

**AUXIER & ASSOCIATES, INC.**

**PAP-KAN**

**STANDARD LEVEL IV  
REPORT OF ANALYSIS**

**WORK ORDER #15-10093-OR**

**November 25, 2015**

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

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

MP-001-3

**15 - 10093**

Eberline Services Work Order # \_\_\_\_\_

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

Date for Partial	Initials	Date	Initials	Checklist Items
		10-15-15	SEB	Sample Log-in
		11/12/15	UG	Data Compilation
		11-19-15	MLT	First Technical Data Review
		11/20/15	MSK	Second Technical Data Review
		11/23/15		Data Entry/Electronic Deliverable
		11/23/15		Case Narrative
		11/25/15	ABJ	Electronic Deliverable Proof
		11/25/15	MSK	Samples Analyzed within Holding Time Yes? <input checked="" type="checkbox"/> No? <input type="checkbox"/>
		11/25/15	MSK	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:

\_\_\_\_\_  
Laboratory Manager

11/25/15  
\_\_\_\_\_  
Date

Copy No. \_\_\_\_\_

Radiochemistry Services

: 000003

**SECTION I**  
**CHAIN OF CUSTODY**

# Chain of Custody Record

No 7129

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



Project Name: PDP/KAD		Project Number:		Analysis Requested		Page ___ of ___	
Send Report To: Cecilia Greene		Sampler (Print Name): Ashley Jabur		Isotope Thorium		RECD OCT 14 2015	
Address:		Sampler (Print Name):		Isotope Uranium		15-10093	
9821 Cordell Rd Suite 1		Shipment Method: FedEx		Gaussian Spec		Purchase Order #:	
Hixville, TN 37832		Airbill Number:		Technique			
Phone: 615-75-3669		Laboratory Receiving:		Technique			
Fax: cgreene@auxier.com				Technique			
Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)	
CP5002S03-04	10/8/15	1200	S	1	21 Day Growth		
CP5002S06-07	10/8/15	1220	S	1			
CP5002S09-10	10/8/15	1230	S	1			
CP5002S11-12	10/8/15	1240	S	1			
CP5002S13-14	10/8/15	1250	S	1			
CP5002S16-17	10/8/15	1300	S	1			
CP1806S03-04	10/9/15	0850	S	1			
CP1806S05-06	10/9/15	0810	S	1			
CP1806S08-09	10/9/15	0820	S	1			
CP1806S10-11	10/9/15	0830	S	1			
CP1806S13-14	10/9/15	0840	S	1			
CP3004S02-03	10/10/15	1240	S	1			
CP3004S05-06	10/10/15	1250	S	1			
CP3004S07-08	10/10/15	1300	S	1			
CP3004S10-11	10/10/15	1310	S	1			
CP3004S12-13	10/10/15	1320	S	1	21 Day Growth		

Relinquished by: (Signature) \_\_\_\_\_ Date: 10/12/15 1300

Relinquished by: (Signature) \_\_\_\_\_ Date: 10-14-15 1400

Relinquished by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level:  Level I  Level II  Level III  Other \_\_\_\_\_

Turnaround:  Routine  24 Hour  1 Week  Other \_\_\_\_\_

Sample Receipt:  Total # Containers Received?  COC Seals Present?  COC Seals Intact?  Received Containers Intact?  Temperature? \_\_\_\_\_

000001



**EBERLINE**  
SERVICES  
Oak Ridge Laboratory

# Internal Chain of Custody

Work Order #

**15-10093**

Lab Deadline

**11/5/2015**

Analysis

**UUISO - Level 4**

Sample Matrix

**Soil/Solid**

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	35	11.2
	05	34	11.2
	06	36	11.2
	07	34	11.2
	08	32	11.2
	09	33	11.2
	10	37	11.2
	11	34	11.2
	12	35	11.2
	13	36	11.2
	14	34	11.2
	15	39	11.2
	16	41	11.2
	17	38	11.2
	18	34	11.2
	19	32	11.2

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room/200	Kerry Seis	10-20-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0745 Kerry Seis	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	945 J Pacheco	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0745 J Pacheco	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0745 J Pacheco	10-23-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	0745 J Pacheco	10-23-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1109	07/18
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	106	11/4/15
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**  
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Oak Ridge Laboratory

# Internal Chain of Custody

Work Order #

**15-10093**

Lab Deadline

**11/5/2015**

Analysis

**ThISO - Level 4**

Sample Matrix

**Soil/Solid**

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	35	11.2
	05	34	11.2
	06	36	11.2
	07	34	11.2
	08	32	11.2
	09	33	11.2
	10	37	11.2
	11	34	11.2
	12	35	11.2
	13	36	11.2
	14	34	11.2
	15	39	11.2
	16	41	11.2
	17	38	11.2
	18	34	11.2
	19	32	11.2

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-20-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>945</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	<i>Keny See</i>	10-21-15



# Internal Chain of Custody

Work Order #	<b>15-10093</b>
Lab Deadline	<b>11/5/2015</b>
Analysis	<b>Gamma - Level 4</b>
Sample Matrix	<b>Soil/Solid</b>


Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
<b>21 day ingrowth: Report Ac228, Bi214, Pb212/214, Ra226 from Bi214, Ra228 from Ac228, Tl208, Th234 &amp; positives.</b>	04	35	I1.2
	05	34	I1.2
	06	36	I1.2
	07	34	I1.2
	08	32	I1.2
	09	33	I1.2
	10	37	I1.2
	11	34	I1.2
	12	35	I1.2
	13	36	I1.2
	14	34	I1.2
	15	39	I1.2
	16	41	I1.2
	17	38	I1.2
	18	34	I1.2
	19	32	I1.2

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room / 200	Kerry Seis	10-20-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0955	Kerry Seis	10-21-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KCB 10/21/15	0956
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KCB	11/11/15 1635
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		15-10093			
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	THSO	UISO						
01	LCS	10/15/15	SO	I1.2	X	X	X				3		
02	BLANK	10/15/15	SO	I1.2	X	X	X				3		
03	DUP	10/15/15	SO	I1.2	X	X	X				3		
04	CP5002S03-04	10/08/15 12:00	SO	I1.2	X	X	X				3		
05	CP5002S06-07	10/08/15 12:20	SO	I1.2	X	X	X				3		
06	CP5002S09-10	10/08/15 12:30	SO	I1.2	X	X	X				3		
07	CP5002S11-12	10/08/15 12:40	SO	I1.2	X	X	X				3		
08	CP5002S13-14	10/08/15 13:00	SO	I1.2	X	X	X				3		
09	CP5002S16-17	10/08/15 13:10	SO	I1.2	X	X	X				3		
10	CP1806S03-04	10/09/15 08:00	SO	I1.2	X	X	X				3		
11	CP1806S05-06	10/09/15 08:10	SO	I1.2	X	X	X				3		
12	CP1806S08-09	10/09/15 08:20	SO	I1.2	X	X	X				3		
13	CP1806S10-11	10/09/15 08:30	SO	I1.2	X	X	X				3		
14	CP1806S13-14	10/09/15 08:40	SO	I1.2	X	X	X				3		
15	CP3004S02-03	10/10/15 12:40	SO	I1.2	X	X	X				3		
16	CP3004S05-06	10/10/15 12:50	SO	I1.2	X	X	X				3		
17	CP3004S07-08	10/10/15 13:00	SO	I1.2	X	X	X				3		
18	CP3004S10-11	10/10/15 13:10	SO	I1.2	X	X	X				3		
19	CP3004S12-13	10/10/15 13:20	SO	I1.2	X	X	X				3		
					16	15	16	0	0	0	0		
					Totals Per Analysis (non QA samples)							0	0

 <b>EBERLINE SERVICES</b> Sample Log In Report	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830  <b>Voice: (865) 481-0683</b> <b>Fax: (865) 483-4621</b>	<b>Invoice</b> Accounts Payable Auxier & Associates, Inc. 9821 Cogdill Drive #1 Knoxville, TN 37932  Voice 865-675-3669 Fax 865-675-3677	<b>Report Data</b> Cecilia Greene Auxier & Associates, Inc. 9821 Cogdill Road, Suite 1 Knoxville, TN 37830  Voice 865-675-3669 Fax 865-675-3677
	<b>Contact</b> Harvey Cohen 301-718-9900 Fax 301-718-9909		



**Eberline Services – Oak Ridge Laboratory**

**SAMPLE RECEIPT CHECKLIST**  
MP-001-2

WORK ORDER # 15-10093

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. Bailey* 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-40008

November 25, 2015

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

CASE NARRATIVE  
Work Order # 15-10093-OR

SAMPLE RECEIPT

This work order contains sixteen 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>
CP5002S03-04	15-10093-04	CP1806S08-09	15-10093-12
CP5002S06-07	15-10093-05	CP1806S10-11	15-10093-13
CP5002S09-10	15-10093-06	CP1806S13-14	15-10093-14
CP5002S11-12	15-10093-07	CP3004S02-03	15-10093-15
CP5002S13-14	15-10093-08	CP3004S05-06	15-10093-16
CP5002S16-17	15-10093-09	CP3004S07-08	15-10093-17
CP1806S03-04	15-10093-10	CP3004S10-11	15-10093-18
CP1806S05-06	15-10093-11	CP3004S12-13	15-10093-19

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.

## ANALYTICAL RESULTS CONTINUED

### ISOTOPIC URANIUM

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

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

### ISOTOPIC THORIUM

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

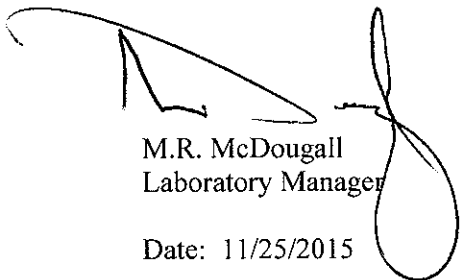
### GAMMA SPECTROSCOPY

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

**SDG: 15-10093**  
**Project: PAP-KAN**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: 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
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Cobalt-60	LANL ER-130 Modified	1.37E+02	5.48E+00				pCig
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Cesium-137	LANL ER-130 Modified	8.69E+01	3.48E+00				pCig
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Cobalt-60	LANL ER-130 Modified	1.36E+02	9.42E+00	1.17E+01	1.55E+00	1.50E+00	pCig
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Cesium-137	LANL ER-130 Modified	8.37E+01	8.07E+00	9.14E+00	2.16E+00	1.07E+00	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	2.93E-02	1.30E-01	1.30E-01	2.40E-01	1.02E-01	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	-5.58E-02	9.35E-02	9.35E-02	1.31E-01	5.83E-02	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.60E-01	4.50E-01	4.50E-01	8.89E-01	3.72E-01	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	3.04E-02	5.54E-02	5.54E-02	9.37E-02	4.38E-02	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	6.04E-02	7.73E-02	7.73E-02	1.38E-01	6.35E-02	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	-5.58E-02	9.35E-02	9.35E-02	1.31E-01	6.00E-01	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	2.93E-02	1.30E-01	1.30E-01	2.40E-01	1.02E-01	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	6.05E-01	4.08E-01	4.08E-01	7.00E-01	3.36E-01	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	0.00E+00	1.15E-01	1.15E-01	1.92E-01	8.55E-02	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.42E+00	2.07E-01	2.19E-01	3.65E-01	1.74E-01	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.28E+00	1.60E-01	1.73E-01	5.08E-02	1.12E-01	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.94E+01	2.19E+00	2.40E+00	9.13E-01	4.23E-01	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.58E+00	1.78E-01	1.95E-01	2.49E-01	1.22E-01	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.48E+00	1.75E-01	1.91E-01	2.28E-01	1.11E-01	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.28E+00	1.60E-01	1.73E-01	5.08E-02	1.28E+00	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.42E+00	2.07E-01	2.19E-01	3.65E-01	1.74E-01	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.40E+00	1.46E+00	1.46E+00	2.44E+00	1.20E+00	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.18E+00	1.73E-01	1.83E-01	1.71E-01	1.54E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.57E+00	2.35E-01	2.48E-01	3.64E-01	1.73E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.32E+00	1.80E-01	1.92E-01	2.31E-01	1.12E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.07E+01	2.29E+00	2.52E+00	7.88E-01	3.61E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.64E+00	1.82E-01	2.00E-01	3.26E-01	1.61E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.42E+00	1.60E-01	1.76E-01	2.55E-01	1.24E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.32E+00	1.80E-01	1.92E-01	2.31E-01	1.26E+00	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.57E+00	2.35E-01	2.48E-01	3.64E-01	1.73E-01	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	3.02E+00	1.59E+00	1.60E+00	2.60E+00	1.28E+00	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.38E+00	1.78E-01	1.92E-01	8.87E-02	1.43E-01	pCig

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



**EBERLINE**  
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EBERLINE ANALYTICAL CORPORATION

601 SCARBORO ROAD OAK RIDGE, TN 37830

865/481-0683

FAX 865/483-4621

# Eberline Analytical

## Final Report of Analysis

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

**15-10093**  
**PAP-KAN**  
**ENVIRONMENTAL**  
**SO**

**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
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.34E+00	2.01E-01	2.12E-01	7.14E-01	3.47E-01	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.09E+00	1.57E-01	1.67E-01	1.88E-01	8.97E-02	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.01E+01	2.54E+00	2.74E+00	8.52E-01	3.89E-01	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.60E+00	1.87E-01	2.04E-01	2.57E-01	1.26E-01	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.27E+00	1.54E-01	1.67E-01	2.12E-01	1.03E-01	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.09E+00	1.57E-01	1.67E-01	1.88E-01	1.17E+00	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.34E+00	2.01E-01	2.12E-01	7.14E-01	3.47E-01	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.94E+00	1.77E+00	1.77E+00	2.95E+00	1.45E+00	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.11E+00	1.60E-01	1.70E-01	1.13E-01	1.51E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.65E+00	3.05E-01	3.16E-01	3.91E-01	1.80E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.22E+00	2.44E-01	2.52E-01	3.44E-01	1.65E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.48E+01	3.02E+00	3.28E+00	1.68E+00	7.83E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.80E+00	2.08E-01	2.27E-01	3.06E-01	1.50E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.41E+00	2.02E-01	2.15E-01	3.54E-01	1.72E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.22E+00	2.44E-01	2.52E-01	3.44E-01	1.62E+00	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.65E+00	3.05E-01	3.16E-01	3.91E-01	1.80E-01	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	2.27E+00	1.76E+00	1.76E+00	2.36E+00	1.16E+00	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.37E+00	2.49E-01	2.59E-01	2.85E-01	2.15E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.46E+00	2.86E-01	2.96E-01	4.39E-01	2.09E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.65E+00	1.97E-01	2.14E-01	2.52E-01	1.22E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.09E+01	2.69E+00	2.89E+00	1.21E+00	5.68E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.64E+00	1.94E-01	2.11E-01	3.05E-01	1.50E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.83E+00	1.98E-01	2.19E-01	2.68E-01	1.30E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.65E+00	1.97E-01	2.14E-01	2.52E-01	1.42E+00	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.46E+00	2.86E-01	2.96E-01	4.39E-01	2.09E-01	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.30E+00	1.52E+00	1.52E+00	2.54E+00	1.25E+00	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.16E+00	1.71E-01	1.81E-01	1.17E-01	1.73E-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

Report To:

**15-10093**  
**PAP-KAN**  
**ENVIRONMENTAL**  
**SO**

Work Order Details:

**SDG:**  
**Project:**  
**Analysis Category:**  
**Sample Matrix:**

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.58E+00	2.79E-01	2.90E-01	4.70E-01	2.20E-01	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.34E+00	2.42E-01	2.51E-01	3.21E-01	1.54E-01	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.14E+01	2.66E+00	2.88E+00	1.35E+00	6.20E-01	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.72E+00	1.94E-01	2.13E-01	2.86E-01	1.40E-01	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.57E+00	1.93E-01	2.08E-01	4.03E-01	1.97E-01	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.34E+00	2.42E-01	2.51E-01	3.21E-01	1.52E+00	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.58E+00	2.79E-01	2.90E-01	4.70E-01	2.20E-01	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.35E+00	1.78E+00	1.78E+00	2.35E+00	1.15E+00	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.45E+00	3.34E-01	3.42E-01	4.37E-01	2.09E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	2.05E+00	5.18E-01	5.28E-01	8.23E-01	3.86E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.16E+00	2.63E-01	2.69E-01	7.00E-01	3.40E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.08E+01	3.41E+00	3.57E+00	9.39E-01	3.67E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	2.05E+00	3.89E-01	4.03E-01	4.88E-01	2.40E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.19E+00	2.95E-01	3.01E-01	4.71E-01	2.28E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.16E+00	2.63E-01	2.69E-01	7.00E-01	1.83E+00	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	2.05E+00	5.18E-01	5.28E-01	8.23E-01	3.86E-01	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	2.34E+00	1.46E+00	1.47E+00	2.31E+00	1.14E+00	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.33E+00	3.10E-01	3.17E-01	2.36E-01	2.89E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.63E+00	2.81E-01	2.93E-01	4.55E-01	2.18E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.48E+00	1.86E-01	2.01E-01	2.33E-01	1.12E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.17E+01	2.40E+00	2.64E+00	1.20E+00	5.66E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.82E+00	2.01E-01	2.22E-01	2.81E-01	1.38E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.62E+00	1.79E-01	1.97E-01	2.70E-01	1.32E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.48E+00	1.86E-01	2.01E-01	2.33E-01	1.32E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.63E+00	2.81E-01	2.93E-01	4.55E-01	2.18E-01	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.56E+00	1.64E+00	1.64E+00	2.73E+00	1.35E+00	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.51E+00	1.96E-01	2.11E-01	1.43E-01	1.62E-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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**15-10093**  
 PAP-KAN  
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 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
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.55E+00	2.28E-01	2.40E-01	4.19E-01	2.00E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.14E+00	1.69E-01	1.79E-01	2.48E-01	1.20E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.20E+01	2.71E+00	2.94E+00	6.18E-01	2.71E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.87E+00	2.43E-01	2.61E-01	2.48E-01	1.21E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.41E+00	1.63E-01	1.78E-01	2.13E-01	1.03E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.14E+00	1.69E-01	1.79E-01	2.48E-01	1.24E+00	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.58E+00	2.26E-01	2.40E-01	4.19E-01	2.00E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.54E+00	9.63E-01	9.66E-01	1.56E+00	7.57E-01	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.19E+00	1.69E-01	1.80E-01	1.12E-01	1.60E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.37E+00	2.72E-01	2.81E-01	4.62E-01	2.16E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.13E+00	2.07E-01	2.15E-01	2.47E-01	1.17E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.06E+01	2.54E+00	2.78E+00	1.04E+00	4.67E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.86E+00	2.05E-01	2.26E-01	3.43E-01	1.69E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.22E+00	2.03E-01	2.13E-01	2.90E-01	1.41E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.13E+00	2.07E-01	2.15E-01	2.47E-01	1.22E+00	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.37E+00	2.72E-01	2.81E-01	4.62E-01	2.16E-01	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	5.88E+00	2.64E+00	2.68E+00	4.29E+00	2.12E+00	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.64E+00	3.12E-01	3.23E-01	5.72E-01	2.77E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.47E+00	3.82E-01	3.89E-01	6.99E-01	3.25E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.05E+00	3.04E-01	3.09E-01	4.66E-01	2.23E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.34E+01	2.55E+00	2.64E+00	1.40E+00	6.02E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.84E+00	3.03E-01	3.17E-01	3.19E-01	1.55E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.20E+00	2.37E-01	2.45E-01	6.61E-01	3.23E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.05E+00	3.04E-01	3.09E-01	4.66E-01	2.01E+00	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.47E+00	3.82E-01	3.89E-01	6.99E-01	3.25E-01	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	2.12E+00	1.37E+00	1.38E+00	2.16E+00	1.06E+00	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.43E+00	3.03E-01	3.12E-01	9.29E-02	2.47E-01	pCi/g

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



**EBERLINE**  
 SERVICES

EBERLINE ANALYTICAL CORPORATION

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

# Eberline Analytical Final Report of Analysis

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

Work Order Details:

**15-10093**  
PAP-KAN  
ENVIRONMENTAL  
SO

SDG:  
Project:  
Analysis Category:  
Sample Matrix:

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
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.27E+00	1.84E-01	1.99E-01	3.29E-01	1.54E-01	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.02E+00	1.40E-01	1.49E-01	1.71E-01	9.10E-02	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.31E+01	1.62E+00	1.75E+00	8.36E-01	3.86E-01	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.39E+00	1.59E-01	1.74E-01	2.67E-01	1.32E-01	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.13E+00	1.39E-01	1.49E-01	1.91E-01	9.29E-02	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.02E+00	1.40E-01	1.49E-01	1.71E-01	1.22E+00	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.27E+00	1.84E-01	1.99E-01	3.29E-01	1.54E-01	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.48E+00	1.26E+00	1.26E+00	1.69E+00	8.29E-01	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.05E+00	1.50E-01	1.59E-01	8.48E-02	1.39E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.50E+00	2.48E-01	2.60E-01	5.01E-01	2.40E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.53E+00	1.92E-01	2.07E-01	2.27E-01	1.09E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.98E+01	2.59E+00	2.78E+00	1.21E+00	5.68E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.41E+00	1.79E-01	1.93E-01	2.60E-01	1.27E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.71E+00	2.12E-01	2.30E-01	2.56E-01	1.24E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.53E+00	1.92E-01	2.07E-01	2.27E-01	1.32E+00	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.50E+00	2.48E-01	2.60E-01	5.01E-01	2.40E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.91E+00	1.04E+00	1.05E+00	1.70E+00	8.28E-01	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.24E+00	1.64E-01	1.76E-01	1.78E-01	1.35E-01	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.41E+00	3.37E-01	3.45E-01	6.55E-01	3.15E-01	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.55E+00	2.43E-01	2.56E-01	2.68E-01	1.28E-01	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.79E+01	2.29E+00	2.46E+00	3.98E+00	1.94E+00	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.68E+00	1.92E-01	2.11E-01	2.51E-01	1.23E-01	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.51E+00	2.01E-01	2.16E-01	2.43E-01	1.17E-01	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.55E+00	2.43E-01	2.56E-01	2.68E-01	1.44E+00	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.41E+00	3.37E-01	3.45E-01	6.55E-01	3.15E-01	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	2.94E+00	1.64E+00	1.65E+00	2.24E+00	1.10E+00	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.31E+00	3.06E-01	3.14E-01	4.02E-01	1.93E-01	pCi/g

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



**EBERLINE**  
SERVICES

EBERLINE ANALYTICAL CORPORATION

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865/481-0683

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# Eberline Analytical

## Final Report of Analysis

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

**15-10093**  
**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
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.66E+00	5.69E-01	5.75E-01	9.89E-01	4.68E-01	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.29E+00	3.52E-01	3.58E-01	5.99E-01	2.90E-01	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.97E+01	3.24E+00	3.39E+00	8.41E-01	3.23E-01	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.97E+00	3.33E-01	3.48E-01	3.71E-01	1.82E-01	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.19E+00	2.56E-01	2.63E-01	3.75E-01	1.80E-01	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.29E+00	3.52E-01	3.58E-01	5.99E-01	1.81E+00	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.66E+00	5.69E-01	5.75E-01	9.89E-01	4.68E-01	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.16E+00	1.39E+00	1.40E+00	2.17E+00	1.08E+00	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.45E+00	3.39E-01	3.47E-01	9.12E-02	3.52E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.42E+00	2.33E-01	2.44E-01	3.95E-01	1.88E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	1.25E+00	1.46E-01	1.60E-01	3.23E-01	1.58E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	2.18E+01	2.48E+00	2.70E+00	1.16E+00	5.46E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.59E+00	1.79E-01	1.97E-01	2.76E-01	1.35E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	1.59E+00	1.72E-01	1.89E-01	2.63E-01	1.28E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	1.25E+00	1.46E-01	1.60E-01	3.23E-01	1.42E+00	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.42E+00	2.33E-01	2.44E-01	3.95E-01	1.88E-01	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.17E+00	1.35E+00	1.35E+00	2.26E+00	1.11E+00	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.14E+00	1.76E-01	1.86E-01	1.71E-01	1.65E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Actinium-228	LANL ER-130 Modified	1.12E+00	1.89E-01	1.98E-01	3.11E-01	1.46E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Bismuth-214	LANL ER-130 Modified	8.17E-01	1.48E-01	1.54E-01	2.20E-01	1.06E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Potassium-40	LANL ER-130 Modified	1.90E+01	2.42E+00	2.61E+00	8.27E-01	3.78E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Lead-212	LANL ER-130 Modified	1.32E+00	1.61E-01	1.74E-01	2.31E-01	1.13E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Lead-214	LANL ER-130 Modified	9.56E-01	1.29E-01	1.38E-01	1.89E-01	9.10E-02	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Radium-226	LANL ER-130 Modified	8.17E-01	1.48E-01	1.54E-01	2.20E-01	1.02E+00	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Radium-228	LANL ER-130 Modified	1.12E+00	1.89E-01	1.98E-01	3.11E-01	1.46E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Thorium-234	LANL ER-130 Modified	1.34E+00	8.78E-01	8.81E-01	1.43E+00	6.95E-01	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/11/2015	15-10093	Thallium-208	LANL ER-130 Modified	1.09E+00	1.55E-01	1.65E-01	1.48E-01	1.29E-01	pCi/g

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



**EBERLINE**  
 SERVICES

**EBERLINE ANALYTICAL CORPORATION**

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

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# Eberline Analytical

## Final Report of Analysis

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

**15-10093**  
**PAP-KAN**  
**ENVIRONMENTAL**  
**SO**

Work Order Details:

Report To:

**SDG:**  
 Project:  
 Analysis Category:  
 Sample Matrix:

Method  
 Analyte  
 Batch ID  
 Analysis Date  
 Receipt Date  
 Sample Date

Result  
 CU  
 CSU  
 MDA  
 CV  
 Report Units

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	5.04E+00	1.81E-01				pCig
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	5.79E+00	9.21E-01	1.07E+00	8.62E-02	1.33E-02	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	-4.76E-03	1.98E-02	1.98E-02	6.38E-02	1.44E-02	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.59E+00	4.60E-01	4.84E-01	8.49E-02	9.21E-03	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.08E+00	2.64E-01	2.83E-01	5.72E-02	9.68E-03	pCig
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.14E+00	2.80E-01	3.00E-01	4.63E-02	3.90E-03	pCig
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.32E+00	3.73E-01	3.93E-01	1.05E-01	2.63E-02	pCig
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.33E+00	3.22E-01	3.45E-01	1.22E-01	7.19E-02	pCig
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.24E+00	2.93E-01	3.19E-01	5.69E-02	8.59E-03	pCig
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.16E+00	2.48E-01	2.72E-01	4.83E-02	8.99E-03	pCig
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.39E+00	3.08E-01	3.35E-01	4.50E-02	4.90E-03	pCig
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.36E+00	3.09E-01	3.34E-01	6.37E-02	1.40E-02	pCig
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.62E+00	3.61E-01	3.92E-01	6.97E-02	1.75E-02	pCig
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.03E+00	2.62E-01	2.79E-01	4.09E-02	2.34E-03	pCig
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.25E+00	3.13E-01	3.34E-01	7.34E-02	1.61E-02	pCig
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.08E+00	2.85E-01	3.02E-01	7.62E-02	1.68E-02	pCig
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.04E+00	3.08E-01	3.23E-01	1.08E-01	2.98E-02	pCig
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.15E+00	2.79E-01	2.99E-01	6.36E-02	1.30E-02	pCig
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.19E+00	2.96E-01	3.17E-01	6.12E-02	9.20E-03	pCig
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/4/2015	15-10093	Thorium-228	EML Th-01 Modified	1.14E+00	2.90E-01	3.09E-01	6.74E-02	1.26E-02	pCig

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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 SERVICES

EBERLINE ANALYTICAL CORPORATION

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

# Eberline Analytical

## Final Report of Analysis

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

**SDG: 15-10093**  
**Project: PAP-KAN**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: 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
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	5.34E+00	1.44E-01	1.20E+00	9.49E-02	8.99E-02	pCi/g
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	5.99E+00	9.49E-01	1.89E-02	5.07E-02	5.14E-02	pCi/g
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	2.88E-03	1.89E-02	1.89E-02	9.45E-02	7.97E-02	pCi/g
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.83E+00	5.09E-01	5.7E-01	9.45E-02	4.77E-02	pCi/g
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.28E+00	2.96E-01	3.36E-01	6.48E-02	6.09E-02	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.31E+00	3.09E-01	4.23E-01	6.48E-02	7.29E-02	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.40E+00	3.86E-01	4.23E-01	6.87E-02	6.38E-02	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.33E+00	3.16E-01	3.57E-01	6.87E-02	5.30E-02	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.37E+00	3.14E-01	3.57E-01	5.22E-02	4.08E-02	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.32E+00	2.72E-01	3.17E-01	4.08E-02	4.39E-02	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.29E+00	2.88E-01	3.29E-01	3.49E-02	4.39E-02	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	9.97E-01	2.45E-01	2.74E-01	5.51E-02	5.32E-02	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.09E+00	2.65E-01	2.97E-01	5.68E-02	5.48E-02	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.02E+00	2.59E-01	2.88E-01	5.02E-02	5.31E-02	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.01E+00	2.63E-01	2.91E-01	4.20E-02	5.28E-02	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.38E+00	3.38E-01	3.78E-01	5.50E-02	5.82E-02	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.74E+00	4.45E-01	4.94E-01	6.19E-02	6.99E-02	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.23E+00	2.91E-01	3.28E-01	4.75E-02	5.05E-02	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.24E+00	3.03E-01	3.39E-01	4.16E-02	5.20E-02	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/4/2015	15-10093	Thorium-230	EML Th-01 Modified	1.46E+00	3.44E-01	3.88E-01	4.17E-02	5.21E-02	pCi/g

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



**EBERLINE**  
 SERVICES

EBERLINE ANALYTICAL CORPORATION

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

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# Eberline Analytical

## Final Report of Analysis

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

Report To:  
**15-10093**  
 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
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	5.04E+00	1.81E-01	1.10E+00	1.40E-01	5.72E-02	pCi/g
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	6.06E+00	9.57E-01	3.34E-02	8.17E-02	2.95E-02	pCi/g
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	-2.06E-03	3.31E-02	5.48E-01	9.91E-02	1.71E-02	pCi/g
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.89E+00	3.14E-01	3.36E-01	5.57E-02	9.61E-03	pCi/g
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.38E+00	2.59E-01	2.75E-01	4.94E-02	5.42E-03	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.03E+00	3.66E-01	3.83E-01	5.64E-02	3.20E-03	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.25E+00	3.01E-01	3.21E-01	5.44E-02	7.23E-03	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.23E+00	2.89E-01	3.09E-01	5.53E-02	8.46E-03	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.04E+00	2.28E-01	2.46E-01	4.02E-02	5.31E-03	pCi/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.57E+00	3.35E-01	3.62E-01	3.49E-02	1.99E-03	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.16E+00	2.72E-01	2.90E-01	4.58E-02	5.05E-03	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.40E+00	3.19E-01	3.42E-01	6.15E-02	1.28E-02	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.34E+00	3.17E-01	3.38E-01	4.56E-02	3.88E-03	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.14E+00	2.88E-01	3.05E-01	6.33E-02	1.08E-02	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.24E+00	3.12E-01	3.31E-01	4.36E-02	2.48E-03	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.24E+00	3.44E-01	3.61E-01	7.74E-02	8.71E-04	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.14E+00	2.76E-01	2.93E-01	5.42E-02	6.11E-04	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.14E+00	3.01E-01	3.20E-01	5.97E-02	6.70E-04	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.22E+00	3.10E-01	3.30E-01	5.23E-02	5.75E-03	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/4/2015	15-10093	Thorium-232	EML Th-01 Modified	1.27E+00	3.10E-01	3.30E-01	5.23E-02	5.75E-03	pCi/g

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



**EBERLINE**  
 SERVICES

EBERLINE ANALYTICAL CORPORATION

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

# Eberline Analytical

## Final Report of Analysis

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

**SDG: 15-10093**  
**Project: PAP-KAN**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

Work Order Details:

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Result	CU	CSU	MDA	CV	Report Units
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-234	8.11E+00	2.92E-01	1.12E+00	8.54E-02	1.29E-02	pCi/g
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-234	6.89E+00	1.00E+00	3.63E-02	5.68E-02	1.07E-02	pCi/g
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-234	2.69E-02	3.62E-02	2.54E-01	7.11E-02	2.01E-02	pCi/g
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Uranium-234	1.17E+00	2.40E-01	2.18E-01	5.88E-02	1.11E-02	pCi/g
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Uranium-234	9.14E-01	2.08E-01	2.37E-01	5.98E-02	1.23E-02	pCi/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/4/2015	15-10093	Uranium-234	1.06E+00	2.25E-01	2.25E-01	6.91E-02	1.76E-02	pCi/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/4/2015	15-10093	Uranium-234	9.52E-01	2.15E-01	2.25E-01	3.37E-02	4.35E-03	pCi/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/4/2015	15-10093	Uranium-234	9.53E-01	1.78E-01	1.91E-01	5.73E-02	8.64E-03	pCi/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/4/2015	15-10093	Uranium-234	1.01E+00	2.30E-01	2.41E-01	4.13E-02	3.36E-03	pCi/g
15-10093-09	TRG	CP5002S15-17	10/08/15 13:10	10/14/2015	11/4/2015	15-10093	Uranium-234	1.16E+00	2.47E-01	2.60E-01	3.43E-02	2.79E-03	pCi/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/4/2015	15-10093	Uranium-234	7.80E-01	1.77E-01	1.86E-01	5.06E-02	7.60E-03	pCi/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/4/2015	15-10093	Uranium-234	1.10E+00	2.28E-01	2.41E-01	4.75E-02	5.06E-03	pCi/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/4/2015	15-10093	Uranium-234	1.18E+00	2.51E-01	2.65E-01	3.94E-02	3.19E-03	pCi/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/4/2015	15-10093	Uranium-234	9.13E-01	2.09E-01	2.19E-01	7.46E-02	2.32E-02	pCi/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/4/2015	15-10093	Uranium-234	9.34E-01	2.10E-01	2.20E-01	3.43E-02	2.79E-03	pCi/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/4/2015	15-10093	Uranium-234	1.02E+00	2.09E-01	2.21E-01	6.45E-02	1.22E-02	pCi/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/4/2015	15-10093	Uranium-234	1.26E+00	2.66E-01	2.81E-01	5.08E-02	5.40E-03	pCi/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/4/2015	15-10093	Uranium-234	1.08E+00	2.45E-01	2.57E-01	4.13E-02	4.39E-03	pCi/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/4/2015	15-10093	Uranium-234	9.29E-01	2.02E-01	2.13E-01	3.98E-02	4.23E-03	pCi/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/4/2015	15-10093	Uranium-234	8.80E-01	1.92E-01	2.02E-01	3.98E-02	4.23E-03	pCi/g

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



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# Eberline Analytical

## Final Report of Analysis

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

**Report To:**  
**SDG: 15-10093**  
**Project: PAP-KAN**  
**Analysis Category: ENVIRONMENTAL**  
**Sample Matrix: SO**

*Work Order Details:*

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10093-01	LCS		10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	5.54E-01	2.10E-01	2.14E-01	8.93E-02	6.16E-03	pCt/g
15-10093-02	MBL		10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	2.39E-02	3.87E-02	3.88E-02	6.66E-02	8.28E-03	pCt/g
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	7.48E-02	6.38E-02	6.40E-02	7.72E-02	1.39E-02	pCt/g
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	8.42E-02	6.49E-02	6.52E-02	6.49E-02	6.97E-03	pCt/g
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	1.06E-01	7.07E-02	7.11E-02	5.88E-02	5.22E-03	pCt/g
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	4.05E-02	4.62E-02	4.63E-02	6.09E-02	5.42E-03	pCt/g
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	1.02E-01	5.68E-02	5.73E-02	3.30E-02	1.52E-03	pCt/g
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	7.30E-02	6.09E-02	6.11E-02	5.23E-02	2.41E-03	pCt/g
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	4.68E-02	4.83E-02	4.84E-02	5.10E-02	2.34E-03	pCt/g
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	4.06E-02	4.47E-02	4.48E-02	6.08E-02	5.52E-04	pCt/g
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	8.67E-02	6.22E-02	6.25E-02	4.62E-02	2.12E-03	pCt/g
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	1.90E-01	9.88E-02	9.97E-02	6.44E-02	5.73E-03	pCt/g
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	6.78E-02	5.65E-02	5.67E-02	4.86E-02	2.23E-03	pCt/g
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	6.31E-02	6.42E-02	6.43E-02	9.20E-02	2.23E-02	pCt/g
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	6.76E-02	5.33E-02	5.36E-02	4.85E-02	3.34E-03	pCt/g
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	1.22E-01	7.98E-02	8.02E-02	6.04E-02	4.17E-03	pCt/g
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	1.00E-01	7.38E-02	7.42E-02	6.26E-02	4.31E-03	pCt/g
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	8.86E-02	6.37E-02	6.40E-02	6.00E-02	6.43E-03	pCt/g
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/4/2015	15-10093	Uranium-235	EML U-02 Modified	1.09E-01	6.79E-02	6.84E-02	4.91E-02	3.38E-03	pCt/g

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



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# Eberline Analytical

## Final Report of Analysis

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

**SDG: 15-10093**  
**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
15-10093-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	7.90E+00	2.84E-01	1.23E+00	7.91E-02	8.91E-03	pCig
15-10093-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	7.74E+00	1.10E+00	3.16E-02	5.91E-02	1.14E-02	pCig
15-10093-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.62E-02	3.15E-02	2.38E-01	5.73E-02	1.00E-02	pCig
15-10093-03	DUP	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.06E+00	2.25E-01	2.24E-01	5.24E-02	7.08E-03	pCig
15-10093-04	DO	CP5002S03-04	10/08/15 12:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	9.60E-01	2.13E-01	2.45E-01	4.74E-02	5.33E-03	pCig
15-10093-05	TRG	CP5002S06-07	10/08/15 12:20	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.12E+00	2.31E-01	2.29E-01	5.90E-02	1.03E-02	pCig
15-10093-06	TRG	CP5002S09-10	10/08/15 12:30	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	9.83E-01	2.18E-01	2.29E-01	5.90E-02	1.03E-02	pCig
15-10093-07	TRG	CP5002S11-12	10/08/15 12:40	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	9.45E-01	1.77E-01	1.89E-01	2.67E-02	1.59E-03	pCig
15-10093-08	TRG	CP5002S13-14	10/08/15 13:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	9.61E-01	2.23E-01	2.33E-01	6.06E-02	8.05E-04	pCig
15-10093-09	TRG	CP5002S16-17	10/08/15 13:10	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.19E+00	2.51E-01	2.65E-01	4.11E-02	2.46E-03	pCig
15-10093-10	TRG	CP1806S03-04	10/09/15 08:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.01E+00	2.08E-01	2.20E-01	4.62E-02	6.22E-03	pCig
15-10093-11	TRG	CP1806S05-06	10/09/15 08:10	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	9.11E-01	2.03E-01	2.13E-01	5.36E-02	7.08E-04	pCig
15-10093-12	TRG	CP1806S08-09	10/09/15 08:20	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.34E+00	2.72E-01	2.89E-01	4.73E-02	4.16E-03	pCig
15-10093-13	TRG	CP1806S10-11	10/09/15 08:30	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	8.50E-01	2.00E-01	2.09E-01	4.93E-02	5.53E-03	pCig
15-10093-14	TRG	CP1806S13-14	10/09/15 08:40	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	8.50E-01	1.99E-01	2.08E-01	8.25E-02	3.01E-02	pCig
15-10093-15	TRG	CP3004S02-03	10/10/15 12:40	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	9.41E-01	2.09E-01	2.09E-01	3.42E-02	2.04E-03	pCig
15-10093-16	TRG	CP3004S05-06	10/10/15 12:50	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.08E+00	2.43E-01	2.55E-01	8.93E-02	3.04E-02	pCig
15-10093-17	TRG	CP3004S07-08	10/10/15 13:00	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.04E+00	2.39E-01	2.51E-01	6.33E-02	9.83E-03	pCig
15-10093-18	TRG	CP3004S10-11	10/10/15 13:10	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.10E+00	2.25E-01	2.38E-01	5.15E-02	6.82E-04	pCig
15-10093-19	TRG	CP3004S12-13	10/10/15 13:20	10/14/2015	11/4/2015	15-10093	Uranium-238	EML U-02 Modified	1.04E+00	2.13E-01	2.26E-01	3.46E-02	2.07E-03	pCig

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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**SECTION V**  
**ANALYTICAL STANDARD**

U-8

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

# CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

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

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

Description of Solution  
a. Mass of solution:  
b. Chemical form:  
c. Carrier content:  
d. Density:

65.2896 g in a 50 ml flame sealed ampoule  
Uranyl Nitrate in H<sub>2</sub>O  
None  
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  $\mu$ Ci/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

  
ERIC ALLAS  
QUALITY CONTROL

29 DECEMBER 1994  
Date Signed



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

000030



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 <sup>234, 235, 238</sup>U Half Life, Years 4.468E+09 Half Life, Days 1.632E+12

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

Ampoule /Solution Gross 97.6400 Weight, Grams  
Empty Ampoule 32.5020 Weight, Grams  
Solution Net 65.1380 Weight, Grams  
Total Activity in Ampoule 8.0160  $\mu\text{Ci}$

Chemical Composition of Standard Solution  
Uranyl nitrate in dilute HNO<sub>3</sub>

Dilution Instructions: Dilution Solvent Used 1M HNO<sub>3</sub>

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 8.0160  $\mu\text{Ci}$  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]

Date: 10/1/2015 0:00

QC Approval [Signature]

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**  
**JPL 479-50**

Date **10/1/2015 0:00**  
Solution # **U-8a**

Principal Radionuclide

Half Life, Years

Half Life, Days

**234, 235, 238 U**

**4.468E+09**

**1.632E+12**

Radionuclide of Interest

**234, 235, 238 U**

Reference Date

**1/1/1995 0:00**

Parent Solution Conc. **1.7796E+04** dpm/ml

**Chemical Composition of Standard Solution**

**Uranly Nitrate in 1M HNO<sub>3</sub>**

Dilution Instructions:

Dilution Solvent Used

**1M HNO<sub>3</sub>**

**SECONDARY VOLUMETRIC DILUTION**

Vol. Parent Solution: **4.0000** ml

Total Activity: **7.1182E+04** dpm

Final Volume: **1000.00** ml

Final Activity Concentration: **7.1182E+01** dpm/ml

NOTES:

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

Isotopic Distribution as:

U-238 Atom % = 48.239 U-238 = 71.182 dpm/ml X 0.48249 = 34.345 dpm/ml

U-235 Atom % = 2.25 U-235 = 71.182 dpm/ml X 0.0225 = 1.602 dpm/ml

U-234 Atom % = 49.501 U-238 = 71.182 dpm/ml X 0.49501 = 35.236 dpm/ml

All values +/- 3.6%

Isotopic ratios from manufacturer's data sheet

Expiration Date:

**July 27, 2016**

Verified & Approved By

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

QC Approval

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.

*Radionuclidic Purity* Any radioactive impurities measured are listed below, expressed as percentages of the activity of the principle radionuclide at the reference date .  
  
Th-228 and daughter activity removed 2 Feb 2000  
U-232 daughters activity will increase with time. By alpha 88% U-232, 12% daughters on 1/3/00

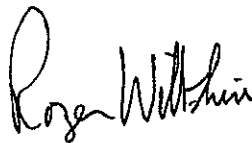
*Isotopic Purity* The isotopic composition, expressed as atom per cent at the reference date .  
  
Not measured

*Chemical Composition* Calculated weight of U-232, 4.42E-08 grams, as 2M HNO3 solution in a flame sealed glass vial.  
This Tracer solution has been produced 'carrier free'.

*Physical Data* Recommended half life of uranium 232: 6.980E+01 years  
Principle energies of alpha emissions (MeV): 5.263 31.7%, 5.320 68.0%  
Branching ratio for alpha emission: 100%  
Calculated specific activity of uranium 232: 8.167E+05 Bq per microgram U-232.

*Remarks* For safety information and notes to ensure correct usage by all persons handling this radioactive Tracer solution please read the instructions accompanying the package.  
  
AEA Technology operates a quality management system which has been independently audited and approved to ISO 9001.

Approved  
Signatory



Roger Wiltshire

Project Ref. AE2315

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



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 <sup>232</sup>U Half Life, Years 7.200E+01 Half Life, Days 2.630E+04

Radionuclide <sup>232</sup>U Reference Date 3/1/2000 0:00  
Certified Activity 9.760E-01  $\mu\text{Ci}$   
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  $\mu\text{Ci}$

Chemical Composition of Standard Solution  
<sup>232</sup>U(NO<sub>3</sub>)<sub>6</sub> in 2M HNO<sub>3</sub>

Dilution Instructions: Dilution Solvent Used 2M HNO<sub>3</sub>

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.9760  $\mu\text{Ci}$  Which Equals 2.167E+06 dpm at the date listed above

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

Expiration Date: October 26, 2016

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



QUALITY CONTROL PROGRAM  
MP-009

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

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

Solution Reference #		MP-009	Date	10/27/2015 0:00
AEA/Amersham 92/232/67			Solution #	U-10a
Principal Radionuclide	Half Life, Years	Half Life, Days		
$^{232}\text{U}$	7.200E+01	2.630E+04		
Radionuclide of Interest	Parent Solution Conc.	Reference Date		
$^{232}\text{U}$	2.167E+03 dpm/ml	3/1/2000 0:00		
Chemical Composition of Standard Solution				
$^{232}\text{U}(\text{NO}_3)_6$ in 2M $\text{HNO}_3$				

Dilution Instructions: Dilution Solvent Used 2M  $\text{HNO}_3$



SECONDARY VOLUMETRIC DILUTION

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

NOTES:

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

Expiration Date: October 26, 2016

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

# 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 $\mu$ 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 <sub>3</sub> ) <sub>4</sub> 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  $\mu$ 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).



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1800 North Keystone Street  
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(818) 843 - 7000

*Anna U. Khan*  
\_\_\_\_\_  
QUALITY CONTROL

*Nov. 8, 1993*  
\_\_\_\_\_  
Date Signed



QUALITY CONTROL PROGRAM  
MP-009

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

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

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

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

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

Ampoule /Solution Gross 18.8415 Weight, Grams  
Empty Ampoule 6.9296 Weight, Grams  
Solution Net 11.9119 Weight, Grams  
Total Activity in Ampoule 0.0933  $\mu\text{Ci}$

Chemical Composition of Standard Solution  
Th(NO<sub>3</sub>)<sub>4</sub> in H<sub>2</sub>O

Dilution Instructions: Dilution Solvent Used 1% Nitric Acid  
Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.0933  $\mu\text{Ci}$  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 [Signature] Date: 9/29/2015 0:00

QC Approval [Signature] Date: 9/30/15




**QUALITY CONTROL PROGRAM**  
MP-009

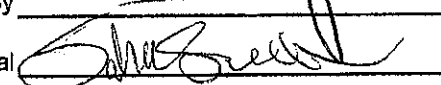
Rev.B: 1/10/03  
Title: Radioactive Reference Standards Solutions & Records

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

Solution Reference #		MP-009 IPL 435-104-2	Date	9/29/2015 0:00
Solution #				Th-8b
Principal Radionuclide	Half Life, Years	Half Life, Days		
<sup>228</sup> & <sup>232</sup> Th	1.405E+10	5.132E+12		
Radionuclide of Interest	<sup>228</sup> & <sup>232</sup> Th	Reference Date	11/1/1993 0:00	
Parent Solution Conc.	2.07E+02 dpm/ml			
Chemical Composition of Standard Solution				
Th(NO <sub>3</sub> ) <sub>4</sub> in 1% HNO <sub>3</sub>				

Dilution Instructions:	Dilution Solvent Used	1% Nitric Acid	
<b>SECONDARY VOLUMETRIC DILUTION</b>			
Vol. Parent Solution:	500.0000 ml	Final Activity Concentration:	1.0355E+02 dpm/ml
Total Activity:	1.0355E+05 dpm		
Final Volume:	1000.00 ml		
NOTES:	This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.		
		Expiration Date:	August 25, 2016

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

QC Approval  Date: 9/30/15

QA/QC REVIEWED

Date

10/14/91

Initials

wt

# 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  
Contained Radioactivity: 1.036  $\mu$ Ci

### Description of Solution

- a. Mass of solution: 5.0042 grams.
- b. Chemical form: Th(NO<sub>3</sub>)<sub>4</sub> in 0.1N HNO<sub>3</sub>
- 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  $\mu$ 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)



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*[Signature]*  
QUALITY CONTROL



**QUALITY CONTROL PROGRAM**  
MP-009

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

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

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

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

**Radionuclide** <sup>230</sup>Thorium      **Reference Date** 11/1/1991 0:00  
**Certified Activity** 1.036E+00 μCi  
**Certified Concentration** μCi per gram

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



**Chemical Composition of Standard Solution**  
<sup>230</sup>Th(NO<sub>3</sub>)<sub>4</sub> in 0.1N HNO<sub>3</sub>

**Dilution Instructions:**      **Dilution Solvent Used** 0.1N HNO<sub>3</sub>  
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**       **Date:** 4/15/2015 0:00  
**QC Approval**       **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** | **IPL 388-116** | Date **4/15/2015 0:00**  
Solution # **Th-1b**

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

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

**Chemical Composition of Standard Solution**  
<sup>230</sup>Th(NO<sub>3</sub>)<sub>4</sub> in 0.1N HNO<sub>3</sub>

Dilution Instructions: | Dilution Solvent Used: **0.1N HNO<sub>3</sub>**

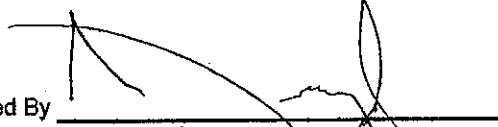
**SECONDARY VOLUMETRIC DILUTION**

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

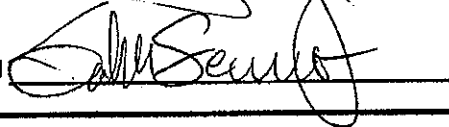
NOTES:

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: 

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

QC Approval: 

Date: **4/15/15**



**Isotope Products  
Laboratories**

An Eckert & Ziegler Company

24937 Avenue Tibbitts  
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Tel 661•309-1010  
Fax 661•257-8303

Th-18

## CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

<b>Radionuclide:</b>	Th-229	<b>Customer:</b>	EBERLINE SERVICES		
<b>Half-life:</b>	7340 ± 160 years	<b>P.O. No.:</b>	00009633		
<b>Catalog No.:</b>	7229	<b>Reference Date:</b>	15-Jan-02	12:00	PST
<b>Source No.:</b>	867-54	<b>Contained Radioactivity:</b>	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 <sub>3</sub> ) <sub>4</sub> in 0.1M HNO <sub>3</sub>
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.

*As U Khan*  
\_\_\_\_\_  
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

: 00042



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 <sup>229</sup>Th Half Life, Years 7.340E+03 Half Life, Days 2.681E+06

Radionuclide <sup>229</sup>Th Reference Date 1/15/2002 0:00  
Certified Activity 1.013E+00  $\mu\text{Ci}$   
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  $\mu\text{Ci}$

Chemical Composition of Standard Solution  
<sup>229</sup>Th(NO<sub>3</sub>)<sub>4</sub> in 0.1M HNO<sub>3</sub>

Dilution Instructions: Dilution Solvent Used 0.1 M HNO<sub>3</sub>

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0130  $\mu\text{Ci}$  Which Equals 2.249E+06 dpm at the date listed above

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

Expiration Date: August 24, 2016

Verified & Approved By [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 <sup>229</sup>Th Half Life, Years 7.340E+03 Half Life, Days 2.681E+06

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

Chemical Composition of Standard Solution  
TH(NO<sub>3</sub>)<sub>4</sub> in 0.1M:HNO<sub>3</sub>

Dilution Instructions: Dilution Solvent Used 0.1M:HNO<sub>3</sub>

SECONDARY VOLUMETRIC DILUTION

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

NOTES:

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

Expiration Date: August 24, 2016

Verified & Approved By [Signature]

Date: 9/29/2015 0:00

QC Approval [Signature]

Date: 9/30/15

**CERTIFICATE OF CALIBRATION**  
Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

\* Master Source refers to Analytic's 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
<b>15-10093</b>	<b>UUISO</b>	<b>1</b>	<b>pCi</b>	<b>g</b>	<b>Auxier &amp; Associates, Inc.</b>

**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	85.05%	16.18%	100.00%	3.60%	8.11E+00	2.92E-01	6.89E+00	1.12E+00	U-8a	3.52E+01	3.60E+00	5.11E-01
U-238	97.98%	15.88%	100.00%	3.60%	7.90E+00	2.84E-01	7.74E+00	1.23E+00	U-8a	3.44E+01	3.60E+00	5.11E-01

**Matrix Spike**

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

**Replicate Sample**

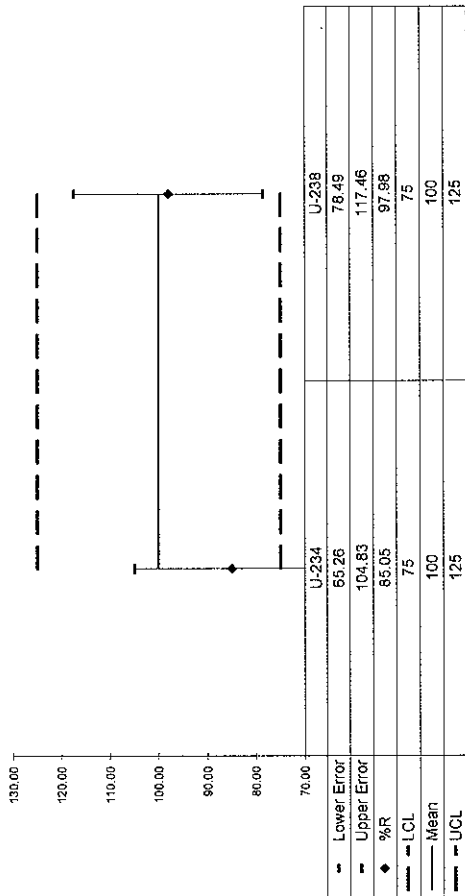
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	1.49	24.39	9.14E-01	2.18E-01	1.17E+00	2.54E-01	0.85	OK			OK	OK
U-238	0.62	10.23	9.60E-01	2.24E-01	1.06E+00	2.38E-01	0.98	OK			OK	OK
U-235	0.20	11.92	8.42E-02	6.52E-02	7.48E-02	6.40E-02		OK			NA	OK

**QC Summary**

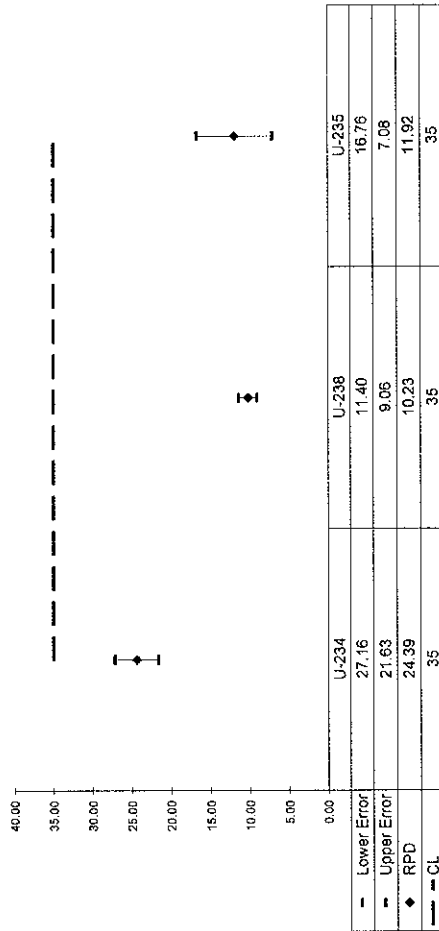
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
U-234	1.49	24.39	9.14E-01	2.18E-01	1.17E+00	2.54E-01	0.85	OK			OK	OK
U-238	0.62	10.23	9.60E-01	2.24E-01	1.06E+00	2.38E-01	0.98	OK			OK	OK
U-235	0.20	11.92	8.42E-02	6.52E-02	7.48E-02	6.40E-02		OK			NA	OK

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
<b>15-10093</b>	<b>UIISO</b>	<b>1</b>	<b>pCi</b>	<b>g</b>	<b>Auxier &amp; Associates, Inc.</b>

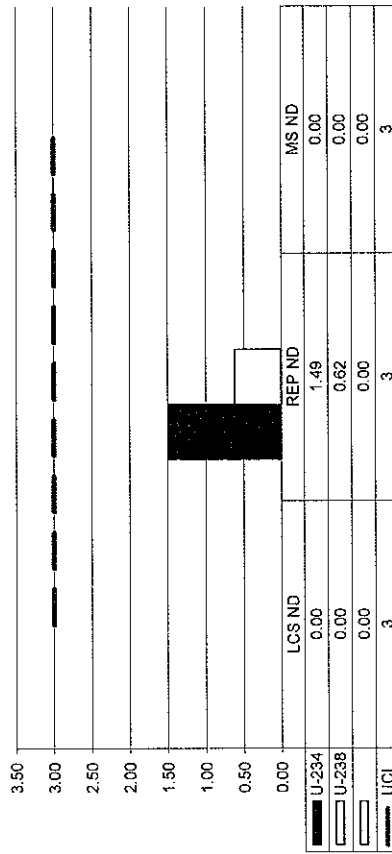
### LCS % Recovery



### Replicate Sample RPD



### Normalized Difference



### No Matrix Spike



WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
<b>15-10093</b>	<b>ThISO</b>	<b>1</b>	<b>pCi</b>	<b>g</b>	<b>Auxier &amp; Associates, Inc.</b>

**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	114.87%	18.50%	100.00%	3.60%	5.04E+00	1.81E-01	5.79E+00	1.07E+00	Th-8b	1.04E+02	3.60E+00	1.08E-01
TH-230	112.17%	20.08%	100.00%	2.70%	5.34E+00	1.44E-01	5.99E+00	1.20E+00	Th-1b	2.35E+01	2.70E+00	5.04E-01
TH-232	120.20%	18.10%	100.00%	3.60%	5.04E+00	1.81E-01	6.06E+00	1.10E+00	Th-8b	1.04E+02	3.60E+00	1.08E-01

**Matrix Spike**

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

**Replicate Sample**

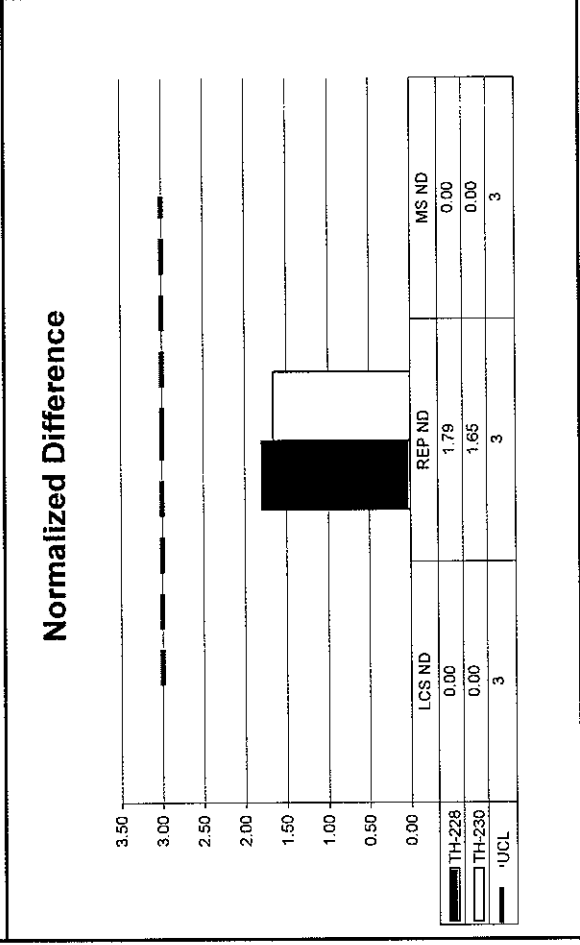
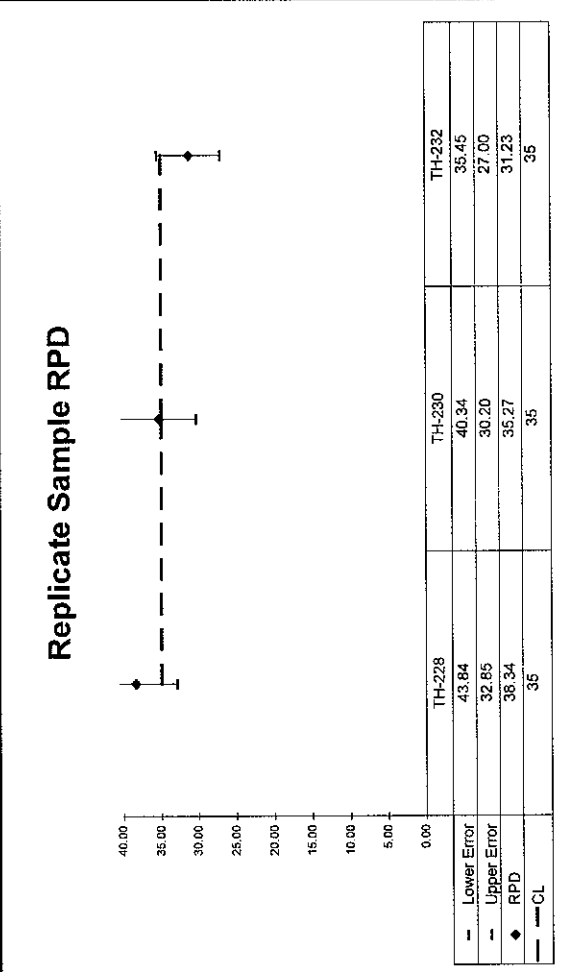
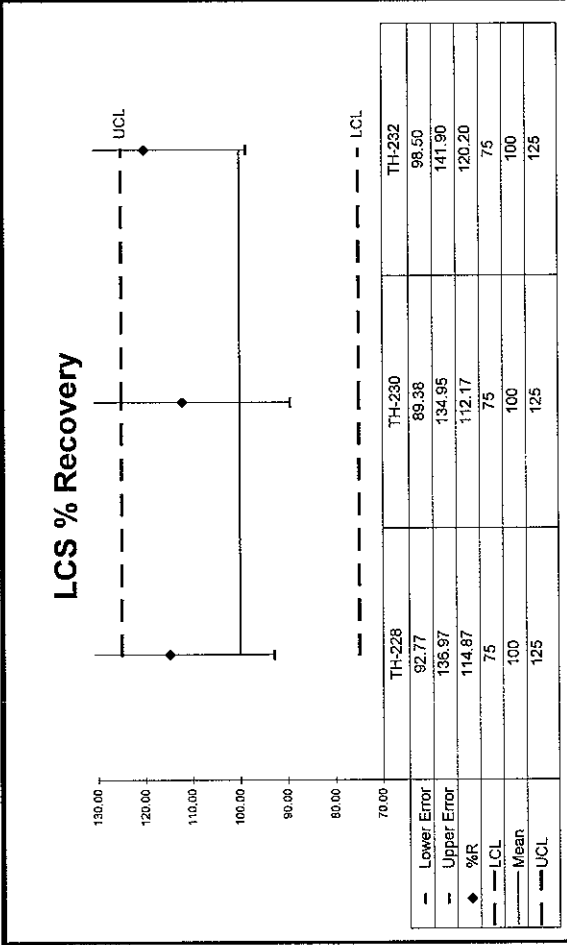
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
TH-228	1.79	38.34	1.08E+00	2.83E-01	1.59E+00	4.84E-01	1.15	OK			INV	OK
TH-230	1.65	35.27	1.28E+00	3.36E-01	1.83E+00	5.57E-01	1.12	OK			INV	OK
TH-232	1.55	31.23	1.38E+00	3.36E-01	1.89E+00	5.48E-01	1.20	OK			INV	OK

**QC Summary**

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R	MS % R	MS ND	Rep RPD	Rep ND
TH-228	1.79	38.34	1.08E+00	2.83E-01	1.59E+00	4.84E-01	1.15	OK			INV	OK
TH-230	1.65	35.27	1.28E+00	3.36E-01	1.83E+00	5.57E-01	1.12	OK			INV	OK
TH-232	1.55	31.23	1.38E+00	3.36E-01	1.89E+00	5.48E-01	1.20	OK			INV	OK

000010

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
<b>15-10093</b>	<b>THISO</b>	<b>1</b>	<b>pCi</b>	<b>g</b>	<b>Auxier &amp; Associates, Inc.</b>



### No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
<b>15-10093</b>	<b>Gamma</b>	<b>1</b>	<b>pCi</b>	<b>g</b>	<b>Auxier &amp; Associates, Inc.</b>

**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	99.22%	8.62%	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	96.27%	10.92%	100.00%	4.00%	8.69E+01	3.48E+00	8.37E+01	9.14E+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)

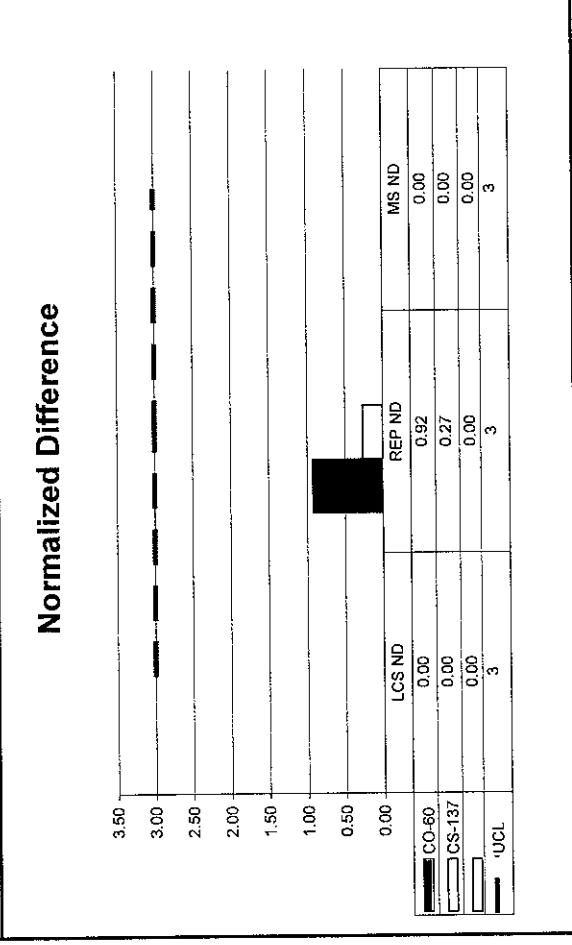
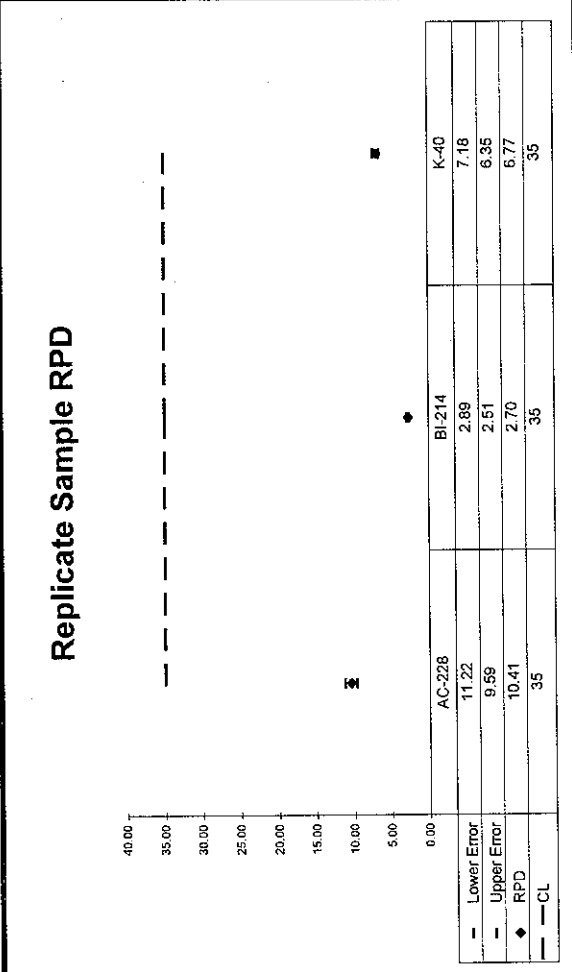
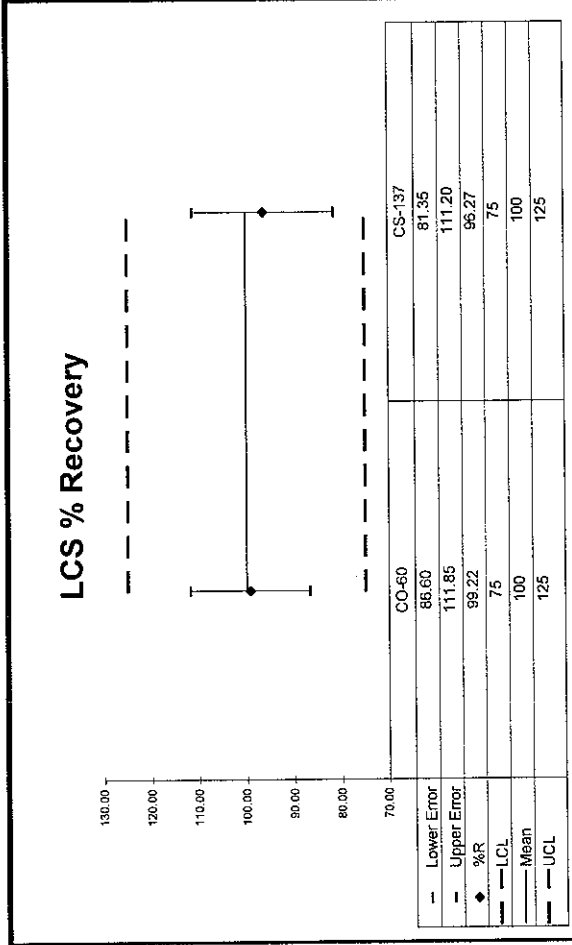
**Replicate Sample**

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	0.92	10.41	1.57E+00	2.48E-01	1.42E+00	2.19E-01	0.99	OK	<CS-137	AC-228>	OK	
BI-214	0.27	2.70	1.32E+00	1.92E-01	1.28E+00	1.73E-01	0.96	OK	<CO-60	BI-214>	OK	OK
K-40	0.76	6.77	2.07E+01	2.52E+00	1.94E+01	2.40E+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	0.92	10.41	1.57E+00	2.48E-01	1.42E+00	2.19E-01	0.99	OK	<CS-137	AC-228>	OK	
BI-214	0.27	2.70	1.32E+00	1.92E-01	1.28E+00	1.73E-01	0.96	OK	<CO-60	BI-214>	OK	OK
K-40	0.76	6.77	2.07E+01	2.52E+00	1.94E+01	2.40E+00				K-40>	OK	OK

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
<b>15-10093</b>	<b>Gamma</b>	<b>1</b>	<b>pCi</b>	<b>g</b>	<b>Auxier &amp; Associates, Inc.</b>



### No Matrix Spike

**SECTION VII**  
**LABORATORY TECHNICIAN'S NOTES**  
**& RUN LOGS**

**ISO U NOTES**

 <b>EBERLINE</b> SERVICES <b>Work Order Analysis Notes</b>	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10093
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/22/15 12:06	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.


10-22-15 JPachella

 <b>EBERLINE</b> <small>SERVICES</small> <b>Work Order Analysis Notes</b>	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10093
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/22/15 12:06	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	11/03/15 16:23	CHEM	JDEME LAS	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*  
 11/3/15



 <b>EBERLINE</b> <small>SERVICES</small> <b>Work Order Analysis Notes</b>	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com		Internal Work Order	15-10093
			Analysis Code	UUISO
			Run Number	1

#	Date	Dept	User	Notes
1	10/22/15 12:06	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	11/03/15 16:23	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	11/04/15 04:48	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005. ( Precipitated and filtered samples for Uranium )

11-415  
 JMM



**EBERLINE**  
SERVICES

Reagents Used in an Analysis

Internal Work Order

**15-10093**

Analysis Code

Run

**UUISO**

**1**

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016569P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	10/22/2015
016519P	Nitric Acid	Reagent Grade	JPACHELLA	10/22/2015
016158P	Perchloric Acid	Reagent Grade	JPACHELLA	10/22/2015
016679P	Sulfuric Acid	Reagent Grade	JPACHELLA	10/22/2015
016862P	Anion Exchange Resin	Reagent Grade	JDEMELAS	11/3/2015
016957S	HCl - HF	6.5N - 0.04N	JDEMELAS	11/3/2015
016874D03	Hydrochloric Acid	0.5N	JDEMELAS	11/3/2015
016904S	Hydrochloric Acid	6.5N	JDEMELAS	11/3/2015
016959S	Hydrochloric Acid	8N	JDEMELAS	11/3/2015
016796P	Hydrochloric Acid	Reagent Grade	JDEMELAS	11/3/2015
016969S	HCl - NH4I	8N - 0.1M	JDEMELAS	11/3/2015
016955S	Carbon substrate	Solution	TSMITH	11/4/2015
016569P	Hydrofluoric Acid	Reagent Grade	TSMITH	11/4/2015
016583S	Neodymium Carrier	1 mg/ml	TSMITH	11/4/2015
016514P	Reagent Alcohol	Reagent Grade	TSMITH	11/4/2015
016606P	Titanous Chloride	Reagent Grade	TSMITH	11/4/2015

# Alpha # 1

Date	Sample #	Client	Location	CT Time	Medium	Result
10/17/15	56004(L15)	US	1032	2hr	NA	C
10/20	1510127AU-4)	UCON	0876	2hr	Am-241	C
10/20	1510127AU-7)	UCON	0876	2hr	Am-241	C
10/30/15	4510091A(4-9)	<del>ERT</del> <sup>Am-241</sup>	1057	2hr	ISO-Th	C
10/30/15	1510104AU-6)	ERT	1057	2hr	Plat	C
10/30/15	1510100A(4-7)	USACE Army	1413	2hr	Plat	ICB
10/30/15	System Bkgd	Lab	1725	16hr	2	ICB
11/2	Daily Puls	US	0510	1hr	NA	C
11/2	1510105A(1-5)	Test America	0571	2hr	Plat	C
11/2	1510086A(11-17)	Ampier	0871	2hr	Plat	C
11/2/15	1510161A(4-5)	USA	1229	2hr	ISO-Th	ICB
11/3	Daily Puls	US	0519	1hr	NA	C
11/3	1510087A(1-7)	Ampier	0821	2hr	Plat	C
11/3/15	1510103A(1-4,6)	UCON	1126	2hr	ISO-Pl	ICB
11/3/15	1510071A(1-2)	Unitech	1128	2hr	ISO-Pl	ICB
11/3/15	1510092A(6-12)	Ampier	1430	2hr	UU	ICB
11/4	Daily Puls	US	0527	1hr	NA	C
11/4	1510093A(1-7)	Ampier	0825	2hr	UU	C

# Alpha # 3

Date	Sample #	Client	Test Time	CT Time	Analysis	Fee
10/30/15	1510091A(6-19)	Auxier	1430	2hrs 00-	UW	KB
10/30/15	System Bkgd	Lab	1725	16:40 hr	-	KB
11/2	Philly Pulse	UW	0510	1-	wt	-
11/2	1510086A(1-18)	Auxier	0828	2L5	UW 250	-
11/2	1510086A(1-10)	Auxier	0829	2L5	7L 250	-
11/2/15	1510086A(1-5)	Auxier	1124	2hrs 00-	ISO-TN	KB
11/2/15	1510145A(1-4)	Washington	1125	2hrs 00-	ISO-PV	KB
11/2/15	1510091A(4-19)	Auxier	1128	2hrs 00-	UW	KB
11/2/15	1510155A(1-4)	ND	1625	2hrs 00-	Perk	KB
11/7	Philly Pulse	UW	0517	1-	wt	-
11/7	1510087A(8-14)	Auxier	0821	2L5	7L 250	-
11/7	1510092A(1-14)	Auxier	0824	2L5	7L 250	-
11/7	1510127A(1-4)	UCON	0825	2L5	7L 250	-
11/3/15	1510071A(3-5)	Unitech	1172	2hrs 00-	ISO-PV	KB
11/3/15	1510090A(1-14)	Auxier	1173	2hrs 00-	UW	KB
11/3/15	1510092A(1-5)	Auxier	1175	2hrs 00-	UW	KB
11/3/15	1510078A(1-6)	Env. Dimensions	1178	5hr 35-	ISO-TN	KB
11/3/15	1510092A(13-16)	Auxier	1520	2hrs 00-	UW	KB
11/3/15	1510092A(3)	Auxier	1521	2hrs 00-	UW	KB
11/3/15	1510055A(1-7)	Accutest	1729	2hrs 00-	Perk	KB
11/3/15	1510106A(1-4)	Test America	1837	2hrs 00-	Perk	KB
11/4	Philly Pulse	UW	0724	1-	wt	-
11/4	1510097A(8-19)	Auxier	0825	2L5	UW 250	-
11/4	1510097A(1-16)	Auxier	0826	2L5	7L 250	-

**ISO-TH NOTES**

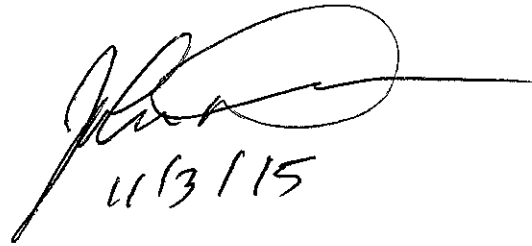
 <b>EBERLINE</b> SERVICES <b>Work Order Analysis Notes</b>	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10093
		Analysis Code	ThISO
		Run Number	1


#	Date	Dept	User	Notes
1	10/22/15 12:06	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.

10-22-15 JPachella

 <b>EBERLINE</b> <small>SERVICES</small> <b>Work Order Analysis Notes</b>	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com		Internal Work Order	15-10093
			Analysis Code	ThISO
			Run Number	1

#	Date	Dept	User	Notes
1	10/22/15 12:06	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	11/03/15 16:24	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deionized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.

  
 11/3/15

 <b>EBERLINE</b> <small>SERVICES</small> <b>Work Order Analysis Notes</b>	<b>Oak Ridge Laboratory</b> 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	15-10093
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	10/22/15 12:06	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	11/03/15 16:24	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deionized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	11/04/15 04:49	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . ( Precipitated and filtered samples for Thorium )

11-4-15  
 JEM





**EBERLINE**  
SERVICES

Reagents Used in an Analysis

Internal Work Order

**15-10093**

Analysis Code

Run

**ThISO**

**1**

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016569P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	10/22/2015
016519P	Nitric Acid	Reagent Grade	JPACHELLA	10/22/2015
016679P	Sulfuric Acid	Reagent Grade	JPACHELLA	10/22/2015
016158P	Perchloric Acid	Reagent Grade	JPACHELLA	10/22/2015
016862P	Anion Exchange Resin	Reagent Grade	JDEMELAS	11/3/2015
016796P	Hydrochloric Acid	Reagent Grade	JDEMELAS	11/3/2015
016516P	Nitric Acid	Reagent Grade	JDEMELAS	11/3/2015
016959S	Hydrochloric Acid	8N	JDEMELAS	11/3/2015
016961S	Nitric Acid	8N	JDEMELAS	11/3/2015
016955S	Carbon substrate	Solution	TSMITH	11/4/2015
016869S	Cerrium Carrier	0.1mg/ml	TSMITH	11/4/2015
016569P	Hydrofluoric Acid	Reagent Grade	TSMITH	11/4/2015
016514P	Reagent Alcohol	Reagent Grade	TSMITH	11/4/2015

# Alpha # 3

Date	Sample #	Client	Test Time	CT Time	Analysis	Test
10/30/15	1510091A(6-19)	Auxier	1430	2hr 50	UU	KB
10/30/15	System Bkgd	Lab	1725	1hr 40 hr	-	KB
11/2	Philly Pulse	UPS	0510	1	NA	-
11/2	1510086A(1-18)	Auxier	0828	2hr	UU 250	-
11/2	1510086A(1-40)	Auxier	0829	2hr	7hr 250	-
11/2/15	1510086A(15)	Auxier	1124	2hr 50	ISO-TM	KB
11/2/15	1510145A(1-4)	Washen	1125	2hr 50	ISO-PV	KB
11/2/15	1510091A(1-19)	Auxier	1128	2hr 50	UU	KB
11/2/15	1510155A(1-4)	ND	1625	2hr 50	Perk	KB
11/7	Philly Pulse	UPS	0511	1	NA	-
11/7	1510087A(8-14)	Auxier	0821	2hr	7hr 50	-
11/7	1510092A(1-14)	Auxier	0824	2hr 50	7hr 50	-
11/7	1510122A(1-4)	UCON	0825	2hr	7hr 50	-
11/3/15	1510071A(3-5)	Unitech	1172	2hr 50	ISO-PH	KB
11/3/15	1510090A(1-14)	Auxier	1173	2hr 50	UU	KB
11/3/15	1510092A(1-5)	Auxier	1175	2hr 50	UU	KB
11/3/15	1510078A(1-6)	Env. Dimensions	1178	5hr 35	ISO-TM	KB
11/3/15	1510092A(13-16)	Auxier	1520	2hr 50	UU	KB
11/3/15	1510092A(3)	Auxier	1521	2hr 50	UU	KB
11/3/15	1510055A(1-7)	Accutest	1729	2hr 50	Perk	KB
11/3/15	1510106A(1-4)	Test America	1834	2hr 50	Perk	KB
11/4	Philly Pulse	UPS	0524	1	NA	-
11/4	1510097A(8-19)	Auxier	0825	2hr 50	UU 250	-
11/4	1510097A(1-16)	Auxier	0826	2hr 50	7hr 250	-

# Alpha # 3

Date	Project	Client	Start Time	End Time	Analysis	Real
10/30/15	1510091A(6-19)	Auxier	1430	2hr50-	UW	KB
10/30/15	System Bkgd	Lab	1725	16:40 hr	-	KB
11/2	Daily Pulse	UW	0510	1-	UW	-
11/2	1510086A(1-18)	Auxier	0828	2hr	UW	-
11/2	1510086A(1-10)	Auxier	0829	2hr	7hr	-
11/2/15	1510086A(1-18)	Auxier	1124	2hr50-	ISO-TH	KB
11/2/15	1510145A(1-4)	Washmen	1125	2hr50-	ISO-PV	KB
11/2/15	1510091A(4-19)	Auxier	1128	2hr50-	UW	KB
11/2/15	1510155A(1-4)	ND	1625	2hr50-	Rate	KB
11/7	Daily Pulse	UW	0517	1-	UW	-
11/7	1510087A(8-19)	Auxier	0821	2hr	7hr	-
11/7	1510090A(1-14)	Auxier	0824	2hr	7hr	-
11/7	1510122A(4)	UCOR	0825	2hr	7hr	-
11/3/15	1510071A(3-5)	Unitech	1172	2hr50-	ISO-PU	KB
11/3/15	1510090A(1-14)	Auxier	1173	2hr50-	UW	KB
11/3/15	1510092A(1-5)	Auxier	1175	2hr50-	UW	KB
11/3/15	1510078A(1-6)	Env. Dimensions	1178	5hr35-	ISO-TH	KB
11/3/15	1510092A(13-16)	Auxier	1520	2hr50-	UW	KB
11/3/15	1510092A(3)	Auxier	1521	2hr50-	UW	KB
11/3/15	1510055A(1-7)	Accutest	1729	2hr50-	Rate	KB
11/3/15	1510106A(1-4)	Test America	1834	2hr50-	Rate	KB
11/4	Daily Pulse	UW	0524	1-	UW	-
11/4	1510093A(18-19)	Auxier	0825	2hr	UW	-
11/4	1510093A(1-16)	Auxier	0826	2hr	7hr	-
11/4/15	1510093A(17-19)	Auxier	1121	2hr50-	ISO-TH	KB
11/4/15	1510096A(1-4)	Security	1122	2hr50-	ISO-TH	KB
11/4/15	1510106A(1-2)	Test America	1123	2hr50-	Rate	KB

**GAMMA NOTES**

GE 1

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DATE	SAMPLE #	Client	Lead Time	CT Time	Analysis	Tech
11/9/15	1510088-14	Auxier	1635	1hr	Y	KB
11/9/15	1511030-01	TDX	1736	30mins	Y	KB
11/9/15	1511030-02	TDX	1907	1hr	Y	KB
11/10/15	DAVID BIRD	LAD	0603	15min	Y	AG
11/10/15	GAP-14	LAD	0621	15min	Y	AG
11/10/15	1510090-03	Auxier	0946	1hr	Y	KB
11/10/15	1510090-04	Auxier	1049	1hr	Y	KB
11/10/15	1510090-09	Auxier	1151	1hr	Y	KB
11/10/15	1510090-13	Auxier	1258	1hr	Y	KB
11/10/15	1511023-05	MPA	1353	15mins	Ba	KB
11/10/15	1511023-09	MPA	1408	15mins	Ba	KB
11/10/15	1510143-03	Kennvirans	1424	15mins	Ba	KB
11/10/15	1511067-01	UCOR	1439	15min	Ba	KB
11/10/15	1510091-05	Auxier	1456	1hr	Y	KB
11/10/15	1510091-08	Auxier	1557	1hr	Y	KB
11/10/15	1510091-11	Auxier	1658	1hr	Y	KB
11/10/15	1510091-15	Auxier	1759	1hr	Y	KB
11/11	EAZ-14	LAD	0724	15	Y	KB
11/11	DAVID B	LAD	0552	15	Y	KB
11/11	1510091-19	Auxier	0617	1hr	Y	KB
11/11	1510092-09	Auxier	0721	1hr	Y	KB
11/11	1510092-10	Auxier	0824	1hr	Y	KB
11/11	1510092-14	Auxier	0933	1hr	Y	KB
11/11	1510097-03	Auxier	1033	1hr	Y	KB
11/11	1510097-04	Auxier	1137	1hr	Y	KB
11/11/15	1510137-03	MDNR	1234	15mins	Ba	KB
11/11/15	1510137-08	MDNR	1250	15mins	Ba	KB
11/11/15	1510124-02	Test America	1710	15min	Ba	KB
11/11	1510097-10	Auxier	1329	1hr	Y	KB
11/11/15	1510093-14	Auxier	1430	1hr	Y	KB
11/11/15	1510093-18	Auxier	1532	1hr	Y	KB

GE 2

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DATE	SAMPLE #	Client	LoadTime	CTime	Analysis	Tech
11/10/15	1511030-09	TDX	0743	1 hr	Y	AC
11/10/15	1510090-05	Auxin	0946	1 hr	Y	KB
11/10/15	1510145-01	TDE	1049	15min	Ba	KB
11/10/15	1510090-07	Auxin	1104	1 hr	Y	KB
11/10/15	1510090-11	Auxin	1207	1 hr	Y	KB
11/10/15	1510091-03	Auxin	1309	1 hr	Y	KB
11/10/15	1510091-04	Auxin	1409	1 hr	Y	KB
11/10/15	1510091-07	Auxin	1511	1 hr	Y	KB
11/10/15	1510091-10	Auxin	1612	1 hr	Y	KB
11/10/15	1510091-13	Auxin	1713	1 hr	Y	KB
11/10/15	1510091-17	Auxin	1814	1 hr	Y	KB
11/11	GS1401	LPS	0824	1R	h	✓
11/11	Daily B	LPS	0852	1R	✓	✓
11/11	1510092-03	Auxier	0618	2L	✓	✓
11/11	1510092-04	Auxier	0721	2L	✓	✓
11/11	1510092-11	Auxier	0824	2L	✓	✓
11/11	1510092-15	Auxier	0933	2L	✓	✓
11/11	1510093-05	Auxier	1033	2L	✓	✓
11/11	1510093-07	Auxier	1134	2L	✓	✓
11/11/15	1510137-04	MDNR	1235	15mins	Ba	KB
11/11/15	1510137-09	MDNR	1250	15mins	Ba	KB
11/11/15	1510124-03	Test America	0710	15mins	Ba	KB
11/11/15	1510097-11	Auxier	1729	2L	✓	✓
11/11/15	1510093-15	Auxin	1430	1 hr	Y	KB
11/11/15	1510093-19	Auxin	1532	1 hr	Y	KB

GE 3

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DATE	SAMPLE #	Client	LoadTime	CT.Time	Analysis	Tech
11/10/15	1510091-06	Auxier	1505	1hr	✓	KB
11/10/15	1510091-09	Auxier	1606	1hr	✓	KB
11/10/15	1510091-12	Auxier	1707	1hr	✓	KB
11/10/15	1510091-16	Auxier	1808	1hr	✓	KB
11/11	6/8/1402	UPS	0824	1r	✓	✓
11/11	DailyR	UPS	0822	1r	✓	✓
11/11	1510092-05	Auxier	0618	2L	✓	—
11/11	1510092-07	Auxier	0721	2L	✓	—
11/11	1510092-12	Auxier	0824	2L	✓	—
11/11	1510092-16	Auxier	0933	2L	✓	—
11/11	1510093-06	Auxier	1033	2L	✓	—
11/11	1510093-08	Auxier	1135	2L	✓	—
11/11/15	1510137-05	MDNR	1236	15mins	Ba	KB
11/11/15	1510137-10	MDNR	1251	15mins	Ba	KB
11/11/15	1510124-04	TestAmerica	1710	15mins	Ba	KB
11/11	1510093-12	Auxier	1729	2L	✓	—
11/11/15	1510093-16	Auxier	1430	1hr	✓	KB

# GE 4

DATE	SAMPLE #	Client	LoadTime	CT-Time	Analysis	Tech
11/11	ETW 14	LAS	0524	15	✓	✓
11/14	Dilyrk	LAS	0522	15	✓	✓
11/11	1510092-06	Auxier	0618	2L	✓	✓
11/11	1510092-08	Auxier	0721	2L	✓	✓
11/11	1510092-13	Auxier	0824	2L	✓	✓
11/11	1510092-02	Auxier	0937	2L	✓	✓
11/11	1510092-01	Auxier	1034	30	✓	✓
11/11	1510093-01	Auxier	1106	30	✓	✓
11/11	1510093-02	Auxier	1137	2L	✓	✓
11/11/15	1510137-06	MDNR	1239	15 mins	Be	KB
11/11/15	1510137-11	MDNR	1256	15 mins	Be	KB
11/11	1510093-09	Auxier	1312	2L	✓	✓
11/11/15	1510093-13	Auxier	1414	1h	✓	KB
11/11/15	1510093-17	Auxier	1516	1h	✓	KB



**SECTION VIII**  
**ANALYTICAL DATA (ISOTOPIC URANIUM)**

Work Order	<b>15-10093</b>
Analysis Code	<b>UUISO</b>
Run	<b>1</b>
Date Received	<b>10/14/2015</b>
Lab Deadline	<b>11/5/2015</b>
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	CP5002S03-04	35	10/08/15 12:00	1.5082E+00
04	DO	CP5002S03-04	35	10/08/15 12:00	1.5099E+00
05	TRG	CP5002S06-07	34	10/08/15 12:20	1.5092E+00
06	TRG	CP5002S09-10	36	10/08/15 12:30	1.5199E+00
07	TRG	CP5002S11-12	34	10/08/15 12:40	1.5246E+00
08	TRG	CP5002S13-14	32	10/08/15 13:00	1.5123E+00
09	TRG	CP5002S16-17	33	10/08/15 13:10	1.5191E+00
10	TRG	CP1806S03-04	37	10/09/15 08:00	1.5446E+00
11	TRG	CP1806S05-06	34	10/09/15 08:10	1.5231E+00
12	TRG	CP1806S08-09	35	10/09/15 08:20	1.5303E+00
13	TRG	CP1806S10-11	36	10/09/15 08:30	1.5803E+00
14	TRG	CP1806S13-14	34	10/09/15 08:40	1.5505E+00
15	TRG	CP3004S02-03	39	10/10/15 12:40	1.5220E+00
16	TRG	CP3004S05-06	41	10/10/15 12:50	1.5253E+00
17	TRG	CP3004S07-08	38	10/10/15 13:00	1.5514E+00
18	TRG	CP3004S10-11	34	10/10/15 13:10	1.5630E+00
19	TRG	CP3004S12-13	32	10/10/15 13:20	1.5319E+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.

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15-10093  
UJISO  
Run 1

Eberline Services  
Oak Ridge Laboratory  
Analysis Sheet

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	0.6572	12.3		0.00								
02	MBL	0.6502	12.1		0.00								
03	DUP	0.6568	12.2		0.00								
04	DO	0.6560	12.2		0.00								
05	TRG	0.6553	12.2		0.00								
06	TRG	0.6541	12.2		0.00								
07	TRG	0.6552	12.2		0.00								
08	TRG	0.6551	12.2		0.00								
09	TRG	0.6546	12.2		0.00								
10	TRG	0.6559	12.2		0.00								
11	TRG	0.6552	12.2		0.00								
12	TRG	0.6563	12.2		0.00								
13	TRG	0.6541	12.2		0.00								
14	TRG	0.6498	12.1		0.00								
15	TRG	0.6542	12.2		0.00								
16	TRG	0.6516	12.1		0.00								
17	TRG	0.6550	12.2		0.00								
18	TRG	0.6551	12.2		0.00								
19	TRG	0.6498	12.1		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.

15-10093

15-10093  
UUISO  
Run 1

Eberline Services  
Oak Ridge Laboratory  
Analysis Sheet


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			10/22/15 13:53	JPACHELLA				
02	MBL			10/22/15 13:53	JPACHELLA				
03	DUP			10/22/15 13:53	JPACHELLA				
04	DO	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
05	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
06	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
07	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
08	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
09	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
10	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
11	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
12	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
13	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
14	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
15	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
16	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
17	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
18	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				
19	TRG	10/21/15 08:34	KSALLINGS	10/22/15 13:53	JPACHELLA				

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

Preliminary Data Report & Analytical Calculations  
**Work Order: 15-10093-UUISO-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-234	LCS	LCS	pCi/g	6.89E+00	1.00E+00	8.54E-02	8.11E+00	86.05	OK		OK	
02	U-234	MBL	BLANK	pCi/g	2.69E-02	3.62E-02	5.68E-02					OK	OK
03	U-234	DUP	CP5002S03-04	pCi/g	1.17E+00	2.40E-01	7.11E-02				OK	OK	
04	U-234	DO	CP5002S03-04	pCi/g	9.14E-01	2.08E-01	5.88E-02					OK	
05	U-234	TRG	CP5002S06-07	pCi/g	1.06E+00	2.25E-01	5.98E-02					OK	
06	U-234	TRG	CP5002S09-10	pCi/g	9.52E-01	2.15E-01	6.91E-02					OK	
07	U-234	TRG	CP5002S11-12	pCi/g	9.53E-01	1.78E-01	3.37E-02					OK	
08	U-234	TRG	CP5002S13-14	pCi/g	1.01E+00	2.30E-01	5.73E-02					OK	
09	U-234	TRG	CP5002S16-17	pCi/g	1.16E+00	2.47E-01	4.13E-02					OK	
10	U-234	TRG	CP1806S03-04	pCi/g	7.80E-01	1.77E-01	3.43E-02					OK	
11	U-234	TRG	CP1806S05-06	pCi/g	1.10E+00	2.28E-01	5.06E-02					OK	
12	U-234	TRG	CP1806S08-09	pCi/g	1.18E+00	2.51E-01	4.75E-02					OK	
13	U-234	TRG	CP1806S10-11	pCi/g	9.13E-01	2.09E-01	3.94E-02					OK	
14	U-234	TRG	CP1806S13-14	pCi/g	9.34E-01	2.10E-01	7.46E-02					OK	
15	U-234	TRG	CP3004S02-03	pCi/g	1.02E+00	2.09E-01	3.43E-02					OK	
16	U-234	TRG	CP3004S05-06	pCi/g	1.26E+00	2.66E-01	6.45E-02					OK	
17	U-234	TRG	CP3004S07-08	pCi/g	1.08E+00	2.45E-01	5.08E-02					OK	
18	U-234	TRG	CP3004S10-11	pCi/g	9.29E-01	2.02E-01	4.13E-02					OK	
19	U-234	TRG	CP3004S12-13	pCi/g	8.80E-01	1.92E-01	3.98E-02					OK	

	Run	1
	Analysis Code	UUISO
Eberline Analytical Work Order	15-10093	
Client	Auxier & Associates, Inc.	


	<b>1</b> Run	<b>UISO</b> Analysis Code	<b>15-10093</b> Eberline Analytical Work Order	<b>Auxier &amp; Associates, Inc.</b> Client
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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	100.67	0.00	0.00			
02	U-234	MBL	10/15/15 00:00	1.50E+00	103.75	0.00	0.00			
03	U-234	DUP	10/08/15 12:00	1.51E+00	100.40	0.00	0.00			
04	U-234	DO	10/08/15 12:00	1.51E+00	94.07	0.00	0.00			
05	U-234	TRG	10/08/15 12:20	1.51E+00	100.04	0.00	0.00			
06	U-234	TRG	10/08/15 12:30	1.52E+00	100.95	0.00	0.00			
07	U-234	TRG	10/08/15 12:40	1.52E+00	115.57	0.00	0.00			
08	U-234	TRG	10/08/15 13:00	1.51E+00	95.78	0.00	0.00			
09	U-234	TRG	10/08/15 13:10	1.52E+00	98.71	0.00	0.00			
10	U-234	TRG	10/09/15 08:00	1.54E+00	126.85	0.00	0.00			
11	U-234	TRG	10/09/15 08:10	1.52E+00	107.58	0.00	0.00			
12	U-234	TRG	10/09/15 08:20	1.53E+00	102.11	0.00	0.00			
13	U-234	TRG	10/09/15 08:30	1.58E+00	110.28	0.00	0.00			
14	U-234	TRG	10/09/15 08:40	1.55E+00	97.29	0.00	0.00			
15	U-234	TRG	10/10/15 12:40	1.52E+00	114.22	0.00	0.00			
16	U-234	TRG	10/10/15 12:50	1.53E+00	90.74	0.00	0.00			
17	U-234	TRG	10/10/15 13:00	1.55E+00	92.76	0.00	0.00			
18	U-234	TRG	10/10/15 13:10	1.56E+00	98.63	0.00	0.00			
19	U-234	TRG	10/10/15 13:20	1.53E+00	113.34	0.00	0.00			

Preliminary Data Report & Analytical Calculations  
**Work Order: 15-10093-UISO-1**

	Run	1
	Analysis Code	UISO
	Eberline Analytical Work Order	15-10093
Client	Auxier & Associates, Inc.	

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	11/04/15 08:25		A_Spec	Alpha_003	170.02	4.55 E+02	4.00 E-03	17.4
02	U-234	MBL	11/04/15 08:25		A_Spec	Alpha_004	170.02	2.98 E+00	6.00 E-03	18.9
03	U-234	DUP	11/04/15 08:25		A_Spec	Alpha_010	170.03	1.28 E+02	1.20 E-02	19.2
04	U-234	DO	11/04/15 08:25		A_Spec	Alpha_011	170	9.80 E+01	6.00 E-03	20
05	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_012	170.02	1.17 E+02	7.00 E-03	19.4
06	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_014	170.02	1.01 E+02	1.00 E-02	18.4
07	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_015	170	1.48 E+02	3.00 E-03	23.5
08	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_033	170	9.93 E+01	4.00 E-03	18
09	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_034	170	1.17 E+02	1.00 E-03	17.9
10	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_035	170	9.48 E+01	1.00 E-03	16.5
11	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_036	170	1.22 E+02	4.00 E-03	18.1
12	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_037	170	1.19 E+02	2.00 E-03	17.1
13	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_038	170	9.68 E+01	1.00 E-03	16.2
14	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_039	170	1.03 E+02	1.40 E-02	19.3
15	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_040	170	1.24 E+02	1.00 E-03	18.6
16	U-234	TRG	11/04/15 08:25		A_Spec	Alpha_041	170	1.23 E+02	6.00 E-03	18.7
17	U-234	TRG	11/04/15 08:26		A_Spec	Alpha_042	170	1.02 E+02	2.00 E-03	17.4
18	U-234	TRG	11/04/15 08:26		A_Spec	Alpha_043	170	1.08 E+02	2.00 E-03	20
19	U-234	TRG	11/04/15 08:26		A_Spec	Alpha_044	170	1.06 E+02	2.00 E-03	18.4

Run	1		Client Auxier & Associates, Inc.	Eberline Analytical Work Order 15-10093	Analysis Code UUISO

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	7.74E+00	1.10E+00	7.91E-02	7.90E+00	97.98	OK		OK	
02	U-238	MBL	BLANK	pCi/g	1.62E-02	3.15E-02	5.91E-02					OK	OK
03	U-238	DUP	CP5002S03-04	pCi/g	1.06E+00	2.25E-01	5.73E-02				OK	OK	
04	U-238	DO	CP5002S03-04	pCi/g	9.60E-01	2.13E-01	5.24E-02					OK	
05	U-238	TRG	CP5002S06-07	pCi/g	1.12E+00	2.31E-01	4.74E-02					OK	
06	U-238	TRG	CP5002S09-10	pCi/g	9.83E-01	2.18E-01	5.90E-02					OK	
07	U-238	TRG	CP5002S11-12	pCi/g	9.45E-01	1.77E-01	2.67E-02					OK	
08	U-238	TRG	CP5002S13-14	pCi/g	9.61E-01	2.23E-01	6.06E-02					OK	
09	U-238	TRG	CP5002S16-17	pCi/g	1.19E+00	2.51E-01	4.11E-02					OK	
10	U-238	TRG	CP1806S03-04	pCi/g	1.01E+00	2.08E-01	4.62E-02					OK	
11	U-238	TRG	CP1806S05-06	pCi/g	9.11E-01	2.03E-01	5.36E-02					OK	
12	U-238	TRG	CP1806S08-09	pCi/g	1.34E+00	2.72E-01	4.73E-02					OK	
13	U-238	TRG	CP1806S10-11	pCi/g	8.50E-01	2.00E-01	4.93E-02					OK	
14	U-238	TRG	CP1806S13-14	pCi/g	8.50E-01	1.99E-01	8.25E-02					OK	
15	U-238	TRG	CP3004S02-03	pCi/g	9.41E-01	1.98E-01	3.42E-02					OK	
16	U-238	TRG	CP3004S05-06	pCi/g	1.08E+00	2.43E-01	8.93E-02					OK	
17	U-238	TRG	CP3004S07-08	pCi/g	1.04E+00	2.39E-01	6.33E-02					OK	
18	U-238	TRG	CP3004S10-11	pCi/g	1.10E+00	2.25E-01	5.15E-02					OK	
19	U-238	TRG	CP3004S12-13	pCi/g	1.04E+00	2.13E-01	3.46E-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-238	LCS	10/15/15 00:00	1.00E+00	100.67	0.00	0.00			
02	U-238	MBL	10/15/15 00:00	1.50E+00	103.75	0.00	0.00			
03	U-238	DUP	10/08/15 12:00	1.51E+00	100.40	0.00	0.00			
04	U-238	DO	10/08/15 12:00	1.51E+00	94.07	0.00	0.00			
05	U-238	TRG	10/08/15 12:20	1.51E+00	100.04	0.00	0.00			
06	U-238	TRG	10/08/15 12:30	1.52E+00	100.95	0.00	0.00			
07	U-238	TRG	10/08/15 12:40	1.52E+00	115.57	0.00	0.00			
08	U-238	TRG	10/08/15 13:00	1.51E+00	95.78	0.00	0.00			
09	U-238	TRG	10/08/15 13:10	1.52E+00	98.71	0.00	0.00			
10	U-238	TRG	10/09/15 08:00	1.54E+00	126.85	0.00	0.00			
11	U-238	TRG	10/09/15 08:10	1.52E+00	107.58	0.00	0.00			
12	U-238	TRG	10/09/15 08:20	1.53E+00	102.11	0.00	0.00			
13	U-238	TRG	10/09/15 08:30	1.58E+00	110.28	0.00	0.00			
14	U-238	TRG	10/09/15 08:40	1.55E+00	97.29	0.00	0.00			
15	U-238	TRG	10/10/15 12:40	1.52E+00	114.22	0.00	0.00			
16	U-238	TRG	10/10/15 12:50	1.53E+00	90.74	0.00	0.00			
17	U-238	TRG	10/10/15 13:00	1.55E+00	92.76	0.00	0.00			
18	U-238	TRG	10/10/15 13:10	1.56E+00	98.53	0.00	0.00			
19	U-238	TRG	10/10/15 13:20	1.53E+00	113.34	0.00	0.00			

	Run	1
	Analysis Code	UISO
Eberline Analytical Work Order	15-10093	
Client	Auxier & Associates, Inc.	

Run	1
Analysis Code	UIISO
Eberline Analytical Work Order	15-10093
Client	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	11/04/15 08:25		A_Spec	Alpha_003	170.02	5.13 E+02	3.00 E-03	17.4
02	U-238	MBL	11/04/15 08:25		A_Spec	Alpha_004	170.02	1.81 E+00	7.00 E-03	18.9
03	U-238	DUP	11/04/15 08:25		A_Spec	Alpha_010	170.03	1.17 E+02	6.00 E-03	19.2
04	U-238	DO	11/04/15 08:25		A_Spec	Alpha_011	170	1.03 E+02	4.00 E-03	20
05	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_012	170.02	1.23 E+02	3.00 E-03	19.4
06	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_014	170.02	1.05 E+02	6.00 E-03	18.4
07	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_015	170	1.48 E+02	1.00 E-03	23.5
08	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_033	170	9.50 E+01	0.00 E+00	18
09	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_034	170	1.21 E+02	1.00 E-03	17.9
10	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_035	170	1.23 E+02	4.00 E-03	16.5
11	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_036	170	1.02 E+02	0.00 E+00	18.1
12	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_037	170	1.36 E+02	2.00 E-03	17.1
13	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_038	170	9.05 E+01	3.00 E-03	16.2
14	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_039	170	9.38 E+01	1.90 E-02	19.3
15	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_040	170	1.15 E+02	1.00 E-03	18.6
16	U-238	TRG	11/04/15 08:25		A_Spec	Alpha_041	170	1.06 E+02	1.70 E-02	18.7
17	U-238	TRG	11/04/15 08:26		A_Spec	Alpha_042	170	9.82 E+01	5.00 E-03	17.4
18	U-238	TRG	11/04/15 08:26		A_Spec	Alpha_043	170	1.28 E+02	0.00 E+00	20
19	U-238	TRG	11/04/15 08:26		A_Spec	Alpha_044	170	1.25 E+02	1.00 E-03	18.4

		Client	Auxier & Associates, Inc.
Run	1	Eberline Analytical Work Order	15-10093
		Analysis Code	UUISO

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	5.54E-01	2.10E-01	8.93E-02					OK	
02	U-235	MBL	BLANK	pCi/g	2.39E-02	3.87E-02	6.66E-02					OK	OK
03	U-235	DUP	CP5002S03-04	pCi/g	7.48E-02	6.38E-02	7.72E-02				NA	OK	
04	U-235	DO	CP5002S03-04	pCi/g	8.42E-02	6.49E-02	6.49E-02					OK	
05	U-235	TRG	CP5002S06-07	pCi/g	1.06E-01	7.07E-02	5.88E-02					OK	
06	U-235	TRG	CP5002S09-10	pCi/g	4.05E-02	4.62E-02	6.09E-02					OK	
07	U-235	TRG	CP5002S11-12	pCi/g	1.02E-01	5.68E-02	3.30E-02					OK	
08	U-235	TRG	CP5002S13-14	pCi/g	7.30E-02	6.09E-02	5.23E-02					OK	
09	U-235	TRG	CP5002S16-17	pCi/g	4.68E-02	4.83E-02	5.10E-02					OK	
10	U-235	TRG	CP1806S03-04	pCi/g	4.06E-02	4.47E-02	6.08E-02					OK	
11	U-235	TRG	CP1806S05-06	pCi/g	8.67E-02	6.22E-02	4.62E-02					OK	
12	U-235	TRG	CP1806S08-09	pCi/g	1.90E-01	9.88E-02	6.44E-02					OK	
13	U-235	TRG	CP1806S10-11	pCi/g	6.78E-02	5.65E-02	4.86E-02					OK	
14	U-235	TRG	CP1806S13-14	pCi/g	6.31E-02	6.42E-02	9.20E-02					OK	
15	U-235	TRG	CP3004S02-03	pCi/g	6.76E-02	5.33E-02	4.85E-02					OK	
16	U-235	TRG	CP3004S05-06	pCi/g	1.22E-01	7.98E-02	6.04E-02					OK	
17	U-235	TRG	CP3004S07-08	pCi/g	1.00E-01	7.38E-02	6.26E-02					OK	
18	U-235	TRG	CP3004S10-11	pCi/g	8.86E-02	6.37E-02	6.00E-02					OK	
19	U-235	TRG	CP3004S12-13	pCi/g	1.09E-01	6.79E-02	4.91E-02					OK	

	Run	1
Analysis Code	UISO	
Eberline Analytical Work Order	15-10093	
Client	Auxier & Associates, Inc.	

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep 10 Date/Time	Sep 11 Date/Time
01	U-235	LCS	10/15/15 00:00	1.00E+00	100.67	0.00	0.00			
02	U-235	MBL	10/15/15 00:00	1.50E+00	103.75	0.00	0.00			
03	U-235	DUP	10/08/15 12:00	1.51E+00	100.40	0.00	0.00			
04	U-235	DO	10/08/15 12:00	1.51E+00	94.07	0.00	0.00			
05	U-235	TRG	10/08/15 12:20	1.51E+00	100.04	0.00	0.00			
06	U-235	TRG	10/08/15 12:30	1.52E+00	100.96	0.00	0.00			
07	U-235	TRG	10/08/15 12:40	1.52E+00	115.57	0.00	0.00			
08	U-235	TRG	10/08/15 13:00	1.51E+00	95.78	0.00	0.00			
09	U-235	TRG	10/08/15 13:10	1.52E+00	98.71	0.00	0.00			
10	U-235	TRG	10/09/15 08:00	1.54E+00	126.86	0.00	0.00			
11	U-235	TRG	10/09/15 08:10	1.52E+00	107.58	0.00	0.00			
12	U-235	TRG	10/09/15 08:20	1.53E+00	102.11	0.00	0.00			
13	U-235	TRG	10/09/15 08:30	1.58E+00	110.28	0.00	0.00			
14	U-235	TRG	10/09/15 08:40	1.56E+00	97.29	0.00	0.00			
15	U-235	TRG	10/10/15 12:40	1.52E+00	114.22	0.00	0.00			
16	U-235	TRG	10/10/15 12:50	1.53E+00	90.74	0.00	0.00			
17	U-235	TRG	10/10/15 13:00	1.55E+00	92.76	0.00	0.00			
18	U-235	TRG	10/10/15 13:10	1.56E+00	98.63	0.00	0.00			
19	U-235	TRG	10/10/15 13:20	1.53E+00	113.34	0.00	0.00			

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	11/04/15 08:25		A_Spec	Alpha_003	170.02	2.97 E+01	2.00 E-03	17.4
02	U-235	MBL	11/04/15 08:25		A_Spec	Alpha_004	170.02	2.15 E+00	5.00 E-03	18.9
03	U-235	DUP	11/04/15 08:25		A_Spec	Alpha_010	170.03	6.64 E+00	8.00 E-03	19.2
04	U-235	DO	11/04/15 08:25		A_Spec	Alpha_011	170	7.32 E+00	4.00 E-03	20
05	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_012	170.02	9.49 E+00	3.00 E-03	19.4
06	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_014	170.02	3.49 E+00	3.00 E-03	18.4
07	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_015	170	1.28 E+01	1.00 E-03	23.5
08	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_033	170	5.83 E+00	1.00 E-03	18
09	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_034	170	3.83 E+00	1.00 E-03	17.9
10	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_035	170	4.00 E+00	0.00 E+00	16.5
11	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_036	170	7.83 E+00	1.00 E-03	18.1
12	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_037	170	1.55 E+01	3.00 E-03	17.1
13	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_038	170	5.83 E+00	1.00 E-03	16.2
14	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_039	170	5.62 E+00	1.40 E-02	19.3
15	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_040	170	6.66 E+00	2.00 E-03	18.6
16	U-235	TRG	11/04/15 08:25		A_Spec	Alpha_041	170	9.66 E+00	2.00 E-03	18.7
17	U-235	TRG	11/04/15 08:26		A_Spec	Alpha_042	170	7.66 E+00	2.00 E-03	17.4
18	U-235	TRG	11/04/15 08:26		A_Spec	Alpha_043	170	8.32 E+00	4.00 E-03	20
19	U-235	TRG	11/04/15 08:26		A_Spec	Alpha_044	170	1.07 E+01	2.00 E-03	18.4

Run	1
Analysis Code	UISO
Eberline Analytical Work Order	15-10093
Client	Auxier & Associates, Inc.



Count Room Report  
Client: Auxier Associates, Inc.

15-10093-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	0.6572	12.2502		0.00		
02	MBL	BLANK	10/15/15 00:00	1.5000	0.6502	12.1197		0.00		
03	DUP	CP5002S03-04	10/08/15 12:00	1.5082	0.6568	12.2428		0.00		
04	DO	CP5002S03-04	10/08/15 12:00	1.5099	0.6560	12.2278		0.00		
05	TRG	CP5002S06-07	10/08/15 12:20	1.5092	0.6553	12.2148		0.00		
06	TRG	CP5002S09-10	10/08/15 12:30	1.5199	0.6541	12.1924		0.00		
07	TRG	CP5002S11-12	10/08/15 12:40	1.5246	0.6552	12.2129		0.00		
08	TRG	CP5002S13-14	10/08/15 13:00	1.5123	0.6551	12.2111		0.00		
09	TRG	CP5002S16-17	10/08/15 13:10	1.5191	0.6546	12.2017		0.00		
10	TRG	CP1806S03-04	10/09/15 08:00	1.5446	0.6559	12.2260		0.00		
11	TRG	CP1806S05-06	10/09/15 08:10	1.5231	0.6552	12.2129		0.00		
12	TRG	CP1806S08-09	10/09/15 08:20	1.5303	0.6563	12.2334		0.00		
13	TRG	CP1806S10-11	10/09/15 08:30	1.5803	0.6541	12.1924		0.00		
14	TRG	CP1806S13-14	10/09/15 08:40	1.5505	0.6498	12.1123		0.00		
15	TRG	CP3004S02-03	10/10/15 12:40	1.5220	0.6542	12.1943		0.00		
16	TRG	CP3004S05-06	10/10/15 12:50	1.5253	0.6516	12.1458		0.00		
17	TRG	CP3004S07-08	10/10/15 13:00	1.5514	0.6550	12.2092		0.00		
18	TRG	CP3004S10-11	10/10/15 13:10	1.5630	0.6551	12.2111		0.00		
19	TRG	CP3004S12-13	10/10/15 13:20	1.5319	0.6498	12.1123		0.00		

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B  
M

W

Internal Work Order		Run	Analysis Code		Date		Technician		Technician Initials		Witness Initials				
15-10093		1	UUISO		10/22/2015 13:45		JPACHELLA		<i>[Signature]</i>						
<b>LCS &amp; Matrix Spikes</b>															
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCSD Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Added pCi	LCSD Known pCi	MSD Added pCi	Error Estimate	Error Estimate	Error Estimate
U-234	U-8a	35.240	10/22/2015	0.500	0.5106				8.11	0.292	0.00	0.00	0.000	0.000	0.000
U-238	U-8a	34.350	10/22/2015	0.500	0.5106				7.90	0.284	0.00	0.00	0.000	0.000	0.000
T-99 MS T-2a 22043.636 7/5/2014 0.1															
<b>Tracers</b>															
Fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition									
01	U-232	U-10a	18.640	10/22/2015	0.6572	0.6500									
02	U-232	U-10a	18.640	10/22/2015	0.6502	0.6500									
03	U-232	U-10a	18.640	10/22/2015	0.6568	0.6500									
04	U-232	U-10a	18.640	10/22/2015	0.6560	0.6500									
05	U-232	U-10a	18.640	10/22/2015	0.6553	0.6500									
06	U-232	U-10a	18.640	10/22/2015	0.6541	0.6500									
07	U-232	U-10a	18.640	10/22/2015	0.6552	0.6500									
08	U-232	U-10a	18.640	10/22/2015	0.6551	0.6500									
09	U-232	U-10a	18.640	10/22/2015	0.6546	0.6500									
10	U-232	U-10a	18.640	10/22/2015	0.6559	0.6500									
11	U-232	U-10a	18.640	10/22/2015	0.6552	0.6500									
12	U-232	U-10a	18.640	10/22/2015	0.6563	0.6500									
13	U-232	U-10a	18.640	10/22/2015	0.6541	0.6500									
14	U-232	U-10a	18.640	10/22/2015	0.6498	0.6500									
15	U-232	U-10a	18.640	10/22/2015	0.6542	0.6500									
16	U-232	U-10a	18.640	10/22/2015	0.6516	0.6500									
17	U-232	U-10a	18.640	10/22/2015	0.6550	0.6500									
18	U-232	U-10a	18.640	10/22/2015	0.6551	0.6500									
19	U-232	U-10a	18.640	10/22/2015	0.6498	0.6500									
<b>Balance Printer Tapes</b>															
						Tracer			LCS						
Matrix Spike															

00007

# Aliquot Worksheet

Work Order		Run	Analysis Code	Rpt Units	Lab Deadline	Technician	
<b>15-10093</b>		<b>1</b>	<b>UUISO</b>	<b>grams</b>	<b>11/5/2015</b>	<b>JPACHELLA</b>	

Lab Fraction	Auxier & Associates, Inc.		Sample Type	Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID			Ratio Post/Pre	No. of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Allg	
01	LCS		LCS					1.000E+00	1.000E+00					
02	BLANK		MBL					1.500E+00	1.500E+00					
03	CP5002S03-04		DUP					1.5082E+00	1.5082E+00					
04	CP5002S03-04		DO					1.5099E+00	1.5099E+00					
05	CP5002S06-07		TRG					1.5092E+00	1.5092E+00					
06	CP5002S09-10		TRG					1.5199E+00	1.5199E+00					
07	CP5002S11-12		TRG					1.5246E+00	1.5246E+00					
08	CP5002S13-14		TRG					1.5123E+00	1.5123E+00					
09	CP5002S16-17		TRG					1.5191E+00	1.5191E+00					
10	CP1806S03-04		TRG					1.5446E+00	1.5446E+00					
11	CP1806S05-06		TRG					1.5231E+00	1.5231E+00					
12	CP1806S08-09		TRG					1.5303E+00	1.5303E+00					
13	CP1806S10-11		TRG					1.5803E+00	1.5803E+00					
14	CP1806S13-14		TRG					1.5505E+00	1.5505E+00					
15	CP3004S02-03		TRG					1.5220E+00	1.5220E+00					
16	CP3004S05-06		TRG					1.5253E+00	1.5253E+00					
17	CP3004S07-08		TRG					1.5514E+00	1.5514E+00					
18	CP3004S10-11		TRG					1.5630E+00	1.5630E+00					
19	CP3004S12-13		TRG					1.5319E+00	1.5319E+00					

Comments
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Technician: *J. Pachella* Date: 10/22/15



Rough Sample Preparation  
 Log Book

Work Order		Date Received in Prep		Date Sealed		Date Returned		Technician	
<b>15-10093</b>		<b>10/20/2015</b>		<b>10/21/2015</b>		<b>10/22/2015</b>		<b>KSALLINGS</b>	

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	CP5002S03-04	14.5700	725.4000	870.8600	725.4000	856.2900	710.8300	16.99%	83.01%	0.0000	0.0000	
05	CP5002S06-07	14.5500	915.9800	1102.9200	915.9800	1088.3700	907.4300	17.18%	82.82%	0.0000	0.0000	
06	CP5002S09-10	14.5600	575.9200	718.0000	575.9200	703.4400	561.3600	20.20%	79.80%	0.0000	0.0000	
07	CP5002S11-12	14.5200	714.2300	900.8200	714.2300	886.3000	699.7100	21.05%	78.95%	0.0000	0.0000	
08	CP5002S13-14	14.5100	701.9500	892.7400	701.9500	878.2300	687.4400	21.72%	78.28%	0.0000	0.0000	
09	CP5002S16-17	14.4700	763.2500	975.7000	763.2500	961.2300	748.7800	22.10%	77.90%	0.0000	0.0000	
10	CP1806S03-04	14.4300	859.9400	1045.7200	859.9400	1031.2900	845.5100	18.01%	81.99%	0.0000	0.0000	
11	CP1806S05-06	14.4500	634.1900	786.0800	634.1900	771.6300	619.7400	19.68%	80.32%	0.0000	0.0000	
12	CP1806S08-09	14.3900	748.1700	937.6000	748.1700	923.2100	733.7800	20.52%	79.48%	0.0000	0.0000	
13	CP1806S10-11	14.4000	1074.4800	1306.2200	1074.4800	1291.8200	1060.0800	17.94%	82.06%	0.0000	0.0000	
14	CP1806S13-14	14.3300	1111.5400	1339.7000	1111.5400	1325.3700	1097.2100	17.21%	82.79%	0.0000	0.0000	
15	CP3004S02-03	14.3600	587.1100	744.3400	587.1100	729.9800	572.7500	21.54%	78.46%	0.0000	0.0000	
16	CP3004S05-06	14.3700	652.0000	792.7400	652.0000	778.3700	637.6300	18.08%	81.92%	0.0000	0.0000	
17	CP3004S07-08	14.3900	758.3200	922.1600	758.3200	907.7700	743.9300	18.05%	81.95%	0.0000	0.0000	
18	CP3004S10-11	14.3300	780.0000	972.3800	780.0000	958.0500	765.6700	20.08%	79.92%	0.0000	0.0000	
19	CP3004S12-13	14.2900	816.3000	1036.7800	816.3000	1022.4900	802.0100	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)





# Apex-Alpha™

KS  
11/4/16

Sample Description: SPIKE  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 01  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_003  
 Chamber Serial Number:  
 Detector Serial Number: 3  
 Env. Background: System Bkgd 133256  
 Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 11/4/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:36 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232\_UU-10A  
 Tracer Quantity: 0.657 mL  
 Effective Efficiency: 0.1754 +/- 0.0101  
 Counting Efficiency: 0.1742 +/- 0.0031 on 10/25/2014 6:43:48 PM  
 Chem. Recovery Factor: 1.0067 +/- 0.0604

Control Certificate Name: NatU\_U-8A  
 Chem. Recov. of Control: U-238 0.955079 +/- 0.074838  
 Peak Match Tolerance: 0.150 MeV

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 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.271	362.66	10.30	0.34	0.00E+000	36.1
U-234	4.722	455.32	9.19	0.68	0.00E+000	16.8
U-235	4.377	29.66	36.23	0.34	0.00E+000	3.5
U-238	4.144	513.49	8.65	0.51	0.00E+000	31.0

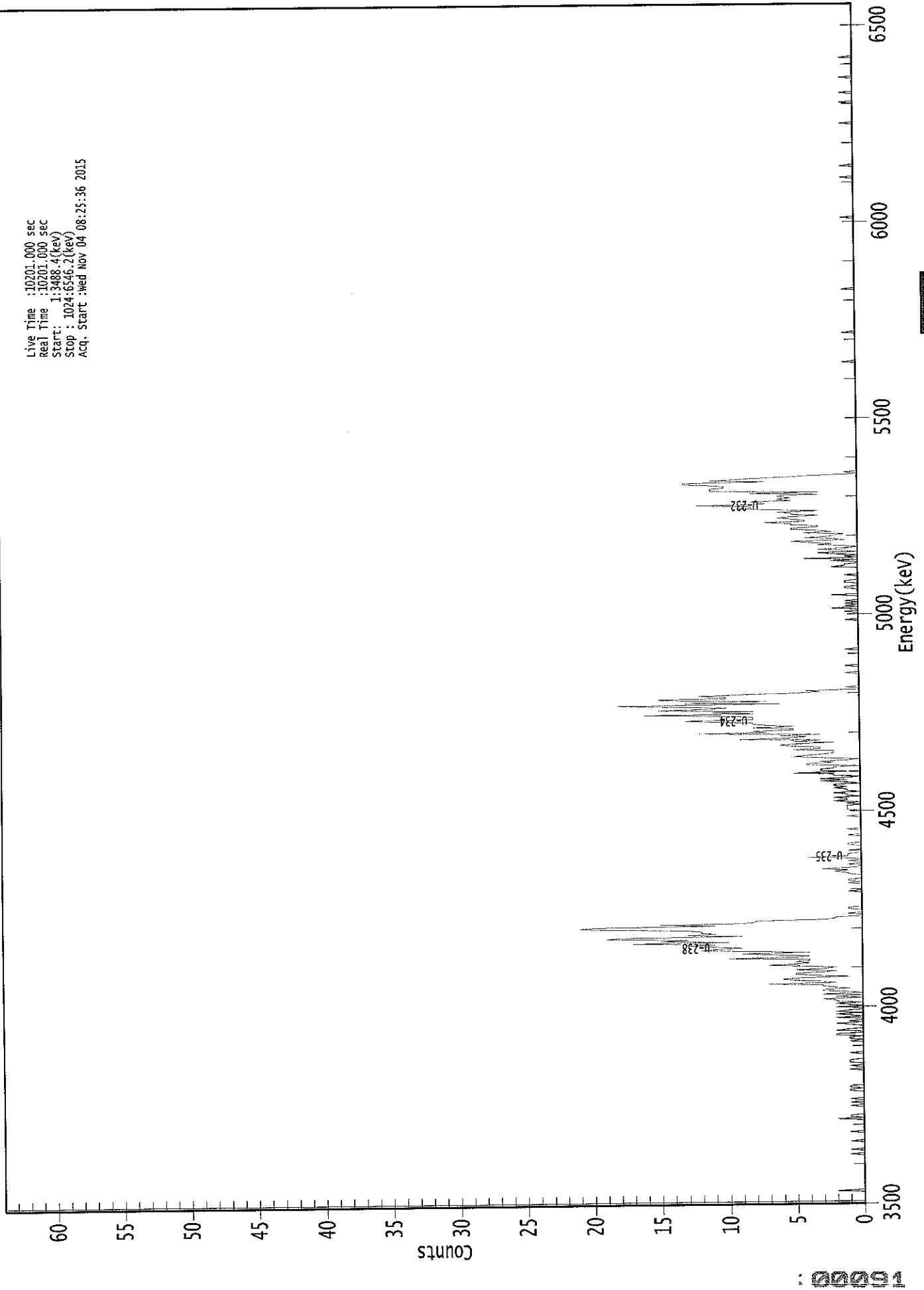
T = Tracer Peak used for Effective Efficiency

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 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.993	5302.50*	5.49E+000 +/- 6.17E-001	7.24E-002 +/- 8.14E-003
U-234	0.989	4761.50*	6.89E+000 +/- 1.00E+000	8.54E-002 +/- 9.60E-003
U-235	0.999	4385.50*	5.54E-001 +/- 2.10E-001	8.93E-002 +/- 1.00E-002
U-238	0.988	4184.40*	7.74E+000 +/- 1.10E+000	7.91E-002 +/- 8.89E-003

0000133111.CNF

Live Time :10201.000 sec  
Real Time :10201.000 sec  
Start : 1:3488.4(keV)  
Stop : 1024:6546.2(keV)  
Acq. Start :Wed Nov 04 08:25:36 2015



ROI Type: 1

ROI Type: 3

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title:    01

Elapsed Live time:    10201

Elapsed Real Time:    10201

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	2	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	1	0	0	0	1	0
49:	0	0	0	0	0	1	0	0
57:	0	0	0	0	0	1	0	0
65:	0	0	0	0	0	0	0	0
73:	2	0	1	1	0	0	0	0
81:	0	0	0	1	0	0	1	0
89:	0	1	0	0	0	0	0	0
97:	1	1	0	1	1	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	1	0	0	1	0	0
121:	1	1	1	0	0	0	0	0
129:	1	0	0	0	0	0	0	0
137:	0	0	1	0	1	1	0	2
145:	2	0	0	2	1	0	0	0
153:	1	2	0	1	0	0	2	0
161:	1	2	0	2	1	0	0	2
169:	0	1	2	0	2	2	3	0
177:	2	0	3	0	1	3	3	1
185:	2	3	3	7	2	3	5	6
193:	5	1	3	5	5	3	2	5
201:	3	2	4	7	5	4	5	4
209:	4	10	5	4	7	9	4	8
217:	12	11	9	11	13	11	17	10
225:	15	13	19	18	9	13	11	12
233:	12	13	18	21	20	11	15	9
241:	8	8	3	2	2	0	0	1
249:	0	0	0	1	1	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	1	0	0	0	0	0
273:	0	1	0	1	1	0	0	0
281:	0	1	1	2	1	3	1	0
289:	0	1	0	0	1	0	0	4
297:	1	1	1	0	0	1	0	0
305:	0	0	1	1	0	0	0	0
313:	0	0	1	0	0	0	0	1
321:	0	0	0	0	0	0	0	0
329:	0	0	1	0	0	0	0	0
337:	1	1	1	1	0	1	0	2
345:	1	1	2	0	1	1	2	0
353:	1	1	2	1	2	2	0	1
361:	3	1	3	1	0	2	2	5

369: 1 3 3 2 2 0 4 4

Sample Title: 01

Channel	1	2	3	4	5	6	7	8
377:	2	3	1	0	3	5	4	3
385:	2	2	2	5	3	3	5	6
393:	5	2	5	3	9	5	4	6
401:	3	12	7	8	5	5	8	5
409:	7	8	8	11	13	8	8	8
417:	10	16	8	11	8	15	12	10
425:	15	18	6	13	7	13	15	10
433:	10	12	9	5	3	4	0	0
441:	1	0	0	0	0	0	0	0
449:	0	0	0	0	1	0	0	0
457:	0	0	1	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	1	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:	1	0	0	2	0	1	0	1
513:	0	1	0	0	0	0	2	0
521:	0	0	0	0	1	1	0	0
529:	0	1	1	0	0	0	0	1
537:	0	0	0	0	0	0	2	1
545:	1	0	0	2	0	4	0	1
553:	0	2	3	0	1	3	1	0
561:	1	3	2	4	5	1	2	4
569:	2	2	1	4	2	3	5	5
577:	3	3	5	5	7	4	4	5
585:	6	5	3	5	5	6	3	6
593:	9	8	8	12	7	7	8	5
601:	6	5	6	6	3	8	3	11
609:	11	11	10	10	11	13	13	7
617:	11	9	8	5	4	1	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	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	1	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	1	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	1	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 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:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	1	0	0	0	0	0
881:	0	0	0	0	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	1	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	1	0	0	0	0	0
945:	0	0	1	0	0	0	0	0
953:	0	0	0	0	0	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	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  
11/4/15

Sample Description: BLANK  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 02  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_004  
 Chamber Serial Number:  
 Detector Serial Number: 4  
 Env. Background: System Bkgd 133257  
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 11/4/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:37 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232\_UU-10A  
 Tracer Quantity: 0.650 mL  
 Effective Efficiency: 0.1963 +/- 0.0108  
 Counting Efficiency: 0.1892 +/- 0.0033 on 10/25/2014 6:43:53 PM  
 Chem. Recovery Factor: 1.0375 +/- 0.0598

Peak Match Tolerance: 0.150 MeV

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 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.277	401.66	9.78	0.34	0.00E+000	35.8
U-234	4.762	2.98	134.37	1.02	0.00E+000	2.9
U-235	4.413	2.15	161.66	0.85	0.00E+000	2.9
U-238	4.104	1.81	193.79	1.19	0.00E+000	2.9

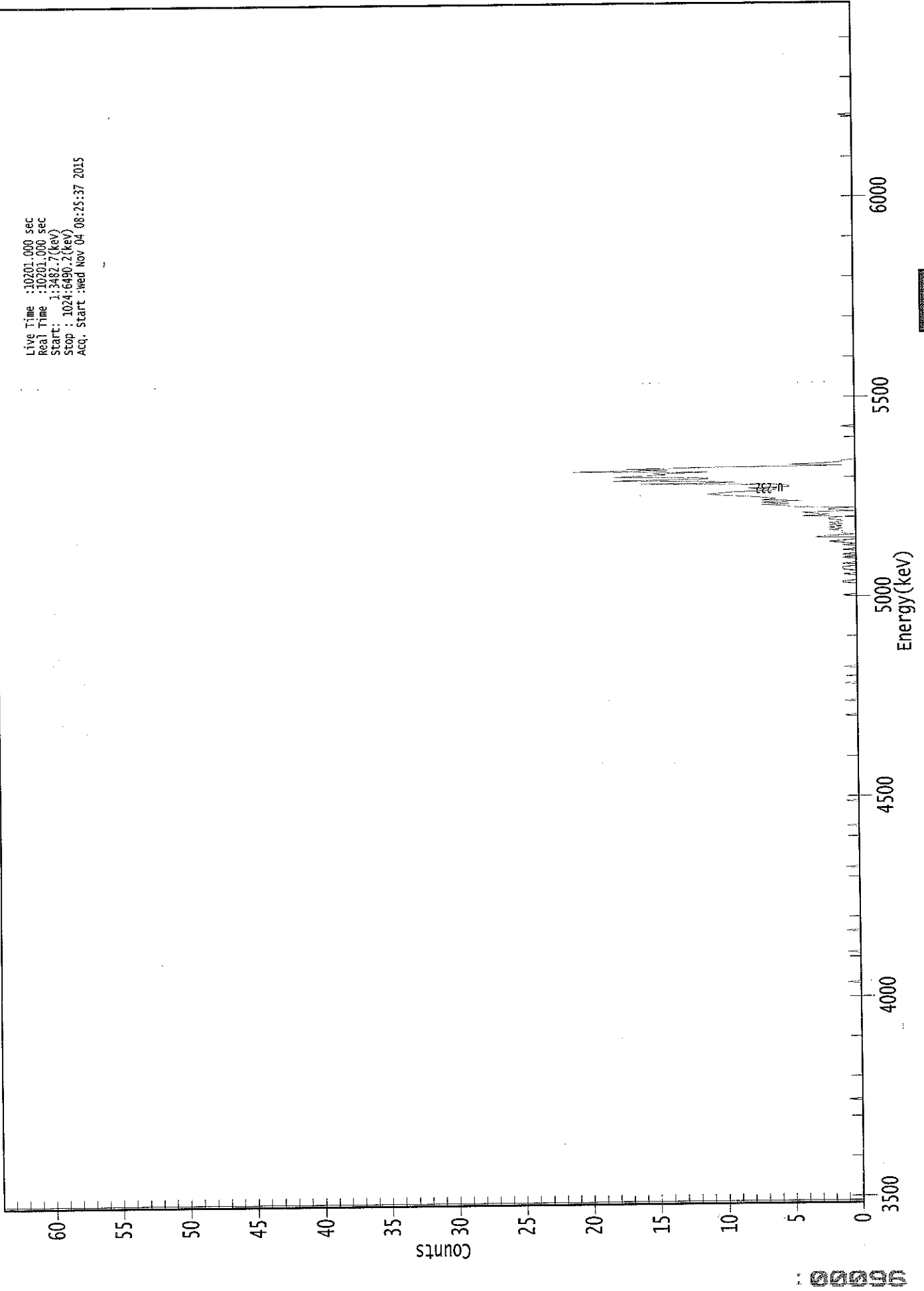
T = Tracer Peak used for Effective Efficiency

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 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.995	5302.50*	3.62E+000 +/- 3.90E-001	4.31E-002 +/- 4.64E-003
U-234	1.000	4761.50*	2.69E-002 +/- 3.62E-002	5.68E-002 +/- 6.12E-003
U-235	0.995	4385.50*	2.39E-002 +/- 3.87E-002	6.66E-002 +/- 7.17E-003
U-238	0.955	4184.40*	1.62E-002 +/- 3.15E-002	5.91E-002 +/- 6.37E-003

0000133112.CNF

Live Time : 10201.000 sec  
Real Time : 10201.000 sec  
Start : 1:3482.7(keV)  
Stop : 1024:6490.2(keV)  
Acq. Start : Wed Nov 04 08:25:37 2015



ROI Type: 1

ROI Type: 3



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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title:    02

Elapsed Live time:    10201  
 Elapsed Real Time:    10201

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

369: 0 0 0 0 0 0 0 0 0

Sample Title: 02

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 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	1	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  
11/4/15

# Apex-Alpha™

Sample Description: CP5002S03-04-DUP  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 03  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_010  
 Chamber Serial Number:  
 Detector Serial Number: 10  
 Env. Background: System Bkgd 133258  
 Reagent Blank: <not performed>

Sample Size: 1.508E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:38 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232\_UU-10A  
 Tracer Quantity: 0.657 mL  
 Effective Efficiency: 0.1928 +/- 0.0106  
 Counting Efficiency: 0.1921 +/- 0.0033 on 10/25/2014 6:44:30 PM  
 Chem. Recovery Factor: 1.0040 +/- 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 5.285	398.64	9.84	1.36	0.00E+000	9.5
U-234	4.738	127.96	17.49	2.04	0.00E+000	8.2
U-235	4.397	6.64	84.69	1.36	0.00E+000	2.9
U-238	4.153	116.98	18.21	1.02	0.00E+000	3.7

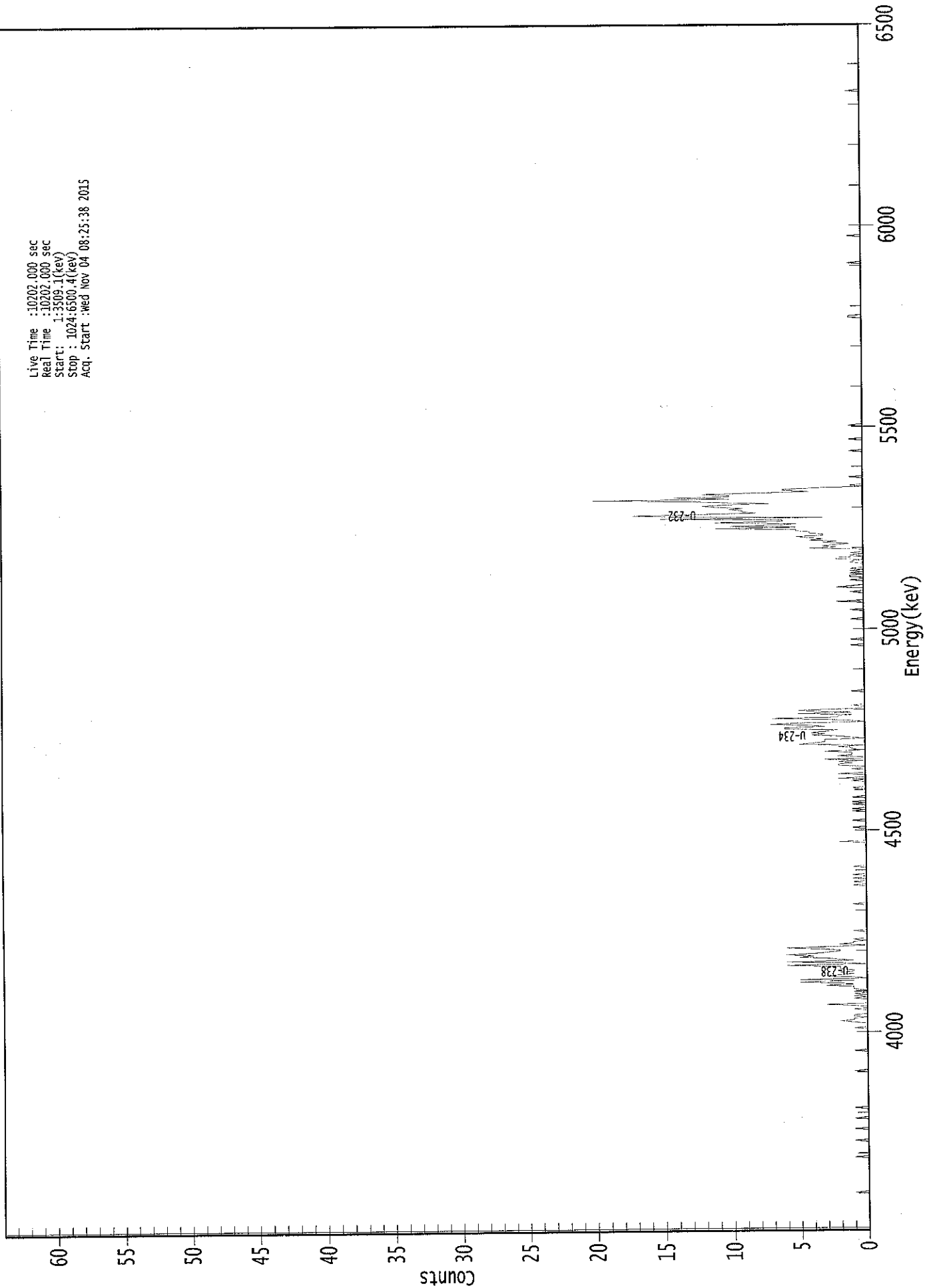
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.998	5302.50*	3.64E+000 +/- 3.94E-001	6.26E-002 +/- 6.78E-003
U-234	0.996	4761.50*	1.17E+000 +/- 2.40E-001	7.11E-002 +/- 7.69E-003
U-235	0.999	4385.50*	7.48E-002 +/- 6.38E-002	7.72E-002 +/- 8.35E-003
U-238	0.993	4184.40*	1.06E+000 +/- 2.25E-001	5.73E-002 +/- 6.20E-003

0000133113.CNF

Live Time : 10202.000 sec  
Real Time : 10202.000 sec  
Start : 1:3509.1 (key)  
Stop : 1024:6500.4 (key)  
Acq. Start : Wed Nov 04 08:25:38 2015



ROI Type: 3

ROI Type: 1

10100

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

Sample Title:    03

Elapsed Live time:    10202  
 Elapsed Real Time:    10202

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	10202	10202	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	1	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	1	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	1	0	0	0
81:	0	0	0	0	0	0	1	0
89:	0	0	0	0	0	0	0	1
97:	0	0	0	0	0	0	0	0
105:	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	1
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	1	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	0	0
177:	1	2	1	1	0	1	1	0
185:	0	0	0	1	0	0	1	3
193:	0	0	0	0	1	0	1	0
201:	1	0	1	0	1	1	1	3
209:	1	2	5	1	5	0	1	3
217:	2	1	2	1	1	2	2	2
225:	6	0	2	6	1	2	3	5
233:	4	6	4	3	2	2	4	6
241:	2	0	2	1	1	0	1	0
249:	0	0	0	0	0	1	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	1	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	1	0	0	1
297:	0	0	1	0	0	1	0	0
305:	0	0	0	0	1	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	2	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0
345:	0	0	0	1	0	0	0	0
353:	0	0	0	1	0	1	0	0
361:	0	1	0	1	0	0	0	1

369: 0 0 0 0 0 0 0 0 1

Sample Title: 03

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	0	0	1	0	2
385:	0	0	0	2	0	0	0	1
393:	0	0	2	2	1	2	0	3
401:	0	0	2	1	1	1	3	0
409:	1	1	2	0	5	4	3	3
417:	3	0	1	2	4	3	4	3
425:	2	6	6	3	4	7	5	0
433:	1	3	7	2	2	1	5	1
441:	4	5	1	0	0	1	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	0	0
489:	0	0	0	0	0	0	0	0
497:	1	0	0	0	0	1	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	1	0
521:	0	0	0	0	0	0	1	0
529:	0	0	0	0	0	2	0	0
537:	0	0	0	0	0	1	0	0
545:	0	2	1	0	0	0	0	1
553:	0	0	1	1	0	1	0	1
561:	0	1	0	0	0	0	1	1
569:	0	2	2	0	1	0	1	0
577:	0	0	4	2	3	2	1	3
585:	2	4	3	4	5	3	3	4
593:	4	5	5	11	5	10	6	5
601:	11	6	6	15	3	14	17	12
609:	8	9	9	10	9	11	12	10
617:	7	11	13	20	10	14	10	10
625:	12	8	4	6	6	3	0	1
633:	0	0	0	0	0	0	1	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	1	0	0	0
665:	0	0	0	0	0	0	1	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	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	1	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: 03

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



CB  
11/4/15

Sample Description: CP5002S03-04  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 04  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_011  
 Chamber Serial Number:  
 Detector Serial Number: 11  
 Env. Background: System Bkgd 133259  
 Reagent Blank: <not performed>

Sample Size: 1.510E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:39 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: 0.1885 +/- 0.0105  
 Counting Efficiency: 0.2004 +/- 0.0035 on 10/25/2014 6:44:33 PM  
 Chem. Recovery Factor: 0.9407 +/- 0.0550

Peak Match Tolerance: 0.150 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.278	389.13	9.96	1.87	0.00E+000	19.8
U-234	4.731	97.98	19.92	1.02	0.00E+000	3.3
U-235	4.398	7.32	76.28	0.68	0.00E+000	2.6
U-238	4.147	103.32	19.36	0.68	0.00E+000	3.6

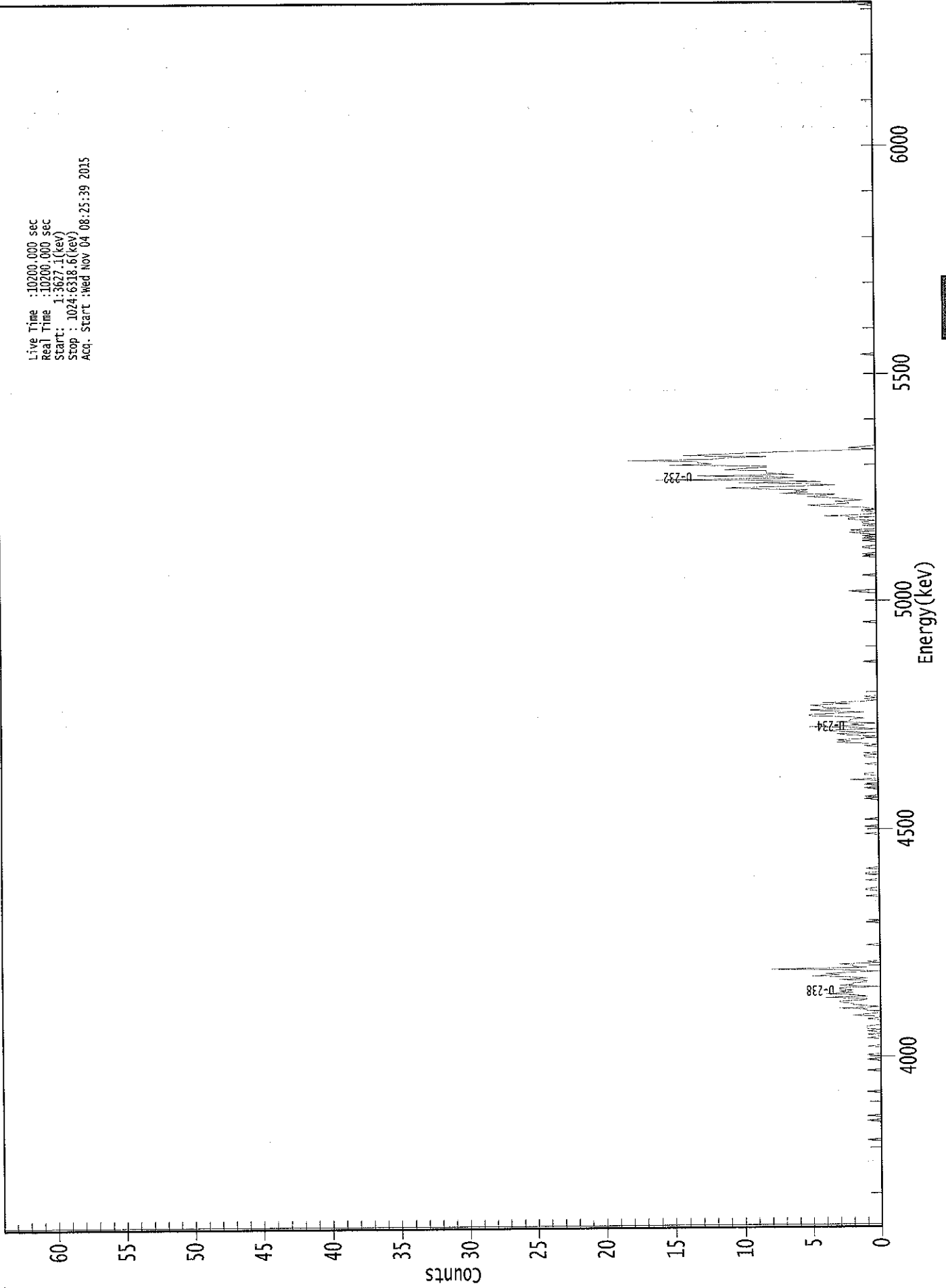
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.996	5302.50*	3.63E+000 +/- 3.97E-001	7.07E-002 +/- 7.73E-003
U-234	0.993	4761.50*	9.14E-001 +/- 2.08E-001	5.88E-002 +/- 6.43E-003
U-235	0.999	4385.50*	8.42E-002 +/- 6.49E-002	6.49E-002 +/- 7.10E-003
U-238	0.990	4184.40*	9.60E-001 +/- 2.13E-001	5.24E-002 +/- 5.73E-003

0000133114.CNF

Live Time : 10200.000 sec  
Real Time : 10200.000 sec  
Start : 1:3627.1(kev)  
Stop : 1024.6318.6(kev)  
Acq. Start : Wed Nov 04 08:25:39 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:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	1	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	1	0	0	0	1	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	1	0	0	0	0	0
137:	0	0	0	1	0	0	0	1
145:	0	0	0	0	0	0	1	0
153:	0	0	0	0	0	1	0	0
161:	1	0	0	1	0	1	1	1
169:	0	0	0	0	0	1	0	0
177:	2	1	0	0	1	1	3	0
185:	1	2	2	3	3	1	1	4
193:	1	2	4	2	3	2	3	3
201:	0	3	2	2	1	1	3	1
209:	2	5	3	4	2	0	3	8
217:	1	2	2	3	0	1	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	1	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	1	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	1	0	0	0
281:	0	1	1	0	0	0	0	0
289:	0	1	0	0	0	0	1	1
297:	0	0	0	1	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	1	0	0	0	0	0	1	0
337:	0	0	0	0	1	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	1	0	1
361:	0	0	0	0	0	0	1	0

369: 0 1 0 0 0 2 0 0

Sample Title: 04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	1	1	0	0	0	0	0
385:	0	0	1	0	0	0	0	0
393:	1	1	0	1	0	0	0	0
401:	0	1	0	1	3	2	3	1
409:	1	0	2	3	0	3	4	0
417:	1	5	1	2	0	3	2	2
425:	1	2	5	5	3	1	4	5
433:	2	4	4	5	2	4	1	0
441:	1	0	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	0	1
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:	1	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	2	0	0	0	0	0
537:	0	0	0	0	0	0	0	1
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	1
561:	0	1	0	0	0	0	1	1
569:	0	0	0	0	1	0	1	0
577:	1	0	1	2	0	2	0	0
585:	0	1	0	1	1	0	2	2
593:	0	4	1	0	0	1	1	0
601:	1	4	5	2	2	3	1	2
609:	3	5	4	3	7	5	6	5
617:	9	11	6	3	5	10	4	8
625:	16	6	7	13	6	8	8	8
633:	11	10	8	8	15	12	13	13
641:	18	12	11	8	14	12	9	7
649:	2	0	2	1	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	1	0	0	0	0	0	0	0
737:	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: 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	1	0	0	1

*YCB*  
*11/4/15*

Sample Description: CP5002S06-07  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 05  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_012  
 Chamber Serial Number:  
 Detector Serial Number: 12  
 Env. Background: System Bkgd 133260  
 Reagent Blank: <not performed>

Sample Size: 1.509E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:40 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: 0.1937 +/- 0.0107  
 Counting Efficiency: 0.1936 +/- 0.0034 on 10/25/2014 6:44:33 PM  
 Chem. Recovery Factor: 1.0004 +/- 0.0578

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	399.49	9.81	0.51	0.00E+000	22.6
U-234	4.741	116.81	18.24	1.19	0.00E+000	6.9
U-235	4.399	9.49	65.59	0.51	0.00E+000	3.0
U-238	4.153	123.49	17.68	0.51	0.00E+000	3.3

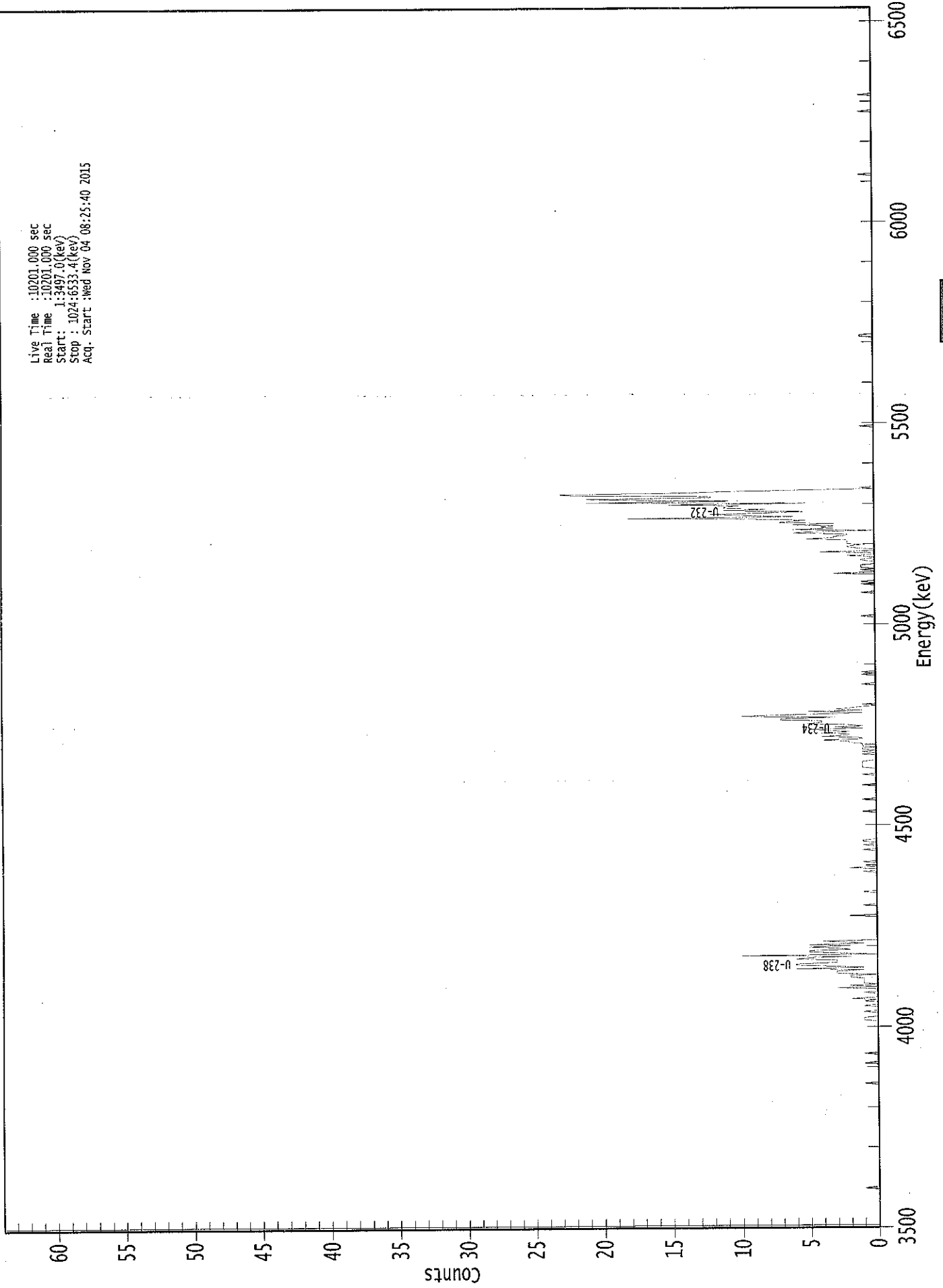
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.997	5302.50*	3.63E+000 +/- 3.92E-001	4.77E-002 +/- 5.15E-003
U-234	0.997	4761.50*	1.06E+000 +/- 2.25E-001	5.98E-002 +/- 6.46E-003
U-235	0.999	4385.50*	1.06E-001 +/- 7.07E-002	5.88E-002 +/- 6.35E-003
U-238	0.993	4184.40*	1.12E+000 +/- 2.31E-001	4.74E-002 +/- 5.12E-003

0000133115.CNF

Live Time : 10201.000 sec  
Real Time : 10201.000 sec  
Start : 1:3497.0(keV)  
Stop : 1024:6533.4(keV)  
Acq. Start : Wed Nov 04 08:25:40 2015



ROI Type: 1

ROI Type: 3

11100

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

Sample Title: 05

Elapsed Live time: 10201

Elapsed Real Time: 10201

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



369: 0 0 1 0 0 0 0 0 0

Sample Title: 05

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	1	0	0	0	0
385:	0	1	1	1	1	1	1	0
393:	0	0	0	0	1	0	1	0
401:	1	1	0	1	1	1	2	2
409:	4	1	1	4	2	2	4	2
417:	3	5	1	3	1	2	5	4
425:	4	7	7	3	10	8	3	1
433:	5	1	3	2	1	0	1	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	1
457:	0	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	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:	1	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	1	0	0	0
537:	0	0	0	1	0	1	0	0
545:	0	0	0	0	3	0	0	1
553:	0	1	1	1	0	0	0	1
561:	1	0	0	2	0	0	4	0
569:	0	1	2	2	1	2	2	2
577:	2	5	3	3	2	2	6	5
585:	0	6	3	4	3	6	3	7
593:	6	5	9	18	6	9	12	9
601:	5	11	8	11	11	10	15	5
609:	21	10	17	21	12	12	22	23
617:	14	11	6	0	1	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	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	1
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	1	1	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 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	1	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	1
937:	0	0	0	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™

KS  
11/4/15

Sample Description: CP5002S09-10  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 06  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_014  
 Chamber Serial Number:  
 Detector Serial Number: 14  
 Env. Background: System Bkgd 133261  
 Reagent Blank: <not performed>

Sample Size: 1.520E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:41 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: 0.1858 +/- 0.0105  
 Counting Efficiency: 0.1840 +/- 0.0032 on 10/25/2014 6:45:28 PM  
 Chem. Recovery Factor: 1.0095 +/- 0.0595

Peak Match Tolerance: 0.150 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.278	382.45	10.06	2.55	0.00E+000	35.2
U-234	4.729	101.30	19.66	1.70	0.00E+000	6.5
U-235	4.369	3.49	113.53	0.51	0.00E+000	2.9
U-238	4.158	104.98	19.24	1.02	0.00E+000	4.4

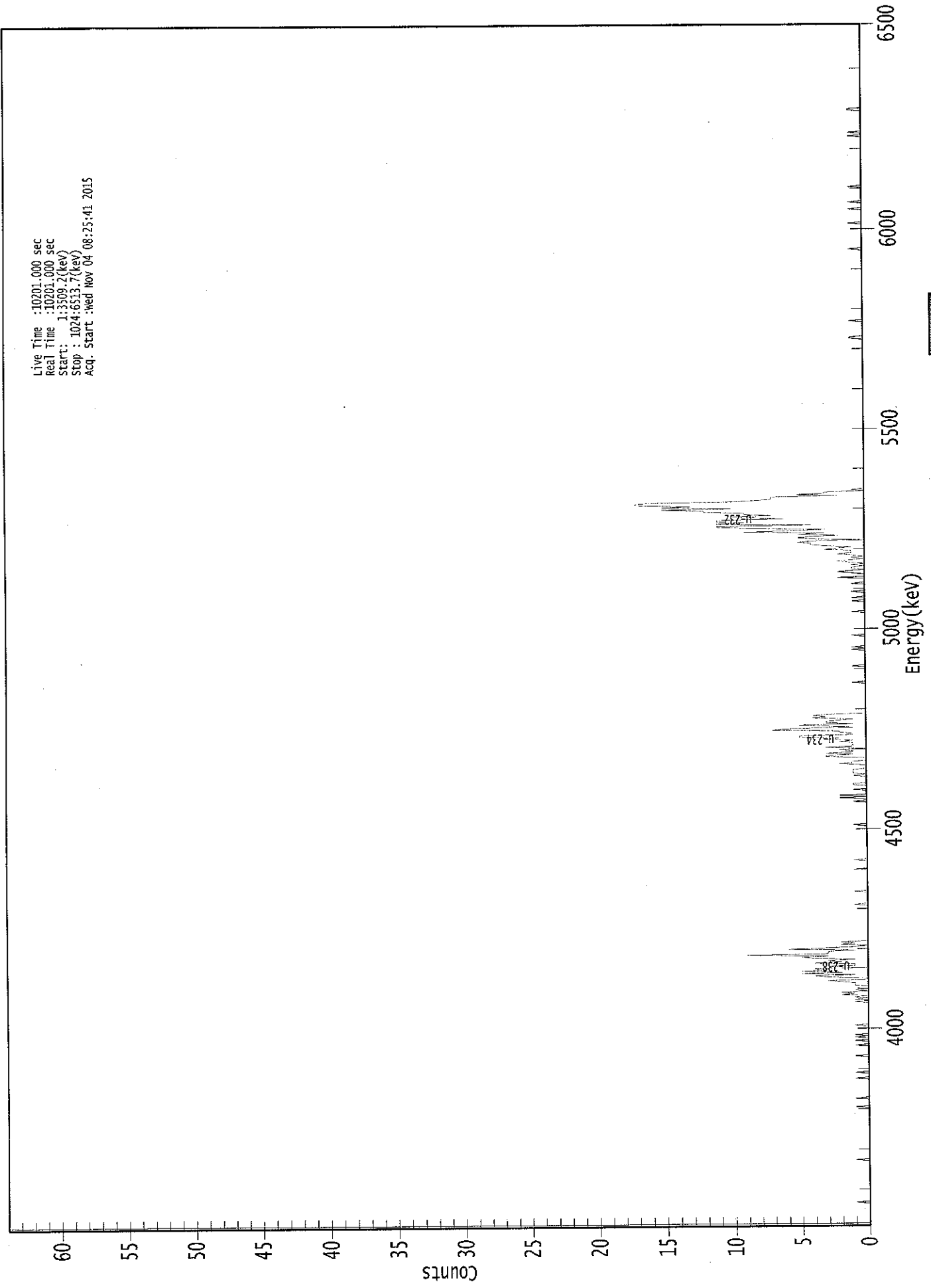
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.996	5302.50*	3.60E+000 +/- 3.97E-001	7.89E-002 +/- 8.70E-003
U-234	0.992	4761.50*	9.52E-001 +/- 2.15E-001	6.91E-002 +/- 7.62E-003
U-235	0.998	4385.50*	4.05E-002 +/- 4.62E-002	6.09E-002 +/- 6.71E-003
U-238	0.995	4184.40*	9.83E-001 +/- 2.18E-001	5.90E-002 +/- 6.50E-003

0000133116.CNF

Live Time :10201.000 sec  
Real Time :10201.000 sec  
Start : 1:3509.2(kev)  
Stop : 1024:6513.7(kev)  
Acq. Start :Wed Nov 04 08:25:41 2015



ROI Type: 3

ROI Type: 1

00110

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

Sample Title: 06

Elapsed Live time: 10201

Elapsed Real Time: 10201

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

369: 0 0 0 1 0 0 0 1

Sample Title: 06

Channel	1	2	3	4	5	6	7	8
377:	1	0	0	0	0	0	0	1
385:	0	1	1	1	1	0	0	0
393:	0	2	1	1	0	0	0	3
401:	3	1	3	1	1	2	0	3
409:	1	1	1	1	2	1	3	2
417:	5	5	1	1	2	2	7	6
425:	1	3	5	1	3	3	2	1
433:	4	3	4	3	0	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	1	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	1	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	1	0	1	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	0	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	0	0	0	1	0	0	1	0
537:	0	0	0	1	0	0	0	0
545:	0	0	1	0	0	0	0	2
553:	0	0	0	1	2	1	0	1
561:	1	0	1	0	1	2	1	0
569:	1	0	1	2	1	1	1	3
577:	2	1	3	4	4	5	4	0
585:	4	5	4	2	5	3	9	6
593:	3	7	11	11	4	11	9	11
601:	11	6	8	10	7	9	9	12
609:	12	15	10	15	13	17	17	16
617:	10	8	7	7	7	2	5	3
625:	3	0	1	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	1	1	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	1	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	1
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	1	0	0
857:	0	0	0	0	0	0	0	0
865:	0	1	0	0	0	0	0	1
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	1	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	1
929:	0	0	1	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	1	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



# Apex-Alpha™

KB  
11/4/15

Sample Description: CP5002S11-12  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 07  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_015  
 Chamber Serial Number:  
 Detector Serial Number: 15  
 Env. Background: System Bkgd 133262  
 Reagent Blank: <not performed>

Sample Size: 1.525E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:43 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: 0.2714 +/- 0.0131  
 Counting Efficiency: 0.2348 +/- 0.0040 on 5/1/2015 2:28:00 PM  
 Chem. Recovery Factor: 1.1557 +/- 0.0590

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	5.276	559.49	8.29	0.51	0.00E+000	41.1
U-234	4.724	148.49	16.12	0.51	0.00E+000	3.9
U-235	4.414	12.83	55.14	0.17	0.00E+000	4.5
U-238	4.142	147.83	16.13	0.17	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

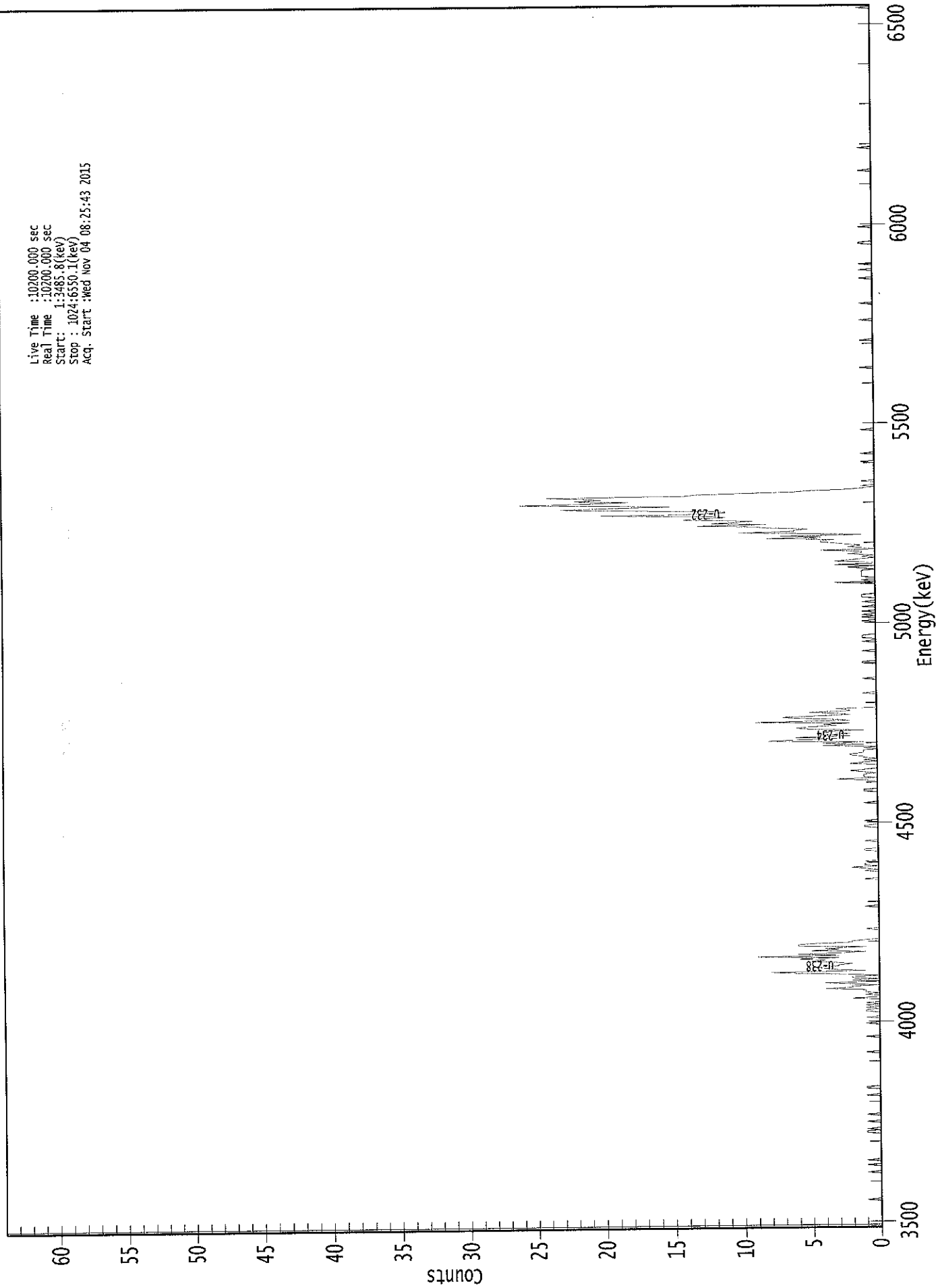
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.995	5302.50*	3.59E+000 +/- 3.39E-001	3.37E-002 +/- 3.18E-003
U-234	0.990	4761.50*	9.53E-001 +/- 1.78E-001	3.37E-002 +/- 3.18E-003
U-235	0.994	4385.50*	1.02E-001 +/- 5.68E-002	3.30E-002 +/- 3.12E-003
U-238	0.987	4184.40*	9.45E-001 +/- 1.77E-001	2.67E-002 +/- 2.52E-003



0000133117.CNF

Live Time : 10200.000 sec  
Real Time : 10200.000 sec  
Start : 1:3485.8(kev)  
Stop : 1024:6550.1(kev)  
Acq. Start : Wed Nov 04 08:25:43 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: 07

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 0 0 0 0 0 0 1 3

Sample Title: 07

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	1	1	1	0	1	2	1
385:	0	0	0	0	2	1	0	1
393:	0	1	1	2	2	1	1	1
401:	0	1	0	4	1	4	1	8
409:	6	3	6	2	4	2	4	4
417:	1	5	6	5	3	4	2	9
425:	2	3	6	7	4	2	3	5
433:	2	2	3	0	0	0	0	0
441:	0	0	0	0	0	0	0	1
449:	0	0	0	0	0	0	0	0
457:	0	0	0	1	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	1	1	0	0	0	0	0	0
481:	0	0	1	0	0	0	0	0
489:	0	0	1	0	0	1	1	1
497:	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	0	1	0
513:	1	0	0	1	0	0	0	1
521:	0	0	0	1	0	0	0	1
529:	1	1	0	0	0	0	0	0
537:	0	0	0	3	0	1	0	0
545:	1	1	1	1	1	1	0	1
553:	2	0	3	0	0	3	2	1
561:	0	1	0	2	1	1	4	0
569:	1	2	1	2	3	4	4	3
577:	8	4	7	1	4	10	6	6
585:	5	8	9	13	8	12	10	9
593:	14	13	11	12	20	13	11	11
601:	18	23	20	15	19	26	21	18
609:	22	20	21	24	14	13	10	6
617:	5	2	1	0	1	0	0	0
625:	1	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	1	0	0	0	0	0	0	1
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	1	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	1	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	1
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	1	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	1	0	0	0	0	0

801: 0 1 0 0 0 0 1 0

Sample Title: 07

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	1
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	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	1
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	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	1	0	0	0



# Apex-Alpha™

KB  
11/4/15

Sample Description: CP5002S13-14  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 08  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_033  
 Chamber Serial Number: 04026479A  
 Detector Serial Number: 91132  
 Env. Background: System Bkgd 133263  
 Reagent Blank: <not performed>

Sample Size: 1.512E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:44 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: 0.1729 +/- 0.0100  
 Counting Efficiency: 0.1805 +/- 0.0032 on 10/25/2014 2:26:39 PM  
 Chem. Recovery Factor: 0.9578 +/- 0.0579

Peak Match Tolerance: 0.150 MeV

-----  
 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	5.272	356.32	10.39	0.68	0.00E+000	20.4
U-234	4.733	99.32	19.75	0.68	0.00E+000	19.4
U-235	4.396	5.83	82.55	0.17	0.00E+000	3.0
U-238	4.155	95.00	20.21	0.00	0.00E+000	9.8

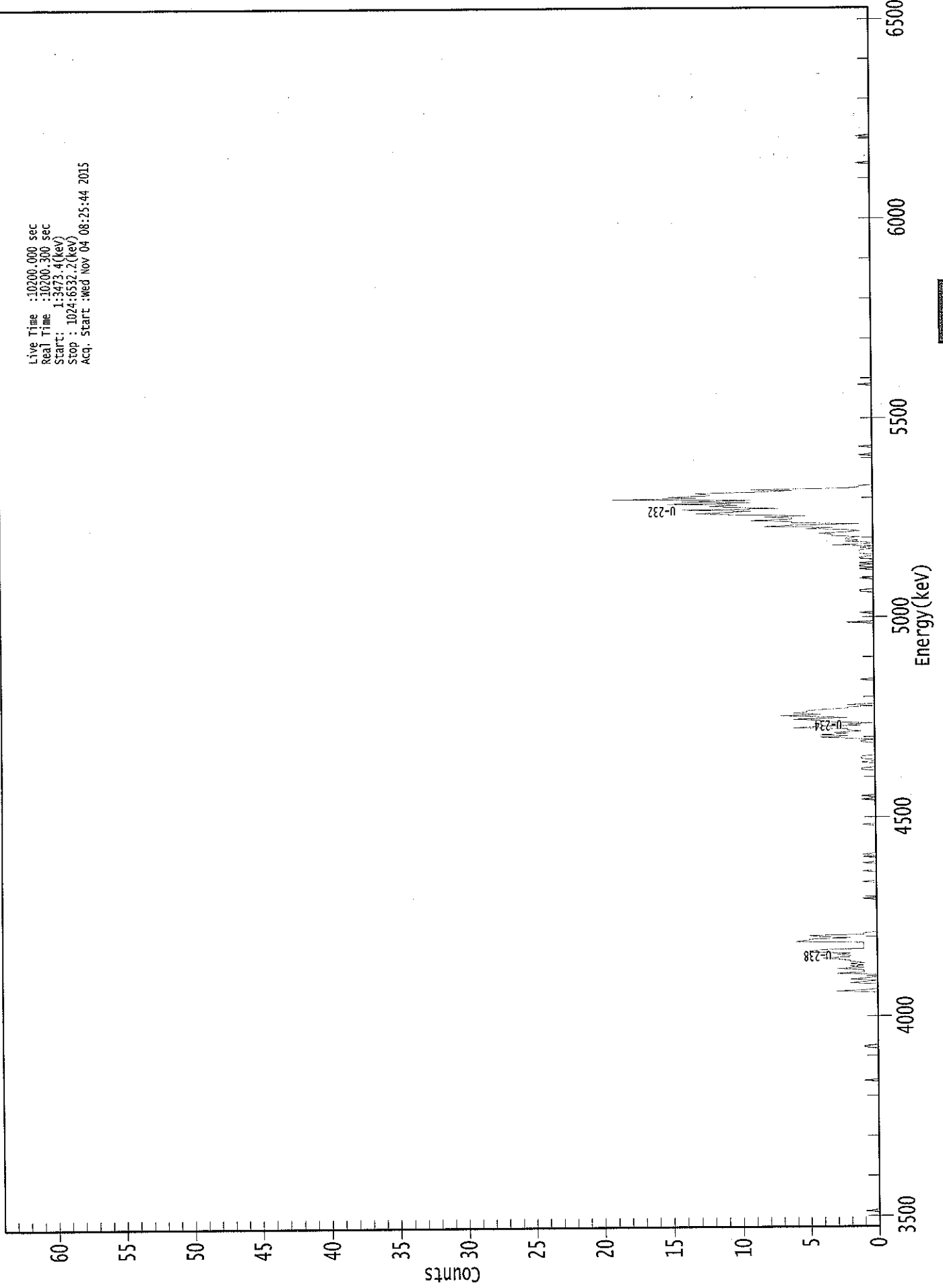
T = Tracer Peak used for Effective Efficiency

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 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.993	5302.50*	3.62E+000 +/- 4.10E-001	5.73E-002 +/- 6.50E-003
U-234	0.994	4761.50*	1.01E+000 +/- 2.30E-001	5.73E-002 +/- 6.49E-003
U-235	0.999	4385.50*	7.30E-002 +/- 6.09E-002	5.23E-002 +/- 5.93E-003
U-238	0.994	4184.40*	9.61E-001 +/- 2.23E-001	6.06E-002 +/- 6.87E-003

0000133120.CNF

Live Time :10200.000 sec  
Real Time :10200.300 sec  
Start : 1:3473.4(keV)  
Stop : 1024:6532.2(keV)  
Acq. Start :Wed NOV 04 08:25:44 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:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	1	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	1	1
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	3	1	0
201:	0	0	0	0	2	1	0	2
209:	1	0	0	0	3	1	1	1
217:	3	1	2	1	2	1	2	2
225:	3	4	2	2	3	2	5	5
233:	4	1	1	1	1	1	1	6
241:	5	5	2	4	5	1	1	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	1	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	1	0	0	0	0	0	0
297:	0	0	1	0	0	0	0	0
305:	0	1	0	0	0	0	1	0
313:	1	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	1	0	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	1	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 08

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



801: 0 0 0 0 0 0 0 0 0

Sample Title: 08

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

*ICB  
11/11/15*

Sample Description: CP5002S16-17  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 09  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_034  
 Chamber Serial Number: 04026479B  
 Detector Serial Number: 91136  
 Env. Background: System Bkgd 133264  
 Reagent Blank: <not performed>

Sample Size: 1.519E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:45 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: 0.1766 +/- 0.0101  
 Counting Efficiency: 0.1789 +/- 0.0031 on 10/25/2014 2:30:05 PM  
 Chem. Recovery Factor: 0.9871 +/- 0.0591

Peak Match Tolerance: 0.150 MeV

-----  
 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.279	363.66	10.28	0.34	0.00E+000	24.5
U-234	4.730	116.83	18.15	0.17	0.00E+000	8.4
U-235	4.393	3.83	102.72	0.17	0.00E+000	6.0
U-238	4.156	120.83	17.85	0.17	0.00E+000	10.8

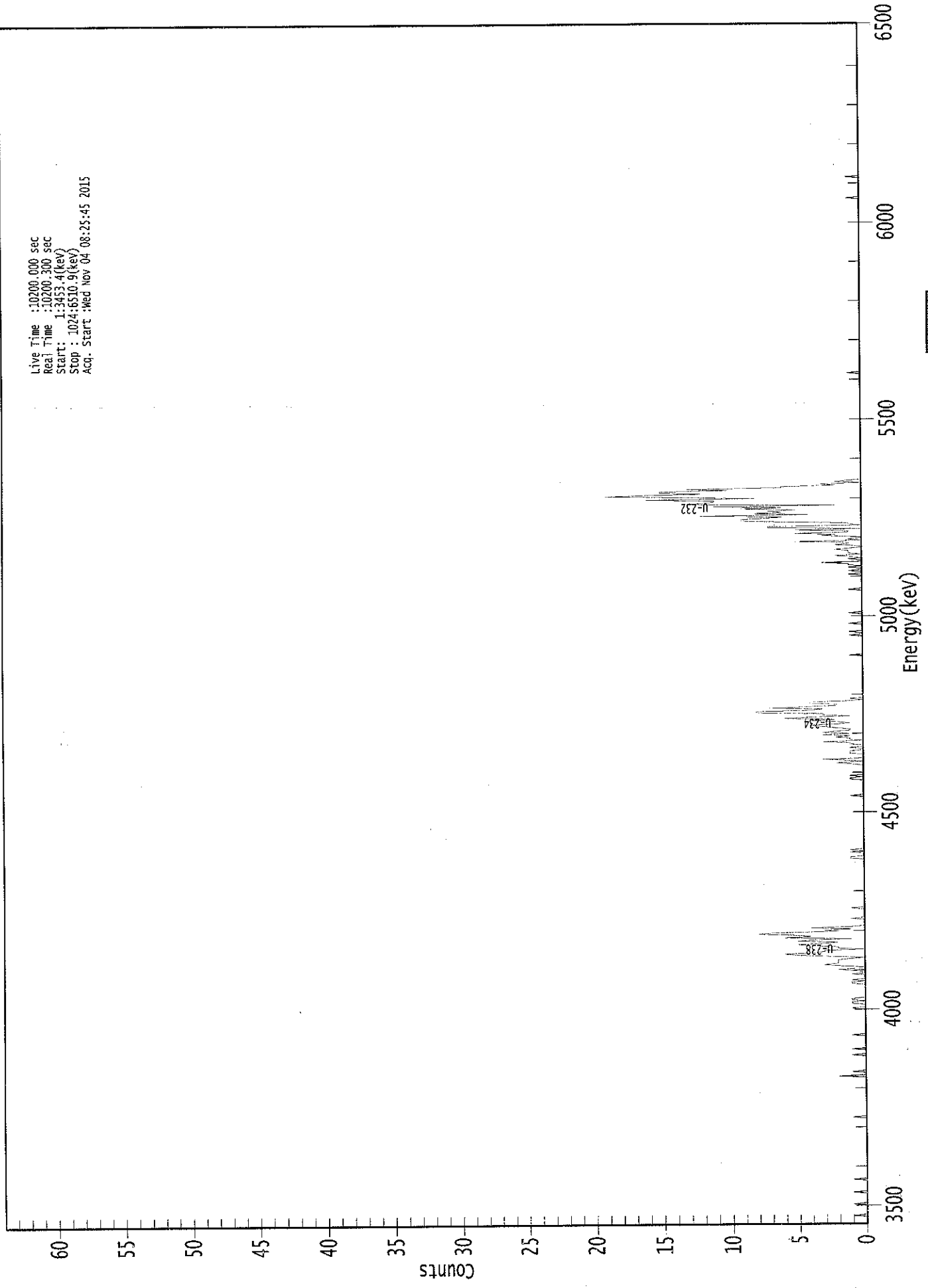
T = Tracer Peak used for Effective Efficiency

-----  
 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.996	5302.50*	3.60E+000 +/- 4.05E-001	4.74E-002 +/- 5.32E-003
U-234	0.993	4761.50*	1.16E+000 +/- 2.47E-001	4.13E-002 +/- 4.64E-003
U-235	1.000	4385.50*	4.68E-002 +/- 4.83E-002	5.10E-002 +/- 5.72E-003
U-238	0.994	4184.40*	1.19E+000 +/- 2.51E-001	4.11E-002 +/- 4.62E-003

0000133121.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3453.4(keV)  
Stop : 1024:6510.9(keV)  
Acq. Start : Wed Nov 04 08:25:45 2015



ROI Type: 1

ROI Type: 3

10100

\*\*\*\*\*  
 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title:    09

Elapsed Live time:    10200

Elapsed Real Time:    10200

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

369: 0 0 0 0 0 0 0 0 0

Sample Title: 09

Channel	1	2	3	4	5	6	7	8
377:	0	0	1	1	0	1	0	0
385:	0	0	0	0	0	0	0	1
393:	2	0	1	3	0	0	0	0
401:	1	1	1	0	0	1	0	0
409:	1	1	3	0	1	1	2	1
417:	3	1	3	2	1	1	2	3
425:	4	2	1	2	4	2	6	4
433:	1	3	3	8	8	4	3	7
441:	4	2	2	4	4	1	0	1
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	1	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	1	0	0
505:	1	0	0	0	0	0	0	1
513:	0	0	0	0	0	0	0	0
521:	1	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	1	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	1	0	0	1	0	0	1
561:	0	1	1	3	0	0	1	0
569:	1	2	0	1	1	1	2	1
577:	0	0	2	1	1	5	0	1
585:	0	0	3	2	5	1	1	5
593:	0	7	7	0	1	1	7	9
601:	9	7	6	12	4	8	6	7
609:	5	9	6	11	2	13	12	11
617:	11	16	8	13	19	16	12	15
625:	15	10	13	6	6	2	3	0
633:	2	1	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	1	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	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: 09

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	1	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	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  
11/16/15*

Sample Description: CP1806S03-04  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 10  
 Sample Geometry: Shelf 2  
 Procedure Description: U iso

Detector Name: Alpha\_035  
 Chamber Serial Number: 04026477A  
 Detector Serial Number: 58771  
 Env. Background: System Bkgd 133265  
 Reagent Blank: <not performed>

Sample Size: 1.545E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:47 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: 0.2090 +/- 0.0112  
 Counting Efficiency: 0.1647 +/- 0.0029 on 10/25/2014 2:34:10 PM  
 Chem. Recovery Factor: 1.2685 +/- 0.0714

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 5.298	431.32	9.45	0.68	0.00E+000	21.1
U-234	4.751	94.83	20.15	0.17	0.00E+000	5.0
U-235	4.404	4.00	109.57	0.00	0.00E+000	6.0
U-238	4.180	123.32	17.71	0.68	0.00E+000	4.5

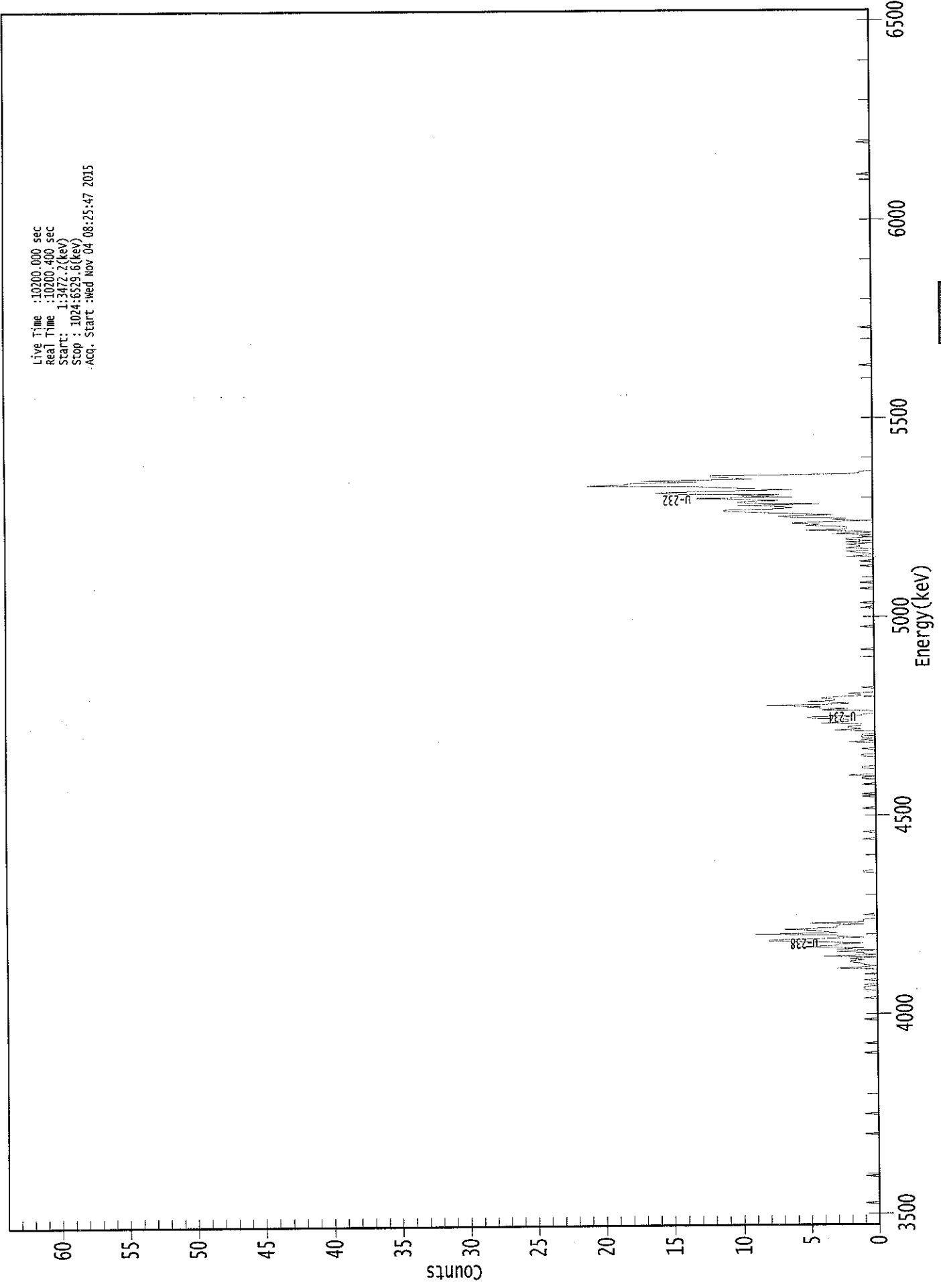
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	1.000	5302.50*	3.55E+000 +/- 3.72E-001	4.64E-002 +/- 4.86E-003
U-234	0.999	4761.50*	7.80E-001 +/- 1.77E-001	3.43E-002 +/- 3.59E-003
U-235	0.998	4385.50*	4.06E-002 +/- 4.47E-002	6.08E-002 +/- 6.37E-003
U-238	1.000	4184.40*	1.01E+000 +/- 2.08E-001	4.62E-002 +/- 4.84E-003

0000133122.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3472.2(kev)  
Stop : 1024:6529.6(kev)  
Acq. Start : Wed Nov 04 08:25:47 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: 10

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	1	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	1	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	1	0	0	0	0
81:	0	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	1	0	0	0
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	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:	1	0	0	0	0	0	0	0	0
153:	1	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	0	0
177:	0	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	1	0	0
193:	0	0	0	0	0	1	1	1	1
201:	0	1	0	0	0	1	0	0	0
209:	0	0	1	0	0	0	0	0	3
217:	1	0	1	1	2	2	1	2	2
225:	0	4	0	1	1	3	0	3	3
233:	1	6	3	3	1	4	8	8	8
241:	4	1	3	3	9	3	4	5	5
249:	7	3	3	3	1	5	1	1	1
257:	1	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	0	0	0	0	0	0
297:	1	1	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	1	0	0	0	0
329:	0	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	1	0	0
353:	0	0	0	0	0	0	0	0	0
361:	1	0	1	0	0	0	0	0	0

369: 0 0 1 0 0 0 0 0 1

Sample Title: 10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	1	0	2	0	0	0	0	0
385:	1	1	0	0	0	0	0	0
393:	0	0	1	1	0	0	0	0
401:	1	0	0	0	0	0	2	0
409:	1	0	1	1	1	0	0	0
417:	3	1	2	2	1	1	4	2
425:	2	2	5	5	1	1	0	0
433:	0	4	2	5	4	8	2	2
441:	5	3	3	4	3	1	1	2
449:	0	0	0	0	1	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	1	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	1
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	1
521:	0	0	0	1	0	0	0	0
529:	0	0	0	0	0	0	0	1
537:	0	0	0	0	1	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	1	0	0	0	1	0
561:	0	0	2	0	0	1	2	0
569:	0	2	1	1	2	0	2	0
577:	2	2	0	1	0	3	0	1
585:	5	2	2	2	5	4	6	4
593:	0	3	2	6	7	3	6	8
601:	11	11	7	6	7	10	4	10
609:	10	7	10	13	6	10	7	15
617:	16	12	6	9	11	13	21	18
625:	18	13	17	9	10	12	12	2
633:	1	1	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	1	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	1	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 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	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	1
913:	0	0	0	0	0	0	0	0
921:	0	0	0	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™

KEB  
12/14/15

Sample Description: CP1806S05-06  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 11  
 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: 1.523E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:49 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: 0.1943 +/- 0.0107  
 Counting Efficiency: 0.1806 +/- 0.0032 on 10/25/2014 2:38:17 PM  
 Chem. Recovery Factor: 1.0758 +/- 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 5.284	400.49	9.80	0.51	0.00E+000	23.0
U-234	4.735	122.32	17.78	0.68	0.00E+000	4.7
U-235	4.376	7.83	70.93	0.17	0.00E+000	3.0
U-238	4.159	102.00	19.50	0.00	0.00E+000	6.0

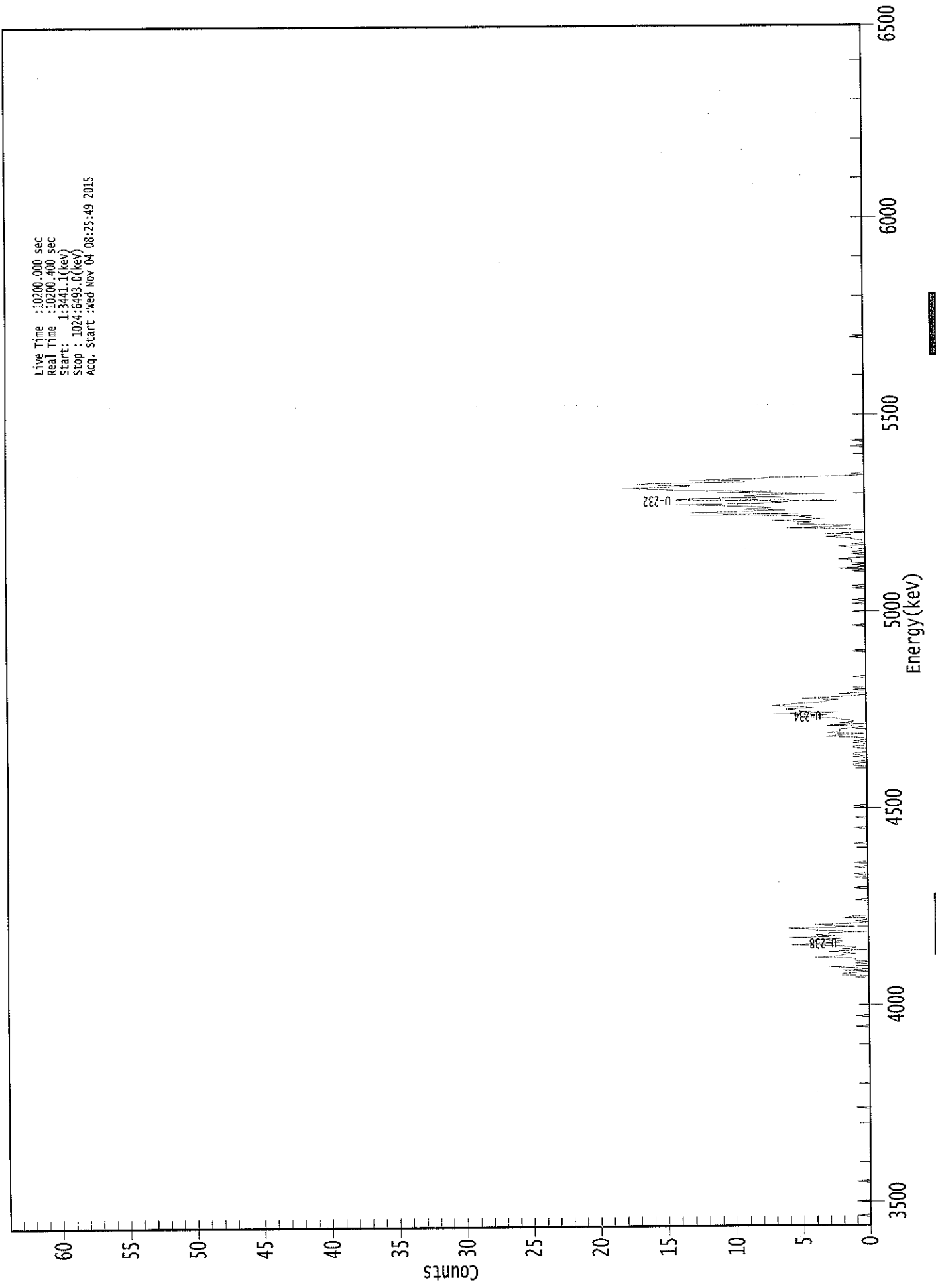
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.998	5302.50*	3.60E+000 +/- 3.88E-001	4.71E-002 +/- 5.08E-003
U-234	0.995	4761.50*	1.10E+000 +/- 2.28E-001	5.06E-002 +/- 5.46E-003
U-235	0.999	4385.50*	8.67E-002 +/- 6.22E-002	4.62E-002 +/- 4.98E-003
U-238	0.995	4184.40*	9.11E-001 +/- 2.03E-001	5.36E-002 +/- 5.78E-003

0000133123.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3441.1 (keV)  
Stop : 1024:6493.0 (keV)  
Acq. Start : Wed Nov 04 08:25:49 2015



00141

ROI Type: 1

ROI Type: 3

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

Sample Title: 11

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 0 0 0 0 0 0 0 0

Sample Title: 11

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	1
393:	1	0	1	0	0	0	1	0
401:	1	1	0	0	0	0	1	1
409:	0	0	1	0	1	0	0	1
417:	3	2	0	3	2	2	2	1
425:	0	3	0	2	1	1	2	2
433:	5	4	3	7	2	5	5	6
441:	4	5	7	6	5	3	3	2
449:	5	3	1	0	2	0	0	1
457:	0	1	0	0	0	0	0	0
465:	0	0	1	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	1	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	1	0
513:	0	0	0	0	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	0	1	0	0	1	0	0	0
537:	0	0	0	0	0	0	1	0
545:	1	0	0	0	0	0	0	0
553:	0	0	0	0	0	1	0	2
561:	0	0	1	0	1	1	1	2
569:	0	0	0	1	0	1	0	0
577:	1	1	2	0	1	0	0	0
585:	1	1	3	2	1	3	0	0
593:	0	2	6	2	1	5	5	4
601:	7	3	4	5	4	13	5	13
609:	9	6	9	7	8	11	14	6
617:	7	2	14	13	6	9	8	3
625:	11	7	14	15	18	14	13	17
633:	16	9	9	13	8	7	1	0
641:	1	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	1
665:	0	0	0	0	1	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	1	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	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  
12/1/15

Sample Description: CP1806S08-09  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 12  
 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: 1.530E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:51 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: 0.1745 +/- 0.0100  
 Counting Efficiency: 0.1709 +/- 0.0030 on 10/25/2014 2:46:09 PM  
 Chem. Recovery Factor: 1.0211 +/- 0.0614

Peak Match Tolerance: 0.150 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.273	360.32	10.34	0.68	0.00E+000	16.9
U-234	4.732	118.66	18.02	0.34	0.00E+000	9.6
U-235	4.387	15.49	50.75	0.51	0.00E+000	3.0
U-238	4.148	135.66	16.85	0.34	0.00E+000	9.4

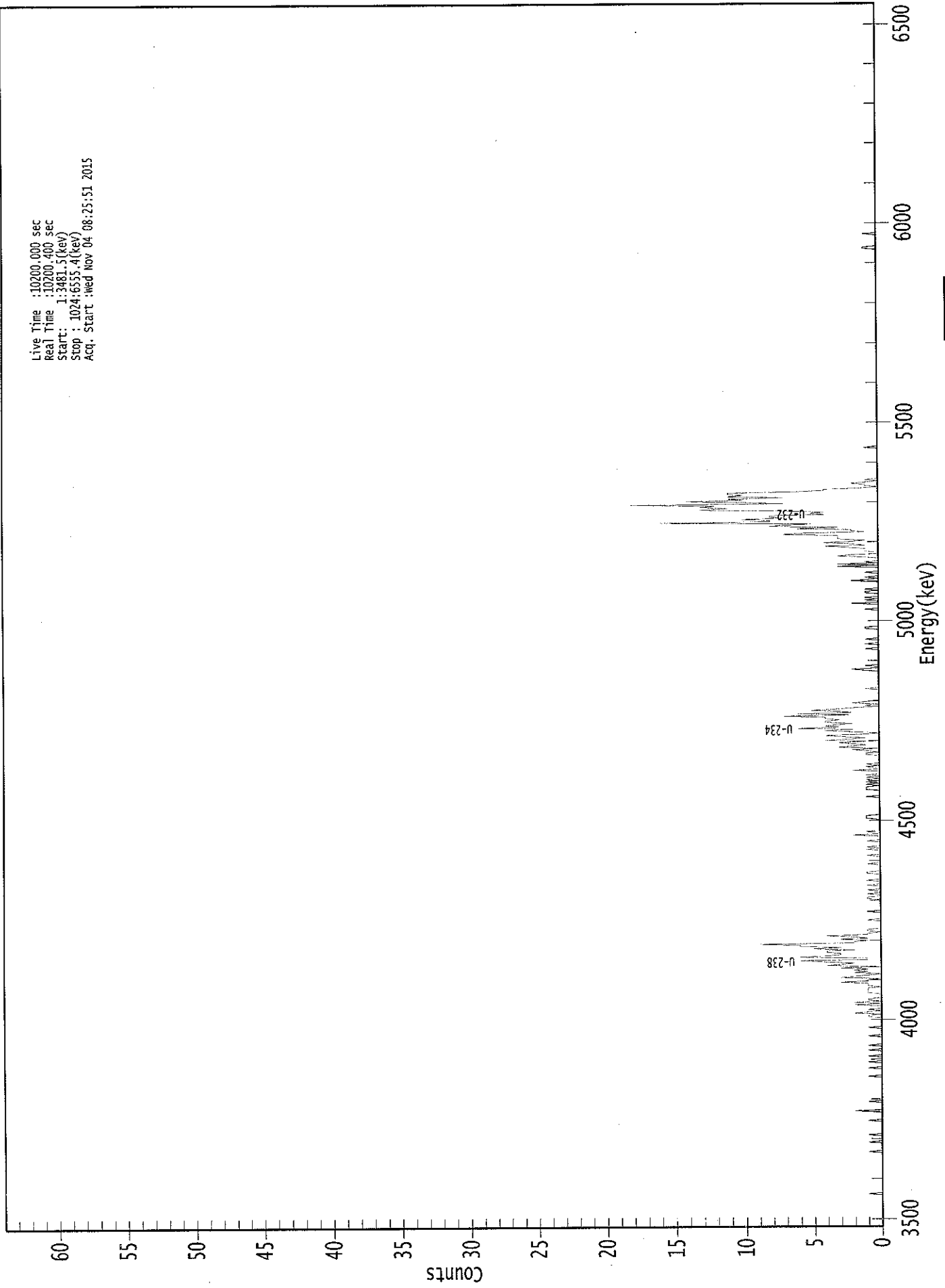
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.994	5302.50*	3.59E+000 +/- 4.04E-001	5.61E-002 +/- 6.33E-003
U-234	0.994	4761.50*	1.18E+000 +/- 2.51E-001	4.75E-002 +/- 5.36E-003
U-235	1.000	4385.50*	1.90E-001 +/- 9.88E-002	6.44E-002 +/- 7.26E-003
U-238	0.991	4184.40*	1.34E+000 +/- 2.72E-001	4.73E-002 +/- 5.34E-003

0000133118.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3481.5(kev)  
Stop : 1024.6555.4(kev)  
Acq. Start : Wed Nov 04 08:25:51 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: 12

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 1 0 1 0 1 0 1

Sample Title: 12

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 12

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

*KB  
12/1/15*

Sample Description: CP1806S10-11  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 13  
 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: 1.580E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:53 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: 0.1781 +/- 0.0102  
 Counting Efficiency: 0.1615 +/- 0.0029 on 10/25/2014 2:50:18 PM  
 Chem. Recovery Factor: 1.1028 +/- 0.0659

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 5.296	366.66	10.24	0.34	0.00E+000	49.5
U-234	4.746	96.83	19.94	0.17	0.00E+000	4.2
U-235	4.400	5.83	82.55	0.17	0.00E+000	3.0
U-238	4.169	90.49	20.67	0.51	0.00E+000	6.3

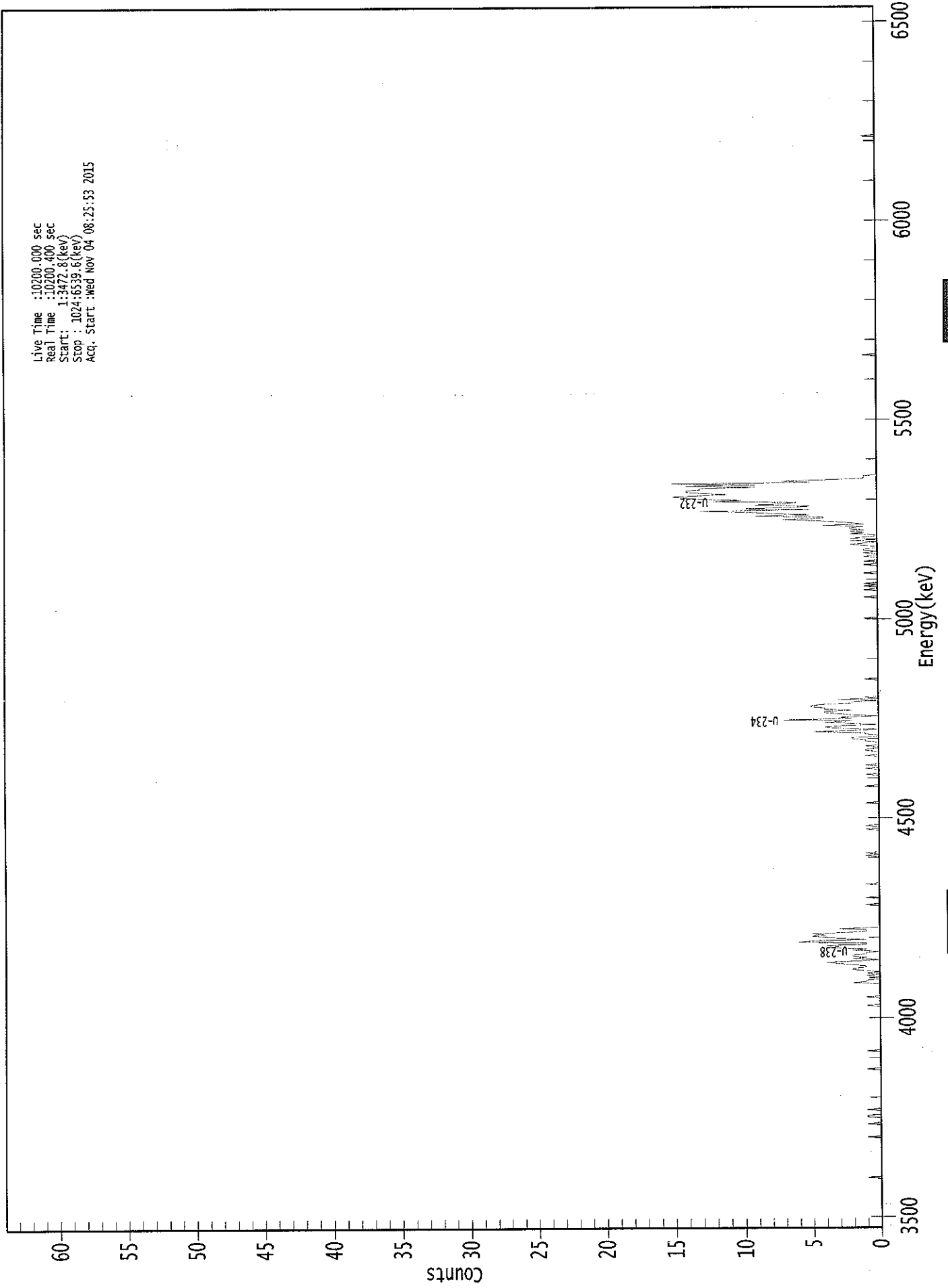
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	1.000	5302.50*	3.46E+000 +/- 3.87E-001	4.51E-002 +/- 5.05E-003
U-234	0.998	4761.50*	9.13E-001 +/- 2.09E-001	3.94E-002 +/- 4.40E-003
U-235	0.998	4385.50*	6.78E-002 +/- 5.65E-002	4.86E-002 +/- 5.43E-003
U-238	0.998	4184.40*	8.50E-001 +/- 2.00E-001	4.93E-002 +/- 5.51E-003

0000133119.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3472.8(kev)  
Stop : 1024:6539.6(kev)  
Acq. Start : MED NOV 04 08:25:33 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: 13

Elapsed Live time: 10200

Elapsed Real Time: 10200

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



369: 0 1 0 0 0 0 0 0 0

Sample Title: 13

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

801: 0 0 0 0 0 0 0 0

Sample Title: 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	1	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  
11/4/15*

Sample Description: CP1806S13-14  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 14  
 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: 1.551E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:55 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232\_UU-10A  
 Tracer Quantity: 0.650 mL  
 Effective Efficiency: 0.1882 +/- 0.0106  
 Counting Efficiency: 0.1934 +/- 0.0034 on 10/25/2014 2:53:34 PM  
 Chem. Recovery Factor: 0.9729 +/- 0.0572

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 5.284	384.77	10.04	3.23	0.00E+000	7.0
U-234	4.732	102.62	19.61	2.38	0.00E+000	3.8
U-235	4.411	5.62	101.11	2.38	0.00E+000	3.0
U-238	4.154	93.77	20.64	3.23	0.00E+000	6.3

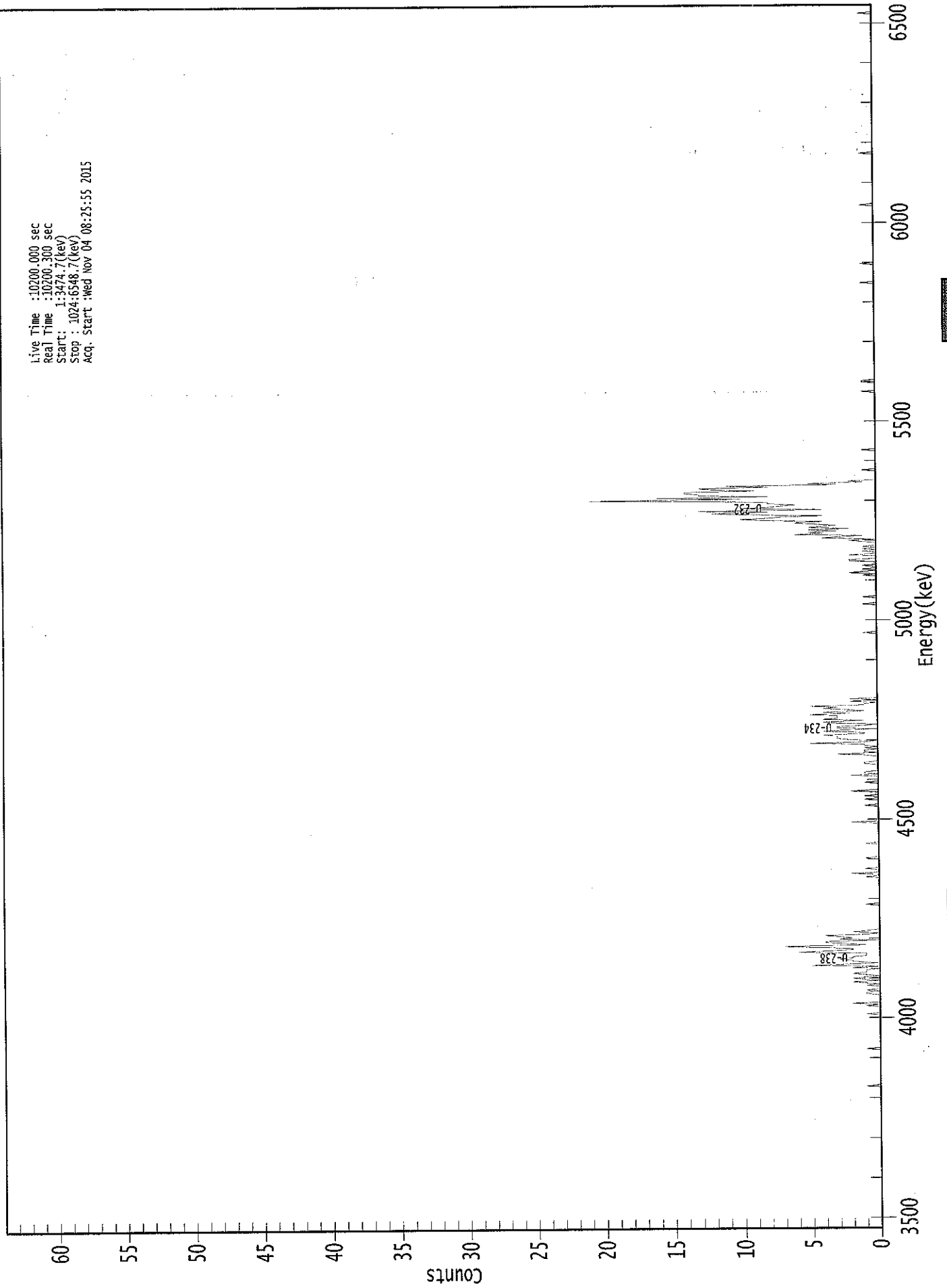
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.998	5302.50*	3.50E+000 +/- 3.86E-001	8.29E-002 +/- 9.12E-003
U-234	0.994	4761.50*	9.34E-001 +/- 2.10E-001	7.46E-002 +/- 8.21E-003
U-235	0.995	4385.50*	6.31E-002 +/- 6.42E-002	9.20E-002 +/- 1.01E-002
U-238	0.994	4184.40*	8.50E-001 +/- 1.99E-001	8.25E-002 +/- 9.08E-003

0000133124.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3474.7(kev)  
Stop : 1024:6548.7(kev)  
Acq. Start : Wed Nov 04 08:25:55 2015



ROI Type: 1

ROI Type: 3

000156

\*\*\*\*\*  
 \*\*\*\*\* 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	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	1	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	1	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	1	0	0	0	0	0	0
185:	0	1	0	2	0	0	0	0	0
193:	0	0	0	1	1	0	0	1	0
201:	0	0	1	0	1	2	0	0	1
209:	2	1	0	1	2	1	1	1	1
217:	0	2	0	5	2	0	2	2	2
225:	3	2	2	1	1	1	6	4	4
233:	2	2	5	7	1	2	4	4	4
241:	0	3	2	3	4	1	0	2	2
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	1	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	1	0	0	0
297:	2	0	0	0	1	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	1	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	2	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	0	1	0	0	0	0	1	0	0
361:	0	1	0	0	0	2	0	0	0

369: 0 0 0 0 1 0 0 0

Sample Title: 14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	0	0	2	0	1	1	0	0
385:	0	0	0	0	1	1	0	0
393:	0	0	0	1	3	0	1	1
401:	0	1	0	1	1	5	1	0
409:	2	3	3	3	4	1	1	4
417:	3	0	3	3	1	0	3	4
425:	1	4	3	3	3	5	2	4
433:	1	2	4	3	5	1	1	0
441:	2	0	2	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	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	0
513:	0	0	0	0	0	0	0	0
521:	0	1	0	0	0	0	0	1
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	1	0	2	1	0	1	0
553:	0	1	0	0	0	2	2	0
561:	0	0	2	0	0	1	0	1
569:	0	1	0	0	0	1	2	0
577:	4	3	1	6	4	5	3	5
585:	2	5	4	3	5	6	4	8
593:	10	8	7	4	10	12	8	13
601:	4	10	8	7	6	8	8	12
609:	21	10	16	8	13	13	14	14
617:	9	12	13	8	11	3	5	1
625:	2	0	0	0	0	0	0	0
633:	0	1	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	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	1	0	0	0	0
705:	0	0	0	1	1	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	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	1	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 1 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	1
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	1	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	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	1
1017:	0	0	0	0	0	0	0	0



*KS  
m/ks*

Sample Description: CP3004S02-03  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 15  
 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: 1.522E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:57 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: 0.2120 +/- 0.0113  
 Counting Efficiency: 0.1856 +/- 0.0032 on 10/25/2014 2:57:14 PM  
 Chem. Recovery Factor: 1.1422 +/- 0.0639

Peak Match Tolerance: 0.150 MeV

-----  
 ----- PEAK AREA REPORT -----  
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Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.277	436.32	9.39	0.68	0.00E+000	40.0
U-234		4.729	123.83	17.63	0.17	0.00E+000	11.8
U-235		4.425	6.66	78.18	0.34	0.00E+000	3.0
U-238		4.152	114.83	18.31	0.17	0.00E+000	4.2

T = Tracer Peak used for Effective Efficiency

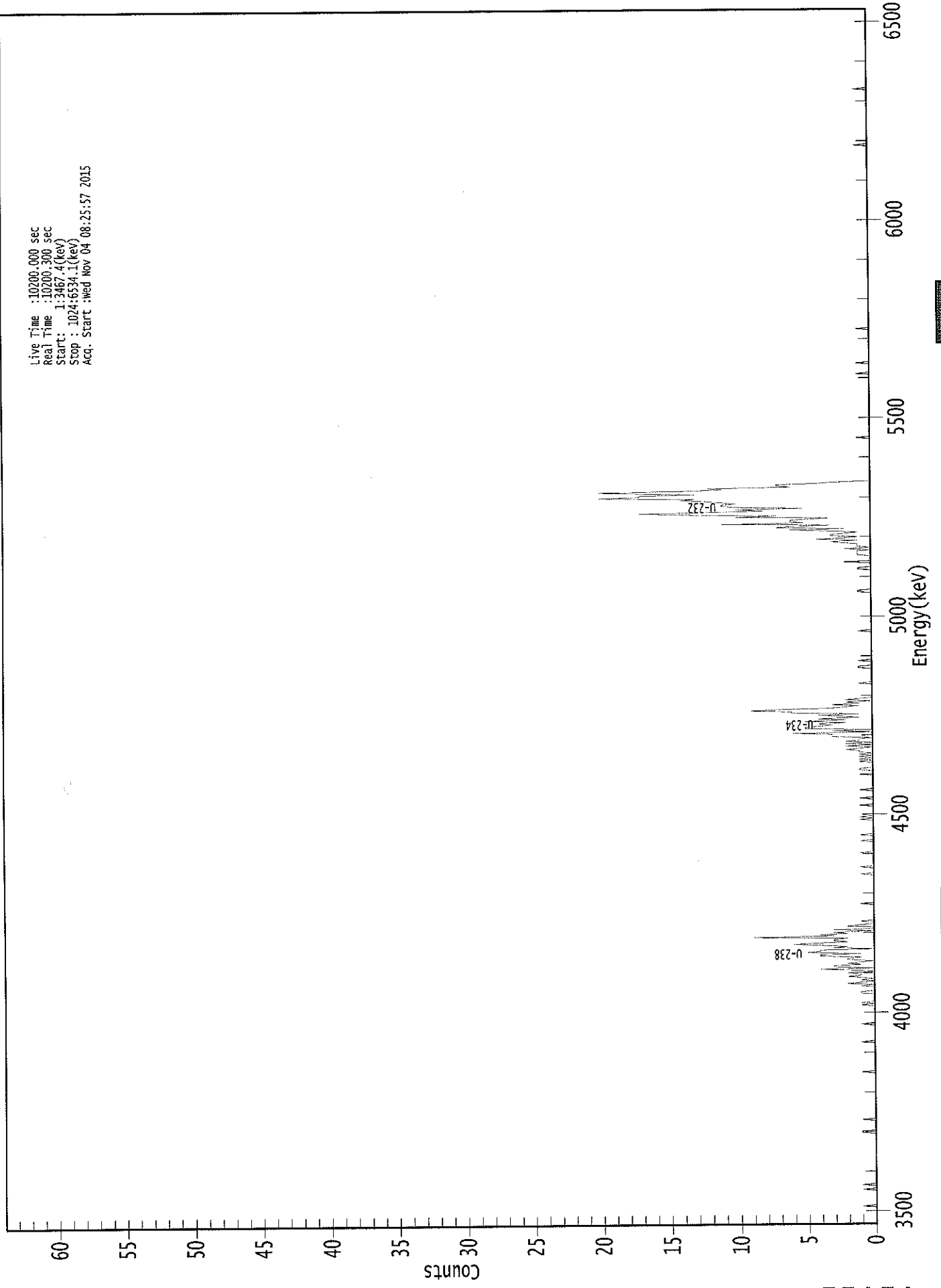
-----  
 ----- NUCLIDE ANALYSIS RESULTS -----  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.995	5302.50*	3.59E+000 +/- 3.74E-001	4.65E-002 +/- 4.84E-003
U-234	0.993	4761.50*	1.02E+000 +/- 2.09E-001	3.43E-002 +/- 3.58E-003
U-235	0.989	4385.50*	6.76E-002 +/- 5.33E-002	4.85E-002 +/- 5.06E-003
U-238	0.993	4184.40*	9.41E-001 +/- 1.98E-001	3.42E-002 +/- 3.56E-003



0000133125.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3457.4(kev)  
Stop : 1024:5534.1(kev)  
Acq. Start : Wed Nov 04 08:25:57 2015



ROI Type: 3

ROI Type: 1

10100

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

Sample Title: 15

Elapsed Live time: 10200

Elapsed Real Time: 10200

Channel	1	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	1
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	1	0	0	0
33:	0	1	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	1	1	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	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:	1	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	1	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0	0
169:	1	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0	0
185:	1	0	1	0	0	0	0	0	0
193:	0	0	1	1	0	0	0	0	0
201:	1	0	2	1	0	1	0	1	0
209:	2	1	1	2	0	1	4	0	0
217:	3	3	1	2	1	0	2	2	0
225:	1	4	4	1	5	4	4	0	0
233:	3	2	4	6	4	2	3	3	0
241:	2	9	3	4	2	3	0	3	0
249:	0	0	2	1	0	0	1	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	1	0	0
297:	0	0	0	0	1	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	1	0	0	0	0	0	0	0	0
321:	0	0	1	0	0	0	0	1	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	1	0	1	0	0
345:	0	0	0	0	0	0	0	0	0
353:	1	0	0	0	0	0	1	0	0
361:	0	0	0	0	0	1	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 15

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

801: 0 0 0 0 0 0 0 0

Sample Title: 15

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	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	1	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	1	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

205  
11/10/15

# Apex-Alpha™

Sample Description: CP3004S05-06  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 16  
 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: 1.525E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:25:59 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: 0.1700 +/- 0.0099  
 Counting Efficiency: 0.1873 +/- 0.0033 on 10/25/2014 3:00:28 PM  
 Chem. Recovery Factor: 0.9074 +/- 0.0552

Peak Match Tolerance: 0.150 MeV

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 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.276	348.49	10.51	0.51	0.00E+000	5.3
U-234	4.730	122.98	17.76	1.02	0.00E+000	6.9
U-235	4.400	9.66	64.35	0.34	0.00E+000	3.0
U-238	4.154	106.11	19.33	2.89	0.00E+000	7.1

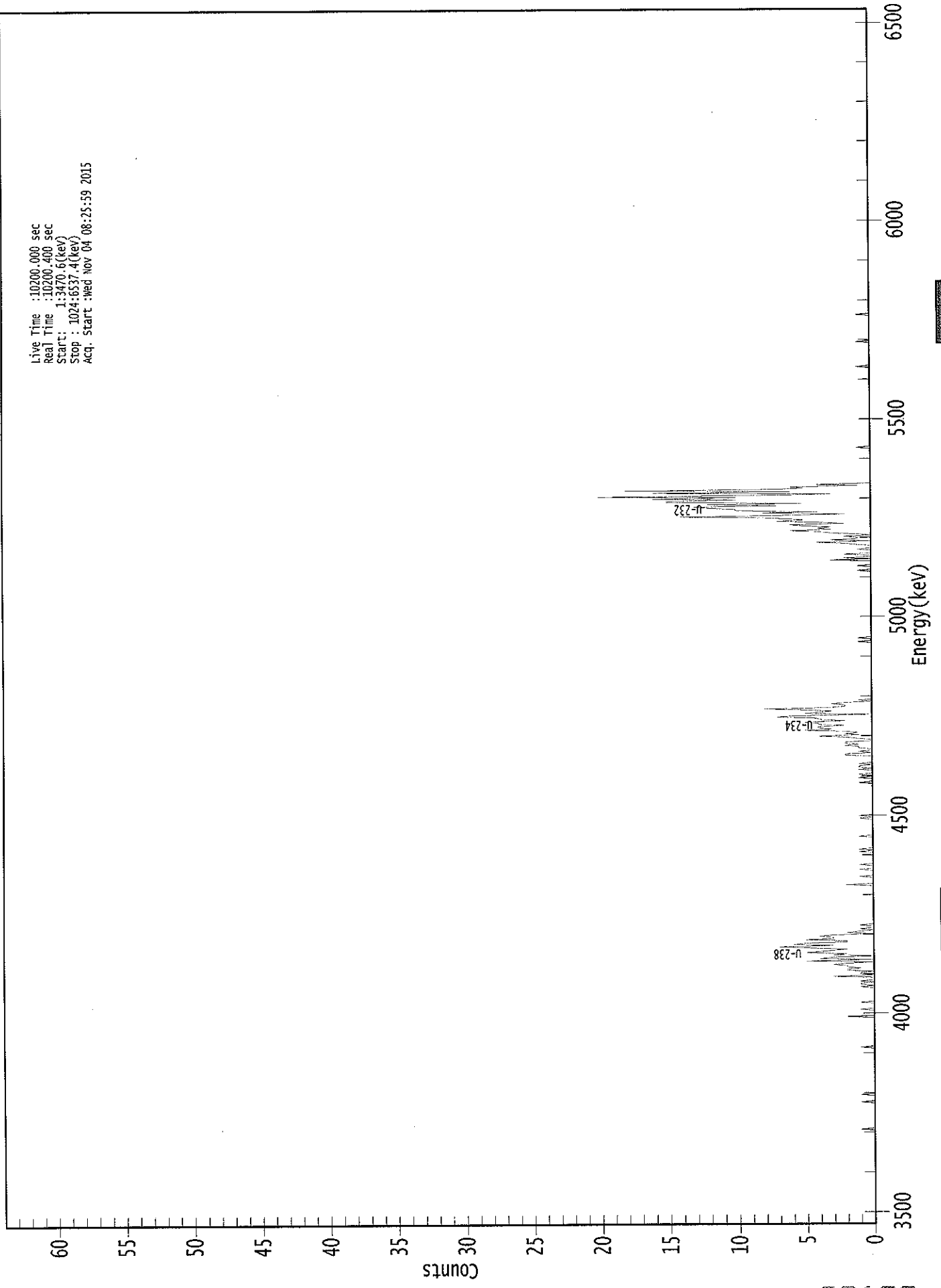
T = Tracer Peak used for Effective Efficiency

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 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.995	5302.50*	3.57E+000 +/- 4.08E-001	5.38E-002 +/- 6.15E-003
U-234	0.993	4761.50*	1.26E+000 +/- 2.66E-001	6.45E-002 +/- 7.38E-003
U-235	0.999	4385.50*	1.22E-001 +/- 7.98E-002	6.04E-002 +/- 6.91E-003
U-238	0.994	4184.40*	1.08E+000 +/- 2.43E-001	8.93E-002 +/- 1.02E-002

0000133126.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3470.6(kev)  
Stop : 1024:0537.4(kev)  
Acq. Start : Wed Nov 04 08:25:59 2015



ROI Type: 1

ROI Type: 3

00100

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

Sample Title: 16

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

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

369: 0 0 0 1 0 0 0 1

Sample Title: 16

Channel	1	2	3	4	5	6	7	8
377:	0	0	1	0	0	0	1	0
385:	1	1	0	1	0	0	0	0
393:	0	0	2	2	0	1	0	0
401:	1	1	2	1	2	2	0	0
409:	1	2	4	1	2	1	2	5
417:	3	4	4	2	4	4	5	2
425:	4	4	7	6	0	5	4	3
433:	5	8	3	2	2	3	2	0
441:	1	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	1	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	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	1	0	0
553:	0	1	0	0	0	0	3	0
561:	2	0	0	2	0	0	0	1
569:	0	0	0	1	2	4	0	3
577:	1	1	2	0	1	3	4	6
585:	3	4	3	5	6	2	4	7
593:	5	6	8	14	7	2	8	4
601:	10	10	12	13	7	12	5	15
609:	15	10	16	10	20	7	3	16
617:	6	18	7	5	6	1	4	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	0	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	1	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	1	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	1	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: 16

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™

*10/10/15*

Sample Description: CP3004S07-08  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 17  
 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: 1.551E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:26:01 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: 0.1612 +/- 0.0096  
 Counting Efficiency: 0.1737 +/- 0.0030 on 10/25/2014 3:04:21 PM  
 Chem. Recovery Factor: 0.9276 +/- 0.0576

Peak Match Tolerance: 0.150 MeV

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 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.277	332.15	10.77	0.85	0.00E+000	36.0
U-234	4.730	101.66	19.48	0.34	0.00E+000	3.9
U-235	4.367	7.66	72.63	0.34	0.00E+000	4.5
U-238	4.150	98.15	19.88	0.85	0.00E+000	4.1

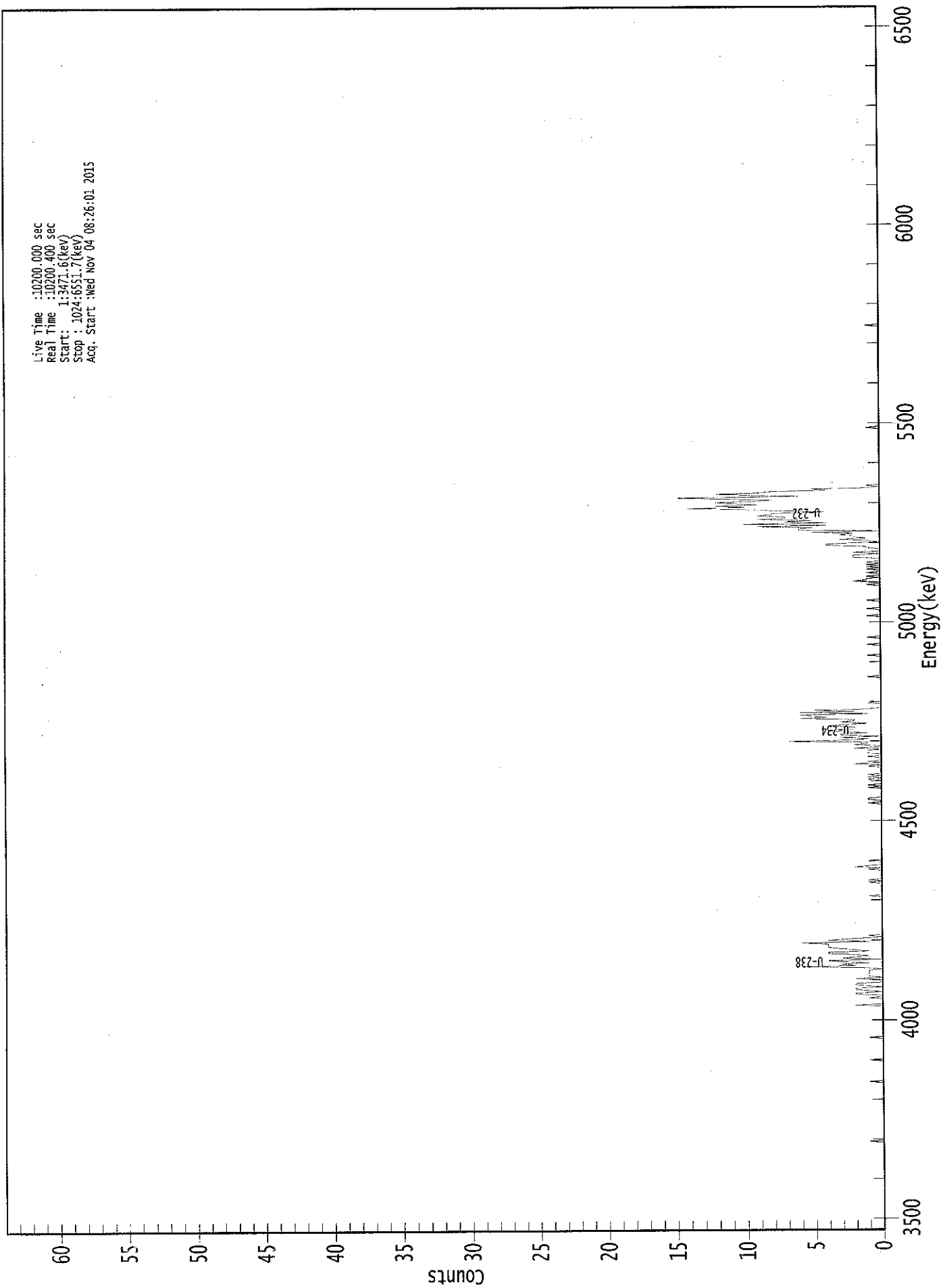
T = Tracer Peak used for Effective Efficiency

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 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.996	5302.50*	3.53E+000 +/- 4.12E-001	6.36E-002 +/- 7.43E-003
U-234	0.993	4761.50*	1.08E+000 +/- 2.45E-001	5.08E-002 +/- 5.93E-003
U-235	0.998	4385.50*	1.00E-001 +/- 7.38E-002	6.26E-002 +/- 7.31E-003
U-238	0.991	4184.40*	1.04E+000 +/- 2.39E-001	6.33E-002 +/- 7.39E-003

0000133127.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3471.6(keV)  
Stop : 1024:6551.7(keV)  
Acq. Start : Wed Nov 04 08:26:01 2015



00171

ROI Type: 1

ROI Type: 3

\*\*\*\*\*  
 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: 17

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 1 0 1 0 0 0 0

Sample Title: 17

Channel	1	2	3	4	5	6	7	8	9
377:	1	0	1	0	1	0	0	0	0
385:	0	0	0	1	0	2	0	0	1
393:	0	0	0	1	0	0	1	1	1
401:	1	0	2	0	0	2	1	1	1
409:	7	2	1	3	0	3	3	1	1
417:	3	4	2	2	2	4	3	1	1
425:	3	2	2	6	4	5	6	1	1
433:	6	2	5	1	0	0	0	0	0
441:	1	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	1	0	0
465:	0	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0	0
481:	1	0	0	0	0	0	0	0	0
489:	0	1	0	0	0	0	0	1	0
497:	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0
513:	0	1	0	0	0	0	0	1	0
521:	0	0	0	0	0	0	1	0	0
529:	0	0	0	0	0	0	0	0	0
537:	0	0	0	1	0	0	2	1	0
545:	1	0	1	0	0	1	0	0	0
553:	1	0	1	0	1	0	1	0	0
561:	0	0	2	2	2	0	2	0	0
569:	0	0	1	1	4	4	2	0	0
577:	1	3	1	2	2	3	2	5	0
585:	0	6	6	5	9	4	10	4	0
593:	7	5	9	7	7	9	8	8	0
601:	4	8	10	14	10	12	9	11	0
609:	12	9	8	12	15	6	9	12	0
617:	9	8	4	5	1	0	1	0	0
625:	0	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	1	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	1	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: 17

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

RB  
11/11/15

# Apex-Alpha™

Sample Description: CP3004S10-11  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 18  
 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: 1.563E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:26:04 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: 0.1969 +/- 0.0108  
 Counting Efficiency: 0.1998 +/- 0.0035 on 10/25/2014 3:08:45 PM  
 Chem. Recovery Factor: 0.9853 +/- 0.0566

Peak Match Tolerance: 0.150 MeV

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 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T 5.280	405.83	9.73	0.17	0.00E+000	13.5
U-234	4.733	107.66	18.92	0.34	0.00E+000	10.5
U-235	4.384	8.32	71.13	0.68	0.00E+000	3.0
U-238	4.155	128.00	17.39	0.00	0.00E+000	15.0

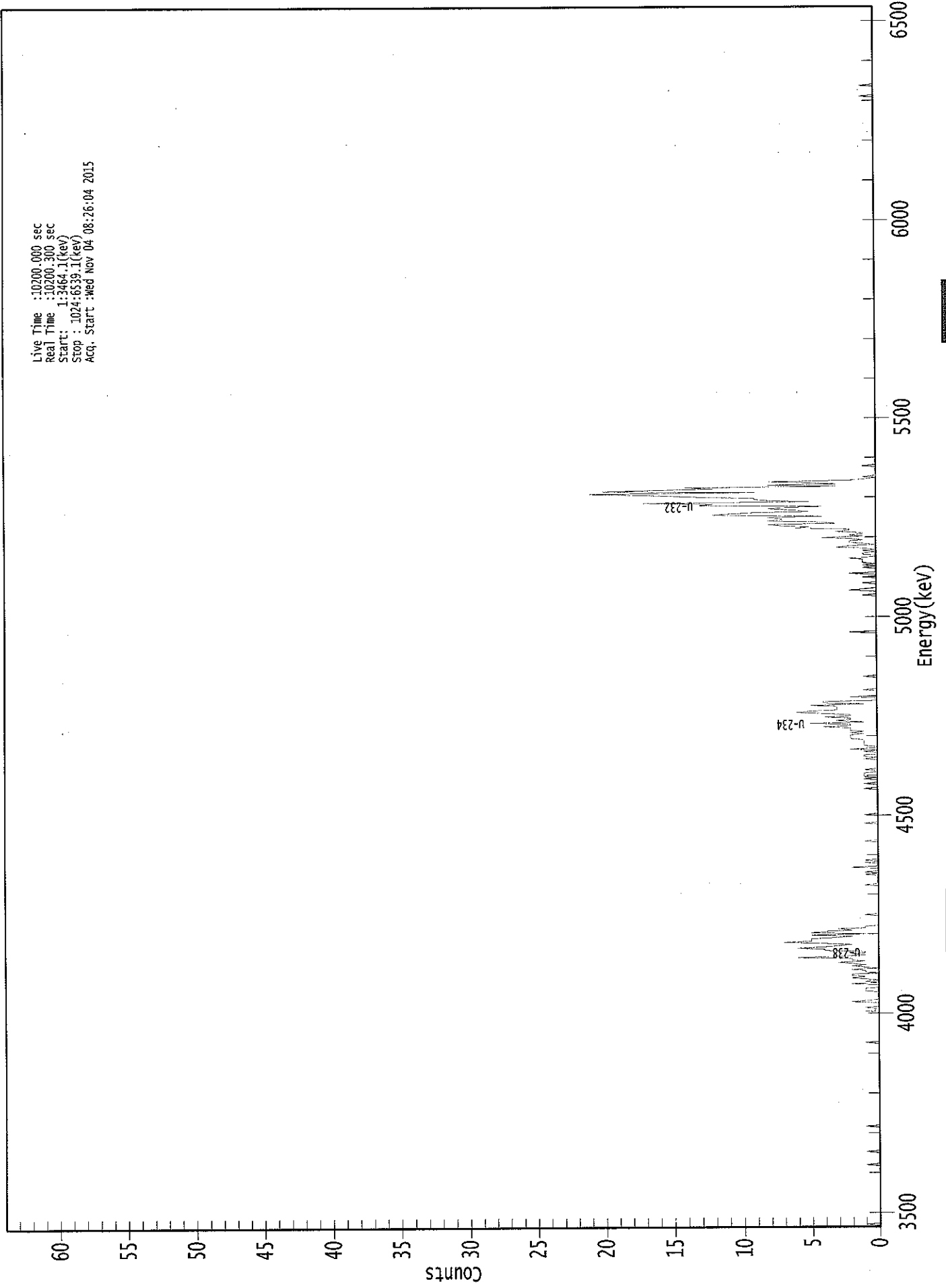
T = Tracer Peak used for Effective Efficiency

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

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.996	5302.50*	3.50E+000 +/- 3.76E-001	3.60E-002 +/- 3.87E-003
U-234	0.994	4761.50*	9.29E-001 +/- 2.02E-001	4.13E-002 +/- 4.42E-003
U-235	1.000	4385.50*	8.86E-002 +/- 6.37E-002	6.00E-002 +/- 6.44E-003
U-238	0.994	4184.40*	1.10E+000 +/- 2.25E-001	5.15E-002 +/- 5.53E-003

0000133128.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3464.1(kev)  
Stop : 1024:6539.1(kev)  
Acq. Start : MED NOV 04 08:26:04 2015



ROI Type: 1

ROI Type: 3

00170



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

Sample Title: 18

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 0 0 1 0 0 0 1

Sample Title: 18

Channel	1	2	3	4	5	6	7	8
377:	0	1	1	1	1	0	0	1
385:	0	0	0	0	0	0	0	0
393:	1	0	1	1	0	0	1	0
401:	2	0	0	1	1	1	1	1
409:	1	2	2	2	2	1	2	1
417:	2	2	2	4	2	2	5	1
425:	3	2	2	4	2	2	4	6
433:	5	3	3	3	3	5	1	4
441:	4	0	0	0	2	0	0	0
449:	0	0	1	0	0	0	0	0
457:	0	0	0	0	0	1	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	2	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	2	1	0
537:	0	0	0	1	0	0	0	0
545:	1	0	0	2	0	0	0	0
553:	1	0	1	0	1	1	1	1
561:	2	0	0	1	1	0	1	0
569:	1	3	2	0	1	2	2	1
577:	2	4	1	2	1	1	3	2
585:	2	6	5	7	8	3	4	8
593:	7	7	8	4	12	11	9	5
601:	6	8	7	4	13	12	17	5
609:	8	9	9	13	15	18	21	9
617:	20	16	12	14	3	8	3	5
625:	8	2	1	0	1	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	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0

Sample Title: 18

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

26  
11/4/15

# Apex-Alpha™

Sample Description: CP3004S12-13  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-UU  
 Sample Identification: 19  
 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: 1.532E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:02:03 AM  
 Acquisition Date/Time: 11/4/2015 8:26:06 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232\_UU-10A  
 Tracer Quantity: 0.650 mL  
 Effective Efficiency: 0.2082 +/- 0.0112  
 Counting Efficiency: 0.1837 +/- 0.0032 on 10/25/2014 3:13:11 PM  
 Chem. Recovery Factor: 1.1334 +/- 0.0640

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 5.287	425.66	9.50	0.34	0.00E+000	17.0
U-234	4.732	105.66	19.10	0.34	0.00E+000	3.7
U-235	4.424	10.66	61.14	0.34	0.00E+000	3.0
U-238	4.170	125.83	17.49	0.17	0.00E+000	14.2

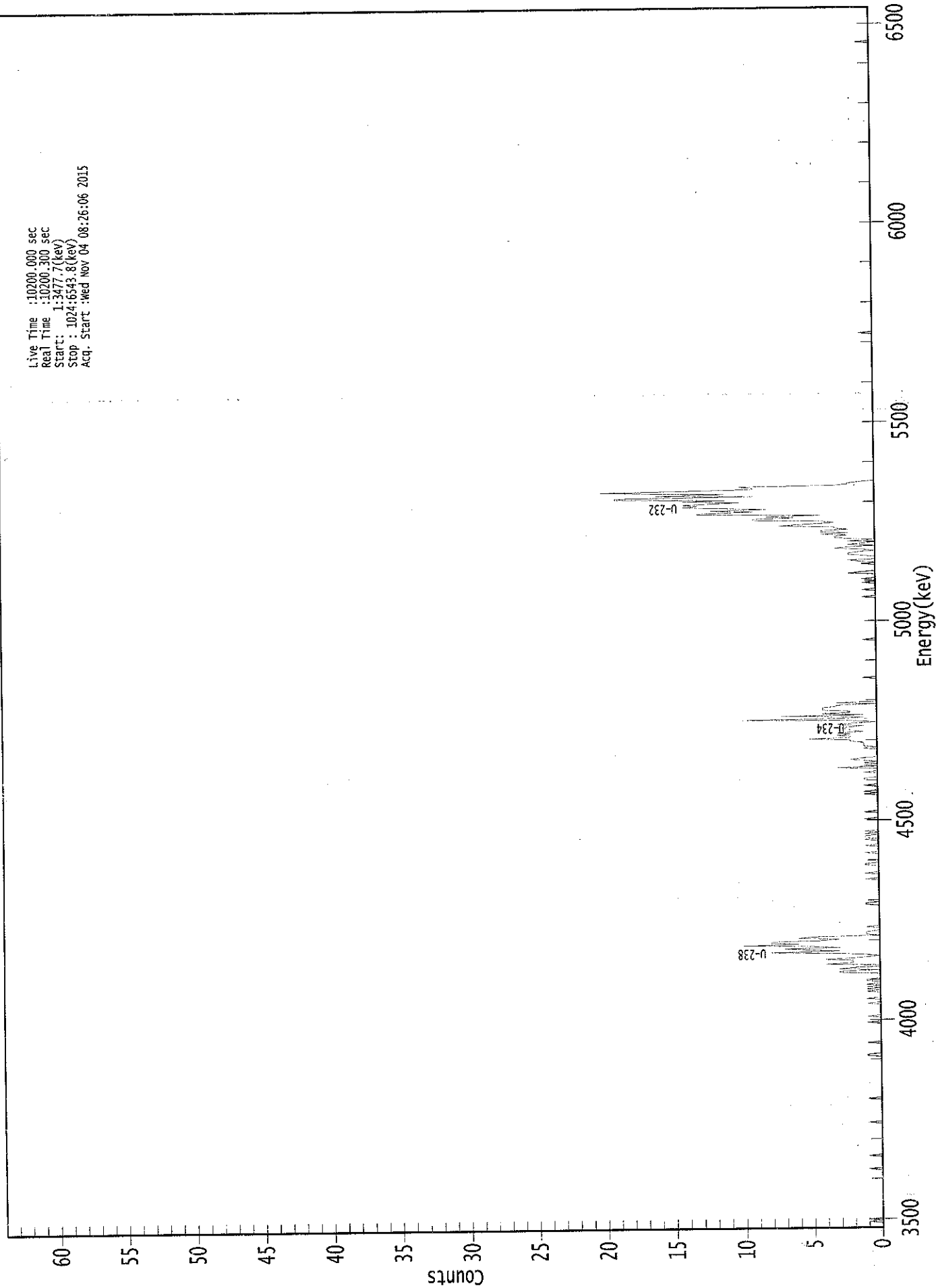
T = Tracer Peak used for Effective Efficiency

-----  
 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
U-232	0.998	5302.50*	3.55E+000 +/- 3.73E-001	3.98E-002 +/- 4.19E-003
U-234	0.994	4761.50*	8.80E-001 +/- 1.92E-001	3.98E-002 +/- 4.19E-003
U-235	0.989	4385.50*	1.09E-001 +/- 6.79E-002	4.91E-002 +/- 5.17E-003
U-238	0.998	4184.40*	1.04E+000 +/- 2.13E-001	3.46E-002 +/- 3.64E-003

0000133129.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3477.7(kev)  
Stop : 1024:6543.8(kev)  
Acq. Start : Wed Nov 04 08:26:06 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: 19

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	1	0	1
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0	0
49:	0	1	0	0	0	0	0	0	0
57:	0	0	0	0	1	0	0	0	0
65:	0	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0	0
81:	0	0	0	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	0	0	0	1	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:	1	1	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	0	0	1	0	0	0	0
177:	0	1	0	0	0	0	0	0	0
185:	0	0	0	0	1	0	0	0	0
193:	1	0	0	0	0	0	1	0	0
201:	1	0	1	0	1	0	0	0	1
209:	1	0	0	0	0	0	3	3	3
217:	0	3	2	0	0	4	2	2	2
225:	2	4	2	1	0	1	3	8	8
233:	3	5	7	3	5	10	6	8	8
241:	8	4	3	6	5	0	1	1	1
249:	1	0	0	0	1	0	0	0	0
257:	0	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	1	1
273:	1	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	1	0	0	0	0	0	0	0
305:	1	1	0	0	0	0	0	0	0
313:	0	0	1	0	0	0	0	0	0
321:	1	0	0	0	0	1	0	0	1
329:	1	0	1	0	1	0	0	0	0
337:	0	0	0	0	0	0	1	0	0
345:	0	0	0	0	1	0	0	0	0
353:	0	0	0	0	0	0	0	0	0
361:	0	0	0	1	0	1	0	0	0

369: 0 0 1 0 0 0 0 0 1

Sample Title: 19

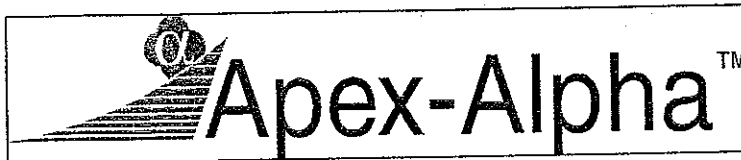
Channel	1	2	3	4	5	6	7	8	9
377:	1	0	0	0	0	0	1	0	0
385:	0	3	0	1	0	1	0	0	1
393:	2	1	0	0	0	0	0	0	0
401:	0	1	0	1	1	1	1	1	2
409:	2	5	2	2	3	2	3	3	1
417:	2	2	3	2	1	3	3	2	0
425:	2	10	2	1	7	1	4	2	2
433:	2	4	4	4	3	3	0	3	3
441:	0	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0
457:	0	0	0	0	1	0	0	0	0
465:	0	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0	0
489:	0	0	0	0	1	0	0	0	0
497:	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0	0
529:	1	0	0	0	0	0	1	0	0
537:	0	0	0	0	1	0	0	1	0
545:	0	0	0	0	2	1	0	0	0
553:	0	0	0	0	1	0	1	2	0
561:	0	0	0	1	2	2	1	0	0
569:	1	3	2	0	2	1	0	2	2
577:	0	2	3	3	2	4	2	4	4
585:	4	2	3	3	7	6	4	3	3
593:	4	9	9	6	8	4	13	13	13
601:	9	12	8	11	14	13	14	12	12
609:	10	14	11	19	19	9	16	11	11
617:	16	20	14	9	9	10	3	2	2
625:	2	1	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0	0
649:	0	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	1	0	0	0
753:	0	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0	0

801: 0 0 0 0 0 0 0 0 0

Sample Title: 19

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	1	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 : 11/4/2015  
Time : 5:50:13 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	11/4/2015 5:27:24 AM
Alpha 004	21f	ALL	Passed	11/4/2015 5:27:25 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	11/4/2015 5:27:26 AM
Alpha 011	21f	ALL	Passed	11/4/2015 5:27:26 AM
Alpha 012	21f	ALL	Passed	11/4/2015 5:27:27 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	11/4/2015 5:27:28 AM
Alpha 015	21f	ALL	Passed	11/4/2015 5:27:29 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:30 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:32 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:33 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:35 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:37 AM
Alpha 038	Alpha Analyst100DC	Peak Energy	Action	11/4/2015 5:27:38 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:40 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:42 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:43 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:45 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:47 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:49 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:52 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:54 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:57 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:59 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:02 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:04 AM
Alpha 051	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:06 AM
Alpha 052	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:09 AM
Alpha 053	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:12 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:14 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:17 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:20 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:24 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:27 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:29 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:33 AM

APPROVED BY: \_\_\_\_\_ 

APPROVAL DATE: 11/4

\*\*\*\*\*  
\*\*\*\*\* LIBRARY LISTING REPORT \*\*\*\*\*  
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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)**

**15-10093**  
**ThISO**  
Run 1

Eberline Services  
Oak Ridge Laboratory  
Analysis Sheet

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	CP5002S03-04	35	10/08/15 12:00	1.5179E+00
04	DO	CP5002S03-04	35	10/08/15 12:00	1.5451E+00
05	TRG	CP5002S06-07	34	10/08/15 12:20	1.5221E+00
06	TRG	CP5002S09-10	36	10/08/15 12:30	1.5048E+00
07	TRG	CP5002S11-12	34	10/08/15 12:40	1.5047E+00
08	TRG	CP5002S13-14	32	10/08/15 13:00	1.5005E+00
09	TRG	CP5002S16-17	33	10/08/15 13:10	1.5097E+00
10	TRG	CP1806S03-04	37	10/09/15 08:00	1.5107E+00
11	TRG	CP1806S05-06	34	10/09/15 08:10	1.5287E+00
12	TRG	CP1806S08-09	35	10/09/15 08:20	1.5487E+00
13	TRG	CP1806S10-11	36	10/09/15 08:30	1.5588E+00
14	TRG	CP1806S13-14	34	10/09/15 08:40	1.5546E+00
15	TRG	CP3004S02-03	39	10/10/15 12:40	1.5402E+00
16	TRG	CP3004S05-06	41	10/10/15 12:50	1.5032E+00
17	TRG	CP3004S07-08	38	10/10/15 13:00	1.5699E+00
18	TRG	CP3004S10-11	34	10/10/15 13:10	1.5078E+00
19	TRG	CP3004S12-13	32	10/10/15 13:20	1.5135E+00

<b>Work Order</b>	<b>15-10093</b>
<b>Analysis Code</b>	<b>ThISO</b>
<b>Run</b>	<b>1</b>
<b>Date Received</b>	<b>10/14/2015</b>
<b>Lab Deadline</b>	<b>11/5/2015</b>
<b>Client</b>	Auxier & Associates, Inc.
<b>Project</b>	PAP-KAN
<b>Report Level</b>	4
<b>Activity Units</b>	pCi
<b>Aliquot Units</b>	g
<b>Matrix</b>	SO
<b>Method</b>	EML Th-01 Modified
<b>Instrument Type</b>	Alpha Spectroscopy
<b>Radiometric Tracer</b>	Th-229
<b>Radiometric Sol#</b>	Th-18a
<b>Tracer Act (dpm/g)</b>	22.46
<b>Carrier</b>	
<b>Carrier Conc (mg/ml)</b>	

\* 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.

11/04/2015

15-10093  
THISO  
Run 1

Eberline Services  
Oak Ridge Laboratory  
Analysis Sheet

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (mf)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.4527	10.2		0.00								
02	MBL	0.2253	5.1		0.00								
03	DUP	0.2254	5.1		0.00								
04	DO	0.2248	5.0		0.00								
05	TRG	0.2256	5.1		0.00								
06	TRG	0.2255	5.1		0.00								
07	TRG	0.2260	5.1		0.00								
08	TRG	0.2339	5.3		0.00								
09	TRG	0.2256	5.1		0.00								
10	TRG	0.2257	5.1		0.00								
11	TRG	0.2277	5.1		0.00								
12	TRG	0.2260	5.1		0.00								
13	TRG	0.2306	5.2		0.00								
14	TRG	0.2253	5.1		0.00								
15	TRG	0.2265	5.1		0.00								
16	TRG	0.2251	5.1		0.00								
17	TRG	0.2250	5.1		0.00								
18	TRG	0.2260	5.1		0.00								
19	TRG	0.2253	5.1		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.

15-10093  
THISO  
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			10/22/15 14:35	JPACHELLA				
02	MBL			10/22/15 14:35	JPACHELLA				
03	DUP			10/22/15 14:35	JPACHELLA				
04	DO	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
05	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
06	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
07	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
08	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
09	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
10	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
11	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
12	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
13	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
14	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
15	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
16	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
17	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
18	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	JPACHELLA				
19	TRG	10/21/15 08:34	KSALLINGS	10/22/15 14:35	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.

000000

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	5.79E+00	9.21E-01	8.62E-02	5.04E+00	114.87	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	-4.76E-03	1.98E-02	6.38E-02					OK	OK
03	TH-228	DUP	CP5002S03-04	pCi/g	1.59E+00	4.60E-01	8.49E-02				INV	OK	
04	TH-228	DO	CP5002S03-04	pCi/g	1.08E+00	2.64E-01	5.72E-02					OK	
05	TH-228	TRG	CP5002S06-07	pCi/g	1.14E+00	2.80E-01	4.63E-02					OK	
06	TH-228	TRG	CP5002S09-10	pCi/g	1.32E+00	3.73E-01	1.05E-01					OK	
07	TH-228	TRG	CP5002S11-12	pCi/g	1.33E+00	3.22E-01	1.22E-01					OK	
08	TH-228	TRG	CP5002S13-14	pCi/g	1.24E+00	2.93E-01	5.69E-02					OK	
09	TH-228	TRG	CP5002S16-17	pCi/g	1.16E+00	2.49E-01	4.83E-02					OK	
10	TH-228	TRG	CP1806S03-04	pCi/g	1.39E+00	3.08E-01	4.50E-02					OK	
11	TH-228	TRG	CP1806S05-06	pCi/g	1.36E+00	3.09E-01	6.37E-02					OK	
12	TH-228	TRG	CP1806S08-09	pCi/g	1.62E+00	3.61E-01	6.97E-02					OK	
13	TH-228	TRG	CP1806S10-11	pCi/g	1.03E+00	2.62E-01	4.09E-02					OK	
14	TH-228	TRG	CP1806S13-14	pCi/g	1.25E+00	3.13E-01	7.34E-02					OK	
15	TH-228	TRG	CP3004S02-03	pCi/g	1.08E+00	2.85E-01	7.62E-02					OK	
16	TH-228	TRG	CP3004S05-06	pCi/g	1.04E+00	3.08E-01	1.06E-01					OK	
17	TH-228	TRG	CP3004S07-08	pCi/g	1.15E+00	2.79E-01	6.36E-02					OK	
18	TH-228	TRG	CP3004S10-11	pCi/g	1.19E+00	2.96E-01	6.12E-02					OK	
19	TH-228	TRG	CP3004S12-13	pCi/g	1.14E+00	2.90E-01	6.74E-02					OK	

Run	1		Analysis Code	THISO
			Eberline Services Work Order	15-10093
Client	Auxier & Associates, Inc.			

201508



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	104.68	0.00	0.00			
02	TH-228	MBL	10/15/15 00:00	1.50E+00	110.80	0.00	0.00			
03	TH-228	DUP	10/08/15 12:00	1.52E+00	67.23	0.00	0.00			
04	TH-228	DO	10/08/15 12:00	1.55E+00	114.17	0.00	0.00			
05	TH-228	TRG	10/08/15 12:20	1.52E+00	121.25	0.00	0.00			
06	TH-228	TRG	10/08/15 12:30	1.50E+00	91.24	0.00	0.00			
07	TH-228	TRG	10/08/15 12:40	1.50E+00	119.74	0.00	0.00			
08	TH-228	TRG	10/08/15 13:00	1.50E+00	118.93	0.00	0.00			
09	TH-228	TRG	10/08/15 13:10	1.51E+00	169.26	0.00	0.00			
10	TH-228	TRG	10/09/15 08:00	1.51E+00	144.52	0.00	0.00			
11	TH-228	TRG	10/09/15 08:10	1.53E+00	126.96	0.00	0.00			
12	TH-228	TRG	10/09/15 08:20	1.55E+00	119.20	0.00	0.00			
13	TH-228	TRG	10/09/15 08:30	1.56E+00	112.94	0.00	0.00			
14	TH-228	TRG	10/09/15 08:40	1.55E+00	103.36	0.00	0.00			
15	TH-228	TRG	10/10/15 12:40	1.54E+00	95.84	0.00	0.00			
16	TH-228	TRG	10/10/15 12:50	1.50E+00	88.47	0.00	0.00			
17	TH-228	TRG	10/10/15 13:00	1.57E+00	103.40	0.00	0.00			
18	TH-228	TRG	10/10/15 13:10	1.51E+00	98.69	0.00	0.00			
19	TH-228	TRG	10/10/15 13:20	1.51E+00	106.54	0.00	0.00			

	Run	1
	Analysis Code	THISO
Eberline Services Work Order	15-10093	
Client	Auxier & Associates, Inc.	

001100

	Run	1
	Analysis Code	THISO
Client	Auxier & Associates, Inc.	
Eberline Services Work Order	15-10093	

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	11/04/15 08:26		A_Spec	Alpha_045	170	4.02 E+02	6.00 E-03	17.6
02	TH-228	MBL	11/04/15 08:26		A_Spec	Alpha_046	170	5.30 E-01	9.00 E-03	17.8
03	TH-228	DUP	11/04/15 08:26		A_Spec	Alpha_047	170	9.85 E+01	3.00 E-03	16.5
04	TH-228	DO	11/04/15 08:26		A_Spec	Alpha_048	170	1.19 E+02	6.00 E-03	17
05	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_049	170	1.18 E+02	2.00 E-03	15.3
06	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_050	170	9.51 E+01	1.10 E-02	14.3
07	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_051	170	1.34 E+02	4.30 E-02	15.2
08	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_052	170	1.30 E+02	5.00 E-03	16.1
09	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_053	170	1.58 E+02	7.00 E-03	14.6
10	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_054	170	1.62 E+02	3.00 E-03	14.5
11	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_055	170	1.51 E+02	9.00 E-03	15.6
12	TH-228	TRG	11/04/15 08:27		A_Spec	Alpha_056	170	1.76 E+02	1.10 E-02	16
13	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_057	170	1.05 E+02	1.00 E-03	15.8
14	TH-228	TRG	11/04/15 08:26		A_Spec	Alpha_058	170	1.21 E+02	9.00 E-03	16.4
15	TH-228	TRG	11/04/15 08:27		A_Spec	Alpha_059	170	1.00 E+02	9.00 E-03	17.2
16	TH-228	TRG	11/04/15 08:27		A_Spec	Alpha_060	170	7.88 E+01	1.30 E-02	15.4
17	TH-228	TRG	11/04/15 11:21		A_Spec	Alpha_033	170	1.24 E+02	8.00 E-03	18
18	TH-228	TRG	11/04/15 11:21		A_Spec	Alpha_034	170	1.16 E+02	5.00 E-03	17.9
19	TH-228	TRG	11/04/15 11:21		A_Spec	Alpha_035	170	1.12 E+02	7.00 E-03	16.5

11/5/2015

	<b>1</b> Run	<b>THISO</b> Analysis Code	<b>15-10093</b> Eberline Services Work Order	<b>Auxier &amp; Associates, Inc.</b> Client
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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	5.99E+00	9.48E-01	9.49E-02	5.34E+00	112.17	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	2.88E-03	1.86E-02	5.07E-02					OK	OK
03	TH-230	DUP	CP5002S03-04	pCi/g	1.83E+00	5.09E-01	9.45E-02				INV	OK	
04	TH-230	DO	CP5002S03-04	pCi/g	1.28E+00	2.96E-01	4.23E-02					OK	
05	TH-230	TRG	CP5002S06-07	pCi/g	1.31E+00	3.09E-01	6.46E-02					OK	
06	TH-230	TRG	CP5002S09-10	pCi/g	1.40E+00	3.86E-01	6.48E-02					OK	
07	TH-230	TRG	CP5002S11-12	pCi/g	1.33E+00	3.16E-01	6.87E-02					OK	
08	TH-230	TRG	CP5002S13-14	pCi/g	1.37E+00	3.14E-01	5.22E-02					OK	
09	TH-230	TRG	CP5002S16-17	pCi/g	1.32E+00	2.72E-01	4.03E-02					OK	
10	TH-230	TRG	CP1806S03-04	pCi/g	1.29E+00	2.88E-01	3.49E-02					OK	
11	TH-230	TRG	CP1806S05-06	pCi/g	9.97E-01	2.45E-01	5.61E-02					OK	
12	TH-230	TRG	CP1806S08-09	pCi/g	1.09E+00	2.65E-01	5.66E-02					OK	
13	TH-230	TRG	CP1806S10-11	pCi/g	1.02E+00	2.59E-01	5.02E-02					OK	
14	TH-230	TRG	CP1806S13-14	pCi/g	1.01E+00	2.63E-01	4.20E-02					OK	
15	TH-230	TRG	CP3004S02-03	pCi/g	1.38E+00	3.38E-01	5.60E-02					OK	
16	TH-230	TRG	CP3004S05-06	pCi/g	1.74E+00	4.45E-01	6.19E-02					OK	
17	TH-230	TRG	CP3004S07-08	pCi/g	1.23E+00	2.91E-01	4.75E-02					OK	
18	TH-230	TRG	CP3004S10-11	pCi/g	1.24E+00	3.03E-01	4.16E-02					OK	
19	TH-230	TRG	CP3004S12-13	pCi/g	1.46E+00	3.44E-01	4.17E-02					OK	

		<b>1</b> Run
<b>THISO</b> Analysis Code		<b>15-10093</b> Eberline Services Work Order
Auxier & Associates, Inc. Client		96109

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	104.68	0.00	0.00			
02	TH-230	MBL	10/15/15 00:00	1.50E+00	110.80	0.00	0.00			
03	TH-230	DUP	10/08/15 12:00	1.52E+00	67.23	0.00	0.00			
04	TH-230	DO	10/08/15 12:00	1.55E+00	114.17	0.00	0.00			
05	TH-230	TRG	10/08/15 12:20	1.52E+00	121.25	0.00	0.00			
06	TH-230	TRG	10/08/15 12:30	1.50E+00	91.24	0.00	0.00			
07	TH-230	TRG	10/08/15 12:40	1.50E+00	119.74	0.00	0.00			
08	TH-230	TRG	10/08/15 13:00	1.50E+00	118.93	0.00	0.00			
09	TH-230	TRG	10/08/15 13:10	1.51E+00	169.26	0.00	0.00			
10	TH-230	TRG	10/09/15 08:00	1.51E+00	144.52	0.00	0.00			
11	TH-230	TRG	10/09/15 08:10	1.53E+00	126.96	0.00	0.00			
12	TH-230	TRG	10/09/15 08:20	1.55E+00	119.20	0.00	0.00			
13	TH-230	TRG	10/09/15 08:30	1.56E+00	112.94	0.00	0.00			
14	TH-230	TRG	10/09/15 08:40	1.55E+00	103.36	0.00	0.00			
15	TH-230	TRG	10/10/15 12:40	1.54E+00	95.84	0.00	0.00			
16	TH-230	TRG	10/10/15 12:50	1.50E+00	88.47	0.00	0.00			
17	TH-230	TRG	10/10/15 13:00	1.57E+00	103.40	0.00	0.00			
18	TH-230	TRG	10/10/15 13:10	1.51E+00	98.69	0.00	0.00			
19	TH-230	TRG	10/10/15 13:20	1.51E+00	106.54	0.00	0.00			

Preliminary Data Report & Analytical Calculations  
**Work Order: 15-10093-THISO-1**

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

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	11/04/15 08:26		A_Spec	Alpha_045	170	4.16 E+02	7.00 E-03	17.6
02	TH-230	MBL	11/04/15 08:26		A_Spec	Alpha_046	170	3.20 E-01	4.00 E-03	17.8
03	TH-230	DUP	11/04/15 08:26		A_Spec	Alpha_047	170	1.16 E+02	0.00 E+00	16.5
04	TH-230	DO	11/04/15 08:26		A_Spec	Alpha_048	170	1.45 E+02	2.00 E-03	17
05	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_049	170	1.39 E+02	8.00 E-03	15.3
06	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_050	170	1.04 E+02	2.00 E-03	14.3
07	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_051	170	1.37 E+02	9.00 E-03	15.2
08	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_052	170	1.48 E+02	4.00 E-03	16.1
09	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_053	170	1.84 E+02	4.00 E-03	14.6
10	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_054	170	1.54 E+02	1.00 E-03	14.5
11	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_055	170	1.14 E+02	6.00 E-03	15.6
12	TH-230	TRG	11/04/15 08:27		A_Spec	Alpha_056	170	1.21 E+02	6.00 E-03	16
13	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_057	170	1.06 E+02	3.00 E-03	15.8
14	TH-230	TRG	11/04/15 08:26		A_Spec	Alpha_058	170	9.98 E+01	1.00 E-03	16.4
15	TH-230	TRG	11/04/15 08:27		A_Spec	Alpha_059	170	1.31 E+02	3.00 E-03	17.2
16	TH-230	TRG	11/04/15 08:27		A_Spec	Alpha_060	170	1.35 E+02	2.00 E-03	16.4
17	TH-230	TRG	11/04/15 11:21		A_Spec	Alpha_033	170	1.35 E+02	3.00 E-03	18
18	TH-230	TRG	11/04/15 11:21		A_Spec	Alpha_034	170	1.24 E+02	1.00 E-03	17.9
19	TH-230	TRG	11/04/15 11:21		A_Spec	Alpha_035	170	1.46 E+02	1.00 E-03	16.5

76100

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	6.06E+00	9.57E-01	1.40E-01	5.04E+00	120.20	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	-2.06E-03	3.31E-02	8.17E-02					OK	OK
03	TH-232	DUP	CP5002S03-04	pCi/g	1.89E+00	5.22E-01	9.91E-02				INV	OK	
04	TH-232	DO	CP5002S03-04	pCi/g	1.38E+00	3.14E-01	5.57E-02					OK	
05	TH-232	TRG	CP5002S06-07	pCi/g	1.03E+00	2.59E-01	4.94E-02					OK	
06	TH-232	TRG	CP5002S09-10	pCi/g	1.31E+00	3.66E-01	5.64E-02					OK	
07	TH-232	TRG	CP5002S11-12	pCi/g	1.25E+00	3.01E-01	5.44E-02					OK	
08	TH-232	TRG	CP5002S13-14	pCi/g	1.23E+00	2.89E-01	5.53E-02					OK	
09	TH-232	TRG	CP5002S16-17	pCi/g	1.04E+00	2.28E-01	4.02E-02					OK	
10	TH-232	TRG	CP1806S03-04	pCi/g	1.57E+00	3.35E-01	3.49E-02					OK	
11	TH-232	TRG	CP1806S05-06	pCi/g	1.16E+00	2.72E-01	4.58E-02					OK	
12	TH-232	TRG	CP1806S08-09	pCi/g	1.40E+00	3.19E-01	6.15E-02					OK	
13	TH-232	TRG	CP1806S10-11	pCi/g	1.34E+00	3.17E-01	4.56E-02					OK	
14	TH-232	TRG	CP1806S13-14	pCi/g	1.14E+00	2.88E-01	6.33E-02					OK	
15	TH-232	TRG	CP3004S02-03	pCi/g	1.24E+00	3.12E-01	4.36E-02					OK	
16	TH-232	TRG	CP3004S05-06	pCi/g	1.24E+00	3.44E-01	7.74E-02					OK	
17	TH-232	TRG	CP3004S07-08	pCi/g	1.14E+00	2.76E-01	5.42E-02					OK	
18	TH-232	TRG	CP3004S10-11	pCi/g	1.22E+00	3.01E-01	5.97E-02					OK	
19	TH-232	TRG	CP3004S12-13	pCi/g	1.27E+00	3.10E-01	5.23E-02					OK	

	Run	1
	Analysts Code	THISO
Eberline Services Work Order	15-10093	
Client	Auxier & Associates, Inc.	

CP1806

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	104.68	0.00	0.00			
02	TH-232	MBL	10/15/15 00:00	1.50E+00	110.80	0.00	0.00			
03	TH-232	DUP	10/09/15 12:00	1.52E+00	67.23	0.00	0.00			
04	TH-232	DO	10/08/15 12:00	1.55E+00	114.17	0.00	0.00			
05	TH-232	TRG	10/08/15 12:20	1.52E+00	121.25	0.00	0.00			
06	TH-232	TRG	10/08/15 12:30	1.50E+00	91.24	0.00	0.00			
07	TH-232	TRG	10/08/15 12:40	1.50E+00	119.74	0.00	0.00			
08	TH-232	TRG	10/08/15 13:00	1.50E+00	118.93	0.00	0.00			
09	TH-232	TRG	10/08/15 13:10	1.51E+00	169.26	0.00	0.00			
10	TH-232	TRG	10/09/15 08:00	1.51E+00	144.52	0.00	0.00			
11	TH-232	TRG	10/09/15 08:10	1.53E+00	126.96	0.00	0.00			
12	TH-232	TRG	10/09/15 08:20	1.55E+00	119.20	0.00	0.00			
13	TH-232	TRG	10/09/15 08:30	1.56E+00	112.94	0.00	0.00			
14	TH-232	TRG	10/09/15 08:40	1.55E+00	103.36	0.00	0.00			
15	TH-232	TRG	10/10/15 12:40	1.54E+00	96.84	0.00	0.00			
16	TH-232	TRG	10/10/15 12:50	1.50E+00	88.47	0.00	0.00			
17	TH-232	TRG	10/10/15 13:00	1.57E+00	103.40	0.00	0.00			
18	TH-232	TRG	10/10/15 13:10	1.51E+00	98.69	0.00	0.00			
19	TH-232	TRG	10/10/15 13:20	1.51E+00	106.54	0.00	0.00			

	Run	1
	Analysis Code	THISO
Eberline Services Work Order	15-10093	
Client	Auxier & Associates, Inc.	

06100

Preliminary Data Report & Analytical Calculations  
**Work Order: 15-10093-THISO-1**

	Run
1	Analysis Code
THISO	Analysis Code
15-10093	Eberline Services Work Order
Auxier & Associates, Inc.	Client

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Half-life (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	11/04/15 08:26		A_Spec	Alpha_045	170	4.21 E+02	2.30 E-02	17.6
02	TH-232	MBL	11/04/15 08:26		A_Spec	Alpha_046	170	2.30 E-01	1.90 E-02	17.8
03	TH-232	DUP	11/04/15 08:26		A_Spec	Alpha_047	170	1.20 E+02	6.00 E-03	16.5
04	TH-232	DO	11/04/15 08:26		A_Spec	Alpha_048	170	1.56 E+02	6.00 E-03	17
05	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_049	170	1.09 E+02	3.00 E-03	15.3
06	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_050	170	9.68 E+01	1.00 E-03	14.3
07	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_051	170	1.29 E+02	4.00 E-03	15.2
08	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_052	170	1.33 E+02	5.00 E-03	16.1
09	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_053	170	1.45 E+02	4.00 E-03	14.6
10	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_054	170	1.88 E+02	1.00 E-03	14.5
11	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_055	170	1.32 E+02	3.00 E-03	15.6
12	TH-232	TRG	11/04/15 08:27		A_Spec	Alpha_056	170	1.56 E+02	8.00 E-03	16
13	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_057	170	1.41 E+02	2.00 E-03	15.8
14	TH-232	TRG	11/04/15 08:26		A_Spec	Alpha_058	170	1.13 E+02	6.00 E-03	16.4
15	TH-232	TRG	11/04/15 08:27		A_Spec	Alpha_059	170	1.19 E+02	1.00 E-03	17.2
16	TH-232	TRG	11/04/15 08:27		A_Spec	Alpha_060	170	9.60 E+01	0.00 E+00	15.4
17	TH-232	TRG	11/04/15 11:21		A_Spec	Alpha_033	170	1.26 E+02	0.00 E+00	18
18	TH-232	TRG	11/04/15 11:21		A_Spec	Alpha_034	170	1.23 E+02	0.00 E+00	17.9
19	TH-232	TRG	11/04/15 11:21		A_Spec	Alpha_035	170	1.27 E+02	3.00 E-03	16.5



Count Room Report  
Client: Auxier Associates, Inc.

15-10093-ThISO-1 (pCi/g) in SO  
Tracer ID: Th-18a

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	10/15/15 00:00	1.0000	0.4527	10.1676		0.00		
02	MBL	BLANK	10/15/15 00:00	1.5000	0.2253	5.0602		0.00		
03	DUP	CP5002S03-04	10/08/15 12:00	1.5179	0.2254	5.0625		0.00		
04	DO	CP5002S03-04	10/08/15 12:00	1.5451	0.2248	5.0490		0.00		
05	TRG	CP5002S06-07	10/08/15 12:20	1.5221	0.2256	5.0670		0.00		
06	TRG	CP5002S09-10	10/08/15 12:30	1.5048	0.2255	5.0647		0.00		
07	TRG	CP5002S11-12	10/08/15 12:40	1.5047	0.2260	5.0760		0.00		
08	TRG	CP5002S13-14	10/08/15 13:00	1.5005	0.2339	5.2534		0.00		
09	TRG	CP5002S16-17	10/08/15 13:10	1.5097	0.2256	5.0670		0.00		
10	TRG	CP1806S03-04	10/09/15 08:00	1.5107	0.2257	5.0692		0.00		
11	TRG	CP1806S05-06	10/09/15 08:10	1.5287	0.2277	5.1141		0.00		
12	TRG	CP1806S08-09	10/09/15 08:20	1.5487	0.2260	5.0760		0.00		
13	TRG	CP1806S10-11	10/09/15 08:30	1.5588	0.2306	5.1793		0.00		
14	TRG	CP1806S13-14	10/09/15 08:40	1.5546	0.2253	5.0602		0.00		
15	TRG	CP3004S02-03	10/10/15 12:40	1.5402	0.2265	5.0872		0.00		
16	TRG	CP3004S05-06	10/10/15 12:50	1.5032	0.2251	5.0557		0.00		
17	TRG	CP3004S07-08	10/10/15 13:00	1.5699	0.2250	5.0535		0.00		
18	TRG	CP3004S10-11	10/10/15 13:10	1.5078	0.2260	5.0760		0.00		
19	TRG	CP3004S12-13	10/10/15 13:20	1.5135	0.2253	5.0602		0.00		

Handwritten notes and signatures at the bottom of the page, including a large signature and some illegible text.

