AUXIER & ASSOCIATES, INC.

PAP-KAN

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #15-10089-OR

November 17, 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

Eberline Services Work Order # 15-10089

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	JEP	Sample Log-In
		11/10/15	JG	Data Compilation
		11-10-15	[illegible]	First Technical Data Review
		11/10/15	[illegible]	Second Technical Data Review
		11/11/15	[illegible]	Data Entry/Electronic Deliverable
		11/11/15	[illegible]	Case Narrative
		11/16/15	KBS	Electronic Deliverable Proof
		11/16/15	[illegible]	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		11/16/15	[illegible]	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: Kathy B. Shrum for M. R. McDougall 11/17/15
Laboratory Manager Date

Copy No. _____

SECTION I

CHAIN OF CUSTODY

Chain of Custody Record

№ ~~7129~~ 7134

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

EBERLINE SERVICES

Project Name: PAP / KAN
Send Report To: Cecilia Green
Address: 9821 Cogdill Rd, suite 1 Knoxville, TN 37932
Phone: 865-675-3669
Fax: cgreen@auxier.com

Project Number:
Sampler (Print Name): Ashley Jahr
Sampler (Print Name):
Shipment Method: Fedex
Airbill Number:
Laboratory Receiving:

Analysis Requested: Isotopic Uranium; Isotopic Thorium; Gamma Spec

REC'D OCT 14 2015
15-10089

Page ___ of ___

Purchase Order #: ___

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Isotopic Uranium	Isotopic Thorium	Gamma Spec	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
CP4104S13-14 4	10/8/15	1010	S	1	X	X	X	21 Day Growth	
CP3005S04-05 5	10/8/15	1500	S	1	X	X	X	↓	
CP3005S07-08 6	10/8/15	1510	S	1	X	X	X	↓	
CP3005S12-13 7	10/8/15	1520	S	1	X	X	X	21 Day Growth	

N/A

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	[signature] 10-14-15 @ 1400	10/12/15	1300
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other ___	Received Containers Intact?	
		Temperature?	

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	15-10089
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	K1.1
	05	33	K1.1
	06	38	K1.1
	07	32	K1.1

	Location (circle one)	Initials	Date
Received by	(Sample Storage) (Rough Prep) Prep Separations Count Room 1330	[illegible]	10·16·15
Relinquished by	Sample Storage (Rough Prep) Prep Separations Count Room 1100	[illegible]	10·19·15
Received by	Sample Storage Rough Prep Prep Separations Count Room 1100	[illegible]	10-19-15
Relinquished by	Sample Storage Rough Prep Prep Separations Count Room 1415	[illegible]	10-20-15
Received by	Sample Storage Rough Prep Prep (Separations) Count Room	[illegible] 10/20/15 1400	
Relinquished by	Sample Storage Rough Prep Prep (Separations) Count Room	[illegible] 10/27/15 0821	
Received by	Sample Storage Rough Prep Prep Separations (Count Room)	[illegible]	10/27 [illegible]
Relinquished by	Sample Storage Rough Prep Prep Separations (Count Room)	KB 10/27/15 1207	
Received by	(Sample Storage) Rough Prep Prep Separations Count Room		
Relinquished by	Sample Storage Rough Prep Prep Separations Count Room		
Received by	Sample Storage Rough Prep Prep Separations Count Room		
Relinquished by	Sample Storage Rough Prep Prep Separations Count Room		
Received by	Sample Storage Rough Prep Prep Separations Count Room		
Relinquished by	Sample Storage Rough Prep Prep Separations Count Room		

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	15-10089
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	K1.1
	05	33	K1.1
	06	38	K1.1
	07	32	K1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1330	Kmj	10-16-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1600	Kmj	10-19-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	JPachuta	10-19-15
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 145	JPachuta	10-20-15
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	TPD 10/20/15 1400	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible] 0821	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	ICD 10/27/15 1457	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	**15-10089**
Lab Deadline	**11/5/2015**
Analysis	**Gamma - Level 4**
Sample Matrix	**Soil/Solid**

Comments

21 day ingrowth: Report Ac228, Bi214, Pb212/214, Ra226 from Bi214, Ra228 from Ac228, Tl208, Th234 & positives.

Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
04	35	K1.1
05	33	K1.1
06	38	K1.1
07	32	K1.1

	Location (circle one)					Initials	Date
Received by	(Sample Storage)	(Rough Prep)	Prep	Separations	Count Room 1330	Kerry Seely	10-16-15
Relinquished by	Sample Storage	(Rough Prep)	Prep	Separations	Count Room 1225	Kerry Seely	10-19-15
Received by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	KB	10/19/15 1227
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	(Count Room)	KB	11/9/15 1430
Received by	(Sample Storage)	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Auxier & Associates, Inc.	PAP-KAN	Environmental	10/14/2015	28	15-10089
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	ThISO	UUISO																						Tl
01	LCS	10/15/15	SO	K1.1	X	X	X																						3
02	BLANK	10/15/15	SO	K1.1	X	X	X																						3
03	DUP	10/15/15	SO	K1.1	X	X	X																						3
04	CP4104S13-14	10/08/15 10:10	SO	K1.1	X	X	X																						3
05	CP3005S04-05	10/08/15 15:00	SO	K1.1	X	X	X																						3
06	CP3005S07-08	10/08/15 15:10	SO	K1.1	X	X	X																						3
07	CP3005S12-13	10/08/15 15:20	SO	K1.1	X	X	X																						3
																													0
																													0
																													0
																													0
																													0
																													0
																													0
																													0
																													0
																													0
																													0
																													0
																													0
Totals Per Analysis (non QA samples)					4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

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

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

Invoice	Accounts Payable Auxier & Associates, Inc. 9821 Cogdill Drive #1 Knoxville, TN 37932	**Report Data**	Cecilia Greene Auxier & Associates, Inc. 9821 Cogdill Road, Suite 1 Knoxville, TN 37830
Voice	865-675-3669	Voice	865-675-3669
Fax	865-675-3677	Fax	865-675-3677
Contact	Harvey Cohen		
Voice	301-718-8900		
Fax	301-718-8909		

Printed: 10/15/2015 11:12 AM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 15-10089

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

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

WERE CHAIN OF CUSTODY SEALS:

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

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

REMARKS: _____

SIGNATURE: James E Bailey DATE: 10-19-15

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

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

EBS-OR-39964

November 17, 2015

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

CASE NARRATIVE
Work Order # 15-10089-OR

SAMPLE RECEIPT

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

CLIENT ID	LAB ID
CP4104S13-14	15-10089-04
CP3005S04-05	15-10089-05
CP3005S07-08	15-10089-06
CP3005S12-13	15-10089-07

ANALYTICAL METHODS

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

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

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

ISOTOPIC URANIUM

Samples were prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy 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.

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

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 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the 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 and Thorium-232 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-230 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.

Kathy B. Shanks

for M.R. McDougall
Laboratory Manager

Date: 11/17/2015

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

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

Work Order Details:

SDG:	15-10089
Project:	PAP-KAN
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Cobalt-60	LANL ER-130 Modified	1.37E+02	5.48E+00				pCi/g
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Cesium-137	LANL ER-130 Modified	8.69E+01	3.48E+00				pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Cobalt-60	LANL ER-130 Modified	1.43E+02	8.33E+00	1.11E+01	7.74E-01	6.25E-01	pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Cesium-137	LANL ER-130 Modified	9.04E+01	8.11E+00	9.34E+00	9.68E-01	4.80E-01	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Actinium-228	LANL ER-130 Modified	3.65E-02	1.53E-01	1.53E-01	2.75E-01	1.19E-01	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Bismuth-214	LANL ER-130 Modified	-1.14E-02	8.19E-02	8.19E-02	1.31E-01	5.83E-02	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Potassium-40	LANL ER-130 Modified	3.73E-01	4.00E-01	4.01E-01	9.29E-01	3.92E-01	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Lead-212	LANL ER-130 Modified	2.15E-02	6.20E-02	6.21E-02	1.01E-01	4.75E-02	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Lead-214	LANL ER-130 Modified	8.71E-02	7.80E-02	7.81E-02	1.44E-01	6.66E-02	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Radium-226	LANL ER-130 Modified	-1.14E-02	8.19E-02	8.19E-02	1.31E-01	6.22E-01	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Radium-228	LANL ER-130 Modified	3.65E-02	1.53E-01	1.53E-01	2.75E-01	1.19E-01	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Thorium-234	LANL ER-130 Modified	3.66E-01	3.58E-01	3.58E-01	6.09E-01	2.90E-01	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	11/9/2015	15-10089	Thallium-208	LANL ER-130 Modified	2.52E-02	9.48E-02	9.49E-02	1.76E-01	7.73E-02	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Actinium-228	LANL ER-130 Modified	1.35E+00	4.17E-01	4.23E-01	8.22E-01	3.85E-01	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Bismuth-214	LANL ER-130 Modified	1.40E+00	3.06E-01	3.14E-01	2.88E-01	2.24E-01	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Potassium-40	LANL ER-130 Modified	2.04E+01	3.40E+00	3.56E+00	1.84E+00	8.12E-01	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Lead-212	LANL ER-130 Modified	1.75E+00	3.21E-01	3.33E-01	3.77E-01	1.84E-01	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Lead-214	LANL ER-130 Modified	1.06E+00	3.01E-01	3.05E-01	4.96E-01	2.40E-01	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Radium-226	LANL ER-130 Modified	1.40E+00	3.06E-01	3.14E-01	2.88E-01	2.33E+00	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Radium-228	LANL ER-130 Modified	1.35E+00	4.17E-01	4.23E-01	8.22E-01	3.85E-01	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Thorium-234	LANL ER-130 Modified	9.72E-01	1.43E+00	1.43E+00	2.23E+00	1.09E+00	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Thallium-208	LANL ER-130 Modified	1.41E+00	4.24E-01	4.30E-01	7.79E-01	3.74E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Actinium-228	LANL ER-130 Modified	1.38E+00	5.22E-01	5.26E-01	1.02E+00	4.83E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Bismuth-214	LANL ER-130 Modified	1.15E+00	3.84E-01	3.88E-01	6.40E-01	3.09E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Potassium-40	LANL ER-130 Modified	2.26E+01	3.76E+00	3.93E+00	1.86E+00	8.23E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Lead-212	LANL ER-130 Modified	1.74E+00	3.65E-01	3.76E-01	4.81E-01	2.36E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Lead-214	LANL ER-130 Modified	1.33E+00	3.14E-01	3.21E-01	4.23E-01	2.04E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Radium-226	LANL ER-130 Modified	1.15E+00	3.84E-01	3.88E-01	6.40E-01	1.82E+00	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Radium-228	LANL ER-130 Modified	1.38E+00	5.22E-01	5.26E-01	1.02E+00	4.83E-01	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Thorium-234	LANL ER-130 Modified	1.68E+00	1.50E+00	1.51E+00	2.35E+00	1.15E+00	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	11/9/2015	15-10089	Thallium-208	LANL ER-130 Modified	1.60E+00	5.25E-01	5.32E-01	7.32E-01	3.51E-01	pCi/g

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

Eberline Analytical
Final Report of Analysis

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

Work Order Details:
SDG: 15-10089
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Actinium-228	LANL ER-130 Modified	3.48E-01	1.13E-01	1.15E-01	2.28E-01	1.07E-01	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Bismuth-214	LANL ER-130 Modified	8.97E-01	1.43E-01	1.50E-01	4.04E-02	1.67E-01	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Potassium-40	LANL ER-130 Modified	9.58E+00	1.24E+00	1.34E+00	7.30E-01	3.39E-01	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Lead-212	LANL ER-130 Modified	4.09E-01	6.84E-02	7.16E-02	1.39E-01	6.81E-02	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Lead-214	LANL ER-130 Modified	7.77E-01	1.07E-01	1.15E-01	1.35E-01	6.47E-02	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Radium-226	LANL ER-130 Modified	8.97E-01	1.43E-01	1.50E-01	4.04E-02	9.33E-01	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Radium-228	LANL ER-130 Modified	3.48E-01	1.13E-01	1.15E-01	2.28E-01	1.07E-01	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Thorium-234	LANL ER-130 Modified	9.20E-01	8.71E-01	8.72E-01	1.18E+00	5.76E-01	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	11/9/2015	15-10089	Thallium-208	LANL ER-130 Modified	3.38E-01	8.56E-02	8.73E-02	7.09E-02	9.64E-02	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Actinium-228	LANL ER-130 Modified	3.88E-01	1.56E-01	1.57E-01	3.45E-01	1.64E-01	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Bismuth-214	LANL ER-130 Modified	2.83E-01	8.47E-02	8.59E-02	1.42E-01	6.71E-02	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Potassium-40	LANL ER-130 Modified	2.10E+01	2.56E+00	2.78E+00	7.02E-01	3.19E-01	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Lead-212	LANL ER-130 Modified	3.41E-01	7.16E-02	7.37E-02	1.45E-01	7.07E-02	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Lead-214	LANL ER-130 Modified	3.61E-01	9.06E-02	9.24E-02	1.41E-01	6.71E-02	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Radium-226	LANL ER-130 Modified	2.83E-01	8.47E-02	8.59E-02	1.42E-01	8.21E-01	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Radium-228	LANL ER-130 Modified	3.88E-01	1.56E-01	1.57E-01	3.45E-01	1.64E-01	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Thorium-234	LANL ER-130 Modified	6.20E-01	6.49E-01	6.50E-01	1.04E+00	5.01E-01	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	11/9/2015	15-10089	Thallium-208	LANL ER-130 Modified	2.66E-01	8.52E-02	8.63E-02	9.77E-02	1.18E-01	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Actinium-228	LANL ER-130 Modified	5.80E-01	1.76E-01	1.78E-01	2.89E-01	1.37E-01	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Bismuth-214	LANL ER-130 Modified	6.67E-01	1.07E-01	1.12E-01	1.40E-01	6.65E-02	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Potassium-40	LANL ER-130 Modified	1.85E+01	2.26E+00	2.45E+00	7.63E-01	3.52E-01	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Lead-212	LANL ER-130 Modified	7.52E-01	1.27E-01	1.32E-01	1.55E-01	7.57E-02	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Lead-214	LANL ER-130 Modified	5.97E-01	9.96E-02	1.04E-01	1.59E-01	7.68E-02	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Radium-226	LANL ER-130 Modified	6.67E-01	1.07E-01	1.12E-01	1.40E-01	8.13E-01	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Radium-228	LANL ER-130 Modified	5.80E-01	1.76E-01	1.78E-01	2.89E-01	1.37E-01	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Thorium-234	LANL ER-130 Modified	6.88E-01	6.51E-01	6.52E-01	1.04E+00	5.06E-01	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	11/9/2015	15-10089	Thallium-208	LANL ER-130 Modified	5.29E-01	1.07E-01	1.10E-01	8.96E-02	1.32E-01	pCi/g

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

Eberline Analytical
Final Report of Analysis

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

Work Order Details:
SDG: 15-10089
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	4.71E+00	1.70E-01				pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	5.14E+00	7.99E-01	9.34E-01	8.78E-02	1.84E-02	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	3.09E-03	2.00E-02	2.00E-02	5.44E-02	7.30E-03	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	1.02E+00	2.47E-01	2.65E-01	6.30E-02	1.50E-02	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	1.29E+00	3.05E-01	3.28E-01	6.62E-02	1.47E-02	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	2.86E-01	1.68E-01	1.70E-01	1.21E-01	1.84E-02	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	2.52E-01	1.05E-01	1.08E-01	5.56E-02	8.47E-03	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	10/27/2015	15-10089	Thorium-228	EML Th-01 Modified	6.03E-01	1.90E-01	1.98E-01	6.32E-02	9.58E-03	pCi/g
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	5.34E+00	1.44E-01				pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	5.93E+00	8.96E-01	1.16E+00	6.73E-02	7.21E-02	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	4.73E-03	1.97E-02	1.97E-02	5.06E-02	5.42E-02	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	9.87E-01	2.39E-01	2.68E-01	5.04E-02	5.03E-02	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	1.30E+00	3.05E-01	3.44E-01	6.03E-02	5.76E-02	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	8.30E-01	3.19E-01	3.35E-01	8.28E-02	1.05E-01	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	4.24E-01	1.42E-01	1.51E-01	4.79E-02	5.14E-02	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	10/27/2015	15-10089	Thorium-230	EML Th-01 Modified	7.15E-01	2.11E-01	2.29E-01	6.21E-02	5.29E-02	pCi/g
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	4.71E+00	1.70E-01				pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	5.11E+00	7.94E-01	9.13E-01	7.22E-02	9.55E-03	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	3.36E-02	3.86E-02	3.87E-02	5.06E-02	5.55E-03	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	1.09E+00	2.58E-01	2.76E-01	7.36E-02	2.49E-02	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	1.22E+00	2.91E-01	3.10E-01	6.49E-02	1.46E-02	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	2.21E-01	1.45E-01	1.46E-01	1.19E-01	1.82E-02	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	2.64E-01	1.08E-01	1.10E-01	5.74E-02	9.91E-03	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	10/27/2015	15-10089	Thorium-232	EML Th-01 Modified	6.12E-01	1.90E-01	1.98E-01	6.19E-02	9.46E-03	pCi/g

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

Eberline Analytical
Final Report of Analysis

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

Work Order Details:
SDG: 15-10089
Project: PAP-KAN
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	CV	Report Units
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	8.02E+00	2.89E-01				pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	6.93E+00	9.68E-01	1.09E+00	5.80E-02	4.71E-03	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	4.40E-02	4.54E-02	4.55E-02	5.74E-02	8.65E-03	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	8.42E-01	1.96E-01	2.05E-01	4.83E-02	6.24E-03	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	1.43E+00	3.57E-01	3.71E-01	8.39E-02	1.08E-02	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	8.44E-01	2.14E-01	2.22E-01	5.79E-02	7.47E-03	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	2.48E-01	9.47E-02	9.63E-02	4.77E-02	7.17E-03	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	10/27/2015	15-10089	Uranium-234	EML U-02 Modified	3.82E-01	1.21E-01	1.24E-01	4.87E-02	7.31E-03	pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	6.83E-01	2.25E-01	2.30E-01	7.15E-02	3.34E-03	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	5.42E-02	5.60E-02	5.61E-02	7.08E-02	7.64E-03	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	1.00E-01	6.77E-02	6.81E-02	4.74E-02	2.21E-03	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	1.28E-01	1.04E-01	1.05E-01	1.03E-01	9.26E-03	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	9.52E-02	7.62E-02	7.65E-02	8.16E-02	7.83E-04	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	3.82E-02	4.14E-02	4.15E-02	4.99E-02	3.47E-03	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	10/27/2015	15-10089	Uranium-235	EML U-02 Modified	4.60E-02	4.74E-02	4.75E-02	6.00E-02	6.45E-03	pCi/g
15-10089-01	LCS	KNOWN	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	7.82E+00	2.81E-01				pCi/g
15-10089-01	LCS	SPIKE	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	6.69E+00	9.41E-01	1.06E+00	5.77E-02	3.45E-03	pCi/g
15-10089-02	MBL	BLANK	10/15/15 00:00	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	-2.33E-03	3.74E-02	3.74E-02	9.22E-02	3.37E-02	pCi/g
15-10089-03	DUP	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	1.08E+00	2.29E-01	2.42E-01	5.17E-02	6.96E-03	pCi/g
15-10089-04	DO	CP4104S13-14	10/08/15 10:10	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	1.36E+00	3.45E-01	3.59E-01	8.35E-02	9.39E-03	pCi/g
15-10089-05	TRG	CP3005S04-05	10/08/15 15:00	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	9.86E-01	2.35E-01	2.45E-01	4.58E-02	2.74E-03	pCi/g
15-10089-06	TRG	CP3005S07-08	10/08/15 15:10	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	3.25E-01	1.10E-01	1.13E-01	5.77E-02	1.21E-02	pCi/g
15-10089-07	TRG	CP3005S12-13	10/08/15 15:20	10/14/2015	10/27/2015	15-10089	Uranium-238	EML U-02 Modified	4.82E-01	1.37E-01	1.41E-01	5.14E-02	7.98E-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

SECTION V

ANALYTICAL STANDARD

QA/QC REVIEWED
Date 1/16/95 Initials

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	U-238NAT	Customer:	TMA EBERLINE
Half Life:	(4.468 ± 0.005) x 10^9 years	P.O.No.:	OR2778
Catalog No.:	7338	Reference Date:	January 1 1995 12:00 PST.
Source No.:	479-50	Contained Radioactivity:	(Total U) 8.016 μCi
		Contained Radioactivity:	(Total U) 297 kBq

Description of Solution

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

Radioimpurities: Refer to attached technical data sheet

Radioactive Daughters: Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

ERIC, ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 10/1/2015 0:00

SOLUTION REFERENCE #: IPL 479-50 | SOLUTION #: U-8

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

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

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

Chemical Composition of Standard Solution
Uranyl nitrate in dilute HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

Dilute to a volume of 1000.00 milliliters

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

And after dilution the activity of this solution is 1.77955E+04 dpm/ml

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

Expiration Date: July 27, 2016

Verified & Approved By _____ Date: 10/1/2015 0:00

QC Approval _____ Date: 10/1/15

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

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

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

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

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

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

Reference Date: 1/1/1995 0:00

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 7.1182E+01 dpm/ml

NOTES:

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

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: July 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		5.35€ grams
	Volume of solution		5.035 millilitres
	Total activity of U-232		3.61E+04 becquerels
	which is equivalent to		9.76E-01 microcuries

Method of measurement (see reverse of this certificate)

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

Radionuclidic Purity Any radioactive impurities measured are listed below, expressed as percentages of the activity of the principle radionuclide at the reference date .

Th-228 and daughter activity removed 2 Feb 2000
U-232 daughters activity will increase with time. By alpha 88% U-232, 12% daughters on 1/3/00

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

Not measured

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

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

Remarks For safety information and notes to ensure correct usage by all persons handling this radioactive Tracer solution please read the instructions accompanying the package.

AEA Technology operates a quality management system which has been independently audited and approved to ISO 9001.

Approved Signatory

Roger Wiltshire

Project Ref. AE2315

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

EBERLINE SERVICES

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

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

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

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

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

Chemical Composition of Standard Solution

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

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

Dilute to a volume of 1000.00 **milliliters**

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

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

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

Expiration Date: October 26, 2016

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

QC Approval _____ Date: 10/28/15

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

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

SECONDARY VOLUMETRIC DILUTION

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

NOTES:

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

Expiration Date: October 26, 2016

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

QC Approval _____ Date: 10/28/15

Th-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Th-232	Customer:	TMA EBERLINE
Half Life:	(1.405 ± 0.006) x 10^10 years	P.O.No.:	VH1632
Catalog No.:	7232	Reference Date:	November 1 1993 12:00 PST.
Source No.:	435-104-2	Contained Radioactivity:	(Th-232) 0.0933 μCi.
		Contained Radioactivity:	(Th-232) 3.45 kBq.

Description of Solution

a. Mass of solution:	11.9712 g (in a 10 ml flame sealed ampoule)
b. Chemical form:	Th(NO3)4 in water
c. Carrier content:	None added
d. Density:	Approx. 1.21 g/ml @ 20°C.

Radioimpurities: None detected (other than daughters).

Radioactive Daughters

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

Radionuclide Concentration

(Th-232) 0.00779 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

Anna U. Khan
QUALITY CONTROL

Nov. 8, 1993
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

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

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

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

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

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

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

Chemical Composition of Standard Solution
$Th(NO_3)_4$ in H2O

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

Dilute to a volume of 1000.00 **milliliters**

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

And after dilution the activity of this solution is **2.071E+02** **dpm/ml**

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

Expiration Date: August 25, 2016

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

QC Approval _____ Date: 9/30/15

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

Radionuclide of Interest: $^{228\ \&\ 232}Th$
Parent Solution Conc.: 2.07E+02 dpm/ml

Reference Date: 11/1/1993 0:00

Chemical Composition of Standard Solution
$Th(NO_3)_4$ in 1% HNO_3

Dilution Instructions:

Dilution Solvent Used: 1% Nitric Acid

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 1.0355E+02 dpm/ml

NOTES:

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

Expiration Date: August 25, 2016

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

QC Approval _____ Date: 9/30/15

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

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Description of Solution

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

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 µCi/gram.

Method of Calibration

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

Uncertainty of Measurement

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

NIST Traceability

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

Notes

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

QUALITY CONTROL

ISOTOPE PRODUCTS LABORATORIES
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EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

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

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

CURRENT DATE 4/15/2015 0:00

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

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

Radionuclide ^{230}Thorium
Reference Date 11/1/1991 0:00
Certified Activity 1.036E+00 µCi
Certified Concentration µCi per gram

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

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

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

Dilute to a volume of 1000.00 **milliliters**

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

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

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

Expiration Date: February 12, 2016

Recertified By _____ Date: 4/15/2015 0:00

QC Approval _____ Date: 4/15/15

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

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

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

	MP-009	Date	4/15/2015 0:00
Solution Reference #	IPL 388-116	Solution #	Th-1b

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

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

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

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

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2999E+01 dpm/ml

NOTES:

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

Expiration Date: February 12, 2016

Recertified By _____ Date: 4/15/2015 0:00

QC Approval _____ Date: 4/15/15

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

A.	Mass of solution:	5.0147 g in 5 mL flame-sealed ampoule
B.	Chemical form:	$Th(NO_3)_4$ in 0.1M HNO_3
C.	Carrier content:	10µg Th/mL
D.	Density:	1.0016 g/mL @ 20°C.

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

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

Uncertainty of Measurement:

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

Notes:

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

Quality Control

9-Jan-02
Date Signed

IPL Ref. No.: 867-54

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

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

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

CURRENT DATE 9/29/2015 0:00

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

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

Radionuclide ^{229}Th
Certified Activity 1.013E+00 µCi
Certified Concentration µCi per gram

Reference Date 1/15/2002 0:00

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

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

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

Dilute to a volume of 1000.00 **milliliters**

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

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

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

Expiration Date: August 24, 2016

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

QC Approval _____ Date: 9/30/15

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

Principal Radionuclide	Half Life, Years	Half Life, Days
^{228}Th	7.340E+03	2.681E+06

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

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

Dilution Instructions: | Dilution Solvent Used 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2490E+01 dpm/ml

NOTES:

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

Expiration Date: August 24, 2016

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

QC Approval _____ Date: 9/30/15

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)

ANA Form005 Rev. —

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

00037

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10089	UUISO	1	pCi	g	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
U-234		86.43%	15.69%	100.00%	3.60%	8.02E+00	2.89E-01	6.93E+00	1.09E+00	U-8a	3.52E+01	3.60E+00	5.05E-01
U-238		85.64%	15.76%	100.00%	3.60%	7.82E+00	2.81E-01	6.69E+00	1.06E+00	U-8a	3.44E+01	3.60E+00	5.05E-01

Matrix Spike

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

Replicate Sample

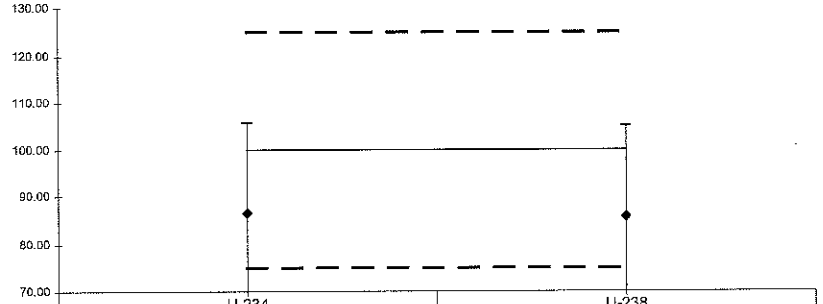
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
U-234	2.72	51.78	1.43E+00	3.71E-01	8.42E-01	2.05E-01
U-238	1.25	22.60	1.36E+00	3.59E-01	1.08E+00	2.42E-01
U-235	0.43	24.29	1.28E-01	1.05E-01	1.00E-01	6.81E-02

QC Summary

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

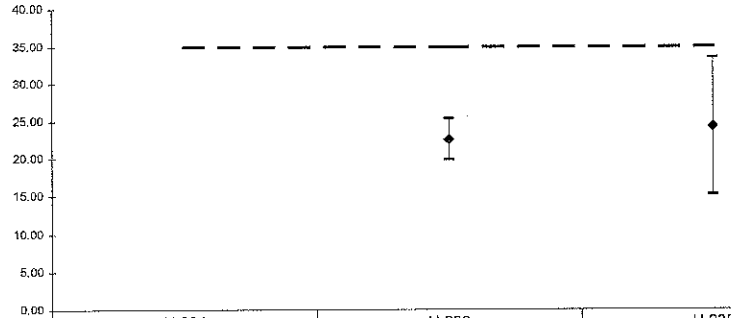
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10089	UUISO	1	pCi	g	Auxier & Associates, Inc.

LCS % Recovery



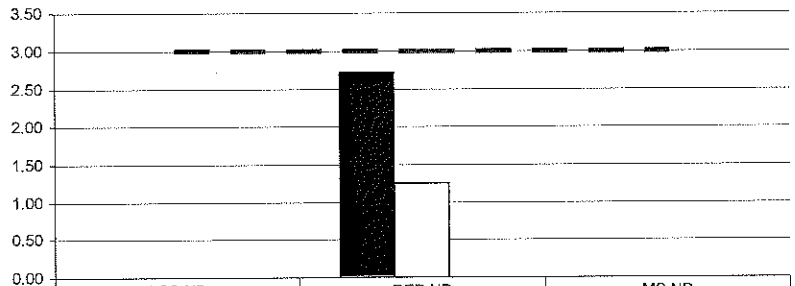
	U-234	U-238
Lower Error	67.14	66.27
Upper Error	105.72	105.00
%R	86.43	85.64
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	U-234	U-238	U-235
Lower Error	58.35	25.38	33.49
Upper Error	45.21	19.83	15.09
RPD	51.78	22.60	24.29
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	2.72	0.00
U-238	0.00	1.25	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10089	ThISO	1	pCi	g	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228		109.15%	18.17%	100.00%	3.60%	4.71E+00	1.70E-01	5.14E+00	9.34E-01	Th-8b	1.04E+02	3.60E+00	1.01E-01
TH-230		111.06%	19.53%	100.00%	2.70%	5.34E+00	1.44E-01	5.93E+00	1.16E+00	Th-1b	2.35E+01	2.70E+00	5.04E-01
TH-232		108.43%	17.87%	100.00%	3.60%	4.71E+00	1.70E-01	5.11E+00	9.13E-01	Th-8b	1.04E+02	3.60E+00	1.01E-01

Matrix Spike

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

Replicate Sample

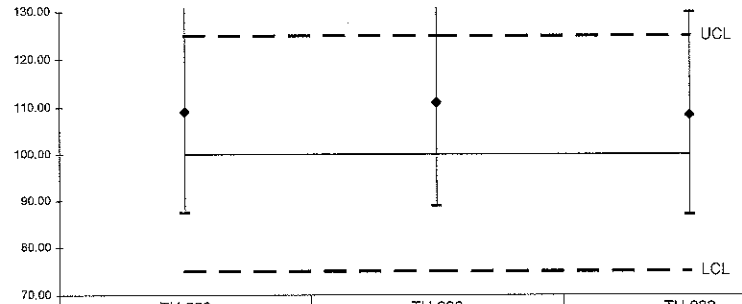
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
TH-228	1.24	23.04	1.29E+00	3.28E-01	1.02E+00	2.65E-01
TH-230	1.39	27.17	1.30E+00	3.44E-01	9.87E-01	2.68E-01
TH-232	0.59	10.78	1.22E+00	3.10E-01	1.09E+00	2.76E-01

QC Summary

LCS Relative Bias	*LCS % R*		*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.09	OK				OK	OK
1.11	OK				INV	OK
1.08	OK				OK	OK

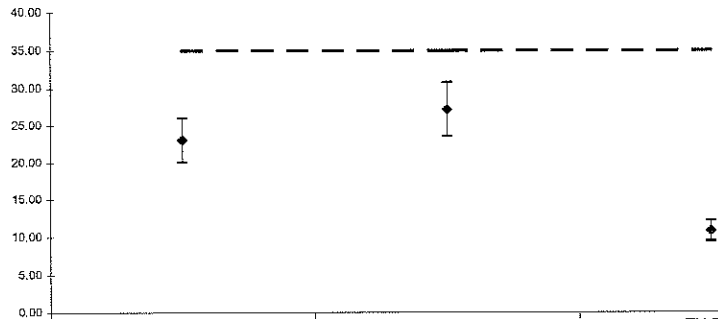
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10089	ThISO	1	pCi	g	Auxier & Associates, Inc.

LCS % Recovery



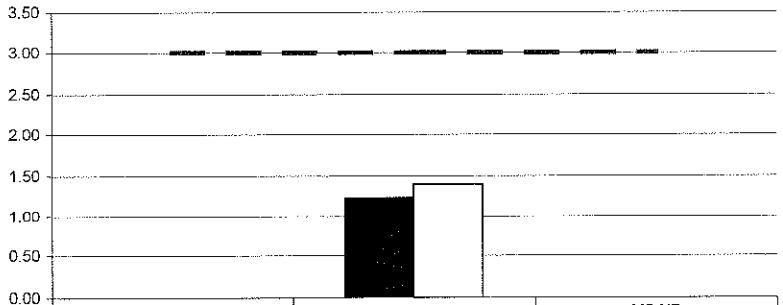
	TH-228	TH-230	TH-232
Lower Error	87.39	88.83	86.96
Upper Error	130.92	133.29	129.91
%R	109.15	111.06	108.43
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	25.99	30.81	12.14
Upper Error	20.08	23.53	9.41
RPD	23.04	27.17	10.78
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	1.24	0.00
TH-230	0.00	1.39	0.00
UCL	3	3	3

No Matrix Spike

Version

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10089	Gamma	1	pCi	g	Auxier & Associates, Inc.

Laboratory Control Sample

Analyte		LCS Measured	CSU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	CSU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
CO-60		104.06%	7.78%	100.00%	4.00%	1.37E+02	5.48E+00	1.43E+02	1.11E+01	GAS-1302	1.37E+02	5.48E+00	7.36E+02
CS-137		103.97%	10.34%	100.00%	4.00%	8.69E+01	3.48E+00	9.04E+01	9.34E+00	GAS-1302	8.69E+01	3.48E+00	7.36E+02

Matrix Spike

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

Replicate Sample

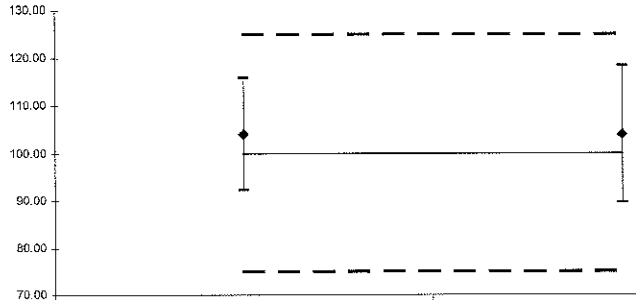
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original CSU*	*Replicate Result*	*Replicate CSU*
AC-228	0.10	2.54	1.38E+00	5.26E-01	1.35E+00	4.23E-01
BI-214	0.98	19.66	1.15E+00	3.88E-01	1.40E+00	3.14E-01
K-40	0.81	10.24	2.26E+01	3.93E+00	2.04E+01	3.56E+00

QC Summary

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

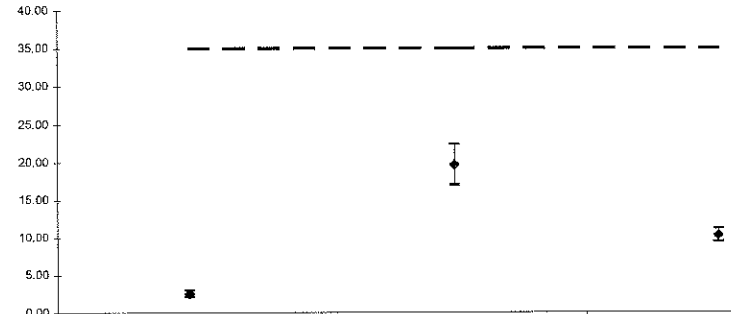
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
15-10089	Gamma	1	pCi	g	Auxier & Associates, Inc.

LCS % Recovery



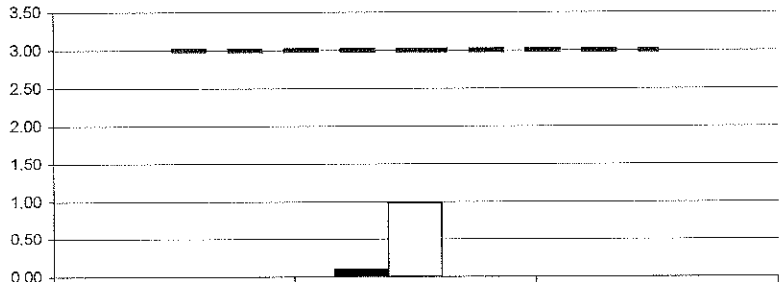
	CO-60	CS-137
Lower Error	92.28	89.63
Upper Error	115.83	118.31
%R	104.06	103.97
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	Bi-214	K-40
Lower Error	2.98	22.36	11.14
Upper Error	2.10	16.95	9.35
RPD	2.54	19.66	10.24
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.10	0.00
CS-137	0.00	0.98	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

15-10089

Version

SECTION VII

LABORATORY TECHNICIAN'S NOTES & RUN LOGS

ISO U NOTES

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	15-10089
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:50	PREP	JPACHELLA	Samples were allquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.

10-20-15 J Pachella

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	15-10089
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:50	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	10/26/15 16:55	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl – 0.1N NH4I, 35 ml of 6.5N HCl – 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.

10/26/15

EBERLINE SERVICES

Work Order Analysis Notes

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Oak Ridge, TN 37830
Voice: 865.481.0683
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Internal Work Order	15-10089
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:50	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	10/26/15 16:55	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl – 0.1N NH4I, 35 ml of 6.5N HCl – 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.
3	10/27/15 05:00	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Preicpitated and filtered samples for Uranium)

10-27-15

0048A

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
15-10089	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016569P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	10/20/2015
016519P	Nitric Acid	Reagent Grade	JPACHELLA	10/20/2015
016158P	Perchloric Acid	Reagent Grade	JPACHELLA	10/20/2015
016679P	Sulfuric Acid	Reagent Grade	JPACHELLA	10/20/2015
016862P	Anion Exchange Resin	Reagent Grade	JDEMELAS	10/26/2015
016745D03	Hydrochloric Acid	0.5N	JDEMELAS	10/26/2015
016803S	Hydrochloric Acid	6.5N	JDEMELAS	10/26/2015
016928S	Hydrochloric Acid	8N	JDEMELAS	10/26/2015
016874P	Hydrochloric Acid	Reagent Grade	JDEMELAS	10/26/2015
016943S	HCl - NH4I	8N - 0.1M	JDEMELAS	10/26/2015
016927S	HCl - HF	6.5N - 0.04N	JDEMELAS	10/26/2015
016909S	Carbon substrate	Solution	TSMITH	10/27/2015
016569P	Hydrofluoric Acid	Reagent Grade	TSMITH	10/27/2015
016583S	Neodymium Carrier	1 mg/ml	TSMITH	10/27/2015
016514P	Reagent Alcohol	Reagent Grade	TSMITH	10/27/2015
016606P	Titanous Chloride	Reagent Grade	TSMITH	10/27/2015

Alpharett 3

Date	Sample #	Client	Load time	CT time	Analysis	Tech
10/23	1510104A(3-6)	[illegible]	0821	2hr	UUTso	—
10/23	1510071B(1-4)	Ucon	0821	2hr	ThTso	—
10/23	1510068A(1-4)	Ucon	0822	2hr	Am241	—
10/23	1510068A(1-4)	Ucon	0822	2hr	Am243	—
10/23/15	1510084A(1-12)	Auxier	1030	2hr00 =	ISO-Th	KB
10/23/15	1510084A(13-20)	Auxier	1120	2hr00 =	ISO-Th	KB
10/23/15	1510067A(1-4)	Ucon	1121	2hr00 =	Np	KB
10/23/15	1510068A(1-4)	Ucon	1122	2hr00 =	Np	KB
10/23/15	1510121A(1-4)	ND	1222	2hr00 =	Rale	KB
10/23/15	1510082A(1-4)	Ucon	1222	2hr00 =	Rale	KB
10/23/15	System Bksd	Lab	1620	16.40 hrs	—	KB
10/24/15	Daily Pulser	Lab	0951	10min	NA	AG
10/24/15	1510050A(1-11)	TN Dept Health	1025	16hr40min	ISO-U	AG
10/26	Daily Pulser	Lab	0516	1	NA	—
10/26	1510082A(4)	Ucon	0903	2hr	Am243	—
10/26	1510068A(1-4,9)	Ucon	0903	2hr	PuTso	—
10/26	1510082A(1-4,16)	Ucon	0904	2hr	PuTso	—
10/26	1510068A(1-4)	Ucon	0904	2hr	ThTso	—
10/26	1510082A(1-4)	Ucon	0904	2hr	ThTso	—
10/26	1510087A(1-9)	Auxier	0905	2hr	UUTso	—
10/26/15	1510087A(10-17)	Auxier	1203	2hr00 =	UU	KB
10/26/15	1510082A(1-4)	Ucon	1204	2hr00 =	Np	KB
10/26/15	1510058A(1-3,5)	Unitech	1206	2hr00 =	UU	KB
10/26/15	1510058A(1-3,5-6)	Unitech	1207	2hr00 =	ISO-Pu	KB
10/26/15	1510111A(1-4)	ND	1254	2hr00 =	Rale	KB
10/26/15	1510112A(1-4)	ND	1300	2hr00 =	Rale	KB
10/27	Daily Pulser	Lab	0516	1	NA	—
10/27	1510068AMT(4)	Ucon	0857	2hr	UUMT	—
10/27	1510082A(1-4)	Ucon	0857	2hr	UUTso	—
10/27	1510082AMT(4)	Ucon	0857	2hr	UUMT	—
10/27	1510089A(1-7)	Auxier	0858	2hr	UUTso	—
10/27	1510068A(1-4)	Ucon	0902	2hr	Pu242	—
10/27	1510082A(1-4)	Ucon	0902	2hr	Pu242	—
10/27	1510068A(1-4)	Ucon	~~0870~~ 0902	2hr	Th228	—

ISO-TH NOTES

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	15-10089
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:50	PREP	JPACHELLA	Samples were aliquoted, spiked and traced. Samples were digested with HF till dry. Samples were further digested in a mixed acid digestion till dry. Samples were submitted to separations.

10-20-15 J Pachella

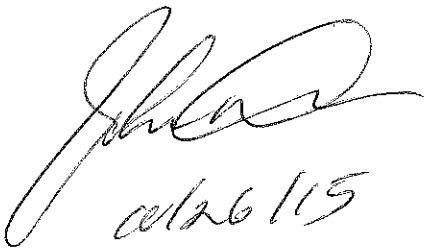
EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	15-10089
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:50	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	10/26/15 16:56	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.



EBERLINE SERVICES

Work Order Analysis Notes

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Oak Ridge, TN 37830
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Internal Work Order	15-10089
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	10/20/15 08:50	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	10/26/15 16:56	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	10/27/15 05:03	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

10-27-15

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
15-10089	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
016569P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	10/20/2015
016519P	Nitric Acid	Reagent Grade	JPACHELLA	10/20/2015
016679P	Sulfuric Acid	Reagent Grade	JPACHELLA	10/20/2015
016158P	Perchloric Acid	Reagent Grade	JPACHELLA	10/20/2015
016862P	Anion Exchange Resin	Reagent Grade	JDEMELAS	10/26/2015
016928S	Hydrochloric Acid	8N	JDEMELAS	10/26/2015
016874P	Hydrochloric Acid	Reagent Grade	JDEMELAS	10/26/2015
016926S	Nitric Acid	8N	JDEMELAS	10/26/2015
016516P	Nitric Acid	Reagent Grade	JDEMELAS	10/26/2015
016909S	Carbon substrate	Solution	TSMITH	10/27/2015
016869S	Cerrium Carrier	0.1mg/ml	TSMITH	10/27/2015
016569P	Hydrofluoric Acid	Reagent Grade	TSMITH	10/27/2015
016514P	Reagent Alcohol	Reagent Grade	TSMITH	10/27/2015

Alphabet 3

Date	Sample #	Client	Feed Time	CT Time	Analyte	Det.
10/27	1510082A(1-2)	ucon	0907	2hr	Th229	C
10/27/15	1510082A(3-4)	ucon	1152	2hr 50 ±	Th229	KB
10/27/15	1510069A(1-4)	Unitech	1153	2hr 50 ±	Np	KB
10/27/15	1510069A(1-4)	Unitech	1153	2hr 50 ±	U	KB
10/27/15	1510089A(1-7)	Auxin	1156	2hr 50 ±	FSO-Th	KB

GAMMA NOTES

DATE	SAmple #	Client	Lost Time	CTc Time	Analysis	Tech
11/5	CAT-14	LAB	0514	15	✓	
11/5	Daily A	LAB	0545	15	✓	
11/5	15110028-02	United	0602	2h	✓	
11/5	15110018-03	UCon	0833	4h	✓	
11/5/15	15110018-01	UCon	1234	30mins	✓	KB
11/5	15110018-04	UCon	1706	4h	✓	
11/6	CAT 14	LAB	0517	15	✓	
11/6	Daily B	LAB	0549	15	✓	
11/6	15100085-03	Auxier	0608	2h	✓	
11/6	15100085-04	Auxier	0711	2h	✓	
11/6	15100085-11	Auxier	0817	2h	✓	
11/6	15100085-15	Auxier	0920	2h	✓	
11/6	15100085-19	Auxier	1021	2h	✓	
11/6	15100086-06	Auxier	1123	2h	✓	
11/6/15	15100086-09	Auxier	1224	1hr	✓	KB
11/6/15	15100086-13	Auxier	1337	1hr	✓	KB
11/6/15	15100086-17	Auxier	1440	1hr	✓	KB
11/6/15	15110026-05	Toxicology Cons.	1547	1hr	✓	KB
11/6/15	15110026-07	Toxicology Cons.	1649	1hr	✓	KB
11/6/15	15110026-10	Toxicology Cons.	1750	1hr	✓	KB
11/7/15	System Blank	Lab	0909	24hr	✓	KB
11/9	CAT 14	LAB	0520	15	✓	
11/9	Daily A	LAB	0550	15	✓	
11/9	15100087-03	Auxier	0608	2h	✓	
11/9	15100087-04	Auxier	0707	2h	✓	
11/9	15100087-09	Auxier	0816	2h	✓	
11/9	15100087-12	Auxier	0919	2h	✓	
11/9	15100087-15	Auxier	1021	2h	✓	
11/9	15100087-01	Auxier	1122	2h	✓	
11/9	15100089-05	Auxier	1154	2h	✓	
11/9/15	15100089-01	Auxii	1701	30mins	✓	KB

DATE	Sample #	Client	Load Time	CT-Time	Analysis	Tech
11/5/15	1511021-02	Republic Geo.	1701	2hr	✓	KB
1116	GAS 1401	LAB	0547	1r	✓	✓
1116	Daily A	LAB	0545	1r	✓	✓
1116	1510085-05	Auxier	0608	1r	✓	✓
1116	1510085-09	Auxier	0711	1r	✓	✓
1116	1510085-12	Auxier	0817	1r	✓	✓
1116	1510085-16	Auxier	0920	1r	✓	✓
1116	1510085-20	Auxier	1021	1r	✓	✓
1116	1510086-02	Auxier	1127	1r	✓	✓
11/6/15	1510086-10	Auxier	1224	1hr	✓	KB
11/6/15	1510086-14	Auxier	1337	1hr	✓	KB
11/6/15	1510086-18	Auxier	1440	1hr	✓	KB
11/6/15	1511026-06	Toxicology Cons.	1547	1hr	✓	KB
11/6/15	1511026-08	Toxicology Cons.	1649	1hr	✓	KB
11/7/15	System Blkd	Lab	0909	24 hr	✓	KB
1119	GAS 1201	LAB	0520	1r	✓	✓
1119	Daily A	LAB	0550	1r	✓	✓
1119	1510087-05	Auxier	0608	1r	✓	✓
1119	1510087-07	Auxier	0707	1r	✓	✓
1119	1510087-10	Auxier	0816	1r	✓	✓
1119	1510087-13	Auxier	0918	1r	✓	✓
1119	1510087-16	Auxier	1021	1r	✓	✓
1119	1510087-02	Auxier	1122	1r	✓	✓
1119	1510089-06	Auxier	1222	1r	✓	✓
11/9/15	1510089-07	Auxier	1323	1hr	✓	KB

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
1119	GHW14	LAB	0520	15	✓	[illegible]
1119	Daily	LAB	0550	15	✓	[illegible]
1119	1510087-06	Auxier	0609	[illegible]	✓	[illegible]
1119	1510087-08	Auxier	0713	[illegible]	✓	[illegible]
1119	1510087-11	Auxier	0816	[illegible]	✓	[illegible]
1119	1510087-14	Auxier	0919	[illegible]	✓	[illegible]
1119	1510087-17	Auxier	1021	[illegible]	✓	[illegible]
1119	1510089-02	Auxier	1122	[illegible]	✓	[illegible]
1119	1510089-04	Auxier	1225	[illegible]	✓	[illegible]
1119	1510089-02	Auxier	1328	[illegible]	✓	[illegible]

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

15-10089
UUISO
Run 1

Work Order	15-10089
Analysis Code	UUISO
Run	1
Date Received	10/14/2015
Lab Deadline	11/5/2015
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML U-02 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.64
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		10/15/15 00:00	1.0000E+00
02	MBL	BLANK		10/15/15 00:00	1.5000E+00
03	DUP	CP4104S13-14	35	10/08/15 10:10	1.5178E+00
04	DO	CP4104S13-14	35	10/08/15 10:10	1.5176E+00
05	TRG	CP3005S04-05	33	10/08/15 15:00	1.5189E+00
06	TRG	CP3005S07-08	38	10/08/15 15:10	1.5510E+00
07	TRG	CP3005S12-13	32	10/08/15 15:20	1.5141E+00

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

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.6546	12.2		0.00								
02	MBL	0.6535	12.2		0.00								
03	DUP	0.6526	12.2		0.00								
04	DO	0.6534	12.2		0.00								
05	TRG	0.6528	12.2		0.00								
06	TRG	0.6516	12.1		0.00								
07	TRG	0.6521	12.2		0.00								

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

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			10/20/15 08:40	JPACHELLA				
02	MBL			10/20/15 08:40	JPACHELLA				
03	DUP			10/20/15 08:40	JPACHELLA				
04	DO	10/19/15 10:41	KSALLINGS	10/20/15 08:40	JPACHELLA				
05	TRG	10/19/15 10:41	KSALLINGS	10/20/15 08:40	JPACHELLA				
06	TRG	10/19/15 10:41	KSALLINGS	10/20/15 08:40	JPACHELLA				
07	TRG	10/19/15 10:41	KSALLINGS	10/20/15 08:40	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: 15-10089-UUISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	6.93E+00	9.68E-01	5.80E-02	8.02E+00	86.43	OK		OK	
02	U-234	MBL	BLANK	pCi/g	4.40E-02	4.54E-02	5.74E-02					OK	OK
03	U-234	DUP	CP4104S13-14	pCi/g	8.42E-01	1.96E-01	4.83E-02				INV	OK	
04	U-234	DO	CP4104S13-14	pCi/g	1.43E+00	3.57E-01	8.39E-02					OK	
05	U-234	TRG	CP3005S04-05	pCi/g	8.44E-01	2.14E-01	5.79E-02					OK	
06	U-234	TRG	CP3005S07-08	pCi/g	2.48E-01	9.47E-02	4.77E-02					OK	
07	U-234	TRG	CP3005S12-13	pCi/g	3.82E-01	1.21E-01	4.87E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-UUISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	10/15/15 00:00	1.00E+00	102.97	0.00	0.00			
02	U-234	MBL	10/15/15 00:00	1.50E+00	92.87	0.00	0.00			
03	U-234	DUP	10/08/15 10:10	1.52E+00	109.43	0.00	0.00			
04	U-234	DO	10/08/15 10:10	1.52E+00	54.79	0.00	0.00			
05	U-234	TRG	10/08/15 15:00	1.52E+00	86.30	0.00	0.00			
06	U-234	TRG	10/08/15 15:10	1.55E+00	115.06	0.00	0.00			
07	U-234	TRG	10/08/15 15:20	1.51E+00	114.44	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-UUISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	10/27/15 08:58		A_Spec	Alpha_040	170	4.99 E+02	1.00 E-03	18.6
02	U-234	MBL	10/27/15 08:58		A_Spec	Alpha_041	170	4.32 E+00	4.00 E-03	18.7
03	U-234	DUP	10/27/15 08:58		A_Spec	Alpha_042	170	9.15 E+01	3.00 E-03	17.4
04	U-234	DO	10/27/15 08:58		A_Spec	Alpha_043	170	8.95 E+01	3.00 E-03	20
05	U-234	TRG	10/27/15 08:58		A_Spec	Alpha_044	170	7.65 E+01	3.00 E-03	18.4
06	U-234	TRG	10/27/15 08:58		A_Spec	Alpha_045	170	2.93 E+01	4.00 E-03	17.6
07	U-234	TRG	10/27/15 08:58		A_Spec	Alpha_046	170	4.43 E+01	4.00 E-03	17.8

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-UUISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-238	LCS	LCS	pCi/g	6.69E+00	9.41E-01	5.77E-02	7.82E+00	85.64	OK		OK	
02	U-238	MBL	BLANK	pCi/g	-2.33E-03	3.74E-02	9.22E-02					OK	OK
03	U-238	DUP	CP4104S13-14	pCi/g	1.08E+00	2.29E-01	5.17E-02				OK	OK	
04	U-238	DO	CP4104S13-14	pCi/g	1.36E+00	3.45E-01	8.35E-02					OK	
05	U-238	TRG	CP3005S04-05	pCi/g	9.86E-01	2.35E-01	4.58E-02					OK	
06	U-238	TRG	CP3005S07-08	pCi/g	3.25E-01	1.10E-01	5.77E-02					OK	
07	U-238	TRG	CP3005S12-13	pCi/g	4.82E-01	1.37E-01	5.14E-02					OK	

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-238	LCS	10/15/15 00:00	1.00E+00	102.97	0.00	0.00			
02	U-238	MBL	10/15/15 00:00	1.50E+00	92.87	0.00	0.00			
03	U-238	DUP	10/08/15 10:10	1.52E+00	109.43	0.00	0.00			
04	U-238	DO	10/08/15 10:10	1.52E+00	54.79	0.00	0.00			
05	U-238	TRG	10/08/15 15:00	1.52E+00	86.30	0.00	0.00			
06	U-238	TRG	10/08/15 15:10	1.55E+00	115.06	0.00	0.00			
07	U-238	TRG	10/08/15 15:20	1.51E+00	114.44	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	15-10089	Auxier & Associates, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	10/27/15 08:58		A_Spec	Alpha_040	170	4.84 E+02	1.00 E-03	18.6
02	U-238	MBL	10/27/15 08:58		A_Spec	Alpha_041	170	-2.30 E-01	1.90 E-02	18.7
03	U-238	DUP	10/27/15 08:58		A_Spec	Alpha_042	170	1.18 E+02	4.00 E-03	17.4
04	U-238	DO	10/27/15 08:58		A_Spec	Alpha_043	170	8.55 E+01	3.00 E-03	20
05	U-238	TRG	10/27/15 08:58		A_Spec	Alpha_044	170	8.98 E+01	1.00 E-03	18.4
06	U-238	TRG	10/27/15 08:58		A_Spec	Alpha_045	170	3.86 E+01	8.00 E-03	17.6
07	U-238	TRG	10/27/15 08:58		A_Spec	Alpha_046	170	5.62 E+01	5.00 E-03	17.8

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-UUISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	6.83E-01	2.25E-01	7.15E-02					OK	
02	U-235	MBL	BLANK	pCi/g	5.42E-02	5.60E-02	7.08E-02					OK	OK
03	U-235	DUP	CP4104S13-14	pCi/g	1.00E-01	6.77E-02	4.74E-02				NA	OK	
04	U-235	DO	CP4104S13-14	pCi/g	1.28E-01	1.04E-01	1.03E-01					OK	
05	U-235	TRG	CP3005S04-05	pCi/g	9.52E-02	7.62E-02	8.16E-02					OK	
06	U-235	TRG	CP3005S07-08	pCi/g	3.82E-02	4.14E-02	4.99E-02					OK	
07	U-235	TRG	CP3005S12-13	pCi/g	4.60E-02	4.74E-02	6.00E-02					OK	

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	10/15/15 00:00	1.00E+00	102.97	0.00	0.00			
02	U-235	MBL	10/15/15 00:00	1.50E+00	92.87	0.00	0.00			
03	U-235	DUP	10/08/15 10:10	1.52E+00	109.43	0.00	0.00			
04	U-235	DO	10/08/15 10:10	1.52E+00	54.79	0.00	0.00			
05	U-235	TRG	10/08/15 15:00	1.52E+00	86.30	0.00	0.00			
06	U-235	TRG	10/08/15 15:10	1.55E+00	115.06	0.00	0.00			
07	U-235	TRG	10/08/15 15:20	1.51E+00	114.44	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-UUISO-1

Client: Auxier & Associates, Inc.

Eberline Services Work Order: 15-10089

Analysis Code: UUISO

Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Defect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	10/27/15 08:58		A_Spec	Alpha_040	170	3.98 E+01	1.00 E-03	18.6
02	U-235	MBL	10/27/15 08:58		A_Spec	Alpha_041	170	4.32 E+00	4.00 E-03	18.7
03	U-235	DUP	10/27/15 08:58		A_Spec	Alpha_042	170	8.83 E+00	1.00 E-03	17.4
04	U-235	DO	10/27/15 08:58		A_Spec	Alpha_043	170	6.49 E+00	3.00 E-03	20
05	U-235	TRG	10/27/15 08:58		A_Spec	Alpha_044	170	7.00 E+00	0.00 E+00	18.4
06	U-235	TRG	10/27/15 08:58		A_Spec	Alpha_045	170	3.66 E+00	2.00 E-03	17.6
07	U-235	TRG	10/27/15 08:58		A_Spec	Alpha_046	170	4.32 E+00	4.00 E-03	17.8

Count Room Report
Client: Auxier Associates, Inc.

