-2.12E-01	2.99E-01
	996.32	10.30	6.48E-01		5.94E-02	2.96E-01
	1004.76	17.90	3.88E-01		-1.70E-02	1.78E-01
EU-155	1274.45	35.50	2.53E-01	2.32E-01	4.26E-02	1.17E-01
	86.50	30.90	2.32E-01		3.48E-02	1.14E-01
	105.30	20.70	2.54E-01		1.29E-01	1.24E-01
EU-156	811.77	10.40	2.79E+00	2.79E+00	6.99E-01	1.29E+00
	1153.47	7.20	5.82E+00		1.88E+00	2.72E+00
	1230.71	8.90	4.92E+00		8.27E-01	2.30E+00
HO-166M	184.41	72.60	9.70E-02	9.70E-02	2.02E-01	4.73E-02
	280.45	29.60	1.65E-01		-1.54E-01	7.86E-02
	410.94	11.10	6.53E-01		3.20E-01	3.14E-01
	711.69	54.10	1.37E-01		-4.32E-02	6.44E-02
TM-171	66.72	0.14	5.14E+01	5.14E+01	-1.74E+00	2.52E+01
HF-172	81.75	4.52	1.43E+00	4.66E-01	-1.67E+00	7.02E-01
	125.81	11.30	4.66E-01		-2.07E-01	2.27E-01
LU-172	181.53	20.60	7.25E+00	3.92E+00	-3.28E+00	3.51E+00
	810.06	16.63	1.16E+01		-1.48E+00	5.40E+00
	912.12	15.25	2.80E+01		7.42E+01	1.35E+01
	1093.66	62.50	3.92E+00		2.50E-01	1.82E+00
LU-173	100.72	5.24	9.84E-01	3.11E-01	2.55E-01	4.79E-01
	272.11	21.20	3.11E-01		3.38E-01	1.50E-01
HF-175	343.40	84.00	9.00E-02	9.00E-02	2.49E-02	4.29E-02
LU-176	88.34	13.30	5.54E-01	5.27E-02	4.19E-01	2.72E-01
	201.83	86.00	6.23E-02		-5.95E-03	3.01E-02
	306.78	94.00	5.27E-02		2.43E-03	2.51E-02
TA-182	67.75	41.20	2.05E-01	2.05E-01	1.02E-01	1.01E-01
	1121.30	34.90	4.62E-01		7.31E-01	2.20E-01
	1189.05	16.23	6.02E-01		-3.22E-01	2.77E-01
	1221.41	26.98	4.40E-01		-8.94E-02	2.05E-01
	1231.02	11.44	1.07E+00		1.81E-01	5.01E-01
IR-192	308.46	29.68	2.21E-01	1.67E-01	-4.74E-02	1.05E-01
	468.07	48.10	1.67E-01		8.12E-03	7.89E-02
HG-203	279.19	77.30	1.21E-01	1.21E-01	1.22E-01	5.80E-02
BI-207	569.67	97.72	6.80E-02	6.80E-02	-9.41E-03	3.22E-02
	1063.62	74.90	1.10E-01		3.75E-02	5.12E-02
+ TL-208	583.14	*	30.22	2.26E-01	1.45E+00	1.48E-01
	860.37		4.48		1.82E+00	1.02E+00
	2614.66	*	35.85		1.38E+00	9.92E-02
BI-210M	262.00		45.00	1.07E-01	-6.82E-02	5.10E-02
	300.00		23.00		-6.46E-01	1.27E-01
+ PB-210	46.50	*	4.25	2.32E+00	2.59E+00	1.13E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	1.98E+00	1.98E+00	-2.00E-01	9.40E-01
	831.96	2.90	2.68E+00		-3.11E-01	1.25E+00
+ BI-212	727.17 *	11.80	6.65E-01	6.65E-01	8.90E-01	3.14E-01
	1620.62	2.75	2.67E+00		1.41E+00	1.19E+00
+ PB-212	238.63 *	44.60	2.95E-01	2.95E-01	1.63E+00	1.45E-01
	300.09 *	3.41	3.55E+00		1.71E+00	1.74E+00
+ BI-214	609.31 *	46.30	2.24E-01	2.24E-01	1.25E+00	1.08E-01
	1120.29 *	15.10	1.09E+00		1.49E+00	5.23E-01
	1764.49 *	15.80	4.90E-01		1.43E+00	2.18E-01
	2204.22 *	4.98	1.38E+00		2.09E+00	5.95E-01
+ PB-214	295.21 *	19.19	6.28E-01	1.97E-01	1.60E+00	3.08E-01
	351.92 *	37.19	1.97E-01		1.67E+00	9.53E-02
RN-219	401.80	6.50	8.60E-01	8.60E-01	-1.79E-01	4.09E-01
RA-223	323.87	3.88	1.34E+00	1.34E+00	-5.90E-01	6.38E-01
+ RA-224	240.98 *	3.95	3.32E+00	3.32E+00	4.12E+00	1.64E+00
RA-225	40.00	31.00	1.67E+00	1.67E+00	1.72E+00	8.12E-01
+ RA-226	186.21 *	3.28	3.25E+00	3.25E+00	4.35E+00	1.60E+00
TH-227	50.10	8.40	9.05E-01	5.98E-01	-1.76E-01	4.41E-01
	236.00	11.50	5.98E-01		-5.48E+00	2.91E-01
	256.20	6.30	8.09E-01		-1.18E-01	3.88E-01
+ AC-228	338.32 *	11.40	7.86E-01	4.73E-01	1.41E+00	3.82E-01
	911.07 *	27.70	4.73E-01		1.54E+00	2.27E-01
	969.11 *	16.60	7.17E-01		1.45E+00	3.42E-01
TH-230	48.44	16.90	5.14E-01	5.14E-01	-1.94E-02	2.51E-01
	62.85	4.60	1.68E+00		3.10E+00	8.23E-01
	67.67	0.37	1.88E+01		9.33E+00	9.22E+00
PA-231	283.67	1.60	3.03E+00	2.44E+00	-3.37E-01	1.45E+00
	302.67	2.30	2.44E+00		6.17E-01	1.17E+00
TH-231	25.64	14.70	4.04E+00	1.04E+00	-2.24E+00	1.96E+00
	84.21	6.40	1.04E+00		6.63E-01	5.09E-01
PA-233	311.98	38.60	2.94E-01	2.94E-01	-1.14E-01	1.40E-01
PA-234	131.20	20.40	2.45E-01	2.45E-01	-1.79E-01	1.19E-01
	733.99	8.80	8.28E-01		2.17E-01	3.89E-01
	946.00	12.00	6.80E-01		1.78E-01	3.18E-01
+ PA-234M	1001.03 *	0.92	6.34E+00	6.34E+00	6.41E+00	2.86E+00
+ TH-234	63.29 *	3.80	2.20E+00	2.20E+00	1.88E+00	1.08E+00
U-235	143.76	10.50	5.21E-01	5.21E-01	1.68E-01	2.54E-01
	163.35	4.70	1.16E+00		1.47E-01	5.63E-01
	205.31	4.70	1.18E+00		-1.30E-01	5.73E-01
NP-237	86.50	12.60	5.61E-01	5.61E-01	8.44E-02	2.76E-01
NP-239	106.10	22.70	2.91E+03	2.91E+03	1.48E+03	1.42E+03
	228.18	10.70	6.49E+03		2.59E+03	3.13E+03
	277.60	14.10	5.19E+03		3.42E+03	2.50E+03
AM-241	59.54	35.90	1.95E-01	1.95E-01	6.29E-02	9.53E-02
+ AM-243	74.67 *	66.00	2.01E-01	2.01E-01	3.68E-01	9.96E-02
+ CM-243	209.75 *	3.29	2.47E+00	5.17E-01	2.48E+00	1.21E+00
	228.14	10.60	5.17E-01		2.06E-01	2.49E-01
	277.60 *	14.00	5.51E-01		3.25E-01	2.68E-01

Analysis Report for 1510090-09
CP0603S17-18

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

<i>Creation Date</i>	<i>Comment</i>	<i>User</i>
----------------------	----------------	-------------

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: CP0603S17-18

Elapsed Live time: 3600
 Elapsed Real Time: 3601

Channel	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193	201	209	217	225	233	241	249	257	265	273	281	289	297	305	313	321	329	337	345	353	361																																																																																																																																																																																																																																																																																																	
1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																													
9:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																												
17:	0	1	58	95	112	91	99	79	94	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122	83	85	93	94	105	132	93	112	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122																																																																																																																																																																																																																																																																								
25:	94	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	93	94	105	132	93	112	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122																																																																																																																																																																																																																																																																								
33:	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	93	94	105	132	93	112	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122																																																																																																																																																																																																																																																																								
41:	86	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	93	94	105	132	93	112	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122																																																																																																																																																																																																																																																																								
49:	83	85	93	94	105	132	93	112	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122	83	85	58	87	85	96	178	122																																																																																																																																																																																																																																																																								
57:	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122	83	85	93	94	105	132	93	112	94	132	133	109	120	132	152	280	65	67	70	77	62	82	72	78	74	72	76	81	80	96	92	86	85	58	87	85	96	178	122																																																																																																																																																																																																																																																																									
65:	159	125	148	162	154	172	154	160	169	189	455	352	435	580	167	159	127	139	126	168	178	131	214	270	142	193	200	140	322	246	127	104	105	96	93	114	86	80	73	77	111	132	83	88	97	107	92	93	98	92	99	82	86	70	88	74	121	76	85	81	90	96	80	88	75	129	103	99	78	75	71	75	88	84	137	71	75	97	77	97	75	85	104	145	98	82	72	84	79	86	83	66	153	90	114	78	80	58	83	93	74	161	74	80	72	88	73	75	76	64	169	61	72	72	74	65	86	75	72	177	53	68	76	78	74	59	69	57	185	75	200	172	76	76	63	48	50	193	58	57	57	56	72	59	62	59	201	63	58	58	55	59	69	64	63	209	68	117	63	58	48	49	54	59	217	50	54	59	37	65	58	69	59	225	46	48	50	41	55	67	44	38	233	55	61	43	65	63	169	686	275	241	109	153	128	61	37	38	31	37	249	42	27	39	45	41	42	38	37	257	39	37	45	33	33	33	31	35	265	53	29	45	32	55	73	63	46	273	48	47	35	35	56	67	30	35	281	35	28	27	35	26	35	35	31	289	37	37	37	32	28	30	178	229	297	63	29	41	65	57	32	35	30	30	305	33	23	25	34	26	23	26	25	313	35	30	32	36	31	29	30	26	321	25	21	31	40	34	18	26	53	329	51	39	29	26	36	41	34	43	337	21	76	165	51	30	32	32	24	345	28	33	18	25	30	24	76	375	353	252	42	15	27	33	20	20	361	20	29	25	27	21	29	23	19

369: 22 21 23 23 28 26 21 9

Sample Title: CP0603S17-18

Channel	1	2	3	4	5	6	7	8
377:	17	29	14	32	34	27	24	19
385:	25	20	18	30	18	18	19	26
393:	32	17	15	22	24	26	29	24
401:	15	26	28	29	24	28	18	24
409:	36	34	30	27	23	29	25	25
417:	21	13	33	22	17	9	22	28
425:	23	16	27	18	16	18	22	19
433:	18	18	15	17	21	19	23	18
441:	12	20	12	17	28	16	15	14
449:	25	16	22	24	17	16	21	18
457:	24	16	15	19	19	21	39	41
465:	14	15	14	17	11	20	18	14
473:	17	14	19	17	15	16	15	22
481:	18	6	17	12	16	14	18	17
489:	13	15	19	23	22	22	22	16
497:	16	16	14	19	11	15	15	23
505:	17	23	20	20	30	58	102	60
513:	25	30	10	15	18	15	18	17
521:	24	13	15	18	13	21	21	12
529:	7	17	17	23	11	18	16	9
537:	10	15	10	8	19	13	13	14
545:	11	18	18	16	17	19	20	20
553:	14	18	23	11	9	9	18	16
561:	15	17	12	12	14	21	16	16
569:	17	13	13	13	13	12	16	13
577:	17	20	13	15	12	17	143	173
585:	34	25	20	7	18	18	17	12
593:	16	12	18	9	17	12	13	13
601:	9	19	18	12	19	16	13	18
609:	161	233	70	14	16	12	15	13
617:	17	12	13	14	15	18	10	12
625:	13	15	11	11	10	15	12	13
633:	17	12	9	20	17	12	10	17
641:	10	8	14	12	12	12	12	12
649:	13	11	19	11	15	14	9	10
657:	9	13	16	15	11	21	17	10
665:	23	22	20	11	15	12	6	7
673:	17	12	11	15	7	5	15	14
681:	10	8	3	19	8	7	16	11
689:	13	14	14	14	12	10	12	14
697:	5	12	13	15	11	20	10	12
705:	15	13	12	14	9	18	8	13
713:	11	17	12	9	23	8	10	14
721:	13	7	13	5	12	23	21	47
729:	16	11	11	13	15	10	14	10
737:	8	9	6	15	7	10	13	15
745:	14	12	10	9	8	14	8	11
753:	10	14	18	11	11	10	8	11
761:	6	11	11	9	10	17	14	16
769:	25	12	8	11	23	12	6	8
777:	7	10	7	6	9	14	13	7
785:	19	19	16	8	12	4	7	9
793:	9	7	21	26	9	14	14	11

801: 13 12 7 17 12 13 21 6

Sample Title: CP0603S17-18

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	5	6	8	7	9	12	10	11
817:	6	7	10	13	7	15	10	8
825:	12	9	8	12	12	7	10	17
833:	8	11	10	11	14	12	7	16
841:	9	14	7	13	8	6	10	5
849:	6	5	12	8	5	12	8	13
857:	12	6	11	19	34	21	9	7
865:	11	10	4	10	8	11	9	10
873:	8	12	6	5	8	15	12	8
881:	13	6	8	9	4	9	10	12
889:	6	7	6	7	10	12	11	14
897:	8	9	10	8	10	12	9	14
905:	8	12	9	10	11	22	84	105
913:	29	12	7	11	5	7	9	8
921:	4	9	5	11	7	9	12	13
929:	5	7	7	10	14	14	9	8
937:	9	10	7	8	7	4	11	8
945:	13	9	8	6	12	14	9	5
953:	11	3	6	5	10	12	13	6
961:	4	6	10	13	28	14	14	22
969:	58	53	8	9	4	13	10	8
977:	9	11	11	8	8	9	10	8
985:	14	5	11	9	7	8	1	6
993:	8	10	3	2	5	6	5	9
1001:	16	9	1	3	6	10	8	5
1009:	10	6	9	7	5	3	8	3
1017:	10	11	10	4	7	7	7	6
1025:	5	6	10	5	8	4	6	7
1033:	7	10	5	11	9	5	4	5
1041:	7	7	10	7	5	5	4	9
1049:	8	6	4	3	7	8	5	9
1057:	7	6	3	6	5	10	6	10
1065:	11	7	7	10	5	8	6	7
1073:	6	10	5	3	5	12	9	7
1081:	8	3	6	9	6	10	4	5
1089:	9	3	11	13	8	9	5	9
1097:	7	9	11	6	9	4	7	11
1105:	16	13	10	3	9	6	11	10
1113:	5	6	11	9	8	7	11	33
1121:	52	22	9	7	6	6	15	7
1129:	11	3	8	3	10	4	6	8
1137:	3	8	9	6	12	5	6	10
1145:	9	7	5	6	12	8	6	9
1153:	16	5	14	11	10	4	6	6
1161:	10	14	11	7	8	10	10	4
1169:	9	8	6	6	9	12	9	5
1177:	11	8	5	11	7	7	13	13
1185:	6	7	7	10	11	1	4	4
1193:	8	9	8	6	6	9	14	11
1201:	17	13	12	9	5	6	6	9
1209:	8	6	11	12	6	9	12	11
1217:	9	8	13	10	9	10	7	7
1225:	12	9	9	8	9	13	6	7

1233: 15 10 7 10 8 17 17 16

Sample Title: CP0603S17-18

Channel	1	2	3	4	5	6	7	8	9
1241:	12	11	10	17	7	8	5	9	
1249:	11	7	7	6	6	7	6	9	
1257:	10	9	4	3	9	6	6	3	
1265:	8	3	3	8	9	5	8	6	
1273:	7	5	8	8	7	3	8	6	
1281:	6	8	7	4	7	10	7	4	
1289:	2	6	3	8	7	6	8	3	
1297:	9	10	2	4	3	5	8	11	
1305:	7	8	6	5	4	2	3	4	
1313:	4	3	4	6	11	5	8	3	
1321:	4	4	4	4	8	8	6	4	
1329:	5	3	6	4	5	3	5	4	
1337:	4	10	5	4	7	5	4	4	
1345:	6	3	2	5	3	3	0	3	
1353:	7	7	2	2	2	4	2	5	
1361:	7	3	1	3	6	6	2	3	
1369:	2	2	1	4	5	4	2	3	
1377:	10	14	6	7	5	3	3	5	
1385:	5	9	3	2	4	2	2	0	
1393:	5	4	3	6	4	2	3	1	
1401:	10	7	1	5	2	0	2	9	
1409:	7	2	3	3	2	4	3	3	
1417:	2	1	3	0	2	6	4	3	
1425:	4	4	2	5	1	4	3	8	
1433:	2	3	3	3	3	1	4	3	
1441:	3	3	4	3	2	1	0	3	
1449:	4	3	4	3	1	1	5	6	
1457:	2	5	25	160	373	280	54	8	
1465:	7	5	0	2	2	4	1	3	
1473:	0	5	2	4	2	5	2	3	
1481:	6	1	1	2	2	2	2	3	
1489:	2	1	0	4	1	1	2	3	
1497:	7	3	1	4	3	4	5	1	
1505:	3	3	1	2	6	9	7	4	
1513:	3	3	3	2	3	1	2	1	
1521:	2	5	4	4	3	4	2	1	
1529:	1	5	2	2	1	2	2	2	
1537:	0	4	3	1	3	2	3	3	
1545:	4	1	1	0	3	1	7	0	
1553:	1	1	0	0	2	2	0	3	
1561:	2	1	2	1	5	5	1	0	
1569:	0	2	0	1	0	0	3	1	
1577:	1	2	2	2	5	2	2	2	
1585:	3	3	3	11	6	3	1	4	
1593:	3	8	5	1	3	0	0	1	
1601:	1	1	0	1	1	2	0	2	
1609:	1	3	1	0	1	0	0	2	
1617:	4	2	2	6	3	3	2	1	
1625:	2	3	1	2	1	4	6	5	
1633:	0	3	1	0	1	2	1	2	
1641:	2	1	4	1	1	2	2	3	
1649:	0	7	2	0	1	2	1	0	
1657:	0	2	3	1	3	3	5	1	

1665: 1 4 0 0 1 1 2 0

Sample Title: CP0603S17-18

Channel	1	2	3	4	5	6	7	8
1673:	0	1	0	1	0	1	1	3
1681:	0	2	2	1	0	2	3	0
1689:	1	1	0	1	2	2	1	1
1697:	1	2	4	2	2	0	2	2
1705:	1	1	2	0	1	1	3	0
1713:	1	0	1	1	1	0	1	2
1721:	3	1	0	2	1	0	0	1
1729:	3	5	7	3	0	1	1	0
1737:	2	0	2	2	1	1	1	1
1745:	1	1	1	2	0	0	1	0
1753:	1	1	1	0	0	1	4	0
1761:	2	2	7	29	27	16	2	0
1769:	2	0	2	3	2	3	0	3
1777:	3	1	1	0	0	0	4	0
1785:	0	0	0	0	0	1	0	1
1793:	0	1	0	1	1	2	2	0
1801:	0	2	1	0	5	0	0	3
1809:	2	1	4	2	2	0	0	2
1817:	1	2	0	5	1	0	1	0
1825:	1	0	3	2	1	2	0	1
1833:	0	1	1	1	3	3	1	0
1841:	2	1	3	0	3	2	5	5
1849:	6	3	3	0	2	3	0	1
1857:	0	0	1	1	0	0	1	0
1865:	1	1	3	4	2	0	1	1
1873:	1	0	2	3	0	3	0	3
1881:	1	1	1	1	0	0	3	2
1889:	3	1	1	1	1	0	0	3
1897:	0	2	1	2	0	2	1	2
1905:	0	0	0	1	2	0	2	1
1913:	0	3	0	0	3	1	2	1
1921:	0	0	1	2	1	0	1	1
1929:	1	2	2	1	1	2	0	1
1937:	0	1	1	2	4	0	1	2
1945:	1	0	0	0	2	1	1	1
1953:	0	1	0	1	1	2	1	3
1961:	2	0	2	1	1	0	1	2
1969:	1	0	0	1	1	0	0	1
1977:	2	2	2	2	0	0	2	1
1985:	0	0	1	0	0	0	3	5
1993:	3	1	1	1	2	1	1	1
2001:	1	1	1	0	0	2	1	3
2009:	0	0	2	1	0	1	2	2
2017:	1	1	1	1	1	2	1	1
2025:	0	0	2	0	1	0	1	3
2033:	2	0	1	0	1	2	2	0
2041:	0	0	3	1	0	3	0	1
2049:	0	1	0	1	1	1	1	1
2057:	1	3	0	2	0	0	1	2
2065:	1	1	0	0	1	0	3	1
2073:	0	2	0	1	2	1	1	1
2081:	1	3	0	1	1	1	0	3
2089:	0	2	1	2	1	0	1	2

2097: 0 0 0 1 4 4 6 6

Sample Title: CP0603S17-18

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2105:	6	3	1	1	1	2	1	0
2113:	2	2	1	0	2	5	4	2
2121:	3	2	2	1	0	1	0	0
2129:	1	1	2	1	0	1	1	1
2137:	1	0	1	1	0	1	2	2
2145:	1	1	0	0	1	0	1	0
2153:	1	1	1	1	3	0	1	1
2161:	0	1	1	2	2	0	1	0
2169:	1	0	1	2	0	0	1	1
2177:	2	1	0	0	1	0	0	1
2185:	1	1	0	0	0	1	3	1
2193:	0	0	0	3	1	2	0	1
2201:	2	3	7	11	9	1	3	0
2209:	1	1	0	1	4	1	0	2
2217:	2	0	0	1	1	1	2	1
2225:	3	0	0	2	0	1	1	2
2233:	2	2	2	2	2	0	1	0
2241:	1	0	2	1	1	1	2	1
2249:	0	2	1	2	0	3	1	2
2257:	1	2	1	0	3	2	1	1
2265:	0	0	0	0	1	1	3	3
2273:	1	2	0	5	1	1	1	2
2281:	1	1	1	1	2	2	1	3
2289:	0	1	0	1	1	0	4	2
2297:	1	2	0	1	0	2	1	1
2305:	1	0	4	2	2	1	2	1
2313:	0	3	1	3	0	3	1	5
2321:	4	2	0	2	2	0	0	0
2329:	1	1	2	1	0	0	0	0
2337:	0	2	1	2	1	2	2	1
2345:	0	1	0	0	4	0	1	0
2353:	3	1	3	1	2	6	1	0
2361:	2	0	1	1	1	1	1	2
2369:	2	0	2	1	2	0	2	0
2377:	1	0	2	0	3	4	2	5
2385:	0	0	0	1	1	2	2	2
2393:	1	0	1	0	2	1	0	0
2401:	1	0	2	0	0	1	1	0
2409:	0	1	1	1	2	0	0	2
2417:	1	0	0	4	0	0	1	1
2425:	0	1	1	0	0	0	0	0
2433:	0	1	0	0	1	0	1	1
2441:	2	1	0	1	1	2	5	4
2449:	1	1	0	4	0	0	0	2
2457:	0	1	0	1	1	0	1	1
2465:	1	0	1	2	2	0	0	0
2473:	2	1	2	0	1	1	0	1
2481:	0	0	1	1	0	1	2	2
2489:	0	0	0	0	0	0	2	0
2497:	0	0	0	1	1	0	0	0
2505:	0	1	1	1	1	2	1	1
2513:	1	0	0	0	1	0	0	0
2521:	1	2	0	0	0	1	0	1

2529: 0 0 1 0 1 0 0 0 1

Sample Title: CP0603S17-18

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	1	1	0	3	0	0
2545:	0	0	1	2	0	0	0	1
2553:	1	0	0	0	0	0	0	0
2561:	1	1	1	0	0	0	0	3
2569:	0	1	0	0	0	1	1	1
2577:	0	0	0	3	1	0	0	1
2585:	1	1	0	0	1	2	0	0
2593:	1	1	1	0	0	1	1	0
2601:	0	1	0	0	0	0	2	2
2609:	1	2	0	6	16	48	47	21
2617:	5	1	0	0	0	1	1	1
2625:	2	0	0	0	0	0	0	1
2633:	1	0	0	0	1	0	0	0
2641:	1	0	0	0	1	1	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	1	0	2	0	0	2	0
2665:	0	0	0	0	0	0	0	0
2673:	0	1	0	0	0	0	1	0
2681:	0	0	0	1	0	1	0	1
2689:	1	0	0	1	1	1	1	0
2697:	0	1	0	0	1	0	0	0
2705:	0	0	1	0	1	0	1	1
2713:	0	0	0	0	0	0	1	0
2721:	0	0	0	0	0	0	0	0
2729:	1	0	1	0	0	1	0	0
2737:	0	1	0	1	0	0	0	0
2745:	0	0	1	0	1	0	1	0
2753:	0	0	0	0	0	0	0	1
2761:	0	0	1	0	0	0	0	0
2769:	1	0	0	0	1	1	1	0
2777:	0	0	0	0	0	0	1	0
2785:	0	0	0	0	0	0	0	2
2793:	0	1	0	0	0	0	0	0
2801:	0	0	0	0	0	2	0	0
2809:	0	0	0	0	0	0	1	0
2817:	0	0	0	0	0	1	0	0
2825:	0	1	0	0	3	1	0	0
2833:	0	0	0	0	0	1	0	1
2841:	0	0	1	0	0	0	0	0
2849:	2	0	2	1	0	0	1	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	1	1	0
2881:	0	0	1	0	0	0	1	0
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	1	0	0	1
2905:	0	0	0	0	0	0	0	0
2913:	1	0	0	0	0	0	0	1
2921:	0	0	0	0	0	0	1	0
2929:	0	1	0	1	0	0	1	0
2937:	0	0	0	0	0	0	0	1
2945:	0	0	0	0	1	0	0	1
2953:	1	0	0	0	0	0	0	2

2961: 1 0 1 1 1 0 0 0

Sample Title: CP0603S17-18

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

3393: 0 0 0 1 0 0 0 0

Sample Title: CP0603S17-18

3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	2	0	1	1	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	0	0	0	0	0	0	0
3441:	1	0	0	0	0	0	1	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	0	1	0	0	1
3465:	0	0	0	0	1	1	1	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	1	0	0	0	0	0	0
3505:	0	0	0	0	1	0	0	0
3513:	1	0	0	0	0	0	0	1
3521:	0	1	1	0	0	0	0	0
3529:	0	0	0	0	0	0	0	1
3537:	0	0	0	0	1	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	1	1	0	0	0	0
3561:	0	0	0	0	0	0	1	0
3569:	0	0	1	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	0	0	0	0	0	1
3601:	0	0	0	0	0	0	1	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	1	0	0	0	0	0
3633:	0	0	0	1	0	0	0	0
3641:	0	1	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	1	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	1	0	0	1	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	1	0	1	0	0
3705:	0	0	0	0	0	0	0	1
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	1	0	0	0	0
3729:	0	0	0	0	1	0	0	0
3737:	0	0	0	0	0	0	1	0
3745:	0	0	0	2	1	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	1	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	1	0	0	0	2	0	0	0
3785:	0	0	1	0	0	0	0	0
3793:	0	0	0	0	0	1	0	0
3801:	0	0	0	1	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	1	0	0	0	0	0	0	0

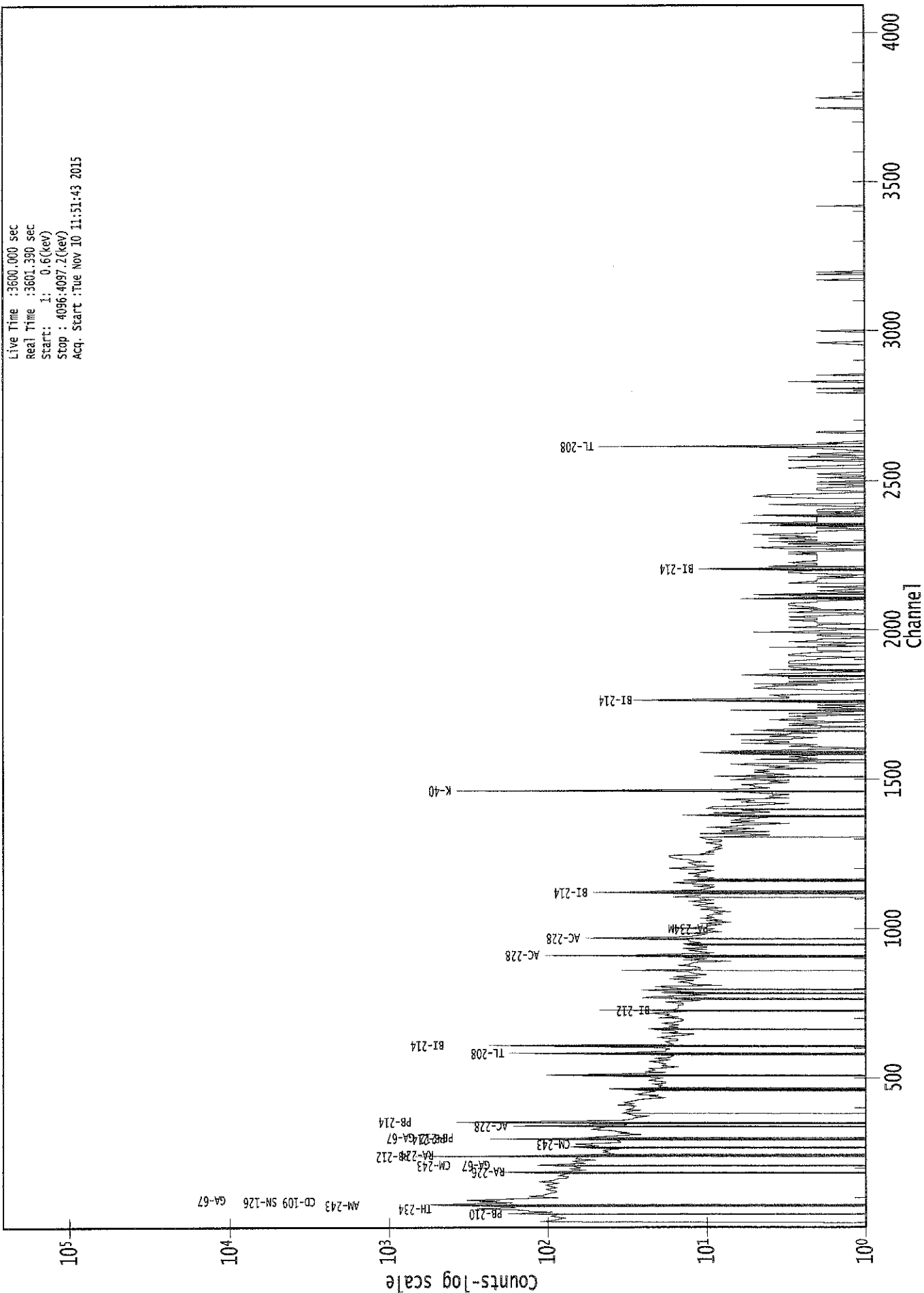
3825: 0 0 0 0 0 1 0 0

Sample Title: CP0603S17-18

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

0000029392.CNF

Live Time :3600.000 sec
Real Time :3601.390 sec
Start : 1: 0.6(kev)
Stop : 4096.4097.2(kev)
Acq. Start :Tue Nov 10 11:51:43 2015



ROI Type: 1

ROI Type: 2

KB
11/10/15



Analysis Report for 1510090-10
CP0603S19-20

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510090-10
Sample Description	: CP0603S19-20
Sample Type	: SOIL
Sample Size	: 5.123E+02 grams
Facility	: Countroom
Sample Taken On	: 10/9/2015 9:48:09AM
Acquisition Started	: 11/10/2015 11:55:35AM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3639.0 seconds
Dead Time	: 1.07 %
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	: 29393

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/11/15

Analysis Report for 1510090-10
CP0603S19-20

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 12:56:16PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.22	61.48	0.0000	0.00
2	76.01	75.27	0.0000	0.00
3	87.21	86.48	0.0000	0.00
4	93.03	92.30	0.0000	0.00
5	144.95	144.24	0.0000	0.00
6	185.75	185.07	0.0000	0.00
7	196.63	195.95	0.0000	0.00
8	239.56	238.89	0.0000	0.00
9	296.35	295.71	0.0000	0.00
10	327.89	327.27	0.0000	0.00
11	338.69	338.07	0.0000	0.00
12	352.30	351.69	0.0000	0.00
13	583.84	583.33	0.0000	0.00
14	609.09	608.60	0.0000	0.00
15	727.48	727.04	0.0000	0.00
16	742.19	741.77	0.0000	0.00
17	767.38	766.96	0.0000	0.00
18	776.13	775.72	0.0000	0.00
19	798.78	798.39	0.0000	0.00
20	834.16	833.78	0.0000	0.00
21	886.76	886.40	0.0000	0.00
22	911.12	910.78	0.0000	0.00
23	968.69	968.38	0.0000	0.00
24	1120.77	1120.54	0.0000	0.00
25	1137.46	1137.24	0.0000	0.00
26	1146.25	1146.04	0.0000	0.00
27	1160.45	1160.24	0.0000	0.00
28	1211.01	1210.84	0.0000	0.00
29	1283.22	1283.09	0.0000	0.00
30	1345.64	1345.55	0.0000	0.00
31	1376.12	1376.04	0.0000	0.00
32	1461.01	1460.98	0.0000	0.00
33	1764.87	1765.04	0.0000	0.00
34	1846.92	1847.14	0.0000	0.00
35	2204.57	2205.03	0.0000	0.00
36	2614.93	2615.70	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-10
CP0603S19-20

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 12:56:16PM

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	56 -	66	61.48	2.03E+02	122.55	1.90E+03	3.60
	2	70 -	79	75.27	7.95E+02	127.28	1.86E+03	4.56
M	3	82 -	96	86.48	2.03E+02	92.09	1.34E+03	3.44
m	4	82 -	96	92.30	2.88E+02	92.48	1.10E+03	2.83
	5	141 -	148	144.24	5.44E+01	67.41	7.23E+02	3.02
	6	181 -	189	185.07	8.65E+01	71.56	7.27E+02	2.80
	7	193 -	199	195.95	5.09E+01	52.12	4.60E+02	2.40
	8	232 -	245	238.89	6.19E+02	93.96	7.03E+02	2.80
	9	291 -	301	295.71	1.56E+02	65.22	4.84E+02	1.98
M	10	324 -	342	327.27	3.16E+01	37.75	2.65E+02	2.97
m	11	324 -	342	338.07	1.15E+02	49.24	2.78E+02	2.97
	12	346 -	358	351.69	2.54E+02	67.04	4.09E+02	2.29
	13	579 -	587	583.33	1.30E+02	37.63	1.34E+02	2.78
	14	602 -	615	608.60	1.66E+02	53.58	2.45E+02	2.47
	15	723 -	733	727.04	3.09E+01	35.87	1.58E+02	2.75
	16	738 -	746	741.77	2.80E+01	22.25	6.01E+01	3.34
M	17	761 -	778	766.96	2.85E+01	24.40	5.95E+01	3.10
m	18	761 -	778	775.72	2.39E+01	19.38	5.41E+01	3.10
	19	791 -	807	798.39	4.63E+01	41.19	1.41E+02	11.55
	20	829 -	837	833.78	1.75E+01	21.90	6.30E+01	4.03
	21	883 -	889	886.40	1.37E+01	17.31	3.66E+01	1.20
	22	903 -	918	910.78	1.04E+02	40.20	1.20E+02	3.07
	23	961 -	973	968.38	6.08E+01	34.38	1.10E+02	3.41
M	24	1116 -	1141	1120.54	5.17E+01	23.62	5.42E+01	3.85
m	25	1116 -	1141	1137.24	1.76E+01	20.35	4.25E+01	3.85
	26	1143 -	1148	1146.04	1.80E+01	15.33	3.19E+01	1.97
	27	1155 -	1164	1160.24	2.16E+01	22.45	5.87E+01	6.66
	28	1208 -	1215	1210.84	1.97E+01	20.49	5.86E+01	3.36
	29	1274 -	1292	1283.09	3.40E+01	33.35	8.20E+01	13.84
	30	1341 -	1350	1345.55	2.10E+01	12.41	1.00E+01	1.78
	31	1371 -	1382	1376.04	1.86E+01	19.08	3.68E+01	5.40
	32	1453 -	1466	1460.98	2.72E+02	36.66	3.10E+01	2.95
	33	1760 -	1769	1765.04	2.50E+01	13.04	1.00E+01	2.75
	34	1842 -	1851	1847.14	6.67E+00	7.81	4.67E+00	1.82
	35	2201 -	2209	2205.03	9.05E+00	8.02	3.91E+00	4.81
	36	2610 -	2620	2615.70	3.70E+01	12.17	0.00E+00	2.79

Analysis Report for 1510090-10
CP0603S19-20

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 : 11/10/2015 12:56:16PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.22	56 - 66	2.03E+02	122.55	1.90E+03	9.80E+01
	2	76.01	70 - 79	7.95E+02	127.28	1.86E+03	9.38E+01
M	3	87.21	82 - 96	2.03E+02	92.09	1.34E+03	6.01E+01
m	4	93.03	82 - 96	2.88E+02	92.48	1.10E+03	5.46E+01
	5	144.95	141 - 148	5.44E+01	67.41	7.23E+02	5.41E+01
	6	185.75	181 - 189	8.65E+01	71.56	7.27E+02	5.68E+01
	7	196.63	193 - 199	5.09E+01	52.12	4.60E+02	4.12E+01
	8	239.56	232 - 245	6.19E+02	93.96	7.03E+02	6.55E+01
	9	296.35	291 - 301	1.56E+02	65.22	4.84E+02	4.95E+01
M	10	327.89	324 - 342	3.16E+01	37.75	2.65E+02	2.68E+01
m	11	338.69	324 - 342	1.15E+02	49.24	2.78E+02	2.74E+01
	12	352.30	346 - 358	2.54E+02	67.04	4.09E+02	4.85E+01
	13	583.84	579 - 587	1.30E+02	37.63	1.34E+02	2.46E+01
	14	609.09	602 - 615	1.66E+02	53.58	2.45E+02	3.86E+01
	15	727.48	723 - 733	3.09E+01	35.87	1.58E+02	2.80E+01
	16	742.19	738 - 746	2.80E+01	22.25	6.01E+01	1.61E+01
M	17	767.38	761 - 778	2.85E+01	24.40	5.95E+01	1.27E+01
m	18	776.13	761 - 778	2.39E+01	19.38	5.41E+01	1.21E+01
	19	798.78	791 - 807	4.63E+01	41.19	1.41E+02	3.20E+01
	20	834.16	829 - 837	1.75E+01	21.90	6.30E+01	1.66E+01
	21	886.76	883 - 889	1.37E+01	17.31	3.66E+01	1.29E+01
	22	911.12	903 - 918	1.04E+02	40.20	1.20E+02	2.85E+01
	23	968.69	961 - 973	6.08E+01	34.38	1.10E+02	2.52E+01
M	24	1120.77	1116 - 1141	5.17E+01	23.62	5.42E+01	1.21E+01
m	25	1137.46	1116 - 1141	1.76E+01	20.35	4.25E+01	1.07E+01
	26	1146.25	1143 - 1148	1.80E+01	15.33	3.19E+01	1.05E+01
	27	1160.45	1155 - 1164	2.16E+01	22.45	5.87E+01	1.68E+01
	28	1211.01	1208 - 1215	1.97E+01	20.49	5.86E+01	1.52E+01
	29	1283.22	1274 - 1292	3.40E+01	33.35	8.20E+01	2.57E+01
	30	1345.64	1341 - 1350	2.10E+01	12.41	1.00E+01	6.88E+00
	31	1376.12	1371 - 1382	1.86E+01	19.08	3.68E+01	1.40E+01

Analysis Report for 1510090-10

CP0603S19-20

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1461.01	1453 -	1466	2.72E+02	36.66	3.10E+01	1.32E+01
33	1764.87	1760 -	1769	2.50E+01	13.04	1.00E+01	6.88E+00
34	1846.92	1842 -	1851	6.67E+00	7.81	4.67E+00	4.82E+00
35	2204.57	2201 -	2209	9.05E+00	8.02	3.91E+00	4.35E+00
36	2614.93	2610 -	2620	3.70E+01	12.17	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 : 11/10/2015 12:56:16PM

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	56 -	66	61.48	2.03E+02	122.55	1.90E+03	TH-230
	2	70 -	79	75.27	7.95E+02	127.28	1.86E+03	.....
M	3	82 -	96	86.48	2.03E+02	92.09	1.34E+03	SN-126 NP-237 EU-155 CD-109
m	4	82 -	96	92.30	2.88E+02	92.48	1.10E+03	GA-67
	5	141 -	148	144.24	5.44E+01	67.41	7.23E+02	CE-141
	6	181 -	189	185.07	8.65E+01	71.56	7.27E+02	RA-226
	7	193 -	199	195.95	5.09E+01	52.12	4.60E+02	.....
	8	232 -	245	238.89	6.19E+02	93.96	7.03E+02	PB-212
	9	291 -	301	295.71	1.56E+02	65.22	4.84E+02	.....
M	10	324 -	342	327.27	3.16E+01	37.75	2.65E+02	LA-140
m	11	324 -	342	338.07	1.15E+02	49.24	2.78E+02	AC-228
	12	346 -	358	351.69	2.54E+02	67.04	4.09E+02	PB-214
	13	579 -	587	583.33	1.30E+02	37.63	1.34E+02	TL-208
	14	602 -	615	608.60	1.66E+02	53.58	2.45E+02	BI-214
	15	723 -	733	727.04	3.09E+01	35.87	1.58E+02	BI-212
	16	738 -	746	741.77	2.80E+01	22.25	6.01E+01	.....
M	17	761 -	778	766.96	2.85E+01	24.40	5.95E+01	.....
m	18	761 -	778	775.72	2.39E+01	19.38	5.41E+01	RB-82

Analysis Report for 1510090-10

CP0603S19-20

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	19	798.78	791 -	807	798.39	4.63E+01	41.19	1.41E+02	.....
	20	834.16	829 -	837	833.78	1.75E+01	21.90	6.30E+01	MN-54
	21	886.76	883 -	889	886.40	1.37E+01	17.31	3.66E+01	.....
	22	911.12	903 -	918	910.78	1.04E+02	40.20	1.20E+02	AC-228 LU-172
	23	968.69	961 -	973	968.38	6.08E+01	34.38	1.10E+02	AC-228
M	24	1120.77	1116 -	1141	1120.54	5.17E+01	23.62	5.42E+01	SC-46 BI-214 TA-182
m	25	1137.46	1116 -	1141	1137.24	1.76E+01	20.35	4.25E+01	.....
	26	1146.25	1143 -	1148	1146.04	1.80E+01	15.33	3.19E+01	.....
	27	1160.45	1155 -	1164	1160.24	2.16E+01	22.45	5.87E+01	.....
	28	1211.01	1208 -	1215	1210.84	1.97E+01	20.49	5.86E+01	.....
	29	1283.22	1274 -	1292	1283.09	3.40E+01	33.35	8.20E+01	.....
	30	1345.64	1341 -	1350	1345.55	2.10E+01	12.41	1.00E+01	.....
	31	1376.12	1371 -	1382	1376.04	1.86E+01	19.08	3.68E+01	.....
	32	1461.01	1453 -	1466	1460.98	2.72E+02	36.66	3.10E+01	K-40
	33	1764.87	1760 -	1769	1765.04	2.50E+01	13.04	1.00E+01	BI-214
	34	1846.92	1842 -	1851	1847.14	6.67E+00	7.81	4.67E+00	.....
	35	2204.57	2201 -	2209	2205.03	9.05E+00	8.02	3.91E+00	BI-214
	36	2614.93	2610 -	2620	2615.70	3.70E+01	12.17	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 : 11/10/2015 12:56:16PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.22	2.03E+02	122.55	2.34E-02	1.77E-03
	2	76.01	7.95E+02	127.28	2.13E-02	1.69E-03
M	3	87.21	2.03E+02	92.09	1.97E-02	1.64E-03
m	4	93.03	2.88E+02	92.48	1.90E-02	1.62E-03
	5	144.95	5.44E+01	67.41	1.41E-02	1.36E-03
	6	185.75	8.65E+01	71.56	1.16E-02	1.15E-03
	7	196.63	5.09E+01	52.12	1.11E-02	1.12E-03
	8	239.56	6.19E+02	93.96	9.39E-03	9.84E-04
	9	296.35	1.56E+02	65.22	7.76E-03	8.42E-04

Analysis Report for 1510090-10
CP0603S19-20

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	10	327.89	3.16E+01	37.75	7.06E-03	8.07E-04
m	11	338.69	1.15E+02	49.24	6.85E-03	7.95E-04
	12	352.30	2.54E+02	67.04	6.60E-03	7.80E-04
	13	583.84	1.30E+02	37.63	4.04E-03	4.54E-04
	14	609.09	1.66E+02	53.58	3.88E-03	4.17E-04
	15	727.48	3.09E+01	35.87	3.25E-03	3.03E-04
	16	742.19	2.80E+01	22.25	3.19E-03	2.95E-04
M	17	767.38	2.85E+01	24.40	3.09E-03	2.81E-04
m	18	776.13	2.39E+01	19.38	3.05E-03	2.76E-04
	19	798.78	4.63E+01	41.19	2.97E-03	2.63E-04
	20	834.16	1.75E+01	21.90	2.84E-03	2.44E-04
	21	886.76	1.37E+01	17.31	2.68E-03	2.14E-04
	22	911.12	1.04E+02	40.20	2.61E-03	2.06E-04
	23	968.69	6.08E+01	34.38	2.46E-03	1.99E-04
M	24	1120.77	5.17E+01	23.62	2.14E-03	1.79E-04
m	25	1137.46	1.76E+01	20.35	2.11E-03	1.77E-04
	26	1146.25	1.80E+01	15.33	2.10E-03	1.76E-04
	27	1160.45	2.16E+01	22.45	2.07E-03	1.74E-04
	28	1211.01	1.97E+01	20.49	1.99E-03	1.83E-04
	29	1283.22	3.40E+01	33.35	1.89E-03	2.02E-04
	30	1345.64	2.10E+01	12.41	1.81E-03	2.13E-04
	31	1376.12	1.86E+01	19.08	1.78E-03	2.07E-04
	32	1461.01	2.72E+02	36.66	1.68E-03	1.89E-04
	33	1764.87	2.50E+01	13.04	1.43E-03	1.26E-04
	34	1846.92	6.67E+00	7.81	1.38E-03	1.11E-04
	35	2204.57	9.05E+00	8.02	1.21E-03	1.11E-04
	36	2614.93	3.70E+01	12.17	1.07E-03	1.11E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/10/2015 12:56:16PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.22	2.03E+02	122.55			2.03E+02	1.23E+02
	2	76.01	7.95E+02	127.28			7.95E+02	1.27E+02
M	3	87.21	2.03E+02	92.09			2.03E+02	9.21E+01

Analysis Report for 1510090-10

CP0603S19-20

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	4	93.03	2.88E+02	92.48	5.44E+01	8.36E+00	2.34E+02	9.29E+01
	5	144.95	5.44E+01	67.41			5.44E+01	6.74E+01
	6	185.75	8.65E+01	71.56	1.43E+01	7.33E+00	7.22E+01	7.19E+01
	7	196.63	5.09E+01	52.12			5.09E+01	5.21E+01
	8	239.56	6.19E+02	93.96	1.09E+01	6.39E+00	6.08E+02	9.42E+01
	9	296.35	1.56E+02	65.22			1.56E+02	6.52E+01
M	10	327.89	3.16E+01	37.75			3.16E+01	3.77E+01
m	11	338.69	1.15E+02	49.24			1.15E+02	4.92E+01
	12	352.30	2.54E+02	67.04	8.07E+00	5.01E+00	2.46E+02	6.72E+01
	13	583.84	1.30E+02	37.63			1.30E+02	3.76E+01
	14	609.09	1.66E+02	53.58	5.16E+00	1.63E+00	1.61E+02	5.36E+01
	15	727.48	3.09E+01	35.87			3.09E+01	3.59E+01
	16	742.19	2.80E+01	22.25			2.80E+01	2.23E+01
M	17	767.38	2.85E+01	24.40			2.85E+01	2.44E+01
m	18	776.13	2.39E+01	19.38			2.39E+01	1.94E+01
	19	798.78	4.63E+01	41.19			4.63E+01	4.12E+01
	20	834.16	1.75E+01	21.90			1.75E+01	2.19E+01
	21	886.76	1.37E+01	17.31			1.37E+01	1.73E+01
	22	911.12	1.04E+02	40.20	1.01E+00	2.85E+00	1.03E+02	4.03E+01
	23	968.69	6.08E+01	34.38			6.08E+01	3.44E+01
M	24	1120.77	5.17E+01	23.62			5.17E+01	2.36E+01
m	25	1137.46	1.76E+01	20.35			1.76E+01	2.03E+01
	26	1146.25	1.80E+01	15.33			1.80E+01	1.53E+01
	27	1160.45	2.16E+01	22.45			2.16E+01	2.24E+01
	28	1211.01	1.97E+01	20.49			1.97E+01	2.05E+01
	29	1283.22	3.40E+01	33.35			3.40E+01	3.34E+01
	30	1345.64	2.10E+01	12.41			2.10E+01	1.24E+01
	31	1376.12	1.86E+01	19.08			1.86E+01	1.91E+01
	32	1461.01	2.72E+02	36.66			2.72E+02	3.67E+01
	33	1764.87	2.50E+01	13.04	1.11E-01	9.77E-01	2.49E+01	1.31E+01
	34	1846.92	6.67E+00	7.81			6.67E+00	7.81E+00
	35	2204.57	9.05E+00	8.02			9.05E+00	8.02E+00
	36	2614.93	3.70E+01	12.17	1.20E+00	1.02E+00	3.58E+01	1.22E+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 1510090-10

CP0603S19-20

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 12:56:16PM

Ref. Peak Energy : 0.00 Reference Date :

Peak Ratio : 0.00 Uncertainty : 0.00

Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	62.22	2.03E+02	122.55			2.03E+02	1.23E+02
	2	76.01	7.95E+02	127.28			7.95E+02	1.27E+02
M	3	87.21	2.03E+02	92.09			2.03E+02	9.21E+01
m	4	93.03	2.88E+02	92.48	5.44E+01	8.36E+00	2.34E+02	9.29E+01
	5	144.95	5.44E+01	67.41			5.44E+01	6.74E+01
	6	185.75	8.65E+01	71.56	1.43E+01	7.33E+00	7.22E+01	7.19E+01
	7	196.63	5.09E+01	52.12			5.09E+01	5.21E+01
	8	239.56	6.19E+02	93.96	1.09E+01	6.39E+00	6.08E+02	9.42E+01
	9	296.35	1.56E+02	65.22			1.56E+02	6.52E+01
M	10	327.89	3.16E+01	37.75			3.16E+01	3.77E+01
m	11	338.69	1.15E+02	49.24			1.15E+02	4.92E+01
	12	352.30	2.54E+02	67.04	8.07E+00	5.01E+00	2.46E+02	6.72E+01
	13	583.84	1.30E+02	37.63			1.30E+02	3.76E+01
	14	609.09	1.66E+02	53.58	5.16E+00	1.63E+00	1.61E+02	5.36E+01
	15	727.48	3.09E+01	35.87			3.09E+01	3.59E+01
	16	742.19	2.80E+01	22.25			2.80E+01	2.23E+01
M	17	767.38	2.85E+01	24.40			2.85E+01	2.44E+01
m	18	776.13	2.39E+01	19.38			2.39E+01	1.94E+01
	19	798.78	4.63E+01	41.19			4.63E+01	4.12E+01
	20	834.16	1.75E+01	21.90			1.75E+01	2.19E+01
	21	886.76	1.37E+01	17.31			1.37E+01	1.73E+01
	22	911.12	1.04E+02	40.20	1.01E+00	2.85E+00	1.03E+02	4.03E+01
	23	968.69	6.08E+01	34.38			6.08E+01	3.44E+01
M	24	1120.77	5.17E+01	23.62			5.17E+01	2.36E+01
m	25	1137.46	1.76E+01	20.35			1.76E+01	2.03E+01
	26	1146.25	1.80E+01	15.33			1.80E+01	1.53E+01
	27	1160.45	2.16E+01	22.45			2.16E+01	2.24E+01
	28	1211.01	1.97E+01	20.49			1.97E+01	2.05E+01
	29	1283.22	3.40E+01	33.35			3.40E+01	3.34E+01
	30	1345.64	2.10E+01	12.41			2.10E+01	1.24E+01
	31	1376.12	1.86E+01	19.08			1.86E+01	1.91E+01
	32	1461.01	2.72E+02	36.66			2.72E+02	3.67E+01
	33	1764.87	2.50E+01	13.04	1.11E-01	9.77E-01	2.49E+01	1.31E+01
	34	1846.92	6.67E+00	7.81			6.67E+00	7.81E+00
	35	2204.57	9.05E+00	8.02			9.05E+00	8.02E+00
	36	2614.93	3.70E+01	12.17	1.20E+00	1.02E+00	3.58E+01	1.22E+01

Analysis Report for 1510090-10
CP0603S19-20

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	0.994	1460.81	*	10.67	2.21E+01	3.92E+00
MN-54	0.930	834.83	*	99.97	9.68E-02	1.21E-01
GA-67	0.365	93.31	*	35.70	4.65E+02	2.02E+03
		208.95		2.24		
		300.22		16.00		
RB-82	0.968	776.52	*	13.00	2.11E+00	1.72E+00
CD-109	0.898	88.03	*	3.72	4.25E+00	1.98E+00
SN-126	0.980	87.57	*	37.00	4.07E-01	1.88E-01
CE-141	0.957	145.44	*	48.40	2.32E-01	2.93E-01
EU-155	0.334	86.50	*	30.90	4.93E-01	2.28E-01
		105.30		20.70		
TL-208	0.848	583.14	*	30.22	1.56E+00	4.84E-01
		860.37		4.48		
		2614.66	*	35.85	1.37E+00	4.87E-01
BI-212	0.767	727.17	*	11.80	1.18E+00	1.37E+00
		1620.62		2.75		
PB-212	0.777	238.63	*	44.60	2.13E+00	3.98E-01
		300.09		3.41		
BI-214	0.983	609.31	*	46.30	1.32E+00	4.60E-01
		1120.29	*	15.10	2.34E+00	1.09E+00
		1764.49	*	15.80	1.61E+00	8.57E-01
		2204.22	*	4.98	2.21E+00	1.97E+00
PB-214	0.411	295.21		19.19		
		351.92	*	37.19	1.47E+00	4.37E-01
RA-226	0.967	186.21	*	3.28	2.77E+00	5.78E+00
AC-228	0.987	338.32	*	11.40	2.17E+00	9.57E-01
		911.07	*	27.70	2.09E+00	8.33E-01
		969.11	*	16.60	2.18E+00	1.25E+00
NP-237	0.923	86.50	*	12.60	1.20E+00	5.52E-01

Analysis Report for 1510090-10

CP0603S19-20

* = 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 : 11/10/2015 12:56:16PM

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	62.22	5.62629E-02	30.25	Tol.	TH-230
2	76.01	2.20898E-01	8.00		
7	196.63	1.41405E-02	51.19		
9	296.35	4.33333E-02	20.90		
M 10	327.89	8.76837E-03	59.79	Tol.	LA-140
16	742.19	7.77059E-03	39.78	D-Esc	
M 17	767.38	7.91464E-03	42.82		
19	798.78	1.28668E-02	44.46		
21	886.76	3.80208E-03	63.22		
m 25	1137.46	4.88121E-03	57.89		
26	1146.25	5.00817E-03	42.51		
27	1160.45	6.01307E-03	51.85		
28	1211.01	5.47052E-03	52.03		
29	1283.22	9.45000E-03	49.02		
30	1345.64	5.83333E-03	29.55		
31	1376.12	5.16517E-03	51.30		
34	1846.92	1.85185E-03	58.58		

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 1510090-10
CP0603S19-20

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	2.21E+01	3.92E+00
MN-54	0.93	834.83	*	99.97	9.68E-02	1.21E-01
GA-67	0.36	93.31	*	35.70	4.65E+02	2.02E+03
		208.95		2.24		
		300.22		16.00		
RB-82	0.96	776.52	*	13.00	2.11E+00	1.72E+00
CD-109	0.89	88.03	*	3.72	4.25E+00	1.98E+00
SN-126	0.98	87.57	*	37.00	4.07E-01	1.88E-01
CE-141	0.95	145.44	*	48.40	2.32E-01	2.93E-01
EU-155	0.33	86.50	*	30.90	4.93E-01	2.28E-01
		105.30		20.70		
TL-208	0.84	583.14	*	30.22	1.56E+00	4.84E-01
		860.37		4.48		
		2614.66	*	35.85	1.37E+00	4.87E-01
BI-212	0.76	727.17	*	11.80	1.18E+00	1.37E+00
		1620.62		2.75		
PB-212	0.77	238.63	*	44.60	2.13E+00	3.98E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	1.32E+00	4.60E-01
		1120.29	*	15.10	2.34E+00	1.09E+00
		1764.49	*	15.80	1.61E+00	8.57E-01
		2204.22	*	4.98	2.21E+00	1.97E+00
PB-214	0.41	295.21		19.19		
		351.92	*	37.19	1.47E+00	4.37E-01
RA-226	0.96	186.21	*	3.28	2.77E+00	5.78E+00
AC-228	0.98	338.32	*	11.40	2.17E+00	9.57E-01
		911.07	*	27.70	2.09E+00	8.33E-01
		969.11	*	16.60	2.18E+00	1.25E+00
NP-237	0.92	86.50	*	12.60	1.20E+00	5.52E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide Confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510090-10

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INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.994	2.21E+01	3.92E+00	
MN-54	0.930	9.68E-02	1.21E-01	
GA-67	0.365	4.65E+02	2.02E+03	
RB-82	0.968	2.11E+00	1.72E+00	
? CD-109	0.898	4.25E+00	1.98E+00	
? SN-126	0.980	4.07E-01	1.88E-01	
CE-141	0.957	2.32E-01	2.93E-01	
? EU-155	0.334	4.93E-01	2.28E-01	
TL-208	0.848	1.46E+00	3.43E-01	
BI-212	0.767	1.18E+00	1.37E+00	
PB-212	0.777	2.13E+00	3.98E-01	
BI-214	0.983	1.52E+00	3.73E-01	
PB-214	0.411	1.47E+00	4.37E-01	
RA-226	0.967	2.77E+00	5.78E+00	
AC-228	0.987	2.14E+00	5.61E-01	
? NP-237	0.923	1.20E+00	5.52E-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 1510090-10
CP0603S19-20

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 12:56:16PM
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	62.22	5.62629E-02	30.25	Tol.	TH-230
2	76.01	2.20898E-01	8.00		
7	196.63	1.41405E-02	51.19		
9	296.35	4.33333E-02	20.90		
M 10	327.89	8.76837E-03	59.79	Tol.	LA-140
16	742.19	7.77059E-03	39.78	D-Esc	
M 17	767.38	7.91464E-03	42.82		
19	798.78	1.28668E-02	44.46		
21	886.76	3.80208E-03	63.22		
m 25	1137.46	4.88121E-03	57.89		
26	1146.25	5.00817E-03	42.51		
27	1160.45	6.01307E-03	51.85		
28	1211.01	5.47052E-03	52.03		
29	1283.22	9.45000E-03	49.02		
30	1345.64	5.83333E-03	29.55		
31	1376.12	5.16517E-03	51.30		
34	1846.92	1.85185E-03	58.58		

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)
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Analysis Report for 1510090-10
CP0603S19-20

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-1.12E+00	2.04E+00	2.04E+00
+	NA-22	1274.54	99.94	-1.31E-02	2.32E-01	2.32E-01
+	NA-24	1368.53	99.99	-4.68E+13	3.84E+14	4.97E+14
		2754.09	99.86	-6.89E+12		3.84E+14
+	AL-26	1808.65	99.76	-8.88E-02	1.66E-01	1.66E-01
+	K-40	1460.81	* 10.67	2.21E+01	2.38E+00	2.38E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.17E-02	1.00E-01	1.00E-01
		78.34	96.00	-1.98E-02		1.35E-01
+	SC-46	889.25	99.98	-1.73E-02	2.27E-01	2.27E-01
		1120.51	99.99	2.82E-01		3.83E-01
+	V-48	983.52	99.98	-3.50E-01	6.76E-01	6.76E-01
		1312.10	97.50	2.25E-01		9.49E-01
+	CR-51	320.08	9.83	1.06E+00	2.98E+00	2.98E+00
+	MN-54	834.83	* 99.97	9.68E-02	1.99E-01	1.99E-01
+	CO-56	846.75	99.96	9.39E-02	2.49E-01	2.49E-01
		1037.75	14.03	3.18E-01		1.82E+00
		1238.25	67.00	-9.19E-03		5.57E-01
		1771.40	15.51	-3.33E-01		1.46E+00
		2598.48	16.90	-2.85E-01		9.93E-01
+	CO-57	122.06	85.51	-5.32E-02	1.25E-01	1.25E-01
		136.48	10.60	-4.55E-01		1.04E+00
+	CO-58	810.76	99.40	-4.83E-02	2.29E-01	2.29E-01
+	FE-59	1099.22	56.50	-4.16E-02	6.22E-01	6.22E-01
		1291.56	43.20	-4.95E-02		7.85E-01
+	CO-60	1173.22	100.00	5.32E-03	2.18E-01	2.27E-01
		1332.49	100.00	4.66E-02		2.18E-01
+	ZN-65	1115.52	50.75	-8.82E-02	4.83E-01	4.83E-01
+	GA-67	93.31	* 35.70	4.65E+02	4.66E+02	4.66E+02
		208.95	2.24	1.94E+03		5.17E+03
		300.22	16.00	-1.50E+01		8.52E+02
+	SE-75	121.11	16.70	8.02E-02	2.08E-01	7.13E-01
		136.00	59.20	-6.47E-02		2.08E-01
		264.65	59.80	-2.14E-01		2.37E-01
		279.53	25.20	-2.14E-01		5.81E-01
		400.65	11.40	2.03E-01		1.45E+00
+	RB-82	776.52	* 13.00	2.11E+00	5.35E+00	5.35E+00
+	RB-83	520.41	46.00	-9.40E-02	4.20E-01	4.20E-01
		529.64	30.30	-4.83E-02		6.42E-01
		552.65	16.40	-3.39E-03		1.20E+00
+	KR-85	513.99	0.43	8.07E+01	4.86E+01	4.86E+01
+	SR-85	513.99	99.27	4.94E-01	2.98E-01	2.98E-01
+	Y-88	898.02	93.40	-2.19E-02	1.84E-01	2.40E-01
		1836.01	99.38	6.54E-03		1.84E-01
+	NB-93M	16.57	9.43	8.93E-01	4.81E-01	4.81E-01
+	NB-94	702.63	100.00	1.06E-01	1.86E-01	1.86E-01
		871.10	100.00	8.83E-02		1.95E-01