Internal Work Order		Run	Analysis Code		Date	Technician		Technician Initials		Witness Initials		
15-10093		1	ThISO		10/22/2015 13:57	JPACHELLA		<i>[Signature]</i>		<i>[Signature]</i>		
LCS & Matrix Spikes												
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCS Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	MS Added pCi	MSD Added pCi	Error Estimate
Th-228	Th-8b	103.560	10/22/2015	0.100	0.1080		5.04	0.181	5.04	0.00	0.00	0.000
Th-230	Th-1b	23.520	10/22/2015	0.500	0.5041		5.34	0.144	5.34	0.00	0.00	0.000
Th-232	Th-8b	103.560	10/22/2015	0.100	0.1080		5.04	0.181	5.04	0.00	0.00	0.000
TC-99MS	IC-2a	22043.636	7/5/2014	0.1								
Tracers												
fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition	Tracer					LCS
01	Th-229	Th-18a	22.460	10/22/2015	0.4527	0.2200						
02	Th-229	Th-18a	22.460	10/22/2015	0.2253	0.2200						
03	Th-229	Th-18a	22.460	10/22/2015	0.2254	0.2200						
04	Th-229	Th-18a	22.460	10/22/2015	0.2248	0.2200						
05	Th-229	Th-18a	22.460	10/22/2015	0.2256	0.2200						
06	Th-229	Th-18a	22.460	10/22/2015	0.2255	0.2200						
07	Th-229	Th-18a	22.460	10/22/2015	0.2260	0.2200						
08	Th-229	Th-18a	22.460	10/22/2015	0.2339	0.2200						
09	Th-229	Th-18a	22.460	10/22/2015	0.2256	0.2200						
10	Th-229	Th-18a	22.460	10/22/2015	0.2257	0.2200						
11	Th-229	Th-18a	22.460	10/22/2015	0.2277	0.2200						
12	Th-229	Th-18a	22.460	10/22/2015	0.2260	0.2200						
13	Th-229	Th-18a	22.460	10/22/2015	0.2306	0.2200						
14	Th-229	Th-18a	22.460	10/22/2015	0.2253	0.2200						
15	Th-229	Th-18a	22.460	10/22/2015	0.2265	0.2200						
16	Th-229	Th-18a	22.460	10/22/2015	0.2251	0.2200						
17	Th-229	Th-18a	22.460	10/22/2015	0.2250	0.2200						
18	Th-229	Th-18a	22.460	10/22/2015	0.2260	0.2200						
19	Th-229	Th-18a	22.460	10/22/2015	0.2253	0.2200						
Matrix Spike												

00202

# Aliquot Worksheet

Work Order		Run		Analysis Code		Rpt Units		Lab Deadline		Technician	
<b>15-10093</b>		<b>1</b>		<b>ThISO</b>		<b>grams</b>		<b>11/5/2015</b>		<b>JPACHELLA</b>	

Lab Fraction	Auxier & Associates, Inc.		Sample		Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID	Type	Ratio Post/Pre	No. of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq			
01	LCS	LCS					1.0000E+00	1.0000E+00							
02	BLANK	MBL					1.5000E+00	1.5000E+00							
03	CP5002S03-04	DUP					1.5179E+00	1.5179E+00							
04	CP5002S03-04	DO					1.5451E+00	1.5451E+00							
05	CP5002S06-07	TRG					1.5221E+00	1.5221E+00							
06	CP5002S09-10	TRG					1.5048E+00	1.5048E+00							
07	CP5002S11-12	TRG					1.5047E+00	1.5047E+00							
08	CP5002S13-14	TRG					1.5005E+00	1.5005E+00							
09	CP5002S16-17	TRG					1.5097E+00	1.5097E+00							
10	CP1806S03-04	TRG					1.5107E+00	1.5107E+00							
11	CP1806S05-06	TRG					1.5287E+00	1.5287E+00							
12	CP1806S08-09	TRG					1.5487E+00	1.5487E+00							
13	CP1806S10-11	TRG					1.5588E+00	1.5588E+00							
14	CP1806S13-14	TRG					1.5546E+00	1.5546E+00							
15	CP3004S02-03	TRG					1.5402E+00	1.5402E+00							
16	CP3004S05-06	TRG					1.5032E+00	1.5032E+00							
17	CP3004S07-08	TRG					1.5699E+00	1.5699E+00							
18	CP3004S10-11	TRG					1.5078E+00	1.5078E+00							
19	CP3004S12-13	TRG					1.5135E+00	1.5135E+00							

Comments
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Technician: JPachella Date: 10.22.15

**Rough Sample Preparation  
 Log Book**

Work Order	15-10093	Lab Deadline	11/5/2015	Date Received in Prep	10/20/2015	Date Sealed	10/21/2015	Date Returned	10/22/2015	Technician	KSALLINGS
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Eberline Fraction	Auxier & Associates, Inc. Client ID	Tare (g)		Gross (g)		Net (g)		Percent		Gamma		Special Info
		Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	
04	CP5002S03-04	14.5700	870.8600	725.4000	856.2900	710.8300	83.04%	16.99%	83.04%	0.0000	0.0000	
05	CP5002S06-07	14.5500	1102.9200	915.9800	1088.3700	901.4300	82.82%	17.18%	82.82%	0.0000	0.0000	
06	CP5002S09-10	14.5600	718.0000	575.9200	703.4400	561.3600	79.80%	20.20%	79.80%	0.0000	0.0000	
07	CP5002S11-12	14.5200	900.8200	714.2300	886.3000	699.7100	78.95%	21.05%	78.95%	0.0000	0.0000	
08	CP5002S13-14	14.5100	892.7400	701.9500	878.2300	687.4400	77.90%	22.10%	77.90%	0.0000	0.0000	
09	CP5002S16-17	14.4700	975.7000	763.2500	961.2300	748.7800	81.99%	18.01%	81.99%	0.0000	0.0000	
10	CP1806S03-04	14.4300	1045.7200	859.9400	1031.2900	845.5100	80.32%	19.58%	80.32%	0.0000	0.0000	
11	CP1806S05-06	14.4500	786.0800	634.1900	771.6300	619.7400	79.48%	20.52%	79.48%	0.0000	0.0000	
12	CP1806S08-09	14.3900	937.6000	748.1700	923.2100	733.7800	82.06%	17.94%	82.06%	0.0000	0.0000	
13	CP1806S10-11	14.4000	1306.2200	1074.4800	1291.8200	1060.0800	82.79%	17.21%	82.79%	0.0000	0.0000	
14	CP1806S13-14	14.3300	1339.7000	1111.5400	1325.3700	1097.2100	78.46%	21.54%	78.46%	0.0000	0.0000	
15	CP3004S02-03	14.3600	744.3400	587.1100	729.9800	572.7500	81.92%	18.08%	81.92%	0.0000	0.0000	
16	CP3004S05-06	14.3700	792.7400	652.0000	778.3700	637.6300	81.95%	18.05%	81.95%	0.0000	0.0000	
17	CP3004S07-08	14.3900	922.1600	758.3200	907.7700	743.9300	79.92%	20.08%	79.92%	0.0000	0.0000	
18	CP3004S10-11	14.3300	972.3800	780.0000	958.0500	765.6700	78.44%	21.56%	78.44%	0.0000	0.0000	
19	CP3004S12-13	14.2900	1036.7800	816.3000	1022.4900	802.0100						

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





# Apex-Alpha™

RS  
11/4/15

Sample Description: SPIKE  
 Spectrum File: \\OR-ALPHA\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 01  
 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: 1.000E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 11/4/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:46 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.453 mL  
 Effective Efficiency: 0.1843 +/- 0.0118  
 Counting Efficiency: 0.1760 +/- 0.0031 on 10/25/2014 3:16:42 PM  
 Chem. Recovery Factor: 1.0468 +/- 0.0696

Control Certificate Name: NatTh\_Th-8  
 Chem. Recov. of Control: TH-232 1.201980 +/- 0.103449  
 Peak Match Tolerance: 0.175 MeV

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 PEAK AREA REPORT  
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Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.737	44.47	29.98	1.53	0.00E+000	6.0
TH-228	5.393	402.15	9.79	0.85	0.00E+000	29.5
TH-229 T	4.898	318.49	10.99	0.51	0.00E+000	7.6
TH-230	4.655	415.81	9.63	1.19	0.00E+000	29.0
TH-232	3.986	421.09	9.60	3.91	0.00E+000	9.0

T = Tracer Peak used for Effective Efficiency

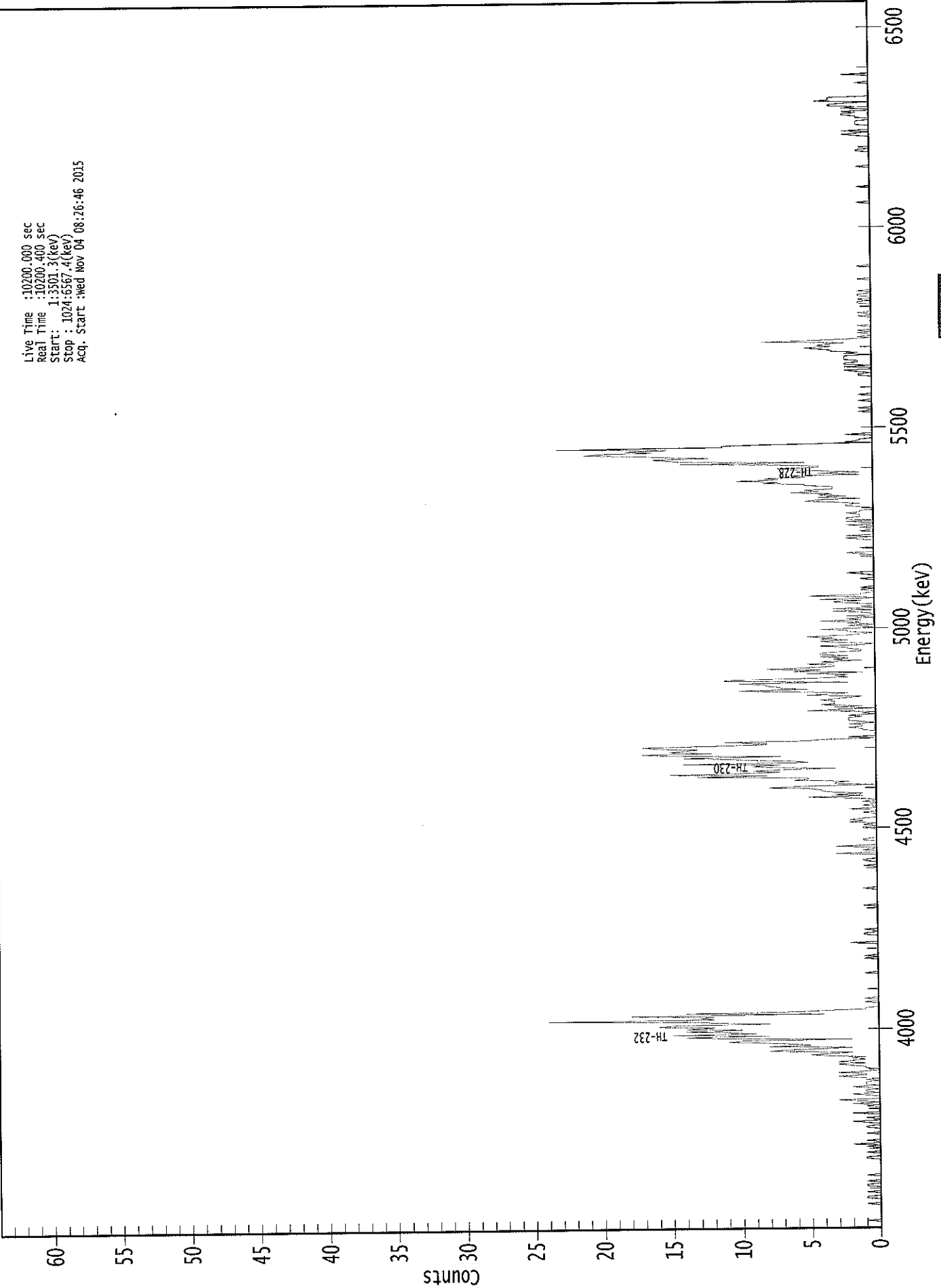
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 NUCLIDE ANALYSIS RESULTS  
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Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.935	5850.00*	6.56E-001 +/- 2.13E-001	1.05E-001 +/- 1.32E-002
TH-228	1.000	5400.00*	5.79E+000 +/- 9.21E-001	8.62E-002 +/- 1.08E-002
TH-229	0.996	4872.00*	4.60E+000 +/- 5.78E-001	7.58E-002 +/- 9.52E-003
TH-230	0.998	4672.00*	5.99E+000 +/- 9.48E-001	9.49E-002 +/- 1.19E-002
TH-232	0.999	3997.00*	6.06E+000 +/- 9.57E-001	1.40E-001 +/- 1.76E-002

AG  
11/5/15

0000133130.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3501.3 (keV)  
Stop : 1024:6567.4 (keV)  
Acq. Start : Wed Nov 04 08:26:46 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: 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	1	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	1	0	0	0	0
25:	0	1	1	0	0	0	0	1	0
33:	0	0	0	1	1	0	0	0	1
41:	0	0	0	0	1	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	1	1	0	0	0	0	1
65:	0	0	0	0	1	0	0	2	0
73:	0	1	0	0	0	0	0	0	1
81:	0	0	0	0	1	1	0	0	0
89:	1	2	0	0	1	0	0	0	0
97:	2	0	0	0	0	0	0	1	0
105:	2	0	1	3	0	0	0	0	1
113:	2	0	1	1	0	1	2	2	0
121:	1	1	1	0	1	0	2	2	3
129:	1	1	3	1	0	0	1	1	1
137:	2	3	1	3	2	1	2	2	1
145:	4	5	3	2	8	7	4	4	2
153:	8	5	6	8	11	10	2	2	11
161:	14	8	15	9	11	14	10	14	14
169:	12	16	15	8	12	13	24	12	12
177:	13	12	18	4	14	6	4	4	1
185:	1	0	0	0	0	1	0	0	0
193:	1	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	1	0	0	0
217:	0	0	0	0	0	0	0	0	0
225:	0	1	0	1	0	0	0	0	0
233:	0	0	0	0	0	0	2	0	0
241:	0	0	0	0	0	1	1	0	0
249:	0	1	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	1	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	0	1	1	0	0	0	0	0
313:	3	0	0	1	0	0	3	0	0
321:	0	0	0	1	1	0	0	0	0
329:	0	0	0	0	0	1	1	0	0
337:	1	0	2	1	2	1	0	0	0
345:	0	0	1	0	0	2	0	0	0
353:	1	0	0	1	0	0	2	5	5
361:	1	3	1	3	4	4	5	8	8

369: 5 0 3 3 2 6 5 5

Sample Title: 01

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



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

Sample Description: BLANK  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 02  
 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: 1.500E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 11/4/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:47 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: 0.1968 +/- 0.0164  
 Counting Efficiency: 0.1776 +/- 0.0031 on 10/25/2014 3:20:08 PM  
 Chem. Recovery Factor: 1.1080 +/- 0.0943

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	5.762	3.81	117.34	1.19	0.00E+000	3.0
TH-228	5.312	-0.53	415.13	1.53	0.00E+000	3.0
TH-229 T	4.881	169.30	15.15	1.70	0.00E+000	5.0
TH-230	4.665	0.32	646.93	0.68	0.00E+000	3.0
TH-232	3.932	-0.23	1605.4	3.23	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

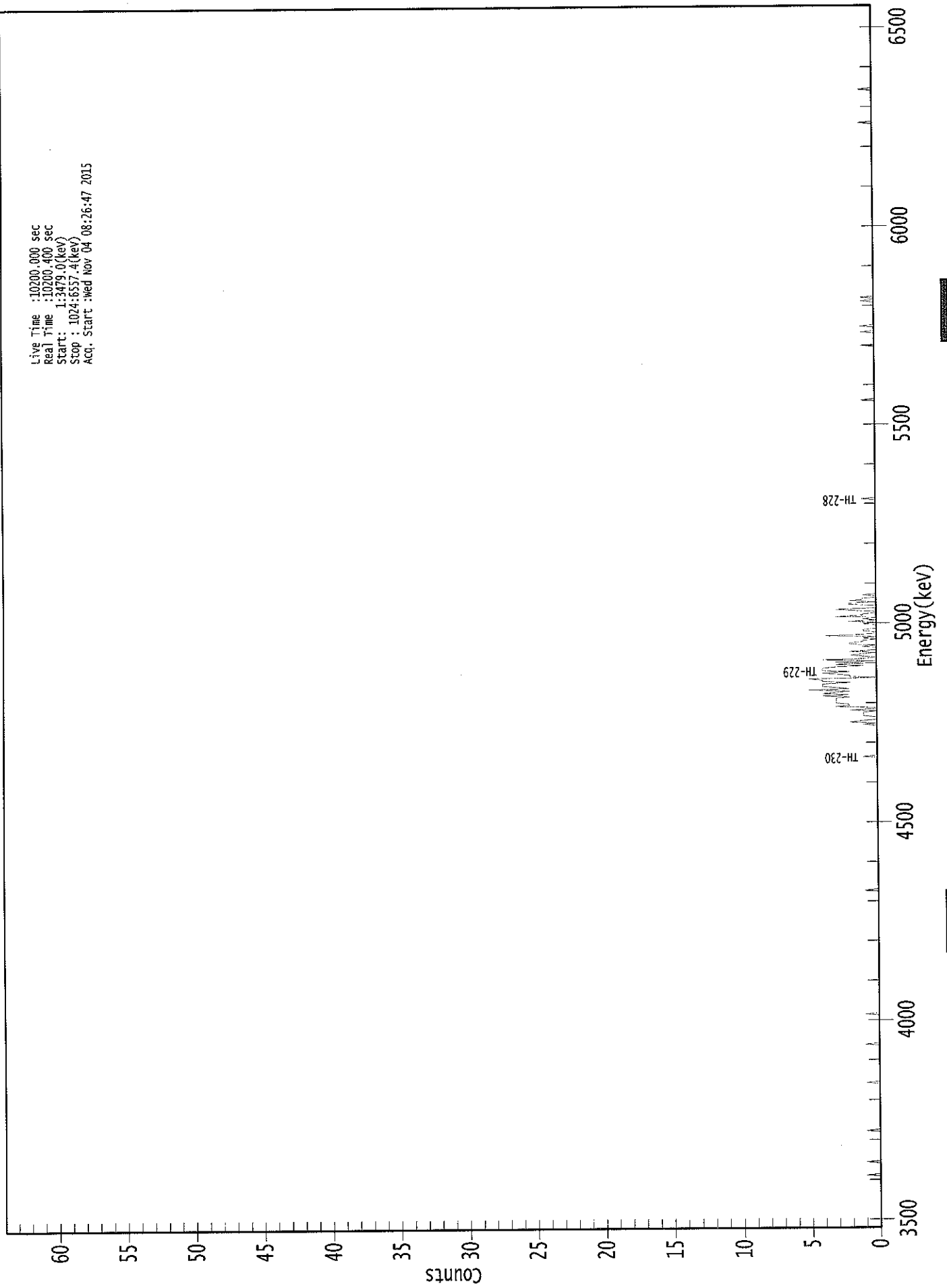
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.961	5850.00*	3.51E-002 +/- 4.16E-002	6.07E-002 +/- 9.90E-003
TH-228	0.960	5400.00*	-4.76E-003 +/- 1.98E-002	6.38E-002 +/- 1.04E-002
TH-229	1.000	4872.00*	1.53E+000 +/- 2.49E-001	6.63E-002 +/- 1.08E-002
TH-230	1.000	4672.00*	2.88E-003 +/- 1.86E-002	5.07E-002 +/- 8.28E-003
TH-232	0.978	3997.00*	-2.06E-003 +/- 3.31E-002	8.17E-002 +/- 1.33E-002

AG  
11/5/15

0000133131.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3479.0(kev)  
Stop : 1024:6557.4(kev)  
Acq. Start : Wed Nov 04 08:26:47 2015



11222

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
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	1
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	1	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	1	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	1	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	1	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	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	1	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369: 0 0 0 0 0 0 0 0 0

Sample Title: 02

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

801: 0 0 0 0 0 0 0 0 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	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:	1	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	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  
11/4/15

Sample Description: CP5002S03-04-DUP  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 03  
 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: 1.518E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:40 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: 0.1110 +/- 0.0119  
 Counting Efficiency: 0.1650 +/- 0.0029 on 10/25/2014 3:23:35 PM  
 Chem. Recovery Factor: 0.6723 +/- 0.0731

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	5.812	9.32	66.89	0.68	0.00E+000	0.0
TH-228	5.356	98.49	19.81	0.51	0.00E+000	12.9
TH-229 T	4.863	95.49	20.12	0.51	0.00E+000	4.0
TH-230	4.616	116.00	18.28	0.00	0.00E+000	9.3
TH-232	3.935	119.98	17.98	1.02	0.00E+000	10.1

T = Tracer Peak used for Effective Efficiency

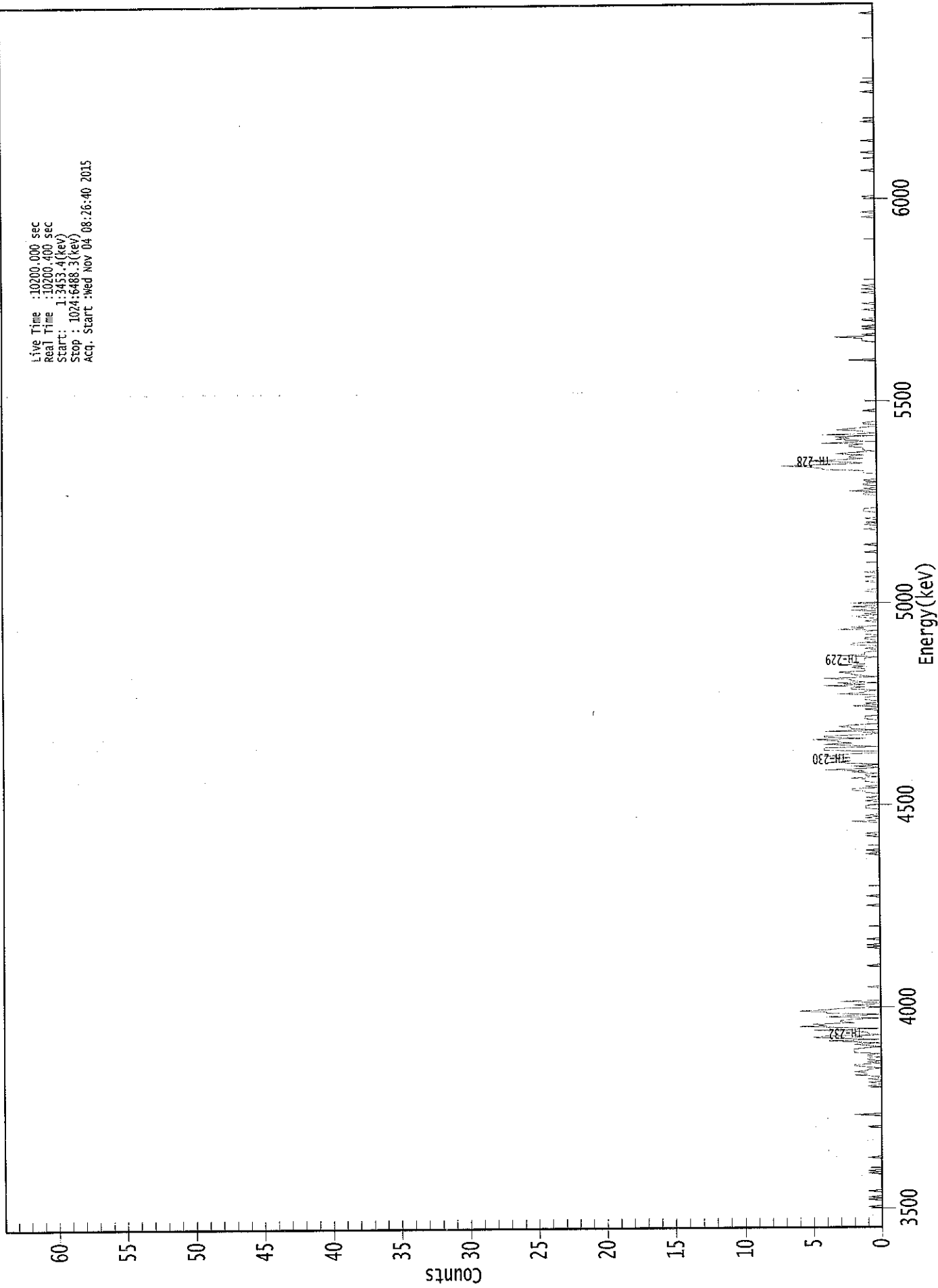
-----  
 ----- NUCLIDE ANALYSIS RESULTS -----  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.993	5850.00*	1.51E-001 +/- 1.06E-001	9.12E-002 +/- 1.92E-002
TH-228	0.990	5400.00*	1.59E+000 +/- 4.60E-001	8.49E-002 +/- 1.78E-002
TH-229	1.000	4872.00*	1.51E+000 +/- 3.17E-001	8.30E-002 +/- 1.74E-002
TH-230	0.984	4672.00*	1.83E+000 +/- 5.09E-001	9.45E-002 +/- 1.99E-002
TH-232	0.980	3997.00*	1.89E+000 +/- 5.22E-001	9.91E-002 +/- 2.08E-002

AG  
11/5/15

0000133144.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:34:53.4 (keV)  
Stop : 1024:6488.3 (keV)  
Acq. Start : Wed Nov 04 08:26:40 2015



ROI Type: 1

ROI Type: 3

000215



\*\*\*\*\*  
 \*\*\*\*\* 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	1	0	0	0	0	0	0	1
25:	0	1	0	0	0	0	0	1	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	1	0	1
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	1	0	0	0
89:	0	0	0	0	0	0	0	2	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	1	0	0	1	0	0	0	2
129:	1	1	2	1	1	0	1	1	2
137:	2	0	1	0	1	1	0	0	1
145:	1	0	2	2	2	2	1	1	0
153:	1	2	0	2	4	0	3	5	5
161:	4	0	1	1	2	5	0	2	2
169:	6	4	5	2	3	3	2	0	0
177:	4	2	0	4	4	6	4	3	3
185:	0	1	2	0	0	3	0	0	0
193:	0	0	0	0	0	0	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	1	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	1	0	1	0	0	0	0
241:	0	1	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	1	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	1	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	0	1
329:	0	1	0	0	0	0	0	0	0
337:	0	0	0	2	0	0	1	0	0
345:	1	0	0	0	0	0	1	1	1
353:	1	0	0	0	1	0	0	1	1
361:	0	0	0	1	1	2	2	0	0

369: 1 0 0 0 1 1 1 2

Sample Title: 03

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

801: 0 0 0 0 0 0 0 0

Sample Title: 03

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



108  
11/21/15

Sample Description: CP5002S03-04  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 04  
 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: 1.545E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:43 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.225 mL  
 Effective Efficiency: 0.1941 +/- 0.0163  
 Counting Efficiency: 0.1700 +/- 0.0030 on 10/25/2014 3:27:02 PM  
 Chem. Recovery Factor: 1.1417 +/- 0.0977

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	5.890	12.32	57.62	0.68	0.00E+000	3.0
TH-228	5.368	118.98	18.06	1.02	0.00E+000	3.7
TH-229 T	4.882	166.64	15.26	1.36	0.00E+000	12.3
TH-230	4.630	144.66	16.32	0.34	0.00E+000	10.5
TH-232	3.960	155.98	15.75	1.02	0.00E+000	8.3

T = Tracer Peak used for Effective Efficiency

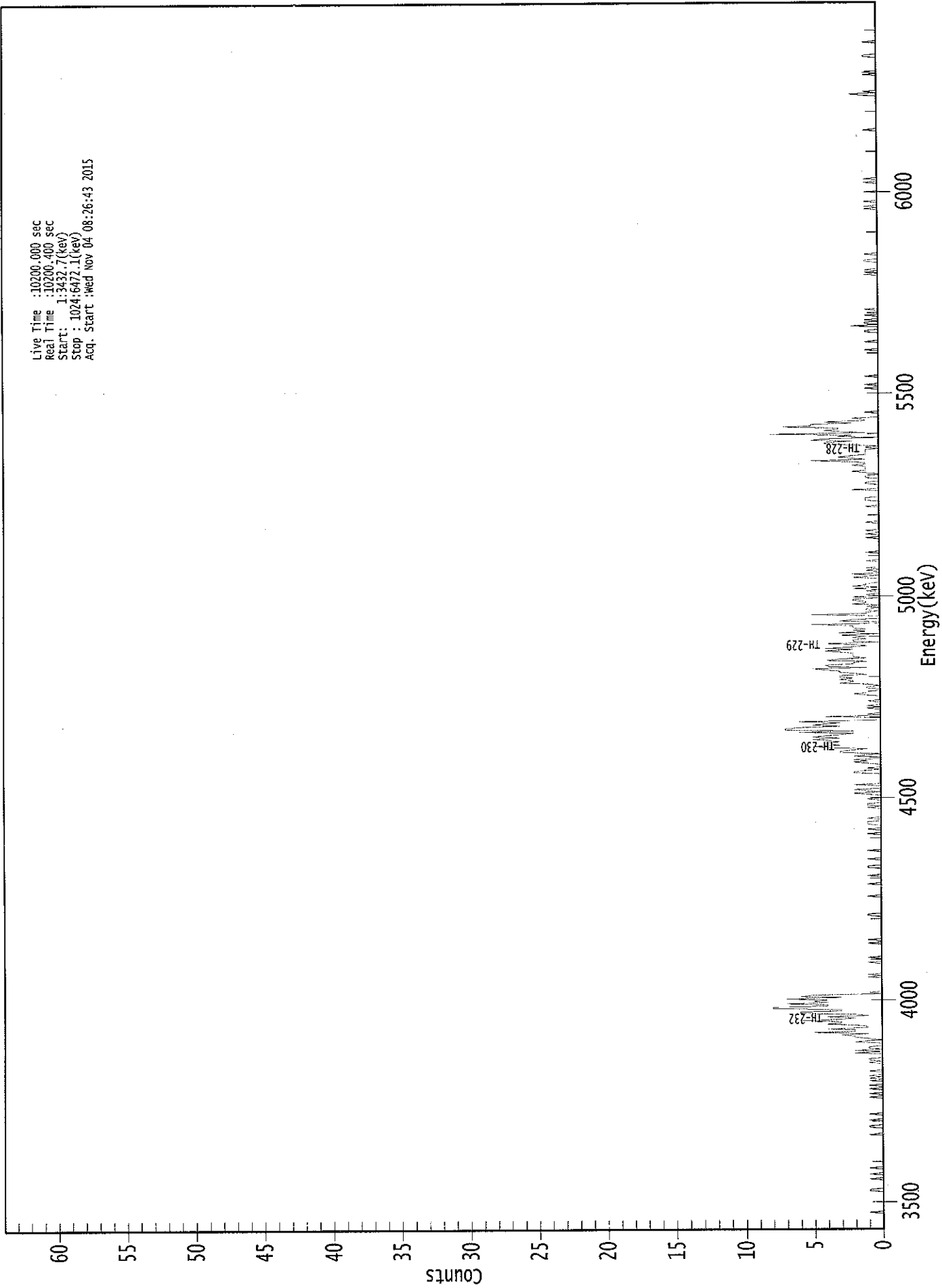
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.992	5850.00*	1.12E-001 +/- 6.70E-002	5.12E-002 +/- 8.41E-003
TH-228	0.995	5400.00*	1.08E+000 +/- 2.64E-001	5.72E-002 +/- 9.39E-003
TH-229	0.999	4872.00*	1.48E+000 +/- 2.43E-001	6.09E-002 +/- 9.99E-003
TH-230	0.991	4672.00*	1.28E+000 +/- 2.96E-001	4.23E-002 +/- 6.95E-003
TH-232	0.993	3997.00*	1.38E+000 +/- 3.14E-001	5.57E-002 +/- 9.14E-003

AG  
11/5/15

0000133145.CNF

Live Time :10200.080 sec  
Real Time :10200.400 sec  
Start : 1:3432.7(kev)  
Stop : 1024:6472.1(kev)  
Acq. Start :Wed Nov 04 08:26:43 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: 04

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

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

369: 0 0 2 0 0 0 0 0

Sample Title: 04

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

801: 0 0 0 0 0 0 0 1 1

Sample Title: 04

Channel								
809:	0	0	0	0	1	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	1	0	1	0	0	0
857:	1	0	0	0	0	0	0	0
865:	1	0	0	0	0	0	0	0
873:	1	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:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	1	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	1	2	0	1	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	1	0	1	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	1	1	0	0	0	0	0
985:	0	0	0	0	0	1	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™

100  
11/4/14

Sample Description: CP5002S06-07  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 05  
 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: 1.522E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:49 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: 0.1850 +/- 0.0158  
 Counting Efficiency: 0.1525 +/- 0.0027 on 12/13/2014 2:45:02 PM  
 Chem. Recovery Factor: 1.2125 +/- 0.1057

Peak Match Tolerance: 0.175 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.816	14.00	54.22	0.00	0.00E+000	3.0
TH-228	5.377	117.66	18.10	0.34	0.00E+000	4.7
TH-229	T 4.885	159.32	15.57	0.68	0.00E+000	7.4
TH-230	4.636	138.64	16.74	1.36	0.00E+000	6.8
TH-232	3.961	109.49	18.78	0.51	0.00E+000	4.3

T = Tracer Peak used for Effective Efficiency

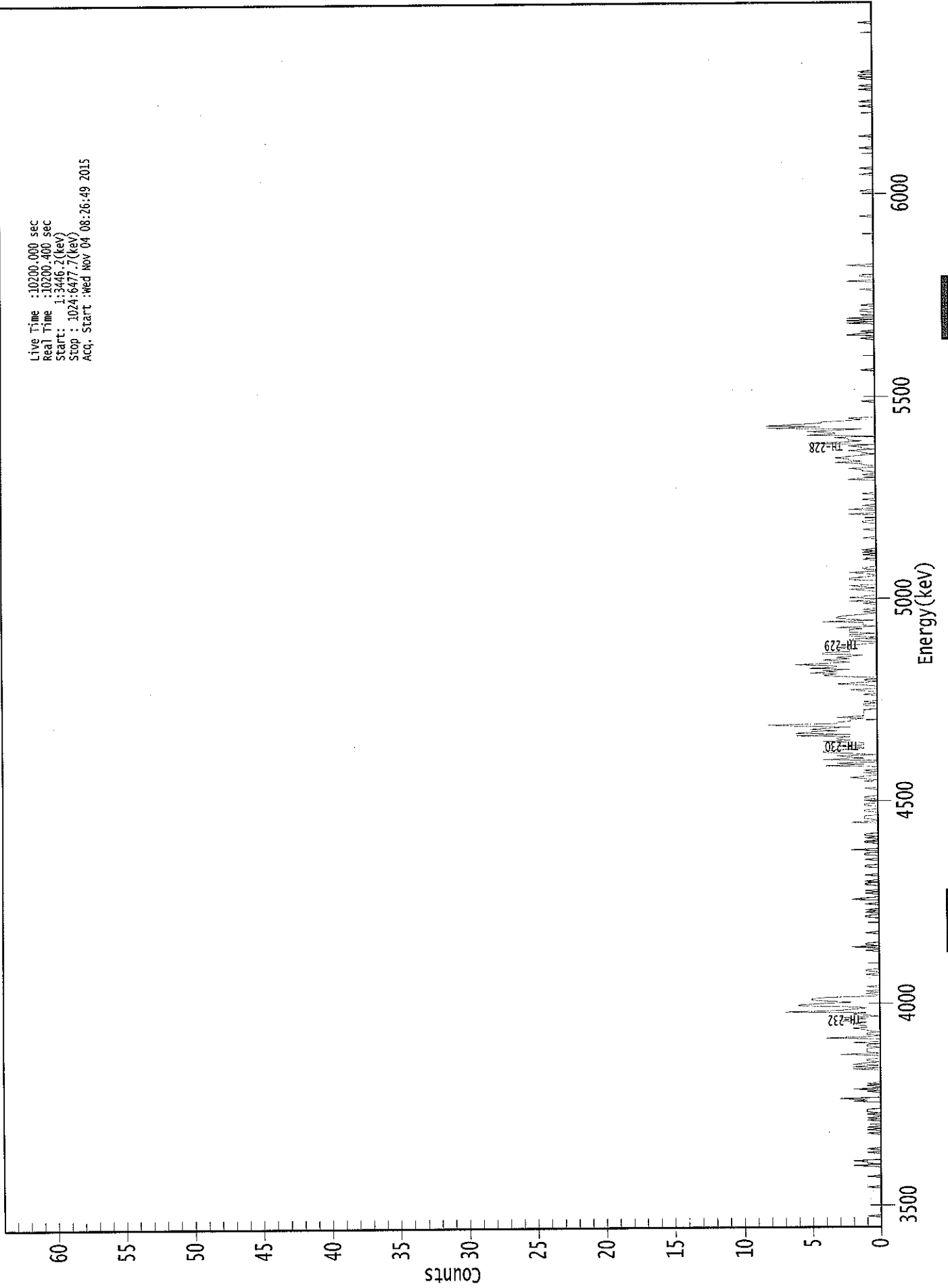
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.994	5850.00*	1.35E-001 +/- 7.69E-002	5.80E-002 +/- 9.70E-003
TH-228	0.997	5400.00*	1.14E+000 +/- 2.80E-001	4.63E-002 +/- 7.73E-003
TH-229	0.999	4872.00*	1.51E+000 +/- 2.52E-001	5.33E-002 +/- 8.91E-003
TH-230	0.993	4672.00*	1.31E+000 +/- 3.09E-001	6.46E-002 +/- 1.08E-002
TH-232	0.993	3997.00*	1.03E+000 +/- 2.59E-001	4.94E-002 +/- 8.25E-003

AG  
11/5/15

0000133132.CNF

Live Time :10200.000 sec  
Real Time :10200.400 sec  
Start: 1:3446.2(kev)  
Stop : 1024.6477.7(kev)  
Acq. Start :Wed Nov 04 08:26:49 2015



ROI Type: 1

ROI Type: 3

: 00225

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

369: 0 0 0 0 1 0 1 2

Sample Title: 05

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

801: 0 0 2 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	1	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	1	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	1	0
881:	0	0	0	1	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	1	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	1
937:	0	0	0	1	0	0	0	0
945:	0	0	0	0	0	1	0	0
953:	1	0	0	0	0	0	1	0
961:	1	1	0	0	1	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	1	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



KB  
11/2/15

Sample Description: CP5002S09-10  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 06  
 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: 1.505E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:51 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: 0.1303 +/- 0.0130  
 Counting Efficiency: 0.1428 +/- 0.0026 on 12/13/2014 2:43:59 PM  
 Chem. Recovery Factor: 0.9124 +/- 0.0925

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	5.895	12.32	57.62	0.68	0.00E+000	3.0
TH-228	5.359	95.13	20.33	1.87	0.00E+000	14.1
TH-229 T	4.891	112.15	18.59	0.85	0.00E+000	4.0
TH-230	4.612	103.66	19.29	0.34	0.00E+000	7.4
TH-232	3.965	96.83	19.94	0.17	0.00E+000	13.3

T = Tracer Peak used for Effective Efficiency

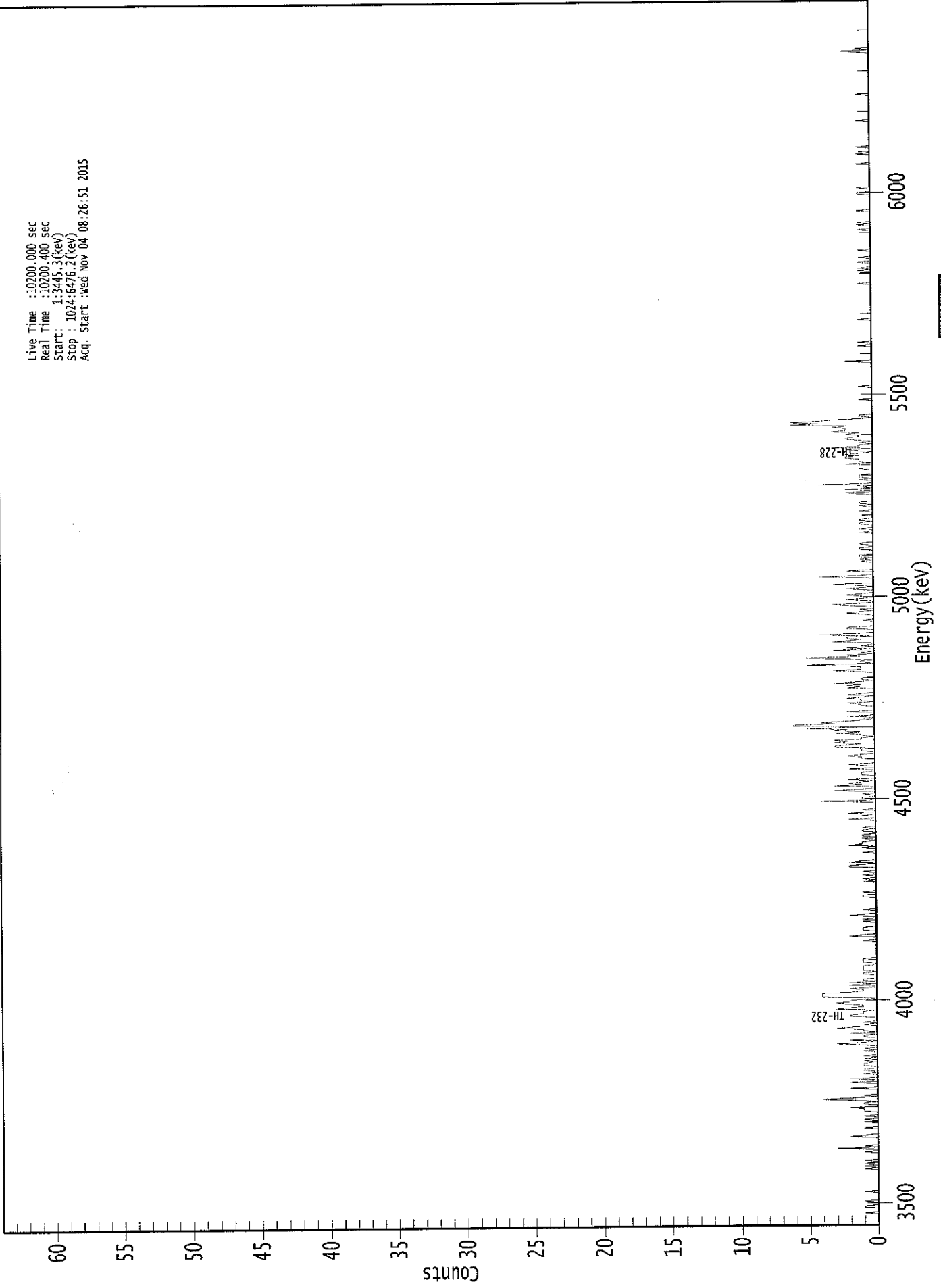
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.990	5850.00*	1.71E-001 +/- 1.04E-001	7.84E-002 +/- 1.53E-002
TH-228	0.991	5400.00*	1.32E+000 +/- 3.73E-001	1.05E-001 +/- 2.06E-002
TH-229	0.998	4872.00*	1.52E+000 +/- 2.98E-001	8.13E-002 +/- 1.59E-002
TH-230	0.981	4672.00*	1.40E+000 +/- 3.86E-001	6.48E-002 +/- 1.27E-002
TH-232	0.995	3997.00*	1.31E+000 +/- 3.66E-001	5.64E-002 +/- 1.10E-002

AG  
11/5/15

0000133133.CNF

Live Time :10200.000 sec  
Real Time :10200.400 sec  
Start: 1:3445.3(kev)  
Stop : 1024:6476.2(kev)  
Acq. Start :Wed Nov 04 08:26:51 2015



ROI Type: 1

ROI Type: 3

00001331

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

Sample Title: 06

Elapsed Live time: 10200

Elapsed Real Time: 10200

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



369: 1 2 1 0 2 0 0 0

Sample Title: 06

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

801: 0 0 0 0 1 0 0 0

Sample Title: 06

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

KBS  
11/4/15

# Apex-Alpha™

Sample Description: CP5002S11-12  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 07  
 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: 1.505E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:56 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: 0.1825 +/- 0.0157  
 Counting Efficiency: 0.1524 +/- 0.0027 on 12/13/2014 2:42:37 PM  
 Chem. Recovery Factor: 1.1974 +/- 0.1051

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	5.894	7.77	85.73	3.23	0.00E+000	3.0
TH-228	5.378	133.69	17.49	7.31	0.00E+000	7.0
TH-229 T	4.888	157.47	15.71	1.53	0.00E+000	3.0
TH-230	4.634	137.47	16.83	1.53	0.00E+000	6.0
TH-232	3.972	129.32	17.29	0.68	0.00E+000	16.3

T = Tracer Peak used for Effective Efficiency

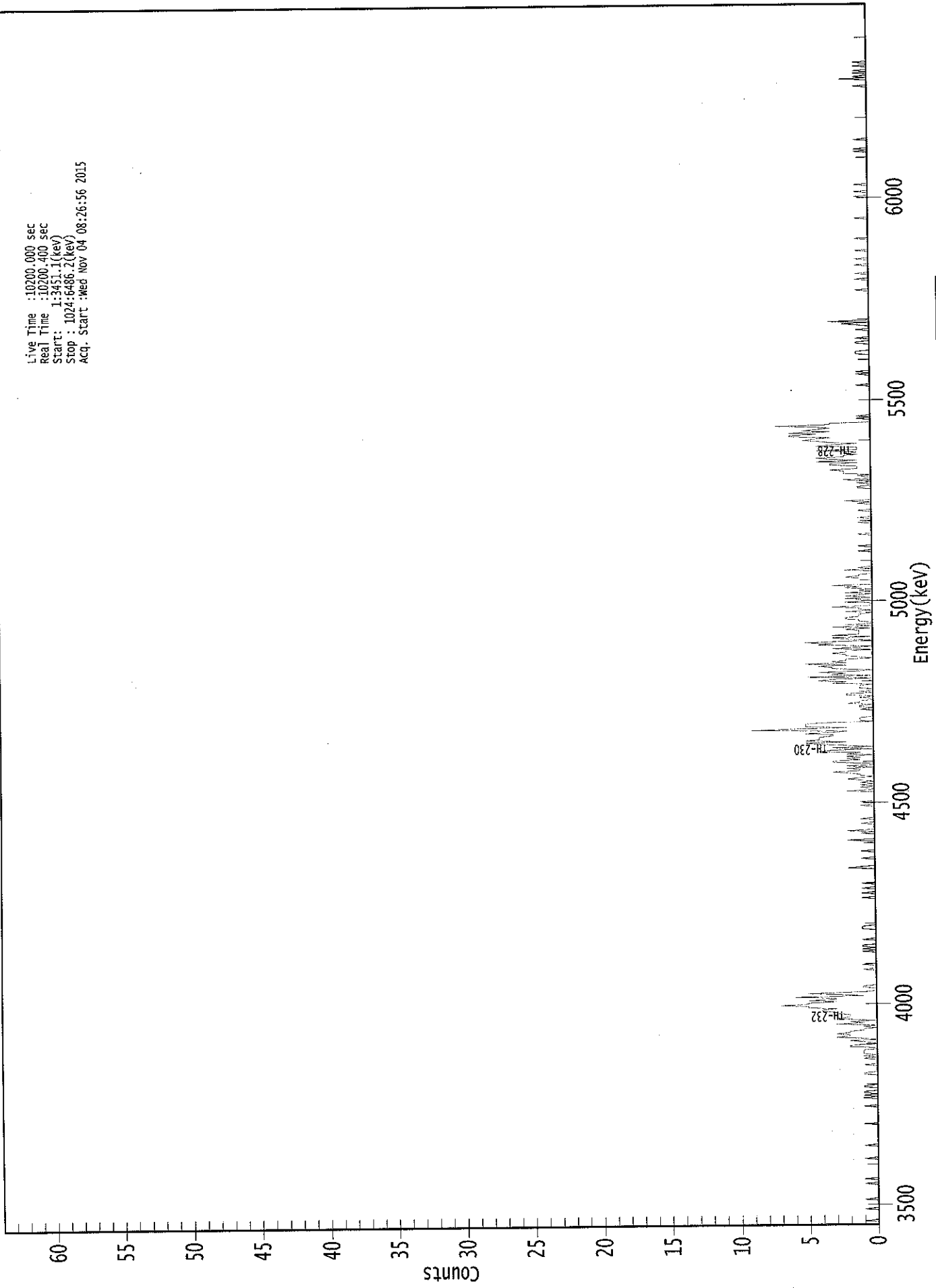
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.990	5850.00*	7.71E-002 +/- 6.73E-002	9.03E-002 +/- 1.52E-002
TH-228	0.997	5400.00*	1.33E+000 +/- 3.22E-001	1.22E-001 +/- 2.06E-002
TH-229	0.999	4872.00*	1.53E+000 +/- 2.57E-001	6.89E-002 +/- 1.16E-002
TH-230	0.993	4672.00*	1.33E+000 +/- 3.16E-001	6.87E-002 +/- 1.16E-002
TH-232	0.997	3997.00*	1.25E+000 +/- 3.01E-001	5.44E-002 +/- 9.17E-003

AG  
 11/5/15

0000133134.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:34:51.1 (keV)  
Stop : 1024:6486.2 (keV)  
Acq. Start : Wed Nov 04 08:26:56 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: 07

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

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

369: 1 0 1 0 1 2 1 0

Sample Title: 07

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

801: 0 0 0 1 0 0 0 0

Sample Title: 07

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



2EB  
11/4/15

Sample Description: CP5002S13-14  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 08  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_052  
 Chamber Serial Number: 10006123B  
 Detector Serial Number: 52  
 Env. Background: System Bkgd 133282  
 Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:57 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.234 mL  
 Effective Efficiency: 0.1911 +/- 0.0158  
 Counting Efficiency: 0.1607 +/- 0.0029 on 12/13/2014 2:40:57 PM  
 Chem. Recovery Factor: 1.1893 +/- 0.1006

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	5.815	15.32	51.36	0.68	0.00E+000	3.7
TH-228	5.376	130.15	17.25	0.85	0.00E+000	15.7
TH-229 T	4.895	170.66	15.02	0.34	0.00E+000	8.1
TH-230	4.650	148.32	16.14	0.68	0.00E+000	5.4
TH-232	3.976	133.15	17.05	0.85	0.00E+000	12.5

T = Tracer Peak used for Effective Efficiency

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

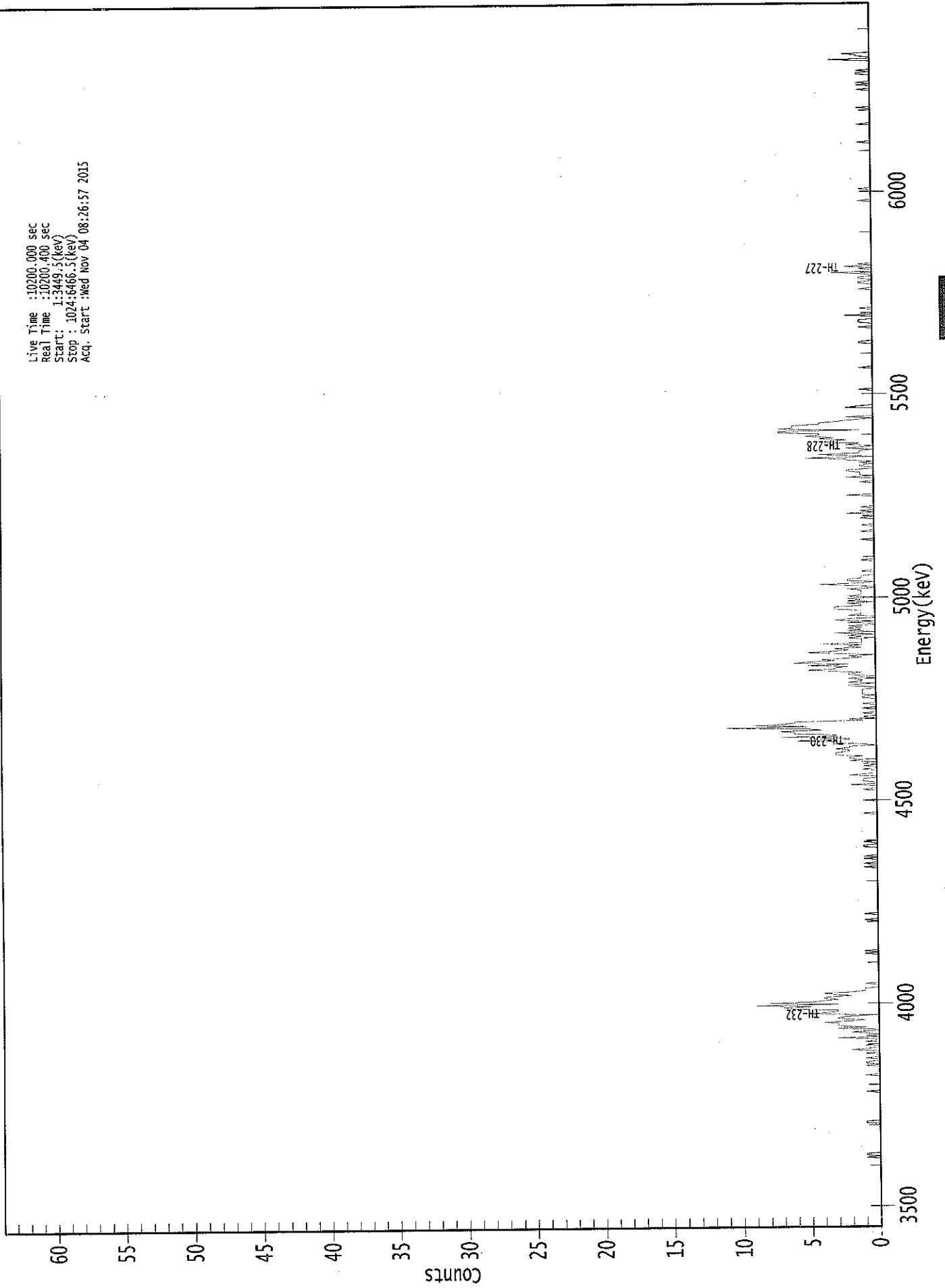
Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.993	5850.00*	1.46E-001 +/- 7.84E-002	5.36E-002 +/- 8.68E-003
TH-228	0.997	5400.00*	1.24E+000 +/- 2.93E-001	5.69E-002 +/- 9.21E-003
TH-229	0.997	4872.00*	1.58E+000 +/- 2.57E-001	4.44E-002 +/- 7.19E-003
TH-230	0.998	4672.00*	1.37E+000 +/- 3.14E-001	5.22E-002 +/- 8.46E-003
TH-232	0.998	3997.00*	1.23E+000 +/- 2.89E-001	5.53E-002 +/- 8.96E-003

AG  
11/5/15



0000133135.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3449.5(kev)  
Stop : 1024:5466.5(kev)  
Acq. Start : Wed Nov 04 08:26:57 2015



ROI Type: 3

ROI Type: 1

11/2015

\*\*\*\*\* 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

Table with 10 columns and 40 rows of channel data. Columns are separated by dashed lines. Values range from 0 to 9.

369: 0 2 0 0 1 1 1 0

Sample Title: 08

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

801: 1 0 2 0 1 0 0 0

Sample Title: 08

Channel	1	2	3	4	5	6	7	8
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	1	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	1	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	1	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	1
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	1	0
953:	0	0	1	0	1	0	0	0
961:	0	0	0	1	1	0	1	0
969:	0	0	0	0	0	0	0	3
977:	0	0	1	1	2	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  
11/4/15

Sample Description: CP5002S16-17  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 09  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_053  
 Chamber Serial Number: 10006122A  
 Detector Serial Number: 53  
 Env. Background: System Bkgd 133283  
 Reagent Blank: <not performed>

Sample Size: 1.510E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/8/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:52 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: 0.2463 +/- 0.0186  
 Counting Efficiency: 0.1455 +/- 0.0026 on 12/13/2014 2:39:33 PM  
 Chem. Recovery Factor: 1.6926 +/- 0.1313

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	5.854	27.81	38.09	1.19	0.00E+000	4.5
TH-228	5.386	157.81	15.67	1.19	0.00E+000	4.5
TH-229 T	4.884	212.15	13.49	0.85	0.00E+000	6.9
TH-230	4.641	184.32	14.47	0.68	0.00E+000	13.0
TH-232	3.974	145.32	16.30	0.68	0.00E+000	14.3

T = Tracer Peak used for Effective Efficiency

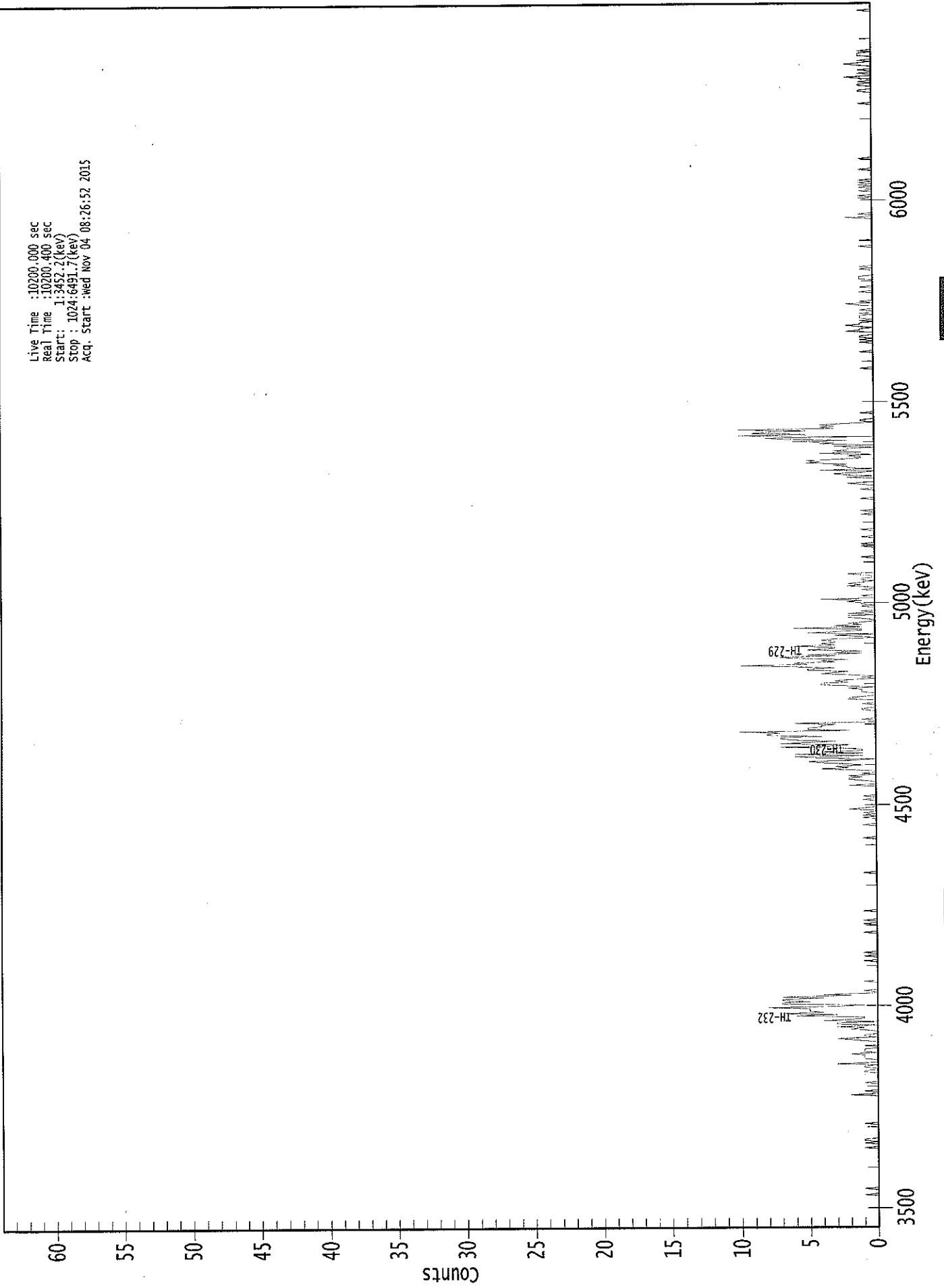
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	1.000	5850.00*	2.04E-001 +/- 8.32E-002	4.83E-002 +/- 7.14E-003
TH-228	0.999	5400.00*	1.16E+000 +/- 2.49E-001	4.83E-002 +/- 7.14E-003
TH-229	0.999	4872.00*	1.52E+000 +/- 2.25E-001	4.29E-002 +/- 6.34E-003
TH-230	0.995	4672.00*	1.32E+000 +/- 2.72E-001	4.03E-002 +/- 5.96E-003
TH-232	0.997	3997.00*	1.04E+000 +/- 2.28E-001	4.02E-002 +/- 5.95E-003

AG  
11/5/15

0000133136.CNF

Live Time :10200.000 sec  
Real Time :10200.400 sec  
Start: 1:3452.2(kev)  
Stop : 1024:6491.7(kev)  
Acq. Start :Wed Nov 04 08:26:52 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	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0	0
25:	0	0	0	1	0	0	0	0	0
33:	1	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	1	0	0	0	0	1	0
73:	1	1	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	0	0	0	2	0
113:	0	1	0	0	0	0	0	0	0
121:	1	0	0	0	0	0	0	0	0
129:	0	1	1	0	0	1	1	1	0
137:	3	0	0	0	1	1	1	1	1
145:	2	0	1	1	1	0	0	0	1
153:	0	0	0	1	2	3	0	0	1
161:	1	0	0	0	1	2	1	1	3
169:	0	3	3	0	4	2	1	1	1
177:	6	3	7	4	5	5	5	5	8
185:	3	1	7	7	5	7	7	7	4
193:	7	2	4	0	0	1	0	0	0
201:	0	0	0	0	0	1	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	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	0	0	1	0	0	0
257:	1	0	0	0	0	0	0	0	0
265:	1	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	1	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	1	0	0	0	0	0	1	0	0
345:	1	0	1	0	0	2	1	0	0
353:	0	0	0	0	0	1	0	0	0
361:	1	0	0	0	0	0	0	0	0

369: 0 2 0 0 0 1 2 2

Sample Title: 09

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



801: 1 0 1 0 0 0 0 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	1	0	0	0	0	0
825:	1	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0	0
841:	0	0	0	2	0	0	1	0	0
849:	0	0	0	0	0	0	0	0	0
857:	0	0	0	1	0	1	0	0	0
865:	0	1	0	0	1	0	1	0	0
873:	1	0	1	0	0	0	0	0	0
881:	0	0	0	1	0	0	0	0	0
889:	0	0	0	0	1	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	1	0	0	0	0	0	0
945:	0	0	0	0	1	1	0	0	0
953:	0	1	1	0	1	0	0	1	0
961:	2	0	0	1	0	0	1	0	0
969:	0	0	1	2	1	0	1	0	0
977:	0	0	1	1	1	0	1	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:	1	0	0	0	0	0	0	0	0

*KB*  
*11/12/15*

Sample Description: CP1806S03-04  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 10  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_054  
 Chamber Serial Number: 10006122B  
 Detector Serial Number: 54  
 Env. Background: System Bkgd 133284  
 Reagent Blank: <not performed>

Sample Size: 1.511E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:54 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: 0.2098 +/- 0.0169  
 Counting Efficiency: 0.1452 +/- 0.0026 on 12/13/2014 2:38:19 PM  
 Chem. Recovery Factor: 1.4452 +/- 0.1194

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	5.852	12.66	55.94	0.34	0.00E+000	3.0
TH-228	5.370	162.49	15.40	0.51	0.00E+000	4.9
TH-229 T	4.882	180.83	14.58	0.17	0.00E+000	7.0
TH-230	4.626	153.83	15.81	0.17	0.00E+000	10.4
TH-232	3.951	187.83	14.31	0.17	0.00E+000	15.3

T = Tracer Peak used for Effective Efficiency

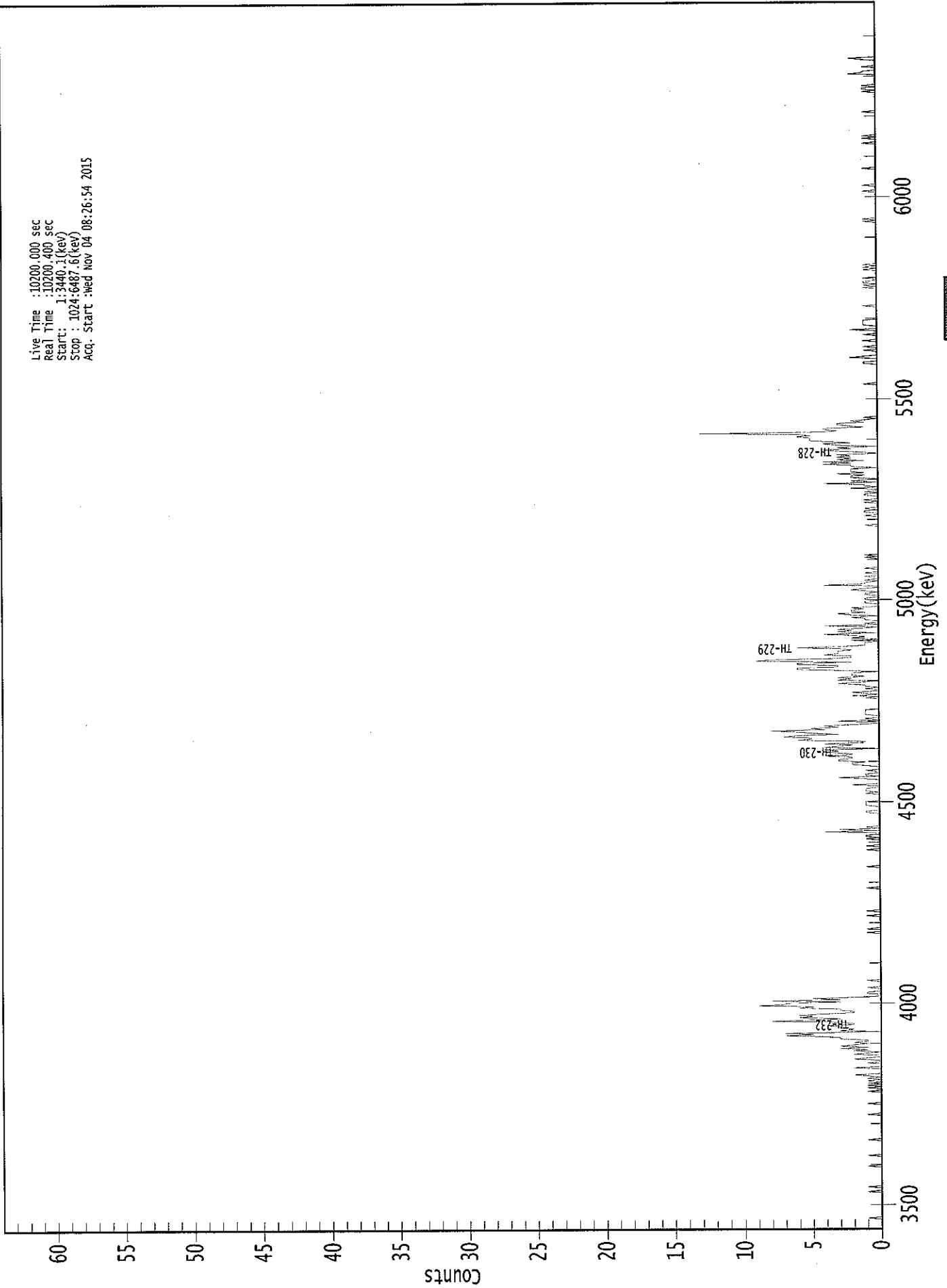
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	1.000	5850.00*	1.09E-001 +/- 6.32E-002	4.11E-002 +/- 6.49E-003
TH-228	0.995	5400.00*	1.39E+000 +/- 3.08E-001	4.50E-002 +/- 7.12E-003
TH-229	0.999	4872.00*	1.52E+000 +/- 2.40E-001	3.51E-002 +/- 5.54E-003
TH-230	0.989	4672.00*	1.29E+000 +/- 2.88E-001	3.49E-002 +/- 5.52E-003
TH-232	0.989	3997.00*	1.57E+000 +/- 3.35E-001	3.49E-002 +/- 5.51E-003

*AG*  
*11/5/15*

0000133137.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:3440.1(kev)  
Stop : 1024:6487.6(kev)  
Acq. Start : Wed Nov 04 08:26:54 2015



00251

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

369: 0 0 2 0 0 0 0 0 1

Sample Title: 10

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

801: 0 1 0 1 0 0 0 0

Sample Title: 10

Channel	1	2	3	4	5	6	7	8
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	1
841:	0	1	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:	1	0	0	0	0	1	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:	1	0	0	0	1	0	1	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	1	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	1	0	1	1	0
953:	1	0	0	0	0	0	0	0
961:	0	0	2	1	1	0	0	0
969:	1	0	0	0	0	0	1	2
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™

108  
11/4/15

Sample Description: CP1806S05-06  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 11  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_055  
 Chamber Serial Number: 10006124A  
 Detector Serial Number: 55  
 Env. Background: System Bkgd 133285  
 Reagent Blank: <not performed>

Sample Size: 1.529E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:59 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.228 mL  
 Effective Efficiency: 0.1986 +/- 0.0164  
 Counting Efficiency: 0.1564 +/- 0.0028 on 12/13/2014 2:35:48 PM  
 Chem. Recovery Factor: 1.2696 +/- 0.1072

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	18.49	46.31	0.51	0.00E+000	3.0
TH-228	5.372	151.47	16.02	1.53	0.00E+000	10.5
TH-229 T	4.860	172.64	14.99	1.36	0.00E+000	6.2
TH-230	4.628	113.98	18.45	1.02	0.00E+000	4.7
TH-232	3.956	132.49	17.07	0.51	0.00E+000	4.4

T = Tracer Peak used for Effective Efficiency

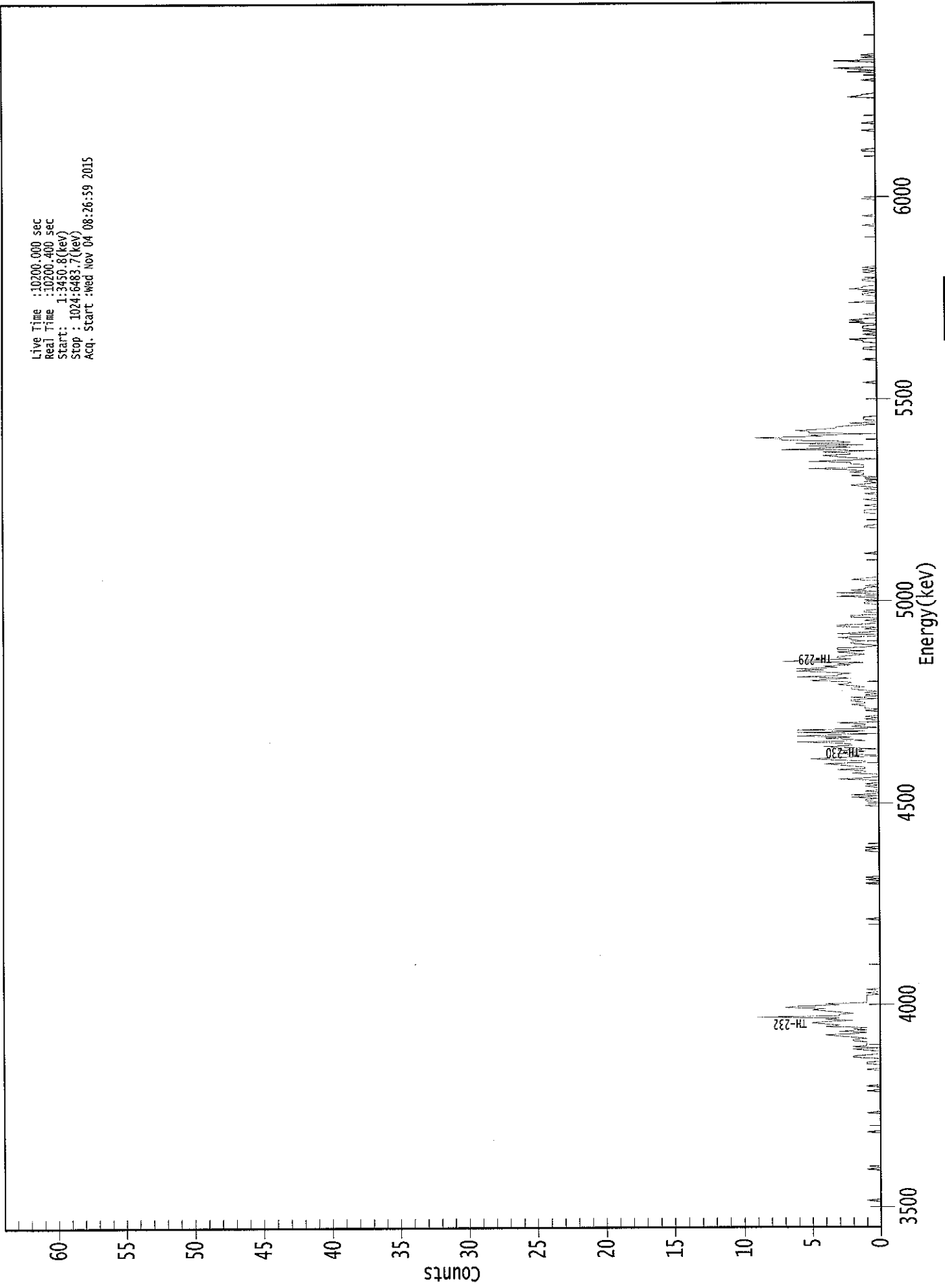
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.987	5850.00*	1.66E-001 +/- 8.14E-002	4.71E-002 +/- 7.61E-003
TH-228	0.996	5400.00*	1.36E+000 +/- 3.09E-001	6.37E-002 +/- 1.03E-002
TH-229	0.999	4872.00*	1.51E+000 +/- 2.45E-001	6.01E-002 +/- 9.72E-003
TH-230	0.990	4672.00*	9.97E-001 +/- 2.45E-001	5.51E-002 +/- 8.91E-003
TH-232	0.991	3997.00*	1.16E+000 +/- 2.72E-001	4.58E-002 +/- 7.41E-003

AG  
 11/9/15

0000133138.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:34:50.8 (keV)  
Stop : 1024:6483.7 (keV)  
Acq. Start : wed Nov 04 08:26:59 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: 11

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

Channel	1	2	3	4	5	6	7	8	9
1:	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	1	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:	1	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	1
97:	0	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0	0
113:	0	1	0	0	0	0	1	0	0
121:	0	0	0	0	0	0	0	0	0
129:	0	0	0	1	0	0	0	0	0
137:	1	1	0	0	0	2	2	2	1
145:	0	0	0	1	2	0	2	2	1
153:	1	1	1	2	2	1	2	2	3
161:	4	2	1	3	1	2	1	1	4
169:	3	4	5	4	2	4	3	3	9
177:	3	3	2	3	4	5	4	4	7
185:	6	3	4	1	1	1	1	1	1
193:	1	1	0	1	0	0	0	1	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	1	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	1
289:	0	0	1	0	1	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	1	1	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:	0	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0	0
353:	1	0	0	0	1	1	0	0	2
361:	0	2	0	0	1	0	0	0	0

369: 1 0 1 0 0 0 3 1

Sample Title: 11

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

801: 0 1 0 0 0 0 0 0

Sample Title: 11

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

RS  
11-11-15

Sample Description: CP1806S08-09  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 12  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_056  
 Chamber Serial Number: 10006124B  
 Detector Serial Number: 56  
 Env. Background: System Bkgd 133286  
 Reagent Blank: <not performed>

Sample Size: 1.549E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:27:01 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: 0.1908 +/- 0.0161  
 Counting Efficiency: 0.1600 +/- 0.0028 on 12/13/2014 2:30:22 PM  
 Chem. Recovery Factor: 1.1920 +/- 0.1029

Peak Match Tolerance: 0.175 MeV

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

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227	5.811	11.47	62.23	1.53	0.00E+000	3.0
TH-228	5.350	176.13	14.86	1.87	0.00E+000	4.1
TH-229 T	4.848	164.62	15.40	2.38	0.00E+000	4.4
TH-230	4.620	120.98	17.91	1.02	0.00E+000	6.9
TH-232	3.943	155.64	15.79	1.36	0.00E+000	7.9

T = Tracer Peak used for Effective Efficiency

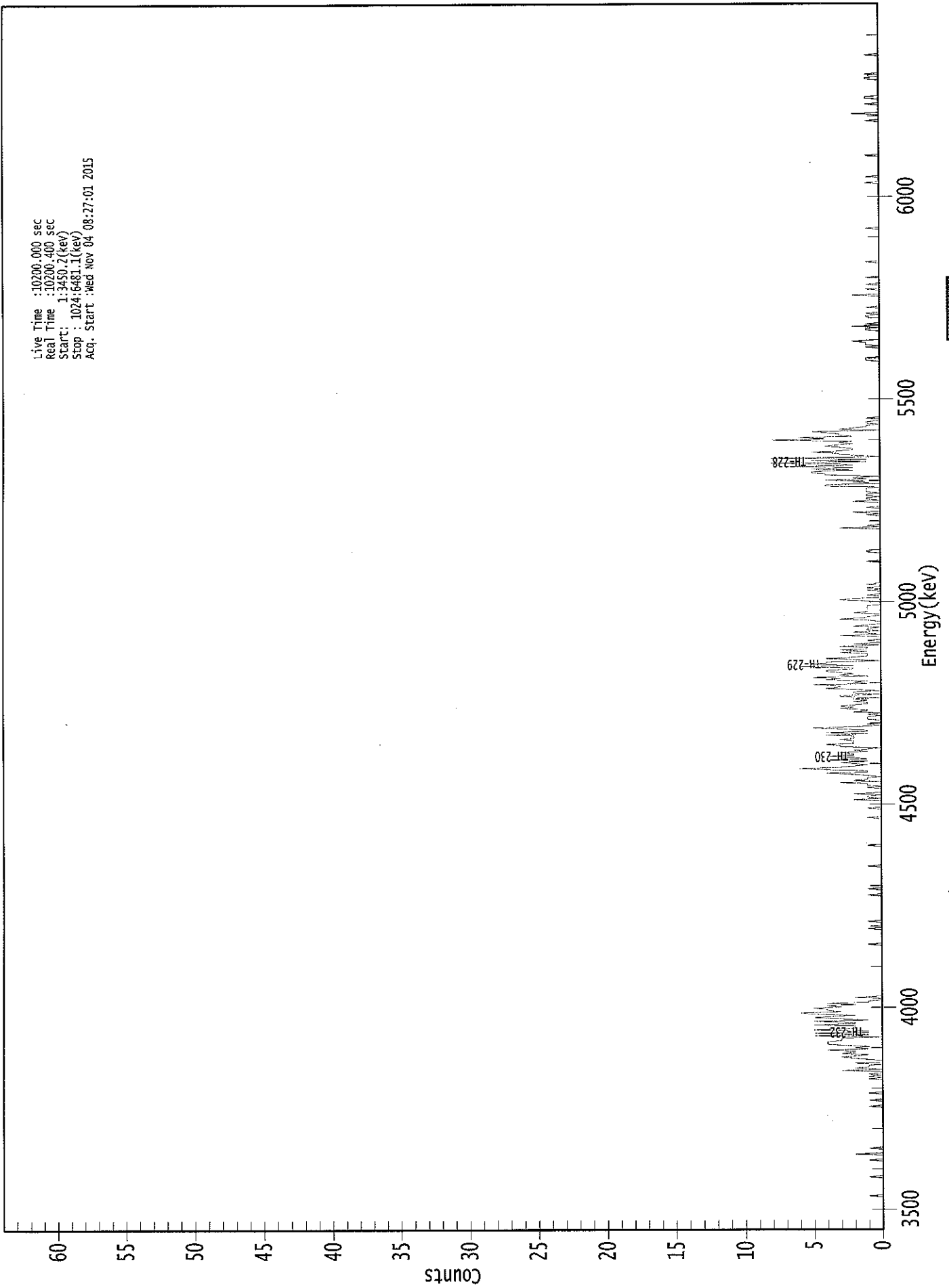
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.992	5850.00*	1.06E-001 +/- 6.81E-002	6.55E-002 +/- 1.09E-002
TH-228	0.987	5400.00*	1.62E+000 +/- 3.61E-001	6.97E-002 +/- 1.15E-002
TH-229	0.997	4872.00*	1.48E+000 +/- 2.46E-001	7.39E-002 +/- 1.22E-002
TH-230	0.986	4672.00*	1.09E+000 +/- 2.65E-001	5.66E-002 +/- 9.37E-003
TH-232	0.985	3997.00*	1.40E+000 +/- 3.19E-001	6.15E-002 +/- 1.02E-002

AG  
11/5/15

0000133139.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:34:50.2 (kev)  
Stop : 1024:54:81.1 (kev)  
Acq. Start : Wed Nov 04 08:27:01 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: 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	1	0	0	0	0
33:	0	0	0	0	0	0	0	0	0
41:	0	0	0	0	1	0	0	0	0
49:	0	0	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0	2
65:	0	0	0	0	1	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	1
105:	0	0	0	0	1	0	0	0	0
113:	0	0	1	0	0	0	0	0	0
121:	0	0	0	0	0	0	1	0	0
129:	1	0	1	0	0	3	0	0	2
137:	1	1	0	2	0	0	1	0	2
145:	3	2	1	3	2	2	4	0	1
153:	2	1	3	4	4	4	3	0	3
161:	3	0	5	1	5	1	1	0	5
169:	2	2	2	5	2	2	5	0	1
177:	3	5	4	2	5	6	3	0	4
185:	4	5	3	4	2	4	1	0	1
193:	0	0	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	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	1	0	0
241:	0	0	0	0	0	0	0	0	0
249:	0	0	0	1	0	0	0	0	0
257:	0	1	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	1
281:	0	0	0	0	1	0	0	0	0
289:	0	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0	1
305:	0	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0	0
321:	1	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	1
345:	0	0	0	0	0	0	0	0	1
353:	0	0	0	0	0	0	2	0	0
361:	1	1	0	2	0	0	0	0	0

369: 1 0 1 1 3 0 2 1

Sample Title: 12

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

801: 0 0 0 0 0 0 0 1 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	1	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:	1	0	0	0	0	1	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	1
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	1	0	0	0
929:	0	0	2	0	0	0	0	0
937:	0	0	1	0	0	0	0	1
945:	1	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	1
961:	1	0	0	1	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	1	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



KB  
11/4/15

# Apex-Alpha™

Sample Description: CP1806S10-11  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 13  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_057  
 Chamber Serial Number: 01017326A  
 Detector Serial Number: 57  
 Env. Background: System Bkgd 133287  
 Reagent Blank: <not performed>

Sample Size: 1.559E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:35 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.231 mL  
 Effective Efficiency: 0.1781 +/- 0.0153  
 Counting Efficiency: 0.1577 +/- 0.0028 on 12/13/2014 2:27:38 PM  
 Chem. Recovery Factor: 1.1294 +/- 0.0989

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	5.838	11.49	59.30	0.51	0.00E+000	3.0
TH-228	5.368	104.83	19.16	0.17	0.00E+000	24.6
TH-229 T	4.876	156.83	15.66	0.17	0.00E+000	3.0
TH-230	4.629	106.49	19.05	0.51	0.00E+000	4.0
TH-232	3.948	140.66	16.55	0.34	0.00E+000	6.7

T = Tracer Peak used for Effective Efficiency

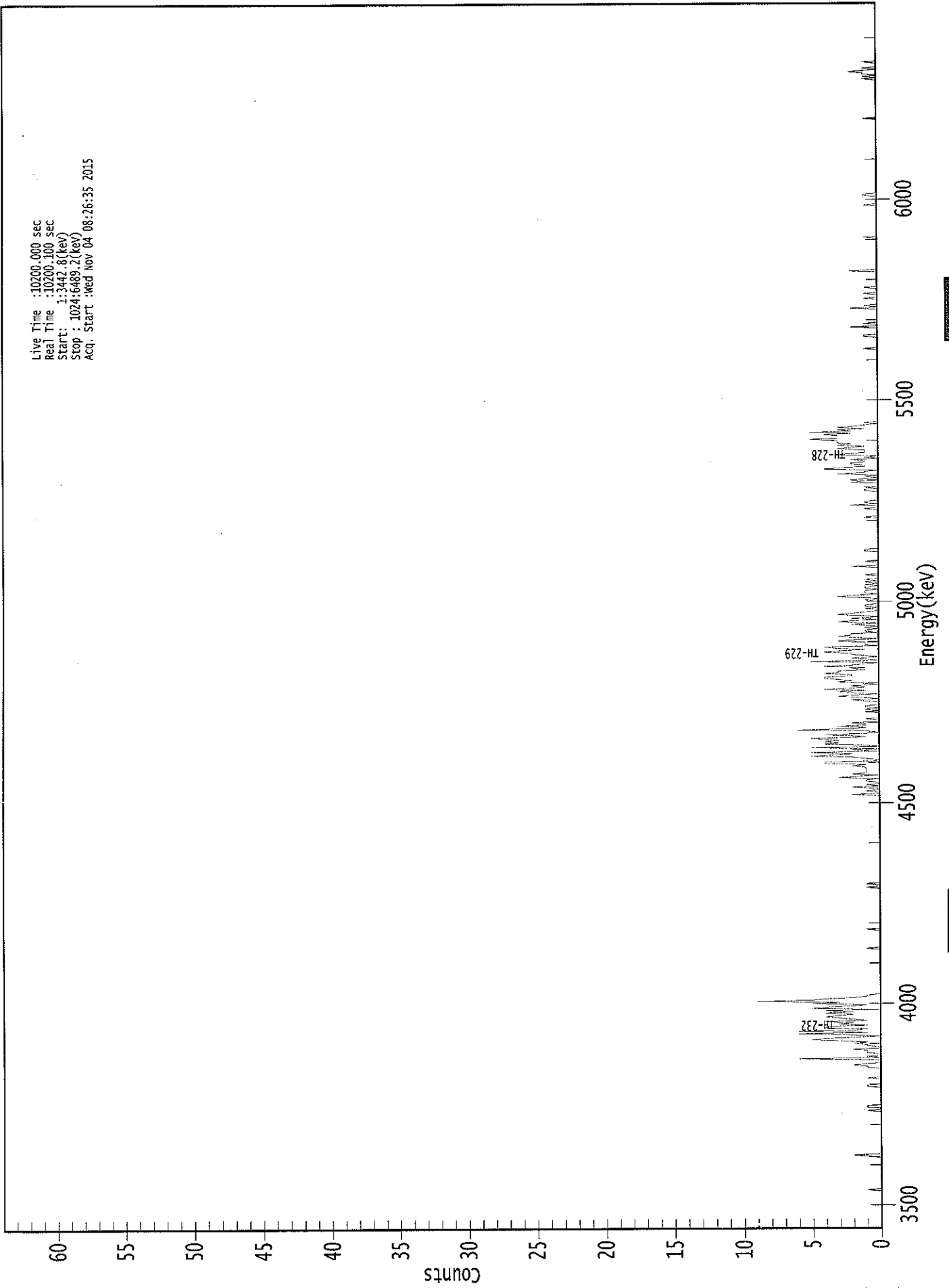
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.999	5850.00*	1.13E-001 +/- 6.95E-002	5.15E-002 +/- 8.65E-003
TH-228	0.995	5400.00*	1.03E+000 +/- 2.62E-001	4.09E-002 +/- 6.87E-003
TH-229	1.000	4872.00*	1.50E+000 +/- 2.53E-001	4.00E-002 +/- 6.72E-003
TH-230	0.991	4672.00*	1.02E+000 +/- 2.59E-001	5.02E-002 +/- 8.43E-003
TH-232	0.988	3997.00*	1.34E+000 +/- 3.17E-001	4.56E-002 +/- 7.66E-003

AG  
11/5/15

0000133140.CNF

Live Time : 10200.000 sec  
Real Time : 10200.100 sec  
Start : 1:3442.8(kev)  
Stop : 1024:6689.2(kev)  
Acq. Start : Wed Nov 04 08:26:35 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: 13

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 2 0 1 0 0 1 1 0

Sample Title: 13

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

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	1	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	1	0
857:	0	0	0	0	0	0	1	1
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	1	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	1
961:	0	1	0	1	1	2	1	0
969:	1	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



# Apex-Alpha™

RB  
11/4/15

Sample Description: CP1806S13-14  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 14  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_058  
 Chamber Serial Number: 01017326B  
 Detector Serial Number: 58  
 Env. Background: System Bkgd 133288  
 Reagent Blank: <not performed>

Sample Size: 1.555E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/9/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:26:38 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.225 mL  
 Effective Efficiency: 0.1695 +/- 0.0150  
 Counting Efficiency: 0.1640 +/- 0.0029 on 12/13/2014 2:26:06 PM  
 Chem. Recovery Factor: 1.0336 +/- 0.0932

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	5.850	3.49	113.53	0.51	0.00E+000	3.0
TH-228	5.375	121.47	17.91	1.53	0.00E+000	4.1
TH-229	4.878	145.83	16.24	0.17	0.00E+000	7.2
TH-230	4.642	99.83	19.64	0.17	0.00E+000	4.7
TH-232	3.957	112.98	18.54	1.02	0.00E+000	5.2

T = Tracer Peak used for Effective Efficiency

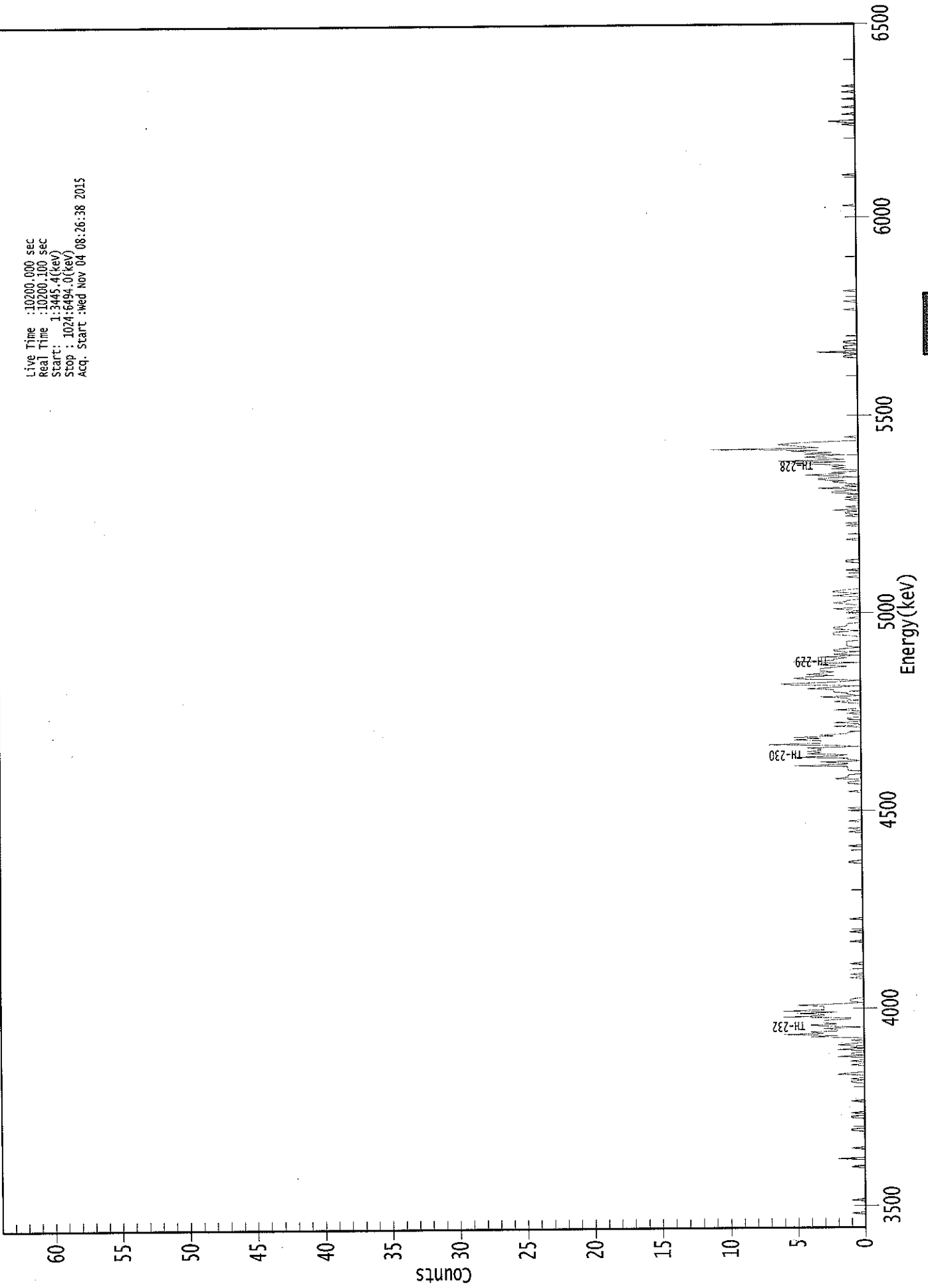
-----  
 ----- NUCLIDE ANALYSIS RESULTS -----  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	3.61E-002 +/- 4.14E-002	5.42E-002 +/- 9.41E-003
TH-228	0.997	5400.00*	1.25E+000 +/- 3.13E-001	7.34E-002 +/- 1.27E-002
TH-229	1.000	4872.00*	1.47E+000 +/- 2.55E-001	4.22E-002 +/- 7.31E-003
TH-230	0.995	4672.00*	1.01E+000 +/- 2.63E-001	4.20E-002 +/- 7.29E-003
TH-232	0.992	3997.00*	1.14E+000 +/- 2.88E-001	6.33E-002 +/- 1.10E-002

AG  
11/5/15

0000133141.CNF

Live Time : 10200.000 sec  
Real Time : 10200.100 sec  
Start : 1:3445.4(kev)  
Stop : 1024:6494.0(kev)  
Acq. Start : Wed Nov 04 08:26:38 2015



ROI Type: 1

ROI Type: 3

11200

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\*\*\*\*\* 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	1	0	0	0	0
17:	0	0	0	0	0	0	0	1	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	2	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	0	1	1	0	0	0	0	0
89:	0	0	0	0	0	1	1	0	0
97:	0	1	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	1	1	0	1	0	0
129:	0	0	2	1	0	0	0	0	0
137:	0	0	1	0	0	1	0	0	0
145:	0	2	0	1	1	0	0	2	0
153:	0	1	0	2	1	0	0	1	0
161:	0	0	4	2	6	3	4	2	0
169:	2	3	0	3	4	2	3	3	0
177:	3	1	1	6	3	3	5	2	0
185:	6	3	3	3	3	5	2	0	0
193:	1	1	1	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0	0
209:	0	0	0	0	1	0	0	1	0
217:	0	0	0	0	0	0	0	0	0
225:	1	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0	0
241:	0	0	0	1	0	0	0	0	0
249:	0	0	0	1	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	0	0	0	0	1	1	0
313:	0	0	0	0	0	0	0	0	0
321:	0	0	0	0	1	0	0	0	0
329:	0	0	0	0	0	0	0	0	0
337:	1	0	0	1	0	0	0	0	0
345:	0	1	0	0	0	0	0	0	0
353:	0	0	1	0	1	0	0	0	0
361:	0	0	0	0	0	0	0	0	0



369: 0 0 1 0 0 0 0 0 0

Sample Title: 14

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

801: 0 0 0 0 0 0 0 0

Sample Title: 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	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	1	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	1	0	1	2	0	0	0	0
945:	0	1	0	0	0	0	0	1
953:	0	0	0	0	0	0	1	0
961:	0	0	0	0	1	0	0	0
969:	0	1	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0



# Apex-Alpha™

103  
11/4/15

Sample Description: CP3004S02-03  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 15  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_059  
 Chamber Serial Number: 10006125A  
 Detector Serial Number: 59  
 Env. Background: System Bkgd 133289  
 Reagent Blank: <not performed>

Sample Size: 1.540E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:27:03 AM  
 Acquisition Live Time: 170.0 minutes  
 Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229\_S\_TH-18A  
 Tracer Quantity: 0.227 mL  
 Effective Efficiency: 0.1646 +/- 0.0147  
 Counting Efficiency: 0.1717 +/- 0.0030 on 12/13/2014 2:24:23 PM  
 Chem. Recovery Factor: 0.9584 +/- 0.0875

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	5.840	14.32	53.21	0.68	0.00E+000	3.0
TH-228	5.341	100.47	19.73	1.53	0.00E+000	3.4
TH-229 T	4.869	142.32	16.48	0.68	0.00E+000	4.1
TH-230	4.598	131.49	17.13	0.51	0.00E+000	11.9
TH-232	3.946	118.83	18.00	0.17	0.00E+000	11.4

T = Tracer Peak used for Effective Efficiency

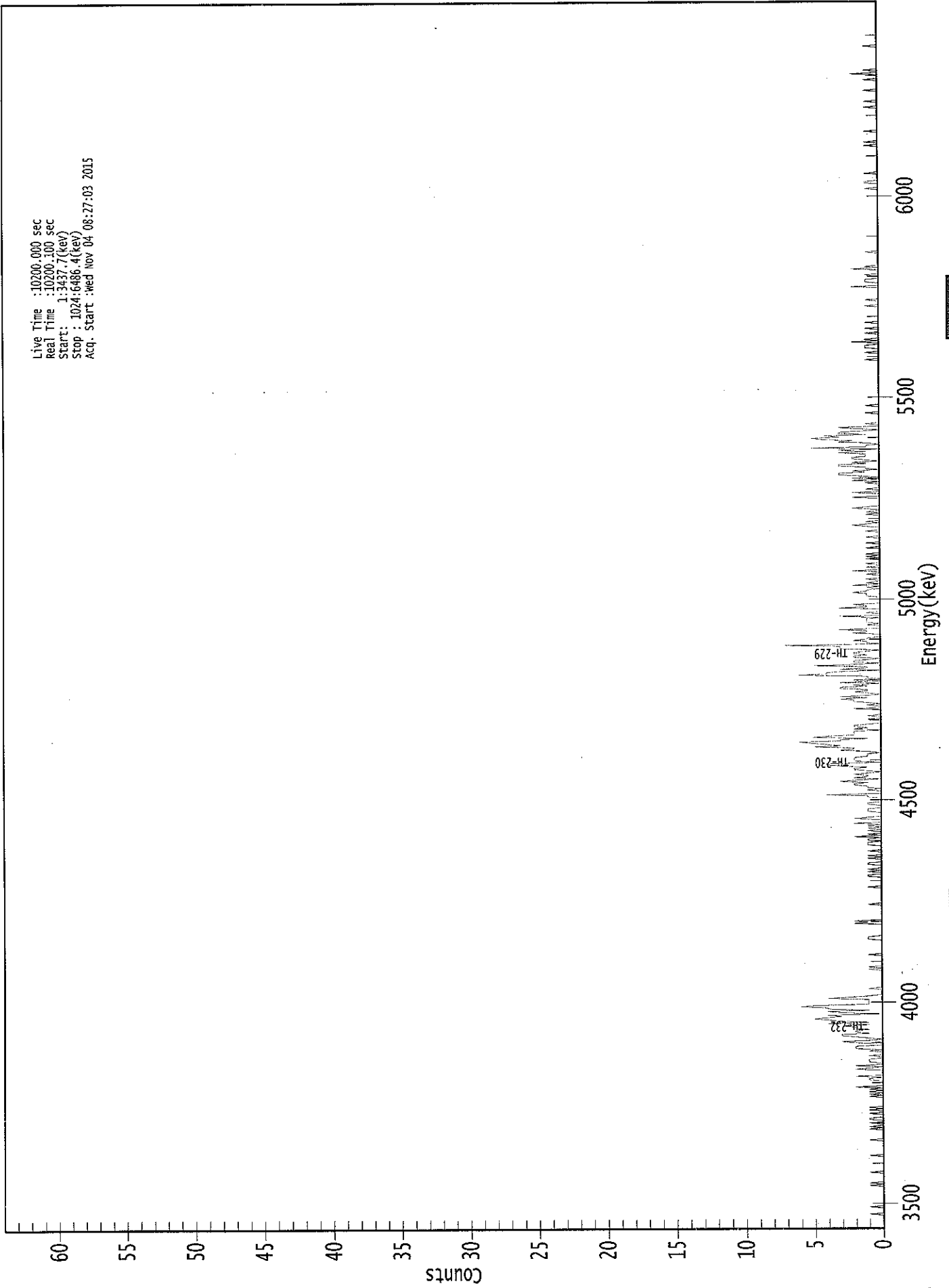
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.999	5850.00*	1.54E-001 +/- 8.62E-002	6.06E-002 +/- 1.06E-002
TH-228	0.982	5400.00*	1.08E+000 +/- 2.85E-001	7.62E-002 +/- 1.34E-002
TH-229	1.000	4872.00*	1.50E+000 +/- 2.63E-001	5.93E-002 +/- 1.04E-002
TH-230	0.972	4672.00*	1.38E+000 +/- 3.38E-001	5.50E-002 +/- 9.65E-003
TH-232	0.986	3997.00*	1.24E+000 +/- 3.12E-001	4.36E-002 +/- 7.66E-003

AG  
11/5/15

0000133142.CNF

Live Time : 10200.000 sec  
Real Time : 10200.100 sec  
Start : 1:3437.7(kev)  
Stop : 1024:6486.4(kev)  
Acq. Start : wed Nov 04 08:27:03 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: 15

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	1	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	1	0	1	0
41:	0	0	0	0	0	0	0	0	1
49:	0	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	0	0
73:	0	0	1	0	0	0	0	0	0
81:	0	0	0	1	0	0	1	0	0
89:	1	0	0	1	1	1	0	0	0
97:	1	0	0	1	0	0	1	0	0
105:	0	0	0	0	0	0	0	1	0
113:	1	0	1	0	1	0	0	2	0
121:	0	0	0	0	1	1	1	0	2
129:	0	0	0	0	0	0	2	1	0
137:	2	0	0	1	1	1	1	0	0
145:	1	0	0	0	1	0	0	2	2
153:	2	0	0	2	3	1	1	0	1
161:	2	3	3	1	2	2	2	1	2
169:	2	3	1	4	1	3	3	4	5
177:	4	3	4	0	3	4	4	1	4
185:	4	6	5	1	1	1	1	1	1
193:	4	2	1	0	0	0	0	0	0
201:	1	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0	0
217:	1	0	1	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	1	1	1	0	0	0	0	0
249:	0	0	0	0	0	0	0	2	1
257:	2	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	1	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	1	1	0
297:	0	1	0	1	0	0	0	0	1
305:	1	0	0	0	1	0	0	1	0
313:	0	0	1	0	0	0	0	0	1
321:	1	1	0	1	1	0	0	2	0
329:	1	0	0	1	0	0	1	0	1
337:	0	2	0	0	0	0	2	1	0
345:	0	0	0	1	1	1	1	0	0
353:	0	1	1	0	0	0	0	0	1
361:	1	4	0	0	0	0	1	0	1

369: 1 2 2 1 3 2 0 2

Sample Title: 15

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

801: 0 1 0 0 0 0 0 0 0

Sample Title: 15

Channel	1	2	3	4	5	6	7	8	9
809:	0	0	0	0	0	0	1	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	1	0	0	0	0	0	1
873:	1	0	0	0	0	0	0	0	1
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	1	0
905:	0	1	0	0	0	0	0	0	0
913:	0	0	1	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	1	0
937:	0	0	0	1	0	0	0	0	0
945:	0	0	0	0	0	1	0	0	0
953:	0	0	0	0	0	0	1	0	0
961:	0	0	2	0	0	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	1	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

REP  
11/15

# Apex-Alpha™

Sample Description: CP3004S05-06  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 16  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_060  
 Chamber Serial Number: 10006125B  
 Detector Serial Number: 60  
 Env. Background: System Bkgd 133290  
 Reagent Blank: <not performed>

Sample Size: 1.503E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 8:27:06 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: 0.1365 +/- 0.0133  
 Counting Efficiency: 0.1543 +/- 0.0028 on 12/13/2014 2:22:05 PM  
 Chem. Recovery Factor: 0.8847 +/- 0.0879

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	5.828	6.49	80.40	0.51	0.00E+000	3.0
TH-228	5.336	78.79	22.44	2.21	0.00E+000	6.9
TH-229 T	4.872	117.32	18.16	0.68	0.00E+000	4.5
TH-230	4.602	134.66	16.92	0.34	0.00E+000	3.8
TH-232	3.939	96.00	20.11	0.00	0.00E+000	4.0

T = Tracer Peak used for Effective Efficiency

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

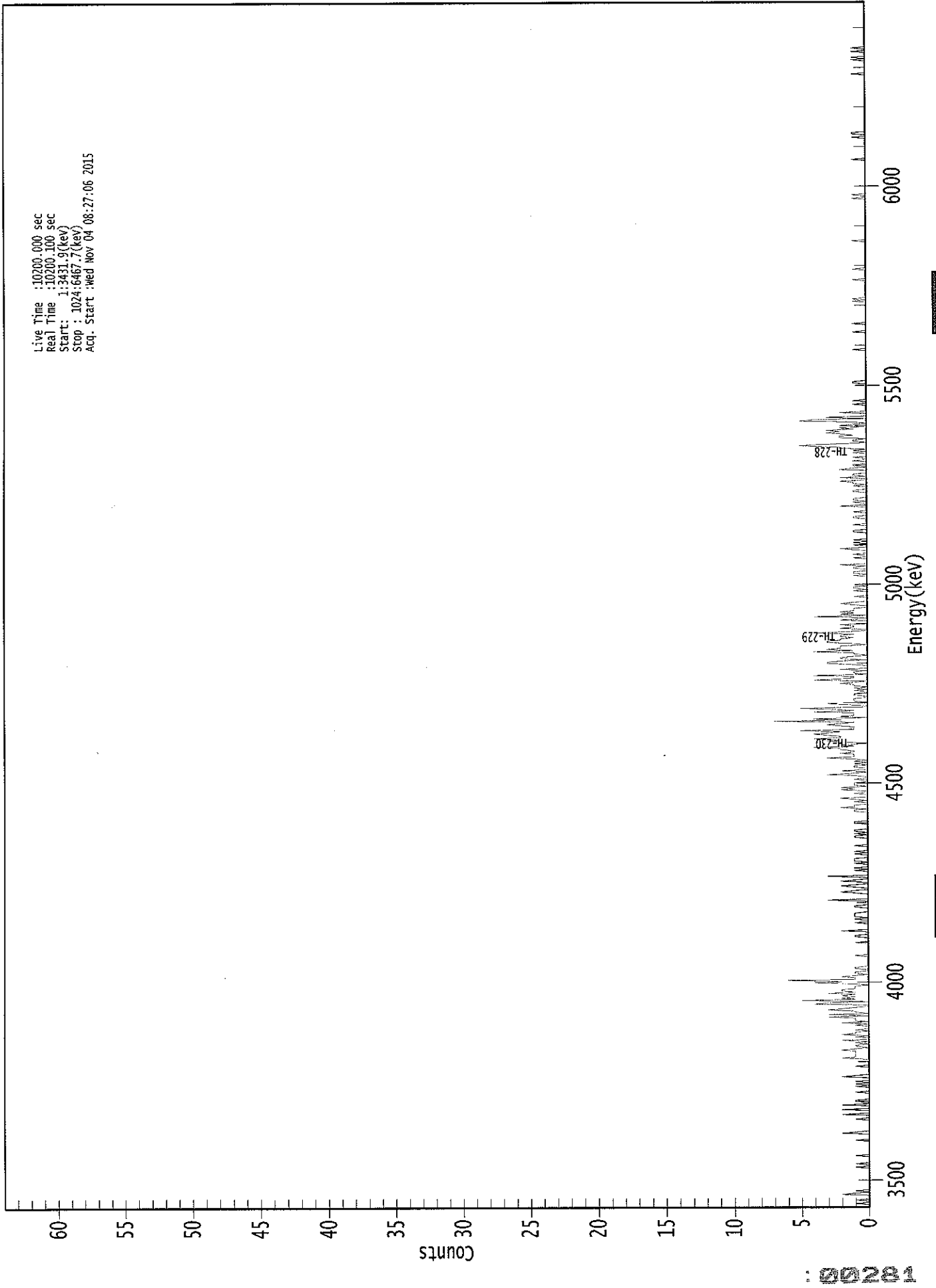
Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.997	5850.00*	8.61E-002 +/- 7.12E-002	6.97E-002 +/- 1.33E-002
TH-228	0.979	5400.00*	1.04E+000 +/- 3.08E-001	1.06E-001 +/- 2.03E-002
TH-229	1.000	4872.00*	1.52E+000 +/- 2.91E-001	7.32E-002 +/- 1.40E-002
TH-230	0.975	4672.00*	1.74E+000 +/- 4.45E-001	6.19E-002 +/- 1.18E-002
TH-232	0.982	3997.00*	1.24E+000 +/- 3.44E-001	7.74E-002 +/- 1.48E-002

AG  
11/5/15



0000133143.CNF

Live Time : 10200.000 sec  
Real Time : 10200.100 sec  
Start : 1:3431.9(keV)  
Stop : 1024:6467.7(keV)  
Acq. Start : MED NOV 04 08:27:06 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: 16

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

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

369: 1 0 2 0 0 1 1 0

Sample Title: 16

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

801: 0 0 0 0 0 0 0 0 0

Sample Title: 16

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	1	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	1
857:	0	0	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	0	0
889:	1	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	1	0	0	1	1
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	1	0	0	0	0	0	0
969:	0	0	0	0	0	1	0	1
977:	0	0	0	0	1	0	0	1
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

208  
11/14/15

# Apex-Alpha™

Sample Description: CP3004S07-08  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 17  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_033  
 Chamber Serial Number: 04026479A  
 Detector Serial Number: 91132  
 Env. Background: System Bkgd 133263  
 Reagent Blank: <not performed>

Sample Size: 1.570E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 11:21:21 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: 0.1866 +/- 0.0159  
 Counting Efficiency: 0.1805 +/- 0.0032 on 10/25/2014 2:26:39 PM  
 Chem. Recovery Factor: 1.0340 +/- 0.0898

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	5.919	12.66	55.94	0.34	0.00E+000	3.0
TH-228	5.373	123.64	17.74	1.36	0.00E+000	9.2
TH-229 T	4.882	160.32	15.52	0.68	0.00E+000	13.0
TH-230	4.627	135.49	16.88	0.51	0.00E+000	10.5
TH-232	3.968	126.00	17.53	0.00	0.00E+000	10.5

T = Tracer Peak used for Effective Efficiency

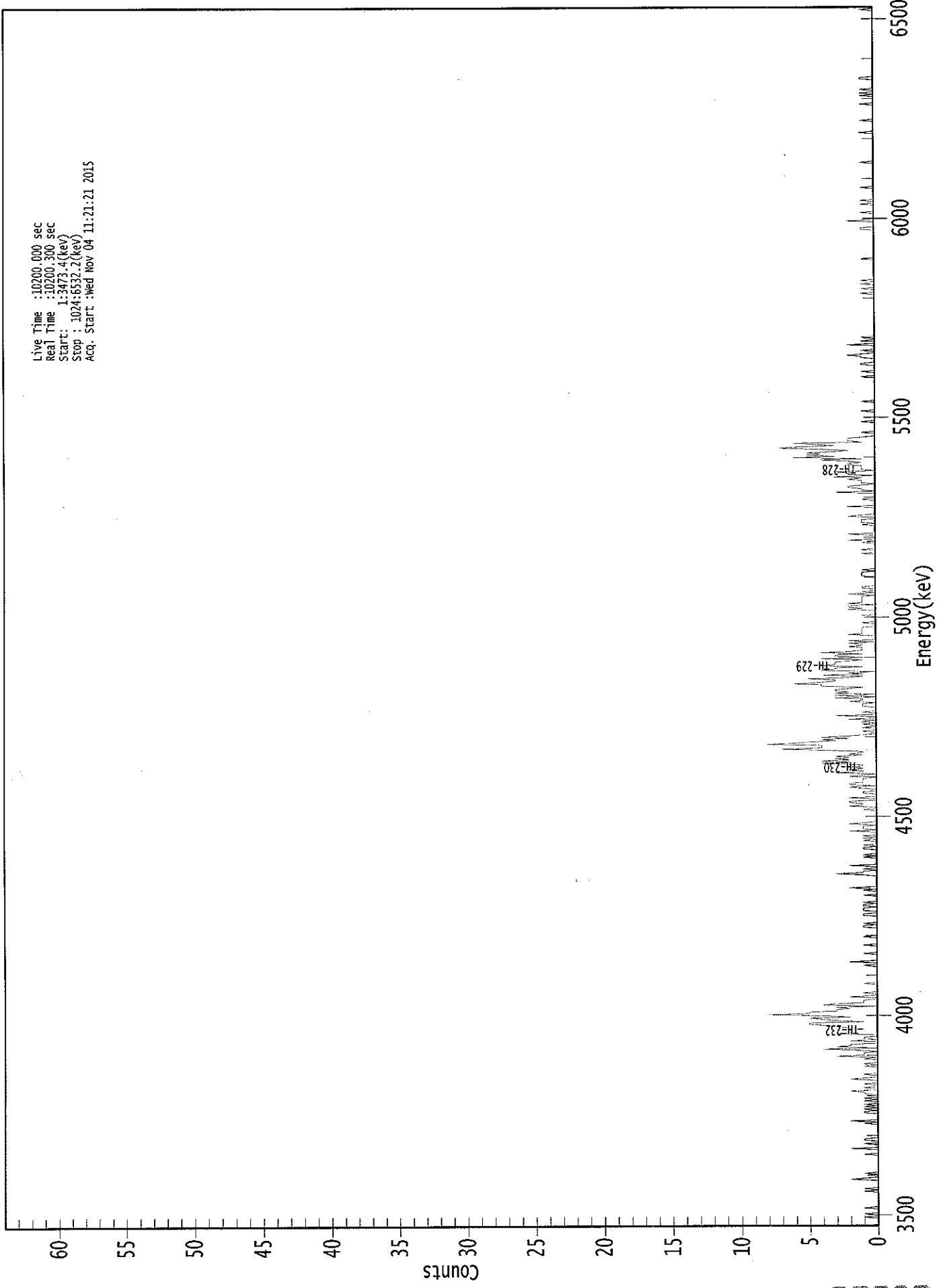
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.975	5850.00*	1.18E-001 +/- 6.87E-002	4.44E-002 +/- 7.41E-003
TH-228	0.996	5400.00*	1.15E+000 +/- 2.79E-001	6.36E-002 +/- 1.06E-002
TH-229	0.999	4872.00*	1.46E+000 +/- 2.43E-001	5.13E-002 +/- 8.54E-003
TH-230	0.990	4672.00*	1.23E+000 +/- 2.91E-001	4.75E-002 +/- 7.92E-003
TH-232	0.996	3997.00*	1.14E+000 +/- 2.76E-001	5.42E-002 +/- 9.04E-003

ACG  
11/5/15

0000133149.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3473.4(keV)  
Stop : 1024:5532.2(keV)  
Acq. Start : Wed Nov 04 11:21:21 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: 17

Elapsed Live time: 10200  
 Elapsed Real Time: 10200

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

369: 2 0 2 2 1 1 1 1

Sample Title: 17

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



801: 0 0 0 0 0 0 0 0 0

Sample Title: 17

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

*128  
11/5/15*

Sample Description: CP3004S10-11  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 18  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_034  
 Chamber Serial Number: 04026479B  
 Detector Serial Number: 91136  
 Env. Background: System Bkgd 133264  
 Reagent Blank: <not performed>

Sample Size: 1.508E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 11:21:23 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: 0.1765 +/- 0.0153  
 Counting Efficiency: 0.1789 +/- 0.0031 on 10/25/2014 2:30:05 PM  
 Chem. Recovery Factor: 0.9869 +/- 0.0875

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	5.888	13.49	54.53	0.51	0.00E+000	3.0
TH-228	5.346	116.15	18.26	0.85	0.00E+000	3.9
TH-229 T	4.875	152.32	15.92	0.68	0.00E+000	4.6
TH-230	4.608	123.83	17.63	0.17	0.00E+000	4.8
TH-232	3.955	123.00	17.74	0.00	0.00E+000	8.2

T = Tracer Peak used for Effective Efficiency

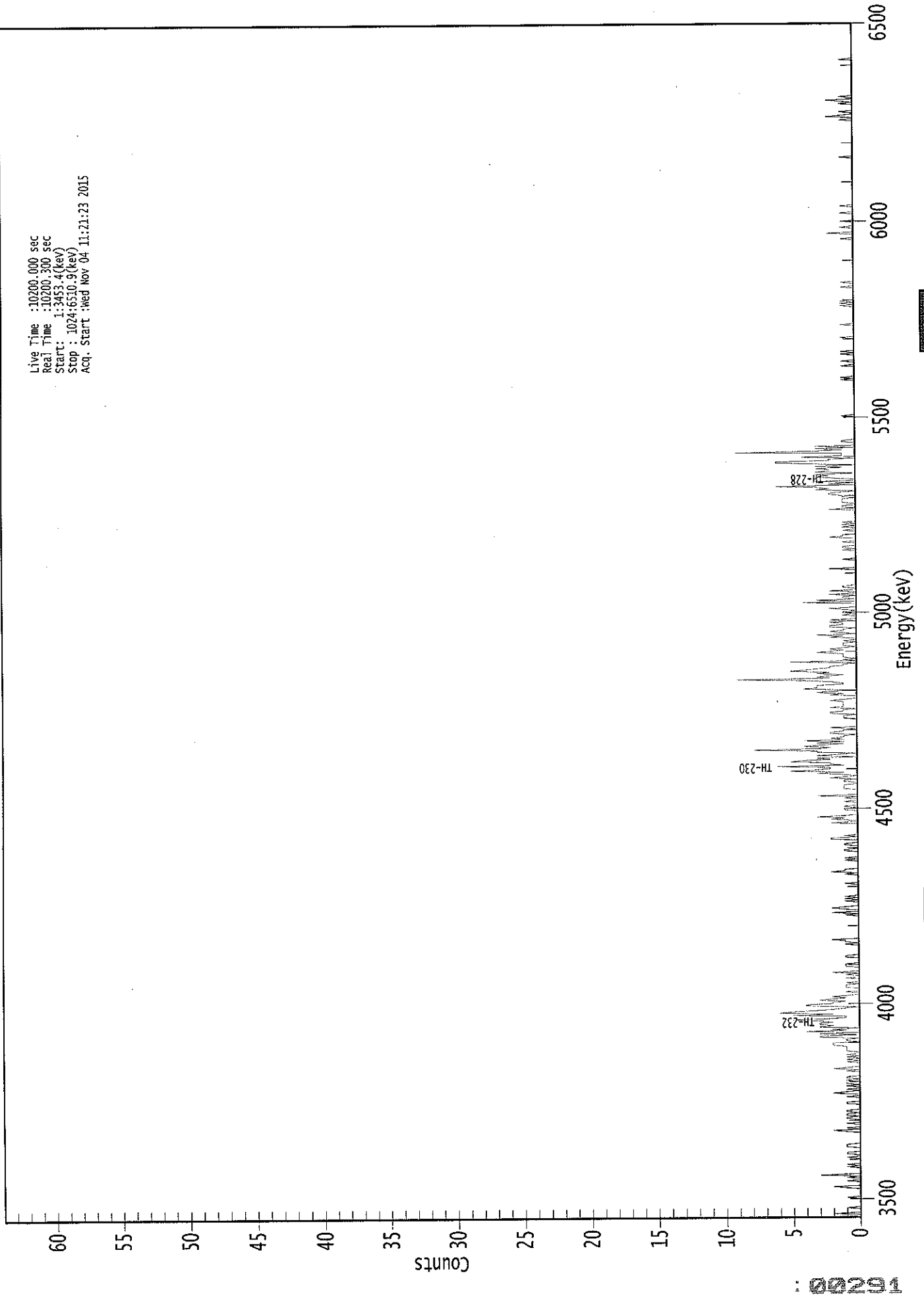
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.993	5850.00*	1.38E-001 +/- 7.89E-002	5.37E-002 +/- 9.15E-003
TH-228	0.985	5400.00*	1.19E+000 +/- 2.96E-001	6.12E-002 +/- 1.04E-002
TH-229	1.000	4872.00*	1.52E+000 +/- 2.60E-001	5.64E-002 +/- 9.62E-003
TH-230	0.979	4672.00*	1.24E+000 +/- 3.03E-001	4.16E-002 +/- 7.09E-003
TH-232	0.991	3997.00*	1.22E+000 +/- 3.01E-001	5.97E-002 +/- 1.02E-002

*AG  
11/5/15*

0000133150.CNF

Live Time : 10200.000 sec  
Real Time : 10200.300 sec  
Start : 1:3453.4(kev)  
Stop : 1024:6510.9(kev)  
Acq. Start : Wed Nov 04 11:21:23 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: 18

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 1 1 1 0 0 1 1 0

Sample Title: 18

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

801: 1 0 0 0 0 0 0 0 0

Sample Title: 18

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	1	0	0
841:	0	0	2	0	0	0	0	1
849:	0	0	0	0	1	0	0	0
857:	0	0	0	1	0	0	0	0
865:	0	1	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	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	0	0	0
937:	0	0	0	1	0	0	2	1
945:	0	0	1	0	0	0	0	0
953:	0	1	0	1	2	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	1
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

11/5/15

# Apex-Alpha™

Sample Description: CP3004S12-13  
 Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001331  
 Batch Identification: 1510093A-TH  
 Sample Identification: 19  
 Sample Geometry: Shelf 2  
 Procedure Description: Th iso

Detector Name: Alpha\_035  
 Chamber Serial Number: 04026477A  
 Detector Serial Number: 58771  
 Env. Background: System Bkgd 133265  
 Reagent Blank: <not performed>

Sample Size: 1.513E+000 +/- 0.000E+000 gram  
 Sample Date/Time: 10/10/2015 6:12:16 AM  
 Acquisition Date/Time: 11/4/2015 11:21:18 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: 0.1755 +/- 0.0153  
 Counting Efficiency: 0.1647 +/- 0.0029 on 10/25/2014 2:34:10 PM  
 Chem. Recovery Factor: 1.0654 +/- 0.0949

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	5.814	16.32	49.69	0.68	0.00E+000	4.5
TH-228	5.374	111.81	18.65	1.19	0.00E+000	4.9
TH-229 T	4.894	151.00	16.00	0.00	0.00E+000	3.8
TH-230	4.638	145.83	16.24	0.17	0.00E+000	4.7
TH-232	3.959	127.49	17.40	0.51	0.00E+000	3.5

T = Tracer Peak used for Effective Efficiency

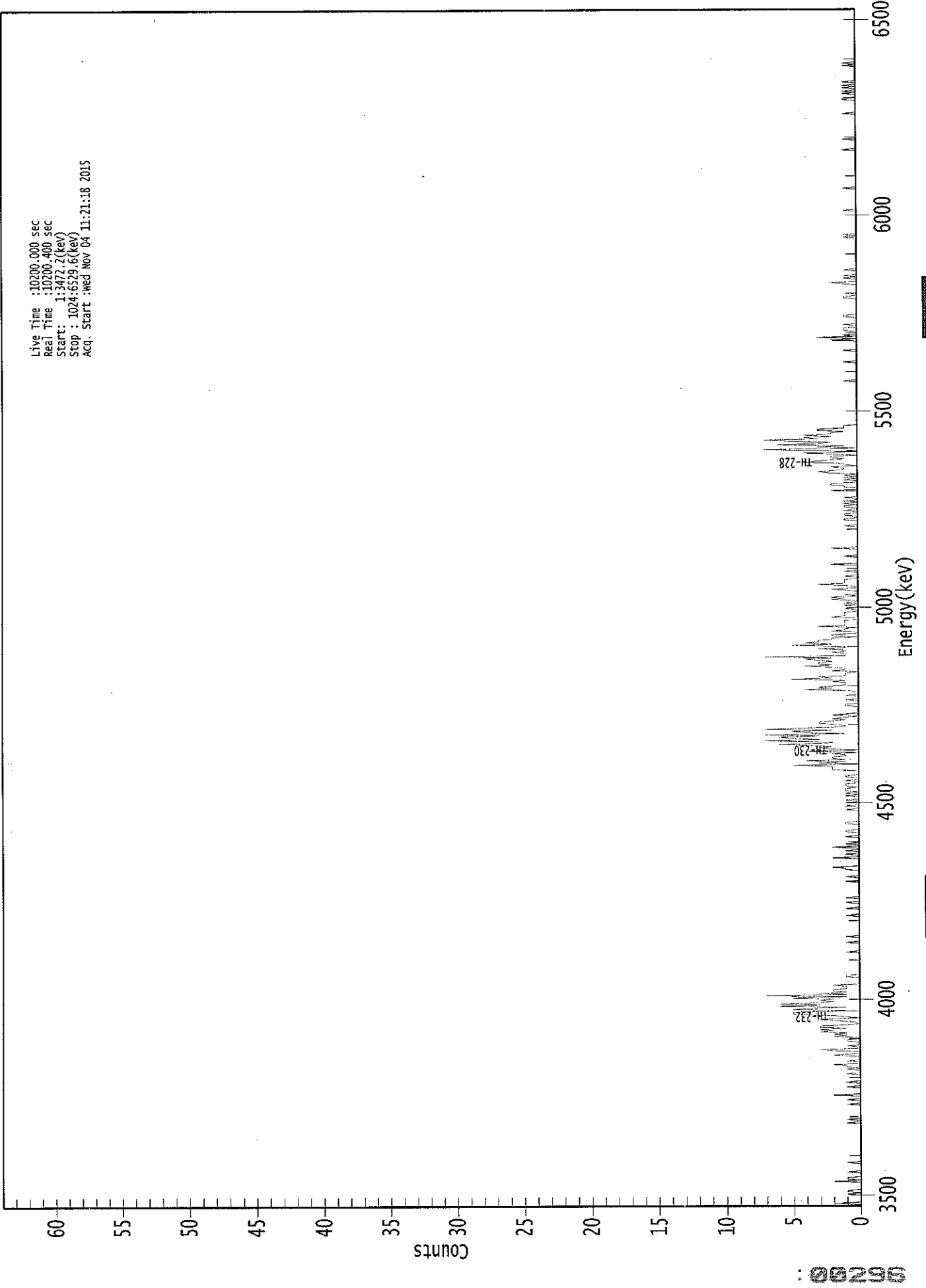
-----  
 NUCLIDE ANALYSIS RESULTS  
 -----

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram )	MDA (pCi/gram )
TH-227	0.993	5850.00*	1.67E-001 +/- 8.79E-002	5.78E-002 +/- 9.90E-003
TH-228	0.997	5400.00*	1.14E+000 +/- 2.90E-001	6.74E-002 +/- 1.15E-002
TH-229	0.997	4872.00*	1.51E+000 +/- 2.59E-001	6.01E-002 +/- 1.03E-002
TH-230	0.994	4672.00*	1.46E+000 +/- 3.44E-001	4.17E-002 +/- 7.14E-003
TH-232	0.993	3997.00*	1.27E+000 +/- 3.10E-001	5.23E-002 +/- 8.96E-003

AG  
 11/5/15

0000133151.CNF

Live Time : 10200.000 sec  
Real Time : 10200.400 sec  
Start : 1:347.2 (keV)  
Stop : 1024.6529.6 (keV)  
Acq. Start : Wed Nov 04 11:21:18 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: 19

Elapsed Live time: 10200

Elapsed Real Time: 10200

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

369: 0 0 0 0 2 2 2 2

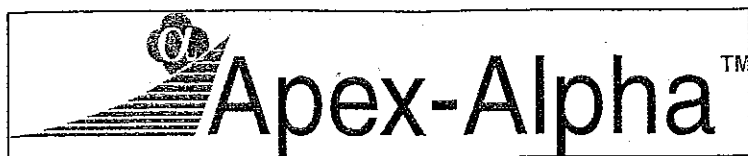
Sample Title: 19

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

801: 0 0 0 0 0 0 0 0

Sample Title: 19

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	1	0	1	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	1	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	1	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	1	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	0	0	0
929:	0	0	0	0	0	1	0	0
937:	0	0	0	0	0	0	0	0
945:	0	1	1	0	0	0	1	0
953:	1	0	0	1	0	1	0	0
961:	1	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	1	0
977:	1	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0




## QA SUMMARY REPORT

### Review Of QA Results - Pulser Check

Date : 11/4/2015  
Time : 5:50:13 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 001	21f	ALL	Not Done	
Alpha 002	21f	ALL	Not Done	
Alpha 003	21f	ALL	Passed	11/4/2015 5:27:24 AM
Alpha 004	21f	ALL	Passed	11/4/2015 5:27:25 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	11/4/2015 5:27:26 AM
Alpha 011	21f	ALL	Passed	11/4/2015 5:27:26 AM
Alpha 012	21f	ALL	Passed	11/4/2015 5:27:27 AM
Alpha 013	21f	ALL	Not Done	
Alpha 014	21f	ALL	Passed	11/4/2015 5:27:28 AM
Alpha 015	21f	ALL	Passed	11/4/2015 5:27:29 AM
Alpha 016	21f	ALL	Not Done	
Alpha 033	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:30 AM
Alpha 034	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:32 AM
Alpha 035	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:33 AM
Alpha 036	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:35 AM
Alpha 037	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:37 AM
Alpha 038	Alpha Analyst100DC	Peak Energy	Action	11/4/2015 5:27:38 AM
Alpha 039	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:40 AM
Alpha 040	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:42 AM
Alpha 041	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:43 AM
Alpha 042	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:45 AM
Alpha 043	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:47 AM
Alpha 044	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:49 AM
Alpha 045	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:52 AM
Alpha 046	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:54 AM
Alpha 047	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:57 AM
Alpha 048	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:27:59 AM
Alpha 049	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:02 AM
Alpha 050	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:04 AM
Alpha 051	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:06 AM
Alpha 052	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:09 AM
Alpha 053	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:12 AM
Alpha 054	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:14 AM
Alpha 055	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:17 AM
Alpha 056	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:20 AM
Alpha 057	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:24 AM
Alpha 058	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:27 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:29 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	11/4/2015 5:28:33 AM

APPROVED BY: \_\_\_\_\_ 

APPROVAL DATE: 11/4

\*\*\*\*\*  
\*\*\*\*\* 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	<b>15-10093</b>
Analysis Code	<b>Gamma</b>
Run	<b>1</b>
Date Received	<b>10/14/2015</b>
Lab Deadline	<b>11/5/2015</b>
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	<b>4</b>
Activity Units	pCi
Aliquot Units	<b>g</b>
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	CP5002S03-04	35	10/08/15 12:00	5.7861E+02
04	DO	CP5002S03-04	35	10/08/15 12:00	5.7861E+02
05	TRG	CP5002S06-07	34	10/08/15 12:20	5.5045E+02
06	TRG	CP5002S09-10	36	10/08/15 12:30	5.0144E+02
07	TRG	CP5002S11-12	34	10/08/15 12:40	5.2849E+02
08	TRG	CP5002S13-14	32	10/08/15 13:00	5.1632E+02
09	TRG	CP5002S16-17	33	10/08/15 13:10	5.5421E+02
10	TRG	CP1806S03-04	37	10/09/15 08:00	5.3162E+02
11	TRG	CP1806S05-06	34	10/09/15 08:10	5.5474E+02
12	TRG	CP1806S08-09	35	10/09/15 08:20	5.2214E+02
13	TRG	CP1806S10-11	36	10/09/15 08:30	5.6951E+02
14	TRG	CP1806S13-14	34	10/09/15 08:40	6.0542E+02
15	TRG	CP3004S02-03	39	10/10/15 12:40	5.0778E+02
16	TRG	CP3004S05-06	41	10/10/15 12:50	5.8246E+02
17	TRG	CP3004S07-08	38	10/10/15 13:00	5.7973E+02
18	TRG	CP3004S10-11	34	10/10/15 13:10	5.4705E+02
19	TRG	CP3004S12-13	32	10/10/15 13:20	5.7030E+02

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



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

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

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

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep 10 Date/Time	Sep 10 By	Sep 11 Date/Time	Sep 11 By
01	LCS								
02	MBL								
03	DUP								
04	DO	10/21/15 08:34	KSALLINGS						
05	TRG	10/21/15 08:34	KSALLINGS						
06	TRG	10/21/15 08:34	KSALLINGS						
07	TRG	10/21/15 08:34	KSALLINGS						
08	TRG	10/21/15 08:34	KSALLINGS						
09	TRG	10/21/15 08:34	KSALLINGS						
10	TRG	10/21/15 08:34	KSALLINGS						
11	TRG	10/21/15 08:34	KSALLINGS						
12	TRG	10/21/15 08:34	KSALLINGS						
13	TRG	10/21/15 08:34	KSALLINGS						
14	TRG	10/21/15 08:34	KSALLINGS						
15	TRG	10/21/15 08:34	KSALLINGS						
16	TRG	10/21/15 08:34	KSALLINGS						
17	TRG	10/21/15 08:34	KSALLINGS						
18	TRG	10/21/15 08:34	KSALLINGS						
19	TRG	10/21/15 08:34	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: 15-10093-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	9.42E+00	1.55E+00	1.37E+02	99.22	OK		10/15/15 00:00	1.00E+00	11/11/15 11:06	YES
01	CS-137	LCS	LCS	pCi/g	8.37E+01	8.07E+00	2.16E+00	8.69E+01	96.27	OK		10/15/15 00:00	1.00E+00	11/11/15 11:06	YES
02	AC-228	MBL	BLANK	pCi/g	2.93E-02	1.30E-01	2.40E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	BI-214	MBL	BLANK	pCi/g	-5.58E-02	9.35E-02	1.31E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	K-40	MBL	BLANK	pCi/g	1.60E-01	4.50E-01	8.89E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	PB-212	MBL	BLANK	pCi/g	3.04E-02	5.54E-02	9.37E-02					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	PB-214	MBL	BLANK	pCi/g	6.04E-02	7.73E-02	1.39E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	RA-226	MBL	BLANK	pCi/g	-5.58E-02	9.35E-02	1.31E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	RA-228	MBL	BLANK	pCi/g	2.93E-02	1.30E-01	2.40E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	TH-234	MBL	BLANK	pCi/g	6.05E-01	4.08E-01	7.00E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
02	TL-208	MBL	BLANK	pCi/g	0.00E+00	1.15E-01	1.92E-01					10/15/15 00:00	1.00E+00	11/11/15 11:37	NO
03	AC-228	DUP	CP5002S03-04	pCi/g	1.42E+00	2.07E-01	3.65E-01				OK	10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	BI-214	DUP	CP5002S03-04	pCi/g	1.28E+00	1.60E-01	5.06E-02				OK	10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	K-40	DUP	CP5002S03-04	pCi/g	1.94E+01	2.19E+00	9.13E-01				OK	10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	PB-212	DUP	CP5002S03-04	pCi/g	1.56E+00	1.78E-01	2.49E-01					10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	PB-214	DUP	CP5002S03-04	pCi/g	1.48E+00	1.75E-01	2.28E-01					10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	RA-226	DUP	CP5002S03-04	pCi/g	1.28E+00	1.60E-01	5.06E-02					10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	RA-228	DUP	CP5002S03-04	pCi/g	1.42E+00	2.07E-01	3.65E-01					10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	TH-234	DUP	CP5002S03-04	pCi/g	1.40E+00	1.46E+00	2.44E+00					10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
03	TL-208	DUP	CP5002S03-04	pCi/g	1.18E+00	1.73E-01	1.71E-01					10/08/15 12:00	5.79E+02	11/11/15 10:33	YES
04	AC-228	DO	CP5002S03-04	pCi/g	1.57E+00	2.35E-01	3.64E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	BI-214	DO	CP5002S03-04	pCi/g	1.32E+00	1.80E-01	2.31E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	K-40	DO	CP5002S03-04	pCi/g	2.07E+01	2.29E+00	7.88E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	PB-212	DO	CP5002S03-04	pCi/g	1.64E+00	1.82E-01	3.26E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	PB-214	DO	CP5002S03-04	pCi/g	1.42E+00	1.60E-01	2.55E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	RA-226	DO	CP5002S03-04	pCi/g	1.32E+00	1.80E-01	2.31E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	RA-228	DO	CP5002S03-04	pCi/g	1.57E+00	2.35E-01	3.64E-01					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	TH-234	DO	CP5002S03-04	pCi/g	3.02E+00	1.59E+00	2.60E+00					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
04	TL-208	DO	CP5002S03-04	pCi/g	1.38E+00	1.78E-01	8.87E-02					10/08/15 12:00	5.79E+02	11/11/15 11:34	YES
05	AC-228	TRG	CP5002S06-07	pCi/g	1.34E+00	2.01E-01	7.14E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	BI-214	TRG	CP5002S06-07	pCi/g	1.09E+00	1.57E-01	1.88E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	K-40	TRG	CP5002S06-07	pCi/g	2.01E+01	2.54E+00	8.52E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	PB-212	TRG	CP5002S06-07	pCi/g	1.60E+00	1.87E-01	2.57E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	PB-214	TRG	CP5002S06-07	pCi/g	1.27E+00	1.54E-01	2.12E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	RA-226	TRG	CP5002S06-07	pCi/g	1.09E+00	1.57E-01	1.88E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	RA-228	TRG	CP5002S06-07	pCi/g	1.34E+00	2.01E-01	7.14E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	TH-234	TRG	CP5002S06-07	pCi/g	1.94E+00	1.77E+00	2.98E+00					10/08/15 12:20	5.50E+02	11/11/15 10:33	YES
05	TL-208	TRG	CP5002S06-07	pCi/g	1.11E+00	1.60E-01	1.13E-01					10/08/15 12:20	5.50E+02	11/11/15 10:33	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
06	AC-228	TRG	CP5002S09-10	pCi/g	1.65E+00	3.05E-01	3.91E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	BI-214	TRG	CP5002S09-10	pCi/g	1.22E+00	2.44E-01	3.44E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	K-40	TRG	CP5002S09-10	pCi/g	2.48E+01	3.02E+00	1.68E+00					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	PB-212	TRG	CP5002S09-10	pCi/g	1.80E+00	2.08E-01	3.06E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	PB-214	TRG	CP5002S09-10	pCi/g	1.41E+00	2.02E-01	3.54E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	RA-226	TRG	CP5002S09-10	pCi/g	1.22E+00	2.44E-01	3.44E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	RA-228	TRG	CP5002S09-10	pCi/g	1.65E+00	3.05E-01	3.91E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
06	TH-234	TRG	CP5002S09-10	pCi/g	2.27E+00	1.76E+00	2.36E+00					10/08/15 12:30	5.01E+02	11/11/15 10:34	NO
06	TL-208	TRG	CP5002S09-10	pCi/g	1.37E+00	2.49E-01	2.85E-01					10/08/15 12:30	5.01E+02	11/11/15 10:34	YES
07	AC-228	TRG	CP5002S11-12	pCi/g	1.46E+00	2.86E-01	4.39E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	BI-214	TRG	CP5002S11-12	pCi/g	1.65E+00	1.97E-01	2.52E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	K-40	TRG	CP5002S11-12	pCi/g	2.09E+01	2.69E+00	1.21E+00					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	PB-212	TRG	CP5002S11-12	pCi/g	1.64E+00	1.94E-01	3.05E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	PB-214	TRG	CP5002S11-12	pCi/g	1.83E+00	1.98E-01	2.68E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	RA-226	TRG	CP5002S11-12	pCi/g	1.65E+00	1.97E-01	2.52E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	RA-228	TRG	CP5002S11-12	pCi/g	1.46E+00	2.86E-01	4.39E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	TH-234	TRG	CP5002S11-12	pCi/g	1.30E+00	1.52E+00	2.54E+00					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
07	TL-208	TRG	CP5002S11-12	pCi/g	1.16E+00	1.71E-01	1.17E-01					10/08/15 12:40	5.28E+02	11/11/15 11:34	YES
08	AC-228	TRG	CP5002S13-14	pCi/g	1.58E+00	2.79E-01	4.70E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	BI-214	TRG	CP5002S13-14	pCi/g	1.34E+00	2.42E-01	3.21E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	K-40	TRG	CP5002S13-14	pCi/g	2.14E+01	2.68E+00	1.35E+00					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	PB-212	TRG	CP5002S13-14	pCi/g	1.72E+00	1.94E-01	2.86E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	PB-214	TRG	CP5002S13-14	pCi/g	1.57E+00	1.93E-01	4.03E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	RA-226	TRG	CP5002S13-14	pCi/g	1.34E+00	2.42E-01	3.21E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	RA-228	TRG	CP5002S13-14	pCi/g	1.58E+00	2.79E-01	4.70E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
08	TH-234	TRG	CP5002S13-14	pCi/g	1.35E+00	1.78E+00	2.35E+00					10/08/15 13:00	5.16E+02	11/11/15 11:35	NO
08	TL-208	TRG	CP5002S13-14	pCi/g	1.45E+00	3.34E-01	4.37E-01					10/08/15 13:00	5.16E+02	11/11/15 11:35	YES
09	AC-228	TRG	CP5002S16-17	pCi/g	2.06E+00	5.18E-01	8.23E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	BI-214	TRG	CP5002S16-17	pCi/g	1.16E+00	2.63E-01	7.00E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	K-40	TRG	CP5002S16-17	pCi/g	2.08E+01	3.41E+00	9.39E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	PB-212	TRG	CP5002S16-17	pCi/g	2.05E+00	3.89E-01	4.89E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	PB-214	TRG	CP5002S16-17	pCi/g	1.19E+00	2.95E-01	4.71E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	RA-226	TRG	CP5002S16-17	pCi/g	1.16E+00	2.63E-01	7.00E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	RA-228	TRG	CP5002S16-17	pCi/g	2.05E+00	5.18E-01	8.23E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
09	TH-234	TRG	CP5002S16-17	pCi/g	2.34E+00	1.46E+00	2.31E+00					10/08/15 13:10	5.54E+02	11/11/15 13:12	NO
09	TL-208	TRG	CP5002S16-17	pCi/g	1.33E+00	3.10E-01	2.36E-01					10/08/15 13:10	5.54E+02	11/11/15 13:12	YES
10	AC-228	TRG	CP1806S03-04	pCi/g	1.63E+00	2.81E-01	4.55E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	BI-214	TRG	CP1806S03-04	pCi/g	1.48E+00	1.86E-01	2.38E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES

Preliminary Data Report & Analytical Calculations  
**Work Order: 15-10093-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
10	K-40	TRG	CP1806S03-04	pCi/g	2.17E+01	2.40E+00	1.20E+00					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	PB-212	TRG	CP1806S03-04	pCi/g	1.82E+00	2.01E-01	2.81E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	PB-214	TRG	CP1806S03-04	pCi/g	1.62E+00	1.79E-01	2.70E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	RA-226	TRG	CP1806S03-04	pCi/g	1.48E+00	1.86E-01	2.33E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	RA-228	TRG	CP1806S03-04	pCi/g	1.63E+00	2.81E-01	4.56E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	TH-234	TRG	CP1806S03-04	pCi/g	1.56E+00	1.64E+00	2.73E+00					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
10	TL-208	TRG	CP1806S03-04	pCi/g	1.51E+00	1.96E-01	1.43E-01					10/09/15 08:00	5.32E+02	11/11/15 13:28	YES
11	AC-228	TRG	CP1806S05-06	pCi/g	1.55E+00	2.26E-01	4.19E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	BI-214	TRG	CP1806S05-06	pCi/g	1.14E+00	1.69E-01	2.48E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	K-40	TRG	CP1806S05-06	pCi/g	2.20E+01	2.71E+00	6.16E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	PB-212	TRG	CP1806S05-06	pCi/g	1.87E+00	2.43E-01	2.48E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	PB-214	TRG	CP1806S05-06	pCi/g	1.41E+00	1.63E-01	2.13E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	RA-226	TRG	CP1806S05-06	pCi/g	1.14E+00	1.69E-01	2.48E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	RA-228	TRG	CP1806S05-06	pCi/g	1.55E+00	2.26E-01	4.19E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
11	TH-234	TRG	CP1806S05-06	pCi/g	1.54E+00	9.63E-01	1.55E+00					10/09/15 08:10	5.55E+02	11/11/15 13:28	NO
11	TL-208	TRG	CP1806S05-06	pCi/g	1.19E+00	1.69E-01	1.12E-01					10/09/15 08:10	5.55E+02	11/11/15 13:28	YES
12	AC-228	TRG	CP1806S08-09	pCi/g	1.37E+00	2.72E-01	4.62E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	BI-214	TRG	CP1806S08-09	pCi/g	1.13E+00	2.07E-01	2.47E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	K-40	TRG	CP1806S08-09	pCi/g	2.06E+01	2.54E+00	1.04E+00					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	PB-212	TRG	CP1806S08-09	pCi/g	1.86E+00	2.06E-01	3.43E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	PB-214	TRG	CP1806S08-09	pCi/g	1.22E+00	2.03E-01	2.90E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	RA-226	TRG	CP1806S08-09	pCi/g	1.13E+00	2.07E-01	2.47E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	RA-228	TRG	CP1806S08-09	pCi/g	1.37E+00	2.72E-01	4.62E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	TH-234	TRG	CP1806S08-09	pCi/g	5.88E+00	2.64E+00	4.29E+00					10/09/15 08:20	5.22E+02	11/11/15 13:28	YES
12	TL-208	TRG	CP1806S08-09	pCi/g	1.64E+00	3.12E-01	5.72E-01					10/09/15 08:20	5.22E+02	11/11/15 13:28	NO
13	AC-228	TRG	CP1806S10-11	pCi/g	1.47E+00	3.82E-01	6.99E-01					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	BI-214	TRG	CP1806S10-11	pCi/g	1.05E+00	3.04E-01	4.66E-01					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	K-40	TRG	CP1806S10-11	pCi/g	1.34E+01	2.55E+00	1.40E+00					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	PB-212	TRG	CP1806S10-11	pCi/g	1.84E+00	3.03E-01	3.19E-01					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	PB-214	TRG	CP1806S10-11	pCi/g	1.20E+00	2.37E-01	6.61E-01					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	RA-226	TRG	CP1806S10-11	pCi/g	1.05E+00	3.04E-01	4.66E-01					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	RA-228	TRG	CP1806S10-11	pCi/g	1.47E+00	3.82E-01	6.99E-01					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
13	TH-234	TRG	CP1806S10-11	pCi/g	2.12E+00	1.37E+00	2.16E+00					10/09/15 08:30	5.70E+02	11/11/15 14:14	NO
13	TL-208	TRG	CP1806S10-11	pCi/g	1.43E+00	3.03E-01	9.29E-02					10/09/15 08:30	5.70E+02	11/11/15 14:14	YES
14	AC-228	TRG	CP1806S13-14	pCi/g	1.27E+00	1.84E-01	3.25E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
14	BI-214	TRG	CP1806S13-14	pCi/g	1.02E+00	1.40E-01	1.71E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
14	K-40	TRG	CP1806S13-14	pCi/g	1.31E+01	1.62E+00	8.38E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
14	PB-212	TRG	CP1806S13-14	pCi/g	1.39E+00	1.59E-01	2.67E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %/R	LCS Flag	RPO Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
14	PB-214	TRG	CP1806S13-14	pCi/g	1.13E+00	1.33E-01	1.91E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
14	RA-226	TRG	CP1806S13-14	pCi/g	1.02E+00	1.40E-01	1.71E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
14	RA-228	TRG	CP1806S13-14	pCi/g	1.27E+00	1.84E-01	3.25E-01					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
14	TH-234	TRG	CP1806S13-14	pCi/g	1.48E+00	1.26E+00	1.69E+00					10/09/15 08:40	6.05E+02	11/11/15 14:30	NO
14	TL-208	TRG	CP1806S13-14	pCi/g	1.05E+00	1.50E-01	8.48E-02					10/09/15 08:40	6.05E+02	11/11/15 14:30	YES
15	AC-228	TRG	CP3004S02-03	pCi/g	1.50E+00	2.48E-01	5.01E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	BI-214	TRG	CP3004S02-03	pCi/g	1.53E+00	1.92E-01	2.27E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	K-40	TRG	CP3004S02-03	pCi/g	1.98E+01	2.59E+00	1.21E+00					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	PB-212	TRG	CP3004S02-03	pCi/g	1.41E+00	1.79E-01	2.60E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	PB-214	TRG	CP3004S02-03	pCi/g	1.71E+00	2.12E-01	2.56E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	RA-226	TRG	CP3004S02-03	pCi/g	1.53E+00	1.92E-01	2.27E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	RA-228	TRG	CP3004S02-03	pCi/g	1.50E+00	2.48E-01	5.01E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
15	TH-234	TRG	CP3004S02-03	pCi/g	1.91E+00	1.04E+00	1.70E+00					10/10/15 12:40	5.08E+02	11/11/15 14:30	NO
15	TL-208	TRG	CP3004S02-03	pCi/g	1.24E+00	1.64E-01	1.78E-01					10/10/15 12:40	5.08E+02	11/11/15 14:30	YES
16	AC-228	TRG	CP3004S05-06	pCi/g	1.41E+00	3.37E-01	6.56E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	NO
16	BI-214	TRG	CP3004S05-06	pCi/g	1.55E+00	2.43E-01	2.66E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	YES
16	K-40	TRG	CP3004S05-06	pCi/g	1.79E+01	2.29E+00	3.98E+00					10/10/15 12:50	5.82E+02	11/11/15 14:30	NO
16	PB-212	TRG	CP3004S05-06	pCi/g	1.68E+00	1.92E-01	2.51E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	YES
16	PB-214	TRG	CP3004S05-06	pCi/g	1.51E+00	2.01E-01	2.43E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	YES
16	RA-226	TRG	CP3004S05-06	pCi/g	1.55E+00	2.43E-01	2.66E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	YES
16	RA-228	TRG	CP3004S05-06	pCi/g	1.41E+00	3.37E-01	6.56E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	NO
16	TH-234	TRG	CP3004S05-06	pCi/g	2.94E+00	1.64E+00	2.24E+00					10/10/15 12:50	5.82E+02	11/11/15 14:30	NO
16	TL-208	TRG	CP3004S05-06	pCi/g	1.31E+00	3.06E-01	4.02E-01					10/10/15 12:50	5.82E+02	11/11/15 14:30	YES
17	AC-228	TRG	CP3004S07-08	pCi/g	1.66E+00	5.69E-01	9.86E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	BI-214	TRG	CP3004S07-08	pCi/g	1.29E+00	3.52E-01	5.99E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	K-40	TRG	CP3004S07-08	pCi/g	1.97E+01	3.24E+00	8.41E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	PB-212	TRG	CP3004S07-08	pCi/g	1.97E+00	3.33E-01	3.71E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	PB-214	TRG	CP3004S07-08	pCi/g	1.19E+00	2.56E-01	3.76E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	RA-226	TRG	CP3004S07-08	pCi/g	1.29E+00	3.52E-01	5.99E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	RA-228	TRG	CP3004S07-08	pCi/g	1.66E+00	5.69E-01	9.86E-01					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
17	TH-234	TRG	CP3004S07-08	pCi/g	1.16E+00	1.39E+00	2.17E+00					10/10/15 13:00	5.80E+02	11/11/15 15:16	NO
17	TL-208	TRG	CP3004S07-08	pCi/g	1.45E+00	3.39E-01	9.12E-02					10/10/15 13:00	5.80E+02	11/11/15 15:16	YES
18	AC-228	TRG	CP3004S10-11	pCi/g	1.42E+00	2.33E-01	3.95E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	BI-214	TRG	CP3004S10-11	pCi/g	1.25E+00	1.46E-01	3.23E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	K-40	TRG	CP3004S10-11	pCi/g	2.18E+01	2.46E+00	1.16E+00					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	PB-212	TRG	CP3004S10-11	pCi/g	1.59E+00	1.79E-01	2.76E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	PB-214	TRG	CP3004S10-11	pCi/g	1.53E+00	1.72E-01	2.63E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	RA-226	TRG	CP3004S10-11	pCi/g	1.25E+00	1.46E-01	3.23E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	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
18	RA-228	TRG	CP3004S10-11	pCi/g	1.42E+00	2.33E-01	3.96E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	TH-234	TRG	CP3004S10-11	pCi/g	1.17E+00	1.35E+00	2.26E+00					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
18	TL-208	TRG	CP3004S10-11	pCi/g	1.14E+00	1.76E-01	1.71E-01					10/10/15 13:10	5.47E+02	11/11/15 15:32	YES
19	AC-228	TRG	CP3004S12-13	pCi/g	1.12E+00	1.89E-01	3.11E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	BI-214	TRG	CP3004S12-13	pCi/g	8.17E-01	1.48E-01	2.20E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	K-40	TRG	CP3004S12-13	pCi/g	1.90E+01	2.42E+00	8.27E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	PB-212	TRG	CP3004S12-13	pCi/g	1.32E+00	1.61E-01	2.31E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	PB-214	TRG	CP3004S12-13	pCi/g	9.56E-01	1.29E-01	1.89E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	RA-226	TRG	CP3004S12-13	pCi/g	8.17E-01	1.48E-01	2.20E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	RA-228	TRG	CP3004S12-13	pCi/g	1.12E+00	1.89E-01	3.11E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES
19	TH-234	TRG	CP3004S12-13	pCi/g	1.34E+00	8.78E-01	1.43E+00					10/10/15 13:20	5.70E+02	11/11/15 15:32	NO
19	TL-208	TRG	CP3004S12-13	pCi/g	1.09E+00	1.55E-01	1.48E-01					10/10/15 13:20	5.70E+02	11/11/15 15:32	YES

Count Room Report  
Client: Auxier Associates, Inc.

15-10093-Gamma-1 (pCi/g) in SO  
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
<del>01</del>	LCS	LCS	10/15/15 00:00	1.0000				0.00		
<del>02</del>	MBL	BLANK	10/15/15 00:00	1.0000				0.00		
<del>03</del>	DUP	CP5002S03-04	10/08/15 12:00	578.6100				0.00		
<del>04</del>	DO	CP5002S03-04	10/08/15 12:00	578.6100				0.00		
<del>05</del>	TRG	CP5002S06-07	10/08/15 12:20	550.4500				0.00		
<del>06</del>	TRG	CP5002S09-10	10/08/15 12:30	501.4400				0.00		
<del>07</del>	TRG	CP5002S11-12	10/08/15 12:40	528.4900				0.00		
<del>08</del>	TRG	CP5002S13-14	10/08/15 13:00	516.3200				0.00		
<del>09</del>	TRG	CP5002S16-17	10/08/15 13:10	554.2100				0.00		
<del>10</del>	TRG	CP1806S03-04	10/09/15 08:00	531.6200				0.00		
<del>11</del>	TRG	CP1806S05-06	10/09/15 08:10	554.7400				0.00		
<del>12</del>	TRG	CP1806S08-09	10/09/15 08:20	522.1400				0.00		
<del>13</del>	TRG	CP1806S10-11	10/09/15 08:30	569.5100				0.00		
<del>14</del>	TRG	CP1806S13-14	10/09/15 08:40	605.4200				0.00		
<del>15</del>	TRG	CP3004S02-03	10/10/15 12:40	507.7800				0.00		
<del>16</del>	TRG	CP3004S05-06	10/10/15 12:50	582.4600				0.00		
<del>17</del>	TRG	CP3004S07-08	10/10/15 13:00	579.7300				0.00		
<del>18</del>	TRG	CP3004S10-11	10/10/15 13:10	547.0500				0.00		
<del>19</del>	TRG	CP3004S12-13	10/10/15 13:20	570.3000				0.00		



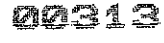
# Aliquot Worksheet

Work Order		Run		Analysis Code		Rpt Units		Lab Deadline		Technician	
<b>15-10093</b>		<b>1</b>		<b>Gamma</b>		<b>grams</b>		<b>11/5/2015</b>		<b>KSALLINGS</b>	

Lab Fraction	Auxier & Associates, Inc.		Sample		Muffle Data		Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
	Client ID	Type	Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist	Aliq		
01	LCS	LCS					1.0000E+00	1.0000E+00							
02	BLANK	MBL					1.0000E+00	1.0000E+00							
03	CP5002S03-04	DUP					5.7861E+02	5.7861E+02							
04	CP5002S03-04	DO					5.7861E+02	5.7861E+02							
05	CP5002S06-07	TRG					5.5045E+02	5.5045E+02							
06	CP5002S09-10	TRG					5.0144E+02	5.0144E+02							
07	CP5002S11-12	TRG					5.2849E+02	5.2849E+02							
08	CP5002S13-14	TRG					5.1632E+02	5.1632E+02							
09	CP5002S16-17	TRG					5.5421E+02	5.5421E+02							
10	CP1806S03-04	TRG					5.3162E+02	5.3162E+02							
11	CP1806S05-06	TRG					5.5474E+02	5.5474E+02							
12	CP1806S08-09	TRG					5.2214E+02	5.2214E+02							
13	CP1806S10-11	TRG					5.6951E+02	5.6951E+02							
14	CP1806S13-14	TRG					6.0542E+02	6.0542E+02							
15	CP3004S02-03	TRG					5.0778E+02	5.0778E+02							
16	CP3004S05-06	TRG					5.8246E+02	5.8246E+02							
17	CP3004S07-08	TRG					5.7973E+02	5.7973E+02							
18	CP3004S10-11	TRG					5.4705E+02	5.4705E+02							
19	CP3004S12-13	TRG					5.7030E+02	5.7030E+02							

Comments
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Technician: Kenny Saeg Date: 10/21/15



Rough Sample Preparation  
 Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
<b>15-10093</b>	11/5/2015	10/20/2015	10/21/2015	10/22/2015	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	CP5002S03-04	14.5700	725.4000	870.8600	725.4000	856.2900	710.8300	16.99%	83.01%	0.0000	0.0000	
05	CP5002S06-07	14.5500	915.9800	1102.9200	915.9800	1088.3700	901.4300	17.18%	82.82%	0.0000	0.0000	
06	CP5002S09-10	14.5600	575.9200	718.0000	575.9200	703.4400	561.3600	20.20%	79.80%	0.0000	0.0000	
07	CP5002S11-12	14.5200	714.2300	900.8200	714.2300	886.3000	699.7100	21.05%	78.95%	0.0000	0.0000	
08	CP5002S13-14	14.5100	701.9500	892.7400	701.9500	878.2300	687.4400	21.72%	78.28%	0.0000	0.0000	
09	CP5002S16-17	14.4700	763.2500	975.7000	763.2500	961.2300	748.7800	22.10%	77.90%	0.0000	0.0000	
10	CP1806S03-04	14.4300	859.9400	1045.7200	859.9400	1031.2900	845.5100	18.01%	81.99%	0.0000	0.0000	
11	CP1806S05-06	14.4500	634.1900	786.0800	634.1900	771.6300	619.7400	19.68%	80.32%	0.0000	0.0000	
12	CP1806S08-09	14.3900	748.1700	937.6000	748.1700	923.2100	733.7800	20.52%	79.48%	0.0000	0.0000	
13	CP1806S10-11	14.4000	1074.4800	1306.2200	1074.4800	1291.8200	1060.0800	17.94%	82.06%	0.0000	0.0000	
14	CP1806S13-14	14.3300	1111.5400	1339.7000	1111.5400	1325.3700	1097.2100	17.21%	82.79%	0.0000	0.0000	
15	CP3004S02-03	14.3600	587.1100	744.3400	587.1100	729.9800	572.7500	21.54%	78.46%	0.0000	0.0000	
16	CP3004S05-06	14.3700	652.0000	792.7400	652.0000	778.3700	637.6300	18.08%	81.92%	0.0000	0.0000	
17	CP3004S07-08	14.3900	758.3200	922.1600	758.3200	907.7700	743.9300	18.05%	81.95%	0.0000	0.0000	
18	CP3004S10-11	14.3300	780.0000	972.3800	780.0000	958.0500	765.6700	20.08%	79.92%	0.0000	0.0000	
19	CP3004S12-13	14.2900	816.3000	1036.7800	816.3000	1022.4900	802.0100	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)

Technician: *Kerry Seel*

Date: Analysis: Rough Prep Logbook

Analysis: Gamma Page No. 9435

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

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

**Calibration Methods:** 4 $\pi$  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)



KB  
11/11/15Analysis Report for 1510093-01  
GAS-1302

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-01  
Sample Description : GAS-1302  
Sample Type : SOIL

Sample Size : 7.360E+02 grams  
Facility : Countroom

Sample Taken On : 7/1/2013 7:27:13AM  
Acquisition Started : 11/11/2015 11:06:15AM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE4  
Geometry : GAS-1402  
Live Time : 1800.0 seconds  
Real Time : 1841.4 seconds

Dead Time : 2.25 %

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 : 29480

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15

Analysis Report for 1510093-01  
GAS-1302

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 11:36:59AM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096  
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	22.34	21.59	0.0000	0.00
2	31.88	31.13	0.0000	0.00
3	53.81	53.07	0.0000	0.00
4	59.44	58.70	0.0000	0.00
5	67.27	66.53	0.0000	0.00
6	87.89	87.16	0.0000	0.00
7	122.03	121.32	0.0000	0.00
8	136.09	135.38	0.0000	0.00
9	165.87	165.18	0.0000	0.00
10	241.34	240.68	0.0000	0.00
11	661.83	661.37	0.0000	0.00
12	898.59	898.24	0.0000	0.00
13	1173.52	1173.32	0.0000	0.00
14	1332.84	1332.73	0.0000	0.00
15	1566.34	1566.38	0.0000	0.00
16	1573.48	1573.52	0.0000	0.00
17	1681.30	1681.41	0.0000	0.00
18	1731.76	1731.90	0.0000	0.00
19	1836.24	1836.45	0.0000	0.00
20	1900.68	1900.93	0.0000	0.00
21	1924.06	1924.33	0.0000	0.00
22	2208.92	2209.38	0.0000	0.00
23	2267.84	2268.35	0.0000	0.00
24	2505.98	2506.67	0.0000	0.00
25	2615.36	2616.13	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-01

GAS-1302

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## PEAK ANALYSIS REPORT

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Peak Analysis Performed on : 11/11/2015 11:36:59AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	22.34	19 -	25	21.59	7.12E+04	775.88	5.90E+04	2.63
	2	31.88	29 -	35	31.13	9.31E+02	267.32	1.24E+04	2.34
M	3	53.81	43 -	63	53.07	1.77E+04	1000.15	5.79E+04	6.63
m	4	59.44	43 -	63	58.70	5.55E+04	600.89	1.90E+04	2.34
	5	67.27	64 -	70	66.53	5.11E+02	331.94	1.98E+04	2.20
	6	87.89	81 -	93	87.16	2.53E+04	600.20	2.95E+04	2.44
	7	122.03	117 -	125	121.32	5.04E+03	328.03	1.34E+04	2.52
	8	136.09	131 -	139	135.38	9.61E+02	279.72	1.14E+04	2.67
	9	165.87	162 -	169	165.18	6.06E+02	246.22	9.67E+03	1.65
	10	241.34	237 -	245	240.68	2.58E+02	244.47	9.02E+03	3.56
	11	661.83	655 -	667	661.37	1.18E+04	284.59	3.96E+03	2.65
	12	898.59	895 -	902	898.24	1.48E+02	133.25	2.86E+03	4.33
	13	1173.52	1165 -	1179	1173.32	9.99E+03	241.06	1.94E+03	2.75
	14	1332.84	1326 -	1340	1332.73	9.00E+03	199.06	3.59E+02	2.95
M	15	1566.34	1563 -	1593	1566.38	1.53E+01	15.82	4.39E+01	3.59
m	16	1573.48	1563 -	1593	1573.52	2.64E+01	21.36	5.52E+01	3.60
	17	1681.30	1676 -	1688	1681.41	2.33E+01	17.80	2.74E+01	7.87
	18	1731.76	1726 -	1736	1731.90	1.50E+01	18.65	3.81E+01	6.69
	19	1836.24	1829 -	1840	1836.45	8.55E+01	24.17	3.10E+01	2.46
	20	1900.68	1896 -	1905	1900.93	1.40E+01	14.00	2.00E+01	1.35
	21	1924.06	1920 -	1927	1924.33	1.11E+01	10.77	1.18E+01	1.86
	22	2208.92	2205 -	2213	2209.38	1.30E+01	7.21	0.00E+00	5.37
	23	2267.84	2264 -	2273	2268.35	1.20E+01	10.86	1.00E+01	6.43
	24	2505.98	2502 -	2511	2506.67	4.20E+01	12.96	0.00E+00	3.10
	25	2615.36	2612 -	2619	2616.13	8.00E+00	7.48	4.00E+00	1.26

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 1510093-01  
GAS-1302

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 11:36:59AM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	22.34	19 -	25	7.12E+04	775.88	5.90E+04	4.63E+02
2	31.88	29 -	35	9.31E+02	267.32	1.24E+04	2.14E+02
M 3	53.81	43 -	63	1.77E+04	1000.15	5.79E+04	3.96E+02
m 4	59.44	43 -	63	5.55E+04	600.89	1.90E+04	2.27E+02
5	67.27	64 -	70	5.11E+02	331.94	1.98E+04	2.70E+02
6	87.89	81 -	93	2.53E+04	600.20	2.95E+04	4.18E+02
7	122.03	117 -	125	5.04E+03	328.03	1.34E+04	2.43E+02
8	136.09	131 -	139	9.61E+02	279.72	1.14E+04	2.24E+02
9	165.87	162 -	169	6.06E+02	246.22	9.67E+03	1.98E+02
10	241.34	237 -	245	2.58E+02	244.47	9.02E+03	1.99E+02
11	661.83	655 -	667	1.18E+04	284.59	3.96E+03	1.51E+02
12	898.59	895 -	902	1.48E+02	133.25	2.86E+03	1.08E+02
13	1173.52	1165 -	1179	9.99E+03	241.06	1.94E+03	1.11E+02
14	1332.84	1326 -	1340	9.00E+03	199.06	3.59E+02	4.96E+01
M 15	1566.34	1563 -	1593	1.53E+01	15.82	4.39E+01	1.09E+01
m 16	1573.48	1563 -	1593	2.64E+01	21.36	5.52E+01	1.22E+01
17	1681.30	1676 -	1688	2.33E+01	17.80	2.74E+01	1.23E+01
18	1731.76	1726 -	1736	1.50E+01	18.65	3.81E+01	1.39E+01
19	1836.24	1829 -	1840	8.55E+01	24.17	3.10E+01	1.28E+01
20	1900.68	1896 -	1905	1.40E+01	14.00	2.00E+01	9.73E+00
21	1924.06	1920 -	1927	1.11E+01	10.77	1.18E+01	6.95E+00
22	2208.92	2205 -	2213	1.30E+01	7.21	0.00E+00	0.00E+00
23	2267.84	2264 -	2273	1.20E+01	10.86	1.00E+01	6.88E+00
24	2505.98	2502 -	2511	4.20E+01	12.96	0.00E+00	0.00E+00
25	2615.36	2612 -	2619	8.00E+00	7.48	4.00E+00	4.03E+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 1510093-01

GAS-1302

## PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 11:36:59AM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

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

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
1	22.34	19 -	25	21.59	7.12E+04	775.88	5.90E+04	.....	
2	31.88	29 -	35	31.13	9.31E+02	267.32	1.24E+04	.....	
M	3	43 -	63	53.07	1.77E+04	1000.15	5.79E+04	.....	
m	4	43 -	63	58.70	5.55E+04	600.89	1.90E+04	AM-241	
5	67.27	64 -	70	66.53	5.11E+02	331.94	1.98E+04	TH-230	
								TA-182	
								TM-171	
								TI-44	
6	87.89	81 -	93	87.16	2.53E+04	600.20	2.95E+04	CD-109	
								SN-126	
								LU-176	
7	122.03	117 -	125	121.32	5.04E+03	328.03	1.34E+04	CO-57	
								EU-152	
								SE-75	
8	136.09	131 -	139	135.38	9.61E+02	279.72	1.14E+04	SE-75	
								CO-57	
9	165.87	162 -	169	165.18	6.06E+02	246.22	9.67E+03	CE-139	
10	241.34	237 -	245	240.68	2.58E+02	244.47	9.02E+03	RA-224	
11	661.83	655 -	667	661.37	1.18E+04	284.59	3.96E+03	CS-137	
12	898.59	895 -	902	898.24	1.48E+02	133.25	2.86E+03	Y-88	
13	1173.52	1165 -	1179	1173.32	9.99E+03	241.06	1.94E+03	CO-60	
14	1332.84	1326 -	1340	1332.73	9.00E+03	199.06	3.59E+02	CO-60	
M	15	1566.34	1563 -	1593	1566.38	1.53E+01	15.82	4.39E+01	.....
m	16	1573.48	1563 -	1593	1573.52	2.64E+01	21.36	5.52E+01	.....
17	1681.30	1676 -	1688	1681.41	2.33E+01	17.80	2.74E+01	.....	
18	1731.76	1726 -	1736	1731.90	1.50E+01	18.65	3.81E+01	.....	
19	1836.24	1829 -	1840	1836.45	8.55E+01	24.17	3.10E+01	Y-88	
20	1900.68	1896 -	1905	1900.93	1.40E+01	14.00	2.00E+01	.....	
21	1924.06	1920 -	1927	1924.33	1.11E+01	10.77	1.18E+01	.....	
22	2208.92	2205 -	2213	2209.38	1.30E+01	7.21	0.00E+00	.....	
23	2267.84	2264 -	2273	2268.35	1.20E+01	10.86	1.00E+01	.....	
24	2505.98	2502 -	2511	2506.67	4.20E+01	12.96	0.00E+00	.....	
25	2615.36	2612 -	2619	2616.13	8.00E+00	7.48	4.00E+00	TL-208	



Analysis Report for 1510093-01  
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 : 11/11/2015 11:36:59AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.34	7.12E+04	775.88	3.04E-02	1.78E-03
	2	31.88	9.31E+02	267.32	2.91E-02	1.78E-03
M	3	53.81	1.77E+04	1000.15	2.49E-02	1.78E-03
m	4	59.44	5.55E+04	600.89	2.39E-02	1.78E-03
	5	67.27	5.11E+02	331.94	2.26E-02	1.74E-03
	6	87.89	2.53E+04	600.20	1.96E-02	1.63E-03
	7	122.03	5.04E+03	328.03	1.60E-02	1.53E-03
	8	136.09	9.61E+02	279.72	1.48E-02	1.43E-03
	9	165.87	6.06E+02	246.22	1.27E-02	1.21E-03
	10	241.34	2.58E+02	244.47	9.32E-03	9.79E-04
	11	661.83	1.18E+04	284.59	3.57E-03	3.40E-04
	12	898.59	1.48E+02	133.25	2.65E-03	2.08E-04
	13	1173.52	9.99E+03	241.06	2.05E-03	1.73E-04
	14	1332.84	9.00E+03	199.06	1.83E-03	2.16E-04
M	15	1566.34	1.53E+01	15.82	1.59E-03	1.67E-04
m	16	1573.48	2.64E+01	21.36	1.58E-03	1.66E-04
	17	1681.30	2.33E+01	17.80	1.49E-03	1.43E-04
	18	1731.76	1.50E+01	18.65	1.46E-03	1.33E-04
	19	1836.24	8.55E+01	24.17	1.39E-03	1.11E-04
	20	1900.68	1.40E+01	14.00	1.35E-03	1.11E-04
	21	1924.06	1.11E+01	10.77	1.34E-03	1.11E-04
	22	2208.92	1.30E+01	7.21	1.20E-03	1.11E-04
	23	2267.84	1.20E+01	10.86	1.18E-03	1.11E-04
	24	2505.98	4.20E+01	12.96	1.10E-03	1.11E-04
	25	2615.36	8.00E+00	7.48	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 1510093-01

GAS-1302

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## BACKGROUND SUBTRACT REPORT

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Peak Analysis Performed on : 11/11/2015 11:36:59AM

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	7.12E+04	775.88		7.12E+04	7.76E+02
	2	31.88	9.31E+02	267.32		9.31E+02	2.67E+02
M	3	53.81	1.77E+04	1000.15		1.77E+04	1.00E+03
m	4	59.44	5.55E+04	600.89		5.55E+04	6.01E+02
	5	67.27	5.11E+02	331.94		5.11E+02	3.32E+02
	6	87.89	2.53E+04	600.20		2.53E+04	6.00E+02
	7	122.03	5.04E+03	328.03		5.04E+03	3.28E+02
	8	136.09	9.61E+02	279.72		9.61E+02	2.80E+02
	9	165.87	6.06E+02	246.22		6.06E+02	2.46E+02
	10	241.34	2.58E+02	244.47		2.58E+02	2.44E+02
	11	661.83	1.18E+04	284.59		1.18E+04	2.85E+02
	12	898.59	1.48E+02	133.25		1.48E+02	1.33E+02
	13	1173.52	9.99E+03	241.06		9.99E+03	2.41E+02
	14	1332.84	9.00E+03	199.06		9.00E+03	1.99E+02
M	15	1566.34	1.53E+01	15.82		1.53E+01	1.58E+01
m	16	1573.48	2.64E+01	21.36		2.64E+01	2.14E+01
	17	1681.30	2.33E+01	17.80		2.33E+01	1.78E+01
	18	1731.76	1.50E+01	18.65		1.50E+01	1.86E+01
	19	1836.24	8.55E+01	24.17		8.55E+01	2.42E+01
	20	1900.68	1.40E+01	14.00		1.40E+01	1.40E+01
	21	1924.06	1.11E+01	10.77		1.11E+01	1.08E+01
	22	2208.92	1.30E+01	7.21		1.30E+01	7.21E+00
	23	2267.84	1.20E+01	10.86		1.20E+01	1.09E+01
	24	2505.98	4.20E+01	12.96		4.20E+01	1.30E+01
	25	2615.36	8.00E+00	7.48		8.00E+00	7.48E+00

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

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Analysis Report for 1510093-01  
 GAS-1302

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 11:36:59AM  
 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	7.12E+04	775.88		7.12E+04	7.76E+02
	2	31.88	9.31E+02	267.32		9.31E+02	2.67E+02
M	3	53.81	1.77E+04	1000.15		1.77E+04	1.00E+03
m	4	59.44	5.55E+04	600.89		5.55E+04	6.01E+02
	5	67.27	5.11E+02	331.94		5.11E+02	3.32E+02
	6	87.89	2.53E+04	600.20		2.53E+04	6.00E+02
	7	122.03	5.04E+03	328.03		5.04E+03	3.28E+02
	8	136.09	9.61E+02	279.72		9.61E+02	2.80E+02
	9	165.87	6.06E+02	246.22		6.06E+02	2.46E+02
	10	241.34	2.58E+02	244.47		2.58E+02	2.44E+02
	11	661.83	1.18E+04	284.59		1.18E+04	2.85E+02
	12	898.59	1.48E+02	133.25		1.48E+02	1.33E+02
	13	1173.52	9.99E+03	241.06		9.99E+03	2.41E+02
	14	1332.84	9.00E+03	199.06		9.00E+03	1.99E+02
M	15	1566.34	1.53E+01	15.82		1.53E+01	1.58E+01
m	16	1573.48	2.64E+01	21.36		2.64E+01	2.14E+01
	17	1681.30	2.33E+01	17.80		2.33E+01	1.78E+01
	18	1731.76	1.50E+01	18.65		1.50E+01	1.86E+01
	19	1836.24	8.55E+01	24.17		8.55E+01	2.42E+01
	20	1900.68	1.40E+01	14.00		1.40E+01	1.40E+01
	21	1924.06	1.11E+01	10.77		1.11E+01	1.08E+01
	22	2208.92	1.30E+01	7.21		1.30E+01	7.21E+00
	23	2267.84	1.20E+01	10.86		1.20E+01	1.09E+01
	24	2505.98	4.20E+01	12.96		4.20E+01	1.30E+01
	25	2615.36	8.00E+00	7.48		8.00E+00	7.48E+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 1510093-01  
GAS-1302

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.948	122.06 *	85.51	6.87E+01	7.98E+00
		136.48 *	10.60	1.14E+02	3.52E+01
CO-60	0.982	1173.22 *	100.00	1.35E+02	1.19E+01
		1332.49 *	100.00	1.37E+02	1.65E+01
Y-88	0.700	898.02 *	93.40	3.34E+02	3.02E+02
		1836.01 *	99.38	3.46E+02	1.02E+02
CD-109	0.980	88.03 *	3.72	2.56E+03	2.69E+02
SN-126	0.984	87.57 *	37.00	7.10E+01	6.14E+00
CS-137	0.995	661.65 *	85.12	8.37E+01	8.24E+00
CE-139	0.821	165.85 *	80.35	9.33E+01	3.89E+01
TM-171	0.946	66.72 *	0.14	7.73E+02	5.06E+02
RA-224	0.980	240.98 *	3.95	1.43E+01	1.36E+01
AM-241	0.998	59.54 *	35.90	1.32E+02	9.95E+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 : 11/11/2015 11:36:59AM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	22.34	3.95288E+01	0.55		
2	31.88	5.17201E-01	14.36		
M 3	53.81	9.85020E+00	2.82		
M 15	1566.34	8.52115E-03	51.57		
m 16	1573.48	1.46807E-02	40.42	Sum	
17	1681.30	1.29505E-02	38.19		
18	1731.76	8.31699E-03	62.28		
20	1900.68	7.77778E-03	50.00		
21	1924.06	6.17647E-03	48.44	Sum	
22	2208.92	7.22222E-03	27.74		
23	2267.84	6.66667E-03	45.26		
24	2505.98	2.33333E-02	15.43	Sum	
25	2615.36	4.44444E-03	46.77	Tol.	TL-208

Analysis Report for 1510093-01  
GAS-1302

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.94	122.06	*	85.51	6.87E+01	7.98E+00
		136.48	*	10.60	1.14E+02	3.52E+01
CO-60	0.98	1173.22	*	100.00	1.35E+02	1.19E+01
		1332.49	*	100.00	1.37E+02	1.65E+01
Y-88	0.70	898.02	*	93.40	3.34E+02	3.02E+02
		1836.01	*	99.38	3.46E+02	1.02E+02
CD-109	0.98	88.03	*	3.72	2.56E+03	2.69E+02
SN-126	0.98	87.57	*	37.00	7.10E+01	6.14E+00
CS-137	0.99	661.65	*	85.12	8.37E+01	8.24E+00
CE-139	0.82	165.85	*	80.35	9.33E+01	3.89E+01
TM-171	0.94	66.72	*	0.14	7.73E+02	5.06E+02
RA-224	0.98	240.98	*	3.95	1.43E+01	1.36E+01
AM-241	0.99	59.54	*	35.90	1.32E+02	9.95E+00

\* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

## INTERFERENCE CORRECTED REPORT

Analysis Report for 1510093-01  
GAS-1302

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
CO-57	0.948	7.09E+01	7.79E+00	
CO-60	0.982	1.36E+02	9.62E+00	
Y-88	0.700	3.45E+02	9.64E+01	
? CD-109	0.980	2.56E+03	2.69E+02	
? SN-126	0.984	7.10E+01	6.14E+00	
CS-137	0.995	8.37E+01	8.24E+00	
CE-139	0.821	9.33E+01	3.89E+01	
TM-171	0.946	7.73E+02	5.06E+02	
RA-224	0.980	1.43E+01	1.36E+01	
AM-241	0.998	1.32E+02	9.95E+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 1510093-01  
 GAS-1302

**UNIDENTIFIED PEAKS**

Peak Locate Performed on : 11/11/2015 11:36:59AM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	22.34	3.95288E+01	0.55		
2	31.88	5.17201E-01	14.36		
M 3	53.81	9.85020E+00	2.82		
M 15	1566.34	8.52115E-03	51.57		
m 16	1573.48	1.46807E-02	40.42	Sum	
17	1681.30	1.29505E-02	38.19		
18	1731.76	8.31699E-03	62.28		
20	1900.68	7.77778E-03	50.00		
21	1924.06	6.17647E-03	48.44	Sum	
22	2208.92	7.22222E-03	27.74		
23	2267.84	6.66667E-03	45.26		
24	2505.98	2.33333E-02	15.43	Sum	
25	2615.36	4.44444E-03	46.77	Tol.	TL-208

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

**NUCLIDE MDA REPORT**

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	1.66E+05	7.04E+05	7.04E+05
+	NA-22	1274.54	99.94	-2.07E-02	1.29E+00	1.29E+00
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26
@		2754.09	99.86	0.00E+00		1.00E+26

Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	AL-26	1808.65	99.76	-1.21E-01	3.57E-01	3.57E-01
+	K-40	1460.81	10.67	2.69E-01	3.85E+00	3.85E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.49E+01	5.29E-01	5.29E-01
		78.34	96.00	-3.77E-01		5.76E-01
+	SC-46	889.25	99.98	-1.89E+02	1.82E+03	1.82E+03
		1120.51	99.99	2.86E+02		1.84E+03
+	V-48	983.52	99.98	1.00E+16	1.26E+16	2.80E+16
		1312.10	97.50	-3.08E+15		1.26E+16
+	CR-51	320.08	9.83	-5.69E+09	1.83E+10	1.83E+10
+	MN-54	834.83	99.97	-8.24E-01	8.70E+00	8.70E+00
+	CO-56	846.75	99.96	2.90E+02	1.64E+03	2.63E+03
		1037.75	14.03	6.98E+03		2.18E+04
		1238.25	67.00	3.54E+02		2.30E+03
		1771.40	15.51	1.28E+03		5.16E+03
		2598.48	16.90	2.23E+02		1.64E+03
+	CO-57	122.06	* 85.51	6.87E+01	6.66E+00	6.66E+00
		136.48	* 10.60	1.14E+02		5.35E+01
+	CO-58	810.76	99.40	-6.76E+02	5.72E+03	5.72E+03
+	FE-59	1099.22	56.50	5.76E+05	1.07E+06	1.87E+06
		1291.56	43.20	6.13E+05		1.07E+06
+	CO-60	1173.22	* 100.00	1.35E+02	1.55E+00	3.04E+00
		1332.49	* 100.00	1.37E+02		1.55E+00
+	ZN-65	1115.52	50.75	2.17E+01	3.59E+01	3.59E+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	5.80E+03	1.32E+02	5.73E+02
		136.00	59.20	2.82E+02		1.32E+02
		264.65	59.80	-3.03E+00		1.75E+02
		279.53	25.20	-1.20E+02		4.11E+02
		400.65	11.40	-4.99E+02		1.13E+03
+	RB-82	776.52	13.00	4.13E+10	1.34E+11	1.34E+11
+	RB-83	520.41	46.00	-1.56E+02	2.09E+03	2.09E+03
		529.64	30.30	1.36E+03		3.19E+03
		552.65	16.40	2.07E+03		5.87E+03
+	KR-85	513.99	0.43	4.64E+01	2.54E+02	2.54E+02
+	SR-85	513.99	99.27	1.77E+03	9.70E+03	9.70E+03
+	Y-88	898.02	* 93.40	3.34E+02	1.15E+02	4.93E+02
		1836.01	* 99.38	3.46E+02		1.15E+02
+	NB-93M	16.57	9.43	-2.28E+02	6.07E+00	6.07E+00
+	NB-94	702.63	100.00	-4.01E-01	1.01E+00	1.01E+00
		871.10	100.00	-2.74E-01		1.37E+00
+	NB-95	765.79	99.81	1.20E+06	2.91E+07	2.91E+07
+	@ NB-95M	235.69	25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18	43.70	-5.77E+03	2.33E+04	2.76E+04
		756.72	55.30	3.88E+03		2.33E+04



Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	@ MO-99	181.06	6.20	1.00E+26	1.00E+26	1.00E+26
	@	739.58	12.80	1.00E+26		1.00E+26
	@	778.00	4.50	1.00E+26		1.00E+26
+	RU-103	497.08	89.00	-2.74E+05	4.25E+06	4.25E+06
+	RU-106	621.84	9.80	-5.34E+01	4.93E+01	4.93E+01
+	AG-108M	433.93	89.90	2.95E-01	1.09E+00	1.09E+00
		614.37	90.40	-1.89E-01		1.09E+00
		722.95	90.50	-3.10E-01		1.17E+00
+	CD-109	88.03	* 3.72	2.56E+03	8.52E+01	8.52E+01
+	AG-110M	657.75	93.14	-1.27E+00	1.72E+01	2.79E+01
		677.61	10.53	-3.27E+01		1.02E+02
		706.67	16.46	1.72E+00		6.76E+01
		763.93	21.98	1.17E+01		5.64E+01
		884.67	71.63	-8.53E+00		2.20E+01
		1384.27	23.94	-1.26E+00		1.72E+01
+	CD-113M	263.70	0.02	-1.99E+02	3.46E+03	3.46E+03
+	SN-113	255.12	1.93	3.49E+02	2.48E+02	6.56E+03
		391.69	64.90	1.52E+02		2.48E+02
+	TE123M	159.00	84.10	-4.02E+01	9.62E+01	9.62E+01
+	SB-124	602.71	97.87	-9.54E+03	1.30E+04	2.01E+04
		645.85	7.26	-2.70E+05		2.87E+05
		722.78	11.10	-5.38E+04		1.96E+05
		1691.02	49.00	1.98E+03		1.30E+04
+	I-125	35.49	6.49	-1.45E+05	1.05E+05	1.05E+05
+	SB-125	176.33	6.89	3.00E+00	5.86E+00	1.50E+01
		427.89	29.33	1.66E+00		5.86E+00
		463.38	10.35	9.00E+00		1.81E+01
		600.56	17.80	-3.18E+00		9.62E+00
		635.90	11.32	8.07E+00		1.64E+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	7.10E+01	2.36E+00	2.36E+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	-4.72E+00	7.35E-01	7.35E-01
		33.60	13.20	-3.54E-01		2.41E+00
		39.58	7.52	-1.00E+01		4.77E+00
+	@ I-131	284.30	6.05	1.00E+26	1.00E+26	1.00E+26
	@	364.48	81.20	1.00E+26		1.00E+26
	@	636.97	7.26	1.00E+26		1.00E+26
	@	722.89	1.80	1.00E+26		1.00E+26
+	@ TE-132	49.72	13.10	1.00E+26	1.00E+26	1.00E+26
	@	228.16	88.00	1.00E+26		1.00E+26
+	BA-133	81.00	33.00	-8.90E-01	1.57E+00	1.97E+00
		302.84	17.80	-1.46E+00		4.81E+00

Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	BA-133	356.01	60.00	4.19E-01	1.57E+00	1.57E+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	1.04E+00	2.19E+00	2.43E+01
		569.32	15.43	2.21E+00		1.34E+01
		604.70	97.60	1.08E-02		2.19E+00
		795.84	85.40	-3.73E-01		3.14E+00
		801.93	8.73	-6.64E-01		3.09E+01
+	CS-135	268.24	16.00	2.84E+00	4.48E+00	4.48E+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	-7.65E+19	6.93E+19	3.95E+20
		163.89	4.61	-1.11E+20		7.04E+20
		176.55	13.56	4.69E+19		2.35E+20
		273.65	12.66	-7.15E+19		3.10E+20
		340.57	48.50	2.32E+19		9.03E+19
		818.50	99.70	-4.22E+18		6.93E+19
		1048.07	79.60	-4.67E+18		1.07E+20
		1235.34	19.70	3.65E+19		2.27E+20
+	CS-137	661.65	* 85.12	8.37E+01	2.16E+00	2.16E+00
+	LA-138	788.74	34.00	-1.81E+00	5.81E-01	3.46E+00
		1435.80	66.00	4.64E-02		5.81E-01
+	CE-139	165.85	* 80.35	9.33E+01	6.15E+01	6.15E+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	3.63E+07	1.06E+08	1.06E+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	-2.12E+00	3.97E+01	3.97E+01
+	PM-144	476.78	42.00	4.46E+00	5.01E+00	1.25E+01
		618.01	98.60	-3.29E+00		5.01E+00
		696.49	99.49	-9.62E-01		5.38E+00
+	PM-145	36.85	21.70	-3.08E+00	9.14E-01	1.65E+00
		37.36	39.70	-2.01E+00		9.14E-01
		42.30	15.10	-3.84E+00		2.98E+00
		72.40	2.31	6.65E+00		2.44E+01
+	PM-146	453.90	39.94	3.33E-01	3.36E+00	3.36E+00
		735.90	14.01	-3.69E+00		1.03E+01
		747.13	13.10	-2.14E+00		1.13E+01

Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	@ 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	3.54E+01	2.91E+00	3.56E+00
		244.69	5.40	-1.21E+00		1.47E+01
		344.27	19.13	-1.64E+00		4.63E+00
		778.89	9.20	2.94E-02		1.45E+01
		964.01	10.40	-6.83E-01		1.74E+01
		1085.78	7.22	4.15E+00		2.40E+01
		1112.02	9.60	6.54E+00		1.87E+01
		1407.95	14.94	-2.66E-01		2.91E+00
+	GD-153	97.43	31.30	-6.92E-01	1.64E+01	1.64E+01
		103.18	22.20	-6.77E+00		2.40E+01
+	EU-154	123.07	40.50	1.97E+01	1.93E+00	1.93E+00
		723.30	19.70	-1.69E+00		6.42E+00
		873.19	11.50	-7.66E+00		1.44E+01
		996.32	10.30	3.59E+00		1.76E+01
		1004.76	17.90	-2.19E+00		9.80E+00
		1274.45	35.50	-3.74E-02		2.34E+00
+	EU-155	86.50	30.90	1.18E+02	3.05E+00	4.11E+00
		105.30	20.70	4.68E-02		3.05E+00
+	EU-156	811.77	10.40	8.52E+16	1.20E+18	1.50E+18
		1153.47	7.20	1.44E+18		2.22E+18
		1230.71	8.90	5.35E+17		1.20E+18
+	HO-166M	184.41	72.60	1.44E-01	8.29E-01	8.29E-01
		280.45	29.60	-4.86E-01		2.38E+00
		410.94	11.10	-2.17E+00		8.13E+00
		711.69	54.10	1.26E+00		1.94E+00
+	TM-171	66.72	* 0.14	7.73E+02	8.22E+02	8.22E+02
+	HF-172	81.75	4.52	-1.08E+01	1.32E+01	3.05E+01
		125.81	11.30	-5.81E+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	-1.72E+00	1.11E+01	2.78E+01
		272.11	21.20	2.77E+00		1.11E+01
+	HF-175	343.40	84.00	-2.13E+02	4.84E+03	4.84E+03
+	LU-176	88.34	13.30	1.93E+02	7.33E-01	6.78E+00
		201.83	86.00	-6.56E-01		7.33E-01
		306.78	94.00	-1.30E-01		7.89E-01
+	TA-182	67.75	41.20	-6.20E+03	2.20E+02	2.20E+02
		1121.30	34.90	1.36E+02		7.70E+02
		1189.05	16.23	-9.24E+01		1.18E+03
		1221.41	26.98	-1.75E+02		5.84E+02
		1231.02	11.44	6.08E+02		1.36E+03
+	IR-192	308.46	29.68	5.45E+03	7.00E+03	8.20E+03
		468.07	48.10	2.25E+03		7.00E+03
+	HG-203	279.19	77.30	-9.95E+04	3.42E+05	3.42E+05

Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BI-207	569.67	97.72	1.66E-01	1.00E+00	1.00E+00
		1063.62	74.90	-8.63E-01		2.11E+00
+	TL-208	583.14	30.22	1.79E+00	9.63E-01	3.28E+00
		860.37	4.48	2.59E+00		3.02E+01
		2614.66	35.85	4.87E-01		9.63E-01
+	BI-210M	262.00	45.00	-9.66E-02	1.57E+00	1.57E+00
		300.00	23.00	-1.78E-01		3.18E+00
+	PB-210	46.50	4.25	1.03E+01	1.35E+01	1.35E+01
+	PB-211	404.84	2.90	-1.04E+01	3.05E+01	3.05E+01
		831.96	2.90	-4.11E+00		4.38E+01
+	BI-212	727.17	11.80	1.94E-01	9.00E+00	9.00E+00
		1620.62	2.75	2.18E+00		1.34E+01
+	PB-212	238.63	44.60	-2.55E-01	1.58E+00	1.58E+00
		300.09	3.41	-1.20E+00		2.15E+01
+	BI-214	609.31	46.30	2.33E-01	2.13E+00	2.13E+00
		1120.29	15.10	1.50E+00		9.69E+00
		1764.49	15.80	2.38E-01		2.46E+00
		2204.22	4.98	6.80E-01		7.04E+00
+	PB-214	295.21	19.19	3.86E-01	2.16E+00	3.80E+00
		351.92	37.19	7.41E-01		2.16E+00
+	RN-219	401.80	6.50	-4.98E+00	1.35E+01	1.35E+01
+	RA-223	323.87	3.88	3.25E+00	1.97E+01	1.97E+01
+	RA-224	240.98	* 3.95	1.43E+01	2.22E+01	2.22E+01
+	RA-225	40.00	31.00	-8.77E+17	4.18E+17	4.18E+17
+	RA-226	186.21	3.28	-6.05E+00	1.85E+01	1.85E+01
+	TH-227	50.10	8.40	1.90E+01	6.05E+00	7.39E+00
		236.00	11.50	-2.79E+00		6.05E+00
		256.20	6.30	1.82E+00		1.11E+01
+	AC-228	338.32	11.40	9.98E-01	5.60E+00	6.87E+00
		911.07	27.70	-1.19E+00		5.60E+00
		969.11	16.60	5.43E-01		9.50E+00
+	TH-230	48.44	16.90	8.77E+00	3.49E+00	3.49E+00
		62.85	4.60	8.03E+02		2.22E+01
		67.67	0.37	-3.70E+03		1.31E+02
+	PA-231	283.67	1.60	-3.28E+00	3.18E+01	4.43E+01
		302.67	2.30	-9.69E+00		3.18E+01
+	TH-231	25.64	14.70	-1.79E+01	6.26E+00	6.26E+00
		84.21	6.40	-1.05E+00		1.24E+01
+	PA-233	311.98	38.60	2.93E+09	8.18E+09	8.18E+09
+	PA-234	131.20	20.40	-2.37E+00	2.44E+00	2.44E+00
		733.99	8.80	-3.98E+00		1.22E+01
		946.00	12.00	-7.70E+00		1.36E+01
+	PA-234M	1001.03	0.92	-3.70E+01	1.60E+02	1.60E+02
+	TH-234	63.29	3.80	4.12E+02	2.28E+01	2.28E+01
+	U-235	143.76	10.50	-9.03E-01	4.89E+00	4.89E+00
		163.35	4.70	-1.95E+00		1.24E+01
		205.31	4.70	-5.80E+00		1.37E+01

Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	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	1.32E+02	3.19E+00	3.19E+00
+	AM-243	74.67	66.00	-1.39E-01	7.90E-01	7.90E-01
+	CM-243	209.75	3.29	4.26E+00	5.34E+00	2.13E+01
		228.14	10.60	2.77E+00		7.07E+00
		277.60	14.00	2.78E-01		5.34E+00

+ = Nuclide identified during the nuclide identification

\* = Energy line found in the spectrum

&gt; = 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

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
BE-7	477.59	10.42	7.04E+05	7.04E+05	1.66E+05	3.48E+05
NA-22	1274.54	99.94	1.29E+00	1.29E+00	-2.07E-02	6.20E-01
@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	2754.09	99.86	1.00E+26		0.00E+00	1.00E+20
AL-26	1808.65	99.76	3.57E-01	3.57E-01	-1.21E-01	1.59E-01
K-40	1460.81	10.67	3.85E+00	3.85E+00	2.69E-01	1.77E+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	5.29E-01	5.29E-01	-1.49E+01	2.63E-01
	78.34	96.00	5.76E-01		-3.77E-01	2.87E-01
SC-46	889.25	99.98	1.82E+03	1.82E+03	-1.89E+02	8.99E+02
	1120.51	99.99	1.84E+03		2.86E+02	9.03E+02
V-48	983.52	99.98	2.80E+16	1.26E+16	1.00E+16	1.38E+16
	1312.10	97.50	1.26E+16		-3.08E+15	6.02E+15

Analysis Report for 1510093-01

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	1.83E+10	1.83E+10	-5.69E+09	9.05E+09
MN-54	834.83	99.97	8.70E+00	8.70E+00	-8.24E-01	4.29E+00
CO-56	846.75	99.96	2.63E+03	1.64E+03	2.90E+02	1.30E+03
	1037.75	14.03	2.18E+04		6.98E+03	1.07E+04
	1238.25	67.00	2.30E+03		3.54E+02	1.11E+03
	1771.40	15.51	5.16E+03		1.28E+03	2.33E+03
	2598.48	16.90	1.64E+03		2.23E+02	5.20E+02
+ CO-57	122.06 *	85.51	6.66E+00	6.66E+00	6.87E+01	3.31E+00
	136.48 *	10.60	5.35E+01		1.14E+02	2.66E+01
CO-58	810.76	99.40	5.72E+03	5.72E+03	-6.76E+02	2.81E+03
FE-59	1099.22	56.50	1.87E+06	1.07E+06	5.76E+05	9.18E+05
	1291.56	43.20	1.07E+06		6.13E+05	5.12E+05
+ CO-60	1173.22 *	100.00	3.04E+00	1.55E+00	1.35E+02	1.50E+00
	1332.49 *	100.00	1.55E+00		1.37E+02	7.56E-01
ZN-65	1115.52	50.75	3.59E+01	3.59E+01	2.17E+01	1.76E+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	5.73E+02	1.32E+02	5.80E+03	2.85E+02
	136.00	59.20	1.32E+02		2.82E+02	6.55E+01
	264.65	59.80	1.75E+02		-3.03E+00	8.68E+01
	279.53	25.20	4.11E+02		-1.20E+02	2.04E+02
	400.65	11.40	1.13E+03		-4.99E+02	5.58E+02
RB-82	776.52	13.00	1.34E+11	1.34E+11	4.13E+10	6.60E+10
RB-83	520.41	46.00	2.09E+03	2.09E+03	-1.56E+02	1.03E+03
	529.64	30.30	3.19E+03		1.36E+03	1.57E+03
	552.65	16.40	5.87E+03		2.07E+03	2.89E+03
KR-85	513.99	0.43	2.54E+02	2.54E+02	4.64E+01	1.26E+02
SR-85	513.99	99.27	9.70E+03	9.70E+03	1.77E+03	4.79E+03
+ Y-88	898.02 *	93.40	4.93E+02	1.15E+02	3.34E+02	2.44E+02
	1836.01 *	99.38	1.15E+02		3.46E+02	5.18E+01
NB-93M	16.57	9.43	6.07E+00	6.07E+00	-2.28E+02	3.02E+00
NB-94	702.63	100.00	1.01E+00	1.01E+00	-4.01E-01	4.95E-01
	871.10	100.00	1.37E+00		-2.74E-01	6.76E-01
NB-95	765.79	99.81	2.91E+07	2.91E+07	1.20E+06	1.43E+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	2.76E+04	2.33E+04	-5.77E+03	1.36E+04
	756.72	55.30	2.33E+04		3.88E+03	1.15E+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	4.25E+06	4.25E+06	-2.74E+05	2.10E+06
RU-106	621.84	9.80	4.93E+01	4.93E+01	-5.34E+01	2.43E+01
AG-108M	433.93	89.90	1.09E+00	1.09E+00	2.95E-01	5.38E-01
	614.37	90.40	1.09E+00		-1.89E-01	5.35E-01
	722.95	90.50	1.17E+00		-3.10E-01	5.78E-01
+ CD-109	88.03 *	3.72	8.52E+01	8.52E+01	2.56E+03	4.25E+01
AG-110M	657.75	93.14	2.79E+01	1.72E+01	-1.27E+00	1.39E+01
	677.61	10.53	1.02E+02		-3.27E+01	5.03E+01
	706.67	16.46	6.76E+01		1.72E+00	3.32E+01
	763.93	21.98	5.64E+01		1.17E+01	2.78E+01
	884.67	71.63	2.20E+01		-8.53E+00	1.08E+01
	1384.27	23.94	1.72E+01		-1.26E+00	7.88E+00

Analysis Report for 1510093-01

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	3.46E+03	3.46E+03	-1.99E+02	1.71E+03
SN-113	255.12	1.93	6.56E+03	2.48E+02	3.49E+02	3.25E+03
	391.69	64.90	2.48E+02		1.52E+02	1.23E+02
TE123M	159.00	84.10	9.62E+01	9.62E+01	-4.02E+01	4.77E+01
SB-124	602.71	97.87	2.01E+04	1.30E+04	-9.54E+03	9.91E+03
	645.85	7.26	2.87E+05		-2.70E+05	1.42E+05
	722.78	11.10	1.96E+05		-5.38E+04	9.66E+04
	1691.02	49.00	1.30E+04		1.98E+03	5.73E+03
I-125	35.49	6.49	1.05E+05	1.05E+05	-1.45E+05	5.22E+04
SB-125	176.33	6.89	1.50E+01	5.86E+00	3.00E+00	7.46E+00
	427.89	29.33	5.86E+00		1.66E+00	2.90E+00
	463.38	10.35	1.81E+01		9.00E+00	8.95E+00
	600.56	17.80	9.62E+00		-3.18E+00	4.74E+00
	635.90	11.32	1.64E+01		8.07E+00	8.09E+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	2.36E+00	2.36E+00	7.10E+01	1.18E+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	7.35E-01	7.35E-01	-4.72E+00	3.66E-01
	33.60	13.20	2.41E+00		-3.54E-01	1.20E+00
	39.58	7.52	4.77E+00		-1.00E+01	2.37E+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	1.57E+00	-8.90E-01	9.79E-01
	302.84	17.80	4.81E+00		-1.46E+00	2.38E+00
	356.01	60.00	1.57E+00		4.19E-01	7.76E-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	2.43E+01	2.19E+00	1.04E+00	1.20E+01
	569.32	15.43	1.34E+01		2.21E+00	6.60E+00
	604.70	97.60	2.19E+00		1.08E-02	1.08E+00
	795.84	85.40	3.14E+00		-3.73E-01	1.55E+00
	801.93	8.73	3.09E+01		-6.64E-01	1.52E+01
CS-135	268.24	16.00	4.48E+00	4.48E+00	2.84E+00	2.22E+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	3.95E+20	6.93E+19	-7.65E+19	1.96E+20
	163.89	4.61	7.04E+20		-1.11E+20	3.49E+20
	176.55	13.56	2.35E+20		4.69E+19	1.17E+20
	273.65	12.66	3.10E+20		-7.15E+19	1.54E+20
	340.57	48.50	9.03E+19		2.32E+19	4.47E+19
	818.50	99.70	6.93E+19		-4.22E+18	3.41E+19
	1048.07	79.60	1.07E+20		-4.67E+18	5.25E+19
	1235.34	19.70	2.27E+20		3.65E+19	1.10E+20

Analysis Report for 1510093-01

GAS-1302

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
+	CS-137	661.65 *	85.12	2.16E+00	2.16E+00	8.37E+01	1.07E+00
	LA-138	788.74	34.00	3.46E+00	5.81E-01	-1.81E+00	1.70E+00
		1435.80	66.00	5.81E-01		4.64E-02	2.66E-01
+	CE-139	165.85 *	80.35	6.15E+01	6.15E+01	9.33E+01	3.05E+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	1.06E+08	1.06E+08	3.63E+07	5.26E+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	3.97E+01	3.97E+01	-2.12E+00	1.97E+01
	PM-144	476.78	42.00	1.25E+01	5.01E+00	4.46E+00	6.20E+00
		618.01	98.60	5.01E+00		-3.29E+00	2.47E+00
		696.49	99.49	5.38E+00		-9.62E-01	2.65E+00
	PM-145	36.85	21.70	1.65E+00	9.14E-01	-3.08E+00	8.21E-01
		37.36	39.70	9.14E-01		-2.01E+00	4.54E-01
		42.30	15.10	2.98E+00		-3.84E+00	1.48E+00
		72.40	2.31	2.44E+01		6.65E+00	1.21E+01
	PM-146	453.90	39.94	3.36E+00	3.36E+00	3.33E-01	1.66E+00
		735.90	14.01	1.03E+01		-3.69E+00	5.06E+00
		747.13	13.10	1.13E+01		-2.14E+00	5.57E+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	2.91E+00	3.54E+01	1.77E+00
		244.69	5.40	1.47E+01		-1.21E+00	7.31E+00
		344.27	19.13	4.63E+00		-1.64E+00	2.29E+00
		778.89	9.20	1.45E+01		2.94E-02	7.12E+00
		964.01	10.40	1.74E+01		-6.83E-01	8.59E+00
		1085.78	7.22	2.40E+01		4.15E+00	1.18E+01
		1112.02	9.60	1.87E+01		6.54E+00	9.21E+00
		1407.95	14.94	2.91E+00		-2.66E-01	1.33E+00
	GD-153	97.43	31.30	1.64E+01	1.64E+01	-6.92E-01	8.16E+00
		103.18	22.20	2.40E+01		-6.77E+00	1.19E+01
	EU-154	123.07	40.50	1.93E+00	1.93E+00	1.97E+01	9.61E-01
		723.30	19.70	6.42E+00		-1.69E+00	3.16E+00
		873.19	11.50	1.44E+01		-7.66E+00	7.07E+00
		996.32	10.30	1.76E+01		3.59E+00	8.65E+00
		1004.76	17.90	9.80E+00		-2.19E+00	4.82E+00
		1274.45	35.50	2.34E+00		-3.74E-02	1.12E+00
	EU-155	86.50	30.90	4.11E+00	3.05E+00	1.18E+02	2.05E+00
		105.30	20.70	3.05E+00		4.68E-02	1.51E+00
	EU-156	811.77	10.40	1.50E+18	1.20E+18	8.52E+16	7.38E+17
		1153.47	7.20	2.22E+18		1.44E+18	1.09E+18
		1230.71	8.90	1.20E+18		5.35E+17	5.80E+17
	HO-166M	184.41	72.60	8.29E-01	8.29E-01	1.44E-01	4.11E-01



Analysis Report for 1510093-01

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	2.38E+00	8.29E-01	-4.86E-01	1.18E+00
	410.94	11.10	8.13E+00		-2.17E+00	4.02E+00
	711.69	54.10	1.94E+00		1.26E+00	9.56E-01
+ TM-171	66.72	* 0.14	8.22E+02	8.22E+02	7.73E+02	4.09E+02
	HF-172	81.75	4.52		3.05E+01	1.32E+01
@ LU-172	125.81	11.30	1.32E+01	1.00E+26	-5.81E+00	6.57E+00
	181.53	20.60	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+26	1.00E+20	
@ 1093.66	62.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20	
LU-173	100.72	5.24	2.78E+01	1.11E+01	-1.72E+00	1.38E+01
	272.11	21.20	1.11E+01		2.77E+00	5.51E+00
HF-175	343.40	84.00	4.84E+03	4.84E+03	-2.13E+02	2.40E+03
LU-176	88.34	13.30	6.78E+00	7.33E-01	1.93E+02	3.38E+00
	201.83	86.00	7.33E-01		-6.56E-01	3.64E-01
	306.78	94.00	7.89E-01		-1.30E-01	3.91E-01
TA-182	67.75	41.20	2.20E+02	2.20E+02	-6.20E+03	1.10E+02
	1121.30	34.90	7.70E+02		1.36E+02	3.78E+02
	1189.05	16.23	1.18E+03		-9.24E+01	5.74E+02
	1221.41	26.98	5.84E+02		-1.75E+02	2.82E+02
	1231.02	11.44	1.36E+03		6.08E+02	6.59E+02
IR-192	308.46	29.68	8.20E+03	7.00E+03	5.45E+03	4.06E+03
	468.07	48.10	7.00E+03		2.25E+03	3.46E+03
HG-203	279.19	77.30	3.42E+05	3.42E+05	-9.95E+04	1.69E+05
BI-207	569.67	97.72	1.00E+00	1.00E+00	1.66E-01	4.95E-01
	1063.62	74.90	2.11E+00		-8.63E-01	1.04E+00
TL-208	583.14	30.22	3.28E+00	9.63E-01	1.79E+00	1.62E+00
	860.37	4.48	3.02E+01		2.59E+00	1.49E+01
	2614.66	35.85	9.63E-01		4.87E-01	4.10E-01
BI-210M	262.00	45.00	1.57E+00	1.57E+00	-9.66E-02	7.79E-01
	300.00	23.00	3.18E+00		-1.78E-01	1.58E+00
PB-210	46.50	4.25	1.35E+01	1.35E+01	1.03E+01	6.74E+00
PB-211	404.84	2.90	3.05E+01	3.05E+01	-1.04E+01	1.51E+01
	831.96	2.90	4.38E+01		-4.11E+00	2.16E+01
BI-212	727.17	11.80	9.00E+00	9.00E+00	1.94E-01	4.43E+00
	1620.62	2.75	1.34E+01		2.18E+00	6.04E+00
PB-212	238.63	44.60	1.58E+00	1.58E+00	-2.55E-01	7.84E-01
	300.09	3.41	2.15E+01		-1.20E+00	1.06E+01
BI-214	609.31	46.30	2.13E+00	2.13E+00	2.33E-01	1.05E+00
	1120.29	15.10	9.69E+00		1.50E+00	4.76E+00
	1764.49	15.80	2.46E+00		2.38E-01	1.11E+00
	2204.22	4.98	7.04E+00		6.80E-01	3.06E+00
PB-214	295.21	19.19	3.80E+00	2.16E+00	3.86E-01	1.88E+00
	351.92	37.19	2.16E+00		7.41E-01	1.07E+00
RN-219	401.80	6.50	1.35E+01	1.35E+01	-4.98E+00	6.66E+00
RA-223	323.87	3.88	1.97E+01	1.97E+01	3.25E+00	9.73E+00
+ RA-224	240.98	* 3.95	2.22E+01	2.22E+01	1.43E+01	1.10E+01
	RA-225	40.00	31.00		4.18E+17	-8.77E+17
RA-226	186.21	3.28	1.85E+01	1.85E+01	-6.05E+00	9.17E+00
TH-227	50.10	8.40	7.39E+00	6.05E+00	1.90E+01	3.68E+00
	236.00	11.50	6.05E+00		-2.79E+00	3.00E+00
	256.20	6.30	1.11E+01		1.82E+00	5.49E+00
AC-228	338.32	11.40	6.87E+00	5.60E+00	9.98E-01	3.40E+00

Analysis Report for 1510093-01  
 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	5.60E+00	5.60E+00	-1.19E+00	2.76E+00
	969.11	16.60	9.50E+00		5.43E-01	4.68E+00
TH-230	48.44	16.90	3.49E+00	3.49E+00	8.77E+00	1.74E+00
	62.85	4.60	2.22E+01		8.03E+02	1.11E+01
	67.67	0.37	1.31E+02		-3.70E+03	6.54E+01
PA-231	283.67	1.60	4.43E+01	3.18E+01	-3.28E+00	2.19E+01
	302.67	2.30	3.18E+01		-9.69E+00	1.58E+01
TH-231	25.64	14.70	6.26E+00	6.26E+00	-1.79E+01	3.12E+00
	84.21	6.40	1.24E+01		-1.05E+00	6.20E+00
PA-233	311.98	38.60	8.18E+09	8.18E+09	2.93E+09	4.05E+09
PA-234	131.20	20.40	2.44E+00	2.44E+00	-2.37E+00	1.21E+00
	733.99	8.80	1.22E+01		-3.98E+00	5.98E+00
	946.00	12.00	1.36E+01		-7.70E+00	6.72E+00
PA-234M	1001.03	0.92	1.60E+02	1.60E+02	-3.70E+01	7.85E+01
TH-234	63.29	3.80	2.28E+01	2.28E+01	4.12E+02	1.14E+01
U-235	143.76	10.50	4.89E+00	4.89E+00	-9.03E-01	2.43E+00
	163.35	4.70	1.24E+01		-1.95E+00	6.15E+00
	205.31	4.70	1.37E+01		-5.80E+00	6.79E+00
NP-237	86.50	12.60	7.25E+00	7.25E+00	2.08E+02	3.61E+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	3.19E+00	3.19E+00	1.32E+02	1.59E+00
AM-243	74.67	66.00	7.90E-01	7.90E-01	-1.39E-01	3.93E-01
CM-243	209.75	3.29	2.13E+01	5.34E+00	4.26E+00	1.06E+01
	228.14	10.60	7.07E+00		2.77E+00	3.50E+00
	277.60	14.00	5.34E+00		2.78E-01	2.64E+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

Analysis Report for 1510093-01  
GAS-1302

No Data Review Comments Entered.

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title:    GAS-1302

Elapsed Live time:        1800

Elapsed Real Time:        1841

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	3	415	1492
17:	1621	1920	4835	16468	27990	22681	11816	9908
25:	6948	2575	998	781	818	1091	1342	1213
33:	950	856	876	1025	1027	1013	1099	1230
41:	1374	1548	1579	1726	1871	2155	2555	3174
49:	3602	3561	3552	3603	3812	3907	3940	4588
57:	8604	19389	22698	11112	2695	1202	1195	1308
65:	1416	1501	1637	1533	1520	1505	1584	1522
73:	1514	1574	1503	1523	1527	1503	1489	1639
81:	1557	1666	1653	1760	2353	5708	10463	8454
89:	3037	1019	811	781	773	767	778	823
97:	739	756	812	769	759	743	796	768
105:	751	794	794	763	806	741	780	790
113:	777	834	780	798	802	825	860	1640
121:	2603	2360	1237	742	669	726	686	670
129:	672	665	630	681	710	774	865	940
137:	767	678	632	618	612	679	679	647
145:	670	631	641	674	588	617	629	631
153:	640	642	620	669	593	611	635	615
161:	622	633	656	669	918	763	653	566
169:	582	592	595	581	588	605	562	590
177:	578	586	571	626	579	558	579	621
185:	591	622	609	622	585	613	623	615
193:	650	631	606	595	547	617	547	576
201:	567	537	596	571	566	547	621	621
209:	563	586	617	605	580	630	581	569
217:	612	594	607	621	577	587	612	586
225:	616	577	572	570	579	603	521	537
233:	562	537	503	512	519	540	538	563
241:	534	565	511	494	502	477	476	490
249:	497	477	476	406	500	480	448	455
257:	482	482	449	450	444	397	460	490
265:	448	462	470	434	436	446	423	425
273:	424	427	416	381	404	395	429	395
281:	406	397	365	401	377	404	384	378
289:	413	412	381	382	412	379	355	409
297:	420	386	370	368	370	379	371	394
305:	377	357	370	367	389	375	411	394
313:	363	351	340	349	338	369	346	337
321:	339	379	405	370	343	371	342	382
329:	349	337	344	342	338	340	341	371
337:	352	347	357	343	357	329	348	336
345:	356	310	362	315	365	330	349	323
353:	344	340	332	315	332	334	343	319
361:	334	305	340	310	321	316	322	299

369: 316 301 332 337 298 353 341 297

Sample Title: GAS-1302

Channel	336	358	319	315	302	318	323	329
377:	336	358	319	315	302	318	323	329
385:	312	325	354	306	315	366	379	362
393:	322	323	332	328	312	327	307	308
401:	313	288	332	299	334	321	318	322
409:	314	324	358	302	286	318	337	341
417:	308	340	297	309	333	306	319	329
425:	294	333	321	336	320	344	355	336
433:	321	312	327	345	302	317	328	299
441:	316	335	338	316	289	312	338	328
449:	324	329	337	339	299	283	338	312
457:	343	281	337	327	306	336	355	372
465:	314	315	344	332	297	349	316	323
473:	334	269	328	327	301	281	280	268
481:	281	258	270	254	219	266	264	246
489:	245	240	244	280	236	232	261	244
497:	219	224	237	240	264	225	226	240
505:	242	203	255	214	219	232	241	252
513:	229	217	209	192	247	190	213	259
521:	221	209	193	185	212	198	221	214
529:	229	196	219	186	193	200	203	196
537:	224	191	227	214	177	200	189	194
545:	182	196	211	204	190	181	179	199
553:	169	188	189	205	163	178	169	186
561:	174	165	161	191	178	209	172	192
569:	150	179	179	168	189	173	172	192
577:	179	168	190	194	197	194	205	190
585:	194	194	175	192	184	168	183	186
593:	154	191	181	175	159	158	160	182
601:	151	189	163	159	157	176	180	173
609:	184	176	176	165	183	162	168	191
617:	134	140	178	168	142	138	189	173
625:	142	178	193	170	171	162	177	196
633:	173	160	161	184	183	163	179	180
641:	154	154	144	162	154	188	184	165
649:	158	204	189	170	158	162	161	157
657:	172	189	581	2160	4218	3742	1597	358
665:	168	158	133	155	155	157	161	140
673:	150	158	148	147	125	140	129	128
681:	137	138	143	143	143	134	159	145
689:	154	151	150	141	154	157	146	164
697:	131	145	150	126	151	164	128	117
705:	121	129	155	133	138	154	137	132
713:	130	166	164	141	147	138	144	139
721:	130	158	141	139	124	162	130	147
729:	154	145	141	154	127	145	150	159
737:	127	130	146	162	147	138	137	152
745:	150	132	143	147	158	151	142	157
753:	143	149	151	151	161	131	136	154
761:	149	142	131	162	155	146	149	135
769:	133	136	161	143	173	150	164	156
777:	164	137	161	145	174	135	150	135
785:	165	138	141	147	165	162	141	152
793:	162	144	189	147	160	161	145	163

801: 146 165 151 168 153 147 165 148

Sample Title: GAS-1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	132	138	158	160	162	149	159	154
817:	137	151	163	163	164	158	141	170
825:	150	159	168	154	143	156	186	169
833:	143	166	157	137	171	149	155	157
841:	186	168	170	164	158	167	172	152
849:	174	152	150	157	169	160	171	162
857:	163	157	142	171	155	181	188	187
865:	155	167	172	179	166	154	157	156
873:	159	194	170	173	170	176	185	183
881:	182	176	176	184	168	181	201	151
889:	198	203	179	158	181	186	169	200
897:	204	221	214	208	185	178	182	186
905:	198	203	187	197	203	196	202	210
913:	186	198	190	194	202	221	187	202
921:	196	215	230	218	200	222	198	189
929:	211	220	206	221	193	206	206	222
937:	216	193	205	204	213	201	210	204
945:	191	210	197	215	213	191	218	237
953:	215	214	222	216	200	220	209	195
961:	175	189	189	218	190	162	204	182
969:	182	183	159	192	168	183	160	148
977:	157	148	164	180	155	149	153	170
985:	171	147	144	135	150	174	145	165
993:	156	143	167	152	169	158	149	135
1001:	142	154	144	134	132	154	135	156
1009:	144	146	123	141	162	148	134	150
1017:	136	151	159	165	154	143	148	135
1025:	139	150	126	154	156	145	152	138
1033:	159	154	160	125	150	151	157	150
1041:	136	149	126	149	150	147	142	148
1049:	133	161	135	146	161	154	147	133
1057:	131	153	139	141	144	121	146	144
1065:	143	119	130	153	149	141	137	135
1073:	160	138	142	152	140	133	129	138
1081:	122	135	119	156	131	135	148	146
1089:	138	126	145	125	142	142	137	144
1097:	132	149	148	153	141	146	141	135
1105:	141	140	121	155	148	140	143	134
1113:	155	116	152	127	145	139	121	116
1121:	106	104	96	97	96	73	118	97
1129:	103	109	92	88	79	102	78	94
1137:	101	75	82	97	102	86	72	81
1145:	68	77	68	72	94	75	77	78
1153:	76	112	73	70	74	72	77	65
1161:	85	76	82	82	70	81	79	76
1169:	87	146	561	1792	3356	2930	1294	289
1177:	83	58	54	48	60	59	51	64
1185:	63	46	49	52	44	56	51	52
1193:	43	38	50	52	37	38	34	42
1201:	46	39	53	30	32	30	44	35
1209:	34	28	45	35	37	35	29	33
1217:	35	46	35	37	37	22	24	28
1225:	26	32	37	41	28	25	28	39

1233: 26 26 30 20 34 24 30 27

Sample Title: GAS-1302

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	20	25	20	30	11	21	27	26
1249:	29	27	14	19	20	23	25	22
1257:	24	28	13	23	14	21	19	11
1265:	15	22	29	23	14	21	18	20
1273:	10	21	11	21	26	27	17	14
1281:	21	24	25	15	14	20	16	20
1289:	21	17	18	22	19	20	21	15
1297:	15	13	14	19	14	18	10	16
1305:	13	15	15	18	14	19	17	14
1313:	13	25	17	14	21	18	26	18
1321:	15	20	16	23	24	21	18	25
1329:	39	253	1048	2614	2829	1718	500	80
1337:	9	10	9	2	5	6	8	8
1345:	6	3	5	9	7	8	5	5
1353:	8	5	7	5	4	9	8	5
1361:	2	4	7	2	12	10	8	7
1369:	3	7	6	5	6	4	4	8
1377:	9	2	5	1	4	6	5	9
1385:	1	3	6	6	4	6	3	2
1393:	5	3	4	3	4	6	1	3
1401:	3	4	8	4	1	7	7	7
1409:	6	4	2	4	2	5	8	3
1417:	5	6	3	7	5	3	6	3
1425:	2	5	6	6	6	4	3	4
1433:	5	3	3	4	6	4	6	5
1441:	4	5	3	3	1	9	2	3
1449:	9	2	4	9	3	8	2	3
1457:	5	4	7	6	7	7	4	3
1465:	2	5	4	6	4	3	4	2
1473:	6	5	3	4	4	5	1	0
1481:	4	5	4	7	3	7	7	4
1489:	8	3	4	4	3	2	0	3
1497:	4	3	6	3	5	4	5	4
1505:	2	8	3	1	4	4	1	6
1513:	2	10	2	4	5	2	1	6
1521:	4	5	5	4	5	1	2	4
1529:	8	1	6	1	4	1	3	4
1537:	3	1	9	4	4	2	4	1
1545:	3	5	5	6	2	7	0	3
1553:	6	2	5	9	3	5	3	2
1561:	5	6	1	5	7	6	7	7
1569:	2	5	2	2	11	2	3	3
1577:	2	7	3	6	4	5	4	4
1585:	1	4	4	4	3	4	7	4
1593:	1	1	5	8	1	5	6	6
1601:	5	8	5	6	5	2	6	2
1609:	6	6	2	5	1	1	3	3
1617:	4	2	4	3	3	4	5	3
1625:	1	3	6	0	5	5	4	5
1633:	2	3	5	4	3	2	2	0
1641:	1	3	5	1	1	4	3	4
1649:	3	3	2	1	1	5	1	4
1657:	6	4	4	6	2	2	4	1

1665: 3 2 2 2 2 1 4 3

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8
1673:	3	4	0	1	0	6	5	3
1681:	2	3	3	4	7	1	2	0
1689:	3	2	3	2	1	3	2	3
1697:	0	4	2	4	4	5	3	3
1705:	3	2	4	1	3	0	2	2
1713:	2	2	1	3	3	4	5	3
1721:	3	2	1	1	2	2	3	2
1729:	7	2	2	2	3	6	5	0
1737:	3	0	4	0	2	3	2	3
1745:	4	0	2	3	1	1	3	2
1753:	0	2	2	0	3	3	0	1
1761:	2	1	3	3	2	3	4	1
1769:	2	6	5	1	2	1	2	3
1777:	3	2	0	3	2	1	2	1
1785:	1	1	1	1	5	1	6	4
1793:	4	4	2	2	1	1	2	2
1801:	2	5	4	1	3	1	0	4
1809:	3	3	2	3	2	0	2	2
1817:	2	3	2	2	5	1	2	5
1825:	3	0	2	1	2	2	2	4
1833:	3	2	10	24	31	15	6	0
1841:	2	1	4	1	3	0	2	0
1849:	3	2	4	3	0	1	2	3
1857:	3	1	2	1	2	2	2	5
1865:	2	2	2	2	0	1	3	2
1873:	2	1	1	2	2	1	1	1
1881:	3	4	0	2	1	2	4	3
1889:	1	2	2	2	1	4	0	2
1897:	1	2	2	2	7	3	3	0
1905:	2	0	1	3	1	0	1	1
1913:	2	3	1	1	2	1	1	1
1921:	1	2	1	5	6	1	0	1
1929:	2	5	4	2	4	3	2	0
1937:	4	2	2	2	3	3	5	2
1945:	1	4	1	2	2	2	2	2
1953:	2	2	1	2	2	1	1	1
1961:	2	2	1	1	1	1	4	0
1969:	1	3	0	0	1	3	0	2
1977:	2	5	2	4	2	1	0	2
1985:	1	2	2	0	1	0	1	3
1993:	2	1	1	3	0	0	0	3
2001:	1	3	2	2	0	2	2	0
2009:	4	2	0	2	0	0	5	4
2017:	0	2	0	3	0	4	0	3
2025:	1	1	2	0	2	2	2	1
2033:	2	2	1	2	0	2	1	3
2041:	2	2	2	1	1	2	0	1
2049:	1	0	2	3	1	1	3	3
2057:	2	2	0	2	2	0	1	0
2065:	1	2	2	2	0	5	0	2
2073:	1	1	2	2	2	1	4	3
2081:	1	2	0	1	1	1	1	0
2089:	2	0	4	0	2	1	0	1



2097: 1 2 1 0 0 1 0 0

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8	9
2105:	3	0	1	5	0	2	0	2	
2113:	2	2	1	3	4	1	1	1	
2121:	1	0	1	2	1	2	1	1	
2129:	2	0	1	1	2	1	2	1	
2137:	1	0	0	2	1	2	1	0	
2145:	0	1	1	2	1	3	2	1	
2153:	2	1	3	2	3	1	2	0	
2161:	1	2	0	3	1	0	0	2	
2169:	2	0	4	0	2	0	0	1	
2177:	1	1	1	0	1	1	0	0	
2185:	1	2	1	1	1	0	1	0	
2193:	0	2	2	0	0	1	0	2	
2201:	2	0	1	0	0	0	2	2	
2209:	3	3	1	2	0	0	3	0	
2217:	1	4	0	2	0	1	1	1	
2225:	1	0	0	1	1	0	1	3	
2233:	2	1	1	1	0	1	4	3	
2241:	0	1	2	1	2	1	0	2	
2249:	1	1	2	1	1	4	2	2	
2257:	0	1	0	1	1	2	0	1	
2265:	0	3	3	3	1	2	2	2	
2273:	0	1	1	0	3	2	1	1	
2281:	4	0	0	1	0	0	1	3	
2289:	0	0	2	0	0	1	0	2	
2297:	3	1	2	1	1	2	0	1	
2305:	0	0	1	0	0	1	1	1	
2313:	0	1	1	1	1	1	0	2	
2321:	0	0	0	2	2	0	1	0	
2329:	0	0	0	0	2	0	0	0	
2337:	0	0	0	0	1	1	0	0	
2345:	0	0	0	0	1	1	0	0	
2353:	0	1	1	1	1	1	0	0	
2361:	1	1	3	1	0	1	1	1	
2369:	0	1	2	1	0	0	0	2	
2377:	1	1	0	0	0	0	0	1	
2385:	0	0	1	0	0	1	0	0	
2393:	2	0	0	0	0	0	1	0	
2401:	0	0	0	0	0	0	0	1	
2409:	0	0	0	0	0	0	1	0	
2417:	1	1	0	0	2	0	0	0	
2425:	1	0	0	1	0	0	1	0	
2433:	1	1	1	1	2	0	0	0	
2441:	0	0	0	1	0	1	0	0	
2449:	0	1	0	1	1	1	0	0	
2457:	0	1	0	0	0	0	0	0	
2465:	0	0	0	0	1	0	0	0	
2473:	1	0	0	0	0	0	0	0	
2481:	1	0	0	0	1	0	0	0	
2489:	2	0	1	0	0	0	0	0	
2497:	1	0	0	0	0	0	2	2	
2505:	4	12	9	8	3	2	0	0	
2513:	0	0	0	0	0	0	0	0	
2521:	0	0	0	0	0	0	0	0	

2529: 0 0 0 1 0 0 0 1

Sample Title: GAS-1302

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

2961: 0 0 0 1 0 0 0 0

Sample Title: GAS-1302

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

3393: 0 0 0 1 1 0 1 0

Sample Title: GAS-1302

Channel	1	2	3	4	5	6	7	8
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	1	1	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	1	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	1	0	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	1	0	0	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	0	0	0	0	1	0	0
3537:	0	0	0	0	0	0	1	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	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	1	0	1	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	1	0	0	0
3633:	0	1	0	0	0	0	0	0
3641:	1	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	1
3689:	0	1	0	0	0	0	0	0
3697:	0	0	1	0	0	0	0	0
3705:	1	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	1	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	1	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	1	0	0	0	1	0
3777:	1	0	0	0	0	0	0	0
3785:	0	0	1	0	0	0	0	0
3793:	0	0	0	0	0	0	1	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

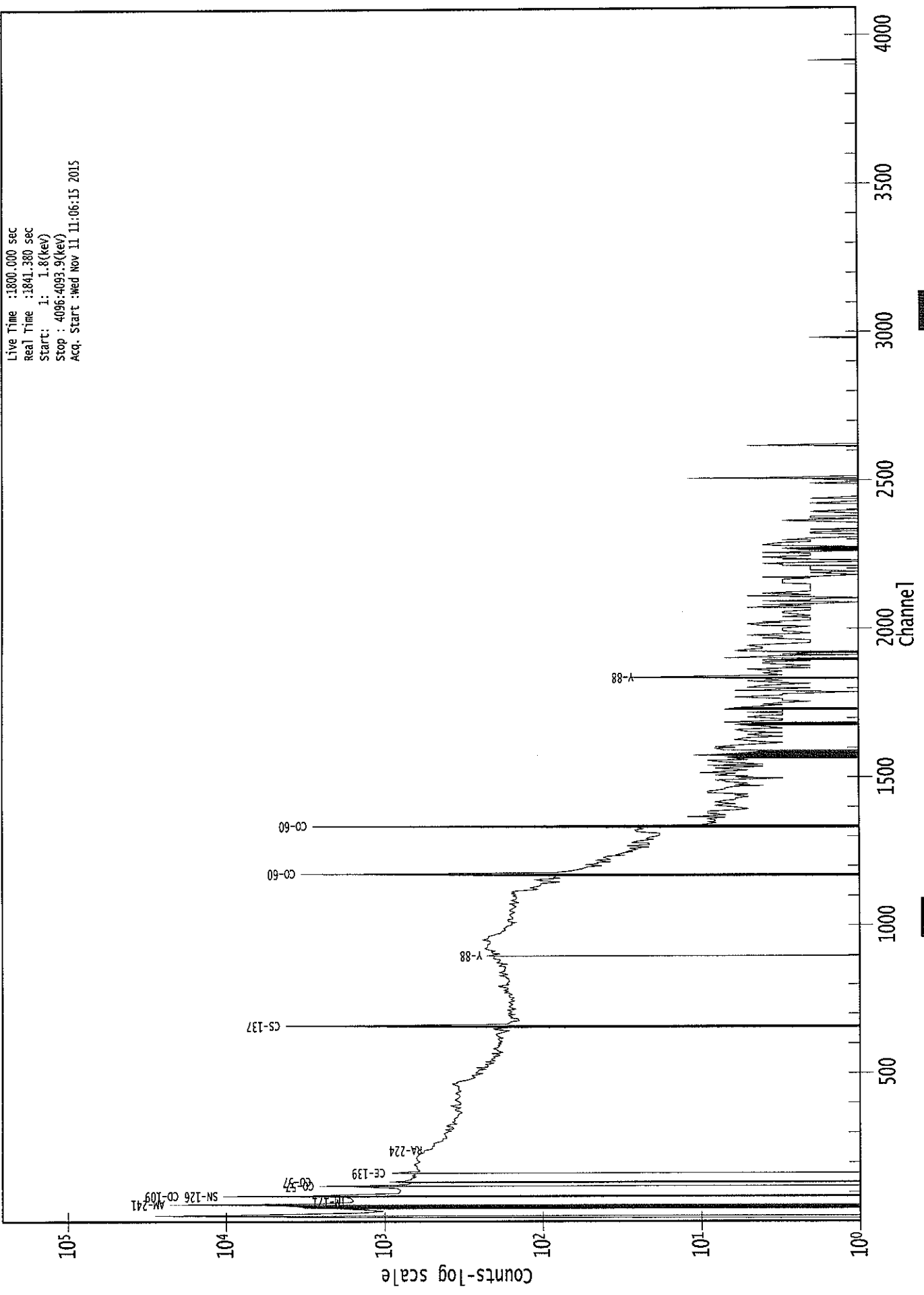
3825: 0 0 0 0 0 0 0 0 0

Sample Title: GAS-1302

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	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	1	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	2	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	1	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	1	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	0	0	0	1	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000029480.CNF

Live Time :1800.000 sec  
Real Time :1841.380 sec  
Start: 1: 1.8(kev)  
Stop : 4096:4093.9(kev)  
Acq. Start :Wed Nov 11 11:06:15 2015



0000029480

YCB  
11/12/15Analysis Report for 1510093-02  
BLANK

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-02  
Sample Description : BLANK  
Sample Type : SOIL

Sample Size : 7.834E+02 grams  
Facility : Countroom

Sample Taken On : 11/11/2015 7:27:41AM  
Acquisition Started : 11/11/2015 11:37:44AM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE4  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3682.1 seconds

Dead Time : 2.23 %

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 : 29484

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## PEAK-TO-TOTAL CALIBRATION REPORT

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### Peak-to-Total Efficiency Calibration Equation

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GE4  
11/12/15

Analysis Report for 1510093-02

BLANK

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**PEAK LOCATE REPORT**

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Peak Locate Performed on : 11/11/2015 12:39:08PM  
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	46.50	45.75	0.0000	0.00
2	75.28	74.55	0.0000	0.00
3	185.37	184.68	0.0000	0.00
4	312.64	312.00	0.0000	0.00
5	350.87	350.26	0.0000	0.00
6	424.31	423.73	0.0000	0.00
7	491.83	491.28	0.0000	0.00
8	661.18	660.71	0.0000	0.00
9	777.70	777.29	0.0000	0.00
10	848.31	847.93	0.0000	0.00
11	1029.16	1028.89	0.0000	0.00
12	1044.67	1044.40	0.0000	0.00
13	1122.02	1121.79	0.0000	0.00
14	1327.41	1327.30	0.0000	0.00

---

? = Adjacent peak noted

Errors quoted at 2.000sigma

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Analysis Report for 1510093-02

BLANK

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## PEAK ANALYSIS REPORT

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Peak Analysis Performed on : 11/11/2015 12:39:08PM

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	46.50	40 -	51	45.75	8.14E+01	46.35	2.27E+02	3.42
2	75.28	69 -	79	74.55	5.50E+01	45.49	2.44E+02	6.47
3	185.37	181 -	189	184.68	3.98E+01	29.90	1.14E+02	2.38
4	312.64	308 -	316	312.00	2.41E+01	16.54	2.78E+01	2.02
5	350.87	345 -	354	350.26	2.30E+01	22.63	6.00E+01	1.86
6	424.31	419 -	428	423.73	2.10E+01	14.97	2.00E+01	1.75
7	491.83	489 -	495	491.28	9.86E+00	11.54	1.63E+01	2.77
8	661.18	655 -	668	660.71	2.33E+01	14.90	1.54E+01	1.47
9	777.70	774 -	780	777.29	9.11E+00	12.23	1.98E+01	2.61
10	848.31	845 -	850	847.93	4.50E+00	5.74	3.00E+00	2.70
11	1029.16	1025 -	1031	1028.89	6.13E+00	6.65	3.75E+00	2.50
12	1044.67	1041 -	1048	1044.40	1.00E+01	6.32	0.00E+00	1.16
13	1122.02	1118 -	1125	1121.79	6.70E+00	8.49	6.60E+00	2.20
14	1327.41	1324 -	1330	1327.30	5.21E+00	6.34	3.57E+00	2.93

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

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## PEAK ANALYSIS REPORT

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Peak Analysis Performed on : 11/11/2015 12:39:08PM

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	46.50	40 -	51	8.14E+01	46.35	2.27E+02	3.51E+01

: 00353

Analysis Report for 1510093-02

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Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
2	75.28	69 -	79	5.50E+01	45.49	2.44E+02	3.53E+01
3	185.37	181 -	189	3.98E+01	29.90	1.14E+02	2.23E+01
4	312.64	308 -	316	2.41E+01	16.54	2.78E+01	1.09E+01
5	350.87	345 -	354	2.30E+01	22.63	6.00E+01	1.68E+01
6	424.31	419 -	428	2.10E+01	14.97	2.00E+01	9.73E+00
7	491.83	489 -	495	9.86E+00	11.54	1.63E+01	7.96E+00
8	661.18	655 -	668	2.33E+01	14.90	1.54E+01	9.33E+00
9	777.70	774 -	780	9.11E+00	12.23	1.98E+01	8.74E+00
10	848.31	845 -	850	4.50E+00	5.74	3.00E+00	3.18E+00
11	1029.16	1025 -	1031	6.13E+00	6.65	3.75E+00	3.65E+00
12	1044.67	1041 -	1048	1.00E+01	6.32	0.00E+00	0.00E+00
13	1122.02	1118 -	1125	6.70E+00	8.49	6.60E+00	5.53E+00
14	1327.41	1324 -	1330	5.21E+00	6.34	3.57E+00	3.62E+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 : 11/11/2015 12:39:08PM

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	46.50	40 -	51	45.75	8.14E+01	46.35	2.27E+02	PB-210
2	75.28	69 -	79	74.55	5.50E+01	45.49	2.44E+02	AM-243
3	185.37	181 -	189	184.68	3.98E+01	29.90	1.14E+02	RA-226 HO-166M
4	312.64	308 -	316	312.00	2.41E+01	16.54	2.78E+01	PA-233
5	350.87	345 -	354	350.26	2.30E+01	22.63	6.00E+01	.....
6	424.31	419 -	428	423.73	2.10E+01	14.97	2.00E+01	BA-140
7	491.83	489 -	495	491.28	9.86E+00	11.54	1.63E+01	.....
8	661.18	655 -	668	660.71	2.33E+01	14.90	1.54E+01	CS-137
9	777.70	774 -	780	777.29	9.11E+00	12.23	1.98E+01	MO-99
10	848.31	845 -	850	847.93	4.50E+00	5.74	3.00E+00	.....
11	1029.16	1025 -	1031	1028.89	6.13E+00	6.65	3.75E+00	.....

Analysis Report for 1510093-02

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Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
12	1044.67	1041 -	1048	1044.40	1.00E+01	6.32	0.00E+00	.....
13	1122.02	1118 -	1125	1121.79	6.70E+00	8.49	6.60E+00	TA-182
14	1327.41	1324 -	1330	1327.30	5.21E+00	6.34	3.57E+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 : 11/11/2015 12:39:08PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	46.50	8.14E+01	46.35	2.63E-02	1.78E-03
2	75.28	5.50E+01	45.49	2.14E-02	1.70E-03
3	185.37	3.98E+01	29.90	1.17E-02	1.15E-03
4	312.64	2.41E+01	16.54	7.38E-03	8.24E-04
5	350.87	2.30E+01	22.63	6.63E-03	7.81E-04
6	424.31	2.10E+01	14.97	5.53E-03	6.88E-04
7	491.83	9.86E+00	11.54	4.79E-03	5.89E-04
8	661.18	2.33E+01	14.90	3.57E-03	3.41E-04
9	777.70	9.11E+00	12.23	3.05E-03	2.75E-04
10	848.31	4.50E+00	5.74	2.80E-03	2.36E-04
11	1029.16	6.13E+00	6.65	2.32E-03	1.91E-04
12	1044.67	1.00E+01	6.32	2.29E-03	1.89E-04
13	1122.02	6.70E+00	8.49	2.14E-03	1.79E-04
14	1327.41	5.21E+00	6.34	1.83E-03	2.14E-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 1510093-02

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## BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/11/2015 12:39:08PM

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	46.50	8.14E+01	46.35	2.00E+01	7.38E+00	6.13E+01	4.69E+01
2	75.28	5.50E+01	45.49			5.50E+01	4.55E+01
3	185.37	3.98E+01	29.90	1.43E+01	7.33E+00	2.55E+01	3.08E+01
4	312.64	2.41E+01	16.54			2.41E+01	1.65E+01
5	350.87	2.30E+01	22.63			2.30E+01	2.26E+01
6	424.31	2.10E+01	14.97			2.10E+01	1.50E+01
7	491.83	9.86E+00	11.54			9.86E+00	1.15E+01
8	661.18	2.33E+01	14.90			2.33E+01	1.49E+01
9	777.70	9.11E+00	12.23			9.11E+00	1.22E+01
10	848.31	4.50E+00	5.74			4.50E+00	5.74E+00
11	1029.16	6.13E+00	6.65			6.13E+00	6.65E+00
12	1044.67	1.00E+01	6.32			1.00E+01	6.32E+00
13	1122.02	6.70E+00	8.49			6.70E+00	8.49E+00
14	1327.41	5.21E+00	6.34			5.21E+00	6.34E+00

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

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 12:39:08PM

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	46.50	8.14E+01	46.35	2.00E+01	7.38E+00	6.13E+01	4.69E+01
2	75.28	5.50E+01	45.49			5.50E+01	4.55E+01
3	185.37	3.98E+01	29.90	1.43E+01	7.33E+00	2.55E+01	3.08E+01
4	312.64	2.41E+01	16.54			2.41E+01	1.65E+01

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Analysis Report for 1510093-02

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
5	350.87	2.30E+01	22.63			2.30E+01	2.26E+01
6	424.31	2.10E+01	14.97			2.10E+01	1.50E+01
7	491.83	9.86E+00	11.54			9.86E+00	1.15E+01
8	661.18	2.33E+01	14.90			2.33E+01	1.49E+01
9	777.70	9.11E+00	12.23			9.11E+00	1.22E+01
10	848.31	4.50E+00	5.74			4.50E+00	5.74E+00
11	1029.16	6.13E+00	6.65			6.13E+00	6.65E+00
12	1044.67	1.00E+01	6.32			1.00E+01	6.32E+00
13	1122.02	6.70E+00	8.49			6.70E+00	8.49E+00
14	1327.41	5.21E+00	6.34			5.21E+00	6.34E+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
CS-137	0.965	661.65 *	85.12	7.33E-02	4.74E-02
PB-210	1.000	46.50 *	4.25	5.26E-01	4.04E-01
RA-226	0.893	186.21 *	3.28	6.39E-01	1.40E+00
PA-233	0.934	311.98 *	38.60	8.15E-02	5.91E-02
AM-243	0.942	74.67 *	66.00	3.74E-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 1510093-02

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**UNIDENTIFIED PEAKS**


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Peak Locate Performed on : 11/11/2015 12:39:08PM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
5	350.87	6.38889E-03	49.19		
6	424.31	5.83333E-03	35.63	Tol.	BA-140
7	491.83	2.73920E-03	58.53		
9	777.70	2.52924E-03	67.14	Tol.	MO-99
10	848.31	1.25000E-03	63.83		
11	1029.16	1.70139E-03	54.30		
12	1044.67	2.77778E-03	31.62		
13	1122.02	1.86111E-03	63.32	Tol.	TA-182
14	1327.41	1.44841E-03	60.84		

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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

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**NUCLIDE IDENTIFICATION REPORT**


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

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**IDENTIFIED NUCLIDES**


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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CS-137	0.96	661.65 *	85.12	7.33E-02	4.74E-02
PB-210	1.00	46.50 *	4.25	5.26E-01	4.04E-01
RA-226	0.89	186.21 *	3.28	6.39E-01	1.40E+00
PA-233	0.93	311.98 *	38.60	8.15E-02	5.91E-02
AM-243	0.94	74.67 *	66.00	3.74E-02	3.10E-02

Analysis Report for 1510093-02

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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

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## INTERFERENCE CORRECTED REPORT

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<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>
CS-137	0.965	7.33E-02	4.74E-02	
PB-210	1.000	5.26E-01	4.04E-01	
RA-226	0.893	6.39E-01	1.40E+00	
PA-233	0.934	8.15E-02	5.91E-02	
AM-243	0.942	3.74E-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

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Analysis Report for 1510093-02  
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### UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 12:39:08PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
5	350.87	6.38889E-03	49.19		
6	424.31	5.83333E-03	35.63	Tol.	BA-140
7	491.83	2.73920E-03	58.53		
9	777.70	2.52924E-03	67.14	Tol.	MO-99
10	848.31	1.25000E-03	63.83		
11	1029.16	1.70139E-03	54.30		
12	1044.67	2.77778E-03	31.62		
13	1122.02	1.86111E-03	63.32	Tol.	TA-182
14	1327.41	1.44841E-03	60.84		

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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

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### NUCLIDE MDA REPORT

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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	1.31E-01	5.12E-01	5.12E-01
+	NA-22	1274.54	99.94	1.51E-02	7.11E-02	7.11E-02
+	NA-24	1368.53	99.99	0.00E+00	9.40E-02	9.40E-02
		2754.09	99.86	-2.68E-02		1.24E-01
+	AL-26	1808.65	99.76	-2.05E-02	5.03E-02	5.03E-02
+	K-40	1460.81	10.67	1.60E-01	8.89E-01	8.89E-01
+	AR-41	1293.64	99.16	3.74E-02	4.53E-01	4.53E-01
+	TI-44	67.88	94.40	4.62E-03	2.67E-02	2.67E-02



Analysis Report for 1510093-02

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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	TI-44	78.34	96.00	-5.92E-03	2.67E-02	2.71E-02
+	SC-46	889.25	99.98	-1.08E-02	5.99E-02	5.99E-02
		1120.51	99.99	8.58E-03		9.01E-02
+	V-48	983.52	99.98	-1.89E-02	4.79E-02	4.79E-02
		1312.10	97.50	-1.28E-02		7.01E-02
+	CR-51	320.08	9.83	-8.06E-02	3.82E-01	3.82E-01
+	MN-54	834.83	99.97	-1.05E-02	7.57E-02	7.57E-02
+	CO-56	846.75	99.96	-3.43E-03	5.44E-02	5.44E-02
		1037.75	14.03	1.98E-02		4.19E-01
		1238.25	67.00	2.20E-02		1.03E-01
		1771.40	15.51	-2.89E-01		5.20E-01
		2598.48	16.90	0.00E+00		1.43E-01
+	CO-57	122.06	85.51	-1.12E-02	3.22E-02	3.22E-02
		136.48	10.60	-5.00E-02		2.81E-01
+	CO-58	810.76	99.40	-1.66E-02	6.22E-02	6.22E-02
+	FE-59	1099.22	56.50	-2.34E-02	8.39E-02	8.39E-02
		1291.56	43.20	2.37E-02		1.88E-01
+	CO-60	1173.22	100.00	-1.40E-02	6.12E-02	6.12E-02
		1332.49	100.00	-2.04E-02		9.13E-02
+	ZN-65	1115.52	50.75	1.76E-02	1.53E-01	1.53E-01
+	GA-67	93.31	35.70	3.70E-02	8.81E-02	8.81E-02
		208.95	2.24	-2.93E-02		1.81E+00
		300.22	16.00	6.87E-02		2.59E-01
+	SE-75	121.11	16.70	-5.13E-02	5.03E-02	1.67E-01
		136.00	59.20	-7.33E-03		5.03E-02
		264.65	59.80	-4.56E-02		6.46E-02
		279.53	25.20	3.24E-02		1.75E-01
		400.65	11.40	-9.71E-02		3.94E-01
+	RB-82	776.52	13.00	-4.86E-02	5.84E-01	5.84E-01
+	RB-83	520.41	46.00	-1.13E-02	1.22E-01	1.22E-01
		529.64	30.30	-5.12E-02		1.71E-01
		552.65	16.40	-1.58E-01		3.36E-01
+	KR-85	513.99	0.43	1.56E+01	1.88E+01	1.88E+01
+	SR-85	513.99	99.27	6.82E-02	8.24E-02	8.24E-02
+	Y-88	898.02	93.40	1.12E-02	8.04E-02	8.04E-02
		1836.01	99.38	2.32E-03		8.35E-02
+	NB-93M	16.57	9.43	2.80E-01	2.21E-01	2.21E-01
+	NB-94	702.63	100.00	-2.36E-02	5.73E-02	5.73E-02
		871.10	100.00	8.07E-03		7.89E-02
+	NB-95	765.79	99.81	-5.02E-03	6.99E-02	6.99E-02
+	NB-95M	235.69	25.00	-3.49E-02	1.59E-01	1.59E-01
+	ZR-95	724.18	43.70	-2.86E-02	1.07E-01	1.07E-01
		756.72	55.30	1.66E-02		1.15E-01
+	MO-99	181.06	6.20	8.91E-03	4.79E-01	6.37E-01
		739.58	12.80	6.05E-02		4.79E-01
		778.00	4.50	-4.90E-02		1.80E+00
+	RU-103	497.08	89.00	-2.10E-02	4.29E-02	4.29E-02

Analysis Report for 1510093-02

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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	RU-106	621.84	9.80	2.26E-01	6.69E-01	6.69E-01
+	AG-108M	433.93	89.90	-1.40E-02	5.12E-02	5.12E-02
		614.37	90.40	-5.33E-03		7.16E-02
		722.95	90.50	-2.10E-02		5.13E-02
+	CD-109	88.03	3.72	3.23E-02	7.92E-01	7.92E-01
+	AG-110M	657.75	93.14	-1.91E-03	6.88E-02	6.88E-02
		677.61	10.53	-3.04E-02		4.91E-01
		706.67	16.46	-9.46E-03		4.00E-01
		763.93	21.98	-6.66E-03		3.23E-01
		884.67	71.63	3.77E-03		9.04E-02
		1384.27	23.94	-1.21E-01		2.44E-01
+	CD-113M	263.70	0.02	4.16E+01	1.84E+02	1.84E+02
+	SN-113	255.12	1.93	-8.83E-01	6.88E-02	1.94E+00
		391.69	64.90	-8.91E-03		6.88E-02
+	TE123M	159.00	84.10	-1.83E-03	3.93E-02	3.93E-02
+	SB-124	602.71	97.87	3.14E-02	7.47E-02	7.47E-02
		645.85	7.26	-6.89E-01		6.56E-01
		722.78	11.10	-8.81E-03		4.97E-01
		1691.02	49.00	3.74E-02		1.58E-01
+	I-125	35.49	6.49	1.31E-02	2.92E-01	2.92E-01
+	SB-125	176.33	6.89	-1.35E-01	1.78E-01	5.08E-01
		427.89	29.33	1.41E-02		1.78E-01
		463.38	10.35	1.89E-01		5.30E-01
		600.56	17.80	3.40E-01		4.30E-01
		635.90	11.32	1.60E-01		5.59E-01
+	SB-126	414.70	83.30	1.34E-02	5.84E-02	5.98E-02
		666.33	99.60	6.40E-03		5.84E-02
		695.00	99.60	2.35E-02		7.01E-02
		720.50	53.80	-2.28E-02		1.03E-01
+	SN-126	87.57	37.00	3.24E-03	7.93E-02	7.93E-02
+	SB-127	473.00	25.00	-5.23E-02	1.72E-01	1.96E-01
		685.20	35.70	-2.77E-02		1.72E-01
		783.80	14.70	-7.38E-02		4.89E-01
+	I-129	29.78	57.00	-3.04E-03	3.56E-02	3.56E-02
		33.60	13.20	4.67E-03		1.46E-01
		39.58	7.52	2.86E-02		2.50E-01
+	I-131	284.30	6.05	-2.76E-02	5.21E-02	7.56E-01
		364.48	81.20	-1.80E-02		5.21E-02
		636.97	7.26	3.26E-01		9.23E-01
		722.89	1.80	-5.51E-02		3.11E+00
+	TE-132	49.72	13.10	-3.34E-02	4.17E-02	1.75E-01
		228.16	88.00	-8.46E-03		4.17E-02
+	BA-133	81.00	33.00	-1.83E-02	7.94E-02	7.94E-02
		302.84	17.80	3.53E-02		2.11E-01
		356.01	60.00	-5.29E-03		8.45E-02
+	I-133	529.87	86.30	-2.10E-02	7.01E-02	7.01E-02
+	XE-133	81.00	38.00	-1.63E-02	7.07E-02	7.07E-02
+	CS-134	563.23	8.38	-4.82E-02	6.87E-02	7.34E-01

Analysis Report for 1510093-02

BLANK

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	CS-134	569.32	15.43	3.00E-02	6.87E-02	4.16E-01
		604.70	97.60	-5.99E-05		6.87E-02
		795.84	85.40	-1.91E-02		7.34E-02
		801.93	8.73	-2.75E-01		7.70E-01
+	CS-135	268.24	16.00	0.00E+00	2.60E-01	2.60E-01
+	I-135	1131.51	22.50	1.84E-01	3.06E-01	6.16E-01
		1260.41	28.60	-2.75E-01		3.06E-01
		1678.03	9.54	6.58E-01		1.55E+00
+	CS-136	153.22	7.46	-1.53E-02	6.74E-02	4.18E-01
		163.89	4.61	-8.17E-02		7.70E-01
		176.55	13.56	-6.91E-02		2.61E-01
		273.65	12.66	-9.77E-03		3.44E-01
		340.57	48.50	-3.66E-02		8.85E-02
		818.50	99.70	9.58E-04		6.74E-02
		1048.07	79.60	-2.13E-02		8.88E-02
		1235.34	19.70	-2.93E-01		2.70E-01
+	CS-137	661.65	* 85.12	7.33E-02	6.73E-02	6.73E-02
+	LA-138	788.74	34.00	-7.19E-02	1.20E-01	1.63E-01
		1435.80	66.00	-2.55E-02		1.20E-01
+	CE-139	165.85	80.35	-3.42E-03	4.48E-02	4.48E-02
+	BA-140	162.64	6.70	6.71E-02	2.12E-01	5.32E-01
		304.84	4.50	-9.49E-03		8.03E-01
		423.70	3.20	3.22E-01		1.54E+00
		437.55	2.00	-9.92E-02		2.43E+00
		537.32	25.00	-2.21E-02		2.12E-01
+	LA-140	328.77	20.50	2.66E-02	7.81E-02	2.39E-01
		487.03	45.50	-4.21E-02		1.08E-01
		815.85	23.50	-3.31E-02		2.67E-01
		1596.49	95.49	-1.63E-03		7.81E-02
+	CE-141	145.44	48.40	-2.52E-03	6.11E-02	6.11E-02
+	CE-143	57.36	11.80	-5.17E-02	1.13E-01	2.11E-01
		293.26	42.00	-4.15E-04		1.13E-01
		664.55	5.20	3.46E-01		1.40E+00
+	CE-144	133.54	10.80	-5.10E-02	2.76E-01	2.76E-01
+	PM-144	476.78	42.00	2.50E-02	6.61E-02	1.26E-01
		618.01	98.60	3.02E-03		6.61E-02
		696.49	99.49	2.36E-02		6.67E-02
+	PM-145	36.85	21.70	3.09E-02	4.85E-02	8.74E-02
		37.36	39.70	2.21E-02		4.85E-02
		42.30	15.10	1.14E-02		1.37E-01
		72.40	2.31	4.85E-02		1.12E+00
+	PM-146	453.90	39.94	2.29E-02	1.29E-01	1.29E-01
		735.90	14.01	-1.53E-01		3.54E-01
		747.13	13.10	-1.39E-01		4.02E-01
+	ND-147	91.11	28.90	5.82E-02	1.09E-01	1.09E-01
		531.02	13.10	-6.83E-03		4.09E-01
+	PM-149	285.90	3.10	-1.80E-01	1.53E+00	1.53E+00
+	EU-152	121.78	20.50	-4.65E-02	1.34E-01	1.34E-01
		244.69	5.40	2.07E-01		7.80E-01

Analysis Report for 1510093-02

BLANK

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	EU-152	344.27	19.13	-8.60E-03	1.34E-01	2.33E-01
		778.89	9.20	-2.28E-02		8.40E-01
		964.01	10.40	-6.99E-03		7.94E-01
		1085.78	7.22	-2.16E-01		7.88E-01
		1112.02	9.60	2.31E-01		8.39E-01
		1407.95	14.94	1.93E-02		5.54E-01
+	GD-153	97.43	31.30	-7.33E-02	8.73E-02	8.73E-02
		103.18	22.20	2.06E-02		1.26E-01
+	EU-154	123.07	40.50	-3.62E-02	6.84E-02	6.84E-02
		723.30	19.70	-9.66E-02		2.36E-01
		873.19	11.50	3.66E-01		7.20E-01
		996.32	10.30	-1.02E-01		6.16E-01
		1004.76	17.90	-4.51E-02		3.92E-01
		1274.45	35.50	4.26E-02		2.00E-01
+	EU-155	86.50	30.90	-5.78E-02	8.98E-02	8.98E-02
		105.30	20.70	-1.13E-02		1.36E-01
+	EU-156	811.77	10.40	-3.18E-02	6.40E-01	6.40E-01
		1153.47	7.20	1.23E-01		1.02E+00
		1230.71	8.90	3.36E-01		8.77E-01
+	HO-166M	184.41	72.60	2.23E-02	5.53E-02	5.53E-02
		280.45	29.60	-1.73E-02		1.45E-01
		410.94	11.10	1.24E-01		4.70E-01
		711.69	54.10	5.33E-03		1.38E-01
+	TM-171	66.72	0.14	7.62E+00	1.87E+01	1.87E+01
+	HF-172	81.75	4.52	-8.85E-02	2.61E-01	5.80E-01
		125.81	11.30	6.03E-02		2.61E-01
+	LU-172	181.53	20.60	7.69E-03	1.01E-01	1.96E-01
		810.06	16.63	-1.01E-01		3.78E-01
		912.12	15.25	7.38E-02		4.63E-01
		1093.66	62.50	1.19E-02		1.01E-01
+	LU-173	100.72	5.24	-3.07E-02	2.01E-01	5.34E-01
		272.11	21.20	3.02E-02		2.01E-01
+	HF-175	343.40	84.00	1.58E-04	5.37E-02	5.37E-02
+	LU-176	88.34	13.30	7.16E-02	3.71E-02	2.26E-01
		201.83	86.00	-8.21E-03		4.52E-02
		306.78	94.00	-5.73E-03		3.71E-02
+	TA-182	67.75	41.20	1.06E-02	6.13E-02	6.13E-02
		1121.30	34.90	-5.13E-02		2.33E-01
		1189.05	16.23	1.01E-01		4.38E-01
		1221.41	26.98	-7.19E-02		2.54E-01
		1231.02	11.44	2.60E-01		6.77E-01
+	IR-192	308.46	29.68	-2.96E-02	9.34E-02	1.18E-01
		468.07	48.10	-7.03E-02		9.34E-02
+	HG-203	279.19	77.30	1.06E-02	5.70E-02	5.70E-02
+	BI-207	569.67	97.72	4.74E-03	6.57E-02	6.57E-02
		1063.62	74.90	-1.81E-02		8.53E-02
+	TL-208	583.14	30.22	0.00E+00	1.92E-01	1.92E-01
		860.37	4.48	-1.83E-01		1.41E+00
		2614.66	35.85	1.25E-02		2.32E-01

Analysis Report for 1510093-02

BLANK

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BI-210M	262.00	45.00	5.61E-02	9.59E-02	9.59E-02
		300.00	23.00	5.43E-02		1.79E-01
+	PB-210	46.50	* 4.25	5.26E-01	6.47E-01	6.47E-01
+	PB-211	404.84	2.90	-2.56E-01	1.59E+00	1.59E+00
		831.96	2.90	1.95E-01		2.66E+00
+	BI-212	727.17	11.80	-1.25E-01	3.75E-01	3.75E-01
		1620.62	2.75	-4.53E-01		1.67E+00
+	PB-212	238.63	44.60	3.04E-02	9.37E-02	9.37E-02
		300.09	3.41	3.67E-01		1.20E+00
+	BI-214	609.31	46.30	-5.58E-02	1.31E-01	1.31E-01
		1120.29	15.10	5.67E-02		5.95E-01
		1764.49	15.80	1.80E-01		6.71E-01
		2204.22	4.98	-1.59E-01		1.17E+00
+	PB-214	295.21	19.19	-5.24E-02	1.38E-01	2.13E-01
		351.92	37.19	6.04E-02		1.38E-01
+	RN-219	401.80	6.50	-2.63E-01	6.57E-01	6.57E-01
+	RA-223	323.87	3.88	-3.44E-01	1.05E+00	1.05E+00
+	RA-224	240.98	3.95	3.35E-01	1.07E+00	1.07E+00
+	RA-225	40.00	31.00	7.03E-03	6.15E-02	6.15E-02
+	RA-226	186.21	* 3.28	6.39E-01	1.27E+00	1.27E+00
+	TH-227	50.10	8.40	-5.01E-02	2.62E-01	2.62E-01
		236.00	11.50	-7.31E-02		3.34E-01
		256.20	6.30	-5.16E-02		6.18E-01
+	AC-228	338.32	11.40	2.76E-02	2.40E-01	3.94E-01
		911.07	27.70	2.93E-02		2.40E-01
		969.11	16.60	1.64E-01		5.39E-01
+	TH-230	48.44	16.90	4.59E-02	1.31E-01	1.31E-01
		62.85	4.60	4.66E-01		5.70E-01
		67.67	0.37	1.18E+00		6.81E+00
+	PA-231	283.67	1.60	1.61E-01	1.63E+00	2.81E+00
		302.67	2.30	2.73E-01		1.63E+00
+	TH-231	25.64	14.70	6.23E-02	1.52E-01	1.52E-01
		84.21	6.40	4.07E-02		4.17E-01
+	PA-233	311.98	* 38.60	8.15E-02	8.31E-02	8.31E-02
+	PA-234	131.20	20.40	4.78E-02	1.50E-01	1.50E-01
		733.99	8.80	-7.32E-02		5.88E-01
		946.00	12.00	6.34E-02		5.75E-01
+	PA-234M	1001.03	0.92	-1.62E+00	7.28E+00	7.28E+00
+	TH-234	63.29	3.80	6.05E-01	7.00E-01	7.00E-01
+	U-235	143.76	10.50	2.95E-02	2.93E-01	2.93E-01
		163.35	4.70	-7.91E-02		7.45E-01
		205.31	4.70	-5.18E-02		8.29E-01
+	NP-237	86.50	12.60	-1.42E-01	2.20E-01	2.20E-01
+	NP-239	106.10	22.70	-1.10E-02	1.32E-01	1.32E-01
		228.18	10.70	-5.43E-02		3.51E-01
		277.60	14.10	0.00E+00		3.25E-01
+	AM-241	59.54	35.90	3.82E-02	6.92E-02	6.92E-02

Analysis Report for 1510093-02

BLANK

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	AM-243	74.67	*	66.00	3.74E-02	4.99E-02	4.99E-02
+	CM-243	209.75		3.29	-3.24E-01	3.09E-01	1.15E+00
		228.14		10.60	-6.73E-02		3.32E-01
		277.60		14.00	0.00E+00		3.09E-01

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

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
BE-7	477.59	10.42	5.12E-01	5.12E-01	1.31E-01	2.30E-01
NA-22	1274.54	99.94	7.11E-02	7.11E-02	1.51E-02	2.87E-02
NA-24	1368.53	99.99	9.40E-02	9.40E-02	0.00E+00	3.80E-02
	2754.09	99.86	1.24E-01		-2.68E-02	4.63E-02
AL-26	1808.65	99.76	5.03E-02	5.03E-02	-2.05E-02	1.59E-02
K-40	1460.81	10.67	8.89E-01	8.89E-01	1.60E-01	3.72E-01
AR-41	1293.64	99.16	4.53E-01	4.53E-01	3.74E-02	1.86E-01
TI-44	67.88	94.40	2.67E-02	2.67E-02	4.62E-03	1.28E-02
	78.34	96.00	2.71E-02		-5.92E-03	1.29E-02
SC-46	889.25	99.98	5.99E-02	5.99E-02	-1.08E-02	2.51E-02
	1120.51	99.99	9.01E-02		8.58E-03	3.90E-02
V-48	983.52	99.98	4.79E-02	4.79E-02	-1.89E-02	1.85E-02
	1312.10	97.50	7.01E-02		-1.28E-02	2.78E-02
CR-51	320.08	9.83	3.82E-01	3.82E-01	-8.06E-02	1.73E-01
MN-54	834.83	99.97	7.57E-02	7.57E-02	-1.05E-02	3.33E-02
CO-56	846.75	99.96	5.44E-02	5.44E-02	-3.43E-03	2.25E-02
	1037.75	14.03	4.19E-01		1.98E-02	1.69E-01
	1238.25	67.00	1.03E-01		2.20E-02	4.18E-02
	1771.40	15.51	5.20E-01		-2.89E-01	2.01E-01

Analysis Report for 1510093-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CO-56	2598.48	16.90	1.43E-01	5.44E-02	0.00E+00	0.00E+00
CO-57	122.06	85.51	3.22E-02	3.22E-02	-1.12E-02	1.52E-02
	136.48	10.60	2.81E-01		-5.00E-02	1.32E-01
CO-58	810.76	99.40	6.22E-02	6.22E-02	-1.66E-02	2.66E-02
FE-59	1099.22	56.50	8.39E-02	8.39E-02	-2.34E-02	3.14E-02
	1291.56	43.20	1.88E-01		2.37E-02	7.79E-02
CO-60	1173.22	100.00	6.12E-02	6.12E-02	-1.40E-02	2.43E-02
	1332.49	100.00	9.13E-02		-2.04E-02	3.86E-02
ZN-65	1115.52	50.75	1.53E-01	1.53E-01	1.76E-02	6.46E-02
GA-67	93.31	35.70	8.81E-02	8.81E-02	3.70E-02	4.21E-02
	208.95	2.24	1.81E+00		-2.93E-02	8.46E-01
	300.22	16.00	2.59E-01		6.87E-02	1.18E-01
SE-75	121.11	16.70	1.67E-01	5.03E-02	-5.13E-02	7.86E-02
	136.00	59.20	5.03E-02		-7.33E-03	2.37E-02
	264.65	59.80	6.46E-02		-4.56E-02	2.98E-02
	279.53	25.20	1.75E-01		3.24E-02	8.10E-02
	400.65	11.40	3.94E-01		-9.71E-02	1.77E-01
RB-82	776.52	13.00	5.84E-01	5.84E-01	-4.86E-02	2.59E-01
RB-83	520.41	46.00	1.22E-01	1.22E-01	-1.13E-02	5.47E-02
	529.64	30.30	1.71E-01		-5.12E-02	7.59E-02
	552.65	16.40	3.36E-01		-1.58E-01	1.50E-01
KR-85	513.99	0.43	1.88E+01	1.88E+01	1.56E+01	8.75E+00
SR-85	513.99	99.27	8.24E-02	8.24E-02	6.82E-02	3.84E-02
Y-88	898.02	93.40	8.04E-02	8.04E-02	1.12E-02	3.50E-02
	1836.01	99.38	8.35E-02		2.32E-03	3.23E-02
NB-93M	16.57	9.43	2.21E-01	2.21E-01	2.80E-01	1.06E-01
NB-94	702.63	100.00	5.73E-02	5.73E-02	-2.36E-02	2.48E-02
	871.10	100.00	7.89E-02		8.07E-03	3.47E-02
NB-95	765.79	99.81	6.99E-02	6.99E-02	-5.02E-03	3.08E-02
NB-95M	235.69	25.00	1.59E-01	1.59E-01	-3.49E-02	7.41E-02
ZR-95	724.18	43.70	1.07E-01	1.07E-01	-2.86E-02	4.42E-02
	756.72	55.30	1.15E-01		1.66E-02	5.00E-02
MO-99	181.06	6.20	6.37E-01	4.79E-01	8.91E-03	3.00E-01
	739.58	12.80	4.79E-01		6.05E-02	2.06E-01
	778.00	4.50	1.80E+00		-4.90E-02	8.01E-01
RU-103	497.08	89.00	4.29E-02	4.29E-02	-2.10E-02	1.84E-02
RU-106	621.84	9.80	6.69E-01	6.69E-01	2.26E-01	3.00E-01
AG-108M	433.93	89.90	5.12E-02	5.12E-02	-1.40E-02	2.29E-02
	614.37	90.40	7.16E-02		-5.33E-03	3.21E-02
	722.95	90.50	5.13E-02		-2.10E-02	2.13E-02
CD-109	88.03	3.72	7.92E-01	7.92E-01	3.23E-02	3.78E-01
AG-110M	657.75	93.14	6.88E-02	6.88E-02	-1.91E-03	3.05E-02
	677.61	10.53	4.91E-01		-3.04E-02	2.10E-01
	706.67	16.46	4.00E-01		-9.46E-03	1.76E-01
	763.93	21.98	3.23E-01		-6.66E-03	1.43E-01
	884.67	71.63	9.04E-02		3.77E-03	3.84E-02
	1384.27	23.94	2.44E-01		-1.21E-01	9.14E-02
CD-113M	263.70	0.02	1.84E+02	1.84E+02	4.16E+01	8.56E+01
SN-113	255.12	1.93	1.94E+00	6.88E-02	-8.83E-01	8.93E-01
	391.69	64.90	6.88E-02		-8.91E-03	3.10E-02
TE123M	159.00	84.10	3.93E-02	3.93E-02	-1.83E-03	1.85E-02
SB-124	602.71	97.87	7.47E-02	7.47E-02	3.14E-02	3.40E-02
	645.85	7.26	6.56E-01		-6.89E-01	2.79E-01

Analysis Report for 1510093-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-124	722.78	11.10	4.97E-01	7.47E-02	-8.81E-03	2.13E-01
	1691.02	49.00	1.58E-01		3.74E-02	6.14E-02
I-125	35.49	6.49	2.92E-01	2.92E-01	1.31E-02	1.39E-01
SB-125	176.33	6.89	5.08E-01	1.78E-01	-1.35E-01	2.39E-01
	427.89	29.33	1.78E-01		1.41E-02	8.09E-02
	463.38	10.35	5.30E-01		1.89E-01	2.40E-01
	600.56	17.80	4.30E-01		3.40E-01	1.96E-01
	635.90	11.32	5.59E-01		1.60E-01	2.49E-01
	414.70	83.30	5.98E-02		5.84E-02	1.34E-02
666.33	99.60	5.84E-02	6.40E-03	2.55E-02		
695.00	99.60	7.01E-02	2.35E-02	3.12E-02		
SN-126	720.50	53.80	1.03E-01	7.93E-02	-2.28E-02	4.42E-02
	87.57	37.00	7.93E-02		3.24E-03	3.79E-02
SB-127	473.00	25.00	1.96E-01	1.72E-01	-5.23E-02	8.71E-02
	685.20	35.70	1.72E-01		-2.77E-02	7.50E-02
	783.80	14.70	4.89E-01		-7.38E-02	2.14E-01
I-129	29.78	57.00	3.56E-02	3.56E-02	-3.04E-03	1.70E-02
	33.60	13.20	1.46E-01		4.67E-03	6.95E-02
	39.58	7.52	2.50E-01		2.86E-02	1.19E-01
I-131	284.30	6.05	7.56E-01	5.21E-02	-2.76E-02	3.51E-01
	364.48	81.20	5.21E-02		-1.80E-02	2.35E-02
	636.97	7.26	9.23E-01		3.26E-01	4.12E-01
	722.89	1.80	3.11E+00		-5.51E-02	1.33E+00
TE-132	49.72	13.10	1.75E-01	4.17E-02	-3.34E-02	8.34E-02
	228.16	88.00	4.17E-02		-8.46E-03	1.93E-02
BA-133	81.00	33.00	7.94E-02	7.94E-02	-1.83E-02	3.78E-02
	302.84	17.80	2.11E-01		3.53E-02	9.60E-02
	356.01	60.00	8.45E-02		-5.29E-03	3.90E-02
I-133	529.87	86.30	7.01E-02	7.01E-02	-2.10E-02	3.11E-02
XE-133	81.00	38.00	7.07E-02	7.07E-02	-1.63E-02	3.37E-02
CS-134	563.23	8.38	7.34E-01	6.87E-02	-4.82E-02	3.30E-01
	569.32	15.43	4.16E-01		3.00E-02	1.88E-01
	604.70	97.60	6.87E-02		-5.99E-05	3.10E-02
	795.84	85.40	7.34E-02		-1.91E-02	3.16E-02
	801.93	8.73	7.70E-01		-2.75E-01	3.35E-01
	268.24	16.00	2.60E-01		2.60E-01	0.00E+00
I-135	1131.51	22.50	6.16E-01	3.06E-01	1.84E-01	2.64E-01
	1260.41	28.60	3.06E-01		-2.75E-01	1.15E-01
	1678.03	9.54	1.55E+00		6.58E-01	6.25E-01
CS-136	153.22	7.46	4.18E-01	6.74E-02	-1.53E-02	1.96E-01
	163.89	4.61	7.70E-01		-8.17E-02	3.63E-01
	176.55	13.56	2.61E-01		-6.91E-02	1.23E-01
	273.65	12.66	3.44E-01		-9.77E-03	1.60E-01
	340.57	48.50	8.85E-02		-3.66E-02	4.03E-02
	818.50	99.70	6.74E-02		9.58E-04	2.92E-02
	1048.07	79.60	8.88E-02		-2.13E-02	3.72E-02
	1235.34	19.70	2.70E-01		-2.93E-01	1.01E-01
	661.65	85.12	6.73E-02		6.73E-02	7.33E-02
LA-138	788.74	34.00	1.63E-01	1.20E-01	-7.19E-02	6.90E-02
	1435.80	66.00	1.20E-01		-2.55E-02	4.84E-02
CE-139	165.85	80.35	4.48E-02	4.48E-02	-3.42E-03	2.12E-02
BA-140	162.64	6.70	5.32E-01	2.12E-01	6.71E-02	2.51E-01
	304.84	4.50	8.03E-01		-9.49E-03	3.63E-01

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Analysis Report for 1510093-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-140	423.70	3.20	1.54E+00	2.12E-01	3.22E-01	6.97E-01
	437.55	2.00	2.43E+00		-9.92E-02	1.09E+00
	537.32	25.00	2.12E-01		-2.21E-02	9.41E-02
LA-140	328.77	20.50	2.39E-01	7.81E-02	2.66E-02	1.10E-01
	487.03	45.50	1.08E-01		-4.21E-02	4.81E-02
	815.85	23.50	2.67E-01		-3.31E-02	1.14E-01
	1596.49	95.49	7.81E-02		-1.63E-03	3.03E-02
CE-141	145.44	48.40	6.11E-02	6.11E-02	-2.52E-03	2.87E-02
CE-143	57.36	11.80	2.11E-01	1.13E-01	-5.17E-02	1.00E-01
	293.26	42.00	1.13E-01		-4.15E-04	5.23E-02
	664.55	5.20	1.40E+00		3.46E-01	6.24E-01
CE-144	133.54	10.80	2.76E-01	2.76E-01	-5.10E-02	1.30E-01
PM-144	476.78	42.00	1.26E-01	6.61E-02	2.50E-02	5.70E-02
	618.01	98.60	6.61E-02		3.02E-03	2.96E-02
	696.49	99.49	6.67E-02		2.36E-02	2.95E-02
PM-145	36.85	21.70	8.74E-02	4.85E-02	3.09E-02	4.16E-02
	37.36	39.70	4.85E-02		2.21E-02	2.31E-02
	42.30	15.10	1.37E-01		1.14E-02	6.56E-02
	72.40	2.31	1.12E+00		4.85E-02	5.35E-01
PM-146	453.90	39.94	1.29E-01	1.29E-01	2.29E-02	5.81E-02
	735.90	14.01	3.54E-01		-1.53E-01	1.48E-01
	747.13	13.10	4.02E-01		-1.39E-01	1.70E-01
ND-147	91.11	28.90	1.09E-01	1.09E-01	5.82E-02	5.20E-02
	531.02	13.10	4.09E-01		-6.83E-03	1.82E-01
PM-149	285.90	3.10	1.53E+00	1.53E+00	-1.80E-01	7.07E-01
EU-152	121.78	20.50	1.34E-01	1.34E-01	-4.65E-02	6.31E-02
	244.69	5.40	7.80E-01		2.07E-01	3.64E-01
	344.27	19.13	2.33E-01		-8.60E-03	1.06E-01
	778.89	9.20	8.40E-01		-2.28E-02	3.74E-01
	964.01	10.40	7.94E-01		-6.99E-03	3.47E-01
	1085.78	7.22	7.88E-01		-2.16E-01	3.13E-01
	1112.02	9.60	8.39E-01		2.31E-01	3.57E-01
	1407.95	14.94	5.54E-01		1.93E-02	2.27E-01
	97.43	31.30	8.73E-02	8.73E-02	-7.33E-02	4.14E-02
	103.18	22.20	1.26E-01		2.06E-02	5.99E-02
EU-154	123.07	40.50	6.84E-02	6.84E-02	-3.62E-02	3.22E-02
	723.30	19.70	2.36E-01		-9.66E-02	9.78E-02
	873.19	11.50	7.20E-01		3.66E-01	3.19E-01
	996.32	10.30	6.16E-01		-1.02E-01	2.56E-01
	1004.76	17.90	3.92E-01		-4.51E-02	1.66E-01
EU-155	1274.45	35.50	2.00E-01		4.26E-02	8.08E-02
	86.50	30.90	8.98E-02	8.98E-02	-5.78E-02	4.28E-02
EU-156	105.30	20.70	1.36E-01		-1.13E-02	6.45E-02
	811.77	10.40	6.40E-01	6.40E-01	-3.18E-02	2.77E-01
HO-166M	1153.47	7.20	1.02E+00		1.23E-01	4.24E-01
	1230.71	8.90	8.77E-01		3.36E-01	3.64E-01
	184.41	72.60	5.53E-02	5.53E-02	2.23E-02	2.61E-02
	280.45	29.60	1.45E-01		-1.73E-02	6.72E-02
TM-171	410.94	11.10	4.70E-01		1.24E-01	2.14E-01
	711.69	54.10	1.38E-01		5.33E-03	6.20E-02
	66.72	0.14	1.87E+01	1.87E+01	7.62E+00	8.96E+00
HF-172	81.75	4.52	5.80E-01	2.61E-01	-8.85E-02	2.76E-01
	125.81	11.30	2.61E-01		6.03E-02	1.23E-01

Analysis Report for 1510093-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
LU-172	181.53	20.60	1.96E-01	1.01E-01	7.69E-03	9.27E-02	
	810.06	16.63	3.78E-01		-1.01E-01	1.62E-01	
	912.12	15.25	4.63E-01		7.38E-02	1.98E-01	
	1093.66	62.50	1.01E-01		1.19E-02	4.07E-02	
LU-173	100.72	5.24	5.34E-01	2.01E-01	-3.07E-02	2.53E-01	
	272.11	21.20	2.01E-01		3.02E-02	9.31E-02	
HF-175	343.40	84.00	5.37E-02	5.37E-02	1.58E-04	2.46E-02	
LU-176	88.34	13.30	2.26E-01	3.71E-02	7.16E-02	1.08E-01	
	201.83	86.00	4.52E-02		-8.21E-03	2.12E-02	
	306.78	94.00	3.71E-02		-5.73E-03	1.67E-02	
TA-182	67.75	41.20	6.13E-02	6.13E-02	1.06E-02	2.93E-02	
	1121.30	34.90	2.33E-01		-5.13E-02	9.90E-02	
	1189.05	16.23	4.38E-01		1.01E-01	1.79E-01	
	1221.41	26.98	2.54E-01		-7.19E-02	1.02E-01	
	1231.02	11.44	6.77E-01		2.60E-01	2.81E-01	
IR-192	308.46	29.68	1.18E-01	9.34E-02	-2.96E-02	5.33E-02	
	468.07	48.10	9.34E-02		-7.03E-02	4.13E-02	
HG-203	279.19	77.30	5.70E-02	5.70E-02	1.06E-02	2.64E-02	
BI-207	569.67	97.72	6.57E-02	6.57E-02	4.74E-03	2.97E-02	
	1063.62	74.90	8.53E-02		-1.81E-02	3.50E-02	
	TL-208	583.14	30.22	1.92E-01	1.92E-01	0.00E+00	8.55E-02
	860.37	4.48	1.41E+00		-1.83E-01	5.98E-01	
	2614.66	35.85	2.32E-01		1.25E-02	8.21E-02	
	BI-210M	262.00	45.00	9.59E-02	9.59E-02	5.61E-02	4.46E-02
	300.00	23.00	1.79E-01		5.43E-02	8.19E-02	
+ PB-210	46.50	*	6.47E-01	6.47E-01	5.26E-01	3.12E-01	
PB-211	404.84	2.90	1.59E+00	1.59E+00	-2.56E-01	7.16E-01	
	831.96	2.90	2.66E+00		1.95E-01	1.17E+00	
BI-212	727.17	11.80	3.75E-01	3.75E-01	-1.25E-01	1.54E-01	
	1620.62	2.75	1.67E+00		-4.53E-01	5.26E-01	
PB-212	238.63	44.60	9.37E-02	9.37E-02	3.04E-02	4.38E-02	
	300.09	3.41	1.20E+00		3.67E-01	5.53E-01	
BI-214	609.31	46.30	1.31E-01	1.31E-01	-5.58E-02	5.83E-02	
	1120.29	15.10	5.95E-01		5.67E-02	2.58E-01	
	1764.49	15.80	6.71E-01		1.80E-01	2.78E-01	
	2204.22	4.98	1.17E+00		-1.59E-01	3.71E-01	
PB-214	295.21	19.19	2.13E-01	1.38E-01	-5.24E-02	9.79E-02	
	351.92	37.19	1.38E-01		6.04E-02	6.35E-02	
RN-219	401.80	6.50	6.57E-01	6.57E-01	-2.63E-01	2.94E-01	
RA-223	323.87	3.88	1.05E+00	1.05E+00	-3.44E-01	4.76E-01	
RA-224	240.98	3.95	1.07E+00	1.07E+00	3.35E-01	5.02E-01	
RA-225	40.00	31.00	6.15E-02	6.15E-02	7.03E-03	2.92E-02	
+ RA-226	186.21	*	1.27E+00	1.27E+00	6.39E-01	6.00E-01	
	TH-227	50.10	8.40	2.62E-01	2.62E-01	-5.01E-02	1.25E-01
		236.00	11.50	3.34E-01		-7.31E-02	1.55E-01
	256.20	6.30	6.18E-01		-5.16E-02	2.86E-01	
AC-228	338.32	11.40	3.94E-01	2.40E-01	2.76E-02	1.80E-01	
	911.07	27.70	2.40E-01		2.93E-02	1.02E-01	
	969.11	16.60	5.39E-01		1.64E-01	2.38E-01	
TH-230	48.44	16.90	1.31E-01	1.31E-01	4.59E-02	6.23E-02	
	62.85	4.60	5.70E-01		4.66E-01	2.73E-01	
	67.67	0.37	6.81E+00		1.18E+00	3.25E+00	
PA-231	283.67	1.60	2.81E+00	1.63E+00	1.61E-01	1.30E+00	

Analysis Report for 1510093-02

BLANK

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
PA-231	302.67	2.30	1.63E+00	1.63E+00	2.73E-01	7.43E-01
TH-231	25.64	14.70	1.52E-01	1.52E-01	6.23E-02	7.31E-02
	84.21	6.40	4.17E-01		4.07E-02	1.98E-01
+ PA-233	311.98	* 38.60	8.31E-02	8.31E-02	8.15E-02	3.70E-02
PA-234	131.20	20.40	1.50E-01	1.50E-01	4.78E-02	7.10E-02
	733.99	8.80	5.88E-01		-7.32E-02	2.48E-01
	946.00	12.00	5.75E-01		6.34E-02	2.45E-01
PA-234M	1001.03	0.92	7.28E+00	7.28E+00	-1.62E+00	3.05E+00
TH-234	63.29	3.80	7.00E-01	7.00E-01	6.05E-01	3.36E-01
U-235	143.76	10.50	2.93E-01	2.93E-01	2.95E-02	1.38E-01
	163.35	4.70	7.45E-01		-7.91E-02	3.51E-01
	205.31	4.70	8.29E-01		-5.18E-02	3.89E-01
NP-237	86.50	12.60	2.20E-01	2.20E-01	-1.42E-01	1.05E-01
NP-239	106.10	22.70	1.32E-01	1.32E-01	-1.10E-02	6.26E-02
	228.18	10.70	3.51E-01		-5.43E-02	1.63E-01
	277.60	14.10	3.25E-01		0.00E+00	1.51E-01
AM-241	59.54	35.90	6.92E-02	6.92E-02	3.82E-02	3.31E-02
+ AM-243	74.67	* 66.00	4.99E-02	4.99E-02	3.74E-02	2.40E-02
CM-243	209.75	3.29	1.15E+00	3.09E-01	-3.24E-01	5.39E-01
	228.14	10.60	3.32E-01		-6.73E-02	1.53E-01
	277.60	14.00	3.09E-01		0.00E+00	1.43E-01

+ = Nuclide identified during the nuclide identification

\* = Energy line found in the spectrum

&gt; = 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

: 00371

Analysis Report for 1510093-02

BLANK

No Data Review Comments Entered.