15-10089-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	0.6546	12.2017		0.00		
02	MBL	BLANK	10/15/15 00:00	1.5000	0.6535	12.1812		0.00		
03	DUP	CP4104S13-14	10/08/15 10:10	1.5178	0.6526	12.1645		0.00		
04	DO	CP4104S13-14	10/08/15 10:10	1.5176	0.6534	12.1794		0.00		
05	TRG	CP3005S04-05	10/08/15 15:00	1.5189	0.6528	12.1682		0.00		
06	TRG	CP3005S07-08	10/08/15 15:10	1.5510	0.6516	12.1458		0.00		
07	TRG	CP3005S12-13	10/08/15 15:20	1.5141	0.6521	12.1551		0.00		

Spike and Tracer Worksheet

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
15-10089	1	UUISO	10/20/2015 8:33	JPACHELLA		

LCS & Matrix Spikes

Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCSD Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	LCS Error Estimate	MS Added pCi	MS Error Estimate	LCSD Known pCi	LCSD Error Estimate	MSD Added pCi	MSD Error Estimate
U-234	U-8a	35.240	10/20/2015	0.500	0.5052				8.02	0.289	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	34.350	10/20/2015	0.500	0.5052				7.82	0.281	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.640	10/20/2015	0.6546	0.6500
02	U-232	U-10a	18.640	10/20/2015	0.6535	0.6500
03	U-232	U-10a	18.640	10/20/2015	0.6526	0.6500
04	U-232	U-10a	18.640	10/20/2015	0.6534	0.6500
05	U-232	U-10a	18.640	10/20/2015	0.6528	0.6500
06	U-232	U-10a	18.640	10/20/2015	0.6516	0.6500
07	U-232	U-10a	18.640	10/20/2015	0.6521	0.6500

Balance Printer Tapes

Tracer

LCS

Matrix Spike

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 10/20/2015 8:27 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-10089	1	UUISO	grams	11/5/2015	JPACHELLA

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.5000E+00	1.5000E+00				
03	CP4104S13-14	DUP					1.5178E+00	1.5178E+00				
04	CP4104S13-14	DO					1.5176E+00	1.5176E+00				
05	CP3005S04-05	TRG					1.5189E+00	1.5189E+00				
06	CP3005S07-08	TRG					1.5510E+00	1.5510E+00				
07	CP3005S12-13	TRG					1.5141E+00	1.5141E+00				

Comments	

Technician: JPachella Date: 10/20/15

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

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
15-10089	11/5/2015	10/18/2015	10/19/2015	10/20/2015	KSALLINGS

Eberline	Auxier & Associates, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special Info
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	CP4104S13-14	14.1300	956.4600	725.8900	942.3300	711.7600	24.47%	75.53%	0.0000	0.0000	
05	CP3005S04-05	14.1600	832.0600	795.2500	817.9000	781.0900	4.50%	95.50%	0.0000	0.0000	
06	CP3005S07-08	14.1400	773.4900	708.5700	759.3500	694.4300	8.55%	91.45%	0.0000	0.0000	
07	CP3005S12-13	14.1000	1079.4600	906.3200	1065.3600	892.2200	16.25%	83.75%	0.0000	0.0000	

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

00077

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

Apex-Alpha™

KB 10/27/15

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification: 1510089A-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 132585
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/27/2015 6:14:53 AM
Acquisition Date/Time: 10/27/2015 8:58:25 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: 0.1911 +/- 0.0106
Counting Efficiency: 0.1856 +/- 0.0032 on 10/25/2014 2:57:14 PM
Chem. Recovery Factor: 1.0297 +/- 0.0598

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.834775 +/- 0.064879
Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.276	393.66	9.88	0.34	0.00E+000	31.3
U-234		4.725	498.83	8.78	0.17	0.00E+000	16.5
U-235		4.381	39.83	31.13	0.17	0.00E+000	3.0
U-238		4.146	483.83	8.91	0.17	0.00E+000	25.0

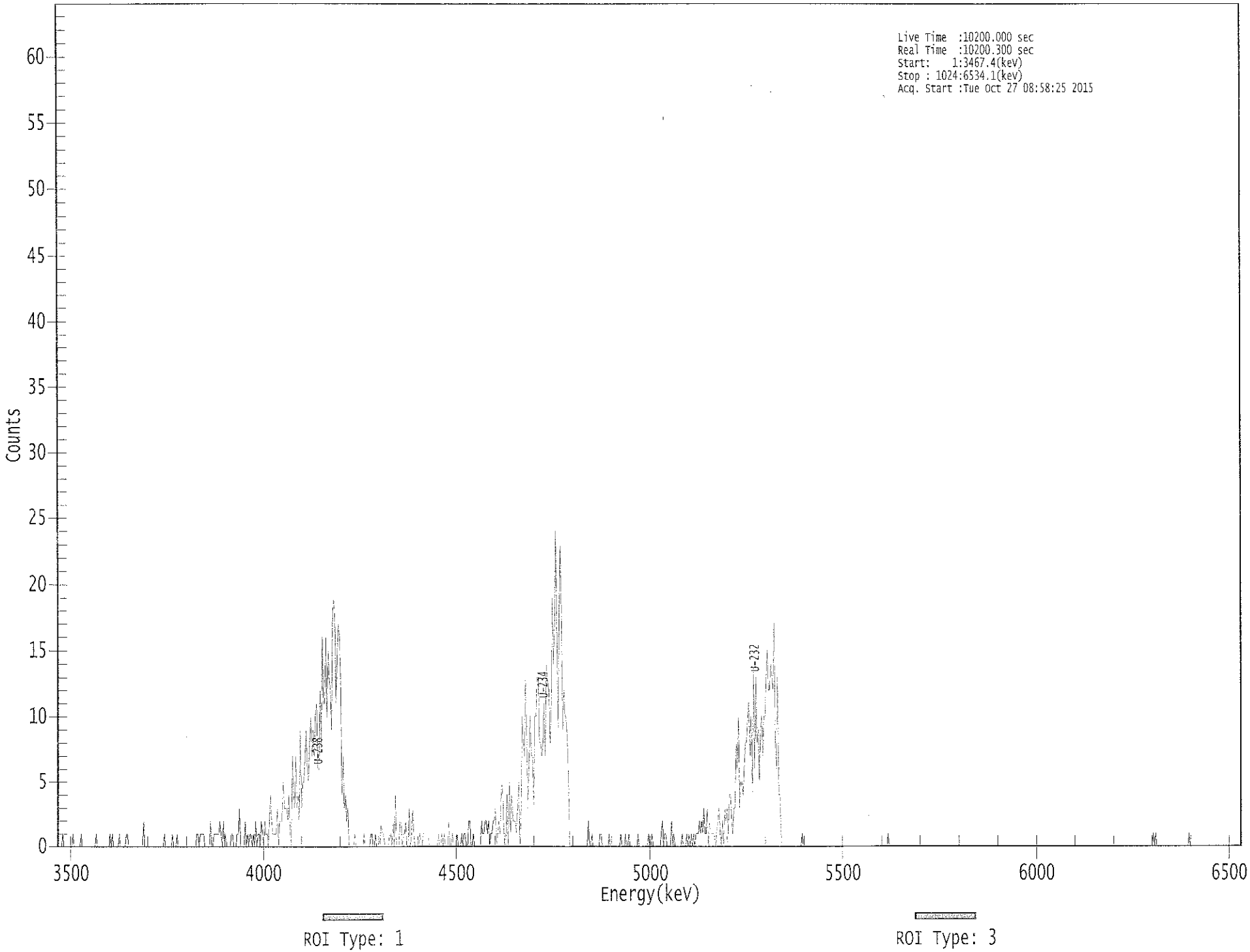
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	5.47E+000 +/- 5.94E-001	6.64E-002 +/- 7.22E-003
U-234	0.991	4761.50*	6.93E+000 +/- 9.68E-001	5.80E-002 +/- 6.30E-003
U-235	1.000	4385.50*	6.83E-001 +/- 2.25E-001	7.15E-002 +/- 7.77E-003
U-238	0.989	4184.40*	6.69E+000 +/- 9.41E-001	5.77E-002 +/- 6.27E-003

AG
10/27/15

0000132393.CNF



61000:

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

Sample Title: 01

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	2	2	1	2	0	1	1

Sample Title: 01

Channel								
377:	2	2	3	0	1	2	1	4
385:	5	2	0	0	4	0	5	1
393:	4	2	2	2	1	3	5	0
401:	2	10	8	7	13	8	3	7
409:	10	7	7	3	10	10	13	13
417:	8	8	7	8	11	7	14	13
425:	12	8	11	19	14	17	24	17
433:	9	17	23	18	9	12	10	10
441:	8	5	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	2	0	0	1	0	0
465:	0	0	0	0	1	1	0	0
473:	0	0	0	0	1	0	0	0
481:	0	0	0	0	0	0	1	0
489:	0	0	1	0	0	1	0	0
497:	0	0	0	0	0	1	0	0
505:	0	0	0	0	0	0	1	0
513:	0	1	0	0	0	0	0	0
521:	0	1	2	0	1	1	0	0
529:	0	0	2	0	1	0	0	0
537:	0	0	0	1	0	0	0	1
545:	0	1	0	1	0	1	0	1
553:	1	1	2	1	2	1	3	1
561:	1	3	0	2	1	1	1	1
569:	0	1	2	3	1	0	2	0
577:	3	2	3	1	4	4	2	1
585:	3	3	8	6	10	3	5	5
593:	4	6	8	8	10	11	7	10
601:	4	14	6	13	8	9	5	9
609:	10	7	10	10	13	15	12	12
617:	14	13	12	17	8	6	13	4
625:	4	1	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	1	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	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	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: 01

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	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	1	0	1	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	1	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 10/27/15

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification: 1510089A-UU
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_041
Chamber Serial Number: 05026930A
Detector Serial Number: 91087
Env. Background: System Bkgd 132586
Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/27/2015 6:14:53 AM
Acquisition Date/Time: 10/27/2015 8:58:27 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: 0.1740 +/- 0.0100
Counting Efficiency: 0.1873 +/- 0.0033 on 10/25/2014 3:00:28 PM
Chem. Recovery Factor: 0.9287 +/- 0.0560

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	5.289	357.81	10.38	1.19	0.00E+000	27.0
U-234		4.759	4.32	102.62	0.68	0.00E+000	3.0
U-235		4.381	4.32	102.62	0.68	0.00E+000	3.0
U-238		4.095	-0.23	1605.4	3.23	0.00E+000	3.0

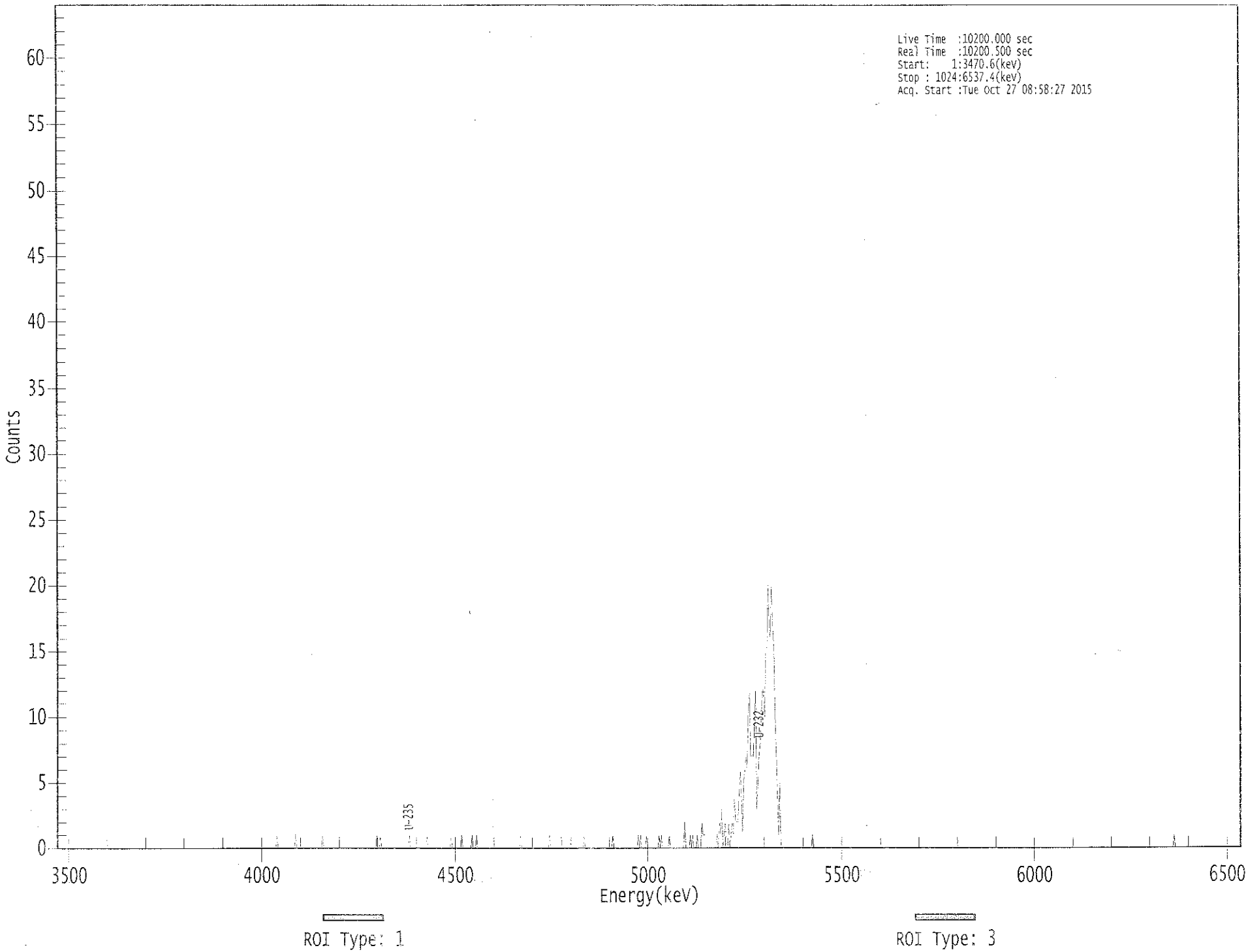
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.64E+000 +/- 4.12E-001	6.70E-002 +/- 7.59E-003
U-234	1.000	4761.50*	4.40E-002 +/- 4.54E-002	5.74E-002 +/- 6.50E-003
U-235	1.000	4385.50*	5.42E-002 +/- 5.60E-002	7.08E-002 +/- 8.01E-003
U-238	0.945	4184.40*	-2.33E-003 +/- 3.74E-002	9.22E-002 +/- 1.04E-002

AG 10/27/15

0000132398.CNF



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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0
401:	1	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	0	0	0	0
425:	0	1	0	0	0	0	0	0
433:	0	0	1	1	0	0	0	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	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	1	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	1	0
505:	1	0	0	0	0	1	0	0
513:	0	0	0	0	0	0	0	0
521:	1	0	1	0	0	0	0	0
529:	0	1	0	0	0	0	0	0
537:	0	0	0	0	0	0	2	0
545:	0	0	0	1	0	1	0	0
553:	0	1	0	0	0	2	1	1
561:	1	0	0	0	0	0	0	0
569:	0	0	1	0	2	1	3	0
577:	1	2	0	0	2	0	1	2
585:	1	4	2	2	2	4	6	4
593:	1	5	6	7	6	10	12	7
601:	7	7	9	12	3	5	7	8
609:	10	12	12	10	15	15	20	17
617:	16	20	17	15	10	7	4	1
625:	5	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	1	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: 02

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

Apex-Alpha™

Sample Description:	CP4104S13-14-DUP
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification:	1510089A-UU
Sample Identification:	03
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_042
Chamber Serial Number:	05026930B
Detector Serial Number:	84185
Env. Background:	System Bkgd 132587
Reagent Blank:	<not performed>
Sample Size:	1.518E+000 +/- 0.000E+000 gram
Sample Date/Time:	10/8/2015 6:14:53 AM
Acquisition Date/Time:	10/27/2015 8:58:28 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	U232_UU-10A
Tracer Quantity:	0.653 mL
Effective Efficiency:	0.1901 +/- 0.0106
Counting Efficiency:	0.1737 +/- 0.0030 on 10/25/2014 3:04:21 PM
Chem. Recovery Factor:	1.0943 +/- 0.0638
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	5.281	390.49	9.93	0.51	0.00E+000	9.8
U-234		4.741	91.49	20.56	0.51	0.00E+000	15.1
U-235		4.396	8.83	66.70	0.17	0.00E+000	3.0
U-238		4.150	118.32	18.08	0.68	0.00E+000	19.6

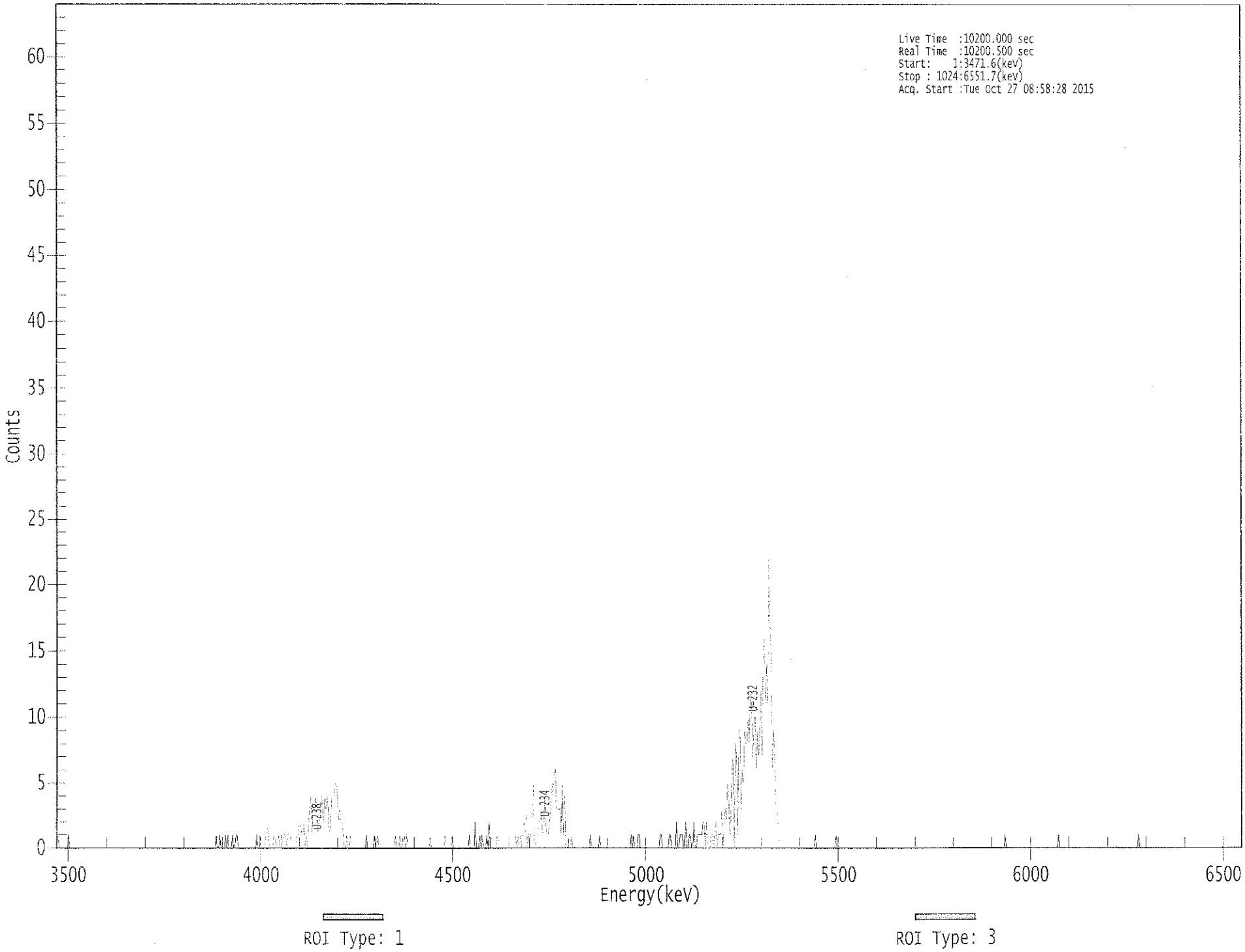
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	3.59E+000 +/- 3.92E-001	4.83E-002 +/- 5.27E-003
U-234	0.997	4761.50*	8.42E-001 +/- 1.96E-001	4.83E-002 +/- 5.26E-003
U-235	0.999	4385.50*	1.00E-001 +/- 6.77E-002	4.74E-002 +/- 5.16E-003
U-238	0.991	4184.40*	1.08E+000 +/- 2.29E-001	5.17E-002 +/- 5.63E-003

AG
10/27/15

0000132394.CNF



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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	1	0	2	0	0

Sample Title: 03

Channel								
377:	0	0	0	0	1	1	0	0
385:	0	0	0	0	0	0	0	1
393:	1	0	0	0	1	0	1	0
401:	1	0	1	2	1	3	0	1
409:	0	1	2	5	0	0	1	1
417:	2	2	3	1	1	4	2	1
425:	1	2	3	5	4	6	6	3
433:	3	3	3	1	5	1	4	0
441:	0	0	0	0	1	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	1	0	0	0
465:	0	0	0	0	1	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	1
497:	0	1	0	0	0	1	1	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	1	1	0	0	0	0	0	0
529:	1	1	0	0	0	0	2	0
537:	0	1	1	1	0	0	2	0
545:	0	1	1	0	0	2	0	0
553:	1	1	1	1	1	2	2	0
561:	2	0	0	0	1	1	0	1
569:	2	0	1	1	1	3	0	2
577:	3	2	5	4	1	2	6	7
585:	0	8	7	1	9	9	3	6
593:	5	9	8	8	10	8	12	11
601:	7	10	10	6	9	7	9	12
609:	7	15	16	11	14	11	23	17
617:	14	6	9	7	3	3	2	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	1	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	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: 03

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	1	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	1	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	1	0	0
937:	0	0	0	0	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 10/27/15

Sample Description: CP4104S13-14
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification: 1510089A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 132588
Reagent Blank: <not performed>

Sample Size: 1.518E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:14:53 AM
Acquisition Date/Time: 10/27/2015 8:58:30 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.653 mL
Effective Efficiency: 0.1095 +/- 0.0077
Counting Efficiency: 0.1998 +/- 0.0035 on 10/25/2014 3:08:45 PM
Chem. Recovery Factor: 0.5479 +/- 0.0399

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	225.15	13.09	0.85	0.00E+000	17.3
U-234		4.740	89.49	20.79	0.51	0.00E+000	4.8
U-235		4.436	6.49	80.40	0.51	0.00E+000	3.0
U-238		4.162	85.49	21.27	0.51	0.00E+000	3.9

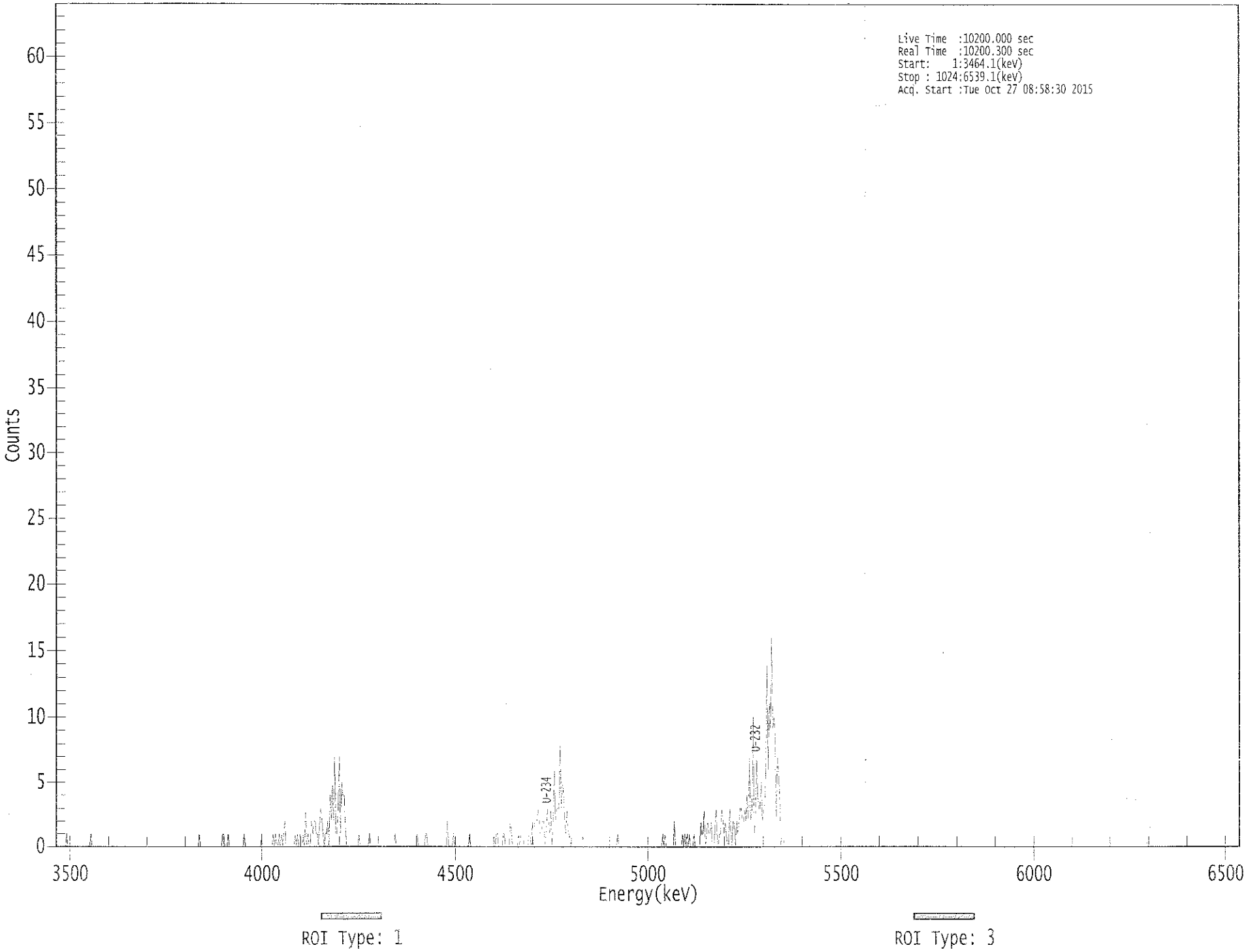
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	3.60E+000 +/- 4.98E-001	9.57E-002 +/- 1.33E-002
U-234	0.997	4761.50*	1.43E+000 +/- 3.57E-001	8.39E-002 +/- 1.16E-002
U-235	0.982	4385.50*	1.28E-001 +/- 1.04E-001	1.03E-001 +/- 1.43E-002
U-238	0.996	4184.40*	1.36E+000 +/- 3.45E-001	8.35E-002 +/- 1.16E-002

AG 10/27/15

0000132395.CNF



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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 04

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

801:	0	0	0	0	0	0	0	0

Sample Title: 04

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

Apex-Alpha™

KB 10/27/15

Sample Description: CP3005S04-05
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification: 1510089A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 132589
Reagent Blank: <not performed>

Sample Size: 1.519E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:14:53 AM
Acquisition Date/Time: 10/27/2015 8:58:32 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.653 mL
Effective Efficiency: 0.1585 +/- 0.0095
Counting Efficiency: 0.1837 +/- 0.0032 on 10/25/2014 3:13:11 PM
Chem. Recovery Factor: 0.8630 +/- 0.0540

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.292	325.66	10.87	0.34	0.00E+000	24.6
U-234		4.743	76.49	22.50	0.51	0.00E+000	9.0
U-235		4.362	7.00	79.20	0.00	0.00E+000	3.0
U-238		4.168	89.83	20.70	0.17	0.00E+000	5.0

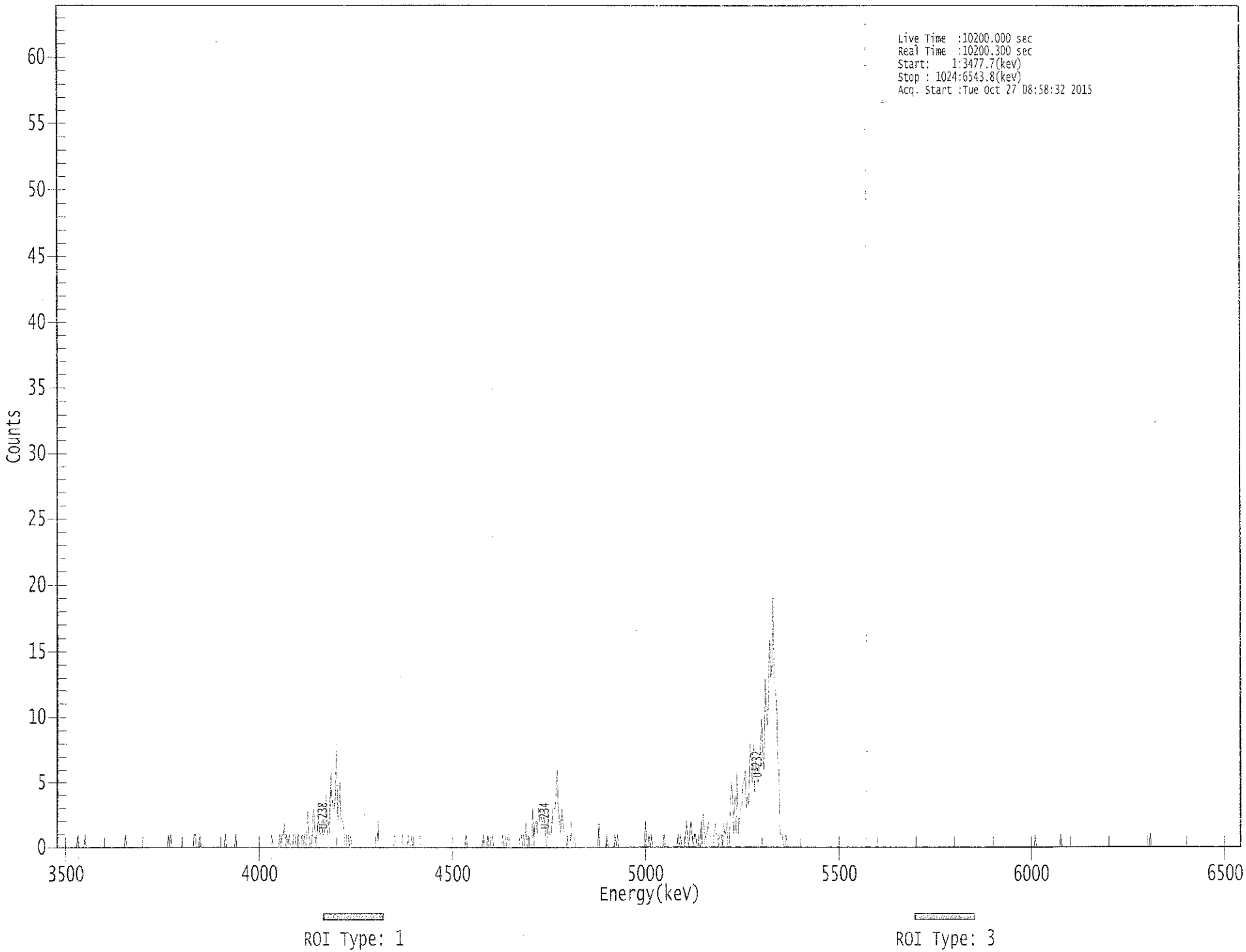
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	3.59E+000 +/- 4.23E-001	5.28E-002 +/- 6.21E-003
U-234	0.998	4761.50*	8.44E-001 +/- 2.14E-001	5.79E-002 +/- 6.81E-003
U-235	0.996	4385.50*	9.52E-002 +/- 7.62E-002	8.16E-002 +/- 9.60E-003
U-238	0.998	4184.40*	9.86E-001 +/- 2.35E-001	4.58E-002 +/- 5.39E-003

AG 10/27/15

0000132391.CNF



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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	1	0	0	0	0	0
25:	1	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	1	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	1	0	1	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	1
121:	0	0	0	1	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	1	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	0	0	0	0
185:	0	1	0	0	0	0	0	0
193:	1	0	1	1	2	0	1	0
201:	1	0	0	0	1	1	0	0
209:	1	0	0	1	0	1	0	0
217:	3	1	0	0	1	3	2	0
225:	1	3	1	1	2	1	1	2
233:	4	1	2	1	6	4	3	3
241:	4	8	2	3	5	2	2	2
249:	0	0	1	1	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	0	2	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	0	0	0	1
305:	0	0	1	0	0	0	0	0
313:	0	1	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	1	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	1	0	0	0	1	0	0	0

Sample Title: 05

Channel								
377:	1	0	0	0	0	0	0	0
385:	0	1	0	1	0	1	1	0
393:	0	0	0	0	0	0	0	0
401:	1	1	0	1	0	2	0	1
409:	0	0	0	3	0	2	2	1
417:	3	2	3	2	2	3	1	0
425:	3	1	1	1	3	3	3	4
433:	6	3	2	1	3	2	1	1
441:	0	1	0	0	2	0	0	1
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	2	0	0	0
473:	0	0	0	1	0	0	0	0
481:	0	0	1	0	1	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	2	0	0	1
513:	0	1	0	0	0	0	0	0
521:	0	0	0	0	1	0	0	0
529:	0	0	0	0	0	0	0	0
537:	1	0	1	0	0	0	0	2
545:	1	0	1	2	1	0	1	1
553:	0	0	1	0	2	0	3	0
561:	1	1	2	1	1	0	0	1
569:	2	1	1	0	1	1	0	2
577:	1	1	2	0	0	3	5	4
585:	1	4	1	6	1	2	3	3
593:	5	5	6	3	4	3	8	7
601:	5	8	4	7	5	5	7	8
609:	10	7	6	13	10	9	12	16
617:	13	14	19	12	12	11	7	6
625:	1	1	1	0	0	1	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	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: 05

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

XB 10/27/15

Sample Description: CP30055S07-08
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification: 1510089A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 132590
Reagent Blank: <not performed>

Sample Size: 1.551E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:14:53 AM
Acquisition Date/Time: 10/27/2015 8:58:33 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: 0.2025 +/- 0.0110
Counting Efficiency: 0.1760 +/- 0.0031 on 10/25/2014 3:16:42 PM
Chem. Recovery Factor: 1.1506 +/- 0.0656

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	5.304	415.32	9.63	0.68	0.00E+000	44.8
U-234		4.758	29.32	36.68	0.68	0.00E+000	3.5
U-235		4.421	3.66	107.87	0.34	0.00E+000	3.0
U-238		4.179	38.64	32.17	1.36	0.00E+000	5.5

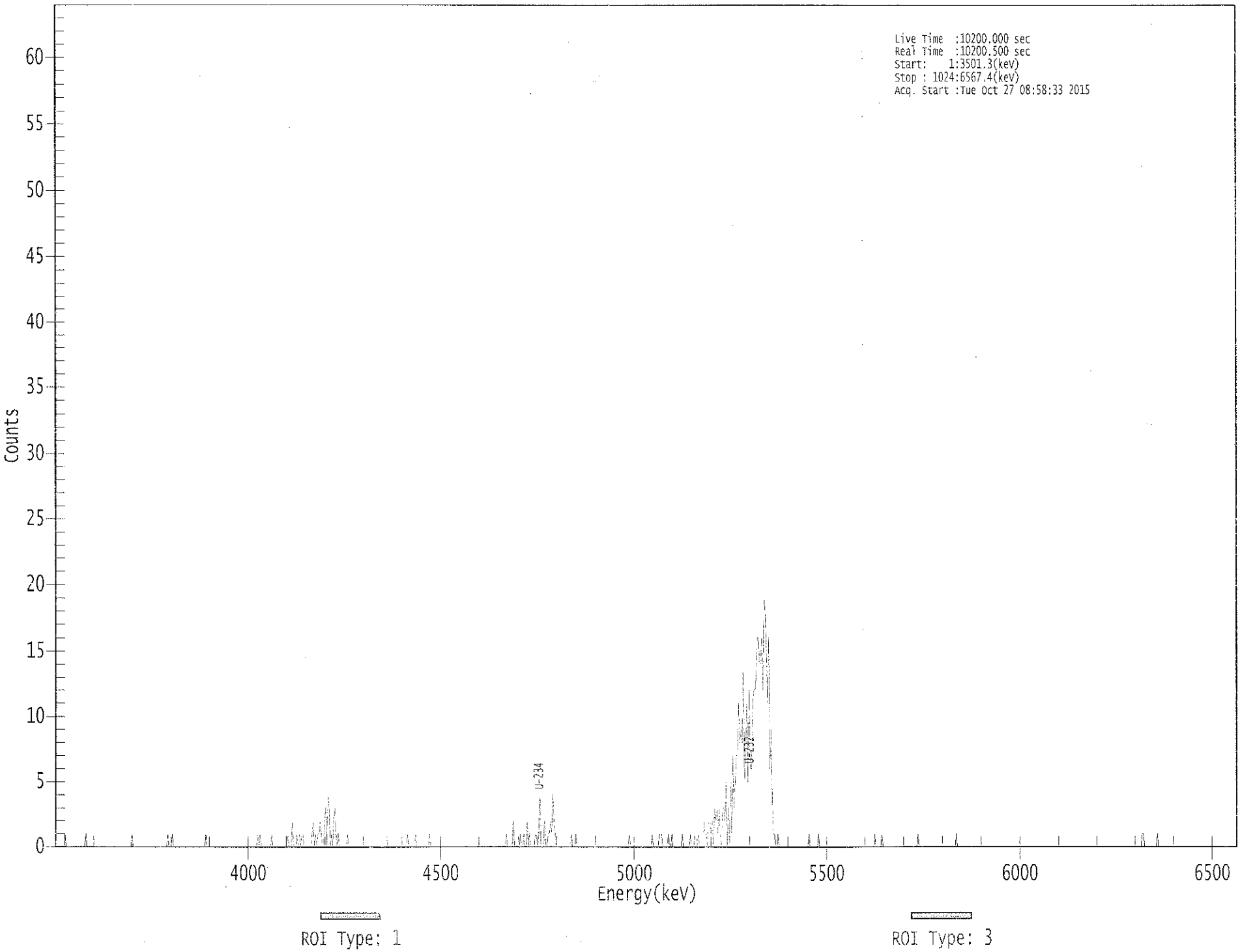
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	1.000	5302.50*	3.51E+000 +/- 3.73E-001	4.77E-002 +/- 5.07E-003
U-234	1.000	4761.50*	2.48E-001 +/- 9.47E-002	4.77E-002 +/- 5.07E-003
U-235	0.991	4385.50*	3.82E-002 +/- 4.14E-002	4.99E-002 +/- 5.30E-003
U-238	1.000	4184.40*	3.25E-001 +/- 1.10E-001	5.77E-002 +/- 6.13E-003

AG
10/27/15

0000132396.CNF



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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	0	0	0

Sample Title: 06

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	1	0
393:	0	0	0	0	2	0	0	0
401:	0	0	1	0	0	1	0	0
409:	2	0	1	0	0	0	0	1
417:	1	0	1	4	0	0	0	2
425:	0	0	1	1	2	1	4	2
433:	1	0	0	0	0	0	0	0
441:	0	0	0	0	0	0	1	0
449:	0	0	1	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	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	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	1	0	0	0
521:	0	0	1	1	1	0	0	0
529:	0	0	1	0	0	1	0	0
537:	0	0	0	0	0	0	1	0
545:	0	0	0	0	0	1	0	0
553:	0	1	1	0	1	0	0	0
561:	0	2	1	1	0	2	2	1
569:	2	0	3	2	3	1	3	1
577:	0	3	3	2	5	0	3	0
585:	5	1	7	3	5	7	7	11
593:	8	9	8	14	5	7	11	5
601:	12	6	6	11	12	12	13	16
609:	16	14	14	16	12	19	18	15
617:	11	16	6	9	4	1	1	0
625:	0	1	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	1	0	0	0
657:	0	0	0	0	1	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	1	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	0	0	0
745:	0	0	1	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

Sample Title: 06

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

Apex-Alpha™

Sample Description:	CP3005S12-13
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001323
Batch Identification:	1510089A-UU
Sample Identification:	07
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_046
Chamber Serial Number:	04026482B
Detector Serial Number:	58762
Env. Background:	System Bkgd 132591
Reagent Blank:	<not performed>
Sample Size:	1.514E+000 +/- 0.000E+000 gram
Sample Date/Time:	10/8/2015 6:14:53 AM
Acquisition Date/Time:	10/27/2015 8:58:35 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:	0.2033 +/- 0.0110
Counting Efficiency:	0.1776 +/- 0.0031 on 10/25/2014 3:20:08 PM
Chem. Recovery Factor:	1.1444 +/- 0.0652
Peak Match Tolerance:	0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.278	417.15	9.61	0.85	0.00E+000	5.3
U-234		4.728	44.32	29.70	0.68	0.00E+000	6.8
U-235		4.379	4.32	102.62	0.68	0.00E+000	6.0
U-238		4.159	56.15	26.39	0.85	0.00E+000	10.8

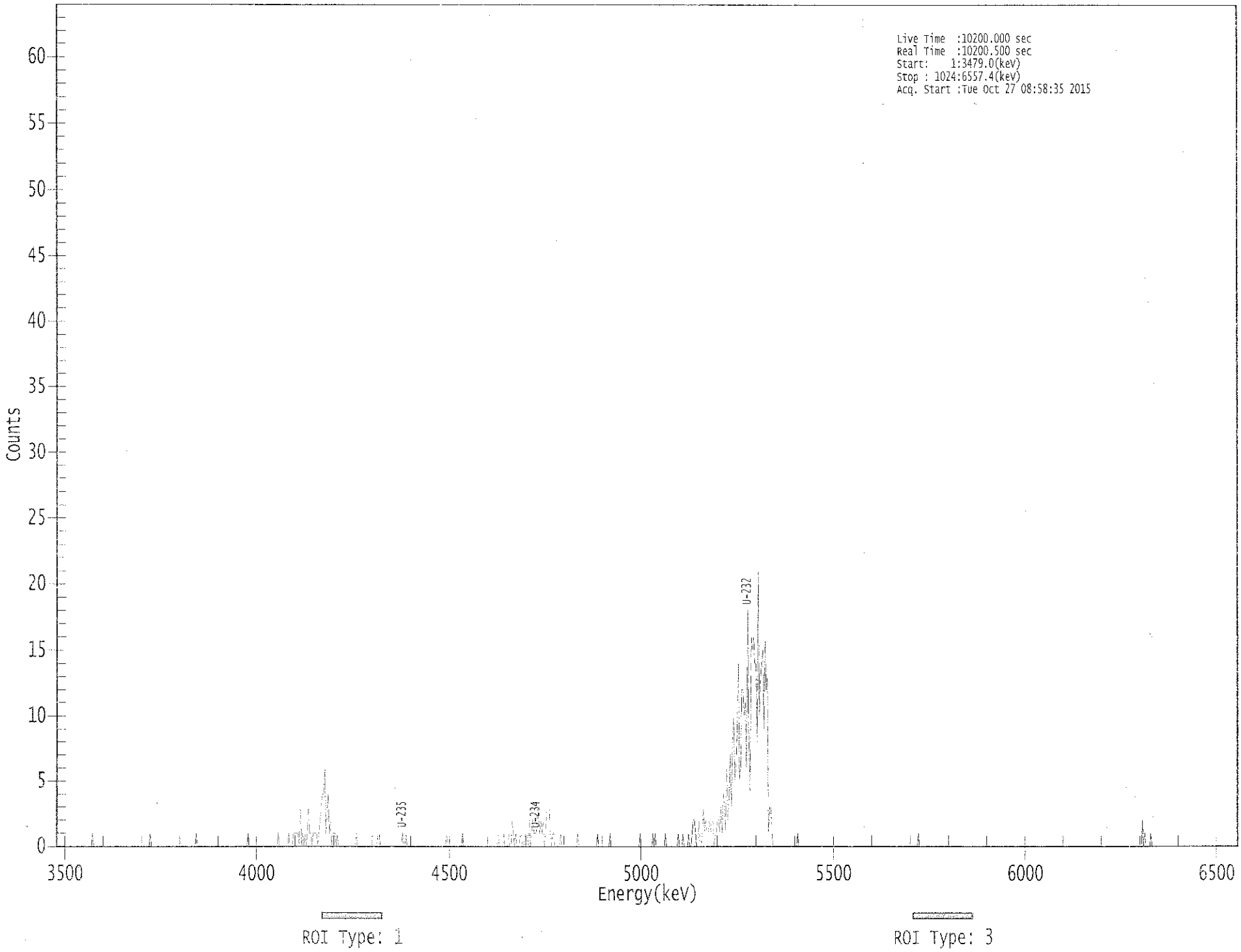
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	3.60E+000 +/- 3.82E-001	5.17E-002 +/- 5.49E-003
U-234	0.992	4761.50*	3.82E-001 +/- 1.21E-001	4.87E-002 +/- 5.17E-003
U-235	1.000	4385.50*	4.60E-002 +/- 4.74E-002	6.00E-002 +/- 6.37E-003
U-238	0.995	4184.40*	4.82E-001 +/- 1.37E-001	5.14E-002 +/- 5.46E-003

PG
10/27/15

0000132397.CNF



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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	1
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	1	0	0	0	0	0	0
89:	0	0	0	0	0	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	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	1	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:	1	0	0	0	0	0	0	0
201:	0	1	0	0	0	1	1	1
209:	1	1	0	3	0	1	0	1
217:	0	1	3	1	1	0	1	1
225:	1	1	0	1	2	3	4	4
233:	6	1	2	4	1	2	0	1
241:	1	1	0	1	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	1	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	1	1
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	1	0	0	1	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	1	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	1
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

Sample Title: 07

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

10/27/2015 5:31:14 AM

Apex-Alpha™

QA SUMMARY REPORT
Review Of QA Results - Pulser Check

Date : 10/27/2015
Time : 5:31:14 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	10/27/2015 5:14:08 AM
Alpha_004	21f	ALL	Passed	10/27/2015 5:14:09 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	10/27/2015 5:14:10 AM
Alpha_011	21f	ALL	Passed	10/27/2015 5:14:11 AM
Alpha_012	21f	ALL	Passed	10/27/2015 5:14:12 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	10/27/2015 5:14:12 AM
Alpha_015	21f	ALL	Passed	10/27/2015 5:14:13 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:15 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:16 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:18 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:19 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:21 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	10/27/2015 5:14:23 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:25 AM
Alpha_040	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:27 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:29 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:31 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:34 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:36 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:38 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:41 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:44 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:46 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:49 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:52 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:54 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:57 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:00 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:03 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:05 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:08 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:11 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:14 AM

Review of QA Results - Pulser Check

10/27/2015 5:31:14 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:17 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:19 AM

APPROVED BY: _____

APPROVAL DATE: 10/27

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

Nuclide Library Title: Uranium

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

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

* = key line

TOTALS: 4 Nuclides 4 Energy Lines

SECTION IX

ANALYTICAL DATA (ISOTOPIC THORIUM)

15-10089
ThISO
Run 1

Work Order	15-10089
Analysis Code	ThISO
Run	1
Date Received	10/14/2015
Lab Deadline	11/5/2015
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML Th-01 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		10/15/15 00:00	1.0000E+00
02	MBL	BLANK		10/15/15 00:00	1.5000E+00
03	DUP	CP4104S13-14	35	10/08/15 10:10	1.5035E+00
04	DO	CP4104S13-14	35	10/08/15 10:10	1.5224E+00
05	TRG	CP3005S04-05	33	10/08/15 15:00	1.5210E+00
06	TRG	CP3005S07-08	38	10/08/15 15:10	1.5534E+00
07	TRG	CP3005S12-13	32	10/08/15 15:20	1.5251E+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.

15-10089
ThISO
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.4491	10.1		0.00								
02	MBL	0.2221	5.0		0.00								
03	DUP	0.2218	5.0		0.00								
04	DO	0.2223	5.0		0.00								
05	TRG	0.2243	5.0		0.00								
06	TRG	0.2235	5.0		0.00								
07	TRG	0.2230	5.0		0.00								

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

15-10089
ThISO
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			10/20/15 08:48	JPACHELLA				
02	MBL			10/20/15 08:48	JPACHELLA				
03	DUP			10/20/15 08:48	JPACHELLA				
04	DO	10/19/15 10:41	KSALLINGS	10/20/15 08:48	JPACHELLA				
05	TRG	10/19/15 10:41	KSALLINGS	10/20/15 08:48	JPACHELLA				
06	TRG	10/19/15 10:41	KSALLINGS	10/20/15 08:48	JPACHELLA				
07	TRG	10/19/15 10:41	KSALLINGS	10/20/15 08:48	JPACHELLA				

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

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.14E+00	7.99E-01	8.78E-02	4.71E+00	109.15	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	3.09E-03	2.00E-02	5.44E-02					OK	OK
03	TH-228	DUP	CP4104S13-14	pCi/g	1.02E+00	2.47E-01	6.30E-02				OK	OK	
04	TH-228	DO	CP4104S13-14	pCi/g	1.29E+00	3.05E-01	6.62E-02					OK	
05	TH-228	TRG	CP3005S04-05	pCi/g	2.86E-01	1.68E-01	1.21E-01					OK	
06	TH-228	TRG	CP3005S07-08	pCi/g	2.52E-01	1.05E-01	5.56E-02					OK	
07	TH-228	TRG	CP3005S12-13	pCi/g	6.03E-01	1.90E-01	6.32E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client	Eberline Services Work Order	Analysis Code	Run
Auxier & Associates, Inc.	15-10089	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-228	LCS	10/15/15 00:00	1.00E+00	103.65	0.00	0.00			
02	TH-228	MBL	10/15/15 00:00	1.50E+00	99.82	0.00	0.00			
03	TH-228	DUP	10/08/15 10:10	1.50E+00	119.07	0.00	0.00			
04	TH-228	DO	10/08/15 10:10	1.52E+00	107.32	0.00	0.00			
05	TH-228	TRG	10/08/15 15:00	1.52E+00	53.29	0.00	0.00			
06	TH-228	TRG	10/08/15 15:10	1.55E+00	110.11	0.00	0.00			
07	TH-228	TRG	10/08/15 15:20	1.53E+00	110.10	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	10/27/15 11:55		A_Spec	Alpha_043	170	4.02 E+02	8.00 E-03	20
02	TH-228	MBL	10/27/15 11:55		A_Spec	Alpha_044	170	3.20 E-01	4.00 E-03	18.4
03	TH-228	DUP	10/27/15 11:55		A_Spec	Alpha_045	170	1.19 E+02	1.00 E-02	17.6
04	TH-228	DO	10/27/15 11:55		A_Spec	Alpha_046	170	1.38 E+02	9.00 E-03	17.8
05	TH-228	TRG	10/27/15 11:55		A_Spec	Alpha_047	170	1.41 E+01	5.00 E-03	16.5
06	TH-228	TRG	10/27/15 11:55		A_Spec	Alpha_048	170	2.71 E+01	5.00 E-03	17
07	TH-228	TRG	10/27/15 11:56		A_Spec	Alpha_049	170	5.72 E+01	5.00 E-03	15.3

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	5.93E+00	8.96E-01	6.73E-02	5.34E+00	111.06	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	4.73E-03	1.97E-02	5.06E-02					OK	OK
03	TH-230	DUP	CP4104S13-14	pCi/g	9.87E-01	2.39E-01	5.04E-02				INV	OK	
04	TH-230	DO	CP4104S13-14	pCi/g	1.30E+00	3.05E-01	6.03E-02					OK	
05	TH-230	TRG	CP3005S04-05	pCi/g	8.30E-01	3.19E-01	8.28E-02					OK	
06	TH-230	TRG	CP3005S07-08	pCi/g	4.24E-01	1.42E-01	4.79E-02					OK	
07	TH-230	TRG	CP3005S12-13	pCi/g	7.15E-01	2.11E-01	6.21E-02					OK	

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	10/15/15 00:00	1.00E+00	103.65	0.00	0.00			
02	TH-230	MBL	10/15/15 00:00	1.50E+00	99.82	0.00	0.00			
03	TH-230	DUP	10/08/15 10:10	1.50E+00	119.07	0.00	0.00			
04	TH-230	DO	10/08/15 10:10	1.52E+00	107.32	0.00	0.00			
05	TH-230	TRG	10/08/15 15:00	1.52E+00	53.29	0.00	0.00			
06	TH-230	TRG	10/08/15 15:10	1.55E+00	110.11	0.00	0.00			
07	TH-230	TRG	10/08/15 15:20	1.53E+00	110.10	0.00	0.00			

Client	Eberline Services Work Order	Analysis Code	Run
Auxier & Associates, Inc.	15-10089	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	10/27/15 11:55		A_Spec	Alpha_043	170	4.62 E+02	3.00 E-03	20
02	TH-230	MBL	10/27/15 11:55		A_Spec	Alpha_044	170	4.90 E-01	3.00 E-03	18.4
03	TH-230	DUP	10/27/15 11:55		A_Spec	Alpha_045	170	1.17 E+02	5.00 E-03	17.6
04	TH-230	DO	10/27/15 11:55		A_Spec	Alpha_046	170	1.42 E+02	7.00 E-03	17.8
05	TH-230	TRG	10/27/15 11:55		A_Spec	Alpha_047	170	4.18 E+01	1.00 E-03	16.5
06	TH-230	TRG	10/27/15 11:55		A_Spec	Alpha_048	170	4.65 E+01	3.00 E-03	17
07	TH-230	TRG	10/27/15 11:56		A_Spec	Alpha_049	170	6.90 E+01	0.00 E+00	15.3

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	5.11E+00	7.94E-01	7.22E-02	4.71E+00	108.43	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	3.36E-02	3.86E-02	5.06E-02					OK	OK
03	TH-232	DUP	CP4104S13-14	pCi/g	1.09E+00	2.58E-01	7.36E-02				OK	OK	
04	TH-232	DO	CP4104S13-14	pCi/g	1.22E+00	2.91E-01	6.49E-02					OK	
05	TH-232	TRG	CP3005S04-05	pCi/g	2.21E-01	1.45E-01	1.19E-01					OK	
06	TH-232	TRG	CP3005S07-08	pCi/g	2.64E-01	1.08E-01	5.74E-02					OK	
07	TH-232	TRG	CP3005S12-13	pCi/g	6.12E-01	1.90E-01	6.19E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client: Auxier & Associates, Inc.
Eberline Services Work Order: 15-10089
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-232	LCS	10/15/15 00:00	1.00E+00	103.65	0.00	0.00			
02	TH-232	MBL	10/15/15 00:00	1.50E+00	99.82	0.00	0.00			
03	TH-232	DUP	10/08/15 10:10	1.50E+00	119.07	0.00	0.00			
04	TH-232	DO	10/08/15 10:10	1.52E+00	107.32	0.00	0.00			
05	TH-232	TRG	10/08/15 15:00	1.52E+00	53.29	0.00	0.00			
06	TH-232	TRG	10/08/15 15:10	1.55E+00	110.11	0.00	0.00			
07	TH-232	TRG	10/08/15 15:20	1.53E+00	110.10	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-ThISO-1

Client	Eberline Services Work Order	Analysis Code	Run
Auxier & Associates, Inc.	15-10089	ThISO	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	10/27/15 11:55		A_Spec	Alpha_043	170	3.99 E+02	4.00 E-03	20
02	TH-232	MBL	10/27/15 11:55		A_Spec	Alpha_044	170	3.49 E+00	3.00 E-03	18.4
03	TH-232	DUP	10/27/15 11:55		A_Spec	Alpha_045	170	1.30 E+02	1.70 E-02	17.6
04	TH-232	DO	10/27/15 11:55		A_Spec	Alpha_046	170	1.33 E+02	9.00 E-03	17.8
05	TH-232	TRG	10/27/15 11:55		A_Spec	Alpha_047	170	1.11 E+01	5.00 E-03	16.5
06	TH-232	TRG	10/27/15 11:55		A_Spec	Alpha_048	170	2.90 E+01	6.00 E-03	17
07	TH-232	TRG	10/27/15 11:56		A_Spec	Alpha_049	170	5.92 E+01	5.00 E-03	15.3

Count Room Report
Client: Auxier Associates, Inc.