Analysis Report for 1510090-10
CP0603S19-20

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95	765.79	99.81	5.40E-02	3.75E-01	3.75E-01
+	NB-95M	235.69	25.00	6.82E+02	3.65E+02	3.65E+02
+	ZR-95	724.18	43.70	-3.87E-03	4.46E-01	6.84E-01
		756.72	55.30	1.77E-01		4.46E-01
+	MO-99	181.06	6.20	4.67E+02	4.45E+03	6.47E+03
		739.58	12.80	-4.94E+02		4.45E+03
		778.00	4.50	-1.29E+03		1.30E+04
+	RU-103	497.08	89.00	-1.60E-02	2.81E-01	2.81E-01
+	RU-106	621.84	9.80	-1.19E+00	1.66E+00	1.66E+00
+	AG-108M	433.93	89.90	-2.08E-02	1.52E-01	1.52E-01
		614.37	90.40	1.13E-02		2.40E-01
		722.95	90.50	-2.32E-02		2.14E-01
+	CD-109	88.03	* 3.72	4.25E+00	4.93E+00	4.93E+00
+	AG-110M	657.75	93.14	-5.36E-02	1.84E-01	1.84E-01
		677.61	10.53	2.79E-01		1.83E+00
		706.67	16.46	3.44E-01		1.23E+00
		763.93	21.98	1.81E-01		9.59E-01
		884.67	71.63	-5.55E-03		2.79E-01
		1384.27	23.94	2.99E-01		9.10E-01
+	CD-113M	263.70	0.02	-4.30E+02	5.21E+02	5.21E+02
+	SN-113	255.12	1.93	9.83E-01	2.68E-01	7.78E+00
		391.69	64.90	-5.71E-02		2.68E-01
+	TE123M	159.00	84.10	5.21E-02	1.67E-01	1.67E-01
+	SB-124	602.71	97.87	-1.30E-02	2.39E-01	2.39E-01
		645.85	7.26	-1.38E+00		2.95E+00
		722.78	11.10	-1.75E-01		2.41E+00
		1691.02	49.00	-2.43E-03		3.50E-01
+	I-125	35.49	6.49	-5.55E-01	1.23E+00	1.23E+00
+	SB-125	176.33	6.89	3.17E-01	4.80E-01	1.76E+00
		427.89	29.33	7.71E-02		4.80E-01
		463.38	10.35	2.11E-01		1.44E+00
		600.56	17.80	-9.21E-02		8.85E-01
		635.90	11.32	-2.34E-02		1.45E+00
+	SB-126	414.70	83.30	1.34E-01	9.09E-01	1.03E+00
		666.33	99.60	2.75E-01		1.03E+00
		695.00	99.60	-4.92E-01		9.09E-01
		720.50	53.80	2.40E-01		2.02E+00
+	SN-126	87.57	* 37.00	4.07E-01	4.72E-01	4.72E-01
+	SB-127	473.00	25.00	8.66E+01	1.65E+02	1.94E+02
		685.20	35.70	3.30E+01		1.65E+02
		783.80	14.70	-2.22E+00		3.91E+02
+	I-129	29.78	57.00	-9.58E-03	9.51E-02	9.51E-02
		33.60	13.20	-2.77E-01		4.09E-01
		39.58	7.52	-9.51E-01		7.71E-01
+	I-131	284.30	6.05	-2.93E+00	2.45E+00	3.11E+01
		364.48	81.20	-1.82E+00		2.45E+00
		636.97	7.26	6.24E+00		3.56E+01
		722.89	1.80	-1.19E+01		1.64E+02

Analysis Report for 1510090-10
CP0603S19-20

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TE-132	49.72	13.10	3.73E+02	1.36E+02	5.17E+02
		228.16	88.00	5.21E+01		1.36E+02
+	BA-133	81.00	33.00	-5.90E-02	3.43E-01	3.62E-01
		302.84	17.80	-1.75E-01		7.57E-01
		356.01	60.00	7.70E-01		3.43E-01
+	I-133	529.87	86.30	-1.86E+09	2.48E+10	2.48E+10
+	XE-133	81.00	38.00	-3.55E+00	2.18E+01	2.18E+01
+	CS-134	563.23	8.38	-2.85E-01	2.12E-01	1.94E+00
		569.32	15.43	-4.54E-01		1.02E+00
		604.70	97.60	-9.90E-03		2.12E-01
		795.84	85.40	1.05E-01		2.45E-01
		801.93	8.73	-3.41E-01		2.23E+00
+	CS-135	268.24	16.00	2.01E-01	8.12E-01	8.12E-01
+	@ 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	7.87E-01	8.84E-01	8.19E+00
		163.89	4.61	8.99E+00		1.36E+01
		176.55	13.56	8.55E-01		4.75E+00
		273.65	12.66	7.48E+00		6.00E+00
		340.57	48.50	1.15E-01		1.87E+00
		818.50	99.70	-1.88E-01		8.84E-01
		1048.07	79.60	7.06E-02		1.36E+00
		1235.34	19.70	3.04E+00		7.99E+00
+	CS-137	661.65	85.12	1.67E-02	1.94E-01	1.94E-01
+	LA-138	788.74	34.00	7.17E-02	2.84E-01	5.20E-01
		1435.80	66.00	-1.30E-02		2.84E-01
+	CE-139	165.85	80.35	-1.11E-02	1.65E-01	1.65E-01
+	BA-140	162.64	6.70	3.17E+00	3.55E+00	9.77E+00
		304.84	4.50	-1.34E+01		1.57E+01
		423.70	3.20	-8.19E-01		2.42E+01
		437.55	2.00	8.96E+00		3.92E+01
		537.32	25.00	2.04E+00		3.55E+00
+	LA-140	328.77	20.50	-3.58E-01	1.09E+00	3.79E+00
		487.03	45.50	9.41E-01		1.88E+00
		815.85	23.50	1.21E+00		4.19E+00
		1596.49	95.49	-2.03E-01		1.09E+00
+	CE-141	145.44	* 48.40	2.32E-01	4.72E-01	4.72E-01
+	CE-143	57.36	11.80	-1.65E+06	4.15E+06	7.36E+06
		293.26	42.00	3.29E+04		4.15E+06
		664.55	5.20	-7.99E+06		3.39E+07
+	CE-144	133.54	10.80	2.79E-01	1.05E+00	1.05E+00
+	PM-144	476.78	42.00	-8.35E-02	1.66E-01	3.61E-01
		618.01	98.60	-4.48E-02		1.76E-01
		696.49	99.49	-4.20E-02		1.66E-01
+	PM-145	36.85	21.70	5.13E-02	1.43E-01	2.63E-01
		37.36	39.70	-5.71E-02		1.43E-01
		42.30	15.10	2.85E-01		4.27E-01
		72.40	2.31	4.22E-01		5.28E+00

Analysis Report for 1510090-10
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	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	PM-146	453.90	39.94	7.19E-02	3.74E-01	3.74E-01
		735.90	14.01	1.37E-01		1.20E+00
		747.13	13.10	-1.86E-01		1.26E+00
+	ND-147	91.11	28.90	7.47E+00	3.16E+00	3.16E+00
		531.02	13.10	-1.73E+00		8.53E+00
+	PM-149	285.90	3.10	4.64E+04	9.18E+04	9.18E+04
+	EU-152	121.78	20.50	-2.05E-01	4.80E-01	4.80E-01
		244.69	5.40	-2.45E-01		2.82E+00
		344.27	19.13	2.39E-02		7.02E-01
		778.89	9.20	-1.94E-01		1.96E+00
		964.01	10.40	-1.62E+00		2.32E+00
		1085.78	7.22	-2.27E-01		2.90E+00
		1112.02	9.60	-3.97E-02		2.20E+00
		1407.95	14.94	8.02E-02		1.21E+00
+	GD-153	97.43	31.30	-2.55E-02	3.46E-01	3.46E-01
		103.18	22.20	-6.47E-03		4.52E-01
+	EU-154	123.07	40.50	-1.78E-01	2.43E-01	2.43E-01
		723.30	19.70	-1.07E-01		9.91E-01
		873.19	11.50	5.57E-01		1.63E+00
		996.32	10.30	-7.16E-01		1.74E+00
		1004.76	17.90	2.62E-01		1.11E+00
		1274.45	35.50	-3.64E-02		6.43E-01
+	EU-155	86.50	* 30.90	4.93E-01	4.47E-01	5.72E-01
		105.30	20.70	-7.10E-02		4.47E-01
+	EU-156	811.77	10.40	-4.03E-01	7.08E+00	7.08E+00
		1153.47	7.20	-3.27E+00		1.37E+01
		1230.71	8.90	-3.42E+00		1.26E+01
+	HO-166M	184.41	72.60	9.58E-02	1.77E-01	1.77E-01
		280.45	29.60	-1.51E-01		4.07E-01
		410.94	11.10	-7.96E-03		1.28E+00
		711.69	54.10	-2.49E-01		3.08E-01
+	TM-171	66.72	0.14	8.05E+00	7.03E+01	7.03E+01
+	HF-172	81.75	4.52	-4.45E-01	9.18E-01	2.54E+00
		125.81	11.30	-4.89E-01		9.18E-01
+	LU-172	181.53	20.60	7.43E-01	8.96E+00	1.70E+01
		810.06	16.63	-5.84E+00		2.77E+01
		912.12	15.25	9.26E+01		5.71E+01
		1093.66	62.50	-1.14E+00		8.96E+00
+	LU-173	100.72	5.24	-1.31E-02	6.73E-01	1.82E+00
		272.11	21.20	3.36E-01		6.73E-01
+	HF-175	343.40	84.00	7.42E-03	2.33E-01	2.33E-01
+	LU-176	88.34	13.30	1.07E+00	1.30E-01	8.80E-01
		201.83	86.00	-3.75E-03		1.41E-01
		306.78	94.00	-9.28E-02		1.30E-01
+	TA-182	67.75	41.20	3.24E-02	2.79E-01	2.79E-01
		1121.30	34.90	7.06E-01		1.02E+00
		1189.05	16.23	-7.91E-01		1.76E+00
		1221.41	26.98	-4.82E-02		1.17E+00
		1231.02	11.44	-7.47E-01		2.74E+00

Analysis Report for 1510090-10
CP0603S19-20

	<i>Nuclide Name</i>	<i>Energy (keV)</i>	<i>Yield(%)</i>	<i>Activity (pCi/grams)</i>	<i>Nuclide MDA (pCi/grams)</i>	<i>Line MDA (pCi/grams)</i>
+	IR-192	308.46	29.68	-1.40E-01	4.07E-01	5.46E-01
		468.07	48.10	-1.21E-01		4.07E-01
+	HG-203	279.19	77.30	-9.32E-02	2.53E-01	2.53E-01
+	BI-207	569.67	97.72	-6.97E-02	1.56E-01	1.56E-01
		1063.62	74.90	1.23E-01		2.92E-01
+	TL-208	583.14	* 30.22	1.56E+00	2.55E-01	6.23E-01
		860.37	4.48	-3.69E-01		3.98E+00
		2614.66	* 35.85	1.37E+00		2.55E-01
+	BI-210M	262.00	45.00	-1.62E-01	2.59E-01	2.59E-01
		300.00	23.00	1.25E-02		7.24E-01
+	PB-210	46.50	4.25	-2.48E-01	1.61E+00	1.61E+00
+	PB-211	404.84	2.90	-1.66E+00	4.84E+00	4.84E+00
		831.96	2.90	4.26E-01		6.25E+00
+	BI-212	727.17	* 11.80	1.18E+00	2.25E+00	2.25E+00
		1620.62	2.75	2.59E+00		5.77E+00
+	PB-212	238.63	* 44.60	2.13E+00	4.72E-01	4.72E-01
		300.09	3.41	8.41E-02		4.88E+00
+	BI-214	609.31	* 46.30	1.32E+00	6.56E-01	6.56E-01
		1120.29	* 15.10	2.34E+00		3.28E+00
		1764.49	* 15.80	1.61E+00		1.07E+00
		2204.22	* 4.98	2.21E+00		2.79E+00
+	PB-214	295.21	19.19	1.37E+00	6.00E-01	8.74E-01
		351.92	* 37.19	1.47E+00		6.00E-01
+	RN-219	401.80	6.50	5.51E-01	2.18E+00	2.18E+00
+	RA-223	323.87	3.88	9.78E-02	3.51E+00	3.51E+00
+	RA-224	240.98	3.95	2.32E+01	5.42E+00	5.42E+00
+	RA-225	40.00	31.00	-1.04E+00	8.44E-01	8.44E-01
+	RA-226	186.21	* 3.28	2.77E+00	4.52E+00	4.52E+00
+	TH-227	50.10	8.40	6.31E-01	8.73E-01	8.73E-01
		236.00	11.50	3.12E+00		1.67E+00
		256.20	6.30	9.95E-01		1.99E+00
+	AC-228	338.32	* 11.40	2.17E+00	1.21E+00	2.58E+00
		911.07	* 27.70	2.09E+00		1.21E+00
		969.11	* 16.60	2.18E+00		1.91E+00
+	TH-230	48.44	16.90	4.01E-01	4.29E-01	4.29E-01
		62.85	4.60	2.27E+00		2.04E+00
		67.67	0.37	2.97E+00		2.55E+01
+	PA-231	283.67	1.60	-4.58E+00	5.82E+00	7.25E+00
		302.67	2.30	-1.34E+00		5.82E+00
+	TH-231	25.64	14.70	9.96E-03	3.69E-01	3.69E-01
		84.21	6.40	-3.09E-01		1.67E+00
+	PA-233	311.98	38.60	-2.62E-02	7.18E-01	7.18E-01
+	PA-234	131.20	20.40	3.96E-01	5.26E-01	5.26E-01
		733.99	8.80	2.16E-01		1.92E+00
		946.00	12.00	1.02E+00		1.74E+00
+	PA-234M	1001.03	0.92	2.51E+00	2.07E+01	2.07E+01
+	TH-234	63.29	3.80	3.18E+00	2.49E+00	2.49E+00

Analysis Report for 1510090-10
CP0603S19-20

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	U-235	143.76	10.50	-8.87E-02	1.01E+00	1.01E+00
		163.35	4.70	1.62E+00		2.45E+00
		205.31	4.70	6.44E-01		2.64E+00
+	NP-237	86.50	* 12.60	1.20E+00	1.39E+00	1.39E+00
		NP-239	106.10	22.70	-8.18E+02	5.15E+03	5.15E+03
+	AM-241	228.18	10.70	4.37E+03		1.50E+04
		277.60	14.10	1.31E+02		1.15E+04
		59.54	35.90	1.78E-01	2.45E-01	2.45E-01
+	AM-243	74.67	66.00	7.68E-01	1.98E-01	1.98E-01
+	CM-243	209.75	3.29	1.84E+00	9.12E-01	3.83E+00
		228.14	10.60	4.68E-01		1.22E+00
		277.60	14.00	1.04E-02		9.12E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59	10.42	2.04E+00	2.04E+00	-1.12E+00	9.61E-01
	NA-22	1274.54	99.94	2.32E-01	2.32E-01	-1.31E-02	1.05E-01
	NA-24	1368.53	99.99	4.97E+14	3.84E+14	-4.68E+13	2.16E+14
		2754.09	99.86	3.84E+14		-6.89E+12	1.36E+14
	AL-26	1808.65	99.76	1.66E-01	1.66E-01	-8.88E-02	6.88E-02
+	K-40	1460.81	* 10.67	2.38E+00	2.38E+00	2.21E+01	1.08E+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	1.00E-01	1.00E-01	1.17E-02	4.92E-02
		78.34	96.00	1.35E-01		-1.98E-02	6.64E-02
	SC-46	889.25	99.98	2.27E-01	2.27E-01	-1.73E-02	1.04E-01

Analysis Report for 1510090-10

CP0603S19-20

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SC-46	1120.51	99.99	3.83E-01	2.27E-01	2.82E-01	1.80E-01
V-48	983.52	99.98	6.76E-01	6.76E-01	-3.50E-01	3.05E-01
	1312.10	97.50	9.49E-01		2.25E-01	4.30E-01
CR-51	320.08	9.83	2.98E+00	2.98E+00	1.06E+00	1.43E+00
+ MN-54	834.83	* 99.97	1.99E-01	1.99E-01	9.68E-02	9.21E-02
CO-56	846.75	99.96	2.49E-01	2.49E-01	9.39E-02	1.15E-01
	1037.75	14.03	1.82E+00		3.18E-01	8.28E-01
	1238.25	67.00	5.57E-01		-9.19E-03	2.59E-01
	1771.40	15.51	1.46E+00		-3.33E-01	6.12E-01
	2598.48	16.90	9.93E-01		-2.85E-01	3.52E-01
CO-57	122.06	85.51	1.25E-01	1.25E-01	-5.32E-02	6.07E-02
	136.48	10.60	1.04E+00		-4.55E-01	5.04E-01
CO-58	810.76	99.40	2.29E-01	2.29E-01	-4.83E-02	1.05E-01
FE-59	1099.22	56.50	6.22E-01	6.22E-01	-4.16E-02	2.84E-01
	1291.56	43.20	7.85E-01		-4.95E-02	3.52E-01
CO-60	1173.22	100.00	2.27E-01	2.18E-01	5.32E-03	1.04E-01
	1332.49	100.00	2.18E-01		4.66E-02	9.81E-02
ZN-65	1115.52	50.75	4.83E-01	4.83E-01	-8.82E-02	2.22E-01
+ GA-67	93.31	* 35.70	4.66E+02	4.66E+02	4.65E+02	2.30E+02
	208.95	2.24	5.17E+03		1.94E+03	2.51E+03
	300.22	16.00	8.52E+02		-1.50E+01	4.11E+02
SE-75	121.11	16.70	7.13E-01	2.08E-01	8.02E-02	3.48E-01
	136.00	59.20	2.08E-01		-6.47E-02	1.01E-01
	264.65	59.80	2.37E-01		-2.14E-01	1.14E-01
	279.53	25.20	5.81E-01		-2.14E-01	2.79E-01
	400.65	11.40	1.45E+00		2.03E-01	6.89E-01
+ RB-82	776.52	* 13.00	5.35E+00	5.35E+00	2.11E+00	2.56E+00
RB-83	520.41	46.00	4.20E-01	4.20E-01	-9.40E-02	1.98E-01
	529.64	30.30	6.42E-01		-4.83E-02	3.02E-01
	552.65	16.40	1.20E+00		-3.39E-03	5.64E-01
KR-85	513.99	0.43	4.86E+01	4.86E+01	8.07E+01	2.33E+01
SR-85	513.99	99.27	2.98E-01	2.98E-01	4.94E-01	1.43E-01
Y-88	898.02	93.40	2.40E-01	1.84E-01	-2.19E-02	1.10E-01
	1836.01	99.38	1.84E-01		6.54E-03	7.45E-02
NB-93M	16.57	9.43	4.81E-01	4.81E-01	8.93E-01	2.33E-01
NB-94	702.63	100.00	1.86E-01	1.86E-01	1.06E-01	8.71E-02
	871.10	100.00	1.95E-01		8.83E-02	9.02E-02
NB-95	765.79	99.81	3.75E-01	3.75E-01	5.40E-02	1.76E-01
NB-95M	235.69	25.00	3.65E+02	3.65E+02	6.82E+02	1.78E+02
ZR-95	724.18	43.70	6.84E-01	4.46E-01	-3.87E-03	3.22E-01
	756.72	55.30	4.46E-01		1.77E-01	2.07E-01
MO-99	181.06	6.20	6.47E+03	4.45E+03	4.67E+02	3.15E+03
	739.58	12.80	4.45E+03		-4.94E+02	2.07E+03
	778.00	4.50	1.30E+04		-1.29E+03	6.02E+03
RU-103	497.08	89.00	2.81E-01	2.81E-01	-1.60E-02	1.32E-01
RU-106	621.84	9.80	1.66E+00	1.66E+00	-1.19E+00	7.72E-01
AG-108M	433.93	89.90	1.52E-01	1.52E-01	-2.08E-02	7.19E-02
	614.37	90.40	2.40E-01		1.13E-02	1.14E-01
	722.95	90.50	2.14E-01		-2.32E-02	1.00E-01
+ CD-109	88.03	* 3.72	4.93E+00	4.93E+00	4.25E+00	2.43E+00
AG-110M	657.75	93.14	1.84E-01	1.84E-01	-5.36E-02	8.55E-02
	677.61	10.53	1.83E+00		2.79E-01	8.55E-01
	706.67	16.46	1.23E+00		3.44E-01	5.78E-01

Analysis Report for 1510090-10
CP0603S19-20

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-110M	763.93	21.98	9.59E-01	1.84E-01	1.81E-01	4.48E-01
	884.67	71.63	2.79E-01		-5.55E-03	1.28E-01
	1384.27	23.94	9.10E-01		2.99E-01	4.04E-01
CD-113M	263.70	0.02	5.21E+02	5.21E+02	-4.30E+02	2.50E+02
SN-113	255.12	1.93	7.78E+00	2.68E-01	9.83E-01	3.75E+00
	391.69	64.90	2.68E-01		-5.71E-02	1.28E-01
TE123M	159.00	84.10	1.67E-01	1.67E-01	5.21E-02	8.13E-02
SB-124	602.71	97.87	2.39E-01	2.39E-01	-1.30E-02	1.12E-01
	645.85	7.26	2.95E+00		-1.38E+00	1.37E+00
	722.78	11.10	2.41E+00		-1.75E-01	1.13E+00
	1691.02	49.00	3.50E-01		-2.43E-03	1.36E-01
I-125	35.49	6.49	1.23E+00	1.23E+00	-5.55E-01	6.01E-01
SB-125	176.33	6.89	1.76E+00	4.80E-01	3.17E-01	8.56E-01
	427.89	29.33	4.80E-01		7.71E-02	2.27E-01
	463.38	10.35	1.44E+00		2.11E-01	6.83E-01
	600.56	17.80	8.85E-01		-9.21E-02	4.14E-01
	635.90	11.32	1.45E+00		-2.34E-02	6.78E-01
SB-126	414.70	83.30	1.03E+00	9.09E-01	1.34E-01	4.89E-01
	666.33	99.60	1.03E+00		2.75E-01	4.79E-01
	695.00	99.60	9.09E-01		-4.92E-01	4.19E-01
	720.50	53.80	2.02E+00		2.40E-01	9.43E-01
+ SN-126	87.57	* 37.00	4.72E-01	4.72E-01	4.07E-01	2.33E-01
SB-127	473.00	25.00	1.94E+02	1.65E+02	8.66E+01	9.19E+01
	685.20	35.70	1.65E+02		3.30E+01	7.71E+01
	783.80	14.70	3.91E+02		-2.22E+00	1.81E+02
I-129	29.78	57.00	9.51E-02	9.51E-02	-9.58E-03	4.64E-02
	33.60	13.20	4.09E-01		-2.77E-01	1.99E-01
	39.58	7.52	7.71E-01		-9.51E-01	3.76E-01
I-131	284.30	6.05	3.11E+01	2.45E+00	-2.93E+00	1.49E+01
	364.48	81.20	2.45E+00		-1.82E+00	1.16E+00
	636.97	7.26	3.56E+01		6.24E+00	1.66E+01
	722.89	1.80	1.64E+02		-1.19E+01	7.66E+01
TE-132	49.72	13.10	5.17E+02	1.36E+02	3.73E+02	2.53E+02
	228.16	88.00	1.36E+02		5.21E+01	6.57E+01
BA-133	81.00	33.00	3.62E-01	3.43E-01	-5.90E-02	1.78E-01
	302.84	17.80	7.57E-01		-1.75E-01	3.64E-01
	356.01	60.00	3.43E-01		7.70E-01	1.66E-01
I-133	529.87	86.30	2.48E+10	2.48E+10	-1.86E+09	1.16E+10
XE-133	81.00	38.00	2.18E+01	2.18E+01	-3.55E+00	1.07E+01
CS-134	563.23	8.38	1.94E+00	2.12E-01	-2.85E-01	9.11E-01
	569.32	15.43	1.02E+00		-4.54E-01	4.76E-01
	604.70	97.60	2.12E-01		-9.90E-03	1.01E-01
	795.84	85.40	2.45E-01		1.05E-01	1.15E-01
	801.93	8.73	2.23E+00		-3.41E-01	1.04E+00
CS-135	268.24	16.00	8.12E-01	8.12E-01	2.01E-01	3.91E-01
@ 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	8.19E+00	8.84E-01	7.87E-01	3.99E+00
	163.89	4.61	1.36E+01		8.99E+00	6.63E+00
	176.55	13.56	4.75E+00		8.55E-01	2.31E+00
	273.65	12.66	6.00E+00		7.48E+00	2.90E+00
	340.57	48.50	1.87E+00		1.15E-01	9.00E-01

Analysis Report for 1510090-10
CP0603S19-20

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	818.50	99.70	8.84E-01	8.84E-01	-1.88E-01	4.05E-01
	1048.07	79.60	1.36E+00		7.06E-02	6.19E-01
	1235.34	19.70	7.99E+00		3.04E+00	3.72E+00
CS-137	661.65	85.12	1.94E-01	1.94E-01	1.67E-02	9.06E-02
LA-138	788.74	34.00	5.20E-01	2.84E-01	7.17E-02	2.41E-01
	1435.80	66.00	2.84E-01		-1.30E-02	1.25E-01
CE-139	165.85	80.35	1.65E-01	1.65E-01	-1.11E-02	8.00E-02
BA-140	162.64	6.70	9.77E+00	3.55E+00	3.17E+00	4.75E+00
	304.84	4.50	1.57E+01		-1.34E+01	7.54E+00
	423.70	3.20	2.42E+01		-8.19E-01	1.15E+01
	437.55	2.00	3.92E+01		8.96E+00	1.86E+01
	537.32	25.00	3.55E+00		2.04E+00	1.67E+00
LA-140	328.77	20.50	3.79E+00	1.09E+00	-3.58E-01	1.81E+00
	487.03	45.50	1.88E+00		9.41E-01	8.88E-01
	815.85	23.50	4.19E+00		1.21E+00	1.93E+00
	1596.49	95.49	1.09E+00		-2.03E-01	4.70E-01
+ CE-141	145.44	* 48.40	4.72E-01	4.72E-01	2.32E-01	2.30E-01
CE-143	57.36	11.80	7.36E+06	4.15E+06	-1.65E+06	3.61E+06
	293.26	42.00	4.15E+06		3.29E+04	2.01E+06
	664.55	5.20	3.39E+07		-7.99E+06	1.58E+07
CE-144	133.54	10.80	1.05E+00	1.05E+00	2.79E-01	5.11E-01
PM-144	476.78	42.00	3.61E-01	1.66E-01	-8.35E-02	1.71E-01
	618.01	98.60	1.76E-01		-4.48E-02	8.22E-02
	696.49	99.49	1.66E-01		-4.20E-02	7.66E-02
PM-145	36.85	21.70	2.63E-01	1.43E-01	5.13E-02	1.28E-01
	37.36	39.70	1.43E-01		-5.71E-02	6.95E-02
	42.30	15.10	4.27E-01		2.85E-01	2.09E-01
	72.40	2.31	5.28E+00		4.22E-01	2.60E+00
PM-146	453.90	39.94	3.74E-01	3.74E-01	7.19E-02	1.77E-01
	735.90	14.01	1.20E+00		1.37E-01	5.57E-01
	747.13	13.10	1.26E+00		-1.86E-01	5.81E-01
ND-147	91.11	28.90	3.16E+00	3.16E+00	7.47E+00	1.55E+00
	531.02	13.10	8.53E+00		-1.73E+00	4.01E+00
PM-149	285.90	3.10	9.18E+04	9.18E+04	4.64E+04	4.40E+04
EU-152	121.78	20.50	4.80E-01	4.80E-01	-2.05E-01	2.34E-01
	244.69	5.40	2.82E+00		-2.45E-01	1.37E+00
	344.27	19.13	7.02E-01		2.39E-02	3.36E-01
	778.89	9.20	1.96E+00		-1.94E-01	9.08E-01
	964.01	10.40	2.32E+00		-1.62E+00	1.08E+00
	1085.78	7.22	2.90E+00		-2.27E-01	1.32E+00
	1112.02	9.60	2.20E+00		-3.97E-02	1.01E+00
	1407.95	14.94	1.21E+00		8.02E-02	5.27E-01
GD-153	97.43	31.30	3.46E-01	3.46E-01	-2.55E-02	1.69E-01
	103.18	22.20	4.52E-01		-6.47E-03	2.20E-01
EU-154	123.07	40.50	2.43E-01	2.43E-01	-1.78E-01	1.18E-01
	723.30	19.70	9.91E-01		-1.07E-01	4.64E-01
	873.19	11.50	1.63E+00		5.57E-01	7.52E-01
	996.32	10.30	1.74E+00		-7.16E-01	7.87E-01
	1004.76	17.90	1.11E+00		2.62E-01	5.10E-01
+ EU-155	1274.45	35.50	6.43E-01	4.47E-01	-3.64E-02	2.92E-01
	86.50	* 30.90	5.72E-01		4.93E-01	2.83E-01
	105.30	20.70	4.47E-01		-7.10E-02	2.18E-01
EU-156	811.77	10.40	7.08E+00	7.08E+00	-4.03E-01	3.26E+00

Analysis Report for 1510090-10
CP0603S19-20

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-156	1153.47	7.20	1.37E+01	7.08E+00	-3.27E+00	6.29E+00
	1230.71	8.90	1.26E+01		-3.42E+00	5.79E+00
HO-166M	184.41	72.60	1.77E-01	1.77E-01	9.58E-02	8.63E-02
	280.45	29.60	4.07E-01		-1.51E-01	1.95E-01
	410.94	11.10	1.28E+00		-7.96E-03	6.10E-01
	711.69	54.10	3.08E-01		-2.49E-01	1.43E-01
TM-171	66.72	0.14	7.03E+01	7.03E+01	8.05E+00	3.45E+01
HF-172	81.75	4.52	2.54E+00	9.18E-01	-4.45E-01	1.25E+00
	125.81	11.30	9.18E-01		-4.89E-01	4.48E-01
LU-172	181.53	20.60	1.70E+01	8.96E+00	7.43E-01	8.26E+00
	810.06	16.63	2.77E+01		-5.84E+00	1.27E+01
	912.12	15.25	5.71E+01		9.26E+01	2.72E+01
	1093.66	62.50	8.96E+00		-1.14E+00	4.08E+00
LU-173	100.72	5.24	1.82E+00	6.73E-01	-1.31E-02	8.89E-01
	272.11	21.20	6.73E-01		3.36E-01	3.25E-01
HF-175	343.40	84.00	2.33E-01	2.33E-01	7.42E-03	1.12E-01
LU-176	88.34	13.30	8.80E-01	1.30E-01	1.07E+00	4.32E-01
	201.83	86.00	1.41E-01		-3.75E-03	6.86E-02
	306.78	94.00	1.30E-01		-9.28E-02	6.20E-02
TA-182	67.75	41.20	2.79E-01	2.79E-01	3.24E-02	1.37E-01
	1121.30	34.90	1.02E+00		7.06E-01	4.77E-01
	1189.05	16.23	1.76E+00		-7.91E-01	8.06E-01
	1221.41	26.98	1.17E+00		-4.82E-02	5.38E-01
	1231.02	11.44	2.74E+00		-7.47E-01	1.26E+00
IR-192	308.46	29.68	5.46E-01	4.07E-01	-1.40E-01	2.61E-01
	468.07	48.10	4.07E-01		-1.21E-01	1.92E-01
HG-203	279.19	77.30	2.53E-01	2.53E-01	-9.32E-02	1.22E-01
BI-207	569.67	97.72	1.56E-01	1.56E-01	-6.97E-02	7.31E-02
	1063.62	74.90	2.92E-01		1.23E-01	1.34E-01
+ TL-208	583.14	*	30.22	2.55E-01	1.56E+00	2.95E-01
	860.37		4.48	3.98E+00	-3.69E-01	1.83E+00
	2614.66	*	35.85	2.55E-01	1.37E+00	7.59E-02
BI-210M	262.00	45.00	2.59E-01	2.59E-01	-1.62E-01	1.24E-01
	300.00	23.00	7.24E-01		1.25E-02	3.51E-01
PB-210	46.50	4.25	1.61E+00	1.61E+00	-2.48E-01	7.89E-01
PB-211	404.84	2.90	4.84E+00	4.84E+00	-1.66E+00	2.30E+00
	831.96	2.90	6.25E+00		4.26E-01	2.89E+00
+ BI-212	727.17	*	11.80	2.25E+00	1.18E+00	1.07E+00
	1620.62		2.75	5.77E+00	2.59E+00	2.42E+00
+ PB-212	238.63	*	44.60	4.72E-01	2.13E+00	2.31E-01
	300.09		3.41	4.88E+00	8.41E-02	2.37E+00
+ BI-214	609.31	*	46.30	6.56E-01	1.32E+00	3.17E-01
	1120.29	*	15.10	3.28E+00	2.34E+00	1.58E+00
	1764.49	*	15.80	1.07E+00	1.61E+00	4.49E-01
	2204.22	*	4.98	2.79E+00	2.21E+00	1.06E+00
+ PB-214	295.21		19.19	8.74E-01	1.37E+00	4.24E-01
	351.92	*	37.19	6.00E-01	1.47E+00	2.92E-01
RN-219	401.80	6.50	2.18E+00	2.18E+00	5.51E-01	1.04E+00
RA-223	323.87	3.88	3.51E+00	3.51E+00	9.78E-02	1.68E+00
RA-224	240.98	3.95	5.42E+00	5.42E+00	2.32E+01	2.66E+00
RA-225	40.00	31.00	8.44E-01	8.44E-01	-1.04E+00	4.12E-01
+ RA-226	186.21	*	3.28	4.52E+00	2.77E+00	2.21E+00
TH-227	50.10	8.40	8.73E-01	8.73E-01	6.31E-01	4.27E-01

Analysis Report for 1510090-10
CP0603S19-20

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TH-227	236.00	11.50	1.67E+00	8.73E-01	3.12E+00	8.15E-01
	256.20	6.30	1.99E+00		9.95E-01	9.58E-01
+ AC-228	338.32 *	11.40	2.58E+00	1.21E+00	2.17E+00	1.26E+00
	911.07 *	27.70	1.21E+00		2.09E+00	5.80E-01
	969.11 *	16.60	1.91E+00		2.18E+00	9.04E-01
TH-230	48.44	16.90	4.29E-01	4.29E-01	4.01E-01	2.10E-01
	62.85	4.60	2.04E+00		2.27E+00	1.00E+00
	67.67	0.37	2.55E+01		2.97E+00	1.25E+01
PA-231	283.67	1.60	7.25E+00	5.82E+00	-4.58E+00	3.47E+00
	302.67	2.30	5.82E+00		-1.34E+00	2.80E+00
TH-231	25.64	14.70	3.69E-01	3.69E-01	9.96E-03	1.80E-01
	84.21	6.40	1.67E+00		-3.09E-01	8.21E-01
PA-233	311.98	38.60	7.18E-01	7.18E-01	-2.62E-02	3.43E-01
PA-234	131.20	20.40	5.26E-01	5.26E-01	3.96E-01	2.57E-01
	733.99	8.80	1.92E+00		2.16E-01	8.91E-01
	946.00	12.00	1.74E+00		1.02E+00	8.06E-01
PA-234M	1001.03	0.92	2.07E+01	2.07E+01	2.51E+00	9.45E+00
TH-234	63.29	3.80	2.49E+00	2.49E+00	3.18E+00	1.22E+00
U-235	143.76	10.50	1.01E+00	1.01E+00	-8.87E-02	4.90E-01
	163.35	4.70	2.45E+00		1.62E+00	1.19E+00
	205.31	4.70	2.64E+00		6.44E-01	1.28E+00
+ NP-237	86.50 *	12.60	1.39E+00	1.39E+00	1.20E+00	6.85E-01
NP-239	106.10	22.70	5.15E+03	5.15E+03	-8.18E+02	2.51E+03
	228.18	10.70	1.50E+04		4.37E+03	7.26E+03
	277.60	14.10	1.15E+04		1.31E+02	5.53E+03
AM-241	59.54	35.90	2.45E-01	2.45E-01	1.78E-01	1.20E-01
AM-243	74.67	66.00	1.98E-01	1.98E-01	7.68E-01	9.74E-02
CM-243	209.75	3.29	3.83E+00	9.12E-01	1.84E+00	1.86E+00
	228.14	10.60	1.22E+00		4.68E-01	5.91E-01
	277.60	14.00	9.12E-01		1.04E-02	4.39E-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

: 00625

Analysis Report for 1510090-10
CP0603S19-20

No Data Review Comments Entered.

369: 23 24 13 21 16 17 11 17

Sample Title: CP0603S19-20

Channel	16	15	13	17	11	9	12	26
377:	16	15	13	17	11	9	12	26
385:	16	22	23	17	14	27	17	7
393:	10	10	18	5	25	14	10	16
401:	18	13	11	13	13	18	9	17
409:	17	13	19	12	11	12	20	14
417:	13	12	16	6	15	8	5	10
425:	21	11	17	11	14	10	11	14
433:	10	14	8	15	9	14	12	10
441:	13	13	8	7	7	9	17	10
449:	16	8	13	13	9	13	20	13
457:	8	9	13	11	9	13	18	15
465:	8	9	10	9	15	11	14	11
473:	8	16	14	9	7	11	11	8
481:	7	12	13	16	8	12	13	10
489:	7	10	11	8	6	11	9	9
497:	13	8	12	8	10	8	7	15
505:	11	8	6	12	25	31	35	23
513:	17	9	19	16	8	6	12	6
521:	7	13	9	10	12	7	4	10
529:	9	6	9	10	18	8	8	11
537:	10	7	14	5	8	6	4	8
545:	6	10	9	13	9	7	7	11
553:	9	5	5	14	7	10	11	6
561:	10	6	12	14	8	11	5	14
569:	8	7	12	6	4	9	11	11
577:	12	8	13	8	10	40	51	35
585:	20	15	5	5	11	9	7	8
593:	4	10	9	6	8	7	9	7
601:	7	4	10	11	9	12	14	45
609:	72	50	21	11	8	10	12	12
617:	4	8	4	7	7	9	9	4
625:	11	8	9	10	9	3	6	10
633:	9	6	2	10	9	8	7	7
641:	9	7	6	4	5	6	5	6
649:	6	8	8	9	7	1	9	6
657:	7	10	8	3	8	9	4	9
665:	7	9	10	5	10	5	9	6
673:	4	10	9	6	5	8	7	12
681:	10	11	9	3	4	12	12	8
689:	5	7	7	4	6	3	11	5
697:	2	3	7	10	4	10	7	10
705:	14	9	7	5	3	8	10	5
713:	5	8	6	13	5	8	6	5
721:	8	7	4	10	7	14	15	21
729:	11	8	9	6	5	12	2	8
737:	3	2	6	6	10	10	11	5
745:	6	2	6	5	5	6	3	6
753:	6	9	7	4	5	8	5	5
761:	1	7	5	8	8	8	13	12
769:	9	8	5	13	5	4	9	12
777:	8	0	8	6	6	2	7	4
785:	8	9	3	9	1	6	4	8
793:	3	16	10	12	4	5	7	6

801: 3 9 6 6 10 6 2 5

Sample Title: CP0603S19-20

Channel	1	2	3	4	5	6	7	8	9
809:	10	3	6	3	4	4	8	8	
817:	2	6	5	4	2	1	4	5	
825:	8	5	3	3	4	2	4	6	
833:	12	5	3	10	3	4	8	4	
841:	6	7	10	6	2	4	9	5	
849:	5	3	5	3	1	6	7	3	
857:	5	3	10	5	5	8	3	2	
865:	7	4	6	6	8	10	2	2	
873:	5	4	9	5	2	4	4	1	
881:	2	9	4	5	7	5	10	1	
889:	0	1	5	7	3	8	5	3	
897:	4	3	3	9	4	3	5	5	
905:	5	6	5	11	7	31	24	34	
913:	9	5	5	5	5	2	5	7	
921:	3	7	4	3	5	4	2	5	
929:	5	1	3	2	9	6	6	4	
937:	2	4	2	3	5	10	3	4	
945:	8	2	5	5	7	7	3	0	
953:	7	9	4	3	4	9	7	3	
961:	7	6	5	7	10	4	5	19	
969:	16	18	11	6	2	5	2	5	
977:	6	4	3	4	3	3	4	2	
985:	1	3	6	3	4	7	6	4	
993:	1	3	2	5	2	3	4	8	
1001:	5	4	3	4	4	3	6	3	
1009:	6	5	1	1	2	8	4	2	
1017:	4	3	5	3	3	3	2	12	
1025:	3	4	9	4	6	1	1	2	
1033:	2	3	5	6	4	4	3	3	
1041:	5	7	4	4	7	2	6	5	
1049:	4	1	6	2	4	1	4	6	
1057:	3	2	6	1	7	6	2	6	
1065:	2	7	7	3	3	3	1	6	
1073:	3	4	4	3	3	6	6	6	
1081:	6	4	2	6	4	6	6	4	
1089:	3	3	3	4	3	5	4	7	
1097:	3	5	2	3	7	6	2	8	
1105:	4	3	3	9	5	1	1	2	
1113:	6	7	3	3	5	7	8	13	
1121:	20	8	6	5	2	6	5	5	
1129:	6	5	3	4	4	3	3	4	
1137:	8	5	3	5	2	2	5	3	
1145:	5	9	10	2	2	6	2	4	
1153:	9	4	5	0	9	0	7	7	
1161:	8	7	6	2	1	3	7	4	
1169:	5	1	4	2	8	5	5	4	
1177:	4	3	4	4	8	6	5	7	
1185:	2	4	6	7	5	4	3	5	
1193:	5	9	3	7	5	3	4	2	
1201:	4	1	6	8	5	4	2	3	
1209:	6	11	5	10	6	5	3	6	
1217:	6	9	4	7	5	3	8	5	
1225:	1	6	6	6	3	4	4	11	

1233: 6 4 3 8 4 12 8 6

Sample Title: CP0603S19-20

Channel	1	2	3	4	5	6	7	8
1241:	7	4	8	6	3	8	1	3
1249:	4	5	2	4	2	4	2	4
1257:	4	3	5	3	8	4	4	6
1265:	6	3	3	5	6	5	0	3
1273:	4	2	4	2	5	8	3	9
1281:	5	8	2	5	1	1	1	4
1289:	5	4	6	0	3	2	1	2
1297:	3	2	2	4	2	3	7	4
1305:	4	2	3	4	6	4	4	6
1313:	0	2	3	3	3	4	1	2
1321:	3	2	2	5	2	2	5	5
1329:	0	3	7	6	2	1	3	0
1337:	4	2	0	1	0	1	2	3
1345:	9	5	2	1	3	0	1	3
1353:	5	4	2	4	4	2	3	2
1361:	5	2	0	2	1	3	2	2
1369:	2	1	1	1	4	7	0	4
1377:	4	8	2	1	3	2	2	4
1385:	1	5	1	2	0	1	1	1
1393:	1	1	0	1	1	3	2	3
1401:	3	1	2	1	2	0	3	5
1409:	1	2	2	0	1	2	1	0
1417:	1	5	2	1	1	5	3	1
1425:	1	1	1	2	2	1	3	1
1433:	3	1	4	1	1	3	1	2
1441:	2	1	3	2	2	0	1	3
1449:	2	1	5	2	2	2	6	4
1457:	2	9	16	63	86	61	28	7
1465:	1	0	0	2	4	1	1	1
1473:	1	1	0	0	2	1	2	0
1481:	1	1	1	1	2	3	1	0
1489:	4	0	2	1	2	0	1	2
1497:	4	1	3	1	0	4	0	1
1505:	1	1	4	0	2	2	3	2
1513:	2	1	0	0	1	0	2	0
1521:	0	1	2	1	0	4	2	0
1529:	0	0	0	1	0	1	2	2
1537:	0	1	3	1	0	0	1	3
1545:	0	0	2	1	0	0	0	2
1553:	4	0	0	2	1	2	1	0
1561:	2	1	1	1	1	1	2	3
1569:	1	1	2	3	1	1	0	0
1577:	2	0	2	0	2	3	2	2
1585:	0	2	3	4	3	2	3	3
1593:	1	0	4	2	2	2	1	1
1601:	0	2	1	1	0	0	2	1
1609:	0	0	0	0	1	0	0	1
1617:	1	0	0	3	1	1	0	1
1625:	2	0	0	0	0	0	3	1
1633:	1	1	0	2	1	0	0	1
1641:	1	0	0	1	1	1	1	0
1649:	0	2	2	2	0	2	0	1
1657:	0	0	0	0	2	2	1	0

1665: 0 2 0 0 0 1 1 0

Sample Title: CP0603S19-20

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

2097: 2 1 1 0 0 2 2 1

Sample Title: CP0603S19-20

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

2529: 0 0 0 1 0 0 0 0

Sample Title: CP0603S19-20

Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	0	1	0	0	0	0	0
2545:	0	0	2	0	0	0	0	0	0
2553:	0	0	2	1	0	0	0	0	0
2561:	0	1	1	0	1	1	0	0	0
2569:	0	0	0	0	0	0	1	0	0
2577:	0	0	1	0	0	0	0	0	0
2585:	0	0	0	1	0	0	1	0	0
2593:	0	0	0	0	0	0	0	0	0
2601:	0	2	0	0	1	0	1	0	0
2609:	0	0	1	0	1	4	9	12	0
2617:	7	2	1	0	0	1	1	0	0
2625:	0	0	0	0	0	0	0	0	0
2633:	0	0	1	0	0	0	0	0	0
2641:	0	0	0	0	0	1	0	1	0
2649:	1	1	1	0	0	1	0	1	0
2657:	0	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	1	0	0	0
2673:	1	0	0	0	1	0	1	0	0
2681:	0	0	0	0	1	0	0	0	0
2689:	0	0	0	0	0	1	0	0	0
2697:	0	0	0	1	0	0	0	0	0
2705:	0	0	0	0	1	0	0	0	0
2713:	1	0	1	0	0	0	0	1	0
2721:	0	0	0	0	0	1	0	0	0
2729:	0	0	0	0	1	0	0	0	0
2737:	1	0	0	0	0	0	0	0	0
2745:	0	1	0	1	0	0	0	0	0
2753:	0	1	0	0	0	0	1	0	0
2761:	0	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0	0
2777:	0	0	1	0	0	0	0	0	0
2785:	0	0	0	1	0	0	0	0	0
2793:	0	0	1	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	1	0
2809:	0	0	0	0	0	0	1	0	0
2817:	0	0	0	0	0	0	0	0	0
2825:	1	0	0	1	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0	0
2841:	0	0	1	0	0	0	0	1	0
2849:	0	0	0	0	0	0	1	1	0
2857:	0	0	0	0	0	0	0	0	0
2865:	0	1	0	0	0	0	0	0	0
2873:	0	0	1	0	0	0	0	1	0
2881:	0	0	0	0	0	0	0	0	0
2889:	0	1	0	0	0	1	1	0	0
2897:	0	1	0	0	0	0	0	0	0
2905:	0	0	1	1	0	0	0	0	0
2913:	0	0	1	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	1	0
2929:	0	0	0	1	0	0	0	0	0
2937:	0	0	0	0	0	1	0	0	0
2945:	0	0	1	0	1	0	0	0	0
2953:	0	0	0	0	0	0	0	0	0

2961: 0 0 1 1 0 0 0 1

Sample Title: CP0603S19-20

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S19-20

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

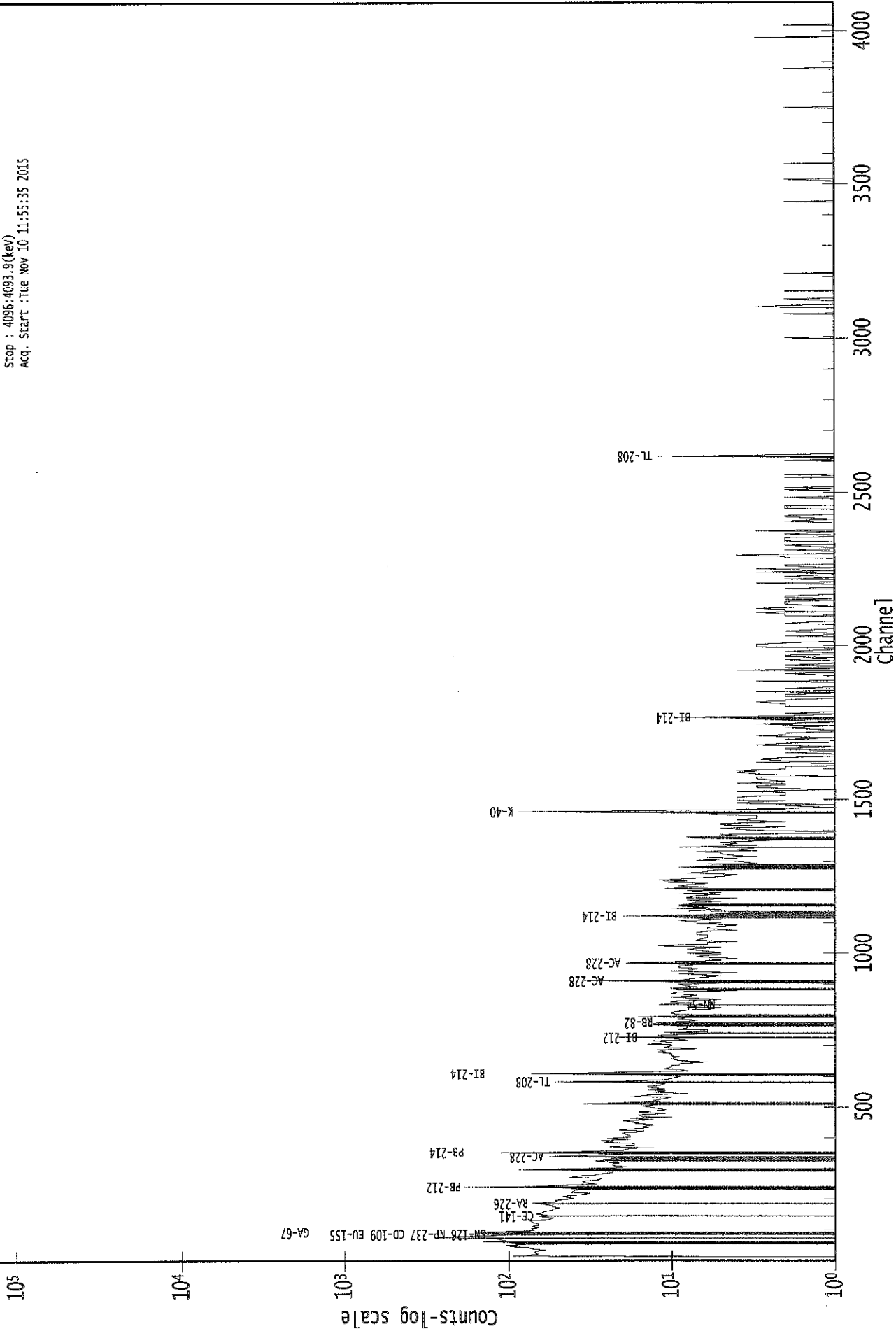
3825: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S19-20

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

0000029393.CNF

Live Time :3600.000 sec
Real Time :3638.970 sec
Start : 1: 1.8(keV)
Stop : 4096:4093.9(keV)
Acq. Start :Tue Nov 10 11:55:35 2015



RB
*11/10/15*Analysis Report for 1510090-11
CP0603S21-22

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-11
Sample Description : CP0603S21-22
Sample Type : SOIL

Sample Size : 5.521E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:48:39AM
Acquisition Started : 11/10/2015 12:07:08PM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE2
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.2 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 8 - 4096
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014
Efficiency Calibration Used Done On : 10/25/2014
Efficiency Calibration Description :

Sample Number : 29394

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/10/15

Analysis Report for 1510090-11
CP0603S21-22

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 1:07:13PM
 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	46.91	47.02	0.0000	0.00
2	62.81	62.91	0.0000	0.00
3	76.54	76.63	0.0000	0.00
4	84.25	84.33	0.0000	0.00
5	87.21	87.29	0.0000	0.00
6	89.58	89.66	0.0000	0.00
7	93.10	93.18	0.0000	0.00
8	141.55	141.60	0.0000	0.00
9	185.91	185.93	0.0000	0.00
10	193.12	193.14	0.0000	0.00
11	209.44	209.46	0.0000	0.00
12	238.75	238.75	0.0000	0.00
13	241.85	241.84	0.0000	0.00
14	270.58	270.56	0.0000	0.00
15	277.47	277.44	0.0000	0.00
16	295.26	295.22	0.0000	0.00
17	300.29	300.25	0.0000	0.00
18	338.57	338.51	0.0000	0.00
19	352.11	352.05	0.0000	0.00
20	400.35	400.26	0.0000	0.00
21	463.02	462.90	0.0000	0.00
22	510.90	510.76	0.0000	0.00
23	583.34	583.16	0.0000	0.00
24	609.53	609.34	0.0000	0.00
25	727.17	726.93	0.0000	0.00
26	796.61	796.33	0.0000	0.00
27	829.39	829.10	0.0000	0.00
28	860.71	860.41	0.0000	0.00
29	864.72	864.41	0.0000	0.00
30	911.41	911.09	0.0000	0.00
31	964.55	964.20	0.0000	0.00
32	969.22	968.88	0.0000	0.00
33	1089.58	1089.18	0.0000	0.00
34	1120.70	1120.29	0.0000	0.00
35	1129.02	1128.61	0.0000	0.00
36	1137.02	1136.61	0.0000	0.00
37	1149.55	1149.13	0.0000	0.00
38	1237.91	1237.46	0.0000	0.00
39	1377.56	1377.07	0.0000	0.00
40	1386.29	1385.79	0.0000	0.00
41	1461.05	1460.53	0.0000	0.00
42	1511.92	1511.38	0.0000	0.00

Analysis Report for 1510090-11
CP0603S21-22

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1538.07	1537.52	0.0000	0.00
44	1620.26	1619.69	0.0000	0.00
45	1626.79	1626.22	0.0000	0.00
46	1629.81	1629.24	0.0000	0.00
47	1666.62	1666.04	0.0000	0.00
48	1679.97	1679.38	0.0000	0.00
49	1685.93	1685.34	0.0000	0.00
50	1692.72	1692.13	0.0000	0.00
51	1732.15	1731.55	0.0000	0.00
52	1764.55	1763.95	0.0000	0.00
53	1848.13	1847.50	0.0000	0.00
54	2019.54	2018.88	0.0000	0.00
55	2036.78	2036.12	0.0000	0.00
56	2087.15	2086.48	0.0000	0.00
57	2102.84	2102.17	0.0000	0.00
58	2184.09	2183.40	0.0000	0.00
59	2204.03	2203.34	0.0000	0.00
60	2233.36	2232.67	0.0000	0.00
61	2308.56	2307.85	0.0000	0.00
62	2474.07	2473.34	0.0000	0.00
63	2614.33	2613.59	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-11
 CP0603S21-22

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 1:07:13PM

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	46.91	43 -	50	47.02	1.63E+02	112.53	2.00E+03	1.49
2	62.81	59 -	67	62.91	1.54E+02	114.33	1.92E+03	1.82
3	76.54	72 -	82	76.63	1.27E+03	147.45	2.16E+03	3.82
M 4	84.25	82 -	96	84.33	8.23E+01	55.21	7.20E+02	1.33
m 5	87.21	82 -	96	87.29	1.60E+02	61.87	6.85E+02	1.34
m 6	89.58	82 -	96	89.66	1.39E+02	60.70	6.47E+02	1.35
m 7	93.10	82 -	96	93.18	2.04E+02	62.13	6.09E+02	1.36
8	141.55	137 -	146	141.60	1.31E+02	95.31	1.23E+03	5.15
9	185.91	182 -	189	185.93	1.84E+02	76.45	8.49E+02	1.47
10	193.12	191 -	196	193.14	4.41E+01	54.42	5.56E+02	2.91
11	209.44	207 -	212	209.46	8.35E+01	56.10	5.65E+02	2.28
M 12	238.75	234 -	251	238.75	8.82E+02	72.54	3.37E+02	1.71
m 13	241.85	234 -	251	241.84	1.70E+02	68.81	3.12E+02	1.71
M 14	270.58	265 -	281	270.56	8.35E+01	42.15	3.40E+02	1.77
m 15	277.47	265 -	281	277.44	4.57E+01	39.96	2.98E+02	1.78
16	295.26	292 -	298	295.22	2.48E+02	55.09	3.72E+02	1.67
17	300.29	299 -	303	300.25	5.61E+01	39.39	2.98E+02	1.73
18	338.57	335 -	342	338.51	1.59E+02	55.53	4.07E+02	1.91
19	352.11	348 -	355	352.05	4.49E+02	64.37	3.91E+02	1.32
20	400.35	397 -	403	400.26	3.45E+01	36.21	2.13E+02	1.62
21	463.02	460 -	465	462.90	5.94E+01	31.67	1.53E+02	1.69
22	510.90	506 -	515	510.76	1.89E+02	52.08	2.78E+02	2.95
23	583.34	579 -	587	583.16	2.57E+02	50.17	2.28E+02	1.82
24	609.53	604 -	613	609.34	3.32E+02	54.20	2.30E+02	1.90
25	727.17	722 -	731	726.93	7.27E+01	38.87	1.73E+02	2.03
26	796.61	792 -	801	796.33	4.82E+01	31.61	1.16E+02	4.00
27	829.39	826 -	833	829.10	4.66E+01	22.98	5.88E+01	5.04
M 28	860.71	858 -	879	860.41	4.27E+01	21.95	5.72E+01	1.86
m 29	864.72	858 -	879	864.41	2.06E+01	25.14	7.22E+01	2.55
30	911.41	906 -	915	911.09	1.80E+02	38.60	1.10E+02	1.75
M 31	964.55	959 -	971	964.20	5.00E+01	27.04	8.43E+01	2.19
m 32	969.22	959 -	971	968.88	1.03E+02	27.77	7.65E+01	1.82
33	1089.58	1086 -	1092	1089.18	2.28E+01	19.90	5.43E+01	3.63
34	1120.70	1117 -	1125	1120.29	8.98E+01	28.28	6.85E+01	2.00
35	1129.02	1125 -	1132	1128.61	2.15E+01	21.63	6.31E+01	4.64
36	1137.02	1134 -	1141	1136.61	2.63E+01	18.76	4.35E+01	3.01
37	1149.55	1147 -	1152	1149.13	2.02E+01	19.16	5.75E+01	1.77
38	1237.91	1231 -	1241	1237.46	3.54E+01	38.76	1.81E+02	2.37
39	1377.56	1372 -	1382	1377.07	3.16E+01	19.63	3.89E+01	2.62
40	1386.29	1383 -	1390	1385.79	1.54E+01	12.33	1.33E+01	2.87

Analysis Report for 1510090-11

CP0603S21-22

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1461.05	1455 -	1466	1460.53	7.31E+02	59.93	8.20E+01	2.25
42	1511.92	1507 -	1515	1511.38	1.74E+01	14.60	2.11E+01	2.89
43	1538.07	1533 -	1541	1537.52	1.05E+01	10.02	9.00E+00	3.25
44	1620.26	1615 -	1623	1619.69	1.20E+01	12.85	1.80E+01	1.77
M 45	1626.79	1625 -	1636	1626.22	7.13E+00	4.58	4.12E+00	2.65
m 46	1629.81	1625 -	1636	1629.24	2.21E+01	13.56	1.90E+01	2.65
47	1666.62	1664 -	1668	1666.04	7.00E+00	6.18	2.00E+00	2.84
48	1679.97	1675 -	1683	1679.38	9.50E+00	9.82	9.00E+00	1.75
M 49	1685.93	1684 -	1695	1685.34	6.50E+00	4.72	2.41E+00	3.57
m 50	1692.72	1684 -	1695	1692.13	9.29E+00	7.50	1.94E+00	3.58
51	1732.15	1726 -	1740	1731.55	3.03E+01	13.72	5.42E+00	3.43
52	1764.55	1760 -	1767	1763.95	6.50E+01	17.55	8.03E+00	2.74
53	1848.13	1844 -	1850	1847.50	1.18E+01	9.19	6.40E+00	2.68
54	2019.54	2016 -	2021	2018.88	4.58E+00	5.74	2.83E+00	1.85
55	2036.78	2031 -	2040	2036.12	8.59E+00	8.31	4.82E+00	6.80
56	2087.15	2084 -	2089	2086.48	7.28E+00	6.71	3.44E+00	3.41
57	2102.84	2098 -	2108	2102.17	1.60E+01	15.13	2.20E+01	5.75
58	2184.09	2178 -	2185	2183.40	5.00E+00	4.47	0.00E+00	1.70
59	2204.03	2199 -	2210	2203.34	1.51E+01	16.00	2.57E+01	3.64
60	2233.36	2229 -	2236	2232.67	9.00E+00	6.00	0.00E+00	1.66
61	2308.56	2303 -	2311	2307.85	1.07E+01	10.02	8.53E+00	2.22
62	2474.07	2468 -	2477	2473.34	5.63E+00	7.55	4.75E+00	1.43
63	2614.33	2609 -	2618	2613.59	1.08E+02	20.78	0.00E+00	2.56

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 1:07:13PM

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	46.91	43 -	50	1.63E+02	112.53	2.00E+03	9.01E+01
2	62.81	59 -	67	1.54E+02	114.33	1.92E+03	9.17E+01
3	76.54	72 -	82	1.27E+03	147.45	2.16E+03	1.06E+02
M 4	84.25	82 -	96	8.23E+01	55.21	7.20E+02	4.41E+01
m 5	87.21	82 -	96	1.60E+02	61.87	6.85E+02	4.30E+01

: 00642

Analysis Report for 1510090-11

CP0603S21-22

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	6	89.58	82 -	96	1.39E+02	60.70	6.47E+02	4.18E+01
m	7	93.10	82 -	96	2.04E+02	62.13	6.09E+02	4.06E+01
	8	141.55	137 -	146	1.31E+02	95.31	1.23E+03	7.61E+01
	9	185.91	182 -	189	1.84E+02	76.45	8.49E+02	5.87E+01
	10	193.12	191 -	196	4.41E+01	54.42	5.56E+02	4.34E+01
	11	209.44	207 -	212	8.35E+01	56.10	5.65E+02	4.36E+01
M	12	238.75	234 -	251	8.82E+02	72.54	3.37E+02	3.02E+01
m	13	241.85	234 -	251	1.70E+02	68.81	3.12E+02	2.91E+01
M	14	270.58	265 -	281	8.35E+01	42.15	3.40E+02	3.03E+01
m	15	277.47	265 -	281	4.57E+01	39.96	2.98E+02	2.84E+01
	16	295.26	292 -	298	2.48E+02	55.09	3.72E+02	3.72E+01
	17	300.29	299 -	303	5.61E+01	39.39	2.98E+02	2.99E+01
	18	338.57	335 -	342	1.59E+02	55.53	4.07E+02	4.07E+01
	19	352.11	348 -	355	4.49E+02	64.37	3.91E+02	3.98E+01
	20	400.35	397 -	403	3.45E+01	36.21	2.13E+02	2.82E+01
	21	463.02	460 -	465	5.94E+01	31.67	1.53E+02	2.27E+01
	22	510.90	506 -	515	1.89E+02	52.08	2.78E+02	3.64E+01
	23	583.34	579 -	587	2.57E+02	50.17	2.28E+02	3.17E+01
	24	609.53	604 -	613	3.32E+02	54.20	2.30E+02	3.30E+01
	25	727.17	722 -	731	7.27E+01	38.87	1.73E+02	1.60E+01
	26	796.61	792 -	801	4.82E+01	31.61	1.16E+02	2.33E+01
	27	829.39	826 -	833	4.66E+01	22.98	5.88E+01	1.52E+01
M	28	860.71	858 -	879	4.27E+01	21.95	5.72E+01	1.24E+01
m	29	864.72	858 -	879	2.06E+01	25.14	7.22E+01	1.40E+01
	30	911.41	906 -	915	1.80E+02	38.60	1.10E+02	2.28E+01
M	31	964.55	959 -	971	5.00E+01	27.04	8.43E+01	1.51E+01
m	32	969.22	959 -	971	1.03E+02	27.77	7.65E+01	1.44E+01
	33	1089.58	1086 -	1092	2.28E+01	19.90	5.43E+01	1.43E+01
	34	1120.70	1117 -	1125	8.98E+01	28.28	6.85E+01	1.73E+01
	35	1129.02	1125 -	1132	2.15E+01	21.63	6.31E+01	1.61E+01
	36	1137.02	1134 -	1141	2.63E+01	18.76	4.35E+01	1.29E+01
	37	1149.55	1147 -	1152	2.02E+01	19.16	5.75E+01	1.39E+01
	38	1237.91	1231 -	1241	3.54E+01	38.76	1.81E+02	3.03E+01
	39	1377.56	1372 -	1382	3.16E+01	19.63	3.89E+01	2.27E+01
	40	1386.29	1383 -	1390	1.54E+01	12.33	1.33E+01	7.82E+00
	41	1461.05	1455 -	1466	7.31E+02	59.93	8.20E+01	2.12E+01
	42	1511.92	1507 -	1515	1.74E+01	14.60	2.11E+01	9.85E+00
	43	1538.07	1533 -	1541	1.05E+01	10.02	9.00E+00	6.29E+00
	44	1620.26	1615 -	1623	1.20E+01	12.85	1.80E+01	8.89E+00
M	45	1626.79	1625 -	1636	7.13E+00	4.58	4.12E+00	3.34E+00
m	46	1629.81	1625 -	1636	2.21E+01	13.56	1.90E+01	7.17E+00
	47	1666.62	1664 -	1668	7.00E+00	6.18	2.00E+00	2.63E+00
	48	1679.97	1675 -	1683	9.50E+00	9.82	9.00E+00	6.29E+00
M	49	1685.93	1684 -	1695	6.50E+00	4.72	2.41E+00	2.55E+00
m	50	1692.72	1684 -	1695	9.29E+00	7.50	1.94E+00	2.29E+00
	51	1732.15	1726 -	1740	3.03E+01	13.72	5.42E+00	6.73E+00
	52	1764.55	1760 -	1767	6.50E+01	17.55	8.03E+00	5.70E+00
	53	1848.13	1844 -	1850	1.18E+01	9.19	6.40E+00	5.02E+00
	54	2019.54	2016 -	2021	4.58E+00	5.74	2.83E+00	3.15E+00
	55	2036.78	2031 -	2040	8.59E+00	8.31	4.82E+00	4.84E+00
	56	2087.15	2084 -	2089	7.28E+00	6.71	3.44E+00	3.28E+00

Analysis Report for 1510090-11
 CP0603S21-22

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
57	2102.84	2098 -	2108	1.60E+01	15.13	2.20E+01	1.06E+01
58	2184.09	2178 -	2185	5.00E+00	4.47	0.00E+00	0.00E+00
59	2204.03	2199 -	2210	1.51E+01	16.00	2.57E+01	1.15E+01
60	2233.36	2229 -	2236	9.00E+00	6.00	0.00E+00	0.00E+00
61	2308.56	2303 -	2311	1.07E+01	10.02	8.53E+00	6.24E+00
62	2474.07	2468 -	2477	5.63E+00	7.55	4.75E+00	4.83E+00
63	2614.33	2609 -	2618	1.08E+02	20.78	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 : 11/10/2015 1:07:13PM

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	46.91	43 -	50	47.02	1.63E+02	112.53	2.00E+03	PB-210
2	62.81	59 -	67	62.91	1.54E+02	114.33	1.92E+03	TH-230
								TH-234
3	76.54	72 -	82	76.63	1.27E+03	147.45	2.16E+03	.....
M 4	84.25	82 -	96	84.33	8.23E+01	55.21	7.20E+02	TH-231
m 5	87.21	82 -	96	87.29	1.60E+02	61.87	6.85E+02	SN-126
								NP-237
								EU-155
								CD-109
m 6	89.58	82 -	96	89.66	1.39E+02	60.70	6.47E+02	.....
m 7	93.10	82 -	96	93.18	2.04E+02	62.13	6.09E+02	GA-67
	141.55	137 -	146	141.60	1.31E+02	95.31	1.23E+03	.....
	185.91	182 -	189	185.93	1.84E+02	76.45	8.49E+02	RA-226
10	193.12	191 -	196	193.14	4.41E+01	54.42	5.56E+02	.....
11	209.44	207 -	212	209.46	8.35E+01	56.10	5.65E+02	CM-243
								GA-67
M 12	238.75	234 -	251	238.75	8.82E+02	72.54	3.37E+02	PB-212
m 13	241.85	234 -	251	241.84	1.70E+02	68.81	3.12E+02	RA-224
M 14	270.58	265 -	281	270.56	8.35E+01	42.15	3.40E+02	.....