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

Elapsed Live time:        3600

Elapsed Real Time:       3682

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	9	55
17:	33	37	25	28	34	26	29	20
25:	24	15	19	24	19	16	12	13
33:	22	15	15	13	15	17	10	10
41:	16	5	22	14	30	21	17	19
49:	17	14	10	8	10	20	13	12
57:	12	13	17	12	28	25	30	13
65:	21	14	17	13	13	17	10	21
73:	17	24	11	20	15	18	11	8
81:	16	12	22	10	19	16	17	18
89:	12	12	27	28	21	13	9	16
97:	12	11	14	10	9	16	15	13
105:	12	13	12	11	10	15	14	12
113:	13	10	12	9	13	9	9	12
121:	11	6	9	11	6	13	15	8
129:	16	4	13	9	11	8	6	15
137:	7	6	11	13	11	9	10	7
145:	6	10	8	6	9	11	8	4
153:	9	7	10	10	9	13	6	9
161:	13	7	10	12	13	10	11	10
169:	8	14	13	9	9	6	11	8
177:	10	9	12	6	5	11	11	17
185:	18	9	11	11	4	10	8	11
193:	10	12	7	10	7	13	10	12
201:	10	5	7	10	5	11	10	8
209:	11	5	6	8	6	8	13	10
217:	6	14	8	8	9	6	7	8
225:	6	4	4	6	7	6	3	8
233:	4	5	8	11	4	11	4	8
241:	7	10	8	6	7	7	6	7
249:	4	4	10	1	5	7	6	2
257:	7	5	13	5	6	6	6	5
265:	8	4	5	2	9	7	7	7
273:	6	5	7	4	4	8	8	8
281:	5	8	4	4	6	5	9	8
289:	6	6	7	3	4	7	5	5
297:	6	2	4	6	4	5	5	2
305:	3	3	0	2	3	5	3	7
313:	9	3	5	1	3	5	2	2
321:	3	5	4	6	5	5	3	11
329:	2	8	7	3	6	5	7	2
337:	5	3	4	5	5	4	4	3
345:	3	4	7	3	5	4	11	8
353:	5	3	3	2	6	4	5	4
361:	2	5	2	2	1	4	6	3

369: 6 1 4 3 2 4 4 5

Sample Title: BLANK

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

801: 0 5 1 2 2 1 3 2

Sample Title: BLANK

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

1233: 0 0 1 0 0 0 1 0

Sample Title: BLANK

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



1665: 1 0 0 1 2 0 0 0

Sample Title: BLANK

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

2097: 0 1 0 0 0 0 0 0 1

Sample Title: BLANK

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

2529: 2 0 0 0 0 0 0 1 0

Sample Title: BLANK

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

2961: 0 0 0 0 1 0 0 0

Sample Title: BLANK

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

3393: 0 0 0 0 0 0 1 0 0

Sample Title: BLANK

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

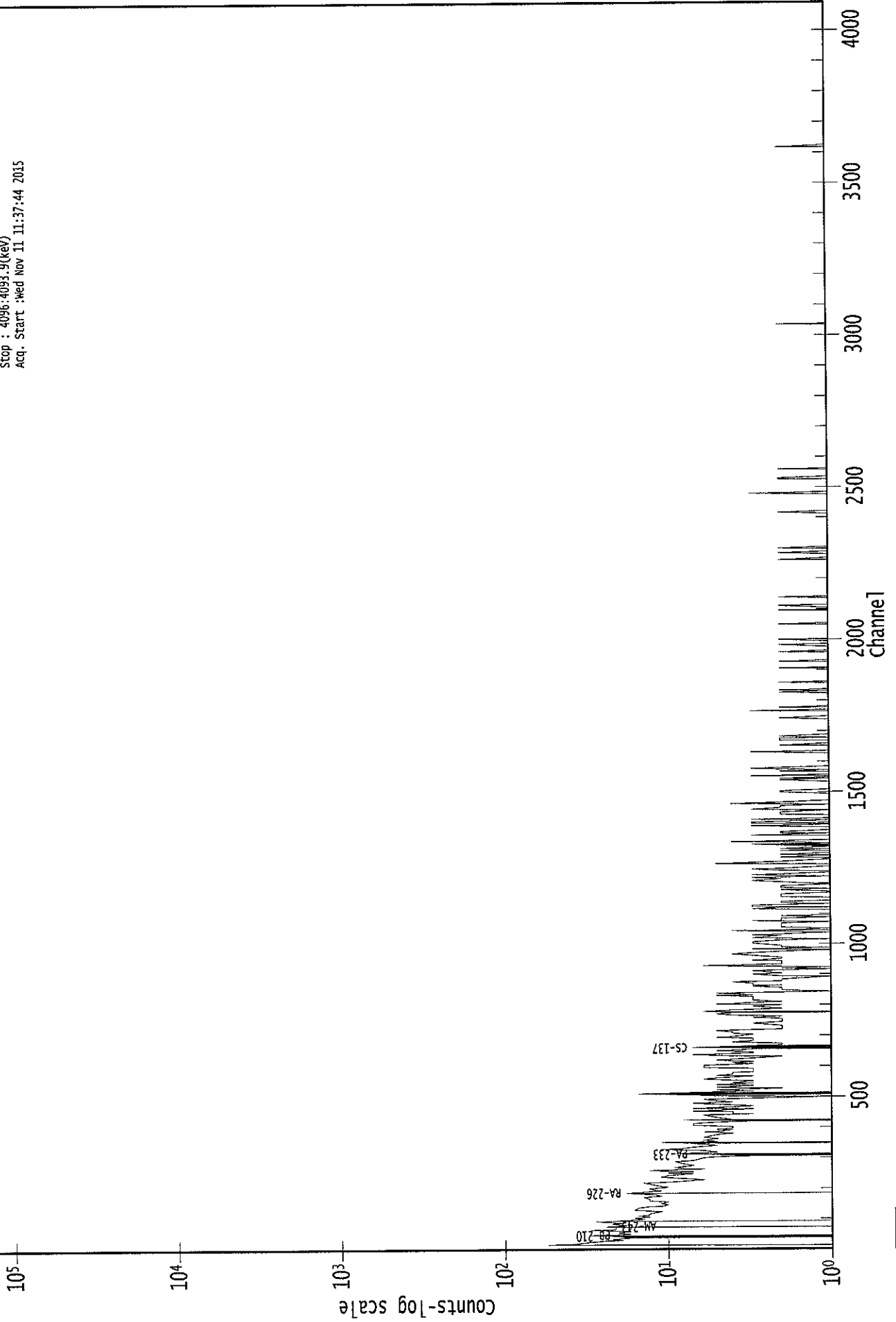
3825: 0 0 1 0 0 0 0 0 0

Sample Title: BLANK

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

0000029484.CNF

Live Time :3600.000 sec  
Real Time :3882.130 sec  
Start: 1: 1.8(kev)  
Stop : 4096:4093.9(kev)  
Acq. Start :Wed Nov 11 11:37:44 2015



ROI Type: 1

KOB  
11/11/15Analysis Report for 1510093-03  
CP5002S03-04

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-03  
Sample Description : CP5002S03-04  
Sample Type : SOIL

Sample Size : 5.786E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:28:06AM  
Acquisition Started : 11/11/2015 10:33:43AM

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 : 29476

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## PEAK-TO-TOTAL CALIBRATION REPORT

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### Peak-to-Total Efficiency Calibration Equation

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AG  
11/12/15



Analysis Report for 1510093-03  
CP5002S03-04

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## PEAK LOCATE REPORT

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Peak Locate Performed on : 11/11/2015 11:33:48AM  
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	63.33	63.68	0.0000	0.00
2	74.79	75.13	0.0000	0.00
3	77.58	77.92	0.0000	0.00
4	85.70	86.04	0.0000	0.00
5	88.08	88.42	0.0000	0.00
6	92.84	93.18	0.0000	0.00
7	128.78	129.11	0.0000	0.00
8	186.03	186.34	0.0000	0.00
9	210.14	210.44	0.0000	0.00
10	238.82	239.10	0.0000	0.00
11	241.86	242.14	0.0000	0.00
12	257.70	257.99	0.0000	0.00
13	270.12	270.39	0.0000	0.00
14	295.30	295.57	0.0000	0.00
15	327.75	328.00	0.0000	0.00
16	338.53	338.79	0.0000	0.00
17	352.05	352.30	0.0000	0.00
18	404.69	404.92	0.0000	0.00
19	409.39	409.62	0.0000	0.00
20	463.60	463.81	0.0000	0.00
21	487.44	487.65	0.0000	0.00
22	507.98	508.17	0.0000	0.00
23	510.98	511.17	0.0000	0.00
24	583.40	583.57	0.0000	0.00
25	609.51	609.67	0.0000	0.00
26	704.90	705.03	0.0000	0.00
27	727.66	727.78	0.0000	0.00
28	787.42	787.52	0.0000	0.00
29	795.08	795.17	0.0000	0.00
30	911.65	911.70	0.0000	0.00
31	935.57	935.61	0.0000	0.00
32	964.95	964.99	0.0000	0.00
33	969.32	969.35	0.0000	0.00
34	1120.66	1120.64	0.0000	0.00
35	1126.33	1126.31	0.0000	0.00
36	1156.60	1156.57	0.0000	0.00
37	1238.86	1238.80	0.0000	0.00
38	1287.55	1287.47	0.0000	0.00
39	1348.02	1347.92	0.0000	0.00
40	1377.57	1377.46	0.0000	0.00
41	1461.23	1461.09	0.0000	0.00
42	1497.32	1497.17	0.0000	0.00

Analysis Report for 1510093-03  
CP5002S03-04

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1509.79	1509.63	0.0000	0.00
44	1647.11	1646.90	0.0000	0.00
45	1658.11	1657.89	0.0000	0.00
46	1662.69	1662.48	0.0000	0.00
47	1729.24	1729.00	0.0000	0.00
48	1733.77	1733.52	0.0000	0.00
49	1742.35	1742.10	0.0000	0.00
50	1757.31	1757.06	0.0000	0.00
51	1765.23	1764.97	0.0000	0.00
52	1837.44	1837.16	0.0000	0.00
53	1847.79	1847.50	0.0000	0.00
54	1928.91	1928.59	0.0000	0.00
55	1951.08	1950.75	0.0000	0.00
56	2096.82	2096.43	0.0000	0.00
57	2099.89	2099.51	0.0000	0.00
58	2104.80	2104.41	0.0000	0.00
59	2117.25	2116.86	0.0000	0.00
60	2204.21	2203.79	0.0000	0.00
61	2256.38	2255.94	0.0000	0.00
62	2364.06	2363.57	0.0000	0.00
63	2382.36	2381.87	0.0000	0.00
64	2614.83	2614.24	0.0000	0.00
65	3197.78	3196.96	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-03  
CP5002S03-04

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 11:33:48AM

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	63.33	60 - 66	63.68	1.80E+02	107.80	1.99E+03	1.42
M	2	74.79	72 - 83	75.13	4.75E+02	83.38	1.15E+03	1.46
m	3	77.58	72 - 83	77.92	6.84E+02	90.69	1.06E+03	1.46
M	4	85.70	83 - 98	86.04	2.29E+02	76.15	1.10E+03	2.38
m	5	88.08	83 - 98	88.42	3.60E+02	102.51	1.52E+03	2.39
m	6	92.84	83 - 98	93.18	4.26E+02	101.98	1.48E+03	2.40
	7	128.78	127 - 131	129.11	1.09E+02	60.63	7.19E+02	2.06
	8	186.03	182 - 190	186.34	2.42E+02	89.87	1.09E+03	1.93
	9	210.14	207 - 213	210.44	6.19E+01	70.21	8.46E+02	1.04
M	10	238.82	234 - 246	239.10	1.05E+03	81.56	5.05E+02	1.68
m	11	241.86	234 - 246	242.14	2.02E+02	64.38	4.33E+02	1.68
	12	257.70	255 - 261	257.99	6.90E+01	52.50	4.50E+02	3.21
	13	270.12	268 - 273	270.39	6.27E+01	48.98	4.31E+02	1.56
	14	295.30	291 - 298	295.57	3.39E+02	70.74	6.08E+02	1.77
	15	327.75	326 - 331	328.00	4.32E+01	42.72	3.36E+02	1.85
	16	338.53	335 - 343	338.79	2.46E+02	62.23	4.42E+02	1.74
	17	352.05	348 - 357	352.30	6.62E+02	76.47	4.50E+02	1.82
	18	404.69	403 - 407	404.92	3.19E+01	32.58	1.98E+02	2.35
	19	409.39	408 - 413	409.62	3.70E+01	35.45	2.26E+02	1.62
	20	463.60	459 - 469	463.81	1.20E+02	53.50	3.15E+02	1.94
	21	487.44	484 - 491	487.65	3.01E+01	38.21	2.22E+02	2.80
M	22	507.98	507 - 516	508.17	2.46E+01	19.86	9.37E+01	1.56
m	23	510.98	507 - 516	511.17	1.61E+02	39.82	1.75E+02	1.91
	24	583.40	579 - 588	583.57	3.56E+02	57.92	2.78E+02	2.03
	25	609.51	605 - 614	609.67	4.51E+02	63.62	3.21E+02	1.79
	26	704.90	699 - 711	705.03	6.54E+01	47.99	2.39E+02	6.13
	27	727.66	724 - 733	727.78	6.82E+01	42.32	2.22E+02	1.97
	28	787.42	783 - 791	787.52	4.11E+01	31.93	1.24E+02	1.72
	29	795.08	792 - 799	795.17	4.45E+01	28.50	1.09E+02	3.25
	30	911.65	908 - 917	911.70	1.95E+02	42.39	1.46E+02	2.17
	31	935.57	932 - 940	935.61	3.70E+01	31.16	1.28E+02	1.60
M	32	964.95	960 - 973	964.99	4.41E+01	27.33	8.82E+01	2.40
m	33	969.32	960 - 973	969.35	1.24E+02	30.97	8.34E+01	2.11
M	34	1120.66	1117 - 1130	1120.64	8.39E+01	28.58	8.95E+01	2.08
m	35	1126.33	1117 - 1130	1126.31	1.85E+01	30.05	1.15E+02	3.01
	36	1156.60	1150 - 1162	1156.57	3.83E+01	37.63	1.45E+02	2.47
	37	1238.86	1234 - 1245	1238.80	4.98E+01	44.23	2.12E+02	3.26
	38	1287.55	1285 - 1291	1287.47	1.88E+01	17.64	4.44E+01	1.63
	39	1348.02	1345 - 1352	1347.92	1.80E+01	14.70	2.40E+01	1.69
	40	1377.57	1372 - 1382	1377.46	3.85E+01	25.44	6.50E+01	2.14

Analysis Report for 1510093-03  
CP5002S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1461.23	1456 - 1466		1461.09	7.98E+02	60.02	5.41E+01	2.12
	42	1497.32	1490 - 1504		1497.17	2.64E+01	19.52	2.52E+01	7.64
	43	1509.79	1507 - 1513		1509.63	1.21E+01	13.63	2.59E+01	1.21
	44	1647.11	1643 - 1650		1646.90	7.27E+00	8.72	7.45E+00	5.18
M	45	1658.11	1655 - 1666		1657.89	7.12E+00	7.94	1.38E+01	2.75
m	46	1662.69	1655 - 1666		1662.48	1.31E+01	11.14	9.13E+00	2.75
M	47	1729.24	1725 - 1736		1729.00	1.26E+01	10.62	1.16E+01	2.29
m	48	1733.77	1725 - 1736		1733.52	8.80E+00	10.43	8.33E+00	3.70
	49	1742.35	1739 - 1745		1742.10	6.50E+00	6.65	3.00E+00	2.49
	50	1757.31	1755 - 1759		1757.06	5.00E+00	5.50	2.00E+00	2.72
	51	1765.23	1761 - 1770		1764.97	7.30E+01	17.09	0.00E+00	2.04
	52	1837.44	1834 - 1839		1837.16	5.55E+00	8.19	8.90E+00	0.98
	53	1847.79	1844 - 1851		1847.50	1.40E+01	10.20	8.00E+00	3.13
	54	1928.91	1925 - 1932		1928.59	6.89E+00	7.21	4.22E+00	2.59
	55	1951.08	1946 - 1955		1950.75	8.81E+00	11.79	1.44E+01	1.85
M	56	2096.82	2093 - 2111		2096.43	1.23E+01	7.48	0.00E+00	3.22
m	57	2099.89	2093 - 2111		2099.51	7.36E+00	9.17	0.00E+00	2.93
m	58	2104.80	2093 - 2111		2104.41	1.98E+01	11.14	0.00E+00	3.22
	59	2117.25	2114 - 2119		2116.86	7.00E+00	5.29	0.00E+00	2.70
	60	2204.21	2199 - 2208		2203.79	2.20E+01	12.57	1.00E+01	2.90
	61	2256.38	2253 - 2258		2255.94	5.50E+00	6.08	3.00E+00	2.37
	62	2364.06	2359 - 2366		2363.57	9.83E+00	8.00	4.33E+00	1.56
	63	2382.36	2380 - 2384		2381.87	6.50E+00	6.96	5.00E+00	2.66
	64	2614.83	2609 - 2618		2614.24	1.06E+02	22.23	1.00E+01	3.34
	65	3197.78	3194 - 3199		3196.96	5.50E+00	6.08	3.00E+00	1.84

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

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 11:33:48AM

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	63.33	60 -	66	1.80E+02	107.80	1.99E+03	8.58E+01
M	2	74.79	72 -	83	4.75E+02	83.38	1.15E+03	5.58E+01
m	3	77.58	72 -	83	6.84E+02	90.69	1.06E+03	5.34E+01

Analysis Report for 1510093-03

CP5002S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	4	85.70	83 -	98	2.29E+02	76.15	1.10E+03	5.45E+01
m	5	88.08	83 -	98	3.60E+02	102.51	1.52E+03	6.40E+01
m	6	92.84	83 -	98	4.26E+02	101.98	1.48E+03	6.33E+01
	7	128.78	127 -	131	1.09E+02	60.63	7.19E+02	4.68E+01
	8	186.03	182 -	190	2.42E+02	89.87	1.09E+03	6.93E+01
	9	210.14	207 -	213	6.19E+01	70.21	8.46E+02	5.62E+01
M	10	238.82	234 -	246	1.05E+03	81.56	5.05E+02	3.69E+01
m	11	241.86	234 -	246	2.02E+02	64.38	4.33E+02	3.42E+01
	12	257.70	255 -	261	6.90E+01	52.50	4.50E+02	4.09E+01
	13	270.12	268 -	273	6.27E+01	48.98	4.31E+02	3.81E+01
	14	295.30	291 -	298	3.39E+02	70.74	6.08E+02	4.97E+01
	15	327.75	326 -	331	4.32E+01	42.72	3.36E+02	3.34E+01
	16	338.53	335 -	343	2.46E+02	62.23	4.42E+02	4.42E+01
	17	352.05	348 -	357	6.62E+02	76.47	4.50E+02	4.65E+01
	18	404.69	403 -	407	3.19E+01	32.58	1.98E+02	2.51E+01
	19	409.39	408 -	413	3.70E+01	35.45	2.26E+02	2.74E+01
	20	463.60	459 -	469	1.20E+02	53.50	3.15E+02	4.01E+01
	21	487.44	484 -	491	3.01E+01	38.21	2.22E+02	3.01E+01
M	22	507.98	507 -	516	2.46E+01	19.86	9.37E+01	1.59E+01
m	23	510.98	507 -	516	1.61E+02	39.82	1.75E+02	2.17E+01
	24	583.40	579 -	588	3.56E+02	57.92	2.78E+02	3.61E+01
	25	609.51	605 -	614	4.51E+02	63.62	3.21E+02	3.89E+01
	26	704.90	699 -	711	6.54E+01	47.99	2.39E+02	3.71E+01
	27	727.66	724 -	733	6.82E+01	42.32	2.22E+02	3.20E+01
	28	787.42	783 -	791	4.11E+01	31.93	1.24E+02	2.40E+01
	29	795.08	792 -	799	4.45E+01	28.50	1.09E+02	2.07E+01
	30	911.65	908 -	917	1.95E+02	42.39	1.46E+02	2.62E+01
	31	935.57	932 -	940	3.70E+01	31.16	1.28E+02	2.36E+01
M	32	964.95	960 -	973	4.41E+01	27.33	8.82E+01	1.54E+01
m	33	969.32	960 -	973	1.24E+02	30.97	8.34E+01	1.50E+01
M	34	1120.66	1117 -	1130	8.39E+01	28.58	8.95E+01	1.56E+01
m	35	1126.33	1117 -	1130	1.85E+01	30.05	1.15E+02	1.76E+01
	36	1156.60	1150 -	1162	3.83E+01	37.63	1.45E+02	2.92E+01
	37	1238.86	1234 -	1245	4.98E+01	44.23	2.12E+02	2.04E+01
	38	1287.55	1285 -	1291	1.88E+01	17.64	4.44E+01	1.26E+01
	39	1348.02	1345 -	1352	1.80E+01	14.70	2.40E+01	9.86E+00
	40	1377.57	1372 -	1382	3.85E+01	25.44	6.50E+01	1.83E+01
	41	1461.23	1456 -	1466	7.98E+02	60.02	5.41E+01	1.67E+01
	42	1497.32	1490 -	1504	2.64E+01	19.52	2.52E+01	1.36E+01
	43	1509.79	1507 -	1513	1.21E+01	13.63	2.59E+01	9.64E+00
	44	1647.11	1643 -	1650	7.27E+00	8.72	7.45E+00	5.63E+00
M	45	1658.11	1655 -	1666	7.12E+00	7.94	1.38E+01	6.11E+00
m	46	1662.69	1655 -	1666	1.31E+01	11.14	9.13E+00	4.97E+00
M	47	1729.24	1725 -	1736	1.26E+01	10.62	1.16E+01	5.59E+00
m	48	1733.77	1725 -	1736	8.80E+00	10.43	8.33E+00	4.75E+00
	49	1742.35	1739 -	1745	6.50E+00	6.65	3.00E+00	3.51E+00
	50	1757.31	1755 -	1759	5.00E+00	5.50	2.00E+00	2.63E+00
	51	1765.23	1761 -	1770	7.30E+01	17.09	0.00E+00	0.00E+00
	52	1837.44	1834 -	1839	5.55E+00	8.19	8.90E+00	5.50E+00
	53	1847.79	1844 -	1851	1.40E+01	10.20	8.00E+00	5.70E+00
	54	1928.91	1925 -	1932	6.89E+00	7.21	4.22E+00	4.06E+00

Analysis Report for 1510093-03  
 CP5002S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	55	1951.08	1946 -	1955	8.81E+00	11.79	1.44E+01	8.37E+00
M	56	2096.82	2093 -	2111	1.23E+01	7.48	0.00E+00	0.00E+00
m	57	2099.89	2093 -	2111	7.36E+00	9.17	0.00E+00	0.00E+00
m	58	2104.80	2093 -	2111	1.98E+01	11.14	0.00E+00	0.00E+00
	59	2117.25	2114 -	2119	7.00E+00	5.29	0.00E+00	0.00E+00
	60	2204.21	2199 -	2208	2.20E+01	12.57	1.00E+01	6.88E+00
	61	2256.38	2253 -	2258	5.50E+00	6.08	3.00E+00	3.18E+00
	62	2364.06	2359 -	2366	9.83E+00	8.00	4.33E+00	4.08E+00
	63	2382.36	2380 -	2384	6.50E+00	6.96	5.00E+00	3.90E+00
	64	2614.83	2609 -	2618	1.06E+02	22.23	1.00E+01	6.88E+00
	65	3197.78	3194 -	3199	5.50E+00	6.08	3.00E+00	3.18E+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 : 11/11/2015 11:33:48AM

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	63.33	60 -	66	63.68	1.80E+02	107.80	1.99E+03	TH-234 TH-230
M	2	74.79	72 -	83	75.13	4.75E+02	83.38	1.15E+03	AM-243
m	3	77.58	72 -	83	77.92	6.84E+02	90.69	1.06E+03	TI-44
M	4	85.70	83 -	98	86.04	2.29E+02	76.15	1.10E+03	EU-155 NP-237
m	5	88.08	83 -	98	88.42	3.60E+02	102.51	1.52E+03	CD-109 LU-176 SN-126
m	6	92.84	83 -	98	93.18	4.26E+02	101.98	1.48E+03	GA-67
	7	128.78	127 -	131	129.11	1.09E+02	60.63	7.19E+02	.....
	8	186.03	182 -	190	186.34	2.42E+02	89.87	1.09E+03	RA-226
	9	210.14	207 -	213	210.44	6.19E+01	70.21	8.46E+02	CM-243
M	10	238.82	234 -	246	239.10	1.05E+03	81.56	5.05E+02	PB-212
m	11	241.86	234 -	246	242.14	2.02E+02	64.38	4.33E+02	RA-224

Analysis Report for 1510093-03  
CP5002S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
12	257.70	255 -	261	257.99	6.90E+01	52.50	4.50E+02	.....
13	270.12	268 -	273	270.39	6.27E+01	48.98	4.31E+02	.....
14	295.30	291 -	298	295.57	3.39E+02	70.74	6.08E+02	PB-214
15	327.75	326 -	331	328.00	4.32E+01	42.72	3.36E+02	.....
16	338.53	335 -	343	338.79	2.46E+02	62.23	4.42E+02	AC-228
17	352.05	348 -	357	352.30	6.62E+02	76.47	4.50E+02	PB-214
18	404.69	403 -	407	404.92	3.19E+01	32.58	1.98E+02	PB-211
19	409.39	408 -	413	409.62	3.70E+01	35.45	2.26E+02	.....
20	463.60	459 -	469	463.81	1.20E+02	53.50	3.15E+02	SB-125
21	487.44	484 -	491	487.65	3.01E+01	38.21	2.22E+02	LA-140
M 22	507.98	507 -	516	508.17	2.46E+01	19.86	9.37E+01	.....
m 23	510.98	507 -	516	511.17	1.61E+02	39.82	1.75E+02	.....
24	583.40	579 -	588	583.57	3.56E+02	57.92	2.78E+02	TL-208
25	609.51	605 -	614	609.67	4.51E+02	63.62	3.21E+02	BI-214
26	704.90	699 -	711	705.03	6.54E+01	47.99	2.39E+02	.....
27	727.66	724 -	733	727.78	6.82E+01	42.32	2.22E+02	BI-212
28	787.42	783 -	791	787.52	4.11E+01	31.93	1.24E+02	.....
29	795.08	792 -	799	795.17	4.45E+01	28.50	1.09E+02	CS-134
30	911.65	908 -	917	911.70	1.95E+02	42.39	1.46E+02	LU-172 AC-228
M 31	935.57	932 -	940	935.61	3.70E+01	31.16	1.28E+02	.....
m 32	964.95	960 -	973	964.99	4.41E+01	27.33	8.82E+01	EU-152
M 33	969.32	960 -	973	969.35	1.24E+02	30.97	8.34E+01	AC-228
M 34	1120.66	1117 -	1130	1120.64	8.39E+01	28.58	8.95E+01	SC-46 BI-214 TA-182
m 35	1126.33	1117 -	1130	1126.31	1.85E+01	30.05	1.15E+02	.....
36	1156.60	1150 -	1162	1156.57	3.83E+01	37.63	1.45E+02	.....
37	1238.86	1234 -	1245	1238.80	4.98E+01	44.23	2.12E+02	CO-56
38	1287.55	1285 -	1291	1287.47	1.88E+01	17.64	4.44E+01	.....
39	1348.02	1345 -	1352	1347.92	1.80E+01	14.70	2.40E+01	.....
40	1377.57	1372 -	1382	1377.46	3.85E+01	25.44	6.50E+01	.....
41	1461.23	1456 -	1466	1461.09	7.98E+02	60.02	5.41E+01	K-40
42	1497.32	1490 -	1504	1497.17	2.64E+01	19.52	2.52E+01	.....
43	1509.79	1507 -	1513	1509.63	1.21E+01	13.63	2.59E+01	.....
44	1647.11	1643 -	1650	1646.90	7.27E+00	8.72	7.45E+00	.....
M 45	1658.11	1655 -	1666	1657.89	7.12E+00	7.94	1.38E+01	.....
m 46	1662.69	1655 -	1666	1662.48	1.31E+01	11.14	9.13E+00	.....
M 47	1729.24	1725 -	1736	1729.00	1.26E+01	10.62	1.16E+01	.....
m 48	1733.77	1725 -	1736	1733.52	8.80E+00	10.43	8.33E+00	.....
49	1742.35	1739 -	1745	1742.10	6.50E+00	6.65	3.00E+00	.....
50	1757.31	1755 -	1759	1757.06	5.00E+00	5.50	2.00E+00	.....
51	1765.23	1761 -	1770	1764.97	7.30E+01	17.09	0.00E+00	BI-214
52	1837.44	1834 -	1839	1837.16	5.55E+00	8.19	8.90E+00	.....
53	1847.79	1844 -	1851	1847.50	1.40E+01	10.20	8.00E+00	.....
54	1928.91	1925 -	1932	1928.59	6.89E+00	7.21	4.22E+00	.....
55	1951.08	1946 -	1955	1950.75	8.81E+00	11.79	1.44E+01	.....
M 56	2096.82	2093 -	2111	2096.43	1.23E+01	7.48	0.00E+00	.....
m 57	2099.89	2093 -	2111	2099.51	7.36E+00	9.17	0.00E+00	.....
m 58	2104.80	2093 -	2111	2104.41	1.98E+01	11.14	0.00E+00	.....
59	2117.25	2114 -	2119	2116.86	7.00E+00	5.29	0.00E+00	.....
60	2204.21	2199 -	2208	2203.79	2.20E+01	12.57	1.00E+01	BI-214
61	2256.38	2253 -	2258	2255.94	5.50E+00	6.08	3.00E+00	.....
62	2364.06	2359 -	2366	2363.57	9.83E+00	8.00	4.33E+00	.....

Analysis Report for 1510093-03  
 CP5002S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
63	2382.36	2380 -	2384	2381.87	6.50E+00	6.96	5.00E+00	.....
64	2614.83	2609 -	2618	2614.24	1.06E+02	22.23	1.00E+01	TL-208
65	3197.78	3194 -	3199	3196.96	5.50E+00	6.08	3.00E+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 : 11/11/2015 11:33:48AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.33	1.80E+02	107.80	2.49E-02	1.91E-03
M	2	74.79	4.75E+02	83.38	2.75E-02	2.30E-03
m	3	77.58	6.84E+02	90.69	2.78E-02	2.39E-03
M	4	85.70	2.29E+02	76.15	2.84E-02	2.66E-03
m	5	88.08	3.60E+02	102.51	2.85E-02	2.74E-03
m	6	92.84	4.26E+02	101.98	2.86E-02	2.65E-03
	7	128.78	1.09E+02	60.63	2.67E-02	2.09E-03
	8	186.03	2.42E+02	89.87	2.24E-02	2.03E-03
	9	210.14	6.19E+01	70.21	2.08E-02	1.85E-03
M	10	238.82	1.05E+03	81.56	1.92E-02	1.64E-03
m	11	241.86	2.02E+02	64.38	1.91E-02	1.61E-03
	12	257.70	6.90E+01	52.50	1.83E-02	1.50E-03
	13	270.12	6.27E+01	48.98	1.77E-02	1.41E-03
	14	295.30	3.39E+02	70.74	1.67E-02	1.31E-03
	15	327.75	4.32E+01	42.72	1.55E-02	1.24E-03
	16	338.53	2.46E+02	62.23	1.52E-02	1.22E-03
	17	352.05	6.62E+02	76.47	1.48E-02	1.19E-03
	18	404.69	3.19E+01	32.58	1.34E-02	1.10E-03
	19	409.39	3.70E+01	35.45	1.32E-02	1.10E-03
	20	463.60	1.20E+02	53.50	1.21E-02	1.04E-03
	21	487.44	3.01E+01	38.21	1.16E-02	1.01E-03
M	22	507.98	2.46E+01	19.86	1.13E-02	9.93E-04
m	23	510.98	1.61E+02	39.82	1.12E-02	9.90E-04
	24	583.40	3.56E+02	57.92	1.02E-02	9.15E-04
	25	609.51	4.51E+02	63.62	9.82E-03	8.88E-04
	26	704.90	6.54E+01	47.99	8.77E-03	7.95E-04
	27	727.66	6.82E+01	42.32	8.55E-03	7.75E-04



Analysis Report for 1510093-03  
CP5002S03-04

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	28	787.42	4.11E+01	31.93	8.03E-03	7.21E-04
	29	795.08	4.45E+01	28.50	7.97E-03	7.15E-04
	30	911.65	1.95E+02	42.39	7.14E-03	6.15E-04
	31	935.57	3.70E+01	31.16	7.00E-03	6.03E-04
M	32	964.95	4.41E+01	27.33	6.83E-03	5.88E-04
m	33	969.32	1.24E+02	30.97	6.80E-03	5.85E-04
M	34	1120.66	8.39E+01	28.58	6.06E-03	5.06E-04
m	35	1126.33	1.85E+01	30.05	6.04E-03	5.04E-04
	36	1156.60	3.83E+01	37.63	5.92E-03	4.88E-04
	37	1238.86	4.98E+01	44.23	5.61E-03	4.68E-04
	38	1287.55	1.88E+01	17.64	5.45E-03	4.59E-04
	39	1348.02	1.80E+01	14.70	5.27E-03	4.47E-04
	40	1377.57	3.85E+01	25.44	5.18E-03	4.40E-04
	41	1461.23	7.98E+02	60.02	4.97E-03	4.19E-04
	42	1497.32	2.64E+01	19.52	4.89E-03	4.10E-04
	43	1509.79	1.21E+01	13.63	4.86E-03	4.07E-04
	44	1647.11	7.27E+00	8.72	4.59E-03	3.73E-04
M	45	1658.11	7.12E+00	7.94	4.57E-03	3.70E-04
m	46	1662.69	1.31E+01	11.14	4.56E-03	3.69E-04
M	47	1729.24	1.26E+01	10.62	4.45E-03	3.52E-04
m	48	1733.77	8.80E+00	10.43	4.44E-03	3.51E-04
	49	1742.35	6.50E+00	6.65	4.43E-03	3.49E-04
	50	1757.31	5.00E+00	5.50	4.41E-03	3.45E-04
	51	1765.23	7.30E+01	17.09	4.39E-03	3.43E-04
	52	1837.44	5.55E+00	8.19	4.30E-03	3.26E-04
	53	1847.79	1.40E+01	10.20	4.28E-03	3.26E-04
	54	1928.91	6.89E+00	7.21	4.19E-03	3.26E-04
	55	1951.08	8.81E+00	11.79	4.16E-03	3.26E-04
M	56	2096.82	1.23E+01	7.48	4.03E-03	3.26E-04
m	57	2099.89	7.36E+00	9.17	4.02E-03	3.26E-04
m	58	2104.80	1.98E+01	11.14	4.02E-03	3.26E-04
	59	2117.25	7.00E+00	5.29	4.01E-03	3.26E-04
	60	2204.21	2.20E+01	12.57	3.95E-03	3.26E-04
	61	2256.38	5.50E+00	6.08	3.92E-03	3.26E-04
	62	2364.06	9.83E+00	8.00	3.86E-03	3.26E-04
	63	2382.36	6.50E+00	6.96	3.86E-03	3.26E-04
	64	2614.83	1.06E+02	22.23	3.79E-03	3.26E-04
	65	3197.78	5.50E+00	6.08	3.88E-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 : 11/11/2015 11:33:48AM

: 00393

Analysis Report for 1510093-03

CP5002S03-04

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	63.33	1.80E+02	107.80	7.80E+01	1.33E+01	1.02E+02	1.09E+02
M	2	74.79	4.75E+02	83.38	5.09E+00	4.37E+00	4.70E+02	8.35E+01
m	3	77.58	6.84E+02	90.69	9.75E+00	8.28E+00	6.74E+02	9.11E+01
M	4	85.70	2.29E+02	76.15			2.29E+02	7.62E+01
m	5	88.08	3.60E+02	102.51			3.60E+02	1.03E+02
m	6	92.84	4.26E+02	101.98	1.34E+02	9.83E+00	2.92E+02	1.02E+02
	7	128.78	1.09E+02	60.63			1.09E+02	6.06E+01
	8	186.03	2.42E+02	89.87	6.41E+01	7.38E+00	1.78E+02	9.02E+01
	9	210.14	6.19E+01	70.21			6.19E+01	7.02E+01
M	10	238.82	1.05E+03	81.56	2.34E+01	6.34E+00	1.03E+03	8.18E+01
m	11	241.86	2.02E+02	64.38			2.02E+02	6.44E+01
	12	257.70	6.90E+01	52.50			6.90E+01	5.25E+01
	13	270.12	6.27E+01	48.98			6.27E+01	4.90E+01
	14	295.30	3.39E+02	70.74	4.17E+00	5.50E+00	3.35E+02	7.10E+01
	15	327.75	4.32E+01	42.72			4.32E+01	4.27E+01
	16	338.53	2.46E+02	62.23	2.22E-01	4.54E+00	2.46E+02	6.24E+01
	17	352.05	6.62E+02	76.47	8.83E+00	4.91E+00	6.53E+02	7.66E+01
	18	404.69	3.19E+01	32.58			3.19E+01	3.26E+01
	19	409.39	3.70E+01	35.45			3.70E+01	3.55E+01
	20	463.60	1.20E+02	53.50			1.20E+02	5.35E+01
	21	487.44	3.01E+01	38.21			3.01E+01	3.82E+01
M	22	507.98	2.46E+01	19.86			2.46E+01	1.99E+01
m	23	510.98	1.61E+02	39.82	8.12E+01	5.49E+00	7.96E+01	4.02E+01
	24	583.40	3.56E+02	57.92	6.34E+00	3.74E+00	3.50E+02	5.80E+01
	25	609.51	4.51E+02	63.62	5.20E+00	3.69E+00	4.46E+02	6.37E+01
	26	704.90	6.54E+01	47.99			6.54E+01	4.80E+01
	27	727.66	6.82E+01	42.32			6.82E+01	4.23E+01
	28	787.42	4.11E+01	31.93			4.11E+01	3.19E+01
	29	795.08	4.45E+01	28.50			4.45E+01	2.85E+01
	30	911.65	1.95E+02	42.39	3.28E+00	2.53E+00	1.92E+02	4.25E+01
	31	935.57	3.70E+01	31.16			3.70E+01	3.12E+01
M	32	964.95	4.41E+01	27.33			4.41E+01	2.73E+01
m	33	969.32	1.24E+02	30.97			1.24E+02	3.10E+01
M	34	1120.66	8.39E+01	28.58	2.28E+00	2.55E+00	8.16E+01	2.87E+01
m	35	1126.33	1.85E+01	30.05			1.85E+01	3.01E+01
	36	1156.60	3.83E+01	37.63			3.83E+01	3.76E+01
	37	1238.86	4.98E+01	44.23			4.98E+01	4.42E+01
	38	1287.55	1.88E+01	17.64			1.88E+01	1.76E+01
	39	1348.02	1.80E+01	14.70			1.80E+01	1.47E+01
	40	1377.57	3.85E+01	25.44			3.85E+01	2.54E+01
	41	1461.23	7.98E+02	60.02	6.46E+00	2.33E+00	7.91E+02	6.01E+01
	42	1497.32	2.64E+01	19.52			2.64E+01	1.95E+01
	43	1509.79	1.21E+01	13.63			1.21E+01	1.36E+01
	44	1647.11	7.27E+00	8.72			7.27E+00	8.72E+00
M	45	1658.11	7.12E+00	7.94			7.12E+00	7.94E+00
m	46	1662.69	1.31E+01	11.14			1.31E+01	1.11E+01
M	47	1729.24	1.26E+01	10.62			1.26E+01	1.06E+01
m	48	1733.77	8.80E+00	10.43			8.80E+00	1.04E+01
	49	1742.35	6.50E+00	6.65			6.50E+00	6.65E+00

Analysis Report for 1510093-03  
CP5002S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
50	1757.31	5.00E+00	5.50			5.00E+00	5.50E+00
51	1765.23	7.30E+01	17.09			7.30E+01	1.71E+01
52	1837.44	5.55E+00	8.19			5.55E+00	8.19E+00
53	1847.79	1.40E+01	10.20			1.40E+01	1.02E+01
54	1928.91	6.89E+00	7.21			6.89E+00	7.21E+00
55	1951.08	8.81E+00	11.79			8.81E+00	1.18E+01
M 56	2096.82	1.23E+01	7.48			1.23E+01	7.48E+00
m 57	2099.89	7.36E+00	9.17			7.36E+00	9.17E+00
m 58	2104.80	1.98E+01	11.14			1.98E+01	1.11E+01
59	2117.25	7.00E+00	5.29			7.00E+00	5.29E+00
60	2204.21	2.20E+01	12.57			2.20E+01	1.26E+01
61	2256.38	5.50E+00	6.08			5.50E+00	6.08E+00
62	2364.06	9.83E+00	8.00			9.83E+00	8.00E+00
63	2382.36	6.50E+00	6.96			6.50E+00	6.96E+00
64	2614.83	1.06E+02	22.23	3.47E+00	1.48E+00	1.03E+02	2.23E+01
65	3197.78	5.50E+00	6.08			5.50E+00	6.08E+00

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

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 11:33:48AM  
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	63.33	1.80E+02	107.80	7.80E+01	1.33E+01	1.02E+02	1.09E+02
M 2	74.79	4.75E+02	83.38	5.09E+00	4.37E+00	4.70E+02	8.35E+01
m 3	77.58	6.84E+02	90.69	9.75E+00	8.28E+00	6.74E+02	9.11E+01
M 4	85.70	2.29E+02	76.15			2.29E+02	7.62E+01
m 5	88.08	3.60E+02	102.51			3.60E+02	1.03E+02
m 6	92.84	4.26E+02	101.98	1.34E+02	9.83E+00	2.92E+02	1.02E+02
7	128.78	1.09E+02	60.63			1.09E+02	6.06E+01
8	186.03	2.42E+02	89.87	6.41E+01	7.38E+00	1.78E+02	9.02E+01
9	210.14	6.19E+01	70.21			6.19E+01	7.02E+01
M 10	238.82	1.05E+03	81.56	2.34E+01	6.34E+00	1.03E+03	8.18E+01
m 11	241.86	2.02E+02	64.38			2.02E+02	6.44E+01
12	257.70	6.90E+01	52.50			6.90E+01	5.25E+01

Analysis Report for 1510093-03  
CP5002S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
13	270.12	6.27E+01	48.98			6.27E+01	4.90E+01
14	295.30	3.39E+02	70.74	4.17E+00	5.50E+00	3.35E+02	7.10E+01
15	327.75	4.32E+01	42.72			4.32E+01	4.27E+01
16	338.53	2.46E+02	62.23	2.22E-01	4.54E+00	2.46E+02	6.24E+01
17	352.05	6.62E+02	76.47	8.83E+00	4.91E+00	6.53E+02	7.66E+01
18	404.69	3.19E+01	32.58			3.19E+01	3.26E+01
19	409.39	3.70E+01	35.45			3.70E+01	3.55E+01
20	463.60	1.20E+02	53.50			1.20E+02	5.35E+01
21	487.44	3.01E+01	38.21			3.01E+01	3.82E+01
M	22	507.98	2.46E+01			2.46E+01	1.99E+01
m	23	510.98	1.61E+02	39.82	8.12E+01 5.49E+00	7.96E+01	4.02E+01
	24	583.40	3.56E+02	57.92	6.34E+00 3.74E+00	3.50E+02	5.80E+01
	25	609.51	4.51E+02	63.62	5.20E+00 3.69E+00	4.46E+02	6.37E+01
	26	704.90	6.54E+01	47.99		6.54E+01	4.80E+01
	27	727.66	6.82E+01	42.32		6.82E+01	4.23E+01
	28	787.42	4.11E+01	31.93		4.11E+01	3.19E+01
	29	795.08	4.45E+01	28.50		4.45E+01	2.85E+01
	30	911.65	1.95E+02	42.39	3.28E+00 2.53E+00	1.92E+02	4.25E+01
	31	935.57	3.70E+01	31.16		3.70E+01	3.12E+01
M	32	964.95	4.41E+01	27.33		4.41E+01	2.73E+01
m	33	969.32	1.24E+02	30.97		1.24E+02	3.10E+01
M	34	1120.66	8.39E+01	28.58	2.28E+00 2.55E+00	8.16E+01	2.87E+01
m	35	1126.33	1.85E+01	30.05		1.85E+01	3.01E+01
	36	1156.60	3.83E+01	37.63		3.83E+01	3.76E+01
	37	1238.86	4.98E+01	44.23		4.98E+01	4.42E+01
	38	1287.55	1.88E+01	17.64		1.88E+01	1.76E+01
	39	1348.02	1.80E+01	14.70		1.80E+01	1.47E+01
	40	1377.57	3.85E+01	25.44		3.85E+01	2.54E+01
	41	1461.23	7.98E+02	60.02	6.46E+00 2.33E+00	7.91E+02	6.01E+01
	42	1497.32	2.64E+01	19.52		2.64E+01	1.95E+01
	43	1509.79	1.21E+01	13.63		1.21E+01	1.36E+01
	44	1647.11	7.27E+00	8.72		7.27E+00	8.72E+00
M	45	1658.11	7.12E+00	7.94		7.12E+00	7.94E+00
m	46	1662.69	1.31E+01	11.14		1.31E+01	1.11E+01
M	47	1729.24	1.26E+01	10.62		1.26E+01	1.06E+01
m	48	1733.77	8.80E+00	10.43		8.80E+00	1.04E+01
	49	1742.35	6.50E+00	6.65		6.50E+00	6.65E+00
	50	1757.31	5.00E+00	5.50		5.00E+00	5.50E+00
	51	1765.23	7.30E+01	17.09		7.30E+01	1.71E+01
	52	1837.44	5.55E+00	8.19		5.55E+00	8.19E+00
	53	1847.79	1.40E+01	10.20		1.40E+01	1.02E+01
	54	1928.91	6.89E+00	7.21		6.89E+00	7.21E+00
	55	1951.08	8.81E+00	11.79		8.81E+00	1.18E+01
M	56	2096.82	1.23E+01	7.48		1.23E+01	7.48E+00
m	57	2099.89	7.36E+00	9.17		7.36E+00	9.17E+00
m	58	2104.80	1.98E+01	11.14		1.98E+01	1.11E+01
	59	2117.25	7.00E+00	5.29		7.00E+00	5.29E+00
	60	2204.21	2.20E+01	12.57		2.20E+01	1.26E+01
	61	2256.38	5.50E+00	6.08		5.50E+00	6.08E+00
	62	2364.06	9.83E+00	8.00		9.83E+00	8.00E+00
	63	2382.36	6.50E+00	6.96		6.50E+00	6.96E+00
	64	2614.83	1.06E+02	22.23	3.47E+00 1.48E+00	1.03E+02	2.23E+01
	65	3197.78	5.50E+00	6.08		5.50E+00	6.08E+00

Analysis Report for 1510093-03  
CP5002S03-04

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	0.972	1460.81	*	10.67	1.94E+01	2.23E+00
GA-67	0.303	93.31	*	35.70	5.28E+02	2.43E+03
		208.95		2.24		
		300.22		16.00		
CD-109	1.000	88.03	*	3.72	4.63E+00	1.42E+00
SN-126	0.960	87.57	*	37.00	4.42E-01	1.33E-01
TL-208	0.883	583.14	*	30.22	1.48E+00	2.79E-01
		860.37		4.48		
		2614.66	*	35.85	9.78E-01	2.28E-01
PB-211	0.308	404.84	*	2.90	1.07E+00	1.09E+00
		831.96		2.90		
BI-212	0.735	727.17	*	11.80	8.76E-01	5.50E-01
		1620.62		2.75		
PB-212	0.889	238.63	*	44.60	1.56E+00	1.82E-01
		300.09		3.41		
BI-214	0.976	609.31	*	46.30	1.27E+00	2.15E-01
		1120.29	*	15.10	1.16E+00	4.18E-01
		1764.49	*	15.80	1.36E+00	3.37E-01
		2204.22	*	4.98	1.45E+00	8.38E-01
PB-214	0.998	295.21	*	19.19	1.36E+00	3.07E-01
		351.92	*	37.19	1.54E+00	2.20E-01
RA-224	0.884	240.98	*	3.95	3.48E+00	1.15E+00
RA-226	0.995	186.21	*	3.28	3.14E+00	5.96E+00
AC-228	0.970	338.32	*	11.40	1.84E+00	4.91E-01
		911.07	*	27.70	1.26E+00	2.99E-01
		969.11	*	16.60	1.42E+00	3.76E-01
TH-234	1.000	63.29	*	3.80	1.40E+00	1.49E+00
NP-237	0.901	86.50	*	12.60	8.29E-01	2.87E-01
AM-243	0.998	74.67	*	66.00	3.37E-01	6.61E-02

Analysis Report for 1510093-03  
CP5002S03-04

\* = 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 : 11/11/2015 11:33:48AM  
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	77.58	1.87267E-01	6.75	Tol.	TI-44
7	128.78	3.04149E-02	27.69		
9	210.14	1.71962E-02	56.70	Tol.	CM-243
12	257.70	1.91652E-02	38.05		
13	270.12	1.74156E-02	39.06		
15	327.75	1.19971E-02	49.46	Sum	
19	409.39	1.02824E-02	47.89		
20	463.60	3.32000E-02	22.38		
21	487.44	8.37077E-03	63.40	Tol.	LA-140
M 22	507.98	6.83383E-03	40.37		
m 23	510.98	2.20984E-02	25.27		
26	704.90	1.81787E-02	36.67	Sum	
28	787.42	1.14037E-02	38.89		
29	795.08	1.23653E-02	32.01	Sum	
31	935.57	1.02778E-02	42.11	Sum	
M 32	964.95	1.22471E-02	30.99	Tol.	EU-152
m 35	1126.33	5.13277E-03	81.32		
36	1156.60	1.06519E-02	49.06		
37	1238.86	1.38462E-02	44.36	Tol.	CO-56
38	1287.55	5.22019E-03	46.92		
39	1348.02	5.00000E-03	40.82		
40	1377.57	1.06905E-02	33.05		
42	1497.32	7.32906E-03	36.99		
43	1509.79	3.35000E-03	56.51		
44	1647.11	2.02020E-03	59.93	Sum	
M 45	1658.11	1.97777E-03	55.74		
m 46	1662.69	3.63145E-03	42.59		
M 47	1729.24	3.48955E-03	42.26	Sum	
m 48	1733.77	2.44484E-03	59.24		
49	1742.35	1.80556E-03	51.17		
50	1757.31	1.38889E-03	55.00	Sum	
52	1837.44	1.54167E-03	73.74		
53	1847.79	3.88889E-03	36.42	Sum	
54	1928.91	1.91358E-03	52.34		

Analysis Report for 1510093-03  
CP5002S03-04

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	55	1951.08	2.44792E-03	66.89	Sum
M	56	2096.82	3.42519E-03	30.34	
m	57	2099.89	2.04530E-03	62.24	
m	58	2104.80	5.48963E-03	28.17	S-Esc
	59	2117.25	1.94444E-03	37.80	Sum
	61	2256.38	1.52778E-03	55.30	
	62	2364.06	2.73148E-03	40.68	
	63	2382.36	1.80556E-03	53.57	
	65	3197.78	1.52778E-03	55.30	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
K-40	0.97	1460.81 *	10.67	1.94E+01	2.23E+00
GA-67	0.30	93.31 *	35.70	5.28E+02	2.43E+03
		208.95	2.24		
		300.22	16.00		
CD-109	1.00	88.03 *	3.72	4.63E+00	1.42E+00
SN-126	0.96	87.57 *	37.00	4.42E-01	1.33E-01
TL-208	0.88	583.14 *	30.22	1.48E+00	2.79E-01
		860.37	4.48		
		2614.66 *	35.85	9.78E-01	2.28E-01
PB-211	0.30	404.84 *	2.90	1.07E+00	1.09E+00
		831.96	2.90		
BI-212	0.73	727.17 *	11.80	8.76E-01	5.50E-01
		1620.62	2.75		
PB-212	0.88	238.63 *	44.60	1.56E+00	1.82E-01
		300.09	3.41		
BI-214	0.97	609.31 *	46.30	1.27E+00	2.15E-01
		1120.29 *	15.10	1.16E+00	4.18E-01
		1764.49 *	15.80	1.36E+00	3.37E-01
		2204.22 *	4.98	1.45E+00	8.38E-01

Analysis Report for 1510093-03  
CP5002S03-04

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
PB-214	0.99	295.21 *		19.19	1.36E+00	3.07E-01
		351.92 *		37.19	1.54E+00	2.20E-01
RA-224	0.88	240.98 *		3.95	3.48E+00	1.15E+00
RA-226	0.99	186.21 *		3.28	3.14E+00	5.96E+00
AC-228	0.97	338.32 *		11.40	1.84E+00	4.91E-01
		911.07 *		27.70	1.26E+00	2.99E-01
		969.11 *		16.60	1.42E+00	3.76E-01
TH-234	1.00	63.29 *		3.80	1.40E+00	1.49E+00
NP-237	0.90	86.50 *		12.60	8.29E-01	2.87E-01
AM-243	0.99	74.67 *		66.00	3.37E-01	6.61E-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

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.972	1.94E+01	2.23E+00	
GA-67	0.303	5.28E+02	2.43E+03	
? CD-109	1.000	4.63E+00	1.42E+00	
? SN-126	0.960	4.42E-01	1.33E-01	
TL-208	0.883	1.18E+00	1.77E-01	
PB-211	0.308	1.07E+00	1.09E+00	
BI-212	0.735	8.76E-01	5.50E-01	
PB-212	0.889	1.56E+00	1.82E-01	
BI-214	0.976	1.28E+00	1.63E-01	
PB-214	0.998	1.48E+00	1.79E-01	
RA-224	0.884	3.48E+00	1.15E+00	
RA-226	0.995	3.14E+00	5.96E+00	
AC-228	0.970	1.42E+00	2.11E-01	
TH-234	1.000	1.40E+00	1.49E+00	
NP-237	0.901	8.29E-01	2.87E-01	
AM-243	0.998	3.37E-01	6.61E-02	



Analysis Report for 1510093-03  
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- ? = nuclide is part of an undetermined solution
- X = nuclide rejected by the interference analysis
- @ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000sigma

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Analysis Report for 1510093-03  
CP5002S03-04

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 11:33:48AM  
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	77.58	1.87267E-01	6.75	Tol.	TI-44
7	128.78	3.04149E-02	27.69		
9	210.14	1.71962E-02	56.70	Tol.	CM-243
12	257.70	1.91652E-02	38.05		
13	270.12	1.74156E-02	39.06		
15	327.75	1.19971E-02	49.46	Sum	
19	409.39	1.02824E-02	47.89		
20	463.60	3.32000E-02	22.38		
21	487.44	8.37077E-03	63.40	Tol.	LA-140
M 22	507.98	6.83383E-03	40.37		
m 23	510.98	2.20984E-02	25.27		
26	704.90	1.81787E-02	36.67	Sum	
28	787.42	1.14037E-02	38.89		
29	795.08	1.23653E-02	32.01	Sum	
31	935.57	1.02778E-02	42.11	Sum	
M 32	964.95	1.22471E-02	30.99	Tol.	EU-152
m 35	1126.33	5.13277E-03	81.32		
36	1156.60	1.06519E-02	49.06		
37	1238.86	1.38462E-02	44.36	Tol.	CO-56
38	1287.55	5.22019E-03	46.92		
39	1348.02	5.00000E-03	40.82		
40	1377.57	1.06905E-02	33.05		
42	1497.32	7.32906E-03	36.99		
43	1509.79	3.35000E-03	56.51		
44	1647.11	2.02020E-03	59.93	Sum	
M 45	1658.11	1.97777E-03	55.74		
m 46	1662.69	3.63145E-03	42.59		
M 47	1729.24	3.48955E-03	42.26	Sum	
m 48	1733.77	2.44484E-03	59.24		
49	1742.35	1.80556E-03	51.17		
50	1757.31	1.38889E-03	55.00	Sum	
52	1837.44	1.54167E-03	73.74		
53	1847.79	3.88889E-03	36.42	Sum	
54	1928.91	1.91358E-03	52.34		
55	1951.08	2.44792E-03	66.89	Sum	

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	56	2096.82	3.42519E-03	30.34	
m	57	2099.89	2.04530E-03	62.24	
m	58	2104.80	5.48963E-03	28.17	S-Esc
	59	2117.25	1.94444E-03	37.80	Sum
	61	2256.38	1.52778E-03	55.30	
	62	2364.06	2.73148E-03	40.68	
	63	2382.36	1.80556E-03	53.57	
	65	3197.78	1.52778E-03	55.30	Sum

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

## NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-2.72E-01	9.11E-01	9.11E-01
+	NA-22	1274.54	99.94	8.84E-03	7.51E-02	7.51E-02
+	NA-24	1368.53	99.99	-5.00E+14	1.16E+15	1.61E+15
		2754.09	99.86	2.65E+14		1.16E+15
+	AL-26	1808.65	99.76	1.80E-02	5.85E-02	5.85E-02
+	K-40	1460.81	* 10.67	1.94E+01	9.13E-01	9.13E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.05E-02	6.80E-02	6.80E-02
		78.34	96.00	2.35E-01		8.66E-02
+	SC-46	889.25	99.98	1.25E-02	9.01E-02	9.01E-02
		1120.51	99.99	2.51E-01		1.67E-01
+	V-48	983.52	99.98	-6.51E-02	2.79E-01	2.79E-01
		1312.10	97.50	-1.00E-02		3.12E-01
+	CR-51	320.08	9.83	-7.42E-01	1.17E+00	1.17E+00
+	MN-54	834.83	99.97	-2.86E-02	8.09E-02	8.09E-02
+	CO-56	846.75	99.96	4.55E-02	9.30E-02	9.30E-02
		1037.75	14.03	-3.00E-01		6.01E-01
		1238.25	67.00	1.42E-01		2.37E-01
		1771.40	15.51	2.58E-02		3.63E-01
		2598.48	16.90	-4.55E-02		2.01E-01

Analysis Report for 1510093-03  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	CO-57	122.06	85.51	1.08E-02	5.91E-02	5.91E-02
		136.48	10.60	3.71E-02		5.09E-01
+	CO-58	810.76	99.40	-4.35E-02	8.43E-02	8.43E-02
+	FE-59	1099.22	56.50	-9.36E-02	2.01E-01	2.01E-01
		1291.56	43.20	3.75E-02		3.08E-01
+	CO-60	1173.22	100.00	3.45E-02	6.65E-02	8.83E-02
		1332.49	100.00	-1.90E-02		6.65E-02
+	ZN-65	1115.52	50.75	-2.36E-02	1.65E-01	1.65E-01
+	GA-67	93.31	*	35.70	5.28E+02	4.74E+02
		208.95	2.24	4.82E+02		3.57E+03
		300.22	16.00	2.96E+02		4.74E+02
+	SE-75	121.11	16.70	-5.09E-02	9.92E-02	3.28E-01
		136.00	59.20	-8.65E-02		9.92E-02
		264.65	59.80	3.58E-02		1.01E-01
		279.53	25.20	1.10E-01		2.58E-01
		400.65	11.40	-1.52E-01		5.62E-01
+	RB-82	776.52	13.00	-1.49E+00	1.16E+00	1.16E+00
+	RB-83	520.41	46.00	6.10E-03	1.68E-01	1.68E-01
		529.64	30.30	-6.34E-02		2.61E-01
		552.65	16.40	1.43E-01		4.91E-01
+	KR-85	513.99	0.43	2.11E+01	2.02E+01	2.02E+01
+	SR-85	513.99	99.27	1.32E-01	1.26E-01	1.26E-01
+	Y-88	898.02	93.40	-4.25E-02	7.14E-02	7.71E-02
		1836.01	99.38	1.90E-02		7.14E-02
+	NB-93M	16.57	9.43	-9.81E+01	6.49E+01	6.49E+01
+	NB-94	702.63	100.00	3.93E-02	6.99E-02	7.76E-02
		871.10	100.00	4.43E-03		6.99E-02
+	NB-95	765.79	99.81	1.43E-01	1.70E-01	1.70E-01
+	NB-95M	235.69	25.00	-1.66E+03	1.83E+02	1.83E+02
+	ZR-95	724.18	43.70	6.26E-03	1.80E-01	2.39E-01
		756.72	55.30	1.17E-01		1.80E-01
+	MO-99	181.06	6.20	-7.76E+01	2.80E+03	4.26E+03
		739.58	12.80	9.78E+02		2.80E+03
		778.00	4.50	-8.68E+03		7.16E+03
+	RU-103	497.08	89.00	2.09E-02	1.27E-01	1.27E-01
+	RU-106	621.84	9.80	-3.98E-01	6.35E-01	6.35E-01
+	AG-108M	433.93	89.90	2.77E-03	6.29E-02	6.29E-02
		614.37	90.40	2.40E-02		7.38E-02
		722.95	90.50	1.24E-02		7.18E-02
+	CD-109	88.03	*	3.72	4.63E+00	3.74E+00
+	AG-110M	657.75	93.14	-5.34E-03	7.24E-02	7.24E-02
		677.61	10.53	-4.18E-02		6.79E-01
		706.67	16.46	5.04E-01		5.27E-01
		763.93	21.98	-4.46E-01		3.52E-01
		884.67	71.63	1.81E-02		1.04E-01
		1384.27	23.94	8.00E-02		3.20E-01
+	CD-113M	263.70	0.02	5.39E+01	2.10E+02	2.10E+02

Analysis Report for 1510093-03  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SN-113	255.12	1.93	9.32E-02	9.13E-02	3.09E+00
		391.69	64.90	-2.29E-02		9.13E-02
+	TE123M	159.00	84.10	2.93E-02	6.99E-02	6.99E-02
+	SB-124	602.71	97.87	2.95E-02	9.67E-02	9.67E-02
		645.85	7.26	-9.51E-03		1.27E+00
		722.78	11.10	1.50E-01		8.66E-01
		1691.02	49.00	-6.52E-03		1.38E-01
+	I-125	35.49	6.49	4.87E-01	3.20E+00	3.20E+00
+	SB-125	176.33	6.89	3.17E-03	1.98E-01	7.31E-01
		427.89	29.33	-3.64E-02		1.98E-01
		463.38	10.35	9.43E-01		7.41E-01
		600.56	17.80	-1.30E-02		3.54E-01
		635.90	11.32	2.26E-02		5.41E-01
+	SB-126	414.70	83.30	1.31E-01	4.32E-01	4.94E-01
		666.33	99.60	-2.42E-02		4.32E-01
		695.00	99.60	4.38E-02		4.52E-01
		720.50	53.80	6.09E-02		8.37E-01
+	SN-126	87.57	* 37.00	4.42E-01	3.57E-01	3.57E-01
+	SB-127	473.00	25.00	4.00E+01	8.93E+01	1.12E+02
		685.20	35.70	-3.06E+01		8.93E+01
		783.80	14.70	1.93E+01		2.37E+02
+	I-129	29.78	57.00	-4.16E-01	4.64E-01	4.64E-01
		33.60	13.20	-9.31E-02		1.28E+00
		39.58	7.52	-8.37E-01		1.35E+00
+	I-131	284.30	6.05	-1.89E+00	1.16E+00	1.50E+01
		364.48	81.20	4.78E-01		1.16E+00
		636.97	7.26	-3.85E+00		1.51E+01
		722.89	1.80	1.18E+01		6.85E+01
+	TE-132	49.72	13.10	-1.60E+03	8.39E+01	7.84E+02
		228.16	88.00	-1.21E+01		8.39E+01
+	BA-133	81.00	33.00	-7.47E-01	8.01E-02	1.71E-01
		302.84	17.80	3.80E-02		2.80E-01
		356.01	60.00	-6.29E-01		8.01E-02
+	I-133	529.87	86.30	-1.23E+10	5.06E+10	5.06E+10
+	XE-133	81.00	38.00	-5.89E+01	1.35E+01	1.35E+01
+	CS-134	563.23	8.38	1.49E-01	7.51E-02	7.78E-01
		569.32	15.43	-4.87E-02		3.95E-01
		604.70	97.60	1.41E-02		7.51E-02
		795.84	85.40	7.30E-02		9.51E-02
		801.93	8.73	-2.02E-01		7.62E-01
+	CS-135	268.24	16.00	3.38E-01	3.52E-01	3.52E-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	-6.89E-01	4.03E-01	4.02E+00
		163.89	4.61	-9.96E-01		6.30E+00
		176.55	13.56	9.52E-03		2.19E+00
		273.65	12.66	2.14E-01		2.44E+00
		340.57	48.50	1.26E+00		8.63E-01

Analysis Report for 1510093-03  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	CS-136	818.50	99.70	1.34E-01	4.03E-01	4.03E-01
		1048.07	79.60	1.09E-01		5.68E-01
		1235.34	19.70	2.48E-01		3.43E+00
+	CS-137	661.65	85.12	3.32E-03	7.35E-02	7.35E-02
+	LA-138	788.74	34.00	-3.34E-03	1.08E-01	2.10E-01
		1435.80	66.00	1.86E-02		1.08E-01
+	CE-139	165.85	80.35	-2.30E-02	7.39E-02	7.39E-02
+	BA-140	162.64	6.70	2.40E+00	1.54E+00	4.62E+00
		304.84	4.50	-1.10E+00		6.45E+00
		423.70	3.20	1.86E+00		1.18E+01
		437.55	2.00	4.25E+00		1.82E+01
		537.32	25.00	-4.09E-01		1.54E+00
+	LA-140	328.77	20.50	9.21E-01	3.72E-01	1.73E+00
		487.03	45.50	3.40E-01		8.75E-01
		815.85	23.50	-2.58E-01		1.67E+00
		1596.49	95.49	7.86E-02		3.72E-01
+	CE-141	145.44	48.40	3.92E-02	2.15E-01	2.15E-01
+	CE-143	57.36	11.80	-5.97E+06	6.07E+06	1.65E+07
		293.26	42.00	1.86E+07		6.07E+06
		664.55	5.20	8.65E+06		3.71E+07
+	CE-144	133.54	10.80	5.71E-02	4.79E-01	4.79E-01
+	PM-144	476.78	42.00	3.97E-02	6.72E-02	1.59E-01
		618.01	98.60	4.57E-02		7.31E-02
		696.49	99.49	-9.27E-04		6.72E-02
+	PM-145	36.85	21.70	-8.81E-02	3.00E-01	5.67E-01
		37.36	39.70	-9.15E-02		3.00E-01
		42.30	15.10	-3.64E-01		6.12E-01
		72.40	2.31	-1.59E+00		3.32E+00
+	PM-146	453.90	39.94	4.44E-02	1.52E-01	1.52E-01
		735.90	14.01	-5.32E-02		4.75E-01
		747.13	13.10	1.07E-01		5.08E-01
+	ND-147	91.11	28.90	-4.66E+00	1.98E+00	1.98E+00
		531.02	13.10	8.97E-01		4.10E+00
+	PM-149	285.90	3.10	-1.70E+04	6.86E+04	6.86E+04
+	EU-152	121.78	20.50	4.16E-02	2.27E-01	2.27E-01
		244.69	5.40	-1.16E+00		1.02E+00
		344.27	19.13	3.27E-02		2.55E-01
		778.89	9.20	-5.41E-02		6.67E-01
		964.01	10.40	-1.04E+00		9.20E-01
		1085.78	7.22	-5.63E-01		1.03E+00
		1112.02	9.60	-1.08E-01		8.07E-01
		1407.95	14.94	1.97E-01		5.68E-01
+	GD-153	97.43	31.30	7.65E-02	1.73E-01	1.73E-01
		103.18	22.20	-1.17E-02		2.27E-01
+	EU-154	123.07	40.50	8.30E-02	1.17E-01	1.17E-01
		723.30	19.70	5.73E-02		3.32E-01
		873.19	11.50	3.47E-01		6.44E-01
		996.32	10.30	-2.56E-02		6.60E-01
		1004.76	17.90	1.32E-01		4.00E-01

Analysis Report for 1510093-03  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	EU-154	1274.45	35.50	2.45E-02	1.17E-01	2.08E-01
+	EU-155	86.50	30.90	1.56E-01	2.19E-01	2.19E-01
		105.30	20.70	-8.57E-03		2.26E-01
+	EU-156	811.77	10.40	-2.76E-01	2.86E+00	2.86E+00
		1153.47	7.20	1.30E+00		5.89E+00
		1230.71	8.90	3.08E-01		5.15E+00
+	HO-166M	184.41	72.60	1.59E-01	8.78E-02	8.78E-02
		280.45	29.60	4.38E-03		1.71E-01
		410.94	11.10	-3.04E-02		5.64E-01
		711.69	54.10	2.20E-03		1.25E-01
+	TM-171	66.72	0.14	2.48E+01	4.89E+01	4.89E+01
+	HF-172	81.75	4.52	-2.07E+00	4.28E-01	1.28E+00
		125.81	11.30	6.43E-02		4.28E-01
+	LU-172	181.53	20.60	-1.04E+00	4.38E+00	7.99E+00
		810.06	16.63	4.14E+00		1.39E+01
		912.12	15.25	7.56E+01		3.07E+01
		1093.66	62.50	1.08E+00		4.38E+00
+	LU-173	100.72	5.24	2.56E-01	2.76E-01	9.37E-01
		272.11	21.20	9.63E-02		2.76E-01
+	HF-175	343.40	84.00	2.50E-04	7.98E-02	7.98E-02
+	LU-176	88.34	13.30	8.22E-01	4.75E-02	5.07E-01
		201.83	86.00	6.52E-03		5.98E-02
		306.78	94.00	-4.18E-03		4.75E-02
+	TA-182	67.75	41.20	8.60E-02	1.92E-01	1.92E-01
		1121.30	34.90	5.57E-01		4.42E-01
		1189.05	16.23	-7.43E-02		5.93E-01
		1221.41	26.98	-9.38E-03		4.34E-01
		1231.02	11.44	6.20E-02		1.04E+00
+	IR-192	308.46	29.68	-1.28E-02	1.69E-01	2.07E-01
		468.07	48.10	-9.98E-04		1.69E-01
+	HG-203	279.19	77.30	1.57E-02	1.15E-01	1.15E-01
+	BI-207	569.67	97.72	5.37E-03	6.12E-02	6.12E-02
		1063.62	74.90	3.75E-02		1.03E-01
+	TL-208	583.14	* 30.22	1.48E+00	1.71E-01	3.20E-01
		860.37	4.48	7.49E-01		1.68E+00
		2614.66	* 35.85	9.78E-01		1.71E-01
+	BI-210M	262.00	45.00	-1.81E-02	1.02E-01	1.02E-01
		300.00	23.00	1.45E-01		2.32E-01
+	PB-210	46.50	4.25	1.10E-01	1.98E+00	1.98E+00
+	PB-211	404.84	* 2.90	1.07E+00	1.77E+00	1.77E+00
		831.96	2.90	-5.66E-01		2.46E+00
+	BI-212	727.17	* 11.80	8.76E-01	8.59E-01	8.59E-01
		1620.62	2.75	1.02E-01		1.92E+00
+	PB-212	238.63	* 44.60	1.56E+00	2.49E-01	2.49E-01
		300.09	3.41	9.77E-01		1.56E+00
+	BI-214	609.31	* 46.30	1.27E+00	5.06E-02	2.32E-01
		1120.29	* 15.10	1.16E+00		9.75E-01
		1764.49	* 15.80	1.36E+00		5.06E-02

Analysis Report for 1510093-03  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	BI-214	2204.22	*	4.98	1.45E+00	5.06E-02	1.09E+00
+	PB-214	295.21	*	19.19	1.36E+00	2.28E-01	4.16E-01
		351.92	*	37.19	1.54E+00		2.28E-01
+	RN-219	401.80		6.50	-1.09E-01	8.29E-01	8.29E-01
+	RA-223	323.87		3.88	2.58E-01	1.30E+00	1.30E+00
+	RA-224	240.98	*	3.95	3.48E+00	2.79E+00	2.79E+00
+	RA-225	40.00		31.00	-9.79E-01	1.57E+00	1.57E+00
+	RA-226	186.21	*	3.28	3.14E+00	2.55E+00	2.55E+00
+	TH-227	50.10		8.40	-1.73E+00	5.64E-01	8.45E-01
		236.00		11.50	-5.11E+00		5.64E-01
		256.20		6.30	-2.84E-01		7.78E-01
+	AC-228	338.32	*	11.40	1.84E+00	3.65E-01	6.86E-01
		911.07	*	27.70	1.26E+00		3.65E-01
		969.11	*	16.60	1.42E+00		7.61E-01
+	TH-230	48.44		16.90	2.52E-01	4.72E-01	4.72E-01
		62.85		4.60	3.00E+00		1.63E+00
		67.67		0.37	7.79E+00		1.74E+01
+	PA-231	283.67		1.60	-1.04E+00	2.15E+00	2.98E+00
		302.67		2.30	2.92E-01		2.15E+00
+	TH-231	25.64		14.70	1.69E-01	9.47E-01	3.90E+00
		84.21		6.40	-1.91E+00		9.47E-01
+	PA-233	311.98		38.60	6.31E-02	2.94E-01	2.94E-01
+	PA-234	131.20		20.40	5.38E-02	2.38E-01	2.38E-01
		733.99		8.80	-1.16E-02		7.60E-01
		946.00		12.00	-2.31E-01		5.65E-01
+	PA-234M	1001.03		0.92	-5.91E-01	7.57E+00	7.57E+00
+	TH-234	63.29	*	3.80	1.40E+00	2.44E+00	2.44E+00
+	U-235	143.76		10.50	2.46E-01	4.90E-01	4.90E-01
		163.35		4.70	-1.61E-01		1.02E+00
		205.31		4.70	2.52E-01		1.09E+00
+	NP-237	86.50	*	12.60	8.29E-01	1.04E+00	1.04E+00
+	NP-239	106.10		22.70	-1.79E+02	4.72E+03	4.72E+03
		228.18		10.70	-1.62E+03		1.12E+04
		277.60		14.10	1.54E+03		8.87E+03
+	AM-241	59.54		35.90	1.47E-02	1.87E-01	1.87E-01
+	AM-243	74.67	*	66.00	3.37E-01	1.77E-01	1.77E-01
+	CM-243	209.75		3.29	1.18E+00	3.86E-01	1.74E+00
		228.14		10.60	-7.07E-02		4.88E-01
		277.60		14.00	6.70E-02		3.86E-01

+ = Nuclide identified during the nuclide identification

\* = Energy line found in the spectrum

> = MDA value not calculated

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

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



Analysis Report for 1510093-03  
CP5002S03-04

## 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	9.11E-01	9.11E-01	-2.72E-01	4.33E-01
NA-22	1274.54	99.94	7.51E-02	7.51E-02	8.84E-03	3.43E-02
NA-24	1368.53	99.99	1.61E+15	1.16E+15	-5.00E+14	7.09E+14
	2754.09	99.86	1.16E+15		2.65E+14	4.48E+14
AL-26	1808.65	99.76	5.85E-02	5.85E-02	1.80E-02	2.52E-02
+ K-40	1460.81	* 10.67	9.13E-01	9.13E-01	1.94E+01	4.23E-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	6.80E-02	6.80E-02	3.05E-02	3.33E-02
	78.34	96.00	8.66E-02		2.35E-01	4.26E-02
SC-46	889.25	99.98	9.01E-02	9.01E-02	1.25E-02	4.18E-02
	1120.51	99.99	1.67E-01		2.51E-01	7.98E-02
V-48	983.52	99.98	2.79E-01	2.79E-01	-6.51E-02	1.28E-01
	1312.10	97.50	3.12E-01		-1.00E-02	1.41E-01
CR-51	320.08	9.83	1.17E+00	1.17E+00	-7.42E-01	5.56E-01
MN-54	834.83	99.97	8.09E-02	8.09E-02	-2.86E-02	3.80E-02
CO-56	846.75	99.96	9.30E-02	9.30E-02	4.55E-02	4.34E-02
	1037.75	14.03	6.01E-01		-3.00E-01	2.74E-01
	1238.25	67.00	2.37E-01		1.42E-01	1.12E-01
	1771.40	15.51	3.63E-01		2.58E-02	1.47E-01
	2598.48	16.90	2.01E-01		-4.55E-02	6.35E-02
CO-57	122.06	85.51	5.91E-02	5.91E-02	1.08E-02	2.87E-02
	136.48	10.60	5.09E-01		3.71E-02	2.47E-01
CO-58	810.76	99.40	8.43E-02	8.43E-02	-4.35E-02	3.90E-02
FE-59	1099.22	56.50	2.01E-01	2.01E-01	-9.36E-02	9.21E-02
	1291.56	43.20	3.08E-01		3.75E-02	1.42E-01
CO-60	1173.22	100.00	8.83E-02	6.65E-02	3.45E-02	4.11E-02
	1332.49	100.00	6.65E-02		-1.90E-02	2.99E-02
ZN-65	1115.52	50.75	1.65E-01	1.65E-01	-2.36E-02	7.61E-02
+ GA-67	93.31	* 35.70	5.29E+02	4.74E+02	5.28E+02	2.62E+02
	208.95	2.24	3.57E+03		4.82E+02	1.73E+03
	300.22	16.00	4.74E+02		2.96E+02	2.27E+02
SE-75	121.11	16.70	3.28E-01	9.92E-02	-5.09E-02	1.59E-01
	136.00	59.20	9.92E-02		-8.65E-02	4.82E-02
	264.65	59.80	1.01E-01		3.58E-02	4.85E-02
	279.53	25.20	2.58E-01		1.10E-01	1.24E-01
	400.65	11.40	5.62E-01		-1.52E-01	2.67E-01
RB-82	776.52	13.00	1.16E+00	1.16E+00	-1.49E+00	5.40E-01

Analysis Report for 1510093-03  
CP5002S03-04

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	1.68E-01	1.68E-01	6.10E-03	7.94E-02
	529.64	30.30	2.61E-01		-6.34E-02	1.23E-01
	552.65	16.40	4.91E-01		1.43E-01	2.32E-01
KR-85	513.99	0.43	2.02E+01	2.02E+01	2.11E+01	9.73E+00
SR-85	513.99	99.27	1.26E-01	1.26E-01	1.32E-01	6.09E-02
Y-88	898.02	93.40	7.71E-02	7.14E-02	-4.25E-02	3.53E-02
	1836.01	99.38	7.14E-02		1.90E-02	3.06E-02
NB-93M	16.57	9.43	6.49E+01	6.49E+01	-9.81E+01	3.01E+01
NB-94	702.63	100.00	7.76E-02	6.99E-02	3.93E-02	3.68E-02
	871.10	100.00	6.99E-02		4.43E-03	3.26E-02
NB-95	765.79	99.81	1.70E-01	1.70E-01	1.43E-01	8.06E-02
NB-95M	235.69	25.00	1.83E+02	1.83E+02	-1.66E+03	8.87E+01
ZR-95	724.18	43.70	2.39E-01	1.80E-01	6.26E-03	1.13E-01
	756.72	55.30	1.80E-01		1.17E-01	8.47E-02
MO-99	181.06	6.20	4.26E+03	2.80E+03	-7.76E+01	2.06E+03
	739.58	12.80	2.80E+03		9.78E+02	1.31E+03
	778.00	4.50	7.16E+03		-8.68E+03	3.32E+03
RU-103	497.08	89.00	1.27E-01	1.27E-01	2.09E-02	6.05E-02
RU-106	621.84	9.80	6.35E-01	6.35E-01	-3.98E-01	2.98E-01
AG-108M	433.93	89.90	6.29E-02	6.29E-02	2.77E-03	2.99E-02
	614.37	90.40	7.38E-02		2.40E-02	3.49E-02
	722.95	90.50	7.18E-02		1.24E-02	3.36E-02
	88.03	3.72	3.74E+00	3.74E+00	4.63E+00	1.85E+00
+ CD-109	657.75	93.14	7.24E-02	7.24E-02	-5.34E-03	3.40E-02
	677.61	10.53	6.79E-01		-4.18E-02	3.19E-01
	706.67	16.46	5.27E-01		5.04E-01	2.50E-01
	763.93	21.98	3.52E-01		-4.46E-01	1.65E-01
	884.67	71.63	1.04E-01		1.81E-02	4.82E-02
	1384.27	23.94	3.20E-01		8.00E-02	1.44E-01
	263.70	0.02	2.10E+02	2.10E+02	5.39E+01	1.01E+02
	391.69	64.90	9.13E-02		-2.29E-02	4.32E-02
SN-113	255.12	1.93	3.09E+00	9.13E-02	9.32E-02	1.48E+00
TE123M	159.00	84.10	6.99E-02	6.99E-02	2.93E-02	3.39E-02
SB-124	602.71	97.87	9.67E-02	9.67E-02	2.95E-02	4.57E-02
	645.85	7.26	1.27E+00		-9.51E-03	5.98E-01
	722.78	11.10	8.66E-01		1.50E-01	4.06E-01
	1691.02	49.00	1.38E-01		-6.52E-03	5.72E-02
	35.49	6.49	3.20E+00	3.20E+00	4.87E-01	1.55E+00
SB-125	176.33	6.89	7.31E-01	1.98E-01	3.17E-03	3.54E-01
	427.89	29.33	1.98E-01		-3.64E-02	9.40E-02
	463.38	10.35	7.41E-01		9.43E-01	3.56E-01
	600.56	17.80	3.54E-01		-1.30E-02	1.67E-01
	635.90	11.32	5.41E-01		2.26E-02	2.54E-01
	414.70	83.30	4.94E-01	4.32E-01	1.31E-01	2.36E-01
SB-126	666.33	99.60	4.32E-01		-2.42E-02	2.03E-01
	695.00	99.60	4.52E-01		4.38E-02	2.13E-01
	720.50	53.80	8.37E-01		6.09E-02	3.93E-01
	87.57	37.00	3.57E-01	3.57E-01	4.42E-01	1.77E-01
+ SN-126	473.00	25.00	1.12E+02	8.93E+01	4.00E+01	5.32E+01
	685.20	35.70	8.93E+01		-3.06E+01	4.21E+01
	783.80	14.70	2.37E+02		1.93E+01	1.12E+02
I-129	29.78	57.00	4.64E-01	4.64E-01	-4.16E-01	2.25E-01
	33.60	13.20	1.28E+00		-9.31E-02	6.23E-01

Analysis Report for 1510093-03  
CP5002S03-04

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-129	39.58	7.52	1.35E+00	4.64E-01	-8.37E-01	6.54E-01
I-131	284.30	6.05	1.50E+01	1.16E+00	-1.89E+00	7.15E+00
	364.48	81.20	1.16E+00		4.78E-01	5.50E-01
	636.97	7.26	1.51E+01		-3.85E+00	7.06E+00
	722.89	1.80	6.85E+01		1.18E+01	3.21E+01
TE-132	49.72	13.10	7.84E+02	8.39E+01	-1.60E+03	3.82E+02
	228.16	88.00	8.39E+01		-1.21E+01	4.05E+01
BA-133	81.00	33.00	1.71E-01	8.01E-02	-7.47E-01	8.34E-02
	302.84	17.80	2.80E-01		3.80E-02	1.34E-01
	356.01	60.00	8.01E-02		-6.29E-01	3.80E-02
I-133	529.87	86.30	5.06E+10	5.06E+10	-1.23E+10	2.39E+10
XE-133	81.00	38.00	1.35E+01	1.35E+01	-5.89E+01	6.58E+00
CS-134	563.23	8.38	7.78E-01	7.51E-02	1.49E-01	3.68E-01
	569.32	15.43	3.95E-01		-4.87E-02	1.86E-01
	604.70	97.60	7.51E-02		1.41E-02	3.57E-02
	795.84	85.40	9.51E-02		7.30E-02	4.49E-02
	801.93	8.73	7.62E-01		-2.02E-01	3.55E-01
CS-135	268.24	16.00	3.52E-01	3.52E-01	3.38E-01	1.70E-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	4.02E+00	4.03E-01	-6.89E-01	1.95E+00
	163.89	4.61	6.30E+00		-9.96E-01	3.05E+00
	176.55	13.56	2.19E+00		9.52E-03	1.06E+00
	273.65	12.66	2.44E+00		2.14E-01	1.17E+00
	340.57	48.50	8.63E-01		1.26E+00	4.17E-01
	818.50	99.70	4.03E-01		1.34E-01	1.88E-01
	1048.07	79.60	5.68E-01		1.09E-01	2.63E-01
	1235.34	19.70	3.43E+00		2.48E-01	1.62E+00
CS-137	661.65	85.12	7.35E-02	7.35E-02	3.32E-03	3.45E-02
LA-138	788.74	34.00	2.10E-01	1.08E-01	-3.34E-03	9.84E-02
	1435.80	66.00	1.08E-01		1.86E-02	4.89E-02
CE-139	165.85	80.35	7.39E-02	7.39E-02	-2.30E-02	3.58E-02
BA-140	162.64	6.70	4.62E+00	1.54E+00	2.40E+00	2.24E+00
	304.84	4.50	6.45E+00		-1.10E+00	3.07E+00
	423.70	3.20	1.18E+01		1.86E+00	5.62E+00
	437.55	2.00	1.82E+01		4.25E+00	8.68E+00
	537.32	25.00	1.54E+00		-4.09E-01	7.31E-01
LA-140	328.77	20.50	1.73E+00	3.72E-01	9.21E-01	8.32E-01
	487.03	45.50	8.75E-01		3.40E-01	4.16E-01
	815.85	23.50	1.67E+00		-2.58E-01	7.76E-01
	1596.49	95.49	3.72E-01		7.86E-02	1.61E-01
CE-141	145.44	48.40	2.15E-01	2.15E-01	3.92E-02	1.04E-01
CE-143	57.36	11.80	1.65E+07	6.07E+06	-5.97E+06	8.05E+06
	293.26	42.00	6.07E+06		1.86E+07	2.96E+06
	664.55	5.20	3.71E+07		8.65E+06	1.75E+07
CE-144	133.54	10.80	4.79E-01	4.79E-01	5.71E-02	2.33E-01
PM-144	476.78	42.00	1.59E-01	6.72E-02	3.97E-02	7.58E-02
	618.01	98.60	7.31E-02		4.57E-02	3.46E-02
	696.49	99.49	6.72E-02		-9.27E-04	3.15E-02
PM-145	36.85	21.70	5.67E-01	3.00E-01	-8.81E-02	2.75E-01
	37.36	39.70	3.00E-01		-9.15E-02	1.45E-01
	42.30	15.10	6.12E-01		-3.64E-01	2.98E-01

Analysis Report for 1510093-03  
CP5002S03-04

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
PM-145	72.40	2.31	3.32E+00	3.00E-01	-1.59E+00	1.63E+00
PM-146	453.90	39.94	1.52E-01	1.52E-01	4.44E-02	7.26E-02
	735.90	14.01	4.75E-01		-5.32E-02	2.23E-01
	747.13	13.10	5.08E-01		1.07E-01	2.38E-01
ND-147	91.11	28.90	1.98E+00	1.98E+00	-4.66E+00	9.71E-01
	531.02	13.10	4.10E+00		8.97E-01	1.95E+00
PM-149	285.90	3.10	6.86E+04	6.86E+04	-1.70E+04	3.28E+04
EU-152	121.78	20.50	2.27E-01	2.27E-01	4.16E-02	1.10E-01
	244.69	5.40	1.02E+00		-1.16E+00	4.92E-01
	344.27	19.13	2.55E-01		3.27E-02	1.21E-01
	778.89	9.20	6.67E-01		-5.41E-02	3.10E-01
	964.01	10.40	9.20E-01		-1.04E+00	4.35E-01
	1085.78	7.22	1.03E+00		-5.63E-01	4.78E-01
	1112.02	9.60	8.07E-01		-1.08E-01	3.73E-01
	1407.95	14.94	5.68E-01		1.97E-01	2.61E-01
GD-153	97.43	31.30	1.73E-01	1.73E-01	7.65E-02	8.45E-02
	103.18	22.20	2.27E-01		-1.17E-02	1.10E-01
EU-154	123.07	40.50	1.17E-01	1.17E-01	8.30E-02	5.68E-02
	723.30	19.70	3.32E-01		5.73E-02	1.56E-01
	873.19	11.50	6.44E-01		3.47E-01	3.01E-01
	996.32	10.30	6.60E-01		-2.56E-02	3.04E-01
	1004.76	17.90	4.00E-01		1.32E-01	1.85E-01
	1274.45	35.50	2.08E-01		2.45E-02	9.49E-02
EU-155	86.50	30.90	2.19E-01	2.19E-01	1.56E-01	1.07E-01
	105.30	20.70	2.26E-01		-8.57E-03	1.10E-01
EU-156	811.77	10.40	2.86E+00	2.86E+00	-2.76E-01	1.33E+00
	1153.47	7.20	5.89E+00		1.30E+00	2.75E+00
	1230.71	8.90	5.15E+00		3.08E-01	2.41E+00
HO-166M	184.41	72.60	8.78E-02	8.78E-02	1.59E-01	4.28E-02
	280.45	29.60	1.71E-01		4.38E-03	8.20E-02
	410.94	11.10	5.64E-01		-3.04E-02	2.70E-01
	711.69	54.10	1.25E-01		2.20E-03	5.88E-02
TM-171	66.72	0.14	4.89E+01	4.89E+01	2.48E+01	2.40E+01
HF-172	81.75	4.52	1.28E+00	4.28E-01	-2.07E+00	6.26E-01
	125.81	11.30	4.28E-01		6.43E-02	2.08E-01
LU-172	181.53	20.60	7.99E+00	4.38E+00	-1.04E+00	3.86E+00
	810.06	16.63	1.39E+01		4.14E+00	6.48E+00
	912.12	15.25	3.07E+01		7.56E+01	1.48E+01
	1093.66	62.50	4.38E+00		1.08E+00	2.04E+00
LU-173	100.72	5.24	9.37E-01	2.76E-01	2.56E-01	4.56E-01
	272.11	21.20	2.76E-01		9.63E-02	1.33E-01
HF-175	343.40	84.00	7.98E-02	7.98E-02	2.50E-04	3.79E-02
LU-176	88.34	13.30	5.07E-01	4.75E-02	8.22E-01	2.49E-01
	201.83	86.00	5.98E-02		6.52E-03	2.90E-02
	306.78	94.00	4.75E-02		-4.18E-03	2.26E-02
TA-182	67.75	41.20	1.92E-01	1.92E-01	8.60E-02	9.38E-02
	1121.30	34.90	4.42E-01		5.57E-01	2.11E-01
	1189.05	16.23	5.93E-01		-7.43E-02	2.74E-01
	1221.41	26.98	4.34E-01		-9.38E-03	2.03E-01
	1231.02	11.44	1.04E+00		6.20E-02	4.85E-01
IR-192	308.46	29.68	2.07E-01	1.69E-01	-1.28E-02	9.82E-02
	468.07	48.10	1.69E-01		-9.98E-04	8.01E-02
HG-203	279.19	77.30	1.15E-01	1.15E-01	1.57E-02	5.54E-02

Analysis Report for 1510093-03  
CP5002S03-04

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	6.12E-02	6.12E-02	5.37E-03	2.88E-02
	1063.62	74.90	1.03E-01		3.75E-02	4.78E-02
+ TL-208	583.14 *	30.22	3.20E-01	1.71E-01	1.48E+00	1.54E-01
	860.37	4.48	1.68E+00		7.49E-01	7.90E-01
	2614.66 *	35.85	1.71E-01		9.78E-01	7.28E-02
BI-210M	262.00	45.00	1.02E-01	1.02E-01	-1.81E-02	4.89E-02
	300.00	23.00	2.32E-01		1.45E-01	1.11E-01
PB-210	46.50	4.25	1.98E+00	1.98E+00	1.10E-01	9.66E-01
+ PB-211	404.84 *	2.90	1.77E+00	1.77E+00	1.07E+00	8.42E-01
	831.96	2.90	2.46E+00		-5.66E-01	1.15E+00
+ BI-212	727.17 *	11.80	8.59E-01	8.59E-01	8.76E-01	4.12E-01
	1620.62	2.75	1.92E+00		1.02E-01	8.21E-01
+ PB-212	238.63 *	44.60	2.49E-01	2.49E-01	1.56E+00	1.22E-01
	300.09	3.41	1.56E+00		9.77E-01	7.51E-01
+ BI-214	609.31 *	46.30	2.32E-01	5.06E-02	1.27E+00	1.12E-01
	1120.29 *	15.10	9.75E-01		1.16E+00	4.68E-01
	1764.49 *	15.80	5.06E-02		1.36E+00	0.00E+00
	2204.22 *	4.98	1.09E+00		1.45E+00	4.54E-01
+ PB-214	295.21 *	19.19	4.16E-01	2.28E-01	1.36E+00	2.03E-01
	351.92 *	37.19	2.28E-01		1.54E+00	1.11E-01
RN-219	401.80	6.50	8.29E-01	8.29E-01	-1.09E-01	3.94E-01
RA-223	323.87	3.88	1.30E+00	1.30E+00	2.58E-01	6.19E-01
+ RA-224	240.98 *	3.95	2.79E+00	2.79E+00	3.48E+00	1.37E+00
RA-225	40.00	31.00	1.57E+00	1.57E+00	-9.79E-01	7.64E-01
+ RA-226	186.21 *	3.28	2.55E+00	2.55E+00	3.14E+00	1.25E+00
TH-227	50.10	8.40	8.45E-01	5.64E-01	-1.73E+00	4.12E-01
	236.00	11.50	5.64E-01		-5.11E+00	2.74E-01
	256.20	6.30	7.78E-01		-2.84E-01	3.74E-01
+ AC-228	338.32 *	11.40	6.86E-01	3.65E-01	1.84E+00	3.33E-01
	911.07 *	27.70	3.65E-01		1.26E+00	1.74E-01
	969.11 *	16.60	7.61E-01		1.42E+00	3.65E-01
TH-230	48.44	16.90	4.72E-01	4.72E-01	2.52E-01	2.30E-01
	62.85	4.60	1.63E+00		3.00E+00	8.01E-01
	67.67	0.37	1.74E+01		7.79E+00	8.50E+00
PA-231	283.67	1.60	2.98E+00	2.15E+00	-1.04E+00	1.43E+00
	302.67	2.30	2.15E+00		2.92E-01	1.03E+00
TH-231	25.64	14.70	3.90E+00	9.47E-01	1.69E-01	1.90E+00
	84.21	6.40	9.47E-01		-1.91E+00	4.64E-01
PA-233	311.98	38.60	2.94E-01	2.94E-01	6.31E-02	1.40E-01
PA-234	131.20	20.40	2.38E-01	2.38E-01	5.38E-02	1.16E-01
	733.99	8.80	7.60E-01		-1.16E-02	3.57E-01
	946.00	12.00	5.65E-01		-2.31E-01	2.61E-01
PA-234M	1001.03	0.92	7.57E+00	7.57E+00	-5.91E-01	3.50E+00
+ TH-234	63.29 *	3.80	2.44E+00	2.44E+00	1.40E+00	1.20E+00
U-235	143.76	10.50	4.90E-01	4.90E-01	2.46E-01	2.39E-01
	163.35	4.70	1.02E+00		-1.61E-01	4.95E-01
	205.31	4.70	1.09E+00		2.52E-01	5.26E-01
+ NP-237	86.50 *	12.60	1.04E+00	1.04E+00	8.29E-01	5.14E-01
NP-239	106.10	22.70	4.72E+03	4.72E+03	-1.79E+02	2.30E+03
	228.18	10.70	1.12E+04		-1.62E+03	5.40E+03
	277.60	14.10	8.87E+03		1.54E+03	4.27E+03
AM-241	59.54	35.90	1.87E-01	1.87E-01	1.47E-02	9.14E-02
+ AM-243	74.67 *	66.00	1.77E-01	1.77E-01	3.37E-01	8.75E-02

Analysis Report for 1510093-03  
 CP5002S03-04

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
CM-243	209.75	3.29	1.74E+00	3.86E-01	1.18E+00	8.43E-01
	228.14	10.60	4.88E-01		-7.07E-02	2.36E-01
	277.60	14.00	3.86E-01		6.70E-02	1.86E-01

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

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.

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S03-04

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	3	55	110	100	92	89	86
25:	71	80	89	75	73	75	73	67
33:	89	74	71	81	81	68	61	76
41:	84	79	88	97	73	109	153	110
49:	73	106	98	89	128	111	113	105
57:	94	107	138	127	149	138	191	269
65:	168	133	167	149	156	136	140	164
73:	176	184	472	358	411	589	150	139
81:	139	129	93	151	182	149	203	276
89:	141	182	177	147	298	242	131	106
97:	94	93	115	105	84	74	83	83
105:	107	88	91	73	93	84	104	99
113:	93	91	97	89	78	65	69	76
121:	86	85	74	92	86	67	78	89
129:	122	112	68	75	93	84	81	76
137:	87	85	104	86	95	97	77	98
145:	101	77	70	76	83	80	86	78
153:	74	72	93	76	79	65	79	62
161:	72	56	75	69	82	61	71	84
169:	82	55	74	64	54	70	68	70
177:	74	55	65	64	55	65	62	60
185:	72	179	164	70	58	59	64	52
193:	47	55	59	59	60	60	73	68
201:	55	74	53	60	52	74	57	56
209:	65	118	61	65	63	50	43	64
217:	57	52	54	47	57	62	53	54
225:	61	60	45	57	54	51	62	47
233:	70	50	44	66	67	182	684	298
241:	118	163	104	39	50	36	45	36
249:	49	43	49	48	43	36	30	41
257:	52	46	57	36	32	31	35	40
265:	47	37	42	28	48	59	80	36
273:	27	46	52	43	41	62	40	38
281:	38	38	39	30	29	32	37	39
289:	27	43	38	42	34	43	179	234
297:	42	31	40	48	47	30	33	22
305:	34	22	27	26	22	31	23	24
313:	27	39	21	35	37	28	24	30
321:	33	33	30	46	24	22	37	53
329:	41	30	28	35	35	29	23	28
337:	33	102	155	46	30	24	26	21
345:	27	30	28	25	24	35	86	371
353:	244	44	22	16	20	19	21	15
361:	16	18	21	22	28	23	32	24

369: 23 25 32 17 21 25 26 25

Sample Title: CP5002S03-04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	31	15	26	26	21	22	32	27
385:	22	20	24	22	24	29	20	19
393:	20	19	25	24	37	21	27	20
401:	22	31	24	33	34	25	15	16
409:	32	43	19	20	20	22	33	24
417:	18	24	23	20	17	22	26	15
425:	23	23	20	21	15	13	16	18
433:	22	15	21	15	21	21	21	21
441:	10	15	16	23	14	15	17	26
449:	14	23	18	18	20	24	22	18
457:	16	18	14	23	21	26	45	55
465:	15	22	24	17	15	11	20	12
473:	19	27	20	17	12	17	20	24
481:	19	19	19	11	18	18	22	26
489:	25	12	9	17	18	16	13	15
497:	16	25	17	24	13	19	13	23
505:	22	18	14	30	22	34	102	52
513:	26	17	19	10	16	20	24	13
521:	11	11	14	11	18	13	13	17
529:	12	20	13	13	18	21	15	17
537:	10	11	16	17	20	10	20	10
545:	8	13	19	15	13	11	16	9
553:	21	13	18	15	10	13	16	23
561:	12	9	18	22	11	12	21	6
569:	13	20	7	12	14	10	17	11
577:	14	13	10	14	15	31	151	178
585:	48	15	18	15	17	24	12	13
593:	9	15	8	16	11	11	8	12
601:	12	13	16	19	11	15	20	28
609:	172	266	60	13	12	15	19	14
617:	13	18	8	14	20	8	9	10
625:	8	15	14	13	10	19	19	8
633:	13	5	9	13	9	12	17	7
641:	10	16	14	8	10	10	14	13
649:	14	9	13	9	9	13	10	17
657:	8	12	15	9	7	10	14	19
665:	6	14	10	12	8	17	12	7
673:	8	14	18	8	7	12	12	9
681:	18	16	11	15	12	15	16	6
689:	17	16	14	10	19	14	8	6
697:	14	14	6	12	18	7	16	25
705:	19	18	17	13	16	10	8	9
713:	11	11	19	16	14	11	13	15
721:	15	10	7	9	9	10	34	47
729:	23	11	14	10	12	15	7	11
737:	9	11	10	10	13	11	10	7
745:	9	11	11	12	15	8	10	6
753:	4	16	11	14	10	13	8	7
761:	6	11	11	16	16	10	11	34
769:	26	15	13	17	25	10	9	10
777:	3	4	12	8	8	13	10	6
785:	11	24	16	8	12	12	4	3
793:	10	15	21	20	13	12	5	14



801: 9 8 7 7 12 9 17 5

Sample Title: CP5002S03-04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	7	12	8	4	14	2	10	6
817:	8	6	9	12	9	14	10	7
825:	9	9	9	10	8	6	13	12
833:	12	12	9	19	8	8	13	20
841:	13	8	8	6	9	9	7	7
849:	14	13	5	5	10	17	4	7
857:	7	10	10	14	18	8	10	6
865:	15	3	8	8	8	8	9	11
873:	12	8	9	14	3	9	14	7
881:	11	8	13	5	3	8	9	12
889:	5	7	11	6	11	9	8	2
897:	6	8	6	6	4	9	5	8
905:	18	7	7	7	10	19	81	87
913:	31	7	8	6	12	3	12	7
921:	8	7	13	11	2	3	10	3
929:	11	5	5	7	7	15	23	9
937:	10	9	10	11	5	10	6	4
945:	10	7	5	7	13	9	14	5
953:	12	5	9	6	3	5	8	4
961:	8	5	10	18	27	18	18	22
969:	62	48	11	9	7	8	10	8
977:	10	7	7	6	8	8	4	5
985:	5	4	8	9	6	10	8	8
993:	7	7	4	8	6	4	11	5
1001:	7	5	9	9	5	11	6	7
1009:	8	3	7	9	8	5	7	9
1017:	9	5	13	4	7	10	8	8
1025:	9	8	10	8	6	7	9	7
1033:	10	8	6	8	5	4	3	5
1041:	6	6	7	11	8	7	5	9
1049:	12	9	4	4	6	5	6	6
1057:	6	6	6	4	1	9	13	6
1065:	9	11	7	5	9	7	14	8
1073:	10	5	9	3	6	6	10	10
1081:	11	7	6	12	11	3	4	6
1089:	8	10	11	5	8	7	14	8
1097:	5	7	4	9	1	5	9	3
1105:	4	12	9	6	10	8	11	7
1113:	1	7	8	10	7	6	11	37
1121:	63	16	6	5	10	12	15	7
1129:	3	5	7	6	4	6	9	8
1137:	14	8	7	8	9	9	11	11
1145:	7	4	4	8	10	5	6	11
1153:	8	6	15	16	11	4	9	7
1161:	8	5	3	8	8	7	7	7
1169:	8	6	10	8	13	7	9	9
1177:	6	6	5	7	12	9	4	8
1185:	8	6	7	4	7	5	8	11
1193:	11	3	6	5	8	9	7	8
1201:	5	5	12	11	11	5	8	8
1209:	11	5	6	8	5	8	7	11
1217:	6	8	7	9	14	13	9	10
1225:	13	10	11	9	5	11	12	11

1233: 11 12 5 16 22 20 25 13

Sample Title: CP5002S03-04

Channel	11	12	5	16	22	20	25	13
1241:	6	14	7	11	5	9	11	6
1249:	6	6	7	2	3	5	10	4
1257:	5	10	6	11	3	5	4	5
1265:	5	8	6	8	4	8	5	9
1273:	6	3	5	5	4	5	3	3
1281:	7	7	5	1	2	4	12	8
1289:	5	5	5	4	11	4	7	3
1297:	4	5	7	4	5	5	2	9
1305:	5	12	3	4	6	3	1	4
1313:	4	9	4	4	7	4	6	9
1321:	3	4	10	7	3	3	5	3
1329:	4	5	4	5	4	5	0	4
1337:	7	3	3	5	5	4	5	2
1345:	1	5	5	9	4	1	3	2
1353:	1	4	1	2	2	9	0	6
1361:	3	4	2	6	2	3	2	3
1369:	2	3	4	3	4	4	8	4
1377:	18	11	10	4	4	1	4	6
1385:	5	5	4	5	3	3	1	1
1393:	2	1	2	1	5	1	2	1
1401:	3	6	7	2	5	7	6	9
1409:	6	4	6	5	4	2	3	6
1417:	0	1	4	5	5	4	3	1
1425:	6	1	1	4	2	3	4	4
1433:	4	4	3	5	2	5	6	4
1441:	2	2	5	4	3	5	2	3
1449:	1	5	5	2	3	6	4	2
1457:	5	5	32	159	355	218	43	2
1465:	2	2	2	5	2	1	3	3
1473:	1	2	1	2	0	6	1	4
1481:	4	4	5	5	2	3	1	5
1489:	1	3	0	2	2	5	7	5
1497:	1	2	3	2	4	2	1	0
1505:	0	2	0	3	4	12	3	1
1513:	2	3	4	4	1	4	3	1
1521:	3	1	1	2	0	1	1	2
1529:	3	1	0	2	3	3	1	3
1537:	0	3	3	4	1	3	2	3
1545:	4	0	0	2	2	2	2	2
1553:	3	2	2	1	1	1	4	1
1561:	3	1	2	1	1	2	2	2
1569:	1	3	3	1	2	1	3	1
1577:	3	2	1	2	3	3	5	6
1585:	4	3	4	4	9	5	3	5
1593:	8	1	0	0	1	4	0	1
1601:	0	0	0	1	0	1	2	1
1609:	3	1	1	0	2	1	1	0
1617:	0	0	2	1	5	3	1	3
1625:	3	4	2	0	1	7	9	2
1633:	4	2	1	0	0	4	0	2
1641:	3	2	0	3	0	0	4	2
1649:	2	0	0	0	2	2	1	1
1657:	2	4	0	1	1	6	3	2

1665: 2 0 0 4 1 2 1 3

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8
1673:	2	0	2	2	1	0	2	3
1681:	1	1	2	0	0	2	1	0
1689:	2	1	1	0	3	1	2	0
1697:	1	0	1	0	2	1	1	1
1705:	1	4	1	0	1	2	1	0
1713:	1	2	0	0	3	2	0	0
1721:	0	1	2	2	0	1	1	1
1729:	6	6	2	2	4	2	2	0
1737:	1	1	0	2	0	4	0	2
1745:	0	0	0	1	1	3	1	2
1753:	1	1	0	2	2	2	0	0
1761:	0	0	2	22	33	12	1	2
1769:	1	0	0	2	1	0	0	1
1777:	2	1	0	1	0	2	2	0
1785:	1	1	1	2	2	1	2	2
1793:	0	2	2	1	2	3	1	2
1801:	2	2	1	1	2	1	1	2
1809:	4	3	0	2	0	0	0	2
1817:	2	0	0	1	0	1	2	1
1825:	2	1	0	2	1	3	0	2
1833:	2	0	2	2	1	5	0	1
1841:	1	2	1	0	1	3	5	5
1849:	3	1	0	1	0	1	1	2
1857:	3	3	1	3	0	0	1	2
1865:	2	1	3	2	2	0	0	1
1873:	3	2	1	1	2	0	2	1
1881:	1	1	2	0	3	0	3	0
1889:	3	2	3	2	2	0	3	1
1897:	2	1	1	3	1	1	1	0
1905:	3	0	0	1	2	0	2	0
1913:	1	1	1	2	0	0	1	1
1921:	1	0	0	0	0	1	0	3
1929:	2	2	1	0	1	0	3	3
1937:	1	1	5	0	2	0	1	4
1945:	0	2	2	0	1	1	4	3
1953:	1	2	0	1	0	3	2	1
1961:	4	0	1	1	1	1	1	0
1969:	0	2	1	2	1	3	2	0
1977:	0	0	0	1	0	0	0	2
1985:	1	1	3	1	0	1	1	1
1993:	0	0	0	2	1	1	2	1
2001:	1	1	1	0	0	1	1	1
2009:	1	1	2	1	2	1	0	0
2017:	1	3	1	1	1	1	1	2
2025:	1	0	1	1	1	2	3	0
2033:	3	0	1	1	2	1	1	1
2041:	1	0	2	0	0	2	1	2
2049:	0	3	3	0	2	1	1	2
2057:	0	0	0	3	0	0	3	2
2065:	2	1	0	2	1	1	0	3
2073:	0	1	1	0	0	1	1	2
2081:	3	1	1	1	2	0	0	1
2089:	2	2	0	0	0	1	1	5

2097: 2 1 3 1 1 3 4 7

Sample Title: CP5002S03-04

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

2529: 0 2 0 1 0 1 1 0

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8
2537:	1	0	2	1	0	3	0	1
2545:	0	1	1	0	1	0	0	1
2553:	0	2	1	0	1	0	0	1
2561:	0	0	1	1	1	1	2	0
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	1	1	1	1	0
2585:	1	0	2	0	0	0	0	0
2593:	0	0	1	0	0	0	0	0
2601:	0	0	0	0	1	1	0	1
2609:	0	1	2	6	22	35	24	19
2617:	2	0	1	0	2	1	0	0
2625:	1	0	2	0	1	0	0	1
2633:	1	1	0	0	1	0	1	0
2641:	0	1	0	0	0	0	0	2
2649:	2	0	0	0	0	1	1	1
2657:	2	0	1	0	0	0	0	0
2665:	0	0	0	1	0	1	0	1
2673:	0	0	0	0	1	1	1	0
2681:	0	1	1	0	0	0	1	0
2689:	0	0	1	0	1	0	1	0
2697:	0	0	1	1	1	0	1	0
2705:	0	0	0	0	0	1	0	1
2713:	0	0	2	0	0	1	0	0
2721:	1	1	1	0	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	1	0	0	0
2745:	0	0	0	0	0	0	1	1
2753:	0	0	0	0	2	0	1	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	0	0	0	0	1	0	1
2785:	0	1	1	1	0	0	0	0
2793:	0	1	0	0	1	1	1	2
2801:	0	0	0	0	0	0	0	0
2809:	0	1	0	0	0	0	0	0
2817:	0	1	0	0	0	0	0	0
2825:	0	0	0	0	0	1	0	0
2833:	0	1	1	0	0	0	0	0
2841:	0	0	0	3	0	0	0	0
2849:	0	0	0	0	0	0	0	1
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	1	1
2873:	0	0	1	0	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	1	0	0	0	0	1	1
2897:	0	1	0	1	1	1	0	1
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	1	1	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	0	0	0	1	0	2	0
2945:	0	0	1	0	0	0	1	0
2953:	0	0	0	0	0	0	0	0

2961: 0 0 0 0 0 1 0 1

Sample Title: CP5002S03-04

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP5002S03-04

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

3825: 0 0 0 0 0 0 0 0 0

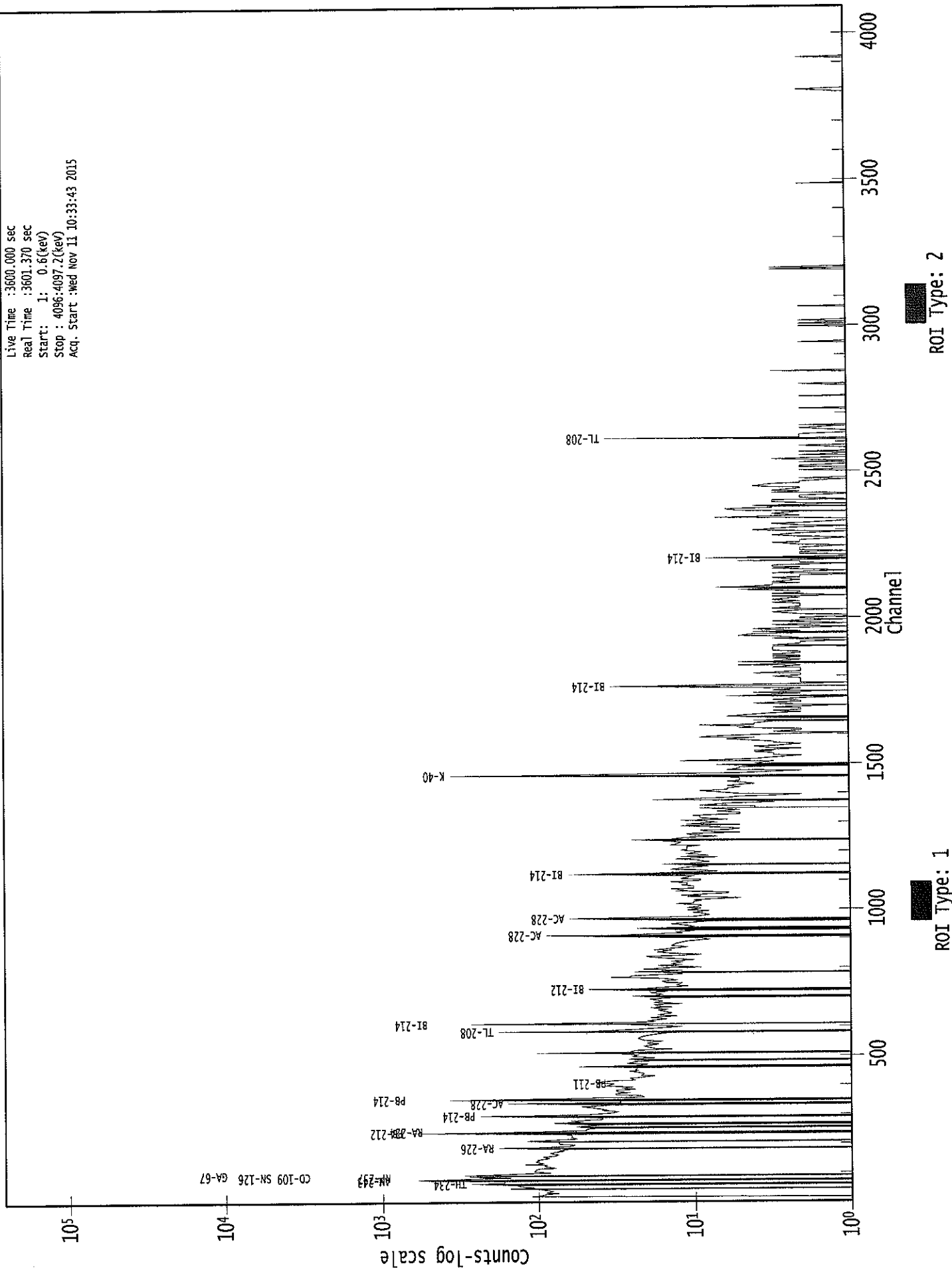
Sample Title: CP5002S03-04

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



# 0000029476.CNF

Live Time : 3600.000 sec  
Real Time : 3601.370 sec  
Start: 1: 0.6(keV)  
Stop : 4096.4097.2(keV)  
Acq. Start : Wed Nov 11 10:33:43 2015



KCB  
11/11/15Analysis Report for 1510093-04  
CP5002S03-04

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-04  
Sample Description : CP5002S03-04  
Sample Type : SOIL

Sample Size : 5.786E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:28:32AM  
Acquisition Started : 11/11/2015 11:34:06AM

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 : 29481

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15

Analysis Report for 1510093-04  
CP5002S03-04

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 12:34:14PM  
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	62.88	63.23	0.0000	0.00
2	76.36	76.71	0.0000	0.00
3	87.80	88.13	0.0000	0.00
4	93.15	93.48	0.0000	0.00
5	99.20	99.53	0.0000	0.00
6	130.37	130.70	0.0000	0.00
7	153.39	153.71	0.0000	0.00
8	186.09	186.40	0.0000	0.00
9	209.61	209.91	0.0000	0.00
10	238.79	239.08	0.0000	0.00
11	242.07	242.36	0.0000	0.00
12	270.29	270.56	0.0000	0.00
13	295.48	295.74	0.0000	0.00
14	300.29	300.55	0.0000	0.00
15	338.74	338.99	0.0000	0.00
16	352.13	352.38	0.0000	0.00
17	463.40	463.61	0.0000	0.00
18	487.15	487.35	0.0000	0.00
19	510.55	510.75	0.0000	0.00
20	545.05	545.24	0.0000	0.00
21	583.43	583.60	0.0000	0.00
22	609.63	609.79	0.0000	0.00
23	677.01	677.14	0.0000	0.00
24	727.43	727.55	0.0000	0.00
25	768.37	768.48	0.0000	0.00
26	795.36	795.46	0.0000	0.00
27	835.60	835.68	0.0000	0.00
28	839.56	839.64	0.0000	0.00
29	861.00	861.08	0.0000	0.00
30	899.18	899.24	0.0000	0.00
31	911.72	911.78	0.0000	0.00
32	934.60	934.65	0.0000	0.00
33	969.59	969.63	0.0000	0.00
34	1120.65	1120.63	0.0000	0.00
35	1238.78	1238.72	0.0000	0.00
36	1347.09	1346.99	0.0000	0.00
37	1379.72	1379.61	0.0000	0.00
38	1404.04	1403.92	0.0000	0.00
39	1461.34	1461.20	0.0000	0.00
40	1508.16	1508.00	0.0000	0.00
41	1588.56	1588.37	0.0000	0.00
42	1601.87	1601.67	0.0000	0.00

Analysis Report for 1510093-04  
CP5002S03-04

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1661.40	1661.18	0.0000	0.00
44	1729.81	1729.57	0.0000	0.00
45	1764.95	1764.69	0.0000	0.00
46	1799.25	1798.98	0.0000	0.00
47	1847.26	1846.97	0.0000	0.00
48	2071.31	2070.94	0.0000	0.00
49	2104.23	2103.85	0.0000	0.00
50	2204.74	2204.31	0.0000	0.00
51	2364.78	2364.29	0.0000	0.00
52	2447.52	2447.00	0.0000	0.00
53	2452.54	2452.02	0.0000	0.00
54	2615.13	2614.55	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-04  
CP5002S03-04

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 12:34:14PM

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	62.88	59 -	66	63.23	2.98E+02	115.98	2.05E+03	1.28
2	76.36	72 -	82	76.71	1.44E+03	168.21	2.97E+03	3.77
m 3	87.80	83 -	91	88.13	2.50E+02	74.14	1.16E+03	1.48
4	93.15	91 -	97	93.48	2.23E+02	107.46	1.81E+03	1.78
5	99.20	98 -	103	99.53	8.47E+01	74.26	1.03E+03	2.22
6	130.37	126 -	134	130.70	1.59E+02	99.94	1.43E+03	3.70
7	153.39	151 -	156	153.71	6.65E+01	67.90	8.67E+02	1.63
8	186.09	182 -	190	186.40	2.56E+02	90.67	1.10E+03	1.80
9	209.61	208 -	213	209.91	6.04E+01	61.51	7.09E+02	1.85
M 10	238.79	234 -	251	239.08	1.11E+03	81.71	4.93E+02	1.61
m 11	242.07	234 -	251	242.36	3.07E+02	91.80	5.97E+02	2.46
12	270.29	267 -	273	270.56	8.78E+01	57.04	5.26E+02	1.97
M 13	295.48	292 -	304	295.74	3.72E+02	53.22	3.22E+02	1.53
m 14	300.29	292 -	304	300.55	9.44E+01	51.80	3.83E+02	2.50
15	338.74	335 -	344	338.99	2.57E+02	69.61	5.46E+02	1.73
16	352.13	348 -	357	352.38	5.82E+02	79.67	5.72E+02	1.88
17	463.40	459 -	467	463.61	9.47E+01	45.46	2.57E+02	2.13
18	487.15	485 -	490	487.35	3.32E+01	26.42	1.12E+02	3.56
19	510.55	506 -	515	510.75	2.11E+02	53.65	2.91E+02	2.06
20	545.05	542 -	549	545.24	3.47E+01	32.80	1.57E+02	3.60
21	583.43	579 -	589	583.60	3.34E+02	54.61	2.18E+02	1.82
22	609.63	605 -	614	609.79	4.83E+02	64.56	3.19E+02	1.54
23	677.01	674 -	681	677.14	2.64E+01	30.27	1.33E+02	2.33
24	727.43	724 -	731	727.55	8.08E+01	36.82	1.72E+02	1.96
25	768.37	764 -	771	768.48	5.19E+01	33.11	1.48E+02	1.39
26	795.36	791 -	798	795.46	3.59E+01	30.92	1.34E+02	3.39
M 27	835.60	834 -	844	835.68	1.54E+01	17.55	6.96E+01	2.09
m 28	839.56	834 -	844	839.64	4.28E+01	28.13	1.00E+02	2.34
29	861.00	858 -	864	861.08	3.45E+01	26.44	1.03E+02	1.79
30	899.18	897 -	902	899.24	1.57E+01	19.31	6.07E+01	2.46
31	911.72	908 -	917	911.78	2.36E+02	44.24	1.44E+02	2.07
32	934.60	931 -	939	934.65	2.54E+01	28.88	1.13E+02	1.52
33	969.59	966 -	974	969.63	1.22E+02	41.02	1.62E+02	2.06
34	1120.65	1116 -	1125	1120.63	7.10E+01	38.87	1.76E+02	2.03
35	1238.78	1235 -	1246	1238.72	4.40E+01	40.99	1.94E+02	2.62
36	1347.09	1344 -	1350	1346.99	1.47E+01	14.35	2.47E+01	1.19
37	1379.72	1372 -	1387	1379.61	2.75E+01	33.76	9.89E+01	2.69
38	1404.04	1395 -	1410	1403.92	3.37E+01	31.81	8.66E+01	9.30
39	1461.34	1456 -	1466	1461.20	8.53E+02	60.86	3.93E+01	2.19
40	1508.16	1502 -	1513	1508.00	2.00E+01	16.49	2.40E+01	3.90

Analysis Report for 1510093-04  
CP5002S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1588.56	1584 -	1606	1588.37	1.91E+01	18.16	4.35E+01	3.61
m	42	1601.87	1584 -	1606	1601.67	8.65E+00	16.84	7.09E+00	3.62
	43	1661.40	1657 -	1666	1661.18	1.52E+01	9.85	5.61E+00	3.91
	44	1729.81	1725 -	1734	1729.57	2.38E+01	14.11	1.44E+01	2.21
	45	1764.95	1758 -	1769	1764.69	6.76E+01	23.58	3.47E+01	2.32
	46	1799.25	1795 -	1802	1798.98	9.20E+00	10.39	1.16E+01	1.08
	47	1847.26	1842 -	1851	1846.97	1.82E+01	13.23	1.37E+01	1.66
	48	2071.31	2068 -	2073	2070.94	5.50E+00	6.08	3.00E+00	2.37
	49	2104.23	2099 -	2107	2103.85	1.90E+01	13.89	1.80E+01	3.72
	50	2204.74	2199 -	2209	2204.31	2.60E+01	13.58	1.01E+01	2.24
	51	2364.78	2361 -	2367	2364.29	6.00E+00	7.78	6.00E+00	1.47
M	52	2447.52	2444 -	2454	2447.00	1.51E+01	7.55	4.20E+00	2.78
m	53	2452.54	2444 -	2454	2452.02	7.86E+00	6.71	1.10E+00	2.78
	54	2615.13	2611 -	2618	2614.55	1.47E+02	24.25	0.00E+00	2.36

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 : 11/11/2015 12:34:14PM

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	62.88	59 -	66	2.98E+02	115.98	2.05E+03	9.10E+01
	2	76.36	72 -	82	1.44E+03	168.21	2.97E+03	1.23E+02
m	3	87.80	83 -	91	2.50E+02	74.14	1.16E+03	5.59E+01
	4	93.15	91 -	97	2.23E+02	107.46	1.81E+03	8.49E+01
	5	99.20	98 -	103	8.47E+01	74.26	1.03E+03	5.91E+01
	6	130.37	126 -	134	1.59E+02	99.94	1.43E+03	7.95E+01
	7	153.39	151 -	156	6.65E+01	67.90	8.67E+02	5.42E+01
	8	186.09	182 -	190	2.56E+02	90.67	1.10E+03	6.97E+01
	9	209.61	208 -	213	6.04E+01	61.51	7.09E+02	4.89E+01
M	10	238.79	234 -	251	1.11E+03	81.71	4.93E+02	3.65E+01
m	11	242.07	234 -	251	3.07E+02	91.80	5.97E+02	4.02E+01
	12	270.29	267 -	273	8.78E+01	57.04	5.26E+02	4.43E+01
M	13	295.48	292 -	304	3.72E+02	53.22	3.22E+02	2.95E+01
m	14	300.29	292 -	304	9.44E+01	51.80	3.83E+02	3.22E+01

Analysis Report for 1510093-04

CP5002S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
15	338.74	335 -	344	2.57E+02	69.61	5.46E+02	2.71E+01
16	352.13	348 -	357	5.82E+02	79.67	5.72E+02	5.21E+01
17	463.40	459 -	467	9.47E+01	45.46	2.57E+02	3.38E+01
18	487.15	485 -	490	3.32E+01	26.42	1.12E+02	1.95E+01
19	510.55	506 -	515	2.11E+02	53.65	2.91E+02	3.71E+01
20	545.05	542 -	549	3.47E+01	32.80	1.57E+02	2.52E+01
21	583.43	579 -	589	3.34E+02	54.61	2.18E+02	3.34E+01
22	609.63	605 -	614	4.83E+02	64.56	3.19E+02	3.89E+01
23	677.01	674 -	681	2.64E+01	30.27	1.33E+02	2.34E+01
24	727.43	724 -	731	8.08E+01	36.82	1.72E+02	2.64E+01
25	768.37	764 -	771	5.19E+01	33.11	1.48E+02	2.45E+01
26	795.36	791 -	798	3.59E+01	30.92	1.34E+02	2.34E+01
M	835.60	834 -	844	1.54E+01	17.55	6.96E+01	1.37E+01
m	839.56	834 -	844	4.28E+01	28.13	1.00E+02	1.65E+01
29	861.00	858 -	864	3.45E+01	26.44	1.03E+02	1.95E+01
30	899.18	897 -	902	1.57E+01	19.31	6.07E+01	1.45E+01
31	911.72	908 -	917	2.36E+02	44.24	1.44E+02	2.62E+01
32	934.60	931 -	939	2.54E+01	28.88	1.13E+02	2.23E+01
33	969.59	966 -	974	1.22E+02	41.02	1.62E+02	2.84E+01
34	1120.65	1116 -	1125	7.10E+01	38.87	1.76E+02	2.88E+01
35	1238.78	1235 -	1246	4.40E+01	40.99	1.94E+02	3.19E+01
36	1347.09	1344 -	1350	1.47E+01	14.35	2.47E+01	9.98E+00
37	1379.72	1372 -	1387	2.75E+01	33.76	9.89E+01	2.64E+01
38	1404.04	1395 -	1410	3.37E+01	31.81	8.66E+01	2.43E+01
39	1461.34	1456 -	1466	8.53E+02	60.86	3.93E+01	1.40E+01
40	1508.16	1502 -	1513	2.00E+01	16.49	2.40E+01	1.14E+01
M	1588.56	1584 -	1606	1.91E+01	18.16	4.35E+01	1.08E+01
m	1601.87	1584 -	1606	8.65E+00	16.84	7.09E+00	4.38E+00
43	1661.40	1657 -	1666	1.52E+01	9.85	5.61E+00	4.95E+00
44	1729.81	1725 -	1734	2.38E+01	14.11	1.44E+01	8.37E+00
45	1764.95	1758 -	1769	6.76E+01	23.58	3.47E+01	1.39E+01
46	1799.25	1795 -	1802	9.20E+00	10.39	1.16E+01	6.94E+00
47	1847.26	1842 -	1851	1.82E+01	13.23	1.37E+01	8.32E+00
48	2071.31	2068 -	2073	5.50E+00	6.08	3.00E+00	3.18E+00
49	2104.23	2099 -	2107	1.90E+01	13.89	1.80E+01	8.89E+00
50	2204.74	2199 -	2209	2.60E+01	13.58	1.01E+01	7.38E+00
51	2364.78	2361 -	2367	6.00E+00	7.78	6.00E+00	4.97E+00
M	2447.52	2444 -	2454	1.51E+01	7.55	4.20E+00	3.37E+00
m	2452.54	2444 -	2454	7.86E+00	6.71	1.10E+00	1.72E+00
54	2615.13	2611 -	2618	1.47E+02	24.25	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 1510093-04  
CP5002S03-04

## PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 12:34:14PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

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

Peak Match Tolerance : 1.000 keV

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	62.88	59 -	66	63.23	2.98E+02	115.98	2.05E+03	TH-230 TH-234
2	76.36	72 -	82	76.71	1.44E+03	168.21	2.97E+03	.....
m 3	87.80	83 -	91	88.13	2.50E+02	74.14	1.16E+03	SN-126 CD-109 LU-176
4	93.15	91 -	97	93.48	2.23E+02	107.46	1.81E+03	GA-67
5	99.20	98 -	103	99.53	8.47E+01	74.26	1.03E+03	.....
6	130.37	126 -	134	130.70	1.59E+02	99.94	1.43E+03	PA-234
7	153.39	151 -	156	153.71	6.65E+01	67.90	8.67E+02	CS-136
8	186.09	182 -	190	186.40	2.56E+02	90.67	1.10E+03	RA-226
9	209.61	208 -	213	209.91	6.04E+01	61.51	7.09E+02	CM-243 GA-67
M 10	238.79	234 -	251	239.08	1.11E+03	81.71	4.93E+02	PB-212
m 11	242.07	234 -	251	242.36	3.07E+02	91.80	5.97E+02	.....
12	270.29	267 -	273	270.56	8.78E+01	57.04	5.26E+02	.....
M 13	295.48	292 -	304	295.74	3.72E+02	53.22	3.22E+02	PB-214
m 14	300.29	292 -	304	300.55	9.44E+01	51.80	3.83E+02	GA-67 PB-212 BI-210M
15	338.74	335 -	344	338.99	2.57E+02	69.61	5.46E+02	AC-228
16	352.13	348 -	357	352.38	5.82E+02	79.67	5.72E+02	PB-214
17	463.40	459 -	467	463.61	9.47E+01	45.46	2.57E+02	SB-125
18	487.15	485 -	490	487.35	3.32E+01	26.42	1.12E+02	LA-140
19	510.55	506 -	515	510.75	2.11E+02	53.65	2.91E+02	.....
20	545.05	542 -	549	545.24	3.47E+01	32.80	1.57E+02	.....
21	583.43	579 -	589	583.60	3.34E+02	54.61	2.18E+02	TL-208
22	609.63	605 -	614	609.79	4.83E+02	64.56	3.19E+02	BI-214
23	677.01	674 -	681	677.14	2.64E+01	30.27	1.33E+02	AG-110M
24	727.43	724 -	731	727.55	8.08E+01	36.82	1.72E+02	BI-212
25	768.37	764 -	771	768.48	5.19E+01	33.11	1.48E+02	.....
26	795.36	791 -	798	795.46	3.59E+01	30.92	1.34E+02	CS-134
M 27	835.60	834 -	844	835.68	1.54E+01	17.55	6.96E+01	MN-54
m 28	839.56	834 -	844	839.64	4.28E+01	28.13	1.00E+02	.....
29	861.00	858 -	864	861.08	3.45E+01	26.44	1.03E+02	TL-208
30	899.18	897 -	902	899.24	1.57E+01	19.31	6.07E+01	.....
31	911.72	908 -	917	911.78	2.36E+02	44.24	1.44E+02	LU-172 AC-228
32	934.60	931 -	939	934.65	2.54E+01	28.88	1.13E+02	.....
33	969.59	966 -	974	969.63	1.22E+02	41.02	1.62E+02	AC-228
34	1120.65	1116 -	1125	1120.63	7.10E+01	38.87	1.76E+02	SC-46



Analysis Report for 1510093-04  
 CP5002S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								BI-214 TA-182 CO-56
35	1238.78	1235 -	1246	1238.72	4.40E+01	40.99	1.94E+02	.....
36	1347.09	1344 -	1350	1346.99	1.47E+01	14.35	2.47E+01	.....
37	1379.72	1372 -	1387	1379.61	2.75E+01	33.76	9.89E+01	.....
38	1404.04	1395 -	1410	1403.92	3.37E+01	31.81	8.66E+01	.....
39	1461.34	1456 -	1466	1461.20	8.53E+02	60.86	3.93E+01	K-40
40	1508.16	1502 -	1513	1508.00	2.00E+01	16.49	2.40E+01	.....
M 41	1588.56	1584 -	1606	1588.37	1.91E+01	18.16	4.35E+01	.....
m 42	1601.87	1584 -	1606	1601.67	8.65E+00	16.84	7.09E+00	.....
43	1661.40	1657 -	1666	1661.18	1.52E+01	9.85	5.61E+00	.....
44	1729.81	1725 -	1734	1729.57	2.38E+01	14.11	1.44E+01	.....
45	1764.95	1758 -	1769	1764.69	6.76E+01	23.58	3.47E+01	BI-214
46	1799.25	1795 -	1802	1798.98	9.20E+00	10.39	1.16E+01	.....
47	1847.26	1842 -	1851	1846.97	1.82E+01	13.23	1.37E+01	.....
48	2071.31	2068 -	2073	2070.94	5.50E+00	6.08	3.00E+00	.....
49	2104.23	2099 -	2107	2103.85	1.90E+01	13.89	1.80E+01	.....
50	2204.74	2199 -	2209	2204.31	2.60E+01	13.58	1.01E+01	BI-214
51	2364.78	2361 -	2367	2364.29	6.00E+00	7.78	6.00E+00	.....
M 52	2447.52	2444 -	2454	2447.00	1.51E+01	7.55	4.20E+00	.....
m 53	2452.54	2444 -	2454	2452.02	7.86E+00	6.71	1.10E+00	.....
54	2615.13	2611 -	2618	2614.55	1.47E+02	24.25	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 : 11/11/2015 12:34:14PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	62.88	2.98E+02	115.98	2.48E-02	1.90E-03
2	76.36	1.44E+03	168.21	2.77E-02	2.35E-03
m 3	87.80	2.50E+02	74.14	2.85E-02	2.73E-03
4	93.15	2.23E+02	107.46	2.86E-02	2.64E-03
5	99.20	8.47E+01	74.26	2.85E-02	2.52E-03
6	130.37	1.59E+02	99.94	2.66E-02	2.09E-03
7	153.39	6.65E+01	67.90	2.48E-02	2.15E-03
8	186.09	2.56E+02	90.67	2.24E-02	2.03E-03

Analysis Report for 1510093-04  
CP5002S03-04

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	9	209.61	6.04E+01	61.51	2.09E-02	1.85E-03
M	10	238.79	1.11E+03	81.71	1.92E-02	1.64E-03
m	11	242.07	3.07E+02	91.80	1.90E-02	1.61E-03
	12	270.29	8.78E+01	57.04	1.77E-02	1.40E-03
M	13	295.48	3.72E+02	53.22	1.67E-02	1.31E-03
m	14	300.29	9.44E+01	51.80	1.65E-02	1.30E-03
	15	338.74	2.57E+02	69.61	1.52E-02	1.22E-03
	16	352.13	5.82E+02	79.67	1.48E-02	1.19E-03
	17	463.40	9.47E+01	45.46	1.21E-02	1.04E-03
	18	487.15	3.32E+01	26.42	1.17E-02	1.01E-03
	19	510.55	2.11E+02	53.65	1.12E-02	9.91E-04
	20	545.05	3.47E+01	32.80	1.07E-02	9.55E-04
	21	583.43	3.34E+02	54.61	1.02E-02	9.15E-04
	22	609.63	4.83E+02	64.56	9.82E-03	8.88E-04
	23	677.01	2.64E+01	30.27	9.05E-03	8.20E-04
	24	727.43	8.08E+01	36.82	8.55E-03	7.75E-04
	25	768.37	5.19E+01	33.11	8.19E-03	7.39E-04
	26	795.36	3.59E+01	30.92	7.97E-03	7.14E-04
M	27	835.60	1.54E+01	17.55	7.66E-03	6.78E-04
m	28	839.56	4.28E+01	28.13	7.63E-03	6.75E-04
	29	861.00	3.45E+01	26.44	7.48E-03	6.56E-04
	30	899.18	1.57E+01	19.31	7.22E-03	6.22E-04
	31	911.72	2.36E+02	44.24	7.14E-03	6.15E-04
	32	934.60	2.54E+01	28.88	7.00E-03	6.03E-04
	33	969.59	1.22E+02	41.02	6.80E-03	5.85E-04
	34	1120.65	7.10E+01	38.87	6.06E-03	5.06E-04
	35	1238.78	4.40E+01	40.99	5.61E-03	4.68E-04
	36	1347.09	1.47E+01	14.35	5.27E-03	4.48E-04
	37	1379.72	2.75E+01	33.76	5.18E-03	4.39E-04
	38	1404.04	3.37E+01	31.81	5.11E-03	4.33E-04
	39	1461.34	8.53E+02	60.86	4.97E-03	4.19E-04
	40	1508.16	2.00E+01	16.49	4.86E-03	4.07E-04
M	41	1588.56	1.91E+01	18.16	4.69E-03	3.87E-04
m	42	1601.87	8.65E+00	16.84	4.67E-03	3.84E-04
	43	1661.40	1.52E+01	9.85	4.56E-03	3.69E-04
	44	1729.81	2.38E+01	14.11	4.45E-03	3.52E-04
	45	1764.95	6.76E+01	23.58	4.40E-03	3.44E-04
	46	1799.25	9.20E+00	10.39	4.35E-03	3.35E-04
	47	1847.26	1.82E+01	13.23	4.28E-03	3.26E-04
	48	2071.31	5.50E+00	6.08	4.05E-03	3.26E-04
	49	2104.23	1.90E+01	13.89	4.02E-03	3.26E-04
	50	2204.74	2.60E+01	13.58	3.95E-03	3.26E-04
	51	2364.78	6.00E+00	7.78	3.86E-03	3.26E-04
M	52	2447.52	1.51E+01	7.55	3.83E-03	3.26E-04
m	53	2452.54	7.86E+00	6.71	3.83E-03	3.26E-04
	54	2615.13	1.47E+02	24.25	3.79E-03	3.26E-04

Analysis Report for 1510093-04  
CP5002S03-04

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 : 11/11/2015 12:34:14PM

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	62.88	2.98E+02	115.98	7.80E+01	1.33E+01	2.20E+02	1.17E+02
	2	76.36	1.44E+03	168.21	9.75E+00	8.28E+00	1.43E+03	1.68E+02
m	3	87.80	2.50E+02	74.14			2.50E+02	7.41E+01
	4	93.15	2.23E+02	107.46	1.34E+02	9.83E+00	8.87E+01	1.08E+02
	5	99.20	8.47E+01	74.26			8.47E+01	7.43E+01
	6	130.37	1.59E+02	99.94			1.59E+02	9.99E+01
	7	153.39	6.65E+01	67.90			6.65E+01	6.79E+01
	8	186.09	2.56E+02	90.67	6.41E+01	7.38E+00	1.92E+02	9.10E+01
	9	209.61	6.04E+01	61.51			6.04E+01	6.15E+01
M	10	238.79	1.11E+03	81.71	2.34E+01	6.34E+00	1.08E+03	8.20E+01
m	11	242.07	3.07E+02	91.80			3.07E+02	9.18E+01
	12	270.29	8.78E+01	57.04			8.78E+01	5.70E+01
M	13	295.48	3.72E+02	53.22	4.17E+00	5.50E+00	3.68E+02	5.35E+01
m	14	300.29	9.44E+01	51.80			9.44E+01	5.18E+01
	15	338.74	2.57E+02	69.61	2.22E-01	4.54E+00	2.57E+02	6.98E+01
	16	352.13	5.82E+02	79.67	8.83E+00	4.91E+00	5.73E+02	7.98E+01
	17	463.40	9.47E+01	45.46			9.47E+01	4.55E+01
	18	487.15	3.32E+01	26.42			3.32E+01	2.64E+01
	19	510.55	2.11E+02	53.65	8.12E+01	5.49E+00	1.30E+02	5.39E+01
	20	545.05	3.47E+01	32.80			3.47E+01	3.28E+01
	21	583.43	3.34E+02	54.61	6.34E+00	3.74E+00	3.28E+02	5.47E+01
	22	609.63	4.83E+02	64.56	5.20E+00	3.69E+00	4.77E+02	6.47E+01
	23	677.01	2.64E+01	30.27			2.64E+01	3.03E+01
	24	727.43	8.08E+01	36.82			8.08E+01	3.68E+01
	25	768.37	5.19E+01	33.11			5.19E+01	3.31E+01
	26	795.36	3.59E+01	30.92			3.59E+01	3.09E+01
M	27	835.60	1.54E+01	17.55			1.54E+01	1.75E+01
m	28	839.56	4.28E+01	28.13			4.28E+01	2.81E+01
	29	861.00	3.45E+01	26.44			3.45E+01	2.64E+01
	30	899.18	1.57E+01	19.31			1.57E+01	1.93E+01
	31	911.72	2.36E+02	44.24	3.28E+00	2.53E+00	2.33E+02	4.43E+01
	32	934.60	2.54E+01	28.88			2.54E+01	2.89E+01
	33	969.59	1.22E+02	41.02			1.22E+02	4.10E+01
	34	1120.65	7.10E+01	38.87	2.28E+00	2.55E+00	6.87E+01	3.90E+01
	35	1238.78	4.40E+01	40.99			4.40E+01	4.10E+01

Analysis Report for 1510093-04

CP5002S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	1347.09	1.47E+01	14.35		1.47E+01	1.44E+01
	37	1379.72	2.75E+01	33.76		2.75E+01	3.38E+01
	38	1404.04	3.37E+01	31.81		3.37E+01	3.18E+01
	39	1461.34	8.53E+02	60.86	6.46E+00	2.33E+00	8.47E+02
	40	1508.16	2.00E+01	16.49		2.00E+01	1.65E+01
M	41	1588.56	1.91E+01	18.16		1.91E+01	1.82E+01
m	42	1601.87	8.65E+00	16.84		8.65E+00	1.68E+01
	43	1661.40	1.52E+01	9.85		1.52E+01	9.85E+00
	44	1729.81	2.38E+01	14.11		2.38E+01	1.41E+01
	45	1764.95	6.76E+01	23.58		6.76E+01	2.36E+01
	46	1799.25	9.20E+00	10.39		9.20E+00	1.04E+01
	47	1847.26	1.82E+01	13.23		1.82E+01	1.32E+01
	48	2071.31	5.50E+00	6.08		5.50E+00	6.08E+00
	49	2104.23	1.90E+01	13.89		1.90E+01	1.39E+01
	50	2204.74	2.60E+01	13.58		2.60E+01	1.36E+01
	51	2364.78	6.00E+00	7.78		6.00E+00	7.78E+00
M	52	2447.52	1.51E+01	7.55		1.51E+01	7.55E+00
m	53	2452.54	7.86E+00	6.71		7.86E+00	6.71E+00
	54	2615.13	1.47E+02	24.25	3.47E+00	1.48E+00	1.44E+02

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 12:34:14PM

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	62.88	2.98E+02	115.98	7.80E+01	1.33E+01	2.20E+02
	2	76.36	1.44E+03	168.21	9.75E+00	8.28E+00	1.43E+03
m	3	87.80	2.50E+02	74.14		2.50E+02	7.41E+01
	4	93.15	2.23E+02	107.46	1.34E+02	9.83E+00	8.87E+01
	5	99.20	8.47E+01	74.26		8.47E+01	7.43E+01
	6	130.37	1.59E+02	99.94		1.59E+02	9.99E+01
	7	153.39	6.65E+01	67.90		6.65E+01	6.79E+01
	8	186.09	2.56E+02	90.67	6.41E+01	7.38E+00	1.92E+02
	9	209.61	6.04E+01	61.51		6.04E+01	6.15E+01

: 00436

Analysis Report for 1510093-04

CP5002S03-04

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	10	238.79	1.11E+03	81.71	2.34E+01	6.34E+00	1.08E+03	8.20E+01
m	11	242.07	3.07E+02	91.80			3.07E+02	9.18E+01
	12	270.29	8.78E+01	57.04			8.78E+01	5.70E+01
M	13	295.48	3.72E+02	53.22	4.17E+00	5.50E+00	3.68E+02	5.35E+01
m	14	300.29	9.44E+01	51.80			9.44E+01	5.18E+01
	15	338.74	2.57E+02	69.61	2.22E-01	4.54E+00	2.57E+02	6.98E+01
	16	352.13	5.82E+02	79.67	8.83E+00	4.91E+00	5.73E+02	7.98E+01
	17	463.40	9.47E+01	45.46			9.47E+01	4.55E+01
	18	487.15	3.32E+01	26.42			3.32E+01	2.64E+01
	19	510.55	2.11E+02	53.65	8.12E+01	5.49E+00	1.30E+02	5.39E+01
	20	545.05	3.47E+01	32.80			3.47E+01	3.28E+01
	21	583.43	3.34E+02	54.61	6.34E+00	3.74E+00	3.28E+02	5.47E+01
	22	609.63	4.83E+02	64.56	5.20E+00	3.69E+00	4.77E+02	6.47E+01
	23	677.01	2.64E+01	30.27			2.64E+01	3.03E+01
	24	727.43	8.08E+01	36.82			8.08E+01	3.68E+01
	25	768.37	5.19E+01	33.11			5.19E+01	3.31E+01
	26	795.36	3.59E+01	30.92			3.59E+01	3.09E+01
M	27	835.60	1.54E+01	17.55			1.54E+01	1.75E+01
m	28	839.56	4.28E+01	28.13			4.28E+01	2.81E+01
	29	861.00	3.45E+01	26.44			3.45E+01	2.64E+01
	30	899.18	1.57E+01	19.31			1.57E+01	1.93E+01
	31	911.72	2.36E+02	44.24	3.28E+00	2.53E+00	2.33E+02	4.43E+01
	32	934.60	2.54E+01	28.88			2.54E+01	2.89E+01
	33	969.59	1.22E+02	41.02			1.22E+02	4.10E+01
	34	1120.65	7.10E+01	38.87	2.28E+00	2.55E+00	6.87E+01	3.90E+01
	35	1238.78	4.40E+01	40.99			4.40E+01	4.10E+01
	36	1347.09	1.47E+01	14.35			1.47E+01	1.44E+01
	37	1379.72	2.75E+01	33.76			2.75E+01	3.38E+01
	38	1404.04	3.37E+01	31.81			3.37E+01	3.18E+01
	39	1461.34	8.53E+02	60.86	6.46E+00	2.33E+00	8.47E+02	6.09E+01
	40	1508.16	2.00E+01	16.49			2.00E+01	1.65E+01
M	41	1588.56	1.91E+01	18.16			1.91E+01	1.82E+01
m	42	1601.87	8.65E+00	16.84			8.65E+00	1.68E+01
	43	1661.40	1.52E+01	9.85			1.52E+01	9.85E+00
	44	1729.81	2.38E+01	14.11			2.38E+01	1.41E+01
	45	1764.95	6.76E+01	23.58			6.76E+01	2.36E+01
	46	1799.25	9.20E+00	10.39			9.20E+00	1.04E+01
	47	1847.26	1.82E+01	13.23			1.82E+01	1.32E+01
	48	2071.31	5.50E+00	6.08			5.50E+00	6.08E+00
	49	2104.23	1.90E+01	13.89			1.90E+01	1.39E+01
	50	2204.74	2.60E+01	13.58			2.60E+01	1.36E+01
	51	2364.78	6.00E+00	7.78			6.00E+00	7.78E+00
M	52	2447.52	1.51E+01	7.55			1.51E+01	7.55E+00
m	53	2452.54	7.86E+00	6.71			7.86E+00	6.71E+00
	54	2615.13	1.47E+02	24.25	3.47E+00	1.48E+00	1.44E+02	2.43E+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 1510093-04  
CP5002S03-04

## 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	0.956	1460.81 *	10.67	2.07E+01	2.34E+00
MN-54	0.908	834.83 *	99.97	2.82E-02	3.22E-02
GA-67	0.574	93.31 *	35.70	1.62E+02	7.69E+02
		208.95 *	2.24	2.40E+03	1.10E+04
		300.22 *	16.00	6.66E+02	3.08E+03
CD-109	0.991	88.03 *	3.72	3.22E+00	1.02E+00
SN-126	0.992	87.57 *	37.00	3.08E-01	9.59E-02
TL-208	0.972	583.14 *	30.22	1.38E+00	2.63E-01
		860.37 *	4.48	1.34E+00	1.03E+00
		2614.66 *	35.85	1.37E+00	2.60E-01
BI-212	0.757	727.17 *	11.80	1.04E+00	4.83E-01
		1620.62	2.75		
PB-212	0.996	238.63 *	44.60	1.64E+00	1.87E-01
		300.09 *	3.41	2.18E+00	1.21E+00
BI-214	0.978	609.31 *	46.30	1.36E+00	2.22E-01
		1120.29 *	15.10	9.74E-01	5.58E-01
		1764.49 *	15.80	1.26E+00	4.52E-01
		2204.22 *	4.98	1.71E+00	9.07E-01
PB-214	0.992	295.21 *	19.19	1.49E+00	2.46E-01
		351.92 *	37.19	1.35E+00	2.18E-01
RA-226	0.998	186.21 *	3.28	3.39E+00	6.42E+00
AC-228	0.950	338.32 *	11.40	1.93E+00	5.46E-01
		911.07 *	27.70	1.53E+00	3.19E-01
		969.11 *	16.60	1.40E+00	4.87E-01
PA-234	0.383	131.20 *	20.40	3.81E-01	2.41E-01
		733.99	8.80		
		946.00	12.00		
TH-234	0.974	63.29 *	3.80	3.02E+00	1.62E+00

\* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

Analysis Report for 1510093-04  
CP5002S03-04

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 12:34:14PM  
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	76.36	3.96084E-01	5.91		
5	99.20	2.35324E-02	43.83	D-Esc	
7	153.39	1.84639E-02	51.07		
m 11	242.07	8.52914E-02	14.95		
12	270.29	2.43831E-02	32.49		
17	463.40	2.63110E-02	24.00	Tol.	SB-125
18	487.15	9.23221E-03	39.75	Sum	
19	510.55	3.61907E-02	20.70	Sum	
20	545.05	9.64725E-03	47.22		
23	677.01	7.33871E-03	57.28	Sum	
25	768.37	1.44180E-02	31.89		
26	795.36	9.98112E-03	43.02	Sum	
m 28	839.56	1.18874E-02	32.87		
30	899.18	4.35387E-03	61.61	Sum	
32	934.60	7.04946E-03	56.91	Sum	
35	1238.78	1.22281E-02	46.55	Tol.	CO-56
36	1347.09	4.07407E-03	48.93		
37	1379.72	7.64791E-03	61.32		
38	1404.04	9.35606E-03	47.22		
40	1508.16	5.55556E-03	41.23		
M 41	1588.56	5.30616E-03	47.53	Sum	
m 42	1601.87	2.40233E-03	97.39		
43	1661.40	4.22068E-03	32.41		
44	1729.81	6.61738E-03	29.61	Sum	
46	1799.25	2.55556E-03	56.48	Sum	
47	1847.26	5.04444E-03	36.42	Sum	
48	2071.31	1.52778E-03	55.30	Sum	
49	2104.23	5.27778E-03	36.56	S-Esc	
51	2364.78	1.66667E-03	64.82		
M 52	2447.52	4.19705E-03	24.98		
m 53	2452.54	2.18431E-03	42.65		

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 1510093-04  
CP5002S03-04

## 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	0.95	1460.81	*	10.67	2.07E+01	2.34E+00
MN-54	0.90	834.83	*	99.97	2.82E-02	3.22E-02
GA-67	0.57	93.31	*	35.70	1.62E+02	7.69E+02
		208.95	*	2.24	2.40E+03	1.10E+04
		300.22	*	16.00	6.66E+02	3.08E+03
CD-109	0.99	88.03	*	3.72	3.22E+00	1.02E+00
SN-126	0.99	87.57	*	37.00	3.08E-01	9.59E-02
TL-208	0.97	583.14	*	30.22	1.38E+00	2.63E-01
		860.37	*	4.48	1.34E+00	1.03E+00
		2614.66	*	35.85	1.37E+00	2.60E-01
BI-212	0.75	727.17	*	11.80	1.04E+00	4.83E-01
		1620.62	*	2.75		
PB-212	0.99	238.63	*	44.60	1.64E+00	1.87E-01
		300.09	*	3.41	2.18E+00	1.21E+00
BI-214	0.97	609.31	*	46.30	1.36E+00	2.22E-01
		1120.29	*	15.10	9.74E-01	5.58E-01
		1764.49	*	15.80	1.26E+00	4.52E-01
		2204.22	*	4.98	1.71E+00	9.07E-01
PB-214	0.99	295.21	*	19.19	1.49E+00	2.46E-01
		351.92	*	37.19	1.35E+00	2.18E-01
RA-226	0.99	186.21	*	3.28	3.39E+00	6.42E+00
AC-228	0.95	338.32	*	11.40	1.93E+00	5.46E-01
		911.07	*	27.70	1.53E+00	3.19E-01
		969.11	*	16.60	1.40E+00	4.87E-01
PA-234	0.38	131.20	*	20.40	3.81E-01	2.41E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.97	63.29	*	3.80	3.02E+00	1.62E+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 1510093-04  
CP5002S03-04

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## INTERFERENCE CORRECTED REPORT

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<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	0.956	2.07E+01	2.34E+00	
MN-54	0.908	2.82E-02	3.22E-02	
GA-67	0.574	1.73E+02	7.92E+02	
? CD-109	0.991	3.22E+00	1.02E+00	
? SN-126	0.992	3.08E-01	9.59E-02	
TL-208	0.972	1.38E+00	1.82E-01	
BI-212	0.757	1.04E+00	4.83E-01	
PB-212	0.996	1.64E+00	1.85E-01	
BI-214	0.978	1.32E+00	1.84E-01	
PB-214	0.992	1.42E+00	1.63E-01	
RA-226	0.998	3.39E+00	6.42E+00	
AC-228	0.950	1.57E+00	2.40E-01	
PA-234	0.383	3.81E-01	2.41E-01	
TH-234	0.974	3.02E+00	1.62E+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

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Analysis Report for 1510093-04  
CP5002S03-04

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 12:34:14PM  
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	76.36	3.96084E-01	5.91		
5	99.20	2.35324E-02	43.83	D-Esc	
7	153.39	1.84639E-02	51.07		
m 11	242.07	8.52914E-02	14.95		
12	270.29	2.43831E-02	32.49		
17	463.40	2.63110E-02	24.00	Tol.	SB-125
18	487.15	9.23221E-03	39.75	Sum	
19	510.55	3.61907E-02	20.70	Sum	
20	545.05	9.64725E-03	47.22		
23	677.01	7.33871E-03	57.28	Sum	
25	768.37	1.44180E-02	31.89		
26	795.36	9.98112E-03	43.02	Sum	
m 28	839.56	1.18874E-02	32.87		
30	899.18	4.35387E-03	61.61	Sum	
32	934.60	7.04946E-03	56.91	Sum	
35	1238.78	1.22281E-02	46.55	Tol.	CO-56
36	1347.09	4.07407E-03	48.93		
37	1379.72	7.64791E-03	61.32		
38	1404.04	9.35606E-03	47.22		
40	1508.16	5.55556E-03	41.23		
M 41	1588.56	5.30616E-03	47.53	Sum	
m 42	1601.87	2.40233E-03	97.39		
43	1661.40	4.22068E-03	32.41		
44	1729.81	6.61738E-03	29.61	Sum	
46	1799.25	2.55556E-03	56.48	Sum	
47	1847.26	5.04444E-03	36.42	Sum	
48	2071.31	1.52778E-03	55.30	Sum	
49	2104.23	5.27778E-03	36.56	S-Esc	
51	2364.78	1.66667E-03	64.82		
M 52	2447.52	4.19705E-03	24.98		
m 53	2452.54	2.18431E-03	42.65		

Analysis Report for 1510093-04  
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M = First peak in a multiplet region  
m = Other peak in a multiplet region  
F = Fitted singlet  
Errors quoted at 2.000sigma

## NUCLIDE MDA REPORT

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	-2.64E-01	8.67E-01	8.67E-01
+	NA-22	1274.54	99.94	4.73E-02	8.94E-02	8.94E-02
+	NA-24	1368.53	99.99	4.10E+13	1.09E+15	1.90E+15
		2754.09	99.86	0.00E+00		1.09E+15
+	AL-26	1808.65	99.76	4.13E-03	4.76E-02	4.76E-02
+	K-40	1460.81	* 10.67	2.07E+01	7.88E-01	7.88E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.02E-02	6.86E-02	6.86E-02
		78.34	96.00	3.26E-01		8.92E-02
+	SC-46	889.25	99.98	-3.92E-02	9.15E-02	9.15E-02
		1120.51	99.99	2.31E-01		1.61E-01
+	V-48	983.52	99.98	2.55E-02	3.09E-01	3.09E-01
		1312.10	97.50	2.13E-02		3.55E-01
+	CR-51	320.08	9.83	-3.47E-01	1.14E+00	1.14E+00
+	MN-54	834.83	* 99.97	2.82E-02	1.02E-01	1.02E-01
+	CO-56	846.75	99.96	1.39E-02	7.52E-02	7.52E-02
		1037.75	14.03	6.58E-02		6.64E-01
		1238.25	67.00	1.67E-01		2.23E-01
		1771.40	15.51	7.73E-02		4.49E-01
		2598.48	16.90	-3.34E-02		3.85E-01
+	CO-57	122.06	85.51	-3.71E-03	6.11E-02	6.11E-02
		136.48	10.60	1.82E-01		4.93E-01
+	CO-58	810.76	99.40	-3.17E-02	8.94E-02	8.94E-02
+	FE-59	1099.22	56.50	-3.39E-03	2.42E-01	2.42E-01
		1291.56	43.20	-5.13E-02		2.91E-01
+	CO-60	1173.22	100.00	3.64E-02	6.76E-02	8.42E-02
		1332.49	100.00	-1.94E-02		6.76E-02
+	ZN-65	1115.52	50.75	-1.44E-02	1.66E-01	1.66E-01
+	GA-67	93.31	* 35.70	1.62E+02	3.24E+02	3.24E+02
		208.95	* 2.24	2.40E+03		4.00E+03
		300.22	* 16.00	6.66E+02		9.14E+02
+	SE-75	121.11	16.70	4.84E-02	9.85E-02	3.49E-01

Analysis Report for 1510093-04  
CP5002S03-04

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
SE-75	136.00	59.20	2.48E-02	9.85E-02	9.85E-02
	264.65	59.80	1.18E-02		1.00E-01
	279.53	25.20	9.94E-02		2.50E-01
	400.65	11.40	8.26E-02		5.68E-01
+ RB-82	776.52	13.00	-9.61E-01	1.24E+00	1.24E+00
+ RB-83	520.41	46.00	-5.99E-02	1.56E-01	1.56E-01
	529.64	30.30	-6.08E-02		2.61E-01
	552.65	16.40	4.47E-03		4.58E-01
+ KR-85	513.99	0.43	3.66E-01	2.07E+01	2.07E+01
+ SR-85	513.99	99.27	2.30E-03	1.30E-01	1.30E-01
+ Y-88	898.02	93.40	-1.09E-02	6.61E-02	9.00E-02
	1836.01	99.38	9.11E-03		6.61E-02
+ NB-93M	16.57	9.43	-5.78E+01	6.33E+01	6.33E+01
+ NB-94	702.63	100.00	9.92E-04	5.88E-02	6.80E-02
	871.10	100.00	-3.24E-02		5.88E-02
+ NB-95	765.79	99.81	1.30E-01	1.60E-01	1.60E-01
+ NB-95M	235.69	25.00	-1.79E+03	1.85E+02	1.85E+02
+ ZR-95	724.18	43.70	2.23E-02	1.67E-01	2.68E-01
	756.72	55.30	7.68E-03		1.67E-01
	181.06	6.20	1.45E+03		3.04E+03
+ MO-99	739.58	12.80	1.90E+03	3.04E+03	3.04E+03
	778.00	4.50	-1.07E+04		7.42E+03
	497.08	89.00	-5.58E-02		1.21E-01
+ RU-103	621.84	9.80	1.03E-01	6.98E-01	6.98E-01
+ AG-108M	433.93	89.90	-2.05E-02	6.06E-02	6.06E-02
	614.37	90.40	9.29E-03		7.64E-02
	722.95	90.50	-5.44E-04		7.44E-02
+ CD-109	88.03	* 3.72	3.22E+00	2.52E+00	2.52E+00
+ AG-110M	657.75	93.14	0.00E+00	7.79E-02	7.79E-02
	677.61	10.53	2.60E-02		6.87E-01
	706.67	16.46	-1.87E-01		4.42E-01
	763.93	21.98	-3.16E-02		3.24E-01
	884.67	71.63	-2.32E-02		1.01E-01
	1384.27	23.94	-1.44E-01		2.89E-01
	263.70	0.02	-1.19E+01		2.11E+02
+ SN-113	255.12	1.93	1.70E+00	9.29E-02	3.27E+00
	391.69	64.90	-3.12E-02		9.29E-02
+ TE123M	159.00	84.10	-1.24E-04	7.03E-02	7.03E-02
+ SB-124	602.71	97.87	2.00E-02	1.04E-01	1.04E-01
	645.85	7.26	-1.66E-01		1.26E+00
	722.78	11.10	-6.57E-03		8.99E-01
	1691.02	49.00	-2.61E-02		1.58E-01
+ I-125	35.49	6.49	-2.09E+00	3.09E+00	3.09E+00
+ SB-125	176.33	6.89	-5.08E-01	2.02E-01	6.79E-01
	427.89	29.33	7.95E-02		2.02E-01
	463.38	10.35	8.13E-01		7.09E-01
	600.56	17.80	-8.50E-03		3.80E-01
	635.90	11.32	-1.85E-01		5.37E-01

Analysis Report for 1510093-04  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SB-126	414.70	83.30	-2.16E-01	4.57E-01	4.91E-01
		666.33	99.60	-1.30E-02		4.57E-01
		695.00	99.60	-2.91E-02		4.65E-01
		720.50	53.80	1.53E-01		8.39E-01
+	SN-126	87.57	* 37.00	3.08E-01	2.41E-01	2.41E-01
+	SB-127	473.00	25.00	4.52E+01	8.76E+01	1.16E+02
		685.20	35.70	3.95E+01		8.76E+01
		783.80	14.70	2.50E+02		2.58E+02
+	I-129	29.78	57.00	2.36E-02	4.44E-01	4.44E-01
		33.60	13.20	-4.72E-01		1.18E+00
		39.58	7.52	1.97E-01		1.47E+00
+	I-131	284.30	6.05	-8.85E+00	1.14E+00	1.43E+01
		364.48	81.20	-9.07E-02		1.14E+00
		636.97	7.26	-7.24E+00		1.57E+01
		722.89	1.80	-5.21E-01		7.13E+01
+	TE-132	49.72	13.10	-1.41E+03	8.24E+01	7.80E+02
		228.16	88.00	-3.16E+00		8.24E+01
+	BA-133	81.00	33.00	-1.29E+00	8.84E-02	1.74E-01
		302.84	17.80	3.35E-02		2.86E-01
		356.01	60.00	-7.17E-01		8.84E-02
+	I-133	529.87	86.30	-1.22E+10	5.23E+10	5.23E+10
+	XE-133	81.00	38.00	-1.02E+02	1.38E+01	1.38E+01
+	CS-134	563.23	8.38	3.06E-01	7.79E-02	7.71E-01
		569.32	15.43	-8.41E-02		4.24E-01
		604.70	97.60	6.66E-04		7.79E-02
		795.84	85.40	7.37E-02		9.41E-02
		801.93	8.73	-4.91E-01		7.62E-01
+	CS-135	268.24	16.00	3.86E-01	3.64E-01	3.64E-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	1.87E+00	3.70E-01	4.16E+00
		163.89	4.61	1.23E+00		6.41E+00
		176.55	13.56	-1.53E+00		2.04E+00
		273.65	12.66	-1.07E+00		2.37E+00
		340.57	48.50	1.33E+00		9.07E-01
		818.50	99.70	-2.03E-01		3.70E-01
		1048.07	79.60	4.55E-02		5.89E-01
		1235.34	19.70	8.32E-02		2.93E+00
+	CS-137	661.65	85.12	3.75E-03	7.89E-02	7.89E-02
+	LA-138	788.74	34.00	7.86E-02	1.01E-01	2.17E-01
		1435.80	66.00	1.57E-02		1.01E-01
+	CE-139	165.85	80.35	-1.99E-02	7.13E-02	7.13E-02
+	BA-140	162.64	6.70	2.38E+00	1.53E+00	4.66E+00
		304.84	4.50	-1.83E+00		6.37E+00
		423.70	3.20	-3.43E-01		1.13E+01
		437.55	2.00	8.41E+00		1.82E+01
		537.32	25.00	5.82E-01		1.53E+00
+	LA-140	328.77	20.50	-2.28E-01	4.26E-01	1.65E+00

Analysis Report for 1510093-04  
CP5002S03-04

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
LA-140	487.03	45.50	6.18E-02	4.26E-01	7.68E-01
	815.85	23.50	0.00E+00		1.69E+00
	1596.49	95.49	7.90E-02		4.26E-01
+ CE-141	145.44	48.40	-2.37E-02	2.12E-01	2.12E-01
+ CE-143	57.36	11.80	-3.24E+06	6.05E+06	1.71E+07
	293.26	42.00	1.77E+07		6.05E+06
	664.55	5.20	9.12E+06		3.99E+07
+ CE-144	133.54	10.80	-1.72E-01	4.83E-01	4.83E-01
+ PM-144	476.78	42.00	-2.72E-02	7.01E-02	1.52E-01
	618.01	98.60	-1.49E-02		7.01E-02
	696.49	99.49	-2.60E-02		7.21E-02
+ PM-145	36.85	21.70	-3.10E-01	3.21E-01	5.80E-01
	37.36	39.70	1.81E-01		3.21E-01
	42.30	15.10	-2.65E-01		6.38E-01
	72.40	2.31	-7.73E-01		3.30E+00
+ PM-146	453.90	39.94	2.71E-02	1.42E-01	1.42E-01
	735.90	14.01	-3.25E-02		4.78E-01
	747.13	13.10	-1.39E-01		5.08E-01
+ ND-147	91.11	28.90	-4.83E+00	2.00E+00	2.00E+00
	531.02	13.10	-3.20E-01		4.03E+00
+ PM-149	285.90	3.10	-3.79E+04	6.75E+04	6.75E+04
+ EU-152	121.78	20.50	-1.42E-02	2.34E-01	2.34E-01
	244.69	5.40	-2.18E-01		1.08E+00
	344.27	19.13	-4.32E-02		2.68E-01
	778.89	9.20	-1.90E-01		7.19E-01
	964.01	10.40	1.41E-01		8.37E-01
	1085.78	7.22	0.00E+00		1.09E+00
	1112.02	9.60	1.32E-01		8.42E-01
	1407.95	14.94	2.00E-01		5.49E-01
+ GD-153	97.43	31.30	1.03E-02	1.73E-01	1.73E-01
	103.18	22.20	2.34E-02		2.30E-01
+ EU-154	123.07	40.50	-1.68E-02	1.19E-01	1.19E-01
	723.30	19.70	-2.52E-03		3.44E-01
	873.19	11.50	-9.20E-02		4.99E-01
	996.32	10.30	3.83E-01		7.21E-01
	1004.76	17.90	-1.86E-01		3.93E-01
	1274.45	35.50	1.31E-01		2.47E-01
+ EU-155	86.50	30.90	8.95E-02	2.23E-01	2.23E-01
	105.30	20.70	3.80E-02		2.27E-01
+ EU-156	811.77	10.40	-5.88E-01	2.84E+00	2.84E+00
	1153.47	7.20	1.19E+00		6.14E+00
	1230.71	8.90	-1.88E-01		4.80E+00
+ HO-166M	184.41	72.60	1.92E-01	8.98E-02	8.98E-02
	280.45	29.60	-4.12E-02		1.63E-01
	410.94	11.10	9.92E-02		5.79E-01
	711.69	54.10	6.55E-02		1.26E-01
+ TM-171	66.72	0.14	8.04E+00	4.84E+01	4.84E+01
+ HF-172	81.75	4.52	-2.29E+00	4.41E-01	1.30E+00
	125.81	11.30	-1.59E-02		4.41E-01

Analysis Report for 1510093-04  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	LU-172	181.53	20.60	3.02E+00	4.11E+00	8.43E+00
		810.06	16.63	-1.76E+00		1.35E+01
		912.12	15.25	9.47E+01		3.34E+01
		1093.66	62.50	-2.08E+00		4.11E+00
+	LU-173	100.72	5.24	5.27E-01	2.92E-01	9.67E-01
		272.11	21.20	3.27E-01		2.92E-01
+	HF-175	343.40	84.00	4.11E-03	8.96E-02	8.96E-02
+	LU-176	88.34	13.30	7.10E-01	5.13E-02	5.27E-01
		201.83	86.00	-4.37E-02		5.90E-02
		306.78	94.00	2.40E-02		5.13E-02
+	TA-182	67.75	41.20	8.51E-02	1.94E-01	1.94E-01
		1121.30	34.90	5.84E-01		4.33E-01
		1189.05	16.23	-4.04E-01		5.88E-01
		1221.41	26.98	2.33E-01		4.40E-01
		1231.02	11.44	-3.77E-02		9.66E-01
+	IR-192	308.46	29.68	5.21E-02	1.67E-01	2.21E-01
		468.07	48.10	-5.04E-02		1.67E-01
+	HG-203	279.19	77.30	6.03E-02	1.14E-01	1.14E-01
+	BI-207	569.67	97.72	3.43E-02	6.79E-02	6.79E-02
		1063.62	74.90	4.82E-02		1.01E-01
+	TL-208	583.14	* 30.22	1.38E+00	8.87E-02	2.97E-01
		860.37	* 4.48	1.34E+00		1.61E+00
		2614.66	* 35.85	1.37E+00		8.87E-02
+	BI-210M	262.00	45.00	6.37E-03	1.08E-01	1.08E-01
		300.00	23.00	-5.43E-01		2.45E-01
+	PB-210	46.50	4.25	2.04E+00	2.04E+00	2.04E+00
+	PB-211	404.84	2.90	-4.71E-01	1.79E+00	1.79E+00
		831.96	2.90	3.17E-01		2.41E+00
+	BI-212	727.17	* 11.80	1.04E+00	7.14E-01	7.14E-01
		1620.62	2.75	1.37E-01		2.17E+00
+	PB-212	238.63	* 44.60	1.64E+00	3.26E-01	3.26E-01
		300.09	* 3.41	2.18E+00		2.99E+00
+	BI-214	609.31	* 46.30	1.36E+00	2.31E-01	2.31E-01
		1120.29	* 15.10	9.74E-01		8.60E-01
		1764.49	* 15.80	1.26E+00		5.70E-01
		2204.22	* 4.98	1.71E+00		1.15E+00
+	PB-214	295.21	* 19.19	1.49E+00	2.55E-01	5.23E-01
		351.92	* 37.19	1.35E+00		2.55E-01
+	RN-219	401.80	6.50	-3.01E-01	7.85E-01	7.85E-01
+	RA-223	323.87	3.88	2.96E-01	1.34E+00	1.34E+00
+	RA-224	240.98	3.95	1.90E+01	3.06E+00	3.06E+00
+	RA-225	40.00	31.00	2.31E-01	1.72E+00	1.72E+00
+	RA-226	186.21	* 3.28	3.39E+00	2.57E+00	2.57E+00
+	TH-227	50.10	8.40	-1.51E+00	5.66E-01	8.34E-01
		236.00	11.50	-5.50E+00		5.66E-01
		256.20	6.30	-8.38E-02		7.87E-01
+	AC-228	338.32	* 11.40	1.93E+00	3.64E-01	7.85E-01
		911.07	* 27.70	1.53E+00		3.64E-01

Analysis Report for 1510093-04  
CP5002S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	AC-228	969.11	*	16.60	1.40E+00	3.64E-01	6.85E-01
+	TH-230	48.44		16.90	1.37E-01	4.68E-01	4.68E-01
		62.85		4.60	3.24E+00		1.65E+00
		67.67		0.37	7.71E+00		1.75E+01
+	PA-231	283.67		1.60	-2.54E-01	2.20E+00	2.89E+00
		302.67		2.30	2.58E-01		2.20E+00
+	TH-231	25.64		14.70	2.04E+00	9.69E-01	3.88E+00
		84.21		6.40	-1.96E+00		9.69E-01
+	PA-233	311.98		38.60	-1.48E-01	2.90E-01	2.90E-01
+	PA-234	131.20	*	20.40	3.81E-01	3.87E-01	3.87E-01
		733.99		8.80	-2.06E-01		7.37E-01
		946.00		12.00	-3.54E-01		5.50E-01
+	PA-234M	1001.03		0.92	4.37E+00	8.11E+00	8.11E+00
+	TH-234	63.29	*	3.80	3.02E+00	2.60E+00	2.60E+00
+	U-235	143.76		10.50	1.81E-01	4.74E-01	4.74E-01
		163.35		4.70	1.99E-01		1.04E+00
		205.31		4.70	6.09E-01		1.10E+00
+	NP-237	86.50		12.60	2.17E-01	5.40E-01	5.40E-01
+	NP-239	106.10		22.70	8.05E+02	4.80E+03	4.80E+03
		228.18		10.70	-4.24E+02		1.10E+04
		277.60		14.10	5.08E+03		8.94E+03
+	AM-241	59.54		35.90	-1.13E-01	1.88E-01	1.88E-01
+	AM-243	74.67		66.00	-2.26E-01	1.35E-01	1.35E-01
+	CM-243	209.75		3.29	1.41E+00	3.85E-01	1.73E+00
		228.14		10.60	-1.83E-02		4.76E-01
		277.60		14.00	2.18E-01		3.85E-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

## NUCLIDE MDA REPORT

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



Analysis Report for 1510093-04  
CP5002S03-04

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	8.67E-01	8.67E-01	-2.64E-01	4.11E-01	
NA-22	1274.54	99.94	8.94E-02	8.94E-02	4.73E-02	4.14E-02	
NA-24	1368.53	99.99	1.90E+15	1.09E+15	4.10E+13	8.52E+14	
	2754.09	99.86	1.09E+15		0.00E+00	4.06E+14	
AL-26	1808.65	99.76	4.76E-02	4.76E-02	4.13E-03	1.97E-02	
+ K-40	1460.81	*	10.67	7.88E-01	7.88E-01	2.07E+01	3.61E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20	
TI-44	67.88	94.40	6.86E-02	6.86E-02	3.02E-02	3.36E-02	
	78.34	96.00	8.92E-02		3.26E-01	4.39E-02	
SC-46	889.25	99.98	9.15E-02	9.15E-02	-3.92E-02	4.26E-02	
	1120.51	99.99	1.61E-01		2.31E-01	7.64E-02	
V-48	983.52	99.98	3.09E-01	3.09E-01	2.55E-02	1.43E-01	
	1312.10	97.50	3.55E-01		2.13E-02	1.63E-01	
CR-51	320.08	9.83	1.14E+00	1.14E+00	-3.47E-01	5.42E-01	
+ MN-54	834.83	*	99.97	1.02E-01	1.02E-01	2.82E-02	4.86E-02
CO-56	846.75	99.96	7.52E-02	7.52E-02	1.39E-02	3.45E-02	
	1037.75	14.03	6.64E-01		6.58E-02	3.06E-01	
	1238.25	67.00	2.23E-01		1.67E-01	1.05E-01	
	1771.40	15.51	4.49E-01		7.73E-02	1.90E-01	
	2598.48	16.90	3.85E-01		-3.34E-02	1.56E-01	
CO-57	122.06	85.51	6.11E-02	6.11E-02	-3.71E-03	2.97E-02	
	136.48	10.60	4.93E-01		1.82E-01	2.40E-01	
CO-58	810.76	99.40	8.94E-02	8.94E-02	-3.17E-02	4.15E-02	
FE-59	1099.22	56.50	2.42E-01	2.42E-01	-3.39E-03	1.12E-01	
	1291.56	43.20	2.91E-01		-5.13E-02	1.33E-01	
CO-60	1173.22	100.00	8.42E-02	6.76E-02	3.64E-02	3.91E-02	
	1332.49	100.00	6.76E-02		-1.94E-02	3.04E-02	
ZN-65	1115.52	50.75	1.66E-01	1.66E-01	-1.44E-02	7.69E-02	
+ GA-67	93.31	*	35.70	3.24E+02	3.24E+02	1.62E+02	1.59E+02
	208.95	*	2.24	4.00E+03		2.40E+03	1.95E+03
	300.22	*	16.00	9.14E+02		6.66E+02	4.48E+02
SE-75	121.11	16.70	3.49E-01	9.85E-02	4.84E-02	1.70E-01	
	136.00	59.20	9.85E-02		2.48E-02	4.79E-02	
	264.65	59.80	1.00E-01		1.18E-02	4.81E-02	
	279.53	25.20	2.50E-01		9.94E-02	1.20E-01	
	400.65	11.40	5.68E-01		8.26E-02	2.70E-01	
RB-82	776.52	13.00	1.24E+00	1.24E+00	-9.61E-01	5.78E-01	
RB-83	520.41	46.00	1.56E-01	1.56E-01	-5.99E-02	7.35E-02	
	529.64	30.30	2.61E-01		-6.08E-02	1.23E-01	
	552.65	16.40	4.58E-01		4.47E-03	2.16E-01	
KR-85	513.99	0.43	2.07E+01	2.07E+01	3.66E-01	9.98E+00	
SR-85	513.99	99.27	1.30E-01	1.30E-01	2.30E-03	6.25E-02	
Y-88	898.02	93.40	9.00E-02	6.61E-02	-1.09E-02	4.18E-02	
	1836.01	99.38	6.61E-02		9.11E-03	2.79E-02	
NB-93M	16.57	9.43	6.33E+01	6.33E+01	-5.78E+01	2.93E+01	
NB-94	702.63	100.00	6.80E-02	5.88E-02	9.92E-04	3.20E-02	
	871.10	100.00	5.88E-02		-3.24E-02	2.70E-02	
NB-95	765.79	99.81	1.60E-01	1.60E-01	1.30E-01	7.56E-02	
NB-95M	235.69	25.00	1.85E+02	1.85E+02	-1.79E+03	8.98E+01	
ZR-95	724.18	43.70	2.68E-01	1.67E-01	2.23E-02	1.27E-01	
	756.72	55.30	1.67E-01		7.68E-03	7.80E-02	

Analysis Report for 1510093-04  
CP5002S03-04

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	4.45E+03	3.04E+03	1.45E+03	2.16E+03
	739.58	12.80	3.04E+03		1.90E+03	1.43E+03
	778.00	4.50	7.42E+03		-1.07E+04	3.44E+03
RU-103	497.08	89.00	1.21E-01	1.21E-01	-5.58E-02	5.74E-02
RU-106	621.84	9.80	6.98E-01	6.98E-01	1.03E-01	3.29E-01
AG-108M	433.93	89.90	6.06E-02	6.06E-02	-2.05E-02	2.87E-02
	614.37	90.40	7.64E-02		9.29E-03	3.62E-02
	722.95	90.50	7.44E-02		-5.44E-04	3.49E-02
+ CD-109	88.03	* 3.72	2.52E+00	2.52E+00	3.22E+00	1.24E+00
AG-110M	657.75	93.14	7.79E-02	7.79E-02	0.00E+00	3.67E-02
	677.61	10.53	6.87E-01		2.60E-02	3.23E-01
	706.67	16.46	4.42E-01		-1.87E-01	2.07E-01
	763.93	21.98	3.24E-01		-3.16E-02	1.51E-01
	884.67	71.63	1.01E-01		-2.32E-02	4.70E-02
	1384.27	23.94	2.89E-01		-1.44E-01	1.29E-01
	263.70	0.02	2.11E+02	2.11E+02	-1.19E+01	1.01E+02
SN-113	255.12	1.93	3.27E+00	9.29E-02	1.70E+00	1.57E+00
TE123M	391.69	64.90	9.29E-02		-3.12E-02	4.40E-02
	159.00	84.10	7.03E-02	7.03E-02	-1.24E-04	3.41E-02
	602.71	97.87	1.04E-01	1.04E-01	2.00E-02	4.93E-02
SB-124	645.85	7.26	1.26E+00		-1.66E-01	5.91E-01
	722.78	11.10	8.99E-01		-6.57E-03	4.22E-01
	1691.02	49.00	1.58E-01		-2.61E-02	6.72E-02
	35.49	6.49	3.09E+00	3.09E+00	-2.09E+00	1.50E+00
	176.33	6.89	6.79E-01	2.02E-01	-5.08E-01	3.28E-01
SB-125	427.89	29.33	2.02E-01		7.95E-02	9.61E-02
	463.38	10.35	7.09E-01		8.13E-01	3.40E-01
	600.56	17.80	3.80E-01		-8.50E-03	1.80E-01
	635.90	11.32	5.37E-01		-1.85E-01	2.52E-01
	414.70	83.30	4.91E-01	4.57E-01	-2.16E-01	2.35E-01
	666.33	99.60	4.57E-01		-1.30E-02	2.16E-01
	695.00	99.60	4.65E-01		-2.91E-02	2.19E-01
SN-126	720.50	53.80	8.39E-01		1.53E-01	3.94E-01
	87.57	* 37.00	2.41E-01	2.41E-01	3.08E-01	1.19E-01
	473.00	25.00	1.16E+02	8.76E+01	4.52E+01	5.53E+01
SB-127	685.20	35.70	8.76E+01		3.95E+01	4.12E+01
	783.80	14.70	2.58E+02		2.50E+02	1.22E+02
	29.78	57.00	4.44E-01	4.44E-01	2.36E-02	2.15E-01
I-129	33.60	13.20	1.18E+00		-4.72E-01	5.71E-01
	39.58	7.52	1.47E+00		1.97E-01	7.16E-01
	284.30	6.05	1.43E+01	1.14E+00	-8.85E+00	6.80E+00
I-131	364.48	81.20	1.14E+00		-9.07E-02	5.39E-01
	636.97	7.26	1.57E+01		-7.24E+00	7.37E+00
	722.89	1.80	7.13E+01		-5.21E-01	3.35E+01
	49.72	13.10	7.80E+02	8.24E+01	-1.41E+03	3.80E+02
TE-132	228.16	88.00	8.24E+01		-3.16E+00	3.98E+01
	81.00	33.00	1.74E-01	8.84E-02	-1.29E+00	8.53E-02
BA-133	302.84	17.80	2.86E-01		3.35E-02	1.37E-01
	356.01	60.00	8.84E-02		-7.17E-01	4.22E-02
	529.87	86.30	5.23E+10	5.23E+10	-1.22E+10	2.48E+10
XE-133	81.00	38.00	1.38E+01	1.38E+01	-1.02E+02	6.76E+00
CS-134	563.23	8.38	7.71E-01	7.79E-02	3.06E-01	3.65E-01
	569.32	15.43	4.24E-01		-8.41E-02	2.01E-01

Analysis Report for 1510093-04  
CP5002S03-04

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	7.79E-02	7.79E-02	6.66E-04	3.71E-02
	795.84	85.40	9.41E-02		7.37E-02	4.44E-02
	801.93	8.73	7.62E-01		-4.91E-01	3.55E-01
CS-135	268.24	16.00	3.64E-01	3.64E-01	3.86E-01	1.76E-01
	1131.51	22.50	1.00E+26		1.00E+26	1.00E+20
@ I-135	1260.41	28.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
@	153.22	7.46	4.16E+00		3.70E-01	1.87E+00
CS-136	163.89	4.61	6.41E+00	3.70E-01	1.23E+00	3.11E+00
	176.55	13.56	2.04E+00		-1.53E+00	9.87E-01
	273.65	12.66	2.37E+00		-1.07E+00	1.14E+00
	340.57	48.50	9.07E-01		1.33E+00	4.39E-01
	818.50	99.70	3.70E-01		-2.03E-01	1.71E-01
	1048.07	79.60	5.89E-01		4.55E-02	2.74E-01
	1235.34	19.70	2.93E+00		8.32E-02	1.37E+00
	661.65	85.12	7.89E-02		7.89E-02	3.75E-03
LA-138	788.74	34.00	2.17E-01	1.01E-01	7.86E-02	1.02E-01
	1435.80	66.00	1.01E-01		1.57E-02	4.54E-02
CE-139	165.85	80.35	7.13E-02	7.13E-02	-1.99E-02	3.46E-02
BA-140	162.64	6.70	4.66E+00	1.53E+00	2.38E+00	2.26E+00
	304.84	4.50	6.37E+00		-1.83E+00	3.03E+00
	423.70	3.20	1.13E+01		-3.43E-01	5.39E+00
	437.55	2.00	1.82E+01		8.41E+00	8.67E+00
	537.32	25.00	1.53E+00		5.82E-01	7.26E-01
LA-140	328.77	20.50	1.65E+00	4.26E-01	-2.28E-01	7.88E-01
	487.03	45.50	7.68E-01		6.18E-02	3.63E-01
	815.85	23.50	1.69E+00		0.00E+00	7.85E-01
	1596.49	95.49	4.26E-01		7.90E-02	1.88E-01
CE-141	145.44	48.40	2.12E-01	2.12E-01	-2.37E-02	1.03E-01
CE-143	57.36	11.80	1.71E+07	6.05E+06	-3.24E+06	8.36E+06
	293.26	42.00	6.05E+06		1.77E+07	2.95E+06
	664.55	5.20	3.99E+07		9.12E+06	1.88E+07
CE-144	133.54	10.80	4.83E-01	4.83E-01	-1.72E-01	2.35E-01
PM-144	476.78	42.00	1.52E-01	7.01E-02	-2.72E-02	7.21E-02
	618.01	98.60	7.01E-02		-1.49E-02	3.31E-02
	696.49	99.49	7.21E-02		-2.60E-02	3.39E-02
PM-145	36.85	21.70	5.80E-01	3.21E-01	-3.10E-01	2.82E-01
	37.36	39.70	3.21E-01		1.81E-01	1.56E-01
	42.30	15.10	6.38E-01		-2.65E-01	3.10E-01
	72.40	2.31	3.30E+00		-7.73E-01	1.62E+00
PM-146	453.90	39.94	1.42E-01	1.42E-01	2.71E-02	6.73E-02
	735.90	14.01	4.78E-01		-3.25E-02	2.24E-01
	747.13	13.10	5.08E-01		-1.39E-01	2.38E-01
ND-147	91.11	28.90	2.00E+00	2.00E+00	-4.83E+00	9.84E-01
	531.02	13.10	4.03E+00		-3.20E-01	1.91E+00
PM-149	285.90	3.10	6.75E+04	6.75E+04	-3.79E+04	3.22E+04
EU-152	121.78	20.50	2.34E-01	2.34E-01	-1.42E-02	1.14E-01
	244.69	5.40	1.08E+00		-2.18E-01	5.24E-01
	344.27	19.13	2.68E-01		-4.32E-02	1.28E-01
	778.89	9.20	7.19E-01		-1.90E-01	3.36E-01
	964.01	10.40	8.37E-01		1.41E-01	3.93E-01
	1085.78	7.22	1.09E+00		0.00E+00	5.06E-01
	1112.02	9.60	8.42E-01		1.32E-01	3.91E-01

Analysis Report for 1510093-04  
CP5002S03-04

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	5.49E-01	2.34E-01	2.00E-01	2.52E-01
GD-153	97.43	31.30	1.73E-01	1.73E-01	1.03E-02	8.43E-02
	103.18	22.20	2.30E-01		2.34E-02	1.12E-01
EU-154	123.07	40.50	1.19E-01	1.19E-01	-1.68E-02	5.78E-02
	723.30	19.70	3.44E-01		-2.52E-03	1.62E-01
	873.19	11.50	4.99E-01		-9.20E-02	2.29E-01
	996.32	10.30	7.21E-01		3.83E-01	3.35E-01
	1004.76	17.90	3.93E-01		-1.86E-01	1.82E-01
	1274.45	35.50	2.47E-01		1.31E-01	1.15E-01
EU-155	86.50	30.90	2.23E-01	2.23E-01	8.95E-02	1.10E-01
	105.30	20.70	2.27E-01		3.80E-02	1.10E-01
EU-156	811.77	10.40	2.84E+00	2.84E+00	-5.88E-01	1.32E+00
	1153.47	7.20	6.14E+00		1.19E+00	2.88E+00
	1230.71	8.90	4.80E+00		-1.88E-01	2.24E+00
HO-166M	184.41	72.60	8.98E-02	8.98E-02	1.92E-01	4.38E-02
	280.45	29.60	1.63E-01		-4.12E-02	7.81E-02
	410.94	11.10	5.79E-01		9.92E-02	2.78E-01
	711.69	54.10	1.26E-01		6.55E-02	5.91E-02
TM-171	66.72	0.14	4.84E+01	4.84E+01	8.04E+00	2.37E+01
HF-172	81.75	4.52	1.30E+00	4.41E-01	-2.29E+00	6.34E-01
	125.81	11.30	4.41E-01		-1.59E-02	2.14E-01
LU-172	181.53	20.60	8.43E+00	4.11E+00	3.02E+00	4.09E+00
	810.06	16.63	1.35E+01		-1.76E+00	6.31E+00
	912.12	15.25	3.34E+01		9.47E+01	1.62E+01
	1093.66	62.50	4.11E+00		-2.08E+00	1.90E+00
LU-173	100.72	5.24	9.67E-01	2.92E-01	5.27E-01	4.71E-01
	272.11	21.20	2.92E-01		3.27E-01	1.41E-01
HF-175	343.40	84.00	8.96E-02	8.96E-02	4.11E-03	4.28E-02
LU-176	88.34	13.30	5.27E-01	5.13E-02	7.10E-01	2.59E-01
	201.83	86.00	5.90E-02		-4.37E-02	2.85E-02
	306.78	94.00	5.13E-02		2.40E-02	2.45E-02
TA-182	67.75	41.20	1.94E-01	1.94E-01	8.51E-02	9.47E-02
	1121.30	34.90	4.33E-01		5.84E-01	2.06E-01
	1189.05	16.23	5.88E-01		-4.04E-01	2.71E-01
	1221.41	26.98	4.40E-01		2.33E-01	2.06E-01
	1231.02	11.44	9.66E-01		-3.77E-02	4.50E-01
IR-192	308.46	29.68	2.21E-01	1.67E-01	5.21E-02	1.06E-01
	468.07	48.10	1.67E-01		-5.04E-02	7.92E-02
HG-203	279.19	77.30	1.14E-01	1.14E-01	6.03E-02	5.49E-02
BI-207	569.67	97.72	6.79E-02	6.79E-02	3.43E-02	3.22E-02
	1063.62	74.90	1.01E-01		4.82E-02	4.70E-02
+ TL-208	583.14	* 30.22	2.97E-01	8.87E-02	1.38E+00	1.43E-01
	860.37	* 4.48	1.61E+00		1.34E+00	7.55E-01
	2614.66	* 35.85	8.87E-02		1.37E+00	3.14E-02
BI-210M	262.00	45.00	1.08E-01	1.08E-01	6.37E-03	5.21E-02
	300.00	23.00	2.45E-01		-5.43E-01	1.18E-01
PB-210	46.50	4.25	2.04E+00	2.04E+00	2.04E+00	9.97E-01
PB-211	404.84	2.90	1.79E+00	1.79E+00	-4.71E-01	8.50E-01
	831.96	2.90	2.41E+00		3.17E-01	1.12E+00
+ BI-212	727.17	* 11.80	7.14E-01	7.14E-01	1.04E+00	3.40E-01
	1620.62	2.75	2.17E+00		1.37E-01	9.48E-01
+ PB-212	238.63	* 44.60	3.26E-01	3.26E-01	1.64E+00	1.61E-01
	300.09	* 3.41	2.99E+00		2.18E+00	1.47E+00

Analysis Report for 1510093-04  
CP5002S03-04

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	2.31E-01	2.31E-01	1.36E+00	1.12E-01		
		1120.29 *	15.10	8.60E-01		9.74E-01	4.11E-01		
		1764.49 *	15.80	5.70E-01		1.26E+00	2.60E-01		
		2204.22 *	4.98	1.15E+00		1.71E+00	4.87E-01		
+	PB-214	295.21 *	19.19	5.23E-01	2.55E-01	1.49E+00	2.56E-01		
		351.92 *	37.19	2.55E-01		1.35E+00	1.24E-01		
	RN-219	401.80	6.50	7.85E-01	7.85E-01	-3.01E-01	3.72E-01		
	RA-223	323.87	3.88	1.34E+00	1.34E+00	2.96E-01	6.40E-01		
	RA-224	240.98	3.95	3.06E+00	3.06E+00	1.90E+01	1.51E+00		
	RA-225	40.00	31.00	1.72E+00	1.72E+00	2.31E-01	8.38E-01		
+	RA-226	186.21 *	3.28	2.57E+00	2.57E+00	3.39E+00	1.26E+00		
		TH-227	50.10	8.40		8.34E-01	5.66E-01	-1.51E+00	4.06E-01
			236.00	11.50		5.66E-01	-5.50E+00	2.75E-01	
			256.20	6.30		7.87E-01	-8.38E-02	3.78E-01	
+	AC-228	338.32 *	11.40	7.85E-01	3.64E-01	1.93E+00	3.82E-01		
			911.07 *	27.70		3.64E-01	1.53E+00	1.73E-01	
			969.11 *	16.60		6.85E-01	1.40E+00	3.27E-01	
	TH-230	48.44	16.90	4.68E-01	4.68E-01	1.37E-01	2.28E-01		
		62.85	4.60	1.65E+00		3.24E+00	8.10E-01		
		67.67	0.37	1.75E+01		7.71E+00	8.58E+00		
	PA-231	283.67	1.60	2.89E+00	2.20E+00	-2.54E-01	1.38E+00		
		302.67	2.30	2.20E+00		2.58E-01	1.05E+00		
	TH-231	25.64	14.70	3.88E+00	9.69E-01	2.04E+00	1.89E+00		
		84.21	6.40	9.69E-01		-1.96E+00	4.75E-01		
	PA-233	311.98	38.60	2.90E-01	2.90E-01	-1.48E-01	1.38E-01		
+	PA-234	131.20 *	20.40	3.87E-01	3.87E-01	3.81E-01	1.90E-01		
			733.99	8.80		7.37E-01	-2.06E-01	3.45E-01	
			946.00	12.00		5.50E-01	-3.54E-01	2.54E-01	
	PA-234M	1001.03	0.92	8.11E+00	8.11E+00	4.37E+00	3.77E+00		
+	TH-234	63.29 *	3.80	2.60E+00	2.60E+00	3.02E+00	1.28E+00		
	U-235	143.76	10.50	4.74E-01	4.74E-01	1.81E-01	2.30E-01		
		163.35	4.70	1.04E+00		1.99E-01	5.03E-01		
		205.31	4.70	1.10E+00		6.09E-01	5.35E-01		
	NP-237	86.50	12.60	5.40E-01	5.40E-01	2.17E-01	2.65E-01		
	NP-239	106.10	22.70	4.80E+03	4.80E+03	8.05E+02	2.34E+03		
		228.18	10.70	1.10E+04		-4.24E+02	5.32E+03		
		277.60	14.10	8.94E+03		5.08E+03	4.30E+03		
	AM-241	59.54	35.90	1.88E-01	1.88E-01	-1.13E-01	9.20E-02		
	AM-243	74.67	66.00	1.35E-01	1.35E-01	-2.26E-01	6.68E-02		
	CM-243	209.75	3.29	1.73E+00	3.85E-01	1.41E+00	8.40E-01		
		228.14	10.60	4.76E-01		-1.83E-02	2.29E-01		
		277.60	14.00	3.85E-01		2.18E-01	1.85E-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

Analysis Report for 1510093-04  
CP5002S03-04

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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S03-04

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	55	89	78	66	70	78
25:	74	96	68	81	69	63	60	59
33:	64	64	59	75	79	72	95	103
41:	85	86	90	93	104	98	170	101
49:	79	85	97	101	102	127	98	116
57:	111	106	128	129	145	159	177	297
65:	157	131	145	182	140	157	148	157
73:	172	188	456	311	477	603	167	144
81:	125	122	122	155	184	140	213	293
89:	161	209	182	141	272	242	113	98
97:	78	106	122	107	92	84	87	76
105:	84	115	89	82	85	95	100	85
113:	98	98	95	83	79	89	87	94
121:	85	85	93	84	91	88	84	90
129:	113	128	97	105	90	77	65	79
137:	94	92	76	72	83	70	77	116
145:	76	81	72	65	88	67	81	80
153:	74	104	90	71	71	82	76	69
161:	63	73	78	72	73	58	70	68
169:	70	75	77	83	66	71	66	52
177:	58	55	54	68	79	59	73	60
185:	79	200	150	69	64	51	58	58
193:	68	84	55	78	63	65	81	71
201:	51	56	56	67	67	58	66	51
209:	85	95	67	65	52	67	69	71
217:	77	58	54	60	51	49	57	40
225:	60	49	41	64	52	47	55	49
233:	61	56	54	58	66	178	735	283
241:	107	158	140	43	53	37	38	45
249:	38	43	34	41	51	45	46	45
257:	40	34	42	42	41	34	36	44
265:	39	39	39	36	40	82	79	44
273:	31	42	39	36	50	59	45	32
281:	29	38	31	31	26	32	30	38
289:	42	40	38	34	35	41	150	246
297:	44	31	39	58	63	28	31	21
305:	30	24	28	38	34	31	18	29
313:	25	36	34	30	38	33	27	27
321:	26	27	29	31	43	36	27	40
329:	43	31	28	30	36	26	28	28
337:	37	99	152	49	36	44	29	28
345:	27	35	27	33	37	22	58	327
353:	268	36	25	33	29	26	19	25
361:	25	23	19	23	24	30	24	23

369: 28 15 23 28 18 24 25 21

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8
377:	31	34	23	23	21	31	29	27
385:	25	29	29	24	25	21	20	25
393:	21	24	20	33	26	21	26	22
401:	25	30	24	15	33	26	21	24
409:	28	38	22	28	23	19	21	29
417:	23	15	29	19	23	12	16	19
425:	15	26	23	13	18	26	16	20
433:	11	15	25	19	12	15	20	24
441:	14	17	15	20	17	14	20	18
449:	12	13	8	18	22	20	18	14
457:	17	22	13	20	21	23	44	46
465:	19	26	11	12	20	17	16	24
473:	19	26	14	18	16	16	17	17
481:	18	17	15	11	10	21	16	18
489:	15	9	8	16	22	15	19	18
497:	15	14	17	15	22	18	19	17
505:	19	8	22	31	26	48	98	67
513:	23	22	12	19	14	22	9	12
521:	13	7	16	10	15	14	13	17
529:	17	17	14	16	12	16	21	15
537:	13	17	16	12	10	9	13	20
545:	17	16	15	13	10	10	14	16
553:	10	18	9	12	17	10	12	14
561:	14	11	24	17	13	12	10	16
569:	15	16	21	16	22	14	12	13
577:	17	8	13	15	14	25	121	179
585:	34	16	12	10	4	15	14	11
593:	10	18	14	12	17	10	14	16
601:	17	15	17	17	17	15	19	32
609:	148	295	64	16	21	15	15	18
617:	16	11	7	15	15	13	14	17
625:	13	10	13	13	11	12	11	11
633:	10	7	9	12	14	16	9	11
641:	19	15	11	7	13	13	10	13
649:	14	7	10	17	16	10	12	17
657:	7	15	11	16	13	11	15	11
665:	16	12	17	13	9	11	18	9
673:	12	7	14	12	17	18	11	8
681:	6	9	18	14	12	10	9	14
689:	12	10	13	16	17	9	10	12
697:	12	14	16	13	8	18	14	17
705:	8	9	8	13	19	7	16	10
713:	4	12	17	8	7	8	14	7
721:	10	20	9	12	12	11	45	47
729:	16	13	11	11	13	11	8	10
737:	9	6	19	12	11	19	10	9
745:	6	12	9	11	20	6	7	13
753:	11	10	13	9	10	7	9	9
761:	7	8	8	9	9	14	13	18
769:	38	17	8	12	17	17	5	8
777:	12	8	6	8	10	16	14	9
785:	16	25	13	7	10	12	8	10
793:	9	17	19	20	15	5	9	5



801: 10 9 9 13 7 16 13 11

Sample Title: CP5002S03-04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	6	6	5	11	11	9	8	6
817:	7	10	5	10	6	9	14	10
825:	10	9	6	10	9	11	14	5
833:	11	8	11	18	10	12	23	19
841:	17	7	9	5	6	9	8	6
849:	6	1	4	4	9	10	8	9
857:	6	6	5	15	26	16	9	9
865:	8	15	12	6	8	4	6	6
873:	10	4	8	3	9	4	8	5
881:	12	8	8	5	12	7	8	7
889:	12	7	8	11	12	14	7	6
897:	6	9	12	10	6	3	6	15
905:	9	8	12	3	7	23	85	115
913:	40	10	8	8	9	5	9	10
921:	6	2	6	6	3	5	11	11
929:	5	6	6	6	9	21	13	7
937:	9	8	3	10	11	6	8	7
945:	7	6	8	5	8	11	12	11
953:	4	8	7	5	3	8	11	4
961:	7	8	11	15	18	17	9	25
969:	61	58	11	10	8	4	4	4
977:	8	4	6	8	4	10	12	5
985:	5	12	4	4	10	6	3	7
993:	8	6	10	8	5	11	9	2
1001:	9	11	7	9	3	6	10	4
1009:	11	13	5	5	7	3	2	6
1017:	9	5	6	7	6	7	6	13
1025:	6	7	2	6	7	5	8	6
1033:	5	3	5	2	6	10	10	8
1041:	5	6	10	7	13	8	7	11
1049:	8	5	6	6	9	5	9	8
1057:	4	9	5	6	6	11	7	11
1065:	4	7	8	6	4	8	4	7
1073:	5	7	7	4	5	12	8	7
1081:	6	10	9	13	4	3	8	9
1089:	10	10	6	7	4	10	9	9
1097:	5	10	9	7	13	5	9	6
1105:	4	8	5	9	5	12	9	10
1113:	9	7	5	11	4	5	10	35
1121:	48	23	9	8	6	13	7	7
1129:	6	9	8	9	8	9	5	10
1137:	4	11	12	6	9	9	10	12
1145:	7	8	12	6	13	4	11	12
1153:	4	12	18	12	8	10	7	4
1161:	12	12	7	5	4	10	8	1
1169:	7	6	5	11	13	5	10	6
1177:	8	6	11	8	11	7	11	10
1185:	13	3	7	8	9	8	8	4
1193:	9	9	15	7	10	10	12	4
1201:	3	13	10	15	7	6	4	9
1209:	9	6	9	6	13	10	6	9
1217:	4	10	12	6	16	12	8	8
1225:	5	10	14	9	13	7	9	10

1233: 7 6 4 10 10 22 24 17

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8
1241:	7	8	12	8	8	11	10	10
1249:	6	7	8	9	6	12	5	3
1257:	5	5	7	6	7	10	5	2
1265:	12	5	8	5	6	5	10	3
1273:	10	7	11	6	7	6	3	4
1281:	7	4	7	4	4	7	9	9
1289:	6	6	4	2	6	4	7	3
1297:	4	7	5	6	2	7	4	2
1305:	4	2	5	5	7	8	4	3
1313:	5	8	6	5	7	4	3	10
1321:	4	8	2	5	7	7	4	4
1329:	5	1	3	5	9	2	3	5
1337:	7	3	5	3	4	3	3	3
1345:	5	5	3	8	2	1	1	5
1353:	3	5	3	3	3	3	4	4
1361:	1	7	3	3	1	4	2	5
1369:	3	6	4	5	3	1	5	5
1377:	9	12	10	4	2	4	3	2
1385:	5	6	1	3	4	2	6	1
1393:	4	1	3	2	3	1	6	7
1401:	8	6	4	3	2	3	8	12
1409:	8	1	6	6	3	4	9	4
1417:	2	1	1	2	3	2	6	4
1425:	5	5	4	3	2	4	2	5
1433:	1	5	2	3	5	5	4	3
1441:	2	3	2	4	2	3	1	2
1449:	8	2	4	6	3	2	0	2
1457:	2	6	24	151	362	255	51	14
1465:	4	2	3	2	1	4	0	0
1473:	3	2	3	2	2	5	1	0
1481:	1	2	1	4	0	7	1	1
1489:	3	0	2	4	2	3	5	5
1497:	4	3	2	0	2	0	2	2
1505:	3	1	4	6	5	5	3	1
1513:	0	2	0	3	0	2	9	3
1521:	1	4	1	3	3	2	3	3
1529:	2	2	4	2	2	1	3	2
1537:	3	2	2	1	1	4	1	5
1545:	1	1	1	1	2	0	4	1
1553:	3	3	0	0	1	3	2	2
1561:	4	5	2	1	1	1	1	2
1569:	2	1	3	0	2	2	4	1
1577:	0	2	1	4	5	3	5	2
1585:	3	2	9	8	8	6	3	6
1593:	6	4	1	3	1	1	3	1
1601:	1	4	1	2	1	0	0	1
1609:	0	2	2	0	0	1	2	5
1617:	2	0	4	4	2	3	1	1
1625:	1	1	2	0	5	2	5	5
1633:	2	2	1	3	2	1	4	0
1641:	1	1	1	4	2	3	2	1
1649:	3	1	0	1	2	4	1	0
1657:	0	0	3	4	3	4	1	1

1665: 2 0 1 1 0 2 1 1

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8
1673:	1	0	2	1	2	2	0	1
1681:	0	0	3	0	2	3	1	1
1689:	1	3	0	3	1	2	2	2
1697:	2	4	2	1	2	1	1	0
1705:	5	0	3	1	1	2	0	1
1713:	0	2	0	2	1	0	2	1
1721:	2	1	4	1	1	2	3	0
1729:	9	9	4	2	1	0	1	3
1737:	1	1	1	1	1	0	2	0
1745:	1	1	0	2	2	0	2	1
1753:	1	3	0	1	1	1	1	1
1761:	0	0	8	24	31	14	3	1
1769:	1	3	3	0	1	1	1	1
1777:	1	1	4	2	0	0	1	0
1785:	1	2	2	0	1	1	0	0
1793:	1	1	1	1	0	6	2	3
1801:	2	0	1	2	1	1	2	1
1809:	0	1	2	0	1	0	2	1
1817:	1	0	1	2	1	2	1	1
1825:	2	1	2	0	1	2	0	1
1833:	2	1	2	1	1	1	2	3
1841:	0	0	1	2	1	0	9	6
1849:	3	1	2	1	2	1	0	1
1857:	1	0	2	0	0	2	3	0
1865:	1	3	2	0	1	1	2	2
1873:	0	2	1	3	1	0	0	2
1881:	1	1	1	2	1	1	3	1
1889:	0	2	2	0	2	4	0	3
1897:	0	2	2	1	0	2	1	1
1905:	1	1	1	3	2	2	2	0
1913:	0	0	0	1	1	1	2	1
1921:	1	0	3	0	2	2	2	1
1929:	3	1	2	2	2	2	0	1
1937:	2	2	1	2	0	3	3	0
1945:	2	0	3	0	0	1	1	1
1953:	0	0	1	0	1	1	0	2
1961:	1	1	1	1	0	1	2	2
1969:	0	3	1	1	1	1	0	0
1977:	1	0	3	2	1	1	1	0
1985:	2	1	0	1	0	0	2	1
1993:	1	0	0	0	1	1	0	2
2001:	2	0	0	0	0	0	0	0
2009:	3	0	2	3	1	2	3	3
2017:	1	4	2	1	3	0	2	2
2025:	2	1	2	0	1	1	0	1
2033:	1	2	1	1	2	4	2	1
2041:	1	0	3	1	1	1	2	1
2049:	0	0	0	2	2	3	0	3
2057:	1	1	0	2	1	2	1	1
2065:	0	1	0	0	0	2	3	2
2073:	0	1	0	2	1	1	2	0
2081:	3	1	2	0	0	2	0	2
2089:	1	0	2	1	2	0	3	2

2097: 1 1 1 1 3 2 6 6

Sample Title: CP5002S03-04

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

2529: 0 1 0 0 0 0 0 0 1

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8	9
2537:	1	1	0	0	0	0	0	0	0
2545:	0	0	0	0	1	1	0	0	0
2553:	0	1	0	1	0	0	0	1	1
2561:	0	0	0	1	1	0	1	1	0
2569:	0	0	2	1	0	1	1	1	1
2577:	0	0	1	1	2	1	1	1	2
2585:	2	1	1	0	0	2	1	1	1
2593:	0	0	0	2	0	0	1	1	0
2601:	1	2	2	1	0	1	0	0	0
2609:	0	0	0	5	14	55	46	22	22
2617:	5	0	0	0	1	0	0	2	2
2625:	1	0	0	0	0	0	0	0	0
2633:	0	0	0	0	1	0	0	0	0
2641:	0	0	0	0	0	1	0	0	0
2649:	0	0	0	0	1	0	1	1	1
2657:	0	0	0	0	0	1	0	0	0
2665:	0	0	1	1	0	2	0	1	1
2673:	0	0	0	0	0	0	0	0	0
2681:	0	2	0	0	0	0	0	0	1
2689:	0	1	0	1	0	0	0	0	0
2697:	1	0	0	0	0	1	0	0	0
2705:	0	0	0	0	1	0	0	0	0
2713:	1	0	1	0	0	0	1	0	0
2721:	0	0	0	0	0	1	0	0	0
2729:	0	0	1	0	0	0	1	0	0
2737:	1	0	0	0	1	3	0	0	0
2745:	0	0	0	1	0	0	0	0	1
2753:	0	1	1	0	0	1	0	0	0
2761:	0	0	1	0	0	2	0	0	0
2769:	1	1	3	0	1	0	0	0	0
2777:	0	0	0	0	0	1	2	1	1
2785:	0	1	0	0	0	0	0	0	0
2793:	0	0	0	0	0	2	0	0	0
2801:	2	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	1	0	0	0
2817:	0	1	0	0	0	0	0	0	0
2825:	0	0	0	1	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0	0
2841:	1	0	0	0	0	1	0	0	0
2849:	1	0	1	2	1	0	0	0	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	0	2
2881:	0	0	0	0	1	1	0	0	0
2889:	1	0	0	0	0	1	0	0	0
2897:	0	1	1	1	0	0	2	0	0
2905:	1	0	0	2	0	1	0	0	0
2913:	0	0	0	0	1	0	0	0	0
2921:	0	2	0	0	0	1	0	0	0
2929:	0	0	1	1	0	0	0	0	0
2937:	0	2	0	0	1	1	0	0	0
2945:	1	0	0	0	0	0	0	0	1
2953:	0	0	0	0	0	0	0	0	1

2961: 0 2 0 0 1 0 0 0

Sample Title: CP5002S03-04

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

3393: 0 0 0 0 1 0 0 0

Sample Title: CP5002S03-04

Channel	1	2	3	4	5	6	7	8
3401:	0	0	1	0	0	0	0	1
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	0	1	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	0	0	0	1	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	1	0	0	1	0	1	0
3497:	0	0	0	0	0	0	0	1
3505:	0	0	0	1	0	0	0	1
3513:	0	0	0	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	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	1	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	1	0	1	0	0	0	0
3577:	0	1	0	0	0	0	0	0
3585:	0	0	1	0	0	0	0	0
3593:	1	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	1	0	0	0	0
3633:	0	0	0	0	0	1	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	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	1	1	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	1	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	1	0	0	0	0
3721:	0	0	0	1	0	0	0	1
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	1	0	0	0	0
3745:	0	1	0	0	0	0	0	0
3753:	0	0	0	0	0	0	1	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	1	0	1	1	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:	1	0	0	0	0	0	0	0
3809:	1	0	0	0	0	1	0	0
3817:	0	0	0	0	0	1	0	0

3825: 0 0 0 0 0 1 1 0

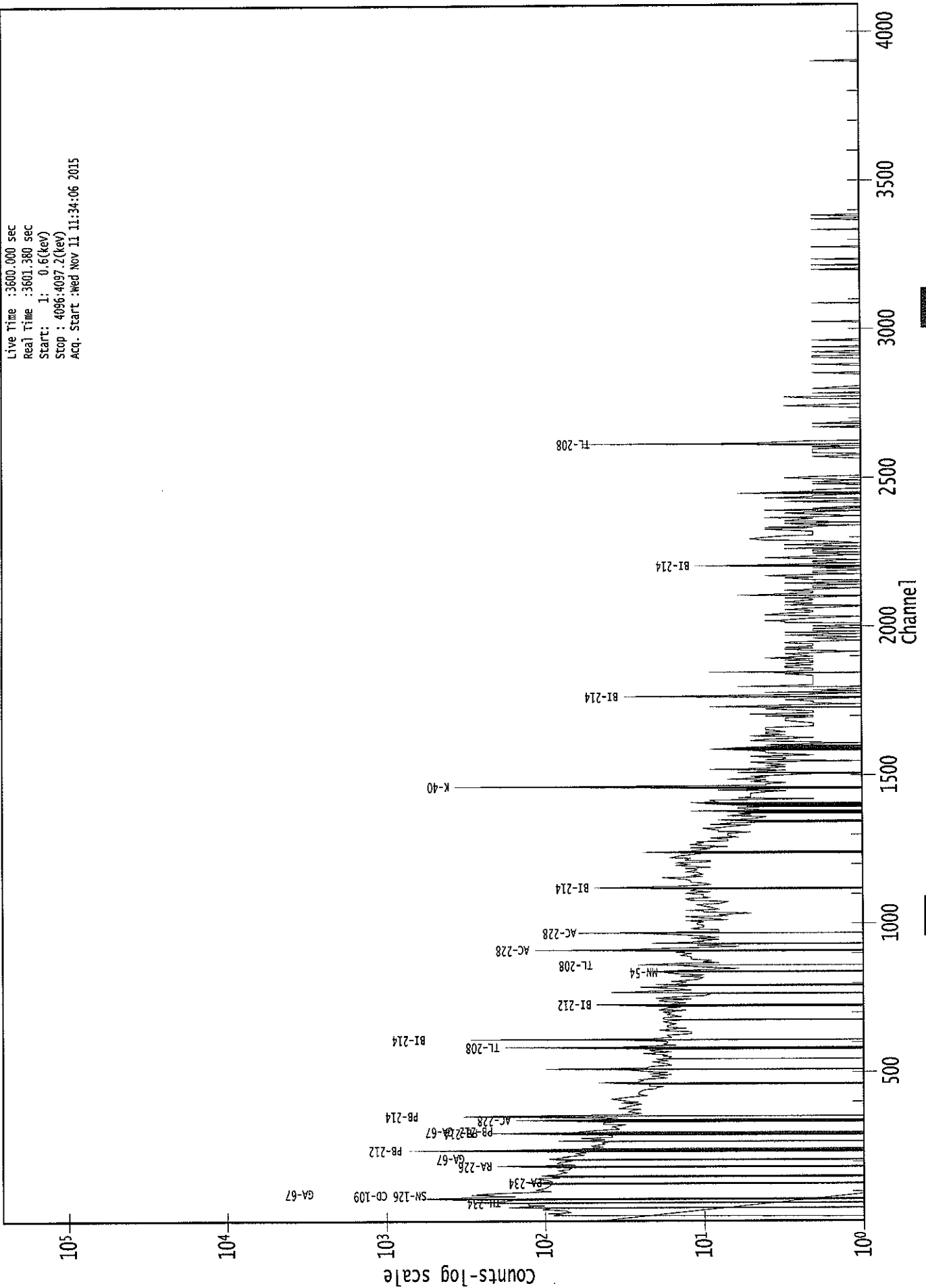
Sample Title: CP5002S03-04

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



# 0000029481.CNF

Live Time :3600.000 sec  
Real Time :3601.380 sec  
Start : 1: 0.6(kev)  
Stop : 4096:4097.2(kev)  
Acq. Start :Wed Nov 11 11:34:06 2015



ROI Type: 1

ROI Type: 2

*103  
11/11/15*Analysis Report for 1510093-05  
CP5002S06-07

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-05  
Sample Description : CP5002S06-07  
Sample Type : SOIL

Sample Size : 5.505E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:28:58AM  
Acquisition Started : 11/11/2015 10:33:58AM

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) : 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 : 29477

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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*AG  
11/12/15*

Analysis Report for 1510093-05  
CP5002S06-07

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 11:34:08AM  
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	46.48	46.58	0.0000	0.00
2	62.67	62.76	0.0000	0.00
3	76.34	76.43	0.0000	0.00
4	88.14	88.22	0.0000	0.00
5	93.31	93.39	0.0000	0.00
6	129.23	129.29	0.0000	0.00
7	186.29	186.32	0.0000	0.00
8	209.56	209.57	0.0000	0.00
9	225.88	225.89	0.0000	0.00
10	238.78	238.78	0.0000	0.00
11	241.80	241.80	0.0000	0.00
12	270.18	270.16	0.0000	0.00
13	295.32	295.29	0.0000	0.00
14	300.05	300.01	0.0000	0.00
15	316.93	316.88	0.0000	0.00
16	329.05	329.00	0.0000	0.00
17	338.86	338.80	0.0000	0.00
18	351.94	351.88	0.0000	0.00
19	409.89	409.80	0.0000	0.00
20	425.41	425.31	0.0000	0.00
21	463.07	462.95	0.0000	0.00
22	511.11	510.97	0.0000	0.00
23	534.99	534.83	0.0000	0.00
24	583.28	583.10	0.0000	0.00
25	609.33	609.14	0.0000	0.00
26	726.63	726.38	0.0000	0.00
27	768.06	767.79	0.0000	0.00
28	772.24	771.97	0.0000	0.00
29	795.72	795.45	0.0000	0.00
30	837.15	836.86	0.0000	0.00
31	860.41	860.10	0.0000	0.00
32	911.37	911.05	0.0000	0.00
33	916.56	916.23	0.0000	0.00
34	933.78	933.44	0.0000	0.00
35	948.42	948.08	0.0000	0.00
36	964.76	964.42	0.0000	0.00
37	969.56	969.21	0.0000	0.00
38	1120.27	1119.86	0.0000	0.00
39	1238.64	1238.19	0.0000	0.00
40	1358.08	1357.59	0.0000	0.00
41	1378.63	1378.13	0.0000	0.00
42	1407.86	1407.35	0.0000	0.00

Analysis Report for 1510093-05  
CP5002S06-07

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1450.59	1450.07	0.0000	0.00
44	1460.99	1460.47	0.0000	0.00
45	1479.15	1478.62	0.0000	0.00
46	1550.43	1549.88	0.0000	0.00
47	1584.60	1584.04	0.0000	0.00
48	1619.97	1619.40	0.0000	0.00
49	1662.55	1661.97	0.0000	0.00
50	1669.71	1669.13	0.0000	0.00
51	1728.82	1728.22	0.0000	0.00
52	1764.36	1763.76	0.0000	0.00
53	1824.45	1823.83	0.0000	0.00
54	1889.80	1889.17	0.0000	0.00
55	2069.36	2068.69	0.0000	0.00
56	2205.09	2204.40	0.0000	0.00
57	2345.87	2345.15	0.0000	0.00
58	2360.89	2360.18	0.0000	0.00
59	2392.12	2391.40	0.0000	0.00
60	2614.32	2613.58	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-05  
CP5002S06-07

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 11:34:08AM

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	46.48	43 -	50	46.58	1.95E+02	108.09	1.81E+03	1.90
2	62.67	59 -	67	62.76	1.71E+02	117.21	2.02E+03	1.73
3	76.34	72 -	83	76.43	9.72E+02	166.65	2.94E+03	3.52
4	88.14	86 -	91	88.22	1.50E+02	88.58	1.45E+03	3.59
5	93.31	91 -	96	93.39	1.98E+02	84.76	1.21E+03	1.46
6	129.23	127 -	132	129.29	5.40E+01	66.90	8.52E+02	1.47
7	186.29	183 -	190	186.32	2.18E+02	76.32	8.19E+02	1.47
8	209.56	207 -	213	209.57	7.95E+01	63.76	6.73E+02	1.77
9	225.88	224 -	229	225.89	4.87E+01	51.87	4.97E+02	1.31
M 10	238.78	234 -	247	238.78	9.69E+02	73.58	3.76E+02	1.54
m 11	241.80	234 -	247	241.80	2.41E+02	84.83	4.46E+02	2.28
12	270.18	267 -	273	270.16	6.25E+01	51.37	4.35E+02	1.93
M 13	295.32	291 -	305	295.29	3.13E+02	47.15	2.07E+02	1.65
m 14	300.05	291 -	305	300.01	7.98E+01	36.86	2.09E+02	1.66
15	316.93	314 -	319	316.88	4.09E+01	38.54	2.60E+02	1.91
16	329.05	326 -	334	329.00	7.77E+01	55.75	4.37E+02	2.38
17	338.86	335 -	344	338.80	2.02E+02	66.57	5.13E+02	1.87
18	351.94	348 -	355	351.88	4.61E+02	62.74	3.49E+02	1.36
19	409.89	405 -	414	409.80	5.45E+01	53.82	3.77E+02	2.62
20	425.41	422 -	430	425.31	3.65E+01	44.27	2.79E+02	4.17
21	463.07	460 -	466	462.95	4.95E+01	37.57	2.21E+02	1.96
22	511.11	507 -	516	510.97	1.75E+02	54.23	3.08E+02	1.82
23	534.99	532 -	539	534.83	3.46E+01	33.53	1.65E+02	4.20
24	583.28	578 -	587	583.10	3.11E+02	52.10	2.09E+02	1.65
25	609.33	606 -	613	609.14	3.47E+02	50.00	1.87E+02	1.81
26	726.63	720 -	731	726.38	1.02E+02	42.99	1.80E+02	2.09
M 27	768.06	763 -	774	767.79	4.41E+01	30.98	1.22E+02	2.69
m 28	772.24	763 -	774	771.97	2.11E+01	19.99	6.36E+01	2.23
29	795.72	792 -	800	795.45	5.94E+01	27.58	7.92E+01	2.10
30	837.15	831 -	843	836.86	4.05E+01	37.79	1.47E+02	6.13
31	860.41	856 -	865	860.10	5.09E+01	32.70	1.20E+02	2.30
M 32	911.37	907 -	929	911.05	1.79E+02	32.98	6.63E+01	1.99
m 33	916.56	907 -	929	916.23	1.88E+01	23.02	9.36E+01	2.36
M 34	933.78	930 -	951	933.44	3.00E+01	22.48	9.06E+01	2.88
m 35	948.42	930 -	951	948.08	2.40E+01	21.01	4.92E+01	2.90
M 36	964.76	961 -	975	964.42	4.34E+01	23.93	8.43E+01	2.41
m 37	969.56	961 -	975	969.21	1.05E+02	28.64	5.20E+01	2.41
38	1120.27	1116 -	1123	1119.86	8.12E+01	28.77	8.37E+01	1.35
39	1238.64	1234 -	1241	1238.19	3.22E+01	31.11	1.40E+02	1.37
40	1358.08	1353 -	1362	1357.59	1.53E+01	17.52	3.54E+01	6.29

Analysis Report for 1510093-05

CP5002S06-07

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1378.63	1372 -	1382	1378.13	2.39E+01	21.27	4.22E+01	2.26
42	1407.86	1404 -	1410	1407.35	1.68E+01	13.77	1.83E+01	1.40
43	1450.59	1448 -	1452	1450.07	8.94E+00	10.76	1.81E+01	2.39
44	1460.99	1455 -	1465	1460.47	7.45E+02	56.79	3.30E+01	2.34
45	1479.15	1476 -	1482	1478.62	1.11E+01	10.04	9.75E+00	2.97
46	1550.43	1547 -	1553	1549.88	7.40E+00	8.03	5.20E+00	1.15
47	1584.60	1578 -	1590	1584.04	1.51E+01	19.84	3.97E+01	7.65
48	1619.97	1615 -	1627	1619.40	1.66E+01	13.44	1.48E+01	5.22
49	1662.55	1658 -	1665	1661.97	1.03E+01	10.58	1.15E+01	2.06
50	1669.71	1666 -	1672	1669.13	1.05E+01	7.76	2.92E+00	4.37
51	1728.82	1722 -	1735	1728.22	1.32E+01	17.44	2.76E+01	5.58
52	1764.36	1757 -	1770	1763.76	5.96E+01	23.52	3.48E+01	2.24
53	1824.45	1820 -	1826	1823.83	6.00E+00	4.90	0.00E+00	1.98
54	1889.80	1886 -	1891	1889.17	6.50E+00	6.40	3.00E+00	1.11
55	2069.36	2065 -	2071	2068.69	5.21E+00	6.34	3.57E+00	2.93
56	2205.09	2198 -	2209	2204.40	1.85E+01	17.66	2.89E+01	1.98
57	2345.87	2339 -	2353	2345.15	1.55E+01	16.64	2.30E+01	3.22
58	2360.89	2354 -	2365	2360.18	1.51E+01	14.28	1.77E+01	7.34
59	2392.12	2387 -	2394	2391.40	6.00E+00	8.49	8.00E+00	4.42
60	2614.32	2609 -	2618	2613.58	1.04E+02	20.40	0.00E+00	2.59

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 : 11/11/2015 11:34:08AM

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	46.48	43 -	50	1.95E+02	108.09	1.81E+03	8.58E+01
2	62.67	59 -	67	1.71E+02	117.21	2.02E+03	9.39E+01
3	76.34	72 -	83	9.72E+02	166.65	2.94E+03	1.27E+02
4	88.14	86 -	91	1.50E+02	88.58	1.45E+03	7.00E+01
5	93.31	91 -	96	1.98E+02	84.76	1.21E+03	6.57E+01
6	129.23	127 -	132	5.40E+01	66.90	8.52E+02	5.37E+01
7	186.29	183 -	190	2.18E+02	76.32	8.19E+02	5.78E+01
8	209.56	207 -	213	7.95E+01	63.76	6.73E+02	5.03E+01

Analysis Report for 1510093-05

CP5002S06-07

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	9	225.88	224 -	229	4.87E+01	51.87	4.97E+02	4.11E+01
M	10	238.78	234 -	247	9.69E+02	73.58	3.76E+02	3.19E+01
m	11	241.80	234 -	247	2.41E+02	84.83	4.46E+02	3.47E+01
	12	270.18	267 -	273	6.25E+01	51.37	4.35E+02	4.02E+01
M	13	295.32	291 -	305	3.13E+02	47.15	2.07E+02	2.36E+01
m	14	300.05	291 -	305	7.98E+01	36.86	2.09E+02	2.38E+01
	15	316.93	314 -	319	4.09E+01	38.54	2.60E+02	2.99E+01
	16	329.05	326 -	334	7.77E+01	55.75	4.37E+02	4.35E+01
	17	338.86	335 -	344	2.02E+02	66.57	5.13E+02	4.95E+01
	18	351.94	348 -	355	4.61E+02	62.74	3.49E+02	3.76E+01
	19	409.89	405 -	414	5.45E+01	53.82	3.77E+02	4.25E+01
	20	425.41	422 -	430	3.65E+01	44.27	2.79E+02	3.50E+01
	21	463.07	460 -	466	4.95E+01	37.57	2.21E+02	2.86E+01
	22	511.11	507 -	516	1.75E+02	54.23	3.08E+02	3.89E+01
	23	534.99	532 -	539	3.46E+01	33.53	1.65E+02	2.58E+01
	24	583.28	578 -	587	3.11E+02	52.10	2.09E+02	3.15E+01
	25	609.33	606 -	613	3.47E+02	50.00	1.87E+02	2.74E+01
	26	726.63	720 -	731	1.02E+02	42.99	1.80E+02	3.12E+01
M	27	768.06	763 -	774	4.41E+01	30.98	1.22E+02	1.81E+01
m	28	772.24	763 -	774	2.11E+01	19.99	6.36E+01	1.31E+01
	29	795.72	792 -	800	5.94E+01	27.58	7.92E+01	1.88E+01
	30	837.15	831 -	843	4.05E+01	37.79	1.47E+02	2.92E+01
	31	860.41	856 -	865	5.09E+01	32.70	1.20E+02	3.22E+01
M	32	911.37	907 -	929	1.79E+02	32.98	6.63E+01	1.34E+01
m	33	916.56	907 -	929	1.88E+01	23.02	9.36E+01	1.59E+01
M	34	933.78	930 -	951	3.00E+01	22.48	9.06E+01	1.56E+01
m	35	948.42	930 -	951	2.40E+01	21.01	4.92E+01	1.15E+01
M	36	964.76	961 -	975	4.34E+01	23.93	8.43E+01	1.51E+01
m	37	969.56	961 -	975	1.05E+02	28.64	5.20E+01	1.19E+01
	38	1120.27	1116 -	1123	8.12E+01	28.77	8.37E+01	1.84E+01
	39	1238.64	1234 -	1241	3.22E+01	31.11	1.40E+02	2.38E+01
	40	1358.08	1353 -	1362	1.53E+01	17.52	3.54E+01	1.29E+01
	41	1378.63	1372 -	1382	2.39E+01	21.27	4.22E+01	1.55E+01
	42	1407.86	1404 -	1410	1.68E+01	13.77	1.83E+01	9.09E+00
	43	1450.59	1448 -	1452	8.94E+00	10.76	1.81E+01	7.35E+00
	44	1460.99	1455 -	1465	7.45E+02	56.79	3.30E+01	1.29E+01
	45	1479.15	1476 -	1482	1.11E+01	10.04	9.75E+00	6.17E+00
	46	1550.43	1547 -	1553	7.40E+00	8.03	5.20E+00	4.86E+00
	47	1584.60	1578 -	1590	1.51E+01	19.84	3.97E+01	1.50E+01
	48	1619.97	1615 -	1627	1.66E+01	13.44	1.48E+01	8.78E+00
	49	1662.55	1658 -	1665	1.03E+01	10.58	1.15E+01	6.93E+00
	50	1669.71	1666 -	1672	1.05E+01	7.76	2.92E+00	3.50E+00
	51	1728.82	1722 -	1735	1.32E+01	17.44	2.76E+01	1.30E+01
	52	1764.36	1757 -	1770	5.96E+01	23.52	3.48E+01	1.46E+01
	53	1824.45	1820 -	1826	6.00E+00	4.90	0.00E+00	0.00E+00
	54	1889.80	1886 -	1891	6.50E+00	6.40	3.00E+00	3.18E+00
	55	2069.36	2065 -	2071	5.21E+00	6.34	3.57E+00	3.62E+00
	56	2205.09	2198 -	2209	1.85E+01	17.66	2.89E+01	1.27E+01
	57	2345.87	2339 -	2353	1.55E+01	16.64	2.30E+01	1.20E+01
	58	2360.89	2354 -	2365	1.51E+01	14.28	1.77E+01	9.84E+00
	59	2392.12	2387 -	2394	6.00E+00	8.49	8.00E+00	5.70E+00

Analysis Report for 1510093-05  
 CP5002S06-07

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2614.32	2609 -	2618	1.04E+02	20.40	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 : 11/11/2015 11:34:08AM

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	46.48	43 -	50	46.58	1.95E+02	108.09	1.81E+03	PB-210
2	62.67	59 -	67	62.76	1.71E+02	117.21	2.02E+03	TH-230 TH-234
3	76.34	72 -	83	76.43	9.72E+02	166.65	2.94E+03	.....
4	88.14	86 -	91	88.22	1.50E+02	88.58	1.45E+03	CD-109 LU-176 SN-126
5	93.31	91 -	96	93.39	1.98E+02	84.76	1.21E+03	GA-67
6	129.23	127 -	132	129.29	5.40E+01	66.90	8.52E+02	.....
7	186.29	183 -	190	186.32	2.18E+02	76.32	8.19E+02	RA-226
8	209.56	207 -	213	209.57	7.95E+01	63.76	6.73E+02	CM-243 GA-67
9	225.88	224 -	229	225.89	4.87E+01	51.87	4.97E+02	.....
M 10	238.78	234 -	247	238.78	9.69E+02	73.58	3.76E+02	PB-212
m 11	241.80	234 -	247	241.80	2.41E+02	84.83	4.46E+02	RA-224
12	270.18	267 -	273	270.16	6.25E+01	51.37	4.35E+02	.....
M 13	295.32	291 -	305	295.29	3.13E+02	47.15	2.07E+02	PB-214
m 14	300.05	291 -	305	300.01	7.98E+01	36.86	2.09E+02	PB-212 BI-210M GA-67
15	316.93	314 -	319	316.88	4.09E+01	38.54	2.60E+02	.....
16	329.05	326 -	334	329.00	7.77E+01	55.75	4.37E+02	LA-140
17	338.86	335 -	344	338.80	2.02E+02	66.57	5.13E+02	AC-228
18	351.94	348 -	355	351.88	4.61E+02	62.74	3.49E+02	PB-214
19	409.89	405 -	414	409.80	5.45E+01	53.82	3.77E+02	.....



Analysis Report for 1510093-05

CP5002S06-07

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	20	425.41	422 -	430	425.31	3.65E+01	44.27	2.79E+02	.....
	21	463.07	460 -	466	462.95	4.95E+01	37.57	2.21E+02	SB-125
	22	511.11	507 -	516	510.97	1.75E+02	54.23	3.08E+02	.....
	23	534.99	532 -	539	534.83	3.46E+01	33.53	1.65E+02	.....
	24	583.28	578 -	587	583.10	3.11E+02	52.10	2.09E+02	TL-208
	25	609.33	606 -	613	609.14	3.47E+02	50.00	1.87E+02	BI-214
	26	726.63	720 -	731	726.38	1.02E+02	42.99	1.80E+02	BI-212
M	27	768.06	763 -	774	767.79	4.41E+01	30.98	1.22E+02	.....
m	28	772.24	763 -	774	771.97	2.11E+01	19.99	6.36E+01	.....
	29	795.72	792 -	800	795.45	5.94E+01	27.58	7.92E+01	CS-134
	30	837.15	831 -	843	836.86	4.05E+01	37.79	1.47E+02	.....
	31	860.41	856 -	865	860.10	5.09E+01	32.70	1.20E+02	TL-208
M	32	911.37	907 -	929	911.05	1.79E+02	32.98	6.63E+01	AC-228 LU-172
m	33	916.56	907 -	929	916.23	1.88E+01	23.02	9.36E+01	.....
M	34	933.78	930 -	951	933.44	3.00E+01	22.48	9.06E+01	.....
m	35	948.42	930 -	951	948.08	2.40E+01	21.01	4.92E+01	.....
M	36	964.76	961 -	975	964.42	4.34E+01	23.93	8.43E+01	EU-152
m	37	969.56	961 -	975	969.21	1.05E+02	28.64	5.20E+01	AC-228
	38	1120.27	1116 -	1123	1119.86	8.12E+01	28.77	8.37E+01	BI-214 SC-46
	39	1238.64	1234 -	1241	1238.19	3.22E+01	31.11	1.40E+02	CO-56
	40	1358.08	1353 -	1362	1357.59	1.53E+01	17.52	3.54E+01	.....
	41	1378.63	1372 -	1382	1378.13	2.39E+01	21.27	4.22E+01	.....
	42	1407.86	1404 -	1410	1407.35	1.68E+01	13.77	1.83E+01	EU-152
	43	1450.59	1448 -	1452	1450.07	8.94E+00	10.76	1.81E+01	.....
	44	1460.99	1455 -	1465	1460.47	7.45E+02	56.79	3.30E+01	K-40
	45	1479.15	1476 -	1482	1478.62	1.11E+01	10.04	9.75E+00	.....
	46	1550.43	1547 -	1553	1549.88	7.40E+00	8.03	5.20E+00	.....
	47	1584.60	1578 -	1590	1584.04	1.51E+01	19.84	3.97E+01	.....
	48	1619.97	1615 -	1627	1619.40	1.66E+01	13.44	1.48E+01	BI-212
	49	1662.55	1658 -	1665	1661.97	1.03E+01	10.58	1.15E+01	.....
	50	1669.71	1666 -	1672	1669.13	1.05E+01	7.76	2.92E+00	.....
	51	1728.82	1722 -	1735	1728.22	1.32E+01	17.44	2.76E+01	.....
	52	1764.36	1757 -	1770	1763.76	5.96E+01	23.52	3.48E+01	BI-214
	53	1824.45	1820 -	1826	1823.83	6.00E+00	4.90	0.00E+00	.....
	54	1889.80	1886 -	1891	1889.17	6.50E+00	6.40	3.00E+00	.....
	55	2069.36	2065 -	2071	2068.69	5.21E+00	6.34	3.57E+00	.....
	56	2205.09	2198 -	2209	2204.40	1.85E+01	17.66	2.89E+01	BI-214
	57	2345.87	2339 -	2353	2345.15	1.55E+01	16.64	2.30E+01	.....
	58	2360.89	2354 -	2365	2360.18	1.51E+01	14.28	1.77E+01	.....
	59	2392.12	2387 -	2394	2391.40	6.00E+00	8.49	8.00E+00	.....
	60	2614.32	2609 -	2618	2613.58	1.04E+02	20.40	0.00E+00	TL-208

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1510093-05  
CP5002S06-07

## PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/11/2015 11:34:08AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.48	1.95E+02	108.09	1.34E-02	1.68E-03
	2	62.67	1.71E+02	117.21	2.35E-02	1.99E-03
	3	76.34	9.72E+02	166.65	2.74E-02	3.35E-03
	4	88.14	1.50E+02	88.58	2.84E-02	4.50E-03
	5	93.31	1.98E+02	84.76	2.85E-02	4.27E-03
	6	129.23	5.40E+01	66.90	2.60E-02	2.77E-03
	7	186.29	2.18E+02	76.32	2.11E-02	1.65E-03
	8	209.56	7.95E+01	63.76	1.95E-02	1.63E-03
	9	225.88	4.87E+01	51.87	1.85E-02	1.61E-03
M	10	238.78	9.69E+02	73.58	1.79E-02	1.60E-03
m	11	241.80	2.41E+02	84.83	1.77E-02	1.60E-03
	12	270.18	6.25E+01	51.37	1.64E-02	1.57E-03
M	13	295.32	3.13E+02	47.15	1.55E-02	1.48E-03
m	14	300.05	7.98E+01	36.86	1.53E-02	1.46E-03
	15	316.93	4.09E+01	38.54	1.47E-02	1.38E-03
	16	329.05	7.77E+01	55.75	1.44E-02	1.32E-03
	17	338.86	2.02E+02	66.57	1.41E-02	1.27E-03
	18	351.94	4.61E+02	62.74	1.37E-02	1.21E-03
	19	409.89	5.45E+01	53.82	1.24E-02	1.00E-03
	20	425.41	3.65E+01	44.27	1.20E-02	9.85E-04
	21	463.07	4.95E+01	37.57	1.13E-02	9.47E-04
	22	511.11	1.75E+02	54.23	1.06E-02	8.98E-04
	23	534.99	3.46E+01	33.53	1.02E-02	8.74E-04
	24	583.28	3.11E+02	52.10	9.58E-03	8.25E-04
	25	609.33	3.47E+02	50.00	9.27E-03	7.98E-04
	26	726.63	1.02E+02	42.99	8.09E-03	7.03E-04
M	27	768.06	4.41E+01	30.98	7.74E-03	6.77E-04
m	28	772.24	2.11E+01	19.99	7.71E-03	6.74E-04
	29	795.72	5.94E+01	27.58	7.53E-03	6.59E-04
	30	837.15	4.05E+01	37.79	7.23E-03	6.32E-04
	31	860.41	5.09E+01	32.70	7.07E-03	6.18E-04
M	32	911.37	1.79E+02	32.98	6.74E-03	5.87E-04
m	33	916.56	1.88E+01	23.02	6.71E-03	5.84E-04
M	34	933.78	3.00E+01	22.48	6.61E-03	5.75E-04
m	35	948.42	2.40E+01	21.01	6.53E-03	5.68E-04
M	36	964.76	4.34E+01	23.93	6.44E-03	5.59E-04
m	37	969.56	1.05E+02	28.64	6.41E-03	5.57E-04
	38	1120.27	8.12E+01	28.77	5.70E-03	4.80E-04
	39	1238.64	3.22E+01	31.11	5.27E-03	4.83E-04
	40	1358.08	1.53E+01	17.52	4.92E-03	5.16E-04
	41	1378.63	2.39E+01	21.27	4.87E-03	5.07E-04
	42	1407.86	1.68E+01	13.77	4.79E-03	4.95E-04
	43	1450.59	8.94E+00	10.76	4.70E-03	4.78E-04
	44	1460.99	7.45E+02	56.79	4.67E-03	4.73E-04
	45	1479.15	1.11E+01	10.04	4.63E-03	4.66E-04

Analysis Report for 1510093-05  
CP5002S06-07

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1550.43	7.40E+00	8.03	4.50E-03	4.36E-04
47	1584.60	1.51E+01	19.84	4.44E-03	4.22E-04
48	1619.97	1.66E+01	13.44	4.38E-03	4.07E-04
49	1662.55	1.03E+01	10.58	4.31E-03	3.90E-04
50	1669.71	1.05E+01	7.76	4.30E-03	3.87E-04
51	1728.82	1.32E+01	17.44	4.23E-03	3.62E-04
52	1764.36	5.96E+01	23.52	4.19E-03	3.48E-04
53	1824.45	6.00E+00	4.90	4.12E-03	3.23E-04
54	1889.80	6.50E+00	6.40	4.07E-03	3.18E-04
55	2069.36	5.21E+00	6.34	3.96E-03	3.18E-04
56	2205.09	1.85E+01	17.66	3.93E-03	3.18E-04
57	2345.87	1.55E+01	16.64	3.94E-03	3.18E-04
58	2360.89	1.51E+01	14.28	3.94E-03	3.18E-04
59	2392.12	6.00E+00	8.49	3.95E-03	3.18E-04
60	2614.32	1.04E+02	20.40	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 : 11/11/2015 11:34:08AM

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	46.48	1.95E+02	108.09	6.46E+01	1.16E+01	1.30E+02	1.09E+02
2	62.67	1.71E+02	117.21	4.34E+01	1.15E+01	1.27E+02	1.18E+02
3	76.34	9.72E+02	166.65			9.72E+02	1.67E+02
4	88.14	1.50E+02	88.58	1.46E+00	7.88E+00	1.49E+02	8.89E+01
5	93.31	1.98E+02	84.76	5.70E+01	9.03E+00	1.41E+02	8.52E+01
6	129.23	5.40E+01	66.90			5.40E+01	6.69E+01
7	186.29	2.18E+02	76.32	4.72E+01	7.97E+00	1.71E+02	7.67E+01
8	209.56	7.95E+01	63.76			7.95E+01	6.38E+01
9	225.88	4.87E+01	51.87			4.87E+01	5.19E+01
M 10	238.78	9.69E+02	73.58	2.36E+01	1.35E+01	9.45E+02	7.48E+01
m 11	241.80	2.41E+02	84.83	6.38E+00	3.91E+00	2.35E+02	8.49E+01
12	270.18	6.25E+01	51.37			6.25E+01	5.14E+01
M 13	295.32	3.13E+02	47.15	8.57E+00	6.10E+00	3.05E+02	4.75E+01
m 14	300.05	7.98E+01	36.86			7.98E+01	3.69E+01
15	316.93	4.09E+01	38.54			4.09E+01	3.85E+01

Analysis Report for 1510093-05

CP5002S06-07

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
16	329.05	7.77E+01	55.75			7.77E+01	5.57E+01
17	338.86	2.02E+02	66.57			2.02E+02	6.66E+01
18	351.94	4.61E+02	62.74	1.40E+01	5.55E+00	4.47E+02	6.30E+01
19	409.89	5.45E+01	53.82			5.45E+01	5.38E+01
20	425.41	3.65E+01	44.27			3.65E+01	4.43E+01
21	463.07	4.95E+01	37.57			4.95E+01	3.76E+01
22	511.11	1.75E+02	54.23	8.41E+01	5.50E+00	9.07E+01	5.45E+01
23	534.99	3.46E+01	33.53			3.46E+01	3.35E+01
24	583.28	3.11E+02	52.10	7.32E+00	4.08E+00	3.04E+02	5.23E+01
25	609.33	3.47E+02	50.00	1.30E+01	3.89E+00	3.34E+02	5.02E+01
26	726.63	1.02E+02	42.99			1.02E+02	4.30E+01
M 27	768.06	4.41E+01	30.98			4.41E+01	3.10E+01
m 28	772.24	2.11E+01	19.99			2.11E+01	2.00E+01
29	795.72	5.94E+01	27.58			5.94E+01	2.76E+01
30	837.15	4.05E+01	37.79			4.05E+01	3.78E+01
31	860.41	5.09E+01	32.70			5.09E+01	3.27E+01
M 32	911.37	1.79E+02	32.98	5.60E+00	3.32E+00	1.73E+02	3.32E+01
m 33	916.56	1.88E+01	23.02			1.88E+01	2.30E+01
M 34	933.78	3.00E+01	22.48			3.00E+01	2.25E+01
m 35	948.42	2.40E+01	21.01			2.40E+01	2.10E+01
M 36	964.76	4.34E+01	23.93			4.34E+01	2.39E+01
m 37	969.56	1.05E+02	28.64			1.05E+02	2.86E+01
38	1120.27	8.12E+01	28.77	3.93E+00	2.96E+00	7.72E+01	2.89E+01
39	1238.64	3.22E+01	31.11			3.22E+01	3.11E+01
40	1358.08	1.53E+01	17.52			1.53E+01	1.75E+01
41	1378.63	2.39E+01	21.27			2.39E+01	2.13E+01
42	1407.86	1.68E+01	13.77			1.68E+01	1.38E+01
43	1450.59	8.94E+00	10.76			8.94E+00	1.08E+01
44	1460.99	7.45E+02	56.79	1.12E+01	2.55E+00	7.33E+02	5.69E+01
45	1479.15	1.11E+01	10.04			1.11E+01	1.00E+01
46	1550.43	7.40E+00	8.03			7.40E+00	8.03E+00
47	1584.60	1.51E+01	19.84			1.51E+01	1.98E+01
48	1619.97	1.66E+01	13.44			1.66E+01	1.34E+01
49	1662.55	1.03E+01	10.58			1.03E+01	1.06E+01
50	1669.71	1.05E+01	7.76			1.05E+01	7.76E+00
51	1728.82	1.32E+01	17.44			1.32E+01	1.74E+01
52	1764.36	5.96E+01	23.52	4.23E+00	2.21E+00	5.54E+01	2.36E+01
53	1824.45	6.00E+00	4.90			6.00E+00	4.90E+00
54	1889.80	6.50E+00	6.40			6.50E+00	6.40E+00
55	2069.36	5.21E+00	6.34			5.21E+00	6.34E+00
56	2205.09	1.85E+01	17.66	5.94E-01	1.16E+00	1.80E+01	1.77E+01
57	2345.87	1.55E+01	16.64			1.55E+01	1.66E+01
58	2360.89	1.51E+01	14.28			1.51E+01	1.43E+01
59	2392.12	6.00E+00	8.49			6.00E+00	8.49E+00
60	2614.32	1.04E+02	20.40	7.38E+00	1.57E+00	9.66E+01	2.05E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1510093-05  
CP5002S06-07

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 11:34:08AM  
 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	46.48	1.95E+02	108.09	6.46E+01	1.16E+01	1.30E+02	1.09E+02	
2	62.67	1.71E+02	117.21	4.34E+01	1.15E+01	1.27E+02	1.18E+02	
3	76.34	9.72E+02	166.65			9.72E+02	1.67E+02	
4	88.14	1.50E+02	88.58	1.46E+00	7.88E+00	1.49E+02	8.89E+01	
5	93.31	1.98E+02	84.76	5.70E+01	9.03E+00	1.41E+02	8.52E+01	
6	129.23	5.40E+01	66.90			5.40E+01	6.69E+01	
7	186.29	2.18E+02	76.32	4.72E+01	7.97E+00	1.71E+02	7.67E+01	
8	209.56	7.95E+01	63.76			7.95E+01	6.38E+01	
9	225.88	4.87E+01	51.87			4.87E+01	5.19E+01	
M	10	238.78	9.69E+02	2.36E+01	1.35E+01	9.45E+02	7.48E+01	
m	11	241.80	2.41E+02	84.83	6.38E+00	2.35E+02	8.49E+01	
	12	270.18	6.25E+01	51.37		6.25E+01	5.14E+01	
M	13	295.32	3.13E+02	47.15	8.57E+00	3.05E+02	4.75E+01	
m	14	300.05	7.98E+01	36.86		7.98E+01	3.69E+01	
	15	316.93	4.09E+01	38.54		4.09E+01	3.85E+01	
	16	329.05	7.77E+01	55.75		7.77E+01	5.57E+01	
	17	338.86	2.02E+02	66.57		2.02E+02	6.66E+01	
	18	351.94	4.61E+02	62.74	1.40E+01	5.55E+00	4.47E+02	6.30E+01
	19	409.89	5.45E+01	53.82		5.45E+01	5.38E+01	
	20	425.41	3.65E+01	44.27		3.65E+01	4.43E+01	
	21	463.07	4.95E+01	37.57		4.95E+01	3.76E+01	
	22	511.11	1.75E+02	54.23	8.41E+01	5.50E+00	9.07E+01	5.45E+01
	23	534.99	3.46E+01	33.53		3.46E+01	3.35E+01	
	24	583.28	3.11E+02	52.10	7.32E+00	4.08E+00	3.04E+02	5.23E+01
	25	609.33	3.47E+02	50.00	1.30E+01	3.89E+00	3.34E+02	5.02E+01
	26	726.63	1.02E+02	42.99		1.02E+02	4.30E+01	
M	27	768.06	4.41E+01	30.98		4.41E+01	3.10E+01	
m	28	772.24	2.11E+01	19.99		2.11E+01	2.00E+01	
	29	795.72	5.94E+01	27.58		5.94E+01	2.76E+01	
	30	837.15	4.05E+01	37.79		4.05E+01	3.78E+01	
	31	860.41	5.09E+01	32.70		5.09E+01	3.27E+01	
M	32	911.37	1.79E+02	32.98	5.60E+00	3.32E+00	1.73E+02	3.32E+01
m	33	916.56	1.88E+01	23.02		1.88E+01	2.30E+01	
M	34	933.78	3.00E+01	22.48		3.00E+01	2.25E+01	
m	35	948.42	2.40E+01	21.01		2.40E+01	2.10E+01	
M	36	964.76	4.34E+01	23.93		4.34E+01	2.39E+01	
m	37	969.56	1.05E+02	28.64		1.05E+02	2.86E+01	
	38	1120.27	8.12E+01	28.77	3.93E+00	2.96E+00	7.72E+01	2.89E+01
	39	1238.64	3.22E+01	31.11		3.22E+01	3.11E+01	

Analysis Report for 1510093-05  
CP5002S06-07

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
40	1358.08	1.53E+01	17.52			1.53E+01	1.75E+01
41	1378.63	2.39E+01	21.27			2.39E+01	2.13E+01
42	1407.86	1.68E+01	13.77			1.68E+01	1.38E+01
43	1450.59	8.94E+00	10.76			8.94E+00	1.08E+01
44	1460.99	7.45E+02	56.79	1.12E+01	2.55E+00	7.33E+02	5.69E+01
45	1479.15	1.11E+01	10.04			1.11E+01	1.00E+01
46	1550.43	7.40E+00	8.03			7.40E+00	8.03E+00
47	1584.60	1.51E+01	19.84			1.51E+01	1.98E+01
48	1619.97	1.66E+01	13.44			1.66E+01	1.34E+01
49	1662.55	1.03E+01	10.58			1.03E+01	1.06E+01
50	1669.71	1.05E+01	7.76			1.05E+01	7.76E+00
51	1728.82	1.32E+01	17.44			1.32E+01	1.74E+01
52	1764.36	5.96E+01	23.52	4.23E+00	2.21E+00	5.54E+01	2.36E+01
53	1824.45	6.00E+00	4.90			6.00E+00	4.90E+00
54	1889.80	6.50E+00	6.40			6.50E+00	6.40E+00
55	2069.36	5.21E+00	6.34			5.21E+00	6.34E+00
56	2205.09	1.85E+01	17.66	5.94E-01	1.16E+00	1.80E+01	1.77E+01
57	2345.87	1.55E+01	16.64			1.55E+01	1.66E+01
58	2360.89	1.51E+01	14.28			1.51E+01	1.43E+01
59	2392.12	6.00E+00	8.49			6.00E+00	8.49E+00
60	2614.32	1.04E+02	20.40	7.38E+00	1.57E+00	9.66E+01	2.05E+01

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.995	1460.81	*	10.67	2.01E+01
		93.31	*	35.70	2.69E+02
		208.95	*	2.24	3.53E+03
GA-67	0.576	300.22	*	16.00	6.31E+02
		88.03	*	3.72	2.02E+00
CD-109	0.998	87.57	*	37.00	1.93E-01
SN-126	0.949	583.14	*	30.22	1.43E+00
TL-208	0.989	860.37	*	4.48	2.19E+00
		2614.66	*	35.85	9.07E-01
PB-210	1.000	46.50	*	4.25	3.14E+00

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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.950	727.17 *	11.80	1.46E+00	6.27E-01
		1620.62 *	2.75	1.88E+00	1.53E+00
PB-212	0.996	238.63 *	44.60	1.62E+00	1.93E-01
		300.09 *	3.41	2.08E+00	9.84E-01
BI-214	0.992	609.31 *	46.30	1.06E+00	1.84E-01
		1120.29 *	15.10	1.22E+00	4.70E-01
		1764.49 *	15.80	1.14E+00	4.96E-01
		2204.22 *	4.98	1.25E+00	1.24E+00
PB-214	0.999	295.21 *	19.19	1.40E+00	2.56E-01
		351.92 *	37.19	1.20E+00	1.99E-01
RA-224	0.898	240.98 *	3.95	4.57E+00	1.71E+00
RA-226	0.999	186.21 *	3.28	3.38E+00	6.37E+00
AC-228	0.974	338.32 *	11.40	1.71E+00	5.86E-01
		911.07 *	27.70	1.26E+00	2.66E-01
		969.11 *	16.60	1.34E+00	3.85E-01
TH-234	0.940	63.29 *	3.80	1.94E+00	1.81E+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 : 11/11/2015 11:34:08AM

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	76.34	2.69970E-01	8.57		
6	129.23	1.50000E-02	61.95		
9	225.88	1.35255E-02	53.27		
12	270.18	1.73641E-02	41.09		
15	316.93	1.13670E-02	47.09		
16	329.05	2.15949E-02	35.85	Sum	
19	409.89	1.51423E-02	49.37		
20	425.41	1.01389E-02	60.64	Sum	
21	463.07	1.37465E-02	37.96	Tol.	SB-125
22	511.11	2.52000E-02	30.04		
23	534.99	9.62370E-03	48.38	Sum	
M	27	768.06	1.22581E-02	35.11	
m	28	772.24	5.86304E-03	47.35	Sum

: 00479

Analysis Report for 1510093-05  
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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide	
	29	795.72	1.65067E-02	23.20	Sum	
	30	837.15	1.12573E-02	46.62		
m	33	916.56	5.22910E-03	61.15		
M	34	933.78	8.33450E-03	37.46		
m	35	948.42	6.66128E-03	43.80	Sum	
M	36	964.76	1.20438E-02	27.59	Sum	
	39	1238.64	8.93655E-03	48.35	Tol.	CO-56
	40	1358.08	4.24663E-03	57.30	Sum	
	41	1378.63	6.63889E-03	44.49		
	42	1407.86	4.67949E-03	40.88	Tol.	EU-152
	43	1450.59	2.48457E-03	60.14		
	45	1479.15	3.09028E-03	45.11		
	46	1550.43	2.05556E-03	54.26		
	47	1584.60	4.20635E-03	65.50		
	49	1662.55	2.84722E-03	51.62		
	50	1669.71	2.92824E-03	36.82	Sum	
	51	1728.82	3.67284E-03	65.93	Sum	
	53	1824.45	1.66667E-03	40.82		
	54	1889.80	1.80556E-03	49.25		
	55	2069.36	1.44841E-03	60.84	Sum	
	57	2345.87	4.31070E-03	53.60	Sum	
	58	2360.89	4.20718E-03	47.15		
	59	2392.12	1.66667E-03	70.71	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
K-40	0.99	1460.81 *	10.67	2.01E+01	2.59E+00
GA-67	0.57	93.31 *	35.70	2.69E+02	1.25E+03
		208.95 *	2.24	3.53E+03	1.60E+04
		300.22 *	16.00	6.31E+02	2.91E+03
CD-109	0.99	88.03 *	3.72	2.02E+00	1.25E+00



Analysis Report for 1510093-05  
CP5002S06-07

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
SN-126	0.94	87.57 *		37.00	1.93E-01	1.19E-01
TL-208	0.98	583.14 *		30.22	1.43E+00	2.75E-01
		860.37 *		4.48	2.19E+00	1.42E+00
		2614.66 *		35.85	9.07E-01	2.05E-01
PB-210	1.00	46.50 *		4.25	3.14E+00	2.65E+00
BI-212	0.95	727.17 *		11.80	1.46E+00	6.27E-01
		1620.62 *		2.75	1.88E+00	1.53E+00
PB-212	0.99	238.63 *		44.60	1.62E+00	1.93E-01
		300.09 *		3.41	2.08E+00	9.84E-01
BI-214	0.99	609.31 *		46.30	1.06E+00	1.84E-01
		1120.29 *		15.10	1.22E+00	4.70E-01
		1764.49 *		15.80	1.14E+00	4.96E-01
		2204.22 *		4.98	1.25E+00	1.24E+00
PB-214	0.99	295.21 *		19.19	1.40E+00	2.56E-01
		351.92 *		37.19	1.20E+00	1.99E-01
RA-224	0.89	240.98 *		3.95	4.57E+00	1.71E+00
RA-226	0.99	186.21 *		3.28	3.38E+00	6.37E+00
AC-228	0.97	338.32 *		11.40	1.71E+00	5.86E-01
		911.07 *		27.70	1.26E+00	2.66E-01
		969.11 *		16.60	1.34E+00	3.85E-01
TH-234	0.94	63.29 *		3.80	1.94E+00	1.81E+00

\* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

## INTERFERENCE CORRECTED REPORT

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.995	2.01E+01	2.59E+00	
GA-67	0.576	2.48E+02	1.11E+03	
? CD-109	0.998	2.02E+00	1.25E+00	
? SN-126	0.949	1.93E-01	1.19E-01	
TL-208	0.989	1.11E+00	1.63E-01	
PB-210	1.000	3.14E+00	2.65E+00	

Analysis Report for 1510093-05  
CP5002S06-07

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
BI-212	0.950	1.52E+00	5.80E-01	
PB-212	0.996	1.60E+00	1.91E-01	
BI-214	0.992	1.09E+00	1.60E-01	
PB-214	0.999	1.27E+00	1.57E-01	
RA-224	0.898	4.57E+00	1.71E+00	
RA-226	0.999	3.38E+00	6.37E+00	
AC-228	0.974	1.34E+00	2.05E-01	
TH-234	0.940	1.94E+00	1.81E+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 1510093-05  
CP5002S06-07

## UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/11/2015 11:34:08AM  
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	76.34	2.69970E-01	8.57		
6	129.23	1.50000E-02	61.95		
9	225.88	1.35255E-02	53.27		
12	270.18	1.73641E-02	41.09		
15	316.93	1.13670E-02	47.09		
16	329.05	2.15949E-02	35.85	Sum	
19	409.89	1.51423E-02	49.37		
20	425.41	1.01389E-02	60.64	Sum	
21	463.07	1.37465E-02	37.96	Tol.	SB-125
22	511.11	2.52000E-02	30.04		
23	534.99	9.62370E-03	48.38	Sum	
M 27	768.06	1.22581E-02	35.11		
m 28	772.24	5.86304E-03	47.35	Sum	
29	795.72	1.65067E-02	23.20	Sum	
30	837.15	1.12573E-02	46.62		
m 33	916.56	5.22910E-03	61.15		
M 34	933.78	8.33450E-03	37.46		
m 35	948.42	6.66128E-03	43.80	Sum	
M 36	964.76	1.20438E-02	27.59	Sum	
39	1238.64	8.93655E-03	48.35	Tol.	CO-56
40	1358.08	4.24663E-03	57.30	Sum	
41	1378.63	6.63889E-03	44.49		
42	1407.86	4.67949E-03	40.88	Tol.	EU-152
43	1450.59	2.48457E-03	60.14		
45	1479.15	3.09028E-03	45.11		
46	1550.43	2.05556E-03	54.26		
47	1584.60	4.20635E-03	65.50		
49	1662.55	2.84722E-03	51.62		
50	1669.71	2.92824E-03	36.82	Sum	
51	1728.82	3.67284E-03	65.93	Sum	
53	1824.45	1.66667E-03	40.82		
54	1889.80	1.80556E-03	49.25		
55	2069.36	1.44841E-03	60.84	Sum	
57	2345.87	4.31070E-03	53.60	Sum	
58	2360.89	4.20718E-03	47.15		

Analysis Report for 1510093-05  
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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
59	2392.12	1.66667E-03	70.71	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	9.77E-02	8.29E-01	8.29E-01
+	NA-22	1274.54	99.94	4.94E-02	9.57E-02	9.57E-02
+	NA-24	1368.53	99.99	-6.26E+12	9.90E+14	2.03E+15
		2754.09	99.86	2.76E+14		9.90E+14
+	AL-26	1808.65	99.76	-1.10E-02	4.96E-02	4.96E-02
+	K-40	1460.81	* 10.67	2.01E+01	8.52E-01	8.52E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-7.73E-03	5.26E-02	5.26E-02
		78.34	96.00	2.98E-01		7.60E-02
+	SC-46	889.25	99.98	-2.90E-03	1.00E-01	1.00E-01
		1120.51	99.99	2.43E-01		1.67E-01
+	V-48	983.52	99.98	1.19E-01	3.23E-01	3.28E-01
		1312.10	97.50	-1.31E-02		3.23E-01
+	CR-51	320.08	9.83	1.41E-01	1.24E+00	1.24E+00
+	MN-54	834.83	99.97	2.49E-02	8.57E-02	8.57E-02
+	CO-56	846.75	99.96	5.67E-02	1.02E-01	1.02E-01
		1037.75	14.03	1.42E-01		7.56E-01
		1238.25	67.00	1.72E-01		2.47E-01
		1771.40	15.51	-5.12E-02		4.74E-01
		2598.48	16.90	1.35E-02		3.24E-01
+	CO-57	122.06	85.51	5.92E-04	5.63E-02	5.63E-02
		136.48	10.60	2.17E-02		4.94E-01
+	CO-58	810.76	99.40	-6.37E-02	8.77E-02	8.77E-02
+	FE-59	1099.22	56.50	-1.07E-01	2.35E-01	2.35E-01
		1291.56	43.20	3.41E-02		3.01E-01
+	CO-60	1173.22	100.00	-4.59E-02	7.49E-02	7.49E-02
		1332.49	100.00	7.74E-03		8.26E-02
+	ZN-65	1115.52	50.75	-1.49E-02	1.86E-01	1.86E-01

Analysis Report for 1510093-05  
CP5002S06-07

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	GA-67	93.31	*	35.70	2.69E+02	2.62E+02	2.62E+02
		208.95	*	2.24	3.53E+03		4.59E+03
		300.22	*	16.00	6.31E+02		9.50E+02
+	SE-75	121.11		16.70	-1.93E-01	9.86E-02	3.17E-01
		136.00		59.20	-6.22E-02		9.86E-02
		264.65		59.80	-4.60E-03		1.01E-01
		279.53		25.20	-5.61E-02		2.67E-01
		400.65		11.40	-2.46E-01		5.41E-01
+	RB-82	776.52		13.00	-2.59E-01	1.34E+00	1.34E+00
+	RB-83	520.41		46.00	-2.31E-02	1.54E-01	1.54E-01
		529.64		30.30	3.06E-02		2.32E-01
		552.65		16.40	9.83E-02		4.35E-01
+	KR-85	513.99		0.43	-1.74E+01	1.49E+01	1.49E+01
+	SR-85	513.99		99.27	-1.09E-01	9.35E-02	9.35E-02
+	Y-88	898.02		93.40	7.87E-03	7.26E-02	9.86E-02
		1836.01		99.38	9.72E-03		7.26E-02
+	NB-93M	16.57		9.43	-5.46E+03	5.49E+03	5.49E+03
+	NB-94	702.63		100.00	-7.86E-03	6.47E-02	7.10E-02
		871.10		100.00	-6.01E-03		6.47E-02
+	NB-95	765.79		99.81	1.40E-01	1.74E-01	1.74E-01
+	NB-95M	235.69		25.00	-1.91E+03	2.24E+02	2.24E+02
+	ZR-95	724.18		43.70	7.28E-02	1.85E-01	2.99E-01
		756.72		55.30	7.58E-02		1.85E-01
+	MO-99	181.06		6.20	5.81E+02	3.11E+03	4.48E+03
		739.58		12.80	7.16E+02		3.11E+03
		778.00		4.50	1.77E+03		8.99E+03
+	RU-103	497.08		89.00	-2.23E-02	1.07E-01	1.07E-01
+	RU-106	621.84		9.80	4.72E-02	7.21E-01	7.21E-01
+	AG-108M	433.93		89.90	1.53E-02	5.93E-02	5.93E-02
		614.37		90.40	-1.32E-02		7.13E-02
		722.95		90.50	-1.49E-01		8.56E-02
+	CD-109	88.03	*	3.72	2.02E+00	1.95E+00	1.95E+00
+	AG-110M	657.75		93.14	1.26E-02	7.92E-02	7.92E-02
		677.61		10.53	1.98E-02		6.60E-01
		706.67		16.46	-1.82E-02		4.68E-01
		763.93		21.98	-2.85E-02		3.89E-01
		884.67		71.63	-7.18E-02		1.01E-01
		1384.27		23.94	6.35E-02		2.75E-01
+	CD-113M	263.70		0.02	1.07E+02	2.23E+02	2.23E+02
+	SN-113	255.12		1.93	4.09E-02	1.05E-01	3.17E+00
		391.69		64.90	1.05E-02		1.05E-01
+	TE123M	159.00		84.10	6.88E-03	7.05E-02	7.05E-02
+	SB-124	602.71		97.87	-4.29E-02	1.00E-01	1.00E-01
		645.85		7.26	-4.59E-01		1.32E+00
		722.78		11.10	-1.79E+00		1.03E+00
		1691.02		49.00	4.20E-02		2.11E-01
+	I-125	35.49		6.49	-7.06E-01	5.68E+00	5.68E+00
+	SB-125	176.33		6.89	-2.23E-02	1.86E-01	7.67E-01

Analysis Report for 1510093-05  
CP5002S06-07

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	SB-125	427.89	29.33	-3.81E-02	1.86E-01	1.86E-01
		463.38	10.35	6.79E-01		6.78E-01
		600.56	17.80	7.78E-03		4.10E-01
		635.90	11.32	1.33E-02		5.87E-01
+	SB-126	414.70	83.30	5.05E-02	4.07E-01	4.07E-01
		666.33	99.60	9.05E-03		4.70E-01
		695.00	99.60	6.06E-02		5.14E-01
		720.50	53.80	-2.30E-01		8.86E-01
+	SN-126	87.57	* 37.00	1.93E-01	1.86E-01	1.86E-01
+	SB-127	473.00	25.00	1.14E+00	8.36E+01	9.71E+01
		685.20	35.70	-1.13E+01		8.36E+01
		783.80	14.70	6.29E+01		2.63E+02
+	I-129	29.78	57.00	-5.51E-01	1.15E+00	1.15E+00
		33.60	13.20	-3.68E-01		2.54E+00
		39.58	7.52	2.08E-01		2.11E+00
+	I-131	284.30	6.05	-3.75E+00	1.19E+00	1.63E+01
		364.48	81.20	1.78E-01		1.19E+00
		636.97	7.26	-5.26E+00		1.69E+01
		722.89	1.80	-1.42E+02		8.17E+01
+	TE-132	49.72	13.10	-2.10E+01	8.68E+01	8.38E+02
		228.16	88.00	-2.82E+01		8.68E+01
+	BA-133	81.00	33.00	2.14E-02	8.62E-02	1.25E-01
		302.84	17.80	-2.49E-01		3.09E-01
		356.01	60.00	-9.79E-03		8.62E-02
+	I-133	529.87	86.30	1.02E+10	4.46E+10	4.46E+10
+	XE-133	81.00	38.00	1.68E+00	9.83E+00	9.83E+00
+	CS-134	563.23	8.38	2.94E-02	9.02E-02	7.02E-01
		569.32	15.43	2.83E-02		3.81E-01
		604.70	97.60	1.30E-02		9.02E-02
		795.84	85.40	1.34E-01		1.04E-01
		801.93	8.73	1.54E-01		7.67E-01
+	CS-135	268.24	16.00	-2.55E-01	3.54E-01	3.54E-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	1.63E+00	4.00E-01	4.15E+00
		163.89	4.61	-1.02E+00		6.63E+00
		176.55	13.56	7.53E-01		2.29E+00
		273.65	12.66	-5.29E-01		2.44E+00
		340.57	48.50	-1.48E-01		8.89E-01
		818.50	99.70	-2.17E-01		4.00E-01
		1048.07	79.60	-8.06E-02		5.89E-01
		1235.34	19.70	4.40E-02		3.47E+00
+	CS-137	661.65	85.12	4.85E-03	8.27E-02	8.27E-02
+	LA-138	788.74	34.00	1.08E-01	9.81E-02	2.30E-01
		1435.80	66.00	-2.84E-02		9.81E-02
+	CE-139	165.85	80.35	-2.90E-03	7.54E-02	7.54E-02
+	BA-140	162.64	6.70	4.43E+00	1.43E+00	4.87E+00
		304.84	4.50	5.49E-01		7.26E+00

Analysis Report for 1510093-05  
CP5002S06-07

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	BA-140	423.70	3.20	-8.46E-01	1.43E+00	1.12E+01
		437.55	2.00	-3.44E+00		1.58E+01
		537.32	25.00	1.04E-01		1.43E+00
+	LA-140	328.77	20.50	1.58E+00	4.51E-01	1.97E+00
		487.03	45.50	3.79E-01		7.87E-01
		815.85	23.50	4.99E-01		1.89E+00
		1596.49	95.49	-2.48E-01		4.51E-01
+	CE-141	145.44	48.40	1.02E-01	2.11E-01	2.11E-01
+	CE-143	57.36	11.80	-5.51E+06	5.21E+06	1.30E+07
		293.26	42.00	-1.30E+06		5.21E+06
		664.55	5.20	-6.76E+06		4.01E+07
+	CE-144	133.54	10.80	2.52E-01	4.84E-01	4.84E-01
+	PM-144	476.78	42.00	1.66E-02	7.13E-02	1.41E-01
		618.01	98.60	6.28E-03		7.13E-02
		696.49	99.49	2.70E-02		8.19E-02
+	PM-145	36.85	21.70	3.18E-02	4.98E-01	9.69E-01
		37.36	39.70	1.63E-02		4.98E-01
		42.30	15.10	-5.21E-02		8.12E-01
		72.40	2.31	-3.72E-01		2.22E+00
+	PM-146	453.90	39.94	5.47E-03	1.40E-01	1.40E-01
		735.90	14.01	1.48E-01		5.08E-01
		747.13	13.10	1.94E-01		5.76E-01
+	ND-147	91.11	28.90	-1.08E+00	1.88E+00	1.88E+00
		531.02	13.10	4.53E-01		3.64E+00
+	PM-149	285.90	3.10	-1.10E+04	7.34E+04	7.34E+04
+	EU-152	121.78	20.50	2.27E-03	2.16E-01	2.16E-01
		244.69	5.40	-2.16E+00		9.63E-01
		344.27	19.13	-3.21E-03		2.82E-01
		778.89	9.20	1.01E-01		8.15E-01
		964.01	10.40	-1.90E+00		9.48E-01
		1085.78	7.22	2.02E-01		1.11E+00
		1112.02	9.60	8.26E-02		8.61E-01
		1407.95	14.94	1.97E-01		5.06E-01
+	GD-153	97.43	31.30	-2.10E-02	1.61E-01	1.61E-01
		103.18	22.20	2.50E-02		2.32E-01
+	EU-154	123.07	40.50	-4.08E-02	1.11E-01	1.11E-01
		723.30	19.70	-6.87E-01		3.96E-01
		873.19	11.50	-9.77E-02		5.24E-01
		996.32	10.30	6.14E-02		7.71E-01
		1004.76	17.90	1.58E-01		4.88E-01
		1274.45	35.50	1.37E-01		2.65E-01
+	EU-155	86.50	30.90	-1.19E-01	2.00E-01	2.00E-01
		105.30	20.70	3.24E-02		2.27E-01
+	EU-156	811.77	10.40	-1.88E-01	3.05E+00	3.05E+00
		1153.47	7.20	-2.18E+00		5.25E+00
		1230.71	8.90	-1.73E+00		4.85E+00
+	HO-166M	184.41	72.60	-5.41E-03	8.70E-02	8.70E-02
		280.45	29.60	-3.93E-02		1.87E-01
		410.94	11.10	4.40E-01		5.76E-01

Analysis Report for 1510093-05  
CP5002S06-07

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	HO-166M	711.69	54.10	1.49E-02	8.70E-02	1.22E-01
+	TM-171	66.72	0.14	3.25E+00	3.71E+01	3.71E+01
+	HF-172	81.75	4.52	-9.49E-01	4.30E-01	9.10E-01
		125.81	11.30	9.94E-02		4.30E-01
+	LU-172	181.53	20.60	3.68E+00	4.62E+00	8.43E+00
		810.06	16.63	-9.33E+00		1.28E+01
		912.12	15.25	6.79E+01		3.26E+01
		1093.66	62.50	9.24E-01		4.62E+00
+	LU-173	100.72	5.24	-2.31E-01	2.93E-01	9.05E-01
		272.11	21.20	1.43E-01		2.93E-01
+	HF-175	343.40	84.00	9.43E-03	9.55E-02	9.55E-02
+	LU-176	88.34	13.30	5.11E-01	5.23E-02	4.72E-01
		201.83	86.00	-1.02E-02		6.33E-02
		306.78	94.00	-1.48E-03		5.23E-02
+	TA-182	67.75	41.20	-2.18E-02	1.48E-01	1.48E-01
		1121.30	34.90	6.44E-01		4.45E-01
		1189.05	16.23	-1.52E-01		6.17E-01
		1221.41	26.98	-1.35E-01		3.66E-01
		1231.02	11.44	-4.86E-02		1.01E+00
+	IR-192	308.46	29.68	1.25E-01	1.56E-01	2.41E-01
		468.07	48.10	3.25E-02		1.56E-01
+	HG-203	279.19	77.30	5.61E-02	1.22E-01	1.22E-01
+	BI-207	569.67	97.72	4.35E-03	5.85E-02	5.85E-02
		1063.62	74.90	-1.73E-02		1.04E-01
+	TL-208	583.14	* 30.22	1.43E+00	1.13E-01	3.14E-01
		860.37	* 4.48	2.19E+00		2.89E+00
		2614.66	* 35.85	9.07E-01		1.13E-01
+	BI-210M	262.00	45.00	-8.03E-02	1.10E-01	1.10E-01
		300.00	23.00	1.53E-01		2.72E-01
+	PB-210	46.50	* 4.25	3.14E+00	4.28E+00	4.28E+00
+	PB-211	404.84	2.90	-7.73E-02	1.89E+00	1.89E+00
		831.96	2.90	1.77E-01		2.57E+00
+	BI-212	727.17	* 11.80	1.46E+00	9.30E-01	9.30E-01
		1620.62	* 2.75	1.88E+00		2.30E+00
+	PB-212	238.63	* 44.60	1.62E+00	2.57E-01	2.57E-01
		300.09	* 3.41	2.08E+00		3.14E+00
+	BI-214	609.31	* 46.30	1.06E+00	1.88E-01	1.88E-01
		1120.29	* 15.10	1.22E+00		6.41E-01
		1764.49	* 15.80	1.14E+00		6.78E-01
		2204.22	* 4.98	1.25E+00		1.97E+00
+	PB-214	295.21	* 19.19	1.40E+00	2.12E-01	5.55E-01
		351.92	* 37.19	1.20E+00		2.12E-01
+	RN-219	401.80	6.50	-4.52E-02	8.05E-01	8.05E-01
+	RA-223	323.87	3.88	9.79E-01	1.34E+00	1.34E+00
+	RA-224	240.98	* 3.95	4.57E+00	2.91E+00	2.91E+00
+	RA-225	40.00	31.00	2.40E-01	2.44E+00	2.44E+00
+	RA-226	186.21	* 3.28	3.38E+00	2.40E+00	2.40E+00
+	TH-227	50.10	8.40	-2.25E-02	6.91E-01	8.99E-01



Analysis Report for 1510093-05  
CP5002S06-07

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	TH-227	236.00		11.50	-5.92E+00	6.91E-01	6.91E-01
		256.20		6.30	-4.69E-01		7.75E-01
+	AC-228	338.32	*	11.40	1.71E+00	7.14E-01	8.64E-01
		911.07	*	27.70	1.26E+00		7.14E-01
		969.11	*	16.60	1.34E+00		7.39E-01
+	TH-230	48.44		16.90	-2.95E-01	4.95E-01	4.95E-01
		62.85		4.60	1.23E+00		1.30E+00
		67.67		0.37	-1.97E+00		1.34E+01
+	PA-231	283.67		1.60	-7.46E-01	2.38E+00	3.24E+00
		302.67		2.30	-1.92E+00		2.38E+00
+	TH-231	25.64		14.70	9.53E+00	6.83E-01	1.55E+01
		84.21		6.40	4.64E-01		6.83E-01
+	PA-233	311.98		38.60	4.06E-02	3.23E-01	3.23E-01
+	PA-234	131.20		20.40	4.38E-02	2.53E-01	2.53E-01
		733.99		8.80	1.68E-01		7.65E-01
		946.00		12.00	5.28E-01		6.41E-01
+	PA-234M	1001.03		0.92	-1.60E+00	8.76E+00	8.76E+00
+	TH-234	63.29	*	3.80	1.94E+00	2.95E+00	2.95E+00
+	U-235	143.76		10.50	2.21E-01	4.67E-01	4.67E-01
		163.35		4.70	9.96E-01		1.09E+00
		205.31		4.70	5.21E-01		1.18E+00
+	NP-237	86.50		12.60	-2.88E-01	4.85E-01	4.85E-01
+	NP-239	106.10		22.70	3.15E+03	4.82E+03	4.82E+03
		228.18		10.70	-3.76E+03		1.16E+04
		277.60		14.10	-2.76E+02		9.10E+03
+	AM-241	59.54		35.90	5.42E-02	1.55E-01	1.55E-01
+	AM-243	74.67		66.00	-2.79E-01	9.98E-02	9.98E-02
+	CM-243	209.75		3.29	2.06E+00	3.96E-01	1.84E+00
		228.14		10.60	-1.64E-01		5.05E-01
		277.60		14.00	-1.20E-02		3.96E-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 1510093-05  
CP5002S06-07

## 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	8.29E-01	8.29E-01	9.77E-02	3.90E-01
NA-22	1274.54	99.94	9.57E-02	9.57E-02	4.94E-02	4.42E-02
NA-24	1368.53	99.99	2.03E+15	9.90E+14	-6.26E+12	9.10E+14
	2754.09	99.86	9.90E+14		2.76E+14	3.71E+14
AL-26	1808.65	99.76	4.96E-02	4.96E-02	-1.10E-02	2.03E-02
+ K-40	1460.81	* 10.67	8.52E-01	8.52E-01	2.01E+01	3.89E-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	5.26E-02	5.26E-02	-7.73E-03	2.55E-02
	78.34	96.00	7.60E-02		2.98E-01	3.73E-02
SC-46	889.25	99.98	1.00E-01	1.00E-01	-2.90E-03	4.66E-02
	1120.51	99.99	1.67E-01		2.43E-01	7.91E-02
V-48	983.52	99.98	3.28E-01	3.23E-01	1.19E-01	1.51E-01
	1312.10	97.50	3.23E-01		-1.31E-02	1.45E-01
CR-51	320.08	9.83	1.24E+00	1.24E+00	1.41E-01	5.88E-01
MN-54	834.83	99.97	8.57E-02	8.57E-02	2.49E-02	4.01E-02
CO-56	846.75	99.96	1.02E-01	1.02E-01	5.67E-02	4.75E-02
	1037.75	14.03	7.56E-01		1.42E-01	3.49E-01
	1238.25	67.00	2.47E-01		1.72E-01	1.16E-01
	1771.40	15.51	4.74E-01		-5.12E-02	1.98E-01
	2598.48	16.90	3.24E-01		1.35E-02	1.26E-01
CO-57	122.06	85.51	5.63E-02	5.63E-02	5.92E-04	2.73E-02
	136.48	10.60	4.94E-01		2.17E-02	2.39E-01
CO-58	810.76	99.40	8.77E-02	8.77E-02	-6.37E-02	4.03E-02
FE-59	1099.22	56.50	2.35E-01	2.35E-01	-1.07E-01	1.08E-01
	1291.56	43.20	3.01E-01		3.41E-02	1.36E-01
CO-60	1173.22	100.00	7.49E-02	7.49E-02	-4.59E-02	3.41E-02
	1332.49	100.00	8.26E-02		7.74E-03	3.76E-02
ZN-65	1115.52	50.75	1.86E-01	1.86E-01	-1.49E-02	8.60E-02
+ GA-67	93.31	* 35.70	2.62E+02	2.62E+02	2.69E+02	1.28E+02
	208.95	* 2.24	4.59E+03		3.53E+03	2.23E+03
	300.22	* 16.00	9.50E+02		6.31E+02	4.64E+02
SE-75	121.11	16.70	3.17E-01	9.86E-02	-1.93E-01	1.53E-01
	136.00	59.20	9.86E-02		-6.22E-02	4.78E-02
	264.65	59.80	1.01E-01		-4.60E-03	4.83E-02
	279.53	25.20	2.67E-01		-5.61E-02	1.28E-01
	400.65	11.40	5.41E-01		-2.46E-01	2.55E-01
RB-82	776.52	13.00	1.34E+00	1.34E+00	-2.59E-01	6.22E-01
RB-83	520.41	46.00	1.54E-01	1.54E-01	-2.31E-02	7.18E-02
	529.64	30.30	2.32E-01		3.06E-02	1.08E-01
	552.65	16.40	4.35E-01		9.83E-02	2.03E-01
KR-85	513.99	0.43	1.49E+01	1.49E+01	-1.74E+01	7.06E+00
SR-85	513.99	99.27	9.35E-02	9.35E-02	-1.09E-01	4.42E-02
Y-88	898.02	93.40	9.86E-02	7.26E-02	7.87E-03	4.57E-02
	1836.01	99.38	7.26E-02		9.72E-03	3.07E-02
NB-93M	16.57	9.43	5.49E+03	5.49E+03	-5.46E+03	2.67E+03

Analysis Report for 1510093-05  
CP5002S06-07

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	7.10E-02	6.47E-02	-7.86E-03	3.33E-02
	871.10	100.00	6.47E-02		-6.01E-03	2.97E-02
NB-95	765.79	99.81	1.74E-01	1.74E-01	1.40E-01	8.24E-02
NB-95M	235.69	25.00	2.24E+02	2.24E+02	-1.91E+03	1.09E+02
ZR-95	724.18	43.70	2.99E-01	1.85E-01	7.28E-02	1.42E-01
	756.72	55.30	1.85E-01		7.58E-02	8.61E-02
MO-99	181.06	6.20	4.48E+03	3.11E+03	5.81E+02	2.16E+03
	739.58	12.80	3.11E+03		7.16E+02	1.46E+03
	778.00	4.50	8.99E+03		1.77E+03	4.20E+03
RU-103	497.08	89.00	1.07E-01	1.07E-01	-2.23E-02	4.98E-02
RU-106	621.84	9.80	7.21E-01	7.21E-01	4.72E-02	3.38E-01
AG-108M	433.93	89.90	5.93E-02	5.93E-02	1.53E-02	2.79E-02
	614.37	90.40	7.13E-02		-1.32E-02	3.34E-02
	722.95	90.50	8.56E-02		-1.49E-01	4.03E-02
+ CD-109	88.03	* 3.72	1.95E+00	1.95E+00	2.02E+00	9.54E-01
AG-110M	657.75	93.14	7.92E-02	7.92E-02	1.26E-02	3.71E-02
	677.61	10.53	6.60E-01		1.98E-02	3.08E-01
	706.67	16.46	4.68E-01		-1.82E-02	2.19E-01
	763.93	21.98	3.89E-01		-2.85E-02	1.83E-01
	884.67	71.63	1.01E-01		-7.18E-02	4.62E-02
	1384.27	23.94	2.75E-01		6.35E-02	1.20E-01
CD-113M	263.70	0.02	2.23E+02	2.23E+02	1.07E+02	1.07E+02
SN-113	255.12	1.93	3.17E+00	1.05E-01	4.09E-02	1.51E+00
	391.69	64.90	1.05E-01		1.05E-02	4.99E-02
TE123M	159.00	84.10	7.05E-02	7.05E-02	6.88E-03	3.41E-02
SB-124	602.71	97.87	1.00E-01	1.00E-01	-4.29E-02	4.71E-02
	645.85	7.26	1.32E+00		-4.59E-01	6.20E-01
	722.78	11.10	1.03E+00		-1.79E+00	4.86E-01
	1691.02	49.00	2.11E-01		4.20E-02	9.25E-02
I-125	35.49	6.49	5.68E+00	5.68E+00	-7.06E-01	2.75E+00
SB-125	176.33	6.89	7.67E-01	1.86E-01	-2.23E-02	3.71E-01
	427.89	29.33	1.86E-01		-3.81E-02	8.77E-02
	463.38	10.35	6.78E-01		6.79E-01	3.23E-01
	600.56	17.80	4.10E-01		7.78E-03	1.94E-01
	635.90	11.32	5.87E-01		1.33E-02	2.75E-01
	414.70	83.30	4.07E-01	4.07E-01	5.05E-02	1.91E-01
SB-126	666.33	99.60	4.70E-01		9.05E-03	2.21E-01
	695.00	99.60	5.14E-01		6.06E-02	2.42E-01
	720.50	53.80	8.86E-01		-2.30E-01	4.14E-01
+ SN-126	87.57	* 37.00	1.86E-01	1.86E-01	1.93E-01	9.12E-02
SB-127	473.00	25.00	9.71E+01	8.36E+01	1.14E+00	4.54E+01
	685.20	35.70	8.36E+01		-1.13E+01	3.90E+01
	783.80	14.70	2.63E+02		6.29E+01	1.24E+02
I-129	29.78	57.00	1.15E+00	1.15E+00	-5.51E-01	5.56E-01
	33.60	13.20	2.54E+00		-3.68E-01	1.23E+00
	39.58	7.52	2.11E+00		2.08E-01	1.03E+00
I-131	284.30	6.05	1.63E+01	1.19E+00	-3.75E+00	7.79E+00
	364.48	81.20	1.19E+00		1.78E-01	5.65E-01
	636.97	7.26	1.69E+01		-5.26E+00	7.91E+00
	722.89	1.80	8.17E+01		-1.42E+02	3.84E+01
TE-132	49.72	13.10	8.38E+02	8.68E+01	-2.10E+01	4.06E+02
	228.16	88.00	8.68E+01		-2.82E+01	4.18E+01
BA-133	81.00	33.00	1.25E-01	8.62E-02	2.14E-02	6.04E-02

Analysis Report for 1510093-05  
CP5002S06-07

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	3.09E-01	8.62E-02	-2.49E-01	1.48E-01
	356.01	60.00	8.62E-02		-9.79E-03	4.08E-02
I-133	529.87	86.30	4.46E+10	4.46E+10	1.02E+10	2.08E+10
XE-133	81.00	38.00	9.83E+00	9.83E+00	1.68E+00	4.76E+00
CS-134	563.23	8.38	7.02E-01	9.02E-02	2.94E-02	3.28E-01
	569.32	15.43	3.81E-01		2.83E-02	1.78E-01
	604.70	97.60	9.02E-02		1.30E-02	4.30E-02
	795.84	85.40	1.04E-01		1.34E-01	4.89E-02
	801.93	8.73	7.67E-01		1.54E-01	3.55E-01
CS-135	268.24	16.00	3.54E-01	3.54E-01	-2.55E-01	1.70E-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	4.15E+00	4.00E-01	1.63E+00	2.01E+00
	163.89	4.61	6.63E+00		-1.02E+00	3.21E+00
	176.55	13.56	2.29E+00		7.53E-01	1.11E+00
	273.65	12.66	2.44E+00		-5.29E-01	1.16E+00
	340.57	48.50	8.89E-01		-1.48E-01	4.28E-01
	818.50	99.70	4.00E-01		-2.17E-01	1.85E-01
	1048.07	79.60	5.89E-01		-8.06E-02	2.71E-01
	1235.34	19.70	3.47E+00		4.40E-02	1.63E+00
CS-137	661.65	85.12	8.27E-02	8.27E-02	4.85E-03	3.89E-02
LA-138	788.74	34.00	2.30E-01	9.81E-02	1.08E-01	1.08E-01
	1435.80	66.00	9.81E-02		-2.84E-02	4.31E-02
CE-139	165.85	80.35	7.54E-02	7.54E-02	-2.90E-03	3.65E-02
BA-140	162.64	6.70	4.87E+00	1.43E+00	4.43E+00	2.36E+00
	304.84	4.50	7.26E+00		5.49E-01	3.46E+00
	423.70	3.20	1.12E+01		-8.46E-01	5.28E+00
	437.55	2.00	1.58E+01		-3.44E+00	7.41E+00
	537.32	25.00	1.43E+00		1.04E-01	6.69E-01
LA-140	328.77	20.50	1.97E+00	4.51E-01	1.58E+00	9.44E-01
	487.03	45.50	7.87E-01		3.79E-01	3.70E-01
	815.85	23.50	1.89E+00		4.99E-01	8.79E-01
	1596.49	95.49	4.51E-01		-2.48E-01	1.97E-01
CE-141	145.44	48.40	2.11E-01	2.11E-01	1.02E-01	1.02E-01
CE-143	57.36	11.80	1.30E+07	5.21E+06	-5.51E+06	6.28E+06
	293.26	42.00	5.21E+06		-1.30E+06	2.52E+06
	664.55	5.20	4.01E+07		-6.76E+06	1.88E+07
CE-144	133.54	10.80	4.84E-01	4.84E-01	2.52E-01	2.35E-01
PM-144	476.78	42.00	1.41E-01	7.13E-02	1.66E-02	6.62E-02
	618.01	98.60	7.13E-02		6.28E-03	3.35E-02
	696.49	99.49	8.19E-02		2.70E-02	3.86E-02
PM-145	36.85	21.70	9.69E-01	4.98E-01	3.18E-02	4.70E-01
	37.36	39.70	4.98E-01		1.63E-02	2.41E-01
	42.30	15.10	8.12E-01		-5.21E-02	3.94E-01
	72.40	2.31	2.22E+00		-3.72E-01	1.08E+00
PM-146	453.90	39.94	1.40E-01	1.40E-01	5.47E-03	6.60E-02
	735.90	14.01	5.08E-01		1.48E-01	2.38E-01
	747.13	13.10	5.76E-01		1.94E-01	2.70E-01
ND-147	91.11	28.90	1.88E+00	1.88E+00	-1.08E+00	9.23E-01
	531.02	13.10	3.64E+00		4.53E-01	1.70E+00
PM-149	285.90	3.10	7.34E+04	7.34E+04	-1.10E+04	3.50E+04
EU-152	121.78	20.50	2.16E-01	2.16E-01	2.27E-03	1.05E-01

Analysis Report for 1510093-05  
CP5002S06-07

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	9.63E-01	2.16E-01	-2.16E+00	4.62E-01
	344.27	19.13	2.82E-01		-3.21E-03	1.34E-01
	778.89	9.20	8.15E-01		1.01E-01	3.81E-01
	964.01	10.40	9.48E-01		-1.90E+00	4.46E-01
	1085.78	7.22	1.11E+00		2.02E-01	5.12E-01
	1112.02	9.60	8.61E-01		8.26E-02	3.97E-01
	1407.95	14.94	5.06E-01		1.97E-01	2.27E-01
GD-153	97.43	31.30	1.61E-01	1.61E-01	-2.10E-02	7.85E-02
	103.18	22.20	2.32E-01		2.50E-02	1.13E-01
EU-154	123.07	40.50	1.11E-01	1.11E-01	-4.08E-02	5.35E-02
	723.30	19.70	3.96E-01		-6.87E-01	1.86E-01
	873.19	11.50	5.24E-01		-9.77E-02	2.39E-01
	996.32	10.30	7.71E-01		6.14E-02	3.57E-01
	1004.76	17.90	4.88E-01		1.58E-01	2.28E-01
	1274.45	35.50	2.65E-01		1.37E-01	1.22E-01
EU-155	86.50	30.90	2.00E-01	2.00E-01	-1.19E-01	9.79E-02
	105.30	20.70	2.27E-01		3.24E-02	1.10E-01
EU-156	811.77	10.40	3.05E+00	3.05E+00	-1.88E-01	1.41E+00
	1153.47	7.20	5.25E+00		-2.18E+00	2.41E+00
	1230.71	8.90	4.85E+00		-1.73E+00	2.24E+00
HO-166M	184.41	72.60	8.70E-02	8.70E-02	-5.41E-03	4.23E-02
	280.45	29.60	1.87E-01		-3.93E-02	8.95E-02
	410.94	11.10	5.76E-01		4.40E-01	2.74E-01
	711.69	54.10	1.22E-01		1.49E-02	5.70E-02
TM-171	66.72	0.14	3.71E+01	3.71E+01	3.25E+00	1.80E+01
HF-172	81.75	4.52	9.10E-01	4.30E-01	-9.49E-01	4.40E-01
	125.81	11.30	4.30E-01		9.94E-02	2.09E-01
LU-172	181.53	20.60	8.43E+00	4.62E+00	3.68E+00	4.07E+00
	810.06	16.63	1.28E+01		-9.33E+00	5.90E+00
	912.12	15.25	3.26E+01		6.79E+01	1.57E+01
	1093.66	62.50	4.62E+00		9.24E-01	2.13E+00
LU-173	100.72	5.24	9.05E-01	2.93E-01	-2.31E-01	4.40E-01
	272.11	21.20	2.93E-01		1.43E-01	1.41E-01
HF-175	343.40	84.00	9.55E-02	9.55E-02	9.43E-03	4.56E-02
LU-176	88.34	13.30	4.72E-01	5.23E-02	5.11E-01	2.31E-01
	201.83	86.00	6.33E-02		-1.02E-02	3.06E-02
	306.78	94.00	5.23E-02		-1.48E-03	2.48E-02
TA-182	67.75	41.20	1.48E-01	1.48E-01	-2.18E-02	7.20E-02
	1121.30	34.90	4.45E-01		6.44E-01	2.11E-01
	1189.05	16.23	6.17E-01		-1.52E-01	2.83E-01
	1221.41	26.98	3.66E-01		-1.35E-01	1.67E-01
	1231.02	11.44	1.01E+00		-4.86E-02	4.69E-01
IR-192	308.46	29.68	2.41E-01	1.56E-01	1.25E-01	1.15E-01
	468.07	48.10	1.56E-01		3.25E-02	7.31E-02
HG-203	279.19	77.30	1.22E-01	1.22E-01	5.61E-02	5.85E-02
BI-207	569.67	97.72	5.85E-02	5.85E-02	4.35E-03	2.73E-02
	1063.62	74.90	1.04E-01		-1.73E-02	4.79E-02
	583.14	* 30.22	3.14E-01		1.13E-01	1.43E+00
+ TL-208	860.37	* 4.48	2.89E+00	1.13E-01	2.19E+00	1.39E+00
	2614.66	* 35.85	1.13E-01		9.07E-01	4.37E-02
	262.00	45.00	1.10E-01		1.10E-01	-8.03E-02
BI-210M	300.00	23.00	2.72E-01	1.10E-01	1.53E-01	1.31E-01
	46.50	* 4.25	4.28E+00		4.28E+00	3.14E+00
+ PB-210	46.50	* 4.25	4.28E+00	4.28E+00	3.14E+00	2.11E+00

Analysis Report for 1510093-05  
CP5002S06-07

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	1.89E+00	1.89E+00	-7.73E-02	8.96E-01
	831.96	2.90	2.57E+00		1.77E-01	1.20E+00
+ BI-212	727.17 *	11.80	9.30E-01	9.30E-01	1.46E+00	4.46E-01
	1620.62 *	2.75	2.30E+00		1.88E+00	9.96E-01
+ PB-212	238.63 *	44.60	2.57E-01	2.57E-01	1.62E+00	1.26E-01
	300.09 *	3.41	3.14E+00		2.08E+00	1.53E+00
+ BI-214	609.31 *	46.30	1.88E-01	1.88E-01	1.06E+00	8.97E-02
	1120.29 *	15.10	6.41E-01		1.22E+00	2.99E-01
	1764.49 *	15.80	6.78E-01		1.14E+00	3.11E-01
	2204.22 *	4.98	1.97E+00		1.25E+00	8.91E-01
+ PB-214	295.21 *	19.19	5.55E-01	2.12E-01	1.40E+00	2.71E-01
	351.92 *	37.19	2.12E-01		1.20E+00	1.03E-01
RN-219	401.80	6.50	8.05E-01	8.05E-01	-4.52E-02	3.80E-01
RA-223	323.87	3.88	1.34E+00	1.34E+00	9.79E-01	6.39E-01
+ RA-224	240.98 *	3.95	2.91E+00	2.91E+00	4.57E+00	1.43E+00
RA-225	40.00	31.00	2.44E+00	2.44E+00	2.40E-01	1.18E+00
+ RA-226	186.21 *	3.28	2.40E+00	2.40E+00	3.38E+00	1.17E+00
TH-227	50.10	8.40	8.99E-01	6.91E-01	-2.25E-02	4.36E-01
	236.00	11.50	6.91E-01		-5.92E+00	3.37E-01
	256.20	6.30	7.75E-01		-4.69E-01	3.70E-01
+ AC-228	338.32 *	11.40	8.64E-01	7.14E-01	1.71E+00	4.21E-01
	911.07 *	27.70	7.14E-01		1.26E+00	3.47E-01
	969.11 *	16.60	7.39E-01		1.34E+00	3.52E-01
TH-230	48.44	16.90	4.95E-01	4.95E-01	-2.95E-01	2.40E-01
	62.85	4.60	1.30E+00		1.23E+00	6.34E-01
	67.67	0.37	1.34E+01		-1.97E+00	6.53E+00
PA-231	283.67	1.60	3.24E+00	2.38E+00	-7.46E-01	1.55E+00
	302.67	2.30	2.38E+00		-1.92E+00	1.14E+00
TH-231	25.64	14.70	1.55E+01	6.83E-01	9.53E+00	7.52E+00
	84.21	6.40	6.83E-01		4.64E-01	3.31E-01
PA-233	311.98	38.60	3.23E-01	3.23E-01	4.06E-02	1.54E-01
PA-234	131.20	20.40	2.53E-01	2.53E-01	4.38E-02	1.23E-01
	733.99	8.80	7.65E-01		1.68E-01	3.56E-01
	946.00	12.00	6.41E-01		5.28E-01	2.97E-01
PA-234M	1001.03	0.92	8.76E+00	8.76E+00	-1.60E+00	4.06E+00
+ TH-234	63.29 *	3.80	2.95E+00	2.95E+00	1.94E+00	1.45E+00
U-235	143.76	10.50	4.67E-01	4.67E-01	2.21E-01	2.27E-01
	163.35	4.70	1.09E+00		9.96E-01	5.30E-01
	205.31	4.70	1.18E+00		5.21E-01	5.72E-01
NP-237	86.50	12.60	4.85E-01	4.85E-01	-2.88E-01	2.37E-01
NP-239	106.10	22.70	4.82E+03	4.82E+03	3.15E+03	2.34E+03
	228.18	10.70	1.16E+04		-3.76E+03	5.57E+03
	277.60	14.10	9.10E+03		-2.76E+02	4.36E+03
AM-241	59.54	35.90	1.55E-01	1.55E-01	5.42E-02	7.53E-02
AM-243	74.67	66.00	9.98E-02	9.98E-02	-2.79E-01	4.88E-02
CM-243	209.75	3.29	1.84E+00	3.96E-01	2.06E+00	8.93E-01
	228.14	10.60	5.05E-01		-1.64E-01	2.43E-01
	277.60	14.00	3.96E-01		-1.20E-02	1.90E-01

Analysis Report for 1510093-05  
CP5002S06-07

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- + = Nuclide identified during the nuclide identification
  - \* = Energy line found in the spectrum
  - > = MDA value not calculated
  - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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***Creation Date***

***Comment***

***User***

No Data Review Comments Entered.