15-10089-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	0.4491	10.0868		0.00		
02	MBL	BLANK	10/15/15 00:00	1.5000	0.2221	4.9884		0.00		
03	DUP	CP4104S13-14	10/08/15 10:10	1.5035	0.2218	4.9816		0.00		
04	DO	CP4104S13-14	10/08/15 10:10	1.5224	0.2223	4.9929		0.00		
05	TRG	CP3005S04-05	10/08/15 15:00	1.5210	0.2243	5.0378		0.00		
06	TRG	CP3005S07-08	10/08/15 15:10	1.5534	0.2235	5.0198		0.00		
07	TRG	CP3005S12-13	10/08/15 15:20	1.5251	0.2230	5.0086		0.00		

Spike and Tracer Worksheet

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
15-10089	1	ThISO	10/20/2015 8:43	JPACHELLA		

LCS & Matrix Spikes

Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	LCS Volume Used (g)	MS Volume Used (g)	LCSD Volume Used (g)	MSD Volume Used (g)	LCS Known pCi	LCS Error Estimate	MS Added pCi	MS Error Estimate	LCSD Known pCi	LCSD Error Estimate	MSD Added pCi	MSD Error Estimate
Th-228	Th-8b	103.560	10/20/2015	0.100	0.1010				4.71	0.170	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.520	10/20/2015	0.500	0.5038				5.34	0.144	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	10/20/2015	0.100	0.1010				4.71	0.170	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	Th-229	Th-18a	22.460	10/20/2015	0.4491	0.2200
02	Th-229	Th-18a	22.460	10/20/2015	0.2221	0.2200
03	Th-229	Th-18a	22.460	10/20/2015	0.2218	0.2200
04	Th-229	Th-18a	22.460	10/20/2015	0.2223	0.2200
05	Th-229	Th-18a	22.460	10/20/2015	0.2243	0.2200
06	Th-229	Th-18a	22.460	10/20/2015	0.2235	0.2200
07	Th-229	Th-18a	22.460	10/20/2015	0.2230	0.2200

Balance Printer Tapes

Tracer	LCS

Matrix Spike

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 10/20/2015 8:32 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-10089	1	ThISO	grams	11/5/2015	JPACHELLA

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.5000E+00	1.5000E+00				
03	CP4104S13-14	DUP					1.5035E+00	1.5035E+00				
04	CP4104S13-14	DO					1.5224E+00	1.5224E+00				
05	CP3005S04-05	TRG					1.5210E+00	1.5210E+00				
06	CP3005S07-08	TRG					1.5534E+00	1.5534E+00				
07	CP3005S12-13	TRG					1.5251E+00	1.5251E+00				

Comments	

15T1089

Technician: JPachella Date: 10/20/15

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

Rough Sample Preparation Log Book

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
15-10089	11/5/2015	10/18/2015	10/19/2015	10/20/2015	KSALLINGS

Eberline	Auxier & Associates, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special Info
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	
04	CP4104S13-14	14.1300	956.4600	725.8900	942.3300	711.7600	24.47%	75.53%	0.0000	0.0000	
05	CP3005S04-05	14.1600	832.0600	795.2500	817.9000	781.0900	4.50%	95.50%	0.0000	0.0000	
06	CP3005S07-08	14.1400	773.4900	708.5700	759.3500	694.4300	8.55%	91.45%	0.0000	0.0000	
07	CP3005S12-13	14.1000	1079.4600	906.3200	1065.3600	892.2200	16.25%	83.75%	0.0000	0.0000	

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

: 00132

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

YD 10/27/15

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification: 1510089A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 132588
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/27/2015 6:27:06 AM
Acquisition Date/Time: 10/27/2015 11:55:17 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.449 mL
Effective Efficiency: 0.2071 +/- 0.0127
Counting Efficiency: 0.1998 +/- 0.0035 on 10/25/2014 3:08:45 PM
Chem. Recovery Factor: 1.0365 +/- 0.0662

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.084334 +/- 0.091969
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		5.789	16.32	49.69	0.68	0.00E+000	3.0
TH-228		5.371	401.64	9.80	1.36	0.00E+000	29.4
TH-229	T	4.873	355.15	10.41	0.85	0.00E+000	4.5
TH-230		4.630	462.49	9.12	0.51	0.00E+000	23.4
TH-232		3.955	399.32	9.82	0.68	0.00E+000	18.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.980	5850.00*	2.14E-001 +/- 1.09E-001	7.40E-002 +/- 8.92E-003
TH-228	0.996	5400.00*	5.14E+000 +/- 7.99E-001	8.78E-002 +/- 1.06E-002
TH-229	1.000	4872.00*	4.57E+000 +/- 5.51E-001	7.70E-002 +/- 9.28E-003
TH-230	0.991	4672.00*	5.93E+000 +/- 8.96E-001	6.73E-002 +/- 8.11E-003
TH-232	0.991	3997.00*	5.11E+000 +/- 7.94E-001	7.22E-002 +/- 8.70E-003

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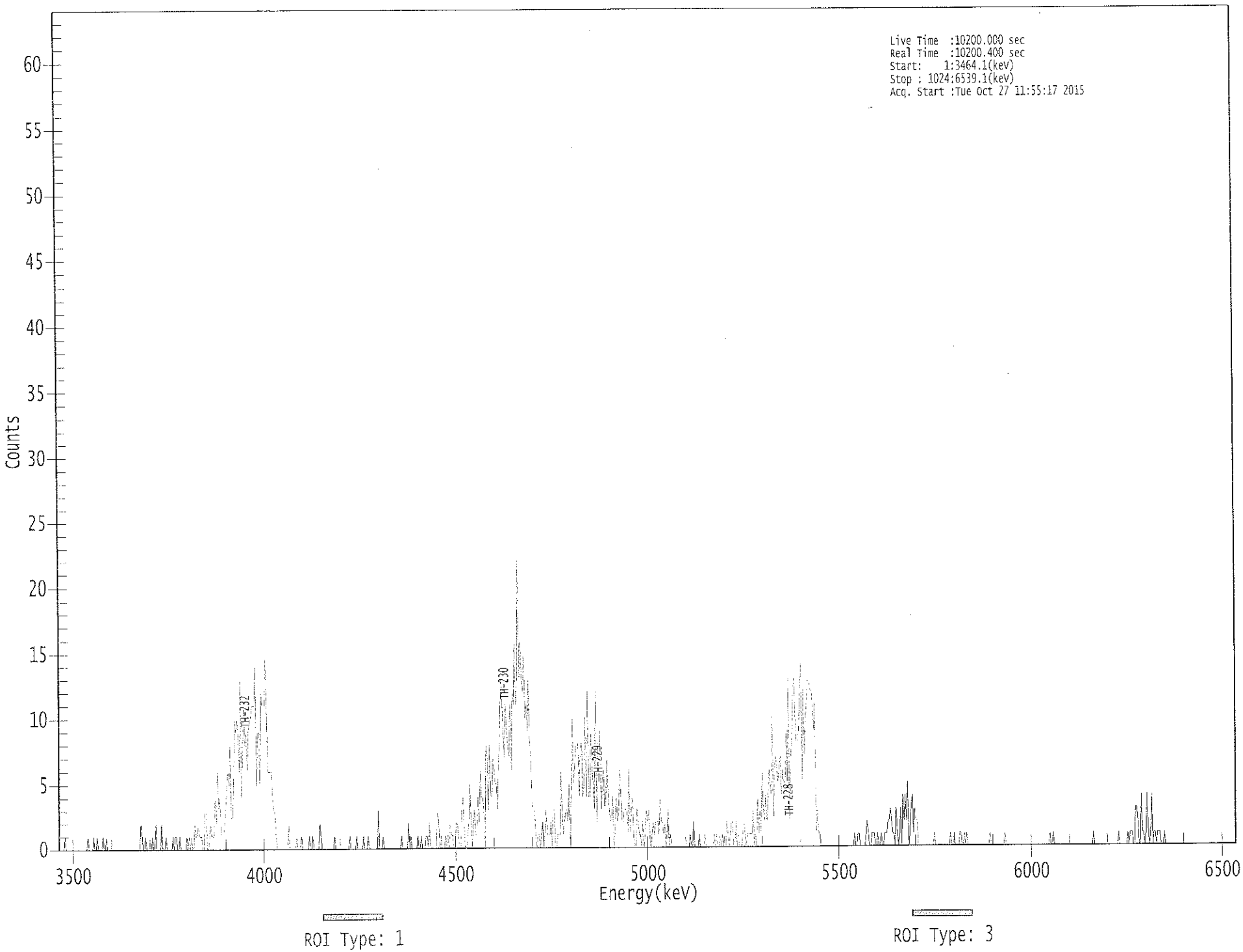
0000132429.CNF



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

Sample Title: 01

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	4	3	0	8	7	3	8	4

Sample Title: 01

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

801:	0	0	0	0	0	0	0	0

Sample Title: 01

Channel								
809:	1	0	0	0	0	0	0	0
817:	0	0	0	0	0	1	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	1	0	0	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	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:	1	0	0	0	0	0	0	0
929:	1	0	1	1	1	0	0	3
937:	3	2	0	0	4	1	1	0
945:	1	4	1	0	1	4	0	1
953:	1	0	1	1	1	0	0	0
961:	1	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

BD 10/27/15

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification: 1510089A-TH
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 132589
Reagent Blank: <not performed>

Sample Size: 1.500E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/27/2015 6:27:06 AM
Acquisition Date/Time: 10/27/2015 11:55:19 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.222 mL
Effective Efficiency: 0.1833 +/- 0.0158
Counting Efficiency: 0.1837 +/- 0.0032 on 10/25/2014 3:13:11 PM
Chem. Recovery Factor: 0.9982 +/- 0.0877

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	2.66	128.85	0.34	0.00E+000	3.0
TH-228		5.255	0.32	646.93	0.68	0.00E+000	3.0
TH-229	T	4.884	155.49	15.75	0.51	0.00E+000	4.5
TH-230		4.515	0.49	416.98	0.51	0.00E+000	3.0
TH-232		3.900	3.49	113.53	0.51	0.00E+000	3.0

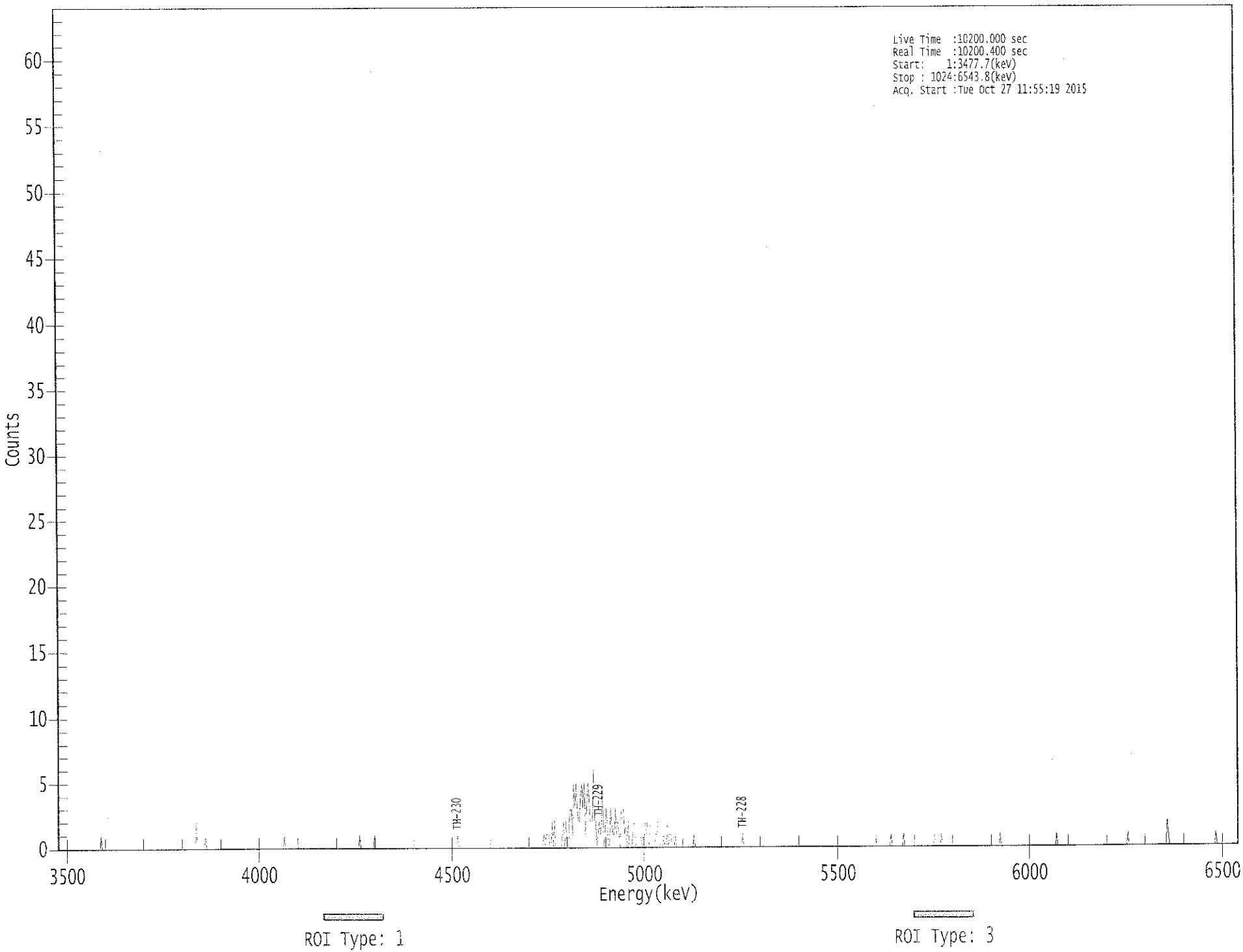
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	2.63E-002 +/- 3.42E-002	4.72E-002 +/- 7.97E-003
TH-228	0.896	5400.00*	3.09E-003 +/- 2.00E-002	5.44E-002 +/- 9.18E-003
TH-229	0.999	4872.00*	1.51E+000 +/- 2.54E-001	5.08E-002 +/- 8.57E-003
TH-230	0.879	4672.00*	4.73E-003 +/- 1.97E-002	5.06E-002 +/- 8.55E-003
TH-232	0.952	3997.00*	3.36E-002 +/- 3.86E-002	5.06E-002 +/- 8.53E-003

AG 10/28/15

0000132430.CNF



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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	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	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	2	0	0	0	0	0	0	0
129:	1	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	1	0	0	0
201:	0	0	0	0	0	0	0	0
209:	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	1	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	1	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0
401:	0	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	0	1	0	1
425:	1	1	0	0	2	0	2	0
433:	0	0	0	0	0	1	2	0
441:	2	0	0	2	3	3	1	5
449:	3	5	3	2	2	4	5	3
457:	5	1	3	5	4	2	2	2
465:	6	2	2	0	1	2	1	2
473:	5	0	1	3	2	0	0	3
481:	2	1	1	3	1	2	1	0
489:	3	2	3	1	2	0	2	0
497:	0	0	1	2	1	0	0	0
505:	0	1	0	1	0	2	1	2
513:	0	2	0	0	0	0	1	1
521:	2	1	0	0	0	1	0	0
529:	2	0	1	1	0	0	0	1
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	1
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	1	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	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	1	0	0	0	0	0	0
729:	0	0	0	0	1	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	1
761:	0	0	0	0	0	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: 02

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

KB 10/27/15

Apex-Alpha™

Sample Description: CP4104S13-14-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification: 1510089A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 132590
Reagent Blank: <not performed>

Sample Size: 1.503E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:27:06 AM
Acquisition Date/Time: 10/27/2015 11:55:21 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.222 mL
Effective Efficiency: 0.2096 +/- 0.0170
Counting Efficiency: 0.1760 +/- 0.0031 on 10/25/2014 3:16:42 PM
Chem. Recovery Factor: 1.1907 +/- 0.0991

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		5.834	10.98	62.28	1.02	0.00E+000	3.0
TH-228		5.371	119.30	18.09	1.70	0.00E+000	17.9
TH-229	T	4.889	177.49	14.74	0.51	0.00E+000	3.8
TH-230		4.631	117.15	18.19	0.85	0.00E+000	16.9
TH-232		3.967	130.11	17.40	2.89	0.00E+000	7.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	9.49E-002 +/- 6.10E-002	5.44E-002 +/- 8.68E-003
TH-228	0.996	5400.00*	1.02E+000 +/- 2.47E-001	6.30E-002 +/- 1.00E-002
TH-229	0.999	4872.00*	1.50E+000 +/- 2.39E-001	4.43E-002 +/- 7.07E-003
TH-230	0.991	4672.00*	9.87E-001 +/- 2.39E-001	5.04E-002 +/- 8.04E-003
TH-232	0.995	3997.00*	1.09E+000 +/- 2.58E-001	7.36E-002 +/- 1.17E-002

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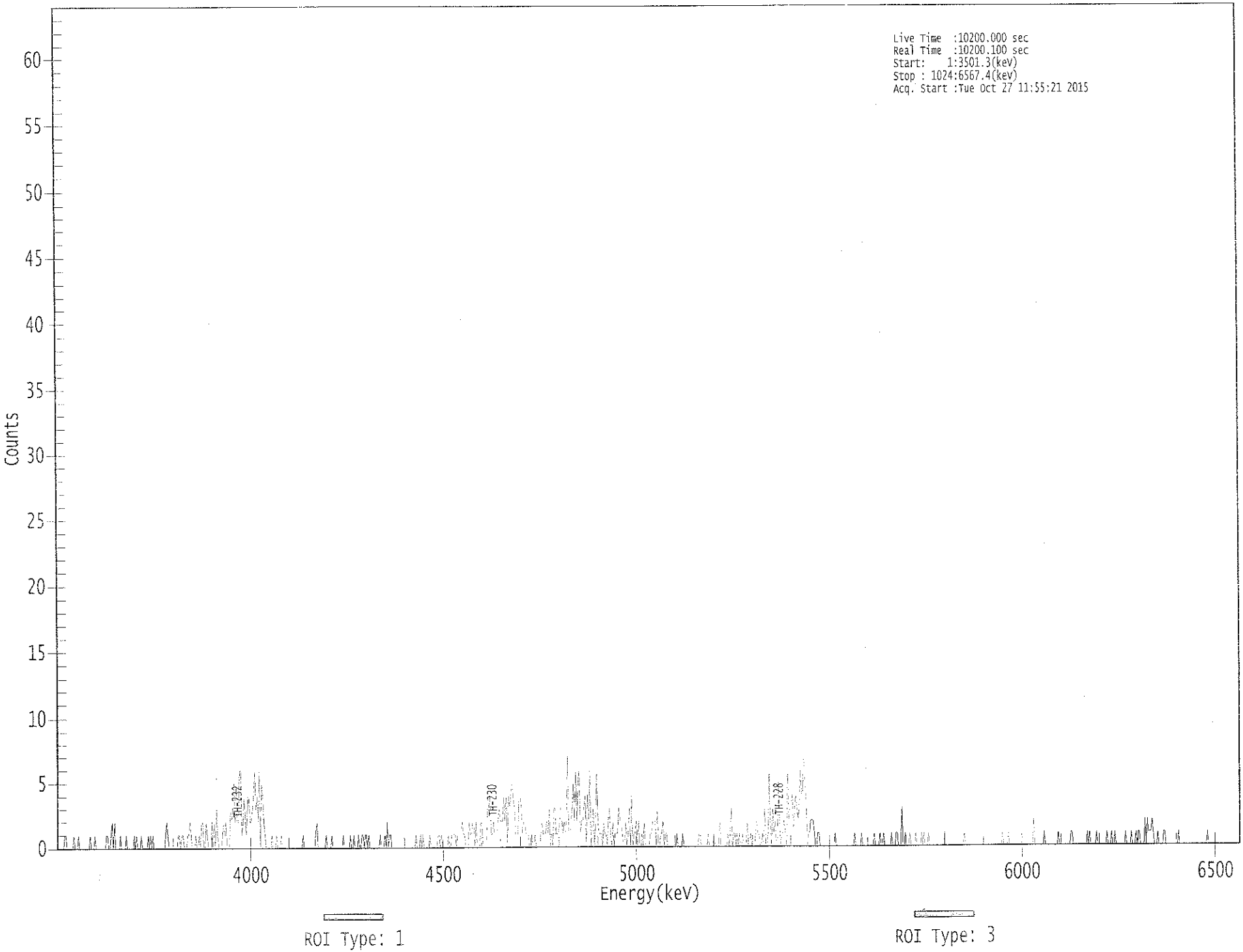
0000132427.CNF



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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	4	3	4	1

Sample Title: 03

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

801:	0	0	0	0	0	0	0	0

Sample Title: 03

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	1	0	0	0	0	1	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	2	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	0
873:	0	0	0	0	1	1	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	1	0	1	0	0	0
897:	0	0	1	0	0	0	0	0
905:	0	0	0	1	0	0	0	1
913:	0	0	1	0	0	0	0	0
921:	0	0	0	1	0	0	0	0
929:	1	0	0	0	1	0	1	1
937:	0	0	0	0	2	0	2	1
945:	1	1	2	1	0	0	0	1
953:	0	0	0	0	1	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	1	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	1	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™

KCB 10/27/15

Sample Description: CP4104S13-14
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification: 1510089A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 132591
Reagent Blank: <not performed>

Sample Size: 1.522E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:27:06 AM
Acquisition Date/Time: 10/27/2015 11:55:23 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.222 mL
Effective Efficiency: 0.1906 +/- 0.0162
Counting Efficiency: 0.1776 +/- 0.0031 on 10/25/2014 3:20:08 PM
Chem. Recovery Factor: 1.0732 +/- 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		5.781	13.47	56.84	1.53	0.00E+000	4.5
TH-228		5.367	138.47	16.76	1.53	0.00E+000	4.5
TH-229	T	4.858	161.79	15.53	2.21	0.00E+000	4.5
TH-230		4.625	141.81	16.54	1.19	0.00E+000	5.0
TH-232		3.952	133.47	17.08	1.53	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	0.976	5850.00*	1.26E-001 +/- 7.49E-002	6.67E-002 +/- 1.11E-002
TH-228	0.994	5400.00*	1.29E+000 +/- 3.05E-001	6.62E-002 +/- 1.10E-002
TH-229	0.999	4872.00*	1.48E+000 +/- 2.48E-001	7.34E-002 +/- 1.22E-002
TH-230	0.989	4672.00*	1.30E+000 +/- 3.05E-001	6.03E-002 +/- 1.01E-002
TH-232	0.989	3997.00*	1.22E+000 +/- 2.91E-001	6.49E-002 +/- 1.08E-002

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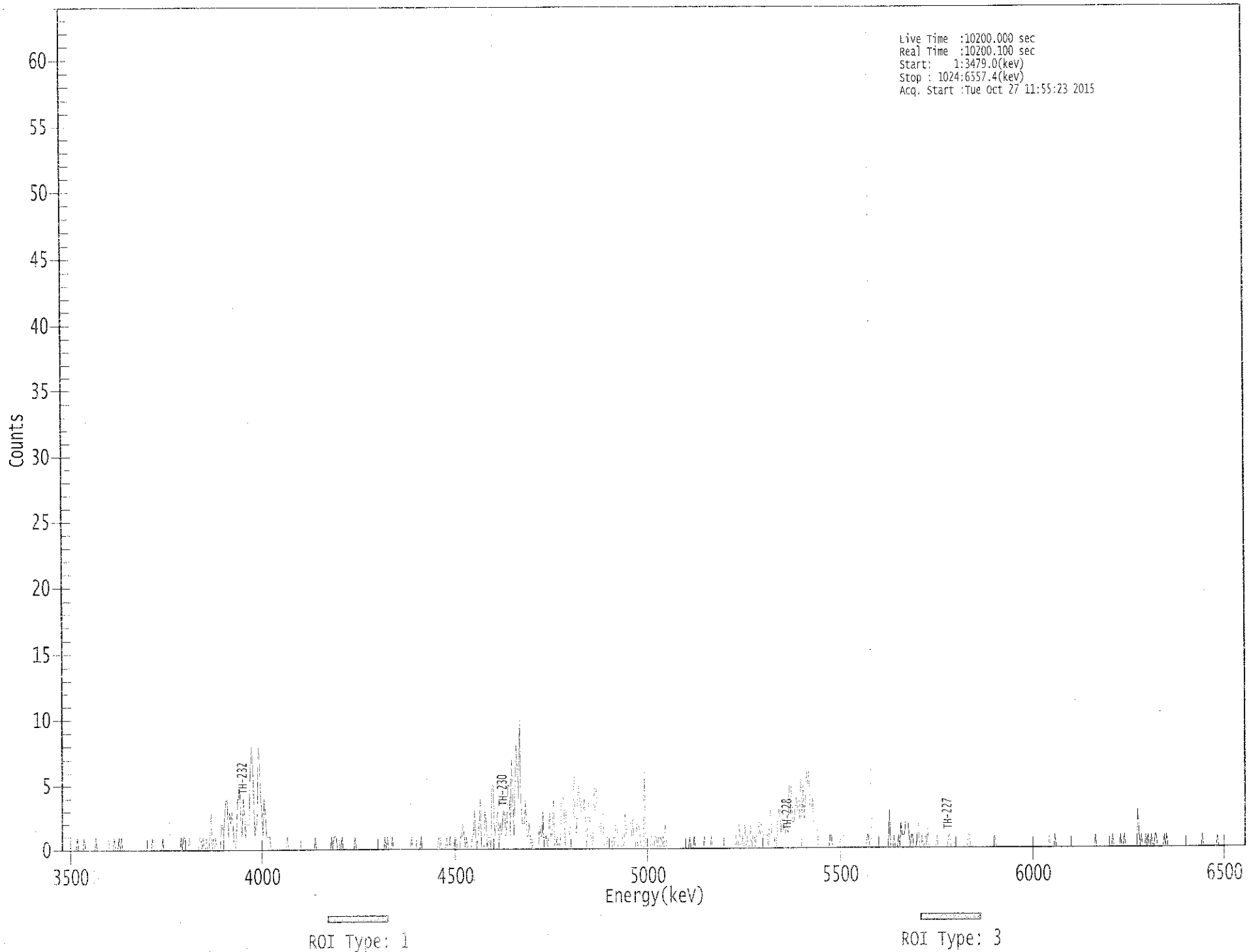
0000132428.CNF



GT06

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	1	0	5	5	2	1	2

Sample Title: 04

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

801:	0	0	0	0	0	1	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	1	0	0	0
857:	0	1	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	1	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	1	0	0	0	0
913:	0	0	1	0	0	1	0	0
921:	0	0	0	0	0	0	0	0
929:	0	3	1	0	1	0	0	0
937:	1	0	1	0	0	1	0	0
945:	1	1	0	0	0	0	0	0
953:	1	0	1	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	1	0	0	0	0	0	0
993:	0	0	0	0	0	0	1	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

Sample Description:	CP3005S04-05
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification:	1510089A-TH
Sample Identification:	05
Sample Geometry:	Shelf 2
Procedure Description:	Th iso
Detector Name:	Alpha_047
Chamber Serial Number:	02030596A
Detector Serial Number:	91086
Env. Background:	System Bkgd 132592
Reagent Blank:	<not performed>
Sample Size:	1.521E+000 +/- 0.000E+000 gram
Sample Date/Time:	10/8/2015 6:27:06 AM
Acquisition Date/Time:	10/27/2015 11:55:25 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	Th229_S_TH-18A
Tracer Quantity:	0.224 mL
Effective Efficiency:	0.0879 +/- 0.0105
Counting Efficiency:	0.1650 +/- 0.0029 on 10/25/2014 3:23:35 PM
Chem. Recovery Factor:	0.5329 +/- 0.0646
Peak Match Tolerance:	0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.764	5.83	82.55	0.17	0.00E+000	3.0
TH-228		5.390	14.15	53.90	0.85	0.00E+000	5.9
TH-229	T	4.888	75.32	22.70	0.68	0.00E+000	5.9
TH-230		4.629	41.83	30.38	0.17	0.00E+000	8.2
TH-232		3.951	11.15	61.26	0.85	0.00E+000	3.0

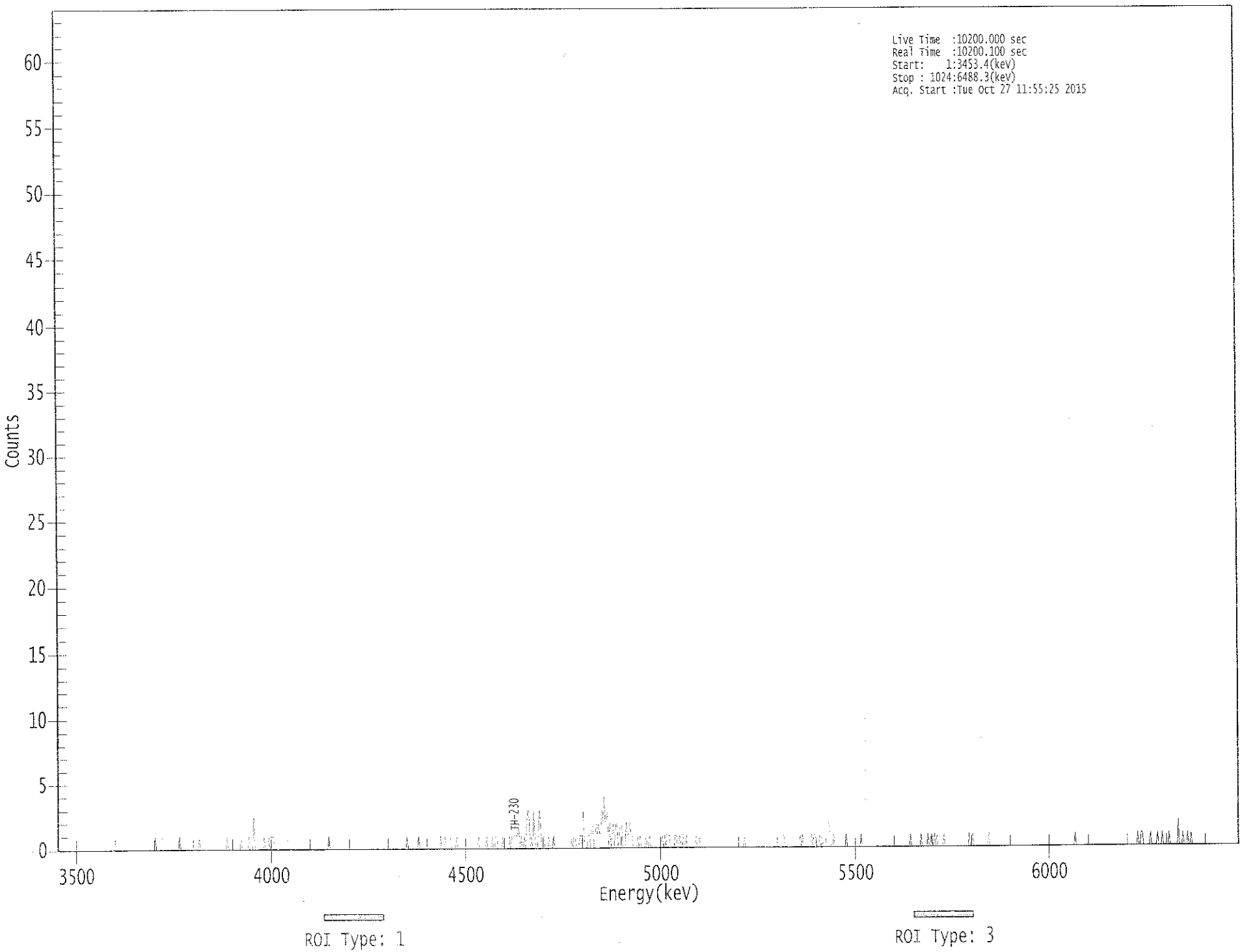
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.962	5850.00*	1.19E-001 +/- 1.02E-001	8.49E-002 +/- 2.00E-002
TH-228	0.999	5400.00*	2.86E-001 +/- 1.68E-001	1.21E-001 +/- 2.84E-002
TH-229	0.999	4872.00*	1.50E+000 +/- 3.52E-001	1.12E-001 +/- 2.64E-002
TH-230	0.990	4672.00*	8.30E-001 +/- 3.19E-001	8.28E-002 +/- 1.95E-002
TH-232	0.989	3997.00*	2.21E-001 +/- 1.45E-001	1.19E-001 +/- 2.79E-002

AG
10/28/15

0000132431.CNF



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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	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	1	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	1	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	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	1	0	0	0	0	0
153:	0	0	0	0	0	0	1	0
161:	0	0	0	0	0	1	0	0
169:	0	3	0	0	0	0	0	0
177:	0	0	1	0	0	0	1	0
185:	1	1	1	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	1	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	1	0
305:	0	0	0	0	0	0	0	0
313:	1	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	1	0	0	0	1
337:	0	0	0	0	1	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	1	0	0	0

369:	0	0	0	1	0	0	0	0

Sample Title: 05

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

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

Apex-Alpha™

LCB 10/27/15

Sample Description: CP3005S07-08
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification: 1510089A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 132593
Reagent Blank: <not performed>

Sample Size: 1.553E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:27:06 AM
Acquisition Date/Time: 10/27/2015 11:55:28 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.223 mL
Effective Efficiency: 0.1872 +/- 0.0160
Counting Efficiency: 0.1700 +/- 0.0030 on 10/25/2014 3:27:02 PM
Chem. Recovery Factor: 1.1011 +/- 0.0962

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.801	12.49	56.77	0.51	0.00E+000	3.0
TH-228		5.379	27.15	38.30	0.85	0.00E+000	5.2
TH-229	T	4.889	159.79	15.63	2.21	0.00E+000	8.2
TH-230		4.636	46.49	28.93	0.51	0.00E+000	6.7
TH-232		3.970	28.98	37.15	1.02	0.00E+000	3.0

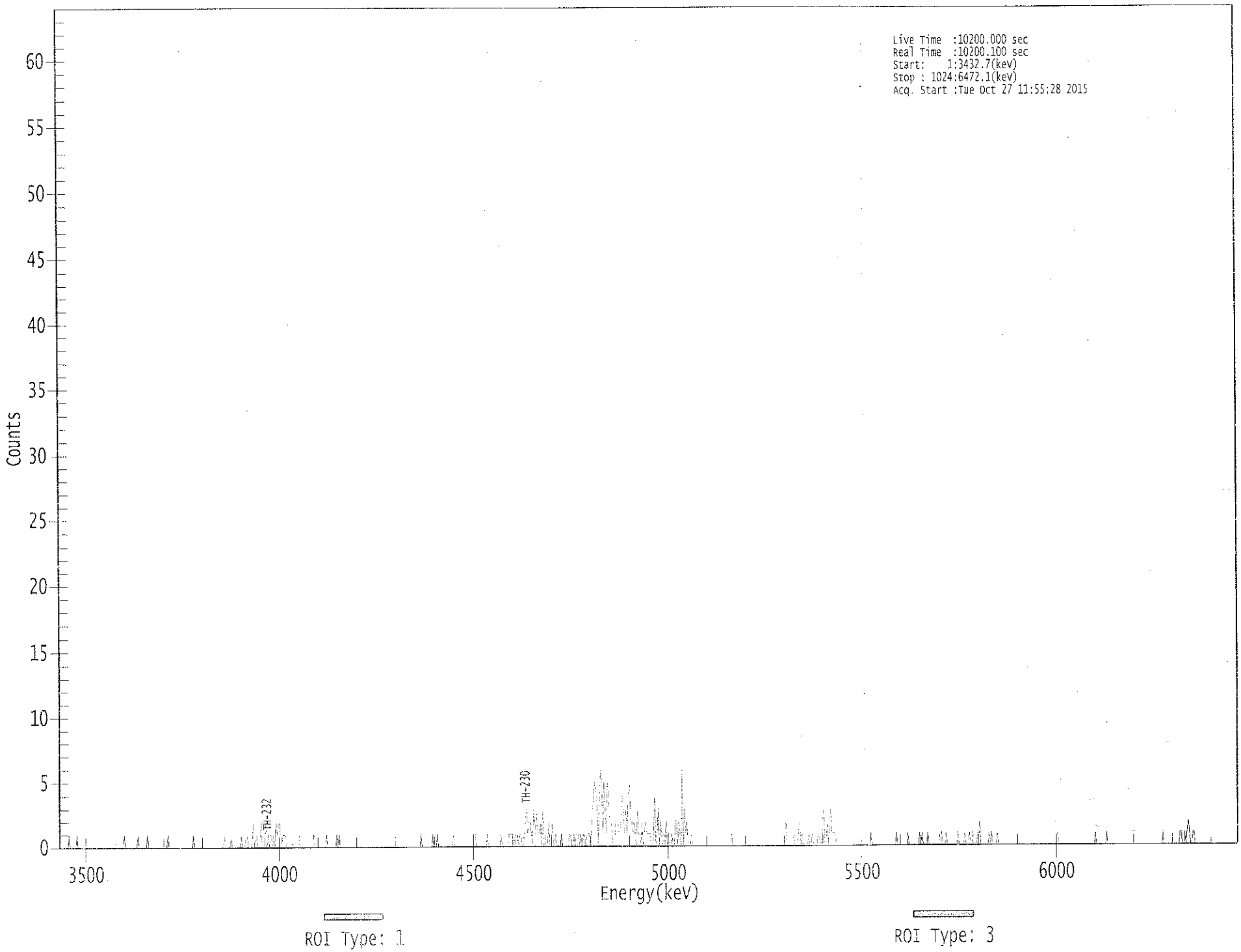
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	1.17E-001 +/- 6.92E-002	4.91E-002 +/- 8.24E-003
TH-228	0.998	5400.00*	2.52E-001 +/- 1.05E-001	5.56E-002 +/- 9.33E-003
TH-229	0.998	4872.00*	1.46E+000 +/- 2.45E-001	7.32E-002 +/- 1.23E-002
TH-230	0.993	4672.00*	4.24E-001 +/- 1.42E-001	4.79E-002 +/- 8.03E-003
TH-232	0.996	3997.00*	2.64E-001 +/- 1.08E-001	5.74E-002 +/- 9.62E-003

AG 10/28/15

0000132432.CNF



GS700 :

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

369:	0	0	0	1	0	0	0	0

Sample Title: 06

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

801:	0	0	0	0	0	0	1	0

Sample Title: 06

Channel								
809:	1	0	0	0	0	1	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	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	1	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	0	0	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	1	1	0	0
977:	1	0	1	2	1	0	0	1
985:	1	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KD 10/28/15

Apex-Alpha™

Sample Description: CP3005S12-13
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001324
Batch Identification: 1510089A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 132594
Reagent Blank: <not performed>

Sample Size: 1.525E+000 +/- 0.000E+000 gram
Sample Date/Time: 10/8/2015 6:27:06 AM
Acquisition Date/Time: 10/27/2015 11:56:01 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.223 mL
Effective Efficiency: 0.1679 +/- 0.0150
Counting Efficiency: 0.1525 +/- 0.0027 on 12/13/2014 2:45:02 PM
Chem. Recovery Factor: 1.1010 +/- 0.1005

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		5.777	8.83	66.70	0.17	0.00E+000	3.0
TH-228		5.388	57.15	26.15	0.85	0.00E+000	4.3
TH-229	T	4.878	143.00	16.45	0.00	0.00E+000	3.6
TH-230		4.640	69.00	23.77	0.00	0.00E+000	7.7
TH-232		3.972	59.15	25.70	0.85	0.00E+000	7.9

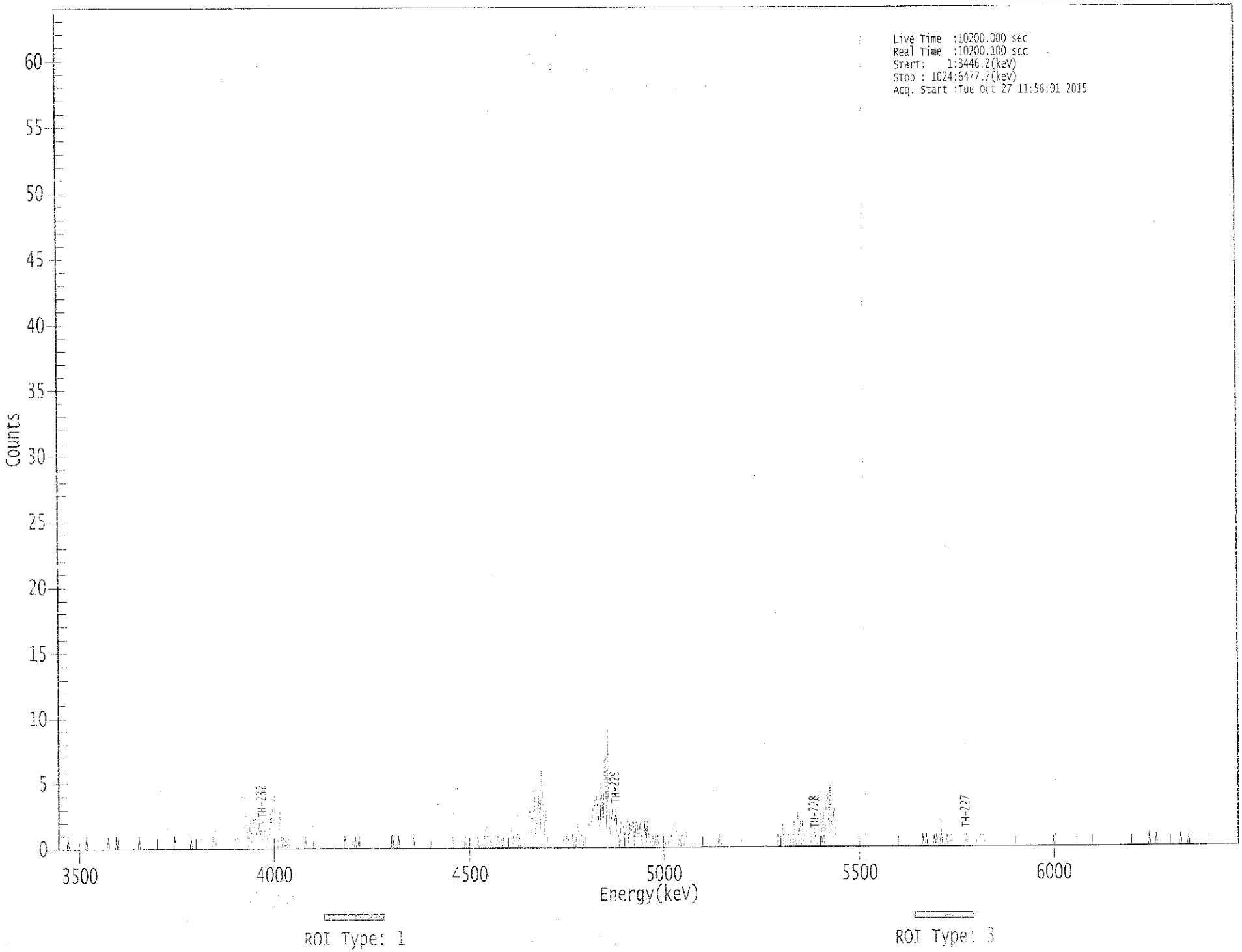
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.972	5850.00*	9.38E-002 +/- 6.47E-002	4.44E-002 +/- 7.78E-003
TH-228	0.999	5400.00*	6.03E-001 +/- 1.90E-001	6.32E-002 +/- 1.11E-002
TH-229	1.000	4872.00*	1.49E+000 +/- 2.61E-001	6.23E-002 +/- 1.09E-002
TH-230	0.995	4672.00*	7.15E-001 +/- 2.11E-001	6.21E-002 +/- 1.09E-002
TH-232	0.997	3997.00*	6.12E-001 +/- 1.90E-001	6.19E-002 +/- 1.09E-002

AG 10/28/15

0000132433.CNF



h9169 :

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	2	1	0	0	1	0

Sample Title: 07

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

801:	0	1	0	0	0	0	0	0

Sample Title: 07

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

10/27/2015 5:31:14 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 10/27/2015
Time : 5:31:14 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	10/27/2015 5:14:08 AM
Alpha_004	21f	ALL	Passed	10/27/2015 5:14:09 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	10/27/2015 5:14:10 AM
Alpha_011	21f	ALL	Passed	10/27/2015 5:14:11 AM
Alpha_012	21f	ALL	Passed	10/27/2015 5:14:12 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	10/27/2015 5:14:12 AM
Alpha_015	21f	ALL	Passed	10/27/2015 5:14:13 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:15 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:16 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:18 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:19 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:21 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	10/27/2015 5:14:23 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:25 AM
Alpha_040	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:27 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:29 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:31 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:34 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:36 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:38 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:41 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:44 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:46 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:49 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:52 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:54 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:14:57 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:00 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:03 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:05 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:08 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:11 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:14 AM

Review of QA Results - Pulser Check

10/27/2015 5:31:14 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:17 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	10/27/2015 5:15:19 AM

APPROVED BY: _____

APPROVAL DATE: 10/27

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

Nuclide Library Title: Thorium

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

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

* = key line

TOTALS: 5 Nuclides 5 Energy Lines

SECTION X

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

15-10089
Gamma
Run 1

Work Order	15-10089
Analysis Code	Gamma
Run	1
Date Received	10/14/2015
Lab Deadline	11/5/2015
Client	Auxier & Associates, Inc.
Project	PAP-KAN
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	LANL ER-130 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		10/15/15 00:00	1.0000E+00
02	MBL	BLANK		10/15/15 00:00	1.0000E+00
03	DUP	CP4104S13-14	35	10/08/15 10:10	5.3586E+02
04	DO	CP4104S13-14	35	10/08/15 10:10	5.3586E+02
05	TRG	CP3005S04-05	33	10/08/15 15:00	7.2435E+02
06	TRG	CP3005S07-08	38	10/08/15 15:10	6.3559E+02
07	TRG	CP3005S12-13	32	10/08/15 15:20	6.9276E+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								

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

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO	10/19/15 10:41	KSALLINGS						
05	TRG	10/19/15 10:41	KSALLINGS						
06	TRG	10/19/15 10:41	KSALLINGS						
07	TRG	10/19/15 10:41	KSALLINGS						

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

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-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	1.43E+02	8.33E+00	7.74E-01	1.37E+02	104.06	OK		10/15/15 00:00	1.00E+00	11/09/15 13:00	YES
01	CS-137	LCS	LCS	pCi/g	9.04E+01	8.11E+00	9.68E-01	8.69E+01	103.97	OK		10/15/15 00:00	1.00E+00	11/09/15 13:00	YES
02	AC-228	MBL	BLANK	pCi/g	3.65E-02	1.53E-01	2.75E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	BI-214	MBL	BLANK	pCi/g	-1.14E-02	8.19E-02	1.31E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	K-40	MBL	BLANK	pCi/g	3.73E-01	4.00E-01	9.29E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	PB-212	MBL	BLANK	pCi/g	2.15E-02	6.20E-02	1.01E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	PB-214	MBL	BLANK	pCi/g	8.71E-02	7.80E-02	1.44E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	RA-226	MBL	BLANK	pCi/g	-1.14E-02	8.19E-02	1.31E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	RA-228	MBL	BLANK	pCi/g	3.65E-02	1.53E-01	2.75E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	TH-234	MBL	BLANK	pCi/g	3.66E-01	3.58E-01	6.09E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
02	TL-208	MBL	BLANK	pCi/g	2.52E-02	9.48E-02	1.76E-01					10/15/15 00:00	1.00E+00	11/09/15 13:27	NO
03	AC-228	DUP	CP4104S13-14	pCi/g	1.35E+00	4.17E-01	8.22E-01				OK	10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	BI-214	DUP	CP4104S13-14	pCi/g	1.40E+00	3.06E-01	2.88E-01				OK	10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	K-40	DUP	CP4104S13-14	pCi/g	2.04E+01	3.40E+00	1.84E+00				OK	10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	PB-212	DUP	CP4104S13-14	pCi/g	1.75E+00	3.21E-01	3.77E-01					10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	PB-214	DUP	CP4104S13-14	pCi/g	1.06E+00	3.01E-01	4.96E-01					10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	RA-226	DUP	CP4104S13-14	pCi/g	1.40E+00	3.06E-01	2.88E-01					10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	RA-228	DUP	CP4104S13-14	pCi/g	1.35E+00	4.17E-01	8.22E-01					10/08/15 10:10	5.36E+02	11/09/15 11:22	YES
03	TH-234	DUP	CP4104S13-14	pCi/g	9.72E-01	1.43E+00	2.23E+00					10/08/15 10:10	5.36E+02	11/09/15 11:22	NO
03	TL-208	DUP	CP4104S13-14	pCi/g	1.41E+00	4.24E-01	7.79E-01					10/08/15 10:10	5.36E+02	11/09/15 11:22	NO
04	AC-228	DO	CP4104S13-14	pCi/g	1.38E+00	5.22E-01	1.02E+00					10/08/15 10:10	5.36E+02	11/09/15 12:25	NO
04	BI-214	DO	CP4104S13-14	pCi/g	1.15E+00	3.84E-01	6.40E-01					10/08/15 10:10	5.36E+02	11/09/15 12:25	YES
04	K-40	DO	CP4104S13-14	pCi/g	2.26E+01	3.76E+00	1.86E+00					10/08/15 10:10	5.36E+02	11/09/15 12:25	YES
04	PB-212	DO	CP4104S13-14	pCi/g	1.74E+00	3.65E-01	4.81E-01					10/08/15 10:10	5.36E+02	11/09/15 12:25	YES
04	PB-214	DO	CP4104S13-14	pCi/g	1.33E+00	3.14E-01	4.23E-01					10/08/15 10:10	5.36E+02	11/09/15 12:25	YES
04	RA-226	DO	CP4104S13-14	pCi/g	1.15E+00	3.84E-01	6.40E-01					10/08/15 10:10	5.36E+02	11/09/15 12:25	YES
04	RA-228	DO	CP4104S13-14	pCi/g	1.38E+00	5.22E-01	1.02E+00					10/08/15 10:10	5.36E+02	11/09/15 12:25	NO
04	TH-234	DO	CP4104S13-14	pCi/g	1.68E+00	1.50E+00	2.35E+00					10/08/15 10:10	5.36E+02	11/09/15 12:25	NO
04	TL-208	DO	CP4104S13-14	pCi/g	1.60E+00	5.25E-01	7.32E-01					10/08/15 10:10	5.36E+02	11/09/15 12:25	YES
05	AC-228	TRG	CP3005S04-05	pCi/g	3.48E-01	1.13E-01	2.28E-01					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	BI-214	TRG	CP3005S04-05	pCi/g	8.97E-01	1.43E-01	4.04E-02					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	K-40	TRG	CP3005S04-05	pCi/g	9.58E+00	1.24E+00	7.30E-01					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	PB-212	TRG	CP3005S04-05	pCi/g	4.09E-01	6.84E-02	1.39E-01					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	PB-214	TRG	CP3005S04-05	pCi/g	7.77E-01	1.07E-01	1.35E-01					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	RA-226	TRG	CP3005S04-05	pCi/g	8.97E-01	1.43E-01	4.04E-02					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	RA-228	TRG	CP3005S04-05	pCi/g	3.48E-01	1.13E-01	2.28E-01					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES
05	TH-234	TRG	CP3005S04-05	pCi/g	9.20E-01	8.71E-01	1.18E+00					10/08/15 15:00	7.24E+02	11/09/15 11:54	NO
05	TL-208	TRG	CP3005S04-05	pCi/g	3.38E-01	8.56E-02	7.09E-02					10/08/15 15:00	7.24E+02	11/09/15 11:54	YES

Preliminary Data Report & Analytical Calculations

Work Order: 15-10089-Gamma-1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
06	AC-228	TRG	CP3005S07-08	pCi/g	3.88E-01	1.56E-01	3.45E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	BI-214	TRG	CP3005S07-08	pCi/g	2.83E-01	8.47E-02	1.42E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	K-40	TRG	CP3005S07-08	pCi/g	2.10E+01	2.56E+00	7.02E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	PB-212	TRG	CP3005S07-08	pCi/g	3.41E-01	7.16E-02	1.45E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	PB-214	TRG	CP3005S07-08	pCi/g	3.61E-01	9.06E-02	1.41E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	RA-226	TRG	CP3005S07-08	pCi/g	2.83E-01	8.47E-02	1.42E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	RA-228	TRG	CP3005S07-08	pCi/g	3.88E-01	1.56E-01	3.45E-01					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
06	TH-234	TRG	CP3005S07-08	pCi/g	6.20E-01	6.49E-01	1.04E+00					10/08/15 15:10	6.36E+02	11/09/15 12:22	NO
06	TL-208	TRG	CP3005S07-08	pCi/g	2.66E-01	8.52E-02	9.77E-02					10/08/15 15:10	6.36E+02	11/09/15 12:22	YES
07	AC-228	TRG	CP3005S12-13	pCi/g	5.80E-01	1.76E-01	2.89E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	BI-214	TRG	CP3005S12-13	pCi/g	6.67E-01	1.07E-01	1.40E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	K-40	TRG	CP3005S12-13	pCi/g	1.85E+01	2.26E+00	7.63E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	PB-212	TRG	CP3005S12-13	pCi/g	7.52E-01	1.27E-01	1.55E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	PB-214	TRG	CP3005S12-13	pCi/g	5.97E-01	9.96E-02	1.59E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	RA-226	TRG	CP3005S12-13	pCi/g	6.67E-01	1.07E-01	1.40E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	RA-228	TRG	CP3005S12-13	pCi/g	5.80E-01	1.76E-01	2.89E-01					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES
07	TH-234	TRG	CP3005S12-13	pCi/g	6.88E-01	6.51E-01	1.04E+00					10/08/15 15:20	6.93E+02	11/09/15 13:23	NO
07	TL-208	TRG	CP3005S12-13	pCi/g	5.29E-01	1.07E-01	8.96E-02					10/08/15 15:20	6.93E+02	11/09/15 13:23	YES

Count Room Report
Client: Auxier Associates, Inc.

15-10089-Gamma-1 (pCi/g) in SO
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	10/15/15 00:00	1.0000				0.00		
02	MBL	BLANK	10/15/15 00:00	1.0000				0.00		
03	DUP	CP4104S13-14	10/08/15 10:10	535.8600				0.00		
04	DO	CP4104S13-14	10/08/15 10:10	535.8600				0.00		
05	TRG	CP3005S04-05	10/08/15 15:00	724.3500				0.00		
06	TRG	CP3005S07-08	10/08/15 15:10	635.5900				0.00		
07	TRG	CP3005S12-13	10/08/15 15:20	692.7600				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Printed: 10/19/2015 12:15 PM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
15-10089	1	Gamma	grams	11/5/2015	KSALLINGS

Lab Fraction	Auxier & Associates, Inc. Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			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	CP4104S13-14	DUP					5.3586E+02	5.3586E+02				
04	CP4104S13-14	DO					5.3586E+02	5.3586E+02				
05	CP3005S04-05	TRG					7.2435E+02	7.2435E+02				
06	CP3005S07-08	TRG					6.3559E+02	6.3559E+02				
07	CP3005S12-13	TRG					6.9276E+02	6.9276E+02				

Comments	

Technician: Kenny Sallings Date: 10/19/15

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

Rough Sample Preparation Log Book

Printed: 10/19/2015 10:41 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
15-10089	11/5/2015	10/18/2015	10/19/2015	10/20/2015	KSALLINGS

Eberline Fraction	Auxier & Associates, Inc. Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	CP4104S13-14	14.1300	956.4600	725.8900	942.3300	711.7600	24.47%	75.53%	0.0000	0.0000	
05	CP3005S04-05	14.1600	832.0600	795.2500	817.9000	781.0900	4.50%	95.50%	0.0000	0.0000	
06	CP3005S07-08	14.1400	773.4900	708.5700	759.3500	694.4300	8.55%	91.45%	0.0000	0.0000	
07	CP3005S12-13	14.1000	1079.4600	906.3200	1065.3600	892.2200	16.25%	83.75%	0.0000	0.0000	

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

Technician: Kerry Sallings Date: Analysis: Rough Prep Logbook

Analysis: Gamma Page No. 9425

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1302

94268

Sand in 16 Ounce PP Taral Jar Filled to Top

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

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

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

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

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

(Certificate continued on reverse side)

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1964

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

00180

Apex-Gamma

Analysis Report for 1510089-01
GAS-1302

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-01
Sample Description	: GAS-1302
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 7/1/2013 7:43:44AM
Acquisition Started	: 11/9/2015 1:00:51PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1402
Live Time	: 1800.0 seconds
Real Time	: 1827.3 seconds
Dead Time	: 1.50 %
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	: 29338

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 11/10/15

Analysis Report for 1510089-01

GAS-1302

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 1:31:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	32.25	32.61	0.0000	0.00
2	51.69	52.04	0.0000	0.00
3	59.52	59.87	0.0000	0.00
4	67.64	67.99	0.0000	0.00
5	88.08	88.42	0.0000	0.00
6	122.12	122.45	0.0000	0.00
7	136.49	136.81	0.0000	0.00
8	165.97	166.28	0.0000	0.00
9	186.59	186.90	0.0000	0.00
10	364.33	364.57	0.0000	0.00
11	391.57	391.81	0.0000	0.00
12	423.45	423.68	0.0000	0.00
13	478.43	478.64	0.0000	0.00
14	560.84	561.01	0.0000	0.00
15	583.09	583.26	0.0000	0.00
16	661.88	662.03	0.0000	0.00
17	699.26	699.39	0.0000	0.00
18	802.79	802.88	0.0000	0.00
19	814.60	814.69	0.0000	0.00
20	898.20	898.26	0.0000	0.00
21	944.82	944.86	0.0000	0.00
22	1030.82	1030.83	0.0000	0.00
23	1173.67	1173.63	0.0000	0.00
24	1201.76	1201.71	0.0000	0.00
25	1333.00	1332.90	0.0000	0.00
26	1592.44	1592.24	0.0000	0.00
27	1631.65	1631.45	0.0000	0.00
28	1639.68	1639.47	0.0000	0.00
29	1729.84	1729.60	0.0000	0.00
30	1746.08	1745.83	0.0000	0.00
31	1836.51	1836.22	0.0000	0.00
32	2303.24	2302.78	0.0000	0.00
33	2506.29	2505.74	0.0000	0.00
34	2614.74	2614.15	0.0000	0.00
35	2734.77	2734.14	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-01

GAS-1302

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 1:31:23PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	32.25	30 -	35	32.61	2.05E+03	261.44	1.20E+04	1.89
M	2	51.69	45 -	65	52.04	1.24E+04	625.08	4.13E+04	3.32
m	3	59.52	45 -	65	59.87	1.05E+05	709.85	1.97E+04	1.68
	4	67.64	65 -	71	67.99	5.14E+02	398.75	2.87E+04	2.22
	5	88.08	83 -	93	88.42	4.33E+04	674.90	3.69E+04	1.93
	6	122.12	117 -	126	122.45	9.26E+03	423.09	2.03E+04	1.94
	7	136.49	134 -	139	136.81	1.17E+03	242.23	1.08E+04	1.32
	8	165.97	163 -	170	166.28	1.29E+03	289.48	1.31E+04	1.62
	9	186.59	185 -	190	186.90	2.34E+02	230.65	1.05E+04	1.86
	10	364.33	363 -	367	364.57	1.42E+02	152.69	5.06E+03	1.71
	11	391.57	389 -	394	391.81	5.52E+02	177.62	5.86E+03	1.47
	12	423.45	422 -	426	423.68	1.37E+02	149.48	4.85E+03	2.68
	13	478.43	476 -	481	478.64	1.48E+02	168.66	5.51E+03	5.38
	14	560.84	559 -	563	561.01	9.85E+01	114.21	2.79E+03	2.49
	15	583.09	581 -	586	583.26	1.75E+02	129.67	3.22E+03	3.92
	16	661.88	657 -	666	662.03	3.29E+04	420.51	6.46E+03	1.59
	17	699.26	697 -	702	699.39	1.08E+02	117.75	2.68E+03	3.16
	18	802.79	800 -	806	802.88	1.40E+02	140.46	3.50E+03	2.84
	19	814.60	812 -	818	814.69	1.41E+02	138.27	3.36E+03	3.28
	20	898.20	895 -	902	898.26	3.59E+02	180.38	5.21E+03	1.97
	21	944.82	942 -	948	944.86	1.88E+02	168.28	5.02E+03	4.29
	22	1030.82	1029 -	1033	1030.83	8.86E+01	104.53	2.33E+03	2.43
	23	1173.67	1168 -	1179	1173.63	3.02E+04	382.43	3.18E+03	2.15
	24	1201.76	1199 -	1205	1201.71	6.46E+01	77.09	1.02E+03	2.98
	25	1333.00	1327 -	1338	1332.90	2.71E+04	340.55	9.69E+02	2.09
	26	1592.44	1587 -	1595	1592.24	2.87E+01	36.25	1.85E+02	3.33
	27	1631.65	1627 -	1637	1631.45	3.07E+01	34.68	1.47E+02	4.75
	28	1639.68	1637 -	1642	1639.47	1.71E+01	22.18	8.57E+01	2.58
	29	1729.84	1725 -	1733	1729.60	2.91E+01	30.11	1.22E+02	4.64
	30	1746.08	1743 -	1748	1745.83	1.53E+01	19.31	6.13E+01	1.68
	31	1836.51	1830 -	1842	1836.22	2.19E+02	49.81	1.90E+02	2.41
	32	2303.24	2297 -	2308	2302.78	2.43E+01	24.98	6.54E+01	6.98
	33	2506.29	2499 -	2512	2505.74	4.09E+02	43.45	2.74E+01	2.76
	34	2614.74	2610 -	2618	2614.15	2.13E+01	12.02	9.31E+00	1.39
	35	2734.77	2730 -	2737	2734.14	7.00E+00	5.29	0.00E+00	1.92

Analysis Report for 1510089-01

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 ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 1:31:23PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	32.25	30 -	35	2.05E+03	261.44	1.20E+04	2.02E+02
M	2	51.69	45 -	65	1.24E+04	625.08	4.13E+04	3.34E+02
m	3	59.52	45 -	65	1.05E+05	709.85	1.97E+04	2.31E+02
	4	67.64	65 -	71	5.14E+02	398.75	2.87E+04	3.26E+02
	5	88.08	83 -	93	4.33E+04	674.90	3.69E+04	4.37E+02
	6	122.12	117 -	126	9.26E+03	423.09	2.03E+04	3.10E+02
	7	136.49	134 -	139	1.17E+03	242.23	1.08E+04	1.91E+02
	8	165.97	163 -	170	1.29E+03	289.48	1.31E+04	2.31E+02
	9	186.59	185 -	190	2.34E+02	230.65	1.05E+04	1.88E+02
	10	364.33	363 -	367	1.42E+02	152.69	5.06E+03	1.24E+02
	11	391.57	389 -	394	5.52E+02	177.62	5.86E+03	1.41E+02
	12	423.45	422 -	426	1.37E+02	149.48	4.85E+03	1.21E+02
	13	478.43	476 -	481	1.48E+02	168.66	5.51E+03	1.37E+02
	14	560.84	559 -	563	9.85E+01	114.21	2.79E+03	9.25E+01
	15	583.09	581 -	586	1.75E+02	129.67	3.22E+03	1.04E+02
	16	661.88	657 -	666	3.29E+04	420.51	6.46E+03	1.75E+02
	17	699.26	697 -	702	1.08E+02	117.75	2.68E+03	9.53E+01
	18	802.79	800 -	806	1.40E+02	140.46	3.50E+03	1.14E+02
	19	814.60	812 -	818	1.41E+02	138.27	3.36E+03	1.12E+02
	20	898.20	895 -	902	3.59E+02	180.38	5.21E+03	1.45E+02
	21	944.82	942 -	948	1.88E+02	168.28	5.02E+03	1.36E+02
	22	1030.82	1029 -	1033	8.86E+01	104.53	2.33E+03	8.45E+01
	23	1173.67	1168 -	1179	3.02E+04	382.43	3.18E+03	1.31E+02
	24	1201.76	1199 -	1205	6.46E+01	77.09	1.02E+03	6.20E+01
	25	1333.00	1327 -	1338	2.71E+04	340.55	9.69E+02	7.25E+01
	26	1592.44	1587 -	1595	2.87E+01	36.25	1.85E+02	2.85E+01
	27	1631.65	1627 -	1637	3.07E+01	34.68	1.47E+02	2.70E+01
	28	1639.68	1637 -	1642	1.71E+01	22.18	8.57E+01	1.69E+01
	29	1729.84	1725 -	1733	2.91E+01	30.11	1.22E+02	2.31E+01
	30	1746.08	1743 -	1748	1.53E+01	19.31	6.13E+01	1.45E+01
	31	1836.51	1830 -	1842	2.19E+02	49.81	1.90E+02	3.29E+01

Analysis Report for 1510089-01

GAS-1302

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	2303.24	2297 -	2308	2.43E+01	24.98	6.54E+01	1.89E+01
33	2506.29	2499 -	2512	4.09E+02	43.45	2.74E+01	1.30E+01
34	2614.74	2610 -	2618	2.13E+01	12.02	9.31E+00	6.32E+00
35	2734.77	2730 -	2737	7.00E+00	5.29	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/9/2015 1:31:23PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	32.25	30 -	35	32.61	2.05E+03	261.44	1.20E+04	.....
M	2	51.69	45 -	65	52.04	1.24E+04	625.08	4.13E+04	.....
m	3	59.52	45 -	65	59.87	1.05E+05	709.85	1.97E+04	AM-241
	4	67.64	65 -	71	67.99	5.14E+02	398.75	2.87E+04	TH-230 TA-182 TI-44 TM-171
	5	88.08	83 -	93	88.42	4.33E+04	674.90	3.69E+04	CD-109 LU-176 SN-126
	6	122.12	117 -	126	122.45	9.26E+03	423.09	2.03E+04	CO-57 EU-152 EU-154
	7	136.49	134 -	139	136.81	1.17E+03	242.23	1.08E+04	CO-57 SE-75
	8	165.97	163 -	170	166.28	1.29E+03	289.48	1.31E+04	CE-139
	9	186.59	185 -	190	186.90	2.34E+02	230.65	1.05E+04	RA-226
	10	364.33	363 -	367	364.57	1.42E+02	152.69	5.06E+03	I-131
	11	391.57	389 -	394	391.81	5.52E+02	177.62	5.86E+03	SN-113
	12	423.45	422 -	426	423.68	1.37E+02	149.48	4.85E+03	BA-140
	13	478.43	476 -	481	478.64	1.48E+02	168.66	5.51E+03	BE-7
	14	560.84	559 -	563	561.01	9.85E+01	114.21	2.79E+03	.....