Analysis Report for 1510090-11

CP0603S21-22

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	15	277.47	265 -	281	277.44	4.57E+01	39.96	2.98E+02	CM-243
									NP-239
	16	295.26	292 -	298	295.22	2.48E+02	55.09	3.72E+02	PB-214
	17	300.29	299 -	303	300.25	5.61E+01	39.39	2.98E+02	GA-67
									PB-212
									BI-210M
	18	338.57	335 -	342	338.51	1.59E+02	55.53	4.07E+02	AC-228
	19	352.11	348 -	355	352.05	4.49E+02	64.37	3.91E+02	PB-214
	20	400.35	397 -	403	400.26	3.45E+01	36.21	2.13E+02	SE-75
	21	463.02	460 -	465	462.90	5.94E+01	31.67	1.53E+02	SB-125
	22	510.90	506 -	515	510.76	1.89E+02	52.08	2.78E+02	.....
	23	583.34	579 -	587	583.16	2.57E+02	50.17	2.28E+02	TL-208
	24	609.53	604 -	613	609.34	3.32E+02	54.20	2.30E+02	BI-214
	25	727.17	722 -	731	726.93	7.27E+01	38.87	1.73E+02	BI-212
	26	796.61	792 -	801	796.33	4.82E+01	31.61	1.16E+02	CS-134
	27	829.39	826 -	833	829.10	4.66E+01	22.98	5.88E+01	.....
M	28	860.71	858 -	879	860.41	4.27E+01	21.95	5.72E+01	TL-208
m	29	864.72	858 -	879	864.41	2.06E+01	25.14	7.22E+01	.....
	30	911.41	906 -	915	911.09	1.80E+02	38.60	1.10E+02	AC-228
									LU-172
M	31	964.55	959 -	971	964.20	5.00E+01	27.04	8.43E+01	EU-152
m	32	969.22	959 -	971	968.88	1.03E+02	27.77	7.65E+01	AC-228
	33	1089.58	1086 -	1092	1089.18	2.28E+01	19.90	5.43E+01	.....
	34	1120.70	1117 -	1125	1120.29	8.98E+01	28.28	6.85E+01	SC-46
									BI-214
									TA-182
	35	1129.02	1125 -	1132	1128.61	2.15E+01	21.63	6.31E+01	.....
	36	1137.02	1134 -	1141	1136.61	2.63E+01	18.76	4.35E+01	.....
	37	1149.55	1147 -	1152	1149.13	2.02E+01	19.16	5.75E+01	.....
	38	1237.91	1231 -	1241	1237.46	3.54E+01	38.76	1.81E+02	CO-56
	39	1377.56	1372 -	1382	1377.07	3.16E+01	19.63	3.89E+01	.....
	40	1386.29	1383 -	1390	1385.79	1.54E+01	12.33	1.33E+01	.....
	41	1461.05	1455 -	1466	1460.53	7.31E+02	59.93	8.20E+01	K-40
	42	1511.92	1507 -	1515	1511.38	1.74E+01	14.60	2.11E+01	.....
	43	1538.07	1533 -	1541	1537.52	1.05E+01	10.02	9.00E+00	.....
	44	1620.26	1615 -	1623	1619.69	1.20E+01	12.85	1.80E+01	BI-212
M	45	1626.79	1625 -	1636	1626.22	7.13E+00	4.58	4.12E+00	.....
m	46	1629.81	1625 -	1636	1629.24	2.21E+01	13.56	1.90E+01	.....
	47	1666.62	1664 -	1668	1666.04	7.00E+00	6.18	2.00E+00	.....
	48	1679.97	1675 -	1683	1679.38	9.50E+00	9.82	9.00E+00	.....
M	49	1685.93	1684 -	1695	1685.34	6.50E+00	4.72	2.41E+00	.....
m	50	1692.72	1684 -	1695	1692.13	9.29E+00	7.50	1.94E+00	.....
	51	1732.15	1726 -	1740	1731.55	3.03E+01	13.72	5.42E+00	.....
	52	1764.55	1760 -	1767	1763.95	6.50E+01	17.55	8.03E+00	BI-214
	53	1848.13	1844 -	1850	1847.50	1.18E+01	9.19	6.40E+00	.....
	54	2019.54	2016 -	2021	2018.88	4.58E+00	5.74	2.83E+00	.....
	55	2036.78	2031 -	2040	2036.12	8.59E+00	8.31	4.82E+00	.....
	56	2087.15	2084 -	2089	2086.48	7.28E+00	6.71	3.44E+00	.....
	57	2102.84	2098 -	2108	2102.17	1.60E+01	15.13	2.20E+01	.....
	58	2184.09	2178 -	2185	2183.40	5.00E+00	4.47	0.00E+00	.....
	59	2204.03	2199 -	2210	2203.34	1.51E+01	16.00	2.57E+01	BI-214
	60	2233.36	2229 -	2236	2232.67	9.00E+00	6.00	0.00E+00	.....
	61	2308.56	2303 -	2311	2307.85	1.07E+01	10.02	8.53E+00	.....
	62	2474.07	2468 -	2477	2473.34	5.63E+00	7.55	4.75E+00	.....

Analysis Report for 1510090-11

CP0603S21-22

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
63	2614.33	2609 -	2618	2613.59	1.08E+02	20.78	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 : 11/10/2015 1:07:13PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.91	1.63E+02	112.53	1.37E-02	1.68E-03
	2	62.81	1.54E+02	114.33	2.35E-02	2.00E-03
	3	76.54	1.27E+03	147.45	2.74E-02	3.37E-03
M	4	84.25	8.23E+01	55.21	2.83E-02	4.13E-03
m	5	87.21	1.60E+02	61.87	2.84E-02	4.42E-03
m	6	89.58	1.39E+02	60.70	2.85E-02	4.44E-03
m	7	93.10	2.04E+02	62.13	2.85E-02	4.28E-03
	8	141.55	1.31E+02	95.31	2.48E-02	2.40E-03
	9	185.91	1.84E+02	76.45	2.11E-02	1.65E-03
	10	193.12	4.41E+01	54.42	2.06E-02	1.65E-03
	11	209.44	8.35E+01	56.10	1.95E-02	1.63E-03
M	12	238.75	8.82E+02	72.54	1.79E-02	1.60E-03
m	13	241.85	1.70E+02	68.81	1.77E-02	1.60E-03
M	14	270.58	8.35E+01	42.15	1.64E-02	1.57E-03
m	15	277.47	4.57E+01	39.96	1.61E-02	1.56E-03
	16	295.26	2.48E+02	55.09	1.55E-02	1.48E-03
	17	300.29	5.61E+01	39.39	1.53E-02	1.46E-03
	18	338.57	1.59E+02	55.53	1.41E-02	1.27E-03
	19	352.11	4.49E+02	64.37	1.37E-02	1.21E-03
	20	400.35	3.45E+01	36.21	1.26E-02	1.01E-03
	21	463.02	5.94E+01	31.67	1.13E-02	9.47E-04
	22	510.90	1.89E+02	52.08	1.06E-02	8.98E-04
	23	583.34	2.57E+02	50.17	9.58E-03	8.25E-04
	24	609.53	3.32E+02	54.20	9.27E-03	7.98E-04
	25	727.17	7.27E+01	38.87	8.09E-03	7.03E-04
	26	796.61	4.82E+01	31.61	7.52E-03	6.58E-04
	27	829.39	4.66E+01	22.98	7.28E-03	6.37E-04
M	28	860.71	4.27E+01	21.95	7.07E-03	6.17E-04
m	29	864.72	2.06E+01	25.14	7.04E-03	6.15E-04

Analysis Report for 1510090-11

CP0603S21-22

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	30	911.41	1.80E+02	38.60	6.74E-03	5.87E-04
M	31	964.55	5.00E+01	27.04	6.44E-03	5.59E-04
m	32	969.22	1.03E+02	27.77	6.41E-03	5.57E-04
	33	1089.58	2.28E+01	19.90	5.83E-03	4.96E-04
	34	1120.70	8.98E+01	28.28	5.70E-03	4.80E-04
	35	1129.02	2.15E+01	21.63	5.67E-03	4.75E-04
	36	1137.02	2.63E+01	18.76	5.64E-03	4.71E-04
	37	1149.55	2.02E+01	19.16	5.59E-03	4.65E-04
	38	1237.91	3.54E+01	38.76	5.27E-03	4.83E-04
	39	1377.56	3.16E+01	19.63	4.87E-03	5.08E-04
	40	1386.29	1.54E+01	12.33	4.85E-03	5.04E-04
	41	1461.05	7.31E+02	59.93	4.67E-03	4.73E-04
	42	1511.92	1.74E+01	14.60	4.57E-03	4.52E-04
	43	1538.07	1.05E+01	10.02	4.52E-03	4.41E-04
	44	1620.26	1.20E+01	12.85	4.38E-03	4.07E-04
M	45	1626.79	7.13E+00	4.58	4.37E-03	4.05E-04
m	46	1629.81	2.21E+01	13.56	4.36E-03	4.03E-04
	47	1666.62	7.00E+00	6.18	4.31E-03	3.88E-04
	48	1679.97	9.50E+00	9.82	4.29E-03	3.83E-04
M	49	1685.93	6.50E+00	4.72	4.28E-03	3.80E-04
m	50	1692.72	9.29E+00	7.50	4.27E-03	3.77E-04
	51	1732.15	3.03E+01	13.72	4.22E-03	3.61E-04
	52	1764.55	6.50E+01	17.55	4.19E-03	3.47E-04
	53	1848.13	1.18E+01	9.19	4.10E-03	3.18E-04
	54	2019.54	4.58E+00	5.74	3.98E-03	3.18E-04
	55	2036.78	8.59E+00	8.31	3.98E-03	3.18E-04
	56	2087.15	7.28E+00	6.71	3.96E-03	3.18E-04
	57	2102.84	1.60E+01	15.13	3.95E-03	3.18E-04
	58	2184.09	5.00E+00	4.47	3.93E-03	3.18E-04
	59	2204.03	1.51E+01	16.00	3.93E-03	3.18E-04
	60	2233.36	9.00E+00	6.00	3.93E-03	3.18E-04
	61	2308.56	1.07E+01	10.02	3.93E-03	3.18E-04
	62	2474.07	5.63E+00	7.55	3.97E-03	3.18E-04
	63	2614.33	1.08E+02	20.78	4.05E-03	3.18E-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 : 11/10/2015 1:07:13PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028942.CNF

: 00647

Analysis Report for 1510090-11

CP0603S21-22

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	1	46.91	1.63E+02	112.53	6.46E+01	1.16E+01	9.83E+01	1.13E+02
	2	62.81	1.54E+02	114.33	4.34E+01	1.15E+01	1.11E+02	1.15E+02
	3	76.54	1.27E+03	147.45			1.27E+03	1.47E+02
M	4	84.25	8.23E+01	55.21			8.23E+01	5.52E+01
m	5	87.21	1.60E+02	61.87	1.46E+00	7.88E+00	1.59E+02	6.24E+01
m	6	89.58	1.39E+02	60.70			1.39E+02	6.07E+01
m	7	93.10	2.04E+02	62.13	5.70E+01	9.03E+00	1.47E+02	6.28E+01
	8	141.55	1.31E+02	95.31			1.31E+02	9.53E+01
	9	185.91	1.84E+02	76.45	4.72E+01	7.97E+00	1.37E+02	7.69E+01
	10	193.12	4.41E+01	54.42			4.41E+01	5.44E+01
	11	209.44	8.35E+01	56.10			8.35E+01	5.61E+01
M	12	238.75	8.82E+02	72.54	2.36E+01	1.35E+01	8.58E+02	7.38E+01
m	13	241.85	1.70E+02	68.81	6.38E+00	3.91E+00	1.64E+02	6.89E+01
M	14	270.58	8.35E+01	42.15			8.35E+01	4.21E+01
m	15	277.47	4.57E+01	39.96			4.57E+01	4.00E+01
	16	295.26	2.48E+02	55.09	8.57E+00	6.10E+00	2.39E+02	5.54E+01
	17	300.29	5.61E+01	39.39			5.61E+01	3.94E+01
	18	338.57	1.59E+02	55.53			1.59E+02	5.55E+01
	19	352.11	4.49E+02	64.37	1.40E+01	5.55E+00	4.35E+02	6.46E+01
	20	400.35	3.45E+01	36.21			3.45E+01	3.62E+01
	21	463.02	5.94E+01	31.67			5.94E+01	3.17E+01
	22	510.90	1.89E+02	52.08	8.41E+01	5.50E+00	1.05E+02	5.24E+01
	23	583.34	2.57E+02	50.17	7.32E+00	4.08E+00	2.50E+02	5.03E+01
	24	609.53	3.32E+02	54.20	1.30E+01	3.89E+00	3.19E+02	5.43E+01
	25	727.17	7.27E+01	38.87			7.27E+01	3.89E+01
	26	796.61	4.82E+01	31.61			4.82E+01	3.16E+01
	27	829.39	4.66E+01	22.98			4.66E+01	2.30E+01
M	28	860.71	4.27E+01	21.95			4.27E+01	2.20E+01
m	29	864.72	2.06E+01	25.14			2.06E+01	2.51E+01
	30	911.41	1.80E+02	38.60	5.60E+00	3.32E+00	1.75E+02	3.87E+01
M	31	964.55	5.00E+01	27.04			5.00E+01	2.70E+01
m	32	969.22	1.03E+02	27.77			1.03E+02	2.78E+01
	33	1089.58	2.28E+01	19.90			2.28E+01	1.99E+01
	34	1120.70	8.98E+01	28.28	3.93E+00	2.96E+00	8.58E+01	2.84E+01
	35	1129.02	2.15E+01	21.63			2.15E+01	2.16E+01
	36	1137.02	2.63E+01	18.76			2.63E+01	1.88E+01
	37	1149.55	2.02E+01	19.16			2.02E+01	1.92E+01
	38	1237.91	3.54E+01	38.76			3.54E+01	3.88E+01
	39	1377.56	3.16E+01	19.63			3.16E+01	1.96E+01
	40	1386.29	1.54E+01	12.33			1.54E+01	1.23E+01
	41	1461.05	7.31E+02	59.93	1.12E+01	2.55E+00	7.20E+02	6.00E+01
	42	1511.92	1.74E+01	14.60			1.74E+01	1.46E+01
	43	1538.07	1.05E+01	10.02			1.05E+01	1.00E+01
	44	1620.26	1.20E+01	12.85			1.20E+01	1.28E+01
M	45	1626.79	7.13E+00	4.58			7.13E+00	4.58E+00
m	46	1629.81	2.21E+01	13.56			2.21E+01	1.36E+01
	47	1666.62	7.00E+00	6.18			7.00E+00	6.18E+00
	48	1679.97	9.50E+00	9.82			9.50E+00	9.82E+00
M	49	1685.93	6.50E+00	4.72			6.50E+00	4.72E+00
m	50	1692.72	9.29E+00	7.50			9.29E+00	7.50E+00
	51	1732.15	3.03E+01	13.72			3.03E+01	1.37E+01
	52	1764.55	6.50E+01	17.55	4.23E+00	2.21E+00	6.08E+01	1.77E+01
	53	1848.13	1.18E+01	9.19			1.18E+01	9.19E+00
	54	2019.54	4.58E+00	5.74			4.58E+00	5.74E+00

Analysis Report for 1510090-11

CP0603S21-22

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
55	2036.78	8.59E+00	8.31			8.59E+00	8.31E+00
56	2087.15	7.28E+00	6.71			7.28E+00	6.71E+00
57	2102.84	1.60E+01	15.13			1.60E+01	1.51E+01
58	2184.09	5.00E+00	4.47			5.00E+00	4.47E+00
59	2204.03	1.51E+01	16.00	5.94E-01	1.16E+00	1.45E+01	1.60E+01
60	2233.36	9.00E+00	6.00			9.00E+00	6.00E+00
61	2308.56	1.07E+01	10.02			1.07E+01	1.00E+01
62	2474.07	5.63E+00	7.55			5.63E+00	7.55E+00
63	2614.33	1.08E+02	20.78	7.38E+00	1.57E+00	1.01E+02	2.08E+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 : 11/10/2015 1:07:13PM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028942.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	46.91	1.63E+02	112.53	6.46E+01	1.16E+01	9.83E+01	1.13E+02
2	62.81	1.54E+02	114.33	4.34E+01	1.15E+01	1.11E+02	1.15E+02
3	76.54	1.27E+03	147.45			1.27E+03	1.47E+02
M 4	84.25	8.23E+01	55.21			8.23E+01	5.52E+01
m 5	87.21	1.60E+02	61.87	1.46E+00	7.88E+00	1.59E+02	6.24E+01
m 6	89.58	1.39E+02	60.70			1.39E+02	6.07E+01
m 7	93.10	2.04E+02	62.13	5.70E+01	9.03E+00	1.47E+02	6.28E+01
8	141.55	1.31E+02	95.31			1.31E+02	9.53E+01
9	185.91	1.84E+02	76.45	4.72E+01	7.97E+00	1.37E+02	7.69E+01
10	193.12	4.41E+01	54.42			4.41E+01	5.44E+01
11	209.44	8.35E+01	56.10			8.35E+01	5.61E+01
M 12	238.75	8.82E+02	72.54	2.36E+01	1.35E+01	8.58E+02	7.38E+01
m 13	241.85	1.70E+02	68.81	6.38E+00	3.91E+00	1.64E+02	6.89E+01
M 14	270.58	8.35E+01	42.15			8.35E+01	4.21E+01
m 15	277.47	4.57E+01	39.96			4.57E+01	4.00E+01
16	295.26	2.48E+02	55.09	8.57E+00	6.10E+00	2.39E+02	5.54E+01
17	300.29	5.61E+01	39.39			5.61E+01	3.94E+01
18	338.57	1.59E+02	55.53			1.59E+02	5.55E+01
19	352.11	4.49E+02	64.37	1.40E+01	5.55E+00	4.35E+02	6.46E+01

: 00649

Analysis Report for 1510090-11

CP0603S21-22

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
20	400.35	3.45E+01	36.21			3.45E+01	3.62E+01
21	463.02	5.94E+01	31.67			5.94E+01	3.17E+01
22	510.90	1.89E+02	52.08	8.41E+01	5.50E+00	1.05E+02	5.24E+01
23	583.34	2.57E+02	50.17	7.32E+00	4.08E+00	2.50E+02	5.03E+01
24	609.53	3.32E+02	54.20	1.30E+01	3.89E+00	3.19E+02	5.43E+01
25	727.17	7.27E+01	38.87			7.27E+01	3.89E+01
26	796.61	4.82E+01	31.61			4.82E+01	3.16E+01
27	829.39	4.66E+01	22.98			4.66E+01	2.30E+01
M 28	860.71	4.27E+01	21.95			4.27E+01	2.20E+01
m 29	864.72	2.06E+01	25.14			2.06E+01	2.51E+01
30	911.41	1.80E+02	38.60	5.60E+00	3.32E+00	1.75E+02	3.87E+01
M 31	964.55	5.00E+01	27.04			5.00E+01	2.70E+01
m 32	969.22	1.03E+02	27.77			1.03E+02	2.78E+01
33	1089.58	2.28E+01	19.90			2.28E+01	1.99E+01
34	1120.70	8.98E+01	28.28	3.93E+00	2.96E+00	8.58E+01	2.84E+01
35	1129.02	2.15E+01	21.63			2.15E+01	2.16E+01
36	1137.02	2.63E+01	18.76			2.63E+01	1.88E+01
37	1149.55	2.02E+01	19.16			2.02E+01	1.92E+01
38	1237.91	3.54E+01	38.76			3.54E+01	3.88E+01
39	1377.56	3.16E+01	19.63			3.16E+01	1.96E+01
40	1386.29	1.54E+01	12.33			1.54E+01	1.23E+01
41	1461.05	7.31E+02	59.93	1.12E+01	2.55E+00	7.20E+02	6.00E+01
42	1511.92	1.74E+01	14.60			1.74E+01	1.46E+01
43	1538.07	1.05E+01	10.02			1.05E+01	1.00E+01
44	1620.26	1.20E+01	12.85			1.20E+01	1.28E+01
M 45	1626.79	7.13E+00	4.58			7.13E+00	4.58E+00
m 46	1629.81	2.21E+01	13.56			2.21E+01	1.36E+01
47	1666.62	7.00E+00	6.18			7.00E+00	6.18E+00
48	1679.97	9.50E+00	9.82			9.50E+00	9.82E+00
M 49	1685.93	6.50E+00	4.72			6.50E+00	4.72E+00
m 50	1692.72	9.29E+00	7.50			9.29E+00	7.50E+00
51	1732.15	3.03E+01	13.72			3.03E+01	1.37E+01
52	1764.55	6.50E+01	17.55	4.23E+00	2.21E+00	6.08E+01	1.77E+01
53	1848.13	1.18E+01	9.19			1.18E+01	9.19E+00
54	2019.54	4.58E+00	5.74			4.58E+00	5.74E+00
55	2036.78	8.59E+00	8.31			8.59E+00	8.31E+00
56	2087.15	7.28E+00	6.71			7.28E+00	6.71E+00
57	2102.84	1.60E+01	15.13			1.60E+01	1.51E+01
58	2184.09	5.00E+00	4.47			5.00E+00	4.47E+00
59	2204.03	1.51E+01	16.00	5.94E-01	1.16E+00	1.45E+01	1.60E+01
60	2233.36	9.00E+00	6.00			9.00E+00	6.00E+00
61	2308.56	1.07E+01	10.02			1.07E+01	1.00E+01
62	2474.07	5.63E+00	7.55			5.63E+00	7.55E+00
63	2614.33	1.08E+02	20.78	7.38E+00	1.57E+00	1.01E+02	2.08E+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 1510090-11
CP0603S21-22

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	0.991	1460.81 *	10.67	1.96E+01	2.61E+00
GA-67	0.612	93.31 *	35.70	1.81E+02	7.90E+02
		208.95 *	2.24	2.40E+03	1.02E+04
		300.22 *	16.00	2.88E+02	1.26E+03
CD-109	0.897	88.03 *	3.72	2.14E+00	9.14E-01
SN-126	0.979	87.57 *	37.00	2.05E-01	8.68E-02
EU-155	0.314	86.50 *	30.90	2.49E-01	1.05E-01
		105.30	20.70		
TL-208	0.988	583.14 *	30.22	1.17E+00	2.57E-01
		860.37 *	4.48	1.84E+00	9.57E-01
		2614.66 *	35.85	9.42E-01	2.09E-01
PB-210	0.973	46.50 *	4.25	2.30E+00	2.66E+00
BI-212	0.996	727.17 *	11.80	1.04E+00	5.61E-01
PB-212	0.997	1620.62 *	2.75	1.36E+00	1.46E+00
		238.63 *	44.60	1.46E+00	1.82E-01
BI-214	0.990	300.09 *	3.41	1.46E+00	1.04E+00
		609.31 *	46.30	1.01E+00	1.93E-01
		1120.29 *	15.10	1.36E+00	4.63E-01
		1764.49 *	15.80	1.25E+00	3.78E-01
PB-214	0.996	2204.22 *	4.98	1.01E+00	1.12E+00
		295.21 *	19.19	1.10E+00	2.75E-01
		351.92 *	37.19	1.16E+00	2.00E-01
RA-224	0.887	240.98 *	3.95	3.18E+00	1.37E+00
RA-226	0.985	186.21 *	3.28	2.70E+00	5.16E+00
AC-228	0.988	338.32 *	11.40	1.35E+00	4.86E-01
		911.07 *	27.70	1.27E+00	3.03E-01
		969.11 *	16.60	1.32E+00	3.73E-01
TH-231	0.611	25.64	14.70		
		84.21 *	6.40	6.19E-01	4.25E-01
TH-234	0.964	63.29 *	3.80	1.68E+00	1.75E+00
NP-237	0.924	86.50 *	12.60	6.03E-01	2.55E-01
CM-243	0.371	209.75 *	3.29	1.77E+00	1.20E+00
		228.14	10.60		
		277.60 *	14.00	2.76E-01	2.42E-01

Analysis Report for 1510090-11
CP0603S21-22

* = 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 : 11/10/2015 1:07:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.54	3.53406E-01		
m	6	89.58	3.87153E-02		
	8	141.55	3.63368E-02		
	10	193.12	1.22516E-02		
M	14	270.58	2.32067E-02	Sum	
	20	400.35	9.57348E-03		
	21	463.02	1.64910E-02	Sum	
	22	510.90	2.91031E-02		
	26	796.61	1.33988E-02	Tol.	CS-134
	27	829.39	1.29386E-02		
m	29	864.72	5.71620E-03		
M	31	964.55	1.38916E-02	Tol.	EU-152
	33	1089.58	6.34444E-03		
	35	1129.02	5.96436E-03		
	36	1137.02	7.29167E-03		
	37	1149.55	5.62358E-03	Sum	
	38	1237.91	9.83796E-03		
	39	1377.56	8.76634E-03		
	40	1386.29	4.26768E-03		
	42	1511.92	4.84623E-03		
	43	1538.07	2.91667E-03		
M	45	1626.79	1.98067E-03		
m	46	1629.81	6.12718E-03		
	47	1666.62	1.94444E-03	Sum	
	48	1679.97	2.63889E-03		
M	49	1685.93	1.80639E-03		
m	50	1692.72	2.58010E-03	S-Esc	
	51	1732.15	8.41330E-03		
	53	1848.13	3.27778E-03	Sum	
	54	2019.54	1.27315E-03		
	55	2036.78	2.38636E-03		
	56	2087.15	2.02160E-03		
	57	2102.84	4.44444E-03	S-Esc	
	58	2184.09	1.38889E-03		

Analysis Report for 1510090-11

CP0603S21-22

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
60	2233.36	2.50000E-03	33.33		
61	2308.56	2.98148E-03	46.70		
62	2474.07	1.56250E-03	67.11		

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	1.96E+01	2.61E+00
GA-67	0.61	93.31 *	35.70	1.81E+02	7.90E+02
		208.95 *	2.24	2.40E+03	1.02E+04
		300.22 *	16.00	2.88E+02	1.26E+03
CD-109	0.89	88.03 *	3.72	2.14E+00	9.14E-01
SN-126	0.97	87.57 *	37.00	2.05E-01	8.68E-02
EU-155	0.31	86.50 *	30.90	2.49E-01	1.05E-01
		105.30	20.70		
TL-208	0.98	583.14 *	30.22	1.17E+00	2.57E-01
		860.37 *	4.48	1.84E+00	9.57E-01
		2614.66 *	35.85	9.42E-01	2.09E-01
PB-210	0.97	46.50 *	4.25	2.30E+00	2.66E+00
BI-212	0.99	727.17 *	11.80	1.04E+00	5.61E-01
		1620.62 *	2.75	1.36E+00	1.46E+00
PB-212	0.99	238.63 *	44.60	1.46E+00	1.82E-01
		300.09 *	3.41	1.46E+00	1.04E+00
BI-214	0.99	609.31 *	46.30	1.01E+00	1.93E-01
		1120.29 *	15.10	1.36E+00	4.63E-01
		1764.49 *	15.80	1.25E+00	3.78E-01
PB-214	0.99	2204.22 *	4.98	1.01E+00	1.12E+00
		295.21 *	19.19	1.10E+00	2.75E-01
		351.92 *	37.19	1.16E+00	2.00E-01
RA-224	0.88	240.98 *	3.95	3.18E+00	1.37E+00
RA-226	0.98	186.21 *	3.28	2.70E+00	5.16E+00
AC-228	0.98	338.32 *	11.40	1.35E+00	4.86E-01

Analysis Report for 1510090-11

CP0603S21-22

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AC-228	0.98	911.07 *	27.70	1.27E+00	3.03E-01
		969.11 *	16.60	1.32E+00	3.73E-01
TH-231	0.61	25.64	14.70		
		84.21 *	6.40	6.19E-01	4.25E-01
TH-234	0.96	63.29 *	3.80	1.68E+00	1.75E+00
NP-237	0.92	86.50 *	12.60	6.03E-01	2.55E-01
CM-243	0.37	209.75 *	3.29	1.77E+00	1.20E+00
		228.14	10.60		
		277.60 *	14.00	2.76E-01	2.42E-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	0.991	1.96E+01	2.61E+00	
GA-67	0.612	1.61E+02	6.76E+02	
? CD-109	0.897	2.14E+00	9.14E-01	
? SN-126	0.979	2.05E-01	8.68E-02	
? EU-155	0.314	2.49E-01	1.05E-01	
TL-208	0.988	1.06E+00	1.60E-01	
PB-210	0.973	2.30E+00	2.66E+00	
BI-212	0.996	1.08E+00	5.24E-01	
PB-212	0.997	1.44E+00	1.79E-01	
BI-214	0.990	1.09E+00	1.59E-01	
PB-214	0.996	1.14E+00	1.62E-01	
RA-224	0.887	3.18E+00	1.37E+00	
RA-226	0.985	2.70E+00	5.16E+00	
AC-228	0.988	1.30E+00	2.12E-01	
TH-231	0.611	6.19E-01	4.25E-01	
TH-234	0.964	1.68E+00	1.75E+00	
? NP-237	0.924	6.03E-01	2.55E-01	
CM-243	0.371	3.30E-01	2.38E-01	

Analysis Report for 1510090-11
CP0603S21-22

- ? = 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 1510090-11
 CP0603S21-22

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 1:07:13PM
 Peak Locate From Channel : 1
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide	
	3	76.54	3.53406E-01	5.79		
m	6	89.58	3.87153E-02	21.77		
	8	141.55	3.63368E-02	36.43		
	10	193.12	1.22516E-02	61.70		
M	14	270.58	2.32067E-02	25.23	Sum	
	20	400.35	9.57348E-03	52.53		
	21	463.02	1.64910E-02	26.67	Sum	
	22	510.90	2.91031E-02	24.99		
	26	796.61	1.33988E-02	32.76	Tol.	CS-134
	27	829.39	1.29386E-02	24.67		
m	29	864.72	5.71620E-03	61.08		
M	31	964.55	1.38916E-02	27.03	Tol.	EU-152
	33	1089.58	6.34444E-03	43.56		
	35	1129.02	5.96436E-03	50.38		
	36	1137.02	7.29167E-03	35.74		
	37	1149.55	5.62358E-03	47.31	Sum	
	38	1237.91	9.83796E-03	54.72		
	39	1377.56	8.76634E-03	31.11		
	40	1386.29	4.26768E-03	40.12		
	42	1511.92	4.84623E-03	41.85		
	43	1538.07	2.91667E-03	47.74		
M	45	1626.79	1.98067E-03	32.13		
m	46	1629.81	6.12718E-03	30.75		
	47	1666.62	1.94444E-03	44.18	Sum	
	48	1679.97	2.63889E-03	51.70		
M	49	1685.93	1.80639E-03	36.27		
m	50	1692.72	2.58010E-03	40.37	S-Esc	
	51	1732.15	8.41330E-03	22.65		
	53	1848.13	3.27778E-03	38.95	Sum	
	54	2019.54	1.27315E-03	62.67		
	55	2036.78	2.38636E-03	48.35		
	56	2087.15	2.02160E-03	46.09		
	57	2102.84	4.44444E-03	47.29	S-Esc	
	58	2184.09	1.38889E-03	44.72		
	60	2233.36	2.50000E-03	33.33		

Analysis Report for 1510090-11
CP0603S21-22

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
61	2308.56	2.98148E-03	46.70		
62	2474.07	1.56250E-03	67.11		

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	3.47E-01	8.49E-01	8.49E-01
+	NA-22	1274.54	99.94	-1.34E-02	8.17E-02	8.17E-02
+	NA-24	1368.53	99.99	-1.09E+12	1.16E+14	1.70E+14
		2754.09	99.86	2.01E+13		1.16E+14
+	AL-26	1808.65	99.76	-4.39E-03	4.32E-02	4.32E-02
+	K-40	1460.81	* 10.67	1.96E+01	1.28E+00	1.28E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-4.56E-03	5.00E-02	5.00E-02
		78.34	96.00	3.09E-01		7.59E-02
+	SC-46	889.25	99.98	-2.85E-02	8.92E-02	8.92E-02
		1120.51	99.99	2.45E-01		1.64E-01
+	V-48	983.52	99.98	-7.03E-02	2.93E-01	2.93E-01
		1312.10	97.50	1.20E-01		3.54E-01
+	CR-51	320.08	9.83	-1.12E+00	1.08E+00	1.08E+00
+	MN-54	834.83	99.97	-8.01E-03	8.56E-02	8.56E-02
+	CO-56	846.75	99.96	-2.39E-02	9.54E-02	9.54E-02
		1037.75	14.03	-1.59E-02		6.49E-01
		1238.25	67.00	1.69E-01		2.44E-01
		1771.40	15.51	1.33E-01		5.60E-01
		2598.48	16.90	-1.58E-01		1.94E-01
+	CO-57	122.06	85.51	1.95E-03	5.84E-02	5.84E-02
		136.48	10.60	-5.56E-02		4.57E-01
+	CO-58	810.76	99.40	-1.66E-02	9.16E-02	9.16E-02
+	FE-59	1099.22	56.50	-6.15E-02	2.27E-01	2.27E-01
		1291.56	43.20	1.52E-01		3.37E-01
+	CO-60	1173.22	100.00	1.55E-03	7.41E-02	9.31E-02
		1332.49	100.00	1.58E-03		7.41E-02

Analysis Report for 1510090-11
CP0603S21-22

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	9.93E-02	1.81E-01	1.81E-01
+	GA-67	93.31	*	35.70	1.81E+02	2.90E+02	2.90E+02
		208.95	*	2.24	2.40E+03		2.58E+03
		300.22	*	16.00	2.88E+02		3.21E+02
+	SE-75	121.11		16.70	-3.15E-01	9.27E-02	3.18E-01
		136.00		59.20	-1.64E-02		9.27E-02
		264.65		59.80	9.68E-03		1.01E-01
		279.53		25.20	2.14E-02		2.63E-01
		400.65		11.40	4.58E-01		5.90E-01
+	RB-82	776.52		13.00	4.45E-01	1.36E+00	1.36E+00
+	RB-83	520.41		46.00	-4.30E-02	1.47E-01	1.47E-01
		529.64		30.30	-3.00E-02		2.20E-01
		552.65		16.40	-1.58E-01		4.23E-01
+	KR-85	513.99		0.43	-5.62E+00	1.62E+01	1.62E+01
+	SR-85	513.99		99.27	-3.45E-02	9.93E-02	9.93E-02
+	Y-88	898.02		93.40	-1.04E-03	8.25E-02	1.00E-01
		1836.01		99.38	8.20E-03		8.25E-02
+	NB-93M	16.57		9.43	-7.93E+03	5.67E+03	5.67E+03
+	NB-94	702.63		100.00	1.30E-02	6.73E-02	7.46E-02
		871.10		100.00	-5.33E-03		6.73E-02
+	NB-95	765.79		99.81	9.68E-02	1.62E-01	1.62E-01
+	NB-95M	235.69		25.00	-9.31E+02	1.56E+02	1.56E+02
+	ZR-95	724.18		43.70	-4.03E-02	1.87E-01	2.80E-01
		756.72		55.30	-1.27E-02		1.87E-01
+	MO-99	181.06		6.20	8.75E+02	1.86E+03	2.76E+03
		739.58		12.80	3.84E+02		1.86E+03
		778.00		4.50	-6.38E+02		4.96E+03
+	RU-103	497.08		89.00	-5.99E-02	9.37E-02	9.37E-02
+	RU-106	621.84		9.80	3.92E-01	7.36E-01	7.36E-01
+	AG-108M	433.93		89.90	-3.25E-03	5.72E-02	5.72E-02
		614.37		90.40	3.76E-02		7.73E-02
		722.95		90.50	1.00E-02		8.80E-02
+	CD-109	88.03	*	3.72	2.14E+00	3.17E+00	3.17E+00
+	AG-110M	657.75		93.14	-7.17E-03	8.59E-02	8.59E-02
		677.61		10.53	-1.91E-02		6.78E-01
		706.67		16.46	-3.33E-01		4.36E-01
		763.93		21.98	-4.21E-01		3.67E-01
		884.67		71.63	5.08E-02		1.11E-01
		1384.27		23.94	7.68E-02		3.26E-01
+	CD-113M	263.70		0.02	-2.18E+01	2.22E+02	2.22E+02
+	SN-113	255.12		1.93	-1.11E+00	9.73E-02	3.34E+00
		391.69		64.90	-4.49E-02		9.73E-02
+	TE123M	159.00		84.10	1.42E-02	7.16E-02	7.16E-02
+	SB-124	602.71		97.87	1.94E-02	1.06E-01	1.06E-01
		645.85		7.26	-1.69E-01		1.35E+00
		722.78		11.10	1.18E-01		1.04E+00
		1691.02		49.00	2.53E-02		1.83E-01
+	I-125	35.49		6.49	2.69E+00	6.01E+00	6.01E+00

Analysis Report for 1510090-11
CP0603S21-22

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-125	176.33	6.89	-2.59E-01	1.90E-01	7.29E-01
		427.89	29.33	1.01E-01		1.90E-01
		463.38	10.35	5.44E-01		6.36E-01
		600.56	17.80	4.18E-02		4.06E-01
		635.90	11.32	-2.46E-01		5.81E-01
+	SB-126	414.70	83.30	-7.18E-02	3.84E-01	3.84E-01
		666.33	99.60	-8.06E-03		4.35E-01
		695.00	99.60	1.91E-01		4.83E-01
		720.50	53.80	1.68E-01		8.33E-01
+	SN-126	87.57	* 37.00	2.05E-01	3.04E-01	3.04E-01
+	SB-127	473.00	25.00	-2.93E+01	6.27E+01	6.84E+01
		685.20	35.70	-1.75E+00		6.27E+01
		783.80	14.70	8.09E+01		1.64E+02
+	I-129	29.78	57.00	-3.14E-01	1.19E+00	1.19E+00
		33.60	13.20	-6.40E-01		2.54E+00
		39.58	7.52	-4.81E-01		2.13E+00
+	I-131	284.30	6.05	5.87E+00	1.03E+00	1.36E+01
		364.48	81.20	1.91E-01		1.03E+00
		636.97	7.26	-3.65E+00		1.43E+01
		722.89	1.80	8.04E+00		7.05E+01
+	TE-132	49.72	13.10	2.29E+02	5.48E+01	5.73E+02
		228.16	88.00	-4.16E+01		5.48E+01
+	BA-133	81.00	33.00	4.20E-02	8.47E-02	1.18E-01
		302.84	17.80	-1.11E-02		3.14E-01
		356.01	60.00	-3.65E-02		8.47E-02
+	I-133	529.87	86.30	-1.53E+08	8.49E+09	8.49E+09
+	XE-133	81.00	38.00	2.53E+00	7.14E+00	7.14E+00
+	CS-134	563.23	8.38	1.99E-01	8.16E-02	7.35E-01
		569.32	15.43	-1.51E-01		3.63E-01
		604.70	97.60	-4.38E-03		8.16E-02
		795.84	85.40	5.85E-02		9.77E-02
		801.93	8.73	-4.11E-02		7.91E-01
+	CS-135	268.24	16.00	-3.97E-01	3.46E-01	3.46E-01
+	@ 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	1.12E+00	3.71E-01	3.80E+00
		163.89	4.61	-1.28E-01		5.78E+00
		176.55	13.56	-4.35E-01		2.00E+00
		273.65	12.66	-5.64E+00		2.10E+00
		340.57	48.50	-1.56E-01		7.50E-01
		818.50	99.70	-9.48E-02		3.71E-01
		1048.07	79.60	3.29E-01		5.88E-01
		1235.34	19.70	1.28E+00		3.34E+00
+	CS-137	661.65	85.12	5.91E-02	9.35E-02	9.35E-02
+	LA-138	788.74	34.00	1.54E-01	1.00E-01	2.24E-01
		1435.80	66.00	-4.30E-02		1.00E-01
+	CE-139	165.85	80.35	-1.67E-02	7.19E-02	7.19E-02
+	BA-140	162.64	6.70	-7.39E-01	1.32E+00	4.17E+00

Analysis Report for 1510090-11
CP0603S21-22

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	304.84	4.50	7.04E-02	1.32E+00	6.53E+00
		423.70	3.20	-4.37E+00		8.79E+00
		437.55	2.00	8.25E-01		1.53E+01
		537.32	25.00	4.13E-01		1.32E+00
+	LA-140	328.77	20.50	5.91E-01	4.51E-01	1.51E+00
		487.03	45.50	-1.70E-01		6.66E-01
		815.85	23.50	6.59E-01		1.72E+00
		1596.49	95.49	5.10E-02		4.51E-01
+	CE-141	145.44	48.40	-3.00E-02	2.13E-01	2.13E-01
+	CE-143	57.36	11.80	1.53E+06	1.87E+06	4.94E+06
		293.26	42.00	-2.74E+05		1.87E+06
		664.55	5.20	-2.86E+06		1.51E+07
+	CE-144	133.54	10.80	-5.07E-02	4.74E-01	4.74E-01
+	PM-144	476.78	42.00	6.03E-02	7.41E-02	1.48E-01
		618.01	98.60	1.89E-02		7.41E-02
		696.49	99.49	8.57E-03		8.31E-02
+	PM-145	36.85	21.70	7.07E-01	5.36E-01	1.04E+00
		37.36	39.70	3.63E-01		5.36E-01
		42.30	15.10	3.60E-02		8.51E-01
		72.40	2.31	-1.15E+00		2.10E+00
+	PM-146	453.90	39.94	1.20E-02	1.43E-01	1.43E-01
		735.90	14.01	1.66E-01		5.03E-01
		747.13	13.10	-2.14E-01		5.52E-01
+	ND-147	91.11	28.90	-1.66E+00	1.64E+00	1.64E+00
		531.02	13.10	1.38E+00		3.07E+00
+	PM-149	285.90	3.10	1.57E+04	4.09E+04	4.09E+04
+	EU-152	121.78	20.50	7.53E-03	2.25E-01	2.25E-01
		244.69	5.40	-1.81E+00		1.03E+00
		344.27	19.13	-1.91E-02		2.74E-01
		778.89	9.20	-2.65E-01		7.09E-01
		964.01	10.40	-2.07E+00		9.89E-01
		1085.78	7.22	2.01E-01		1.10E+00
		1112.02	9.60	6.11E-01		9.46E-01
		1407.95	14.94	2.96E-01		5.04E-01
+	GD-153	97.43	31.30	1.23E-01	1.60E-01	1.60E-01
		103.18	22.20	-1.61E-01		2.21E-01
+	EU-154	123.07	40.50	6.23E-02	1.16E-01	1.16E-01
		723.30	19.70	4.64E-02		4.07E-01
		873.19	11.50	-7.67E-02		5.96E-01
		996.32	10.30	-2.44E-01		6.89E-01
		1004.76	17.90	2.70E-01		4.65E-01
		1274.45	35.50	-3.72E-02		2.26E-01
+	EU-155	86.50	* 30.90	2.49E-01	2.28E-01	3.68E-01
		105.30	20.70	1.12E-01		2.28E-01
+	EU-156	811.77	10.40	-6.26E-01	2.84E+00	2.84E+00
		1153.47	7.20	1.94E+00		5.77E+00
		1230.71	8.90	3.45E-01		4.73E+00
+	HO-166M	184.41	72.60	2.93E-02	8.59E-02	8.59E-02
		280.45	29.60	1.51E-02		1.86E-01

Analysis Report for 1510090-11
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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HO-166M 410.94	11.10	1.34E-01	8.59E-02	5.16E-01
	711.69	54.10	-7.07E-03		1.25E-01
+	TM-171 66.72	0.14	8.78E+00	3.59E+01	3.59E+01
+	HF-172 81.75	4.52	-1.36E+00	4.35E-01	8.70E-01
	125.81	11.30	-3.49E-01		4.35E-01
+	LU-172 181.53	20.60	8.60E-01	3.45E+00	7.04E+00
	810.06	16.63	-2.00E+00		1.11E+01
	912.12	15.25	6.29E+01		2.61E+01
	1093.66	62.50	2.28E-01		3.45E+00
+	LU-173 100.72	5.24	-7.58E-02	3.03E-01	8.95E-01
	272.11	21.20	3.49E-01		3.03E-01
+	HF-175 343.40	84.00	4.61E-03	8.79E-02	8.79E-02
+	LU-176 88.34	13.30	6.36E-01	5.37E-02	4.78E-01
	201.83	86.00	1.00E-02		6.50E-02
	306.78	94.00	-9.15E-03		5.37E-02
+	TA-182 67.75	41.20	-1.27E-02	1.39E-01	1.39E-01
	1121.30	34.90	7.66E-01		4.44E-01
	1189.05	16.23	-3.57E-01		6.21E-01
	1221.41	26.98	-1.03E-01		4.24E-01
	1231.02	11.44	1.21E-01		1.05E+00
+	IR-192 308.46	29.68	3.23E-02	1.45E-01	2.31E-01
	468.07	48.10	-4.64E-02		1.45E-01
+	HG-203 279.19	77.30	9.29E-02	1.21E-01	1.21E-01
+	BI-207 569.67	97.72	-2.32E-02	5.58E-02	5.58E-02
	1063.62	74.90	6.73E-02		1.22E-01
+	TL-208 583.14	* 30.22	1.17E+00	1.12E-01	3.15E-01
	860.37	* 4.48	1.84E+00		3.50E+00
	2614.66	* 35.85	9.42E-01		1.12E-01
+	BI-210M 262.00	45.00	-2.56E-02	1.14E-01	1.14E-01
	300.00	23.00	2.24E-01		2.63E-01
+	PB-210 46.50	* 4.25	2.30E+00	4.35E+00	4.35E+00
+	PB-211 404.84	2.90	-1.30E-01	1.79E+00	1.79E+00
	831.96	2.90	8.22E-02		2.69E+00
+	BI-212 727.17	* 11.80	1.04E+00	8.57E-01	8.57E-01
	1620.62	* 2.75	1.36E+00		2.32E+00
+	PB-212 238.63	* 44.60	1.46E+00	3.06E-01	3.06E-01
	300.09	* 3.41	1.46E+00		1.63E+00
+	BI-214 609.31	* 46.30	1.01E+00	2.22E-01	2.22E-01
	1120.29	* 15.10	1.36E+00		6.03E-01
	1764.49	* 15.80	1.25E+00		3.38E-01
	2204.22	* 4.98	1.01E+00		1.80E+00
+	PB-214 295.21	* 19.19	1.10E+00	2.24E-01	3.59E-01
	351.92	* 37.19	1.16E+00		2.24E-01
+	RN-219 401.80	6.50	-6.27E-02	8.42E-01	8.42E-01
+	RA-223 323.87	3.88	3.09E-01	1.34E+00	1.34E+00
+	RA-224 240.98	* 3.95	3.18E+00	3.45E+00	3.45E+00
+	RA-225 40.00	31.00	-5.04E-01	2.23E+00	2.23E+00
+	RA-226 186.21	* 3.28	2.70E+00	2.42E+00	2.42E+00

Analysis Report for 1510090-11
CP0603S21-22

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-227	50.10		8.40	3.79E-01	7.14E-01	9.46E-01
		236.00		11.50	-4.25E+00		7.14E-01
		256.20		6.30	2.34E-01		8.72E-01
+	AC-228	338.32	*	11.40	1.35E+00	3.59E-01	7.12E-01
		911.07	*	27.70	1.27E+00		3.59E-01
		969.11	*	16.60	1.32E+00		8.02E-01
+	TH-230	48.44		16.90	-3.07E-01	5.20E-01	5.20E-01
		62.85		4.60	1.14E+00		1.26E+00
		67.67		0.37	-1.17E+00		1.28E+01
+	PA-231	283.67		1.60	1.39E+00	2.41E+00	3.23E+00
		302.67		2.30	-8.52E-02		2.41E+00
+	TH-231	25.64		14.70	-8.29E-01	1.76E+00	1.51E+01
		84.21	*	6.40	6.19E-01		1.76E+00
+	PA-233	311.98		38.60	-5.99E-02	2.93E-01	2.93E-01
+	PA-234	131.20		20.40	1.52E-01	2.55E-01	2.55E-01
		733.99		8.80	-1.92E-02		7.69E-01
		946.00		12.00	3.85E-01		6.34E-01
+	PA-234M	1001.03		0.92	1.60E+00	8.73E+00	8.73E+00
+	TH-234	63.29	*	3.80	1.68E+00	2.87E+00	2.87E+00
+	U-235	143.76		10.50	-9.09E-02	4.93E-01	4.93E-01
		163.35		4.70	-1.85E-01		1.04E+00
		205.31		4.70	5.93E-01		1.13E+00
+	NP-237	86.50	*	12.60	6.03E-01	8.92E-01	8.92E-01
+	NP-239	106.10		22.70	-6.94E+02	2.62E+03	2.62E+03
		228.18		10.70	-4.70E+03		6.20E+03
		277.60		14.10	5.95E+03		5.28E+03
+	AM-241	59.54		35.90	-1.88E-02	1.51E-01	1.51E-01
+	AM-243	74.67		66.00	-1.68E-01	1.04E-01	1.04E-01
+	CM-243	209.75	*	3.29	1.77E+00	4.92E-01	1.91E+00
		228.14		10.60	-3.73E-01		4.92E-01
		277.60	*	14.00	2.76E-01		1.01E+00

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

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

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

Analysis Report for 1510090-11

CP0603S21-22

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	8.49E-01	8.49E-01	3.47E-01	4.01E-01
NA-22	1274.54	99.94	8.17E-02	8.17E-02	-1.34E-02	3.72E-02
NA-24	1368.53	99.99	1.70E+14	1.16E+14	-1.09E+12	7.38E+13
	2754.09	99.86	1.16E+14		2.01E+13	4.48E+13
AL-26	1808.65	99.76	4.32E-02	4.32E-02	-4.39E-03	1.71E-02
+ K-40	1460.81	* 10.67	1.28E+00	1.28E+00	1.96E+01	6.02E-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	5.00E-02	5.00E-02	-4.56E-03	2.42E-02
	78.34	96.00	7.59E-02		3.09E-01	3.73E-02
SC-46	889.25	99.98	8.92E-02	8.92E-02	-2.85E-02	4.11E-02
	1120.51	99.99	1.64E-01		2.45E-01	7.76E-02
V-48	983.52	99.98	2.93E-01	2.93E-01	-7.03E-02	1.35E-01
	1312.10	97.50	3.54E-01		1.20E-01	1.62E-01
CR-51	320.08	9.83	1.08E+00	1.08E+00	-1.12E+00	5.13E-01
MN-54	834.83	99.97	8.56E-02	8.56E-02	-8.01E-03	4.01E-02
CO-56	846.75	99.96	9.54E-02	9.54E-02	-2.39E-02	4.43E-02
	1037.75	14.03	6.49E-01		-1.59E-02	2.96E-01
	1238.25	67.00	2.44E-01		1.69E-01	1.15E-01
	1771.40	15.51	5.60E-01		1.33E-01	2.42E-01
	2598.48	16.90	1.94E-01		-1.58E-01	6.15E-02
CO-57	122.06	85.51	5.84E-02	5.84E-02	1.95E-03	2.83E-02
	136.48	10.60	4.57E-01		-5.56E-02	2.21E-01
CO-58	810.76	99.40	9.16E-02	9.16E-02	-1.66E-02	4.24E-02
FE-59	1099.22	56.50	2.27E-01	2.27E-01	-6.15E-02	1.04E-01
	1291.56	43.20	3.37E-01		1.52E-01	1.55E-01
CO-60	1173.22	100.00	9.31E-02	7.41E-02	1.55E-03	4.32E-02
	1332.49	100.00	7.41E-02		1.58E-03	3.33E-02
ZN-65	1115.52	50.75	1.81E-01	1.81E-01	9.93E-02	8.35E-02
+ GA-67	93.31	* 35.70	2.90E+02	2.90E+02	1.81E+02	1.43E+02
	208.95	* 2.24	2.58E+03		2.40E+03	1.25E+03
	300.22	* 16.00	3.21E+02		2.88E+02	1.54E+02
SE-75	121.11	16.70	3.18E-01	9.27E-02	-3.15E-01	1.54E-01
	136.00	59.20	9.27E-02		-1.64E-02	4.49E-02
	264.65	59.80	1.01E-01		9.68E-03	4.84E-02
	279.53	25.20	2.63E-01		2.14E-02	1.26E-01
	400.65	11.40	5.90E-01		4.58E-01	2.79E-01
RB-82	776.52	13.00	1.36E+00	1.36E+00	4.45E-01	6.38E-01
RB-83	520.41	46.00	1.47E-01	1.47E-01	-4.30E-02	6.83E-02
	529.64	30.30	2.20E-01		-3.00E-02	1.03E-01
	552.65	16.40	4.23E-01		-1.58E-01	1.97E-01
KR-85	513.99	0.43	1.62E+01	1.62E+01	-5.62E+00	7.70E+00
SR-85	513.99	99.27	9.93E-02	9.93E-02	-3.45E-02	4.72E-02
Y-88	898.02	93.40	1.00E-01	8.25E-02	-1.04E-03	4.66E-02
	1836.01	99.38	8.25E-02		8.20E-03	3.57E-02
NB-93M	16.57	9.43	5.67E+03	5.67E+03	-7.93E+03	2.76E+03

Analysis Report for 1510090-11
CP0603S21-22

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
NB-94	702.63	100.00	7.46E-02	6.73E-02	1.30E-02	3.51E-02	
	871.10	100.00	6.73E-02		-5.33E-03	3.10E-02	
NB-95	765.79	99.81	1.62E-01	1.62E-01	9.68E-02	7.63E-02	
NB-95M	235.69	25.00	1.56E+02	1.56E+02	-9.31E+02	7.62E+01	
ZR-95	724.18	43.70	2.80E-01	1.87E-01	-4.03E-02	1.32E-01	
	756.72	55.30	1.87E-01		-1.27E-02	8.77E-02	
MO-99	181.06	6.20	2.76E+03	1.86E+03	8.75E+02	1.33E+03	
	739.58	12.80	1.86E+03		3.84E+02	8.71E+02	
	778.00	4.50	4.96E+03		-6.38E+02	2.30E+03	
RU-103	497.08	89.00	9.37E-02	9.37E-02	-5.99E-02	4.35E-02	
RU-106	621.84	9.80	7.36E-01	7.36E-01	3.92E-01	3.46E-01	
AG-108M	433.93	89.90	5.72E-02	5.72E-02	-3.25E-03	2.69E-02	
	614.37	90.40	7.73E-02		3.76E-02	3.64E-02	
	722.95	90.50	8.80E-02		1.00E-02	4.15E-02	
	88.03	3.72	3.17E+00		3.17E+00	2.14E+00	1.57E+00
AG-110M	657.75	93.14	8.59E-02	8.59E-02	-7.17E-03	4.05E-02	
	677.61	10.53	6.78E-01		-1.91E-02	3.17E-01	
	706.67	16.46	4.36E-01		-3.33E-01	2.03E-01	
	763.93	21.98	3.67E-01		-4.21E-01	1.72E-01	
	884.67	71.63	1.11E-01		5.08E-02	5.13E-02	
	1384.27	23.94	3.26E-01		7.68E-02	1.46E-01	
	263.70	0.02	2.22E+02		2.22E+02	-2.18E+01	1.06E+02
SN-113	255.12	1.93	3.34E+00	9.73E-02	-1.11E+00	1.60E+00	
	391.69	64.90	9.73E-02		-4.49E-02	4.59E-02	
	159.00	84.10	7.16E-02		7.16E-02	1.42E-02	3.47E-02
SB-124	602.71	97.87	1.06E-01	1.06E-01	1.94E-02	5.03E-02	
	645.85	7.26	1.35E+00		-1.69E-01	6.36E-01	
	722.78	11.10	1.04E+00		1.18E-01	4.90E-01	
	1691.02	49.00	1.83E-01		2.53E-02	7.88E-02	
I-125	35.49	6.49	6.01E+00	6.01E+00	2.69E+00	2.92E+00	
SB-125	176.33	6.89	7.29E-01	1.90E-01	-2.59E-01	3.52E-01	
	427.89	29.33	1.90E-01		1.01E-01	8.97E-02	
	463.38	10.35	6.36E-01		5.44E-01	3.02E-01	
	600.56	17.80	4.06E-01		4.18E-02	1.92E-01	
	635.90	11.32	5.81E-01		-2.46E-01	2.72E-01	
	414.70	83.30	3.84E-01		3.84E-01	-7.18E-02	1.81E-01
	666.33	99.60	4.35E-01		-8.06E-03	2.05E-01	
SB-126	695.00	99.60	4.83E-01	3.84E-01	1.91E-01	2.28E-01	
	720.50	53.80	8.33E-01		1.68E-01	3.91E-01	
	87.57	37.00	3.04E-01		3.04E-01	2.05E-01	1.50E-01
	473.00	25.00	6.84E+01		6.27E+01	-2.93E+01	3.21E+01
SN-126	685.20	35.70	6.27E+01	6.27E+01	-1.75E+00	2.94E+01	
	783.80	14.70	1.64E+02		8.09E+01	7.67E+01	
	29.78	57.00	1.19E+00		1.19E+00	-3.14E-01	5.75E-01
SB-127	33.60	13.20	2.54E+00	1.19E+00	-6.40E-01	1.23E+00	
	39.58	7.52	2.13E+00		-4.81E-01	1.03E+00	
	284.30	6.05	1.36E+01		1.03E+00	5.87E+00	6.52E+00
I-131	364.48	81.20	1.03E+00	1.03E+00	1.91E-01	4.88E-01	
	636.97	7.26	1.43E+01		-3.65E+00	6.71E+00	
	722.89	1.80	7.05E+01		8.04E+00	3.33E+01	
	49.72	13.10	5.73E+02		5.48E+01	2.29E+02	2.78E+02
TE-132	228.16	88.00	5.48E+01	5.48E+01	-4.16E+01	2.63E+01	
	81.00	33.00	1.18E-01		8.47E-02	4.20E-02	5.72E-02

Analysis Report for 1510090-11
CP0603S21-22

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	3.14E-01	8.47E-02	-1.11E-02	1.50E-01
	356.01	60.00	8.47E-02		-3.65E-02	4.01E-02
I-133	529.87	86.30	8.49E+09	8.49E+09	-1.53E+08	3.95E+09
XE-133	81.00	38.00	7.14E+00	7.14E+00	2.53E+00	3.45E+00
CS-134	563.23	8.38	7.35E-01	8.16E-02	1.99E-01	3.45E-01
	569.32	15.43	3.63E-01		-1.51E-01	1.69E-01
	604.70	97.60	8.16E-02		-4.38E-03	3.87E-02
	795.84	85.40	9.77E-02		5.85E-02	4.59E-02
	801.93	8.73	7.91E-01		-4.11E-02	3.67E-01
CS-135	268.24	16.00	3.46E-01	3.46E-01	-3.97E-01	1.66E-01
@ 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	3.80E+00	3.71E-01	1.12E+00	1.84E+00
	163.89	4.61	5.78E+00		-1.28E-01	2.79E+00
	176.55	13.56	2.00E+00		-4.35E-01	9.65E-01
	273.65	12.66	2.10E+00		-5.64E+00	9.99E-01
	340.57	48.50	7.50E-01		-1.56E-01	3.60E-01
	818.50	99.70	3.71E-01		-9.48E-02	1.72E-01
	1048.07	79.60	5.88E-01		3.29E-01	2.73E-01
	1235.34	19.70	3.34E+00		1.28E+00	1.57E+00
CS-137	661.65	85.12	9.35E-02	9.35E-02	5.91E-02	4.42E-02
LA-138	788.74	34.00	2.24E-01	1.00E-01	1.54E-01	1.05E-01
	1435.80	66.00	1.00E-01		-4.30E-02	4.42E-02
CE-139	165.85	80.35	7.19E-02	7.19E-02	-1.67E-02	3.48E-02
BA-140	162.64	6.70	4.17E+00	1.32E+00	-7.39E-01	2.02E+00
	304.84	4.50	6.53E+00		7.04E-02	3.11E+00
	423.70	3.20	8.79E+00		-4.37E+00	4.12E+00
	437.55	2.00	1.53E+01		8.25E-01	7.21E+00
	537.32	25.00	1.32E+00		4.13E-01	6.18E-01
LA-140	328.77	20.50	1.51E+00	4.51E-01	5.91E-01	7.19E-01
	487.03	45.50	6.66E-01		-1.70E-01	3.12E-01
	815.85	23.50	1.72E+00		6.59E-01	7.99E-01
	1596.49	95.49	4.51E-01		5.10E-02	2.01E-01
CE-141	145.44	48.40	2.13E-01	2.13E-01	-3.00E-02	1.03E-01
CE-143	57.36	11.80	4.94E+06	1.87E+06	1.53E+06	2.39E+06
	293.26	42.00	1.87E+06		-2.74E+05	9.04E+05
	664.55	5.20	1.51E+07		-2.86E+06	7.11E+06
CE-144	133.54	10.80	4.74E-01	4.74E-01	-5.07E-02	2.30E-01
PM-144	476.78	42.00	1.48E-01	7.41E-02	6.03E-02	6.96E-02
	618.01	98.60	7.41E-02		1.89E-02	3.49E-02
	696.49	99.49	8.31E-02		8.57E-03	3.92E-02
PM-145	36.85	21.70	1.04E+00	5.36E-01	7.07E-01	5.07E-01
	37.36	39.70	5.36E-01		3.63E-01	2.60E-01
	42.30	15.10	8.51E-01		3.60E-02	4.13E-01
	72.40	2.31	2.10E+00		-1.15E+00	1.02E+00
PM-146	453.90	39.94	1.43E-01	1.43E-01	1.20E-02	6.75E-02
	735.90	14.01	5.03E-01		1.66E-01	2.35E-01
	747.13	13.10	5.52E-01		-2.14E-01	2.58E-01
ND-147	91.11	28.90	1.64E+00	1.64E+00	-1.66E+00	8.03E-01
	531.02	13.10	3.07E+00		1.38E+00	1.43E+00
PM-149	285.90	3.10	4.09E+04	4.09E+04	1.57E+04	1.96E+04
EU-152	121.78	20.50	2.25E-01	2.25E-01	7.53E-03	1.09E-01