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S06-07

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	1	1	189
9:	601	1104	1109	422	598	1614	276	140
17:	148	123	119	114	106	115	100	108
25:	140	122	106	102	108	109	88	121
33:	116	122	110	120	109	114	115	134
41:	114	120	115	136	125	167	195	131
49:	126	106	114	109	96	125	103	89
57:	77	98	97	123	132	112	164	192
65:	118	120	124	126	122	133	123	151
73:	160	160	379	219	495	377	103	110
81:	98	97	94	132	131	103	184	188
89:	108	176	118	130	237	153	91	75
97:	72	90	73	87	89	63	71	76
105:	106	73	69	85	68	71	82	78
113:	67	86	61	72	64	72	65	62
121:	61	59	67	74	64	78	64	77
129:	112	89	75	63	79	82	75	55
137:	60	73	81	58	58	63	65	84
145:	70	59	61	57	65	67	65	76
153:	65	77	63	59	60	61	65	55
161:	56	57	69	67	73	44	70	57
169:	59	53	52	49	73	53	64	56
177:	56	66	50	53	62	64	47	48
185:	72	190	112	58	53	48	48	58
193:	52	55	47	63	46	56	66	53
201:	49	51	52	69	51	60	48	53
209:	94	78	50	49	44	44	41	54
217:	46	49	45	48	52	51	46	41
225:	69	53	50	40	44	36	38	51
233:	45	42	49	50	50	292	634	104
241:	101	142	57	31	37	37	27	29
249:	36	40	44	32	40	35	34	27
257:	28	33	38	37	26	39	29	24
265:	41	33	28	34	39	66	58	29
273:	26	37	35	30	44	37	37	34
281:	38	33	35	37	21	28	31	31
289:	29	30	11	31	25	36	197	128
297:	40	34	30	73	37	36	30	36
305:	18	24	28	26	27	32	24	28
313:	26	25	29	27	39	32	19	19
321:	27	32	27	31	25	14	37	50
329:	39	34	30	35	31	26	30	24
337:	31	120	97	38	40	28	28	22
345:	26	22	25	15	28	35	106	311
353:	90	23	28	19	21	18	18	23
361:	23	24	14	26	26	14	17	14



369: 23 30 23 19 18 18 20 12

Sample Title: CP5002S06-07

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	26	28	16	25	19	20	20	13
385:	19	25	23	22	22	27	23	26
393:	13	23	21	22	22	18	19	8
401:	21	25	16	25	20	18	25	26
409:	35	37	27	22	19	14	18	16
417:	16	12	16	22	18	13	21	25
425:	27	16	29	15	17	13	18	15
433:	22	19	11	21	15	15	13	14
441:	15	20	15	17	16	16	16	14
449:	13	13	17	15	22	17	22	13
457:	19	19	19	12	16	31	45	29
465:	15	12	20	21	14	15	24	8
473:	13	17	11	15	14	23	20	15
481:	17	10	16	14	23	12	12	18
489:	18	12	9	11	11	19	18	14
497:	10	15	11	15	16	20	6	17
505:	16	23	18	16	26	64	103	44
513:	17	14	13	14	10	15	16	10
521:	18	9	19	14	11	9	9	13
529:	9	22	12	8	19	19	17	21
537:	15	8	10	11	11	11	13	12
545:	12	9	11	9	12	13	14	12
553:	13	11	8	14	11	10	20	11
561:	13	18	15	14	8	12	12	16
569:	16	13	10	13	16	9	11	12
577:	12	12	14	16	11	62	179	88
585:	14	7	13	5	18	12	12	13
593:	9	14	19	12	16	18	17	9
601:	8	17	14	15	11	10	18	58
609:	197	123	12	11	12	13	12	9
617:	8	11	15	12	13	7	12	12
625:	9	10	14	10	12	8	11	7
633:	10	9	12	13	12	7	11	9
641:	14	16	13	9	8	15	7	8
649:	12	11	10	10	9	11	7	7
657:	14	6	18	14	9	11	8	16
665:	9	15	12	10	9	15	9	11
673:	14	9	11	7	7	9	10	10
681:	4	8	14	10	10	7	6	8
689:	9	14	7	12	14	16	4	15
697:	19	9	13	13	10	7	17	13
705:	3	13	7	11	9	13	11	5
713:	8	7	10	5	7	11	5	11
721:	15	14	9	10	8	20	44	29
729:	19	10	3	11	8	12	8	12
737:	9	12	8	6	12	15	8	9
745:	7	14	15	9	6	16	6	7
753:	6	8	16	7	6	16	7	11
761:	4	12	6	14	10	15	19	24
769:	17	9	12	17	10	5	7	11
777:	12	5	10	10	15	8	12	12
785:	16	13	11	15	8	8	6	4
793:	8	15	28	18	9	7	7	3

801: 5 6 9 9 11 10 6 4

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Channel	1	2	3	4	5	6	7	8
809:	11	4	5	6	9	13	6	9
817:	3	10	7	6	9	10	8	6
825:	8	3	5	10	8	9	4	10
833:	8	9	15	15	10	5	9	11
841:	9	8	1	9	10	8	9	12
849:	14	7	10	5	10	6	7	6
857:	8	9	15	27	22	10	5	5
865:	4	8	12	11	5	6	6	4
873:	3	8	4	5	3	6	10	8
881:	5	6	5	6	5	8	8	11
889:	9	6	10	6	11	10	10	3
897:	9	5	7	8	12	5	4	12
905:	8	5	4	10	10	43	92	50
913:	13	7	5	16	7	8	3	6
921:	11	7	6	7	4	4	11	9
929:	5	10	5	10	6	21	5	5
937:	6	10	7	5	4	6	4	7
945:	4	9	5	10	15	2	1	5
953:	9	4	5	5	7	6	11	6
961:	8	6	6	27	22	9	10	33
969:	50	28	10	10	10	5	2	2
977:	4	6	8	2	12	6	10	8
985:	6	3	3	4	7	3	9	8
993:	10	6	4	10	9	10	3	5
1001:	7	15	7	7	9	7	11	12
1009:	7	5	11	9	6	2	10	4
1017:	3	5	4	11	7	5	10	5
1025:	4	9	6	6	3	5	5	5
1033:	8	8	7	8	4	6	9	6
1041:	6	5	9	7	3	4	12	4
1049:	6	7	10	8	5	2	2	8
1057:	3	3	8	3	3	7	9	8
1065:	7	8	10	8	10	5	3	11
1073:	7	7	4	3	7	7	9	7
1081:	5	10	7	6	6	8	5	4
1089:	8	3	9	6	5	10	11	7
1097:	6	7	11	6	1	5	7	7
1105:	8	8	5	5	5	8	8	13
1113:	6	4	3	8	6	11	19	49
1121:	14	13	3	7	4	6	5	5
1129:	5	5	6	6	5	7	6	5
1137:	4	12	8	11	11	4	9	9
1145:	6	3	8	5	9	3	5	6
1153:	5	10	8	4	7	10	9	8
1161:	12	8	8	3	6	3	7	7
1169:	3	7	4	7	5	2	4	5
1177:	8	10	7	6	6	7	7	4
1185:	10	3	7	4	5	5	10	7
1193:	6	8	11	11	7	6	9	7
1201:	7	9	7	7	8	6	8	8
1209:	5	5	8	8	9	6	10	2
1217:	10	5	6	2	5	7	9	4
1225:	12	4	6	8	5	4	8	10

1233: 8 10 9 8 16 17 27 8

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Channel	7	10	6	7	9	8	11	11
1241:	7	10	6	7	9	8	11	11
1249:	3	6	6	4	4	6	7	4
1257:	6	5	3	3	3	7	5	8
1265:	5	6	3	2	2	3	9	8
1273:	7	9	7	5	4	5	6	8
1281:	11	6	6	8	8	4	5	5
1289:	2	3	5	6	6	4	5	2
1297:	1	4	5	2	2	4	4	4
1305:	6	3	7	3	4	6	1	2
1313:	5	3	5	3	3	5	2	5
1321:	1	5	1	1	3	3	5	5
1329:	3	5	5	7	4	3	7	4
1337:	4	3	6	2	1	7	3	3
1345:	1	3	5	3	4	5	3	1
1353:	2	5	3	1	2	6	5	4
1361:	4	1	3	3	5	3	4	3
1369:	2	3	5	4	4	2	2	5
1377:	10	9	3	2	4	0	0	4
1385:	4	3	1	0	2	2	1	1
1393:	5	5	3	1	3	2	0	2
1401:	5	3	4	3	4	4	5	9
1409:	1	0	0	3	1	3	4	2
1417:	2	2	2	2	2	4	1	1
1425:	3	3	4	1	3	4	3	0
1433:	4	6	2	3	1	2	4	3
1441:	2	1	2	1	4	6	1	2
1449:	4	6	6	0	4	2	1	3
1457:	5	14	89	287	248	98	13	3
1465:	0	3	2	3	2	0	2	1
1473:	2	1	2	0	4	3	5	2
1481:	1	1	0	4	2	3	2	7
1489:	2	1	2	3	0	2	0	2
1497:	2	3	1	1	5	3	1	0
1505:	2	2	2	3	4	5	1	3
1513:	2	0	2	1	1	2	2	1
1521:	2	1	2	1	3	1	1	1
1529:	4	0	2	1	0	0	1	3
1537:	2	3	3	1	1	2	4	3
1545:	1	0	2	0	1	5	1	1
1553:	0	0	2	1	2	1	0	1
1561:	2	2	4	1	3	0	1	2
1569:	0	5	0	2	3	2	2	2
1577:	1	1	2	2	4	5	4	1
1585:	1	2	5	6	1	1	3	3
1593:	2	3	2	1	0	2	3	1
1601:	4	4	0	0	1	1	3	1
1609:	0	2	2	2	2	0	0	3
1617:	2	0	2	6	4	1	2	1
1625:	1	1	1	1	0	2	3	6
1633:	1	0	2	2	4	1	1	1
1641:	2	1	1	1	2	1	1	0
1649:	2	1	0	0	1	1	1	3
1657:	1	1	1	1	5	4	2	2

1665: 0 1 2 1 3 3 2 0

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Channel	1	2	3	4	5	6	7	8
1673:	0	0	1	2	1	1	3	3
1681:	0	1	1	2	2	1	4	2
1689:	1	2	3	2	0	2	2	0
1697:	2	3	2	0	2	1	3	0
1705:	2	1	1	0	4	1	1	0
1713:	1	2	0	0	1	1	0	2
1721:	0	0	1	2	2	1	1	4
1729:	2	5	2	2	4	1	0	4
1737:	2	1	0	2	0	2	1	0
1745:	0	1	1	4	0	1	7	3
1753:	0	3	1	3	0	1	1	3
1761:	1	3	23	26	11	4	1	1
1769:	1	1	1	2	1	1	0	2
1777:	1	1	1	1	0	3	0	1
1785:	0	2	1	1	0	1	0	0
1793:	2	2	0	1	2	0	0	0
1801:	1	2	1	0	1	1	2	0
1809:	1	0	2	0	2	0	1	0
1817:	1	2	0	0	0	0	2	3
1825:	1	0	0	0	0	0	2	1
1833:	0	1	0	2	1	0	3	1
1841:	3	1	1	1	2	1	2	2
1849:	2	2	0	1	1	1	3	2
1857:	3	1	2	1	2	1	2	3
1865:	0	1	3	2	1	0	1	1
1873:	1	2	2	2	3	1	0	1
1881:	1	2	1	0	1	0	1	2
1889:	1	4	0	0	1	0	0	0
1897:	2	2	0	1	0	1	0	1
1905:	0	0	1	1	1	1	0	1
1913:	0	2	2	0	3	1	0	1
1921:	1	0	0	1	0	2	0	1
1929:	1	0	0	1	1	1	0	0
1937:	0	3	1	1	1	3	1	0
1945:	1	0	1	0	2	1	0	2
1953:	1	0	1	0	0	1	1	1
1961:	3	0	1	1	0	2	2	0
1969:	3	0	0	3	0	2	2	0
1977:	2	2	1	0	1	0	0	1
1985:	0	2	1	1	0	0	2	4
1993:	0	1	0	1	1	1	2	1
2001:	0	3	0	2	2	0	0	2
2009:	0	0	4	0	0	1	0	0
2017:	1	0	1	0	3	0	0	2
2025:	3	2	2	2	1	0	1	1
2033:	0	3	0	1	0	1	0	0
2041:	1	2	0	0	2	0	0	1
2049:	1	0	2	2	0	1	0	0
2057:	0	0	0	2	0	1	1	1
2065:	0	0	1	3	1	2	0	0
2073:	0	0	1	1	2	1	3	0
2081:	0	2	0	2	0	0	0	2
2089:	1	0	1	1	1	1	2	4

2097: 2 3 2 0 4 3 1 6

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

2529: 2 0 0 2 0 1 0 0

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Channel	1	2	0	1	0	0	0	0
2537:	1	2	0	1	0	0	0	0
2545:	1	1	0	0	1	1	2	0
2553:	0	0	0	0	0	0	0	1
2561:	1	0	0	0	0	0	0	0
2569:	1	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	0	1
2585:	1	0	2	0	0	0	0	3
2593:	0	0	1	1	1	0	0	0
2601:	0	1	0	0	0	0	0	0
2609:	0	2	2	18	34	24	11	10
2617:	3	0	0	0	0	1	1	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	1	0	0	0	1
2641:	0	0	0	0	0	0	0	1
2649:	0	1	0	1	1	0	2	0
2657:	0	0	0	1	0	0	0	0
2665:	0	0	0	1	0	1	2	0
2673:	0	0	0	0	0	0	0	0
2681:	1	0	0	1	0	1	1	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	1	1	0	1
2705:	1	0	0	2	0	0	0	0
2713:	0	0	0	2	0	0	0	0
2721:	0	0	1	0	0	1	0	0
2729:	1	0	0	0	1	0	0	0
2737:	1	0	0	0	1	1	0	0
2745:	0	0	0	0	0	0	1	0
2753:	1	0	0	1	0	0	0	0
2761:	0	0	0	1	0	0	0	1
2769:	0	0	0	0	0	0	0	1
2777:	0	0	1	0	1	0	0	0
2785:	0	0	1	0	0	0	0	0
2793:	1	0	0	1	0	1	0	0
2801:	0	1	0	0	0	1	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	1	0	0	0	2
2825:	0	0	0	1	0	0	0	0
2833:	1	0	0	0	0	0	0	1
2841:	0	1	0	1	0	2	0	0
2849:	0	0	1	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	1	0	0	1	0
2881:	0	0	0	0	1	0	1	1
2889:	0	1	1	0	0	0	1	0
2897:	0	0	1	0	1	0	0	1
2905:	0	1	0	1	0	0	1	0
2913:	0	1	1	0	0	0	0	0
2921:	0	0	0	0	0	1	0	1
2929:	1	0	0	0	0	1	0	1
2937:	0	1	0	0	0	0	1	0
2945:	0	0	0	1	0	0	0	1
2953:	0	0	0	0	1	0	0	0

2961: 0 0 1 0 0 0 0 0 0

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

3393: 0 0 0 0 0 0 0 0 1

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



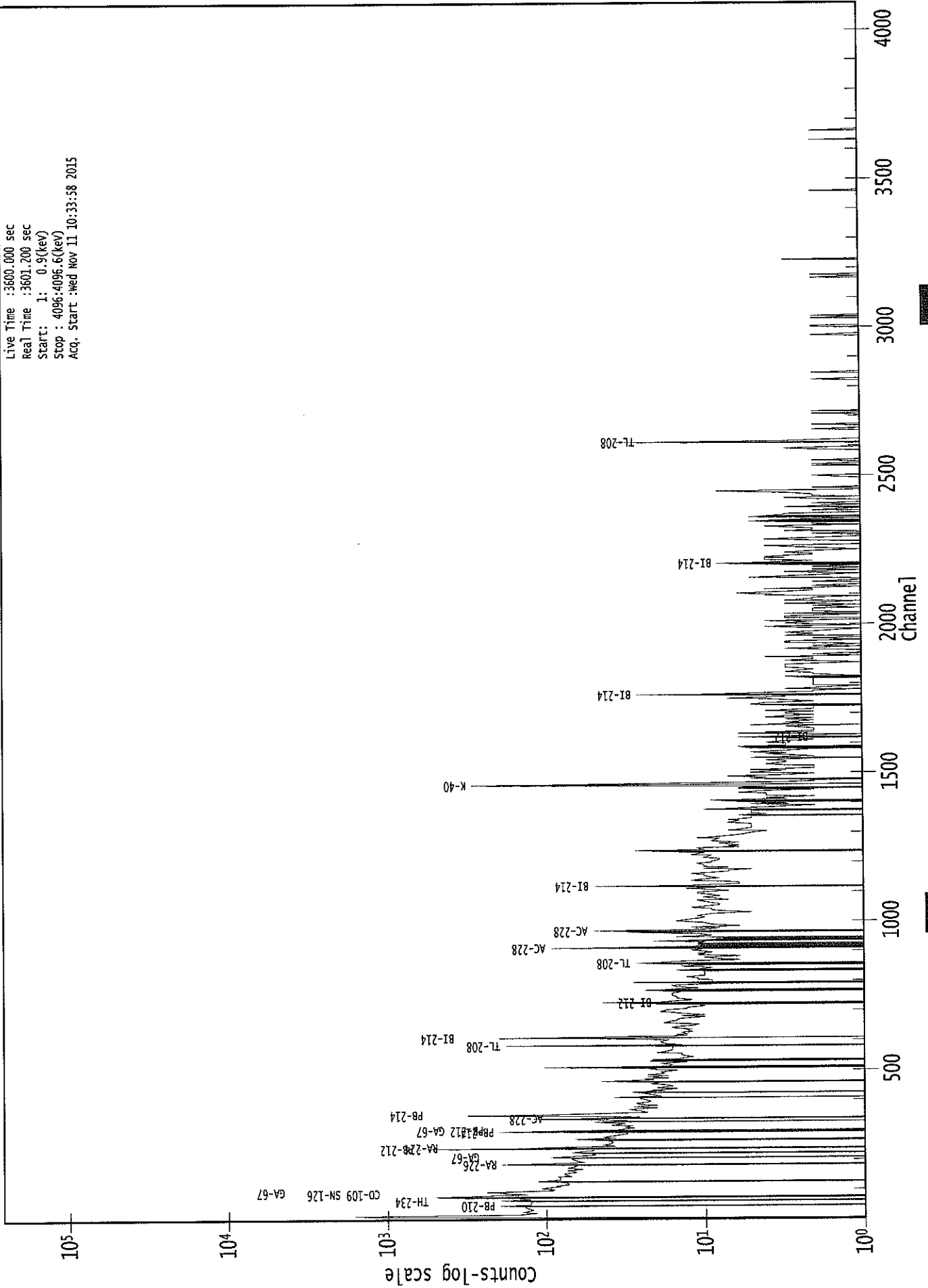
3825: 1 1 0 0 0 1 0 0

Sample Title: CP5002S06-07

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

0000029477.CNF

Live Time :3600.000 sec  
Real Time :3601.200 sec  
Start: 1: 0.9(kev)  
Stop : 4096:4096.6(kev)  
Acq. Start :Wed Nov 11 10:33:58 2015



00506

*DB*  
*11/11/15*Analysis Report for 1510093-06  
CP5002S09-10

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-06  
Sample Description : CP5002S09-10  
Sample Type : SOIL

Sample Size : 5.014E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:29:23AM  
Acquisition Started : 11/11/2015 10:34:13AM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE3  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3615.9 seconds

Dead Time : 0.44 %

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 : 29478

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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*AG*  
*11/12/15*

Analysis Report for 1510093-06  
CP5002S09-10

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## PEAK LOCATE REPORT

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Peak Locate Performed on : 11/11/2015 11:34:30AM  
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	43.71	43.94	0.0000	0.00
2	46.91	47.15	0.0000	0.00
3	76.64	76.86	0.0000	0.00
4	88.11	88.32	0.0000	0.00
5	93.47	93.68	0.0000	0.00
6	106.38	106.58	0.0000	0.00
7	129.10	129.28	0.0000	0.00
8	186.13	186.28	0.0000	0.00
9	209.90	210.04	0.0000	0.00
10	239.02	239.15	0.0000	0.00
11	242.16	242.29	0.0000	0.00
12	248.35	248.48	0.0000	0.00
13	270.91	271.02	0.0000	0.00
14	277.61	277.72	0.0000	0.00
15	295.64	295.74	0.0000	0.00
16	300.72	300.82	0.0000	0.00
17	328.35	328.43	0.0000	0.00
18	338.76	338.83	0.0000	0.00
19	352.25	352.32	0.0000	0.00
20	463.94	463.95	0.0000	0.00
21	510.93	510.92	0.0000	0.00
22	583.58	583.53	0.0000	0.00
23	609.66	609.61	0.0000	0.00
24	633.02	632.96	0.0000	0.00
25	727.66	727.55	0.0000	0.00
26	768.64	768.51	0.0000	0.00
27	911.68	911.49	0.0000	0.00
28	927.80	927.60	0.0000	0.00
29	968.95	968.72	0.0000	0.00
30	1071.11	1070.84	0.0000	0.00
31	1120.48	1120.19	0.0000	0.00
32	1239.03	1238.70	0.0000	0.00
33	1377.59	1377.20	0.0000	0.00
34	1461.50	1461.08	0.0000	0.00
35	1622.62	1622.14	0.0000	0.00
36	1632.99	1632.50	0.0000	0.00
37	1694.70	1694.20	0.0000	0.00
38	1730.96	1730.44	0.0000	0.00
39	1765.63	1765.10	0.0000	0.00
40	1873.99	1873.43	0.0000	0.00
41	2031.17	2030.56	0.0000	0.00
42	2104.76	2104.12	0.0000	0.00

Analysis Report for 1510093-06  
CP5002S09-10

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	2181.42	2180.75	0.0000	0.00
44	2204.76	2204.09	0.0000	0.00
45	2615.52	2614.74	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-06  
CP5002S09-10

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 11:34:30AM

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	43.71	43 -	50	43.94	4.68E+01	43.19	4.80E+02	1.59
m	2	46.91	43 -	50	47.15	1.33E+02	66.04	8.47E+02	1.60
	3	76.64	73 -	81	76.86	1.07E+03	135.73	2.12E+03	3.59
m	4	88.11	82 -	97	88.32	2.67E+02	83.58	1.07E+03	1.85
m	5	93.47	82 -	97	93.68	2.68E+02	81.28	9.89E+02	1.86
	6	106.38	104 -	110	106.58	6.12E+01	72.98	9.30E+02	1.10
	7	129.10	126 -	133	129.28	8.88E+01	82.51	1.07E+03	2.18
	8	186.13	182 -	190	186.28	1.69E+02	82.02	9.31E+02	1.88
	9	209.90	207 -	214	210.04	6.60E+01	67.56	7.10E+02	2.26
M	10	239.02	235 -	246	239.15	8.46E+02	72.24	4.19E+02	1.69
m	11	242.16	235 -	246	242.29	1.95E+02	77.36	4.12E+02	2.08
	12	248.35	246 -	251	248.48	4.88E+01	40.09	2.78E+02	2.37
	13	270.91	269 -	274	271.02	6.41E+01	41.04	2.82E+02	2.83
	14	277.61	275 -	284	277.72	5.71E+01	59.41	4.76E+02	4.06
M	15	295.64	291 -	303	295.74	2.23E+02	46.99	3.04E+02	1.68
m	16	300.72	291 -	303	300.82	4.68E+01	37.20	2.75E+02	1.82
	17	328.35	322 -	333	328.43	5.88E+01	67.11	5.32E+02	1.95
	18	338.76	334 -	343	338.83	1.51E+02	61.60	4.57E+02	1.64
	19	352.25	346 -	356	352.32	4.04E+02	69.78	4.31E+02	1.94
	20	463.94	461 -	468	463.95	3.52E+01	39.24	2.36E+02	2.23
	21	510.93	506 -	514	510.92	1.38E+02	41.79	1.83E+02	2.47
	22	583.58	578 -	586	583.53	2.15E+02	47.28	2.13E+02	2.14
	23	609.66	605 -	615	609.61	2.61E+02	53.19	2.43E+02	1.90
	24	633.02	629 -	637	632.96	3.22E+01	32.93	1.44E+02	3.06
	25	727.66	724 -	730	727.55	4.25E+01	29.21	1.21E+02	2.23
	26	768.64	763 -	774	768.51	4.37E+01	41.38	1.93E+02	2.18
	27	911.68	907 -	914	911.49	1.55E+02	31.75	6.56E+01	2.15
	28	927.80	924 -	931	927.60	2.36E+01	21.82	6.29E+01	2.97
	29	968.95	963 -	974	968.72	5.78E+01	42.61	1.98E+02	2.11
	30	1071.11	1067 -	1074	1070.84	2.28E+01	20.00	5.04E+01	2.68
	31	1120.48	1115 -	1123	1120.19	5.69E+01	29.00	9.41E+01	2.43
	32	1239.03	1235 -	1242	1238.70	2.20E+01	26.91	1.02E+02	2.62
	33	1377.59	1373 -	1380	1377.20	2.20E+01	14.42	1.99E+01	2.43
	34	1461.50	1455 -	1467	1461.08	5.81E+02	53.11	5.89E+01	2.26
	35	1622.62	1618 -	1627	1622.14	1.00E+01	10.49	1.00E+01	1.10
	36	1632.99	1627 -	1637	1632.50	1.89E+01	12.51	1.02E+01	6.51
	37	1694.70	1691 -	1698	1694.20	8.62E+00	10.00	8.77E+00	1.49
	38	1730.96	1727 -	1734	1730.44	1.28E+01	8.72	4.33E+00	1.57
	39	1765.63	1759 -	1771	1765.10	5.60E+01	16.68	5.98E+00	1.43
	40	1873.99	1870 -	1877	1873.43	7.80E+00	7.48	4.40E+00	3.88

Analysis Report for 1510093-06  
CP5002S09-10

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2031.17	2026 -	2034	2030.56	6.83E+00	7.50	4.33E+00	6.37
42	2104.76	2101 -	2107	2104.12	8.50E+00	7.23	3.00E+00	3.72
43	2181.42	2176 -	2184	2180.75	8.77E+00	8.02	4.45E+00	3.80
44	2204.76	2199 -	2208	2204.09	1.16E+01	9.00	4.86E+00	5.61
45	2615.52	2610 -	2618	2614.74	6.95E+01	18.34	9.00E+00	2.24

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 : 11/11/2015 11:34:30AM

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	43.71	43 -	50	4.68E+01	43.19	4.80E+02	3.60E+01
m	2	46.91	43 -	50	1.33E+02	66.04	8.47E+02	4.79E+01
	3	76.64	73 -	81	1.07E+03	135.73	2.12E+03	9.77E+01
m	4	88.11	82 -	97	2.67E+02	83.58	1.07E+03	5.38E+01
m	5	93.47	82 -	97	2.68E+02	81.28	9.89E+02	5.17E+01
	6	106.38	104 -	110	6.12E+01	72.98	9.30E+02	5.86E+01
	7	129.10	126 -	133	8.88E+01	82.51	1.07E+03	6.60E+01
	8	186.13	182 -	190	1.69E+02	82.02	9.31E+02	6.40E+01
	9	209.90	207 -	214	6.60E+01	67.56	7.10E+02	5.39E+01
M	10	239.02	235 -	246	8.46E+02	72.24	4.19E+02	3.36E+01
m	11	242.16	235 -	246	1.95E+02	77.36	4.12E+02	3.34E+01
	12	248.35	246 -	251	4.88E+01	40.09	2.78E+02	3.09E+01
	13	270.91	269 -	274	6.41E+01	41.04	2.82E+02	3.11E+01
	14	277.61	275 -	284	5.71E+01	59.41	4.76E+02	4.72E+01
M	15	295.64	291 -	303	2.23E+02	46.99	3.04E+02	2.86E+01
m	16	300.72	291 -	303	4.68E+01	37.20	2.75E+02	2.72E+01
	17	328.35	322 -	333	5.88E+01	67.11	5.32E+02	5.37E+01
	18	338.76	334 -	343	1.51E+02	61.60	4.57E+02	4.64E+01
	19	352.25	346 -	356	4.04E+02	69.78	4.31E+02	4.69E+01
	20	463.94	461 -	468	3.52E+01	39.24	2.36E+02	3.07E+01
	21	510.93	506 -	514	1.38E+02	41.79	1.83E+02	2.84E+01
	22	583.58	578 -	586	2.15E+02	47.28	2.13E+02	3.05E+01

Analysis Report for 1510093-06  
CP5002S09-10

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
23	609.66	605 -	615	2.61E+02	53.19	2.43E+02	3.47E+01
24	633.02	629 -	637	3.22E+01	32.93	1.44E+02	2.54E+01
25	727.66	724 -	730	4.25E+01	29.21	1.21E+02	2.15E+01
26	768.64	763 -	774	4.37E+01	41.38	1.93E+02	3.22E+01
27	911.68	907 -	914	1.55E+02	31.75	6.56E+01	1.62E+01
28	927.80	924 -	931	2.36E+01	21.82	6.29E+01	1.61E+01
29	968.95	963 -	974	5.78E+01	42.61	1.98E+02	1.32E+01
30	1071.11	1067 -	1074	2.28E+01	20.00	5.04E+01	1.44E+01
31	1120.48	1115 -	1123	5.69E+01	29.00	9.41E+01	2.04E+01
32	1239.03	1235 -	1242	2.20E+01	26.91	1.02E+02	2.07E+01
33	1377.59	1373 -	1380	2.20E+01	14.42	1.99E+01	9.00E+00
34	1461.50	1455 -	1467	5.81E+02	53.11	5.89E+01	1.83E+01
35	1622.62	1618 -	1627	1.00E+01	10.49	1.00E+01	6.88E+00
36	1632.99	1627 -	1637	1.89E+01	12.51	1.02E+01	7.39E+00
37	1694.70	1691 -	1698	8.62E+00	10.00	8.77E+00	6.65E+00
38	1730.96	1727 -	1734	1.28E+01	8.72	4.33E+00	4.08E+00
39	1765.63	1759 -	1771	5.60E+01	16.68	5.98E+00	6.05E+00
40	1873.99	1870 -	1877	7.80E+00	7.48	4.40E+00	4.09E+00
41	2031.17	2026 -	2034	6.83E+00	7.50	4.33E+00	4.42E+00
42	2104.76	2101 -	2107	8.50E+00	7.23	3.00E+00	3.51E+00
43	2181.42	2176 -	2184	8.77E+00	8.02	4.45E+00	4.44E+00
44	2204.76	2199 -	2208	1.16E+01	9.00	4.86E+00	4.84E+00
45	2615.52	2610 -	2618	6.95E+01	18.34	9.00E+00	6.29E+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 : 11/11/2015 11:34:30AM

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	43.71	43 -	50	43.94	4.68E+01	43.19	4.80E+02	.....
m 2	46.91	43 -	50	47.15	1.33E+02	66.04	8.47E+02	PB-210



Analysis Report for 1510093-06

CP5002S09-10

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	3	76.64	73 -	81	76.86	1.07E+03	135.73	2.12E+03	.....
m	4	88.11	82 -	97	88.32	2.67E+02	83.58	1.07E+03	CD-109 LU-176 SN-126
	5	93.47	82 -	97	93.68	2.68E+02	81.28	9.89E+02	GA-67
m	6	106.38	104 -	110	106.58	6.12E+01	72.98	9.30E+02	NP-239
	7	129.10	126 -	133	129.28	8.88E+01	82.51	1.07E+03	.....
	8	186.13	182 -	190	186.28	1.69E+02	82.02	9.31E+02	RA-226
	9	209.90	207 -	214	210.04	6.60E+01	67.56	7.10E+02	CM-243 GA-67
M	10	239.02	235 -	246	239.15	8.46E+02	72.24	4.19E+02	PB-212
m	11	242.16	235 -	246	242.29	1.95E+02	77.36	4.12E+02	.....
	12	248.35	246 -	251	248.48	4.88E+01	40.09	2.78E+02	.....
	13	270.91	269 -	274	271.02	6.41E+01	41.04	2.82E+02	.....
	14	277.61	275 -	284	277.72	5.71E+01	59.41	4.76E+02	CM-243 NP-239
M	15	295.64	291 -	303	295.74	2.23E+02	46.99	3.04E+02	PB-214
m	16	300.72	291 -	303	300.82	4.68E+01	37.20	2.75E+02	GA-67 PB-212 BI-210M
	17	328.35	322 -	333	328.43	5.88E+01	67.11	5.32E+02	LA-140
	18	338.76	334 -	343	338.83	1.51E+02	61.60	4.57E+02	AC-228
	19	352.25	346 -	356	352.32	4.04E+02	69.78	4.31E+02	PB-214
	20	463.94	461 -	468	463.95	3.52E+01	39.24	2.36E+02	SB-125
	21	510.93	506 -	514	510.92	1.38E+02	41.79	1.83E+02	.....
	22	583.58	578 -	586	583.53	2.15E+02	47.28	2.13E+02	TL-208
	23	609.66	605 -	615	609.61	2.61E+02	53.19	2.43E+02	BI-214
	24	633.02	629 -	637	632.96	3.22E+01	32.93	1.44E+02	.....
	25	727.66	724 -	730	727.55	4.25E+01	29.21	1.21E+02	BI-212
	26	768.64	763 -	774	768.51	4.37E+01	41.38	1.93E+02	.....
	27	911.68	907 -	914	911.49	1.55E+02	31.75	6.56E+01	LU-172 AC-228
	28	927.80	924 -	931	927.60	2.36E+01	21.82	6.29E+01	.....
	29	968.95	963 -	974	968.72	5.78E+01	42.61	1.98E+02	AC-228
	30	1071.11	1067 -	1074	1070.84	2.28E+01	20.00	5.04E+01	.....
	31	1120.48	1115 -	1123	1120.19	5.69E+01	29.00	9.41E+01	SC-46 BI-214 TA-182
	32	1239.03	1235 -	1242	1238.70	2.20E+01	26.91	1.02E+02	CO-56
	33	1377.59	1373 -	1380	1377.20	2.20E+01	14.42	1.99E+01	.....
	34	1461.50	1455 -	1467	1461.08	5.81E+02	53.11	5.89E+01	K-40
	35	1622.62	1618 -	1627	1622.14	1.00E+01	10.49	1.00E+01	.....
	36	1632.99	1627 -	1637	1632.50	1.89E+01	12.51	1.02E+01	.....
	37	1694.70	1691 -	1698	1694.20	8.62E+00	10.00	8.77E+00	.....
	38	1730.96	1727 -	1734	1730.44	1.28E+01	8.72	4.33E+00	.....
	39	1765.63	1759 -	1771	1765.10	5.60E+01	16.68	5.98E+00	.....
	40	1873.99	1870 -	1877	1873.43	7.80E+00	7.48	4.40E+00	.....
	41	2031.17	2026 -	2034	2030.56	6.83E+00	7.50	4.33E+00	.....
	42	2104.76	2101 -	2107	2104.12	8.50E+00	7.23	3.00E+00	.....
	43	2181.42	2176 -	2184	2180.75	8.77E+00	8.02	4.45E+00	.....
	44	2204.76	2199 -	2208	2204.09	1.16E+01	9.00	4.86E+00	BI-214
	45	2615.52	2610 -	2618	2614.74	6.95E+01	18.34	9.00E+00	TL-208

Analysis Report for 1510093-06  
CP5002S09-10

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 : 11/11/2015 11:34:30AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	43.71	4.68E+01	43.19	1.34E-02	1.58E-03
m	2	46.91	1.33E+02	66.04	1.52E-02	1.58E-03
	3	76.64	1.07E+03	135.73	2.38E-02	2.15E-03
m	4	88.11	2.67E+02	83.58	2.44E-02	2.52E-03
m	5	93.47	2.68E+02	81.28	2.44E-02	2.40E-03
	6	106.38	6.12E+01	72.98	2.40E-02	2.10E-03
	7	129.10	8.88E+01	82.51	2.25E-02	1.70E-03
	8	186.13	1.69E+02	82.02	1.83E-02	1.42E-03
	9	209.90	6.60E+01	67.56	1.68E-02	1.31E-03
M	10	239.02	8.46E+02	72.24	1.52E-02	1.18E-03
m	11	242.16	1.95E+02	77.36	1.50E-02	1.16E-03
	12	248.35	4.88E+01	40.09	1.48E-02	1.14E-03
	13	270.91	6.41E+01	41.04	1.38E-02	1.03E-03
	14	277.61	5.71E+01	59.41	1.35E-02	1.00E-03
M	15	295.64	2.23E+02	46.99	1.28E-02	9.73E-04
m	16	300.72	4.68E+01	37.20	1.26E-02	9.66E-04
	17	328.35	5.88E+01	67.11	1.17E-02	9.27E-04
	18	338.76	1.51E+02	61.60	1.14E-02	9.12E-04
	19	352.25	4.04E+02	69.78	1.11E-02	8.93E-04
	20	463.94	3.52E+01	39.24	8.71E-03	7.65E-04
	21	510.93	1.38E+02	41.79	8.01E-03	7.18E-04
	22	583.58	2.15E+02	47.28	7.13E-03	6.46E-04
	23	609.66	2.61E+02	53.19	6.87E-03	6.20E-04
	24	633.02	3.22E+01	32.93	6.65E-03	5.96E-04
	25	727.66	4.25E+01	29.21	5.89E-03	5.14E-04
	26	768.64	4.37E+01	41.38	5.62E-03	4.80E-04
	27	911.68	1.55E+02	31.75	4.85E-03	3.72E-04
	28	927.80	2.36E+01	21.82	4.78E-03	3.69E-04
	29	968.95	5.78E+01	42.61	4.60E-03	3.61E-04
	30	1071.11	2.28E+01	20.00	4.23E-03	3.42E-04
	31	1120.48	5.69E+01	29.00	4.08E-03	3.33E-04
	32	1239.03	2.20E+01	26.91	3.75E-03	3.09E-04
	33	1377.59	2.20E+01	14.42	3.45E-03	2.82E-04
	34	1461.50	5.81E+02	53.11	3.29E-03	2.69E-04

Analysis Report for 1510093-06  
CP5002S09-10

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1622.62	1.00E+01	10.49	3.04E-03	2.45E-04
36	1632.99	1.89E+01	12.51	3.02E-03	2.44E-04
37	1694.70	8.62E+00	10.00	2.94E-03	2.34E-04
38	1730.96	1.28E+01	8.72	2.90E-03	2.29E-04
39	1765.63	5.60E+01	16.68	2.86E-03	2.24E-04
40	1873.99	7.80E+00	7.48	2.74E-03	2.13E-04
41	2031.17	6.83E+00	7.50	2.59E-03	2.13E-04
42	2104.76	8.50E+00	7.23	2.54E-03	2.13E-04
43	2181.42	8.77E+00	8.02	2.48E-03	2.13E-04
44	2204.76	1.16E+01	9.00	2.46E-03	2.13E-04
45	2615.52	6.95E+01	18.34	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 : 11/11/2015 11:34:30AM

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	43.71	4.68E+01	43.19		4.68E+01	4.32E+01
m	2	46.91	1.33E+02	66.04	5.28E+01	8.04E+01	6.69E+01
	3	76.64	1.07E+03	135.73		1.07E+03	1.36E+02
m	4	88.11	2.67E+02	83.58	1.52E+01	2.52E+02	8.38E+01
m	5	93.47	2.68E+02	81.28	9.04E+01	1.78E+02	8.54E+01
	6	106.38	6.12E+01	72.98		6.12E+01	7.30E+01
	7	129.10	8.88E+01	82.51		8.88E+01	8.25E+01
	8	186.13	1.69E+02	82.02	3.93E+01	1.29E+02	8.23E+01
	9	209.90	6.60E+01	67.56		6.60E+01	6.76E+01
M	10	239.02	8.46E+02	72.24	1.34E+01	8.32E+02	7.23E+01
m	11	242.16	1.95E+02	77.36	2.69E+00	1.92E+02	7.74E+01
	12	248.35	4.88E+01	40.09		4.88E+01	4.01E+01
	13	270.91	6.41E+01	41.04		6.41E+01	4.10E+01
	14	277.61	5.71E+01	59.41		5.71E+01	5.94E+01
M	15	295.64	2.23E+02	46.99		2.23E+02	4.70E+01
m	16	300.72	4.68E+01	37.20		4.68E+01	3.72E+01
	17	328.35	5.88E+01	67.11		5.88E+01	6.71E+01
	18	338.76	1.51E+02	61.60		1.51E+02	6.16E+01
	19	352.25	4.04E+02	69.78	3.99E+00	4.00E+02	6.99E+01

Analysis Report for 1510093-06

CP5002S09-10

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
20	463.94	3.52E+01	39.24			3.52E+01	3.92E+01
21	510.93	1.38E+02	41.79	5.78E+01	4.60E+00	7.97E+01	4.20E+01
22	583.58	2.15E+02	47.28	5.96E+00	3.46E+00	2.09E+02	4.74E+01
23	609.66	2.61E+02	53.19	6.71E+00	3.44E+00	2.54E+02	5.33E+01
24	633.02	3.22E+01	32.93			3.22E+01	3.29E+01
25	727.66	4.25E+01	29.21			4.25E+01	2.92E+01
26	768.64	4.37E+01	41.38			4.37E+01	4.14E+01
27	911.68	1.55E+02	31.75			1.55E+02	3.17E+01
28	927.80	2.36E+01	21.82			2.36E+01	2.18E+01
29	968.95	5.78E+01	42.61			5.78E+01	4.26E+01
30	1071.11	2.28E+01	20.00			2.28E+01	2.00E+01
31	1120.48	5.69E+01	29.00	2.00E+00	2.20E+00	5.49E+01	2.91E+01
32	1239.03	2.20E+01	26.91			2.20E+01	2.69E+01
33	1377.59	2.20E+01	14.42			2.20E+01	1.44E+01
34	1461.50	5.81E+02	53.11			5.81E+02	5.31E+01
35	1622.62	1.00E+01	10.49			1.00E+01	1.05E+01
36	1632.99	1.89E+01	12.51			1.89E+01	1.25E+01
37	1694.70	8.62E+00	10.00			8.62E+00	1.00E+01
38	1730.96	1.28E+01	8.72			1.28E+01	8.72E+00
39	1765.63	5.60E+01	16.68	1.45E+00	1.16E+00	5.46E+01	1.67E+01
40	1873.99	7.80E+00	7.48			7.80E+00	7.48E+00
41	2031.17	6.83E+00	7.50			6.83E+00	7.50E+00
42	2104.76	8.50E+00	7.23			8.50E+00	7.23E+00
43	2181.42	8.77E+00	8.02			8.77E+00	8.02E+00
44	2204.76	1.16E+01	9.00			1.16E+01	9.00E+00
45	2615.52	6.95E+01	18.34			6.95E+01	1.83E+01

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

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 11:34:30AM  
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	43.71	4.68E+01	43.19			4.68E+01	4.32E+01
m 2	46.91	1.33E+02	66.04	5.28E+01	1.09E+01	8.04E+01	6.69E+01

: 00516

Analysis Report for 1510093-06

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	3	76.64	1.07E+03	135.73			1.07E+03	1.36E+02
m	4	88.11	2.67E+02	83.58	1.52E+01	5.37E+00	2.52E+02	8.38E+01
m	5	93.47	2.68E+02	81.28	9.04E+01	2.62E+01	1.78E+02	8.54E+01
	6	106.38	6.12E+01	72.98			6.12E+01	7.30E+01
	7	129.10	8.88E+01	82.51			8.88E+01	8.25E+01
	8	186.13	1.69E+02	82.02	3.93E+01	6.56E+00	1.29E+02	8.23E+01
	9	209.90	6.60E+01	67.56			6.60E+01	6.76E+01
M	10	239.02	8.46E+02	72.24	1.34E+01	2.14E+00	8.32E+02	7.23E+01
m	11	242.16	1.95E+02	77.36	2.69E+00	1.46E+00	1.92E+02	7.74E+01
	12	248.35	4.88E+01	40.09			4.88E+01	4.01E+01
	13	270.91	6.41E+01	41.04			6.41E+01	4.10E+01
	14	277.61	5.71E+01	59.41			5.71E+01	5.94E+01
M	15	295.64	2.23E+02	46.99			2.23E+02	4.70E+01
m	16	300.72	4.68E+01	37.20			4.68E+01	3.72E+01
	17	328.35	5.88E+01	67.11			5.88E+01	6.71E+01
	18	338.76	1.51E+02	61.60			1.51E+02	6.16E+01
	19	352.25	4.04E+02	69.78	3.99E+00	4.73E+00	4.00E+02	6.99E+01
	20	463.94	3.52E+01	39.24			3.52E+01	3.92E+01
	21	510.93	1.38E+02	41.79	5.78E+01	4.60E+00	7.97E+01	4.20E+01
	22	583.58	2.15E+02	47.28	5.96E+00	3.46E+00	2.09E+02	4.74E+01
	23	609.66	2.61E+02	53.19	6.71E+00	3.44E+00	2.54E+02	5.33E+01
	24	633.02	3.22E+01	32.93			3.22E+01	3.29E+01
	25	727.66	4.25E+01	29.21			4.25E+01	2.92E+01
	26	768.64	4.37E+01	41.38			4.37E+01	4.14E+01
	27	911.68	1.55E+02	31.75			1.55E+02	3.17E+01
	28	927.80	2.36E+01	21.82			2.36E+01	2.18E+01
	29	968.95	5.78E+01	42.61			5.78E+01	4.26E+01
	30	1071.11	2.28E+01	20.00			2.28E+01	2.00E+01
	31	1120.48	5.69E+01	29.00	2.00E+00	2.20E+00	5.49E+01	2.91E+01
	32	1239.03	2.20E+01	26.91			2.20E+01	2.69E+01
	33	1377.59	2.20E+01	14.42			2.20E+01	1.44E+01
	34	1461.50	5.81E+02	53.11			5.81E+02	5.31E+01
	35	1622.62	1.00E+01	10.49			1.00E+01	1.05E+01
	36	1632.99	1.89E+01	12.51			1.89E+01	1.25E+01
	37	1694.70	8.62E+00	10.00			8.62E+00	1.00E+01
	38	1730.96	1.28E+01	8.72			1.28E+01	8.72E+00
	39	1765.63	5.60E+01	16.68	1.45E+00	1.16E+00	5.46E+01	1.67E+01
	40	1873.99	7.80E+00	7.48			7.80E+00	7.48E+00
	41	2031.17	6.83E+00	7.50			6.83E+00	7.50E+00
	42	2104.76	8.50E+00	7.23			8.50E+00	7.23E+00
	43	2181.42	8.77E+00	8.02			8.77E+00	8.02E+00
	44	2204.76	1.16E+01	9.00			1.16E+01	9.00E+00
	45	2615.52	6.95E+01	18.34			6.95E+01	1.83E+01

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

Analysis Report for 1510093-06  
CP5002S09-10

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.926	1460.81 *	10.67	2.48E+01	3.08E+00
GA-67	0.566	93.31 *	35.70	4.34E+02	2.00E+03
		208.95 *	2.24	3.73E+03	1.70E+04
		300.22 *	16.00	4.92E+02	2.29E+03
CD-109	0.999	88.03 *	3.72	4.37E+00	1.54E+00
SN-126	0.954	87.57 *	37.00	4.17E-01	1.45E-01
TL-208	0.818	583.14 *	30.22	1.45E+00	3.54E-01
		860.37	4.48		
		2614.66 *	35.85	1.30E+00	3.64E-01
PB-210	0.973	46.50 *	4.25	1.86E+00	1.56E+00
BI-212	0.740	727.17 *	11.80	9.16E-01	6.34E-01
		1620.62	2.75		
PB-212	0.973	238.63 *	44.60	1.84E+00	2.14E-01
		300.09 *	3.41	1.63E+00	1.30E+00
BI-214	0.756	609.31 *	46.30	1.20E+00	2.73E-01
		1120.29 *	15.10	1.34E+00	7.16E-01
		1764.49	15.80		
PB-214	0.979	2204.22 *	4.98	1.41E+00	1.11E+00
		295.21 *	19.19	1.36E+00	3.04E-01
		351.92 *	37.19	1.46E+00	2.81E-01
RA-226	0.999	186.21 *	3.28	3.23E+00	6.25E+00
AC-228	0.963	338.32 *	11.40	1.74E+00	7.22E-01
		911.07 *	27.70	1.73E+00	3.78E-01
		969.11 *	16.60	1.13E+00	8.39E-01
CM-243	0.370	209.75 *	3.29	1.79E+00	1.84E+00
		228.14	10.60		
		277.60 *	14.00	4.54E-01	4.73E-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 1510093-06  
CP5002S09-10

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 11:34:30AM  
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	43.71	1.30021E-02	46.13		
3	76.64	2.97995E-01	6.33		
6	106.38	1.69885E-02	59.66	Tol.	NP-239
7	129.10	2.46741E-02	46.44		
m 11	242.16	5.34242E-02	20.12		
12	248.35	1.35491E-02	41.09		
13	270.91	1.77954E-02	32.03		
17	328.35	1.63440E-02	57.03	Tol.	LA-140
20	463.94	9.78758E-03	55.69	Sum	
21	510.93	2.21493E-02	26.36	Sum	
24	633.02	8.93697E-03	51.17		
26	768.64	1.21389E-02	47.34		
28	927.80	6.54545E-03	46.29		
30	1071.11	6.32813E-03	43.90		
32	1239.03	6.11682E-03	61.10	Tol.	CO-56
33	1377.59	6.12413E-03	32.71		
35	1622.62	2.77778E-03	52.44		
36	1632.99	5.25463E-03	33.07		
37	1694.70	2.39316E-03	58.04	S-Esc	
38	1730.96	3.56482E-03	33.97	Sum	
39	1765.63	1.51543E-02	15.33		
40	1873.99	2.16667E-03	47.97		
41	2031.17	1.89815E-03	54.88	Sum	
42	2104.76	2.36111E-03	42.52	S-Esc	
43	2181.42	2.43687E-03	45.68		

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

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## NUCLIDE IDENTIFICATION REPORT

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

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## IDENTIFIED NUCLIDES

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Analysis Report for 1510093-06  
CP5002S09-10

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.92	1460.81 *		10.67	2.48E+01	3.08E+00
GA-67	0.56	93.31 *		35.70	4.34E+02	2.00E+03
		208.95 *		2.24	3.73E+03	1.70E+04
		300.22 *		16.00	4.92E+02	2.29E+03
CD-109	0.99	88.03 *		3.72	4.37E+00	1.54E+00
SN-126	0.95	87.57 *		37.00	4.17E-01	1.45E-01
TL-208	0.81	583.14 *		30.22	1.45E+00	3.54E-01
		860.37 *		4.48		
		2614.66 *		35.85	1.30E+00	3.64E-01
PB-210	0.97	46.50 *		4.25	1.86E+00	1.56E+00
BI-212	0.74	727.17 *		11.80	9.16E-01	6.34E-01
		1620.62 *		2.75		
PB-212	0.97	238.63 *		44.60	1.84E+00	2.14E-01
		300.09 *		3.41	1.63E+00	1.30E+00
BI-214	0.75	609.31 *		46.30	1.20E+00	2.73E-01
		1120.29 *		15.10	1.34E+00	7.16E-01
		1764.49 *		15.80		
		2204.22 *		4.98	1.41E+00	1.11E+00
PB-214	0.97	295.21 *		19.19	1.36E+00	3.04E-01
		351.92 *		37.19	1.46E+00	2.81E-01
RA-226	0.99	186.21 *		3.28	3.23E+00	6.25E+00
AC-228	0.96	338.32 *		11.40	1.74E+00	7.22E-01
		911.07 *		27.70	1.73E+00	3.78E-01
		969.11 *		16.60	1.13E+00	8.39E-01
CM-243	0.37	209.75 *		3.29	1.79E+00	1.84E+00
		228.14 *		10.60		
		277.60 *		14.00	4.54E-01	4.73E-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 1510093-06  
CP5002S09-10

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.926	2.48E+01	3.08E+00	
GA-67	0.566	3.29E+02	1.48E+03	
? CD-109	0.999	4.37E+00	1.54E+00	
? SN-126	0.954	4.17E-01	1.45E-01	
TL-208	0.818	1.37E+00	2.54E-01	
PB-210	0.973	1.86E+00	1.56E+00	
BI-212	0.740	9.16E-01	6.34E-01	
PB-212	0.973	1.80E+00	2.12E-01	
BI-214	0.756	1.22E+00	2.49E-01	
PB-214	0.979	1.41E+00	2.06E-01	
RA-226	0.999	3.23E+00	6.25E+00	
AC-228	0.963	1.65E+00	3.11E-01	
CM-243	0.370	5.27E-01	4.59E-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 1510093-06  
CP5002S09-10

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 11:34:30AM  
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	43.71	1.30021E-02	46.13	
	3	76.64	2.97995E-01	6.33	
	6	106.38	1.69885E-02	59.66	Tol. NP-239
	7	129.10	2.46741E-02	46.44	
m	11	242.16	5.34242E-02	20.12	
	12	248.35	1.35491E-02	41.09	
	13	270.91	1.77954E-02	32.03	
	17	328.35	1.63440E-02	57.03	Tol. LA-140
	20	463.94	9.78758E-03	55.69	Sum
	21	510.93	2.21493E-02	26.36	Sum
	24	633.02	8.93697E-03	51.17	
	26	768.64	1.21389E-02	47.34	
	28	927.80	6.54545E-03	46.29	
	30	1071.11	6.32813E-03	43.90	
	32	1239.03	6.11682E-03	61.10	Tol. CO-56
	33	1377.59	6.12413E-03	32.71	
	35	1622.62	2.77778E-03	52.44	
	36	1632.99	5.25463E-03	33.07	
	37	1694.70	2.39316E-03	58.04	S-Esc
	38	1730.96	3.56482E-03	33.97	Sum
	39	1765.63	1.51543E-02	15.33	
	40	1873.99	2.16667E-03	47.97	
	41	2031.17	1.89815E-03	54.88	Sum
	42	2104.76	2.36111E-03	42.52	S-Esc
	43	2181.42	2.43687E-03	45.68	

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

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Analysis Report for 1510093-06  
CP5002S09-10

## NUCLIDE MDA REPORT

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	1.85E-01	1.32E+00	1.32E+00
+	NA-22	1274.54	99.94	-6.53E-02	1.31E-01	1.31E-01
+	NA-24	1368.53	99.99	-6.25E+14	1.79E+15	2.79E+15
		2754.09	99.86	-5.13E+14		1.79E+15
+	AL-26	1808.65	99.76	-4.55E-03	8.91E-02	8.91E-02
+	K-40	1460.81	* 10.67	2.48E+01	1.68E+00	1.68E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-2.06E-02	8.50E-02	8.50E-02
		78.34	96.00	2.88E-01		1.07E-01
+	SC-46	889.25	99.98	-1.09E-01	1.10E-01	1.10E-01
		1120.51	99.99	2.38E-01		2.35E-01
+	V-48	983.52	99.98	-3.20E-03	4.53E-01	4.82E-01
		1312.10	97.50	-4.61E-01		4.53E-01
+	CR-51	320.08	9.83	1.44E-01	1.90E+00	1.90E+00
+	MN-54	834.83	99.97	1.89E-02	1.29E-01	1.29E-01
+	CO-56	846.75	99.96	-1.88E-02	1.39E-01	1.39E-01
		1037.75	14.03	-2.46E-01		9.76E-01
		1238.25	67.00	2.20E-01		3.30E-01
		1771.40	15.51	8.24E-02		8.30E-01
		2598.48	16.90	-9.47E-02		5.73E-01
+	CO-57	122.06	85.51	1.25E-02	7.38E-02	7.38E-02
		136.48	10.60	-1.30E-01		6.00E-01
+	CO-58	810.76	99.40	-4.57E-02	1.32E-01	1.32E-01
+	FE-59	1099.22	56.50	6.52E-03	3.29E-01	3.29E-01
		1291.56	43.20	-4.06E-02		5.22E-01
+	CO-60	1173.22	100.00	-7.41E-02	1.26E-01	1.26E-01
		1332.49	100.00	-2.00E-02		1.39E-01
+	ZN-65	1115.52	50.75	5.96E-02	2.61E-01	2.61E-01
+	GA-67	93.31	* 35.70	4.34E+02	6.50E+02	6.50E+02
		208.95	* 2.24	3.73E+03		6.26E+03
		300.22	* 16.00	4.92E+02		1.32E+03
+	SE-75	121.11	16.70	1.45E-01	1.21E-01	4.23E-01
		136.00	59.20	2.83E-02		1.21E-01
		264.65	59.80	-4.90E-02		1.57E-01
		279.53	25.20	1.31E-01		3.83E-01
		400.65	11.40	8.09E-02		9.34E-01
+	RB-82	776.52	13.00	1.20E-01	2.04E+00	2.04E+00
+	RB-83	520.41	46.00	-2.19E-02	2.49E-01	2.49E-01
		529.64	30.30	-5.69E-02		3.67E-01
		552.65	16.40	8.33E-02		7.60E-01
+	KR-85	513.99	0.43	2.67E+00	2.90E+01	2.90E+01
+	SR-85	513.99	99.27	1.67E-02	1.82E-01	1.82E-01

Analysis Report for 1510093-06  
 CP5002S09-10

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	Y-88	898.02	93.40	5.01E-02	8.13E-02	1.46E-01
		1836.01	99.38	-1.35E-02		8.13E-02
+	NB-93M	16.57	9.43	-1.90E+01	9.67E+01	9.67E+01
+	NB-94	702.63	100.00	-2.84E-02	1.02E-01	1.02E-01
		871.10	100.00	3.00E-02		1.02E-01
+	NB-95	765.79	99.81	1.28E-01	2.46E-01	2.46E-01
+	NB-95M	235.69	25.00	-1.31E+00	3.90E+02	3.90E+02
+	ZR-95	724.18	43.70	3.94E-02	2.71E-01	3.95E-01
		756.72	55.30	-3.10E-02		2.71E-01
+	MO-99	181.06	6.20	4.42E+02	4.23E+03	5.74E+03
		739.58	12.80	-8.54E+02		4.23E+03
		778.00	4.50	-3.59E+03		1.25E+04
+	RU-103	497.08	89.00	-4.35E-03	1.82E-01	1.82E-01
+	RU-106	621.84	9.80	-1.36E-01	1.06E+00	1.06E+00
+	AG-108M	433.93	89.90	4.77E-02	9.80E-02	9.80E-02
		614.37	90.40	2.43E-03		1.23E-01
		722.95	90.50	-1.37E-02		1.14E-01
+	CD-109	88.03	* 3.72	4.37E+00	4.55E+00	4.55E+00
+	AG-110M	657.75	93.14	-3.26E-02	1.13E-01	1.13E-01
		677.61	10.53	-1.59E-01		9.82E-01
		706.67	16.46	2.64E-01		6.85E-01
		763.93	21.98	3.63E-02		5.33E-01
		884.67	71.63	9.97E-02		1.64E-01
		1384.27	23.94	2.30E-01		4.81E-01
+	CD-113M	263.70	0.02	1.70E+01	3.32E+02	3.32E+02
+	SN-113	255.12	1.93	3.32E-01	1.46E-01	4.75E+00
		391.69	64.90	-5.10E-02		1.46E-01
+	TE123M	159.00	84.10	2.65E-02	9.09E-02	9.09E-02
+	SB-124	602.71	97.87	-3.36E-03	1.41E-01	1.41E-01
		645.85	7.26	-4.91E-01		1.97E+00
		722.78	11.10	-1.66E-01		1.38E+00
		1691.02	49.00	0.00E+00		3.36E-01
+	I-125	35.49	6.49	-1.44E+00	3.97E+00	3.97E+00
+	SB-125	176.33	6.89	-4.90E-01	3.32E-01	9.11E-01
		427.89	29.33	5.17E-02		3.32E-01
		463.38	10.35	8.26E-01		9.90E-01
		600.56	17.80	-1.93E-01		5.22E-01
		635.90	11.32	-1.53E-02		8.74E-01
+	SB-126	414.70	83.30	-1.66E-01	6.64E-01	6.99E-01
		666.33	99.60	-1.77E-01		6.64E-01
		695.00	99.60	-2.27E-01		7.07E-01
		720.50	53.80	1.04E-01		1.24E+00
+	SN-126	87.57	* 37.00	4.17E-01	4.35E-01	4.35E-01
+	SB-127	473.00	25.00	2.94E+01	1.23E+02	1.75E+02
		685.20	35.70	4.90E+00		1.23E+02
		783.80	14.70	1.24E+01		3.42E+02
+	I-129	29.78	57.00	-4.30E-01	5.47E-01	5.47E-01
		33.60	13.20	-4.34E-01		1.57E+00

Analysis Report for 1510093-06  
CP5002S09-10

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	2.10E-01	5.47E-01	1.78E+00
+	I-131	284.30	6.05	5.29E+00	1.84E+00	2.28E+01
		364.48	81.20	-6.66E-01		1.84E+00
		636.97	7.26	-1.41E+00		2.38E+01
		722.89	1.80	-1.31E+01		1.09E+02
+	TE-132	49.72	13.10	6.00E+01	1.24E+02	1.03E+03
		228.16	88.00	-1.00E+01		1.24E+02
+	BA-133	81.00	33.00	-1.26E+00	1.96E-01	2.08E-01
		302.84	17.80	1.62E-02		4.77E-01
		356.01	60.00	-2.48E-02		1.96E-01
+	I-133	529.87	86.30	-1.10E+10	7.12E+10	7.12E+10
+	XE-133	81.00	38.00	-9.96E+01	1.64E+01	1.64E+01
+	CS-134	563.23	8.38	2.78E-01	9.59E-02	1.15E+00
		569.32	15.43	4.81E-01		6.50E-01
		604.70	97.60	-2.39E-02		9.59E-02
		795.84	85.40	1.37E-01		1.49E-01
		801.93	8.73	-7.01E-01		1.14E+00
+	CS-135	268.24	16.00	-2.60E-02	5.19E-01	5.19E-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	-1.14E+00	5.73E-01	5.22E+00
		163.89	4.61	5.42E-01		8.04E+00
		176.55	13.56	2.24E-02		2.77E+00
		273.65	12.66	-1.58E+00		3.85E+00
		340.57	48.50	2.93E+00		1.40E+00
		818.50	99.70	5.29E-02		5.73E-01
		1048.07	79.60	2.39E-01		9.03E-01
		1235.34	19.70	3.34E-01		4.84E+00
+	CS-137	661.65	85.12	2.34E-02	1.18E-01	1.18E-01
+	LA-138	788.74	34.00	-3.88E-02	1.77E-01	2.96E-01
		1435.80	66.00	6.34E-02		1.77E-01
+	CE-139	165.85	80.35	1.77E-02	9.25E-02	9.25E-02
+	BA-140	162.64	6.70	1.14E+00	2.18E+00	5.84E+00
		304.84	4.50	1.70E+00		1.07E+01
		423.70	3.20	4.27E+00		1.81E+01
		437.55	2.00	-1.48E+00		2.56E+01
		537.32	25.00	-1.17E+00		2.18E+00
+	LA-140	328.77	20.50	2.28E+00	8.72E-01	2.78E+00
		487.03	45.50	5.21E-01		1.25E+00
		815.85	23.50	-6.87E-01		2.41E+00
		1596.49	95.49	2.56E-01		8.72E-01
+	CE-141	145.44	48.40	7.74E-02	2.72E-01	2.72E-01
+	CE-143	57.36	11.80	5.72E+06	8.01E+06	2.21E+07
		293.26	42.00	1.70E+07		8.01E+06
		664.55	5.20	-1.46E+07		5.56E+07
+	CE-144	133.54	10.80	2.74E-02	5.92E-01	5.92E-01
+	PM-144	476.78	42.00	-6.97E-02	1.08E-01	2.23E-01
		618.01	98.60	2.39E-03		1.08E-01

Analysis Report for 1510093-06  
CP5002S09-10

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	PM-144	696.49	99.49	2.87E-03	1.08E-01	1.16E-01
+	PM-145	36.85	21.70	-7.16E-01	3.89E-01	7.16E-01
		37.36	39.70	3.61E-02		3.89E-01
		42.30	15.10	-1.72E-01		7.86E-01
		72.40	2.31	4.64E-01		4.04E+00
+	PM-146	453.90	39.94	2.09E-02	2.05E-01	2.05E-01
		735.90	14.01	2.92E-01		7.46E-01
		747.13	13.10	-2.16E-01		8.02E-01
+	ND-147	91.11	28.90	-1.06E+00	2.44E+00	2.44E+00
		531.02	13.10	-1.09E-01		5.68E+00
+	PM-149	285.90	3.10	-2.25E+04	1.05E+05	1.05E+05
+	EU-152	121.78	20.50	4.78E-02	2.83E-01	2.83E-01
		244.69	5.40	-2.29E+00		1.74E+00
		344.27	19.13	3.68E-02		4.15E-01
		778.89	9.20	1.89E-01		1.18E+00
		964.01	10.40	1.32E-01		1.24E+00
		1085.78	7.22	2.58E-01		1.64E+00
		1112.02	9.60	1.18E-01		1.28E+00
		1407.95	14.94	4.78E-01		8.50E-01
+	GD-153	97.43	31.30	1.17E-01	2.09E-01	2.09E-01
		103.18	22.20	-2.42E-02		2.67E-01
+	EU-154	123.07	40.50	7.12E-03	1.45E-01	1.45E-01
		723.30	19.70	-6.35E-02		5.28E-01
		873.19	11.50	-1.98E-01		8.28E-01
		996.32	10.30	-8.44E-01		1.07E+00
		1004.76	17.90	-8.88E-02		6.59E-01
		1274.45	35.50	-1.81E-01		3.64E-01
+	EU-155	86.50	30.90	1.08E-02	2.58E-01	2.58E-01
		105.30	20.70	3.80E-02		2.80E-01
+	EU-156	811.77	10.40	1.40E-01	4.37E+00	4.37E+00
		1153.47	7.20	2.04E-01		8.92E+00
		1230.71	8.90	-8.06E-02		7.26E+00
+	HO-166M	184.41	72.60	1.89E-01	1.11E-01	1.11E-01
		280.45	29.60	-7.08E-02		2.58E-01
		410.94	11.10	2.08E-01		8.13E-01
		711.69	54.10	-5.62E-02		1.73E-01
+	TM-171	66.72	0.14	-1.07E+02	5.96E+01	5.96E+01
+	HF-172	81.75	4.52	-5.37E+00	5.39E-01	1.58E+00
		125.81	11.30	-7.12E-02		5.39E-01
+	LU-172	181.53	20.60	-6.69E-01	6.82E+00	1.07E+01
		810.06	16.63	-4.15E+00		2.03E+01
		912.12	15.25	9.26E+01		4.45E+01
		1093.66	62.50	6.69E-01		6.82E+00
+	LU-173	100.72	5.24	2.96E-01	3.98E-01	1.13E+00
		272.11	21.20	-2.41E-02		3.98E-01
+	HF-175	343.40	84.00	1.17E-02	1.45E-01	1.45E-01
+	LU-176	88.34	13.30	7.26E-01	8.42E-02	6.39E-01
		201.83	86.00	3.11E-03		9.04E-02
		306.78	94.00	6.29E-02		8.42E-02

Analysis Report for 1510093-06  
CP5002S09-10

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
+	TA-182	67.75	41.20	-5.80E-02	2.40E-01	2.40E-01
		1121.30	34.90	7.23E-01		6.28E-01
		1189.05	16.23	2.36E-02		1.03E+00
		1221.41	26.98	4.01E-01		6.74E-01
		1231.02	11.44	8.63E-01		1.56E+00
+	IR-192	308.46	29.68	-2.49E-01	2.66E-01	3.45E-01
		468.07	48.10	-1.98E-02		2.66E-01
+	HG-203	279.19	77.30	1.65E-01	1.73E-01	1.73E-01
+	BI-207	569.67	97.72	3.74E-02	9.66E-02	9.66E-02
		1063.62	74.90	6.18E-02		1.71E-01
+	TL-208	583.14	* 30.22	1.45E+00	2.85E-01	4.48E-01
		860.37	4.48	1.95E+00		2.60E+00
		2614.66	* 35.85	1.30E+00		2.85E-01
+	BI-210M	262.00	45.00	1.65E-03	1.70E-01	1.70E-01
		300.00	23.00	-1.23E+00		3.77E-01
+	PB-210	46.50	* 4.25	1.86E+00	3.33E+00	3.33E+00
+	PB-211	404.84	2.90	2.73E-01	3.06E+00	3.06E+00
		831.96	2.90	-3.00E+00		3.78E+00
		727.17	* 11.80	9.16E-01	9.85E-01	9.85E-01
+	BI-212	1620.62	2.75	2.98E-01		3.71E+00
	PB-212	238.63	* 44.60	1.84E+00	3.06E-01	3.06E-01
		300.09	* 3.41	1.63E+00		4.37E+00
+	BI-214	609.31	* 46.30	1.20E+00	3.44E-01	3.44E-01
		1120.29	* 15.10	1.34E+00		1.07E+00
		1764.49	15.80	1.66E+00		1.24E+00
		2204.22	* 4.98	1.41E+00		1.51E+00
		295.21	* 19.19	1.36E+00	3.54E-01	7.69E-01
+		351.92	* 37.19	1.46E+00		3.54E-01
	RN-219	401.80	6.50	1.67E-01	1.34E+00	1.34E+00
+	RA-223	323.87	3.88	-4.01E+00	1.98E+00	1.98E+00
+	RA-224	240.98	3.95	2.56E+01	4.20E+00	4.20E+00
+	RA-225	40.00	31.00	2.47E-01	2.09E+00	2.09E+00
+	RA-226	186.21	* 3.28	3.23E+00	3.32E+00	3.32E+00
+	TH-227	50.10	8.40	6.48E-02	1.11E+00	1.11E+00
		236.00	11.50	-4.06E-03		1.20E+00
		256.20	6.30	3.61E-01		1.21E+00
		338.32	* 11.40	1.74E+00	3.91E-01	1.10E+00
+	AC-228	911.07	* 27.70	1.73E+00		3.91E-01
		969.11	* 16.60	1.13E+00		1.34E+00
	TH-230	48.44	16.90	2.21E-01	6.20E-01	6.20E-01
+		62.85	4.60	1.85E+00		1.98E+00
		67.67	0.37	-5.25E+00		2.17E+01
	PA-231	283.67	1.60	1.05E+00	3.67E+00	4.53E+00
+		302.67	2.30	1.24E-01		3.67E+00
	TH-231	25.64	14.70	2.95E+00	1.07E+00	4.04E+00
		84.21	6.40	-2.41E+00		1.07E+00
+	PA-233	311.98	38.60	5.45E-02	4.77E-01	4.77E-01
+	PA-234	131.20	20.40	1.80E-01	3.17E-01	3.17E-01

Analysis Report for 1510093-06  
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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	-3.01E-01	3.17E-01	1.13E+00
	946.00	12.00	1.52E-01		9.37E-01
+ PA-234M	1001.03	0.92	9.08E+00	1.41E+01	1.41E+01
+ TH-234	63.29	3.80	2.27E+00	2.36E+00	2.36E+00
+ U-235	143.76	10.50	3.54E-02	5.90E-01	5.90E-01
	163.35	4.70	8.79E-02		1.30E+00
	205.31	4.70	2.53E-01		1.61E+00
+ NP-237	86.50	12.60	2.62E-02	6.25E-01	6.25E-01
+ NP-239	106.10	22.70	1.94E+03	5.94E+03	5.94E+03
	228.18	10.70	-1.34E+03		1.66E+04
	277.60	14.10	1.41E+04		1.34E+04
+ AM-241	59.54	35.90	-1.17E-01	2.40E-01	2.40E-01
+ AM-243	74.67	66.00	1.88E-01	1.65E-01	1.65E-01
+ CM-243	209.75	* 3.29	1.79E+00	7.25E-01	3.01E+00
	228.14	10.60	-5.84E-02		7.25E-01
	277.60	* 14.00	4.54E-01		7.73E-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	1.32E+00	1.32E+00	1.85E-01	6.25E-01
NA-22	1274.54	99.94	1.31E-01	1.31E-01	-6.53E-02	6.00E-02
NA-24	1368.53	99.99	2.79E+15	1.79E+15	-6.25E+14	1.23E+15
	2754.09	99.86	1.79E+15		-5.13E+14	6.33E+14
AL-26	1808.65	99.76	8.91E-02	8.91E-02	-4.55E-03	3.73E-02
+ K-40	1460.81	* 10.67	1.68E+00	1.68E+00	2.48E+01	7.83E-01

: 00528



Analysis Report for 1510093-06  
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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	8.50E-02	8.50E-02	-2.06E-02	4.16E-02
	78.34	96.00	1.07E-01		2.88E-01	5.26E-02
SC-46	889.25	99.98	1.10E-01	1.10E-01	-1.09E-01	4.94E-02
	1120.51	99.99	2.35E-01		2.38E-01	1.11E-01
V-48	983.52	99.98	4.82E-01	4.53E-01	-3.20E-03	2.21E-01
	1312.10	97.50	4.53E-01		-4.61E-01	2.01E-01
CR-51	320.08	9.83	1.90E+00	1.90E+00	1.44E-01	9.11E-01
MN-54	834.83	99.97	1.29E-01	1.29E-01	1.89E-02	6.05E-02
CO-56	846.75	99.96	1.39E-01	1.39E-01	-1.88E-02	6.44E-02
	1037.75	14.03	9.76E-01		-2.46E-01	4.43E-01
	1238.25	67.00	3.30E-01		2.20E-01	1.54E-01
	1771.40	15.51	8.30E-01		8.24E-02	3.53E-01
	2598.48	16.90	5.73E-01		-9.47E-02	2.15E-01
CO-57	122.06	85.51	7.38E-02	7.38E-02	1.25E-02	3.58E-02
	136.48	10.60	6.00E-01		-1.30E-01	2.91E-01
CO-58	810.76	99.40	1.32E-01	1.32E-01	-4.57E-02	6.05E-02
FE-59	1099.22	56.50	3.29E-01	3.29E-01	6.52E-03	1.50E-01
	1291.56	43.20	5.22E-01		-4.06E-02	2.39E-01
CO-60	1173.22	100.00	1.26E-01	1.26E-01	-7.41E-02	5.75E-02
	1332.49	100.00	1.39E-01		-2.00E-02	6.38E-02
ZN-65	1115.52	50.75	2.61E-01	2.61E-01	5.96E-02	1.20E-01
+ GA-67	93.31	* 35.70	6.50E+02	6.50E+02	4.34E+02	3.22E+02
	208.95	* 2.24	6.26E+03		3.73E+03	3.05E+03
	300.22	* 16.00	1.32E+03		4.92E+02	6.47E+02
SE-75	121.11	16.70	4.23E-01	1.21E-01	1.45E-01	2.05E-01
	136.00	59.20	1.21E-01		2.83E-02	5.88E-02
	264.65	59.80	1.57E-01		-4.90E-02	7.58E-02
	279.53	25.20	3.83E-01		1.31E-01	1.84E-01
	400.65	11.40	9.34E-01		8.09E-02	4.45E-01
RB-82	776.52	13.00	2.04E+00	2.04E+00	1.20E-01	9.49E-01
RB-83	520.41	46.00	2.49E-01	2.49E-01	-2.19E-02	1.17E-01
	529.64	30.30	3.67E-01		-5.69E-02	1.72E-01
	552.65	16.40	7.60E-01		8.33E-02	3.58E-01
KR-85	513.99	0.43	2.90E+01	2.90E+01	2.67E+00	1.39E+01
SR-85	513.99	99.27	1.82E-01	1.82E-01	1.67E-02	8.72E-02
Y-88	898.02	93.40	1.46E-01	8.13E-02	5.01E-02	6.77E-02
	1836.01	99.38	8.13E-02		-1.35E-02	3.15E-02
NB-93M	16.57	9.43	9.67E+01	9.67E+01	-1.90E+01	4.71E+01
NB-94	702.63	100.00	1.02E-01	1.02E-01	-2.84E-02	4.77E-02
	871.10	100.00	1.02E-01		3.00E-02	4.69E-02
NB-95	765.79	99.81	2.46E-01	2.46E-01	1.28E-01	1.16E-01
NB-95M	235.69	25.00	3.90E+02	3.90E+02	-1.31E+00	1.91E+02
ZR-95	724.18	43.70	3.95E-01	2.71E-01	3.94E-02	1.86E-01
	756.72	55.30	2.71E-01		-3.10E-02	1.26E-01
MO-99	181.06	6.20	5.74E+03	4.23E+03	4.42E+02	2.77E+03
	739.58	12.80	4.23E+03		-8.54E+02	1.96E+03
	778.00	4.50	1.25E+04		-3.59E+03	5.79E+03
RU-103	497.08	89.00	1.82E-01	1.82E-01	-4.35E-03	8.62E-02
RU-106	621.84	9.80	1.06E+00	1.06E+00	-1.36E-01	4.96E-01
AG-108M	433.93	89.90	9.80E-02	9.80E-02	4.77E-02	4.65E-02
	614.37	90.40	1.23E-01		2.43E-03	5.82E-02
	722.95	90.50	1.14E-01		-1.37E-02	5.32E-02

Analysis Report for 1510093-06  
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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	4.55E+00	4.55E+00	4.37E+00	2.25E+00
AG-110M	657.75	93.14	1.13E-01	1.13E-01	-3.26E-02	5.27E-02
	677.61	10.53	9.82E-01		-1.59E-01	4.57E-01
	706.67	16.46	6.85E-01		2.64E-01	3.20E-01
	763.93	21.98	5.33E-01		3.63E-02	2.49E-01
	884.67	71.63	1.64E-01		9.97E-02	7.60E-02
	1384.27	23.94	4.81E-01		2.30E-01	2.13E-01
CD-113M	263.70	0.02	3.32E+02	3.32E+02	1.70E+01	1.60E+02
SN-113	255.12	1.93	4.75E+00	1.46E-01	3.32E-01	2.29E+00
	391.69	64.90	1.46E-01		-5.10E-02	6.94E-02
TE123M	159.00	84.10	9.09E-02	9.09E-02	2.65E-02	4.40E-02
SB-124	602.71	97.87	1.41E-01	1.41E-01	-3.36E-03	6.63E-02
	645.85	7.26	1.97E+00		-4.91E-01	9.24E-01
	722.78	11.10	1.38E+00		-1.66E-01	6.43E-01
	1691.02	49.00	3.36E-01		0.00E+00	1.47E-01
I-125	35.49	6.49	3.97E+00	3.97E+00	-1.44E+00	1.93E+00
SB-125	176.33	6.89	9.11E-01	3.32E-01	-4.90E-01	4.39E-01
	427.89	29.33	3.32E-01		5.17E-02	1.58E-01
	463.38	10.35	9.90E-01		8.26E-01	4.72E-01
	600.56	17.80	5.22E-01		-1.93E-01	2.44E-01
	635.90	11.32	8.74E-01		-1.53E-02	4.09E-01
SB-126	414.70	83.30	6.99E-01	6.64E-01	-1.66E-01	3.32E-01
	666.33	99.60	6.64E-01		-1.77E-01	3.11E-01
	695.00	99.60	7.07E-01		-2.27E-01	3.31E-01
	720.50	53.80	1.24E+00		1.04E-01	5.79E-01
+ SN-126	87.57 *	37.00	4.35E-01	4.35E-01	4.17E-01	2.15E-01
SB-127	473.00	25.00	1.75E+02	1.23E+02	2.94E+01	8.30E+01
	685.20	35.70	1.23E+02		4.90E+00	5.70E+01
	783.80	14.70	3.42E+02		1.24E+01	1.59E+02
I-129	29.78	57.00	5.47E-01	5.47E-01	-4.30E-01	2.66E-01
	33.60	13.20	1.57E+00		-4.34E-01	7.65E-01
	39.58	7.52	1.78E+00		2.10E-01	8.66E-01
I-131	284.30	6.05	2.28E+01	1.84E+00	5.29E+00	1.09E+01
	364.48	81.20	1.84E+00		-6.66E-01	8.75E-01
	636.97	7.26	2.38E+01		-1.41E+00	1.11E+01
	722.89	1.80	1.09E+02		-1.31E+01	5.08E+01
TE-132	49.72	13.10	1.03E+03	1.24E+02	6.00E+01	5.00E+02
	228.16	88.00	1.24E+02		-1.00E+01	6.02E+01
BA-133	81.00	33.00	2.08E-01	1.96E-01	-1.26E+00	1.02E-01
	302.84	17.80	4.77E-01		1.62E-02	2.29E-01
	356.01	60.00	1.96E-01		-2.48E-02	9.50E-02
I-133	529.87	86.30	7.12E+10	7.12E+10	-1.10E+10	3.34E+10
XE-133	81.00	38.00	1.64E+01	1.64E+01	-9.96E+01	8.01E+00
CS-134	563.23	8.38	1.15E+00	9.59E-02	2.78E-01	5.40E-01
	569.32	15.43	6.50E-01		4.81E-01	3.06E-01
	604.70	97.60	9.59E-02		-2.39E-02	4.49E-02
	795.84	85.40	1.49E-01		1.37E-01	6.99E-02
	801.93	8.73	1.14E+00		-7.01E-01	5.27E-01
CS-135	268.24	16.00	5.19E-01	5.19E-01	-2.60E-02	2.50E-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	5.22E+00	5.73E-01	-1.14E+00	2.53E+00

Analysis Report for 1510093-06  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	163.89	4.61	8.04E+00	5.73E-01	5.42E-01	3.89E+00
	176.55	13.56	2.77E+00		2.24E-02	1.34E+00
	273.65	12.66	3.85E+00		-1.58E+00	1.86E+00
	340.57	48.50	1.40E+00		2.93E+00	6.76E-01
	818.50	99.70	5.73E-01		5.29E-02	2.63E-01
	1048.07	79.60	9.03E-01		2.39E-01	4.16E-01
	1235.34	19.70	4.84E+00		3.34E-01	2.25E+00
	661.65	85.12	1.18E-01		1.18E-01	2.34E-02
LA-138	788.74	34.00	2.96E-01	1.77E-01	-3.88E-02	1.37E-01
CE-139	1435.80	66.00	1.77E-01	9.25E-02	6.34E-02	7.91E-02
	165.85	80.35	9.25E-02		1.77E-02	4.47E-02
BA-140	162.64	6.70	5.84E+00	2.18E+00	1.14E+00	2.82E+00
	304.84	4.50	1.07E+01		1.70E+00	5.15E+00
	423.70	3.20	1.81E+01		4.27E+00	8.60E+00
	437.55	2.00	2.56E+01		-1.48E+00	1.21E+01
	537.32	25.00	2.18E+00		-1.17E+00	1.02E+00
LA-140	328.77	20.50	2.78E+00	8.72E-01	2.28E+00	1.33E+00
	487.03	45.50	1.25E+00		5.21E-01	5.89E-01
	815.85	23.50	2.41E+00		-6.87E-01	1.10E+00
	1596.49	95.49	8.72E-01		2.56E-01	3.92E-01
CE-141	145.44	48.40	2.72E-01	2.72E-01	7.74E-02	1.32E-01
CE-143	57.36	11.80	2.21E+07	8.01E+06	5.72E+06	1.08E+07
	293.26	42.00	8.01E+06		1.70E+07	3.89E+06
	664.55	5.20	5.56E+07		-1.46E+07	2.60E+07
CE-144	133.54	10.80	5.92E-01	5.92E-01	2.74E-02	2.87E-01
PM-144	476.78	42.00	2.23E-01	1.08E-01	-6.97E-02	1.06E-01
	618.01	98.60	1.08E-01		2.39E-03	5.06E-02
PM-145	696.49	99.49	1.16E-01	3.89E-01	2.87E-03	5.46E-02
	36.85	21.70	7.16E-01		-7.16E-01	3.48E-01
	37.36	39.70	3.89E-01		3.61E-02	1.89E-01
	42.30	15.10	7.86E-01		-1.72E-01	3.83E-01
PM-146	72.40	2.31	4.04E+00	2.05E-01	4.64E-01	1.98E+00
	453.90	39.94	2.05E-01		2.09E-02	9.68E-02
	735.90	14.01	7.46E-01		2.92E-01	3.48E-01
ND-147	747.13	13.10	8.02E-01	2.44E+00	-2.16E-01	3.74E-01
	91.11	28.90	2.44E+00		-1.06E+00	1.20E+00
	531.02	13.10	5.68E+00		-1.09E-01	2.67E+00
PM-149	285.90	3.10	1.05E+05	1.05E+05	-2.25E+04	5.02E+04
EU-152	121.78	20.50	2.83E-01	2.83E-01	4.78E-02	1.37E-01
	244.69	5.40	1.74E+00		-2.29E+00	8.45E-01
	344.27	19.13	4.15E-01		3.68E-02	1.98E-01
	778.89	9.20	1.18E+00		1.89E-01	5.48E-01
	964.01	10.40	1.24E+00		1.32E-01	5.78E-01
	1085.78	7.22	1.64E+00		2.58E-01	7.51E-01
	1112.02	9.60	1.28E+00		1.18E-01	5.89E-01
	1407.95	14.94	8.50E-01		4.78E-01	3.85E-01
GD-153	97.43	31.30	2.09E-01	2.09E-01	1.17E-01	1.01E-01
	103.18	22.20	2.67E-01		-2.42E-02	1.29E-01
EU-154	123.07	40.50	1.45E-01	1.45E-01	7.12E-03	7.01E-02
	723.30	19.70	5.28E-01		-6.35E-02	2.46E-01
	873.19	11.50	8.28E-01		-1.98E-01	3.79E-01
	996.32	10.30	1.07E+00		-8.44E-01	4.91E-01
	1004.76	17.90	6.59E-01		-8.88E-02	3.04E-01

Analysis Report for 1510093-06  
CP5002S09-10

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	3.64E-01	1.45E-01	-1.81E-01	1.66E-01
EU-155	86.50	30.90	2.58E-01	2.58E-01	1.08E-02	1.26E-01
	105.30	20.70	2.80E-01		3.80E-02	1.36E-01
EU-156	811.77	10.40	4.37E+00	4.37E+00	1.40E-01	2.01E+00
	1153.47	7.20	8.92E+00		2.04E-01	4.12E+00
	1230.71	8.90	7.26E+00		-8.06E-02	3.34E+00
HO-166M	184.41	72.60	1.11E-01	1.11E-01	1.89E-01	5.42E-02
	280.45	29.60	2.58E-01		-7.08E-02	1.24E-01
	410.94	11.10	8.13E-01		2.08E-01	3.88E-01
	711.69	54.10	1.73E-01		-5.62E-02	8.03E-02
TM-171	66.72	0.14	5.96E+01	5.96E+01	-1.07E+02	2.91E+01
HF-172	81.75	4.52	1.58E+00	5.39E-01	-5.37E+00	7.71E-01
	125.81	11.30	5.39E-01		-7.12E-02	2.61E-01
LU-172	181.53	20.60	1.07E+01	6.82E+00	-6.69E-01	5.16E+00
	810.06	16.63	2.03E+01		-4.15E+00	9.35E+00
	912.12	15.25	4.45E+01		9.26E+01	2.13E+01
	1093.66	62.50	6.82E+00		6.69E-01	3.14E+00
LU-173	100.72	5.24	1.13E+00	3.98E-01	2.96E-01	5.51E-01
	272.11	21.20	3.98E-01		-2.41E-02	1.92E-01
HF-175	343.40	84.00	1.45E-01	1.45E-01	1.17E-02	6.95E-02
LU-176	88.34	13.30	6.39E-01	8.42E-02	7.26E-01	3.13E-01
	201.83	86.00	9.04E-02		3.11E-03	4.38E-02
	306.78	94.00	8.42E-02		6.29E-02	4.04E-02
TA-182	67.75	41.20	2.40E-01	2.40E-01	-5.80E-02	1.17E-01
	1121.30	34.90	6.28E-01		7.23E-01	2.97E-01
	1189.05	16.23	1.03E+00		2.36E-02	4.76E-01
	1221.41	26.98	6.74E-01		4.01E-01	3.13E-01
	1231.02	11.44	1.56E+00		8.63E-01	7.22E-01
IR-192	308.46	29.68	3.45E-01	2.66E-01	-2.49E-01	1.65E-01
	468.07	48.10	2.66E-01		-1.98E-02	1.26E-01
HG-203	279.19	77.30	1.73E-01	1.73E-01	1.65E-01	8.33E-02
BI-207	569.67	97.72	9.66E-02	9.66E-02	3.74E-02	4.55E-02
	1063.62	74.90	1.71E-01		6.18E-02	7.89E-02
+ TL-208	583.14	*	30.22	2.85E-01	1.45E+00	2.15E-01
	860.37		4.48		1.95E+00	1.21E+00
	2614.66	*	35.85		1.30E+00	1.17E-01
BI-210M	262.00	45.00	1.70E-01	1.70E-01	1.65E-03	8.20E-02
	300.00	23.00	3.77E-01		-1.23E+00	1.82E-01
+ PB-210	46.50	*	4.25	3.33E+00	1.86E+00	1.64E+00
PB-211	404.84	2.90	3.06E+00	3.06E+00	2.73E-01	1.46E+00
	831.96	2.90	3.78E+00		-3.00E+00	1.76E+00
+ BI-212	727.17	*	11.80	9.85E-01	9.16E-01	4.63E-01
	1620.62		2.75		2.98E-01	1.61E+00
+ PB-212	238.63	*	44.60	3.06E-01	1.84E+00	1.50E-01
	300.09	*	3.41		1.63E+00	2.14E+00
+ BI-214	609.31	*	46.30	3.44E-01	1.20E+00	1.65E-01
	1120.29	*	15.10		1.34E+00	5.01E-01
	1764.49		15.80		1.66E+00	5.77E-01
	2204.22	*	4.98		1.41E+00	5.92E-01
+ PB-214	295.21	*	19.19	3.54E-01	1.36E+00	3.76E-01
	351.92	*	37.19		1.46E+00	1.72E-01
RN-219	401.80	6.50	1.34E+00	1.34E+00	1.67E-01	6.40E-01
RA-223	323.87	3.88	1.98E+00	1.98E+00	-4.01E+00	9.48E-01

Analysis Report for 1510093-06  
CP5002S09-10

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	4.20E+00	4.20E+00	2.56E+01	2.06E+00
RA-225	40.00	31.00	2.09E+00	2.09E+00	2.47E-01	1.02E+00
+ RA-226	186.21 *	3.28	3.32E+00	3.32E+00	3.23E+00	1.62E+00
TH-227	50.10	8.40	1.11E+00	1.11E+00	6.48E-02	5.40E-01
	236.00	11.50	1.20E+00		-4.06E-03	5.91E-01
	256.20	6.30	1.21E+00		3.61E-01	5.81E-01
+ AC-228	338.32 *	11.40	1.10E+00	3.91E-01	1.74E+00	5.34E-01
	911.07 *	27.70	3.91E-01		1.73E+00	1.80E-01
	969.11 *	16.60	1.34E+00		1.13E+00	6.41E-01
TH-230	48.44	16.90	6.20E-01	6.20E-01	2.21E-01	3.02E-01
	62.85	4.60	1.98E+00		1.85E+00	9.67E-01
	67.67	0.37	2.17E+01		-5.25E+00	1.06E+01
PA-231	283.67	1.60	4.53E+00	3.67E+00	1.05E+00	2.17E+00
	302.67	2.30	3.67E+00		1.24E-01	1.76E+00
TH-231	25.64	14.70	4.04E+00	1.07E+00	2.95E+00	1.96E+00
	84.21	6.40	1.07E+00		-2.41E+00	5.22E-01
PA-233	311.98	38.60	4.77E-01	4.77E-01	5.45E-02	2.28E-01
PA-234	131.20	20.40	3.17E-01	3.17E-01	1.80E-01	1.54E-01
	733.99	8.80	1.13E+00		-3.01E-01	5.25E-01
	946.00	12.00	9.37E-01		1.52E-01	4.32E-01
PA-234M	1001.03	0.92	1.41E+01	1.41E+01	9.08E+00	6.55E+00
TH-234	63.29	3.80	2.36E+00	2.36E+00	2.27E+00	1.16E+00
U-235	143.76	10.50	5.90E-01	5.90E-01	3.54E-02	2.86E-01
	163.35	4.70	1.30E+00		8.79E-02	6.30E-01
	205.31	4.70	1.61E+00		2.53E-01	7.81E-01
NP-237	86.50	12.60	6.25E-01	6.25E-01	2.62E-02	3.06E-01
NP-239	106.10	22.70	5.94E+03	5.94E+03	1.94E+03	2.88E+03
	228.18	10.70	1.66E+04		-1.34E+03	8.03E+03
	277.60	14.10	1.34E+04		1.41E+04	6.44E+03
AM-241	59.54	35.90	2.40E-01	2.40E-01	-1.17E-01	1.17E-01
AM-243	74.67	66.00	1.65E-01	1.65E-01	1.88E-01	8.12E-02
+ CM-243	209.75 *	3.29	3.01E+00	7.25E-01	1.79E+00	1.47E+00
	228.14	10.60	7.25E-01		-5.84E-02	3.50E-01
	277.60 *	14.00	7.73E-01		4.54E-01	3.76E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1510093-06  
CP5002S09-10

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## DATA REVIEW COMMENTS REPORT

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S09-10

Elapsed Live time: 3600  
Elapsed Real Time: 3616

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	6	203	194	158	134	121	92	115
17:	91	84	85	83	69	83	89	87
25:	88	81	98	87	63	86	111	72
33:	100	93	76	78	75	82	80	100
41:	85	70	85	111	83	112	170	124
49:	81	86	92	98	94	105	103	113
57:	108	112	105	150	118	129	153	228
65:	124	108	127	139	142	130	143	156
73:	136	150	346	297	391	479	121	122
81:	93	103	95	134	115	96	162	224
89:	131	188	149	123	198	211	94	80
97:	64	94	81	86	71	64	65	56
105:	69	109	68	77	70	77	65	71
113:	93	75	69	90	65	59	66	66
121:	70	67	79	62	67	69	70	80
129:	101	103	71	65	67	66	70	62
137:	63	65	57	59	76	51	69	68
145:	69	83	74	59	77	61	61	61
153:	70	82	69	64	86	54	57	59
161:	55	51	53	76	55	51	54	57
169:	66	49	61	66	47	58	47	47
177:	60	47	65	60	47	57	55	56
185:	58	125	138	54	53	38	65	56
193:	37	39	54	39	54	46	38	60
201:	60	48	55	55	33	56	42	34
209:	70	86	68	44	41	36	46	45
217:	39	54	31	46	38	46	42	43
225:	37	40	43	47	36	36	42	42
233:	38	54	51	45	52	126	531	259
241:	79	119	94	43	25	28	32	38
249:	40	26	24	18	36	34	32	41
257:	23	38	25	47	24	23	37	30
265:	38	30	36	30	22	48	50	46
273:	23	16	28	34	35	41	37	30
281:	25	21	26	18	32	26	26	25
289:	22	35	31	28	24	40	102	148
297:	52	22	19	43	54	22	18	35
305:	26	16	19	34	30	23	23	14
313:	30	26	20	20	20	22	34	21
321:	24	23	28	25	20	13	24	48
329:	49	24	22	29	20	22	27	23
337:	22	61	107	49	18	30	21	28
345:	16	20	16	18	18	31	45	216
353:	177	41	19	19	24	20	17	25
361:	27	18	23	15	23	19	20	15

369: 21 17 13 16 19 19 18 21

Sample Title: CP5002S09-10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	20	21	15	18	22	16	16	22
385:	21	18	14	18	10	18	16	18
393:	18	16	17	21	21	19	26	13
401:	16	29	18	19	18	18	18	22
409:	18	28	24	16	19	16	17	20
417:	24	16	12	19	12	16	24	18
425:	24	26	17	21	18	21	21	20
433:	18	17	16	13	18	10	10	10
441:	23	16	9	21	18	10	12	9
449:	12	11	11	11	19	10	13	17
457:	14	13	15	16	10	16	24	34
465:	27	16	14	12	20	11	20	19
473:	23	13	16	17	17	14	10	16
481:	14	14	8	18	18	12	12	16
489:	15	11	9	15	11	21	10	12
497:	14	11	14	16	12	18	9	6
505:	8	8	11	14	14	38	64	52
513:	19	9	16	17	12	10	15	9
521:	15	12	13	12	8	10	10	8
529:	16	10	13	11	10	13	16	10
537:	12	8	9	10	23	11	17	8
545:	6	12	8	18	15	18	6	15
553:	17	13	10	13	6	13	13	11
561:	14	12	16	9	10	14	7	11
569:	19	10	19	12	8	6	10	9
577:	15	10	12	12	17	28	95	105
585:	36	6	16	10	7	12	9	10
593:	9	16	14	11	17	13	6	12
601:	15	8	11	7	10	13	8	14
609:	108	147	38	11	10	10	13	13
617:	11	14	9	10	13	11	12	11
625:	12	9	14	12	8	13	12	13
633:	19	11	14	7	7	6	10	10
641:	8	14	10	6	10	13	4	15
649:	14	15	10	11	7	11	6	7
657:	13	12	8	12	10	12	15	8
665:	9	9	5	15	9	13	11	13
673:	7	12	5	7	13	11	5	12
681:	9	6	14	12	4	10	12	2
689:	5	9	15	7	9	8	13	15
697:	12	10	13	13	10	12	6	9
705:	10	9	14	9	6	12	8	5
713:	11	9	5	9	8	11	9	4
721:	10	8	12	11	8	14	28	25
729:	13	4	9	8	13	10	8	8
737:	4	10	12	7	5	13	12	8
745:	13	10	11	9	4	9	9	10
753:	9	10	9	8	6	12	9	8
761:	9	10	5	11	7	9	14	22
769:	23	8	11	12	8	10	7	6
777:	14	6	10	7	8	13	8	8
785:	10	8	8	11	7	6	6	8
793:	8	8	20	20	10	7	9	8



801: 2 6 7 9 7 11 11 7

Sample Title: CP5002S09-10

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	8	7	6	6	4	6	9	3
817:	6	7	4	7	8	6	7	8
825:	9	10	11	14	7	7	11	8
833:	11	6	9	15	11	11	8	11
841:	9	13	5	6	11	6	5	9
849:	7	6	9	5	5	6	4	5
857:	6	2	7	10	19	9	10	4
865:	6	9	8	5	7	8	6	6
873:	8	6	3	2	6	8	7	7
881:	7	7	8	8	10	3	7	3
889:	1	3	7	4	8	6	10	10
897:	3	5	7	8	8	6	3	4
905:	8	5	7	8	3	15	67	67
913:	19	2	2	8	2	7	3	4
921:	8	8	4	5	7	5	11	9
929:	9	5	4	3	6	6	11	10
937:	8	6	4	8	5	9	5	6
945:	7	9	7	9	6	7	4	10
953:	7	9	4	3	5	1	8	7
961:	8	9	7	5	16	11	7	15
969:	33	32	10	9	6	6	11	5
977:	5	4	5	4	7	5	8	6
985:	10	3	9	6	4	7	8	8
993:	6	6	7	7	3	4	9	11
1001:	11	13	5	7	5	5	8	5
1009:	8	3	8	5	4	6	6	3
1017:	10	3	3	6	5	8	4	4
1025:	5	5	3	5	3	2	6	6
1033:	2	9	3	6	3	6	5	5
1041:	5	5	7	7	9	5	7	5
1049:	7	3	10	7	1	5	5	4
1057:	6	5	8	10	8	8	7	9
1065:	7	3	5	5	5	7	10	8
1073:	5	3	2	3	6	9	3	4
1081:	3	7	4	4	7	6	8	5
1089:	8	1	10	7	9	6	8	6
1097:	6	6	3	5	2	7	4	3
1105:	9	7	8	12	5	8	7	9
1113:	5	9	1	7	6	5	15	28
1121:	27	11	4	7	11	0	7	3
1129:	10	5	2	8	4	6	7	8
1137:	10	4	2	7	3	7	3	6
1145:	7	7	4	10	6	10	3	6
1153:	5	11	11	5	9	4	7	3
1161:	4	6	6	5	11	7	9	7
1169:	9	5	9	5	4	9	6	3
1177:	10	8	4	6	7	5	6	11
1185:	4	11	6	6	11	2	5	8
1193:	6	7	4	4	3	3	3	3
1201:	2	7	10	9	11	5	9	7
1209:	9	7	4	10	5	10	6	9
1217:	4	6	10	8	10	6	4	12
1225:	5	2	4	9	5	8	8	8

1233: 4 11 7 5 10 18 14 11

Sample Title: CP5002S09-10

Channel	1	2	3	4	5	6	7	8	9
1241:	3	5	4	3	9	7	8	7	
1249:	3	7	5	5	11	7	3	4	
1257:	3	5	6	6	7	6	4	4	
1265:	3	6	7	2	6	5	3	6	
1273:	4	3	3	6	3	5	4	11	
1281:	1	4	4	5	4	6	3	3	
1289:	9	1	8	0	9	6	1	4	
1297:	5	2	10	4	3	4	2	3	
1305:	1	5	4	1	2	2	2	6	
1313:	2	3	3	0	5	6	9	3	
1321:	3	1	8	3	5	1	8	5	
1329:	6	3	4	4	7	5	4	3	
1337:	7	4	4	3	5	2	4	4	
1345:	3	3	0	4	3	0	2	2	
1353:	1	6	2	5	3	5	2	2	
1361:	4	3	5	1	2	3	0	5	
1369:	2	1	3	2	0	3	2	4	
1377:	8	10	5	0	3	2	2	3	
1385:	1	3	3	4	0	0	3	3	
1393:	1	2	3	2	0	5	1	4	
1401:	6	3	2	4	4	1	2	8	
1409:	3	2	5	2	1	1	3	1	
1417:	0	2	0	1	3	2	3	4	
1425:	2	4	3	3	3	0	0	4	
1433:	4	1	2	4	2	3	5	2	
1441:	2	2	0	1	3	0	2	1	
1449:	1	3	1	0	2	2	2	3	
1457:	3	6	27	115	245	168	35	2	
1465:	2	2	0	5	1	1	4	0	
1473:	2	1	4	0	4	1	2	0	
1481:	6	4	1	2	3	0	6	1	
1489:	2	2	0	4	0	2	3	4	
1497:	4	3	0	1	3	4	3	2	
1505:	0	3	2	1	1	1	5	2	
1513:	3	3	1	0	1	1	1	2	
1521:	3	2	0	3	5	0	2	2	
1529:	1	2	3	2	1	2	1	2	
1537:	0	0	2	1	3	1	3	3	
1545:	0	1	1	1	4	0	3	1	
1553:	1	2	1	3	1	2	1	2	
1561:	0	1	1	2	1	1	2	1	
1569:	1	0	0	0	2	2	1	3	
1577:	1	0	2	2	4	2	3	4	
1585:	0	1	3	5	5	3	2	8	
1593:	4	7	2	0	3	1	1	1	
1601:	1	3	0	1	2	0	1	0	
1609:	1	0	0	0	0	3	0	2	
1617:	1	0	1	1	6	1	1	2	
1625:	1	1	1	0	2	4	6	1	
1633:	3	1	2	4	0	0	2	1	
1641:	1	4	1	1	2	3	0	2	
1649:	0	1	0	0	0	0	2	1	
1657:	0	0	1	2	1	0	1	1	

1665: 0 0 2 1 2 1 1 0

Sample Title: CP5002S09-10

Channel	1	2	3	4	5	6	7	8
1673:	1	0	0	1	2	1	1	1
1681:	0	0	2	1	3	0	1	1
1689:	1	3	0	2	3	5	1	1
1697:	1	0	0	2	0	1	0	1
1705:	3	0	2	1	0	0	1	1
1713:	1	0	1	1	2	2	1	0
1721:	3	1	1	2	1	0	0	2
1729:	2	2	5	2	1	1	0	1
1737:	1	1	1	0	1	2	2	0
1745:	0	3	1	1	1	1	1	0
1753:	2	1	1	0	0	1	0	1
1761:	2	1	4	8	28	9	1	2
1769:	1	2	0	0	3	1	1	1
1777:	1	0	1	3	1	0	0	1
1785:	0	1	0	1	0	2	1	1
1793:	1	1	2	1	2	0	1	0
1801:	2	1	1	2	1	2	1	1
1809:	1	1	0	0	2	0	1	0
1817:	0	1	1	1	0	1	1	0
1825:	1	2	1	0	1	1	1	0
1833:	1	0	1	0	1	0	0	1
1841:	1	0	3	1	0	1	1	2
1849:	0	1	1	0	1	1	1	1
1857:	1	1	0	0	2	0	2	1
1865:	0	0	1	0	0	0	2	1
1873:	0	4	2	1	0	1	0	0
1881:	1	0	1	1	1	0	1	2
1889:	0	2	0	0	1	2	2	2
1897:	1	2	0	1	1	2	1	0
1905:	1	1	2	0	2	1	0	0
1913:	1	3	1	0	0	1	1	1
1921:	0	2	0	1	1	2	0	0
1929:	1	1	0	0	0	0	0	0
1937:	2	2	0	1	0	0	0	2
1945:	0	0	1	0	0	0	1	2
1953:	1	0	0	2	0	0	0	1
1961:	2	1	0	2	2	1	1	2
1969:	0	1	2	1	1	0	1	0
1977:	0	0	1	1	0	0	0	1
1985:	2	1	0	3	3	1	1	0
1993:	1	1	1	0	0	1	2	1
2001:	0	0	0	0	0	0	1	1
2009:	3	0	1	0	0	0	1	0
2017:	0	0	0	1	1	0	1	0
2025:	1	0	2	1	0	0	3	1
2033:	2	0	0	0	1	1	2	2
2041:	3	0	1	2	1	1	2	0
2049:	2	0	1	0	1	0	1	0
2057:	0	1	1	0	0	2	0	1
2065:	0	0	0	0	0	2	0	0
2073:	2	1	0	1	1	2	1	0
2081:	1	0	1	0	0	0	0	1
2089:	1	2	0	0	1	1	1	1

2097: 0 2 1 1 0 2 1 3

Sample Title: CP5002S09-10

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

2529: 0 0 1 0 0 0 0 0 0

Sample Title: CP5002S09-10

Channel	1	2	3	4	5	6	7	8	9
2537:	1	0	0	0	0	0	1	0	2
2545:	0	1	0	2	0	0	0	0	0
2553:	0	0	1	0	0	0	0	0	0
2561:	1	0	0	0	1	0	0	0	2
2569:	0	0	0	0	0	0	0	1	0
2577:	1	0	0	0	2	0	0	0	0
2585:	0	0	1	0	1	1	1	0	0
2593:	1	0	0	1	1	0	0	0	1
2601:	0	0	0	2	0	0	0	0	1
2609:	1	0	0	1	7	22	29	11	0
2617:	4	0	1	0	0	0	0	0	0
2625:	0	0	0	0	0	0	1	0	1
2633:	0	0	0	0	0	1	0	0	0
2641:	0	0	0	0	0	1	1	0	0
2649:	0	1	0	0	0	0	0	0	1
2657:	0	0	0	0	0	0	1	0	0
2665:	1	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	1	0	0	0
2681:	0	1	0	0	0	0	0	0	0
2689:	0	1	0	1	1	1	0	0	1
2697:	0	0	0	0	0	0	0	2	0
2705:	0	0	0	0	0	0	0	0	0
2713:	1	0	0	0	0	0	0	2	0
2721:	0	0	0	0	0	0	0	0	0
2729:	1	0	1	1	1	1	0	0	0
2737:	1	0	0	0	0	0	1	0	0
2745:	0	1	0	0	0	1	0	0	0
2753:	0	0	0	0	0	1	0	1	1
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	0	0	0	0	0	0
2793:	1	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0	1
2809:	0	0	2	0	0	0	1	0	0
2817:	0	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0	0
2833:	2	0	0	0	0	0	0	0	0
2841:	0	0	0	1	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0	0
2857:	1	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0	0
2873:	1	0	0	0	0	0	0	1	0
2881:	0	0	0	0	0	0	0	1	0
2889:	1	0	0	0	0	0	0	0	1
2897:	0	1	0	0	0	0	0	0	0
2905:	0	0	0	0	0	1	0	0	0
2913:	0	1	0	0	0	0	0	0	0
2921:	0	0	1	0	0	1	0	0	0
2929:	0	1	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0	1
2953:	0	0	1	0	0	0	0	0	0

2961: 0 0 0 0 0 0 1 1

Sample Title: CP5002S09-10

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP5002S09-10

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

3825: 0 1 0 0 1 0 0 0

Sample Title: CP5002S09-10

Channel	1	2	3	4	5	6	7	8
3833:	0	0	0	0	0	0	0	1
3841:	0	1	0	0	1	0	0	0
3849:	0	0	0	0	1	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	1	0	0	0	0	2	0
3873:	1	1	0	1	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	1	0	1	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	1	0	0	0	0
3937:	0	0	0	1	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	1
3969:	0	0	0	0	0	1	0	0
3977:	1	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	0	0	0	0
4009:	0	0	0	1	0	0	0	1
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	1	0	2	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	1	0	0	0	0	0
4057:	0	0	0	0	0	0	1	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	1	0	0	0





KBS  
11/11/15Analysis Report for 1510093-07  
CP5002S11-12

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-07  
Sample Description : CP5002S11-12  
Sample Type : SOIL

Sample Size : 5.285E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:29:48AM  
Acquisition Started : 11/11/2015 11:34:34AM

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) : 5 - 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 : 29482

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## PEAK-TO-TOTAL CALIBRATION REPORT

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### Peak-to-Total Efficiency Calibration Equation

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AC4  
11/12/15

Analysis Report for 1510093-07  
CP5002S11-12

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## PEAK LOCATE REPORT

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Peak Locate Performed on : 11/11/2015 12:34:40PM  
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	46.09	46.20	0.0000	0.00
2	63.95	64.05	0.0000	0.00
3	76.40	76.48	0.0000	0.00
4	88.07	88.15	0.0000	0.00
5	93.51	93.59	0.0000	0.00
6	129.00	129.06	0.0000	0.00
7	153.75	153.80	0.0000	0.00
8	185.96	185.99	0.0000	0.00
9	238.75	238.75	0.0000	0.00
10	241.67	241.66	0.0000	0.00
11	259.17	259.16	0.0000	0.00
12	271.01	270.99	0.0000	0.00
13	277.72	277.69	0.0000	0.00
14	295.36	295.33	0.0000	0.00
15	300.24	300.21	0.0000	0.00
16	338.43	338.37	0.0000	0.00
17	352.07	352.01	0.0000	0.00
18	422.06	421.96	0.0000	0.00
19	462.78	462.66	0.0000	0.00
20	510.85	510.71	0.0000	0.00
21	562.81	562.64	0.0000	0.00
22	583.38	583.20	0.0000	0.00
23	609.46	609.27	0.0000	0.00
24	684.83	684.60	0.0000	0.00
25	714.78	714.54	0.0000	0.00
26	727.30	727.05	0.0000	0.00
27	743.68	743.43	0.0000	0.00
28	768.23	767.96	0.0000	0.00
29	772.45	772.18	0.0000	0.00
30	785.42	785.15	0.0000	0.00
31	794.40	794.12	0.0000	0.00
32	860.73	860.43	0.0000	0.00
33	892.34	892.02	0.0000	0.00
34	911.41	911.08	0.0000	0.00
35	967.93	967.58	0.0000	0.00
36	1060.66	1060.27	0.0000	0.00
37	1120.92	1120.51	0.0000	0.00
38	1142.90	1142.48	0.0000	0.00
39	1154.65	1154.23	0.0000	0.00
40	1238.31	1237.86	0.0000	0.00
41	1344.08	1343.60	0.0000	0.00
42	1377.53	1377.04	0.0000	0.00

Analysis Report for 1510093-07  
CP5002S11-12

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1460.95	1460.43	0.0000	0.00
44	1634.09	1633.51	0.0000	0.00
45	1664.10	1663.52	0.0000	0.00
46	1739.87	1739.27	0.0000	0.00
47	1764.58	1763.98	0.0000	0.00
48	1812.74	1812.12	0.0000	0.00
49	1848.29	1847.67	0.0000	0.00
50	1946.31	1945.66	0.0000	0.00
51	2104.28	2103.60	0.0000	0.00
52	2118.67	2117.99	0.0000	0.00
53	2138.67	2137.99	0.0000	0.00
54	2161.89	2161.20	0.0000	0.00
55	2204.70	2204.00	0.0000	0.00
56	2334.68	2333.97	0.0000	0.00
57	2614.32	2613.58	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-07  
CP5002S11-12

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 12:34:40PM

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	46.09	43 -	49	46.20	1.72E+02	98.37	1.63E+03	1.43
2	63.95	62 -	68	64.05	1.27E+02	98.38	1.67E+03	1.56
3	76.40	72 -	79	76.48	7.93E+02	130.68	2.90E+03	3.59
4	88.07	86 -	91	88.15	2.59E+02	91.64	1.48E+03	3.57
5	93.51	91 -	97	93.59	1.79E+02	98.21	1.52E+03	1.66
6	129.00	126 -	132	129.06	9.65E+01	76.49	9.93E+02	1.92
7	153.75	150 -	157	153.80	9.59E+01	79.80	9.92E+02	4.30
8	185.96	182 -	190	185.99	2.41E+02	88.31	1.05E+03	1.65
M	9	235 -	249	238.75	9.42E+02	75.07	4.43E+02	1.51
m	10	235 -	249	241.66	3.01E+02	92.28	5.87E+02	2.51
	11	257 -	262	259.16	4.50E+01	46.67	3.96E+02	3.01
	12	268 -	274	270.99	6.29E+01	52.27	4.44E+02	1.91
	13	275 -	281	277.69	4.42E+01	50.74	4.40E+02	1.62
M	14	290 -	311	295.33	3.91E+02	52.67	2.91E+02	1.51
m	15	290 -	311	300.21	8.84E+01	45.02	3.13E+02	2.00
	16	335 -	343	338.37	2.06E+02	59.86	4.28E+02	1.87
	17	347 -	356	352.01	6.72E+02	76.41	4.50E+02	1.44
	18	417 -	426	421.96	5.16E+01	50.68	3.31E+02	1.46
	19	458 -	467	462.66	7.80E+01	50.07	3.10E+02	1.52
	20	506 -	515	510.71	1.98E+02	50.78	2.57E+02	2.24
	21	560 -	565	562.64	2.72E+01	25.79	1.12E+02	2.25
	22	579 -	587	583.20	3.05E+02	54.80	2.73E+02	1.57
	23	605 -	613	609.27	4.92E+02	62.42	2.97E+02	1.75
	24	681 -	688	684.60	3.33E+01	28.84	1.17E+02	3.40
	25	711 -	718	714.54	2.61E+01	30.40	1.38E+02	3.54
	26	722 -	732	727.05	7.20E+01	47.62	2.64E+02	1.90
	27	740 -	747	743.43	2.40E+01	27.20	1.06E+02	4.40
M	28	764 -	776	767.96	7.54E+01	25.22	6.72E+01	1.97
m	29	764 -	776	772.18	4.47E+01	23.92	4.81E+01	2.03
	30	785 -	789	785.15	2.97E+01	31.42	1.31E+02	2.60
	31	790 -	798	794.12	3.73E+01	31.16	1.27E+02	2.19
	32	857 -	864	860.43	4.27E+01	28.64	1.01E+02	1.77
	33	890 -	895	892.02	1.66E+01	18.63	5.49E+01	1.66
	34	906 -	915	911.08	1.79E+02	42.41	1.55E+02	1.68
	35	962 -	972	967.58	1.68E+02	42.25	1.48E+02	1.90
	36	1057 -	1064	1060.27	2.03E+01	26.08	9.94E+01	1.70
	37	1116 -	1125	1120.51	1.25E+02	33.06	8.32E+01	1.54
	38	1138 -	1148	1142.48	3.62E+01	27.60	8.17E+01	2.31
	39	1149 -	1162	1154.23	4.13E+01	35.23	1.21E+02	3.41
	40	1235 -	1241	1237.86	2.15E+01	26.84	1.15E+02	1.88

Analysis Report for 1510093-07

CP5002S11-12

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1344.08	1341 -	1345	1343.60	1.03E+01	11.67	1.94E+01	1.67
42	1377.53	1374 -	1381	1377.04	3.64E+01	18.97	3.51E+01	1.66
43	1460.95	1455 -	1466	1460.43	7.44E+02	59.26	6.96E+01	2.38
44	1634.09	1626 -	1640	1633.51	2.88E+01	19.82	2.64E+01	10.31
45	1664.10	1660 -	1666	1663.52	9.00E+00	8.51	6.00E+00	2.95
46	1739.87	1736 -	1743	1739.27	6.00E+00	8.49	8.00E+00	2.83
47	1764.58	1759 -	1769	1763.98	7.55E+01	20.66	1.69E+01	2.02
48	1812.74	1807 -	1816	1812.12	9.57E+00	10.30	8.86E+00	2.73
49	1848.29	1844 -	1850	1847.67	1.36E+01	13.02	2.08E+01	1.97
50	1946.31	1942 -	1948	1945.66	6.96E+00	9.21	1.01E+01	3.28
51	2104.28	2098 -	2110	2103.60	2.44E+01	12.42	7.14E+00	2.75
52	2118.67	2115 -	2121	2117.99	1.22E+01	10.04	7.69E+00	1.12
53	2138.67	2133 -	2141	2137.99	1.16E+01	8.73	4.71E+00	1.41
54	2161.89	2158 -	2164	2161.20	6.50E+00	8.03	7.00E+00	3.25
55	2204.70	2198 -	2212	2204.00	3.27E+01	14.29	8.68E+00	3.19
56	2334.68	2331 -	2337	2333.97	7.56E+00	6.95	2.89E+00	1.08
57	2614.32	2609 -	2618	2613.58	1.08E+02	20.78	0.00E+00	2.77

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 : 11/11/2015 12:34:40PM

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	46.09	43 -	49	1.72E+02	98.37	1.63E+03	7.79E+01	
2	63.95	62 -	68	1.27E+02	98.38	1.67E+03	7.87E+01	
3	76.40	72 -	79	7.93E+02	130.68	2.90E+03	1.67E+02	
4	88.07	86 -	91	2.59E+02	91.64	1.48E+03	7.05E+01	
5	93.51	91 -	97	1.79E+02	98.21	1.52E+03	7.77E+01	
6	129.00	126 -	132	9.65E+01	76.49	9.93E+02	6.08E+01	
7	153.75	150 -	157	9.59E+01	79.80	9.92E+02	6.36E+01	
8	185.96	182 -	190	2.41E+02	88.31	1.05E+03	6.80E+01	
M	9	238.75	235 -	249	9.42E+02	75.07	4.43E+02	3.46E+01
m	10	241.67	235 -	249	3.01E+02	92.28	5.87E+02	3.98E+01
	11	259.17	257 -	262	4.50E+01	46.67	3.96E+02	3.67E+01

Analysis Report for 1510093-07

CP5002S11-12

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>ROI start</b>	<b>ROI end</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Continuum Counts</b>	<b>Critical Level</b>
	12	271.01	268 -	274	6.29E+01	52.27	4.44E+02	4.09E+01
	13	277.72	275 -	281	4.42E+01	50.74	4.40E+02	4.03E+01
M	14	295.36	290 -	311	3.91E+02	52.67	2.91E+02	2.80E+01
m	15	300.24	290 -	311	8.84E+01	45.02	3.13E+02	2.91E+01
	16	338.43	335 -	343	2.06E+02	59.86	4.28E+02	4.32E+01
	17	352.07	347 -	356	6.72E+02	76.41	4.50E+02	4.61E+01
	18	422.06	417 -	426	5.16E+01	50.68	3.31E+02	3.99E+01
	19	462.78	458 -	467	7.80E+01	50.07	3.10E+02	3.85E+01
	20	510.85	506 -	515	1.98E+02	50.78	2.57E+02	3.48E+01
	21	562.81	560 -	565	2.72E+01	25.79	1.12E+02	1.94E+01
	22	583.38	579 -	587	3.05E+02	54.80	2.73E+02	3.47E+01
	23	609.46	605 -	613	4.92E+02	62.42	2.97E+02	3.61E+01
	24	684.83	681 -	688	3.33E+01	28.84	1.17E+02	2.17E+01
	25	714.78	711 -	718	2.61E+01	30.40	1.38E+02	2.35E+01
	26	727.30	722 -	732	7.20E+01	47.62	2.64E+02	3.66E+01
	27	743.68	740 -	747	2.40E+01	27.20	1.06E+02	2.09E+01
M	28	768.23	764 -	776	7.54E+01	25.22	6.72E+01	1.35E+01
m	29	772.45	764 -	776	4.47E+01	23.92	4.81E+01	1.14E+01
	30	785.42	781 -	789	2.97E+01	31.42	1.31E+02	2.42E+01
	31	794.40	790 -	798	3.73E+01	31.16	1.27E+02	2.36E+01
	32	860.73	857 -	864	4.27E+01	28.64	1.01E+02	2.09E+01
	33	892.34	890 -	895	1.66E+01	18.63	5.49E+01	1.38E+01
	34	911.41	906 -	915	1.79E+02	42.41	1.55E+02	2.71E+01
	35	967.93	962 -	972	1.68E+02	42.25	1.48E+02	2.74E+01
	36	1060.66	1057 -	1064	2.03E+01	26.08	9.94E+01	2.01E+01
	37	1120.92	1116 -	1125	1.25E+02	33.06	8.32E+01	2.00E+01
	38	1142.90	1138 -	1148	3.62E+01	27.60	8.17E+01	2.04E+01
	39	1154.65	1149 -	1162	4.13E+01	35.23	1.21E+02	2.70E+01
	40	1238.31	1235 -	1241	2.15E+01	26.84	1.15E+02	2.07E+01
	41	1344.08	1341 -	1345	1.03E+01	11.67	1.94E+01	8.01E+00
	42	1377.53	1374 -	1381	3.64E+01	18.97	3.51E+01	1.20E+01
	43	1460.95	1455 -	1466	7.44E+02	59.26	6.96E+01	1.90E+01
	44	1634.09	1626 -	1640	2.88E+01	19.82	2.64E+01	1.37E+01
	45	1664.10	1660 -	1666	9.00E+00	8.51	6.00E+00	4.97E+00
	46	1739.87	1736 -	1743	6.00E+00	8.49	8.00E+00	5.70E+00
	47	1764.58	1759 -	1769	7.55E+01	20.66	1.69E+01	9.18E+00
	48	1812.74	1807 -	1816	9.57E+00	10.30	8.86E+00	6.76E+00
	49	1848.29	1844 -	1850	1.36E+01	13.02	2.08E+01	8.82E+00
	50	1946.31	1942 -	1948	6.96E+00	9.21	1.01E+01	6.20E+00
	51	2104.28	2098 -	2110	2.44E+01	12.42	7.14E+00	6.18E+00
	52	2118.67	2115 -	2121	1.22E+01	10.04	7.69E+00	5.93E+00
	53	2138.67	2133 -	2141	1.16E+01	8.73	4.71E+00	4.48E+00
	54	2161.89	2158 -	2164	6.50E+00	8.03	7.00E+00	5.10E+00
	55	2204.70	2198 -	2212	3.27E+01	14.29	8.68E+00	7.05E+00
	56	2334.68	2331 -	2337	7.56E+00	6.95	2.89E+00	3.49E+00
	57	2614.32	2609 -	2618	1.08E+02	20.78	0.00E+00	0.00E+00

Analysis Report for 1510093-07  
CP5002S11-12

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 : 11/11/2015 12:34:40PM

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	46.09	43 -	49	46.20	1.72E+02	98.37	1.63E+03	PB-210
2	63.95	62 -	68	64.05	1.27E+02	98.38	1.67E+03	TH-234
3	76.40	72 -	79	76.48	7.93E+02	130.68	2.90E+03	.....
4	88.07	86 -	91	88.15	2.59E+02	91.64	1.48E+03	CD-109 LU-176 SN-126
5	93.51	91 -	97	93.59	1.79E+02	98.21	1.52E+03	GA-67
6	129.00	126 -	132	129.06	9.65E+01	76.49	9.93E+02	.....
7	153.75	150 -	157	153.80	9.59E+01	79.80	9.92E+02	CS-136
8	185.96	182 -	190	185.99	2.41E+02	88.31	1.05E+03	RA-226
M 9	238.75	235 -	249	238.75	9.42E+02	75.07	4.43E+02	PB-212
m 10	241.67	235 -	249	241.66	3.01E+02	92.28	5.87E+02	RA-224
11	259.17	257 -	262	259.16	4.50E+01	46.67	3.96E+02	.....
12	271.01	268 -	274	270.99	6.29E+01	52.27	4.44E+02	.....
13	277.72	275 -	281	277.69	4.42E+01	50.74	4.40E+02	CM-243 NP-239
M 14	295.36	290 -	311	295.33	3.91E+02	52.67	2.91E+02	PB-214
m 15	300.24	290 -	311	300.21	8.84E+01	45.02	3.13E+02	GA-67 PB-212 BI-210M
16	338.43	335 -	343	338.37	2.06E+02	59.86	4.28E+02	AC-228
17	352.07	347 -	356	352.01	6.72E+02	76.41	4.50E+02	PB-214
18	422.06	417 -	426	421.96	5.16E+01	50.68	3.31E+02	.....
19	462.78	458 -	467	462.66	7.80E+01	50.07	3.10E+02	SB-125
20	510.85	506 -	515	510.71	1.98E+02	50.78	2.57E+02	.....
21	562.81	560 -	565	562.64	2.72E+01	25.79	1.12E+02	CS-134
22	583.38	579 -	587	583.20	3.05E+02	54.80	2.73E+02	TL-208
23	609.46	605 -	613	609.27	4.92E+02	62.42	2.97E+02	BI-214
24	684.83	681 -	688	684.60	3.33E+01	28.84	1.17E+02	SB-127
25	714.78	711 -	718	714.54	2.61E+01	30.40	1.38E+02	.....



Analysis Report for 1510093-07

CP5002S11-12

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	26	727.30	722 -	732	727.05	7.20E+01	47.62	2.64E+02	BI-212
	27	743.68	740 -	747	743.43	2.40E+01	27.20	1.06E+02	.....
M	28	768.23	764 -	776	767.96	7.54E+01	25.22	6.72E+01	.....
m	29	772.45	764 -	776	772.18	4.47E+01	23.92	4.81E+01	.....
	30	785.42	781 -	789	785.15	2.97E+01	31.42	1.31E+02	.....
	31	794.40	790 -	798	794.12	3.73E+01	31.16	1.27E+02	.....
	32	860.73	857 -	864	860.43	4.27E+01	28.64	1.01E+02	TL-208
	33	892.34	890 -	895	892.02	1.66E+01	18.63	5.49E+01	.....
	34	911.41	906 -	915	911.08	1.79E+02	42.41	1.55E+02	AC-228 LU-172
	35	967.93	962 -	972	967.58	1.68E+02	42.25	1.48E+02	.....
	36	1060.66	1057 -	1064	1060.27	2.03E+01	26.08	9.94E+01	.....
	37	1120.92	1116 -	1125	1120.51	1.25E+02	33.06	8.32E+01	TA-182 SC-46 BI-214
	38	1142.90	1138 -	1148	1142.48	3.62E+01	27.60	8.17E+01	.....
	39	1154.65	1149 -	1162	1154.23	4.13E+01	35.23	1.21E+02	.....
	40	1238.31	1235 -	1241	1237.86	2.15E+01	26.84	1.15E+02	CO-56
	41	1344.08	1341 -	1345	1343.60	1.03E+01	11.67	1.94E+01	.....
	42	1377.53	1374 -	1381	1377.04	3.64E+01	18.97	3.51E+01	.....
	43	1460.95	1455 -	1466	1460.43	7.44E+02	59.26	6.96E+01	K-40
	44	1634.09	1626 -	1640	1633.51	2.88E+01	19.82	2.64E+01	.....
	45	1664.10	1660 -	1666	1663.52	9.00E+00	8.51	6.00E+00	.....
	46	1739.87	1736 -	1743	1739.27	6.00E+00	8.49	8.00E+00	.....
	47	1764.58	1759 -	1769	1763.98	7.55E+01	20.66	1.69E+01	BI-214
	48	1812.74	1807 -	1816	1812.12	9.57E+00	10.30	8.86E+00	.....
	49	1848.29	1844 -	1850	1847.67	1.36E+01	13.02	2.08E+01	.....
	50	1946.31	1942 -	1948	1945.66	6.96E+00	9.21	1.01E+01	.....
	51	2104.28	2098 -	2110	2103.60	2.44E+01	12.42	7.14E+00	.....
	52	2118.67	2115 -	2121	2117.99	1.22E+01	10.04	7.69E+00	.....
	53	2138.67	2133 -	2141	2137.99	1.16E+01	8.73	4.71E+00	.....
	54	2161.89	2158 -	2164	2161.20	6.50E+00	8.03	7.00E+00	.....
	55	2204.70	2198 -	2212	2204.00	3.27E+01	14.29	8.68E+00	BI-214
	56	2334.68	2331 -	2337	2333.97	7.56E+00	6.95	2.89E+00	.....
	57	2614.32	2609 -	2618	2613.58	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 : 11/11/2015 12:34:40PM

: 00553

Analysis Report for 1510093-07  
CP5002S11-12

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	1	46.09	1.72E+02	98.37	1.31E-02	1.68E-03
	2	63.95	1.27E+02	98.38	2.40E-02	2.12E-03
	3	76.40	7.93E+02	130.68	2.74E-02	3.35E-03
	4	88.07	2.59E+02	91.64	2.84E-02	4.50E-03
	5	93.51	1.79E+02	98.21	2.85E-02	4.26E-03
	6	129.00	9.65E+01	76.49	2.60E-02	2.78E-03
	7	153.75	9.59E+01	79.80	2.37E-02	2.04E-03
	8	185.96	2.41E+02	88.31	2.11E-02	1.65E-03
M	9	238.75	9.42E+02	75.07	1.79E-02	1.60E-03
m	10	241.67	3.01E+02	92.28	1.77E-02	1.60E-03
	11	259.17	4.50E+01	46.67	1.69E-02	1.58E-03
	12	271.01	6.29E+01	52.27	1.64E-02	1.57E-03
	13	277.72	4.42E+01	50.74	1.61E-02	1.56E-03
M	14	295.36	3.91E+02	52.67	1.55E-02	1.48E-03
m	15	300.24	8.84E+01	45.02	1.53E-02	1.46E-03
	16	338.43	2.06E+02	59.86	1.41E-02	1.27E-03
	17	352.07	6.72E+02	76.41	1.37E-02	1.21E-03
	18	422.06	5.16E+01	50.68	1.21E-02	9.89E-04
	19	462.78	7.80E+01	50.07	1.13E-02	9.47E-04
	20	510.85	1.98E+02	50.78	1.06E-02	8.98E-04
	21	562.81	2.72E+01	25.79	9.84E-03	8.46E-04
	22	583.38	3.05E+02	54.80	9.58E-03	8.25E-04
	23	609.46	4.92E+02	62.42	9.27E-03	7.98E-04
	24	684.83	3.33E+01	28.84	8.48E-03	7.30E-04
	25	714.78	2.61E+01	30.40	8.20E-03	7.11E-04
	26	727.30	7.20E+01	47.62	8.09E-03	7.03E-04
	27	743.68	2.40E+01	27.20	7.94E-03	6.92E-04
M	28	768.23	7.54E+01	25.22	7.74E-03	6.77E-04
m	29	772.45	4.47E+01	23.92	7.71E-03	6.74E-04
	30	785.42	2.97E+01	31.42	7.61E-03	6.66E-04
	31	794.40	3.73E+01	31.16	7.54E-03	6.60E-04
	32	860.73	4.27E+01	28.64	7.07E-03	6.17E-04
	33	892.34	1.66E+01	18.63	6.86E-03	5.97E-04
	34	911.41	1.79E+02	42.41	6.74E-03	5.87E-04
	35	967.93	1.68E+02	42.25	6.42E-03	5.58E-04
	36	1060.66	2.03E+01	26.08	5.96E-03	5.10E-04
	37	1120.92	1.25E+02	33.06	5.70E-03	4.79E-04
	38	1142.90	3.62E+01	27.60	5.61E-03	4.68E-04
	39	1154.65	4.13E+01	35.23	5.57E-03	4.62E-04
	40	1238.31	2.15E+01	26.84	5.27E-03	4.83E-04
	41	1344.08	1.03E+01	11.67	4.96E-03	5.22E-04
	42	1377.53	3.64E+01	18.97	4.87E-03	5.08E-04
	43	1460.95	7.44E+02	59.26	4.67E-03	4.73E-04
	44	1634.09	2.88E+01	19.82	4.36E-03	4.02E-04
	45	1664.10	9.00E+00	8.51	4.31E-03	3.89E-04
	46	1739.87	6.00E+00	8.49	4.21E-03	3.58E-04
	47	1764.58	7.55E+01	20.66	4.19E-03	3.47E-04
	48	1812.74	9.57E+00	10.30	4.13E-03	3.28E-04
	49	1848.29	1.36E+01	13.02	4.10E-03	3.18E-04
	50	1946.31	6.96E+00	9.21	4.03E-03	3.18E-04
	51	2104.28	2.44E+01	12.42	3.95E-03	3.18E-04
	52	2118.67	1.22E+01	10.04	3.95E-03	3.18E-04
	53	2138.67	1.16E+01	8.73	3.94E-03	3.18E-04

Analysis Report for 1510093-07  
CP5002S11-12

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2161.89	6.50E+00	8.03	3.94E-03	3.18E-04
55	2204.70	3.27E+01	14.29	3.93E-03	3.18E-04
56	2334.68	7.56E+00	6.95	3.93E-03	3.18E-04
57	2614.32	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 : 11/11/2015 12:34:40PM

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	46.09	1.72E+02	98.37	6.46E+01	1.16E+01	1.08E+02	9.91E+01	
2	63.95	1.27E+02	98.38	4.34E+01	1.15E+01	8.37E+01	9.90E+01	
3	76.40	7.93E+02	130.68			7.93E+02	1.31E+02	
4	88.07	2.59E+02	91.64	1.46E+00	7.88E+00	2.58E+02	9.20E+01	
5	93.51	1.79E+02	98.21	5.70E+01	9.03E+00	1.22E+02	9.86E+01	
6	129.00	9.65E+01	76.49			9.65E+01	7.65E+01	
7	153.75	9.59E+01	79.80			9.59E+01	7.98E+01	
8	185.96	2.41E+02	88.31	4.72E+01	7.97E+00	1.93E+02	8.87E+01	
M	9	238.75	9.42E+02	75.07	2.36E+01	1.35E+01	9.18E+02	7.63E+01
m	10	241.67	3.01E+02	92.28	6.38E+00	3.91E+00	2.95E+02	9.24E+01
	11	259.17	4.50E+01	46.67		4.50E+01	4.67E+01	
	12	271.01	6.29E+01	52.27		6.29E+01	5.23E+01	
	13	277.72	4.42E+01	50.74		4.42E+01	5.07E+01	
M	14	295.36	3.91E+02	52.67	8.57E+00	6.10E+00	3.82E+02	5.30E+01
m	15	300.24	8.84E+01	45.02		8.84E+01	4.50E+01	
	16	338.43	2.06E+02	59.86		2.06E+02	5.99E+01	
	17	352.07	6.72E+02	76.41	1.40E+01	5.55E+00	6.58E+02	7.66E+01
	18	422.06	5.16E+01	50.68		5.16E+01	5.07E+01	
	19	462.78	7.80E+01	50.07		7.80E+01	5.01E+01	
	20	510.85	1.98E+02	50.78	8.41E+01	5.50E+00	1.14E+02	5.11E+01
	21	562.81	2.72E+01	25.79		2.72E+01	2.58E+01	
	22	583.38	3.05E+02	54.80	7.32E+00	4.08E+00	2.98E+02	5.50E+01
	23	609.46	4.92E+02	62.42	1.30E+01	3.89E+00	4.78E+02	6.25E+01
	24	684.83	3.33E+01	28.84		3.33E+01	2.88E+01	
	25	714.78	2.61E+01	30.40		2.61E+01	3.04E+01	
	26	727.30	7.20E+01	47.62		7.20E+01	4.76E+01	

Analysis Report for 1510093-07  
CP5002S11-12

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.	
	27	743.68	2.40E+01	27.20		2.40E+01	2.72E+01	
M	28	768.23	7.54E+01	25.22		7.54E+01	2.52E+01	
m	29	772.45	4.47E+01	23.92		4.47E+01	2.39E+01	
	30	785.42	2.97E+01	31.42		2.97E+01	3.14E+01	
	31	794.40	3.73E+01	31.16		3.73E+01	3.12E+01	
	32	860.73	4.27E+01	28.64		4.27E+01	2.86E+01	
	33	892.34	1.66E+01	18.63		1.66E+01	1.86E+01	
	34	911.41	1.79E+02	42.41	5.60E+00	3.32E+00	1.73E+02	4.25E+01
	35	967.93	1.68E+02	42.25		1.68E+02	4.22E+01	
	36	1060.66	2.03E+01	26.08		2.03E+01	2.61E+01	
	37	1120.92	1.25E+02	33.06	3.93E+00	2.96E+00	1.21E+02	3.32E+01
	38	1142.90	3.62E+01	27.60		3.62E+01	2.76E+01	
	39	1154.65	4.13E+01	35.23		4.13E+01	3.52E+01	
	40	1238.31	2.15E+01	26.84		2.15E+01	2.68E+01	
	41	1344.08	1.03E+01	11.67		1.03E+01	1.17E+01	
	42	1377.53	3.64E+01	18.97		3.64E+01	1.90E+01	
	43	1460.95	7.44E+02	59.26	1.12E+01	2.55E+00	7.33E+02	5.93E+01
	44	1634.09	2.88E+01	19.82		2.88E+01	1.98E+01	
	45	1664.10	9.00E+00	8.51		9.00E+00	8.51E+00	
	46	1739.87	6.00E+00	8.49		6.00E+00	8.49E+00	
	47	1764.58	7.55E+01	20.66	4.23E+00	2.21E+00	7.13E+01	2.08E+01
	48	1812.74	9.57E+00	10.30		9.57E+00	1.03E+01	
	49	1848.29	1.36E+01	13.02		1.36E+01	1.30E+01	
	50	1946.31	6.96E+00	9.21		6.96E+00	9.21E+00	
	51	2104.28	2.44E+01	12.42		2.44E+01	1.24E+01	
	52	2118.67	1.22E+01	10.04		1.22E+01	1.00E+01	
	53	2138.67	1.16E+01	8.73		1.16E+01	8.73E+00	
	54	2161.89	6.50E+00	8.03		6.50E+00	8.03E+00	
	55	2204.70	3.27E+01	14.29	5.94E-01	1.16E+00	3.21E+01	1.43E+01
	56	2334.68	7.56E+00	6.95		7.56E+00	6.95E+00	
	57	2614.32	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 2.00sigma

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 12:34:40PM  
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

Analysis Report for 1510093-07

CP5002S11-12

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.	
1	46.09	1.72E+02	98.37	6.46E+01	1.16E+01	1.08E+02	9.91E+01	
2	63.95	1.27E+02	98.38	4.34E+01	1.15E+01	8.37E+01	9.90E+01	
3	76.40	7.93E+02	130.68			7.93E+02	1.31E+02	
4	88.07	2.59E+02	91.64	1.46E+00	7.88E+00	2.58E+02	9.20E+01	
5	93.51	1.79E+02	98.21	5.70E+01	9.03E+00	1.22E+02	9.86E+01	
6	129.00	9.65E+01	76.49			9.65E+01	7.65E+01	
7	153.75	9.59E+01	79.80			9.59E+01	7.98E+01	
8	185.96	2.41E+02	88.31	4.72E+01	7.97E+00	1.93E+02	8.87E+01	
M	9	238.75	9.42E+02	75.07	2.36E+01	1.35E+01	9.18E+02	7.63E+01
m	10	241.67	3.01E+02	92.28	6.38E+00	3.91E+00	2.95E+02	9.24E+01
	11	259.17	4.50E+01	46.67			4.50E+01	4.67E+01
	12	271.01	6.29E+01	52.27			6.29E+01	5.23E+01
	13	277.72	4.42E+01	50.74			4.42E+01	5.07E+01
M	14	295.36	3.91E+02	52.67	8.57E+00	6.10E+00	3.82E+02	5.30E+01
m	15	300.24	8.84E+01	45.02			8.84E+01	4.50E+01
	16	338.43	2.06E+02	59.86			2.06E+02	5.99E+01
	17	352.07	6.72E+02	76.41	1.40E+01	5.55E+00	6.58E+02	7.66E+01
	18	422.06	5.16E+01	50.68			5.16E+01	5.07E+01
	19	462.78	7.80E+01	50.07			7.80E+01	5.01E+01
	20	510.85	1.98E+02	50.78	8.41E+01	5.50E+00	1.14E+02	5.11E+01
	21	562.81	2.72E+01	25.79			2.72E+01	2.58E+01
	22	583.38	3.05E+02	54.80	7.32E+00	4.08E+00	2.98E+02	5.50E+01
	23	609.46	4.92E+02	62.42	1.30E+01	3.89E+00	4.78E+02	6.25E+01
	24	684.83	3.33E+01	28.84			3.33E+01	2.88E+01
	25	714.78	2.61E+01	30.40			2.61E+01	3.04E+01
	26	727.30	7.20E+01	47.62			7.20E+01	4.76E+01
	27	743.68	2.40E+01	27.20			2.40E+01	2.72E+01
M	28	768.23	7.54E+01	25.22			7.54E+01	2.52E+01
m	29	772.45	4.47E+01	23.92			4.47E+01	2.39E+01
	30	785.42	2.97E+01	31.42			2.97E+01	3.14E+01
	31	794.40	3.73E+01	31.16			3.73E+01	3.12E+01
	32	860.73	4.27E+01	28.64			4.27E+01	2.86E+01
	33	892.34	1.66E+01	18.63			1.66E+01	1.86E+01
	34	911.41	1.79E+02	42.41	5.60E+00	3.32E+00	1.73E+02	4.25E+01
	35	967.93	1.68E+02	42.25			1.68E+02	4.22E+01
	36	1060.66	2.03E+01	26.08			2.03E+01	2.61E+01
	37	1120.92	1.25E+02	33.06	3.93E+00	2.96E+00	1.21E+02	3.32E+01
	38	1142.90	3.62E+01	27.60			3.62E+01	2.76E+01
	39	1154.65	4.13E+01	35.23			4.13E+01	3.52E+01
	40	1238.31	2.15E+01	26.84			2.15E+01	2.68E+01
	41	1344.08	1.03E+01	11.67			1.03E+01	1.17E+01
	42	1377.53	3.64E+01	18.97			3.64E+01	1.90E+01
	43	1460.95	7.44E+02	59.26	1.12E+01	2.55E+00	7.33E+02	5.93E+01
	44	1634.09	2.88E+01	19.82			2.88E+01	1.98E+01
	45	1664.10	9.00E+00	8.51			9.00E+00	8.51E+00
	46	1739.87	6.00E+00	8.49			6.00E+00	8.49E+00
	47	1764.58	7.55E+01	20.66	4.23E+00	2.21E+00	7.13E+01	2.08E+01
	48	1812.74	9.57E+00	10.30			9.57E+00	1.03E+01
	49	1848.29	1.36E+01	13.02			1.36E+01	1.30E+01
	50	1946.31	6.96E+00	9.21			6.96E+00	9.21E+00
	51	2104.28	2.44E+01	12.42			2.44E+01	1.24E+01
	52	2118.67	1.22E+01	10.04			1.22E+01	1.00E+01
	53	2138.67	1.16E+01	8.73			1.16E+01	8.73E+00
	54	2161.89	6.50E+00	8.03			6.50E+00	8.03E+00

Analysis Report for 1510093-07  
CP5002S11-12

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2204.70	3.27E+01	14.29	5.94E-01	1.16E+00	3.21E+01	1.43E+01
56	2334.68	7.56E+00	6.95			7.56E+00	6.95E+00
57	2614.32	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

## 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	0.997	1460.81 *	10.67	2.09E+01	2.74E+00
GA-67	0.540	93.31 *	35.70	2.44E+02	1.14E+03
		208.95	2.24		
		300.22 *	16.00	7.36E+02	3.40E+03
CD-109	1.000	88.03 *	3.72	3.64E+00	1.44E+00
SN-126	0.961	87.57 *	37.00	3.48E-01	1.36E-01
TL-208	0.986	583.14 *	30.22	1.46E+00	2.98E-01
		860.37 *	4.48	1.92E+00	1.30E+00
		2614.66 *	35.85	9.84E-01	2.18E-01
PB-210	0.974	46.50 *	4.25	2.76E+00	2.57E+00
BI-212	0.764	727.17 *	11.80	1.07E+00	7.15E-01
		1620.62	2.75		
PB-212	0.997	238.63 *	44.60	1.64E+00	2.00E-01
		300.09 *	3.41	2.41E+00	1.25E+00
BI-214	0.984	609.31 *	46.30	1.58E+00	2.48E-01
		1120.29 *	15.10	2.00E+00	5.73E-01
		1764.49 *	15.80	1.53E+00	4.64E-01
		2204.22 *	4.98	2.33E+00	1.06E+00
PB-214	0.996	295.21 *	19.19	1.83E+00	3.08E-01
		351.92 *	37.19	1.83E+00	2.68E-01
RA-224	0.927	240.98 *	3.95	5.99E+00	1.95E+00
RA-226	0.990	186.21 *	3.28	3.97E+00	7.50E+00
AC-228	0.561	338.32 *	11.40	1.82E+00	5.54E-01
		911.07 *	27.70	1.32E+00	3.43E-01
		969.11	16.60		
TH-234	0.932	63.29 *	3.80	1.30E+00	1.55E+00

Analysis Report for 1510093-07  
CP5002S11-12

\* = 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 : 11/11/2015 12:34:40PM  
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	76.40	2.20302E-01	8.24			
6	129.00	2.68084E-02	39.63			
7	153.75	2.66366E-02	41.61	Tol.	CS-136	
11	259.17	1.25069E-02	51.83			
12	271.01	1.74678E-02	41.56			
13	277.72	1.22664E-02	57.46	Tol.	NP-239 CM-243	
18	422.06	1.43254E-02	49.13			
19	462.78	2.16750E-02	32.08	Tol.	SB-125	
20	510.85	3.15450E-02	22.49			
21	562.81	7.56526E-03	47.34	Tol.	CS-134	
24	684.83	9.24366E-03	43.34	Tol.	SB-127	
25	714.78	7.25439E-03	58.20			
27	743.68	6.67569E-03	56.60			
M	28	768.23	2.09338E-02	16.73		
m	29	772.45	1.24199E-02	26.75	Sum	
30	785.42	8.24854E-03	52.91			
31	794.40	1.03658E-02	41.75			
33	892.34	4.59912E-03	56.25			
35	967.93	4.66047E-02	12.59			
36	1060.66	5.64286E-03	64.18			
38	1142.90	1.00433E-02	38.17			
39	1154.65	1.14828E-02	42.61			
40	1238.31	5.98453E-03	62.28	Tol.	CO-56	
41	1344.08	2.86806E-03	56.53			
42	1377.53	1.01209E-02	26.04			
44	1634.09	8.00265E-03	34.41			
45	1664.10	2.50000E-03	47.30			
46	1739.87	1.66667E-03	70.71			
48	1812.74	2.65873E-03	53.78	Sum		
49	1848.29	3.77315E-03	47.92	Sum		
50	1946.31	1.93287E-03	66.15			
51	2104.28	6.78571E-03	25.42	S-Esc		
52	2118.67	3.37674E-03	41.29			

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	2138.67	3.23413E-03	37.50		
54	2161.89	1.80556E-03	61.78		
56	2334.68	2.09877E-03	45.97		

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	2.09E+01	2.74E+00
GA-67	0.54	93.31	*	35.70	2.44E+02	1.14E+03
		208.95		2.24		
		300.22	*	16.00	7.36E+02	3.40E+03
CD-109	1.00	88.03	*	3.72	3.64E+00	1.44E+00
SN-126	0.96	87.57	*	37.00	3.48E-01	1.36E-01
TL-208	0.98	583.14	*	30.22	1.46E+00	2.98E-01
		860.37	*	4.48	1.92E+00	1.30E+00
		2614.66	*	35.85	9.84E-01	2.18E-01
PB-210	0.97	46.50	*	4.25	2.76E+00	2.57E+00
BI-212	0.76	727.17	*	11.80	1.07E+00	7.15E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.64E+00	2.00E-01
		300.09	*	3.41	2.41E+00	1.25E+00
BI-214	0.98	609.31	*	46.30	1.58E+00	2.48E-01
		1120.29	*	15.10	2.00E+00	5.73E-01
		1764.49	*	15.80	1.53E+00	4.64E-01
		2204.22	*	4.98	2.33E+00	1.06E+00
PB-214	0.99	295.21	*	19.19	1.83E+00	3.08E-01
		351.92	*	37.19	1.83E+00	2.68E-01
RA-224	0.92	240.98	*	3.95	5.99E+00	1.95E+00
RA-226	0.99	186.21	*	3.28	3.97E+00	7.50E+00
AC-228	0.56	338.32	*	11.40	1.82E+00	5.54E-01
		911.07	*	27.70	1.32E+00	3.43E-01
		969.11		16.60		



Analysis Report for 1510093-07  
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<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
TH-234	0.93	63.29 *	3.80	1.30E+00	1.55E+00

\* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

## INTERFERENCE CORRECTED REPORT

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.997	2.09E+01	2.74E+00	
GA-67	0.540	2.42E+02	1.09E+03	
? CD-109	1.000	3.64E+00	1.44E+00	
? SN-126	0.961	3.48E-01	1.36E-01	
TL-208	0.986	1.16E+00	1.74E-01	
PB-210	0.974	2.76E+00	2.57E+00	
BI-212	0.764	1.07E+00	7.15E-01	
PB-212	0.997	1.64E+00	1.98E-01	
BI-214	0.984	1.65E+00	2.01E-01	
PB-214	0.996	1.83E+00	2.02E-01	
RA-224	0.927	5.99E+00	1.95E+00	
RA-226	0.990	3.97E+00	7.50E+00	
AC-228	0.561	1.46E+00	2.92E-01	
TH-234	0.932	1.30E+00	1.55E+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 1510093-07  
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### UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 12:34:40PM  
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	76.40	2.20302E-01	8.24		
6	129.00	2.68084E-02	39.63		
7	153.75	2.66366E-02	41.61	Tol.	CS-136
11	259.17	1.25069E-02	51.83		
12	271.01	1.74678E-02	41.56		
13	277.72	1.22664E-02	57.46	Tol.	NP-239 CM-243
18	422.06	1.43254E-02	49.13		
19	462.78	2.16750E-02	32.08	Tol.	SB-125
20	510.85	3.15450E-02	22.49		
21	562.81	7.56526E-03	47.34	Tol.	CS-134
24	684.83	9.24366E-03	43.34	Tol.	SB-127
25	714.78	7.25439E-03	58.20		
27	743.68	6.67569E-03	56.60		
M	28	768.23	2.09338E-02	16.73	
m	29	772.45	1.24199E-02	26.75	Sum
30	785.42	8.24854E-03	52.91		
31	794.40	1.03658E-02	41.75		
33	892.34	4.59912E-03	56.25		
35	967.93	4.66047E-02	12.59		
36	1060.66	5.64286E-03	64.18		
38	1142.90	1.00433E-02	38.17		
39	1154.65	1.14828E-02	42.61		
40	1238.31	5.98453E-03	62.28	Tol.	CO-56
41	1344.08	2.86806E-03	56.53		
42	1377.53	1.01209E-02	26.04		
44	1634.09	8.00265E-03	34.41		
45	1664.10	2.50000E-03	47.30		
46	1739.87	1.66667E-03	70.71		
48	1812.74	2.65873E-03	53.78	Sum	
49	1848.29	3.77315E-03	47.92	Sum	
50	1946.31	1.93287E-03	66.15		
51	2104.28	6.78571E-03	25.42	S-Esc	
52	2118.67	3.37674E-03	41.29		
53	2138.67	3.23413E-03	37.50		

Analysis Report for 1510093-07  
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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2161.89	1.80556E-03	61.78		
56	2334.68	2.09877E-03	45.97		

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	1.36E-01	8.44E-01	8.44E-01
+	NA-22	1274.54	99.94	1.27E-02	9.59E-02	9.59E-02
+	NA-24	1368.53	99.99	5.69E+13	1.21E+15	1.91E+15
		2754.09	99.86	-2.51E+14		1.21E+15
+	AL-26	1808.65	99.76	-5.73E-03	6.24E-02	6.24E-02
+	K-40	1460.81	* 10.67	2.09E+01	1.21E+00	1.21E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-3.19E-02	5.44E-02	5.44E-02
		78.34	96.00	3.51E-01		8.27E-02
+	SC-46	889.25	99.98	-3.91E-04	1.07E-01	1.07E-01
		1120.51	99.99	2.93E-01		1.92E-01
+	V-48	983.52	99.98	3.45E-02	3.71E-01	3.71E-01
		1312.10	97.50	1.64E-01		4.05E-01
+	CR-51	320.08	9.83	-8.28E-01	1.32E+00	1.32E+00
+	MN-54	834.83	99.97	2.33E-02	9.44E-02	9.44E-02
+	CO-56	846.75	99.96	-8.94E-05	9.10E-02	9.10E-02
		1037.75	14.03	-3.84E-02		7.57E-01
		1238.25	67.00	3.95E-02		2.39E-01
		1771.40	15.51	-1.27E-02		5.58E-01
		2598.48	16.90	3.12E-03		3.03E-01
+	CO-57	122.06	85.51	1.11E-02	6.31E-02	6.31E-02
		136.48	10.60	-1.86E-01		5.23E-01
+	CO-58	810.76	99.40	-4.35E-02	9.77E-02	9.77E-02
+	FE-59	1099.22	56.50	-1.46E-01	2.35E-01	2.35E-01
		1291.56	43.20	7.76E-02		3.52E-01
+	CO-60	1173.22	100.00	-3.38E-02	8.01E-02	8.78E-02
		1332.49	100.00	1.64E-02		8.01E-02

Analysis Report for 1510093-07  
CP5002S11-12

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	ZN-65	1115.52	50.75	-2.14E-02	1.94E-01	1.94E-01
+	GA-67	93.31	* 35.70	2.44E+02	3.22E+02	3.22E+02
		208.95	2.24	1.54E+03		4.08E+03
		300.22	* 16.00	7.36E+02		1.64E+03
+	SE-75	121.11	16.70	-6.99E-02	1.03E-01	3.55E-01
		136.00	59.20	-3.58E-02		1.03E-01
		264.65	59.80	6.78E-02		1.17E-01
		279.53	25.20	8.54E-02		2.87E-01
		400.65	11.40	-8.06E-02		6.52E-01
+	RB-82	776.52	13.00	-1.41E-01	1.36E+00	1.36E+00
+	RB-83	520.41	46.00	-1.59E-02	1.62E-01	1.62E-01
		529.64	30.30	-9.30E-02		2.50E-01
		552.65	16.40	1.79E-03		4.66E-01
+	KR-85	513.99	0.43	-1.98E+01	1.61E+01	1.61E+01
+	SR-85	513.99	99.27	-1.24E-01	1.01E-01	1.01E-01
+	Y-88	898.02	93.40	3.39E-02	9.25E-02	9.91E-02
		1836.01	99.38	3.66E-02		9.25E-02
+	NB-93M	16.57	9.43	-6.47E+03	5.82E+03	5.82E+03
+	NB-94	702.63	100.00	1.35E-02	7.30E-02	8.18E-02
		871.10	100.00	9.91E-03		7.30E-02
+	NB-95	765.79	99.81	1.53E-01	1.94E-01	1.94E-01
+	NB-95M	235.69	25.00	-1.81E+03	2.45E+02	2.45E+02
+	ZR-95	724.18	43.70	1.12E-01	1.82E-01	3.28E-01
		756.72	55.30	-3.66E-02		1.82E-01
+	MO-99	181.06	6.20	-2.42E+02	3.15E+03	4.88E+03
		739.58	12.80	-3.93E+01		3.15E+03
		778.00	4.50	-8.26E+02		8.09E+03
+	RU-103	497.08	89.00	6.76E-02	1.21E-01	1.21E-01
+	RU-106	621.84	9.80	-1.61E-01	7.33E-01	7.33E-01
+	AG-108M	433.93	89.90	-5.83E-03	6.47E-02	6.47E-02
		614.37	90.40	1.36E-02		8.67E-02
		722.95	90.50	-4.57E-03		9.38E-02
+	CD-109	88.03	* 3.72	3.64E+00	2.04E+00	2.04E+00
+	AG-110M	657.75	93.14	2.93E-02	8.70E-02	8.70E-02
		677.61	10.53	3.59E-01		7.37E-01
		706.67	16.46	-1.07E-02		5.14E-01
		763.93	21.98	2.13E-02		4.03E-01
		884.67	71.63	-4.67E-02		1.12E-01
		1384.27	23.94	1.41E-01		3.55E-01
+	CD-113M	263.70	0.02	-5.98E+00	2.43E+02	2.43E+02
+	SN-113	255.12	1.93	9.48E-01	1.11E-01	3.50E+00
		391.69	64.90	3.63E-02		1.11E-01
+	TE123M	159.00	84.10	-7.35E-03	7.56E-02	7.56E-02
+	SB-124	602.71	97.87	5.18E-02	1.19E-01	1.19E-01
		645.85	7.26	5.63E-01		1.52E+00
		722.78	11.10	-5.52E-02		1.13E+00
		1691.02	49.00	-1.51E-02		1.89E-01
+	I-125	35.49	6.49	7.63E-01	6.10E+00	6.10E+00

Analysis Report for 1510093-07  
CP5002S11-12

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SB-125	176.33	6.89	1.27E-01	1.87E-01	7.89E-01
		427.89	29.33	3.56E-02		1.87E-01
		463.38	10.35	9.91E-01		7.54E-01
		600.56	17.80	-1.44E-01		4.27E-01
		635.90	11.32	3.03E-01		6.78E-01
+	SB-126	414.70	83.30	-6.08E-03	4.59E-01	4.59E-01
		666.33	99.60	6.96E-02		5.54E-01
		695.00	99.60	-1.93E-01		4.86E-01
		720.50	53.80	-6.38E-02		9.66E-01
+	SN-126	87.57	* 37.00	3.48E-01	1.95E-01	1.95E-01
+	SB-127	473.00	25.00	-2.71E+01	1.01E+02	1.01E+02
		685.20	35.70	8.53E+01		1.02E+02
		783.80	14.70	1.38E+02		2.70E+02
+	I-129	29.78	57.00	-2.00E-01	1.31E+00	1.31E+00
		33.60	13.20	-8.05E-01		2.52E+00
		39.58	7.52	6.18E-01		2.27E+00
+	I-131	284.30	6.05	1.40E+00	1.27E+00	1.88E+01
		364.48	81.20	-3.12E-01		1.27E+00
		636.97	7.26	1.02E+01		1.96E+01
		722.89	1.80	-4.38E+00		8.99E+01
+	TE-132	49.72	13.10	9.87E+01	9.37E+01	8.92E+02
		228.16	88.00	-2.28E+01		9.37E+01
+	BA-133	81.00	33.00	1.58E-02	9.65E-02	1.37E-01
		302.84	17.80	-1.41E-01		3.40E-01
		356.01	60.00	-9.62E-03		9.65E-02
+	I-133	529.87	86.30	-1.93E+10	5.07E+10	5.07E+10
+	XE-133	81.00	38.00	1.26E+00	1.09E+01	1.09E+01
+	CS-134	563.23	8.38	3.15E-01	9.80E-02	7.60E-01
		569.32	15.43	2.63E-02		4.08E-01
		604.70	97.60	1.57E-02		9.80E-02
		795.84	85.40	7.34E-02		1.06E-01
		801.93	8.73	9.10E-02		9.47E-01
+	CS-135	268.24	16.00	1.32E-01	3.81E-01	3.81E-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	3.40E+00	4.33E-01	4.66E+00
		163.89	4.61	6.55E-01		7.30E+00
		176.55	13.56	-8.37E-01		2.29E+00
		273.65	12.66	-3.60E+00		2.59E+00
		340.57	48.50	-6.13E-01		8.82E-01
		818.50	99.70	-2.33E-01		4.33E-01
		1048.07	79.60	-2.48E-01		6.15E-01
		1235.34	19.70	8.73E-01		3.79E+00
+	CS-137	661.65	85.12	-3.98E-02	8.91E-02	8.91E-02
+	LA-138	788.74	34.00	1.30E-03	1.12E-01	2.26E-01
		1435.80	66.00	2.74E-02		1.12E-01
+	CE-139	165.85	80.35	-2.60E-02	8.08E-02	8.08E-02
+	BA-140	162.64	6.70	-8.75E-01	1.53E+00	5.22E+00

Analysis Report for 1510093-07  
CP5002S11-12

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>	
	BA-140	304.84	4.50	-4.24E+00	1.53E+00	7.47E+00
		423.70	3.20	8.49E+00		1.24E+01
		437.55	2.00	2.52E+00		1.94E+01
		537.32	25.00	-1.15E-01		1.53E+00
+	LA-140	328.77	20.50	1.04E+00	4.94E-01	1.95E+00
		487.03	45.50	3.08E-01		8.26E-01
		815.85	23.50	6.53E-02		1.96E+00
		1596.49	95.49	-1.10E-01		4.94E-01
+	CE-141	145.44	48.40	1.51E-01	2.31E-01	2.31E-01
+	CE-143	57.36	11.80	-2.45E+06	6.40E+06	1.46E+07
		293.26	42.00	-2.42E+06		6.40E+06
		664.55	5.20	1.38E+07		4.74E+07
+	CE-144	133.54	10.80	8.38E-02	5.01E-01	5.01E-01
+	PM-144	476.78	42.00	2.31E-02	7.79E-02	1.43E-01
		618.01	98.60	-1.67E-02		7.90E-02
		696.49	99.49	-4.78E-02		7.79E-02
+	PM-145	36.85	21.70	1.51E-01	5.39E-01	1.05E+00
		37.36	39.70	7.75E-02		5.39E-01
		42.30	15.10	1.02E-01		8.90E-01
		72.40	2.31	-1.79E+00		2.34E+00
+	PM-146	453.90	39.94	6.60E-02	1.56E-01	1.56E-01
		735.90	14.01	5.48E-02		5.51E-01
		747.13	13.10	8.54E-02		5.49E-01
+	ND-147	91.11	28.90	-2.97E+00	2.01E+00	2.01E+00
		531.02	13.10	4.09E-01		3.88E+00
+	PM-149	285.90	3.10	4.33E+04	8.81E+04	8.81E+04
+	EU-152	121.78	20.50	4.27E-02	2.42E-01	2.42E-01
		244.69	5.40	-2.32E+00		1.07E+00
		344.27	19.13	4.35E-02		2.91E-01
		778.89	9.20	-7.37E-02		7.48E-01
		964.01	10.40	-2.89E+00		1.04E+00
		1085.78	7.22	-3.19E-02		1.13E+00
		1112.02	9.60	-9.79E-02		8.79E-01
		1407.95	14.94	3.99E-03		5.18E-01
+	GD-153	97.43	31.30	-1.53E-02	1.70E-01	1.70E-01
		103.18	22.20	-1.05E-01		2.39E-01
+	EU-154	123.07	40.50	1.76E-02	1.23E-01	1.23E-01
		723.30	19.70	-2.11E-02		4.34E-01
		873.19	11.50	-9.86E-02		6.04E-01
		996.32	10.30	6.95E-02		8.17E-01
		1004.76	17.90	1.09E-01		4.31E-01
		1274.45	35.50	3.50E-02		2.65E-01
+	EU-155	86.50	30.90	-1.51E-01	2.20E-01	2.20E-01
		105.30	20.70	5.87E-02		2.39E-01
+	EU-156	811.77	10.40	-1.02E+00	3.18E+00	3.18E+00
		1153.47	7.20	5.34E+00		6.87E+00
		1230.71	8.90	7.89E-01		5.77E+00
+	HO-166M	184.41	72.60	-8.61E-03	9.58E-02	9.58E-02
		280.45	29.60	5.98E-02		2.01E-01

Analysis Report for 1510093-07  
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<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
HO-166M	410.94	11.10	2.03E-01	9.58E-02	5.46E-01
	711.69	54.10	2.01E-02		1.41E-01
+ TM-171	66.72	0.14	-9.00E+00	3.86E+01	3.86E+01
+ HF-172	81.75	4.52	-6.03E-01	4.62E-01	1.03E+00
	125.81	11.30	7.66E-02		4.62E-01
+ LU-172	181.53	20.60	2.26E+00	4.83E+00	9.34E+00
	810.06	16.63	-6.39E+00		1.43E+01
	912.12	15.25	8.74E+01		3.55E+01
	1093.66	62.50	8.94E-01		4.83E+00
+ LU-173	100.72	5.24	4.87E-01	3.07E-01	9.64E-01
	272.11	21.20	2.76E-01		3.07E-01
+ HF-175	343.40	84.00	7.67E-03	9.34E-02	9.34E-02
+ LU-176	88.34	13.30	8.22E-01	5.93E-02	5.25E-01
	201.83	86.00	6.68E-03		6.75E-02
	306.78	94.00	1.78E-02		5.93E-02
+ TA-182	67.75	41.20	-9.00E-02	1.54E-01	1.54E-01
	1121.30	34.90	9.33E-01		5.18E-01
	1189.05	16.23	-3.74E-01		6.14E-01
	1221.41	26.98	1.30E-02		4.67E-01
	1231.02	11.44	4.37E-01		1.17E+00
+ IR-192	308.46	29.68	1.20E-01	1.55E-01	2.56E-01
	468.07	48.10	3.59E-02		1.55E-01
+ HG-203	279.19	77.30	5.29E-02	1.31E-01	1.31E-01
+ BI-207	569.67	97.72	4.03E-03	6.26E-02	6.26E-02
	1063.62	74.90	-2.28E-03		1.24E-01
+ TL-208	583.14	* 30.22	1.46E+00	1.17E-01	3.58E-01
	860.37	* 4.48	1.92E+00		2.00E+00
	2614.66	* 35.85	9.84E-01		1.17E-01
+ BI-210M	262.00	45.00	1.07E-02	1.25E-01	1.25E-01
	300.00	23.00	4.57E-01		2.98E-01
+ PB-210	46.50	* 4.25	2.76E+00	4.16E+00	4.16E+00
+ PB-211	404.84	2.90	8.47E-01	2.06E+00	2.06E+00
	831.96	2.90	1.05E+00		2.90E+00
+ BI-212	727.17	* 11.80	1.07E+00	1.13E+00	1.13E+00
	1620.62	2.75	2.06E+00		3.38E+00
+ PB-212	238.63	* 44.60	1.64E+00	3.05E-01	3.05E-01
	300.09	* 3.41	2.41E+00		5.39E+00
+ BI-214	609.31	* 46.30	1.58E+00	2.52E-01	2.52E-01
	1120.29	* 15.10	2.00E+00		7.18E-01
	1764.49	* 15.80	1.53E+00		4.86E-01
	2204.22	* 4.98	2.33E+00		1.25E+00
+ PB-214	295.21	* 19.19	1.83E+00	2.68E-01	9.47E-01
	351.92	* 37.19	1.83E+00		2.68E-01
+ RN-219	401.80	6.50	-2.96E-01	9.37E-01	9.37E-01
+ RA-223	323.87	3.88	-6.60E-01	1.40E+00	1.40E+00
+ RA-224	240.98	* 3.95	5.99E+00	3.48E+00	3.48E+00
+ RA-225	40.00	31.00	7.13E-01	2.62E+00	2.62E+00
+ RA-226	186.21	* 3.28	3.97E+00	2.90E+00	2.90E+00

Analysis Report for 1510093-07  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	TH-227	50.10	8.40	1.05E-01	7.51E-01	9.48E-01
		236.00	11.50	-5.55E+00		7.51E-01
		256.20	6.30	2.78E-01		9.18E-01
+	AC-228	338.32	* 11.40	1.82E+00	4.39E-01	7.88E-01
		911.07	* 27.70	1.32E+00		4.39E-01
		969.11	16.60	1.19E+00		8.62E-01
+	TH-230	48.44	16.90	-6.50E-01	5.02E-01	5.02E-01
		62.85	4.60	1.22E+00		1.36E+00
		67.67	0.37	-8.15E+00		1.39E+01
+	PA-231	283.67	1.60	2.77E-01	2.62E+00	3.73E+00
		302.67	2.30	-1.09E+00		2.62E+00
+	TH-231	25.64	14.70	-8.44E+00	7.41E-01	1.56E+01
		84.21	6.40	4.98E-01		7.41E-01
+	PA-233	311.98	38.60	3.39E-03	3.31E-01	3.31E-01
+	PA-234	131.20	20.40	2.17E-01	2.69E-01	2.69E-01
		733.99	8.80	-4.02E-02		8.65E-01
		946.00	12.00	1.99E-01		7.01E-01
+	PA-234M	1001.03	0.92	-1.37E+00	8.88E+00	8.88E+00
+	TH-234	63.29	* 3.80	1.30E+00	2.54E+00	2.54E+00
+	U-235	143.76	10.50	-4.00E-02	5.10E-01	5.10E-01
		163.35	4.70	-1.96E-01		1.17E+00
		205.31	4.70	1.98E-01		1.24E+00
+	NP-237	86.50	12.60	-3.65E-01	5.33E-01	5.33E-01
+	NP-239	106.10	22.70	1.15E+03	5.11E+03	5.11E+03
		228.18	10.70	-3.05E+03		1.25E+04
		277.60	14.10	6.58E+03		1.01E+04
+	AM-241	59.54	35.90	8.83E-02	1.66E-01	1.66E-01
+	AM-243	74.67	66.00	-2.43E-01	1.12E-01	1.12E-01
+	CM-243	209.75	3.29	2.06E+00	4.34E-01	1.97E+00
		228.14	10.60	-1.31E-01		5.41E-01
		277.60	14.00	2.83E-01		4.34E-01

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



Analysis Report for 1510093-07  
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## NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	8.44E-01	8.44E-01	1.36E-01	3.96E-01
NA-22	1274.54	99.94	9.59E-02	9.59E-02	1.27E-02	4.41E-02
NA-24	1368.53	99.99	1.91E+15	1.21E+15	5.69E+13	8.42E+14
	2754.09	99.86	1.21E+15		-2.51E+14	4.67E+14
AL-26	1808.65	99.76	6.24E-02	6.24E-02	-5.73E-03	2.65E-02
+ K-40	1460.81	*	1.21E+00	1.21E+00	2.09E+01	5.68E-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	5.44E-02	5.44E-02	-3.19E-02	2.64E-02
	78.34	96.00	8.27E-02		3.51E-01	4.06E-02
SC-46	889.25	99.98	1.07E-01	1.07E-01	-3.91E-04	4.98E-02
	1120.51	99.99	1.92E-01		2.93E-01	9.13E-02
V-48	983.52	99.98	3.71E-01	3.71E-01	3.45E-02	1.72E-01
	1312.10	97.50	4.05E-01		1.64E-01	1.85E-01
CR-51	320.08	9.83	1.32E+00	1.32E+00	-8.28E-01	6.30E-01
MN-54	834.83	99.97	9.44E-02	9.44E-02	2.33E-02	4.43E-02
CO-56	846.75	99.96	9.10E-02	9.10E-02	-8.94E-05	4.19E-02
	1037.75	14.03	7.57E-01		-3.84E-02	3.48E-01
	1238.25	67.00	2.39E-01		3.95E-02	1.12E-01
	1771.40	15.51	5.58E-01		-1.27E-02	2.39E-01
	2598.48	16.90	3.03E-01		3.12E-03	1.13E-01
CO-57	122.06	85.51	6.31E-02	6.31E-02	1.11E-02	3.06E-02
	136.48	10.60	5.23E-01		-1.86E-01	2.54E-01
CO-58	810.76	99.40	9.77E-02	9.77E-02	-4.35E-02	4.52E-02
FE-59	1099.22	56.50	2.35E-01	2.35E-01	-1.46E-01	1.07E-01
	1291.56	43.20	3.52E-01		7.76E-02	1.61E-01
CO-60	1173.22	100.00	8.78E-02	8.01E-02	-3.38E-02	4.04E-02
	1332.49	100.00	8.01E-02		1.64E-02	3.61E-02
ZN-65	1115.52	50.75	1.94E-01	1.94E-01	-2.14E-02	8.95E-02
+ GA-67	93.31	*	3.22E+02	3.22E+02	2.44E+02	1.58E+02
	208.95	2.24	4.08E+03		1.54E+03	1.97E+03
	300.22	*	1.64E+03		7.36E+02	8.11E+02
SE-75	121.11	16.70	3.55E-01	1.03E-01	-6.99E-02	1.72E-01
	136.00	59.20	1.03E-01		-3.58E-02	4.98E-02
	264.65	59.80	1.17E-01		6.78E-02	5.63E-02
	279.53	25.20	2.87E-01		8.54E-02	1.38E-01
	400.65	11.40	6.52E-01		-8.06E-02	3.10E-01
RB-82	776.52	13.00	1.36E+00	1.36E+00	-1.41E-01	6.32E-01
RB-83	520.41	46.00	1.62E-01	1.62E-01	-1.59E-02	7.59E-02
	529.64	30.30	2.50E-01		-9.30E-02	1.17E-01
	552.65	16.40	4.66E-01		1.79E-03	2.18E-01
KR-85	513.99	0.43	1.61E+01	1.61E+01	-1.98E+01	7.61E+00
SR-85	513.99	99.27	1.01E-01	1.01E-01	-1.24E-01	4.76E-02
Y-88	898.02	93.40	9.91E-02	9.25E-02	3.39E-02	4.58E-02
	1836.01	99.38	9.25E-02		3.66E-02	4.04E-02
NB-93M	16.57	9.43	5.82E+03	5.82E+03	-6.47E+03	2.83E+03

Analysis Report for 1510093-07  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)	
NB-94	702.63	100.00	8.18E-02	7.30E-02	1.35E-02	3.86E-02	
	871.10	100.00	7.30E-02		9.91E-03	3.37E-02	
NB-95	765.79	99.81	1.94E-01	1.94E-01	1.53E-01	9.22E-02	
NB-95M	235.69	25.00	2.45E+02	2.45E+02	-1.81E+03	1.20E+02	
ZR-95	724.18	43.70	3.28E-01	1.82E-01	1.12E-01	1.56E-01	
	756.72	55.30	1.82E-01		-3.66E-02	8.48E-02	
MO-99	181.06	6.20	4.88E+03	3.15E+03	-2.42E+02	2.36E+03	
	739.58	12.80	3.15E+03		-3.93E+01	1.47E+03	
	778.00	4.50	8.09E+03		-8.26E+02	3.74E+03	
RU-103	497.08	89.00	1.21E-01	1.21E-01	6.76E-02	5.66E-02	
RU-106	621.84	9.80	7.33E-01	7.33E-01	-1.61E-01	3.43E-01	
AG-108M	433.93	89.90	6.47E-02	6.47E-02	-5.83E-03	3.05E-02	
	614.37	90.40	8.67E-02		1.36E-02	4.11E-02	
	722.95	90.50	9.38E-02		-4.57E-03	4.43E-02	
+ CD-109	88.03	*	2.04E+00	2.04E+00	3.64E+00	1.00E+00	
	AG-110M	657.75	93.14	8.70E-02	8.70E-02	2.93E-02	4.09E-02
677.61		10.53	7.37E-01		3.59E-01	3.45E-01	
706.67		16.46	5.14E-01		-1.07E-02	2.42E-01	
763.93		21.98	4.03E-01		2.13E-02	1.89E-01	
884.67		71.63	1.12E-01		-4.67E-02	5.19E-02	
1384.27		23.94	3.55E-01		1.41E-01	1.60E-01	
CD-113M	263.70	0.02	2.43E+02	2.43E+02	-5.98E+00	1.17E+02	
SN-113	255.12	1.93	3.50E+00	1.11E-01	9.48E-01	1.68E+00	
	391.69	64.90	1.11E-01		3.63E-02	5.29E-02	
TE123M	159.00	84.10	7.56E-02	7.56E-02	-7.35E-03	3.66E-02	
SB-124	602.71	97.87	1.19E-01	1.19E-01	5.18E-02	5.62E-02	
	645.85	7.26	1.52E+00		5.63E-01	7.14E-01	
	722.78	11.10	1.13E+00		-5.52E-02	5.35E-01	
	1691.02	49.00	1.89E-01		-1.51E-02	8.10E-02	
I-125	35.49	6.49	6.10E+00	6.10E+00	7.63E-01	2.96E+00	
SB-125	176.33	6.89	7.89E-01	1.87E-01	1.27E-01	3.81E-01	
	427.89	29.33	1.87E-01		3.56E-02	8.77E-02	
	463.38	10.35	7.54E-01		9.91E-01	3.60E-01	
	600.56	17.80	4.27E-01		-1.44E-01	2.02E-01	
	635.90	11.32	6.78E-01		3.03E-01	3.19E-01	
	SB-126	414.70	83.30	4.59E-01	4.59E-01	-6.08E-03	2.17E-01
666.33		99.60	5.54E-01		6.96E-02	2.62E-01	
695.00		99.60	4.86E-01		-1.93E-01	2.27E-01	
720.50		53.80	9.66E-01		-6.38E-02	4.53E-01	
+ SN-126	87.57	*	1.95E-01	1.95E-01	3.48E-01	9.57E-02	
	SB-127	473.00	25.00	1.01E+02	1.01E+02	-2.71E+01	4.74E+01
		685.20	35.70	1.02E+02		8.53E+01	4.80E+01
I-129	783.80	14.70	2.70E+02		1.38E+02	1.27E+02	
	29.78	57.00	1.31E+00	1.31E+00	-2.00E-01	6.34E-01	
	33.60	13.20	2.52E+00		-8.05E-01	1.22E+00	
I-131	39.58	7.52	2.27E+00		6.18E-01	1.10E+00	
	284.30	6.05	1.88E+01	1.27E+00	1.40E+00	9.04E+00	
	364.48	81.20	1.27E+00		-3.12E-01	5.99E-01	
TE-132	636.97	7.26	1.96E+01		1.02E+01	9.23E+00	
	722.89	1.80	8.99E+01		-4.38E+00	4.24E+01	
	49.72	13.10	8.92E+02	9.37E+01	9.87E+01	4.32E+02	
BA-133	228.16	88.00	9.37E+01		-2.28E+01	4.51E+01	
	81.00	33.00	1.37E-01	9.65E-02	1.58E-02	6.66E-02	

Analysis Report for 1510093-07  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BA-133	302.84	17.80	3.40E-01	9.65E-02	-1.41E-01	1.63E-01
	356.01	60.00	9.65E-02		-9.62E-03	4.59E-02
I-133	529.87	86.30	5.07E+10	5.07E+10	-1.93E+10	2.37E+10
XE-133	81.00	38.00	1.09E+01	1.09E+01	1.26E+00	5.28E+00
CS-134	563.23	8.38	7.60E-01	9.80E-02	3.15E-01	3.56E-01
	569.32	15.43	4.08E-01		2.63E-02	1.91E-01
	604.70	97.60	9.80E-02		1.57E-02	4.68E-02
	795.84	85.40	1.06E-01		7.34E-02	4.98E-02
	801.93	8.73	9.47E-01		9.10E-02	4.43E-01
CS-135	268.24	16.00	3.81E-01	3.81E-01	1.32E-01	1.83E-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	4.66E+00	4.33E-01	3.40E+00	2.27E+00
	163.89	4.61	7.30E+00		6.55E-01	3.54E+00
	176.55	13.56	2.29E+00		-8.37E-01	1.11E+00
	273.65	12.66	2.59E+00		-3.60E+00	1.24E+00
	340.57	48.50	8.82E-01		-6.13E-01	4.24E-01
	818.50	99.70	4.33E-01		-2.33E-01	2.00E-01
	1048.07	79.60	6.15E-01		-2.48E-01	2.83E-01
	1235.34	19.70	3.79E+00		8.73E-01	1.78E+00
CS-137	661.65	85.12	8.91E-02	8.91E-02	-3.98E-02	4.19E-02
LA-138	788.74	34.00	2.26E-01	1.12E-01	1.30E-03	1.06E-01
	1435.80	66.00	1.12E-01		2.74E-02	4.97E-02
CE-139	165.85	80.35	8.08E-02	8.08E-02	-2.60E-02	3.92E-02
BA-140	162.64	6.70	5.22E+00	1.53E+00	-8.75E-01	2.53E+00
	304.84	4.50	7.47E+00		-4.24E+00	3.56E+00
	423.70	3.20	1.24E+01		8.49E+00	5.88E+00
	437.55	2.00	1.94E+01		2.52E+00	9.16E+00
	537.32	25.00	1.53E+00		-1.15E-01	7.17E-01
LA-140	328.77	20.50	1.95E+00	4.94E-01	1.04E+00	9.33E-01
	487.03	45.50	8.26E-01		3.08E-01	3.88E-01
	815.85	23.50	1.96E+00		6.53E-02	9.10E-01
	1596.49	95.49	4.94E-01		-1.10E-01	2.18E-01
CE-141	145.44	48.40	2.31E-01	2.31E-01	1.51E-01	1.12E-01
CE-143	57.36	11.80	1.46E+07	6.40E+06	-2.45E+06	7.06E+06
	293.26	42.00	6.40E+06		-2.42E+06	3.11E+06
	664.55	5.20	4.74E+07		1.38E+07	2.24E+07
CE-144	133.54	10.80	5.01E-01	5.01E-01	8.38E-02	2.43E-01
PM-144	476.78	42.00	1.43E-01	7.79E-02	2.31E-02	6.72E-02
	618.01	98.60	7.90E-02		-1.67E-02	3.72E-02
	696.49	99.49	7.79E-02		-4.78E-02	3.65E-02
PM-145	36.85	21.70	1.05E+00	5.39E-01	1.51E-01	5.09E-01
	37.36	39.70	5.39E-01		7.75E-02	2.61E-01
	42.30	15.10	8.90E-01		1.02E-01	4.32E-01
	72.40	2.31	2.34E+00		-1.79E+00	1.14E+00
PM-146	453.90	39.94	1.56E-01	1.56E-01	6.60E-02	7.35E-02
	735.90	14.01	5.51E-01		5.48E-02	2.58E-01
	747.13	13.10	5.49E-01		8.54E-02	2.56E-01
ND-147	91.11	28.90	2.01E+00	2.01E+00	-2.97E+00	9.84E-01
	531.02	13.10	3.88E+00		4.09E-01	1.82E+00
PM-149	285.90	3.10	8.81E+04	8.81E+04	4.33E+04	4.23E+04
EU-152	121.78	20.50	2.42E-01	2.42E-01	4.27E-02	1.17E-01

Analysis Report for 1510093-07  
CP5002S11-12

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	1.07E+00	2.42E-01	-2.32E+00	5.17E-01
	344.27	19.13	2.91E-01		4.35E-02	1.38E-01
	778.89	9.20	7.48E-01		-7.37E-02	3.46E-01
	964.01	10.40	1.04E+00		-2.89E+00	4.93E-01
	1085.78	7.22	1.13E+00		-3.19E-02	5.22E-01
	1112.02	9.60	8.79E-01		-9.79E-02	4.04E-01
	1407.95	14.94	5.18E-01		3.99E-03	2.32E-01
GD-153	97.43	31.30	1.70E-01	1.70E-01	-1.53E-02	8.25E-02
	103.18	22.20	2.39E-01		-1.05E-01	1.16E-01
EU-154	123.07	40.50	1.23E-01	1.23E-01	1.76E-02	5.97E-02
	723.30	19.70	4.34E-01		-2.11E-02	2.05E-01
	873.19	11.50	6.04E-01		-9.86E-02	2.78E-01
	996.32	10.30	8.17E-01		6.95E-02	3.79E-01
	1004.76	17.90	4.31E-01		1.09E-01	1.98E-01
EU-155	1274.45	35.50	2.65E-01	2.20E-01	3.50E-02	1.22E-01
	86.50	30.90	2.20E-01		-1.51E-01	1.08E-01
	105.30	20.70	2.39E-01		5.87E-02	1.16E-01
EU-156	811.77	10.40	3.18E+00	3.18E+00	-1.02E+00	1.47E+00
	1153.47	7.20	6.87E+00		5.34E+00	3.21E+00
	1230.71	8.90	5.77E+00		7.89E-01	2.69E+00
	184.41	72.60	9.58E-02		9.58E-02	-8.61E-03
HO-166M	280.45	29.60	2.01E-01	9.58E-02	5.98E-02	9.66E-02
	410.94	11.10	5.46E-01		2.03E-01	2.59E-01
	711.69	54.10	1.41E-01		2.01E-02	6.60E-02
	66.72	0.14	3.86E+01		3.86E+01	-9.00E+00
HF-172	81.75	4.52	1.03E+00	4.62E-01	-6.03E-01	5.02E-01
	125.81	11.30	4.62E-01		7.66E-02	2.24E-01
LU-172	181.53	20.60	9.34E+00	4.83E+00	2.26E+00	4.52E+00
	810.06	16.63	1.43E+01		-6.39E+00	6.64E+00
	912.12	15.25	3.55E+01		8.74E+01	1.71E+01
	1093.66	62.50	4.83E+00		8.94E-01	2.23E+00
LU-173	100.72	5.24	9.64E-01	3.07E-01	4.87E-01	4.69E-01
	272.11	21.20	3.07E-01		2.76E-01	1.48E-01
HF-175	343.40	84.00	9.34E-02	9.34E-02	7.67E-03	4.44E-02
LU-176	88.34	13.30	5.25E-01	5.93E-02	8.22E-01	2.58E-01
	201.83	86.00	6.75E-02		6.68E-03	3.26E-02
	306.78	94.00	5.93E-02		1.78E-02	2.83E-02
TA-182	67.75	41.20	1.54E-01	1.54E-01	-9.00E-02	7.45E-02
	1121.30	34.90	5.18E-01		9.33E-01	2.47E-01
	1189.05	16.23	6.14E-01		-3.74E-01	2.80E-01
	1221.41	26.98	4.67E-01		1.30E-02	2.17E-01
	1231.02	11.44	1.17E+00		4.37E-01	5.45E-01
IR-192	308.46	29.68	2.56E-01	1.55E-01	1.20E-01	1.22E-01
	468.07	48.10	1.55E-01		3.59E-02	7.24E-02
HG-203	279.19	77.30	1.31E-01	1.31E-01	5.29E-02	6.27E-02
BI-207	569.67	97.72	6.26E-02	6.26E-02	4.03E-03	2.93E-02
	1063.62	74.90	1.24E-01		-2.28E-03	5.76E-02
	583.14	* 30.22	3.58E-01		1.17E-01	1.46E+00
+ TL-208	860.37	* 4.48	2.00E+00	1.17E-01	1.92E+00	9.40E-01
	2614.66	* 35.85	1.17E-01		9.84E-01	4.55E-02
	262.00	45.00	1.25E-01		1.25E-01	1.07E-02
BI-210M	300.00	23.00	2.98E-01	1.25E-01	4.57E-01	1.44E-01
	46.50	* 4.25	4.16E+00		4.16E+00	2.76E+00

Analysis Report for 1510093-07  
CP5002S11-12

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	2.06E+00	2.06E+00	8.47E-01	9.77E-01
	831.96	2.90	2.90E+00		1.05E+00	1.36E+00
+ BI-212	727.17 *	11.80	1.13E+00	1.13E+00	1.07E+00	5.45E-01
	1620.62	2.75	3.38E+00		2.06E+00	1.53E+00
+ PB-212	238.63 *	44.60	3.05E-01	3.05E-01	1.64E+00	1.50E-01
	300.09 *	3.41	5.39E+00		2.41E+00	2.66E+00
+ BI-214	609.31 *	46.30	2.52E-01	2.52E-01	1.58E+00	1.22E-01
	1120.29 *	15.10	7.18E-01		2.00E+00	3.37E-01
	1764.49 *	15.80	4.86E-01		1.53E+00	2.14E-01
	2204.22 *	4.98	1.25E+00		2.33E+00	5.25E-01
+ PB-214	295.21 *	19.19	9.47E-01	2.68E-01	1.83E+00	4.67E-01
	351.92 *	37.19	2.68E-01		1.83E+00	1.30E-01
RN-219	401.80	6.50	9.37E-01	9.37E-01	-2.96E-01	4.45E-01
RA-223	323.87	3.88	1.40E+00	1.40E+00	-6.60E-01	6.63E-01
+ RA-224	240.98 *	3.95	3.48E+00	3.48E+00	5.99E+00	1.71E+00
RA-225	40.00	31.00	2.62E+00	2.62E+00	7.13E-01	1.27E+00
+ RA-226	186.21 *	3.28	2.90E+00	2.90E+00	3.97E+00	1.42E+00
TH-227	50.10	8.40	9.48E-01	7.51E-01	1.05E-01	4.60E-01
	236.00	11.50	7.51E-01		-5.55E+00	3.66E-01
	256.20	6.30	9.18E-01		2.78E-01	4.41E-01
+ AC-228	338.32 *	11.40	7.88E-01	4.39E-01	1.82E+00	3.82E-01
	911.07 *	27.70	4.39E-01		1.32E+00	2.09E-01
	969.11	16.60	8.62E-01		1.19E+00	4.13E-01
TH-230	48.44	16.90	5.02E-01	5.02E-01	-6.50E-01	2.43E-01
	62.85	4.60	1.36E+00		1.22E+00	6.61E-01
	67.67	0.37	1.39E+01		-8.15E+00	6.75E+00
PA-231	283.67	1.60	3.73E+00	2.62E+00	2.77E-01	1.79E+00
	302.67	2.30	2.62E+00		-1.09E+00	1.25E+00
TH-231	25.64	14.70	1.56E+01	7.41E-01	-8.44E+00	7.54E+00
	84.21	6.40	7.41E-01		4.98E-01	3.60E-01
PA-233	311.98	38.60	3.31E-01	3.31E-01	3.39E-03	1.58E-01
PA-234	131.20	20.40	2.69E-01	2.69E-01	2.17E-01	1.31E-01
	733.99	8.80	8.65E-01		-4.02E-02	4.05E-01
	946.00	12.00	7.01E-01		1.99E-01	3.26E-01
PA-234M	1001.03	0.92	8.88E+00	8.88E+00	-1.37E+00	4.11E+00
+ TH-234	63.29 *	3.80	2.54E+00	2.54E+00	1.30E+00	1.25E+00
U-235	143.76	10.50	5.10E-01	5.10E-01	-4.00E-02	2.47E-01
	163.35	4.70	1.17E+00		-1.96E-01	5.67E-01
	205.31	4.70	1.24E+00		1.98E-01	6.00E-01
NP-237	86.50	12.60	5.33E-01	5.33E-01	-3.65E-01	2.61E-01
NP-239	106.10	22.70	5.11E+03	5.11E+03	1.15E+03	2.49E+03
	228.18	10.70	1.25E+04		-3.05E+03	6.05E+03
	277.60	14.10	1.01E+04		6.58E+03	4.85E+03
AM-241	59.54	35.90	1.66E-01	1.66E-01	8.83E-02	8.07E-02
AM-243	74.67	66.00	1.12E-01	1.12E-01	-2.43E-01	5.48E-02
CM-243	209.75	3.29	1.97E+00	4.34E-01	2.06E+00	9.54E-01
	228.14	10.60	5.41E-01		-1.31E-01	2.61E-01
	277.60	14.00	4.34E-01		2.83E-01	2.08E-01

Analysis Report for 1510093-07  
CP5002S11-12

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- + = Nuclide identified during the nuclide identification
  - \* = Energy line found in the spectrum
  - > = MDA value not calculated
  - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S11-12

Elapsed Live time: 3600  
 Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	3	7	13	29	183
9:	589	1156	1122	403	635	1724	293	150
17:	134	142	123	130	124	120	103	109
25:	125	115	101	139	119	127	119	120
33:	103	100	114	112	134	125	122	122
41:	143	118	126	137	137	154	198	119
49:	115	109	131	115	121	130	76	97
57:	93	105	117	129	126	109	161	199
65:	125	133	126	109	132	144	144	148
73:	152	189	449	242	528	433	104	110
81:	114	118	114	144	130	103	234	225
89:	105	202	130	126	239	180	102	80
97:	81	68	91	85	86	66	73	72
105:	98	89	72	83	82	75	71	88
113:	75	73	84	79	66	81	65	79
121:	79	75	68	74	76	67	81	83
129:	121	109	65	67	74	65	79	65
137:	67	69	76	86	74	78	80	77
145:	71	69	78	53	74	59	75	82
153:	70	87	89	72	58	59	67	63
161:	69	72	71	68	60	76	67	59
169:	72	72	56	60	71	64	51	56
177:	54	62	44	56	67	54	75	56
185:	89	198	129	56	54	54	59	59
193:	54	59	72	47	63	67	59	66
201:	52	53	55	62	54	64	49	55
209:	91	76	62	57	50	59	62	63
217:	43	46	45	54	38	50	42	65
225:	41	48	55	40	50	43	57	45
233:	45	54	48	48	55	322	609	117
241:	128	152	57	49	35	36	41	31
249:	29	34	54	35	33	42	39	39
257:	33	52	43	47	37	31	31	41
265:	34	45	43	31	35	60	59	32
273:	41	27	29	34	44	55	31	38
281:	33	35	29	39	49	38	40	28
289:	34	31	40	41	27	56	239	175
297:	23	36	34	69	58	37	25	27
305:	29	27	24	30	37	25	19	27
313:	23	36	34	23	41	26	33	22
321:	29	26	30	24	22	26	32	45
329:	35	25	33	28	28	23	21	27
337:	36	128	98	35	26	25	24	26
345:	25	23	21	20	31	23	155	425
353:	133	30	32	27	19	19	20	24
361:	22	24	28	17	19	19	25	22

369: 21 17 24 25 16 31 22 16

Sample Title: CP5002S11-12

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	24	18	14	23	13	40	16	23
385:	22	20	24	25	21	22	27	27
393:	22	18	19	17	21	23	28	26
401:	28	16	23	27	27	14	23	20
409:	41	24	16	14	20	19	17	23
417:	19	27	14	13	28	42	20	21
425:	19	14	12	16	18	23	17	11
433:	23	17	23	23	22	19	18	22
441:	17	13	17	16	17	10	23	16
449:	18	11	16	20	22	20	16	24
457:	23	13	20	18	23	33	59	27
465:	14	12	14	13	16	19	13	12
473:	12	18	17	20	12	14	16	13
481:	15	13	16	19	14	16	20	17
489:	17	11	10	13	15	8	18	19
497:	9	14	21	13	9	14	18	14
505:	11	12	16	16	18	75	95	49
513:	20	12	13	15	20	13	11	20
521:	14	12	16	10	17	22	12	16
529:	15	14	13	14	17	19	8	16
537:	12	17	22	16	11	15	17	13
545:	7	12	21	14	17	13	14	15
553:	13	12	5	19	13	10	9	9
561:	11	21	22	14	6	13	12	18
569:	12	14	15	13	20	15	17	7
577:	17	18	14	18	16	55	189	95
585:	23	18	14	15	18	8	13	14
593:	11	13	18	15	11	14	11	16
601:	17	12	18	22	11	14	16	63
609:	300	188	20	11	17	16	9	21
617:	13	15	9	13	11	14	12	11
625:	6	14	8	13	8	13	10	12
633:	15	14	13	12	13	12	13	14
641:	5	8	18	10	12	14	10	15
649:	9	9	16	12	8	6	14	9
657:	10	15	8	17	11	11	13	13
665:	21	19	12	15	9	17	14	10
673:	8	12	11	14	7	12	11	6
681:	5	8	12	17	15	14	11	10
689:	8	8	14	12	11	6	10	9
697:	12	12	14	14	17	18	10	8
705:	13	11	14	14	12	8	6	10
713:	12	17	12	18	11	9	11	10
721:	12	12	14	11	16	22	47	34
729:	14	12	13	9	15	7	14	10
737:	7	14	8	7	12	10	10	13
745:	15	4	6	6	11	8	4	10
753:	4	4	10	12	11	8	10	7
761:	17	5	7	7	11	9	23	38
769:	26	7	16	24	14	11	8	5
777:	1	5	13	10	8	12	12	10
785:	13	16	12	8	4	8	7	7
793:	11	22	20	11	8	7	9	7



801: 10 17 7 12 10 14 9 8

Sample Title: CP5002S11-12

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	7	5	5	7	11	9	7	7
817:	8	6	8	13	5	11	11	9
825:	10	10	14	4	9	9	11	7
833:	8	8	23	13	3	19	10	10
841:	7	8	7	7	4	4	4	10
849:	9	5	6	4	7	3	13	12
857:	9	3	17	29	16	9	7	3
865:	4	7	8	8	10	5	10	6
873:	6	6	8	4	5	7	7	11
881:	3	8	3	13	7	8	8	10
889:	9	2	14	10	8	7	3	5
897:	6	7	14	6	9	4	9	12
905:	10	4	8	4	9	41	107	54
913:	14	7	8	9	9	5	5	4
921:	10	7	6	5	5	7	10	9
929:	10	14	10	4	14	14	19	8
937:	10	8	6	9	6	8	3	9
945:	8	8	12	6	14	10	4	7
953:	6	4	7	9	10	8	8	5
961:	10	4	19	26	16	13	11	44
969:	68	25	8	8	5	9	2	11
977:	5	10	8	9	10	6	8	9
985:	9	5	5	8	4	7	6	8
993:	5	8	7	3	15	10	6	10
1001:	5	8	8	4	7	8	4	3
1009:	3	6	4	7	12	10	7	5
1017:	8	9	9	7	11	9	5	4
1025:	10	5	6	9	4	5	9	2
1033:	10	6	3	5	9	6	9	6
1041:	7	7	7	9	5	5	9	5
1049:	8	8	6	9	9	7	8	7
1057:	6	9	9	12	16	6	5	7
1065:	5	9	4	12	9	6	5	6
1073:	6	7	10	4	9	7	7	7
1081:	4	11	5	5	5	7	5	6
1089:	9	5	13	6	3	8	13	3
1097:	5	6	6	7	6	6	11	2
1105:	5	9	3	5	8	7	3	8
1113:	7	9	3	7	11	6	15	60
1121:	30	11	8	16	3	4	11	3
1129:	9	8	8	5	7	12	9	7
1137:	2	6	6	8	6	13	9	8
1145:	6	6	4	5	2	5	8	9
1153:	10	12	15	8	6	7	6	4
1161:	4	6	4	9	7	5	6	10
1169:	8	5	4	8	12	4	8	3
1177:	8	7	6	6	8	6	8	4
1185:	9	5	6	6	5	7	4	4
1193:	11	7	7	8	5	5	10	5
1201:	7	5	4	9	8	10	11	6
1209:	7	7	7	11	9	3	3	6
1217:	10	9	5	8	9	13	5	10
1225:	10	7	7	6	9	10	7	10

1233: 16 8 9 6 17 20 11 10

Sample Title: CP5002S11-12

Channel	16	8	9	6	17	20	11	10
1241:	6	10	8	10	9	5	8	8
1249:	8	5	8	5	8	4	7	5
1257:	4	6	9	7	3	6	5	4
1265:	3	10	4	9	4	7	9	3
1273:	6	7	9	5	6	7	5	10
1281:	7	5	5	7	6	4	6	5
1289:	4	11	6	5	5	4	4	5
1297:	9	3	2	3	6	5	2	2
1305:	7	7	5	7	9	9	4	3
1313:	4	6	4	4	1	2	4	4
1321:	3	2	3	5	5	4	4	2
1329:	7	7	3	2	4	3	3	2
1337:	5	7	0	6	2	3	7	8
1345:	0	1	3	4	5	2	3	3
1353:	3	2	1	1	2	9	0	4
1361:	1	4	2	2	0	2	2	3
1369:	5	5	1	5	1	4	4	9
1377:	18	8	7	2	2	2	3	3
1385:	6	5	5	3	2	3	1	2
1393:	4	9	2	2	4	1	2	6
1401:	2	3	3	3	3	5	1	5
1409:	4	4	3	5	2	0	5	3
1417:	5	4	1	8	4	1	2	4
1425:	2	1	3	4	2	4	0	5
1433:	3	0	3	4	3	4	2	3
1441:	1	4	5	1	2	4	1	5
1449:	2	2	2	4	4	2	0	2
1457:	3	14	103	276	276	82	15	2
1465:	2	4	5	1	2	1	0	3
1473:	3	5	4	3	3	3	2	3
1481:	2	1	1	3	5	1	3	2
1489:	1	1	2	2	1	2	4	7
1497:	1	3	3	1	3	3	1	2
1505:	3	0	6	5	6	2	3	4
1513:	4	1	3	2	3	2	1	2
1521:	2	2	1	0	4	1	2	1
1529:	3	2	3	3	1	4	2	0
1537:	1	3	6	0	2	0	3	1
1545:	1	1	1	1	1	0	1	0
1553:	2	2	2	2	1	2	0	1
1561:	2	5	3	1	1	1	1	1
1569:	2	1	3	0	1	1	1	2
1577:	2	3	2	3	1	2	3	4
1585:	4	0	8	8	5	3	3	2
1593:	3	4	2	3	2	0	2	1
1601:	2	3	0	2	6	2	1	1
1609:	2	2	0	1	0	1	1	3
1617:	2	3	3	3	5	6	1	5
1625:	3	1	3	2	6	7	2	3
1633:	1	1	1	4	3	5	3	0
1641:	0	1	2	0	3	2	2	2
1649:	1	1	0	1	0	1	0	0
1657:	1	1	1	1	2	1	3	2

1665: 3 0 0 1 0 1 2 1

Sample Title: CP5002S11-12

Channel	1	2	3	4	5	6	7	8
1673:	3	0	5	3	1	3	3	0
1681:	1	0	2	1	2	1	1	1
1689:	1	2	1	1	1	3	1	2
1697:	0	2	1	1	0	0	1	2
1705:	3	0	0	0	2	1	0	2
1713:	0	2	0	1	1	0	1	3
1721:	4	2	1	1	3	1	1	2
1729:	8	5	2	2	2	2	0	1
1737:	0	3	0	4	1	1	0	1
1745:	1	1	0	1	0	2	1	1
1753:	1	1	1	4	2	0	1	2
1761:	1	6	12	33	23	1	2	1
1769:	2	0	2	1	1	2	1	0
1777:	2	2	0	2	5	0	0	3
1785:	0	2	0	0	0	0	0	0
1793:	2	3	0	0	1	0	4	0
1801:	3	1	4	1	1	1	1	2
1809:	0	2	1	2	3	2	1	0
1817:	0	1	1	0	0	1	1	0
1825:	1	0	0	0	2	2	1	1
1833:	0	2	3	4	2	2	1	1
1841:	0	0	3	1	0	2	10	7
1849:	4	0	2	1	3	1	0	0
1857:	2	2	0	3	0	0	2	0
1865:	0	3	2	0	1	2	3	1
1873:	3	1	2	1	3	2	1	1
1881:	0	0	1	1	0	2	0	2
1889:	0	2	1	1	0	2	0	1
1897:	4	1	0	0	1	0	1	1
1905:	0	1	0	1	3	1	2	1
1913:	2	2	4	1	2	0	3	0
1921:	0	2	2	1	2	0	0	1
1929:	1	0	0	0	1	0	1	1
1937:	1	0	1	1	1	1	1	2
1945:	3	2	3	0	1	1	0	4
1953:	1	0	2	1	0	0	1	1
1961:	0	1	1	0	1	1	1	0
1969:	1	2	0	2	1	1	2	1
1977:	0	1	3	1	2	1	1	2
1985:	4	0	1	1	3	0	1	4
1993:	2	0	2	1	1	0	1	4
2001:	2	0	2	0	2	0	1	2
2009:	3	1	1	0	2	1	2	2
2017:	0	0	1	2	0	1	0	0
2025:	0	2	0	1	0	0	1	1
2033:	2	1	1	1	3	1	2	1
2041:	1	0	0	2	2	1	1	3
2049:	0	0	0	0	0	2	0	1
2057:	0	0	1	0	1	0	1	1
2065:	2	1	2	0	1	0	0	0
2073:	1	1	2	1	3	2	2	1
2081:	0	1	0	0	1	0	0	0
2089:	3	0	1	0	1	2	2	2

2097:           0           0           2           2           0           4           5           6

Sample Title: CP5002S11-12

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

2529: 0 0 0 1 0 0 1 0

Sample Title: CP5002S11-12

Channel	1	2	3	4	5	6	7	8
2537:	1	0	0	1	0	1	0	2
2545:	0	1	0	0	0	0	2	1
2553:	0	0	1	1	0	0	0	0
2561:	0	0	0	0	1	0	0	0
2569:	0	0	1	0	0	0	0	0
2577:	0	1	0	2	0	2	0	1
2585:	1	0	0	0	0	0	0	0
2593:	0	0	0	1	0	1	0	0
2601:	0	1	0	2	0	0	0	0
2609:	0	1	3	15	33	33	16	6
2617:	1	0	0	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	2	0	0	0	0	1	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	1	0	0
2657:	0	0	0	0	0	0	0	1
2665:	0	0	1	0	0	0	0	0
2673:	0	0	0	0	0	2	1	1
2681:	0	0	0	1	0	1	1	1
2689:	1	0	0	1	1	0	1	1
2697:	1	1	0	0	1	0	1	0
2705:	0	1	0	0	0	0	1	0
2713:	0	1	0	0	0	0	1	0
2721:	0	0	0	0	0	0	0	0
2729:	1	1	0	1	0	0	0	0
2737:	0	0	0	1	0	0	0	0
2745:	0	0	0	3	0	0	0	0
2753:	2	0	1	1	0	0	0	1
2761:	0	0	0	0	0	0	0	0
2769:	1	2	1	0	0	2	0	0
2777:	0	1	0	0	1	0	0	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	0	0	0	1	2	1
2801:	0	0	0	0	0	0	0	2
2809:	0	0	0	0	0	0	0	0
2817:	1	1	2	1	0	0	0	0
2825:	0	0	0	0	1	0	0	0
2833:	1	0	1	0	1	0	2	0
2841:	0	0	0	1	0	0	0	0
2849:	0	0	0	1	1	0	0	0
2857:	1	0	1	0	0	0	0	1
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	2	0
2881:	1	1	0	0	2	0	0	1
2889:	0	0	0	2	0	0	0	1
2897:	0	1	0	0	1	1	0	1
2905:	0	0	0	0	1	1	0	0
2913:	0	1	0	0	1	1	0	0
2921:	0	0	0	0	0	0	1	0
2929:	1	0	0	0	1	0	0	2
2937:	0	0	0	0	1	0	0	0
2945:	0	1	0	1	0	0	0	0
2953:	0	0	0	0	0	0	1	0

2961: 1 0 0 0 1 0 0 0

Sample Title: CP5002S11-12

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP5002S11-12

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

3825: 0 0 1 0 0 0 0 0

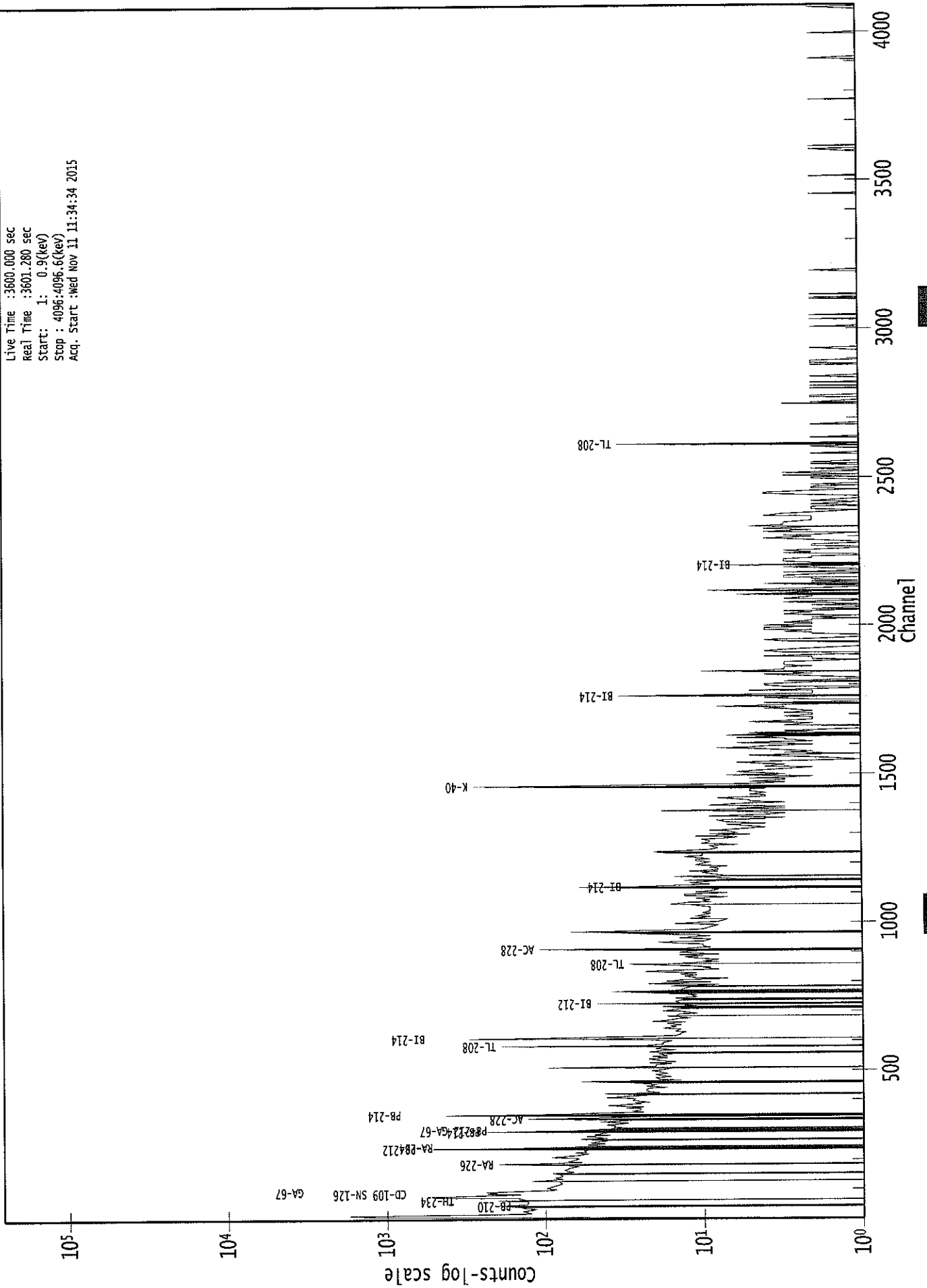
Sample Title: CP5002S11-12

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



0000029482.CNF

Live Time : 3600.000 sec  
Real Time : 3601.280 sec  
Start : 1: 0.9(keV)  
Stop : 4096:4096.6(keV)  
Acq. Start : Wed Nov 11 11:34:34 2015



ROI Type: 1

ROI Type: 2

*KB  
11/11/15*Analysis Report for 1510093-08  
CP5002S13-14

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-08  
Sample Description : CP5002S13-14  
Sample Type : SOIL

Sample Size : 5.163E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:30:13AM  
Acquisition Started : 11/11/2015 11:35:01AM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE3  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3617.5 seconds

Dead Time : 0.48 %

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 : 29483

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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*AG  
11/12/15*

Analysis Report for 1510093-08  
CP5002S13-14

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 12:35:21PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096  
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	76.33	76.55	0.0000	0.00
2	85.11	85.32	0.0000	0.00
3	89.64	89.85	0.0000	0.00
4	93.12	93.32	0.0000	0.00
5	128.40	128.59	0.0000	0.00
6	186.01	186.16	0.0000	0.00
7	209.33	209.47	0.0000	0.00
8	238.97	239.10	0.0000	0.00
9	242.23	242.36	0.0000	0.00
10	252.66	252.78	0.0000	0.00
11	259.01	259.13	0.0000	0.00
12	270.49	270.61	0.0000	0.00
13	277.90	278.01	0.0000	0.00
14	284.70	284.80	0.0000	0.00
15	295.50	295.60	0.0000	0.00
16	328.49	328.57	0.0000	0.00
17	338.86	338.94	0.0000	0.00
18	348.55	348.62	0.0000	0.00
19	352.30	352.37	0.0000	0.00
20	410.71	410.75	0.0000	0.00
21	487.81	487.81	0.0000	0.00
22	510.95	510.94	0.0000	0.00
23	572.09	572.06	0.0000	0.00
24	583.77	583.72	0.0000	0.00
25	609.88	609.82	0.0000	0.00
26	638.03	637.96	0.0000	0.00
27	728.17	728.05	0.0000	0.00
28	795.36	795.22	0.0000	0.00
29	836.75	836.59	0.0000	0.00
30	861.23	861.06	0.0000	0.00
31	911.78	911.58	0.0000	0.00
32	964.24	964.02	0.0000	0.00
33	969.64	969.42	0.0000	0.00
34	1121.60	1121.31	0.0000	0.00
35	1156.33	1156.03	0.0000	0.00
36	1360.69	1360.31	0.0000	0.00
37	1406.77	1406.37	0.0000	0.00
38	1461.57	1461.15	0.0000	0.00
39	1524.12	1523.68	0.0000	0.00
40	1531.28	1530.83	0.0000	0.00
41	1621.00	1620.52	0.0000	0.00
42	1684.04	1683.54	0.0000	0.00

Analysis Report for 1510093-08  
CP5002S13-14

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1730.64	1730.13	0.0000	0.00
44	1765.06	1764.53	0.0000	0.00
45	1847.80	1847.24	0.0000	0.00
46	1912.18	1911.60	0.0000	0.00
47	2105.25	2104.61	0.0000	0.00
48	2203.66	2202.99	0.0000	0.00
49	2212.88	2212.21	0.0000	0.00
50	2327.42	2326.71	0.0000	0.00
51	2448.61	2447.88	0.0000	0.00
52	2615.81	2615.03	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-08  
CP5002S13-14

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 12:35:21PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	76.33	71 - 81	76.55	1.26E+03	158.40	2.65E+03	3.88
M	2	85.11	82 - 97	85.32	1.78E+02	83.94	1.14E+03	1.85
m	3	89.64	82 - 97	89.85	1.50E+02	74.85	9.03E+02	1.69
m	4	93.12	82 - 97	93.32	2.83E+02	81.84	1.01E+03	1.86
	5	128.40	123 - 133	128.59	9.40E+01	111.64	1.61E+03	2.47
	6	186.01	182 - 190	186.16	1.95E+02	80.15	8.68E+02	1.98
	7	209.33	206 - 213	209.47	7.25E+01	68.70	7.43E+02	1.50
M	8	238.97	235 - 247	239.10	8.15E+02	67.93	3.50E+02	1.78
m	9	242.23	235 - 247	242.36	1.99E+02	74.21	3.57E+02	2.08
	10	252.66	249 - 256	252.78	6.14E+01	51.58	3.99E+02	2.15
	11	259.01	257 - 262	259.13	3.99E+01	42.18	3.28E+02	2.85
	12	270.49	266 - 274	270.61	8.93E+01	61.43	5.23E+02	1.93
	13	277.90	275 - 281	278.01	5.00E+01	47.10	3.66E+02	1.51
	14	284.70	282 - 288	284.80	3.75E+01	46.19	3.61E+02	3.04
	15	295.50	292 - 299	295.60	2.39E+02	61.29	4.71E+02	1.74
	16	328.49	325 - 331	328.57	5.64E+01	41.03	2.57E+02	1.99
	17	338.86	335 - 344	338.94	1.74E+02	59.30	3.99E+02	1.86
M	18	348.55	346 - 360	348.62	2.38E+01	30.53	2.05E+02	2.20
m	19	352.30	346 - 360	352.37	4.64E+02	53.41	2.14E+02	1.85
	20	410.71	409 - 413	410.75	2.85E+01	28.13	1.45E+02	2.11
	21	487.81	484 - 491	487.81	2.75E+01	34.81	1.83E+02	2.10
	22	510.95	506 - 514	510.94	1.59E+02	42.83	1.84E+02	2.19
	23	572.09	569 - 575	572.06	2.60E+01	28.52	1.28E+02	3.50
	24	583.77	579 - 588	583.72	2.16E+02	47.41	1.93E+02	2.15
	25	609.88	605 - 614	609.82	2.94E+02	53.13	2.36E+02	1.62
	26	638.03	636 - 640	637.96	1.60E+01	20.84	8.19E+01	2.72
	27	728.17	724 - 732	728.05	6.15E+01	34.82	1.49E+02	1.97
	28	795.36	791 - 798	795.22	3.03E+01	29.33	1.21E+02	1.78
	29	836.75	831 - 843	836.59	4.43E+01	35.85	1.31E+02	5.46
	30	861.23	855 - 865	861.06	4.32E+01	32.83	1.20E+02	7.38
	31	911.78	907 - 915	911.58	1.39E+02	34.19	9.40E+01	2.10
M	32	964.24	962 - 982	964.02	2.96E+01	14.70	3.26E+01	3.21
m	33	969.64	962 - 982	969.42	7.90E+01	27.14	6.26E+01	2.30
	34	1121.60	1117 - 1126	1121.31	6.76E+01	30.98	9.48E+01	2.13
	35	1156.33	1153 - 1159	1156.03	1.82E+01	22.58	7.76E+01	2.68
	36	1360.69	1358 - 1362	1360.31	1.13E+01	9.76	9.38E+00	1.49
	37	1406.77	1400 - 1412	1406.37	2.64E+01	16.33	1.71E+01	7.05
	38	1461.57	1455 - 1467	1461.15	5.18E+02	49.01	3.90E+01	2.32
	39	1524.12	1521 - 1526	1523.68	9.36E+00	7.28	3.27E+00	2.84
	40	1531.28	1528 - 1533	1530.83	5.00E+00	7.07	6.00E+00	3.03

Analysis Report for 1510093-08  
CP5002S13-14

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1621.00	1617 - 1624		1620.52	9.75E+00	10.58	1.25E+01	3.21
42	1684.04	1679 - 1690		1683.54	1.64E+01	10.77	7.10E+00	6.24
43	1730.64	1726 - 1735		1730.13	1.60E+01	8.00	0.00E+00	2.53
44	1765.06	1759 - 1770		1764.53	4.67E+01	20.69	3.05E+01	1.84
45	1847.80	1840 - 1851		1847.24	9.95E+00	13.56	1.81E+01	3.35
46	1912.18	1908 - 1914		1911.60	5.00E+00	4.47	0.00E+00	1.24
47	2105.25	2100 - 2111		2104.61	2.80E+01	10.58	0.00E+00	3.46
48	2203.66	2199 - 2205		2202.99	1.29E+01	10.43	1.02E+01	2.45
49	2212.88	2209 - 2215		2212.21	7.50E+00	6.95	3.00E+00	1.60
50	2327.42	2321 - 2330		2326.71	8.27E+00	8.31	5.45E+00	3.64
51	2448.61	2444 - 2451		2447.88	8.00E+00	5.66	0.00E+00	2.22
52	2615.81	2610 - 2619		2615.03	7.45E+01	18.25	4.94E+00	2.13

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

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 12:35:21PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	76.33	71 - 81	1.26E+03	158.40	2.65E+03	1.16E+02
M	2	85.11	82 - 97	1.78E+02	83.94	1.14E+03	5.56E+01
m	3	89.64	82 - 97	1.50E+02	74.85	9.03E+02	4.94E+01
m	4	93.12	82 - 97	2.83E+02	81.84	1.01E+03	5.22E+01
	5	128.40	123 - 133	9.40E+01	111.64	1.61E+03	9.04E+01
	6	186.01	182 - 190	1.95E+02	80.15	8.68E+02	6.18E+01
	7	209.33	206 - 213	7.25E+01	68.70	7.43E+02	5.47E+01
M	8	238.97	235 - 247	8.15E+02	67.93	3.50E+02	3.08E+01
m	9	242.23	235 - 247	1.99E+02	74.21	3.57E+02	3.11E+01
	10	252.66	249 - 256	6.14E+01	51.58	3.99E+02	4.04E+01
	11	259.01	257 - 262	3.99E+01	42.18	3.28E+02	3.31E+01
	12	270.49	266 - 274	8.93E+01	61.43	5.23E+02	2.57E+01
	13	277.90	275 - 281	5.00E+01	47.10	3.66E+02	3.69E+01
	14	284.70	282 - 288	3.75E+01	46.19	3.61E+02	3.66E+01
	15	295.50	292 - 299	2.39E+02	61.29	4.71E+02	4.35E+01
	16	328.49	325 - 331	5.64E+01	41.03	2.57E+02	3.14E+01

: 00590

Analysis Report for 1510093-08

CP5002S13-14

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	17	338.86	335 -	344	1.74E+02	59.30	3.99E+02	4.37E+01
M	18	348.55	346 -	360	2.38E+01	30.53	2.05E+02	2.35E+01
m	19	352.30	346 -	360	4.64E+02	53.41	2.14E+02	2.41E+01
	20	410.71	409 -	413	2.85E+01	28.13	1.45E+02	2.14E+01
	21	487.81	484 -	491	2.75E+01	34.81	1.83E+02	2.73E+01
	22	510.95	506 -	514	1.59E+02	42.83	1.84E+02	1.48E+01
	23	572.09	569 -	575	2.60E+01	28.52	1.28E+02	2.19E+01
	24	583.77	579 -	588	2.16E+02	47.41	1.93E+02	3.06E+01
	25	609.88	605 -	614	2.94E+02	53.13	2.36E+02	3.34E+01
	26	638.03	636 -	640	1.60E+01	20.84	8.19E+01	1.58E+01
	27	728.17	724 -	732	6.15E+01	34.82	1.49E+02	2.56E+01
	28	795.36	791 -	798	3.03E+01	29.33	1.21E+02	2.23E+01
	29	836.75	831 -	843	4.43E+01	35.85	1.31E+02	2.74E+01
	30	861.23	855 -	865	4.32E+01	32.83	1.20E+02	2.47E+01
	31	911.78	907 -	915	1.39E+02	34.19	9.40E+01	2.04E+01
M	32	964.24	962 -	982	2.96E+01	14.70	3.26E+01	9.39E+00
m	33	969.64	962 -	982	7.90E+01	27.14	6.26E+01	1.30E+01
	34	1121.60	1117 -	1126	6.76E+01	30.98	9.48E+01	2.16E+01
	35	1156.33	1153 -	1159	1.82E+01	22.58	7.76E+01	1.72E+01
	36	1360.69	1358 -	1362	1.13E+01	9.76	9.38E+00	5.81E+00
	37	1406.77	1400 -	1412	2.64E+01	16.33	1.71E+01	1.04E+01
	38	1461.57	1455 -	1467	5.18E+02	49.01	3.90E+01	1.50E+01
	39	1524.12	1521 -	1526	9.36E+00	7.28	3.27E+00	3.24E+00
	40	1531.28	1528 -	1533	5.00E+00	7.07	6.00E+00	4.50E+00
	41	1621.00	1617 -	1624	9.75E+00	10.58	1.25E+01	7.02E+00
	42	1684.04	1679 -	1690	1.64E+01	10.77	7.10E+00	5.82E+00
	43	1730.64	1726 -	1735	1.60E+01	8.00	0.00E+00	0.00E+00
	44	1765.06	1759 -	1770	4.67E+01	20.69	3.05E+01	1.28E+01
	45	1847.80	1840 -	1851	9.95E+00	13.56	1.81E+01	9.87E+00
	46	1912.18	1908 -	1914	5.00E+00	4.47	0.00E+00	0.00E+00
	47	2105.25	2100 -	2111	2.80E+01	10.58	0.00E+00	0.00E+00
	48	2203.66	2199 -	2205	1.29E+01	10.43	1.02E+01	6.21E+00
	49	2212.88	2209 -	2215	7.50E+00	6.95	3.00E+00	3.51E+00
	50	2327.42	2321 -	2330	8.27E+00	8.31	5.45E+00	4.93E+00
	51	2448.61	2444 -	2451	8.00E+00	5.66	0.00E+00	0.00E+00
	52	2615.81	2610 -	2619	7.45E+01	18.25	4.94E+00	4.85E+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 1510093-08  
CP5002S13-14

## PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 12:35:21PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	76.33	71 - 81	76.55	1.26E+03	158.40	2.65E+03	.....
M	2	85.11	82 - 97	85.32	1.78E+02	83.94	1.14E+03	TH-231
m	3	89.64	82 - 97	89.85	1.50E+02	74.85	9.03E+02	.....
m	4	93.12	82 - 97	93.32	2.83E+02	81.84	1.01E+03	GA-67
	5	128.40	123 - 133	128.59	9.40E+01	111.64	1.61E+03	.....
	6	186.01	182 - 190	186.16	1.95E+02	80.15	8.68E+02	RA-226
	7	209.33	206 - 213	209.47	7.25E+01	68.70	7.43E+02	GA-67 CM-243
M	8	238.97	235 - 247	239.10	8.15E+02	67.93	3.50E+02	PB-212
m	9	242.23	235 - 247	242.36	1.99E+02	74.21	3.57E+02	.....
	10	252.66	249 - 256	252.78	6.14E+01	51.58	3.99E+02	.....
	11	259.01	257 - 262	259.13	3.99E+01	42.18	3.28E+02	.....
	12	270.49	266 - 274	270.61	8.93E+01	61.43	5.23E+02	.....
	13	277.90	275 - 281	278.01	5.00E+01	47.10	3.66E+02	CM-243 NP-239
	14	284.70	282 - 288	284.80	3.75E+01	46.19	3.61E+02	I-131
	15	295.50	292 - 299	295.60	2.39E+02	61.29	4.71E+02	PB-214
	16	328.49	325 - 331	328.57	5.64E+01	41.03	2.57E+02	LA-140
	17	338.86	335 - 344	338.94	1.74E+02	59.30	3.99E+02	AC-228
M	18	348.55	346 - 360	348.62	2.38E+01	30.53	2.05E+02	.....
m	19	352.30	346 - 360	352.37	4.64E+02	53.41	2.14E+02	PB-214
	20	410.71	409 - 413	410.75	2.85E+01	28.13	1.45E+02	HO-166M
	21	487.81	484 - 491	487.81	2.75E+01	34.81	1.83E+02	LA-140
	22	510.95	506 - 514	510.94	1.59E+02	42.83	1.84E+02	.....
	23	572.09	569 - 575	572.06	2.60E+01	28.52	1.28E+02	.....
	24	583.77	579 - 588	583.72	2.16E+02	47.41	1.93E+02	TL-208
	25	609.88	605 - 614	609.82	2.94E+02	53.13	2.36E+02	BI-214
	26	638.03	636 - 640	637.96	1.60E+01	20.84	8.19E+01	.....
	27	728.17	724 - 732	728.05	6.15E+01	34.82	1.49E+02	BI-212
	28	795.36	791 - 798	795.22	3.03E+01	29.33	1.21E+02	CS-134
	29	836.75	831 - 843	836.59	4.43E+01	35.85	1.31E+02	.....
	30	861.23	855 - 865	861.06	4.32E+01	32.83	1.20E+02	TL-208
	31	911.78	907 - 915	911.58	1.39E+02	34.19	9.40E+01	LU-172 AC-228
M	32	964.24	962 - 982	964.02	2.96E+01	14.70	3.26E+01	EU-152
m	33	969.64	962 - 982	969.42	7.90E+01	27.14	6.26E+01	AC-228
	34	1121.60	1117 - 1126	1121.31	6.76E+01	30.98	9.48E+01	TA-182
	35	1156.33	1153 - 1159	1156.03	1.82E+01	22.58	7.76E+01	.....
	36	1360.69	1358 - 1362	1360.31	1.13E+01	9.76	9.38E+00	.....
	37	1406.77	1400 - 1412	1406.37	2.64E+01	16.33	1.71E+01	.....
	38	1461.57	1455 - 1467	1461.15	5.18E+02	49.01	3.90E+01	K-40



Analysis Report for 1510093-08  
CP5002S13-14

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
39	1524.12	1521 -	1526	1523.68	9.36E+00	7.28	3.27E+00	.....
40	1531.28	1528 -	1533	1530.83	5.00E+00	7.07	6.00E+00	.....
41	1621.00	1617 -	1624	1620.52	9.75E+00	10.58	1.25E+01	BI-212
42	1684.04	1679 -	1690	1683.54	1.64E+01	10.77	7.10E+00	.....
43	1730.64	1726 -	1735	1730.13	1.60E+01	8.00	0.00E+00	.....
44	1765.06	1759 -	1770	1764.53	4.67E+01	20.69	3.05E+01	BI-214
45	1847.80	1840 -	1851	1847.24	9.95E+00	13.56	1.81E+01	.....
46	1912.18	1908 -	1914	1911.60	5.00E+00	4.47	0.00E+00	.....
47	2105.25	2100 -	2111	2104.61	2.80E+01	10.58	0.00E+00	.....
48	2203.66	2199 -	2205	2202.99	1.29E+01	10.43	1.02E+01	BI-214
49	2212.88	2209 -	2215	2212.21	7.50E+00	6.95	3.00E+00	.....
50	2327.42	2321 -	2330	2326.71	8.27E+00	8.31	5.45E+00	.....
51	2448.61	2444 -	2451	2447.88	8.00E+00	5.66	0.00E+00	.....
52	2615.81	2610 -	2619	2615.03	7.45E+01	18.25	4.94E+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 : 11/11/2015 12:35:21PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.33	1.26E+03	158.40	2.38E-02	2.14E-03
M	2	85.11	1.78E+02	83.94	2.43E-02	2.43E-03
m	3	89.64	1.50E+02	74.85	2.44E-02	2.49E-03
m	4	93.12	2.83E+02	81.84	2.44E-02	2.41E-03
	5	128.40	9.40E+01	111.64	2.26E-02	1.70E-03
	6	186.01	1.95E+02	80.15	1.83E-02	1.42E-03
	7	209.33	7.25E+01	68.70	1.68E-02	1.31E-03
M	8	238.97	8.15E+02	67.93	1.52E-02	1.18E-03
m	9	242.23	1.99E+02	74.21	1.50E-02	1.16E-03
	10	252.66	6.14E+01	51.58	1.46E-02	1.12E-03
	11	259.01	3.99E+01	42.18	1.43E-02	1.09E-03
	12	270.49	8.93E+01	61.43	1.38E-02	1.04E-03
	13	277.90	5.00E+01	47.10	1.35E-02	1.00E-03
	14	284.70	3.75E+01	46.19	1.32E-02	9.89E-04
	15	295.50	2.39E+02	61.29	1.28E-02	9.74E-04
	16	328.49	5.64E+01	41.03	1.17E-02	9.27E-04

: 00593

Analysis Report for 1510093-08  
CP5002S13-14

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	17	338.86	1.74E+02	59.30	1.14E-02	9.12E-04
M	18	348.55	2.38E+01	30.53	1.12E-02	8.98E-04
m	19	352.30	4.64E+02	53.41	1.11E-02	8.93E-04
	20	410.71	2.85E+01	28.13	9.69E-03	8.18E-04
	21	487.81	2.75E+01	34.81	8.34E-03	7.41E-04
	22	510.95	1.59E+02	42.83	8.01E-03	7.18E-04
	23	572.09	2.60E+01	28.52	7.26E-03	6.57E-04
	24	583.77	2.16E+02	47.41	7.13E-03	6.46E-04
	25	609.88	2.94E+02	53.13	6.87E-03	6.20E-04
	26	638.03	1.60E+01	20.84	6.60E-03	5.91E-04
	27	728.17	6.15E+01	34.82	5.88E-03	5.13E-04
	28	795.36	3.03E+01	29.33	5.45E-03	4.59E-04
	29	836.75	4.43E+01	35.85	5.22E-03	4.25E-04
	30	861.23	4.32E+01	32.83	5.09E-03	4.05E-04
	31	911.78	1.39E+02	34.19	4.85E-03	3.72E-04
M	32	964.24	2.96E+01	14.70	4.62E-03	3.62E-04
m	33	969.64	7.90E+01	27.14	4.60E-03	3.61E-04
	34	1121.60	6.76E+01	30.98	4.07E-03	3.33E-04
	35	1156.33	1.82E+01	22.58	3.97E-03	3.27E-04
	36	1360.69	1.13E+01	9.76	3.48E-03	2.84E-04
	37	1406.77	2.64E+01	16.33	3.39E-03	2.77E-04
	38	1461.57	5.18E+02	49.01	3.29E-03	2.69E-04
	39	1524.12	9.36E+00	7.28	3.19E-03	2.60E-04
	40	1531.28	5.00E+00	7.07	3.17E-03	2.59E-04
	41	1621.00	9.75E+00	10.58	3.04E-03	2.45E-04
	42	1684.04	1.64E+01	10.77	2.96E-03	2.36E-04
	43	1730.64	1.60E+01	8.00	2.90E-03	2.29E-04
	44	1765.06	4.67E+01	20.69	2.86E-03	2.24E-04
	45	1847.80	9.95E+00	13.56	2.77E-03	2.13E-04
	46	1912.18	5.00E+00	4.47	2.70E-03	2.13E-04
	47	2105.25	2.80E+01	10.58	2.53E-03	2.13E-04
	48	2203.66	1.29E+01	10.43	2.46E-03	2.13E-04
	49	2212.88	7.50E+00	6.95	2.46E-03	2.13E-04
	50	2327.42	8.27E+00	8.31	2.38E-03	2.13E-04
	51	2448.61	8.00E+00	5.66	2.32E-03	2.13E-04
	52	2615.81	7.45E+01	18.25	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 : 11/11/2015 12:35:21PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028943.CNF

: 00594

Analysis Report for 1510093-08  
CP5002S13-14

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.33	1.26E+03	158.40			1.26E+03	1.58E+02
M	2	85.11	1.78E+02	83.94	8.68E+00	4.43E+00	1.69E+02	8.41E+01
m	3	89.64	1.50E+02	74.85			1.50E+02	7.48E+01
m	4	93.12	2.83E+02	81.84	9.04E+01	2.62E+01	1.92E+02	8.59E+01
	5	128.40	9.40E+01	111.64			9.40E+01	1.12E+02
	6	186.01	1.95E+02	80.15	3.93E+01	6.56E+00	1.56E+02	8.04E+01
	7	209.33	7.25E+01	68.70			7.25E+01	6.87E+01
M	8	238.97	8.15E+02	67.93	1.34E+01	2.14E+00	8.02E+02	6.80E+01
m	9	242.23	1.99E+02	74.21	2.69E+00	1.46E+00	1.97E+02	7.42E+01
	10	252.66	6.14E+01	51.58			6.14E+01	5.16E+01
	11	259.01	3.99E+01	42.18			3.99E+01	4.22E+01
	12	270.49	8.93E+01	61.43			8.93E+01	6.14E+01
	13	277.90	5.00E+01	47.10			5.00E+01	4.71E+01
	14	284.70	3.75E+01	46.19			3.75E+01	4.62E+01
	15	295.50	2.39E+02	61.29			2.39E+02	6.13E+01
	16	328.49	5.64E+01	41.03			5.64E+01	4.10E+01
	17	338.86	1.74E+02	59.30			1.74E+02	5.93E+01
M	18	348.55	2.38E+01	30.53			2.38E+01	3.05E+01
m	19	352.30	4.64E+02	53.41	3.99E+00	4.73E+00	4.60E+02	5.36E+01
	20	410.71	2.85E+01	28.13			2.85E+01	2.81E+01
	21	487.81	2.75E+01	34.81			2.75E+01	3.48E+01
	22	510.95	1.59E+02	42.83	5.78E+01	4.60E+00	1.01E+02	4.31E+01
	23	572.09	2.60E+01	28.52			2.60E+01	2.85E+01
	24	583.77	2.16E+02	47.41	5.96E+00	3.46E+00	2.10E+02	4.75E+01
	25	609.88	2.94E+02	53.13	6.71E+00	3.44E+00	2.88E+02	5.32E+01
	26	638.03	1.60E+01	20.84			1.60E+01	2.08E+01
	27	728.17	6.15E+01	34.82			6.15E+01	3.48E+01
	28	795.36	3.03E+01	29.33			3.03E+01	2.93E+01
	29	836.75	4.43E+01	35.85			4.43E+01	3.58E+01
	30	861.23	4.32E+01	32.83			4.32E+01	3.28E+01
	31	911.78	1.39E+02	34.19			1.39E+02	3.42E+01
M	32	964.24	2.96E+01	14.70			2.96E+01	1.47E+01
m	33	969.64	7.90E+01	27.14			7.90E+01	2.71E+01
	34	1121.60	6.76E+01	30.98			6.76E+01	3.10E+01
	35	1156.33	1.82E+01	22.58			1.82E+01	2.26E+01
	36	1360.69	1.13E+01	9.76	0.00E+00	0.00E+00	1.13E+01	9.76E+00
	37	1406.77	2.64E+01	16.33			2.64E+01	1.63E+01
	38	1461.57	5.18E+02	49.01			5.18E+02	4.90E+01
	39	1524.12	9.36E+00	7.28			9.36E+00	7.28E+00
	40	1531.28	5.00E+00	7.07			5.00E+00	7.07E+00
	41	1621.00	9.75E+00	10.58			9.75E+00	1.06E+01
	42	1684.04	1.64E+01	10.77			1.64E+01	1.08E+01
	43	1730.64	1.60E+01	8.00			1.60E+01	8.00E+00
	44	1765.06	4.67E+01	20.69	1.45E+00	1.16E+00	4.53E+01	2.07E+01
	45	1847.80	9.95E+00	13.56			9.95E+00	1.36E+01
	46	1912.18	5.00E+00	4.47			5.00E+00	4.47E+00
	47	2105.25	2.80E+01	10.58			2.80E+01	1.06E+01
	48	2203.66	1.29E+01	10.43			1.29E+01	1.04E+01
	49	2212.88	7.50E+00	6.95			7.50E+00	6.95E+00
	50	2327.42	8.27E+00	8.31			8.27E+00	8.31E+00
	51	2448.61	8.00E+00	5.66			8.00E+00	5.66E+00

Analysis Report for 1510093-08  
 CP5002S13-14

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
52	2615.81	7.45E+01	18.25			7.45E+01	1.82E+01

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

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 12:35:21PM  
 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	76.33	1.26E+03			1.26E+03	1.58E+02
M	2	85.11	1.78E+02			1.69E+02	8.41E+01
m	3	89.64	1.50E+02	8.68E+00	4.43E+00	1.50E+02	7.48E+01
m	4	93.12	2.83E+02	9.04E+01	2.62E+01	1.92E+02	8.59E+01
	5	128.40	9.40E+01			9.40E+01	1.12E+02
	6	186.01	1.95E+02	3.93E+01	6.56E+00	1.56E+02	8.04E+01
	7	209.33	7.25E+01			7.25E+01	6.87E+01
M	8	238.97	8.15E+02	1.34E+01	2.14E+00	8.02E+02	6.80E+01
m	9	242.23	1.99E+02	2.69E+00	1.46E+00	1.97E+02	7.42E+01
	10	252.66	6.14E+01			6.14E+01	5.16E+01
	11	259.01	3.99E+01			3.99E+01	4.22E+01
	12	270.49	8.93E+01			8.93E+01	6.14E+01
	13	277.90	5.00E+01			5.00E+01	4.71E+01
	14	284.70	3.75E+01			3.75E+01	4.62E+01
	15	295.50	2.39E+02			2.39E+02	6.13E+01
	16	328.49	5.64E+01			5.64E+01	4.10E+01
	17	338.86	1.74E+02			1.74E+02	5.93E+01
M	18	348.55	2.38E+01			2.38E+01	3.05E+01
m	19	352.30	4.64E+02	3.99E+00	4.73E+00	4.60E+02	5.36E+01
	20	410.71	2.85E+01			2.85E+01	2.81E+01
	21	487.81	2.75E+01			2.75E+01	3.48E+01
	22	510.95	1.59E+02	5.78E+01	4.60E+00	1.01E+02	4.31E+01
	23	572.09	2.60E+01			2.60E+01	2.85E+01
	24	583.77	2.16E+02	5.96E+00	3.46E+00	2.10E+02	4.75E+01
	25	609.88	2.94E+02	6.71E+00	3.44E+00	2.88E+02	5.32E+01
	26	638.03	1.60E+01			1.60E+01	2.08E+01
	27	728.17	6.15E+01			6.15E+01	3.48E+01

Analysis Report for 1510093-08  
CP5002S13-14

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
28	795.36	3.03E+01	29.33			3.03E+01	2.93E+01
29	836.75	4.43E+01	35.85			4.43E+01	3.58E+01
30	861.23	4.32E+01	32.83			4.32E+01	3.28E+01
31	911.78	1.39E+02	34.19			1.39E+02	3.42E+01
M 32	964.24	2.96E+01	14.70			2.96E+01	1.47E+01
m 33	969.64	7.90E+01	27.14			7.90E+01	2.71E+01
34	1121.60	6.76E+01	30.98			6.76E+01	3.10E+01
35	1156.33	1.82E+01	22.58			1.82E+01	2.26E+01
36	1360.69	1.13E+01	9.76	0.00E+00	0.00E+00	1.13E+01	9.76E+00
37	1406.77	2.64E+01	16.33			2.64E+01	1.63E+01
38	1461.57	5.18E+02	49.01			5.18E+02	4.90E+01
39	1524.12	9.36E+00	7.28			9.36E+00	7.28E+00
40	1531.28	5.00E+00	7.07			5.00E+00	7.07E+00
41	1621.00	9.75E+00	10.58			9.75E+00	1.06E+01
42	1684.04	1.64E+01	10.77			1.64E+01	1.08E+01
43	1730.64	1.60E+01	8.00			1.60E+01	8.00E+00
44	1765.06	4.67E+01	20.69	1.45E+00	1.16E+00	4.53E+01	2.07E+01
45	1847.80	9.95E+00	13.56			9.95E+00	1.36E+01
46	1912.18	5.00E+00	4.47			5.00E+00	4.47E+00
47	2105.25	2.80E+01	10.58			2.80E+01	1.06E+01
48	2203.66	1.29E+01	10.43			1.29E+01	1.04E+01
49	2212.88	7.50E+00	6.95			7.50E+00	6.95E+00
50	2327.42	8.27E+00	8.31			8.27E+00	8.31E+00
51	2448.61	8.00E+00	5.66			8.00E+00	5.66E+00
52	2615.81	7.45E+01	18.25			7.45E+01	1.82E+01

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.911	1460.81	*	10.67	2.14E+01	2.72E+00
GA-67	0.358	93.31	*	35.70	4.59E+02	2.12E+03
		208.95	*	2.24	4.01E+03	1.83E+04
		300.22		16.00		
TL-208	0.372	583.14	*	30.22	1.41E+00	3.45E-01
		860.37	*	4.48	2.75E+00	2.10E+00

Analysis Report for 1510093-08  
 CP5002S13-14

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.372	2614.66	35.85		
BI-212	0.875	727.17 *	11.80	1.29E+00	7.38E-01
		1620.62 *	2.75	1.70E+00	1.85E+00
PB-212	0.878	238.63 *	44.60	1.72E+00	1.98E-01
		300.09	3.41		
BI-214	0.697	609.31 *	46.30	1.32E+00	2.71E-01
		1120.29	15.10		
		1764.49 *	15.80	1.46E+00	6.77E-01
		2204.22 *	4.98	1.53E+00	1.24E+00
PB-214	0.981	295.21 *	19.19	1.42E+00	3.78E-01
		351.92 *	37.19	1.63E+00	2.31E-01
RA-226	0.993	186.21 *	3.28	3.77E+00	7.18E+00
AC-228	0.939	338.32 *	11.40	1.94E+00	6.80E-01
		911.07 *	27.70	1.50E+00	3.88E-01
		969.11 *	16.60	1.50E+00	5.30E-01
CM-243	0.360	209.75 *	3.29	1.91E+00	1.82E+00
		228.14	10.60		
		277.60 *	14.00	3.87E-01	3.65E-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 : 11/11/2015 12:35:21PM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.33	3.49454E-01		
M	2	85.11	4.69593E-02		
m	3	89.64	4.16448E-02		
	5	128.40	2.61194E-02		
m	9	242.23	5.46447E-02		
	10	252.66	1.70498E-02		
	11	259.01	1.10825E-02		
	12	270.49	2.47970E-02		
	14	284.70	1.04116E-02	Tol.	I-131
	16	328.49	1.56757E-02	Tol.	LA-140
M	18	348.55	6.61592E-03		

Analysis Report for 1510093-08  
CP5002S13-14

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
20	410.71	7.90429E-03	49.43	Tol.	HO-166M
21	487.81	7.63772E-03	63.31	Sum	
22	510.95	2.80650E-02	21.32		
23	572.09	7.22685E-03	54.81		
26	638.03	4.45663E-03	64.94		
28	795.36	8.40812E-03	48.44	Sum	
29	836.75	1.22955E-02	40.49		
M 32	964.24	8.23470E-03	24.79	Tol.	EU-152
34	1121.60	1.87729E-02	22.92	Sum	
35	1156.33	5.06092E-03	61.96	Sum	
36	1360.69	3.14236E-03	43.14		
37	1406.77	7.34127E-03	30.90		
39	1524.12	2.60101E-03	38.87		
40	1531.28	1.38889E-03	70.71		
42	1684.04	4.56944E-03	32.74		
43	1730.64	4.44444E-03	25.00		
45	1847.80	2.76316E-03	68.18		
46	1912.18	1.38889E-03	44.72		
47	2105.25	7.77778E-03	18.90		
49	2212.88	2.08333E-03	46.31		
50	2327.42	2.29798E-03	50.20		
51	2448.61	2.22222E-03	35.36		
52	2615.81	2.07035E-02	12.24		

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.91	1460.81 *	10.67	2.14E+01	2.72E+00
GA-67	0.35	93.31 *	35.70	4.59E+02	2.12E+03
		208.95 *	2.24	4.01E+03	1.83E+04
		300.22	16.00		
TL-208	0.37	583.14 *	30.22	1.41E+00	3.45E-01

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Analysis Report for 1510093-08  
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Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.37	860.37 *	4.48	2.75E+00	2.10E+00
		2614.66	35.85		
BI-212	0.87	727.17 *	11.80	1.29E+00	7.38E-01
		1620.62 *	2.75	1.70E+00	1.85E+00
PB-212	0.87	238.63 *	44.60	1.72E+00	1.98E-01
		300.09	3.41		
BI-214	0.69	609.31 *	46.30	1.32E+00	2.71E-01
		1120.29	15.10		
		1764.49 *	15.80	1.46E+00	6.77E-01
		2204.22 *	4.98	1.53E+00	1.24E+00
PB-214	0.98	295.21 *	19.19	1.42E+00	3.78E-01
		351.92 *	37.19	1.63E+00	2.31E-01
RA-226	0.99	186.21 *	3.28	3.77E+00	7.18E+00
AC-228	0.93	338.32 *	11.40	1.94E+00	6.80E-01
		911.07 *	27.70	1.50E+00	3.88E-01
		969.11 *	16.60	1.50E+00	5.30E-01
CM-243	0.36	209.75 *	3.29	1.91E+00	1.82E+00
		228.14	10.60		
		277.60 *	14.00	3.87E-01	3.65E-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	0.911	2.14E+01	2.72E+00	
GA-67	0.358	4.67E+02	2.09E+03	
TL-208	0.372	1.45E+00	3.41E-01	
BI-212	0.875	1.34E+00	6.85E-01	
PB-212	0.878	1.72E+00	1.98E-01	
BI-214	0.697	1.34E+00	2.47E-01	
PB-214	0.981	1.57E+00	1.97E-01	
RA-226	0.993	3.77E+00	7.18E+00	



Analysis Report for 1510093-08  
CP5002S13-14

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
AC-228	0.939	1.58E+00	2.84E-01	
CM-243	0.360	4.37E-01	3.58E-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 1510093-08  
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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 12:35:21PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.33	3.49454E-01	6.30	
M	2	85.11	4.69593E-02	24.86	Tol. TH-231
m	3	89.64	4.16448E-02	24.96	
	5	128.40	2.61194E-02	59.36	
m	9	242.23	5.46447E-02	18.87	
	10	252.66	1.70498E-02	42.01	
	11	259.01	1.10825E-02	52.86	
	12	270.49	2.47970E-02	34.41	
	14	284.70	1.04116E-02	61.62	Tol. I-131
	16	328.49	1.56757E-02	36.35	Tol. LA-140
M	18	348.55	6.61592E-03	64.10	
	20	410.71	7.90429E-03	49.43	Tol. HO-166M
	21	487.81	7.63772E-03	63.31	Sum
	22	510.95	2.80650E-02	21.32	
	23	572.09	7.22685E-03	54.81	
	26	638.03	4.45663E-03	64.94	
	28	795.36	8.40812E-03	48.44	Sum
	29	836.75	1.22955E-02	40.49	
M	32	964.24	8.23470E-03	24.79	Tol. EU-152
	34	1121.60	1.87729E-02	22.92	Sum
	35	1156.33	5.06092E-03	61.96	Sum
	36	1360.69	3.14236E-03	43.14	
	37	1406.77	7.34127E-03	30.90	
	39	1524.12	2.60101E-03	38.87	
	40	1531.28	1.38889E-03	70.71	
	42	1684.04	4.56944E-03	32.74	
	43	1730.64	4.44444E-03	25.00	
	45	1847.80	2.76316E-03	68.18	
	46	1912.18	1.38889E-03	44.72	
	47	2105.25	7.77778E-03	18.90	
	49	2212.88	2.08333E-03	46.31	
	50	2327.42	2.29798E-03	50.20	
	51	2448.61	2.22222E-03	35.36	
	52	2615.81	2.07035E-02	12.24	

Analysis Report for 1510093-08  
CP5002S13-14

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	1.68E-01	1.30E+00	1.30E+00
+	NA-22	1274.54	99.94	1.19E-03	1.32E-01	1.32E-01
+	NA-24	1368.53	99.99	1.68E+15	2.11E+15	3.31E+15
		2754.09	99.86	4.35E+14		2.11E+15
+	AL-26	1808.65	99.76	9.04E-03	8.65E-02	8.65E-02
+	K-40	1460.81	* 10.67	2.14E+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	3.37E-02	8.73E-02	8.73E-02
		78.34	96.00	2.69E-01		1.05E-01
+	SC-46	889.25	99.98	-2.73E-02	1.37E-01	1.37E-01
		1120.51	99.99	1.95E-01		2.26E-01
+	V-48	983.52	99.98	3.53E-03	4.88E-01	4.88E-01
		1312.10	97.50	-9.95E-02		5.69E-01
+	CR-51	320.08	9.83	1.55E-01	1.90E+00	1.90E+00
+	MN-54	834.83	99.97	4.23E-02	1.20E-01	1.20E-01
+	CO-56	846.75	99.96	1.05E-02	1.43E-01	1.43E-01
		1037.75	14.03	-5.02E-01		1.07E+00
		1238.25	67.00	1.34E-01		3.36E-01
		1771.40	15.51	0.00E+00		7.41E-01
		2598.48	16.90	2.07E-01		6.22E-01
+	CO-57	122.06	85.51	2.33E-03	7.32E-02	7.32E-02
		136.48	10.60	-1.23E-01		5.90E-01
+	CO-58	810.76	99.40	-4.04E-02	1.29E-01	1.29E-01
+	FE-59	1099.22	56.50	8.96E-02	3.90E-01	3.90E-01
		1291.56	43.20	-1.36E-01		5.01E-01
+	CO-60	1173.22	100.00	2.72E-02	9.10E-02	1.27E-01
		1332.49	100.00	-9.77E-02		9.10E-02
+	ZN-65	1115.52	50.75	-6.21E-02	2.59E-01	2.59E-01
+	GA-67	93.31	* 35.70	4.59E+02	6.43E+02	6.43E+02
		208.95	* 2.24	4.01E+03		6.21E+03
		300.22	16.00	4.04E+02		7.82E+02
+	SE-75	121.11	16.70	-1.36E-02	1.21E-01	4.17E-01

Analysis Report for 1510093-08  
CP5002S13-14

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	SE-75	136.00	59.20	2.49E-02	1.21E-01
		264.65	59.80	2.78E-02	1.53E-01
		279.53	25.20	-7.24E-02	3.84E-01
		400.65	11.40	2.96E-01	9.50E-01
+	RB-82	776.52	13.00	-1.15E+00	1.81E+00
+	RB-83	520.41	46.00	9.78E-02	2.52E-01
		529.64	30.30	-1.57E-01	3.48E-01
		552.65	16.40	7.28E-03	7.31E-01
+	KR-85	513.99	0.43	-2.11E-01	2.92E+01
+	SR-85	513.99	99.27	-1.32E-03	1.83E-01
+	Y-88	898.02	93.40	-5.87E-02	1.19E-01
		1836.01	99.38	3.71E-02	1.19E-01
+	NB-93M	16.57	9.43	-3.04E+00	9.17E+01
+	NB-94	702.63	100.00	2.96E-02	9.48E-02
		871.10	100.00	1.82E-02	9.48E-02
+	NB-95	765.79	99.81	3.50E-02	2.25E-01
+	NB-95M	235.69	25.00	2.41E+00	3.71E+02
+	ZR-95	724.18	43.70	2.85E-02	2.91E-01
		756.72	55.30	1.29E-01	2.91E-01
+	MO-99	181.06	6.20	-6.89E+02	4.37E+03
		739.58	12.80	-1.67E+03	4.37E+03
		778.00	4.50	-2.41E+03	1.16E+04
+	RU-103	497.08	89.00	-9.22E-03	1.74E-01
+	RU-106	621.84	9.80	4.51E-02	9.56E-01
+	AG-108M	433.93	89.90	4.07E-02	9.18E-02
		614.37	90.40	5.10E-03	1.31E-01
		722.95	90.50	-3.85E-03	1.03E-01
+	CD-109	88.03	3.72	2.11E+00	2.29E+00
+	AG-110M	657.75	93.14	3.50E-03	1.16E-01
		677.61	10.53	-7.78E-03	9.89E-01
		706.67	16.46	3.39E-01	7.13E-01
		763.93	21.98	-3.15E-01	5.11E-01
		884.67	71.63	-2.94E-02	1.58E-01
		1384.27	23.94	-3.56E-01	5.14E-01
+	CD-113M	263.70	0.02	5.93E+01	3.14E+02
+	SN-113	255.12	1.93	-2.02E+00	1.56E-01
		391.69	64.90	7.07E-04	1.56E-01
+	TE123M	159.00	84.10	5.47E-02	9.06E-02
+	SB-124	602.71	97.87	4.26E-02	1.43E-01
		645.85	7.26	1.22E+00	2.01E+00
		722.78	11.10	-4.65E-02	1.24E+00
		1691.02	49.00	-2.29E-02	2.37E-01
+	I-125	35.49	6.49	1.08E+00	4.02E+00
+	SB-125	176.33	6.89	3.31E-01	2.74E-01
		427.89	29.33	3.36E-02	2.74E-01
		463.38	10.35	4.92E-01	9.65E-01
		600.56	17.80	1.96E-01	5.51E-01
		635.90	11.32	1.18E-02	8.96E-01

Analysis Report for 1510093-08  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SB-126	414.70	83.30	1.07E-01	6.54E-01	6.54E-01
		666.33	99.60	1.57E-01		6.55E-01
		695.00	99.60	-6.13E-02		6.66E-01
		720.50	53.80	3.04E-01		1.20E+00
+	SN-126	87.57	37.00	2.02E-01	2.18E-01	2.18E-01
+	SB-127	473.00	25.00	-3.02E+00	1.21E+02	1.63E+02
		685.20	35.70	-2.44E+01		1.21E+02
		783.80	14.70	8.87E+01		3.35E+02
+	I-129	29.78	57.00	-3.35E-01	5.09E-01	5.09E-01
		33.60	13.20	-5.64E-01		1.53E+00
		39.58	7.52	-1.23E-01		1.73E+00
+	I-131	284.30	6.05	1.05E+01	1.79E+00	2.51E+01
		364.48	81.20	8.41E-01		1.79E+00
		636.97	7.26	9.02E-01		2.57E+01
		722.89	1.80	-3.69E+00		9.84E+01
+	TE-132	49.72	13.10	-1.84E+03	1.30E+02	9.78E+02
		228.16	88.00	-1.44E+01		1.30E+02
+	BA-133	81.00	33.00	-1.40E+00	1.98E-01	2.06E-01
		302.84	17.80	2.97E-01		4.95E-01
		356.01	60.00	1.87E-01		1.98E-01
+	I-133	529.87	86.30	-3.14E+10	6.97E+10	6.97E+10
+	XE-133	81.00	38.00	-1.11E+02	1.63E+01	1.63E+01
+	CS-134	563.23	8.38	-1.42E-01	1.09E-01	1.07E+00
		569.32	15.43	3.33E-02		6.12E-01
		604.70	97.60	2.68E-02		1.09E-01
		795.84	85.40	6.63E-02		1.45E-01
		801.93	8.73	-1.81E-01		1.19E+00
+	CS-135	268.24	16.00	3.24E-01	5.33E-01	5.33E-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	3.60E+00	5.02E-01	5.19E+00
		163.89	4.61	-5.97E-01		7.76E+00
		176.55	13.56	1.02E+00		2.82E+00
		273.65	12.66	-1.60E+00		3.98E+00
		340.57	48.50	2.24E+00		1.33E+00
		818.50	99.70	-4.20E-01		5.02E-01
		1048.07	79.60	-1.99E-02		8.25E-01
		1235.34	19.70	-8.17E-01		4.71E+00
+	CS-137	661.65	85.12	3.62E-02	1.22E-01	1.22E-01
+	LA-138	788.74	34.00	1.21E-01	1.55E-01	3.18E-01
		1435.80	66.00	-6.27E-02		1.55E-01
+	CE-139	165.85	80.35	4.55E-02	8.95E-02	8.95E-02
+	BA-140	162.64	6.70	-6.52E-01	2.44E+00	5.71E+00
		304.84	4.50	-5.61E+00		1.16E+01
		423.70	3.20	-4.67E-01		1.58E+01
		437.55	2.00	-7.12E+00		2.66E+01
		537.32	25.00	3.11E-02		2.44E+00
+	LA-140	328.77	20.50	5.27E-01	8.35E-01	2.51E+00

Analysis Report for 1510093-08  
CP5002S13-14

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	LA-140	487.03	45.50	6.71E-01	8.35E-01	1.26E+00
		815.85	23.50	4.74E-01		2.38E+00
		1596.49	95.49	1.05E-01		8.35E-01
+	CE-141	145.44	48.40	3.63E-02	2.58E-01	2.58E-01
+	CE-143	57.36	11.80	2.87E+06	8.09E+06	2.19E+07
		293.26	42.00	-5.34E+05		8.09E+06
		664.55	5.20	6.25E+06		5.91E+07
+	CE-144	133.54	10.80	4.64E-02	5.98E-01	5.98E-01
+	PM-144	476.78	42.00	4.07E-03	9.19E-02	2.18E-01
		618.01	98.60	-3.55E-02		9.19E-02
		696.49	99.49	-2.15E-02		1.05E-01
+	PM-145	36.85	21.70	-2.65E-01	3.82E-01	7.22E-01
		37.36	39.70	6.04E-02		3.82E-01
		42.30	15.10	-7.62E-01		7.47E-01
		72.40	2.31	-7.18E+00		4.09E+00
+	PM-146	453.90	39.94	-1.23E-02	2.08E-01	2.08E-01
		735.90	14.01	8.36E-02		7.40E-01
		747.13	13.10	1.27E-01		8.12E-01
+	ND-147	91.11	28.90	-2.41E+00	2.34E+00	2.34E+00
		531.02	13.10	-1.02E+00		5.59E+00
+	PM-149	285.90	3.10	9.99E+04	1.17E+05	1.17E+05
+	EU-152	121.78	20.50	8.93E-03	2.81E-01	2.81E-01
		244.69	5.40	-7.64E-01		1.77E+00
		344.27	19.13	-1.21E+00		4.02E-01
		778.89	9.20	1.28E-01		1.03E+00
		964.01	10.40	-1.43E+00		1.24E+00
		1085.78	7.22	-5.51E-01		1.55E+00
		1112.02	9.60	4.18E-01		1.28E+00
		1407.95	14.94	1.98E-02		7.36E-01
+	GD-153	97.43	31.30	4.86E-02	2.03E-01	2.03E-01
		103.18	22.20	-2.28E-01		2.78E-01
+	EU-154	123.07	40.50	7.79E-03	1.45E-01	1.45E-01
		723.30	19.70	-1.78E-02		4.75E-01
		873.19	11.50	-4.58E-01		7.55E-01
		996.32	10.30	-6.16E-01		9.80E-01
		1004.76	17.90	-5.34E-03		6.40E-01
		1274.45	35.50	3.29E-03		3.66E-01
+	EU-155	86.50	30.90	2.65E-01	2.66E-01	2.66E-01
		105.30	20.70	1.03E-01		2.91E-01
+	EU-156	811.77	10.40	2.14E-01	4.30E+00	4.30E+00
		1153.47	7.20	7.91E-01		9.06E+00
		1230.71	8.90	2.87E+00		7.86E+00
+	HO-166M	184.41	72.60	2.22E-01	1.09E-01	1.09E-01
		280.45	29.60	-6.79E-02		2.69E-01
		410.94	11.10	8.16E-02		7.71E-01
		711.69	54.10	-4.48E-02		1.77E-01
+	TM-171	66.72	0.14	-8.64E+01	6.09E+01	6.09E+01
+	HF-172	81.75	4.52	-7.47E+00	5.65E-01	1.53E+00
		125.81	11.30	-2.81E-01		5.65E-01

Analysis Report for 1510093-08  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	LU-172	181.53	20.60	-1.80E+00	6.59E+00	9.97E+00
		810.06	16.63	7.91E-01		2.01E+01
		912.12	15.25	8.63E+01		4.33E+01
		1093.66	62.50	2.61E+00		6.59E+00
+	LU-173	100.72	5.24	2.66E-02	4.26E-01	1.14E+00
		272.11	21.20	2.48E-01		4.26E-01
+	HF-175	343.40	84.00	-3.15E-01	1.36E-01	1.36E-01
+	LU-176	88.34	13.30	1.38E-01	8.61E-02	6.14E-01
		201.83	86.00	3.03E-02		8.76E-02
		306.78	94.00	2.27E-02		8.61E-02
+	TA-182	67.75	41.20	9.50E-02	2.46E-01	2.46E-01
		1121.30	34.90	6.61E-01		6.08E-01
		1189.05	16.23	4.16E-02		9.63E-01
		1221.41	26.98	4.12E-03		6.39E-01
		1231.02	11.44	5.09E-01		1.61E+00
+	IR-192	308.46	29.68	6.11E-02	2.57E-01	3.68E-01
		468.07	48.10	-2.83E-01		2.57E-01
+	HG-203	279.19	77.30	1.19E-02	1.69E-01	1.69E-01
+	BI-207	569.67	97.72	-3.89E-03	9.58E-02	9.58E-02
		1063.62	74.90	3.00E-02		1.48E-01
+	TL-208	583.14	* 30.22	1.41E+00	4.37E-01	4.37E-01
		860.37	* 4.48	2.75E+00		3.33E+00
		2614.66	35.85	1.31E+00		7.88E-01
+	BI-210M	262.00	45.00	3.00E-02	1.69E-01	1.69E-01
		300.00	23.00	1.96E-01		3.80E-01
+	PB-210	46.50	4.25	-5.02E-02	2.44E+00	2.44E+00
+	PB-211	404.84	2.90	3.55E-01	3.10E+00	3.10E+00
		831.96	2.90	1.12E-01		3.37E+00
+	BI-212	727.17	* 11.80	1.29E+00	1.13E+00	1.13E+00
		1620.62	* 2.75	1.70E+00		2.91E+00
+	PB-212	238.63	* 44.60	1.72E+00	2.86E-01	2.86E-01
		300.09	3.41	1.32E+00		2.56E+00
+	BI-214	609.31	* 46.30	1.32E+00	3.21E-01	3.21E-01
		1120.29	15.10	9.72E-01		1.13E+00
		1764.49	* 15.80	1.46E+00		9.22E-01
		2204.22	* 4.98	1.53E+00		1.79E+00
+	PB-214	295.21	* 19.19	1.42E+00	4.03E-01	5.31E-01
		351.92	* 37.19	1.63E+00		4.03E-01
+	RN-219	401.80	6.50	4.54E-01	1.37E+00	1.37E+00
+	RA-223	323.87	3.88	8.02E-01	2.04E+00	2.04E+00
+	RA-224	240.98	3.95	2.26E+01	4.03E+00	4.03E+00
+	RA-225	40.00	31.00	-1.45E-01	2.04E+00	2.04E+00
+	RA-226	186.21	* 3.28	3.77E+00	3.11E+00	3.11E+00
+	TH-227	50.10	8.40	-1.97E+00	1.05E+00	1.05E+00
		236.00	11.50	7.39E-03		1.14E+00
		256.20	6.30	3.93E-02		1.19E+00
+	AC-228	338.32	* 11.40	1.94E+00	4.70E-01	1.01E+00
		911.07	* 27.70	1.50E+00		4.70E-01

Analysis Report for 1510093-08  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	AC-228	969.11	*	16.60	1.50E+00	4.70E-01	1.49E+00
+	TH-230	48.44		16.90	-7.52E-02	5.77E-01	5.77E-01
		62.85		4.60	1.65E+00		1.95E+00
		67.67		0.37	8.60E+00		2.23E+01
+	PA-231	283.67		1.60	2.08E+00	3.80E+00	4.97E+00
		302.67		2.30	2.28E+00		3.80E+00
+	TH-231	25.64		14.70	1.44E-01	1.12E+00	3.78E+00
		84.21		6.40	-1.62E+00		1.12E+00
+	PA-233	311.98		38.60	-1.12E-01	4.77E-01	4.77E-01
+	PA-234	131.20		20.40	9.98E-02	3.14E-01	3.14E-01
		733.99		8.80	-1.83E-01		1.17E+00
		946.00		12.00	4.69E-02		8.92E-01
+	PA-234M	1001.03		0.92	8.26E+00	1.36E+01	1.36E+01
+	TH-234	63.29		3.80	1.35E+00	2.35E+00	2.35E+00
+	U-235	143.76		10.50	2.09E-01	5.79E-01	5.79E-01
		163.35		4.70	-9.65E-02		1.25E+00
		205.31		4.70	2.79E-01		1.60E+00
+	NP-237	86.50		12.60	6.42E-01	6.44E-01	6.44E-01
+	NP-239	106.10		22.70	-6.51E+02	6.04E+03	6.04E+03
		228.18		10.70	-1.92E+03		1.74E+04
		277.60		14.10	4.60E+03		1.32E+04
+	AM-241	59.54		35.90	-2.12E-01	2.34E-01	2.34E-01
+	AM-243	74.67		66.00	3.00E-01	1.69E-01	1.69E-01
+	CM-243	209.75	*	3.29	1.91E+00	5.92E-01	2.96E+00
		228.14		10.60	-8.29E-02		7.51E-01
		277.60	*	14.00	3.87E-01		5.92E-01

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

## NUCLIDE MDA REPORT

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

: 00508



Analysis Report for 1510093-08  
CP5002S13-14

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.30E+00	1.30E+00	1.68E-01	6.16E-01
NA-22	1274.54	99.94	1.32E-01	1.32E-01	1.19E-03	6.06E-02
NA-24	1368.53	99.99	3.31E+15	2.11E+15	1.68E+15	1.49E+15
	2754.09	99.86	2.11E+15		4.35E+14	7.89E+14
AL-26	1808.65	99.76	8.65E-02	8.65E-02	9.04E-03	3.62E-02
+ K-40	1460.81	* 10.67	1.35E+00	1.35E+00	2.14E+01	6.20E-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	8.73E-02	8.73E-02	3.37E-02	4.27E-02
	78.34	96.00	1.05E-01		2.69E-01	5.18E-02
SC-46	889.25	99.98	1.37E-01	1.37E-01	-2.73E-02	6.34E-02
	1120.51	99.99	2.26E-01		1.95E-01	1.07E-01
V-48	983.52	99.98	4.88E-01	4.88E-01	3.53E-03	2.25E-01
	1312.10	97.50	5.69E-01		-9.95E-02	2.60E-01
CR-51	320.08	9.83	1.90E+00	1.90E+00	1.55E-01	9.09E-01
MN-54	834.83	99.97	1.20E-01	1.20E-01	4.23E-02	5.58E-02
CO-56	846.75	99.96	1.43E-01	1.43E-01	1.05E-02	6.62E-02
	1037.75	14.03	1.07E+00		-5.02E-01	4.91E-01
	1238.25	67.00	3.36E-01		1.34E-01	1.57E-01
	1771.40	15.51	7.41E-01		0.00E+00	3.10E-01
	2598.48	16.90	6.22E-01		2.07E-01	2.41E-01
CO-57	122.06	85.51	7.32E-02	7.32E-02	2.33E-03	3.55E-02
	136.48	10.60	5.90E-01		-1.23E-01	2.86E-01
CO-58	810.76	99.40	1.29E-01	1.29E-01	-4.04E-02	5.95E-02
FE-59	1099.22	56.50	3.90E-01	3.90E-01	8.96E-02	1.81E-01
	1291.56	43.20	5.01E-01		-1.36E-01	2.29E-01
CO-60	1173.22	100.00	1.27E-01	9.10E-02	2.72E-02	5.85E-02
	1332.49	100.00	9.10E-02		-9.77E-02	3.99E-02
ZN-65	1115.52	50.75	2.59E-01	2.59E-01	-6.21E-02	1.19E-01
+ GA-67	93.31	* 35.70	6.43E+02	6.43E+02	4.59E+02	3.18E+02
	208.95	* 2.24	6.21E+03		4.01E+03	3.03E+03
	300.22	16.00	7.82E+02		4.04E+02	3.77E+02
SE-75	121.11	16.70	4.17E-01	1.21E-01	-1.36E-02	2.02E-01
	136.00	59.20	1.21E-01		2.49E-02	5.88E-02
	264.65	59.80	1.53E-01		2.78E-02	7.34E-02
	279.53	25.20	3.84E-01		-7.24E-02	1.85E-01
	400.65	11.40	9.50E-01		2.96E-01	4.54E-01
RB-82	776.52	13.00	1.81E+00	1.81E+00	-1.15E+00	8.36E-01
RB-83	520.41	46.00	2.52E-01	2.52E-01	9.78E-02	1.19E-01
	529.64	30.30	3.48E-01		-1.57E-01	1.63E-01
	552.65	16.40	7.31E-01		7.28E-03	3.44E-01
KR-85	513.99	0.43	2.92E+01	2.92E+01	-2.11E-01	1.40E+01
SR-85	513.99	99.27	1.83E-01	1.83E-01	-1.32E-03	8.78E-02
Y-88	898.02	93.40	1.26E-01	1.19E-01	-5.87E-02	5.75E-02
	1836.01	99.38	1.19E-01		3.71E-02	5.08E-02
NB-93M	16.57	9.43	9.17E+01	9.17E+01	-3.04E+00	4.46E+01
NB-94	702.63	100.00	1.08E-01	9.48E-02	2.96E-02	5.08E-02
	871.10	100.00	9.48E-02		1.82E-02	4.35E-02
NB-95	765.79	99.81	2.25E-01	2.25E-01	3.50E-02	1.06E-01
NB-95M	235.69	25.00	3.71E+02	3.71E+02	2.41E+00	1.82E+02
ZR-95	724.18	43.70	3.57E-01	2.91E-01	2.85E-02	1.67E-01
	756.72	55.30	2.91E-01		1.29E-01	1.37E-01

Analysis Report for 1510093-08  
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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	5.44E+03	4.37E+03	-6.89E+02	2.63E+03
	739.58	12.80	4.37E+03		-1.67E+03	2.04E+03
	778.00	4.50	1.16E+04		-2.41E+03	5.38E+03
RU-103	497.08	89.00	1.74E-01	1.74E-01	-9.22E-03	8.20E-02
RU-106	621.84	9.80	9.56E-01	9.56E-01	4.51E-02	4.46E-01
AG-108M	433.93	89.90	9.18E-02	9.18E-02	4.07E-02	4.35E-02
	614.37	90.40	1.31E-01		5.10E-03	6.23E-02
	722.95	90.50	1.03E-01		-3.85E-03	4.77E-02
CD-109	88.03	3.72	2.29E+00	2.29E+00	2.11E+00	1.12E+00
AG-110M	657.75	93.14	1.16E-01	1.16E-01	3.50E-03	5.45E-02
	677.61	10.53	9.89E-01		-7.78E-03	4.62E-01
	706.67	16.46	7.13E-01		3.39E-01	3.35E-01
	763.93	21.98	5.11E-01		-3.15E-01	2.38E-01
	884.67	71.63	1.58E-01		-2.94E-02	7.30E-02
	1384.27	23.94	5.14E-01		-3.56E-01	2.31E-01
CD-113M	263.70	0.02	3.14E+02	3.14E+02	5.93E+01	1.51E+02
SN-113	255.12	1.93	4.72E+00	1.56E-01	-2.02E+00	2.27E+00
	391.69	64.90	1.56E-01		7.07E-04	7.43E-02
	TE123M	159.00	84.10		9.06E-02	9.06E-02
SB-124	602.71	97.87	1.43E-01	1.43E-01	4.26E-02	6.73E-02
	645.85	7.26	2.01E+00		1.22E+00	9.46E-01
	722.78	11.10	1.24E+00		-4.65E-02	5.76E-01
	1691.02	49.00	2.37E-01		-2.29E-02	9.82E-02
	I-125	35.49	6.49		4.02E+00	4.02E+00
SB-125	176.33	6.89	9.45E-01	2.74E-01	3.31E-01	4.57E-01
	427.89	29.33	2.74E-01		3.36E-02	1.29E-01
	463.38	10.35	9.65E-01		4.92E-01	4.60E-01
	600.56	17.80	5.51E-01		1.96E-01	2.59E-01
	635.90	11.32	8.96E-01		1.18E-02	4.21E-01
	SB-126	414.70	83.30		6.54E-01	6.54E-01
SN-126	666.33	99.60	6.55E-01	2.18E-01	1.57E-01	3.07E-01
	695.00	99.60	6.66E-01		-6.13E-02	3.11E-01
	720.50	53.80	1.20E+00		3.04E-01	5.59E-01
	87.57	37.00	2.18E-01		2.02E-01	1.07E-01
	SB-127	473.00	25.00		1.63E+02	1.21E+02
I-129	685.20	35.70	1.21E+02	5.09E-01	-2.44E+01	5.62E+01
	783.80	14.70	3.35E+02		8.87E+01	1.56E+02
	29.78	57.00	5.09E-01		-3.35E-01	2.47E-01
	33.60	13.20	1.53E+00		-5.64E-01	7.46E-01
I-131	39.58	7.52	1.73E+00	1.79E+00	-1.23E-01	8.43E-01
	284.30	6.05	2.51E+01		1.05E+01	1.21E+01
	364.48	81.20	1.79E+00		8.41E-01	8.53E-01
	636.97	7.26	2.57E+01		9.02E-01	1.21E+01
	722.89	1.80	9.84E+01		-3.69E+00	4.57E+01
TE-132	49.72	13.10	9.78E+02	1.30E+02	-1.84E+03	4.76E+02
	228.16	88.00	1.30E+02		-1.44E+01	6.30E+01
BA-133	81.00	33.00	2.06E-01	1.98E-01	-1.40E+00	1.01E-01
	302.84	17.80	4.95E-01		2.97E-01	2.38E-01
	356.01	60.00	1.98E-01		1.87E-01	9.59E-02
I-133	529.87	86.30	6.97E+10	6.97E+10	-3.14E+10	3.26E+10
XE-133	81.00	38.00	1.63E+01	1.63E+01	-1.11E+02	7.97E+00
CS-134	563.23	8.38	1.07E+00	1.09E-01	-1.42E-01	5.00E-01
	569.32	15.43	6.12E-01		3.33E-02	2.88E-01