Analysis Report for 1510089-01

GAS-1302

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
15	583.09	581 -	586	583.26	1.75E+02	129.67	3.22E+03	TL-208
16	661.88	657 -	666	662.03	3.29E+04	420.51	6.46E+03	CS-137
17	699.26	697 -	702	699.39	1.08E+02	117.75	2.68E+03	.....
18	802.79	800 -	806	802.88	1.40E+02	140.46	3.50E+03	CS-134
19	814.60	812 -	818	814.69	1.41E+02	138.27	3.36E+03	.....
20	898.20	895 -	902	898.26	3.59E+02	180.38	5.21E+03	Y-88
21	944.82	942 -	948	944.86	1.88E+02	168.28	5.02E+03	.....
22	1030.82	1029 -	1033	1030.83	8.86E+01	104.53	2.33E+03	.....
23	1173.67	1168 -	1179	1173.63	3.02E+04	382.43	3.18E+03	CO-60
24	1201.76	1199 -	1205	1201.71	6.46E+01	77.09	1.02E+03	.....
25	1333.00	1327 -	1338	1332.90	2.71E+04	340.55	9.69E+02	CO-60
26	1592.44	1587 -	1595	1592.24	2.87E+01	36.25	1.85E+02	.....
27	1631.65	1627 -	1637	1631.45	3.07E+01	34.68	1.47E+02	.....
28	1639.68	1637 -	1642	1639.47	1.71E+01	22.18	8.57E+01	.....
29	1729.84	1725 -	1733	1729.60	2.91E+01	30.11	1.22E+02	.....
30	1746.08	1743 -	1748	1745.83	1.53E+01	19.31	6.13E+01	.....
31	1836.51	1830 -	1842	1836.22	2.19E+02	49.81	1.90E+02	Y-88
32	2303.24	2297 -	2308	2302.78	2.43E+01	24.98	6.54E+01	.....
33	2506.29	2499 -	2512	2505.74	4.09E+02	43.45	2.74E+01	.....
34	2614.74	2610 -	2618	2614.15	2.13E+01	12.02	9.31E+00	TL-208
35	2734.77	2730 -	2737	2734.14	7.00E+00	5.29	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/9/2015 1:31:23PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	32.25	2.05E+03	261.44	6.18E-03	1.78E-03
M	2	51.69	1.24E+04	625.08	2.00E-02	1.78E-03
m	3	59.52	1.05E+05	709.85	2.36E-02	1.78E-03
	4	67.64	5.14E+02	398.75	2.61E-02	2.06E-03
	5	88.08	4.33E+04	674.90	2.85E-02	2.74E-03
	6	122.12	9.26E+03	423.09	2.72E-02	2.07E-03
	7	136.49	1.17E+03	242.23	2.61E-02	2.10E-03
	8	165.97	1.29E+03	289.48	2.38E-02	2.17E-03
	9	186.59	2.34E+02	230.65	2.23E-02	2.02E-03

Analysis Report for 1510089-01

GAS-1302

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
10	364.33	1.42E+02	152.69	1.44E-02	1.17E-03
11	391.57	5.52E+02	177.62	1.37E-02	1.11E-03
12	423.45	1.37E+02	149.48	1.29E-02	1.08E-03
13	478.43	1.48E+02	168.66	1.18E-02	1.02E-03
14	560.84	9.85E+01	114.21	1.05E-02	9.39E-04
15	583.09	1.75E+02	129.67	1.02E-02	9.16E-04
16	661.88	3.29E+04	420.51	9.21E-03	8.34E-04
17	699.26	1.08E+02	117.75	8.82E-03	8.00E-04
18	802.79	1.40E+02	140.46	7.91E-03	7.08E-04
19	814.60	1.41E+02	138.27	7.82E-03	6.97E-04
20	898.20	3.59E+02	180.38	7.23E-03	6.22E-04
21	944.82	1.88E+02	168.28	6.94E-03	5.98E-04
22	1030.82	8.86E+01	104.53	6.48E-03	5.53E-04
23	1173.67	3.02E+04	382.43	5.85E-03	4.79E-04
24	1201.76	6.46E+01	77.09	5.74E-03	4.74E-04
25	1333.00	2.71E+04	340.55	5.31E-03	4.51E-04
26	1592.44	2.87E+01	36.25	4.69E-03	3.86E-04
27	1631.65	3.07E+01	34.68	4.61E-03	3.77E-04
28	1639.68	1.71E+01	22.18	4.60E-03	3.75E-04
29	1729.84	2.91E+01	30.11	4.45E-03	3.52E-04
30	1746.08	1.53E+01	19.31	4.42E-03	3.48E-04
31	1836.51	2.19E+02	49.81	4.30E-03	3.26E-04
32	2303.24	2.43E+01	24.98	3.89E-03	3.26E-04
33	2506.29	4.09E+02	43.45	3.82E-03	3.26E-04
34	2614.74	2.13E+01	12.02	3.79E-03	3.26E-04
35	2734.77	7.00E+00	5.29	3.79E-03	3.26E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/9/2015 1:31:23PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	32.25	2.05E+03	261.44			2.05E+03	2.61E+02
M	2	51.69	1.24E+04	625.08			1.24E+04	6.25E+02
m	3	59.52	1.05E+05	709.85	3.90E+00	6.83E-01	1.05E+05	7.10E+02
	4	67.64	5.14E+02	398.75			5.14E+02	3.99E+02

Analysis Report for 1510089-01

GAS-1302

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
5	88.08	4.33E+04	674.90			4.33E+04	6.75E+02
6	122.12	9.26E+03	423.09			9.26E+03	4.23E+02
7	136.49	1.17E+03	242.23			1.17E+03	2.42E+02
8	165.97	1.29E+03	289.48			1.29E+03	2.89E+02
9	186.59	2.34E+02	230.65	3.20E+01	3.69E+00	2.02E+02	2.31E+02
10	364.33	1.42E+02	152.69			1.42E+02	1.53E+02
11	391.57	5.52E+02	177.62			5.52E+02	1.78E+02
12	423.45	1.37E+02	149.48			1.37E+02	1.49E+02
13	478.43	1.48E+02	168.66			1.48E+02	1.69E+02
14	560.84	9.85E+01	114.21			9.85E+01	1.14E+02
15	583.09	1.75E+02	129.67	3.17E+00	1.87E+00	1.72E+02	1.30E+02
16	661.88	3.29E+04	420.51			3.29E+04	4.21E+02
17	699.26	1.08E+02	117.75			1.08E+02	1.18E+02
18	802.79	1.40E+02	140.46	2.12E+00	1.48E+00	1.38E+02	1.40E+02
19	814.60	1.41E+02	138.27			1.41E+02	1.38E+02
20	898.20	3.59E+02	180.38			3.59E+02	1.80E+02
21	944.82	1.88E+02	168.28			1.88E+02	1.68E+02
22	1030.82	8.86E+01	104.53			8.86E+01	1.05E+02
23	1173.67	3.02E+04	382.43	1.38E+00	1.16E+00	3.02E+04	3.82E+02
24	1201.76	6.46E+01	77.09			6.46E+01	7.71E+01
25	1333.00	2.71E+04	340.55	9.07E-01	4.97E-01	2.70E+04	3.41E+02
26	1592.44	2.87E+01	36.25			2.87E+01	3.63E+01
27	1631.65	3.07E+01	34.68			3.07E+01	3.47E+01
28	1639.68	1.71E+01	22.18			1.71E+01	2.22E+01
29	1729.84	2.91E+01	30.11			2.91E+01	3.01E+01
30	1746.08	1.53E+01	19.31			1.53E+01	1.93E+01
31	1836.51	2.19E+02	49.81			2.19E+02	4.98E+01
32	2303.24	2.43E+01	24.98			2.43E+01	2.50E+01
33	2506.29	4.09E+02	43.45			4.09E+02	4.35E+01
34	2614.74	2.13E+01	12.02	1.73E+00	7.40E-01	1.96E+01	1.20E+01
35	2734.77	7.00E+00	5.29			7.00E+00	5.29E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/9/2015 1:31:23PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028941.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1510089-01

GAS-1302

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	32.25	2.05E+03	261.44			2.05E+03	2.61E+02
M	2	51.69	1.24E+04	625.08			1.24E+04	6.25E+02
m	3	59.52	1.05E+05	709.85	3.90E+00	6.83E-01	1.05E+05	7.10E+02
	4	67.64	5.14E+02	398.75			5.14E+02	3.99E+02
	5	88.08	4.33E+04	674.90			4.33E+04	6.75E+02
	6	122.12	9.26E+03	423.09			9.26E+03	4.23E+02
	7	136.49	1.17E+03	242.23			1.17E+03	2.42E+02
	8	165.97	1.29E+03	289.48			1.29E+03	2.89E+02
	9	186.59	2.34E+02	230.65	3.20E+01	3.69E+00	2.02E+02	2.31E+02
	10	364.33	1.42E+02	152.69			1.42E+02	1.53E+02
	11	391.57	5.52E+02	177.62			5.52E+02	1.78E+02
	12	423.45	1.37E+02	149.48			1.37E+02	1.49E+02
	13	478.43	1.48E+02	168.66			1.48E+02	1.69E+02
	14	560.84	9.85E+01	114.21			9.85E+01	1.14E+02
	15	583.09	1.75E+02	129.67	3.17E+00	1.87E+00	1.72E+02	1.30E+02
	16	661.88	3.29E+04	420.51			3.29E+04	4.21E+02
	17	699.26	1.08E+02	117.75			1.08E+02	1.18E+02
	18	802.79	1.40E+02	140.46	2.12E+00	1.48E+00	1.38E+02	1.40E+02
	19	814.60	1.41E+02	138.27			1.41E+02	1.38E+02
	20	898.20	3.59E+02	180.38			3.59E+02	1.80E+02
	21	944.82	1.88E+02	168.28			1.88E+02	1.68E+02
	22	1030.82	8.86E+01	104.53			8.86E+01	1.05E+02
	23	1173.67	3.02E+04	382.43	1.38E+00	1.16E+00	3.02E+04	3.82E+02
	24	1201.76	6.46E+01	77.09			6.46E+01	7.71E+01
	25	1333.00	2.71E+04	340.55	9.07E-01	4.97E-01	2.70E+04	3.41E+02
	26	1592.44	2.87E+01	36.25			2.87E+01	3.63E+01
	27	1631.65	3.07E+01	34.68			3.07E+01	3.47E+01
	28	1639.68	1.71E+01	22.18			1.71E+01	2.22E+01
	29	1729.84	2.91E+01	30.11			2.91E+01	3.01E+01
	30	1746.08	1.53E+01	19.31			1.53E+01	1.93E+01
	31	1836.51	2.19E+02	49.81			2.19E+02	4.98E+01
	32	2303.24	2.43E+01	24.98			2.43E+01	2.50E+01
	33	2506.29	4.09E+02	43.45			4.09E+02	4.35E+01
	34	2614.74	2.13E+01	12.02	1.73E+00	7.40E-01	1.96E+01	1.20E+01
	35	2734.77	7.00E+00	5.29			7.00E+00	5.29E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1510089-01

GAS-1302

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.950	122.06	*	85.51	7.35E+01	6.56E+00
		136.48	*	10.60	7.77E+01	1.75E+01
CO-60	0.962	1173.22	*	100.00	1.43E+02	1.19E+01
		1332.49	*	100.00	1.42E+02	1.22E+01
Y-88	0.705	898.02	*	93.40	2.93E+02	1.50E+02
		1836.01	*	99.38	2.83E+02	6.79E+01
CD-109	0.983	88.03	*	3.72	3.02E+03	3.44E+02
SN-113	0.714	255.12		1.93		
		391.69	*	64.90	2.27E+02	7.57E+01
SN-126	0.959	87.57	*	37.00	8.38E+01	8.15E+00
CS-137	0.991	661.65	*	85.12	9.04E+01	8.28E+00
CE-139	0.821	165.85	*	80.35	1.05E+02	2.54E+01
TM-171	0.866	66.72	*	0.14	6.72E+02	5.24E+02
TL-208	0.889	583.14	*	30.22	1.14E+00	8.67E-01
		860.37		4.48		
		2614.66	*	35.85	2.94E-01	1.82E-01
RA-226	0.977	186.21	*	3.28	5.64E+00	1.22E+01
AM-241	1.000	59.54	*	35.90	2.53E+02	1.92E+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 : 11/9/2015 1:31:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	32.25	1.13661E+00	6.39		
M	2	51.69	6.87286E+00	2.53		
	10	364.33	7.86111E-02	53.95	Tol.	I-131
	12	423.45	7.62601E-02	54.45	Tol.	BA-140
	13	478.43	8.19609E-02	57.16	Tol.	BE-7
	14	560.84	5.47390E-02	57.96		
	17	699.26	5.98194E-02	54.68		
	18	802.79	7.66245E-02	50.92	Tol.	CS-134
	19	814.60	7.81425E-02	49.15	D-Esc	
	21	944.82	1.04684E-01	44.65		
	22	1030.82	4.92366E-02	58.97		

Analysis Report for 1510089-01

GAS-1302

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
24	1201.76	3.58799E-02	59.68		
26	1592.44	1.59527E-02	63.13	D-Esc	
27	1631.65	1.70459E-02	56.51		
28	1639.68	9.52778E-03	64.67		
29	1729.84	1.61944E-02	51.65		
30	1746.08	8.52657E-03	62.92		
32	2303.24	1.34893E-02	51.44		
33	2506.29	2.27386E-01	5.31	Sum	
35	2734.77	3.88889E-03	37.80	Sum	

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

NUCLIDE 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	0.95	122.06	*	85.51	7.35E+01	6.56E+00
		136.48	*	10.60	7.77E+01	1.75E+01
CO-60	0.96	1173.22	*	100.00	1.43E+02	1.19E+01
		1332.49	*	100.00	1.42E+02	1.22E+01
Y-88	0.70	898.02	*	93.40	2.93E+02	1.50E+02
		1836.01	*	99.38	2.83E+02	6.79E+01
CD-109	0.98	88.03	*	3.72	3.02E+03	3.44E+02
SN-113	0.71	255.12		1.93		
		391.69	*	64.90	2.27E+02	7.57E+01
SN-126	0.95	87.57	*	37.00	8.38E+01	8.15E+00
CS-137	0.99	661.65	*	85.12	9.04E+01	8.28E+00
CE-139	0.82	165.85	*	80.35	1.05E+02	2.54E+01
TM-171	0.86	66.72	*	0.14	6.72E+02	5.24E+02
TL-208	0.88	583.14	*	30.22	1.14E+00	8.67E-01
		860.37		4.48		
		2614.66	*	35.85	2.94E-01	1.82E-01
RA-226	0.97	186.21	*	3.28	5.64E+00	1.22E+01
AM-241	1.00	59.54	*	35.90	2.53E+02	1.92E+01

Analysis Report for 1510089-01

GAS-1302

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	CO-57	0.950	7.40E+01	6.16E+00	
	CO-60	0.962	1.43E+02	8.50E+00	
	Y-88	0.705	2.85E+02	6.18E+01	
?	CD-109	0.983	3.02E+03	3.44E+02	
	SN-113	0.714	2.27E+02	7.57E+01	
?	SN-126	0.959	8.38E+01	8.15E+00	
	CS-137	0.991	9.04E+01	8.28E+00	
	CE-139	0.821	1.05E+02	2.54E+01	
	TM-171	0.866	6.72E+02	5.24E+02	
	TL-208	0.889	3.30E-01	1.78E-01	
	RA-226	0.977	5.64E+00	1.22E+01	
	AM-241	1.000	2.53E+02	1.92E+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 1510089-01

GAS-1302

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 1:31:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	32.25	1.13661E+00	6.39		
M	2	51.69	6.87286E+00	2.53		
	10	364.33	7.86111E-02	53.95	Tol.	I-131
	12	423.45	7.62601E-02	54.45	Tol.	BA-140
	13	478.43	8.19609E-02	57.16	Tol.	BE-7
	14	560.84	5.47390E-02	57.96		
	17	699.26	5.98194E-02	54.68		
	18	802.79	7.66245E-02	50.92	Tol.	CS-134
	19	814.60	7.81425E-02	49.15	D-Esc	
	21	944.82	1.04684E-01	44.65		
	22	1030.82	4.92366E-02	58.97		
	24	1201.76	3.58799E-02	59.68		
	26	1592.44	1.59527E-02	63.13	D-Esc	
	27	1631.65	1.70459E-02	56.51		
	28	1639.68	9.52778E-03	64.67		
	29	1729.84	1.61944E-02	51.65		
	30	1746.08	8.52657E-03	62.92		
	32	2303.24	1.34893E-02	51.44		
	33	2506.29	2.27386E-01	5.31	Sum	
	35	2734.77	3.88889E-03	37.80	Sum	

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

NUCLIDE MDA REPORT

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

Analysis Report for 1510089-01

GAS-1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	2.31E+05	3.24E+05	3.24E+05
+		NA-22	1274.54		99.94	6.24E-02	5.39E-01	5.39E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	-7.18E-02	1.52E-01	1.52E-01
+		K-40	1460.81		10.67	3.42E-01	1.95E+00	1.95E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	8.73E-01	3.85E-01	4.15E-01
			78.34		96.00	3.91E-02		3.85E-01
+		SC-46	889.25		99.98	2.88E+02	7.56E+02	7.56E+02
			1120.51		99.99	6.66E+02		7.64E+02
+		V-48	983.52		99.98	5.41E+15	5.05E+15	1.08E+16
			1312.10		97.50	-5.81E+14		5.05E+15
+		CR-51	320.08		9.83	3.63E+08	7.41E+09	7.41E+09
+		MN-54	834.83		99.97	-1.11E+00	3.78E+00	3.78E+00
+		CO-56	846.75		99.96	-6.69E+01	4.58E+02	1.10E+03
			1037.75		14.03	2.63E+03		8.79E+03
			1238.25		67.00	9.68E+00		9.53E+02
			1771.40		15.51	5.59E+02		2.15E+03
			2598.48		16.90	6.22E+01		4.58E+02
+		CO-57	122.06	*	85.51	7.35E+01	4.94E+00	4.94E+00
			136.48	*	10.60	7.77E+01		2.57E+01
+		CO-58	810.76		99.40	-1.68E+02	2.41E+03	2.41E+03
+		FE-59	1099.22		56.50	-2.10E+05	4.26E+05	7.46E+05
			1291.56		43.20	-1.39E+05		4.26E+05
+		CO-60	1173.22	*	100.00	1.43E+02	7.74E-01	1.26E+00
			1332.49	*	100.00	1.42E+02		7.74E-01
+		ZN-65	1115.52		50.75	-5.65E+00	1.43E+01	1.43E+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	5.41E+03	6.80E+01	3.62E+02
			136.00		59.20	2.33E+02		6.80E+01
			264.65		59.80	2.65E+01		7.58E+01
			279.53		25.20	-6.58E+01		1.78E+02
			400.65		11.40	-1.89E+02		4.51E+02
+		RB-82	776.52		13.00	-9.37E+08	5.40E+10	5.40E+10
+		RB-83	520.41		46.00	-5.69E+02	9.38E+02	9.38E+02
			529.64		30.30	-5.29E+02		1.42E+03
			552.65		16.40	5.75E+02		2.61E+03
+		KR-85	513.99		0.43	1.29E+01	1.19E+02	1.19E+02
+		SR-85	513.99		99.27	4.82E+02	4.44E+03	4.44E+03
+		Y-88	898.02	*	93.40	2.93E+02	8.86E+01	2.39E+02
			1836.01	*	99.38	2.83E+02		8.86E+01
+		NB-93M	16.57		9.43	-4.40E+03	4.55E+02	4.55E+02
+		NB-94	702.63		100.00	-1.00E-01	4.45E-01	4.45E-01
			871.10		100.00	1.17E-01		5.91E-01

Analysis Report for 1510089-01

GAS-1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		NB-95	765.79		99.81	-3.32E+06	1.21E+07	1.21E+07
+	@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+		ZR-95	724.18		43.70	-1.88E+03	9.69E+03	1.19E+04
			756.72		55.30	-6.52E+01		9.69E+03
+	@	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	7.38E+05	1.90E+06	1.90E+06
+		RU-106	621.84		9.80	-5.77E+00	2.28E+01	2.28E+01
+		AG-108M	433.93		89.90	2.64E-02	4.91E-01	5.10E-01
			614.37		90.40	-1.24E-01		4.91E-01
			722.95		90.50	3.53E-02		5.24E-01
+		CD-109	88.03	*	3.72	3.02E+03	6.11E+01	6.11E+01
+		AG-110M	657.75		93.14	6.98E-01	8.86E+00	1.16E+01
			677.61		10.53	6.82E+00		4.61E+01
			706.67		16.46	9.11E+00		3.01E+01
			763.93		21.98	2.51E+00		2.39E+01
			884.67		71.63	3.35E+00		9.14E+00
			1384.27		23.94	-5.62E+00		8.86E+00
+		CD-113M	263.70		0.02	3.92E+02	1.52E+03	1.52E+03
+		SN-113	255.12		1.93	-5.05E+02	1.17E+02	2.88E+03
			391.69	*	64.90	2.27E+02		1.17E+02
+		TE123M	159.00		84.10	-6.60E+00	4.46E+01	4.46E+01
+		SB-124	602.71		97.87	4.64E+03	7.57E+03	8.94E+03
			645.85		7.26	-6.21E+04		1.25E+05
			722.78		11.10	5.76E+03		8.54E+04
			1691.02		49.00	2.01E+03		7.57E+03
+		I-125	35.49		6.49	3.28E+05	2.70E+05	2.70E+05
+		SB-125	176.33		6.89	-4.21E+00	2.73E+00	6.92E+00
			427.89		29.33	4.74E-01		2.73E+00
			463.38		10.35	3.31E+00		8.52E+00
			600.56		17.80	-1.38E+00		4.31E+00
			635.90		11.32	1.45E+00		7.18E+00
+	@	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	8.38E+01	1.70E+00	1.70E+00
+	@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26
	@		685.20		35.70	1.00E+26		1.00E+26
	@		783.80		14.70	1.00E+26		1.00E+26
+		I-129	29.78		57.00	-3.38E+00	2.95E+00	2.95E+00
			33.60		13.20	2.10E+01		8.61E+00
			39.58		7.52	-3.14E+01		8.87E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26
	@		364.48		81.20	1.00E+26		1.00E+26
	@		636.97		7.26	1.00E+26		1.00E+26
	@		722.89		1.80	1.00E+26		1.00E+26

Analysis Report for 1510089-01

GAS-1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26
	@		228.16		88.00	1.00E+26		1.00E+26
+		BA-133	81.00		33.00	-6.95E-01	6.60E-01	1.27E+00
			302.84		17.80	-5.04E-01		2.06E+00
			356.01		60.00	-7.02E-02		6.60E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	-8.73E-01	9.80E-01	1.10E+01
			569.32		15.43	6.01E+00		6.15E+00
			604.70		97.60	-3.29E-01		9.80E-01
			795.84		85.40	-3.29E-01		1.33E+00
			801.93		8.73	2.89E+00		1.32E+01
+		CS-135	268.24		16.00	-9.09E-01	1.92E+00	1.92E+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	3.38E+19	2.65E+19	1.71E+20
			163.89		4.61	-1.85E+20		3.08E+20
			176.55		13.56	-5.95E+19		9.78E+19
			273.65		12.66	8.23E+19		1.25E+20
			340.57		48.50	2.84E+18		3.42E+19
			818.50		99.70	4.98E+18		2.65E+19
			1048.07		79.60	-1.48E+19		3.90E+19
			1235.34		19.70	-2.72E+19		8.40E+19
+		CS-137	661.65	*	85.12	9.04E+01	9.68E-01	9.68E-01
+		LA-138	788.74		34.00	5.43E-01	2.77E-01	1.51E+00
			1435.80		66.00	-1.14E-01		2.77E-01
+		CE-139	165.85	*	80.35	1.05E+02	3.78E+01	3.78E+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	1.26E+06	4.90E+07	4.90E+07
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	2.40E+00	1.92E+01	1.92E+01
+		PM-144	476.78		42.00	2.90E-01	2.31E+00	5.90E+00
			618.01		98.60	5.42E-01		2.31E+00
			696.49		99.49	-2.25E-01		2.34E+00
+		PM-145	36.85		21.70	4.48E+00	2.07E+00	3.84E+00
			37.36		39.70	1.57E+00		2.07E+00
			42.30		15.10	-4.25E+00		4.76E+00

Analysis Report for 1510089-01

GAS-1302

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		PM-145	72.40		2.31	5.49E+00	2.07E+00	1.74E+01
+		PM-146	453.90		39.94	1.15E+00	1.62E+00	1.62E+00
			735.90		14.01	1.85E+00		4.54E+00
			747.13		13.10	8.99E-01		4.90E+00
+	@	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	3.64E+01	1.58E+00	2.29E+00
			244.69		5.40	2.33E-01		6.53E+00
			344.27		19.13	-2.33E-01		1.94E+00
			778.89		9.20	2.18E+00		6.17E+00
			964.01		10.40	2.90E+00		7.45E+00
			1085.78		7.22	3.23E+00		1.01E+01
			1112.02		9.60	-4.26E-01		7.64E+00
			1407.95		14.94	-4.26E-01		1.58E+00
+		GD-153	97.43		31.30	-9.43E-01	9.24E+00	9.24E+00
			103.18		22.20	4.62E+00		1.31E+01
+		EU-154	123.07		40.50	1.94E+01	9.76E-01	1.23E+00
			723.30		19.70	1.93E-01		2.86E+00
			873.19		11.50	1.50E+00		6.20E+00
			996.32		10.30	3.63E+00		7.33E+00
			1004.76		17.90	3.31E+00		4.24E+00
			1274.45		35.50	1.13E-01		9.76E-01
+		EU-155	86.50		30.90	1.28E+02	1.63E+00	3.40E+00
			105.30		20.70	3.18E-01		1.63E+00
+		EU-156	811.77		10.40	-5.70E+15	4.55E+17	5.93E+17
			1153.47		7.20	-1.95E+17		8.32E+17
			1230.71		8.90	1.94E+17		4.55E+17
+		HO-166M	184.41		72.60	-2.81E-02	3.92E-01	3.92E-01
			280.45		29.60	1.96E-02		1.05E+00
			410.94		11.10	2.15E-01		3.93E+00
			711.69		54.10	-3.64E-01		8.43E-01
+		TM-171	66.72	*	0.14	6.72E+02	8.56E+02	8.56E+02
+		HF-172	81.75		4.52	-1.54E+00	5.32E+00	1.91E+01
			125.81		11.30	-1.76E+00		5.32E+00
+	@	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	9.58E+00	4.85E+00	1.56E+01
			272.11		21.20	-2.01E-01		4.85E+00
+		HF-175	343.40		84.00	-6.32E+02	1.97E+03	1.97E+03
+		LU-176	88.34		13.30	2.21E+02	3.35E-01	5.59E+00
			201.83		86.00	4.46E-02		3.44E-01
			306.78		94.00	-1.48E-01		3.35E-01
+		TA-182	67.75		41.20	3.60E+02	1.71E+02	1.71E+02
			1121.30		34.90	1.72E+02		3.19E+02
			1189.05		16.23	-2.99E+01		4.94E+02
			1221.41		26.98	4.70E+01		2.46E+02

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02		11.44	2.38E+02	1.71E+02	5.59E+02
+	IR-192	308.46		29.68	2.34E+03	3.22E+03	3.42E+03
		468.07		48.10	-1.21E+03		3.22E+03
+	HG-203	279.19		77.30	-8.17E+04	1.46E+05	1.46E+05
+	BI-207	569.67		97.72	3.48E-02	4.56E-01	4.56E-01
		1063.62		74.90	2.97E-01		8.89E-01
+	TL-208	583.14	*	30.22	1.14E+00	2.42E-01	1.41E+00
		860.37		4.48	1.31E-01		1.26E+01
		2614.66	*	35.85	2.94E-01		2.42E-01
+	BI-210M	262.00		45.00	-2.65E-01	6.85E-01	6.85E-01
		300.00		23.00	-7.66E-02		1.38E+00
+	PB-210	46.50		4.25	-1.33E+02	1.76E+01	1.76E+01
+	PB-211	404.84		2.90	-2.20E+00	1.24E+01	1.24E+01
		831.96		2.90	-8.49E-01		1.89E+01
+	BI-212	727.17		11.80	2.02E+00	3.98E+00	3.98E+00
		1620.62		2.75	1.93E+00		6.71E+00
+	PB-212	238.63		44.60	3.40E-01	7.16E-01	7.16E-01
		300.09		3.41	-5.16E-01		9.29E+00
+	BI-214	609.31		46.30	1.57E-01	9.48E-01	9.48E-01
		1120.29		15.10	3.57E+00		4.09E+00
		1764.49		15.80	-1.35E-01		1.10E+00
		2204.22		4.98	1.10E+00		3.80E+00
+	PB-214	295.21		19.19	-1.61E-02	9.10E-01	1.65E+00
		351.92		37.19	2.18E-02		9.10E-01
+	RN-219	401.80		6.50	-2.46E+00	5.40E+00	5.40E+00
+	RA-223	323.87		3.88	7.73E-01	8.33E+00	8.33E+00
+	RA-224	240.98		3.95	3.83E+00	8.06E+00	8.06E+00
+	RA-225	40.00		31.00	-2.44E+18	6.90E+17	6.90E+17
+	RA-226	186.21	*	3.28	5.64E+00	1.06E+01	1.06E+01
+	TH-227	50.10		8.40	3.80E+01	2.76E+00	9.13E+00
		236.00		11.50	-1.32E+00		2.76E+00
		256.20		6.30	4.54E-01		4.96E+00
+	AC-228	338.32		11.40	1.23E+00	2.33E+00	2.92E+00
		911.07		27.70	8.50E-01		2.33E+00
		969.11		16.60	-9.16E-01		3.95E+00
+	TH-230	48.44		16.90	1.34E+01	4.54E+00	4.54E+00
		62.85		4.60	-4.12E+02		1.29E+01
		67.67		0.37	2.17E+02		1.03E+02
+	PA-231	283.67		1.60	7.01E+00	1.36E+01	1.95E+01
		302.67		2.30	-3.34E+00		1.36E+01
+	TH-231	25.64		14.70	-1.41E+03	6.03E+00	6.47E+01
		84.21		6.40	-6.01E+02		6.03E+00
+	PA-233	311.98		38.60	-2.29E+08	3.27E+09	3.27E+09
+	PA-234	131.20		20.40	1.98E-01	1.21E+00	1.21E+00
		733.99		8.80	-1.32E+00		5.30E+00
		946.00		12.00	7.04E+00		6.02E+00
+	PA-234M	1001.03		0.92	1.21E+01	6.79E+01	6.79E+01

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-234	63.29		3.80	-5.53E+02	1.02E+01	1.02E+01
+	U-235	143.76		10.50	-1.06E+00	2.36E+00	2.36E+00
		163.35		4.70	-3.61E+00		6.02E+00
		205.31		4.70	2.06E+00		6.35E+00
+	NP-237	86.50		12.60	2.26E+02	6.00E+00	6.00E+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	2.53E+02	3.82E+00	3.82E+00
+	AM-243	74.67		66.00	-6.28E-01	5.47E-01	5.47E-01
+	CM-243	209.75		3.29	2.42E+00	2.34E+00	9.71E+00
		228.14		10.60	5.87E-01		3.21E+00
		277.60		14.00	-4.27E-01		2.34E+00

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59	10.42	3.24E+05	3.24E+05	2.31E+05	1.60E+05
	NA-22	1274.54	99.94	5.39E-01	5.39E-01	6.24E-02	2.60E-01
@	NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09	99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65	99.76	1.52E-01	1.52E-01	-7.18E-02	6.94E-02
	K-40	1460.81	10.67	1.95E+00	1.95E+00	3.42E-01	9.21E-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	4.15E-01	3.85E-01	8.73E-01	2.06E-01
		78.34	96.00	3.85E-01		3.91E-02	1.92E-01

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SC-46	889.25		99.98	7.56E+02	7.56E+02	2.88E+02	3.73E+02
		1120.51		99.99	7.64E+02		6.66E+02	3.76E+02
	V-48	983.52		99.98	1.08E+16	5.05E+15	5.41E+15	5.35E+15
		1312.10		97.50	5.05E+15		-5.81E+14	2.43E+15
	CR-51	320.08		9.83	7.41E+09	7.41E+09	3.63E+08	3.66E+09
	MN-54	834.83		99.97	3.78E+00	3.78E+00	-1.11E+00	1.86E+00
	CO-56	846.75		99.96	1.10E+03	4.58E+02	-6.69E+01	5.41E+02
		1037.75		14.03	8.79E+03		2.63E+03	4.33E+03
		1238.25		67.00	9.53E+02		9.68E+00	4.62E+02
		1771.40		15.51	2.15E+03		5.59E+02	9.94E+02
		2598.48		16.90	4.58E+02		6.22E+01	1.45E+02
+	CO-57	122.06	*	85.51	4.94E+00	4.94E+00	7.35E+01	2.46E+00
		136.48	*	10.60	2.57E+01		7.77E+01	1.27E+01
	CO-58	810.76		99.40	2.41E+03	2.41E+03	-1.68E+02	1.19E+03
	FE-59	1099.22		56.50	7.46E+05	4.26E+05	-2.10E+05	3.68E+05
		1291.56		43.20	4.26E+05		-1.39E+05	2.05E+05
+	CO-60	1173.22	*	100.00	1.26E+00	7.74E-01	1.43E+02	6.25E-01
		1332.49	*	100.00	7.74E-01		1.42E+02	3.80E-01
	ZN-65	1115.52		50.75	1.43E+01	1.43E+01	-5.65E+00	7.03E+00
@	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	3.62E+02	6.80E+01	5.41E+03	1.80E+02
		136.00		59.20	6.80E+01		2.33E+02	3.37E+01
		264.65		59.80	7.58E+01		2.65E+01	3.75E+01
		279.53		25.20	1.78E+02		-6.58E+01	8.83E+01
		400.65		11.40	4.51E+02		-1.89E+02	2.23E+02
	RB-82	776.52		13.00	5.40E+10	5.40E+10	-9.37E+08	2.66E+10
	RB-83	520.41		46.00	9.38E+02	9.38E+02	-5.69E+02	4.63E+02
		529.64		30.30	1.42E+03		-5.29E+02	7.02E+02
		552.65		16.40	2.61E+03		5.75E+02	1.29E+03
	KR-85	513.99		0.43	1.19E+02	1.19E+02	1.29E+01	5.87E+01
	SR-85	513.99		99.27	4.44E+03	4.44E+03	4.82E+02	2.20E+03
+	Y-88	898.02	*	93.40	2.39E+02	8.86E+01	2.93E+02	1.18E+02
		1836.01	*	99.38	8.86E+01		2.83E+02	4.26E+01
	NB-93M	16.57		9.43	4.55E+02	4.55E+02	-4.40E+03	2.24E+02
	NB-94	702.63		100.00	4.45E-01	4.45E-01	-1.00E-01	2.19E-01
		871.10		100.00	5.91E-01		1.17E-01	2.92E-01
	NB-95	765.79		99.81	1.21E+07	1.21E+07	-3.32E+06	5.97E+06
@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	ZR-95	724.18		43.70	1.19E+04	9.69E+03	-1.88E+03	5.89E+03
		756.72		55.30	9.69E+03		-6.52E+01	4.78E+03
@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		739.58		12.80	1.00E+26		1.00E+26	1.00E+20
@		778.00		4.50	1.00E+26		1.00E+26	1.00E+20
	RU-103	497.08		89.00	1.90E+06	1.90E+06	7.38E+05	9.41E+05
	RU-106	621.84		9.80	2.28E+01	2.28E+01	-5.77E+00	1.13E+01
	AG-108M	433.93		89.90	5.10E-01	4.91E-01	2.64E-02	2.52E-01
		614.37		90.40	4.91E-01		-1.24E-01	2.42E-01
		722.95		90.50	5.24E-01		3.53E-02	2.58E-01
+	CD-109	88.03	*	3.72	6.11E+01	6.11E+01	3.02E+03	3.04E+01
	AG-110M	657.75		93.14	1.16E+01	8.86E+00	6.98E-01	5.78E+00
		677.61		10.53	4.61E+01		6.82E+00	2.28E+01

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-110M	706.67		16.46	3.01E+01	8.86E+00	9.11E+00	1.49E+01
		763.93		21.98	2.39E+01		2.51E+00	1.18E+01
		884.67		71.63	9.14E+00		3.35E+00	4.51E+00
		1384.27		23.94	8.86E+00		-5.62E+00	4.19E+00
	CD-113M	263.70		0.02	1.52E+03	1.52E+03	3.92E+02	7.50E+02
+	SN-113	255.12		1.93	2.88E+03	1.17E+02	-5.05E+02	1.43E+03
		391.69	*	64.90	1.17E+02		2.27E+02	5.79E+01
	TE123M	159.00		84.10	4.46E+01	4.46E+01	-6.60E+00	2.21E+01
	SB-124	602.71		97.87	8.94E+03	7.57E+03	4.64E+03	4.41E+03
		645.85		7.26	1.25E+05		-6.21E+04	6.16E+04
		722.78		11.10	8.54E+04		5.76E+03	4.21E+04
		1691.02		49.00	7.57E+03		2.01E+03	3.53E+03
	I-125	35.49		6.49	2.70E+05	2.70E+05	3.28E+05	1.34E+05
	SB-125	176.33		6.89	6.92E+00	2.73E+00	-4.21E+00	3.43E+00
		427.89		29.33	2.73E+00		4.74E-01	1.35E+00
		463.38		10.35	8.52E+00		3.31E+00	4.22E+00
		600.56		17.80	4.31E+00		-1.38E+00	2.13E+00
		635.90		11.32	7.18E+00		1.45E+00	3.55E+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	1.70E+00	1.70E+00	8.38E+01	8.45E-01
@	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	2.95E+00	2.95E+00	-3.38E+00	1.46E+00
		33.60		13.20	8.61E+00		2.10E+01	4.27E+00
		39.58		7.52	8.87E+00		-3.14E+01	4.41E+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	1.27E+00	6.60E-01	-6.95E-01	6.31E-01
		302.84		17.80	2.06E+00		-5.04E-01	1.02E+00
		356.01		60.00	6.60E-01		-7.02E-02	3.27E-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	1.10E+01	9.80E-01	-8.73E-01	5.45E+00
		569.32		15.43	6.15E+00		6.01E+00	3.04E+00
		604.70		97.60	9.80E-01		-3.29E-01	4.84E-01
		795.84		85.40	1.33E+00		-3.29E-01	6.55E-01
		801.93		8.73	1.32E+01		2.89E+00	6.53E+00
	CS-135	268.24		16.00	1.92E+00	1.92E+00	-9.09E-01	9.49E-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	1.71E+20	2.65E+19	3.38E+19	8.45E+19
		163.89		4.61	3.08E+20		-1.85E+20	1.53E+20
		176.55		13.56	9.78E+19		-5.95E+19	4.84E+19
		273.65		12.66	1.25E+20		8.23E+19	6.18E+19

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-136	340.57		48.50	3.42E+19	2.65E+19	2.84E+18	1.69E+19
		818.50		99.70	2.65E+19		4.98E+18	1.31E+19
		1048.07		79.60	3.90E+19		-1.48E+19	1.93E+19
		1235.34		19.70	8.40E+19		-2.72E+19	4.08E+19
+	CS-137	661.65	*	85.12	9.68E-01	9.68E-01	9.04E+01	4.80E-01
	LA-138	788.74		34.00	1.51E+00	2.77E-01	5.43E-01	7.46E-01
		1435.80		66.00	2.77E-01		-1.14E-01	1.30E-01
+	CE-139	165.85	*	80.35	3.78E+01	3.78E+01	1.05E+02	1.88E+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	4.90E+07	4.90E+07	1.26E+06	2.43E+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	1.92E+01	1.92E+01	2.40E+00	9.52E+00
	PM-144	476.78		42.00	5.90E+00	2.31E+00	2.90E-01	2.92E+00
		618.01		98.60	2.31E+00		5.42E-01	1.14E+00
		696.49		99.49	2.34E+00		-2.25E-01	1.16E+00
	PM-145	36.85		21.70	3.84E+00	2.07E+00	4.48E+00	1.91E+00
		37.36		39.70	2.07E+00		1.57E+00	1.03E+00
		42.30		15.10	4.76E+00		-4.25E+00	2.37E+00
		72.40		2.31	1.74E+01		5.49E+00	8.66E+00
	PM-146	453.90		39.94	1.62E+00	1.62E+00	1.15E+00	8.01E-01
		735.90		14.01	4.54E+00		1.85E+00	2.24E+00
		747.13		13.10	4.90E+00		8.99E-01	2.42E+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	2.29E+00	1.58E+00	3.64E+01	1.14E+00
		244.69		5.40	6.53E+00		2.33E-01	3.24E+00
		344.27		19.13	1.94E+00		-2.33E-01	9.59E-01
		778.89		9.20	6.17E+00		2.18E+00	3.04E+00
		964.01		10.40	7.45E+00		2.90E+00	3.68E+00
		1085.78		7.22	1.01E+01		3.23E+00	4.99E+00
		1112.02		9.60	7.64E+00		-4.26E-01	3.76E+00
		1407.95		14.94	1.58E+00		-4.26E-01	7.50E-01
	GD-153	97.43		31.30	9.24E+00	9.24E+00	-9.43E-01	4.58E+00
		103.18		22.20	1.31E+01		4.62E+00	6.51E+00
	EU-154	123.07		40.50	1.23E+00	9.76E-01	1.94E+01	6.13E-01
		723.30		19.70	2.86E+00		1.93E-01	1.41E+00
		873.19		11.50	6.20E+00		1.50E+00	3.06E+00
		996.32		10.30	7.33E+00		3.63E+00	3.62E+00
		1004.76		17.90	4.24E+00		3.31E+00	2.09E+00
		1274.45		35.50	9.76E-01		1.13E-01	4.71E-01
	EU-155	86.50		30.90	3.40E+00	1.63E+00	1.28E+02	1.70E+00
		105.30		20.70	1.63E+00		3.18E-01	8.11E-01

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-156	811.77		10.40	5.93E+17	4.55E+17	-5.70E+15	2.92E+17
		1153.47		7.20	8.32E+17		-1.95E+17	4.08E+17
		1230.71		8.90	4.55E+17		1.94E+17	2.21E+17
	HO-166M	184.41		72.60	3.92E-01	3.92E-01	-2.81E-02	1.94E-01
		280.45		29.60	1.05E+00		1.96E-02	5.18E-01
		410.94		11.10	3.93E+00		2.15E-01	1.95E+00
		711.69		54.10	8.43E-01		-3.64E-01	4.16E-01
+	TM-171	66.72	*	0.14	8.56E+02	8.56E+02	6.72E+02	4.26E+02
	HF-172	81.75		4.52	1.91E+01	5.32E+00	-1.54E+00	9.50E+00
		125.81		11.30	5.32E+00		-1.76E+00	2.64E+00
@	LU-172	181.53		20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		810.06		16.63	1.00E+26		1.00E+26	1.00E+20
@		912.12		15.25	1.00E+26		1.00E+26	1.00E+20
@		1093.66		62.50	1.00E+26		1.00E+26	1.00E+20
	LU-173	100.72		5.24	1.56E+01	4.85E+00	9.58E+00	7.76E+00
		272.11		21.20	4.85E+00		-2.01E-01	2.40E+00
	HF-175	343.40		84.00	1.97E+03	1.97E+03	-6.32E+02	9.76E+02
	LU-176	88.34		13.30	5.59E+00	3.35E-01	2.21E+02	2.79E+00
		201.83		86.00	3.44E-01		4.46E-02	1.71E-01
		306.78		94.00	3.35E-01		-1.48E-01	1.66E-01
	TA-182	67.75		41.20	1.71E+02	1.71E+02	3.60E+02	8.50E+01
		1121.30		34.90	3.19E+02		1.72E+02	1.57E+02
		1189.05		16.23	4.94E+02		-2.99E+01	2.42E+02
		1221.41		26.98	2.46E+02		4.70E+01	1.20E+02
		1231.02		11.44	5.59E+02		2.38E+02	2.72E+02
	IR-192	308.46		29.68	3.42E+03	3.22E+03	2.34E+03	1.69E+03
		468.07		48.10	3.22E+03		-1.21E+03	1.59E+03
	HG-203	279.19		77.30	1.46E+05	1.46E+05	-8.17E+04	7.21E+04
	BI-207	569.67		97.72	4.56E-01	4.56E-01	3.48E-02	2.25E-01
		1063.62		74.90	8.89E-01		2.97E-01	4.38E-01
+	TL-208	583.14	*	30.22	1.41E+00	2.42E-01	1.14E+00	6.94E-01
		860.37		4.48	1.26E+01		1.31E-01	6.23E+00
		2614.66	*	35.85	2.42E-01		2.94E-01	1.01E-01
	BI-210M	262.00		45.00	6.85E-01	6.85E-01	-2.65E-01	3.39E-01
		300.00		23.00	1.38E+00		-7.66E-02	6.82E-01
	PB-210	46.50		4.25	1.76E+01	1.76E+01	-1.33E+02	8.74E+00
	PB-211	404.84		2.90	1.24E+01	1.24E+01	-2.20E+00	6.10E+00
		831.96		2.90	1.89E+01		-8.49E-01	9.34E+00
	BI-212	727.17		11.80	3.98E+00	3.98E+00	2.02E+00	1.96E+00
		1620.62		2.75	6.71E+00		1.93E+00	3.14E+00
	PB-212	238.63		44.60	7.16E-01	7.16E-01	3.40E-01	3.55E-01
		300.09		3.41	9.29E+00		-5.16E-01	4.60E+00
	BI-214	609.31		46.30	9.48E-01	9.48E-01	1.57E-01	4.68E-01
		1120.29		15.10	4.09E+00		3.57E+00	2.01E+00
		1764.49		15.80	1.10E+00		-1.35E-01	5.12E-01
		2204.22		4.98	3.80E+00		1.10E+00	1.76E+00
	PB-214	295.21		19.19	1.65E+00	9.10E-01	-1.61E-02	8.18E-01
		351.92		37.19	9.10E-01		2.18E-02	4.50E-01
	RN-219	401.80		6.50	5.40E+00	5.40E+00	-2.46E+00	2.67E+00
	RA-223	323.87		3.88	8.33E+00	8.33E+00	7.73E-01	4.12E+00
	RA-224	240.98		3.95	8.06E+00	8.06E+00	3.83E+00	4.00E+00
	RA-225	40.00		31.00	6.90E+17	6.90E+17	-2.44E+18	3.42E+17
+	RA-226	186.21	*	3.28	1.06E+01	1.06E+01	5.64E+00	5.25E+00

Analysis Report for 1510089-01

GAS-1302

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-227	50.10		8.40	9.13E+00	2.76E+00	3.80E+01	4.55E+00
		236.00		11.50	2.76E+00		-1.32E+00	1.37E+00
		256.20		6.30	4.96E+00		4.54E-01	2.46E+00
	AC-228	338.32		11.40	2.92E+00	2.33E+00	1.23E+00	1.44E+00
		911.07		27.70	2.33E+00		8.50E-01	1.15E+00
		969.11		16.60	3.95E+00		-9.16E-01	1.95E+00
	TH-230	48.44		16.90	4.54E+00	4.54E+00	1.34E+01	2.26E+00
		62.85		4.60	1.29E+01		-4.12E+02	6.41E+00
		67.67		0.37	1.03E+02		2.17E+02	5.14E+01
	PA-231	283.67		1.60	1.95E+01	1.36E+01	7.01E+00	9.63E+00
		302.67		2.30	1.36E+01		-3.34E+00	6.73E+00
	TH-231	25.64		14.70	6.47E+01	6.03E+00	-1.41E+03	3.23E+01
		84.21		6.40	6.03E+00		-6.01E+02	3.00E+00
	PA-233	311.98		38.60	3.27E+09	3.27E+09	-2.29E+08	1.62E+09
	PA-234	131.20		20.40	1.21E+00	1.21E+00	1.98E-01	5.98E-01
		733.99		8.80	5.30E+00		-1.32E+00	2.61E+00
		946.00		12.00	6.02E+00		7.04E+00	2.98E+00
	PA-234M	1001.03		0.92	6.79E+01	6.79E+01	1.21E+01	3.35E+01
	TH-234	63.29		3.80	1.02E+01	1.02E+01	-5.53E+02	5.10E+00
	U-235	143.76		10.50	2.36E+00	2.36E+00	-1.06E+00	1.17E+00
		163.35		4.70	6.02E+00		-3.61E+00	2.99E+00
		205.31		4.70	6.35E+00		2.06E+00	3.14E+00
	NP-237	86.50		12.60	6.00E+00	6.00E+00	2.26E+02	2.99E+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	3.82E+00	3.82E+00	2.53E+02	1.91E+00
	AM-243	74.67		66.00	5.47E-01	5.47E-01	-6.28E-01	2.72E-01
	CM-243	209.75		3.29	9.71E+00	2.34E+00	2.42E+00	4.81E+00
		228.14		10.60	3.21E+00		5.87E-01	1.59E+00
		277.60		14.00	2.34E+00		-4.27E-01	1.16E+00

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

No Action Level results available for reporting purposes.

Analysis Report for 1510089-01

GAS-1302

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: GAS-1302

Elapsed Live time: 1800
Elapsed Real Time: 1827

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	2	1040	2514	8352	61646	48376	6309
25:	22705	14353	2422	1127	1039	939	972	2117
33:	1849	1266	927	1103	1391	1268	1204	1265
41:	1369	1652	1799	2007	2186	2339	2727	3310
49:	4338	5477	5245	5124	5178	5242	5419	5766
57:	6074	6769	18575	66752	15338	2357	2192	2002
65:	1773	2011	2247	2261	2170	2263	2130	2224
73:	2174	2099	2194	2137	2171	2295	2177	2257
81:	2192	2256	2284	2332	2355	2587	3607	22160
89:	20330	2183	1405	1343	1172	1179	1065	1007
97:	1081	1032	1071	1111	1069	1120	1088	1061
105:	1038	1012	1021	1033	975	1069	1051	1143
113:	1103	1103	1088	1097	1086	1113	1105	1176
121:	1355	5252	5126	1189	1008	979	896	915
129:	954	915	956	940	938	906	958	1153
137:	1671	1003	864	898	908	878	864	869
145:	877	895	902	860	889	867	860	900
153:	837	857	865	866	848	801	858	908
161:	834	854	846	843	912	1595	1235	792
169:	809	785	798	810	840	817	810	856
177:	778	811	793	865	789	846	835	833
185:	845	951	1003	907	908	865	933	880
193:	921	882	943	890	828	852	855	936
201:	812	816	866	927	869	844	813	874
209:	832	789	905	911	870	908	931	879
217:	945	924	915	898	929	925	933	889
225:	880	893	904	879	891	852	877	852
233:	826	840	825	826	797	814	902	810
241:	782	789	752	796	728	762	777	741
249:	748	742	739	749	692	715	753	687
257:	716	709	707	702	653	679	683	660
265:	690	688	661	655	648	660	617	668
273:	659	681	652	677	643	611	644	584
281:	609	642	631	613	621	591	612	595
289:	580	646	603	613	580	583	634	613
297:	626	621	594	619	583	555	586	580
305:	560	581	561	550	591	582	610	533
313:	519	539	550	557	548	574	547	544
321:	540	553	545	549	610	521	553	561
329:	527	604	547	510	503	539	538	525
337:	567	561	537	573	531	540	528	517
345:	524	527	545	528	538	492	512	571
353:	573	558	555	535	524	505	535	506
361:	511	498	513	560	586	501	509	502

369:	480	555	499	534	502	496	553	512

Sample Title: GAS-1302

Channel								
377:	503	497	500	482	532	508	524	514
385:	476	495	483	498	488	523	616	819
393:	568	470	501	495	537	525	531	467
401:	489	465	478	505	473	495	530	531
409:	516	513	534	495	520	506	503	528
417:	498	518	483	515	465	489	553	513
425:	529	479	502	506	495	524	495	470
433:	507	553	528	512	524	500	523	488
441:	555	546	499	494	532	540	559	486
449:	524	514	548	542	568	527	538	556
457:	515	499	517	544	534	535	582	539
465:	532	546	540	526	526	521	524	525
473:	546	508	532	488	523	504	486	450
481:	453	397	438	413	410	428	420	406
489:	385	431	421	386	397	401	410	364
497:	376	441	359	380	355	376	368	379
505:	378	335	369	355	409	386	412	428
513:	344	346	383	397	350	360	362	347
521:	339	333	350	304	342	366	297	345
529:	330	351	350	322	329	324	349	301
537:	324	339	339	301	320	305	323	327
545:	305	314	316	309	305	340	277	288
553:	311	321	283	321	288	298	299	319
561:	317	321	238	296	260	315	300	309
569:	324	305	279	307	260	286	316	295
577:	288	294	318	260	282	324	309	303
585:	313	254	279	311	290	311	318	267
593:	291	278	279	313	270	248	262	281
601:	273	302	277	288	297	264	275	279
609:	291	319	271	307	268	278	253	276
617:	296	300	274	299	278	285	269	286
625:	286	249	319	251	279	310	289	256
633:	273	292	276	289	309	277	270	286
641:	277	298	271	278	264	268	283	267
649:	277	291	283	262	290	299	300	322
657:	294	303	336	764	6965	18561	7250	789
665:	477	400	275	231	244	223	236	210
673:	232	254	249	224	257	259	265	253
681:	247	248	250	262	244	258	245	261
689:	239	262	240	248	252	271	215	235
697:	230	260	241	264	235	216	217	243
705:	234	240	253	259	241	240	242	259
713:	227	251	236	259	247	237	281	254
721:	241	240	239	262	249	262	229	249
729:	226	265	223	239	249	249	256	245
737:	233	246	257	229	252	233	238	252
745:	269	233	249	240	254	232	221	272
753:	252	244	242	241	246	253	234	234
761:	238	217	250	222	284	265	220	249
769:	238	270	279	258	266	244	247	255
777:	263	254	268	254	241	260	269	225
785:	239	234	287	274	246	243	271	282
793:	266	269	284	246	259	258	224	255

801:	259	269	286	291	266	262	253	251

Sample Title: GAS-1302

Channel								
809:	249	260	256	245	270	285	283	263
817:	245	230	235	290	267	293	272	283
825:	270	284	237	260	255	293	262	283
833:	276	283	273	310	285	280	305	305
841:	256	287	288	277	268	298	258	290
849:	267	290	274	275	280	295	270	274
857:	292	262	263	271	277	287	284	288
865:	271	263	316	305	271	291	284	298
873:	310	314	293	288	281	300	345	291
881:	283	305	323	277	308	283	303	289
889:	278	296	334	363	300	293	316	323
897:	357	484	448	342	351	341	343	325
905:	317	341	307	317	308	323	344	359
913:	324	336	309	319	337	350	353	335
921:	323	350	371	346	339	362	363	367
929:	347	335	319	342	350	358	367	342
937:	350	340	326	363	357	350	402	390
945:	425	386	396	348	376	335	353	403
953:	361	364	378	376	395	358	356	331
961:	350	380	337	320	361	329	313	322
969:	314	324	274	276	317	276	316	316
977:	305	275	284	283	261	270	287	304
985:	273	259	302	236	264	255	283	266
993:	269	239	291	254	255	288	285	249
1001:	228	260	254	292	269	259	298	249
1009:	256	247	239	277	249	286	250	258
1017:	248	266	254	270	266	260	243	259
1025:	282	259	261	262	237	282	270	253
1033:	213	233	239	251	271	240	259	257
1041:	262	266	260	255	234	215	244	257
1049:	221	242	281	226	271	242	239	265
1057:	244	245	244	225	247	237	237	256
1065:	252	260	244	226	256	224	245	260
1073:	220	249	240	243	230	234	254	263
1081:	239	231	253	259	261	218	256	232
1089:	271	244	247	270	229	241	280	249
1097:	258	236	245	244	268	254	266	248
1105:	256	232	276	252	264	230	263	255
1113:	227	247	212	233	227	210	225	221
1121:	219	185	222	158	184	147	176	165
1129:	143	169	164	158	160	148	139	151
1137:	155	185	142	165	155	148	143	139
1145:	147	154	156	135	151	139	153	130
1153:	133	144	141	148	155	142	117	125
1161:	141	148	151	159	146	134	146	147
1169:	163	159	353	2321	11131	12795	3597	531
1177:	279	177	113	127	102	120	89	104
1185:	112	92	114	91	89	96	96	96
1193:	91	88	83	105	81	81	86	81
1201:	101	90	94	66	55	76	68	74
1209:	88	75	84	64	64	82	62	66
1217:	73	59	58	54	62	75	63	69
1225:	51	54	53	53	74	61	56	48

1233:	54	55	45	55	57	46	50	57

Sample Title: GAS-1302

Channel								
1241:	40	39	54	36	45	41	43	48
1249:	41	37	41	42	46	38	46	47
1257:	32	40	40	51	40	39	47	33
1265:	34	44	37	33	35	35	32	40
1273:	44	41	27	39	35	37	35	34
1281:	41	48	44	42	35	45	35	41
1289:	39	26	41	34	32	36	37	40
1297:	39	36	38	50	45	38	31	28
1305:	37	35	38	27	33	35	31	37
1313:	31	40	39	38	41	40	33	52
1321:	38	55	52	51	49	39	55	46
1329:	59	146	1343	7347	12121	5315	726	202
1337:	127	48	20	32	22	16	24	22
1345:	12	24	24	19	25	18	33	19
1353:	19	25	21	26	20	18	15	16
1361:	14	15	15	19	17	19	17	13
1369:	17	17	9	15	10	10	23	15
1377:	10	23	14	19	14	12	12	18
1385:	14	20	10	20	21	26	14	24
1393:	15	23	18	18	14	15	16	27
1401:	13	20	20	16	18	19	14	20
1409:	19	14	10	18	19	14	10	11
1417:	4	24	23	14	10	14	17	21
1425:	6	18	12	11	13	19	10	19
1433:	10	13	12	9	16	12	11	17
1441:	12	8	11	23	13	14	10	21
1449:	12	9	8	10	13	11	9	13
1457:	12	13	6	17	23	19	18	10
1465:	15	15	16	17	10	13	14	13
1473:	13	8	15	13	10	18	18	9
1481:	11	10	13	14	10	9	19	14
1489:	9	8	13	14	11	13	14	13
1497:	10	13	9	8	17	10	10	15
1505:	10	15	10	12	12	9	15	10
1513:	10	13	8	14	13	13	14	19
1521:	15	17	8	9	12	15	6	12
1529:	16	13	12	11	14	5	7	4
1537:	12	13	12	13	13	14	14	11
1545:	12	17	15	19	14	15	16	8
1553:	14	13	16	15	19	8	17	13
1561:	17	17	17	17	14	15	12	17
1569:	15	14	9	15	7	11	12	16
1577:	12	12	7	8	9	19	13	11
1585:	5	13	7	11	10	10	18	22
1593:	17	17	9	12	14	7	18	11
1601:	12	8	11	14	12	14	8	8
1609:	10	12	12	11	4	11	9	9
1617:	11	10	11	9	12	8	10	11
1625:	5	3	7	8	8	10	13	11
1633:	14	14	8	8	3	13	6	21
1641:	10	7	10	9	8	9	13	14
1649:	9	9	9	11	11	14	6	9
1657:	8	9	13	6	10	10	7	9