Analysis Report for 1510090-11
CP0603S21-22

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	244.69	5.40	1.03E+00	2.25E-01	-1.81E+00	4.98E-01
	344.27	19.13	2.74E-01		-1.91E-02	1.30E-01
	778.89	9.20	7.09E-01		-2.65E-01	3.28E-01
	964.01	10.40	9.89E-01		-2.07E+00	4.67E-01
	1085.78	7.22	1.10E+00		2.01E-01	5.05E-01
	1112.02	9.60	9.46E-01		6.11E-01	4.39E-01
	1407.95	14.94	5.04E-01		2.96E-01	2.26E-01
GD-153	97.43	31.30	1.60E-01	1.60E-01	1.23E-01	7.79E-02
	103.18	22.20	2.21E-01		-1.61E-01	1.07E-01
EU-154	123.07	40.50	1.16E-01	1.16E-01	6.23E-02	5.65E-02
	723.30	19.70	4.07E-01		4.64E-02	1.92E-01
	873.19	11.50	5.96E-01		-7.67E-02	2.75E-01
	996.32	10.30	6.89E-01		-2.44E-01	3.16E-01
	1004.76	17.90	4.65E-01		2.70E-01	2.16E-01
	1274.45	35.50	2.26E-01		-3.72E-02	1.03E-01
+ EU-155	86.50	* 30.90	3.68E-01	2.28E-01	2.49E-01	1.82E-01
	105.30	20.70	2.28E-01		1.12E-01	1.11E-01
EU-156	811.77	10.40	2.84E+00	2.84E+00	-6.26E-01	1.32E+00
	1153.47	7.20	5.77E+00		1.94E+00	2.69E+00
	1230.71	8.90	4.73E+00		3.45E-01	2.19E+00
HO-166M	184.41	72.60	8.59E-02	8.59E-02	2.93E-02	4.18E-02
	280.45	29.60	1.86E-01		1.51E-02	8.93E-02
	410.94	11.10	5.16E-01		1.34E-01	2.45E-01
	711.69	54.10	1.25E-01		-7.07E-03	5.82E-02
TM-171	66.72	0.14	3.59E+01	3.59E+01	8.78E+00	1.74E+01
HF-172	81.75	4.52	8.70E-01	4.35E-01	-1.36E+00	4.20E-01
	125.81	11.30	4.35E-01		-3.49E-01	2.11E-01
LU-172	181.53	20.60	7.04E+00	3.45E+00	8.60E-01	3.40E+00
	810.06	16.63	1.11E+01		-2.00E+00	5.13E+00
	912.12	15.25	2.61E+01		6.29E+01	1.26E+01
	1093.66	62.50	3.45E+00		2.28E-01	1.58E+00
LU-173	100.72	5.24	8.95E-01	3.03E-01	-7.58E-02	4.35E-01
	272.11	21.20	3.03E-01		3.49E-01	1.46E-01
HF-175	343.40	84.00	8.79E-02	8.79E-02	4.61E-03	4.18E-02
LU-176	88.34	13.30	4.78E-01	5.37E-02	6.36E-01	2.34E-01
	201.83	86.00	6.50E-02		1.00E-02	3.14E-02
	306.78	94.00	5.37E-02		-9.15E-03	2.56E-02
TA-182	67.75	41.20	1.39E-01	1.39E-01	-1.27E-02	6.75E-02
	1121.30	34.90	4.44E-01		7.66E-01	2.11E-01
	1189.05	16.23	6.21E-01		-3.57E-01	2.85E-01
	1221.41	26.98	4.24E-01		-1.03E-01	1.96E-01
	1231.02	11.44	1.05E+00		1.21E-01	4.87E-01
	308.46	29.68	2.31E-01		1.45E-01	3.23E-02	1.10E-01
IR-192	468.07	48.10	1.45E-01	1.21E-01	-4.64E-02	6.79E-02
	279.19	77.30	1.21E-01		9.29E-02	5.82E-02
BI-207	569.67	97.72	5.58E-02	5.58E-02	-2.32E-02	2.60E-02
	1063.62	74.90	1.22E-01		6.73E-02	5.69E-02
+ TL-208	583.14	* 30.22	3.15E-01	1.12E-01	1.17E+00	1.51E-01
	860.37	* 4.48	3.50E+00		1.84E+00	1.69E+00
	2614.66	* 35.85	1.12E-01		9.42E-01	4.36E-02
BI-210M	262.00	45.00	1.14E-01	1.14E-01	-2.56E-02	5.45E-02
	300.00	23.00	2.63E-01		2.24E-01	1.26E-01
+ PB-210	46.50	* 4.25	4.35E+00	4.35E+00	2.30E+00	2.15E+00

Analysis Report for 1510090-11

CP0603S21-22

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	1.79E+00	1.79E+00	-1.30E-01	8.44E-01
	831.96	2.90	2.69E+00		8.22E-02	1.26E+00
+ BI-212	727.17 *	11.80	8.57E-01	8.57E-01	1.04E+00	4.09E-01
	1620.62 *	2.75	2.32E+00		1.36E+00	1.00E+00
+ PB-212	238.63 *	44.60	3.06E-01	3.06E-01	1.46E+00	1.51E-01
	300.09 *	3.41	1.63E+00		1.46E+00	7.81E-01
+ BI-214	609.31 *	46.30	2.22E-01	2.22E-01	1.01E+00	1.07E-01
	1120.29 *	15.10	6.03E-01		1.36E+00	2.80E-01
	1764.49 *	15.80	3.38E-01		1.25E+00	1.41E-01
	2204.22 *	4.98	1.80E+00		1.01E+00	8.06E-01
+ PB-214	295.21 *	19.19	3.59E-01	2.24E-01	1.10E+00	1.73E-01
	351.92 *	37.19	2.24E-01		1.16E+00	1.08E-01
RN-219	401.80	6.50	8.42E-01	8.42E-01	-6.27E-02	3.98E-01
RA-223	323.87	3.88	1.34E+00	1.34E+00	3.09E-01	6.38E-01
+ RA-224	240.98 *	3.95	3.45E+00	3.45E+00	3.18E+00	1.70E+00
RA-225	40.00	31.00	2.23E+00	2.23E+00	-5.04E-01	1.08E+00
+ RA-226	186.21 *	3.28	2.42E+00	2.42E+00	2.70E+00	1.18E+00
TH-227	50.10	8.40	9.46E-01	7.14E-01	3.79E-01	4.59E-01
	236.00	11.50	7.14E-01		-4.25E+00	3.48E-01
	256.20	6.30	8.72E-01		2.34E-01	4.19E-01
+ AC-228	338.32 *	11.40	7.12E-01	3.59E-01	1.35E+00	3.44E-01
	911.07 *	27.70	3.59E-01		1.27E+00	1.70E-01
	969.11 *	16.60	8.02E-01		1.32E+00	3.84E-01
TH-230	48.44	16.90	5.20E-01	5.20E-01	-3.07E-01	2.53E-01
	62.85	4.60	1.26E+00		1.14E+00	6.12E-01
	67.67	0.37	1.28E+01		-1.17E+00	6.19E+00
PA-231	283.67	1.60	3.23E+00	2.41E+00	1.39E+00	1.54E+00
	302.67	2.30	2.41E+00		-8.52E-02	1.15E+00
+ TH-231	25.64	14.70	1.51E+01	1.76E+00	-8.29E-01	7.34E+00
	84.21 *	6.40	1.76E+00		6.19E-01	8.72E-01
PA-233	311.98	38.60	2.93E-01	2.93E-01	-5.99E-02	1.39E-01
PA-234	131.20	20.40	2.55E-01	2.55E-01	1.52E-01	1.24E-01
	733.99	8.80	7.69E-01		-1.92E-02	3.58E-01
	946.00	12.00	6.34E-01		3.85E-01	2.93E-01
PA-234M	1001.03	0.92	8.73E+00	8.73E+00	1.60E+00	4.04E+00
+ TH-234	63.29 *	3.80	2.87E+00	2.87E+00	1.68E+00	1.41E+00
U-235	143.76	10.50	4.93E-01	4.93E-01	-9.09E-02	2.39E-01
	163.35	4.70	1.04E+00		-1.85E-01	5.05E-01
	205.31	4.70	1.13E+00		5.93E-01	5.45E-01
+ NP-237	86.50 *	12.60	8.92E-01	8.92E-01	6.03E-01	4.41E-01
NP-239	106.10	22.70	2.62E+03	2.62E+03	-6.94E+02	1.27E+03
	228.18	10.70	6.20E+03		-4.70E+03	2.98E+03
	277.60	14.10	5.28E+03		5.95E+03	2.54E+03
AM-241	59.54	35.90	1.51E-01	1.51E-01	-1.88E-02	7.32E-02
AM-243	74.67	66.00	1.04E-01	1.04E-01	-1.68E-01	5.11E-02
+ CM-243	209.75 *	3.29	1.91E+00	4.92E-01	1.77E+00	9.26E-01
	228.14	10.60	4.92E-01		-3.73E-01	2.36E-01
	277.60 *	14.00	1.01E+00		2.76E-01	4.96E-01

Analysis Report for 1510090-11
CP0603S21-22

-
- + = Nuclide identified during the nuclide identification
 - * = Energy line found in the spectrum
 - > = MDA value not calculated
 - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S21-22

Elapsed Live time: 3600
 Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	163
9:	524	1136	1093	424	633	1754	308	179
17:	143	120	148	117	117	127	99	120
25:	131	114	108	119	117	96	115	116
33:	120	102	129	129	144	129	104	136
41:	130	131	126	131	117	167	218	139
49:	143	121	123	106	111	114	97	100
57:	89	110	88	114	132	118	151	171
65:	107	122	113	114	110	117	129	122
73:	139	163	415	256	477	390	112	91
81:	109	76	81	146	131	109	198	191
89:	106	181	115	124	231	167	115	64
97:	79	86	83	86	66	66	78	72
105:	92	90	72	75	90	80	82	71
113:	63	65	86	83	61	82	56	70
121:	64	84	53	83	80	58	75	73
129:	111	74	88	66	88	74	71	46
137:	61	61	60	93	88	77	73	89
145:	82	62	75	80	59	73	72	66
153:	74	90	60	63	60	63	67	65
161:	62	58	63	63	49	60	57	61
169:	61	50	57	56	51	57	38	57
177:	60	56	65	60	59	51	59	64
185:	79	160	94	49	53	50	45	65
193:	52	67	47	46	45	40	62	65
201:	56	56	63	52	52	51	38	58
209:	86	78	61	45	53	48	54	46
217:	53	46	41	59	50	43	58	42
225:	50	46	49	39	35	43	55	43
233:	34	38	46	56	51	328	566	110
241:	116	129	58	45	40	41	37	36
249:	30	34	23	36	33	45	45	42
257:	24	46	39	33	36	28	32	40
265:	35	30	23	28	39	72	73	29
273:	29	31	26	29	52	53	36	35
281:	25	30	26	35	36	27	26	42
289:	30	31	28	23	31	44	175	112
297:	28	21	34	65	52	26	28	34
305:	23	30	23	27	28	24	26	23
313:	19	31	26	27	27	21	18	33
321:	16	21	36	21	26	25	28	39
329:	22	24	25	22	30	29	23	23
337:	34	107	95	27	32	22	28	21
345:	24	24	27	26	21	30	90	324
353:	102	24	27	18	25	12	25	22
361:	19	29	22	25	13	22	21	19

369: 18 23 22 14 19 16 27 14

Sample Title: CP0603S21-22

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	23	17	32	20	19	25	12	23
385:	18	14	30	25	28	27	20	18
393:	16	17	22	14	17	14	19	33
401:	24	18	16	14	23	16	24	23
409:	24	29	20	20	19	19	16	18
417:	22	26	16	31	13	11	21	14
425:	15	17	16	21	24	17	12	15
433:	19	15	18	15	22	15	19	19
441:	16	12	22	15	13	24	21	18
449:	13	23	13	14	18	24	23	15
457:	18	18	9	16	7	25	48	29
465:	11	15	18	10	20	11	14	18
473:	19	11	14	16	26	17	20	15
481:	14	11	23	15	12	18	12	14
489:	18	13	18	16	17	15	11	17
497:	9	13	6	21	11	21	14	16
505:	19	11	16	27	29	69	74	59
513:	14	23	6	20	16	10	9	17
521:	18	10	14	12	13	19	10	9
529:	14	11	17	9	13	8	10	18
537:	15	16	17	14	14	13	15	13
545:	16	10	10	17	8	17	11	11
553:	10	13	19	15	10	11	19	8
561:	17	19	17	10	13	15	10	11
569:	11	20	9	15	18	16	13	14
577:	21	12	15	11	16	49	151	95
585:	10	14	10	14	8	7	12	14
593:	10	13	12	14	13	15	9	17
601:	18	14	12	15	12	13	9	42
609:	182	133	22	11	8	11	14	16
617:	10	9	2	18	19	11	13	6
625:	16	10	6	9	12	9	11	15
633:	9	6	9	18	9	16	6	11
641:	15	10	7	14	11	13	11	16
649:	8	15	9	12	8	12	11	10
657:	9	17	20	15	9	17	16	13
665:	12	11	11	7	16	17	7	6
673:	12	12	5	12	13	10	7	9
681:	10	11	8	11	14	7	10	14
689:	10	14	9	17	11	8	15	20
697:	14	15	11	12	13	17	12	8
705:	12	6	11	6	9	10	15	13
713:	4	10	14	8	12	11	12	16
721:	10	10	10	18	13	16	33	33
729:	7	11	8	7	11	6	11	9
737:	12	8	11	11	5	18	13	7
745:	8	10	12	12	9	12	9	10
753:	12	8	9	17	9	12	5	11
761:	12	10	10	8	11	10	11	28
769:	20	8	9	12	15	11	14	9
777:	12	5	5	5	9	8	6	9
785:	11	16	11	9	9	11	6	5
793:	6	16	21	4	17	13	5	12

801: 7 5 10 8 7 8 6 7

Sample Title: CP0603S21-22

Channel	1	2	3	4	5	6	7	8
809:	11	6	9	7	6	9	9	12
817:	5	9	9	3	7	12	8	12
825:	4	0	16	12	11	9	13	11
833:	4	6	16	13	11	12	13	19
841:	9	10	9	8	9	6	7	10
849:	8	11	8	8	9	4	11	6
857:	5	5	8	26	28	6	7	15
865:	8	6	6	10	5	4	6	4
873:	8	10	9	7	7	8	3	5
881:	12	9	9	5	9	5	5	8
889:	4	10	4	11	9	10	8	11
897:	5	9	8	11	6	7	8	6
905:	7	5	7	6	9	42	98	48
913:	12	7	1	9	4	6	8	7
921:	7	4	7	10	4	8	6	7
929:	8	10	7	5	11	11	7	8
937:	6	5	9	7	1	5	6	7
945:	7	11	5	12	5	3	8	10
953:	9	7	8	8	6	8	2	6
961:	10	7	6	30	24	14	6	41
969:	57	31	4	14	7	7	9	3
977:	10	7	4	8	5	9	7	4
985:	5	7	12	6	11	3	7	8
993:	4	7	5	7	7	7	4	6
1001:	9	8	7	13	5	8	7	5
1009:	5	7	7	5	3	10	8	3
1017:	6	6	6	5	5	8	8	7
1025:	5	7	8	3	8	8	6	7
1033:	8	5	9	8	3	3	4	4
1041:	5	3	6	5	7	6	10	8
1049:	8	7	12	6	4	5	5	4
1057:	4	7	5	9	13	7	11	11
1065:	9	4	5	7	12	10	7	10
1073:	5	11	9	12	8	7	11	6
1081:	6	8	7	2	8	2	6	12
1089:	12	6	8	4	2	10	9	4
1097:	7	4	3	12	5	8	3	8
1105:	8	8	4	9	12	4	6	11
1113:	10	8	7	5	2	6	19	45
1121:	29	8	6	6	3	5	10	10
1129:	8	6	7	4	3	0	10	8
1137:	13	6	6	4	1	6	6	4
1145:	9	7	2	14	11	8	8	6
1153:	4	16	15	5	4	9	5	6
1161:	7	4	6	3	3	3	4	6
1169:	9	6	10	4	10	5	10	10
1177:	9	7	9	6	7	3	8	9
1185:	11	9	5	2	7	6	7	7
1193:	5	11	8	10	6	12	7	5
1201:	7	4	7	6	7	6	12	7
1209:	11	9	9	7	8	8	7	7
1217:	11	7	7	7	6	6	12	9
1225:	8	10	7	11	4	12	6	8

1233: 9 9 13 12 20 20 12 12

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Channel	1	2	3	4	5	6	7	8
1241:	5	10	7	9	8	5	5	8
1249:	8	4	2	7	4	5	6	8
1257:	8	9	7	7	8	7	6	6
1265:	3	2	6	5	6	7	4	4
1273:	3	4	11	4	5	6	4	13
1281:	6	3	9	2	4	4	4	6
1289:	3	7	8	5	8	6	6	2
1297:	4	4	4	4	6	6	7	3
1305:	4	7	4	2	7	12	7	3
1313:	2	5	3	4	5	2	4	5
1321:	5	2	3	6	7	3	1	6
1329:	4	4	3	4	2	5	5	6
1337:	2	3	2	2	1	7	1	3
1345:	7	5	3	3	3	3	2	3
1353:	1	5	4	3	6	2	2	6
1361:	4	3	2	3	2	5	4	0
1369:	1	1	2	1	3	4	2	7
1377:	12	10	5	3	3	1	2	3
1385:	5	6	4	1	1	0	1	1
1393:	6	3	2	0	4	1	3	4
1401:	4	1	2	2	4	4	8	4
1409:	2	2	1	2	1	4	3	3
1417:	4	2	8	3	3	2	2	2
1425:	1	2	2	5	3	2	3	2
1433:	2	3	3	4	2	3	4	7
1441:	2	4	3	2	4	3	0	0
1449:	2	5	3	3	4	9	0	5
1457:	7	16	83	258	295	89	11	5
1465:	2	1	4	2	1	2	2	4
1473:	5	3	0	0	3	1	0	3
1481:	1	3	4	4	5	1	2	2
1489:	1	3	2	1	1	3	2	5
1497:	4	3	1	0	4	3	1	3
1505:	3	2	2	0	5	5	2	8
1513:	3	2	1	0	3	2	3	1
1521:	3	5	0	1	2	3	2	1
1529:	2	3	1	1	0	1	1	3
1537:	2	4	2	2	0	1	4	1
1545:	1	0	1	2	1	4	0	0
1553:	1	2	2	3	3	3	2	0
1561:	1	2	0	2	2	2	1	2
1569:	2	3	2	0	2	5	1	1
1577:	2	1	0	2	3	3	3	4
1585:	3	7	1	12	4	3	5	5
1593:	3	4	1	2	0	1	1	5
1601:	1	1	1	0	4	2	0	1
1609:	2	0	1	0	3	1	1	2
1617:	2	3	1	4	6	2	0	2
1625:	0	4	2	0	10	4	5	1
1633:	1	1	5	1	2	1	2	0
1641:	2	0	1	1	1	1	4	0
1649:	3	2	0	3	1	1	2	1
1657:	2	2	1	2	4	2	1	0

1665: 3 2 3 0 0 0 2 0

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

2097: 2 0 1 5 4 6 3 1

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

2529: 0 0 1 0 0 0 1 0

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Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	1	1	1	0	0	1	
2545:	0	0	1	0	0	0	0	0	
2553:	0	0	1	0	0	1	1	0	
2561:	0	1	1	0	0	0	1	0	
2569:	0	0	0	0	1	0	1	0	
2577:	0	0	1	2	0	0	0	0	
2585:	0	1	0	0	1	0	1	0	
2593:	0	0	0	0	1	0	0	0	
2601:	0	0	2	0	1	0	0	0	
2609:	0	2	3	15	31	35	13	6	
2617:	3	0	0	0	0	0	0	0	
2625:	1	0	1	1	0	0	0	0	
2633:	0	1	0	0	0	1	1	0	
2641:	0	1	0	0	0	0	0	0	
2649:	0	0	0	0	0	0	0	0	
2657:	0	0	0	0	0	0	1	0	
2665:	1	0	0	0	0	0	2	0	
2673:	0	1	0	0	1	0	0	1	
2681:	0	0	0	0	0	0	0	0	
2689:	0	0	0	1	0	1	0	0	
2697:	0	0	0	0	0	0	0	0	
2705:	0	1	0	0	0	0	0	1	
2713:	1	0	1	0	2	0	0	1	
2721:	1	1	0	0	0	1	0	0	
2729:	1	0	0	0	0	0	0	2	
2737:	0	0	1	0	0	0	0	0	
2745:	0	0	0	0	1	0	0	1	
2753:	1	0	1	0	0	1	0	0	
2761:	0	0	0	0	0	0	1	0	
2769:	0	0	1	0	0	0	1	0	
2777:	0	0	1	1	0	1	0	0	
2785:	0	1	1	0	0	1	0	0	
2793:	1	2	1	0	1	0	2	0	
2801:	2	0	0	0	1	0	0	0	
2809:	0	0	0	0	1	0	0	0	
2817:	1	0	1	1	1	1	0	0	
2825:	0	0	0	1	0	1	0	1	
2833:	0	0	0	0	0	1	0	0	
2841:	1	0	0	0	0	0	1	1	
2849:	1	0	0	0	0	1	0	1	
2857:	0	0	2	0	1	0	0	0	
2865:	1	1	0	0	0	1	1	1	
2873:	0	0	0	0	0	1	0	0	
2881:	1	0	0	0	0	1	1	0	
2889:	0	1	0	1	0	0	1	0	
2897:	0	0	0	0	0	0	0	0	
2905:	0	0	0	0	0	2	0	2	
2913:	0	0	0	0	0	0	0	0	
2921:	0	0	1	0	0	0	0	0	
2929:	1	1	0	0	1	1	1	1	
2937:	0	0	0	0	0	1	0	0	
2945:	0	0	0	0	0	1	0	0	
2953:	0	0	1	0	0	0	0	0	

2961: 0 2 0 0 0 0 1 0

Sample Title: CP0603S21-22

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

3393: 0 0 1 0 0 1 0 0

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

3825: 0 0 0 1 0 0 0 0

Sample Title: CP0603S21-22

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

*KAB
11/10/15*Analysis Report for 1510090-12
CP0603S24-25

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-12
Sample Description : CP0603S24-25
Sample Type : SOIL

Sample Size : 5.283E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:49:03AM
Acquisition Started : 11/10/2015 12:25:11PM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE3
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3616.7 seconds

Dead Time : 0.46 %

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 : 29395

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

*AG
11/11/15*

Analysis Report for 1510090-12
CP0603S24-25

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 1:25:29PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.70	62.92	0.0000	0.00
2	76.29	76.50	0.0000	0.00
3	86.24	86.45	0.0000	0.00
4	89.64	89.85	0.0000	0.00
5	92.99	93.19	0.0000	0.00
6	130.20	130.39	0.0000	0.00
7	185.95	186.11	0.0000	0.00
8	209.61	209.76	0.0000	0.00
9	238.92	239.05	0.0000	0.00
10	241.95	242.08	0.0000	0.00
11	270.41	270.52	0.0000	0.00
12	274.70	274.81	0.0000	0.00
13	277.34	277.44	0.0000	0.00
14	295.46	295.56	0.0000	0.00
15	338.62	338.69	0.0000	0.00
16	352.14	352.21	0.0000	0.00
17	410.27	410.31	0.0000	0.00
18	431.80	431.83	0.0000	0.00
19	463.67	463.68	0.0000	0.00
20	511.00	510.99	0.0000	0.00
21	583.75	583.71	0.0000	0.00
22	609.49	609.43	0.0000	0.00
23	666.44	666.35	0.0000	0.00
24	726.92	726.81	0.0000	0.00
25	769.13	769.00	0.0000	0.00
26	911.43	911.24	0.0000	0.00
27	951.12	950.91	0.0000	0.00
28	969.08	968.86	0.0000	0.00
29	1000.71	1000.47	0.0000	0.00
30	1121.15	1120.87	0.0000	0.00
31	1238.93	1238.60	0.0000	0.00
32	1242.99	1242.66	0.0000	0.00
33	1254.34	1254.00	0.0000	0.00
34	1333.30	1332.93	0.0000	0.00
35	1461.03	1460.61	0.0000	0.00
36	1557.92	1557.46	0.0000	0.00
37	1588.22	1587.75	0.0000	0.00
38	1592.72	1592.25	0.0000	0.00
39	1727.16	1726.64	0.0000	0.00
40	1764.78	1764.25	0.0000	0.00
41	1895.43	1894.86	0.0000	0.00
42	2023.19	2022.57	0.0000	0.00

Analysis Report for 1510090-12
CP0603S24-25

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	2103.57	2102.93	0.0000	0.00
44	2118.64	2118.00	0.0000	0.00
45	2132.65	2132.00	0.0000	0.00
46	2203.48	2202.81	0.0000	0.00
47	2614.71	2613.93	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-12
CP0603S24-25

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 1:25:29PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	62.70	59 -	66	62.92	1.69E+02	108.78	1.87E+03	1.82
2	76.29	71 -	81	76.50	1.22E+03	149.34	2.32E+03	3.97
M 3	86.24	82 -	98	86.45	3.38E+02	109.14	1.63E+03	2.97
m 4	89.64	82 -	98	89.85	1.42E+02	73.17	8.42E+02	1.69
m 5	92.99	82 -	98	93.19	3.56E+02	89.06	1.07E+03	2.31
6	130.20	126 -	135	130.39	1.59E+02	92.18	1.12E+03	2.27
7	185.95	181 -	190	186.11	2.01E+02	86.55	9.56E+02	2.14
8	209.61	206 -	213	209.76	8.76E+01	67.91	7.07E+02	1.28
M 9	238.92	234 -	246	239.05	8.03E+02	68.72	3.69E+02	1.73
m 10	241.95	234 -	246	242.08	1.65E+02	77.49	4.86E+02	2.21
M 11	270.41	267 -	286	270.52	8.74E+01	40.07	2.54E+02	2.81
m 12	274.70	267 -	286	274.81	3.83E+01	50.48	3.29E+02	2.53
m 13	277.34	267 -	286	277.44	7.64E+01	40.52	2.44E+02	2.08
14	295.46	292 -	299	295.56	1.68E+02	60.89	5.10E+02	1.71
15	338.62	335 -	342	338.69	1.24E+02	54.04	3.96E+02	1.86
16	352.14	347 -	356	352.21	3.34E+02	66.20	4.35E+02	1.74
17	410.27	406 -	414	410.31	4.66E+01	44.40	2.65E+02	1.14
18	431.80	428 -	435	431.83	3.60E+01	39.80	2.40E+02	1.46
19	463.67	458 -	469	463.68	9.82E+01	44.45	1.98E+02	2.15
20	511.00	506 -	516	510.99	1.58E+02	53.10	2.92E+02	1.95
21	583.75	580 -	593	583.71	2.80E+02	57.29	2.48E+02	2.08
22	609.49	604 -	614	609.43	2.50E+02	51.89	2.26E+02	2.11
23	666.44	663 -	671	666.35	3.48E+01	29.57	1.04E+02	3.03
24	726.92	722 -	731	726.81	3.10E+01	36.76	1.76E+02	1.86
m 25	769.13	762 -	774	769.00	3.97E+01	22.16	5.84E+01	2.09
26	911.43	907 -	915	911.24	1.35E+02	34.72	1.00E+02	2.10
27	951.12	946 -	954	950.91	2.19E+01	22.80	6.43E+01	1.72
28	969.08	965 -	973	968.86	6.57E+01	34.53	1.31E+02	2.55
29	1000.71	997 -	1003	1000.47	1.81E+01	20.01	5.99E+01	1.73
30	1121.15	1116 -	1126	1120.87	5.08E+01	34.64	1.20E+02	2.11
M 31	1238.93	1232 -	1262	1238.60	3.70E+01	24.48	6.50E+01	3.09
m 32	1242.99	1232 -	1262	1242.66	2.05E+01	24.23	5.99E+01	3.09
m 33	1254.34	1232 -	1262	1254.00	1.29E+01	18.09	3.91E+01	2.33
34	1333.30	1330 -	1336	1332.93	1.30E+01	15.04	3.20E+01	1.33
35	1461.03	1455 -	1467	1460.61	5.33E+02	49.65	4.07E+01	2.23
36	1557.92	1554 -	1559	1557.46	6.31E+00	6.40	3.38E+00	1.08
M 37	1588.22	1583 -	1596	1587.75	1.81E+01	15.23	3.55E+01	2.71
m 38	1592.72	1583 -	1596	1592.25	2.05E+01	16.73	2.00E+01	2.71
39	1727.16	1722 -	1731	1726.64	1.30E+01	11.05	1.00E+01	6.80
40	1764.78	1758 -	1772	1764.25	5.90E+01	15.36	0.00E+00	3.50

Analysis Report for 1510090-12

CP0603S24-25

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1895.43	1891 -	1897	1894.86	7.00E+00	5.29	0.00E+00	2.70
42	2023.19	2020 -	2025	2022.57	7.00E+00	5.29	0.00E+00	3.00
43	2103.57	2099 -	2106	2102.93	1.40E+01	7.48	0.00E+00	3.06
44	2118.64	2115 -	2121	2118.00	7.50E+00	8.28	7.00E+00	3.13
45	2132.65	2128 -	2135	2132.00	9.00E+00	6.00	0.00E+00	2.15
46	2203.48	2199 -	2206	2202.81	9.96E+00	8.00	4.08E+00	5.25
47	2614.71	2609 -	2617	2613.93	5.80E+01	15.23	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 : 11/10/2015 1:25:29PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.70	59 -	66	1.69E+02	108.78	1.87E+03	8.68E+01
	2	76.29	71 -	81	1.22E+03	149.34	2.32E+03	1.09E+02
M	3	86.24	82 -	98	3.38E+02	109.14	1.63E+03	6.64E+01
m	4	89.64	82 -	98	1.42E+02	73.17	8.42E+02	4.77E+01
m	5	92.99	82 -	98	3.56E+02	89.06	1.07E+03	5.37E+01
	6	130.20	126 -	135	1.59E+02	92.18	1.12E+03	7.29E+01
	7	185.95	181 -	190	2.01E+02	86.55	9.56E+02	6.72E+01
	8	209.61	206 -	213	8.76E+01	67.91	7.07E+02	5.37E+01
M	9	238.92	234 -	246	8.03E+02	68.72	3.69E+02	3.16E+01
m	10	241.95	234 -	246	1.65E+02	77.49	4.86E+02	3.63E+01
M	11	270.41	267 -	286	8.74E+01	40.07	2.54E+02	2.62E+01
m	12	274.70	267 -	286	3.83E+01	50.48	3.29E+02	2.98E+01
m	13	277.34	267 -	286	7.64E+01	40.52	2.44E+02	2.57E+01
	14	295.46	292 -	299	1.68E+02	60.89	5.10E+02	4.53E+01
	15	338.62	335 -	342	1.24E+02	54.04	3.96E+02	4.05E+01
	16	352.14	347 -	356	3.34E+02	66.20	4.35E+02	4.54E+01
	17	410.27	406 -	414	4.66E+01	44.40	2.65E+02	1.71E+01
	18	431.80	428 -	435	3.60E+01	39.80	2.40E+02	3.12E+01
	19	463.67	458 -	469	9.82E+01	44.45	1.98E+02	3.27E+01
	20	511.00	506 -	516	1.58E+02	53.10	2.92E+02	3.84E+01

Analysis Report for 1510090-12

CP0603S24-25

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
21	583.75	580 -	593	2.80E+02	57.29	2.48E+02	1.78E+01
22	609.49	604 -	614	2.50E+02	51.89	2.26E+02	3.38E+01
23	666.44	663 -	671	3.48E+01	29.57	1.04E+02	2.23E+01
24	726.92	722 -	731	3.10E+01	36.76	1.76E+02	2.88E+01
m 25	769.13	762 -	774	3.97E+01	22.16	5.84E+01	1.26E+01
26	911.43	907 -	915	1.35E+02	34.72	1.00E+02	2.12E+01
27	951.12	946 -	954	2.19E+01	22.80	6.43E+01	1.71E+01
28	969.08	965 -	973	6.57E+01	34.53	1.31E+02	2.51E+01
29	1000.71	997 -	1003	1.81E+01	20.01	5.99E+01	1.49E+01
30	1121.15	1116 -	1126	5.08E+01	34.64	1.20E+02	2.60E+01
M 31	1238.93	1232 -	1262	3.70E+01	24.48	6.50E+01	1.33E+01
m 32	1242.99	1232 -	1262	2.05E+01	24.23	5.99E+01	1.27E+01
m 33	1254.34	1232 -	1262	1.29E+01	18.09	3.91E+01	1.03E+01
34	1333.30	1330 -	1336	1.30E+01	15.04	3.20E+01	1.09E+01
35	1461.03	1455 -	1467	5.33E+02	49.65	4.07E+01	1.50E+01
36	1557.92	1554 -	1559	6.31E+00	6.40	3.38E+00	3.26E+00
M 37	1588.22	1583 -	1596	1.81E+01	15.23	3.55E+01	9.79E+00
m 38	1592.72	1583 -	1596	2.05E+01	16.73	2.00E+01	7.35E+00
39	1727.16	1722 -	1731	1.30E+01	11.05	1.00E+01	6.88E+00
40	1764.78	1758 -	1772	5.90E+01	15.36	0.00E+00	0.00E+00
41	1895.43	1891 -	1897	7.00E+00	5.29	0.00E+00	0.00E+00
42	2023.19	2020 -	2025	7.00E+00	5.29	0.00E+00	0.00E+00
43	2103.57	2099 -	2106	1.40E+01	7.48	0.00E+00	0.00E+00
44	2118.64	2115 -	2121	7.50E+00	8.28	7.00E+00	5.10E+00
45	2132.65	2128 -	2135	9.00E+00	6.00	0.00E+00	0.00E+00
46	2203.48	2199 -	2206	9.96E+00	8.00	4.08E+00	4.04E+00
47	2614.71	2609 -	2617	5.80E+01	15.23	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 : 11/10/2015 1:25:29PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

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

Peak Match Tolerance : 1.000 keV

Analysis Report for 1510090-12

CP0603S24-25

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.70	59 -	66	62.92	1.69E+02	108.78	1.87E+03	TH-230
	2	76.29	71 -	81	76.50	1.22E+03	149.34	2.32E+03	TH-234
M	3	86.24	82 -	98	86.45	3.38E+02	109.14	1.63E+03	..... EU-155 NP-237
m	4	89.64	82 -	98	89.85	1.42E+02	73.17	8.42E+02	.....
m	5	92.99	82 -	98	93.19	3.56E+02	89.06	1.07E+03	GA-67
	6	130.20	126 -	135	130.39	1.59E+02	92.18	1.12E+03	PA-234
	7	185.95	181 -	190	186.11	2.01E+02	86.55	9.56E+02	RA-226
	8	209.61	206 -	213	209.76	8.76E+01	67.91	7.07E+02	CM-243 GA-67
M	9	238.92	234 -	246	239.05	8.03E+02	68.72	3.69E+02	PB-212
m	10	241.95	234 -	246	242.08	1.65E+02	77.49	4.86E+02	RA-224
M	11	270.41	267 -	286	270.52	8.74E+01	40.07	2.54E+02	.....
m	12	274.70	267 -	286	274.81	3.83E+01	50.48	3.29E+02	.....
m	13	277.34	267 -	286	277.44	7.64E+01	40.52	2.44E+02	CM-243 NP-239
	14	295.46	292 -	299	295.56	1.68E+02	60.89	5.10E+02	PB-214
	15	338.62	335 -	342	338.69	1.24E+02	54.04	3.96E+02	AC-228
	16	352.14	347 -	356	352.21	3.34E+02	66.20	4.35E+02	PB-214
	17	410.27	406 -	414	410.31	4.66E+01	44.40	2.65E+02	HO-166M
	18	431.80	428 -	435	431.83	3.60E+01	39.80	2.40E+02	.....
	19	463.67	458 -	469	463.68	9.82E+01	44.45	1.98E+02	SB-125
	20	511.00	506 -	516	510.99	1.58E+02	53.10	2.92E+02	.....
	21	583.75	580 -	593	583.71	2.80E+02	57.29	2.48E+02	TL-208
	22	609.49	604 -	614	609.43	2.50E+02	51.89	2.26E+02	BI-214
	23	666.44	663 -	671	666.35	3.48E+01	29.57	1.04E+02	SB-126
	24	726.92	722 -	731	726.81	3.10E+01	36.76	1.76E+02	BI-212
m	25	769.13	762 -	774	769.00	3.97E+01	22.16	5.84E+01	.....
	26	911.43	907 -	915	911.24	1.35E+02	34.72	1.00E+02	AC-228 LU-172
	27	951.12	946 -	954	950.91	2.19E+01	22.80	6.43E+01	.....
	28	969.08	965 -	973	968.86	6.57E+01	34.53	1.31E+02	AC-228
	29	1000.71	997 -	1003	1000.47	1.81E+01	20.01	5.99E+01	PA-234M
	30	1121.15	1116 -	1126	1120.87	5.08E+01	34.64	1.20E+02	TA-182 SC-46 BI-214
M	31	1238.93	1232 -	1262	1238.60	3.70E+01	24.48	6.50E+01	CO-56
m	32	1242.99	1232 -	1262	1242.66	2.05E+01	24.23	5.99E+01	.....
m	33	1254.34	1232 -	1262	1254.00	1.29E+01	18.09	3.91E+01	.....
	34	1333.30	1330 -	1336	1332.93	1.30E+01	15.04	3.20E+01	CO-60
	35	1461.03	1455 -	1467	1460.61	5.33E+02	49.65	4.07E+01	K-40
	36	1557.92	1554 -	1559	1557.46	6.31E+00	6.40	3.38E+00	.....
M	37	1588.22	1583 -	1596	1587.75	1.81E+01	15.23	3.55E+01	.....
m	38	1592.72	1583 -	1596	1592.25	2.05E+01	16.73	2.00E+01	.....
	39	1727.16	1722 -	1731	1726.64	1.30E+01	11.05	1.00E+01	.....
	40	1764.78	1758 -	1772	1764.25	5.90E+01	15.36	0.00E+00	BI-214
	41	1895.43	1891 -	1897	1894.86	7.00E+00	5.29	0.00E+00	.....
	42	2023.19	2020 -	2025	2022.57	7.00E+00	5.29	0.00E+00	.....
	43	2103.57	2099 -	2106	2102.93	1.40E+01	7.48	0.00E+00	.....
	44	2118.64	2115 -	2121	2118.00	7.50E+00	8.28	7.00E+00	.....
	45	2132.65	2128 -	2135	2132.00	9.00E+00	6.00	0.00E+00	.....
	46	2203.48	2199 -	2206	2202.81	9.96E+00	8.00	4.08E+00	BI-214
	47	2614.71	2609 -	2617	2613.93	5.80E+01	15.23	0.00E+00	TL-208

Analysis Report for 1510090-12
CP0603S24-25

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 : 11/10/2015 1:25:29PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.70	1.69E+02	108.78	2.14E-02	1.69E-03
	2	76.29	1.22E+03	149.34	2.38E-02	2.14E-03
M	3	86.24	3.38E+02	109.14	2.44E-02	2.46E-03
m	4	89.64	1.42E+02	73.17	2.44E-02	2.49E-03
m	5	92.99	3.56E+02	89.06	2.44E-02	2.41E-03
	6	130.20	1.59E+02	92.18	2.24E-02	1.69E-03
	7	185.95	2.01E+02	86.55	1.83E-02	1.42E-03
	8	209.61	8.76E+01	67.91	1.68E-02	1.31E-03
M	9	238.92	8.03E+02	68.72	1.52E-02	1.18E-03
m	10	241.95	1.65E+02	77.49	1.51E-02	1.17E-03
M	11	270.41	8.74E+01	40.07	1.38E-02	1.04E-03
m	12	274.70	3.83E+01	50.48	1.36E-02	1.02E-03
m	13	277.34	7.64E+01	40.52	1.35E-02	1.01E-03
	14	295.46	1.68E+02	60.89	1.28E-02	9.74E-04
	15	338.62	1.24E+02	54.04	1.14E-02	9.13E-04
	16	352.14	3.34E+02	66.20	1.11E-02	8.93E-04
	17	410.27	4.66E+01	44.40	9.70E-03	8.19E-04
	18	431.80	3.60E+01	39.80	9.28E-03	7.97E-04
	19	463.67	9.82E+01	44.45	8.72E-03	7.65E-04
	20	511.00	1.58E+02	53.10	8.01E-03	7.18E-04
	21	583.75	2.80E+02	57.29	7.13E-03	6.46E-04
	22	609.49	2.50E+02	51.89	6.87E-03	6.20E-04
	23	666.44	3.48E+01	29.57	6.36E-03	5.64E-04
	24	726.92	3.10E+01	36.76	5.89E-03	5.14E-04
m	25	769.13	3.97E+01	22.16	5.61E-03	4.80E-04
	26	911.43	1.35E+02	34.72	4.85E-03	3.72E-04
	27	951.12	2.19E+01	22.80	4.68E-03	3.65E-04
	28	969.08	6.57E+01	34.53	4.60E-03	3.61E-04
	29	1000.71	1.81E+01	20.01	4.48E-03	3.56E-04
	30	1121.15	5.08E+01	34.64	4.07E-03	3.33E-04
M	31	1238.93	3.70E+01	24.48	3.75E-03	3.09E-04
m	32	1242.99	2.05E+01	24.23	3.74E-03	3.08E-04
m	33	1254.34	1.29E+01	18.09	3.72E-03	3.06E-04
	34	1333.30	1.30E+01	15.04	3.54E-03	2.88E-04

Analysis Report for 1510090-12
CP0603S24-25

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1461.03	5.33E+02	49.65	3.29E-03	2.69E-04
	36	1557.92	6.31E+00	6.40	3.13E-03	2.55E-04
M	37	1588.22	1.81E+01	15.23	3.09E-03	2.50E-04
m	38	1592.72	2.05E+01	16.73	3.08E-03	2.50E-04
	39	1727.16	1.30E+01	11.05	2.90E-03	2.29E-04
	40	1764.78	5.90E+01	15.36	2.86E-03	2.24E-04
	41	1895.43	7.00E+00	5.29	2.72E-03	2.13E-04
	42	2023.19	7.00E+00	5.29	2.60E-03	2.13E-04
	43	2103.57	1.40E+01	7.48	2.54E-03	2.13E-04
	44	2118.64	7.50E+00	8.28	2.52E-03	2.13E-04
	45	2132.65	9.00E+00	6.00	2.51E-03	2.13E-04
	46	2203.48	9.96E+00	8.00	2.46E-03	2.13E-04
	47	2614.71	5.80E+01	15.23	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 : 11/10/2015 1:25:29PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.70	1.69E+02	108.78	5.52E+01	2.05E+01	1.14E+02	1.11E+02
	2	76.29	1.22E+03	149.34			1.22E+03	1.49E+02
M	3	86.24	3.38E+02	109.14			3.38E+02	1.09E+02
m	4	89.64	1.42E+02	73.17			1.42E+02	7.32E+01
m	5	92.99	3.56E+02	89.06	9.04E+01	2.62E+01	2.65E+02	9.28E+01
	6	130.20	1.59E+02	92.18			1.59E+02	9.22E+01
	7	185.95	2.01E+02	86.55	3.93E+01	6.56E+00	1.62E+02	8.68E+01
	8	209.61	8.76E+01	67.91			8.76E+01	6.79E+01
M	9	238.92	8.03E+02	68.72	1.34E+01	2.14E+00	7.90E+02	6.88E+01
m	10	241.95	1.65E+02	77.49	2.69E+00	1.46E+00	1.62E+02	7.75E+01
M	11	270.41	8.74E+01	40.07			8.74E+01	4.01E+01
m	12	274.70	3.83E+01	50.48			3.83E+01	5.05E+01
m	13	277.34	7.64E+01	40.52			7.64E+01	4.05E+01
	14	295.46	1.68E+02	60.89			1.68E+02	6.09E+01
	15	338.62	1.24E+02	54.04			1.24E+02	5.40E+01
	16	352.14	3.34E+02	66.20	3.99E+00	4.73E+00	3.30E+02	6.64E+01
	17	410.27	4.66E+01	44.40			4.66E+01	4.44E+01

Analysis Report for 1510090-12

CP0603S24-25

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
18	431.80	3.60E+01	39.80			3.60E+01	3.98E+01
19	463.67	9.82E+01	44.45			9.82E+01	4.45E+01
20	511.00	1.58E+02	53.10	5.78E+01	4.60E+00	1.00E+02	5.33E+01
21	583.75	2.80E+02	57.29	5.96E+00	3.46E+00	2.74E+02	5.74E+01
22	609.49	2.50E+02	51.89	6.71E+00	3.44E+00	2.43E+02	5.20E+01
23	666.44	3.48E+01	29.57			3.48E+01	2.96E+01
24	726.92	3.10E+01	36.76			3.10E+01	3.68E+01
m 25	769.13	3.97E+01	22.16			3.97E+01	2.22E+01
26	911.43	1.35E+02	34.72	2.32E+00	2.73E+00	1.32E+02	3.48E+01
27	951.12	2.19E+01	22.80			2.19E+01	2.28E+01
28	969.08	6.57E+01	34.53			6.57E+01	3.45E+01
29	1000.71	1.81E+01	20.01	1.64E+00	2.27E+00	1.64E+01	2.01E+01
30	1121.15	5.08E+01	34.64			5.08E+01	3.46E+01
M 31	1238.93	3.70E+01	24.48			3.70E+01	2.45E+01
m 32	1242.99	2.05E+01	24.23			2.05E+01	2.42E+01
m 33	1254.34	1.29E+01	18.09			1.29E+01	1.81E+01
34	1333.30	1.30E+01	15.04			1.30E+01	1.50E+01
35	1461.03	5.33E+02	49.65	2.36E+00	1.83E+00	5.30E+02	4.97E+01
36	1557.92	6.31E+00	6.40			6.31E+00	6.40E+00
M 37	1588.22	1.81E+01	15.23			1.81E+01	1.52E+01
m 38	1592.72	2.05E+01	16.73			2.05E+01	1.67E+01
39	1727.16	1.30E+01	11.05			1.30E+01	1.10E+01
40	1764.78	5.90E+01	15.36	1.45E+00	1.16E+00	5.75E+01	1.54E+01
41	1895.43	7.00E+00	5.29			7.00E+00	5.29E+00
42	2023.19	7.00E+00	5.29			7.00E+00	5.29E+00
43	2103.57	1.40E+01	7.48			1.40E+01	7.48E+00
44	2118.64	7.50E+00	8.28			7.50E+00	8.28E+00
45	2132.65	9.00E+00	6.00			9.00E+00	6.00E+00
46	2203.48	9.96E+00	8.00			9.96E+00	8.00E+00
47	2614.71	5.80E+01	15.23			5.80E+01	1.52E+01

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

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 1:25:29PM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1510090-12

CP0603S24-25

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.	
	1	62.70	1.69E+02	108.78	5.52E+01	2.05E+01	1.14E+02	1.11E+02
	2	76.29	1.22E+03	149.34			1.22E+03	1.49E+02
M	3	86.24	3.38E+02	109.14			3.38E+02	1.09E+02
m	4	89.64	1.42E+02	73.17			1.42E+02	7.32E+01
m	5	92.99	3.56E+02	89.06	9.04E+01	2.62E+01	2.65E+02	9.28E+01
	6	130.20	1.59E+02	92.18			1.59E+02	9.22E+01
	7	185.95	2.01E+02	86.55	3.93E+01	6.56E+00	1.62E+02	8.68E+01
	8	209.61	8.76E+01	67.91			8.76E+01	6.79E+01
M	9	238.92	8.03E+02	68.72	1.34E+01	2.14E+00	7.90E+02	6.88E+01
m	10	241.95	1.65E+02	77.49	2.69E+00	1.46E+00	1.62E+02	7.75E+01
M	11	270.41	8.74E+01	40.07			8.74E+01	4.01E+01
m	12	274.70	3.83E+01	50.48			3.83E+01	5.05E+01
m	13	277.34	7.64E+01	40.52			7.64E+01	4.05E+01
	14	295.46	1.68E+02	60.89			1.68E+02	6.09E+01
	15	338.62	1.24E+02	54.04			1.24E+02	5.40E+01
	16	352.14	3.34E+02	66.20	3.99E+00	4.73E+00	3.30E+02	6.64E+01
	17	410.27	4.66E+01	44.40			4.66E+01	4.44E+01
	18	431.80	3.60E+01	39.80			3.60E+01	3.98E+01
	19	463.67	9.82E+01	44.45			9.82E+01	4.45E+01
	20	511.00	1.58E+02	53.10	5.78E+01	4.60E+00	1.00E+02	5.33E+01
	21	583.75	2.80E+02	57.29	5.96E+00	3.46E+00	2.74E+02	5.74E+01
	22	609.49	2.50E+02	51.89	6.71E+00	3.44E+00	2.43E+02	5.20E+01
	23	666.44	3.48E+01	29.57			3.48E+01	2.96E+01
	24	726.92	3.10E+01	36.76			3.10E+01	3.68E+01
m	25	769.13	3.97E+01	22.16			3.97E+01	2.22E+01
	26	911.43	1.35E+02	34.72	2.32E+00	2.73E+00	1.32E+02	3.48E+01
	27	951.12	2.19E+01	22.80			2.19E+01	2.28E+01
	28	969.08	6.57E+01	34.53			6.57E+01	3.45E+01
	29	1000.71	1.81E+01	20.01	1.64E+00	2.27E+00	1.64E+01	2.01E+01
	30	1121.15	5.08E+01	34.64			5.08E+01	3.46E+01
M	31	1238.93	3.70E+01	24.48			3.70E+01	2.45E+01
m	32	1242.99	2.05E+01	24.23			2.05E+01	2.42E+01
m	33	1254.34	1.29E+01	18.09			1.29E+01	1.81E+01
	34	1333.30	1.30E+01	15.04			1.30E+01	1.50E+01
	35	1461.03	5.33E+02	49.65	2.36E+00	1.83E+00	5.30E+02	4.97E+01
	36	1557.92	6.31E+00	6.40			6.31E+00	6.40E+00
M	37	1588.22	1.81E+01	15.23			1.81E+01	1.52E+01
m	38	1592.72	2.05E+01	16.73			2.05E+01	1.67E+01
	39	1727.16	1.30E+01	11.05			1.30E+01	1.10E+01
	40	1764.78	5.90E+01	15.36	1.45E+00	1.16E+00	5.75E+01	1.54E+01
	41	1895.43	7.00E+00	5.29			7.00E+00	5.29E+00
	42	2023.19	7.00E+00	5.29			7.00E+00	5.29E+00
	43	2103.57	1.40E+01	7.48			1.40E+01	7.48E+00
	44	2118.64	7.50E+00	8.28			7.50E+00	8.28E+00
	45	2132.65	9.00E+00	6.00			9.00E+00	6.00E+00
	46	2203.48	9.96E+00	8.00			9.96E+00	8.00E+00
	47	2614.71	5.80E+01	15.23			5.80E+01	1.52E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1510090-12
CP0603S24-25

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.992	1460.81 *	10.67	2.15E+01	2.71E+00
GA-67	0.376	93.31 *	35.70	4.00E+02	1.74E+03
		208.95 *	2.24	3.06E+03	1.30E+04
		300.22	16.00		
EU-155	0.354	86.50 *	30.90	6.45E-01	2.18E-01
		105.30	20.70		
TL-208	0.862	583.14 *	30.22	1.81E+00	4.12E-01
		860.37	4.48		
BI-212	0.762	2614.66 *	35.85	1.03E+00	2.87E-01
		727.17 *	11.80	6.33E-01	7.53E-01
		1620.62	2.75		
PB-212	0.883	238.63 *	44.60	1.65E+00	1.93E-01
		300.09	3.41		
BI-214	0.968	609.31 *	46.30	1.09E+00	2.52E-01
		1120.29 *	15.10	1.17E+00	8.06E-01
		1764.49 *	15.80	1.81E+00	5.05E-01
		2204.22 *	4.98	1.15E+00	9.32E-01
PB-214	0.992	295.21 *	19.19	9.70E-01	3.60E-01
		351.92 *	37.19	1.14E+00	2.47E-01
RA-224	0.861	240.98 *	3.95	3.88E+00	1.88E+00
RA-226	0.989	186.21 *	3.28	3.83E+00	7.31E+00
AC-228	0.987	338.32 *	11.40	1.35E+00	5.99E-01
		911.07 *	27.70	1.40E+00	3.84E-01
		969.11 *	16.60	1.22E+00	6.49E-01
PA-234	0.398	131.20 *	20.40	4.95E-01	2.89E-01
		733.99	8.80		
		946.00	12.00		
PA-234M	0.983	1001.03 *	0.92	5.66E+00	6.96E+00
TH-234	0.946	63.29 *	3.80	1.99E+00	1.94E+00
NP-237	0.989	86.50 *	12.60	1.56E+00	5.29E-01
CM-243	0.365	209.75 *	3.29	2.26E+00	1.76E+00
		228.14	10.60		
		277.60 *	14.00	5.76E-01	3.08E-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 1510090-12
CP0603S24-25

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 1:25:29PM
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	76.29	3.38150E-01		
m	4	89.64	3.93400E-02		
M	11	270.41	2.42668E-02		
m	12	274.70	1.06357E-02		
	17	410.27	1.29485E-02	Tol.	HO-166M
	18	431.80	1.00000E-02	Sum	
	19	463.67	2.72857E-02	Sum	
	20	511.00	2.78387E-02		
	23	666.44	9.66475E-03	Tol.	SB-126
m	25	769.13	1.10416E-02	Sum	
	27	951.12	6.07510E-03		
M	31	1238.93	1.02740E-02	Sum	
m	32	1242.99	5.69236E-03	Sum	
m	33	1254.34	3.57878E-03	S-Esc	
	34	1333.30	3.61111E-03		
	36	1557.92	1.75347E-03		
M	37	1588.22	5.02572E-03		
m	38	1592.72	5.68952E-03	D-Esc	
	39	1727.16	3.61111E-03	Sum	
	41	1895.43	1.94444E-03	Sum	
	42	2023.19	1.94444E-03		
	43	2103.57	3.88889E-03	S-Esc	
	44	2118.64	2.08333E-03		
	45	2132.65	2.50000E-03		

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

Analysis Report for 1510090-12
CP0603S24-25

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	2.15E+01	2.71E+00
GA-67	0.37	93.31 *	35.70	4.00E+02	1.74E+03
		208.95 *	2.24	3.06E+03	1.30E+04
		300.22	16.00		
EU-155	0.35	86.50 *	30.90	6.45E-01	2.18E-01
		105.30	20.70		
TL-208	0.86	583.14 *	30.22	1.81E+00	4.12E-01
		860.37	4.48		
		2614.66 *	35.85	1.03E+00	2.87E-01
BI-212	0.76	727.17 *	11.80	6.33E-01	7.53E-01
		1620.62	2.75		
PB-212	0.88	238.63 *	44.60	1.65E+00	1.93E-01
		300.09	3.41		
BI-214	0.96	609.31 *	46.30	1.09E+00	2.52E-01
		1120.29 *	15.10	1.17E+00	8.06E-01
		1764.49 *	15.80	1.81E+00	5.05E-01
		2204.22 *	4.98	1.15E+00	9.32E-01
PB-214	0.99	295.21 *	19.19	9.70E-01	3.60E-01
		351.92 *	37.19	1.14E+00	2.47E-01
RA-224	0.86	240.98 *	3.95	3.88E+00	1.88E+00
RA-226	0.98	186.21 *	3.28	3.83E+00	7.31E+00
AC-228	0.98	338.32 *	11.40	1.35E+00	5.99E-01
		911.07 *	27.70	1.40E+00	3.84E-01
		969.11 *	16.60	1.22E+00	6.49E-01
PA-234	0.39	131.20 *	20.40	4.95E-01	2.89E-01
		733.99	8.80		
		946.00	12.00		
PA-234M	0.98	1001.03 *	0.92	5.66E+00	6.96E+00
TH-234	0.94	63.29 *	3.80	1.99E+00	1.94E+00
NP-237	0.98	86.50 *	12.60	1.56E+00	5.29E-01
CM-243	0.36	209.75 *	3.29	2.26E+00	1.76E+00
		228.14	10.60		
		277.60 *	14.00	5.76E-01	3.08E-01

* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510090-12
CP0603S24-25

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.992	2.15E+01	2.71E+00	
GA-67	0.376	4.06E+02	1.71E+03	
? EU-155	0.354	6.45E-01	2.18E-01	
TL-208	0.862	1.28E+00	2.35E-01	
BI-212	0.762	6.33E-01	7.53E-01	
PB-212	0.883	1.65E+00	1.93E-01	
BI-214	0.968	1.22E+00	2.12E-01	
PB-214	0.992	1.09E+00	2.04E-01	
RA-224	0.861	3.88E+00	1.88E+00	
RA-226	0.989	3.83E+00	7.31E+00	
AC-228	0.987	1.35E+00	2.89E-01	
PA-234	0.398	4.95E-01	2.89E-01	
PA-234M	0.983	5.66E+00	6.96E+00	
TH-234	0.946	1.99E+00	1.94E+00	
? NP-237	0.989	1.56E+00	5.29E-01	
CM-243	0.365	6.17E-01	3.04E-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 1510090-12
CP0603S24-25

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 1:25:29PM
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	76.29	3.38150E-01	6.13	
m	4	89.64	3.93400E-02	25.83	
M	11	270.41	2.42668E-02	22.94	
m	12	274.70	1.06357E-02	65.92	
	17	410.27	1.29485E-02	47.63	Tol. HO-166M
	18	431.80	1.00000E-02	55.28	Sum
	19	463.67	2.72857E-02	22.63	Sum
	20	511.00	2.78387E-02	26.59	
	23	666.44	9.66475E-03	42.50	Tol. SB-126
m	25	769.13	1.10416E-02	27.87	Sum
	27	951.12	6.07510E-03	52.12	
M	31	1238.93	1.02740E-02	33.09	Sum
m	32	1242.99	5.69236E-03	59.13	Sum
m	33	1254.34	3.57878E-03	70.21	S-Esc
	34	1333.30	3.61111E-03	57.85	
	36	1557.92	1.75347E-03	50.72	
M	37	1588.22	5.02572E-03	42.09	
m	38	1592.72	5.68952E-03	40.85	D-Esc
	39	1727.16	3.61111E-03	42.48	Sum
	41	1895.43	1.94444E-03	37.80	Sum
	42	2023.19	1.94444E-03	37.80	
	43	2103.57	3.88889E-03	26.73	S-Esc
	44	2118.64	2.08333E-03	55.18	
	45	2132.65	2.50000E-03	33.33	

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

Analysis Report for 1510090-12
CP0603S24-25

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	-3.99E-02	1.24E+00	1.24E+00
+	NA-22	1274.54	99.94	-6.47E-02	1.12E-01	1.12E-01
+	NA-24	1368.53	99.99	-2.02E+14	1.81E+14	3.12E+14
		2754.09	99.86	1.94E+13		1.81E+14
+	AL-26	1808.65	99.76	1.71E-02	8.05E-02	8.05E-02
+	K-40	1460.81	* 10.67	2.15E+01	1.35E+00	1.35E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.58E-02	7.73E-02	7.73E-02
		78.34	96.00	2.48E-01		1.00E-01
+	SC-46	889.25	99.98	3.77E-02	1.32E-01	1.32E-01
		1120.51	99.99	1.76E-01		2.14E-01
+	V-48	983.52	99.98	1.10E-01	4.10E-01	4.10E-01
		1312.10	97.50	2.78E-02		5.51E-01
+	CR-51	320.08	9.83	5.13E-03	1.67E+00	1.67E+00
+	MN-54	834.83	99.97	-2.48E-03	1.13E-01	1.13E-01
+	CO-56	846.75	99.96	-5.66E-02	1.20E-01	1.20E-01
		1037.75	14.03	2.32E-01		1.08E+00
		1238.25	67.00	8.76E-02		3.01E-01
		1771.40	15.51	4.27E-02		8.03E-01
		2598.48	16.90	-3.31E-02		3.65E-01
+	CO-57	122.06	85.51	2.54E-02	6.99E-02	6.99E-02
		136.48	10.60	-3.89E-02		5.37E-01
+	CO-58	810.76	99.40	-4.74E-02	1.19E-01	1.19E-01
+	FE-59	1099.22	56.50	6.78E-02	3.39E-01	3.39E-01
		1291.56	43.20	-1.05E-02		4.74E-01
+	CO-60	1173.22	100.00	8.93E-02	1.18E-01	1.42E-01
		1332.49	100.00	-1.62E-02		1.18E-01
+	ZN-65	1115.52	50.75	3.75E-02	2.72E-01	2.72E-01
+	GA-67	93.31	* 35.70	4.00E+02	4.15E+02	4.15E+02
		208.95	* 2.24	3.06E+03		3.84E+03
		300.22	16.00	2.26E+02		4.70E+02
+	SE-75	121.11	16.70	2.91E-02	1.06E-01	3.94E-01
		136.00	59.20	-1.31E-02		1.06E-01
		264.65	59.80	5.08E-02		1.41E-01
		279.53	25.20	1.08E-01		3.69E-01
		400.65	11.40	-1.23E-01		8.70E-01
+	RB-82	776.52	13.00	-5.46E-01	1.70E+00	1.70E+00
+	RB-83	520.41	46.00	-4.54E-02	2.25E-01	2.25E-01
		529.64	30.30	8.24E-02		3.45E-01
		552.65	16.40	-1.51E-01		6.33E-01
+	KR-85	513.99	0.43	3.72E+01	2.89E+01	2.89E+01
+	SR-85	513.99	99.27	2.28E-01	1.77E-01	1.77E-01