Analysis Report for 1510093-08  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	604.70	97.60	1.09E-01	1.09E-01	2.68E-02	5.17E-02
	795.84	85.40	1.45E-01		6.63E-02	6.79E-02
	801.93	8.73	1.19E+00		-1.81E-01	5.53E-01
CS-135	268.24	16.00	5.33E-01	5.33E-01	3.24E-01	2.58E-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	5.19E+00	5.02E-01	3.60E+00	2.52E+00
	163.89	4.61	7.76E+00		-5.97E-01	3.75E+00
	176.55	13.56	2.82E+00		1.02E+00	1.37E+00
	273.65	12.66	3.98E+00		-1.60E+00	1.92E+00
	340.57	48.50	1.33E+00		2.24E+00	6.42E-01
	818.50	99.70	5.02E-01		-4.20E-01	2.28E-01
	1048.07	79.60	8.25E-01		-1.99E-02	3.78E-01
	1235.34	19.70	4.71E+00		-8.17E-01	2.19E+00
CS-137	661.65	85.12	1.22E-01	1.22E-01	3.62E-02	5.74E-02
LA-138	788.74	34.00	3.18E-01	1.55E-01	1.21E-01	1.48E-01
	1435.80	66.00	1.55E-01		-6.27E-02	6.87E-02
CE-139	165.85	80.35	8.95E-02	8.95E-02	4.55E-02	4.33E-02
BA-140	162.64	6.70	5.71E+00	2.44E+00	-6.52E-01	2.76E+00
	304.84	4.50	1.16E+01		-5.61E+00	5.59E+00
	423.70	3.20	1.58E+01		-4.67E-01	7.50E+00
	437.55	2.00	2.66E+01		-7.12E+00	1.26E+01
	537.32	25.00	2.44E+00		3.11E-02	1.15E+00
	328.77	20.50	2.51E+00		8.35E-01	5.27E-01
LA-140	487.03	45.50	1.26E+00		6.71E-01	5.98E-01
	815.85	23.50	2.38E+00		4.74E-01	1.09E+00
	1596.49	95.49	8.35E-01		1.05E-01	3.75E-01
CE-141	145.44	48.40	2.58E-01	2.58E-01	3.63E-02	1.25E-01
CE-143	57.36	11.80	2.19E+07	8.09E+06	2.87E+06	1.07E+07
	293.26	42.00	8.09E+06		-5.34E+05	3.93E+06
	664.55	5.20	5.91E+07		6.25E+06	2.78E+07
CE-144	133.54	10.80	5.98E-01	5.98E-01	4.64E-02	2.90E-01
PM-144	476.78	42.00	2.18E-01	9.19E-02	4.07E-03	1.03E-01
	618.01	98.60	9.19E-02		-3.55E-02	4.28E-02
	696.49	99.49	1.05E-01		-2.15E-02	4.89E-02
PM-145	36.85	21.70	7.22E-01	3.82E-01	-2.65E-01	3.51E-01
	37.36	39.70	3.82E-01		6.04E-02	1.86E-01
	42.30	15.10	7.47E-01		-7.62E-01	3.63E-01
	72.40	2.31	4.09E+00		-7.18E+00	2.01E+00
PM-146	453.90	39.94	2.08E-01	2.08E-01	-1.23E-02	9.84E-02
	735.90	14.01	7.40E-01		8.36E-02	3.45E-01
	747.13	13.10	8.12E-01		1.27E-01	3.80E-01
ND-147	91.11	28.90	2.34E+00	2.34E+00	-2.41E+00	1.15E+00
	531.02	13.10	5.59E+00		-1.02E+00	2.63E+00
PM-149	285.90	3.10	1.17E+05	1.17E+05	9.99E+04	5.61E+04
EU-152	121.78	20.50	2.81E-01	2.81E-01	8.93E-03	1.36E-01
	244.69	5.40	1.77E+00		-7.64E-01	8.58E-01
	344.27	19.13	4.02E-01		-1.21E+00	1.92E-01
	778.89	9.20	1.03E+00		1.28E-01	4.75E-01
	964.01	10.40	1.24E+00		-1.43E+00	5.78E-01
	1085.78	7.22	1.55E+00		-5.51E-01	7.11E-01
	1112.02	9.60	1.28E+00		4.18E-01	5.92E-01

Analysis Report for 1510093-08  
CP5002S13-14

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	7.36E-01	2.81E-01	1.98E-02	3.29E-01
GD-153	97.43	31.30	2.03E-01	2.03E-01	4.86E-02	9.84E-02
	103.18	22.20	2.78E-01		-2.28E-01	1.35E-01
EU-154	123.07	40.50	1.45E-01	1.45E-01	7.79E-03	7.02E-02
	723.30	19.70	4.75E-01		-1.78E-02	2.21E-01
	873.19	11.50	7.55E-01		-4.58E-01	3.43E-01
	996.32	10.30	9.80E-01		-6.16E-01	4.47E-01
	1004.76	17.90	6.40E-01		-5.34E-03	2.95E-01
	1274.45	35.50	3.66E-01		3.29E-03	1.68E-01
EU-155	86.50	30.90	2.66E-01	2.66E-01	2.65E-01	1.30E-01
	105.30	20.70	2.91E-01		1.03E-01	1.41E-01
EU-156	811.77	10.40	4.30E+00	4.30E+00	2.14E-01	1.98E+00
	1153.47	7.20	9.06E+00		7.91E-01	4.20E+00
	1230.71	8.90	7.86E+00		2.87E+00	3.65E+00
HO-166M	184.41	72.60	1.09E-01	1.09E-01	2.22E-01	5.31E-02
	280.45	29.60	2.69E-01		-6.79E-02	1.30E-01
	410.94	11.10	7.71E-01		8.16E-02	3.67E-01
	711.69	54.10	1.77E-01		-4.48E-02	8.27E-02
TM-171	66.72	0.14	6.09E+01	6.09E+01	-8.64E+01	2.98E+01
HF-172	81.75	4.52	1.53E+00	5.65E-01	-7.47E+00	7.47E-01
	125.81	11.30	5.65E-01		-2.81E-01	2.75E-01
LU-172	181.53	20.60	9.97E+00	6.59E+00	-1.80E+00	4.81E+00
	810.06	16.63	2.01E+01		7.91E-01	9.30E+00
	912.12	15.25	4.33E+01		8.63E+01	2.07E+01
	1093.66	62.50	6.59E+00		2.61E+00	3.03E+00
LU-173	100.72	5.24	1.14E+00	4.26E-01	2.66E-02	5.52E-01
	272.11	21.20	4.26E-01		2.48E-01	2.06E-01
HF-175	343.40	84.00	1.36E-01	1.36E-01	-3.15E-01	6.52E-02
LU-176	88.34	13.30	6.14E-01	8.61E-02	1.38E-01	3.01E-01
	201.83	86.00	8.76E-02		3.03E-02	4.25E-02
	306.78	94.00	8.61E-02		2.27E-02	4.14E-02
TA-182	67.75	41.20	2.46E-01	2.46E-01	9.50E-02	1.20E-01
	1121.30	34.90	6.08E-01		6.61E-01	2.87E-01
	1189.05	16.23	9.63E-01		4.16E-02	4.43E-01
	1221.41	26.98	6.39E-01		4.12E-03	2.96E-01
	1231.02	11.44	1.61E+00		5.09E-01	7.47E-01
IR-192	308.46	29.68	3.68E-01	2.57E-01	6.11E-02	1.76E-01
	468.07	48.10	2.57E-01		-2.83E-01	1.22E-01
HG-203	279.19	77.30	1.69E-01	1.69E-01	1.19E-02	8.15E-02
BI-207	569.67	97.72	9.58E-02	9.58E-02	-3.89E-03	4.52E-02
	1063.62	74.90	1.48E-01		3.00E-02	6.81E-02
+ TL-208	583.14	* 30.22	4.37E-01	4.37E-01	1.41E+00	2.09E-01
	860.37	* 4.48	3.33E+00		2.75E+00	1.58E+00
	2614.66	35.85	7.88E-01		1.31E+00	3.70E-01
BI-210M	262.00	45.00	1.69E-01	1.69E-01	3.00E-02	8.15E-02
	300.00	23.00	3.80E-01		1.96E-01	1.83E-01
PB-210	46.50	4.25	2.44E+00	2.44E+00	-5.02E-02	1.19E+00
PB-211	404.84	2.90	3.10E+00	3.10E+00	3.55E-01	1.48E+00
	831.96	2.90	3.37E+00		1.12E-01	1.56E+00
+ BI-212	727.17	* 11.80	1.13E+00	1.13E+00	1.29E+00	5.35E-01
	1620.62	* 2.75	2.91E+00		1.70E+00	1.22E+00
+ PB-212	238.63	* 44.60	2.86E-01	2.86E-01	1.72E+00	1.40E-01
	300.09	3.41	2.56E+00		1.32E+00	1.24E+00

Analysis Report for 1510093-08  
CP5002S13-14

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>	
+	BI-214	609.31 *		46.30	3.21E-01	3.21E-01	1.32E+00	1.54E-01	
		1120.29		15.10	1.13E+00		9.72E-01	5.33E-01	
		1764.49 *		15.80	9.22E-01		1.46E+00	4.17E-01	
		2204.22 *		4.98	1.79E+00		1.53E+00	7.37E-01	
+	PB-214	295.21 *		19.19	5.31E-01	4.03E-01	1.42E+00	2.57E-01	
		351.92 *		37.19	4.03E-01		1.63E+00	1.97E-01	
	RN-219	401.80		6.50	1.37E+00	1.37E+00	4.54E-01	6.56E-01	
	RA-223	323.87		3.88	2.04E+00	2.04E+00	8.02E-01	9.77E-01	
	RA-224	240.98		3.95	4.03E+00	4.03E+00	2.26E+01	1.98E+00	
	RA-225	40.00		31.00	2.04E+00	2.04E+00	-1.45E-01	9.90E-01	
+	RA-226	186.21 *		3.28	3.11E+00	3.11E+00	3.77E+00	1.52E+00	
		TH-227	50.10		8.40	1.05E+00	1.05E+00	-1.97E+00	5.09E-01
		236.00		11.50	1.14E+00		7.39E-03	5.58E-01	
		256.20		6.30	1.19E+00		3.93E-02	5.76E-01	
+	AC-228	338.32 *		11.40	1.01E+00	4.70E-01	1.94E+00	4.88E-01	
		911.07 *		27.70	4.70E-01		1.50E+00	2.20E-01	
		969.11 *		16.60	1.49E+00		1.50E+00	7.19E-01	
	TH-230	48.44		16.90	5.77E-01	5.77E-01	-7.52E-02	2.81E-01	
		62.85		4.60	1.95E+00		1.65E+00	9.54E-01	
		67.67		0.37	2.23E+01		8.60E+00	1.09E+01	
	PA-231	283.67		1.60	4.97E+00	3.80E+00	2.08E+00	2.39E+00	
		302.67		2.30	3.80E+00		2.28E+00	1.83E+00	
	TH-231	25.64		14.70	3.78E+00	1.12E+00	1.44E-01	1.84E+00	
		84.21		6.40	1.12E+00		-1.62E+00	5.46E-01	
	PA-233	311.98		38.60	4.77E-01	4.77E-01	-1.12E-01	2.28E-01	
	PA-234	131.20		20.40	3.14E-01	3.14E-01	9.98E-02	1.53E-01	
		733.99		8.80	1.17E+00		-1.83E-01	5.46E-01	
		946.00		12.00	8.92E-01		4.69E-02	4.11E-01	
	PA-234M	1001.03		0.92	1.36E+01	1.36E+01	8.26E+00	6.30E+00	
	TH-234	63.29		3.80	2.35E+00	2.35E+00	1.35E+00	1.15E+00	
	U-235	143.76		10.50	5.79E-01	5.79E-01	2.09E-01	2.81E-01	
		163.35		4.70	1.25E+00		-9.65E-02	6.06E-01	
		205.31		4.70	1.60E+00		2.79E-01	7.74E-01	
	NP-237	86.50		12.60	6.44E-01	6.44E-01	6.42E-01	3.16E-01	
	NP-239	106.10		22.70	6.04E+03	6.04E+03	-6.51E+02	2.94E+03	
		228.18		10.70	1.74E+04		-1.92E+03	8.44E+03	
		277.60		14.10	1.32E+04		4.60E+03	6.37E+03	
	AM-241	59.54		35.90	2.34E-01	2.34E-01	-2.12E-01	1.14E-01	
	AM-243	74.67		66.00	1.69E-01	1.69E-01	3.00E-01	8.34E-02	
+	CM-243	209.75 *		3.29	2.96E+00	5.92E-01	1.91E+00	1.44E+00	
		228.14		10.60	7.51E-01		-8.29E-02	3.64E-01	
		277.60 *		14.00	5.92E-01		3.87E-01	2.85E-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

Analysis Report for 1510093-08  
CP5002S13-14

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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S13-14

Elapsed Live time: 3600

Elapsed Real Time: 3617

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	5	176	154	137	125	99	95	95
17:	101	72	82	84	77	66	96	87
25:	85	83	80	75	72	78	85	73
33:	95	91	89	74	96	89	74	92
41:	77	87	78	89	83	110	154	92
49:	63	108	90	101	111	117	88	108
57:	112	112	127	127	133	122	169	207
65:	145	137	146	153	129	159	128	156
73:	160	179	392	327	417	474	158	92
81:	99	102	103	148	171	107	178	240
89:	126	165	126	120	226	214	99	75
97:	84	77	79	89	76	66	81	76
105:	76	103	86	66	98	82	93	63
113:	80	70	77	92	76	81	71	73
121:	69	77	69	71	81	85	78	92
129:	101	107	71	79	66	81	69	62
137:	75	58	61	61	70	67	68	64
145:	79	70	67	56	64	62	69	69
153:	66	75	80	54	59	65	74	68
161:	62	48	46	70	66	51	54	50
169:	62	41	58	53	56	62	59	64
177:	54	58	58	48	49	48	61	45
185:	67	133	134	46	46	49	47	51
193:	48	60	59	61	45	49	46	49
201:	52	47	56	53	45	38	50	47
209:	68	94	53	44	50	51	47	52
217:	52	46	44	54	57	61	39	56
225:	51	45	39	49	41	43	53	45
233:	49	39	38	46	37	143	496	227
241:	85	124	106	44	45	41	25	29
249:	26	36	31	31	42	45	28	22
257:	24	40	37	44	27	32	29	27
265:	39	24	28	44	37	50	64	39
273:	40	25	29	29	36	50	32	28
281:	29	22	33	36	41	34	30	22
289:	30	22	22	28	22	39	116	175
297:	49	24	22	44	53	25	31	23
305:	39	30	23	41	27	21	24	27
313:	15	30	32	17	30	30	24	21
321:	28	26	22	32	19	20	30	36
329:	45	22	13	13	21	24	20	27
337:	27	69	102	43	18	27	23	17
345:	20	22	21	22	33	21	44	220
353:	207	32	25	17	21	20	21	9
361:	22	21	18	15	18	18	15	28

369: 15 15 28 19 22 23 22 12

Sample Title: CP5002S13-14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	12	17	18	24	17	14	22	20
385:	25	14	21	27	26	24	14	20
393:	12	18	23	17	16	22	24	17
401:	20	26	20	25	23	20	19	22
409:	16	30	25	19	11	13	21	15
417:	17	22	16	17	24	11	8	14
425:	19	17	17	17	14	7	14	8
433:	24	18	18	14	18	11	19	22
441:	13	21	12	14	15	17	16	17
449:	16	20	17	15	11	9	14	16
457:	22	11	15	15	12	15	36	40
465:	14	12	21	17	20	18	17	12
473:	18	14	13	16	13	14	19	15
481:	17	12	14	10	14	16	15	23
489:	20	13	8	14	13	14	18	6
497:	17	15	10	14	15	13	12	16
505:	14	6	20	13	15	36	75	53
513:	26	7	14	14	14	13	13	17
521:	15	9	13	11	6	13	10	11
529:	10	8	7	16	12	19	14	15
537:	19	14	11	13	15	16	11	13
545:	15	13	6	17	15	13	9	12
553:	11	11	21	13	5	15	14	13
561:	9	10	11	11	10	14	8	12
569:	8	13	17	14	18	12	8	9
577:	18	13	13	13	14	21	93	97
585:	34	10	13	4	10	10	14	11
593:	16	8	12	8	13	8	14	15
601:	7	15	14	13	9	10	10	29
609:	85	171	57	15	12	14	11	10
617:	10	7	9	9	7	9	11	6
625:	16	12	8	10	8	10	5	12
633:	8	15	9	8	15	14	14	6
641:	10	4	10	19	10	12	8	11
649:	10	5	11	9	8	12	11	8
657:	8	13	12	14	11	14	9	11
665:	14	17	3	13	5	3	10	15
673:	6	11	10	7	10	12	10	4
681:	14	12	9	1	11	6	12	10
689:	8	13	13	10	12	6	12	10
697:	10	9	9	8	13	13	11	13
705:	11	14	12	10	9	11	3	9
713:	15	10	6	8	12	11	7	6
721:	9	7	9	7	8	11	27	37
729:	17	7	15	7	10	6	14	9
737:	8	8	13	6	9	13	10	16
745:	10	10	9	4	7	14	6	9
753:	10	16	11	16	8	9	4	13
761:	8	7	6	11	12	8	11	10
769:	22	17	10	14	11	6	10	8
777:	6	6	3	12	7	9	8	3
785:	11	8	17	4	11	12	7	8
793:	9	12	25	17	7	6	6	12



801: 7 9 5 10 7 9 12 5

Sample Title: CP5002S13-14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	7	8	6	6	7	6	7	5
817:	5	3	7	3	5	8	12	5
825:	8	4	6	8	7	5	2	8
833:	6	9	12	14	8	7	13	7
841:	10	9	5	8	7	14	8	7
849:	5	7	7	9	7	6	7	6
857:	11	6	12	9	14	14	9	13
865:	2	7	5	11	6	5	3	2
873:	6	9	3	6	8	5	9	8
881:	9	5	4	9	7	8	7	6
889:	9	5	5	9	7	9	6	5
897:	7	10	3	5	3	7	8	7
905:	8	8	4	8	6	20	49	69
913:	25	3	2	7	7	11	10	9
921:	7	6	8	8	12	7	5	7
929:	7	5	8	12	11	14	10	6
937:	8	6	8	4	7	8	1	9
945:	9	4	8	10	6	6	5	7
953:	8	8	5	7	8	6	7	6
961:	5	3	10	6	17	15	11	10
969:	45	35	9	4	7	5	10	4
977:	9	10	7	10	6	5	5	8
985:	8	5	7	7	6	8	5	4
993:	5	9	5	4	1	8	5	9
1001:	12	14	5	6	6	8	5	4
1009:	6	4	9	5	2	6	6	4
1017:	5	9	4	2	10	1	5	5
1025:	8	3	5	5	7	7	5	6
1033:	11	11	4	9	6	5	10	5
1041:	4	8	5	5	6	5	5	6
1049:	5	5	8	6	7	4	2	6
1057:	6	6	6	3	9	5	5	3
1065:	10	6	5	3	10	4	10	4
1073:	6	2	8	1	6	7	8	5
1081:	10	7	8	4	3	7	7	7
1089:	4	6	7	9	5	7	5	7
1097:	2	6	11	10	7	11	8	6
1105:	5	4	1	5	6	12	5	7
1113:	4	6	7	6	7	7	7	27
1121:	27	11	8	9	8	4	3	5
1129:	6	6	10	4	5	6	8	9
1137:	9	6	12	7	8	6	4	7
1145:	4	7	6	7	6	5	7	8
1153:	6	4	14	12	11	6	4	5
1161:	9	11	4	6	8	5	10	7
1169:	5	8	4	12	5	5	5	6
1177:	5	5	7	12	5	13	4	8
1185:	5	6	7	6	6	7	5	8
1193:	6	6	11	8	8	7	11	4
1201:	9	2	9	6	6	7	8	4
1209:	8	7	6	9	14	14	9	7
1217:	12	6	8	9	7	6	10	7
1225:	4	8	5	14	9	10	5	6

1233:            9            7            6            8            13            14            15            10

Sample Title: CP5002S13-14

Channel	9	7	6	8	13	14	15	10
1241:	9	5	12	5	4	9	7	5
1249:	8	10	9	6	3	9	11	4
1257:	6	6	3	2	7	6	3	4
1265:	3	7	7	2	8	4	3	1
1273:	7	1	7	5	6	7	6	2
1281:	5	6	3	5	5	5	5	5
1289:	6	4	4	2	5	5	3	5
1297:	6	7	1	7	6	8	4	7
1305:	2	5	5	4	5	4	4	5
1313:	5	3	2	5	6	3	2	2
1321:	5	4	3	5	9	2	7	6
1329:	1	4	1	3	0	0	0	2
1337:	4	5	6	1	6	4	6	2
1345:	2	4	2	7	2	2	7	1
1353:	3	6	3	4	3	2	4	4
1361:	6	0	0	3	2	6	4	2
1369:	2	3	3	2	3	2	1	1
1377:	4	10	3	3	2	2	1	5
1385:	3	5	3	2	3	4	1	3
1393:	2	4	0	2	5	2	2	1
1401:	3	5	2	3	0	2	6	7
1409:	3	1	2	0	0	4	3	4
1417:	1	5	1	6	5	3	1	1
1425:	1	1	4	3	4	5	2	2
1433:	3	1	1	1	2	4	4	1
1441:	3	5	1	1	4	3	0	3
1449:	2	2	5	2	2	1	2	2
1457:	1	4	24	98	209	156	32	1
1465:	2	3	3	0	1	2	2	2
1473:	0	1	2	2	6	0	2	0
1481:	3	2	3	3	5	1	1	2
1489:	4	0	1	2	1	3	5	4
1497:	1	1	0	4	3	1	3	3
1505:	3	2	1	2	4	3	3	2
1513:	4	1	1	1	1	2	4	0
1521:	0	1	4	3	3	0	1	0
1529:	1	3	1	3	0	1	1	1
1537:	1	2	0	4	0	1	1	3
1545:	0	2	0	3	1	2	1	1
1553:	0	3	2	0	2	0	2	3
1561:	0	2	1	0	0	1	3	0
1569:	1	3	2	0	2	0	0	2
1577:	0	1	2	1	1	2	2	4
1585:	2	3	0	7	3	5	2	7
1593:	4	3	1	2	2	3	0	4
1601:	2	2	2	1	1	1	4	2
1609:	1	2	3	3	3	3	0	0
1617:	1	1	2	3	4	4	1	0
1625:	2	1	1	1	0	2	3	2
1633:	2	0	0	1	0	3	1	0
1641:	1	1	0	2	2	3	1	0
1649:	3	0	2	0	0	2	1	2
1657:	1	2	1	1	0	1	2	0

1665: 0 2 2 0 0 1 0 0

Sample Title: CP5002S13-14

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

2097: 0 1 0 0 0 5 5 7

Sample Title: CP5002S13-14

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

2529: 0 0 1 1 1 1 0 0

Sample Title: CP5002S13-14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	1	0	0	0	0	0	0	0
2545:	0	0	0	0	0	0	0	0
2553:	0	1	0	0	0	0	0	1
2561:	1	0	1	0	0	0	1	0
2569:	0	0	0	0	0	0	0	0
2577:	1	0	0	1	0	0	1	0
2585:	1	0	0	0	1	1	0	0
2593:	0	0	1	0	2	0	1	0
2601:	0	0	0	0	0	0	0	2
2609:	0	0	0	3	6	12	29	18
2617:	7	2	0	1	0	0	0	0
2625:	0	0	0	0	1	0	1	0
2633:	0	2	1	0	0	0	0	0
2641:	0	0	1	0	0	1	0	0
2649:	0	0	0	0	1	0	1	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	1	0	1	0	1	0	0
2681:	0	0	1	0	0	0	1	0
2689:	0	0	0	0	0	0	0	0
2697:	1	0	0	1	0	0	1	0
2705:	0	0	0	0	0	0	1	0
2713:	0	1	1	0	0	0	1	0
2721:	0	1	0	0	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	1	1	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	1	0	1	1	1	0	0
2761:	0	0	0	1	0	0	1	0
2769:	0	0	0	0	1	0	1	1
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	1	0
2793:	0	0	0	1	0	0	0	0
2801:	1	0	0	0	1	0	0	0
2809:	0	0	0	0	0	0	1	0
2817:	0	0	0	0	0	0	0	1
2825:	1	0	0	0	0	1	0	0
2833:	0	1	0	0	0	0	0	0
2841:	1	0	0	0	1	1	0	0
2849:	0	1	0	0	1	0	0	0
2857:	0	0	0	0	0	1	0	0
2865:	0	0	1	0	0	0	0	0
2873:	1	0	0	1	1	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	3	0	0	1	1
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	2	0	0	0	0
2913:	1	1	0	0	0	1	1	0
2921:	0	0	0	0	0	0	0	1
2929:	0	1	0	0	0	0	0	0
2937:	0	0	0	0	1	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	1	0	0	0	0	0

2961: 0 0 0 2 0 0 0 0

Sample Title: CP5002S13-14

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

Sample Title: CP5002S13-14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	2	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	1	1	1
3457:	0	1	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:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	1	0	0	0	0
3505:	0	0	1	0	0	0	0	2
3513:	0	0	0	0	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	0	1	0	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	1	1	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:	1	0	0	1	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	1	0	0
3633:	0	0	0	0	0	0	0	1
3641:	0	0	0	0	0	0	0	0
3649:	1	0	0	0	0	1	0	0
3657:	1	0	0	0	0	0	1	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	1
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	1	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	1	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	1	0	0	0	0	0	0	1
3745:	0	0	0	0	0	1	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	1	1	0
3769:	0	0	0	0	0	0	0	0
3777:	0	1	0	0	0	0	0	0
3785:	0	1	0	0	0	0	0	0
3793:	0	0	0	0	0	0	0	1
3801:	0	0	0	0	0	1	1	0
3809:	0	0	0	0	0	0	0	1
3817:	0	0	0	0	0	0	0	0

3825:           0           1           0           0           0           1           1           0

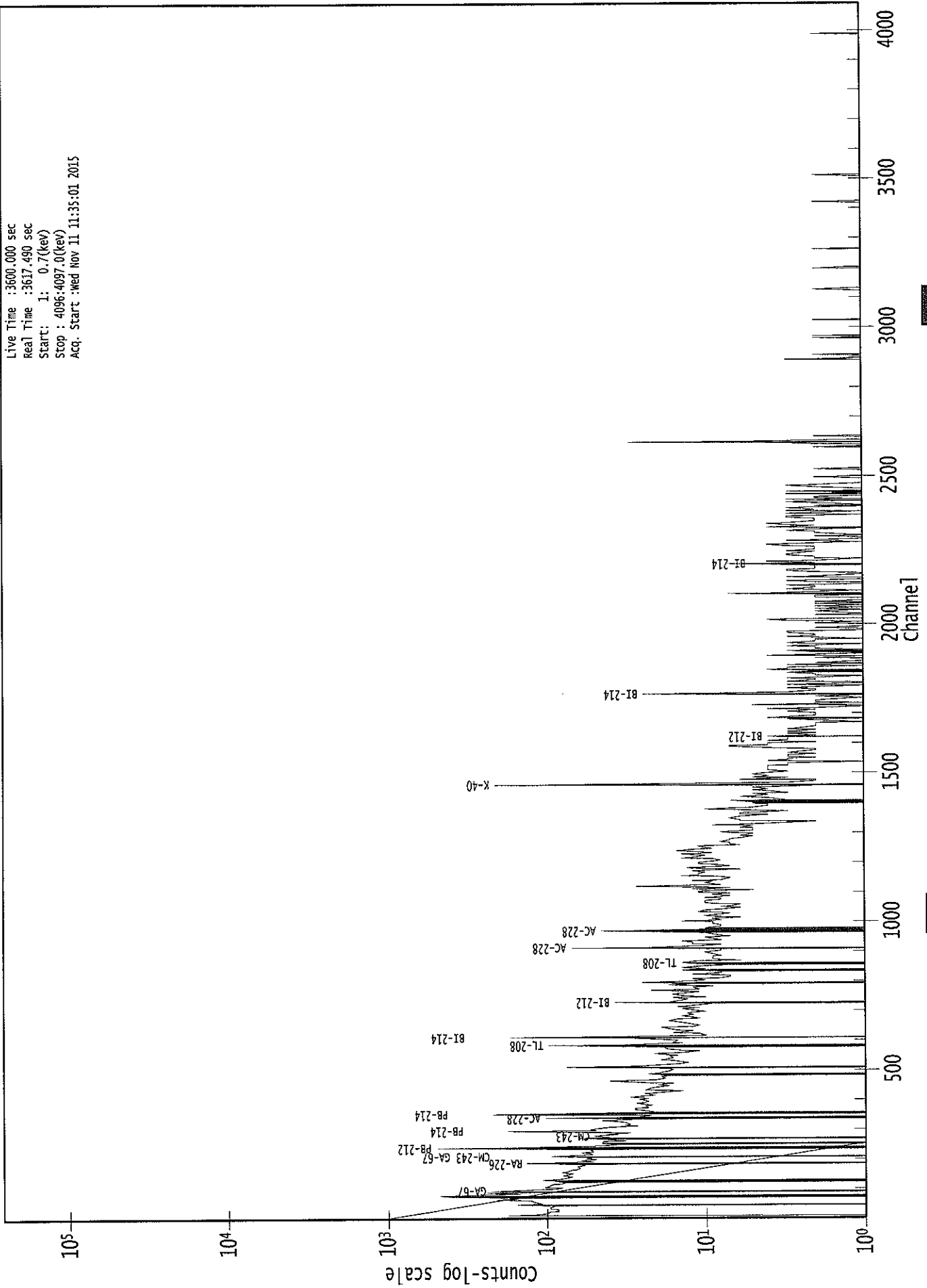
Sample Title:   CP5002S13-14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	1	0	0	0	0
3841:	0	0	0	0	0	1	0	0
3849:	0	0	0	1	1	0	0	0
3857:	0	0	0	0	0	0	0	1
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	1	0	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	1	0	0
3905:	0	0	0	0	0	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	1	0	0	0	0	1
3953:	0	0	0	0	0	0	0	0
3961:	1	0	0	0	1	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	2	0	0	0	0
3993:	0	0	0	0	0	0	1	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	1	0	0	0	0	0	0	0
4025:	0	1	0	0	0	0	0	0
4033:	0	0	0	0	0	1	0	0
4041:	0	0	0	0	0	0	0	1
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	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	1	0	0	0	1



# 0000029483.CNF

Live Time : 3600.000 sec  
Real Time : 3617.490 sec  
Start: 1: 0.7(kev)  
Stop : 4096.4097.0(kev)  
Acq. Start : Wed Nov 11 11:35:01 2015



KCB  
11/11/15Analysis Report for 1510093-09  
CP5002S16-17

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-09  
Sample Description : CP5002S16-17  
Sample Type : SOIL

Sample Size : 5.542E+02 grams  
Facility : Countroom

Sample Taken On : 10/8/2015 7:30:38AM  
Acquisition Started : 11/11/2015 1:12:18PM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE4  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3677.2 seconds

Dead Time : 2.10 %

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 : 29500

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15

Analysis Report for 1510093-09  
CP5002S16-17

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 2:13:36PM  
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	46.43	45.69	0.0000	0.00
2	64.82	64.09	0.0000	0.00
3	76.04	75.31	0.0000	0.00
4	87.64	86.92	0.0000	0.00
5	93.88	93.15	0.0000	0.00
6	129.09	128.38	0.0000	0.00
7	166.62	165.92	0.0000	0.00
8	185.99	185.30	0.0000	0.00
9	239.04	238.37	0.0000	0.00
10	285.58	284.93	0.0000	0.00
11	294.57	293.93	0.0000	0.00
12	339.26	338.64	0.0000	0.00
13	352.05	351.43	0.0000	0.00
14	368.73	368.13	0.0000	0.00
15	510.90	510.36	0.0000	0.00
16	547.17	546.65	0.0000	0.00
17	583.00	582.49	0.0000	0.00
18	598.71	598.21	0.0000	0.00
19	609.59	609.10	0.0000	0.00
20	617.29	616.80	0.0000	0.00
21	727.44	727.00	0.0000	0.00
22	785.37	784.97	0.0000	0.00
23	797.13	796.73	0.0000	0.00
24	911.60	911.26	0.0000	0.00
25	968.58	968.27	0.0000	0.00
26	1033.43	1033.15	0.0000	0.00
27	1094.94	1094.70	0.0000	0.00
28	1121.71	1121.48	0.0000	0.00
29	1148.39	1148.18	0.0000	0.00
30	1237.66	1237.50	0.0000	0.00
31	1270.58	1270.44	0.0000	0.00
32	1347.89	1347.79	0.0000	0.00
33	1359.28	1359.19	0.0000	0.00
34	1461.10	1461.07	0.0000	0.00
35	1509.50	1509.50	0.0000	0.00
36	1593.64	1593.70	0.0000	0.00
37	1604.94	1605.00	0.0000	0.00
38	1729.16	1729.30	0.0000	0.00
39	1736.85	1737.00	0.0000	0.00
40	1765.49	1765.65	0.0000	0.00
41	2081.32	2081.69	0.0000	0.00
42	2376.81	2377.40	0.0000	0.00

Analysis Report for 1510093-09  
CP5002S16-17

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	2426.77	2427.40	0.0000	0.00
44	2614.96	2615.73	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-09  
CP5002S16-17

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 2:13:36PM

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	46.43	41 - 49	45.69	9.94E+01	86.84	1.10E+03	2.80
M	2	64.82	58 - 79	64.09	4.12E+02	126.93	1.86E+03	6.10
m	3	76.04	58 - 79	75.31	1.00E+03	120.63	1.50E+03	4.71
M	4	87.64	81 - 97	86.92	3.04E+02	116.98	1.66E+03	5.03
m	5	93.88	81 - 97	93.15	1.90E+02	106.06	1.30E+03	3.39
	6	129.09	124 - 132	128.38	9.09E+01	80.00	9.22E+02	4.08
	7	166.62	162 - 171	165.92	9.39E+01	76.42	7.82E+02	7.40
	8	185.99	182 - 189	185.30	9.37E+01	64.75	6.37E+02	3.13
	9	239.04	231 - 245	238.37	6.46E+02	103.11	8.46E+02	2.69
	10	285.58	282 - 288	284.93	4.20E+01	40.39	2.66E+02	2.14
	11	294.57	289 - 298	293.93	1.07E+02	60.19	4.59E+02	2.18
	12	339.26	332 - 346	338.64	1.66E+02	65.40	3.72E+02	3.21
	13	352.05	346 - 356	351.43	2.40E+02	58.61	3.30E+02	2.58
	14	368.73	364 - 371	368.13	4.07E+01	31.62	1.39E+02	4.69
	15	510.90	504 - 517	510.36	9.65E+01	50.82	2.41E+02	3.96
	16	547.17	544 - 551	546.65	2.26E+01	27.28	1.11E+02	4.45
	17	583.00	576 - 587	582.49	1.43E+02	39.75	1.26E+02	2.71
	18	598.71	595 - 602	598.21	2.13E+01	26.23	1.02E+02	1.81
M	19	609.59	602 - 622	609.10	1.50E+02	34.87	1.04E+02	2.74
m	20	617.29	602 - 622	616.80	3.09E+01	41.14	1.31E+02	4.48
	21	727.44	721 - 733	727.00	3.99E+01	36.21	1.32E+02	4.54
M	22	785.37	777 - 809	784.97	2.94E+01	28.35	5.60E+01	4.55
m	23	797.13	777 - 809	796.73	2.34E+01	26.76	5.60E+01	4.55
	24	911.60	906 - 917	911.26	9.62E+01	31.62	7.36E+01	2.54
	25	968.58	957 - 988	968.27	7.78E+01	68.15	2.46E+02	6.98
	26	1033.43	1029 - 1038	1033.15	1.92E+01	19.82	4.55E+01	3.25
	27	1094.94	1089 - 1101	1094.70	2.27E+01	26.40	7.05E+01	7.17
	28	1121.71	1116 - 1127	1121.48	3.91E+01	27.78	7.37E+01	1.37
	29	1148.39	1143 - 1152	1148.18	2.86E+01	20.71	4.49E+01	1.67
	30	1237.66	1230 - 1243	1237.50	3.48E+01	34.77	1.18E+02	1.38
	31	1270.58	1267 - 1273	1270.44	1.18E+01	15.18	3.04E+01	1.79
	32	1347.89	1344 - 1351	1347.79	1.07E+01	13.56	2.26E+01	2.69
	33	1359.28	1354 - 1363	1359.19	1.63E+01	14.28	1.94E+01	1.99
	34	1461.10	1456 - 1465	1461.07	2.75E+02	33.72	5.05E+00	2.63
	35	1509.50	1506 - 1513	1509.50	8.90E+00	10.39	1.22E+01	1.44
	36	1593.64	1591 - 1596	1593.70	7.46E+00	9.38	1.11E+01	2.74
	37	1604.94	1603 - 1607	1605.00	5.50E+00	6.67	5.00E+00	1.75
	38	1729.16	1723 - 1733	1729.30	1.03E+01	12.91	1.74E+01	4.60
	39	1736.85	1734 - 1739	1737.00	6.00E+00	4.90	0.00E+00	2.87
	40	1765.49	1761 - 1770	1765.65	2.64E+01	11.87	5.24E+00	3.02

Analysis Report for 1510093-09  
CP5002S16-17

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2081.32	2078 -	2085	2081.69	7.22E+00	7.21	3.56E+00	1.40
42	2376.81	2374 -	2379	2377.40	5.00E+00	4.47	0.00E+00	1.24
43	2426.77	2425 -	2430	2427.40	5.00E+00	4.47	0.00E+00	1.00
44	2614.96	2611 -	2619	2615.73	3.30E+01	11.49	0.00E+00	3.74

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 : 11/11/2015 2:13:36PM

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	41 -	49	9.94E+01	86.84	1.10E+03	6.95E+01
M	2	58 -	79	4.12E+02	126.93	1.86E+03	7.08E+01
m	3	58 -	79	1.00E+03	120.63	1.50E+03	6.36E+01
M	4	81 -	97	3.04E+02	116.98	1.66E+03	6.70E+01
m	5	81 -	97	1.90E+02	106.06	1.30E+03	5.93E+01
	6	124 -	132	9.09E+01	80.00	9.22E+02	6.39E+01
	7	162 -	171	9.39E+01	76.42	7.82E+02	6.08E+01
	8	182 -	189	9.37E+01	64.75	6.37E+02	5.08E+01
	9	231 -	245	6.46E+02	103.11	8.46E+02	7.37E+01
	10	282 -	288	4.20E+01	40.39	2.66E+02	3.14E+01
	11	289 -	298	1.07E+02	60.19	4.59E+02	4.64E+01
	12	332 -	346	1.66E+02	65.40	3.72E+02	4.94E+01
	13	346 -	356	2.40E+02	58.61	3.30E+02	4.09E+01
	14	364 -	371	4.07E+01	31.62	1.39E+02	2.38E+01
	15	504 -	517	9.65E+01	50.82	2.41E+02	3.85E+01
	16	544 -	551	2.26E+01	27.28	1.11E+02	2.10E+01
	17	576 -	587	1.43E+02	39.75	1.26E+02	2.61E+01
	18	595 -	602	2.13E+01	26.23	1.02E+02	2.02E+01
M	19	602 -	622	1.50E+02	34.87	1.04E+02	1.68E+01
m	20	602 -	622	3.09E+01	41.14	1.31E+02	1.88E+01
	21	721 -	733	3.99E+01	36.21	1.32E+02	2.79E+01
M	22	777 -	809	2.94E+01	28.35	5.60E+01	1.23E+01
m	23	777 -	809	2.34E+01	26.76	5.60E+01	1.23E+01

Analysis Report for 1510093-09  
 CP5002S16-17

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
24	911.60	906 -	917	9.62E+01	31.62	7.36E+01	2.04E+01
25	968.58	957 -	988	7.78E+01	68.15	2.46E+02	5.41E+01
26	1033.43	1029 -	1038	1.92E+01	19.82	4.55E+01	1.46E+01
27	1094.94	1089 -	1101	2.27E+01	26.40	7.05E+01	2.02E+01
28	1121.71	1116 -	1127	3.91E+01	27.78	7.37E+01	2.04E+01
29	1148.39	1143 -	1152	2.86E+01	20.71	4.49E+01	1.46E+01
30	1237.66	1230 -	1243	3.48E+01	34.77	1.18E+02	2.69E+01
31	1270.58	1267 -	1273	1.18E+01	15.18	3.04E+01	1.11E+01
32	1347.89	1344 -	1351	1.07E+01	13.56	2.26E+01	9.77E+00
33	1359.28	1354 -	1363	1.63E+01	14.28	1.94E+01	9.68E+00
34	1461.10	1456 -	1465	2.75E+02	33.72	5.05E+00	4.87E+00
35	1509.50	1506 -	1513	8.90E+00	10.39	1.22E+01	6.99E+00
36	1593.64	1591 -	1596	7.46E+00	9.38	1.11E+01	6.27E+00
37	1604.94	1603 -	1607	5.50E+00	6.67	5.00E+00	3.90E+00
38	1729.16	1723 -	1733	1.03E+01	12.91	1.74E+01	9.21E+00
39	1736.85	1734 -	1739	6.00E+00	4.90	0.00E+00	0.00E+00
40	1765.49	1761 -	1770	2.64E+01	11.87	5.24E+00	4.90E+00
41	2081.32	2078 -	2085	7.22E+00	7.21	3.56E+00	3.95E+00
42	2376.81	2374 -	2379	5.00E+00	4.47	0.00E+00	0.00E+00
43	2426.77	2425 -	2430	5.00E+00	4.47	0.00E+00	0.00E+00
44	2614.96	2611 -	2619	3.30E+01	11.49	0.00E+00	0.00E+00

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

### PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 2:13:36PM

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	46.43	41 -	49	45.69	9.94E+01	86.84	1.10E+03	PB-210
M 2	64.82	58 -	79	64.09	4.12E+02	126.93	1.86E+03	.....
m 3	76.04	58 -	79	75.31	1.00E+03	120.63	1.50E+03	.....
M 4	87.64	81 -	97	86.92	3.04E+02	116.98	1.66E+03	SN-126

Analysis Report for 1510093-09

CP5002S16-17

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CD-109
									LU-176
m	5	93.88	81 -	97	93.15	1.90E+02	106.06	1.30E+03	GA-67
	6	129.09	124 -	132	128.38	9.09E+01	80.00	9.22E+02	.....
	7	166.62	162 -	171	165.92	9.39E+01	76.42	7.82E+02	CE-139
	8	185.99	182 -	189	185.30	9.37E+01	64.75	6.37E+02	RA-226
	9	239.04	231 -	245	238.37	6.46E+02	103.11	8.46E+02	PB-212
	10	285.58	282 -	288	284.93	4.20E+01	40.39	2.66E+02	PM-149
	11	294.57	289 -	298	293.93	1.07E+02	60.19	4.59E+02	PB-214
	12	339.26	332 -	346	338.64	1.66E+02	65.40	3.72E+02	AC-228
	13	352.05	346 -	356	351.43	2.40E+02	58.61	3.30E+02	PB-214
	14	368.73	364 -	371	368.13	4.07E+01	31.62	1.39E+02	.....
	15	510.90	504 -	517	510.36	9.65E+01	50.82	2.41E+02	.....
	16	547.17	544 -	551	546.65	2.26E+01	27.28	1.11E+02	.....
	17	583.00	576 -	587	582.49	1.43E+02	39.75	1.26E+02	TL-208
	18	598.71	595 -	602	598.21	2.13E+01	26.23	1.02E+02	.....
M	19	609.59	602 -	622	609.10	1.50E+02	34.87	1.04E+02	BI-214
m	20	617.29	602 -	622	616.80	3.09E+01	41.14	1.31E+02	PM-144
	21	727.44	721 -	733	727.00	3.99E+01	36.21	1.32E+02	BI-212
M	22	785.37	777 -	809	784.97	2.94E+01	28.35	5.60E+01	.....
m	23	797.13	777 -	809	796.73	2.34E+01	26.76	5.60E+01	.....
	24	911.60	906 -	917	911.26	9.62E+01	31.62	7.36E+01	LU-172
									AC-228
	25	968.58	957 -	988	968.27	7.78E+01	68.15	2.46E+02	AC-228
	26	1033.43	1029 -	1038	1033.15	1.92E+01	19.82	4.55E+01	.....
	27	1094.94	1089 -	1101	1094.70	2.27E+01	26.40	7.05E+01	.....
	28	1121.71	1116 -	1127	1121.48	3.91E+01	27.78	7.37E+01	TA-182
	29	1148.39	1143 -	1152	1148.18	2.86E+01	20.71	4.49E+01	.....
	30	1237.66	1230 -	1243	1237.50	3.48E+01	34.77	1.18E+02	CO-56
	31	1270.58	1267 -	1273	1270.44	1.18E+01	15.18	3.04E+01	.....
	32	1347.89	1344 -	1351	1347.79	1.07E+01	13.56	2.26E+01	.....
	33	1359.28	1354 -	1363	1359.19	1.63E+01	14.28	1.94E+01	.....
	34	1461.10	1456 -	1465	1461.07	2.75E+02	33.72	5.05E+00	K-40
	35	1509.50	1506 -	1513	1509.50	8.90E+00	10.39	1.22E+01	.....
	36	1593.64	1591 -	1596	1593.70	7.46E+00	9.38	1.11E+01	.....
	37	1604.94	1603 -	1607	1605.00	5.50E+00	6.67	5.00E+00	.....
	38	1729.16	1723 -	1733	1729.30	1.03E+01	12.91	1.74E+01	.....
	39	1736.85	1734 -	1739	1737.00	6.00E+00	4.90	0.00E+00	.....
	40	1765.49	1761 -	1770	1765.65	2.64E+01	11.87	5.24E+00	BI-214
	41	2081.32	2078 -	2085	2081.69	7.22E+00	7.21	3.56E+00	.....
	42	2376.81	2374 -	2379	2377.40	5.00E+00	4.47	0.00E+00	.....
	43	2426.77	2425 -	2430	2427.40	5.00E+00	4.47	0.00E+00	.....
	44	2614.96	2611 -	2619	2615.73	3.30E+01	11.49	0.00E+00	TL-208

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



Analysis Report for 1510093-09  
CP5002S16-17

## PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/11/2015 2:13:36PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.43	9.94E+01	86.84	2.63E-02	1.78E-03
M	2	64.82	4.12E+02	126.93	2.30E-02	1.75E-03
m	3	76.04	1.00E+03	120.63	2.13E-02	1.69E-03
M	4	87.64	3.04E+02	116.98	1.97E-02	1.63E-03
m	5	93.88	1.90E+02	106.06	1.89E-02	1.61E-03
	6	129.09	9.09E+01	80.00	1.53E-02	1.48E-03
	7	166.62	9.39E+01	76.42	1.27E-02	1.21E-03
	8	185.99	9.37E+01	64.75	1.16E-02	1.15E-03
	9	239.04	6.46E+02	103.11	9.40E-03	9.86E-04
	10	285.58	4.20E+01	40.39	8.02E-03	8.54E-04
	11	294.57	1.07E+02	60.19	7.80E-03	8.44E-04
	12	339.26	1.66E+02	65.40	6.84E-03	7.94E-04
	13	352.05	2.40E+02	58.61	6.61E-03	7.80E-04
	14	368.73	4.07E+01	31.62	6.32E-03	7.62E-04
	15	510.90	9.65E+01	50.82	4.61E-03	5.61E-04
	16	547.17	2.26E+01	27.28	4.31E-03	5.08E-04
	17	583.00	1.43E+02	39.75	4.05E-03	4.56E-04
	18	598.71	2.13E+01	26.23	3.94E-03	4.33E-04
M	19	609.59	1.50E+02	34.87	3.87E-03	4.17E-04
m	20	617.29	3.09E+01	41.14	3.83E-03	4.05E-04
	21	727.44	3.99E+01	36.21	3.25E-03	3.03E-04
M	22	785.37	2.94E+01	28.35	3.02E-03	2.71E-04
m	23	797.13	2.34E+01	26.76	2.97E-03	2.64E-04
	24	911.60	9.62E+01	31.62	2.61E-03	2.06E-04
	25	968.58	7.78E+01	68.15	2.46E-03	1.99E-04
	26	1033.43	1.92E+01	19.82	2.31E-03	1.91E-04
	27	1094.94	2.27E+01	26.40	2.19E-03	1.83E-04
	28	1121.71	3.91E+01	27.78	2.14E-03	1.79E-04
	29	1148.39	2.86E+01	20.71	2.09E-03	1.76E-04
	30	1237.66	3.48E+01	34.77	1.95E-03	1.90E-04
	31	1270.58	1.18E+01	15.18	1.91E-03	1.99E-04
	32	1347.89	1.07E+01	13.56	1.81E-03	2.12E-04
	33	1359.28	1.63E+01	14.28	1.80E-03	2.10E-04
	34	1461.10	2.75E+02	33.72	1.68E-03	1.89E-04
	35	1509.50	8.90E+00	10.39	1.64E-03	1.79E-04
	36	1593.64	7.46E+00	9.38	1.56E-03	1.61E-04
	37	1604.94	5.50E+00	6.67	1.55E-03	1.59E-04
	38	1729.16	1.03E+01	12.91	1.46E-03	1.33E-04
	39	1736.85	6.00E+00	4.90	1.45E-03	1.32E-04
	40	1765.49	2.64E+01	11.87	1.43E-03	1.26E-04
	41	2081.32	7.22E+00	7.21	1.26E-03	1.11E-04
	42	2376.81	5.00E+00	4.47	1.14E-03	1.11E-04
	43	2426.77	5.00E+00	4.47	1.13E-03	1.11E-04
	44	2614.96	3.30E+01	11.49	1.07E-03	1.11E-04

Analysis Report for 1510093-09  
CP5002S16-17

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 : 11/11/2015 2:13:36PM

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	46.43	9.94E+01	86.84	2.00E+01	7.38E+00	7.94E+01	8.72E+01
M	2	64.82	4.12E+02	126.93			4.12E+02	1.27E+02
m	3	76.04	1.00E+03	120.63			1.00E+03	1.21E+02
M	4	87.64	3.04E+02	116.98			3.04E+02	1.17E+02
m	5	93.88	1.90E+02	106.06			1.90E+02	1.06E+02
	6	129.09	9.09E+01	80.00			9.09E+01	8.00E+01
	7	166.62	9.39E+01	76.42			9.39E+01	7.64E+01
	8	185.99	9.37E+01	64.75	1.43E+01	7.33E+00	7.94E+01	6.52E+01
	9	239.04	6.46E+02	103.11	1.09E+01	6.39E+00	6.35E+02	1.03E+02
	10	285.58	4.20E+01	40.39			4.20E+01	4.04E+01
	11	294.57	1.07E+02	60.19			1.07E+02	6.02E+01
	12	339.26	1.66E+02	65.40			1.66E+02	6.54E+01
	13	352.05	2.40E+02	58.61	8.07E+00	5.01E+00	2.32E+02	5.88E+01
	14	368.73	4.07E+01	31.62			4.07E+01	3.16E+01
	15	510.90	9.65E+01	50.82	4.21E+01	4.92E+00	5.44E+01	5.11E+01
	16	547.17	2.26E+01	27.28			2.26E+01	2.73E+01
	17	583.00	1.43E+02	39.75			1.43E+02	3.97E+01
	18	598.71	2.13E+01	26.23			2.13E+01	2.62E+01
M	19	609.59	1.50E+02	34.87	5.16E+00	1.63E+00	1.44E+02	3.49E+01
m	20	617.29	3.09E+01	41.14			3.09E+01	4.11E+01
	21	727.44	3.99E+01	36.21			3.99E+01	3.62E+01
M	22	785.37	2.94E+01	28.35			2.94E+01	2.84E+01
m	23	797.13	2.34E+01	26.76			2.34E+01	2.68E+01
	24	911.60	9.62E+01	31.62	1.01E+00	2.85E+00	9.52E+01	3.18E+01
	25	968.58	7.78E+01	68.15			7.78E+01	6.81E+01
	26	1033.43	1.92E+01	19.82			1.92E+01	1.98E+01
	27	1094.94	2.27E+01	26.40			2.27E+01	2.64E+01
	28	1121.71	3.91E+01	27.78			3.91E+01	2.78E+01
	29	1148.39	2.86E+01	20.71			2.86E+01	2.07E+01
	30	1237.66	3.48E+01	34.77			3.48E+01	3.48E+01
	31	1270.58	1.18E+01	15.18			1.18E+01	1.52E+01
	32	1347.89	1.07E+01	13.56			1.07E+01	1.36E+01
	33	1359.28	1.63E+01	14.28			1.63E+01	1.43E+01
	34	1461.10	2.75E+02	33.72			2.75E+02	3.37E+01
	35	1509.50	8.90E+00	10.39			8.90E+00	1.04E+01

Analysis Report for 1510093-09

CP5002S16-17

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1593.64	7.46E+00	9.38			7.46E+00	9.38E+00
37	1604.94	5.50E+00	6.67			5.50E+00	6.67E+00
38	1729.16	1.03E+01	12.91			1.03E+01	1.29E+01
39	1736.85	6.00E+00	4.90			6.00E+00	4.90E+00
40	1765.49	2.64E+01	11.87			2.64E+01	1.19E+01
41	2081.32	7.22E+00	7.21			7.22E+00	7.21E+00
42	2376.81	5.00E+00	4.47			5.00E+00	4.47E+00
43	2426.77	5.00E+00	4.47			5.00E+00	4.47E+00
44	2614.96	3.30E+01	11.49	1.20E+00	1.02E+00	3.18E+01	1.15E+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 : 11/11/2015 2:13:36PM  
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	46.43	9.94E+01	86.84	2.00E+01	7.38E+00	7.94E+01	8.72E+01
M	2	64.82	4.12E+02	126.93			4.12E+02	1.27E+02
m	3	76.04	1.00E+03	120.63			1.00E+03	1.21E+02
M	4	87.64	3.04E+02	116.98			3.04E+02	1.17E+02
m	5	93.88	1.90E+02	106.06			1.90E+02	1.06E+02
	6	129.09	9.09E+01	80.00			9.09E+01	8.00E+01
	7	166.62	9.39E+01	76.42			9.39E+01	7.64E+01
	8	185.99	9.37E+01	64.75	1.43E+01	7.33E+00	7.94E+01	6.52E+01
	9	239.04	6.46E+02	103.11	1.09E+01	6.39E+00	6.35E+02	1.03E+02
	10	285.58	4.20E+01	40.39			4.20E+01	4.04E+01
	11	294.57	1.07E+02	60.19			1.07E+02	6.02E+01
	12	339.26	1.66E+02	65.40			1.66E+02	6.54E+01
	13	352.05	2.40E+02	58.61	8.07E+00	5.01E+00	2.32E+02	5.88E+01
	14	368.73	4.07E+01	31.62			4.07E+01	3.16E+01
	15	510.90	9.65E+01	50.82	4.21E+01	4.92E+00	5.44E+01	5.11E+01
	16	547.17	2.26E+01	27.28			2.26E+01	2.73E+01
	17	583.00	1.43E+02	39.75			1.43E+02	3.97E+01
	18	598.71	2.13E+01	26.23			2.13E+01	2.62E+01
M	19	609.59	1.50E+02	34.87	5.16E+00	1.63E+00	1.44E+02	3.49E+01

: 00635

Analysis Report for 1510093-09  
CP5002S16-17

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	20	617.29	3.09E+01	41.14			3.09E+01	4.11E+01
	21	727.44	3.99E+01	36.21			3.99E+01	3.62E+01
M	22	785.37	2.94E+01	28.35			2.94E+01	2.84E+01
m	23	797.13	2.34E+01	26.76			2.34E+01	2.68E+01
	24	911.60	9.62E+01	31.62	1.01E+00	2.85E+00	9.52E+01	3.18E+01
	25	968.58	7.78E+01	68.15			7.78E+01	6.81E+01
	26	1033.43	1.92E+01	19.82			1.92E+01	1.98E+01
	27	1094.94	2.27E+01	26.40			2.27E+01	2.64E+01
	28	1121.71	3.91E+01	27.78			3.91E+01	2.78E+01
	29	1148.39	2.86E+01	20.71			2.86E+01	2.07E+01
	30	1237.66	3.48E+01	34.77			3.48E+01	3.48E+01
	31	1270.58	1.18E+01	15.18			1.18E+01	1.52E+01
	32	1347.89	1.07E+01	13.56			1.07E+01	1.36E+01
	33	1359.28	1.63E+01	14.28			1.63E+01	1.43E+01
	34	1461.10	2.75E+02	33.72			2.75E+02	3.37E+01
	35	1509.50	8.90E+00	10.39			8.90E+00	1.04E+01
	36	1593.64	7.46E+00	9.38			7.46E+00	9.38E+00
	37	1604.94	5.50E+00	6.67			5.50E+00	6.67E+00
	38	1729.16	1.03E+01	12.91			1.03E+01	1.29E+01
	39	1736.85	6.00E+00	4.90			6.00E+00	4.90E+00
	40	1765.49	2.64E+01	11.87			2.64E+01	1.19E+01
	41	2081.32	7.22E+00	7.21			7.22E+00	7.21E+00
	42	2376.81	5.00E+00	4.47			5.00E+00	4.47E+00
	43	2426.77	5.00E+00	4.47			5.00E+00	4.47E+00
	44	2614.96	3.30E+01	11.49	1.20E+00	1.02E+00	3.18E+01	1.15E+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	0.987	1460.81 *	10.67	2.08E+01	3.48E+00
GA-67	0.327	93.31 *	35.70	5.56E+02	2.58E+03
		208.95	2.24		
		300.22	16.00		
CD-109	0.976	88.03 *	3.72	5.92E+00	2.36E+00
SN-126	0.999	87.57 *	37.00	5.65E-01	2.23E-01

: 00536

Analysis Report for 1510093-09  
CP5002S16-17

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CE-139	0.910	165.85 *	80.35	1.48E-01	1.22E-01
TL-208	0.879	583.14 *	30.22	1.58E+00	4.75E-01
		860.37	4.48		
		2614.66 *	35.85	1.12E+00	4.23E-01
PB-210	0.999	46.50 *	4.25	9.65E-01	1.06E+00
BI-212	0.770	727.17 *	11.80	1.41E+00	1.28E+00
		1620.62	2.75		
PB-212	0.873	238.63 *	44.60	2.05E+00	3.97E-01
		300.09	3.41		
BI-214	0.643	609.31 *	46.30	1.09E+00	2.89E-01
		1120.29	15.10		
		1764.49 *	15.80	1.58E+00	7.23E-01
		2204.22	4.98		
PB-214	0.976	295.21 *	19.19	9.73E-01	5.55E-01
		351.92 *	37.19	1.28E+00	3.58E-01
RA-226	0.992	186.21 *	3.28	2.82E+00	5.66E+00
AC-228	0.937	338.32 *	11.40	2.88E+00	1.18E+00
		911.07 *	27.70	1.78E+00	6.12E-01
		969.11 *	16.60	2.58E+00	2.27E+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 : 11/11/2015 2:13:36PM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M 2	64.82	1.14549E-01	15.39		
m 3	76.04	2.78442E-01	6.02		
6	129.09	2.52501E-02	44.00		
10	285.58	1.16667E-02	48.08	Sum	
14	368.73	1.13005E-02	38.87		
15	510.90	1.51015E-02	46.96		
16	547.17	6.27671E-03	60.36		
18	598.71	5.90278E-03	61.72		
m 20	617.29	8.59653E-03	66.46	Tol.	PM-144
M 22	785.37	8.16978E-03	48.20		

Analysis Report for 1510093-09  
CP5002S16-17

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 23	797.13	6.50067E-03	57.17		
26	1033.43	5.34061E-03	51.56		
27	1094.94	6.31465E-03	58.06		
28	1121.71	1.08717E-02	35.50	Tol.	TA-182
29	1148.39	7.93573E-03	36.25		
30	1237.66	9.65869E-03	50.00		
31	1270.58	3.27161E-03	64.45		
32	1347.89	2.96717E-03	63.49		
33	1359.28	4.52991E-03	43.79		
35	1509.50	2.47222E-03	58.38		
36	1593.64	2.07265E-03	62.86	D-Esc	
37	1604.94	1.52778E-03	60.64		
38	1729.16	2.86550E-03	62.59		
39	1736.85	1.66667E-03	40.82		
41	2081.32	2.00617E-03	49.92		
42	2376.81	1.38889E-03	44.72		
43	2426.77	1.38889E-03	44.72		

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81 *	10.67	2.08E+01	3.48E+00
GA-67	0.32	93.31 *	35.70	5.56E+02	2.58E+03
		208.95	2.24		
		300.22	16.00		
CD-109	0.97	88.03 *	3.72	5.92E+00	2.36E+00
SN-126	0.99	87.57 *	37.00	5.65E-01	2.23E-01
CE-139	0.91	165.85 *	80.35	1.48E-01	1.22E-01
TL-208	0.87	583.14 *	30.22	1.58E+00	4.75E-01
		860.37	4.48		
		2614.66 *	35.85	1.12E+00	4.23E-01
PB-210	0.99	46.50 *	4.25	9.65E-01	1.06E+00

Analysis Report for 1510093-09  
CP5002S16-17

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
BI-212	0.77	727.17 *		11.80	1.41E+00	1.28E+00
		1620.62		2.75		
PB-212	0.87	238.63 *		44.60	2.05E+00	3.97E-01
		300.09		3.41		
BI-214	0.64	609.31 *		46.30	1.09E+00	2.89E-01
		1120.29		15.10		
		1764.49 *		15.80	1.58E+00	7.23E-01
		2204.22		4.98		
PB-214	0.97	295.21 *		19.19	9.73E-01	5.55E-01
		351.92 *		37.19	1.28E+00	3.58E-01
RA-226	0.99	186.21 *		3.28	2.82E+00	5.66E+00
AC-228	0.93	338.32 *		11.40	2.88E+00	1.18E+00
		911.07 *		27.70	1.78E+00	6.12E-01
		969.11 *		16.60	2.58E+00	2.27E+00

\* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

## INTERFERENCE CORRECTED REPORT

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.987	2.08E+01	3.48E+00	
GA-67	0.327	5.56E+02	2.58E+03	
? CD-109	0.976	5.92E+00	2.36E+00	
? SN-126	0.999	5.65E-01	2.23E-01	
CE-139	0.910	1.48E-01	1.22E-01	
TL-208	0.879	1.33E+00	3.16E-01	
PB-210	0.999	9.65E-01	1.06E+00	
BI-212	0.770	1.41E+00	1.28E+00	
PB-212	0.873	2.05E+00	3.97E-01	
BI-214	0.643	1.16E+00	2.68E-01	
PB-214	0.976	1.19E+00	3.01E-01	
RA-226	0.992	2.82E+00	5.66E+00	
AC-228	0.937	2.05E+00	5.28E-01	

Analysis Report for 1510093-09  
CP5002S16-17

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

Errors quoted at 2.000sigma

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Analysis Report for 1510093-09  
CP5002S16-17

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 2:13:36PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	64.82	1.14549E-01	15.39	
m	3	76.04	2.78442E-01	6.02	
	6	129.09	2.52501E-02	44.00	
	10	285.58	1.16667E-02	48.08	Sum
	14	368.73	1.13005E-02	38.87	
	15	510.90	1.51015E-02	46.96	
	16	547.17	6.27671E-03	60.36	
	18	598.71	5.90278E-03	61.72	
m	20	617.29	8.59653E-03	66.46	Tol. PM-144
M	22	785.37	8.16978E-03	48.20	
m	23	797.13	6.50067E-03	57.17	
	26	1033.43	5.34061E-03	51.56	
	27	1094.94	6.31465E-03	58.06	
	28	1121.71	1.08717E-02	35.50	Tol. TA-182
	29	1148.39	7.93573E-03	36.25	
	30	1237.66	9.65869E-03	50.00	
	31	1270.58	3.27161E-03	64.45	
	32	1347.89	2.96717E-03	63.49	
	33	1359.28	4.52991E-03	43.79	
	35	1509.50	2.47222E-03	58.38	
	36	1593.64	2.07265E-03	62.86	D-Esc
	37	1604.94	1.52778E-03	60.64	
	38	1729.16	2.86550E-03	62.59	
	39	1736.85	1.66667E-03	40.82	
	41	2081.32	2.00617E-03	49.92	
	42	2376.81	1.38889E-03	44.72	
	43	2426.77	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 1510093-09  
CP5002S16-17

## NUCLIDE MDA REPORT

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	6.07E-01	2.00E+00	2.00E+00
+	NA-22	1274.54	99.94	-3.56E-02	2.15E-01	2.15E-01
+	NA-24	1368.53	99.99	-3.83E+14	3.05E+15	5.40E+15
		2754.09	99.86	4.14E+14		3.05E+15
+	AL-26	1808.65	99.76	1.48E-02	1.68E-01	1.68E-01
+	K-40	1460.81	* 10.67	2.08E+01	9.39E-01	9.39E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-2.13E-01	9.66E-02	9.66E-02
		78.34	96.00	2.56E-01		1.22E-01
+	SC-46	889.25	99.98	8.45E-02	2.33E-01	2.33E-01
		1120.51	99.99	2.13E-01		3.33E-01
+	V-48	983.52	99.98	-1.48E-01	7.80E-01	7.85E-01
		1312.10	97.50	6.96E-02		7.80E-01
+	CR-51	320.08	9.83	-1.06E+00	2.90E+00	2.90E+00
+	MN-54	834.83	99.97	-2.10E-02	1.93E-01	1.93E-01
+	CO-56	846.75	99.96	-1.65E-01	1.92E-01	1.92E-01
		1037.75	14.03	2.06E-02		1.76E+00
		1238.25	67.00	4.37E-01		5.90E-01
		1771.40	15.51	2.41E-01		1.81E+00
		2598.48	16.90	2.95E-01		1.32E+00
+	CO-57	122.06	85.51	-6.21E-02	1.14E-01	1.14E-01
		136.48	10.60	-9.55E-02		9.97E-01
+	CO-58	810.76	99.40	-1.41E-02	2.14E-01	2.14E-01
+	FE-59	1099.22	56.50	-3.74E-02	5.51E-01	5.51E-01
		1291.56	43.20	-2.27E-01		7.24E-01
+	CO-60	1173.22	100.00	1.48E-01	1.60E-01	2.46E-01
		1332.49	100.00	-1.03E-01		1.60E-01
+	ZN-65	1115.52	50.75	-7.50E-02	4.19E-01	4.19E-01
+	GA-67	93.31	* 35.70	5.56E+02	7.43E+02	7.43E+02
		208.95	2.24	4.78E+03		7.86E+03
		300.22	16.00	1.73E+02		1.17E+03
+	SE-75	121.11	16.70	-2.49E-01	1.98E-01	6.60E-01
		136.00	59.20	-3.90E-02		1.98E-01
		264.65	59.80	-1.69E-01		2.19E-01
		279.53	25.20	-1.29E-02		5.62E-01
		400.65	11.40	1.24E-01		1.37E+00
+	RB-82	776.52	13.00	-3.94E-01	3.30E+00	3.30E+00
+	RB-83	520.41	46.00	2.11E-01	4.20E-01	4.20E-01
		529.64	30.30	-2.98E-01		5.87E-01
		552.65	16.40	3.34E-01		1.19E+00

Analysis Report for 1510093-09  
CP5002S16-17

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
+	KR-85	513.99	0.43	2.45E+01	4.17E+01	4.17E+01
+	SR-85	513.99	99.27	1.53E-01	2.61E-01	2.61E-01
+	Y-88	898.02	93.40	-1.11E-01	1.84E-01	2.30E-01
		1836.01	99.38	-3.68E-02		1.84E-01
+	NB-93M	16.57	9.43	9.22E-01	4.63E-01	4.63E-01
+	NB-94	702.63	100.00	-1.61E-02	1.58E-01	1.58E-01
		871.10	100.00	-3.25E-02		1.58E-01
+	NB-95	765.79	99.81	1.52E-01	3.52E-01	3.52E-01
+	NB-95M	235.69	25.00	1.46E+03	5.37E+02	5.37E+02
+	ZR-95	724.18	43.70	5.05E-01	3.64E-01	6.30E-01
		756.72	55.30	-1.81E-01		3.64E-01
+	MO-99	181.06	6.20	4.71E+02	7.41E+03	1.00E+04
		739.58	12.80	2.61E+03		7.41E+03
		778.00	4.50	2.03E+02		2.18E+04
+	RU-103	497.08	89.00	4.67E-02	2.71E-01	2.71E-01
+	RU-106	621.84	9.80	-1.04E-01	1.47E+00	1.47E+00
+	AG-108M	433.93	89.90	-1.85E-02	1.32E-01	1.32E-01
		614.37	90.40	-2.92E-02		2.21E-01
		722.95	90.50	4.34E-03		2.02E-01
+	CD-109	88.03	* 3.72	5.92E+00	5.03E+00	5.03E+00
+	AG-110M	657.75	93.14	1.34E-02	1.76E-01	1.76E-01
		677.61	10.53	-1.40E-02		1.57E+00
		706.67	16.46	-5.41E-02		1.06E+00
		763.93	21.98	1.54E-01		8.60E-01
		884.67	71.63	-1.55E-01		2.22E-01
		1384.27	23.94	1.84E-02		8.82E-01
+	CD-113M	263.70	0.02	-2.92E+02	4.74E+02	4.74E+02
+	SN-113	255.12	1.93	1.29E-01	2.26E-01	7.35E+00
		391.69	64.90	-5.51E-02		2.26E-01
+	TE123M	159.00	84.10	5.05E-04	1.48E-01	1.48E-01
+	SB-124	602.71	97.87	-6.43E-01	2.46E-01	2.46E-01
		645.85	7.26	1.41E+00		3.25E+00
		722.78	11.10	-7.68E-02		2.27E+00
		1691.02	49.00	9.20E-02		4.38E-01
+	I-125	35.49	6.49	2.83E-01	1.20E+00	1.20E+00
+	SB-125	176.33	6.89	-1.42E-01	4.37E-01	1.56E+00
		427.89	29.33	4.82E-02		4.37E-01
		463.38	10.35	3.92E-01		1.44E+00
		600.56	17.80	5.56E-02		9.14E-01
		635.90	11.32	-1.08E-01		1.25E+00
+	SB-126	414.70	83.30	1.61E-01	1.05E+00	1.05E+00
		666.33	99.60	6.73E-02		1.05E+00
		695.00	99.60	3.69E-01		1.13E+00
		720.50	53.80	-2.87E-01		2.02E+00
+	SN-126	87.57	* 37.00	5.65E-01	4.81E-01	4.81E-01
+	SB-127	473.00	25.00	1.28E+02	2.00E+02	2.61E+02
		685.20	35.70	-7.76E+01		2.00E+02
		783.80	14.70	2.10E+02		5.93E+02

Analysis Report for 1510093-09  
CP5002S16-17

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	I-129	29.78	57.00	-5.48E-03	8.67E-02	8.67E-02
		33.60	13.20	-7.34E-02		3.84E-01
		39.58	7.52	8.39E-02		7.18E-01
+	I-131	284.30	6.05	-2.70E+00	2.67E+00	3.80E+01
		364.48	81.20	-1.59E-01		2.67E+00
		636.97	7.26	-1.72E+01		3.59E+01
		722.89	1.80	-6.12E+00		1.81E+02
+	TE-132	49.72	13.10	-2.89E+02	1.90E+02	7.23E+02
		228.16	88.00	-6.32E+01		1.90E+02
+	BA-133	81.00	33.00	-4.68E-01	3.16E-01	3.27E-01
		302.84	17.80	-6.93E-02		7.09E-01
		356.01	60.00	3.37E-02		3.16E-01
+	I-133	529.87	86.30	-6.31E+10	1.24E+11	1.24E+11
+	XE-133	81.00	38.00	-3.75E+01	2.62E+01	2.62E+01
+	CS-134	563.23	8.38	-2.27E-01	1.96E-01	1.79E+00
		569.32	15.43	1.19E-01		9.91E-01
		604.70	97.60	-3.19E-01		1.99E-01
		795.84	85.40	-3.03E-02		1.96E-01
		801.93	8.73	4.87E-01		2.08E+00
+	CS-135	268.24	16.00	3.81E-01	7.32E-01	7.32E-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	-2.40E+00	1.01E+00	8.16E+00
		163.89	4.61	1.55E-01		1.41E+01
		176.55	13.56	-4.27E-01		4.70E+00
		273.65	12.66	7.49E-01		5.77E+00
		340.57	48.50	3.87E+00		1.95E+00
		818.50	99.70	-1.38E-01		1.01E+00
		1048.07	79.60	-3.89E-01		1.31E+00
		1235.34	19.70	5.33E+00		8.77E+00
+	CS-137	661.65	85.12	6.73E-03	1.85E-01	1.85E-01
+	LA-138	788.74	34.00	1.29E-01	2.49E-01	5.18E-01
		1435.80	66.00	1.08E-01		2.49E-01
+	CE-139	165.85	* 80.35	1.48E-01	1.96E-01	1.96E-01
+	BA-140	162.64	6.70	8.41E-01	3.48E+00	1.02E+01
		304.84	4.50	-6.75E+00		1.73E+01
		423.70	3.20	5.68E+00		2.56E+01
		437.55	2.00	8.08E+00		3.98E+01
		537.32	25.00	9.27E-01		3.48E+00
+	LA-140	328.77	20.50	1.66E+00	1.51E+00	3.98E+00
		487.03	45.50	-5.65E-01		1.72E+00
		815.85	23.50	-6.26E-01		4.22E+00
		1596.49	95.49	3.87E-01		1.51E+00
+	CE-141	145.44	48.40	6.23E-02	4.28E-01	4.28E-01
+	CE-143	57.36	11.80	3.65E+06	1.11E+07	1.95E+07
		293.26	42.00	1.29E+07		1.11E+07
		664.55	5.20	3.10E+07		9.78E+07
+	CE-144	133.54	10.80	-7.33E-02	9.88E-01	9.88E-01

Analysis Report for 1510093-09  
CP5002S16-17

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	PM-144	476.78	42.00	2.59E-02	1.70E-01	3.30E-01
		618.01	98.60	6.81E-02		1.70E-01
		696.49	99.49	-2.27E-02		1.71E-01
+	PM-145	36.85	21.70	-1.20E-02	1.34E-01	2.43E-01
		37.36	39.70	1.09E-02		1.34E-01
		42.30	15.10	6.04E-02		3.94E-01
		72.40	2.31	8.63E+00		4.91E+00
+	PM-146	453.90	39.94	2.55E-02	3.52E-01	3.52E-01
		735.90	14.01	1.03E-01		1.12E+00
		747.13	13.10	4.89E-02		1.22E+00
+	ND-147	91.11	28.90	6.20E+00	3.28E+00	3.28E+00
		531.02	13.10	-2.56E+00		8.98E+00
+	PM-149	285.90	3.10	-2.76E+04	1.79E+05	1.79E+05
+	EU-152	121.78	20.50	-2.38E-01	4.38E-01	4.38E-01
		244.69	5.40	-1.74E-01		2.58E+00
		344.27	19.13	-3.28E+00		6.23E-01
		778.89	9.20	1.78E-02		1.91E+00
		964.01	10.40	-1.56E-01		2.25E+00
		1085.78	7.22	1.51E-01		2.58E+00
		1112.02	9.60	-8.76E-02		1.93E+00
		1407.95	14.94	-8.38E-02		1.09E+00
+	GD-153	97.43	31.30	-2.89E-02	3.19E-01	3.19E-01
		103.18	22.20	9.65E-02		4.27E-01
+	EU-154	123.07	40.50	-1.22E-01	2.24E-01	2.24E-01
		723.30	19.70	2.01E-02		9.33E-01
		873.19	11.50	3.44E-01		1.46E+00
		996.32	10.30	6.48E-02		1.71E+00
		1004.76	17.90	-3.03E-01		9.31E-01
		1274.45	35.50	-9.85E-02		5.95E-01
+	EU-155	86.50	30.90	2.85E-01	3.40E-01	3.40E-01
		105.30	20.70	-1.18E-01		4.13E-01
+	EU-156	811.77	10.40	4.31E-01	6.84E+00	6.84E+00
		1153.47	7.20	-1.14E+00		1.49E+01
		1230.71	8.90	-7.19E-01		1.27E+01
+	HO-166M	184.41	72.60	-1.65E-02	1.64E-01	1.64E-01
		280.45	29.60	3.11E-02		4.00E-01
		410.94	11.10	4.85E-01		1.20E+00
		711.69	54.10	6.37E-02		2.96E-01
+	TM-171	66.72	0.14	4.55E+00	6.82E+01	6.82E+01
+	HF-172	81.75	4.52	-8.20E+00	8.89E-01	2.32E+00
		125.81	11.30	3.35E-02		8.89E-01
+	LU-172	181.53	20.60	2.66E+00	1.15E+01	1.94E+01
		810.06	16.63	-2.09E+00		3.16E+01
		912.12	15.25	9.82E+01		6.33E+01
		1093.66	62.50	2.66E+00		1.15E+01
+	LU-173	100.72	5.24	-2.47E-01	5.89E-01	1.69E+00
		272.11	21.20	-1.80E-02		5.89E-01
+	HF-175	343.40	84.00	-3.67E-01	2.12E-01	2.12E-01
+	LU-176	88.34	13.30	1.03E+00	1.30E-01	8.06E-01

Analysis Report for 1510093-09  
CP5002S16-17

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
LU-176	201.83	86.00	-4.56E-02	1.30E-01	1.31E-01
	306.78	94.00	-1.59E-02		1.30E-01
+ TA-182	67.75	41.20	-5.99E-01	2.72E-01	2.72E-01
	1121.30	34.90	6.91E-01		8.90E-01
	1189.05	16.23	-4.13E-01		1.65E+00
	1221.41	26.98	1.37E-01		1.03E+00
	1231.02	11.44	-1.44E-01		2.54E+00
+ IR-192	308.46	29.68	-2.01E-01	3.79E-01	5.52E-01
	468.07	48.10	-2.61E-01		3.79E-01
+ HG-203	279.19	77.30	-5.72E-03	2.50E-01	2.50E-01
+ BI-207	569.67	97.72	1.82E-02	1.52E-01	1.52E-01
	1063.62	74.90	-1.61E-02		2.30E-01
+ TL-208	583.14	* 30.22	1.58E+00	2.36E-01	6.08E-01
	860.37	4.48	1.40E+00		3.94E+00
	2614.66	* 35.85	1.12E+00		2.36E-01
+ BI-210M	262.00	45.00	-1.74E-01	2.37E-01	2.37E-01
	300.00	23.00	1.50E-01		6.11E-01
+ PB-210	46.50	* 4.25	9.65E-01	1.74E+00	1.74E+00
+ PB-211	404.84	2.90	-1.67E+00	4.37E+00	4.37E+00
	831.96	2.90	-1.11E-01		6.09E+00
+ BI-212	727.17	* 11.80	1.41E+00	2.07E+00	2.07E+00
	1620.62	2.75	7.64E-01		6.02E+00
+ PB-212	238.63	* 44.60	2.05E+00	4.88E-01	4.88E-01
	300.09	3.41	1.01E+00		4.12E+00
+ BI-214	609.31	* 46.30	1.09E+00	7.00E-01	7.00E-01
	1120.29	15.10	1.06E+00		1.66E+00
	1764.49	* 15.80	1.58E+00		7.48E-01
	2204.22	4.98	3.01E+00		4.94E+00
+ PB-214	295.21	* 19.19	9.73E-01	4.71E-01	8.66E-01
	351.92	* 37.19	1.28E+00		4.71E-01
+ RN-219	401.80	6.50	8.01E-02	1.97E+00	1.97E+00
+ RA-223	323.87	3.88	8.36E-02	3.27E+00	3.27E+00
+ RA-224	240.98	3.95	2.20E+01	5.12E+00	5.12E+00
+ RA-225	40.00	31.00	1.01E-01	8.69E-01	8.69E-01
+ RA-226	186.21	* 3.28	2.82E+00	3.76E+00	3.76E+00
+ TH-227	50.10	8.40	-3.09E-01	7.73E-01	7.73E-01
	236.00	11.50	4.41E+00		1.63E+00
	256.20	6.30	5.59E-01		1.82E+00
+ AC-228	338.32	* 11.40	2.88E+00	8.23E-01	1.76E+00
	911.07	* 27.70	1.78E+00		8.23E-01
	969.11	* 16.60	2.58E+00		3.68E+00
+ TH-230	48.44	16.90	-1.11E-01	3.80E-01	3.80E-01
	62.85	4.60	1.67E+00		1.87E+00
	67.67	0.37	-5.42E+01		2.46E+01
+ PA-231	283.67	1.60	-1.85E+00	5.45E+00	7.51E+00
	302.67	2.30	-5.33E-01		5.45E+00
+ TH-231	25.64	14.70	-1.16E-01	3.33E-01	3.33E-01
	84.21	6.40	-6.02E+00		1.51E+00

Analysis Report for 1510093-09  
CP5002S16-17

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	PA-233	311.98	38.60	9.14E-02	7.60E-01	7.60E-01
+	PA-234	131.20	20.40	5.68E-03	4.90E-01	4.90E-01
		733.99	8.80	-3.90E-01		1.72E+00
		946.00	12.00	7.39E-01		1.80E+00
+	PA-234M	1001.03	0.92	3.76E+00	1.94E+01	1.94E+01
+	TH-234	63.29	3.80	2.34E+00	2.31E+00	2.31E+00
+	U-235	143.76	10.50	9.77E-02	9.57E-01	9.57E-01
		163.35	4.70	2.50E-02		2.27E+00
		205.31	4.70	-3.38E-01		2.47E+00
+	NP-237	86.50	12.60	6.91E-01	8.24E-01	8.24E-01
+	NP-239	106.10	22.70	-2.54E+03	8.94E+03	8.94E+03
		228.18	10.70	-9.20E+03		2.56E+04
		277.60	14.10	-5.59E+03		1.98E+04
+	AM-241	59.54	35.90	1.16E-02	2.22E-01	2.22E-01
+	AM-243	74.67	66.00	8.09E-01	1.84E-01	1.84E-01
+	CM-243	209.75	3.29	3.28E+00	8.36E-01	3.76E+00
		228.14	10.60	-3.59E-01		1.08E+00
		277.60	14.00	-2.36E-01		8.36E-01

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

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
BE-7	477.59	10.42	2.00E+00	2.00E+00	6.07E-01	9.43E-01
NA-22	1274.54	99.94	2.15E-01	2.15E-01	-3.56E-02	9.76E-02
NA-24	1368.53	99.99	5.40E+15	3.05E+15	-3.83E+14	2.37E+15
	2754.09	99.86	3.05E+15		4.14E+14	9.64E+14

Analysis Report for 1510093-09  
CP5002S16-17

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	1.68E-01	1.68E-01	1.48E-02	7.11E-02
+ K-40	1460.81	* 10.67	9.39E-01	9.39E-01	2.08E+01	3.67E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	9.66E-02	9.66E-02	-2.13E-01	4.75E-02
	78.34	96.00	1.22E-01		2.56E-01	6.00E-02
SC-46	889.25	99.98	2.33E-01	2.33E-01	8.45E-02	1.07E-01
	1120.51	99.99	3.33E-01		2.13E-01	1.55E-01
V-48	983.52	99.98	7.85E-01	7.80E-01	-1.48E-01	3.59E-01
	1312.10	97.50	7.80E-01		6.96E-02	3.45E-01
CR-51	320.08	9.83	2.90E+00	2.90E+00	-1.06E+00	1.39E+00
MN-54	834.83	99.97	1.93E-01	1.93E-01	-2.10E-02	8.95E-02
CO-56	846.75	99.96	1.92E-01	1.92E-01	-1.65E-01	8.73E-02
	1037.75	14.03	1.76E+00		2.06E-02	8.02E-01
	1238.25	67.00	5.90E-01		4.37E-01	2.76E-01
	1771.40	15.51	1.81E+00		2.41E-01	7.92E-01
	2598.48	16.90	1.32E+00		2.95E-01	5.24E-01
CO-57	122.06	85.51	1.14E-01	1.14E-01	-6.21E-02	5.57E-02
	136.48	10.60	9.97E-01		-9.55E-02	4.86E-01
CO-58	810.76	99.40	2.14E-01	2.14E-01	-1.41E-02	9.82E-02
FE-59	1099.22	56.50	5.51E-01	5.51E-01	-3.74E-02	2.50E-01
	1291.56	43.20	7.24E-01		-2.27E-01	3.24E-01
CO-60	1173.22	100.00	2.46E-01	1.60E-01	1.48E-01	1.14E-01
	1332.49	100.00	1.60E-01		-1.03E-01	6.98E-02
ZN-65	1115.52	50.75	4.19E-01	4.19E-01	-7.50E-02	1.91E-01
+ GA-67	93.31	* 35.70	7.43E+02	7.43E+02	5.56E+02	3.68E+02
	208.95	2.24	7.86E+03		4.78E+03	3.82E+03
	300.22	16.00	1.17E+03		1.73E+02	5.64E+02
SE-75	121.11	16.70	6.60E-01	1.98E-01	-2.49E-01	3.22E-01
	136.00	59.20	1.98E-01		-3.90E-02	9.63E-02
	264.65	59.80	2.19E-01		-1.69E-01	1.05E-01
	279.53	25.20	5.62E-01		-1.29E-02	2.70E-01
	400.65	11.40	1.37E+00		1.24E-01	6.50E-01
RB-82	776.52	13.00	3.30E+00	3.30E+00	-3.94E-01	1.53E+00
RB-83	520.41	46.00	4.20E-01	4.20E-01	2.11E-01	1.98E-01
	529.64	30.30	5.87E-01		-2.98E-01	2.75E-01
	552.65	16.40	1.19E+00		3.34E-01	5.60E-01
KR-85	513.99	0.43	4.17E+01	4.17E+01	2.45E+01	1.99E+01
SR-85	513.99	99.27	2.61E-01	2.61E-01	1.53E-01	1.25E-01
Y-88	898.02	93.40	2.30E-01	1.84E-01	-1.11E-01	1.06E-01
	1836.01	99.38	1.84E-01		-3.68E-02	7.55E-02
NB-93M	16.57	9.43	4.63E-01	4.63E-01	9.22E-01	2.25E-01
NB-94	702.63	100.00	1.58E-01	1.58E-01	-1.61E-02	7.37E-02
	871.10	100.00	1.58E-01		-3.25E-02	7.22E-02
NB-95	765.79	99.81	3.52E-01	3.52E-01	1.52E-01	1.64E-01
NB-95M	235.69	25.00	5.37E+02	5.37E+02	1.46E+03	2.63E+02
ZR-95	724.18	43.70	6.30E-01	3.64E-01	5.05E-01	2.97E-01
	756.72	55.30	3.64E-01		-1.81E-01	1.67E-01
MO-99	181.06	6.20	1.00E+04	7.41E+03	4.71E+02	4.88E+03
	739.58	12.80	7.41E+03		2.61E+03	3.45E+03
	778.00	4.50	2.18E+04		2.03E+02	1.02E+04
RU-103	497.08	89.00	2.71E-01	2.71E-01	4.67E-02	1.28E-01
RU-106	621.84	9.80	1.47E+00	1.47E+00	-1.04E-01	6.82E-01
AG-108M	433.93	89.90	1.32E-01	1.32E-01	-1.85E-02	6.22E-02



Analysis Report for 1510093-09  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-108M	614.37	90.40	2.21E-01	1.32E-01	-2.92E-02	1.05E-01
	722.95	90.50	2.02E-01		4.34E-03	9.46E-02
+ CD-109	88.03 *	3.72	5.03E+00	5.03E+00	5.92E+00	2.49E+00
AG-110M	657.75	93.14	1.76E-01	1.76E-01	1.34E-02	8.22E-02
	677.61	10.53	1.57E+00		-1.40E-02	7.31E-01
	706.67	16.46	1.06E+00		-5.41E-02	4.91E-01
	763.93	21.98	8.60E-01		1.54E-01	4.00E-01
	884.67	71.63	2.22E-01		-1.55E-01	1.00E-01
	1384.27	23.94	8.82E-01		1.84E-02	3.93E-01
CD-113M	263.70	0.02	4.74E+02	4.74E+02	-2.92E+02	2.27E+02
SN-113	255.12	1.93	7.35E+00	2.26E-01	1.29E-01	3.55E+00
	391.69	64.90	2.26E-01		-5.51E-02	1.07E-01
TE123M	159.00	84.10	1.48E-01	1.48E-01	5.05E-04	7.21E-02
SB-124	602.71	97.87	2.46E-01	2.46E-01	-6.43E-01	1.16E-01
	645.85	7.26	3.25E+00		1.41E+00	1.52E+00
	722.78	11.10	2.27E+00		-7.68E-02	1.06E+00
	1691.02	49.00	4.38E-01		9.20E-02	1.82E-01
I-125	35.49	6.49	1.20E+00	1.20E+00	2.83E-01	5.85E-01
SB-125	176.33	6.89	1.56E+00	4.37E-01	-1.42E-01	7.56E-01
	427.89	29.33	4.37E-01		4.82E-02	2.07E-01
	463.38	10.35	1.44E+00		3.92E-01	6.84E-01
	600.56	17.80	9.14E-01		5.56E-02	4.30E-01
	635.90	11.32	1.25E+00		-1.08E-01	5.79E-01
SB-126	414.70	83.30	1.05E+00	1.05E+00	1.61E-01	4.98E-01
	666.33	99.60	1.05E+00		6.73E-02	4.92E-01
	695.00	99.60	1.13E+00		3.69E-01	5.28E-01
	720.50	53.80	2.02E+00		-2.87E-01	9.38E-01
+ SN-126	87.57 *	37.00	4.81E-01	4.81E-01	5.65E-01	2.38E-01
SB-127	473.00	25.00	2.61E+02	2.00E+02	1.28E+02	1.23E+02
	685.20	35.70	2.00E+02		-7.76E+01	9.30E+01
	783.80	14.70	5.93E+02		2.10E+02	2.77E+02
I-129	29.78	57.00	8.67E-02	8.67E-02	-5.48E-03	4.23E-02
	33.60	13.20	3.84E-01		-7.34E-02	1.87E-01
	39.58	7.52	7.18E-01		8.39E-02	3.50E-01
I-131	284.30	6.05	3.80E+01	2.67E+00	-2.70E+00	1.83E+01
	364.48	81.20	2.67E+00		-1.59E-01	1.27E+00
	636.97	7.26	3.59E+01		-1.72E+01	1.66E+01
	722.89	1.80	1.81E+02		-6.12E+00	8.46E+01
TE-132	49.72	13.10	7.23E+02	1.90E+02	-2.89E+02	3.53E+02
	228.16	88.00	1.90E+02		-6.32E+01	9.17E+01
BA-133	81.00	33.00	3.27E-01	3.16E-01	-4.68E-01	1.61E-01
	302.84	17.80	7.09E-01		-6.93E-02	3.41E-01
	356.01	60.00	3.16E-01		3.37E-02	1.53E-01
I-133	529.87	86.30	1.24E+11	1.24E+11	-6.31E+10	5.83E+10
XE-133	81.00	38.00	2.62E+01	2.62E+01	-3.75E+01	1.29E+01
CS-134	563.23	8.38	1.79E+00	1.96E-01	-2.27E-01	8.39E-01
	569.32	15.43	9.91E-01		1.19E-01	4.66E-01
	604.70	97.60	1.99E-01		-3.19E-01	9.46E-02
	795.84	85.40	1.96E-01		-3.03E-02	9.04E-02
	801.93	8.73	2.08E+00		4.87E-01	9.68E-01
CS-135	268.24	16.00	7.32E-01	7.32E-01	3.81E-01	3.53E-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

Analysis Report for 1510093-09  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@ I-135	1678.03	9.54	1.00E+26	1.00E+26	1.00E+26	1.00E+20
CS-136	153.22	7.46	8.16E+00	1.01E+00	-2.40E+00	3.97E+00
	163.89	4.61	1.41E+01		1.55E-01	6.85E+00
	176.55	13.56	4.70E+00		-4.27E-01	2.28E+00
	273.65	12.66	5.77E+00		7.49E-01	2.78E+00
	340.57	48.50	1.95E+00		3.87E+00	9.41E-01
	818.50	99.70	1.01E+00		-1.38E-01	4.69E-01
	1048.07	79.60	1.31E+00		-3.89E-01	5.96E-01
	1235.34	19.70	8.77E+00		5.33E+00	4.09E+00
CS-137	661.65	85.12	1.85E-01	1.85E-01	6.73E-03	8.63E-02
LA-138	788.74	34.00	5.18E-01	2.49E-01	1.29E-01	2.41E-01
	1435.80	66.00	2.49E-01		1.08E-01	1.08E-01
+ CE-139	165.85	* 80.35	1.96E-01	1.96E-01	1.48E-01	9.60E-02
BA-140	162.64	6.70	1.02E+01	3.48E+00	8.41E-01	4.98E+00
	304.84	4.50	1.73E+01		-6.75E+00	8.28E+00
	423.70	3.20	2.56E+01		5.68E+00	1.21E+01
	437.55	2.00	3.98E+01		8.08E+00	1.88E+01
	537.32	25.00	3.48E+00		9.27E-01	1.64E+00
LA-140	328.77	20.50	3.98E+00	1.51E+00	1.66E+00	1.91E+00
	487.03	45.50	1.72E+00		-5.65E-01	8.05E-01
	815.85	23.50	4.22E+00		-6.26E-01	1.94E+00
	1596.49	95.49	1.51E+00		3.87E-01	6.77E-01
CE-141	145.44	48.40	4.28E-01	4.28E-01	6.23E-02	2.08E-01
CE-143	57.36	11.80	1.95E+07	1.11E+07	3.65E+06	9.53E+06
	293.26	42.00	1.11E+07		1.29E+07	5.40E+06
	664.55	5.20	9.78E+07		3.10E+07	4.57E+07
CE-144	133.54	10.80	9.88E-01	9.88E-01	-7.33E-02	4.82E-01
PM-144	476.78	42.00	3.30E-01	1.70E-01	2.59E-02	1.56E-01
	618.01	98.60	1.70E-01		6.81E-02	7.99E-02
	696.49	99.49	1.71E-01		-2.27E-02	7.97E-02
PM-145	36.85	21.70	2.43E-01	1.34E-01	-1.20E-02	1.18E-01
	37.36	39.70	1.34E-01		1.09E-02	6.56E-02
	42.30	15.10	3.94E-01		6.04E-02	1.93E-01
	72.40	2.31	4.91E+00		8.63E+00	2.42E+00
PM-146	453.90	39.94	3.52E-01	3.52E-01	2.55E-02	1.67E-01
	735.90	14.01	1.12E+00		1.03E-01	5.20E-01
	747.13	13.10	1.22E+00		4.89E-02	5.64E-01
ND-147	91.11	28.90	3.28E+00	3.28E+00	6.20E+00	1.61E+00
	531.02	13.10	8.98E+00		-2.56E+00	4.21E+00
PM-149	285.90	3.10	1.79E+05	1.79E+05	-2.76E+04	8.60E+04
EU-152	121.78	20.50	4.38E-01	4.38E-01	-2.38E-01	2.13E-01
	244.69	5.40	2.58E+00		-1.74E-01	1.25E+00
	344.27	19.13	6.23E-01		-3.28E+00	2.97E-01
	778.89	9.20	1.91E+00		1.78E-02	8.91E-01
	964.01	10.40	2.25E+00		-1.56E-01	1.05E+00
	1085.78	7.22	2.58E+00		1.51E-01	1.18E+00
	1112.02	9.60	1.93E+00		-8.76E-02	8.78E-01
	1407.95	14.94	1.09E+00		-8.38E-02	4.72E-01
GD-153	97.43	31.30	3.19E-01	3.19E-01	-2.89E-02	1.56E-01
	103.18	22.20	4.27E-01		9.65E-02	2.08E-01
EU-154	123.07	40.50	2.24E-01	2.24E-01	-1.22E-01	1.09E-01
	723.30	19.70	9.33E-01		2.01E-02	4.38E-01
	873.19	11.50	1.46E+00		3.44E-01	6.73E-01

Analysis Report for 1510093-09  
CP5002S16-17

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	1.71E+00	2.24E-01	6.48E-02	7.83E-01	
	1004.76	17.90	9.31E-01		-3.03E-01	4.22E-01	
	1274.45	35.50	5.95E-01		-9.85E-02	2.70E-01	
EU-155	86.50	30.90	3.40E-01	3.40E-01	2.85E-01	1.67E-01	
	105.30	20.70	4.13E-01		-1.18E-01	2.01E-01	
EU-156	811.77	10.40	6.84E+00	6.84E+00	4.31E-01	3.13E+00	
	1153.47	7.20	1.49E+01		-1.14E+00	6.87E+00	
	1230.71	8.90	1.27E+01		-7.19E-01	5.84E+00	
HO-166M	184.41	72.60	1.64E-01	1.64E-01	-1.65E-02	8.00E-02	
	280.45	29.60	4.00E-01		3.11E-02	1.92E-01	
	410.94	11.10	1.20E+00		4.85E-01	5.70E-01	
	711.69	54.10	2.96E-01		6.37E-02	1.38E-01	
TM-171	66.72	0.14	6.82E+01	6.82E+01	4.55E+00	3.35E+01	
HF-172	81.75	4.52	2.32E+00	8.89E-01	-8.20E+00	1.14E+00	
	125.81	11.30	8.89E-01		3.35E-02	4.34E-01	
LU-172	181.53	20.60	1.94E+01	1.15E+01	2.66E+00	9.44E+00	
	810.06	16.63	3.16E+01		-2.09E+00	1.45E+01	
	912.12	15.25	6.33E+01		9.82E+01	3.00E+01	
	1093.66	62.50	1.15E+01		2.66E+00	5.28E+00	
LU-173	100.72	5.24	1.69E+00	5.89E-01	-2.47E-01	8.26E-01	
	272.11	21.20	5.89E-01		-1.80E-02	2.84E-01	
HF-175	343.40	84.00	2.12E-01	2.12E-01	-3.67E-01	1.02E-01	
LU-176	88.34	13.30	8.06E-01	1.30E-01	1.03E+00	3.96E-01	
	201.83	86.00	1.31E-01		-4.56E-02	6.36E-02	
	306.78	94.00	1.30E-01		-1.59E-02	6.25E-02	
TA-182	67.75	41.20	2.72E-01	2.72E-01	-5.99E-01	1.34E-01	
	1121.30	34.90	8.90E-01		6.91E-01	4.15E-01	
	1189.05	16.23	1.65E+00		-4.13E-01	7.54E-01	
	1221.41	26.98	1.03E+00		1.37E-01	4.71E-01	
	1231.02	11.44	2.54E+00		-1.44E-01	1.17E+00	
	308.46	29.68	5.52E-01		3.79E-01	-2.01E-01	2.65E-01
IR-192	468.07	48.10	3.79E-01	3.79E-01	-2.61E-01	1.79E-01	
	279.19	77.30	2.50E-01		2.50E-01	-5.72E-03	1.20E-01
BI-207	569.67	97.72	1.52E-01	1.52E-01	1.82E-02	7.15E-02	
	1063.62	74.90	2.30E-01		-1.61E-02	1.04E-01	
+ TL-208	583.14	*	30.22	2.36E-01	1.58E+00	2.89E-01	
	860.37		4.48		3.94E+00	1.40E+00	1.82E+00
	2614.66	*	35.85		2.36E-01	1.12E+00	7.02E-02
BI-210M	262.00		45.00	2.37E-01	-1.74E-01	1.14E-01	
	300.00		23.00		6.11E-01	1.50E-01	2.95E-01
+ PB-210	46.50	*	4.25	1.74E+00	9.65E-01	8.52E-01	
	404.84		2.90		4.37E+00	-1.67E+00	2.08E+00
+ PB-211	831.96		2.90	4.37E+00	6.09E+00	2.83E+00	
	727.17	*	11.80		2.07E+00	1.41E+00	9.85E-01
+ BI-212	1620.62		2.75	2.07E+00	7.64E-01	2.58E+00	
	238.63	*	44.60		4.88E-01	2.05E+00	2.40E-01
+ PB-212	300.09		3.41	4.88E-01	1.01E+00	1.99E+00	
	609.31	*	46.30		7.00E-01	1.09E+00	3.40E-01
+ BI-214	1120.29		15.10	7.00E-01	1.06E+00	7.73E-01	
	1764.49	*	15.80		7.48E-01	1.58E+00	2.93E-01
	2204.22		4.98		4.94E+00	3.01E+00	2.16E+00
+ PB-214	295.21	*	19.19	4.71E-01	9.73E-01	4.21E-01	
	351.92	*	37.19		4.71E-01	1.28E+00	2.28E-01

Analysis Report for 1510093-09  
CP5002S16-17

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	1.97E+00	1.97E+00	8.01E-02	9.38E-01
RA-223	323.87	3.88	3.27E+00	3.27E+00	8.36E-02	1.57E+00
RA-224	240.98	3.95	5.12E+00	5.12E+00	2.20E+01	2.51E+00
RA-225	40.00	31.00	8.69E-01	8.69E-01	1.01E-01	4.24E-01
+ RA-226	186.21 *	3.28	3.76E+00	3.76E+00	2.82E+00	1.83E+00
TH-227	50.10	8.40	7.73E-01	7.73E-01	-3.09E-01	3.78E-01
	236.00	11.50	1.63E+00		4.41E+00	7.97E-01
	256.20	6.30	1.82E+00		5.59E-01	8.76E-01
+ AC-228	338.32 *	11.40	1.76E+00	8.23E-01	2.88E+00	8.59E-01
	911.07 *	27.70	8.23E-01		1.78E+00	3.86E-01
	969.11 *	16.60	3.68E+00		2.58E+00	1.79E+00
TH-230	48.44	16.90	3.80E-01	3.80E-01	-1.11E-01	1.86E-01
	62.85	4.60	1.87E+00		1.67E+00	9.19E-01
	67.67	0.37	2.46E+01		-5.42E+01	1.21E+01
PA-231	283.67	1.60	7.51E+00	5.45E+00	-1.85E+00	3.61E+00
	302.67	2.30	5.45E+00		-5.33E-01	2.62E+00
TH-231	25.64	14.70	3.33E-01	3.33E-01	-1.16E-01	1.62E-01
	84.21	6.40	1.51E+00		-6.02E+00	7.40E-01
PA-233	311.98	38.60	7.60E-01	7.60E-01	9.14E-02	3.65E-01
PA-234	131.20	20.40	4.90E-01	4.90E-01	5.68E-03	2.39E-01
	733.99	8.80	1.72E+00		-3.90E-01	7.93E-01
	946.00	12.00	1.80E+00		7.39E-01	8.41E-01
PA-234M	1001.03	0.92	1.94E+01	1.94E+01	3.76E+00	8.85E+00
TH-234	63.29	3.80	2.31E+00	2.31E+00	2.34E+00	1.14E+00
U-235	143.76	10.50	9.57E-01	9.57E-01	9.77E-02	4.66E-01
	163.35	4.70	2.27E+00		2.50E-02	1.10E+00
	205.31	4.70	2.47E+00		-3.38E-01	1.20E+00
NP-237	86.50	12.60	8.24E-01	8.24E-01	6.91E-01	4.05E-01
NP-239	106.10	22.70	8.94E+03	8.94E+03	-2.54E+03	4.36E+03
	228.18	10.70	2.56E+04		-9.20E+03	1.24E+04
	277.60	14.10	1.98E+04		-5.59E+03	9.53E+03
AM-241	59.54	35.90	2.22E-01	2.22E-01	1.16E-02	1.09E-01
AM-243	74.67	66.00	1.84E-01	1.84E-01	8.09E-01	9.09E-02
CM-243	209.75	3.29	3.76E+00	8.36E-01	3.28E+00	1.83E+00
	228.14	10.60	1.08E+00		-3.59E-01	5.22E-01
	277.60	14.00	8.36E-01		-2.36E-01	4.02E-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 1510093-09  
CP5002S16-17

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## DATA REVIEW COMMENTS REPORT

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP5002S16-17

Elapsed Live time: 3600  
Elapsed Real Time: 3677

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	21	102
17:	89	75	73	58	55	60	82	42
25:	61	52	52	55	60	54	63	53
33:	57	57	48	56	62	62	75	54
41:	63	52	61	76	81	98	87	71
49:	61	66	56	71	75	79	80	91
57:	80	77	86	90	92	146	139	125
65:	118	107	111	107	94	120	101	142
73:	169	231	266	256	243	142	68	79
81:	90	83	110	114	111	128	132	123
89:	114	112	126	110	118	107	72	75
97:	55	64	77	54	50	60	55	72
105:	56	74	55	57	48	61	52	66
113:	63	58	71	70	60	44	50	51
121:	61	55	53	59	54	61	68	66
129:	73	71	53	47	48	63	49	57
137:	56	46	62	59	50	64	53	62
145:	46	43	47	53	52	53	40	47
153:	57	43	43	49	54	54	62	50
161:	44	32	63	59	48	44	47	48
169:	51	54	39	41	43	43	30	37
177:	50	46	50	43	43	36	40	68
185:	70	75	53	37	33	47	44	50
193:	51	29	40	47	41	50	43	38
201:	39	33	31	33	48	36	54	49
209:	45	44	42	37	45	33	38	41
217:	32	32	37	33	36	47	36	28
225:	36	39	35	31	30	30	29	37
233:	39	41	32	56	138	227	165	99
241:	61	55	37	24	29	25	22	36
249:	27	29	33	19	25	35	33	31
257:	21	20	31	25	23	18	18	22
265:	21	24	21	26	29	34	30	24
273:	29	20	20	27	22	38	16	24
281:	19	19	25	27	37	30	22	15
289:	23	25	28	21	32	67	61	38
297:	22	20	33	25	28	19	27	16
305:	23	21	18	18	35	19	19	14
313:	20	28	17	26	18	16	25	21
321:	17	18	18	24	26	20	21	23
329:	16	26	13	18	16	19	11	22
337:	51	52	45	23	24	17	12	18
345:	11	13	7	22	15	42	99	97
353:	57	22	15	16	20	17	16	9
361:	18	12	14	6	12	17	14	17

369: 17 20 7 8 13 15 12 19

Sample Title: CP5002S16-17

Channel	1	2	3	4	5	6	7	8
377:	16	22	14	12	15	14	12	14
385:	12	15	10	14	18	9	9	11
393:	13	12	19	10	14	20	13	15
401:	14	16	10	15	10	16	12	14
409:	16	17	15	14	14	13	11	14
417:	12	10	12	10	12	15	17	8
425:	12	17	10	11	12	9	10	11
433:	7	13	13	12	5	10	12	7
441:	21	8	9	13	15	17	9	9
449:	11	10	10	20	14	14	14	11
457:	13	10	14	16	16	19	15	13
465:	10	8	13	14	13	11	10	7
473:	12	16	12	9	9	8	6	13
481:	12	6	8	13	7	12	9	7
489:	6	9	9	10	11	10	10	6
497:	11	7	10	10	12	5	8	12
505:	11	6	14	18	24	29	31	26
513:	9	16	9	7	5	10	17	14
521:	6	14	16	10	10	9	12	8
529:	7	14	5	4	11	10	11	9
537:	7	5	5	8	13	10	5	7
545:	13	14	11	13	11	5	4	11
553:	6	13	17	9	11	6	13	4
561:	6	7	9	16	8	13	6	11
569:	14	7	11	10	4	8	10	4
577:	12	8	6	15	12	49	50	31
585:	11	5	3	4	11	4	6	8
593:	6	7	4	6	15	17	6	8
601:	11	5	9	10	15	9	12	44
609:	51	48	17	8	6	9	13	16
617:	8	10	7	8	5	4	5	5
625:	5	9	7	2	7	6	6	8
633:	8	5	8	2	7	4	9	4
641:	10	10	8	11	6	10	2	12
649:	6	10	7	3	4	6	11	6
657:	7	5	7	5	12	6	5	9
665:	13	7	8	7	6	5	9	5
673:	5	9	4	8	7	10	5	6
681:	6	8	4	9	4	7	5	6
689:	9	5	12	10	7	4	12	6
697:	4	6	9	6	6	6	9	9
705:	4	7	6	4	12	4	9	4
713:	8	6	9	6	5	5	5	8
721:	5	6	8	12	6	13	16	12
729:	7	7	4	7	3	5	6	7
737:	7	5	10	8	11	3	7	9
745:	4	5	4	3	8	10	4	3
753:	6	5	6	1	5	6	4	4
761:	2	10	4	5	10	8	11	8
769:	9	5	8	6	4	11	7	2
777:	2	13	5	8	5	9	5	6
785:	11	11	7	8	5	5	5	3
793:	1	7	8	8	6	7	5	6

801: 5 8 7 6 7 8 5 5

Sample Title: CP5002S16-17

Channel	1	2	3	4	5	6	7	8
809:	2	2	3	5	6	6	6	8
817:	3	3	3	4	9	8	7	5
825:	10	3	5	5	6	8	6	6
833:	8	3	8	5	6	6	7	6
841:	10	2	4	3	5	2	3	5
849:	6	3	4	6	6	7	3	2
857:	5	10	6	7	5	3	8	5
865:	3	4	3	6	2	5	3	4
873:	8	4	4	5	9	4	4	3
881:	2	2	6	2	2	7	3	4
889:	6	7	4	6	8	4	6	3
897:	5	2	4	8	7	5	6	10
905:	6	3	7	11	3	20	35	26
913:	12	6	3	4	3	1	6	5
921:	4	4	5	6	4	5	3	7
929:	5	5	5	5	6	7	3	3
937:	3	5	3	6	4	5	9	2
945:	5	12	12	6	8	6	6	7
953:	6	7	3	4	2	8	3	4
961:	3	3	7	7	20	5	12	12
969:	17	9	15	7	2	3	5	9
977:	3	3	7	3	6	4	5	4
985:	4	4	2	3	6	6	1	3
993:	3	4	2	7	6	5	4	3
1001:	6	2	3	6	3	5	2	2
1009:	5	3	5	5	6	1	3	2
1017:	1	3	6	6	5	5	4	6
1025:	3	3	4	2	2	4	4	6
1033:	6	7	3	3	4	3	2	6
1041:	3	4	5	2	3	3	4	3
1049:	2	8	6	1	4	5	6	4
1057:	2	5	3	3	2	3	5	6
1065:	2	4	3	3	5	3	5	4
1073:	1	7	6	3	2	5	7	4
1081:	2	4	2	5	6	6	3	2
1089:	4	3	3	8	6	8	2	6
1097:	4	6	5	2	1	4	3	8
1105:	3	4	2	4	4	5	0	5
1113:	4	2	6	3	5	6	5	18
1121:	9	8	6	3	4	7	2	2
1129:	7	5	2	5	6	5	5	1
1137:	4	10	6	2	2	4	1	5
1145:	4	4	6	7	12	5	6	1
1153:	3	5	4	7	4	6	6	6
1161:	4	9	0	5	3	2	5	6
1169:	6	5	9	8	6	7	7	2
1177:	4	4	3	2	2	11	4	4
1185:	5	8	6	3	7	6	3	1
1193:	2	3	6	6	7	6	6	7
1201:	10	2	2	5	5	9	4	1
1209:	6	6	3	4	2	3	4	5
1217:	3	4	4	8	6	2	5	6
1225:	4	7	4	2	6	4	2	6



1233: 5 9 8 6 9 17 6 8

Sample Title: CP5002S16-17

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	6	3	5	2	7	5	7	1
1249:	6	2	4	4	4	3	4	4
1257:	2	4	3	2	8	2	2	5
1265:	3	2	6	3	1	4	8	5
1273:	0	2	2	2	4	6	5	1
1281:	6	3	3	4	5	6	3	3
1289:	1	2	4	4	1	2	4	2
1297:	3	2	6	4	5	3	3	2
1305:	2	1	4	2	1	3	0	5
1313:	2	2	2	3	3	0	2	5
1321:	2	2	4	1	2	5	5	1
1329:	4	3	3	2	2	1	0	0
1337:	2	3	4	2	4	3	1	3
1345:	1	3	3	7	1	4	0	2
1353:	0	1	1	2	2	3	2	6
1361:	5	2	2	1	4	1	3	3
1369:	3	2	0	1	1	2	2	1
1377:	5	2	2	2	3	1	1	3
1385:	3	4	4	2	3	1	2	1
1393:	1	1	0	3	2	2	3	2
1401:	5	1	3	1	3	1	2	3
1409:	1	1	1	2	1	1	1	2
1417:	1	2	4	2	1	2	5	0
1425:	3	2	3	3	1	1	0	3
1433:	0	0	3	2	3	2	2	0
1441:	1	1	0	5	2	0	3	3
1449:	0	2	4	1	0	2	1	0
1457:	2	3	22	55	98	69	26	3
1465:	0	0	0	1	1	0	0	2
1473:	2	0	0	4	1	0	0	0
1481:	2	1	1	0	2	1	2	1
1489:	0	0	2	1	0	1	1	0
1497:	2	2	4	0	1	5	2	1
1505:	0	1	0	2	5	2	1	3
1513:	1	1	2	2	2	0	1	0
1521:	1	1	1	3	0	2	0	2
1529:	1	0	2	1	3	0	0	1
1537:	1	3	2	1	1	1	2	4
1545:	1	0	0	0	1	0	4	1
1553:	1	2	0	1	0	2	1	0
1561:	0	0	0	1	1	2	0	0
1569:	0	1	1	0	2	0	1	2
1577:	0	0	1	2	0	2	1	1
1585:	0	1	0	0	3	3	0	2
1593:	5	3	3	0	1	4	1	5
1601:	3	1	0	2	4	2	0	1
1609:	0	0	3	2	0	0	1	1
1617:	2	3	0	0	1	3	1	1
1625:	1	1	3	0	1	3	0	3
1633:	1	2	1	0	2	2	1	1
1641:	1	1	1	0	1	0	1	2
1649:	1	1	1	0	2	0	0	0
1657:	0	0	1	1	3	1	0	2

1665: 2 1 0 2 0 0 0 1

Sample Title: CP5002S16-17

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

2097: 0 4 1 0 1 0 1 0

Sample Title: CP5002S16-17

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

2529: 0 0 0 1 0 0 4 1

Sample Title: CP5002S16-17

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	0	0	0	0	0	0	1
2545:	0	0	0	0	0	0	0	0
2553:	0	0	0	0	0	0	1	0
2561:	0	0	0	0	0	1	0	0
2569:	0	0	0	0	0	1	0	0
2577:	0	0	0	0	2	0	0	0
2585:	0	0	0	0	0	0	1	0
2593:	0	0	0	0	0	1	1	1
2601:	0	2	0	0	0	0	0	0
2609:	0	0	0	0	2	6	5	10
2617:	6	4	0	0	0	0	1	1
2625:	0	0	1	0	0	1	0	0
2633:	0	0	0	1	0	0	0	0
2641:	0	1	0	1	0	0	0	0
2649:	1	0	0	0	0	0	0	0
2657:	0	0	0	0	1	0	0	0
2665:	0	0	1	0	0	0	0	0
2673:	0	0	0	0	0	1	0	0
2681:	0	0	0	0	1	0	0	0
2689:	1	0	0	1	0	0	0	0
2697:	0	0	1	0	0	0	0	0
2705:	1	0	1	0	0	0	0	0
2713:	1	0	0	0	0	0	1	0
2721:	0	0	0	1	0	0	0	0
2729:	0	0	0	0	1	0	0	1
2737:	1	0	0	1	0	0	0	0
2745:	0	0	0	0	0	0	1	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	2	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	2	1
2785:	0	2	0	0	0	0	0	0
2793:	0	0	1	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	1	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	2	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	1	0	1	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	1	0	0	0
2873:	1	0	0	0	0	0	0	1
2881:	0	0	0	0	0	1	1	0
2889:	0	1	0	0	0	0	0	1
2897:	0	1	0	0	0	0	0	0
2905:	0	0	0	0	1	0	0	0
2913:	1	1	0	0	0	0	0	0
2921:	0	0	0	0	0	1	0	0
2929:	1	1	0	0	0	0	0	0
2937:	0	0	0	0	0	0	1	0
2945:	0	0	0	0	0	0	2	0
2953:	0	0	0	0	0	0	0	0

2961: 1 1 0 0 1 0 0 0

Sample Title: CP5002S16-17

Channel	1	2	3	4	5	6	7	8
2969:	0	0	0	0	0	0	0	1
2977:	0	0	1	0	0	1	0	1
2985:	0	0	0	0	0	0	0	0
2993:	0	0	0	1	0	0	0	0
3001:	0	0	0	0	2	0	0	0
3009:	1	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	0	0	1	0	1	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	0	0	0	0	1	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	0	0	0
3065:	0	0	0	1	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	1	0	0	0	0	0	0
3089:	0	0	1	0	0	0	0	0
3097:	1	1	0	1	0	0	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	0	0	1	0	0	0	0
3121:	0	0	0	0	0	1	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	1	0	0	0	1
3145:	0	0	1	0	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	1	0	0	0
3177:	0	0	0	0	1	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	0	1	0	0	0	0	0	1
3201:	0	1	1	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	1	0	0	0	0	0	0
3233:	0	0	0	0	1	0	0	0
3241:	0	0	0	1	0	0	1	0
3249:	0	0	0	0	0	0	1	0
3257:	0	0	0	0	0	1	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	1	0	1	0	0
3289:	2	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	0	0	1	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	1	0	0	0
3345:	0	1	0	0	0	0	0	0
3353:	0	0	1	0	0	0	0	0
3361:	0	0	0	0	1	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	0	0	0	0	0

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP5002S16-17

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

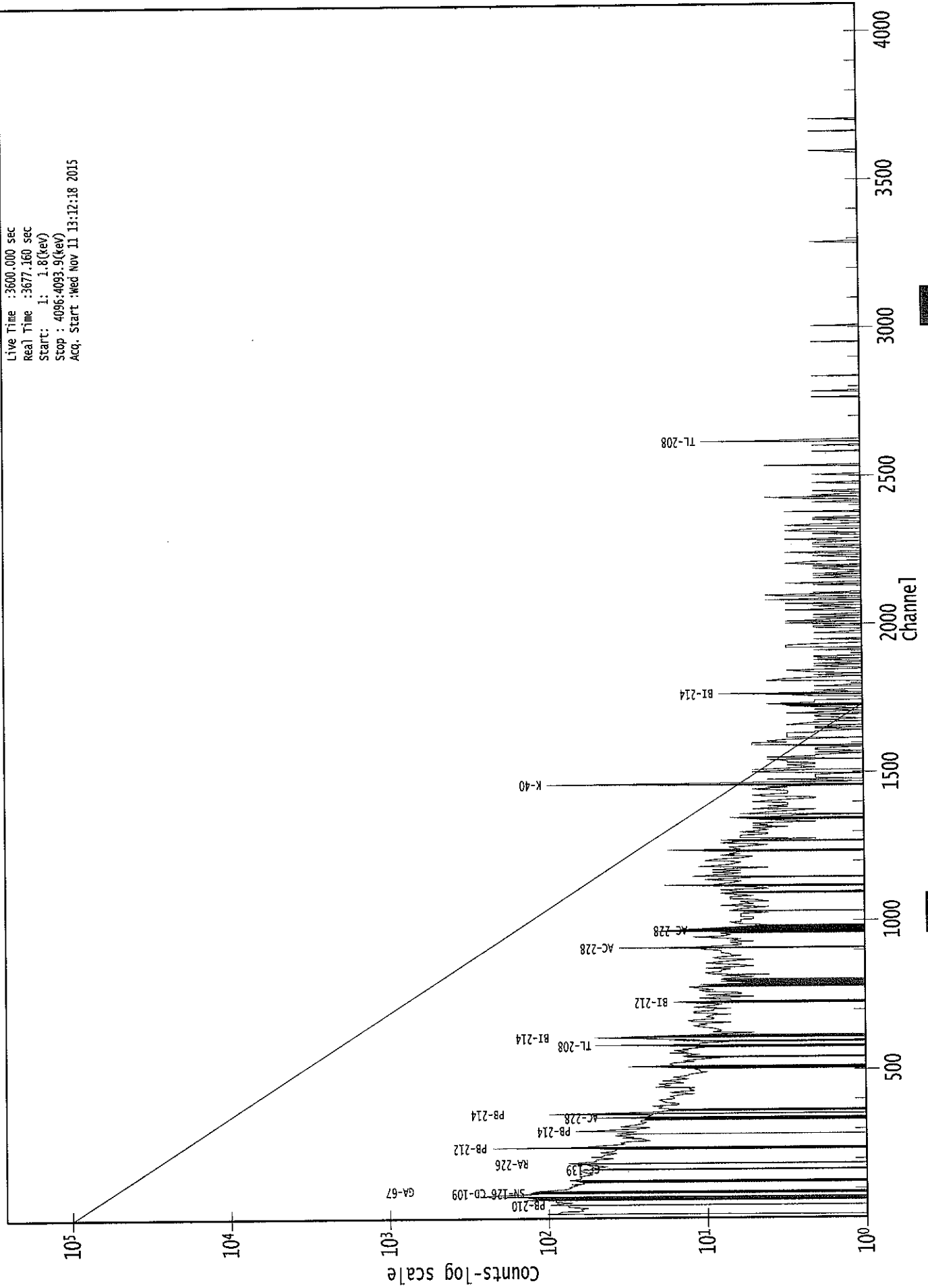
3825: 0 0 0 0 0 0 1 0

Sample Title: CP5002S16-17

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	1
3841:	1	0	0	0	0	0	0	0
3849:	0	0	0	1	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	1	0	0	0
3881:	0	1	0	0	1	0	0	0
3889:	1	0	0	0	1	0	0	1
3897:	0	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	0	0	1	1	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	1	0	0	0	0	0
3945:	0	0	0	0	0	1	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	0
3985:	0	1	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	1	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	1	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	1
4089:	1	0	0	0	0	0	0	0

# 0000029500.CNF

Live Time : 3600.000 sec  
Real Time : 3677.160 sec  
Start : 1: 1.8(keV)  
Stop : 4096:4093.9(keV)  
Acq. Start : Wed Nov 11 13:12:18 2015





ES  
11/11/15Analysis Report for 1510093-10  
CP1806S03-04

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-10  
Sample Description : CP1806S03-04  
Sample Type : SOIL

Sample Size : 5.316E+02 grams  
Facility : Countroom

Sample Taken On : 10/9/2015 7:31:05AM  
Acquisition Started : 11/11/2015 1:28:42PM

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 : 29501

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## PEAK-TO-TOTAL CALIBRATION REPORT

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Peak-to-Total Efficiency Calibration Equation

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AG  
11/12/15

Analysis Report for 1510093-10  
CP1806S03-04

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 2:28:47PM  
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	63.51	63.86	0.0000	0.00
2	76.36	76.70	0.0000	0.00
3	87.34	87.68	0.0000	0.00
4	93.24	93.58	0.0000	0.00
5	100.04	100.37	0.0000	0.00
6	129.73	130.06	0.0000	0.00
7	163.82	164.14	0.0000	0.00
8	186.17	186.48	0.0000	0.00
9	199.32	199.62	0.0000	0.00
10	209.21	209.50	0.0000	0.00
11	238.79	239.08	0.0000	0.00
12	242.03	242.32	0.0000	0.00
13	269.92	270.20	0.0000	0.00
14	277.24	277.52	0.0000	0.00
15	295.44	295.71	0.0000	0.00
16	300.47	300.73	0.0000	0.00
17	338.53	338.79	0.0000	0.00
18	351.88	352.13	0.0000	0.00
19	409.80	410.03	0.0000	0.00
20	462.81	463.03	0.0000	0.00
21	510.92	511.12	0.0000	0.00
22	583.46	583.63	0.0000	0.00
23	596.21	596.38	0.0000	0.00
24	609.65	609.82	0.0000	0.00
25	641.91	642.06	0.0000	0.00
26	727.34	727.46	0.0000	0.00
27	754.95	755.06	0.0000	0.00
28	768.53	768.64	0.0000	0.00
29	795.42	795.51	0.0000	0.00
30	861.29	861.37	0.0000	0.00
31	871.23	871.30	0.0000	0.00
32	911.43	911.49	0.0000	0.00
33	935.06	935.11	0.0000	0.00
34	969.67	969.71	0.0000	0.00
35	1121.08	1121.06	0.0000	0.00
36	1237.27	1237.21	0.0000	0.00
37	1264.30	1264.23	0.0000	0.00
38	1309.93	1309.84	0.0000	0.00
39	1378.15	1378.04	0.0000	0.00
40	1385.90	1385.79	0.0000	0.00
41	1407.78	1407.66	0.0000	0.00
42	1420.07	1419.94	0.0000	0.00

Analysis Report for 1510093-10  
CP1806S03-04

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1461.32	1461.17	0.0000	0.00
44	1466.23	1466.09	0.0000	0.00
45	1474.65	1474.50	0.0000	0.00
46	1507.31	1507.15	0.0000	0.00
47	1583.66	1583.47	0.0000	0.00
48	1588.66	1588.47	0.0000	0.00
49	1593.66	1593.47	0.0000	0.00
50	1621.55	1621.34	0.0000	0.00
51	1631.32	1631.11	0.0000	0.00
52	1662.68	1662.46	0.0000	0.00
53	1729.99	1729.75	0.0000	0.00
54	1765.40	1765.15	0.0000	0.00
55	1799.24	1798.97	0.0000	0.00
56	1847.42	1847.14	0.0000	0.00
57	1925.82	1925.50	0.0000	0.00
58	1936.36	1936.04	0.0000	0.00
59	2018.44	2018.09	0.0000	0.00
60	2104.83	2104.44	0.0000	0.00
61	2162.59	2162.19	0.0000	0.00
62	2176.76	2176.34	0.0000	0.00
63	2204.96	2204.53	0.0000	0.00
64	2448.66	2448.15	0.0000	0.00
65	2615.21	2614.63	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-10  
CP1806S03-04

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 2:28:47PM

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	63.51	61 -	67	63.86	1.83E+02	111.10	2.12E+03	1.35	
2	76.36	72 -	82	76.70	1.47E+03	168.67	2.96E+03	3.75	
3	87.34	83 -	91	87.68	4.82E+02	132.32	2.40E+03	1.76	
4	93.24	91 -	96	93.58	2.38E+02	97.03	1.61E+03	1.74	
5	100.04	98 -	103	100.37	6.25E+01	75.45	1.08E+03	1.37	
6	129.73	124 -	135	130.06	1.84E+02	127.80	1.95E+03	1.85	
7	163.82	160 -	167	164.14	9.62E+01	80.87	1.02E+03	3.08	
8	186.17	183 -	190	186.48	2.31E+02	86.93	1.10E+03	1.88	
9	199.32	196 -	202	199.62	6.30E+01	68.13	7.92E+02	2.48	
10	209.21	206 -	212	209.50	1.42E+02	70.84	7.99E+02	1.75	
M	11	238.79	234 -	247	239.08	1.14E+03	82.36	4.81E+02	1.66
m	12	242.03	234 -	247	242.32	2.59E+02	70.10	4.85E+02	1.85
13	269.92	266 -	273	270.20	1.04E+02	62.03	5.73E+02	2.11	
14	277.24	274 -	282	277.52	8.44E+01	66.75	6.31E+02	1.53	
M	15	295.44	290 -	304	295.71	3.56E+02	54.55	3.66E+02	1.54
m	16	300.47	290 -	304	300.73	7.32E+01	54.55	4.42E+02	2.24
17	338.53	334 -	343	338.79	2.30E+02	70.51	5.76E+02	1.73	
18	351.88	347 -	356	352.13	6.60E+02	80.33	5.44E+02	1.77	
19	409.80	407 -	413	410.03	3.75E+01	43.85	3.23E+02	1.89	
20	462.81	460 -	465	463.03	5.32E+01	35.41	2.06E+02	1.54	
21	510.92	505 -	518	511.12	2.23E+02	70.17	4.48E+02	2.58	
22	583.46	580 -	589	583.63	3.66E+02	57.09	2.61E+02	1.99	
23	596.21	593 -	599	596.38	2.70E+01	32.94	1.76E+02	4.62	
24	609.65	606 -	615	609.82	4.64E+02	61.25	2.60E+02	1.84	
25	641.91	640 -	645	642.06	3.28E+01	22.27	7.45E+01	3.60	
26	727.34	723 -	732	727.46	6.82E+01	39.19	1.82E+02	1.94	
27	754.95	752 -	759	755.06	3.62E+01	27.78	1.06E+02	4.19	
28	768.53	765 -	773	768.64	5.15E+01	40.85	2.25E+02	1.68	
29	795.42	792 -	799	795.51	2.96E+01	34.23	1.75E+02	1.75	
30	861.29	857 -	867	861.37	8.10E+01	36.25	1.32E+02	3.05	
31	871.23	868 -	874	871.30	1.80E+01	23.11	8.40E+01	3.49	
32	911.43	906 -	916	911.49	2.40E+02	48.19	1.82E+02	1.98	
33	935.06	930 -	939	935.11	2.94E+01	30.92	1.19E+02	5.06	
34	969.67	966 -	975	969.71	8.89E+01	53.00	3.14E+02	1.91	
35	1121.08	1117 -	1126	1121.06	1.00E+02	39.36	1.61E+02	2.09	
36	1237.27	1233 -	1242	1237.21	5.67E+01	35.34	1.49E+02	4.24	
37	1264.30	1260 -	1267	1264.23	2.11E+01	21.07	5.98E+01	3.00	
38	1309.93	1306 -	1316	1309.84	3.70E+01	26.25	7.41E+01	2.53	
39	1378.15	1375 -	1380	1378.04	3.05E+01	16.03	2.69E+01	2.27	
40	1385.90	1382 -	1389	1385.79	2.28E+01	17.44	3.43E+01	3.01	

Analysis Report for 1510093-10  
 CP1806S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1407.78	1405 -	1412	1407.66	1.63E+01	16.49	3.15E+01	1.13
42	1420.07	1417 -	1424	1419.94	1.21E+01	14.00	2.58E+01	3.51
M 43	1461.32	1455 -	1470	1461.17	8.22E+02	58.47	3.06E+01	2.22
m 44	1466.23	1455 -	1470	1466.09	1.60E+01	54.12	3.16E+01	4.71
45	1474.65	1471 -	1478	1474.50	1.29E+01	12.00	1.43E+01	4.40
46	1507.31	1496 -	1515	1507.15	4.59E+01	25.77	4.02E+01	13.28
M 47	1583.66	1582 -	1598	1583.47	7.21E+00	5.48	7.77E+00	2.71
m 48	1588.66	1582 -	1598	1588.47	2.27E+01	14.97	2.58E+01	2.55
m 49	1593.66	1582 -	1598	1593.47	2.05E+01	15.23	2.04E+01	2.72
50	1621.55	1616 -	1627	1621.34	1.55E+01	14.28	1.71E+01	1.32
51	1631.32	1628 -	1634	1631.11	9.57E+00	9.84	1.09E+01	1.40
52	1662.68	1658 -	1666	1662.46	1.28E+01	14.04	2.24E+01	3.10
53	1729.99	1726 -	1733	1729.75	2.40E+01	9.80	0.00E+00	2.15
54	1765.40	1761 -	1773	1765.15	7.74E+01	20.70	1.71E+01	3.10
55	1799.24	1796 -	1801	1798.97	7.50E+00	7.62	5.00E+00	2.90
56	1847.42	1843 -	1852	1847.14	1.33E+01	16.31	3.14E+01	2.08
57	1925.82	1923 -	1927	1925.50	5.50E+00	6.67	5.00E+00	1.01
58	1936.36	1931 -	1941	1936.04	1.15E+01	11.34	1.10E+01	1.91
59	2018.44	2015 -	2021	2018.09	8.57E+00	9.63	1.09E+01	3.77
60	2104.83	2101 -	2109	2104.44	3.38E+01	14.86	1.24E+01	3.30
61	2162.59	2159 -	2165	2162.19	6.11E+00	7.78	5.78E+00	1.43
62	2176.76	2173 -	2179	2176.34	8.40E+00	7.23	3.20E+00	4.35
63	2204.96	2200 -	2208	2204.53	2.75E+01	12.98	9.00E+00	1.68
64	2448.66	2445 -	2451	2448.15	8.92E+00	8.51	6.17E+00	2.90
65	2615.21	2610 -	2618	2614.63	1.32E+02	23.58	4.60E+00	2.20

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 : 11/11/2015 2:28:47PM

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	63.51	61 -	67	1.83E+02	111.10	2.12E+03	8.86E+01
2	76.36	72 -	82	1.47E+03	168.67	2.96E+03	1.23E+02
3	87.34	83 -	91	4.82E+02	132.32	2.40E+03	1.03E+02

Analysis Report for 1510093-10

CP1806S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level	
4	93.24	91 -	96	2.38E+02	97.03	1.61E+03	7.56E+01	
5	100.04	98 -	103	6.25E+01	75.45	1.08E+03	6.06E+01	
6	129.73	124 -	135	1.84E+02	127.80	1.95E+03	1.03E+02	
7	163.82	160 -	167	9.62E+01	80.87	1.02E+03	6.45E+01	
8	186.17	183 -	190	2.31E+02	86.93	1.10E+03	6.69E+01	
9	199.32	196 -	202	6.30E+01	68.13	7.92E+02	5.45E+01	
10	209.21	206 -	212	1.42E+02	70.84	7.99E+02	5.48E+01	
M	11	238.79	234 -	247	1.14E+03	82.36	4.81E+02	3.60E+01
m	12	242.03	234 -	247	2.59E+02	70.10	4.85E+02	3.62E+01
13	269.92	266 -	273	1.04E+02	62.03	5.73E+02	4.82E+01	
14	277.24	274 -	282	8.44E+01	66.75	6.31E+02	5.27E+01	
M	15	295.44	290 -	304	3.56E+02	54.55	3.66E+02	3.14E+01
m	16	300.47	290 -	304	7.32E+01	54.55	4.42E+02	3.46E+01
17	338.53	334 -	343	2.30E+02	70.51	5.76E+02	5.23E+01	
18	351.88	347 -	356	6.60E+02	80.33	5.44E+02	5.08E+01	
19	409.80	407 -	413	3.75E+01	43.85	3.23E+02	3.46E+01	
20	462.81	460 -	465	5.32E+01	35.41	2.06E+02	2.65E+01	
21	510.92	505 -	518	2.23E+02	70.17	4.48E+02	5.22E+01	
22	583.46	580 -	589	3.66E+02	57.09	2.61E+02	3.48E+01	
23	596.21	593 -	599	2.70E+01	32.94	1.76E+02	2.57E+01	
24	609.65	606 -	615	4.64E+02	61.25	2.60E+02	3.58E+01	
25	641.91	640 -	645	3.28E+01	22.27	7.45E+01	1.57E+01	
26	727.34	723 -	732	6.82E+01	39.19	1.82E+02	2.92E+01	
27	754.95	752 -	759	3.62E+01	27.78	1.06E+02	2.06E+01	
28	768.53	765 -	773	5.15E+01	40.85	2.25E+02	3.14E+01	
29	795.42	792 -	799	2.96E+01	34.23	1.75E+02	2.67E+01	
30	861.29	857 -	867	8.10E+01	36.25	1.32E+02	2.59E+01	
31	871.23	868 -	874	1.80E+01	23.11	8.40E+01	1.77E+01	
32	911.43	906 -	916	2.40E+02	48.19	1.82E+02	3.03E+01	
33	935.06	930 -	939	2.94E+01	30.92	1.19E+02	2.38E+01	
34	969.67	966 -	975	8.89E+01	53.00	3.14E+02	4.07E+01	
35	1121.08	1117 -	1126	1.00E+02	39.36	1.61E+02	2.78E+01	
36	1237.27	1233 -	1242	5.67E+01	35.34	1.49E+02	2.63E+01	
37	1264.30	1260 -	1267	2.11E+01	21.07	5.98E+01	1.56E+01	
38	1309.93	1306 -	1316	3.70E+01	26.25	7.41E+01	1.91E+01	
39	1378.15	1375 -	1380	3.05E+01	16.03	2.69E+01	9.55E+00	
40	1385.90	1382 -	1389	2.28E+01	17.44	3.43E+01	1.20E+01	
41	1407.78	1405 -	1412	1.63E+01	16.49	3.15E+01	1.18E+01	
42	1420.07	1417 -	1424	1.21E+01	14.00	2.58E+01	9.98E+00	
M	43	1461.32	1455 -	1470	8.22E+02	58.47	3.06E+01	9.09E+00
m	44	1466.23	1455 -	1470	1.60E+01	54.12	3.16E+01	9.24E+00
45	1474.65	1471 -	1478	1.29E+01	12.00	1.43E+01	7.91E+00	
46	1507.31	1496 -	1515	4.59E+01	25.77	4.02E+01	1.80E+01	
M	47	1583.66	1582 -	1598	7.21E+00	5.48	7.77E+00	4.58E+00
m	48	1588.66	1582 -	1598	2.27E+01	14.97	2.58E+01	8.35E+00
m	49	1593.66	1582 -	1598	2.05E+01	15.23	2.04E+01	7.42E+00
50	1621.55	1616 -	1627	1.55E+01	14.28	1.71E+01	9.80E+00	
51	1631.32	1628 -	1634	9.57E+00	9.84	1.09E+01	6.29E+00	
52	1662.68	1658 -	1666	1.28E+01	14.04	2.24E+01	9.93E+00	
53	1729.99	1726 -	1733	2.40E+01	9.80	0.00E+00	0.00E+00	
54	1765.40	1761 -	1773	7.74E+01	20.70	1.71E+01	8.96E+00	

Analysis Report for 1510093-10  
 CP1806S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
55	1799.24	1796 -	1801	7.50E+00	7.62	5.00E+00	4.35E+00
56	1847.42	1843 -	1852	1.33E+01	16.31	3.14E+01	1.20E+01
57	1925.82	1923 -	1927	5.50E+00	6.67	5.00E+00	3.90E+00
58	1936.36	1931 -	1941	1.15E+01	11.34	1.10E+01	7.47E+00
59	2018.44	2015 -	2021	8.57E+00	9.63	1.09E+01	6.29E+00
60	2104.83	2101 -	2109	3.38E+01	14.86	1.24E+01	7.61E+00
61	2162.59	2159 -	2165	6.11E+00	7.78	5.78E+00	4.94E+00
62	2176.76	2173 -	2179	8.40E+00	7.23	3.20E+00	3.55E+00
63	2204.96	2200 -	2208	2.75E+01	12.98	9.00E+00	6.29E+00
64	2448.66	2445 -	2451	8.92E+00	8.51	6.17E+00	4.99E+00
65	2615.21	2610 -	2618	1.32E+02	23.58	4.60E+00	4.46E+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 : 11/11/2015 2:28:47PM

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	63.51	61 -	67	63.86	1.83E+02	111.10	2.12E+03	TH-234 TH-230
2	76.36	72 -	82	76.70	1.47E+03	168.67	2.96E+03	.....
3	87.34	83 -	91	87.68	4.82E+02	132.32	2.40E+03	SN-126 CD-109 NP-237 EU-155 LU-176
4	93.24	91 -	96	93.58	2.38E+02	97.03	1.61E+03	GA-67
5	100.04	98 -	103	100.37	6.25E+01	75.45	1.08E+03	LU-173
6	129.73	124 -	135	130.06	1.84E+02	127.80	1.95E+03	.....
7	163.82	160 -	167	164.14	9.62E+01	80.87	1.02E+03	CS-136 U-235
8	186.17	183 -	190	186.48	2.31E+02	86.93	1.10E+03	RA-226
9	199.32	196 -	202	199.62	6.30E+01	68.13	7.92E+02	.....

Analysis Report for 1510093-10

CP1806S03-04

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	10	209.21	206 -	212	209.50	1.42E+02	70.84	7.99E+02	GA-67 CM-243
M	11	238.79	234 -	247	239.08	1.14E+03	82.36	4.81E+02	PB-212
m	12	242.03	234 -	247	242.32	2.59E+02	70.10	4.85E+02	.....
	13	269.92	266 -	273	270.20	1.04E+02	62.03	5.73E+02	.....
	14	277.24	274 -	282	277.52	8.44E+01	66.75	6.31E+02	CM-243 NP-239
M	15	295.44	290 -	304	295.71	3.56E+02	54.55	3.66E+02	PB-214
m	16	300.47	290 -	304	300.73	7.32E+01	54.55	4.42E+02	GA-67 PB-212 BI-210M
	17	338.53	334 -	343	338.79	2.30E+02	70.51	5.76E+02	AC-228
	18	351.88	347 -	356	352.13	6.60E+02	80.33	5.44E+02	PB-214
	19	409.80	407 -	413	410.03	3.75E+01	43.85	3.23E+02	.....
	20	462.81	460 -	465	463.03	5.32E+01	35.41	2.06E+02	SB-125
	21	510.92	505 -	518	511.12	2.23E+02	70.17	4.48E+02	.....
	22	583.46	580 -	589	583.63	3.66E+02	57.09	2.61E+02	TL-208
	23	596.21	593 -	599	596.38	2.70E+01	32.94	1.76E+02	.....
	24	609.65	606 -	615	609.82	4.64E+02	61.25	2.60E+02	BI-214
	25	641.91	640 -	645	642.06	3.28E+01	22.27	7.45E+01	.....
	26	727.34	723 -	732	727.46	6.82E+01	39.19	1.82E+02	BI-212
	27	754.95	752 -	759	755.06	3.62E+01	27.78	1.06E+02	.....
	28	768.53	765 -	773	768.64	5.15E+01	40.85	2.25E+02	.....
	29	795.42	792 -	799	795.51	2.96E+01	34.23	1.75E+02	CS-134
	30	861.29	857 -	867	861.37	8.10E+01	36.25	1.32E+02	TL-208
	31	871.23	868 -	874	871.30	1.80E+01	23.11	8.40E+01	NB-94
	32	911.43	906 -	916	911.49	2.40E+02	48.19	1.82E+02	AC-228 LU-172
	33	935.06	930 -	939	935.11	2.94E+01	30.92	1.19E+02	.....
	34	969.67	966 -	975	969.71	8.89E+01	53.00	3.14E+02	AC-228
	35	1121.08	1117 -	1126	1121.06	1.00E+02	39.36	1.61E+02	TA-182 SC-46 BI-214
	36	1237.27	1233 -	1242	1237.21	5.67E+01	35.34	1.49E+02	CO-56
	37	1264.30	1260 -	1267	1264.23	2.11E+01	21.07	5.98E+01	.....
	38	1309.93	1306 -	1316	1309.84	3.70E+01	26.25	7.41E+01	.....
	39	1378.15	1375 -	1380	1378.04	3.05E+01	16.03	2.69E+01	.....
	40	1385.90	1382 -	1389	1385.79	2.28E+01	17.44	3.43E+01	.....
	41	1407.78	1405 -	1412	1407.66	1.63E+01	16.49	3.15E+01	EU-152
	42	1420.07	1417 -	1424	1419.94	1.21E+01	14.00	2.58E+01	.....
M	43	1461.32	1455 -	1470	1461.17	8.22E+02	58.47	3.06E+01	K-40
m	44	1466.23	1455 -	1470	1466.09	1.60E+01	54.12	3.16E+01	.....
	45	1474.65	1471 -	1478	1474.50	1.29E+01	12.00	1.43E+01	.....
	46	1507.31	1496 -	1515	1507.15	4.59E+01	25.77	4.02E+01	.....
M	47	1583.66	1582 -	1598	1583.47	7.21E+00	5.48	7.77E+00	.....
m	48	1588.66	1582 -	1598	1588.47	2.27E+01	14.97	2.58E+01	.....
m	49	1593.66	1582 -	1598	1593.47	2.05E+01	15.23	2.04E+01	.....
	50	1621.55	1616 -	1627	1621.34	1.55E+01	14.28	1.71E+01	BI-212
	51	1631.32	1628 -	1634	1631.11	9.57E+00	9.84	1.09E+01	.....
	52	1662.68	1658 -	1666	1662.46	1.28E+01	14.04	2.24E+01	.....
	53	1729.99	1726 -	1733	1729.75	2.40E+01	9.80	0.00E+00	.....
	54	1765.40	1761 -	1773	1765.15	7.74E+01	20.70	1.71E+01	BI-214
	55	1799.24	1796 -	1801	1798.97	7.50E+00	7.62	5.00E+00	.....
	56	1847.42	1843 -	1852	1847.14	1.33E+01	16.31	3.14E+01	.....



Analysis Report for 1510093-10  
CP1806S03-04

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
57	1925.82	1923 -	1927	1925.50	5.50E+00	6.67	5.00E+00	.....
58	1936.36	1931 -	1941	1936.04	1.15E+01	11.34	1.10E+01	.....
59	2018.44	2015 -	2021	2018.09	8.57E+00	9.63	1.09E+01	.....
60	2104.83	2101 -	2109	2104.44	3.38E+01	14.86	1.24E+01	.....
61	2162.59	2159 -	2165	2162.19	6.11E+00	7.78	5.78E+00	.....
62	2176.76	2173 -	2179	2176.34	8.40E+00	7.23	3.20E+00	.....
63	2204.96	2200 -	2208	2204.53	2.75E+01	12.98	9.00E+00	BI-214
64	2448.66	2445 -	2451	2448.15	8.92E+00	8.51	6.17E+00	.....
65	2615.21	2610 -	2618	2614.63	1.32E+02	23.58	4.60E+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 : 11/11/2015 2:28:47PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	63.51	1.83E+02	111.10	2.50E-02	1.92E-03
2	76.36	1.47E+03	168.67	2.77E-02	2.35E-03
3	87.34	4.82E+02	132.32	2.85E-02	2.72E-03
4	93.24	2.38E+02	97.03	2.86E-02	2.64E-03
5	100.04	6.25E+01	75.45	2.85E-02	2.50E-03
6	129.73	1.84E+02	127.80	2.67E-02	2.09E-03
7	163.82	9.62E+01	80.87	2.40E-02	2.17E-03
8	186.17	2.31E+02	86.93	2.24E-02	2.03E-03
9	199.32	6.30E+01	68.13	2.15E-02	1.93E-03
10	209.21	1.42E+02	70.84	2.09E-02	1.86E-03
M	11	238.79	82.36	1.92E-02	1.64E-03
m	12	242.03	70.10	1.90E-02	1.61E-03
	13	269.92	62.03	1.77E-02	1.41E-03
	14	277.24	66.75	1.74E-02	1.35E-03
M	15	295.44	54.55	1.67E-02	1.31E-03
m	16	300.47	54.55	1.65E-02	1.30E-03
	17	338.53	70.51	1.52E-02	1.22E-03
	18	351.88	80.33	1.48E-02	1.19E-03
	19	409.80	43.85	1.32E-02	1.10E-03
	20	462.81	35.41	1.21E-02	1.04E-03
	21	510.92	70.17	1.12E-02	9.90E-04

Analysis Report for 1510093-10  
CP1806S03-04

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty	
22	583.46	3.66E+02	57.09	1.02E-02	9.15E-04	
23	596.21	2.70E+01	32.94	9.99E-03	9.02E-04	
24	609.65	4.64E+02	61.25	9.82E-03	8.88E-04	
25	641.91	3.28E+01	22.27	9.44E-03	8.55E-04	
26	727.34	6.82E+01	39.19	8.55E-03	7.75E-04	
27	754.95	3.62E+01	27.78	8.31E-03	7.51E-04	
28	768.53	5.15E+01	40.85	8.19E-03	7.38E-04	
29	795.42	2.96E+01	34.23	7.97E-03	7.14E-04	
30	861.29	8.10E+01	36.25	7.48E-03	6.55E-04	
31	871.23	1.80E+01	23.11	7.41E-03	6.46E-04	
32	911.43	2.40E+02	48.19	7.15E-03	6.15E-04	
33	935.06	2.94E+01	30.92	7.00E-03	6.03E-04	
34	969.67	8.89E+01	53.00	6.80E-03	5.85E-04	
35	1121.08	1.00E+02	39.36	6.06E-03	5.06E-04	
36	1237.27	5.67E+01	35.34	5.62E-03	4.68E-04	
37	1264.30	2.11E+01	21.07	5.53E-03	4.63E-04	
38	1309.93	3.70E+01	26.25	5.38E-03	4.55E-04	
39	1378.15	3.05E+01	16.03	5.18E-03	4.40E-04	
40	1385.90	2.28E+01	17.44	5.16E-03	4.38E-04	
41	1407.78	1.63E+01	16.49	5.10E-03	4.32E-04	
42	1420.07	1.21E+01	14.00	5.07E-03	4.29E-04	
M	43	1461.32	8.22E+02	58.47	4.97E-03	4.19E-04
m	44	1466.23	1.60E+01	54.12	4.96E-03	4.18E-04
	45	1474.65	1.29E+01	12.00	4.94E-03	4.16E-04
	46	1507.31	4.59E+01	25.77	4.86E-03	4.08E-04
M	47	1583.66	7.21E+00	5.48	4.70E-03	3.89E-04
m	48	1588.66	2.27E+01	14.97	4.69E-03	3.87E-04
m	49	1593.66	2.05E+01	15.23	4.68E-03	3.86E-04
	50	1621.55	1.55E+01	14.28	4.63E-03	3.79E-04
	51	1631.32	9.57E+00	9.84	4.61E-03	3.77E-04
	52	1662.68	1.28E+01	14.04	4.56E-03	3.69E-04
	53	1729.99	2.40E+01	9.80	4.45E-03	3.52E-04
	54	1765.40	7.74E+01	20.70	4.39E-03	3.43E-04
	55	1799.24	7.50E+00	7.62	4.35E-03	3.35E-04
	56	1847.42	1.33E+01	16.31	4.28E-03	3.26E-04
	57	1925.82	5.50E+00	6.67	4.19E-03	3.26E-04
	58	1936.36	1.15E+01	11.34	4.18E-03	3.26E-04
	59	2018.44	8.57E+00	9.63	4.09E-03	3.26E-04
	60	2104.83	3.38E+01	14.86	4.02E-03	3.26E-04
	61	2162.59	6.11E+00	7.78	3.98E-03	3.26E-04
	62	2176.76	8.40E+00	7.23	3.97E-03	3.26E-04
	63	2204.96	2.75E+01	12.98	3.95E-03	3.26E-04
	64	2448.66	8.92E+00	8.51	3.83E-03	3.26E-04
	65	2615.21	1.32E+02	23.58	3.79E-03	3.26E-04

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

Analysis Report for 1510093-10  
CP1806S03-04

## BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/11/2015 2:28:47PM

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	63.51	1.83E+02	111.10	7.80E+01	1.33E+01	1.05E+02	1.12E+02
2	76.36	1.47E+03	168.67	9.75E+00	8.28E+00	1.46E+03	1.69E+02
3	87.34	4.82E+02	132.32			4.82E+02	1.32E+02
4	93.24	2.38E+02	97.03	1.34E+02	9.83E+00	1.04E+02	9.75E+01
5	100.04	6.25E+01	75.45			6.25E+01	7.54E+01
6	129.73	1.84E+02	127.80			1.84E+02	1.28E+02
7	163.82	9.62E+01	80.87	8.29E+00	7.16E+00	8.79E+01	8.12E+01
8	186.17	2.31E+02	86.93	6.41E+01	7.38E+00	1.67E+02	8.72E+01
9	199.32	6.30E+01	68.13			6.30E+01	6.81E+01
10	209.21	1.42E+02	70.84			1.42E+02	7.08E+01
M	11	238.79	1.14E+03	2.34E+01	6.34E+00	1.11E+03	8.26E+01
m	12	242.03	2.59E+02	70.10		2.59E+02	7.01E+01
	13	269.92	1.04E+02	62.03		1.04E+02	6.20E+01
	14	277.24	8.44E+01	66.75		8.44E+01	6.67E+01
M	15	295.44	3.56E+02	54.55	4.17E+00	5.50E+00	3.52E+02
m	16	300.47	7.32E+01	54.55		7.32E+01	5.45E+01
	17	338.53	2.30E+02	70.51	2.22E-01	4.54E+00	2.30E+02
	18	351.88	6.60E+02	80.33	8.83E+00	4.91E+00	6.51E+02
	19	409.80	3.75E+01	43.85		3.75E+01	4.39E+01
	20	462.81	5.32E+01	35.41		5.32E+01	3.54E+01
	21	510.92	2.23E+02	70.17	8.12E+01	5.49E+00	1.42E+02
	22	583.46	3.66E+02	57.09	6.34E+00	3.74E+00	3.59E+02
	23	596.21	2.70E+01	32.94		2.70E+01	3.29E+01
	24	609.65	4.64E+02	61.25	5.20E+00	3.69E+00	4.59E+02
	25	641.91	3.28E+01	22.27		3.28E+01	2.23E+01
	26	727.34	6.82E+01	39.19		6.82E+01	3.92E+01
	27	754.95	3.62E+01	27.78		3.62E+01	2.78E+01
	28	768.53	5.15E+01	40.85		5.15E+01	4.08E+01
	29	795.42	2.96E+01	34.23		2.96E+01	3.42E+01
	30	861.29	8.10E+01	36.25		8.10E+01	3.62E+01
	31	871.23	1.80E+01	23.11		1.80E+01	2.31E+01
	32	911.43	2.40E+02	48.19	3.28E+00	2.53E+00	2.37E+02
	33	935.06	2.94E+01	30.92		2.94E+01	3.09E+01
	34	969.67	8.89E+01	53.00		8.89E+01	5.30E+01
	35	1121.08	1.00E+02	39.36	2.28E+00	2.55E+00	9.81E+01
	36	1237.27	5.67E+01	35.34		5.67E+01	3.53E+01
	37	1264.30	2.11E+01	21.07		2.11E+01	2.11E+01
	38	1309.93	3.70E+01	26.25		3.70E+01	2.63E+01
	39	1378.15	3.05E+01	16.03		3.05E+01	1.60E+01
	40	1385.90	2.28E+01	17.44		2.28E+01	1.74E+01
	41	1407.78	1.63E+01	16.49		1.63E+01	1.65E+01
	42	1420.07	1.21E+01	14.00		1.21E+01	1.40E+01
M	43	1461.32	8.22E+02	58.47	6.46E+00	2.33E+00	8.15E+02
m	44	1466.23	1.60E+01	54.12		1.60E+01	5.41E+01

Analysis Report for 1510093-10  
CP1806S03-04

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	45	1474.65	1.29E+01	12.00			1.29E+01	1.20E+01
	46	1507.31	4.59E+01	25.77			4.59E+01	2.58E+01
M	47	1583.66	7.21E+00	5.48			7.21E+00	5.48E+00
m	48	1588.66	2.27E+01	14.97			2.27E+01	1.50E+01
m	49	1593.66	2.05E+01	15.23			2.05E+01	1.52E+01
	50	1621.55	1.55E+01	14.28			1.55E+01	1.43E+01
	51	1631.32	9.57E+00	9.84			9.57E+00	9.84E+00
	52	1662.68	1.28E+01	14.04			1.28E+01	1.40E+01
	53	1729.99	2.40E+01	9.80			2.40E+01	9.80E+00
	54	1765.40	7.74E+01	20.70			7.74E+01	2.07E+01
	55	1799.24	7.50E+00	7.62			7.50E+00	7.62E+00
	56	1847.42	1.33E+01	16.31			1.33E+01	1.63E+01
	57	1925.82	5.50E+00	6.67			5.50E+00	6.67E+00
	58	1936.36	1.15E+01	11.34			1.15E+01	1.13E+01
	59	2018.44	8.57E+00	9.63			8.57E+00	9.63E+00
	60	2104.83	3.38E+01	14.86			3.38E+01	1.49E+01
	61	2162.59	6.11E+00	7.78			6.11E+00	7.78E+00
	62	2176.76	8.40E+00	7.23			8.40E+00	7.23E+00
	63	2204.96	2.75E+01	12.98			2.75E+01	1.30E+01
	64	2448.66	8.92E+00	8.51			8.92E+00	8.51E+00
	65	2615.21	1.32E+02	23.58	3.47E+00	1.48E+00	1.28E+02	2.36E+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 : 11/11/2015 2:28:47PM  
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	63.51	1.83E+02	111.10	7.80E+01	1.33E+01	1.05E+02	1.12E+02
2	76.36	1.47E+03	168.67	9.75E+00	8.28E+00	1.46E+03	1.69E+02
3	87.34	4.82E+02	132.32			4.82E+02	1.32E+02
4	93.24	2.38E+02	97.03	1.34E+02	9.83E+00	1.04E+02	9.75E+01
5	100.04	6.25E+01	75.45			6.25E+01	7.54E+01
6	129.73	1.84E+02	127.80			1.84E+02	1.28E+02
7	163.82	9.62E+01	80.87	8.29E+00	7.16E+00	8.79E+01	8.12E+01

: 00676

Analysis Report for 1510093-10

CP1806S03-04

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	8	186.17	2.31E+02	86.93	6.41E+01	7.38E+00	1.67E+02	8.72E+01
	9	199.32	6.30E+01	68.13			6.30E+01	6.81E+01
	10	209.21	1.42E+02	70.84			1.42E+02	7.08E+01
M	11	238.79	1.14E+03	82.36	2.34E+01	6.34E+00	1.11E+03	8.26E+01
m	12	242.03	2.59E+02	70.10			2.59E+02	7.01E+01
	13	269.92	1.04E+02	62.03			1.04E+02	6.20E+01
	14	277.24	8.44E+01	66.75			8.44E+01	6.67E+01
M	15	295.44	3.56E+02	54.55	4.17E+00	5.50E+00	3.52E+02	5.48E+01
m	16	300.47	7.32E+01	54.55			7.32E+01	5.45E+01
	17	338.53	2.30E+02	70.51	2.22E-01	4.54E+00	2.30E+02	7.07E+01
	18	351.88	6.60E+02	80.33	8.83E+00	4.91E+00	6.51E+02	8.05E+01
	19	409.80	3.75E+01	43.85			3.75E+01	4.39E+01
	20	462.81	5.32E+01	35.41			5.32E+01	3.54E+01
	21	510.92	2.23E+02	70.17	8.12E+01	5.49E+00	1.42E+02	7.04E+01
	22	583.46	3.66E+02	57.09	6.34E+00	3.74E+00	3.59E+02	5.72E+01
	23	596.21	2.70E+01	32.94			2.70E+01	3.29E+01
	24	609.65	4.64E+02	61.25	5.20E+00	3.69E+00	4.59E+02	6.14E+01
	25	641.91	3.28E+01	22.27			3.28E+01	2.23E+01
	26	727.34	6.82E+01	39.19			6.82E+01	3.92E+01
	27	754.95	3.62E+01	27.78			3.62E+01	2.78E+01
	28	768.53	5.15E+01	40.85			5.15E+01	4.08E+01
	29	795.42	2.96E+01	34.23			2.96E+01	3.42E+01
	30	861.29	8.10E+01	36.25			8.10E+01	3.62E+01
	31	871.23	1.80E+01	23.11			1.80E+01	2.31E+01
	32	911.43	2.40E+02	48.19	3.28E+00	2.53E+00	2.37E+02	4.83E+01
	33	935.06	2.94E+01	30.92			2.94E+01	3.09E+01
	34	969.67	8.89E+01	53.00			8.89E+01	5.30E+01
	35	1121.08	1.00E+02	39.36	2.28E+00	2.55E+00	9.81E+01	3.94E+01
	36	1237.27	5.67E+01	35.34			5.67E+01	3.53E+01
	37	1264.30	2.11E+01	21.07			2.11E+01	2.11E+01
	38	1309.93	3.70E+01	26.25			3.70E+01	2.63E+01
	39	1378.15	3.05E+01	16.03			3.05E+01	1.60E+01
	40	1385.90	2.28E+01	17.44			2.28E+01	1.74E+01
	41	1407.78	1.63E+01	16.49			1.63E+01	1.65E+01
	42	1420.07	1.21E+01	14.00			1.21E+01	1.40E+01
M	43	1461.32	8.22E+02	58.47	6.46E+00	2.33E+00	8.15E+02	5.85E+01
m	44	1466.23	1.60E+01	54.12			1.60E+01	5.41E+01
	45	1474.65	1.29E+01	12.00			1.29E+01	1.20E+01
	46	1507.31	4.59E+01	25.77			4.59E+01	2.58E+01
M	47	1583.66	7.21E+00	5.48			7.21E+00	5.48E+00
m	48	1588.66	2.27E+01	14.97			2.27E+01	1.50E+01
m	49	1593.66	2.05E+01	15.23			2.05E+01	1.52E+01
	50	1621.55	1.55E+01	14.28			1.55E+01	1.43E+01
	51	1631.32	9.57E+00	9.84			9.57E+00	9.84E+00
	52	1662.68	1.28E+01	14.04			1.28E+01	1.40E+01
	53	1729.99	2.40E+01	9.80			2.40E+01	9.80E+00
	54	1765.40	7.74E+01	20.70			7.74E+01	2.07E+01
	55	1799.24	7.50E+00	7.62			7.50E+00	7.62E+00
	56	1847.42	1.33E+01	16.31			1.33E+01	1.63E+01
	57	1925.82	5.50E+00	6.67			5.50E+00	6.67E+00
	58	1936.36	1.15E+01	11.34			1.15E+01	1.13E+01
	59	2018.44	8.57E+00	9.63			8.57E+00	9.63E+00
	60	2104.83	3.38E+01	14.86			3.38E+01	1.49E+01
	61	2162.59	6.11E+00	7.78			6.11E+00	7.78E+00

Analysis Report for 1510093-10  
CP1806S03-04

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
62	2176.76	8.40E+00	7.23			8.40E+00	7.23E+00
63	2204.96	2.75E+01	12.98			2.75E+01	1.30E+01
64	2448.66	8.92E+00	8.51			8.92E+00	8.51E+00
65	2615.21	1.32E+02	23.58	3.47E+00	1.48E+00	1.28E+02	2.36E+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	0.960	1460.81	*	10.67	2.17E+01	2.45E+00
GA-67	0.592	93.31	*	35.70	1.69E+02	7.75E+02
		208.95	*	2.24	5.04E+03	2.20E+04
		300.22	*	16.00	4.62E+02	2.10E+03
CD-109	0.927	88.03	*	3.72	6.75E+00	2.00E+00
SN-126	0.992	87.57	*	37.00	6.46E-01	1.88E-01
TL-208	0.961	583.14	*	30.22	1.65E+00	3.02E-01
		860.37	*	4.48	3.41E+00	1.56E+00
		2614.66	*	35.85	1.33E+00	2.71E-01
BI-212	0.971	727.17	*	11.80	9.54E-01	5.55E-01
		1620.62	*	2.75	1.71E+00	1.59E+00
PB-212	0.995	238.63	*	44.60	1.84E+00	2.07E-01
		300.09	*	3.41	1.84E+00	1.38E+00
BI-214	0.942	609.31	*	46.30	1.42E+00	2.30E-01
		1120.29	*	15.10	1.51E+00	6.21E-01
		1764.49	*	15.80	1.57E+00	4.39E-01
		2204.22	*	4.98	1.98E+00	9.47E-01
PB-214	0.997	295.21	*	19.19	1.55E+00	2.71E-01
		351.92	*	37.19	1.67E+00	2.47E-01
RA-226	1.000	186.21	*	3.28	3.22E+00	6.13E+00
AC-228	0.973	338.32	*	11.40	1.88E+00	5.96E-01
		911.07	*	27.70	1.69E+00	3.74E-01
		969.11	*	16.60	1.11E+00	6.70E-01
TH-234	0.992	63.29	*	3.80	1.56E+00	1.67E+00
NP-237	0.893	86.50	*	12.60	1.90E+00	5.51E-01
CM-243	0.359	209.75	*	3.29	2.92E+00	1.48E+00
		228.14		10.60		

Analysis Report for 1510093-10  
 CP1806S03-04

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.359	277.60 *	14.00	4.90E-01	3.89E-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 : 11/11/2015 2:28:47PM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.36	4.06094E-01	5.78		
5	100.04	1.73584E-02	60.37	D-Esc	
6	129.73	5.12086E-02	34.66		
7	163.82	2.44157E-02	46.18	Tol.	U-235
9	199.32	1.75054E-02	54.05		
m 12	242.03	7.19314E-02	13.54		
13	269.92	2.87564E-02	29.96		
19	409.80	1.04292E-02	58.40		
20	462.81	1.47810E-02	33.27	Sum	
21	510.92	3.93926E-02	24.82		
23	596.21	7.49396E-03	61.04	Sum	
25	641.91	9.10317E-03	33.98		
27	754.95	1.00593E-02	38.36		
28	768.53	1.43056E-02	39.66		
29	795.42	8.23124E-03	57.77	Sum	
31	871.23	5.00000E-03	64.19		
33	935.06	8.15543E-03	52.66	Sum	
36	1237.27	1.57634E-02	31.14	Tol.	CO-56
37	1264.30	5.85784E-03	49.96	Sum	
38	1309.93	1.02646E-02	35.52	Sum	
39	1378.15	8.48169E-03	26.25		
40	1385.90	6.34028E-03	38.19		
41	1407.78	4.51389E-03	50.75	Tol.	EU-152
42	1420.07	3.36667E-03	57.76		
m 44	1466.23	4.44248E-03	169.20		
45	1474.65	3.56944E-03	46.69		
46	1507.31	1.27483E-02	28.07		

Analysis Report for 1510093-10  
 CP1806S03-04

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M 47	1583.66	2.00307E-03	37.98		
m 48	1588.66	6.30638E-03	32.96	Sum	
m 49	1593.66	5.70563E-03	37.08	D-Esc	
	51	1631.32	2.65741E-03		
	52	1662.68	3.55903E-03		
	53	1729.99	6.66667E-03	20.41	Sum
	55	1799.24	2.08333E-03	50.77	Sum
	56	1847.42	3.69732E-03	61.27	Sum
	57	1925.82	1.52778E-03	60.64	
	58	1936.36	3.19444E-03	49.29	
	59	2018.44	2.38095E-03	56.18	
	60	2104.83	9.38194E-03	22.00	S-Esc
	61	2162.59	1.69753E-03	63.64	
	62	2176.76	2.33333E-03	43.03	
	64	2448.66	2.47685E-03	47.75	

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81 *	10.67	2.17E+01	2.45E+00
GA-67	0.59	93.31 *	35.70	1.69E+02	7.75E+02
		208.95 *	2.24	5.04E+03	2.20E+04
		300.22 *	16.00	4.62E+02	2.10E+03
		88.03 *	3.72	6.75E+00	2.00E+00
CD-109	0.92	87.57 *	37.00	6.46E-01	1.88E-01
SN-126	0.99	583.14 *	30.22	1.65E+00	3.02E-01
TL-208	0.96	860.37 *	4.48	3.41E+00	1.56E+00
		2614.66 *	35.85	1.33E+00	2.71E-01
		727.17 *	11.80	9.54E-01	5.55E-01
BI-212	0.97	1620.62 *	2.75	1.71E+00	1.59E+00
PB-212	0.99	238.63 *	44.60	1.84E+00	2.07E-01
		300.09 *	3.41	1.84E+00	1.38E+00



Analysis Report for 1510093-10  
CP1806S03-04

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
BI-214	0.94	609.31 *		46.30	1.42E+00	2.30E-01
		1120.29 *		15.10	1.51E+00	6.21E-01
		1764.49 *		15.80	1.57E+00	4.39E-01
		2204.22 *		4.98	1.98E+00	9.47E-01
PB-214	0.99	295.21 *		19.19	1.55E+00	2.71E-01
		351.92 *		37.19	1.67E+00	2.47E-01
RA-226	1.00	186.21 *		3.28	3.22E+00	6.13E+00
AC-228	0.97	338.32 *		11.40	1.88E+00	5.96E-01
		911.07 *		27.70	1.69E+00	3.74E-01
		969.11 *		16.60	1.11E+00	6.70E-01
TH-234	0.99	63.29 *		3.80	1.56E+00	1.67E+00
NP-237	0.89	86.50 *		12.60	1.90E+00	5.51E-01
CM-243	0.35	209.75 *		3.29	2.92E+00	1.48E+00
		228.14		10.60		
		277.60 *		14.00	4.90E-01	3.89E-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

## INTERFERENCE CORRECTED REPORT

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.960	2.17E+01	2.45E+00	
GA-67	0.592	1.53E+02	6.77E+02	
? CD-109	0.927	6.75E+00	2.00E+00	
? SN-126	0.992	6.46E-01	1.88E-01	
TL-208	0.961	1.51E+00	2.00E-01	
BI-212	0.971	1.04E+00	5.24E-01	
PB-212	0.995	1.82E+00	2.05E-01	
BI-214	0.942	1.48E+00	1.90E-01	
PB-214	0.997	1.62E+00	1.83E-01	
RA-226	1.000	3.22E+00	6.13E+00	
AC-228	0.973	1.63E+00	2.86E-01	
TH-234	0.992	1.56E+00	1.67E+00	

Analysis Report for 1510093-10  
CP1806S03-04

	<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
?	NP-237	0.893	1.90E+00	5.51E-01	
	CM-243	0.359	6.41E-01	3.77E-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 1510093-10  
CP1806S03-04

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 2:28:47PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	76.36	4.06094E-01	5.78		
5	100.04	1.73584E-02	60.37	D-Esc	
6	129.73	5.12086E-02	34.66		
7	163.82	2.44157E-02	46.18	Tol.	U-235
9	199.32	1.75054E-02	54.05		
m 12	242.03	7.19314E-02	13.54		
13	269.92	2.87564E-02	29.96		
19	409.80	1.04292E-02	58.40		
20	462.81	1.47810E-02	33.27	Sum	
21	510.92	3.93926E-02	24.82		
23	596.21	7.49396E-03	61.04	Sum	
25	641.91	9.10317E-03	33.98		
27	754.95	1.00593E-02	38.36		
28	768.53	1.43056E-02	39.66		
29	795.42	8.23124E-03	57.77	Sum	
31	871.23	5.00000E-03	64.19		
33	935.06	8.15543E-03	52.66	Sum	
36	1237.27	1.57634E-02	31.14	Tol.	CO-56
37	1264.30	5.85784E-03	49.96	Sum	
38	1309.93	1.02646E-02	35.52	Sum	
39	1378.15	8.48169E-03	26.25		
40	1385.90	6.34028E-03	38.19		
41	1407.78	4.51389E-03	50.75	Tol.	EU-152
42	1420.07	3.36667E-03	57.76		
m 44	1466.23	4.44248E-03	169.20		
45	1474.65	3.56944E-03	46.69		
46	1507.31	1.27483E-02	28.07		
M 47	1583.66	2.00307E-03	37.98		
m 48	1588.66	6.30638E-03	32.96	Sum	
m 49	1593.66	5.70563E-03	37.08	D-Esc	
51	1631.32	2.65741E-03	51.41		
52	1662.68	3.55903E-03	54.81		
53	1729.99	6.66667E-03	20.41	Sum	
55	1799.24	2.08333E-03	50.77	Sum	

Analysis Report for 1510093-10  
 CP1806S03-04

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	1847.42	3.69732E-03	61.27	Sum	
57	1925.82	1.52778E-03	60.64		
58	1936.36	3.19444E-03	49.29		
59	2018.44	2.38095E-03	56.18		
60	2104.83	9.38194E-03	22.00	S-Esc	
61	2162.59	1.69753E-03	63.64		
62	2176.76	2.33333E-03	43.03		
64	2448.66	2.47685E-03	47.75		

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	2.58E-01	1.01E+00	1.01E+00
+	NA-22	1274.54	99.94	3.53E-02	9.30E-02	9.30E-02
+	NA-24	1368.53	99.99	3.30E+13	4.74E+14	6.74E+14
		2754.09	99.86	3.95E+13		4.74E+14
+	AL-26	1808.65	99.76	1.80E-02	5.44E-02	5.44E-02
+	K-40	1460.81	* 10.67	2.17E+01	1.20E+00	1.20E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.06E-02	7.87E-02	7.87E-02
		78.34	96.00	3.39E-01		9.70E-02
+	SC-46	889.25	99.98	-5.46E-02	9.17E-02	9.17E-02
		1120.51	99.99	2.90E-01		1.86E-01
+	V-48	983.52	99.98	1.73E-02	3.05E-01	3.05E-01
		1312.10	97.50	1.20E-01		4.07E-01
+	CR-51	320.08	9.83	5.70E-01	1.36E+00	1.36E+00
+	MN-54	834.83	99.97	-2.44E-02	8.31E-02	8.31E-02
+	CO-56	846.75	99.96	8.71E-03	1.07E-01	1.07E-01
		1037.75	14.03	2.45E-01		7.03E-01
		1238.25	67.00	2.01E-01		2.54E-01
		1771.40	15.51	-7.93E-01		5.24E-01
		2598.48	16.90	9.05E-02		3.87E-01

Analysis Report for 1510093-10  
CP1806S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	CO-57	122.06	85.51	3.31E-02	6.44E-02	6.44E-02
		136.48	10.60	3.17E-02		5.36E-01
+	CO-58	810.76	99.40	4.39E-02	1.01E-01	1.01E-01
+	FE-59	1099.22	56.50	2.52E-02	2.45E-01	2.45E-01
		1291.56	43.20	-4.47E-02		3.13E-01
+	CO-60	1173.22	100.00	6.44E-03	7.92E-02	9.09E-02
		1332.49	100.00	-2.86E-02		7.92E-02
+	ZN-65	1115.52	50.75	2.98E-02	1.85E-01	1.85E-01
+	GA-67	93.31	* 35.70	1.69E+02	2.60E+02	2.60E+02
		208.95	* 2.24	5.04E+03		4.00E+03
		300.22	* 16.00	4.62E+02		9.94E+02
+	SE-75	121.11	16.70	2.42E-01	1.08E-01	3.75E-01
		136.00	59.20	-3.37E-03		1.08E-01
		264.65	59.80	3.15E-02		1.10E-01
		279.53	25.20	1.40E-01		2.82E-01
		400.65	11.40	-4.46E-02		6.18E-01
+	RB-82	776.52	13.00	-3.74E-01	1.29E+00	1.29E+00
+	RB-83	520.41	46.00	2.79E-02	1.80E-01	1.80E-01
		529.64	30.30	-7.68E-02		2.69E-01
		552.65	16.40	6.70E-02		5.92E-01
+	KR-85	513.99	0.43	3.05E+01	2.31E+01	2.31E+01
+	SR-85	513.99	99.27	1.89E-01	1.44E-01	1.44E-01
+	Y-88	898.02	93.40	9.88E-03	8.00E-02	1.04E-01
		1836.01	99.38	2.29E-02		8.00E-02
+	NB-93M	16.57	9.43	-9.81E+01	6.28E+01	6.28E+01
+	NB-94	702.63	100.00	1.39E-02	7.38E-02	7.41E-02
		871.10	100.00	1.72E-02		7.38E-02
+	NB-95	765.79	99.81	3.44E-02	1.93E-01	1.93E-01
+	NB-95M	235.69	25.00	-1.54E+03	1.71E+02	1.71E+02
+	ZR-95	724.18	43.70	4.50E-03	1.96E-01	2.59E-01
		756.72	55.30	1.04E-01		1.96E-01
+	MO-99	181.06	6.20	1.31E+03	2.63E+03	4.10E+03
		739.58	12.80	4.88E+02		2.63E+03
		778.00	4.50	-5.33E+03		6.35E+03
+	RU-103	497.08	89.00	6.36E-02	1.32E-01	1.32E-01
+	RU-106	621.84	9.80	-1.59E-02	6.86E-01	6.86E-01
+	AG-108M	433.93	89.90	1.20E-02	7.44E-02	7.44E-02
		614.37	90.40	-1.02E-02		7.77E-02
		722.95	90.50	-1.49E-02		7.51E-02
+	CD-109	88.03	* 3.72	6.75E+00	2.91E+00	2.91E+00
+	AG-110M	657.75	93.14	1.54E-02	8.46E-02	8.46E-02
		677.61	10.53	5.24E-02		7.21E-01
		706.67	16.46	8.07E-02		4.93E-01
		763.93	21.98	7.29E-02		3.86E-01
		884.67	71.63	1.19E-02		1.12E-01
		1384.27	23.94	-1.30E-01		3.69E-01
+	CD-113M	263.70	0.02	4.02E+01	2.35E+02	2.35E+02

Analysis Report for 1510093-10  
CP1806S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SN-113	255.12	1.93	-2.59E+00	1.08E-01	3.39E+00
		391.69	64.90	-1.88E-02		1.08E-01
+	TE123M	159.00	84.10	-1.76E-02	7.42E-02	7.42E-02
+	SB-124	602.71	97.87	9.95E-03	1.09E-01	1.09E-01
		645.85	7.26	3.37E-01		1.35E+00
		722.78	11.10	-1.78E-01		8.98E-01
		1691.02	49.00	2.81E-02		1.63E-01
+	I-125	35.49	6.49	2.16E+00	3.47E+00	3.47E+00
+	SB-125	176.33	6.89	-3.04E-01	2.22E-01	8.11E-01
		427.89	29.33	-7.31E-02		2.22E-01
		463.38	10.35	-6.42E-02		7.19E-01
		600.56	17.80	-7.32E-02		4.13E-01
		635.90	11.32	6.26E-02		5.81E-01
+	SB-126	414.70	83.30	-1.45E-03	4.89E-01	5.09E-01
		666.33	99.60	2.57E-01		4.89E-01
		695.00	99.60	-8.63E-02		4.93E-01
		720.50	53.80	1.87E-01		8.51E-01
+	SN-126	87.57	* 37.00	6.46E-01	2.79E-01	2.79E-01
+	SB-127	473.00	25.00	6.77E+00	7.19E+01	1.02E+02
		685.20	35.70	-4.82E+01		7.19E+01
		783.80	14.70	3.81E+01		2.15E+02
+	I-129	29.78	57.00	5.04E-01	5.20E-01	5.20E-01
		33.60	13.20	2.13E-01		1.35E+00
		39.58	7.52	-6.46E-02		1.57E+00
+	I-131	284.30	6.05	-6.39E+00	1.11E+00	1.50E+01
		364.48	81.20	-8.25E-01		1.11E+00
		636.97	7.26	-1.39E+00		1.50E+01
		722.89	1.80	-1.32E+01		6.65E+01
+	TE-132	49.72	13.10	-1.56E+03	7.74E+01	6.98E+02
		228.16	88.00	1.73E+01		7.74E+01
+	BA-133	81.00	33.00	-1.35E+00	1.01E-01	1.88E-01
		302.84	17.80	5.54E-02		3.26E-01
		356.01	60.00	1.32E-02		1.01E-01
+	I-133	529.87	86.30	-7.42E+09	2.60E+10	2.60E+10
+	XE-133	81.00	38.00	-9.45E+01	1.32E+01	1.32E+01
+	CS-134	563.23	8.38	2.50E-01	8.16E-02	8.16E-01
		569.32	15.43	-1.55E-01		4.22E-01
		604.70	97.60	1.23E-02		8.16E-02
		795.84	85.40	7.06E-02		1.08E-01
		801.93	8.73	5.95E-02		9.23E-01
+	CS-135	268.24	16.00	5.08E-01	3.99E-01	3.99E-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	-1.46E-01	3.80E-01	4.18E+00
		163.89	4.61	8.70E+00		7.18E+00
		176.55	13.56	-8.71E-01		2.33E+00
		273.65	12.66	-4.48E+00		2.53E+00
		340.57	48.50	7.87E-01		8.97E-01

Analysis Report for 1510093-10  
CP1806S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	CS-136	818.50	99.70	-2.78E-02	3.80E-01	3.80E-01
		1048.07	79.60	-1.86E-01		5.70E-01
		1235.34	19.70	-7.87E-01		3.35E+00
+	CS-137	661.65	85.12	7.68E-03	8.97E-02	8.97E-02
+	LA-138	788.74	34.00	3.49E-02	9.77E-02	2.39E-01
		1435.80	66.00	-2.57E-03		9.77E-02
+	CE-139	165.85	80.35	2.62E-02	8.13E-02	8.13E-02
+	BA-140	162.64	6.70	-5.41E-01	1.60E+00	5.05E+00
		304.84	4.50	-1.44E+00		6.96E+00
		423.70	3.20	1.66E+00		1.23E+01
		437.55	2.00	4.97E+00		2.03E+01
		537.32	25.00	-2.34E-02		1.60E+00
+	LA-140	328.77	20.50	1.41E+00	4.89E-01	1.89E+00
		487.03	45.50	-1.37E-01		8.64E-01
		815.85	23.50	-2.05E-01		1.69E+00
		1596.49	95.49	2.62E-01		4.89E-01
+	CE-141	145.44	48.40	5.94E-02	2.36E-01	2.36E-01
+	CE-143	57.36	11.80	-3.49E+06	4.14E+06	1.18E+07
		293.26	42.00	1.21E+07		4.14E+06
		664.55	5.20	8.22E+06		2.80E+07
+	CE-144	133.54	10.80	2.48E-01	5.51E-01	5.51E-01
+	PM-144	476.78	42.00	-2.56E-02	7.04E-02	1.67E-01
		618.01	98.60	3.40E-02		7.04E-02
		696.49	99.49	3.47E-02		8.33E-02
+	PM-145	36.85	21.70	-2.37E-01	3.37E-01	6.30E-01
		37.36	39.70	-1.89E-01		3.37E-01
		42.30	15.10	-2.88E-01		6.95E-01
		72.40	2.31	-5.70E+00		3.60E+00
+	PM-146	453.90	39.94	-8.60E-02	1.59E-01	1.59E-01
		735.90	14.01	-1.71E-01		5.27E-01
		747.13	13.10	3.44E-01		5.77E-01
+	ND-147	91.11	28.90	-5.77E+00	2.05E+00	2.05E+00
		531.02	13.10	-6.51E-01		3.97E+00
+	PM-149	285.90	3.10	-2.43E+04	5.63E+04	5.63E+04
+	EU-152	121.78	20.50	1.27E-01	2.48E-01	2.48E-01
		244.69	5.40	-2.45E-01		1.18E+00
		344.27	19.13	-5.25E-03		2.83E-01
		778.89	9.20	-5.19E-01		7.26E-01
		964.01	10.40	1.91E-01		9.74E-01
		1085.78	7.22	1.71E-01		1.18E+00
		1112.02	9.60	-3.02E-01		8.22E-01
		1407.95	14.94	3.77E-01		5.40E-01
+	GD-153	97.43	31.30	-1.58E-01	1.86E-01	1.86E-01
		103.18	22.20	-3.17E-02		2.55E-01
+	EU-154	123.07	40.50	4.88E-02	1.27E-01	1.27E-01
		723.30	19.70	-6.88E-02		3.48E-01
		873.19	11.50	-9.87E-02		6.63E-01
		996.32	10.30	-1.94E-01		7.32E-01
		1004.76	17.90	-1.20E-01		4.40E-01

Analysis Report for 1510093-10  
CP1806S03-04

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	EU-154	1274.45	35.50	9.77E-02	1.27E-01	2.57E-01
+	EU-155	86.50	30.90	1.69E-01	2.47E-01	2.47E-01
		105.30	20.70	-4.05E-02		2.57E-01
+	EU-156	811.77	10.40	-2.25E-02	3.02E+00	3.02E+00
		1153.47	7.20	8.84E-01		6.57E+00
		1230.71	8.90	-1.63E+00		4.97E+00
+	HO-166M	184.41	72.60	1.63E-01	9.87E-02	9.87E-02
		280.45	29.60	-1.69E-02		1.86E-01
		410.94	11.10	2.51E-01		6.53E-01
		711.69	54.10	6.03E-02		1.34E-01
+	TM-171	66.72	0.14	-1.93E+01	5.45E+01	5.45E+01
+	HF-172	81.75	4.52	-3.22E+00	4.79E-01	1.37E+00
		125.81	11.30	-5.41E-01		4.79E-01
+	LU-172	181.53	20.60	2.65E+00	3.87E+00	8.84E+00
		810.06	16.63	2.80E+00		1.41E+01
		912.12	15.25	9.35E+01		3.35E+01
		1093.66	62.50	-7.99E-01		3.87E+00
+	LU-173	100.72	5.24	6.19E-01	3.13E-01	1.07E+00
		272.11	21.20	1.70E-01		3.13E-01
+	HF-175	343.40	84.00	-1.65E-03	9.43E-02	9.43E-02
+	LU-176	88.34	13.30	9.69E-01	5.94E-02	5.83E-01
		201.83	86.00	-5.45E-03		6.59E-02
		306.78	94.00	2.81E-02		5.94E-02
+	TA-182	67.75	41.20	2.96E-02	2.21E-01	2.21E-01
		1121.30	34.90	7.89E-01		5.01E-01
		1189.05	16.23	1.43E-01		7.07E-01
		1221.41	26.98	-5.33E-02		4.44E-01
		1231.02	11.44	-3.40E-01		1.04E+00
+	IR-192	308.46	29.68	9.07E-02	1.70E-01	2.56E-01
		468.07	48.10	-5.90E-02		1.70E-01
+	HG-203	279.19	77.30	7.60E-02	1.28E-01	1.28E-01
+	BI-207	569.67	97.72	-7.89E-03	6.69E-02	6.69E-02
		1063.62	74.90	2.24E-02		1.09E-01
+	TL-208	583.14	* 30.22	1.65E+00	1.43E-01	3.37E-01
		860.37	* 4.48	3.41E+00		2.30E+00
		2614.66	* 35.85	1.33E+00		1.43E-01
+	BI-210M	262.00	45.00	-3.94E-02	1.21E-01	1.21E-01
		300.00	23.00	-6.47E-01		2.70E-01
+	PB-210	46.50	4.25	2.29E+00	2.25E+00	2.25E+00
+	PB-211	404.84	2.90	-1.19E-02	2.00E+00	2.00E+00
		831.96	2.90	-1.09E+00		2.62E+00
+	BI-212	727.17	* 11.80	9.54E-01	8.56E-01	8.56E-01
		1620.62	* 2.75	1.71E+00		2.47E+00
+	PB-212	238.63	* 44.60	1.84E+00	2.81E-01	2.81E-01
		300.09	* 3.41	1.84E+00		3.96E+00
+	BI-214	609.31	* 46.30	1.42E+00	2.33E-01	2.33E-01
		1120.29	* 15.10	1.51E+00		9.07E-01
		1764.49	* 15.80	1.57E+00		4.20E-01



Analysis Report for 1510093-10  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	BI-214	2204.22	*	4.98	1.98E+00	2.33E-01	1.10E+00
+	PB-214	295.21	*	19.19	1.55E+00	2.70E-01	6.92E-01
		351.92	*	37.19	1.67E+00		2.70E-01
+	RN-219	401.80		6.50	5.51E-01	9.44E-01	9.44E-01
+	RA-223	323.87		3.88	-1.23E+00	1.41E+00	1.41E+00
+	RA-224	240.98		3.95	2.02E+01	3.34E+00	3.34E+00
+	RA-225	40.00		31.00	-7.24E-02	1.76E+00	1.76E+00
+	RA-226	186.21	*	3.28	3.22E+00	2.69E+00	2.69E+00
+	TH-227	50.10		8.40	-2.02E+00	6.24E-01	9.07E-01
		236.00		11.50	-5.65E+00		6.24E-01
		256.20		6.30	-4.86E-02		8.89E-01
+	AC-228	338.32	*	11.40	1.88E+00	4.55E-01	8.79E-01
		911.07	*	27.70	1.69E+00		4.55E-01
		969.11	*	16.60	1.11E+00		1.05E+00
+	TH-230	48.44		16.90	1.04E-01	5.15E-01	5.15E-01
		62.85		4.60	1.72E+00		1.78E+00
		67.67		0.37	2.70E+00		2.01E+01
+	PA-231	283.67		1.60	-1.17E-01	2.51E+00	3.23E+00
		302.67		2.30	4.26E-01		2.51E+00
+	TH-231	25.64		14.70	1.92E-01	1.06E+00	4.10E+00
		84.21		6.40	-2.10E+00		1.06E+00
+	PA-233	311.98		38.60	-8.79E-02	3.18E-01	3.18E-01
+	PA-234	131.20		20.40	1.88E-01	2.86E-01	2.86E-01
		733.99		8.80	-1.18E-01		8.13E-01
		946.00		12.00	-3.35E-01		5.93E-01
+	PA-234M	1001.03		0.92	1.22E-01	8.90E+00	8.90E+00
+	TH-234	63.29	*	3.80	1.56E+00	2.73E+00	2.73E+00
+	U-235	143.76		10.50	3.16E-02	5.37E-01	5.37E-01
		163.35		4.70	1.48E+00		1.22E+00
		205.31		4.70	1.19E-01		1.25E+00
+	NP-237	86.50	*	12.60	1.90E+00	8.19E-01	8.19E-01
+	NP-239	106.10		22.70	-6.54E+02	4.15E+03	4.15E+03
		228.18		10.70	2.14E+03		9.62E+03
		277.60		14.10	4.85E+03		7.72E+03
+	AM-241	59.54		35.90	3.61E-02	2.05E-01	2.05E-01
+	AM-243	74.67		66.00	-1.73E-01	1.50E-01	1.50E-01
+	CM-243	209.75	*	3.29	2.92E+00	5.44E-01	2.32E+00
		228.14		10.60	1.21E-01		5.44E-01
		277.60	*	14.00	4.90E-01		6.29E-01

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

Analysis Report for 1510093-10  
 CP1806S03-04

## 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	1.01E+00	1.01E+00	2.58E-01	4.79E-01
NA-22	1274.54	99.94	9.30E-02	9.30E-02	3.53E-02	4.29E-02
NA-24	1368.53	99.99	6.74E+14	4.74E+14	3.30E+13	2.98E+14
	2754.09	99.86	4.74E+14		3.95E+13	1.84E+14
AL-26	1808.65	99.76	5.44E-02	5.44E-02	1.80E-02	2.28E-02
+ K-40	1460.81	*	1.20E+00	1.20E+00	2.17E+01	5.66E-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	7.87E-02	7.87E-02	1.06E-02	3.86E-02
	78.34	96.00	9.70E-02		3.39E-01	4.78E-02
SC-46	889.25	99.98	9.17E-02	9.17E-02	-5.46E-02	4.24E-02
	1120.51	99.99	1.86E-01		2.90E-01	8.91E-02
V-48	983.52	99.98	3.05E-01	3.05E-01	1.73E-02	1.40E-01
	1312.10	97.50	4.07E-01		1.20E-01	1.88E-01
CR-51	320.08	9.83	1.36E+00	1.36E+00	5.70E-01	6.51E-01
MN-54	834.83	99.97	8.31E-02	8.31E-02	-2.44E-02	3.89E-02
CO-56	846.75	99.96	1.07E-01	1.07E-01	8.71E-03	5.03E-02
	1037.75	14.03	7.03E-01		2.45E-01	3.23E-01
	1238.25	67.00	2.54E-01		2.01E-01	1.20E-01
	1771.40	15.51	5.24E-01		-7.93E-01	2.24E-01
	2598.48	16.90	3.87E-01		9.05E-02	1.53E-01
CO-57	122.06	85.51	6.44E-02	6.44E-02	3.31E-02	3.13E-02
	136.48	10.60	5.36E-01		3.17E-02	2.61E-01
CO-58	810.76	99.40	1.01E-01	1.01E-01	4.39E-02	4.70E-02
FE-59	1099.22	56.50	2.45E-01	2.45E-01	2.52E-02	1.13E-01
	1291.56	43.20	3.13E-01		-4.47E-02	1.43E-01
CO-60	1173.22	100.00	9.09E-02	7.92E-02	6.44E-03	4.21E-02
	1332.49	100.00	7.92E-02		-2.86E-02	3.60E-02
ZN-65	1115.52	50.75	1.85E-01	1.85E-01	2.98E-02	8.59E-02
+ GA-67	93.31	*	2.60E+02	2.60E+02	1.69E+02	1.28E+02
	208.95	*	4.00E+03		5.04E+03	1.95E+03
	300.22	*	9.94E+02		4.62E+02	4.89E+02
SE-75	121.11	16.70	3.75E-01	1.08E-01	2.42E-01	1.82E-01
	136.00	59.20	1.08E-01		-3.37E-03	5.27E-02
	264.65	59.80	1.10E-01		3.15E-02	5.28E-02
	279.53	25.20	2.82E-01		1.40E-01	1.36E-01
	400.65	11.40	6.18E-01		-4.46E-02	2.94E-01
RB-82	776.52	13.00	1.29E+00	1.29E+00	-3.74E-01	5.99E-01

Analysis Report for 1510093-10  
CP1806S03-04

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	1.80E-01	1.80E-01	2.79E-02	8.50E-02
	529.64	30.30	2.69E-01		-7.68E-02	1.27E-01
	552.65	16.40	5.92E-01		6.70E-02	2.82E-01
KR-85	513.99	0.43	2.31E+01	2.31E+01	3.05E+01	1.12E+01
SR-85	513.99	99.27	1.44E-01	1.44E-01	1.89E-01	6.93E-02
Y-88	898.02	93.40	1.04E-01	8.00E-02	9.88E-03	4.83E-02
	1836.01	99.38	8.00E-02		2.29E-02	3.44E-02
NB-93M	16.57	9.43	6.28E+01	6.28E+01	-9.81E+01	2.89E+01
NB-94	702.63	100.00	7.41E-02	7.38E-02	1.39E-02	3.49E-02
	871.10	100.00	7.38E-02		1.72E-02	3.43E-02
NB-95	765.79	99.81	1.93E-01	1.93E-01	3.44E-02	9.22E-02
NB-95M	235.69	25.00	1.71E+02	1.71E+02	-1.54E+03	8.29E+01
ZR-95	724.18	43.70	2.59E-01	1.96E-01	4.50E-03	1.22E-01
	756.72	55.30	1.96E-01		1.04E-01	9.19E-02
MO-99	181.06	6.20	4.10E+03	2.63E+03	1.31E+03	1.99E+03
	739.58	12.80	2.63E+03		4.88E+02	1.24E+03
	778.00	4.50	6.35E+03		-5.33E+03	2.95E+03
RU-103	497.08	89.00	1.32E-01	1.32E-01	6.36E-02	6.28E-02
RU-106	621.84	9.80	6.86E-01	6.86E-01	-1.59E-02	3.22E-01
AG-108M	433.93	89.90	7.44E-02	7.44E-02	1.20E-02	3.55E-02
	614.37	90.40	7.77E-02		-1.02E-02	3.67E-02
	722.95	90.50	7.51E-02		-1.49E-02	3.51E-02
+ CD-109	88.03	* 3.72	2.91E+00	2.91E+00	6.75E+00	1.44E+00
AG-110M	657.75	93.14	8.46E-02	8.46E-02	1.54E-02	3.99E-02
	677.61	10.53	7.21E-01		5.24E-02	3.38E-01
	706.67	16.46	4.93E-01		8.07E-02	2.32E-01
	763.93	21.98	3.86E-01		7.29E-02	1.82E-01
	884.67	71.63	1.12E-01		1.19E-02	5.19E-02
	1384.27	23.94	3.69E-01		-1.30E-01	1.67E-01
CD-113M	263.70	0.02	2.35E+02	2.35E+02	4.02E+01	1.13E+02
SN-113	255.12	1.93	3.39E+00	1.08E-01	-2.59E+00	1.63E+00
	391.69	64.90	1.08E-01		-1.88E-02	5.14E-02
TE123M	159.00	84.10	7.42E-02	7.42E-02	-1.76E-02	3.60E-02
SB-124	602.71	97.87	1.09E-01	1.09E-01	9.95E-03	5.16E-02
	645.85	7.26	1.35E+00		3.37E-01	6.32E-01
	722.78	11.10	8.98E-01		-1.78E-01	4.19E-01
	1691.02	49.00	1.63E-01		2.81E-02	6.90E-02
I-125	35.49	6.49	3.47E+00	3.47E+00	2.16E+00	1.68E+00
SB-125	176.33	6.89	8.11E-01	2.22E-01	-3.04E-01	3.93E-01
	427.89	29.33	2.22E-01		-7.31E-02	1.06E-01
	463.38	10.35	7.19E-01		-6.42E-02	3.44E-01
	600.56	17.80	4.13E-01		-7.32E-02	1.96E-01
	635.90	11.32	5.81E-01		6.26E-02	2.72E-01
SB-126	414.70	83.30	5.09E-01	4.89E-01	-1.45E-03	2.43E-01
	666.33	99.60	4.89E-01		2.57E-01	2.31E-01
	695.00	99.60	4.93E-01		-8.63E-02	2.33E-01
	720.50	53.80	8.51E-01		1.87E-01	3.99E-01
+ SN-126	87.57	* 37.00	2.79E-01	2.79E-01	6.46E-01	1.38E-01
SB-127	473.00	25.00	1.02E+02	7.19E+01	6.77E+00	4.85E+01
	685.20	35.70	7.19E+01		-4.82E+01	3.35E+01
	783.80	14.70	2.15E+02		3.81E+01	1.01E+02
I-129	29.78	57.00	5.20E-01	5.20E-01	5.04E-01	2.53E-01
	33.60	13.20	1.35E+00		2.13E-01	6.56E-01

Analysis Report for 1510093-10  
 CP1806S03-04

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-129	39.58	7.52	1.57E+00	5.20E-01	-6.46E-02	7.63E-01
I-131	284.30	6.05	1.50E+01	1.11E+00	-6.39E+00	7.17E+00
	364.48	81.20	1.11E+00		-8.25E-01	5.26E-01
	636.97	7.26	1.50E+01		-1.39E+00	7.02E+00
	722.89	1.80	6.65E+01		-1.32E+01	3.11E+01
TE-132	49.72	13.10	6.98E+02	7.74E+01	-1.56E+03	3.40E+02
	228.16	88.00	7.74E+01		1.73E+01	3.74E+01
BA-133	81.00	33.00	1.88E-01	1.01E-01	-1.35E+00	9.21E-02
	302.84	17.80	3.26E-01		5.54E-02	1.56E-01
	356.01	60.00	1.01E-01		1.32E-02	4.82E-02
I-133	529.87	86.30	2.60E+10	2.60E+10	-7.42E+09	1.23E+10
XE-133	81.00	38.00	1.32E+01	1.32E+01	-9.45E+01	6.46E+00
CS-134	563.23	8.38	8.16E-01	8.16E-02	2.50E-01	3.85E-01
	569.32	15.43	4.22E-01		-1.55E-01	1.99E-01
	604.70	97.60	8.16E-02		1.23E-02	3.88E-02
	795.84	85.40	1.08E-01		7.06E-02	5.10E-02
	801.93	8.73	9.23E-01		5.95E-02	4.33E-01
CS-135	268.24	16.00	3.99E-01	3.99E-01	5.08E-01	1.93E-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	4.18E+00	3.80E-01	-1.46E-01	2.03E+00
	163.89	4.61	7.18E+00		8.70E+00	3.49E+00
	176.55	13.56	2.33E+00		-8.71E-01	1.13E+00
	273.65	12.66	2.53E+00		-4.48E+00	1.22E+00
	340.57	48.50	8.97E-01		7.87E-01	4.33E-01
	818.50	99.70	3.80E-01		-2.78E-02	1.76E-01
	1048.07	79.60	5.70E-01		-1.86E-01	2.63E-01
	1235.34	19.70	3.35E+00		-7.87E-01	1.58E+00
CS-137	661.65	85.12	8.97E-02	8.97E-02	7.68E-03	4.24E-02
LA-138	788.74	34.00	2.39E-01	9.77E-02	3.49E-02	1.12E-01
	1435.80	66.00	9.77E-02		-2.57E-03	4.31E-02
CE-139	165.85	80.35	8.13E-02	8.13E-02	2.62E-02	3.95E-02
BA-140	162.64	6.70	5.05E+00	1.60E+00	-5.41E-01	2.45E+00
	304.84	4.50	6.96E+00		-1.44E+00	3.32E+00
	423.70	3.20	1.23E+01		1.66E+00	5.87E+00
	437.55	2.00	2.03E+01		4.97E+00	9.68E+00
	537.32	25.00	1.60E+00		-2.34E-02	7.55E-01
LA-140	328.77	20.50	1.89E+00	4.89E-01	1.41E+00	9.08E-01
	487.03	45.50	8.64E-01		-1.37E-01	4.10E-01
	815.85	23.50	1.69E+00		-2.05E-01	7.83E-01
	1596.49	95.49	4.89E-01		2.62E-01	2.19E-01
CE-141	145.44	48.40	2.36E-01	2.36E-01	5.94E-02	1.15E-01
CE-143	57.36	11.80	1.18E+07	4.14E+06	-3.49E+06	5.76E+06
	293.26	42.00	4.14E+06		1.21E+07	2.02E+06
	664.55	5.20	2.80E+07		8.22E+06	1.32E+07
CE-144	133.54	10.80	5.51E-01	5.51E-01	2.48E-01	2.68E-01
PM-144	476.78	42.00	1.67E-01	7.04E-02	-2.56E-02	7.96E-02
	618.01	98.60	7.04E-02		3.40E-02	3.31E-02
	696.49	99.49	8.33E-02		3.47E-02	3.94E-02
PM-145	36.85	21.70	6.30E-01	3.37E-01	-2.37E-01	3.06E-01
	37.36	39.70	3.37E-01		-1.89E-01	1.64E-01
	42.30	15.10	6.95E-01		-2.88E-01	3.38E-01

Analysis Report for 1510093-10  
CP1806S03-04

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	3.60E+00	3.37E-01	-5.70E+00	1.77E+00
PM-146	453.90	39.94	1.59E-01	1.59E-01	-8.60E-02	7.54E-02
	735.90	14.01	5.27E-01		-1.71E-01	2.47E-01
	747.13	13.10	5.77E-01		3.44E-01	2.71E-01
ND-147	91.11	28.90	2.05E+00	2.05E+00	-5.77E+00	1.00E+00
	531.02	13.10	3.97E+00		-6.51E-01	1.88E+00
PM-149	285.90	3.10	5.63E+04	5.63E+04	-2.43E+04	2.69E+04
EU-152	121.78	20.50	2.48E-01	2.48E-01	1.27E-01	1.20E-01
	244.69	5.40	1.18E+00		-2.45E-01	5.70E-01
	344.27	19.13	2.83E-01		-5.25E-03	1.35E-01
	778.89	9.20	7.26E-01		-5.19E-01	3.37E-01
	964.01	10.40	9.74E-01		1.91E-01	4.60E-01
	1085.78	7.22	1.18E+00		1.71E-01	5.45E-01
	1112.02	9.60	8.22E-01		-3.02E-01	3.78E-01
	1407.95	14.94	5.40E-01		3.77E-01	2.45E-01
GD-153	97.43	31.30	1.86E-01	1.86E-01	-1.58E-01	9.07E-02
	103.18	22.20	2.55E-01		-3.17E-02	1.24E-01
EU-154	123.07	40.50	1.27E-01	1.27E-01	4.88E-02	6.16E-02
	723.30	19.70	3.48E-01		-6.88E-02	1.62E-01
	873.19	11.50	6.63E-01		-9.87E-02	3.09E-01
	996.32	10.30	7.32E-01		-1.94E-01	3.38E-01
	1004.76	17.90	4.40E-01		-1.20E-01	2.04E-01
	1274.45	35.50	2.57E-01		9.77E-02	1.19E-01
EU-155	86.50	30.90	2.47E-01	2.47E-01	1.69E-01	1.21E-01
	105.30	20.70	2.57E-01		-4.05E-02	1.25E-01
EU-156	811.77	10.40	3.02E+00	3.02E+00	-2.25E-02	1.40E+00
	1153.47	7.20	6.57E+00		8.84E-01	3.08E+00
	1230.71	8.90	4.97E+00		-1.63E+00	2.31E+00
HO-166M	184.41	72.60	9.87E-02	9.87E-02	1.63E-01	4.82E-02
	280.45	29.60	1.86E-01		-1.69E-02	8.92E-02
	410.94	11.10	6.53E-01		2.51E-01	3.14E-01
	711.69	54.10	1.34E-01		6.03E-02	6.28E-02
TM-171	66.72	0.14	5.45E+01	5.45E+01	-1.93E+01	2.67E+01
HF-172	81.75	4.52	1.37E+00	4.79E-01	-3.22E+00	6.69E-01
	125.81	11.30	4.79E-01		-5.41E-01	2.33E-01
LU-172	181.53	20.60	8.84E+00	3.87E+00	2.65E+00	4.29E+00
	810.06	16.63	1.41E+01		2.80E+00	6.58E+00
	912.12	15.25	3.35E+01		9.35E+01	1.62E+01
	1093.66	62.50	3.87E+00		-7.99E-01	1.78E+00
LU-173	100.72	5.24	1.07E+00	3.13E-01	6.19E-01	5.19E-01
	272.11	21.20	3.13E-01		1.70E-01	1.51E-01
HF-175	343.40	84.00	9.43E-02	9.43E-02	-1.65E-03	4.51E-02
LU-176	88.34	13.30	5.83E-01	5.94E-02	9.69E-01	2.86E-01
	201.83	86.00	6.59E-02		-5.45E-03	3.19E-02
	306.78	94.00	5.94E-02		2.81E-02	2.84E-02
TA-182	67.75	41.20	2.21E-01	2.21E-01	2.96E-02	1.08E-01
	1121.30	34.90	5.01E-01		7.89E-01	2.40E-01
	1189.05	16.23	7.07E-01		1.43E-01	3.28E-01
	1221.41	26.98	4.44E-01		-5.33E-02	2.07E-01
	1231.02	11.44	1.04E+00		-3.40E-01	4.83E-01
IR-192	308.46	29.68	2.56E-01	1.70E-01	9.07E-02	1.23E-01
	468.07	48.10	1.70E-01		-5.90E-02	8.04E-02
HG-203	279.19	77.30	1.28E-01	1.28E-01	7.60E-02	6.18E-02

Analysis Report for 1510093-10  
CP1806S03-04

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	6.69E-02	6.69E-02	-7.89E-03	3.16E-02
	1063.62	74.90	1.09E-01		2.24E-02	5.06E-02
+ TL-208	583.14 *	30.22	3.37E-01	1.43E-01	1.65E+00	1.62E-01
	860.37 *	4.48	2.30E+00		3.41E+00	1.09E+00
	2614.66 *	35.85	1.43E-01		1.33E+00	5.76E-02
BI-210M	262.00	45.00	1.21E-01	1.21E-01	-3.94E-02	5.81E-02
	300.00	23.00	2.70E-01		-6.47E-01	1.30E-01
PB-210	46.50	4.25	2.25E+00	2.25E+00	2.29E+00	1.10E+00
PB-211	404.84	2.90	2.00E+00	2.00E+00	-1.19E-02	9.48E-01
	831.96	2.90	2.62E+00		-1.09E+00	1.22E+00
+ BI-212	727.17 *	11.80	8.56E-01	8.56E-01	9.54E-01	4.09E-01
	1620.62 *	2.75	2.47E+00		1.71E+00	1.09E+00
+ PB-212	238.63 *	44.60	2.81E-01	2.81E-01	1.84E+00	1.38E-01
	300.09 *	3.41	3.96E+00		1.84E+00	1.95E+00
+ BI-214	609.31 *	46.30	2.33E-01	2.33E-01	1.42E+00	1.12E-01
	1120.29 *	15.10	9.07E-01		1.51E+00	4.33E-01
	1764.49 *	15.80	4.20E-01		1.57E+00	1.82E-01
	2204.22 *	4.98	1.10E+00		1.98E+00	4.52E-01
+ PB-214	295.21 *	19.19	6.92E-01	2.70E-01	1.55E+00	3.40E-01
	351.92 *	37.19	2.70E-01		1.67E+00	1.32E-01
RN-219	401.80	6.50	9.44E-01	9.44E-01	5.51E-01	4.50E-01
RA-223	323.87	3.88	1.41E+00	1.41E+00	-1.23E+00	6.71E-01
RA-224	240.98	3.95	3.34E+00	3.34E+00	2.02E+01	1.64E+00
RA-225	40.00	31.00	1.76E+00	1.76E+00	-7.24E-02	8.56E-01
+ RA-226	186.21 *	3.28	2.69E+00	2.69E+00	3.22E+00	1.32E+00
TH-227	50.10	8.40	9.07E-01	6.24E-01	-2.02E+00	4.42E-01
	236.00	11.50	6.24E-01		-5.65E+00	3.03E-01
	256.20	6.30	8.89E-01		-4.86E-02	4.28E-01
+ AC-228	338.32 *	11.40	8.79E-01	4.55E-01	1.88E+00	4.28E-01
	911.07 *	27.70	4.55E-01		1.69E+00	2.18E-01
	969.11 *	16.60	1.05E+00		1.11E+00	5.10E-01
TH-230	48.44	16.90	5.15E-01	5.15E-01	1.04E-01	2.51E-01
	62.85	4.60	1.78E+00		1.72E+00	8.71E-01
	67.67	0.37	2.01E+01		2.70E+00	9.85E+00
PA-231	283.67	1.60	3.23E+00	2.51E+00	-1.17E-01	1.54E+00
	302.67	2.30	2.51E+00		4.26E-01	1.20E+00
TH-231	25.64	14.70	4.10E+00	1.06E+00	1.92E-01	1.99E+00
	84.21	6.40	1.06E+00		-2.10E+00	5.20E-01
PA-233	311.98	38.60	3.18E-01	3.18E-01	-8.79E-02	1.52E-01
PA-234	131.20	20.40	2.86E-01	2.86E-01	1.88E-01	1.39E-01
	733.99	8.80	8.13E-01		-1.18E-01	3.81E-01
	946.00	12.00	5.93E-01		-3.35E-01	2.73E-01
PA-234M	1001.03	0.92	8.90E+00	8.90E+00	1.22E-01	4.14E+00
+ TH-234	63.29 *	3.80	2.73E+00	2.73E+00	1.56E+00	1.35E+00
U-235	143.76	10.50	5.37E-01	5.37E-01	3.16E-02	2.61E-01
	163.35	4.70	1.22E+00		1.48E+00	5.92E-01
	205.31	4.70	1.25E+00		1.19E-01	6.07E-01
+ NP-237	86.50 *	12.60	8.19E-01	8.19E-01	1.90E+00	4.04E-01
NP-239	106.10	22.70	4.15E+03	4.15E+03	-6.54E+02	2.02E+03
	228.18	10.70	9.62E+03		2.14E+03	4.65E+03
	277.60	14.10	7.72E+03		4.85E+03	3.72E+03
AM-241	59.54	35.90	2.05E-01	2.05E-01	3.61E-02	1.00E-01
AM-243	74.67	66.00	1.50E-01	1.50E-01	-1.73E-01	7.39E-02

Analysis Report for 1510093-10  
 CP1806S03-04

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
+ CM-243	209.75 *	3.29	2.32E+00	5.44E-01	2.92E+00	1.13E+00
	228.14	10.60	5.44E-01		1.21E-01	2.63E-01
	277.60 *	14.00	6.29E-01		4.90E-01	3.06E-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

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP1806S03-04

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	45	98	102	101	67	78
25:	65	78	70	81	78	83	72	72
33:	52	76	73	84	66	82	73	87
41:	100	81	99	85	94	109	183	92
49:	90	94	85	102	108	116	102	117
57:	85	133	133	131	145	126	199	282
65:	162	174	157	168	150	191	167	147
73:	178	201	436	363	482	599	188	125
81:	120	114	122	149	178	142	233	305
89:	168	211	176	120	280	250	115	103
97:	92	98	103	106	121	85	91	83
105:	104	104	107	88	107	91	95	88
113:	91	101	102	87	92	85	87	88
121:	83	79	99	67	92	95	91	92
129:	118	138	89	97	104	100	75	84
137:	79	83	87	86	96	77	93	117
145:	91	78	86	77	80	82	81	65
153:	82	77	84	85	78	63	64	71
161:	67	80	78	82	87	88	54	68
169:	65	60	79	93	52	70	69	68
177:	58	76	75	80	81	78	68	75
185:	81	189	161	76	73	58	73	61
193:	62	49	69	56	57	69	77	82
201:	64	54	50	68	66	67	73	62
209:	98	125	67	49	51	69	67	48
217:	66	60	60	78	59	59	51	55
225:	62	56	58	59	57	50	45	52
233:	59	56	49	44	76	198	728	298
241:	99	178	124	53	49	51	34	41
249:	33	39	39	41	43	34	50	41
257:	40	62	59	40	37	33	47	50
265:	32	38	36	36	51	75	82	39
273:	33	40	49	43	47	64	43	44
281:	38	32	36	30	31	37	31	36
289:	45	38	32	39	31	45	158	233
297:	55	32	31	59	56	48	28	27
305:	32	30	33	36	44	29	31	31
313:	28	30	25	32	35	35	36	22
321:	42	44	29	27	27	27	33	60
329:	45	36	35	32	36	27	35	36
337:	39	100	142	37	35	42	25	28
345:	39	21	24	32	32	35	86	378
353:	244	39	35	27	37	26	23	30
361:	35	27	27	25	23	20	18	33



369: 27 29 27 32 28 26 27 19

Sample Title: CP1806S03-04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	21	14	30	19	32	21	25	23
385:	22	21	18	20	33	25	32	26
393:	20	26	26	31	25	25	15	27
401:	28	33	25	30	25	21	24	21
409:	33	41	30	24	26	21	32	19
417:	18	19	18	22	17	29	22	24
425:	24	18	14	21	19	17	27	25
433:	20	17	14	22	27	17	27	28
441:	15	27	13	12	18	25	11	24
449:	28	21	17	13	20	24	19	14
457:	17	22	18	22	24	13	50	36
465:	11	19	11	13	20	14	19	21
473:	10	15	22	20	16	18	19	18
481:	23	22	20	21	12	21	10	19
489:	8	28	19	13	25	16	17	18
497:	15	23	17	12	5	13	15	19
505:	13	18	20	14	32	65	97	67
513:	34	19	23	18	12	15	17	10
521:	13	14	20	13	12	14	14	18
529:	9	18	15	11	11	18	17	16
537:	16	17	15	13	11	13	18	18
545:	12	15	19	20	22	20	12	25
553:	16	14	19	24	19	11	13	16
561:	16	12	13	13	17	12	13	11
569:	12	10	15	15	18	12	16	15
577:	20	12	12	11	18	23	154	185
585:	48	15	15	12	15	13	15	17
593:	11	23	12	17	20	24	8	15
601:	14	14	15	16	20	14	14	29
609:	172	249	54	26	15	13	8	13
617:	16	6	11	19	9	5	10	12
625:	10	11	11	11	16	16	8	8
633:	13	12	13	11	10	14	3	7
641:	16	17	10	13	7	7	11	16
649:	16	7	12	11	15	8	11	10
657:	14	16	11	14	15	11	13	13
665:	25	15	11	12	11	10	8	10
673:	10	13	8	11	9	13	15	10
681:	14	14	7	10	5	12	12	7
689:	15	14	15	11	16	7	16	15
697:	14	16	12	18	8	10	7	15
705:	16	13	6	12	13	11	17	9
713:	10	10	11	10	7	15	15	6
721:	14	7	9	11	9	13	32	40
729:	14	9	11	11	9	9	11	12
737:	12	15	10	15	15	6	14	13
745:	9	14	12	11	11	10	6	6
753:	14	16	11	18	12	9	3	11
761:	6	8	16	13	12	8	20	30
769:	43	13	10	14	14	11	8	12
777:	7	10	5	8	6	10	15	13
785:	11	16	12	12	17	7	11	12
793:	10	11	30	28	5	12	9	12

801: 7 5 16 15 14 10 13 13

Sample Title: CP1806S03-04

Channel	1	2	3	4	5	6	7	8
809:	13	7	11	4	9	8	6	2
817:	9	8	10	8	9	6	8	9
825:	11	8	15	9	9	11	15	12
833:	9	6	7	15	10	12	8	14
841:	18	15	8	18	12	8	14	7
849:	6	10	8	11	9	7	14	5
857:	7	5	14	21	29	27	11	10
865:	9	8	6	6	6	14	8	12
873:	10	4	8	7	11	12	8	8
881:	10	9	8	7	9	8	7	9
889:	7	6	6	8	13	11	11	11
897:	13	4	9	10	6	7	6	7
905:	10	5	10	9	6	24	108	120
913:	19	10	8	12	6	12	9	9
921:	10	3	9	4	8	10	7	3
929:	8	5	6	6	11	15	15	9
937:	7	11	4	7	8	7	4	8
945:	8	8	4	7	9	13	10	9
953:	7	7	9	8	6	11	7	8
961:	8	9	5	12	32	24	8	23
969:	69	62	17	14	10	9	10	7
977:	8	7	6	6	7	4	9	9
985:	5	8	4	9	4	9	8	7
993:	6	7	6	10	5	7	8	6
1001:	12	14	6	6	11	7	4	5
1009:	12	6	6	7	7	7	5	9
1017:	8	11	10	10	9	11	7	6
1025:	7	6	4	12	9	4	7	4
1033:	9	4	2	3	10	12	6	7
1041:	4	4	2	7	11	7	8	6
1049:	2	10	6	11	12	9	5	8
1057:	5	6	4	9	8	5	7	3
1065:	10	13	7	9	4	11	9	6
1073:	10	7	7	9	11	8	6	8
1081:	5	8	12	5	5	9	7	12
1089:	5	8	7	7	9	7	7	2
1097:	6	10	6	7	8	12	7	6
1105:	6	3	8	4	9	9	6	5
1113:	5	6	5	14	5	8	11	41
1121:	54	25	12	8	8	9	5	4
1129:	8	8	4	8	9	7	10	7
1137:	8	5	5	6	3	8	10	7
1145:	12	8	6	8	7	10	4	10
1153:	9	12	13	19	9	17	9	7
1161:	12	11	7	11	4	7	4	7
1169:	7	6	2	4	12	10	12	9
1177:	5	11	8	8	10	9	8	8
1185:	11	11	12	7	7	9	6	7
1193:	8	4	8	10	14	4	8	10
1201:	9	9	8	8	10	10	10	6
1209:	11	8	9	10	7	5	7	6
1217:	5	11	8	6	10	9	10	8
1225:	9	16	13	10	6	14	8	4

1233: 6 12 11 14 17 21 19 15

Sample Title: CP1806S03-04

Channel	1	2	3	4	5	6	7	8
1241:	8	8	11	11	11	8	6	4
1249:	7	6	6	6	6	8	10	4
1257:	7	9	5	3	5	6	8	7
1265:	11	6	5	2	3	12	5	3
1273:	9	11	7	7	7	2	4	3
1281:	11	10	6	10	9	6	3	7
1289:	3	7	4	4	5	7	5	9
1297:	5	4	6	5	4	6	9	7
1305:	2	3	9	8	15	3	6	7
1313:	7	8	4	4	4	7	8	4
1321:	2	3	7	2	8	4	5	8
1329:	3	4	3	9	5	4	5	6
1337:	6	8	2	7	1	8	2	4
1345:	3	4	4	4	2	4	2	3
1353:	5	2	2	6	3	4	1	3
1361:	3	1	0	4	5	3	5	1
1369:	4	1	1	3	3	4	1	5
1377:	8	14	14	2	2	4	5	4
1385:	6	10	2	6	3	0	7	2
1393:	3	6	6	1	1	3	5	3
1401:	5	6	2	2	4	4	4	15
1409:	3	1	1	0	3	5	1	1
1417:	0	3	6	3	5	4	3	1
1425:	4	4	6	1	3	3	2	3
1433:	3	2	3	4	4	1	2	4
1441:	2	1	2	0	3	1	1	2
1449:	2	1	1	5	3	3	3	5
1457:	5	9	25	137	377	226	46	7
1465:	9	2	2	3	3	1	2	1
1473:	4	5	4	1	3	0	1	2
1481:	2	2	5	0	0	2	2	0
1489:	2	2	2	0	3	3	1	2
1497:	4	1	2	2	4	5	5	3
1505:	2	1	3	5	4	6	4	4
1513:	5	4	0	1	1	0	1	2
1521:	2	3	1	4	3	0	1	3
1529:	4	2	4	4	1	4	1	1
1537:	2	4	2	3	2	3	4	5
1545:	3	0	4	4	3	0	5	0
1553:	2	3	1	1	3	1	1	2
1561:	1	5	0	2	2	4	3	3
1569:	1	1	0	3	2	1	1	1
1577:	2	2	2	3	3	1	5	2
1585:	0	1	3	12	6	4	2	4
1593:	10	5	2	1	4	0	2	2
1601:	0	3	0	2	4	3	3	2
1609:	1	4	0	2	1	3	0	2
1617:	1	2	0	3	8	2	1	1
1625:	2	2	0	1	0	2	7	3
1633:	2	0	2	1	1	3	4	2
1641:	3	3	2	0	0	5	1	1
1649:	5	0	1	0	0	3	1	0
1657:	2	1	0	2	5	5	5	2

1665: 3 1 1 4 1 2 3 1

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Channel	1	2	3	4	5	6	7	8
1673:	1	3	1	2	2	0	3	2
1681:	3	1	2	0	3	1	1	1
1689:	1	2	0	0	4	2	2	0
1697:	2	0	2	1	2	4	1	2
1705:	0	2	1	0	2	4	2	0
1713:	3	2	1	1	2	2	2	0
1721:	1	1	1	0	0	0	0	3
1729:	6	10	4	1	0	0	0	0
1737:	1	2	3	1	0	3	1	0
1745:	2	0	2	1	2	0	2	0
1753:	0	0	1	4	0	1	0	0
1761:	0	1	9	24	21	18	3	1
1769:	1	1	3	4	0	2	2	1
1777:	3	1	0	0	0	2	0	0
1785:	2	0	0	0	1	0	1	1
1793:	0	5	1	1	1	3	2	3
1801:	0	0	1	0	1	3	1	1
1809:	1	2	0	1	0	2	1	0
1817:	0	1	2	3	0	1	0	2
1825:	2	2	0	2	1	2	1	0
1833:	2	1	2	1	3	4	0	1
1841:	2	0	1	1	2	2	8	7
1849:	4	1	1	2	3	3	0	0
1857:	2	1	1	0	1	1	2	1
1865:	3	0	1	1	1	1	2	0
1873:	1	2	1	1	3	1	3	3
1881:	0	1	2	1	0	1	0	0
1889:	1	2	2	0	0	3	2	1
1897:	1	2	0	1	1	1	1	0
1905:	0	1	3	0	0	2	1	1
1913:	0	0	1	0	2	0	1	3
1921:	0	0	1	1	1	5	0	1
1929:	0	1	0	1	1	4	3	1
1937:	1	2	1	2	1	0	1	1
1945:	2	0	1	0	3	0	0	3
1953:	1	2	2	1	2	1	3	0
1961:	1	1	0	0	1	1	0	2
1969:	0	0	0	1	2	1	5	0
1977:	3	0	0	0	0	0	0	0
1985:	1	0	0	1	2	1	0	2
1993:	0	2	0	1	5	0	0	0
2001:	3	1	1	1	1	0	2	1
2009:	1	0	2	2	1	1	0	3
2017:	1	3	5	2	0	2	3	0
2025:	0	1	2	2	0	1	3	1
2033:	1	0	0	1	0	2	1	3
2041:	2	0	4	0	2	0	0	3
2049:	0	1	2	2	0	2	0	1
2057:	1	2	0	1	0	1	2	0
2065:	3	0	1	1	1	0	1	0
2073:	0	1	0	1	0	1	0	1
2081:	1	0	3	2	1	2	1	0
2089:	2	1	4	0	0	0	1	2

2097: 1 1 0 2 0 4 6 11

Sample Title: CP1806S03-04

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2105:	9	8	1	1	0	1	0	2
2113:	0	0	0	2	1	1	3	3
2121:	1	0	1	0	1	0	2	1
2129:	1	2	0	4	1	0	0	0
2137:	0	0	1	2	0	1	0	1
2145:	0	1	1	1	0	0	1	0
2153:	1	0	0	0	0	2	0	1
2161:	2	4	1	1	0	0	1	0
2169:	0	0	1	1	0	2	1	2
2177:	3	2	0	0	0	2	0	0
2185:	2	2	2	3	1	2	1	2
2193:	1	0	0	2	3	1	1	0
2201:	0	2	3	13	7	4	3	0
2209:	1	1	2	0	2	2	2	1
2217:	2	1	2	0	2	1	1	0
2225:	2	1	1	0	0	2	0	0
2233:	2	0	0	2	2	0	2	0
2241:	2	0	3	2	1	2	4	2
2249:	1	1	0	2	3	1	1	1
2257:	2	0	0	4	1	2	1	3
2265:	1	1	1	1	0	0	0	1
2273:	0	0	0	2	1	1	3	3
2281:	1	1	0	0	1	0	1	0
2289:	1	0	1	1	2	2	1	0
2297:	1	2	0	2	0	0	1	0
2305:	1	1	0	2	0	2	0	0
2313:	2	2	2	0	0	2	1	0
2321:	1	1	2	1	0	0	0	3
2329:	2	0	1	1	0	1	0	1
2337:	0	3	2	0	2	0	3	2
2345:	0	3	1	0	1	4	1	1
2353:	2	2	3	0	1	0	0	2
2361:	2	0	2	0	0	3	0	1
2369:	1	3	0	3	1	2	0	0
2377:	4	2	1	1	1	0	2	0
2385:	2	2	4	1	1	2	1	0
2393:	2	2	2	1	0	2	1	0
2401:	2	2	2	0	3	3	0	0
2409:	2	1	0	0	2	2	0	0
2417:	4	0	0	1	0	1	0	0
2425:	1	3	0	4	0	1	3	1
2433:	1	3	0	3	2	0	1	0
2441:	3	1	0	2	0	0	4	4
2449:	3	1	0	0	1	0	2	0
2457:	1	1	1	0	1	0	0	1
2465:	0	1	1	1	0	0	1	0
2473:	2	2	1	2	0	1	0	1
2481:	0	1	0	0	0	0	1	1
2489:	1	1	1	0	0	0	1	0
2497:	1	0	1	1	0	0	1	0
2505:	0	0	0	1	1	0	0	0
2513:	0	0	0	1	0	1	0	0
2521:	0	0	0	0	1	1	0	0

2529: 1 2 0 0 0 0 1 0

Sample Title: CP1806S03-04

Channel	1	2	0	0	0	0	1	0
2537:	1	0	0	0	0	0	0	0
2545:	0	0	0	0	1	2	0	2
2553:	1	0	0	1	0	0	1	1
2561:	0	1	1	1	1	0	1	0
2569:	0	0	1	0	2	1	0	0
2577:	1	0	0	0	0	0	1	0
2585:	1	0	1	0	1	0	0	1
2593:	0	0	0	0	1	0	2	0
2601:	0	2	0	0	0	1	0	3
2609:	1	0	1	3	14	42	52	15
2617:	7	0	0	1	0	0	1	0
2625:	1	0	0	0	0	0	0	0
2633:	1	0	0	0	1	0	0	0
2641:	1	0	2	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	1	0	0	1	0	1	1
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	1	0	0	0
2681:	0	0	1	0	1	2	0	2
2689:	0	0	0	1	0	0	0	0
2697:	1	2	1	1	1	0	0	0
2705:	0	0	0	0	0	1	0	0
2713:	2	0	0	0	1	0	1	0
2721:	0	0	0	0	2	0	0	1
2729:	1	1	0	1	1	0	0	0
2737:	1	0	0	0	0	0	0	1
2745:	0	1	1	0	0	1	0	1
2753:	0	0	1	0	1	0	0	0
2761:	1	0	0	1	0	0	0	0
2769:	1	0	0	0	0	0	0	0
2777:	0	0	0	0	1	0	1	0
2785:	1	0	0	0	0	1	2	0
2793:	0	0	0	0	1	1	1	0
2801:	0	0	1	1	1	0	1	0
2809:	0	0	0	0	0	1	0	0
2817:	0	1	1	0	0	0	1	0
2825:	0	0	1	0	0	0	0	0
2833:	0	1	0	1	0	0	0	0
2841:	0	0	0	0	0	0	0	2
2849:	1	0	1	0	0	0	1	0
2857:	1	1	0	0	0	0	0	0
2865:	0	0	1	0	0	0	0	0
2873:	0	1	1	0	0	1	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	2	0	1	0	0	1
2897:	0	0	0	1	2	0	0	0
2905:	1	0	0	0	0	1	0	0
2913:	0	0	0	0	0	0	0	0
2921:	1	2	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	1	0	0	0	0	0	0
2945:	0	0	0	1	0	0	1	0
2953:	0	1	0	1	0	0	1	0

2961: 0 0 0 0 0 0 0 0 1

Sample Title: CP1806S03-04

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

3393: 0 0 0 0 0 0 0 0

Sample Title: CP1806S03-04

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



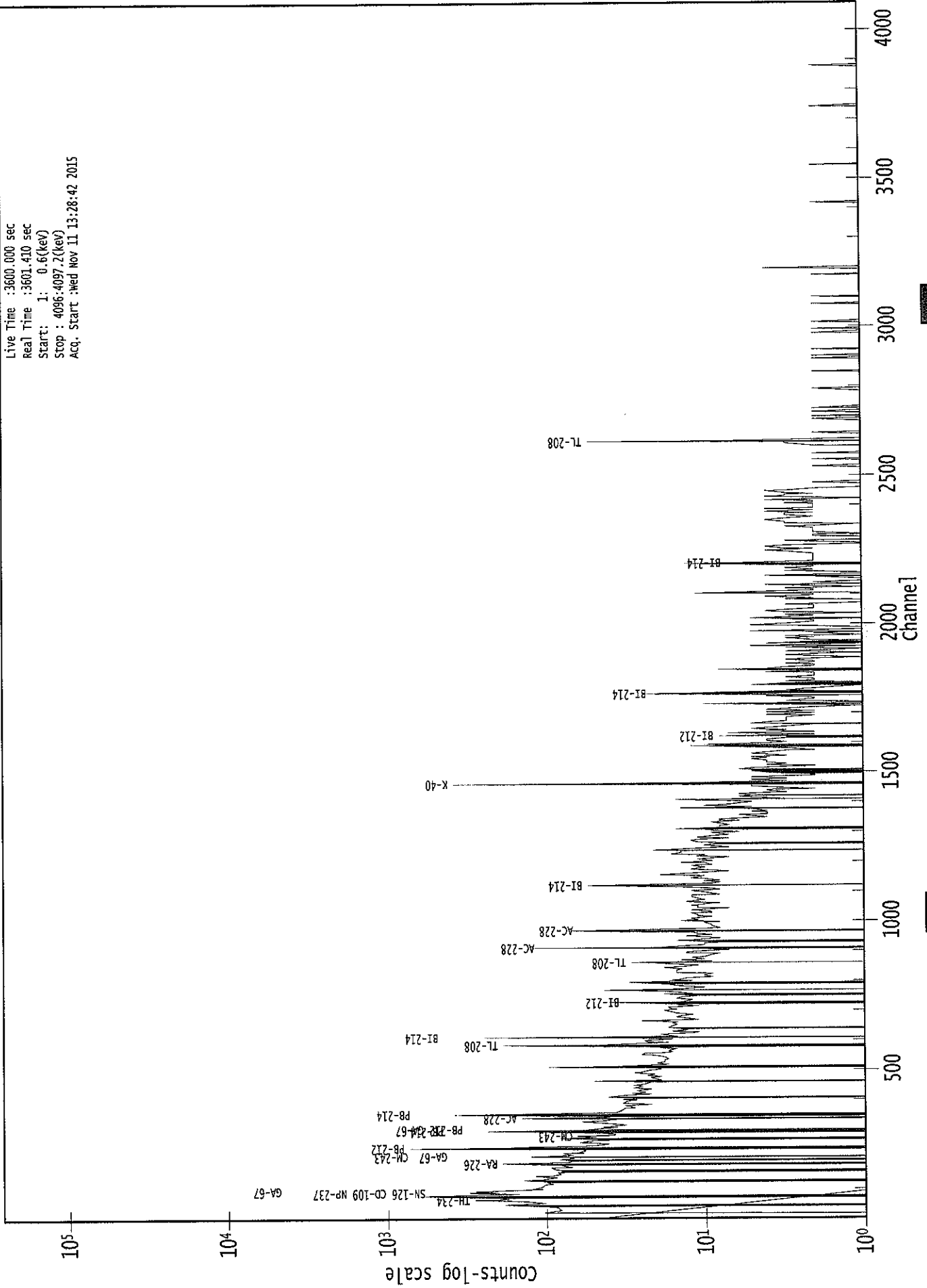
3825: 0 0 0 1 0 1 0 0

Sample Title: CP1806S03-04

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	1	0
3857:	0	0	1	0	0	0	0	1
3865:	1	0	0	0	0	0	0	0
3873:	0	1	0	0	0	0	2	0
3881:	0	0	0	0	0	0	1	0
3889:	0	0	0	1	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	1	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	1	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	1	0	0	0	0	1
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	1	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	1	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	1	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	1	0	0	1	0	0	0	0
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	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	1	0	0	0	0	1

0000029501.CNF

Live Time : 3600.000 sec  
Real Time : 3601.410 sec  
Start: 1: 0.6(keV)  
Stop : 4096.4097.2(keV)  
Acq. Start : Wed Nov 11 13:28:42 2015



ROI Type: 2

ROI Type: 1

RCB  
11/11/15Analysis Report for 1510093-11  
CP1806S05-06

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-11  
Sample Description : CP1806S05-06  
Sample Type : SOIL

Sample Size : 5.547E+02 grams  
Facility : Countroom

Sample Taken On : 10/9/2015 7:31:34AM  
Acquisition Started : 11/11/2015 1:28:48PM

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 : 29502

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## PEAK-TO-TOTAL CALIBRATION REPORT

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### Peak-to-Total Efficiency Calibration Equation

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ACG  
11/12/15

Analysis Report for 1510093-11  
CP1806S05-06

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 2:29:06PM  
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	46.56	46.66	0.0000	0.00
2	76.34	76.43	0.0000	0.00
3	88.01	88.09	0.0000	0.00
4	93.62	93.69	0.0000	0.00
5	105.36	105.43	0.0000	0.00
6	128.71	128.77	0.0000	0.00
7	185.90	185.93	0.0000	0.00
8	209.71	209.72	0.0000	0.00
9	239.16	239.16	0.0000	0.00
10	270.32	270.30	0.0000	0.00
11	277.55	277.52	0.0000	0.00
12	295.29	295.26	0.0000	0.00
13	300.10	300.06	0.0000	0.00
14	327.73	327.68	0.0000	0.00
15	338.53	338.47	0.0000	0.00
16	352.04	351.97	0.0000	0.00
17	411.45	411.36	0.0000	0.00
18	446.57	446.45	0.0000	0.00
19	462.94	462.81	0.0000	0.00
20	510.94	510.79	0.0000	0.00
21	583.34	583.16	0.0000	0.00
22	609.40	609.21	0.0000	0.00
23	727.34	727.09	0.0000	0.00
24	756.05	755.79	0.0000	0.00
25	766.93	766.67	0.0000	0.00
26	786.25	785.98	0.0000	0.00
27	795.26	794.98	0.0000	0.00
28	860.64	860.33	0.0000	0.00
29	907.73	907.41	0.0000	0.00
30	911.38	911.06	0.0000	0.00
31	969.09	968.74	0.0000	0.00
32	1120.37	1119.96	0.0000	0.00
33	1284.79	1284.33	0.0000	0.00
34	1370.22	1369.72	0.0000	0.00
35	1377.03	1376.54	0.0000	0.00
36	1460.94	1460.42	0.0000	0.00
37	1524.74	1524.20	0.0000	0.00
38	1557.06	1556.51	0.0000	0.00
39	1592.86	1592.30	0.0000	0.00
40	1651.78	1651.20	0.0000	0.00
41	1689.55	1688.97	0.0000	0.00
42	1711.30	1710.71	0.0000	0.00

Analysis Report for 1510093-11  
CP1806S05-06

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1729.60	1729.00	0.0000	0.00
44	1764.88	1764.28	0.0000	0.00
45	1848.47	1847.84	0.0000	0.00
46	1892.84	1892.20	0.0000	0.00
47	1909.64	1909.00	0.0000	0.00
48	2087.34	2086.67	0.0000	0.00
49	2105.07	2104.39	0.0000	0.00
50	2155.69	2155.00	0.0000	0.00
51	2203.23	2202.54	0.0000	0.00
52	2217.60	2216.90	0.0000	0.00
53	2233.06	2232.36	0.0000	0.00
54	2295.06	2294.35	0.0000	0.00
55	2326.57	2325.86	0.0000	0.00
56	2490.31	2489.58	0.0000	0.00
57	2614.23	2613.49	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-11  
CP1806S05-06

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 2:29:06PM

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	46.56	44 -	50	46.66	1.97E+02	98.22	1.61E+03	1.78
2	76.34	72 -	83	76.43	1.12E+03	168.55	2.98E+03	3.66
3	88.01	86 -	91	88.09	2.30E+02	93.37	1.57E+03	1.54
4	93.62	91 -	97	93.69	2.46E+02	99.07	1.51E+03	1.81
5	105.36	104 -	108	105.43	6.37E+01	59.57	7.35E+02	1.66
6	128.71	125 -	132	128.77	1.19E+02	88.34	1.22E+03	1.36
7	185.90	182 -	189	185.93	1.88E+02	80.17	9.43E+02	1.36
8	209.71	206 -	213	209.72	9.65E+01	74.11	8.41E+02	1.99
9	239.16	234 -	243	239.16	1.15E+03	108.56	1.02E+03	1.51
10	270.32	267 -	274	270.30	6.69E+01	60.46	5.66E+02	3.27
11	277.55	275 -	280	277.52	5.12E+01	46.20	3.80E+02	1.43
M 12	295.29	291 -	303	295.26	3.47E+02	50.87	2.75E+02	1.56
m 13	300.10	291 -	303	300.06	7.51E+01	39.09	3.01E+02	1.65
14	327.73	321 -	331	327.68	7.13E+01	68.72	5.85E+02	1.80
15	338.53	334 -	342	338.47	2.41E+02	58.94	3.83E+02	1.75
16	352.04	348 -	355	351.97	5.15E+02	64.78	3.56E+02	1.33
17	411.45	406 -	417	411.36	1.04E+02	56.89	3.48E+02	4.05
18	446.57	443 -	450	446.45	3.42E+01	38.16	2.20E+02	3.07
19	462.94	459 -	465	462.81	5.30E+01	38.11	2.22E+02	2.45
20	510.94	505 -	515	510.79	2.30E+02	54.98	2.80E+02	2.38
21	583.34	579 -	588	583.16	3.05E+02	53.81	2.39E+02	1.87
22	609.40	604 -	613	609.21	3.61E+02	59.22	2.95E+02	1.87
23	727.34	723 -	729	727.09	4.54E+01	32.67	1.61E+02	1.51
24	756.05	751 -	760	755.79	5.36E+01	33.56	1.31E+02	2.73
25	766.93	762 -	770	766.67	4.60E+01	33.47	1.44E+02	1.50
26	786.25	780 -	791	785.98	4.19E+01	40.64	1.84E+02	6.50
27	795.26	791 -	798	794.98	2.49E+01	31.43	1.48E+02	2.65
28	860.64	857 -	863	860.33	2.20E+01	26.53	1.12E+02	1.52
M 29	907.73	906 -	916	907.41	1.18E+01	12.94	3.70E+01	2.36
m 30	911.38	906 -	916	911.06	2.12E+02	35.86	9.02E+01	2.11
31	969.09	965 -	973	968.74	9.86E+01	41.37	1.93E+02	2.02
32	1120.37	1116 -	1123	1119.96	6.58E+01	29.73	1.02E+02	1.83
33	1284.79	1278 -	1290	1284.33	2.83E+01	32.10	9.94E+01	7.53
M 34	1370.22	1366 -	1380	1369.72	1.56E+01	15.30	3.22E+01	3.01
m 35	1377.03	1366 -	1380	1376.54	3.10E+01	19.34	3.25E+01	3.01
36	1460.94	1457 -	1464	1460.42	8.22E+02	58.17	1.60E+01	2.46
37	1524.74	1519 -	1527	1524.20	1.12E+01	11.52	1.36E+01	3.40
38	1557.06	1551 -	1561	1556.51	1.53E+01	16.22	2.55E+01	8.28
39	1592.86	1590 -	1596	1592.30	1.35E+01	13.18	1.70E+01	1.33
40	1651.78	1648 -	1653	1651.20	6.22E+00	7.35	5.56E+00	1.19

Analysis Report for 1510093-11

CP1806S05-06

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1689.55	1686 - 1692		1688.97	1.01E+01	8.97	7.71E+00	1.46
42	1711.30	1709 - 1713		1710.71	6.50E+00	6.67	3.00E+00	2.61
43	1729.60	1726 - 1733		1729.00	1.20E+01	12.00	1.60E+01	2.96
44	1764.88	1759 - 1769		1764.28	6.48E+01	20.52	2.03E+01	2.48
45	1848.47	1844 - 1853		1847.84	1.80E+01	11.92	1.00E+01	2.39
46	1892.84	1889 - 1894		1892.20	5.25E+00	7.07	5.50E+00	1.84
47	1909.64	1906 - 1911		1909.00	5.00E+00	7.07	6.00E+00	2.58
48	2087.34	2084 - 2089		2086.67	6.00E+00	4.90	0.00E+00	1.00
49	2105.07	2099 - 2111		2104.39	2.10E+01	17.46	2.60E+01	4.51
50	2155.69	2151 - 2158		2155.00	8.00E+00	5.66	0.00E+00	1.77
51	2203.23	2198 - 2205		2202.54	3.06E+01	12.96	6.88E+00	2.33
52	2217.60	2214 - 2220		2216.90	1.00E+01	6.32	0.00E+00	3.16
53	2233.06	2227 - 2236		2232.36	1.35E+01	9.43	5.06E+00	3.91
54	2295.06	2288 - 2297		2294.35	8.57E+00	10.30	1.09E+01	2.39
55	2326.57	2322 - 2328		2325.86	7.64E+00	8.28	6.73E+00	2.28
56	2490.31	2485 - 2492		2489.58	4.33E+00	6.32	3.33E+00	0.96
57	2614.23	2608 - 2619		2613.49	1.23E+02	22.18	0.00E+00	2.33

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 : 11/11/2015 2:29:06PM

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	46.56	44 -	50	1.97E+02	98.22	1.61E+03	7.74E+01
2	76.34	72 -	83	1.12E+03	168.55	2.98E+03	1.27E+02
3	88.01	86 -	91	2.30E+02	93.37	1.57E+03	7.26E+01
4	93.62	91 -	97	2.46E+02	99.07	1.51E+03	7.73E+01
5	105.36	104 -	108	6.37E+01	59.57	7.35E+02	4.72E+01
6	128.71	125 -	132	1.19E+02	88.34	1.22E+03	7.04E+01
7	185.90	182 -	189	1.88E+02	80.17	9.43E+02	6.19E+01
8	209.71	206 -	213	9.65E+01	74.11	8.41E+02	5.87E+01
9	239.16	234 -	243	1.15E+03	108.56	1.02E+03	6.96E+01
10	270.32	267 -	274	6.69E+01	60.46	5.66E+02	4.79E+01
11	277.55	275 -	280	5.12E+01	46.20	3.80E+02	3.61E+01

: 00711

Analysis Report for 1510093-11

CP1806S05-06

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	12	295.29	291 -	303	3.47E+02	50.87	2.75E+02	2.73E+01
m	13	300.10	291 -	303	7.51E+01	39.09	3.01E+02	2.85E+01
	14	327.73	321 -	331	7.13E+01	68.72	5.85E+02	5.48E+01
	15	338.53	334 -	342	2.41E+02	58.94	3.83E+02	4.12E+01
	16	352.04	348 -	355	5.15E+02	64.78	3.56E+02	3.80E+01
	17	411.45	406 -	417	1.04E+02	56.89	3.48E+02	4.37E+01
	18	446.57	443 -	450	3.42E+01	38.16	2.20E+02	2.99E+01
	19	462.94	459 -	465	5.30E+01	38.11	2.22E+02	2.89E+01
	20	510.94	505 -	515	2.30E+02	54.98	2.80E+02	3.77E+01
	21	583.34	579 -	588	3.05E+02	53.81	2.39E+02	3.37E+01
	22	609.40	604 -	613	3.61E+02	59.22	2.95E+02	3.73E+01
	23	727.34	723 -	729	4.54E+01	32.67	1.61E+02	2.45E+01
	24	756.05	751 -	760	5.36E+01	33.56	1.31E+02	2.48E+01
	25	766.93	762 -	770	4.60E+01	33.47	1.44E+02	2.51E+01
	26	786.25	780 -	791	4.19E+01	40.64	1.84E+02	3.17E+01
	27	795.26	791 -	798	2.49E+01	31.43	1.48E+02	2.45E+01
	28	860.64	857 -	863	2.20E+01	26.53	1.12E+02	2.04E+01
M	29	907.73	906 -	916	1.18E+01	12.94	3.70E+01	1.00E+01
m	30	911.38	906 -	916	2.12E+02	35.86	9.02E+01	1.56E+01
	31	969.09	965 -	973	9.86E+01	41.37	1.93E+02	2.98E+01
	32	1120.37	1116 -	1123	6.58E+01	29.73	1.02E+02	2.05E+01
	33	1284.79	1278 -	1290	2.83E+01	32.10	9.94E+01	2.49E+01
M	34	1370.22	1366 -	1380	1.56E+01	15.30	3.22E+01	9.33E+00
m	35	1377.03	1366 -	1380	3.10E+01	19.34	3.25E+01	9.37E+00
	36	1460.94	1457 -	1464	8.22E+02	58.17	1.60E+01	8.05E+00
	37	1524.74	1519 -	1527	1.12E+01	11.52	1.36E+01	7.71E+00
	38	1557.06	1551 -	1561	1.53E+01	16.22	2.55E+01	1.17E+01
	39	1592.86	1590 -	1596	1.35E+01	13.18	1.70E+01	9.00E+00
	40	1651.78	1648 -	1653	6.22E+00	7.35	5.56E+00	4.44E+00
	41	1689.55	1686 -	1692	1.01E+01	8.97	7.71E+00	5.19E+00
	42	1711.30	1709 -	1713	6.50E+00	6.67	3.00E+00	3.54E+00
	43	1729.60	1726 -	1733	1.20E+01	12.00	1.60E+01	8.05E+00
	44	1764.88	1759 -	1769	6.48E+01	20.52	2.03E+01	1.05E+01
	45	1848.47	1844 -	1853	1.80E+01	11.92	1.00E+01	6.88E+00
	46	1892.84	1889 -	1894	5.25E+00	7.07	5.50E+00	4.43E+00
	47	1909.64	1906 -	1911	5.00E+00	7.07	6.00E+00	4.50E+00
	48	2087.34	2084 -	2089	6.00E+00	4.90	0.00E+00	0.00E+00
	49	2105.07	2099 -	2111	2.10E+01	17.46	2.60E+01	1.22E+01
	50	2155.69	2151 -	2158	8.00E+00	5.66	0.00E+00	0.00E+00
	51	2203.23	2198 -	2205	3.06E+01	12.96	6.88E+00	5.56E+00
	52	2217.60	2214 -	2220	1.00E+01	6.32	0.00E+00	0.00E+00
	53	2233.06	2227 -	2236	1.35E+01	9.43	5.06E+00	4.87E+00
	54	2295.06	2288 -	2297	8.57E+00	10.30	1.09E+01	6.96E+00
	55	2326.57	2322 -	2328	7.64E+00	8.28	6.73E+00	5.06E+00
	56	2490.31	2485 -	2492	4.33E+00	6.32	3.33E+00	3.91E+00
	57	2614.23	2608 -	2619	1.23E+02	22.18	0.00E+00	0.00E+00



Analysis Report for 1510093-11  
CP1806S05-06

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 : 11/11/2015 2:29:06PM

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	46.56	44 -	50	46.66	1.97E+02	98.22	1.61E+03	PB-210	
2	76.34	72 -	83	76.43	1.12E+03	168.55	2.98E+03	.....	
3	88.01	86 -	91	88.09	2.30E+02	93.37	1.57E+03	CD-109 LU-176 SN-126	
4	93.62	91 -	97	93.69	2.46E+02	99.07	1.51E+03	GA-67	
5	105.36	104 -	108	105.43	6.37E+01	59.57	7.35E+02	EU-155 NP-239	
6	128.71	125 -	132	128.77	1.19E+02	88.34	1.22E+03	.....	
7	185.90	182 -	189	185.93	1.88E+02	80.17	9.43E+02	RA-226	
8	209.71	206 -	213	209.72	9.65E+01	74.11	8.41E+02	CM-243 GA-67	
9	239.16	234 -	243	239.16	1.15E+03	108.56	1.02E+03	PB-212	
10	270.32	267 -	274	270.30	6.69E+01	60.46	5.66E+02	.....	
11	277.55	275 -	280	277.52	5.12E+01	46.20	3.80E+02	CM-243 NP-239	
M	12	295.29	291 -	303	295.26	3.47E+02	50.87	2.75E+02	PB-214
m	13	300.10	291 -	303	300.06	7.51E+01	39.09	3.01E+02	PB-212 BI-210M GA-67
14	327.73	321 -	331	327.68	7.13E+01	68.72	5.85E+02	.....	
15	338.53	334 -	342	338.47	2.41E+02	58.94	3.83E+02	AC-228	
16	352.04	348 -	355	351.97	5.15E+02	64.78	3.56E+02	PB-214	
17	411.45	406 -	417	411.36	1.04E+02	56.89	3.48E+02	HO-166M	
18	446.57	443 -	450	446.45	3.42E+01	38.16	2.20E+02	.....	
19	462.94	459 -	465	462.81	5.30E+01	38.11	2.22E+02	SB-125	
20	510.94	505 -	515	510.79	2.30E+02	54.98	2.80E+02	.....	
21	583.34	579 -	588	583.16	3.05E+02	53.81	2.39E+02	TL-208	
22	609.40	604 -	613	609.21	3.61E+02	59.22	2.95E+02	BI-214	
23	727.34	723 -	729	727.09	4.54E+01	32.67	1.61E+02	BI-212	

Analysis Report for 1510093-11

CP1806S05-06

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	24	756.05	751 -	760	755.79	5.36E+01	33.56	1.31E+02	ZR-95
	25	766.93	762 -	770	766.67	4.60E+01	33.47	1.44E+02	.....
	26	786.25	780 -	791	785.98	4.19E+01	40.64	1.84E+02	.....
	27	795.26	791 -	798	794.98	2.49E+01	31.43	1.48E+02	CS-134
	28	860.64	857 -	863	860.33	2.20E+01	26.53	1.12E+02	TL-208
M	29	907.73	906 -	916	907.41	1.18E+01	12.94	3.70E+01	.....
m	30	911.38	906 -	916	911.06	2.12E+02	35.86	9.02E+01	AC-228 LU-172
	31	969.09	965 -	973	968.74	9.86E+01	41.37	1.93E+02	AC-228
	32	1120.37	1116 -	1123	1119.96	6.58E+01	29.73	1.02E+02	BI-214 SC-46 TA-182
	33	1284.79	1278 -	1290	1284.33	2.83E+01	32.10	9.94E+01	.....
M	34	1370.22	1366 -	1380	1369.72	1.56E+01	15.30	3.22E+01	.....
m	35	1377.03	1366 -	1380	1376.54	3.10E+01	19.34	3.25E+01	.....
	36	1460.94	1457 -	1464	1460.42	8.22E+02	58.17	1.60E+01	K-40
	37	1524.74	1519 -	1527	1524.20	1.12E+01	11.52	1.36E+01	.....
	38	1557.06	1551 -	1561	1556.51	1.53E+01	16.22	2.55E+01	.....
	39	1592.86	1590 -	1596	1592.30	1.35E+01	13.18	1.70E+01	.....
	40	1651.78	1648 -	1653	1651.20	6.22E+00	7.35	5.56E+00	.....
	41	1689.55	1686 -	1692	1688.97	1.01E+01	8.97	7.71E+00	.....
	42	1711.30	1709 -	1713	1710.71	6.50E+00	6.67	3.00E+00	.....
	43	1729.60	1726 -	1733	1729.00	1.20E+01	12.00	1.60E+01	.....
	44	1764.88	1759 -	1769	1764.28	6.48E+01	20.52	2.03E+01	BI-214
	45	1848.47	1844 -	1853	1847.84	1.80E+01	11.92	1.00E+01	.....
	46	1892.84	1889 -	1894	1892.20	5.25E+00	7.07	5.50E+00	.....
	47	1909.64	1906 -	1911	1909.00	5.00E+00	7.07	6.00E+00	.....
	48	2087.34	2084 -	2089	2086.67	6.00E+00	4.90	0.00E+00	.....
	49	2105.07	2099 -	2111	2104.39	2.10E+01	17.46	2.60E+01	.....
	50	2155.69	2151 -	2158	2155.00	8.00E+00	5.66	0.00E+00	.....
	51	2203.23	2198 -	2205	2202.54	3.06E+01	12.96	6.88E+00	BI-214
	52	2217.60	2214 -	2220	2216.90	1.00E+01	6.32	0.00E+00	.....
	53	2233.06	2227 -	2236	2232.36	1.35E+01	9.43	5.06E+00	.....
	54	2295.06	2288 -	2297	2294.35	8.57E+00	10.30	1.09E+01	.....
	55	2326.57	2322 -	2328	2325.86	7.64E+00	8.28	6.73E+00	.....
	56	2490.31	2485 -	2492	2489.58	4.33E+00	6.32	3.33E+00	.....
	57	2614.23	2608 -	2619	2613.49	1.23E+02	22.18	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 : 11/11/2015 2:29:06PM

: 00714

Analysis Report for 1510093-11  
CP1806S05-06

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	1	46.56	1.97E+02	98.22	1.34E-02	1.68E-03
	2	76.34	1.12E+03	168.55	2.74E-02	3.35E-03
	3	88.01	2.30E+02	93.37	2.84E-02	4.50E-03
	4	93.62	2.46E+02	99.07	2.85E-02	4.26E-03
	5	105.36	6.37E+01	59.57	2.80E-02	3.73E-03
	6	128.71	1.19E+02	88.34	2.61E-02	2.79E-03
	7	185.90	1.88E+02	80.17	2.11E-02	1.65E-03
	8	209.71	9.65E+01	74.11	1.95E-02	1.63E-03
	9	239.16	1.15E+03	108.56	1.78E-02	1.60E-03
	10	270.32	6.69E+01	60.46	1.64E-02	1.57E-03
	11	277.55	5.12E+01	46.20	1.61E-02	1.56E-03
M	12	295.29	3.47E+02	50.87	1.55E-02	1.48E-03
m	13	300.10	7.51E+01	39.09	1.53E-02	1.46E-03
	14	327.73	7.13E+01	68.72	1.44E-02	1.33E-03
	15	338.53	2.41E+02	58.94	1.41E-02	1.27E-03
	16	352.04	5.15E+02	64.78	1.37E-02	1.21E-03
	17	411.45	1.04E+02	56.89	1.23E-02	9.99E-04
	18	446.57	3.42E+01	38.16	1.16E-02	9.64E-04
	19	462.94	5.30E+01	38.11	1.13E-02	9.47E-04
	20	510.94	2.30E+02	54.98	1.06E-02	8.98E-04
	21	583.34	3.05E+02	53.81	9.58E-03	8.25E-04
	22	609.40	3.61E+02	59.22	9.27E-03	7.98E-04
	23	727.34	4.54E+01	32.67	8.09E-03	7.03E-04
	24	756.05	5.36E+01	33.56	7.84E-03	6.85E-04
	25	766.93	4.60E+01	33.47	7.75E-03	6.78E-04
	26	786.25	4.19E+01	40.64	7.60E-03	6.65E-04
	27	795.26	2.49E+01	31.43	7.53E-03	6.59E-04
	28	860.64	2.20E+01	26.53	7.07E-03	6.17E-04
M	29	907.73	1.18E+01	12.94	6.77E-03	5.88E-04
m	30	911.38	2.12E+02	35.86	6.74E-03	5.87E-04
	31	969.09	9.86E+01	41.37	6.41E-03	5.57E-04
	32	1120.37	6.58E+01	29.73	5.70E-03	4.80E-04
	33	1284.79	2.83E+01	32.10	5.12E-03	5.04E-04
M	34	1370.22	1.56E+01	15.30	4.89E-03	5.11E-04
m	35	1377.03	3.10E+01	19.34	4.87E-03	5.08E-04
	36	1460.94	8.22E+02	58.17	4.67E-03	4.73E-04
	37	1524.74	1.12E+01	11.52	4.54E-03	4.47E-04
	38	1557.06	1.53E+01	16.22	4.48E-03	4.33E-04
	39	1592.86	1.35E+01	13.18	4.42E-03	4.19E-04
	40	1651.78	6.22E+00	7.35	4.33E-03	3.94E-04
	41	1689.55	1.01E+01	8.97	4.28E-03	3.79E-04
	42	1711.30	6.50E+00	6.67	4.25E-03	3.70E-04
	43	1729.60	1.20E+01	12.00	4.23E-03	3.62E-04
	44	1764.88	6.48E+01	20.52	4.18E-03	3.47E-04
	45	1848.47	1.80E+01	11.92	4.10E-03	3.18E-04
	46	1892.84	5.25E+00	7.07	4.06E-03	3.18E-04
	47	1909.64	5.00E+00	7.07	4.05E-03	3.18E-04
	48	2087.34	6.00E+00	4.90	3.96E-03	3.18E-04
	49	2105.07	2.10E+01	17.46	3.95E-03	3.18E-04
	50	2155.69	8.00E+00	5.66	3.94E-03	3.18E-04

Analysis Report for 1510093-11  
 CP1806S05-06

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
51	2203.23	3.06E+01	12.96	3.93E-03	3.18E-04
52	2217.60	1.00E+01	6.32	3.93E-03	3.18E-04
53	2233.06	1.35E+01	9.43	3.93E-03	3.18E-04
54	2295.06	8.57E+00	10.30	3.93E-03	3.18E-04
55	2326.57	7.64E+00	8.28	3.93E-03	3.18E-04
56	2490.31	4.33E+00	6.32	3.98E-03	3.18E-04
57	2614.23	1.23E+02	22.18	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 : 11/11/2015 2:29:06PM  
 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	46.56	1.97E+02	98.22	6.46E+01	1.16E+01	1.33E+02	9.89E+01
2	76.34	1.12E+03	168.55			1.12E+03	1.69E+02
3	88.01	2.30E+02	93.37	1.46E+00	7.88E+00	2.29E+02	9.37E+01
4	93.62	2.46E+02	99.07	5.70E+01	9.03E+00	1.89E+02	9.95E+01
5	105.36	6.37E+01	59.57			6.37E+01	5.96E+01
6	128.71	1.19E+02	88.34			1.19E+02	8.83E+01
7	185.90	1.88E+02	80.17	4.72E+01	7.97E+00	1.40E+02	8.06E+01
8	209.71	9.65E+01	74.11			9.65E+01	7.41E+01
9	239.16	1.15E+03	108.56	2.36E+01	1.35E+01	1.13E+03	1.09E+02
10	270.32	6.69E+01	60.46			6.69E+01	6.05E+01
11	277.55	5.12E+01	46.20			5.12E+01	4.62E+01
M	12	295.29	3.47E+02	8.57E+00	6.10E+00	3.39E+02	5.12E+01
m	13	300.10	7.51E+01	39.09		7.51E+01	3.91E+01
	14	327.73	7.13E+01	68.72	0.00E+00	7.13E+01	6.87E+01
	15	338.53	2.41E+02	58.94		2.41E+02	5.89E+01
	16	352.04	5.15E+02	64.78	1.40E+01	5.01E+02	6.50E+01
	17	411.45	1.04E+02	56.89		1.04E+02	5.69E+01
	18	446.57	3.42E+01	38.16		3.42E+01	3.82E+01
	19	462.94	5.30E+01	38.11		5.30E+01	3.81E+01
	20	510.94	2.30E+02	54.98	8.41E+01	1.46E+02	5.53E+01
	21	583.34	3.05E+02	53.81	7.32E+00	2.97E+02	5.40E+01
	22	609.40	3.61E+02	59.22	1.30E+01	3.48E+02	5.93E+01
	23	727.34	4.54E+01	32.67		4.54E+01	3.27E+01

Analysis Report for 1510093-11

CP1806S05-06

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	24	756.05	5.36E+01	33.56			5.36E+01	3.36E+01
	25	766.93	4.60E+01	33.47			4.60E+01	3.35E+01
	26	786.25	4.19E+01	40.64			4.19E+01	4.06E+01
	27	795.26	2.49E+01	31.43			2.49E+01	3.14E+01
	28	860.64	2.20E+01	26.53			2.20E+01	2.65E+01
M	29	907.73	1.18E+01	12.94			1.18E+01	1.29E+01
m	30	911.38	2.12E+02	35.86	5.60E+00	3.32E+00	2.07E+02	3.60E+01
	31	969.09	9.86E+01	41.37			9.86E+01	4.14E+01
	32	1120.37	6.58E+01	29.73	3.93E+00	2.96E+00	6.18E+01	2.99E+01
	33	1284.79	2.83E+01	32.10			2.83E+01	3.21E+01
M	34	1370.22	1.56E+01	15.30			1.56E+01	1.53E+01
m	35	1377.03	3.10E+01	19.34			3.10E+01	1.93E+01
	36	1460.94	8.22E+02	58.17	1.12E+01	2.55E+00	8.11E+02	5.82E+01
	37	1524.74	1.12E+01	11.52			1.12E+01	1.15E+01
	38	1557.06	1.53E+01	16.22			1.53E+01	1.62E+01
	39	1592.86	1.35E+01	13.18			1.35E+01	1.32E+01
	40	1651.78	6.22E+00	7.35			6.22E+00	7.35E+00
	41	1689.55	1.01E+01	8.97			1.01E+01	8.97E+00
	42	1711.30	6.50E+00	6.67			6.50E+00	6.67E+00
	43	1729.60	1.20E+01	12.00			1.20E+01	1.20E+01
	44	1764.88	6.48E+01	20.52	4.23E+00	2.21E+00	6.06E+01	2.06E+01
	45	1848.47	1.80E+01	11.92			1.80E+01	1.19E+01
	46	1892.84	5.25E+00	7.07			5.25E+00	7.07E+00
	47	1909.64	5.00E+00	7.07			5.00E+00	7.07E+00
	48	2087.34	6.00E+00	4.90			6.00E+00	4.90E+00
	49	2105.07	2.10E+01	17.46			2.10E+01	1.75E+01
	50	2155.69	8.00E+00	5.66			8.00E+00	5.66E+00
	51	2203.23	3.06E+01	12.96	5.94E-01	1.16E+00	3.00E+01	1.30E+01
	52	2217.60	1.00E+01	6.32			1.00E+01	6.32E+00
	53	2233.06	1.35E+01	9.43			1.35E+01	9.43E+00
	54	2295.06	8.57E+00	10.30			8.57E+00	1.03E+01
	55	2326.57	7.64E+00	8.28			7.64E+00	8.28E+00
	56	2490.31	4.33E+00	6.32			4.33E+00	6.32E+00
	57	2614.23	1.23E+02	22.18	7.38E+00	1.57E+00	1.16E+02	2.22E+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 1510093-11  
 CP1806S05-06

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 2:29:06PM  
 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	46.56	1.97E+02	98.22	6.46E+01	1.16E+01	1.33E+02	9.89E+01
2	76.34	1.12E+03	168.55			1.12E+03	1.69E+02
3	88.01	2.30E+02	93.37	1.46E+00	7.88E+00	2.29E+02	9.37E+01
4	93.62	2.46E+02	99.07	5.70E+01	9.03E+00	1.89E+02	9.95E+01
5	105.36	6.37E+01	59.57			6.37E+01	5.96E+01
6	128.71	1.19E+02	88.34			1.19E+02	8.83E+01
7	185.90	1.88E+02	80.17	4.72E+01	7.97E+00	1.40E+02	8.06E+01
8	209.71	9.65E+01	74.11			9.65E+01	7.41E+01
9	239.16	1.15E+03	108.56	2.36E+01	1.35E+01	1.13E+03	1.09E+02
10	270.32	6.69E+01	60.46			6.69E+01	6.05E+01
11	277.55	5.12E+01	46.20			5.12E+01	4.62E+01
M 12	295.29	3.47E+02	50.87	8.57E+00	6.10E+00	3.39E+02	5.12E+01
m 13	300.10	7.51E+01	39.09			7.51E+01	3.91E+01
14	327.73	7.13E+01	68.72	0.00E+00	0.00E+00	7.13E+01	6.87E+01
15	338.53	2.41E+02	58.94			2.41E+02	5.89E+01
16	352.04	5.15E+02	64.78	1.40E+01	5.55E+00	5.01E+02	6.50E+01
17	411.45	1.04E+02	56.89			1.04E+02	5.69E+01
18	446.57	3.42E+01	38.16			3.42E+01	3.82E+01
19	462.94	5.30E+01	38.11			5.30E+01	3.81E+01
20	510.94	2.30E+02	54.98	8.41E+01	5.50E+00	1.46E+02	5.53E+01
21	583.34	3.05E+02	53.81	7.32E+00	4.08E+00	2.97E+02	5.40E+01
22	609.40	3.61E+02	59.22	1.30E+01	3.89E+00	3.48E+02	5.93E+01
23	727.34	4.54E+01	32.67			4.54E+01	3.27E+01
24	756.05	5.36E+01	33.56			5.36E+01	3.36E+01
25	766.93	4.60E+01	33.47			4.60E+01	3.35E+01
26	786.25	4.19E+01	40.64			4.19E+01	4.06E+01
27	795.26	2.49E+01	31.43			2.49E+01	3.14E+01
28	860.64	2.20E+01	26.53			2.20E+01	2.65E+01
M 29	907.73	1.18E+01	12.94			1.18E+01	1.29E+01
m 30	911.38	2.12E+02	35.86	5.60E+00	3.32E+00	2.07E+02	3.60E+01
31	969.09	9.86E+01	41.37			9.86E+01	4.14E+01
32	1120.37	6.58E+01	29.73	3.93E+00	2.96E+00	6.18E+01	2.99E+01
33	1284.79	2.83E+01	32.10			2.83E+01	3.21E+01
M 34	1370.22	1.56E+01	15.30			1.56E+01	1.53E+01
m 35	1377.03	3.10E+01	19.34			3.10E+01	1.93E+01
36	1460.94	8.22E+02	58.17	1.12E+01	2.55E+00	8.11E+02	5.82E+01
37	1524.74	1.12E+01	11.52			1.12E+01	1.15E+01
38	1557.06	1.53E+01	16.22			1.53E+01	1.62E+01
39	1592.86	1.35E+01	13.18			1.35E+01	1.32E+01
40	1651.78	6.22E+00	7.35			6.22E+00	7.35E+00
41	1689.55	1.01E+01	8.97			1.01E+01	8.97E+00

Analysis Report for 1510093-11  
CP1806S05-06

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1711.30	6.50E+00	6.67			6.50E+00	6.67E+00
43	1729.60	1.20E+01	12.00			1.20E+01	1.20E+01
44	1764.88	6.48E+01	20.52	4.23E+00	2.21E+00	6.06E+01	2.06E+01
45	1848.47	1.80E+01	11.92			1.80E+01	1.19E+01
46	1892.84	5.25E+00	7.07			5.25E+00	7.07E+00
47	1909.64	5.00E+00	7.07			5.00E+00	7.07E+00
48	2087.34	6.00E+00	4.90			6.00E+00	4.90E+00
49	2105.07	2.10E+01	17.46			2.10E+01	1.75E+01
50	2155.69	8.00E+00	5.66			8.00E+00	5.66E+00
51	2203.23	3.06E+01	12.96	5.94E-01	1.16E+00	3.00E+01	1.30E+01
52	2217.60	1.00E+01	6.32			1.00E+01	6.32E+00
53	2233.06	1.35E+01	9.43			1.35E+01	9.43E+00
54	2295.06	8.57E+00	10.30			8.57E+00	1.03E+01
55	2326.57	7.64E+00	8.28			7.64E+00	8.28E+00
56	2490.31	4.33E+00	6.32			4.33E+00	6.32E+00
57	2614.23	1.23E+02	22.18	7.38E+00	1.57E+00	1.16E+02	2.22E+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	0.997	1460.81 *	10.67	2.20E+01	2.77E+00
GA-67	0.586	93.31 *	35.70	2.96E+02	1.33E+03
		208.95 *	2.24	3.52E+03	1.55E+04
		300.22 *	16.00	4.89E+02	2.21E+03
CD-109	1.000	88.03 *	3.72	3.08E+00	1.36E+00
SN-126	0.970	87.57 *	37.00	2.94E-01	1.29E-01
TL-208	0.982	583.14 *	30.22	1.39E+00	2.79E-01
		860.37 *	4.48	9.41E-01	1.14E+00
		2614.66 *	35.85	1.08E+00	2.24E-01
PB-210	0.999	46.50 *	4.25	3.16E+00	2.39E+00
BI-212	0.762	727.17 *	11.80	6.44E-01	4.67E-01
		1620.62	2.75		
PB-212	0.959	238.63 *	44.60	1.92E+00	2.53E-01
		300.09 *	3.41	1.95E+00	1.03E+00
BI-214	0.985	609.31 *	46.30	1.10E+00	2.10E-01

Analysis Report for 1510093-11  
 CP1806S05-06

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.985	1120.29 *	15.10	9.72E-01	4.77E-01
		1764.49 *	15.80	1.24E+00	4.35E-01
		2204.22 *	4.98	2.07E+00	9.15E-01
PB-214	0.998	295.21 *	19.19	1.54E+00	2.76E-01
		351.92 *	37.19	1.33E+00	2.08E-01
RA-226	0.985	186.21 *	3.28	2.74E+00	5.27E+00
AC-228	0.991	338.32 *	11.40	2.03E+00	5.29E-01
		911.07 *	27.70	1.50E+00	2.92E-01
		969.11 *	16.60	1.25E+00	5.37E-01
CM-243	0.374	209.75 *	3.29	2.04E+00	1.58E+00
		228.14	10.60		
		277.60 *	14.00	3.08E-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 : 11/11/2015 2:29:06PM  
 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	76.34	3.11744E-01	7.51		
5	105.36	1.76875E-02	46.78	Tol.	EU-155 NP-239
6	128.71	3.30759E-02	37.09		
10	270.32	1.85734E-02	45.21		
14	327.73	1.98092E-02	48.18	Sum	
17	411.45	2.88964E-02	27.34	Tol.	HO-166M
18	446.57	9.51292E-03	55.71	Sum	
19	462.94	1.47290E-02	35.93	Sum	
20	510.94	4.04886E-02	18.95		
24	756.05	1.48880E-02	31.30	Tol.	ZR-95
25	766.93	1.27778E-02	36.38		
26	786.25	1.16501E-02	48.46		
27	795.26	6.91358E-03	63.15	Sum	
M 29	907.73	3.26560E-03	55.04	Sum	
33	1284.79	7.85791E-03	56.73		
M 34	1370.22	4.31991E-03	49.18		



Analysis Report for 1510093-11  
CP1806S05-06

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m 35	1377.03	8.62429E-03	31.14		
37	1524.74	3.11728E-03	51.33		
38	1557.06	4.24107E-03	53.13		
39	1592.86	3.75000E-03	48.82	D-Esc	
40	1651.78	1.72840E-03	59.05		
41	1689.55	2.81746E-03	44.23		
42	1711.30	1.80556E-03	51.31		
43	1729.60	3.33333E-03	50.00	Sum	
45	1848.47	5.00000E-03	33.10	Sum	
46	1892.84	1.45833E-03	67.34		
47	1909.64	1.38889E-03	70.71		
48	2087.34	1.66667E-03	40.82		
49	2105.07	5.83333E-03	41.58		
50	2155.69	2.22222E-03	35.36		
52	2217.60	2.77778E-03	31.62		
53	2233.06	3.74132E-03	35.02		
54	2295.06	2.38095E-03	60.06		
55	2326.57	2.12121E-03	54.19		
56	2490.31	1.20370E-03	72.98		

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81 *	10.67	2.20E+01	2.77E+00
GA-67	0.58	93.31 *	35.70	2.96E+02	1.33E+03
		208.95 *	2.24	3.52E+03	1.55E+04
		300.22 *	16.00	4.89E+02	2.21E+03
		88.03 *	3.72	3.08E+00	1.36E+00
CD-109	1.00	87.57 *	37.00	2.94E-01	1.29E-01
SN-126	0.97	583.14 *	30.22	1.39E+00	2.79E-01
TL-208	0.98	860.37 *	4.48	9.41E-01	1.14E+00
		2614.66 *	35.85	1.08E+00	2.24E-01

: 00721

Analysis Report for 1510093-11  
CP1806S05-06

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
PB-210	0.99	46.50 *		4.25	3.16E+00	2.39E+00
BI-212	0.76	727.17 *		11.80	6.44E-01	4.67E-01
		1620.62		2.75		
PB-212	0.95	238.63 *		44.60	1.92E+00	2.53E-01
		300.09 *		3.41	1.95E+00	1.03E+00
BI-214	0.98	609.31 *		46.30	1.10E+00	2.10E-01
		1120.29 *		15.10	9.72E-01	4.77E-01
		1764.49 *		15.80	1.24E+00	4.35E-01
		2204.22 *		4.98	2.07E+00	9.15E-01
PB-214	0.99	295.21 *		19.19	1.54E+00	2.76E-01
		351.92 *		37.19	1.33E+00	2.08E-01
RA-226	0.98	186.21 *		3.28	2.74E+00	5.27E+00
AC-228	0.99	338.32 *		11.40	2.03E+00	5.29E-01
		911.07 *		27.70	1.50E+00	2.92E-01
		969.11 *		16.60	1.25E+00	5.37E-01
CM-243	0.37	209.75 *		3.29	2.04E+00	1.58E+00
		228.14		10.60		
		277.60 *		14.00	3.08E-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

## INTERFERENCE CORRECTED REPORT

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.997	2.20E+01	2.77E+00	
GA-67	0.586	2.25E+02	9.84E+02	
? CD-109	1.000	3.08E+00	1.36E+00	
? SN-126	0.970	2.94E-01	1.29E-01	
TL-208	0.982	1.19E+00	1.73E-01	
PB-210	0.999	3.16E+00	2.39E+00	
BI-212	0.762	6.44E-01	4.67E-01	
PB-212	0.959	1.87E+00	2.48E-01	
BI-214	0.985	1.14E+00	1.72E-01	

Analysis Report for 1510093-11  
CP1806S05-06

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
PB-214	0.998	1.41E+00	1.66E-01	
RA-226	0.985	2.74E+00	5.27E+00	
AC-228	0.991	1.55E+00	2.31E-01	
CM-243	0.374	3.56E-01	2.75E-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 1510093-11  
CP1806S05-06

## UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/11/2015 2:29:06PM  
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	76.34	3.11744E-01	7.51		
5	105.36	1.76875E-02	46.78	Tol.	EU-155 NP-239
6	128.71	3.30759E-02	37.09		
10	270.32	1.85734E-02	45.21		
14	327.73	1.98092E-02	48.18	Sum	
17	411.45	2.88964E-02	27.34	Tol.	HO-166M
18	446.57	9.51292E-03	55.71	Sum	
19	462.94	1.47290E-02	35.93	Sum	
20	510.94	4.04886E-02	18.95		
24	756.05	1.48880E-02	31.30	Tol.	ZR-95
25	766.93	1.27778E-02	36.38		
26	786.25	1.16501E-02	48.46		
27	795.26	6.91358E-03	63.15	Sum	
M 29	907.73	3.26560E-03	55.04	Sum	
33	1284.79	7.85791E-03	56.73		
M 34	1370.22	4.31991E-03	49.18		
m 35	1377.03	8.62429E-03	31.14		
37	1524.74	3.11728E-03	51.33		
38	1557.06	4.24107E-03	53.13		
39	1592.86	3.75000E-03	48.82	D-Esc	
40	1651.78	1.72840E-03	59.05		
41	1689.55	2.81746E-03	44.23		
42	1711.30	1.80556E-03	51.31		
43	1729.60	3.33333E-03	50.00	Sum	
45	1848.47	5.00000E-03	33.10	Sum	
46	1892.84	1.45833E-03	67.34		
47	1909.64	1.38889E-03	70.71		
48	2087.34	1.66667E-03	40.82		
49	2105.07	5.83333E-03	41.58		
50	2155.69	2.22222E-03	35.36		
52	2217.60	2.77778E-03	31.62		
53	2233.06	3.74132E-03	35.02		
54	2295.06	2.38095E-03	60.06		
55	2326.57	2.12121E-03	54.19		

Analysis Report for 1510093-11  
CP1806S05-06

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	2490.31	1.20370E-03	72.98		

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

## NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-3.64E-01	8.40E-01	8.40E-01
+	NA-22	1274.54	99.94	-2.11E-03	9.49E-02	9.49E-02
+	NA-24	1368.53	99.99	6.72E+14	3.19E+14	8.84E+14
		2754.09	99.86	-1.89E+14		3.19E+14
+	AL-26	1808.65	99.76	-2.00E-03	4.62E-02	4.62E-02
+	K-40	1460.81	* 10.67	2.20E+01	6.16E-01	6.16E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-2.02E-02	5.38E-02	5.38E-02
		78.34	96.00	3.12E-01		7.81E-02
+	SC-46	889.25	99.98	-3.68E-02	9.31E-02	9.31E-02
		1120.51	99.99	1.86E-01		1.60E-01
+	V-48	983.52	99.98	-9.84E-02	3.08E-01	3.10E-01
		1312.10	97.50	-2.61E-01		3.08E-01
+	CR-51	320.08	9.83	-6.72E-01	1.25E+00	1.25E+00
+	MN-54	834.83	99.97	6.59E-02	9.33E-02	9.33E-02
+	CO-56	846.75	99.96	2.95E-02	1.05E-01	1.05E-01
		1037.75	14.03	2.45E-01		7.79E-01
		1238.25	67.00	9.43E-02		2.39E-01
		1771.40	15.51	0.00E+00		4.66E-01
		2598.48	16.90	-8.85E-02		1.95E-01
+	CO-57	122.06	85.51	1.01E-02	5.86E-02	5.86E-02
		136.48	10.60	2.29E-02		5.06E-01
+	CO-58	810.76	99.40	-1.21E-02	1.05E-01	1.05E-01
+	FE-59	1099.22	56.50	-1.06E-02	2.35E-01	2.35E-01
		1291.56	43.20	-5.72E-02		2.77E-01
+	CO-60	1173.22	100.00	3.61E-02	8.62E-02	9.27E-02
		1332.49	100.00	1.25E-02		8.62E-02
+	ZN-65	1115.52	50.75	1.96E-02	1.91E-01	1.91E-01

Analysis Report for 1510093-11  
CP1806S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	GA-67	93.31	*	35.70	2.96E+02	2.51E+02	2.51E+02
		208.95	*	2.24	3.52E+03		4.39E+03
		300.22	*	16.00	4.89E+02		8.00E+02
+	SE-75	121.11		16.70	-8.45E-02	1.01E-01	3.25E-01
		136.00		59.20	-1.66E-02		1.01E-01
		264.65		59.80	6.49E-02		1.06E-01
		279.53		25.20	4.85E-02		2.68E-01
		400.65		11.40	-1.06E-01		5.65E-01
+	RB-82	776.52		13.00	1.06E-01	1.34E+00	1.34E+00
+	RB-83	520.41		46.00	1.55E-03	1.60E-01	1.60E-01
		529.64		30.30	4.37E-02		2.33E-01
		552.65		16.40	7.26E-02		4.32E-01
+	KR-85	513.99		0.43	-8.05E+00	1.61E+01	1.61E+01
+	SR-85	513.99		99.27	-4.99E-02	9.97E-02	9.97E-02
+	Y-88	898.02		93.40	-9.22E-03	7.46E-02	9.56E-02
		1836.01		99.38	-2.50E-02		7.46E-02
+	NB-93M	16.57		9.43	-5.61E+03	5.42E+03	5.42E+03
+	NB-94	702.63		100.00	-1.31E-02	6.42E-02	7.43E-02
		871.10		100.00	-9.94E-03		6.42E-02
+	NB-95	765.79		99.81	1.62E-01	1.69E-01	1.69E-01
+	NB-95M	235.69		25.00	-1.57E+03	2.00E+02	2.00E+02
+	ZR-95	724.18		43.70	2.82E-02	2.21E-01	2.90E-01
		756.72		55.30	2.44E-01		2.21E-01
+	MO-99	181.06		6.20	1.11E+03	2.31E+03	3.72E+03
		739.58		12.80	-1.81E+01		2.31E+03
		778.00		4.50	-8.62E+02		6.60E+03
+	RU-103	497.08		89.00	2.07E-02	1.13E-01	1.13E-01
+	RU-106	621.84		9.80	-4.43E-01	6.88E-01	6.88E-01
+	AG-108M	433.93		89.90	-1.44E-02	6.07E-02	6.07E-02
		614.37		90.40	8.65E-03		7.89E-02
		722.95		90.50	1.93E-02		8.49E-02
+	CD-109	88.03	*	3.72	3.08E+00	2.00E+00	2.00E+00
+	AG-110M	657.75		93.14	-2.85E-03	8.58E-02	8.58E-02
		677.61		10.53	-1.96E-01		7.31E-01
		706.67		16.46	-5.21E-02		4.83E-01
		763.93		21.98	-2.61E-01		3.85E-01
		884.67		71.63	2.95E-02		1.20E-01
		1384.27		23.94	7.67E-03		3.01E-01
+	CD-113M	263.70		0.02	3.50E+01	2.25E+02	2.25E+02
+	SN-113	255.12		1.93	-1.98E+00	1.04E-01	3.27E+00
		391.69		64.90	-7.42E-03		1.04E-01
+	TE123M	159.00		84.10	4.27E-02	7.64E-02	7.64E-02
+	SB-124	602.71		97.87	-4.64E-03	1.14E-01	1.14E-01
		645.85		7.26	6.74E-01		1.43E+00
		722.78		11.10	2.31E-01		1.01E+00
		1691.02		49.00	3.13E-02		2.18E-01
+	I-125	35.49		6.49	-3.39E+00	5.72E+00	5.72E+00
+	SB-125	176.33		6.89	-7.94E-02	1.90E-01	7.57E-01

Analysis Report for 1510093-11  
CP1806S05-06

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)		
SB-125	427.89	29.33	-4.03E-02	1.90E-01	1.90E-01		
	463.38	10.35	5.39E-01		6.51E-01		
	600.56	17.80	-3.10E-02		4.33E-01		
	635.90	11.32	-2.86E-01		5.82E-01		
+ SB-126	414.70	83.30	2.10E-01	4.27E-01	4.27E-01		
	666.33	99.60	-2.01E-01		4.99E-01		
	695.00	99.60	-3.73E-02		4.67E-01		
	720.50	53.80	6.35E-01		9.09E-01		
+ SN-126	87.57	* 37.00	2.94E-01	1.91E-01	1.91E-01		
+ SB-127	473.00	25.00	3.77E+01	7.59E+01	9.44E+01		
	685.20	35.70	-2.33E+01		7.59E+01		
	783.80	14.70	1.79E+02		2.30E+02		
+ I-129	29.78	57.00	7.28E-01	1.25E+00	1.25E+00		
	33.60	13.20	1.64E-01		2.54E+00		
	39.58	7.52	-5.79E-01		2.17E+00		
+ I-131	284.30	6.05	-1.50E+00	1.17E+00	1.49E+01		
	364.48	81.20	3.94E-01		1.17E+00		
	636.97	7.26	1.45E+00		1.62E+01		
	722.89	1.80	1.71E+01		7.51E+01		
+ TE-132	49.72	13.10	-1.51E+02	7.53E+01	6.85E+02		
	228.16	88.00	2.19E+01		7.53E+01		
+ BA-133	81.00	33.00	4.40E-02	8.55E-02	1.31E-01		
	302.84	17.80	4.13E-02		3.21E-01		
	356.01	60.00	-2.35E-05		8.55E-02		
+ I-133	529.87	86.30	4.28E+09	2.25E+10	2.25E+10		
+ XE-133	81.00	38.00	3.09E+00	9.19E+00	9.19E+00		
+ CS-134	563.23	8.38	2.31E-01	9.35E-02	7.28E-01		
	569.32	15.43	6.90E-02		4.01E-01		
	604.70	97.60	4.38E-04		9.35E-02		
	795.84	85.40	5.80E-02		1.05E-01		
	801.93	8.73	1.62E-01		9.74E-01		
+ CS-135	268.24	16.00	-1.02E-01	3.62E-01	3.62E-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	3.74E+00	4.06E-01	4.25E+00		
	163.89	4.61	-1.35E+00		6.27E+00		
	176.55	13.56	-2.27E+00		2.09E+00		
	273.65	12.66	-2.10E+00		2.57E+00		
	340.57	48.50	-1.01E+00		7.65E-01		
	818.50	99.70	-5.93E-02		4.06E-01		
	1048.07	79.60	-7.51E-02		5.80E-01		
	1235.34	19.70	1.07E+00		3.57E+00		
	+ CS-137	661.65	85.12		-1.19E-02	8.84E-02	8.84E-02
	+ LA-138	788.74	34.00		9.55E-02	1.20E-01	2.31E-01
1435.80		66.00	-3.44E-03	1.20E-01			
+ CE-139	165.85	80.35	3.41E-02	7.57E-02	7.57E-02		
+ BA-140	162.64	6.70	-9.28E-01	1.51E+00	4.64E+00		
	304.84	4.50	3.53E+00		7.58E+00		