1665:	11	6	14	9	7	7	12	13

Sample Title: GAS-1302

Channel								
1673:	9	8	10	10	10	6	10	9
1681:	11	11	9	7	10	4	10	6
1689:	10	14	13	11	6	6	7	10
1697:	7	6	7	10	6	6	5	8
1705:	9	9	7	6	4	14	6	10
1713:	5	9	7	9	4	4	6	11
1721:	11	8	8	5	8	4	8	13
1729:	12	16	9	14	6	8	6	12
1737:	5	7	13	12	3	6	6	8
1745:	7	13	9	3	6	2	10	7
1753:	10	9	3	7	9	7	9	11
1761:	4	6	5	20	8	5	8	9
1769:	6	10	5	7	8	8	10	2
1777:	10	13	8	10	4	8	4	8
1785:	5	9	7	5	9	9	6	6
1793:	6	8	5	9	7	9	7	6
1801:	7	7	6	11	8	6	7	4
1809:	4	5	6	9	6	4	4	8
1817:	11	6	9	6	4	9	8	5
1825:	10	8	6	7	6	5	4	11
1833:	9	13	38	87	84	31	9	6
1841:	10	7	11	8	4	8	8	6
1849:	8	8	12	6	9	3	6	7
1857:	3	7	9	8	9	4	7	5
1865:	13	4	3	5	10	5	9	5
1873:	13	7	6	7	7	8	7	7
1881:	9	5	6	9	8	5	9	5
1889:	7	7	6	8	5	3	8	7
1897:	2	4	6	2	3	10	5	5
1905:	5	8	6	7	8	7	1	9
1913:	7	10	7	13	11	11	8	9
1921:	5	3	11	10	4	10	6	6
1929:	6	8	12	4	4	6	6	4
1937:	8	4	11	5	10	3	5	7
1945:	2	9	8	7	10	13	5	8
1953:	8	7	1	8	8	4	7	8
1961:	7	6	12	8	6	6	2	4
1969:	7	5	9	6	6	3	5	11
1977:	8	7	4	6	9	6	4	5
1985:	10	8	3	8	10	5	8	8
1993:	4	4	5	4	9	11	2	4
2001:	9	9	4	4	9	3	5	5
2009:	9	7	4	8	6	16	7	8
2017:	9	5	6	5	7	12	9	4
2025:	7	6	5	9	6	8	3	8
2033:	7	2	11	7	5	4	9	6
2041:	10	8	0	5	6	7	4	9
2049:	11	5	3	10	6	3	5	8
2057:	3	6	6	5	5	8	8	8
2065:	9	5	7	7	5	5	5	7
2073:	5	6	4	8	8	7	6	7
2081:	7	10	4	8	8	2	7	2
2089:	6	3	3	6	7	5	8	5

2097:	6	6	6	5	7	8	4	7

Sample Title: GAS-1302

Channel								
2105:	6	5	10	3	3	4	6	4
2113:	8	7	1	6	6	3	10	4
2121:	3	4	4	2	2	6	8	4
2129:	8	5	4	4	12	8	10	6
2137:	4	5	3	3	3	4	6	2
2145:	8	8	3	3	5	7	4	4
2153:	7	10	4	6	3	3	2	7
2161:	4	3	5	7	9	3	1	6
2169:	6	9	5	4	3	5	8	4
2177:	4	7	2	9	9	5	4	4
2185:	6	2	8	6	5	2	6	5
2193:	6	3	9	4	4	6	6	5
2201:	4	4	6	8	7	6	6	7
2209:	4	3	4	3	5	3	6	5
2217:	7	3	7	4	7	3	9	6
2225:	4	4	5	5	6	10	2	4
2233:	6	3	8	8	5	8	3	12
2241:	7	8	5	5	5	7	7	5
2249:	9	1	4	5	6	10	8	8
2257:	11	8	9	5	5	7	4	4
2265:	6	4	7	7	5	2	7	4
2273:	7	10	10	7	9	8	6	11
2281:	7	6	6	7	12	8	8	12
2289:	5	6	2	4	8	8	7	1
2297:	5	2	7	8	3	3	4	2
2305:	10	6	6	1	4	1	4	5
2313:	2	6	3	4	2	6	6	1
2321:	1	6	1	5	2	3	2	0
2329:	5	1	3	5	1	4	2	5
2337:	5	7	3	2	6	5	5	6
2345:	6	1	4	5	5	5	4	2
2353:	2	3	3	1	3	2	4	2
2361:	3	2	2	1	5	4	4	5
2369:	4	1	3	5	3	2	4	2
2377:	1	1	1	0	1	3	0	1
2385:	4	1	2	3	1	3	0	1
2393:	1	3	0	1	0	3	0	1
2401:	2	1	1	0	3	1	1	3
2409:	1	1	2	0	4	3	4	2
2417:	0	0	0	1	0	0	1	0
2425:	3	0	2	2	1	1	2	1
2433:	0	1	1	1	1	0	0	3
2441:	1	0	0	0	1	0	4	0
2449:	1	2	0	0	2	0	0	1
2457:	2	1	1	2	2	1	0	0
2465:	3	0	1	0	1	0	2	1
2473:	0	1	1	0	2	1	2	1
2481:	2	1	2	0	0	1	0	0
2489:	0	1	1	1	1	1	3	0
2497:	1	3	0	1	2	3	8	46
2505:	122	138	76	20	4	2	1	0
2513:	1	0	0	0	0	2	1	0
2521:	0	0	0	0	1	1	1	1

2529:	0	0	0	0	0	0	0	0

Sample Title: GAS-1302

Channel								
2537:	0	1	0	0	0	2	0	1
2545:	0	0	0	1	1	1	0	0
2553:	0	0	0	0	0	0	1	1
2561:	0	0	0	2	1	0	0	0
2569:	0	0	0	1	0	0	0	0
2577:	0	0	1	0	0	2	0	0
2585:	0	0	1	0	0	0	0	0
2593:	0	0	0	0	0	0	1	0
2601:	0	0	0	0	0	0	0	0
2609:	0	0	0	1	2	14	6	2
2617:	1	0	2	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	1	1	0	0	0
2641:	0	0	0	0	0	1	0	0
2649:	1	0	0	0	1	0	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	0	1	0
2673:	0	0	0	0	1	0	0	0
2681:	0	0	0	0	1	0	0	0
2689:	1	0	0	0	0	0	1	0
2697:	0	1	0	0	1	0	0	1
2705:	0	0	1	0	0	0	0	0
2713:	1	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	1	0	0	3	2	1
2737:	0	0	0	0	1	0	0	1
2745:	0	0	0	1	0	0	0	0
2753:	0	0	0	0	1	0	0	0
2761:	0	2	0	1	0	0	0	1
2769:	0	0	0	0	2	0	0	0
2777:	1	0	0	0	0	1	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	1	0
2801:	0	0	1	0	0	1	0	0
2809:	0	1	0	1	0	0	0	0
2817:	0	0	2	0	1	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	1	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	1	0	1	0	0	0	0
2865:	0	0	0	0	0	0	0	1
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	0	1	0	0	0
2889:	0	0	0	1	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	1	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	0	2	1	0	0

2961:	0	0	0	0	2	0	0	0

Sample Title: GAS-1302

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

3393:	0	0	0	0	0	0	0	0

Sample Title: GAS-1302

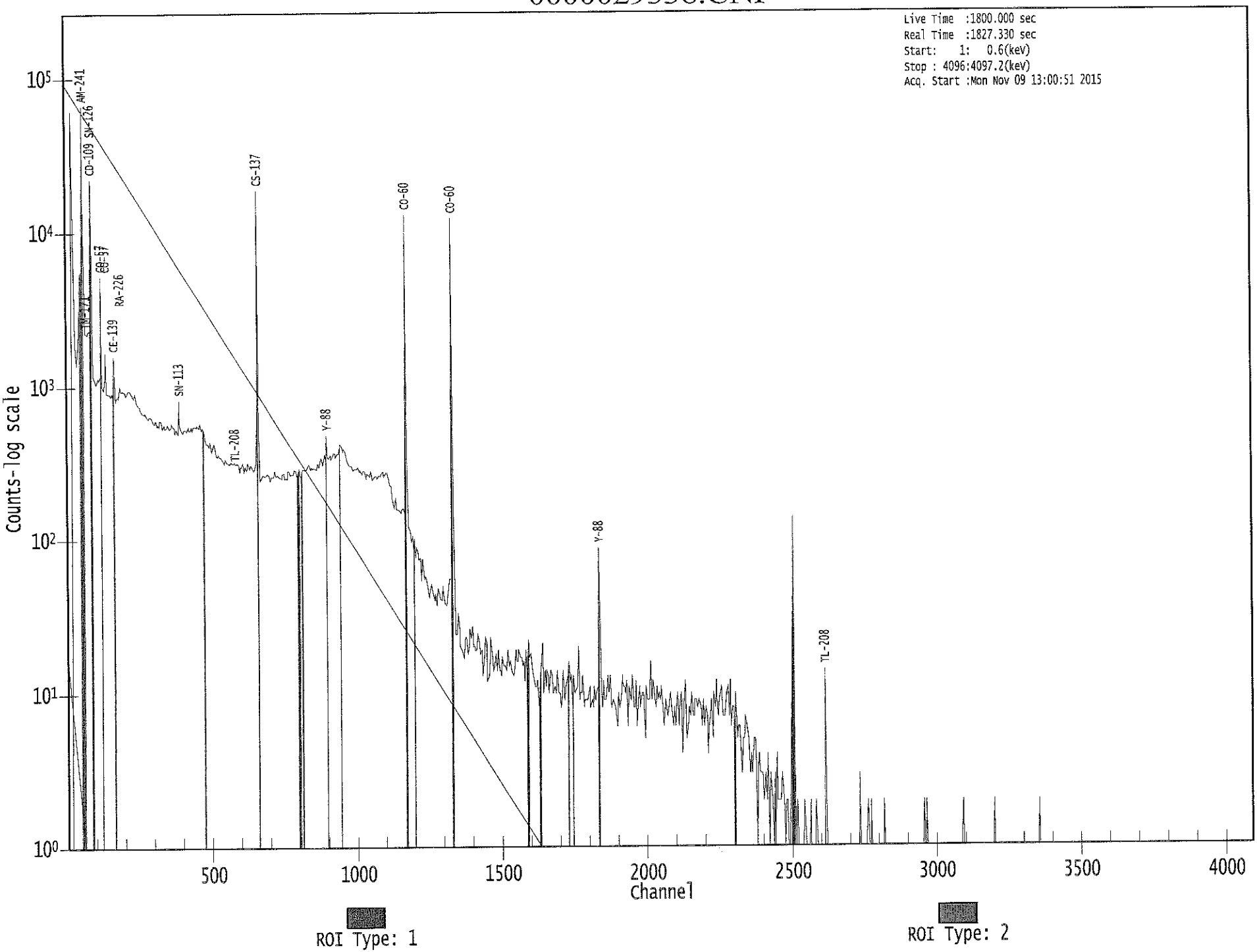
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	1	0	0	1
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	1	0	0	0	0	0	0	0

Sample Title: GAS-1302

Channel								
3833:	0	0	0	0	1	0	0	0
3841:	0	0	0	0	0	1	0	0
3849:	0	0	0	0	0	0	0	1
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:	1	0	0	0	0	0	0	1
3889:	0	0	0	0	0	0	0	0
3897:	1	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	1	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	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	1	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	1	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	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:	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	1	1	0	0	0	0
4049:	1	0	0	1	0	0	0	0
4057:	0	0	0	0	0	0	1	0
4065:	0	0	0	0	0	0	1	0
4073:	0	0	0	1	1	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000029338.CNF



Apex-Gamma

Analysis Report for 1510089-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 11/9/2015 7:44:07AM
Acquisition Started	: 11/9/2015 1:27:55PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3668.1 seconds
Dead Time	: 1.86 %
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	: 29341

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

Analysis Report for 1510089-02

BLANK

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 2:29:04PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	97.59	96.87	0.0000	0.00
2	140.81	140.10	0.0000	0.00
3	181.73	181.04	0.0000	0.00
4	386.50	385.90	0.0000	0.00
5	511.34	510.80	0.0000	0.00
6	540.21	539.68	0.0000	0.00
7	572.42	571.91	0.0000	0.00
8	660.66	660.19	0.0000	0.00
9	756.42	756.00	0.0000	0.00
10	764.80	764.38	0.0000	0.00
11	781.30	780.89	0.0000	0.00
12	836.84	836.46	0.0000	0.00
13	863.07	862.70	0.0000	0.00
14	885.81	885.45	0.0000	0.00
15	894.97	894.62	0.0000	0.00
16	925.83	925.50	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-02

BLANK

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 2:29:04PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	1	97.59	88 -	99	96.87	2.94E+01	26.88	8.26E+01	2.45
	2	140.81	136 -	144	140.10	3.80E+01	31.16	1.26E+02	1.77
	3	181.73	169 -	189	181.04	7.25E+01	65.02	3.15E+02	14.26
	4	386.50	383 -	390	385.90	1.16E+01	15.49	3.29E+01	2.48
	5	511.34	504 -	518	510.80	6.95E+01	26.56	4.50E+01	7.04
	6	540.21	535 -	544	539.68	1.47E+01	15.13	2.26E+01	1.29
	7	572.42	563 -	579	571.91	3.49E+01	17.79	1.62E+01	8.66
	8	660.66	656 -	665	660.19	1.64E+01	12.77	1.12E+01	4.92
	9	756.42	751 -	760	756.00	1.40E+01	7.48	0.00E+00	2.58
	10	764.80	761 -	767	764.38	1.30E+01	7.21	0.00E+00	3.86
	11	781.30	776 -	786	780.89	1.20E+01	14.59	2.20E+01	1.75
	12	836.84	831 -	840	836.46	1.28E+01	9.22	4.47E+00	3.38
	13	863.07	860 -	866	862.70	8.65E+00	7.23	2.70E+00	1.19
	14	885.81	881 -	889	885.45	1.10E+01	6.63	0.00E+00	5.23
	15	894.97	891 -	897	894.62	1.03E+01	7.76	3.42E+00	1.95
	16	925.83	920 -	930	925.50	1.22E+01	11.34	9.53E+00	1.20

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 : 11/9/2015 2:29:04PM

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

Analysis Report for 1510089-02

BLANK

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	1	97.59	88 -	99	2.94E+01	26.88	8.26E+01	1.49E+01
	2	140.81	136 -	144	3.80E+01	31.16	1.26E+02	2.35E+01
	3	181.73	169 -	189	7.25E+01	65.02	3.15E+02	5.16E+01
	4	386.50	383 -	390	1.16E+01	15.49	3.29E+01	1.14E+01
	5	511.34	504 -	518	6.95E+01	26.56	4.50E+01	1.70E+01
	6	540.21	535 -	544	1.47E+01	15.13	2.26E+01	1.07E+01
	7	572.42	563 -	579	3.49E+01	17.79	1.62E+01	1.09E+01
	8	660.66	656 -	665	1.64E+01	12.77	1.12E+01	8.11E+00
	9	756.42	751 -	760	1.40E+01	7.48	0.00E+00	0.00E+00
	10	764.80	761 -	767	1.30E+01	7.21	0.00E+00	0.00E+00
	11	781.30	776 -	786	1.20E+01	14.59	2.20E+01	1.06E+01
	12	836.84	831 -	840	1.28E+01	9.22	4.47E+00	4.79E+00
	13	863.07	860 -	866	8.65E+00	7.23	2.70E+00	3.45E+00
	14	885.81	881 -	889	1.10E+01	6.63	0.00E+00	0.00E+00
	15	894.97	891 -	897	1.03E+01	7.76	3.42E+00	3.59E+00
	16	925.83	920 -	930	1.22E+01	11.34	9.53E+00	7.33E+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 : 11/9/2015 2:29:04PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	1	97.59	88 -	99	96.87	2.94E+01	26.88	8.26E+01	GD-153
	2	140.81	136 -	144	140.10	3.80E+01	31.16	1.26E+02	.....
	3	181.73	169 -	189	181.04	7.25E+01	65.02	3.15E+02	LU-172
									MO-99
	4	386.50	383 -	390	385.90	1.16E+01	15.49	3.29E+01	.....
	5	511.34	504 -	518	510.80	6.95E+01	26.56	4.50E+01	.....
	6	540.21	535 -	544	539.68	1.47E+01	15.13	2.26E+01	.....
	7	572.42	563 -	579	571.91	3.49E+01	17.79	1.62E+01	.....
	8	660.66	656 -	665	660.19	1.64E+01	12.77	1.12E+01	CS-137

Analysis Report for 1510089-02

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Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
9	756.42	751 -	760	756.00	1.40E+01	7.48	0.00E+00	ZR-95
10	764.80	761 -	767	764.38	1.30E+01	7.21	0.00E+00	AG-110M NB-95
11	781.30	776 -	786	780.89	1.20E+01	14.59	2.20E+01	.....
12	836.84	831 -	840	836.46	1.28E+01	9.22	4.47E+00	.....
13	863.07	860 -	866	862.70	8.65E+00	7.23	2.70E+00	.....
14	885.81	881 -	889	885.45	1.10E+01	6.63	0.00E+00	.....
15	894.97	891 -	897	894.62	1.03E+01	7.76	3.42E+00	.....
16	925.83	920 -	930	925.50	1.22E+01	11.34	9.53E+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 : 11/9/2015 2:29:04PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	1	97.59	2.94E+01	26.88	1.84E-02	1.60E-03
	2	140.81	3.80E+01	31.16	1.44E-02	1.39E-03
	3	181.73	7.25E+01	65.02	1.18E-02	1.16E-03
	4	386.50	1.16E+01	15.49	6.05E-03	7.42E-04
	5	511.34	6.95E+01	26.56	4.61E-03	5.61E-04
	6	540.21	1.47E+01	15.13	4.36E-03	5.18E-04
	7	572.42	3.49E+01	17.79	4.12E-03	4.71E-04
	8	660.66	1.64E+01	12.77	3.58E-03	3.42E-04
	9	756.42	1.40E+01	7.48	3.13E-03	2.87E-04
	10	764.80	1.30E+01	7.21	3.10E-03	2.83E-04
	11	781.30	1.20E+01	14.59	3.03E-03	2.73E-04
	12	836.84	1.28E+01	9.22	2.84E-03	2.42E-04
	13	863.07	8.65E+00	7.23	2.75E-03	2.28E-04
	14	885.81	1.10E+01	6.63	2.68E-03	2.15E-04
	15	894.97	1.03E+01	7.76	2.66E-03	2.10E-04
	16	925.83	1.22E+01	11.34	2.57E-03	2.04E-04

Analysis Report for 1510089-02

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/9/2015 2:29:04PM

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	97.59	2.94E+01	26.88			2.94E+01	2.69E+01
	2	140.81	3.80E+01	31.16			3.80E+01	3.12E+01
	3	181.73	7.25E+01	65.02			7.25E+01	6.50E+01
	4	386.50	1.16E+01	15.49			1.16E+01	1.55E+01
	5	511.34	6.95E+01	26.56	4.21E+01	4.92E+00	2.74E+01	2.70E+01
	6	540.21	1.47E+01	15.13			1.47E+01	1.51E+01
	7	572.42	3.49E+01	17.79			3.49E+01	1.78E+01
	8	660.66	1.64E+01	12.77			1.64E+01	1.28E+01
	9	756.42	1.40E+01	7.48			1.40E+01	7.48E+00
	10	764.80	1.30E+01	7.21			1.30E+01	7.21E+00
	11	781.30	1.20E+01	14.59			1.20E+01	1.46E+01
	12	836.84	1.28E+01	9.22			1.28E+01	9.22E+00
	13	863.07	8.65E+00	7.23			8.65E+00	7.23E+00
	14	885.81	1.10E+01	6.63			1.10E+01	6.63E+00
	15	894.97	1.03E+01	7.76			1.03E+01	7.76E+00
	16	925.83	1.22E+01	11.34			1.22E+01	1.13E+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 1510089-02

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AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/9/2015 2:29:04PM

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	97.59	2.94E+01	26.88			2.94E+01	2.69E+01
	2	140.81	3.80E+01	31.16			3.80E+01	3.12E+01
	3	181.73	7.25E+01	65.02			7.25E+01	6.50E+01
	4	386.50	1.16E+01	15.49			1.16E+01	1.55E+01
	5	511.34	6.95E+01	26.56	4.21E+01	4.92E+00	2.74E+01	2.70E+01
	6	540.21	1.47E+01	15.13			1.47E+01	1.51E+01
	7	572.42	3.49E+01	17.79			3.49E+01	1.78E+01
	8	660.66	1.64E+01	12.77			1.64E+01	1.28E+01
	9	756.42	1.40E+01	7.48			1.40E+01	7.48E+00
	10	764.80	1.30E+01	7.21			1.30E+01	7.21E+00
	11	781.30	1.20E+01	14.59			1.20E+01	1.46E+01
	12	836.84	1.28E+01	9.22			1.28E+01	9.22E+00
	13	863.07	8.65E+00	7.23			8.65E+00	7.23E+00
	14	885.81	1.10E+01	6.63			1.10E+01	6.63E+00
	15	894.97	1.03E+01	7.76			1.03E+01	7.76E+00
	16	925.83	1.22E+01	11.34			1.22E+01	1.13E+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
NB-95	0.855	765.79	*	99.81	4.05E-02	2.28E-02
CS-137	0.855	661.65	*	85.12	5.16E-02	4.05E-02

Analysis Report for 1510089-02
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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
GD-153	0.341	97.43	*	31.30	4.88E-02	4.48E-02
		103.18		22.20		

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 2:29:04PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	140.81	1.05556E-02	41.00		
3	181.73	2.01389E-02	44.84	Tol.	MO-99 LU-172
4	386.50	3.21429E-03	66.94		
5	511.34	7.60025E-03	49.37		
6	540.21	4.08654E-03	51.43		
7	572.42	9.68992E-03	25.50		
9	756.42	3.88889E-03	26.73	Tol.	ZR-95
11	781.30	3.33937E-03	60.70		
12	836.84	3.54630E-03	36.11		
13	863.07	2.40278E-03	41.78	Sum	
14	885.81	3.05556E-03	30.15		
15	894.97	2.85880E-03	37.71		
16	925.83	3.39869E-03	46.32		

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 1510089-02

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NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
NB-95	0.85	765.79	*	99.81	4.05E-02	2.28E-02
CS-137	0.85	661.65	*	85.12	5.16E-02	4.05E-02
GD-153	0.34	97.43	*	31.30	4.88E-02	4.48E-02
		103.18		22.20		

* = 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
NB-95	0.855	4.05E-02	2.28E-02	
CS-137	0.855	5.16E-02	4.05E-02	
GD-153	0.341	4.88E-02	4.48E-02	

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

Errors quoted at 2.000sigma

Analysis Report for 1510089-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 2:29:04PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	140.81	1.05556E-02	41.00		
3	181.73	2.01389E-02	44.84	Tol.	MO-99 LU-172
4	386.50	3.21429E-03	66.94		
5	511.34	7.60025E-03	49.37		
6	540.21	4.08654E-03	51.43		
7	572.42	9.68992E-03	25.50		
9	756.42	3.88889E-03	26.73	Tol.	ZR-95
11	781.30	3.33937E-03	60.70		
12	836.84	3.54630E-03	36.11		
13	863.07	2.40278E-03	41.78	Sum	
14	885.81	3.05556E-03	30.15		
15	894.97	2.85880E-03	37.71		
16	925.83	3.39869E-03	46.32		

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	-7.49E-02	5.66E-01	5.66E-01
+	NA-22	1274.54	99.94	-2.10E-03	6.05E-02	6.05E-02
+	NA-24	1368.53	99.99	1.43E-02	6.65E-02	6.65E-02

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NA-24	2754.09		99.86	4.12E-02	6.65E-02	1.85E-01
+	AL-26	1808.65		99.76	-1.59E-02	5.03E-02	5.03E-02
+	K-40	1460.81		10.67	3.73E-01	9.29E-01	9.29E-01
+	AR-41	1293.64		99.16	-7.02E-02	8.20E-01	8.20E-01
+	TI-44	67.88		94.40	5.64E-03	2.53E-02	2.53E-02
		78.34		96.00	-2.91E-03		2.62E-02
+	SC-46	889.25		99.98	-5.09E-02	6.26E-02	6.26E-02
		1120.51		99.99	-3.73E-03		7.81E-02
+	V-48	983.52		99.98	-3.06E-02	6.96E-02	6.96E-02
		1312.10		97.50	-6.95E-03		8.94E-02
+	CR-51	320.08		9.83	9.51E-02	4.92E-01	4.92E-01
+	MN-54	834.83		99.97	5.52E-03	6.12E-02	6.12E-02
+	CO-56	846.75		99.96	-3.43E-03	6.89E-02	6.89E-02
		1037.75		14.03	4.18E-02		4.95E-01
		1238.25		67.00	1.10E-02		1.16E-01
		1771.40		15.51	0.00E+00		3.19E-01
		2598.48		16.90	5.28E-02		3.89E-01
+	CO-57	122.06		85.51	-6.99E-03	3.31E-02	3.31E-02
		136.48		10.60	6.86E-02		3.15E-01
+	CO-58	810.76		99.40	3.71E-03	5.99E-02	5.99E-02
+	FE-59	1099.22		56.50	1.56E-03	1.02E-01	1.02E-01
		1291.56		43.20	-3.36E-02		1.42E-01
+	CO-60	1173.22		100.00	1.84E-02	7.01E-02	7.01E-02
		1332.49		100.00	1.82E-02		9.14E-02
+	ZN-65	1115.52		50.75	-4.00E-02	1.46E-01	1.46E-01
+	GA-67	93.31		35.70	1.14E-01	9.13E-02	9.13E-02
		208.95		2.24	-6.38E-01		1.69E+00
		300.22		16.00	-4.95E-02		2.89E-01
+	SE-75	121.11		16.70	-3.02E-02	5.30E-02	1.69E-01
		136.00		59.20	8.47E-03		5.30E-02
		264.65		59.80	8.88E-03		6.59E-02
		279.53		25.20	-5.53E-02		1.63E-01
		400.65		11.40	1.59E-01		4.99E-01
+	RB-82	776.52		13.00	1.22E-02	4.24E-01	4.24E-01
+	RB-83	520.41		46.00	-1.95E-02	8.68E-02	8.68E-02
		529.64		30.30	9.12E-02		1.85E-01
		552.65		16.40	6.95E-02		3.23E-01
+	KR-85	513.99		0.43	2.44E+01	2.03E+01	2.03E+01
+	SR-85	513.99		99.27	1.07E-01	8.91E-02	8.91E-02
+	Y-88	898.02		93.40	-8.20E-03	8.27E-02	8.27E-02
		1836.01		99.38	1.54E-02		1.10E-01
+	NB-93M	16.57		9.43	3.50E-01	2.26E-01	2.26E-01
+	NB-94	702.63		100.00	-1.99E-02	6.23E-02	6.23E-02
		871.10		100.00	2.04E-02		7.49E-02
+	NB-95	765.79	*	99.81	4.05E-02	8.43E-03	8.43E-03
+	NB-95M	235.69		25.00	4.55E-02	1.81E-01	1.81E-01
+	ZR-95	724.18		43.70	5.73E-02	1.12E-01	1.62E-01

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	ZR-95	756.72	55.30	1.67E-02	1.12E-01	1.12E-01
+	MO-99	181.06	6.20	-4.74E-01	5.61E-01	6.71E-01
		739.58	12.80	5.55E-03		5.61E-01
		778.00	4.50	0.00E+00		1.68E+00
+	RU-103	497.08	89.00	-2.83E-02	4.45E-02	4.45E-02
+	RU-106	621.84	9.80	1.29E-01	6.19E-01	6.19E-01
+	AG-108M	433.93	89.90	-2.07E-02	5.12E-02	5.12E-02
		614.37	90.40	9.06E-03		6.63E-02
		722.95	90.50	2.37E-02		7.77E-02
+	CD-109	88.03	3.72	1.48E-01	6.97E-01	6.97E-01
+	AG-110M	657.75	93.14	0.00E+00	7.31E-02	7.31E-02
		677.61	10.53	-1.37E-02		6.00E-01
		706.67	16.46	1.18E-01		4.52E-01
		763.93	21.98	1.62E-02		2.74E-01
		884.67	71.63	2.17E-02		9.04E-02
		1384.27	23.94	1.81E-02		2.97E-01
+	CD-113M	263.70	0.02	4.68E+01	1.72E+02	1.72E+02
+	SN-113	255.12	1.93	2.38E-01	7.19E-02	2.17E+00
		391.69	64.90	-6.44E-03		7.19E-02
+	TE123M	159.00	84.10	-6.69E-03	3.41E-02	3.41E-02
+	SB-124	602.71	97.87	-1.18E-02	6.39E-02	6.39E-02
		645.85	7.26	-2.91E-02		7.92E-01
		722.78	11.10	2.37E-01		6.35E-01
		1691.02	49.00	-9.24E-02		1.23E-01
+	I-125	35.49	6.49	-1.01E-01	2.77E-01	2.77E-01
+	SB-125	176.33	6.89	-5.24E-02	1.55E-01	5.43E-01
		427.89	29.33	-3.10E-03		1.55E-01
		463.38	10.35	2.74E-01		5.37E-01
		600.56	17.80	3.69E-03		3.62E-01
		635.90	11.32	7.83E-02		4.86E-01
+	SB-126	414.70	83.30	-2.91E-04	5.46E-02	5.46E-02
		666.33	99.60	4.28E-03		5.70E-02
		695.00	99.60	2.50E-02		7.18E-02
		720.50	53.80	-4.89E-02		1.14E-01
+	SN-126	87.57	37.00	1.49E-02	6.98E-02	6.98E-02
+	SB-127	473.00	25.00	-3.39E-03	1.92E-01	2.31E-01
		685.20	35.70	5.11E-02		1.92E-01
		783.80	14.70	2.94E-01		5.54E-01
+	I-129	29.78	57.00	-9.00E-03	3.44E-02	3.44E-02
		33.60	13.20	-1.67E-02		1.38E-01
		39.58	7.52	-1.56E-01		2.46E-01
+	I-131	284.30	6.05	1.61E-01	5.85E-02	7.36E-01
		364.48	81.20	3.42E-03		5.85E-02
		636.97	7.26	-1.87E-02		7.09E-01
		722.89	1.80	1.49E+00		4.00E+00
+	TE-132	49.72	13.10	5.74E-02	4.62E-02	1.75E-01
		228.16	88.00	-3.26E-03		4.62E-02
+	BA-133	81.00	33.00	7.86E-03	7.70E-02	7.70E-02
		302.84	17.80	-8.36E-02		2.40E-01

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-133	356.01		60.00	8.82E-03	7.70E-02	8.37E-02
+	I-133	529.87		86.30	3.93E-02	7.98E-02	7.98E-02
+	XE-133	81.00		38.00	7.07E-03	6.92E-02	6.92E-02
+	CS-134	563.23		8.38	-2.23E-02	6.65E-02	6.28E-01
		569.32		15.43	6.04E-02		3.89E-01
		604.70		97.60	6.97E-03		6.65E-02
		795.84		85.40	4.92E-03		7.09E-02
		801.93		8.73	-1.61E-01		6.99E-01
+	CS-135	268.24		16.00	-1.41E-02	2.49E-01	2.49E-01
+	I-135	1131.51		22.50	-1.93E-01	5.59E-01	5.79E-01
		1260.41		28.60	1.83E-01		5.59E-01
		1678.03		9.54	-3.88E-01		1.55E+00
+	CS-136	153.22		7.46	9.88E-02	6.10E-02	4.14E-01
		163.89		4.61	2.64E-02		6.69E-01
		176.55		13.56	-2.70E-02		2.80E-01
		273.65		12.66	2.30E-03		3.22E-01
		340.57		48.50	3.99E-02		1.04E-01
		818.50		99.70	1.31E-02		6.10E-02
		1048.07		79.60	1.94E-02		9.70E-02
		1235.34		19.70	-7.56E-02		3.55E-01
+	CS-137	661.65	*	85.12	5.16E-02	5.96E-02	5.96E-02
+	LA-138	788.74		34.00	-6.88E-02	1.11E-01	1.77E-01
		1435.80		66.00	-1.36E-02		1.11E-01
+	CE-139	165.85		80.35	-1.05E-03	3.83E-02	3.83E-02
+	BA-140	162.64		6.70	-2.37E-01	2.26E-01	4.21E-01
		304.84		4.50	9.49E-02		1.02E+00
		423.70		3.20	2.74E-01		1.52E+00
		437.55		2.00	-4.21E-02		2.48E+00
		537.32		25.00	-1.03E-02		2.26E-01
+	LA-140	328.77		20.50	-8.95E-02	1.04E-01	2.16E-01
		487.03		45.50	5.00E-02		1.37E-01
		815.85		23.50	-1.49E-01		2.01E-01
		1596.49		95.49	4.05E-02		1.04E-01
+	CE-141	145.44		48.40	-3.66E-03	6.24E-02	6.24E-02
+	CE-143	57.36		11.80	-1.59E-01	1.21E-01	1.93E-01
		293.26		42.00	1.66E-02		1.21E-01
		664.55		5.20	2.36E-02		1.22E+00
+	CE-144	133.54		10.80	8.01E-02	2.88E-01	2.88E-01
+	PM-144	476.78		42.00	-3.57E-02	5.85E-02	1.34E-01
		618.01		98.60	-4.02E-03		5.85E-02
		696.49		99.49	3.15E-03		6.82E-02
+	PM-145	36.85		21.70	-3.25E-02	4.65E-02	8.28E-02
		37.36		39.70	-5.36E-03		4.65E-02
		42.30		15.10	1.92E-02		1.32E-01
		72.40		2.31	5.09E-02		1.04E+00
+	PM-146	453.90		39.94	2.63E-02	1.23E-01	1.23E-01
		735.90		14.01	-4.25E-02		4.53E-01
		747.13		13.10	1.19E-01		4.35E-01
+	ND-147	91.11		28.90	-8.62E-03	1.02E-01	1.02E-01

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	ND-147	531.02		13.10	1.33E-01	1.02E-01	4.35E-01
+	PM-149	285.90		3.10	-3.22E-01	1.49E+00	1.49E+00
+	EU-152	121.78		20.50	-2.91E-02	1.38E-01	1.38E-01
		244.69		5.40	5.34E-02		8.39E-01
		344.27		19.13	-1.44E-01		2.36E-01
		778.89		9.20	0.00E+00		7.69E-01
		964.01		10.40	2.48E-01		7.50E-01
		1085.78		7.22	9.35E-02		1.00E+00
		1112.02		9.60	2.77E-02		8.06E-01
		1407.95		14.94	-6.76E-02		5.20E-01
+	GD-153	97.43	*	31.30	4.88E-02	9.52E-02	9.52E-02
		103.18		22.20	-1.56E-02		1.19E-01
+	EU-154	123.07		40.50	-1.82E-02	7.10E-02	7.10E-02
		723.30		19.70	1.09E-01		3.57E-01
		873.19		11.50	3.37E-01		6.71E-01
		996.32		10.30	-2.58E-01		8.28E-01
		1004.76		17.90	1.67E-01		5.18E-01
		1274.45		35.50	-5.91E-03		1.70E-01
+	EU-155	86.50		30.90	2.35E-02	7.89E-02	7.89E-02
		105.30		20.70	-6.72E-02		1.33E-01
+	EU-156	811.77		10.40	-9.58E-02	5.32E-01	5.32E-01
		1153.47		7.20	-3.08E-01		9.11E-01
		1230.71		8.90	3.70E-02		8.33E-01
+	HO-166M	184.41		72.60	2.73E-02	5.91E-02	5.91E-02
		280.45		29.60	3.97E-03		1.44E-01
		410.94		11.10	1.70E-02		4.14E-01
		711.69		54.10	6.13E-02		1.36E-01
+	TM-171	66.72		0.14	7.44E+00	1.71E+01	1.71E+01
+	HF-172	81.75		4.52	1.18E-01	2.66E-01	5.65E-01
		125.81		11.30	4.04E-02		2.66E-01
+	LU-172	181.53		20.60	1.10E-02	1.08E-01	2.06E-01
		810.06		16.63	2.27E-02		3.67E-01
		912.12		15.25	-4.95E-02		4.82E-01
		1093.66		62.50	2.39E-03		1.08E-01
+	LU-173	100.72		5.24	-9.76E-03	1.92E-01	5.30E-01
		272.11		21.20	-6.04E-03		1.92E-01
+	HF-175	343.40		84.00	-4.78E-02	5.18E-02	5.18E-02
+	LU-176	88.34		13.30	4.78E-02	4.75E-02	2.14E-01
		201.83		86.00	3.33E-03		4.75E-02
		306.78		94.00	7.54E-03		4.92E-02
+	TA-182	67.75		41.20	1.29E-02	5.81E-02	5.81E-02
		1121.30		34.90	2.57E-02		2.33E-01
		1189.05		16.23	-3.01E-01		2.71E-01
		1221.41		26.98	7.55E-02		2.36E-01
		1231.02		11.44	2.85E-02		6.41E-01
+	IR-192	308.46		29.68	5.16E-02	1.14E-01	1.58E-01
		468.07		48.10	-2.36E-02		1.14E-01
+	HG-203	279.19		77.30	-1.80E-02	5.31E-02	5.31E-02
+	BI-207	569.67		97.72	9.53E-03	6.15E-02	6.15E-02

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-207	1063.62	74.90	2.60E-02	6.15E-02	1.07E-01
+	TL-208	583.14	30.22	2.52E-02	1.76E-01	1.76E-01
		860.37	4.48	1.78E-01		1.70E+00
		2614.66	35.85	-1.66E-02		2.68E-01
+	BI-210M	262.00	45.00	-4.31E-03	8.66E-02	8.66E-02
		300.00	23.00	-2.29E-02		1.90E-01
+	PB-210	46.50	4.25	2.09E-01	5.02E-01	5.02E-01
+	PB-211	404.84	2.90	8.46E-01	1.84E+00	1.86E+00
		831.96	2.90	-3.86E-02		1.84E+00
+	BI-212	727.17	11.80	-4.99E-02	5.74E-01	5.74E-01
		1620.62	2.75	2.26E-01		2.72E+00
+	PB-212	238.63	44.60	2.15E-02	1.01E-01	1.01E-01
		300.09	3.41	-1.54E-01		1.28E+00
+	BI-214	609.31	46.30	-1.14E-02	1.31E-01	1.31E-01
		1120.29	15.10	-2.47E-02		5.16E-01
		1764.49	15.80	7.75E-02		5.96E-01
		2204.22	4.98	6.38E-01		1.92E+00
+	PB-214	295.21	19.19	6.66E-02	1.44E-01	2.33E-01
		351.92	37.19	8.71E-02		1.44E-01
+	RN-219	401.80	6.50	5.16E-01	8.76E-01	8.76E-01
+	RA-223	323.87	3.88	3.47E-01	1.22E+00	1.22E+00
+	RA-224	240.98	3.95	1.42E-01	1.15E+00	1.15E+00
+	RA-225	40.00	31.00	-3.85E-02	6.05E-02	6.05E-02
+	RA-226	186.21	3.28	9.10E-01	1.31E+00	1.31E+00
+	TH-227	50.10	8.40	8.49E-02	2.59E-01	2.59E-01
		236.00	11.50	9.42E-02		3.74E-01
		256.20	6.30	-2.05E-02		6.51E-01
+	AC-228	338.32	11.40	1.43E-01	2.75E-01	4.40E-01
		911.07	27.70	3.65E-02		2.75E-01
		969.11	16.60	7.04E-02		4.42E-01
+	TH-230	48.44	16.90	5.03E-03	1.26E-01	1.26E-01
		62.85	4.60	1.86E-01		4.96E-01
		67.67	0.37	1.44E+00		6.45E+00
+	PA-231	283.67	1.60	1.24E-01	1.86E+00	2.67E+00
		302.67	2.30	-6.46E-01		1.86E+00
+	TH-231	25.64	14.70	1.80E-02	1.46E-01	1.46E-01
		84.21	6.40	-2.14E-02		3.82E-01
+	PA-233	311.98	38.60	0.00E+00	1.21E-01	1.21E-01
+	PA-234	131.20	20.40	8.25E-02	1.57E-01	1.57E-01
		733.99	8.80	1.79E-02		7.39E-01
		946.00	12.00	3.44E-02		5.97E-01
+	PA-234M	1001.03	0.92	-5.14E-02	9.56E+00	9.56E+00
+	TH-234	63.29	3.80	3.66E-01	6.09E-01	6.09E-01
+	U-235	143.76	10.50	-2.04E-02	3.18E-01	3.18E-01
		163.35	4.70	2.55E-02		6.46E-01
		205.31	4.70	1.49E-01		8.08E-01
+	NP-237	86.50	12.60	5.77E-02	1.93E-01	1.93E-01

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-239	106.10	22.70	-6.64E-02	1.32E-01	1.32E-01
		228.18	10.70	-1.25E-01		3.83E-01
		277.60	14.10	-1.22E-01		3.11E-01
+	AM-241	59.54	35.90	-9.42E-03	5.97E-02	5.97E-02
+	AM-243	74.67	66.00	1.61E-02	3.77E-02	3.77E-02
+	CM-243	209.75	3.29	-4.28E-01	2.91E-01	1.05E+00
		228.14	10.60	-2.56E-02		3.63E-01
		277.60	14.00	-1.14E-01		2.91E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	5.66E-01	5.66E-01	-7.49E-02	2.58E-01
NA-22	1274.54	99.94	6.05E-02	6.05E-02	-2.10E-03	2.35E-02
NA-24	1368.53	99.99	6.65E-02	6.65E-02	1.43E-02	2.36E-02
	2754.09	99.86	1.85E-01		4.12E-02	7.60E-02
AL-26	1808.65	99.76	5.03E-02	5.03E-02	-1.59E-02	1.59E-02
K-40	1460.81	10.67	9.29E-01	9.29E-01	3.73E-01	3.92E-01
AR-41	1293.64	99.16	8.20E-01	8.20E-01	-7.02E-02	3.36E-01
TI-44	67.88	94.40	2.53E-02	2.53E-02	5.64E-03	1.21E-02
	78.34	96.00	2.62E-02		-2.91E-03	1.25E-02
SC-46	889.25	99.98	6.26E-02	6.26E-02	-5.09E-02	2.64E-02
	1120.51	99.99	7.81E-02		-3.73E-03	3.30E-02
V-48	983.52	99.98	6.96E-02	6.96E-02	-3.06E-02	2.94E-02
	1312.10	97.50	8.94E-02		-6.95E-03	3.74E-02
CR-51	320.08	9.83	4.92E-01	4.92E-01	9.51E-02	2.28E-01
MN-54	834.83	99.97	6.12E-02	6.12E-02	5.52E-03	2.60E-02

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CO-56	846.75		99.96	6.89E-02	6.89E-02	-3.43E-03	2.98E-02
		1037.75		14.03	4.95E-01		4.18E-02	2.07E-01
		1238.25		67.00	1.16E-01		1.10E-02	4.83E-02
		1771.40		15.51	3.19E-01		0.00E+00	1.01E-01
		2598.48		16.90	3.89E-01		5.28E-02	1.23E-01
	CO-57	122.06		85.51	3.31E-02	3.31E-02	-6.99E-03	1.56E-02
		136.48		10.60	3.15E-01		6.86E-02	1.49E-01
	CO-58	810.76		99.40	5.99E-02	5.99E-02	3.71E-03	2.55E-02
	FE-59	1099.22		56.50	1.02E-01	1.02E-01	1.56E-03	4.06E-02
		1291.56		43.20	1.42E-01		-3.36E-02	5.51E-02
	CO-60	1173.22		100.00	7.01E-02	7.01E-02	1.84E-02	2.87E-02
		1332.49		100.00	9.14E-02		1.82E-02	3.86E-02
	ZN-65	1115.52		50.75	1.46E-01	1.46E-01	-4.00E-02	6.13E-02
	GA-67	93.31		35.70	9.13E-02	9.13E-02	1.14E-01	4.36E-02
		208.95		2.24	1.69E+00		-6.38E-01	7.85E-01
		300.22		16.00	2.89E-01		-4.95E-02	1.33E-01
	SE-75	121.11		16.70	1.69E-01	5.30E-02	-3.02E-02	7.95E-02
		136.00		59.20	5.30E-02		8.47E-03	2.50E-02
		264.65		59.80	6.59E-02		8.88E-03	3.04E-02
		279.53		25.20	1.63E-01		-5.53E-02	7.50E-02
		400.65		11.40	4.99E-01		1.59E-01	2.30E-01
	RB-82	776.52		13.00	4.24E-01	4.24E-01	1.22E-02	1.79E-01
	RB-83	520.41		46.00	8.68E-02	8.68E-02	-1.95E-02	3.72E-02
		529.64		30.30	1.85E-01		9.12E-02	8.28E-02
		552.65		16.40	3.23E-01		6.95E-02	1.43E-01
	KR-85	513.99		0.43	2.03E+01	2.03E+01	2.44E+01	9.51E+00
	SR-85	513.99		99.27	8.91E-02	8.91E-02	1.07E-01	4.17E-02
	Y-88	898.02		93.40	8.27E-02	8.27E-02	-8.20E-03	3.61E-02
		1836.01		99.38	1.10E-01		1.54E-02	4.58E-02
	NB-93M	16.57		9.43	2.26E-01	2.26E-01	3.50E-01	1.08E-01
	NB-94	702.63		100.00	6.23E-02	6.23E-02	-1.99E-02	2.73E-02
		871.10		100.00	7.49E-02		2.04E-02	3.27E-02
+	NB-95	765.79	*	99.81	8.43E-03	8.43E-03	4.05E-02	0.00E+00
	NB-95M	235.69		25.00	1.81E-01	1.81E-01	4.55E-02	8.47E-02
	ZR-95	724.18		43.70	1.62E-01	1.12E-01	5.73E-02	7.17E-02
		756.72		55.30	1.12E-01		1.67E-02	4.83E-02
	MO-99	181.06		6.20	6.71E-01	5.61E-01	-4.74E-01	3.17E-01
		739.58		12.80	5.61E-01		5.55E-03	2.46E-01
		778.00		4.50	1.68E+00		0.00E+00	7.37E-01
	RU-103	497.08		89.00	4.45E-02	4.45E-02	-2.83E-02	1.92E-02
	RU-106	621.84		9.80	6.19E-01	6.19E-01	1.29E-01	2.75E-01
	AG-108M	433.93		89.90	5.12E-02	5.12E-02	-2.07E-02	2.29E-02
		614.37		90.40	6.63E-02		9.06E-03	2.94E-02
		722.95		90.50	7.77E-02		2.37E-02	3.45E-02
	CD-109	88.03		3.72	6.97E-01	6.97E-01	1.48E-01	3.31E-01
	AG-110M	657.75		93.14	7.31E-02	7.31E-02	0.00E+00	3.27E-02
		677.61		10.53	6.00E-01		-1.37E-02	2.65E-01
		706.67		16.46	4.52E-01		1.18E-01	2.02E-01
		763.93		21.98	2.74E-01		1.62E-02	1.18E-01
		884.67		71.63	9.04E-02		2.17E-02	3.85E-02
		1384.27		23.94	2.97E-01		1.81E-02	1.18E-01
	CD-113M	263.70		0.02	1.72E+02	1.72E+02	4.68E+01	7.95E+01
	SN-113	255.12		1.93	2.17E+00	7.19E-02	2.38E-01	1.01E+00

Analysis Report for 1510089-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SN-113	391.69		64.90	7.19E-02	7.19E-02	-6.44E-03	3.26E-02
	TE123M	159.00		84.10	3.41E-02	3.41E-02	-6.69E-03	1.59E-02
	SB-124	602.71		97.87	6.39E-02	6.39E-02	-1.18E-02	2.86E-02
		645.85		7.26	7.92E-01		-2.91E-02	3.47E-01
		722.78		11.10	6.35E-01		2.37E-01	2.82E-01
		1691.02		49.00	1.23E-01		-9.24E-02	4.34E-02
	I-125	35.49		6.49	2.77E-01	2.77E-01	-1.01E-01	1.32E-01
	SB-125	176.33		6.89	5.43E-01	1.55E-01	-5.24E-02	2.56E-01
		427.89		29.33	1.55E-01		-3.10E-03	6.93E-02
		463.38		10.35	5.37E-01		2.74E-01	2.44E-01
		600.56		17.80	3.62E-01		3.69E-03	1.62E-01
		635.90		11.32	4.86E-01		7.83E-02	2.12E-01
	SB-126	414.70		83.30	5.46E-02	5.46E-02	-2.91E-04	2.45E-02
		666.33		99.60	5.70E-02		4.28E-03	2.48E-02
		695.00		99.60	7.18E-02		2.50E-02	3.20E-02
		720.50		53.80	1.14E-01		-4.89E-02	4.96E-02
	SN-126	87.57		37.00	6.98E-02	6.98E-02	1.49E-02	3.31E-02
	SB-127	473.00		25.00	2.31E-01	1.92E-01	-3.39E-03	1.05E-01
		685.20		35.70	1.92E-01		5.11E-02	8.48E-02
		783.80		14.70	5.54E-01		2.94E-01	2.47E-01
	I-129	29.78		57.00	3.44E-02	3.44E-02	-9.00E-03	1.64E-02
		33.60		13.20	1.38E-01		-1.67E-02	6.54E-02
		39.58		7.52	2.46E-01		-1.56E-01	1.17E-01
	I-131	284.30		6.05	7.36E-01	5.85E-02	1.61E-01	3.41E-01
		364.48		81.20	5.85E-02		3.42E-03	2.67E-02
		636.97		7.26	7.09E-01		-1.87E-02	3.05E-01
		722.89		1.80	4.00E+00		1.49E+00	1.77E+00
	TE-132	49.72		13.10	1.75E-01	4.62E-02	5.74E-02	8.34E-02
		228.16		88.00	4.62E-02		-3.26E-03	2.15E-02
	BA-133	81.00		33.00	7.70E-02	7.70E-02	7.86E-03	3.66E-02
		302.84		17.80	2.40E-01		-8.36E-02	1.10E-01
		356.01		60.00	8.37E-02		8.82E-03	3.85E-02
	I-133	529.87		86.30	7.98E-02	7.98E-02	3.93E-02	3.57E-02
	XE-133	81.00		38.00	6.92E-02	6.92E-02	7.07E-03	3.29E-02
	CS-134	563.23		8.38	6.28E-01	6.65E-02	-2.23E-02	2.77E-01
		569.32		15.43	3.89E-01		6.04E-02	1.74E-01
		604.70		97.60	6.65E-02		6.97E-03	2.98E-02
		795.84		85.40	7.09E-02		4.92E-03	3.04E-02
		801.93		8.73	6.99E-01		-1.61E-01	2.99E-01
	CS-135	268.24		16.00	2.49E-01	2.49E-01	-1.41E-02	1.15E-01
	I-135	1131.51		22.50	5.79E-01	5.59E-01	-1.93E-01	2.37E-01
		1260.41		28.60	5.59E-01		1.83E-01	2.34E-01
		1678.03		9.54	1.55E+00		-3.88E-01	6.01E-01
	CS-136	153.22		7.46	4.14E-01	6.10E-02	9.88E-02	1.94E-01
		163.89		4.61	6.69E-01		2.64E-02	3.12E-01
		176.55		13.56	2.80E-01		-2.70E-02	1.32E-01
		273.65		12.66	3.22E-01		2.30E-03	1.48E-01
		340.57		48.50	1.04E-01		3.99E-02	4.79E-02
		818.50		99.70	6.10E-02		1.31E-02	2.59E-02
		1048.07		79.60	9.70E-02		1.94E-02	4.13E-02
		1235.34		19.70	3.55E-01		-7.56E-02	1.44E-01
+	CS-137	661.65	*	85.12	5.96E-02	5.96E-02	5.16E-02	2.55E-02
	LA-138	788.74		34.00	1.77E-01	1.11E-01	-6.88E-02	7.56E-02

Analysis Report for 1510089-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LA-138	1435.80		66.00	1.11E-01	1.11E-01	-1.36E-02	4.42E-02
	CE-139	165.85		80.35	3.83E-02	3.83E-02	-1.05E-03	1.79E-02
	BA-140	162.64		6.70	4.21E-01	2.26E-01	-2.37E-01	1.95E-01
		304.84		4.50	1.02E+00		9.49E-02	4.70E-01
		423.70		3.20	1.52E+00		2.74E-01	6.88E-01
		437.55		2.00	2.48E+00		-4.21E-02	1.12E+00
		537.32		25.00	2.26E-01		-1.03E-02	1.01E-01
	LA-140	328.77		20.50	2.16E-01	1.04E-01	-8.95E-02	9.90E-02
		487.03		45.50	1.37E-01		5.00E-02	6.26E-02
		815.85		23.50	2.01E-01		-1.49E-01	8.11E-02
		1596.49		95.49	1.04E-01		4.05E-02	4.29E-02
	CE-141	145.44		48.40	6.24E-02	6.24E-02	-3.66E-03	2.93E-02
	CE-143	57.36		11.80	1.93E-01	1.21E-01	-1.59E-01	9.13E-02
		293.26		42.00	1.21E-01		1.66E-02	5.63E-02
		664.55		5.20	1.22E+00		2.36E-02	5.32E-01
	CE-144	133.54		10.80	2.88E-01	2.88E-01	8.01E-02	1.36E-01
	PM-144	476.78		42.00	1.34E-01	5.85E-02	-3.57E-02	6.09E-02
		618.01		98.60	5.85E-02		-4.02E-03	2.58E-02
		696.49		99.49	6.82E-02		3.15E-03	3.03E-02
	PM-145	36.85		21.70	8.28E-02	4.65E-02	-3.25E-02	3.93E-02
		37.36		39.70	4.65E-02		-5.36E-03	2.21E-02
		42.30		15.10	1.32E-01		1.92E-02	6.30E-02
		72.40		2.31	1.04E+00		5.09E-02	4.93E-01
	PM-146	453.90		39.94	1.23E-01	1.23E-01	2.63E-02	5.50E-02
		735.90		14.01	4.53E-01		-4.25E-02	1.98E-01
		747.13		13.10	4.35E-01		1.19E-01	1.86E-01
	ND-147	91.11		28.90	1.02E-01	1.02E-01	-8.62E-03	4.84E-02
		531.02		13.10	4.35E-01		1.33E-01	1.95E-01
	PM-149	285.90		3.10	1.49E+00	1.49E+00	-3.22E-01	6.88E-01
	EU-152	121.78		20.50	1.38E-01	1.38E-01	-2.91E-02	6.49E-02
		244.69		5.40	8.39E-01		5.34E-02	3.93E-01
		344.27		19.13	2.36E-01		-1.44E-01	1.08E-01
		778.89		9.20	7.69E-01		0.00E+00	3.38E-01
		964.01		10.40	7.50E-01		2.48E-01	3.24E-01
		1085.78		7.22	1.00E+00		9.35E-02	4.20E-01
		1112.02		9.60	8.06E-01		2.77E-02	3.40E-01
		1407.95		14.94	5.20E-01		-6.76E-02	2.10E-01
+	GD-153	97.43	*	31.30	9.52E-02	9.52E-02	4.88E-02	4.53E-02
		103.18		22.20	1.19E-01		-1.56E-02	5.64E-02
	EU-154	123.07		40.50	7.10E-02	7.10E-02	-1.82E-02	3.35E-02
		723.30		19.70	3.57E-01		1.09E-01	1.59E-01
		873.19		11.50	6.71E-01		3.37E-01	2.94E-01
		996.32		10.30	8.28E-01		-2.58E-01	3.61E-01
		1004.76		17.90	5.18E-01		1.67E-01	2.28E-01
		1274.45		35.50	1.70E-01		-5.91E-03	6.60E-02
	EU-155	86.50		30.90	7.89E-02	7.89E-02	2.35E-02	3.73E-02
		105.30		20.70	1.33E-01		-6.72E-02	6.30E-02
	EU-156	811.77		10.40	5.32E-01	5.32E-01	-9.58E-02	2.23E-01
		1153.47		7.20	9.11E-01		-3.08E-01	3.68E-01
		1230.71		8.90	8.33E-01		3.70E-02	3.41E-01
	HO-166M	184.41		72.60	5.91E-02	5.91E-02	2.73E-02	2.80E-02
		280.45		29.60	1.44E-01		3.97E-03	6.66E-02
		410.94		11.10	4.14E-01		1.70E-02	1.86E-01

Analysis Report for 1510089-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
HO-166M	711.69	54.10	1.36E-01	5.91E-02	6.13E-02	6.07E-02
TM-171	66.72	0.14	1.71E+01	1.71E+01	7.44E+00	8.12E+00
HF-172	81.75	4.52	5.65E-01	2.66E-01	1.18E-01	2.69E-01
	125.81	11.30	2.66E-01		4.04E-02	1.26E-01
LU-172	181.53	20.60	2.06E-01	1.08E-01	1.10E-02	9.75E-02
	810.06	16.63	3.67E-01		2.27E-02	1.56E-01
	912.12	15.25	4.82E-01		-4.95E-02	2.08E-01
	1093.66	62.50	1.08E-01		2.39E-03	4.42E-02
LU-173	100.72	5.24	5.30E-01	1.92E-01	-9.76E-03	2.51E-01
	272.11	21.20	1.92E-01		-6.04E-03	8.87E-02
HF-175	343.40	84.00	5.18E-02	5.18E-02	-4.78E-02	2.36E-02
LU-176	88.34	13.30	2.14E-01	4.75E-02	4.78E-02	1.02E-01
	201.83	86.00	4.75E-02		3.33E-03	2.24E-02
	306.78	94.00	4.92E-02		7.54E-03	2.28E-02
TA-182	67.75	41.20	5.81E-02	5.81E-02	1.29E-02	2.76E-02
	1121.30	34.90	2.33E-01		2.57E-02	9.91E-02
	1189.05	16.23	2.71E-01		-3.01E-01	9.59E-02
	1221.41	26.98	2.36E-01		7.55E-02	9.35E-02
	1231.02	11.44	6.41E-01		2.85E-02	2.63E-01
IR-192	308.46	29.68	1.58E-01	1.14E-01	5.16E-02	7.33E-02
	468.07	48.10	1.14E-01		-2.36E-02	5.15E-02
HG-203	279.19	77.30	5.31E-02	5.31E-02	-1.80E-02	2.45E-02
BI-207	569.67	97.72	6.15E-02	6.15E-02	9.53E-03	2.75E-02
	1063.62	74.90	1.07E-01		2.60E-02	4.58E-02
TL-208	583.14	30.22	1.76E-01	1.76E-01	2.52E-02	7.73E-02
	860.37	4.48	1.70E+00		1.78E-01	7.43E-01
	2614.66	35.85	2.68E-01		-1.66E-02	1.00E-01
BI-210M	262.00	45.00	8.66E-02	8.66E-02	-4.31E-03	4.00E-02
	300.00	23.00	1.90E-01		-2.29E-02	8.76E-02
PB-210	46.50	4.25	5.02E-01	5.02E-01	2.09E-01	2.39E-01
PB-211	404.84	2.90	1.86E+00	1.84E+00	8.46E-01	8.51E-01
	831.96	2.90	1.84E+00		-3.86E-02	7.62E-01
BI-212	727.17	11.80	5.74E-01	5.74E-01	-4.99E-02	2.53E-01
	1620.62	2.75	2.72E+00		2.26E-01	1.05E+00
PB-212	238.63	44.60	1.01E-01	1.01E-01	2.15E-02	4.75E-02
	300.09	3.41	1.28E+00		-1.54E-01	5.91E-01
BI-214	609.31	46.30	1.31E-01	1.31E-01	-1.14E-02	5.83E-02
	1120.29	15.10	5.16E-01		-2.47E-02	2.18E-01
	1764.49	15.80	5.96E-01		7.75E-02	2.41E-01
	2204.22	4.98	1.92E+00		6.38E-01	7.42E-01
PB-214	295.21	19.19	2.33E-01	1.44E-01	6.66E-02	1.08E-01
	351.92	37.19	1.44E-01		8.71E-02	6.66E-02
RN-219	401.80	6.50	8.76E-01	8.76E-01	5.16E-01	4.04E-01
RA-223	323.87	3.88	1.22E+00	1.22E+00	3.47E-01	5.63E-01
RA-224	240.98	3.95	1.15E+00	1.15E+00	1.42E-01	5.41E-01
RA-225	40.00	31.00	6.05E-02	6.05E-02	-3.85E-02	2.87E-02
RA-226	186.21	3.28	1.31E+00	1.31E+00	9.10E-01	6.22E-01
TH-227	50.10	8.40	2.59E-01	2.59E-01	8.49E-02	1.23E-01
	236.00	11.50	3.74E-01		9.42E-02	1.75E-01
	256.20	6.30	6.51E-01		-2.05E-02	3.02E-01
AC-228	338.32	11.40	4.40E-01	2.75E-01	1.43E-01	2.04E-01
	911.07	27.70	2.75E-01		3.65E-02	1.19E-01
	969.11	16.60	4.42E-01		7.04E-02	1.89E-01

Analysis Report for 1510089-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TH-230	48.44	16.90	1.26E-01	1.26E-01	5.03E-03	6.02E-02
	62.85	4.60	4.96E-01		1.86E-01	2.36E-01
	67.67	0.37	6.45E+00		1.44E+00	3.07E+00
PA-231	283.67	1.60	2.67E+00	1.86E+00	1.24E-01	1.23E+00
	302.67	2.30	1.86E+00		-6.46E-01	8.55E-01
TH-231	25.64	14.70	1.46E-01	1.46E-01	1.80E-02	7.01E-02
	84.21	6.40	3.82E-01		-2.14E-02	1.81E-01
PA-233	311.98	38.60	1.21E-01	1.21E-01	0.00E+00	5.61E-02
PA-234	131.20	20.40	1.57E-01	1.57E-01	8.25E-02	7.46E-02
	733.99	8.80	7.39E-01		1.79E-02	3.24E-01
	946.00	12.00	5.97E-01		3.44E-02	2.56E-01
PA-234M	1001.03	0.92	9.56E+00	9.56E+00	-5.14E-02	4.19E+00
TH-234	63.29	3.80	6.09E-01	6.09E-01	3.66E-01	2.90E-01
U-235	143.76	10.50	3.18E-01	3.18E-01	-2.04E-02	1.50E-01
	163.35	4.70	6.46E-01		2.55E-02	3.01E-01
	205.31	4.70	8.08E-01		1.49E-01	3.78E-01
NP-237	86.50	12.60	1.93E-01	1.93E-01	5.77E-02	9.15E-02
NP-239	106.10	22.70	1.32E-01	1.32E-01	-6.64E-02	6.24E-02
	228.18	10.70	3.83E-01		-1.25E-01	1.78E-01
	277.60	14.10	3.11E-01		-1.22E-01	1.44E-01
AM-241	59.54	35.90	5.97E-02	5.97E-02	-9.42E-03	2.83E-02
AM-243	74.67	66.00	3.77E-02	3.77E-02	1.61E-02	1.79E-02
CM-243	209.75	3.29	1.05E+00	2.91E-01	-4.28E-01	4.86E-01
	228.14	10.60	3.63E-01		-2.56E-02	1.69E-01
	277.60	14.00	2.91E-01		-1.14E-01	1.34E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 1510089-02

BLANK

No Data Review Comments Entered.