Analysis Report for 1510090-12
CP0603S24-25

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02	93.40	2.85E-02	1.10E-01	1.28E-01
		1836.01	99.38	3.45E-02		1.10E-01
+	NB-93M	16.57	9.43	4.05E+01	9.13E+01	9.13E+01
+	NB-94	702.63	100.00	1.40E-02	9.35E-02	9.35E-02
		871.10	100.00	1.27E-02		9.56E-02
+	NB-95	765.79	99.81	1.29E-01	2.11E-01	2.11E-01
+	NB-95M	235.69	25.00	6.25E+02	2.47E+02	2.47E+02
+	ZR-95	724.18	43.70	5.35E-03	2.21E-01	3.45E-01
		756.72	55.30	9.42E-02		2.21E-01
+	MO-99	181.06	6.20	4.98E+02	2.41E+03	3.16E+03
		739.58	12.80	-4.59E+02		2.41E+03
		778.00	4.50	-3.08E+03		6.64E+03
+	RU-103	497.08	89.00	-2.47E-02	1.60E-01	1.60E-01
+	RU-106	621.84	9.80	-6.57E-01	8.84E-01	8.84E-01
+	AG-108M	433.93	89.90	-4.20E-03	9.82E-02	9.82E-02
		614.37	90.40	1.14E-02		1.12E-01
		722.95	90.50	-3.89E-03		1.06E-01
+	CD-109	88.03	3.72	2.47E+00	2.20E+00	2.20E+00
+	AG-110M	657.75	93.14	2.40E-02	1.14E-01	1.14E-01
		677.61	10.53	3.72E-01		9.94E-01
		706.67	16.46	1.21E-01		6.37E-01
		763.93	21.98	-3.39E-01		4.54E-01
		884.67	71.63	1.85E-02		1.51E-01
		1384.27	23.94	-7.32E-01		4.24E-01
+	CD-113M	263.70	0.02	-6.41E+00	3.02E+02	3.02E+02
+	SN-113	255.12	1.93	-2.62E+00	1.49E-01	4.38E+00
		391.69	64.90	-3.69E-02		1.49E-01
+	TE123M	159.00	84.10	-8.00E-03	7.84E-02	7.84E-02
+	SB-124	602.71	97.87	-2.16E-04	1.31E-01	1.31E-01
		645.85	7.26	6.78E-01		1.90E+00
		722.78	11.10	-4.59E-02		1.25E+00
		1691.02	49.00	-2.92E-02		2.14E-01
+	I-125	35.49	6.49	2.09E-01	3.66E+00	3.66E+00
+	SB-125	176.33	6.89	-5.37E-01	2.90E-01	8.12E-01
		427.89	29.33	3.28E-02		2.90E-01
		463.38	10.35	5.75E-01		9.13E-01
		600.56	17.80	-4.81E-03		5.11E-01
		635.90	11.32	-8.42E-02		7.39E-01
+	SB-126	414.70	83.30	-1.07E-01	5.09E-01	5.09E-01
		666.33	99.60	3.10E-01		5.89E-01
		695.00	99.60	6.88E-02		5.76E-01
		720.50	53.80	1.55E-01		1.03E+00
+	SN-126	87.57	37.00	2.37E-01	2.11E-01	2.11E-01
+	SB-127	473.00	25.00	4.58E+01	8.39E+01	1.06E+02
		685.20	35.70	-2.68E+01		8.39E+01
		783.80	14.70	8.50E+01		2.35E+02
+	I-129	29.78	57.00	9.28E-02	5.10E-01	5.10E-01
		33.60	13.20	-3.88E-01		1.42E+00

Analysis Report for 1510090-12

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	5.20E-01	5.10E-01	1.77E+00
+	I-131	284.30	6.05	-8.58E+00	1.44E+00	1.75E+01
		364.48	81.20	-4.13E-01		1.44E+00
		636.97	7.26	-3.96E+00		1.84E+01
		722.89	1.80	-3.12E+00		8.49E+01
+	TE-132	49.72	13.10	-8.89E+02	7.39E+01	6.38E+02
		228.16	88.00	-2.61E+01		7.39E+01
+	BA-133	81.00	33.00	-1.18E+00	1.71E-01	1.99E-01
		302.84	17.80	2.86E-01		4.47E-01
		356.01	60.00	7.28E-03		1.71E-01
+	I-133	529.87	86.30	3.23E+09	1.35E+10	1.35E+10
+	XE-133	81.00	38.00	-7.10E+01	1.20E+01	1.20E+01
+	CS-134	563.23	8.38	-2.05E-01	1.04E-01	1.06E+00
		569.32	15.43	2.33E-01		5.93E-01
		604.70	97.60	-2.28E-03		1.04E-01
		795.84	85.40	9.60E-02		1.34E-01
		801.93	8.73	-7.51E-02		1.07E+00
+	CS-135	268.24	16.00	3.12E-02	4.73E-01	4.73E-01
+	@ 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	2.25E+00	5.28E-01	4.06E+00
		163.89	4.61	7.18E-01		6.62E+00
		176.55	13.56	-4.59E-01		2.20E+00
		273.65	12.66	-7.37E-01		3.45E+00
		340.57	48.50	1.17E-02		1.15E+00
		818.50	99.70	2.33E-01		5.28E-01
		1048.07	79.60	-1.84E-01		7.47E-01
		1235.34	19.70	6.78E-02		3.81E+00
+	CS-137	661.65	85.12	2.12E-02	1.20E-01	1.20E-01
+	LA-138	788.74	34.00	-1.41E-01	1.68E-01	2.88E-01
		1435.80	66.00	1.03E-01		1.68E-01
+	CE-139	165.85	80.35	-1.56E-02	8.03E-02	8.03E-02
+	BA-140	162.64	6.70	5.53E-01	1.71E+00	4.79E+00
		304.84	4.50	-2.11E+00		9.22E+00
		423.70	3.20	2.07E+00		1.40E+01
		437.55	2.00	-1.49E+00		2.26E+01
		537.32	25.00	8.39E-02		1.71E+00
+	LA-140	328.77	20.50	3.22E-01	7.54E-01	2.23E+00
		487.03	45.50	-3.10E-01		9.89E-01
		815.85	23.50	-6.71E-01		2.17E+00
		1596.49	95.49	-1.38E-02		7.54E-01
+	CE-141	145.44	48.40	8.74E-02	2.33E-01	2.33E-01
+	CE-143	57.36	11.80	1.11E+06	2.71E+06	7.31E+06
		293.26	42.00	4.03E+05		2.71E+06
		664.55	5.20	1.19E+06		2.13E+07
+	CE-144	133.54	10.80	-1.05E-01	5.46E-01	5.46E-01
+	PM-144	476.78	42.00	-2.29E-02	9.34E-02	2.14E-01
		618.01	98.60	1.22E-02		9.34E-02

Analysis Report for 1510090-12

CP0603S24-25

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	696.49	99.49	2.10E-02	9.34E-02	1.01E-01
+	PM-145	36.85	21.70	-3.64E-01	3.72E-01	6.84E-01
		37.36	39.70	-8.94E-02		3.72E-01
		42.30	15.10	-5.60E-01		7.61E-01
		72.40	2.31	-4.60E+00		3.80E+00
+	PM-146	453.90	39.94	5.05E-02	1.83E-01	1.83E-01
		735.90	14.01	6.64E-04		6.43E-01
		747.13	13.10	-6.67E-02		7.93E-01
+	ND-147	91.11	28.90	-1.49E+00	1.97E+00	1.97E+00
		531.02	13.10	-1.90E+00		4.40E+00
+	PM-149	285.90	3.10	-1.64E+04	5.15E+04	5.15E+04
+	EU-152	121.78	20.50	9.81E-02	2.69E-01	2.69E-01
		244.69	5.40	6.62E-02		1.61E+00
		344.27	19.13	2.06E-02		3.84E-01
		778.89	9.20	-1.24E-02		1.01E+00
		964.01	10.40	-1.47E-01		1.22E+00
		1085.78	7.22	7.94E-02		1.45E+00
		1112.02	9.60	9.47E-03		1.22E+00
		1407.95	14.94	7.35E-01		7.95E-01
+	GD-153	97.43	31.30	4.71E-02	1.89E-01	1.89E-01
		103.18	22.20	-1.80E-01		2.54E-01
+	EU-154	123.07	40.50	6.42E-03	1.35E-01	1.35E-01
		723.30	19.70	-1.80E-02		4.90E-01
		873.19	11.50	1.30E-01		8.64E-01
		996.32	10.30	8.65E-02		9.46E-01
		1004.76	17.90	1.95E-01		5.82E-01
		1274.45	35.50	-1.79E-01		3.10E-01
+	EU-155	86.50	* 30.90	6.45E-01	2.63E-01	5.27E-01
		105.30	20.70	7.19E-02		2.63E-01
+	EU-156	811.77	10.40	-1.10E+00	3.59E+00	3.59E+00
		1153.47	7.20	4.74E-01		8.06E+00
		1230.71	8.90	1.59E+00		5.96E+00
+	HO-166M	184.41	72.60	1.61E-01	1.04E-01	1.04E-01
		280.45	29.60	-2.20E-02		2.49E-01
		410.94	11.10	1.95E-01		7.48E-01
		711.69	54.10	-2.76E-03		1.71E-01
+	TM-171	66.72	0.14	1.73E+00	5.44E+01	5.44E+01
+	HF-172	81.75	4.52	-5.80E+00	4.96E-01	1.49E+00
		125.81	11.30	3.72E-02		4.96E-01
+	LU-172	181.53	20.60	-1.22E+01	4.41E+00	8.00E+00
		810.06	16.63	1.74E+00		1.47E+01
		912.12	15.25	7.26E+01		3.39E+01
		1093.66	62.50	-9.96E-01		4.41E+00
+	LU-173	100.72	5.24	-1.07E-01	3.95E-01	1.05E+00
		272.11	21.20	1.01E-01		3.95E-01
+	HF-175	343.40	84.00	6.42E-03	1.25E-01	1.25E-01
+	LU-176	88.34	13.30	9.97E-02	7.38E-02	5.92E-01
		201.83	86.00	-5.58E-03		8.71E-02
		306.78	94.00	-2.29E-02		7.38E-02

Analysis Report for 1510090-12

CP0603S24-25

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75	41.20	9.97E-02	2.15E-01	2.15E-01
		1121.30	34.90	6.39E-01		5.66E-01
		1189.05	16.23	-1.69E-01		1.02E+00
		1221.41	26.98	1.65E-01		6.11E-01
		1231.02	11.44	-3.64E-03		1.26E+00
+	IR-192	308.46	29.68	-2.07E-02	2.06E-01	3.17E-01
		468.07	48.10	-6.84E-02		2.06E-01
+	HG-203	279.19	77.30	9.65E-02	1.65E-01	1.65E-01
+	BI-207	569.67	97.72	7.14E-02	9.17E-02	9.17E-02
		1063.62	74.90	5.71E-02		1.47E-01
+	TL-208	583.14	* 30.22	1.81E+00	4.79E-02	5.26E-01
		860.37	4.48	1.35E+00		2.49E+00
		2614.66	* 35.85	1.03E+00		4.79E-02
+	BI-210M	262.00	45.00	1.91E-01	1.66E-01	1.66E-01
		300.00	23.00	1.70E-01		3.53E-01
+	PB-210	46.50	4.25	1.87E+00	2.53E+00	2.53E+00
+	PB-211	404.84	2.90	-1.05E+00	2.83E+00	2.83E+00
		831.96	2.90	1.99E+00		3.76E+00
+	BI-212	727.17	* 11.80	6.33E-01	1.23E+00	1.23E+00
		1620.62	2.75	-6.49E-01		3.08E+00
+	PB-212	238.63	* 44.60	1.65E+00	2.92E-01	2.92E-01
		300.09	3.41	1.15E+00		2.38E+00
+	BI-214	609.31	* 46.30	1.09E+00	2.24E-01	3.18E-01
		1120.29	* 15.10	1.17E+00		1.26E+00
		1764.49	* 15.80	1.81E+00		2.24E-01
		2204.22	* 4.98	1.15E+00		1.25E+00
+	PB-214	295.21	* 19.19	9.70E-01	3.25E-01	5.40E-01
		351.92	* 37.19	1.14E+00		3.25E-01
+	RN-219	401.80	6.50	-1.99E-01	1.30E+00	1.30E+00
+	RA-223	323.87	3.88	-1.87E+00	1.85E+00	1.85E+00
+	RA-224	240.98	* 3.95	3.88E+00	3.38E+00	3.38E+00
+	RA-225	40.00	31.00	5.55E-01	1.88E+00	1.88E+00
+	RA-226	186.21	* 3.28	3.83E+00	3.30E+00	3.30E+00
+	TH-227	50.10	8.40	-1.48E+00	1.06E+00	1.06E+00
		236.00	11.50	2.85E+00		1.12E+00
		256.20	6.30	6.63E-02		1.13E+00
+	AC-228	338.32	* 11.40	1.35E+00	4.83E-01	9.13E-01
		911.07	* 27.70	1.40E+00		4.83E-01
		969.11	* 16.60	1.22E+00		9.83E-01
+	TH-230	48.44	16.90	5.65E-01	5.96E-01	5.96E-01
		62.85	4.60	2.37E+00		1.88E+00
		67.67	0.37	9.14E+00		1.97E+01
+	PA-231	283.67	1.60	-2.03E+00	3.43E+00	4.14E+00
		302.67	2.30	2.20E+00		3.43E+00
+	TH-231	25.64	14.70	9.19E-01	1.05E+00	3.69E+00
		84.21	6.40	-2.35E+00		1.05E+00
+	PA-233	311.98	38.60	1.11E-01	4.29E-01	4.29E-01
+	PA-234	131.20	* 20.40	4.95E-01	4.61E-01	4.61E-01

Analysis Report for 1510090-12
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	733.99	8.80	1.23E-01	4.61E-01	1.06E+00
		946.00	12.00	1.40E-03		8.00E-01
+	PA-234M	1001.03	* 0.92	5.66E+00	1.14E+01	1.14E+01
+	TH-234	63.29	* 3.80	1.99E+00	3.16E+00	3.16E+00
+	U-235	143.76	10.50	2.00E-01	5.49E-01	5.49E-01
		163.35	4.70	1.29E-01		1.19E+00
		205.31	4.70	-2.86E-01		1.59E+00
+	NP-237	86.50	* 12.60	1.56E+00	1.28E+00	1.28E+00
+	NP-239	106.10	22.70	2.86E+02	3.04E+03	3.04E+03
		228.18	10.70	-2.96E+03		8.37E+03
		277.60	14.10	7.61E+03		7.28E+03
+	AM-241	59.54	35.90	-1.82E-01	2.27E-01	2.27E-01
+	AM-243	74.67	66.00	2.99E-01	1.58E-01	1.58E-01
+	CM-243	209.75	* 3.29	2.26E+00	6.61E-01	2.84E+00
		228.14	10.60	-2.34E-01		6.61E-01
		277.60	* 14.00	5.76E-01		1.18E+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	1.24E+00	1.24E+00	-3.99E-02	5.89E-01
	NA-22	1274.54	99.94	1.12E-01	1.12E-01	-6.47E-02	5.06E-02
	NA-24	1368.53	99.99	3.12E+14	1.81E+14	-2.02E+14	1.40E+14
		2754.09	99.86	1.81E+14		1.94E+13	6.40E+13
	AL-26	1808.65	99.76	8.05E-02	8.05E-02	1.71E-02	3.34E-02
+	K-40	1460.81	* 10.67	1.35E+00	1.35E+00	2.15E+01	6.21E-01

Analysis Report for 1510090-12
CP0603S24-25

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	7.73E-02	7.73E-02	3.58E-02	3.77E-02
	78.34	96.00	1.00E-01		2.48E-01	4.93E-02
SC-46	889.25	99.98	1.32E-01	1.32E-01	3.77E-02	6.09E-02
	1120.51	99.99	2.14E-01		1.76E-01	1.01E-01
V-48	983.52	99.98	4.10E-01	4.10E-01	1.10E-01	1.88E-01
	1312.10	97.50	5.51E-01		2.78E-02	2.53E-01
CR-51	320.08	9.83	1.67E+00	1.67E+00	5.13E-03	8.00E-01
MN-54	834.83	99.97	1.13E-01	1.13E-01	-2.48E-03	5.26E-02
CO-56	846.75	99.96	1.20E-01	1.20E-01	-5.66E-02	5.50E-02
	1037.75	14.03	1.08E+00		2.32E-01	4.98E-01
	1238.25	67.00	3.01E-01		8.76E-02	1.41E-01
	1771.40	15.51	8.03E-01		4.27E-02	3.44E-01
	2598.48	16.90	3.65E-01		-3.31E-02	1.16E-01
CO-57	122.06	85.51	6.99E-02	6.99E-02	2.54E-02	3.39E-02
	136.48	10.60	5.37E-01		-3.89E-02	2.59E-01
CO-58	810.76	99.40	1.19E-01	1.19E-01	-4.74E-02	5.44E-02
FE-59	1099.22	56.50	3.39E-01	3.39E-01	6.78E-02	1.56E-01
	1291.56	43.20	4.74E-01		-1.05E-02	2.17E-01
CO-60	1173.22	100.00	1.42E-01	1.18E-01	8.93E-02	6.60E-02
	1332.49	100.00	1.18E-01		-1.62E-02	5.35E-02
ZN-65	1115.52	50.75	2.72E-01	2.72E-01	3.75E-02	1.26E-01
+ GA-67	93.31	*	35.70	4.15E+02	4.00E+02	2.06E+02
	208.95	*	2.24	3.84E+03	3.06E+03	1.88E+03
	300.22		16.00	4.70E+02	2.26E+02	2.26E+02
SE-75	121.11	16.70	3.94E-01	1.06E-01	2.91E-02	1.91E-01
	136.00	59.20	1.06E-01		-1.31E-02	5.13E-02
	264.65	59.80	1.41E-01		5.08E-02	6.75E-02
	279.53	25.20	3.69E-01		1.08E-01	1.78E-01
	400.65	11.40	8.70E-01		-1.23E-01	4.15E-01
RB-82	776.52	13.00	1.70E+00	1.70E+00	-5.46E-01	7.88E-01
RB-83	520.41	46.00	2.25E-01	2.25E-01	-4.54E-02	1.06E-01
	529.64	30.30	3.45E-01		8.24E-02	1.62E-01
	552.65	16.40	6.33E-01		-1.51E-01	2.96E-01
KR-85	513.99	0.43	2.89E+01	2.89E+01	3.72E+01	1.39E+01
SR-85	513.99	99.27	1.77E-01	1.77E-01	2.28E-01	8.52E-02
Y-88	898.02	93.40	1.28E-01	1.10E-01	2.85E-02	5.89E-02
	1836.01	99.38	1.10E-01		3.45E-02	4.67E-02
NB-93M	16.57	9.43	9.13E+01	9.13E+01	4.05E+01	4.45E+01
NB-94	702.63	100.00	9.35E-02	9.35E-02	1.40E-02	4.36E-02
	871.10	100.00	9.56E-02		1.27E-02	4.40E-02
NB-95	765.79	99.81	2.11E-01	2.11E-01	1.29E-01	9.93E-02
NB-95M	235.69	25.00	2.47E+02	2.47E+02	6.25E+02	1.21E+02
ZR-95	724.18	43.70	3.45E-01	2.21E-01	5.35E-03	1.62E-01
	756.72	55.30	2.21E-01		9.42E-02	1.02E-01
MO-99	181.06	6.20	3.16E+03	2.41E+03	4.98E+02	1.53E+03
	739.58	12.80	2.41E+03		-4.59E+02	1.12E+03
	778.00	4.50	6.64E+03		-3.08E+03	3.07E+03
RU-103	497.08	89.00	1.60E-01	1.60E-01	-2.47E-02	7.52E-02
RU-106	621.84	9.80	8.84E-01	8.84E-01	-6.57E-01	4.11E-01
AG-108M	433.93	89.90	9.82E-02	9.82E-02	-4.20E-03	4.68E-02
	614.37	90.40	1.12E-01		1.14E-02	5.28E-02
	722.95	90.50	1.06E-01		-3.89E-03	4.94E-02

Analysis Report for 1510090-12

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-109	88.03	3.72	2.20E+00	2.20E+00	2.47E+00	1.08E+00
AG-110M	657.75	93.14	1.14E-01	1.14E-01	2.40E-02	5.37E-02
	677.61	10.53	9.94E-01		3.72E-01	4.65E-01
	706.67	16.46	6.37E-01		1.21E-01	2.98E-01
	763.93	21.98	4.54E-01		-3.39E-01	2.10E-01
	884.67	71.63	1.51E-01		1.85E-02	6.95E-02
	1384.27	23.94	4.24E-01		-7.32E-01	1.87E-01
CD-113M	263.70	0.02	3.02E+02	3.02E+02	-6.41E+00	1.45E+02
SN-113	255.12	1.93	4.38E+00	1.49E-01	-2.62E+00	2.11E+00
	391.69	64.90	1.49E-01		-3.69E-02	7.09E-02
TE123M	159.00	84.10	7.84E-02	7.84E-02	-8.00E-03	3.78E-02
SB-124	602.71	97.87	1.31E-01	1.31E-01	-2.16E-04	6.15E-02
	645.85	7.26	1.90E+00		6.78E-01	8.91E-01
	722.78	11.10	1.25E+00		-4.59E-02	5.82E-01
	1691.02	49.00	2.14E-01		-2.92E-02	8.77E-02
I-125	35.49	6.49	3.66E+00	3.66E+00	2.09E-01	1.78E+00
SB-125	176.33	6.89	8.12E-01	2.90E-01	-5.37E-01	3.91E-01
	427.89	29.33	2.90E-01		3.28E-02	1.38E-01
	463.38	10.35	9.13E-01		5.75E-01	4.35E-01
	600.56	17.80	5.11E-01		-4.81E-03	2.39E-01
	635.90	11.32	7.39E-01		-8.42E-02	3.43E-01
SB-126	414.70	83.30	5.09E-01	5.09E-01	-1.07E-01	2.40E-01
	666.33	99.60	5.89E-01		3.10E-01	2.76E-01
	695.00	99.60	5.76E-01		6.88E-02	2.69E-01
	720.50	53.80	1.03E+00		1.55E-01	4.79E-01
SN-126	87.57	37.00	2.11E-01	2.11E-01	2.37E-01	1.03E-01
SB-127	473.00	25.00	1.06E+02	8.39E+01	4.58E+01	5.02E+01
	685.20	35.70	8.39E+01		-2.68E+01	3.91E+01
	783.80	14.70	2.35E+02		8.50E+01	1.10E+02
I-129	29.78	57.00	5.10E-01	5.10E-01	9.28E-02	2.48E-01
	33.60	13.20	1.42E+00		-3.88E-01	6.91E-01
	39.58	7.52	1.77E+00		5.20E-01	8.60E-01
I-131	284.30	6.05	1.75E+01	1.44E+00	-8.58E+00	8.37E+00
	364.48	81.20	1.44E+00		-4.13E-01	6.85E-01
	636.97	7.26	1.84E+01		-3.96E+00	8.59E+00
	722.89	1.80	8.49E+01		-3.12E+00	3.96E+01
TE-132	49.72	13.10	6.38E+02	7.39E+01	-8.89E+02	3.11E+02
	228.16	88.00	7.39E+01		-2.61E+01	3.57E+01
BA-133	81.00	33.00	1.99E-01	1.71E-01	-1.18E+00	9.72E-02
	302.84	17.80	4.47E-01		2.86E-01	2.15E-01
	356.01	60.00	1.71E-01		7.28E-03	8.24E-02
I-133	529.87	86.30	1.35E+10	1.35E+10	3.23E+09	6.34E+09
XE-133	81.00	38.00	1.20E+01	1.20E+01	-7.10E+01	5.87E+00
CS-134	563.23	8.38	1.06E+00	1.04E-01	-2.05E-01	4.97E-01
	569.32	15.43	5.93E-01		2.33E-01	2.79E-01
	604.70	97.60	1.04E-01		-2.28E-03	4.92E-02
	795.84	85.40	1.34E-01		9.60E-02	6.25E-02
	801.93	8.73	1.07E+00		-7.51E-02	4.94E-01
CS-135	268.24	16.00	4.73E-01	4.73E-01	3.12E-02	2.28E-01
@ 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	4.06E+00	5.28E-01	2.25E+00	1.96E+00

Analysis Report for 1510090-12
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	163.89	4.61	6.62E+00	5.28E-01	7.18E-01	3.19E+00
	176.55	13.56	2.20E+00		-4.59E-01	1.06E+00
	273.65	12.66	3.45E+00		-7.37E-01	1.67E+00
	340.57	48.50	1.15E+00		1.17E-02	5.56E-01
	818.50	99.70	5.28E-01		2.33E-01	2.44E-01
	1048.07	79.60	7.47E-01		-1.84E-01	3.43E-01
	1235.34	19.70	3.81E+00		6.78E-02	1.76E+00
CS-137	661.65	85.12	1.20E-01	1.20E-01	2.12E-02	5.64E-02
LA-138	788.74	34.00	2.88E-01	1.68E-01	-1.41E-01	1.34E-01
	1435.80	66.00	1.68E-01		1.03E-01	7.51E-02
CE-139	165.85	80.35	8.03E-02	8.03E-02	-1.56E-02	3.87E-02
BA-140	162.64	6.70	4.79E+00	1.71E+00	5.53E-01	2.31E+00
	304.84	4.50	9.22E+00		-2.11E+00	4.42E+00
	423.70	3.20	1.40E+01		2.07E+00	6.65E+00
	437.55	2.00	2.26E+01		-1.49E+00	1.07E+01
	537.32	25.00	1.71E+00		8.39E-02	7.99E-01
LA-140	328.77	20.50	2.23E+00	7.54E-01	3.22E-01	1.07E+00
	487.03	45.50	9.89E-01		-3.10E-01	4.65E-01
	815.85	23.50	2.17E+00		-6.71E-01	9.98E-01
	1596.49	95.49	7.54E-01		-1.38E-02	3.40E-01
CE-141	145.44	48.40	2.33E-01	2.33E-01	8.74E-02	1.13E-01
CE-143	57.36	11.80	7.31E+06	2.71E+06	1.11E+06	3.57E+06
	293.26	42.00	2.71E+06		4.03E+05	1.31E+06
	664.55	5.20	2.13E+07		1.19E+06	1.00E+07
CE-144	133.54	10.80	5.46E-01	5.46E-01	-1.05E-01	2.64E-01
PM-144	476.78	42.00	2.14E-01	9.34E-02	-2.29E-02	1.01E-01
	618.01	98.60	9.34E-02		1.22E-02	4.36E-02
	696.49	99.49	1.01E-01		2.10E-02	4.73E-02
PM-145	36.85	21.70	6.84E-01	3.72E-01	-3.64E-01	3.32E-01
	37.36	39.70	3.72E-01		-8.94E-02	1.81E-01
	42.30	15.10	7.61E-01		-5.60E-01	3.70E-01
	72.40	2.31	3.80E+00		-4.60E+00	1.87E+00
PM-146	453.90	39.94	1.83E-01	1.83E-01	5.05E-02	8.58E-02
	735.90	14.01	6.43E-01		6.64E-04	2.98E-01
	747.13	13.10	7.93E-01		-6.67E-02	3.71E-01
ND-147	91.11	28.90	1.97E+00	1.97E+00	-1.49E+00	9.66E-01
	531.02	13.10	4.40E+00		-1.90E+00	2.06E+00
PM-149	285.90	3.10	5.15E+04	5.15E+04	-1.64E+04	2.46E+04
EU-152	121.78	20.50	2.69E-01	2.69E-01	9.81E-02	1.31E-01
	244.69	5.40	1.61E+00		6.62E-02	7.81E-01
	344.27	19.13	3.84E-01		2.06E-02	1.83E-01
	778.89	9.20	1.01E+00		-1.24E-02	4.69E-01
	964.01	10.40	1.22E+00		-1.47E-01	5.69E-01
	1085.78	7.22	1.45E+00		7.94E-02	6.59E-01
	1112.02	9.60	1.22E+00		9.47E-03	5.59E-01
	1407.95	14.94	7.95E-01		7.35E-01	3.59E-01
GD-153	97.43	31.30	1.89E-01	1.89E-01	4.71E-02	9.17E-02
	103.18	22.20	2.54E-01		-1.80E-01	1.23E-01
EU-154	123.07	40.50	1.35E-01	1.35E-01	6.42E-03	6.53E-02
	723.30	19.70	4.90E-01		-1.80E-02	2.28E-01
	873.19	11.50	8.64E-01		1.30E-01	3.99E-01
	996.32	10.30	9.46E-01		8.65E-02	4.31E-01
	1004.76	17.90	5.82E-01		1.95E-01	2.67E-01

Analysis Report for 1510090-12

CP0603S24-25

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	1274.45	35.50	3.10E-01	1.35E-01	-1.79E-01 1.40E-01
+	EU-155	86.50 *	30.90	5.27E-01	2.63E-01	6.45E-01 2.61E-01
		105.30	20.70	2.63E-01		7.19E-02 1.28E-01
	EU-156	811.77	10.40	3.59E+00	3.59E+00	-1.10E+00 1.65E+00
		1153.47	7.20	8.06E+00		4.74E-01 3.74E+00
		1230.71	8.90	5.96E+00		1.59E+00 2.73E+00
	HO-166M	184.41	72.60	1.04E-01	1.04E-01	1.61E-01 5.06E-02
		280.45	29.60	2.49E-01		-2.20E-02 1.20E-01
		410.94	11.10	7.48E-01		1.95E-01 3.56E-01
		711.69	54.10	1.71E-01		-2.76E-03 7.95E-02
	TM-171	66.72	0.14	5.44E+01	5.44E+01	1.73E+00 2.66E+01
	HF-172	81.75	4.52	1.49E+00	4.96E-01	-5.80E+00 7.29E-01
		125.81	11.30	4.96E-01		3.72E-02 2.40E-01
	LU-172	181.53	20.60	8.00E+00	4.41E+00	-1.22E+01 3.86E+00
		810.06	16.63	1.47E+01		1.74E+00 6.75E+00
		912.12	15.25	3.39E+01		7.26E+01 1.62E+01
		1093.66	62.50	4.41E+00		-9.96E-01 2.00E+00
	LU-173	100.72	5.24	1.05E+00	3.95E-01	-1.07E-01 5.07E-01
		272.11	21.20	3.95E-01		1.01E-01 1.91E-01
	HF-175	343.40	84.00	1.25E-01	1.25E-01	6.42E-03 5.96E-02
	LU-176	88.34	13.30	5.92E-01	7.38E-02	9.97E-02 2.90E-01
		201.83	86.00	8.71E-02		-5.58E-03 4.22E-02
		306.78	94.00	7.38E-02		-2.29E-02 3.53E-02
	TA-182	67.75	41.20	2.15E-01	2.15E-01	9.97E-02 1.05E-01
		1121.30	34.90	5.66E-01		6.39E-01 2.66E-01
		1189.05	16.23	1.02E+00		-1.69E-01 4.73E-01
		1221.41	26.98	6.11E-01		1.65E-01 2.83E-01
		1231.02	11.44	1.26E+00		-3.64E-03 5.74E-01
	IR-192	308.46	29.68	3.17E-01	2.06E-01	-2.07E-02 1.52E-01
		468.07	48.10	2.06E-01		-6.84E-02 9.66E-02
	HG-203	279.19	77.30	1.65E-01	1.65E-01	9.65E-02 7.94E-02
	BI-207	569.67	97.72	9.17E-02	9.17E-02	7.14E-02 4.31E-02
		1063.62	74.90	1.47E-01		5.71E-02 6.73E-02
+	TL-208	583.14 *	30.22	5.26E-01	4.79E-02	1.81E+00 2.54E-01
		860.37	4.48	2.49E+00		1.35E+00 1.16E+00
		2614.66 *	35.85	4.79E-02		1.03E+00 0.00E+00
	BI-210M	262.00	45.00	1.66E-01	1.66E-01	1.91E-01 7.98E-02
		300.00	23.00	3.53E-01		1.70E-01 1.70E-01
	PB-210	46.50	4.25	2.53E+00	2.53E+00	1.87E+00 1.24E+00
	PB-211	404.84	2.90	2.83E+00	2.83E+00	-1.05E+00 1.35E+00
		831.96	2.90	3.76E+00		1.99E+00 1.75E+00
+	BI-212	727.17 *	11.80	1.23E+00	1.23E+00	6.33E-01 5.89E-01
		1620.62	2.75	3.08E+00		-6.49E-01 1.31E+00
+	PB-212	238.63 *	44.60	2.92E-01	2.92E-01	1.65E+00 1.43E-01
		300.09	3.41	2.38E+00		1.15E+00 1.15E+00
+	BI-214	609.31 *	46.30	3.18E-01	2.24E-01	1.09E+00 1.53E-01
		1120.29 *	15.10	1.26E+00		1.17E+00 6.00E-01
		1764.49 *	15.80	2.24E-01		1.81E+00 6.93E-02
		2204.22 *	4.98	1.25E+00		1.15E+00 4.68E-01
+	PB-214	295.21 *	19.19	5.40E-01	3.25E-01	9.70E-01 2.62E-01
		351.92 *	37.19	3.25E-01		1.14E+00 1.58E-01
	RN-219	401.80	6.50	1.30E+00	1.30E+00	-1.99E-01 6.18E-01
	RA-223	323.87	3.88	1.85E+00	1.85E+00	-1.87E+00 8.82E-01

Analysis Report for 1510090-12
CP0603S24-25

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	RA-224	240.98	*	3.95	3.38E+00	3.38E+00	3.88E+00	1.66E+00
	RA-225	40.00		31.00	1.88E+00	1.88E+00	5.55E-01	9.17E-01
+	RA-226	186.21	*	3.28	3.30E+00	3.30E+00	3.83E+00	1.62E+00
	TH-227	50.10		8.40	1.06E+00	1.06E+00	-1.48E+00	5.16E-01
		236.00		11.50	1.12E+00		2.85E+00	5.51E-01
		256.20		6.30	1.13E+00		6.63E-02	5.46E-01
+	AC-228	338.32	*	11.40	9.13E-01	4.83E-01	1.35E+00	4.42E-01
		911.07	*	27.70	4.83E-01		1.40E+00	2.27E-01
		969.11	*	16.60	9.83E-01		1.22E+00	4.66E-01
	TH-230	48.44		16.90	5.96E-01	5.96E-01	5.65E-01	2.91E-01
		62.85		4.60	1.88E+00		2.37E+00	9.22E-01
		67.67		0.37	1.97E+01		9.14E+00	9.63E+00
	PA-231	283.67		1.60	4.14E+00	3.43E+00	-2.03E+00	1.98E+00
		302.67		2.30	3.43E+00		2.20E+00	1.65E+00
	TH-231	25.64		14.70	3.69E+00	1.05E+00	9.19E-01	1.79E+00
		84.21		6.40	1.05E+00		-2.35E+00	5.13E-01
	PA-233	311.98		38.60	4.29E-01	4.29E-01	1.11E-01	2.05E-01
+	PA-234	131.20	*	20.40	4.61E-01	4.61E-01	4.95E-01	2.26E-01
		733.99		8.80	1.06E+00		1.23E-01	4.94E-01
		946.00		12.00	8.00E-01		1.40E-03	3.66E-01
+	PA-234M	1001.03	*	0.92	1.14E+01	1.14E+01	5.66E+00	5.23E+00
+	TH-234	63.29	*	3.80	3.16E+00	3.16E+00	1.99E+00	1.56E+00
	U-235	143.76		10.50	5.49E-01	5.49E-01	2.00E-01	2.66E-01
		163.35		4.70	1.19E+00		1.29E-01	5.76E-01
		205.31		4.70	1.59E+00		-2.86E-01	7.69E-01
+	NP-237	86.50	*	12.60	1.28E+00	1.28E+00	1.56E+00	6.32E-01
	NP-239	106.10		22.70	3.04E+03	3.04E+03	2.86E+02	1.47E+03
		228.18		10.70	8.37E+03		-2.96E+03	4.04E+03
		277.60		14.10	7.28E+03		7.61E+03	3.51E+03
	AM-241	59.54		35.90	2.27E-01	2.27E-01	-1.82E-01	1.11E-01
	AM-243	74.67		66.00	1.58E-01	1.58E-01	2.99E-01	7.80E-02
+	CM-243	209.75	*	3.29	2.84E+00	6.61E-01	2.26E+00	1.38E+00
		228.14		10.60	6.61E-01		-2.34E-01	3.19E-01
		277.60	*	14.00	1.18E+00		5.76E-01	5.78E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1510090-12
CP0603S24-25

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S24-25

Elapsed Live time: 3600
Elapsed Real Time: 3617

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	3	168	158	130	138	101	99	107
17:	100	69	88	73	79	74	76	83
25:	77	70	81	96	77	75	76	80
33:	75	82	70	72	84	90	81	95
41:	103	87	86	79	97	112	162	112
49:	84	108	102	81	105	121	88	100
57:	96	116	104	128	135	127	173	199
65:	124	112	132	106	120	121	103	124
73:	140	167	384	285	374	445	136	112
81:	107	92	96	138	148	108	202	221
89:	113	154	122	119	228	172	87	69
97:	87	59	79	78	64	66	61	71
105:	70	83	75	62	75	75	70	73
113:	69	62	64	76	72	65	70	73
121:	65	69	66	73	60	59	65	70
129:	95	100	69	71	73	64	52	54
137:	58	53	66	51	69	62	69	86
145:	63	47	62	55	50	52	50	44
153:	61	64	64	43	47	49	46	68
161:	51	52	56	54	56	47	50	42
169:	51	53	49	67	51	53	46	49
177:	36	44	55	51	43	55	60	50
185:	67	120	121	60	55	48	49	41
193:	64	46	49	56	53	55	49	58
201:	56	42	58	50	47	47	55	49
209:	57	88	50	53	42	42	45	39
217:	38	41	50	42	39	36	37	46
225:	39	41	37	33	37	31	41	40
233:	41	36	47	43	43	147	508	213
241:	82	108	77	37	32	35	33	37
249:	34	32	30	39	34	36	27	35
257:	21	22	49	31	27	36	36	26
265:	31	25	18	30	30	51	49	39
273:	19	36	33	32	49	52	24	37
281:	22	23	21	27	29	20	19	26
289:	24	39	26	30	21	36	101	143
297:	38	31	23	47	30	23	32	19
305:	27	30	20	22	15	22	24	22
313:	26	19	37	23	20	28	20	24
321:	20	26	25	13	23	15	29	32
329:	41	21	19	28	24	37	25	26
337:	21	83	97	34	16	20	20	22
345:	21	22	20	24	28	15	46	212
353:	140	27	17	23	22	22	14	18
361:	17	14	20	17	19	20	20	18

369: 22 24 18 29 18 17 19 20

Sample Title: CP0603S24-25

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	22	15	22	19	24	24	19	22
385:	20	13	22	18	31	14	14	15
393:	12	23	25	18	26	16	17	25
401:	27	14	16	23	22	18	27	14
409:	16	40	19	16	22	7	15	12
417:	11	10	18	11	15	10	15	19
425:	21	19	14	16	15	20	20	31
433:	20	19	15	15	18	18	18	19
441:	5	16	15	8	16	14	15	23
449:	11	8	12	8	13	15	16	10
457:	9	8	13	15	14	15	31	36
465:	15	9	18	16	7	9	7	12
473:	21	16	16	19	11	11	20	13
481:	18	13	14	17	6	16	10	11
489:	17	11	18	13	11	14	10	20
497:	8	11	13	13	15	15	17	16
505:	11	15	12	13	29	40	79	49
513:	24	17	13	13	14	9	14	12
521:	9	9	13	12	13	9	17	12
529:	11	10	6	10	13	7	11	13
537:	12	5	11	7	6	9	13	8
545:	7	11	12	12	9	12	13	11
553:	7	13	8	8	14	11	17	9
561:	16	15	9	13	10	9	9	15
569:	13	15	12	12	10	6	5	16
577:	10	13	10	5	18	39	113	119
585:	16	13	17	7	11	13	16	9
593:	8	11	8	14	14	11	14	14
601:	9	9	10	10	9	15	13	29
609:	112	112	30	13	10	10	11	8
617:	15	14	5	8	8	12	5	10
625:	12	6	16	12	16	8	9	11
633:	6	7	9	14	3	9	10	9
641:	7	15	11	14	14	8	11	10
649:	10	6	9	15	11	11	10	10
657:	8	10	12	12	17	7	11	10
665:	17	12	12	8	7	8	2	6
673:	11	4	8	7	10	11	12	15
681:	9	9	8	13	14	6	2	13
689:	8	13	10	9	8	8	9	16
697:	10	8	8	6	9	11	11	15
705:	7	5	11	6	7	16	5	8
713:	13	7	5	8	10	8	10	8
721:	7	9	7	11	11	11	24	22
729:	6	9	9	10	6	7	7	10
737:	10	3	10	4	8	14	15	8
745:	13	9	7	12	16	5	8	7
753:	5	1	9	9	8	9	7	4
761:	3	4	8	9	7	13	8	12
769:	23	17	7	8	15	4	8	5
777:	4	7	9	7	10	10	9	9
785:	8	8	15	9	6	10	8	1
793:	13	11	16	9	8	8	8	8

801: 6 8 9 5 3 7 6 8

Sample Title: CP0603S24-25

Channel	6	8	9	5	3	7	6	8
809:	2	8	9	6	4	4	8	9
817:	6	6	7	6	10	7	5	11
825:	11	6	2	5	6	13	8	8
833:	8	12	10	10	7	5	7	8
841:	12	10	7	3	10	6	4	9
849:	5	5	4	12	8	1	9	2
857:	6	4	8	19	12	8	7	3
865:	10	6	4	6	4	6	6	7
873:	8	8	4	9	7	7	5	9
881:	7	11	5	5	5	7	7	5
889:	6	10	8	6	8	4	3	8
897:	4	6	7	10	6	4	5	10
905:	6	7	8	6	4	30	69	50
913:	9	4	5	3	5	5	4	7
921:	7	8	5	10	5	7	4	6
929:	7	7	6	5	12	16	9	4
937:	3	8	8	4	12	7	7	6
945:	5	6	3	7	5	7	11	6
953:	5	4	0	2	5	6	8	4
961:	4	8	9	11	13	11	12	27
969:	35	25	5	2	1	8	5	6
977:	7	4	2	1	7	9	5	8
985:	5	6	7	5	6	8	5	1
993:	4	7	6	3	5	5	6	8
1001:	13	8	3	6	4	6	6	8
1009:	2	3	5	3	4	4	5	7
1017:	6	3	7	6	1	7	5	7
1025:	5	2	5	8	5	4	2	4
1033:	6	5	12	5	2	5	10	5
1041:	9	7	5	9	5	8	8	8
1049:	6	5	3	9	6	5	3	7
1057:	6	5	5	6	7	2	4	12
1065:	5	6	4	3	7	7	2	2
1073:	4	8	8	7	6	5	5	5
1081:	5	9	9	1	8	5	3	3
1089:	7	3	4	3	4	8	4	6
1097:	5	7	4	7	10	6	5	5
1105:	4	5	7	5	6	5	5	3
1113:	7	5	13	7	6	11	17	24
1121:	14	9	10	4	7	2	3	2
1129:	6	10	5	6	6	9	8	3
1137:	7	11	6	8	7	7	4	8
1145:	5	7	5	6	3	7	9	11
1153:	5	8	9	7	10	10	6	8
1161:	4	11	5	6	8	6	8	6
1169:	3	11	8	6	11	10	4	10
1177:	4	7	6	10	3	12	7	10
1185:	10	9	13	7	6	7	9	4
1193:	5	11	8	9	10	7	8	9
1201:	9	4	8	10	5	6	6	6
1209:	7	4	8	8	4	10	14	10
1217:	5	7	10	6	10	6	4	9
1225:	5	5	10	6	7	4	5	3

1233: 6 7 5 7 12 13 15 7

Sample Title: CP0603S24-25

Channel	1	2	3	4	5	6	7	8
1241:	6	12	5	12	7	4	5	3
1249:	7	2	7	10	2	8	3	5
1257:	7	5	6	4	6	2	3	2
1265:	5	4	6	4	11	3	4	6
1273:	1	4	5	1	3	3	5	2
1281:	6	6	3	4	6	6	9	5
1289:	3	6	2	3	3	6	2	5
1297:	2	6	6	5	5	2	4	5
1305:	2	8	3	3	5	5	3	6
1313:	7	8	2	5	3	5	1	4
1321:	6	4	4	4	4	4	7	1
1329:	2	2	3	5	10	3	4	2
1337:	3	2	4	4	5	5	6	4
1345:	1	1	5	5	3	3	4	3
1353:	1	7	2	1	1	1	3	4
1361:	2	4	5	2	5	2	3	2
1369:	1	3	4	2	3	6	1	2
1377:	4	10	7	2	1	2	1	5
1385:	2	1	3	1	7	2	2	2
1393:	1	2	3	3	1	2	4	4
1401:	2	0	2	3	4	2	5	4
1409:	3	3	2	4	0	0	5	3
1417:	2	1	2	4	4	2	2	3
1425:	3	2	3	2	1	1	4	2
1433:	3	6	3	3	3	1	0	1
1441:	1	1	2	4	1	3	1	1
1449:	4	1	4	3	1	1	1	4
1457:	2	7	48	171	223	83	4	2
1465:	4	2	2	2	4	2	1	3
1473:	0	1	2	1	1	1	1	0
1481:	2	2	2	1	2	1	1	2
1489:	3	1	2	2	1	1	1	4
1497:	4	1	1	2	1	2	1	1
1505:	4	0	1	2	2	5	1	1
1513:	1	2	2	1	0	4	1	1
1521:	0	0	0	0	1	1	0	2
1529:	0	1	1	2	2	1	0	5
1537:	3	2	4	1	1	0	3	1
1545:	3	1	1	2	2	2	1	0
1553:	1	0	0	2	1	5	0	0
1561:	0	1	0	0	1	2	0	1
1569:	2	1	1	0	0	0	0	2
1577:	1	2	2	1	3	3	3	1
1585:	1	2	6	9	4	2	5	9
1593:	7	4	2	0	1	2	2	1
1601:	3	1	0	1	2	2	0	0
1609:	1	1	2	0	2	1	1	0
1617:	1	4	1	2	3	0	0	0
1625:	3	1	2	2	2	3	3	2
1633:	0	2	3	1	3	2	3	7
1641:	1	1	1	1	4	2	1	0
1649:	1	1	1	0	1	1	0	1
1657:	0	2	0	1	0	0	1	0

1665: 0 2 0 1 1 0 0 0

Sample Title: CP0603S24-25

Channel	1	2	3	4	5	6	7	8	9
1673:	1	0	2	1	0	1	0	2	
1681:	0	2	2	1	2	1	0	1	
1689:	1	1	1	0	1	0	2	0	
1697:	1	1	2	0	0	1	0	1	
1705:	0	0	0	1	0	0	1	2	
1713:	2	1	2	1	2	0	2	2	
1721:	1	0	3	1	2	2	2	3	
1729:	4	1	0	1	2	1	0	1	
1737:	1	2	0	1	2	0	1	0	
1745:	1	0	2	1	0	1	1	1	
1753:	0	2	1	2	0	0	1	3	
1761:	2	5	11	11	13	5	2	3	
1769:	1	1	1	0	0	2	2	0	
1777:	3	1	0	1	1	1	0	1	
1785:	1	2	1	0	1	0	0	2	
1793:	1	1	0	2	3	1	1	0	
1801:	0	0	1	0	1	1	2	0	
1809:	1	2	1	0	1	0	1	1	
1817:	2	0	2	2	0	0	0	1	
1825:	2	1	2	0	0	1	1	0	
1833:	2	1	1	2	0	2	1	1	
1841:	0	1	0	1	0	3	3	1	
1849:	2	1	1	1	0	1	2	0	
1857:	1	1	1	1	2	1	1	1	
1865:	0	1	1	1	1	0	1	0	
1873:	1	1	1	0	2	0	0	0	
1881:	2	2	0	0	0	2	0	0	
1889:	0	0	0	0	0	3	2	2	
1897:	0	0	0	0	1	1	0	2	
1905:	0	2	0	1	2	0	0	1	
1913:	1	2	2	2	1	3	2	0	
1921:	0	1	0	0	1	0	1	3	
1929:	0	0	1	2	2	2	3	0	
1937:	1	1	0	2	0	0	1	1	
1945:	1	0	0	3	2	0	1	2	
1953:	2	0	1	0	1	0	0	0	
1961:	1	0	1	0	1	2	2	0	
1969:	1	0	0	0	0	0	0	0	
1977:	0	0	1	0	0	0	0	1	
1985:	2	0	0	1	1	1	0	2	
1993:	1	0	1	2	2	2	0	2	
2001:	0	1	2	1	0	0	0	0	
2009:	0	2	1	0	0	1	0	0	
2017:	3	0	0	0	1	3	1	2	
2025:	0	0	0	0	2	1	0	1	
2033:	0	1	1	1	0	0	0	1	
2041:	1	1	0	0	1	0	1	0	
2049:	0	0	0	4	0	1	1	1	
2057:	1	0	0	0	0	0	1	0	
2065:	1	0	0	2	1	0	0	0	
2073:	1	1	1	0	1	1	1	3	
2081:	0	0	0	0	0	0	0	0	
2089:	0	1	0	2	1	3	1	1	

2097: 0 0 0 1 0 4 4 4

Sample Title: CP0603S24-25

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

2529: 1 0 0 0 1 1 0 1

Sample Title: CP0603S24-25

Channel	1	2	3	4	5	6	7	8	9
2537:	0	0	0	0	0	0	0	2	1
2545:	0	0	0	0	0	0	0	0	0
2553:	0	1	0	1	1	0	0	0	0
2561:	0	1	0	0	0	0	0	1	0
2569:	0	1	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	0	0	2
2585:	0	0	1	0	0	0	0	0	0
2593:	0	0	0	0	0	0	1	0	0
2601:	0	0	1	0	0	1	0	0	0
2609:	0	0	1	6	11	21	16	3	3
2617:	0	0	0	0	1	1	0	0	0
2625:	0	0	0	2	0	0	1	0	0
2633:	1	0	2	0	0	1	0	1	1
2641:	1	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0	1
2657:	0	0	1	0	0	0	1	0	0
2665:	0	0	0	0	0	1	0	0	0
2673:	0	0	0	1	0	0	1	0	0
2681:	0	0	0	0	1	0	1	1	1
2689:	2	0	0	0	0	0	0	0	0
2697:	0	0	0	1	0	1	0	0	0
2705:	0	1	0	1	0	0	0	0	0
2713:	0	0	0	0	0	0	0	0	0
2721:	0	0	0	0	0	1	1	0	0
2729:	0	0	0	1	2	0	0	0	0
2737:	3	1	0	0	0	0	0	0	1
2745:	0	0	1	0	0	0	1	0	0
2753:	1	0	0	0	0	0	0	0	0
2761:	0	0	0	0	1	0	0	0	0
2769:	0	0	0	0	0	1	0	0	0
2777:	0	1	0	0	0	0	0	0	0
2785:	0	0	1	0	0	0	0	0	0
2793:	0	1	1	0	0	2	1	0	0
2801:	0	0	0	0	0	0	0	0	0
2809:	0	0	1	0	0	0	0	0	0
2817:	0	0	1	0	0	0	1	0	0
2825:	0	0	0	1	0	0	0	0	0
2833:	0	1	0	0	0	0	0	0	0
2841:	2	0	0	1	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	1	0	1	1
2865:	1	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	0	0
2881:	0	0	1	1	0	0	0	0	0
2889:	0	0	1	0	0	0	1	0	0
2897:	1	0	0	0	1	0	0	1	1
2905:	0	2	0	0	0	0	1	0	0
2913:	0	0	0	0	0	0	0	0	0
2921:	1	0	0	0	0	0	1	0	0
2929:	1	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	2	0	0
2953:	0	0	0	0	0	1	0	0	0

2961: 0 0 0 0 0 0 0 1 0

Sample Title: CP0603S24-25

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2969:	0	0	0	0	2	0	0	0
2977:	0	1	0	0	0	0	0	0
2985:	0	0	0	1	1	0	0	1
2993:	0	0	0	0	1	1	0	0
3001:	1	0	1	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	1	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	1	0	0	0	0	0	0
3041:	0	0	0	0	0	0	0	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	0	0	0
3065:	0	0	1	0	0	0	0	0
3073:	1	0	0	0	0	0	0	0
3081:	1	0	1	0	1	0	0	0
3089:	1	0	0	0	0	0	0	0
3097:	1	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	1	1
3129:	0	1	0	0	0	0	1	0
3137:	1	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	0	0	0
3169:	0	0	0	0	1	0	0	0
3177:	0	0	0	0	0	0	0	0
3185:	0	1	0	0	1	1	1	0
3193:	0	0	0	1	0	0	0	1
3201:	0	0	0	0	0	0	0	2
3209:	0	1	0	0	0	0	0	0
3217:	0	0	1	1	0	0	0	0
3225:	1	0	0	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	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	0	0	0	1	0	0
3281:	0	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	0	0	0
3313:	0	0	1	0	0	0	1	0
3321:	0	0	1	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	2	0	0	0	0	0	0	0
3345:	0	0	0	0	1	0	0	0
3353:	0	0	0	1	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	1	2	0	0	0	0
3385:	0	0	0	0	0	1	1	0

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S24-25

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

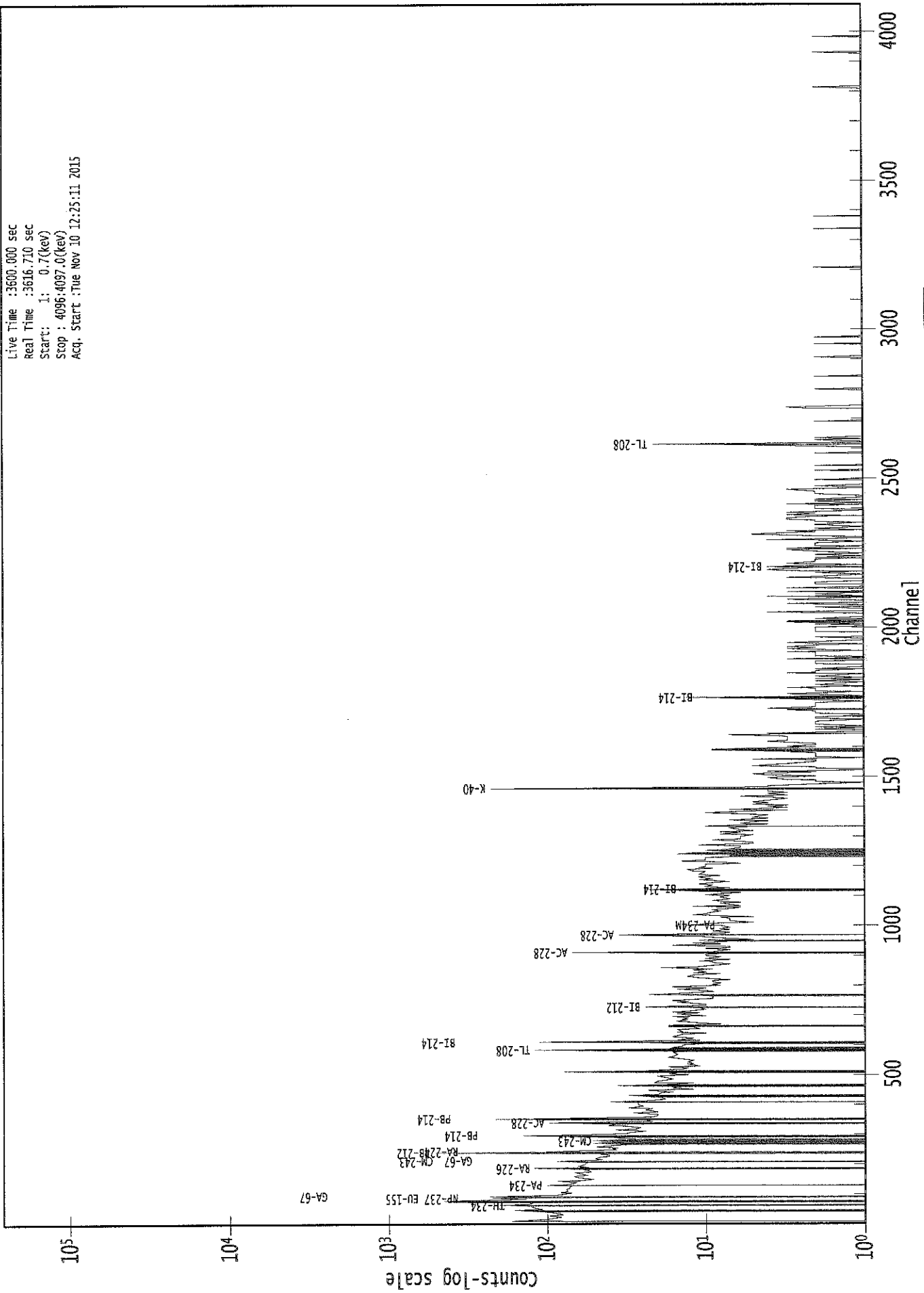
3825: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S24-25

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	1	0
3865:	0	0	1	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	1	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	1	0	0	0	0	0
3905:	0	0	1	0	0	0	0	0
3913:	0	0	0	0	1	0	0	0
3921:	0	0	1	0	0	0	1	0
3929:	0	1	2	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	1	0	0
3953:	0	1	0	1	0	0	0	1
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	2	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	1	0	0	0
4001:	1	0	0	0	0	1	0	0
4009:	0	0	0	1	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	1
4041:	0	0	0	1	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	1	0	0	0	0	0	1	0
4065:	1	0	0	0	0	1	0	0
4073:	0	0	0	0	0	0	0	0
4081:	1	0	0	0	0	0	0	0
4089:	0	0	1	0	0	0	0	0

0000029395.CNF

Live Time :3600.000 sec
Real Time :3616.710 sec
Start: 1: 0.7(kev)
Stop : 4096:4097.0(kev)
Acq. Start :Tue Nov 10 12:25:11 2015



RJS
11/10/15Analysis Report for 1510090-13
CP0603S26-27

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-13
Sample Description : CP0603S26-27
Sample Type : SOIL

Sample Size : 5.057E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:49:32AM
Acquisition Started : 11/10/2015 12:52:19PM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE1
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3601.2 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 1 - 4096
Peak Area Range (in channels) : 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 : 29396

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/11/15

Analysis Report for 1510090-13
CP0603S26-27

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 1:52:23PM
 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	46.26	46.61	0.0000	0.00
2	63.80	64.15	0.0000	0.00
3	74.94	75.28	0.0000	0.00
4	77.48	77.82	0.0000	0.00
5	87.80	88.13	0.0000	0.00
6	92.69	93.02	0.0000	0.00
7	99.34	99.67	0.0000	0.00
8	129.17	129.50	0.0000	0.00
9	186.36	186.67	0.0000	0.00
10	209.88	210.17	0.0000	0.00
11	238.75	239.04	0.0000	0.00
12	241.85	242.14	0.0000	0.00
13	269.54	269.81	0.0000	0.00
14	295.47	295.74	0.0000	0.00
15	300.62	300.89	0.0000	0.00
16	328.05	328.31	0.0000	0.00
17	338.36	338.61	0.0000	0.00
18	352.12	352.37	0.0000	0.00
19	463.88	464.10	0.0000	0.00
20	511.01	511.20	0.0000	0.00
21	524.04	524.23	0.0000	0.00
22	583.48	583.65	0.0000	0.00
23	609.50	609.66	0.0000	0.00
24	663.57	663.71	0.0000	0.00
25	721.88	722.00	0.0000	0.00
26	727.46	727.58	0.0000	0.00
27	769.85	769.96	0.0000	0.00
28	795.37	795.47	0.0000	0.00
29	847.37	847.45	0.0000	0.00
30	861.73	861.81	0.0000	0.00
31	911.70	911.76	0.0000	0.00
32	969.61	969.65	0.0000	0.00
33	1120.94	1120.92	0.0000	0.00
34	1124.41	1124.39	0.0000	0.00
35	1239.41	1239.34	0.0000	0.00
36	1339.55	1339.45	0.0000	0.00
37	1362.58	1362.48	0.0000	0.00
38	1378.09	1377.98	0.0000	0.00
39	1385.46	1385.35	0.0000	0.00
40	1408.36	1408.23	0.0000	0.00
41	1461.36	1461.22	0.0000	0.00
42	1509.99	1509.83	0.0000	0.00

Analysis Report for 1510090-13
CP0603S26-27

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1610.34	1610.14	0.0000	0.00
44	1630.56	1630.36	0.0000	0.00
45	1660.79	1660.57	0.0000	0.00
46	1730.59	1730.35	0.0000	0.00
47	1740.97	1740.72	0.0000	0.00
48	1765.00	1764.74	0.0000	0.00
49	1849.23	1848.94	0.0000	0.00
50	1912.44	1912.13	0.0000	0.00
51	1930.27	1929.95	0.0000	0.00
52	1937.92	1937.60	0.0000	0.00
53	2204.15	2203.72	0.0000	0.00
54	2303.17	2302.70	0.0000	0.00
55	2311.19	2310.72	0.0000	0.00
56	2416.23	2415.73	0.0000	0.00
57	2448.76	2448.25	0.0000	0.00
58	2615.10	2614.52	0.0000	0.00
59	3232.83	3232.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510090-13
CP0603S26-27

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 1:52:23PM

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	46.26	43 -	50	46.61	1.74E+02	85.93	1.12E+03	1.26
2	63.80	60 -	68	64.15	2.48E+02	124.74	2.25E+03	1.42
M 3	74.94	72 -	81	75.28	4.22E+02	93.04	1.30E+03	1.60
m 4	77.48	72 -	81	77.82	7.04E+02	100.74	1.23E+03	1.61
M 5	87.80	83 -	97	88.13	2.43E+02	63.91	8.36E+02	1.48
m 6	92.69	83 -	97	93.02	2.74E+02	68.47	7.27E+02	1.49
7	99.34	98 -	102	99.67	6.13E+01	63.26	8.37E+02	2.33
8	129.17	126 -	135	129.50	1.31E+02	101.01	1.39E+03	4.45
9	186.36	183 -	192	186.67	2.16E+02	92.37	1.08E+03	2.01
10	209.88	208 -	213	210.17	1.03E+02	56.51	5.58E+02	1.48
M 11	238.75	235 -	246	239.04	9.87E+02	76.91	4.20E+02	1.65
m 12	241.85	235 -	246	242.14	2.23E+02	80.74	4.54E+02	2.04
13	269.54	265 -	274	269.81	6.77E+01	71.48	6.95E+02	1.86
M 14	295.47	291 -	304	295.74	2.78E+02	48.07	2.81E+02	1.66
m 15	300.62	291 -	304	300.89	7.08E+01	48.73	3.39E+02	2.32
16	328.05	325 -	331	328.31	6.04E+01	47.31	3.61E+02	1.47
17	338.36	334 -	342	338.61	1.67E+02	62.80	5.03E+02	1.56
18	352.12	348 -	356	352.37	4.14E+02	68.89	4.72E+02	1.78
19	463.88	460 -	468	464.10	6.65E+01	43.61	2.41E+02	1.66
20	511.01	506 -	515	511.20	1.95E+02	51.99	2.75E+02	1.62
21	524.04	520 -	527	524.23	2.95E+01	33.88	1.71E+02	2.72
22	583.48	579 -	589	583.65	3.20E+02	53.02	2.06E+02	1.92
23	609.50	605 -	614	609.66	3.58E+02	58.21	2.77E+02	1.78
24	663.57	651 -	674	663.71	6.87E+01	80.52	4.41E+02	18.26
M 25	721.88	718 -	733	722.00	2.35E+01	24.43	8.26E+01	1.86
m 26	727.46	718 -	733	727.58	7.14E+01	31.82	1.22E+02	2.48
27	769.85	765 -	774	769.96	4.31E+01	39.18	1.94E+02	4.47
28	795.37	790 -	800	795.47	4.36E+01	38.52	1.71E+02	3.84
29	847.37	845 -	850	847.45	2.43E+01	20.22	6.14E+01	3.82
30	861.73	859 -	866	861.81	2.45E+01	29.12	1.27E+02	2.64
31	911.70	907 -	916	911.76	1.80E+02	41.58	1.42E+02	1.73
32	969.61	966 -	973	969.65	1.26E+02	39.60	1.55E+02	1.88
M 33	1120.94	1115 -	1126	1120.92	8.80E+01	25.98	4.23E+01	2.49
m 34	1124.41	1115 -	1126	1124.39	1.32E+01	16.09	2.57E+01	1.76
35	1239.41	1234 -	1245	1239.34	6.23E+01	37.47	1.45E+02	2.98
36	1339.55	1336 -	1342	1339.45	1.16E+01	13.48	2.47E+01	2.58
37	1362.58	1358 -	1367	1362.48	2.10E+01	14.97	2.00E+01	3.74
38	1378.09	1374 -	1381	1377.98	2.00E+01	14.97	2.40E+01	2.99
39	1385.46	1382 -	1390	1385.35	1.52E+01	19.67	5.16E+01	1.56
40	1408.36	1406 -	1410	1408.23	9.87E+00	12.68	2.63E+01	1.46