Analysis Report for 1510093-11  
CP1806S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	BA-140	423.70	3.20	-1.26E+00	1.51E+00	1.03E+01
		437.55	2.00	1.83E+00		1.73E+01
		537.32	25.00	8.07E-01		1.51E+00
+	LA-140	328.77	20.50	1.34E+00	5.15E-01	1.86E+00
		487.03	45.50	4.50E-01		7.53E-01
		815.85	23.50	2.41E-03		1.82E+00
		1596.49	95.49	6.23E-02		5.15E-01
+	CE-141	145.44	48.40	1.15E-01	2.19E-01	2.19E-01
+	CE-143	57.36	11.80	6.60E+05	3.61E+06	9.25E+06
		293.26	42.00	-4.55E+05		3.61E+06
		664.55	5.20	7.08E+06		2.89E+07
+	CE-144	133.54	10.80	-3.99E-03	4.92E-01	4.92E-01
+	PM-144	476.78	42.00	-6.25E-02	7.27E-02	1.44E-01
		618.01	98.60	3.66E-04		7.27E-02
		696.49	99.49	-2.77E-02		7.63E-02
+	PM-145	36.85	21.70	4.11E-01	5.23E-01	1.02E+00
		37.36	39.70	2.11E-01		5.23E-01
		42.30	15.10	2.43E-01		8.52E-01
		72.40	2.31	-2.61E+00		2.11E+00
+	PM-146	453.90	39.94	-9.55E-03	1.33E-01	1.33E-01
		735.90	14.01	2.08E-01		5.18E-01
		747.13	13.10	2.25E-01		5.23E-01
+	ND-147	91.11	28.90	-4.32E+00	1.82E+00	1.82E+00
		531.02	13.10	-9.45E-01		3.33E+00
+	PM-149	285.90	3.10	3.53E+04	5.68E+04	5.68E+04
+	EU-152	121.78	20.50	3.87E-02	2.25E-01	2.25E-01
		244.69	5.40	-9.58E-01		9.93E-01
		344.27	19.13	5.10E-03		2.75E-01
		778.89	9.20	-9.99E-02		7.42E-01
		964.01	10.40	-3.49E-02		9.10E-01
		1085.78	7.22	4.54E-01		1.10E+00
		1112.02	9.60	-4.94E-02		9.11E-01
		1407.95	14.94	1.52E-01		5.51E-01
+	GD-153	97.43	31.30	7.02E-02	1.67E-01	1.67E-01
		103.18	22.20	-3.06E-02		2.29E-01
+	EU-154	123.07	40.50	-4.49E-02	1.14E-01	1.14E-01
		723.30	19.70	8.95E-02		3.93E-01
		873.19	11.50	-9.07E-03		5.70E-01
		996.32	10.30	-1.11E-01		7.65E-01
		1004.76	17.90	-1.64E-01		4.55E-01
		1274.45	35.50	-5.85E-03		2.63E-01
+	EU-155	86.50	30.90	-1.62E-02	2.14E-01	2.14E-01
		105.30	20.70	1.46E-01		2.34E-01
+	EU-156	811.77	10.40	-7.49E-01	3.22E+00	3.22E+00
		1153.47	7.20	-6.95E-01		6.24E+00
		1230.71	8.90	-4.78E-02		5.60E+00
+	HO-166M	184.41	72.60	3.82E-02	8.93E-02	8.93E-02
		280.45	29.60	3.41E-02		1.88E-01
		410.94	11.10	2.98E-01		5.77E-01



Analysis Report for 1510093-11  
CP1806S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	HO-166M	711.69	54.10	-8.56E-03	8.93E-02	1.27E-01
+	TM-171	66.72	0.14	1.12E+01	3.81E+01	3.81E+01
+	HF-172	81.75	4.52	-1.02E+00	4.54E-01	9.48E-01
		125.81	11.30	-5.11E-01		4.54E-01
+	LU-172	181.53	20.60	2.97E+00	3.95E+00	8.34E+00
		810.06	16.63	-1.62E+00		1.42E+01
		912.12	15.25	8.14E+01		3.21E+01
		1093.66	62.50	6.98E-02		3.95E+00
+	LU-173	100.72	5.24	4.10E-01	3.00E-01	9.24E-01
		272.11	21.20	7.34E-02		3.00E-01
+	HF-175	343.40	84.00	-7.35E-03	8.61E-02	8.61E-02
+	LU-176	88.34	13.30	6.13E-01	5.95E-02	5.02E-01
		201.83	86.00	-1.30E-02		6.29E-02
		306.78	94.00	8.81E-03		5.95E-02
+	TA-182	67.75	41.20	-5.66E-02	1.51E-01	1.51E-01
		1121.30	34.90	5.48E-01		4.25E-01
		1189.05	16.23	-3.20E-01		7.43E-01
		1221.41	26.98	-7.61E-02		4.25E-01
		1231.02	11.44	5.75E-01		1.22E+00
+	IR-192	308.46	29.68	3.18E-02	1.51E-01	2.50E-01
		468.07	48.10	-4.09E-02		1.51E-01
+	HG-203	279.19	77.30	3.79E-02	1.22E-01	1.22E-01
+	BI-207	569.67	97.72	1.06E-02	6.16E-02	6.16E-02
		1063.62	74.90	1.62E-02		1.13E-01
+	TL-208	583.14	* 30.22	1.39E+00	1.12E-01	3.32E-01
		860.37	* 4.48	9.41E-01		1.86E+00
		2614.66	* 35.85	1.08E+00		1.12E-01
+	BI-210M	262.00	45.00	7.62E-03	1.17E-01	1.17E-01
		300.00	23.00	3.28E-01		2.68E-01
+	PB-210	46.50	* 4.25	3.16E+00	3.83E+00	3.83E+00
+	PB-211	404.84	2.90	7.76E-01	1.84E+00	1.84E+00
		831.96	2.90	-1.85E-01		2.75E+00
+	BI-212	727.17	* 11.80	6.44E-01	7.33E-01	7.33E-01
		1620.62	2.75	7.20E-01		2.64E+00
+	PB-212	238.63	* 44.60	1.92E+00	2.46E-01	2.46E-01
		300.09	* 3.41	1.95E+00		3.19E+00
+	BI-214	609.31	* 46.30	1.10E+00	2.48E-01	2.48E-01
		1120.29	* 15.10	9.72E-01		6.99E-01
		1764.49	* 15.80	1.24E+00		5.11E-01
		2204.22	* 4.98	2.07E+00		9.87E-01
+	PB-214	295.21	* 19.19	1.54E+00	2.13E-01	5.61E-01
		351.92	* 37.19	1.33E+00		2.13E-01
+	RN-219	401.80	6.50	2.65E-01	8.45E-01	8.45E-01
+	RA-223	323.87	3.88	-7.15E-01	1.38E+00	1.38E+00
+	RA-224	240.98	3.95	1.27E+01	3.05E+00	3.05E+00
+	RA-225	40.00	31.00	-6.41E-01	2.41E+00	2.41E+00
+	RA-226	186.21	* 3.28	2.74E+00	2.53E+00	2.53E+00
+	TH-227	50.10	8.40	-1.95E-01	7.32E-01	8.86E-01

Analysis Report for 1510093-11  
 CP1806S05-06

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-227	236.00		11.50	-5.75E+00	7.32E-01	7.32E-01
		256.20		6.30	-1.60E-01		8.32E-01
+	AC-228	338.32	*	11.40	2.03E+00	4.19E-01	7.17E-01
		911.07	*	27.70	1.50E+00		4.19E-01
		969.11	*	16.60	1.25E+00		7.93E-01
+	TH-230	48.44		16.90	-2.84E-01	4.93E-01	4.93E-01
		62.85		4.60	1.28E+00		1.29E+00
		67.67		0.37	-5.15E+00		1.37E+01
+	PA-231	283.67		1.60	-3.21E-01	2.47E+00	3.20E+00
		302.67		2.30	3.17E-01		2.47E+00
+	TH-231	25.64		14.70	9.83E+00	7.05E-01	1.52E+01
		84.21		6.40	6.85E-01		7.05E-01
+	PA-233	311.98		38.60	-1.81E-02	3.17E-01	3.17E-01
+	PA-234	131.20		20.40	2.04E-01	2.68E-01	2.68E-01
		733.99		8.80	3.99E-02		8.13E-01
		946.00		12.00	-1.30E-02		6.41E-01
+	PA-234M	1001.03		0.92	-1.44E+00	8.69E+00	8.69E+00
+	TH-234	63.29		3.80	1.54E+00	1.55E+00	1.55E+00
+	U-235	143.76		10.50	-9.78E-03	4.89E-01	4.89E-01
		163.35		4.70	-2.18E-01		1.09E+00
		205.31		4.70	-4.54E-02		1.17E+00
+	NP-237	86.50		12.60	-3.92E-02	5.19E-01	5.19E-01
+	NP-239	106.10		22.70	2.08E+03	3.79E+03	3.79E+03
		228.18		10.70	2.72E+03		9.35E+03
		277.60		14.10	3.05E+03		7.36E+03
+	AM-241	59.54		35.90	-2.40E-02	1.51E-01	1.51E-01
+	AM-243	74.67		66.00	-2.33E-01	1.05E-01	1.05E-01
+	CM-243	209.75	*	3.29	2.04E+00	4.50E-01	2.54E+00
		228.14		10.60	1.54E-01		5.29E-01
		277.60	*	14.00	3.08E-01		4.50E-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 1510093-11  
 CP1806S05-06

## 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	8.40E-01	8.40E-01	-3.64E-01	3.96E-01
NA-22	1274.54	99.94	9.49E-02	9.49E-02	-2.11E-03	4.38E-02
NA-24	1368.53	99.99	8.84E+14	3.19E+14	6.72E+14	4.02E+14
	2754.09	99.86	3.19E+14		-1.89E+14	1.13E+14
AL-26	1808.65	99.76	4.62E-02	4.62E-02	-2.00E-03	1.87E-02
+ K-40	1460.81	* 10.67	6.16E-01	6.16E-01	2.20E+01	2.71E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	5.38E-02	5.38E-02	-2.02E-02	2.61E-02
	78.34	96.00	7.81E-02		3.12E-01	3.84E-02
SC-46	889.25	99.98	9.31E-02	9.31E-02	-3.68E-02	4.30E-02
	1120.51	99.99	1.60E-01		1.86E-01	7.56E-02
V-48	983.52	99.98	3.10E-01	3.08E-01	-9.84E-02	1.43E-01
	1312.10	97.50	3.08E-01		-2.61E-01	1.38E-01
CR-51	320.08	9.83	1.25E+00	1.25E+00	-6.72E-01	5.95E-01
MN-54	834.83	99.97	9.33E-02	9.33E-02	6.59E-02	4.39E-02
CO-56	846.75	99.96	1.05E-01	1.05E-01	2.95E-02	4.90E-02
	1037.75	14.03	7.79E-01		2.45E-01	3.61E-01
	1238.25	67.00	2.39E-01		9.43E-02	1.13E-01
	1771.40	15.51	4.66E-01		0.00E+00	1.95E-01
	2598.48	16.90	1.95E-01		-8.85E-02	6.18E-02
CO-57	122.06	85.51	5.86E-02	5.86E-02	1.01E-02	2.84E-02
	136.48	10.60	5.06E-01		2.29E-02	2.46E-01
CO-58	810.76	99.40	1.05E-01	1.05E-01	-1.21E-02	4.91E-02
FE-59	1099.22	56.50	2.35E-01	2.35E-01	-1.06E-02	1.08E-01
	1291.56	43.20	2.77E-01		-5.72E-02	1.24E-01
CO-60	1173.22	100.00	9.27E-02	8.62E-02	3.61E-02	4.30E-02
	1332.49	100.00	8.62E-02		1.25E-02	3.94E-02
ZN-65	1115.52	50.75	1.91E-01	1.91E-01	1.96E-02	8.83E-02
+ GA-67	93.31	* 35.70	2.51E+02	2.51E+02	2.96E+02	1.23E+02
	208.95	* 2.24	4.39E+03		3.52E+03	2.15E+03
	300.22	* 16.00	8.00E+02		4.89E+02	3.91E+02
SE-75	121.11	16.70	3.25E-01	1.01E-01	-8.45E-02	1.58E-01
	136.00	59.20	1.01E-01		-1.66E-02	4.91E-02
	264.65	59.80	1.06E-01		6.49E-02	5.10E-02
	279.53	25.20	2.68E-01		4.85E-02	1.28E-01
	400.65	11.40	5.65E-01		-1.06E-01	2.67E-01
RB-82	776.52	13.00	1.34E+00	1.34E+00	1.06E-01	6.22E-01
RB-83	520.41	46.00	1.60E-01	1.60E-01	1.55E-03	7.48E-02
	529.64	30.30	2.33E-01		4.37E-02	1.09E-01
	552.65	16.40	4.32E-01		7.26E-02	2.01E-01
KR-85	513.99	0.43	1.61E+01	1.61E+01	-8.05E+00	7.63E+00
SR-85	513.99	99.27	9.97E-02	9.97E-02	-4.99E-02	4.73E-02
Y-88	898.02	93.40	9.56E-02	7.46E-02	-9.22E-03	4.42E-02
	1836.01	99.38	7.46E-02		-2.50E-02	3.17E-02
NB-93M	16.57	9.43	5.42E+03	5.42E+03	-5.61E+03	2.64E+03

Analysis Report for 1510093-11  
CP1806S05-06

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	7.43E-02	6.42E-02	-1.31E-02	3.49E-02
	871.10	100.00	6.42E-02		-9.94E-03	2.95E-02
NB-95	765.79	99.81	1.69E-01	1.69E-01	1.62E-01	8.00E-02
NB-95M	235.69	25.00	2.00E+02	2.00E+02	-1.57E+03	9.76E+01
ZR-95	724.18	43.70	2.90E-01	2.21E-01	2.82E-02	1.38E-01
	756.72	55.30	2.21E-01		2.44E-01	1.05E-01
MO-99	181.06	6.20	3.72E+03	2.31E+03	1.11E+03	1.80E+03
	739.58	12.80	2.31E+03		-1.81E+01	1.08E+03
	778.00	4.50	6.60E+03		-8.62E+02	3.07E+03
RU-103	497.08	89.00	1.13E-01	1.13E-01	2.07E-02	5.31E-02
RU-106	621.84	9.80	6.88E-01	6.88E-01	-4.43E-01	3.22E-01
AG-108M	433.93	89.90	6.07E-02	6.07E-02	-1.44E-02	2.86E-02
	614.37	90.40	7.89E-02		8.65E-03	3.72E-02
	722.95	90.50	8.49E-02		1.93E-02	4.00E-02
+ CD-109 AG-110M	88.03	* 3.72	2.00E+00	2.00E+00	3.08E+00	9.81E-01
	657.75	93.14	8.58E-02	8.58E-02	-2.85E-03	4.04E-02
	677.61	10.53	7.31E-01		-1.96E-01	3.43E-01
	706.67	16.46	4.83E-01		-5.21E-02	2.27E-01
	763.93	21.98	3.85E-01		-2.61E-01	1.81E-01
	884.67	71.63	1.20E-01		2.95E-02	5.58E-02
	1384.27	23.94	3.01E-01		7.67E-03	1.33E-01
	263.70	0.02	2.25E+02	2.25E+02	3.50E+01	1.08E+02
SN-113	255.12	1.93	3.27E+00	1.04E-01	-1.98E+00	1.57E+00
	391.69	64.90	1.04E-01		-7.42E-03	4.92E-02
TE123M	159.00	84.10	7.64E-02	7.64E-02	4.27E-02	3.70E-02
SB-124	602.71	97.87	1.14E-01	1.14E-01	-4.64E-03	5.41E-02
	645.85	7.26	1.43E+00		6.74E-01	6.73E-01
	722.78	11.10	1.01E+00		2.31E-01	4.78E-01
	1691.02	49.00	2.18E-01		3.13E-02	9.61E-02
I-125 SB-125	35.49	6.49	5.72E+00	5.72E+00	-3.39E+00	2.77E+00
	176.33	6.89	7.57E-01	1.90E-01	-7.94E-02	3.66E-01
	427.89	29.33	1.90E-01		-4.03E-02	8.98E-02
	463.38	10.35	6.51E-01		5.39E-01	3.10E-01
	600.56	17.80	4.33E-01		-3.10E-02	2.05E-01
SB-126	635.90	11.32	5.82E-01		-2.86E-01	2.73E-01
	414.70	83.30	4.27E-01	4.27E-01	2.10E-01	2.02E-01
	666.33	99.60	4.99E-01		-2.01E-01	2.36E-01
	695.00	99.60	4.67E-01		-3.73E-02	2.19E-01
	720.50	53.80	9.09E-01		6.35E-01	4.28E-01
+ SN-126 SB-127	87.57	* 37.00	1.91E-01	1.91E-01	2.94E-01	9.38E-02
	473.00	25.00	9.44E+01	7.59E+01	3.77E+01	4.46E+01
	685.20	35.70	7.59E+01		-2.33E+01	3.55E+01
I-129	783.80	14.70	2.30E+02		1.79E+02	1.08E+02
	29.78	57.00	1.25E+00	1.25E+00	7.28E-01	6.06E-01
	33.60	13.20	2.54E+00		1.64E-01	1.23E+00
I-131	39.58	7.52	2.17E+00		-5.79E-01	1.06E+00
	284.30	6.05	1.49E+01	1.17E+00	-1.50E+00	7.12E+00
	364.48	81.20	1.17E+00		3.94E-01	5.56E-01
	636.97	7.26	1.62E+01		1.45E+00	7.62E+00
TE-132	722.89	1.80	7.51E+01		1.71E+01	3.54E+01
	49.72	13.10	6.85E+02	7.53E+01	-1.51E+02	3.32E+02
	228.16	88.00	7.53E+01		2.19E+01	3.63E+01
BA-133	81.00	33.00	1.31E-01	8.55E-02	4.40E-02	6.35E-02

Analysis Report for 1510093-11  
CP1806S05-06

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	3.21E-01	8.55E-02	4.13E-02	1.54E-01
	356.01	60.00	8.55E-02		-2.35E-05	4.05E-02
I-133	529.87	86.30	2.25E+10	2.25E+10	4.28E+09	1.05E+10
XE-133	81.00	38.00	9.19E+00	9.19E+00	3.09E+00	4.46E+00
CS-134	563.23	8.38	7.28E-01	9.35E-02	2.31E-01	3.41E-01
	569.32	15.43	4.01E-01		6.90E-02	1.88E-01
	604.70	97.60	9.35E-02		4.38E-04	4.47E-02
	795.84	85.40	1.05E-01		5.80E-02	4.97E-02
	801.93	8.73	9.74E-01		1.62E-01	4.58E-01
CS-135	268.24	16.00	3.62E-01	3.62E-01	-1.02E-01	1.74E-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	4.25E+00	4.06E-01	3.74E+00	2.06E+00
	163.89	4.61	6.27E+00		-1.35E+00	3.03E+00
	176.55	13.56	2.09E+00		-2.27E+00	1.01E+00
	273.65	12.66	2.57E+00		-2.10E+00	1.23E+00
	340.57	48.50	7.65E-01		-1.01E+00	3.67E-01
	818.50	99.70	4.06E-01		-5.93E-02	1.89E-01
	1048.07	79.60	5.80E-01		-7.51E-02	2.68E-01
	1235.34	19.70	3.57E+00		1.07E+00	1.68E+00
CS-137	661.65	85.12	8.84E-02	8.84E-02	-1.19E-02	4.17E-02
LA-138	788.74	34.00	2.31E-01	1.20E-01	9.55E-02	1.09E-01
	1435.80	66.00	1.20E-01		-3.44E-03	5.43E-02
CE-139	165.85	80.35	7.57E-02	7.57E-02	3.41E-02	3.67E-02
BA-140	162.64	6.70	4.64E+00	1.51E+00	-9.28E-01	2.25E+00
	304.84	4.50	7.58E+00		3.53E+00	3.62E+00
	423.70	3.20	1.03E+01		-1.26E+00	4.87E+00
	437.55	2.00	1.73E+01		1.83E+00	8.18E+00
	537.32	25.00	1.51E+00		8.07E-01	7.12E-01
LA-140	328.77	20.50	1.86E+00	5.15E-01	1.34E+00	8.93E-01
	487.03	45.50	7.53E-01		4.50E-01	3.54E-01
	815.85	23.50	1.82E+00		2.41E-03	8.46E-01
	1596.49	95.49	5.15E-01		6.23E-02	2.31E-01
CE-141	145.44	48.40	2.19E-01	2.19E-01	1.15E-01	1.06E-01
CE-143	57.36	11.80	9.25E+06	3.61E+06	6.60E+05	4.48E+06
	293.26	42.00	3.61E+06		-4.55E+05	1.75E+06
	664.55	5.20	2.89E+07		7.08E+06	1.37E+07
CE-144	133.54	10.80	4.92E-01	4.92E-01	-3.99E-03	2.39E-01
PM-144	476.78	42.00	1.44E-01	7.27E-02	-6.25E-02	6.79E-02
	618.01	98.60	7.27E-02		3.66E-04	3.42E-02
	696.49	99.49	7.63E-02		-2.77E-02	3.58E-02
PM-145	36.85	21.70	1.02E+00	5.23E-01	4.11E-01	4.95E-01
	37.36	39.70	5.23E-01		2.11E-01	2.54E-01
	42.30	15.10	8.52E-01		2.43E-01	4.14E-01
	72.40	2.31	2.11E+00		-2.61E+00	1.03E+00
PM-146	453.90	39.94	1.33E-01	1.33E-01	-9.55E-03	6.24E-02
	735.90	14.01	5.18E-01		2.08E-01	2.42E-01
	747.13	13.10	5.23E-01		2.25E-01	2.44E-01
ND-147	91.11	28.90	1.82E+00	1.82E+00	-4.32E+00	8.93E-01
	531.02	13.10	3.33E+00		-9.45E-01	1.55E+00
PM-149	285.90	3.10	5.68E+04	5.68E+04	3.53E+04	2.72E+04
EU-152	121.78	20.50	2.25E-01	2.25E-01	3.87E-02	1.09E-01

Analysis Report for 1510093-11  
CP1806S05-06

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	9.93E-01	2.25E-01	-9.58E-01	4.77E-01
	344.27	19.13	2.75E-01		5.10E-03	1.31E-01
	778.89	9.20	7.42E-01		-9.99E-02	3.45E-01
	964.01	10.40	9.10E-01		-3.49E-02	4.28E-01
	1085.78	7.22	1.10E+00		4.54E-01	5.08E-01
	1112.02	9.60	9.11E-01		-4.94E-02	4.22E-01
	1407.95	14.94	5.51E-01		1.52E-01	2.50E-01
GD-153	97.43	31.30	1.67E-01	1.67E-01	7.02E-02	8.13E-02
	103.18	22.20	2.29E-01		-3.06E-02	1.11E-01
EU-154	123.07	40.50	1.14E-01	1.14E-01	-4.49E-02	5.53E-02
	723.30	19.70	3.93E-01		8.95E-02	1.85E-01
	873.19	11.50	5.70E-01		-9.07E-03	2.62E-01
	996.32	10.30	7.65E-01		-1.11E-01	3.54E-01
	1004.76	17.90	4.55E-01		-1.64E-01	2.11E-01
EU-155	1274.45	35.50	2.63E-01	2.14E-01	-5.85E-03	1.21E-01
	86.50	30.90	2.14E-01		-1.62E-02	1.05E-01
	105.30	20.70	2.34E-01		1.46E-01	1.14E-01
EU-156	811.77	10.40	3.22E+00	3.22E+00	-7.49E-01	1.50E+00
	1153.47	7.20	6.24E+00		-6.95E-01	2.91E+00
	1230.71	8.90	5.60E+00		-4.78E-02	2.62E+00
HO-166M	184.41	72.60	8.93E-02	8.93E-02	3.82E-02	4.34E-02
	280.45	29.60	1.88E-01		3.41E-02	9.03E-02
	410.94	11.10	5.77E-01		2.98E-01	2.75E-01
	711.69	54.10	1.27E-01		-8.56E-03	5.92E-02
TM-171	66.72	0.14	3.81E+01	3.81E+01	1.12E+01	1.85E+01
HF-172	81.75	4.52	9.48E-01	4.54E-01	-1.02E+00	4.59E-01
	125.81	11.30	4.54E-01		-5.11E-01	2.21E-01
LU-172	181.53	20.60	8.34E+00	3.95E+00	2.97E+00	4.04E+00
	810.06	16.63	1.42E+01		-1.62E+00	6.62E+00
	912.12	15.25	3.21E+01		8.14E+01	1.55E+01
	1093.66	62.50	3.95E+00		6.98E-02	1.82E+00
LU-173	100.72	5.24	9.24E-01	3.00E-01	4.10E-01	4.49E-01
	272.11	21.20	3.00E-01		7.34E-02	1.45E-01
HF-175	343.40	84.00	8.61E-02	8.61E-02	-7.35E-03	4.09E-02
LU-176	88.34	13.30	5.02E-01	5.95E-02	6.13E-01	2.46E-01
	201.83	86.00	6.29E-02		-1.30E-02	3.04E-02
	306.78	94.00	5.95E-02		8.81E-03	2.85E-02
TA-182	67.75	41.20	1.51E-01	1.51E-01	-5.66E-02	7.32E-02
	1121.30	34.90	4.25E-01		5.48E-01	2.01E-01
	1189.05	16.23	7.43E-01		-3.20E-01	3.46E-01
	1221.41	26.98	4.25E-01		-7.61E-02	1.97E-01
	1231.02	11.44	1.22E+00		5.75E-01	5.72E-01
IR-192	308.46	29.68	2.50E-01	1.51E-01	3.18E-02	1.19E-01
	468.07	48.10	1.51E-01		-4.09E-02	7.11E-02
HG-203	279.19	77.30	1.22E-01	1.22E-01	3.79E-02	5.85E-02
BI-207	569.67	97.72	6.16E-02	6.16E-02	1.06E-02	2.89E-02
	1063.62	74.90	1.13E-01		1.62E-02	5.25E-02
+ TL-208	583.14	*	30.22	1.12E-01	1.39E+00	1.60E-01
	860.37	*	4.48		1.86E+00	8.73E-01
	2614.66	*	35.85		1.08E+00	4.34E-02
BI-210M	262.00		1.17E-01	1.17E-01	7.62E-03	5.59E-02
	300.00		2.68E-01		3.28E-01	1.29E-01
+ PB-210	46.50	*	4.25	3.83E+00	3.16E+00	1.88E+00

Analysis Report for 1510093-11  
CP1806S05-06

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	1.84E+00	1.84E+00	7.76E-01	8.67E-01
	831.96	2.90	2.75E+00		-1.85E-01	1.29E+00
+ BI-212	727.17 *	11.80	7.33E-01	7.33E-01	6.44E-01	3.47E-01
	1620.62	2.75	2.64E+00		7.20E-01	1.17E+00
+ PB-212	238.63 *	44.60	2.46E-01	2.46E-01	1.92E+00	1.21E-01
	300.09 *	3.41	3.19E+00		1.95E+00	1.56E+00
+ BI-214	609.31 *	46.30	2.48E-01	2.48E-01	1.10E+00	1.20E-01
	1120.29 *	15.10	6.99E-01		9.72E-01	3.28E-01
	1764.49 *	15.80	5.11E-01		1.24E+00	2.28E-01
	2204.22 *	4.98	9.87E-01		2.07E+00	4.00E-01
+ PB-214	295.21 *	19.19	5.61E-01	2.13E-01	1.54E+00	2.74E-01
	351.92 *	37.19	2.13E-01		1.33E+00	1.03E-01
RN-219	401.80	6.50	8.45E-01	8.45E-01	2.65E-01	4.00E-01
RA-223	323.87	3.88	1.38E+00	1.38E+00	-7.15E-01	6.59E-01
RA-224	240.98	3.95	3.05E+00	3.05E+00	1.27E+01	1.50E+00
RA-225	40.00	31.00	2.41E+00	2.41E+00	-6.41E-01	1.17E+00
+ RA-226	186.21 *	3.28	2.53E+00	2.53E+00	2.74E+00	1.24E+00
TH-227	50.10	8.40	8.86E-01	7.32E-01	-1.95E-01	4.29E-01
	236.00	11.50	7.32E-01		-5.75E+00	3.57E-01
	256.20	6.30	8.32E-01		-1.60E-01	3.99E-01
+ AC-228	338.32 *	11.40	7.17E-01	4.19E-01	2.03E+00	3.47E-01
	911.07 *	27.70	4.19E-01		1.50E+00	2.00E-01
	969.11 *	16.60	7.93E-01		1.25E+00	3.79E-01
TH-230	48.44	16.90	4.93E-01	4.93E-01	-2.84E-01	2.39E-01
	62.85	4.60	1.29E+00		1.28E+00	6.30E-01
	67.67	0.37	1.37E+01		-5.15E+00	6.67E+00
PA-231	283.67	1.60	3.20E+00	2.47E+00	-3.21E-01	1.53E+00
	302.67	2.30	2.47E+00		3.17E-01	1.18E+00
TH-231	25.64	14.70	1.52E+01	7.05E-01	9.83E+00	7.35E+00
	84.21	6.40	7.05E-01		6.85E-01	3.42E-01
PA-233	311.98	38.60	3.17E-01	3.17E-01	-1.81E-02	1.51E-01
PA-234	131.20	20.40	2.68E-01	2.68E-01	2.04E-01	1.30E-01
	733.99	8.80	8.13E-01		3.99E-02	3.81E-01
	946.00	12.00	6.41E-01		-1.30E-02	2.97E-01
PA-234M	1001.03	0.92	8.69E+00	8.69E+00	-1.44E+00	4.03E+00
TH-234	63.29	3.80	1.55E+00	1.55E+00	1.54E+00	7.57E-01
U-235	143.76	10.50	4.89E-01	4.89E-01	-9.78E-03	2.38E-01
	163.35	4.70	1.09E+00		-2.18E-01	5.30E-01
	205.31	4.70	1.17E+00		-4.54E-02	5.66E-01
NP-237	86.50	12.60	5.19E-01	5.19E-01	-3.92E-02	2.54E-01
NP-239	106.10	22.70	3.79E+03	3.79E+03	2.08E+03	1.84E+03
	228.18	10.70	9.35E+03		2.72E+03	4.51E+03
	277.60	14.10	7.36E+03		3.05E+03	3.54E+03
AM-241	59.54	35.90	1.51E-01	1.51E-01	-2.40E-02	7.34E-02
AM-243	74.67	66.00	1.05E-01	1.05E-01	-2.33E-01	5.15E-02
+ CM-243	209.75 *	3.29	2.54E+00	4.50E-01	2.04E+00	1.24E+00
	228.14	10.60	5.29E-01		1.54E-01	2.55E-01
	277.60 *	14.00	4.50E-01		3.08E-01	2.17E-01

Analysis Report for 1510093-11  
CP1806S05-06

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- + = Nuclide identified during the nuclide identification
  - \* = Energy line found in the spectrum
  - > = MDA value not calculated
  - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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



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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP1806S05-06

Elapsed Live time: 3600  
Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	191
9:	606	1237	1114	432	616	1726	291	135
17:	160	112	113	105	104	134	118	108
25:	117	118	122	95	135	108	124	109
33:	121	118	116	120	120	146	116	151
41:	124	135	132	106	149	169	211	129
49:	118	118	105	116	144	123	102	109
57:	106	117	112	110	117	118	155	197
65:	126	125	147	126	122	152	130	127
73:	142	183	427	246	525	400	122	119
81:	116	108	96	146	145	101	212	266
89:	111	186	138	134	248	196	111	97
97:	75	76	96	91	73	76	71	71
105:	113	99	76	72	78	96	77	62
113:	98	85	78	88	54	74	56	81
121:	74	63	67	72	76	84	95	80
129:	129	98	92	77	80	79	66	72
137:	73	83	76	69	76	70	66	83
145:	68	94	77	66	80	66	76	81
153:	77	92	80	63	71	66	61	87
161:	75	61	59	60	72	57	59	74
169:	55	69	59	47	75	74	50	54
177:	59	55	51	69	70	55	57	77
185:	85	177	94	60	54	58	57	66
193:	59	51	63	56	50	51	51	68
201:	37	61	58	51	63	57	50	58
209:	97	103	60	43	49	45	56	56
217:	50	40	47	41	52	65	57	63
225:	51	54	55	54	41	45	42	42
233:	57	43	44	61	45	359	676	104
241:	130	127	76	29	33	35	32	32
249:	43	34	43	37	43	41	26	36
257:	34	48	37	44	37	24	40	35
265:	34	39	29	37	53	55	57	45
273:	38	36	37	40	46	62	33	23
281:	34	33	29	27	30	33	30	37
289:	20	32	18	36	28	54	221	147
297:	22	26	32	77	43	29	26	36
305:	39	36	30	29	30	28	23	28
313:	26	33	27	32	36	22	24	29
321:	35	30	35	23	24	27	33	66
329:	49	27	15	29	24	25	25	20
337:	39	148	98	29	25	24	13	30
345:	28	26	24	21	29	23	105	368
353:	109	15	23	21	30	20	24	20
361:	29	27	23	30	18	21	15	21

369: 20 26 12 13 33 28 16 24

Sample Title: CP1806S05-06

Channel	1	2	3	4	5	6	7	8
377:	19	23	23	22	20	27	21	18
385:	22	22	21	26	27	34	17	20
393:	21	20	21	14	20	24	13	18
401:	19	24	26	20	22	12	19	28
409:	28	42	19	26	28	23	21	18
417:	14	11	14	23	26	17	16	18
425:	22	24	17	18	20	17	22	22
433:	19	18	20	15	17	27	23	19
441:	21	12	16	11	27	14	27	17
449:	19	13	14	17	13	20	18	13
457:	18	20	19	18	20	32	37	26
465:	12	14	16	21	15	14	18	18
473:	25	21	16	18	15	21	19	23
481:	19	20	17	9	13	18	18	20
489:	16	10	11	19	15	19	14	21
497:	19	8	19	15	11	19	11	15
505:	12	15	13	21	32	74	99	54
513:	29	14	7	17	11	12	13	15
521:	19	17	17	15	17	10	11	13
529:	16	13	15	11	11	15	20	19
537:	13	19	19	16	10	11	9	10
545:	14	13	11	11	10	17	12	12
553:	12	11	15	9	15	13	16	6
561:	20	18	8	14	15	13	13	14
569:	17	16	16	14	13	10	13	15
577:	14	15	10	15	15	68	165	96
585:	13	12	19	11	12	15	9	17
593:	14	15	13	17	16	13	18	17
601:	14	17	18	15	21	13	17	56
609:	204	140	19	12	11	15	11	13
617:	16	13	13	8	11	13	10	12
625:	7	15	14	12	15	9	14	18
633:	6	10	12	9	17	11	9	12
641:	11	9	11	17	8	15	7	11
649:	19	9	9	11	14	9	14	14
657:	12	15	9	10	17	17	12	16
665:	18	14	10	15	16	8	27	11
673:	18	8	13	13	12	10	7	17
681:	10	14	5	14	10	14	12	4
689:	9	14	11	11	12	9	7	17
697:	15	11	8	16	15	11	16	9
705:	10	9	18	8	10	12	11	9
713:	9	11	7	9	14	10	16	14
721:	8	18	6	10	14	17	44	26
729:	9	13	10	9	12	14	9	10
737:	9	10	9	9	5	12	5	10
745:	12	14	8	7	7	5	6	5
753:	9	15	19	23	11	9	15	7
761:	8	8	13	12	13	12	14	26
769:	14	6	10	8	13	9	11	11
777:	4	7	9	8	9	11	9	18
785:	13	20	13	5	10	14	4	10
793:	11	18	20	15	14	7	12	15

801: 9 12 10 11 16 12 11 8

Sample Title: CP1806S05-06

Channel	1	2	3	4	5	6	7	8
809:	10	12	10	8	10	7	9	11
817:	4	8	10	9	7	8	11	4
825:	10	4	12	7	3	11	6	17
833:	11	12	14	15	10	9	8	7
841:	9	8	11	15	9	8	8	10
849:	8	9	7	5	10	7	12	7
857:	9	5	14	13	20	11	6	10
865:	10	5	11	7	4	6	5	9
873:	7	5	5	7	12	2	9	10
881:	9	9	13	10	5	8	10	2
889:	11	9	8	3	13	8	6	10
897:	5	7	10	9	5	4	8	8
905:	6	6	12	7	16	54	103	65
913:	9	9	6	8	10	8	7	6
921:	9	5	6	7	6	5	5	6
929:	7	13	7	9	9	16	6	12
937:	8	4	5	5	11	8	4	7
945:	5	14	5	11	9	5	8	9
953:	7	4	5	8	8	10	5	4
961:	4	5	13	14	16	13	17	44
969:	60	27	6	7	5	11	11	1
977:	8	7	8	7	9	10	4	5
985:	6	5	8	9	9	5	11	8
993:	7	4	8	7	9	7	10	6
1001:	8	12	5	6	8	10	6	11
1009:	11	5	10	7	10	5	10	5
1017:	6	6	6	4	10	5	3	6
1025:	6	6	6	4	10	6	13	4
1033:	9	6	10	5	9	9	8	6
1041:	7	4	7	8	9	4	9	10
1049:	7	7	4	8	8	6	6	7
1057:	7	7	6	7	10	10	8	5
1065:	9	6	7	8	7	3	11	10
1073:	6	7	9	7	6	14	8	3
1081:	5	3	12	5	6	6	6	8
1089:	3	7	6	4	8	5	10	5
1097:	7	7	8	4	9	5	5	7
1105:	5	6	9	7	11	7	4	6
1113:	9	11	6	9	7	7	23	39
1121:	19	9	4	7	6	4	8	7
1129:	6	6	11	15	5	5	11	7
1137:	7	6	8	9	7	4	5	8
1145:	6	7	10	11	8	9	12	7
1153:	7	13	10	8	12	9	7	6
1161:	9	9	5	6	10	7	3	4
1169:	10	11	8	6	9	5	12	4
1177:	8	2	9	4	11	1	8	11
1185:	13	2	14	10	9	15	6	7
1193:	12	10	11	9	5	11	5	9
1201:	10	9	9	14	14	6	10	10
1209:	5	7	14	4	10	4	14	11
1217:	8	6	10	12	3	2	11	10
1225:	9	7	9	15	8	13	10	8

1233: 11 16 9 9 11 29 13 9

Sample Title: CP1806S05-06

Channel	1	2	3	4	5	6	7	8	9
1241:	9	8	7	6	7	5	8	9	8
1249:	3	14	6	10	4	8	9	2	2
1257:	5	2	8	2	6	3	9	8	3
1265:	5	10	8	4	9	9	8	5	9
1273:	7	7	7	10	7	6	5	11	5
1281:	11	8	6	5	1	5	7	8	8
1289:	5	1	3	4	1	8	2	2	2
1297:	7	6	5	1	8	4	7	5	5
1305:	1	4	8	7	3	2	5	7	7
1313:	4	2	3	6	7	5	5	4	4
1321:	5	4	3	9	5	5	13	4	4
1329:	9	7	4	6	8	3	1	7	7
1337:	2	5	1	5	4	3	6	4	4
1345:	3	3	2	4	2	6	3	6	6
1353:	3	7	1	3	2	3	2	4	4
1361:	5	1	2	1	3	2	7	9	9
1369:	9	6	9	2	2	5	2	6	6
1377:	15	3	9	1	2	2	2	1	1
1385:	4	2	2	1	1	1	3	4	4
1393:	4	1	4	1	6	3	6	7	7
1401:	11	5	3	3	6	3	3	0	0
1409:	4	3	4	2	3	5	2	3	3
1417:	3	1	1	1	3	1	3	2	2
1425:	3	2	1	1	1	8	3	3	3
1433:	4	2	5	6	5	5	3	3	3
1441:	4	2	1	3	3	2	1	3	3
1449:	4	3	3	4	4	2	4	2	2
1457:	0	17	124	298	286	92	12	1	1
1465:	1	3	3	2	2	1	2	3	3
1473:	1	2	2	4	4	1	3	4	4
1481:	1	2	2	1	2	3	1	0	0
1489:	3	1	0	2	4	2	2	2	2
1497:	3	1	1	3	4	6	1	1	1
1505:	1	4	3	3	1	4	3	1	1
1513:	2	2	2	3	0	1	1	1	1
1521:	2	0	3	4	4	3	0	1	1
1529:	2	0	2	0	0	0	3	1	5
1537:	1	4	2	1	3	3	1	4	4
1545:	1	0	1	5	1	2	2	3	3
1553:	1	0	4	4	5	4	1	3	3
1561:	0	1	1	0	2	2	0	3	3
1569:	0	3	2	3	1	2	1	4	4
1577:	0	5	3	3	0	4	2	10	4
1585:	2	8	6	9	3	3	3	2	2
1593:	4	1	1	0	1	4	3	2	2
1601:	3	2	0	1	2	0	6	1	1
1609:	2	1	1	3	0	0	2	0	0
1617:	3	0	1	4	5	1	5	2	2
1625:	2	2	1	0	1	2	1	1	1
1633:	3	0	1	2	1	1	0	0	0
1641:	1	1	1	4	1	1	0	4	4
1649:	1	1	2	5	0	2	0	4	4
1657:	0	1	1	4	4	5	2	4	4

1665: 1 1 2 1 0 3 2 0

Sample Title: CP1806S05-06

Channel	1	2	3	4	5	6	7	8
1673:	1	2	1	1	1	0	1	2
1681:	1	1	1	2	0	0	2	2
1689:	3	6	1	0	2	3	1	1
1697:	2	1	0	0	2	0	1	2
1705:	1	4	0	1	1	4	1	2
1713:	0	0	1	0	0	3	0	0
1721:	0	1	2	3	0	2	1	4
1729:	4	5	2	1	1	1	0	3
1737:	0	1	1	0	3	0	1	2
1745:	1	2	2	1	0	3	0	0
1753:	1	0	0	1	0	3	1	1
1761:	0	6	17	25	14	5	4	2
1769:	0	0	1	0	1	0	1	0
1777:	0	3	2	0	1	0	1	0
1785:	1	2	0	2	4	1	1	3
1793:	1	1	0	1	2	0	0	0
1801:	2	1	0	0	2	3	1	0
1809:	0	0	0	0	1	0	1	2
1817:	2	0	1	2	0	0	1	0
1825:	0	3	3	1	2	2	3	0
1833:	4	1	0	1	0	2	0	2
1841:	2	2	1	0	1	4	7	5
1849:	1	1	2	2	0	1	0	1
1857:	1	0	1	1	0	3	1	1
1865:	0	0	1	2	2	1	2	3
1873:	1	1	2	0	1	2	0	2
1881:	1	1	0	3	1	1	0	1
1889:	1	0	2	2	3	0	0	1
1897:	2	1	2	1	1	0	0	0
1905:	1	0	1	2	2	3	0	1
1913:	0	0	2	1	1	2	0	1
1921:	2	1	0	2	0	1	3	0
1929:	1	0	0	1	0	0	3	0
1937:	2	3	1	1	2	1	0	1
1945:	0	2	2	1	1	2	2	0
1953:	1	1	2	0	0	0	2	0
1961:	0	0	0	1	1	2	1	1
1969:	1	0	2	2	1	1	2	1
1977:	0	1	0	1	1	3	0	0
1985:	0	3	0	0	1	1	1	2
1993:	2	0	2	1	1	0	0	1
2001:	0	2	0	0	1	2	0	1
2009:	1	0	2	0	3	0	0	1
2017:	2	1	1	1	3	2	2	2
2025:	2	1	1	2	1	0	2	0
2033:	1	2	0	0	2	1	1	1
2041:	0	0	1	1	2	1	0	2
2049:	1	1	2	0	1	0	0	2
2057:	2	3	1	0	0	1	3	1
2065:	2	0	1	1	5	1	1	0
2073:	4	1	0	1	1	2	2	2
2081:	3	1	0	0	0	4	0	2
2089:	0	0	0	0	0	0	0	1

2097: 0 2 0 1 3 5 8 2

Sample Title: CP1806S05-06

Channel	1	2	3	4	5	6	7	8	9
2105:	1	6	1	2	3	2	0	2	
2113:	2	4	2	1	4	4	1	1	
2121:	0	2	0	1	0	0	2	0	
2129:	0	1	2	1	1	0	0	0	
2137:	0	0	2	1	2	1	0	2	
2145:	1	0	1	0	0	0	0	1	
2153:	0	0	4	3	0	0	0	0	
2161:	1	1	0	3	0	1	4	1	
2169:	1	2	1	0	2	0	2	2	
2177:	0	1	0	0	1	0	0	1	
2185:	0	2	0	2	0	0	1	1	
2193:	0	2	1	0	0	0	1	3	
2201:	4	6	8	12	0	2	1	0	
2209:	1	0	1	2	0	0	1	3	
2217:	3	2	1	0	0	2	1	1	
2225:	1	0	1	1	0	0	3	6	
2233:	0	2	3	0	0	3	4	1	
2241:	0	0	1	0	1	0	2	0	
2249:	2	2	2	1	0	0	1	4	
2257:	1	1	1	1	4	1	2	0	
2265:	3	2	0	1	1	0	0	1	
2273:	1	1	0	0	0	1	2	0	
2281:	0	1	1	0	1	1	1	1	
2289:	1	0	0	2	2	2	3	3	
2297:	0	0	0	1	1	0	0	0	
2305:	2	0	0	0	2	1	0	0	
2313:	1	2	0	0	0	2	0	1	
2321:	1	1	0	1	3	4	2	0	
2329:	0	1	1	2	0	0	1	2	
2337:	0	2	0	0	2	0	1	1	
2345:	1	1	1	3	1	0	1	2	
2353:	1	2	3	1	1	1	0	3	
2361:	1	0	0	1	2	3	1	2	
2369:	2	3	2	0	1	3	3	0	
2377:	3	2	1	1	3	0	0	0	
2385:	1	0	0	1	0	0	6	0	
2393:	0	1	0	1	2	1	1	0	
2401:	2	1	0	1	2	0	1	0	
2409:	0	0	0	2	2	3	1	0	
2417:	2	0	1	1	0	1	0	0	
2425:	2	1	2	0	1	1	1	2	
2433:	1	0	1	1	0	3	1	0	
2441:	0	0	1	1	2	4	2	1	
2449:	3	1	0	0	1	0	0	0	
2457:	0	1	0	0	0	0	1	1	
2465:	1	2	1	0	0	0	0	2	
2473:	1	0	0	0	0	0	1	1	
2481:	1	0	0	0	0	0	0	0	
2489:	4	0	2	0	1	1	0	0	
2497:	1	0	0	0	0	1	0	1	
2505:	0	0	1	0	0	1	0	1	
2513:	0	2	0	0	2	0	1	1	
2521:	0	0	1	0	0	0	0	0	

2529: 1 1 0 0 1 0 0 3

Sample Title: CP1806S05-06

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	1	1	1	1	0
2545:	0	0	0	0	0	0	0	0
2553:	0	0	1	1	0	0	0	0
2561:	0	0	0	0	0	0	0	0
2569:	2	1	1	0	0	0	0	0
2577:	2	0	0	2	0	0	1	0
2585:	0	0	0	0	1	0	0	1
2593:	1	0	0	0	0	1	0	0
2601:	0	0	0	0	1	0	0	0
2609:	1	0	4	17	45	35	13	5
2617:	2	1	0	0	0	0	0	0
2625:	1	0	0	0	0	1	0	0
2633:	0	0	0	0	0	0	0	0
2641:	1	1	0	0	0	0	0	1
2649:	0	0	1	2	2	1	0	0
2657:	0	1	0	0	0	0	0	0
2665:	1	0	0	0	0	0	0	0
2673:	0	0	0	0	1	0	0	0
2681:	0	0	1	0	0	0	0	0
2689:	0	0	0	0	0	0	0	0
2697:	0	2	0	1	0	1	1	0
2705:	1	0	0	0	0	0	0	0
2713:	0	0	0	1	0	0	1	0
2721:	1	2	0	2	0	0	0	0
2729:	1	1	1	0	1	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	1	2	0	0	0	0
2753:	1	1	0	0	0	1	0	1
2761:	0	0	1	1	0	1	0	0
2769:	0	0	0	0	0	1	0	0
2777:	0	0	0	0	0	0	1	0
2785:	0	0	1	0	1	0	0	0
2793:	1	0	1	1	1	0	0	0
2801:	1	1	1	0	0	0	0	0
2809:	0	0	0	0	0	1	1	0
2817:	0	0	0	0	0	1	0	1
2825:	1	2	0	0	0	0	0	1
2833:	1	1	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	1	0	0	0	0	0	0
2857:	1	1	1	0	0	0	0	0
2865:	0	0	1	0	1	0	0	1
2873:	0	0	1	0	0	0	0	1
2881:	0	0	0	1	0	0	0	1
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	1	0	0	0	0	0	0	0
2913:	0	0	0	1	0	0	2	1
2921:	0	0	0	0	0	0	0	0
2929:	0	0	1	2	0	0	0	0
2937:	0	0	1	0	1	0	0	0
2945:	0	0	0	0	1	2	0	0
2953:	0	0	1	0	0	1	0	0

2961: 0 2 0 0 1 1 1 0

Sample Title: CP1806S05-06

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



3393: 0 0 1 0 0 1 0 0

Sample Title: CP1806S05-06

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	0	0	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	0	0	0	1	0	0	1
3449:	0	1	0	0	0	0	0	0
3457:	0	0	1	2	0	0	0	0
3465:	0	1	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	0	0	0	0
3497:	0	1	0	0	0	0	0	0
3505:	0	0	0	0	1	0	1	0
3513:	0	0	1	1	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	0	0	0	0	0	0	1
3537:	0	0	0	0	0	0	0	0
3545:	0	0	1	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	1	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	1	0	0
3593:	1	0	0	0	1	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	1	0	0	0
3641:	1	0	0	0	0	0	0	1
3649:	0	0	1	1	0	0	0	0
3657:	0	0	0	0	0	1	0	0
3665:	0	0	0	0	0	0	0	1
3673:	0	0	0	1	0	0	0	0
3681:	0	0	0	1	0	0	1	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	0	0	0
3713:	0	0	0	0	0	0	0	1
3721:	0	0	0	0	0	0	0	0
3729:	0	1	1	0	0	0	1	0
3737:	0	0	0	0	0	0	0	1
3745:	0	0	0	1	0	0	0	0
3753:	0	1	0	0	0	0	0	1
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	1	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	1	0	0	1
3801:	0	0	0	0	0	0	1	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

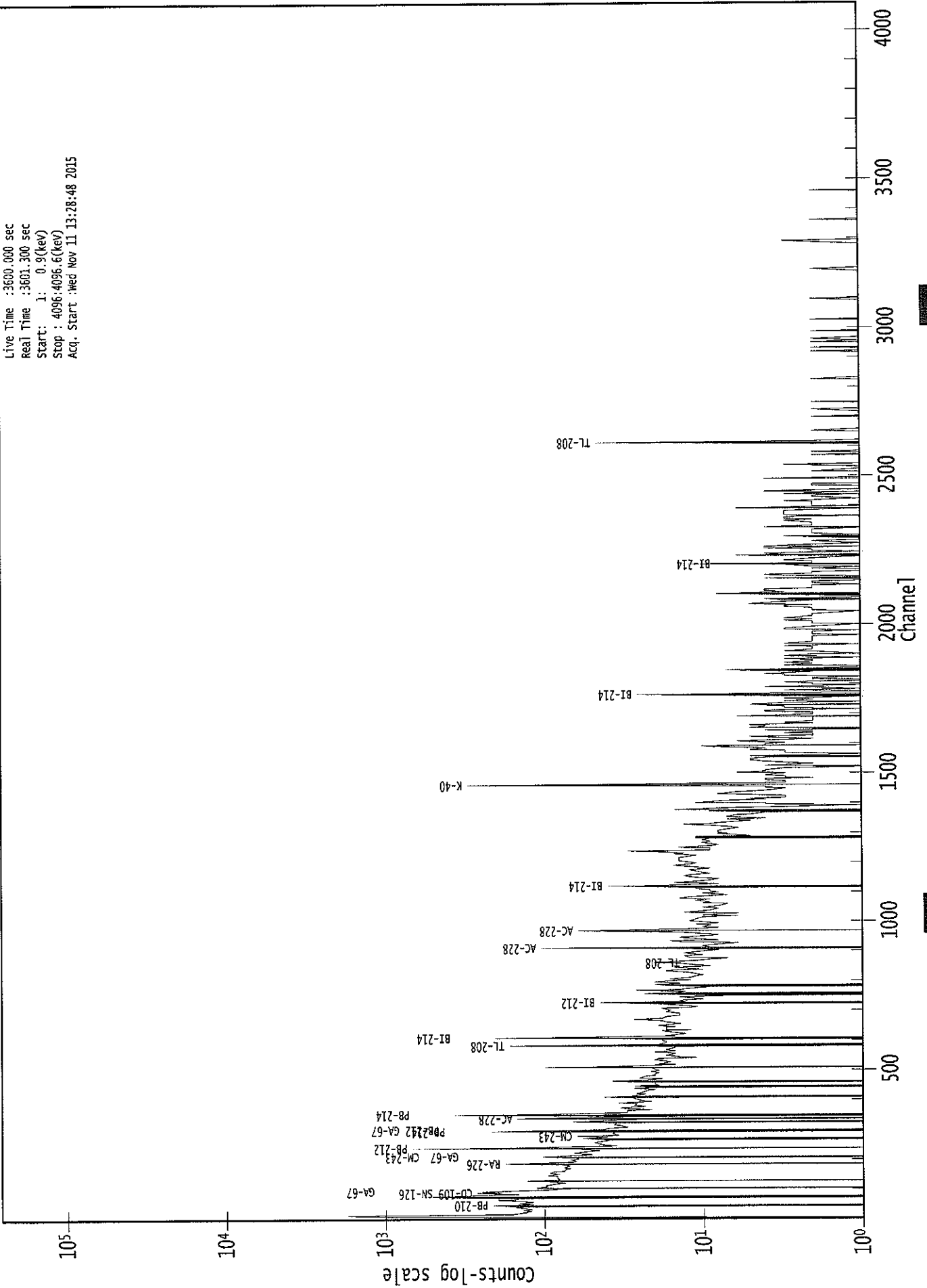
3825: 0 0 0 0 0 0 0 0

Sample Title: CP1806S05-06

Channel								
3833:	0	0	0	0	0	1	0	0
3841:	0	0	0	0	0	0	0	0
3849:	1	0	0	0	0	1	0	0
3857:	0	0	1	0	0	0	0	0
3865:	0	0	1	0	1	0	1	1
3873:	0	0	0	0	0	0	0	0
3881:	1	0	0	1	1	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	1	0	0
3905:	0	0	0	1	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	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	1	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	1	0	0	1	1	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	1	0	0	0	0	0
3985:	0	1	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	1	0	0	1	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	1
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	1	0
4041:	0	0	0	0	0	1	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	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	1

# 0000029502.CNF

Live Time :3600.000 sec  
Real Time :3601.300 sec  
Start: 1: 0.9(kev)  
Stop : 4096.4096.6(kev)  
Acq. Start :Wed Nov 11 13:28:48 2015



ROI Type: 1

ROI Type: 2

11/11/15

Analysis Report for 1510093-12  
CP1806S08-09

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-12  
Sample Description : CP1806S08-09  
Sample Type : SOIL

Sample Size : 5.221E+02 grams  
Facility : Countroom

Sample Taken On : 10/9/2015 7:32:01AM  
Acquisition Started : 11/11/2015 1:28:56PM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE3  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3616.3 seconds

Dead Time : 0.45 %

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 : 29503

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## PEAK-TO-TOTAL CALIBRATION REPORT

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Peak-to-Total Efficiency Calibration Equation

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AG  
11/11/15

: 00748

Analysis Report for 1510093-12  
CP1806S08-09

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 2:29:22PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096  
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.78	47.01	0.0000	0.00
2	63.05	63.27	0.0000	0.00
3	76.39	76.61	0.0000	0.00
4	87.94	88.15	0.0000	0.00
5	92.95	93.15	0.0000	0.00
6	186.34	186.49	0.0000	0.00
7	198.79	198.94	0.0000	0.00
8	209.30	209.45	0.0000	0.00
9	239.01	239.14	0.0000	0.00
10	242.05	242.17	0.0000	0.00
11	270.41	270.52	0.0000	0.00
12	278.01	278.12	0.0000	0.00
13	284.44	284.55	0.0000	0.00
14	295.64	295.73	0.0000	0.00
15	328.94	329.02	0.0000	0.00
16	338.58	338.66	0.0000	0.00
17	352.20	352.27	0.0000	0.00
18	463.65	463.66	0.0000	0.00
19	511.43	511.42	0.0000	0.00
20	583.73	583.69	0.0000	0.00
21	610.00	609.94	0.0000	0.00
22	728.27	728.16	0.0000	0.00
23	768.11	767.98	0.0000	0.00
24	795.21	795.07	0.0000	0.00
25	861.39	861.21	0.0000	0.00
26	864.39	864.21	0.0000	0.00
27	901.99	901.80	0.0000	0.00
28	911.95	911.75	0.0000	0.00
29	969.82	969.60	0.0000	0.00
30	1120.94	1120.65	0.0000	0.00
31	1239.96	1239.63	0.0000	0.00
32	1379.48	1379.09	0.0000	0.00
33	1461.60	1461.18	0.0000	0.00
34	1525.53	1525.08	0.0000	0.00
35	1556.57	1556.12	0.0000	0.00
36	1582.28	1581.82	0.0000	0.00
37	1593.65	1593.18	0.0000	0.00
38	1621.51	1621.03	0.0000	0.00
39	1655.71	1655.22	0.0000	0.00
40	1676.57	1676.07	0.0000	0.00
41	1720.62	1720.10	0.0000	0.00
42	1730.74	1730.22	0.0000	0.00

Analysis Report for 1510093-12  
CP1806S08-09

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1766.17	1765.64	0.0000	0.00
44	1849.58	1849.02	0.0000	0.00
45	1954.88	1954.29	0.0000	0.00
46	2032.45	2031.83	0.0000	0.00
47	2105.12	2104.48	0.0000	0.00
48	2204.90	2204.23	0.0000	0.00
49	2313.15	2312.45	0.0000	0.00
50	2368.63	2367.91	0.0000	0.00
51	2615.67	2614.89	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-12  
CP1806S08-09

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 2:29:22PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
1	46.78	44 -	50	47.01	1.46E+02	84.38	1.19E+03	1.36
2	63.05	58 -	69	63.27	3.90E+02	149.76	2.62E+03	2.23
3	76.39	71 -	83	76.61	1.09E+03	177.99	3.18E+03	3.77
m 4	87.94	83 -	98	88.15	2.64E+02	74.75	9.18E+02	1.68
m 5	92.95	83 -	98	93.15	2.48E+02	74.40	8.52E+02	1.69
6	186.34	183 -	189	186.49	1.72E+02	65.57	6.54E+02	2.00
7	198.79	196 -	202	198.94	5.14E+01	58.60	5.79E+02	1.93
8	209.30	204 -	213	209.45	1.27E+02	81.23	8.69E+02	1.64
M 9	239.01	234 -	248	239.14	8.90E+02	71.50	4.00E+02	1.79
m 10	242.05	234 -	248	242.17	1.36E+02	75.60	4.01E+02	1.89
11	270.41	267 -	274	270.52	7.40E+01	55.10	4.58E+02	1.99
12	278.01	275 -	281	278.12	6.74E+01	47.90	3.63E+02	1.69
13	284.44	282 -	287	284.55	4.14E+01	39.08	2.71E+02	2.29
14	295.64	292 -	300	295.73	1.60E+02	66.45	5.91E+02	1.49
15	328.94	326 -	332	329.02	4.30E+01	43.62	3.14E+02	2.34
16	338.58	335 -	341	338.66	1.50E+02	47.90	3.09E+02	1.42
17	352.20	348 -	356	352.27	3.83E+02	62.29	3.63E+02	1.96
18	463.65	460 -	468	463.66	7.50E+01	39.53	1.96E+02	2.28
19	511.43	506 -	517	511.42	1.33E+02	50.40	2.48E+02	2.55
20	583.73	579 -	588	583.69	2.43E+02	49.42	2.09E+02	2.02
21	610.00	607 -	614	609.94	2.55E+02	44.41	1.56E+02	1.57
22	728.27	725 -	731	728.16	4.70E+01	30.02	1.24E+02	1.94
23	768.11	763 -	772	767.98	3.80E+01	35.67	1.60E+02	1.61
24	795.21	791 -	798	795.07	2.34E+01	25.85	9.52E+01	1.85
M 25	861.39	846 -	874	861.21	3.84E+01	22.73	6.94E+01	2.36
m 26	864.39	846 -	874	864.21	1.45E+01	22.56	7.63E+01	2.36
27	901.99	898 -	904	901.80	2.05E+01	20.70	6.30E+01	2.42
28	911.95	907 -	914	911.75	1.11E+02	32.37	1.02E+02	1.77
29	969.82	966 -	975	969.60	8.55E+01	39.18	1.59E+02	1.82
30	1120.94	1117 -	1126	1120.65	4.20E+01	31.22	1.16E+02	2.45
31	1239.96	1234 -	1247	1239.63	3.69E+01	39.94	1.60E+02	3.02
32	1379.48	1375 -	1382	1379.09	1.48E+01	15.62	2.85E+01	2.16
33	1461.60	1455 -	1466	1461.18	5.04E+02	46.99	2.40E+01	2.24
34	1525.53	1521 -	1528	1525.08	9.23E+00	9.17	7.54E+00	1.35
35	1556.57	1551 -	1563	1556.12	1.39E+01	14.92	2.01E+01	9.53
M 36	1582.28	1577 -	1603	1581.82	1.21E+01	12.45	4.68E+00	3.28
m 37	1593.65	1577 -	1603	1593.18	1.49E+01	13.96	1.94E+01	3.29
38	1621.51	1615 -	1626	1621.03	1.51E+01	10.39	5.78E+00	3.84
39	1655.71	1651 -	1658	1655.22	9.00E+00	6.00	0.00E+00	3.65
40	1676.57	1671 -	1680	1676.07	9.36E+00	10.30	9.29E+00	4.48

: 00751

Analysis Report for 1510093-12  
 CP1806S08-09

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1720.62	1718 - 1722		1720.10	5.06E+00	7.40	7.89E+00	2.64
42	1730.74	1726 - 1732		1730.22	8.07E+00	10.44	1.39E+01	1.84
43	1766.17	1761 - 1772		1765.64	4.44E+01	15.10	7.21E+00	2.36
44	1849.58	1844 - 1853		1849.02	1.45E+01	12.61	1.30E+01	2.27
45	1954.88	1951 - 1957		1954.29	7.00E+00	5.29	0.00E+00	1.92
46	2032.45	2027 - 2035		2031.83	1.20E+01	6.93	0.00E+00	1.12
47	2105.12	2101 - 2108		2104.48	8.50E+00	11.31	1.50E+01	3.77
48	2204.90	2200 - 2208		2204.23	1.47E+01	9.39	4.65E+00	2.69
49	2313.15	2308 - 2316		2312.45	9.88E+00	8.26	4.25E+00	6.33
50	2368.63	2363 - 2370		2367.91	6.10E+00	8.49	7.80E+00	1.59
51	2615.67	2610 - 2618		2614.89	7.40E+01	17.20	0.00E+00	3.41

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 : 11/11/2015 2:29:22PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.78	44 -	50	1.46E+02	84.38	1.19E+03	6.65E+01
2	63.05	58 -	69	3.90E+02	149.76	2.62E+03	1.19E+02
3	76.39	71 -	83	1.09E+03	177.99	3.18E+03	1.36E+02
m 4	87.94	83 -	98	2.64E+02	74.75	9.18E+02	4.98E+01
m 5	92.95	83 -	98	2.48E+02	74.40	8.52E+02	4.80E+01
6	186.34	183 -	189	1.72E+02	65.57	6.54E+02	4.94E+01
7	198.79	196 -	202	5.14E+01	58.60	5.79E+02	4.67E+01
8	209.30	204 -	213	1.27E+02	81.23	8.69E+02	6.41E+01
M 9	239.01	234 -	248	8.90E+02	71.50	4.00E+02	3.29E+01
m 10	242.05	234 -	248	1.36E+02	75.60	4.01E+02	3.29E+01
11	270.41	267 -	274	7.40E+01	55.10	4.58E+02	4.30E+01
12	278.01	275 -	281	6.74E+01	47.90	3.63E+02	3.70E+01
13	284.44	282 -	287	4.14E+01	39.08	2.71E+02	3.03E+01
14	295.64	292 -	300	1.60E+02	66.45	5.91E+02	5.05E+01
15	328.94	326 -	332	4.30E+01	43.62	3.14E+02	3.42E+01
16	338.58	335 -	341	1.50E+02	47.90	3.09E+02	3.38E+01
17	352.20	348 -	356	3.83E+02	62.29	3.63E+02	3.98E+01



Analysis Report for 1510093-12  
CP1806S08-09

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>ROI start</b>	<b>ROI end</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Continuum Counts</b>	<b>Critical Level</b>
	18	463.65	460 -	468	7.50E+01	39.53	1.96E+02	2.92E+01
	19	511.43	506 -	517	1.33E+02	50.40	2.48E+02	3.68E+01
	20	583.73	579 -	588	2.43E+02	49.42	2.09E+02	3.15E+01
	21	610.00	607 -	614	2.55E+02	44.41	1.56E+02	2.54E+01
	22	728.27	725 -	731	4.70E+01	30.02	1.24E+02	2.20E+01
	23	768.11	763 -	772	3.80E+01	35.67	1.60E+02	2.75E+01
	24	795.21	791 -	798	2.34E+01	25.85	9.52E+01	1.97E+01
M	25	861.39	846 -	874	3.84E+01	22.73	6.94E+01	1.37E+01
m	26	864.39	846 -	874	1.45E+01	22.56	7.63E+01	1.44E+01
	27	901.99	898 -	904	2.05E+01	20.70	6.30E+01	1.53E+01
	28	911.95	907 -	914	1.11E+02	32.37	1.02E+02	2.02E+01
	29	969.82	966 -	975	8.55E+01	39.18	1.59E+02	2.84E+01
	30	1120.94	1117 -	1126	4.20E+01	31.22	1.16E+02	2.33E+01
	31	1239.96	1234 -	1247	3.69E+01	39.94	1.60E+02	3.13E+01
	32	1379.48	1375 -	1382	1.48E+01	15.62	2.85E+01	1.12E+01
	33	1461.60	1455 -	1466	5.04E+02	46.99	2.40E+01	1.14E+01
	34	1525.53	1521 -	1528	9.23E+00	9.17	7.54E+00	5.64E+00
	35	1556.57	1551 -	1563	1.39E+01	14.92	2.01E+01	1.06E+01
M	36	1582.28	1577 -	1603	1.21E+01	12.45	4.68E+00	3.56E+00
m	37	1593.65	1577 -	1603	1.49E+01	13.96	1.94E+01	7.24E+00
	38	1621.51	1615 -	1626	1.51E+01	10.39	5.78E+00	5.67E+00
	39	1655.71	1651 -	1658	9.00E+00	6.00	0.00E+00	0.00E+00
	40	1676.57	1671 -	1680	9.36E+00	10.30	9.29E+00	6.81E+00
	41	1720.62	1718 -	1722	5.06E+00	7.40	7.89E+00	4.83E+00
	42	1730.74	1726 -	1732	8.07E+00	10.44	1.39E+01	7.20E+00
	43	1766.17	1761 -	1772	4.44E+01	15.10	7.21E+00	5.84E+00
	44	1849.58	1844 -	1853	1.45E+01	12.61	1.30E+01	8.26E+00
	45	1954.88	1951 -	1957	7.00E+00	5.29	0.00E+00	0.00E+00
	46	2032.45	2027 -	2035	1.20E+01	6.93	0.00E+00	0.00E+00
	47	2105.12	2101 -	2108	8.50E+00	11.31	1.50E+01	7.97E+00
	48	2204.90	2200 -	2208	1.47E+01	9.39	4.65E+00	4.47E+00
	49	2313.15	2308 -	2316	9.88E+00	8.26	4.25E+00	4.41E+00
	50	2368.63	2363 -	2370	6.10E+00	8.49	7.80E+00	5.67E+00
	51	2615.67	2610 -	2618	7.40E+01	17.20	0.00E+00	0.00E+00

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

Analysis Report for 1510093-12  
 CP1806S08-09

## PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 2:29:22PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	46.78	44 -	50	47.01	1.46E+02	84.38	1.19E+03	PB-210
2	63.05	58 -	69	63.27	3.90E+02	149.76	2.62E+03	TH-230 TH-234
3	76.39	71 -	83	76.61	1.09E+03	177.99	3.18E+03	.....
m 4	87.94	83 -	98	88.15	2.64E+02	74.75	9.18E+02	CD-109 SN-126 LU-176
m 5	92.95	83 -	98	93.15	2.48E+02	74.40	8.52E+02	GA-67
6	186.34	183 -	189	186.49	1.72E+02	65.57	6.54E+02	RA-226
7	198.79	196 -	202	198.94	5.14E+01	58.60	5.79E+02	.....
8	209.30	204 -	213	209.45	1.27E+02	81.23	8.69E+02	GA-67 CM-243
M 9	239.01	234 -	248	239.14	8.90E+02	71.50	4.00E+02	PB-212
m 10	242.05	234 -	248	242.17	1.36E+02	75.60	4.01E+02	.....
11	270.41	267 -	274	270.52	7.40E+01	55.10	4.58E+02	.....
12	278.01	275 -	281	278.12	6.74E+01	47.90	3.63E+02	CM-243 NP-239
13	284.44	282 -	287	284.55	4.14E+01	39.08	2.71E+02	I-131 PA-231
14	295.64	292 -	300	295.73	1.60E+02	66.45	5.91E+02	PB-214
15	328.94	326 -	332	329.02	4.30E+01	43.62	3.14E+02	LA-140
16	338.58	335 -	341	338.66	1.50E+02	47.90	3.09E+02	AC-228
17	352.20	348 -	356	352.27	3.83E+02	62.29	3.63E+02	PB-214
18	463.65	460 -	468	463.66	7.50E+01	39.53	1.96E+02	SB-125
19	511.43	506 -	517	511.42	1.33E+02	50.40	2.48E+02	.....
20	583.73	579 -	588	583.69	2.43E+02	49.42	2.09E+02	TL-208
21	610.00	607 -	614	609.94	2.55E+02	44.41	1.56E+02	BI-214
22	728.27	725 -	731	728.16	4.70E+01	30.02	1.24E+02	.....
23	768.11	763 -	772	767.98	3.80E+01	35.67	1.60E+02	.....
24	795.21	791 -	798	795.07	2.34E+01	25.85	9.52E+01	CS-134
M 25	861.39	846 -	874	861.21	3.84E+01	22.73	6.94E+01	.....
m 26	864.39	846 -	874	864.21	1.45E+01	22.56	7.63E+01	.....
27	901.99	898 -	904	901.80	2.05E+01	20.70	6.30E+01	.....
28	911.95	907 -	914	911.75	1.11E+02	32.37	1.02E+02	LU-172 AC-228
29	969.82	966 -	975	969.60	8.55E+01	39.18	1.59E+02	AC-228
30	1120.94	1117 -	1126	1120.65	4.20E+01	31.22	1.16E+02	TA-182 SC-46 BI-214
31	1239.96	1234 -	1247	1239.63	3.69E+01	39.94	1.60E+02	.....
32	1379.48	1375 -	1382	1379.09	1.48E+01	15.62	2.85E+01	.....

Analysis Report for 1510093-12  
 CP1806S08-09

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	33	1461.60	1455 - 1466	1461.18	5.04E+02	46.99	2.40E+01	K-40
	34	1525.53	1521 - 1528	1525.08	9.23E+00	9.17	7.54E+00	.....
	35	1556.57	1551 - 1563	1556.12	1.39E+01	14.92	2.01E+01	.....
M	36	1582.28	1577 - 1603	1581.82	1.21E+01	12.45	4.68E+00	.....
m	37	1593.65	1577 - 1603	1593.18	1.49E+01	13.96	1.94E+01	.....
	38	1621.51	1615 - 1626	1621.03	1.51E+01	10.39	5.78E+00	BI-212
	39	1655.71	1651 - 1658	1655.22	9.00E+00	6.00	0.00E+00	.....
	40	1676.57	1671 - 1680	1676.07	9.36E+00	10.30	9.29E+00	.....
	41	1720.62	1718 - 1722	1720.10	5.06E+00	7.40	7.89E+00	.....
	42	1730.74	1726 - 1732	1730.22	8.07E+00	10.44	1.39E+01	.....
	43	1766.17	1761 - 1772	1765.64	4.44E+01	15.10	7.21E+00	.....
	44	1849.58	1844 - 1853	1849.02	1.45E+01	12.61	1.30E+01	.....
	45	1954.88	1951 - 1957	1954.29	7.00E+00	5.29	0.00E+00	.....
	46	2032.45	2027 - 2035	2031.83	1.20E+01	6.93	0.00E+00	.....
	47	2105.12	2101 - 2108	2104.48	8.50E+00	11.31	1.50E+01	.....
	48	2204.90	2200 - 2208	2204.23	1.47E+01	9.39	4.65E+00	BI-214
	49	2313.15	2308 - 2316	2312.45	9.88E+00	8.26	4.25E+00	.....
	50	2368.63	2363 - 2370	2367.91	6.10E+00	8.49	7.80E+00	.....
	51	2615.67	2610 - 2618	2614.89	7.40E+01	17.20	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 : 11/11/2015 2:29:22PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty	
	1	46.78	1.46E+02	84.38	1.52E-02	1.58E-03
	2	63.05	3.90E+02	149.76	2.15E-02	1.70E-03
	3	76.39	1.09E+03	177.99	2.38E-02	2.14E-03
m	4	87.94	2.64E+02	74.75	2.44E-02	2.52E-03
m	5	92.95	2.48E+02	74.40	2.44E-02	2.41E-03
	6	186.34	1.72E+02	65.57	1.83E-02	1.42E-03
	7	198.79	5.14E+01	58.60	1.75E-02	1.36E-03
	8	209.30	1.27E+02	81.23	1.68E-02	1.31E-03
M	9	239.01	8.90E+02	71.50	1.52E-02	1.18E-03
m	10	242.05	1.36E+02	75.60	1.51E-02	1.17E-03
	11	270.41	7.40E+01	55.10	1.38E-02	1.04E-03

Analysis Report for 1510093-12  
CP1806S08-09

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	12	278.01	6.74E+01	47.90	1.35E-02	1.00E-03
	13	284.44	4.14E+01	39.08	1.32E-02	9.89E-04
	14	295.64	1.60E+02	66.45	1.28E-02	9.73E-04
	15	328.94	4.30E+01	43.62	1.17E-02	9.26E-04
	16	338.58	1.50E+02	47.90	1.14E-02	9.13E-04
	17	352.20	3.83E+02	62.29	1.11E-02	8.93E-04
	18	463.65	7.50E+01	39.53	8.72E-03	7.65E-04
	19	511.43	1.33E+02	50.40	8.01E-03	7.18E-04
	20	583.73	2.43E+02	49.42	7.13E-03	6.46E-04
	21	610.00	2.55E+02	44.41	6.86E-03	6.19E-04
	22	728.27	4.70E+01	30.02	5.88E-03	5.13E-04
	23	768.11	3.80E+01	35.67	5.62E-03	4.81E-04
	24	795.21	2.34E+01	25.85	5.45E-03	4.59E-04
M	25	861.39	3.84E+01	22.73	5.09E-03	4.05E-04
m	26	864.39	1.45E+01	22.56	5.08E-03	4.02E-04
	27	901.99	2.05E+01	20.70	4.89E-03	3.74E-04
	28	911.95	1.11E+02	32.37	4.85E-03	3.72E-04
	29	969.82	8.55E+01	39.18	4.60E-03	3.61E-04
	30	1120.94	4.20E+01	31.22	4.08E-03	3.33E-04
	31	1239.96	3.69E+01	39.94	3.75E-03	3.09E-04
	32	1379.48	1.48E+01	15.62	3.44E-03	2.82E-04
	33	1461.60	5.04E+02	46.99	3.29E-03	2.69E-04
	34	1525.53	9.23E+00	9.17	3.18E-03	2.60E-04
	35	1556.57	1.39E+01	14.92	3.14E-03	2.55E-04
M	36	1582.28	1.21E+01	12.45	3.10E-03	2.51E-04
m	37	1593.65	1.49E+01	13.96	3.08E-03	2.49E-04
	38	1621.51	1.51E+01	10.39	3.04E-03	2.45E-04
	39	1655.71	9.00E+00	6.00	2.99E-03	2.40E-04
	40	1676.57	9.36E+00	10.30	2.97E-03	2.37E-04
	41	1720.62	5.06E+00	7.40	2.91E-03	2.30E-04
	42	1730.74	8.07E+00	10.44	2.90E-03	2.29E-04
	43	1766.17	4.44E+01	15.10	2.86E-03	2.24E-04
	44	1849.58	1.45E+01	12.61	2.76E-03	2.13E-04
	45	1954.88	7.00E+00	5.29	2.66E-03	2.13E-04
	46	2032.45	1.20E+01	6.93	2.59E-03	2.13E-04
	47	2105.12	8.50E+00	11.31	2.53E-03	2.13E-04
	48	2204.90	1.47E+01	9.39	2.46E-03	2.13E-04
	49	2313.15	9.88E+00	8.26	2.39E-03	2.13E-04
	50	2368.63	6.10E+00	8.49	2.36E-03	2.13E-04
	51	2615.67	7.40E+01	17.20	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 1510093-12

CP1806S08-09

## BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/11/2015 2:29:22PM

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	46.78	1.46E+02	84.38	5.28E+01	1.09E+01	9.31E+01	8.51E+01
2	63.05	3.90E+02	149.76	5.52E+01	2.05E+01	3.35E+02	1.51E+02
3	76.39	1.09E+03	177.99			1.09E+03	1.78E+02
m 4	87.94	2.64E+02	74.75	1.52E+01	5.37E+00	2.49E+02	7.49E+01
m 5	92.95	2.48E+02	74.40	9.04E+01	2.62E+01	1.58E+02	7.89E+01
6	186.34	1.72E+02	65.57	3.93E+01	6.56E+00	1.32E+02	6.59E+01
7	198.79	5.14E+01	58.60			5.14E+01	5.86E+01
8	209.30	1.27E+02	81.23			1.27E+02	8.12E+01
M 9	239.01	8.90E+02	71.50	1.34E+01	2.14E+00	8.76E+02	7.15E+01
m 10	242.05	1.36E+02	75.60	2.69E+00	1.46E+00	1.33E+02	7.56E+01
11	270.41	7.40E+01	55.10			7.40E+01	5.51E+01
12	278.01	6.74E+01	47.90			6.74E+01	4.79E+01
13	284.44	4.14E+01	39.08			4.14E+01	3.91E+01
14	295.64	1.60E+02	66.45			1.60E+02	6.65E+01
15	328.94	4.30E+01	43.62			4.30E+01	4.36E+01
16	338.58	1.50E+02	47.90			1.50E+02	4.79E+01
17	352.20	3.83E+02	62.29	3.99E+00	4.73E+00	3.79E+02	6.25E+01
18	463.65	7.50E+01	39.53			7.50E+01	3.95E+01
19	511.43	1.33E+02	50.40	5.78E+01	4.60E+00	7.54E+01	5.06E+01
20	583.73	2.43E+02	49.42	5.96E+00	3.46E+00	2.37E+02	4.95E+01
21	610.00	2.55E+02	44.41	6.71E+00	3.44E+00	2.48E+02	4.45E+01
22	728.27	4.70E+01	30.02			4.70E+01	3.00E+01
23	768.11	3.80E+01	35.67			3.80E+01	3.57E+01
24	795.21	2.34E+01	25.85			2.34E+01	2.58E+01
M 25	861.39	3.84E+01	22.73			3.84E+01	2.27E+01
m 26	864.39	1.45E+01	22.56			1.45E+01	2.26E+01
27	901.99	2.05E+01	20.70			2.05E+01	2.07E+01
28	911.95	1.11E+02	32.37			1.11E+02	3.24E+01
29	969.82	8.55E+01	39.18			8.55E+01	3.92E+01
30	1120.94	4.20E+01	31.22	2.00E+00	2.20E+00	4.00E+01	3.13E+01
31	1239.96	3.69E+01	39.94			3.69E+01	3.99E+01
32	1379.48	1.48E+01	15.62			1.48E+01	1.56E+01
33	1461.60	5.04E+02	46.99			5.04E+02	4.70E+01
34	1525.53	9.23E+00	9.17			9.23E+00	9.17E+00
35	1556.57	1.39E+01	14.92			1.39E+01	1.49E+01
M 36	1582.28	1.21E+01	12.45			1.21E+01	1.24E+01
m 37	1593.65	1.49E+01	13.96			1.49E+01	1.40E+01
38	1621.51	1.51E+01	10.39			1.51E+01	1.04E+01
39	1655.71	9.00E+00	6.00			9.00E+00	6.00E+00
40	1676.57	9.36E+00	10.30			9.36E+00	1.03E+01
41	1720.62	5.06E+00	7.40			5.06E+00	7.40E+00
42	1730.74	8.07E+00	10.44			8.07E+00	1.04E+01
43	1766.17	4.44E+01	15.10			4.44E+01	1.51E+01
44	1849.58	1.45E+01	12.61			1.45E+01	1.26E+01

Analysis Report for 1510093-12  
 CP1806S08-09

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1954.88	7.00E+00	5.29			7.00E+00	5.29E+00
46	2032.45	1.20E+01	6.93			1.20E+01	6.93E+00
47	2105.12	8.50E+00	11.31			8.50E+00	1.13E+01
48	2204.90	1.47E+01	9.39			1.47E+01	9.39E+00
49	2313.15	9.88E+00	8.26			9.88E+00	8.26E+00
50	2368.63	6.10E+00	8.49			6.10E+00	8.49E+00
51	2615.67	7.40E+01	17.20			7.40E+01	1.72E+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 : 11/11/2015 2:29:22PM  
 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	46.78	1.46E+02	84.38	5.28E+01	1.09E+01	9.31E+01	8.51E+01
2	63.05	3.90E+02	149.76	5.52E+01	2.05E+01	3.35E+02	1.51E+02
3	76.39	1.09E+03	177.99			1.09E+03	1.78E+02
m 4	87.94	2.64E+02	74.75	1.52E+01	5.37E+00	2.49E+02	7.49E+01
m 5	92.95	2.48E+02	74.40	9.04E+01	2.62E+01	1.58E+02	7.89E+01
6	186.34	1.72E+02	65.57	3.93E+01	6.56E+00	1.32E+02	6.59E+01
7	198.79	5.14E+01	58.60			5.14E+01	5.86E+01
8	209.30	1.27E+02	81.23			1.27E+02	8.12E+01
M 9	239.01	8.90E+02	71.50	1.34E+01	2.14E+00	8.76E+02	7.15E+01
m 10	242.05	1.36E+02	75.60	2.69E+00	1.46E+00	1.33E+02	7.56E+01
11	270.41	7.40E+01	55.10			7.40E+01	5.51E+01
12	278.01	6.74E+01	47.90			6.74E+01	4.79E+01
13	284.44	4.14E+01	39.08			4.14E+01	3.91E+01
14	295.64	1.60E+02	66.45			1.60E+02	6.65E+01
15	328.94	4.30E+01	43.62			4.30E+01	4.36E+01
16	338.58	1.50E+02	47.90			1.50E+02	4.79E+01
17	352.20	3.83E+02	62.29	3.99E+00	4.73E+00	3.79E+02	6.25E+01
18	463.65	7.50E+01	39.53			7.50E+01	3.95E+01
19	511.43	1.33E+02	50.40	5.78E+01	4.60E+00	7.54E+01	5.06E+01
20	583.73	2.43E+02	49.42	5.96E+00	3.46E+00	2.37E+02	4.95E+01
21	610.00	2.55E+02	44.41	6.71E+00	3.44E+00	2.48E+02	4.45E+01

Analysis Report for 1510093-12  
 CP1806S08-09

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	22	728.27	4.70E+01			4.70E+01	3.00E+01
	23	768.11	3.80E+01			3.80E+01	3.57E+01
	24	795.21	2.34E+01			2.34E+01	2.58E+01
M	25	861.39	3.84E+01			3.84E+01	2.27E+01
m	26	864.39	1.45E+01			1.45E+01	2.26E+01
	27	901.99	2.05E+01			2.05E+01	2.07E+01
	28	911.95	1.11E+02			1.11E+02	3.24E+01
	29	969.82	8.55E+01			8.55E+01	3.92E+01
	30	1120.94	4.20E+01	2.00E+00	2.20E+00	4.00E+01	3.13E+01
	31	1239.96	3.69E+01			3.69E+01	3.99E+01
	32	1379.48	1.48E+01			1.48E+01	1.56E+01
	33	1461.60	5.04E+02			5.04E+02	4.70E+01
	34	1525.53	9.23E+00			9.23E+00	9.17
	35	1556.57	1.39E+01			1.39E+01	14.92
M	36	1582.28	1.21E+01			1.21E+01	12.45
m	37	1593.65	1.49E+01			1.49E+01	13.96
	38	1621.51	1.51E+01			1.51E+01	10.39
	39	1655.71	9.00E+00			9.00E+00	6.00
	40	1676.57	9.36E+00			9.36E+00	10.30
	41	1720.62	5.06E+00			5.06E+00	7.40
	42	1730.74	8.07E+00			8.07E+00	10.44
	43	1766.17	4.44E+01			4.44E+01	15.10
	44	1849.58	1.45E+01			1.45E+01	12.61
	45	1954.88	7.00E+00			7.00E+00	5.29
	46	2032.45	1.20E+01			1.20E+01	6.93
	47	2105.12	8.50E+00			8.50E+00	11.31
	48	2204.90	1.47E+01			1.47E+01	9.39
	49	2313.15	9.88E+00			9.88E+00	8.26
	50	2368.63	6.10E+00			6.10E+00	8.49
	51	2615.67	7.40E+01			7.40E+01	17.20

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	0.905	1460.81	* 10.67	2.06E+01	2.60E+00

Analysis Report for 1510093-12  
 CP1806S08-09

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GA-67	0.363	93.31 *	35.70	3.07E+02	1.38E+03
		208.95 *	2.24	5.73E+03	2.51E+04
		300.22	16.00		
CD-109	0.999	88.03 *	3.72	4.14E+00	1.34E+00
		SN-126	0.978	87.57 *	37.00
PB-210	0.987	46.50 *	4.25	2.08E+00	1.92E+00
PB-212	0.875	238.63 *	44.60	1.86E+00	2.09E-01
		300.09	3.41		
BI-214	0.713	609.31 *	46.30	1.12E+00	2.26E-01
		1120.29 *	15.10	9.36E-01	7.35E-01
		1764.49	15.80		
PB-214	0.982	2204.22 *	4.98	1.72E+00	1.11E+00
		295.21 *	19.19	9.39E-01	3.95E-01
		351.92 *	37.19	1.33E+00	2.43E-01
RA-226	0.997	186.21 *	3.28	3.18E+00	6.03E+00
AC-228	0.916	338.32 *	11.40	1.65E+00	5.45E-01
		911.07 *	27.70	1.19E+00	3.58E-01
		969.11 *	16.60	1.61E+00	7.48E-01
TH-234	0.991	63.29 *	3.80	5.88E+00	2.70E+00
CM-243	0.354	209.75 *	3.29	3.32E+00	2.13E+00
		228.14	10.60		
		277.60 *	14.00	5.15E-01	3.68E-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 : 11/11/2015 2:29:22PM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
3	76.39	3.03015E-01	8.16		
7	198.79	1.42913E-02	56.95		
m 10	242.05	3.69389E-02	28.43		
11	270.41	2.05510E-02	37.24		
13	284.44	1.14878E-02	47.24	Tol.	I-131 PA-231
15	328.94	1.19403E-02	50.74	Tol.	LA-140



Analysis Report for 1510093-12  
 CP1806S08-09

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide	
18	463.65	2.08333E-02	26.35	Sum		
19	511.43	2.09331E-02	33.58			
20	583.73	6.59501E-02	10.43	Tol.	TL-208	
22	728.27	1.30454E-02	31.97			
23	768.11	1.05556E-02	46.93			
24	795.21	6.50235E-03	55.21	Tol.	CS-134	
M	25	861.39	1.06656E-02	29.60		
m	26	864.39	4.01425E-03	78.04		
	27	901.99	5.69444E-03	50.49		
	31	1239.96	1.02564E-02	54.08		
	32	1379.48	4.09962E-03	52.92		
	34	1525.53	2.56410E-03	49.64	Sum	
	35	1556.57	3.87153E-03	53.54		
M	36	1582.28	3.37414E-03	51.25		
m	37	1593.65	4.12768E-03	46.99		
	38	1621.51	4.19753E-03	34.39	Tol.	BI-212
	39	1655.71	2.50000E-03	33.33		
	40	1676.57	2.59921E-03	55.01		
	41	1720.62	1.40432E-03	73.18		
	42	1730.74	2.24074E-03	64.71	Sum	
	43	1766.17	1.23322E-02	17.01		
	44	1849.58	4.02778E-03	43.48		
	45	1954.88	1.94444E-03	37.80		
	46	2032.45	3.33333E-03	28.87	Sum	
	47	2105.12	2.36111E-03	66.55		
	49	2313.15	2.74306E-03	41.83		
	50	2368.63	1.69444E-03	69.55		
	51	2615.67	2.05556E-02	11.62		

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
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Analysis Report for 1510093-12  
 CP1806S08-09

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.90	1460.81 *	10.67	2.06E+01	2.60E+00
GA-67	0.36	93.31 *	35.70	3.07E+02	1.38E+03
		208.95 *	2.24	5.73E+03	2.51E+04
		300.22	16.00		
		88.03 *	3.72	4.14E+00	1.34E+00
SN-126	0.97	87.57 *	37.00	3.96E-01	1.26E-01
PB-210	0.98	46.50 *	4.25	2.08E+00	1.92E+00
PB-212	0.87	238.63 *	44.60	1.86E+00	2.09E-01
		300.09	3.41		
		609.31 *	46.30	1.12E+00	2.26E-01
		1120.29 *	15.10	9.36E-01	7.35E-01
BI-214	0.71	1764.49	15.80		
		2204.22 *	4.98	1.72E+00	1.11E+00
		295.21 *	19.19	9.39E-01	3.95E-01
		351.92 *	37.19	1.33E+00	2.43E-01
RA-226	0.99	186.21 *	3.28	3.18E+00	6.03E+00
AC-228	0.91	338.32 *	11.40	1.65E+00	5.45E-01
		911.07 *	27.70	1.19E+00	3.58E-01
		969.11 *	16.60	1.61E+00	7.48E-01
TH-234	0.99	63.29 *	3.80	5.88E+00	2.70E+00
CM-243	0.35	209.75 *	3.29	3.32E+00	2.13E+00
		228.14	10.60		
		277.60 *	14.00	5.15E-01	3.68E-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	0.905	2.06E+01	2.60E+00	
GA-67	0.363	3.15E+02	1.37E+03	
? CD-109	0.999	4.14E+00	1.34E+00	
? SN-126	0.978	3.96E-01	1.26E-01	

Analysis Report for 1510093-12  
CP1806S08-09

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
PB-210	0.987	2.08E+00	1.92E+00	
PB-212	0.875	1.86E+00	2.09E-01	
BI-214	0.713	1.13E+00	2.12E-01	
PB-214	0.982	1.22E+00	2.07E-01	
RA-226	0.997	3.18E+00	6.03E+00	
AC-228	0.916	1.37E+00	2.78E-01	
TH-234	0.991	5.88E+00	2.70E+00	
CM-243	0.354	5.91E-01	3.63E-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 1510093-12  
CP1806S08-09

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 2:29:22PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
3	76.39	3.03015E-01	8.16		
7	198.79	1.42913E-02	56.95		
m 10	242.05	3.69389E-02	28.43		
11	270.41	2.05510E-02	37.24		
13	284.44	1.14878E-02	47.24	Tol.	I-131 PA-231
15	328.94	1.19403E-02	50.74	Tol.	LA-140
18	463.65	2.08333E-02	26.35	Sum	
19	511.43	2.09331E-02	33.58		
20	583.73	6.59501E-02	10.43	Tol.	TL-208
22	728.27	1.30454E-02	31.97		
23	768.11	1.05556E-02	46.93		
24	795.21	6.50235E-03	55.21	Tol.	CS-134
M 25	861.39	1.06656E-02	29.60		
m 26	864.39	4.01425E-03	78.04		
27	901.99	5.69444E-03	50.49		
31	1239.96	1.02564E-02	54.08		
32	1379.48	4.09962E-03	52.92		
34	1525.53	2.56410E-03	49.64	Sum	
35	1556.57	3.87153E-03	53.54		
M 36	1582.28	3.37414E-03	51.25		
m 37	1593.65	4.12768E-03	46.99		
38	1621.51	4.19753E-03	34.39	Tol.	BI-212
39	1655.71	2.50000E-03	33.33		
40	1676.57	2.59921E-03	55.01		
41	1720.62	1.40432E-03	73.18		
42	1730.74	2.24074E-03	64.71	Sum	
43	1766.17	1.23322E-02	17.01		
44	1849.58	4.02778E-03	43.48		
45	1954.88	1.94444E-03	37.80		
46	2032.45	3.33333E-03	28.87	Sum	
47	2105.12	2.36111E-03	66.55		
49	2313.15	2.74306E-03	41.83		
50	2368.63	1.69444E-03	69.55		
51	2615.67	2.05556E-02	11.62		

Analysis Report for 1510093-12  
CP1806S08-09

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	-2.90E-01	1.25E+00	1.25E+00
+	NA-22	1274.54	99.94	-1.35E-01	1.20E-01	1.20E-01
+	NA-24	1368.53	99.99	-7.10E+14	1.88E+14	1.08E+15
		2754.09	99.86	0.00E+00		1.88E+14
+	AL-26	1808.65	99.76	-3.59E-02	6.73E-02	6.73E-02
+	K-40	1460.81	* 10.67	2.06E+01	1.04E+00	1.04E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-4.59E-02	8.16E-02	8.16E-02
		78.34	96.00	2.59E-01		1.03E-01
+	SC-46	889.25	99.98	4.40E-02	1.36E-01	1.36E-01
		1120.51	99.99	1.50E-01		2.09E-01
+	V-48	983.52	99.98	2.21E-01	4.64E-01	4.64E-01
		1312.10	97.50	1.48E-01		5.41E-01
+	CR-51	320.08	9.83	-9.14E-01	1.66E+00	1.66E+00
+	MN-54	834.83	99.97	5.60E-02	1.19E-01	1.19E-01
+	CO-56	846.75	99.96	2.09E-02	1.37E-01	1.38E-01
		1037.75	14.03	3.79E-01		1.08E+00
		1238.25	67.00	1.84E-01		3.19E-01
		1771.40	15.51	-5.09E-02		8.49E-01
		2598.48	16.90	0.00E+00		1.37E-01
+	CO-57	122.06	85.51	6.55E-03	7.13E-02	7.13E-02
		136.48	10.60	-9.81E-02		5.94E-01
+	CO-58	810.76	99.40	-2.24E-02	1.14E-01	1.14E-01
+	FE-59	1099.22	56.50	-1.21E-01	3.31E-01	3.31E-01
		1291.56	43.20	1.95E-01		5.32E-01
+	CO-60	1173.22	100.00	7.17E-02	1.09E-01	1.40E-01
		1332.49	100.00	2.91E-02		1.09E-01
+	ZN-65	1115.52	50.75	3.34E-02	2.55E-01	2.55E-01
+	GA-67	93.31	* 35.70	3.07E+02	5.18E+02	5.18E+02
		208.95	* 2.24	5.73E+03		5.89E+03
		300.22	16.00	2.17E+02		6.34E+02
+	SE-75	121.11	16.70	8.25E-02	1.20E-01	4.07E-01

Analysis Report for 1510093-12  
CP1806S08-09

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
SE-75	136.00	59.20	1.68E-02	1.20E-01	1.20E-01
	264.65	59.80	7.36E-03		1.48E-01
	279.53	25.20	9.28E-02		3.87E-01
	400.65	11.40	3.63E-01		8.89E-01
+	RB-82	776.52	13.00	4.05E-01	1.84E+00
+	RB-83	520.41	46.00	4.75E-02	2.36E-01
	529.64	30.30	-1.88E-01		3.74E-01
	552.65	16.40	9.29E-02		7.28E-01
+	KR-85	513.99	0.43	2.76E+01	2.63E+01
+	SR-85	513.99	99.27	1.71E-01	1.63E-01
+	Y-88	898.02	93.40	1.69E-03	1.17E-01
	1836.01	99.38	5.23E-02		1.17E-01
+	NB-93M	16.57	9.43	5.16E+01	9.47E+01
+	NB-94	702.63	100.00	1.42E-02	9.47E-02
	871.10	100.00	2.85E-03		9.47E-02
+	NB-95	765.79	99.81	5.41E-02	2.29E-01
+	NB-95M	235.69	25.00	7.57E+02	3.19E+02
+	ZR-95	724.18	43.70	1.37E-01	2.61E-01
	756.72	55.30	2.74E-02		2.61E-01
+	MO-99	181.06	6.20	1.02E+03	3.20E+03
	739.58	12.80	-1.97E+03		3.20E+03
	778.00	4.50	-4.27E+03		8.53E+03
+	RU-103	497.08	89.00	-6.27E-02	1.64E-01
+	RU-106	621.84	9.80	-1.75E-01	9.57E-01
+	AG-108M	433.93	89.90	-4.90E-02	8.73E-02
	614.37	90.40	2.55E-02		1.24E-01
	722.95	90.50	3.91E-02		1.15E-01
+	CD-109	88.03	* 3.72	4.14E+00	4.37E+00
+	AG-110M	657.75	93.14	-2.25E-02	1.07E-01
	677.61	10.53	4.75E-01		9.68E-01
	706.67	16.46	-2.12E-01		6.65E-01
	763.93	21.98	-6.69E-03		5.36E-01
	884.67	71.63	-8.43E-02		1.45E-01
	1384.27	23.94	-1.72E-01		4.41E-01
+	CD-113M	263.70	0.02	-5.42E+01	3.15E+02
+	SN-113	255.12	1.93	-1.27E+00	1.52E-01
	391.69	64.90	2.90E-02		1.52E-01
+	TE123M	159.00	84.10	-3.26E-02	8.33E-02
+	SB-124	602.71	97.87	7.77E-02	1.47E-01
	645.85	7.26	-6.67E-01		1.84E+00
	722.78	11.10	4.67E-01		1.38E+00
	1691.02	49.00	5.49E-02		2.65E-01
+	I-125	35.49	6.49	1.45E+00	3.68E+00
+	SB-125	176.33	6.89	-4.96E-02	3.06E-01
	427.89	29.33	6.28E-02		3.06E-01
	463.38	10.35	7.39E-01		9.57E-01
	600.56	17.80	-6.90E-02		5.42E-01
	635.90	11.32	3.42E-02		8.80E-01

Analysis Report for 1510093-12  
CP1806S08-09

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SB-126	414.70	83.30	1.66E-01	6.57E-01	6.57E-01
		666.33	99.60	3.96E-01		6.83E-01
		695.00	99.60	1.37E-01		6.59E-01
		720.50	53.80	-5.60E-01		1.16E+00
+	SN-126	87.57	* 37.00	3.96E-01	4.18E-01	4.18E-01
+	SB-127	473.00	25.00	2.50E+01	1.03E+02	1.33E+02
		685.20	35.70	-2.57E+01		1.03E+02
		783.80	14.70	8.61E+01		2.65E+02
+	I-129	29.78	57.00	2.88E-01	5.18E-01	5.18E-01
		33.60	13.20	-1.01E+00		1.43E+00
		39.58	7.52	-6.66E-01		1.66E+00
+	I-131	284.30	6.05	-1.19E+01	1.55E+00	2.14E+01
		364.48	81.20	-4.80E-01		1.55E+00
		636.97	7.26	3.46E+00		2.39E+01
		722.89	1.80	3.46E+01		1.02E+02
+	TE-132	49.72	13.10	-2.88E+02	1.04E+02	8.24E+02
		228.16	88.00	6.73E+00		1.04E+02
+	BA-133	81.00	33.00	-7.04E-01	1.91E-01	2.08E-01
		302.84	17.80	6.33E-02		4.68E-01
		356.01	60.00	7.74E-03		1.91E-01
+	I-133	529.87	86.30	-1.82E+10	3.61E+10	3.61E+10
+	XE-133	81.00	38.00	-4.94E+01	1.46E+01	1.46E+01
+	CS-134	563.23	8.38	-1.45E-01	1.03E-01	1.01E+00
		569.32	15.43	-1.46E-01		5.03E-01
		604.70	97.60	4.41E-02		1.03E-01
		795.84	85.40	1.01E-02		1.25E-01
		801.93	8.73	5.85E-01		1.21E+00
		268.24	16.00	7.68E-03		5.13E-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	8.72E-02	5.92E-01	4.53E+00
		163.89	4.61	2.75E+00		7.73E+00
		176.55	13.56	-7.63E-01		2.42E+00
		273.65	12.66	-4.05E+00		3.70E+00
		340.57	48.50	-3.76E-02		1.27E+00
		818.50	99.70	1.07E-01		5.92E-01
		1048.07	79.60	2.40E-01		8.61E-01
		1235.34	19.70	2.86E-01		4.43E+00
+	CS-137	661.65	85.12	2.41E-02	1.16E-01	1.16E-01
+	LA-138	788.74	34.00	-2.25E-02	1.60E-01	2.82E-01
		1435.80	66.00	-1.77E-02		1.60E-01
+	CE-139	165.85	80.35	-2.52E-02	8.87E-02	8.87E-02
+	BA-140	162.64	6.70	1.83E+00	2.24E+00	5.60E+00
		304.84	4.50	-3.18E+00		1.07E+01
		423.70	3.20	5.89E+00		1.64E+01
		437.55	2.00	1.53E+00		2.47E+01
		537.32	25.00	1.07E+00		2.24E+00
+	LA-140	328.77	20.50	8.90E-01	7.29E-01	2.49E+00

Analysis Report for 1510093-12  
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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	-7.56E-01	7.29E-01	1.06E+00
		815.85	23.50	1.60E+00		2.61E+00
		1596.49	95.49	-1.49E-02		7.29E-01
+	CE-141	145.44	48.40	4.93E-02	2.55E-01	2.55E-01
+	CE-143	57.36	11.80	3.88E+06	4.71E+06	1.33E+07
		293.26	42.00	-1.28E+04		4.71E+06
		664.55	5.20	5.90E+06		3.82E+07
+	CE-144	133.54	10.80	-2.30E-01	5.82E-01	5.82E-01
+	PM-144	476.78	42.00	4.29E-02	1.00E-01	2.20E-01
		618.01	98.60	4.71E-02		1.00E-01
		696.49	99.49	5.75E-03		1.08E-01
+	PM-145	36.85	21.70	2.38E-02	3.60E-01	6.80E-01
		37.36	39.70	-1.05E-01		3.60E-01
		42.30	15.10	2.64E-01		7.48E-01
		72.40	2.31	-6.70E+00		3.90E+00
+	PM-146	453.90	39.94	1.97E-02	2.18E-01	2.18E-01
		735.90	14.01	1.57E-01		6.95E-01
		747.13	13.10	-1.04E-01		7.81E-01
+	ND-147	91.11	28.90	-1.38E+00	2.25E+00	2.25E+00
		531.02	13.10	6.71E-01		5.67E+00
+	PM-149	285.90	3.10	6.99E+03	8.26E+04	8.26E+04
+	EU-152	121.78	20.50	2.52E-02	2.74E-01	2.74E-01
		244.69	5.40	-3.33E+00		1.54E+00
		344.27	19.13	2.78E-02		4.14E-01
		778.89	9.20	-5.52E-01		9.40E-01
		964.01	10.40	1.97E-01		1.06E+00
		1085.78	7.22	-6.91E-01		1.54E+00
		1112.02	9.60	2.80E-01		1.38E+00
		1407.95	14.94	3.06E-01		8.85E-01
+	GD-153	97.43	31.30	1.12E-01	1.99E-01	1.99E-01
		103.18	22.20	-1.70E-01		2.64E-01
+	EU-154	123.07	40.50	-4.07E-02	1.39E-01	1.39E-01
		723.30	19.70	1.81E-01		5.34E-01
		873.19	11.50	-3.13E-03		8.49E-01
		996.32	10.30	4.49E-01		1.06E+00
		1004.76	17.90	2.48E-01		6.14E-01
		1274.45	35.50	-3.73E-01		3.32E-01
+	EU-155	86.50	30.90	1.76E-01	2.62E-01	2.62E-01
		105.30	20.70	2.55E-02		2.65E-01
+	EU-156	811.77	10.40	-3.07E+00	3.42E+00	3.42E+00
		1153.47	7.20	-4.61E-01		7.77E+00
		1230.71	8.90	3.03E+00		7.63E+00
+	HO-166M	184.41	72.60	1.74E-01	1.04E-01	1.04E-01
		280.45	29.60	1.33E-02		2.72E-01
		410.94	11.10	2.68E-01		7.88E-01
		711.69	54.10	-3.56E-02		1.82E-01
+	TM-171	66.72	0.14	-8.56E+01	5.79E+01	5.79E+01
+	HF-172	81.75	4.52	-5.70E+00	5.18E-01	1.55E+00
		125.81	11.30	-4.94E-01		5.18E-01



Analysis Report for 1510093-12  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>	
+	LU-172	181.53	20.60	3.53E+00	5.49E+00	9.07E+00	
		810.06	16.63	-3.90E+00		1.56E+01	
		912.12	15.25	6.37E+01		3.66E+01	
+	LU-173	1093.66	62.50	-3.70E-01	4.14E-01	5.49E+00	
		100.72	5.24	4.45E-02		1.11E+00	
		272.11	21.20	3.13E-01		4.14E-01	
+	HF-175	343.40	84.00	6.89E-02	1.41E-01	1.41E-01	
+	LU-176	88.34	13.30	3.38E-01	8.32E-02	6.23E-01	
		201.83	86.00	-4.24E-02		8.42E-02	
		306.78	94.00	-4.56E-03		8.32E-02	
+	TA-182	67.75	41.20	-1.29E-01	2.29E-01	2.29E-01	
		1121.30	34.90	6.39E-01		5.67E-01	
		1189.05	16.23	6.21E-01		9.66E-01	
		1221.41	26.98	-4.26E-01		5.70E-01	
		1231.02	11.44	-7.47E-02		1.49E+00	
+	IR-192	308.46	29.68	4.58E-02	2.31E-01	3.59E-01	
		468.07	48.10	-3.74E-02		2.31E-01	
+	HG-203	279.19	77.30	9.23E-02	1.72E-01	1.72E-01	
+	BI-207	569.67	97.72	-4.51E-02	7.72E-02	7.72E-02	
		1063.62	74.90	-5.73E-03		1.43E-01	
		583.14	30.22	1.64E+00		5.72E-01	
+	TL-208	860.37	4.48	7.97E-01	5.72E-01	2.53E+00	
		2614.66	35.85	1.33E+00		7.65E-01	
		262.00	45.00	3.63E-02		1.65E-01	
+	BI-210M	300.00	23.00	1.28E-01	1.65E-01	3.74E-01	
		46.50	*	4.25		2.08E+00	3.11E+00
+	PB-210	404.84	2.90	-1.67E+00	2.80E+00	2.80E+00	
		831.96	2.90	-4.77E-01		3.66E+00	
		727.17	11.80	1.18E+00		1.11E+00	
+	BI-212	1620.62	2.75	2.58E+00	1.11E+00	3.76E+00	
		238.63	*	44.60		1.86E+00	3.43E-01
		300.09	3.41	8.62E-01		2.52E+00	
+	BI-214	609.31	*	46.30	2.47E-01	2.47E-01	
		1120.29	*	15.10		9.36E-01	1.16E+00
		1764.49		15.80		9.30E-01	1.05E+00
		2204.22	*	4.98		1.72E+00	1.37E+00
		295.21	*	19.19		9.39E-01	6.07E-01
+	PB-214	351.92	*	37.19	2.90E-01	2.90E-01	
		401.80	6.50	5.15E-01		1.29E+00	1.29E+00
+	RA-223	323.87	3.88	6.96E-01	1.91E+00	1.91E+00	
+	RA-224	240.98	3.95	2.38E+01	3.99E+00	3.99E+00	
+	RA-225	40.00	31.00	-7.50E-01	1.87E+00	1.87E+00	
+	RA-226	186.21	*	3.28	2.50E+00	2.50E+00	
+	TH-227	50.10	8.40	-3.75E-01	1.07E+00	1.07E+00	
		236.00	11.50	2.77E+00		1.17E+00	
		256.20	6.30	3.07E-02		1.16E+00	
		338.32	*	11.40		1.65E+00	7.77E-01
+	AC-228	911.07	*	27.70	4.62E-01	4.62E-01	

Analysis Report for 1510093-12  
CP1806S08-09

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	AC-228	969.11	*	16.60	1.61E+00	4.62E-01	1.12E+00
+	TH-230	48.44		16.90	1.96E-01	6.00E-01	6.00E-01
		62.85		4.60	3.18E+00		2.01E+00
		67.67		0.37	-1.17E+01		2.08E+01
+	PA-231	283.67		1.60	-2.55E+00	3.60E+00	4.58E+00
		302.67		2.30	4.86E-01		3.60E+00
+	TH-231	25.64		14.70	-1.06E+00	1.08E+00	3.76E+00
		84.21		6.40	-2.36E+00		1.08E+00
+	PA-233	311.98		38.60	1.08E-01	4.73E-01	4.73E-01
+	PA-234	131.20		20.40	1.12E-01	3.01E-01	3.01E-01
		733.99		8.80	-2.24E-01		1.03E+00
		946.00		12.00	1.37E-01		8.99E-01
+	PA-234M	1001.03		0.92	-9.82E-01	1.09E+01	1.09E+01
+	TH-234	63.29	*	3.80	5.88E+00	4.29E+00	4.29E+00
+	U-235	143.76		10.50	-4.21E-02	5.68E-01	5.68E-01
		163.35		4.70	4.68E-01		1.31E+00
		205.31		4.70	-2.61E+00		1.55E+00
+	NP-237	86.50		12.60	4.26E-01	6.34E-01	6.34E-01
+	NP-239	106.10		22.70	1.32E+03	4.35E+03	4.35E+03
		228.18		10.70	8.36E+02		1.30E+04
		277.60		14.10	7.08E+03		1.03E+04
+	AM-241	59.54		35.90	-2.40E-01	2.33E-01	2.33E-01
+	AM-243	74.67		66.00	2.38E-01	1.61E-01	1.61E-01
+	CM-243	209.75	*	3.29	3.32E+00	5.86E-01	3.41E+00
		228.14		10.60	4.73E-02		7.33E-01
		277.60	*	14.00	5.15E-01		5.86E-01

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

: 00770

Analysis Report for 1510093-12  
CP1806S08-09

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
BE-7	477.59	10.42	1.25E+00	1.25E+00	-2.90E-01	5.90E-01
NA-22	1274.54	99.94	1.20E-01	1.20E-01	-1.35E-01	5.45E-02
NA-24	1368.53	99.99	1.08E+15	1.88E+14	-7.10E+14	4.78E+14
	2754.09	99.86	1.88E+14		0.00E+00	0.00E+00
AL-26	1808.65	99.76	6.73E-02	6.73E-02	-3.59E-02	2.67E-02
+ K-40	1460.81	* 10.67	1.04E+00	1.04E+00	2.06E+01	4.67E-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	8.16E-02	8.16E-02	-4.59E-02	3.99E-02
	78.34	96.00	1.03E-01		2.59E-01	5.08E-02
SC-46	889.25	99.98	1.36E-01	1.36E-01	4.40E-02	6.29E-02
	1120.51	99.99	2.09E-01		1.50E-01	9.84E-02
V-48	983.52	99.98	4.64E-01	4.64E-01	2.21E-01	2.14E-01
	1312.10	97.50	5.41E-01		1.48E-01	2.47E-01
CR-51	320.08	9.83	1.66E+00	1.66E+00	-9.14E-01	7.91E-01
MN-54	834.83	99.97	1.19E-01	1.19E-01	5.60E-02	5.55E-02
CO-56	846.75	99.96	1.38E-01	1.37E-01	2.09E-02	6.38E-02
	1037.75	14.03	1.08E+00		3.79E-01	4.99E-01
	1238.25	67.00	3.19E-01		1.84E-01	1.49E-01
	1771.40	15.51	8.49E-01		-5.09E-02	3.66E-01
	2598.48	16.90	1.37E-01		0.00E+00	0.00E+00
CO-57	122.06	85.51	7.13E-02	7.13E-02	6.55E-03	3.46E-02
	136.48	10.60	5.94E-01		-9.81E-02	2.88E-01
CO-58	810.76	99.40	1.14E-01	1.14E-01	-2.24E-02	5.21E-02
FE-59	1099.22	56.50	3.31E-01	3.31E-01	-1.21E-01	1.52E-01
	1291.56	43.20	5.32E-01		1.95E-01	2.45E-01
CO-60	1173.22	100.00	1.40E-01	1.09E-01	7.17E-02	6.51E-02
	1332.49	100.00	1.09E-01		2.91E-02	4.88E-02
ZN-65	1115.52	50.75	2.55E-01	2.55E-01	3.34E-02	1.17E-01
+ GA-67	93.31	* 35.70	5.18E+02	5.18E+02	3.07E+02	2.56E+02
	208.95	* 2.24	5.89E+03		5.73E+03	2.89E+03
	300.22	16.00	6.34E+02		2.17E+02	3.05E+02
SE-75	121.11	16.70	4.07E-01	1.20E-01	8.25E-02	1.97E-01
	136.00	59.20	1.20E-01		1.68E-02	5.82E-02
	264.65	59.80	1.48E-01		7.36E-03	7.14E-02
	279.53	25.20	3.87E-01		9.28E-02	1.87E-01
	400.65	11.40	8.89E-01		3.63E-01	4.24E-01
RB-82	776.52	13.00	1.84E+00	1.84E+00	4.05E-01	8.53E-01
RB-83	520.41	46.00	2.36E-01	2.36E-01	4.75E-02	1.11E-01
	529.64	30.30	3.74E-01		-1.88E-01	1.76E-01
	552.65	16.40	7.28E-01		9.29E-02	3.44E-01
KR-85	513.99	0.43	2.63E+01	2.63E+01	2.76E+01	1.26E+01
SR-85	513.99	99.27	1.63E-01	1.63E-01	1.71E-01	7.80E-02
Y-88	898.02	93.40	1.26E-01	1.17E-01	1.69E-03	5.80E-02
	1836.01	99.38	1.17E-01		5.23E-02	4.99E-02
NB-93M	16.57	9.43	9.47E+01	9.47E+01	5.16E+01	4.62E+01
NB-94	702.63	100.00	1.02E-01	9.47E-02	1.42E-02	4.80E-02
	871.10	100.00	9.47E-02		2.85E-03	4.35E-02
NB-95	765.79	99.81	2.29E-01	2.29E-01	5.41E-02	1.08E-01
NB-95M	235.69	25.00	3.19E+02	3.19E+02	7.57E+02	1.56E+02
ZR-95	724.18	43.70	3.83E-01	2.61E-01	1.37E-01	1.81E-01
	756.72	55.30	2.61E-01		2.74E-02	1.22E-01

Analysis Report for 1510093-12  
CP1806S08-09

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	181.06	6.20	4.14E+03	3.20E+03	1.02E+03	2.00E+03
	739.58	12.80	3.20E+03		-1.97E+03	1.49E+03
	778.00	4.50	8.53E+03		-4.27E+03	3.92E+03
RU-103	497.08	89.00	1.64E-01	1.64E-01	-6.27E-02	7.72E-02
RU-106	621.84	9.80	9.57E-01	9.57E-01	-1.75E-01	4.47E-01
AG-108M	433.93	89.90	8.73E-02	8.73E-02	-4.90E-02	4.13E-02
	614.37	90.40	1.24E-01		2.55E-02	5.89E-02
	722.95	90.50	1.15E-01		3.91E-02	5.41E-02
+ CD-109	88.03	* 3.72	4.37E+00	4.37E+00	4.14E+00	2.16E+00
AG-110M	657.75	93.14	1.07E-01	1.07E-01	-2.25E-02	5.02E-02
	677.61	10.53	9.68E-01		4.75E-01	4.52E-01
	706.67	16.46	6.65E-01		-2.12E-01	3.11E-01
	763.93	21.98	5.36E-01		-6.69E-03	2.51E-01
	884.67	71.63	1.45E-01		-8.43E-02	6.67E-02
	1384.27	23.94	4.41E-01		-1.72E-01	1.95E-01
	263.70	0.02	3.15E+02		3.15E+02	-5.42E+01
SN-113	255.12	1.93	4.55E+00	1.52E-01	-1.27E+00	2.19E+00
TE123M	391.69	64.90	1.52E-01	8.33E-02	2.90E-02	7.25E-02
	159.00	84.10	8.33E-02		-3.26E-02	4.03E-02
SB-124	602.71	97.87	1.47E-01	1.47E-01	7.77E-02	6.93E-02
	645.85	7.26	1.84E+00		-6.67E-01	8.59E-01
	722.78	11.10	1.38E+00		4.67E-01	6.46E-01
	1691.02	49.00	2.65E-01		5.49E-02	1.13E-01
	35.49	6.49	3.68E+00		3.68E+00	1.45E+00
SB-125	176.33	6.89	8.59E-01	3.06E-01	-4.96E-02	4.14E-01
	427.89	29.33	3.06E-01		6.28E-02	1.46E-01
	463.38	10.35	9.57E-01		7.39E-01	4.56E-01
	600.56	17.80	5.42E-01		-6.90E-02	2.55E-01
	635.90	11.32	8.80E-01		3.42E-02	4.13E-01
	414.70	83.30	6.57E-01		6.57E-01	1.66E-01
SB-126	666.33	99.60	6.83E-01	6.57E-01	3.96E-01	3.22E-01
	695.00	99.60	6.59E-01		1.37E-01	3.09E-01
	720.50	53.80	1.16E+00		-5.60E-01	5.42E-01
	87.57	* 37.00	4.18E-01		4.18E-01	3.96E-01
+ SN-126	473.00	25.00	1.33E+02	1.03E+02	2.50E+01	6.27E+01
	685.20	35.70	1.03E+02		-2.57E+01	4.79E+01
	783.80	14.70	2.65E+02		8.61E+01	1.23E+02
I-129	29.78	57.00	5.18E-01	5.18E-01	2.88E-01	2.52E-01
	33.60	13.20	1.43E+00		-1.01E+00	6.96E-01
	39.58	7.52	1.66E+00		-6.66E-01	8.07E-01
I-131	284.30	6.05	2.14E+01	1.55E+00	-1.19E+01	1.02E+01
	364.48	81.20	1.55E+00		-4.80E-01	7.37E-01
	636.97	7.26	2.39E+01		3.46E+00	1.12E+01
	722.89	1.80	1.02E+02		3.46E+01	4.78E+01
TE-132	49.72	13.10	8.24E+02	1.04E+02	-2.88E+02	4.02E+02
	228.16	88.00	1.04E+02		6.73E+00	5.06E+01
BA-133	81.00	33.00	2.08E-01	1.91E-01	-7.04E-01	1.02E-01
	302.84	17.80	4.68E-01		6.33E-02	2.25E-01
	356.01	60.00	1.91E-01		7.74E-03	9.26E-02
I-133	529.87	86.30	3.61E+10	3.61E+10	-1.82E+10	1.70E+10
XE-133	81.00	38.00	1.46E+01	1.46E+01	-4.94E+01	7.14E+00
CS-134	563.23	8.38	1.01E+00	1.03E-01	-1.45E-01	4.75E-01
	569.32	15.43	5.03E-01		-1.46E-01	2.33E-01

Analysis Report for 1510093-12  
 CP1806S08-09

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	1.03E-01	1.03E-01	4.41E-02	4.87E-02	
	795.84	85.40	1.25E-01		1.01E-02	5.84E-02	
	801.93	8.73	1.21E+00		5.85E-01	5.61E-01	
CS-135	268.24	16.00	5.13E-01	5.13E-01	7.68E-03	2.48E-01	
	1131.51	22.50	1.00E+26		1.00E+26	1.00E+20	
@ I-135	1260.41	28.60	1.00E+26	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	4.53E+00		5.92E-01	8.72E-02	2.19E+00
CS-136	163.89	4.61	7.73E+00	5.92E-01	2.75E+00	3.74E+00	
	176.55	13.56	2.42E+00		-7.63E-01	1.17E+00	
	273.65	12.66	3.70E+00		-4.05E+00	1.78E+00	
	340.57	48.50	1.27E+00		-3.76E-02	6.16E-01	
	818.50	99.70	5.92E-01		1.07E-01	2.75E-01	
	1048.07	79.60	8.61E-01		2.40E-01	3.98E-01	
	1235.34	19.70	4.43E+00		2.86E-01	2.07E+00	
	CS-137	661.65	85.12		1.16E-01	1.16E-01	2.41E-02
LA-138	788.74	34.00	2.82E-01	1.60E-01	-2.25E-02	1.30E-01	
	1435.80	66.00	1.60E-01		-1.77E-02	7.12E-02	
CE-139	165.85	80.35	8.87E-02	8.87E-02	-2.52E-02	4.29E-02	
BA-140	162.64	6.70	5.60E+00	2.24E+00	1.83E+00	2.71E+00	
	304.84	4.50	1.07E+01		-3.18E+00	5.16E+00	
	423.70	3.20	1.64E+01		5.89E+00	7.82E+00	
	437.55	2.00	2.47E+01		1.53E+00	1.17E+01	
	537.32	25.00	2.24E+00		1.07E+00	1.06E+00	
LA-140	328.77	20.50	2.49E+00	7.29E-01	8.90E-01	1.19E+00	
	487.03	45.50	1.06E+00		-7.56E-01	4.98E-01	
	815.85	23.50	2.61E+00		1.60E+00	1.21E+00	
CE-141	1596.49	95.49	7.29E-01	2.55E-01	-1.49E-02	3.24E-01	
CE-141	145.44	48.40	2.55E-01		4.93E-02	1.24E-01	
CE-143	57.36	11.80	1.33E+07		4.71E+06	3.88E+06	6.49E+06
	293.26	42.00	4.71E+06		-1.28E+04	2.29E+06	
CE-144	664.55	5.20	3.82E+07		5.90E+06	1.80E+07	
PM-144	133.54	10.80	5.82E-01	5.82E-01	-2.30E-01	2.82E-01	
	476.78	42.00	2.20E-01		1.00E-01	4.29E-02	1.04E-01
PM-145	618.01	98.60	1.00E-01	3.60E-01	4.71E-02	4.70E-02	
	696.49	99.49	1.08E-01		5.75E-03	5.04E-02	
	36.85	21.70	6.80E-01		2.38E-02	3.30E-01	
	37.36	39.70	3.60E-01		-1.05E-01	1.75E-01	
PM-146	42.30	15.10	7.48E-01	2.18E-01	2.64E-01	3.64E-01	
	72.40	2.31	3.90E+00		-6.70E+00	1.92E+00	
	453.90	39.94	2.18E-01		1.97E-02	1.04E-01	
ND-147	735.90	14.01	6.95E-01	2.25E+00	1.57E-01	3.23E-01	
	747.13	13.10	7.81E-01		-1.04E-01	3.65E-01	
	91.11	28.90	2.25E+00		-1.38E+00	1.10E+00	
PM-149	531.02	13.10	5.67E+00	8.26E+04	6.71E-01	2.68E+00	
EU-152	285.90	3.10	8.26E+04		6.99E+03	3.97E+04	
EU-152	121.78	20.50	2.74E-01		2.74E-01	2.52E-02	1.33E-01
	244.69	5.40	1.54E+00		-3.33E+00	7.45E-01	
	344.27	19.13	4.14E-01		2.78E-02	1.98E-01	
	778.89	9.20	9.40E-01	-5.52E-01	4.32E-01		
EU-152	964.01	10.40	1.06E+00	2.80E-01	1.97E-01	4.89E-01	
	1085.78	7.22	1.54E+00		-6.91E-01	7.03E-01	
EU-152	1112.02	9.60	1.38E+00		2.80E-01	6.39E-01	

Analysis Report for 1510093-12  
CP1806S08-09

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	8.85E-01	2.74E-01	3.06E-01	4.04E-01
GD-153	97.43	31.30	1.99E-01	1.99E-01	1.12E-01	9.68E-02
	103.18	22.20	2.64E-01		-1.70E-01	1.28E-01
EU-154	123.07	40.50	1.39E-01	1.39E-01	-4.07E-02	6.72E-02
	723.30	19.70	5.34E-01		1.81E-01	2.50E-01
	873.19	11.50	8.49E-01		-3.13E-03	3.91E-01
	996.32	10.30	1.06E+00		4.49E-01	4.88E-01
	1004.76	17.90	6.14E-01		2.48E-01	2.83E-01
	1274.45	35.50	3.32E-01		-3.73E-01	1.51E-01
EU-155	86.50	30.90	2.62E-01	2.62E-01	1.76E-01	1.28E-01
	105.30	20.70	2.65E-01		2.55E-02	1.29E-01
EU-156	811.77	10.40	3.42E+00	3.42E+00	-3.07E+00	1.55E+00
	1153.47	7.20	7.77E+00		-4.61E-01	3.57E+00
	1230.71	8.90	7.63E+00		3.03E+00	3.55E+00
HO-166M	184.41	72.60	1.04E-01	1.04E-01	1.74E-01	5.05E-02
	280.45	29.60	2.72E-01		1.33E-02	1.31E-01
	410.94	11.10	7.88E-01		2.68E-01	3.76E-01
	711.69	54.10	1.82E-01		-3.56E-02	8.49E-02
TM-171	66.72	0.14	5.79E+01	5.79E+01	-8.56E+01	2.83E+01
HF-172	81.75	4.52	1.55E+00	5.18E-01	-5.70E+00	7.57E-01
	125.81	11.30	5.18E-01		-4.94E-01	2.51E-01
LU-172	181.53	20.60	9.07E+00	5.49E+00	3.53E+00	4.37E+00
	810.06	16.63	1.56E+01		-3.90E+00	7.12E+00
	912.12	15.25	3.66E+01		6.37E+01	1.75E+01
	1093.66	62.50	5.49E+00		-3.70E-01	2.51E+00
LU-173	100.72	5.24	1.11E+00	4.14E-01	4.45E-02	5.37E-01
	272.11	21.20	4.14E-01		3.13E-01	2.00E-01
HF-175	343.40	84.00	1.41E-01	1.41E-01	6.89E-02	6.76E-02
LU-176	88.34	13.30	6.23E-01	8.32E-02	3.38E-01	3.05E-01
	201.83	86.00	8.42E-02		-4.24E-02	4.08E-02
	306.78	94.00	8.32E-02		-4.56E-03	3.99E-02
TA-182	67.75	41.20	2.29E-01	2.29E-01	-1.29E-01	1.12E-01
	1121.30	34.90	5.67E-01		6.39E-01	2.67E-01
	1189.05	16.23	9.66E-01		6.21E-01	4.45E-01
	1221.41	26.98	5.70E-01		-4.26E-01	2.62E-01
	1231.02	11.44	1.49E+00		-7.47E-02	6.90E-01
IR-192	308.46	29.68	3.59E-01	2.31E-01	4.58E-02	1.72E-01
	468.07	48.10	2.31E-01		-3.74E-02	1.09E-01
HG-203	279.19	77.30	1.72E-01	1.72E-01	9.23E-02	8.28E-02
BI-207	569.67	97.72	7.72E-02	7.72E-02	-4.51E-02	3.58E-02
	1063.62	74.90	1.43E-01		-5.73E-03	6.56E-02
TL-208	583.14	30.22	5.72E-01	5.72E-01	1.64E+00	2.77E-01
	860.37	4.48	2.53E+00		7.97E-01	1.18E+00
	2614.66	35.85	7.65E-01		1.33E+00	3.58E-01
BI-210M	262.00	45.00	1.65E-01	1.65E-01	3.63E-02	7.92E-02
	300.00	23.00	3.74E-01		1.28E-01	1.80E-01
+ PB-210	46.50	*	3.11E+00	3.11E+00	2.08E+00	1.52E+00
PB-211	404.84	2.90	2.80E+00	2.80E+00	-1.67E+00	1.33E+00
	831.96	2.90	3.66E+00		-4.77E-01	1.70E+00
BI-212	727.17	11.80	1.11E+00	1.11E+00	1.18E+00	5.27E-01
	1620.62	2.75	3.76E+00		2.58E+00	1.65E+00
+ PB-212	238.63	*	3.43E-01	3.43E-01	1.86E+00	1.69E-01
	300.09	3.41	2.52E+00		8.62E-01	1.22E+00

Analysis Report for 1510093-12  
CP1806S08-09

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
+	BI-214	609.31	*	46.30	2.47E-01	2.47E-01	1.12E+00	1.17E-01
		1120.29	*	15.10	1.16E+00		9.36E-01	5.50E-01
		1764.49		15.80	1.05E+00		9.30E-01	4.80E-01
		2204.22	*	4.98	1.37E+00		1.72E+00	5.24E-01
+	PB-214	295.21	*	19.19	6.07E-01	2.90E-01	9.39E-01	2.96E-01
		351.92	*	37.19	2.90E-01		1.33E+00	1.41E-01
	RN-219	401.80		6.50	1.29E+00	1.29E+00	5.15E-01	6.15E-01
	RA-223	323.87		3.88	1.91E+00	1.91E+00	6.96E-01	9.10E-01
	RA-224	240.98		3.95	3.99E+00	3.99E+00	2.38E+01	1.96E+00
	RA-225	40.00		31.00	1.87E+00	1.87E+00	-7.50E-01	9.08E-01
+	RA-226	186.21	*	3.28	2.50E+00	2.50E+00	3.18E+00	1.22E+00
		TH-227	50.10		8.40	1.07E+00	1.07E+00	-3.75E-01
		236.00		11.50	1.17E+00		2.77E+00	5.72E-01
		256.20		6.30	1.16E+00		3.07E-02	5.57E-01
+	AC-228	338.32	*	11.40	7.77E-01	4.62E-01	1.65E+00	3.74E-01
		911.07	*	27.70	4.62E-01		1.19E+00	2.16E-01
		969.11	*	16.60	1.12E+00		1.61E+00	5.35E-01
	TH-230	48.44		16.90	6.00E-01	6.00E-01	1.96E-01	2.93E-01
		62.85		4.60	2.01E+00		3.18E+00	9.86E-01
		67.67		0.37	2.08E+01		-1.17E+01	1.02E+01
	PA-231	283.67		1.60	4.58E+00	3.60E+00	-2.55E+00	2.20E+00
		302.67		2.30	3.60E+00		4.86E-01	1.73E+00
	TH-231	25.64		14.70	3.76E+00	1.08E+00	-1.06E+00	1.83E+00
		84.21		6.40	1.08E+00		-2.36E+00	5.27E-01
	PA-233	311.98		38.60	4.73E-01	4.73E-01	1.08E-01	2.27E-01
	PA-234	131.20		20.40	3.01E-01	3.01E-01	1.12E-01	1.46E-01
		733.99		8.80	1.03E+00		-2.24E-01	4.78E-01
		946.00		12.00	8.99E-01		1.37E-01	4.15E-01
	PA-234M	1001.03		0.92	1.09E+01	1.09E+01	-9.82E-01	5.00E+00
+	TH-234	63.29	*	3.80	4.29E+00	4.29E+00	5.88E+00	2.12E+00
		U-235	143.76		10.50	5.68E-01	5.68E-01	-4.21E-02
		163.35		4.70	1.31E+00		4.68E-01	6.35E-01
		205.31		4.70	1.55E+00		-2.61E+00	7.51E-01
	NP-237	86.50		12.60	6.34E-01	6.34E-01	4.26E-01	3.11E-01
	NP-239	106.10		22.70	4.35E+03	4.35E+03	1.32E+03	2.11E+03
		228.18		10.70	1.30E+04		8.36E+02	6.28E+03
		277.60		14.10	1.03E+04		7.08E+03	4.97E+03
	AM-241	59.54		35.90	2.33E-01	2.33E-01	-2.40E-01	1.14E-01
	AM-243	74.67		66.00	1.61E-01	1.61E-01	2.38E-01	7.92E-02
+	CM-243	209.75	*	3.29	3.41E+00	5.86E-01	3.32E+00	1.67E+00
		228.14		10.60	7.33E-01		4.73E-02	3.55E-01
		277.60	*	14.00	5.86E-01		5.15E-01	2.83E-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 1510093-12  
CP1806S08-09

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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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*Creation Date*

*Comment*

*User*

No Data Review Comments Entered.



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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP1806S08-09

Elapsed Live time: 3600  
 Elapsed Real Time: 3616

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	7	139	175	122	127	98	111	105
17:	115	73	83	79	66	67	100	84
25:	109	73	73	74	81	74	99	79
33:	69	69	77	82	81	73	69	80
41:	86	85	90	73	92	105	178	114
49:	94	86	90	105	127	110	101	116
57:	102	90	121	128	142	148	189	226
65:	142	124	127	152	112	130	143	149
73:	140	154	359	320	387	449	139	119
81:	125	106	91	132	154	117	172	244
89:	126	177	159	112	239	219	94	77
97:	70	66	96	93	74	61	56	80
105:	78	75	69	68	75	74	72	85
113:	75	75	91	85	83	61	68	66
121:	59	87	72	66	60	82	75	66
129:	88	96	78	71	66	68	80	62
137:	66	73	58	75	71	67	59	80
145:	74	62	74	61	63	75	61	56
153:	60	62	68	57	54	48	60	60
161:	63	65	63	70	58	59	55	53
169:	65	62	56	49	51	46	46	60
177:	42	56	38	65	47	55	44	46
185:	63	121	132	55	38	51	50	53
193:	55	43	52	42	54	51	66	54
201:	43	31	44	44	46	50	57	52
209:	69	98	59	56	31	55	55	39
217:	55	33	42	45	48	46	45	54
225:	44	41	47	45	31	53	52	29
233:	50	40	48	48	56	139	531	268
241:	76	100	77	37	25	30	29	21
249:	40	28	42	26	29	29	40	32
257:	37	30	31	38	24	35	27	33
265:	39	23	32	29	31	52	64	40
273:	30	25	34	30	32	61	44	31
281:	17	30	27	31	33	38	18	26
289:	33	26	26	23	27	31	85	153
297:	51	24	28	34	45	40	24	31
305:	22	28	39	20	26	28	21	30
313:	29	23	29	25	16	18	28	14
321:	22	22	27	22	27	19	18	41
329:	45	34	26	17	27	24	17	23
337:	34	59	116	38	17	30	28	22
345:	30	25	9	23	19	23	42	198
353:	187	30	20	23	25	19	23	22
361:	20	14	12	21	16	20	20	16

369: 15 21 22 23 16 25 22 21

Sample Title: CP1806S08-09

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	23	26	15	11	25	21	20	18
385:	24	14	20	19	23	16	21	20
393:	21	15	19	20	13	16	25	12
401:	25	21	24	16	16	17	19	15
409:	21	31	16	18	17	28	23	13
417:	19	18	14	12	24	15	14	16
425:	29	16	21	18	20	15	17	19
433:	20	10	12	18	9	20	20	14
441:	19	17	15	15	8	11	11	14
449:	18	19	16	15	25	16	15	14
457:	17	18	11	8	15	16	34	38
465:	21	13	16	12	12	11	14	16
473:	15	13	16	16	12	16	16	20
481:	7	19	17	16	13	9	13	10
489:	8	18	16	17	9	11	15	17
497:	10	14	15	6	14	19	12	14
505:	12	12	10	15	17	36	56	40
513:	23	19	8	13	8	10	11	12
521:	12	17	15	13	11	12	10	13
529:	19	15	13	10	10	19	20	10
537:	15	13	13	10	14	9	13	15
545:	12	14	10	9	9	15	17	6
553:	13	11	18	13	14	16	18	8
561:	14	11	11	10	8	10	9	5
569:	8	9	10	7	10	11	16	8
577:	5	13	9	12	8	31	86	126
585:	46	10	12	8	12	8	10	10
593:	8	6	12	9	18	9	9	14
601:	7	20	13	13	10	15	7	13
609:	78	157	44	14	13	7	11	13
617:	16	7	12	9	10	7	7	10
625:	14	12	9	14	12	10	15	9
633:	8	11	13	11	13	11	15	10
641:	12	14	7	8	8	8	13	9
649:	16	10	12	13	10	11	14	10
657:	8	6	7	10	12	11	11	9
665:	18	14	11	16	11	7	7	4
673:	3	13	12	8	12	4	5	12
681:	13	7	4	10	14	7	9	12
689:	8	9	11	14	8	14	9	9
697:	14	9	11	8	9	15	12	10
705:	9	13	8	12	11	8	8	14
713:	9	8	10	12	11	5	9	5
721:	10	13	12	16	10	9	25	31
729:	15	14	5	7	7	13	7	9
737:	6	14	5	6	11	6	12	13
745:	11	7	8	10	6	11	14	8
753:	6	12	6	15	11	6	6	8
761:	11	8	8	13	12	8	12	12
769:	23	15	10	5	11	13	9	7
777:	9	5	2	9	4	7	7	8
785:	11	10	9	6	8	5	8	7
793:	6	8	14	17	6	5	6	8

801: 10 7 6 11 11 6 6 9

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Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	2	7	2	5	6	5	5	7
817:	11	10	12	2	10	6	11	8
825:	6	9	9	8	5	9	11	5
833:	10	8	12	6	14	10	2	5
841:	7	5	7	11	4	2	7	10
849:	10	10	11	6	5	6	6	6
857:	6	4	5	11	19	12	8	12
865:	6	4	8	4	6	8	5	7
873:	9	4	9	3	6	6	10	8
881:	5	5	7	8	3	9	5	7
889:	10	8	4	7	5	6	4	6
897:	5	4	5	8	9	10	13	3
905:	6	8	9	6	8	12	39	65
913:	21	2	6	8	5	5	5	4
921:	7	8	4	6	5	12	4	5
929:	5	6	2	6	7	8	14	8
937:	2	8	7	7	4	5	7	8
945:	9	5	4	8	8	10	5	7
953:	4	4	8	2	6	3	5	4
961:	6	3	6	3	17	7	7	16
969:	58	39	15	4	6	5	8	3
977:	4	8	4	10	9	7	6	7
985:	4	4	2	5	4	4	4	3
993:	2	10	8	8	7	7	3	4
1001:	6	5	9	4	3	6	10	8
1009:	2	6	8	5	8	6	8	2
1017:	8	5	6	4	4	2	5	4
1025:	4	8	6	8	7	6	7	1
1033:	4	4	11	4	3	6	6	10
1041:	6	1	10	6	10	5	6	7
1049:	8	3	11	2	6	7	6	3
1057:	1	7	8	1	10	8	5	5
1065:	7	3	5	4	13	7	4	10
1073:	7	4	8	7	6	8	6	4
1081:	10	5	6	5	5	6	5	7
1089:	6	7	9	4	5	5	3	6
1097:	8	3	5	4	7	7	9	11
1105:	7	9	11	7	10	10	7	8
1113:	4	8	9	6	5	4	13	20
1121:	24	12	5	8	6	3	9	6
1129:	3	9	7	4	5	7	8	8
1137:	5	5	7	6	6	8	5	10
1145:	6	8	6	9	5	9	3	6
1153:	6	9	5	7	8	5	14	3
1161:	8	4	4	6	9	7	8	3
1169:	10	9	5	7	10	11	7	8
1177:	4	5	9	4	7	3	3	4
1185:	5	7	10	5	10	9	4	2
1193:	4	2	7	1	5	7	6	5
1201:	8	7	2	3	10	7	4	8
1209:	6	9	4	13	7	8	2	12
1217:	15	7	5	4	4	8	10	5
1225:	5	8	13	5	6	11	9	10

1233: 7 5 8 10 9 14 12 11

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Channel	7	5	8	10	9	14	12	11
1241:	6	5	9	6	9	8	5	6
1249:	8	4	7	4	5	2	6	5
1257:	8	9	7	4	4	5	3	2
1265:	6	1	2	12	3	6	4	3
1273:	3	1	6	3	3	5	8	7
1281:	5	4	7	2	1	6	8	5
1289:	10	6	1	1	7	6	3	3
1297:	5	8	6	4	3	2	4	5
1305:	1	2	2	3	8	5	2	6
1313:	2	1	5	5	2	6	4	6
1321:	2	4	4	3	6	4	3	1
1329:	2	1	5	3	1	6	3	4
1337:	0	1	7	1	4	3	2	3
1345:	3	5	5	4	2	5	1	5
1353:	4	3	3	4	2	5	1	7
1361:	1	3	6	1	3	2	3	0
1369:	4	4	3	2	2	6	1	3
1377:	4	6	8	4	3	0	1	2
1385:	2	4	2	1	8	2	1	2
1393:	0	2	4	3	1	1	2	6
1401:	4	4	4	5	1	2	5	10
1409:	2	5	3	4	2	2	1	1
1417:	2	2	1	0	1	4	5	2
1425:	0	2	1	3	2	3	1	1
1433:	2	3	2	4	5	3	1	4
1441:	2	5	4	3	1	0	2	4
1449:	0	1	2	3	2	1	1	1
1457:	2	6	21	86	206	151	35	4
1465:	3	0	2	0	2	1	2	2
1473:	1	3	0	1	1	1	2	0
1481:	2	0	2	3	4	2	1	3
1489:	2	0	1	1	0	4	0	1
1497:	2	3	1	2	1	2	0	1
1505:	2	1	1	4	5	3	1	0
1513:	3	0	2	1	1	3	1	0
1521:	0	1	2	0	2	6	2	0
1529:	2	2	0	1	4	1	2	0
1537:	2	2	0	2	2	2	1	2
1545:	1	1	1	2	0	0	0	2
1553:	1	3	4	2	1	1	2	1
1561:	4	2	1	2	5	1	0	1
1569:	1	4	0	0	0	2	0	0
1577:	0	1	1	1	5	1	6	1
1585:	2	2	1	4	2	3	2	4
1593:	2	7	2	3	1	1	1	1
1601:	2	3	0	3	3	1	3	3
1609:	3	0	3	0	1	0	0	1
1617:	1	1	1	1	4	4	1	3
1625:	1	0	1	2	0	4	2	1
1633:	0	1	2	3	0	1	1	0
1641:	1	1	1	1	2	0	1	2
1649:	1	0	0	0	0	3	3	1
1657:	2	0	0	0	4	0	0	0

1665: 3 2 1 3 0 0 0 1

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Channel	1	2	3	4	5	6	7	8	9
1673:	1	0	2	3	3	1	3	0	
1681:	2	0	1	0	1	2	2	2	
1689:	0	1	1	1	2	1	1	0	
1697:	0	2	1	3	0	2	0	1	
1705:	0	0	0	1	0	1	1	0	
1713:	1	0	5	3	1	0	3	2	
1721:	4	0	2	0	2	2	0	1	
1729:	2	6	4	0	0	0	0	1	
1737:	0	1	0	3	1	1	1	0	
1745:	0	1	1	1	0	1	3	0	
1753:	0	1	3	0	0	3	0	0	
1761:	0	0	5	7	14	11	1	4	
1769:	2	2	2	0	1	1	0	2	
1777:	0	1	1	0	2	1	1	0	
1785:	2	1	0	0	0	1	0	1	
1793:	1	0	1	1	1	1	2	0	
1801:	1	1	2	1	0	0	0	0	
1809:	1	3	0	0	1	0	3	0	
1817:	2	2	2	0	0	1	2	1	
1825:	1	0	1	0	0	0	2	0	
1833:	1	0	1	2	1	3	1	0	
1841:	2	0	2	1	1	1	3	6	
1849:	4	2	1	2	0	0	1	1	
1857:	1	0	1	0	2	0	0	3	
1865:	1	1	1	1	2	1	1	2	
1873:	0	0	0	0	1	0	1	0	
1881:	2	0	3	0	0	1	0	0	
1889:	2	0	1	1	3	0	0	1	
1897:	1	3	2	1	2	2	1	1	
1905:	0	2	1	1	0	1	1	1	
1913:	1	1	2	0	0	1	0	1	
1921:	1	1	0	1	0	0	1	2	
1929:	2	1	0	0	0	1	0	0	
1937:	2	1	1	0	0	1	1	1	
1945:	0	2	0	0	2	0	0	1	
1953:	0	3	2	1	0	0	1	1	
1961:	2	0	1	1	0	1	1	1	
1969:	0	2	0	2	0	0	1	0	
1977:	2	2	0	0	1	0	1	0	
1985:	0	1	1	2	0	1	0	0	
1993:	2	1	0	0	2	1	0	1	
2001:	2	1	1	0	1	2	1	0	
2009:	1	2	1	3	0	3	1	1	
2017:	2	0	2	1	0	0	1	1	
2025:	1	0	0	1	2	1	1	1	
2033:	1	5	0	0	0	2	1	0	
2041:	0	1	1	1	0	2	2	1	
2049:	1	0	1	1	1	0	1	1	
2057:	0	0	0	0	0	1	0	1	
2065:	0	3	1	1	0	3	1	1	
2073:	2	0	2	0	2	1	0	3	
2081:	1	2	1	1	2	1	0	0	
2089:	1	1	2	1	2	2	0	1	

2097: 2 0 0 3 0 0 5 4

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

2529: 1 1 0 0 1 0 1 1

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Channel	1	2	3	4	5	6	7	8
2537:	1	1	1	1	0	0	0	0
2545:	0	1	0	0	0	0	1	0
2553:	1	0	0	2	0	1	1	0
2561:	0	0	0	0	0	0	1	1
2569:	0	1	1	0	0	1	1	0
2577:	0	0	0	0	0	0	0	1
2585:	1	0	1	0	0	2	1	1
2593:	0	0	0	0	0	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	0	0	1	8	21	19	18
2617:	7	0	0	0	0	0	0	0
2625:	1	0	0	0	0	0	0	0
2633:	0	0	0	0	0	0	1	0
2641:	0	0	0	1	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	0	0	0	1	0	0	0
2665:	0	0	1	0	0	2	1	0
2673:	0	0	0	1	0	0	0	0
2681:	1	1	1	0	0	0	0	0
2689:	2	0	0	0	0	0	1	0
2697:	0	1	1	0	0	1	0	0
2705:	1	0	0	0	0	0	0	0
2713:	0	0	0	0	0	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	1	0	1	0	0	1	0
2737:	0	0	0	0	1	0	0	1
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	1	0
2761:	0	1	0	0	0	1	0	0
2769:	0	1	0	0	1	0	1	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	2	0	0	0
2793:	0	0	1	0	0	0	0	1
2801:	0	0	0	1	2	0	1	0
2809:	0	0	1	0	1	0	1	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	1	0	0
2841:	0	0	0	1	0	0	0	0
2849:	0	0	1	1	0	1	0	0
2857:	0	0	1	0	0	0	0	0
2865:	0	1	0	0	0	0	1	0
2873:	0	0	0	0	1	0	0	0
2881:	0	0	0	0	1	1	0	0
2889:	0	0	0	0	1	0	0	1
2897:	0	0	0	0	0	0	0	0
2905:	0	0	1	0	0	0	0	0
2913:	1	0	1	0	1	0	0	0
2921:	0	0	0	0	0	0	0	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	1	0	0	0	0
2945:	0	1	0	1	0	0	0	0
2953:	0	2	0	0	0	0	0	0

2961: 0 0 0 0 0 0 0 0

Sample Title: CP1806S08-09

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



3393: 0 1 0 0 1 0 0 0

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

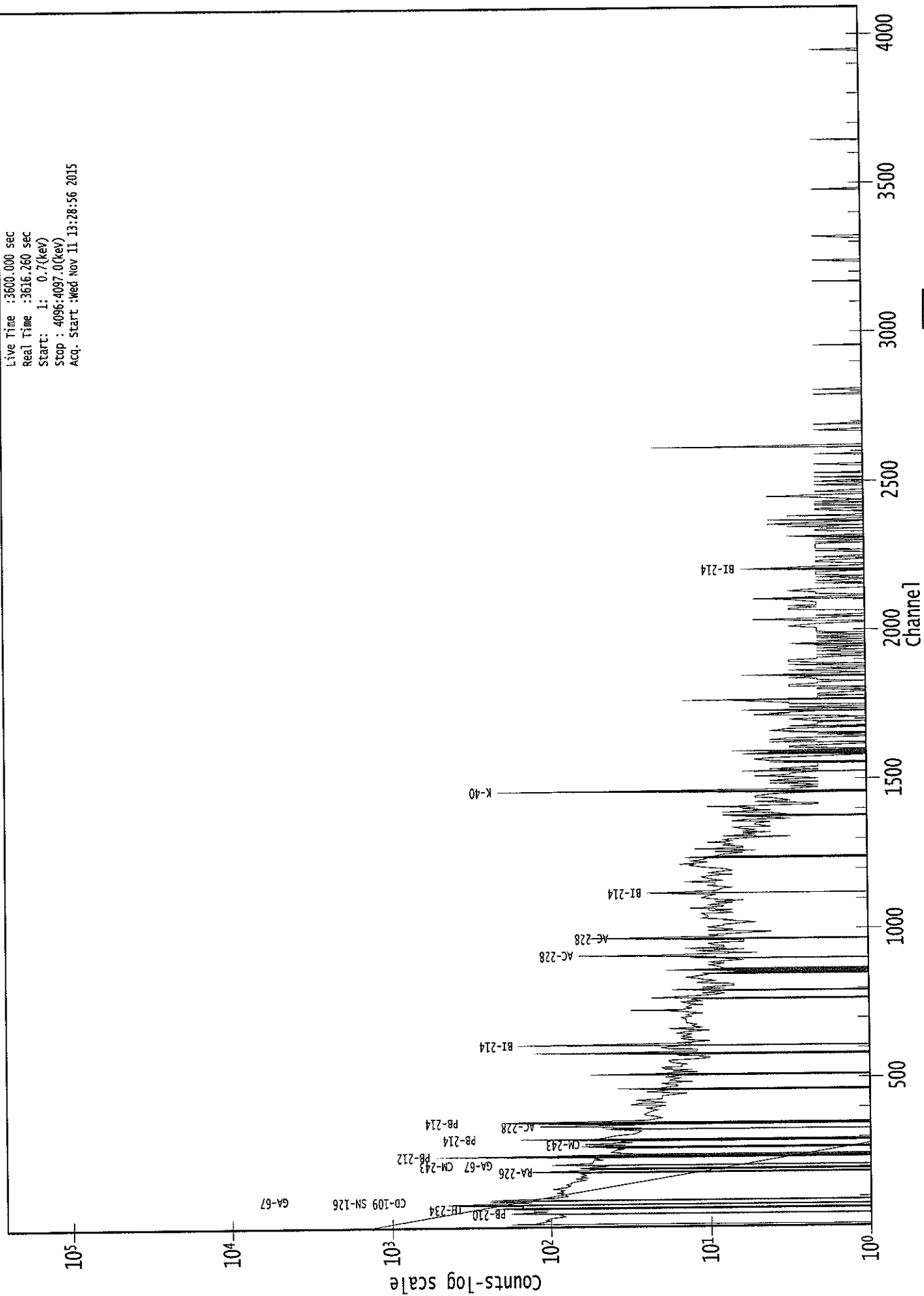
3825: 0 0 0 0 0 0 0 0 0

Sample Title: CP1806S08-09

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

0000029503.CNF

Live Time :3600.000 sec  
Real Time :3616.260 sec  
Start: 1: 0.7(keV)  
Stop : 4096:4097.0(keV)  
Acq. Start :Wed Nov 11 13:28:56 2015



ROI Type: 1

ROI Type: 2

78700 :

KBS  
11/11/15Analysis Report for 1510093-13  
CP1806S10-11

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-13  
Sample Description : CP1806S10-11  
Sample Type : SOIL

Sample Size : 5.695E+02 grams  
Facility : Countroom

Sample Taken On : 10/9/2015 7:32:33AM  
Acquisition Started : 11/11/2015 2:14:20PM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE4  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3647.6 seconds

Dead Time : 1.31 %

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 : 29504

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15

Analysis Report for 1510093-13  
CP1806S10-11

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 3:15:09PM  
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	64.55	63.81	0.0000	0.00
2	76.27	75.54	0.0000	0.00
3	86.69	85.96	0.0000	0.00
4	93.73	93.00	0.0000	0.00
5	185.67	184.99	0.0000	0.00
6	198.33	197.65	0.0000	0.00
7	239.46	238.79	0.0000	0.00
8	255.23	254.57	0.0000	0.00
9	270.32	269.68	0.0000	0.00
10	277.08	276.43	0.0000	0.00
11	294.75	294.11	0.0000	0.00
12	338.63	338.01	0.0000	0.00
13	352.07	351.46	0.0000	0.00
14	365.07	364.47	0.0000	0.00
15	463.37	462.81	0.0000	0.00
16	475.90	475.34	0.0000	0.00
17	583.31	582.81	0.0000	0.00
18	609.70	609.20	0.0000	0.00
19	757.60	757.18	0.0000	0.00
20	818.15	817.76	0.0000	0.00
21	862.41	862.04	0.0000	0.00
22	911.80	911.46	0.0000	0.00
23	968.53	968.22	0.0000	0.00
24	1427.05	1427.00	0.0000	0.00
25	1437.73	1437.68	0.0000	0.00
26	1461.08	1461.05	0.0000	0.00
27	1512.25	1512.25	0.0000	0.00
28	1765.36	1765.52	0.0000	0.00
29	1908.54	1908.80	0.0000	0.00
30	2104.93	2105.32	0.0000	0.00
31	2277.04	2277.56	0.0000	0.00
32	2615.26	2616.03	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-13  
CP1806S10-11

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 3:15:09PM

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	64.55	56 -	81	63.81	3.94E+02	153.62	2.15E+03	6.66
m	2	76.27	56 -	81	75.54	8.89E+02	137.08	1.79E+03	4.31
	3	86.69	82 -	90	85.96	1.74E+02	103.17	1.54E+03	3.97
	4	93.73	90 -	96	93.00	1.51E+02	79.84	9.74E+02	3.04
	5	185.67	181 -	189	184.99	8.13E+01	72.12	7.47E+02	2.01
	6	198.33	192 -	201	197.65	7.01E+01	70.12	6.56E+02	4.21
	7	239.46	235 -	245	238.79	5.94E+02	76.68	4.66E+02	2.91
	8	255.23	252 -	257	254.57	4.14E+01	36.61	2.27E+02	3.20
	9	270.32	267 -	273	269.68	5.98E+01	39.41	2.40E+02	2.80
	10	277.08	274 -	280	276.43	3.57E+01	39.88	2.65E+02	3.95
	11	294.75	288 -	297	294.11	1.44E+02	55.97	3.65E+02	2.18
	12	338.63	334 -	342	338.01	7.25E+01	47.97	3.07E+02	2.20
M	13	352.07	346 -	367	351.46	2.29E+02	43.82	1.76E+02	2.69
m	14	365.07	346 -	367	364.47	4.08E+01	30.30	1.18E+02	2.90
	15	463.37	459 -	466	462.81	2.46E+01	30.98	1.43E+02	2.71
	16	475.90	471 -	480	475.34	3.13E+01	34.99	1.49E+02	6.84
	17	583.31	577 -	586	582.81	1.48E+02	36.96	1.12E+02	2.01
	18	609.70	604 -	615	609.20	1.47E+02	43.86	1.65E+02	2.51
	19	757.60	753 -	764	757.18	3.22E+01	27.57	8.16E+01	3.90
	20	818.15	813 -	821	817.76	1.63E+01	17.26	3.54E+01	3.55
	21	862.41	859 -	867	862.04	1.99E+01	21.90	5.81E+01	1.29
	22	911.80	907 -	916	911.46	8.30E+01	28.09	6.60E+01	3.54
	23	968.53	962 -	972	968.22	5.07E+01	24.79	5.45E+01	1.25
	24	1427.05	1424 -	1429	1427.00	6.00E+00	7.35	6.00E+00	2.80
	25	1437.73	1435 -	1441	1437.68	8.50E+00	8.51	7.00E+00	3.25
	26	1461.08	1454 -	1465	1461.05	1.82E+02	28.77	1.38E+01	3.21
	27	1512.25	1507 -	1517	1512.25	1.18E+01	14.46	2.04E+01	3.08
	28	1765.36	1761 -	1769	1765.52	1.84E+01	12.68	1.33E+01	2.07
	29	1908.54	1906 -	1911	1908.80	5.00E+00	4.47	0.00E+00	2.41
	30	2104.93	2101 -	2109	2105.32	8.73E+00	8.02	4.55E+00	2.38
	31	2277.04	2272 -	2281	2277.56	9.00E+00	6.00	0.00E+00	1.92
	32	2615.26	2611 -	2619	2616.03	3.70E+01	12.17	0.00E+00	2.38

Analysis Report for 1510093-13  
CP1806S10-11

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 : 11/11/2015 3:15:09PM

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	64.55	56 -	81	3.94E+02	153.62	2.15E+03	7.63E+01
m	2	76.27	56 -	81	8.89E+02	137.08	1.79E+03	6.95E+01
	3	86.69	82 -	90	1.74E+02	103.17	1.54E+03	8.20E+01
	4	93.73	90 -	96	1.51E+02	79.84	9.74E+02	6.24E+01
	5	185.67	181 -	189	8.13E+01	72.12	7.47E+02	5.74E+01
	6	198.33	192 -	201	7.01E+01	70.12	6.56E+02	5.60E+01
	7	239.46	235 -	245	5.94E+02	76.68	4.66E+02	4.87E+01
	8	255.23	252 -	257	4.14E+01	36.61	2.27E+02	2.82E+01
	9	270.32	267 -	273	5.98E+01	39.41	2.40E+02	2.98E+01
	10	277.08	274 -	280	3.57E+01	39.88	2.65E+02	3.13E+01
	11	294.75	288 -	297	1.44E+02	55.97	3.65E+02	4.16E+01
	12	338.63	334 -	342	7.25E+01	47.97	3.07E+02	3.69E+01
M	13	352.07	346 -	367	2.29E+02	43.82	1.76E+02	2.18E+01
m	14	365.07	346 -	367	4.08E+01	30.30	1.18E+02	1.78E+01
	15	463.37	459 -	466	2.46E+01	30.98	1.43E+02	2.41E+01
	16	475.90	471 -	480	3.13E+01	34.99	1.49E+02	2.72E+01
	17	583.31	577 -	586	1.48E+02	36.96	1.12E+02	2.29E+01
	18	609.70	604 -	615	1.47E+02	43.86	1.65E+02	3.01E+01
	19	757.60	753 -	764	3.22E+01	27.57	8.16E+01	2.07E+01
	20	818.15	813 -	821	1.63E+01	17.26	3.54E+01	1.25E+01
	21	862.41	859 -	867	1.99E+01	21.90	5.81E+01	1.64E+01
	22	911.80	907 -	916	8.30E+01	28.09	6.60E+01	1.76E+01
	23	968.53	962 -	972	5.07E+01	24.79	5.45E+01	1.67E+01
	24	1427.05	1424 -	1429	6.00E+00	7.35	6.00E+00	4.50E+00
	25	1437.73	1435 -	1441	8.50E+00	8.51	7.00E+00	5.10E+00
	26	1461.08	1454 -	1465	1.82E+02	28.77	1.38E+01	8.21E+00
	27	1512.25	1507 -	1517	1.18E+01	14.46	2.04E+01	1.05E+01
	28	1765.36	1761 -	1769	1.84E+01	12.68	1.33E+01	7.68E+00
	29	1908.54	1906 -	1911	5.00E+00	4.47	0.00E+00	0.00E+00
	30	2104.93	2101 -	2109	8.73E+00	8.02	4.55E+00	4.45E+00
	31	2277.04	2272 -	2281	9.00E+00	6.00	0.00E+00	0.00E+00

Analysis Report for 1510093-13  
CP1806S10-11

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	2615.26	2611 -	2619	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 : 11/11/2015 3:15:09PM

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	56 -	81	63.81	3.94E+02	153.62	2.15E+03	.....
m	2	56 -	81	75.54	8.89E+02	137.08	1.79E+03	.....
	3	82 -	90	85.96	1.74E+02	103.17	1.54E+03	NP-237 EU-155 SN-126
	4	90 -	96	93.00	1.51E+02	79.84	9.74E+02	GA-67
	5	181 -	189	184.99	8.13E+01	72.12	7.47E+02	RA-226
	6	192 -	201	197.65	7.01E+01	70.12	6.56E+02	.....
	7	235 -	245	238.79	5.94E+02	76.68	4.66E+02	PB-212
	8	252 -	257	254.57	4.14E+01	36.61	2.27E+02	SN-113 TH-227
	9	267 -	273	269.68	5.98E+01	39.41	2.40E+02	.....
	10	274 -	280	276.43	3.57E+01	39.88	2.65E+02	CM-243 NP-239
	11	288 -	297	294.11	1.44E+02	55.97	3.65E+02	PB-214
	12	334 -	342	338.01	7.25E+01	47.97	3.07E+02	AC-228
M	13	346 -	367	351.46	2.29E+02	43.82	1.76E+02	PB-214
m	14	346 -	367	364.47	4.08E+01	30.30	1.18E+02	I-131
	15	459 -	466	462.81	2.46E+01	30.98	1.43E+02	SB-125
	16	471 -	480	475.34	3.13E+01	34.99	1.49E+02	PM-144
	17	577 -	586	582.81	1.48E+02	36.96	1.12E+02	TL-208
	18	604 -	615	609.20	1.47E+02	43.86	1.65E+02	BI-214
	19	753 -	764	757.18	3.22E+01	27.57	8.16E+01	ZR-95
	20	813 -	821	817.76	1.63E+01	17.26	3.54E+01	CS-136
	21	859 -	867	862.04	1.99E+01	21.90	5.81E+01	.....



Analysis Report for 1510093-13  
 CP1806S10-11

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
22	911.80	907 -	916	911.46	8.30E+01	28.09	6.60E+01	LU-172 AC-228
23	968.53	962 -	972	968.22	5.07E+01	24.79	5.45E+01	AC-228
24	1427.05	1424 -	1429	1427.00	6.00E+00	7.35	6.00E+00	.....
25	1437.73	1435 -	1441	1437.68	8.50E+00	8.51	7.00E+00	.....
26	1461.08	1454 -	1465	1461.05	1.82E+02	28.77	1.38E+01	K-40
27	1512.25	1507 -	1517	1512.25	1.18E+01	14.46	2.04E+01	.....
28	1765.36	1761 -	1769	1765.52	1.84E+01	12.68	1.33E+01	BI-214
29	1908.54	1906 -	1911	1908.80	5.00E+00	4.47	0.00E+00	.....
30	2104.93	2101 -	2109	2105.32	8.73E+00	8.02	4.55E+00	.....
31	2277.04	2272 -	2281	2277.56	9.00E+00	6.00	0.00E+00	.....
32	2615.26	2611 -	2619	2616.03	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 : 11/11/2015 3:15:09PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	64.55	3.94E+02	153.62	2.31E-02	1.75E-03
m	2	76.27	8.89E+02	137.08	2.12E-02	1.69E-03
	3	86.69	1.74E+02	103.17	1.98E-02	1.64E-03
	4	93.73	1.51E+02	79.84	1.89E-02	1.61E-03
	5	185.67	8.13E+01	72.12	1.16E-02	1.15E-03
	6	198.33	7.01E+01	70.12	1.10E-02	1.11E-03
	7	239.46	5.94E+02	76.68	9.39E-03	9.84E-04
	8	255.23	4.14E+01	36.61	8.88E-03	9.35E-04
	9	270.32	5.98E+01	39.41	8.43E-03	8.89E-04
	10	277.08	3.57E+01	39.88	8.25E-03	8.67E-04
	11	294.75	1.44E+02	55.97	7.80E-03	8.44E-04
	12	338.63	7.25E+01	47.97	6.85E-03	7.95E-04
M	13	352.07	2.29E+02	43.82	6.61E-03	7.80E-04
m	14	365.07	4.08E+01	30.30	6.38E-03	7.66E-04
	15	463.37	2.46E+01	30.98	5.07E-03	6.31E-04
	16	475.90	3.13E+01	34.99	4.94E-03	6.13E-04
	17	583.31	1.48E+02	36.96	4.05E-03	4.55E-04
	18	609.70	1.47E+02	43.86	3.87E-03	4.16E-04

Analysis Report for 1510093-13  
 CP1806S10-11

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
19	757.60	3.22E+01	27.57	3.13E-03	2.87E-04
20	818.15	1.63E+01	17.26	2.90E-03	2.53E-04
21	862.41	1.99E+01	21.90	2.75E-03	2.28E-04
22	911.80	8.30E+01	28.09	2.61E-03	2.06E-04
23	968.53	5.07E+01	24.79	2.46E-03	1.99E-04
24	1427.05	6.00E+00	7.35	1.72E-03	1.96E-04
25	1437.73	8.50E+00	8.51	1.71E-03	1.94E-04
26	1461.08	1.82E+02	28.77	1.68E-03	1.89E-04
27	1512.25	1.18E+01	14.46	1.63E-03	1.78E-04
28	1765.36	1.84E+01	12.68	1.43E-03	1.26E-04
29	1908.54	5.00E+00	4.47	1.35E-03	1.11E-04
30	2104.93	8.73E+00	8.02	1.25E-03	1.11E-04
31	2277.04	9.00E+00	6.00	1.18E-03	1.11E-04
32	2615.26	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 : 11/11/2015 3:15:09PM

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	64.55	3.94E+02			3.94E+02	1.54E+02
m	2	76.27	8.89E+02			8.89E+02	1.37E+02
	3	86.69	1.74E+02			1.74E+02	1.03E+02
	4	93.73	1.51E+02	5.44E+01	8.36E+00	9.67E+01	8.03E+01
	5	185.67	8.13E+01	1.43E+01	7.33E+00	6.70E+01	7.25E+01
	6	198.33	7.01E+01			7.01E+01	7.01E+01
	7	239.46	5.94E+02	1.09E+01	6.39E+00	5.83E+02	7.69E+01
	8	255.23	4.14E+01			4.14E+01	3.66E+01
	9	270.32	5.98E+01			5.98E+01	3.94E+01
	10	277.08	3.57E+01			3.57E+01	3.99E+01
	11	294.75	1.44E+02			1.44E+02	5.60E+01
	12	338.63	7.25E+01			7.25E+01	4.80E+01
M	13	352.07	2.29E+02	8.07E+00	5.01E+00	2.21E+02	4.41E+01
m	14	365.07	4.08E+01			4.08E+01	3.03E+01
	15	463.37	2.46E+01			2.46E+01	3.10E+01
	16	475.90	3.13E+01			3.13E+01	3.50E+01

Analysis Report for 1510093-13  
CP1806S10-11

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
17	583.31	1.48E+02	36.96			1.48E+02	3.70E+01
18	609.70	1.47E+02	43.86	5.16E+00	1.63E+00	1.42E+02	4.39E+01
19	757.60	3.22E+01	27.57			3.22E+01	2.76E+01
20	818.15	1.63E+01	17.26			1.63E+01	1.73E+01
21	862.41	1.99E+01	21.90			1.99E+01	2.19E+01
22	911.80	8.30E+01	28.09	1.01E+00	2.85E+00	8.20E+01	2.82E+01
23	968.53	5.07E+01	24.79			5.07E+01	2.48E+01
24	1427.05	6.00E+00	7.35			6.00E+00	7.35E+00
25	1437.73	8.50E+00	8.51			8.50E+00	8.51E+00
26	1461.08	1.82E+02	28.77			1.82E+02	2.88E+01
27	1512.25	1.18E+01	14.46			1.18E+01	1.45E+01
28	1765.36	1.84E+01	12.68			1.84E+01	1.27E+01
29	1908.54	5.00E+00	4.47			5.00E+00	4.47E+00
30	2104.93	8.73E+00	8.02			8.73E+00	8.02E+00
31	2277.04	9.00E+00	6.00			9.00E+00	6.00E+00
32	2615.26	3.70E+01	12.17			3.70E+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

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 3:15:09PM  
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	3.94E+02	153.62			3.94E+02	1.54E+02
m	2	8.89E+02	137.08			8.89E+02	1.37E+02
	3	1.74E+02	103.17			1.74E+02	1.03E+02
	4	1.51E+02	79.84	5.44E+01	8.36E+00	9.67E+01	8.03E+01
	5	8.13E+01	72.12	1.43E+01	7.33E+00	6.70E+01	7.25E+01
	6	7.01E+01	70.12			7.01E+01	7.01E+01
	7	5.94E+02	76.68	1.09E+01	6.39E+00	5.83E+02	7.69E+01
	8	4.14E+01	36.61			4.14E+01	3.66E+01
	9	5.98E+01	39.41			5.98E+01	3.94E+01
	10	3.57E+01	39.88			3.57E+01	3.99E+01
	11	1.44E+02	55.97			1.44E+02	5.60E+01
	12	7.25E+01	47.97			7.25E+01	4.80E+01

Analysis Report for 1510093-13

CP1806S10-11

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	13	352.07	2.29E+02	43.82	8.07E+00	5.01E+00	2.21E+02	4.41E+01
m	14	365.07	4.08E+01	30.30			4.08E+01	3.03E+01
	15	463.37	2.46E+01	30.98			2.46E+01	3.10E+01
	16	475.90	3.13E+01	34.99			3.13E+01	3.50E+01
	17	583.31	1.48E+02	36.96			1.48E+02	3.70E+01
	18	609.70	1.47E+02	43.86	5.16E+00	1.63E+00	1.42E+02	4.39E+01
	19	757.60	3.22E+01	27.57			3.22E+01	2.76E+01
	20	818.15	1.63E+01	17.26			1.63E+01	1.73E+01
	21	862.41	1.99E+01	21.90			1.99E+01	2.19E+01
	22	911.80	8.30E+01	28.09	1.01E+00	2.85E+00	8.20E+01	2.82E+01
	23	968.53	5.07E+01	24.79			5.07E+01	2.48E+01
	24	1427.05	6.00E+00	7.35			6.00E+00	7.35E+00
	25	1437.73	8.50E+00	8.51			8.50E+00	8.51E+00
	26	1461.08	1.82E+02	28.77			1.82E+02	2.88E+01
	27	1512.25	1.18E+01	14.46			1.18E+01	1.45E+01
	28	1765.36	1.84E+01	12.68			1.84E+01	1.27E+01
	29	1908.54	5.00E+00	4.47			5.00E+00	4.47E+00
	30	2104.93	8.73E+00	8.02			8.73E+00	8.02E+00
	31	2277.04	9.00E+00	6.00			9.00E+00	6.00E+00
	32	2615.26	3.70E+01	12.17			3.70E+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

## 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	0.989	1460.81 *	10.67	1.34E+01	2.60E+00
GA-67	0.346	93.31 *	35.70	2.24E+02	1.02E+03
		208.95	2.24		
		300.22	16.00		
SN-126	0.883	87.57 *	37.00	3.14E-01	1.88E-01
I-131	0.665	284.30	6.05		
		364.48 *	81.20	1.83E+00	1.38E+00
		636.97	7.26		
		722.89	1.80		
EU-155	0.377	86.50 *	30.90	3.80E-01	2.27E-01
		105.30	20.70		

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Analysis Report for 1510093-13  
CP1806S10-11

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.856	583.14 *	30.22	1.60E+00	4.37E-01
		860.37	4.48		
		2614.66 *	35.85	1.27E+00	4.38E-01
PB-212	0.800	238.63 *	44.60	1.84E+00	3.09E-01
		300.09	3.41		
BI-214	0.644	609.31 *	46.30	1.04E+00	3.42E-01
		1120.29	15.10		
		1764.49 *	15.80	1.07E+00	7.44E-01
		2204.22	4.98		
PB-214	0.986	295.21 *	19.19	1.27E+00	5.12E-01
		351.92 *	37.19	1.19E+00	2.75E-01
RA-226	0.955	186.21 *	3.28	2.31E+00	4.92E+00
AC-228	0.940	338.32 *	11.40	1.22E+00	8.22E-01
		911.07 *	27.70	1.50E+00	5.28E-01
		969.11 *	16.60	1.64E+00	8.11E-01
NP-237	0.995	86.50 *	12.60	9.21E-01	5.51E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/11/2015 3:15:09PM  
 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	64.55	1.09329E-01	19.52		
m 2	76.27	2.46908E-01	7.71		
6	198.33	1.94622E-02	50.04		
8	255.23	1.14964E-02	44.22	Tol.	SN-113 TH-227
9	270.32	1.66235E-02	32.93		
10	277.08	9.90823E-03	55.91	Tol.	NP-239 CM-243
15	463.37	6.83160E-03	62.99	Tol.	SB-125
16	475.90	8.68449E-03	55.95	Tol.	PM-144
19	757.60	8.94977E-03	42.78	Tol.	ZR-95
20	818.15	4.52614E-03	52.97	Tol.	CS-136
21	862.41	5.53571E-03	54.94		

Analysis Report for 1510093-13  
CP1806S10-11

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
24	1427.05	1.66667E-03	61.24		
25	1437.73	2.36111E-03	50.09		
27	1512.25	3.28283E-03	61.16		
29	1908.54	1.38889E-03	44.72		
30	2104.93	2.42424E-03	45.92	S-Esc	
31	2277.04	2.50000E-03	33.33		

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81 *	10.67	1.34E+01	2.60E+00
GA-67	0.34	93.31 *	35.70	2.24E+02	1.02E+03
		208.95	2.24		
		300.22	16.00		
SN-126	0.88	87.57 *	37.00	3.14E-01	1.88E-01
I-131	0.66	284.30	6.05		
		364.48 *	81.20	1.83E+00	1.38E+00
		636.97	7.26		
		722.89	1.80		
EU-155	0.37	86.50 *	30.90	3.80E-01	2.27E-01
		105.30	20.70		
TL-208	0.85	583.14 *	30.22	1.60E+00	4.37E-01
		860.37	4.48		
		2614.66 *	35.85	1.27E+00	4.38E-01
PB-212	0.80	238.63 *	44.60	1.84E+00	3.09E-01
		300.09	3.41		
BI-214	0.64	609.31 *	46.30	1.04E+00	3.42E-01
		1120.29	15.10		
		1764.49 *	15.80	1.07E+00	7.44E-01
		2204.22	4.98		
PB-214	0.98	295.21 *	19.19	1.27E+00	5.12E-01
		351.92 *	37.19	1.19E+00	2.75E-01

Analysis Report for 1510093-13  
CP1806S10-11

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
RA-226	0.95	186.21 *		3.28	2.31E+00	4.92E+00
AC-228	0.94	338.32 *		11.40	1.22E+00	8.22E-01
		911.07 *		27.70	1.50E+00	5.28E-01
		969.11 *		16.60	1.64E+00	8.11E-01
NP-237	0.99	86.50 *		12.60	9.21E-01	5.51E-01

\* = Energy line found in the spectrum.

- = Manually added nuclide.

? = Manually edited nuclide.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.30

Errors quoted at 2.000sigma

## INTERFERENCE CORRECTED REPORT

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.989	1.34E+01	2.60E+00	
GA-67	0.346	2.24E+02	1.02E+03	
? SN-126	0.883	3.14E-01	1.88E-01	
I-131	0.665	1.83E+00	1.38E+00	
? EU-155	0.377	3.80E-01	2.27E-01	
TL-208	0.856	1.43E+00	3.09E-01	
PB-212	0.800	1.84E+00	3.09E-01	
BI-214	0.644	1.05E+00	3.10E-01	
PB-214	0.986	1.20E+00	2.42E-01	
RA-226	0.955	2.31E+00	4.92E+00	
AC-228	0.940	1.47E+00	3.90E-01	
? NP-237	0.995	9.21E-01	5.51E-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 1510093-13  
CP1806S10-11

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### UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 3:15:09PM  
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	64.55	1.09329E-01	19.52	
m	2	76.27	2.46908E-01	7.71	
	6	198.33	1.94622E-02	50.04	
	8	255.23	1.14964E-02	44.22	Tol. SN-113 TH-227
	9	270.32	1.66235E-02	32.93	
	10	277.08	9.90823E-03	55.91	Tol. NP-239 CM-243
	15	463.37	6.83160E-03	62.99	Tol. SB-125
	16	475.90	8.68449E-03	55.95	Tol. PM-144
	19	757.60	8.94977E-03	42.78	Tol. ZR-95
	20	818.15	4.52614E-03	52.97	Tol. CS-136
	21	862.41	5.53571E-03	54.94	
	24	1427.05	1.66667E-03	61.24	
	25	1437.73	2.36111E-03	50.09	
	27	1512.25	3.28283E-03	61.16	
	29	1908.54	1.38889E-03	44.72	
	30	2104.93	2.42424E-03	45.92	S-Esc
	31	2277.04	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

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### NUCLIDE MDA REPORT

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



Analysis Report for 1510093-13  
CP1806S10-11

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+ BE-7	477.59	10.42	-9.46E-01	1.78E+00	1.78E+00
+ NA-22	1274.54	99.94	0.00E+00	1.81E-01	1.81E-01
+ NA-24	1368.53	99.99	-4.85E+14	3.77E+14	1.81E+15
	2754.09	99.86	0.00E+00		3.77E+14
+ AL-26	1808.65	99.76	-4.51E-02	1.23E-01	1.23E-01
+ K-40	1460.81	* 10.67	1.34E+01	1.40E+00	1.40E+00
+ @ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+ TI-44	67.88	94.40	-1.78E-01	8.85E-02	8.85E-02
	78.34	96.00	2.73E-01		1.15E-01
+ SC-46	889.25	99.98	1.02E-02	1.83E-01	1.83E-01
	1120.51	99.99	1.67E-01		3.01E-01
+ V-48	983.52	99.98	-9.97E-02	6.60E-01	6.60E-01
	1312.10	97.50	1.20E-01		7.75E-01
+ CR-51	320.08	9.83	-1.02E+00	2.56E+00	2.56E+00
+ MN-54	834.83	99.97	8.12E-03	1.75E-01	1.75E-01
+ CO-56	846.75	99.96	4.82E-02	2.12E-01	2.12E-01
	1037.75	14.03	7.39E-01		1.74E+00
	1238.25	67.00	9.31E-02		4.76E-01
	1771.40	15.51	-1.33E-01		1.50E+00
	2598.48	16.90	2.91E-01		1.27E+00
+ CO-57	122.06	85.51	-4.26E-02	1.10E-01	1.10E-01
	136.48	10.60	-2.27E-01		9.58E-01
+ CO-58	810.76	99.40	-5.66E-03	1.87E-01	1.87E-01
+ FE-59	1099.22	56.50	-3.75E-02	5.21E-01	5.21E-01
	1291.56	43.20	0.00E+00		6.54E-01
+ CO-60	1173.22	100.00	-5.38E-02	1.32E-01	1.80E-01
	1332.49	100.00	-4.91E-02		1.32E-01
+ ZN-65	1115.52	50.75	-4.74E-01	4.31E-01	4.31E-01
+ GA-67	93.31	* 35.70	2.24E+02	3.03E+02	3.03E+02
	208.95	2.24	2.97E+03		5.71E+03
	300.22	16.00	-4.17E+02		9.06E+02
+ SE-75	121.11	16.70	-4.67E-01	1.91E-01	6.14E-01
	136.00	59.20	-8.56E-02		1.91E-01
	264.65	59.80	3.01E-02		2.20E-01
	279.53	25.20	4.29E-02		5.49E-01
	400.65	11.40	1.41E-01		1.24E+00
+ RB-82	776.52	13.00	1.32E-01	2.89E+00	2.89E+00
+ RB-83	520.41	46.00	-3.94E-02	3.65E-01	3.65E-01
	529.64	30.30	-4.94E-02		5.32E-01
	552.65	16.40	3.90E-02		1.04E+00
+ KR-85	513.99	0.43	3.20E+01	3.77E+01	3.77E+01
+ SR-85	513.99	99.27	1.98E-01	2.34E-01	2.34E-01
+ Y-88	898.02	93.40	-8.26E-02	1.98E-01	2.05E-01
	1836.01	99.38	6.32E-02		1.98E-01
+ NB-93M	16.57	9.43	8.94E-01	4.40E-01	4.40E-01
+ NB-94	702.63	100.00	1.45E-02	1.64E-01	1.67E-01
	871.10	100.00	7.29E-02		1.64E-01

Analysis Report for 1510093-13  
CP1806S10-11

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	NB-95	765.79	99.81	7.47E-02	3.12E-01	3.12E-01
+	NB-95M	235.69	25.00	-2.95E+02	4.11E+02	4.11E+02
+	ZR-95	724.18	43.70	1.15E-01	4.06E-01	5.58E-01
		756.72	55.30	1.57E-01		4.06E-01
+	MO-99	181.06	6.20	-1.09E+03	4.91E+03	7.41E+03
		739.58	12.80	-1.21E+03		4.91E+03
		778.00	4.50	0.00E+00		1.39E+04
+	RU-103	497.08	89.00	7.12E-03	2.49E-01	2.49E-01
+	RU-106	621.84	9.80	7.44E-01	1.56E+00	1.56E+00
+	AG-108M	433.93	89.90	5.37E-02	1.47E-01	1.47E-01
		614.37	90.40	3.01E-02		2.05E-01
		722.95	90.50	2.34E-02		1.84E-01
+	CD-109	88.03	3.72	2.47E+00	2.81E+00	2.81E+00
+	AG-110M	657.75	93.14	-5.67E-02	1.70E-01	1.70E-01
		677.61	10.53	3.28E-03		1.57E+00
		706.67	16.46	-1.71E-01		1.07E+00
		763.93	21.98	1.28E-01		7.55E-01
		884.67	71.63	-3.25E-02		2.02E-01
		1384.27	23.94	-4.25E-01		5.96E-01
+	CD-113M	263.70	0.02	7.52E+01	4.73E+02	4.73E+02
+	SN-113	255.12	1.93	-5.16E-01	2.43E-01	6.81E+00
		391.69	64.90	3.51E-02		2.43E-01
+	TE123M	159.00	84.10	3.38E-02	1.42E-01	1.42E-01
+	SB-124	602.71	97.87	-1.76E-02	2.01E-01	2.01E-01
		645.85	7.26	-1.26E+00		2.71E+00
		722.78	11.10	-2.59E-01		2.09E+00
		1691.02	49.00	7.75E-02		3.19E-01
+	I-125	35.49	6.49	2.90E-02	1.17E+00	1.17E+00
+	SB-125	176.33	6.89	-2.30E-01	4.43E-01	1.49E+00
		427.89	29.33	-2.08E-02		4.43E-01
		463.38	10.35	4.09E-01		1.31E+00
		600.56	17.80	6.42E-03		8.02E-01
		635.90	11.32	4.31E-02		1.22E+00
+	SB-126	414.70	83.30	3.31E-01	9.58E-01	9.86E-01
		666.33	99.60	-2.99E-01		9.58E-01
		695.00	99.60	1.12E-01		1.08E+00
		720.50	53.80	-9.62E-01		1.72E+00
+	SN-126	87.57	* 37.00	3.14E-01	3.00E-01	3.00E-01
+	SB-127	473.00	25.00	2.48E+00	1.64E+02	2.13E+02
		685.20	35.70	3.06E+00		1.64E+02
		783.80	14.70	7.57E+01		4.24E+02
+	I-129	29.78	57.00	-2.16E-02	8.38E-02	8.38E-02
		33.60	13.20	-9.10E-02		3.80E-01
		39.58	7.52	1.81E-01		7.13E-01
+	I-131	284.30	6.05	-2.14E+00	5.44E+00	3.05E+01
		364.48	* 81.20	1.83E+00		5.44E+00
		636.97	7.26	7.78E+00		3.35E+01
		722.89	1.80	-1.92E+01		1.55E+02

Analysis Report for 1510093-13  
CP1806S10-11

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	TE-132	49.72	13.10	3.54E+02	1.53E+02	5.55E+02
		228.16	88.00	4.64E+01		1.53E+02
+	BA-133	81.00	33.00	-3.45E-01	2.71E-01	3.11E-01
		302.84	17.80	-4.33E-01		6.79E-01
		356.01	60.00	4.49E-01		2.71E-01
+	I-133	529.87	86.30	-4.89E+09	5.27E+10	5.27E+10
+	XE-133	81.00	38.00	-2.43E+01	2.19E+01	2.19E+01
+	CS-134	563.23	8.38	-4.80E-02	1.76E-01	1.58E+00
		569.32	15.43	3.21E-01		9.14E-01
		604.70	97.60	-1.67E-02		1.76E-01
		795.84	85.40	5.48E-02		2.02E-01
		801.93	8.73	-4.86E-01		1.82E+00
+	CS-135	268.24	16.00	-1.27E-01	7.11E-01	7.11E-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	3.71E+00	7.65E-01	7.61E+00
		163.89	4.61	-5.62E+00		1.19E+01
		176.55	13.56	-6.61E-01		4.28E+00
		273.65	12.66	4.13E+00		5.41E+00
		340.57	48.50	3.57E-02		1.66E+00
		818.50	99.70	-3.46E-02		7.65E-01
		1048.07	79.60	2.88E-01		1.13E+00
		1235.34	19.70	-1.47E+00		6.70E+00
+	CS-137	661.65	85.12	1.30E-02	1.72E-01	1.72E-01
+	LA-138	788.74	34.00	-1.86E-01	2.49E-01	4.47E-01
		1435.80	66.00	-3.89E-03		2.49E-01
+	CE-139	165.85	80.35	4.91E-02	1.44E-01	1.44E-01
+	BA-140	162.64	6.70	-3.06E+00	3.14E+00	8.63E+00
		304.84	4.50	2.47E+00		1.60E+01
		423.70	3.20	-5.64E+00		2.31E+01
		437.55	2.00	1.71E+00		3.91E+01
		537.32	25.00	4.40E-01		3.14E+00
+	LA-140	328.77	20.50	7.09E-01	8.54E-01	3.53E+00
		487.03	45.50	8.98E-01		1.65E+00
		815.85	23.50	4.56E-02		3.45E+00
		1596.49	95.49	1.61E-01		8.54E-01
+	CE-141	145.44	48.40	-1.16E-01	3.98E-01	3.98E-01
+	CE-143	57.36	11.80	3.02E+05	6.63E+06	1.16E+07
		293.26	42.00	9.42E+06		6.63E+06
		664.55	5.20	-3.06E+07		5.31E+07
+	CE-144	133.54	10.80	2.27E-01	9.57E-01	9.57E-01
+	PM-144	476.78	42.00	5.30E-02	1.52E-01	3.29E-01
		618.01	98.60	6.56E-02		1.52E-01
		696.49	99.49	2.79E-02		1.86E-01
+	PM-145	36.85	21.70	3.32E-02	1.33E-01	2.41E-01
		37.36	39.70	1.01E-02		1.33E-01
		42.30	15.10	-1.00E-01		3.64E-01
		72.40	2.31	7.19E+00		4.54E+00

Analysis Report for 1510093-13  
CP1806S10-11

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	PM-146	453.90	39.94	-3.08E-02	3.13E-01	3.13E-01
		735.90	14.01	-3.82E-01		1.05E+00
		747.13	13.10	3.04E-01		1.13E+00
+	ND-147	91.11	28.90	6.48E+00	2.91E+00	2.91E+00
		531.02	13.10	5.93E-01		7.83E+00
+	PM-149	285.90	3.10	-8.12E+03	1.17E+05	1.17E+05
+	EU-152	121.78	20.50	-1.64E-01	4.21E-01	4.21E-01
		244.69	5.40	4.58E-01		2.44E+00
		344.27	19.13	4.55E-02		5.80E-01
		778.89	9.20	0.00E+00		1.56E+00
		964.01	10.40	1.83E-01		1.83E+00
		1085.78	7.22	-9.39E-01		2.16E+00
		1112.02	9.60	3.15E-01		2.10E+00
		1407.95	14.94	-3.05E-01		1.06E+00
+	GD-153	97.43	31.30	-5.62E-02	2.91E-01	2.91E-01
		103.18	22.20	1.44E-01		3.98E-01
+	EU-154	123.07	40.50	-1.15E-01	2.19E-01	2.19E-01
		723.30	19.70	1.08E-01		8.52E-01
		873.19	11.50	6.99E-01		1.47E+00
		996.32	10.30	-7.34E-02		1.58E+00
		1004.76	17.90	-2.97E-01		9.06E-01
		1274.45	35.50	0.00E+00		5.01E-01
+	EU-155	86.50	* 30.90	3.80E-01	3.64E-01	3.64E-01
		105.30	20.70	4.15E-02		3.91E-01
+	EU-156	811.77	10.40	2.24E-01	5.67E+00	5.67E+00
		1153.47	7.20	-1.29E+00		1.21E+01
		1230.71	8.90	-4.86E-01		1.09E+01
+	HO-166M	184.41	72.60	1.45E-01	1.59E-01	1.59E-01
		280.45	29.60	7.28E-02		3.80E-01
		410.94	11.10	-2.44E-01		1.07E+00
		711.69	54.10	9.75E-02		2.77E-01
+	TM-171	66.72	0.14	-5.65E+00	6.25E+01	6.25E+01
+	HF-172	81.75	4.52	-7.27E+00	8.71E-01	2.17E+00
		125.81	11.30	9.66E-01		8.71E-01
+	LU-172	181.53	20.60	4.46E-01	9.00E+00	1.69E+01
		810.06	16.63	-7.65E-01		2.53E+01
		912.12	15.25	7.51E+01		5.46E+01
		1093.66	62.50	1.66E+00		9.00E+00
+	LU-173	100.72	5.24	-7.37E-01	5.70E-01	1.54E+00
		272.11	21.20	-1.82E-03		5.70E-01
+	HF-175	343.40	84.00	1.43E-02	1.99E-01	1.99E-01
+	LU-176	88.34	13.30	1.38E+00	1.23E-01	7.66E-01
		201.83	86.00	-1.65E-02		1.26E-01
		306.78	94.00	-3.82E-02		1.23E-01
+	TA-182	67.75	41.20	-4.97E-01	2.48E-01	2.48E-01
		1121.30	34.90	4.00E-01		7.89E-01
		1189.05	16.23	5.16E-01		1.48E+00
		1221.41	26.98	-8.24E-02		8.26E-01
		1231.02	11.44	-1.01E-01		2.28E+00

Analysis Report for 1510093-13  
CP1806S10-11

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	IR-192	308.46	29.68	3.93E-02	3.72E-01	5.24E-01
		468.07	48.10	7.90E-03		3.72E-01
+	HG-203	279.19	77.30	1.89E-02	2.42E-01	2.42E-01
+	BI-207	569.67	97.72	4.92E-02	1.40E-01	1.40E-01
		1063.62	74.90	-1.77E-03		2.24E-01
+	TL-208	583.14	* 30.22	1.60E+00	9.29E-02	5.22E-01
		860.37	4.48	-1.54E-01		4.00E+00
		2614.66	* 35.85	1.27E+00		9.29E-02
+	BI-210M	262.00	45.00	1.00E-01	2.38E-01	2.38E-01
		300.00	23.00	-2.56E-01		5.90E-01
+	PB-210	46.50	4.25	-5.21E-01	1.35E+00	1.35E+00
+	PB-211	404.84	2.90	-3.03E+00	3.81E+00	3.81E+00
		831.96	2.90	-1.33E+00		5.24E+00
+	BI-212	727.17	11.80	8.33E-01	1.50E+00	1.50E+00
		1620.62	2.75	8.78E-01		6.06E+00
+	PB-212	238.63	* 44.60	1.84E+00	3.19E-01	3.19E-01
		300.09	3.41	-1.73E+00		3.98E+00
+	BI-214	609.31	* 46.30	1.04E+00	4.66E-01	4.66E-01
		1120.29	15.10	8.41E-01		1.52E+00
		1764.49	* 15.80	1.07E+00		1.05E+00
		2204.22	4.98	1.57E+00		4.27E+00
+	PB-214	295.21	* 19.19	1.27E+00	6.61E-01	7.57E-01
		351.92	* 37.19	1.19E+00		6.61E-01
+	RN-219	401.80	6.50	1.13E-01	1.79E+00	1.79E+00
+	RA-223	323.87	3.88	4.01E-01	3.01E+00	3.01E+00
+	RA-224	240.98	3.95	2.06E+01	4.78E+00	4.78E+00
+	RA-225	40.00	31.00	2.10E-01	8.25E-01	8.25E-01
+	RA-226	186.21	* 3.28	2.31E+00	4.11E+00	4.11E+00
+	TH-227	50.10	8.40	4.64E-01	7.27E-01	7.27E-01
		236.00	11.50	-1.08E+00		1.50E+00
		256.20	6.30	-3.81E-01		1.69E+00
+	AC-228	338.32	* 11.40	1.22E+00	6.99E-01	1.29E+00
		911.07	* 27.70	1.50E+00		6.99E-01
		969.11	* 16.60	1.64E+00		1.16E+00
+	TH-230	48.44	16.90	-3.40E-02	3.47E-01	3.47E-01
		62.85	4.60	1.83E+00		1.77E+00
		67.67	0.37	-4.52E+01		2.25E+01
+	PA-231	283.67	1.60	-4.58E-01	5.22E+00	6.56E+00
		302.67	2.30	-3.33E+00		5.22E+00
+	TH-231	25.64	14.70	-3.17E-01	3.17E-01	3.17E-01
		84.21	6.40	-5.14E+00		1.44E+00
+	PA-233	311.98	38.60	2.98E-03	6.76E-01	6.76E-01
+	PA-234	131.20	20.40	1.88E-01	4.69E-01	4.69E-01
		733.99	8.80	-5.43E-01		1.68E+00
		946.00	12.00	-5.59E-01		1.07E+00
+	PA-234M	1001.03	0.92	1.04E+01	1.93E+01	1.93E+01
+	TH-234	63.29	3.80	2.12E+00	2.16E+00	2.16E+00

Analysis Report for 1510093-13  
CP1806S10-11

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	U-235	143.76	10.50	2.44E-01	9.13E-01	9.13E-01
		163.35	4.70	-9.51E-01		2.02E+00
		205.31	4.70	6.11E-02		2.23E+00
+	NP-237	86.50	* 12.60	9.21E-01	8.82E-01	8.82E-01
+	NP-239	106.10	22.70	6.79E+02	6.39E+03	6.39E+03
		228.18	10.70	1.49E+04		1.92E+04
		277.60	14.10	-2.09E+03		1.44E+04
+	AM-241	59.54	35.90	1.45E-01	2.13E-01	2.13E-01
+	AM-243	74.67	66.00	6.16E-01	1.69E-01	1.69E-01
+	CM-243	209.75	3.29	1.13E+00	8.04E-01	3.25E+00
		228.14	10.60	3.24E-01		1.07E+00
		277.60	14.00	-1.17E-01		8.04E-01

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

## NUCLIDE MDA REPORT

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
	BE-7	477.59	10.42	1.78E+00	1.78E+00	-9.46E-01	8.38E-01
	NA-22	1274.54	99.94	1.81E-01	1.81E-01	0.00E+00	8.09E-02
	NA-24	1368.53	99.99	1.81E+15	3.77E+14	-4.85E+14	7.98E+14
		2754.09	99.86	3.77E+14		0.00E+00	0.00E+00
	AL-26	1808.65	99.76	1.23E-01	1.23E-01	-4.51E-02	4.89E-02
+	K-40	1460.81	* 10.67	1.40E+00	1.40E+00	1.34E+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	8.85E-02	8.85E-02	-1.78E-01	4.34E-02
		78.34	96.00	1.15E-01		2.73E-01	5.64E-02
	SC-46	889.25	99.98	1.83E-01	1.83E-01	1.02E-02	8.28E-02

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Analysis Report for 1510093-13  
CP1806S10-11

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	3.01E-01	1.83E-01	1.67E-01	1.40E-01
V-48	983.52	99.98	6.60E-01	6.60E-01	-9.97E-02	2.99E-01
	1312.10	97.50	7.75E-01		1.20E-01	3.45E-01
CR-51	320.08	9.83	2.56E+00	2.56E+00	-1.02E+00	1.22E+00
MN-54	834.83	99.97	1.75E-01	1.75E-01	8.12E-03	8.05E-02
CO-56	846.75	99.96	2.12E-01	2.12E-01	4.82E-02	9.73E-02
	1037.75	14.03	1.74E+00		7.39E-01	7.94E-01
	1238.25	67.00	4.76E-01		9.31E-02	2.20E-01
	1771.40	15.51	1.50E+00		-1.33E-01	6.42E-01
	2598.48	16.90	1.27E+00		2.91E-01	5.05E-01
CO-57	122.06	85.51	1.10E-01	1.10E-01	-4.26E-02	5.34E-02
	136.48	10.60	9.58E-01		-2.27E-01	4.67E-01
CO-58	810.76	99.40	1.87E-01	1.87E-01	-5.66E-03	8.52E-02
FE-59	1099.22	56.50	5.21E-01	5.21E-01	-3.75E-02	2.36E-01
	1291.56	43.20	6.54E-01		0.00E+00	2.90E-01
CO-60	1173.22	100.00	1.80E-01	1.32E-01	-5.38E-02	8.14E-02
	1332.49	100.00	1.32E-01		-4.91E-02	5.63E-02
ZN-65	1115.52	50.75	4.31E-01	4.31E-01	-4.74E-01	1.98E-01
+ GA-67	93.31	* 35.70	3.03E+02	3.03E+02	2.24E+02	1.48E+02
	208.95	2.24	5.71E+03		2.97E+03	2.76E+03
	300.22	16.00	9.06E+02		-4.17E+02	4.36E+02
SE-75	121.11	16.70	6.14E-01	1.91E-01	-4.67E-01	2.99E-01
	136.00	59.20	1.91E-01		-8.56E-02	9.28E-02
	264.65	59.80	2.20E-01		3.01E-02	1.06E-01
	279.53	25.20	5.49E-01		4.29E-02	2.64E-01
	400.65	11.40	1.24E+00		1.41E-01	5.88E-01
RB-82	776.52	13.00	2.89E+00	2.89E+00	1.32E-01	1.34E+00
RB-83	520.41	46.00	3.65E-01	3.65E-01	-3.94E-02	1.71E-01
	529.64	30.30	5.32E-01		-4.94E-02	2.49E-01
	552.65	16.40	1.04E+00		3.90E-02	4.86E-01
KR-85	513.99	0.43	3.77E+01	3.77E+01	3.20E+01	1.80E+01
SR-85	513.99	99.27	2.34E-01	2.34E-01	1.98E-01	1.11E-01
Y-88	898.02	93.40	2.05E-01	1.98E-01	-8.26E-02	9.37E-02
	1836.01	99.38	1.98E-01		6.32E-02	8.28E-02
NB-93M	16.57	9.43	4.40E-01	4.40E-01	8.94E-01	2.14E-01
NB-94	702.63	100.00	1.67E-01	1.64E-01	1.45E-02	7.84E-02
	871.10	100.00	1.64E-01		7.29E-02	7.54E-02
NB-95	765.79	99.81	3.12E-01	3.12E-01	7.47E-02	1.45E-01
NB-95M	235.69	25.00	4.11E+02	4.11E+02	-2.95E+02	2.01E+02
ZR-95	724.18	43.70	5.58E-01	4.06E-01	1.15E-01	2.61E-01
	756.72	55.30	4.06E-01		1.57E-01	1.88E-01
MO-99	181.06	6.20	7.41E+03	4.91E+03	-1.09E+03	3.60E+03
	739.58	12.80	4.91E+03		-1.21E+03	2.26E+03
	778.00	4.50	1.39E+04		0.00E+00	6.39E+03
RU-103	497.08	89.00	2.49E-01	2.49E-01	7.12E-03	1.17E-01
RU-106	621.84	9.80	1.56E+00	1.56E+00	7.44E-01	7.29E-01
AG-108M	433.93	89.90	1.47E-01	1.47E-01	5.37E-02	7.00E-02
	614.37	90.40	2.05E-01		3.01E-02	9.71E-02
	722.95	90.50	1.84E-01		2.34E-02	8.60E-02
CD-109	88.03	3.72	2.81E+00	2.81E+00	2.47E+00	1.38E+00
AG-110M	657.75	93.14	1.70E-01	1.70E-01	-5.67E-02	7.91E-02
	677.61	10.53	1.57E+00		3.28E-03	7.32E-01
	706.67	16.46	1.07E+00		-1.71E-01	5.00E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-110M	763.93	21.98	7.55E-01	1.70E-01	1.28E-01	3.49E-01
	884.67	71.63	2.02E-01		-3.25E-02	9.08E-02
	1384.27	23.94	5.96E-01		-4.25E-01	2.52E-01
CD-113M	263.70	0.02	4.73E+02	4.73E+02	7.52E+01	2.27E+02
	SN-113	255.12	1.93	6.81E+00	2.43E-01	-5.16E-01
TE123M	391.69	64.90	2.43E-01	1.42E-01	3.51E-02	1.16E-01
	159.00	84.10	1.42E-01		3.38E-02	6.88E-02
SB-124	602.71	97.87	2.01E-01	2.01E-01	-1.76E-02	9.39E-02
	645.85	7.26	2.71E+00		-1.26E+00	1.26E+00
	722.78	11.10	2.09E+00		-2.59E-01	9.75E-01
	1691.02	49.00	3.19E-01		7.75E-02	1.24E-01
I-125	35.49	6.49	1.17E+00	1.17E+00	2.90E-02	5.71E-01
	SB-125	176.33	6.89	1.49E+00	4.43E-01	-2.30E-01
SB-126	427.89	29.33	4.43E-01	9.58E-01	-2.08E-02	2.10E-01
	463.38	10.35	1.31E+00		4.09E-01	6.21E-01
	600.56	17.80	8.02E-01		6.42E-03	3.75E-01
	635.90	11.32	1.22E+00		4.31E-02	5.68E-01
	414.70	83.30	9.86E-01		3.31E-01	4.69E-01
	666.33	99.60	9.58E-01		-2.99E-01	4.47E-01
	695.00	99.60	1.08E+00		1.12E-01	5.04E-01
	720.50	53.80	1.72E+00		-9.62E-01	7.97E-01
+ SN-126	87.57	* 37.00	3.00E-01	3.00E-01	3.14E-01	1.48E-01
	SB-127	473.00	25.00	2.13E+02	1.64E+02	2.48E+00
I-129	685.20	35.70	1.64E+02	8.38E-02	3.06E+00	7.61E+01
	783.80	14.70	4.24E+02		7.57E+01	1.96E+02
	29.78	57.00	8.38E-02		-2.16E-02	4.09E-02
+ I-131	33.60	13.20	3.80E-01	5.44E+00	-9.10E-02	1.86E-01
	39.58	7.52	7.13E-01		1.81E-01	3.48E-01
	284.30	6.05	3.05E+01		-2.14E+00	1.46E+01
TE-132	364.48	* 81.20	5.44E+00	1.53E+02	1.83E+00	2.66E+00
	636.97	7.26	3.35E+01		7.78E+00	1.56E+01
	722.89	1.80	1.55E+02		-1.92E+01	7.23E+01
BA-133	49.72	13.10	5.55E+02	2.71E-01	3.54E+02	2.71E+02
	228.16	88.00	1.53E+02		4.64E+01	7.40E+01
I-133	81.00	33.00	3.11E-01	5.27E+10	-3.45E-01	1.53E-01
	302.84	17.80	6.79E-01		-4.33E-01	3.26E-01
	356.01	60.00	2.71E-01		4.49E-01	1.31E-01
XE-133	529.87	86.30	5.27E+10	5.27E+10	-4.89E+09	2.46E+10
	CS-134	81.00	38.00	2.19E+01	2.19E+01	-2.43E+01
CS-134	563.23	8.38	1.58E+00	1.76E-01	-4.80E-02	7.37E-01
	569.32	15.43	9.14E-01		3.21E-01	4.28E-01
	604.70	97.60	1.76E-01		-1.67E-02	8.34E-02
	795.84	85.40	2.02E-01		5.48E-02	9.39E-02
	801.93	8.73	1.82E+00		-4.86E-01	8.40E-01
@ I-135	268.24	16.00	7.11E-01	7.11E-01	-1.27E-01	3.42E-01
	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	7.61E+00	7.65E-01	3.71E+00	3.70E+00
	163.89	4.61	1.19E+01		-5.62E+00	5.80E+00
	176.55	13.56	4.28E+00		-6.61E-01	2.08E+00
	273.65	12.66	5.41E+00		4.13E+00	2.61E+00
	340.57	48.50	1.66E+00		3.57E-02	8.00E-01



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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)		
CS-136	818.50	99.70	7.65E-01	7.65E-01	-3.46E-02	3.47E-01		
	1048.07	79.60	1.13E+00		2.88E-01	5.07E-01		
	1235.34	19.70	6.70E+00		-1.47E+00	3.08E+00		
CS-137	661.65	85.12	1.72E-01	1.72E-01	1.30E-02	8.02E-02		
	788.74	34.00	4.47E-01		2.49E-01	-1.86E-01	2.06E-01	
LA-138	1435.80	66.00	2.49E-01	1.44E-01	-3.89E-03	1.09E-01		
	165.85	80.35	1.44E-01		1.44E-01	4.91E-02	7.00E-02	
BA-140	162.64	6.70	8.63E+00	3.14E+00	-3.06E+00	4.19E+00		
	304.84	4.50	1.60E+01		2.47E+00	7.67E+00		
LA-140	423.70	3.20	2.31E+01	8.54E-01	-5.64E+00	1.09E+01		
	437.55	2.00	3.91E+01		1.71E+00	1.86E+01		
	537.32	25.00	3.14E+00		4.40E-01	1.47E+00		
	328.77	20.50	3.53E+00		7.09E-01	1.69E+00		
	487.03	45.50	1.65E+00		8.98E-01	7.77E-01		
	815.85	23.50	3.45E+00		4.56E-02	1.57E+00		
	1596.49	95.49	8.54E-01		1.61E-01	3.54E-01		
	145.44	48.40	3.98E-01		3.98E-01	-1.16E-01	1.93E-01	
	CE-141	57.36	11.80		1.16E+07	6.63E+06	3.02E+05	5.66E+06
		293.26	42.00		6.63E+06		9.42E+06	3.21E+06
CE-143	664.55	5.20	5.31E+07	9.57E-01	-3.06E+07	2.46E+07		
	133.54	10.80	9.57E-01		2.27E-01	4.67E-01		
PM-144	476.78	42.00	3.29E-01	1.52E-01	5.30E-02	1.55E-01		
	618.01	98.60	1.52E-01		6.56E-02	7.10E-02		
PM-145	696.49	99.49	1.86E-01	1.33E-01	2.79E-02	8.76E-02		
	36.85	21.70	2.41E-01		3.32E-02	1.18E-01		
	37.36	39.70	1.33E-01		1.01E-02	6.48E-02		
	42.30	15.10	3.64E-01		-1.00E-01	1.78E-01		
	72.40	2.31	4.54E+00		7.19E+00	2.23E+00		
PM-146	453.90	39.94	3.13E-01	3.13E-01	-3.08E-02	1.48E-01		
	735.90	14.01	1.05E+00		-3.82E-01	4.87E-01		
	747.13	13.10	1.13E+00		3.04E-01	5.23E-01		
ND-147	91.11	28.90	2.91E+00	2.91E+00	6.48E+00	1.43E+00		
	531.02	13.10	7.83E+00		5.93E-01	3.66E+00		
PM-149	285.90	3.10	1.17E+05	1.17E+05	-8.12E+03	5.61E+04		
EU-152	121.78	20.50	4.21E-01	4.21E-01	-1.64E-01	2.05E-01		
	244.69	5.40	2.44E+00		4.58E-01	1.19E+00		
	344.27	19.13	5.80E-01		4.55E-02	2.76E-01		
	778.89	9.20	1.56E+00		0.00E+00	7.14E-01		
	964.01	10.40	1.83E+00		1.83E-01	8.47E-01		
	1085.78	7.22	2.16E+00		-9.39E-01	9.66E-01		
	1112.02	9.60	2.10E+00		3.15E-01	9.63E-01		
	1407.95	14.94	1.06E+00		-3.05E-01	4.59E-01		
	GD-153	97.43	31.30		2.91E-01	2.91E-01	-5.62E-02	1.42E-01
		103.18	22.20		3.98E-01		1.44E-01	1.94E-01
EU-154	123.07	40.50	2.19E-01	2.19E-01	-1.15E-01	1.07E-01		
	723.30	19.70	8.52E-01		1.08E-01	3.98E-01		
	873.19	11.50	1.47E+00		6.99E-01	6.77E-01		
	996.32	10.30	1.58E+00		-7.34E-02	7.19E-01		
	1004.76	17.90	9.06E-01		-2.97E-01	4.11E-01		
+ EU-155	1274.45	35.50	5.01E-01	3.64E-01	0.00E+00	2.24E-01		
	86.50	30.90	3.64E-01		3.80E-01	1.79E-01		
EU-156	105.30	20.70	3.91E-01	5.67E+00	4.15E-02	1.91E-01		
	811.77	10.40	5.67E+00		2.24E-01	2.57E+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)
EU-156	1153.47	7.20	1.21E+01	5.67E+00	-1.29E+00	5.52E+00
	1230.71	8.90	1.09E+01		-4.86E-01	5.01E+00
HO-166M	184.41	72.60	1.59E-01	1.59E-01	1.45E-01	7.74E-02
	280.45	29.60	3.80E-01		7.28E-02	1.83E-01
	410.94	11.10	1.07E+00		-2.44E-01	5.06E-01
	711.69	54.10	2.77E-01		9.75E-02	1.29E-01
TM-171	66.72	0.14	6.25E+01	6.25E+01	-5.65E+00	3.07E+01
HF-172	81.75	4.52	2.17E+00	8.71E-01	-7.27E+00	1.07E+00
	125.81	11.30	8.71E-01		9.66E-01	4.25E-01
LU-172	181.53	20.60	1.69E+01	9.00E+00	4.46E-01	8.24E+00
	810.06	16.63	2.53E+01		-7.65E-01	1.15E+01
	912.12	15.25	5.46E+01		7.51E+01	2.59E+01
LU-173	1093.66	62.50	9.00E+00		1.66E+00	4.09E+00
	100.72	5.24	1.54E+00	5.70E-01	-7.37E-01	7.51E-01
	272.11	21.20	5.70E-01		-1.82E-03	2.75E-01
HF-175	343.40	84.00	1.99E-01	1.99E-01	1.43E-02	9.52E-02
LU-176	88.34	13.30	7.66E-01	1.23E-01	1.38E+00	3.76E-01
	201.83	86.00	1.26E-01		-1.65E-02	6.11E-02
	306.78	94.00	1.23E-01		-3.82E-02	5.87E-02
TA-182	67.75	41.20	2.48E-01	2.48E-01	-4.97E-01	1.21E-01
	1121.30	34.90	7.89E-01		4.00E-01	3.65E-01
	1189.05	16.23	1.48E+00		5.16E-01	6.74E-01
	1221.41	26.98	8.26E-01		-8.24E-02	3.72E-01
	1231.02	11.44	2.28E+00		-1.01E-01	1.04E+00
IR-192	308.46	29.68	5.24E-01	3.72E-01	3.93E-02	2.51E-01
	468.07	48.10	3.72E-01		7.90E-03	1.76E-01
HG-203	279.19	77.30	2.42E-01	2.42E-01	1.89E-02	1.16E-01
BI-207	569.67	97.72	1.40E-01	1.40E-01	4.92E-02	6.57E-02
	1063.62	74.90	2.24E-01		-1.77E-03	1.01E-01
+ TL-208	583.14	* 30.22	5.22E-01	9.29E-02	1.60E+00	2.47E-01
	860.37	4.48	4.00E+00		-1.54E-01	1.86E+00
BI-210M	2614.66	* 35.85	9.29E-02		1.27E+00	0.00E+00
	262.00	45.00	2.38E-01	2.38E-01	1.00E-01	1.14E-01
	300.00	23.00	5.90E-01		-2.56E-01	2.85E-01
PB-210	46.50	4.25	1.35E+00	1.35E+00	-5.21E-01	6.60E-01
PB-211	404.84	2.90	3.81E+00	3.81E+00	-3.03E+00	1.80E+00
	831.96	2.90	5.24E+00		-1.33E+00	2.40E+00
BI-212	727.17	11.80	1.50E+00	1.50E+00	8.33E-01	7.05E-01
	1620.62	2.75	6.06E+00		8.78E-01	2.61E+00
+ PB-212	238.63	* 44.60	3.19E-01	3.19E-01	1.84E+00	1.55E-01
	300.09	3.41	3.98E+00		-1.73E+00	1.92E+00
+ BI-214	609.31	* 46.30	4.66E-01	4.66E-01	1.04E+00	2.23E-01
	1120.29	15.10	1.52E+00		8.41E-01	7.03E-01
	1764.49	* 15.80	1.05E+00		1.07E+00	4.47E-01
+ PB-214	2204.22	4.98	4.27E+00		1.57E+00	1.84E+00
	295.21	* 19.19	7.57E-01	6.61E-01	1.27E+00	3.66E-01
	351.92	* 37.19	6.61E-01		1.19E+00	3.23E-01
RN-219	401.80	6.50	1.79E+00	1.79E+00	1.13E-01	8.50E-01
RA-223	323.87	3.88	3.01E+00	3.01E+00	4.01E-01	1.44E+00
RA-224	240.98	3.95	4.78E+00	4.78E+00	2.06E+01	2.34E+00
RA-225	40.00	31.00	8.25E-01	8.25E-01	2.10E-01	4.03E-01
+ RA-226	186.21	* 3.28	4.11E+00	4.11E+00	2.31E+00	2.01E+00
TH-227	50.10	8.40	7.27E-01	7.27E-01	4.64E-01	3.55E-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)
TH-227	236.00	11.50	1.50E+00	7.27E-01	-1.08E+00	7.31E-01
	256.20	6.30	1.69E+00		-3.81E-01	8.12E-01
+ AC-228	338.32 *	11.40	1.29E+00	6.99E-01	1.22E+00	6.22E-01
	911.07 *	27.70	6.99E-01		1.50E+00	3.25E-01
	969.11 *	16.60	1.16E+00		1.64E+00	5.38E-01
TH-230	48.44	16.90	3.47E-01	3.47E-01	-3.40E-02	1.70E-01
	62.85	4.60	1.77E+00		1.83E+00	8.70E-01
	67.67	0.37	2.25E+01		-4.52E+01	1.10E+01
PA-231	283.67	1.60	6.56E+00	5.22E+00	-4.58E-01	3.14E+00
	302.67	2.30	5.22E+00		-3.33E+00	2.51E+00
TH-231	25.64	14.70	3.17E-01	3.17E-01	-3.17E-01	1.55E-01
	84.21	6.40	1.44E+00		-5.14E+00	7.06E-01
PA-233	311.98	38.60	6.76E-01	6.76E-01	2.98E-03	3.23E-01
PA-234	131.20	20.40	4.69E-01	4.69E-01	1.88E-01	2.29E-01
	733.99	8.80	1.68E+00		-5.43E-01	7.79E-01
	946.00	12.00	1.07E+00		-5.59E-01	4.76E-01
PA-234M	1001.03	0.92	1.93E+01	1.93E+01	1.04E+01	8.84E+00
TH-234	63.29	3.80	2.16E+00	2.16E+00	2.12E+00	1.06E+00
U-235	143.76	10.50	9.13E-01	9.13E-01	2.44E-01	4.45E-01
	163.35	4.70	2.02E+00		-9.51E-01	9.82E-01
	205.31	4.70	2.23E+00		6.11E-02	1.08E+00
+ NP-237	86.50 *	12.60	8.82E-01	8.82E-01	9.21E-01	4.34E-01
NP-239	106.10	22.70	6.39E+03	6.39E+03	6.79E+02	3.11E+03
	228.18	10.70	1.92E+04		1.49E+04	9.29E+03
	277.60	14.10	1.44E+04		-2.09E+03	6.91E+03
AM-241	59.54	35.90	2.13E-01	2.13E-01	1.45E-01	1.04E-01
AM-243	74.67	66.00	1.69E-01	1.69E-01	6.16E-01	8.33E-02
CM-243	209.75	3.29	3.25E+00	8.04E-01	1.13E+00	1.57E+00
	228.14	10.60	1.07E+00		3.24E-01	5.16E-01
	277.60	14.00	8.04E-01		-1.17E-01	3.86E-01

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

No Action Level results available for reporting purposes.

## DATA REVIEW COMMENTS REPORT

<b>Creation Date</b>	<b>Comment</b>	<b>User</b>
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Analysis Report for 1510093-13  
CP1806S10-11

No Data Review Comments Entered.

\*\*\*\*\*  
 \*\*\*\*\* S P E C T R A L D A T A R E P O R T \*\*\*\*\*  
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Sample Title: CP1806S10-11

Elapsed Live time: 3600  
 Elapsed Real Time: 3648

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	6	97
17:	78	83	80	54	65	57	66	49
25:	49	56	52	57	45	70	67	52
33:	52	60	59	60	63	68	67	66
41:	56	68	49	57	60	68	79	65
49:	64	65	62	67	92	56	73	60
57:	83	85	100	100	86	131	134	100
65:	99	92	95	104	96	94	89	108
73:	146	200	234	264	233	112	93	86
81:	70	69	84	115	103	125	134	96
89:	119	100	100	129	109	90	71	39
97:	54	53	65	57	53	49	60	62
105:	70	49	61	55	40	56	46	51
113:	67	49	62	51	42	62	47	33
121:	62	67	49	51	63	60	60	61
129:	86	51	51	45	63	56	55	52
137:	56	44	55	51	39	66	46	54
145:	48	51	57	43	42	57	60	48
153:	38	51	52	54	43	44	31	42
161:	48	54	36	44	41	39	41	40
169:	47	52	35	34	48	48	40	34
177:	46	40	41	40	47	42	35	59
185:	88	72	39	38	35	45	38	39
193:	31	33	43	43	56	39	37	47
201:	30	26	35	35	42	28	29	54
209:	36	36	31	32	26	37	31	26
217:	32	26	33	36	35	28	31	38
225:	35	34	38	29	33	27	39	36
233:	28	24	19	48	130	193	163	77
241:	63	53	38	29	14	28	32	33
249:	20	22	31	19	30	34	33	26
257:	13	17	25	21	25	32	26	24
265:	29	14	18	24	37	33	28	23
273:	17	19	32	27	25	33	18	14
281:	25	20	20	25	17	15	21	16
289:	19	27	24	23	31	61	74	36
297:	16	20	27	28	23	20	25	21
305:	22	19	13	25	13	25	23	16
313:	21	15	13	17	17	15	17	16
321:	15	17	24	26	20	18	17	18
329:	29	11	13	20	17	21	13	12
337:	38	54	37	21	15	15	16	15
345:	15	10	17	10	19	45	87	83
353:	39	16	7	10	11	14	10	16
361:	15	10	15	19	22	16	7	9

369: 12 17 12 14 15 17 8 8

Sample Title: CP1806S10-11

Channel	1	2	3	4	5	6	7	8
377:	16	20	17	11	17	11	15	18
385:	20	15	16	21	12	14	19	14
393:	13	18	17	12	15	12	13	12
401:	11	11	11	14	11	9	5	13
409:	17	14	18	11	9	13	17	11
417:	16	16	14	12	10	11	20	10
425:	10	4	17	8	17	13	17	15
433:	14	16	12	10	9	13	9	16
441:	15	5	8	18	9	16	10	12
449:	11	14	15	10	6	10	11	9
457:	11	9	10	12	9	16	18	14
465:	12	5	12	7	12	13	9	19
473:	5	12	11	15	10	12	8	5
481:	5	11	11	10	10	6	12	14
489:	3	7	8	7	6	12	8	5
497:	10	11	5	14	9	12	8	10
505:	10	11	9	10	17	22	24	20
513:	19	9	8	5	10	13	9	6
521:	8	7	9	12	5	7	9	4
529:	9	4	7	9	16	7	8	6
537:	6	10	6	8	8	8	6	11
545:	4	8	8	7	8	12	9	9
553:	6	7	6	8	10	8	8	6
561:	9	8	2	4	15	10	5	7
569:	6	7	12	4	9	6	10	8
577:	5	6	8	11	16	42	67	29
585:	13	7	2	7	5	6	14	6
593:	7	8	7	8	9	9	7	4
601:	14	3	5	11	5	6	16	37
609:	62	46	18	11	10	5	2	10
617:	10	9	5	7	11	8	4	7
625:	8	5	8	3	10	7	3	6
633:	9	9	7	10	3	4	7	5
641:	8	5	2	10	5	5	4	8
649:	8	6	15	10	3	1	9	10
657:	5	10	10	10	4	4	9	6
665:	5	3	8	9	12	8	8	11
673:	8	7	8	7	9	5	4	9
681:	7	7	4	6	6	9	7	4
689:	8	6	5	9	9	13	7	7
697:	10	6	9	12	6	10	14	3
705:	5	9	11	7	5	3	6	10
713:	7	5	3	6	3	4	7	7
721:	10	5	2	7	12	8	11	10
729:	11	8	9	1	4	9	10	3
737:	3	5	6	1	7	7	5	6
745:	8	8	4	8	1	7	2	3
753:	1	8	6	5	14	8	8	2
761:	8	5	4	4	5	5	7	10
769:	9	9	0	10	4	2	5	4
777:	4	6	9	5	3	4	7	5
785:	2	5	10	3	7	5	4	6
793:	7	9	10	10	3	4	4	6

801: 4 6 6 7 6 4 4 8

Sample Title: CP1806S10-11

Channel	1	2	3	4	5	6	7	8	9
809:	3	2	5	1	4	3	1	3	
817:	5	7	4	6	1	2	2	5	
825:	5	3	1	4	6	4	4	2	
833:	11	2	5	4	8	8	7	9	
841:	4	7	5	6	7	2	6	3	
849:	2	6	3	3	1	5	5	5	
857:	10	3	6	5	12	6	5	4	
865:	5	4	2	3	8	3	4	4	
873:	6	7	5	3	4	3	4	4	
881:	3	3	4	2	1	3	1	6	
889:	2	5	3	4	5	3	3	4	
897:	6	7	5	3	2	4	6	3	
905:	11	4	1	5	4	19	28	23	
913:	20	7	5	4	4	6	3	4	
921:	4	3	2	6	4	6	2	4	
929:	1	4	6	1	3	6	4	6	
937:	7	3	1	3	4	2	2	2	
945:	4	0	2	5	2	3	8	4	
953:	3	3	2	2	1	6	2	5	
961:	6	2	5	5	7	6	8	6	
969:	28	8	3	0	2	2	3	6	
977:	5	4	5	5	2	1	2	3	
985:	4	2	7	4	2	3	7	3	
993:	5	5	0	2	6	4	6	2	
1001:	4	1	6	4	7	2	3	3	
1009:	7	2	3	8	2	3	7	4	
1017:	4	4	2	5	1	7	7	2	
1025:	5	4	4	1	6	3	5	1	
1033:	3	7	0	6	3	3	2	10	
1041:	5	3	1	4	3	3	1	4	
1049:	3	4	3	2	3	0	2	4	
1057:	3	5	3	1	3	9	2	3	
1065:	1	4	5	3	3	3	5	4	
1073:	1	3	5	3	7	3	4	6	
1081:	1	5	2	1	2	2	4	4	
1089:	1	4	4	2	7	4	2	4	
1097:	6	3	0	6	3	6	2	3	
1105:	2	5	7	4	5	3	6	7	
1113:	2	6	4	5	2	3	6	13	
1121:	16	6	2	2	3	4	4	1	
1129:	6	1	8	3	3	1	2	3	
1137:	3	4	5	2	4	6	3	2	
1145:	5	4	6	4	2	2	7	9	
1153:	7	4	3	1	0	4	2	6	
1161:	5	5	3	2	4	5	5	3	
1169:	4	5	1	2	3	4	6	1	
1177:	3	2	7	3	0	3	0	3	
1185:	4	2	7	2	3	3	5	6	
1193:	3	4	5	1	2	8	6	5	
1201:	5	2	5	3	3	4	4	9	
1209:	6	4	3	7	7	5	4	4	
1217:	3	3	3	2	8	1	1	1	
1225:	6	3	3	2	9	5	4	6	

1233: 5 3 2 5 3 8 9 7

Sample Title: CP1806S10-11

Channel	1	2	3	4	5	6	7	8
1241:	8	4	4	4	5	3	2	7
1249:	3	2	2	2	5	3	5	5
1257:	3	1	2	1	4	2	4	2
1265:	0	3	3	4	1	2	5	2
1273:	1	1	5	5	2	1	4	2
1281:	2	4	1	1	2	4	3	0
1289:	4	2	2	2	2	4	2	2
1297:	1	4	3	2	3	1	0	5
1305:	1	2	4	1	6	2	5	2
1313:	1	3	2	1	2	3	1	2
1321:	1	4	1	5	2	4	2	1
1329:	3	3	0	2	0	1	1	0
1337:	2	2	1	4	0	0	1	3
1345:	2	3	1	1	1	2	2	0
1353:	2	2	1	2	2	2	2	3
1361:	5	0	3	2	4	1	2	2
1369:	1	3	3	0	2	3	3	5
1377:	3	1	3	1	1	1	0	0
1385:	1	3	3	0	1	2	5	2
1393:	1	2	1	1	6	3	3	2
1401:	5	0	5	0	1	0	2	2
1409:	4	2	2	2	2	1	0	1
1417:	0	4	3	0	1	1	1	0
1425:	1	3	1	4	0	1	0	1
1433:	2	1	0	2	4	2	3	1
1441:	0	1	2	2	3	0	0	3
1449:	2	4	2	3	0	2	3	3
1457:	2	5	12	33	52	48	25	4
1465:	0	0	2	1	1	1	2	0
1473:	2	3	2	2	1	2	1	1
1481:	0	1	1	2	1	1	2	2
1489:	2	3	1	0	2	1	1	1
1497:	2	1	2	0	1	1	0	2
1505:	0	2	1	1	2	4	3	4
1513:	1	2	2	2	0	1	0	1
1521:	3	1	1	1	2	0	1	1
1529:	2	1	0	1	0	2	3	3
1537:	0	2	1	2	0	0	3	1
1545:	1	1	2	2	1	2	0	0
1553:	1	0	1	0	0	2	3	0
1561:	3	2	0	1	0	2	1	2
1569:	2	0	0	1	1	1	0	1
1577:	0	2	0	1	0	1	2	2
1585:	0	0	2	1	7	1	1	1
1593:	1	2	1	1	1	1	0	0
1601:	1	1	0	0	0	0	1	0
1609:	0	0	1	3	0	2	1	1
1617:	2	1	3	1	0	3	1	1
1625:	1	2	0	1	1	0	0	3
1633:	1	1	0	1	1	1	1	0
1641:	0	3	0	0	0	1	0	0
1649:	1	1	1	0	1	0	2	0
1657:	1	0	0	1	1	0	0	0



1665: 1 1 0 1 0 0 2 0

Sample Title: CP1806S10-11

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

2097: 1 0 1 0 0 0 0 2

Sample Title: CP1806S10-11

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

2529: 1 0 1 1 1 0 0 1

Sample Title: CP1806S10-11

Channel	1	2	3	4	5	6	7	8	9
2537:	1	1	0	0	0	0	0	1	0
2545:	0	0	0	1	0	0	0	1	0
2553:	0	0	0	2	0	0	0	0	0
2561:	0	0	1	0	0	0	0	0	1
2569:	0	0	0	0	1	0	0	0	0
2577:	1	0	0	1	0	0	0	0	0
2585:	0	0	1	0	0	1	0	0	0
2593:	0	0	0	0	2	0	0	0	1
2601:	0	1	0	1	0	0	0	0	0
2609:	0	0	0	0	0	2	11	13	0
2617:	6	5	0	0	1	0	1	0	0
2625:	0	0	0	0	0	0	0	0	0
2633:	0	0	1	0	1	0	1	0	0
2641:	0	0	1	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0	0
2657:	0	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	0	1	0	2
2673:	1	0	0	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	0	0
2689:	0	0	0	0	0	0	2	1	0
2697:	0	0	1	0	0	1	0	0	0
2705:	0	1	0	0	0	1	0	0	0
2713:	0	1	0	0	0	0	1	0	1
2721:	0	0	0	0	0	0	0	0	0
2729:	0	0	0	1	0	0	0	0	0
2737:	0	0	0	1	0	1	1	0	0
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	0	0	1
2769:	0	0	0	1	0	0	0	0	0
2777:	0	0	0	1	1	0	0	0	0
2785:	0	0	1	0	0	0	0	0	0
2793:	0	0	2	0	1	1	1	0	2
2801:	0	0	0	0	1	1	0	0	0
2809:	0	0	0	0	0	0	0	1	0
2817:	0	0	0	0	0	0	1	0	0
2825:	1	0	0	0	0	0	0	0	1
2833:	0	0	0	0	0	0	0	0	0
2841:	0	1	1	0	0	0	0	0	1
2849:	0	0	0	0	0	0	0	0	0
2857:	1	0	0	1	0	0	1	0	0
2865:	0	0	0	0	0	1	0	0	0
2873:	0	0	0	0	1	0	0	0	0
2881:	0	0	0	0	0	0	0	0	0
2889:	0	0	0	0	1	0	0	0	0
2897:	0	0	1	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0	3
2913:	0	0	1	0	0	0	0	0	0
2921:	0	0	0	0	1	0	0	0	0
2929:	0	0	0	1	0	0	0	0	0
2937:	0	0	0	1	0	0	0	0	1
2945:	0	1	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0	0

2961: 0 0 0 0 0 1 1 0

Sample Title: CP1806S10-11

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

3393: 0 0 0 0 0 0 0 0

Sample Title: CP1806S10-11

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

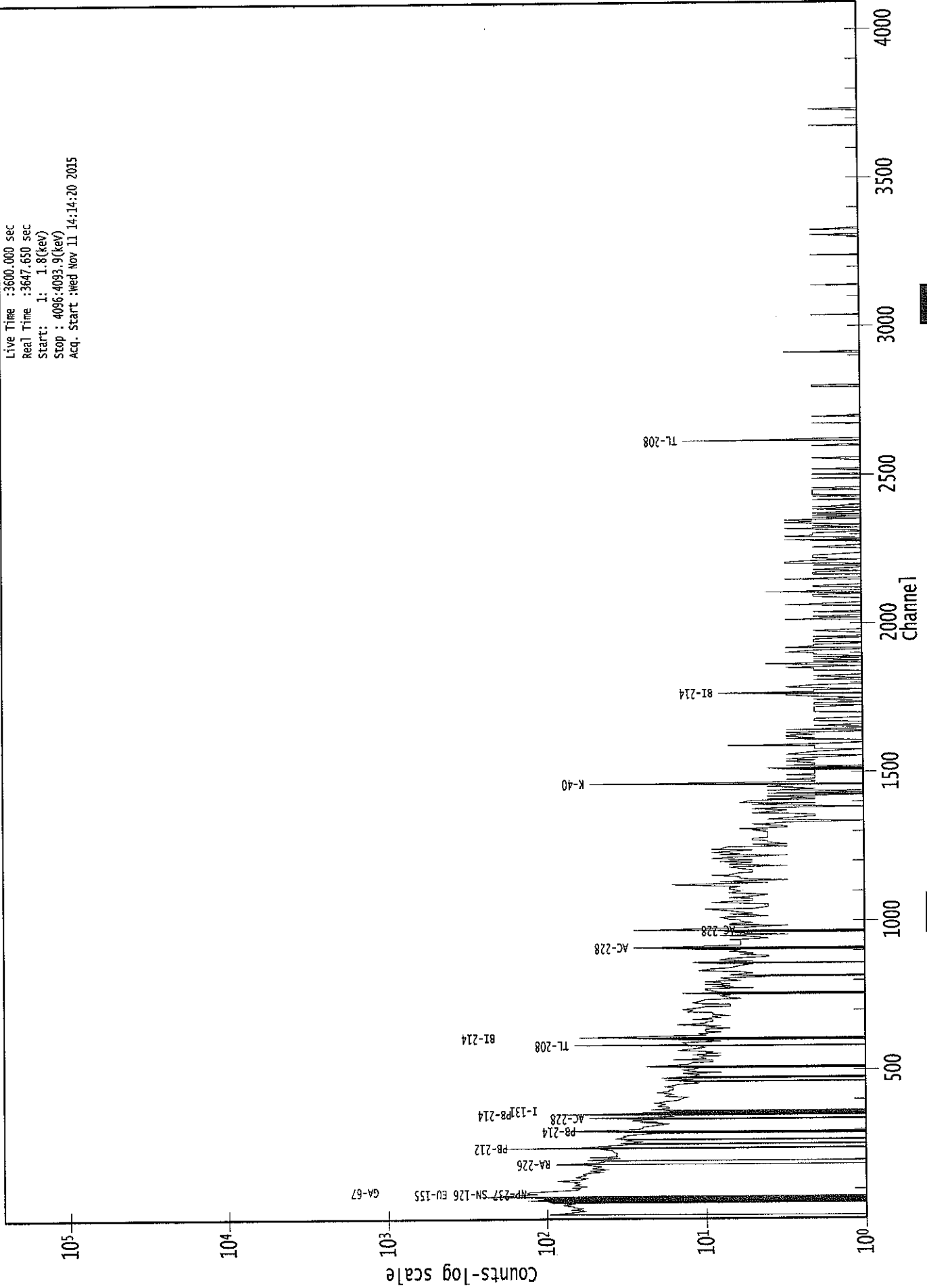
3825: 0 0 0 0 0 1 0 0

Sample Title: CP1806S10-11

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:	1	0	0	0	0	0	0	0
3865:	0	1	0	0	0	0	0	0
3873:	1	0	0	0	0	0	0	0
3881:	0	0	0	0	0	1	0	0
3889:	0	0	0	0	0	1	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	1	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	1	0	1	1	0	0
3937:	0	0	0	0	1	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	1	0	0	1
3969:	0	0	0	0	1	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	1	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	1	0	0	0	1	0	0	0
4017:	1	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	1	0	0	0
4041:	0	0	0	0	0	0	1	0
4049:	0	0	0	0	0	0	1	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	1	0	0	0	0
4089:	0	0	0	0	0	0	1	0

# 0000029504.CNF

Live Time :3600.000 sec  
Real Time :3647.650 sec  
Start: 1: 1.8(kev)  
Stop : 4096:4093.9(kev)  
Acq. Start :wed Nov 11 14:14:20 2015



22800 :

KB  
11/11/15Analysis Report for 1510093-14  
CP1806S13-14

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-14  
Sample Description : CP1806S13-14  
Sample Type : SOIL

Sample Size : 6.054E+02 grams  
Facility : Countroom

Sample Taken On : 10/9/2015 7:33:00AM  
Acquisition Started : 11/11/2015 2:30:29PM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE1  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3601.2 seconds

Dead Time : 0.03 %

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

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

Sample Number : 29505

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15



Analysis Report for 1510093-14  
CP1806S13-14

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 3:30:33PM  
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	46.80	47.15	0.0000	0.00
2	76.44	76.78	0.0000	0.00
3	85.48	85.82	0.0000	0.00
4	88.01	88.34	0.0000	0.00
5	92.84	93.17	0.0000	0.00
6	99.45	99.79	0.0000	0.00
7	129.35	129.67	0.0000	0.00
8	186.22	186.52	0.0000	0.00
9	209.39	209.69	0.0000	0.00
10	238.72	239.00	0.0000	0.00
11	241.87	242.15	0.0000	0.00
12	270.42	270.69	0.0000	0.00
13	277.21	277.48	0.0000	0.00
14	295.52	295.78	0.0000	0.00
15	300.21	300.48	0.0000	0.00
16	328.88	329.14	0.0000	0.00
17	338.52	338.78	0.0000	0.00
18	352.06	352.31	0.0000	0.00
19	462.67	462.88	0.0000	0.00
20	511.63	511.82	0.0000	0.00
21	532.85	533.04	0.0000	0.00
22	583.58	583.75	0.0000	0.00
23	609.56	609.72	0.0000	0.00
24	728.11	728.23	0.0000	0.00
25	768.81	768.91	0.0000	0.00
26	773.09	773.19	0.0000	0.00
27	795.33	795.43	0.0000	0.00
28	861.33	861.40	0.0000	0.00
29	893.76	893.83	0.0000	0.00
30	911.54	911.59	0.0000	0.00
31	934.45	934.50	0.0000	0.00
32	964.96	964.99	0.0000	0.00
33	969.30	969.33	0.0000	0.00
34	1049.06	1049.06	0.0000	0.00
35	1121.17	1121.15	0.0000	0.00
36	1239.04	1238.98	0.0000	0.00
37	1252.27	1252.21	0.0000	0.00
38	1281.79	1281.71	0.0000	0.00
39	1288.89	1288.81	0.0000	0.00
40	1343.77	1343.67	0.0000	0.00
41	1378.63	1378.52	0.0000	0.00
42	1408.52	1408.40	0.0000	0.00

Analysis Report for 1510093-14  
CP1806S13-14

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1461.30	1461.16	0.0000	0.00
44	1502.14	1501.98	0.0000	0.00
45	1514.16	1514.00	0.0000	0.00
46	1545.13	1544.96	0.0000	0.00
47	1588.72	1588.53	0.0000	0.00
48	1592.66	1592.47	0.0000	0.00
49	1622.32	1622.12	0.0000	0.00
50	1630.27	1630.07	0.0000	0.00
51	1672.10	1671.88	0.0000	0.00
52	1694.49	1694.26	0.0000	0.00
53	1765.09	1764.84	0.0000	0.00
54	1937.91	1937.59	0.0000	0.00
55	1965.50	1965.17	0.0000	0.00
56	2017.98	2017.62	0.0000	0.00
57	2164.49	2164.08	0.0000	0.00
58	2204.00	2203.58	0.0000	0.00
59	2315.67	2315.20	0.0000	0.00
60	2321.49	2321.02	0.0000	0.00
61	2449.09	2448.57	0.0000	0.00
62	2615.28	2614.70	0.0000	0.00
63	2989.93	2989.20	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-14  
CP1806S13-14

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 3:30:33PM

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	46.80	43 - 51	47.15	1.57E+02	92.85	1.23E+03	1.50
	2	76.44	72 - 82	76.78	1.18E+03	158.11	2.66E+03	3.76
M	3	85.48	83 - 97	85.82	1.51E+02	82.48	1.17E+03	2.16
m	4	88.01	83 - 97	88.34	2.83E+02	93.45	1.29E+03	2.17
m	5	92.84	83 - 97	93.17	3.59E+02	93.36	1.13E+03	2.18
	6	99.45	98 - 103	99.79	9.27E+01	67.69	8.37E+02	1.71
	7	129.35	125 - 134	129.67	1.65E+02	99.66	1.32E+03	2.19
	8	186.22	182 - 191	186.52	2.33E+02	91.46	1.05E+03	1.94
	9	209.39	207 - 213	209.69	5.99E+01	61.40	6.38E+02	1.49
M	10	238.72	235 - 251	239.00	1.00E+03	75.78	4.04E+02	1.65
m	11	241.87	235 - 251	242.15	2.06E+02	57.51	3.19E+02	1.68
M	12	270.42	265 - 287	270.69	7.06E+01	44.64	3.30E+02	2.07
m	13	277.21	265 - 287	277.48	5.48E+01	44.15	3.41E+02	2.08
M	14	295.52	290 - 303	295.78	2.70E+02	47.62	2.96E+02	1.70
m	15	300.21	290 - 303	300.48	6.56E+01	45.33	3.63E+02	2.11
	16	328.88	327 - 332	329.14	5.34E+01	39.29	2.69E+02	1.08
	17	338.52	335 - 342	338.78	1.60E+02	54.44	3.86E+02	1.35
	18	352.06	348 - 357	352.31	5.43E+02	67.77	3.48E+02	1.98
	19	462.67	460 - 466	462.88	4.41E+01	37.63	2.28E+02	1.58
	20	511.63	506 - 518	511.82	2.12E+02	59.65	3.20E+02	2.23
	21	532.85	530 - 535	533.04	3.07E+01	28.16	1.33E+02	2.44
	22	583.58	580 - 589	583.75	3.16E+02	53.26	2.24E+02	1.89
	23	609.56	605 - 614	609.72	3.49E+02	54.83	2.31E+02	1.72
	24	728.11	724 - 733	728.23	9.82E+01	34.63	1.16E+02	1.99
M	25	768.81	766 - 776	768.91	3.33E+01	23.04	9.15E+01	2.08
m	26	773.09	766 - 776	773.19	2.89E+01	23.39	7.00E+01	2.08
	27	795.33	793 - 798	795.43	2.64E+01	23.98	9.52E+01	1.33
	28	861.33	858 - 865	861.40	4.38E+01	26.00	8.24E+01	1.43
	29	893.76	891 - 897	893.83	1.51E+01	18.65	5.19E+01	2.89
	30	911.54	908 - 917	911.59	2.00E+02	40.90	1.24E+02	2.07
	31	934.45	931 - 938	934.50	2.53E+01	21.45	5.94E+01	1.64
M	32	964.96	960 - 978	964.99	4.39E+01	23.41	7.56E+01	1.89
m	33	969.30	960 - 978	969.33	1.27E+02	27.75	5.90E+01	1.83
	34	1049.06	1043 - 1054	1049.06	3.12E+01	32.12	1.12E+02	1.05
	35	1121.17	1117 - 1127	1121.15	1.05E+02	30.38	6.99E+01	2.40
	36	1239.04	1234 - 1245	1238.98	5.51E+01	28.84	7.18E+01	2.45
	37	1252.27	1245 - 1265	1252.21	3.82E+01	40.11	1.22E+02	17.71
	38	1281.79	1279 - 1285	1281.71	1.33E+01	17.30	4.33E+01	2.05
	39	1288.89	1286 - 1292	1288.81	1.16E+01	14.77	3.07E+01	1.94
	40	1343.77	1341 - 1348	1343.67	1.80E+01	12.96	1.60E+01	2.92

Analysis Report for 1510093-14  
 CP1806S13-14

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1378.63	1375 - 1381		1378.52	1.23E+01	14.21	2.75E+01	1.52
42	1408.52	1405 - 1413		1408.40	1.90E+01	17.61	3.60E+01	1.94
43	1461.30	1456 - 1466		1461.16	5.66E+02	51.34	4.98E+01	2.14
44	1502.14	1498 - 1505		1501.98	1.72E+01	15.23	2.57E+01	3.81
45	1514.16	1506 - 1523		1514.00	4.20E+01	19.13	1.80E+01	14.46
46	1545.13	1542 - 1549		1544.96	9.06E+00	10.58	1.39E+01	2.64
M	47	1588.72	1585 - 1595	1588.53	1.69E+01	12.45	1.94E+01	2.72
m	48	1592.66	1585 - 1595	1592.47	1.18E+01	16.12	2.94E+01	2.72
	49	1622.32	1618 - 1626	1622.12	2.05E+01	13.89	1.50E+01	5.26
	50	1630.27	1627 - 1634	1630.07	1.24E+01	11.14	1.33E+01	3.63
	51	1672.10	1669 - 1675	1671.88	8.50E+00	8.51	7.00E+00	2.78
	52	1694.49	1691 - 1697	1694.26	1.05E+01	8.97	7.00E+00	3.11
	53	1765.09	1761 - 1771	1764.84	5.93E+01	21.24	3.14E+01	2.36
	54	1937.91	1935 - 1940	1937.59	5.71E+00	6.08	2.57E+00	1.42
	55	1965.50	1963 - 1967	1965.17	6.00E+00	4.90	0.00E+00	1.98
	56	2017.98	2013 - 2021	2017.62	8.86E+00	8.02	4.27E+00	1.20
	57	2164.49	2159 - 2168	2164.08	7.67E+00	9.90	8.67E+00	1.49
	58	2204.00	2199 - 2207	2203.58	1.90E+01	8.72	0.00E+00	3.25
M	59	2315.67	2314 - 2323	2315.20	6.33E+00	4.53	3.00E+00	3.64
m	60	2321.49	2314 - 2323	2321.02	7.15E+00	6.36	5.00E+00	3.64
	61	2449.09	2446 - 2450	2448.57	5.50E+00	6.67	5.00E+00	0.92
	62	2615.28	2611 - 2618	2614.70	1.02E+02	20.20	0.00E+00	3.45
	63	2989.93	2985 - 2991	2989.20	5.00E+00	4.47	0.00E+00	2.31

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 : 11/11/2015 3:30:33PM

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	46.80	43 - 51	1.57E+02	92.85	1.23E+03	7.35E+01
	2	76.44	72 - 82	1.18E+03	158.11	2.66E+03	1.17E+02
M	3	85.48	83 - 97	1.51E+02	82.48	1.17E+03	5.62E+01
m	4	88.01	83 - 97	2.83E+02	93.45	1.29E+03	5.90E+01
m	5	92.84	83 - 97	3.59E+02	93.36	1.13E+03	5.53E+01

Analysis Report for 1510093-14

CP1806S13-14

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	6	99.45	98 -	103	9.27E+01	67.69	8.37E+02	5.33E+01
	7	129.35	125 -	134	1.65E+02	99.66	1.32E+03	7.92E+01
	8	186.22	182 -	191	2.33E+02	91.46	1.05E+03	7.09E+01
	9	209.39	207 -	213	5.99E+01	61.40	6.38E+02	4.88E+01
M	10	238.72	235 -	251	1.00E+03	75.78	4.04E+02	3.31E+01
m	11	241.87	235 -	251	2.06E+02	57.51	3.19E+02	2.94E+01
M	12	270.42	265 -	287	7.06E+01	44.64	3.30E+02	2.99E+01
m	13	277.21	265 -	287	5.48E+01	44.15	3.41E+02	3.04E+01
M	14	295.52	290 -	303	2.70E+02	47.62	2.96E+02	2.83E+01
m	15	300.21	290 -	303	6.56E+01	45.33	3.63E+02	3.13E+01
	16	328.88	327 -	332	5.34E+01	39.29	2.69E+02	3.00E+01
	17	338.52	335 -	342	1.60E+02	54.44	3.86E+02	3.96E+01
	18	352.06	348 -	357	5.43E+02	67.77	3.48E+02	4.04E+01
	19	462.67	460 -	466	4.41E+01	37.63	2.28E+02	2.89E+01
	20	511.63	506 -	518	2.12E+02	59.65	3.20E+02	4.28E+01
	21	532.85	530 -	535	3.07E+01	28.16	1.33E+02	2.13E+01
	22	583.58	580 -	589	3.16E+02	53.26	2.24E+02	3.26E+01
	23	609.56	605 -	614	3.49E+02	54.83	2.31E+02	3.30E+01
	24	728.11	724 -	733	9.82E+01	34.63	1.16E+02	2.33E+01
M	25	768.81	766 -	776	3.33E+01	23.04	9.15E+01	1.57E+01
m	26	773.09	766 -	776	2.89E+01	23.39	7.00E+01	1.38E+01
	27	795.33	793 -	798	2.64E+01	23.98	9.52E+01	1.78E+01
	28	861.33	858 -	865	4.38E+01	26.00	8.24E+01	1.84E+01
	29	893.76	891 -	897	1.51E+01	18.65	5.19E+01	1.39E+01
	30	911.54	908 -	917	2.00E+02	40.90	1.24E+02	2.43E+01
	31	934.45	931 -	938	2.53E+01	21.45	5.94E+01	1.56E+01
M	32	964.96	960 -	978	4.39E+01	23.41	7.56E+01	1.43E+01
m	33	969.30	960 -	978	1.27E+02	27.75	5.90E+01	1.26E+01
	34	1049.06	1043 -	1054	3.12E+01	32.12	1.12E+02	2.48E+01
	35	1121.17	1117 -	1127	1.05E+02	30.38	6.99E+01	1.84E+01
	36	1239.04	1234 -	1245	5.51E+01	28.84	7.18E+01	2.03E+01
	37	1252.27	1245 -	1265	3.82E+01	40.11	1.22E+02	3.14E+01
	38	1281.79	1279 -	1285	1.33E+01	17.30	4.33E+01	1.29E+01
	39	1288.89	1286 -	1292	1.16E+01	14.77	3.07E+01	1.08E+01
	40	1343.77	1341 -	1348	1.80E+01	12.96	1.60E+01	8.05E+00
	41	1378.63	1375 -	1381	1.23E+01	14.21	2.75E+01	1.02E+01
	42	1408.52	1405 -	1413	1.90E+01	17.61	3.60E+01	1.26E+01
	43	1461.30	1456 -	1466	5.66E+02	51.34	4.98E+01	1.59E+01
	44	1502.14	1498 -	1505	1.72E+01	15.23	2.57E+01	1.05E+01
	45	1514.16	1506 -	1523	4.20E+01	19.13	1.80E+01	1.16E+01
	46	1545.13	1542 -	1549	9.06E+00	10.58	1.39E+01	7.15E+00
M	47	1588.72	1585 -	1595	1.69E+01	12.45	1.94E+01	7.24E+00
m	48	1592.66	1585 -	1595	1.18E+01	16.12	2.94E+01	8.92E+00
	49	1622.32	1618 -	1626	2.05E+01	13.89	1.50E+01	8.66E+00
	50	1630.27	1627 -	1634	1.24E+01	11.14	1.33E+01	7.10E+00
	51	1672.10	1669 -	1675	8.50E+00	8.51	7.00E+00	5.10E+00
	52	1694.49	1691 -	1697	1.05E+01	8.97	7.00E+00	5.10E+00
	53	1765.09	1761 -	1771	5.93E+01	21.24	3.14E+01	1.20E+01
	54	1937.91	1935 -	1940	5.71E+00	6.08	2.57E+00	3.09E+00
	55	1965.50	1963 -	1967	6.00E+00	4.90	0.00E+00	0.00E+00
	56	2017.98	2013 -	2021	8.86E+00	8.02	4.27E+00	4.41E+00

Analysis Report for 1510093-14

CP1806S13-14

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	57	2164.49	2159 -	2168	7.67E+00	9.90	8.67E+00	6.75E+00
	58	2204.00	2199 -	2207	1.90E+01	8.72	0.00E+00	0.00E+00
M	59	2315.67	2314 -	2323	6.33E+00	4.53	3.00E+00	2.85E+00
m	60	2321.49	2314 -	2323	7.15E+00	6.36	5.00E+00	3.68E+00
	61	2449.09	2446 -	2450	5.50E+00	6.67	5.00E+00	3.90E+00
	62	2615.28	2611 -	2618	1.02E+02	20.20	0.00E+00	0.00E+00
	63	2989.93	2985 -	2991	5.00E+00	4.47	0.00E+00	0.00E+00

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 2.000sigma

## PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 3:30:33PM

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	46.80	43 -	51	47.15	1.57E+02	92.85	1.23E+03	PB-210
	2	76.44	72 -	82	76.78	1.18E+03	158.11	2.66E+03	.....
M	3	85.48	83 -	97	85.82	1.51E+02	82.48	1.17E+03	.....
m	4	88.01	83 -	97	88.34	2.83E+02	93.45	1.29E+03	CD-109 LU-176 SN-126
	5	92.84	83 -	97	93.17	3.59E+02	93.36	1.13E+03	GA-67
m	6	99.45	98 -	103	99.79	9.27E+01	67.69	8.37E+02	.....
	7	129.35	125 -	134	129.67	1.65E+02	99.66	1.32E+03	.....
	8	186.22	182 -	191	186.52	2.33E+02	91.46	1.05E+03	RA-226
	9	209.39	207 -	213	209.69	5.99E+01	61.40	6.38E+02	CM-243 GA-67
M	10	238.72	235 -	251	239.00	1.00E+03	75.78	4.04E+02	PB-212
m	11	241.87	235 -	251	242.15	2.06E+02	57.51	3.19E+02	RA-224
M	12	270.42	265 -	287	270.69	7.06E+01	44.64	3.30E+02	.....
m	13	277.21	265 -	287	277.48	5.48E+01	44.15	3.41E+02	CM-243 NP-239
M	14	295.52	290 -	303	295.78	2.70E+02	47.62	2.96E+02	PB-214
m	15	300.21	290 -	303	300.48	6.56E+01	45.33	3.63E+02	GA-67

: 00829

Analysis Report for 1510093-14

CP1806S13-14

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
								PB-212	
								BI-210M	
16	328.88	327 -	332	329.14	5.34E+01	39.29	2.69E+02	LA-140	
17	338.52	335 -	342	338.78	1.60E+02	54.44	3.86E+02	AC-228	
18	352.06	348 -	357	352.31	5.43E+02	67.77	3.48E+02	PB-214	
19	462.67	460 -	466	462.88	4.41E+01	37.63	2.28E+02	SB-125	
20	511.63	506 -	518	511.82	2.12E+02	59.65	3.20E+02	.....	
21	532.85	530 -	535	533.04	3.07E+01	28.16	1.33E+02	.....	
22	583.58	580 -	589	583.75	3.16E+02	53.26	2.24E+02	TL-208	
23	609.56	605 -	614	609.72	3.49E+02	54.83	2.31E+02	BI-214	
24	728.11	724 -	733	728.23	9.82E+01	34.63	1.16E+02	BI-212	
M	25	768.81	766 -	776	768.91	3.33E+01	23.04	9.15E+01	.....
m	26	773.09	766 -	776	773.19	2.89E+01	23.39	7.00E+01	.....
	27	795.33	793 -	798	795.43	2.64E+01	23.98	9.52E+01	CS-134
	28	861.33	858 -	865	861.40	4.38E+01	26.00	8.24E+01	TL-208
	29	893.76	891 -	897	893.83	1.51E+01	18.65	5.19E+01	.....
	30	911.54	908 -	917	911.59	2.00E+02	40.90	1.24E+02	AC-228
								LU-172	
M	31	934.45	931 -	938	934.50	2.53E+01	21.45	5.94E+01	.....
m	32	964.96	960 -	978	964.99	4.39E+01	23.41	7.56E+01	EU-152
	33	969.30	960 -	978	969.33	1.27E+02	27.75	5.90E+01	AC-228
	34	1049.06	1043 -	1054	1049.06	3.12E+01	32.12	1.12E+02	CS-136
	35	1121.17	1117 -	1127	1121.15	1.05E+02	30.38	6.99E+01	TA-182
								SC-46	
								BI-214	
	36	1239.04	1234 -	1245	1238.98	5.51E+01	28.84	7.18E+01	CO-56
	37	1252.27	1245 -	1265	1252.21	3.82E+01	40.11	1.22E+02	.....
	38	1281.79	1279 -	1285	1281.71	1.33E+01	17.30	4.33E+01	.....
	39	1288.89	1286 -	1292	1288.81	1.16E+01	14.77	3.07E+01	.....
	40	1343.77	1341 -	1348	1343.67	1.80E+01	12.96	1.60E+01	.....
	41	1378.63	1375 -	1381	1378.52	1.23E+01	14.21	2.75E+01	.....
	42	1408.52	1405 -	1413	1408.40	1.90E+01	17.61	3.60E+01	EU-152
	43	1461.30	1456 -	1466	1461.16	5.66E+02	51.34	4.98E+01	K-40
	44	1502.14	1498 -	1505	1501.98	1.72E+01	15.23	2.57E+01	.....
	45	1514.16	1506 -	1523	1514.00	4.20E+01	19.13	1.80E+01	.....
M	46	1545.13	1542 -	1549	1544.96	9.06E+00	10.58	1.39E+01	.....
m	47	1588.72	1585 -	1595	1588.53	1.69E+01	12.45	1.94E+01	.....
	48	1592.66	1585 -	1595	1592.47	1.18E+01	16.12	2.94E+01	.....
	49	1622.32	1618 -	1626	1622.12	2.05E+01	13.89	1.50E+01	.....
	50	1630.27	1627 -	1634	1630.07	1.24E+01	11.14	1.33E+01	.....
	51	1672.10	1669 -	1675	1671.88	8.50E+00	8.51	7.00E+00	.....
	52	1694.49	1691 -	1697	1694.26	1.05E+01	8.97	7.00E+00	.....
	53	1765.09	1761 -	1771	1764.84	5.93E+01	21.24	3.14E+01	BI-214
	54	1937.91	1935 -	1940	1937.59	5.71E+00	6.08	2.57E+00	.....
	55	1965.50	1963 -	1967	1965.17	6.00E+00	4.90	0.00E+00	.....
	56	2017.98	2013 -	2021	2017.62	8.86E+00	8.02	4.27E+00	.....
	57	2164.49	2159 -	2168	2164.08	7.67E+00	9.90	8.67E+00	.....
	58	2204.00	2199 -	2207	2203.58	1.90E+01	8.72	0.00E+00	BI-214
M	59	2315.67	2314 -	2323	2315.20	6.33E+00	4.53	3.00E+00	.....
m	60	2321.49	2314 -	2323	2321.02	7.15E+00	6.36	5.00E+00	.....
	61	2449.09	2446 -	2450	2448.57	5.50E+00	6.67	5.00E+00	.....
	62	2615.28	2611 -	2618	2614.70	1.02E+02	20.20	0.00E+00	TL-208
	63	2989.93	2985 -	2991	2989.20	5.00E+00	4.47	0.00E+00	.....