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

Sample Title: BLANK

Elapsed Live time: 3600
Elapsed Real Time: 3668

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	6	51
17:	44	38	29	27	24	27	28	18
25:	27	23	18	18	10	16	13	12
33:	16	20	12	14	11	12	8	11
41:	18	18	14	12	15	26	24	13
49:	10	12	15	13	14	14	15	10
57:	9	10	8	13	13	18	23	15
65:	14	15	13	14	11	11	16	7
73:	15	15	18	17	18	13	8	19
81:	6	12	12	19	17	12	4	11
89:	14	4	24	37	25	10	10	17
97:	16	16	7	4	12	14	12	16
105:	7	12	13	12	8	22	12	22
113:	12	9	11	12	11	7	12	11
121:	8	13	7	10	12	13	9	13
129:	14	10	9	12	18	9	8	6
137:	11	7	16	22	10	10	11	8
145:	6	8	10	7	9	10	7	6
153:	12	11	5	5	10	3	12	4
161:	7	5	7	8	7	3	14	7
169:	9	9	7	8	15	17	5	8
177:	15	12	7	5	10	10	17	12
185:	20	15	14	11	4	10	12	8
193:	8	11	12	9	14	13	11	9
201:	11	8	6	13	3	11	12	3
209:	6	3	3	8	8	11	7	4
217:	7	6	5	8	5	5	9	6
225:	8	7	10	5	8	4	5	7
233:	7	10	11	7	5	10	12	9
241:	9	7	10	11	6	9	7	9
249:	8	4	11	10	6	6	9	6
257:	3	5	5	7	3	7	7	5
265:	7	4	5	4	4	5	7	8
273:	2	11	4	6	1	11	3	4
281:	6	6	7	8	6	5	6	5
289:	1	9	5	6	6	6	6	9
297:	5	3	6	7	3	3	6	6
305:	6	5	7	7	4	8	5	5
313:	5	5	5	6	7	4	4	6
321:	7	8	5	4	5	6	4	6
329:	0	4	6	5	5	6	5	6
337:	5	11	4	4	6	4	4	5
345:	2	3	4	7	9	5	5	6
353:	8	2	8	3	2	6	6	2
361:	2	5	6	10	3	5	3	1

369:	4	4	2	3	4	5	1	3

Sample Title: BLANK

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

801:	1	3	2	0	2	2	3	0

Sample Title: BLANK

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

1233:	1	2	1	0	1	0	1	1

Sample Title: BLANK

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

1665:	0	0	0	0	2	0	0	0

Sample Title: BLANK

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

2097:	0	0	0	0	0	0	0	0

Sample Title: BLANK

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

2529:	0	0	0	0	1	1	0	1

Sample Title: BLANK

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

2961:	0	0	1	1	0	0	0	0

Sample Title: BLANK

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

3393:	0	1	1	0	0	0	0	0

Sample Title: BLANK

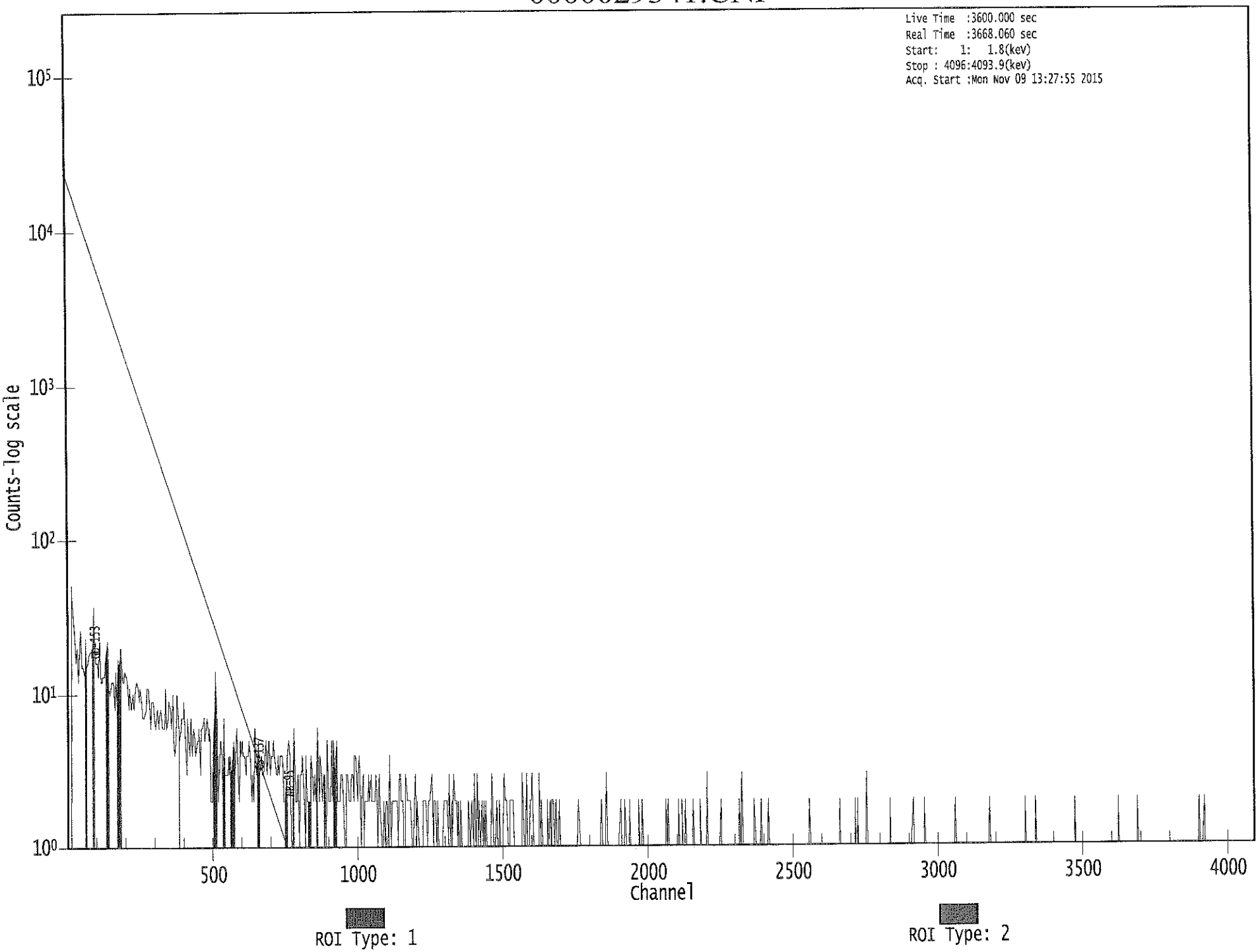
Channel								
3401:	0	0	0	0	0	0	0	1
3409:	0	0	0	1	0	0	0	1
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	1	0	0	1
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	2	0	0	0	0	0	0
3481:	0	0	1	0	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	0	0	0	0	0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

3825:	0	0	0	0	1	0	1	0

Sample Title: BLANK

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

0000029341.CNF



Apex-Gamma

Analysis Report for 1510089-03
CP4104S13-14

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-03
Sample Description	: CP4104S13-14
Sample Type	: SOIL
Sample Size	: 5.359E+02 grams
Facility	: Countroom
Sample Taken On	: 10/8/2015 7:44:37AM
Acquisition Started	: 11/9/2015 11:22:48AM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3698.1 seconds
Dead Time	: 2.65 %
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	: 29331

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/10/15

Analysis Report for 1510089-03

CP4104S13-14

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 12:24:42PM
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	76.14	75.41	0.0000	0.00
2	85.84	85.11	0.0000	0.00
3	92.93	92.21	0.0000	0.00
4	117.09	116.38	0.0000	0.00
5	152.36	151.66	0.0000	0.00
6	164.42	163.73	0.0000	0.00
7	187.11	186.43	0.0000	0.00
8	208.64	207.96	0.0000	0.00
9	239.59	238.93	0.0000	0.00
10	296.02	295.38	0.0000	0.00
11	338.49	337.87	0.0000	0.00
12	352.32	351.70	0.0000	0.00
13	396.45	395.86	0.0000	0.00
14	438.67	438.10	0.0000	0.00
15	464.02	463.46	0.0000	0.00
16	511.43	510.89	0.0000	0.00
17	584.12	583.61	0.0000	0.00
18	609.76	609.27	0.0000	0.00
19	725.78	725.34	0.0000	0.00
20	911.95	911.61	0.0000	0.00
21	969.12	968.81	0.0000	0.00
22	1119.58	1119.35	0.0000	0.00
23	1165.06	1164.86	0.0000	0.00
24	1238.43	1238.27	0.0000	0.00
25	1365.72	1365.64	0.0000	0.00
26	1408.68	1408.62	0.0000	0.00
27	1453.53	1453.50	0.0000	0.00
28	1461.34	1461.31	0.0000	0.00
29	1500.19	1500.19	0.0000	0.00
30	1593.55	1593.61	0.0000	0.00
31	1729.86	1730.00	0.0000	0.00
32	1764.98	1765.15	0.0000	0.00
33	1873.93	1874.16	0.0000	0.00
34	2057.79	2058.15	0.0000	0.00
35	2230.02	2230.50	0.0000	0.00
36	2351.83	2352.40	0.0000	0.00
37	2615.97	2616.75	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-03

CP4104S13-14

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 12:24:42PM

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	76.14	70	81	75.41	7.52E+02	139.61	2.05E+03	4.46
	2	85.84	82	88	85.11	1.03E+02	85.85	1.27E+03	4.60
	3	92.93	88	96	92.21	2.48E+02	101.34	1.36E+03	3.12
	4	117.09	113	120	116.38	7.21E+01	69.89	7.54E+02	2.69
	5	152.36	148	158	151.66	9.78E+01	82.16	8.50E+02	5.36
	6	164.42	158	169	163.73	8.69E+01	84.85	8.52E+02	7.71
	7	187.11	181	191	186.43	1.10E+02	79.34	7.80E+02	2.14
	8	208.64	204	213	207.96	1.05E+02	66.81	5.83E+02	5.02
	9	239.59	235	245	238.93	5.34E+02	80.73	5.72E+02	2.49
	10	296.02	290	300	295.38	9.85E+01	62.75	4.71E+02	2.22
	11	338.49	334	342	337.87	6.74E+01	50.07	3.39E+02	2.48
	12	352.32	347	357	351.70	2.02E+02	58.03	3.42E+02	3.58
	13	396.45	390	404	395.86	1.11E+02	53.63	2.60E+02	7.23
	14	438.67	432	446	438.10	5.28E+01	52.05	2.64E+02	9.56
	15	464.02	459	467	463.46	4.23E+01	35.23	1.61E+02	2.06
	16	511.43	506	515	510.89	8.51E+01	41.17	1.90E+02	2.98
	17	584.12	578	590	583.61	1.42E+02	45.22	1.69E+02	2.95
	18	609.76	604	614	609.27	1.72E+02	43.42	1.60E+02	2.17
	19	725.78	718	730	725.34	2.98E+01	35.77	1.36E+02	8.72
	20	911.95	908	918	911.61	7.32E+01	29.59	7.95E+01	2.45
	21	969.12	966	973	968.81	3.86E+01	24.58	7.28E+01	1.80
	22	1119.58	1115	1123	1119.35	2.10E+01	22.26	6.41E+01	4.62
	23	1165.06	1160	1170	1164.86	3.11E+01	20.29	3.78E+01	6.58
	24	1238.43	1235	1242	1238.27	2.08E+01	21.54	6.24E+01	1.80
	25	1365.72	1363	1368	1365.64	1.23E+01	9.75	9.35E+00	3.61
	26	1408.68	1405	1412	1408.62	1.38E+01	10.00	6.47E+00	5.14
M	27	1453.53	1449	1465	1453.50	1.24E+01	11.34	1.73E+01	3.57
m	28	1461.34	1449	1465	1461.31	2.61E+02	33.05	7.89E+00	3.00
	29	1500.19	1495	1504	1500.19	1.06E+01	10.49	8.80E+00	2.73
	30	1593.55	1589	1598	1593.61	1.48E+01	15.26	2.44E+01	2.18
	31	1729.86	1727	1732	1730.00	7.00E+00	5.29	0.00E+00	1.00
	32	1764.98	1760	1772	1765.15	3.40E+01	11.66	0.00E+00	4.25
	33	1873.93	1870	1878	1874.16	8.68E+00	8.02	4.64E+00	3.63
	34	2057.79	2053	2061	2058.15	5.44E+00	7.23	5.13E+00	2.99
	35	2230.02	2226	2233	2230.50	8.00E+00	5.66	0.00E+00	2.99
	36	2351.83	2350	2355	2352.40	5.00E+00	4.47	0.00E+00	1.70
	37	2615.97	2611	2621	2616.75	2.34E+01	11.59	5.15E+00	5.56

Analysis Report for 1510089-03

CP4104S13-14

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 12:24:42PM

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	76.14	70 -	81	7.52E+02	139.61	2.05E+03	1.06E+02
	2	85.84	82 -	88	1.03E+02	85.85	1.27E+03	6.86E+01
	3	92.93	88 -	96	2.48E+02	101.34	1.36E+03	7.92E+01
	4	117.09	113 -	120	7.21E+01	69.89	7.54E+02	5.57E+01
	5	152.36	148 -	158	9.78E+01	82.16	8.50E+02	6.56E+01
	6	164.42	158 -	169	8.69E+01	84.85	8.52E+02	6.80E+01
	7	187.11	181 -	191	1.10E+02	79.34	7.80E+02	6.29E+01
	8	208.64	204 -	213	1.05E+02	66.81	5.83E+02	5.23E+01
	9	239.59	235 -	245	5.34E+02	80.73	5.72E+02	5.44E+01
	10	296.02	290 -	300	9.85E+01	62.75	4.71E+02	4.89E+01
	11	338.49	334 -	342	6.74E+01	50.07	3.39E+02	3.89E+01
	12	352.32	347 -	357	2.02E+02	58.03	3.42E+02	4.16E+01
	13	396.45	390 -	404	1.11E+02	53.63	2.60E+02	4.05E+01
	14	438.67	432 -	446	5.28E+01	52.05	2.64E+02	4.11E+01
	15	464.02	459 -	467	4.23E+01	35.23	1.61E+02	2.69E+01
	16	511.43	506 -	515	8.51E+01	41.17	1.90E+02	3.03E+01
	17	584.12	578 -	590	1.42E+02	45.22	1.69E+02	3.16E+01
	18	609.76	604 -	614	1.72E+02	43.42	1.60E+02	2.84E+01
	19	725.78	718 -	730	2.98E+01	35.77	1.36E+02	2.80E+01
	20	911.95	908 -	918	7.32E+01	29.59	7.95E+01	1.98E+01
	21	969.12	966 -	973	3.86E+01	24.58	7.28E+01	1.74E+01
	22	1119.58	1115 -	1123	2.10E+01	22.26	6.41E+01	1.67E+01
	23	1165.06	1160 -	1170	3.11E+01	20.29	3.78E+01	1.39E+01
	24	1238.43	1235 -	1242	2.08E+01	21.54	6.24E+01	1.60E+01
	25	1365.72	1363 -	1368	1.23E+01	9.75	9.35E+00	5.56E+00
	26	1408.68	1405 -	1412	1.38E+01	10.00	6.47E+00	5.51E+00
M	27	1453.53	1449 -	1465	1.24E+01	11.34	1.73E+01	6.84E+00
m	28	1461.34	1449 -	1465	2.61E+02	33.05	7.89E+00	4.62E+00
	29	1500.19	1495 -	1504	1.06E+01	10.49	8.80E+00	6.76E+00
	30	1593.55	1589 -	1598	1.48E+01	15.26	2.44E+01	1.08E+01
	31	1729.86	1727 -	1732	7.00E+00	5.29	0.00E+00	0.00E+00

Analysis Report for 1510089-03

CP4104S13-14

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1764.98	1760 -	1772	3.40E+01	11.66	0.00E+00	0.00E+00
33	1873.93	1870 -	1878	8.68E+00	8.02	4.64E+00	4.47E+00
34	2057.79	2053 -	2061	5.44E+00	7.23	5.13E+00	4.54E+00
35	2230.02	2226 -	2233	8.00E+00	5.66	0.00E+00	0.00E+00
36	2351.83	2350 -	2355	5.00E+00	4.47	0.00E+00	0.00E+00
37	2615.97	2611 -	2621	2.34E+01	11.59	5.15E+00	5.23E+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 : 11/9/2015 12:24:42PM

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	76.14	70 -	81	75.41	7.52E+02	139.61	2.05E+03	.....
2	85.84	82 -	88	85.11	1.03E+02	85.85	1.27E+03	EU-155 NP-237
3	92.93	88 -	96	92.21	2.48E+02	101.34	1.36E+03	GA-67
4	117.09	113 -	120	116.38	7.21E+01	69.89	7.54E+02	.....
5	152.36	148 -	158	151.66	9.78E+01	82.16	8.50E+02	CS-136
6	164.42	158 -	169	163.73	8.69E+01	84.85	8.52E+02	CS-136
7	187.11	181 -	191	186.43	1.10E+02	79.34	7.80E+02	RA-226
8	208.64	204 -	213	207.96	1.05E+02	66.81	5.83E+02	GA-67
9	239.59	235 -	245	238.93	5.34E+02	80.73	5.72E+02	PB-212
10	296.02	290 -	300	295.38	9.85E+01	62.75	4.71E+02	PB-214
11	338.49	334 -	342	337.87	6.74E+01	50.07	3.39E+02	AC-228
12	352.32	347 -	357	351.70	2.02E+02	58.03	3.42E+02	PB-214
13	396.45	390 -	404	395.86	1.11E+02	53.63	2.60E+02	.....
14	438.67	432 -	446	438.10	5.28E+01	52.05	2.64E+02	.....
15	464.02	459 -	467	463.46	4.23E+01	35.23	1.61E+02	SB-125
16	511.43	506 -	515	510.89	8.51E+01	41.17	1.90E+02	.....
17	584.12	578 -	590	583.61	1.42E+02	45.22	1.69E+02	TL-208
18	609.76	604 -	614	609.27	1.72E+02	43.42	1.60E+02	BI-214
19	725.78	718 -	730	725.34	2.98E+01	35.77	1.36E+02	.....

Analysis Report for 1510089-03

CP4104S13-14

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	20	911.95	908 -	918	911.61	7.32E+01	29.59	7.95E+01	LU-172 AC-228
	21	969.12	966 -	973	968.81	3.86E+01	24.58	7.28E+01	AC-228
	22	1119.58	1115 -	1123	1119.35	2.10E+01	22.26	6.41E+01	BI-214 SC-46
	23	1165.06	1160 -	1170	1164.86	3.11E+01	20.29	3.78E+01	.....
	24	1238.43	1235 -	1242	1238.27	2.08E+01	21.54	6.24E+01	CO-56
	25	1365.72	1363 -	1368	1365.64	1.23E+01	9.75	9.35E+00	.....
	26	1408.68	1405 -	1412	1408.62	1.38E+01	10.00	6.47E+00	EU-152
M	27	1453.53	1449 -	1465	1453.50	1.24E+01	11.34	1.73E+01	.....
m	28	1461.34	1449 -	1465	1461.31	2.61E+02	33.05	7.89E+00	K-40
	29	1500.19	1495 -	1504	1500.19	1.06E+01	10.49	8.80E+00	.....
	30	1593.55	1589 -	1598	1593.61	1.48E+01	15.26	2.44E+01	.....
	31	1729.86	1727 -	1732	1730.00	7.00E+00	5.29	0.00E+00	.....
	32	1764.98	1760 -	1772	1765.15	3.40E+01	11.66	0.00E+00	BI-214
	33	1873.93	1870 -	1878	1874.16	8.68E+00	8.02	4.64E+00	.....
	34	2057.79	2053 -	2061	2058.15	5.44E+00	7.23	5.13E+00	.....
	35	2230.02	2226 -	2233	2230.50	8.00E+00	5.66	0.00E+00	.....
	36	2351.83	2350 -	2355	2352.40	5.00E+00	4.47	0.00E+00	.....
	37	2615.97	2611 -	2621	2616.75	2.34E+01	11.59	5.15E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/9/2015 12:24:42PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	76.14	7.52E+02	139.61	2.12E-02	1.69E-03
2	85.84	1.03E+02	85.85	1.99E-02	1.64E-03
3	92.93	2.48E+02	101.34	1.90E-02	1.62E-03
4	117.09	7.21E+01	69.89	1.64E-02	1.54E-03
5	152.36	9.78E+01	82.16	1.36E-02	1.31E-03
6	164.42	8.69E+01	84.85	1.28E-02	1.22E-03
7	187.11	1.10E+02	79.34	1.16E-02	1.15E-03
8	208.64	1.05E+02	66.81	1.06E-02	1.08E-03
9	239.59	5.34E+02	80.73	9.38E-03	9.84E-04
10	296.02	9.85E+01	62.75	7.76E-03	8.42E-04

Analysis Report for 1510089-03

CP4104S13-14

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	338.49	6.74E+01	50.07	6.86E-03	7.95E-04
	12	352.32	2.02E+02	58.03	6.60E-03	7.80E-04
	13	396.45	1.11E+02	53.63	5.90E-03	7.29E-04
	14	438.67	5.28E+01	52.05	5.35E-03	6.67E-04
	15	464.02	4.23E+01	35.23	5.07E-03	6.30E-04
	16	511.43	8.51E+01	41.17	4.61E-03	5.61E-04
	17	584.12	1.42E+02	45.22	4.04E-03	4.54E-04
	18	609.76	1.72E+02	43.42	3.87E-03	4.16E-04
	19	725.78	2.98E+01	35.77	3.26E-03	3.04E-04
	20	911.95	7.32E+01	29.59	2.61E-03	2.06E-04
	21	969.12	3.86E+01	24.58	2.46E-03	1.99E-04
	22	1119.58	2.10E+01	22.26	2.15E-03	1.79E-04
	23	1165.06	3.11E+01	20.29	2.07E-03	1.74E-04
	24	1238.43	2.08E+01	21.54	1.95E-03	1.90E-04
	25	1365.72	1.23E+01	9.75	1.79E-03	2.09E-04
	26	1408.68	1.38E+01	10.00	1.74E-03	2.00E-04
M	27	1453.53	1.24E+01	11.34	1.69E-03	1.91E-04
m	28	1461.34	2.61E+02	33.05	1.68E-03	1.89E-04
	29	1500.19	1.06E+01	10.49	1.65E-03	1.81E-04
	30	1593.55	1.48E+01	15.26	1.56E-03	1.61E-04
	31	1729.86	7.00E+00	5.29	1.46E-03	1.33E-04
	32	1764.98	3.40E+01	11.66	1.43E-03	1.26E-04
	33	1873.93	8.68E+00	8.02	1.37E-03	1.11E-04
	34	2057.79	5.44E+00	7.23	1.27E-03	1.11E-04
	35	2230.02	8.00E+00	5.66	1.20E-03	1.11E-04
	36	2351.83	5.00E+00	4.47	1.15E-03	1.11E-04
	37	2615.97	2.34E+01	11.59	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 : 11/9/2015 12:24:42PM

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	76.14	7.52E+02	139.61			7.52E+02	1.40E+02
2	85.84	1.03E+02	85.85			1.03E+02	8.58E+01
3	92.93	2.48E+02	101.34	5.44E+01	8.36E+00	1.93E+02	1.02E+02

Analysis Report for 1510089-03

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	4	117.09	7.21E+01	69.89			7.21E+01	6.99E+01
	5	152.36	9.78E+01	82.16			9.78E+01	8.22E+01
	6	164.42	8.69E+01	84.85			8.69E+01	8.49E+01
	7	187.11	1.10E+02	79.34			1.10E+02	7.93E+01
	8	208.64	1.05E+02	66.81			1.05E+02	6.68E+01
	9	239.59	5.34E+02	80.73	1.09E+01	6.39E+00	5.23E+02	8.10E+01
	10	296.02	9.85E+01	62.75			9.85E+01	6.27E+01
	11	338.49	6.74E+01	50.07			6.74E+01	5.01E+01
	12	352.32	2.02E+02	58.03	8.07E+00	5.01E+00	1.94E+02	5.82E+01
	13	396.45	1.11E+02	53.63			1.11E+02	5.36E+01
	14	438.67	5.28E+01	52.05			5.28E+01	5.20E+01
	15	464.02	4.23E+01	35.23			4.23E+01	3.52E+01
	16	511.43	8.51E+01	41.17	4.21E+01	4.92E+00	4.30E+01	4.15E+01
	17	584.12	1.42E+02	45.22			1.42E+02	4.52E+01
	18	609.76	1.72E+02	43.42	5.16E+00	1.63E+00	1.67E+02	4.34E+01
	19	725.78	2.98E+01	35.77			2.98E+01	3.58E+01
	20	911.95	7.32E+01	29.59			7.32E+01	2.96E+01
	21	969.12	3.86E+01	24.58			3.86E+01	2.46E+01
	22	1119.58	2.10E+01	22.26			2.10E+01	2.23E+01
	23	1165.06	3.11E+01	20.29			3.11E+01	2.03E+01
	24	1238.43	2.08E+01	21.54			2.08E+01	2.15E+01
	25	1365.72	1.23E+01	9.75			1.23E+01	9.75E+00
	26	1408.68	1.38E+01	10.00			1.38E+01	1.00E+01
M	27	1453.53	1.24E+01	11.34			1.24E+01	1.13E+01
m	28	1461.34	2.61E+02	33.05			2.61E+02	3.31E+01
	29	1500.19	1.06E+01	10.49			1.06E+01	1.05E+01
	30	1593.55	1.48E+01	15.26			1.48E+01	1.53E+01
	31	1729.86	7.00E+00	5.29			7.00E+00	5.29E+00
	32	1764.98	3.40E+01	11.66	1.11E-01	9.77E-01	3.39E+01	1.17E+01
	33	1873.93	8.68E+00	8.02			8.68E+00	8.02E+00
	34	2057.79	5.44E+00	7.23			5.44E+00	7.23E+00
	35	2230.02	8.00E+00	5.66			8.00E+00	5.66E+00
	36	2351.83	5.00E+00	4.47			5.00E+00	4.47E+00
	37	2615.97	2.34E+01	11.59			2.34E+01	1.16E+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 1510089-03

CP4104S13-14

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/9/2015 12:24:42PM

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	76.14	7.52E+02	139.61			7.52E+02	1.40E+02
	2	85.84	1.03E+02	85.85			1.03E+02	8.58E+01
	3	92.93	2.48E+02	101.34	5.44E+01	8.36E+00	1.93E+02	1.02E+02
	4	117.09	7.21E+01	69.89			7.21E+01	6.99E+01
	5	152.36	9.78E+01	82.16			9.78E+01	8.22E+01
	6	164.42	8.69E+01	84.85			8.69E+01	8.49E+01
	7	187.11	1.10E+02	79.34			1.10E+02	7.93E+01
	8	208.64	1.05E+02	66.81			1.05E+02	6.68E+01
	9	239.59	5.34E+02	80.73	1.09E+01	6.39E+00	5.23E+02	8.10E+01
	10	296.02	9.85E+01	62.75			9.85E+01	6.27E+01
	11	338.49	6.74E+01	50.07			6.74E+01	5.01E+01
	12	352.32	2.02E+02	58.03	8.07E+00	5.01E+00	1.94E+02	5.82E+01
	13	396.45	1.11E+02	53.63			1.11E+02	5.36E+01
	14	438.67	5.28E+01	52.05			5.28E+01	5.20E+01
	15	464.02	4.23E+01	35.23			4.23E+01	3.52E+01
	16	511.43	8.51E+01	41.17	4.21E+01	4.92E+00	4.30E+01	4.15E+01
	17	584.12	1.42E+02	45.22			1.42E+02	4.52E+01
	18	609.76	1.72E+02	43.42	5.16E+00	1.63E+00	1.67E+02	4.34E+01
	19	725.78	2.98E+01	35.77			2.98E+01	3.58E+01
	20	911.95	7.32E+01	29.59			7.32E+01	2.96E+01
	21	969.12	3.86E+01	24.58			3.86E+01	2.46E+01
	22	1119.58	2.10E+01	22.26			2.10E+01	2.23E+01
	23	1165.06	3.11E+01	20.29			3.11E+01	2.03E+01
	24	1238.43	2.08E+01	21.54			2.08E+01	2.15E+01
	25	1365.72	1.23E+01	9.75			1.23E+01	9.75E+00
	26	1408.68	1.38E+01	10.00			1.38E+01	1.00E+01
M	27	1453.53	1.24E+01	11.34			1.24E+01	1.13E+01
m	28	1461.34	2.61E+02	33.05			2.61E+02	3.31E+01
	29	1500.19	1.06E+01	10.49			1.06E+01	1.05E+01
	30	1593.55	1.48E+01	15.26			1.48E+01	1.53E+01
	31	1729.86	7.00E+00	5.29			7.00E+00	5.29E+00
	32	1764.98	3.40E+01	11.66	1.11E-01	9.77E-01	3.39E+01	1.17E+01
	33	1873.93	8.68E+00	8.02			8.68E+00	8.02E+00
	34	2057.79	5.44E+00	7.23			5.44E+00	7.23E+00
	35	2230.02	8.00E+00	5.66			8.00E+00	5.66E+00
	36	2351.83	5.00E+00	4.47			5.00E+00	4.47E+00
	37	2615.97	2.34E+01	11.59			2.34E+01	1.16E+01

Analysis Report for 1510089-03

CP4104S13-14

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	0.956	1460.81	*	10.67	2.04E+01	3.47E+00
GA-67	0.395	93.31	*	35.70	3.73E+02	1.63E+03
		208.95	*	2.24	5.83E+03	2.47E+04
		300.22		16.00		
EU-155	0.340	86.50	*	30.90	2.37E-01	1.99E-01
		105.30		20.70		
PB-212	0.769	238.63	*	44.60	1.75E+00	3.27E-01
		300.09		3.41		
BI-214	0.897	609.31	*	46.30	1.30E+00	3.67E-01
		1120.29	*	15.10	9.07E-01	9.66E-01
		1764.49	*	15.80	2.10E+00	7.47E-01
		2204.22		4.98		
PB-214	0.949	295.21	*	19.19	9.26E-01	5.99E-01
		351.92	*	37.19	1.11E+00	3.57E-01
RA-226	0.878	186.21	*	3.28	4.06E+00	7.99E+00
AC-228	0.939	338.32	*	11.40	1.21E+00	9.08E-01
		911.07	*	27.70	1.42E+00	5.85E-01
		969.11	*	16.60	1.32E+00	8.50E-01
NP-237	0.932	86.50	*	12.60	5.73E-01	4.82E-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 1510089-03

CP4104S13-14

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 12:24:42PM
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	76.14	2.08850E-01	9.28		
	4	117.09	2.00390E-02	48.44		
	5	152.36	2.71784E-02	41.99	Tol.	CS-136
	6	164.42	2.41315E-02	48.84	Tol.	CS-136
	13	396.45	3.07913E-02	24.19	Sum	
	14	438.67	1.46727E-02	49.27	D-Esc	
	15	464.02	1.17378E-02	41.69	Tol.	SB-125
	16	511.43	1.19328E-02	48.26		
	17	584.12	3.93535E-02	15.96	Tol.	TL-208
	19	725.78	8.28940E-03	59.93		
	23	1165.06	8.63611E-03	32.63		
	24	1238.43	5.77457E-03	51.81		
	25	1365.72	3.42320E-03	39.55		
	26	1408.68	3.82353E-03	36.32	Tol.	EU-152
M	27	1453.53	3.44140E-03	45.75		
	29	1500.19	2.94444E-03	49.47		
	30	1593.55	4.11008E-03	51.58		
	31	1729.86	1.94444E-03	37.80	Sum	
	33	1873.93	2.41162E-03	46.16		
	34	2057.79	1.51042E-03	66.47		
	35	2230.02	2.22222E-03	35.36		
	36	2351.83	1.38889E-03	44.72		
	37	2615.97	6.50641E-03	24.73		

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 1510089-03

CP4104S13-14

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.95	1460.81	*	10.67	2.04E+01	3.47E+00
GA-67	0.39	93.31	*	35.70	3.73E+02	1.63E+03
		208.95	*	2.24	5.83E+03	2.47E+04
		300.22		16.00		
EU-155	0.34	86.50	*	30.90	2.37E-01	1.99E-01
		105.30		20.70		
PB-212	0.76	238.63	*	44.60	1.75E+00	3.27E-01
		300.09		3.41		
BI-214	0.89	609.31	*	46.30	1.30E+00	3.67E-01
		1120.29	*	15.10	9.07E-01	9.66E-01
		1764.49	*	15.80	2.10E+00	7.47E-01
		2204.22		4.98		
PB-214	0.94	295.21	*	19.19	9.26E-01	5.99E-01
		351.92	*	37.19	1.11E+00	3.57E-01
RA-226	0.87	186.21	*	3.28	4.06E+00	7.99E+00
AC-228	0.93	338.32	*	11.40	1.21E+00	9.08E-01
		911.07	*	27.70	1.42E+00	5.85E-01
		969.11	*	16.60	1.32E+00	8.50E-01
NP-237	0.93	86.50	*	12.60	5.73E-01	4.82E-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	0.956	2.04E+01	3.47E+00	
	GA-67	0.395	4.55E+02	1.96E+03	
?	EU-155	0.340	2.37E-01	1.99E-01	
	PB-212	0.769	1.75E+00	3.27E-01	
	BI-214	0.897	1.40E+00	3.12E-01	
	PB-214	0.949	1.06E+00	3.07E-01	
	RA-226	0.878	4.06E+00	7.99E+00	
	AC-228	0.939	1.35E+00	4.26E-01	

Analysis Report for 1510089-03

CP4104S13-14

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	NP-237	0.932	5.73E-01	4.82E-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 1510089-03

CP4104S13-14

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 12:24:42PM
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	76.14	2.08850E-01	9.28		
	4	117.09	2.00390E-02	48.44		
	5	152.36	2.71784E-02	41.99	Tol.	CS-136
	6	164.42	2.41315E-02	48.84	Tol.	CS-136
	13	396.45	3.07913E-02	24.19	Sum	
	14	438.67	1.46727E-02	49.27	D-Esc	
	15	464.02	1.17378E-02	41.69	Tol.	SB-125
	16	511.43	1.19328E-02	48.26		
	17	584.12	3.93535E-02	15.96	Tol.	TL-208
	19	725.78	8.28940E-03	59.93		
	23	1165.06	8.63611E-03	32.63		
	24	1238.43	5.77457E-03	51.81		
	25	1365.72	3.42320E-03	39.55		
	26	1408.68	3.82353E-03	36.32	Tol.	EU-152
M	27	1453.53	3.44140E-03	45.75		
	29	1500.19	2.94444E-03	49.47		
	30	1593.55	4.11008E-03	51.58		
	31	1729.86	1.94444E-03	37.80	Sum	
	33	1873.93	2.41162E-03	46.16		
	34	2057.79	1.51042E-03	66.47		
	35	2230.02	2.22222E-03	35.36		
	36	2351.83	1.38889E-03	44.72		
	37	2615.97	6.50641E-03	24.73		

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 1510089-03

CP4104S13-14

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-8.79E-01	2.01E+00	2.01E+00
+	NA-22	1274.54		99.94	6.13E-02	2.40E-01	2.40E-01
+	NA-24	1368.53		99.99	-8.20E+12	5.09E+14	6.50E+14
		2754.09		99.86	1.70E+14		5.09E+14
+	AL-26	1808.65		99.76	1.86E-02	1.50E-01	1.50E-01
+	K-40	1460.81	*	10.67	2.04E+01	1.84E+00	1.84E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	2.36E-02	9.44E-02	9.44E-02
		78.34		96.00	2.91E-01		1.23E-01
+	SC-46	889.25		99.98	-8.45E-02	2.34E-01	2.34E-01
		1120.51		99.99	1.80E-01		3.28E-01
+	V-48	983.52		99.98	-1.37E-01	7.67E-01	7.67E-01
		1312.10		97.50	-2.19E-01		7.84E-01
+	CR-51	320.08		9.83	6.28E-01	2.76E+00	2.76E+00
+	MN-54	834.83		99.97	1.06E-02	2.08E-01	2.08E-01
+	CO-56	846.75		99.96	-5.41E-02	2.23E-01	2.23E-01
		1037.75		14.03	8.90E-01		1.76E+00
		1238.25		67.00	1.71E-01		5.37E-01
		1771.40		15.51	2.07E-01		1.63E+00
		2598.48		16.90	-3.58E-01		9.49E-01
+	CO-57	122.06		85.51	-2.54E-03	1.16E-01	1.16E-01
		136.48		10.60	7.96E-02		1.05E+00
+	CO-58	810.76		99.40	6.42E-02	2.48E-01	2.48E-01
+	FE-59	1099.22		56.50	1.05E-01	6.73E-01	6.73E-01
		1291.56		43.20	2.97E-01		8.48E-01
+	CO-60	1173.22		100.00	8.85E-02	1.70E-01	2.11E-01
		1332.49		100.00	-9.22E-02		1.70E-01
+	ZN-65	1115.52		50.75	3.75E-02	4.77E-01	4.77E-01
+	GA-67	93.31	*	35.70	3.73E+02	3.15E+02	3.15E+02
		208.95	*	2.24	5.83E+03		5.93E+03
		300.22		16.00	-4.50E+01		7.49E+02
+	SE-75	121.11		16.70	4.53E-02	2.07E-01	6.65E-01
		136.00		59.20	-4.32E-03		2.07E-01
		264.65		59.80	-5.22E-02		2.34E-01
		279.53		25.20	1.27E-01		5.91E-01
		400.65		11.40	-4.80E-01		1.44E+00
+	RB-82	776.52		13.00	2.66E-01	3.20E+00	3.20E+00
+	RB-83	520.41		46.00	-2.64E-01	3.53E-01	3.53E-01
		529.64		30.30	1.45E-01		6.03E-01
		552.65		16.40	-8.56E-01		1.03E+00
+	KR-85	513.99		0.43	-4.25E+00	4.36E+01	4.36E+01
+	SR-85	513.99		99.27	-2.61E-02	2.67E-01	2.67E-01

Analysis Report for 1510089-03

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02	93.40	-2.81E-02	1.99E-01	2.64E-01
		1836.01	99.38	-5.94E-02		1.99E-01
+	NB-93M	16.57	9.43	1.04E+00	4.73E-01	4.73E-01
+	NB-94	702.63	100.00	8.71E-02	1.63E-01	1.80E-01
		871.10	100.00	-7.61E-02		1.63E-01
+	NB-95	765.79	99.81	4.29E-02	3.45E-01	3.45E-01
+	NB-95M	235.69	25.00	-1.64E+02	3.46E+02	3.46E+02
+	ZR-95	724.18	43.70	2.89E-01	4.01E-01	5.98E-01
		756.72	55.30	-1.19E-01		4.01E-01
+	MO-99	181.06	6.20	1.51E+03	3.89E+03	5.64E+03
		739.58	12.80	-1.01E+03		3.89E+03
		778.00	4.50	-7.86E+03		1.17E+04
+	RU-103	497.08	89.00	-8.82E-02	2.55E-01	2.55E-01
+	RU-106	621.84	9.80	-6.14E-02	1.54E+00	1.54E+00
+	AG-108M	433.93	89.90	-1.81E-02	1.49E-01	1.49E-01
		614.37	90.40	-2.39E-02		2.27E-01
		722.95	90.50	4.57E-02		1.97E-01
+	CD-109	88.03	3.72	1.67E+00	3.02E+00	3.02E+00
+	AG-110M	657.75	93.14	7.21E-03	1.75E-01	1.75E-01
		677.61	10.53	-4.35E-01		1.79E+00
		706.67	16.46	2.64E-01		1.04E+00
		763.93	21.98	8.71E-02		8.97E-01
		884.67	71.63	-4.73E-02		2.50E-01
		1384.27	23.94	-3.30E-01		8.13E-01
+	CD-113M	263.70	0.02	-2.65E+02	4.92E+02	4.92E+02
+	SN-113	255.12	1.93	4.16E-01	2.63E-01	6.99E+00
		391.69	64.90	4.68E-02		2.63E-01
+	TE123M	159.00	84.10	-3.36E-02	1.45E-01	1.45E-01
+	SB-124	602.71	97.87	-7.41E-02	2.17E-01	2.17E-01
		645.85	7.26	1.75E+00		3.37E+00
		722.78	11.10	-7.75E-01		2.21E+00
		1691.02	49.00	-5.88E-02		3.93E-01
+	I-125	35.49	6.49	-6.35E-03	1.23E+00	1.23E+00
+	SB-125	176.33	6.89	8.39E-01	4.74E-01	1.57E+00
		427.89	29.33	9.90E-02		4.74E-01
		463.38	10.35	5.42E-01		1.48E+00
		600.56	17.80	-3.12E-01		8.17E-01
		635.90	11.32	-2.90E-01		1.27E+00
+	SB-126	414.70	83.30	-3.46E-01	9.42E-01	9.42E-01
		666.33	99.60	-1.86E-01		9.42E-01
		695.00	99.60	2.91E-01		1.04E+00
		720.50	53.80	-1.06E-01		1.77E+00
+	SN-126	87.57	37.00	1.59E-01	2.89E-01	2.89E-01
+	SB-127	473.00	25.00	-2.50E+01	1.60E+02	1.72E+02
		685.20	35.70	8.83E+01		1.60E+02
		783.80	14.70	2.75E+01		3.75E+02
+	I-129	29.78	57.00	-3.68E-02	8.97E-02	8.97E-02
		33.60	13.20	1.35E-01		4.13E-01

Analysis Report for 1510089-03

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		I-129	39.58	7.52	-7.97E-01	8.97E-02	7.66E-01
+		I-131	284.30	6.05	-9.67E-01	2.53E+00	3.14E+01
			364.48	81.20	9.12E-01		2.53E+00
			636.97	7.26	-1.98E+01		3.05E+01
			722.89	1.80	-5.29E+01		1.51E+02
+		TE-132	49.72	13.10	-4.25E+00	1.21E+02	4.87E+02
			228.16	88.00	-6.79E+01		1.21E+02
+		BA-133	81.00	33.00	-2.29E-01	3.03E-01	3.37E-01
			302.84	17.80	-3.39E-01		6.65E-01
			356.01	60.00	-4.61E-03		3.03E-01
+		I-133	529.87	86.30	5.89E+09	2.45E+10	2.45E+10
+		XE-133	81.00	38.00	-1.39E+01	2.05E+01	2.05E+01
+		CS-134	563.23	8.38	-3.49E-01	1.98E-01	1.70E+00
			569.32	15.43	1.39E-01		9.70E-01
			604.70	97.60	2.10E-02		1.98E-01
			795.84	85.40	4.29E-02		2.23E-01
			801.93	8.73	-6.35E-01		2.12E+00
+		CS-135	268.24	16.00	3.05E-01	7.79E-01	7.79E-01
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	7.46E+00	9.05E-01	7.65E+00
			163.89	4.61	6.68E+00		1.23E+01
			176.55	13.56	2.27E+00		4.25E+00
			273.65	12.66	-1.03E-01		5.37E+00
			340.57	48.50	-9.74E-03		1.67E+00
			818.50	99.70	-7.46E-02		9.05E-01
			1048.07	79.60	4.20E-02		1.15E+00
			1235.34	19.70	4.50E-01		7.84E+00
+		CS-137	661.65	85.12	-4.46E-02	1.76E-01	1.76E-01
+		LA-138	788.74	34.00	-1.13E-01	2.92E-01	4.88E-01
			1435.80	66.00	1.95E-02		2.92E-01
+		CE-139	165.85	80.35	7.05E-02	1.54E-01	1.54E-01
+		BA-140	162.64	6.70	2.91E+00	3.14E+00	8.79E+00
			304.84	4.50	-8.20E+00		1.42E+01
			423.70	3.20	2.71E+00		2.46E+01
			437.55	2.00	1.02E+01		3.98E+01
			537.32	25.00	1.28E-01		3.14E+00
+		LA-140	328.77	20.50	4.47E-01	1.37E+00	3.67E+00
			487.03	45.50	7.67E-01		1.84E+00
			815.85	23.50	6.35E-01		4.18E+00
			1596.49	95.49	0.00E+00		1.37E+00
+		CE-141	145.44	48.40	-1.04E-01	4.08E-01	4.08E-01
+		CE-143	57.36	11.80	-4.77E+06	3.77E+06	7.06E+06
			293.26	42.00	2.53E+06		3.77E+06
			664.55	5.20	4.25E+06		3.34E+07
+		CE-144	133.54	10.80	1.68E-01	1.03E+00	1.03E+00
+		PM-144	476.78	42.00	-2.49E-01	1.53E-01	3.42E-01
			618.01	98.60	-6.85E-02		1.53E-01

Analysis Report for 1510089-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	696.49		99.49	5.58E-02	1.53E-01	1.87E-01
+	PM-145	36.85		21.70	-1.50E-02	1.44E-01	2.59E-01
		37.36		39.70	6.16E-03		1.44E-01
		42.30		15.10	9.42E-02		4.16E-01
		72.40		2.31	7.36E-03		4.85E+00
+	PM-146	453.90		39.94	-9.33E-03	3.31E-01	3.31E-01
		735.90		14.01	-2.73E-01		1.13E+00
		747.13		13.10	1.89E-01		1.27E+00
+	ND-147	91.11		28.90	7.05E+00	2.96E+00	2.96E+00
		531.02		13.10	-1.57E+00		7.95E+00
+	PM-149	285.90		3.10	9.31E+03	9.25E+04	9.25E+04
+	EU-152	121.78		20.50	-9.80E-03	4.46E-01	4.46E-01
		244.69		5.40	3.05E-02		2.63E+00
		344.27		19.13	-6.90E-02		6.34E-01
		778.89		9.20	-1.17E+00		1.74E+00
		964.01		10.40	-2.64E-01		2.15E+00
		1085.78		7.22	-1.54E+00		2.67E+00
		1112.02		9.60	-8.23E-03		2.11E+00
		1407.95		14.94	6.68E-01		1.22E+00
+	GD-153	97.43		31.30	-1.10E-01	3.13E-01	3.13E-01
		103.18		22.20	7.80E-02		4.24E-01
+	EU-154	123.07		40.50	-3.46E-02	2.25E-01	2.25E-01
		723.30		19.70	2.11E-01		9.11E-01
		873.19		11.50	-3.14E-01		1.43E+00
		996.32		10.30	-1.14E-01		1.96E+00
		1004.76		17.90	5.31E-02		1.07E+00
		1274.45		35.50	1.70E-01		6.63E-01
+	EU-155	86.50	*	30.90	2.37E-01	3.23E-01	3.23E-01
		105.30		20.70	-4.93E-02		4.24E-01
+	EU-156	811.77		10.40	-5.21E-01	7.19E+00	7.19E+00
		1153.47		7.20	1.13E+01		1.47E+01
		1230.71		8.90	-2.17E+00		1.20E+01
+	HO-166M	184.41		72.60	9.54E-02	1.61E-01	1.61E-01
		280.45		29.60	-5.83E-03		4.11E-01
		410.94		11.10	1.05E-01		1.21E+00
		711.69		54.10	-1.06E-01		2.62E-01
+	TM-171	66.72		0.14	2.74E+01	6.50E+01	6.50E+01
+	HF-172	81.75		4.52	-6.32E+00	8.92E-01	2.37E+00
		125.81		11.30	4.09E-01		8.92E-01
+	LU-172	181.53		20.60	1.67E+00	9.96E+00	1.48E+01
		810.06		16.63	7.81E+00		3.01E+01
		912.12		15.25	5.80E+01		4.91E+01
		1093.66		62.50	4.63E+00		9.96E+00
+	LU-173	100.72		5.24	-5.61E-01	6.12E-01	1.65E+00
		272.11		21.20	-9.83E-02		6.12E-01
+	HF-175	343.40		84.00	-2.15E-02	2.09E-01	2.09E-01
+	LU-176	88.34		13.30	1.01E+00	1.16E-01	8.18E-01
		201.83		86.00	3.67E-02		1.35E-01
		306.78		94.00	-6.83E-02		1.16E-01

Analysis Report for 1510089-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	6.55E-02	2.62E-01	2.62E-01
		1121.30		34.90	-2.48E-02		8.82E-01
		1189.05		16.23	3.02E-01		1.64E+00
		1221.41		26.98	2.12E-01		1.13E+00
		1231.02		11.44	-4.73E-01		2.62E+00
+	IR-192	308.46		29.68	-2.36E-01	3.86E-01	4.88E-01
		468.07		48.10	5.08E-02		3.86E-01
+	HG-203	279.19		77.30	5.56E-02	2.58E-01	2.58E-01
+	BI-207	569.67		97.72	2.14E-02	1.49E-01	1.49E-01
		1063.62		74.90	-8.13E-02		2.79E-01
+	TL-208	583.14		30.22	1.41E+00	7.79E-01	7.79E-01
		860.37		4.48	9.35E-01		4.25E+00
		2614.66		35.85	7.31E-01		9.64E-01
+	BI-210M	262.00		45.00	-1.43E-01	2.45E-01	2.45E-01
		300.00		23.00	6.03E-02		6.05E-01
+	PB-210	46.50		4.25	7.58E-01	1.56E+00	1.56E+00
+	PB-211	404.84		2.90	-1.40E+00	4.61E+00	4.61E+00
		831.96		2.90	2.38E+00		6.76E+00
+	BI-212	727.17		11.80	2.30E-01	1.51E+00	1.51E+00
		1620.62		2.75	3.31E+00		7.05E+00
+	PB-212	238.63	*	44.60	1.75E+00	3.77E-01	3.77E-01
		300.09		3.41	4.07E-01		4.08E+00
+	BI-214	609.31	*	46.30	1.30E+00	2.88E-01	4.70E-01
		1120.29	*	15.10	9.07E-01		1.56E+00
		1764.49	*	15.80	2.10E+00		2.88E-01
		2204.22		4.98	5.44E-01		3.29E+00
+	PB-214	295.21	*	19.19	9.26E-01	4.96E-01	9.46E-01
		351.92	*	37.19	1.11E+00		4.96E-01
+	RN-219	401.80		6.50	1.40E-01	2.12E+00	2.12E+00
+	RA-223	323.87		3.88	-1.17E+00	3.17E+00	3.17E+00
+	RA-224	240.98		3.95	1.93E+01	4.99E+00	4.99E+00
+	RA-225	40.00		31.00	-8.75E-01	8.41E-01	8.41E-01
+	RA-226	186.21	*	3.28	4.06E+00	4.75E+00	4.75E+00
+	TH-227	50.10		8.40	-7.09E-03	8.12E-01	8.12E-01
		236.00		11.50	-7.43E-01		1.56E+00
		256.20		6.30	1.23E-01		1.75E+00
+	AC-228	338.32	*	11.40	1.21E+00	8.22E-01	1.44E+00
		911.07	*	27.70	1.42E+00		8.22E-01
		969.11	*	16.60	1.32E+00		1.29E+00
+	TH-230	48.44		16.90	1.09E-01	4.02E-01	4.02E-01
		62.85		4.60	1.01E+00		1.84E+00
		67.67		0.37	6.00E+00		2.40E+01
+	PA-231	283.67		1.60	-2.26E+00	5.12E+00	7.47E+00
		302.67		2.30	-2.61E+00		5.12E+00
+	TH-231	25.64		14.70	-2.48E-01	3.40E-01	3.40E-01
		84.21		6.40	-5.38E+00		1.54E+00
+	PA-233	311.98		38.60	5.84E-02	6.77E-01	6.77E-01
+	PA-234	131.20		20.40	1.94E-01	5.04E-01	5.04E-01

Analysis Report for 1510089-03

CP4104S13-14

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	733.99		8.80	2.11E-01	5.04E-01	1.81E+00
		946.00		12.00	-3.68E-01		1.40E+00
+	PA-234M	1001.03		0.92	5.43E+00	2.25E+01	2.25E+01
+	TH-234	63.29		3.80	9.72E-01	2.23E+00	2.23E+00
+	U-235	143.76		10.50	-3.82E-01	9.47E-01	9.47E-01
		163.35		4.70	1.20E+00		2.22E+00
		205.31		4.70	-1.24E-01		2.54E+00
+	NP-237	86.50	*	12.60	5.73E-01	7.82E-01	7.82E-01
+	NP-239	106.10		22.70	-5.78E+02	4.97E+03	4.97E+03
		228.18		10.70	-1.01E+03		1.40E+04
		277.60		14.10	5.29E+03		1.15E+04
+	AM-241	59.54		35.90	4.84E-02	2.22E-01	2.22E-01
+	AM-243	74.67		66.00	6.94E-01	1.82E-01	1.82E-01
+	CM-243	209.75		3.29	2.86E+00	8.94E-01	3.75E+00
		228.14		10.60	-6.02E-01		1.07E+00
		277.60		14.00	4.12E-01		8.94E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.01E+00	2.01E+00	-8.79E-01	9.49E-01
	NA-22	1274.54		99.94	2.40E-01	2.40E-01	6.13E-02	1.10E-01
	NA-24	1368.53		99.99	6.50E+14	5.09E+14	-8.20E+12	2.92E+14
		2754.09		99.86	5.09E+14		1.70E+14	1.97E+14
	AL-26	1808.65		99.76	1.50E-01	1.50E-01	1.86E-02	6.15E-02
+	K-40	1460.81	*	10.67	1.84E+00	1.84E+00	2.04E+01	8.12E-01