Analysis Report for 1510090-13
CP0603S26-27

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1461.36	1456 - 1467		1461.22	8.14E+02	62.26	7.56E+01	2.38
42	1509.99	1504 - 1515		1509.83	1.50E+01	18.65	3.60E+01	1.21
43	1610.34	1607 - 1613		1610.14	9.50E+00	8.75	7.00E+00	3.00
44	1630.56	1626 - 1634		1630.36	1.71E+01	11.16	7.81E+00	4.93
45	1660.79	1657 - 1664		1660.57	1.00E+01	9.38	8.00E+00	1.66
46	1730.59	1727 - 1734		1730.35	1.30E+01	9.80	6.00E+00	4.87
47	1740.97	1736 - 1744		1740.72	8.77E+00	8.02	4.45E+00	3.10
48	1765.00	1759 - 1768		1764.74	5.50E+01	19.92	2.60E+01	1.93
49	1849.23	1845 - 1853		1848.94	1.75E+01	11.34	9.00E+00	3.66
50	1912.44	1909 - 1916		1912.13	1.07E+01	8.25	4.69E+00	2.12
51	1930.27	1927 - 1932		1929.95	9.64E+00	7.28	2.73E+00	2.11
52	1937.92	1935 - 1939		1937.60	6.50E+00	6.96	5.00E+00	1.14
53	2204.15	2198 - 2208		2203.72	2.65E+01	13.73	1.10E+01	2.31
54	2303.17	2299 - 2305		2302.70	6.50E+00	8.99	9.00E+00	1.79
55	2311.19	2306 - 2316		2310.72	1.80E+01	8.49	0.00E+00	8.74
56	2416.23	2413 - 2418		2415.73	4.42E+00	5.74	3.17E+00	1.88
57	2448.76	2443 - 2452		2448.25	1.55E+01	9.85	5.00E+00	2.25
58	2615.10	2611 - 2619		2614.52	1.19E+02	21.82	0.00E+00	2.96
59	3232.83	3227 - 3234		3232.00	5.00E+00	4.47	0.00E+00	1.50

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 : 11/10/2015 1:52:23PM

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	46.26	43 - 50	1.74E+02	85.93	1.12E+03	6.72E+01
	2	63.80	60 - 68	2.48E+02	124.74	2.25E+03	9.92E+01
M	3	74.94	72 - 81	4.22E+02	93.04	1.30E+03	5.93E+01
m	4	77.48	72 - 81	7.04E+02	100.74	1.23E+03	5.76E+01
M	5	87.80	83 - 97	2.43E+02	63.91	8.36E+02	4.75E+01
m	6	92.69	83 - 97	2.74E+02	68.47	7.27E+02	4.43E+01
	7	99.34	98 - 102	6.13E+01	63.26	8.37E+02	5.04E+01
	8	129.17	126 - 135	1.31E+02	101.01	1.39E+03	8.09E+01
	9	186.36	183 - 192	2.16E+02	92.37	1.08E+03	7.20E+01

Analysis Report for 1510090-13

CP0603S26-27

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	10	209.88	208 -	213	1.03E+02	56.51	5.58E+02	4.33E+01
M	11	238.75	235 -	246	9.87E+02	76.91	4.20E+02	3.37E+01
m	12	241.85	235 -	246	2.23E+02	80.74	4.54E+02	3.50E+01
	13	269.54	265 -	274	6.77E+01	71.48	6.95E+02	5.72E+01
M	14	295.47	291 -	304	2.78E+02	48.07	2.81E+02	2.75E+01
m	15	300.62	291 -	304	7.08E+01	48.73	3.39E+02	3.03E+01
	16	328.05	325 -	331	6.04E+01	47.31	3.61E+02	3.67E+01
	17	338.36	334 -	342	1.67E+02	62.80	5.03E+02	4.70E+01
	18	352.12	348 -	356	4.14E+02	68.89	4.72E+02	4.57E+01
	19	463.88	460 -	468	6.65E+01	43.61	2.41E+02	3.33E+01
	20	511.01	506 -	515	1.95E+02	51.99	2.75E+02	3.61E+01
	21	524.04	520 -	527	2.95E+01	33.88	1.71E+02	2.64E+01
	22	583.48	579 -	589	3.20E+02	53.02	2.06E+02	3.22E+01
	23	609.50	605 -	614	3.58E+02	58.21	2.77E+02	3.63E+01
	24	663.57	651 -	674	6.87E+01	80.52	4.41E+02	6.48E+01
M	25	721.88	718 -	733	2.35E+01	24.43	8.26E+01	1.49E+01
m	26	727.46	718 -	733	7.14E+01	31.82	1.22E+02	1.82E+01
	27	769.85	765 -	774	4.31E+01	39.18	1.94E+02	3.03E+01
	28	795.37	790 -	800	4.36E+01	38.52	1.71E+02	2.97E+01
	29	847.37	845 -	850	2.43E+01	20.22	6.14E+01	1.45E+01
	30	861.73	859 -	866	2.45E+01	29.12	1.27E+02	2.25E+01
	31	911.70	907 -	916	1.80E+02	41.58	1.42E+02	2.61E+01
	32	969.61	966 -	973	1.26E+02	39.60	1.55E+02	2.68E+01
M	33	1120.94	1115 -	1126	8.80E+01	25.98	4.23E+01	1.07E+01
m	34	1124.41	1115 -	1126	1.32E+01	16.09	2.57E+01	8.33E+00
	35	1239.41	1234 -	1245	6.23E+01	37.47	1.45E+02	2.79E+01
	36	1339.55	1336 -	1342	1.16E+01	13.48	2.47E+01	9.56E+00
	37	1362.58	1358 -	1367	2.10E+01	14.97	2.00E+01	9.73E+00
	38	1378.09	1374 -	1381	2.00E+01	14.97	2.40E+01	9.86E+00
	39	1385.46	1382 -	1390	1.52E+01	19.67	5.16E+01	1.48E+01
	40	1408.36	1406 -	1410	9.87E+00	12.68	2.63E+01	9.05E+00
	41	1461.36	1456 -	1467	8.14E+02	62.26	7.56E+01	2.05E+01
	42	1509.99	1504 -	1515	1.50E+01	18.65	3.60E+01	1.39E+01
	43	1610.34	1607 -	1613	9.50E+00	8.75	7.00E+00	5.10E+00
	44	1630.56	1626 -	1634	1.71E+01	11.16	7.81E+00	6.16E+00
	45	1660.79	1657 -	1664	1.00E+01	9.38	8.00E+00	5.70E+00
	46	1730.59	1727 -	1734	1.30E+01	9.80	6.00E+00	5.45E+00
	47	1740.97	1736 -	1744	8.77E+00	8.02	4.45E+00	4.44E+00
	48	1765.00	1759 -	1768	5.50E+01	19.92	2.60E+01	1.09E+01
	49	1849.23	1845 -	1853	1.75E+01	11.34	9.00E+00	6.29E+00
	50	1912.44	1909 -	1916	1.07E+01	8.25	4.69E+00	4.14E+00
	51	1930.27	1927 -	1932	9.64E+00	7.28	2.73E+00	3.13E+00
	52	1937.92	1935 -	1939	6.50E+00	6.96	5.00E+00	3.90E+00
	53	2204.15	2198 -	2208	2.65E+01	13.73	1.10E+01	7.47E+00
	54	2303.17	2299 -	2305	6.50E+00	8.99	9.00E+00	6.08E+00
	55	2311.19	2306 -	2316	1.80E+01	8.49	0.00E+00	0.00E+00
	56	2416.23	2413 -	2418	4.42E+00	5.74	3.17E+00	3.22E+00
	57	2448.76	2443 -	2452	1.55E+01	9.85	5.00E+00	4.86E+00
	58	2615.10	2611 -	2619	1.19E+02	21.82	0.00E+00	0.00E+00
	59	3232.83	3227 -	3234	5.00E+00	4.47	0.00E+00	0.00E+00

Analysis Report for 1510090-13
CP0603S26-27

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 : 11/10/2015 1:52:23PM

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	46.26	43 -	50	46.61	1.74E+02	85.93	1.12E+03	PB-210
2	63.80	60 -	68	64.15	2.48E+02	124.74	2.25E+03	TH-234 TH-230
M 3	74.94	72 -	81	75.28	4.22E+02	93.04	1.30E+03	AM-243
m 4	77.48	72 -	81	77.82	7.04E+02	100.74	1.23E+03	TI-44
M 5	87.80	83 -	97	88.13	2.43E+02	63.91	8.36E+02	SN-126 CD-109 LU-176
m 6	92.69	83 -	97	93.02	2.74E+02	68.47	7.27E+02	GA-67
7	99.34	98 -	102	99.67	6.13E+01	63.26	8.37E+02	.....
8	129.17	126 -	135	129.50	1.31E+02	101.01	1.39E+03	.....
9	186.36	183 -	192	186.67	2.16E+02	92.37	1.08E+03	RA-226
10	209.88	208 -	213	210.17	1.03E+02	56.51	5.58E+02	CM-243 GA-67
M 11	238.75	235 -	246	239.04	9.87E+02	76.91	4.20E+02	PB-212
m 12	241.85	235 -	246	242.14	2.23E+02	80.74	4.54E+02	RA-224
13	269.54	265 -	274	269.81	6.77E+01	71.48	6.95E+02	.....
M 14	295.47	291 -	304	295.74	2.78E+02	48.07	2.81E+02	PB-214
m 15	300.62	291 -	304	300.89	7.08E+01	48.73	3.39E+02	GA-67 PB-212 BI-210M
16	328.05	325 -	331	328.31	6.04E+01	47.31	3.61E+02	LA-140
17	338.36	334 -	342	338.61	1.67E+02	62.80	5.03E+02	AC-228
18	352.12	348 -	356	352.37	4.14E+02	68.89	4.72E+02	PB-214
19	463.88	460 -	468	464.10	6.65E+01	43.61	2.41E+02	SB-125
20	511.01	506 -	515	511.20	1.95E+02	51.99	2.75E+02	.....
21	524.04	520 -	527	524.23	2.95E+01	33.88	1.71E+02	.....
22	583.48	579 -	589	583.65	3.20E+02	53.02	2.06E+02	TL-208
23	609.50	605 -	614	609.66	3.58E+02	58.21	2.77E+02	BI-214
24	663.57	651 -	674	663.71	6.87E+01	80.52	4.41E+02	CE-143

Analysis Report for 1510090-13

CP0603S26-27

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	25	721.88	718 -	733	722.00	2.35E+01	24.43	8.26E+01	SB-124
m	26	727.46	718 -	733	727.58	7.14E+01	31.82	1.22E+02	BI-212
	27	769.85	765 -	774	769.96	4.31E+01	39.18	1.94E+02	.....
	28	795.37	790 -	800	795.47	4.36E+01	38.52	1.71E+02	CS-134
	29	847.37	845 -	850	847.45	2.43E+01	20.22	6.14E+01	CO-56
	30	861.73	859 -	866	861.81	2.45E+01	29.12	1.27E+02	.....
	31	911.70	907 -	916	911.76	1.80E+02	41.58	1.42E+02	LU-172
	32	969.61	966 -	973	969.65	1.26E+02	39.60	1.55E+02	AC-228
M	33	1120.94	1115 -	1126	1120.92	8.80E+01	25.98	4.23E+01	TA-182
									SC-46
									BI-214
m	34	1124.41	1115 -	1126	1124.39	1.32E+01	16.09	2.57E+01	.....
	35	1239.41	1234 -	1245	1239.34	6.23E+01	37.47	1.45E+02	.....
	36	1339.55	1336 -	1342	1339.45	1.16E+01	13.48	2.47E+01	.....
	37	1362.58	1358 -	1367	1362.48	2.10E+01	14.97	2.00E+01	.....
	38	1378.09	1374 -	1381	1377.98	2.00E+01	14.97	2.40E+01	.....
	39	1385.46	1382 -	1390	1385.35	1.52E+01	19.67	5.16E+01	.....
	40	1408.36	1406 -	1410	1408.23	9.87E+00	12.68	2.63E+01	EU-152
	41	1461.36	1456 -	1467	1461.22	8.14E+02	62.26	7.56E+01	K-40
	42	1509.99	1504 -	1515	1509.83	1.50E+01	18.65	3.60E+01	.....
	43	1610.34	1607 -	1613	1610.14	9.50E+00	8.75	7.00E+00	.....
	44	1630.56	1626 -	1634	1630.36	1.71E+01	11.16	7.81E+00	.....
	45	1660.79	1657 -	1664	1660.57	1.00E+01	9.38	8.00E+00	.....
	46	1730.59	1727 -	1734	1730.35	1.30E+01	9.80	6.00E+00	.....
	47	1740.97	1736 -	1744	1740.72	8.77E+00	8.02	4.45E+00	.....
	48	1765.00	1759 -	1768	1764.74	5.50E+01	19.92	2.60E+01	BI-214
	49	1849.23	1845 -	1853	1848.94	1.75E+01	11.34	9.00E+00	.....
	50	1912.44	1909 -	1916	1912.13	1.07E+01	8.25	4.69E+00	.....
	51	1930.27	1927 -	1932	1929.95	9.64E+00	7.28	2.73E+00	.....
	52	1937.92	1935 -	1939	1937.60	6.50E+00	6.96	5.00E+00	.....
	53	2204.15	2198 -	2208	2203.72	2.65E+01	13.73	1.10E+01	BI-214
	54	2303.17	2299 -	2305	2302.70	6.50E+00	8.99	9.00E+00	.....
	55	2311.19	2306 -	2316	2310.72	1.80E+01	8.49	0.00E+00	.....
	56	2416.23	2413 -	2418	2415.73	4.42E+00	5.74	3.17E+00	.....
	57	2448.76	2443 -	2452	2448.25	1.55E+01	9.85	5.00E+00	.....
	58	2615.10	2611 -	2619	2614.52	1.19E+02	21.82	0.00E+00	TL-208
	59	3232.83	3227 -	3234	3232.00	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

Analysis Report for 1510090-13
CP0603S26-27

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/10/2015 1:52:23PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.26	1.74E+02	85.93	1.66E-02	1.78E-03
	2	63.80	2.48E+02	124.74	2.51E-02	1.93E-03
M	3	74.94	4.22E+02	93.04	2.75E-02	2.30E-03
m	4	77.48	7.04E+02	100.74	2.78E-02	2.39E-03
M	5	87.80	2.43E+02	63.91	2.85E-02	2.73E-03
m	6	92.69	2.74E+02	68.47	2.86E-02	2.65E-03
	7	99.34	6.13E+01	63.26	2.85E-02	2.52E-03
	8	129.17	1.31E+02	101.01	2.67E-02	2.09E-03
	9	186.36	2.16E+02	92.37	2.24E-02	2.02E-03
	10	209.88	1.03E+02	56.51	2.08E-02	1.85E-03
M	11	238.75	9.87E+02	76.91	1.92E-02	1.64E-03
m	12	241.85	2.23E+02	80.74	1.91E-02	1.61E-03
	13	269.54	6.77E+01	71.48	1.77E-02	1.41E-03
M	14	295.47	2.78E+02	48.07	1.67E-02	1.31E-03
m	15	300.62	7.08E+01	48.73	1.65E-02	1.30E-03
	16	328.05	6.04E+01	47.31	1.55E-02	1.24E-03
	17	338.36	1.67E+02	62.80	1.52E-02	1.22E-03
	18	352.12	4.14E+02	68.89	1.48E-02	1.19E-03
	19	463.88	6.65E+01	43.61	1.21E-02	1.04E-03
	20	511.01	1.95E+02	51.99	1.12E-02	9.90E-04
	21	524.04	2.95E+01	33.88	1.10E-02	9.77E-04
	22	583.48	3.20E+02	53.02	1.02E-02	9.15E-04
	23	609.50	3.58E+02	58.21	9.82E-03	8.88E-04
	24	663.57	6.87E+01	80.52	9.20E-03	8.32E-04
M	25	721.88	2.35E+01	24.43	8.61E-03	7.80E-04
m	26	727.46	7.14E+01	31.82	8.55E-03	7.75E-04
	27	769.85	4.31E+01	39.18	8.18E-03	7.37E-04
	28	795.37	4.36E+01	38.52	7.97E-03	7.14E-04
	29	847.37	2.43E+01	20.22	7.58E-03	6.68E-04
	30	861.73	2.45E+01	29.12	7.47E-03	6.55E-04
	31	911.70	1.80E+02	41.58	7.14E-03	6.15E-04
	32	969.61	1.26E+02	39.60	6.80E-03	5.85E-04
M	33	1120.94	8.80E+01	25.98	6.06E-03	5.06E-04
m	34	1124.41	1.32E+01	16.09	6.05E-03	5.05E-04
	35	1239.41	6.23E+01	37.47	5.61E-03	4.68E-04
	36	1339.55	1.16E+01	13.48	5.29E-03	4.49E-04
	37	1362.58	2.10E+01	14.97	5.23E-03	4.44E-04
	38	1378.09	2.00E+01	14.97	5.18E-03	4.40E-04
	39	1385.46	1.52E+01	19.67	5.16E-03	4.38E-04
	40	1408.36	9.87E+00	12.68	5.10E-03	4.32E-04
	41	1461.36	8.14E+02	62.26	4.97E-03	4.19E-04
	42	1509.99	1.50E+01	18.65	4.86E-03	4.07E-04
	43	1610.34	9.50E+00	8.75	4.65E-03	3.82E-04
	44	1630.56	1.71E+01	11.16	4.61E-03	3.77E-04
	45	1660.79	1.00E+01	9.38	4.56E-03	3.69E-04

Analysis Report for 1510090-13
 CP0603S26-27

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1730.59	1.30E+01	9.80	4.45E-03	3.52E-04
47	1740.97	8.77E+00	8.02	4.43E-03	3.49E-04
48	1765.00	5.50E+01	19.92	4.40E-03	3.44E-04
49	1849.23	1.75E+01	11.34	4.28E-03	3.26E-04
50	1912.44	1.07E+01	8.25	4.20E-03	3.26E-04
51	1930.27	9.64E+00	7.28	4.18E-03	3.26E-04
52	1937.92	6.50E+00	6.96	4.18E-03	3.26E-04
53	2204.15	2.65E+01	13.73	3.95E-03	3.26E-04
54	2303.17	6.50E+00	8.99	3.89E-03	3.26E-04
55	2311.19	1.80E+01	8.49	3.89E-03	3.26E-04
56	2416.23	4.42E+00	5.74	3.84E-03	3.26E-04
57	2448.76	1.55E+01	9.85	3.83E-03	3.26E-04
58	2615.10	1.19E+02	21.82	3.79E-03	3.26E-04
59	3232.83	5.00E+00	4.47	3.89E-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 : 11/10/2015 1:52:23PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	46.26	1.74E+02	85.93	4.50E+01	8.46E+00	1.29E+02	8.63E+01
2	63.80	2.48E+02	124.74	7.80E+01	1.33E+01	1.70E+02	1.25E+02
M 3	74.94	4.22E+02	93.04	5.09E+00	4.37E+00	4.17E+02	9.31E+01
m 4	77.48	7.04E+02	100.74	9.75E+00	8.28E+00	6.94E+02	1.01E+02
M 5	87.80	2.43E+02	63.91			2.43E+02	6.39E+01
m 6	92.69	2.74E+02	68.47	1.34E+02	9.83E+00	1.40E+02	6.92E+01
7	99.34	6.13E+01	63.26			6.13E+01	6.33E+01
8	129.17	1.31E+02	101.01			1.31E+02	1.01E+02
9	186.36	2.16E+02	92.37	6.41E+01	7.38E+00	1.52E+02	9.27E+01
10	209.88	1.03E+02	56.51			1.03E+02	5.65E+01
M 11	238.75	9.87E+02	76.91	2.34E+01	6.34E+00	9.64E+02	7.72E+01
m 12	241.85	2.23E+02	80.74			2.23E+02	8.07E+01
13	269.54	6.77E+01	71.48			6.77E+01	7.15E+01
M 14	295.47	2.78E+02	48.07	4.17E+00	5.50E+00	2.74E+02	4.84E+01
m 15	300.62	7.08E+01	48.73			7.08E+01	4.87E+01
16	328.05	6.04E+01	47.31			6.04E+01	4.73E+01

Analysis Report for 1510090-13

CP0603S26-27

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
17	338.36	1.67E+02	62.80	2.22E-01	4.54E+00	1.67E+02	6.30E+01
18	352.12	4.14E+02	68.89	8.83E+00	4.91E+00	4.05E+02	6.91E+01
19	463.88	6.65E+01	43.61			6.65E+01	4.36E+01
20	511.01	1.95E+02	51.99	8.12E+01	5.49E+00	1.13E+02	5.23E+01
21	524.04	2.95E+01	33.88			2.95E+01	3.39E+01
22	583.48	3.20E+02	53.02	6.34E+00	3.74E+00	3.14E+02	5.32E+01
23	609.50	3.58E+02	58.21	5.20E+00	3.69E+00	3.53E+02	5.83E+01
24	663.57	6.87E+01	80.52			6.87E+01	8.05E+01
M	25	721.88	2.35E+01	24.43		2.35E+01	2.44E+01
m	26	727.46	7.14E+01	31.82		7.14E+01	3.18E+01
27	769.85	4.31E+01	39.18			4.31E+01	3.92E+01
28	795.37	4.36E+01	38.52			4.36E+01	3.85E+01
29	847.37	2.43E+01	20.22			2.43E+01	2.02E+01
30	861.73	2.45E+01	29.12			2.45E+01	2.91E+01
31	911.70	1.80E+02	41.58	3.28E+00	2.53E+00	1.77E+02	4.17E+01
32	969.61	1.26E+02	39.60			1.26E+02	3.96E+01
M	33	1120.94	8.80E+01	25.98	2.28E+00	2.55E+00	8.57E+01
m	34	1124.41	1.32E+01	16.09		1.32E+01	1.61E+01
35	1239.41	6.23E+01	37.47			6.23E+01	3.75E+01
36	1339.55	1.16E+01	13.48			1.16E+01	1.35E+01
37	1362.58	2.10E+01	14.97			2.10E+01	1.50E+01
38	1378.09	2.00E+01	14.97			2.00E+01	1.50E+01
39	1385.46	1.52E+01	19.67			1.52E+01	1.97E+01
40	1408.36	9.87E+00	12.68			9.87E+00	1.27E+01
41	1461.36	8.14E+02	62.26	6.46E+00	2.33E+00	8.08E+02	6.23E+01
42	1509.99	1.50E+01	18.65			1.50E+01	1.87E+01
43	1610.34	9.50E+00	8.75			9.50E+00	8.75E+00
44	1630.56	1.71E+01	11.16			1.71E+01	1.12E+01
45	1660.79	1.00E+01	9.38			1.00E+01	9.38E+00
46	1730.59	1.30E+01	9.80			1.30E+01	9.80E+00
47	1740.97	8.77E+00	8.02			8.77E+00	8.02E+00
48	1765.00	5.50E+01	19.92			5.50E+01	1.99E+01
49	1849.23	1.75E+01	11.34			1.75E+01	1.13E+01
50	1912.44	1.07E+01	8.25			1.07E+01	8.25E+00
51	1930.27	9.64E+00	7.28			9.64E+00	7.28E+00
52	1937.92	6.50E+00	6.96			6.50E+00	6.96E+00
53	2204.15	2.65E+01	13.73			2.65E+01	1.37E+01
54	2303.17	6.50E+00	8.99			6.50E+00	8.99E+00
55	2311.19	1.80E+01	8.49			1.80E+01	8.49E+00
56	2416.23	4.42E+00	5.74			4.42E+00	5.74E+00
57	2448.76	1.55E+01	9.85			1.55E+01	9.85E+00
58	2615.10	1.19E+02	21.82	3.47E+00	1.48E+00	1.16E+02	2.19E+01
59	3232.83	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

Analysis Report for 1510090-13
CP0603S26-27

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 1:52:23PM
 Ref. Peak Energy : 0.00 Reference Date :
 Peak Ratio : 0.00 Uncertainty : 0.00
 Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.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	46.26	1.74E+02	85.93	4.50E+01	8.46E+00	1.29E+02	8.63E+01
	2	63.80	2.48E+02	124.74	7.80E+01	1.33E+01	1.70E+02	1.25E+02
M	3	74.94	4.22E+02	93.04	5.09E+00	4.37E+00	4.17E+02	9.31E+01
m	4	77.48	7.04E+02	100.74	9.75E+00	8.28E+00	6.94E+02	1.01E+02
M	5	87.80	2.43E+02	63.91			2.43E+02	6.39E+01
m	6	92.69	2.74E+02	68.47	1.34E+02	9.83E+00	1.40E+02	6.92E+01
	7	99.34	6.13E+01	63.26			6.13E+01	6.33E+01
	8	129.17	1.31E+02	101.01			1.31E+02	1.01E+02
	9	186.36	2.16E+02	92.37	6.41E+01	7.38E+00	1.52E+02	9.27E+01
	10	209.88	1.03E+02	56.51			1.03E+02	5.65E+01
M	11	238.75	9.87E+02	76.91	2.34E+01	6.34E+00	9.64E+02	7.72E+01
m	12	241.85	2.23E+02	80.74			2.23E+02	8.07E+01
	13	269.54	6.77E+01	71.48			6.77E+01	7.15E+01
M	14	295.47	2.78E+02	48.07	4.17E+00	5.50E+00	2.74E+02	4.84E+01
m	15	300.62	7.08E+01	48.73			7.08E+01	4.87E+01
	16	328.05	6.04E+01	47.31			6.04E+01	4.73E+01
	17	338.36	1.67E+02	62.80	2.22E-01	4.54E+00	1.67E+02	6.30E+01
	18	352.12	4.14E+02	68.89	8.83E+00	4.91E+00	4.05E+02	6.91E+01
	19	463.88	6.65E+01	43.61			6.65E+01	4.36E+01
	20	511.01	1.95E+02	51.99	8.12E+01	5.49E+00	1.13E+02	5.23E+01
	21	524.04	2.95E+01	33.88			2.95E+01	3.39E+01
	22	583.48	3.20E+02	53.02	6.34E+00	3.74E+00	3.14E+02	5.32E+01
	23	609.50	3.58E+02	58.21	5.20E+00	3.69E+00	3.53E+02	5.83E+01
	24	663.57	6.87E+01	80.52			6.87E+01	8.05E+01
M	25	721.88	2.35E+01	24.43			2.35E+01	2.44E+01
m	26	727.46	7.14E+01	31.82			7.14E+01	3.18E+01
	27	769.85	4.31E+01	39.18			4.31E+01	3.92E+01
	28	795.37	4.36E+01	38.52			4.36E+01	3.85E+01
	29	847.37	2.43E+01	20.22			2.43E+01	2.02E+01
	30	861.73	2.45E+01	29.12			2.45E+01	2.91E+01
	31	911.70	1.80E+02	41.58	3.28E+00	2.53E+00	1.77E+02	4.17E+01
	32	969.61	1.26E+02	39.60			1.26E+02	3.96E+01
M	33	1120.94	8.80E+01	25.98	2.28E+00	2.55E+00	8.57E+01	2.61E+01
m	34	1124.41	1.32E+01	16.09			1.32E+01	1.61E+01
	35	1239.41	6.23E+01	37.47			6.23E+01	3.75E+01
	36	1339.55	1.16E+01	13.48			1.16E+01	1.35E+01
	37	1362.58	2.10E+01	14.97			2.10E+01	1.50E+01
	38	1378.09	2.00E+01	14.97			2.00E+01	1.50E+01
	39	1385.46	1.52E+01	19.67			1.52E+01	1.97E+01
	40	1408.36	9.87E+00	12.68			9.87E+00	1.27E+01
	41	1461.36	8.14E+02	62.26	6.46E+00	2.33E+00	8.08E+02	6.23E+01

Analysis Report for 1510090-13

CP0603S26-27

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1509.99	1.50E+01	18.65			1.50E+01	1.87E+01
43	1610.34	9.50E+00	8.75			9.50E+00	8.75E+00
44	1630.56	1.71E+01	11.16			1.71E+01	1.12E+01
45	1660.79	1.00E+01	9.38			1.00E+01	9.38E+00
46	1730.59	1.30E+01	9.80			1.30E+01	9.80E+00
47	1740.97	8.77E+00	8.02			8.77E+00	8.02E+00
48	1765.00	5.50E+01	19.92			5.50E+01	1.99E+01
49	1849.23	1.75E+01	11.34			1.75E+01	1.13E+01
50	1912.44	1.07E+01	8.25			1.07E+01	8.25E+00
51	1930.27	9.64E+00	7.28			9.64E+00	7.28E+00
52	1937.92	6.50E+00	6.96			6.50E+00	6.96E+00
53	2204.15	2.65E+01	13.73			2.65E+01	1.37E+01
54	2303.17	6.50E+00	8.99			6.50E+00	8.99E+00
55	2311.19	1.80E+01	8.49			1.80E+01	8.49E+00
56	2416.23	4.42E+00	5.74			4.42E+00	5.74E+00
57	2448.76	1.55E+01	9.85			1.55E+01	9.85E+00
58	2615.10	1.19E+02	21.82	3.47E+00	1.48E+00	1.16E+02	2.19E+01
59	3232.83	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

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.952	1460.81 *	10.67	2.26E+01	2.63E+00
GA-67	0.583	93.31 *	35.70	1.89E+02	8.26E+02
		208.95 *	2.24	3.04E+03	1.29E+04
		300.22 *	16.00	3.70E+02	1.62E+03
CD-109	0.991	88.03 *	3.72	3.57E+00	1.02E+00
SN-126	0.992	87.57 *	37.00	3.42E-01	9.58E-02
TL-208	0.866	583.14 *	30.22	1.52E+00	2.91E-01
		860.37 *	4.48		
		2614.66 *	35.85	1.26E+00	2.62E-01
PB-210	0.991	46.50 *	4.25	2.71E+00	1.84E+00
BI-212	0.755	727.17 *	11.80	1.05E+00	4.78E-01
		1620.62 *	2.75		
PB-212	0.995	238.63 *	44.60	1.67E+00	1.95E-01

: 00731

Analysis Report for 1510090-13
CP0603S26-27

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.995	300.09 *	3.41	1.87E+00	1.30E+00
BI-214	0.976	609.31 *	46.30	1.15E+00	2.17E-01
		1120.29 *	15.10	1.39E+00	4.39E-01
		1764.49 *	15.80	1.18E+00	4.36E-01
		2204.22 *	4.98	2.00E+00	1.05E+00
PB-214	0.992	295.21 *	19.19	1.27E+00	2.46E-01
		351.92 *	37.19	1.10E+00	2.07E-01
RA-224	0.885	240.98 *	3.95	4.40E+00	1.64E+00
RA-226	0.996	186.21 *	3.28	3.07E+00	5.92E+00
AC-228	0.957	338.32 *	11.40	1.43E+00	5.52E-01
		911.07 *	27.70	1.33E+00	3.33E-01
		969.11 *	16.60	1.66E+00	5.40E-01
TH-234	0.959	63.29 *	3.80	2.65E+00	1.97E+00
AM-243	0.989	74.67 *	66.00	3.41E-01	8.14E-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 : 11/10/2015 1:52:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 4	77.48	1.92805E-01	7.28	Tol.	TI-44
7	99.34	1.70156E-02	51.63	D-Esc	
8	129.17	3.62900E-02	38.66		
13	269.54	1.88186E-02	52.76		
16	328.05	1.67641E-02	39.19	Tol.	LA-140
19	463.88	1.84596E-02	32.82		
20	511.01	3.15148E-02	23.04	Sum	
21	524.04	8.18599E-03	57.49	Sum	
24	663.57	1.90725E-02	58.64	Tol.	CE-143
M 25	721.88	6.53405E-03	51.94	Tol.	SB-124
27	769.85	1.19812E-02	45.42	Sum	
28	795.37	1.21167E-02	44.16	Sum	
29	847.37	6.74747E-03	41.63	Sum	
30	861.73	6.80240E-03	59.46		
m 34	1124.41	3.65588E-03	61.14		

Analysis Report for 1510090-13
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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
35	1239.41	1.73148E-02	30.06		
36	1339.55	3.23495E-03	57.88		
37	1362.58	5.83333E-03	35.63	Sum	
38	1378.09	5.55556E-03	37.42		
39	1385.46	4.21748E-03	64.76		
40	1408.36	2.74155E-03	64.23	Tol.	EU-152
42	1509.99	4.16667E-03	62.18		
43	1610.34	2.63889E-03	46.03		
44	1630.56	4.74868E-03	32.63		
45	1660.79	2.77778E-03	46.90		
46	1730.59	3.61111E-03	37.68	Sum	
47	1740.97	2.43687E-03	45.68		
49	1849.23	4.86111E-03	32.39	Sum	
50	1912.44	2.95940E-03	38.70		
51	1930.27	2.67677E-03	37.77		
52	1937.92	1.80556E-03	53.57		
54	2303.17	1.80556E-03	69.12		
55	2311.19	5.00000E-03	23.57		
56	2416.23	1.22685E-03	65.03		
57	2448.76	4.30556E-03	31.77		
59	3232.83	1.38889E-03	44.72		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.95	1460.81 *	10.67	2.26E+01	2.63E+00
GA-67	0.58	93.31 *	35.70	1.89E+02	8.26E+02
		208.95 *	2.24	3.04E+03	1.29E+04
		300.22 *	16.00	3.70E+02	1.62E+03
CD-109	0.99	88.03 *	3.72	3.57E+00	1.02E+00
SN-126	0.99	87.57 *	37.00	3.42E-01	9.58E-02
TL-208	0.86	583.14 *	30.22	1.52E+00	2.91E-01

Analysis Report for 1510090-13
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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.86	860.37	4.48		
		2614.66 *	35.85	1.26E+00	2.62E-01
PB-210	0.99	46.50 *	4.25	2.71E+00	1.84E+00
BI-212	0.75	727.17 *	11.80	1.05E+00	4.78E-01
		1620.62	2.75		
PB-212	0.99	238.63 *	44.60	1.67E+00	1.95E-01
		300.09 *	3.41	1.87E+00	1.30E+00
BI-214	0.97	609.31 *	46.30	1.15E+00	2.17E-01
		1120.29 *	15.10	1.39E+00	4.39E-01
		1764.49 *	15.80	1.18E+00	4.36E-01
		2204.22 *	4.98	2.00E+00	1.05E+00
PB-214	0.99	295.21 *	19.19	1.27E+00	2.46E-01
		351.92 *	37.19	1.10E+00	2.07E-01
RA-224	0.88	240.98 *	3.95	4.40E+00	1.64E+00
RA-226	0.99	186.21 *	3.28	3.07E+00	5.92E+00
AC-228	0.95	338.32 *	11.40	1.43E+00	5.52E-01
		911.07 *	27.70	1.33E+00	3.33E-01
		969.11 *	16.60	1.66E+00	5.40E-01
TH-234	0.95	63.29 *	3.80	2.65E+00	1.97E+00
AM-243	0.98	74.67 *	66.00	3.41E-01	8.14E-02

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.952	2.26E+01	2.63E+00	
GA-67	0.583	1.79E+02	7.57E+02	
? CD-109	0.991	3.57E+00	1.02E+00	
? SN-126	0.992	3.42E-01	9.58E-02	
TL-208	0.866	1.38E+00	1.95E-01	
PB-210	0.991	2.71E+00	1.84E+00	
BI-212	0.755	1.05E+00	4.78E-01	

Analysis Report for 1510090-13
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-212	0.995	1.65E+00	1.93E-01	
BI-214	0.976	1.22E+00	1.75E-01	
PB-214	0.992	1.17E+00	1.58E-01	
RA-224	0.885	4.40E+00	1.64E+00	
RA-226	0.996	3.07E+00	5.92E+00	
AC-228	0.957	1.42E+00	2.52E-01	
TH-234	0.959	2.65E+00	1.97E+00	
AM-243	0.989	3.41E-01	8.14E-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 1510090-13
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UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 1:52:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 4	77.48	1.92805E-01	7.28	Tol.	TI-44
7	99.34	1.70156E-02	51.63	D-Esc	
8	129.17	3.62900E-02	38.66		
13	269.54	1.88186E-02	52.76		
16	328.05	1.67641E-02	39.19	Tol.	LA-140
19	463.88	1.84596E-02	32.82		
20	511.01	3.15148E-02	23.04	Sum	
21	524.04	8.18599E-03	57.49	Sum	
24	663.57	1.90725E-02	58.64	Tol.	CE-143
M 25	721.88	6.53405E-03	51.94	Tol.	SB-124
27	769.85	1.19812E-02	45.42	Sum	
28	795.37	1.21167E-02	44.16	Sum	
29	847.37	6.74747E-03	41.63	Sum	
30	861.73	6.80240E-03	59.46		
m 34	1124.41	3.65588E-03	61.14		
35	1239.41	1.73148E-02	30.06		
36	1339.55	3.23495E-03	57.88		
37	1362.58	5.83333E-03	35.63	Sum	
38	1378.09	5.55556E-03	37.42		
39	1385.46	4.21748E-03	64.76		
40	1408.36	2.74155E-03	64.23	Tol.	EU-152
42	1509.99	4.16667E-03	62.18		
43	1610.34	2.63889E-03	46.03		
44	1630.56	4.74868E-03	32.63		
45	1660.79	2.77778E-03	46.90		
46	1730.59	3.61111E-03	37.68	Sum	
47	1740.97	2.43687E-03	45.68		
49	1849.23	4.86111E-03	32.39	Sum	
50	1912.44	2.95940E-03	38.70		
51	1930.27	2.67677E-03	37.77		
52	1937.92	1.80556E-03	53.57		
54	2303.17	1.80556E-03	69.12		
55	2311.19	5.00000E-03	23.57		
56	2416.23	1.22685E-03	65.03		
57	2448.76	4.30556E-03	31.77		

Analysis Report for 1510090-13
CP0603S26-27

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
59	3232.83	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 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	2.68E-01	9.37E-01	9.37E-01
+	NA-22	1274.54	99.94	-5.77E-03	9.58E-02	9.58E-02
+	NA-24	1368.53	99.99	-2.03E+13	1.44E+14	1.63E+14
		2754.09	99.86	2.49E+13		1.44E+14
+	AL-26	1808.65	99.76	-3.43E-03	4.84E-02	4.84E-02
+	K-40	1460.81	* 10.67	2.26E+01	1.25E+00	1.25E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.26E-02	7.61E-02	7.61E-02
		78.34	96.00	2.63E-01		9.46E-02
+	SC-46	889.25	99.98	-7.33E-02	9.46E-02	9.46E-02
		1120.51	99.99	2.85E-01		1.79E-01
+	V-48	983.52	99.98	5.90E-02	2.96E-01	2.96E-01
		1312.10	97.50	-4.00E-02		3.13E-01
+	CR-51	320.08	9.83	5.05E-02	1.20E+00	1.20E+00
+	MN-54	834.83	99.97	2.56E-04	8.37E-02	8.37E-02
+	CO-56	846.75	99.96	1.40E-02	1.03E-01	1.03E-01
		1037.75	14.03	-2.78E-01		7.39E-01
		1238.25	67.00	2.11E-01		2.49E-01
		1771.40	15.51	1.47E-01		5.25E-01
		2598.48	16.90	-1.13E-01		2.26E-01
+	CO-57	122.06	85.51	4.10E-02	6.36E-02	6.36E-02
		136.48	10.60	2.51E-01		5.42E-01
+	CO-58	810.76	99.40	-3.82E-02	7.67E-02	7.67E-02
+	FE-59	1099.22	56.50	1.22E-01	2.50E-01	2.50E-01
		1291.56	43.20	-1.33E-01		3.31E-01
+	CO-60	1173.22	100.00	-1.22E-02	7.72E-02	8.88E-02
		1332.49	100.00	3.13E-02		7.72E-02
+	ZN-65	1115.52	50.75	2.34E-03	1.77E-01	1.77E-01

Analysis Report for 1510090-13
CP0603S26-27

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GA-67	93.31	*	35.70	1.89E+02	3.51E+02	3.51E+02
		208.95	*	2.24	3.04E+03		2.64E+03
		300.22	*	16.00	3.70E+02		6.78E+02
+	SE-75	121.11		16.70	-2.27E-01	1.04E-01	3.50E-01
		136.00		59.20	-1.77E-02		1.04E-01
		264.65		59.80	-1.54E-02		1.05E-01
		279.53		25.20	1.83E-01		2.86E-01
		400.65		11.40	1.45E-01		6.00E-01
+	RB-82	776.52		13.00	-3.40E-01	1.31E+00	1.31E+00
+	RB-83	520.41		46.00	2.67E-02	1.83E-01	1.83E-01
		529.64		30.30	9.36E-02		2.80E-01
		552.65		16.40	-1.24E-01		4.85E-01
+	KR-85	513.99		0.43	-3.50E+00	2.29E+01	2.29E+01
+	SR-85	513.99		99.27	-2.15E-02	1.41E-01	1.41E-01
+	Y-88	898.02		93.40	-5.98E-02	7.14E-02	9.73E-02
		1836.01		99.38	-5.00E-03		7.14E-02
+	NB-93M	16.57		9.43	-9.08E+01	7.94E+01	7.94E+01
+	NB-94	702.63		100.00	1.07E-02	7.82E-02	7.95E-02
		871.10		100.00	-3.17E-03		7.82E-02
+	NB-95	765.79		99.81	1.98E-02	1.64E-01	1.64E-01
+	NB-95M	235.69		25.00	-1.09E+03	1.40E+02	1.40E+02
+	ZR-95	724.18		43.70	-1.19E-01	1.92E-01	2.98E-01
		756.72		55.30	-2.25E-02		1.92E-01
+	MO-99	181.06		6.20	-1.95E+02	1.79E+03	2.73E+03
		739.58		12.80	-8.82E+02		1.79E+03
		778.00		4.50	-1.93E+03		5.35E+03
+	RU-103	497.08		89.00	-1.23E-02	1.25E-01	1.25E-01
+	RU-106	621.84		9.80	-8.58E-02	7.54E-01	7.54E-01
+	AG-108M	433.93		89.90	-5.13E-03	7.18E-02	7.18E-02
		614.37		90.40	2.27E-02		8.13E-02
		722.95		90.50	-1.29E-01		9.22E-02
+	CD-109	88.03	*	3.72	3.57E+00	3.78E+00	3.78E+00
+	AG-110M	657.75		93.14	6.40E-02	8.91E-02	8.91E-02
		677.61		10.53	2.70E-02		6.18E-01
		706.67		16.46	1.11E-01		4.96E-01
		763.93		21.98	4.89E-02		3.91E-01
		884.67		71.63	-3.12E-02		1.13E-01
		1384.27		23.94	-6.22E-02		3.75E-01
+	CD-113M	263.70		0.02	-2.21E+01	2.28E+02	2.28E+02
+	SN-113	255.12		1.93	-7.27E-01	1.02E-01	3.39E+00
		391.69		64.90	4.82E-02		1.02E-01
+	TE123M	159.00		84.10	3.20E-02	7.48E-02	7.48E-02
+	SB-124	602.71		97.87	-4.79E-02	1.07E-01	1.07E-01
		645.85		7.26	1.25E-01		1.45E+00
		722.78		11.10	-1.52E+00		1.09E+00
		1691.02		49.00	1.46E-02		1.28E-01
+	I-125	35.49		6.49	-2.74E-01	3.40E+00	3.40E+00
+	SB-125	176.33		6.89	2.41E-01	2.19E-01	7.62E-01

Analysis Report for 1510090-13
CP0603S26-27

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	427.89	29.33	-7.23E-03	2.19E-01	2.19E-01
		463.38	10.35	8.46E-01		7.55E-01
		600.56	17.80	-2.55E-01		3.85E-01
		635.90	11.32	-3.27E-01		5.67E-01
+	SB-126	414.70	83.30	-4.14E-02	4.37E-01	4.58E-01
		666.33	99.60	-8.72E-03		4.37E-01
		695.00	99.60	-1.11E-01		4.55E-01
		720.50	53.80	2.11E-01		8.66E-01
+	SN-126	87.57	* 37.00	3.42E-01	3.62E-01	3.62E-01
+	SB-127	473.00	25.00	3.50E+01	6.04E+01	8.12E+01
		685.20	35.70	3.24E+01		6.04E+01
		783.80	14.70	9.73E+01		1.82E+02
+	I-129	29.78	57.00	9.33E-02	5.16E-01	5.16E-01
		33.60	13.20	2.81E-01		1.40E+00
		39.58	7.52	5.21E-01		1.52E+00
+	I-131	284.30	6.05	-1.51E+00	9.55E-01	1.35E+01
		364.48	81.20	-5.41E-02		9.55E-01
		636.97	7.26	-1.22E+01		1.37E+01
		722.89	1.80	-1.04E+02		7.41E+01
+	TE-132	49.72	13.10	-2.15E+02	5.72E+01	5.33E+02
		228.16	88.00	-3.08E+01		5.72E+01
+	BA-133	81.00	33.00	-1.33E+00	9.19E-02	1.91E-01
		302.84	17.80	2.49E-02		3.18E-01
		356.01	60.00	1.19E-02		9.19E-02
+	I-133	529.87	86.30	3.72E+09	1.11E+10	1.11E+10
+	XE-133	81.00	38.00	-8.05E+01	1.16E+01	1.16E+01
+	CS-134	563.23	8.38	-1.39E-02	7.99E-02	8.06E-01
		569.32	15.43	-1.49E-01		4.60E-01
		604.70	97.60	-2.38E-02		7.99E-02
		795.84	85.40	9.45E-02		1.07E-01
		801.93	8.73	-6.93E-02		8.23E-01
+	CS-135	268.24	16.00	3.85E-01	3.94E-01	3.94E-01
+	@ 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	1.51E+00	4.03E-01	3.73E+00
		163.89	4.61	-4.48E-01		6.14E+00
		176.55	13.56	6.52E-01		2.06E+00
		273.65	12.66	-4.92E-01		2.33E+00
		340.57	48.50	9.56E-01		8.37E-01
		818.50	99.70	3.36E-01		4.03E-01
		1048.07	79.60	1.46E-01		6.00E-01
		1235.34	19.70	3.40E-01		2.95E+00
+	CS-137	661.65	85.12	-5.12E-02	8.20E-02	8.20E-02
+	LA-138	788.74	34.00	5.10E-02	9.27E-02	2.36E-01
		1435.80	66.00	-3.13E-02		9.27E-02
+	CE-139	165.85	80.35	1.64E-02	7.53E-02	7.53E-02
+	BA-140	162.64	6.70	2.57E+00	1.48E+00	4.58E+00
		304.84	4.50	3.23E-01		6.48E+00

Analysis Report for 1510090-13
CP0603S26-27

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
BA-140	423.70	3.20	4.57E-01	1.48E+00	1.04E+01
	437.55	2.00	-5.72E+00		1.84E+01
	537.32	25.00	-2.45E-01		1.48E+00
+ LA-140	328.77	20.50	7.76E-01	4.04E-01	1.74E+00
	487.03	45.50	1.04E-01		8.16E-01
	815.85	23.50	-1.21E-01		1.58E+00
	1596.49	95.49	0.00E+00		4.04E-01
+ CE-141	145.44	48.40	7.03E-02	2.21E-01	2.21E-01
+ CE-143	57.36	11.80	-2.58E+06	2.20E+06	6.44E+06
	293.26	42.00	5.42E+06		2.20E+06
	664.55	5.20	9.57E+04		1.49E+07
+ CE-144	133.54	10.80	-9.80E-03	5.26E-01	5.26E-01
+ PM-144	476.78	42.00	-4.17E-03	7.95E-02	1.60E-01
	618.01	98.60	3.13E-02		7.95E-02
	696.49	99.49	-4.87E-03		8.17E-02
+ PM-145	36.85	21.70	-6.63E-01	3.33E-01	6.12E-01
	37.36	39.70	4.73E-02		3.33E-01
	42.30	15.10	2.92E-02		6.52E-01
	72.40	2.31	-1.71E+00		3.55E+00
+ PM-146	453.90	39.94	-2.42E-02	1.57E-01	1.57E-01
	735.90	14.01	1.02E-01		5.16E-01
	747.13	13.10	-5.98E-02		5.62E-01
+ ND-147	91.11	28.90	-4.39E+00	1.89E+00	1.89E+00
	531.02	13.10	1.74E+00		3.96E+00
+ PM-149	285.90	3.10	-2.71E+04	3.84E+04	3.84E+04
+ EU-152	121.78	20.50	1.58E-01	2.45E-01	2.45E-01
	244.69	5.40	-5.68E-01		1.10E+00
	344.27	19.13	-3.01E-02		2.90E-01
	778.89	9.20	-4.21E-02		7.93E-01
	964.01	10.40	3.30E-01		1.02E+00
	1085.78	7.22	1.91E-01		1.23E+00
	1112.02	9.60	2.08E-01		8.09E-01
	1407.95	14.94	1.47E-01		5.68E-01
	97.43	31.30	-1.47E-01		1.90E-01	1.90E-01
+ GD-153	103.18	22.20	8.69E-02	1.23E-01	2.54E-01
	123.07	40.50	1.91E-02		1.23E-01
+ EU-154	723.30	19.70	-5.96E-01	2.29E-01	4.27E-01
	873.19	11.50	1.07E-01		6.76E-01
	996.32	10.30	-1.68E-01		6.93E-01
	1004.76	17.90	-1.44E-01		4.50E-01
	1274.45	35.50	-1.60E-02		2.65E-01
	86.50	30.90	-7.20E-02		2.29E-01	2.29E-01
+ EU-155	105.30	20.70	-1.82E-03	2.32E+00	2.48E-01
	811.77	10.40	-1.38E+00		2.32E+00
+ EU-156	1153.47	7.20	1.86E+00	9.54E-02	5.98E+00
	1230.71	8.90	2.07E+00		4.85E+00
	184.41	72.60	1.41E-01		9.54E-02
	280.45	29.60	-3.75E-02		1.86E-01
+ HO-166M	410.94	11.10	-5.24E-03		5.85E-01

Analysis Report for 1510090-13
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HO-166M	711.69	54.10	1.16E-02	9.54E-02	1.27E-01
+	TM-171	66.72	0.14	-9.95E+01	5.34E+01	5.34E+01
+	HF-172	81.75	4.52	-2.49E+00	4.74E-01	1.42E+00
		125.81	11.30	5.76E-02		4.74E-01
+	LU-172	181.53	20.60	2.32E-02	3.31E+00	6.93E+00
		810.06	16.63	1.18E+00		1.00E+01
		912.12	15.25	6.84E+01		2.76E+01
		1093.66	62.50	-1.84E+00		3.31E+00
+	LU-173	100.72	5.24	9.75E-01	3.00E-01	1.10E+00
		272.11	21.20	1.42E-01		3.00E-01
+	HF-175	343.40	84.00	-2.12E-02	8.85E-02	8.85E-02
+	LU-176	88.34	13.30	1.12E+00	5.59E-02	5.46E-01
		201.83	86.00	4.32E-03		6.43E-02
		306.78	94.00	2.69E-04		5.59E-02
+	TA-182	67.75	41.20	-3.51E-02	2.12E-01	2.12E-01
		1121.30	34.90	8.63E-01		4.84E-01
		1189.05	16.23	-8.49E-02		7.02E-01
		1221.41	26.98	4.07E-01		5.10E-01
		1231.02	11.44	4.52E-01		1.06E+00
+	IR-192	308.46	29.68	1.17E-01	1.73E-01	2.48E-01
		468.07	48.10	1.72E-02		1.73E-01
+	HG-203	279.19	77.30	7.08E-02	1.24E-01	1.24E-01
+	BI-207	569.67	97.72	9.60E-03	7.21E-02	7.21E-02
		1063.62	74.90	-9.56E-03		1.08E-01
+	TL-208	583.14	* 30.22	1.52E+00	1.01E-01	3.28E-01
		860.37	4.48	4.98E-02		1.87E+00
		2614.66	* 35.85	1.26E+00		1.01E-01
+	BI-210M	262.00	45.00	-1.65E-02	1.18E-01	1.18E-01
		300.00	23.00	-4.56E-01		2.63E-01
+	PB-210	46.50	* 4.25	2.71E+00	2.94E+00	2.94E+00
+	PB-211	404.84	2.90	6.42E-01	1.97E+00	1.97E+00
		831.96	2.90	-1.67E+00		2.41E+00
+	BI-212	727.17	* 11.80	1.05E+00	1.21E+00	1.21E+00
		1620.62	2.75	2.91E-01		2.27E+00
+	PB-212	238.63	* 44.60	1.67E+00	2.43E-01	2.43E-01
		300.09	* 3.41	1.87E+00		3.43E+00
+	BI-214	609.31	* 46.30	1.15E+00	2.48E-01	2.48E-01
		1120.29	* 15.10	1.39E+00		6.59E-01
		1764.49	* 15.80	1.18E+00		5.26E-01
		2204.22	* 4.98	2.00E+00		1.33E+00
+	PB-214	295.21	* 19.19	1.27E+00	2.57E-01	5.99E-01
		351.92	* 37.19	1.10E+00		2.57E-01
+	RN-219	401.80	6.50	3.32E-01	8.91E-01	8.91E-01
+	RA-223	323.87	3.88	-2.07E-02	1.44E+00	1.44E+00
+	RA-224	240.98	* 3.95	4.40E+00	2.75E+00	2.75E+00
+	RA-225	40.00	31.00	5.55E-01	1.62E+00	1.62E+00
+	RA-226	186.21	* 3.28	3.07E+00	3.03E+00	3.03E+00
+	TH-227	50.10	8.40	-3.54E-01	6.35E-01	8.80E-01

Analysis Report for 1510090-13
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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-227	236.00		11.50	-4.96E+00	6.35E-01	6.35E-01
		256.20		6.30	-1.37E-02		8.82E-01
+	AC-228	338.32	*	11.40	1.43E+00	4.16E-01	8.33E-01
		911.07	*	27.70	1.33E+00		4.16E-01
		969.11	*	16.60	1.66E+00		7.41E-01
+	TH-230	48.44		16.90	3.09E-01	5.15E-01	5.15E-01
		62.85		4.60	1.54E+00		1.77E+00
		67.67		0.37	-3.22E+00		1.94E+01
+	PA-231	283.67		1.60	9.59E-01	2.44E+00	3.29E+00
		302.67		2.30	1.91E-01		2.44E+00
+	TH-231	25.64		14.70	2.65E+00	1.03E+00	4.62E+00
		84.21		6.40	-2.17E+00		1.03E+00
+	PA-233	311.98		38.60	9.50E-02	3.17E-01	3.17E-01
+	PA-234	131.20		20.40	1.22E-01	2.70E-01	2.70E-01
		733.99		8.80	1.14E-01		8.10E-01
		946.00		12.00	2.38E-01		6.41E-01
+	PA-234M	1001.03		0.92	2.03E-02	8.98E+00	8.98E+00
+	TH-234	63.29	*	3.80	2.65E+00	3.19E+00	3.19E+00
+	U-235	143.76		10.50	2.50E-01	5.07E-01	5.07E-01
		163.35		4.70	-8.07E-02		1.11E+00
		205.31		4.70	4.36E-01		1.19E+00
+	NP-237	86.50		12.60	-1.75E-01	5.54E-01	5.54E-01
+	NP-239	106.10		22.70	-2.11E+01	2.88E+03	2.88E+03
		228.18		10.70	-3.49E+03		6.48E+03
		277.60		14.10	1.74E+03		5.37E+03
+	AM-241	59.54		35.90	-3.35E-02	1.95E-01	1.95E-01
+	AM-243	74.67	*	66.00	3.41E-01	1.69E-01	1.69E-01
+	CM-243	209.75		3.29	2.12E+00	4.21E-01	1.91E+00
		228.14		10.60	-2.74E-01		5.10E-01
		277.60		14.00	1.37E-01		4.21E-01

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

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Analysis Report for 1510090-13
CP0603S26-27

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	9.37E-01	9.37E-01	2.68E-01	4.44E-01
NA-22	1274.54	99.94	9.58E-02	9.58E-02	-5.77E-03	4.42E-02
NA-24	1368.53	99.99	1.63E+14	1.44E+14	-2.03E+13	7.00E+13
	2754.09	99.86	1.44E+14		2.49E+13	5.57E+13
AL-26	1808.65	99.76	4.84E-02	4.84E-02	-3.43E-03	1.96E-02
+ K-40	1460.81	*	10.67	1.25E+00	2.26E+01	5.87E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	7.61E-02	7.61E-02	-1.26E-02	3.72E-02
	78.34	96.00	9.46E-02		2.63E-01	4.66E-02
SC-46	889.25	99.98	9.46E-02	9.46E-02	-7.33E-02	4.37E-02
	1120.51	99.99	1.79E-01		2.85E-01	8.53E-02
V-48	983.52	99.98	2.96E-01	2.96E-01	5.90E-02	1.36E-01
	1312.10	97.50	3.13E-01		-4.00E-02	1.41E-01
CR-51	320.08	9.83	1.20E+00	1.20E+00	5.05E-02	5.70E-01
MN-54	834.83	99.97	8.37E-02	8.37E-02	2.56E-04	3.90E-02
CO-56	846.75	99.96	1.03E-01	1.03E-01	1.40E-02	4.80E-02
	1037.75	14.03	7.39E-01		-2.78E-01	3.40E-01
	1238.25	67.00	2.49E-01		2.11E-01	1.18E-01
	1771.40	15.51	5.25E-01		1.47E-01	2.23E-01
	2598.48	16.90	2.26E-01		-1.13E-01	7.14E-02
CO-57	122.06	85.51	6.36E-02	6.36E-02	4.10E-02	3.09E-02
	136.48	10.60	5.42E-01		2.51E-01	2.63E-01
CO-58	810.76	99.40	7.67E-02	7.67E-02	-3.82E-02	3.48E-02
FE-59	1099.22	56.50	2.50E-01	2.50E-01	1.22E-01	1.16E-01
	1291.56	43.20	3.31E-01		-1.33E-01	1.51E-01
CO-60	1173.22	100.00	8.88E-02	7.72E-02	-1.22E-02	4.09E-02
	1332.49	100.00	7.72E-02		3.13E-02	3.48E-02
ZN-65	1115.52	50.75	1.77E-01	1.77E-01	2.34E-03	8.12E-02
+ GA-67	93.31	*	35.70	3.51E+02	1.89E+02	1.73E+02
	208.95	*	2.24	2.64E+03	3.04E+03	1.28E+03
	300.22	*	16.00	6.78E+02	3.70E+02	3.32E+02
SE-75	121.11	16.70	3.50E-01	1.04E-01	-2.27E-01	1.70E-01
	136.00	59.20	1.04E-01		-1.77E-02	5.06E-02
	264.65	59.80	1.05E-01		-1.54E-02	5.03E-02
	279.53	25.20	2.86E-01		1.83E-01	1.37E-01
	400.65	11.40	6.00E-01		1.45E-01	2.84E-01
RB-82	776.52	13.00	1.31E+00	1.31E+00	-3.40E-01	6.11E-01
RB-83	520.41	46.00	1.83E-01	1.83E-01	2.67E-02	8.64E-02
	529.64	30.30	2.80E-01		9.36E-02	1.32E-01
	552.65	16.40	4.85E-01		-1.24E-01	2.27E-01
KR-85	513.99	0.43	2.29E+01	2.29E+01	-3.50E+00	1.11E+01
SR-85	513.99	99.27	1.41E-01	1.41E-01	-2.15E-02	6.78E-02
Y-88	898.02	93.40	9.73E-02	7.14E-02	-5.98E-02	4.50E-02
	1836.01	99.38	7.14E-02		-5.00E-03	2.99E-02
NB-93M	16.57	9.43	7.94E+01	7.94E+01	-9.08E+01	3.70E+01

Analysis Report for 1510090-13
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-94	702.63	100.00	7.95E-02	7.82E-02	1.07E-02	3.75E-02
	871.10	100.00	7.82E-02		-3.17E-03	3.64E-02
NB-95	765.79	99.81	1.64E-01	1.64E-01	1.98E-02	7.71E-02
NB-95M	235.69	25.00	1.40E+02	1.40E+02	-1.09E+03	6.80E+01
ZR-95	724.18	43.70	2.98E-01	1.92E-01	-1.19E-01	1.42E-01
	756.72	55.30	1.92E-01		-2.25E-02	8.99E-02
MO-99	181.06	6.20	2.73E+03	1.79E+03	-1.95E+02	1.32E+03
	739.58	12.80	1.79E+03		-8.82E+02	8.36E+02
	778.00	4.50	5.35E+03		-1.93E+03	2.50E+03
RU-103	497.08	89.00	1.25E-01	1.25E-01	-1.23E-02	5.93E-02
RU-106	621.84	9.80	7.54E-01	7.54E-01	-8.58E-02	3.55E-01
AG-108M	433.93	89.90	7.18E-02	7.18E-02	-5.13E-03	3.41E-02
	614.37	90.40	8.13E-02		2.27E-02	3.84E-02
	722.95	90.50	9.22E-02		-1.29E-01	4.35E-02
+ CD-109	88.03	* 3.72	3.78E+00	3.78E+00	3.57E+00	1.87E+00
AG-110M	657.75	93.14	8.91E-02	8.91E-02	6.40E-02	4.20E-02
	677.61	10.53	6.18E-01		2.70E-02	2.86E-01
	706.67	16.46	4.96E-01		1.11E-01	2.33E-01
	763.93	21.98	3.91E-01		4.89E-02	1.83E-01
	884.67	71.63	1.13E-01		-3.12E-02	5.24E-02
	1384.27	23.94	3.75E-01		-6.22E-02	1.70E-01
CD-113M	263.70	0.02	2.28E+02	2.28E+02	-2.21E+01	1.09E+02
SN-113	255.12	1.93	3.39E+00	1.02E-01	-7.27E-01	1.63E+00
	391.69	64.90	1.02E-01		4.82E-02	4.81E-02
TE123M	159.00	84.10	7.48E-02	7.48E-02	3.20E-02	3.62E-02
SB-124	602.71	97.87	1.07E-01	1.07E-01	-4.79E-02	5.03E-02
	645.85	7.26	1.45E+00		1.25E-01	6.84E-01
	722.78	11.10	1.09E+00		-1.52E+00	5.13E-01
	1691.02	49.00	1.28E-01		1.46E-02	5.06E-02
	I-125	35.49	6.49	3.40E+00	3.40E+00	-2.74E-01	1.65E+00
SB-125	176.33	6.89	7.62E-01	2.19E-01	2.41E-01	3.68E-01
	427.89	29.33	2.19E-01		-7.23E-03	1.04E-01
	463.38	10.35	7.55E-01		8.46E-01	3.61E-01
	600.56	17.80	3.85E-01		-2.55E-01	1.81E-01
	635.90	11.32	5.67E-01		-3.27E-01	2.65E-01
SB-126	414.70	83.30	4.58E-01	4.37E-01	-4.14E-02	2.18E-01
	666.33	99.60	4.37E-01		-8.72E-03	2.05E-01
	695.00	99.60	4.55E-01		-1.11E-01	2.14E-01
	720.50	53.80	8.66E-01		2.11E-01	4.07E-01
+ SN-126	87.57	* 37.00	3.62E-01	3.62E-01	3.42E-01	1.79E-01
SB-127	473.00	25.00	8.12E+01	6.04E+01	3.50E+01	3.84E+01
	685.20	35.70	6.04E+01		3.24E+01	2.82E+01
	783.80	14.70	1.82E+02		9.73E+01	8.56E+01
I-129	29.78	57.00	5.16E-01	5.16E-01	9.33E-02	2.50E-01
	33.60	13.20	1.40E+00		2.81E-01	6.78E-01
	39.58	7.52	1.52E+00		5.21E-01	7.39E-01
I-131	284.30	6.05	1.35E+01	9.55E-01	-1.51E+00	6.42E+00
	364.48	81.20	9.55E-01		-5.41E-02	4.50E-01
	636.97	7.26	1.37E+01		-1.22E+01	6.41E+00
	722.89	1.80	7.41E+01		-1.04E+02	3.50E+01
TE-132	49.72	13.10	5.33E+02	5.72E+01	-2.15E+02	2.59E+02
	228.16	88.00	5.72E+01		-3.08E+01	2.75E+01
BA-133	81.00	33.00	1.91E-01	9.19E-02	-1.33E+00	9.32E-02