Analysis Report for 1510093-14  
CP1806S13-14

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 : 11/11/2015 3:30:33PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.80	1.57E+02	92.85	1.70E-02	1.78E-03
	2	76.44	1.18E+03	158.11	2.77E-02	2.35E-03
M	3	85.48	1.51E+02	82.48	2.84E-02	2.65E-03
m	4	88.01	2.83E+02	93.45	2.85E-02	2.74E-03
m	5	92.84	3.59E+02	93.36	2.86E-02	2.65E-03
	6	99.45	9.27E+01	67.69	2.85E-02	2.51E-03
	7	129.35	1.65E+02	99.66	2.67E-02	2.09E-03
	8	186.22	2.33E+02	91.46	2.24E-02	2.03E-03
	9	209.39	5.99E+01	61.40	2.09E-02	1.85E-03
M	10	238.72	1.00E+03	75.78	1.92E-02	1.64E-03
m	11	241.87	2.06E+02	57.51	1.91E-02	1.61E-03
M	12	270.42	7.06E+01	44.64	1.77E-02	1.40E-03
m	13	277.21	5.48E+01	44.15	1.74E-02	1.35E-03
M	14	295.52	2.70E+02	47.62	1.67E-02	1.31E-03
m	15	300.21	6.56E+01	45.33	1.65E-02	1.30E-03
	16	328.88	5.34E+01	39.29	1.55E-02	1.24E-03
	17	338.52	1.60E+02	54.44	1.52E-02	1.22E-03
	18	352.06	5.43E+02	67.77	1.48E-02	1.19E-03
	19	462.67	4.41E+01	37.63	1.21E-02	1.04E-03
	20	511.63	2.12E+02	59.65	1.12E-02	9.90E-04
	21	532.85	3.07E+01	28.16	1.09E-02	9.68E-04
	22	583.58	3.16E+02	53.26	1.02E-02	9.15E-04
	23	609.56	3.49E+02	54.83	9.82E-03	8.88E-04
	24	728.11	9.82E+01	34.63	8.55E-03	7.75E-04
M	25	768.81	3.33E+01	23.04	8.19E-03	7.38E-04
m	26	773.09	2.89E+01	23.39	8.15E-03	7.34E-04
	27	795.33	2.64E+01	23.98	7.97E-03	7.14E-04
	28	861.33	4.38E+01	26.00	7.48E-03	6.55E-04
	29	893.76	1.51E+01	18.65	7.26E-03	6.26E-04
	30	911.54	2.00E+02	40.90	7.15E-03	6.15E-04
	31	934.45	2.53E+01	21.45	7.01E-03	6.03E-04
M	32	964.96	4.39E+01	23.41	6.83E-03	5.88E-04
m	33	969.30	1.27E+02	27.75	6.80E-03	5.85E-04
	34	1049.06	3.12E+01	32.12	6.39E-03	5.44E-04



Analysis Report for 1510093-14  
CP1806S13-14

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1121.17	1.05E+02	30.38	6.06E-03	5.06E-04
36	1239.04	5.51E+01	28.84	5.61E-03	4.68E-04
37	1252.27	3.82E+01	40.11	5.57E-03	4.65E-04
38	1281.79	1.33E+01	17.30	5.47E-03	4.60E-04
39	1288.89	1.16E+01	14.77	5.45E-03	4.59E-04
40	1343.77	1.80E+01	12.96	5.28E-03	4.48E-04
41	1378.63	1.23E+01	14.21	5.18E-03	4.40E-04
42	1408.52	1.90E+01	17.61	5.10E-03	4.32E-04
43	1461.30	5.66E+02	51.34	4.97E-03	4.19E-04
44	1502.14	1.72E+01	15.23	4.87E-03	4.09E-04
45	1514.16	4.20E+01	19.13	4.85E-03	4.06E-04
46	1545.13	9.06E+00	10.58	4.78E-03	3.98E-04
M 47	1588.72	1.69E+01	12.45	4.69E-03	3.87E-04
m 48	1592.66	1.18E+01	16.12	4.69E-03	3.86E-04
49	1622.32	2.05E+01	13.89	4.63E-03	3.79E-04
50	1630.27	1.24E+01	11.14	4.62E-03	3.77E-04
51	1672.10	8.50E+00	8.51	4.54E-03	3.67E-04
52	1694.49	1.05E+01	8.97	4.50E-03	3.61E-04
53	1765.09	5.93E+01	21.24	4.39E-03	3.43E-04
54	1937.91	5.71E+00	6.08	4.18E-03	3.26E-04
55	1965.50	6.00E+00	4.90	4.15E-03	3.26E-04
56	2017.98	8.86E+00	8.02	4.09E-03	3.26E-04
57	2164.49	7.67E+00	9.90	3.98E-03	3.26E-04
58	2204.00	1.90E+01	8.72	3.95E-03	3.26E-04
M 59	2315.67	6.33E+00	4.53	3.89E-03	3.26E-04
m 60	2321.49	7.15E+00	6.36	3.88E-03	3.26E-04
61	2449.09	5.50E+00	6.67	3.83E-03	3.26E-04
62	2615.28	1.02E+02	20.20	3.79E-03	3.26E-04
63	2989.93	5.00E+00	4.47	3.81E-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 : 11/11/2015 3:30:33PM  
 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	46.80	1.57E+02	92.85	4.50E+01	8.46E+00	1.12E+02	9.32E+01

Analysis Report for 1510093-14

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	2	76.44	1.18E+03	158.11	9.75E+00	8.28E+00	1.17E+03	1.58E+02
M	3	85.48	1.51E+02	82.48	2.38E+00	8.92E+00	1.49E+02	8.30E+01
m	4	88.01	2.83E+02	93.45			2.83E+02	9.34E+01
m	5	92.84	3.59E+02	93.36	1.34E+02	9.83E+00	2.25E+02	9.39E+01
	6	99.45	9.27E+01	67.69			9.27E+01	6.77E+01
	7	129.35	1.65E+02	99.66			1.65E+02	9.97E+01
	8	186.22	2.33E+02	91.46	6.41E+01	7.38E+00	1.69E+02	9.18E+01
	9	209.39	5.99E+01	61.40			5.99E+01	6.14E+01
M	10	238.72	1.00E+03	75.78	2.34E+01	6.34E+00	9.80E+02	7.60E+01
m	11	241.87	2.06E+02	57.51			2.06E+02	5.75E+01
M	12	270.42	7.06E+01	44.64			7.06E+01	4.46E+01
m	13	277.21	5.48E+01	44.15			5.48E+01	4.41E+01
M	14	295.52	2.70E+02	47.62	4.17E+00	5.50E+00	2.66E+02	4.79E+01
m	15	300.21	6.56E+01	45.33			6.56E+01	4.53E+01
	16	328.88	5.34E+01	39.29			5.34E+01	3.93E+01
	17	338.52	1.60E+02	54.44	2.22E-01	4.54E+00	1.60E+02	5.46E+01
	18	352.06	5.43E+02	67.77	8.83E+00	4.91E+00	5.34E+02	6.79E+01
	19	462.67	4.41E+01	37.63			4.41E+01	3.76E+01
	20	511.63	2.12E+02	59.65	8.12E+01	5.49E+00	1.31E+02	5.99E+01
	21	532.85	3.07E+01	28.16			3.07E+01	2.82E+01
	22	583.58	3.16E+02	53.26	6.34E+00	3.74E+00	3.10E+02	5.34E+01
	23	609.56	3.49E+02	54.83	5.20E+00	3.69E+00	3.43E+02	5.50E+01
	24	728.11	9.82E+01	34.63			9.82E+01	3.46E+01
M	25	768.81	3.33E+01	23.04			3.33E+01	2.30E+01
m	26	773.09	2.89E+01	23.39			2.89E+01	2.34E+01
	27	795.33	2.64E+01	23.98			2.64E+01	2.40E+01
	28	861.33	4.38E+01	26.00			4.38E+01	2.60E+01
	29	893.76	1.51E+01	18.65			1.51E+01	1.86E+01
	30	911.54	2.00E+02	40.90	3.28E+00	2.53E+00	1.97E+02	4.10E+01
	31	934.45	2.53E+01	21.45			2.53E+01	2.14E+01
M	32	964.96	4.39E+01	23.41			4.39E+01	2.34E+01
m	33	969.30	1.27E+02	27.75			1.27E+02	2.77E+01
	34	1049.06	3.12E+01	32.12			3.12E+01	3.21E+01
	35	1121.17	1.05E+02	30.38	2.28E+00	2.55E+00	1.03E+02	3.05E+01
	36	1239.04	5.51E+01	28.84			5.51E+01	2.88E+01
	37	1252.27	3.82E+01	40.11			3.82E+01	4.01E+01
	38	1281.79	1.33E+01	17.30			1.33E+01	1.73E+01
	39	1288.89	1.16E+01	14.77			1.16E+01	1.48E+01
	40	1343.77	1.80E+01	12.96			1.80E+01	1.30E+01
	41	1378.63	1.23E+01	14.21			1.23E+01	1.42E+01
	42	1408.52	1.90E+01	17.61			1.90E+01	1.76E+01
	43	1461.30	5.66E+02	51.34	6.46E+00	2.33E+00	5.60E+02	5.14E+01
	44	1502.14	1.72E+01	15.23			1.72E+01	1.52E+01
	45	1514.16	4.20E+01	19.13			4.20E+01	1.91E+01
	46	1545.13	9.06E+00	10.58			9.06E+00	1.06E+01
M	47	1588.72	1.69E+01	12.45			1.69E+01	1.24E+01
m	48	1592.66	1.18E+01	16.12			1.18E+01	1.61E+01
	49	1622.32	2.05E+01	13.89			2.05E+01	1.39E+01
	50	1630.27	1.24E+01	11.14			1.24E+01	1.11E+01
	51	1672.10	8.50E+00	8.51			8.50E+00	8.51E+00
	52	1694.49	1.05E+01	8.97			1.05E+01	8.97E+00
	53	1765.09	5.93E+01	21.24			5.93E+01	2.12E+01
	54	1937.91	5.71E+00	6.08			5.71E+00	6.08E+00
	55	1965.50	6.00E+00	4.90			6.00E+00	4.90E+00

Analysis Report for 1510093-14

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Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	56	2017.98	8.86E+00	8.02		8.86E+00	8.02E+00
	57	2164.49	7.67E+00	9.90		7.67E+00	9.90E+00
	58	2204.00	1.90E+01	8.72		1.90E+01	8.72E+00
M	59	2315.67	6.33E+00	4.53		6.33E+00	4.53E+00
m	60	2321.49	7.15E+00	6.36		7.15E+00	6.36E+00
	61	2449.09	5.50E+00	6.67		5.50E+00	6.67E+00
	62	2615.28	1.02E+02	20.20	3.47E+00 1.48E+00	9.85E+01	2.03E+01
	63	2989.93	5.00E+00	4.47		5.00E+00	4.47E+00

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

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 3:30:33PM  
Ref. Peak Energy : 0.00 Reference Date :  
Peak Ratio : 0.00 Uncertainty : 0.00  
Background File : \\OR-GAMMA1\ApexRoof\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	46.80	1.57E+02	92.85	4.50E+01 8.46E+00	1.12E+02	9.32E+01
	2	76.44	1.18E+03	158.11	9.75E+00 8.28E+00	1.17E+03	1.58E+02
M	3	85.48	1.51E+02	82.48	2.38E+00 8.92E+00	1.49E+02	8.30E+01
m	4	88.01	2.83E+02	93.45		2.83E+02	9.34E+01
m	5	92.84	3.59E+02	93.36	1.34E+02 9.83E+00	2.25E+02	9.39E+01
	6	99.45	9.27E+01	67.69		9.27E+01	6.77E+01
	7	129.35	1.65E+02	99.66		1.65E+02	9.97E+01
	8	186.22	2.33E+02	91.46	6.41E+01 7.38E+00	1.69E+02	9.18E+01
	9	209.39	5.99E+01	61.40		5.99E+01	6.14E+01
M	10	238.72	1.00E+03	75.78	2.34E+01 6.34E+00	9.80E+02	7.60E+01
m	11	241.87	2.06E+02	57.51		2.06E+02	5.75E+01
M	12	270.42	7.06E+01	44.64		7.06E+01	4.46E+01
m	13	277.21	5.48E+01	44.15		5.48E+01	4.41E+01
M	14	295.52	2.70E+02	47.62	4.17E+00 5.50E+00	2.66E+02	4.79E+01
m	15	300.21	6.56E+01	45.33		6.56E+01	4.53E+01
	16	328.88	5.34E+01	39.29		5.34E+01	3.93E+01
	17	338.52	1.60E+02	54.44	2.22E-01 4.54E+00	1.60E+02	5.46E+01
	18	352.06	5.43E+02	67.77	8.83E+00 4.91E+00	5.34E+02	6.79E+01
	19	462.67	4.41E+01	37.63		4.41E+01	3.76E+01
	20	511.63	2.12E+02	59.65	8.12E+01 5.49E+00	1.31E+02	5.99E+01

: 00834

Analysis Report for 1510093-14  
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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	21	532.85	3.07E+01	28.16			3.07E+01	2.82E+01
	22	583.58	3.16E+02	53.26	6.34E+00	3.74E+00	3.10E+02	5.34E+01
	23	609.56	3.49E+02	54.83	5.20E+00	3.69E+00	3.43E+02	5.50E+01
	24	728.11	9.82E+01	34.63			9.82E+01	3.46E+01
M	25	768.81	3.33E+01	23.04			3.33E+01	2.30E+01
m	26	773.09	2.89E+01	23.39			2.89E+01	2.34E+01
	27	795.33	2.64E+01	23.98			2.64E+01	2.40E+01
	28	861.33	4.38E+01	26.00			4.38E+01	2.60E+01
	29	893.76	1.51E+01	18.65			1.51E+01	1.86E+01
	30	911.54	2.00E+02	40.90	3.28E+00	2.53E+00	1.97E+02	4.10E+01
	31	934.45	2.53E+01	21.45			2.53E+01	2.14E+01
M	32	964.96	4.39E+01	23.41			4.39E+01	2.34E+01
m	33	969.30	1.27E+02	27.75			1.27E+02	2.77E+01
	34	1049.06	3.12E+01	32.12			3.12E+01	3.21E+01
	35	1121.17	1.05E+02	30.38	2.28E+00	2.55E+00	1.03E+02	3.05E+01
	36	1239.04	5.51E+01	28.84			5.51E+01	2.88E+01
	37	1252.27	3.82E+01	40.11			3.82E+01	4.01E+01
	38	1281.79	1.33E+01	17.30			1.33E+01	1.73E+01
	39	1288.89	1.16E+01	14.77			1.16E+01	1.48E+01
	40	1343.77	1.80E+01	12.96			1.80E+01	1.30E+01
	41	1378.63	1.23E+01	14.21			1.23E+01	1.42E+01
	42	1408.52	1.90E+01	17.61			1.90E+01	1.76E+01
	43	1461.30	5.66E+02	51.34	6.46E+00	2.33E+00	5.60E+02	5.14E+01
	44	1502.14	1.72E+01	15.23			1.72E+01	1.52E+01
	45	1514.16	4.20E+01	19.13			4.20E+01	1.91E+01
	46	1545.13	9.06E+00	10.58			9.06E+00	1.06E+01
M	47	1588.72	1.69E+01	12.45			1.69E+01	1.24E+01
m	48	1592.66	1.18E+01	16.12			1.18E+01	1.61E+01
	49	1622.32	2.05E+01	13.89			2.05E+01	1.39E+01
	50	1630.27	1.24E+01	11.14			1.24E+01	1.11E+01
	51	1672.10	8.50E+00	8.51			8.50E+00	8.51E+00
	52	1694.49	1.05E+01	8.97			1.05E+01	8.97E+00
	53	1765.09	5.93E+01	21.24			5.93E+01	2.12E+01
	54	1937.91	5.71E+00	6.08			5.71E+00	6.08E+00
	55	1965.50	6.00E+00	4.90			6.00E+00	4.90E+00
	56	2017.98	8.86E+00	8.02			8.86E+00	8.02E+00
	57	2164.49	7.67E+00	9.90			7.67E+00	9.90E+00
	58	2204.00	1.90E+01	8.72			1.90E+01	8.72E+00
M	59	2315.67	6.33E+00	4.53			6.33E+00	4.53E+00
m	60	2321.49	7.15E+00	6.36			7.15E+00	6.36E+00
	61	2449.09	5.50E+00	6.67			5.50E+00	6.67E+00
	62	2615.28	1.02E+02	20.20	3.47E+00	1.48E+00	9.85E+01	2.03E+01
	63	2989.93	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 1510093-14  
CP1806S13-14

## 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	0.962	1460.81 *	10.67	1.31E+01	1.65E+00
GA-67	0.579	93.31 *	35.70	3.25E+02	1.46E+03
		208.95 *	2.24	1.89E+03	8.43E+03
		300.22 *	16.00	3.66E+02	1.66E+03
CD-109	1.000	88.03 *	3.72	3.48E+00	1.21E+00
SN-126	0.970	87.57 *	37.00	3.33E-01	1.14E-01
TL-208	0.947	583.14 *	30.22	1.25E+00	2.43E-01
		860.37 *	4.48	1.62E+00	9.73E-01
		2614.66 *	35.85	8.98E-01	2.00E-01
PB-210	0.986	46.50 *	4.25	1.93E+00	1.62E+00
BI-212	0.658	727.17 *	11.80	1.21E+00	4.40E-01
		1620.62	2.75		
PB-212	0.999	238.63 *	44.60	1.42E+00	1.63E-01
		300.09 *	3.41	1.45E+00	1.01E+00
BI-214	0.961	609.31 *	46.30	9.37E-01	1.72E-01
		1120.29 *	15.10	1.39E+00	4.29E-01
		1764.49 *	15.80	1.06E+00	3.88E-01
		2204.22 *	4.98	1.20E+00	5.59E-01
PB-214	0.993	295.21 *	19.19	1.03E+00	2.03E-01
		351.92 *	37.19	1.21E+00	1.82E-01
RA-224	0.882	240.98 *	3.95	3.39E+00	9.90E-01
RA-226	1.000	186.21 *	3.28	2.86E+00	5.45E+00
AC-228	0.980	338.32 *	11.40	1.15E+00	4.02E-01
		911.07 *	27.70	1.23E+00	2.78E-01
		969.11 *	16.60	1.40E+00	3.28E-01
CM-243	0.360	209.75 *	3.29	1.08E+00	1.12E+00
		228.14	10.60		
		277.60 *	14.00	2.79E-01	2.26E-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 1510093-14  
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## UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/11/2015 3:30:33PM  
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	76.44	3.24076E-01	6.79		
M	3	85.48	4.14063E-02	27.83		
	6	99.45	2.57458E-02	36.52	D-Esc	
	7	129.35	4.57571E-02	30.25		
M	12	270.42	1.96000E-02	31.63		
	16	328.88	1.48463E-02	36.76	Sum	
	19	462.67	1.22591E-02	42.63	Sum	
	20	511.63	3.63236E-02	22.90		
	21	532.85	8.52377E-03	45.89		
M	25	768.81	9.24035E-03	34.64	Sum	
m	26	773.09	8.03361E-03	40.43		
	27	795.33	7.32920E-03	45.44	Sum	
	29	893.76	4.18699E-03	61.86		
	31	934.45	7.02273E-03	42.42		
M	32	964.96	1.21989E-02	26.65	Tol.	EU-152
	34	1049.06	8.66060E-03	51.52	Tol.	CS-136
	36	1239.04	1.52991E-02	26.19	Tol.	CO-56
	37	1252.27	1.05990E-02	52.56		
	38	1281.79	3.70635E-03	64.82		
	39	1288.89	3.23045E-03	63.52		
	40	1343.77	5.00000E-03	36.00		
	41	1378.63	3.40812E-03	57.92		
	42	1408.52	5.27778E-03	46.33	Tol.	EU-152
	44	1502.14	4.76852E-03	44.36		
	45	1514.16	1.16667E-02	22.78		
	46	1545.13	2.51736E-03	58.39		
M	47	1588.72	4.68979E-03	36.87	Sum	
m	48	1592.66	3.28110E-03	68.26	D-Esc	
	49	1622.32	5.69444E-03	33.88		
	50	1630.27	3.43567E-03	45.02		
	51	1672.10	2.36111E-03	50.09		
	52	1694.49	2.91667E-03	42.72		
	54	1937.91	1.58730E-03	53.22	Sum	
	55	1965.50	1.66667E-03	40.82		
	56	2017.98	2.46212E-03	45.22		
	57	2164.49	2.12963E-03	64.56		
M	59	2315.67	1.75801E-03	35.77		
m	60	2321.49	1.98515E-03	44.52		
	61	2449.09	1.52778E-03	60.64		
	63	2989.93	1.38889E-03	44.72		

Analysis Report for 1510093-14  
CP1806S13-14

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81	*	10.67	1.31E+01	1.65E+00
GA-67	0.57	93.31	*	35.70	3.25E+02	1.46E+03
		208.95	*	2.24	1.89E+03	8.43E+03
		300.22	*	16.00	3.66E+02	1.66E+03
		88.03	*	3.72	3.48E+00	1.21E+00
CD-109	1.00	88.03	*	37.00	3.33E-01	1.14E-01
SN-126	0.97	87.57	*	30.22	1.25E+00	2.43E-01
TL-208	0.94	583.14	*	4.48	1.62E+00	9.73E-01
		860.37	*	35.85	8.98E-01	2.00E-01
		2614.66	*	4.25	1.93E+00	1.62E+00
PB-210	0.98	46.50	*	11.80	1.21E+00	4.40E-01
BI-212	0.65	727.17	*	2.75	1.42E+00	1.63E-01
		1620.62		44.60	1.45E+00	1.01E+00
PB-212	0.99	238.63	*	3.41	9.37E-01	1.72E-01
		300.09	*	46.30	1.39E+00	4.29E-01
BI-214	0.96	609.31	*	15.10	1.06E+00	3.88E-01
		1120.29	*	15.80	1.20E+00	5.59E-01
		1764.49	*	4.98	1.03E+00	2.03E-01
		2204.22	*	37.19	1.21E+00	1.82E-01
PB-214	0.99	295.21	*	3.95	3.39E+00	9.90E-01
		351.92	*	3.28	2.86E+00	5.45E+00
RA-224	0.88	240.98	*	11.40	1.15E+00	4.02E-01
RA-226	1.00	186.21	*	27.70	1.23E+00	2.78E-01
AC-228	0.98	338.32	*	16.60	1.40E+00	3.28E-01
		911.07	*	3.29	1.08E+00	1.12E+00
		969.11	*	10.60		
CM-243	0.36	209.75	*	14.00	2.79E-01	2.26E-01
		228.14				
		277.60	*			

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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

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.962	1.31E+01	1.65E+00	
GA-67	0.579	2.58E+02	1.12E+03	
? CD-109	1.000	3.48E+00	1.21E+00	
? SN-126	0.970	3.33E-01	1.14E-01	
TL-208	0.947	1.05E+00	1.53E-01	
PB-210	0.986	1.93E+00	1.62E+00	
BI-212	0.658	1.21E+00	4.40E-01	
PB-212	0.999	1.39E+00	1.62E-01	
BI-214	0.961	1.02E+00	1.43E-01	
PB-214	0.993	1.13E+00	1.35E-01	
RA-224	0.882	3.39E+00	9.90E-01	
RA-226	1.000	2.86E+00	5.45E+00	
AC-228	0.980	1.27E+00	1.87E-01	
CM-243	0.360	3.05E-01	2.22E-01	

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

Errors quoted at 2.000sigma



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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 3:30:33PM  
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	76.44	3.24076E-01	6.79		
M	3	85.48	4.14063E-02	27.83		
	6	99.45	2.57458E-02	36.52	D-Esc	
	7	129.35	4.57571E-02	30.25		
M	12	270.42	1.96000E-02	31.63		
	16	328.88	1.48463E-02	36.76	Sum	
	19	462.67	1.22591E-02	42.63	Sum	
	20	511.63	3.63236E-02	22.90		
	21	532.85	8.52377E-03	45.89		
M	25	768.81	9.24035E-03	34.64	Sum	
m	26	773.09	8.03361E-03	40.43		
	27	795.33	7.32920E-03	45.44	Sum	
	29	893.76	4.18699E-03	61.86		
	31	934.45	7.02273E-03	42.42		
M	32	964.96	1.21989E-02	26.65	Tol.	EU-152
	34	1049.06	8.66060E-03	51.52	Tol.	CS-136
	36	1239.04	1.52991E-02	26.19	Tol.	CO-56
	37	1252.27	1.05990E-02	52.56		
	38	1281.79	3.70635E-03	64.82		
	39	1288.89	3.23045E-03	63.52		
	40	1343.77	5.00000E-03	36.00		
	41	1378.63	3.40812E-03	57.92		
	42	1408.52	5.27778E-03	46.33	Tol.	EU-152
	44	1502.14	4.76852E-03	44.36		
	45	1514.16	1.16667E-02	22.78		
	46	1545.13	2.51736E-03	58.39		
M	47	1588.72	4.68979E-03	36.87	Sum	
m	48	1592.66	3.28110E-03	68.26	D-Esc	
	49	1622.32	5.69444E-03	33.88		
	50	1630.27	3.43567E-03	45.02		
	51	1672.10	2.36111E-03	50.09		
	52	1694.49	2.91667E-03	42.72		
	54	1937.91	1.58730E-03	53.22	Sum	
	55	1965.50	1.66667E-03	40.82		
	56	2017.98	2.46212E-03	45.22		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	57	2164.49	2.12963E-03	64.56	
M	59	2315.67	1.75801E-03	35.77	
m	60	2321.49	1.98515E-03	44.52	
	61	2449.09	1.52778E-03	60.64	
	63	2989.93	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	-7.20E-02	8.05E-01	8.05E-01
+	NA-22	1274.54	99.94	1.99E-02	6.91E-02	6.91E-02
+	NA-24	1368.53	99.99	1.84E+13	4.36E+14	6.84E+14
		2754.09	99.86	3.63E+13		4.36E+14
+	AL-26	1808.65	99.76	-1.58E-02	4.31E-02	4.31E-02
+	K-40	1460.81	* 10.67	1.31E+01	8.36E-01	8.36E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-2.89E-02	6.06E-02	6.06E-02
		78.34	96.00	2.48E-01		7.84E-02
+	SC-46	889.25	99.98	1.39E-02	7.44E-02	7.44E-02
		1120.51	99.99	2.14E-01		1.41E-01
+	V-48	983.52	99.98	-1.00E-01	2.60E-01	2.60E-01
		1312.10	97.50	-3.23E-02		2.75E-01
+	CR-51	320.08	9.83	4.79E-02	1.07E+00	1.07E+00
+	MN-54	834.83	99.97	1.83E-02	7.40E-02	7.40E-02
+	CO-56	846.75	99.96	-3.78E-02	6.97E-02	6.97E-02
		1037.75	14.03	3.40E-02		6.36E-01
		1238.25	67.00	1.50E-01		1.85E-01
		1771.40	15.51	-3.26E-02		4.07E-01
		2598.48	16.90	-4.32E-02		3.65E-01
+	CO-57	122.06	85.51	8.12E-03	5.05E-02	5.05E-02
		136.48	10.60	-3.97E-02		4.43E-01
+	CO-58	810.76	99.40	-5.76E-02	7.92E-02	7.92E-02
+	FE-59	1099.22	56.50	9.62E-03	1.85E-01	1.85E-01

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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	FE-59	1291.56	43.20	3.54E-02	1.85E-01	2.42E-01
+	CO-60	1173.22	100.00	-9.92E-03	5.91E-02	7.78E-02
		1332.49	100.00	-3.54E-03		5.91E-02
+	ZN-65	1115.52	50.75	-1.65E-02	1.28E-01	1.28E-01
+	GA-67	93.31	* 35.70	3.25E+02	3.63E+02	3.63E+02
		208.95	* 2.24	1.89E+03		3.17E+03
		300.22	* 16.00	3.66E+02		7.59E+02
+	SE-75	121.11	16.70	-1.59E-01	8.41E-02	2.84E-01
		136.00	59.20	-2.40E-02		8.65E-02
		264.65	59.80	2.30E-03		8.41E-02
		279.53	25.20	-1.07E-01		2.21E-01
		400.65	11.40	-4.74E-02		5.11E-01
+	RB-82	776.52	13.00	-2.16E-01	1.11E+00	1.11E+00
+	RB-83	520.41	46.00	-1.17E-01	1.43E-01	1.43E-01
		529.64	30.30	2.30E-02		2.52E-01
		552.65	16.40	-9.08E-02		4.28E-01
+	KR-85	513.99	0.43	3.34E+01	1.97E+01	1.97E+01
+	SR-85	513.99	99.27	2.07E-01	1.22E-01	1.22E-01
+	Y-88	898.02	93.40	-3.85E-03	5.41E-02	7.33E-02
		1836.01	99.38	-1.26E-02		5.41E-02
+	NB-93M	16.57	9.43	-4.88E+01	5.04E+01	5.04E+01
+	NB-94	702.63	100.00	-1.41E-03	5.38E-02	6.07E-02
		871.10	100.00	-1.37E-02		5.38E-02
+	NB-95	765.79	99.81	2.12E-02	1.35E-01	1.35E-01
+	NB-95M	235.69	25.00	-1.22E+03	1.45E+02	1.45E+02
+	ZR-95	724.18	43.70	-2.37E-02	1.63E-01	2.10E-01
		756.72	55.30	6.59E-02		1.63E-01
+	MO-99	181.06	6.20	1.70E+02	2.08E+03	3.20E+03
		739.58	12.80	4.38E+02		2.08E+03
		778.00	4.50	-2.18E+02		5.73E+03
+	RU-103	497.08	89.00	9.82E-03	1.08E-01	1.08E-01
+	RU-106	621.84	9.80	1.08E-01	6.17E-01	6.17E-01
+	AG-108M	433.93	89.90	-2.31E-03	5.67E-02	5.67E-02
		614.37	90.40	-9.04E-03		6.89E-02
		722.95	90.50	1.88E-02		6.55E-02
+	CD-109	88.03	* 3.72	3.48E+00	3.07E+00	3.07E+00
+	AG-110M	657.75	93.14	-5.80E-03	6.87E-02	6.87E-02
		677.61	10.53	5.98E-01		6.48E-01
		706.67	16.46	2.52E-01		4.16E-01
		763.93	21.98	-2.13E-02		3.09E-01
		884.67	71.63	-4.35E-03		8.53E-02
		1384.27	23.94	4.05E-02		2.59E-01
+	CD-113M	263.70	0.02	1.87E+01	1.82E+02	1.82E+02
+	SN-113	255.12	1.93	8.14E-01	7.96E-02	2.79E+00
		391.69	64.90	-1.54E-02		7.96E-02
+	TE123M	159.00	84.10	4.23E-03	6.34E-02	6.34E-02
+	SB-124	602.71	97.87	-3.98E-02	7.97E-02	7.97E-02
		645.85	7.26	-2.90E-02		1.10E+00

Analysis Report for 1510093-14  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	SB-124	722.78	11.10	2.25E-01	7.97E-02	7.83E-01
		1691.02	49.00	-1.65E-02		1.43E-01
+	I-125	35.49	6.49	-2.99E-02	2.69E+00	2.69E+00
+	SB-125	176.33	6.89	7.32E-02	1.91E-01	6.80E-01
		427.89	29.33	6.60E-02		1.91E-01
		463.38	10.35	3.70E-01		6.28E-01
		600.56	17.80	-1.45E-01		3.18E-01
		635.90	11.32	-3.00E-02		4.97E-01
+	SB-126	414.70	83.30	-2.59E-01	3.57E-01	4.04E-01
		666.33	99.60	4.57E-02		3.57E-01
		695.00	99.60	-6.15E-02		3.66E-01
		720.50	53.80	2.58E-01		6.92E-01
+	SN-126	87.57	* 37.00	3.33E-01	2.94E-01	2.94E-01
+	SB-127	473.00	25.00	-5.16E+01	6.13E+01	8.63E+01
		685.20	35.70	-1.26E+01		6.13E+01
		783.80	14.70	3.86E+01		1.73E+02
+	I-129	29.78	57.00	-7.86E-03	4.01E-01	4.01E-01
		33.60	13.20	3.63E-01		1.11E+00
		39.58	7.52	-1.03E-01		1.19E+00
+	I-131	284.30	6.05	3.42E+00	9.65E-01	1.36E+01
		364.48	81.20	6.91E-02		9.65E-01
		636.97	7.26	3.62E-01		1.31E+01
		722.89	1.80	1.67E+01		5.82E+01
+	TE-132	49.72	13.10	-9.84E+02	6.03E+01	5.69E+02
		228.16	88.00	-2.05E+01		6.03E+01
+	BA-133	81.00	33.00	-9.74E-01	7.44E-02	1.54E-01
		302.84	17.80	7.09E-02		2.82E-01
		356.01	60.00	-5.35E-01		7.44E-02
+	I-133	529.87	86.30	2.30E+09	2.52E+10	2.52E+10
+	XE-133	81.00	38.00	-6.87E+01	1.08E+01	1.08E+01
+	CS-134	563.23	8.38	3.24E-01	6.43E-02	7.13E-01
		569.32	15.43	-1.53E-01		3.53E-01
		604.70	97.60	-9.63E-03		6.43E-02
		795.84	85.40	4.19E-02		8.43E-02
		801.93	8.73	-3.47E-01		6.89E-01
+	CS-135	268.24	16.00	2.08E-01	3.03E-01	3.03E-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	-3.22E-01	3.26E-01	3.52E+00
		163.89	4.61	4.28E-01		5.47E+00
		176.55	13.56	2.10E-01		1.95E+00
		273.65	12.66	-3.10E+00		2.02E+00
		340.57	48.50	9.87E-01		7.21E-01
		818.50	99.70	-5.83E-02		3.26E-01
		1048.07	79.60	3.76E-02		5.20E-01
		1235.34	19.70	-2.01E-01		2.41E+00
+	CS-137	661.65	85.12	-4.18E-02	6.42E-02	6.42E-02
+	LA-138	788.74	34.00	4.49E-02	8.58E-02	1.96E-01

Analysis Report for 1510093-14  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	LA-138	1435.80	66.00	1.62E-02	8.58E-02	8.58E-02
+	CE-139	165.85	80.35	2.37E-02	6.49E-02	6.49E-02
+	BA-140	162.64	6.70	-1.82E+00	1.21E+00	3.93E+00
		304.84	4.50	1.30E+00		6.25E+00
		423.70	3.20	-3.77E+00		9.75E+00
		437.55	2.00	-1.47E+00		1.58E+01
		537.32	25.00	-4.53E-01		1.21E+00
+	LA-140	328.77	20.50	8.91E-01	3.88E-01	1.46E+00
		487.03	45.50	-2.31E-01		6.52E-01
		815.85	23.50	7.75E-01		1.53E+00
		1596.49	95.49	3.75E-03		3.88E-01
+	CE-141	145.44	48.40	3.91E-02	1.84E-01	1.84E-01
+	CE-143	57.36	11.80	-3.54E+06	3.20E+06	9.66E+06
		293.26	42.00	7.44E+06		3.20E+06
		664.55	5.20	5.39E+06		2.11E+07
+	CE-144	133.54	10.80	8.37E-02	4.33E-01	4.33E-01
+	PM-144	476.78	42.00	5.17E-03	6.03E-02	1.36E-01
		618.01	98.60	-2.38E-02		6.11E-02
		696.49	99.49	-7.50E-03		6.03E-02
+	PM-145	36.85	21.70	-6.16E-02	2.55E-01	4.91E-01
		37.36	39.70	-1.51E-01		2.55E-01
		42.30	15.10	-1.80E-02		5.33E-01
		72.40	2.31	-1.00E+00		2.97E+00
+	PM-146	453.90	39.94	-1.55E-02	1.28E-01	1.28E-01
		735.90	14.01	-8.64E-02		3.96E-01
		747.13	13.10	-1.72E-01		4.22E-01
+	ND-147	91.11	28.90	-4.26E+00	1.64E+00	1.64E+00
		531.02	13.10	9.94E-02		3.81E+00
+	PM-149	285.90	3.10	2.59E+04	5.22E+04	5.22E+04
+	EU-152	121.78	20.50	3.12E-02	1.94E-01	1.94E-01
		244.69	5.40	-5.80E-01		9.09E-01
		344.27	19.13	-4.17E-02		2.13E-01
		778.89	9.20	-2.29E-01		5.95E-01
		964.01	10.40	-1.47E+00		8.30E-01
		1085.78	7.22	1.20E-01		7.70E-01
		1112.02	9.60	-4.34E-02		6.59E-01
		1407.95	14.94	2.12E-01		4.74E-01
+	GD-153	97.43	31.30	1.85E-02	1.56E-01	1.56E-01
		103.18	22.20	9.70E-02		2.06E-01
+	EU-154	123.07	40.50	1.01E-02	9.86E-02	9.86E-02
		723.30	19.70	8.71E-02		3.03E-01
		873.19	11.50	-1.14E-01		4.88E-01
		996.32	10.30	-2.82E-01		5.92E-01
		1004.76	17.90	-2.02E-01		3.31E-01
		1274.45	35.50	5.52E-02		1.91E-01
+	EU-155	86.50	30.90	1.93E-01	1.92E-01	1.92E-01
		105.30	20.70	1.99E-02		2.04E-01
+	EU-156	811.77	10.40	-2.09E-01	2.61E+00	2.61E+00
		1153.47	7.20	-3.64E+00		3.85E+00

Analysis Report for 1510093-14  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	EU-156	1230.71	8.90	6.66E-01	2.61E+00	3.83E+00
+	HO-166M	184.41	72.60	1.35E-01	7.94E-02	7.94E-02
		280.45	29.60	-2.02E-01		1.46E-01
		410.94	11.10	1.67E-01		5.03E-01
		711.69	54.10	-1.51E-02		1.02E-01
+	TM-171	66.72	0.14	-6.59E+01	4.24E+01	4.24E+01
+	HF-172	81.75	4.52	-1.29E+00	3.83E-01	1.14E+00
		125.81	11.30	-4.67E-01		3.83E-01
+	LU-172	181.53	20.60	-7.45E-01	3.08E+00	6.76E+00
		810.06	16.63	-2.19E-01		1.15E+01
		912.12	15.25	7.55E+01		2.71E+01
		1093.66	62.50	-3.22E-01		3.08E+00
+	LU-173	100.72	5.24	5.42E-01	2.41E-01	8.60E-01
		272.11	21.20	1.13E-01		2.41E-01
+	HF-175	343.40	84.00	1.50E-02	7.01E-02	7.01E-02
+	LU-176	88.34	13.30	7.29E-01	4.95E-02	4.46E-01
		201.83	86.00	-1.72E-02		5.43E-02
		306.78	94.00	1.61E-02		4.95E-02
+	TA-182	67.75	41.20	-8.09E-02	1.70E-01	1.70E-01
		1121.30	34.90	6.06E-01		3.83E-01
		1189.05	16.23	-2.01E-01		4.75E-01
		1221.41	26.98	6.80E-02		3.69E-01
		1231.02	11.44	1.39E-01		7.98E-01
+	IR-192	308.46	29.68	-7.01E-03	1.65E-01	2.04E-01
		468.07	48.10	3.90E-02		1.65E-01
+	HG-203	279.19	77.30	4.58E-02	1.02E-01	1.02E-01
+	BI-207	569.67	97.72	-7.37E-03	5.60E-02	5.60E-02
		1063.62	74.90	1.39E-02		8.72E-02
+	TL-208	583.14	* 30.22	1.25E+00	8.48E-02	2.78E-01
		860.37	* 4.48	1.62E+00		1.46E+00
		2614.66	* 35.85	8.98E-01		8.48E-02
+	BI-210M	262.00	45.00	-3.31E-03	9.32E-02	9.32E-02
		300.00	23.00	-3.16E-01		2.28E-01
+	PB-210	46.50	* 4.25	1.93E+00	2.62E+00	2.62E+00
+	PB-211	404.84	2.90	1.02E-01	1.69E+00	1.69E+00
		831.96	2.90	-5.63E-01		2.22E+00
+	BI-212	727.17	* 11.80	1.21E+00	6.08E-01	6.08E-01
		1620.62	2.75	8.97E-01		2.53E+00
+	PB-212	238.63	* 44.60	1.42E+00	2.67E-01	2.67E-01
		300.09	* 3.41	1.45E+00		3.00E+00
+	BI-214	609.31	* 46.30	9.37E-01	1.71E-01	1.89E-01
		1120.29	* 15.10	1.39E+00		5.44E-01
		1764.49	* 15.80	1.06E+00		4.78E-01
		2204.22	* 4.98	1.20E+00		1.71E-01
+	PB-214	295.21	* 19.19	1.03E+00	1.91E-01	5.23E-01
		351.92	* 37.19	1.21E+00		1.91E-01
+	RN-219	401.80	6.50	2.30E-01	7.77E-01	7.77E-01
+	RA-223	323.87	3.88	-5.72E-01	1.14E+00	1.14E+00

Analysis Report for 1510093-14  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	RA-224	240.98	*	3.95	3.39E+00	3.00E+00	3.00E+00
+	RA-225	40.00		31.00	-1.16E-01	1.34E+00	1.34E+00
+	RA-226	186.21	*	3.28	2.86E+00	2.49E+00	2.49E+00
+	TH-227	50.10		8.40	-1.27E+00	5.26E-01	7.34E-01
		236.00		11.50	-4.41E+00		5.26E-01
		256.20		6.30	-9.51E-02		6.76E-01
+	AC-228	338.32	*	11.40	1.15E+00	3.25E-01	5.90E-01
		911.07	*	27.70	1.23E+00		3.25E-01
		969.11	*	16.60	1.40E+00		8.93E-01
+	TH-230	48.44		16.90	3.78E-01	4.19E-01	4.19E-01
		62.85		4.60	1.15E+00		1.40E+00
		67.67		0.37	-7.37E+00		1.55E+01
+	PA-231	283.67		1.60	1.54E+00	2.17E+00	2.95E+00
		302.67		2.30	5.45E-01		2.17E+00
+	TH-231	25.64		14.70	1.05E+00	8.38E-01	3.24E+00
		84.21		6.40	-1.55E+00		8.38E-01
+	PA-233	311.98		38.60	-1.08E-01	2.48E-01	2.48E-01
+	PA-234	131.20		20.40	1.94E-02	2.25E-01	2.25E-01
		733.99		8.80	-1.45E-01		6.43E-01
		946.00		12.00	-8.11E-02		4.44E-01
+	PA-234M	1001.03		0.92	1.50E+00	7.10E+00	7.10E+00
+	TH-234	63.29		3.80	1.48E+00	1.69E+00	1.69E+00
+	U-235	143.76		10.50	-2.61E-02	4.23E-01	4.23E-01
		163.35		4.70	7.25E-02		9.26E-01
		205.31		4.70	4.39E-01		9.60E-01
+	NP-237	86.50		12.60	4.67E-01	4.65E-01	4.65E-01
+	NP-239	106.10		22.70	3.25E+02	3.33E+03	3.33E+03
		228.18		10.70	-2.55E+03		7.51E+03
		277.60		14.10	4.63E+03		6.26E+03
+	AM-241	59.54		35.90	-8.24E-02	1.66E-01	1.66E-01
+	AM-243	74.67		66.00	-1.33E-01	1.21E-01	1.21E-01
+	CM-243	209.75	*	3.29	1.08E+00	4.19E-01	1.82E+00
		228.14		10.60	-1.43E-01		4.19E-01
		277.60	*	14.00	2.79E-01		1.06E+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 1510093-14  
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## NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	8.05E-01	8.05E-01	-7.20E-02	3.82E-01
NA-22	1274.54	99.94	6.91E-02	6.91E-02	1.99E-02	3.14E-02
NA-24	1368.53	99.99	6.84E+14	4.36E+14	1.84E+13	3.06E+14
	2754.09	99.86	4.36E+14		3.63E+13	1.69E+14
AL-26	1808.65	99.76	4.31E-02	4.31E-02	-1.58E-02	1.77E-02
+ K-40	1460.81	*	10.67	8.36E-01	1.31E+01	3.86E-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	6.06E-02	6.06E-02	-2.89E-02	2.96E-02
	78.34	96.00	7.84E-02		2.48E-01	3.86E-02
SC-46	889.25	99.98	7.44E-02	7.44E-02	1.39E-02	3.42E-02
	1120.51	99.99	1.41E-01		2.14E-01	6.69E-02
V-48	983.52	99.98	2.60E-01	2.60E-01	-1.00E-01	1.19E-01
	1312.10	97.50	2.75E-01		-3.23E-02	1.24E-01
CR-51	320.08	9.83	1.07E+00	1.07E+00	4.79E-02	5.10E-01
MN-54	834.83	99.97	7.40E-02	7.40E-02	1.83E-02	3.46E-02
CO-56	846.75	99.96	6.97E-02	6.97E-02	-3.78E-02	3.19E-02
	1037.75	14.03	6.36E-01		3.40E-02	2.93E-01
	1238.25	67.00	1.85E-01		1.50E-01	8.66E-02
	1771.40	15.51	4.07E-01		-3.26E-02	1.71E-01
	2598.48	16.90	3.65E-01		-4.32E-02	1.48E-01
CO-57	122.06	85.51	5.05E-02	5.05E-02	8.12E-03	2.45E-02
	136.48	10.60	4.43E-01		-3.97E-02	2.15E-01
CO-58	810.76	99.40	7.92E-02	7.92E-02	-5.76E-02	3.66E-02
FE-59	1099.22	56.50	1.85E-01	1.85E-01	9.62E-03	8.46E-02
	1291.56	43.20	2.42E-01		3.54E-02	1.09E-01
CO-60	1173.22	100.00	7.78E-02	5.91E-02	-9.92E-03	3.60E-02
	1332.49	100.00	5.91E-02		-3.54E-03	2.64E-02
ZN-65	1115.52	50.75	1.28E-01	1.28E-01	-1.65E-02	5.81E-02
+ GA-67	93.31	*	35.70	3.63E+02	3.25E+02	1.80E+02
	208.95	*	2.24	3.17E+03	1.89E+03	1.54E+03
	300.22	*	16.00	7.59E+02	3.66E+02	3.72E+02
SE-75	121.11	16.70	2.84E-01	8.41E-02	-1.59E-01	1.38E-01
	136.00	59.20	8.65E-02		-2.40E-02	4.19E-02
	264.65	59.80	8.41E-02		2.30E-03	4.02E-02
	279.53	25.20	2.21E-01		-1.07E-01	1.06E-01
	400.65	11.40	5.11E-01		-4.74E-02	2.42E-01
RB-82	776.52	13.00	1.11E+00	1.11E+00	-2.16E-01	5.18E-01
RB-83	520.41	46.00	1.43E-01	1.43E-01	-1.17E-01	6.70E-02
	529.64	30.30	2.52E-01		2.30E-02	1.19E-01
	552.65	16.40	4.28E-01		-9.08E-02	2.01E-01
KR-85	513.99	0.43	1.97E+01	1.97E+01	3.34E+01	9.52E+00
SR-85	513.99	99.27	1.22E-01	1.22E-01	2.07E-01	5.91E-02



Analysis Report for 1510093-14  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	7.33E-02	5.41E-02	-3.85E-03	3.35E-02
	1836.01	99.38	5.41E-02		-1.26E-02	2.22E-02
NB-93M	16.57	9.43	5.04E+01	5.04E+01	-4.88E+01	2.30E+01
NB-94	702.63	100.00	6.07E-02	5.38E-02	-1.41E-03	2.84E-02
	871.10	100.00	5.38E-02		-1.37E-02	2.46E-02
NB-95	765.79	99.81	1.35E-01	1.35E-01	2.12E-02	6.38E-02
NB-95M	235.69	25.00	1.45E+02	1.45E+02	-1.22E+03	7.04E+01
ZR-95	724.18	43.70	2.10E-01	1.63E-01	-2.37E-02	9.87E-02
	756.72	55.30	1.63E-01		6.59E-02	7.61E-02
MO-99	181.06	6.20	3.20E+03	2.08E+03	1.70E+02	1.55E+03
	739.58	12.80	2.08E+03		4.38E+02	9.73E+02
	778.00	4.50	5.73E+03		-2.18E+02	2.66E+03
RU-103	497.08	89.00	1.08E-01	1.08E-01	9.82E-03	5.13E-02
RU-106	621.84	9.80	6.17E-01	6.17E-01	1.08E-01	2.90E-01
AG-108M	433.93	89.90	5.67E-02	5.67E-02	-2.31E-03	2.69E-02
	614.37	90.40	6.89E-02		-9.04E-03	3.25E-02
	722.95	90.50	6.55E-02		1.88E-02	3.06E-02
+ CD-109	88.03	* 3.72	3.07E+00	3.07E+00	3.48E+00	1.52E+00
AG-110M	657.75	93.14	6.87E-02	6.87E-02	-5.80E-03	3.22E-02
	677.61	10.53	6.48E-01		5.98E-01	3.04E-01
	706.67	16.46	4.16E-01		2.52E-01	1.95E-01
	763.93	21.98	3.09E-01		-2.13E-02	1.44E-01
	884.67	71.63	8.53E-02		-4.35E-03	3.91E-02
	1384.27	23.94	2.59E-01		4.05E-02	1.14E-01
CD-113M	263.70	0.02	1.82E+02	1.82E+02	1.87E+01	8.71E+01
SN-113	255.12	1.93	2.79E+00	7.96E-02	8.14E-01	1.34E+00
	391.69	64.90	7.96E-02		-1.54E-02	3.75E-02
TE123M	159.00	84.10	6.34E-02	6.34E-02	4.23E-03	3.07E-02
SB-124	602.71	97.87	7.97E-02	7.97E-02	-3.98E-02	3.73E-02
	645.85	7.26	1.10E+00		-2.90E-02	5.12E-01
	722.78	11.10	7.83E-01		2.25E-01	3.66E-01
	1691.02	49.00	1.43E-01		-1.65E-02	6.06E-02
I-125	35.49	6.49	2.69E+00	2.69E+00	-2.99E-02	1.30E+00
SB-125	176.33	6.89	6.80E-01	1.91E-01	7.32E-02	3.29E-01
	427.89	29.33	1.91E-01		6.60E-02	9.08E-02
	463.38	10.35	6.28E-01		3.70E-01	3.00E-01
	600.56	17.80	3.18E-01		-1.45E-01	1.49E-01
	635.90	11.32	4.97E-01		-3.00E-02	2.33E-01
SB-126	414.70	83.30	4.04E-01	3.57E-01	-2.59E-01	1.92E-01
	666.33	99.60	3.57E-01		4.57E-02	1.67E-01
	695.00	99.60	3.66E-01		-6.15E-02	1.71E-01
	720.50	53.80	6.92E-01		2.58E-01	3.23E-01
+ SN-126	87.57	* 37.00	2.94E-01	2.94E-01	3.33E-01	1.45E-01
SB-127	473.00	25.00	8.63E+01	6.13E+01	-5.16E+01	4.09E+01
	685.20	35.70	6.13E+01		-1.26E+01	2.85E+01
	783.80	14.70	1.73E+02		3.86E+01	8.08E+01
I-129	29.78	57.00	4.01E-01	4.01E-01	-7.86E-03	1.94E-01
	33.60	13.20	1.11E+00		3.63E-01	5.38E-01
	39.58	7.52	1.19E+00		-1.03E-01	5.75E-01
I-131	284.30	6.05	1.36E+01	9.65E-01	3.42E+00	6.51E+00
	364.48	81.20	9.65E-01		6.91E-02	4.57E-01
	636.97	7.26	1.31E+01		3.62E-01	6.14E+00
	722.89	1.80	5.82E+01		1.67E+01	2.72E+01

Analysis Report for 1510093-14  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TE-132	49.72	13.10	5.69E+02	6.03E+01	-9.84E+02	2.77E+02
	228.16	88.00	6.03E+01		-2.05E+01	2.90E+01
BA-133	81.00	33.00	1.54E-01	7.44E-02	-9.74E-01	7.50E-02
	302.84	17.80	2.82E-01		7.09E-02	1.35E-01
	356.01	60.00	7.44E-02		-5.35E-01	3.53E-02
I-133	529.87	86.30	2.52E+10	2.52E+10	2.30E+09	1.19E+10
XE-133	81.00	38.00	1.08E+01	1.08E+01	-6.87E+01	5.29E+00
CS-134	563.23	8.38	7.13E-01	6.43E-02	3.24E-01	3.37E-01
	569.32	15.43	3.53E-01		-1.53E-01	1.65E-01
	604.70	97.60	6.43E-02		-9.63E-03	3.04E-02
	795.84	85.40	8.43E-02		4.19E-02	3.96E-02
	801.93	8.73	6.89E-01		-3.47E-01	3.19E-01
CS-135	268.24	16.00	3.03E-01	3.03E-01	2.08E-01	1.46E-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	3.52E+00	3.26E-01	-3.22E-01	1.71E+00
	163.89	4.61	5.47E+00		4.28E-01	2.65E+00
	176.55	13.56	1.95E+00		2.10E-01	9.45E-01
	273.65	12.66	2.02E+00		-3.10E+00	9.66E-01
	340.57	48.50	7.21E-01		9.87E-01	3.47E-01
	818.50	99.70	3.26E-01		-5.83E-02	1.50E-01
	1048.07	79.60	5.20E-01		3.76E-02	2.41E-01
	1235.34	19.70	2.41E+00		-2.01E-01	1.12E+00
CS-137	661.65	85.12	6.42E-02	6.42E-02	-4.18E-02	2.99E-02
LA-138	788.74	34.00	1.96E-01	8.58E-02	4.49E-02	9.16E-02
	1435.80	66.00	8.58E-02		1.62E-02	3.79E-02
CE-139	165.85	80.35	6.49E-02	6.49E-02	2.37E-02	3.14E-02
BA-140	162.64	6.70	3.93E+00	1.21E+00	-1.82E+00	1.90E+00
	304.84	4.50	6.25E+00		1.30E+00	2.98E+00
	423.70	3.20	9.75E+00		-3.77E+00	4.63E+00
	437.55	2.00	1.58E+01		-1.47E+00	7.49E+00
	537.32	25.00	1.21E+00		-4.53E-01	5.65E-01
LA-140	328.77	20.50	1.46E+00	3.88E-01	8.91E-01	6.97E-01
	487.03	45.50	6.52E-01		-2.31E-01	3.07E-01
	815.85	23.50	1.53E+00		7.75E-01	7.09E-01
	1596.49	95.49	3.88E-01		3.75E-03	1.71E-01
CE-141	145.44	48.40	1.84E-01	1.84E-01	3.91E-02	8.93E-02
CE-143	57.36	11.80	9.66E+06	3.20E+06	-3.54E+06	4.71E+06
	293.26	42.00	3.20E+06		7.44E+06	1.55E+06
	664.55	5.20	2.11E+07		5.39E+06	9.85E+06
CE-144	133.54	10.80	4.33E-01	4.33E-01	8.37E-02	2.10E-01
PM-144	476.78	42.00	1.36E-01	6.03E-02	5.17E-03	6.42E-02
	618.01	98.60	6.11E-02		-2.38E-02	2.87E-02
	696.49	99.49	6.03E-02		-7.50E-03	2.81E-02
PM-145	36.85	21.70	4.91E-01	2.55E-01	-6.16E-02	2.38E-01
	37.36	39.70	2.55E-01		-1.51E-01	1.23E-01
	42.30	15.10	5.33E-01		-1.80E-02	2.59E-01
	72.40	2.31	2.97E+00		-1.00E+00	1.46E+00
PM-146	453.90	39.94	1.28E-01	1.28E-01	-1.55E-02	6.04E-02
	735.90	14.01	3.96E-01		-8.64E-02	1.84E-01
	747.13	13.10	4.22E-01		-1.72E-01	1.95E-01
ND-147	91.11	28.90	1.64E+00	1.64E+00	-4.26E+00	8.03E-01

Analysis Report for 1510093-14  
CP1806S13-14

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
ND-147	531.02	13.10	3.81E+00	1.64E+00	9.94E-02	1.81E+00
PM-149	285.90	3.10	5.22E+04	5.22E+04	2.59E+04	2.50E+04
EU-152	121.78	20.50	1.94E-01	1.94E-01	3.12E-02	9.41E-02
	244.69	5.40	9.09E-01		-5.80E-01	4.38E-01
	344.27	19.13	2.13E-01		-4.17E-02	1.01E-01
	778.89	9.20	5.95E-01		-2.29E-01	2.75E-01
	964.01	10.40	8.30E-01		-1.47E+00	3.91E-01
	1085.78	7.22	7.70E-01		1.20E-01	3.48E-01
	1112.02	9.60	6.59E-01		-4.34E-02	3.01E-01
	1407.95	14.94	4.74E-01		2.12E-01	2.15E-01
GD-153	97.43	31.30	1.56E-01	1.56E-01	1.85E-02	7.58E-02
	103.18	22.20	2.06E-01		9.70E-02	9.99E-02
EU-154	123.07	40.50	9.86E-02	9.86E-02	1.01E-02	4.78E-02
	723.30	19.70	3.03E-01		8.71E-02	1.42E-01
	873.19	11.50	4.88E-01		-1.14E-01	2.24E-01
	996.32	10.30	5.92E-01		-2.82E-01	2.71E-01
	1004.76	17.90	3.31E-01		-2.02E-01	1.51E-01
	1274.45	35.50	1.91E-01		5.52E-02	8.69E-02
EU-155	86.50	30.90	1.92E-01	1.92E-01	1.93E-01	9.41E-02
	105.30	20.70	2.04E-01		1.99E-02	9.90E-02
EU-156	811.77	10.40	2.61E+00	2.61E+00	-2.09E-01	1.21E+00
	1153.47	7.20	3.85E+00		-3.64E+00	1.75E+00
	1230.71	8.90	3.83E+00		6.66E-01	1.76E+00
HO-166M	184.41	72.60	7.94E-02	7.94E-02	1.35E-01	3.87E-02
	280.45	29.60	1.46E-01		-2.02E-01	6.98E-02
	410.94	11.10	5.03E-01		1.67E-01	2.40E-01
	711.69	54.10	1.02E-01		-1.51E-02	4.75E-02
TM-171	66.72	0.14	4.24E+01	4.24E+01	-6.59E+01	2.07E+01
HF-172	81.75	4.52	1.14E+00	3.83E-01	-1.29E+00	5.58E-01
	125.81	11.30	3.83E-01		-4.67E-01	1.86E-01
LU-172	181.53	20.60	6.76E+00	3.08E+00	-7.45E-01	3.27E+00
	810.06	16.63	1.15E+01		-2.19E-01	5.37E+00
	912.12	15.25	2.71E+01		7.55E+01	1.31E+01
	1093.66	62.50	3.08E+00		-3.22E-01	1.41E+00
LU-173	100.72	5.24	8.60E-01	2.41E-01	5.42E-01	4.18E-01
	272.11	21.20	2.41E-01		1.13E-01	1.16E-01
HF-175	343.40	84.00	7.01E-02	7.01E-02	1.50E-02	3.32E-02
LU-176	88.34	13.30	4.46E-01	4.95E-02	7.29E-01	2.19E-01
	201.83	86.00	5.43E-02		-1.72E-02	2.63E-02
	306.78	94.00	4.95E-02		1.61E-02	2.37E-02
TA-182	67.75	41.20	1.70E-01	1.70E-01	-8.09E-02	8.31E-02
	1121.30	34.90	3.83E-01		6.06E-01	1.82E-01
	1189.05	16.23	4.75E-01		-2.01E-01	2.16E-01
	1221.41	26.98	3.69E-01		6.80E-02	1.71E-01
	1231.02	11.44	7.98E-01		1.39E-01	3.67E-01
IR-192	308.46	29.68	2.04E-01	1.65E-01	-7.01E-03	9.74E-02
	468.07	48.10	1.65E-01		3.90E-02	7.87E-02
HG-203	279.19	77.30	1.02E-01	1.02E-01	4.58E-02	4.90E-02
BI-207	569.67	97.72	5.60E-02	5.60E-02	-7.37E-03	2.63E-02
	1063.62	74.90	8.72E-02		1.39E-02	4.00E-02
+ TL-208	583.14	* 30.22	2.78E-01	8.48E-02	1.25E+00	1.33E-01
	860.37	* 4.48	1.46E+00		1.62E+00	6.81E-01
	2614.66	* 35.85	8.48E-02		8.98E-01	3.01E-02

Analysis Report for 1510093-14

CP1806S13-14

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BI-210M	262.00	45.00	9.32E-02	9.32E-02	-3.31E-03	4.46E-02
	300.00	23.00	2.28E-01		-3.16E-01	1.09E-01
+ PB-210	46.50 *	4.25	2.62E+00	2.62E+00	1.93E+00	1.29E+00
PB-211	404.84	2.90	1.69E+00	1.69E+00	1.02E-01	8.02E-01
	831.96	2.90	2.22E+00		-5.63E-01	1.04E+00
+ BI-212	727.17 *	11.80	6.08E-01	6.08E-01	1.21E+00	2.87E-01
	1620.62	2.75	2.53E+00		8.97E-01	1.13E+00
+ PB-212	238.63 *	44.60	2.67E-01	2.67E-01	1.42E+00	1.32E-01
	300.09 *	3.41	3.00E+00		1.45E+00	1.47E+00
+ BI-214	609.31 *	46.30	1.89E-01	1.71E-01	9.37E-01	9.10E-02
	1120.29 *	15.10	5.44E-01		1.39E+00	2.54E-01
	1764.49 *	15.80	4.78E-01		1.06E+00	2.15E-01
	2204.22 *	4.98	1.71E-01		1.20E+00	0.00E+00
+ PB-214	295.21 *	19.19	5.23E-01	1.91E-01	1.03E+00	2.56E-01
	351.92 *	37.19	1.91E-01		1.21E+00	9.25E-02
RN-219	401.80	6.50	7.77E-01	7.77E-01	2.30E-01	3.70E-01
RA-223	323.87	3.88	1.14E+00	1.14E+00	-5.72E-01	5.44E-01
+ RA-224	240.98 *	3.95	3.00E+00	3.00E+00	3.39E+00	1.48E+00
RA-225	40.00	31.00	1.34E+00	1.34E+00	-1.16E-01	6.47E-01
+ RA-226	186.21 *	3.28	2.49E+00	2.49E+00	2.86E+00	1.22E+00
TH-227	50.10	8.40	7.34E-01	5.26E-01	-1.27E+00	3.57E-01
	236.00	11.50	5.26E-01		-4.41E+00	2.56E-01
	256.20	6.30	6.76E-01		-9.51E-02	3.23E-01
+ AC-228	338.32 *	11.40	5.90E-01	3.25E-01	1.15E+00	2.86E-01
	911.07 *	27.70	3.25E-01		1.23E+00	1.54E-01
	969.11 *	16.60	8.93E-01		1.40E+00	4.32E-01
TH-230	48.44	16.90	4.19E-01	4.19E-01	3.78E-01	2.04E-01
	62.85	4.60	1.40E+00		1.15E+00	6.83E-01
	67.67	0.37	1.55E+01		-7.37E+00	7.57E+00
PA-231	283.67	1.60	2.95E+00	2.17E+00	1.54E+00	1.41E+00
	302.67	2.30	2.17E+00		5.45E-01	1.04E+00
TH-231	25.64	14.70	3.24E+00	8.38E-01	1.05E+00	1.57E+00
	84.21	6.40	8.38E-01		-1.55E+00	4.10E-01
PA-233	311.98	38.60	2.48E-01	2.48E-01	-1.08E-01	1.18E-01
PA-234	131.20	20.40	2.25E-01	2.25E-01	1.94E-02	1.09E-01
	733.99	8.80	6.43E-01		-1.45E-01	2.99E-01
	946.00	12.00	4.44E-01		-8.11E-02	2.02E-01
PA-234M	1001.03	0.92	7.10E+00	7.10E+00	1.50E+00	3.28E+00
TH-234	63.29	3.80	1.69E+00	1.69E+00	1.48E+00	8.29E-01
U-235	143.76	10.50	4.23E-01	4.23E-01	-2.61E-02	2.05E-01
	163.35	4.70	9.26E-01		7.25E-02	4.48E-01
	205.31	4.70	9.60E-01		4.39E-01	4.63E-01
NP-237	86.50	12.60	4.65E-01	4.65E-01	4.67E-01	2.28E-01
NP-239	106.10	22.70	3.33E+03	3.33E+03	3.25E+02	1.62E+03
	228.18	10.70	7.51E+03		-2.55E+03	3.61E+03
	277.60	14.10	6.26E+03		4.63E+03	3.00E+03
AM-241	59.54	35.90	1.66E-01	1.66E-01	-8.24E-02	8.11E-02
AM-243	74.67	66.00	1.21E-01	1.21E-01	-1.33E-01	5.96E-02
+ CM-243	209.75 *	3.29	1.82E+00	4.19E-01	1.08E+00	8.85E-01
	228.14	10.60	4.19E-01		-1.43E-01	2.02E-01
	277.60 *	14.00	1.06E+00		2.79E-01	5.24E-01

Analysis Report for 1510093-14  
CP1806S13-14

- 
- + = 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.

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## *DATA REVIEW COMMENTS REPORT*

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

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 \*\*\*\*\* S P E C T R A L D A T A R E P O R T \*\*\*\*\*  
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Sample Title: CP1806S13-14

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	37	67	63	64	60	59
25:	63	60	57	61	51	55	55	73
33:	61	57	70	51	58	59	58	64
41:	66	65	68	80	69	92	138	91
49:	81	79	75	65	95	89	91	88
57:	81	102	111	116	120	119	156	212
65:	122	131	129	133	118	132	152	136
73:	149	149	405	286	412	498	122	129
81:	117	103	104	115	150	120	175	238
89:	118	146	149	121	253	217	104	102
97:	62	86	93	111	77	75	69	65
105:	85	98	67	78	82	89	93	85
113:	93	88	66	86	60	80	63	65
121:	61	69	64	70	63	82	72	73
129:	115	117	82	71	85	67	65	78
137:	61	74	81	78	79	88	67	90
145:	56	63	71	71	66	81	94	68
153:	63	69	87	73	59	62	69	63
161:	71	57	48	59	71	73	52	56
169:	61	48	68	58	57	65	58	53
177:	68	64	71	58	57	59	48	63
185:	75	162	132	62	46	60	53	44
193:	48	55	65	54	49	58	59	67
201:	59	51	54	48	62	58	39	47
209:	71	94	46	43	39	48	51	43
217:	52	32	51	46	45	65	39	49
225:	56	48	38	44	46	38	43	46
233:	39	65	38	56	71	159	661	221
241:	80	158	83	41	35	42	37	28
249:	27	29	26	27	45	40	32	37
257:	28	31	41	29	33	34	41	21
265:	32	27	31	28	36	52	60	37
273:	31	26	34	38	46	54	35	26
281:	31	28	33	48	43	29	22	38
289:	28	30	26	30	22	31	118	171
297:	39	34	36	51	62	24	27	34
305:	38	29	28	30	32	25	26	28
313:	23	14	24	28	29	37	22	30
321:	25	28	22	33	28	20	19	50
329:	27	33	30	29	20	29	22	25
337:	30	65	131	34	22	24	22	25
345:	17	21	14	18	24	17	68	273
353:	223	34	24	19	17	20	21	22
361:	24	14	17	19	25	26	23	27

369: 19 22 18 16 25 13 21 25

Sample Title: CP1806S13-14

Channel	1	2	3	4	5	6	7	8
377:	17	24	17	22	18	22	24	18
385:	22	16	23	16	28	17	21	16
393:	15	20	12	24	24	22	13	26
401:	23	31	20	25	23	26	22	14
409:	25	31	23	20	16	20	18	11
417:	20	23	23	18	11	17	18	17
425:	21	24	11	20	19	18	21	11
433:	20	14	16	16	15	12	18	18
441:	21	22	13	11	19	18	17	12
449:	21	17	14	12	20	17	13	7
457:	20	14	12	15	24	10	40	33
465:	18	18	19	32	10	16	20	13
473:	19	12	16	14	19	20	15	12
481:	16	13	22	17	6	15	12	14
489:	7	15	15	10	15	18	14	12
497:	9	18	17	14	13	17	17	13
505:	11	12	13	13	18	44	86	55
513:	39	21	15	19	19	18	8	13
521:	12	7	12	12	13	18	17	18
529:	12	13	14	20	16	27	7	13
537:	15	9	14	8	10	15	10	15
545:	11	14	16	18	13	13	17	11
553:	8	18	13	6	10	15	9	15
561:	14	13	18	12	12	14	10	10
569:	9	13	14	9	20	11	15	14
577:	14	17	14	9	14	18	123	170
585:	43	15	13	13	10	12	7	12
593:	9	20	10	19	16	17	15	9
601:	11	12	7	9	13	12	23	21
609:	110	188	47	18	20	12	12	13
617:	9	15	14	11	6	10	15	11
625:	13	13	5	9	8	9	10	13
633:	12	10	11	7	6	15	11	9
641:	11	4	8	13	11	12	5	11
649:	8	7	16	9	15	11	11	7
657:	17	16	7	10	9	12	9	6
665:	13	9	12	8	10	5	10	11
673:	5	10	15	9	12	14	13	13
681:	8	3	7	10	10	6	13	13
689:	10	9	14	13	7	9	3	8
697:	14	12	8	11	11	9	10	14
705:	10	10	10	13	11	11	7	5
713:	10	9	7	6	10	8	10	19
721:	7	10	9	2	14	7	31	41
729:	16	14	11	11	9	3	8	11
737:	7	10	8	5	12	12	14	7
745:	8	6	8	10	12	3	9	6
753:	10	10	6	15	13	4	14	9
761:	7	8	13	12	9	9	10	11
769:	24	10	8	12	20	12	14	5
777:	4	11	9	4	11	6	8	12
785:	6	15	10	10	10	10	13	7
793:	6	13	15	24	6	10	8	9

801: 6 7 8 8 9 9 16 5

Sample Title: CP1806S13-14

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	9	12	7	5	6	7	10	10
817:	4	11	7	2	7	8	9	6
825:	10	6	5	11	10	6	8	5
833:	14	3	18	17	9	7	10	11
841:	10	11	7	3	5	3	4	8
849:	10	6	9	5	3	5	9	9
857:	7	5	2	14	31	12	6	10
865:	5	4	5	9	5	7	1	5
873:	7	6	11	6	6	9	8	7
881:	7	3	5	7	5	6	9	7
889:	8	3	5	5	8	7	9	3
897:	4	3	8	2	11	8	10	10
905:	12	9	8	5	10	17	88	92
913:	23	11	7	6	3	9	4	6
921:	3	7	4	4	3	4	6	4
929:	9	3	5	7	3	9	16	8
937:	4	3	4	4	4	5	4	6
945:	5	4	4	7	4	7	6	7
953:	6	4	5	3	5	7	8	5
961:	9	6	7	16	31	15	8	16
969:	70	47	14	9	5	8	3	8
977:	9	2	9	8	5	5	6	6
985:	5	9	7	7	8	6	4	7
993:	5	9	4	4	7	6	6	7
1001:	13	11	2	3	7	5	6	4
1009:	8	6	7	6	7	4	3	8
1017:	7	4	11	7	4	3	6	2
1025:	4	11	2	6	6	8	6	8
1033:	8	6	5	5	8	8	7	9
1041:	5	8	4	9	4	8	10	6
1049:	15	4	7	8	8	4	3	4
1057:	4	7	9	3	7	8	4	8
1065:	6	7	3	7	3	6	5	7
1073:	2	6	8	6	6	2	13	10
1081:	3	3	4	4	1	4	7	4
1089:	5	5	3	8	7	4	5	7
1097:	2	3	9	4	8	4	5	6
1105:	4	7	10	11	4	5	8	6
1113:	6	2	6	2	2	6	8	36
1121:	34	19	9	7	5	9	5	3
1129:	8	1	4	2	6	1	6	7
1137:	7	4	2	5	7	10	11	3
1145:	3	5	11	10	8	5	1	6
1153:	4	4	3	9	6	10	8	5
1161:	6	5	6	8	7	8	6	11
1169:	10	7	8	5	8	4	9	11
1177:	4	8	4	5	5	10	3	4
1185:	6	3	4	4	5	5	3	9
1193:	9	7	10	4	7	4	9	5
1201:	11	4	6	9	7	4	8	6
1209:	8	5	9	10	7	4	5	2
1217:	10	7	8	12	7	6	7	8
1225:	8	7	5	5	10	10	6	5



1233: 4 5 6 1 13 21 17 5

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Channel	4	5	6	1	13	21	17	5
1241:	8	6	6	3	0	4	11	8
1249:	8	7	4	4	5	6	1	2
1257:	4	3	5	5	6	3	4	9
1265:	0	8	3	3	5	1	8	5
1273:	2	8	2	6	3	7	1	7
1281:	7	10	5	4	1	4	2	4
1289:	8	6	2	1	3	4	0	3
1297:	6	2	4	4	5	4	5	3
1305:	5	3	6	4	1	3	2	11
1313:	5	6	0	3	5	3	1	5
1321:	6	2	2	4	3	3	4	3
1329:	4	3	1	3	3	5	4	4
1337:	3	3	3	0	2	5	4	7
1345:	2	3	2	1	1	5	6	3
1353:	5	2	2	2	4	3	3	3
1361:	4	4	3	1	5	4	2	3
1369:	2	7	2	5	4	3	2	2
1377:	0	11	7	3	1	2	3	6
1385:	1	2	5	3	3	3	1	1
1393:	1	2	4	6	1	2	2	4
1401:	2	6	4	2	2	4	3	10
1409:	10	2	1	2	3	1	4	1
1417:	2	2	2	2	3	2	3	2
1425:	2	3	1	3	2	1	1	2
1433:	3	3	4	1	3	2	3	1
1441:	4	2	5	5	2	2	2	4
1449:	2	2	3	2	5	3	3	1
1457:	1	8	18	98	250	177	31	4
1465:	1	2	3	4	1	3	4	1
1473:	3	0	4	2	1	3	1	2
1481:	1	3	1	3	1	1	3	0
1489:	3	0	1	1	1	1	3	1
1497:	5	1	5	2	7	6	3	5
1505:	1	0	2	5	7	3	5	1
1513:	3	1	3	4	2	1	2	4
1521:	4	4	0	1	3	1	0	3
1529:	1	1	2	0	1	3	4	1
1537:	2	2	3	2	0	0	1	3
1545:	5	4	2	1	0	3	0	1
1553:	0	1	2	1	3	1	1	2
1561:	0	1	4	0	1	0	1	1
1569:	0	2	0	0	0	0	2	0
1577:	3	2	3	0	5	3	3	3
1585:	0	2	4	4	9	4	3	7
1593:	5	3	2	2	2	3	2	2
1601:	2	0	1	1	0	2	3	3
1609:	2	1	3	4	0	0	1	2
1617:	3	1	1	6	8	2	4	2
1625:	4	0	0	2	3	4	5	3
1633:	1	1	2	2	0	2	2	1
1641:	1	1	1	0	2	1	2	1
1649:	2	1	4	0	4	2	2	1
1657:	2	2	0	3	1	4	2	1

1665: 2 5 2 0 1 1 3 3

Sample Title: CP1806S13-14

Channel	1	2	3	4	5	6	7	8
1673:	2	1	1	0	2	2	0	3
1681:	2	2	0	0	2	2	2	1
1689:	0	1	0	2	2	4	3	3
1697:	0	1	3	0	0	3	2	1
1705:	0	0	2	3	2	0	1	2
1713:	2	0	1	2	1	0	1	0
1721:	1	1	1	2	0	2	0	2
1729:	2	8	3	2	0	3	1	1
1737:	2	3	0	1	0	1	1	0
1745:	3	0	1	2	4	3	1	1
1753:	1	0	2	2	0	1	4	0
1761:	1	0	4	23	25	12	4	1
1769:	1	1	3	1	0	2	1	1
1777:	1	1	0	0	2	0	2	1
1785:	2	1	0	1	1	0	0	1
1793:	1	0	1	2	2	2	0	2
1801:	1	2	5	2	0	2	2	0
1809:	1	1	1	1	0	2	0	2
1817:	2	3	4	2	1	0	2	3
1825:	1	1	1	0	0	2	2	1
1833:	1	1	2	2	0	1	0	0
1841:	3	2	5	2	2	3	5	1
1849:	7	1	0	1	1	2	1	1
1857:	1	1	1	1	0	3	0	0
1865:	1	0	0	1	1	1	0	0
1873:	2	1	1	0	0	1	1	1
1881:	0	0	2	2	1	0	3	1
1889:	3	3	1	2	1	0	1	0
1897:	2	0	2	1	0	1	0	1
1905:	2	1	0	0	0	2	2	0
1913:	1	0	2	1	2	2	1	0
1921:	1	0	2	1	1	1	0	0
1929:	0	2	2	1	1	1	0	0
1937:	4	2	1	0	0	1	0	5
1945:	1	0	1	1	0	1	2	1
1953:	1	0	1	0	0	0	1	1
1961:	2	0	0	1	3	2	0	0
1969:	0	3	0	0	1	0	2	0
1977:	1	0	3	1	1	1	0	1
1985:	2	1	1	1	1	1	1	0
1993:	0	4	1	2	3	1	0	0
2001:	1	2	1	1	0	1	2	1
2009:	3	1	2	0	1	0	1	1
2017:	1	5	1	1	0	0	2	1
2025:	1	1	0	0	0	1	0	0
2033:	1	2	1	1	2	2	0	0
2041:	0	1	2	1	1	1	1	1
2049:	1	0	1	0	0	1	2	1
2057:	0	1	0	0	1	0	0	1
2065:	0	1	1	1	2	0	1	1
2073:	0	0	1	3	1	0	0	0
2081:	1	1	0	1	0	2	0	1
2089:	3	2	1	2	1	4	1	3

2097: 1 1 1 1 1 2 2 5

Sample Title: CP1806S13-14

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

2529: 0 1 1 0 1 0 0 0

Sample Title: CP1806S13-14

Channel	1	2	3	4	5	6	7	8	9
2537:	3	0	0	0	0	1	0	0	0
2545:	0	1	0	2	1	0	0	1	1
2553:	0	1	0	0	0	0	0	0	1
2561:	1	0	1	0	0	0	0	0	0
2569:	0	0	1	1	2	0	1	0	0
2577:	0	0	0	2	0	0	0	1	1
2585:	0	0	0	0	0	1	1	1	1
2593:	0	1	1	0	0	1	1	1	1
2601:	0	1	1	0	2	0	1	1	0
2609:	0	0	0	2	15	31	23	26	0
2617:	5	0	0	1	0	0	0	0	0
2625:	1	1	0	1	0	1	0	1	1
2633:	0	1	0	1	0	0	0	1	1
2641:	0	0	0	0	0	1	1	0	0
2649:	0	0	0	0	0	0	1	1	1
2657:	0	0	0	0	1	0	0	0	0
2665:	0	1	0	1	1	0	3	0	0
2673:	0	0	1	0	1	0	1	0	0
2681:	0	0	1	0	1	0	1	0	0
2689:	1	0	0	0	0	0	1	0	0
2697:	1	0	1	0	0	1	0	0	0
2705:	0	0	0	0	1	0	0	2	0
2713:	0	0	0	0	0	0	1	0	0
2721:	0	1	1	0	0	1	1	0	0
2729:	1	0	0	0	0	2	0	0	0
2737:	0	0	0	0	1	1	0	0	0
2745:	1	0	0	1	0	0	0	0	0
2753:	1	0	2	0	1	0	1	0	0
2761:	0	0	0	0	0	1	1	0	0
2769:	0	1	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	1	0	0
2785:	0	1	0	0	0	0	0	1	1
2793:	0	0	1	0	0	0	0	0	1
2801:	0	0	1	0	0	1	1	0	0
2809:	0	2	1	0	0	1	1	0	0
2817:	0	0	0	0	0	0	0	1	0
2825:	0	0	0	2	0	1	1	0	0
2833:	0	1	1	0	0	0	0	0	0
2841:	1	0	0	1	0	0	0	0	0
2849:	0	0	0	0	0	1	0	0	0
2857:	1	0	0	0	1	0	1	3	0
2865:	0	0	0	0	0	0	0	0	0
2873:	0	1	0	0	0	0	0	1	0
2881:	0	0	0	1	0	0	0	0	0
2889:	0	0	1	0	0	0	0	0	0
2897:	1	0	0	0	0	0	0	0	0
2905:	0	0	0	1	0	1	1	1	0
2913:	0	0	1	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0	0
2929:	0	1	0	0	0	0	0	0	0
2937:	0	0	0	1	0	0	0	0	0
2945:	0	0	0	1	1	0	0	0	0
2953:	0	0	0	1	0	0	0	1	0

2961: 0 0 0 0 0 0 0 0 0

Sample Title: CP1806S13-14

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

3393: 0 3 0 0 1 0 0 0

Sample Title: CP1806S13-14

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

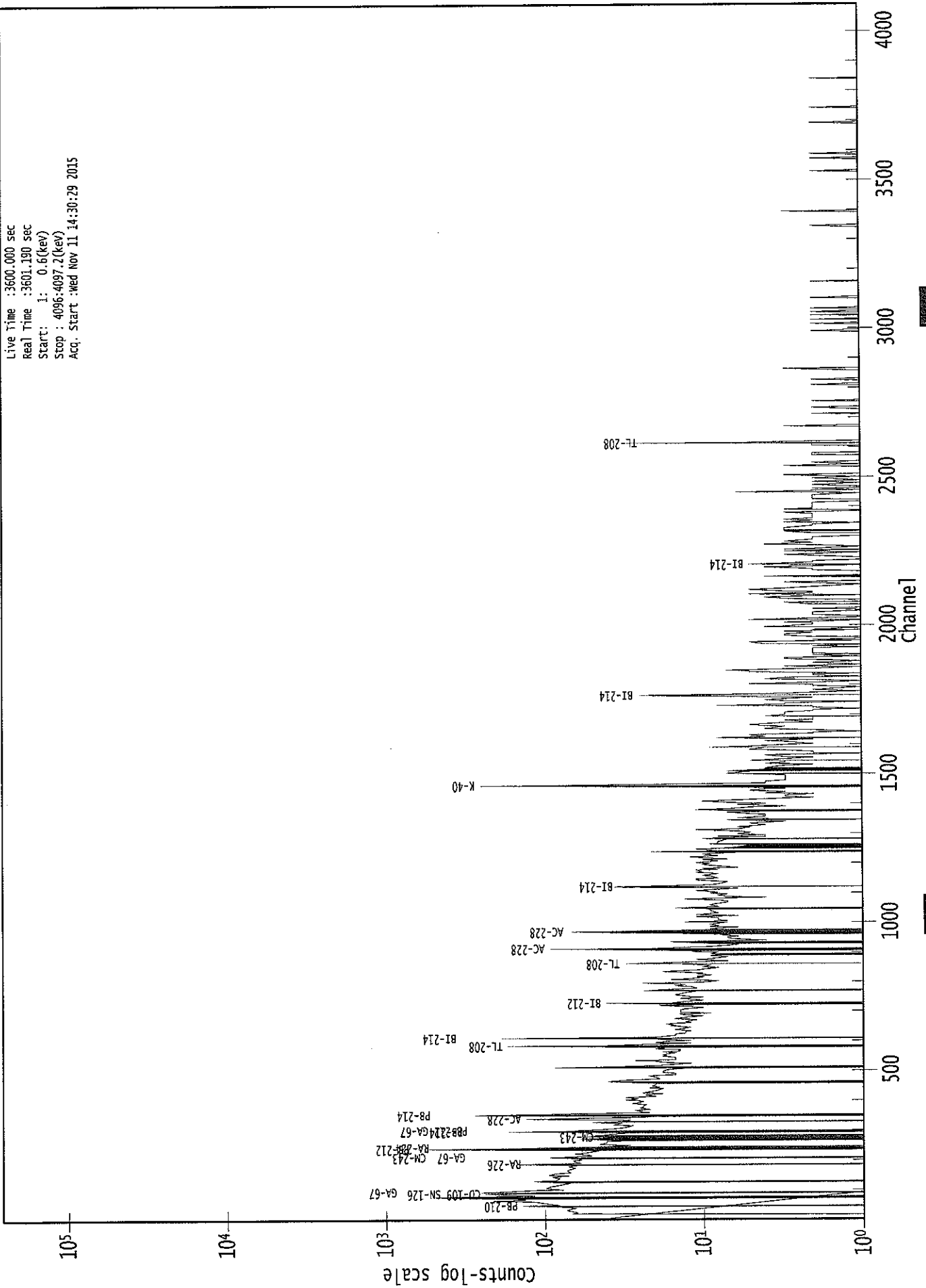
3825: 0 0 0 0 0 0 1 1

Sample Title: CP1806S13-14

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

# 0000029505.CNF

Live Time : 3600.000 sec  
Real Time : 3601.190 sec  
Start: 1: 0.6 (kev)  
Stop : 4096:4097.2 (kev)  
Acq. Start : Wed Nov 11 14:30:29 2015



ROI Type: 2

ROI Type: 1



140  
11/11/15

Analysis Report for 1510093-15  
CP3004S02-03

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-15  
Sample Description : CP3004S02-03  
Sample Type : SOIL

Sample Size : 5.078E+02 grams  
Facility : Countroom

Sample Taken On : 10/10/2015 7:33:28AM  
Acquisition Started : 11/11/2015 2:30:40PM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE2  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3601.3 seconds

Dead Time : 0.03 %

Peak Locate Threshold : 2.50  
Peak Locate Range (in channels) : 1 - 4096  
Peak Area Range (in channels) : 7 - 4096  
Identification Energy Tolerance : 1.000 keV

Energy Calibration Used Done On : 11/2/2014  
Efficiency Calibration Used Done On : 10/25/2014  
Efficiency Calibration Description :

Sample Number : 29506

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## PEAK-TO-TOTAL CALIBRATION REPORT

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Peak-to-Total Efficiency Calibration Equation

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Ag  
11/12/15

: 00864

Analysis Report for 1510093-15  
CP3004S02-03

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## PEAK LOCATE REPORT

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Peak Locate Performed on : 11/11/2015 3:30:52PM  
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	76.56	76.65	0.0000	0.00
2	128.99	129.04	0.0000	0.00
3	142.85	142.90	0.0000	0.00
4	155.14	155.19	0.0000	0.00
5	186.26	186.29	0.0000	0.00
6	209.43	209.45	0.0000	0.00
7	236.13	236.13	0.0000	0.00
8	238.91	238.91	0.0000	0.00
9	241.88	241.87	0.0000	0.00
10	270.06	270.04	0.0000	0.00
11	278.32	278.29	0.0000	0.00
12	295.19	295.16	0.0000	0.00
13	327.77	327.72	0.0000	0.00
14	338.13	338.07	0.0000	0.00
15	351.98	351.91	0.0000	0.00
16	462.23	462.11	0.0000	0.00
17	511.04	510.89	0.0000	0.00
18	580.22	580.04	0.0000	0.00
19	583.35	583.17	0.0000	0.00
20	609.40	609.21	0.0000	0.00
21	727.87	727.62	0.0000	0.00
22	768.51	768.24	0.0000	0.00
23	785.06	784.79	0.0000	0.00
24	795.25	794.98	0.0000	0.00
25	860.90	860.59	0.0000	0.00
26	866.94	866.63	0.0000	0.00
27	911.32	910.99	0.0000	0.00
28	920.38	920.05	0.0000	0.00
29	934.56	934.23	0.0000	0.00
30	960.13	959.78	0.0000	0.00
31	964.90	964.56	0.0000	0.00
32	968.91	968.56	0.0000	0.00
33	1120.46	1120.05	0.0000	0.00
34	1288.86	1288.39	0.0000	0.00
35	1349.15	1348.66	0.0000	0.00
36	1377.24	1376.74	0.0000	0.00
37	1386.74	1386.24	0.0000	0.00
38	1460.95	1460.42	0.0000	0.00
39	1495.35	1494.82	0.0000	0.00
40	1509.26	1508.73	0.0000	0.00
41	1539.40	1538.86	0.0000	0.00
42	1620.61	1620.04	0.0000	0.00

Analysis Report for 1510093-15  
CP3004S02-03

<i>Peak No.</i>	<i>Energy (keV)</i>	<i>Centroid Channel</i>	<i>Centroid Uncertainty</i>	<i>Peak Significance</i>
43	1630.33	1629.76	0.0000	0.00
44	1729.27	1728.68	0.0000	0.00
45	1764.21	1763.60	0.0000	0.00
46	1792.03	1791.42	0.0000	0.00
47	1847.78	1847.16	0.0000	0.00
48	1906.64	1906.00	0.0000	0.00
49	2010.58	2009.92	0.0000	0.00
50	2035.65	2034.99	0.0000	0.00
51	2055.23	2054.56	0.0000	0.00
52	2103.14	2102.46	0.0000	0.00
53	2204.17	2203.47	0.0000	0.00
54	2329.57	2328.86	0.0000	0.00
55	2436.52	2435.80	0.0000	0.00
56	2474.57	2473.85	0.0000	0.00
57	2614.17	2613.43	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-15  
CP3004S02-03

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 3:30:52PM

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	76.56	73 -	81	76.65	1.21E+03	136.88	2.09E+03	3.77
2	128.99	126 -	131	129.04	8.05E+01	67.49	8.43E+02	1.46
3	142.85	139 -	147	142.90	9.70E+01	89.56	1.17E+03	2.87
4	155.14	153 -	158	155.19	6.17E+01	62.69	7.35E+02	1.91
5	186.26	183 -	190	186.29	2.28E+02	79.02	8.82E+02	1.75
6	209.43	207 -	212	209.45	4.74E+01	58.04	6.31E+02	1.72
M m 7	236.13	235 -	246	236.13	2.41E+01	23.47	1.73E+02	1.41
8	238.91	235 -	246	238.91	7.81E+02	69.63	3.36E+02	1.41
9	241.88	235 -	246	241.87	1.73E+02	49.11	3.25E+02	1.42
10	270.06	267 -	274	270.04	8.67E+01	60.00	5.47E+02	2.01
11	278.32	276 -	281	278.29	4.35E+01	46.99	4.05E+02	1.08
12	295.19	291 -	299	295.16	3.35E+02	73.86	6.40E+02	1.74
13	327.77	323 -	332	327.72	6.55E+01	59.62	4.71E+02	1.41
14	338.13	334 -	341	338.07	1.70E+02	55.71	4.04E+02	1.93
15	351.98	348 -	356	351.91	6.14E+02	71.35	4.06E+02	1.49
16	462.23	458 -	466	462.11	8.41E+01	42.81	2.32E+02	1.83
17	511.04	506 -	515	510.89	1.92E+02	52.19	2.79E+02	2.36
M m 18	580.22	579 -	586	580.04	2.14E+01	13.82	5.14E+01	1.84
19	583.35	579 -	586	583.17	2.96E+02	40.86	1.15E+02	1.75
20	609.40	605 -	613	609.21	4.41E+02	56.32	2.17E+02	1.96
21	727.87	723 -	732	727.62	7.88E+01	38.65	1.64E+02	1.57
22	768.51	764 -	771	768.24	3.02E+01	33.88	1.70E+02	2.40
23	785.06	781 -	788	784.79	2.58E+01	30.72	1.40E+02	1.36
24	795.25	792 -	798	794.98	2.70E+01	29.29	1.36E+02	1.38
M m 25	860.90	859 -	870	860.59	3.21E+01	18.87	5.37E+01	2.00
26	866.94	859 -	870	866.63	1.69E+01	26.68	1.00E+02	2.55
27	911.32	905 -	915	910.99	1.83E+02	45.34	1.77E+02	2.14
28	920.38	916 -	923	920.05	2.69E+01	22.00	6.02E+01	3.60
29	934.56	929 -	939	934.23	4.35E+01	27.74	1.01E+02	2.72
M m 30	960.13	956 -	977	959.78	1.98E+01	24.17	6.79E+01	2.64
31	964.90	956 -	977	964.56	4.00E+01	29.05	7.50E+01	2.65
32	968.91	956 -	977	968.56	1.14E+02	30.28	7.37E+01	2.26
33	1120.46	1114 -	1124	1120.05	1.01E+02	35.65	1.16E+02	2.26
34	1288.86	1286 -	1291	1288.39	2.05E+01	14.59	2.49E+01	3.53
35	1349.15	1346 -	1350	1348.66	9.35E+00	11.67	2.13E+01	1.12
36	1377.24	1373 -	1381	1376.74	3.94E+01	17.47	2.31E+01	1.79
37	1386.74	1382 -	1392	1386.24	1.48E+01	16.22	2.65E+01	1.34
38	1460.95	1455 -	1466	1460.42	6.77E+02	56.53	6.30E+01	2.31
39	1495.35	1491 -	1498	1494.82	1.04E+01	11.66	1.51E+01	3.07
40	1509.26	1504 -	1512	1508.73	1.56E+01	10.98	8.80E+00	1.07

Analysis Report for 1510093-15  
CP3004S02-03

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1539.40	1533 -	1544	1538.86	2.23E+01	13.56	1.14E+01	1.96
M	42	1620.61	1616 -	1632	1620.04	1.64E+01	10.20	5.57E+00	2.65
m	43	1630.33	1616 -	1632	1629.76	6.59E+00	7.94	1.55E+01	2.65
	44	1729.27	1726 -	1732	1728.68	1.14E+01	8.97	5.14E+00	3.06
	45	1764.21	1758 -	1769	1763.60	7.40E+01	22.09	2.40E+01	2.41
	46	1792.03	1787 -	1795	1791.42	1.20E+01	6.93	0.00E+00	1.32
	47	1847.78	1843 -	1850	1847.16	1.20E+01	8.49	3.93E+00	2.72
	48	1906.64	1903 -	1908	1906.00	7.00E+00	5.29	0.00E+00	2.50
	49	2010.58	2006 -	2012	2009.92	1.30E+01	7.21	0.00E+00	1.19
	50	2035.65	2031 -	2037	2034.99	6.80E+00	8.03	6.40E+00	2.28
	51	2055.23	2051 -	2057	2054.56	7.28E+00	6.95	3.44E+00	4.51
	52	2103.14	2098 -	2106	2102.46	2.48E+01	11.32	4.48E+00	2.93
	53	2204.17	2199 -	2207	2203.47	2.58E+01	11.50	4.36E+00	3.89
	54	2329.57	2326 -	2331	2328.86	7.00E+00	5.29	0.00E+00	2.83
	55	2436.52	2432 -	2438	2435.80	6.50E+00	8.03	7.00E+00	2.81
	56	2474.57	2468 -	2479	2473.85	1.30E+01	7.21	0.00E+00	7.00
	57	2614.17	2608 -	2619	2613.43	1.07E+02	21.82	6.52E+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 : 11/11/2015 3:30:52PM

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	76.56	73 -	81	1.21E+03	136.88	2.09E+03	9.68E+01
	2	128.99	126 -	131	8.05E+01	67.49	8.43E+02	5.35E+01
	3	142.85	139 -	147	9.70E+01	89.56	1.17E+03	7.18E+01
	4	155.14	153 -	158	6.17E+01	62.69	7.35E+02	4.99E+01
	5	186.26	183 -	190	2.28E+02	79.02	8.82E+02	6.00E+01
	6	209.43	207 -	212	4.74E+01	58.04	6.31E+02	4.64E+01
M	7	236.13	235 -	246	2.41E+01	23.47	1.73E+02	2.16E+01
m	8	238.91	235 -	246	7.81E+02	69.63	3.36E+02	3.01E+01
m	9	241.88	235 -	246	1.73E+02	49.11	3.25E+02	2.96E+01
	10	270.06	267 -	274	8.67E+01	60.00	5.47E+02	4.69E+01
	11	278.32	276 -	281	4.35E+01	46.99	4.05E+02	3.71E+01

Analysis Report for 1510093-15

CP3004S02-03

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level	
12	295.19	291 -	299	3.35E+02	73.86	6.40E+02	5.27E+01	
13	327.77	323 -	332	6.55E+01	59.62	4.71E+02	4.72E+01	
14	338.13	334 -	341	1.70E+02	55.71	4.04E+02	4.05E+01	
15	351.98	348 -	356	6.14E+02	71.35	4.06E+02	4.22E+01	
16	462.23	458 -	466	8.41E+01	42.81	2.32E+02	3.18E+01	
17	511.04	506 -	515	1.92E+02	52.19	2.79E+02	3.64E+01	
M	18	580.22	579 -	586	2.14E+01	13.82	5.14E+01	1.18E+01
m	19	583.35	579 -	586	2.96E+02	40.86	1.15E+02	1.76E+01
20	609.40	605 -	613	4.41E+02	56.32	2.17E+02	3.08E+01	
21	727.87	723 -	732	7.88E+01	38.65	1.64E+02	2.82E+01	
22	768.51	764 -	771	3.02E+01	33.88	1.70E+02	2.63E+01	
23	785.06	781 -	788	2.58E+01	30.72	1.40E+02	2.38E+01	
24	795.25	792 -	798	2.70E+01	29.29	1.36E+02	2.25E+01	
M	25	860.90	859 -	870	3.21E+01	18.87	5.37E+01	1.20E+01
m	26	866.94	859 -	870	1.69E+01	26.68	1.00E+02	1.65E+01
27	911.32	905 -	915	1.83E+02	45.34	1.77E+02	2.99E+01	
28	920.38	916 -	923	2.69E+01	22.00	6.02E+01	1.59E+01	
29	934.56	929 -	939	4.35E+01	27.74	1.01E+02	2.40E+01	
M	30	960.13	956 -	977	1.98E+01	24.17	6.79E+01	1.35E+01
m	31	964.90	956 -	977	4.00E+01	29.05	7.50E+01	1.42E+01
m	32	968.91	956 -	977	1.14E+02	30.28	7.37E+01	1.41E+01
33	1120.46	1114 -	1124	1.01E+02	35.65	1.16E+02	2.42E+01	
34	1288.86	1286 -	1291	2.05E+01	14.59	2.49E+01	9.40E+00	
35	1349.15	1346 -	1350	9.35E+00	11.67	2.13E+01	8.17E+00	
36	1377.24	1373 -	1381	3.94E+01	17.47	2.31E+01	9.98E+00	
37	1386.74	1382 -	1392	1.48E+01	16.22	2.65E+01	1.17E+01	
38	1460.95	1455 -	1466	6.77E+02	56.53	6.30E+01	1.81E+01	
39	1495.35	1491 -	1498	1.04E+01	11.66	1.51E+01	7.98E+00	
40	1509.26	1504 -	1512	1.56E+01	10.98	8.80E+00	6.27E+00	
41	1539.40	1533 -	1544	2.23E+01	13.56	1.14E+01	8.01E+00	
M	42	1620.61	1616 -	1632	1.64E+01	10.20	5.57E+00	3.88E+00
m	43	1630.33	1616 -	1632	6.59E+00	7.94	1.55E+01	6.48E+00
44	1729.27	1726 -	1732	1.14E+01	8.97	5.14E+00	4.85E+00	
45	1764.21	1758 -	1769	7.40E+01	22.09	2.40E+01	1.14E+01	
46	1792.03	1787 -	1795	1.20E+01	6.93	0.00E+00	0.00E+00	
47	1847.78	1843 -	1850	1.20E+01	8.49	3.93E+00	4.02E+00	
48	1906.64	1903 -	1908	7.00E+00	5.29	0.00E+00	0.00E+00	
49	2010.58	2006 -	2012	1.30E+01	7.21	0.00E+00	0.00E+00	
50	2035.65	2031 -	2037	6.80E+00	8.03	6.40E+00	5.02E+00	
51	2055.23	2051 -	2057	7.28E+00	6.95	3.44E+00	3.60E+00	
52	2103.14	2098 -	2106	2.48E+01	11.32	4.48E+00	4.44E+00	
53	2204.17	2199 -	2207	2.58E+01	11.50	4.36E+00	4.42E+00	
54	2329.57	2326 -	2331	7.00E+00	5.29	0.00E+00	0.00E+00	
55	2436.52	2432 -	2438	6.50E+00	8.03	7.00E+00	5.10E+00	
56	2474.57	2468 -	2479	1.30E+01	7.21	0.00E+00	0.00E+00	
57	2614.17	2608 -	2619	1.07E+02	21.82	6.52E+00	5.76E+00	

Analysis Report for 1510093-15  
CP3004S02-03

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

## PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 3:30:52PM

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	76.56	73 -	81	76.65	1.21E+03	136.88	2.09E+03	.....
2	128.99	126 -	131	129.04	8.05E+01	67.49	8.43E+02	.....
3	142.85	139 -	147	142.90	9.70E+01	89.56	1.17E+03	U-235
4	155.14	153 -	158	155.19	6.17E+01	62.69	7.35E+02	.....
5	186.26	183 -	190	186.29	2.28E+02	79.02	8.82E+02	RA-226
6	209.43	207 -	212	209.45	4.74E+01	58.04	6.31E+02	CM-243 GA-67
M 7	236.13	235 -	246	236.13	2.41E+01	23.47	1.73E+02	TH-227 NB-95M
m 8	238.91	235 -	246	238.91	7.81E+02	69.63	3.36E+02	PB-212
m 9	241.88	235 -	246	241.87	1.73E+02	49.11	3.25E+02	RA-224
10	270.06	267 -	274	270.04	8.67E+01	60.00	5.47E+02	.....
11	278.32	276 -	281	278.29	4.35E+01	46.99	4.05E+02	CM-243 NP-239 HG-203
12	295.19	291 -	299	295.16	3.35E+02	73.86	6.40E+02	PB-214
13	327.77	323 -	332	327.72	6.55E+01	59.62	4.71E+02	LA-140
14	338.13	334 -	341	338.07	1.70E+02	55.71	4.04E+02	AC-228
15	351.98	348 -	356	351.91	6.14E+02	71.35	4.06E+02	PB-214
16	462.23	458 -	466	462.11	8.41E+01	42.81	2.32E+02	.....
17	511.04	506 -	515	510.89	1.92E+02	52.19	2.79E+02	.....
M 18	580.22	579 -	586	580.04	2.14E+01	13.82	5.14E+01	.....
m 19	583.35	579 -	586	583.17	2.96E+02	40.86	1.15E+02	TL-208
20	609.40	605 -	613	609.21	4.41E+02	56.32	2.17E+02	BI-214
21	727.87	723 -	732	727.62	7.88E+01	38.65	1.64E+02	BI-212
22	768.51	764 -	771	768.24	3.02E+01	33.88	1.70E+02	.....
23	785.06	781 -	788	784.79	2.58E+01	30.72	1.40E+02	.....
24	795.25	792 -	798	794.98	2.70E+01	29.29	1.36E+02	CS-134
M 25	860.90	859 -	870	860.59	3.21E+01	18.87	5.37E+01	TL-208
m 26	866.94	859 -	870	866.63	1.69E+01	26.68	1.00E+02	.....

Analysis Report for 1510093-15

CP3004S02-03

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	27	911.32	905 -	915	910.99	1.83E+02	45.34	1.77E+02	AC-228 LU-172
	28	920.38	916 -	923	920.05	2.69E+01	22.00	6.02E+01	.....
	29	934.56	929 -	939	934.23	4.35E+01	27.74	1.01E+02	.....
M	30	960.13	956 -	977	959.78	1.98E+01	24.17	6.79E+01	.....
m	31	964.90	956 -	977	964.56	4.00E+01	29.05	7.50E+01	EU-152
m	32	968.91	956 -	977	968.56	1.14E+02	30.28	7.37E+01	AC-228
	33	1120.46	1114 -	1124	1120.05	1.01E+02	35.65	1.16E+02	SC-46 BI-214 TA-182
	34	1288.86	1286 -	1291	1288.39	2.05E+01	14.59	2.49E+01	.....
	35	1349.15	1346 -	1350	1348.66	9.35E+00	11.67	2.13E+01	.....
	36	1377.24	1373 -	1381	1376.74	3.94E+01	17.47	2.31E+01	.....
	37	1386.74	1382 -	1392	1386.24	1.48E+01	16.22	2.65E+01	.....
	38	1460.95	1455 -	1466	1460.42	6.77E+02	56.53	6.30E+01	K-40
	39	1495.35	1491 -	1498	1494.82	1.04E+01	11.66	1.51E+01	.....
	40	1509.26	1504 -	1512	1508.73	1.56E+01	10.98	8.80E+00	.....
	41	1539.40	1533 -	1544	1538.86	2.23E+01	13.56	1.14E+01	.....
M	42	1620.61	1616 -	1632	1620.04	1.64E+01	10.20	5.57E+00	BI-212
m	43	1630.33	1616 -	1632	1629.76	6.59E+00	7.94	1.55E+01	.....
	44	1729.27	1726 -	1732	1728.68	1.14E+01	8.97	5.14E+00	.....
	45	1764.21	1758 -	1769	1763.60	7.40E+01	22.09	2.40E+01	BI-214
	46	1792.03	1787 -	1795	1791.42	1.20E+01	6.93	0.00E+00	.....
	47	1847.78	1843 -	1850	1847.16	1.20E+01	8.49	3.93E+00	.....
	48	1906.64	1903 -	1908	1906.00	7.00E+00	5.29	0.00E+00	.....
	49	2010.58	2006 -	2012	2009.92	1.30E+01	7.21	0.00E+00	.....
	50	2035.65	2031 -	2037	2034.99	6.80E+00	8.03	6.40E+00	.....
	51	2055.23	2051 -	2057	2054.56	7.28E+00	6.95	3.44E+00	.....
	52	2103.14	2098 -	2106	2102.46	2.48E+01	11.32	4.48E+00	.....
	53	2204.17	2199 -	2207	2203.47	2.58E+01	11.50	4.36E+00	BI-214
	54	2329.57	2326 -	2331	2328.86	7.00E+00	5.29	0.00E+00	.....
	55	2436.52	2432 -	2438	2435.80	6.50E+00	8.03	7.00E+00	.....
	56	2474.57	2468 -	2479	2473.85	1.30E+01	7.21	0.00E+00	.....
	57	2614.17	2608 -	2619	2613.43	1.07E+02	21.82	6.52E+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 : 11/11/2015 3:30:52PM



Analysis Report for 1510093-15  
CP3004S02-03

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.56	1.21E+03	136.88	2.74E-02	3.37E-03
	2	128.99	8.05E+01	67.49	2.60E-02	2.78E-03
	3	142.85	9.70E+01	89.56	2.47E-02	2.36E-03
	4	155.14	6.17E+01	62.69	2.36E-02	2.00E-03
	5	186.26	2.28E+02	79.02	2.11E-02	1.65E-03
	6	209.43	4.74E+01	58.04	1.95E-02	1.63E-03
M	7	236.13	2.41E+01	23.47	1.80E-02	1.60E-03
m	8	238.91	7.81E+02	69.63	1.79E-02	1.60E-03
m	9	241.88	1.73E+02	49.11	1.77E-02	1.60E-03
	10	270.06	8.67E+01	60.00	1.64E-02	1.57E-03
	11	278.32	4.35E+01	46.99	1.61E-02	1.56E-03
	12	295.19	3.35E+02	73.86	1.55E-02	1.48E-03
	13	327.77	6.55E+01	59.62	1.44E-02	1.33E-03
	14	338.13	1.70E+02	55.71	1.41E-02	1.28E-03
	15	351.98	6.14E+02	71.35	1.37E-02	1.21E-03
	16	462.23	8.41E+01	42.81	1.13E-02	9.48E-04
	17	511.04	1.92E+02	52.19	1.06E-02	8.98E-04
M	18	580.22	2.14E+01	13.82	9.62E-03	8.28E-04
m	19	583.35	2.96E+02	40.86	9.58E-03	8.25E-04
	20	609.40	4.41E+02	56.32	9.27E-03	7.98E-04
	21	727.87	7.88E+01	38.65	8.08E-03	7.03E-04
	22	768.51	3.02E+01	33.88	7.74E-03	6.77E-04
	23	785.06	2.58E+01	30.72	7.61E-03	6.66E-04
	24	795.25	2.70E+01	29.29	7.53E-03	6.59E-04
M	25	860.90	3.21E+01	18.87	7.06E-03	6.17E-04
m	26	866.94	1.69E+01	26.68	7.02E-03	6.13E-04
	27	911.32	1.83E+02	45.34	6.74E-03	5.87E-04
	28	920.38	2.69E+01	22.00	6.69E-03	5.82E-04
	29	934.56	4.35E+01	27.74	6.61E-03	5.75E-04
M	30	960.13	1.98E+01	24.17	6.46E-03	5.62E-04
m	31	964.90	4.00E+01	29.05	6.44E-03	5.59E-04
m	32	968.91	1.14E+02	30.28	6.42E-03	5.57E-04
	33	1120.46	1.01E+02	35.65	5.70E-03	4.80E-04
	34	1288.86	2.05E+01	14.59	5.11E-03	5.06E-04
	35	1349.15	9.35E+00	11.67	4.94E-03	5.20E-04
	36	1377.24	3.94E+01	17.47	4.87E-03	5.08E-04
	37	1386.74	1.48E+01	16.22	4.84E-03	5.04E-04
	38	1460.95	6.77E+02	56.53	4.67E-03	4.73E-04
	39	1495.35	1.04E+01	11.66	4.60E-03	4.59E-04
	40	1509.26	1.56E+01	10.98	4.57E-03	4.53E-04
	41	1539.40	2.23E+01	13.56	4.52E-03	4.41E-04
M	42	1620.61	1.64E+01	10.20	4.38E-03	4.07E-04
m	43	1630.33	6.59E+00	7.94	4.36E-03	4.03E-04
	44	1729.27	1.14E+01	8.97	4.23E-03	3.62E-04
	45	1764.21	7.40E+01	22.09	4.19E-03	3.48E-04
	46	1792.03	1.20E+01	6.93	4.16E-03	3.36E-04
	47	1847.78	1.20E+01	8.49	4.10E-03	3.18E-04
	48	1906.64	7.00E+00	5.29	4.05E-03	3.18E-04
	49	2010.58	1.30E+01	7.21	3.99E-03	3.18E-04
	50	2035.65	6.80E+00	8.03	3.98E-03	3.18E-04
	51	2055.23	7.28E+00	6.95	3.97E-03	3.18E-04
	52	2103.14	2.48E+01	11.32	3.95E-03	3.18E-04
	53	2204.17	2.58E+01	11.50	3.93E-03	3.18E-04

Analysis Report for 1510093-15  
CP3004S02-03

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2329.57	7.00E+00	5.29	3.93E-03	3.18E-04
55	2436.52	6.50E+00	8.03	3.96E-03	3.18E-04
56	2474.57	1.30E+01	7.21	3.97E-03	3.18E-04
57	2614.17	1.07E+02	21.82	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 : 11/11/2015 3:30:52PM

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	76.56	1.21E+03	136.88			1.21E+03	1.37E+02
2	128.99	8.05E+01	67.49			8.05E+01	6.75E+01
3	142.85	9.70E+01	89.56			9.70E+01	8.96E+01
4	155.14	6.17E+01	62.69			6.17E+01	6.27E+01
5	186.26	2.28E+02	79.02	4.72E+01	7.97E+00	1.81E+02	7.94E+01
6	209.43	4.74E+01	58.04			4.74E+01	5.80E+01
M	7	236.13	2.41E+01			2.41E+01	2.35E+01
m	8	238.91	7.81E+02	2.36E+01	1.35E+01	7.58E+02	7.09E+01
m	9	241.88	1.73E+02	6.38E+00	3.91E+00	1.67E+02	4.93E+01
10	270.06	8.67E+01	60.00			8.67E+01	6.00E+01
11	278.32	4.35E+01	46.99			4.35E+01	4.70E+01
12	295.19	3.35E+02	73.86	8.57E+00	6.10E+00	3.26E+02	7.41E+01
13	327.77	6.55E+01	59.62	0.00E+00	0.00E+00	6.55E+01	5.96E+01
14	338.13	1.70E+02	55.71			1.70E+02	5.57E+01
15	351.98	6.14E+02	71.35	1.40E+01	5.55E+00	6.00E+02	7.16E+01
16	462.23	8.41E+01	42.81			8.41E+01	4.28E+01
17	511.04	1.92E+02	52.19	8.41E+01	5.50E+00	1.08E+02	5.25E+01
M	18	580.22	2.14E+01			2.14E+01	1.38E+01
m	19	583.35	2.96E+02	7.32E+00	4.08E+00	2.89E+02	4.11E+01
20	609.40	4.41E+02	56.32	1.30E+01	3.89E+00	4.28E+02	5.65E+01
21	727.87	7.88E+01	38.65			7.88E+01	3.87E+01
22	768.51	3.02E+01	33.88			3.02E+01	3.39E+01
23	785.06	2.58E+01	30.72			2.58E+01	3.07E+01
24	795.25	2.70E+01	29.29			2.70E+01	2.93E+01
M	25	860.90	3.21E+01			3.21E+01	1.89E+01
m	26	866.94	1.69E+01			1.69E+01	2.67E+01

Analysis Report for 1510093-15

CP3004S02-03

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	27	911.32	1.83E+02	45.34	5.60E+00	3.32E+00	1.78E+02	4.55E+01
	28	920.38	2.69E+01	22.00			2.69E+01	2.20E+01
	29	934.56	4.35E+01	27.74			4.35E+01	2.77E+01
M	30	960.13	1.98E+01	24.17			1.98E+01	2.42E+01
m	31	964.90	4.00E+01	29.05			4.00E+01	2.91E+01
m	32	968.91	1.14E+02	30.28			1.14E+02	3.03E+01
	33	1120.46	1.01E+02	35.65	3.93E+00	2.96E+00	9.73E+01	3.58E+01
	34	1288.86	2.05E+01	14.59			2.05E+01	1.46E+01
	35	1349.15	9.35E+00	11.67			9.35E+00	1.17E+01
	36	1377.24	3.94E+01	17.47			3.94E+01	1.75E+01
	37	1386.74	1.48E+01	16.22			1.48E+01	1.62E+01
	38	1460.95	6.77E+02	56.53	1.12E+01	2.55E+00	6.66E+02	5.66E+01
	39	1495.35	1.04E+01	11.66			1.04E+01	1.17E+01
	40	1509.26	1.56E+01	10.98			1.56E+01	1.10E+01
	41	1539.40	2.23E+01	13.56			2.23E+01	1.36E+01
M	42	1620.61	1.64E+01	10.20			1.64E+01	1.02E+01
m	43	1630.33	6.59E+00	7.94			6.59E+00	7.94E+00
	44	1729.27	1.14E+01	8.97			1.14E+01	8.97E+00
	45	1764.21	7.40E+01	22.09	4.23E+00	2.21E+00	6.98E+01	2.22E+01
	46	1792.03	1.20E+01	6.93			1.20E+01	6.93E+00
	47	1847.78	1.20E+01	8.49			1.20E+01	8.49E+00
	48	1906.64	7.00E+00	5.29			7.00E+00	5.29E+00
	49	2010.58	1.30E+01	7.21			1.30E+01	7.21E+00
	50	2035.65	6.80E+00	8.03			6.80E+00	8.03E+00
	51	2055.23	7.28E+00	6.95			7.28E+00	6.95E+00
	52	2103.14	2.48E+01	11.32			2.48E+01	1.13E+01
	53	2204.17	2.58E+01	11.50	5.94E-01	1.16E+00	2.52E+01	1.16E+01
	54	2329.57	7.00E+00	5.29			7.00E+00	5.29E+00
	55	2436.52	6.50E+00	8.03			6.50E+00	8.03E+00
	56	2474.57	1.30E+01	7.21			1.30E+01	7.21E+00
	57	2614.17	1.07E+02	21.82	7.38E+00	1.57E+00	9.94E+01	2.19E+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 : 11/11/2015 3:30:52PM  
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

: 00874

Analysis Report for 1510093-15

CP3004S02-03

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	76.56	1.21E+03	136.88			1.21E+03	1.37E+02
2	128.99	8.05E+01	67.49			8.05E+01	6.75E+01
3	142.85	9.70E+01	89.56			9.70E+01	8.96E+01
4	155.14	6.17E+01	62.69			6.17E+01	6.27E+01
5	186.26	2.28E+02	79.02	4.72E+01	7.97E+00	1.81E+02	7.94E+01
6	209.43	4.74E+01	58.04			4.74E+01	5.80E+01
M	7	236.13	2.41E+01			2.41E+01	2.35E+01
m	8	238.91	7.81E+02	2.36E+01	1.35E+01	7.58E+02	7.09E+01
m	9	241.88	1.73E+02	6.38E+00	3.91E+00	1.67E+02	4.93E+01
	10	270.06	8.67E+01			8.67E+01	6.00E+01
	11	278.32	4.35E+01			4.35E+01	4.70E+01
	12	295.19	3.35E+02	8.57E+00	6.10E+00	3.26E+02	7.41E+01
	13	327.77	6.55E+01	0.00E+00	0.00E+00	6.55E+01	5.96E+01
	14	338.13	1.70E+02			1.70E+02	5.57E+01
	15	351.98	6.14E+02	1.40E+01	5.55E+00	6.00E+02	7.16E+01
	16	462.23	8.41E+01			8.41E+01	4.28E+01
	17	511.04	1.92E+02	8.41E+01	5.50E+00	1.08E+02	5.25E+01
M	18	580.22	2.14E+01			2.14E+01	1.38E+01
m	19	583.35	2.96E+02	7.32E+00	4.08E+00	2.89E+02	4.11E+01
	20	609.40	4.41E+02	1.30E+01	3.89E+00	4.28E+02	5.65E+01
	21	727.87	7.88E+01			7.88E+01	3.87E+01
	22	768.51	3.02E+01			3.02E+01	3.39E+01
	23	785.06	2.58E+01			2.58E+01	3.07E+01
	24	795.25	2.70E+01			2.70E+01	2.93E+01
M	25	860.90	3.21E+01			3.21E+01	1.89E+01
m	26	866.94	1.69E+01			1.69E+01	2.67E+01
	27	911.32	1.83E+02	5.60E+00	3.32E+00	1.78E+02	4.55E+01
	28	920.38	2.69E+01			2.69E+01	2.20E+01
	29	934.56	4.35E+01			4.35E+01	2.77E+01
M	30	960.13	1.98E+01			1.98E+01	2.42E+01
m	31	964.90	4.00E+01			4.00E+01	2.91E+01
m	32	968.91	1.14E+02			1.14E+02	3.03E+01
	33	1120.46	1.01E+02	3.93E+00	2.96E+00	9.73E+01	3.58E+01
	34	1288.86	2.05E+01			2.05E+01	1.46E+01
	35	1349.15	9.35E+00			9.35E+00	1.17E+01
	36	1377.24	3.94E+01			3.94E+01	1.75E+01
	37	1386.74	1.48E+01			1.48E+01	1.62E+01
	38	1460.95	6.77E+02	1.12E+01	2.55E+00	6.66E+02	5.66E+01
	39	1495.35	1.04E+01			1.04E+01	1.17E+01
	40	1509.26	1.56E+01			1.56E+01	1.10E+01
	41	1539.40	2.23E+01			2.23E+01	1.36E+01
M	42	1620.61	1.64E+01			1.64E+01	1.02E+01
m	43	1630.33	6.59E+00			6.59E+00	7.94E+00
	44	1729.27	1.14E+01			1.14E+01	8.97E+00
	45	1764.21	7.40E+01	4.23E+00	2.21E+00	6.98E+01	2.22E+01
	46	1792.03	1.20E+01			1.20E+01	6.93E+00
	47	1847.78	1.20E+01			1.20E+01	8.49E+00
	48	1906.64	7.00E+00			7.00E+00	5.29E+00
	49	2010.58	1.30E+01			1.30E+01	7.21E+00
	50	2035.65	6.80E+00			6.80E+00	8.03E+00
	51	2055.23	7.28E+00			7.28E+00	6.95E+00
	52	2103.14	2.48E+01			2.48E+01	1.13E+01
	53	2204.17	2.58E+01	5.94E-01	1.16E+00	2.52E+01	1.16E+01
	54	2329.57	7.00E+00			7.00E+00	5.29E+00

Analysis Report for 1510093-15

CP3004S02-03

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2436.52	6.50E+00	8.03			6.50E+00	8.03E+00
56	2474.57	1.30E+01	7.21			1.30E+01	7.21E+00
57	2614.17	1.07E+02	21.82	7.38E+00	1.57E+00	9.94E+01	2.19E+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	0.997	1460.81 *	10.67	1.98E+01	2.64E+00
NB-95M	0.650	235.69 *	25.00	3.92E+01	3.83E+01
TL-208	0.975	583.14 *	30.22	1.47E+00	2.45E-01
		860.37 *	4.48	1.50E+00	8.91E-01
		2614.66 *	35.85	1.01E+00	2.36E-01
BI-212	0.939	727.17 *	11.80	1.22E+00	6.09E-01
		1620.62 *	2.75	2.02E+00	1.27E+00
PB-212	0.883	238.63 *	44.60	1.41E+00	1.82E-01
		300.09	3.41		
BI-214	0.996	609.31 *	46.30	1.48E+00	2.32E-01
		1120.29 *	15.10	1.67E+00	6.30E-01
		1764.49 *	15.80	1.56E+00	5.13E-01
		2204.22 *	4.98	1.91E+00	8.86E-01
PB-214	1.000	295.21 *	19.19	1.63E+00	4.00E-01
		351.92 *	37.19	1.74E+00	2.58E-01
RA-224	0.880	240.98 *	3.95	3.53E+00	1.09E+00
RA-226	1.000	186.21 *	3.28	3.87E+00	7.29E+00
AC-228	0.992	338.32 *	11.40	1.56E+00	5.32E-01
		911.07 *	27.70	1.41E+00	3.80E-01
		969.11 *	16.60	1.59E+00	4.42E-01
CM-243	0.332	209.75 *	3.29	1.09E+00	1.34E+00
		228.14	10.60		
		277.60 *	14.00	2.86E-01	3.10E-01

Analysis Report for 1510093-15  
CP3004S02-03

\* = 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 : 11/11/2015 3:30:52PM  
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	76.56	3.37191E-01	5.64		
2	128.99	2.23730E-02	41.90		
3	142.85	2.69440E-02	46.17	Tol.	U-235
4	155.14	1.71484E-02	50.77		
10	270.06	2.40961E-02	34.58		
13	327.77	1.82041E-02	45.48	Tol.	LA-140
16	462.23	2.33694E-02	25.44		
17	511.04	2.98856E-02	24.39		
M 18	580.22	5.95329E-03	32.24	Sum	
22	768.51	8.37681E-03	56.18		
23	785.06	7.16291E-03	59.58		
24	795.25	7.49561E-03	54.27	Sum	
m 26	866.94	4.69063E-03	79.01		
28	920.38	7.47076E-03	40.90		
29	934.56	1.20912E-02	31.86	Sum	
M 30	960.13	5.49889E-03	61.04		
m 31	964.90	1.11125E-02	36.31	Sum	
34	1288.86	5.70707E-03	35.52		
35	1349.15	2.59722E-03	62.42		
36	1377.24	1.09559E-02	22.15		
37	1386.74	4.10218E-03	54.93		
39	1495.35	2.90123E-03	55.83	Sum	
40	1509.26	4.33333E-03	35.18		
41	1539.40	6.19048E-03	30.43		
m 43	1630.33	1.83100E-03	60.21		
44	1729.27	3.17460E-03	39.25	Sum	
46	1792.03	3.33333E-03	28.87		
47	1847.78	3.34325E-03	35.25	Sum	
48	1906.64	1.94444E-03	37.80		
49	2010.58	3.61111E-03	27.74		
50	2035.65	1.88889E-03	59.05		
51	2055.23	2.02160E-03	47.72		
52	2103.14	6.87757E-03	22.87	S-Esc	
54	2329.57	1.94444E-03	37.80		

Analysis Report for 1510093-15  
CP3004S02-03

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
55	2436.52	1.80556E-03	61.78		
56	2474.57	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 2.00sigma

## 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	1.98E+01	2.64E+00
NB-95M	0.65	235.69 *	25.00	3.92E+01	3.83E+01
TL-208	0.97	583.14 *	30.22	1.47E+00	2.45E-01
		860.37 *	4.48	1.50E+00	8.91E-01
		2614.66 *	35.85	1.01E+00	2.36E-01
BI-212	0.93	727.17 *	11.80	1.22E+00	6.09E-01
		1620.62 *	2.75	2.02E+00	1.27E+00
PB-212	0.88	238.63 *	44.60	1.41E+00	1.82E-01
		300.09 *	3.41		
BI-214	0.99	609.31 *	46.30	1.48E+00	2.32E-01
		1120.29 *	15.10	1.67E+00	6.30E-01
		1764.49 *	15.80	1.56E+00	5.13E-01
		2204.22 *	4.98	1.91E+00	8.86E-01
PB-214	1.00	295.21 *	19.19	1.63E+00	4.00E-01
		351.92 *	37.19	1.74E+00	2.58E-01
RA-224	0.88	240.98 *	3.95	3.53E+00	1.09E+00
RA-226	1.00	186.21 *	3.28	3.87E+00	7.29E+00
AC-228	0.99	338.32 *	11.40	1.56E+00	5.32E-01
		911.07 *	27.70	1.41E+00	3.80E-01
		969.11 *	16.60	1.59E+00	4.42E-01
CM-243	0.33	209.75 *	3.29	1.09E+00	1.34E+00
		228.14 *	10.60		
		277.60 *	14.00	2.86E-01	3.10E-01

Analysis Report for 1510093-15  
CP3004S02-03

\* = 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	0.997	1.98E+01	2.64E+00	
	NB-95M	0.650	3.92E+01	3.83E+01	
X	HG-203	0.883			
	TL-208	0.975	1.24E+00	1.67E-01	
	BI-212	0.939	1.37E+00	5.49E-01	
	PB-212	0.883	1.41E+00	1.82E-01	
	BI-214	0.996	1.53E+00	1.96E-01	
	PB-214	1.000	1.71E+00	2.17E-01	
	RA-224	0.880	3.53E+00	1.09E+00	
	RA-226	1.000	3.87E+00	7.29E+00	
	AC-228	0.992	1.50E+00	2.53E-01	
	CM-243	0.332	3.27E-01	3.02E-01	

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

Errors quoted at 2.000sigma



Analysis Report for 1510093-15  
CP3004S02-03

## UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/11/2015 3:30:52PM  
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	76.56	3.37191E-01	5.64		
2	128.99	2.23730E-02	41.90		
3	142.85	2.69440E-02	46.17	Tol.	U-235
4	155.14	1.71484E-02	50.77		
10	270.06	2.40961E-02	34.58		
13	327.77	1.82041E-02	45.48	Tol.	LA-140
16	462.23	2.33694E-02	25.44		
17	511.04	2.98856E-02	24.39		
M 18	580.22	5.95329E-03	32.24	Sum	
22	768.51	8.37681E-03	56.18		
23	785.06	7.16291E-03	59.58		
24	795.25	7.49561E-03	54.27	Sum	
m 26	866.94	4.69063E-03	79.01		
28	920.38	7.47076E-03	40.90		
29	934.56	1.20912E-02	31.86	Sum	
M 30	960.13	5.49889E-03	61.04		
m 31	964.90	1.11125E-02	36.31	Sum	
34	1288.86	5.70707E-03	35.52		
35	1349.15	2.59722E-03	62.42		
36	1377.24	1.09559E-02	22.15		
37	1386.74	4.10218E-03	54.93		
39	1495.35	2.90123E-03	55.83	Sum	
40	1509.26	4.33333E-03	35.18		
41	1539.40	6.19048E-03	30.43		
m 43	1630.33	1.83100E-03	60.21		
44	1729.27	3.17460E-03	39.25	Sum	
46	1792.03	3.33333E-03	28.87		
47	1847.78	3.34325E-03	35.25	Sum	
48	1906.64	1.94444E-03	37.80		
49	2010.58	3.61111E-03	27.74		
50	2035.65	1.88889E-03	59.05		
51	2055.23	2.02160E-03	47.72		
52	2103.14	6.87757E-03	22.87	S-Esc	
54	2329.57	1.94444E-03	37.80		
55	2436.52	1.80556E-03	61.78		

Analysis Report for 1510093-15  
CP3004S02-03

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	2474.57	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 2.00sigma

## NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-3.70E-01	7.60E-01	7.60E-01
+	NA-22	1274.54	99.94	-1.63E-02	8.76E-02	8.76E-02
+	NA-24	1368.53	99.99	2.50E+14	1.56E+14	3.29E+14
		2754.09	99.86	2.38E+13		1.56E+14
+	AL-26	1808.65	99.76	-1.35E-02	5.38E-02	5.38E-02
+	K-40	1460.81	* 10.67	1.98E+01	1.21E+00	1.21E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.78E-02	5.61E-02	5.61E-02
		78.34	96.00	3.95E-01		8.74E-02
+	SC-46	889.25	99.98	-2.35E-03	9.90E-02	9.90E-02
		1120.51	99.99	3.49E-01		1.96E-01
+	V-48	983.52	99.98	4.27E-02	3.01E-01	3.01E-01
		1312.10	97.50	-5.42E-02		3.06E-01
+	CR-51	320.08	9.83	-2.73E-01	1.23E+00	1.23E+00
+	MN-54	834.83	99.97	1.95E-02	9.49E-02	9.49E-02
+	CO-56	846.75	99.96	1.16E-02	1.04E-01	1.04E-01
		1037.75	14.03	-3.97E-01		7.16E-01
		1238.25	67.00	1.63E-01		2.52E-01
		1771.40	15.51	-2.38E-02		5.71E-01
		2598.48	16.90	-5.75E-02		3.46E-01
+	CO-57	122.06	85.51	2.82E-03	6.35E-02	6.35E-02
		136.48	10.60	1.01E-01		5.20E-01
+	CO-58	810.76	99.40	-7.12E-02	1.08E-01	1.08E-01
+	FE-59	1099.22	56.50	2.61E-02	2.63E-01	2.63E-01
		1291.56	43.20	5.16E-02		3.52E-01
+	CO-60	1173.22	100.00	7.57E-03	8.33E-02	9.13E-02
		1332.49	100.00	4.65E-04		8.33E-02
+	ZN-65	1115.52	50.75	9.66E-03	1.95E-01	1.95E-01

Analysis Report for 1510093-15  
CP3004S02-03

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	GA-67	93.31	35.70	1.91E+02	1.79E+02	1.79E+02
		208.95	2.24	2.80E+03		2.82E+03
		300.22	16.00	1.52E+02		3.92E+02
+	SE-75	121.11	16.70	-1.55E-01	1.04E-01	3.56E-01
		136.00	59.20	3.22E-03		1.04E-01
		264.65	59.80	-3.16E-02		1.13E-01
		279.53	25.20	-1.62E-01		2.88E-01
		400.65	11.40	-1.58E-01		5.96E-01
+	RB-82	776.52	13.00	5.78E-01	1.55E+00	1.55E+00
+	RB-83	520.41	46.00	-9.38E-02	1.46E-01	1.46E-01
		529.64	30.30	1.62E-02		2.61E-01
		552.65	16.40	-2.47E-03		4.43E-01
+	KR-85	513.99	0.43	-1.74E+01	1.71E+01	1.71E+01
+	SR-85	513.99	99.27	-1.07E-01	1.05E-01	1.05E-01
+	Y-88	898.02	93.40	-6.27E-03	7.44E-02	1.09E-01
		1836.01	99.38	1.80E-02		7.44E-02
+	NB-93M	16.57	9.43	-3.37E+03	6.06E+03	6.06E+03
+	NB-94	702.63	100.00	4.95E-02	8.38E-02	8.38E-02
		871.10	100.00	8.51E-03		8.74E-02
+	NB-95	765.79	99.81	1.69E-01	1.85E-01	1.85E-01
+	NB-95M	235.69	* 25.00	3.92E+01	2.18E+02	2.18E+02
+	ZR-95	724.18	43.70	-1.33E-02	2.06E-01	3.10E-01
		756.72	55.30	-2.42E-03		2.06E-01
+	MO-99	181.06	6.20	1.71E+03	2.08E+03	3.20E+03
		739.58	12.80	3.29E+02		2.08E+03
		778.00	4.50	-3.49E+03		5.79E+03
+	RU-103	497.08	89.00	-2.42E-02	1.10E-01	1.10E-01
+	RU-106	621.84	9.80	-5.27E-01	7.16E-01	7.16E-01
+	AG-108M	433.93	89.90	-1.71E-03	6.53E-02	6.53E-02
		614.37	90.40	3.68E-02		8.70E-02
		722.95	90.50	7.34E-03		8.97E-02
+	CD-109	88.03	3.72	2.41E+00	1.96E+00	1.96E+00
+	AG-110M	657.75	93.14	1.21E-02	9.64E-02	9.64E-02
		677.61	10.53	-4.39E-01		7.18E-01
		706.67	16.46	1.54E-01		5.48E-01
		763.93	21.98	-4.68E-02		4.12E-01
		884.67	71.63	2.59E-02		1.15E-01
		1384.27	23.94	1.03E-01		3.35E-01
+	CD-113M	263.70	0.02	4.76E+01	2.46E+02	2.46E+02
+	SN-113	255.12	1.93	-7.91E-01	1.17E-01	3.67E+00
		391.69	64.90	6.53E-03		1.17E-01
+	TE123M	159.00	84.10	-1.30E-02	7.80E-02	7.80E-02
+	SB-124	602.71	97.87	4.22E-02	1.13E-01	1.13E-01
		645.85	7.26	5.14E-01		1.44E+00
		722.78	11.10	8.67E-02		1.06E+00
		1691.02	49.00	-2.33E-03		1.86E-01
+	I-125	35.49	6.49	2.59E+00	6.50E+00	6.50E+00
+	SB-125	176.33	6.89	2.66E-01	2.22E-01	8.27E-01

Analysis Report for 1510093-15  
CP3004S02-03

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	SB-125	427.89	29.33	1.60E-01	2.22E-01	2.22E-01
		463.38	10.35	7.38E-01		7.39E-01
		600.56	17.80	1.22E-01		4.35E-01
		635.90	11.32	-9.29E-02		5.85E-01
+	SB-126	414.70	83.30	-1.10E-01	4.13E-01	4.13E-01
		666.33	99.60	-6.67E-02		5.02E-01
		695.00	99.60	-6.39E-02		4.40E-01
		720.50	53.80	-2.98E-01		8.43E-01
+	SN-126	87.57	37.00	2.31E-01	1.88E-01	1.88E-01
+	SB-127	473.00	25.00	2.53E+01	7.75E+01	7.75E+01
		685.20	35.70	4.98E+01		8.01E+01
		783.80	14.70	1.33E+02		2.06E+02
+	I-129	29.78	57.00	5.63E-02	1.30E+00	1.30E+00
		33.60	13.20	-4.37E-02		2.81E+00
		39.58	7.52	-4.64E-01		2.31E+00
+	I-131	284.30	6.05	1.11E+00	1.16E+00	1.55E+01
		364.48	81.20	3.33E-02		1.16E+00
		636.97	7.26	-3.68E+00		1.43E+01
		722.89	1.80	5.98E+00		7.31E+01
+	TE-132	49.72	13.10	3.55E+02	6.63E+01	6.40E+02
		228.16	88.00	1.38E+01		6.63E+01
+	BA-133	81.00	33.00	-7.77E-03	9.73E-02	1.36E-01
		302.84	17.80	1.10E-01		3.40E-01
		356.01	60.00	2.73E-02		9.73E-02
+	I-133	529.87	86.30	7.94E+08	1.20E+10	1.20E+10
+	XE-133	81.00	38.00	-4.80E-01	8.43E+00	8.43E+00
+	CS-134	563.23	8.38	4.77E-01	9.83E-02	8.14E-01
		569.32	15.43	-1.41E-01		3.92E-01
		604.70	97.60	-1.05E-02		9.83E-02
		795.84	85.40	5.92E-02		1.14E-01
		801.93	8.73	-4.20E-01		9.45E-01
+	CS-135	268.24	16.00	-1.44E-01	3.97E-01	3.97E-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	5.90E-01	4.78E-01	4.22E+00
		163.89	4.61	5.02E+00		6.76E+00
		176.55	13.56	-1.00E+00		2.21E+00
		273.65	12.66	-4.91E+00		2.55E+00
		340.57	48.50	7.82E-02		7.84E-01
		818.50	99.70	-8.84E-02		4.78E-01
		1048.07	79.60	1.52E-01		6.46E-01
		1235.34	19.70	2.37E+00		3.55E+00
+	CS-137	661.65	85.12	7.69E-02	1.04E-01	1.04E-01
+	LA-138	788.74	34.00	-1.13E-02	9.53E-02	2.60E-01
		1435.80	66.00	-1.12E-02		9.53E-02
+	CE-139	165.85	80.35	-5.49E-02	7.76E-02	7.76E-02
+	BA-140	162.64	6.70	1.14E-01	1.39E+00	4.83E+00
		304.84	4.50	-1.13E+00		7.00E+00

Analysis Report for 1510093-15  
CP3004S02-03

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
BA-140	423.70	3.20	-1.90E+00	1.39E+00	1.09E+01
	437.55	2.00	-1.49E+00		1.65E+01
	537.32	25.00	-2.40E-01		1.39E+00
+ LA-140	328.77	20.50	1.85E+00	5.43E-01	1.86E+00
	487.03	45.50	2.05E-01		7.45E-01
	815.85	23.50	1.18E-01		2.14E+00
+ CE-141	1596.49	95.49	3.13E-01		5.43E-01
	145.44	48.40	6.90E-02	2.34E-01	2.34E-01
+ CE-143	57.36	11.80	-5.31E+06	2.49E+06	5.67E+06
	293.26	42.00	-2.57E+05		2.49E+06
	664.55	5.20	1.29E+05		1.92E+07
+ CE-144	133.54	10.80	1.21E-01	5.14E-01	5.14E-01
+ PM-144	476.78	42.00	-6.41E-02	7.60E-02	1.32E-01
	618.01	98.60	-2.28E-03		7.84E-02
	696.49	99.49	-3.20E-02		7.60E-02
	36.85	21.70	1.03E-01	5.61E-01	1.09E+00
+ PM-145	37.36	39.70	5.29E-02		5.61E-01
	42.30	15.10	-7.20E-01		9.27E-01
	72.40	2.31	7.70E-01		2.32E+00
	453.90	39.94	1.11E-01	1.60E-01	1.60E-01
+ PM-146	735.90	14.01	7.33E-02		5.62E-01
	747.13	13.10	3.38E-03		5.76E-01
	91.11	28.90	-1.20E+00	1.82E+00	1.82E+00
+ ND-147	531.02	13.10	8.91E-02		3.61E+00
	285.90	3.10	-1.47E+04	4.72E+04	4.72E+04
+ EU-152	121.78	20.50	1.09E-02	2.45E-01	2.45E-01
	244.69	5.40	-2.28E+00		1.17E+00
	344.27	19.13	5.05E-02		3.05E-01
	778.89	9.20	-5.88E-02		8.66E-01
	964.01	10.40	-2.35E+00		1.05E+00
	1085.78	7.22	-6.63E-01		1.10E+00
	1112.02	9.60	6.74E-02		8.76E-01
	1407.95	14.94	-6.22E-02		6.02E-01
	97.43	31.30	-6.24E-02	1.80E-01	1.80E-01
	103.18	22.20	-2.09E-01		2.47E-01
	+ EU-154	123.07	40.50	-5.26E-02	1.24E-01
723.30		19.70	3.39E-02		4.15E-01
873.19		11.50	-3.22E-03		6.84E-01
996.32		10.30	-5.14E-01		7.57E-01
1004.76		17.90	-4.16E-02		4.62E-01
1274.45		35.50	-4.52E-02		2.43E-01
86.50		30.90	-2.13E-01	2.20E-01	2.20E-01
+ EU-155	105.30	20.70	6.22E-02		2.50E-01
	811.77	10.40	-7.63E-01	3.40E+00	3.40E+00
+ EU-156	1153.47	7.20	3.60E+00		6.09E+00
	1230.71	8.90	-2.42E+00		4.97E+00
	184.41	72.60	-2.90E-02	9.65E-02	9.65E-02
+ HO-166M	280.45	29.60	-1.15E-01		2.04E-01
	410.94	11.10	6.35E-01		6.41E-01

Analysis Report for 1510093-15  
CP3004S02-03

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	HO-166M	711.69	54.10	-1.87E-02	9.65E-02	1.43E-01
+	TM-171	66.72	0.14	-4.73E+00	3.91E+01	3.91E+01
+	HF-172	81.75	4.52	-1.05E+00	4.74E-01	9.97E-01
		125.81	11.30	1.26E-03		4.74E-01
+	LU-172	181.53	20.60	2.66E+00	3.82E+00	7.87E+00
		810.06	16.63	-8.77E+00		1.33E+01
		912.12	15.25	8.06E+01		3.05E+01
		1093.66	62.50	8.31E-01		3.82E+00
+	LU-173	100.72	5.24	2.06E-01	3.36E-01	1.03E+00
		272.11	21.20	1.40E-01		3.36E-01
+	HF-175	343.40	84.00	-3.09E-02	9.02E-02	9.02E-02
+	LU-176	88.34	13.30	6.42E-01	5.90E-02	5.22E-01
		201.83	86.00	-2.93E-02		6.73E-02
		306.78	94.00	-2.63E-02		5.90E-02
+	TA-182	67.75	41.20	4.96E-02	1.56E-01	1.56E-01
		1121.30	34.90	8.24E-01		5.19E-01
		1189.05	16.23	-1.15E-01		7.51E-01
		1221.41	26.98	-1.87E-01		4.45E-01
		1231.02	11.44	1.23E-02		1.13E+00
+	IR-192	308.46	29.68	-8.21E-03	1.70E-01	2.54E-01
		468.07	48.10	6.19E-02		1.70E-01
+	HG-203	279.19	* 77.30	8.36E-02	1.48E-01	1.48E-01
+	BI-207	569.67	97.72	-2.17E-02	6.02E-02	6.02E-02
		1063.62	74.90	-1.36E-02		1.16E-01
+	TL-208	583.14	* 30.22	1.47E+00	1.78E-01	2.83E-01
		860.37	* 4.48	1.50E+00		2.61E+00
		2614.66	* 35.85	1.01E+00		1.78E-01
+	BI-210M	262.00	45.00	-5.95E-02	1.24E-01	1.24E-01
		300.00	23.00	1.10E-01		2.84E-01
+	PB-210	46.50	4.25	3.83E+00	2.81E+00	2.81E+00
+	PB-211	404.84	2.90	2.03E-01	2.18E+00	2.18E+00
		831.96	2.90	-4.49E-01		2.90E+00
+	BI-212	727.17	* 11.80	1.22E+00	9.18E-01	9.18E-01
		1620.62	* 2.75	2.02E+00		3.38E+00
+	PB-212	238.63	* 44.60	1.41E+00	2.60E-01	2.60E-01
		300.09	3.41	7.42E-01		1.91E+00
+	BI-214	609.31	* 46.30	1.48E+00	2.27E-01	2.27E-01
		1120.29	* 15.10	1.67E+00		8.90E-01
		1764.49	* 15.80	1.56E+00		5.98E-01
		2204.22	* 4.98	1.91E+00		9.15E-01
+	PB-214	295.21	* 19.19	1.63E+00	2.56E-01	5.44E-01
		351.92	* 37.19	1.74E+00		2.56E-01
+	RN-219	401.80	6.50	-5.66E-01	8.77E-01	8.77E-01
+	RA-223	323.87	3.88	3.54E-02	1.44E+00	1.44E+00
+	RA-224	240.98	* 3.95	3.53E+00	2.90E+00	2.90E+00
+	RA-225	40.00	31.00	-4.91E-01	2.44E+00	2.44E+00
+	RA-226	186.21	* 3.28	3.87E+00	2.69E+00	2.69E+00
+	TH-227	50.10	8.40	5.63E-01	7.63E-01	1.02E+00

Analysis Report for 1510093-15  
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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	-5.72E+00	7.63E-01	7.63E-01
	256.20	6.30	-7.15E-01		9.19E-01
+ AC-228	338.32	* 11.40	1.56E+00	5.01E-01	7.70E-01
	911.07	* 27.70	1.41E+00		5.01E-01
	969.11	* 16.60	1.59E+00		1.19E+00
+ TH-230	48.44	16.90	-6.12E-01	5.46E-01	5.46E-01
	62.85	4.60	1.59E+00		1.42E+00
	67.67	0.37	4.54E+00		1.43E+01
+ PA-231	283.67	1.60	2.57E-01	2.62E+00	3.61E+00
	302.67	2.30	8.44E-01		2.62E+00
+ TH-231	25.64	14.70	-2.15E+00	7.65E-01	1.56E+01
	84.21	6.40	4.50E-01		7.65E-01
+ PA-233	311.98	38.60	7.75E-02	3.44E-01	3.44E-01
+ PA-234	131.20	20.40	4.49E-02	2.76E-01	2.76E-01
	733.99	8.80	-1.43E-01		8.54E-01
	946.00	12.00	1.79E-01		6.95E-01
+ PA-234M	1001.03	0.92	6.82E+00	9.65E+00	9.65E+00
+ TH-234	63.29	3.80	1.91E+00	1.70E+00	1.70E+00
+ U-235	143.76	10.50	3.19E-01	5.49E-01	5.49E-01
	163.35	4.70	2.83E-02		1.20E+00
	205.31	4.70	1.70E-01		1.28E+00
+ NP-237	86.50	12.60	-5.15E-01	5.33E-01	5.33E-01
+ NP-239	106.10	22.70	-8.79E+02	3.03E+03	3.03E+03
	228.18	10.70	1.58E+03		7.62E+03
	277.60	14.10	-1.74E+02		6.08E+03
+ AM-241	59.54	35.90	4.06E-02	1.70E-01	1.70E-01
+ AM-243	74.67	66.00	-2.79E-01	1.13E-01	1.13E-01
+ CM-243	209.75	* 3.29	1.09E+00	5.05E-01	2.20E+00
	228.14	10.60	1.19E-01		5.71E-01
	277.60	* 14.00	2.86E-01		5.05E-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 1510093-15  
CP3004S02-03

## 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	7.60E-01	7.60E-01	-3.70E-01	3.54E-01
NA-22	1274.54	99.94	8.76E-02	8.76E-02	-1.63E-02	3.98E-02
NA-24	1368.53	99.99	3.29E+14	1.56E+14	2.50E+14	1.50E+14
	2754.09	99.86	1.56E+14		2.38E+13	6.04E+13
AL-26	1808.65	99.76	5.38E-02	5.38E-02	-1.35E-02	2.20E-02
+ K-40	1460.81	* 10.67	1.21E+00	1.21E+00	1.98E+01	5.66E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	5.61E-02	5.61E-02	1.78E-02	2.72E-02
	78.34	96.00	8.74E-02		3.95E-01	4.30E-02
SC-46	889.25	99.98	9.90E-02	9.90E-02	-2.35E-03	4.57E-02
	1120.51	99.99	1.96E-01		3.49E-01	9.36E-02
V-48	983.52	99.98	3.01E-01	3.01E-01	4.27E-02	1.38E-01
	1312.10	97.50	3.06E-01		-5.42E-02	1.36E-01
CR-51	320.08	9.83	1.23E+00	1.23E+00	-2.73E-01	5.85E-01
MN-54	834.83	99.97	9.49E-02	9.49E-02	1.95E-02	4.45E-02
CO-56	846.75	99.96	1.04E-01	1.04E-01	1.16E-02	4.82E-02
	1037.75	14.03	7.16E-01		-3.97E-01	3.27E-01
	1238.25	67.00	2.52E-01		1.63E-01	1.19E-01
	1771.40	15.51	5.71E-01		-2.38E-02	2.44E-01
	2598.48	16.90	3.46E-01		-5.75E-02	1.34E-01
CO-57	122.06	85.51	6.35E-02	6.35E-02	2.82E-03	3.08E-02
	136.48	10.60	5.20E-01		1.01E-01	2.52E-01
CO-58	810.76	99.40	1.08E-01	1.08E-01	-7.12E-02	5.04E-02
FE-59	1099.22	56.50	2.63E-01	2.63E-01	2.61E-02	1.22E-01
	1291.56	43.20	3.52E-01		5.16E-02	1.61E-01
CO-60	1173.22	100.00	9.13E-02	8.33E-02	7.57E-03	4.20E-02
	1332.49	100.00	8.33E-02		4.65E-04	3.76E-02
ZN-65	1115.52	50.75	1.95E-01	1.95E-01	9.66E-03	8.99E-02
GA-67	93.31	35.70	1.79E+02	1.79E+02	1.91E+02	8.78E+01
	208.95	2.24	2.82E+03		2.80E+03	1.36E+03
	300.22	16.00	3.92E+02		1.52E+02	1.88E+02
SE-75	121.11	16.70	3.56E-01	1.04E-01	-1.55E-01	1.72E-01
	136.00	59.20	1.04E-01		3.22E-03	5.03E-02
	264.65	59.80	1.13E-01		-3.16E-02	5.43E-02
	279.53	25.20	2.88E-01		-1.62E-01	1.38E-01
	400.65	11.40	5.96E-01		-1.58E-01	2.81E-01
RB-82	776.52	13.00	1.55E+00	1.55E+00	5.78E-01	7.27E-01
RB-83	520.41	46.00	1.46E-01	1.46E-01	-9.38E-02	6.77E-02
	529.64	30.30	2.61E-01		1.62E-02	1.22E-01
	552.65	16.40	4.43E-01		-2.47E-03	2.06E-01
KR-85	513.99	0.43	1.71E+01	1.71E+01	-1.74E+01	8.13E+00
SR-85	513.99	99.27	1.05E-01	1.05E-01	-1.07E-01	4.99E-02
Y-88	898.02	93.40	1.09E-01	7.44E-02	-6.27E-03	5.07E-02
	1836.01	99.38	7.44E-02		1.80E-02	3.12E-02
NB-93M	16.57	9.43	6.06E+03	6.06E+03	-3.37E+03	2.95E+03



Analysis Report for 1510093-15  
CP3004S02-03

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NB-94	702.63	100.00	8.38E-02	8.38E-02	4.95E-02	3.95E-02
	871.10	100.00	8.74E-02		8.51E-03	4.08E-02
NB-95	765.79	99.81	1.85E-01	1.85E-01	1.69E-01	8.74E-02
+ NB-95M	235.69	* 25.00	2.18E+02	2.18E+02	3.92E+01	1.07E+02
ZR-95	724.18	43.70	3.10E-01	2.06E-01	-1.33E-02	1.47E-01
	756.72	55.30	2.06E-01		-2.42E-03	9.62E-02
MO-99	181.06	6.20	3.20E+03	2.08E+03	1.71E+03	1.55E+03
	739.58	12.80	2.08E+03		3.29E+02	9.74E+02
	778.00	4.50	5.79E+03		-3.49E+03	2.70E+03
RU-103	497.08	89.00	1.10E-01	1.10E-01	-2.42E-02	5.15E-02
RU-106	621.84	9.80	7.16E-01	7.16E-01	-5.27E-01	3.34E-01
AG-108M	433.93	89.90	6.53E-02	6.53E-02	-1.71E-03	3.08E-02
	614.37	90.40	8.70E-02		3.68E-02	4.11E-02
	722.95	90.50	8.97E-02		7.34E-03	4.21E-02
CD-109	88.03	3.72	1.96E+00	1.96E+00	2.41E+00	9.60E-01
AG-110M	657.75	93.14	9.64E-02	9.64E-02	1.21E-02	4.55E-02
	677.61	10.53	7.18E-01		-4.39E-01	3.34E-01
	706.67	16.46	5.48E-01		1.54E-01	2.58E-01
	763.93	21.98	4.12E-01		-4.68E-02	1.93E-01
	884.67	71.63	1.15E-01		2.59E-02	5.32E-02
	1384.27	23.94	3.35E-01		1.03E-01	1.48E-01
CD-113M	263.70	0.02	2.46E+02	2.46E+02	4.76E+01	1.18E+02
SN-113	255.12	1.93	3.67E+00	1.17E-01	-7.91E-01	1.76E+00
	391.69	64.90	1.17E-01		6.53E-03	5.53E-02
TE123M	159.00	84.10	7.80E-02	7.80E-02	-1.30E-02	3.78E-02
SB-124	602.71	97.87	1.13E-01	1.13E-01	4.22E-02	5.32E-02
	645.85	7.26	1.44E+00		5.14E-01	6.76E-01
	722.78	11.10	1.06E+00		8.67E-02	4.98E-01
	1691.02	49.00	1.86E-01		-2.33E-03	7.90E-02
	I-125	35.49	6.49	6.50E+00	6.50E+00	2.59E+00
SB-125	176.33	6.89	8.27E-01	2.22E-01	2.66E-01	4.00E-01
	427.89	29.33	2.22E-01		1.60E-01	1.05E-01
	463.38	10.35	7.39E-01		7.38E-01	3.52E-01
	600.56	17.80	4.35E-01		1.22E-01	2.05E-01
	635.90	11.32	5.85E-01		-9.29E-02	2.73E-01
	414.70	83.30	4.13E-01	4.13E-01	-1.10E-01	1.95E-01
SB-126	666.33	99.60	5.02E-01		-6.67E-02	2.37E-01
	695.00	99.60	4.40E-01		-6.39E-02	2.05E-01
	720.50	53.80	8.43E-01		-2.98E-01	3.94E-01
	87.57	37.00	1.88E-01	1.88E-01	2.31E-01	9.20E-02
SB-127	473.00	25.00	7.75E+01	7.75E+01	2.53E+01	3.63E+01
	685.20	35.70	8.01E+01		4.98E+01	3.78E+01
	783.80	14.70	2.06E+02		1.33E+02	9.68E+01
I-129	29.78	57.00	1.30E+00	1.30E+00	5.63E-02	6.32E-01
	33.60	13.20	2.81E+00		-4.37E-02	1.36E+00
	39.58	7.52	2.31E+00		-4.64E-01	1.12E+00
I-131	284.30	6.05	1.55E+01	1.16E+00	1.11E+00	7.41E+00
	364.48	81.20	1.16E+00		3.33E-02	5.50E-01
	636.97	7.26	1.43E+01		-3.68E+00	6.64E+00
	722.89	1.80	7.31E+01		5.98E+00	3.43E+01
TE-132	49.72	13.10	6.40E+02	6.63E+01	3.55E+02	3.11E+02
	228.16	88.00	6.63E+01		1.38E+01	3.20E+01
BA-133	81.00	33.00	1.36E-01	9.73E-02	-7.77E-03	6.59E-02

Analysis Report for 1510093-15  
CP3004S02-03

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	3.40E-01	9.73E-02	1.10E-01	1.63E-01		
	356.01	60.00	9.73E-02		2.73E-02	4.62E-02		
I-133	529.87	86.30	1.20E+10	1.20E+10	7.94E+08	5.61E+09		
XE-133	81.00	38.00	8.43E+00	8.43E+00	-4.80E-01	4.08E+00		
CS-134	563.23	8.38	8.14E-01	9.83E-02	4.77E-01	3.82E-01		
	569.32	15.43	3.92E-01		-1.41E-01	1.82E-01		
	604.70	97.60	9.83E-02		-1.05E-02	4.69E-02		
	795.84	85.40	1.14E-01		5.92E-02	5.37E-02		
	801.93	8.73	9.45E-01		-4.20E-01	4.41E-01		
	268.24	16.00	3.97E-01		3.97E-01	-1.44E-01	1.91E-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	4.22E+00	4.78E-01	5.90E-01	2.05E+00		
	163.89	4.61	6.76E+00		5.02E+00	3.28E+00		
	176.55	13.56	2.21E+00		-1.00E+00	1.07E+00		
	273.65	12.66	2.55E+00		-4.91E+00	1.22E+00		
	340.57	48.50	7.84E-01		7.82E-02	3.76E-01		
	818.50	99.70	4.78E-01		-8.84E-02	2.24E-01		
	1048.07	79.60	6.46E-01		1.52E-01	3.00E-01		
	1235.34	19.70	3.55E+00		2.37E+00	1.67E+00		
	CS-137	661.65	85.12		1.04E-01	1.04E-01	7.69E-02	4.94E-02
	LA-138	788.74	34.00		2.60E-01	9.53E-02	-1.13E-02	1.22E-01
1435.80		66.00	9.53E-02	-1.12E-02	4.12E-02			
CE-139	165.85	80.35	7.76E-02	7.76E-02	-5.49E-02	3.75E-02		
BA-140	162.64	6.70	4.83E+00	1.39E+00	1.14E-01	2.34E+00		
	304.84	4.50	7.00E+00		-1.13E+00	3.33E+00		
	423.70	3.20	1.09E+01		-1.90E+00	5.13E+00		
	437.55	2.00	1.65E+01		-1.49E+00	7.74E+00		
	537.32	25.00	1.39E+00		-2.40E-01	6.51E-01		
	328.77	20.50	1.86E+00		5.43E-01	1.85E+00	8.92E-01	
LA-140	487.03	45.50	7.45E-01		2.05E-01	3.50E-01		
	815.85	23.50	2.14E+00		1.18E-01	1.00E+00		
	1596.49	95.49	5.43E-01		3.13E-01	2.44E-01		
CE-141	145.44	48.40	2.34E-01	2.34E-01	6.90E-02	1.13E-01		
CE-143	57.36	11.80	5.67E+06	2.49E+06	-5.31E+06	2.74E+06		
	293.26	42.00	2.49E+06		-2.57E+05	1.21E+06		
	664.55	5.20	1.92E+07		1.29E+05	9.08E+06		
CE-144	133.54	10.80	5.14E-01	5.14E-01	1.21E-01	2.49E-01		
PM-144	476.78	42.00	1.32E-01	7.60E-02	-6.41E-02	6.13E-02		
	618.01	98.60	7.84E-02		-2.28E-03	3.69E-02		
	696.49	99.49	7.60E-02		-3.20E-02	3.54E-02		
	36.85	21.70	1.09E+00		5.61E-01	1.03E-01	5.30E-01	
PM-145	37.36	39.70	5.61E-01		5.29E-02	2.72E-01		
	42.30	15.10	9.27E-01		-7.20E-01	4.50E-01		
	72.40	2.31	2.32E+00		7.70E-01	1.13E+00		
	453.90	39.94	1.60E-01	1.60E-01	1.11E-01	7.54E-02		
PM-146	735.90	14.01	5.62E-01		7.33E-02	2.63E-01		
	747.13	13.10	5.76E-01		3.38E-03	2.68E-01		
	91.11	28.90	1.82E+00	1.82E+00	-1.20E+00	8.91E-01		
ND-147	531.02	13.10	3.61E+00		8.91E-02	1.69E+00		
	285.90	3.10	4.72E+04	4.72E+04	-1.47E+04	2.26E+04		
EU-152	121.78	20.50	2.45E-01	2.45E-01	1.09E-02	1.19E-01		

Analysis Report for 1510093-15  
CP3004S02-03

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	1.17E+00	2.45E-01	-2.28E+00	5.64E-01
	344.27	19.13	3.05E-01		5.05E-02	1.45E-01
	778.89	9.20	8.66E-01		-5.88E-02	4.05E-01
	964.01	10.40	1.05E+00		-2.35E+00	4.97E-01
	1085.78	7.22	1.10E+00		-6.63E-01	5.04E-01
	1112.02	9.60	8.76E-01		6.74E-02	4.02E-01
	1407.95	14.94	6.02E-01		-6.22E-02	2.73E-01
GD-153	97.43	31.30	1.80E-01	1.80E-01	-6.24E-02	8.74E-02
	103.18	22.20	2.47E-01		-2.09E-01	1.20E-01
EU-154	123.07	40.50	1.24E-01	1.24E-01	-5.26E-02	5.99E-02
	723.30	19.70	4.15E-01		3.39E-02	1.95E-01
	873.19	11.50	6.84E-01		-3.22E-03	3.17E-01
	996.32	10.30	7.57E-01		-5.14E-01	3.48E-01
	1004.76	17.90	4.62E-01		-4.16E-02	2.13E-01
EU-155	1274.45	35.50	2.43E-01	2.20E-01	-4.52E-02	1.10E-01
	86.50	30.90	2.20E-01		-2.13E-01	1.08E-01
	105.30	20.70	2.50E-01		6.22E-02	1.21E-01
EU-156	811.77	10.40	3.40E+00	3.40E+00	-7.63E-01	1.58E+00
	1153.47	7.20	6.09E+00		3.60E+00	2.83E+00
	1230.71	8.90	4.97E+00		-2.42E+00	2.30E+00
HO-166M	184.41	72.60	9.65E-02	9.65E-02	-2.90E-02	4.69E-02
	280.45	29.60	2.04E-01		-1.15E-01	9.76E-02
	410.94	11.10	6.41E-01		6.35E-01	3.06E-01
	711.69	54.10	1.43E-01		-1.87E-02	6.69E-02
TM-171	66.72	0.14	3.91E+01	3.91E+01	-4.73E+00	1.90E+01
HF-172	81.75	4.52	9.97E-01	4.74E-01	-1.05E+00	4.82E-01
	125.81	11.30	4.74E-01		1.26E-03	2.30E-01
LU-172	181.53	20.60	7.87E+00	3.82E+00	2.66E+00	3.81E+00
	810.06	16.63	1.33E+01		-8.77E+00	6.21E+00
	912.12	15.25	3.05E+01		8.06E+01	1.47E+01
	1093.66	62.50	3.82E+00		8.31E-01	1.76E+00
LU-173	100.72	5.24	1.03E+00	3.36E-01	2.06E-01	5.00E-01
	272.11	21.20	3.36E-01		1.40E-01	1.62E-01
HF-175	343.40	84.00	9.02E-02	9.02E-02	-3.09E-02	4.28E-02
LU-176	88.34	13.30	5.22E-01	5.90E-02	6.42E-01	2.56E-01
	201.83	86.00	6.73E-02		-2.93E-02	3.25E-02
	306.78	94.00	5.90E-02		-2.63E-02	2.81E-02
TA-182	67.75	41.20	1.56E-01	1.56E-01	4.96E-02	7.58E-02
	1121.30	34.90	5.19E-01		8.24E-01	2.47E-01
	1189.05	16.23	7.51E-01		-1.15E-01	3.48E-01
	1221.41	26.98	4.45E-01		-1.87E-01	2.06E-01
	1231.02	11.44	1.13E+00		1.23E-02	5.26E-01
	308.46	29.68	2.54E-01		1.70E-01	-8.21E-03
IR-192	468.07	48.10	1.70E-01	1.70E-01	6.19E-02	7.98E-02
	279.19	* 77.30	1.48E-01		1.48E-01	8.36E-02
BI-207	569.67	97.72	6.02E-02	6.02E-02	-2.17E-02	2.80E-02
	1063.62	74.90	1.16E-01		-1.36E-02	5.36E-02
+ TL-208	583.14	* 30.22	2.83E-01	1.78E-01	1.47E+00	1.35E-01
	860.37	* 4.48	2.61E+00		1.50E+00	1.24E+00
	2614.66	* 35.85	1.78E-01		1.01E+00	7.54E-02
BI-210M	262.00	45.00	1.24E-01	1.24E-01	-5.95E-02	5.96E-02
	300.00	23.00	2.84E-01		1.10E-01	1.36E-01
PB-210	46.50	4.25	2.81E+00	2.81E+00	3.83E+00	1.37E+00

Analysis Report for 1510093-15  
CP3004S02-03

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-211	404.84	2.90	2.18E+00	2.18E+00	2.03E-01	1.03E+00
	831.96	2.90	2.90E+00		-4.49E-01	1.36E+00
+ BI-212	727.17 *	11.80	9.18E-01	9.18E-01	1.22E+00	4.38E-01
	1620.62 *	2.75	3.38E+00		2.02E+00	1.53E+00
+ PB-212	238.63 *	44.60	2.60E-01	2.60E-01	1.41E+00	1.27E-01
	300.09	3.41	1.91E+00		7.42E-01	9.18E-01
+ BI-214	609.31 *	46.30	2.27E-01	2.27E-01	1.48E+00	1.09E-01
	1120.29 *	15.10	8.90E-01		1.67E+00	4.22E-01
	1764.49 *	15.80	5.98E-01		1.56E+00	2.69E-01
	2204.22 *	4.98	9.15E-01		1.91E+00	3.55E-01
+ PB-214	295.21 *	19.19	5.44E-01	2.56E-01	1.63E+00	2.65E-01
	351.92 *	37.19	2.56E-01		1.74E+00	1.24E-01
RN-219	401.80	6.50	8.77E-01	8.77E-01	-5.66E-01	4.14E-01
RA-223	323.87	3.88	1.44E+00	1.44E+00	3.54E-02	6.85E-01
+ RA-224	240.98 *	3.95	2.90E+00	2.90E+00	3.53E+00	1.42E+00
RA-225	40.00	31.00	2.44E+00	2.44E+00	-4.91E-01	1.18E+00
+ RA-226	186.21 *	3.28	2.69E+00	2.69E+00	3.87E+00	1.32E+00
TH-227	50.10	8.40	1.02E+00	7.63E-01	5.63E-01	4.93E-01
	236.00	11.50	7.63E-01		-5.72E+00	3.72E-01
	256.20	6.30	9.19E-01		-7.15E-01	4.41E-01
+ AC-228	338.32 *	11.40	7.70E-01	5.01E-01	1.56E+00	3.72E-01
	911.07 *	27.70	5.01E-01		1.41E+00	2.40E-01
	969.11 *	16.60	1.19E+00		1.59E+00	5.79E-01
TH-230	48.44	16.90	5.46E-01	5.46E-01	-6.12E-01	2.65E-01
	62.85	4.60	1.42E+00		1.59E+00	6.90E-01
	67.67	0.37	1.43E+01		4.54E+00	6.95E+00
PA-231	283.67	1.60	3.61E+00	2.62E+00	2.57E-01	1.73E+00
	302.67	2.30	2.62E+00		8.44E-01	1.25E+00
TH-231	25.64	14.70	1.56E+01	7.65E-01	-2.15E+00	7.58E+00
	84.21	6.40	7.65E-01		4.50E-01	3.71E-01
PA-233	311.98	38.60	3.44E-01	3.44E-01	7.75E-02	1.64E-01
PA-234	131.20	20.40	2.76E-01	2.76E-01	4.49E-02	1.34E-01
	733.99	8.80	8.54E-01		-1.43E-01	3.99E-01
	946.00	12.00	6.95E-01		1.79E-01	3.22E-01
PA-234M	1001.03	0.92	9.65E+00	9.65E+00	6.82E+00	4.48E+00
TH-234	63.29	3.80	1.70E+00	1.70E+00	1.91E+00	8.28E-01
U-235	143.76	10.50	5.49E-01	5.49E-01	3.19E-01	2.67E-01
	163.35	4.70	1.20E+00		2.83E-02	5.80E-01
	205.31	4.70	1.28E+00		1.70E-01	6.17E-01
NP-237	86.50	12.60	5.33E-01	5.33E-01	-5.15E-01	2.61E-01
NP-239	106.10	22.70	3.03E+03	3.03E+03	-8.79E+02	1.47E+03
	228.18	10.70	7.62E+03		1.58E+03	3.67E+03
	277.60	14.10	6.08E+03		-1.74E+02	2.92E+03
AM-241	59.54	35.90	1.70E-01	1.70E-01	4.06E-02	8.26E-02
AM-243	74.67	66.00	1.13E-01	1.13E-01	-2.79E-01	5.54E-02
+ CM-243	209.75 *	3.29	2.20E+00	5.05E-01	1.09E+00	1.07E+00
	228.14	10.60	5.71E-01		1.19E-01	2.75E-01
	277.60 *	14.00	5.05E-01		2.86E-01	2.44E-01

Analysis Report for 1510093-15  
CP3004S02-03

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- + = Nuclide identified during the nuclide identification
  - \* = Energy line found in the spectrum
  - > = MDA value not calculated
  - @ = Half-life too short to be able to perform the decay correction
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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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

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 \*\*\*\*\* S P E C T R A L D A T A R E P O R T \*\*\*\*\*  
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Sample Title: CP3004S02-03

Elapsed Live time: 3600

Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	3	173
9:	655	1182	1093	429	631	1728	266	172
17:	141	114	118	123	131	121	107	118
25:	115	94	109	106	99	99	137	113
33:	102	119	143	127	125	119	110	136
41:	122	134	132	163	120	160	224	125
49:	121	129	127	100	113	119	90	89
57:	78	106	130	111	119	116	146	210
65:	118	114	111	126	122	108	126	151
73:	128	164	460	205	529	448	123	110
81:	92	108	96	162	123	109	194	200
89:	109	179	127	132	222	148	101	80
97:	82	79	92	91	85	74	82	82
105:	70	97	78	79	90	69	78	75
113:	88	76	63	81	55	78	68	77
121:	60	78	62	76	71	77	77	70
129:	121	94	63	72	73	65	67	65
137:	65	70	61	79	75	84	84	94
145:	64	77	66	64	77	72	75	65
153:	61	80	90	70	71	57	63	66
161:	60	73	76	67	53	65	50	50
169:	64	52	61	64	55	65	57	67
177:	63	40	52	62	69	63	57	47
185:	92	182	122	56	62	51	52	49
193:	59	56	72	55	59	59	56	50
201:	50	61	57	46	62	63	50	49
209:	93	83	51	37	63	53	51	41
217:	39	56	47	57	46	55	55	35
225:	37	43	52	57	50	41	51	52
233:	49	49	38	58	48	308	592	97
241:	112	160	67	51	42	38	42	33
249:	39	43	27	39	47	36	40	35
257:	35	43	49	35	23	39	39	35
265:	34	25	37	37	43	73	62	42
273:	35	31	42	29	60	41	36	39
281:	41	24	34	36	40	29	25	36
289:	39	21	27	33	39	47	230	170
297:	34	29	46	46	45	28	25	33
305:	31	18	24	28	33	31	24	30
313:	20	38	21	28	30	30	22	30
321:	15	22	24	27	28	25	32	56
329:	34	26	28	21	27	24	36	29
337:	43	107	83	31	19	31	20	23
345:	19	32	26	18	26	30	164	390
353:	119	26	27	17	29	20	17	19
361:	25	19	23	21	29	23	21	21

369: 21 19 21 25 26 30 23 26

Sample Title: CP3004S02-03

Channel	21	19	21	25	26	30	23	26
377:	21	19	18	32	23	26	27	26
385:	11	19	30	22	24	23	25	26
393:	22	24	23	19	16	19	21	17
401:	12	22	22	23	29	27	17	23
409:	52	39	19	19	19	17	17	18
417:	19	28	15	25	16	22	24	13
425:	20	21	21	24	17	28	13	14
433:	21	19	19	18	15	19	14	20
441:	13	14	7	17	16	21	17	19
449:	14	15	18	22	26	18	16	17
457:	12	10	20	18	23	29	46	27
465:	13	14	15	22	19	16	13	15
473:	18	14	17	9	9	14	12	18
481:	14	9	15	11	14	15	14	20
489:	14	12	14	8	12	10	18	10
497:	8	18	12	18	17	14	13	14
505:	15	15	17	13	24	75	88	48
513:	24	17	10	16	18	15	13	10
521:	9	6	15	14	11	16	14	14
529:	12	14	19	16	13	15	15	11
537:	12	14	18	13	20	15	11	12
545:	18	18	11	11	7	14	10	11
553:	9	13	16	10	12	7	9	14
561:	14	15	16	16	18	11	9	11
569:	16	13	11	16	14	16	18	12
577:	10	15	11	25	13	49	180	85
585:	17	8	13	13	10	14	14	6
593:	15	7	10	15	11	13	9	22
601:	17	16	7	11	11	11	14	75
609:	236	170	15	14	4	22	13	17
617:	14	10	15	8	6	16	7	8
625:	7	14	16	11	11	14	7	10
633:	10	14	8	7	6	14	3	8
641:	13	7	10	9	11	11	8	13
649:	14	9	6	20	9	12	18	9
657:	6	16	20	13	15	17	13	19
665:	17	9	11	18	8	17	10	10
673:	11	3	9	15	10	8	6	13
681:	12	17	13	12	12	13	14	17
689:	8	7	12	12	12	9	8	9
697:	10	7	10	12	11	12	15	12
705:	19	11	8	11	11	11	9	14
713:	8	11	11	15	7	7	9	14
721:	10	10	11	11	8	17	47	26
729:	14	8	14	5	8	11	8	12
737:	9	13	11	9	10	7	7	11
745:	6	17	7	6	9	8	13	8
753:	6	11	11	9	9	14	13	12
761:	9	5	14	11	9	10	19	25
769:	20	11	10	8	20	12	6	12
777:	8	12	7	8	9	12	11	9
785:	21	14	12	8	10	7	12	8
793:	13	16	24	10	13	11	8	13

801: 7 4 14 13 7 13 11 10

Sample Title: CP3004S02-03

Channel	1	2	3	4	5	6	7	8
809:	4	9	6	13	9	15	14	5
817:	12	11	11	9	14	12	12	7
825:	7	8	10	11	7	10	8	13
833:	11	7	13	16	6	10	12	8
841:	11	6	12	10	6	10	6	10
849:	3	10	4	6	6	9	7	8
857:	5	6	8	24	22	9	6	5
865:	6	13	9	16	11	8	4	12
873:	8	10	8	4	9	4	2	12
881:	6	8	8	4	8	9	6	4
889:	6	10	5	9	9	7	10	11
897:	5	7	10	9	6	5	13	9
905:	12	6	7	6	5	60	100	55
913:	9	7	5	6	6	5	11	11
921:	10	7	1	4	7	6	3	8
929:	1	4	10	4	18	18	14	8
937:	6	10	1	3	6	2	6	9
945:	6	5	7	10	11	8	9	3
953:	8	8	3	5	6	7	11	14
961:	6	8	9	18	21	8	23	38
969:	54	18	6	8	5	2	6	7
977:	4	8	5	4	3	7	8	4
985:	5	8	5	2	5	11	7	9
993:	5	7	9	5	6	4	6	9
1001:	11	6	11	9	4	2	4	5
1009:	9	4	7	6	6	3	7	9
1017:	3	6	5	4	5	5	7	4
1025:	3	8	7	6	4	8	11	12
1033:	8	3	10	9	4	5	4	2
1041:	6	7	4	10	7	11	7	7
1049:	6	10	10	6	8	6	10	7
1057:	4	5	8	9	11	6	4	5
1065:	8	5	11	5	7	9	5	8
1073:	5	5	4	9	10	10	7	9
1081:	9	5	7	5	4	6	9	2
1089:	7	8	7	5	5	10	3	5
1097:	7	4	12	7	5	9	7	6
1105:	7	7	5	6	5	7	5	6
1113:	7	4	7	5	5	14	24	46
1121:	32	13	7	2	8	7	4	2
1129:	2	3	9	8	11	5	6	6
1137:	6	6	7	7	7	6	10	4
1145:	5	7	6	7	4	8	6	9
1153:	8	7	12	7	3	6	4	13
1161:	11	8	5	7	9	7	9	4
1169:	5	5	7	6	6	7	6	7
1177:	6	8	12	6	7	9	9	11
1185:	9	7	10	9	8	6	6	8
1193:	4	11	5	7	5	10	9	4
1201:	7	6	2	11	6	10	6	12
1209:	7	10	7	9	6	7	9	6
1217:	9	13	3	7	6	5	9	7
1225:	9	12	5	7	8	8	9	8



1233: 7 11 8 8 24 19 8 6

Sample Title: CP3004S02-03

Channel	1	2	3	4	5	6	7	8
1241:	11	7	7	11	4	5	6	2
1249:	8	6	11	4	4	4	8	2
1257:	6	4	7	6	8	7	6	6
1265:	6	9	4	4	4	1	2	8
1273:	4	2	7	3	8	9	8	8
1281:	8	6	6	4	4	2	8	9
1289:	7	6	1	2	7	7	3	5
1297:	4	3	7	5	5	1	3	3
1305:	5	5	2	8	3	5	1	1
1313:	5	4	4	4	2	1	6	4
1321:	5	2	1	4	6	3	5	5
1329:	5	2	6	5	4	3	4	2
1337:	5	2	3	2	3	4	3	2
1345:	3	3	3	4	9	1	2	2
1353:	4	4	3	4	1	2	2	8
1361:	3	3	3	2	6	3	5	7
1369:	4	5	4	1	1	5	6	6
1377:	16	9	4	2	2	1	3	3
1385:	8	3	1	1	1	2	4	1
1393:	1	1	4	2	6	0	5	4
1401:	5	9	1	5	4	4	6	8
1409:	3	2	6	4	1	3	3	2
1417:	5	4	4	3	5	2	4	0
1425:	5	3	3	0	8	1	5	4
1433:	2	2	2	1	1	2	0	4
1441:	3	0	2	6	4	5	1	7
1449:	2	5	1	5	1	1	1	3
1457:	5	12	85	250	259	75	7	4
1465:	3	5	3	2	0	1	2	0
1473:	2	2	1	4	2	3	3	3
1481:	0	0	1	3	1	1	3	2
1489:	2	1	2	0	2	5	3	4
1497:	1	1	0	2	3	1	0	2
1505:	0	1	0	9	2	2	4	0
1513:	0	2	3	1	1	1	3	1
1521:	0	6	0	1	2	1	1	1
1529:	1	0	0	0	0	2	2	1
1537:	1	4	6	2	3	3	2	2
1545:	0	3	7	1	0	1	3	2
1553:	2	0	2	3	1	1	3	0
1561:	2	1	0	2	1	4	1	1
1569:	1	5	1	2	1	1	4	2
1577:	2	2	1	2	3	2	5	5
1585:	0	6	4	4	3	3	1	7
1593:	6	2	2	4	2	3	1	0
1601:	2	0	5	1	2	2	0	0
1609:	1	1	2	2	0	3	0	0
1617:	0	2	0	7	3	1	1	2
1625:	2	1	1	1	1	4	2	0
1633:	3	0	2	2	2	1	2	5
1641:	1	1	1	0	5	0	2	2
1649:	0	1	1	1	1	1	2	1
1657:	0	2	4	3	4	1	1	2

1665: 3 2 1 0 1 2 2 1

Sample Title: CP3004S02-03

Channel	1	2	3	4	5	6	7	8
1673:	0	1	2	3	1	2	3	3
1681:	2	1	4	4	1	2	1	1
1689:	2	2	1	0	1	1	1	0
1697:	0	0	1	1	2	1	4	2
1705:	2	0	0	3	0	0	2	1
1713:	1	0	1	1	1	0	3	1
1721:	0	0	3	4	2	0	3	4
1729:	4	2	1	0	0	0	1	1
1737:	2	1	1	1	3	1	2	0
1745:	3	0	0	0	0	1	3	2
1753:	0	2	3	3	0	2	1	2
1761:	0	9	27	25	11	4	3	1
1769:	1	1	3	0	0	1	2	3
1777:	0	2	1	0	1	2	1	1
1785:	1	0	0	1	1	2	0	5
1793:	2	1	0	0	3	2	0	2
1801:	0	2	2	0	1	0	0	1
1809:	0	4	0	1	1	1	1	0
1817:	2	2	0	0	1	0	2	0
1825:	0	1	0	0	1	1	0	1
1833:	0	1	0	1	1	2	3	1
1841:	0	0	1	0	1	2	6	1
1849:	3	0	0	1	1	3	1	0
1857:	0	3	1	2	1	0	2	2
1865:	1	2	2	2	0	1	0	2
1873:	2	1	1	0	1	0	2	1
1881:	1	0	0	1	1	2	2	0
1889:	1	3	1	0	2	3	2	2
1897:	1	0	2	1	1	0	0	0
1905:	2	3	2	0	0	0	0	0
1913:	3	2	0	2	1	0	2	1
1921:	1	0	2	2	3	0	1	4
1929:	0	0	1	2	1	1	1	2
1937:	1	0	0	1	0	3	0	0
1945:	1	2	1	1	0	2	0	2
1953:	0	1	0	2	0	1	0	1
1961:	1	0	0	1	0	1	0	1
1969:	2	1	0	0	1	0	4	1
1977:	0	0	0	3	0	1	0	4
1985:	0	2	1	1	0	1	5	3
1993:	1	1	1	1	1	0	2	1
2001:	1	1	0	1	0	0	2	0
2009:	2	2	7	0	0	0	1	0
2017:	1	1	2	0	2	0	0	0
2025:	0	0	0	1	1	1	1	1
2033:	1	2	2	3	0	0	0	0
2041:	1	1	2	2	1	1	1	0
2049:	0	1	0	2	0	2	2	3
2057:	0	0	2	2	1	1	0	2
2065:	0	1	3	1	0	1	1	0
2073:	1	0	1	0	0	0	3	1
2081:	1	0	0	4	1	2	1	0
2089:	1	1	2	0	2	1	0	0

2097: 0 0 2 3 2 4 7 6

Sample Title: CP3004S02-03

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

2529: 0 0 0 0 1 2 1 1

Sample Title: CP3004S02-03

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	0	0	0	2	0
2545:	0	0	0	0	0	0	1	0
2553:	0	2	1	0	0	1	0	0
2561:	0	0	0	0	2	0	0	0
2569:	0	0	1	0	0	0	2	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	1	0
2593:	1	0	1	0	0	1	0	2
2601:	0	0	0	1	1	0	0	0
2609:	2	1	4	18	37	19	21	4
2617:	3	1	0	1	2	1	1	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	0	1	1
2641:	1	1	0	0	1	0	0	0
2649:	0	0	0	0	0	0	2	0
2657:	0	0	0	0	1	0	0	0
2665:	1	0	0	0	0	0	0	1
2673:	1	0	1	0	0	2	0	0
2681:	0	0	0	0	0	1	0	0
2689:	0	0	0	1	1	0	0	0
2697:	0	0	1	2	0	0	1	0
2705:	0	0	1	0	1	1	0	1
2713:	0	0	0	0	0	0	0	0
2721:	0	0	1	0	0	0	0	0
2729:	0	2	1	2	0	2	0	0
2737:	1	1	0	0	0	0	1	0
2745:	0	0	0	0	0	0	1	0
2753:	0	0	0	3	0	1	1	0
2761:	0	0	1	0	0	0	0	0
2769:	0	0	0	0	0	1	0	0
2777:	0	1	2	0	0	0	1	0
2785:	0	0	0	1	0	0	0	0
2793:	0	0	0	0	0	0	2	0
2801:	0	1	0	0	0	0	0	0
2809:	0	0	2	0	0	0	0	0
2817:	0	1	0	0	0	0	1	0
2825:	0	1	0	0	0	1	0	0
2833:	0	0	0	0	1	0	1	0
2841:	0	0	0	1	0	1	0	0
2849:	2	0	0	0	1	1	0	1
2857:	0	0	0	0	1	1	0	0
2865:	0	0	0	0	1	0	1	1
2873:	0	0	0	0	0	1	0	0
2881:	0	1	0	0	0	0	2	0
2889:	1	0	2	0	0	1	0	0
2897:	0	0	0	1	0	0	0	0
2905:	0	0	0	1	0	1	0	0
2913:	1	0	0	0	0	0	0	0
2921:	0	0	0	1	1	0	0	0
2929:	0	1	1	0	0	0	0	0
2937:	0	0	0	0	0	0	0	1
2945:	0	0	0	0	0	0	2	0
2953:	0	0	0	1	0	1	1	0

2961: 1 1 0 0 0 0 0 0

Sample Title: CP3004S02-03

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

3393: 0 0 0 0 0 0 0 0 0

Sample Title: CP3004S02-03

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

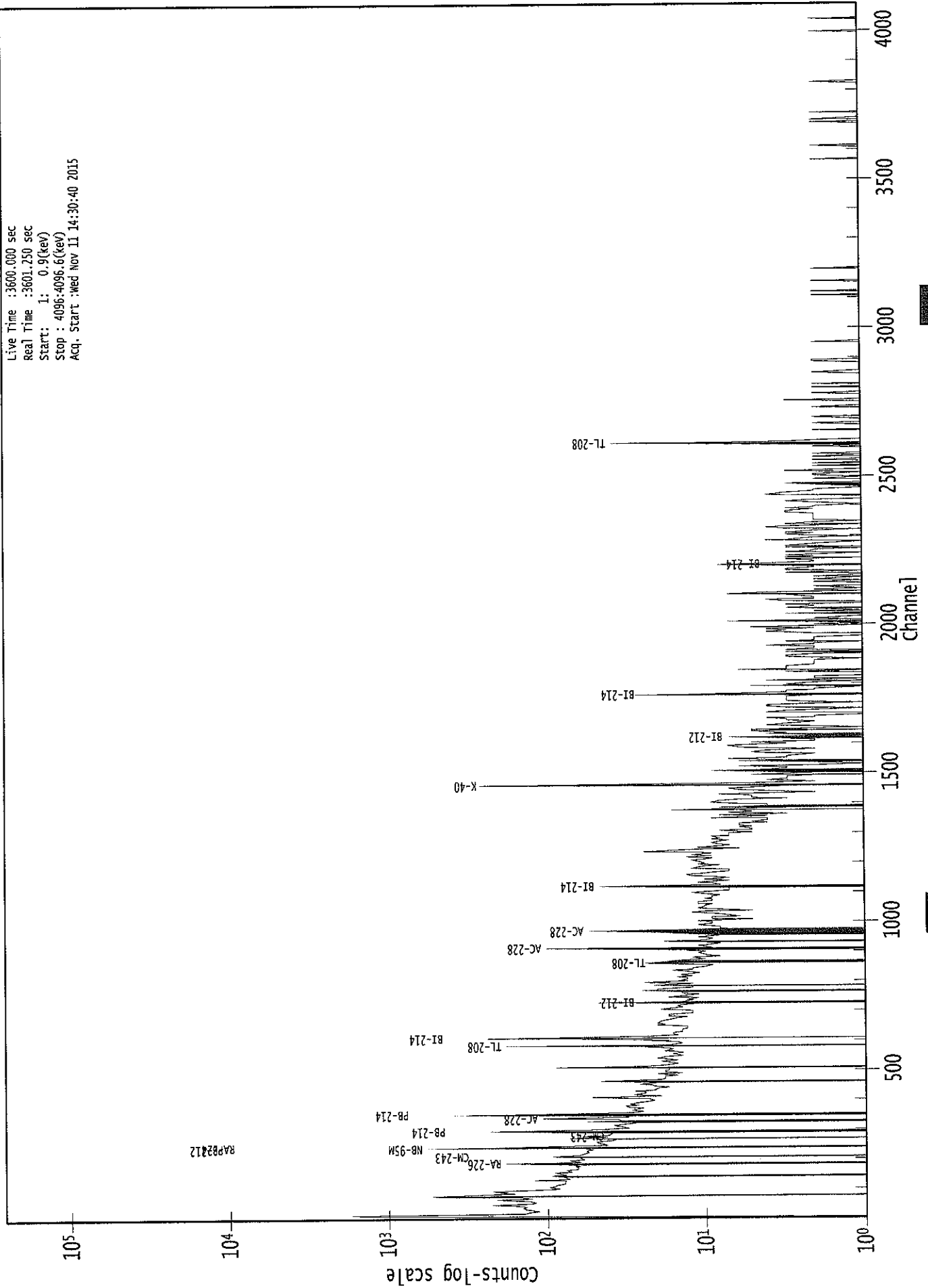
3825: 0 0 2 0 0 1 1 0

Sample Title: CP3004S02-03

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

# 0000029506.CNF

Live Time :3600.000 sec  
Real Time :3601.250 sec  
Start : 1: 0.9(kev)  
Stop : 4096:4096.6(kev)  
Acq. Start :wed Nov 11 14:30:40 2015



0000029506.CNF



KS  
11/11/15Analysis Report for 1510093-16  
CP3004S05-06

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-16  
Sample Description : CP3004S05-06  
Sample Type : SOIL

Sample Size : 5.825E+02 grams  
Facility : Countroom

Sample Taken On : 10/10/2015 7:33:53AM  
Acquisition Started : 11/11/2015 2:30:50PM

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 : 29507

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15

Analysis Report for 1510093-16  
CP3004S05-06

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 3:31:09PM  
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	74.94	75.15	0.0000	0.00
2	77.63	77.85	0.0000	0.00
3	87.94	88.15	0.0000	0.00
4	92.69	92.90	0.0000	0.00
5	125.97	126.16	0.0000	0.00
6	129.65	129.84	0.0000	0.00
7	186.08	186.24	0.0000	0.00
8	209.50	209.64	0.0000	0.00
9	239.00	239.13	0.0000	0.00
10	242.05	242.17	0.0000	0.00
11	270.16	270.27	0.0000	0.00
12	277.78	277.89	0.0000	0.00
13	295.70	295.80	0.0000	0.00
14	338.78	338.85	0.0000	0.00
15	352.37	352.44	0.0000	0.00
16	411.41	411.45	0.0000	0.00
17	462.85	462.86	0.0000	0.00
18	482.41	482.41	0.0000	0.00
19	511.60	511.59	0.0000	0.00
20	521.08	521.07	0.0000	0.00
21	583.89	583.84	0.0000	0.00
22	610.01	609.95	0.0000	0.00
23	727.90	727.79	0.0000	0.00
24	770.52	770.38	0.0000	0.00
25	776.60	776.46	0.0000	0.00
26	786.70	786.56	0.0000	0.00
27	795.55	795.41	0.0000	0.00
28	806.79	806.64	0.0000	0.00
29	860.93	860.76	0.0000	0.00
30	894.32	894.13	0.0000	0.00
31	912.17	911.98	0.0000	0.00
32	941.71	941.50	0.0000	0.00
33	965.27	965.05	0.0000	0.00
34	969.76	969.54	0.0000	0.00
35	1057.21	1056.95	0.0000	0.00
36	1120.52	1120.24	0.0000	0.00
37	1192.18	1191.86	0.0000	0.00
38	1225.74	1225.41	0.0000	0.00
39	1230.74	1230.41	0.0000	0.00
40	1238.64	1238.31	0.0000	0.00
41	1242.77	1242.44	0.0000	0.00
42	1269.05	1268.71	0.0000	0.00

Analysis Report for 1510093-16  
CP3004S05-06

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1375.63	1375.24	0.0000	0.00
44	1378.89	1378.50	0.0000	0.00
45	1402.14	1401.74	0.0000	0.00
46	1462.11	1461.68	0.0000	0.00
47	1510.94	1510.50	0.0000	0.00
48	1588.82	1588.35	0.0000	0.00
49	1594.16	1593.69	0.0000	0.00
50	1614.80	1614.33	0.0000	0.00
51	1620.30	1619.82	0.0000	0.00
52	1632.42	1631.94	0.0000	0.00
53	1638.62	1638.13	0.0000	0.00
54	1679.72	1679.22	0.0000	0.00
55	1731.04	1730.52	0.0000	0.00
56	1765.68	1765.15	0.0000	0.00
57	1783.72	1783.19	0.0000	0.00
58	1815.18	1814.64	0.0000	0.00
59	1849.06	1848.50	0.0000	0.00
60	1972.06	1971.46	0.0000	0.00
61	2080.06	2079.43	0.0000	0.00
62	2119.25	2118.61	0.0000	0.00
63	2128.65	2128.00	0.0000	0.00
64	2176.90	2176.24	0.0000	0.00
65	2205.49	2204.82	0.0000	0.00
66	2616.00	2615.22	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-16  
CP3004S05-06

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 3:31:09PM

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	74.94	71 -	81	75.15	5.09E+02	95.65	1.29E+03	1.66
m	2	77.63	71 -	81	77.85	7.32E+02	103.12	1.24E+03	1.67
M	3	87.94	83 -	104	88.15	2.82E+02	77.52	1.04E+03	1.68
m	4	92.69	83 -	104	92.90	2.85E+02	78.42	9.45E+02	1.69
M	5	125.97	125 -	134	126.16	5.52E+01	38.95	3.83E+02	1.75
m	6	129.65	125 -	134	129.84	8.26E+01	58.87	6.73E+02	1.75
	7	186.08	182 -	190	186.24	2.33E+02	86.04	9.99E+02	2.06
	8	209.50	206 -	213	209.64	9.35E+01	74.14	8.41E+02	1.68
M	9	239.00	234 -	245	239.13	8.98E+02	77.03	4.40E+02	1.89
m	10	242.05	234 -	245	242.17	2.08E+02	77.78	4.30E+02	1.84
	11	270.16	267 -	274	270.27	6.17E+01	57.69	5.17E+02	1.56
	12	277.78	274 -	281	277.89	6.97E+01	56.39	4.83E+02	3.65
	13	295.70	291 -	300	295.80	2.67E+02	77.78	7.16E+02	1.66
	14	338.78	335 -	343	338.85	1.91E+02	57.98	3.97E+02	1.45
	15	352.37	349 -	356	352.44	4.97E+02	63.37	3.41E+02	2.02
	16	411.41	407 -	416	411.45	8.71E+01	49.23	2.88E+02	6.44
	17	462.85	458 -	466	462.86	5.58E+01	40.60	2.16E+02	1.43
	18	482.41	479 -	486	482.41	4.98E+01	31.50	1.32E+02	5.17
	19	511.60	507 -	517	511.59	1.69E+02	48.46	2.15E+02	2.56
	20	521.08	518 -	526	521.07	2.92E+01	35.18	1.76E+02	2.97
	21	583.89	579 -	588	583.84	2.24E+02	48.98	2.15E+02	1.85
	22	610.01	605 -	615	609.95	3.85E+02	54.61	1.92E+02	1.91
	23	727.90	724 -	731	727.79	4.32E+01	33.35	1.58E+02	1.79
	24	770.52	766 -	774	770.38	4.64E+01	31.22	1.21E+02	5.11
	25	776.60	775 -	779	776.46	1.79E+01	18.38	5.82E+01	1.40
M	26	786.70	783 -	803	786.56	3.70E+01	22.07	8.30E+01	2.80
m	27	795.55	783 -	803	795.41	2.25E+01	27.42	1.07E+02	2.81
	28	806.79	803 -	809	806.64	2.23E+01	23.45	8.35E+01	2.88
	29	860.93	855 -	865	860.76	3.09E+01	35.17	1.48E+02	2.56
	30	894.32	892 -	896	894.13	1.43E+01	18.67	6.14E+01	2.56
	31	912.17	908 -	917	911.98	1.73E+02	37.80	1.06E+02	1.81
	32	941.71	932 -	953	941.50	4.45E+01	52.48	1.99E+02	12.63
M	33	965.27	963 -	973	965.05	2.79E+01	15.62	3.38E+01	2.07
m	34	969.76	963 -	973	969.54	9.89E+01	30.59	8.48E+01	2.66
	35	1057.21	1053 -	1060	1056.95	2.98E+01	20.59	4.84E+01	2.07
	36	1120.52	1114 -	1125	1120.24	8.11E+01	36.50	1.26E+02	2.60
	37	1192.18	1190 -	1194	1191.86	1.54E+01	16.70	4.92E+01	2.93
M	38	1225.74	1219 -	1232	1225.41	2.10E+01	32.86	1.22E+02	3.73
m	39	1230.74	1219 -	1232	1230.41	1.59E+01	16.24	3.57E+01	2.42
M	40	1238.64	1233 -	1245	1238.31	4.37E+01	24.74	6.05E+01	2.81

Analysis Report for 1510093-16  
CP3004S05-06

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1242.77	1233 -	1245	1242.44	1.65E+01	21.73	6.48E+01	3.67
	42	1269.05	1266 -	1273	1268.71	1.68E+01	18.33	4.63E+01	2.73
M	43	1375.63	1374 -	1383	1375.24	6.69E+00	6.08	9.82E+00	3.30
m	44	1378.89	1374 -	1383	1378.50	2.41E+01	18.61	4.04E+01	2.88
	45	1402.14	1399 -	1405	1401.74	1.15E+01	12.71	2.10E+01	1.37
	46	1462.11	1448 -	1479	1461.68	5.33E+02	59.53	6.68E+01	2.27
	47	1510.94	1504 -	1514	1510.50	1.30E+01	14.73	2.21E+01	4.32
M	48	1588.82	1586 -	1596	1588.35	1.07E+01	8.25	1.20E+01	3.29
m	49	1594.16	1586 -	1596	1593.69	1.28E+01	11.05	1.80E+01	2.59
M	50	1614.80	1613 -	1624	1614.33	7.41E+00	5.74	6.00E+00	4.39
m	51	1620.30	1613 -	1624	1619.82	7.65E+00	13.56	2.00E+01	3.30
	52	1632.42	1630 -	1634	1631.94	6.77E+00	8.31	8.45E+00	2.71
	53	1638.62	1636 -	1640	1638.13	6.50E+00	6.96	5.00E+00	2.66
	54	1679.72	1676 -	1682	1679.22	7.17E+00	6.95	3.67E+00	1.07
	55	1731.04	1725 -	1733	1730.52	1.44E+01	13.30	1.93E+01	2.17
	56	1765.68	1760 -	1770	1765.15	5.71E+01	16.44	5.78E+00	2.58
	57	1783.72	1780 -	1785	1783.19	8.60E+00	7.00	2.80E+00	1.65
	58	1815.18	1810 -	1817	1814.64	1.10E+01	6.63	0.00E+00	1.32
	59	1849.06	1845 -	1852	1848.50	7.00E+00	8.72	8.00E+00	4.25
	60	1972.06	1968 -	1974	1971.46	7.39E+00	6.95	3.22E+00	2.92
	61	2080.06	2075 -	2084	2079.43	1.40E+01	7.48	0.00E+00	3.00
	62	2119.25	2114 -	2123	2118.61	9.71E+00	8.54	4.58E+00	1.24
	63	2128.65	2125 -	2130	2128.00	5.00E+00	4.47	0.00E+00	2.98
	64	2176.90	2172 -	2180	2176.24	1.70E+01	8.25	0.00E+00	1.07
	65	2205.49	2201 -	2209	2204.82	1.37E+01	11.86	1.26E+01	1.80
	66	2616.00	2611 -	2618	2615.22	6.19E+01	16.49	4.17E+00	3.09

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 : 11/11/2015 3:31:09PM

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	74.94	71 -	81	5.09E+02	95.65	1.29E+03	5.91E+01
m	2	77.63	71 -	81	7.32E+02	103.12	1.24E+03	5.79E+01

Analysis Report for 1510093-16

CP3004S05-06

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>ROI start</b>	<b>ROI end</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Continuum Counts</b>	<b>Critical Level</b>
M	3	87.94	83 -	104	2.82E+02	77.52	1.04E+03	5.31E+01
m	4	92.69	83 -	104	2.85E+02	78.42	9.45E+02	5.05E+01
M	5	125.97	125 -	134	5.52E+01	38.95	3.83E+02	3.22E+01
m	6	129.65	125 -	134	8.26E+01	58.87	6.73E+02	4.26E+01
	7	186.08	182 -	190	2.33E+02	86.04	9.99E+02	6.61E+01
	8	209.50	206 -	213	9.35E+01	74.14	8.41E+02	5.88E+01
M	9	239.00	234 -	245	8.98E+02	77.03	4.40E+02	3.45E+01
m	10	242.05	234 -	245	2.08E+02	77.78	4.30E+02	3.41E+01
	11	270.16	267 -	274	6.17E+01	57.69	5.17E+02	4.56E+01
	12	277.78	274 -	281	6.97E+01	56.39	4.83E+02	4.43E+01
	13	295.70	291 -	300	2.67E+02	77.78	7.16E+02	5.80E+01
	14	338.78	335 -	343	1.91E+02	57.98	3.97E+02	4.19E+01
	15	352.37	349 -	356	4.97E+02	63.37	3.41E+02	3.70E+01
	16	411.41	407 -	416	8.71E+01	49.23	2.88E+02	3.74E+01
	17	462.85	458 -	466	5.58E+01	40.60	2.16E+02	3.10E+01
	18	482.41	479 -	486	4.98E+01	31.50	1.32E+02	2.31E+01
	19	511.60	507 -	517	1.69E+02	48.46	2.15E+02	3.36E+01
	20	521.08	518 -	526	2.92E+01	35.18	1.76E+02	2.75E+01
	21	583.89	579 -	588	2.24E+02	48.98	2.15E+02	3.19E+01
	22	610.01	605 -	615	3.85E+02	54.61	1.92E+02	3.12E+01
	23	727.90	724 -	731	4.32E+01	33.35	1.58E+02	2.52E+01
	24	770.52	766 -	774	4.64E+01	31.22	1.21E+02	2.31E+01
	25	776.60	775 -	779	1.79E+01	18.38	5.82E+01	1.34E+01
M	26	786.70	783 -	803	3.70E+01	22.07	8.30E+01	1.50E+01
m	27	795.55	783 -	803	2.25E+01	27.42	1.07E+02	1.70E+01
	28	806.79	803 -	809	2.23E+01	23.45	8.35E+01	1.76E+01
	29	860.93	855 -	865	3.09E+01	35.17	1.48E+02	2.74E+01
	30	894.32	892 -	896	1.43E+01	18.67	6.14E+01	1.40E+01
	31	912.17	908 -	917	1.73E+02	37.80	1.06E+02	2.23E+01
	32	941.71	932 -	953	4.45E+01	52.48	1.99E+02	4.17E+01
M	33	965.27	963 -	973	2.79E+01	15.62	3.38E+01	9.56E+00
m	34	969.76	963 -	973	9.89E+01	30.59	8.48E+01	1.51E+01
	35	1057.21	1053 -	1060	2.98E+01	20.59	4.84E+01	1.43E+01
	36	1120.52	1114 -	1125	8.11E+01	36.50	1.26E+02	2.61E+01
	37	1192.18	1190 -	1194	1.54E+01	16.70	4.92E+01	1.21E+01
M	38	1225.74	1219 -	1232	2.10E+01	32.86	1.22E+02	1.81E+01
m	39	1230.74	1219 -	1232	1.59E+01	16.24	3.57E+01	9.82E+00
M	40	1238.64	1233 -	1245	4.37E+01	24.74	6.05E+01	1.28E+01
m	41	1242.77	1233 -	1245	1.65E+01	21.73	6.48E+01	1.32E+01
	42	1269.05	1266 -	1273	1.68E+01	18.33	4.63E+01	1.35E+01
M	43	1375.63	1374 -	1383	6.69E+00	6.08	9.82E+00	5.15E+00
m	44	1378.89	1374 -	1383	2.41E+01	18.61	4.04E+01	1.04E+01
	45	1402.14	1399 -	1405	1.15E+01	12.71	2.10E+01	8.83E+00
	46	1462.11	1448 -	1479	5.33E+02	59.53	6.68E+01	1.09E+01
	47	1510.94	1504 -	1514	1.30E+01	14.73	2.21E+01	1.06E+01
M	48	1588.82	1586 -	1596	1.07E+01	8.25	1.20E+01	5.70E+00
m	49	1594.16	1586 -	1596	1.28E+01	11.05	1.80E+01	6.97E+00
M	50	1614.80	1613 -	1624	7.41E+00	5.74	6.00E+00	4.03E+00
m	51	1620.30	1613 -	1624	7.65E+00	13.56	2.00E+01	7.35E+00
	52	1632.42	1630 -	1634	6.77E+00	8.31	8.45E+00	5.32E+00
	53	1638.62	1636 -	1640	6.50E+00	6.96	5.00E+00	3.90E+00

Analysis Report for 1510093-16

CP3004S05-06

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
54	1679.72	1676 -	1682	7.17E+00	6.95	3.67E+00	3.64E+00
55	1731.04	1725 -	1733	1.44E+01	13.30	1.93E+01	8.99E+00
56	1765.68	1760 -	1770	5.71E+01	16.44	5.78E+00	5.32E+00
57	1783.72	1780 -	1785	8.60E+00	7.00	2.80E+00	3.14E+00
58	1815.18	1810 -	1817	1.10E+01	6.63	0.00E+00	0.00E+00
59	1849.06	1845 -	1852	7.00E+00	8.72	8.00E+00	5.70E+00
60	1972.06	1968 -	1974	7.39E+00	6.95	3.22E+00	3.55E+00
61	2080.06	2075 -	2084	1.40E+01	7.48	0.00E+00	0.00E+00
62	2119.25	2114 -	2123	9.71E+00	8.54	4.58E+00	4.80E+00
63	2128.65	2125 -	2130	5.00E+00	4.47	0.00E+00	0.00E+00
64	2176.90	2172 -	2180	1.70E+01	8.25	0.00E+00	0.00E+00
65	2205.49	2201 -	2209	1.37E+01	11.86	1.26E+01	7.63E+00
66	2616.00	2611 -	2618	6.19E+01	16.49	4.17E+00	4.06E+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 : 11/11/2015 3:31:09PM

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	74.94	71 -	81	75.15	5.09E+02	95.65	1.29E+03	AM-243
m	2	77.63	71 -	81	77.85	7.32E+02	103.12	1.24E+03	TI-44
M	3	87.94	83 -	104	88.15	2.82E+02	77.52	1.04E+03	CD-109
									SN-126
									LU-176
m	4	92.69	83 -	104	92.90	2.85E+02	78.42	9.45E+02	GA-67
M	5	125.97	125 -	134	126.16	5.52E+01	38.95	3.83E+02	HF-172
m	6	129.65	125 -	134	129.84	8.26E+01	58.87	6.73E+02	.....
	7	186.08	182 -	190	186.24	2.33E+02	86.04	9.99E+02	RA-226
	8	209.50	206 -	213	209.64	9.35E+01	74.14	8.41E+02	CM-243
									GA-67
M	9	239.00	234 -	245	239.13	8.98E+02	77.03	4.40E+02	PB-212

Analysis Report for 1510093-16

CP3004S05-06

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	10	242.05	234 -	245	242.17	2.08E+02	77.78	4.30E+02	.....
	11	270.16	267 -	274	270.27	6.17E+01	57.69	5.17E+02	.....
	12	277.78	274 -	281	277.89	6.97E+01	56.39	4.83E+02	CM-243 NP-239
	13	295.70	291 -	300	295.80	2.67E+02	77.78	7.16E+02	PB-214
	14	338.78	335 -	343	338.85	1.91E+02	57.98	3.97E+02	AC-228
	15	352.37	349 -	356	352.44	4.97E+02	63.37	3.41E+02	PB-214
	16	411.41	407 -	416	411.45	8.71E+01	49.23	2.88E+02	HO-166M
	17	462.85	458 -	466	462.86	5.58E+01	40.60	2.16E+02	SB-125
	18	482.41	479 -	486	482.41	4.98E+01	31.50	1.32E+02	.....
	19	511.60	507 -	517	511.59	1.69E+02	48.46	2.15E+02	.....
	20	521.08	518 -	526	521.07	2.92E+01	35.18	1.76E+02	RB-83
	21	583.89	579 -	588	583.84	2.24E+02	48.98	2.15E+02	TL-208
	22	610.01	605 -	615	609.95	3.85E+02	54.61	1.92E+02	BI-214
	23	727.90	724 -	731	727.79	4.32E+01	33.35	1.58E+02	BI-212
	24	770.52	766 -	774	770.38	4.64E+01	31.22	1.21E+02	.....
	25	776.60	775 -	779	776.46	1.79E+01	18.38	5.82E+01	RB-82
M	26	786.70	783 -	803	786.56	3.70E+01	22.07	8.30E+01	.....
m	27	795.55	783 -	803	795.41	2.25E+01	27.42	1.07E+02	CS-134
	28	806.79	803 -	809	806.64	2.23E+01	23.45	8.35E+01	.....
	29	860.93	855 -	865	860.76	3.09E+01	35.17	1.48E+02	TL-208
	30	894.32	892 -	896	894.13	1.43E+01	18.67	6.14E+01	.....
	31	912.17	908 -	917	911.98	1.73E+02	37.80	1.06E+02	LU-172
	32	941.71	932 -	953	941.50	4.45E+01	52.48	1.99E+02	.....
M	33	965.27	963 -	973	965.05	2.79E+01	15.62	3.38E+01	.....
m	34	969.76	963 -	973	969.54	9.89E+01	30.59	8.48E+01	AC-228
	35	1057.21	1053 -	1060	1056.95	2.98E+01	20.59	4.84E+01	.....
	36	1120.52	1114 -	1125	1120.24	8.11E+01	36.50	1.26E+02	SC-46 BI-214 TA-182
	37	1192.18	1190 -	1194	1191.86	1.54E+01	16.70	4.92E+01	.....
M	38	1225.74	1219 -	1232	1225.41	2.10E+01	32.86	1.22E+02	.....
m	39	1230.74	1219 -	1232	1230.41	1.59E+01	16.24	3.57E+01	EU-156 TA-182
M	40	1238.64	1233 -	1245	1238.31	4.37E+01	24.74	6.05E+01	CO-56
m	41	1242.77	1233 -	1245	1242.44	1.65E+01	21.73	6.48E+01	.....
	42	1269.05	1266 -	1273	1268.71	1.68E+01	18.33	4.63E+01	.....
M	43	1375.63	1374 -	1383	1375.24	6.69E+00	6.08	9.82E+00	.....
m	44	1378.89	1374 -	1383	1378.50	2.41E+01	18.61	4.04E+01	.....
	45	1402.14	1399 -	1405	1401.74	1.15E+01	12.71	2.10E+01	.....
	46	1462.11	1448 -	1479	1461.68	5.33E+02	59.53	6.68E+01	.....
	47	1510.94	1504 -	1514	1510.50	1.30E+01	14.73	2.21E+01	.....
M	48	1588.82	1586 -	1596	1588.35	1.07E+01	8.25	1.20E+01	.....
m	49	1594.16	1586 -	1596	1593.69	1.28E+01	11.05	1.80E+01	.....
M	50	1614.80	1613 -	1624	1614.33	7.41E+00	5.74	6.00E+00	.....
m	51	1620.30	1613 -	1624	1619.82	7.65E+00	13.56	2.00E+01	BI-212
	52	1632.42	1630 -	1634	1631.94	6.77E+00	8.31	8.45E+00	.....
	53	1638.62	1636 -	1640	1638.13	6.50E+00	6.96	5.00E+00	.....
	54	1679.72	1676 -	1682	1679.22	7.17E+00	6.95	3.67E+00	.....
	55	1731.04	1725 -	1733	1730.52	1.44E+01	13.30	1.93E+01	.....
	56	1765.68	1760 -	1770	1765.15	5.71E+01	16.44	5.78E+00	.....
	57	1783.72	1780 -	1785	1783.19	8.60E+00	7.00	2.80E+00	.....
	58	1815.18	1810 -	1817	1814.64	1.10E+01	6.63	0.00E+00	.....
	59	1849.06	1845 -	1852	1848.50	7.00E+00	8.72	8.00E+00	.....



Analysis Report for 1510093-16  
CP3004S05-06

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
60	1972.06	1968 -	1974	1971.46	7.39E+00	6.95	3.22E+00	.....
61	2080.06	2075 -	2084	2079.43	1.40E+01	7.48	0.00E+00	.....
62	2119.25	2114 -	2123	2118.61	9.71E+00	8.54	4.58E+00	.....
63	2128.65	2125 -	2130	2128.00	5.00E+00	4.47	0.00E+00	.....
64	2176.90	2172 -	2180	2176.24	1.70E+01	8.25	0.00E+00	.....
65	2205.49	2201 -	2209	2204.82	1.37E+01	11.86	1.26E+01	.....
66	2616.00	2611 -	2618	2615.22	6.19E+01	16.49	4.17E+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 : 11/11/2015 3:31:09PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	74.94	5.09E+02	95.65	2.36E-02	2.09E-03
m	2	77.63	7.32E+02	103.12	2.39E-02	2.18E-03
M	3	87.94	2.82E+02	77.52	2.44E-02	2.52E-03
m	4	92.69	2.85E+02	78.42	2.44E-02	2.42E-03
M	5	125.97	5.52E+01	38.95	2.28E-02	1.71E-03
m	6	129.65	8.26E+01	58.87	2.25E-02	1.69E-03
	7	186.08	2.33E+02	86.04	1.83E-02	1.42E-03
	8	209.50	9.35E+01	74.14	1.68E-02	1.31E-03
M	9	239.00	8.98E+02	77.03	1.52E-02	1.18E-03
m	10	242.05	2.08E+02	77.78	1.51E-02	1.17E-03
	11	270.16	6.17E+01	57.69	1.38E-02	1.04E-03
	12	277.78	6.97E+01	56.39	1.35E-02	1.00E-03
	13	295.70	2.67E+02	77.78	1.28E-02	9.73E-04
	14	338.78	1.91E+02	57.98	1.14E-02	9.12E-04
	15	352.37	4.97E+02	63.37	1.10E-02	8.93E-04
	16	411.41	8.71E+01	49.23	9.67E-03	8.18E-04
	17	462.85	5.58E+01	40.60	8.73E-03	7.66E-04
	18	482.41	4.98E+01	31.50	8.42E-03	7.47E-04
	19	511.60	1.69E+02	48.46	8.00E-03	7.18E-04
	20	521.08	2.92E+01	35.18	7.88E-03	7.08E-04
	21	583.89	2.24E+02	48.98	7.13E-03	6.45E-04
	22	610.01	3.85E+02	54.61	6.86E-03	6.19E-04
	23	727.90	4.32E+01	33.35	5.89E-03	5.14E-04

Analysis Report for 1510093-16  
CP3004S05-06

	<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Net Peak Area</b>	<b>Net Area Uncertainty</b>	<b>Peak Efficiency</b>	<b>Efficiency Uncertainty</b>
	24	770.52	4.64E+01	31.22	5.60E-03	4.79E-04
	25	776.60	1.79E+01	18.38	5.57E-03	4.74E-04
M	26	786.70	3.70E+01	22.07	5.50E-03	4.66E-04
m	27	795.55	2.25E+01	27.42	5.45E-03	4.58E-04
	28	806.79	2.23E+01	23.45	5.39E-03	4.49E-04
	29	860.93	3.09E+01	35.17	5.09E-03	4.05E-04
	30	894.32	1.43E+01	18.67	4.93E-03	3.78E-04
	31	912.17	1.73E+02	37.80	4.85E-03	3.72E-04
	32	941.71	4.45E+01	52.48	4.72E-03	3.67E-04
M	33	965.27	2.79E+01	15.62	4.62E-03	3.62E-04
m	34	969.76	9.89E+01	30.59	4.60E-03	3.61E-04
	35	1057.21	2.98E+01	20.59	4.28E-03	3.45E-04
	36	1120.52	8.11E+01	36.50	4.08E-03	3.33E-04
	37	1192.18	1.54E+01	16.70	3.87E-03	3.19E-04
M	38	1225.74	2.10E+01	32.86	3.79E-03	3.12E-04
m	39	1230.74	1.59E+01	16.24	3.77E-03	3.11E-04
M	40	1238.64	4.37E+01	24.74	3.75E-03	3.09E-04
m	41	1242.77	1.65E+01	21.73	3.74E-03	3.08E-04
	42	1269.05	1.68E+01	18.33	3.68E-03	3.02E-04
M	43	1375.63	6.69E+00	6.08	3.45E-03	2.82E-04
m	44	1378.89	2.41E+01	18.61	3.44E-03	2.82E-04
	45	1402.14	1.15E+01	12.71	3.40E-03	2.78E-04
	46	1462.11	5.33E+02	59.53	3.29E-03	2.69E-04
	47	1510.94	1.30E+01	14.73	3.21E-03	2.62E-04
M	48	1588.82	1.07E+01	8.25	3.09E-03	2.50E-04
m	49	1594.16	1.28E+01	11.05	3.08E-03	2.49E-04
M	50	1614.80	7.41E+00	5.74	3.05E-03	2.46E-04
m	51	1620.30	7.65E+00	13.56	3.04E-03	2.45E-04
	52	1632.42	6.77E+00	8.31	3.02E-03	2.44E-04
	53	1638.62	6.50E+00	6.96	3.02E-03	2.43E-04
	54	1679.72	7.17E+00	6.95	2.96E-03	2.37E-04
	55	1731.04	1.44E+01	13.30	2.90E-03	2.29E-04
	56	1765.68	5.71E+01	16.44	2.86E-03	2.24E-04
	57	1783.72	8.60E+00	7.00	2.84E-03	2.21E-04
	58	1815.18	1.10E+01	6.63	2.80E-03	2.16E-04
	59	1849.06	7.00E+00	8.72	2.76E-03	2.13E-04
	60	1972.06	7.39E+00	6.95	2.65E-03	2.13E-04
	61	2080.06	1.40E+01	7.48	2.55E-03	2.13E-04
	62	2119.25	9.71E+00	8.54	2.52E-03	2.13E-04
	63	2128.65	5.00E+00	4.47	2.52E-03	2.13E-04
	64	2176.90	1.70E+01	8.25	2.48E-03	2.13E-04
	65	2205.49	1.37E+01	11.86	2.46E-03	2.13E-04
	66	2616.00	6.19E+01	16.49	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 1510093-16  
CP3004S05-06

## BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/11/2015 3:31:09PM

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	74.94	5.09E+02	95.65		5.09E+02	9.57E+01
m	2	77.63	7.32E+02	103.12		7.32E+02	1.03E+02
M	3	87.94	2.82E+02	77.52	1.52E+01	5.37E+00	2.67E+02
m	4	92.69	2.85E+02	78.42	9.04E+01	2.62E+01	1.94E+02
M	5	125.97	5.52E+01	38.95		5.52E+01	3.90E+01
m	6	129.65	8.26E+01	58.87		8.26E+01	5.89E+01
	7	186.08	2.33E+02	86.04	3.93E+01	6.56E+00	1.93E+02
	8	209.50	9.35E+01	74.14		9.35E+01	7.41E+01
M	9	239.00	8.98E+02	77.03	1.34E+01	2.14E+00	8.85E+02
m	10	242.05	2.08E+02	77.78	2.69E+00	1.46E+00	2.05E+02
	11	270.16	6.17E+01	57.69		6.17E+01	5.77E+01
	12	277.78	6.97E+01	56.39		6.97E+01	5.64E+01
	13	295.70	2.67E+02	77.78		2.67E+02	7.78E+01
	14	338.78	1.91E+02	57.98		1.91E+02	5.80E+01
	15	352.37	4.97E+02	63.37	3.99E+00	4.73E+00	4.93E+02
	16	411.41	8.71E+01	49.23		8.71E+01	4.92E+01
	17	462.85	5.58E+01	40.60		5.58E+01	4.06E+01
	18	482.41	4.98E+01	31.50		4.98E+01	3.15E+01
	19	511.60	1.69E+02	48.46	5.78E+01	4.60E+00	1.12E+02
	20	521.08	2.92E+01	35.18		2.92E+01	3.52E+01
	21	583.89	2.24E+02	48.98	5.96E+00	3.46E+00	2.18E+02
	22	610.01	3.85E+02	54.61	6.71E+00	3.44E+00	3.78E+02
	23	727.90	4.32E+01	33.35		4.32E+01	3.33E+01
	24	770.52	4.64E+01	31.22		4.64E+01	3.12E+01
	25	776.60	1.79E+01	18.38		1.79E+01	1.84E+01
M	26	786.70	3.70E+01	22.07		3.70E+01	2.21E+01
m	27	795.55	2.25E+01	27.42		2.25E+01	2.74E+01
	28	806.79	2.23E+01	23.45		2.23E+01	2.35E+01
	29	860.93	3.09E+01	35.17		3.09E+01	3.52E+01
	30	894.32	1.43E+01	18.67		1.43E+01	1.87E+01
	31	912.17	1.73E+02	37.80		1.73E+02	3.78E+01
	32	941.71	4.45E+01	52.48		4.45E+01	5.25E+01
M	33	965.27	2.79E+01	15.62		2.79E+01	1.56E+01
m	34	969.76	9.89E+01	30.59		9.89E+01	3.06E+01
	35	1057.21	2.98E+01	20.59		2.98E+01	2.06E+01
	36	1120.52	8.11E+01	36.50	2.00E+00	2.20E+00	7.91E+01
	37	1192.18	1.54E+01	16.70		1.54E+01	1.67E+01
M	38	1225.74	2.10E+01	32.86		2.10E+01	3.29E+01
m	39	1230.74	1.59E+01	16.24		1.59E+01	1.62E+01
M	40	1238.64	4.37E+01	24.74		4.37E+01	2.47E+01
m	41	1242.77	1.65E+01	21.73		1.65E+01	2.17E+01
	42	1269.05	1.68E+01	18.33		1.68E+01	1.83E+01
M	43	1375.63	6.69E+00	6.08		6.69E+00	6.08E+00
m	44	1378.89	2.41E+01	18.61		2.41E+01	1.86E+01

Analysis Report for 1510093-16

CP3004S05-06

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	45	1402.14	1.15E+01	12.71		1.15E+01	1.27E+01
	46	1462.11	5.33E+02	59.53		5.33E+02	5.95E+01
	47	1510.94	1.30E+01	14.73		1.30E+01	1.47E+01
M	48	1588.82	1.07E+01	8.25		1.07E+01	8.25E+00
m	49	1594.16	1.28E+01	11.05		1.28E+01	1.10E+01
M	50	1614.80	7.41E+00	5.74		7.41E+00	5.74E+00
m	51	1620.30	7.65E+00	13.56		7.65E+00	1.36E+01
	52	1632.42	6.77E+00	8.31		6.77E+00	8.31E+00
	53	1638.62	6.50E+00	6.96		6.50E+00	6.96E+00
	54	1679.72	7.17E+00	6.95		7.17E+00	6.95E+00
	55	1731.04	1.44E+01	13.30		1.44E+01	1.33E+01
	56	1765.68	5.71E+01	16.44	1.45E+00	1.16E+00	5.57E+01
	57	1783.72	8.60E+00	7.00		8.60E+00	7.00E+00
	58	1815.18	1.10E+01	6.63		1.10E+01	6.63E+00
	59	1849.06	7.00E+00	8.72		7.00E+00	8.72E+00
	60	1972.06	7.39E+00	6.95		7.39E+00	6.95E+00
	61	2080.06	1.40E+01	7.48		1.40E+01	7.48E+00
	62	2119.25	9.71E+00	8.54		9.71E+00	8.54E+00
	63	2128.65	5.00E+00	4.47		5.00E+00	4.47E+00
	64	2176.90	1.70E+01	8.25		1.70E+01	8.25E+00
	65	2205.49	1.37E+01	11.86		1.37E+01	1.19E+01
	66	2616.00	6.19E+01	16.49		6.19E+01	1.65E+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 : 11/11/2015 3:31:09PM  
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	74.94	5.09E+02	95.65		5.09E+02	9.57E+01
m	2	77.63	7.32E+02	103.12		7.32E+02	1.03E+02
M	3	87.94	2.82E+02	77.52	1.52E+01	5.37E+00	2.67E+02
m	4	92.69	2.85E+02	78.42	9.04E+01	2.62E+01	1.94E+02
M	5	125.97	5.52E+01	38.95		5.52E+01	3.90E+01
m	6	129.65	8.26E+01	58.87		8.26E+01	5.89E+01

: 00914

Analysis Report for 1510093-16

CP3004S05-06

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	7	186.08	2.33E+02	86.04	3.93E+01	6.56E+00	1.93E+02	8.63E+01
	8	209.50	9.35E+01	74.14			9.35E+01	7.41E+01
M	9	239.00	8.98E+02	77.03	1.34E+01	2.14E+00	8.85E+02	7.71E+01
m	10	242.05	2.08E+02	77.78	2.69E+00	1.46E+00	2.05E+02	7.78E+01
	11	270.16	6.17E+01	57.69			6.17E+01	5.77E+01
	12	277.78	6.97E+01	56.39			6.97E+01	5.64E+01
	13	295.70	2.67E+02	77.78			2.67E+02	7.78E+01
	14	338.78	1.91E+02	57.98			1.91E+02	5.80E+01
	15	352.37	4.97E+02	63.37	3.99E+00	4.73E+00	4.93E+02	6.35E+01
	16	411.41	8.71E+01	49.23			8.71E+01	4.92E+01
	17	462.85	5.58E+01	40.60			5.58E+01	4.06E+01
	18	482.41	4.98E+01	31.50			4.98E+01	3.15E+01
	19	511.60	1.69E+02	48.46	5.78E+01	4.60E+00	1.12E+02	4.87E+01
	20	521.08	2.92E+01	35.18			2.92E+01	3.52E+01
	21	583.89	2.24E+02	48.98	5.96E+00	3.46E+00	2.18E+02	4.91E+01
	22	610.01	3.85E+02	54.61	6.71E+00	3.44E+00	3.78E+02	5.47E+01
	23	727.90	4.32E+01	33.35			4.32E+01	3.33E+01
	24	770.52	4.64E+01	31.22			4.64E+01	3.12E+01
	25	776.60	1.79E+01	18.38			1.79E+01	1.84E+01
M	26	786.70	3.70E+01	22.07			3.70E+01	2.21E+01
m	27	795.55	2.25E+01	27.42			2.25E+01	2.74E+01
	28	806.79	2.23E+01	23.45			2.23E+01	2.35E+01
	29	860.93	3.09E+01	35.17			3.09E+01	3.52E+01
	30	894.32	1.43E+01	18.67			1.43E+01	1.87E+01
	31	912.17	1.73E+02	37.80			1.73E+02	3.78E+01
	32	941.71	4.45E+01	52.48			4.45E+01	5.25E+01
M	33	965.27	2.79E+01	15.62			2.79E+01	1.56E+01
m	34	969.76	9.89E+01	30.59			9.89E+01	3.06E+01
	35	1057.21	2.98E+01	20.59			2.98E+01	2.06E+01
	36	1120.52	8.11E+01	36.50	2.00E+00	2.20E+00	7.91E+01	3.66E+01
	37	1192.18	1.54E+01	16.70			1.54E+01	1.67E+01
M	38	1225.74	2.10E+01	32.86			2.10E+01	3.29E+01
m	39	1230.74	1.59E+01	16.24			1.59E+01	1.62E+01
M	40	1238.64	4.37E+01	24.74			4.37E+01	2.47E+01
m	41	1242.77	1.65E+01	21.73			1.65E+01	2.17E+01
	42	1269.05	1.68E+01	18.33			1.68E+01	1.83E+01
M	43	1375.63	6.69E+00	6.08			6.69E+00	6.08E+00
m	44	1378.89	2.41E+01	18.61			2.41E+01	1.86E+01
	45	1402.14	1.15E+01	12.71			1.15E+01	1.27E+01
	46	1462.11	5.33E+02	59.53			5.33E+02	5.95E+01
	47	1510.94	1.30E+01	14.73			1.30E+01	1.47E+01
M	48	1588.82	1.07E+01	8.25			1.07E+01	8.25E+00
m	49	1594.16	1.28E+01	11.05			1.28E+01	1.10E+01
M	50	1614.80	7.41E+00	5.74			7.41E+00	5.74E+00
m	51	1620.30	7.65E+00	13.56			7.65E+00	1.36E+01
	52	1632.42	6.77E+00	8.31			6.77E+00	8.31E+00
	53	1638.62	6.50E+00	6.96			6.50E+00	6.96E+00
	54	1679.72	7.17E+00	6.95			7.17E+00	6.95E+00
	55	1731.04	1.44E+01	13.30			1.44E+01	1.33E+01
	56	1765.68	5.71E+01	16.44	1.45E+00	1.16E+00	5.57E+01	1.65E+01
	57	1783.72	8.60E+00	7.00			8.60E+00	7.00E+00
	58	1815.18	1.10E+01	6.63			1.10E+01	6.63E+00
	59	1849.06	7.00E+00	8.72			7.00E+00	8.72E+00
	60	1972.06	7.39E+00	6.95			7.39E+00	6.95E+00

Analysis Report for 1510093-16

CP3004S05-06

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
61	2080.06	1.40E+01	7.48			1.40E+01	7.48E+00
62	2119.25	9.71E+00	8.54			9.71E+00	8.54E+00
63	2128.65	5.00E+00	4.47			5.00E+00	4.47E+00
64	2176.90	1.70E+01	8.25			1.70E+01	8.25E+00
65	2205.49	1.37E+01	11.86			1.37E+01	1.19E+01
66	2616.00	6.19E+01	16.49			6.19E+01	1.65E+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
GA-67	0.357	93.31 *	35.70	2.76E+02	1.21E+03
		208.95 *	2.24	3.08E+03	1.32E+04
		300.22	16.00		
RB-82	0.991	776.52 *	13.00	7.65E-01	7.90E-01
CD-109	0.999	88.03 *	3.72	3.98E+00	1.25E+00
SN-126	0.978	87.57 *	37.00	3.81E-01	1.18E-01
HF-172	0.530	81.75	4.52		
		125.81 *	11.30	2.86E-01	2.03E-01
		583.14 *	30.22	1.30E+00	3.16E-01
TL-208	0.365	860.37 *	4.48	1.75E+00	1.99E+00
		2614.66	35.85		
BI-212	0.930	727.17 *	11.80	8.02E-01	6.23E-01
		1620.62 *	2.75	1.18E+00	2.09E+00
PB-212	0.876	238.63 *	44.60	1.68E+00	1.96E-01
		300.09	3.41		
BI-214	0.659	609.31 *	46.30	1.53E+00	2.62E-01
		1120.29 *	15.10	1.66E+00	7.78E-01
		1764.49	15.80		
PB-214	0.967	2204.22	4.98		
		295.21 *	19.19	1.40E+00	4.22E-01
		351.92 *	37.19	1.55E+00	2.35E-01
RA-226	0.997	186.21 *	3.28	4.16E+00	7.83E+00
AM-243	0.989	74.67 *	66.00	4.21E-01	8.74E-02
CM-243	0.367	209.75 *	3.29	2.19E+00	1.74E+00
		228.14	10.60		

: 00916

Analysis Report for 1510093-16  
CP3004S05-06

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.367	277.60 *	14.00	4.77E-01	3.88E-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 : 11/11/2015 3:31:09PM  
 Peak Locate From Channel : 1  
 Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.63	2.03316E-01	7.04	
m	6	129.65	2.29352E-02	35.65	
m	10	242.05	5.70636E-02	18.93	
	11	270.16	1.71267E-02	46.78	
	14	338.78	5.31481E-02	15.15	Tol. AC-228
	16	411.41	2.42027E-02	28.25	Tol. HO-166M
	17	462.85	1.55098E-02	36.36	Tol. SB-125
	18	482.41	1.38218E-02	31.65	Sum
	19	511.60	3.10148E-02	21.80	
	20	521.08	8.10897E-03	60.25	
	24	770.52	1.28959E-02	33.63	Sum
M	26	786.70	1.02773E-02	29.82	
m	27	795.55	6.24106E-03	61.03	Sum
	28	806.79	6.18490E-03	52.66	
	30	894.32	3.97222E-03	65.30	
	31	912.17	4.80740E-02	10.92	Tol. LU-172
	32	941.71	1.23573E-02	58.98	
M	33	965.27	7.74462E-03	28.01	
m	34	969.76	2.74795E-02	15.46	Tol. AC-228
	35	1057.21	8.28189E-03	34.53	
	37	1192.18	4.28472E-03	54.12	
M	38	1225.74	5.84315E-03	78.11	
m	39	1230.74	4.40877E-03	51.16	Tol. EU-156 TA-182
M	40	1238.64	1.21424E-02	28.30	
m	41	1242.77	4.57491E-03	65.96	
	42	1269.05	4.67708E-03	54.43	
M	43	1375.63	1.85719E-03	45.49	

Analysis Report for 1510093-16  
CP3004S05-06

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	44	1378.89	6.70206E-03	38.56		
	45	1402.14	3.19444E-03	55.25		
	46	1462.11	1.47938E-01	5.59		
	47	1510.94	3.59954E-03	56.84		
M	48	1588.82	2.96181E-03	38.67	Sum	
m	49	1594.16	3.54464E-03	43.28		
M	50	1614.80	2.05815E-03	38.77		
	52	1632.42	1.88131E-03	61.32		
	53	1638.62	1.80556E-03	53.57		
	54	1679.72	1.99074E-03	48.46		
	55	1731.04	3.99306E-03	46.28	Sum	
	56	1765.68	1.54598E-02	14.81		
	57	1783.72	2.38889E-03	40.70		
	58	1815.18	3.05556E-03	30.15		
	59	1849.06	1.94444E-03	62.27	Sum	
	60	1972.06	2.05247E-03	47.00	Sum	
	61	2080.06	3.88889E-03	26.73		
	62	2119.25	2.69676E-03	44.00		
	63	2128.65	1.38889E-03	44.72		
	64	2176.90	4.72222E-03	24.25		
	65	2205.49	3.79861E-03	43.38		
	66	2616.00	1.71984E-02	13.32		

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

## NUCLIDE IDENTIFICATION REPORT

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

### IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield(%)	Activity (pCi/grams)	Activity Uncertainty	
GA-67	0.35	93.31	*	35.70	2.76E+02	1.21E+03
		208.95	*	2.24	3.08E+03	1.32E+04
		300.22		16.00		
RB-82	0.99	776.52	*	13.00	7.65E-01	7.90E-01
CD-109	0.99	88.03	*	3.72	3.98E+00	1.25E+00
SN-126	0.97	87.57	*	37.00	3.81E-01	1.18E-01



Analysis Report for 1510093-16  
CP3004S05-06

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
HF-172	0.53	81.75	4.52		
		125.81 *	11.30	2.86E-01	2.03E-01
TL-208	0.36	583.14 *	30.22	1.30E+00	3.16E-01
		860.37 *	4.48	1.75E+00	1.99E+00
		2614.66	35.85		
BI-212	0.93	727.17 *	11.80	8.02E-01	6.23E-01
		1620.62 *	2.75	1.18E+00	2.09E+00
PB-212	0.87	238.63 *	44.60	1.68E+00	1.96E-01
		300.09	3.41		
BI-214	0.65	609.31 *	46.30	1.53E+00	2.62E-01
		1120.29 *	15.10	1.66E+00	7.78E-01
		1764.49	15.80		
		2204.22	4.98		
PB-214	0.96	295.21 *	19.19	1.40E+00	4.22E-01
		351.92 *	37.19	1.55E+00	2.35E-01
RA-226	0.99	186.21 *	3.28	4.16E+00	7.83E+00
AM-243	0.98	74.67 *	66.00	4.21E-01	8.74E-02
CM-243	0.36	209.75 *	3.29	2.19E+00	1.74E+00
		228.14	10.60		
		277.60 *	14.00	4.77E-01	3.88E-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

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
GA-67	0.357	2.81E+02	1.19E+03	
RB-82	0.991	7.65E-01	7.90E-01	
? CD-109	0.999	3.98E+00	1.25E+00	
? SN-126	0.978	3.81E-01	1.18E-01	
HF-172	0.530	2.86E-01	2.03E-01	
TL-208	0.365	1.31E+00	3.13E-01	
BI-212	0.930	8.33E-01	5.97E-01	

Analysis Report for 1510093-16  
CP3004S05-06

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
PB-212	0.876	1.68E+00	1.96E-01	
BI-214	0.659	1.55E+00	2.48E-01	
PB-214	0.967	1.51E+00	2.06E-01	
RA-226	0.997	4.16E+00	7.83E+00	
AM-243	0.989	4.21E-01	8.74E-02	
CM-243	0.367	5.48E-01	3.78E-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 1510093-16  
CP3004S05-06

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 3:31:09PM  
Peak Locate From Channel : 1  
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.63	2.03316E-01	7.04	
m	6	129.65	2.29352E-02	35.65	
m	10	242.05	5.70636E-02	18.93	
	11	270.16	1.71267E-02	46.78	
	14	338.78	5.31481E-02	15.15	Tol. AC-228
	16	411.41	2.42027E-02	28.25	Tol. HO-166M
	17	462.85	1.55098E-02	36.36	Tol. SB-125
	18	482.41	1.38218E-02	31.65	Sum
	19	511.60	3.10148E-02	21.80	
	20	521.08	8.10897E-03	60.25	
	24	770.52	1.28959E-02	33.63	Sum
M	26	786.70	1.02773E-02	29.82	
m	27	795.55	6.24106E-03	61.03	Sum
	28	806.79	6.18490E-03	52.66	
	30	894.32	3.97222E-03	65.30	
	31	912.17	4.80740E-02	10.92	Tol. LU-172
	32	941.71	1.23573E-02	58.98	
M	33	965.27	7.74462E-03	28.01	
m	34	969.76	2.74795E-02	15.46	Tol. AC-228
	35	1057.21	8.28189E-03	34.53	
	37	1192.18	4.28472E-03	54.12	
M	38	1225.74	5.84315E-03	78.11	
m	39	1230.74	4.40877E-03	51.16	Tol. EU-156 TA-182
M	40	1238.64	1.21424E-02	28.30	
m	41	1242.77	4.57491E-03	65.96	
	42	1269.05	4.67708E-03	54.43	
M	43	1375.63	1.85719E-03	45.49	
m	44	1378.89	6.70206E-03	38.56	
	45	1402.14	3.19444E-03	55.25	
	46	1462.11	1.47938E-01	5.59	
	47	1510.94	3.59954E-03	56.84	
M	48	1588.82	2.96181E-03	38.67	Sum
m	49	1594.16	3.54464E-03	43.28	
M	50	1614.80	2.05815E-03	38.77	

Analysis Report for 1510093-16  
CP3004S05-06

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	1632.42	1.88131E-03	61.32		
53	1638.62	1.80556E-03	53.57		
54	1679.72	1.99074E-03	48.46		
55	1731.04	3.99306E-03	46.28	Sum	
56	1765.68	1.54598E-02	14.81		
57	1783.72	2.38889E-03	40.70		
58	1815.18	3.05556E-03	30.15		
59	1849.06	1.94444E-03	62.27	Sum	
60	1972.06	2.05247E-03	47.00	Sum	
61	2080.06	3.88889E-03	26.73		
62	2119.25	2.69676E-03	44.00		
63	2128.65	1.38889E-03	44.72		
64	2176.90	4.72222E-03	24.25		
65	2205.49	3.79861E-03	43.38		
66	2616.00	1.71984E-02	13.32		

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	1.11E-01	1.05E+00	1.05E+00
+	NA-22	1274.54	99.94	3.59E-02	1.21E-01	1.21E-01
+	NA-24	1368.53	99.99	1.38E+14	5.83E+13	3.65E+14
		2754.09	99.86	0.00E+00		5.83E+13
+	AL-26	1808.65	99.76	-1.28E-02	6.03E-02	6.03E-02
+	K-40	1460.81	10.67	1.79E+01	3.98E+00	3.98E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	1.70E-02	7.88E-02	7.88E-02
		78.34	96.00	2.17E-01		9.61E-02
+	SC-46	889.25	99.98	-3.27E-02	1.24E-01	1.24E-01
		1120.51	99.99	2.58E-01		2.14E-01
+	V-48	983.52	99.98	2.64E-01	4.22E-01	4.22E-01
		1312.10	97.50	-2.03E-01		4.59E-01

Analysis Report for 1510093-16  
CP3004S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	CR-51	320.08	9.83	-2.91E-02	1.67E+00	1.67E+00
+	MN-54	834.83	99.97	5.06E-02	1.10E-01	1.10E-01
+	CO-56	846.75	99.96	4.66E-02	1.18E-01	1.18E-01
		1037.75	14.03	-2.60E-01		8.92E-01
		1238.25	67.00	1.68E-01		3.05E-01
		1771.40	15.51	2.70E-02		8.91E-01
		2598.48	16.90	1.35E-01		4.86E-01
+	CO-57	122.06	85.51	-1.15E-03	6.59E-02	6.59E-02
		136.48	10.60	1.42E-01		5.60E-01
+	CO-58	810.76	99.40	-3.64E-03	1.17E-01	1.17E-01
+	FE-59	1099.22	56.50	4.55E-02	3.15E-01	3.15E-01
		1291.56	43.20	-1.87E-01		4.21E-01
+	CO-60	1173.22	100.00	-9.45E-03	1.08E-01	1.16E-01
		1332.49	100.00	-3.74E-03		1.08E-01
+	ZN-65	1115.52	50.75	-1.79E-02	2.33E-01	2.33E-01
+	GA-67	93.31	* 35.70	2.76E+02	4.96E+02	5.26E+02
		208.95	* 2.24	3.08E+03		3.96E+03
		300.22	16.00	-1.75E+01		4.96E+02
+	SE-75	121.11	16.70	2.37E-01	1.07E-01	3.83E-01
		136.00	59.20	-2.79E-02		1.07E-01
		264.65	59.80	-1.77E-02		1.30E-01
		279.53	25.20	-5.17E-02		3.61E-01
		400.65	11.40	-1.18E-01		8.48E-01
+	RB-82	776.52	* 13.00	7.65E-01	1.27E+00	1.27E+00
+	RB-83	520.41	46.00	4.12E-02	2.16E-01	2.16E-01
		529.64	30.30	6.85E-02		3.28E-01
		552.65	16.40	8.18E-02		6.21E-01
+	KR-85	513.99	0.43	3.71E+01	2.57E+01	2.57E+01
+	SR-85	513.99	99.27	2.28E-01	1.58E-01	1.58E-01
+	Y-88	898.02	93.40	6.93E-03	9.60E-02	1.27E-01
		1836.01	99.38	9.39E-03		9.60E-02
+	NB-93M	16.57	9.43	3.78E+01	8.38E+01	8.38E+01
+	NB-94	702.63	100.00	1.81E-02	9.63E-02	9.63E-02
		871.10	100.00	3.77E-02		1.02E-01
+	NB-95	765.79	99.81	4.34E-02	1.88E-01	1.88E-01
+	NB-95M	235.69	25.00	5.02E+02	2.36E+02	2.36E+02
+	ZR-95	724.18	43.70	1.42E-02	2.20E-01	3.12E-01
		756.72	55.30	9.50E-02		2.20E-01
+	MO-99	181.06	6.20	3.06E+00	2.45E+03	3.00E+03
		739.58	12.80	7.49E+01		2.45E+03
		778.00	4.50	-2.95E+02		6.80E+03
+	RU-103	497.08	89.00	-5.91E-02	1.39E-01	1.39E-01
+	RU-106	621.84	9.80	-7.51E-02	9.07E-01	9.07E-01
+	AG-108M	433.93	89.90	-3.81E-02	8.03E-02	8.03E-02
		614.37	90.40	-1.46E-02		1.22E-01
		722.95	90.50	6.20E-03		9.68E-02
+	CD-109	88.03	* 3.72	3.98E+00	5.47E+00	5.47E+00

Analysis Report for 1510093-16  
CP3004S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	AG-110M	657.75	93.14	-1.16E-01	8.54E-02	8.54E-02
		677.61	10.53	5.02E-01		9.69E-01
		706.67	16.46	-1.34E-01		6.40E-01
		763.93	21.98	8.78E-02		4.12E-01
		884.67	71.63	2.96E-02		1.47E-01
		1384.27	23.94	-5.14E-02		4.53E-01
+	CD-113M	263.70	0.02	-5.72E+01	2.82E+02	2.82E+02
+	SN-113	255.12	1.93	-9.55E-01	1.42E-01	4.40E+00
		391.69	64.90	-9.76E-03		1.42E-01
+	TE123M	159.00	84.10	-2.56E-02	8.20E-02	8.20E-02
+	SB-124	602.71	97.87	4.75E-02	1.22E-01	1.22E-01
		645.85	7.26	3.33E-01		1.61E+00
		722.78	11.10	7.32E-02		1.14E+00
		1691.02	49.00	1.32E-01		2.76E-01
+	I-125	35.49	6.49	-1.53E+00	3.46E+00	3.46E+00
+	SB-125	176.33	6.89	1.22E-01	2.56E-01	8.57E-01
		427.89	29.33	-9.33E-02		2.56E-01
		463.38	10.35	4.78E-01		8.23E-01
		600.56	17.80	-3.61E-02		4.60E-01
		635.90	11.32	-1.67E-01		7.22E-01
+	SB-126	414.70	83.30	-1.02E-01	5.28E-01	5.35E-01
		666.33	99.60	9.70E-02		5.36E-01
		695.00	99.60	-1.55E-01		5.28E-01
		720.50	53.80	1.76E-01		1.05E+00
+	SN-126	87.57	*	37.00	3.81E-01	5.24E-01
+	SB-127	473.00	25.00	2.43E+01	8.30E+01	9.76E+01
		685.20	35.70	-2.11E+01		8.30E+01
		783.80	14.70	-2.99E+01		2.10E+02
+	I-129	29.78	57.00	-1.12E-01	4.70E-01	4.70E-01
		33.60	13.20	-9.04E-01		1.36E+00
		39.58	7.52	-1.11E+00		1.60E+00
+	I-131	284.30	6.05	-6.76E+00	1.41E+00	1.86E+01
		364.48	81.20	4.19E-03		1.41E+00
		636.97	7.26	4.63E+00		1.85E+01
		722.89	1.80	5.05E+00		7.88E+01
+	TE-132	49.72	13.10	-1.20E+03	8.24E+01	6.20E+02
		228.16	88.00	5.35E+01		8.24E+01
+	BA-133	81.00	33.00	-1.14E+00	1.91E-01	1.93E-01
		302.84	17.80	-6.47E-03		4.22E-01
		356.01	60.00	3.06E-02		1.91E-01
+	I-133	529.87	86.30	3.10E+09	1.48E+10	1.48E+10
+	XE-133	81.00	38.00	-7.05E+01	1.19E+01	1.19E+01
+	CS-134	563.23	8.38	8.19E-02	8.82E-02	1.03E+00
		569.32	15.43	2.36E-02		5.38E-01
		604.70	97.60	6.49E-03		8.82E-02
		795.84	85.40	4.45E-02		1.21E-01
		801.93	8.73	-6.39E-01		1.04E+00
+	CS-135	268.24	16.00	-6.69E-03	4.61E-01	4.61E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1510093-16  
CP3004S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
@	I-135	1260.41	28.60	1.00E+26	1.00E+26	1.00E+26
@		1678.03	9.54	0.00E+00		1.00E+26
+	CS-136	153.22	7.46	-1.18E+00	4.70E-01	4.24E+00
		163.89	4.61	-7.93E-01		6.72E+00
		176.55	13.56	3.97E-01		2.32E+00
		273.65	12.66	-2.50E+00		3.26E+00
		340.57	48.50	2.13E+00		1.12E+00
		818.50	99.70	-4.84E-02		4.70E-01
		1048.07	79.60	6.18E-02		6.47E-01
		1235.34	19.70	-2.04E+00		3.61E+00
+	CS-137	661.65	85.12	-1.01E-02	9.94E-02	9.94E-02
+	LA-138	788.74	34.00	1.21E-01	1.35E-01	2.95E-01
		1435.80	66.00	-6.22E-02		1.35E-01
+	CE-139	165.85	80.35	2.74E-02	8.43E-02	8.43E-02
+	BA-140	162.64	6.70	-8.34E-01	1.69E+00	4.86E+00
		304.84	4.50	-4.39E+00		8.88E+00
		423.70	3.20	5.56E-01		1.38E+01
		437.55	2.00	-1.93E+00		2.24E+01
		537.32	25.00	-7.30E-02		1.69E+00
+	LA-140	328.77	20.50	1.05E+00	6.45E-01	2.18E+00
		487.03	45.50	6.58E-02		9.53E-01
		815.85	23.50	2.46E-01		2.07E+00
		1596.49	95.49	1.52E-01		6.45E-01
+	CE-141	145.44	48.40	1.34E-02	2.31E-01	2.31E-01
+	CE-143	57.36	11.80	2.01E+06	2.90E+06	7.91E+06
		293.26	42.00	4.72E+06		2.90E+06
		664.55	5.20	1.52E+07		2.11E+07
+	CE-144	133.54	10.80	2.00E-02	5.32E-01	5.32E-01
+	PM-144	476.78	42.00	3.20E-03	8.70E-02	1.79E-01
		618.01	98.60	-1.77E-02		8.70E-02
		696.49	99.49	-1.31E-02		9.13E-02
+	PM-145	36.85	21.70	-2.39E-01	3.58E-01	6.56E-01
		37.36	39.70	2.56E-01		3.58E-01
		42.30	15.10	-5.26E-01		7.04E-01
		72.40	2.31	-4.65E+00		3.68E+00
+	PM-146	453.90	39.94	-7.04E-02	1.77E-01	1.77E-01
		735.90	14.01	1.22E-01		6.86E-01
		747.13	13.10	8.18E-02		6.70E-01
+	ND-147	91.11	28.90	-1.08E+00	1.96E+00	1.96E+00
		531.02	13.10	1.42E+00		4.43E+00
+	PM-149	285.90	3.10	1.85E+04	5.73E+04	5.73E+04
+	EU-152	121.78	20.50	-4.43E-03	2.54E-01	2.54E-01
		244.69	5.40	1.47E-01		1.61E+00
		344.27	19.13	5.99E-02		3.74E-01
		778.89	9.20	-1.36E-01		9.51E-01
		964.01	10.40	-2.69E-02		1.03E+00
		1085.78	7.22	-5.64E-01		1.39E+00
		1112.02	9.60	3.50E-01		1.15E+00
		1407.95	14.94	2.44E-01		6.64E-01

Analysis Report for 1510093-16  
CP3004S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	GD-153	97.43	31.30	-2.16E-01	1.86E-01	1.86E-01
		103.18	22.20	-1.70E-01		2.59E-01
+	EU-154	123.07	40.50	4.96E-03	1.27E-01	1.27E-01
		723.30	19.70	2.87E-02		4.48E-01
		873.19	11.50	1.10E-01		8.69E-01
		996.32	10.30	-1.93E-01		8.36E-01
		1004.76	17.90	3.75E-02		5.16E-01
		1274.45	35.50	9.93E-02		3.35E-01
+	EU-155	86.50	30.90	1.43E-01	2.40E-01	2.40E-01
		105.30	20.70	6.42E-02		2.66E-01
+	EU-156	811.77	10.40	-2.02E+00	3.17E+00	3.17E+00
		1153.47	7.20	2.53E-01		7.12E+00
		1230.71	8.90	-3.68E+00		5.45E+00
+	HO-166M	184.41	72.60	2.10E-01	1.04E-01	1.04E-01
		280.45	29.60	-5.88E-02		2.46E-01
		410.94	11.10	4.90E-01		7.73E-01
		711.69	54.10	6.32E-02		1.87E-01
+	TM-171	66.72	0.14	-6.50E+01	5.61E+01	5.61E+01
+	HF-172	81.75	4.52	-5.90E+00	7.51E-01	1.44E+00
		125.81	* 11.30	2.86E-01		7.51E-01
+	LU-172	181.53	20.60	3.73E-01	4.61E+00	7.69E+00
		810.06	16.63	1.34E+00		1.53E+01
		912.12	15.25	7.67E+01		3.42E+01
		1093.66	62.50	-1.28E+00		4.61E+00
+	LU-173	100.72	5.24	6.81E-01	3.86E-01	1.09E+00
		272.11	21.20	2.09E-01		3.86E-01
+	HF-175	343.40	84.00	-7.47E-03	1.24E-01	1.24E-01
+	LU-176	88.34	13.30	4.54E-01	7.38E-02	5.80E-01
		201.83	86.00	4.20E-02		8.66E-02
		306.78	94.00	3.57E-02		7.38E-02
+	TA-182	67.75	41.20	4.74E-02	2.20E-01	2.20E-01
		1121.30	34.90	7.51E-01		5.70E-01
		1189.05	16.23	-7.17E-02		8.78E-01
		1221.41	26.98	-2.26E-01		5.97E-01
		1231.02	11.44	-5.99E-01		1.17E+00
+	IR-192	308.46	29.68	-5.29E-02	1.97E-01	3.03E-01
		468.07	48.10	7.00E-02		1.97E-01
+	HG-203	279.19	77.30	1.08E-01	1.59E-01	1.59E-01
+	BI-207	569.67	97.72	-1.40E-02	8.04E-02	8.04E-02
		1063.62	74.90	-8.68E-02		1.05E-01
+	TL-208	583.14	* 30.22	1.30E+00	4.02E-01	4.02E-01
		860.37	* 4.48	1.75E+00		3.25E+00
		2614.66	35.85	9.95E-01		6.46E-01
+	BI-210M	262.00	45.00	-5.74E-03	1.49E-01	1.49E-01
		300.00	23.00	-1.26E-02		3.59E-01
+	PB-210	46.50	4.25	8.93E-01	2.36E+00	2.36E+00
+	PB-211	404.84	2.90	1.21E+00	2.90E+00	2.90E+00
		831.96	2.90	-2.16E+00		3.26E+00



Analysis Report for 1510093-16  
CP3004S05-06

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BI-212	727.17	*	11.80	8.02E-01	9.86E-01	9.86E-01
		1620.62	*	2.75	1.18E+00		3.86E+00
+	PB-212	238.63	*	44.60	1.68E+00	2.51E-01	2.51E-01
		300.09		3.41	-8.53E-02		2.42E+00
+	BI-214	609.31	*	46.30	1.53E+00	2.68E-01	2.68E-01
		1120.29	*	15.10	1.66E+00		1.16E+00
		1764.49		15.80	1.37E+00		1.10E+00
		2204.22		4.98	9.46E-01		2.53E+00
+	PB-214	295.21	*	19.19	1.40E+00	2.43E-01	6.23E-01
		351.92	*	37.19	1.55E+00		2.43E-01
+	RN-219	401.80		6.50	5.99E-01	1.28E+00	1.28E+00
+	RA-223	323.87		3.88	-2.79E+00	1.85E+00	1.85E+00
+	RA-224	240.98		3.95	2.25E+01	3.72E+00	3.72E+00
+	RA-225	40.00		31.00	-1.19E+00	1.72E+00	1.72E+00
+	RA-226	186.21	*	3.28	4.16E+00	2.95E+00	2.95E+00
+	TH-227	50.10		8.40	-1.92E+00	9.90E-01	9.90E-01
		236.00		11.50	2.21E+00		1.04E+00
		256.20		6.30	-2.54E-01		1.11E+00
+	AC-228	338.32		11.40	1.71E+00	6.55E-01	8.80E-01
		911.07		27.70	1.41E+00		6.55E-01
		969.11		16.60	1.47E+00		1.01E+00
+	TH-230	48.44		16.90	4.21E-01	5.58E-01	5.58E-01
		62.85		4.60	1.18E+00		1.84E+00
		67.67		0.37	4.34E+00		2.01E+01
+	PA-231	283.67		1.60	-1.57E+00	3.24E+00	4.33E+00
		302.67		2.30	-4.97E-02		3.24E+00
+	TH-231	25.64		14.70	1.16E+00	9.97E-01	3.58E+00
		84.21		6.40	-2.38E+00		9.97E-01
+	PA-233	311.98		38.60	-2.20E-01	3.88E-01	3.88E-01
+	PA-234	131.20		20.40	2.21E-01	2.86E-01	2.86E-01
		733.99		8.80	-3.28E-02		1.06E+00
		946.00		12.00	-1.94E-01		7.75E-01
+	PA-234M	1001.03		0.92	5.17E-01	9.93E+00	9.93E+00
+	TH-234	63.29		3.80	2.94E+00	2.24E+00	2.24E+00
+	U-235	143.76		10.50	2.18E-01	5.41E-01	5.41E-01
		163.35		4.70	-1.42E-01		1.20E+00
		205.31		4.70	-2.44E-01		1.58E+00
+	NP-237	86.50		12.60	3.46E-01	5.82E-01	5.82E-01
+	NP-239	106.10		22.70	2.49E+02	3.16E+03	3.16E+03
		228.18		10.70	6.15E+03		9.46E+03
		277.60		14.10	6.87E+03		7.37E+03
+	AM-241	59.54		35.90	-9.71E-02	2.20E-01	2.20E-01
+	AM-243	74.67	*	66.00	4.21E-01	1.85E-01	1.85E-01
+	CM-243	209.75	*	3.29	2.19E+00	6.25E-01	2.81E+00
		228.14		10.60	4.61E-01		7.09E-01
		277.60	*	14.00	4.77E-01		6.25E-01

Analysis Report for 1510093-16  
CP3004S05-06

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

## NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.05E+00	1.05E+00	1.11E-01	4.94E-01
NA-22	1274.54	99.94	1.21E-01	1.21E-01	3.59E-02	5.55E-02
NA-24	1368.53	99.99	3.65E+14	5.83E+13	1.38E+14	1.64E+14
	2754.09	99.86	5.83E+13		0.00E+00	0.00E+00
AL-26	1808.65	99.76	6.03E-02	6.03E-02	-1.28E-02	2.39E-02
K-40	1460.81	10.67	3.98E+00	3.98E+00	1.79E+01	1.94E+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	7.88E-02	7.88E-02	1.70E-02	3.86E-02
	78.34	96.00	9.61E-02		2.17E-01	4.73E-02
SC-46	889.25	99.98	1.24E-01	1.24E-01	-3.27E-02	5.76E-02
	1120.51	99.99	2.14E-01		2.58E-01	1.01E-01
V-48	983.52	99.98	4.22E-01	4.22E-01	2.64E-01	1.95E-01
	1312.10	97.50	4.59E-01		-2.03E-01	2.09E-01
CR-51	320.08	9.83	1.67E+00	1.67E+00	-2.91E-02	8.02E-01
MN-54	834.83	99.97	1.10E-01	1.10E-01	5.06E-02	5.15E-02
CO-56	846.75	99.96	1.18E-01	1.18E-01	4.66E-02	5.46E-02
	1037.75	14.03	8.92E-01		-2.60E-01	4.08E-01
	1238.25	67.00	3.05E-01		1.68E-01	1.43E-01
	1771.40	15.51	8.91E-01		2.70E-02	3.93E-01
	2598.48	16.90	4.86E-01		1.35E-01	1.82E-01
CO-57	122.06	85.51	6.59E-02	6.59E-02	-1.15E-03	3.20E-02
	136.48	10.60	5.60E-01		1.42E-01	2.72E-01
CO-58	810.76	99.40	1.17E-01	1.17E-01	-3.64E-03	5.40E-02
FE-59	1099.22	56.50	3.15E-01	3.15E-01	4.55E-02	1.45E-01
	1291.56	43.20	4.21E-01		-1.87E-01	1.92E-01
CO-60	1173.22	100.00	1.16E-01	1.08E-01	-9.45E-03	5.36E-02
	1332.49	100.00	1.08E-01		-3.74E-03	4.92E-02
ZN-65	1115.52	50.75	2.33E-01	2.33E-01	-1.79E-02	1.07E-01
+ GA-67	93.31	* 35.70	5.26E+02	4.96E+02	2.76E+02	2.61E+02

Analysis Report for 1510093-16  
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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	3.96E+03	4.96E+02	3.08E+03
	300.22		16.00	4.96E+02		-1.75E+01
SE-75	121.11		16.70	3.83E-01	1.07E-01	2.37E-01
	136.00		59.20	1.07E-01		-2.79E-02
	264.65		59.80	1.30E-01		-1.77E-02
	279.53		25.20	3.61E-01		-5.17E-02
	400.65		11.40	8.48E-01		-1.18E-01
+ RB-82	776.52	*	13.00	1.27E+00	1.27E+00	7.65E-01
	RB-83		46.00	2.16E-01	2.16E-01	4.12E-02
	529.64		30.30	3.28E-01		6.85E-02
	552.65		16.40	6.21E-01		8.18E-02
	KR-85		0.43	2.57E+01	2.57E+01	3.71E+01
SR-85		99.27	1.58E-01	1.58E-01	2.28E-01	7.59E-02
Y-88	898.02		93.40	1.27E-01	9.60E-02	6.93E-03
	1836.01		99.38	9.60E-02		9.39E-03
NB-93M	16.57		9.43	8.38E+01	8.38E+01	3.78E+01
NB-94	702.63		100.00	9.63E-02	9.63E-02	1.81E-02
	871.10		100.00	1.02E-01		3.77E-02
NB-95	765.79		99.81	1.88E-01	1.88E-01	4.34E-02
NB-95M	235.69		25.00	2.36E+02	2.36E+02	5.02E+02
ZR-95	724.18		43.70	3.12E-01	2.20E-01	1.42E-02
	756.72		55.30	2.20E-01		9.50E-02
MO-99	181.06		6.20	3.00E+03	2.45E+03	3.06E+00
	739.58		12.80	2.45E+03		7.49E+01
	778.00		4.50	6.80E+03		-2.95E+02
RU-103	497.08		89.00	1.39E-01	1.39E-01	-5.91E-02
RU-106	621.84		9.80	9.07E-01	9.07E-01	-7.51E-02
AG-108M	433.93		89.90	8.03E-02	8.03E-02	-3.81E-02
	614.37		90.40	1.22E-01		-1.46E-02
	722.95		90.50	9.68E-02		6.20E-03
	CD-109	88.03	*	3.72	5.47E+00	5.47E+00
+ AG-110M	657.75		93.14	8.54E-02	8.54E-02	-1.16E-01
	677.61		10.53	9.69E-01		5.02E-01
	706.67		16.46	6.40E-01		-1.34E-01
	763.93		21.98	4.12E-01		8.78E-02
	884.67		71.63	1.47E-01		2.96E-02
	1384.27		23.94	4.53E-01		-5.14E-02
	CD-113M	263.70		0.02	2.82E+02	2.82E+02
SN-113	255.12		1.93	4.40E+00	1.42E-01	-9.55E-01
	391.69		64.90	1.42E-01		-9.76E-03
TE123M	159.00		84.10	8.20E-02	8.20E-02	-2.56E-02
SB-124	602.71		97.87	1.22E-01	1.22E-01	4.75E-02
	645.85		7.26	1.61E+00		3.33E-01
	722.78		11.10	1.14E+00		7.32E-02
	1691.02		49.00	2.76E-01		1.32E-01
	I-125	35.49		6.49	3.46E+00	3.46E+00
SB-125	176.33		6.89	8.57E-01	2.56E-01	1.22E-01
	427.89		29.33	2.56E-01		-9.33E-02
	463.38		10.35	8.23E-01		4.78E-01
	600.56		17.80	4.60E-01		-3.61E-02
	635.90		11.32	7.22E-01		-1.67E-01
	SB-126	414.70		83.30	5.35E-01	5.28E-01
	666.33		99.60	5.36E-01		9.70E-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)
SB-126	695.00	99.60	5.28E-01	5.28E-01	-1.55E-01	2.47E-01
	720.50	53.80	1.05E+00		1.76E-01	4.91E-01
+ SN-126	87.57 *	37.00	5.24E-01	5.24E-01	3.81E-01	2.60E-01
SB-127	473.00	25.00	9.76E+01	8.30E+01	2.43E+01	4.61E+01
	685.20	35.70	8.30E+01		-2.11E+01	3.89E+01
	783.80	14.70	2.10E+02		-2.99E+01	9.77E+01
I-129	29.78	57.00	4.70E-01	4.70E-01	-1.12E-01	2.29E-01
	33.60	13.20	1.36E+00		-9.04E-01	6.59E-01
	39.58	7.52	1.60E+00		-1.11E+00	7.76E-01
I-131	284.30	6.05	1.86E+01	1.41E+00	-6.76E+00	8.95E+00
	364.48	81.20	1.41E+00		4.19E-03	6.74E-01
	636.97	7.26	1.85E+01		4.63E+00	8.65E+00
	722.89	1.80	7.88E+01		5.05E+00	3.68E+01
TE-132	49.72	13.10	6.20E+02	8.24E+01	-1.20E+03	3.02E+02
	228.16	88.00	8.24E+01		5.35E+01	4.00E+01
BA-133	81.00	33.00	1.93E-01	1.91E-01	-1.14E+00	9.42E-02
	302.84	17.80	4.22E-01		-6.47E-03	2.03E-01
	356.01	60.00	1.91E-01		3.06E-02	9.26E-02
I-133	529.87	86.30	1.48E+10	1.48E+10	3.10E+09	6.97E+09
XE-133	81.00	38.00	1.19E+01	1.19E+01	-7.05E+01	5.83E+00
CS-134	563.23	8.38	1.03E+00	8.82E-02	8.19E-02	4.88E-01
	569.32	15.43	5.38E-01		2.36E-02	2.53E-01
	604.70	97.60	8.82E-02		6.49E-03	4.14E-02
	795.84	85.40	1.21E-01		4.45E-02	5.67E-02
	801.93	8.73	1.04E+00		-6.39E-01	4.80E-01
CS-135	268.24	16.00	4.61E-01	4.61E-01	-6.69E-03	2.23E-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		0.00E+00	1.00E+20
CS-136	153.22	7.46	4.24E+00	4.70E-01	-1.18E+00	2.06E+00
	163.89	4.61	6.72E+00		-7.93E-01	3.25E+00
	176.55	13.56	2.32E+00		3.97E-01	1.12E+00
	273.65	12.66	3.26E+00		-2.50E+00	1.57E+00
	340.57	48.50	1.12E+00		2.13E+00	5.42E-01
	818.50	99.70	4.70E-01		-4.84E-02	2.17E-01
	1048.07	79.60	6.47E-01		6.18E-02	2.95E-01
	1235.34	19.70	3.61E+00		-2.04E+00	1.68E+00
CS-137	661.65	85.12	9.94E-02	9.94E-02	-1.01E-02	4.65E-02
LA-138	788.74	34.00	2.95E-01	1.35E-01	1.21E-01	1.38E-01
	1435.80	66.00	1.35E-01		-6.22E-02	5.94E-02
CE-139	165.85	80.35	8.43E-02	8.43E-02	2.74E-02	4.08E-02
BA-140	162.64	6.70	4.86E+00	1.69E+00	-8.34E-01	2.36E+00
	304.84	4.50	8.88E+00		-4.39E+00	4.26E+00
	423.70	3.20	1.38E+01		5.56E-01	6.55E+00
	437.55	2.00	2.24E+01		-1.93E+00	1.07E+01
	537.32	25.00	1.69E+00		-7.30E-02	7.91E-01
LA-140	328.77	20.50	2.18E+00	6.45E-01	1.05E+00	1.05E+00
	487.03	45.50	9.53E-01		6.58E-02	4.50E-01
	815.85	23.50	2.07E+00		2.46E-01	9.55E-01
	1596.49	95.49	6.45E-01		1.52E-01	2.88E-01
CE-141	145.44	48.40	2.31E-01	2.31E-01	1.34E-02	1.12E-01
CE-143	57.36	11.80	7.91E+06	2.90E+06	2.01E+06	3.87E+06
	293.26	42.00	2.90E+06		4.72E+06	1.41E+06

Analysis Report for 1510093-16  
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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	2.11E+07	2.90E+06	1.52E+07	9.95E+06
CE-144	133.54	10.80	5.32E-01	5.32E-01	2.00E-02	2.58E-01
PM-144	476.78	42.00	1.79E-01	8.70E-02	3.20E-03	8.42E-02
	618.01	98.60	8.70E-02		-1.77E-02	4.07E-02
	696.49	99.49	9.13E-02		-1.31E-02	4.26E-02
PM-145	36.85	21.70	6.56E-01	3.58E-01	-2.39E-01	3.19E-01
	37.36	39.70	3.58E-01		2.56E-01	1.74E-01
	42.30	15.10	7.04E-01		-5.26E-01	3.43E-01
	72.40	2.31	3.68E+00		-4.65E+00	1.81E+00
PM-146	453.90	39.94	1.77E-01	1.77E-01	-7.04E-02	8.33E-02
	735.90	14.01	6.86E-01		1.22E-01	3.21E-01
	747.13	13.10	6.70E-01		8.18E-02	3.12E-01
ND-147	91.11	28.90	1.96E+00	1.96E+00	-1.08E+00	9.60E-01
	531.02	13.10	4.43E+00		1.42E+00	2.08E+00
PM-149	285.90	3.10	5.73E+04	5.73E+04	1.85E+04	2.76E+04
EU-152	121.78	20.50	2.54E-01	2.54E-01	-4.43E-03	1.23E-01
	244.69	5.40	1.61E+00		1.47E-01	7.85E-01
	344.27	19.13	3.74E-01		5.99E-02	1.79E-01
	778.89	9.20	9.51E-01		-1.36E-01	4.41E-01
	964.01	10.40	1.03E+00		-2.69E-02	4.81E-01
	1085.78	7.22	1.39E+00		-5.64E-01	6.38E-01
	1112.02	9.60	1.15E+00		3.50E-01	5.30E-01
	1407.95	14.94	6.64E-01		2.44E-01	2.98E-01
GD-153	97.43	31.30	1.86E-01	1.86E-01	-2.16E-01	9.06E-02
	103.18	22.20	2.59E-01		-1.70E-01	1.26E-01
EU-154	123.07	40.50	1.27E-01	1.27E-01	4.96E-03	6.17E-02
	723.30	19.70	4.48E-01		2.87E-02	2.09E-01
	873.19	11.50	8.69E-01		1.10E-01	4.04E-01
	996.32	10.30	8.36E-01		-1.93E-01	3.80E-01
	1004.76	17.90	5.16E-01		3.75E-02	2.36E-01
	1274.45	35.50	3.35E-01		9.93E-02	1.54E-01
EU-155	86.50	30.90	2.40E-01	2.40E-01	1.43E-01	1.18E-01
	105.30	20.70	2.66E-01		6.42E-02	1.29E-01
EU-156	811.77	10.40	3.17E+00	3.17E+00	-2.02E+00	1.45E+00
	1153.47	7.20	7.12E+00		2.53E-01	3.30E+00
	1230.71	8.90	5.45E+00		-3.68E+00	2.50E+00
HQ-166M	184.41	72.60	1.04E-01	1.04E-01	2.10E-01	5.05E-02
	280.45	29.60	2.46E-01		-5.88E-02	1.19E-01
	410.94	11.10	7.73E-01		4.90E-01	3.70E-01
	711.69	54.10	1.87E-01		6.32E-02	8.81E-02
TM-171	66.72	0.14	5.61E+01	5.61E+01	-6.50E+01	2.75E+01
+ HF-172	81.75	4.52	1.44E+00	7.51E-01	-5.90E+00	7.03E-01
	125.81	* 11.30	7.51E-01		2.86E-01	3.69E-01
LU-172	181.53	20.60	7.69E+00	4.61E+00	3.73E-01	3.71E+00
	810.06	16.63	1.53E+01		1.34E+00	7.11E+00
	912.12	15.25	3.42E+01		7.67E+01	1.64E+01
	1093.66	62.50	4.61E+00		-1.28E+00	2.12E+00
LU-173	100.72	5.24	1.09E+00	3.86E-01	6.81E-01	5.30E-01
	272.11	21.20	3.86E-01		2.09E-01	1.87E-01
HF-175	343.40	84.00	1.24E-01	1.24E-01	-7.47E-03	5.94E-02
LU-176	88.34	13.30	5.80E-01	7.38E-02	4.54E-01	2.84E-01
	201.83	86.00	8.66E-02		4.20E-02	4.21E-02
	306.78	94.00	7.38E-02		3.57E-02	3.54E-02

Analysis Report for 1510093-16  
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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	2.20E-01	2.20E-01	4.74E-02	1.08E-01
	1121.30	34.90	5.70E-01		7.51E-01	2.70E-01
	1189.05	16.23	8.78E-01		-7.17E-02	4.05E-01
	1221.41	26.98	5.97E-01		-2.26E-01	2.78E-01
	1231.02	11.44	1.17E+00		-5.99E-01	5.34E-01
IR-192	308.46	29.68	3.03E-01	1.97E-01	-5.29E-02	1.45E-01
	468.07	48.10	1.97E-01		7.00E-02	9.31E-02
HG-203	279.19	77.30	1.59E-01	1.59E-01	1.08E-01	7.68E-02
BI-207	569.67	97.72	8.04E-02	8.04E-02	-1.40E-02	3.77E-02
	1063.62	74.90	1.05E-01		-8.68E-02	4.71E-02
+ TL-208	583.14	*	30.22	4.02E-01	4.02E-01	1.30E+00
	860.37	*	4.48	3.25E+00		1.75E+00
	2614.66		35.85	6.46E-01		9.95E-01
BI-210M	262.00		1.49E-01	1.49E-01	-5.74E-03	7.18E-02
	300.00		3.59E-01		-1.26E-02	1.73E-01
PB-210	46.50	4.25	2.36E+00	2.36E+00	8.93E-01	1.15E+00
PB-211	404.84	2.90	2.90E+00	2.90E+00	1.21E+00	1.39E+00
	831.96	2.90	3.26E+00		-2.16E+00	1.51E+00
+ BI-212	727.17	*	11.80	9.86E-01	9.86E-01	8.02E-01
	1620.62	*	2.75	3.86E+00		1.18E+00
+ PB-212	238.63	*	44.60	2.51E-01	2.51E-01	1.68E+00
	300.09		3.41	2.42E+00		-8.53E-02
+ BI-214	609.31	*	46.30	2.68E-01	2.68E-01	1.53E+00
	1120.29	*	15.10	1.16E+00		1.66E+00
	1764.49		15.80	1.10E+00		1.37E+00
	2204.22		4.98	2.53E+00		9.46E-01
+ PB-214	295.21	*	19.19	6.23E-01	2.43E-01	1.40E+00
	351.92	*	37.19	2.43E-01		1.55E+00
RN-219	401.80	6.50	1.28E+00	1.28E+00	5.99E-01	6.11E-01
RA-223	323.87	3.88	1.85E+00	1.85E+00	-2.79E+00	8.86E-01
RA-224	240.98	3.95	3.72E+00	3.72E+00	2.25E+01	1.83E+00
RA-225	40.00	31.00	1.72E+00	1.72E+00	-1.19E+00	8.35E-01
+ RA-226	186.21	*	3.28	2.95E+00	2.95E+00	4.16E+00
	TH-227	50.10	8.40	9.90E-01	9.90E-01	-1.92E+00
	236.00		11.50	1.04E+00		2.21E+00
	256.20		6.30	1.11E+00		-2.54E-01
	AC-228	338.32	11.40	8.80E-01	6.55E-01	1.71E+00
	911.07	27.70	6.55E-01		1.41E+00	
TH-230	969.11	16.60	1.01E+00		1.47E+00	
	48.44	16.90	5.58E-01	5.58E-01	4.21E-01	
	62.85	4.60	1.84E+00		1.18E+00	
PA-231	67.67	0.37	2.01E+01		4.34E+00	
	283.67	1.60	4.33E+00	3.24E+00	-1.57E+00	
TH-231	302.67	2.30	3.24E+00		-4.97E-02	
	25.64	14.70	3.58E+00	9.97E-01	1.16E+00	
PA-233	84.21	6.40	9.97E-01		-2.38E+00	
	311.98	38.60	3.88E-01	3.88E-01	-2.20E-01	
PA-234	131.20	20.40	2.86E-01	2.86E-01	2.21E-01	
	733.99	8.80	1.06E+00		-3.28E-02	
	946.00	12.00	7.75E-01		-1.94E-01	
PA-234M	1001.03	0.92	9.93E+00	9.93E+00	5.17E-01	
TH-234	63.29	3.80	2.24E+00	2.24E+00	2.94E+00	
U-235	143.76	10.50	5.41E-01	5.41E-01	2.18E-01	

Analysis Report for 1510093-16  
 CP3004S05-06

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
U-235	163.35	4.70	1.20E+00	5.41E-01	-1.42E-01	5.81E-01
	205.31	4.70	1.58E+00		-2.44E-01	7.69E-01
NP-237	86.50	12.60	5.82E-01	5.82E-01	3.46E-01	2.85E-01
NP-239	106.10	22.70	3.16E+03	3.16E+03	2.49E+02	1.54E+03
	228.18	10.70	9.46E+03		6.15E+03	4.59E+03
	277.60	14.10	7.37E+03		6.87E+03	3.56E+03
AM-241	59.54	35.90	2.20E-01	2.20E-01	-9.71E-02	1.08E-01
+ AM-243	74.67	* 66.00	1.85E-01	1.85E-01	4.21E-01	9.11E-02
+ CM-243	209.75	* 3.29	2.81E+00	6.25E-01	2.19E+00	1.38E+00
	228.14	10.60	7.09E-01		4.61E-01	3.44E-01
	277.60	* 14.00	6.25E-01		4.77E-01	3.03E-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   \*\*\*\*\*  
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Sample Title: CP3004S05-06

Elapsed Live time: 3600  
Elapsed Real Time: 3617

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	8	152	182	156	136	114	102	97
17:	109	82	84	68	94	79	90	102
25:	93	109	79	85	85	85	76	86
33:	94	83	75	81	110	83	96	106
41:	84	83	101	107	95	112	186	106
49:	101	114	99	99	120	117	98	127
57:	120	113	131	157	142	156	174	258
65:	157	161	145	157	152	137	137	145
73:	154	175	439	338	386	541	159	120
81:	107	128	106	155	141	109	210	256
89:	138	183	162	125	257	204	102	80
97:	83	83	104	91	84	79	103	68
105:	86	105	88	81	88	91	85	80
113:	84	97	79	81	82	67	88	69
121:	70	84	83	68	56	91	81	72
129:	106	114	73	81	74	65	80	64
137:	68	73	92	71	72	73	81	85
145:	63	86	67	71	65	77	75	65
153:	68	81	84	98	74	72	76	64
161:	64	68	64	71	65	60	78	62
169:	61	56	59	64	74	60	63	63
177:	70	56	56	52	55	50	50	74
185:	76	155	151	65	61	50	66	50
193:	59	68	53	58	70	34	63	73
201:	66	60	60	46	67	56	59	75
209:	73	91	61	50	49	43	60	59
217:	54	64	59	57	46	49	47	50
225:	57	54	54	53	54	53	41	44
233:	37	38	45	51	58	144	530	289
241:	83	141	104	37	35	36	46	42
249:	45	34	48	43	30	44	32	35
257:	42	38	43	36	36	29	34	29
265:	25	34	25	34	41	66	47	45
273:	31	31	38	33	48	51	36	43
281:	31	28	28	29	36	30	35	34
289:	34	28	29	36	30	32	111	197
297:	84	29	34	43	42	26	25	29
305:	30	31	30	21	22	27	19	22
313:	21	27	25	40	21	28	28	37
321:	28	28	27	25	25	29	23	49
329:	44	16	24	28	33	19	28	30
337:	24	61	127	47	27	26	20	22
345:	21	23	25	22	15	24	58	237
353:	250	45	19	20	27	21	25	20
361:	18	20	14	14	24	21	29	24



369: 20 25 20 28 17 23 27 22

Sample Title: CP3004S05-06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	26	14	29	16	24	20	13	24
385:	19	23	20	22	24	20	23	16
393:	23	25	18	20	25	18	17	24
401:	20	28	26	27	29	22	16	25
409:	32	40	20	14	22	23	25	14
417:	8	18	16	19	23	17	20	21
425:	15	18	17	19	19	18	12	14
433:	24	15	17	16	13	17	23	18
441:	24	16	21	19	20	19	17	25
449:	17	18	18	12	13	16	9	15
457:	12	17	14	19	15	16	24	39
465:	13	7	13	14	10	19	15	11
473:	12	9	22	8	15	9	7	19
481:	12	18	20	18	13	9	8	20
489:	15	15	16	15	13	8	13	15
497:	9	13	10	13	13	16	14	15
505:	18	16	10	19	16	31	70	48
513:	37	18	10	10	8	7	17	14
521:	19	11	14	11	15	9	14	18
529:	17	11	5	13	9	11	10	8
537:	11	10	12	15	13	10	12	12
545:	16	14	16	15	7	10	14	10
553:	15	11	17	8	11	12	24	12
561:	17	14	16	12	9	15	8	11
569:	8	12	16	15	10	16	10	15
577:	6	11	11	12	10	18	74	125
585:	49	13	8	11	10	14	14	6
593:	18	11	18	10	17	6	9	14
601:	12	13	12	10	8	11	12	16
609:	115	193	74	18	11	12	11	6
617:	10	11	12	12	11	9	15	6
625:	13	10	15	13	19	14	8	8
633:	14	14	6	7	7	11	9	19
641:	7	7	9	5	11	8	14	14
649:	6	10	9	8	11	11	7	7
657:	9	11	3	5	10	20	14	7
665:	12	11	12	11	9	4	8	10
673:	9	11	8	15	9	12	13	13
681:	14	9	6	9	11	13	8	17
689:	10	11	10	15	10	10	9	7
697:	9	8	13	11	6	14	16	18
705:	10	9	12	10	15	9	8	16
713:	15	16	12	14	7	12	15	11
721:	10	9	10	7	7	11	25	37
729:	17	12	6	16	10	12	10	9
737:	9	9	16	11	6	8	10	7
745:	4	16	7	6	13	7	7	7
753:	4	10	10	10	6	7	5	9
761:	5	7	8	12	8	6	6	14
769:	22	13	10	15	16	5	8	17
777:	10	9	3	8	4	5	9	7
785:	3	24	10	8	10	8	7	7
793:	10	9	14	17	6	10	7	12

801: 6 9 4 9 7 14 12 14

Sample Title: CP3004S05-06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	4	7	8	6	5	5	3	7
817:	11	7	10	5	6	11	8	8
825:	6	7	9	14	13	7	6	7
833:	5	9	12	17	8	12	7	9
841:	10	5	4	10	9	9	6	4
849:	6	6	4	7	8	6	8	6
857:	7	7	4	20	21	16	5	7
865:	4	9	4	9	10	2	10	12
873:	10	11	6	9	5	8	8	5
881:	8	6	9	10	8	7	7	4
889:	10	7	11	7	12	11	12	3
897:	6	9	9	7	7	6	8	8
905:	11	4	6	4	4	13	55	92
913:	28	3	10	10	7	4	3	5
921:	2	3	3	5	5	3	5	5
929:	8	7	4	4	5	9	11	6
937:	5	7	3	6	10	7	3	8
945:	8	9	6	6	5	7	7	7
953:	5	5	9	3	6	4	10	9
961:	6	6	2	9	17	13	6	18
969:	43	45	19	8	2	10	4	7
977:	4	2	6	11	7	6	8	9
985:	3	9	4	5	2	8	3	5
993:	5	5	7	8	1	3	5	8
1001:	6	8	4	5	6	6	3	7
1009:	1	7	4	4	7	6	3	10
1017:	8	5	6	10	4	7	5	7
1025:	5	8	5	6	8	5	9	4
1033:	9	7	4	6	6	6	6	4
1041:	7	8	4	6	5	7	8	4
1049:	5	4	5	8	2	9	8	8
1057:	7	9	11	0	3	4	6	3
1065:	4	5	10	9	7	8	7	5
1073:	5	0	6	7	7	5	6	9
1081:	10	7	2	5	8	6	6	6
1089:	8	9	5	6	4	8	4	6
1097:	11	4	6	9	7	4	8	4
1105:	7	5	6	1	7	8	10	5
1113:	6	5	7	8	8	7	16	31
1121:	31	16	2	8	5	5	3	4
1129:	5	6	7	8	10	8	10	8
1137:	12	5	4	5	5	6	6	5
1145:	3	4	8	4	10	6	3	8
1153:	7	5	12	11	7	8	8	7
1161:	7	6	9	4	14	7	7	8
1169:	6	4	6	8	6	9	7	8
1177:	10	5	6	3	3	10	6	3
1185:	5	5	9	8	3	5	12	7
1193:	12	4	7	7	7	10	3	8
1201:	1	4	6	12	8	9	8	4
1209:	3	7	8	5	3	7	12	13
1217:	7	8	9	10	6	8	7	13
1225:	9	14	8	4	5	12	6	3

1233: 3 7 8 4 10 22 20 9

Sample Title: CP3004S05-06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1241:	9	5	17	5	4	6	9	7
1249:	7	6	5	4	6	6	6	4
1257:	5	2	4	3	6	4	9	2
1265:	1	3	6	5	10	5	5	4
1273:	2	5	4	10	5	4	5	3
1281:	5	10	3	3	5	8	7	3
1289:	6	2	2	2	4	8	3	6
1297:	4	6	5	1	4	5	2	9
1305:	2	4	4	5	5	6	4	3
1313:	2	4	2	5	5	8	2	4
1321:	1	3	4	5	4	5	2	4
1329:	6	2	0	7	3	5	0	6
1337:	7	1	4	5	2	3	1	3
1345:	3	4	3	3	2	2	4	5
1353:	3	1	3	1	6	5	1	3
1361:	3	0	2	2	4	2	3	5
1369:	5	3	2	1	4	1	6	4
1377:	3	12	4	6	2	3	3	1
1385:	5	2	1	3	4	2	1	0
1393:	1	4	5	1	2	1	2	0
1401:	5	10	2	2	1	2	3	4
1409:	4	3	3	3	3	1	4	0
1417:	1	3	2	0	2	3	2	4
1425:	4	5	1	3	4	3	2	0
1433:	0	1	2	5	1	6	2	2
1441:	4	3	3	2	2	3	3	2
1449:	4	1	0	6	3	5	2	5
1457:	1	3	14	67	202	165	56	4
1465:	2	4	1	1	1	3	2	3
1473:	1	1	1	2	3	1	0	0
1481:	1	2	3	2	1	1	3	0
1489:	0	2	1	5	1	0	6	5
1497:	3	1	0	2	1	3	1	2
1505:	2	1	0	1	4	4	2	5
1513:	3	0	1	6	2	1	5	3
1521:	1	1	1	2	1	0	1	3
1529:	1	1	1	4	0	3	4	4
1537:	3	1	0	3	0	3	2	4
1545:	1	2	2	1	0	1	3	0
1553:	0	0	1	2	0	0	8	1
1561:	4	0	2	2	1	1	1	2
1569:	3	0	1	2	3	0	1	2
1577:	1	3	1	3	3	1	1	3
1585:	3	0	1	6	4	3	1	1
1593:	8	6	1	0	3	2	2	1
1601:	0	1	2	0	1	1	0	1
1609:	0	2	3	1	1	4	1	2
1617:	1	1	4	2	5	2	2	1
1625:	1	1	3	1	2	1	4	3
1633:	3	0	1	0	3	2	4	0
1641:	1	2	2	0	0	1	3	0
1649:	2	0	0	2	3	4	3	1
1657:	2	1	1	0	1	1	3	2

1665: 1 0 2 0 1 1 0 1

Sample Title: CP3004S05-06

Channel	1	2	3	4	5	6	7	8
1673:	3	1	0	0	1	0	5	1
1681:	2	0	1	0	0	1	0	2
1689:	0	2	4	2	2	2	2	0
1697:	1	2	0	2	1	0	0	2
1705:	0	1	0	2	2	3	1	0
1713:	2	1	2	0	0	0	1	2
1721:	0	1	2	2	1	0	0	1
1729:	3	9	7	3	0	1	1	1
1737:	1	2	2	1	1	2	2	0
1745:	1	2	2	1	0	0	2	2
1753:	1	2	0	0	2	3	0	0
1761:	1	1	4	10	19	17	4	3
1769:	1	0	1	2	3	3	2	0
1777:	7	1	0	0	1	1	3	5
1785:	0	1	2	0	2	0	1	2
1793:	0	0	1	1	2	1	0	1
1801:	4	0	0	0	0	2	0	1
1809:	0	0	1	1	0	2	2	5
1817:	0	0	0	0	2	0	0	0
1825:	1	0	2	0	0	1	3	1
1833:	0	3	0	1	0	1	0	0
1841:	0	3	0	0	1	0	2	3
1849:	2	1	2	0	1	0	1	2
1857:	2	0	0	1	1	1	1	5
1865:	1	1	1	1	3	3	0	2
1873:	1	1	0	0	1	0	0	0
1881:	1	1	1	1	3	2	2	0
1889:	1	3	1	0	1	3	2	1
1897:	0	2	1	0	1	0	1	0
1905:	2	0	3	1	0	1	1	0
1913:	0	1	1	0	0	0	1	1
1921:	0	0	0	0	1	1	2	1
1929:	3	2	0	0	1	1	0	0
1937:	2	0	0	1	1	0	0	3
1945:	1	1	1	1	1	1	2	3
1953:	2	1	2	1	0	1	0	0
1961:	0	2	1	2	1	1	0	1
1969:	0	1	3	2	2	0	0	0
1977:	0	0	0	1	0	2	2	2
1985:	1	1	0	2	0	1	2	1
1993:	2	0	0	1	1	0	1	1
2001:	0	0	2	0	1	3	0	1
2009:	0	0	1	0	1	2	0	1
2017:	0	0	1	2	1	1	0	3
2025:	0	0	1	2	2	2	2	2
2033:	2	2	1	2	1	0	0	0
2041:	3	0	1	0	1	2	1	0
2049:	0	2	1	0	0	1	1	1
2057:	2	0	3	2	1	1	0	0
2065:	0	2	0	2	2	3	1	1
2073:	2	0	0	0	4	1	3	1
2081:	2	2	1	0	0	1	1	2
2089:	1	0	2	2	1	0	2	2

2097: 1 0 2 1 2 1 3 3

Sample Title: CP3004S05-06

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

2529: 0 0 0 0 0 1 1 1

Sample Title: CP3004S05-06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	0	1	1	0	0	0	0	0
2545:	0	0	0	0	0	1	0	1
2553:	0	0	0	1	0	1	0	0
2561:	2	0	0	1	0	0	0	1
2569:	1	0	1	0	0	0	0	1
2577:	0	2	0	1	1	0	0	1
2585:	0	0	1	0	1	1	0	0
2593:	0	0	0	0	1	0	1	1
2601:	0	0	0	0	0	0	0	1
2609:	0	1	0	1	2	15	20	19
2617:	7	0	0	0	1	0	0	0
2625:	0	0	0	0	0	0	0	1
2633:	1	0	0	0	1	0	0	0
2641:	0	0	0	0	1	0	0	0
2649:	0	0	0	0	1	0	2	0
2657:	3	0	0	0	0	2	0	0
2665:	0	0	0	0	1	0	0	0
2673:	0	1	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	0	1	0	0	0	1
2697:	0	0	1	0	0	1	0	0
2705:	0	1	0	0	1	0	0	0
2713:	0	1	0	0	0	1	1	0
2721:	0	0	1	1	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	1	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	1	0	1	0	0
2769:	2	0	1	0	0	0	0	1
2777:	1	0	0	1	1	1	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	1	0	0	0	1
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	2	1	0	0
2817:	1	0	0	0	0	0	0	0
2825:	0	0	0	0	1	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	1	1	0	0	0	0	0	1
2849:	0	0	0	0	0	0	0	0
2857:	1	0	1	0	0	0	0	0
2865:	0	0	0	0	1	0	1	0
2873:	0	0	0	1	1	0	1	0
2881:	0	1	0	0	0	0	0	0
2889:	0	0	0	1	0	0	0	1
2897:	0	0	0	2	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	1	0	0	0	0	0	0
2921:	0	0	0	0	0	0	1	1
2929:	1	0	1	0	0	0	1	0
2937:	0	0	0	1	0	1	0	1
2945:	0	0	0	0	0	0	0	0
2953:	0	0	1	0	0	0	0	0

2961: 0 0 1 0 0 0 0 0 0

Sample Title: CP3004S05-06

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

3393: 0 0 1 0 0 0 0 0 0

Sample Title: CP3004S05-06

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



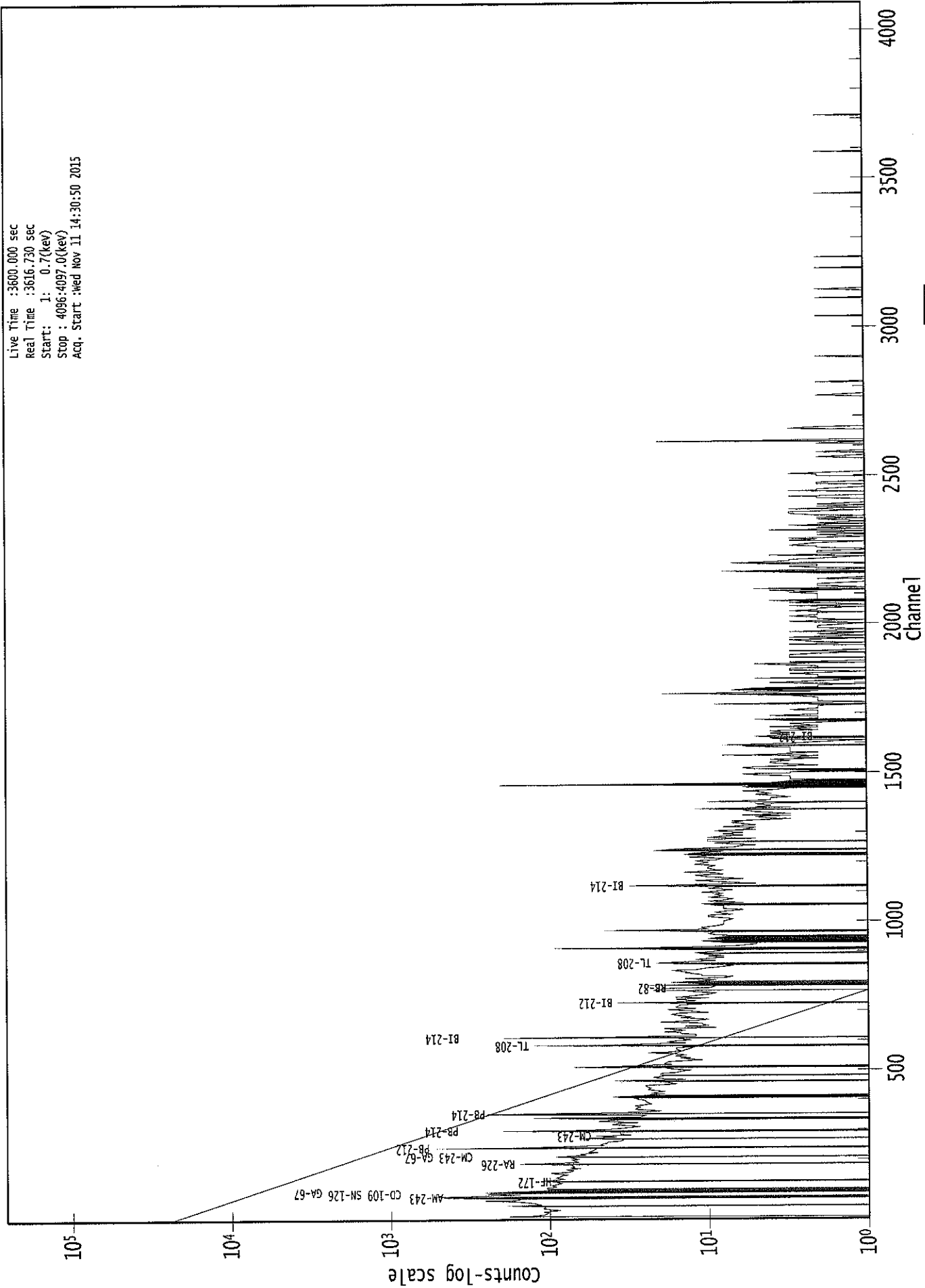
3825: 0 0 0 0 0 0 0 0

Sample Title: CP3004S05-06

Channel	-----	-----	-----	-----	-----	-----	-----	-----
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	1	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	1	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	1	0	0	0	0
3897:	0	0	0	0	0	1	1	1
3905:	0	0	0	0	0	0	0	0
3913:	0	0	1	0	0	0	0	0
3921:	0	1	0	0	1	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	1
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	1	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	1	0	0	0	0	0	1
4041:	0	0	0	0	0	0	1	0
4049:	0	0	0	0	0	0	0	1
4057:	0	1	0	1	0	0	0	0
4065:	0	0	1	0	0	0	0	0
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

# 0000029507.CNF

Live Time :3600.000 sec  
Real Time :3616.730 sec  
Start : 1: 0.7(kev)  
Stop : 4096:4097.0(kev)  
Acq. Start :Wed Nov 11 14:30:50 2015



*105  
11/11/15*Analysis Report for 1510093-17  
CP3004S07-08

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-17  
Sample Description : CP3004S07-08  
Sample Type : SOIL

Sample Size : 5.797E+02 grams  
Facility : Countroom

Sample Taken On : 10/10/2015 7:34:20AM  
Acquisition Started : 11/11/2015 3:16:03PM

Procedure : GAS-1402 pCi  
Operator : Administrator  
Detector Name : GE4  
Geometry : GAS-1402  
Live Time : 3600.0 seconds  
Real Time : 3650.9 seconds

Dead Time : 1.39 %

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 : 29511

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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*AG  
11/12/15*

: 00945

Analysis Report for 1510093-17  
CP3004S07-08

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 4:16:55PM  
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	24.74	23.99	0.0000	0.00
2	76.11	75.38	0.0000	0.00
3	87.36	86.63	0.0000	0.00
4	129.25	128.54	0.0000	0.00
5	165.78	165.08	0.0000	0.00
6	209.87	209.20	0.0000	0.00
7	239.37	238.70	0.0000	0.00
8	259.60	258.94	0.0000	0.00
9	270.38	269.73	0.0000	0.00
10	295.45	294.81	0.0000	0.00
11	338.51	337.89	0.0000	0.00
12	352.05	351.44	0.0000	0.00
13	429.07	428.49	0.0000	0.00
14	464.29	463.73	0.0000	0.00
15	511.38	510.84	0.0000	0.00
16	528.06	527.53	0.0000	0.00
17	583.67	583.17	0.0000	0.00
18	609.82	609.33	0.0000	0.00
19	704.29	703.84	0.0000	0.00
20	726.97	726.53	0.0000	0.00
21	794.72	794.32	0.0000	0.00
22	802.19	801.79	0.0000	0.00
23	809.95	809.55	0.0000	0.00
24	911.66	911.32	0.0000	0.00
25	967.61	967.30	0.0000	0.00
26	1121.51	1121.29	0.0000	0.00
27	1270.25	1270.11	0.0000	0.00
28	1451.96	1451.93	0.0000	0.00
29	1461.29	1461.26	0.0000	0.00
30	1630.79	1630.86	0.0000	0.00
31	1646.91	1647.00	0.0000	0.00
32	1765.05	1765.22	0.0000	0.00
33	2114.93	2115.33	0.0000	0.00
34	2346.89	2347.46	0.0000	0.00
35	2588.36	2589.11	0.0000	0.00
36	2615.11	2615.88	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-17  
CP3004S07-08

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 4:16:55PM

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	24.74	21 -	27	23.99	6.07E+01	69.01	8.27E+02	1.95
2	76.11	69 -	80	75.38	7.55E+02	150.76	2.46E+03	4.10
M 3	87.36	81 -	96	86.63	2.49E+02	123.29	1.88E+03	3.78
4	129.25	124 -	132	128.54	1.05E+02	85.69	1.05E+03	1.71
5	165.78	161 -	169	165.08	9.69E+01	69.27	6.76E+02	4.48
6	209.87	206 -	213	209.20	5.29E+01	59.36	5.44E+02	3.13
7	239.37	234 -	245	238.70	6.47E+02	87.18	6.15E+02	2.55
8	259.60	252 -	264	258.94	7.49E+01	70.09	5.32E+02	5.03
9	270.38	265 -	274	269.73	1.02E+02	54.49	3.67E+02	6.33
10	295.45	291 -	298	294.81	1.09E+02	52.57	3.88E+02	2.11
11	338.51	331 -	343	337.89	8.63E+01	65.33	4.61E+02	2.57
12	352.05	347 -	355	351.44	2.55E+02	51.87	2.58E+02	2.71
13	429.07	423 -	431	428.49	3.36E+01	37.99	1.99E+02	2.21
14	464.29	459 -	469	463.73	4.43E+01	41.73	2.07E+02	4.87
15	511.38	507 -	515	510.84	7.83E+01	39.94	1.95E+02	2.70
16	528.06	521 -	536	527.53	7.95E+01	47.37	1.95E+02	11.09
17	583.67	577 -	590	583.17	1.41E+02	46.88	1.81E+02	2.76
18	609.82	602 -	616	609.33	1.65E+02	54.88	2.48E+02	2.97
19	704.29	700 -	708	703.84	2.12E+01	26.94	9.76E+01	1.51
20	726.97	721 -	731	726.53	5.13E+01	34.55	1.31E+02	2.30
21	794.72	791 -	798	794.32	3.48E+01	21.73	5.45E+01	2.25
22	802.19	799 -	805	801.79	1.89E+01	19.18	5.41E+01	3.45
23	809.95	806 -	813	809.55	2.31E+01	21.17	5.79E+01	1.02
24	911.66	906 -	918	911.32	9.86E+01	37.32	1.19E+02	2.60
25	967.61	962 -	972	967.30	5.48E+01	27.52	7.24E+01	2.10
26	1121.51	1116 -	1127	1121.29	3.51E+01	31.50	1.02E+02	7.57
27	1270.25	1266 -	1273	1270.11	1.65E+01	16.73	3.49E+01	3.83
28	1451.96	1448 -	1454	1451.93	9.18E+00	9.63	9.64E+00	1.86
29	1461.29	1457 -	1465	1461.26	2.74E+02	33.53	4.73E+00	3.23
30	1630.79	1627 -	1634	1630.86	1.00E+01	9.38	8.00E+00	3.65
31	1646.91	1643 -	1650	1647.00	7.00E+00	5.29	0.00E+00	1.16
32	1765.05	1761 -	1769	1765.22	2.99E+01	12.18	4.13E+00	1.91
33	2114.93	2111 -	2118	2115.33	8.00E+00	7.48	4.00E+00	2.66
34	2346.89	2342 -	2351	2347.46	8.45E+00	8.31	5.09E+00	3.13
35	2588.36	2584 -	2592	2589.11	9.00E+00	6.00	0.00E+00	1.12
36	2615.11	2611 -	2620	2615.88	4.20E+01	12.96	0.00E+00	3.71

Analysis Report for 1510093-17  
CP3004S07-08

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 : 11/11/2015 4:16:55PM

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	24.74	21 -	27	6.07E+01	69.01	8.27E+02	5.53E+01
2	76.11	69 -	80	7.55E+02	150.76	2.46E+03	1.15E+02
M 3	87.36	81 -	96	2.49E+02	123.29	1.88E+03	7.13E+01
4	129.25	124 -	132	1.05E+02	85.69	1.05E+03	6.84E+01
5	165.78	161 -	169	9.69E+01	69.27	6.76E+02	5.46E+01
6	209.87	206 -	213	5.29E+01	59.36	5.44E+02	4.73E+01
7	239.37	234 -	245	6.47E+02	87.18	6.15E+02	5.82E+01
8	259.60	252 -	264	7.49E+01	70.09	5.32E+02	5.58E+01
9	270.38	265 -	274	1.02E+02	54.49	3.67E+02	4.16E+01
10	295.45	291 -	298	1.09E+02	52.57	3.88E+02	3.97E+01
11	338.51	331 -	343	8.63E+01	65.33	4.61E+02	5.15E+01
12	352.05	347 -	355	2.55E+02	51.87	2.58E+02	3.36E+01
13	429.07	423 -	431	3.36E+01	37.99	1.99E+02	2.97E+01
14	464.29	459 -	469	4.43E+01	41.73	2.07E+02	3.25E+01
15	511.38	507 -	515	7.83E+01	39.94	1.95E+02	2.94E+01
16	528.06	521 -	536	7.95E+01	47.37	1.95E+02	3.61E+01
17	583.67	577 -	590	1.41E+02	46.88	1.81E+02	3.32E+01
18	609.82	602 -	616	1.65E+02	54.88	2.48E+02	3.99E+01
19	704.29	700 -	708	2.12E+01	26.94	9.76E+01	2.08E+01
20	726.97	721 -	731	5.13E+01	34.55	1.31E+02	2.58E+01
21	794.72	791 -	798	3.48E+01	21.73	5.45E+01	1.50E+01
22	802.19	799 -	805	1.89E+01	19.18	5.41E+01	1.40E+01
23	809.95	806 -	813	2.31E+01	21.17	5.79E+01	1.55E+01
24	911.66	906 -	918	9.86E+01	37.32	1.19E+02	2.60E+01
25	967.61	962 -	972	5.48E+01	27.52	7.24E+01	1.91E+01
26	1121.51	1116 -	1127	3.51E+01	31.50	1.02E+02	2.40E+01
27	1270.25	1266 -	1273	1.65E+01	16.73	3.49E+01	1.20E+01
28	1451.96	1448 -	1454	9.18E+00	9.63	9.64E+00	6.15E+00
29	1461.29	1457 -	1465	2.74E+02	33.53	4.73E+00	4.48E+00
30	1630.79	1627 -	1634	1.00E+01	9.38	8.00E+00	5.70E+00
31	1646.91	1643 -	1650	7.00E+00	5.29	0.00E+00	0.00E+00

Analysis Report for 1510093-17  
CP3004S07-08

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1765.05	1761 -	1769	2.99E+01	12.18	4.13E+00	4.39E+00
33	2114.93	2111 -	2118	8.00E+00	7.48	4.00E+00	4.03E+00
34	2346.89	2342 -	2351	8.45E+00	8.31	5.09E+00	4.88E+00
35	2588.36	2584 -	2592	9.00E+00	6.00	0.00E+00	0.00E+00
36	2615.11	2611 -	2620	4.20E+01	12.96	0.00E+00	0.00E+00

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

### PEAK WITH NID REPORT

Peak Analysis Performed on : 11/11/2015 4:16:55PM

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	24.74	21 -	27	23.99	6.07E+01	69.01	8.27E+02	TH-231
2	76.11	69 -	80	75.38	7.55E+02	150.76	2.46E+03	.....
M 3	87.36	81 -	96	86.63	2.49E+02	123.29	1.88E+03	SN-126 CD-109 NP-237 EU-155 LU-176
4	129.25	124 -	132	128.54	1.05E+02	85.69	1.05E+03	.....
5	165.78	161 -	169	165.08	9.69E+01	69.27	6.76E+02	CE-139
6	209.87	206 -	213	209.20	5.29E+01	59.36	5.44E+02	CM-243 GA-67
7	239.37	234 -	245	238.70	6.47E+02	87.18	6.15E+02	PB-212
8	259.60	252 -	264	258.94	7.49E+01	70.09	5.32E+02	.....
9	270.38	265 -	274	269.73	1.02E+02	54.49	3.67E+02	.....
10	295.45	291 -	298	294.81	1.09E+02	52.57	3.88E+02	PB-214
11	338.51	331 -	343	337.89	8.63E+01	65.33	4.61E+02	AC-228
12	352.05	347 -	355	351.44	2.55E+02	51.87	2.58E+02	PB-214
13	429.07	423 -	431	428.49	3.36E+01	37.99	1.99E+02	.....
14	464.29	459 -	469	463.73	4.43E+01	41.73	2.07E+02	SB-125
15	511.38	507 -	515	510.84	7.83E+01	39.94	1.95E+02	.....
16	528.06	521 -	536	527.53	7.95E+01	47.37	1.95E+02	.....