Analysis Report for 1510089-03

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	9.44E-02	9.44E-02	2.36E-02	4.63E-02
		78.34		96.00	1.23E-01		2.91E-01	6.08E-02
	SC-46	889.25		99.98	2.34E-01	2.34E-01	-8.45E-02	1.08E-01
		1120.51		99.99	3.28E-01		1.80E-01	1.52E-01
	V-48	983.52		99.98	7.67E-01	7.67E-01	-1.37E-01	3.52E-01
		1312.10		97.50	7.84E-01		-2.19E-01	3.50E-01
	CR-51	320.08		9.83	2.76E+00	2.76E+00	6.28E-01	1.32E+00
	MN-54	834.83		99.97	2.08E-01	2.08E-01	1.06E-02	9.70E-02
	CO-56	846.75		99.96	2.23E-01	2.23E-01	-5.41E-02	1.02E-01
		1037.75		14.03	1.76E+00		8.90E-01	8.03E-01
		1238.25		67.00	5.37E-01		1.71E-01	2.50E-01
		1771.40		15.51	1.63E+00		2.07E-01	7.03E-01
		2598.48		16.90	9.49E-01		-3.58E-01	3.36E-01
	CO-57	122.06		85.51	1.16E-01	1.16E-01	-2.54E-03	5.63E-02
		136.48		10.60	1.05E+00		7.96E-02	5.09E-01
	CO-58	810.76		99.40	2.48E-01	2.48E-01	6.42E-02	1.15E-01
	FE-59	1099.22		56.50	6.73E-01	6.73E-01	1.05E-01	3.11E-01
		1291.56		43.20	8.48E-01		2.97E-01	3.86E-01
	CO-60	1173.22		100.00	2.11E-01	1.70E-01	8.85E-02	9.63E-02
		1332.49		100.00	1.70E-01		-9.22E-02	7.44E-02
	ZN-65	1115.52		50.75	4.77E-01	4.77E-01	3.75E-02	2.19E-01
+	GA-67	93.31	*	35.70	3.15E+02	3.15E+02	3.73E+02	1.55E+02
		208.95	*	2.24	5.93E+03		5.83E+03	2.89E+03
		300.22		16.00	7.49E+02		-4.50E+01	3.60E+02
	SE-75	121.11		16.70	6.65E-01	2.07E-01	4.53E-02	3.24E-01
		136.00		59.20	2.07E-01		-4.32E-03	1.01E-01
		264.65		59.80	2.34E-01		-5.22E-02	1.13E-01
		279.53		25.20	5.91E-01		1.27E-01	2.84E-01
		400.65		11.40	1.44E+00		-4.80E-01	6.88E-01
	RB-82	776.52		13.00	3.20E+00	3.20E+00	2.66E-01	1.48E+00
	RB-83	520.41		46.00	3.53E-01	3.53E-01	-2.64E-01	1.65E-01
		529.64		30.30	6.03E-01		1.45E-01	2.84E-01
		552.65		16.40	1.03E+00		-8.56E-01	4.79E-01
	KR-85	513.99		0.43	4.36E+01	4.36E+01	-4.25E+00	2.08E+01
	SR-85	513.99		99.27	2.67E-01	2.67E-01	-2.61E-02	1.28E-01
	Y-88	898.02		93.40	2.64E-01	1.99E-01	-2.81E-02	1.23E-01
		1836.01		99.38	1.99E-01		-5.94E-02	8.23E-02
	NB-93M	16.57		9.43	4.73E-01	4.73E-01	1.04E+00	2.30E-01
	NB-94	702.63		100.00	1.80E-01	1.63E-01	8.71E-02	8.44E-02
		871.10		100.00	1.63E-01		-7.61E-02	7.46E-02
	NB-95	765.79		99.81	3.45E-01	3.45E-01	4.29E-02	1.61E-01
	NB-95M	235.69		25.00	3.46E+02	3.46E+02	-1.64E+02	1.69E+02
	ZR-95	724.18		43.70	5.98E-01	4.01E-01	2.89E-01	2.80E-01
		756.72		55.30	4.01E-01		-1.19E-01	1.85E-01
	MO-99	181.06		6.20	5.64E+03	3.89E+03	1.51E+03	2.74E+03
		739.58		12.80	3.89E+03		-1.01E+03	1.79E+03
		778.00		4.50	1.17E+04		-7.86E+03	5.41E+03
	RU-103	497.08		89.00	2.55E-01	2.55E-01	-8.82E-02	1.20E-01
	RU-106	621.84		9.80	1.54E+00	1.54E+00	-6.14E-02	7.15E-01
	AG-108M	433.93		89.90	1.49E-01	1.49E-01	-1.81E-02	7.07E-02
		614.37		90.40	2.27E-01		-2.39E-02	1.08E-01
		722.95		90.50	1.97E-01		4.57E-02	9.21E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-109	88.03	3.72	3.02E+00	3.02E+00	1.67E+00	1.48E+00
AG-110M	657.75	93.14	1.75E-01	1.75E-01	7.21E-03	8.11E-02
	677.61	10.53	1.79E+00		-4.35E-01	8.40E-01
	706.67	16.46	1.04E+00		2.64E-01	4.84E-01
	763.93	21.98	8.97E-01		8.71E-02	4.18E-01
	884.67	71.63	2.50E-01		-4.73E-02	1.14E-01
	1384.27	23.94	8.13E-01		-3.30E-01	3.58E-01
CD-113M	263.70	0.02	4.92E+02	4.92E+02	-2.65E+02	2.36E+02
SN-113	255.12	1.93	6.99E+00	2.63E-01	4.16E-01	3.36E+00
	391.69	64.90	2.63E-01		4.68E-02	1.25E-01
TE123M	159.00	84.10	1.45E-01	1.45E-01	-3.36E-02	7.06E-02
SB-124	602.71	97.87	2.17E-01	2.17E-01	-7.41E-02	1.02E-01
	645.85	7.26	3.37E+00		1.75E+00	1.58E+00
	722.78	11.10	2.21E+00		-7.75E-01	1.03E+00
	1691.02	49.00	3.93E-01		-5.88E-02	1.59E-01
I-125	35.49	6.49	1.23E+00	1.23E+00	-6.35E-03	6.00E-01
SB-125	176.33	6.89	1.57E+00	4.74E-01	8.39E-01	7.62E-01
	427.89	29.33	4.74E-01		9.90E-02	2.25E-01
	463.38	10.35	1.48E+00		5.42E-01	7.04E-01
	600.56	17.80	8.17E-01		-3.12E-01	3.81E-01
	635.90	11.32	1.27E+00		-2.90E-01	5.88E-01
SB-126	414.70	83.30	9.42E-01	9.42E-01	-3.46E-01	4.47E-01
	666.33	99.60	9.42E-01		-1.86E-01	4.39E-01
	695.00	99.60	1.04E+00		2.91E-01	4.86E-01
	720.50	53.80	1.77E+00		-1.06E-01	8.19E-01
SN-126	87.57	37.00	2.89E-01	2.89E-01	1.59E-01	1.42E-01
SB-127	473.00	25.00	1.72E+02	1.60E+02	-2.50E+01	8.11E+01
	685.20	35.70	1.60E+02		8.83E+01	7.51E+01
	783.80	14.70	3.75E+02		2.75E+01	1.73E+02
I-129	29.78	57.00	8.97E-02	8.97E-02	-3.68E-02	4.37E-02
	33.60	13.20	4.13E-01		1.35E-01	2.01E-01
	39.58	7.52	7.66E-01		-7.97E-01	3.74E-01
I-131	284.30	6.05	3.14E+01	2.53E+00	-9.67E-01	1.51E+01
	364.48	81.20	2.53E+00		9.12E-01	1.21E+00
	636.97	7.26	3.05E+01		-1.98E+01	1.41E+01
	722.89	1.80	1.51E+02		-5.29E+01	7.03E+01
TE-132	49.72	13.10	4.87E+02	1.21E+02	-4.25E+00	2.38E+02
	228.16	88.00	1.21E+02		-6.79E+01	5.83E+01
BA-133	81.00	33.00	3.37E-01	3.03E-01	-2.29E-01	1.66E-01
	302.84	17.80	6.65E-01		-3.39E-01	3.19E-01
	356.01	60.00	3.03E-01		-4.61E-03	1.47E-01
I-133	529.87	86.30	2.45E+10	2.45E+10	5.89E+09	1.15E+10
XE-133	81.00	38.00	2.05E+01	2.05E+01	-1.39E+01	1.01E+01
CS-134	563.23	8.38	1.70E+00	1.98E-01	-3.49E-01	7.95E-01
	569.32	15.43	9.70E-01		1.39E-01	4.55E-01
	604.70	97.60	1.98E-01		2.10E-02	9.41E-02
	795.84	85.40	2.23E-01		4.29E-02	1.04E-01
	801.93	8.73	2.12E+00		-6.35E-01	9.82E-01
CS-135	268.24	16.00	7.79E-01	7.79E-01	3.05E-01	3.76E-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	7.65E+00	9.05E-01	7.46E+00	3.72E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	163.89	4.61	1.23E+01	9.05E-01	6.68E+00	5.99E+00
	176.55	13.56	4.25E+00		2.27E+00	2.06E+00
	273.65	12.66	5.37E+00		-1.03E-01	2.59E+00
	340.57	48.50	1.67E+00		-9.74E-03	8.05E-01
	818.50	99.70	9.05E-01		-7.46E-02	4.17E-01
	1048.07	79.60	1.15E+00		4.20E-02	5.17E-01
	1235.34	19.70	7.84E+00		4.50E-01	3.65E+00
CS-137	661.65	85.12	1.76E-01	1.76E-01	-4.46E-02	8.18E-02
LA-138	788.74	34.00	4.88E-01	2.92E-01	-1.13E-01	2.26E-01
	1435.80	66.00	2.92E-01		1.95E-02	1.29E-01
CE-139	165.85	80.35	1.54E-01	1.54E-01	7.05E-02	7.47E-02
BA-140	162.64	6.70	8.79E+00	3.14E+00	2.91E+00	4.27E+00
	304.84	4.50	1.42E+01		-8.20E+00	6.76E+00
	423.70	3.20	2.46E+01		2.71E+00	1.17E+01
	437.55	2.00	3.98E+01		1.02E+01	1.89E+01
	537.32	25.00	3.14E+00		1.28E-01	1.47E+00
LA-140	328.77	20.50	3.67E+00	1.37E+00	4.47E-01	1.76E+00
	487.03	45.50	1.84E+00		7.67E-01	8.69E-01
	815.85	23.50	4.18E+00		6.35E-01	1.93E+00
	1596.49	95.49	1.37E+00		0.00E+00	6.13E-01
CE-141	145.44	48.40	4.08E-01	4.08E-01	-1.04E-01	1.98E-01
CE-143	57.36	11.80	7.06E+06	3.77E+06	-4.77E+06	3.46E+06
	293.26	42.00	3.77E+06		2.53E+06	1.82E+06
	664.55	5.20	3.34E+07		4.25E+06	1.56E+07
CE-144	133.54	10.80	1.03E+00	1.03E+00	1.68E-01	5.01E-01
PM-144	476.78	42.00	3.42E-01	1.53E-01	-2.49E-01	1.61E-01
	618.01	98.60	1.53E-01		-6.85E-02	7.12E-02
	696.49	99.49	1.87E-01		5.58E-02	8.76E-02
PM-145	36.85	21.70	2.59E-01	1.44E-01	-1.50E-02	1.26E-01
	37.36	39.70	1.44E-01		6.16E-03	7.04E-02
	42.30	15.10	4.16E-01		9.42E-02	2.03E-01
	72.40	2.31	4.85E+00		7.36E-03	2.38E+00
PM-146	453.90	39.94	3.31E-01	3.31E-01	-9.33E-03	1.56E-01
	735.90	14.01	1.13E+00		-2.73E-01	5.22E-01
	747.13	13.10	1.27E+00		1.89E-01	5.89E-01
ND-147	91.11	28.90	2.96E+00	2.96E+00	7.05E+00	1.45E+00
	531.02	13.10	7.95E+00		-1.57E+00	3.72E+00
PM-149	285.90	3.10	9.25E+04	9.25E+04	9.31E+03	4.44E+04
EU-152	121.78	20.50	4.46E-01	4.46E-01	-9.80E-03	2.17E-01
	244.69	5.40	2.63E+00		3.05E-02	1.28E+00
	344.27	19.13	6.34E-01		-6.90E-02	3.02E-01
	778.89	9.20	1.74E+00		-1.17E+00	8.02E-01
	964.01	10.40	2.15E+00		-2.64E-01	1.00E+00
	1085.78	7.22	2.67E+00		-1.54E+00	1.22E+00
	1112.02	9.60	2.11E+00		-8.23E-03	9.61E-01
	1407.95	14.94	1.22E+00		6.68E-01	5.34E-01
GD-153	97.43	31.30	3.13E-01	3.13E-01	-1.10E-01	1.53E-01
	103.18	22.20	4.24E-01		7.80E-02	2.07E-01
EU-154	123.07	40.50	2.25E-01	2.25E-01	-3.46E-02	1.10E-01
	723.30	19.70	9.11E-01		2.11E-01	4.26E-01
	873.19	11.50	1.43E+00		-3.14E-01	6.55E-01
	996.32	10.30	1.96E+00		-1.14E-01	9.02E-01
	1004.76	17.90	1.07E+00		5.31E-02	4.88E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	1274.45		35.50	6.63E-01	2.25E-01	1.70E-01	3.03E-01
+	EU-155	86.50	*	30.90	3.23E-01	3.23E-01	2.37E-01	1.58E-01
		105.30		20.70	4.24E-01		-4.93E-02	2.07E-01
	EU-156	811.77		10.40	7.19E+00	7.19E+00	-5.21E-01	3.33E+00
		1153.47		7.20	1.47E+01		1.13E+01	6.79E+00
		1230.71		8.90	1.20E+01		-2.17E+00	5.55E+00
	HO-166M	184.41		72.60	1.61E-01	1.61E-01	9.54E-02	7.85E-02
		280.45		29.60	4.11E-01		-5.83E-03	1.97E-01
		410.94		11.10	1.21E+00		1.05E-01	5.74E-01
		711.69		54.10	2.62E-01		-1.06E-01	1.20E-01
	TM-171	66.72		0.14	6.50E+01	6.50E+01	2.74E+01	3.19E+01
	HF-172	81.75		4.52	2.37E+00	8.92E-01	-6.32E+00	1.16E+00
		125.81		11.30	8.92E-01		4.09E-01	4.35E-01
	LU-172	181.53		20.60	1.48E+01	9.96E+00	1.67E+00	7.18E+00
		810.06		16.63	3.01E+01		7.81E+00	1.40E+01
		912.12		15.25	4.91E+01		5.80E+01	2.32E+01
		1093.66		62.50	9.96E+00		4.63E+00	4.60E+00
	LU-173	100.72		5.24	1.65E+00	6.12E-01	-5.61E-01	8.05E-01
		272.11		21.20	6.12E-01		-9.83E-02	2.95E-01
	HF-175	343.40		84.00	2.09E-01	2.09E-01	-2.15E-02	9.98E-02
	LU-176	88.34		13.30	8.18E-01	1.16E-01	1.01E+00	4.02E-01
		201.83		86.00	1.35E-01		3.67E-02	6.53E-02
		306.78		94.00	1.16E-01		-6.83E-02	5.52E-02
	TA-182	67.75		41.20	2.62E-01	2.62E-01	6.55E-02	1.29E-01
		1121.30		34.90	8.82E-01		-2.48E-02	4.10E-01
		1189.05		16.23	1.64E+00		3.02E-01	7.51E-01
		1221.41		26.98	1.13E+00		2.12E-01	5.19E-01
		1231.02		11.44	2.62E+00		-4.73E-01	1.21E+00
	IR-192	308.46		29.68	4.88E-01	3.86E-01	-2.36E-01	2.32E-01
		468.07		48.10	3.86E-01		5.08E-02	1.82E-01
	HG-203	279.19		77.30	2.58E-01	2.58E-01	5.56E-02	1.24E-01
	BI-207	569.67		97.72	1.49E-01	1.49E-01	2.14E-02	6.99E-02
		1063.62		74.90	2.79E-01		-8.13E-02	1.28E-01
	TL-208	583.14		30.22	7.79E-01	7.79E-01	1.41E+00	3.74E-01
		860.37		4.48	4.25E+00		9.35E-01	1.97E+00
		2614.66		35.85	9.64E-01		7.31E-01	4.33E-01
	BI-210M	262.00		45.00	2.45E-01	2.45E-01	-1.43E-01	1.18E-01
		300.00		23.00	6.05E-01		6.03E-02	2.92E-01
	PB-210	46.50		4.25	1.56E+00	1.56E+00	7.58E-01	7.63E-01
	PB-211	404.84		2.90	4.61E+00	4.61E+00	-1.40E+00	2.19E+00
		831.96		2.90	6.76E+00		2.38E+00	3.15E+00
	BI-212	727.17		11.80	1.51E+00	1.51E+00	2.30E-01	7.05E-01
		1620.62		2.75	7.05E+00		3.31E+00	3.08E+00
+	PB-212	238.63	*	44.60	3.77E-01	3.77E-01	1.75E+00	1.84E-01
		300.09		3.41	4.08E+00		4.07E-01	1.97E+00
+	BI-214	609.31	*	46.30	4.70E-01	2.88E-01	1.30E+00	2.24E-01
		1120.29	*	15.10	1.56E+00		9.07E-01	7.22E-01
		1764.49	*	15.80	2.88E-01		2.10E+00	6.02E-02
		2204.22		4.98	3.29E+00		5.44E-01	1.33E+00
+	PB-214	295.21	*	19.19	9.46E-01	4.96E-01	9.26E-01	4.60E-01
		351.92	*	37.19	4.96E-01		1.11E+00	2.40E-01
	RN-219	401.80		6.50	2.12E+00	2.12E+00	1.40E-01	1.01E+00
	RA-223	323.87		3.88	3.17E+00	3.17E+00	-1.17E+00	1.51E+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)
	RA-224	240.98		3.95	4.99E+00	4.99E+00	1.93E+01	2.45E+00
	RA-225	40.00		31.00	8.41E-01	8.41E-01	-8.75E-01	4.10E-01
+	RA-226	186.21	*	3.28	4.75E+00	4.75E+00	4.06E+00	2.33E+00
	TH-227	50.10		8.40	8.12E-01	8.12E-01	-7.09E-03	3.97E-01
		236.00		11.50	1.56E+00		-7.43E-01	7.65E-01
		256.20		6.30	1.75E+00		1.23E-01	8.39E-01
+	AC-228	338.32	*	11.40	1.44E+00	8.22E-01	1.21E+00	6.97E-01
		911.07	*	27.70	8.22E-01		1.42E+00	3.85E-01
		969.11	*	16.60	1.29E+00		1.32E+00	5.98E-01
	TH-230	48.44		16.90	4.02E-01	4.02E-01	1.09E-01	1.97E-01
		62.85		4.60	1.84E+00		1.01E+00	9.03E-01
		67.67		0.37	2.40E+01		6.00E+00	1.18E+01
	PA-231	283.67		1.60	7.47E+00	5.12E+00	-2.26E+00	3.59E+00
		302.67		2.30	5.12E+00		-2.61E+00	2.45E+00
	TH-231	25.64		14.70	3.40E-01	3.40E-01	-2.48E-01	1.66E-01
		84.21		6.40	1.54E+00		-5.38E+00	7.57E-01
	PA-233	311.98		38.60	6.77E-01	6.77E-01	5.84E-02	3.24E-01
	PA-234	131.20		20.40	5.04E-01	5.04E-01	1.94E-01	2.46E-01
		733.99		8.80	1.81E+00		2.11E-01	8.36E-01
		946.00		12.00	1.40E+00		-3.68E-01	6.38E-01
	PA-234M	1001.03		0.92	2.25E+01	2.25E+01	5.43E+00	1.04E+01
	TH-234	63.29		3.80	2.23E+00	2.23E+00	9.72E-01	1.09E+00
	U-235	143.76		10.50	9.47E-01	9.47E-01	-3.82E-01	4.61E-01
		163.35		4.70	2.22E+00		1.20E+00	1.08E+00
		205.31		4.70	2.54E+00		-1.24E-01	1.23E+00
+	NP-237	86.50	*	12.60	7.82E-01	7.82E-01	5.73E-01	3.83E-01
	NP-239	106.10		22.70	4.97E+03	4.97E+03	-5.78E+02	2.42E+03
		228.18		10.70	1.40E+04		-1.01E+03	6.75E+03
		277.60		14.10	1.15E+04		5.29E+03	5.53E+03
	AM-241	59.54		35.90	2.22E-01	2.22E-01	4.84E-02	1.09E-01
	AM-243	74.67		66.00	1.82E-01	1.82E-01	6.94E-01	8.99E-02
	CM-243	209.75		3.29	3.75E+00	8.94E-01	2.86E+00	1.82E+00
		228.14		10.60	1.07E+00		-6.02E-01	5.17E-01
		277.60		14.00	8.94E-01		4.12E-01	4.31E-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 1510089-03

CP4104S13-14

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: CP4104S13-14

Elapsed Live time: 3600
Elapsed Real Time: 3698

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	16	96
17:	79	79	75	62	58	62	58	61
25:	55	48	58	45	60	65	56	57
33:	63	64	74	48	64	54	69	65
41:	74	55	65	80	91	94	87	55
49:	84	70	76	63	67	94	81	75
57:	77	105	89	72	95	104	121	117
65:	97	85	98	102	99	84	106	118
73:	154	208	229	249	235	144	92	84
81:	74	87	111	100	93	129	123	97
89:	102	109	139	138	140	81	68	53
97:	51	58	59	50	53	67	55	56
105:	56	69	41	63	60	76	56	54
113:	56	50	68	70	68	43	49	45
121:	38	57	52	66	53	58	56	65
129:	75	62	50	63	64	51	53	55
137:	56	62	51	51	43	49	58	70
145:	48	42	32	43	50	60	56	58
153:	47	54	35	43	45	32	47	37
161:	56	46	50	36	35	55	38	47
169:	34	32	46	41	39	43	38	46
177:	30	47	40	41	31	34	35	43
185:	71	71	43	49	42	45	36	34
193:	27	39	39	32	53	39	30	48
201:	39	40	25	25	51	29	34	53
209:	65	43	38	31	28	37	38	33
217:	25	35	50	40	38	29	25	35
225:	30	29	36	17	22	42	34	35
233:	38	30	30	43	111	195	142	80
241:	63	68	37	27	24	23	32	22
249:	30	21	19	21	32	23	25	26
257:	23	22	20	14	23	16	26	25
265:	29	32	20	32	34	24	32	17
273:	18	30	29	33	20	27	28	21
281:	25	22	18	20	23	29	16	24
289:	23	23	14	18	27	62	50	38
297:	22	27	30	23	17	17	25	12
305:	11	11	21	15	17	14	17	19
313:	15	18	18	28	15	19	13	17
321:	26	17	12	12	17	20	32	24
329:	24	16	21	20	21	23	19	17
337:	44	48	35	18	16	17	16	14
345:	14	16	14	17	18	49	69	72
353:	57	27	17	15	18	14	19	18
361:	13	21	18	21	15	14	13	11

369:	13	9	12	15	14	12	19	14

Sample Title: CP4104S13-14

Channel								
377:	10	7	11	17	12	20	17	12
385:	8	11	17	20	9	2	13	22
393:	23	23	22	8	17	19	14	16
401:	17	17	15	13	10	13	15	11
409:	24	13	15	12	10	11	14	16
417:	11	12	11	15	14	13	16	10
425:	14	9	21	18	11	10	9	7
433:	14	10	17	12	21	11	16	10
441:	7	10	14	17	10	9	10	14
449:	10	16	8	8	10	11	5	13
457:	15	12	11	9	15	17	23	15
465:	12	12	9	5	14	11	12	10
473:	4	8	11	14	10	12	9	15
481:	14	14	20	12	4	8	13	13
489:	11	10	6	9	6	13	6	5
497:	5	9	15	4	14	8	11	17
505:	19	6	12	15	31	20	40	17
513:	20	13	6	8	5	8	7	11
521:	11	5	6	5	11	7	9	14
529:	3	8	9	11	10	5	13	12
537:	8	7	7	8	5	10	7	5
545:	9	8	8	12	10	5	8	8
553:	5	5	5	5	13	11	12	10
561:	8	13	6	2	7	2	9	9
569:	8	7	11	9	13	6	8	11
577:	10	7	9	8	15	37	44	49
585:	17	9	9	5	10	7	3	10
593:	13	4	11	7	10	4	1	11
601:	8	9	8	6	12	9	15	36
609:	71	46	20	13	16	8	7	4
617:	8	10	8	2	8	5	2	11
625:	5	10	9	2	9	6	7	7
633:	8	6	7	5	3	8	4	5
641:	12	7	9	9	9	7	5	13
649:	8	5	7	8	7	9	9	6
657:	6	4	5	4	8	7	4	7
665:	13	5	6	10	6	4	14	6
673:	8	11	4	10	10	10	6	6
681:	10	7	18	7	7	8	4	6
689:	8	5	2	7	4	7	7	8
697:	11	13	11	5	8	7	10	3
705:	11	8	1	4	8	4	1	6
713:	3	9	8	4	8	4	8	10
721:	4	8	3	5	8	13	11	13
729:	7	4	5	7	9	4	3	10
737:	2	9	2	4	5	8	3	6
745:	4	7	6	9	9	7	4	6
753:	3	7	6	3	3	7	6	7
761:	6	6	7	7	2	6	12	11
769:	8	6	10	4	10	9	2	6
777:	6	5	7	8	0	4	9	3
785:	11	8	2	5	5	6	6	4
793:	5	4	15	11	5	8	4	6

801:	8	6	6	4	6	9	7	5

Sample Title: CP4104S13-14

Channel								
809:	4	7	6	5	7	6	4	7
817:	4	6	5	5	5	4	5	7
825:	3	5	7	7	6	7	7	7
833:	10	6	8	6	4	7	7	8
841:	5	2	4	6	5	8	2	7
849:	6	4	5	4	6	2	4	7
857:	4	5	12	4	7	5	5	7
865:	8	6	5	7	5	2	4	5
873:	7	2	2	8	4	4	5	4
881:	2	4	4	11	2	3	4	4
889:	7	3	6	11	6	7	4	9
897:	4	4	9	5	5	10	4	8
905:	6	6	5	1	7	15	30	24
913:	12	3	4	7	5	5	3	3
921:	2	3	8	1	5	7	4	8
929:	7	2	3	5	7	4	3	2
937:	5	4	2	5	6	2	3	1
945:	1	4	8	6	3	7	5	5
953:	6	5	6	3	2	2	7	1
961:	2	3	11	10	6	5	9	15
969:	24	11	4	5	2	6	5	4
977:	5	4	5	4	4	9	4	6
985:	3	5	2	5	6	7	3	4
993:	1	5	9	6	4	5	8	4
1001:	5	7	4	6	6	1	3	4
1009:	5	2	3	3	3	0	6	2
1017:	5	6	6	4	6	3	1	3
1025:	3	4	5	5	3	3	2	3
1033:	5	6	4	3	2	4	2	7
1041:	3	4	2	0	4	2	1	5
1049:	5	2	7	2	3	3	3	6
1057:	7	8	5	2	4	6	6	2
1065:	7	7	5	5	3	7	7	2
1073:	3	5	7	5	4	6	8	6
1081:	5	3	6	2	2	3	4	3
1089:	7	5	6	5	5	7	5	3
1097:	5	1	6	4	10	11	6	4
1105:	6	3	7	6	5	2	8	3
1113:	7	2	2	2	9	5	7	9
1121:	14	3	2	8	3	5	6	7
1129:	1	2	3	3	3	3	4	4
1137:	4	5	3	7	3	2	8	5
1145:	2	3	1	4	3	4	2	8
1153:	5	9	7	6	8	4	0	4
1161:	1	5	7	8	6	3	4	8
1169:	3	1	2	4	5	8	4	5
1177:	4	3	1	1	4	6	3	6
1185:	6	2	4	5	4	4	8	4
1193:	2	3	3	2	3	3	5	1
1201:	4	5	3	7	2	5	9	3
1209:	7	2	5	2	3	4	6	1
1217:	5	1	8	6	4	7	4	10
1225:	4	5	5	7	5	2	3	6

1233:	10	5	4	6	8	13	8	6

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Channel								
1241:	5	2	5	3	4	5	4	4
1249:	1	3	3	1	6	4	2	6
1257:	5	3	1	1	0	7	5	3
1265:	1	7	6	4	4	6	4	9
1273:	4	2	3	5	1	5	4	2
1281:	2	1	4	0	3	6	5	5
1289:	2	4	4	3	2	5	4	1
1297:	4	2	2	5	5	1	4	5
1305:	3	2	5	3	2	1	4	3
1313:	3	1	3	3	4	4	2	5
1321:	1	1	2	4	2	3	3	2
1329:	1	2	1	2	4	1	4	0
1337:	4	4	3	3	3	2	3	3
1345:	1	2	1	0	2	1	2	3
1353:	3	3	2	1	2	3	2	3
1361:	4	1	0	4	4	3	6	0
1369:	2	0	3	4	1	3	1	0
1377:	2	8	2	3	2	4	1	1
1385:	1	1	2	3	2	4	1	1
1393:	1	2	2	1	0	4	3	0
1401:	0	1	2	1	1	3	1	4
1409:	4	2	2	0	0	1	0	0
1417:	1	3	0	0	1	0	1	2
1425:	3	3	2	2	2	1	2	4
1433:	1	2	2	2	2	3	2	2
1441:	2	5	0	2	2	2	0	1
1449:	1	1	1	3	5	4	1	4
1457:	2	2	21	44	81	67	41	5
1465:	0	0	2	3	0	1	0	0
1473:	0	1	0	4	2	0	2	1
1481:	1	1	0	3	1	0	0	1
1489:	2	0	4	1	2	1	1	2
1497:	2	2	1	0	3	0	4	0
1505:	0	0	0	2	0	2	3	2
1513:	1	3	2	0	1	1	2	1
1521:	2	1	4	2	1	1	1	0
1529:	1	0	0	1	2	1	2	1
1537:	0	1	0	0	1	0	1	1
1545:	0	1	0	2	2	0	0	1
1553:	1	1	0	2	0	0	1	0
1561:	0	1	0	1	1	0	1	1
1569:	0	0	0	0	0	0	2	1
1577:	1	0	1	1	0	2	1	6
1585:	2	2	2	2	1	4	1	0
1593:	5	8	5	1	2	0	2	1
1601:	0	0	1	2	1	3	2	2
1609:	0	1	1	0	2	1	0	1
1617:	3	1	0	3	1	1	2	2
1625:	3	1	1	0	1	1	0	1
1633:	0	0	0	0	1	0	1	1
1641:	0	2	2	0	1	0	0	1
1649:	1	1	0	0	1	1	0	1
1657:	0	0	0	1	0	1	1	1

1665:	1	1	0	0	0	0	1	0

Sample Title: CP4104S13-14

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

2097:	0	0	0	1	0	0	1	2

Sample Title: CP4104S13-14

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

2529:	0	0	1	0	0	0	0	0

Sample Title: CP4104S13-14

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

2961:	0	0	1	2	0	0	0	0

Sample Title: CP4104S13-14

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

3393:	0	0	0	0	0	0	1	0

Sample Title: CP4104S13-14

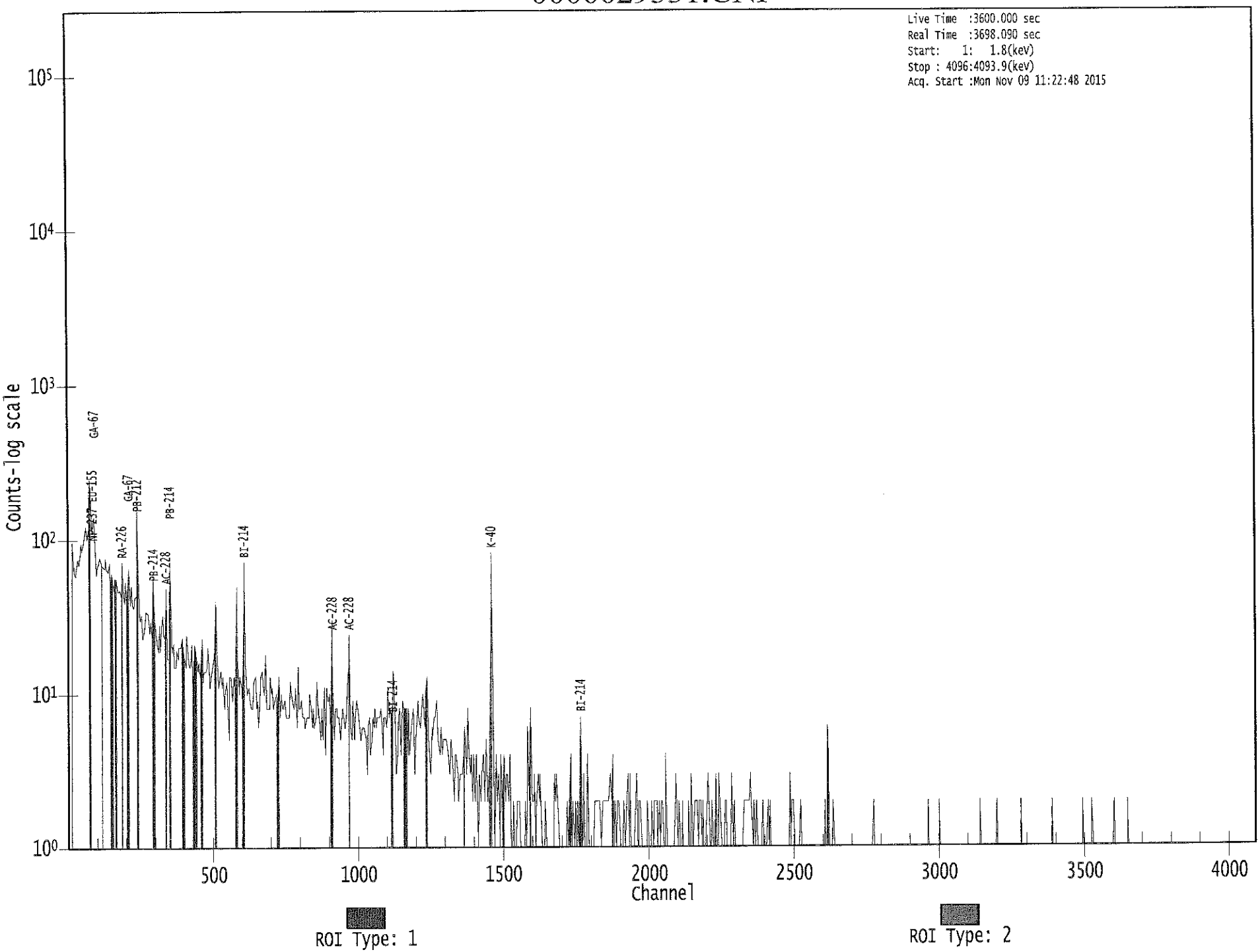
Channel								
3401:	0	0	0	0	1	1	0	0
3409:	0	0	0	1	0	0	1	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	1	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	2	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	1	0	0
3521:	0	0	0	0	2	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	0	0	0	0
3569:	0	0	0	0	0	0	0	1
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	1	0
3593:	0	1	0	0	0	0	1	0
3601:	0	0	2	0	1	0	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	1	0	0	0	0	0	0	0
3641:	0	0	0	1	0	0	0	0
3649:	2	0	0	0	0	0	0	0
3657:	0	0	1	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	1	0	0
3689:	0	0	0	0	1	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	1	1	1	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	1	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	1	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	1	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	1	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	1	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: CP4104S13-14

Channel								
3833:	1	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	1	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	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	1	0	0	0	0	0
3913:	1	1	0	0	0	1	0	0
3921:	0	0	0	0	0	1	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:	1	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	1	0	0	0	0	1	0	0
3977:	0	0	0	0	0	1	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	1	0	0	0	0	0	1
4001:	0	0	1	0	0	0	1	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	1	0	0	0	0	0
4033:	0	0	0	0	0	0	0	1
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	1	0
4057:	0	0	0	0	1	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	1	0	0

0000029331.CNF



98700 :

Apex-Gamma

Analysis Report for 1510089-04
CP4104S13-14

1119

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-04
Sample Description	: CP4104S13-14
Sample Type	: SOIL
Sample Size	: 5.359E+02 grams
Facility	: Countroom
Sample Taken On	: 10/8/2015 7:45:04AM
Acquisition Started	: 11/9/2015 12:25:15PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3685.0 seconds
Dead Time	: 2.31 %
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	: 29337

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/10/15

Analysis Report for 1510089-04

CP4104S13-14

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 1:26:41PM
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	62.05	61.31	0.0000	0.00
2	75.77	75.03	0.0000	0.00
3	209.38	208.70	0.0000	0.00
4	239.53	238.87	0.0000	0.00
5	257.50	256.84	0.0000	0.00
6	295.88	295.24	0.0000	0.00
7	338.41	337.79	0.0000	0.00
8	352.46	351.85	0.0000	0.00
9	369.08	368.47	0.0000	0.00
10	520.26	519.72	0.0000	0.00
11	583.61	583.10	0.0000	0.00
12	609.52	609.02	0.0000	0.00
13	782.41	782.00	0.0000	0.00
14	820.97	820.58	0.0000	0.00
15	912.28	911.94	0.0000	0.00
16	931.31	930.98	0.0000	0.00
17	1052.26	1051.99	0.0000	0.00
18	1236.90	1236.74	0.0000	0.00
19	1332.05	1331.94	0.0000	0.00
20	1378.52	1378.44	0.0000	0.00
21	1461.41	1461.39	0.0000	0.00
22	1565.10	1565.13	0.0000	0.00
23	1591.67	1591.72	0.0000	0.00
24	1764.26	1764.42	0.0000	0.00
25	1796.45	1796.63	0.0000	0.00
26	1885.89	1886.13	0.0000	0.00
27	1982.85	1983.16	0.0000	0.00
28	2231.27	2231.75	0.0000	0.00
29	2345.63	2346.20	0.0000	0.00
30	2615.67	2616.44	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-04

CP4104S13-14

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 1:26:41PM

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	62.05	56 -	68	61.31	1.69E+02	142.57	2.33E+03	4.34
	2	75.77	68 -	82	75.03	6.95E+02	173.53	2.87E+03	4.42
	3	209.38	205 -	213	208.70	9.89E+01	62.08	5.34E+02	3.04
	4	239.53	233 -	246	238.87	5.31E+02	96.89	7.90E+02	2.77
	5	257.50	254 -	259	256.84	4.63E+01	35.57	2.11E+02	2.91
	6	295.88	289 -	303	295.24	9.44E+01	84.97	7.21E+02	2.90
	7	338.41	332 -	341	337.79	9.22E+01	48.97	2.90E+02	3.19
	8	352.46	347 -	356	351.85	2.56E+02	53.38	2.49E+02	2.45
	9	369.08	365 -	374	368.47	3.98E+01	40.88	2.18E+02	2.58
m	10	520.26	505 -	522	519.72	3.01E+01	27.16	8.51E+01	3.03
	11	583.61	576 -	588	583.10	1.40E+02	44.05	1.63E+02	2.96
	12	609.52	603 -	617	609.02	1.47E+02	53.70	2.47E+02	3.38
	13	782.41	777 -	788	782.00	2.77E+01	33.47	1.27E+02	1.56
	14	820.97	810 -	828	820.58	3.27E+01	39.36	1.23E+02	9.70
	15	912.28	907 -	917	911.94	6.91E+01	33.06	1.06E+02	2.71
	16	931.31	926 -	935	930.98	2.79E+01	19.80	4.02E+01	4.77
	17	1052.26	1045 -	1062	1051.99	3.33E+01	32.08	8.34E+01	4.45
	18	1236.90	1230 -	1242	1236.74	5.75E+01	27.97	6.50E+01	9.34
	19	1332.05	1329 -	1335	1331.94	1.20E+01	10.04	8.06E+00	3.69
	20	1378.52	1372 -	1383	1378.44	1.56E+01	19.80	3.89E+01	2.80
	21	1461.41	1455 -	1467	1461.39	2.90E+02	36.37	1.88E+01	2.82
	22	1565.10	1561 -	1568	1565.13	6.00E+00	8.49	8.00E+00	1.91
	23	1591.67	1586 -	1596	1591.72	2.25E+01	13.13	1.10E+01	7.42
	24	1764.26	1760 -	1768	1764.42	2.13E+01	14.18	1.73E+01	2.36
	25	1796.45	1793 -	1799	1796.63	7.28E+00	6.95	3.44E+00	2.81
	26	1885.89	1883 -	1888	1886.13	4.58E+00	5.74	2.83E+00	2.72
	27	1982.85	1977 -	1986	1983.16	8.18E+00	8.31	5.64E+00	1.39
	28	2231.27	2227 -	2235	2231.75	8.00E+00	5.66	0.00E+00	3.40
	29	2345.63	2342 -	2349	2346.20	1.00E+01	6.32	0.00E+00	3.00
	30	2615.67	2612 -	2620	2616.44	3.60E+01	12.00	0.00E+00	3.40

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 1510089-04

CP4104S13-14

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 1:26:41PM

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	62.05	56 -	68	1.69E+02	142.57	2.33E+03	1.15E+02
	2	75.77	68 -	82	6.95E+02	173.53	2.87E+03	1.36E+02
	3	209.38	205 -	213	9.89E+01	62.08	5.34E+02	4.83E+01
	4	239.53	233 -	246	5.31E+02	96.89	7.90E+02	7.01E+01
	5	257.50	254 -	259	4.63E+01	35.57	2.11E+02	2.70E+01
	6	295.88	289 -	303	9.44E+01	84.97	7.21E+02	6.80E+01
	7	338.41	332 -	341	9.22E+01	48.97	2.90E+02	3.70E+01
	8	352.46	347 -	356	2.56E+02	53.38	2.49E+02	3.51E+01
	9	369.08	365 -	374	3.98E+01	40.88	2.18E+02	3.20E+01
m	10	520.26	505 -	522	3.01E+01	27.16	8.51E+01	1.52E+01
	11	583.61	576 -	588	1.40E+02	44.05	1.63E+02	3.06E+01
	12	609.52	603 -	617	1.47E+02	53.70	2.47E+02	3.94E+01
	13	782.41	777 -	788	2.77E+01	33.47	1.27E+02	2.61E+01
	14	820.97	810 -	828	3.27E+01	39.36	1.23E+02	3.10E+01
	15	912.28	907 -	917	6.91E+01	33.06	1.06E+02	2.35E+01
	16	931.31	926 -	935	2.79E+01	19.80	4.02E+01	1.38E+01
	17	1052.26	1045 -	1062	3.33E+01	32.08	8.34E+01	2.46E+01
	18	1236.90	1230 -	1242	5.75E+01	27.97	6.50E+01	1.93E+01
	19	1332.05	1329 -	1335	1.20E+01	10.04	8.06E+00	5.98E+00
	20	1378.52	1372 -	1383	1.56E+01	19.80	3.89E+01	1.49E+01
	21	1461.41	1455 -	1467	2.90E+02	36.37	1.88E+01	1.05E+01
	22	1565.10	1561 -	1568	6.00E+00	8.49	8.00E+00	5.70E+00
	23	1591.67	1586 -	1596	2.25E+01	13.13	1.10E+01	7.47E+00
	24	1764.26	1760 -	1768	2.13E+01	14.18	1.73E+01	8.84E+00
	25	1796.45	1793 -	1799	7.28E+00	6.95	3.44E+00	3.60E+00
	26	1885.89	1883 -	1888	4.58E+00	5.74	2.83E+00	3.15E+00
	27	1982.85	1977 -	1986	8.18E+00	8.31	5.64E+00	4.95E+00
	28	2231.27	2227 -	2235	8.00E+00	5.66	0.00E+00	0.00E+00
	29	2345.63	2342 -	2349	1.00E+01	6.32	0.00E+00	0.00E+00
	30	2615.67	2612 -	2620	3.60E+01	12.00	0.00E+00	0.00E+00

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

Analysis Report for 1510089-04

CP4104S13-14

PEAK WITH NID REPORT

Peak Analysis Performed on : 11/9/2015 1:26:41PM

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	62.05	56 -	68	61.31	1.69E+02	142.57	2.33E+03	TH-230
	2	75.77	68 -	82	75.03	6.95E+02	173.53	2.87E+03	.....
	3	209.38	205 -	213	208.70	9.89E+01	62.08	5.34E+02	CM-243 GA-67
	4	239.53	233 -	246	238.87	5.31E+02	96.89	7.90E+02	PB-212
	5	257.50	254 -	259	256.84	4.63E+01	35.57	2.11E+02	.....
	6	295.88	289 -	303	295.24	9.44E+01	84.97	7.21E+02	PB-214
	7	338.41	332 -	341	337.79	9.22E+01	48.97	2.90E+02	AC-228
	8	352.46	347 -	356	351.85	2.56E+02	53.38	2.49E+02	PB-214
	9	369.08	365 -	374	368.47	3.98E+01	40.88	2.18E+02	.....
m	10	520.26	505 -	522	519.72	3.01E+01	27.16	8.51E+01	RB-83
	11	583.61	576 -	588	583.10	1.40E+02	44.05	1.63E+02	TL-208
	12	609.52	603 -	617	609.02	1.47E+02	53.70	2.47E+02	BI-214
	13	782.41	777 -	788	782.00	2.77E+01	33.47	1.27E+02	.....
	14	820.97	810 -	828	820.58	3.27E+01	39.36	1.23E+02	.....
	15	912.28	907 -	917	911.94	6.91E+01	33.06	1.06E+02	LU-172
	16	931.31	926 -	935	930.98	2.79E+01	19.80	4.02E+01	.....
	17	1052.26	1045 -	1062	1051.99	3.33E+01	32.08	8.34E+01	.....
	18	1236.90	1230 -	1242	1236.74	5.75E+01	27.97	6.50E+01	.....
	19	1332.05	1329 -	1335	1331.94	1.20E+01	10.04	8.06E+00	CO-60
	20	1378.52	1372 -	1383	1378.44	1.56E+01	19.80	3.89E+01	.....
	21	1461.41	1455 -	1467	1461.39	2.90E+02	36.37	1.88E+01	K-40
	22	1565.10	1561 -	1568	1565.13	6.00E+00	8.49	8.00E+00	.....
	23	1591.67	1586 -	1596	1591.72	2.25E+01	13.13	1.10E+01	.....
	24	1764.26	1760 -	1768	1764.42	2.13E+01	14.18	1.73E+01	BI-214
	25	1796.45	1793 -	1799	1796.63	7.28E+00	6.95	3.44E+00	.....
	26	1885.89	1883 -	1888	1886.13	4.58E+00	5.74	2.83E+00	.....
	27	1982.85	1977 -	1986	1983.16	8.18E+00	8.31	5.64E+00	.....
	28	2231.27	2227 -	2235	2231.75	8.00E+00	5.66	0.00E+00	.....
	29	2345.63	2342 -	2349	2346.20	1.00E+01	6.32	0.00E+00	.....
	30	2615.67	2612 -	2620	2616.44	3.60E+01	12.00	0.00E+00	.....

Analysis Report for 1510089-04

CP4104S13-14

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 : 11/9/2015 1:26:41PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.05	1.69E+02	142.57	2.35E-02	1.77E-03
	2	75.77	6.95E+02	173.53	2.13E-02	1.70E-03
	3	209.38	9.89E+01	62.08	1.05E-02	1.08E-03
	4	239.53	5.31E+02	96.89	9.39E-03	9.84E-04
	5	257.50	4.63E+01	35.57	8.81E-03	9.28E-04
	6	295.88	9.44E+01	84.97	7.77E-03	8.42E-04
	7	338.41	9.22E+01	48.97	6.86E-03	7.95E-04
	8	352.46	2.56E+02	53.38	6.60E-03	7.80E-04
	9	369.08	3.98E+01	40.88	6.32E-03	7.61E-04
m	10	520.26	3.01E+01	27.16	4.53E-03	5.48E-04
	11	583.61	1.40E+02	44.05	4.04E-03	4.55E-04
	12	609.52	1.47E+02	53.70	3.87E-03	4.17E-04
	13	782.41	2.77E+01	33.47	3.03E-03	2.73E-04
	14	820.97	3.27E+01	39.36	2.89E-03	2.51E-04
	15	912.28	6.91E+01	33.06	2.61E-03	2.06E-04
	16	931.31	2.79E+01	19.80	2.56E-03	2.04E-04
	17	1052.26	3.33E+01	32.08	2.27E-03	1.88E-04
	18	1236.90	5.75E+01	27.97	1.96E-03	1.90E-04
	19	1332.05	1.20E+01	10.04	1.83E-03	2.16E-04
	20	1378.52	1.56E+01	19.80	1.77E-03	2.06E-04
	21	1461.41	2.90E+02	36.37	1.68E-03	1.89E-04
	22	1565.10	6.00E+00	8.49	1.59E-03	1.67E-04
	23	1591.67	2.25E+01	13.13	1.56E-03	1.62E-04
	24	1764.26	2.13E+01	14.18	1.43E-03	1.26E-04
	25	1796.45	7.28E+00	6.95	1.41E-03	1.19E-04
	26	1885.89	4.58E+00	5.74	1.36E-03	1.11E-04
	27	1982.85	8.18E+00	8.31	1.31E-03	1.11E-04
	28	2231.27	8.00E+00	5.66	1.20E-03	1.11E-04
	29	2345.63	1.00E+01	6.32	1.15E-03	1.11E-04
	30	2615.67	3.60E+01	12.00	1.07E-03	1.11E-04

Analysis Report for 1510089-04

CP4104S13-14

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 : 11/9/2015 1:26:41PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.05	1.69E+02	142.57			1.69E+02	1.43E+02
	2	75.77	6.95E+02	173.53			6.95E+02	1.74E+02
	3	209.38	9.89E+01	62.08			9.89E+01	6.21E+01
	4	239.53	5.31E+02	96.89	1.09E+01	6.39E+00	5.20E+02	9.71E+01
	5	257.50	4.63E+01	35.57			4.63E+01	3.56E+01
	6	295.88	9.44E+01	84.97			9.44E+01	8.50E+01
	7	338.41	9.22E+01	48.97			9.22E+01	4.90E+01
	8	352.46	2.56E+02	53.38	8.07E+00	5.01E+00	2.48E+02	5.36E+01
	9	369.08	3.98E+01	40.88			3.98E+01	4.09E+01
m	10	520.26	3.01E+01	27.16			3.01E+01	2.72E+01
	11	583.61	1.40E+02	44.05			1.40E+02	4.40E+01
	12	609.52	1.47E+02	53.70	5.16E+00	1.63E+00	1.42E+02	5.37E+01
	13	782.41	2.77E+01	33.47			2.77E+01	3.35E+01
	14	820.97	3.27E+01	39.36			3.27E+01	3.94E+01
	15	912.28	6.91E+01	33.06			6.91E+01	3.31E+01
	16	931.31	2.79E+01	19.80			2.79E+01	1.98E+01
	17	1052.26	3.33E+01	32.08			3.33E+01	3.21E+01
	18	1236.90	5.75E+01	27.97			5.75E+01	2.80E+01
	19	1332.05	1.20E+01	10.04			1.20E+01	1.00E+01
	20	1378.52	1.56E+01	19.80			1.56E+01	1.98E+01
	21	1461.41	2.90E+02	36.37			2.90E+02	3.64E+01
	22	1565.10	6.00E+00	8.49			6.00E+00	8.49E+00
	23	1591.67	2.25E+01	13.13			2.25E+01	1.31E+01
	24	1764.26	2.13E+01	14.18	1.11E-01	9.77E-01	2.12E+01	1.42E+01
	25	1796.45	7.28E+00	6.95			7.28E+00	6.95E+00
	26	1885.89	4.58E+00	5.74			4.58E+00	5.74E+00
	27	1982.85	8.18E+00	8.31			8.18E+00	8.31E+00
	28	2231.27	8.00E+00	5.66			8.00E+00	5.66E+00
	29	2345.63	1.00E+01	6.32			1.00E+01	6.32E+00
	30	2615.67	3.60E+01	12.00			3.60E+01	1.20E+01

Analysis Report for 1510089-04

CP4104S13-14

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 : 11/9/2015 1:26:41PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000028944.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	62.05	1.69E+02	142.57			1.69E+02	1.43E+02
	2	75.77	6.95E+02	173.53			6.95E+02	1.74E+02
	3	209.38	9.89E+01	62.08			9.89E+01	6.21E+01
	4	239.53	5.31E+02	96.89	1.09E+01	6.39E+00	5.20E+02	9.71E+01
	5	257.50	4.63E+01	35.57			4.63E+01	3.56E+01
	6	295.88	9.44E+01	84.97			9.44E+01	8.50E+01
	7	338.41	9.22E+01	48.97			9.22E+01	4.90E+01
	8	352.46	2.56E+02	53.38	8.07E+00	5.01E+00	2.48E+02	5.36E+01
	9	369.08	3.98E+01	40.88			3.98E+01	4.09E+01
m	10	520.26	3.01E+01	27.16			3.01E+01	2.72E+01
	11	583.61	1.40E+02	44.05			1.40E+02	4.40E+01
	12	609.52	1.47E+02	53.70	5.16E+00	1.63E+00	1.42E+02	5.37E+01
	13	782.41	2.77E+01	33.47			2.77E+01	3.35E+01
	14	820.97	3.27E+01	39.36			3.27E+01	3.94E+01
	15	912.28	6.91E+01	33.06			6.91E+01	3.31E+01
	16	931.31	2.79E+01	19.80			2.79E+01	1.98E+01
	17	1052.26	3.33E+01	32.08			3.33E+01	3.21E+01
	18	1236.90	5.75E+01	27.97			5.75E+01	2.80E+01
	19	1332.05	1.20E+01	10.04			1.20E+01	1.00E+01
	20	1378.52	1.56E+01	19.80			1.56E+01	1.98E+01
	21	1461.41	2.90E+02	36.37			2.90E+02	3.64E+01
	22	1565.10	6.00E+00	8.49			6.00E+00	8.49E+00
	23	1591.67	2.25E+01	13.13			2.25E+01	1.31E+01
	24	1764.26	2.13E+01	14.18	1.11E-01	9.77E-01	2.12E+01	1.42E+01
	25	1796.45	7.28E+00	6.95			7.28E+00	6.95E+00
	26	1885.89	4.58E+00	5.74			4.58E+00	5.74E+00
	27	1982.85	8.18E+00	8.31			8.18E+00	8.31E+00
	28	2231.27	8.00E+00	5.66			8.00E+00	5.66E+00
	29	2345.63	1.00E+01	6.32			1.00E+01	6.32E+00
	30	2615.67	3.60E+01	12.00			3.60E+01	1.20E+01

Analysis Report for 1510089-04
CP4104S13-14

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	0.943	1460.81	*	10.67	2.26E+01	3.83E+00
TL-208	0.308	583.14	*	30.22	1.60E+00	5.36E-01
		860.37		4.48		
		2614.66		35.85		
PB-212	0.784	238.63	*	44.60	1.74E+00	3.73E-01
		300.09		3.41		
BI-214	0.674	609.31	*	46.30	1.11E+00	4.36E-01
		1120.29		15.10		
		1764.49	*	15.80	1.31E+00	8.86E-01
		2204.22		4.98		
PB-214	0.946	295.21	*	19.19	8.87E-01	8.04E-01
		351.92	*	37.19	1.42E+00	3.49E-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 : 11/9/2015 1:26:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1510089-04

CP4104S13-14

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	62.05	4.68231E-02	42.29	Tol.	TH-230
	2	75.77	1.93001E-01	12.49		
	3	209.38	2.74750E-02	31.38	Tol.	GA-67 CM-243
	5	257.50	1.28509E-02	38.44		
	7	338.41	2.56048E-02	26.56	Tol.	AC-228
	9	369.08	1.10524E-02	51.37		
m	10	520.26	8.35289E-03	45.16		
	13	782.41	7.69231E-03	60.43		
	14	820.97	9.09575E-03	60.10		
	15	912.28	1.92054E-02	23.91	Tol.	LU-172
	16	931.31	7.75463E-03	35.46		
	17	1052.26	9.24444E-03	48.19		
	18	1236.90	1.59722E-02	24.32		
	19	1332.05	3.32465E-03	41.93	Tol.	CO-60
	20	1378.52	4.32540E-03	63.57		
	22	1565.10	1.66667E-03	70.71		
	23	1591.67	6.25000E-03	29.19		
	25	1796.45	2.02160E-03	47.72		
	26	1885.89	1.27315E-03	62.67		
	27	1982.85	2.27273E-03	50.76		
	28	2231.27	2.22222E-03	35.36		
	29	2345.63	2.77778E-03	31.62		
	30	2615.67	1.00000E-02	16.67		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81	*	10.67	2.26E+01	3.83E+00
TL-208	0.30	583.14	*	30.22	1.60E+00	5.36E-01
		860.37		4.48		
		2614.66		35.85		

Analysis Report for 1510089-04

CP4104S13-14

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.78	238.63	*	44.60	1.74E+00	3.73E-01
		300.09		3.41		
BI-214	0.67	609.31	*	46.30	1.11E+00	4.36E-01
		1120.29		15.10		
		1764.49	*	15.80	1.31E+00	8.86E-01
		2204.22		4.98		
PB-214	0.94	295.21	*	19.19	8.87E-01	8.04E-01
		351.92	*	37.19	1.42E+00	3.49E-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	0.943	2.26E+01	3.83E+00	
TL-208	0.308	1.60E+00	5.36E-01	
PB-212	0.784	1.74E+00	3.73E-01	
BI-214	0.674	1.15E+00	3.91E-01	
PB-214	0.946	1.33E+00	3.20E-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 1510089-04
CP4104S13-14

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 1:26:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	62.05	4.68231E-02	42.29	Tol.	TH-230
	2	75.77	1.93001E-01	12.49		
	3	209.38	2.74750E-02	31.38	Tol.	GA-67
						CM-243
	5	257.50	1.28509E-02	38.44		
	7	338.41	2.56048E-02	26.56	Tol.	AC-228
	9	369.08	1.10524E-02	51.37		
m	10	520.26	8.35289E-03	45.16		
	13	782.41	7.69231E-03	60.43		
	14	820.97	9.09575E-03	60.10		
	15	912.28	1.92054E-02	23.91	Tol.	LU-172
	16	931.31	7.75463E-03	35.46		
	17	1052.26	9.24444E-03	48.19		
	18	1236.90	1.59722E-02	24.32		
	19	1332.05	3.32465E-03	41.93	Tol.	CO-60
	20	1378.52	4.32540E-03	63.57		
	22	1565.10	1.66667E-03	70.71		
	23	1591.67	6.25000E-03	29.19		
	25	1796.45	2.02160E-03	47.72		
	26	1885.89	1.27315E-03	62.67		
	27	1982.85	2.27273E-03	50.76		
	28	2231.27	2.22222E-03	35.36		
	29	2345.63	2.77778E-03	31.62		
	30	2615.67	1.00000E-02	16.67		

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

Analysis Report for 1510089-04

CP4104S13-14

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	2.93E-01	1.79E+00	1.79E+00
+	NA-22	1274.54		99.94	-6.86E-02	2.13E-01	2.13E-01
+	NA-24	1368.53		99.99	5.27E+13	3.27E+14	6.07E+14
		2754.09		99.86	-1.93E+14		3.27E+14
+	AL-26	1808.65		99.76	1.14E-02	1.50E-01	1.50E-01
+	K-40	1460.81	*	10.67	2.26E+01	1.86E+00	1.86E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.70E-01	9.67E-02	9.67E-02
		78.34		96.00	2.46E-01		1.23E-01
+	SC-46	889.25		99.98	3.90E-02	2.27E-01	2.27E-01
		1120.51		99.99	2.19E-01		3.50E-01
+	V-48	983.52		99.98	-1.94E-01	7.16E-01	7.16E-01
		1312.10		97.50	-2.30E-02		7.38E-01
+	CR-51	320.08		9.83	5.28E-01	2.78E+00	2.78E+00
+	MN-54	834.83		99.97	-4.16E-03	2.04E-01	2.04E-01
+	CO-56	846.75		99.96	-9.07E-02	2.23E-01	2.23E-01
		1037.75		14.03	-2.27E-01		1.69E+00
		1238.25		67.00	4.19E-01		5.92E-01
		1771.40		15.51	-2.52E-01		1.52E+00
		2598.48		16.90	-5.46E-01		9.50E-01
+	CO-57	122.06		85.51	-2.51E-03	1.19E-01	1.19E-01
		136.48		10.60	-1.42E-02		1.00E+00
+	CO-58	810.76		99.40	5.38E-02	2.37E-01	2.37E-01
+	FE-59	1099.22		56.50	-9.81E-02	5.81E-01	5.81E-01
		1291.56		43.20	2.02E-01		8.14E-01
+	CO-60	1173.22		100.00	-1.14E-01	1.65E-01	2.27E-01
		1332.49		100.00	-7.16E-02		1.65E-01
+	ZN-65	1115.52		50.75	-7.21E-02	5.10E-01	5.10E-01
+	GA-67	93.31		35.70	3.35E+02	2.71E+02	2.71E+02
		208.95		2.24	2.74E+03		5.08E+03
		300.22		16.00	-6.79E+01		8.24E+02
+	SE-75	121.11		16.70	3.54E-02	1.98E-01	6.74E-01
		136.00		59.20	-6.91E-02		1.98E-01
		264.65		59.80	-1.77E-01		2.38E-01
		279.53		25.20	-1.21E-01		5.70E-01
		400.65		11.40	5.16E-01		1.38E+00
+	RB-82	776.52		13.00	-4.36E-01	2.81E+00	2.81E+00
+	RB-83	520.41		46.00	-5.43E-02	3.89E-01	3.89E-01
		529.64		30.30	2.02E-01		6.37E-01
		552.65		16.40	-5.29E-01		1.18E+00
+	KR-85	513.99		0.43	3.07E+01	4.23E+01	4.23E+01
+	SR-85	513.99		99.27	1.88E-01	2.59E-01	2.59E-01