Analysis Report for 1510090-13
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	3.18E-01	9.19E-02	2.49E-02	1.52E-01
	356.01	60.00	9.19E-02		1.19E-02	4.37E-02
I-133	529.87	86.30	1.11E+10	1.11E+10	3.72E+09	5.26E+09
XE-133	81.00	38.00	1.16E+01	1.16E+01	-8.05E+01	5.64E+00
CS-134	563.23	8.38	8.06E-01	7.99E-02	-1.39E-02	3.79E-01
	569.32	15.43	4.60E-01		-1.49E-01	2.17E-01
	604.70	97.60	7.99E-02		-2.38E-02	3.78E-02
	795.84	85.40	1.07E-01		9.45E-02	5.04E-02
	801.93	8.73	8.23E-01		-6.93E-02	3.82E-01
CS-135	268.24	16.00	3.94E-01	3.94E-01	3.85E-01	1.90E-01
@ 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	3.73E+00	4.03E-01	1.51E+00	1.81E+00
	163.89	4.61	6.14E+00		-4.48E-01	2.97E+00
	176.55	13.56	2.06E+00		6.52E-01	9.96E-01
	273.65	12.66	2.33E+00		-4.92E-01	1.11E+00
	340.57	48.50	8.37E-01		9.56E-01	4.03E-01
	818.50	99.70	4.03E-01		3.36E-01	1.87E-01
	1048.07	79.60	6.00E-01		1.46E-01	2.79E-01
	1235.34	19.70	2.95E+00		3.40E-01	1.38E+00
CS-137	661.65	85.12	8.20E-02	8.20E-02	-5.12E-02	3.85E-02
LA-138	788.74	34.00	2.36E-01	9.27E-02	5.10E-02	1.10E-01
	1435.80	66.00	9.27E-02		-3.13E-02	4.03E-02
CE-139	165.85	80.35	7.53E-02	7.53E-02	1.64E-02	3.64E-02
BA-140	162.64	6.70	4.58E+00	1.48E+00	2.57E+00	2.22E+00
	304.84	4.50	6.48E+00		3.23E-01	3.08E+00
	423.70	3.20	1.04E+01		4.57E-01	4.93E+00
	437.55	2.00	1.84E+01		-5.72E+00	8.74E+00
	537.32	25.00	1.48E+00		-2.45E-01	6.95E-01
LA-140	328.77	20.50	1.74E+00	4.04E-01	7.76E-01	8.33E-01
	487.03	45.50	8.16E-01		1.04E-01	3.86E-01
	815.85	23.50	1.58E+00		-1.21E-01	7.29E-01
	1596.49	95.49	4.04E-01		0.00E+00	1.77E-01
CE-141	145.44	48.40	2.21E-01	2.21E-01	7.03E-02	1.07E-01
CE-143	57.36	11.80	6.44E+06	2.20E+06	-2.58E+06	3.14E+06
	293.26	42.00	2.20E+06		5.42E+06	1.07E+06
	664.55	5.20	1.49E+07		9.57E+04	6.97E+06
CE-144	133.54	10.80	5.26E-01	5.26E-01	-9.80E-03	2.55E-01
PM-144	476.78	42.00	1.60E-01	7.95E-02	-4.17E-03	7.57E-02
	618.01	98.60	7.95E-02		3.13E-02	3.75E-02
	696.49	99.49	8.17E-02		-4.87E-03	3.84E-02
PM-145	36.85	21.70	6.12E-01	3.33E-01	-6.63E-01	2.96E-01
	37.36	39.70	3.33E-01		4.73E-02	1.61E-01
	42.30	15.10	6.52E-01		2.92E-02	3.16E-01
	72.40	2.31	3.55E+00		-1.71E+00	1.74E+00
PM-146	453.90	39.94	1.57E-01	1.57E-01	-2.42E-02	7.43E-02
	735.90	14.01	5.16E-01		1.02E-01	2.41E-01
	747.13	13.10	5.62E-01		-5.98E-02	2.62E-01
ND-147	91.11	28.90	1.89E+00	1.89E+00	-4.39E+00	9.25E-01
	531.02	13.10	3.96E+00		1.74E+00	1.87E+00
PM-149	285.90	3.10	3.84E+04	3.84E+04	-2.71E+04	1.83E+04
EU-152	121.78	20.50	2.45E-01	2.45E-01	1.58E-01	1.19E-01

Analysis Report for 1510090-13
CP0603S26-27

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	244.69	5.40	1.10E+00	2.45E-01	-5.68E-01	5.32E-01
	344.27	19.13	2.90E-01		-3.01E-02	1.38E-01
	778.89	9.20	7.93E-01		-4.21E-02	3.70E-01
	964.01	10.40	1.02E+00		3.30E-01	4.81E-01
	1085.78	7.22	1.23E+00		1.91E-01	5.68E-01
	1112.02	9.60	8.09E-01		2.08E-01	3.70E-01
	1407.95	14.94	5.68E-01		1.47E-01	2.57E-01
GD-153	97.43	31.30	1.90E-01	1.90E-01	-1.47E-01	9.28E-02
	103.18	22.20	2.54E-01		8.69E-02	1.24E-01
EU-154	123.07	40.50	1.23E-01	1.23E-01	1.91E-02	5.99E-02
	723.30	19.70	4.27E-01		-5.96E-01	2.01E-01
	873.19	11.50	6.76E-01		1.07E-01	3.14E-01
	996.32	10.30	6.93E-01		-1.68E-01	3.17E-01
	1004.76	17.90	4.50E-01		-1.44E-01	2.08E-01
	1274.45	35.50	2.65E-01		-1.60E-02	1.22E-01
EU-155	86.50	30.90	2.29E-01	2.29E-01	-7.20E-02	1.12E-01
	105.30	20.70	2.48E-01		-1.82E-03	1.21E-01
EU-156	811.77	10.40	2.32E+00	2.32E+00	-1.38E+00	1.06E+00
	1153.47	7.20	5.98E+00		1.86E+00	2.78E+00
	1230.71	8.90	4.85E+00		2.07E+00	2.25E+00
HO-166M	184.41	72.60	9.54E-02	9.54E-02	1.41E-01	4.65E-02
	280.45	29.60	1.86E-01		-3.75E-02	8.88E-02
	410.94	11.10	5.85E-01		-5.24E-03	2.79E-01
	711.69	54.10	1.27E-01		1.16E-02	5.91E-02
TM-171	66.72	0.14	5.34E+01	5.34E+01	-9.95E+01	2.61E+01
HF-172	81.75	4.52	1.42E+00	4.74E-01	-2.49E+00	6.93E-01
	125.81	11.30	4.74E-01		5.76E-02	2.30E-01
LU-172	181.53	20.60	6.93E+00	3.31E+00	2.32E-02	3.35E+00
	810.06	16.63	1.00E+01		1.18E+00	4.60E+00
	912.12	15.25	2.76E+01		6.84E+01	1.33E+01
	1093.66	62.50	3.31E+00		-1.84E+00	1.51E+00
LU-173	100.72	5.24	1.10E+00	3.00E-01	9.75E-01	5.34E-01
	272.11	21.20	3.00E-01		1.42E-01	1.45E-01
HF-175	343.40	84.00	8.85E-02	8.85E-02	-2.12E-02	4.21E-02
LU-176	88.34	13.30	5.46E-01	5.59E-02	1.12E+00	2.68E-01
	201.83	86.00	6.43E-02		4.32E-03	3.10E-02
	306.78	94.00	5.59E-02		2.69E-04	2.67E-02
TA-182	67.75	41.20	2.12E-01	2.12E-01	-3.51E-02	1.04E-01
	1121.30	34.90	4.84E-01		8.63E-01	2.30E-01
	1189.05	16.23	7.02E-01		-8.49E-02	3.25E-01
	1221.41	26.98	5.10E-01		4.07E-01	2.39E-01
	1231.02	11.44	1.06E+00		4.52E-01	4.91E-01
IR-192	308.46	29.68	2.48E-01	1.73E-01	1.17E-01	1.18E-01
	468.07	48.10	1.73E-01		1.72E-02	8.20E-02
HG-203	279.19	77.30	1.24E-01	1.24E-01	7.08E-02	5.95E-02
BI-207	569.67	97.72	7.21E-02	7.21E-02	9.60E-03	3.40E-02
	1063.62	74.90	1.08E-01		-9.56E-03	4.96E-02
+ TL-208	583.14	* 30.22	3.28E-01	1.01E-01	1.52E+00	1.58E-01
	860.37	4.48	1.87E+00		4.98E-02	8.74E-01
	2614.66	* 35.85	1.01E-01		1.26E+00	3.60E-02
BI-210M	262.00	45.00	1.18E-01	1.18E-01	-1.65E-02	5.66E-02
	300.00	23.00	2.63E-01		-4.56E-01	1.26E-01
+ PB-210	46.50	* 4.25	2.94E+00	2.94E+00	2.71E+00	1.44E+00

Analysis Report for 1510090-13
CP0603S26-27

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	1.97E+00	1.97E+00	6.42E-01	9.35E-01
	831.96	2.90	2.41E+00		-1.67E+00	1.12E+00
+ BI-212	727.17 *	11.80	1.21E+00	1.21E+00	1.05E+00	5.87E-01
	1620.62	2.75	2.27E+00		2.91E-01	9.77E-01
+ PB-212	238.63 *	44.60	2.43E-01	2.43E-01	1.67E+00	1.19E-01
	300.09 *	3.41	3.43E+00		1.87E+00	1.68E+00
+ BI-214	609.31 *	46.30	2.48E-01	2.48E-01	1.15E+00	1.20E-01
	1120.29 *	15.10	6.59E-01		1.39E+00	3.08E-01
	1764.49 *	15.80	5.26E-01		1.18E+00	2.34E-01
	2204.22 *	4.98	1.33E+00		2.00E+00	5.64E-01
+ PB-214	295.21 *	19.19	5.99E-01	2.57E-01	1.27E+00	2.93E-01
	351.92 *	37.19	2.57E-01		1.10E+00	1.25E-01
RN-219	401.80	6.50	8.91E-01	8.91E-01	3.32E-01	4.22E-01
RA-223	323.87	3.88	1.44E+00	1.44E+00	-2.07E-02	6.85E-01
+ RA-224	240.98 *	3.95	2.75E+00	2.75E+00	4.40E+00	1.35E+00
RA-225	40.00	31.00	1.62E+00	1.62E+00	5.55E-01	7.86E-01
+ RA-226	186.21 *	3.28	3.03E+00	3.03E+00	3.07E+00	1.49E+00
TH-227	50.10	8.40	8.80E-01	6.35E-01	-3.54E-01	4.27E-01
	236.00	11.50	6.35E-01		-4.96E+00	3.09E-01
	256.20	6.30	8.82E-01		-1.37E-02	4.24E-01
+ AC-228	338.32 *	11.40	8.33E-01	4.16E-01	1.43E+00	4.05E-01
	911.07 *	27.70	4.16E-01		1.33E+00	1.98E-01
	969.11 *	16.60	7.41E-01		1.66E+00	3.52E-01
TH-230	48.44	16.90	5.15E-01	5.15E-01	3.09E-01	2.51E-01
	62.85	4.60	1.77E+00		1.54E+00	8.66E-01
	67.67	0.37	1.94E+01		-3.22E+00	9.51E+00
PA-231	283.67	1.60	3.29E+00	2.44E+00	9.59E-01	1.57E+00
	302.67	2.30	2.44E+00		1.91E-01	1.17E+00
TH-231	25.64	14.70	4.62E+00	1.03E+00	2.65E+00	2.25E+00
	84.21	6.40	1.03E+00		-2.17E+00	5.03E-01
PA-233	311.98	38.60	3.17E-01	3.17E-01	9.50E-02	1.51E-01
PA-234	131.20	20.40	2.70E-01	2.70E-01	1.22E-01	1.31E-01
	733.99	8.80	8.10E-01		1.14E-01	3.78E-01
	946.00	12.00	6.41E-01		2.38E-01	2.96E-01
PA-234M	1001.03	0.92	8.98E+00	8.98E+00	2.03E-02	4.16E+00
+ TH-234	63.29 *	3.80	3.19E+00	3.19E+00	2.65E+00	1.57E+00
U-235	143.76	10.50	5.07E-01	5.07E-01	2.50E-01	2.46E-01
	163.35	4.70	1.11E+00		-8.07E-02	5.35E-01
	205.31	4.70	1.19E+00		4.36E-01	5.75E-01
NP-237	86.50	12.60	5.54E-01	5.54E-01	-1.75E-01	2.72E-01
NP-239	106.10	22.70	2.88E+03	2.88E+03	-2.11E+01	1.40E+03
	228.18	10.70	6.48E+03		-3.49E+03	3.12E+03
	277.60	14.10	5.37E+03		1.74E+03	2.58E+03
AM-241	59.54	35.90	1.95E-01	1.95E-01	-3.35E-02	9.54E-02
+ AM-243	74.67 *	66.00	1.69E-01	1.69E-01	3.41E-01	8.32E-02
CM-243	209.75	3.29	1.91E+00	4.21E-01	2.12E+00	9.24E-01
	228.14	10.60	5.10E-01		-2.74E-01	2.45E-01
	277.60	14.00	4.21E-01		1.37E-01	2.02E-01

Analysis Report for 1510090-13
CP0603S26-27

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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

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

Sample Title: CP0603S26-27

Elapsed Live time: 3600
 Elapsed Real Time: 3601

Channel	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193	201	209	217	225	233	241	249	257	265	273	281	289	297	305	313	321	329	337	345	353	361																																																																																																																																																																																																																																																																																																																																																										
1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																																																						
9:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																																																				
17:	0	1	66	112	110	100	92	129	96	71	61	73	66	65	61	77	68	88	55	57	68	71	70	79	75	64	64	70	90	97	178	87	49:	75	73	77	80	106	101	92	85	57:	96	92	110	116	111	119	186	267	65:	134	159	141	141	130	137	145	134	73:	158	159	391	288	379	535	155	130	81:	102	124	110	146	170	102	171	243	89:	109	182	160	124	268	224	133	97	97:	76	86	108	111	96	79	92	74	105:	99	77	76	82	75	79	59	84	113:	66	90	59	86	53	79	60	72	121:	64	84	66	82	63	67	81	94	129:	97	112	78	94	73	66	64	82	137:	75	69	88	70	71	66	61	92	145:	76	70	59	75	73	76	72	67	153:	67	70	59	54	47	65	69	62	161:	75	58	61	60	75	52	54	54	169:	52	66	57	62	55	59	61	42	177:	65	55	52	44	51	65	54	51	185:	70	153	155	66	53	58	54	44	193:	57	47	64	47	54	45	50	39	201:	55	48	66	64	56	63	48	42	209:	72	102	52	67	47	48	56	54	217:	56	54	47	48	59	41	45	60	225:	48	38	46	48	46	43	48	53	233:	59	51	45	48	60	192	640	236	241:	90	146	94	48	32	33	38	28	249:	34	39	38	39	39	34	42	30	257:	45	50	35	48	29	41	28	32	265:	32	37	40	40	42	55	68	41	273:	27	33	41	32	34	60	39	38	281:	34	37	25	40	23	31	26	19	289:	35	42	21	33	36	35	120	176	297:	42	28	28	47	55	34	29	20	305:	25	26	32	29	27	31	29	22	313:	24	35	24	21	25	31	23	25	321:	23	29	24	31	24	37	30	39	329:	57	31	23	26	34	24	24	32	337:	37	82	133	38	23	26	28	22	345:	27	22	31	29	29	30	46	257	353:	185	25	25	24	22	26	23	15	361:	17	24	12	25	19	16	19	18

369: 17 25 16 13 27 19 24 32

Sample Title: CP0603S26-27

Channel	17	25	16	13	27	19	24	32
377:	20	24	19	26	23	21	7	20
385:	23	22	17	17	19	25	28	15
393:	20	16	14	16	17	18	18	23
401:	20	24	25	22	20	19	24	13
409:	20	33	17	17	24	16	23	15
417:	21	15	10	21	13	13	13	13
425:	20	18	17	12	17	18	21	15
433:	28	12	23	14	14	21	18	21
441:	14	16	25	15	14	17	15	13
449:	18	10	26	8	16	13	19	12
457:	15	18	19	18	17	20	43	28
465:	21	16	19	5	15	17	10	15
473:	10	14	22	15	15	11	13	15
481:	18	16	13	10	13	17	17	21
489:	11	19	17	12	23	20	12	12
497:	15	13	13	14	16	10	17	13
505:	17	12	16	14	34	35	100	55
513:	33	15	18	8	10	13	15	8
521:	14	14	13	20	21	17	8	12
529:	9	16	13	19	19	16	7	15
537:	17	15	12	14	11	12	11	17
545:	12	13	15	14	20	11	9	13
553:	12	12	9	12	11	8	16	11
561:	7	12	16	19	8	14	13	13
569:	10	21	14	10	18	17	13	15
577:	10	12	5	13	15	34	109	156
585:	36	15	15	14	11	9	8	5
593:	13	12	12	17	8	12	12	11
601:	13	11	12	11	20	17	15	19
609:	135	208	48	10	12	13	12	18
617:	19	12	11	12	12	13	7	14
625:	15	11	10	10	9	6	10	20
633:	9	9	14	10	8	7	8	8
641:	14	14	17	15	9	14	9	12
649:	11	12	9	13	13	11	16	13
657:	20	12	11	8	12	6	6	14
665:	19	17	10	6	9	15	12	18
673:	14	5	11	5	10	12	8	4
681:	2	6	6	10	11	8	11	12
689:	10	8	18	14	10	14	5	10
697:	15	14	9	18	13	13	8	15
705:	7	17	14	11	8	7	10	9
713:	8	12	11	6	5	7	8	12
721:	13	19	8	15	11	18	34	38
729:	22	14	8	8	11	10	8	14
737:	8	7	9	6	8	14	11	13
745:	12	7	11	9	9	7	8	10
753:	14	12	10	12	6	10	8	13
761:	10	10	15	10	11	8	13	16
769:	21	21	11	16	15	8	10	13
777:	11	7	6	6	11	9	13	6
785:	14	18	10	9	11	9	10	9
793:	18	8	21	20	11	6	9	8

801: 4 2 18 8 6 6 10 5

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Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	5	4	8	3	4	4	5	7
817:	7	10	9	7	10	10	3	4
825:	6	8	6	7	6	9	9	11
833:	5	7	5	17	11	9	8	11
841:	14	13	8	8	4	13	13	8
849:	12	5	4	9	14	12	7	5
857:	7	9	3	13	16	15	9	12
865:	12	8	11	5	14	7	7	9
873:	11	8	8	9	8	4	4	9
881:	12	6	10	8	9	8	7	5
889:	8	8	8	6	12	14	4	8
897:	8	9	12	5	5	10	7	11
905:	9	9	9	8	10	20	61	98
913:	19	10	9	7	4	10	5	7
921:	6	3	5	4	7	13	9	7
929:	6	8	6	7	9	16	9	6
937:	11	12	5	9	11	2	5	10
945:	9	6	6	3	12	7	2	8
953:	10	7	5	6	11	9	10	4
961:	6	16	12	15	20	23	5	19
969:	74	53	15	13	2	2	4	10
977:	2	6	4	7	7	8	5	7
985:	5	6	5	8	2	6	0	4
993:	6	5	4	7	3	7	7	10
1001:	11	8	7	4	9	10	6	6
1009:	9	6	7	14	4	6	5	9
1017:	7	7	5	5	7	10	4	5
1025:	8	8	9	9	5	8	8	7
1033:	10	11	8	7	7	2	4	7
1041:	10	3	10	7	12	6	15	10
1049:	7	4	3	9	3	8	6	7
1057:	8	9	5	6	6	10	7	3
1065:	10	5	5	6	10	14	5	8
1073:	9	10	4	7	7	8	9	5
1081:	10	5	10	7	6	10	9	9
1089:	3	8	5	4	6	5	6	7
1097:	4	9	10	6	5	9	5	3
1105:	4	5	6	7	4	9	9	5
1113:	5	4	3	4	8	10	10	33
1121:	44	21	6	11	6	2	3	9
1129:	5	10	6	11	4	13	5	9
1137:	5	10	4	4	6	6	4	11
1145:	11	5	10	4	8	10	1	7
1153:	6	15	14	10	7	10	7	7
1161:	4	5	12	6	14	7	10	9
1169:	7	8	6	7	9	7	5	5
1177:	4	10	7	3	6	14	10	11
1185:	10	5	12	9	2	8	12	5
1193:	6	7	9	5	5	7	4	9
1201:	4	6	10	8	2	11	10	8
1209:	8	12	4	4	10	8	13	5
1217:	4	10	8	16	10	11	11	10
1225:	9	5	7	11	10	6	9	12

1233: 6 3 10 5 7 23 18 19

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Channel	11	10	11	11	7	8	7	12
1241:	11	10	11	11	7	8	7	12
1249:	4	9	6	4	6	9	2	3
1257:	6	11	6	4	7	9	5	11
1265:	4	5	6	7	5	6	8	7
1273:	9	4	8	5	6	6	10	4
1281:	7	15	7	4	9	6	5	9
1289:	8	5	2	2	9	4	8	9
1297:	4	4	3	4	9	3	5	10
1305:	5	6	2	7	2	6	4	2
1313:	2	5	7	7	2	6	3	4
1321:	4	4	5	6	6	5	5	4
1329:	7	7	1	5	6	0	2	1
1337:	2	4	5	7	4	1	3	5
1345:	6	3	5	6	2	3	6	9
1353:	2	4	1	3	1	1	3	2
1361:	3	7	4	5	4	1	1	1
1369:	1	2	2	5	1	2	4	3
1377:	3	7	6	6	1	2	4	5
1385:	5	9	5	3	5	3	5	4
1393:	2	2	4	3	1	3	5	2
1401:	5	3	4	3	6	1	4	11
1409:	6	1	3	3	4	5	1	5
1417:	2	3	5	2	2	3	2	6
1425:	3	1	0	3	3	1	5	5
1433:	1	3	3	4	2	1	1	3
1441:	1	0	1	1	4	3	1	2
1449:	2	4	3	4	3	5	5	3
1457:	6	2	22	167	333	248	49	7
1465:	6	5	4	1	1	0	2	3
1473:	2	2	3	5	0	5	1	4
1481:	2	0	1	3	2	0	0	0
1489:	3	4	2	0	2	3	3	2
1497:	2	2	2	1	2	4	0	3
1505:	2	0	1	1	9	4	2	3
1513:	5	2	1	2	3	3	2	0
1521:	3	1	2	3	3	1	1	1
1529:	5	1	1	3	1	0	2	0
1537:	2	1	3	1	1	3	2	2
1545:	3	1	1	1	2	3	2	1
1553:	3	1	1	3	1	2	0	2
1561:	3	3	1	1	3	3	0	0
1569:	3	1	1	2	1	1	2	1
1577:	1	3	1	4	1	2	2	5
1585:	5	2	5	7	10	2	4	6
1593:	5	3	2	1	1	2	2	1
1601:	1	1	1	3	0	0	1	0
1609:	3	4	3	2	0	1	1	2
1617:	1	2	1	1	3	2	3	2
1625:	1	1	1	4	2	5	3	3
1633:	2	0	0	0	2	0	2	1
1641:	1	2	1	0	0	0	1	1
1649:	1	0	3	3	1	2	1	0
1657:	1	2	1	1	5	3	1	0

1665: 1 2 2 3 0 2 2 0

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Channel	1	2	2	3	0	2	2	0
1673:	0	1	0	2	1	0	1	1
1681:	2	0	1	0	1	1	0	1
1689:	1	0	1	1	0	1	0	1
1697:	2	1	2	0	2	2	0	1
1705:	0	0	2	2	1	0	0	2
1713:	4	0	1	1	1	2	3	1
1721:	0	1	3	4	0	1	1	2
1729:	4	3	3	1	2	0	0	1
1737:	0	0	1	3	3	2	1	0
1745:	0	0	2	0	3	0	2	3
1753:	0	1	1	0	3	2	2	2
1761:	1	1	8	17	26	6	5	0
1769:	1	5	0	1	2	2	0	0
1777:	0	1	0	4	1	0	0	1
1785:	1	2	0	1	0	1	0	0
1793:	3	1	2	3	1	2	2	0
1801:	1	2	1	1	3	1	0	0
1809:	0	0	2	1	1	3	1	3
1817:	2	0	2	1	0	0	2	3
1825:	2	0	5	0	2	0	0	1
1833:	1	0	4	2	1	1	0	1
1841:	3	3	1	0	1	1	3	6
1849:	2	4	3	2	0	1	0	0
1857:	2	1	2	1	0	1	0	1
1865:	0	2	0	2	2	2	2	0
1873:	3	1	0	1	2	2	0	1
1881:	2	1	0	1	0	1	2	0
1889:	0	1	0	1	0	2	1	0
1897:	2	0	1	3	1	1	1	0
1905:	2	1	1	0	0	2	1	4
1913:	4	1	1	0	1	3	0	1
1921:	2	3	1	0	2	0	1	1
1929:	2	3	4	0	0	0	1	0
1937:	2	6	0	1	2	0	1	4
1945:	4	3	0	2	0	0	2	4
1953:	0	1	1	1	0	0	2	0
1961:	2	0	2	1	1	0	0	2
1969:	3	1	1	1	1	0	1	1
1977:	3	2	2	0	1	0	1	2
1985:	1	2	0	1	1	0	0	1
1993:	0	3	1	0	2	2	1	0
2001:	2	1	0	0	1	1	1	1
2009:	1	0	1	0	0	0	3	1
2017:	1	0	1	2	1	0	0	0
2025:	1	2	0	1	1	1	0	1
2033:	0	3	0	1	0	0	3	0
2041:	0	0	1	1	0	0	0	0
2049:	1	0	0	3	2	0	1	1
2057:	3	0	0	0	0	0	3	1
2065:	0	0	2	0	0	0	2	0
2073:	0	0	1	2	0	1	2	1
2081:	1	1	1	0	3	0	0	1
2089:	2	0	1	0	0	1	1	3

2097: 1 1 0 2 1 1 1 2

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

2529: 0 1 1 2 2 0 0 0

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Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	0	1	0	0	2
2545:	0	1	1	0	0	0	0	0
2553:	0	0	1	1	2	0	0	1
2561:	0	1	0	0	1	0	0	0
2569:	0	1	1	2	1	1	1	0
2577:	0	0	0	0	0	0	0	1
2585:	0	0	0	0	0	1	0	0
2593:	0	0	0	1	0	0	0	0
2601:	0	0	0	1	1	0	0	1
2609:	1	0	0	3	18	43	28	24
2617:	2	1	0	0	1	0	0	0
2625:	0	0	0	1	1	1	1	1
2633:	0	0	0	0	0	0	0	1
2641:	0	0	0	0	0	0	1	0
2649:	0	0	0	0	0	0	0	1
2657:	0	0	0	0	0	0	0	0
2665:	0	2	1	0	1	0	0	0
2673:	2	0	0	0	0	0	0	0
2681:	1	0	1	0	1	0	3	0
2689:	2	0	0	1	0	0	2	0
2697:	1	0	0	0	0	0	0	0
2705:	1	0	0	0	1	1	0	1
2713:	0	0	0	0	0	1	1	0
2721:	0	0	0	0	1	0	1	0
2729:	0	1	0	0	0	1	0	0
2737:	0	0	1	0	1	1	1	0
2745:	0	0	0	0	1	0	0	1
2753:	1	0	1	0	0	0	1	0
2761:	1	0	0	0	0	0	0	1
2769:	0	0	0	0	1	0	0	1
2777:	2	0	0	0	0	0	0	0
2785:	0	1	0	0	1	0	0	0
2793:	0	1	0	0	0	1	1	0
2801:	0	0	0	0	0	0	1	0
2809:	0	1	0	0	1	0	0	0
2817:	0	0	0	1	0	0	1	0
2825:	0	1	1	0	0	0	1	0
2833:	0	0	0	1	1	2	0	0
2841:	0	0	1	1	0	0	0	0
2849:	1	0	1	0	0	0	0	0
2857:	0	1	0	0	1	0	0	0
2865:	0	0	0	0	1	0	0	0
2873:	0	0	0	0	1	0	0	0
2881:	0	0	1	0	0	0	0	0
2889:	0	1	2	0	0	0	0	1
2897:	0	0	0	1	1	0	0	0
2905:	0	0	1	0	1	1	0	1
2913:	1	0	0	0	0	0	0	1
2921:	0	0	1	0	0	0	0	0
2929:	0	0	0	0	1	0	1	0
2937:	0	2	1	2	0	0	0	0
2945:	1	1	0	0	1	0	1	0
2953:	0	0	0	0	0	1	0	0

2961: 1 0 0 0 0 0 0 0

Sample Title: CP0603S26-27

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

3393: 0 1 0 0 1 0 0 0

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

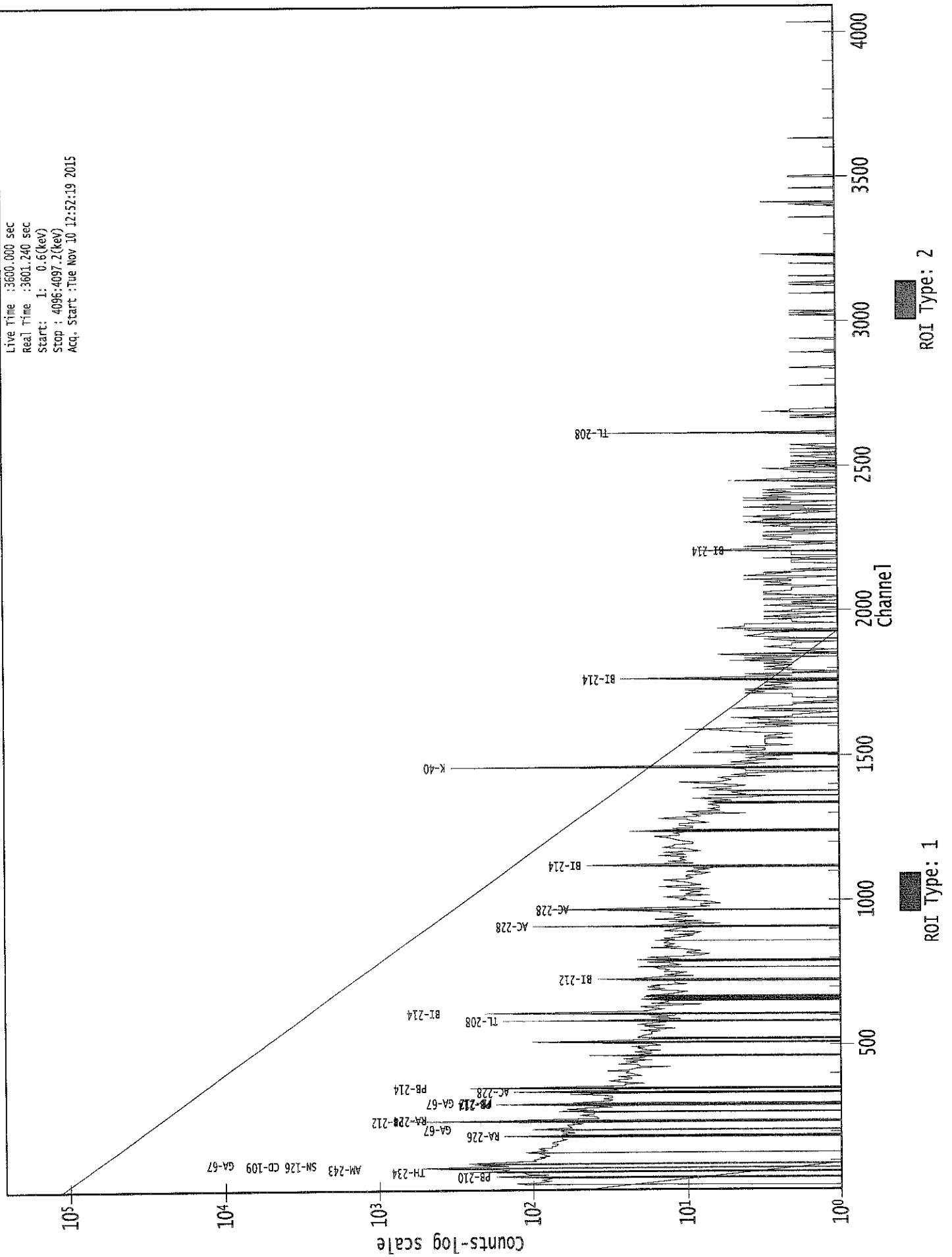
3825: 0 0 0 1 0 0 0 0

Sample Title: CP0603S26-27

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

0000029396.CNF

Live Time : 3600.000 sec
Real Time : 3601.240 sec
Start : 1: 0.6 (keV)
Stop : 4096: 4097.2 (keV)
Acq. Start : Tue Nov 10 12:52:19 2015



RCS
11/10/15Analysis Report for 1510090-14
CP0603S29-30

GAMMA SPECTRUM ANALYSIS

Sample Identification : 1510090-14
Sample Description : CP0603S29-30
Sample Type : SOIL

Sample Size : 5.704E+02 grams
Facility : Countroom

Sample Taken On : 10/9/2015 9:50:00AM
Acquisition Started : 11/10/2015 12:56:43PM

Procedure : GAS-1402 pCi
Operator : Administrator
Detector Name : GE4
Geometry : GAS-1402
Live Time : 3600.0 seconds
Real Time : 3639.2 seconds

Dead Time : 1.08 %

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

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

Sample Number : 29397

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

RCS
11/11/15

Analysis Report for 1510090-14
CP0603S29-30

PEAK LOCATE REPORT

Peak Locate Performed on : 11/10/2015 1:57:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
1	75.91	75.18	0.0000	0.00
2	86.51	85.78	0.0000	0.00
3	155.81	155.11	0.0000	0.00
4	186.17	185.48	0.0000	0.00
5	209.66	208.98	0.0000	0.00
6	239.47	238.81	0.0000	0.00
7	280.53	279.88	0.0000	0.00
8	295.46	294.82	0.0000	0.00
9	328.89	328.26	0.0000	0.00
10	338.75	338.13	0.0000	0.00
11	352.10	351.49	0.0000	0.00
12	464.83	464.27	0.0000	0.00
13	476.12	475.56	0.0000	0.00
14	510.93	510.39	0.0000	0.00
15	555.58	555.06	0.0000	0.00
16	583.96	583.45	0.0000	0.00
17	609.87	609.38	0.0000	0.00
18	728.56	728.13	0.0000	0.00
19	845.19	844.81	0.0000	0.00
20	911.62	911.28	0.0000	0.00
21	933.95	933.63	0.0000	0.00
22	968.89	968.58	0.0000	0.00
23	1052.81	1052.55	0.0000	0.00
24	1120.74	1120.52	0.0000	0.00
25	1142.54	1142.32	0.0000	0.00
26	1285.49	1285.36	0.0000	0.00
27	1301.90	1301.78	0.0000	0.00
28	1324.61	1324.50	0.0000	0.00
29	1370.38	1370.30	0.0000	0.00
30	1378.58	1378.51	0.0000	0.00
31	1384.32	1384.25	0.0000	0.00
32	1461.36	1461.34	0.0000	0.00
33	1500.94	1500.93	0.0000	0.00
34	1510.26	1510.27	0.0000	0.00
35	1673.19	1673.30	0.0000	0.00
36	1764.56	1764.72	0.0000	0.00
37	1847.69	1847.91	0.0000	0.00
38	1899.75	1900.00	0.0000	0.00
39	2257.50	2258.00	0.0000	0.00
40	2461.55	2462.20	0.0000	0.00
41	2615.11	2615.89	0.0000	0.00

Analysis Report for 1510090-14

CP0603S29-30

? = Adjacent peak noted
Errors quoted at 2.00sigma

0760A

Analysis Report for 1510090-14
CP0603S29-30

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/10/2015 1:57:24PM

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	75.91	68 -	81	75.18	9.30E+02	163.33	2.54E+03	4.27
2	86.51	82 -	90	85.78	1.73E+02	110.72	1.79E+03	2.71
3	155.81	151 -	159	155.11	9.06E+01	77.28	8.61E+02	5.04
4	186.17	180 -	190	185.48	1.62E+02	84.14	8.56E+02	3.31
5	209.66	206 -	211	208.98	3.96E+01	49.27	4.51E+02	1.67
6	239.47	233 -	245	238.81	6.10E+02	94.21	7.46E+02	2.37
7	280.53	272 -	287	279.88	8.18E+01	82.44	6.42E+02	9.60
8	295.46	288 -	302	294.82	2.24E+02	82.15	6.19E+02	2.65
9	328.89	323 -	333	328.26	8.18E+01	54.76	3.52E+02	4.71
10	338.75	334 -	342	338.13	1.50E+02	46.01	2.32E+02	2.46
11	352.10	346 -	356	351.49	2.64E+02	61.08	3.53E+02	2.30
12	464.83	460 -	469	464.27	4.06E+01	40.07	1.97E+02	5.22
13	476.12	470 -	481	475.56	4.63E+01	41.52	1.93E+02	6.79
14	510.93	505 -	517	510.39	1.26E+02	45.84	1.85E+02	2.98
15	555.58	551 -	559	555.06	2.65E+01	30.38	1.25E+02	5.98
16	583.96	579 -	590	583.45	1.35E+02	42.33	1.58E+02	2.74
17	609.87	602 -	614	609.38	1.79E+02	47.04	1.78E+02	2.55
18	728.56	723 -	732	728.13	3.36E+01	32.28	1.29E+02	2.06
19	845.19	841 -	849	844.81	1.91E+01	24.59	8.17E+01	2.73
20	911.62	906 -	916	911.28	7.71E+01	34.28	1.16E+02	2.07
21	933.95	928 -	940	933.63	3.80E+01	28.55	7.80E+01	6.71
22	968.89	963 -	975	968.58	4.55E+01	37.33	1.41E+02	2.62
23	1052.81	1049 -	1057	1052.55	1.68E+01	21.62	5.84E+01	2.47
M 24	1120.74	1116 -	1149	1120.52	3.84E+01	23.65	7.66E+01	3.50
m 25	1142.54	1116 -	1149	1142.32	1.54E+01	24.76	4.60E+01	3.50
26	1285.49	1276 -	1294	1285.36	3.66E+01	33.59	8.49E+01	14.67
27	1301.90	1296 -	1307	1301.78	2.64E+01	18.33	2.53E+01	7.80
28	1324.61	1319 -	1329	1324.50	2.33E+01	16.03	2.14E+01	4.56
29	1370.38	1367 -	1374	1370.30	7.93E+00	11.14	1.41E+01	2.65
30	1378.58	1375 -	1381	1378.51	9.73E+00	9.84	1.05E+01	2.00
31	1384.32	1382 -	1389	1384.25	1.04E+01	12.81	2.13E+01	2.21
32	1461.36	1455 -	1468	1461.34	2.72E+02	41.45	7.00E+01	2.87
33	1500.94	1498 -	1504	1500.93	6.50E+00	8.03	7.00E+00	1.75
34	1510.26	1505 -	1514	1510.27	1.45E+01	9.64	4.94E+00	2.03
35	1673.19	1670 -	1675	1673.30	6.33E+00	7.35	5.33E+00	1.90
36	1764.56	1762 -	1768	1764.72	1.77E+01	9.39	2.68E+00	3.70
37	1847.69	1844 -	1851	1847.91	1.00E+01	8.00	4.00E+00	3.20
38	1899.75	1897 -	1902	1900.00	7.00E+00	5.29	0.00E+00	2.50
39	2257.50	2254 -	2261	2258.00	1.00E+01	6.32	0.00E+00	2.87
40	2461.55	2459 -	2464	2462.20	5.00E+00	4.47	0.00E+00	2.31

Analysis Report for 1510090-14

CP0603S29-30

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2615.11	2609 -	2620	2615.89	3.50E+01	11.83	0.00E+00	3.37

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 : 11/10/2015 1:57:24PM

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	75.91	68 -	81	9.30E+02	163.33	2.54E+03	1.25E+02
2	86.51	82 -	90	1.73E+02	110.72	1.79E+03	8.84E+01
3	155.81	151 -	159	9.06E+01	77.28	8.61E+02	6.16E+01
4	186.17	180 -	190	1.62E+02	84.14	8.56E+02	6.59E+01
5	209.66	206 -	211	3.96E+01	49.27	4.51E+02	3.92E+01
6	239.47	233 -	245	6.10E+02	94.21	7.46E+02	6.59E+01
7	280.53	272 -	287	8.18E+01	82.44	6.42E+02	6.61E+01
8	295.46	288 -	302	2.24E+02	82.15	6.19E+02	6.29E+01
9	328.89	323 -	333	8.18E+01	54.76	3.52E+02	4.25E+01
10	338.75	334 -	342	1.50E+02	46.01	2.32E+02	3.20E+01
11	352.10	346 -	356	2.64E+02	61.08	3.53E+02	4.25E+01
12	464.83	460 -	469	4.06E+01	40.07	1.97E+02	3.12E+01
13	476.12	470 -	481	4.63E+01	41.52	1.93E+02	3.22E+01
14	510.93	505 -	517	1.26E+02	45.84	1.85E+02	3.28E+01
15	555.58	551 -	559	2.65E+01	30.38	1.25E+02	2.35E+01
16	583.96	579 -	590	1.35E+02	42.33	1.58E+02	2.91E+01
17	609.87	602 -	614	1.79E+02	47.04	1.78E+02	3.18E+01
18	728.56	723 -	732	3.36E+01	32.28	1.29E+02	2.48E+01
19	845.19	841 -	849	1.91E+01	24.59	8.17E+01	1.89E+01
20	911.62	906 -	916	7.71E+01	34.28	1.16E+02	2.42E+01
21	933.95	928 -	940	3.80E+01	28.55	7.80E+01	2.12E+01
22	968.89	963 -	975	4.55E+01	37.33	1.41E+02	2.86E+01
23	1052.81	1049 -	1057	1.68E+01	21.62	5.84E+01	1.64E+01
M 24	1120.74	1116 -	1149	3.84E+01	23.65	7.66E+01	1.44E+01
m 25	1142.54	1116 -	1149	1.54E+01	24.76	4.60E+01	1.12E+01
26	1285.49	1276 -	1294	3.66E+01	33.59	8.49E+01	2.58E+01

Analysis Report for 1510090-14
 CP0603S29-30

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
27	1301.90	1296 -	1307	2.64E+01	18.33	2.53E+01	1.25E+01
28	1324.61	1319 -	1329	2.33E+01	16.03	2.14E+01	1.05E+01
29	1370.38	1367 -	1374	7.93E+00	11.14	1.41E+01	7.90E+00
30	1378.58	1375 -	1381	9.73E+00	9.84	1.05E+01	6.25E+00
31	1384.32	1382 -	1389	1.04E+01	12.81	2.13E+01	9.10E+00
32	1461.36	1455 -	1468	2.72E+02	41.45	7.00E+01	2.06E+01
33	1500.94	1498 -	1504	6.50E+00	8.03	7.00E+00	5.10E+00
34	1510.26	1505 -	1514	1.45E+01	9.64	4.94E+00	4.85E+00
35	1673.19	1670 -	1675	6.33E+00	7.35	5.33E+00	4.40E+00
36	1764.56	1762 -	1768	1.77E+01	9.39	2.68E+00	3.45E+00
37	1847.69	1844 -	1851	1.00E+01	8.00	4.00E+00	4.03E+00
38	1899.75	1897 -	1902	7.00E+00	5.29	0.00E+00	0.00E+00
39	2257.50	2254 -	2261	1.00E+01	6.32	0.00E+00	0.00E+00
40	2461.55	2459 -	2464	5.00E+00	4.47	0.00E+00	0.00E+00
41	2615.11	2609 -	2620	3.50E+01	11.83	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 : 11/10/2015 1:57:24PM

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

Tentative NID Library : \\OR-GAMMA1\ApexRoof\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	75.91	68 -	81	75.18	9.30E+02	163.33	2.54E+03	.....
2	86.51	82 -	90	85.78	1.73E+02	110.72	1.79E+03	NP-237 EU-155
3	155.81	151 -	159	155.11	9.06E+01	77.28	8.61E+02	.....
4	186.17	180 -	190	185.48	1.62E+02	84.14	8.56E+02	RA-226
5	209.66	206 -	211	208.98	3.96E+01	49.27	4.51E+02	CM-243 GA-67
6	239.47	233 -	245	238.81	6.10E+02	94.21	7.46E+02	PB-212
7	280.53	272 -	287	279.88	8.18E+01	82.44	6.42E+02	HO-166M
8	295.46	288 -	302	294.82	2.24E+02	82.15	6.19E+02	PB-214

Analysis Report for 1510090-14

CP0603S29-30

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
9	328.89	323 -	333	328.26	8.18E+01	54.76	3.52E+02	LA-140
10	338.75	334 -	342	338.13	1.50E+02	46.01	2.32E+02	AC-228
11	352.10	346 -	356	351.49	2.64E+02	61.08	3.53E+02	PB-214
12	464.83	460 -	469	464.27	4.06E+01	40.07	1.97E+02	.....
13	476.12	470 -	481	475.56	4.63E+01	41.52	1.93E+02	PM-144
14	510.93	505 -	517	510.39	1.26E+02	45.84	1.85E+02	.....
15	555.58	551 -	559	555.06	2.65E+01	30.38	1.25E+02	.....
16	583.96	579 -	590	583.45	1.35E+02	42.33	1.58E+02	TL-208
17	609.87	602 -	614	609.38	1.79E+02	47.04	1.78E+02	BI-214
18	728.56	723 -	732	728.13	3.36E+01	32.28	1.29E+02	.....
19	845.19	841 -	849	844.81	1.91E+01	24.59	8.17E+01	.....
20	911.62	906 -	916	911.28	7.71E+01	34.28	1.16E+02	LU-172 AC-228
21	933.95	928 -	940	933.63	3.80E+01	28.55	7.80E+01	.....
22	968.89	963 -	975	968.58	4.55E+01	37.33	1.41E+02	AC-228
23	1052.81	1049 -	1057	1052.55	1.68E+01	21.62	5.84E+01	.....
M 24	1120.74	1116 -	1149	1120.52	3.84E+01	23.65	7.66E+01	SC-46 BI-214 TA-182
m 25	1142.54	1116 -	1149	1142.32	1.54E+01	24.76	4.60E+01	.....
26	1285.49	1276 -	1294	1285.36	3.66E+01	33.59	8.49E+01	.....
27	1301.90	1296 -	1307	1301.78	2.64E+01	18.33	2.53E+01	.....
28	1324.61	1319 -	1329	1324.50	2.33E+01	16.03	2.14E+01	.....
29	1370.38	1367 -	1374	1370.30	7.93E+00	11.14	1.41E+01	.....
30	1378.58	1375 -	1381	1378.51	9.73E+00	9.84	1.05E+01	.....
31	1384.32	1382 -	1389	1384.25	1.04E+01	12.81	2.13E+01	AG-110M
32	1461.36	1455 -	1468	1461.34	2.72E+02	41.45	7.00E+01	K-40
33	1500.94	1498 -	1504	1500.93	6.50E+00	8.03	7.00E+00	.....
34	1510.26	1505 -	1514	1510.27	1.45E+01	9.64	4.94E+00	.....
35	1673.19	1670 -	1675	1673.30	6.33E+00	7.35	5.33E+00	.....
36	1764.56	1762 -	1768	1764.72	1.77E+01	9.39	2.68E+00	BI-214
37	1847.69	1844 -	1851	1847.91	1.00E+01	8.00	4.00E+00	.....
38	1899.75	1897 -	1902	1900.00	7.00E+00	5.29	0.00E+00	.....
39	2257.50	2254 -	2261	2258.00	1.00E+01	6.32	0.00E+00	.....
40	2461.55	2459 -	2464	2462.20	5.00E+00	4.47	0.00E+00	.....
41	2615.11	2609 -	2620	2615.89	3.50E+01	11.83	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 : 11/10/2015 1:57:24PM

: 00764

Analysis Report for 1510090-14
CP0603S29-30

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	75.91	9.30E+02	163.33	2.13E-02	1.69E-03
2	86.51	1.73E+02	110.72	1.98E-02	1.64E-03
3	155.81	9.06E+01	77.28	1.34E-02	1.28E-03
4	186.17	1.62E+02	84.14	1.16E-02	1.15E-03
5	209.66	3.96E+01	49.27	1.05E-02	1.08E-03
6	239.47	6.10E+02	94.21	9.39E-03	9.84E-04
7	280.53	8.18E+01	82.44	8.15E-03	8.59E-04
8	295.46	2.24E+02	82.15	7.78E-03	8.43E-04
9	328.89	8.18E+01	54.76	7.04E-03	8.06E-04
10	338.75	1.50E+02	46.01	6.85E-03	7.95E-04
11	352.10	2.64E+02	61.08	6.61E-03	7.80E-04
12	464.83	4.06E+01	40.07	5.06E-03	6.29E-04
13	476.12	4.63E+01	41.52	4.94E-03	6.12E-04
14	510.93	1.26E+02	45.84	4.61E-03	5.61E-04
15	555.58	2.65E+01	30.38	4.25E-03	4.96E-04
16	583.96	1.35E+02	42.33	4.04E-03	4.54E-04
17	609.87	1.79E+02	47.04	3.87E-03	4.16E-04
18	728.56	3.36E+01	32.28	3.25E-03	3.03E-04
19	845.19	1.91E+01	24.59	2.81E-03	2.38E-04
20	911.62	7.71E+01	34.28	2.61E-03	2.06E-04
21	933.95	3.80E+01	28.55	2.55E-03	2.03E-04
22	968.89	4.55E+01	37.33	2.46E-03	1.99E-04
23	1052.81	1.68E+01	21.62	2.27E-03	1.88E-04
M 24	1120.74	3.84E+01	23.65	2.14E-03	1.79E-04
m 25	1142.54	1.54E+01	24.76	2.10E-03	1.77E-04
26	1285.49	3.66E+01	33.59	1.89E-03	2.03E-04
27	1301.90	2.64E+01	18.33	1.87E-03	2.07E-04
28	1324.61	2.33E+01	16.03	1.84E-03	2.14E-04
29	1370.38	7.93E+00	11.14	1.78E-03	2.08E-04
30	1378.58	9.73E+00	9.84	1.77E-03	2.06E-04
31	1384.32	1.04E+01	12.81	1.77E-03	2.05E-04
32	1461.36	2.72E+02	41.45	1.68E-03	1.89E-04
33	1500.94	6.50E+00	8.03	1.64E-03	1.81E-04
34	1510.26	1.45E+01	9.64	1.64E-03	1.79E-04
35	1673.19	6.33E+00	7.35	1.50E-03	1.45E-04
36	1764.56	1.77E+01	9.39	1.43E-03	1.26E-04
37	1847.69	1.00E+01	8.00	1.38E-03	1.11E-04
38	1899.75	7.00E+00	5.29	1.35E-03	1.11E-04
39	2257.50	1.00E+01	6.32	1.19E-03	1.11E-04
40	2461.55	5.00E+00	4.47	1.12E-03	1.11E-04
41	2615.11	3.50E+01	11.83	1.07E-03	1.11E-04

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

Analysis Report for 1510090-14
CP0603S29-30

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/10/2015 1:57:24PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	75.91	9.30E+02	163.33			9.30E+02	1.63E+02
2	86.51	1.73E+02	110.72			1.73E+02	1.11E+02
3	155.81	9.06E+01	77.28			9.06E+01	7.73E+01
4	186.17	1.62E+02	84.14	1.43E+01	7.33E+00	1.47E+02	8.45E+01
5	209.66	3.96E+01	49.27			3.96E+01	4.93E+01
6	239.47	6.10E+02	94.21	1.09E+01	6.39E+00	5.99E+02	9.44E+01
7	280.53	8.18E+01	82.44			8.18E+01	8.24E+01
8	295.46	2.24E+02	82.15			2.24E+02	8.21E+01
9	328.89	8.18E+01	54.76			8.18E+01	5.48E+01
10	338.75	1.50E+02	46.01			1.50E+02	4.60E+01
11	352.10	2.64E+02	61.08	8.07E+00	5.01E+00	2.56E+02	6.13E+01
12	464.83	4.06E+01	40.07			4.06E+01	4.01E+01
13	476.12	4.63E+01	41.52			4.63E+01	4.15E+01
14	510.93	1.26E+02	45.84	4.21E+01	4.92E+00	8.42E+01	4.61E+01
15	555.58	2.65E+01	30.38			2.65E+01	3.04E+01
16	583.96	1.35E+02	42.33			1.35E+02	4.23E+01
17	609.87	1.79E+02	47.04	5.16E+00	1.63E+00	1.74E+02	4.71E+01
18	728.56	3.36E+01	32.28			3.36E+01	3.23E+01
19	845.19	1.91E+01	24.59			1.91E+01	2.46E+01
20	911.62	7.71E+01	34.28	1.01E+00	2.85E+00	7.61E+01	3.44E+01
21	933.95	3.80E+01	28.55			3.80E+01	2.85E+01
22	968.89	4.55E+01	37.33			4.55E+01	3.73E+01
23	1052.81	1.68E+01	21.62			1.68E+01	2.16E+01
M 24	1120.74	3.84E+01	23.65			3.84E+01	2.36E+01
m 25	1142.54	1.54E+01	24.76			1.54E+01	2.48E+01
26	1285.49	3.66E+01	33.59			3.66E+01	3.36E+01
27	1301.90	2.64E+01	18.33			2.64E+01	1.83E+01
28	1324.61	2.33E+01	16.03			2.33E+01	1.60E+01
29	1370.38	7.93E+00	11.14			7.93E+00	1.11E+01
30	1378.58	9.73E+00	9.84			9.73E+00	9.84E+00
31	1384.32	1.04E+01	12.81			1.04E+01	1.28E+01
32	1461.36	2.72E+02	41.45			2.72E+02	4.14E+01
33	1500.94	6.50E+00	8.03			6.50E+00	8.03E+00
34	1510.26	1.45E+01	9.64			1.45E+01	9.64E+00
35	1673.19	6.33E+00	7.35			6.33E+00	7.35E+00
36	1764.56	1.77E+01	9.39	1.11E-01	9.77E-01	1.75E+01	9.44E+00
37	1847.69	1.00E+01	8.00			1.00E+01	8.00E+00
38	1899.75	7.00E+00	5.29			7.00E+00	5.29E+00
39	2257.50	1.00E+01	6.32			1.00E+01	6.32E+00
40	2461.55	5.00E+00	4.47			5.00E+00	4.47E+00
41	2615.11	3.50E+01	11.83			3.50E+01	1.18E+01

Analysis Report for 1510090-14
CP0603S29-30

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

AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/10/2015 1:57:24PM
Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Counroom\Data\0000028944.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	75.91	9.30E+02	163.33			9.30E+02	1.63E+02
2	86.51	1.73E+02	110.72			1.73E+02	1.11E+02
3	155.81	9.06E+01	77.28			9.06E+01	7.73E+01
4	186.17	1.62E+02	84.14	1.43E+01	7.33E+00	1.47E+02	8.45E+01
5	209.66	3.96E+01	49.27			3.96E+01	4.93E+01
6	239.47	6.10E+02	94.21	1.09E+01	6.39E+00	5.99E+02	9.44E+01
7	280.53	8.18E+01	82.44			8.18E+01	8.24E+01
8	295.46	2.24E+02	82.15			2.24E+02	8.21E+01
9	328.89	8.18E+01	54.76			8.18E+01	5.48E+01
10	338.75	1.50E+02	46.01			1.50E+02	4.60E+01
11	352.10	2.64E+02	61.08	8.07E+00	5.01E+00	2.56E+02	6.13E+01
12	464.83	4.06E+01	40.07			4.06E+01	4.01E+01
13	476.12	4.63E+01	41.52			4.63E+01	4.15E+01
14	510.93	1.26E+02	45.84	4.21E+01	4.92E+00	8.42E+01	4.61E+01
15	555.58	2.65E+01	30.38			2.65E+01	3.04E+01
16	583.96	1.35E+02	42.33			1.35E+02	4.23E+01
17	609.87	1.79E+02	47.04	5.16E+00	1.63E+00	1.74E+02	4.71E+01
18	728.56	3.36E+01	32.28			3.36E+01	3.23E+01
19	845.19	1.91E+01	24.59			1.91E+01	2.46E+01
20	911.62	7.71E+01	34.28	1.01E+00	2.85E+00	7.61E+01	3.44E+01
21	933.95	3.80E+01	28.55			3.80E+01	2.85E+01
22	968.89	4.55E+01	37.33			4.55E+01	3.73E+01
23	1052.81	1.68E+01	21.62			1.68E+01	2.16E+01
M 24	1120.74	3.84E+01	23.65			3.84E+01	2.36E+01
m 25	1142.54	1.54E+01	24.76			1.54E+01	2.48E+01
26	1285.49	3.66E+01	33.59			3.66E+01	3.36E+01
27	1301.90	2.64E+01	18.33			2.64E+01	1.83E+01
28	1324.61	2.33E+01	16.03			2.33E+01	1.60E+01
29	1370.38	7.93E+00	11.14			7.93E+00	1.11E+01
30	1378.58	9.73E+00	9.84			9.73E+00	9.84E+00
31	1384.32	1.04E+01	12.81			1.04E+01	1.28E+01
32	1461.36	2.72E+02	41.45			2.72E+02	4.14E+01

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
33	1500.94	6.50E+00	8.03			6.50E+00	8.03E+00
34	1510.26	1.45E+01	9.64			1.45E+01	9.64E+00
35	1673.19	6.33E+00	7.35			6.33E+00	7.35E+00
36	1764.56	1.77E+01	9.39	1.11E-01	9.77E-01	1.75E+01	9.44E+00
37	1847.69	1.00E+01	8.00			1.00E+01	8.00E+00
38	1899.75	7.00E+00	5.29			7.00E+00	5.29E+00
39	2257.50	1.00E+01	6.32			1.00E+01	6.32E+00
40	2461.55	5.00E+00	4.47			5.00E+00	4.47E+00
41	2615.11	3.50E+01	11.83			3.50E+01	1.18E+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	0.952	1460.81 *	10.67	1.99E+01	3.79E+00
EU-155	0.381	86.50 *	30.90	3.76E-01	2.43E-01
		105.30	20.70		
TL-208	0.826	583.14 *	30.22	1.45E+00	4.84E-01
		860.37	4.48		
		2614.66 *	35.85	1.20E+00	4.24E-01
PB-212	0.796	238.63 *	44.60	1.88E+00	3.56E-01
		300.09	3.41		
BI-214	0.902	609.31 *	46.30	1.28E+00	3.72E-01
		1120.29 *	15.10	1.56E+00	9.71E-01
		1764.49 *	15.80	1.02E+00	5.56E-01
		2204.22	4.98		
PB-214	0.993	295.21 *	19.19	1.98E+00	7.55E-01
		351.92 *	37.19	1.37E+00	3.66E-01
RA-226	1.000	186.21 *	3.28	5.10E+00	9.78E+00
AC-228	0.968	338.32 *	11.40	2.53E+00	8.29E-01
		911.07 *	27.70	1.39E+00	6.36E-01
		969.11 *	16.60	1.47E+00	1.21E+00
NP-237	1.000	86.50 *	12.60	9.11E-01	5.89E-01

Analysis Report for 1510090-14
CP0603S29-30

* = 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 : 11/10/2015 1:57:24PM
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	75.91	2.58221E-01	8.79		
3	155.81	2.51629E-02	42.65		
5	209.66	1.09906E-02	62.27	Tol.	GA-67 CM-243
7	280.53	2.27323E-02	50.37	Tol.	HO-166M
9	328.89	2.27116E-02	33.49	Tol.	LA-140
12	464.83	1.12770E-02	49.36		
13	476.12	1.28652E-02	44.82	Tol.	PM-144
14	510.93	2.33879E-02	27.38		
15	555.58	7.36423E-03	57.30		
18	728.56	9.34240E-03	47.99		
19	845.19	5.31481E-03	64.25		
21	933.95	1.05556E-02	37.56		
23	1052.81	4.66787E-03	64.33		
m 25	1142.54	4.27066E-03	80.54		
26	1285.49	1.01565E-02	45.93		
27	1301.90	7.32550E-03	34.75		
28	1324.61	6.47876E-03	34.37		
29	1370.38	2.20370E-03	70.18		
30	1378.58	2.70370E-03	50.53		
31	1384.32	2.87698E-03	61.82	Tol.	AG-110M
33	1500.94	1.80556E-03	61.78		
34	1510.26	4.03595E-03	33.19		
35	1673.19	1.75926E-03	58.01		
37	1847.69	2.77778E-03	40.00		
38	1899.75	1.94444E-03	37.80		
39	2257.50	2.77778E-03	31.62		
40	2461.55	1.38889E-03	44.72		

Analysis Report for 1510090-14
CP0603S29-30

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	0.95	1460.81 *	10.67	1.99E+01	3.79E+00
EU-155	0.38	86.50 *	30.90	3.76E-01	2.43E-01
		105.30	20.70		
TL-208	0.82	583.14 *	30.22	1.45E+00	4.84E-01
		860.37	4.48		
		2614.66 *	35.85	1.20E+00	4.24E-01
PB-212	0.79	238.63 *	44.60	1.88E+00	3.56E-01
		300.09	3.41		
BI-214	0.90	609.31 *	46.30	1.28E+00	3.72E-01
		1120.29 *	15.10	1.56E+00	9.71E-01
		1764.49 *	15.80	1.02E+00	5.56E-01
		2204.22	4.98		
PB-214	0.99	295.21 *	19.19	1.98E+00	7.55E-01
		351.92 *	37.19	1.37E+00	3.66E-01
RA-226	1.00	186.21 *	3.28	5.10E+00	9.78E+00
AC-228	0.96	338.32 *	11.40	2.53E+00	8.29E-01
		911.07 *	27.70	1.39E+00	6.36E-01
		969.11 *	16.60	1.47E+00	1.21E+00
NP-237	1.00	86.50 *	12.60	9.11E-01	5.89E-01

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

Analysis Report for 1510090-14
CP0603S29-30

INTERFERENCE CORRECTED REPORT

<i>Nuclide Name</i>	<i>Nuclide Id Confidence</i>	<i>Wt mean Activity (pCi/grams)</i>	<i>Wt mean Activity Uncertainty</i>	<i>Comments</i>
	K-40	1.99E+01	3.79E+00	
?	EU-155	3.76E-01	2.43E-01	
	TL-208	1.31E+00	3.19E-01	
	PB-212	1.88E+00	3.56E-01	
	BI-214	1.23E+00	2.94E-01	
	PB-214	1.49E+00	3.29E-01	
	RA-226	5.10E+00	9.78E+00	
	AC-228	1.76E+00	4.66E-01	
?	NP-237	9.11E-01	5.89E-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 1510090-14
CP0603S29-30