Analysis Report for 1510093-17  
CP3004S07-08

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
17	583.67	577 -	590	583.17	1.41E+02	46.88	1.81E+02	TL-208
18	609.82	602 -	616	609.33	1.65E+02	54.88	2.48E+02	BI-214
19	704.29	700 -	708	703.84	2.12E+01	26.94	9.76E+01	.....
20	726.97	721 -	731	726.53	5.13E+01	34.55	1.31E+02	BI-212
21	794.72	791 -	798	794.32	3.48E+01	21.73	5.45E+01	.....
22	802.19	799 -	805	801.79	1.89E+01	19.18	5.41E+01	CS-134
23	809.95	806 -	813	809.55	2.31E+01	21.17	5.79E+01	LU-172 CO-58
24	911.66	906 -	918	911.32	9.86E+01	37.32	1.19E+02	LU-172 AC-228
25	967.61	962 -	972	967.30	5.48E+01	27.52	7.24E+01	.....
26	1121.51	1116 -	1127	1121.29	3.51E+01	31.50	1.02E+02	TA-182
27	1270.25	1266 -	1273	1270.11	1.65E+01	16.73	3.49E+01	.....
28	1451.96	1448 -	1454	1451.93	9.18E+00	9.63	9.64E+00	.....
29	1461.29	1457 -	1465	1461.26	2.74E+02	33.53	4.73E+00	K-40
30	1630.79	1627 -	1634	1630.86	1.00E+01	9.38	8.00E+00	.....
31	1646.91	1643 -	1650	1647.00	7.00E+00	5.29	0.00E+00	.....
32	1765.05	1761 -	1769	1765.22	2.99E+01	12.18	4.13E+00	BI-214
33	2114.93	2111 -	2118	2115.33	8.00E+00	7.48	4.00E+00	.....
34	2346.89	2342 -	2351	2347.46	8.45E+00	8.31	5.09E+00	.....
35	2588.36	2584 -	2592	2589.11	9.00E+00	6.00	0.00E+00	.....
36	2615.11	2611 -	2620	2615.88	4.20E+01	12.96	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 : 11/11/2015 4:16:55PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M 1	24.74	6.07E+01	69.01	3.02E-02	1.78E-03
2	76.11	7.55E+02	150.76	2.13E-02	1.69E-03
3	87.36	2.49E+02	123.29	1.97E-02	1.64E-03
4	129.25	1.05E+02	85.69	1.53E-02	1.47E-03
5	165.78	9.69E+01	69.27	1.27E-02	1.21E-03
6	209.87	5.29E+01	59.36	1.05E-02	1.08E-03
7	239.37	6.47E+02	87.18	9.39E-03	9.85E-04
8	259.60	7.49E+01	70.09	8.74E-03	9.22E-04



Analysis Report for 1510093-17  
CP3004S07-08

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
9	270.38	1.02E+02	54.49	8.43E-03	8.88E-04
10	295.45	1.09E+02	52.57	7.78E-03	8.43E-04
11	338.51	8.63E+01	65.33	6.86E-03	7.95E-04
12	352.05	2.55E+02	51.87	6.61E-03	7.80E-04
13	429.07	3.36E+01	37.99	5.47E-03	6.81E-04
14	464.29	4.43E+01	41.73	5.06E-03	6.30E-04
15	511.38	7.83E+01	39.94	4.61E-03	5.61E-04
16	528.06	7.95E+01	47.37	4.46E-03	5.36E-04
17	583.67	1.41E+02	46.88	4.04E-03	4.55E-04
18	609.82	1.65E+02	54.88	3.87E-03	4.16E-04
19	704.29	2.12E+01	26.94	3.36E-03	3.16E-04
20	726.97	5.13E+01	34.55	3.26E-03	3.04E-04
21	794.72	3.48E+01	21.73	2.98E-03	2.66E-04
22	802.19	1.89E+01	19.18	2.96E-03	2.62E-04
23	809.95	2.31E+01	21.17	2.93E-03	2.57E-04
24	911.66	9.86E+01	37.32	2.61E-03	2.06E-04
25	967.61	5.48E+01	27.52	2.46E-03	1.99E-04
26	1121.51	3.51E+01	31.50	2.14E-03	1.79E-04
27	1270.25	1.65E+01	16.73	1.91E-03	1.99E-04
28	1451.96	9.18E+00	9.63	1.69E-03	1.91E-04
29	1461.29	2.74E+02	33.53	1.68E-03	1.89E-04
30	1630.79	1.00E+01	9.38	1.53E-03	1.54E-04
31	1646.91	7.00E+00	5.29	1.52E-03	1.50E-04
32	1765.05	2.99E+01	12.18	1.43E-03	1.26E-04
33	2114.93	8.00E+00	7.48	1.24E-03	1.11E-04
34	2346.89	8.45E+00	8.31	1.15E-03	1.11E-04
35	2588.36	9.00E+00	6.00	1.08E-03	1.11E-04
36	2615.11	4.20E+01	12.96	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 : 11/11/2015 4:16:55PM

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	24.74	6.07E+01	69.01			6.07E+01	6.90E+01
2	76.11	7.55E+02	150.76			7.55E+02	1.51E+02

: 00951

Analysis Report for 1510093-17  
CP3004S07-08

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	3	87.36	2.49E+02	123.29			2.49E+02	1.23E+02
	4	129.25	1.05E+02	85.69			1.05E+02	8.57E+01
	5	165.78	9.69E+01	69.27			9.69E+01	6.93E+01
	6	209.87	5.29E+01	59.36			5.29E+01	5.94E+01
	7	239.37	6.47E+02	87.18	1.09E+01	6.39E+00	6.36E+02	8.74E+01
	8	259.60	7.49E+01	70.09			7.49E+01	7.01E+01
	9	270.38	1.02E+02	54.49			1.02E+02	5.45E+01
	10	295.45	1.09E+02	52.57			1.09E+02	5.26E+01
	11	338.51	8.63E+01	65.33			8.63E+01	6.53E+01
	12	352.05	2.55E+02	51.87	8.07E+00	5.01E+00	2.47E+02	5.21E+01
	13	429.07	3.36E+01	37.99			3.36E+01	3.80E+01
	14	464.29	4.43E+01	41.73			4.43E+01	4.17E+01
	15	511.38	7.83E+01	39.94	4.21E+01	4.92E+00	3.62E+01	4.02E+01
	16	528.06	7.95E+01	47.37			7.95E+01	4.74E+01
	17	583.67	1.41E+02	46.88			1.41E+02	4.69E+01
	18	609.82	1.65E+02	54.88	5.16E+00	1.63E+00	1.60E+02	5.49E+01
	19	704.29	2.12E+01	26.94			2.12E+01	2.69E+01
	20	726.97	5.13E+01	34.55			5.13E+01	3.46E+01
	21	794.72	3.48E+01	21.73			3.48E+01	2.17E+01
	22	802.19	1.89E+01	19.18			1.89E+01	1.92E+01
	23	809.95	2.31E+01	21.17			2.31E+01	2.12E+01
	24	911.66	9.86E+01	37.32	1.01E+00	2.85E+00	9.76E+01	3.74E+01
	25	967.61	5.48E+01	27.52			5.48E+01	2.75E+01
	26	1121.51	3.51E+01	31.50			3.51E+01	3.15E+01
	27	1270.25	1.65E+01	16.73			1.65E+01	1.67E+01
	28	1451.96	9.18E+00	9.63			9.18E+00	9.63E+00
	29	1461.29	2.74E+02	33.53			2.74E+02	3.35E+01
	30	1630.79	1.00E+01	9.38			1.00E+01	9.38E+00
	31	1646.91	7.00E+00	5.29			7.00E+00	5.29E+00
	32	1765.05	2.99E+01	12.18	1.11E-01	9.77E-01	2.98E+01	1.22E+01
	33	2114.93	8.00E+00	7.48			8.00E+00	7.48E+00
	34	2346.89	8.45E+00	8.31			8.45E+00	8.31E+00
	35	2588.36	9.00E+00	6.00			9.00E+00	6.00E+00
	36	2615.11	4.20E+01	12.96			4.20E+01	1.30E+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 1510093-17  
CP3004S07-08

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 4:16:55PM  
 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	24.74	6.07E+01	69.01			6.07E+01	6.90E+01
2	76.11	7.55E+02	150.76			7.55E+02	1.51E+02
3	87.36	2.49E+02	123.29			2.49E+02	1.23E+02
4	129.25	1.05E+02	85.69			1.05E+02	8.57E+01
5	165.78	9.69E+01	69.27			9.69E+01	6.93E+01
6	209.87	5.29E+01	59.36			5.29E+01	5.94E+01
7	239.37	6.47E+02	87.18	1.09E+01	6.39E+00	6.36E+02	8.74E+01
8	259.60	7.49E+01	70.09			7.49E+01	7.01E+01
9	270.38	1.02E+02	54.49			1.02E+02	5.45E+01
10	295.45	1.09E+02	52.57			1.09E+02	5.26E+01
11	338.51	8.63E+01	65.33			8.63E+01	6.53E+01
12	352.05	2.55E+02	51.87	8.07E+00	5.01E+00	2.47E+02	5.21E+01
13	429.07	3.36E+01	37.99			3.36E+01	3.80E+01
14	464.29	4.43E+01	41.73			4.43E+01	4.17E+01
15	511.38	7.83E+01	39.94	4.21E+01	4.92E+00	3.62E+01	4.02E+01
16	528.06	7.95E+01	47.37			7.95E+01	4.74E+01
17	583.67	1.41E+02	46.88			1.41E+02	4.69E+01
18	609.82	1.65E+02	54.88	5.16E+00	1.63E+00	1.60E+02	5.49E+01
19	704.29	2.12E+01	26.94			2.12E+01	2.69E+01
20	726.97	5.13E+01	34.55			5.13E+01	3.46E+01
21	794.72	3.48E+01	21.73			3.48E+01	2.17E+01
22	802.19	1.89E+01	19.18			1.89E+01	1.92E+01
23	809.95	2.31E+01	21.17			2.31E+01	2.12E+01
24	911.66	9.86E+01	37.32	1.01E+00	2.85E+00	9.76E+01	3.74E+01
25	967.61	5.48E+01	27.52			5.48E+01	2.75E+01
26	1121.51	3.51E+01	31.50			3.51E+01	3.15E+01
27	1270.25	1.65E+01	16.73			1.65E+01	1.67E+01
28	1451.96	9.18E+00	9.63			9.18E+00	9.63E+00
29	1461.29	2.74E+02	33.53			2.74E+02	3.35E+01
30	1630.79	1.00E+01	9.38			1.00E+01	9.38E+00
31	1646.91	7.00E+00	5.29			7.00E+00	5.29E+00
32	1765.05	2.99E+01	12.18	1.11E-01	9.77E-01	2.98E+01	1.22E+01
33	2114.93	8.00E+00	7.48			8.00E+00	7.48E+00
34	2346.89	8.45E+00	8.31			8.45E+00	8.31E+00
35	2588.36	9.00E+00	6.00			9.00E+00	6.00E+00
36	2615.11	4.20E+01	12.96			4.20E+01	1.30E+01

Analysis Report for 1510093-17  
CP3004S07-08

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	0.964	1460.81 *	10.67	1.97E+01	3.30E+00
CO-58	0.900	810.76 *	99.40	1.41E-01	1.30E-01
CD-109	0.929	88.03 *	3.72	4.61E+00	2.33E+00
SN-126	0.993	87.57 *	37.00	4.42E-01	2.22E-01
CE-139	0.999	165.85 *	80.35	1.44E-01	1.04E-01
EU-155	0.313	86.50 *	30.90	5.35E-01	2.69E-01
		105.30	20.70		
TL-208	0.851	583.14 *	30.22	1.49E+00	5.24E-01
		860.37	4.48		
		2614.66 *	35.85	1.42E+00	4.61E-01
BI-212	0.774	727.17 *	11.80	1.73E+00	1.18E+00
		1620.62	2.75		
PB-212	0.819	238.63 *	44.60	1.97E+00	3.40E-01
		300.09	3.41		
BI-214	0.647	609.31 *	46.30	1.16E+00	4.16E-01
		1120.29	15.10		
		1764.49 *	15.80	1.70E+00	7.14E-01
		2204.22	4.98		
PB-214	0.995	295.21 *	19.19	9.44E-01	4.67E-01
		351.92 *	37.19	1.30E+00	3.15E-01
AC-228	0.558	338.32 *	11.40	1.43E+00	1.10E+00
		911.07 *	27.70	1.75E+00	6.85E-01
		969.11	16.60		
TH-231	0.494	25.64 *	14.70	1.77E-01	2.02E-01
		84.21	6.40		
NP-237	0.890	86.50 *	12.60	1.30E+00	6.52E-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 1510093-17  
CP3004S07-08

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 4:16:55PM  
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	76.11	2.09593E-01	9.99		
4	129.25	2.92706E-02	40.66		
6	209.87	1.47047E-02	56.07	Tol.	CM-243
8	259.60	2.08154E-02	46.77		
9	270.38	2.84047E-02	26.64		
13	429.07	9.33062E-03	56.55		
14	464.29	1.22935E-02	47.15	Tol.	SB-125
15	511.38	1.00434E-02	55.65		
16	528.06	2.20857E-02	29.79		
19	704.29	5.88492E-03	63.57	Sum	
21	794.72	9.65502E-03	31.25		
22	802.19	5.25966E-03	50.64	Tol.	CS-134
25	967.61	1.52289E-02	25.10		
26	1121.51	9.74160E-03	44.90	Tol.	TA-182
27	1270.25	4.59150E-03	50.62		
28	1451.96	2.54960E-03	52.46		
30	1630.79	2.77778E-03	46.90		
31	1646.91	1.94444E-03	37.80		
33	2114.93	2.22222E-03	46.77		
34	2346.89	2.34848E-03	49.13		
35	2588.36	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

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## NUCLIDE IDENTIFICATION REPORT

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

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## IDENTIFIED NUCLIDES

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Analysis Report for 1510093-17  
 CP3004S07-08

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81 *		10.67	1.97E+01	3.30E+00
CO-58	0.90	810.76 *		99.40	1.41E-01	1.30E-01
CD-109	0.92	88.03 *		3.72	4.61E+00	2.33E+00
SN-126	0.99	87.57 *		37.00	4.42E-01	2.22E-01
CE-139	0.99	165.85 *		80.35	1.44E-01	1.04E-01
EU-155	0.31	86.50 *		30.90	5.35E-01	2.69E-01
		105.30		20.70		
TL-208	0.85	583.14 *		30.22	1.49E+00	5.24E-01
		860.37		4.48		
		2614.66 *		35.85	1.42E+00	4.61E-01
BI-212	0.77	727.17 *		11.80	1.73E+00	1.18E+00
		1620.62		2.75		
PB-212	0.81	238.63 *		44.60	1.97E+00	3.40E-01
		300.09		3.41		
BI-214	0.64	609.31 *		46.30	1.16E+00	4.16E-01
		1120.29		15.10		
		1764.49 *		15.80	1.70E+00	7.14E-01
		2204.22		4.98		
PB-214	0.99	295.21 *		19.19	9.44E-01	4.67E-01
		351.92 *		37.19	1.30E+00	3.15E-01
AC-228	0.55	338.32 *		11.40	1.43E+00	1.10E+00
		911.07 *		27.70	1.75E+00	6.85E-01
		969.11		16.60		
TH-231	0.49	25.64 *		14.70	1.77E-01	2.02E-01
		84.21		6.40		
NP-237	0.89	86.50 *		12.60	1.30E+00	6.52E-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

**INTERFERENCE CORRECTED REPORT**

Analysis Report for 1510093-17  
CP3004S07-08

<b>Nuclide Name</b>	<b>Nuclide Id Confidence</b>	<b>Wt mean Activity (pCi/grams)</b>	<b>Wt mean Activity Uncertainty</b>	<b>Comments</b>
K-40	0.964	1.97E+01	3.30E+00	
CO-58	0.900	1.41E-01	1.30E-01	
? CD-109	0.929	4.61E+00	2.33E+00	
? SN-126	0.993	4.42E-01	2.22E-01	
CE-139	0.999	1.44E-01	1.04E-01	
? EU-155	0.313	5.35E-01	2.69E-01	
TL-208	0.851	1.45E+00	3.46E-01	
BI-212	0.774	1.73E+00	1.18E+00	
PB-212	0.819	1.97E+00	3.40E-01	
BI-214	0.647	1.29E+00	3.59E-01	
PB-214	0.995	1.19E+00	2.61E-01	
AC-228	0.558	1.66E+00	5.81E-01	
TH-231	0.494	1.77E-01	2.02E-01	
? NP-237	0.890	1.30E+00	6.52E-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 1510093-17  
CP3004S07-08

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 4:16:55PM  
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	76.11	2.09593E-01	9.99		
4	129.25	2.92706E-02	40.66		
6	209.87	1.47047E-02	56.07	Tol.	CM-243
8	259.60	2.08154E-02	46.77		
9	270.38	2.84047E-02	26.64		
13	429.07	9.33062E-03	56.55		
14	464.29	1.22935E-02	47.15	Tol.	SB-125
15	511.38	1.00434E-02	55.65		
16	528.06	2.20857E-02	29.79		
19	704.29	5.88492E-03	63.57	Sum	
21	794.72	9.65502E-03	31.25		
22	802.19	5.25966E-03	50.64	Tol.	CS-134
25	967.61	1.52289E-02	25.10		
26	1121.51	9.74160E-03	44.90	Tol.	TA-182
27	1270.25	4.59150E-03	50.62		
28	1451.96	2.54960E-03	52.46		
30	1630.79	2.77778E-03	46.90		
31	1646.91	1.94444E-03	37.80		
33	2114.93	2.22222E-03	46.77		
34	2346.89	2.34848E-03	49.13		
35	2588.36	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

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## NUCLIDE MDA REPORT

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

: 00958



Analysis Report for 1510093-17  
CP3004S07-08

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	1.50E-01	1.89E+00	1.89E+00
+	NA-22	1274.54	99.94	-2.56E-02	2.02E-01	2.02E-01
+	NA-24	1368.53	99.99	-9.14E+12	3.48E+14	6.00E+14
		2754.09	99.86	1.58E+13		3.48E+14
+	AL-26	1808.65	99.76	4.34E-02	1.54E-01	1.54E-01
+	K-40	1460.81	* 10.67	1.97E+01	8.41E-01	8.41E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.35E-02	9.22E-02	9.22E-02
		78.34	96.00	3.08E-01		1.21E-01
+	SC-46	889.25	99.98	5.11E-02	2.01E-01	2.01E-01
		1120.51	99.99	2.04E-01		3.35E-01
+	V-48	983.52	99.98	4.35E-02	6.31E-01	6.31E-01
		1312.10	97.50	1.62E-01		8.47E-01
+	CR-51	320.08	9.83	1.66E+00	2.86E+00	2.86E+00
+	MN-54	834.83	99.97	-6.29E-03	1.71E-01	1.71E-01
+	CO-56	846.75	99.96	-2.71E-02	2.13E-01	2.13E-01
		1037.75	14.03	6.15E-01		1.88E+00
		1238.25	67.00	2.33E-01		4.77E-01
		1771.40	15.51	8.28E-02		1.17E+00
		2598.48	16.90	-5.99E-01		6.97E-01
+	CO-57	122.06	85.51	-2.96E-02	1.15E-01	1.15E-01
		136.48	10.60	-4.37E-02		9.83E-01
+	CO-58	810.76	* 99.40	1.41E-01	2.06E-01	2.06E-01
+	FE-59	1099.22	56.50	-1.06E-01	5.31E-01	5.31E-01
		1291.56	43.20	2.86E-01		7.76E-01
+	CO-60	1173.22	100.00	-6.18E-02	1.74E-01	1.74E-01
		1332.49	100.00	7.27E-02		1.79E-01
+	ZN-65	1115.52	50.75	2.35E-02	4.92E-01	4.92E-01
+	GA-67	93.31	35.70	-7.98E+01	2.54E+02	2.54E+02
		208.95	2.24	3.47E+02		4.97E+03
		300.22	16.00	6.50E+01		7.74E+02
+	SE-75	121.11	16.70	-3.66E-01	1.95E-01	6.36E-01
		136.00	59.20	-5.89E-02		1.95E-01
		264.65	59.80	-2.74E-01		2.16E-01
		279.53	25.20	1.88E-01		5.72E-01
		400.65	11.40	1.26E-01		1.38E+00
+	RB-82	776.52	13.00	3.81E-01	3.13E+00	3.13E+00
+	RB-83	520.41	46.00	1.75E-02	3.64E-01	3.64E-01
		529.64	30.30	2.24E-01		6.44E-01
		552.65	16.40	-2.88E-01		1.06E+00
+	KR-85	513.99	0.43	4.04E+00	4.26E+01	4.26E+01
+	SR-85	513.99	99.27	2.48E-02	2.62E-01	2.62E-01
+	Y-88	898.02	93.40	-8.40E-02	1.52E-01	1.79E-01
		1836.01	99.38	-8.26E-02		1.52E-01
+	NB-93M	16.57	9.43	9.66E-01	4.48E-01	4.48E-01
+	NB-94	702.63	100.00	-6.41E-03	1.61E-01	1.61E-01
		871.10	100.00	5.70E-02		1.71E-01

Analysis Report for 1510093-17  
CP3004S07-08

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
+	NB-95	765.79	99.81	-5.68E-02	3.27E-01	3.27E-01
+	NB-95M	235.69	25.00	-1.62E+01	3.56E+02	3.56E+02
+	ZR-95	724.18	43.70	4.04E-01	4.30E-01	6.46E-01
		756.72	55.30	7.84E-02		4.30E-01
+	MO-99	181.06	6.20	-5.75E+03	4.04E+03	6.09E+03
		739.58	12.80	-5.33E+02		4.04E+03
		778.00	4.50	1.34E+03		1.28E+04
+	RU-103	497.08	89.00	-7.21E-02	2.41E-01	2.41E-01
+	RU-106	621.84	9.80	5.00E-01	1.65E+00	1.65E+00
+	AG-108M	433.93	89.90	-3.59E-02	1.48E-01	1.48E-01
		614.37	90.40	-1.62E-03		2.21E-01
		722.95	90.50	2.72E-02		2.14E-01
+	CD-109	88.03	* 3.72	4.61E+00	4.88E+00	4.88E+00
+	AG-110M	657.75	93.14	-4.61E-02	1.68E-01	1.68E-01
		677.61	10.53	-4.81E-01		1.56E+00
		706.67	16.46	-5.43E-02		1.03E+00
		763.93	21.98	-6.38E-02		8.60E-01
		884.67	71.63	-5.65E-02		2.25E-01
		1384.27	23.94	-3.38E-01		6.53E-01
+	CD-113M	263.70	0.02	-2.83E+02	4.79E+02	4.79E+02
+	SN-113	255.12	1.93	7.89E-02	2.43E-01	6.85E+00
		391.69	64.90	5.28E-02		2.43E-01
+	TE123M	159.00	84.10	-2.01E-02	1.38E-01	1.38E-01
+	SB-124	602.71	97.87	-3.91E-03	2.20E-01	2.20E-01
		645.85	7.26	4.10E-01		3.08E+00
		722.78	11.10	4.83E-01		2.37E+00
		1691.02	49.00	3.59E-02		3.64E-01
+	I-125	35.49	6.49	-8.31E-01	1.09E+00	1.09E+00
+	SB-125	176.33	6.89	1.35E-01	4.64E-01	1.50E+00
		427.89	29.33	2.23E-01		4.64E-01
		463.38	10.35	9.40E-01		1.41E+00
		600.56	17.80	-1.73E-01		8.09E-01
		635.90	11.32	-3.89E-01		1.31E+00
+	SB-126	414.70	83.30	-1.20E-01	9.30E-01	9.46E-01
		666.33	99.60	-1.07E-01		9.30E-01
		695.00	99.60	1.27E-01		9.57E-01
		720.50	53.80	5.61E-01		1.92E+00
+	SN-126	87.57	* 37.00	4.42E-01	4.68E-01	4.68E-01
+	SB-127	473.00	25.00	6.66E+01	1.50E+02	1.76E+02
		685.20	35.70	8.48E+00		1.50E+02
		783.80	14.70	-2.69E+01		3.57E+02
+	I-129	29.78	57.00	-3.51E-02	8.54E-02	8.54E-02
		33.60	13.20	-2.18E-01		3.66E-01
		39.58	7.52	-5.52E-01		6.98E-01
+	I-131	284.30	6.05	-4.05E+00	2.25E+00	3.13E+01
		364.48	81.20	-7.42E-01		2.25E+00
		636.97	7.26	-2.05E+00		3.40E+01
		722.89	1.80	3.33E+01		1.64E+02

Analysis Report for 1510093-17  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	TE-132	49.72	13.10	2.41E+02	1.30E+02	4.86E+02
		228.16	88.00	5.86E+01		1.30E+02
+	BA-133	81.00	33.00	-4.62E-01	2.99E-01	3.24E-01
		302.84	17.80	-1.12E-01		6.86E-01
		356.01	60.00	-4.45E-02		2.99E-01
+	I-133	529.87	86.30	1.04E+10	2.99E+10	2.99E+10
+	XE-133	81.00	38.00	-2.87E+01	2.01E+01	2.01E+01
+	CS-134	563.23	8.38	3.70E-01	1.89E-01	1.83E+00
		569.32	15.43	2.59E-02		9.41E-01
		604.70	97.60	-2.47E-03		1.89E-01
		795.84	85.40	3.09E-02		2.12E-01
		801.93	8.73	-7.67E-01		1.91E+00
+	CS-135	268.24	16.00	8.98E-02	7.20E-01	7.20E-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	4.10E+00	8.60E-01	7.57E+00
		163.89	4.61	1.13E+00		1.23E+01
		176.55	13.56	3.70E-01		4.10E+00
		273.65	12.66	-5.75E-01		5.32E+00
		340.57	48.50	2.51E+00		1.62E+00
		818.50	99.70	-2.04E-01		8.60E-01
		1048.07	79.60	2.95E-01		1.18E+00
		1235.34	19.70	-2.06E+00		6.32E+00
+	CS-137	661.65	85.12	3.95E-03	1.74E-01	1.74E-01
+	LA-138	788.74	34.00	-1.02E-01	2.58E-01	4.51E-01
		1435.80	66.00	-2.81E-02		2.58E-01
+	CE-139	165.85	* 80.35	1.44E-01	1.67E-01	1.67E-01
+	BA-140	162.64	6.70	-4.13E-04	3.14E+00	8.66E+00
		304.84	4.50	3.27E+00		1.57E+01
		423.70	3.20	-4.99E+00		2.19E+01
		437.55	2.00	1.28E+01		3.72E+01
		537.32	25.00	4.79E-01		3.14E+00
+	LA-140	328.77	20.50	1.66E-01	1.10E+00	3.45E+00
		487.03	45.50	3.02E-01		1.55E+00
		815.85	23.50	-2.29E-01		4.04E+00
		1596.49	95.49	1.45E-01		1.10E+00
+	CE-141	145.44	48.40	-3.00E-01	3.96E-01	3.96E-01
+	CE-143	57.36	11.80	-7.07E+06	4.09E+06	7.34E+06
		293.26	42.00	-2.95E+05		4.09E+06
		664.55	5.20	9.66E+06		3.56E+07
+	CE-144	133.54	10.80	-9.52E-02	9.72E-01	9.72E-01
+	PM-144	476.78	42.00	-5.71E-02	1.69E-01	3.18E-01
		618.01	98.60	3.89E-02		1.74E-01
		696.49	99.49	1.34E-02		1.69E-01
+	PM-145	36.85	21.70	-1.27E-01	1.29E-01	2.29E-01
		37.36	39.70	-1.42E-02		1.29E-01
		42.30	15.10	1.05E-01		3.85E-01
		72.40	2.31	8.78E+00		4.75E+00

Analysis Report for 1510093-17  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>			
+	PM-146	453.90	39.94	-2.13E-02	2.98E-01	2.98E-01			
		735.90	14.01	7.75E-02		1.10E+00			
		747.13	13.10	2.93E-02		1.18E+00			
+	ND-147	91.11	28.90	4.27E+00	2.75E+00	2.75E+00			
		531.02	13.10	-4.87E-01		8.45E+00			
+	PM-149	285.90	3.10	-2.01E+04	9.37E+04	9.37E+04			
+	EU-152	121.78	20.50	-1.14E-01	4.42E-01	4.42E-01			
		244.69	5.40	-3.94E-01		2.40E+00			
		344.27	19.13	-9.88E-02		6.11E-01			
		778.89	9.20	1.90E-01		1.82E+00			
		964.01	10.40	-2.80E-01		1.94E+00			
		1085.78	7.22	-5.66E-01		2.53E+00			
		1112.02	9.60	4.24E-01		2.17E+00			
		1407.95	14.94	-1.74E-02		1.23E+00			
		+	GD-153	97.43		31.30	-1.79E-02	3.07E-01	3.07E-01
				103.18		22.20	2.07E-01		4.29E-01
+	EU-154	123.07	40.50	-3.25E-02	2.26E-01	2.26E-01			
		723.30	19.70	1.26E-01		9.91E-01			
		873.19	11.50	4.58E-01		1.48E+00			
		996.32	10.30	3.41E-01		1.66E+00			
		1004.76	17.90	-6.53E-01		8.90E-01			
		1274.45	35.50	-7.08E-02		5.60E-01			
+	EU-155	86.50	* 30.90	5.35E-01	4.19E-01	5.67E-01			
		105.30	20.70	2.69E-02		4.19E-01			
+	EU-156	811.77	10.40	-6.59E-01	7.00E+00	7.00E+00			
		1153.47	7.20	3.18E+00		1.31E+01			
		1230.71	8.90	-2.78E+00		1.10E+01			
+	HO-166M	184.41	72.60	1.82E-01	1.68E-01	1.68E-01			
		280.45	29.60	2.28E-01		4.12E-01			
		410.94	11.10	-1.62E-01		1.18E+00			
		711.69	54.10	-7.45E-02		2.49E-01			
+	TM-171	66.72	0.14	3.88E+01	6.35E+01	6.35E+01			
+	HF-172	81.75	4.52	-8.64E+00	9.09E-01	2.29E+00			
		125.81	11.30	4.90E-02		9.09E-01			
+	LU-172	181.53	20.60	3.86E+00	8.72E+00	1.58E+01			
		810.06	16.63	-1.67E+00		2.83E+01			
		912.12	15.25	8.97E+01		5.32E+01			
		1093.66	62.50	1.69E+00		8.72E+00			
+	LU-173	100.72	5.24	-2.23E-01	5.98E-01	1.71E+00			
		272.11	21.20	3.60E-01		5.98E-01			
+	HF-175	343.40	84.00	-3.08E-02	2.03E-01	2.03E-01			
+	LU-176	88.34	13.30	1.27E+00	1.25E-01	7.80E-01			
		201.83	86.00	-5.94E-02		1.27E-01			
		306.78	94.00	-6.46E-02		1.25E-01			
+	TA-182	67.75	41.20	9.32E-02	2.56E-01	2.56E-01			
		1121.30	34.90	5.16E-01		8.77E-01			
		1189.05	16.23	4.48E-01		1.70E+00			
		1221.41	26.98	-6.49E-01		9.37E-01			
		1231.02	11.44	-6.01E-01		2.38E+00			

Analysis Report for 1510093-17  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	IR-192	308.46	29.68	-1.33E-03	3.77E-01	5.44E-01
		468.07	48.10	-1.14E-02		3.77E-01
+	HG-203	279.19	77.30	8.20E-02	2.50E-01	2.50E-01
+	BI-207	569.67	97.72	3.98E-03	1.45E-01	1.45E-01
		1063.62	74.90	-5.64E-02		2.03E-01
+	TL-208	583.14	* 30.22	1.49E+00	9.12E-02	7.34E-01
		860.37	4.48	2.28E+00		3.99E+00
		2614.66	* 35.85	1.42E+00		9.12E-02
+	BI-210M	262.00	45.00	9.98E-03	2.42E-01	2.42E-01
		300.00	23.00	3.15E-02		6.10E-01
+	PB-210	46.50	4.25	3.58E-01	1.47E+00	1.47E+00
+	PB-211	404.84	2.90	1.52E+00	4.70E+00	4.70E+00
		831.96	2.90	-1.04E-01		5.52E+00
+	BI-212	727.17	* 11.80	1.73E+00	1.84E+00	1.84E+00
		1620.62	2.75	3.19E-01		4.85E+00
+	PB-212	238.63	* 44.60	1.97E+00	3.71E-01	3.71E-01
		300.09	3.41	2.13E-01		4.12E+00
+	BI-214	609.31	* 46.30	1.16E+00	5.99E-01	5.99E-01
		1120.29	15.10	1.03E+00		1.70E+00
		1764.49	* 15.80	1.70E+00		6.69E-01
		2204.22	4.98	1.19E+00		4.47E+00
+	PB-214	295.21	* 19.19	9.44E-01	3.75E-01	7.12E-01
		351.92	* 37.19	1.30E+00		3.75E-01
+	RN-219	401.80	6.50	-8.02E-02	2.03E+00	2.03E+00
+	RA-223	323.87	3.88	-6.44E-01	3.15E+00	3.15E+00
+	RA-224	240.98	3.95	2.24E+01	4.90E+00	4.90E+00
+	RA-225	40.00	31.00	-6.11E-01	7.72E-01	7.72E-01
+	RA-226	186.21	3.28	3.10E+00	3.71E+00	3.71E+00
+	TH-227	50.10	8.40	3.88E-01	7.82E-01	7.82E-01
		236.00	11.50	-7.11E-02		1.56E+00
		256.20	6.30	-7.78E-02		1.75E+00
+	AC-228	338.32	* 11.40	1.43E+00	9.85E-01	1.75E+00
		911.07	* 27.70	1.75E+00		9.85E-01
		969.11	16.60	1.19E+00		1.42E+00
+	TH-230	48.44	16.90	1.88E-01	3.84E-01	3.84E-01
		62.85	4.60	1.23E+00		1.78E+00
		67.67	0.37	8.53E+00		2.35E+01
+	PA-231	283.67	1.60	1.45E+00	5.27E+00	7.44E+00
		302.67	2.30	-8.59E-01		5.27E+00
+	TH-231	25.64	* 14.70	1.77E-01	3.31E-01	3.31E-01
		84.21	6.40	-4.81E+00		1.52E+00
+	PA-233	311.98	38.60	-7.34E-03	7.11E-01	7.11E-01
+	PA-234	131.20	20.40	-9.69E-02	4.87E-01	4.87E-01
		733.99	8.80	-3.56E-01		1.68E+00
		946.00	12.00	4.58E-01		1.42E+00
+	PA-234M	1001.03	0.92	1.91E+00	1.85E+01	1.85E+01
+	TH-234	63.29	3.80	1.16E+00	2.17E+00	2.17E+00

Analysis Report for 1510093-17  
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	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	U-235	143.76	10.50	-4.14E-01	9.20E-01	9.20E-01
		163.35	4.70	2.01E-01		2.19E+00
		205.31	4.70	-1.07E-01		2.41E+00
+	NP-237	86.50 *	12.60	1.30E+00	1.37E+00	1.37E+00
+	NP-239	106.10	22.70	3.32E+02	5.17E+03	5.17E+03
		228.18	10.70	4.20E+03		1.48E+04
		277.60	14.10	2.00E+03		1.16E+04
+	AM-241	59.54	35.90	-3.16E-02	2.13E-01	2.13E-01
+	AM-243	74.67	66.00	7.15E-01	1.77E-01	1.77E-01
+	CM-243	209.75	3.29	1.01E+00	8.62E-01	3.43E+00
		228.14	10.60	5.01E-01		1.11E+00
		277.60	14.00	1.48E-01		8.62E-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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
	BE-7	477.59	10.42	1.89E+00	1.89E+00	1.50E-01	8.93E-01
	NA-22	1274.54	99.94	2.02E-01	2.02E-01	-2.56E-02	9.18E-02
	NA-24	1368.53	99.99	6.00E+14	3.48E+14	-9.14E+12	2.63E+14
		2754.09	99.86	3.48E+14		1.58E+13	1.10E+14
	AL-26	1808.65	99.76	1.54E-01	1.54E-01	4.34E-02	6.44E-02
+	K-40	1460.81 *	10.67	8.41E-01	8.41E-01	1.97E+01	3.23E-01
@	AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88	94.40	9.22E-02	9.22E-02	3.35E-02	4.53E-02
		78.34	96.00	1.21E-01		3.08E-01	5.95E-02
	SC-46	889.25	99.98	2.01E-01	2.01E-01	5.11E-02	9.20E-02

Analysis Report for 1510093-17  
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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	3.35E-01	2.01E-01	2.04E-01	1.57E-01
V-48	983.52	99.98	6.31E-01	6.31E-01	4.35E-02	2.86E-01
	1312.10	97.50	8.47E-01		1.62E-01	3.84E-01
CR-51	320.08	9.83	2.86E+00	2.86E+00	1.66E+00	1.37E+00
MN-54	834.83	99.97	1.71E-01	1.71E-01	-6.29E-03	7.89E-02
CO-56	846.75	99.96	2.13E-01	2.13E-01	-2.71E-02	9.80E-02
	1037.75	14.03	1.88E+00		6.15E-01	8.67E-01
	1238.25	67.00	4.77E-01		2.33E-01	2.21E-01
	1771.40	15.51	1.17E+00		8.28E-02	4.78E-01
	2598.48	16.90	6.97E-01		-5.99E-01	2.20E-01
CO-57	122.06	85.51	1.15E-01	1.15E-01	-2.96E-02	5.60E-02
	136.48	10.60	9.83E-01		-4.37E-02	4.79E-01
+ CO-58	810.76	* 99.40	2.06E-01	2.06E-01	1.41E-01	9.47E-02
FE-59	1099.22	56.50	5.31E-01	5.31E-01	-1.06E-01	2.42E-01
	1291.56	43.20	7.76E-01		2.86E-01	3.52E-01
CO-60	1173.22	100.00	1.74E-01	1.74E-01	-6.18E-02	7.85E-02
	1332.49	100.00	1.79E-01		7.27E-02	8.00E-02
ZN-65	1115.52	50.75	4.92E-01	4.92E-01	2.35E-02	2.28E-01
GA-67	93.31	35.70	2.54E+02	2.54E+02	-7.98E+01	1.24E+02
	208.95	2.24	4.97E+03		3.47E+02	2.42E+03
	300.22	16.00	7.74E+02		6.50E+01	3.73E+02
SE-75	121.11	16.70	6.36E-01	1.95E-01	-3.66E-01	3.10E-01
	136.00	59.20	1.95E-01		-5.89E-02	9.52E-02
	264.65	59.80	2.16E-01		-2.74E-01	1.04E-01
	279.53	25.20	5.72E-01		1.88E-01	2.76E-01
	400.65	11.40	1.38E+00		1.26E-01	6.57E-01
RB-82	776.52	13.00	3.13E+00	3.13E+00	3.81E-01	1.46E+00
RB-83	520.41	46.00	3.64E-01	3.64E-01	1.75E-02	1.71E-01
	529.64	30.30	6.44E-01		2.24E-01	3.05E-01
	552.65	16.40	1.06E+00		-2.88E-01	4.96E-01
KR-85	513.99	0.43	4.26E+01	4.26E+01	4.04E+00	2.04E+01
SR-85	513.99	99.27	2.62E-01	2.62E-01	2.48E-02	1.26E-01
Y-88	898.02	93.40	1.79E-01	1.52E-01	-8.40E-02	8.10E-02
	1836.01	99.38	1.52E-01		-8.26E-02	6.02E-02
NB-93M	16.57	9.43	4.48E-01	4.48E-01	9.66E-01	2.18E-01
NB-94	702.63	100.00	1.61E-01	1.61E-01	-6.41E-03	7.54E-02
	871.10	100.00	1.71E-01		5.70E-02	7.89E-02
NB-95	765.79	99.81	3.27E-01	3.27E-01	-5.68E-02	1.53E-01
NB-95M	235.69	25.00	3.56E+02	3.56E+02	-1.62E+01	1.74E+02
ZR-95	724.18	43.70	6.46E-01	4.30E-01	4.04E-01	3.05E-01
	756.72	55.30	4.30E-01		7.84E-02	2.01E-01
MO-99	181.06	6.20	6.09E+03	4.04E+03	-5.75E+03	2.96E+03
	739.58	12.80	4.04E+03		-5.33E+02	1.87E+03
	778.00	4.50	1.28E+04		1.34E+03	5.94E+03
RU-103	497.08	89.00	2.41E-01	2.41E-01	-7.21E-02	1.13E-01
RU-106	621.84	9.80	1.65E+00	1.65E+00	5.00E-01	7.74E-01
AG-108M	433.93	89.90	1.48E-01	1.48E-01	-3.59E-02	7.01E-02
	614.37	90.40	2.21E-01		-1.62E-03	1.06E-01
	722.95	90.50	2.14E-01		2.72E-02	1.01E-01
+ CD-109	88.03	* 3.72	4.88E+00	4.88E+00	4.61E+00	2.42E+00
AG-110M	657.75	93.14	1.68E-01	1.68E-01	-4.61E-02	7.82E-02
	677.61	10.53	1.56E+00		-4.81E-01	7.29E-01
	706.67	16.46	1.03E+00		-5.43E-02	4.78E-01

Analysis Report for 1510093-17  
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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-110M	763.93	21.98	8.60E-01	1.68E-01	-6.38E-02	4.02E-01	
	884.67	71.63	2.25E-01		-5.65E-02	1.03E-01	
	1384.27	23.94	6.53E-01		-3.38E-01	2.81E-01	
CD-113M	263.70	0.02	4.79E+02	4.79E+02	-2.83E+02	2.30E+02	
	SN-113	255.12	1.93		6.85E+00	2.43E-01	7.89E-02
TE123M	391.69	64.90	2.43E-01	1.38E-01	5.28E-02	1.16E-01	
	159.00	84.10	1.38E-01		-2.01E-02	6.73E-02	
	SB-124	602.71	97.87		2.20E-01	2.20E-01	-3.91E-03
I-125	645.85	7.26	3.08E+00	1.09E+00	4.10E-01	1.44E+00	
	722.78	11.10	2.37E+00		4.83E-01	1.12E+00	
	1691.02	49.00	3.64E-01		3.59E-02	1.47E-01	
	35.49	6.49	1.09E+00		-8.31E-01	5.33E-01	
SB-125	176.33	6.89	1.50E+00	4.64E-01	1.35E-01	7.28E-01	
	427.89	29.33	4.64E-01		2.23E-01	2.21E-01	
	463.38	10.35	1.41E+00		9.40E-01	6.69E-01	
	600.56	17.80	8.09E-01		-1.73E-01	3.79E-01	
	635.90	11.32	1.31E+00		-3.89E-01	6.13E-01	
SB-126	414.70	83.30	9.46E-01	9.30E-01	-1.20E-01	4.50E-01	
	666.33	99.60	9.30E-01		-1.07E-01	4.35E-01	
	695.00	99.60	9.57E-01		1.27E-01	4.47E-01	
	720.50	53.80	1.92E+00		5.61E-01	9.00E-01	
+ SN-126	87.57	* 37.00	4.68E-01	4.68E-01	4.42E-01	2.31E-01	
	SB-127	473.00	25.00		1.76E+02	1.50E+02	6.66E+01
I-129	685.20	35.70	1.50E+02	8.54E-02	8.48E+00	7.01E+01	
	783.80	14.70	3.57E+02		-2.69E+01	1.65E+02	
	29.78	57.00	8.54E-02		-3.51E-02	4.17E-02	
I-131	33.60	13.20	3.66E-01	2.25E+00	-2.18E-01	1.79E-01	
	39.58	7.52	6.98E-01		-5.52E-01	3.41E-01	
	284.30	6.05	3.13E+01		-4.05E+00	1.51E+01	
TE-132	364.48	81.20	2.25E+00	1.30E+02	-7.42E-01	1.07E+00	
	636.97	7.26	3.40E+01		-2.05E+00	1.60E+01	
	722.89	1.80	1.64E+02		3.33E+01	7.71E+01	
	49.72	13.10	4.86E+02		2.41E+02	2.38E+02	
BA-133	228.16	88.00	1.30E+02	2.99E-01	5.86E+01	6.31E+01	
	81.00	33.00	3.24E-01		-4.62E-01	1.60E-01	
	302.84	17.80	6.86E-01		-1.12E-01	3.30E-01	
I-133	356.01	60.00	2.99E-01	2.99E+10	-4.45E-02	1.45E-01	
	529.87	86.30	2.99E+10		1.04E+10	1.42E+10	
	XE-133	81.00	38.00		2.01E+01	-2.87E+01	9.91E+00
	CS-134	563.23	8.38		1.83E+00	1.89E-01	3.70E-01
CS-135	569.32	15.43	9.41E-01	7.20E-01	2.59E-02	4.42E-01	
	604.70	97.60	1.89E-01		-2.47E-03	9.00E-02	
	795.84	85.40	2.12E-01		3.09E-02	9.91E-02	
	801.93	8.73	1.91E+00		-7.67E-01	8.84E-01	
	268.24	16.00	7.20E-01		8.98E-02	3.47E-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+26	1.00E+20	
@	1678.03	9.54	1.00E+26	1.00E+26	1.00E+26	1.00E+20	
CS-136	153.22	7.46	7.57E+00	8.60E-01	4.10E+00	3.69E+00	
	163.89	4.61	1.23E+01		1.13E+00	5.99E+00	
	176.55	13.56	4.10E+00		3.70E-01	1.99E+00	
	273.65	12.66	5.32E+00		-5.75E-01	2.57E+00	
	340.57	48.50	1.62E+00		2.51E+00	7.82E-01	



Analysis Report for 1510093-17  
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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	818.50	99.70	8.60E-01	8.60E-01	-2.04E-01	3.97E-01	
	1048.07	79.60	1.18E+00		2.95E-01	5.39E-01	
	1235.34	19.70	6.32E+00		-2.06E+00	2.91E+00	
CS-137	661.65	85.12	1.74E-01	1.74E-01	3.95E-03	8.13E-02	
LA-138	788.74	34.00	4.51E-01	2.58E-01	-1.02E-01	2.09E-01	
	1435.80	66.00	2.58E-01		-2.81E-02	1.13E-01	
+ CE-139	165.85	* 80.35	1.67E-01	1.67E-01	1.44E-01	8.14E-02	
BA-140	162.64	6.70	8.66E+00	3.14E+00	-4.13E-04	4.21E+00	
	304.84	4.50	1.57E+01		3.27E+00	7.55E+00	
	423.70	3.20	2.19E+01		-4.99E+00	1.04E+01	
	437.55	2.00	3.72E+01		1.28E+01	1.77E+01	
	537.32	25.00	3.14E+00		4.79E-01	1.48E+00	
LA-140	328.77	20.50	3.45E+00	1.10E+00	1.66E-01	1.65E+00	
	487.03	45.50	1.55E+00		3.02E-01	7.29E-01	
	815.85	23.50	4.04E+00		-2.29E-01	1.87E+00	
	1596.49	95.49	1.10E+00		1.45E-01	4.81E-01	
CE-141	145.44	48.40	3.96E-01	3.96E-01	-3.00E-01	1.93E-01	
CE-143	57.36	11.80	7.34E+06	4.09E+06	-7.07E+06	3.60E+06	
	293.26	42.00	4.09E+06		-2.95E+05	1.98E+06	
	664.55	5.20	3.56E+07		9.66E+06	1.66E+07	
CE-144	133.54	10.80	9.72E-01	9.72E-01	-9.52E-02	4.74E-01	
PM-144	476.78	42.00	3.18E-01	1.69E-01	-5.71E-02	1.50E-01	
	618.01	98.60	1.74E-01		3.89E-02	8.20E-02	
	696.49	99.49	1.69E-01		1.34E-02	7.88E-02	
PM-145	36.85	21.70	2.29E-01	1.29E-01	-1.27E-01	1.12E-01	
	37.36	39.70	1.29E-01		-1.42E-02	6.30E-02	
	42.30	15.10	3.85E-01		1.05E-01	1.88E-01	
	72.40	2.31	4.75E+00		8.78E+00	2.34E+00	
PM-146	453.90	39.94	2.98E-01	2.98E-01	-2.13E-02	1.41E-01	
	735.90	14.01	1.10E+00		7.75E-02	5.10E-01	
	747.13	13.10	1.18E+00		2.93E-02	5.49E-01	
ND-147	91.11	28.90	2.75E+00	2.75E+00	4.27E+00	1.35E+00	
	531.02	13.10	8.45E+00		-4.87E-01	3.99E+00	
PM-149	285.90	3.10	9.37E+04	9.37E+04	-2.01E+04	4.51E+04	
EU-152	121.78	20.50	4.42E-01	4.42E-01	-1.14E-01	2.16E-01	
	244.69	5.40	2.40E+00		-3.94E-01	1.16E+00	
	344.27	19.13	6.11E-01		-9.88E-02	2.92E-01	
	778.89	9.20	1.82E+00		1.90E-01	8.45E-01	
	964.01	10.40	1.94E+00		-2.80E-01	9.04E-01	
	1085.78	7.22	2.53E+00		-5.66E-01	1.15E+00	
	1112.02	9.60	2.17E+00		4.24E-01	1.00E+00	
	1407.95	14.94	1.23E+00		-1.74E-02	5.46E-01	
	GD-153	97.43	31.30	3.07E-01	3.07E-01	-1.79E-02	1.50E-01
		103.18	22.20	4.29E-01		2.07E-01	2.10E-01
EU-154	123.07	40.50	2.26E-01	2.26E-01	-3.25E-02	1.10E-01	
	723.30	19.70	9.91E-01		1.26E-01	4.68E-01	
	873.19	11.50	1.48E+00		4.58E-01	6.86E-01	
	996.32	10.30	1.66E+00		3.41E-01	7.58E-01	
	1004.76	17.90	8.90E-01		-6.53E-01	4.03E-01	
	1274.45	35.50	5.60E-01		-7.08E-02	2.54E-01	
+ EU-155	86.50	* 30.90	5.67E-01	4.19E-01	5.35E-01	2.80E-01	
	105.30	20.70	4.19E-01		2.69E-02	2.05E-01	
EU-156	811.77	10.40	7.00E+00	7.00E+00	-6.59E-01	3.25E+00	

Analysis Report for 1510093-17  
CP3004S07-08

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	1.31E+01	7.00E+00	3.18E+00	6.02E+00	
	1230.71	8.90	1.10E+01		-2.78E+00	5.06E+00	
HO-166M	184.41	72.60	1.68E-01	1.68E-01	1.82E-01	8.18E-02	
	280.45	29.60	4.12E-01		2.28E-01	1.99E-01	
	410.94	11.10	1.18E+00		-1.62E-01	5.61E-01	
	711.69	54.10	2.49E-01		-7.45E-02	1.15E-01	
TM-171	66.72	0.14	6.35E+01	6.35E+01	3.88E+01	3.12E+01	
HF-172	81.75	4.52	2.29E+00	9.09E-01	-8.64E+00	1.13E+00	
	125.81	11.30	9.09E-01		4.90E-02	4.44E-01	
LU-172	181.53	20.60	1.58E+01	8.72E+00	3.86E+00	7.69E+00	
	810.06	16.63	2.83E+01		-1.67E+00	1.31E+01	
	912.12	15.25	5.32E+01		8.97E+01	2.54E+01	
	1093.66	62.50	8.72E+00		1.69E+00	4.00E+00	
LU-173	100.72	5.24	1.71E+00	5.98E-01	-2.23E-01	8.34E-01	
	272.11	21.20	5.98E-01		3.60E-01	2.89E-01	
HF-175	343.40	84.00	2.03E-01	2.03E-01	-3.08E-02	9.72E-02	
LU-176	88.34	13.30	7.80E-01	1.25E-01	1.27E+00	3.83E-01	
	201.83	86.00	1.27E-01		-5.94E-02	6.19E-02	
	306.78	94.00	1.25E-01		-6.46E-02	6.02E-02	
TA-182	67.75	41.20	2.56E-01	2.56E-01	9.32E-02	1.26E-01	
	1121.30	34.90	8.77E-01		5.16E-01	4.10E-01	
	1189.05	16.23	1.70E+00		4.48E-01	7.87E-01	
	1221.41	26.98	9.37E-01		-6.49E-01	4.29E-01	
	1231.02	11.44	2.38E+00		-6.01E-01	1.09E+00	
IR-192	308.46	29.68	5.44E-01	3.77E-01	-1.33E-03	2.61E-01	
	468.07	48.10	3.77E-01		-1.14E-02	1.79E-01	
HG-203	279.19	77.30	2.50E-01	2.50E-01	8.20E-02	1.21E-01	
BI-207	569.67	97.72	1.45E-01	1.45E-01	3.98E-03	6.79E-02	
	1063.62	74.90	2.03E-01		-5.64E-02	9.13E-02	
+ TL-208	583.14	*	30.22	7.34E-01	9.12E-02	1.49E+00	3.52E-01
	860.37	*	4.48	3.99E+00		2.28E+00	1.86E+00
	2614.66	*	35.85	9.12E-02		1.42E+00	0.00E+00
BI-210M	262.00	45.00	2.42E-01	2.42E-01	9.98E-03	1.17E-01	
	300.00	23.00	6.10E-01		3.15E-02	2.95E-01	
PB-210	46.50	4.25	1.47E+00	1.47E+00	3.58E-01	7.18E-01	
PB-211	404.84	2.90	4.70E+00	4.70E+00	1.52E+00	2.24E+00	
	831.96	2.90	5.52E+00		-1.04E-01	2.55E+00	
+ BI-212	727.17	*	11.80	1.84E+00	1.84E+00	1.73E+00	8.72E-01
	1620.62	*	2.75	4.85E+00		3.19E-01	2.01E+00
+ PB-212	238.63	*	44.60	3.71E-01	3.71E-01	1.97E+00	1.82E-01
	300.09	*	3.41	4.12E+00		2.13E-01	1.99E+00
+ BI-214	609.31	*	46.30	5.99E-01	5.99E-01	1.16E+00	2.90E-01
	1120.29	*	15.10	1.70E+00		1.03E+00	7.95E-01
	1764.49	*	15.80	6.69E-01		1.70E+00	2.57E-01
	2204.22	*	4.98	4.47E+00		1.19E+00	1.94E+00
+ PB-214	295.21	*	19.19	7.12E-01	3.75E-01	9.44E-01	3.44E-01
	351.92	*	37.19	3.75E-01		1.30E+00	1.80E-01
RN-219	401.80	6.50	2.03E+00	2.03E+00	-8.02E-02	9.68E-01	
RA-223	323.87	3.88	3.15E+00	3.15E+00	-6.44E-01	1.51E+00	
RA-224	240.98	3.95	4.90E+00	4.90E+00	2.24E+01	2.40E+00	
RA-225	40.00	31.00	7.72E-01	7.72E-01	-6.11E-01	3.77E-01	
RA-226	186.21	3.28	3.71E+00	3.71E+00	3.10E+00	1.81E+00	
TH-227	50.10	8.40	7.82E-01	7.82E-01	3.88E-01	3.83E-01	

Analysis Report for 1510093-17  
 CP3004S07-08

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	1.56E+00	7.82E-01	-7.11E-02	7.62E-01
	256.20	6.30	1.75E+00		-7.78E-02	8.44E-01
+ AC-228	338.32 *	11.40	1.75E+00	9.85E-01	1.43E+00	8.54E-01
	911.07 *	27.70	9.85E-01		1.75E+00	4.68E-01
	969.11	16.60	1.42E+00		1.19E+00	6.68E-01
TH-230	48.44	16.90	3.84E-01	3.84E-01	1.88E-01	1.88E-01
	62.85	4.60	1.78E+00		1.23E+00	8.75E-01
	67.67	0.37	2.35E+01		8.53E+00	1.15E+01
PA-231	283.67	1.60	7.44E+00	5.27E+00	1.45E+00	3.58E+00
	302.67	2.30	5.27E+00		-8.59E-01	2.54E+00
+ TH-231	25.64 *	14.70	3.31E-01	3.31E-01	1.77E-01	1.61E-01
	84.21	6.40	1.52E+00		-4.81E+00	7.48E-01
PA-233	311.98	38.60	7.11E-01	7.11E-01	-7.34E-03	3.41E-01
PA-234	131.20	20.40	4.87E-01	4.87E-01	-9.69E-02	2.38E-01
	733.99	8.80	1.68E+00		-3.56E-01	7.80E-01
	946.00	12.00	1.42E+00		4.58E-01	6.54E-01
PA-234M	1001.03	0.92	1.85E+01	1.85E+01	1.91E+00	8.46E+00
TH-234	63.29	3.80	2.17E+00	2.17E+00	1.16E+00	1.06E+00
U-235	143.76	10.50	9.20E-01	9.20E-01	-4.14E-01	4.48E-01
	163.35	4.70	2.19E+00		2.01E-01	1.07E+00
	205.31	4.70	2.41E+00		-1.07E-01	1.17E+00
+ NP-237	86.50 *	12.60	1.37E+00	1.37E+00	1.30E+00	6.79E-01
NP-239	106.10	22.70	5.17E+03	5.17E+03	3.32E+02	2.52E+03
	228.18	10.70	1.48E+04		4.20E+03	7.17E+03
	277.60	14.10	1.16E+04		2.00E+03	5.61E+03
AM-241	59.54	35.90	2.13E-01	2.13E-01	-3.16E-02	1.05E-01
AM-243	74.67	66.00	1.77E-01	1.77E-01	7.15E-01	8.74E-02
CM-243	209.75	3.29	3.43E+00	8.62E-01	1.01E+00	1.66E+00
	228.14	10.60	1.11E+00		5.01E-01	5.39E-01
	277.60	14.00	8.62E-01		1.48E-01	4.16E-01

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

No Action Level results available for reporting purposes.

## DATA REVIEW COMMENTS REPORT

<b>Creation Date</b>	<b>Comment</b>	<b>User</b>
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Analysis Report for 1510093-17  
CP3004S07-08

No Data Review Comments Entered.

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP3004S07-08

Elapsed Live time: 3600

Elapsed Real Time: 3651

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	25	91
17:	100	86	76	50	58	60	70	83
25:	71	66	66	60	62	61	62	46
33:	45	63	53	67	48	56	65	68
41:	74	64	57	76	87	101	92	74
49:	74	80	72	92	76	96	82	73
57:	102	94	81	102	102	113	140	119
65:	118	104	97	117	106	101	115	127
73:	162	239	282	274	251	139	97	90
81:	98	100	102	124	119	147	145	138
89:	108	96	105	115	113	79	74	73
97:	72	59	62	79	78	60	75	71
105:	73	73	59	53	55	70	67	57
113:	63	70	59	47	59	49	70	40
121:	66	56	68	68	69	59	77	98
129:	73	63	72	52	50	53	62	68
137:	60	48	61	70	73	43	56	47
145:	37	42	62	60	58	64	67	60
153:	56	45	54	41	62	41	47	51
161:	28	51	50	54	62	56	61	42
169:	31	41	34	41	38	36	45	50
177:	29	49	46	56	61	43	42	61
185:	95	69	64	41	55	52	42	40
193:	46	57	43	48	41	43	44	35
201:	41	31	43	51	39	39	35	54
209:	50	46	41	29	31	30	33	40
217:	33	30	36	45	28	43	39	25
225:	49	35	42	38	30	43	43	30
233:	32	27	39	45	128	234	186	92
241:	69	49	36	27	23	23	19	27
249:	26	30	27	25	33	30	22	20
257:	23	29	37	25	33	23	26	15
265:	17	23	29	25	37	41	34	24
273:	34	22	19	27	31	27	36	26
281:	30	22	27	28	19	21	27	25
289:	18	23	25	21	24	64	78	45
297:	25	21	28	29	30	16	27	26
305:	24	16	24	26	19	21	23	23
313:	25	15	23	29	18	20	22	27
321:	23	18	28	12	14	24	26	26
329:	27	18	18	24	13	13	22	23
337:	37	46	35	20	26	22	18	17
345:	14	10	15	13	17	52	100	104
353:	57	15	11	21	15	13	17	12
361:	16	19	19	16	9	10	23	5

369: 19 19 14 15 12 17 15 16

Sample Title: CP3004S07-08

Channel	1	2	3	4	5	6	7	8
377:	18	9	14	17	21	16	9	14
385:	20	12	12	23	21	16	20	13
393:	13	14	19	12	18	16	12	20
401:	24	15	12	16	15	19	13	22
409:	22	12	11	15	12	13	17	20
417:	16	17	10	15	12	11	17	13
425:	10	11	13	18	19	24	8	9
433:	19	5	19	15	10	9	20	12
441:	10	7	12	9	9	8	11	11
449:	4	0	11	12	18	13	12	13
457:	8	11	9	13	12	22	15	17
465:	16	18	8	12	6	12	15	8
473:	14	12	15	9	14	9	7	6
481:	14	9	12	9	7	6	13	5
489:	11	13	8	9	7	13	7	7
497:	8	8	11	10	9	11	8	13
505:	14	16	8	12	20	41	33	26
513:	18	11	7	13	11	6	12	6
521:	4	11	8	12	20	14	21	15
529:	9	8	6	10	8	9	17	5
537:	9	9	10	9	11	5	7	8
545:	13	7	7	9	10	7	10	10
553:	6	8	8	11	8	15	10	10
561:	11	10	14	10	10	10	10	7
569:	10	7	10	11	8	6	6	10
577:	4	7	10	9	17	40	53	37
585:	14	7	8	8	10	7	5	5
593:	12	7	8	8	5	7	9	10
601:	7	9	10	9	12	9	14	42
609:	56	52	21	9	14	7	15	10
617:	7	13	12	6	12	11	7	8
625:	5	6	3	7	10	11	5	9
633:	8	9	6	8	10	9	6	12
641:	6	9	12	5	10	9	9	7
649:	10	6	8	7	11	7	10	4
657:	6	6	6	9	4	9	10	8
665:	9	4	10	9	5	6	11	12
673:	6	9	7	9	7	10	5	6
681:	7	4	12	8	9	10	9	5
689:	8	9	7	9	7	10	4	10
697:	9	8	4	8	7	5	9	16
705:	9	5	4	7	3	6	5	6
713:	6	5	5	8	6	9	11	9
721:	4	8	8	12	11	14	22	16
729:	9	8	5	6	7	5	3	4
737:	7	9	11	2	7	6	5	6
745:	11	4	5	6	6	8	5	4
753:	10	7	5	8	8	12	6	6
761:	5	8	7	6	6	9	12	10
769:	5	9	8	9	6	4	12	5
777:	9	6	8	5	6	6	6	5
785:	5	8	3	5	9	3	5	7
793:	9	15	11	5	8	2	4	6

801: 10 6 11 6 3 6 6 8

Sample Title: CP3004S07-08

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	8	3	15	4	2	4	6	4
817:	9	7	3	5	3	7	3	7
825:	7	3	6	5	6	7	6	4
833:	2	8	4	7	9	1	7	5
841:	4	5	6	4	5	6	6	8
849:	5	2	8	6	4	3	4	3
857:	8	5	6	10	8	7	5	6
865:	3	4	6	3	6	4	7	4
873:	12	4	5	5	3	5	6	2
881:	5	3	5	7	4	4	3	3
889:	4	7	4	6	4	1	3	2
897:	1	7	3	5	4	3	3	8
905:	3	5	6	3	9	22	37	35
913:	10	10	9	4	4	4	6	1
921:	5	6	4	1	5	10	4	1
929:	6	3	3	9	8	7	4	4
937:	5	6	3	4	2	4	5	6
945:	4	9	6	2	5	2	5	2
953:	5	5	5	4	4	4	7	3
961:	2	2	5	9	7	9	9	13
969:	21	11	3	2	7	5	6	3
977:	2	5	5	5	3	6	1	3
985:	3	3	3	4	1	5	4	3
993:	2	5	5	4	3	7	6	3
1001:	8	2	1	4	4	6	1	3
1009:	6	9	4	2	5	2	2	7
1017:	3	6	3	0	7	4	1	5
1025:	6	3	6	3	7	4	5	4
1033:	3	3	9	6	3	8	3	8
1041:	6	0	6	6	2	5	1	5
1049:	6	2	5	3	4	2	1	6
1057:	0	2	1	3	2	2	2	2
1065:	4	5	5	4	2	9	8	4
1073:	7	5	6	4	7	7	7	6
1081:	4	5	4	7	2	3	4	6
1089:	3	3	3	3	7	9	0	3
1097:	10	5	4	1	6	6	1	3
1105:	2	5	2	5	3	6	6	3
1113:	7	5	7	5	5	7	12	11
1121:	13	11	5	4	2	8	3	3
1129:	3	5	4	6	4	1	4	5
1137:	3	6	6	1	7	2	3	3
1145:	8	3	7	4	5	8	2	8
1153:	3	7	5	4	5	5	2	5
1161:	7	5	5	3	2	4	5	3
1169:	1	1	5	7	4	4	1	4
1177:	1	3	3	7	3	6	6	5
1185:	6	6	5	5	5	8	8	4
1193:	3	5	3	3	9	0	5	4
1201:	9	3	3	5	6	6	4	4
1209:	5	6	9	6	4	7	5	6
1217:	6	3	5	5	3	4	6	5
1225:	2	9	6	7	5	6	7	3

1233: 4 4 3 8 5 6 6 8

Sample Title: CP3004S07-08

Channel	1	2	3	4	5	6	7	8
1241:	5	7	2	5	2	4	4	3
1249:	3	4	2	2	4	2	3	4
1257:	2	3	4	2	3	6	2	4
1265:	3	3	0	5	8	5	8	5
1273:	0	3	3	2	3	3	1	3
1281:	5	2	3	1	0	7	8	3
1289:	3	3	4	2	3	4	3	1
1297:	2	4	5	2	4	2	4	1
1305:	3	0	3	4	4	4	4	2
1313:	2	3	6	3	2	6	3	3
1321:	2	4	4	3	2	1	0	4
1329:	5	1	1	5	2	2	2	1
1337:	1	4	0	1	1	4	2	1
1345:	0	0	6	5	0	2	2	4
1353:	6	1	3	2	1	0	2	4
1361:	2	0	1	2	1	5	0	2
1369:	1	1	2	3	3	2	3	3
1377:	7	3	4	2	1	1	1	2
1385:	3	1	1	1	1	2	0	0
1393:	4	4	0	2	1	2	2	5
1401:	2	3	5	0	2	5	3	0
1409:	3	5	1	3	2	2	1	0
1417:	0	3	4	1	3	0	1	2
1425:	4	1	2	2	0	1	2	4
1433:	2	1	3	3	1	1	1	2
1441:	1	1	7	4	1	2	2	1
1449:	2	2	1	4	4	0	0	0
1457:	0	0	17	59	78	81	36	5
1465:	0	1	2	1	4	1	1	1
1473:	1	2	1	2	2	0	0	1
1481:	1	1	1	2	1	0	1	1
1489:	2	0	2	0	2	2	0	1
1497:	2	1	2	1	0	1	0	2
1505:	2	0	1	1	0	4	1	2
1513:	2	1	0	1	0	2	0	2
1521:	0	1	0	0	2	2	3	1
1529:	1	1	0	1	1	2	4	0
1537:	2	1	0	0	0	1	2	2
1545:	3	1	2	2	0	1	0	0
1553:	1	1	0	3	0	2	0	1
1561:	3	0	0	0	2	0	2	1
1569:	0	2	1	2	2	1	1	2
1577:	2	1	0	1	0	2	1	0
1585:	1	5	1	1	2	2	2	6
1593:	4	2	1	2	1	1	0	4
1601:	2	0	1	0	1	0	1	0
1609:	1	2	1	1	2	0	2	1
1617:	1	1	1	2	1	2	0	0
1625:	0	1	0	1	3	1	3	5
1633:	1	0	1	2	1	0	1	3
1641:	0	0	0	1	0	0	4	1
1649:	1	0	0	0	0	0	0	1
1657:	3	1	2	0	2	0	2	0



1665: 0 0 1 0 2 2 2 1

Sample Title: CP3004S07-08

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

2097: 0 1 1 0 0 2 4 3

Sample Title: CP3004S07-08

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

2529: 1 0 1 0 1 0 0 0

Sample Title: CP3004S07-08

Channel	1	2	3	4	5	6	7	8	9
2537:	0	0	0	1	0	1	0	0	0
2545:	0	0	0	1	0	1	0	0	0
2553:	0	0	0	0	0	0	0	0	1
2561:	0	0	0	2	0	0	0	0	0
2569:	0	0	0	0	0	0	2	0	0
2577:	1	0	0	0	0	0	0	0	0
2585:	1	0	0	0	5	1	2	0	0
2593:	0	0	1	0	0	0	0	0	0
2601:	0	0	0	0	1	1	0	0	0
2609:	0	0	0	1	0	9	5	9	0
2617:	15	2	1	0	0	0	0	0	0
2625:	0	1	0	0	0	0	0	0	1
2633:	0	0	0	1	0	1	0	0	0
2641:	0	0	0	0	0	1	0	0	0
2649:	0	1	0	0	0	0	0	0	0
2657:	0	0	0	0	0	0	0	0	1
2665:	0	0	0	1	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0	0
2681:	1	0	1	1	0	1	0	0	0
2689:	0	0	0	0	0	0	0	0	0
2697:	0	0	0	0	1	1	0	0	0
2705:	0	0	0	0	1	1	0	0	0
2713:	0	0	1	0	1	0	0	0	0
2721:	0	0	0	0	0	0	0	1	0
2729:	0	0	0	0	0	0	1	0	0
2737:	0	0	0	0	0	0	0	0	0
2745:	0	1	1	0	0	0	0	0	1
2753:	0	0	0	0	0	0	0	0	0
2761:	0	0	0	0	2	0	1	0	0
2769:	0	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	0	1
2785:	0	0	0	0	0	0	1	1	1
2793:	0	0	0	0	1	0	0	0	0
2801:	0	0	0	0	0	0	0	0	0
2809:	0	0	0	0	1	0	0	0	0
2817:	0	0	0	0	0	0	0	0	0
2825:	1	0	0	0	0	1	0	0	1
2833:	0	0	0	0	0	0	0	0	0
2841:	0	0	0	1	0	0	0	0	0
2849:	0	0	1	0	0	0	0	0	0
2857:	0	0	0	0	0	1	0	0	0
2865:	0	1	0	2	0	0	0	0	0
2873:	0	0	0	1	0	0	0	0	0
2881:	0	0	1	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0	0
2905:	1	0	0	0	2	0	0	0	1
2913:	0	0	0	1	0	0	0	0	1
2921:	1	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0	1
2937:	0	0	1	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0	0
2953:	1	0	0	0	1	0	0	0	0

2961: 0 0 0 0 0 0 0 1

Sample Title: CP3004S07-08

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

3393: 0 0 0 0 0 0 0 0

Sample Title: CP3004S07-08

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

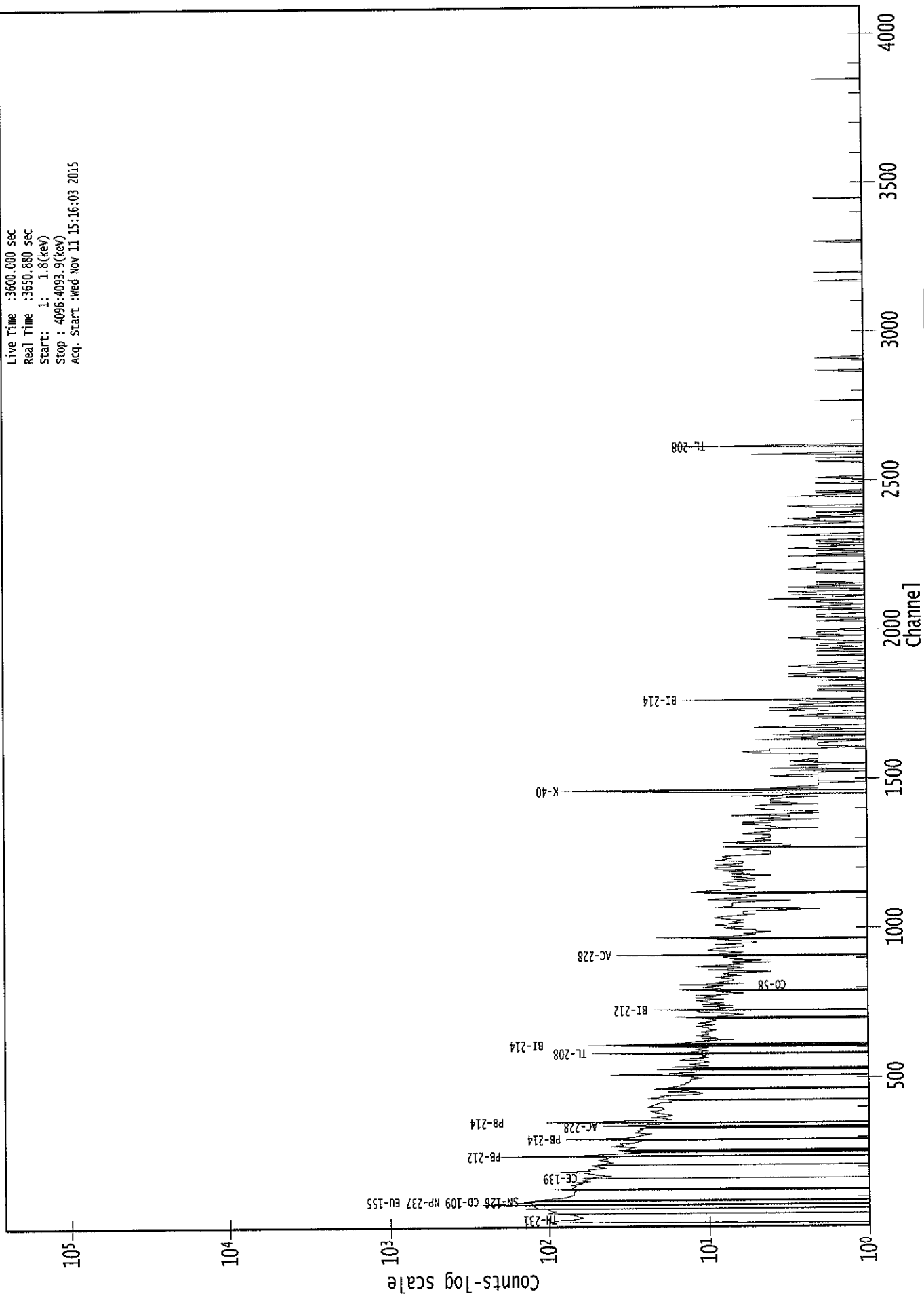
3825: 0 1 0 0 0 0 0 0 0

Sample Title: CP3004S07-08

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

0000029511.CNF

Live Time :3600.000 sec  
Real Time :3650.880 sec  
Start : 1: 1.8(kev)  
Stop : 4096:4093.9(kev)  
Acq. Start :wed Nov 11 15:16:03 2015



18000

ICB  
11/11/15Analysis Report for 1510093-18  
CP3004S10-11

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**GAMMA SPECTRUM ANALYSIS**

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Sample Identification : 1510093-18  
Sample Description : CP3004S10-11  
Sample Type : SOIL

Sample Size : 5.470E+02 grams  
Facility : Countroom

Sample Taken On : 10/10/2015 7:34:47AM  
Acquisition Started : 11/11/2015 3:32:02PM

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

Dead Time : 0.04 %

Peak Locate Threshold : 2.50  
Peak Locate Range (in channels) : 1 - 4096  
Peak Area Range (in channels) : 18 - 4096  
Identification Energy Tolerance : 1.000 keV

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

Sample Number : 29513

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**PEAK-TO-TOTAL CALIBRATION REPORT**

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**Peak-to-Total Efficiency Calibration Equation**

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AG  
11/12/15



Analysis Report for 1510093-18  
CP3004S10-11

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 4:32:06PM  
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	46.45	46.80	0.0000	0.00
2	63.49	63.83	0.0000	0.00
3	74.94	75.28	0.0000	0.00
4	77.47	77.81	0.0000	0.00
5	87.80	88.13	0.0000	0.00
6	92.79	93.13	0.0000	0.00
7	127.85	128.18	0.0000	0.00
8	155.38	155.69	0.0000	0.00
9	186.00	186.31	0.0000	0.00
10	209.64	209.94	0.0000	0.00
11	238.74	239.03	0.0000	0.00
12	242.03	242.32	0.0000	0.00
13	270.56	270.84	0.0000	0.00
14	277.39	277.67	0.0000	0.00
15	295.48	295.74	0.0000	0.00
16	300.40	300.67	0.0000	0.00
17	327.76	328.02	0.0000	0.00
18	336.08	336.34	0.0000	0.00
19	338.75	339.00	0.0000	0.00
20	352.02	352.27	0.0000	0.00
21	437.68	437.90	0.0000	0.00
22	510.82	511.01	0.0000	0.00
23	583.40	583.57	0.0000	0.00
24	609.59	609.75	0.0000	0.00
25	614.84	615.00	0.0000	0.00
26	660.88	661.03	0.0000	0.00
27	666.55	666.69	0.0000	0.00
28	727.64	727.76	0.0000	0.00
29	769.57	769.68	0.0000	0.00
30	795.51	795.61	0.0000	0.00
31	911.70	911.76	0.0000	0.00
32	933.74	933.79	0.0000	0.00
33	969.55	969.59	0.0000	0.00
34	1083.01	1083.01	0.0000	0.00
35	1109.70	1109.68	0.0000	0.00
36	1120.88	1120.86	0.0000	0.00
37	1134.82	1134.79	0.0000	0.00
38	1155.70	1155.67	0.0000	0.00
39	1195.43	1195.38	0.0000	0.00
40	1238.74	1238.67	0.0000	0.00
41	1281.89	1281.81	0.0000	0.00
42	1315.09	1315.00	0.0000	0.00

Analysis Report for 1510093-18  
CP3004S10-11

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1374.11	1374.00	0.0000	0.00
44	1378.23	1378.11	0.0000	0.00
45	1386.76	1386.64	0.0000	0.00
46	1408.98	1408.86	0.0000	0.00
47	1461.41	1461.27	0.0000	0.00
48	1588.11	1587.92	0.0000	0.00
49	1594.82	1594.62	0.0000	0.00
50	1622.80	1622.60	0.0000	0.00
51	1635.70	1635.49	0.0000	0.00
52	1661.80	1661.58	0.0000	0.00
53	1726.76	1726.52	0.0000	0.00
54	1730.48	1730.24	0.0000	0.00
55	1765.21	1764.96	0.0000	0.00
56	1768.49	1768.23	0.0000	0.00
57	1847.45	1847.17	0.0000	0.00
58	1946.02	1945.70	0.0000	0.00
59	1968.58	1968.25	0.0000	0.00
60	2014.29	2013.94	0.0000	0.00
61	2074.69	2074.31	0.0000	0.00
62	2089.66	2089.29	0.0000	0.00
63	2103.52	2103.13	0.0000	0.00
64	2127.94	2127.55	0.0000	0.00
65	2204.83	2204.41	0.0000	0.00
66	2211.46	2211.04	0.0000	0.00
67	2241.85	2241.41	0.0000	0.00
68	2248.44	2248.00	0.0000	0.00
69	2263.21	2262.76	0.0000	0.00
70	2447.70	2447.18	0.0000	0.00
71	2615.31	2614.73	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

Analysis Report for 1510093-18  
CP3004S10-11

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 4:32:06PM

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	46.45	44 -	49	46.80	1.41E+02	71.84	9.26E+02	1.27
2	63.49	61 -	66	63.83	1.59E+02	94.07	1.65E+03	1.19
M 3	74.94	72 -	81	75.28	4.51E+02	96.44	1.32E+03	1.60
m 4	77.47	72 -	81	77.81	7.38E+02	103.77	1.36E+03	1.61
M 5	87.80	83 -	96	88.13	3.15E+02	69.17	9.24E+02	1.48
m 6	92.79	83 -	96	93.13	3.05E+02	70.68	7.67E+02	1.49
7	127.85	123 -	131	128.18	1.53E+02	92.06	1.20E+03	1.87
8	155.38	153 -	160	155.69	1.29E+02	77.59	9.20E+02	1.44
9	186.00	181 -	190	186.31	3.15E+02	97.34	1.17E+03	2.02
10	209.64	207 -	212	209.94	7.27E+01	60.37	6.65E+02	2.13
M 11	238.74	235 -	249	239.03	1.03E+03	77.29	4.35E+02	1.63
m 12	242.03	235 -	249	242.32	2.15E+02	64.58	4.47E+02	1.85
13	270.56	267 -	274	270.84	1.16E+02	58.89	5.02E+02	3.17
14	277.39	275 -	281	277.67	6.16E+01	51.84	4.43E+02	1.65
M 15	295.48	292 -	304	295.74	3.79E+02	55.24	3.24E+02	1.91
m 16	300.40	292 -	304	300.67	8.38E+01	44.05	2.62E+02	1.91
17	327.76	325 -	331	328.02	5.22E+01	47.74	3.80E+02	1.24
M 18	336.08	334 -	345	336.34	3.59E+01	30.79	2.28E+02	1.95
m 19	338.75	334 -	345	339.00	1.94E+02	50.29	3.28E+02	1.95
20	352.02	347 -	357	352.27	5.96E+02	78.87	5.11E+02	1.82
21	437.68	435 -	440	437.90	3.18E+01	30.77	1.62E+02	2.78
22	510.82	505 -	516	511.01	2.13E+02	59.09	3.30E+02	2.02
23	583.40	578 -	589	583.57	3.27E+02	57.20	2.45E+02	1.98
M 24	609.59	605 -	624	609.75	4.10E+02	45.32	9.64E+01	1.58
m 25	614.84	605 -	624	615.00	1.68E+01	22.39	9.21E+01	1.80
26	660.88	658 -	664	661.03	2.70E+01	29.29	1.36E+02	2.96
27	666.55	664 -	670	666.69	3.25E+01	28.72	1.27E+02	1.35
28	727.64	724 -	731	727.76	7.07E+01	36.28	1.73E+02	2.24
29	769.57	764 -	777	769.68	7.49E+01	49.38	2.36E+02	2.19
30	795.51	792 -	800	795.61	5.76E+01	30.03	1.03E+02	1.89
31	911.70	907 -	917	911.76	2.22E+02	44.21	1.40E+02	2.14
32	933.74	929 -	937	933.79	4.10E+01	29.43	1.08E+02	2.27
33	969.55	966 -	975	969.59	7.33E+01	46.56	2.37E+02	1.94
34	1083.01	1078 -	1087	1083.01	2.42E+01	29.29	1.06E+02	2.46
35	1109.70	1104 -	1114	1109.68	3.32E+01	31.61	1.16E+02	3.41
M 36	1120.88	1116 -	1148	1120.86	7.80E+01	27.43	7.11E+01	2.26
m 37	1134.82	1116 -	1148	1134.79	3.43E+01	22.81	5.91E+01	2.27
38	1155.70	1151 -	1159	1155.67	2.70E+01	29.91	1.20E+02	2.24
39	1195.43	1192 -	1198	1195.38	3.15E+01	23.44	7.70E+01	2.99
40	1238.74	1237 -	1241	1238.67	1.62E+01	19.99	7.37E+01	1.75

Analysis Report for 1510093-18  
CP3004S10-11

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1281.89	1279 - 1285		1281.81	2.12E+01	16.57	3.37E+01	4.27
	42	1315.09	1312 - 1318		1315.00	1.57E+01	16.94	3.86E+01	1.16
M	43	1374.11	1372 - 1381		1374.00	1.01E+01	10.39	2.06E+01	2.16
m	44	1378.23	1372 - 1381		1378.11	2.98E+01	18.30	3.97E+01	2.38
	45	1386.76	1383 - 1391		1386.64	1.41E+01	16.79	3.17E+01	1.84
	46	1408.98	1405 - 1414		1408.86	2.90E+01	20.71	4.40E+01	2.12
	47	1461.41	1455 - 1466		1461.27	8.50E+02	63.44	7.87E+01	2.12
	48	1588.11	1584 - 1590		1587.92	9.95E+00	13.18	2.41E+01	1.64
	49	1594.82	1591 - 1599		1594.62	2.18E+01	13.14	1.25E+01	5.87
	50	1622.80	1618 - 1627		1622.60	2.18E+01	11.00	4.46E+00	5.00
	51	1635.70	1628 - 1644		1635.49	3.11E+01	17.45	1.79E+01	10.61
	52	1661.80	1657 - 1668		1661.58	2.21E+01	13.71	1.39E+01	2.31
M	53	1726.76	1723 - 1734		1726.52	7.68E+00	7.35	1.04E+01	2.78
m	54	1730.48	1723 - 1734		1730.24	1.73E+01	12.35	6.52E+00	3.06
M	55	1765.21	1759 - 1772		1764.96	7.30E+01	19.80	1.62E+01	2.54
m	56	1768.49	1759 - 1772		1768.23	1.00E+01	19.39	1.09E+01	2.54
	57	1847.45	1843 - 1850		1847.17	1.80E+01	8.49	0.00E+00	1.91
	58	1946.02	1941 - 1949		1945.70	1.19E+01	8.73	4.21E+00	5.91
	59	1968.58	1963 - 1972		1968.25	1.26E+01	9.22	4.80E+00	2.08
	60	2014.29	2010 - 2016		2013.94	5.14E+00	6.34	3.71E+00	1.90
	61	2074.69	2069 - 2078		2074.31	7.00E+00	9.90	1.00E+01	1.94
	62	2089.66	2086 - 2092		2089.29	7.00E+00	5.29	0.00E+00	1.92
	63	2103.52	2097 - 2110		2103.13	2.58E+01	15.17	1.43E+01	2.78
	64	2127.94	2124 - 2130		2127.55	1.10E+01	6.63	0.00E+00	3.09
	65	2204.83	2199 - 2208		2204.41	2.45E+01	14.25	1.50E+01	2.40
	66	2211.46	2209 - 2213		2211.04	6.07E+00	5.85	1.86E+00	1.90
	67	2241.85	2238 - 2244		2241.41	1.12E+01	8.02	3.54E+00	3.31
	68	2248.44	2246 - 2251		2248.00	5.00E+00	7.07	6.00E+00	1.45
	69	2263.21	2257 - 2267		2262.76	1.13E+01	9.29	5.43E+00	2.64
	70	2447.70	2443 - 2450		2447.18	1.21E+01	8.49	3.79E+00	4.70
	71	2615.31	2611 - 2619		2614.73	9.85E+01	21.27	9.00E+00	3.15

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 : 11/11/2015 4:32:06PM

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

Analysis Report for 1510093-18  
CP3004S10-11

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.45	44 -	49	1.41E+02	71.84	9.26E+02	5.57E+01
	2	63.49	61 -	66	1.59E+02	94.07	1.65E+03	7.45E+01
M	3	74.94	72 -	81	4.51E+02	96.44	1.32E+03	5.97E+01
m	4	77.47	72 -	81	7.38E+02	103.77	1.36E+03	6.07E+01
M	5	87.80	83 -	96	3.15E+02	69.17	9.24E+02	5.00E+01
m	6	92.79	83 -	96	3.05E+02	70.68	7.67E+02	4.55E+01
	7	127.85	123 -	131	1.53E+02	92.06	1.20E+03	7.29E+01
	8	155.38	153 -	160	1.29E+02	77.59	9.20E+02	6.10E+01
	9	186.00	181 -	190	3.15E+02	97.34	1.17E+03	7.45E+01
	10	209.64	207 -	212	7.27E+01	60.37	6.65E+02	4.76E+01
M	11	238.74	235 -	249	1.03E+03	77.29	4.35E+02	3.43E+01
m	12	242.03	235 -	249	2.15E+02	64.58	4.47E+02	3.48E+01
	13	270.56	267 -	274	1.16E+02	58.89	5.02E+02	4.51E+01
	14	277.39	275 -	281	6.16E+01	51.84	4.43E+02	4.06E+01
M	15	295.48	292 -	304	3.79E+02	55.24	3.24E+02	2.96E+01
m	16	300.40	292 -	304	8.38E+01	44.05	2.62E+02	2.66E+01
	17	327.76	325 -	331	5.22E+01	47.74	3.80E+02	3.74E+01
M	18	336.08	334 -	345	3.59E+01	30.79	2.28E+02	2.48E+01
m	19	338.75	334 -	345	1.94E+02	50.29	3.28E+02	2.98E+01
	20	352.02	347 -	357	5.96E+02	78.87	5.11E+02	5.09E+01
	21	437.68	435 -	440	3.18E+01	30.77	1.62E+02	2.35E+01
	22	510.82	505 -	516	2.13E+02	59.09	3.30E+02	4.22E+01
	23	583.40	578 -	589	3.27E+02	57.20	2.45E+02	3.64E+01
M	24	609.59	605 -	624	4.10E+02	45.32	9.64E+01	1.61E+01
m	25	614.84	605 -	624	1.68E+01	22.39	9.21E+01	1.58E+01
	26	660.88	658 -	664	2.70E+01	29.29	1.36E+02	2.25E+01
	27	666.55	664 -	670	3.25E+01	28.72	1.27E+02	2.17E+01
	28	727.64	724 -	731	7.07E+01	36.28	1.73E+02	2.64E+01
	29	769.57	764 -	777	7.49E+01	49.38	2.36E+02	1.81E+01
	30	795.51	792 -	800	5.76E+01	30.03	1.03E+02	8.02E+00
	31	911.70	907 -	917	2.22E+02	44.21	1.40E+02	2.68E+01
	32	933.74	929 -	937	4.10E+01	29.43	1.08E+02	2.18E+01
	33	969.55	966 -	975	7.33E+01	46.56	2.37E+02	3.56E+01
	34	1083.01	1078 -	1087	2.42E+01	29.29	1.06E+02	2.27E+01
	35	1109.70	1104 -	1114	3.32E+01	31.61	1.16E+02	2.42E+01
M	36	1120.88	1116 -	1148	7.80E+01	27.43	7.11E+01	1.39E+01
m	37	1134.82	1116 -	1148	3.43E+01	22.81	5.91E+01	1.26E+01
	38	1155.70	1151 -	1159	2.70E+01	29.91	1.20E+02	2.31E+01
	39	1195.43	1192 -	1198	3.15E+01	23.44	7.70E+01	1.69E+01
	40	1238.74	1237 -	1241	1.62E+01	19.99	7.37E+01	1.50E+01
	41	1281.89	1279 -	1285	2.12E+01	16.57	3.37E+01	1.13E+01
	42	1315.09	1312 -	1318	1.57E+01	16.94	3.86E+01	1.23E+01
M	43	1374.11	1372 -	1381	1.01E+01	10.39	2.06E+01	7.46E+00
m	44	1378.23	1372 -	1381	2.98E+01	18.30	3.97E+01	1.04E+01
	45	1386.76	1383 -	1391	1.41E+01	16.79	3.17E+01	1.23E+01
	46	1408.98	1405 -	1414	2.90E+01	20.71	4.40E+01	1.45E+01
	47	1461.41	1455 -	1466	8.50E+02	63.44	7.87E+01	2.06E+01
	48	1588.11	1584 -	1590	9.95E+00	13.18	2.41E+01	9.51E+00
	49	1594.82	1591 -	1599	2.18E+01	13.14	1.25E+01	7.61E+00
	50	1622.80	1618 -	1627	2.18E+01	11.00	4.46E+00	4.79E+00
	51	1635.70	1628 -	1644	3.11E+01	17.45	1.79E+01	1.10E+01

Analysis Report for 1510093-18  
CP3004S10-11

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	1661.80	1657 - 1668	2.21E+01	13.71	1.39E+01	8.21E+00
M	53	1726.76	1723 - 1734	7.68E+00	7.35	1.04E+01	5.30E+00
m	54	1730.48	1723 - 1734	1.73E+01	12.35	6.52E+00	4.20E+00
M	55	1765.21	1759 - 1772	7.30E+01	19.80	1.62E+01	6.63E+00
m	56	1768.49	1759 - 1772	1.00E+01	19.39	1.09E+01	5.44E+00
	57	1847.45	1843 - 1850	1.80E+01	8.49	0.00E+00	0.00E+00
	58	1946.02	1941 - 1949	1.19E+01	8.73	4.21E+00	4.40E+00
	59	1968.58	1963 - 1972	1.26E+01	9.22	4.80E+00	4.84E+00
	60	2014.29	2010 - 2016	5.14E+00	6.34	3.71E+00	3.65E+00
	61	2074.69	2069 - 2078	7.00E+00	9.90	1.00E+01	6.88E+00
	62	2089.66	2086 - 2092	7.00E+00	5.29	0.00E+00	0.00E+00
	63	2103.52	2097 - 2110	2.58E+01	15.17	1.43E+01	9.25E+00
	64	2127.94	2124 - 2130	1.10E+01	6.63	0.00E+00	0.00E+00
	65	2204.83	2199 - 2208	2.45E+01	14.25	1.50E+01	8.42E+00
	66	2211.46	2209 - 2213	6.07E+00	5.85	1.86E+00	2.59E+00
	67	2241.85	2238 - 2244	1.12E+01	8.02	3.54E+00	3.61E+00
	68	2248.44	2246 - 2251	5.00E+00	7.07	6.00E+00	4.50E+00
	69	2263.21	2257 - 2267	1.13E+01	9.29	5.43E+00	5.27E+00
	70	2447.70	2443 - 2450	1.21E+01	8.49	3.79E+00	3.99E+00
	71	2615.31	2611 - 2619	9.85E+01	21.27	9.00E+00	6.29E+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 : 11/11/2015 4:32:06PM

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	46.45	44 - 49	46.80	1.41E+02	71.84	9.26E+02	PB-210
	2	63.49	61 - 66	63.83	1.59E+02	94.07	1.65E+03	TH-234 TH-230
M	3	74.94	72 - 81	75.28	4.51E+02	96.44	1.32E+03	AM-243
m	4	77.47	72 - 81	77.81	7.38E+02	103.77	1.36E+03	TI-44

Analysis Report for 1510093-18

CP3004S10-11

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	5	87.80	83 -	96	88.13	3.15E+02	69.17	9.24E+02	SN-126 CD-109 LU-176
m	6	92.79	83 -	96	93.13	3.05E+02	70.68	7.67E+02	GA-67
	7	127.85	123 -	131	128.18	1.53E+02	92.06	1.20E+03	.....
	8	155.38	153 -	160	155.69	1.29E+02	77.59	9.20E+02	.....
	9	186.00	181 -	190	186.31	3.15E+02	97.34	1.17E+03	RA-226
	10	209.64	207 -	212	209.94	7.27E+01	60.37	6.65E+02	CM-243 GA-67
M	11	238.74	235 -	249	239.03	1.03E+03	77.29	4.35E+02	PB-212
m	12	242.03	235 -	249	242.32	2.15E+02	64.58	4.47E+02	.....
	13	270.56	267 -	274	270.84	1.16E+02	58.89	5.02E+02	.....
	14	277.39	275 -	281	277.67	6.16E+01	51.84	4.43E+02	CM-243 NP-239
M	15	295.48	292 -	304	295.74	3.79E+02	55.24	3.24E+02	PB-214
m	16	300.40	292 -	304	300.67	8.38E+01	44.05	2.62E+02	GA-67 PB-212 BI-210M
	17	327.76	325 -	331	328.02	5.22E+01	47.74	3.80E+02	.....
M	18	336.08	334 -	345	336.34	3.59E+01	30.79	2.28E+02	.....
m	19	338.75	334 -	345	339.00	1.94E+02	50.29	3.28E+02	AC-228
	20	352.02	347 -	357	352.27	5.96E+02	78.87	5.11E+02	PB-214
	21	437.68	435 -	440	437.90	3.18E+01	30.77	1.62E+02	BA-140
	22	510.82	505 -	516	511.01	2.13E+02	59.09	3.30E+02	.....
	23	583.40	578 -	589	583.57	3.27E+02	57.20	2.45E+02	TL-208
M	24	609.59	605 -	624	609.75	4.10E+02	45.32	9.64E+01	BI-214
m	25	614.84	605 -	624	615.00	1.68E+01	22.39	9.21E+01	AG-108M
	26	660.88	658 -	664	661.03	2.70E+01	29.29	1.36E+02	CS-137
	27	666.55	664 -	670	666.69	3.25E+01	28.72	1.27E+02	SB-126
	28	727.64	724 -	731	727.76	7.07E+01	36.28	1.73E+02	BI-212
	29	769.57	764 -	777	769.68	7.49E+01	49.38	2.36E+02	.....
	30	795.51	792 -	800	795.61	5.76E+01	30.03	1.03E+02	CS-134
	31	911.70	907 -	917	911.76	2.22E+02	44.21	1.40E+02	LU-172 AC-228
	32	933.74	929 -	937	933.79	4.10E+01	29.43	1.08E+02	.....
	33	969.55	966 -	975	969.59	7.33E+01	46.56	2.37E+02	AC-228
	34	1083.01	1078 -	1087	1083.01	2.42E+01	29.29	1.06E+02	.....
	35	1109.70	1104 -	1114	1109.68	3.32E+01	31.61	1.16E+02	.....
M	36	1120.88	1116 -	1148	1120.86	7.80E+01	27.43	7.11E+01	SC-46 TA-182 BI-214
m	37	1134.82	1116 -	1148	1134.79	3.43E+01	22.81	5.91E+01	.....
	38	1155.70	1151 -	1159	1155.67	2.70E+01	29.91	1.20E+02	.....
	39	1195.43	1192 -	1198	1195.38	3.15E+01	23.44	7.70E+01	.....
	40	1238.74	1237 -	1241	1238.67	1.62E+01	19.99	7.37E+01	CO-56
	41	1281.89	1279 -	1285	1281.81	2.12E+01	16.57	3.37E+01	.....
	42	1315.09	1312 -	1318	1315.00	1.57E+01	16.94	3.86E+01	.....
M	43	1374.11	1372 -	1381	1374.00	1.01E+01	10.39	2.06E+01	.....
m	44	1378.23	1372 -	1381	1378.11	2.98E+01	18.30	3.97E+01	.....
	45	1386.76	1383 -	1391	1386.64	1.41E+01	16.79	3.17E+01	.....
	46	1408.98	1405 -	1414	1408.86	2.90E+01	20.71	4.40E+01	.....
	47	1461.41	1455 -	1466	1461.27	8.50E+02	63.44	7.87E+01	K-40
	48	1588.11	1584 -	1590	1587.92	9.95E+00	13.18	2.41E+01	.....
	49	1594.82	1591 -	1599	1594.62	2.18E+01	13.14	1.25E+01	.....

Analysis Report for 1510093-18  
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Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
50	1622.80	1618 -	1627	1622.60	2.18E+01	11.00	4.46E+00	.....	
51	1635.70	1628 -	1644	1635.49	3.11E+01	17.45	1.79E+01	.....	
52	1661.80	1657 -	1668	1661.58	2.21E+01	13.71	1.39E+01	.....	
M	53	1726.76	1723 -	1734	1726.52	7.68E+00	7.35	1.04E+01	.....
m	54	1730.48	1723 -	1734	1730.24	1.73E+01	12.35	6.52E+00	.....
M	55	1765.21	1759 -	1772	1764.96	7.30E+01	19.80	1.62E+01	BI-214
m	56	1768.49	1759 -	1772	1768.23	1.00E+01	19.39	1.09E+01	.....
57	1847.45	1843 -	1850	1847.17	1.80E+01	8.49	0.00E+00	.....	
58	1946.02	1941 -	1949	1945.70	1.19E+01	8.73	4.21E+00	.....	
59	1968.58	1963 -	1972	1968.25	1.26E+01	9.22	4.80E+00	.....	
60	2014.29	2010 -	2016	2013.94	5.14E+00	6.34	3.71E+00	.....	
61	2074.69	2069 -	2078	2074.31	7.00E+00	9.90	1.00E+01	.....	
62	2089.66	2086 -	2092	2089.29	7.00E+00	5.29	0.00E+00	.....	
63	2103.52	2097 -	2110	2103.13	2.58E+01	15.17	1.43E+01	.....	
64	2127.94	2124 -	2130	2127.55	1.10E+01	6.63	0.00E+00	.....	
65	2204.83	2199 -	2208	2204.41	2.45E+01	14.25	1.50E+01	BI-214	
66	2211.46	2209 -	2213	2211.04	6.07E+00	5.85	1.86E+00	.....	
67	2241.85	2238 -	2244	2241.41	1.12E+01	8.02	3.54E+00	.....	
68	2248.44	2246 -	2251	2248.00	5.00E+00	7.07	6.00E+00	.....	
69	2263.21	2257 -	2267	2262.76	1.13E+01	9.29	5.43E+00	.....	
70	2447.70	2443 -	2450	2447.18	1.21E+01	8.49	3.79E+00	.....	
71	2615.31	2611 -	2619	2614.73	9.85E+01	21.27	9.00E+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 : 11/11/2015 4:32:06PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	46.45	1.41E+02	71.84	1.68E-02	1.78E-03
2	63.49	1.59E+02	94.07	2.50E-02	1.92E-03
M	3	4.51E+02	96.44	2.75E-02	2.30E-03
m	4	7.38E+02	103.77	2.78E-02	2.39E-03
M	5	3.15E+02	69.17	2.85E-02	2.73E-03
m	6	3.05E+02	70.68	2.86E-02	2.65E-03
7	127.85	1.53E+02	92.06	2.68E-02	2.08E-03
8	155.38	1.29E+02	77.59	2.47E-02	2.15E-03



Analysis Report for 1510093-18  
CP3004S10-11

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	9	186.00	3.15E+02	97.34	2.24E-02	2.03E-03
	10	209.64	7.27E+01	60.37	2.09E-02	1.85E-03
M	11	238.74	1.03E+03	77.29	1.92E-02	1.64E-03
m	12	242.03	2.15E+02	64.58	1.90E-02	1.61E-03
	13	270.56	1.16E+02	58.89	1.77E-02	1.40E-03
	14	277.39	6.16E+01	51.84	1.74E-02	1.35E-03
M	15	295.48	3.79E+02	55.24	1.67E-02	1.31E-03
m	16	300.40	8.38E+01	44.05	1.65E-02	1.30E-03
	17	327.76	5.22E+01	47.74	1.55E-02	1.24E-03
M	18	336.08	3.59E+01	30.79	1.53E-02	1.23E-03
m	19	338.75	1.94E+02	50.29	1.52E-02	1.22E-03
	20	352.02	5.96E+02	78.87	1.48E-02	1.19E-03
	21	437.68	3.18E+01	30.77	1.26E-02	1.07E-03
	22	510.82	2.13E+02	59.09	1.12E-02	9.90E-04
	23	583.40	3.27E+02	57.20	1.02E-02	9.15E-04
M	24	609.59	4.10E+02	45.32	9.82E-03	8.88E-04
m	25	614.84	1.68E+01	22.39	9.76E-03	8.83E-04
	26	660.88	2.70E+01	29.29	9.22E-03	8.35E-04
	27	666.55	3.25E+01	28.72	9.16E-03	8.30E-04
	28	727.64	7.07E+01	36.28	8.55E-03	7.75E-04
	29	769.57	7.49E+01	49.38	8.18E-03	7.37E-04
	30	795.51	5.76E+01	30.03	7.97E-03	7.14E-04
	31	911.70	2.22E+02	44.21	7.14E-03	6.15E-04
	32	933.74	4.10E+01	29.43	7.01E-03	6.04E-04
	33	969.55	7.33E+01	46.56	6.80E-03	5.85E-04
	34	1083.01	2.42E+01	29.29	6.23E-03	5.26E-04
	35	1109.70	3.32E+01	31.61	6.11E-03	5.12E-04
M	36	1120.88	7.80E+01	27.43	6.06E-03	5.06E-04
m	37	1134.82	3.43E+01	22.81	6.01E-03	4.99E-04
	38	1155.70	2.70E+01	29.91	5.92E-03	4.88E-04
	39	1195.43	3.15E+01	23.44	5.77E-03	4.75E-04
	40	1238.74	1.62E+01	19.99	5.61E-03	4.68E-04
	41	1281.89	2.12E+01	16.57	5.47E-03	4.60E-04
	42	1315.09	1.57E+01	16.94	5.36E-03	4.54E-04
M	43	1374.11	1.01E+01	10.39	5.19E-03	4.41E-04
m	44	1378.23	2.98E+01	18.30	5.18E-03	4.40E-04
	45	1386.76	1.41E+01	16.79	5.16E-03	4.38E-04
	46	1408.98	2.90E+01	20.71	5.10E-03	4.32E-04
	47	1461.41	8.50E+02	63.44	4.97E-03	4.19E-04
	48	1588.11	9.95E+00	13.18	4.69E-03	3.88E-04
	49	1594.82	2.18E+01	13.14	4.68E-03	3.86E-04
	50	1622.80	2.18E+01	11.00	4.63E-03	3.79E-04
	51	1635.70	3.11E+01	17.45	4.61E-03	3.76E-04
	52	1661.80	2.21E+01	13.71	4.56E-03	3.69E-04
M	53	1726.76	7.68E+00	7.35	4.45E-03	3.53E-04
m	54	1730.48	1.73E+01	12.35	4.45E-03	3.52E-04
M	55	1765.21	7.30E+01	19.80	4.39E-03	3.43E-04
m	56	1768.49	1.00E+01	19.39	4.39E-03	3.43E-04
	57	1847.45	1.80E+01	8.49	4.28E-03	3.26E-04
	58	1946.02	1.19E+01	8.73	4.17E-03	3.26E-04
	59	1968.58	1.26E+01	9.22	4.14E-03	3.26E-04
	60	2014.29	5.14E+00	6.34	4.10E-03	3.26E-04
	61	2074.69	7.00E+00	9.90	4.04E-03	3.26E-04

Analysis Report for 1510093-18  
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Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
62	2089.66	7.00E+00	5.29	4.03E-03	3.26E-04
63	2103.52	2.58E+01	15.17	4.02E-03	3.26E-04
64	2127.94	1.10E+01	6.63	4.00E-03	3.26E-04
65	2204.83	2.45E+01	14.25	3.95E-03	3.26E-04
66	2211.46	6.07E+00	5.85	3.94E-03	3.26E-04
67	2241.85	1.12E+01	8.02	3.93E-03	3.26E-04
68	2248.44	5.00E+00	7.07	3.92E-03	3.26E-04
69	2263.21	1.13E+01	9.29	3.91E-03	3.26E-04
70	2447.70	1.21E+01	8.49	3.83E-03	3.26E-04
71	2615.31	9.85E+01	21.27	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 : 11/11/2015 4:32:06PM

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	46.45	1.41E+02	71.84	4.50E+01	8.46E+00	9.62E+01	7.23E+01
2	63.49	1.59E+02	94.07	7.80E+01	1.33E+01	8.06E+01	9.50E+01
M 3	74.94	4.51E+02	96.44	5.09E+00	4.37E+00	4.46E+02	9.65E+01
m 4	77.47	7.38E+02	103.77	9.75E+00	8.28E+00	7.28E+02	1.04E+02
M 5	87.80	3.15E+02	69.17			3.15E+02	6.92E+01
m 6	92.79	3.05E+02	70.68	1.34E+02	9.83E+00	1.71E+02	7.14E+01
7	127.85	1.53E+02	92.06			1.53E+02	9.21E+01
8	155.38	1.29E+02	77.59			1.29E+02	7.76E+01
9	186.00	3.15E+02	97.34	6.41E+01	7.38E+00	2.51E+02	9.76E+01
10	209.64	7.27E+01	60.37			7.27E+01	6.04E+01
M 11	238.74	1.03E+03	77.29	2.34E+01	6.34E+00	1.00E+03	7.76E+01
m 12	242.03	2.15E+02	64.58			2.15E+02	6.46E+01
13	270.56	1.16E+02	58.89			1.16E+02	5.89E+01
14	277.39	6.16E+01	51.84			6.16E+01	5.18E+01
M 15	295.48	3.79E+02	55.24	4.17E+00	5.50E+00	3.74E+02	5.55E+01
m 16	300.40	8.38E+01	44.05			8.38E+01	4.40E+01
17	327.76	5.22E+01	47.74			5.22E+01	4.77E+01
M 18	336.08	3.59E+01	30.79			3.59E+01	3.08E+01
m 19	338.75	1.94E+02	50.29	2.22E-01	4.54E+00	1.94E+02	5.05E+01
20	352.02	5.96E+02	78.87	8.83E+00	4.91E+00	5.88E+02	7.90E+01

Analysis Report for 1510093-18

CP3004S10-11

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	21	437.68	3.18E+01	30.77		3.18E+01	3.08E+01
	22	510.82	2.13E+02	59.09	8.12E+01	1.32E+02	5.93E+01
	23	583.40	3.27E+02	57.20	6.34E+00	3.20E+02	5.73E+01
M	24	609.59	4.10E+02	45.32	5.20E+00	4.04E+02	4.55E+01
m	25	614.84	1.68E+01	22.39		1.68E+01	2.24E+01
	26	660.88	2.70E+01	29.29		2.70E+01	2.93E+01
	27	666.55	3.25E+01	28.72		3.25E+01	2.87E+01
	28	727.64	7.07E+01	36.28		7.07E+01	3.63E+01
	29	769.57	7.49E+01	49.38		7.49E+01	4.94E+01
	30	795.51	5.76E+01	30.03		5.76E+01	3.00E+01
	31	911.70	2.22E+02	44.21	3.28E+00	2.19E+02	4.43E+01
	32	933.74	4.10E+01	29.43		4.10E+01	2.94E+01
	33	969.55	7.33E+01	46.56		7.33E+01	4.66E+01
	34	1083.01	2.42E+01	29.29		2.42E+01	2.93E+01
	35	1109.70	3.32E+01	31.61		3.32E+01	3.16E+01
M	36	1120.88	7.80E+01	27.43	2.28E+00	7.57E+01	2.75E+01
m	37	1134.82	3.43E+01	22.81		3.43E+01	2.28E+01
	38	1155.70	2.70E+01	29.91		2.70E+01	2.99E+01
	39	1195.43	3.15E+01	23.44		3.15E+01	2.34E+01
	40	1238.74	1.62E+01	19.99		1.62E+01	2.00E+01
	41	1281.89	2.12E+01	16.57		2.12E+01	1.66E+01
	42	1315.09	1.57E+01	16.94		1.57E+01	1.69E+01
M	43	1374.11	1.01E+01	10.39		1.01E+01	1.04E+01
m	44	1378.23	2.98E+01	18.30		2.98E+01	1.83E+01
	45	1386.76	1.41E+01	16.79		1.41E+01	1.68E+01
	46	1408.98	2.90E+01	20.71		2.90E+01	2.07E+01
	47	1461.41	8.50E+02	63.44	6.46E+00	8.43E+02	6.35E+01
	48	1588.11	9.95E+00	13.18		9.95E+00	1.32E+01
	49	1594.82	2.18E+01	13.14		2.18E+01	1.31E+01
	50	1622.80	2.18E+01	11.00		2.18E+01	1.10E+01
	51	1635.70	3.11E+01	17.45		3.11E+01	1.74E+01
	52	1661.80	2.21E+01	13.71		2.21E+01	1.37E+01
M	53	1726.76	7.68E+00	7.35		7.68E+00	7.35E+00
m	54	1730.48	1.73E+01	12.35		1.73E+01	1.23E+01
M	55	1765.21	7.30E+01	19.80		7.30E+01	1.98E+01
m	56	1768.49	1.00E+01	19.39		1.00E+01	1.94E+01
	57	1847.45	1.80E+01	8.49		1.80E+01	8.49E+00
	58	1946.02	1.19E+01	8.73		1.19E+01	8.73E+00
	59	1968.58	1.26E+01	9.22		1.26E+01	9.22E+00
	60	2014.29	5.14E+00	6.34		5.14E+00	6.34E+00
	61	2074.69	7.00E+00	9.90		7.00E+00	9.90E+00
	62	2089.66	7.00E+00	5.29		7.00E+00	5.29E+00
	63	2103.52	2.58E+01	15.17		2.58E+01	1.52E+01
	64	2127.94	1.10E+01	6.63		1.10E+01	6.63E+00
	65	2204.83	2.45E+01	14.25		2.45E+01	1.42E+01
	66	2211.46	6.07E+00	5.85		6.07E+00	5.85E+00
	67	2241.85	1.12E+01	8.02		1.12E+01	8.02E+00
	68	2248.44	5.00E+00	7.07		5.00E+00	7.07E+00
	69	2263.21	1.13E+01	9.29		1.13E+01	9.29E+00
	70	2447.70	1.21E+01	8.49		1.21E+01	8.49E+00
	71	2615.31	9.85E+01	21.27	3.47E+00	9.50E+01	2.13E+01

Analysis Report for 1510093-18  
 CP3004S10-11

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 : 11/11/2015 4:32:06PM  
 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	46.45	1.41E+02	71.84	4.50E+01	8.46E+00	9.62E+01	7.23E+01
	2	63.49	1.59E+02	94.07	7.80E+01	1.33E+01	8.06E+01	9.50E+01
M	3	74.94	4.51E+02	96.44	5.09E+00	4.37E+00	4.46E+02	9.65E+01
m	4	77.47	7.38E+02	103.77	9.75E+00	8.28E+00	7.28E+02	1.04E+02
M	5	87.80	3.15E+02	69.17			3.15E+02	6.92E+01
m	6	92.79	3.05E+02	70.68	1.34E+02	9.83E+00	1.71E+02	7.14E+01
	7	127.85	1.53E+02	92.06			1.53E+02	9.21E+01
	8	155.38	1.29E+02	77.59			1.29E+02	7.76E+01
	9	186.00	3.15E+02	97.34	6.41E+01	7.38E+00	2.51E+02	9.76E+01
	10	209.64	7.27E+01	60.37			7.27E+01	6.04E+01
M	11	238.74	1.03E+03	77.29	2.34E+01	6.34E+00	1.00E+03	7.76E+01
m	12	242.03	2.15E+02	64.58			2.15E+02	6.46E+01
	13	270.56	1.16E+02	58.89			1.16E+02	5.89E+01
	14	277.39	6.16E+01	51.84			6.16E+01	5.18E+01
M	15	295.48	3.79E+02	55.24	4.17E+00	5.50E+00	3.74E+02	5.55E+01
m	16	300.40	8.38E+01	44.05			8.38E+01	4.40E+01
	17	327.76	5.22E+01	47.74			5.22E+01	4.77E+01
M	18	336.08	3.59E+01	30.79			3.59E+01	3.08E+01
m	19	338.75	1.94E+02	50.29	2.22E-01	4.54E+00	1.94E+02	5.05E+01
	20	352.02	5.96E+02	78.87	8.83E+00	4.91E+00	5.88E+02	7.90E+01
	21	437.68	3.18E+01	30.77			3.18E+01	3.08E+01
	22	510.82	2.13E+02	59.09	8.12E+01	5.49E+00	1.32E+02	5.93E+01
	23	583.40	3.27E+02	57.20	6.34E+00	3.74E+00	3.20E+02	5.73E+01
M	24	609.59	4.10E+02	45.32	5.20E+00	3.69E+00	4.04E+02	4.55E+01
m	25	614.84	1.68E+01	22.39			1.68E+01	2.24E+01
	26	660.88	2.70E+01	29.29			2.70E+01	2.93E+01
	27	666.55	3.25E+01	28.72			3.25E+01	2.87E+01
	28	727.64	7.07E+01	36.28			7.07E+01	3.63E+01
	29	769.57	7.49E+01	49.38			7.49E+01	4.94E+01
	30	795.51	5.76E+01	30.03			5.76E+01	3.00E+01
	31	911.70	2.22E+02	44.21	3.28E+00	2.53E+00	2.19E+02	4.43E+01
	32	933.74	4.10E+01	29.43			4.10E+01	2.94E+01

Analysis Report for 1510093-18  
CP3004S10-11

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	969.55	7.33E+01	46.56			7.33E+01	4.66E+01
	34	1083.01	2.42E+01	29.29			2.42E+01	2.93E+01
	35	1109.70	3.32E+01	31.61			3.32E+01	3.16E+01
M	36	1120.88	7.80E+01	27.43	2.28E+00	2.55E+00	7.57E+01	2.75E+01
m	37	1134.82	3.43E+01	22.81			3.43E+01	2.28E+01
	38	1155.70	2.70E+01	29.91			2.70E+01	2.99E+01
	39	1195.43	3.15E+01	23.44			3.15E+01	2.34E+01
	40	1238.74	1.62E+01	19.99			1.62E+01	2.00E+01
	41	1281.89	2.12E+01	16.57			2.12E+01	1.66E+01
	42	1315.09	1.57E+01	16.94			1.57E+01	1.69E+01
M	43	1374.11	1.01E+01	10.39			1.01E+01	1.04E+01
m	44	1378.23	2.98E+01	18.30			2.98E+01	1.83E+01
	45	1386.76	1.41E+01	16.79			1.41E+01	1.68E+01
	46	1408.98	2.90E+01	20.71			2.90E+01	2.07E+01
	47	1461.41	8.50E+02	63.44	6.46E+00	2.33E+00	8.43E+02	6.35E+01
	48	1588.11	9.95E+00	13.18			9.95E+00	1.32E+01
	49	1594.82	2.18E+01	13.14			2.18E+01	1.31E+01
	50	1622.80	2.18E+01	11.00			2.18E+01	1.10E+01
	51	1635.70	3.11E+01	17.45			3.11E+01	1.74E+01
	52	1661.80	2.21E+01	13.71			2.21E+01	1.37E+01
M	53	1726.76	7.68E+00	7.35			7.68E+00	7.35E+00
m	54	1730.48	1.73E+01	12.35			1.73E+01	1.23E+01
M	55	1765.21	7.30E+01	19.80			7.30E+01	1.98E+01
m	56	1768.49	1.00E+01	19.39			1.00E+01	1.94E+01
	57	1847.45	1.80E+01	8.49			1.80E+01	8.49E+00
	58	1946.02	1.19E+01	8.73			1.19E+01	8.73E+00
	59	1968.58	1.26E+01	9.22			1.26E+01	9.22E+00
	60	2014.29	5.14E+00	6.34			5.14E+00	6.34E+00
	61	2074.69	7.00E+00	9.90			7.00E+00	9.90E+00
	62	2089.66	7.00E+00	5.29			7.00E+00	5.29E+00
	63	2103.52	2.58E+01	15.17			2.58E+01	1.52E+01
	64	2127.94	1.10E+01	6.63			1.10E+01	6.63E+00
	65	2204.83	2.45E+01	14.25			2.45E+01	1.42E+01
	66	2211.46	6.07E+00	5.85			6.07E+00	5.85E+00
	67	2241.85	1.12E+01	8.02			1.12E+01	8.02E+00
	68	2248.44	5.00E+00	7.07			5.00E+00	7.07E+00
	69	2263.21	1.13E+01	9.29			1.13E+01	9.29E+00
	70	2447.70	1.21E+01	8.49			1.21E+01	8.49E+00
	71	2615.31	9.85E+01	21.27	3.47E+00	1.48E+00	9.50E+01	2.13E+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 1510093-18  
CP3004S10-11

## 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	0.944	1460.81 *	10.67	2.18E+01	2.51E+00
GA-67	0.591	93.31 *	35.70	2.23E+02	9.75E+02
		208.95 *	2.24	2.07E+03	8.89E+03
		300.22 *	16.00	4.22E+02	1.86E+03
CD-109	0.991	88.03 *	3.72	4.28E+00	1.06E+00
SN-126	0.992	87.57 *	37.00	4.10E-01	9.82E-02
CS-137	0.910	661.65 *	85.12	4.73E-02	5.15E-02
TL-208	0.851	583.14 *	30.22	1.43E+00	2.87E-01
		860.37	4.48		
		2614.66 *	35.85	9.59E-01	2.30E-01
PB-210	1.000	46.50 *	4.25	1.86E+00	1.41E+00
BI-212	0.737	727.17 *	11.80	9.61E-01	5.01E-01
		1620.62	2.75		
PB-212	0.997	238.63 *	44.60	1.61E+00	1.85E-01
		300.09 *	3.41	2.04E+00	1.09E+00
BI-214	0.964	609.31 *	46.30	1.22E+00	1.76E-01
		1120.29 *	15.10	1.13E+00	4.24E-01
		1764.49 *	15.80	1.44E+00	4.07E-01
		2204.22 *	4.98	1.71E+00	1.00E+00
PB-214	0.995	295.21 *	19.19	1.61E+00	2.69E-01
		351.92 *	37.19	1.47E+00	2.30E-01
RA-226	0.993	186.21 *	3.28	4.68E+00	8.77E+00
AC-228	0.954	338.32 *	11.40	1.54E+00	4.19E-01
		911.07 *	27.70	1.52E+00	3.34E-01
		969.11 *	16.60	8.91E-01	5.71E-01
TH-234	0.994	63.29 *	3.80	1.17E+00	1.38E+00
AM-243	0.989	74.67 *	66.00	3.38E-01	7.83E-02
CM-243	0.371	209.75 *	3.29	1.46E+00	1.22E+00
		228.14	10.60		
		277.60 *	14.00	3.48E-01	2.94E-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 1510093-18  
CP3004S10-11

## UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/11/2015 4:32:06PM  
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	77.47	2.02230E-01	7.15	Tol.	TI-44
7	127.85	4.25672E-02	30.04	Sum	
8	155.38	3.57815E-02	30.12	Sum	
m 12	242.03	5.98081E-02	15.00		
13	270.56	3.22521E-02	25.36		
17	327.76	1.45110E-02	45.69		
M 18	336.08	9.96788E-03	42.90		
21	437.68	8.82252E-03	48.45	Tol.	BA-140
22	510.82	3.65846E-02	22.53	Sum	
m 25	614.84	4.67446E-03	66.54		
27	666.55	9.03935E-03	44.13	Tol.	SB-126
29	769.57	2.07930E-02	32.98	Sum	
30	795.51	1.60015E-02	26.06	Sum	
32	933.74	1.13889E-02	35.89		
34	1083.01	6.72799E-03	60.47		
35	1109.70	9.22466E-03	47.59		
m 37	1134.82	9.53906E-03	33.22		
38	1155.70	7.51118E-03	55.31	Sum	
39	1195.43	8.75000E-03	37.21	Sum	
40	1238.74	4.48637E-03	61.88	Tol.	CO-56
41	1281.89	5.87719E-03	39.15		
42	1315.09	4.35714E-03	54.00		
M 43	1374.11	2.79758E-03	51.59		
m 44	1378.23	8.27655E-03	30.70		
45	1386.76	3.92593E-03	59.41		
46	1408.98	8.05011E-03	35.74		
48	1588.11	2.76515E-03	66.21		
49	1594.82	6.04167E-03	30.21		
50	1622.80	6.04745E-03	25.26		
51	1635.70	8.63194E-03	28.08		
52	1661.80	6.13027E-03	31.06		
M 53	1726.76	2.13414E-03	47.82		
m 54	1730.48	4.80534E-03	35.69	Sum	
m 56	1768.49	2.78896E-03	96.56		
57	1847.45	5.00000E-03	23.57		
58	1946.02	3.30357E-03	36.71		
59	1968.58	3.50000E-03	36.59		
60	2014.29	1.42857E-03	61.68		
61	2074.69	1.94444E-03	70.71		
62	2089.66	1.94444E-03	37.80	Sum	
63	2103.52	7.18013E-03	29.34	S-Esc	
64	2127.94	3.05556E-03	30.15		
66	2211.46	1.68651E-03	48.20		
67	2241.85	3.11966E-03	35.69	Sum	
68	2248.44	1.38889E-03	70.71		

Analysis Report for 1510093-18  
CP3004S10-11

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
69	2263.21	3.13492E-03	41.15		
70	2447.70	3.36310E-03	35.04		

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	0.94	1460.81 *	10.67	2.18E+01	2.51E+00
GA-67	0.59	93.31 *	35.70	2.23E+02	9.75E+02
		208.95 *	2.24	2.07E+03	8.89E+03
		300.22 *	16.00	4.22E+02	1.86E+03
CD-109	0.99	88.03 *	3.72	4.28E+00	1.06E+00
SN-126	0.99	87.57 *	37.00	4.10E-01	9.82E-02
CS-137	0.91	661.65 *	85.12	4.73E-02	5.15E-02
TL-208	0.85	583.14 *	30.22	1.43E+00	2.87E-01
		860.37 *	4.48		
PB-210	1.00	2614.66 *	35.85	9.59E-01	2.30E-01
		46.50 *	4.25	1.86E+00	1.41E+00
BI-212	0.73	727.17 *	11.80	9.61E-01	5.01E-01
		1620.62 *	2.75		
PB-212	0.99	238.63 *	44.60	1.61E+00	1.85E-01
		300.09 *	3.41	2.04E+00	1.09E+00
BI-214	0.96	609.31 *	46.30	1.22E+00	1.76E-01
		1120.29 *	15.10	1.13E+00	4.24E-01
		1764.49 *	15.80	1.44E+00	4.07E-01
PB-214	0.99	2204.22 *	4.98	1.71E+00	1.00E+00
		295.21 *	19.19	1.61E+00	2.69E-01
RA-226	0.99	351.92 *	37.19	1.47E+00	2.30E-01
		186.21 *	3.28	4.68E+00	8.77E+00
AC-228	0.95	338.32 *	11.40	1.54E+00	4.19E-01
		911.07 *	27.70	1.52E+00	3.34E-01
TH-234	0.99	969.11 *	16.60	8.91E-01	5.71E-01
		63.29 *	3.80	1.17E+00	1.38E+00



Analysis Report for 1510093-18  
CP3004S10-11

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AM-243	0.98	74.67 *		66.00	3.38E-01	7.83E-02
CM-243	0.37	209.75 *		3.29	1.46E+00	1.22E+00
		228.14		10.60		
		277.60 *		14.00	3.48E-01	2.94E-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	0.944	2.18E+01	2.51E+00	
GA-67	0.591	2.06E+02	8.74E+02	
? CD-109	0.991	4.28E+00	1.06E+00	
? SN-126	0.992	4.10E-01	9.82E-02	
CS-137	0.910	4.73E-02	5.15E-02	
TL-208	0.851	1.14E+00	1.80E-01	
PB-210	1.000	1.86E+00	1.41E+00	
BI-212	0.737	9.61E-01	5.01E-01	
PB-212	0.997	1.59E+00	1.83E-01	
BI-214	0.964	1.25E+00	1.49E-01	
PB-214	0.995	1.53E+00	1.75E-01	
RA-226	0.993	4.68E+00	8.77E+00	
AC-228	0.954	1.42E+00	2.37E-01	
TH-234	0.994	1.17E+00	1.38E+00	
AM-243	0.989	3.38E-01	7.83E-02	
CM-243	0.371	4.01E-01	2.86E-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 1510093-18  
CP3004S10-11

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## UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 4:32:06PM  
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	77.47	2.02230E-01	7.15	Tol.	TI-44
7	127.85	4.25672E-02	30.04	Sum	
8	155.38	3.57815E-02	30.12	Sum	
m 12	242.03	5.98081E-02	15.00		
13	270.56	3.22521E-02	25.36		
17	327.76	1.45110E-02	45.69		
M 18	336.08	9.96788E-03	42.90		
21	437.68	8.82252E-03	48.45	Tol.	BA-140
22	510.82	3.65846E-02	22.53	Sum	
m 25	614.84	4.67446E-03	66.54		
27	666.55	9.03935E-03	44.13	Tol.	SB-126
29	769.57	2.07930E-02	32.98	Sum	
30	795.51	1.60015E-02	26.06	Sum	
32	933.74	1.13889E-02	35.89		
34	1083.01	6.72799E-03	60.47		
35	1109.70	9.22466E-03	47.59		
m 37	1134.82	9.53906E-03	33.22		
38	1155.70	7.51118E-03	55.31	Sum	
39	1195.43	8.75000E-03	37.21	Sum	
40	1238.74	4.48637E-03	61.88	Tol.	CO-56
41	1281.89	5.87719E-03	39.15		
42	1315.09	4.35714E-03	54.00		
M 43	1374.11	2.79758E-03	51.59		
m 44	1378.23	8.27655E-03	30.70		
45	1386.76	3.92593E-03	59.41		
46	1408.98	8.05011E-03	35.74		
48	1588.11	2.76515E-03	66.21		
49	1594.82	6.04167E-03	30.21		
50	1622.80	6.04745E-03	25.26		
51	1635.70	8.63194E-03	28.08		
52	1661.80	6.13027E-03	31.06		
M 53	1726.76	2.13414E-03	47.82		
m 54	1730.48	4.80534E-03	35.69	Sum	
m 56	1768.49	2.78896E-03	96.56		
57	1847.45	5.00000E-03	23.57		

Analysis Report for 1510093-18  
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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
58	1946.02	3.30357E-03	36.71		
59	1968.58	3.50000E-03	36.59		
60	2014.29	1.42857E-03	61.68		
61	2074.69	1.94444E-03	70.71		
62	2089.66	1.94444E-03	37.80	Sum	
63	2103.52	7.18013E-03	29.34	S-Esc	
64	2127.94	3.05556E-03	30.15		
66	2211.46	1.68651E-03	48.20		
67	2241.85	3.11966E-03	35.69	Sum	
68	2248.44	1.38889E-03	70.71		
69	2263.21	3.13492E-03	41.15		
70	2447.70	3.36310E-03	35.04		

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	2.24E-02	9.06E-01	9.06E-01
+	NA-22	1274.54	99.94	6.03E-02	9.36E-02	9.36E-02
+	NA-24	1368.53	99.99	4.45E+12	1.29E+14	2.66E+14
		2754.09	99.86	-5.55E+13		1.29E+14
+	AL-26	1808.65	99.76	4.23E-03	4.48E-02	4.48E-02
+	K-40	1460.81	* 10.67	2.18E+01	1.16E+00	1.16E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	3.83E-02	7.14E-02	7.14E-02
		78.34	96.00	1.94E-01		9.02E-02
+	SC-46	889.25	99.98	-7.61E-02	8.68E-02	8.68E-02
		1120.51	99.99	2.68E-01		1.67E-01
+	V-48	983.52	99.98	-5.39E-02	3.22E-01	3.32E-01
		1312.10	97.50	-1.56E-02		3.22E-01
+	CR-51	320.08	9.83	2.17E-03	1.10E+00	1.10E+00
+	MN-54	834.83	99.97	-1.13E-02	8.48E-02	8.48E-02
+	CO-56	846.75	99.96	3.49E-02	1.02E-01	1.02E-01

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CO-56	1037.75	14.03	-1.15E-01	1.02E-01	7.32E-01
	1238.25	67.00	-2.59E-02		2.03E-01
	1771.40	15.51	4.36E-02		5.72E-01
	2598.48	16.90	-2.84E-02		2.64E-01
+ CO-57	122.06	85.51	-5.57E-03	6.04E-02	6.04E-02
	136.48	10.60	-2.98E-01		4.87E-01
+ CO-58	810.76	99.40	-2.59E-02	9.14E-02	9.14E-02
+ FE-59	1099.22	56.50	1.30E-02	2.28E-01	2.28E-01
	1291.56	43.20	3.43E-02		2.99E-01
+ CO-60	1173.22	100.00	2.62E-02	7.37E-02	9.40E-02
	1332.49	100.00	-1.79E-03		7.37E-02
+ ZN-65	1115.52	50.75	-5.97E-01	1.87E-01	1.87E-01
+ GA-67	93.31	* 35.70	2.23E+02	3.33E+02	3.33E+02
	208.95	* 2.24	2.07E+03		2.79E+03
	300.22	* 16.00	4.22E+02		5.95E+02
+ SE-75	121.11	16.70	1.16E-01	9.73E-02	3.51E-01
	136.00	59.20	2.56E-02		9.73E-02
	264.65	59.80	8.19E-03		9.76E-02
	279.53	25.20	6.58E-02		2.55E-01
	400.65	11.40	-2.76E-01		5.41E-01
+ RB-82	776.52	13.00	-3.30E-01	1.29E+00	1.29E+00
+ RB-83	520.41	46.00	-4.16E-02	1.73E-01	1.73E-01
	529.64	30.30	-1.37E-01		2.61E-01
	552.65	16.40	-1.70E-01		5.05E-01
+ KR-85	513.99	0.43	3.34E+01	2.21E+01	2.21E+01
+ SR-85	513.99	99.27	2.05E-01	1.36E-01	1.36E-01
+ Y-88	898.02	93.40	2.79E-03	5.20E-02	9.94E-02
	1836.01	99.38	-1.27E-02		5.20E-02
+ NB-93M	16.57	9.43	-4.24E+01	7.49E+01	7.49E+01
+ NB-94	702.63	100.00	5.09E-04	7.12E-02	7.27E-02
	871.10	100.00	1.06E-02		7.12E-02
+ NB-95	765.79	99.81	1.52E-01	1.73E-01	1.73E-01
+ NB-95M	235.69	25.00	-1.16E+03	1.33E+02	1.33E+02
+ ZR-95	724.18	43.70	7.06E-02	2.03E-01	2.64E-01
	756.72	55.30	6.60E-03		2.03E-01
+ MO-99	181.06	6.20	-4.05E+02	1.75E+03	2.88E+03
	739.58	12.80	2.61E+02		1.75E+03
	778.00	4.50	-1.49E+03		5.06E+03
+ RU-103	497.08	89.00	-5.63E-02	1.14E-01	1.14E-01
+ RU-106	621.84	9.80	-1.42E-01	7.13E-01	7.13E-01
+ AG-108M	433.93	89.90	1.64E-02	6.73E-02	6.73E-02
	614.37	90.40	-6.16E-01		7.59E-02
	722.95	90.50	3.19E-02		7.54E-02
+ CD-109	88.03	* 3.72	4.28E+00	3.45E+00	3.45E+00
+ AG-110M	657.75	93.14	1.30E-02	8.37E-02	8.37E-02
	677.61	10.53	-2.54E-02		7.34E-01
	706.67	16.46	2.36E-01		5.03E-01
	763.93	21.98	8.52E-02		3.74E-01

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<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
AG-110M	884.67	71.63	2.22E-02	8.37E-02	1.07E-01
	1384.27	23.94	-9.98E-02		3.26E-01
+ CD-113M	263.70	0.02	-2.35E+01	2.10E+02	2.10E+02
+ SN-113	255.12	1.93	-5.70E-01	9.84E-02	3.26E+00
	391.69	64.90	-1.30E-03		9.84E-02
+ TE123M	159.00	84.10	-5.16E-02	7.04E-02	7.04E-02
+ SB-124	602.71	97.87	2.17E-02	9.62E-02	9.62E-02
	645.85	7.26	2.73E-01		1.26E+00
	722.78	11.10	3.77E-01		8.92E-01
	1691.02	49.00	4.06E-02		1.43E-01
+ I-125	35.49	6.49	2.70E-01	3.27E+00	3.27E+00
+ SB-125	176.33	6.89	1.68E-01	2.10E-01	7.67E-01
	427.89	29.33	-5.63E-02		2.10E-01
	463.38	10.35	5.29E-01		7.24E-01
	600.56	17.80	-5.32E-02		3.62E-01
	635.90	11.32	-3.10E-01		5.24E-01
+ SB-126	414.70	83.30	2.98E-02	4.41E-01	4.62E-01
	666.33	99.60	3.33E-03		4.41E-01
	695.00	99.60	-6.31E-02		4.49E-01
	720.50	53.80	2.55E-01		7.76E-01
+ SN-126	87.57	* 37.00	4.10E-01	3.30E-01	3.30E-01
+ SB-127	473.00	25.00	-2.28E+01	6.51E+01	7.93E+01
	685.20	35.70	-1.21E+01		6.51E+01
	783.80	14.70	6.66E+01		1.64E+02
+ I-129	29.78	57.00	-1.67E-01	4.62E-01	4.62E-01
	33.60	13.20	-3.99E-01		1.30E+00
	39.58	7.52	7.76E-02		1.45E+00
+ I-131	284.30	6.05	-3.12E+00	9.75E-01	1.33E+01
	364.48	81.20	-5.01E-02		9.75E-01
	636.97	7.26	3.03E+00		1.41E+01
	722.89	1.80	2.60E+01		6.17E+01
+ TE-132	49.72	13.10	-1.37E+02	5.91E+01	5.42E+02
	228.16	88.00	1.95E+01		5.91E+01
+ BA-133	81.00	33.00	-1.41E+00	8.98E-02	1.85E-01
	302.84	17.80	-2.49E-02		2.94E-01
	356.01	60.00	-6.88E-01		8.98E-02
+ I-133	529.87	86.30	-6.40E+09	1.22E+10	1.22E+10
+ XE-133	81.00	38.00	-8.79E+01	1.15E+01	1.15E+01
+ CS-134	563.23	8.38	3.73E-01	6.90E-02	8.50E-01
	569.32	15.43	7.11E-02		4.44E-01
	604.70	97.60	2.48E-03		6.90E-02
	795.84	85.40	1.21E-01		1.01E-01
	801.93	8.73	-6.14E-02		7.48E-01
+ CS-135	268.24	16.00	1.21E-01	3.55E-01	3.55E-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	-2.95E-01	3.93E-01	3.80E+00
	163.89	4.61	4.43E+00		6.27E+00

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CS-136	176.55	13.56	4.60E-01	3.93E-01	2.10E+00
	273.65	12.66	-2.76E+00		2.36E+00
	340.57	48.50	1.22E+00		8.49E-01
	818.50	99.70	1.23E-01		3.93E-01
	1048.07	79.60	2.04E-01		5.74E-01
	1235.34	19.70	6.53E-02		2.87E+00
+ CS-137	661.65	* 85.12	4.73E-02	8.36E-02	8.36E-02
+ LA-138	788.74	34.00	-4.13E-02	9.72E-02	1.84E-01
	1435.80	66.00	1.24E-03		9.72E-02
+ CE-139	165.85	80.35	2.46E-02	7.60E-02	7.60E-02
+ BA-140	162.64	6.70	8.19E-01	1.46E+00	4.43E+00
	304.84	4.50	8.95E-01		5.88E+00
	423.70	3.20	1.08E+01		1.14E+01
	437.55	2.00	7.22E+00		1.74E+01
	537.32	25.00	-2.56E-01		1.46E+00
+ LA-140	328.77	20.50	9.36E-01	4.44E-01	1.66E+00
	487.03	45.50	-5.05E-02		7.73E-01
	815.85	23.50	3.38E-01		1.75E+00
	1596.49	95.49	2.27E-01		4.44E-01
	145.44	48.40	1.08E-01		2.16E-01
+ CE-141	145.44	48.40	1.08E-01	2.16E-01	2.16E-01
+ CE-143	57.36	11.80	3.31E+06	2.44E+06	7.16E+06
	293.26	42.00	6.54E+06		2.44E+06
	664.55	5.20	5.18E+06		1.78E+07
+ CE-144	133.54	10.80	2.73E-01	4.72E-01	4.72E-01
+ PM-144	476.78	42.00	5.20E-02	7.50E-02	1.61E-01
	618.01	98.60	5.36E-03		7.50E-02
	696.49	99.49	2.74E-02		8.12E-02
+ PM-145	36.85	21.70	-2.49E-01	3.28E-01	6.07E-01
	37.36	39.70	4.29E-02		3.28E-01
	42.30	15.10	-7.64E-02		6.00E-01
	72.40	2.31	-3.14E+00		3.32E+00
+ PM-146	453.90	39.94	1.38E-03	1.57E-01	1.57E-01
	735.90	14.01	1.19E-01		5.06E-01
	747.13	13.10	-1.58E-01		4.94E-01
+ ND-147	91.11	28.90	-5.44E+00	1.81E+00	1.81E+00
	531.02	13.10	7.25E-01		3.74E+00
+ PM-149	285.90	3.10	-8.18E+03	4.07E+04	4.07E+04
+ EU-152	121.78	20.50	-2.14E-02	2.33E-01	2.33E-01
	244.69	5.40	-2.75E-01		1.11E+00
	344.27	19.13	-8.04E-02		2.72E-01
	778.89	9.20	-1.58E-01		7.60E-01
	964.01	10.40	4.62E-02		9.09E-01
	1085.78	7.22	-1.07E-01		1.14E+00
	1112.02	9.60	3.45E-01		9.46E-01
	1407.95	14.94	4.48E-01		6.07E-01
	97.43	31.30	1.13E-01		1.73E-01
+ GD-153	103.18	22.20	8.51E-02	1.18E-01	2.37E-01
	123.07	40.50	1.66E-03		1.18E-01
+ EU-154	123.07	40.50	1.66E-03	1.18E-01	1.18E-01
	723.30	19.70	1.47E-01		3.49E-01

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Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
EU-154	873.19	11.50	-3.28E-01	1.18E-01	5.89E-01
	996.32	10.30	-1.53E-01		7.18E-01
	1004.76	17.90	-1.75E-02		4.93E-01
	1274.45	35.50	1.67E-01		2.59E-01
+ EU-155	86.50	30.90	1.29E-01	2.27E-01	2.27E-01
+ EU-156	105.30	20.70	-1.08E-01	2.69E+00	2.35E-01
	811.77	10.40	-1.53E+00		2.69E+00
+ HO-166M	1153.47	7.20	2.89E+00	9.52E-02	5.90E+00
	1230.71	8.90	-3.96E-01		4.56E+00
	184.41	72.60	1.68E-01		9.52E-02
	280.45	29.60	-1.96E-03		1.69E-01
+ TM-171	410.94	11.10	2.46E-01	5.07E+01	5.98E-01
	711.69	54.10	-3.51E-02		1.24E-01
+ HF-172	66.72	0.14	2.66E+01	4.53E-01	5.07E+01
+ LU-172	81.75	4.52	-6.68E-01	3.79E+00	1.41E+00
	125.81	11.30	-4.55E-01		4.53E-01
	181.53	20.60	-3.79E+00		7.26E+00
	810.06	16.63	-2.75E+00		1.12E+01
+ LU-173	912.12	15.25	7.11E+01	3.00E-01	2.77E+01
	1093.66	62.50	-2.59E-01		3.79E+00
	100.72	5.24	3.26E-01		9.59E-01
	272.11	21.20	3.15E-01		3.00E-01
+ HF-175	343.40	84.00	-2.10E-02	8.83E-02	8.83E-02
+ LU-176	88.34	13.30	1.03E+00	4.86E-02	5.29E-01
	201.83	86.00	8.14E-03		6.26E-02
	306.78	94.00	-2.21E-02		4.86E-02
	67.75	41.20	1.07E-01		1.99E-01
+ TA-182	1121.30	34.90	6.79E-01	1.99E-01	4.45E-01
	1189.05	16.23	-4.20E-02		6.61E-01
	1221.41	26.98	8.44E-03		4.29E-01
	1231.02	11.44	-8.57E-02		9.87E-01
	308.46	29.68	1.11E-01		1.82E-01
+ IR-192	468.07	48.10	-4.48E-02	1.82E-01	2.29E-01
+ HG-203	279.19	77.30	6.73E-02	1.16E-01	1.16E-01
+ BI-207	569.67	97.72	1.73E-02	6.69E-02	6.69E-02
	1063.62	74.90	-5.33E-03		9.85E-02
	583.14	* 30.22	1.43E+00		1.71E-01
+ TL-208	860.37	4.48	5.68E-01	1.71E-01	3.41E-01
	2614.66	* 35.85	9.59E-01		1.80E+00
	262.00	45.00	-2.53E-03		1.71E-01
+ BI-210M	300.00	23.00	-4.22E-01	1.12E-01	1.12E-01
+ PB-210	46.50	* 4.25	1.86E+00	2.27E+00	2.27E+00
+ PB-211	404.84	2.90	6.23E-01	1.92E+00	1.92E+00
	831.96	2.90	-1.47E-01		2.46E+00
+ BI-212	727.17	* 11.80	9.61E-01	7.56E-01	7.56E-01
	1620.62	2.75	1.38E-01		2.42E+00
+ PB-212	238.63	* 44.60	1.61E+00	2.75E-01	2.75E-01
	300.09	* 3.41	2.04E+00		2.88E+00

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	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BI-214	609.31	*	46.30	1.22E+00	3.23E-01	3.23E-01
		1120.29	*	15.10	1.13E+00		1.79E+00
		1764.49	*	15.80	1.44E+00		5.45E-01
		2204.22	*	4.98	1.71E+00		1.37E+00
+	PB-214	295.21	*	19.19	1.61E+00	2.63E-01	5.15E-01
		351.92	*	37.19	1.47E+00		2.63E-01
+	RN-219	401.80		6.50	1.44E-01	8.30E-01	8.30E-01
+	RA-223	323.87		3.88	-1.90E-01	1.23E+00	1.23E+00
+	RA-224	240.98		3.95	1.79E+01	3.06E+00	3.06E+00
+	RA-225	40.00		31.00	8.34E-02	1.56E+00	1.56E+00
+	RA-226	186.21	*	3.28	4.68E+00	2.89E+00	2.89E+00
+	TH-227	50.10		8.40	-2.17E-01	5.79E-01	8.56E-01
		236.00		11.50	-5.08E+00		5.79E-01
		256.20		6.30	-2.13E-01		8.13E-01
+	AC-228	338.32	*	11.40	1.54E+00	3.95E-01	9.07E-01
		911.07	*	27.70	1.52E+00		3.95E-01
		969.11	*	16.60	8.91E-01		8.99E-01
+	TH-230	48.44		16.90	-3.38E-02	4.94E-01	4.94E-01
		62.85		4.60	2.41E+00		1.67E+00
		67.67		0.37	9.78E+00		1.82E+01
+	PA-231	283.67		1.60	5.88E-01	2.26E+00	3.14E+00
		302.67		2.30	-1.91E-01		2.26E+00
+	TH-231	25.64		14.70	6.90E-01	9.94E-01	3.95E+00
		84.21		6.40	-3.11E+00		9.94E-01
+	PA-233	311.98		38.60	5.01E-02	2.96E-01	2.96E-01
+	PA-234	131.20		20.40	9.43E-02	2.26E-01	2.26E-01
		733.99		8.80	1.10E-01		8.04E-01
		946.00		12.00	-2.32E-01		6.19E-01
+	PA-234M	1001.03		0.92	1.04E+00	8.98E+00	8.98E+00
+	TH-234	63.29	*	3.80	1.17E+00	2.26E+00	2.26E+00
+	U-235	143.76		10.50	4.12E-02	4.98E-01	4.98E-01
		163.35		4.70	7.89E-01		1.12E+00
		205.31		4.70	5.10E-01		1.16E+00
+	NP-237	86.50		12.60	3.13E-01	5.51E-01	5.51E-01
+	NP-239	106.10		22.70	-1.33E+03	2.90E+03	2.90E+03
		228.18		10.70	2.24E+03		6.81E+03
		277.60		14.10	4.60E+03		5.46E+03
+	AM-241	59.54		35.90	8.14E-03	1.93E-01	1.93E-01
+	AM-243	74.67	*	66.00	3.38E-01	1.60E-01	1.60E-01
+	CM-243	209.75	*	3.29	1.46E+00	4.74E-01	1.96E+00
		228.14		10.60	1.66E-01		5.04E-01
		277.60	*	14.00	3.48E-01		4.74E-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	9.06E-01	9.06E-01	2.24E-02	4.30E-01
NA-22	1274.54	99.94	9.36E-02	9.36E-02	6.03E-02	4.34E-02
NA-24	1368.53	99.99	2.66E+14	1.29E+14	4.45E+12	1.19E+14
	2754.09	99.86	1.29E+14		-5.55E+13	4.57E+13
AL-26	1808.65	99.76	4.48E-02	4.48E-02	4.23E-03	1.81E-02
+ K-40	1460.81	* 10.67	1.16E+00	1.16E+00	2.18E+01	5.46E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	7.14E-02	7.14E-02	3.83E-02	3.49E-02
	78.34	96.00	9.02E-02		1.94E-01	4.44E-02
SC-46	889.25	99.98	8.68E-02	8.68E-02	-7.61E-02	4.01E-02
	1120.51	99.99	1.67E-01		2.68E-01	7.93E-02
V-48	983.52	99.98	3.32E-01	3.22E-01	-5.39E-02	1.55E-01
	1312.10	97.50	3.22E-01		-1.56E-02	1.47E-01
CR-51	320.08	9.83	1.10E+00	1.10E+00	2.17E-03	5.23E-01
MN-54	834.83	99.97	8.48E-02	8.48E-02	-1.13E-02	3.98E-02
CO-56	846.75	99.96	1.02E-01	1.02E-01	3.49E-02	4.75E-02
	1037.75	14.03	7.32E-01		-1.15E-01	3.39E-01
	1238.25	67.00	2.03E-01		-2.59E-02	9.51E-02
	1771.40	15.51	5.72E-01		4.36E-02	2.50E-01
	2598.48	16.90	2.64E-01		-2.84E-02	9.35E-02
CO-57	122.06	85.51	6.04E-02	6.04E-02	-5.57E-03	2.93E-02
	136.48	10.60	4.87E-01		-2.98E-01	2.36E-01
CO-58	810.76	99.40	9.14E-02	9.14E-02	-2.59E-02	4.24E-02
FE-59	1099.22	56.50	2.28E-01	2.28E-01	1.30E-02	1.05E-01
	1291.56	43.20	2.99E-01		3.43E-02	1.37E-01
CO-60	1173.22	100.00	9.40E-02	7.37E-02	2.62E-02	4.38E-02
	1332.49	100.00	7.37E-02		-1.79E-03	3.33E-02
ZN-65	1115.52	50.75	1.87E-01	1.87E-01	-5.97E-01	8.70E-02
+ GA-67	93.31	* 35.70	3.33E+02	3.33E+02	2.23E+02	1.65E+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	2.79E+03	3.33E+02	2.07E+03	1.36E+03	
	300.22	*	16.00	5.95E+02		4.22E+02	2.91E+02	
SE-75	121.11		16.70	3.51E-01	9.73E-02	1.16E-01	1.71E-01	
	136.00		59.20	9.73E-02		2.56E-02	4.72E-02	
	264.65		59.80	9.76E-02		8.19E-03	4.67E-02	
	279.53		25.20	2.55E-01		6.58E-02	1.23E-01	
	400.65		11.40	5.41E-01		-2.76E-01	2.56E-01	
RB-82	776.52		13.00	1.29E+00	1.29E+00	-3.30E-01	6.04E-01	
RB-83	520.41		46.00	1.73E-01	1.73E-01	-4.16E-02	8.20E-02	
	529.64		30.30	2.61E-01		-1.37E-01	1.23E-01	
	552.65		16.40	5.05E-01		-1.70E-01	2.38E-01	
KR-85	513.99		0.43	2.21E+01	2.21E+01	3.34E+01	1.07E+01	
SR-85	513.99		99.27	1.36E-01	1.36E-01	2.05E-01	6.55E-02	
Y-88	898.02		93.40	9.94E-02	5.20E-02	2.79E-03	4.63E-02	
	1836.01		99.38	5.20E-02		-1.27E-02	2.06E-02	
NB-93M	16.57		9.43	7.49E+01	7.49E+01	-4.24E+01	3.50E+01	
NB-94	702.63		100.00	7.27E-02	7.12E-02	5.09E-04	3.43E-02	
	871.10		100.00	7.12E-02		1.06E-02	3.31E-02	
NB-95	765.79		99.81	1.73E-01	1.73E-01	1.52E-01	8.22E-02	
NB-95M	235.69		25.00	1.33E+02	1.33E+02	-1.16E+03	6.45E+01	
ZR-95	724.18		43.70	2.64E-01	2.03E-01	7.06E-02	1.25E-01	
	756.72		55.30	2.03E-01		6.60E-03	9.58E-02	
MO-99	181.06		6.20	2.88E+03	1.75E+03	-4.05E+02	1.39E+03	
	739.58		12.80	1.75E+03		2.61E+02	8.14E+02	
	778.00		4.50	5.06E+03		-1.49E+03	2.35E+03	
RU-103	497.08		89.00	1.14E-01	1.14E-01	-5.63E-02	5.36E-02	
RU-106	621.84		9.80	7.13E-01	7.13E-01	-1.42E-01	3.36E-01	
AG-108M	433.93		89.90	6.73E-02	6.73E-02	1.64E-02	3.20E-02	
	614.37		90.40	7.59E-02		-6.16E-01	3.58E-02	
	722.95		90.50	7.54E-02		3.19E-02	3.53E-02	
+ CD-109	88.03	*	3.72	3.45E+00	3.45E+00	4.28E+00	1.71E+00	
	AG-110M	657.75		93.14	8.37E-02	8.37E-02	1.30E-02	3.95E-02
		677.61		10.53	7.34E-01		-2.54E-02	3.46E-01
		706.67		16.46	5.03E-01		2.36E-01	2.38E-01
		763.93		21.98	3.74E-01		8.52E-02	1.76E-01
		884.67		71.63	1.07E-01		2.22E-02	4.99E-02
		1384.27		23.94	3.26E-01		-9.98E-02	1.47E-01
		CD-113M	263.70		0.02	2.10E+02	2.10E+02	-2.35E+01
SN-113	255.12		1.93	3.26E+00	9.84E-02	-5.70E-01	1.57E+00	
	391.69		64.90	9.84E-02		-1.30E-03	4.67E-02	
TE123M	159.00		84.10	7.04E-02	7.04E-02	-5.16E-02	3.41E-02	
SB-124	602.71		97.87	9.62E-02	9.62E-02	2.17E-02	4.53E-02	
	645.85		7.26	1.26E+00		2.73E-01	5.92E-01	
	722.78		11.10	8.92E-01		3.77E-01	4.18E-01	
	1691.02		49.00	1.43E-01		4.06E-02	5.93E-02	
	I-125	35.49		6.49	3.27E+00	3.27E+00	2.70E-01	1.59E+00
SB-125	176.33		6.89	7.67E-01	2.10E-01	1.68E-01	3.71E-01	
	427.89		29.33	2.10E-01		-5.63E-02	1.00E-01	
	463.38		10.35	7.24E-01		5.29E-01	3.47E-01	
	600.56		17.80	3.62E-01		-5.32E-02	1.70E-01	
	635.90		11.32	5.24E-01		-3.10E-01	2.45E-01	
SB-126	414.70		83.30	4.62E-01	4.41E-01	2.98E-02	2.20E-01	
	666.33		99.60	4.41E-01		3.33E-03	2.08E-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)
SB-126	695.00	99.60	4.49E-01	4.41E-01	-6.31E-02	2.12E-01
	720.50	53.80	7.76E-01		2.55E-01	3.64E-01
+ SN-126	87.57 *	37.00	3.30E-01	3.30E-01	4.10E-01	1.63E-01
SB-127	473.00	25.00	7.93E+01	6.51E+01	-2.28E+01	3.75E+01
	685.20	35.70	6.51E+01		-1.21E+01	3.06E+01
	783.80	14.70	1.64E+02		6.66E+01	7.69E+01
I-129	29.78	57.00	4.62E-01	4.62E-01	-1.67E-01	2.24E-01
	33.60	13.20	1.30E+00		-3.99E-01	6.31E-01
	39.58	7.52	1.45E+00		7.76E-02	7.06E-01
I-131	284.30	6.05	1.33E+01	9.75E-01	-3.12E+00	6.38E+00
	364.48	81.20	9.75E-01		-5.01E-02	4.61E-01
	636.97	7.26	1.41E+01		3.03E+00	6.61E+00
	722.89	1.80	6.17E+01		2.60E+01	2.89E+01
TE-132	49.72	13.10	5.42E+02	5.91E+01	-1.37E+02	2.64E+02
	228.16	88.00	5.91E+01		1.95E+01	2.85E+01
BA-133	81.00	33.00	1.85E-01	8.98E-02	-1.41E+00	9.04E-02
	302.84	17.80	2.94E-01		-2.49E-02	1.40E-01
	356.01	60.00	8.98E-02		-6.88E-01	4.28E-02
I-133	529.87	86.30	1.22E+10	1.22E+10	-6.40E+09	5.75E+09
XE-133	81.00	38.00	1.15E+01	1.15E+01	-8.79E+01	5.62E+00
CS-134	563.23	8.38	8.50E-01	6.90E-02	3.73E-01	4.03E-01
	569.32	15.43	4.44E-01		7.11E-02	2.10E-01
	604.70	97.60	6.90E-02		2.48E-03	3.25E-02
	795.84	85.40	1.01E-01		1.21E-01	4.79E-02
	801.93	8.73	7.48E-01		-6.14E-02	3.46E-01
CS-135	268.24	16.00	3.55E-01	3.55E-01	1.21E-01	1.71E-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	3.93E-01	-2.95E-01	1.85E+00
	163.89	4.61	6.27E+00		4.43E+00	3.04E+00
	176.55	13.56	2.10E+00		4.60E-01	1.01E+00
	273.65	12.66	2.36E+00		-2.76E+00	1.14E+00
	340.57	48.50	8.49E-01		1.22E+00	4.10E-01
	818.50	99.70	3.93E-01		1.23E-01	1.84E-01
	1048.07	79.60	5.74E-01		2.04E-01	2.67E-01
	1235.34	19.70	2.87E+00		6.53E-02	1.34E+00
+ CS-137	661.65 *	85.12	8.36E-02	8.36E-02	4.73E-02	3.94E-02
LA-138	788.74	34.00	1.84E-01	9.72E-02	-4.13E-02	8.52E-02
	1435.80	66.00	9.72E-02		1.24E-03	4.30E-02
CE-139	165.85	80.35	7.60E-02	7.60E-02	2.46E-02	3.68E-02
BA-140	162.64	6.70	4.43E+00	1.46E+00	8.19E-01	2.15E+00
	304.84	4.50	5.88E+00		8.95E-01	2.79E+00
	423.70	3.20	1.14E+01		1.08E+01	5.46E+00
	437.55	2.00	1.74E+01		7.22E+00	8.26E+00
	537.32	25.00	1.46E+00		-2.56E-01	6.88E-01
LA-140	328.77	20.50	1.66E+00	4.44E-01	9.36E-01	7.96E-01
	487.03	45.50	7.73E-01		-5.05E-02	3.66E-01
	815.85	23.50	1.75E+00		3.38E-01	8.16E-01
	1596.49	95.49	4.44E-01		2.27E-01	1.98E-01
CE-141	145.44	48.40	2.16E-01	2.16E-01	1.08E-01	1.05E-01
CE-143	57.36	11.80	7.16E+06	2.44E+06	3.31E+06	3.50E+06
	293.26	42.00	2.44E+06		6.54E+06	1.19E+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)
CE-143	664.55	5.20	1.78E+07	2.44E+06	5.18E+06	8.45E+06
CE-144	133.54	10.80	4.72E-01	4.72E-01	2.73E-01	2.29E-01
PM-144	476.78	42.00	1.61E-01	7.50E-02	5.20E-02	7.67E-02
	618.01	98.60	7.50E-02		5.36E-03	3.54E-02
	696.49	99.49	8.12E-02		2.74E-02	3.84E-02
PM-145	36.85	21.70	6.07E-01	3.28E-01	-2.49E-01	2.94E-01
	37.36	39.70	3.28E-01		4.29E-02	1.59E-01
	42.30	15.10	6.00E-01		-7.64E-02	2.91E-01
	72.40	2.31	3.32E+00		-3.14E+00	1.63E+00
PM-146	453.90	39.94	1.57E-01	1.57E-01	1.38E-03	7.45E-02
	735.90	14.01	5.06E-01		1.19E-01	2.37E-01
	747.13	13.10	4.94E-01		-1.58E-01	2.30E-01
ND-147	91.11	28.90	1.81E+00	1.81E+00	-5.44E+00	8.89E-01
	531.02	13.10	3.74E+00		7.25E-01	1.77E+00
PM-149	285.90	3.10	4.07E+04	4.07E+04	-8.18E+03	1.95E+04
EU-152	121.78	20.50	2.33E-01	2.33E-01	-2.14E-02	1.13E-01
	244.69	5.40	1.11E+00		-2.75E-01	5.36E-01
	344.27	19.13	2.72E-01		-8.04E-02	1.29E-01
	778.89	9.20	7.60E-01		-1.58E-01	3.55E-01
	964.01	10.40	9.09E-01		4.62E-02	4.28E-01
	1085.78	7.22	1.14E+00		-1.07E-01	5.30E-01
	1112.02	9.60	9.46E-01		3.45E-01	4.41E-01
	1407.95	14.94	6.07E-01		4.48E-01	2.79E-01
GD-153	97.43	31.30	1.73E-01	1.73E-01	1.13E-01	8.44E-02
	103.18	22.20	2.37E-01		8.51E-02	1.15E-01
EU-154	123.07	40.50	1.18E-01	1.18E-01	1.66E-03	5.74E-02
	723.30	19.70	3.49E-01		1.47E-01	1.63E-01
	873.19	11.50	5.89E-01		-3.28E-01	2.73E-01
	996.32	10.30	7.18E-01		-1.53E-01	3.32E-01
	1004.76	17.90	4.93E-01		-1.75E-02	2.31E-01
	1274.45	35.50	2.59E-01		1.67E-01	1.20E-01
EU-155	86.50	30.90	2.27E-01	2.27E-01	1.29E-01	1.12E-01
	105.30	20.70	2.35E-01		-1.08E-01	1.14E-01
EU-156	811.77	10.40	2.69E+00	2.69E+00	-1.53E+00	1.25E+00
	1153.47	7.20	5.90E+00		2.89E+00	2.76E+00
	1230.71	8.90	4.56E+00		-3.96E-01	2.12E+00
HO-166M	184.41	72.60	9.52E-02	9.52E-02	1.68E-01	4.65E-02
	280.45	29.60	1.69E-01		-1.96E-03	8.07E-02
	410.94	11.10	5.98E-01		2.46E-01	2.86E-01
	711.69	54.10	1.24E-01		-3.51E-02	5.79E-02
TM-171	66.72	0.14	5.07E+01	5.07E+01	2.66E+01	2.48E+01
HF-172	81.75	4.52	1.41E+00	4.53E-01	-6.68E-01	6.89E-01
	125.81	11.30	4.53E-01		-4.55E-01	2.20E-01
LU-172	181.53	20.60	7.26E+00	3.79E+00	-3.79E+00	3.52E+00
	810.06	16.63	1.12E+01		-2.75E+00	5.20E+00
	912.12	15.25	2.77E+01		7.11E+01	1.34E+01
	1093.66	62.50	3.79E+00		-2.59E-01	1.76E+00
LU-173	100.72	5.24	9.59E-01	3.00E-01	3.26E-01	4.66E-01
	272.11	21.20	3.00E-01		3.15E-01	1.45E-01
HF-175	343.40	84.00	8.83E-02	8.83E-02	-2.10E-02	4.21E-02
LU-176	88.34	13.30	5.29E-01	4.86E-02	1.03E+00	2.60E-01
	201.83	86.00	6.26E-02		8.14E-03	3.03E-02
	306.78	94.00	4.86E-02		-2.21E-02	2.31E-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	1.99E-01	1.99E-01	1.07E-01	9.74E-02
	1121.30	34.90	4.45E-01		6.79E-01	2.12E-01
	1189.05	16.23	6.61E-01		-4.20E-02	3.06E-01
	1221.41	26.98	4.29E-01		8.44E-03	2.00E-01
	1231.02	11.44	9.87E-01		-8.57E-02	4.58E-01
IR-192	308.46	29.68	2.29E-01	1.82E-01	1.11E-01	1.09E-01
	468.07	48.10	1.82E-01		-4.48E-02	8.66E-02
HG-203	279.19	77.30	1.16E-01	1.16E-01	6.73E-02	5.59E-02
BI-207	569.67	97.72	6.69E-02	6.69E-02	1.73E-02	3.16E-02
	1063.62	74.90	9.85E-02		-5.33E-03	4.53E-02
+ TL-208	583.14	*	30.22	1.71E-01	1.43E+00	1.65E-01
	860.37		4.48	1.80E+00	5.68E-01	8.46E-01
BI-210M	2614.66	*	35.85	1.71E-01	9.59E-01	7.17E-02
	262.00		45.00	1.12E-01	-2.53E-03	5.35E-02
+ PB-210	300.00		23.00	2.62E-01	-4.22E-01	1.26E-01
	46.50	*	4.25	2.27E+00	2.27E+00	1.86E+00
PB-211	404.84		2.90	1.92E+00	1.92E+00	6.23E-01
	831.96		2.90	2.46E+00	-1.47E-01	1.15E+00
+ BI-212	727.17	*	11.80	7.56E-01	7.56E-01	9.61E-01
	1620.62		2.75	2.42E+00		1.38E-01
+ PB-212	238.63	*	44.60	2.75E-01	2.75E-01	1.61E+00
	300.09	*	3.41	2.88E+00		2.04E+00
+ BI-214	609.31	*	46.30	3.23E-01	3.23E-01	1.22E+00
	1120.29	*	15.10	1.79E+00		1.13E+00
	1764.49	*	15.80	5.45E-01		1.44E+00
	2204.22	*	4.98	1.37E+00		1.71E+00
+ PB-214	295.21	*	19.19	5.15E-01	2.63E-01	1.61E+00
	351.92	*	37.19	2.63E-01		1.47E+00
RN-219	401.80		6.50	8.30E-01	8.30E-01	1.44E-01
RA-223	323.87		3.88	1.23E+00	1.23E+00	-1.90E-01
RA-224	240.98		3.95	3.06E+00	3.06E+00	1.79E+01
RA-225	40.00		31.00	1.56E+00	1.56E+00	8.34E-02
+ RA-226	186.21	*	3.28	2.89E+00	2.89E+00	4.68E+00
	TH-227		8.40	8.56E-01	5.79E-01	-2.17E-01
+ AC-228	236.00		11.50	5.79E-01		-5.08E+00
	256.20		6.30	8.13E-01		-2.13E-01
	338.32	*	11.40	9.07E-01	3.95E-01	1.54E+00
	911.07	*	27.70	3.95E-01		1.52E+00
TH-230	969.11	*	16.60	8.99E-01		8.91E-01
	48.44		16.90	4.94E-01	4.94E-01	-3.38E-02
	62.85		4.60	1.67E+00		2.41E+00
PA-231	67.67		0.37	1.82E+01		9.78E+00
	283.67		1.60	3.14E+00	2.26E+00	5.88E-01
TH-231	302.67		2.30	2.26E+00		-1.91E-01
	25.64		14.70	3.95E+00	9.94E-01	6.90E-01
PA-233	84.21		6.40	9.94E-01		-3.11E+00
	311.98		38.60	2.96E-01	2.96E-01	5.01E-02
PA-234	131.20		20.40	2.26E-01	2.26E-01	9.43E-02
	733.99		8.80	8.04E-01		1.10E-01
	946.00		12.00	6.19E-01		-2.32E-01
PA-234M	1001.03		0.92	8.98E+00	8.98E+00	1.04E+00
+ TH-234	63.29	*	3.80	2.26E+00	2.26E+00	1.17E+00
U-235	143.76		10.50	4.98E-01	4.98E-01	4.12E-02

Analysis Report for 1510093-18  
CP3004S10-11

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Line MDA (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Activity (pCi/grams)</b>	<b>Dec. Level (pCi/grams)</b>
U-235	163.35	4.70	1.12E+00	4.98E-01	7.89E-01	5.42E-01
	205.31	4.70	1.16E+00		5.10E-01	5.62E-01
NP-237	86.50	12.60	5.51E-01	5.51E-01	3.13E-01	2.70E-01
NP-239	106.10	22.70	2.90E+03	2.90E+03	-1.33E+03	1.41E+03
	228.18	10.70	6.81E+03		2.24E+03	3.28E+03
	277.60	14.10	5.46E+03		4.60E+03	2.63E+03
AM-241	59.54	35.90	1.93E-01	1.93E-01	8.14E-03	9.44E-02
+ AM-243	74.67	* 66.00	1.60E-01	1.60E-01	3.38E-01	7.90E-02
+ CM-243	209.75	* 3.29	1.96E+00	4.74E-01	1.46E+00	9.55E-01
	228.14	10.60	5.04E-01		1.66E-01	2.43E-01
	277.60	* 14.00	4.74E-01		3.48E-01	2.29E-01

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

No Action Level results available for reporting purposes.

## DATA REVIEW COMMENTS REPORT

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

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP3004S10-11

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	2	68	91	86	98	74	76
25:	98	68	63	62	68	66	59	65
33:	75	63	70	77	87	68	69	94
41:	81	72	68	70	69	112	190	88
49:	75	92	84	97	112	102	80	96
57:	117	129	117	130	127	125	172	281
65:	148	131	158	153	154	133	133	120
73:	170	184	405	337	390	581	140	143
81:	131	153	116	165	163	122	199	298
89:	139	170	146	140	293	232	102	81
97:	88	93	93	107	77	77	79	72
105:	91	110	80	75	105	75	93	94
113:	89	96	94	84	71	79	98	83
121:	74	80	74	77	81	89	79	88
129:	122	92	50	66	68	71	59	93
137:	69	69	67	90	83	90	66	97
145:	83	78	80	75	77	82	78	61
153:	50	76	118	75	77	73	62	58
161:	60	81	69	72	72	74	61	74
169:	62	55	66	72	65	61	55	71
177:	56	83	62	62	63	70	57	77
185:	84	187	160	76	65	61	49	56
193:	65	61	54	52	55	61	70	62
201:	52	59	52	78	50	69	54	54
209:	84	99	74	40	62	49	65	58
217:	55	54	43	42	55	52	53	48
225:	49	59	47	49	51	48	42	46
233:	50	52	50	58	53	172	687	227
241:	89	145	116	39	44	48	44	44
249:	32	36	45	32	54	40	42	34
257:	36	48	45	43	37	32	25	49
265:	36	27	33	31	40	65	64	61
273:	41	32	33	40	47	61	37	33
281:	32	30	35	27	39	36	25	35
289:	41	32	36	28	35	43	152	210
297:	53	36	40	52	65	32	26	21
305:	19	23	35	18	27	35	32	24
313:	27	25	29	29	26	32	26	27
321:	22	21	25	24	22	32	25	61
329:	40	31	31	30	34	24	26	44
337:	34	83	137	54	35	36	32	27
345:	28	23	24	26	28	31	81	328
353:	219	34	32	25	24	22	24	33
361:	21	25	19	20	25	21	23	29

369: 14 26 31 23 20 25 31 24

Sample Title: CP3004S10-11

Channel	-----	-----	-----	-----	-----	-----	-----	-----
377:	22	19	18	22	27	31	22	25
385:	26	21	29	28	21	26	22	25
393:	22	19	26	18	31	22	16	27
401:	19	21	21	28	23	23	27	16
409:	27	40	22	25	18	25	20	16
417:	26	23	12	16	21	19	30	17
425:	23	25	15	16	10	21	23	24
433:	15	15	15	17	22	25	24	10
441:	15	14	16	16	22	16	14	14
449:	25	12	15	22	23	14	18	11
457:	25	18	18	18	22	15	30	37
465:	15	32	26	15	23	16	7	15
473:	13	24	20	12	17	15	19	19
481:	17	16	15	15	15	22	11	10
489:	18	20	17	17	16	19	13	16
497:	15	10	13	8	14	20	9	11
505:	16	18	14	18	25	43	101	69
513:	28	14	20	12	16	13	20	9
521:	15	15	15	15	17	19	9	10
529:	9	18	19	11	21	18	16	11
537:	16	17	13	10	19	17	9	17
545:	17	15	18	17	18	19	9	15
553:	12	12	17	16	18	14	10	16
561:	17	15	17	15	17	18	14	14
569:	16	10	11	21	14	10	7	11
577:	7	15	9	17	16	25	126	152
585:	35	17	19	9	9	10	9	5
593:	13	9	16	12	17	10	9	18
601:	9	15	14	10	10	14	11	17
609:	140	242	44	14	14	10	18	10
617:	19	13	15	13	12	13	17	8
625:	10	15	10	9	10	16	13	10
633:	4	15	11	12	10	6	7	16
641:	11	12	13	9	10	13	5	13
649:	13	7	9	12	15	10	12	17
657:	13	7	15	19	12	25	12	5
665:	14	27	13	13	11	13	6	12
673:	15	8	14	11	13	16	6	20
681:	9	20	8	16	11	9	9	9
689:	12	12	14	12	11	9	14	19
697:	17	10	18	12	13	11	7	16
705:	9	21	13	10	17	10	14	9
713:	7	9	7	11	14	8	12	11
721:	8	16	15	5	8	11	44	42
729:	26	12	9	14	9	14	14	10
737:	8	17	4	7	9	10	8	5
745:	6	9	8	11	11	11	8	16
753:	11	12	12	21	15	9	13	12
761:	11	15	13	5	11	8	20	31
769:	36	10	6	8	12	17	6	14
777:	9	7	6	10	8	14	6	14
785:	8	12	9	9	6	5	7	5
793:	12	7	28	26	6	12	7	6



801: 5 8 4 13 10 11 10 10

Sample Title: CP3004S10-11

Channel	8	6	4	8	10	11	6	12
809:	8	6	4	8	10	11	6	12
817:	10	6	11	7	13	7	10	4
825:	13	7	6	5	5	9	11	9
833:	10	8	12	17	9	14	14	14
841:	8	10	7	10	11	10	12	6
849:	11	12	9	7	5	4	3	11
857:	7	7	4	14	30	9	8	10
865:	13	10	9	11	9	11	8	9
873:	4	7	6	7	8	13	10	4
881:	7	5	6	9	15	6	9	6
889:	7	9	7	5	15	7	11	6
897:	17	7	10	4	8	9	6	10
905:	13	7	8	9	9	17	89	96
913:	32	6	9	10	7	4	11	7
921:	5	9	7	9	14	6	6	5
929:	7	8	9	8	10	20	19	10
937:	4	8	8	8	7	10	10	10
945:	5	13	3	6	9	10	12	10
953:	6	9	5	9	6	5	6	10
961:	10	8	8	11	23	19	11	18
969:	54	51	13	9	5	7	5	9
977:	3	9	8	11	10	6	12	10
985:	10	3	13	9	12	11	4	7
993:	7	5	7	6	12	4	9	6
1001:	15	9	11	10	6	10	14	12
1009:	11	10	2	5	6	8	4	5
1017:	17	6	5	5	8	4	5	7
1025:	7	11	5	5	5	7	10	5
1033:	13	8	9	13	7	5	7	7
1041:	4	7	7	12	8	11	4	13
1049:	8	9	7	4	5	7	5	6
1057:	12	5	11	10	9	4	12	5
1065:	7	4	4	5	4	6	12	5
1073:	5	4	12	5	10	4	7	9
1081:	9	9	13	13	7	6	0	8
1089:	8	13	11	6	7	12	8	7
1097:	5	9	5	9	8	5	4	4
1105:	7	7	7	8	7	13	16	4
1113:	12	6	7	4	10	6	14	37
1121:	41	20	5	10	3	10	9	7
1129:	3	4	7	10	12	9	20	9
1137:	8	10	10	11	13	7	10	3
1145:	7	11	7	5	2	10	6	4
1153:	12	11	11	17	12	10	4	7
1161:	8	8	9	1	11	3	8	7
1169:	9	10	7	10	11	9	5	11
1177:	8	6	10	5	3	9	10	13
1185:	6	11	8	8	7	10	5	6
1193:	10	9	13	13	15	4	7	6
1201:	10	10	3	10	12	12	10	11
1209:	7	4	12	5	11	4	7	6
1217:	12	4	9	7	9	11	12	10
1225:	10	7	10	10	3	10	4	7

1233: 11 13 6 12 4 19 15 11

Sample Title: CP3004S10-11

Channel	11	13	6	12	4	19	15	11
1241:	4	10	6	10	9	8	9	12
1249:	10	8	5	7	10	18	7	6
1257:	9	5	7	10	8	5	6	6
1265:	4	5	8	4	5	7	10	7
1273:	9	5	8	7	7	4	2	7
1281:	8	8	6	5	2	2	7	2
1289:	7	6	5	8	5	4	5	5
1297:	6	4	0	6	4	3	5	9
1305:	4	8	8	6	6	5	3	5
1313:	4	7	5	11	2	1	3	2
1321:	3	3	7	3	4	3	4	9
1329:	3	5	7	4	6	2	3	4
1337:	2	2	3	8	1	8	5	1
1345:	3	5	4	6	4	2	3	2
1353:	3	4	2	5	0	4	3	2
1361:	5	2	7	2	3	5	2	4
1369:	4	6	2	3	3	7	3	8
1377:	7	16	10	4	2	4	2	1
1385:	8	7	3	4	2	3	0	2
1393:	4	3	0	3	1	5	4	5
1401:	5	4	5	1	4	3	4	10
1409:	12	5	6	2	3	2	2	2
1417:	4	0	3	2	1	3	1	1
1425:	1	4	0	5	2	1	2	6
1433:	2	5	1	3	6	1	2	2
1441:	2	2	1	2	4	4	3	6
1449:	3	1	3	2	0	6	2	5
1457:	3	10	23	131	371	260	70	7
1465:	5	2	3	1	2	2	2	2
1473:	3	2	1	2	2	1	1	3
1481:	4	0	3	2	2	1	6	2
1489:	2	5	1	2	3	1	4	0
1497:	3	3	1	0	4	5	1	3
1505:	1	4	1	1	4	3	3	1
1513:	4	4	2	3	2	1	1	5
1521:	2	3	2	3	5	1	1	0
1529:	1	2	2	0	1	2	0	2
1537:	1	3	6	3	1	2	1	3
1545:	3	0	1	0	2	1	2	1
1553:	2	0	2	1	6	2	2	1
1561:	3	4	3	2	3	2	3	0
1569:	2	1	0	1	2	0	2	3
1577:	0	1	2	6	2	2	1	4
1585:	1	0	3	6	8	0	2	3
1593:	6	6	1	3	3	4	0	1
1601:	1	1	2	2	1	1	2	0
1609:	2	3	0	1	2	2	1	3
1617:	1	0	1	2	5	5	4	3
1625:	3	1	0	0	1	4	5	2
1633:	1	2	2	1	3	4	6	4
1641:	1	2	2	0	2	1	0	3
1649:	1	2	1	2	0	2	2	0
1657:	0	1	2	7	6	3	3	1

1665: 1 1 4 0 2 0 0 1

Sample Title: CP3004S10-11

Channel	1	2	3	4	5	6	7	8	9
1673:	1	3	1	2	2	0	1	0	
1681:	1	0	0	1	0	0	1	2	
1689:	0	0	2	0	4	0	0	1	
1697:	1	1	2	0	3	1	0	1	
1705:	1	2	1	2	1	1	2	1	
1713:	1	0	2	1	0	2	0	0	
1721:	2	1	1	1	1	0	4	2	
1729:	8	5	6	2	1	0	0	0	
1737:	3	0	1	2	0	1	0	0	
1745:	1	4	1	0	0	0	1	2	
1753:	0	2	1	0	1	2	1	2	
1761:	0	3	8	17	31	14	4	5	
1769:	1	3	3	0	1	3	0	2	
1777:	0	3	1	1	2	1	1	1	
1785:	0	0	1	0	0	1	2	0	
1793:	2	3	2	0	0	2	0	1	
1801:	0	0	0	2	1	1	2	1	
1809:	0	0	1	1	0	3	0	1	
1817:	1	0	1	1	0	1	1	2	
1825:	1	2	2	1	1	1	2	1	
1833:	1	2	0	0	0	2	0	0	
1841:	2	0	0	0	2	1	8	6	
1849:	1	0	0	1	1	1	2	2	
1857:	1	1	0	0	1	1	0	3	
1865:	2	2	3	3	3	1	1	1	
1873:	2	1	1	2	1	1	0	1	
1881:	1	1	2	1	0	0	1	0	
1889:	2	1	0	3	1	1	2	1	
1897:	1	1	3	0	0	0	3	2	
1905:	1	1	1	1	0	0	1	0	
1913:	1	1	1	0	2	2	1	3	
1921:	1	1	2	0	0	2	0	1	
1929:	1	0	2	0	3	1	1	1	
1937:	3	0	2	0	0	1	2	0	
1945:	2	3	3	3	0	1	0	1	
1953:	2	1	0	1	0	1	0	0	
1961:	2	0	1	1	1	1	2	1	
1969:	4	3	1	0	0	1	0	0	
1977:	0	0	0	3	0	0	0	0	
1985:	1	4	1	0	2	1	1	0	
1993:	1	1	1	1	0	0	1	0	
2001:	2	2	1	3	3	2	1	3	
2009:	1	0	1	0	1	3	2	0	
2017:	0	1	0	1	0	2	1	1	
2025:	0	0	1	0	2	1	3	0	
2033:	2	1	1	2	0	2	1	0	
2041:	1	1	1	0	0	1	1	0	
2049:	1	2	1	0	2	1	2	0	
2057:	1	0	0	3	1	2	0	1	
2065:	1	1	0	1	0	1	1	1	
2073:	0	3	3	1	1	1	0	2	
2081:	0	0	1	0	0	0	1	0	
2089:	3	2	1	0	0	1	0	0	

2097: 0 1 1 2 2 3 4 7

Sample Title: CP3004S10-11

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

2529: 1 0 1 1 1 0 0 0

Sample Title: CP3004S10-11

Channel	-----	-----	-----	-----	-----	-----	-----	-----
2537:	1	0	1	0	0	1	0	2
2545:	0	0	0	1	0	0	0	0
2553:	2	0	2	0	0	0	0	0
2561:	0	1	1	0	1	0	3	0
2569:	1	0	0	0	0	0	0	0
2577:	0	0	1	0	2	1	0	1
2585:	0	0	1	0	0	1	0	0
2593:	1	1	0	0	0	1	0	0
2601:	0	0	0	0	1	2	0	1
2609:	0	1	0	2	15	30	29	20
2617:	2	5	0	1	1	1	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	2	0	0	0	1	0
2641:	1	0	0	0	0	0	0	0
2649:	2	1	1	0	2	0	0	1
2657:	1	1	1	0	0	0	0	0
2665:	0	1	0	1	0	0	0	0
2673:	1	2	0	1	0	0	0	1
2681:	0	0	0	0	0	0	1	1
2689:	0	1	0	1	1	0	0	0
2697:	0	0	2	0	0	0	0	2
2705:	0	1	0	0	0	0	0	0
2713:	0	0	1	0	0	1	0	0
2721:	0	1	0	1	0	0	1	0
2729:	0	0	0	1	1	1	0	1
2737:	0	1	0	0	0	0	1	0
2745:	0	0	2	0	0	0	0	0
2753:	0	0	1	0	1	1	1	0
2761:	0	0	0	0	0	0	0	1
2769:	0	0	1	0	0	0	1	1
2777:	0	0	0	0	0	0	0	0
2785:	1	0	2	0	1	0	0	2
2793:	0	1	0	0	0	0	1	1
2801:	0	1	0	0	1	1	0	1
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	1	0	1
2825:	0	1	0	1	0	0	0	0
2833:	0	0	0	0	0	0	0	1
2841:	0	0	1	1	0	0	0	0
2849:	0	0	1	1	0	0	0	0
2857:	0	0	1	0	0	0	0	0
2865:	0	0	0	0	2	0	1	1
2873:	0	1	0	0	1	0	0	0
2881:	0	1	0	0	0	0	0	0
2889:	0	0	1	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	1	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	1	0
2937:	0	1	0	0	1	0	0	0
2945:	2	1	0	0	0	1	0	0
2953:	1	0	0	1	0	0	0	0

2961: 1 0 0 1 0 0 1 0

Sample Title: CP3004S10-11

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

3393: 0 1 0 0 1 0 0 0

Sample Title: CP3004S10-11

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

3825: 0 0 0 0 0 0 0 0 0

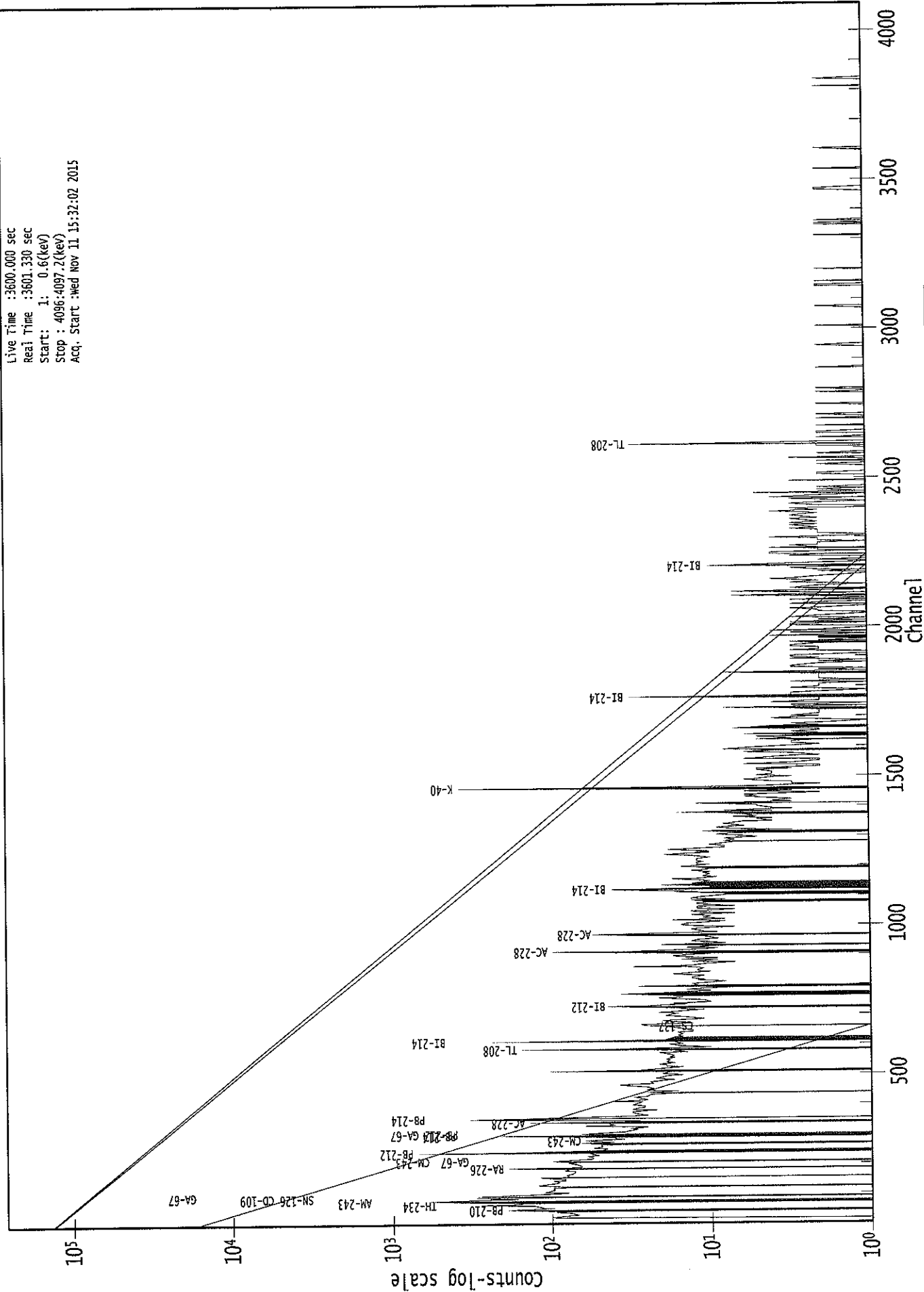
Sample Title: CP3004S10-11

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



# 0000029513.CNF

Live Time : 3600.000 sec  
Real Time : 3601.330 sec  
Start : 1: 0.6(keV)  
Stop : 4096.4097.2(keV)  
Acq. Start : Wed Nov 11 15:32:02 2015



ROI Type: 2

ROI Type: 1

Analysis Report for 1510093-19  
CP3004S12-13

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## GAMMA SPECTRUM ANALYSIS

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Sample Identification : 1510093-19  
Sample Description : CP3004S12-13  
Sample Type : SOIL

Sample Size : 5.703E+02 grams  
Facility : Countroom

Sample Taken On : 10/10/2015 7:35:13AM  
Acquisition Started : 11/11/2015 3:32:12PM

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) : 7 - 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 : 29514

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## PEAK-TO-TOTAL CALIBRATION REPORT

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Peak-to-Total Efficiency Calibration Equation

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*AG*  
*11/12/15*

Analysis Report for 1510093-19  
CP3004S12-13

## PEAK LOCATE REPORT

Peak Locate Performed on : 11/11/2015 4:32:27PM  
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	76.34	76.42	0.0000	0.00
2	87.23	87.31	0.0000	0.00
3	128.80	128.86	0.0000	0.00
4	177.02	177.05	0.0000	0.00
5	186.17	186.20	0.0000	0.00
6	208.93	208.95	0.0000	0.00
7	238.73	238.73	0.0000	0.00
8	242.02	242.01	0.0000	0.00
9	269.93	269.91	0.0000	0.00
10	291.17	291.14	0.0000	0.00
11	295.17	295.14	0.0000	0.00
12	300.13	300.10	0.0000	0.00
13	328.02	327.97	0.0000	0.00
14	338.33	338.28	0.0000	0.00
15	351.95	351.89	0.0000	0.00
16	410.19	410.10	0.0000	0.00
17	511.12	510.97	0.0000	0.00
18	562.10	561.93	0.0000	0.00
19	583.36	583.18	0.0000	0.00
20	609.41	609.21	0.0000	0.00
21	727.30	727.05	0.0000	0.00
22	771.51	771.24	0.0000	0.00
23	860.56	860.25	0.0000	0.00
24	874.17	873.86	0.0000	0.00
25	894.92	894.60	0.0000	0.00
26	911.42	911.09	0.0000	0.00
27	969.28	968.93	0.0000	0.00
28	973.15	972.80	0.0000	0.00
29	1120.28	1119.88	0.0000	0.00
30	1164.21	1163.79	0.0000	0.00
31	1198.78	1198.35	0.0000	0.00
32	1237.64	1237.19	0.0000	0.00
33	1377.45	1376.95	0.0000	0.00
34	1409.52	1409.02	0.0000	0.00
35	1441.37	1440.86	0.0000	0.00
36	1460.91	1460.39	0.0000	0.00
37	1594.47	1593.91	0.0000	0.00
38	1621.38	1620.82	0.0000	0.00
39	1629.52	1628.95	0.0000	0.00
40	1637.74	1637.17	0.0000	0.00
41	1660.73	1660.15	0.0000	0.00
42	1745.33	1744.73	0.0000	0.00

Analysis Report for 1510093-19  
CP3004S12-13

<b>Peak No.</b>	<b>Energy (keV)</b>	<b>Centroid Channel</b>	<b>Centroid Uncertainty</b>	<b>Peak Significance</b>
43	1764.62	1764.02	0.0000	0.00
44	1847.23	1846.60	0.0000	0.00
45	2103.71	2103.03	0.0000	0.00
46	2116.41	2115.73	0.0000	0.00
47	2614.20	2613.46	0.0000	0.00

? = Adjacent peak noted  
Errors quoted at 2.000sigma

01025A

Analysis Report for 1510093-19  
CP3004S12-13

## PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/11/2015 4:32:27PM

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	76.34	72 -	83	76.42	8.39E+02	155.99	2.60E+03	3.41	
2	87.23	86 -	89	87.31	9.48E+01	64.44	9.56E+02	1.33	
3	128.80	125 -	132	128.86	1.30E+02	81.93	1.02E+03	1.25	
4	177.02	175 -	180	177.05	5.90E+01	52.52	4.96E+02	1.49	
5	186.17	183 -	189	186.20	1.53E+02	67.73	7.20E+02	1.34	
6	208.93	205 -	212	208.95	7.65E+01	65.79	6.67E+02	2.01	
M	7	238.73	234 -	246	238.73	8.27E+02	69.44	3.65E+02	1.61
m	8	242.02	234 -	246	242.01	1.95E+02	73.91	4.36E+02	2.28
	9	269.93	267 -	273	269.91	6.70E+01	50.05	4.08E+02	1.14
M	10	291.17	290 -	298	291.14	1.73E+01	17.52	9.08E+01	1.49
m	11	295.17	290 -	298	295.14	2.01E+02	39.50	1.91E+02	1.50
	12	300.13	299 -	303	300.10	4.74E+01	36.43	2.53E+02	1.39
	13	328.02	325 -	331	327.97	4.23E+01	43.89	3.21E+02	1.21
	14	338.33	335 -	342	338.28	1.75E+02	51.07	3.22E+02	1.58
	15	351.95	348 -	356	351.89	4.18E+02	58.51	2.69E+02	1.43
	16	410.19	408 -	412	410.10	2.55E+01	28.28	1.55E+02	2.30
	17	511.12	507 -	515	510.97	1.49E+02	44.27	2.05E+02	2.20
	18	562.10	558 -	566	561.93	3.37E+01	34.83	1.65E+02	4.10
	19	583.36	579 -	587	583.18	2.83E+02	47.64	1.74E+02	1.63
	20	609.41	603 -	613	609.21	2.57E+02	52.16	2.26E+02	1.84
	21	727.30	723 -	730	727.05	6.07E+01	28.57	9.46E+01	1.31
	22	771.51	764 -	779	771.24	6.87E+01	53.18	2.53E+02	4.90
	23	860.56	856 -	864	860.25	5.11E+01	27.06	8.17E+01	1.74
	24	874.17	870 -	877	873.86	1.90E+01	23.58	8.00E+01	2.72
	25	894.92	891 -	898	894.60	1.86E+01	23.58	8.09E+01	3.59
	26	911.42	909 -	915	911.09	1.48E+02	34.52	1.10E+02	1.51
M	27	969.28	965 -	977	968.93	9.07E+01	30.03	1.16E+02	1.98
m	28	973.15	965 -	977	972.80	1.63E+01	27.16	6.32E+01	2.19
	29	1120.28	1114 -	1123	1119.88	7.70E+01	32.83	1.10E+02	2.71
	30	1164.21	1159 -	1167	1163.79	2.28E+01	27.08	9.84E+01	2.84
	31	1198.78	1196 -	1201	1198.35	2.20E+01	18.11	4.80E+01	3.41
	32	1237.64	1233 -	1242	1237.19	5.33E+01	29.72	9.74E+01	5.81
	33	1377.45	1371 -	1383	1376.95	3.74E+01	20.48	2.93E+01	5.84
	34	1409.52	1406 -	1413	1409.02	2.19E+01	13.42	1.41E+01	2.20
	35	1441.37	1438 -	1443	1440.86	1.23E+01	9.54	7.50E+00	3.02
	36	1460.91	1454 -	1464	1460.39	7.33E+02	56.40	3.47E+01	2.29
	37	1594.47	1590 -	1599	1593.91	2.22E+01	15.78	1.76E+01	3.06
	38	1621.38	1617 -	1624	1620.82	1.59E+01	9.38	4.11E+00	2.35
	39	1629.52	1625 -	1633	1628.95	1.10E+01	11.52	1.40E+01	5.68
	40	1637.74	1634 -	1642	1637.17	1.10E+01	12.69	1.80E+01	3.15

Analysis Report for 1510093-19

CP3004S12-13

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1660.73	1655 - 1663		1660.15	9.39E+00	12.37	1.72E+01	3.27
42	1745.33	1743 - 1747		1744.73	6.14E+00	5.85	1.71E+00	2.48
43	1764.62	1759 - 1768		1764.02	5.40E+01	18.87	2.00E+01	1.76
44	1847.23	1844 - 1849		1846.60	6.32E+00	8.43	9.36E+00	3.40
45	2103.71	2099 - 2106		2103.03	1.40E+01	10.20	8.00E+00	2.71
46	2116.41	2112 - 2118		2115.73	7.39E+00	6.95	3.22E+00	3.61
47	2614.20	2609 - 2618		2613.46	1.10E+02	21.84	5.51E+00	2.89

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 : 11/11/2015 4:32:27PM

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	76.34	72 -	83	8.39E+02	155.99	2.60E+03	1.19E+02	
2	87.23	86 -	89	9.48E+01	64.44	9.56E+02	5.05E+01	
3	128.80	125 -	132	1.30E+02	81.93	1.02E+03	6.47E+01	
4	177.02	175 -	180	5.90E+01	52.52	4.96E+02	4.13E+01	
5	186.17	183 -	189	1.53E+02	67.73	7.20E+02	5.18E+01	
6	208.93	205 -	212	7.65E+01	65.79	6.67E+02	5.21E+01	
M	7	238.73	234 -	246	8.27E+02	69.44	3.65E+02	3.14E+01
m	8	242.02	234 -	246	1.95E+02	73.91	4.36E+02	3.43E+01
	9	269.93	267 -	273	6.70E+01	50.05	4.08E+02	3.89E+01
M	10	291.17	290 -	298	1.73E+01	17.52	9.08E+01	1.57E+01
m	11	295.17	290 -	298	2.01E+02	39.50	1.91E+02	2.27E+01
	12	300.13	299 -	303	4.74E+01	36.43	2.53E+02	2.77E+01
	13	328.02	325 -	331	4.23E+01	43.89	3.21E+02	3.45E+01
	14	338.33	335 -	342	1.75E+02	51.07	3.22E+02	3.59E+01
	15	351.95	348 -	356	4.18E+02	58.51	2.69E+02	3.44E+01
	16	410.19	408 -	412	2.55E+01	28.28	1.55E+02	2.17E+01
	17	511.12	507 -	515	1.49E+02	44.27	2.05E+02	3.03E+01
	18	562.10	558 -	566	3.37E+01	34.83	1.65E+02	1.25E+01
	19	583.36	579 -	587	2.83E+02	47.64	1.74E+02	2.77E+01
	20	609.41	603 -	613	2.57E+02	52.16	2.26E+02	3.38E+01

: 01027

Analysis Report for 1510093-19  
CP3004S12-13

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
21	727.30	723 -	730	6.07E+01	28.57	9.46E+01	1.97E+01
22	771.51	764 -	779	6.87E+01	53.18	2.53E+02	4.15E+01
23	860.56	856 -	864	5.11E+01	27.06	8.17E+01	1.89E+01
24	874.17	870 -	877	1.90E+01	23.58	8.00E+01	1.80E+01
25	894.92	891 -	898	1.86E+01	23.58	8.09E+01	1.80E+01
26	911.42	909 -	915	1.48E+02	34.52	1.10E+02	2.01E+01
M 27	969.28	965 -	977	9.07E+01	30.03	1.16E+02	1.77E+01
m 28	973.15	965 -	977	1.63E+01	27.16	6.32E+01	1.31E+01
29	1120.28	1114 -	1123	7.70E+01	32.83	1.10E+02	2.28E+01
30	1164.21	1159 -	1167	2.28E+01	27.08	9.84E+01	2.08E+01
31	1198.78	1196 -	1201	2.20E+01	18.11	4.80E+01	1.27E+01
32	1237.64	1233 -	1242	5.33E+01	29.72	9.74E+01	2.13E+01
33	1377.45	1371 -	1383	3.74E+01	20.48	2.93E+01	1.35E+01
34	1409.52	1406 -	1413	2.19E+01	13.42	1.41E+01	7.90E+00
35	1441.37	1438 -	1443	1.23E+01	9.54	7.50E+00	5.33E+00
36	1460.91	1454 -	1464	7.33E+02	56.40	3.47E+01	1.30E+01
37	1594.47	1590 -	1599	2.22E+01	15.78	1.76E+01	1.04E+01
38	1621.38	1617 -	1624	1.59E+01	9.38	4.11E+00	4.05E+00
39	1629.52	1625 -	1633	1.10E+01	11.52	1.40E+01	7.74E+00
40	1637.74	1634 -	1642	1.10E+01	12.69	1.80E+01	8.89E+00
41	1660.73	1655 -	1663	9.39E+00	12.37	1.72E+01	8.83E+00
42	1745.33	1743 -	1747	6.14E+00	5.85	1.71E+00	2.56E+00
43	1764.62	1759 -	1768	5.40E+01	18.87	2.00E+01	9.73E+00
44	1847.23	1844 -	1849	6.32E+00	8.43	9.36E+00	5.56E+00
45	2103.71	2099 -	2106	1.40E+01	10.20	8.00E+00	5.70E+00
46	2116.41	2112 -	2118	7.39E+00	6.95	3.22E+00	3.55E+00
47	2614.20	2609 -	2618	1.10E+02	21.84	5.51E+00	4.93E+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 : 11/11/2015 4:32:27PM

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 1510093-19

CP3004S12-13

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide	
1	76.34	72 -	83	76.42	8.39E+02	155.99	2.60E+03	.....	
2	87.23	86 -	89	87.31	9.48E+01	64.44	9.56E+02	SN-126 NP-237 EU-155 CD-109	
3	128.80	125 -	132	128.86	1.30E+02	81.93	1.02E+03	.....	
4	177.02	175 -	180	177.05	5.90E+01	52.52	4.96E+02	CS-136 SB-125	
5	186.17	183 -	189	186.20	1.53E+02	67.73	7.20E+02	RA-226	
6	208.93	205 -	212	208.95	7.65E+01	65.79	6.67E+02	GA-67 CM-243	
M	7	238.73	234 -	246	238.73	8.27E+02	69.44	3.65E+02	PB-212
m	8	242.02	234 -	246	242.01	1.95E+02	73.91	4.36E+02	.....
	9	269.93	267 -	273	269.91	6.70E+01	50.05	4.08E+02	.....
M	10	291.17	290 -	298	291.14	1.73E+01	17.52	9.08E+01	.....
m	11	295.17	290 -	298	295.14	2.01E+02	39.50	1.91E+02	PB-214
	12	300.13	299 -	303	300.10	4.74E+01	36.43	2.53E+02	PB-212 GA-67 BI-210M
	13	328.02	325 -	331	327.97	4.23E+01	43.89	3.21E+02	LA-140
	14	338.33	335 -	342	338.28	1.75E+02	51.07	3.22E+02	AC-228
	15	351.95	348 -	356	351.89	4.18E+02	58.51	2.69E+02	PB-214
	16	410.19	408 -	412	410.10	2.55E+01	28.28	1.55E+02	HO-166M
	17	511.12	507 -	515	510.97	1.49E+02	44.27	2.05E+02	.....
	18	562.10	558 -	566	561.93	3.37E+01	34.83	1.65E+02	.....
	19	583.36	579 -	587	583.18	2.83E+02	47.64	1.74E+02	TL-208
	20	609.41	603 -	613	609.21	2.57E+02	52.16	2.26E+02	BI-214
	21	727.30	723 -	730	727.05	6.07E+01	28.57	9.46E+01	BI-212
	22	771.51	764 -	779	771.24	6.87E+01	53.18	2.53E+02	.....
	23	860.56	856 -	864	860.25	5.11E+01	27.06	8.17E+01	TL-208
	24	874.17	870 -	877	873.86	1.90E+01	23.58	8.00E+01	EU-154
	25	894.92	891 -	898	894.60	1.86E+01	23.58	8.09E+01	.....
	26	911.42	909 -	915	911.09	1.48E+02	34.52	1.10E+02	AC-228 LU-172
M	27	969.28	965 -	977	968.93	9.07E+01	30.03	1.16E+02	AC-228
m	28	973.15	965 -	977	972.80	1.63E+01	27.16	6.32E+01	.....
	29	1120.28	1114 -	1123	1119.88	7.70E+01	32.83	1.10E+02	BI-214 SC-46
	30	1164.21	1159 -	1167	1163.79	2.28E+01	27.08	9.84E+01	.....
	31	1198.78	1196 -	1201	1198.35	2.20E+01	18.11	4.80E+01	.....
	32	1237.64	1233 -	1242	1237.19	5.33E+01	29.72	9.74E+01	CO-56
	33	1377.45	1371 -	1383	1376.95	3.74E+01	20.48	2.93E+01	.....
	34	1409.52	1406 -	1413	1409.02	2.19E+01	13.42	1.41E+01	.....
	35	1441.37	1438 -	1443	1440.86	1.23E+01	9.54	7.50E+00	.....
	36	1460.91	1454 -	1464	1460.39	7.33E+02	56.40	3.47E+01	K-40
	37	1594.47	1590 -	1599	1593.91	2.22E+01	15.78	1.76E+01	.....
	38	1621.38	1617 -	1624	1620.82	1.59E+01	9.38	4.11E+00	BI-212
	39	1629.52	1625 -	1633	1628.95	1.10E+01	11.52	1.40E+01	.....
	40	1637.74	1634 -	1642	1637.17	1.10E+01	12.69	1.80E+01	.....
	41	1660.73	1655 -	1663	1660.15	9.39E+00	12.37	1.72E+01	.....
	42	1745.33	1743 -	1747	1744.73	6.14E+00	5.85	1.71E+00	.....
	43	1764.62	1759 -	1768	1764.02	5.40E+01	18.87	2.00E+01	BI-214
	44	1847.23	1844 -	1849	1846.60	6.32E+00	8.43	9.36E+00	.....
	45	2103.71	2099 -	2106	2103.03	1.40E+01	10.20	8.00E+00	.....



Analysis Report for 1510093-19  
CP3004S12-13

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
46	2116.41	2112 -	2118	2115.73	7.39E+00	6.95	3.22E+00	.....
47	2614.20	2609 -	2618	2613.46	1.10E+02	21.84	5.51E+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 : 11/11/2015 4:32:27PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty	
1	76.34	8.39E+02	155.99	2.74E-02	3.35E-03	
2	87.23	9.48E+01	64.44	2.84E-02	4.43E-03	
3	128.80	1.30E+02	81.93	2.60E-02	2.79E-03	
4	177.02	5.90E+01	52.52	2.18E-02	1.66E-03	
5	186.17	1.53E+02	67.73	2.11E-02	1.65E-03	
6	208.93	7.65E+01	65.79	1.95E-02	1.63E-03	
M	7	238.73	8.27E+02	69.44	1.79E-02	1.60E-03
m	8	242.02	1.95E+02	73.91	1.77E-02	1.60E-03
	9	269.93	6.70E+01	50.05	1.64E-02	1.57E-03
M	10	291.17	1.73E+01	17.52	1.56E-02	1.50E-03
m	11	295.17	2.01E+02	39.50	1.55E-02	1.48E-03
	12	300.13	4.74E+01	36.43	1.53E-02	1.46E-03
	13	328.02	4.23E+01	43.89	1.44E-02	1.32E-03
	14	338.33	1.75E+02	51.07	1.41E-02	1.27E-03
	15	351.95	4.18E+02	58.51	1.37E-02	1.21E-03
	16	410.19	2.55E+01	28.28	1.23E-02	1.00E-03
	17	511.12	1.49E+02	44.27	1.06E-02	8.98E-04
	18	562.10	3.37E+01	34.83	9.85E-03	8.46E-04
	19	583.36	2.83E+02	47.64	9.58E-03	8.25E-04
	20	609.41	2.57E+02	52.16	9.27E-03	7.98E-04
	21	727.30	6.07E+01	28.57	8.09E-03	7.03E-04
	22	771.51	6.87E+01	53.18	7.72E-03	6.75E-04
	23	860.56	5.11E+01	27.06	7.07E-03	6.17E-04
	24	874.17	1.90E+01	23.58	6.98E-03	6.09E-04
	25	894.92	1.86E+01	23.58	6.85E-03	5.95E-04
	26	911.42	1.48E+02	34.52	6.74E-03	5.87E-04
M	27	969.28	9.07E+01	30.03	6.41E-03	5.57E-04
m	28	973.15	1.63E+01	27.16	6.39E-03	5.55E-04

Analysis Report for 1510093-19  
CP3004S12-13

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
29	1120.28	7.70E+01	32.83	5.70E-03	4.80E-04
30	1164.21	2.28E+01	27.08	5.53E-03	4.57E-04
31	1198.78	2.20E+01	18.11	5.41E-03	4.65E-04
32	1237.64	5.33E+01	29.72	5.27E-03	4.83E-04
33	1377.45	3.74E+01	20.48	4.87E-03	5.08E-04
34	1409.52	2.19E+01	13.42	4.79E-03	4.95E-04
35	1441.37	1.23E+01	9.54	4.72E-03	4.81E-04
36	1460.91	7.33E+02	56.40	4.67E-03	4.73E-04
37	1594.47	2.22E+01	15.78	4.42E-03	4.18E-04
38	1621.38	1.59E+01	9.38	4.38E-03	4.07E-04
39	1629.52	1.10E+01	11.52	4.36E-03	4.03E-04
40	1637.74	1.10E+01	12.69	4.35E-03	4.00E-04
41	1660.73	9.39E+00	12.37	4.32E-03	3.90E-04
42	1745.33	6.14E+00	5.85	4.21E-03	3.55E-04
43	1764.62	5.40E+01	18.87	4.19E-03	3.47E-04
44	1847.23	6.32E+00	8.43	4.10E-03	3.18E-04
45	2103.71	1.40E+01	10.20	3.95E-03	3.18E-04
46	2116.41	7.39E+00	6.95	3.95E-03	3.18E-04
47	2614.20	1.10E+02	21.84	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 : 11/11/2015 4:32:27PM

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	76.34	8.39E+02	155.99			8.39E+02	1.56E+02
2	87.23	9.48E+01	64.44	1.46E+00	7.88E+00	9.34E+01	6.49E+01
3	128.80	1.30E+02	81.93			1.30E+02	8.19E+01
4	177.02	5.90E+01	52.52			5.90E+01	5.25E+01
5	186.17	1.53E+02	67.73	4.72E+01	7.97E+00	1.06E+02	6.82E+01
6	208.93	7.65E+01	65.79			7.65E+01	6.58E+01
M	7	238.73	8.27E+02	2.36E+01	1.35E+01	8.03E+02	7.07E+01
m	8	242.02	1.95E+02	6.38E+00	3.91E+00	1.89E+02	7.40E+01
	9	269.93	6.70E+01			6.70E+01	5.00E+01
M	10	291.17	1.73E+01			1.73E+01	1.75E+01
m	11	295.17	2.01E+02	8.57E+00	6.10E+00	1.92E+02	4.00E+01

Analysis Report for 1510093-19

CP3004S12-13

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
12	300.13	4.74E+01	36.43			4.74E+01	3.64E+01
13	328.02	4.23E+01	43.89	0.00E+00	0.00E+00	4.23E+01	4.39E+01
14	338.33	1.75E+02	51.07			1.75E+02	5.11E+01
15	351.95	4.18E+02	58.51	1.40E+01	5.55E+00	4.04E+02	5.88E+01
16	410.19	2.55E+01	28.28			2.55E+01	2.83E+01
17	511.12	1.49E+02	44.27	8.41E+01	5.50E+00	6.52E+01	4.46E+01
18	562.10	3.37E+01	34.83			3.37E+01	3.48E+01
19	583.36	2.83E+02	47.64	7.32E+00	4.08E+00	2.76E+02	4.78E+01
20	609.41	2.57E+02	52.16	1.30E+01	3.89E+00	2.44E+02	5.23E+01
21	727.30	6.07E+01	28.57			6.07E+01	2.86E+01
22	771.51	6.87E+01	53.18			6.87E+01	5.32E+01
23	860.56	5.11E+01	27.06			5.11E+01	2.71E+01
24	874.17	1.90E+01	23.58			1.90E+01	2.36E+01
25	894.92	1.86E+01	23.58			1.86E+01	2.36E+01
26	911.42	1.48E+02	34.52	5.60E+00	3.32E+00	1.43E+02	3.47E+01
M 27	969.28	9.07E+01	30.03			9.07E+01	3.00E+01
m 28	973.15	1.63E+01	27.16			1.63E+01	2.72E+01
29	1120.28	7.70E+01	32.83	3.93E+00	2.96E+00	7.31E+01	3.30E+01
30	1164.21	2.28E+01	27.08			2.28E+01	2.71E+01
31	1198.78	2.20E+01	18.11			2.20E+01	1.81E+01
32	1237.64	5.33E+01	29.72			5.33E+01	2.97E+01
33	1377.45	3.74E+01	20.48			3.74E+01	2.05E+01
34	1409.52	2.19E+01	13.42			2.19E+01	1.34E+01
35	1441.37	1.23E+01	9.54			1.23E+01	9.54E+00
36	1460.91	7.33E+02	56.40	1.12E+01	2.55E+00	7.21E+02	5.65E+01
37	1594.47	2.22E+01	15.78			2.22E+01	1.58E+01
38	1621.38	1.59E+01	9.38			1.59E+01	9.38E+00
39	1629.52	1.10E+01	11.52			1.10E+01	1.15E+01
40	1637.74	1.10E+01	12.69			1.10E+01	1.27E+01
41	1660.73	9.39E+00	12.37			9.39E+00	1.24E+01
42	1745.33	6.14E+00	5.85			6.14E+00	5.85E+00
43	1764.62	5.40E+01	18.87	4.23E+00	2.21E+00	4.98E+01	1.90E+01
44	1847.23	6.32E+00	8.43			6.32E+00	8.43E+00
45	2103.71	1.40E+01	10.20			1.40E+01	1.02E+01
46	2116.41	7.39E+00	6.95			7.39E+00	6.95E+00
47	2614.20	1.10E+02	21.84	7.38E+00	1.57E+00	1.03E+02	2.19E+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 1510093-19  
CP3004S12-13

## AREA CORRECTION REPORT REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/11/2015 4:32:27PM

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	76.34	8.39E+02	155.99			8.39E+02	1.56E+02
2	87.23	9.48E+01	64.44	1.46E+00	7.88E+00	9.34E+01	6.49E+01
3	128.80	1.30E+02	81.93			1.30E+02	8.19E+01
4	177.02	5.90E+01	52.52			5.90E+01	5.25E+01
5	186.17	1.53E+02	67.73	4.72E+01	7.97E+00	1.06E+02	6.82E+01
6	208.93	7.65E+01	65.79			7.65E+01	6.58E+01
M	7	238.73	8.27E+02	2.36E+01	1.35E+01	8.03E+02	7.07E+01
m	8	242.02	1.95E+02	6.38E+00	3.91E+00	1.89E+02	7.40E+01
	9	269.93	6.70E+01			6.70E+01	5.00E+01
M	10	291.17	1.73E+01			1.73E+01	1.75E+01
m	11	295.17	2.01E+02	8.57E+00	6.10E+00	1.92E+02	4.00E+01
	12	300.13	4.74E+01			4.74E+01	3.64E+01
	13	328.02	4.23E+01	0.00E+00	0.00E+00	4.23E+01	4.39E+01
	14	338.33	1.75E+02			1.75E+02	5.11E+01
	15	351.95	4.18E+02	1.40E+01	5.55E+00	4.04E+02	5.88E+01
	16	410.19	2.55E+01			2.55E+01	2.83E+01
	17	511.12	1.49E+02	8.41E+01	5.50E+00	6.52E+01	4.46E+01
	18	562.10	3.37E+01			3.37E+01	3.48E+01
	19	583.36	2.83E+02	7.32E+00	4.08E+00	2.76E+02	4.78E+01
	20	609.41	2.57E+02	1.30E+01	3.89E+00	2.44E+02	5.23E+01
	21	727.30	6.07E+01			6.07E+01	2.86E+01
	22	771.51	6.87E+01			6.87E+01	5.32E+01
	23	860.56	5.11E+01			5.11E+01	2.71E+01
	24	874.17	1.90E+01			1.90E+01	2.36E+01
	25	894.92	1.86E+01			1.86E+01	2.36E+01
	26	911.42	1.48E+02	5.60E+00	3.32E+00	1.43E+02	3.47E+01
M	27	969.28	9.07E+01			9.07E+01	3.00E+01
m	28	973.15	1.63E+01			1.63E+01	2.72E+01
	29	1120.28	7.70E+01	3.93E+00	2.96E+00	7.31E+01	3.30E+01
	30	1164.21	2.28E+01			2.28E+01	2.71E+01
	31	1198.78	2.20E+01			2.20E+01	1.81E+01
	32	1237.64	5.33E+01			5.33E+01	2.97E+01
	33	1377.45	3.74E+01			3.74E+01	2.05E+01
	34	1409.52	2.19E+01			2.19E+01	1.34E+01
	35	1441.37	1.23E+01			1.23E+01	9.54E+00
	36	1460.91	7.33E+02	1.12E+01	2.55E+00	7.21E+02	5.65E+01
	37	1594.47	2.22E+01			2.22E+01	1.58E+01
	38	1621.38	1.59E+01			1.59E+01	9.38E+00
	39	1629.52	1.10E+01			1.10E+01	1.15E+01
	40	1637.74	1.10E+01			1.10E+01	1.27E+01
	41	1660.73	9.39E+00			9.39E+00	1.24E+01

Analysis Report for 1510093-19

CP3004S12-13

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1745.33	6.14E+00	5.85			6.14E+00	5.85E+00
43	1764.62	5.40E+01	18.87	4.23E+00	2.21E+00	4.98E+01	1.90E+01
44	1847.23	6.32E+00	8.43			6.32E+00	8.43E+00
45	2103.71	1.40E+01	10.20			1.40E+01	1.02E+01
46	2116.41	7.39E+00	6.95			7.39E+00	6.95E+00
47	2614.20	1.10E+02	21.84	7.38E+00	1.57E+00	1.03E+02	2.19E+01

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

## 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	0.998	1460.81 *	10.67	1.90E+01	2.47E+00
CD-109	0.902	88.03 *	3.72	1.22E+00	8.73E-01
SN-126	0.982	87.57 *	37.00	1.17E-01	8.33E-02
EU-155	0.311	86.50 *	30.90	1.42E-01	1.01E-01
		105.30	20.70		
TL-208	0.979	583.14 *	30.22	1.25E+00	2.43E-01
		860.37 *	4.48	2.13E+00	1.14E+00
		2614.66 *	35.85	9.32E-01	2.12E-01
BI-212	0.980	727.17 *	11.80	8.38E-01	4.01E-01
		1620.62 *	2.75	1.74E+00	1.04E+00
PB-212	0.999	238.63 *	44.60	1.33E+00	1.67E-01
		300.09 *	3.41	1.20E+00	9.26E-01
BI-214	0.927	609.31 *	46.30	7.48E-01	1.73E-01
		1120.29 *	15.10	1.12E+00	5.13E-01
		1764.49 *	15.80	9.91E-01	3.87E-01
		2204.22	4.98		
PB-214	1.000	295.21 *	19.19	8.53E-01	1.95E-01
		351.92 *	37.19	1.04E+00	1.77E-01
RA-226	1.000	186.21 *	3.28	2.02E+00	3.91E+00
AC-228	0.989	338.32 *	11.40	1.43E+00	4.38E-01
		911.07 *	27.70	1.00E+00	2.60E-01
		969.11 *	16.60	1.12E+00	3.84E-01
NP-237	0.919	86.50 *	12.60	3.43E-01	2.45E-01

Analysis Report for 1510093-19  
CP3004S12-13

\* = 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 : 11/11/2015 4:32:27PM  
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	76.34	2.32963E-01	9.30		
3	128.80	3.60254E-02	31.59		
4	177.02	1.63807E-02	44.53	Tol.	SB-125 CS-136
6	208.93	2.12425E-02	43.01	Tol.	GA-67 CM-243
m 8	242.02	5.24888E-02	19.59		
9	269.93	1.86111E-02	37.35		
M 10	291.17	4.81516E-03	50.54		
13	328.02	1.17611E-02	51.84	Tol.	LA-140
16	410.19	7.08333E-03	55.44	Tol.	HO-166M
17	511.12	1.81200E-02	34.19		
18	562.10	9.35944E-03	51.69		
22	771.51	1.90755E-02	38.72		
24	874.17	5.27778E-03	62.05	Tol.	EU-154
25	894.92	5.15537E-03	63.53		
m 28	973.15	4.53757E-03	83.12		
30	1164.21	6.32716E-03	59.45		
31	1198.78	6.11111E-03	41.16	Sum	
32	1237.64	1.48053E-02	27.88		
33	1377.45	1.03793E-02	27.40		
34	1409.52	6.09195E-03	30.59		
35	1441.37	3.40278E-03	38.94		
37	1594.47	6.16935E-03	35.52		
39	1629.52	3.05556E-03	52.37		
40	1637.74	3.05556E-03	57.68	Sum	
41	1660.73	2.60802E-03	65.87		
42	1745.33	1.70635E-03	47.64		
44	1847.23	1.75505E-03	66.68	Sum	
45	2103.71	3.88889E-03	36.42	S-Esc	
46	2116.41	2.05247E-03	47.00	Sum	

Analysis Report for 1510093-19  
CP3004S12-13

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

<b>Nuclide Name</b>	<b>Id Confidence</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Activity Uncertainty</b>
K-40	0.99	1460.81 *	10.67	1.90E+01	2.47E+00
CD-109	0.90	88.03 *	3.72	1.22E+00	8.73E-01
SN-126	0.98	87.57 *	37.00	1.17E-01	8.33E-02
EU-155	0.31	86.50 *	30.90	1.42E-01	1.01E-01
		105.30	20.70		
TL-208	0.97	583.14 *	30.22	1.25E+00	2.43E-01
		860.37 *	4.48	2.13E+00	1.14E+00
		2614.66 *	35.85	9.32E-01	2.12E-01
BI-212	0.98	727.17 *	11.80	8.38E-01	4.01E-01
		1620.62 *	2.75	1.74E+00	1.04E+00
PB-212	0.99	238.63 *	44.60	1.33E+00	1.67E-01
		300.09 *	3.41	1.20E+00	9.26E-01
BI-214	0.92	609.31 *	46.30	7.48E-01	1.73E-01
		1120.29 *	15.10	1.12E+00	5.13E-01
		1764.49 *	15.80	9.91E-01	3.87E-01
		2204.22	4.98		
PB-214	1.00	295.21 *	19.19	8.53E-01	1.95E-01
		351.92 *	37.19	1.04E+00	1.77E-01
RA-226	1.00	186.21 *	3.28	2.02E+00	3.91E+00
AC-228	0.98	338.32 *	11.40	1.43E+00	4.38E-01
		911.07 *	27.70	1.00E+00	2.60E-01
		969.11 *	16.60	1.12E+00	3.84E-01
NP-237	0.91	86.50 *	12.60	3.43E-01	2.45E-01

Analysis Report for 1510093-19  
CP3004S12-13

\* = 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>	
	K-40	0.998	1.90E+01	2.47E+00	
?	CD-109	0.902	1.22E+00	8.73E-01	
?	SN-126	0.982	1.17E-01	8.33E-02	
?	EU-155	0.311	1.42E-01	1.01E-01	
	TL-208	0.979	1.09E+00	1.58E-01	
	BI-212	0.980	9.55E-01	3.74E-01	
	PB-212	0.999	1.32E+00	1.64E-01	
	BI-214	0.927	8.17E-01	1.51E-01	
	PB-214	1.000	9.56E-01	1.31E-01	
	RA-226	1.000	2.02E+00	3.91E+00	
	AC-228	0.989	1.12E+00	1.93E-01	
?	NP-237	0.919	3.43E-01	2.45E-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 1510093-19  
CP3004S12-13

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### UNIDENTIFIED PEAKS

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Peak Locate Performed on : 11/11/2015 4:32:27PM  
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	76.34	2.32963E-01	9.30		
3	128.80	3.60254E-02	31.59		
4	177.02	1.63807E-02	44.53	Tol.	SB-125 CS-136
6	208.93	2.12425E-02	43.01	Tol.	GA-67 CM-243
m 8	242.02	5.24888E-02	19.59		
9	269.93	1.86111E-02	37.35		
M 10	291.17	4.81516E-03	50.54		
13	328.02	1.17611E-02	51.84	Tol.	LA-140
16	410.19	7.08333E-03	55.44	Tol.	HO-166M
17	511.12	1.81200E-02	34.19		
18	562.10	9.35944E-03	51.69		
22	771.51	1.90755E-02	38.72		
24	874.17	5.27778E-03	62.05	Tol.	EU-154
25	894.92	5.15537E-03	63.53		
m 28	973.15	4.53757E-03	83.12		
30	1164.21	6.32716E-03	59.45		
31	1198.78	6.11111E-03	41.16	Sum	
32	1237.64	1.48053E-02	27.88		
33	1377.45	1.03793E-02	27.40		
34	1409.52	6.09195E-03	30.59		
35	1441.37	3.40278E-03	38.94		
37	1594.47	6.16935E-03	35.52		
39	1629.52	3.05556E-03	52.37		
40	1637.74	3.05556E-03	57.68	Sum	
41	1660.73	2.60802E-03	65.87		
42	1745.33	1.70635E-03	47.64		
44	1847.23	1.75505E-03	66.68	Sum	
45	2103.71	3.88889E-03	36.42	S-Esc	
46	2116.41	2.05247E-03	47.00	Sum	

Analysis Report for 1510093-19  
CP3004S12-13

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

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	BE-7	477.59	10.42	1.61E-01	7.27E-01	7.27E-01
+	NA-22	1274.54	99.94	-2.62E-02	8.31E-02	8.31E-02
+	NA-24	1368.53	99.99	1.13E+14	1.12E+14	2.67E+14
		2754.09	99.86	6.05E+12		1.12E+14
+	AL-26	1808.65	99.76	-5.80E-03	5.78E-02	5.78E-02
+	K-40	1460.81	* 10.67	1.90E+01	8.27E-01	8.27E-01
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-2.33E-02	4.76E-02	4.76E-02
		78.34	96.00	2.64E-01		6.87E-02
+	SC-46	889.25	99.98	1.16E-02	8.39E-02	8.39E-02
		1120.51	99.99	1.88E-01		1.58E-01
+	V-48	983.52	99.98	1.22E-01	2.62E-01	3.15E-01
		1312.10	97.50	-1.70E-01		2.62E-01
+	CR-51	320.08	9.83	3.32E-01	1.17E+00	1.17E+00
+	MN-54	834.83	99.97	1.74E-02	8.76E-02	8.76E-02
+	CO-56	846.75	99.96	1.22E-02	9.18E-02	9.18E-02
		1037.75	14.03	1.66E-01		6.61E-01
		1238.25	67.00	1.89E-01		2.23E-01
		1771.40	15.51	-8.37E-02		4.29E-01
		2598.48	16.90	3.84E-02		2.38E-01
+	CO-57	122.06	85.51	-3.30E-03	5.46E-02	5.46E-02
		136.48	10.60	3.80E-03		4.53E-01
+	CO-58	810.76	99.40	-3.98E-02	8.73E-02	8.73E-02
+	FE-59	1099.22	56.50	9.91E-02	2.43E-01	2.43E-01
		1291.56	43.20	8.22E-04		2.78E-01
+	CO-60	1173.22	100.00	1.21E-02	7.75E-02	8.94E-02
		1332.49	100.00	1.21E-02		7.75E-02
+	ZN-65	1115.52	50.75	-1.74E-02	1.72E-01	1.72E-01
+	GA-67	93.31	35.70	1.82E+02	1.56E+02	1.56E+02
		208.95	2.24	2.13E+03		2.38E+03
		300.22	16.00	2.04E+02		3.30E+02
+	SE-75	121.11	16.70	-1.29E-01	8.85E-02	3.06E-01

Analysis Report for 1510093-19  
CP3004S12-13

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
	SE-75	136.00	59.20	-2.76E-02	8.85E-02	8.85E-02
		264.65	59.80	3.55E-02		8.85E-02
		279.53	25.20	1.74E-01		2.52E-01
		400.65	11.40	-2.35E-01		5.23E-01
+	RB-82	776.52	13.00	-4.17E-02	1.36E+00	1.36E+00
+	RB-83	520.41	46.00	-2.12E-02	1.31E-01	1.31E-01
		529.64	30.30	-4.97E-02		2.11E-01
		552.65	16.40	-8.36E-02		3.98E-01
+	KR-85	513.99	0.43	-1.45E+01	1.34E+01	1.34E+01
+	SR-85	513.99	99.27	-8.88E-02	8.22E-02	8.22E-02
+	Y-88	898.02	93.40	-6.37E-03	7.74E-02	8.82E-02
		1836.01	99.38	4.89E-03		7.74E-02
+	NB-93M	16.57	9.43	-8.18E+03	5.32E+03	5.32E+03
+	NB-94	702.63	100.00	-2.21E-03	6.64E-02	7.15E-02
		871.10	100.00	-5.88E-03		6.64E-02
+	NB-95	765.79	99.81	7.38E-02	1.52E-01	1.52E-01
+	NB-95M	235.69	25.00	-9.48E+02	1.50E+02	1.50E+02
+	ZR-95	724.18	43.70	-1.76E-03	1.84E-01	2.55E-01
		756.72	55.30	4.14E-03		1.84E-01
+	MO-99	181.06	6.20	8.04E+02	2.05E+03	2.54E+03
		739.58	12.80	1.44E+03		2.05E+03
		778.00	4.50	1.25E+02		5.44E+03
+	RU-103	497.08	89.00	-3.31E-02	9.55E-02	9.55E-02
+	RU-106	621.84	9.80	-3.11E-03	7.05E-01	7.05E-01
+	AG-108M	433.93	89.90	-3.09E-02	5.14E-02	5.14E-02
		614.37	90.40	-3.00E-03		6.76E-02
		722.95	90.50	6.10E-03		7.26E-02
+	CD-109	88.03	* 3.72	1.22E+00	1.37E+00	1.37E+00
+	AG-110M	657.75	93.14	1.63E-02	7.46E-02	7.46E-02
		677.61	10.53	-9.52E-02		6.34E-01
		706.67	16.46	-8.81E-04		4.46E-01
		763.93	21.98	1.98E-02		3.44E-01
		884.67	71.63	-1.74E-02		9.87E-02
		1384.27	23.94	6.06E-02		2.49E-01
+	CD-113M	263.70	0.02	-6.26E+01	1.88E+02	1.88E+02
+	SN-113	255.12	1.93	-1.16E+00	9.74E-02	2.96E+00
		391.69	64.90	1.76E-02		9.74E-02
+	TE123M	159.00	84.10	2.86E-02	6.75E-02	6.75E-02
+	SB-124	602.71	97.87	4.07E-02	9.20E-02	9.20E-02
		645.85	7.26	1.75E-01		1.32E+00
		722.78	11.10	7.21E-02		8.58E-01
		1691.02	49.00	-2.49E-03		1.65E-01
+	I-125	35.49	6.49	-1.86E+00	5.40E+00	5.40E+00
+	SB-125	176.33	6.89	2.25E-01	1.85E-01	7.08E-01
		427.89	29.33	1.34E-02		1.85E-01
		463.38	10.35	3.68E-01		5.89E-01
		600.56	17.80	2.39E-01		3.88E-01
		635.90	11.32	-2.52E-01		5.29E-01

Analysis Report for 1510093-19  
CP3004S12-13

	<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
+	SB-126	414.70	83.30	-7.30E-02	3.71E-01	3.71E-01
		666.33	99.60	-1.05E-02		4.18E-01
		695.00	99.60	8.84E-02		4.36E-01
		720.50	53.80	1.23E-01		7.37E-01
+	SN-126	87.57	* 37.00	1.17E-01	1.31E-01	1.31E-01
+	SB-127	473.00	25.00	-4.57E+00	5.93E+01	6.38E+01
		685.20	35.70	2.28E+00		5.93E+01
		783.80	14.70	1.06E+02		1.66E+02
+	I-129	29.78	57.00	-5.44E-01	1.14E+00	1.14E+00
		33.60	13.20	1.26E-01		2.45E+00
		39.58	7.52	-1.06E+00		1.98E+00
+	I-131	284.30	6.05	-1.34E+01	8.78E-01	1.23E+01
		364.48	81.20	-6.43E-01		8.78E-01
		636.97	7.26	-2.20E+00		1.30E+01
		722.89	1.80	4.98E+00		5.93E+01
+	TE-132	49.72	13.10	9.81E+01	5.45E+01	5.35E+02
		228.16	88.00	1.64E+00		5.45E+01
+	BA-133	81.00	33.00	5.67E-02	7.83E-02	1.15E-01
		302.84	17.80	4.66E-02		2.82E-01
		356.01	60.00	1.19E-02		7.83E-02
+	I-133	529.87	86.30	1.13E+09	1.07E+10	1.07E+10
+	XE-133	81.00	38.00	3.53E+00	7.17E+00	7.17E+00
+	CS-134	563.23	8.38	3.82E-01	7.41E-02	7.03E-01
		569.32	15.43	4.54E-02		3.44E-01
		604.70	97.60	-4.96E-01		7.41E-02
		795.84	85.40	5.68E-02		9.02E-02
		801.93	8.73	4.08E-02		7.92E-01
+	CS-135	268.24	16.00	2.98E-01	3.53E-01	3.53E-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	1.75E+00	3.45E-01	3.45E+00
		163.89	4.61	-9.25E-02		5.62E+00
		176.55	13.56	1.66E+00		1.94E+00
		273.65	12.66	-4.22E-01		2.09E+00
		340.57	48.50	-9.01E-01		6.79E-01
		818.50	99.70	-1.66E-02		3.45E-01
		1048.07	79.60	4.46E-02		5.12E-01
		1235.34	19.70	-9.92E-02		2.86E+00
		661.65	85.12	-1.35E-02		7.51E-02
+	LA-138	788.74	34.00	9.35E-02	1.01E-01	2.13E-01
		1435.80	66.00	3.82E-02		1.01E-01
+	CE-139	165.85	80.35	1.17E-02	6.97E-02	6.97E-02
+	BA-140	162.64	6.70	-2.18E-01	1.10E+00	4.01E+00
		304.84	4.50	1.23E+00		5.94E+00
		423.70	3.20	2.06E+00		9.92E+00
		437.55	2.00	7.08E+00		1.40E+01
		537.32	25.00	-2.22E-01		1.10E+00
+	LA-140	328.77	20.50	5.34E-01	4.76E-01	1.56E+00

Analysis Report for 1510093-19  
CP3004S12-13

<b>Nuclide Name</b>	<b>Energy (keV)</b>	<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
LA-140	487.03	45.50	2.76E-01	4.76E-01	6.53E-01
	815.85	23.50	1.10E-01		1.60E+00
	1596.49	95.49	3.14E-01		4.76E-01
+	CE-141	145.44	48.40	5.74E-02	1.96E-01
+	CE-143	57.36	11.80	1.51E+05	1.97E+06
	293.26	42.00	1.49E+06		1.97E+06
	664.55	5.20	-7.81E+06		1.51E+07
+	CE-144	133.54	10.80	1.14E-01	4.34E-01
+	PM-144	476.78	42.00	2.79E-02	6.53E-02
	618.01	98.60	-2.13E-02		6.53E-02
	696.49	99.49	1.91E-02		7.76E-02
+	PM-145	36.85	21.70	7.00E-01	4.98E-01
	37.36	39.70	3.59E-01		4.98E-01
	42.30	15.10	-3.96E-02		8.26E-01
	72.40	2.31	-8.29E-01		1.96E+00
+	PM-146	453.90	39.94	7.32E-02	1.41E-01
	735.90	14.01	-1.57E-01		4.90E-01
	747.13	13.10	-2.68E-01		5.05E-01
+	ND-147	91.11	28.90	1.40E+00	1.57E+00
	531.02	13.10	1.60E-01		3.10E+00
+	PM-149	285.90	3.10	2.24E+04	4.05E+04
+	EU-152	121.78	20.50	-1.27E-02	2.10E-01
	244.69	5.40	-2.16E+00		9.34E-01
	344.27	19.13	1.13E-01		2.61E-01
	778.89	9.20	8.55E-02		7.60E-01
	964.01	10.40	-1.18E-01		8.33E-01
	1085.78	7.22	6.85E-02		1.06E+00
	1112.02	9.60	9.23E-02		8.06E-01
	1407.95	14.94	1.38E-02		5.21E-01
+	GD-153	97.43	31.30	2.12E-02	1.52E-01
	103.18	22.20	-1.71E-02		2.03E-01
+	EU-154	123.07	40.50	8.27E-03	1.09E-01
	723.30	19.70	2.82E-02		3.36E-01
	873.19	11.50	2.75E-01		6.14E-01
	996.32	10.30	-6.35E-01		6.36E-01
	1004.76	17.90	-1.17E-01		3.78E-01
	1274.45	35.50	-7.24E-02		2.30E-01
+	EU-155	86.50	* 30.90	1.42E-01	1.59E-01
	105.30	20.70	7.52E-02		2.04E-01
+	EU-156	811.77	10.40	-6.42E-01	2.69E+00
	1153.47	7.20	1.65E+00		5.48E+00
	1230.71	8.90	4.85E-01		4.47E+00
+	HQ-166M	184.41	72.60	4.87E-02	8.05E-02
	280.45	29.60	1.23E-01		1.78E-01
	410.94	11.10	1.61E-01		4.89E-01
	711.69	54.10	1.73E-02		1.25E-01
+	TM-171	66.72	0.14	3.86E+00	3.38E+01
+	HF-172	81.75	4.52	-9.66E-01	4.17E-01
	125.81	11.30	-8.32E-01		4.17E-01

Analysis Report for 1510093-19  
CP3004S12-13

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)	
+	LU-172	181.53	20.60	1.98E+00	3.93E+00	6.40E+00
		810.06	16.63	-4.92E+00		1.08E+01
		912.12	15.25	5.05E+01		2.51E+01
+		1093.66	62.50	1.25E+00		3.93E+00
	LU-173	100.72	5.24	1.78E-01	2.82E-01	8.38E-01
		272.11	21.20	1.56E-01		2.82E-01
+	HF-175	343.40	84.00	6.06E-03	8.10E-02	8.10E-02
+	LU-176	88.34	13.30	4.53E-01	4.77E-02	4.50E-01
		201.83	86.00	3.57E-02		6.09E-02
		306.78	94.00	-1.16E-02		4.77E-02
+	TA-182	67.75	41.20	-6.51E-02	1.33E-01	1.33E-01
		1121.30	34.90	5.04E-01		4.24E-01
		1189.05	16.23	-1.66E-01		7.19E-01
		1221.41	26.98	-1.05E-01		3.89E-01
		1231.02	11.44	-1.73E-01		9.24E-01
+	IR-192	308.46	29.68	-1.68E-02	1.34E-01	2.01E-01
		468.07	48.10	-4.57E-02		1.34E-01
+	HG-203	279.19	77.30	1.22E-01	1.15E-01	1.15E-01
+	BI-207	569.67	97.72	6.98E-03	5.28E-02	5.28E-02
		1063.62	74.90	-6.02E-02		1.06E-01
		583.14	* 30.22	1.25E+00	1.48E-01	2.70E-01
+		860.37	* 4.48	2.13E+00		1.68E+00
		2614.66	* 35.85	9.32E-01		1.48E-01
	BI-210M	262.00	45.00	-1.31E-02	9.93E-02	9.93E-02
+		300.00	23.00	1.47E-01		2.36E-01
	PB-210	46.50	4.25	2.88E+00	2.38E+00	2.38E+00
+	PB-211	404.84	2.90	3.29E-01	1.75E+00	1.75E+00
		831.96	2.90	1.90E+00		2.90E+00
	BI-212	727.17	* 11.80	8.38E-01	5.81E-01	5.81E-01
+		1620.62	* 2.75	1.74E+00		1.18E+00
	PB-212	238.63	* 44.60	1.33E+00	2.31E-01	2.31E-01
		300.09	* 3.41	1.20E+00		1.47E+00
+	BI-214	609.31	* 46.30	7.48E-01	2.20E-01	2.20E-01
		1120.29	* 15.10	1.12E+00		7.50E-01
		1764.49	* 15.80	9.91E-01		4.70E-01
		2204.22	4.98	1.02E+00		1.78E+00
	PB-214	295.21	* 19.19	8.53E-01	1.89E-01	3.68E-01
+		351.92	* 37.19	1.04E+00		1.89E-01
	RN-219	401.80	6.50	2.58E-01	7.96E-01	7.96E-01
+	RA-223	323.87	3.88	3.35E-02	1.27E+00	1.27E+00
+	RA-224	240.98	3.95	7.97E+00	2.62E+00	2.62E+00
+	RA-225	40.00	31.00	-1.13E+00	2.10E+00	2.10E+00
+	RA-226	186.21	* 3.28	2.02E+00	2.09E+00	2.09E+00
+	TH-227	50.10	8.40	1.54E-01	6.54E-01	8.42E-01
		236.00	11.50	-4.14E+00		6.54E-01
		256.20	6.30	7.54E-02		7.55E-01
	AC-228	338.32	* 11.40	1.43E+00	3.11E-01	6.11E-01
	911.07	* 27.70	1.00E+00		3.11E-01	

Analysis Report for 1510093-19  
CP3004S12-13

	<b>Nuclide Name</b>	<b>Energy (keV)</b>		<b>Yield(%)</b>	<b>Activity (pCi/grams)</b>	<b>Nuclide MDA (pCi/grams)</b>	<b>Line MDA (pCi/grams)</b>
	AC-228	969.11	*	16.60	1.12E+00	3.11E-01	9.05E-01
+	TH-230	48.44		16.90	-3.96E-01	4.60E-01	4.60E-01
		62.85		4.60	1.12E+00		1.19E+00
		67.67		0.37	-5.96E+00		1.22E+01
+	PA-231	283.67		1.60	-3.10E+00	2.17E+00	2.85E+00
		302.67		2.30	3.58E-01		2.17E+00
+	TH-231	25.64		14.70	-5.62E+00	6.27E-01	1.40E+01
		84.21		6.40	4.70E-01		6.27E-01
+	PA-233	311.98		38.60	-7.52E-02	2.74E-01	2.74E-01
+	PA-234	131.20		20.40	2.85E-01	2.43E-01	2.43E-01
		733.99		8.80	-1.98E-01		7.22E-01
		946.00		12.00	-1.31E-01		5.57E-01
+	PA-234M	1001.03		0.92	9.01E-01	7.77E+00	7.77E+00
+	TH-234	63.29		3.80	1.34E+00	1.43E+00	1.43E+00
+	U-235	143.76		10.50	1.98E-01	4.49E-01	4.49E-01
		163.35		4.70	-5.40E-02		9.91E-01
		205.31		4.70	3.78E-01		1.08E+00
+	NP-237	86.50	*	12.60	3.43E-01	3.85E-01	3.85E-01
+	NP-239	106.10		22.70	5.67E+02	2.53E+03	2.53E+03
		228.18		10.70	1.89E+02		6.28E+03
		277.60		14.10	-1.93E+03		5.04E+03
+	AM-241	59.54		35.90	3.35E-02	1.47E-01	1.47E-01
+	AM-243	74.67		66.00	-2.48E-01	9.18E-02	9.18E-02
+	CM-243	209.75		3.29	7.77E-01	3.72E-01	1.63E+00
		228.14		10.60	1.40E-02		4.65E-01
		277.60		14.00	-1.43E-01		3.72E-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

: 01044

Analysis Report for 1510093-19  
CP3004S12-13

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	7.27E-01	7.27E-01	1.61E-01	3.40E-01
NA-22	1274.54	99.94	8.31E-02	8.31E-02	-2.62E-02	3.80E-02
NA-24	1368.53	99.99	2.67E+14	1.12E+14	1.13E+14	1.20E+14
	2754.09	99.86	1.12E+14		6.05E+12	3.98E+13
AL-26	1808.65	99.76	5.78E-02	5.78E-02	-5.80E-03	2.46E-02
+ K-40	1460.81	* 10.67	8.27E-01	8.27E-01	1.90E+01	3.78E-01
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	4.76E-02	4.76E-02	-2.33E-02	2.31E-02
	78.34	96.00	6.87E-02		2.64E-01	3.37E-02
SC-46	889.25	99.98	8.39E-02	8.39E-02	1.16E-02	3.86E-02
	1120.51	99.99	1.58E-01		1.88E-01	7.49E-02
V-48	983.52	99.98	3.15E-01	2.62E-01	1.22E-01	1.46E-01
	1312.10	97.50	2.62E-01		-1.70E-01	1.16E-01
CR-51	320.08	9.83	1.17E+00	1.17E+00	3.32E-01	5.57E-01
MN-54	834.83	99.97	8.76E-02	8.76E-02	1.74E-02	4.11E-02
CO-56	846.75	99.96	9.18E-02	9.18E-02	1.22E-02	4.26E-02
	1037.75	14.03	6.61E-01		1.66E-01	3.03E-01
	1238.25	67.00	2.23E-01		1.89E-01	1.05E-01
	1771.40	15.51	4.29E-01		-8.37E-02	1.78E-01
	2598.48	16.90	2.38E-01		3.84E-02	8.43E-02
CO-57	122.06	85.51	5.46E-02	5.46E-02	-3.30E-03	2.65E-02
	136.48	10.60	4.53E-01		3.80E-03	2.19E-01
CO-58	810.76	99.40	8.73E-02	8.73E-02	-3.98E-02	4.03E-02
FE-59	1099.22	56.50	2.43E-01	2.43E-01	9.91E-02	1.13E-01
	1291.56	43.20	2.78E-01		8.22E-04	1.26E-01
CO-60	1173.22	100.00	8.94E-02	7.75E-02	1.21E-02	4.14E-02
	1332.49	100.00	7.75E-02		1.21E-02	3.51E-02
ZN-65	1115.52	50.75	1.72E-01	1.72E-01	-1.74E-02	7.92E-02
GA-67	93.31	35.70	1.56E+02	1.56E+02	1.82E+02	7.65E+01
	208.95	2.24	2.38E+03		2.13E+03	1.15E+03
	300.22	16.00	3.30E+02		2.04E+02	1.58E+02
SE-75	121.11	16.70	3.06E-01	8.85E-02	-1.29E-01	1.48E-01
	136.00	59.20	8.85E-02		-2.76E-02	4.28E-02
	264.65	59.80	8.85E-02		3.55E-02	4.21E-02
	279.53	25.20	2.52E-01		1.74E-01	1.21E-01
	400.65	11.40	5.23E-01		-2.35E-01	2.46E-01
RB-82	776.52	13.00	1.36E+00	1.36E+00	-4.17E-02	6.39E-01
RB-83	520.41	46.00	1.31E-01	1.31E-01	-2.12E-02	6.09E-02
	529.64	30.30	2.11E-01		-4.97E-02	9.79E-02
	552.65	16.40	3.98E-01		-8.36E-02	1.85E-01
KR-85	513.99	0.43	1.34E+01	1.34E+01	-1.45E+01	6.29E+00
SR-85	513.99	99.27	8.22E-02	8.22E-02	-8.88E-02	3.87E-02
Y-88	898.02	93.40	8.82E-02	7.74E-02	-6.37E-03	4.06E-02
	1836.01	99.38	7.74E-02		4.89E-03	3.33E-02
NB-93M	16.57	9.43	5.32E+03	5.32E+03	-8.18E+03	2.59E+03
NB-94	702.63	100.00	7.15E-02	6.64E-02	-2.21E-03	3.36E-02
	871.10	100.00	6.64E-02		-5.88E-03	3.06E-02
NB-95	765.79	99.81	1.52E-01	1.52E-01	7.38E-02	7.15E-02
NB-95M	235.69	25.00	1.50E+02	1.50E+02	-9.48E+02	7.29E+01
ZR-95	724.18	43.70	2.55E-01	1.84E-01	-1.76E-03	1.20E-01
	756.72	55.30	1.84E-01		4.14E-03	8.63E-02



Analysis Report for 1510093-19  
CP3004S12-13

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	2.54E+03	2.05E+03	8.04E+02	1.22E+03
	739.58	12.80	2.05E+03		1.44E+03	9.65E+02
	778.00	4.50	5.44E+03		1.25E+02	2.54E+03
RU-103	497.08	89.00	9.55E-02	9.55E-02	-3.31E-02	4.45E-02
RU-106	621.84	9.80	7.05E-01	7.05E-01	-3.11E-03	3.31E-01
AG-108M	433.93	89.90	5.14E-02	5.14E-02	-3.09E-02	2.40E-02
	614.37	90.40	6.76E-02		-3.00E-03	3.16E-02
	722.95	90.50	7.26E-02		6.10E-03	3.39E-02
+ CD-109	88.03	* 3.72	1.37E+00	1.37E+00	1.22E+00	6.66E-01
AG-110M	657.75	93.14	7.46E-02	7.46E-02	1.63E-02	3.49E-02
	677.61	10.53	6.34E-01		-9.52E-02	2.95E-01
	706.67	16.46	4.46E-01		-8.81E-04	2.09E-01
	763.93	21.98	3.44E-01		1.98E-02	1.60E-01
	884.67	71.63	9.87E-02		-1.74E-02	4.54E-02
	1384.27	23.94	2.49E-01		6.06E-02	1.08E-01
	263.70	0.02	1.88E+02	1.88E+02	-6.26E+01	8.92E+01
SN-113	255.12	1.93	2.96E+00	9.74E-02	-1.16E+00	1.41E+00
	391.69	64.90	9.74E-02		1.76E-02	4.61E-02
	159.00	84.10	6.75E-02	6.75E-02	2.86E-02	3.27E-02
SB-124	602.71	97.87	9.20E-02	9.20E-02	4.07E-02	4.32E-02
	645.85	7.26	1.32E+00		1.75E-01	6.17E-01
	722.78	11.10	8.58E-01		7.21E-02	4.00E-01
	1691.02	49.00	1.65E-01		-2.49E-03	7.04E-02
	35.49	6.49	5.40E+00	5.40E+00	-1.86E+00	2.62E+00
I-125	176.33	6.89	7.08E-01	1.85E-01	2.25E-01	3.42E-01
	427.89	29.33	1.85E-01		1.34E-02	8.73E-02
	463.38	10.35	5.89E-01		3.68E-01	2.79E-01
	600.56	17.80	3.88E-01		2.39E-01	1.83E-01
	635.90	11.32	5.29E-01		-2.52E-01	2.47E-01
SB-126	414.70	83.30	3.71E-01	3.71E-01	-7.30E-02	1.75E-01
	666.33	99.60	4.18E-01		-1.05E-02	1.96E-01
	695.00	99.60	4.36E-01		8.84E-02	2.05E-01
	720.50	53.80	7.37E-01		1.23E-01	3.44E-01
+ SN-126	87.57	* 37.00	1.31E-01	1.31E-01	1.17E-01	6.38E-02
SB-127	473.00	25.00	6.38E+01	5.93E+01	-4.57E+00	2.97E+01
	685.20	35.70	5.93E+01		2.28E+00	2.76E+01
	783.80	14.70	1.66E+02		1.06E+02	7.74E+01
I-129	29.78	57.00	1.14E+00	1.14E+00	-5.44E-01	5.53E-01
	33.60	13.20	2.45E+00		1.26E-01	1.19E+00
	39.58	7.52	1.98E+00		-1.06E+00	9.60E-01
I-131	284.30	6.05	1.23E+01	8.78E-01	-1.34E+01	5.85E+00
	364.48	81.20	8.78E-01		-6.43E-01	4.12E-01
	636.97	7.26	1.30E+01		-2.20E+00	6.08E+00
	722.89	1.80	5.93E+01		4.98E+00	2.77E+01
TE-132	49.72	13.10	5.35E+02	5.45E+01	9.81E+01	2.59E+02
	228.16	88.00	5.45E+01		1.64E+00	2.62E+01
BA-133	81.00	33.00	1.15E-01	7.83E-02	5.67E-02	5.57E-02
	302.84	17.80	2.82E-01		4.66E-02	1.34E-01
	356.01	60.00	7.83E-02		1.19E-02	3.69E-02
I-133	529.87	86.30	1.07E+10	1.07E+10	1.13E+09	4.98E+09
XE-133	81.00	38.00	7.17E+00	7.17E+00	3.53E+00	3.46E+00
CS-134	563.23	8.38	7.03E-01	7.41E-02	3.82E-01	3.29E-01
	569.32	15.43	3.44E-01		4.54E-02	1.60E-01

Analysis Report for 1510093-19  
CP3004S12-13

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	7.41E-02	7.41E-02	-4.96E-01	3.50E-02		
	795.84	85.40	9.02E-02		5.68E-02	4.22E-02		
	801.93	8.73	7.92E-01		4.08E-02	3.68E-01		
CS-135	268.24	16.00	3.53E-01	3.53E-01	2.98E-01	1.70E-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	3.45E+00	3.45E-01	1.75E+00	1.67E+00		
	163.89	4.61	5.62E+00		-9.25E-02	2.72E+00		
	176.55	13.56	1.94E+00		1.66E+00	9.37E-01		
	273.65	12.66	2.09E+00		-4.22E-01	9.96E-01		
	340.57	48.50	6.79E-01		-9.01E-01	3.25E-01		
	818.50	99.70	3.45E-01		-1.66E-02	1.59E-01		
	1048.07	79.60	5.12E-01		4.46E-02	2.36E-01		
	1235.34	19.70	2.86E+00		-9.92E-02	1.33E+00		
	CS-137	661.65	85.12		7.51E-02	7.51E-02	-1.35E-02	3.51E-02
	LA-138	788.74	34.00		2.13E-01	1.01E-01	9.35E-02	9.94E-02
1435.80		66.00	1.01E-01	3.82E-02	4.50E-02			
CE-139	165.85	80.35	6.97E-02	6.97E-02	1.17E-02	3.37E-02		
BA-140	162.64	6.70	4.01E+00	1.10E+00	-2.18E-01	1.94E+00		
	304.84	4.50	5.94E+00		1.23E+00	2.82E+00		
	423.70	3.20	9.92E+00		2.06E+00	4.69E+00		
	437.55	2.00	1.40E+01		7.08E+00	6.58E+00		
	537.32	25.00	1.10E+00		-2.22E-01	5.11E-01		
	LA-140	328.77	20.50		1.56E+00	4.76E-01	5.34E-01	7.45E-01
CE-141	487.03	45.50	6.53E-01	1.96E-01	2.76E-01	3.06E-01		
	815.85	23.50	1.60E+00		1.10E-01	7.42E-01		
	1596.49	95.49	4.76E-01		3.14E-01	2.14E-01		
	CE-141	145.44	48.40		1.96E-01	5.74E-02	9.49E-02	
CE-143	57.36	11.80	5.30E+06	1.97E+06	1.51E+05	2.56E+06		
	293.26	42.00	1.97E+06		1.49E+06	9.52E+05		
	664.55	5.20	1.51E+07		-7.81E+06	7.07E+06		
CE-144	133.54	10.80	4.34E-01	4.34E-01	1.14E-01	2.10E-01		
PM-144	476.78	42.00	1.26E-01	6.53E-02	2.79E-02	5.89E-02		
	618.01	98.60	6.53E-02		-2.13E-02	3.06E-02		
	696.49	99.49	7.76E-02		1.91E-02	3.65E-02		
PM-145	36.85	21.70	9.70E-01	4.98E-01	7.00E-01	4.71E-01		
	37.36	39.70	4.98E-01		3.59E-01	2.42E-01		
	42.30	15.10	8.26E-01		-3.96E-02	4.01E-01		
	72.40	2.31	1.96E+00		-8.29E-01	9.53E-01		
PM-146	453.90	39.94	1.41E-01	1.41E-01	7.32E-02	6.68E-02		
	735.90	14.01	4.90E-01		-1.57E-01	2.29E-01		
	747.13	13.10	5.05E-01		-2.68E-01	2.35E-01		
ND-147	91.11	28.90	1.57E+00	1.57E+00	1.40E+00	7.66E-01		
	531.02	13.10	3.10E+00		1.60E-01	1.45E+00		
PM-149	285.90	3.10	4.05E+04	4.05E+04	2.24E+04	1.93E+04		
EU-152	121.78	20.50	2.10E-01	2.10E-01	-1.27E-02	1.02E-01		
	244.69	5.40	9.34E-01		-2.16E+00	4.48E-01		
	344.27	19.13	2.61E-01		1.13E-01	1.24E-01		
	778.89	9.20	7.60E-01		8.55E-02	3.55E-01		
	964.01	10.40	8.33E-01		-1.18E-01	3.90E-01		
	1085.78	7.22	1.06E+00		6.85E-02	4.89E-01		
	1112.02	9.60	8.06E-01		9.23E-02	3.70E-01		

Analysis Report for 1510093-19  
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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	1407.95	14.94	5.21E-01	2.10E-01	1.38E-02	2.35E-01
GD-153	97.43	31.30	1.52E-01	1.52E-01	2.12E-02	7.38E-02
	103.18	22.20	2.03E-01		-1.71E-02	9.85E-02
EU-154	123.07	40.50	1.09E-01	1.09E-01	8.27E-03	5.30E-02
	723.30	19.70	3.36E-01		2.82E-02	1.57E-01
	873.19	11.50	6.14E-01		2.75E-01	2.85E-01
	996.32	10.30	6.36E-01		-6.35E-01	2.90E-01
	1004.76	17.90	3.78E-01		-1.17E-01	1.73E-01
	1274.45	35.50	2.30E-01		-7.24E-02	1.05E-01
+ EU-155	86.50 *	30.90	1.59E-01	1.59E-01	1.42E-01	7.74E-02
	105.30	20.70	2.04E-01		7.52E-02	9.90E-02
EU-156	811.77	10.40	2.69E+00	2.69E+00	-6.42E-01	1.24E+00
	1153.47	7.20	5.48E+00		1.65E+00	2.54E+00
	1230.71	8.90	4.47E+00		4.85E-01	2.07E+00
HO-166M	184.41	72.60	8.05E-02	8.05E-02	4.87E-02	3.91E-02
	280.45	29.60	1.78E-01		1.23E-01	8.54E-02
	410.94	11.10	4.89E-01		1.61E-01	2.32E-01
	711.69	54.10	1.25E-01		1.73E-02	5.84E-02
TM-171	66.72	0.14	3.38E+01	3.38E+01	3.86E+00	1.64E+01
HF-172	81.75	4.52	8.46E-01	4.17E-01	-9.66E-01	4.08E-01
	125.81	11.30	4.17E-01		-8.32E-01	2.02E-01
LU-172	181.53	20.60	6.40E+00	3.93E+00	1.98E+00	3.09E+00
	810.06	16.63	1.08E+01		-4.92E+00	4.99E+00
	912.12	15.25	2.51E+01		5.05E+01	1.21E+01
	1093.66	62.50	3.93E+00		1.25E+00	1.82E+00
LU-173	100.72	5.24	8.38E-01	2.82E-01	1.78E-01	4.06E-01
	272.11	21.20	2.82E-01		1.56E-01	1.35E-01
HF-175	343.40	84.00	8.10E-02	8.10E-02	6.06E-03	3.84E-02
LU-176	88.34	13.30	4.50E-01	4.77E-02	4.53E-01	2.20E-01
	201.83	86.00	6.09E-02		3.57E-02	2.94E-02
	306.78	94.00	4.77E-02		-1.16E-02	2.26E-02
TA-182	67.75	41.20	1.33E-01	1.33E-01	-6.51E-02	6.44E-02
	1121.30	34.90	4.24E-01		5.04E-01	2.01E-01
	1189.05	16.23	7.19E-01		-1.66E-01	3.35E-01
	1221.41	26.98	3.89E-01		-1.05E-01	1.80E-01
	1231.02	11.44	9.24E-01		-1.73E-01	4.26E-01
IR-192	308.46	29.68	2.01E-01	1.34E-01	-1.68E-02	9.53E-02
	468.07	48.10	1.34E-01		-4.57E-02	6.27E-02
HG-203	279.19	77.30	1.15E-01	1.15E-01	1.22E-01	5.51E-02
BI-207	569.67	97.72	5.28E-02	5.28E-02	6.98E-03	2.45E-02
	1063.62	74.90	1.06E-01		-6.02E-02	4.92E-02
+ TL-208	583.14 *	30.22	2.70E-01	1.48E-01	1.25E+00	1.29E-01
	860.37 *	4.48	1.68E+00		2.13E+00	7.86E-01
	2614.66 *	35.85	1.48E-01		9.32E-01	6.15E-02
BI-210M	262.00	45.00	9.93E-02	9.93E-02	-1.31E-02	4.73E-02
	300.00	23.00	2.36E-01		1.47E-01	1.13E-01
PB-210	46.50	4.25	2.38E+00	2.38E+00	2.88E+00	1.16E+00
PB-211	404.84	2.90	1.75E+00	1.75E+00	3.29E-01	8.26E-01
	831.96	2.90	2.90E+00		1.90E+00	1.36E+00
+ BI-212	727.17 *	11.80	5.81E-01	5.81E-01	8.38E-01	2.72E-01
	1620.62 *	2.75	1.18E+00		1.74E+00	4.43E-01
+ PB-212	238.63 *	44.60	2.31E-01	2.31E-01	1.33E+00	1.13E-01
	300.09 *	3.41	1.47E+00		1.20E+00	7.00E-01

Analysis Report for 1510093-19  
CP3004S12-13

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	2.20E-01	2.20E-01	7.48E-01	1.06E-01
		1120.29 *	15.10	7.50E-01		1.12E+00	3.54E-01
		1764.49 *	15.80	4.70E-01		9.91E-01	2.08E-01
		2204.22	4.98	1.78E+00		1.02E+00	7.98E-01
+	PB-214	295.21 *	19.19	3.68E-01	1.89E-01	8.53E-01	1.78E-01
		351.92 *	37.19	1.89E-01		1.04E+00	9.10E-02
	RN-219	401.80	6.50	7.96E-01	7.96E-01	2.58E-01	3.76E-01
	RA-223	323.87	3.88	1.27E+00	1.27E+00	3.35E-02	6.03E-01
	RA-224	240.98	3.95	2.62E+00	2.62E+00	7.97E+00	1.28E+00
	RA-225	40.00	31.00	2.10E+00	2.10E+00	-1.13E+00	1.02E+00
+	RA-226	186.21 *	3.28	2.09E+00	2.09E+00	2.02E+00	1.02E+00
	TH-227	50.10	8.40	8.42E-01	6.54E-01	1.54E-01	4.08E-01
		236.00	11.50	6.54E-01		-4.14E+00	3.18E-01
		256.20	6.30	7.55E-01		7.54E-02	3.61E-01
+	AC-228	338.32 *	11.40	6.11E-01	3.11E-01	1.43E+00	2.94E-01
		911.07 *	27.70	3.11E-01		1.00E+00	1.46E-01
		969.11 *	16.60	9.05E-01		1.12E+00	4.36E-01
	TH-230	48.44	16.90	4.60E-01	4.60E-01	-3.96E-01	2.23E-01
		62.85	4.60	1.19E+00		1.12E+00	5.79E-01
		67.67	0.37	1.22E+01		-5.96E+00	5.90E+00
	PA-231	283.67	1.60	2.85E+00	2.17E+00	-3.10E+00	1.36E+00
		302.67	2.30	2.17E+00		3.58E-01	1.03E+00
	TH-231	25.64	14.70	1.40E+01	6.27E-01	-5.62E+00	6.77E+00
		84.21	6.40	6.27E-01		4.70E-01	3.04E-01
	PA-233	311.98	38.60	2.74E-01	2.74E-01	-7.52E-02	1.30E-01
	PA-234	131.20	20.40	2.43E-01	2.43E-01	2.85E-01	1.18E-01
		733.99	8.80	7.22E-01		-1.98E-01	3.36E-01
		946.00	12.00	5.57E-01		-1.31E-01	2.56E-01
	PA-234M	1001.03	0.92	7.77E+00	7.77E+00	9.01E-01	3.57E+00
	TH-234	63.29	3.80	1.43E+00	1.43E+00	1.34E+00	6.95E-01
	U-235	143.76	10.50	4.49E-01	4.49E-01	1.98E-01	2.17E-01
		163.35	4.70	9.91E-01		-5.40E-02	4.79E-01
		205.31	4.70	1.08E+00		3.78E-01	5.19E-01
+	NP-237	86.50 *	12.60	3.85E-01	3.85E-01	3.43E-01	1.87E-01
	NP-239	106.10	22.70	2.53E+03	2.53E+03	5.67E+02	1.23E+03
		228.18	10.70	6.28E+03		1.89E+02	3.02E+03
		277.60	14.10	5.04E+03		-1.93E+03	2.41E+03
	AM-241	59.54	35.90	1.47E-01	1.47E-01	3.35E-02	7.12E-02
	AM-243	74.67	66.00	9.18E-02	9.18E-02	-2.48E-01	4.49E-02
	CM-243	209.75	3.29	1.63E+00	3.72E-01	7.77E-01	7.87E-01
		228.14	10.60	4.65E-01		1.40E-02	2.23E-01
		277.60	14.00	3.72E-01		-1.43E-01	1.78E-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

Analysis Report for 1510093-19  
CP3004S12-13

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No Action Level results available for reporting purposes.

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## *DATA REVIEW COMMENTS REPORT*

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*Creation Date*

*Comment*

*User*

No Data Review Comments Entered.

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 \*\*\*\*\* S P E C T R A L   D A T A   R E P O R T   \*\*\*\*\*  
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Sample Title: CP3004S12-13

Elapsed Live time: 3600  
Elapsed Real Time: 3601

Channel	-----	-----	-----	-----	-----	-----	-----	-----
1:	0	0	0	0	0	0	2	195
9:	611	1265	1134	463	683	1765	273	145
17:	141	128	148	139	107	121	104	104
25:	127	107	86	124	102	106	115	120
33:	134	107	107	112	124	134	98	116
41:	127	127	135	139	129	142	218	101
49:	105	129	91	104	115	103	87	72
57:	97	120	101	121	115	98	144	177
65:	105	110	115	104	107	129	117	112
73:	135	137	355	195	458	306	89	86
81:	98	95	75	134	113	96	218	170
89:	89	167	128	86	244	155	73	71
97:	72	77	89	72	74	55	63	61
105:	82	66	71	67	67	84	69	68
113:	72	68	84	71	82	75	61	58
121:	62	76	64	69	71	74	82	66
129:	139	87	68	55	64	57	69	62
137:	59	56	67	66	53	62	74	71
145:	67	63	64	63	62	48	61	61
153:	64	66	58	57	56	57	78	54
161:	54	50	54	64	61	60	61	44
169:	56	66	56	51	47	48	47	70
177:	55	49	50	36	39	66	43	61
185:	57	159	93	48	52	46	49	51
193:	60	55	61	49	51	49	63	50
201:	53	62	51	57	33	53	54	43
209:	72	73	46	36	42	45	45	51
217:	39	44	42	37	45	52	46	56
225:	49	41	38	41	45	37	34	30
233:	45	37	45	46	47	288	510	94
241:	75	123	61	38	33	27	32	43
249:	32	34	34	42	29	31	30	31
257:	36	32	32	37	35	18	24	22
265:	27	33	23	31	38	89	35	31
273:	24	36	34	24	40	42	34	32
281:	43	24	18	27	26	32	33	31
289:	27	18	35	30	22	43	151	79
297:	30	18	32	57	36	26	23	28
305:	26	22	19	20	22	22	19	20
313:	28	24	28	29	21	24	31	26
321:	27	28	26	20	23	26	23	59
329:	34	17	21	27	24	20	13	20
337:	30	125	76	29	22	21	25	24
345:	22	23	16	15	27	24	99	256
353:	74	29	15	13	16	23	17	23
361:	20	11	18	12	18	22	25	17

369: 15 22 19 22 20 19 14 19

Sample Title: CP3004S12-13

Channel	1	2	3	4	5	6	7	8	9
377:	19	11	12	19	20	28	15	24	
385:	19	18	20	18	27	21	19	27	
393:	16	22	14	24	24	20	15	22	
401:	20	19	15	24	18	23	15	16	
409:	22	28	26	11	20	19	20	15	
417:	17	19	23	13	23	22	23	17	
425:	20	23	19	20	17	17	21	16	
433:	12	15	21	6	23	15	12	12	
441:	7	14	13	19	19	18	14	11	
449:	22	19	12	23	21	19	20	15	
457:	10	18	24	11	16	22	35	20	
465:	16	14	14	11	17	11	11	19	
473:	13	10	11	12	14	20	14	15	
481:	11	14	13	6	10	17	13	17	
489:	17	13	12	15	16	13	12	12	
497:	18	13	7	17	14	14	11	15	
505:	19	15	13	16	17	57	74	38	
513:	13	17	7	12	10	17	10	8	
521:	10	9	11	14	12	9	6	17	
529:	10	13	13	17	15	19	10	11	
537:	9	14	10	10	8	12	10	21	
545:	10	10	19	21	6	12	14	7	
553:	11	14	12	14	11	9	17	9	
561:	11	23	16	15	9	7	10	8	
569:	13	19	8	15	10	14	9	8	
577:	15	9	12	11	15	46	163	85	
585:	15	12	11	7	16	5	16	15	
593:	15	6	16	12	15	10	17	14	
601:	18	14	7	6	8	12	12	43	
609:	150	98	15	10	9	11	11	9	
617:	9	12	10	9	12	17	11	13	
625:	11	9	17	14	11	11	16	10	
633:	11	10	6	9	9	6	13	10	
641:	12	7	12	5	14	8	15	17	
649:	9	11	12	12	7	12	8	11	
657:	7	8	11	17	10	9	8	9	
665:	14	12	12	12	15	16	12	6	
673:	6	16	8	9	9	7	7	7	
681:	10	14	6	9	5	9	9	13	
689:	10	9	7	12	10	6	12	14	
697:	22	8	15	11	13	10	14	4	
705:	16	12	8	11	7	14	5	13	
713:	8	14	9	9	6	12	10	13	
721:	10	8	6	11	8	10	43	18	
729:	10	2	8	10	7	6	7	11	
737:	11	17	10	19	10	8	7	10	
745:	11	12	6	9	8	6	13	16	
753:	13	14	6	14	13	10	4	8	
761:	8	7	11	7	11	9	14	24	
769:	15	10	14	16	13	11	12	15	
777:	11	8	5	9	8	10	7	9	
785:	15	14	7	9	2	13	10	6	
793:	8	19	15	12	6	5	9	5	

801: 7 10 13 5 9 11 9 2

Sample Title: CP3004S12-13

Channel	-----	-----	-----	-----	-----	-----	-----	-----
809:	4	10	10	9	6	10	8	6
817:	9	5	9	7	4	7	6	15
825:	5	8	10	7	12	5	14	13
833:	16	13	15	7	9	9	11	11
841:	4	10	10	7	5	7	12	8
849:	7	8	7	10	7	10	2	5
857:	6	8	7	17	27	9	7	6
865:	5	8	8	9	3	7	8	5
873:	4	13	7	11	4	6	5	8
881:	3	11	3	5	7	5	11	7
889:	9	1	8	3	5	13	8	9
897:	10	3	8	4	5	6	7	10
905:	13	11	8	9	6	35	96	40
913:	11	9	6	10	9	7	7	8
921:	6	9	7	6	5	6	3	11
929:	4	5	5	5	10	5	10	3
937:	6	5	8	11	4	8	5	4
945:	6	5	7	6	10	7	10	6
953:	10	6	5	3	4	5	7	4
961:	4	7	9	15	17	13	7	38
969:	51	20	11	9	12	5	5	6
977:	2	4	7	8	8	10	5	9
985:	8	7	7	5	9	8	12	8
993:	8	4	5	4	4	6	6	12
1001:	7	6	4	4	5	9	4	4
1009:	7	8	7	3	7	6	6	6
1017:	7	6	4	8	11	7	6	6
1025:	7	6	7	6	7	11	9	4
1033:	2	11	4	5	3	7	6	4
1041:	4	7	8	8	4	7	6	2
1049:	6	11	9	2	6	7	3	10
1057:	7	6	8	7	6	9	6	10
1065:	10	3	14	11	5	3	4	6
1073:	5	4	7	11	7	13	7	7
1081:	4	5	12	4	9	6	4	5
1089:	3	10	10	5	8	4	10	11
1097:	10	7	5	5	9	6	4	5
1105:	5	9	6	4	5	11	6	4
1113:	6	5	7	6	7	12	22	33
1121:	24	13	3	8	8	8	10	1
1129:	3	5	7	9	8	7	4	5
1137:	4	6	5	9	6	6	6	6
1145:	5	7	5	7	10	9	10	8
1153:	11	9	6	5	4	7	5	5
1161:	9	5	14	11	10	9	4	6
1169:	8	10	8	8	12	5	7	4
1177:	6	8	11	3	8	15	5	9
1185:	11	10	6	15	14	5	8	5
1193:	12	9	3	5	9	13	5	11
1201:	3	5	8	8	8	9	9	12
1209:	8	5	7	12	11	4	3	10
1217:	9	13	9	5	3	5	7	6
1225:	8	7	13	7	4	11	11	1



1233: 6 8 9 13 17 14 10 7

Sample Title: CP3004S12-13

Channel	6	8	9	13	17	14	10	7	12
1241:	13	5	7	7	13	10	7	7	12
1249:	6	4	6	5	11	8	2	3	3
1257:	8	4	4	4	3	6	6	11	11
1265:	4	9	3	4	7	7	3	7	7
1273:	9	4	6	3	7	7	7	6	6
1281:	10	9	2	7	3	3	5	3	3
1289:	2	6	7	4	4	4	6	3	3
1297:	5	8	9	3	3	6	3	3	3
1305:	2	1	6	9	2	1	3	3	3
1313:	6	3	3	2	4	6	2	7	7
1321:	6	3	2	2	3	5	4	2	2
1329:	5	5	8	5	1	2	6	4	4
1337:	5	3	9	4	4	0	4	3	3
1345:	2	3	5	5	2	4	4	4	4
1353:	4	2	4	5	5	3	1	1	1
1361:	4	3	1	3	6	6	2	4	4
1369:	3	2	2	2	6	4	4	8	8
1377:	7	8	3	3	4	1	0	1	1
1385:	2	3	3	2	1	2	3	2	2
1393:	3	1	3	3	3	3	1	2	2
1401:	4	6	6	3	3	0	3	9	9
1409:	9	3	2	2	1	0	1	3	3
1417:	2	3	3	1	0	2	3	5	5
1425:	4	3	2	3	0	2	3	5	5
1433:	4	4	3	2	2	1	2	5	5
1441:	4	4	0	0	1	3	2	1	1
1449:	3	1	4	4	4	0	5	2	2
1457:	3	11	100	290	257	74	8	0	0
1465:	2	5	7	2	3	2	0	5	5
1473:	5	1	3	2	2	4	2	0	0
1481:	0	0	2	1	1	1	0	1	1
1489:	1	2	2	2	3	4	1	4	4
1497:	5	3	2	0	4	2	3	2	2
1505:	0	1	2	2	2	2	1	2	2
1513:	2	2	1	0	0	2	1	0	0
1521:	1	1	0	1	4	3	0	1	1
1529:	0	2	5	2	1	1	1	3	3
1537:	1	1	2	2	1	2	1	2	2
1545:	1	0	2	1	4	0	2	0	0
1553:	2	1	1	2	0	1	0	2	2
1561:	2	1	2	0	2	0	1	2	2
1569:	2	3	2	2	0	1	5	1	1
1577:	2	0	5	3	3	3	3	4	4
1585:	2	3	3	4	4	1	4	6	6
1593:	7	5	2	2	2	2	0	0	0
1601:	1	0	1	0	1	0	0	2	2
1609:	1	1	2	0	0	1	0	0	0
1617:	0	1	2	3	6	4	2	0	0
1625:	1	3	1	0	4	4	4	1	1
1633:	0	2	1	4	4	4	2	2	2
1641:	1	0	2	1	0	0	0	1	1
1649:	1	1	0	1	2	0	1	1	1
1657:	1	0	3	3	5	4	0	3	3

1665: 0 2 1 2 0 0 0 2

Sample Title: CP3004S12-13

Channel	1	2	3	4	5	6	7	8
1673:	0	2	1	1	2	2	4	2
1681:	2	0	2	1	1	1	0	1
1689:	2	2	1	1	2	1	2	1
1697:	1	0	1	0	1	1	0	4
1705:	1	0	1	1	1	2	1	3
1713:	1	1	1	2	2	1	0	0
1721:	1	1	3	1	0	1	2	1
1729:	2	3	2	1	1	2	2	0
1737:	0	1	0	3	0	1	0	4
1745:	1	2	0	0	1	1	3	0
1753:	0	1	1	2	0	1	1	0
1761:	0	4	14	27	10	5	2	1
1769:	1	2	0	1	0	0	1	1
1777:	1	2	0	2	1	0	2	2
1785:	1	1	2	0	0	2	1	2
1793:	0	0	3	3	2	0	1	1
1801:	3	1	3	2	0	2	1	1
1809:	1	1	1	2	1	0	1	1
1817:	1	0	2	0	1	1	0	1
1825:	1	0	2	1	0	1	4	1
1833:	1	2	1	0	1	1	2	2
1841:	1	2	1	0	2	3	3	3
1849:	0	2	0	2	2	0	0	0
1857:	0	2	1	1	0	0	1	1
1865:	0	2	0	0	1	1	1	2
1873:	3	1	1	0	0	0	1	1
1881:	1	1	1	0	1	0	1	0
1889:	0	1	0	0	3	1	1	1
1897:	3	1	2	0	0	2	2	0
1905:	0	1	0	0	1	1	3	0
1913:	1	1	1	1	1	0	1	1
1921:	2	0	0	0	0	0	0	0
1929:	3	2	0	1	0	3	1	3
1937:	0	1	2	2	2	1	2	0
1945:	1	1	1	2	1	0	1	0
1953:	0	0	1	1	1	1	0	1
1961:	0	1	1	1	0	2	0	3
1969:	1	1	0	1	0	1	1	1
1977:	1	1	1	1	0	2	2	0
1985:	0	2	1	1	0	2	0	1
1993:	1	2	0	0	1	2	0	0
2001:	0	0	1	1	3	1	1	1
2009:	1	0	1	0	2	0	1	2
2017:	1	2	1	0	0	0	0	1
2025:	1	0	0	1	0	2	1	0
2033:	0	2	2	2	0	1	1	1
2041:	0	1	0	0	0	0	2	1
2049:	0	2	0	1	1	0	0	0
2057:	1	0	0	3	0	0	3	0
2065:	1	2	1	0	1	0	1	0
2073:	1	0	1	1	2	0	0	2
2081:	1	1	1	0	1	0	1	0
2089:	0	0	3	2	1	1	0	1

2097: 0 1 0 1 0 5 6 4

Sample Title: CP3004S12-13

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

2529: 0 0 1 0 1 0 0 0

Sample Title: CP3004S12-13

Channel	1	2	3	4	5	6	7	8
2537:	0	0	0	1	0	0	0	0
2545:	1	0	1	0	0	1	0	1
2553:	0	0	0	0	0	0	0	0
2561:	0	1	0	0	0	4	0	0
2569:	0	0	1	1	0	1	0	0
2577:	1	0	1	2	0	1	1	1
2585:	0	0	0	0	3	0	0	0
2593:	1	0	1	1	0	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	2	7	17	31	32	15	6
2617:	3	0	1	0	0	1	0	1
2625:	0	0	1	0	0	1	0	0
2633:	1	0	0	0	0	2	0	2
2641:	0	0	1	0	0	0	1	0
2649:	0	1	0	0	0	0	0	1
2657:	0	0	2	0	0	0	0	0
2665:	0	0	1	1	0	0	0	1
2673:	0	0	1	0	1	0	0	1
2681:	0	0	0	0	0	0	2	0
2689:	0	0	0	1	0	0	1	0
2697:	1	0	0	0	0	0	0	0
2705:	1	1	0	0	0	0	0	0
2713:	1	0	0	0	1	1	1	1
2721:	1	0	0	0	1	0	0	0
2729:	1	0	0	0	0	0	0	0
2737:	1	0	1	1	0	0	1	0
2745:	2	0	0	0	0	1	0	0
2753:	0	0	0	0	1	0	0	1
2761:	0	2	0	0	0	0	0	0
2769:	0	0	1	0	0	1	0	1
2777:	0	0	0	1	0	0	0	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	0	1	0	1	0	0
2801:	1	0	0	0	0	1	0	0
2809:	0	2	1	0	0	1	0	0
2817:	0	0	0	0	0	1	0	0
2825:	0	0	0	1	0	0	1	0
2833:	0	1	0	0	0	0	1	0
2841:	0	1	0	1	0	1	0	0
2849:	0	0	2	0	0	0	1	0
2857:	0	0	0	1	0	1	0	0
2865:	0	1	0	0	0	0	1	0
2873:	0	0	0	0	0	0	0	1
2881:	0	0	0	1	0	0	0	0
2889:	0	0	1	0	1	0	1	0
2897:	1	0	0	0	2	0	0	1
2905:	0	0	0	0	0	0	0	0
2913:	1	0	0	0	0	0	2	0
2921:	0	1	1	0	0	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	2	0	0	0	0	0	0
2945:	1	0	1	0	1	0	0	0
2953:	0	0	0	0	0	0	0	0

2961: 0 0 0 0 1 1 0 0

Sample Title: CP3004S12-13

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

3393: 0 0 0 0 0 0 1 0

Sample Title: CP3004S12-13

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

3825: 0 0 0 0 0 0 0 0 0

Sample Title: CP3004S12-13

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





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 \*\*\*\*\* GENIE QUALITY ASSURANCE \*\*\*\*\*  
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Last Results Report  
 11/11/15 6:07:53 AM

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QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004B.QCK

Detector: GE4  
 Geometry: <None>  
 Certificate: <None>  
 Sample ID: QA Background Ch  
 Sample Desc: QA Count  
 Sample Quantity: 1.0000E+000  
 Sample Date: 11/11/15 5:52:21 AM  
 Measurement Date: 11/11/15 5:52:24 AM  
 Elapsed Live Time: 900.0 seconds  
 Elapsed Real Time: 919.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 8.7083E+000+/-163.37]	1.6011E+000	-4.3502E-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)

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 \*\*\*\*\* G E N I E Q U A L I T Y A S S U R A N C E \*\*\*\*\*  
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Last Results Report  
 11/11/15 6:07:20 AM

*11/11*

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002B.QCK

Detector: GE2  
 Geometry: <None>  
 Certificate: <None>  
 Sample ID: QA Background Ch  
 Sample Desc: QA Count  
 Sample Quantity: 1.0000E+000  
 Sample Date: 11/11/15 5:52:04 AM  
 Measurement Date: 11/11/15 5:52:06 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	4.6167E+000	2.3075E-001
[SD: 4.5520E+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)

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 \*\*\*\*\* G E N I E Q U A L I T Y A S S U R A N C E \*\*\*\*\*  
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Last Results Report  
 11/11/15 6:07:28 AM

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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: 11/11/15 5:52:13 AM  
 Measurement Date: 11/11/15 5:52:16 AM  
 Elapsed Live Time: 900.0 seconds  
 Elapsed Real Time: 903.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.2850E+003+/-1493.6]	5.1140E+003	1.8940E+000 < : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)  
 SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)  
 UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)  
 BS = Measurement Bias Test (In = Investigate, Ac = Action)

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Last Results Report  
 11/11/15 6:07:11 AM

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QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000001B.QCK

Detector: GE1  
 Geometry: <None>  
 Certificate: <None>  
 Sample ID: QA Background Ch  
 Sample Desc: QA Count  
 Sample Quantity: 1.0000E+000  
 Sample Date: 11/11/15 5:51:57 AM  
 Measurement Date: 11/11/15 5:51:59 AM  
 Elapsed Live Time: 900.0 seconds  
 Elapsed Real Time: 900.1 seconds

Parameter Description	Value	Deviation/Flags
[Mean +/- Std. Dev.]		< LU : SD : UD : BS >
DAILY BKG CT RATE GE1	2.0811E+000	-1.3058E-001
[SD: 2.3017E+000 +/- 1.689]		< : : : >
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)

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 \*\*\*\*\* G E N I E Q U A L I T Y A S S U R A N C E \*\*\*\*\*  
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Last Results Report  
 11/11/15 5:40:54 AM

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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: 11/11/15 5:24:41 AM  
 Elapsed Live Time: 900.0 seconds  
 Elapsed Real Time: 961.3 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54 keV Boundary Limits: [ 5.800E+001, 6.100E+001]	5.8776E+001	<	:	:	>
Peak centroid 661.65 keV Boundary Limits: [ 6.600E+002, 6.630E+002]	6.6124E+002	<	:	:	>
Peak centroid 1332.49 keV Boundary Limits: [ 1.331E+003, 1.334E+003]	1.3326E+003	<	:	:	>
Peak centroid 1836.1 keV Boundary Limits: [ 1.834E+003, 1.838E+003] Trend Test: The last 9 samples exhibit a bias trend.	1.8366E+003	<	:	:	>
Peak FWHM Am-241 Boundary Limits: [ 5.000E-001, 3.000E+000]	2.2205E+000	<	:	:	>
Peak FWHM Cs-137 Boundary Limits: [ 5.000E-001, 3.000E+000]	2.6746E+000	<	:	:	>
Peak FWHM Co-60 Boundary Limits: [ 5.000E-001, 3.000E+000]	2.9207E+000	<	:	:	>
Peak FWHM Y-88 Boundary Limits: [ 5.000E-001, 3.500E+000] Trend Test: The last 9 samples exhibit a bias trend.	3.1791E+000	<	:	:	>
Decay corrected activity Boundary Limits: [ 1.200E-001, 1.816E-001] Trend Test: The last 9 samples exhibit a bias trend.	1.2357E+005	<	:	:	>
Decay corrected activity Boundary Limits: [ 4.918E-002, 7.377E-002]	6.3940E+004	<	:	:	>

Decay corrected activity 9.6027E+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 2.1255E+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)

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Last Results Report  
 11/11/15 5:40:22 AM

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QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000003GAS-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: 11/11/15 5:24:35 AM  
 Elapsed Live Time: 900.0 seconds  
 Elapsed Real Time: 937.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >			
Peak centroid 59.54 keV Boundary Limits: [ 5.800E+001, 6.100E+001]	6.0000E+001	<	:	:	>
Peak centroid 661.65 keV Boundary Limits: [ 6.600E+002, 6.640E+002]	6.6163E+002	<	:	:	>
Peak centroid 1332.49 keV Boundary Limits: [ 1.331E+003, 1.334E+003]	1.3323E+003	<	:	:	>
Peak centroid 1836.1 keV Boundary Limits: [ 1.833E+003, 1.838E+003]	1.8357E+003	<	:	:	>
Peak FWHM Am-241 Boundary Limits: [ 5.000E-001, 3.000E+000]	1.4868E+000	<	:	:	>
Peak FWHM Cs-137 Boundary Limits: [ 5.000E-001, 3.000E+000]	1.9883E+000	<	:	:	>
Peak FWHM Co-60 Boundary Limits: [ 5.000E-001, 3.000E+000]	2.1530E+000	<	:	:	>
Peak FWHM Y-88 Boundary Limits: [ 5.000E-001, 3.000E+000]	2.4181E+000	<	:	:	>
Decay corrected activity Boundary Limits: [ 1.223E-001, 1.834E-001]	1.7667E+005	<	:	:	>
Decay corrected activity Boundary Limits: [ 4.969E-002, 7.453E-002] Trend Test: The last 9 samples exhibit a bias trend.	6.7011E+004	<	:	:	>
Decay corrected activity	1.0038E+005				

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	2.1317E+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)



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Last Results Report
11/11/15 5:40:10 AM

Handwritten mark resembling a checkmark and the number 1111.

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D000000002GAS-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: 11/11/15 5:24:28 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 926.4 seconds

Table with 3 columns: Parameter Description, Value, and Deviation/Flags. It lists various peak measurements (e.g., 59.54keV, 661.65 keV, 1332.49 ke, 1836.1 keV) and FWHM values for Am-241, Cs-137, Co-60, and Y-88, along with their boundary limits and trend test results.

Decay corrected activity 6.3553E+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 1.0338E+005  
Boundary Limits: [ 7.978E-002, 1.197E-001] < : : : >  
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 2.1484E+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)

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Last Results Report  
 11/11/15 5:40:00 AM



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: 11/11/15 5:24:22 AM  
 Elapsed Live Time: 900.0 seconds  
 Elapsed Real Time: 923.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 keV Boundary Limits: [ 5.800E+001, 6.100E+001]	6.0175E+001	< : : : >
Peak centroid 661.65 keV Boundary Limits: [ 6.600E+002, 6.630E+002] Trend Test: The last 9 samples exhibit a bias trend.	6.6200E+002	< : : : >
Peak centroid 1332.49 keV Boundary Limits: [ 1.331E+003, 1.334E+003] Trend Test: The last 9 samples exhibit a bias trend.	1.3327E+003	< : : : >
Peak centroid 1836.01 keV Boundary Limits: [ 1.834E+003, 1.838E+003]	1.8363E+003	< : : : >
Peak FWHM Am-241 Boundary Limits: [ 5.000E-001, 3.000E+000]	1.0456E+000	< : : : >
Peak FWHM Cs-137 Boundary Limits: [ 5.000E-001, 3.000E+000] Trend Test: The last 9 samples exhibit a bias trend.	1.5832E+000	< : : : >
Peak FWHM Co-60 Boundary Limits: [ 5.000E-001, 3.000E+000] Trend Test: The last 9 samples exhibit a bias trend.	2.0599E+000	< : : : >
Peak FWHM Y-90 Boundary Limits: [ 5.000E-001, 3.000E+000]	2.3489E+000	< : : : >
Decay corrected activity Boundary Limits: [ 1.170E-002, 1.754E-002]	1.4258E+004	< : : : >
Decay corrected activity	6.1256E+003	

Boundary Limits: [ 4.716E-003, 7.075E-003] < : : : >

Decay corrected activity 1.0307E+004  
Boundary Limits: [ 7.572E-003, 1.136E-002] < : : : >

Parameter Description	Value	Deviation/Flags								
[Mean +/- Std. Dev.]		<	LU	:	SD	:	UD	:	BS	>

Decay corrected activity 1.9909E+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)