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/10/2015 1:57:24PM
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	75.91	2.58221E-01	8.79		
3	155.81	2.51629E-02	42.65		
5	209.66	1.09906E-02	62.27	Tol.	GA-67 CM-243
7	280.53	2.27323E-02	50.37	Tol.	HO-166M
9	328.89	2.27116E-02	33.49	Tol.	LA-140
12	464.83	1.12770E-02	49.36		
13	476.12	1.28652E-02	44.82	Tol.	PM-144
14	510.93	2.33879E-02	27.38		
15	555.58	7.36423E-03	57.30		
18	728.56	9.34240E-03	47.99		
19	845.19	5.31481E-03	64.25		
21	933.95	1.05556E-02	37.56		
23	1052.81	4.66787E-03	64.33		
m 25	1142.54	4.27066E-03	80.54		
26	1285.49	1.01565E-02	45.93		
27	1301.90	7.32550E-03	34.75		
28	1324.61	6.47876E-03	34.37		
29	1370.38	2.20370E-03	70.18		
30	1378.58	2.70370E-03	50.53		
31	1384.32	2.87698E-03	61.82	Tol.	AG-110M
33	1500.94	1.80556E-03	61.78		
34	1510.26	4.03595E-03	33.19		
35	1673.19	1.75926E-03	58.01		
37	1847.69	2.77778E-03	40.00		
38	1899.75	1.94444E-03	37.80		
39	2257.50	2.77778E-03	31.62		
40	2461.55	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

Analysis Report for 1510090-14
CP0603S29-30

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	1.10E+00	2.06E+00
+	NA-22	1274.54	99.94	2.00E-02	2.06E-01
+	NA-24	1368.53	99.99	8.77E+12	5.09E+14
		2754.09	99.86	-1.97E+14	5.09E+14
+	AL-26	1808.65	99.76	6.57E-02	1.41E-01
+	K-40	1460.81	* 10.67	1.99E+01	3.22E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	4.06E-03	9.34E-02
		78.34	96.00	2.84E-01	1.21E-01
+	SC-46	889.25	99.98	1.23E-02	2.16E-01
		1120.51	99.99	2.70E-01	3.42E-01
+	V-48	983.52	99.98	-4.24E-01	5.69E-01
		1312.10	97.50	2.10E-01	7.50E-01
+	CR-51	320.08	9.83	3.66E-01	2.80E+00
+	MN-54	834.83	99.97	-2.16E-02	1.63E-01
+	CO-56	846.75	99.96	8.08E-02	2.45E-01
		1037.75	14.03	2.56E-01	1.87E+00
		1238.25	67.00	1.04E-01	5.09E-01
		1771.40	15.51	-2.07E-01	1.37E+00
		2598.48	16.90	-1.60E-01	8.92E-01
+	CO-57	122.06	85.51	-6.87E-03	1.18E-01
		136.48	10.60	-6.18E-01	9.92E-01
+	CO-58	810.76	99.40	-5.04E-02	2.25E-01
+	FE-59	1099.22	56.50	1.96E-02	5.52E-01
		1291.56	43.20	3.75E-01	8.18E-01
+	CO-60	1173.22	100.00	5.82E-02	1.75E-01
		1332.49	100.00	-3.40E-02	1.75E-01
+	ZN-65	1115.52	50.75	1.18E-02	4.66E-01
+	GA-67	93.31	35.70	1.61E+02	2.60E+02
		208.95	2.24	3.22E+02	4.84E+03
		300.22	16.00	3.94E+01	7.76E+02
+	SE-75	121.11	16.70	-9.31E-02	1.97E-01
		136.00	59.20	-9.81E-02	1.97E-01
		264.65	59.80	-4.65E-02	2.30E-01
		279.53	25.20	2.15E-01	5.79E-01
		400.65	11.40	-2.52E-01	1.37E+00
+	RB-82	776.52	13.00	-1.66E-01	3.12E+00
+	RB-83	520.41	46.00	5.91E-02	3.73E-01
		529.64	30.30	1.40E-01	5.76E-01
		552.65	16.40	-8.89E-02	1.10E+00

Analysis Report for 1510090-14
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99	0.43	4.64E+01	4.23E+01	4.23E+01
+	SR-85	513.99	99.27	2.84E-01	2.59E-01	2.59E-01
+	Y-88	898.02	93.40	-9.90E-02	1.86E-01	2.11E-01
		1836.01	99.38	5.09E-02		1.86E-01
+	NB-93M	16.57	9.43	9.47E-01	4.62E-01	4.62E-01
+	NB-94	702.63	100.00	6.73E-02	1.70E-01	1.70E-01
		871.10	100.00	7.24E-03		1.72E-01
+	NB-95	765.79	99.81	3.84E-02	3.26E-01	3.26E-01
+	NB-95M	235.69	25.00	-1.12E+00	3.42E+02	3.42E+02
+	ZR-95	724.18	43.70	3.61E-02	4.08E-01	5.82E-01
		756.72	55.30	1.03E-01		4.08E-01
+	MO-99	181.06	6.20	-6.93E+02	4.14E+03	5.78E+03
		739.58	12.80	-6.93E+02		4.14E+03
		778.00	4.50	5.32E+02		1.19E+04
+	RU-103	497.08	89.00	-2.09E-02	2.77E-01	2.77E-01
+	RU-106	621.84	9.80	-2.17E-01	1.52E+00	1.52E+00
+	AG-108M	433.93	89.90	-3.69E-02	1.47E-01	1.47E-01
		614.37	90.40	-2.19E-02		2.11E-01
		722.95	90.50	7.96E-03		1.89E-01
+	CD-109	88.03	3.72	3.48E+00	2.96E+00	2.96E+00
+	AG-110M	657.75	93.14	-1.98E-02	1.86E-01	1.86E-01
		677.61	10.53	5.80E-01		1.63E+00
		706.67	16.46	1.24E-01		1.07E+00
		763.93	21.98	-3.44E-01		7.99E-01
		884.67	71.63	-5.58E-02		2.43E-01
		1384.27	23.94	-8.66E-02		8.35E-01
+	CD-113M	263.70	0.02	-2.73E+02	4.91E+02	4.91E+02
+	SN-113	255.12	1.93	4.58E+00	2.50E-01	7.20E+00
		391.69	64.90	4.40E-02		2.50E-01
+	TE123M	159.00	84.10	-7.63E-03	1.55E-01	1.55E-01
+	SB-124	602.71	97.87	4.81E-02	2.12E-01	2.12E-01
		645.85	7.26	-5.72E-01		3.01E+00
		722.78	11.10	7.81E-02		2.05E+00
		1691.02	49.00	0.00E+00		3.69E-01
+	I-125	35.49	6.49	-8.04E-02	1.15E+00	1.15E+00
+	SB-125	176.33	6.89	-2.61E-02	4.68E-01	1.56E+00
		427.89	29.33	1.61E-01		4.68E-01
		463.38	10.35	1.29E+00		1.47E+00
		600.56	17.80	2.71E-01		8.42E-01
		635.90	11.32	-2.14E-01		1.25E+00
+	SB-126	414.70	83.30	-8.91E-03	9.41E-01	9.41E-01
		666.33	99.60	3.08E-03		9.54E-01
		695.00	99.60	-3.06E-01		1.00E+00
		720.50	53.80	-2.88E-01		1.60E+00
+	SN-126	87.57	37.00	3.33E-01	2.83E-01	2.83E-01
+	SB-127	473.00	25.00	-5.38E+01	1.24E+02	1.73E+02
		685.20	35.70	-1.09E+02		1.24E+02
		783.80	14.70	-1.20E+02		3.25E+02

Analysis Report for 1510090-14
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	I-129	29.78	57.00	-3.09E-02	8.53E-02	8.53E-02
		33.60	13.20	-1.71E-01		3.77E-01
		39.58	7.52	-2.11E-01		7.35E-01
+	I-131	284.30	6.05	-1.31E+01	2.41E+00	3.05E+01
		364.48	81.20	-1.10E-01		2.41E+00
		636.97	7.26	-1.34E+00		3.03E+01
		722.89	1.80	5.32E+00		1.39E+02
+	TE-132	49.72	13.10	1.51E+02	1.21E+02	4.68E+02
		228.16	88.00	-2.49E+00		1.21E+02
+	BA-133	81.00	33.00	-4.43E-01	3.08E-01	3.27E-01
		302.84	17.80	-1.19E-01		6.86E-01
		356.01	60.00	-8.37E-03		3.08E-01
+	I-133	529.87	86.30	5.59E+09	2.30E+10	2.30E+10
+	XE-133	81.00	38.00	-2.68E+01	1.98E+01	1.98E+01
+	CS-134	563.23	8.38	9.53E-02	1.85E-01	1.77E+00
		569.32	15.43	-7.42E-02		9.61E-01
		604.70	97.60	1.25E-02		1.85E-01
		795.84	85.40	7.78E-02		2.16E-01
		801.93	8.73	3.79E-01		2.14E+00
+	CS-135	268.24	16.00	3.42E-01	7.35E-01	7.35E-01
+	@ 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	1.92E-01	8.57E-01	7.77E+00
		163.89	4.61	1.71E+00		1.24E+01
		176.55	13.56	-7.07E-02		4.22E+00
		273.65	12.66	1.87E-01		5.00E+00
		340.57	48.50	6.83E-03		1.71E+00
		818.50	99.70	-3.50E-01		8.57E-01
		1048.07	79.60	3.05E-02		1.43E+00
		1235.34	19.70	1.09E+00		7.19E+00
+	CS-137	661.65	85.12	-3.04E-02	1.85E-01	1.85E-01
+	LA-138	788.74	34.00	-8.26E-02	2.12E-01	4.63E-01
		1435.80	66.00	4.21E-02		2.12E-01
+	CE-139	165.85	80.35	-1.10E-02	1.55E-01	1.55E-01
+	BA-140	162.64	6.70	1.54E+00	2.95E+00	9.05E+00
		304.84	4.50	-8.45E+00		1.54E+01
		423.70	3.20	-2.80E+00		2.31E+01
		437.55	2.00	-1.04E+01		3.82E+01
		537.32	25.00	-2.59E-01		2.95E+00
+	LA-140	328.77	20.50	3.42E+00	1.31E+00	3.80E+00
		487.03	45.50	-2.67E-01		1.71E+00
		815.85	23.50	1.44E-01		3.88E+00
		1596.49	95.49	5.53E-01		1.31E+00
+	CE-141	145.44	48.40	6.27E-02	4.26E-01	4.26E-01
+	CE-143	57.36	11.80	-6.95E+06	4.12E+06	6.80E+06
		293.26	42.00	7.36E+06		4.12E+06
		664.55	5.20	1.59E+07		3.45E+07
+	CE-144	133.54	10.80	-5.06E-01	9.60E-01	9.60E-01

Analysis Report for 1510090-14
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-144	476.78	42.00	2.74E-01	1.48E-01	3.63E-01
		618.01	98.60	-1.52E-02		1.48E-01
		696.49	99.49	-2.65E-02		1.79E-01
+	PM-145	36.85	21.70	1.43E-02	1.35E-01	2.43E-01
		37.36	39.70	2.25E-02		1.35E-01
		42.30	15.10	3.70E-02		3.90E-01
		72.40	2.31	8.84E+00		4.85E+00
+	PM-146	453.90	39.94	-1.80E-01	3.14E-01	3.14E-01
		735.90	14.01	-8.47E-01		1.09E+00
		747.13	13.10	-3.00E-01		1.29E+00
+	ND-147	91.11	28.90	2.04E+00	2.84E+00	2.84E+00
		531.02	13.10	8.18E-01		7.81E+00
+	PM-149	285.90	3.10	-3.53E+04	8.87E+04	8.87E+04
+	EU-152	121.78	20.50	-2.64E-02	4.54E-01	4.54E-01
		244.69	5.40	-6.25E-01		2.46E+00
		344.27	19.13	7.68E-03		6.45E-01
		778.89	9.20	7.93E-02		1.77E+00
		964.01	10.40	-2.38E-01		2.14E+00
		1085.78	7.22	-1.47E+00		2.51E+00
		1112.02	9.60	3.62E-01		2.23E+00
		1407.95	14.94	-3.35E-01		1.14E+00
+	GD-153	97.43	31.30	-2.42E-01	3.10E-01	3.10E-01
		103.18	22.20	-2.13E-01		4.22E-01
+	EU-154	123.07	40.50	-1.65E-01	2.27E-01	2.27E-01
		723.30	19.70	3.68E-02		8.73E-01
		873.19	11.50	-5.08E-01		1.44E+00
		996.32	10.30	-4.51E-01		1.75E+00
		1004.76	17.90	9.49E-01		1.20E+00
		1274.45	35.50	5.53E-02		5.69E-01
+	EU-155	86.50	* 30.90	3.76E-01	3.91E-01	3.91E-01
		105.30	20.70	2.64E-01		4.32E-01
+	EU-156	811.77	10.40	-1.95E+00	6.69E+00	6.69E+00
		1153.47	7.20	8.32E-01		1.19E+01
		1230.71	8.90	-2.14E+00		1.17E+01
+	HO-166M	184.41	72.60	1.63E-01	1.65E-01	1.65E-01
		280.45	29.60	1.89E-01		4.09E-01
		410.94	11.10	-1.74E-02		1.19E+00
		711.69	54.10	2.33E-02		2.79E-01
+	TM-171	66.72	0.14	2.58E+01	6.49E+01	6.49E+01
+	HF-172	81.75	4.52	-8.00E+00	8.69E-01	2.30E+00
		125.81	11.30	1.20E-01		8.69E-01
		181.53	20.60	-1.50E-01		8.18E+00
+	LU-172	810.06	16.63	-6.12E+00	8.18E+00	2.73E+01
		912.12	15.25	7.85E+01		5.12E+01
		1093.66	62.50	-3.69E+00		8.18E+00
		100.72	5.24	-2.32E+00		5.79E-01
+	LU-173	272.11	21.20	2.24E-01	2.14E-01	5.79E-01
		343.40	84.00	2.39E-03		2.14E-01
+	HF-175	343.40	84.00	2.39E-03	2.14E-01	2.14E-01
+	LU-176	88.34	13.30	2.72E-01	1.26E-01	8.04E-01

Analysis Report for 1510090-14
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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83	86.00	-5.22E-03	1.26E-01	1.35E-01
		306.78	94.00	-4.77E-02		1.26E-01
+	TA-182	67.75	41.20	1.13E-02	2.60E-01	2.60E-01
		1121.30	34.90	8.34E-01		9.02E-01
		1189.05	16.23	-2.92E-01		1.54E+00
		1221.41	26.98	4.07E-01		1.20E+00
		1231.02	11.44	-4.67E-01		2.56E+00
+	IR-192	308.46	29.68	-1.50E-01	3.61E-01	5.33E-01
		468.07	48.10	-3.38E-01		3.61E-01
+	HG-203	279.19	77.30	9.38E-02	2.52E-01	2.52E-01
+	BI-207	569.67	97.72	-1.14E-02	1.48E-01	1.48E-01
		1063.62	74.90	1.18E-01		2.60E-01
+	TL-208	583.14	* 30.22	1.45E+00	9.27E-02	6.57E-01
		860.37	4.48	2.36E+00		4.25E+00
		2614.66	* 35.85	1.20E+00		9.27E-02
+	BI-210M	262.00	45.00	-9.26E-02	2.52E-01	2.52E-01
		300.00	23.00	5.83E-01		6.50E-01
+	PB-210	46.50	4.25	9.52E-02	1.47E+00	1.47E+00
+	PB-211	404.84	2.90	1.75E+00	4.58E+00	4.58E+00
		831.96	2.90	5.53E-02		5.56E+00
+	BI-212	727.17	11.80	1.10E+00	1.62E+00	1.62E+00
		1620.62	2.75	-3.34E-01		5.18E+00
+	PB-212	238.63	* 44.60	1.88E+00	4.26E-01	4.26E-01
		300.09	3.41	3.93E+00		4.38E+00
+	BI-214	609.31	* 46.30	1.28E+00	4.91E-01	4.91E-01
		1120.29	* 15.10	1.56E+00		4.29E+00
		1764.49	* 15.80	1.02E+00		5.74E-01
		2204.22	4.98	0.00E+00		3.65E+00
+	PB-214	295.21	* 19.19	1.98E+00	4.75E-01	1.13E+00
		351.92	* 37.19	1.37E+00		4.75E-01
+	RN-219	401.80	6.50	-9.21E-01	1.98E+00	1.98E+00
+	RA-223	323.87	3.88	1.78E-02	3.25E+00	3.25E+00
+	RA-224	240.98	3.95	2.32E+01	4.99E+00	4.99E+00
+	RA-225	40.00	31.00	-2.31E-01	8.06E-01	8.06E-01
+	RA-226	186.21	* 3.28	5.10E+00	4.69E+00	4.69E+00
+	TH-227	50.10	8.40	2.53E-01	7.84E-01	7.84E-01
		236.00	11.50	-5.10E-03		1.55E+00
		256.20	6.30	6.18E-01		1.82E+00
+	AC-228	338.32	* 11.40	2.53E+00	9.37E-01	1.13E+00
		911.07	* 27.70	1.39E+00		9.37E-01
		969.11	* 16.60	1.47E+00		1.93E+00
+	TH-230	48.44	16.90	4.75E-02	3.79E-01	3.79E-01
		62.85	4.60	1.72E+00		1.83E+00
		67.67	0.37	1.03E+00		2.38E+01
+	PA-231	283.67	1.60	-2.21E-01	5.28E+00	7.32E+00
		302.67	2.30	-9.14E-01		5.28E+00
+	TH-231	25.64	14.70	1.03E-02	3.37E-01	3.37E-01
		84.21	6.40	-6.47E+00		1.50E+00

Analysis Report for 1510090-14
 CP0603S29-30

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PA-233	311.98	38.60	1.04E-01	7.19E-01	7.19E-01
+	PA-234	131.20	20.40	2.95E-01	4.79E-01	4.79E-01
		733.99	8.80	-6.71E-01		1.81E+00
		946.00	12.00	4.40E-01		1.55E+00
+	PA-234M	1001.03	0.92	-3.47E+00	2.06E+01	2.06E+01
+	TH-234	63.29	3.80	1.23E+00	2.22E+00	2.22E+00
+	U-235	143.76	10.50	4.04E-01	9.89E-01	9.89E-01
		163.35	4.70	3.08E-01		2.23E+00
		205.31	4.70	-1.34E-01		2.50E+00
+	NP-237	86.50	* 12.60	9.11E-01	9.47E-01	9.47E-01
+	NP-239	106.10	22.70	3.08E+03	5.04E+03	5.04E+03
		228.18	10.70	-3.41E+02		1.36E+04
		277.60	14.10	2.63E+03		1.09E+04
+	AM-241	59.54	35.90	-3.97E-02	2.17E-01	2.17E-01
+	AM-243	74.67	66.00	8.14E-01	1.82E-01	1.82E-01
+	CM-243	209.75	3.29	1.53E+00	8.54E-01	3.60E+00
		228.14	10.60	-2.22E-02		1.08E+00
		277.60	14.00	2.06E-01		8.54E-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	2.06E+00	2.06E+00	1.10E+00	9.79E-01
NA-22	1274.54	99.94	2.06E-01	2.06E-01	2.00E-02	9.32E-02
NA-24	1368.53	99.99	5.18E+14	5.09E+14	8.77E+12	2.29E+14
	2754.09	99.86	5.09E+14		-1.97E+14	2.02E+14

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AL-26	1808.65	99.76	1.41E-01	1.41E-01	6.57E-02	5.78E-02
+ K-40	1460.81	* 10.67	3.22E+00	3.22E+00	1.99E+01	1.51E+00
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	9.34E-02	9.34E-02	4.06E-03	4.59E-02
	78.34	96.00	1.21E-01		2.84E-01	5.96E-02
SC-46	889.25	99.98	2.16E-01	2.16E-01	1.23E-02	9.91E-02
	1120.51	99.99	3.42E-01		2.70E-01	1.60E-01
V-48	983.52	99.98	5.69E-01	5.69E-01	-4.24E-01	2.55E-01
	1312.10	97.50	7.50E-01		2.10E-01	3.35E-01
CR-51	320.08	9.83	2.80E+00	2.80E+00	3.66E-01	1.34E+00
MN-54	834.83	99.97	1.63E-01	1.63E-01	-2.16E-02	7.50E-02
CO-56	846.75	99.96	2.45E-01	2.45E-01	8.08E-02	1.14E-01
	1037.75	14.03	1.87E+00		2.56E-01	8.62E-01
	1238.25	67.00	5.09E-01		1.04E-01	2.36E-01
	1771.40	15.51	1.37E+00		-2.07E-01	5.79E-01
	2598.48	16.90	8.92E-01		-1.60E-01	3.16E-01
CO-57	122.06	85.51	1.18E-01	1.18E-01	-6.87E-03	5.75E-02
	136.48	10.60	9.92E-01		-6.18E-01	4.84E-01
CO-58	810.76	99.40	2.25E-01	2.25E-01	-5.04E-02	1.04E-01
FE-59	1099.22	56.50	5.52E-01	5.52E-01	1.96E-02	2.52E-01
	1291.56	43.20	8.18E-01		3.75E-01	3.73E-01
CO-60	1173.22	100.00	2.35E-01	1.75E-01	5.82E-02	1.09E-01
	1332.49	100.00	1.75E-01		-3.40E-02	7.77E-02
ZN-65	1115.52	50.75	4.66E-01	4.66E-01	1.18E-02	2.15E-01
GA-67	93.31	35.70	2.60E+02	2.60E+02	1.61E+02	1.28E+02
	208.95	2.24	4.84E+03		3.22E+02	2.35E+03
	300.22	16.00	7.76E+02		3.94E+01	3.75E+02
SE-75	121.11	16.70	6.64E-01	1.97E-01	-9.31E-02	3.24E-01
	136.00	59.20	1.97E-01		-9.81E-02	9.59E-02
	264.65	59.80	2.30E-01		-4.65E-02	1.11E-01
	279.53	25.20	5.79E-01		2.15E-01	2.79E-01
	400.65	11.40	1.37E+00		-2.52E-01	6.53E-01
RB-82	776.52	13.00	3.12E+00	3.12E+00	-1.66E-01	1.45E+00
RB-83	520.41	46.00	3.73E-01	3.73E-01	5.91E-02	1.76E-01
	529.64	30.30	5.76E-01		1.40E-01	2.71E-01
	552.65	16.40	1.10E+00		-8.89E-02	5.19E-01
KR-85	513.99	0.43	4.23E+01	4.23E+01	4.64E+01	2.02E+01
SR-85	513.99	99.27	2.59E-01	2.59E-01	2.84E-01	1.24E-01
Y-88	898.02	93.40	2.11E-01	1.86E-01	-9.90E-02	9.65E-02
	1836.01	99.38	1.86E-01		5.09E-02	7.73E-02
NB-93M	16.57	9.43	4.62E-01	4.62E-01	9.47E-01	2.25E-01
NB-94	702.63	100.00	1.70E-01	1.70E-01	6.73E-02	7.98E-02
	871.10	100.00	1.72E-01		7.24E-03	7.94E-02
NB-95	765.79	99.81	3.26E-01	3.26E-01	3.84E-02	1.52E-01
NB-95M	235.69	25.00	3.42E+02	3.42E+02	-1.12E+00	1.67E+02
ZR-95	724.18	43.70	5.82E-01	4.08E-01	3.61E-02	2.73E-01
	756.72	55.30	4.08E-01		1.03E-01	1.89E-01
MO-99	181.06	6.20	5.78E+03	4.14E+03	-6.93E+02	2.81E+03
	739.58	12.80	4.14E+03		-6.93E+02	1.93E+03
	778.00	4.50	1.19E+04		5.32E+02	5.51E+03
RU-103	497.08	89.00	2.77E-01	2.77E-01	-2.09E-02	1.31E-01
RU-106	621.84	9.80	1.52E+00	1.52E+00	-2.17E-01	7.10E-01
AG-108M	433.93	89.90	1.47E-01	1.47E-01	-3.69E-02	6.96E-02

Analysis Report for 1510090-14
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-108M	614.37	90.40	2.11E-01	1.47E-01	-2.19E-02	1.00E-01
	722.95	90.50	1.89E-01		7.96E-03	8.84E-02
CD-109	88.03	3.72	2.96E+00	2.96E+00	3.48E+00	1.46E+00
AG-110M	657.75	93.14	1.86E-01	1.86E-01	-1.98E-02	8.72E-02
	677.61	10.53	1.63E+00		5.80E-01	7.62E-01
	706.67	16.46	1.07E+00		1.24E-01	4.97E-01
	763.93	21.98	7.99E-01		-3.44E-01	3.71E-01
	884.67	71.63	2.43E-01		-5.58E-02	1.11E-01
	1384.27	23.94	8.35E-01		-8.66E-02	3.71E-01
CD-113M	263.70	0.02	4.91E+02	4.91E+02	-2.73E+02	2.37E+02
SN-113	255.12	1.93	7.20E+00	2.50E-01	4.58E+00	3.48E+00
	391.69	64.90	2.50E-01		4.40E-02	1.19E-01
TE123M	159.00	84.10	1.55E-01	1.55E-01	-7.63E-03	7.57E-02
SB-124	602.71	97.87	2.12E-01	2.12E-01	4.81E-02	9.95E-02
	645.85	7.26	3.01E+00		-5.72E-01	1.41E+00
	722.78	11.10	2.05E+00		7.81E-02	9.53E-01
	1691.02	49.00	3.69E-01		0.00E+00	1.49E-01
I-125	35.49	6.49	1.15E+00	1.15E+00	-8.04E-02	5.60E-01
SB-125	176.33	6.89	1.56E+00	4.68E-01	-2.61E-02	7.57E-01
	427.89	29.33	4.68E-01		1.61E-01	2.23E-01
	463.38	10.35	1.47E+00		1.29E+00	7.00E-01
	600.56	17.80	8.42E-01		2.71E-01	3.95E-01
	635.90	11.32	1.25E+00		-2.14E-01	5.81E-01
SB-126	414.70	83.30	9.41E-01	9.41E-01	-8.91E-03	4.47E-01
	666.33	99.60	9.54E-01		3.08E-03	4.47E-01
	695.00	99.60	1.00E+00		-3.06E-01	4.69E-01
	720.50	53.80	1.60E+00		-2.88E-01	7.39E-01
SN-126	87.57	37.00	2.83E-01	2.83E-01	3.33E-01	1.39E-01
SB-127	473.00	25.00	1.73E+02	1.24E+02	-5.38E+01	8.20E+01
	685.20	35.70	1.24E+02		-1.09E+02	5.74E+01
	783.80	14.70	3.25E+02		-1.20E+02	1.49E+02
I-129	29.78	57.00	8.53E-02	8.53E-02	-3.09E-02	4.16E-02
	33.60	13.20	3.77E-01		-1.71E-01	1.84E-01
	39.58	7.52	7.35E-01		-2.11E-01	3.59E-01
I-131	284.30	6.05	3.05E+01	2.41E+00	-1.31E+01	1.47E+01
	364.48	81.20	2.41E+00		-1.10E-01	1.15E+00
	636.97	7.26	3.03E+01		-1.34E+00	1.41E+01
	722.89	1.80	1.39E+02		5.32E+00	6.49E+01
TE-132	49.72	13.10	4.68E+02	1.21E+02	1.51E+02	2.29E+02
	228.16	88.00	1.21E+02		-2.49E+00	5.84E+01
BA-133	81.00	33.00	3.27E-01	3.08E-01	-4.43E-01	1.61E-01
	302.84	17.80	6.86E-01		-1.19E-01	3.30E-01
	356.01	60.00	3.08E-01		-8.37E-03	1.50E-01
I-133	529.87	86.30	2.30E+10	2.30E+10	5.59E+09	1.08E+10
XE-133	81.00	38.00	1.98E+01	1.98E+01	-2.68E+01	9.74E+00
CS-134	563.23	8.38	1.77E+00	1.85E-01	9.53E-02	8.33E-01
	569.32	15.43	9.61E-01		-7.42E-02	4.52E-01
	604.70	97.60	1.85E-01		1.25E-02	8.76E-02
	795.84	85.40	2.16E-01		7.78E-02	1.01E-01
	801.93	8.73	2.14E+00		3.79E-01	1.00E+00
CS-135	268.24	16.00	7.35E-01	7.35E-01	3.42E-01	3.54E-01
@ 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

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ I-135	1678.03	9.54	1.00E+26	1.00E+26	1.00E+26	1.00E+20
CS-136	153.22	7.46	7.77E+00	8.57E-01	1.92E-01	3.79E+00
	163.89	4.61	1.24E+01		1.71E+00	6.02E+00
	176.55	13.56	4.22E+00		-7.07E-02	2.05E+00
	273.65	12.66	5.00E+00		1.87E-01	2.41E+00
	340.57	48.50	1.71E+00		6.83E-03	8.28E-01
	818.50	99.70	8.57E-01		-3.50E-01	3.95E-01
	1048.07	79.60	1.43E+00		3.05E-02	6.61E-01
	1235.34	19.70	7.19E+00		1.09E+00	3.34E+00
CS-137	661.65	85.12	1.85E-01	1.85E-01	-3.04E-02	8.68E-02
LA-138	788.74	34.00	4.63E-01	2.12E-01	-8.26E-02	2.14E-01
	1435.80	66.00	2.12E-01		4.21E-02	9.00E-02
CE-139	165.85	80.35	1.55E-01	1.55E-01	-1.10E-02	7.56E-02
BA-140	162.64	6.70	9.05E+00	2.95E+00	1.54E+00	4.41E+00
	304.84	4.50	1.54E+01		-8.45E+00	7.40E+00
	423.70	3.20	2.31E+01		-2.80E+00	1.10E+01
	437.55	2.00	3.82E+01		-1.04E+01	1.82E+01
	537.32	25.00	2.95E+00		-2.59E-01	1.38E+00
LA-140	328.77	20.50	3.80E+00	1.31E+00	3.42E+00	1.83E+00
	487.03	45.50	1.71E+00		-2.67E-01	8.07E-01
	815.85	23.50	3.88E+00		1.44E-01	1.79E+00
	1596.49	95.49	1.31E+00		5.53E-01	5.87E-01
CE-141	145.44	48.40	4.26E-01	4.26E-01	6.27E-02	2.08E-01
CE-143	57.36	11.80	6.80E+06	4.12E+06	-6.95E+06	3.33E+06
	293.26	42.00	4.12E+06		7.36E+06	2.00E+06
	664.55	5.20	3.45E+07		1.59E+07	1.62E+07
CE-144	133.54	10.80	9.60E-01	9.60E-01	-5.06E-01	4.68E-01
PM-144	476.78	42.00	3.63E-01	1.48E-01	2.74E-01	1.72E-01
	618.01	98.60	1.48E-01		-1.52E-02	6.91E-02
	696.49	99.49	1.79E-01		-2.65E-02	8.40E-02
PM-145	36.85	21.70	2.43E-01	1.35E-01	1.43E-02	1.19E-01
	37.36	39.70	1.35E-01		2.25E-02	6.57E-02
	42.30	15.10	3.90E-01		3.70E-02	1.90E-01
	72.40	2.31	4.85E+00		8.84E+00	2.39E+00
PM-146	453.90	39.94	3.14E-01	3.14E-01	-1.80E-01	1.48E-01
	735.90	14.01	1.09E+00		-8.47E-01	5.05E-01
	747.13	13.10	1.29E+00		-3.00E-01	6.01E-01
ND-147	91.11	28.90	2.84E+00	2.84E+00	2.04E+00	1.40E+00
	531.02	13.10	7.81E+00		8.18E-01	3.67E+00
PM-149	285.90	3.10	8.87E+04	8.87E+04	-3.53E+04	4.26E+04
EU-152	121.78	20.50	4.54E-01	4.54E-01	-2.64E-02	2.22E-01
	244.69	5.40	2.46E+00		-6.25E-01	1.19E+00
	344.27	19.13	6.45E-01		7.68E-03	3.09E-01
	778.89	9.20	1.77E+00		7.93E-02	8.23E-01
	964.01	10.40	2.14E+00		-2.38E-01	1.00E+00
	1085.78	7.22	2.51E+00		-1.47E+00	1.14E+00
	1112.02	9.60	2.23E+00		3.62E-01	1.03E+00
	1407.95	14.94	1.14E+00		-3.35E-01	5.02E-01
GD-153	97.43	31.30	3.10E-01	3.10E-01	-2.42E-01	1.51E-01
	103.18	22.20	4.22E-01		-2.13E-01	2.06E-01
EU-154	123.07	40.50	2.27E-01	2.27E-01	-1.65E-01	1.11E-01
	723.30	19.70	8.73E-01		3.68E-02	4.09E-01
	873.19	11.50	1.44E+00		-5.08E-01	6.61E-01

Analysis Report for 1510090-14
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-154	996.32	10.30	1.75E+00	2.27E-01	-4.51E-01	8.00E-01
	1004.76	17.90	1.20E+00		9.49E-01	5.57E-01
	1274.45	35.50	5.69E-01		5.53E-02	2.58E-01
+ EU-155	86.50 *	30.90	3.91E-01	3.91E-01	3.76E-01	1.93E-01
	105.30	20.70	4.32E-01		2.64E-01	2.11E-01
EU-156	811.77	10.40	6.69E+00	6.69E+00	-1.95E+00	3.09E+00
	1153.47	7.20	1.19E+01		8.32E-01	5.45E+00
	1230.71	8.90	1.17E+01		-2.14E+00	5.42E+00
HO-166M	184.41	72.60	1.65E-01	1.65E-01	1.63E-01	8.04E-02
	280.45	29.60	4.09E-01		1.89E-01	1.97E-01
	410.94	11.10	1.19E+00		-1.74E-02	5.64E-01
	711.69	54.10	2.79E-01		2.33E-02	1.30E-01
TM-171	66.72	0.14	6.49E+01	6.49E+01	2.58E+01	3.19E+01
HF-172	81.75	4.52	2.30E+00	8.69E-01	-8.00E+00	1.13E+00
	125.81	11.30	8.69E-01		1.20E-01	4.24E-01
LU-172	181.53	20.60	1.51E+01	8.18E+00	-1.50E-01	7.35E+00
	810.06	16.63	2.73E+01		-6.12E+00	1.26E+01
	912.12	15.25	5.12E+01		7.85E+01	2.43E+01
	1093.66	62.50	8.18E+00		-3.69E+00	3.73E+00
LU-173	100.72	5.24	1.66E+00	5.79E-01	-2.32E+00	8.13E-01
	272.11	21.20	5.79E-01		2.24E-01	2.79E-01
HF-175	343.40	84.00	2.14E-01	2.14E-01	2.39E-03	1.03E-01
LU-176	88.34	13.30	8.04E-01	1.26E-01	2.72E-01	3.95E-01
	201.83	86.00	1.35E-01		-5.22E-03	6.58E-02
	306.78	94.00	1.26E-01		-4.77E-02	6.04E-02
TA-182	67.75	41.20	2.60E-01	2.60E-01	1.13E-02	1.27E-01
	1121.30	34.90	9.02E-01		8.34E-01	4.22E-01
	1189.05	16.23	1.54E+00		-2.92E-01	7.06E-01
	1221.41	26.98	1.20E+00		4.07E-01	5.62E-01
	1231.02	11.44	2.56E+00		-4.67E-01	1.18E+00
	308.46	29.68	5.33E-01		3.61E-01	-1.50E-01	2.56E-01
IR-192	468.07	48.10	3.61E-01	3.61E-01	-3.38E-01	1.70E-01
HG-203	279.19	77.30	2.52E-01	2.52E-01	9.38E-02	1.22E-01
BI-207	569.67	97.72	1.48E-01	1.48E-01	-1.14E-02	6.95E-02
	1063.62	74.90	2.60E-01		1.18E-01	1.19E-01
	583.14 *	30.22	6.57E-01		9.27E-02	1.45E+00	3.14E-01
+ TL-208	860.37	4.48	4.25E+00	2.60E-01	2.36E+00	1.98E+00
	2614.66 *	35.85	9.27E-02		1.20E+00	0.00E+00
	262.00	45.00	2.52E-01		2.52E-01	-9.26E-02	1.22E-01
BI-210M	300.00	23.00	6.50E-01	2.52E-01	5.83E-01	3.15E-01
	46.50	4.25	1.47E+00		1.47E+00	9.52E-02	7.17E-01
PB-210	404.84	2.90	4.58E+00	4.58E+00	1.75E+00	2.18E+00
	831.96	2.90	5.56E+00		5.53E-02	2.56E+00
BI-212	727.17	11.80	1.62E+00	1.62E+00	1.10E+00	7.65E-01
	1620.62	2.75	5.18E+00		-3.34E-01	2.17E+00
	238.63 *	44.60	4.26E-01		4.26E-01	1.88E+00	2.09E-01
+ PB-212	300.09	3.41	4.38E+00	4.26E-01	3.93E+00	2.12E+00
	609.31 *	46.30	4.91E-01		4.91E-01	1.28E+00	2.35E-01
+ BI-214	1120.29 *	15.10	4.29E+00	4.91E-01	1.56E+00	2.09E+00
	1764.49 *	15.80	5.74E-01		1.02E+00	2.08E-01
	2204.22	4.98	3.65E+00		0.00E+00	1.53E+00
	295.21 *	19.19	1.13E+00		4.75E-01	1.98E+00	5.55E-01
+ PB-214	351.92 *	37.19	4.75E-01	4.75E-01	1.37E+00	2.30E-01

Analysis Report for 1510090-14
CP0603S29-30

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
RN-219	401.80	6.50	1.98E+00	1.98E+00	-9.21E-01	9.43E-01
RA-223	323.87	3.88	3.25E+00	3.25E+00	1.78E-02	1.56E+00
RA-224	240.98	3.95	4.99E+00	4.99E+00	2.32E+01	2.45E+00
RA-225	40.00	31.00	8.06E-01	8.06E-01	-2.31E-01	3.93E-01
+ RA-226	186.21 *	3.28	4.69E+00	4.69E+00	5.10E+00	2.30E+00
TH-227	50.10	8.40	7.84E-01	7.84E-01	2.53E-01	3.84E-01
	236.00	11.50	1.55E+00		-5.10E-03	7.59E-01
	256.20	6.30	1.82E+00		6.18E-01	8.77E-01
+ AC-228	338.32 *	11.40	1.13E+00	9.37E-01	2.53E+00	5.40E-01
	911.07 *	27.70	9.37E-01		1.39E+00	4.44E-01
	969.11 *	16.60	1.93E+00		1.47E+00	9.22E-01
TH-230	48.44	16.90	3.79E-01	3.79E-01	4.75E-02	1.85E-01
	62.85	4.60	1.83E+00		1.72E+00	8.96E-01
	67.67	0.37	2.38E+01		1.03E+00	1.17E+01
PA-231	283.67	1.60	7.32E+00	5.28E+00	-2.21E-01	3.52E+00
	302.67	2.30	5.28E+00		-9.14E-01	2.54E+00
TH-231	25.64	14.70	3.37E-01	3.37E-01	1.03E-02	1.65E-01
	84.21	6.40	1.50E+00		-6.47E+00	7.38E-01
PA-233	311.98	38.60	7.19E-01	7.19E-01	1.04E-01	3.45E-01
PA-234	131.20	20.40	4.79E-01	4.79E-01	2.95E-01	2.34E-01
	733.99	8.80	1.81E+00		-6.71E-01	8.43E-01
	946.00	12.00	1.55E+00		4.40E-01	7.17E-01
PA-234M	1001.03	0.92	2.06E+01	2.06E+01	-3.47E+00	9.46E+00
TH-234	63.29	3.80	2.22E+00	2.22E+00	1.23E+00	1.09E+00
U-235	143.76	10.50	9.89E-01	9.89E-01	4.04E-01	4.83E-01
	163.35	4.70	2.23E+00		3.08E-01	1.08E+00
	205.31	4.70	2.50E+00		-1.34E-01	1.22E+00
+ NP-237	86.50 *	12.60	9.47E-01	9.47E-01	9.11E-01	4.66E-01
NP-239	106.10	22.70	5.04E+03	5.04E+03	3.08E+03	2.46E+03
	228.18	10.70	1.36E+04		-3.41E+02	6.60E+03
	277.60	14.10	1.09E+04		2.63E+03	5.25E+03
AM-241	59.54	35.90	2.17E-01	2.17E-01	-3.97E-02	1.06E-01
AM-243	74.67	66.00	1.82E-01	1.82E-01	8.14E-01	8.98E-02
CM-243	209.75	3.29	3.60E+00	8.54E-01	1.53E+00	1.75E+00
	228.14	10.60	1.08E+00		-2.22E-02	5.21E-01
	277.60	14.00	8.54E-01		2.06E-01	4.12E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1510090-14
CP0603S29-30

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: CP0603S29-30

Elapsed Live time: 3600
 Elapsed Real Time: 3639

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	22	110
17:	95	74	71	69	72	64	72	59
25:	62	69	51	61	54	56	52	59
33:	56	51	59	70	64	64	67	67
41:	70	57	75	65	82	97	95	67
49:	65	79	66	88	88	93	70	90
57:	83	94	83	104	108	130	128	132
65:	109	100	97	107	113	112	114	134
73:	175	230	256	293	266	148	99	76
81:	75	86	111	102	125	148	142	112
89:	120	124	109	146	105	105	70	70
97:	72	59	73	60	65	61	62	57
105:	88	64	69	70	80	61	56	55
113:	69	71	64	54	78	63	58	61
121:	63	59	59	59	57	53	69	65
129:	76	64	64	53	55	58	55	52
137:	46	73	62	63	63	53	71	59
145:	69	53	59	55	59	53	46	58
153:	59	74	59	63	56	64	42	51
161:	53	54	60	61	43	48	47	56
169:	40	47	60	49	54	42	52	41
177:	38	53	43	37	46	52	52	58
185:	64	77	62	50	52	40	36	51
193:	44	53	51	45	59	53	31	50
201:	48	38	48	34	42	39	38	49
209:	63	46	30	41	42	44	32	38
217:	31	43	37	36	47	41	36	56
225:	34	39	33	32	26	29	25	34
233:	34	23	33	47	143	239	157	77
241:	69	63	39	36	23	26	15	24
249:	27	32	25	29	21	39	23	26
257:	26	36	29	26	17	31	22	34
265:	19	21	34	35	25	34	20	25
273:	27	18	22	23	39	28	27	25
281:	30	24	25	20	25	28	17	19
289:	24	20	28	32	34	73	89	62
297:	25	16	25	42	24	21	25	21
305:	16	20	20	18	24	29	21	19
313:	24	21	23	21	24	23	18	22
321:	26	21	16	29	18	22	28	38
329:	22	23	23	25	14	14	19	25
337:	41	64	44	26	21	12	12	25
345:	19	19	15	19	23	52	123	94
353:	51	17	18	10	17	18	15	14
361:	20	22	13	15	21	12	16	16

369: 17 19 15 18 16 10 11 19

Sample Title: CP0603S29-30

Channel	1	2	3	4	5	6	7	8
377:	15	15	11	24	13	12	16	16
385:	17	14	18	13	22	19	16	16
393:	13	20	18	20	19	10	15	17
401:	12	14	16	16	17	15	17	19
409:	15	14	8	15	17	16	17	12
417:	14	17	12	12	13	15	11	15
425:	13	18	15	15	19	10	15	11
433:	13	11	9	20	14	16	13	14
441:	14	21	14	20	9	17	10	17
449:	11	8	7	8	13	10	15	12
457:	14	12	14	14	10	18	24	14
465:	18	9	17	8	7	7	8	11
473:	13	16	17	17	8	8	19	11
481:	8	10	12	10	8	16	10	11
489:	11	15	7	17	12	14	9	15
497:	7	9	9	16	14	11	14	9
505:	7	11	17	13	31	41	35	17
513:	15	6	13	10	3	10	13	8
521:	13	9	10	9	8	9	12	13
529:	8	8	8	8	11	7	10	5
537:	11	6	7	8	10	8	10	10
545:	9	11	6	7	8	8	7	15
553:	5	7	15	12	13	9	6	7
561:	8	11	9	11	17	9	8	8
569:	7	15	7	4	9	12	8	8
577:	8	5	7	8	11	38	51	42
585:	9	15	11	10	10	2	12	14
593:	8	10	7	13	6	14	7	9
601:	9	8	7	5	8	7	18	41
609:	72	51	27	6	11	7	3	10
617:	8	6	6	10	9	5	7	10
625:	5	6	12	9	7	5	7	7
633:	6	4	6	8	5	6	12	6
641:	12	6	4	9	14	4	9	7
649:	6	11	10	7	9	11	9	7
657:	8	3	10	11	8	10	12	4
665:	8	7	13	7	5	7	7	6
673:	8	1	11	11	7	8	5	13
681:	6	7	3	7	2	3	5	7
689:	10	8	10	10	8	6	6	10
697:	8	10	6	12	8	12	7	8
705:	7	7	3	6	8	9	8	3
713:	6	8	7	3	6	6	4	5
721:	7	8	7	4	7	13	18	12
729:	11	10	10	6	5	9	8	3
737:	7	3	3	10	11	9	7	6
745:	11	8	7	9	3	9	5	7
753:	4	10	6	11	5	3	7	4
761:	6	6	3	4	7	6	11	10
769:	13	10	12	6	8	7	8	9
777:	4	9	3	8	3	5	3	4
785:	6	8	4	6	5	5	7	6
793:	11	6	9	7	7	5	8	1

801: 9 8 12 10 7 7 5 7

Sample Title: CP0603S29-30

Channel	1	2	3	4	5	6	7	8	9
809:	5	5	4	7	6	6	5	2	
817:	6	9	4	5	8	2	8	6	
825:	9	6	2	5	10	4	3	3	
833:	5	3	11	4	5	4	6	5	
841:	3	5	8	7	12	7	8	5	
849:	5	5	6	7	5	5	5	5	
857:	6	10	6	10	4	5	8	10	
865:	3	6	4	9	6	5	3	6	
873:	8	3	6	7	1	6	8	5	
881:	3	11	1	5	1	5	7	3	
889:	5	1	11	7	4	3	2	6	
897:	6	5	2	7	3	6	3	7	
905:	5	4	2	4	5	17	43	33	
913:	10	5	6	6	6	5	6	6	
921:	2	5	8	2	5	3	4	2	
929:	10	3	3	9	8	11	8	5	
937:	5	6	5	2	4	8	5	7	
945:	4	5	5	2	9	5	4	6	
953:	5	1	5	10	7	6	5	7	
961:	6	4	8	9	6	7	11	12	
969:	19	18	10	4	3	3	6	4	
977:	3	9	5	3	1	4	0	4	
985:	5	2	1	5	3	6	4	5	
993:	8	0	5	8	4	2	3	6	
1001:	6	5	8	1	11	4	11	7	
1009:	3	4	3	5	5	3	4	4	
1017:	4	3	4	3	2	6	9	5	
1025:	1	2	7	4	3	1	4	5	
1033:	2	8	4	3	8	5	3	5	
1041:	9	4	4	10	4	4	5	5	
1049:	4	5	7	8	10	5	4	2	
1057:	1	4	7	3	6	4	4	5	
1065:	3	8	3	6	2	3	3	3	
1073:	6	6	2	4	7	7	10	5	
1081:	7	7	2	2	0	5	8	3	
1089:	7	1	5	4	5	6	3	3	
1097:	2	9	4	4	6	5	2	3	
1105:	2	5	7	3	5	9	6	5	
1113:	9	1	5	5	4	5	9	17	
1121:	15	8	6	5	3	6	3	2	
1129:	3	3	6	7	4	1	3	7	
1137:	8	1	4	3	10	7	6	3	
1145:	6	3	4	6	1	2	4	4	
1153:	5	6	6	7	3	5	3	7	
1161:	9	3	5	4	8	7	5	4	
1169:	2	6	7	6	9	6	8	7	
1177:	1	4	7	2	5	5	3	7	
1185:	2	7	3	12	4	4	2	3	
1193:	2	2	7	6	2	4	6	3	
1201:	8	4	3	7	7	8	10	5	
1209:	9	6	5	7	6	8	5	7	
1217:	6	9	7	10	6	7	7	8	
1225:	5	4	4	7	7	3	3	9	

1233: 9 5 4 5 8 8 9 8

Sample Title: CP0603S29-30

Channel	1	2	3	4	5	6	7	8	9
1241:	8	3	5	5	3	7	8	8	
1249:	7	5	4	1	3	2	3	6	
1257:	1	6	0	5	1	5	3	6	
1265:	4	2	0	3	6	2	6	4	
1273:	2	6	2	3	4	3	6	7	
1281:	5	7	2	3	2	4	2	5	
1289:	4	5	3	6	7	1	3	2	
1297:	1	3	9	5	5	2	3	1	
1305:	3	5	0	0	2	5	1	4	
1313:	2	2	4	4	2	1	0	2	
1321:	0	4	3	6	8	3	1	5	
1329:	2	1	3	2	2	2	2	2	
1337:	2	3	3	3	2	1	1	4	
1345:	1	3	2	3	3	2	1	6	
1353:	1	2	1	0	0	3	0	1	
1361:	0	4	1	1	3	2	1	1	
1369:	4	4	3	0	1	1	0	1	
1377:	1	5	6	2	0	2	3	6	
1385:	5	2	0	2	1	2	2	3	
1393:	3	4	1	1	0	3	3	1	
1401:	3	2	2	3	1	1	4	2	
1409:	2	3	2	0	2	3	4	3	
1417:	1	1	2	1	1	1	2	0	
1425:	4	4	0	2	1	1	1	1	
1433:	0	2	2	1	2	1	0	2	
1441:	0	1	1	2	0	1	2	2	
1449:	0	0	3	1	1	3	2	2	
1457:	2	5	12	58	93	80	32	12	
1465:	5	1	2	1	4	1	0	1	
1473:	2	0	2	4	0	3	4	2	
1481:	0	0	2	0	1	2	1	0	
1489:	0	3	0	3	1	4	2	2	
1497:	0	1	0	2	4	2	1	0	
1505:	1	1	0	2	1	5	3	2	
1513:	2	0	0	1	0	0	1	1	
1521:	3	1	0	1	0	1	2	2	
1529:	1	3	2	1	0	3	2	1	
1537:	0	3	3	3	2	2	3	0	
1545:	1	0	1	0	1	2	1	0	
1553:	0	0	1	2	0	1	1	0	
1561:	0	2	0	2	0	2	1	0	
1569:	1	1	2	1	2	0	1	1	
1577:	1	2	2	0	2	1	1	2	
1585:	2	0	0	2	7	3	2	4	
1593:	8	6	2	1	2	1	1	1	
1601:	3	1	2	0	3	3	0	1	
1609:	1	0	1	0	0	0	2	0	
1617:	1	3	1	0	0	3	1	0	
1625:	0	1	2	1	0	1	0	1	
1633:	0	0	1	2	0	3	2	1	
1641:	1	1	3	1	2	1	2	3	
1649:	1	0	0	0	1	1	2	1	
1657:	0	0	1	0	1	0	2	2	

1665: 0 1 1 1 1 1 1 1

Sample Title: CP0603S29-30

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

2097: 0 0 0 0 1 0 2 2

Sample Title: CP0603S29-30

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

2529: 0 0 0 0 0 0 0 1 0

Sample Title: CP0603S29-30

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

2961: 0 0 0 0 0 0 0 0 0

Sample Title: CP0603S29-30

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

3393: 0 0 0 0 0 1 0 0

Sample Title: CP0603S29-30

Channel	1	0	1	0	0	0	0	0
3401:	1	0	1	0	0	0	0	0
3409:	0	0	0	2	0	0	1	0
3417:	1	0	0	0	0	0	1	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	1	0
3473:	1	1	0	0	0	0	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0
3505:	0	1	0	0	0	0	0	0
3513:	0	0	1	0	0	0	0	0
3521:	1	0	0	0	0	0	0	0
3529:	0	0	0	1	0	1	0	1
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:	1	0	0	0	0	0	1	0
3585:	0	0	0	0	0	1	0	0
3593:	0	0	0	0	0	1	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	1	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	2	1	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	1	0	0	0	0	1	0
3649:	0	0	1	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	1	0	0
3681:	0	0	0	0	0	0	0	1
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	2	0	0	0	0
3705:	0	1	0	0	0	0	0	0
3713:	0	0	1	0	0	0	0	0
3721:	0	0	0	0	1	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	1	0	0	0	0	0	1	0
3745:	0	0	0	0	1	0	0	0
3753:	0	0	0	0	1	0	1	0
3761:	0	0	0	0	0	0	0	2
3769:	0	0	0	0	0	0	1	0
3777:	0	1	0	0	0	0	0	0
3785:	0	0	0	0	0	0	1	0
3793:	0	0	1	0	0	1	0	0
3801:	0	1	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

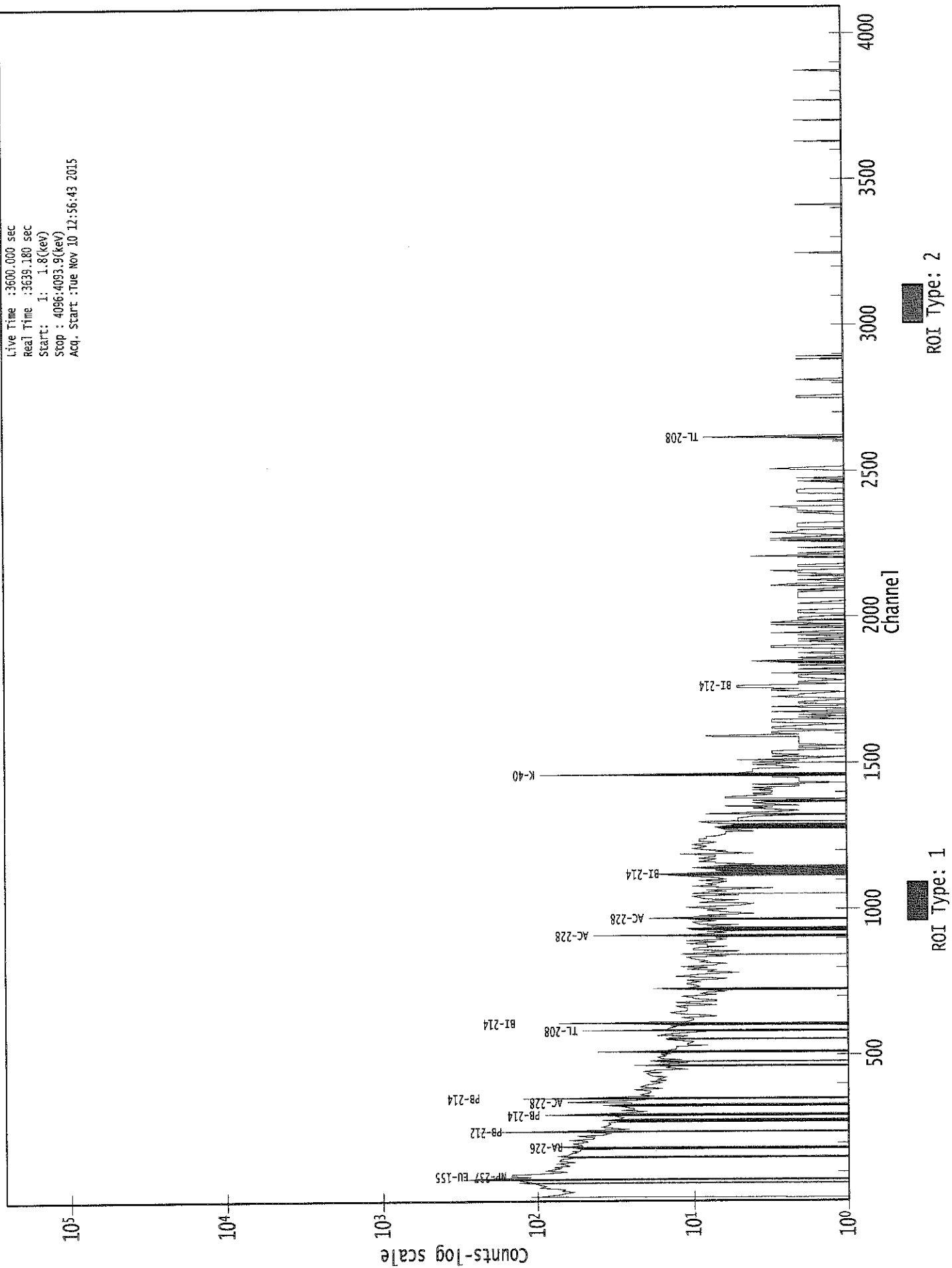
3825: 0 0 0 0 0 0 0 0 1

Sample Title: CP0603S29-30

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

0000029397.CNF

Live Time :3600.000 sec
Real Time :3639.180 sec
Start: 1: 1.8(keV)
Stop : 4096.4093.9(keV)
Acq. Start :Tue Nov 10 12:56:43 2015



 ***** GENIE QUALITY ASSURANCE *****

Last Results Report
 11/10/15 6:18:58 AM

AG
 11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001B.QCK

Detector: GE1
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 11/10/15 6:03:47 AM
 Measurement Date: 11/10/15 6:03:50 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.3020E+000 +/- 1.691]	2.1167E+000	-1.0963E-001 < : : : >
Trend Test: The last	9 samples exhibit a bias trend.	

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

 ***** GENIE QUALITY ASSURANCE *****

Last Results Report
 11/10/15 6:18:40 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000002B.QCK

Detector: GE2
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 11/10/15 6:03:26 AM
 Measurement Date: 11/10/15 6:03:29 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 900.1 seconds

Parameter Description	Value	Deviation/Flags
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >
DAILY BKG CT RATE GE2	4.3867E+000	-5.9113E-001
[SD: 4.5523E+000 +/- 0.280]		< : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

```

*****
*****      G E N I E   Q U A L I T Y   A S S U R A N C E      *****
*****

```

Last Results Report
 11/10/15 6:18:26 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003B.QCK

```

Detector:           GE3
Geometry:           <None>
Certificate:        <None>
Sample ID:          QA Background Ch
Sample Desc:        QA Count
Sample Quantity:    1.0000E+000
Sample Date:        11/10/15 6:02:52 AM
Measurement Date:   11/10/15 6:03:13 AM
Elapsed Live Time:  900.0 seconds
Elapsed Real Time:  904.3 seconds

```

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.2860E+003+/-1494.8]	1.7260E+003	-3.7465E-001 < : : : >

```

Flags Key:  LU = Lower/Upper Bounds Test      (Ab = Above, Be = Below)
             SD = Sample Driven N-Sigma Test  (In = Investigate, Ac = Action)
             UD = User Driven N-Sigma Test    (In = Investigate, Ac = Action)
             BS = Measurement Bias Test        (In = Investigate, Ac = Action)

```

 ***** GENIE QUALITY ASSURANCE *****

Last Results Report
 11/10/15 6:18:00 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000004B.QCK

Detector: GE4
 Geometry: <None>
 Certificate: <None>
 Sample ID: QA Background Ch
 Sample Desc: QA Count
 Sample Quantity: 1.0000E+000
 Sample Date: 11/10/15 6:02:35 AM
 Measurement Date: 11/10/15 6:02:39 AM
 Elapsed Live Time: 900.0 seconds
 Elapsed Real Time: 910.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 8.7217E+000+/-163.52]	1.5611E+000	-4.3788E-002 < : : : >
Trend Test: The last	9 samples exhibit a bias trend.	

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

```

*****
*****      G E N I E    Q U A L I T Y    A S S U R A N C E      *****
*****

```

Last Results Report
 11/10/15 6:37:16 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-14C.QCK

```

Detector:      GE1
Geometry:     <None>
Certificate:   GAF-14
Sample ID:    QA Calibration C
Sample Desc:  QA Count
Sample Quantity: 1.0000E+000
Sample Date:  10/1/14 12:00:00 AM
Measurement Date: 11/10/15 6:21:39 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 923.8 seconds

```

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54 keV	6.0186E+001				
Boundary Limits: [5.800E+001, 6.100E+001]		<	:	:	>
Peak centroid 661.65 keV	6.6200E+002				
Boundary Limits: [6.600E+002, 6.630E+002]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak centroid 1332.49 ke	1.3327E+003				
Boundary Limits: [1.331E+003, 1.334E+003]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak centroid 1836.01 ke	1.8364E+003				
Boundary Limits: [1.834E+003, 1.838E+003]		<	:	:	>
Peak FWHM Am-241	1.0375E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Cs-137	1.5572E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Co-60	2.0524E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Peak FWHM Y-90	2.4002E+000				
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Decay corrected activity	1.4251E+004				
Boundary Limits: [1.170E-002, 1.754E-002]		<	:	:	>
Decay corrected activity	6.0617E+003				

Boundary Limits: [4.716E-003, 7.075E-003] < : : : >

Decay corrected activity 1.0628E+004
Boundary Limits: [7.572E-003, 1.136E-002] < : : : >

Parameter Description Value Deviation/Flags
[Mean +/- Std. Dev.] < LU : SD : UD : BS >

Decay corrected activity 2.0857E+004
Boundary Limits: [1.626E-002, 2.440E-002] < : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

***** GENIE QUALITY ASSURANCE *****

Last Results Report
11/10/15 6:37:29 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-1401C.QC

Detector: GE2
Geometry: <None>
Certificate: GAS-1401
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/14 12:00:00 AM
Measurement Date: 11/10/15 6:21:52 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 926.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54keV	6.0000E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 keV	6.6149E+002	
Boundary Limits: [6.600E+002, 6.640E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3321E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.1 keV	1.8354E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.3248E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.1571E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.1401E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.6387E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5485E+005	
Boundary Limits: [1.224E-001, 1.836E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 6.4100E+004
 Boundary Limits: [4.971E-002, 7.457E-002] < : : : >
 Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description	Value	Deviation/Flags			
[Mean +/- Std. Dev.]		< LU	: SD	: UD	: BS >

Decay corrected activity	1.0605E+005				
Boundary Limits: [7.978E-002, 1.197E-001]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					

Decay corrected activity	2.2477E+005				
Boundary Limits: [1.714E-001, 2.571E-001]		<	:	:	>

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

***** GENIE QUALITY ASSURANCE *****

Last Results Report
11/10/15 6:37:58 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003GAS-1402C.QC

Detector: GE3
Geometry: <None>
Certificate: GAS-1402
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/14 12:00:00 AM
Measurement Date: 11/10/15 6:22:09 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 936.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54 keV	5.9920E+001	<	:	:	>
Boundary Limits: [5.800E+001, 6.100E+001]		<	:	:	>
Peak centroid 661.65 keV	6.6152E+002	<	:	:	>
Boundary Limits: [6.600E+002, 6.640E+002]		<	:	:	>
Peak centroid 1332.49 keV	1.3319E+003	<	:	:	>
Boundary Limits: [1.331E+003, 1.334E+003]		<	:	:	>
Peak centroid 1836.1 keV	1.8351E+003	<	:	:	>
Boundary Limits: [1.833E+003, 1.838E+003]		<	:	:	>
Peak FWHM Am-241	1.6309E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Cs-137	2.1830E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Co-60	2.2546E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Peak FWHM Y-88	2.3990E+000	<	:	:	>
Boundary Limits: [5.000E-001, 3.000E+000]		<	:	:	>
Decay corrected activity	1.8171E+005	<	:	:	>
Boundary Limits: [1.223E-001, 1.834E-001]		<	:	:	>
Decay corrected activity	6.3665E+004	<	:	:	>
Boundary Limits: [4.969E-002, 7.453E-002]		<	:	:	>
Trend Test: The last 9 samples exhibit a bias trend.					
Decay corrected activity	9.8323E+004				

Boundary Limits: [7.972E-002, 1.120E-001] < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	2.1267E+005	
Boundary Limits: [1.713E-001, 2.569E-001]		< : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

***** G E N I E Q U A L I T Y A S S U R A N C E *****

Last Results Report
11/10/15 6:38:32 AM

AG
11/10/15

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004GAW-14C.QCK

Detector: GE4
Geometry: <None>
Certificate: GAW-14
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/14 12:00:00 AM
Measurement Date: 11/10/15 6:22:24 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 955.3 seconds

Table with 3 columns: Parameter Description, Value, Deviation/Flags. Rows include peak centroid (59.54, 661.65, 1332.49, 1836.1 keV), peak FWHM (Am-241, Cs-137, Co-60, Y-88), and decay corrected activity.

Decay corrected activity 9.5381E+004
 Boundary Limits: [7.892E-002, 1.184E-001] < : : : >
 Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description Value Deviation/Flags
 [Mean +/- Std. Dev.] < LU : SD : UD : BS >

Decay corrected activity 2.0767E+005
 Boundary Limits: [1.695E-001, 2.543E-001] < : : : >
 Trend Test: The last 9 samples exhibit a bias trend.

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
 BS = Measurement Bias Test (In = Investigate, Ac = Action)