Analysis Report for 1510089-04

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02	93.40	-6.99E-03	1.77E-01	2.27E-01
		1836.01	99.38	4.87E-02		1.77E-01
+	NB-93M	16.57	9.43	1.02E+00	4.71E-01	4.71E-01
+	NB-94	702.63	100.00	3.22E-02	1.49E-01	1.60E-01
		871.10	100.00	-1.19E-01		1.49E-01
+	NB-95	765.79	99.81	9.86E-02	3.35E-01	3.35E-01
+	NB-95M	235.69	25.00	7.58E+00	3.54E+02	3.54E+02
+	ZR-95	724.18	43.70	2.02E-01	4.01E-01	6.23E-01
		756.72	55.30	-1.30E-01		4.01E-01
+	MO-99	181.06	6.20	-3.24E+03	4.12E+03	6.24E+03
		739.58	12.80	-3.44E+02		4.12E+03
		778.00	4.50	-1.03E+03		1.29E+04
+	RU-103	497.08	89.00	-1.09E-01	2.63E-01	2.63E-01
+	RU-106	621.84	9.80	-1.77E-01	1.70E+00	1.70E+00
+	AG-108M	433.93	89.90	-5.48E-02	1.41E-01	1.41E-01
		614.37	90.40	-2.22E-02		2.38E-01
		722.95	90.50	4.17E-02		2.07E-01
+	CD-109	88.03	3.72	2.60E+00	3.03E+00	3.03E+00
+	AG-110M	657.75	93.14	9.18E-03	1.89E-01	1.89E-01
		677.61	10.53	-1.40E-01		1.70E+00
		706.67	16.46	-7.26E-02		1.09E+00
		763.93	21.98	3.85E-01		8.84E-01
		884.67	71.63	4.07E-03		2.70E-01
		1384.27	23.94	-2.17E-01		7.06E-01
+	CD-113M	263.70	0.02	-3.22E+02	4.93E+02	4.93E+02
+	SN-113	255.12	1.93	-1.60E+00	2.49E-01	7.18E+00
		391.69	64.90	8.87E-02		2.49E-01
+	TE123M	159.00	84.10	-6.20E-02	1.43E-01	1.43E-01
+	SB-124	602.71	97.87	2.39E-02	2.13E-01	2.13E-01
		645.85	7.26	-5.02E-01		3.12E+00
		722.78	11.10	-4.84E-01		2.37E+00
		1691.02	49.00	2.20E-01		4.65E-01
+	I-125	35.49	6.49	1.06E-01	1.20E+00	1.20E+00
+	SB-125	176.33	6.89	-9.06E-01	4.65E-01	1.58E+00
		427.89	29.33	2.44E-01		4.65E-01
		463.38	10.35	3.95E-01		1.37E+00
		600.56	17.80	2.39E-02		7.99E-01
		635.90	11.32	-4.05E-01		1.25E+00
+	SB-126	414.70	83.30	5.40E-01	8.66E-01	9.98E-01
		666.33	99.60	-1.02E-01		9.30E-01
		695.00	99.60	-3.25E-01		8.66E-01
		720.50	53.80	-3.97E-01		1.99E+00
+	SN-126	87.57	37.00	2.49E-01	2.89E-01	2.89E-01
+	SB-127	473.00	25.00	9.21E+01	1.46E+02	1.74E+02
		685.20	35.70	2.41E+01		1.46E+02
		783.80	14.70	2.58E+02		4.53E+02
+	I-129	29.78	57.00	-1.89E-03	9.01E-02	9.01E-02
		33.60	13.20	6.00E-02		3.99E-01

Analysis Report for 1510089-04

CP4104S13-14

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	-9.80E-01	9.01E-02	7.28E-01
+	I-131	284.30	6.05	-6.66E+00	2.40E+00	3.07E+01
		364.48	81.20	-3.80E-01		2.40E+00
		636.97	7.26	-1.03E+01		3.09E+01
		722.89	1.80	-3.31E+01		1.62E+02
+	TE-132	49.72	13.10	1.62E+02	1.25E+02	4.91E+02
		228.16	88.00	-1.54E+01		1.25E+02
+	BA-133	81.00	33.00	-3.63E-02	3.09E-01	3.35E-01
		302.84	17.80	4.56E-02		7.35E-01
		356.01	60.00	-1.06E-02		3.09E-01
+	I-133	529.87	86.30	8.46E+09	2.68E+10	2.68E+10
+	XE-133	81.00	38.00	-2.22E+00	2.05E+01	2.05E+01
+	CS-134	563.23	8.38	2.79E-01	1.88E-01	1.94E+00
		569.32	15.43	-1.71E-01		9.94E-01
		604.70	97.60	-2.70E-02		1.88E-01
		795.84	85.40	1.87E-02		2.20E-01
		801.93	8.73	-4.82E-01		1.95E+00
+	CS-135	268.24	16.00	3.60E-02	7.99E-01	7.99E-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	3.56E-01	8.60E-01	7.30E+00
		163.89	4.61	4.33E+00		1.24E+01
		176.55	13.56	-2.46E+00		4.30E+00
		273.65	12.66	4.35E+00		5.77E+00
		340.57	48.50	-3.87E-01		1.66E+00
		818.50	99.70	-3.31E-01		8.60E-01
		1048.07	79.60	6.24E-02		1.35E+00
		1235.34	19.70	4.28E+00		8.14E+00
+	CS-137	661.65	85.12	5.90E-02	1.90E-01	1.90E-01
+	LA-138	788.74	34.00	-7.01E-02	2.50E-01	5.63E-01
		1435.80	66.00	-2.36E-02		2.50E-01
+	CE-139	165.85	80.35	-4.83E-03	1.54E-01	1.54E-01
+	BA-140	162.64	6.70	2.93E+00	3.48E+00	8.93E+00
		304.84	4.50	-3.95E+00		1.61E+01
		423.70	3.20	-1.34E+01		2.21E+01
		437.55	2.00	9.39E+00		3.75E+01
		537.32	25.00	1.64E-01		3.48E+00
+	LA-140	328.77	20.50	5.23E-01	1.21E+00	3.49E+00
		487.03	45.50	3.28E-01		1.74E+00
		815.85	23.50	2.23E+00		4.19E+00
		1596.49	95.49	-1.86E-01		1.21E+00
+	CE-141	145.44	48.40	-3.09E-02	4.09E-01	4.09E-01
+	CE-143	57.36	11.80	-4.12E+05	4.04E+06	7.44E+06
		293.26	42.00	3.82E+06		4.04E+06
		664.55	5.20	-1.51E+07		3.34E+07
+	CE-144	133.54	10.80	-2.18E-01	9.68E-01	9.68E-01
+	PM-144	476.78	42.00	-1.42E-02	1.60E-01	3.09E-01
		618.01	98.60	2.57E-04		1.77E-01

Analysis Report for 1510089-04

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	696.49	99.49	1.16E-02	1.60E-01	1.60E-01
+	PM-145	36.85	21.70	-2.79E-02	1.35E-01	2.49E-01
		37.36	39.70	-1.19E-01		1.35E-01
		42.30	15.10	1.22E-01		4.02E-01
		72.40	2.31	8.98E+00		4.97E+00
+	PM-146	453.90	39.94	-5.14E-03	3.36E-01	3.36E-01
		735.90	14.01	-5.04E-01		1.10E+00
		747.13	13.10	3.07E-01		1.38E+00
+	ND-147	91.11	28.90	5.00E+00	2.90E+00	2.90E+00
		531.02	13.10	2.21E+00		8.81E+00
+	PM-149	285.90	3.10	1.31E+04	9.28E+04	9.28E+04
+	EU-152	121.78	20.50	-9.67E-03	4.60E-01	4.60E-01
		244.69	5.40	4.10E-01		2.61E+00
		344.27	19.13	-2.39E-01		6.59E-01
		778.89	9.20	-1.51E-01		1.89E+00
		964.01	10.40	-1.69E+00		2.00E+00
		1085.78	7.22	-3.48E-01		2.70E+00
		1112.02	9.60	-7.49E-01		2.21E+00
		1407.95	14.94	3.84E-01		1.33E+00
+	GD-153	97.43	31.30	-3.40E-01	3.08E-01	3.08E-01
		103.18	22.20	-2.54E-01		4.16E-01
+	EU-154	123.07	40.50	7.40E-03	2.35E-01	2.35E-01
		723.30	19.70	1.93E-01		9.59E-01
		873.19	11.50	-1.28E+00		1.31E+00
		996.32	10.30	-5.53E-01		1.64E+00
		1004.76	17.90	4.41E-01		1.05E+00
		1274.45	35.50	-1.90E-01		5.89E-01
+	EU-155	86.50	30.90	5.34E-02	3.41E-01	3.41E-01
		105.30	20.70	1.09E-01		4.27E-01
+	EU-156	811.77	10.40	-3.57E-01	6.59E+00	6.59E+00
		1153.47	7.20	6.48E+00		1.39E+01
		1230.71	8.90	-9.10E-01		1.19E+01
+	HO-166M	184.41	72.60	2.23E-01	1.72E-01	1.72E-01
		280.45	29.60	-2.81E-01		3.90E-01
		410.94	11.10	6.71E-02		1.23E+00
		711.69	54.10	-2.93E-02		3.06E-01
+	TM-171	66.72	0.14	-5.75E+01	6.77E+01	6.77E+01
+	HF-172	81.75	4.52	-9.21E-02	8.75E-01	2.37E+00
		125.81	11.30	-2.58E-03		8.75E-01
+	LU-172	181.53	20.60	-2.75E+00	8.77E+00	1.59E+01
		810.06	16.63	6.57E+00		2.90E+01
		912.12	15.25	7.27E+01		5.15E+01
		1093.66	62.50	-1.29E+00		8.77E+00
+	LU-173	100.72	5.24	-1.56E+00	6.74E-01	1.66E+00
		272.11	21.20	6.20E-01		6.74E-01
+	HF-175	343.40	84.00	-7.44E-02	2.24E-01	2.24E-01
+	LU-176	88.34	13.30	1.41E+00	1.29E-01	8.22E-01
		201.83	86.00	-1.89E-02		1.30E-01
		306.78	94.00	-2.49E-02		1.29E-01

Analysis Report for 1510089-04

CP4104S13-14

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	-7.50E-01	2.69E-01	2.69E-01
		1121.30		34.90	4.29E-01		8.89E-01
		1189.05		16.23	-4.96E-02		1.66E+00
		1221.41		26.98	-2.00E-01		1.10E+00
		1231.02		11.44	-1.98E-01		2.60E+00
+	IR-192	308.46		29.68	1.29E-01	3.60E-01	5.63E-01
		468.07		48.10	-1.16E-01		3.60E-01
+	HG-203	279.19		77.30	-5.29E-02	2.49E-01	2.49E-01
+	BI-207	569.67		97.72	-2.62E-02	1.53E-01	1.53E-01
		1063.62		74.90	5.84E-04		2.38E-01
+	TL-208	583.14	*	30.22	1.60E+00	7.32E-01	7.32E-01
		860.37		4.48	1.18E+00		4.72E+00
		2614.66		35.85	0.00E+00		1.12E+00
+	BI-210M	262.00		45.00	-7.32E-02	2.56E-01	2.56E-01
		300.00		23.00	2.55E-01		6.39E-01
+	PB-210	46.50		4.25	4.59E-01	1.53E+00	1.53E+00
+	PB-211	404.84		2.90	-1.78E+00	4.47E+00	4.47E+00
		831.96		2.90	-1.30E+00		5.98E+00
+	BI-212	727.17		11.80	7.97E-01	1.63E+00	1.63E+00
		1620.62		2.75	1.38E+00		5.25E+00
+	PB-212	238.63	*	44.60	1.74E+00	4.81E-01	4.81E-01
		300.09		3.41	1.72E+00		4.31E+00
+	BI-214	609.31	*	46.30	1.11E+00	6.40E-01	6.40E-01
		1120.29		15.10	1.11E+00		1.78E+00
		1764.49	*	15.80	1.31E+00		1.27E+00
		2204.22		4.98	1.97E+00		4.97E+00
+	PB-214	295.21	*	19.19	8.87E-01	4.23E-01	1.30E+00
		351.92	*	37.19	1.42E+00		4.23E-01
+	RN-219	401.80		6.50	1.37E+00	2.05E+00	2.05E+00
+	RA-223	323.87		3.88	3.89E-01	3.23E+00	3.23E+00
+	RA-224	240.98		3.95	1.98E+01	5.03E+00	5.03E+00
+	RA-225	40.00		31.00	-1.08E+00	8.01E-01	8.01E-01
+	RA-226	186.21		3.28	3.92E+00	3.75E+00	3.75E+00
+	TH-227	50.10		8.40	2.67E-01	8.11E-01	8.11E-01
		236.00		11.50	3.40E-02		1.59E+00
		256.20		6.30	4.98E-01		1.80E+00
+	AC-228	338.32		11.40	1.20E+00	1.02E+00	1.29E+00
		911.07		27.70	1.38E+00		1.02E+00
		969.11		16.60	8.50E-01		1.38E+00
+	TH-230	48.44		16.90	1.60E-01	3.98E-01	3.98E-01
		62.85		4.60	1.74E+00		1.92E+00
		67.67		0.37	-6.87E+01		2.46E+01
+	PA-231	283.67		1.60	-2.88E+00	5.65E+00	7.16E+00
		302.67		2.30	3.51E-01		5.65E+00
+	TH-231	25.64		14.70	-2.94E-01	3.42E-01	3.42E-01
		84.21		6.40	7.15E-01		1.56E+00
+	PA-233	311.98		38.60	-4.39E-02	7.11E-01	7.11E-01
+	PA-234	131.20		20.40	-5.74E-02	4.71E-01	4.71E-01

Analysis Report for 1510089-04

CP4104S13-14

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	733.99	8.80	-6.48E-01	4.71E-01	1.76E+00
		946.00	12.00	5.65E-01		1.40E+00
+	PA-234M	1001.03	0.92	1.44E+00	1.91E+01	1.91E+01
+	TH-234	63.29	3.80	1.68E+00	2.35E+00	2.35E+00
+	U-235	143.76	10.50	4.81E-01	9.65E-01	9.65E-01
		163.35	4.70	7.76E-01		2.23E+00
		205.31	4.70	-3.75E-01		2.49E+00
+	NP-237	86.50	12.60	1.29E-01	8.26E-01	8.26E-01
+	NP-239	106.10	22.70	1.29E+03	5.07E+03	5.07E+03
		228.18	10.70	2.06E+03		1.44E+04
		277.60	14.10	1.60E+02		1.15E+04
+	AM-241	59.54	35.90	9.24E-02	2.31E-01	2.31E-01
+	AM-243	74.67	66.00	6.63E-01	1.84E-01	1.84E-01
+	CM-243	209.75	3.29	1.89E+00	8.83E-01	3.72E+00
		228.14	10.60	-1.35E-01		1.10E+00
		277.60	14.00	1.23E-02		8.83E-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
? = 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	1.79E+00	1.79E+00	2.93E-01	8.41E-01
	NA-22	1274.54		99.94	2.13E-01	2.13E-01	-6.86E-02	9.61E-02
	NA-24	1368.53		99.99	6.07E+14	3.27E+14	5.27E+13	2.68E+14
		2754.09		99.86	3.27E+14		-1.93E+14	1.03E+14
	AL-26	1808.65		99.76	1.50E-01	1.50E-01	1.14E-02	6.15E-02
+	K-40	1460.81	*	10.67	1.86E+00	1.86E+00	2.26E+01	8.23E-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)
@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
TI-44	67.88	94.40	9.67E-02	9.67E-02	-2.70E-01	4.75E-02
	78.34	96.00	1.23E-01		2.46E-01	6.07E-02
SC-46	889.25	99.98	2.27E-01	2.27E-01	3.90E-02	1.04E-01
	1120.51	99.99	3.50E-01		2.19E-01	1.64E-01
V-48	983.52	99.98	7.16E-01	7.16E-01	-1.94E-01	3.26E-01
	1312.10	97.50	7.38E-01		-2.30E-02	3.27E-01
CR-51	320.08	9.83	2.78E+00	2.78E+00	5.28E-01	1.33E+00
MN-54	834.83	99.97	2.04E-01	2.04E-01	-4.16E-03	9.46E-02
CO-56	846.75	99.96	2.23E-01	2.23E-01	-9.07E-02	1.02E-01
	1037.75	14.03	1.69E+00		-2.27E-01	7.69E-01
	1238.25	67.00	5.92E-01		4.19E-01	2.77E-01
	1771.40	15.51	1.52E+00		-2.52E-01	6.47E-01
	2598.48	16.90	9.50E-01		-5.46E-01	3.37E-01
CO-57	122.06	85.51	1.19E-01	1.19E-01	-2.51E-03	5.82E-02
	136.48	10.60	1.00E+00		-1.42E-02	4.89E-01
CO-58	810.76	99.40	2.37E-01	2.37E-01	5.38E-02	1.10E-01
FE-59	1099.22	56.50	5.81E-01	5.81E-01	-9.81E-02	2.65E-01
	1291.56	43.20	8.14E-01		2.02E-01	3.69E-01
CO-60	1173.22	100.00	2.27E-01	1.65E-01	-1.14E-01	1.04E-01
	1332.49	100.00	1.65E-01		-7.16E-02	7.22E-02
ZN-65	1115.52	50.75	5.10E-01	5.10E-01	-7.21E-02	2.36E-01
GA-67	93.31	35.70	2.71E+02	2.71E+02	3.35E+02	1.33E+02
	208.95	2.24	5.08E+03		2.74E+03	2.46E+03
	300.22	16.00	8.24E+02		-6.79E+01	3.97E+02
SE-75	121.11	16.70	6.74E-01	1.98E-01	3.54E-02	3.29E-01
	136.00	59.20	1.98E-01		-6.91E-02	9.62E-02
	264.65	59.80	2.38E-01		-1.77E-01	1.15E-01
	279.53	25.20	5.70E-01		-1.21E-01	2.74E-01
	400.65	11.40	1.38E+00		5.16E-01	6.57E-01
RB-82	776.52	13.00	2.81E+00	2.81E+00	-4.36E-01	1.29E+00
RB-83	520.41	46.00	3.89E-01	3.89E-01	-5.43E-02	1.82E-01
	529.64	30.30	6.37E-01		2.02E-01	3.00E-01
	552.65	16.40	1.18E+00		-5.29E-01	5.53E-01
KR-85	513.99	0.43	4.23E+01	4.23E+01	3.07E+01	2.02E+01
SR-85	513.99	99.27	2.59E-01	2.59E-01	1.88E-01	1.24E-01
Y-88	898.02	93.40	2.27E-01	1.77E-01	-6.99E-03	1.04E-01
	1836.01	99.38	1.77E-01		4.87E-02	7.13E-02
NB-93M	16.57	9.43	4.71E-01	4.71E-01	1.02E+00	2.29E-01
NB-94	702.63	100.00	1.60E-01	1.49E-01	3.22E-02	7.44E-02
	871.10	100.00	1.49E-01		-1.19E-01	6.76E-02
NB-95	765.79	99.81	3.35E-01	3.35E-01	9.86E-02	1.56E-01
NB-95M	235.69	25.00	3.54E+02	3.54E+02	7.58E+00	1.73E+02
ZR-95	724.18	43.70	6.23E-01	4.01E-01	2.02E-01	2.93E-01
	756.72	55.30	4.01E-01		-1.30E-01	1.85E-01
MO-99	181.06	6.20	6.24E+03	4.12E+03	-3.24E+03	3.03E+03
	739.58	12.80	4.12E+03		-3.44E+02	1.90E+03
	778.00	4.50	1.29E+04		-1.03E+03	5.97E+03
RU-103	497.08	89.00	2.63E-01	2.63E-01	-1.09E-01	1.24E-01
RU-106	621.84	9.80	1.70E+00	1.70E+00	-1.77E-01	7.95E-01
AG-108M	433.93	89.90	1.41E-01	1.41E-01	-5.48E-02	6.64E-02
	614.37	90.40	2.38E-01		-2.22E-02	1.13E-01
	722.95	90.50	2.07E-01		4.17E-02	9.72E-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-109	88.03	3.72	3.03E+00	3.03E+00	2.60E+00	1.49E+00
AG-110M	657.75	93.14	1.89E-01	1.89E-01	9.18E-03	8.85E-02
	677.61	10.53	1.70E+00		-1.40E-01	7.94E-01
	706.67	16.46	1.09E+00		-7.26E-02	5.09E-01
	763.93	21.98	8.84E-01		3.85E-01	4.12E-01
	884.67	71.63	2.70E-01		4.07E-03	1.24E-01
	1384.27	23.94	7.06E-01		-2.17E-01	3.04E-01
CD-113M	263.70	0.02	4.93E+02	4.93E+02	-3.22E+02	2.37E+02
SN-113	255.12	1.93	7.18E+00	2.49E-01	-1.60E+00	3.46E+00
	391.69	64.90	2.49E-01		8.87E-02	1.19E-01
TE123M	159.00	84.10	1.43E-01	1.43E-01	-6.20E-02	6.97E-02
SB-124	602.71	97.87	2.13E-01	2.13E-01	2.39E-02	9.93E-02
	645.85	7.26	3.12E+00		-5.02E-01	1.46E+00
	722.78	11.10	2.37E+00		-4.84E-01	1.11E+00
	1691.02	49.00	4.65E-01		2.20E-01	1.95E-01
I-125	35.49	6.49	1.20E+00	1.20E+00	1.06E-01	5.86E-01
SB-125	176.33	6.89	1.58E+00	4.65E-01	-9.06E-01	7.68E-01
	427.89	29.33	4.65E-01		2.44E-01	2.20E-01
	463.38	10.35	1.37E+00		3.95E-01	6.47E-01
	600.56	17.80	7.99E-01		2.39E-02	3.72E-01
	635.90	11.32	1.25E+00		-4.05E-01	5.77E-01
SB-126	414.70	83.30	9.98E-01	8.66E-01	5.40E-01	4.74E-01
	666.33	99.60	9.30E-01		-1.02E-01	4.33E-01
	695.00	99.60	8.66E-01		-3.25E-01	3.99E-01
	720.50	53.80	1.99E+00		-3.97E-01	9.28E-01
SN-126	87.57	37.00	2.89E-01	2.89E-01	2.49E-01	1.42E-01
SB-127	473.00	25.00	1.74E+02	1.46E+02	9.21E+01	8.17E+01
	685.20	35.70	1.46E+02		2.41E+01	6.77E+01
	783.80	14.70	4.53E+02		2.58E+02	2.13E+02
I-129	29.78	57.00	9.01E-02	9.01E-02	-1.89E-03	4.39E-02
	33.60	13.20	3.99E-01		6.00E-02	1.94E-01
	39.58	7.52	7.28E-01		-9.80E-01	3.55E-01
I-131	284.30	6.05	3.07E+01	2.40E+00	-6.66E+00	1.47E+01
	364.48	81.20	2.40E+00		-3.80E-01	1.14E+00
	636.97	7.26	3.09E+01		-1.03E+01	1.43E+01
	722.89	1.80	1.62E+02		-3.31E+01	7.60E+01
TE-132	49.72	13.10	4.91E+02	1.25E+02	1.62E+02	2.40E+02
	228.16	88.00	1.25E+02		-1.54E+01	6.04E+01
BA-133	81.00	33.00	3.35E-01	3.09E-01	-3.63E-02	1.65E-01
	302.84	17.80	7.35E-01		4.56E-02	3.53E-01
	356.01	60.00	3.09E-01		-1.06E-02	1.50E-01
I-133	529.87	86.30	2.68E+10	2.68E+10	8.46E+09	1.26E+10
XE-133	81.00	38.00	2.05E+01	2.05E+01	-2.22E+00	1.01E+01
CS-134	563.23	8.38	1.94E+00	1.88E-01	2.79E-01	9.13E-01
	569.32	15.43	9.94E-01		-1.71E-01	4.67E-01
	604.70	97.60	1.88E-01		-2.70E-02	8.90E-02
	795.84	85.40	2.20E-01		1.87E-02	1.02E-01
	801.93	8.73	1.95E+00		-4.82E-01	9.01E-01
CS-135	268.24	16.00	7.99E-01	7.99E-01	3.60E-02	3.85E-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	7.30E+00	8.60E-01	3.56E-01	3.55E+00

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	163.89	4.61	1.24E+01	8.60E-01	4.33E+00	6.05E+00
	176.55	13.56	4.30E+00		-2.46E+00	2.08E+00
	273.65	12.66	5.77E+00		4.35E+00	2.79E+00
	340.57	48.50	1.66E+00		-3.87E-01	7.98E-01
	818.50	99.70	8.60E-01		-3.31E-01	3.94E-01
	1048.07	79.60	1.35E+00		6.24E-02	6.19E-01
	1235.34	19.70	8.14E+00		4.28E+00	3.80E+00
CS-137	661.65	85.12	1.90E-01	1.90E-01	5.90E-02	8.86E-02
LA-138	788.74	34.00	5.63E-01	2.50E-01	-7.01E-02	2.63E-01
	1435.80	66.00	2.50E-01		-2.36E-02	1.08E-01
CE-139	165.85	80.35	1.54E-01	1.54E-01	-4.83E-03	7.46E-02
BA-140	162.64	6.70	8.93E+00	3.48E+00	2.93E+00	4.34E+00
	304.84	4.50	1.61E+01		-3.95E+00	7.75E+00
	423.70	3.20	2.21E+01		-1.34E+01	1.04E+01
	437.55	2.00	3.75E+01		9.39E+00	1.78E+01
	537.32	25.00	3.48E+00		1.64E-01	1.64E+00
LA-140	328.77	20.50	3.49E+00	1.21E+00	5.23E-01	1.67E+00
	487.03	45.50	1.74E+00		3.28E-01	8.19E-01
	815.85	23.50	4.19E+00		2.23E+00	1.93E+00
	1596.49	95.49	1.21E+00		-1.86E-01	5.32E-01
CE-141	145.44	48.40	4.09E-01	4.09E-01	-3.09E-02	1.99E-01
CE-143	57.36	11.80	7.44E+06	4.04E+06	-4.12E+05	3.64E+06
	293.26	42.00	4.04E+06		3.82E+06	1.96E+06
	664.55	5.20	3.34E+07		-1.51E+07	1.56E+07
CE-144	133.54	10.80	9.68E-01	9.68E-01	-2.18E-01	4.71E-01
PM-144	476.78	42.00	3.09E-01	1.60E-01	-1.42E-02	1.45E-01
	618.01	98.60	1.77E-01		2.57E-04	8.33E-02
	696.49	99.49	1.60E-01		1.16E-02	7.40E-02
PM-145	36.85	21.70	2.49E-01	1.35E-01	-2.79E-02	1.21E-01
	37.36	39.70	1.35E-01		-1.19E-01	6.56E-02
	42.30	15.10	4.02E-01		1.22E-01	1.96E-01
	72.40	2.31	4.97E+00		8.98E+00	2.45E+00
PM-146	453.90	39.94	3.36E-01	3.36E-01	-5.14E-03	1.59E-01
	735.90	14.01	1.10E+00		-5.04E-01	5.07E-01
	747.13	13.10	1.38E+00		3.07E-01	6.45E-01
ND-147	91.11	28.90	2.90E+00	2.90E+00	5.00E+00	1.42E+00
	531.02	13.10	8.81E+00		2.21E+00	4.15E+00
PM-149	285.90	3.10	9.28E+04	9.28E+04	1.31E+04	4.46E+04
EU-152	121.78	20.50	4.60E-01	4.60E-01	-9.67E-03	2.24E-01
	244.69	5.40	2.61E+00		4.10E-01	1.27E+00
	344.27	19.13	6.59E-01		-2.39E-01	3.15E-01
	778.89	9.20	1.89E+00		-1.51E-01	8.76E-01
	964.01	10.40	2.00E+00		-1.69E+00	9.27E-01
	1085.78	7.22	2.70E+00		-3.48E-01	1.23E+00
	1112.02	9.60	2.21E+00		-7.49E-01	1.01E+00
	1407.95	14.94	1.33E+00		3.84E-01	5.91E-01
GD-153	97.43	31.30	3.08E-01	3.08E-01	-3.40E-01	1.50E-01
	103.18	22.20	4.16E-01		-2.54E-01	2.03E-01
EU-154	123.07	40.50	2.35E-01	2.35E-01	7.40E-03	1.14E-01
	723.30	19.70	9.59E-01		1.93E-01	4.50E-01
	873.19	11.50	1.31E+00		-1.28E+00	5.93E-01
	996.32	10.30	1.64E+00		-5.53E-01	7.41E-01
	1004.76	17.90	1.05E+00		4.41E-01	4.82E-01

Analysis Report for 1510089-04

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	1274.45		35.50	5.89E-01	2.35E-01	-1.90E-01	2.66E-01
	EU-155	86.50		30.90	3.41E-01	3.41E-01	5.34E-02	1.67E-01
		105.30		20.70	4.27E-01		1.09E-01	2.08E-01
	EU-156	811.77		10.40	6.59E+00	6.59E+00	-3.57E-01	3.02E+00
		1153.47		7.20	1.39E+01		6.48E+00	6.40E+00
		1230.71		8.90	1.19E+01		-9.10E-01	5.50E+00
	HO-166M	184.41		72.60	1.72E-01	1.72E-01	2.23E-01	8.39E-02
		280.45		29.60	3.90E-01		-2.81E-01	1.87E-01
		410.94		11.10	1.23E+00		6.71E-02	5.83E-01
		711.69		54.10	3.06E-01		-2.93E-02	1.43E-01
	TM-171	66.72		0.14	6.77E+01	6.77E+01	-5.75E+01	3.32E+01
	HF-172	81.75		4.52	2.37E+00	8.75E-01	-9.21E-02	1.16E+00
		125.81		11.30	8.75E-01		-2.58E-03	4.26E-01
	LU-172	181.53		20.60	1.59E+01	8.77E+00	-2.75E+00	7.72E+00
		810.06		16.63	2.90E+01		6.57E+00	1.34E+01
		912.12		15.25	5.15E+01		7.27E+01	2.44E+01
		1093.66		62.50	8.77E+00		-1.29E+00	4.00E+00
	LU-173	100.72		5.24	1.66E+00	6.74E-01	-1.56E+00	8.09E-01
		272.11		21.20	6.74E-01		6.20E-01	3.26E-01
	HF-175	343.40		84.00	2.24E-01	2.24E-01	-7.44E-02	1.08E-01
	LU-176	88.34		13.30	8.22E-01	1.29E-01	1.41E+00	4.04E-01
		201.83		86.00	1.30E-01		-1.89E-02	6.28E-02
		306.78		94.00	1.29E-01		-2.49E-02	6.19E-02
	TA-182	67.75		41.20	2.69E-01	2.69E-01	-7.50E-01	1.32E-01
		1121.30		34.90	8.89E-01		4.29E-01	4.14E-01
		1189.05		16.23	1.66E+00		-4.96E-02	7.61E-01
		1221.41		26.98	1.10E+00		-2.00E-01	5.09E-01
		1231.02		11.44	2.60E+00		-1.98E-01	1.20E+00
	IR-192	308.46		29.68	5.63E-01	3.60E-01	1.29E-01	2.70E-01
		468.07		48.10	3.60E-01		-1.16E-01	1.69E-01
	HG-203	279.19		77.30	2.49E-01	2.49E-01	-5.29E-02	1.20E-01
	BI-207	569.67		97.72	1.53E-01	1.53E-01	-2.62E-02	7.17E-02
		1063.62		74.90	2.38E-01		5.84E-04	1.08E-01
+	TL-208	583.14	*	30.22	7.32E-01	7.32E-01	1.60E+00	3.51E-01
		860.37		4.48	4.72E+00		1.18E+00	2.21E+00
		2614.66		35.85	1.12E+00		0.00E+00	5.09E-01
	BI-210M	262.00		45.00	2.56E-01	2.56E-01	-7.32E-02	1.23E-01
		300.00		23.00	6.39E-01		2.55E-01	3.09E-01
	PB-210	46.50		4.25	1.53E+00	1.53E+00	4.59E-01	7.49E-01
	PB-211	404.84		2.90	4.47E+00	4.47E+00	-1.78E+00	2.12E+00
		831.96		2.90	5.98E+00		-1.30E+00	2.76E+00
	BI-212	727.17		11.80	1.63E+00	1.63E+00	7.97E-01	7.64E-01
		1620.62		2.75	5.25E+00		1.38E+00	2.18E+00
+	PB-212	238.63	*	44.60	4.81E-01	4.81E-01	1.74E+00	2.36E-01
		300.09		3.41	4.31E+00		1.72E+00	2.08E+00
+	BI-214	609.31	*	46.30	6.40E-01	6.40E-01	1.11E+00	3.09E-01
		1120.29		15.10	1.78E+00		1.11E+00	8.30E-01
		1764.49	*	15.80	1.27E+00		1.31E+00	5.50E-01
		2204.22		4.98	4.97E+00		1.97E+00	2.17E+00
+	PB-214	295.21	*	19.19	1.30E+00	4.23E-01	8.87E-01	6.39E-01
		351.92	*	37.19	4.23E-01		1.42E+00	2.04E-01
	RN-219	401.80		6.50	2.05E+00	2.05E+00	1.37E+00	9.74E-01
	RA-223	323.87		3.88	3.23E+00	3.23E+00	3.89E-01	1.55E+00

Analysis Report for 1510089-04

CP4104S13-14

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	5.03E+00	5.03E+00	1.98E+01	2.46E+00
RA-225	40.00	31.00	8.01E-01	8.01E-01	-1.08E+00	3.90E-01
RA-226	186.21	3.28	3.75E+00	3.75E+00	3.92E+00	1.82E+00
TH-227	50.10	8.40	8.11E-01	8.11E-01	2.67E-01	3.97E-01
	236.00	11.50	1.59E+00		3.40E-02	7.76E-01
	256.20	6.30	1.80E+00		4.98E-01	8.67E-01
AC-228	338.32	11.40	1.29E+00	1.02E+00	1.20E+00	6.20E-01
	911.07	27.70	1.02E+00		1.38E+00	4.83E-01
	969.11	16.60	1.38E+00		8.50E-01	6.43E-01
TH-230	48.44	16.90	3.98E-01	3.98E-01	1.60E-01	1.95E-01
	62.85	4.60	1.92E+00		1.74E+00	9.45E-01
	67.67	0.37	2.46E+01		-6.87E+01	1.21E+01
PA-231	283.67	1.60	7.16E+00	5.65E+00	-2.88E+00	3.43E+00
	302.67	2.30	5.65E+00		3.51E-01	2.72E+00
TH-231	25.64	14.70	3.42E-01	3.42E-01	-2.94E-01	1.67E-01
	84.21	6.40	1.56E+00		7.15E-01	7.67E-01
PA-233	311.98	38.60	7.11E-01	7.11E-01	-4.39E-02	3.40E-01
PA-234	131.20	20.40	4.71E-01	4.71E-01	-5.74E-02	2.29E-01
	733.99	8.80	1.76E+00		-6.48E-01	8.12E-01
	946.00	12.00	1.40E+00		5.65E-01	6.38E-01
PA-234M	1001.03	0.92	1.91E+01	1.91E+01	1.44E+00	8.66E+00
TH-234	63.29	3.80	2.35E+00	2.35E+00	1.68E+00	1.15E+00
U-235	143.76	10.50	9.65E-01	9.65E-01	4.81E-01	4.70E-01
	163.35	4.70	2.23E+00		7.76E-01	1.08E+00
	205.31	4.70	2.49E+00		-3.75E-01	1.21E+00
NP-237	86.50	12.60	8.26E-01	8.26E-01	1.29E-01	4.05E-01
NP-239	106.10	22.70	5.07E+03	5.07E+03	1.29E+03	2.47E+03
	228.18	10.70	1.44E+04		2.06E+03	6.96E+03
	277.60	14.10	1.15E+04		1.60E+02	5.53E+03
AM-241	59.54	35.90	2.31E-01	2.31E-01	9.24E-02	1.13E-01
AM-243	74.67	66.00	1.84E-01	1.84E-01	6.63E-01	9.08E-02
CM-243	209.75	3.29	3.72E+00	8.83E-01	1.89E+00	1.81E+00
	228.14	10.60	1.10E+00		-1.35E-01	5.30E-01
	277.60	14.00	8.83E-01		1.23E-02	4.25E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1510089-04

CP4104S13-14

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: CP4104S13-14

Elapsed Live time: 3600
Elapsed Real Time: 3685

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	22	101
17:	70	74	82	54	62	61	51	67
25:	60	50	50	56	53	47	72	75
33:	49	56	56	53	52	54	56	63
41:	60	59	59	83	94	75	69	62
49:	85	71	68	78	84	83	70	73
57:	88	96	84	115	111	126	126	112
65:	108	90	105	98	114	105	98	149
73:	168	216	224	249	213	137	91	93
81:	92	81	100	105	109	128	120	100
89:	120	101	123	135	109	70	69	66
97:	66	54	51	51	54	42	62	61
105:	75	54	39	65	76	56	68	52
113:	66	54	65	54	50	52	52	63
121:	56	60	56	59	54	50	45	69
129:	50	62	52	52	47	47	60	48
137:	49	51	53	59	48	45	56	57
145:	53	48	42	44	44	40	50	47
153:	50	49	50	39	36	41	49	43
161:	35	43	42	47	49	56	42	42
169:	40	49	43	41	35	41	44	51
177:	37	31	39	52	54	54	41	58
185:	60	79	49	31	37	45	38	29
193:	28	47	35	41	40	44	37	37
201:	30	45	35	27	29	39	42	48
209:	52	59	29	35	33	29	36	41
217:	25	36	36	41	27	30	29	31
225:	37	24	29	35	36	30	33	36
233:	32	30	37	44	115	186	165	85
241:	75	49	34	25	30	19	29	24
249:	19	18	16	26	23	20	25	31
257:	34	31	11	19	27	28	22	24
265:	21	16	38	30	30	42	36	21
273:	24	35	33	25	28	26	21	15
281:	18	21	20	18	27	25	20	23
289:	24	16	20	25	33	58	54	47
297:	28	23	25	35	24	21	22	27
305:	15	21	11	23	21	19	29	19
313:	14	14	20	16	14	24	20	19
321:	23	16	16	19	17	20	23	27
329:	16	13	18	14	16	23	13	20
337:	40	33	44	22	12	14	18	17
345:	19	19	21	12	23	44	90	97
353:	44	20	25	5	8	21	11	13
361:	11	15	13	10	9	14	21	22

369:	16	14	17	13	13	10	14	18

Sample Title: CP4104S13-14

Channel								
377:	14	18	12	14	17	15	11	19
385:	13	10	21	18	16	17	17	12
393:	17	8	9	10	15	11	16	16
401:	16	15	12	13	14	15	6	12
409:	24	17	9	7	21	17	15	16
417:	13	13	12	7	6	15	11	11
425:	15	9	12	18	16	9	12	11
433:	11	7	12	8	12	10	12	17
441:	15	10	11	8	17	11	9	9
449:	13	14	15	8	14	7	13	7
457:	8	10	15	11	13	12	18	13
465:	5	6	11	10	14	9	12	6
473:	10	10	6	12	6	7	8	10
481:	7	8	3	9	9	14	17	13
489:	10	10	14	6	11	7	10	12
497:	9	10	9	8	6	12	8	16
505:	12	11	13	15	20	27	38	21
513:	11	10	6	8	9	6	12	16
521:	12	5	5	8	10	11	6	10
529:	13	13	8	12	9	12	9	11
537:	11	11	8	9	13	9	8	11
545:	11	7	14	6	13	11	8	8
553:	12	8	10	8	10	14	13	7
561:	12	7	12	11	8	12	9	8
569:	8	9	8	11	6	12	7	9
577:	10	3	6	12	15	36	49	42
585:	17	5	13	4	5	3	11	7
593:	11	5	7	9	4	11	12	5
601:	5	6	4	5	12	5	18	42
609:	52	42	29	10	11	13	9	10
617:	9	13	6	13	4	5	2	8
625:	13	4	11	9	3	6	10	7
633:	1	10	3	8	5	5	4	11
641:	5	8	12	7	8	7	5	8
649:	7	11	9	8	6	6	9	4
657:	9	11	5	8	11	5	7	5
665:	7	8	4	6	9	9	9	6
673:	4	14	5	4	13	4	6	9
681:	8	3	10	10	4	7	4	8
689:	6	6	5	6	6	5	7	7
697:	1	5	5	10	5	5	6	6
705:	8	9	1	9	9	9	7	6
713:	10	3	8	5	7	9	8	9
721:	5	8	9	9	8	8	14	12
729:	7	6	8	5	8	5	6	1
737:	5	6	4	6	3	10	10	9
745:	5	4	5	9	7	6	11	7
753:	8	4	9	4	2	3	4	7
761:	5	4	8	6	7	3	9	13
769:	6	5	10	4	6	8	2	2
777:	5	2	7	7	14	9	6	9
785:	10	6	9	7	7	10	7	3
793:	4	14	7	8	8	7	2	8

801:	5	2	4	4	4	12	4	6

Sample Title: CP4104S13-14

Channel								
809:	5	3	5	7	4	5	3	4
817:	5	13	4	5	1	1	3	9
825:	7	4	8	3	2	6	6	5
833:	8	7	5	7	7	8	10	7
841:	9	4	9	5	9	2	4	4
849:	2	5	3	6	6	8	8	8
857:	5	8	6	7	14	6	7	9
865:	3	7	8	2	2	3	5	5
873:	1	4	2	7	3	8	5	10
881:	2	5	4	4	6	5	4	5
889:	3	6	5	5	4	5	5	2
897:	3	8	10	1	4	3	3	7
905:	4	6	7	2	4	14	28	29
913:	17	4	10	5	2	5	3	6
921:	7	3	4	4	2	1	3	5
929:	3	8	8	7	5	7	1	4
937:	6	4	1	1	3	0	6	3
945:	2	5	9	4	4	2	3	3
953:	4	4	2	4	8	7	11	4
961:	4	2	9	6	7	8	6	7
969:	14	10	6	4	3	3	6	2
977:	5	6	6	4	2	3	7	4
985:	5	2	3	3	5	8	4	4
993:	5	5	3	0	4	1	3	6
1001:	4	2	5	5	4	4	6	3
1009:	4	5	0	9	2	2	6	1
1017:	2	5	4	6	4	1	2	7
1025:	1	2	2	3	2	5	5	4
1033:	1	6	5	2	4	5	6	1
1041:	3	6	3	2	1	3	4	2
1049:	6	8	8	6	6	3	5	2
1057:	5	4	3	3	5	1	5	2
1065:	2	7	3	6	3	4	5	8
1073:	4	4	7	5	3	5	7	2
1081:	7	2	2	8	1	7	4	6
1089:	3	3	3	1	7	3	8	5
1097:	3	5	0	5	3	5	3	7
1105:	2	7	6	3	3	3	2	5
1113:	6	9	3	7	6	6	8	12
1121:	10	7	7	5	0	8	3	0
1129:	8	7	5	3	3	7	3	2
1137:	6	4	4	3	9	7	4	4
1145:	1	4	1	4	4	1	3	12
1153:	3	5	6	7	5	2	6	3
1161:	6	2	4	1	5	5	10	5
1169:	4	4	5	4	2	1	7	8
1177:	7	6	5	8	3	6	4	1
1185:	3	6	3	4	5	6	3	3
1193:	7	2	9	5	3	4	10	7
1201:	5	6	3	4	3	4	2	2
1209:	5	4	6	4	4	8	5	7
1217:	4	7	4	6	6	7	3	4
1225:	6	6	3	7	2	3	3	8

1233:	6	7	7	7	12	11	7	8

Sample Title: CP4104S13-14

Channel								
1241:	9	2	3	3	5	4	4	5
1249:	3	5	5	7	3	1	0	4
1257:	6	1	6	3	4	3	2	4
1265:	4	3	4	4	6	3	2	3
1273:	2	3	2	4	9	2	3	3
1281:	6	5	3	4	5	2	2	1
1289:	3	4	3	3	3	2	10	2
1297:	1	1	1	3	1	5	6	2
1305:	2	5	1	4	1	1	2	2
1313:	2	3	3	2	4	1	1	1
1321:	1	3	2	2	5	2	2	0
1329:	3	0	4	4	2	3	0	0
1337:	5	2	1	1	0	1	3	2
1345:	1	3	3	1	0	1	0	2
1353:	3	0	2	1	3	1	0	2
1361:	2	2	0	6	1	0	2	0
1369:	2	3	2	4	1	1	2	3
1377:	5	6	6	2	2	3	0	1
1385:	4	0	0	1	1	5	2	0
1393:	2	3	0	3	1	1	5	1
1401:	6	1	2	2	3	3	3	2
1409:	1	3	5	0	0	1	1	3
1417:	2	1	3	2	2	1	5	3
1425:	1	3	0	0	1	2	1	1
1433:	5	1	2	0	2	1	1	1
1441:	3	2	1	2	2	0	1	0
1449:	1	1	3	3	1	1	2	2
1457:	1	5	18	45	85	90	42	6
1465:	1	2	0	0	1	1	1	0
1473:	1	1	2	1	2	0	0	2
1481:	1	2	2	1	0	2	0	1
1489:	0	1	1	2	1	0	0	0
1497:	1	0	1	1	1	3	1	0
1505:	3	0	1	4	1	2	1	1
1513:	4	2	0	1	1	1	0	1
1521:	1	0	0	1	1	0	0	3
1529:	2	1	3	2	0	2	0	1
1537:	2	2	0	1	1	2	0	3
1545:	0	0	2	0	1	2	0	0
1553:	1	2	0	0	1	1	0	0
1561:	1	0	0	1	4	3	1	0
1569:	1	2	2	0	0	0	1	3
1577:	0	0	1	1	0	2	1	2
1585:	1	0	2	3	2	3	1	5
1593:	4	4	4	0	1	0	1	2
1601:	2	1	1	1	1	1	0	1
1609:	0	1	0	1	0	1	3	0
1617:	1	2	2	0	1	0	1	1
1625:	0	0	0	0	1	0	1	0
1633:	3	1	0	0	1	0	0	1
1641:	0	0	0	0	1	0	0	0
1649:	1	1	1	1	1	4	0	1
1657:	1	0	0	0	0	0	1	0

1665:	3	0	0	1	0	1	0	3

Sample Title: CP4104S13-14

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

2097:	0	1	0	0	1	1	2	1

Sample Title: CP4104S13-14

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

2529:	0	0	0	1	2	0	0	0

Sample Title: CP4104S13-14

Channel								
2537:	0	0	0	0	0	1	1	0
2545:	0	0	0	0	1	1	0	1
2553:	0	1	0	0	0	1	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	0	1	0	0	1	0	1
2577:	0	0	1	1	0	0	1	1
2585:	0	1	0	0	0	0	1	1
2593:	0	0	1	0	0	0	0	0
2601:	0	0	1	0	0	2	0	0
2609:	0	0	0	0	0	3	8	5
2617:	12	6	2	0	0	0	0	0
2625:	0	0	0	0	0	0	0	1
2633:	0	0	0	0	0	1	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	1	0	1	1	0	0
2657:	1	1	0	0	1	0	0	0
2665:	0	0	0	0	1	0	0	0
2673:	0	1	0	1	0	0	0	1
2681:	1	0	0	0	0	0	0	0
2689:	0	0	1	0	0	1	1	0
2697:	0	0	0	0	0	1	0	0
2705:	0	1	0	1	0	0	0	0
2713:	0	0	0	0	0	0	0	2
2721:	0	0	0	0	0	1	0	0
2729:	0	0	1	0	0	0	0	1
2737:	0	0	0	0	0	1	1	0
2745:	0	0	1	0	1	0	0	0
2753:	0	0	1	0	0	0	0	0
2761:	1	0	0	0	0	0	0	0
2769:	0	0	0	0	0	1	0	0
2777:	0	0	0	0	1	0	0	0
2785:	1	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	1	0	0	0
2849:	1	0	0	0	0	0	0	0
2857:	1	0	1	0	0	0	1	0
2865:	0	0	0	1	0	0	0	0
2873:	1	0	0	0	1	1	0	0
2881:	1	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	1	1	0	0	0	0	0	0
2913:	1	0	1	0	0	0	1	0
2921:	0	0	0	0	0	0	1	0
2929:	0	0	0	0	0	0	0	1
2937:	0	0	0	1	0	0	0	0
2945:	0	0	0	0	0	1	0	0
2953:	1	0	1	0	0	0	0	0

2961:	0	0	0	0	0	0	1	0

Sample Title: CP4104S13-14

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

3393:	0	0	0	0	0	0	0	0

Sample Title: CP4104S13-14

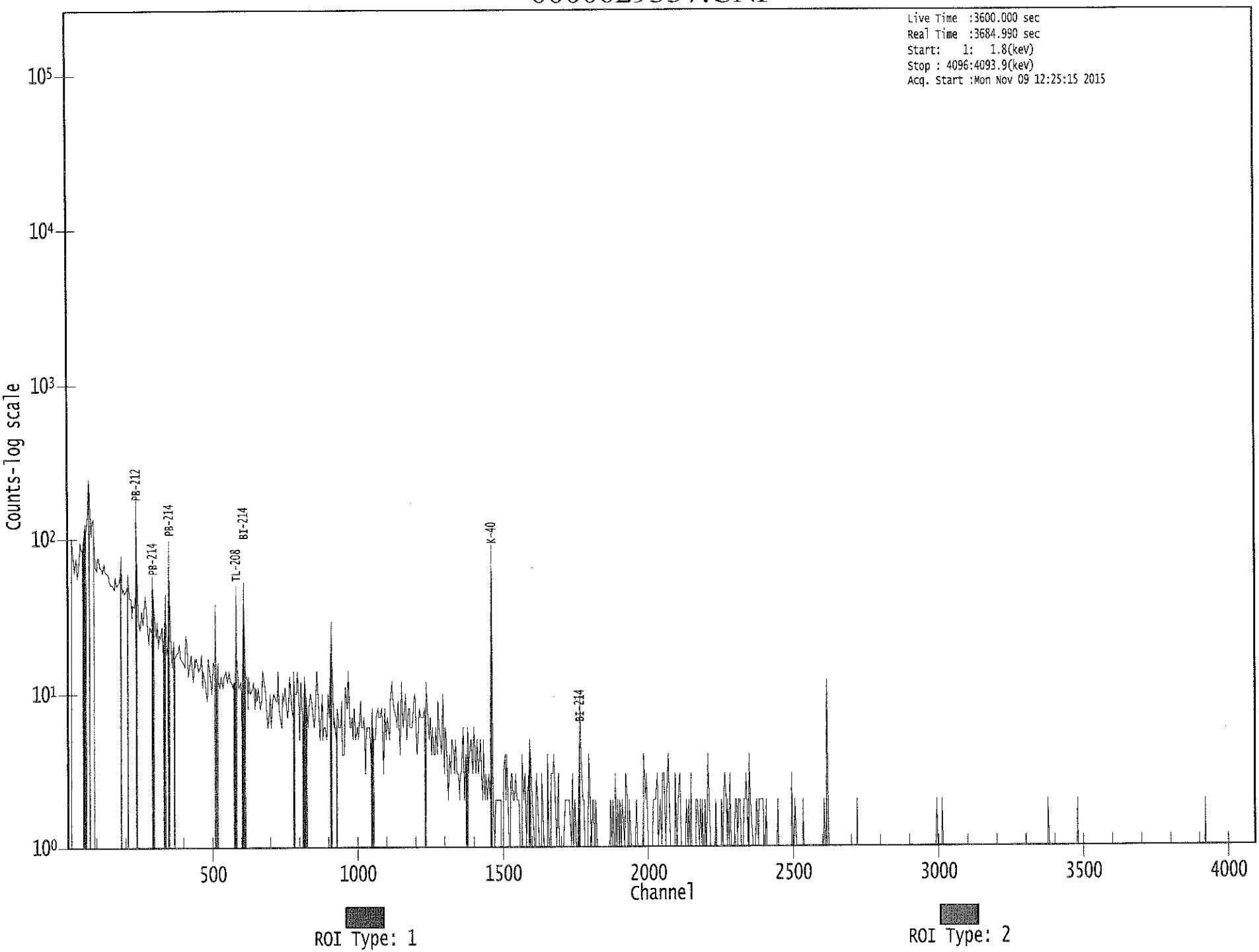
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	1	0	0	0	1
3417:	0	0	0	0	0	0	0	1
3425:	0	0	0	1	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	2	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	1	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	0
3521:	0	0	1	0	0	1	1	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	1	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	1
3593:	0	0	0	0	0	1	0	0
3601:	1	0	0	0	1	0	1	0
3609:	0	0	0	1	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	1	0	0	0	0	0	0
3633:	0	0	0	1	0	0	0	0
3641:	0	0	0	0	0	0	1	0
3649:	0	0	0	0	0	1	1	0
3657:	1	0	0	0	0	0	0	0
3665:	0	1	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	1	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	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	1	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	1	0	0	0	1	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	0	0	0	0	0	0

3825:	0	0	0	1	0	0	0	0

Sample Title: CP4104S13-14

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	1	0	1	0	0	0	0
3857:	0	0	0	0	0	1	1	0
3865:	0	0	0	1	0	0	0	0
3873:	0	0	0	0	1	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	1	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	1	0	0	0	0	0	1
3913:	0	0	0	0	0	0	0	2
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:	1	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	1
4001:	0	0	0	0	0	0	1	0
4009:	0	0	0	0	0	0	0	0
4017:	1	0	0	1	0	0	0	0
4025:	0	0	0	1	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	0	0	0	0
4073:	1	0	0	1	1	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	1	0	2	0	0	0	0	1

0000029337.CNF



Apex-Gamma

Analysis Report for 1510089-05
CP3005S04-05

1119

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-05
Sample Description	: CP3005S04-05
Sample Type	: SOIL
Sample Size	: 7.243E+02 grams
Facility	: Countroom
Sample Taken On	: 10/8/2015 7:45:32AM
Acquisition Started	: 11/9/2015 11:54:04AM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3600.9 seconds
Dead Time	: 0.02 %
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	: 29333

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/10/15

Analysis Report for 1510089-05

CP3005S04-05

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 12:54:08PM
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	76.61	76.95	0.0000	0.00
2	88.01	88.35	0.0000	0.00
3	92.59	92.93	0.0000	0.00
4	111.59	111.92	0.0000	0.00
5	143.75	144.07	0.0000	0.00
6	186.06	186.36	0.0000	0.00
7	219.46	219.76	0.0000	0.00
8	238.56	238.85	0.0000	0.00
9	241.82	242.11	0.0000	0.00
10	271.76	272.04	0.0000	0.00
11	295.34	295.60	0.0000	0.00
12	338.59	338.84	0.0000	0.00
13	352.39	352.63	0.0000	0.00
14	463.35	463.56	0.0000	0.00
15	583.53	583.70	0.0000	0.00
16	610.31	610.47	0.0000	0.00
17	727.43	727.55	0.0000	0.00
18	768.18	768.28	0.0000	0.00
19	786.10	786.20	0.0000	0.00
20	911.69	911.75	0.0000	0.00
21	932.53	932.58	0.0000	0.00
22	945.62	945.66	0.0000	0.00
23	951.33	951.37	0.0000	0.00
24	969.77	969.81	0.0000	0.00
25	1028.93	1028.95	0.0000	0.00
26	1120.52	1120.50	0.0000	0.00
27	1299.31	1299.22	0.0000	0.00
28	1377.46	1377.35	0.0000	0.00
29	1406.57	1406.44	0.0000	0.00
30	1461.43	1461.29	0.0000	0.00
31	1518.44	1518.28	0.0000	0.00
32	1541.08	1540.91	0.0000	0.00
33	1662.58	1662.36	0.0000	0.00
34	1729.11	1728.87	0.0000	0.00
35	1764.77	1764.51	0.0000	0.00
36	1839.14	1838.86	0.0000	0.00
37	1848.40	1848.11	0.0000	0.00
38	1968.50	1968.17	0.0000	0.00
39	2036.36	2036.00	0.0000	0.00
40	2111.10	2110.71	0.0000	0.00
41	2204.38	2203.96	0.0000	0.00
42	2614.98	2614.39	0.0000	0.00

Analysis Report for 1510089-05

CP3005S04-05

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-05

CP3005S04-05

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 12:54:08PM

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)
M	1	76.61	72 -	97	76.95	6.19E+02	108.82	1.41E+03	3.44
m	2	88.01	72 -	97	88.35	2.41E+02	85.56	9.72E+02	2.62
m	3	92.59	72 -	97	92.93	4.50E+02	94.28	1.01E+03	2.95
	4	111.59	108 -	115	111.92	9.18E+01	70.85	7.74E+02	4.33
	5	143.75	141 -	148	144.07	6.36E+01	68.06	7.25E+02	4.18
	6	186.06	181 -	191	186.36	2.35E+02	84.19	8.21E+02	2.11
	7	219.46	217 -	223	219.76	5.61E+01	45.83	3.44E+02	3.64
M	8	238.56	234 -	247	238.85	3.62E+02	49.65	2.18E+02	1.68
m	9	241.82	234 -	247	242.11	1.48E+02	44.96	1.99E+02	1.68
	10	271.76	267 -	278	272.04	7.48E+01	68.26	5.42E+02	5.72
	11	295.34	292 -	301	295.60	2.38E+02	63.95	4.57E+02	1.90
	12	338.59	336 -	342	338.84	3.77E+01	43.11	3.09E+02	1.11
	13	352.39	349 -	358	352.63	4.24E+02	58.07	2.38E+02	1.93
	14	463.35	461 -	467	463.56	3.12E+01	28.44	1.22E+02	2.51
	15	583.53	580 -	589	583.70	9.59E+01	39.36	1.70E+02	1.99
	16	610.31	604 -	632	610.47	3.61E+02	96.47	4.62E+02	1.94
	17	727.43	723 -	732	727.55	4.23E+01	30.08	1.05E+02	1.91
	18	768.18	765 -	772	768.28	3.31E+01	27.42	1.02E+02	2.21
	19	786.10	784 -	789	786.20	1.88E+01	19.49	6.23E+01	2.59
	20	911.69	907 -	916	911.75	8.37E+01	30.48	8.46E+01	1.96
	21	932.53	928 -	938	932.58	2.28E+01	28.92	1.00E+02	4.14
	22	945.62	943 -	948	945.66	1.48E+01	15.36	3.44E+01	2.61
	23	951.33	949 -	955	951.37	2.18E+01	16.19	3.24E+01	3.04
	24	969.77	967 -	973	969.81	3.37E+01	22.65	6.67E+01	1.31
	25	1028.93	1026 -	1032	1028.95	1.76E+01	17.41	4.28E+01	2.18
	26	1120.52	1117 -	1123	1120.50	6.44E+01	26.11	7.72E+01	1.35
	27	1299.31	1297 -	1301	1299.22	1.62E+01	10.74	9.52E+00	2.29
	28	1377.46	1373 -	1382	1377.35	2.50E+01	15.49	2.00E+01	3.51
	29	1406.57	1402 -	1410	1406.44	2.47E+01	15.66	2.26E+01	2.66
	30	1461.43	1456 -	1466	1461.29	4.97E+02	48.97	5.50E+01	2.16
	31	1518.44	1515 -	1522	1518.28	1.15E+01	10.77	1.11E+01	2.33
	32	1541.08	1536 -	1544	1540.91	1.23E+01	11.69	1.34E+01	3.49
	33	1662.58	1658 -	1665	1662.36	1.10E+01	6.63	0.00E+00	4.10
	34	1729.11	1724 -	1732	1728.87	1.50E+01	7.75	0.00E+00	2.83
	35	1764.77	1759 -	1768	1764.51	7.20E+01	16.97	0.00E+00	2.82
	36	1839.14	1835 -	1842	1838.86	6.19E+00	6.93	3.63E+00	1.85
	37	1848.40	1844 -	1852	1848.11	1.36E+01	9.18	4.75E+00	1.66
	38	1968.50	1966 -	1970	1968.17	4.92E+00	5.50	2.17E+00	1.08
	39	2036.36	2032 -	2038	2036.00	5.00E+00	4.47	0.00E+00	2.98
	40	2111.10	2107 -	2113	2110.71	5.50E+00	7.78	7.00E+00	1.45

Analysis Report for 1510089-05

CP3005S04-05

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2204.38	2200 -	2207	2203.96	2.30E+01	9.59	0.00E+00	1.99
42	2614.98	2610 -	2619	2614.39	5.10E+01	14.28	0.00E+00	2.07

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 : 11/9/2015 12:54:08PM

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
M	1	76.61	72 -	97	6.19E+02	108.82	1.41E+03	6.16E+01
m	2	88.01	72 -	97	2.41E+02	85.56	9.72E+02	5.13E+01
m	3	92.59	72 -	97	4.50E+02	94.28	1.01E+03	5.22E+01
	4	111.59	108 -	115	9.18E+01	70.85	7.74E+02	5.61E+01
	5	143.75	141 -	148	6.36E+01	68.06	7.25E+02	5.44E+01
	6	186.06	181 -	191	2.35E+02	84.19	8.21E+02	6.45E+01
	7	219.46	217 -	223	5.61E+01	45.83	3.44E+02	3.56E+01
M	8	238.56	234 -	247	3.62E+02	49.65	2.18E+02	2.43E+01
m	9	241.82	234 -	247	1.48E+02	44.96	1.99E+02	2.32E+01
	10	271.76	267 -	278	7.48E+01	68.26	5.42E+02	2.75E+01
	11	295.34	292 -	301	2.38E+02	63.95	4.57E+02	4.60E+01
	12	338.59	336 -	342	3.77E+01	43.11	3.09E+02	3.40E+01
	13	352.39	349 -	358	4.24E+02	58.07	2.38E+02	3.36E+01
	14	463.35	461 -	467	3.12E+01	28.44	1.22E+02	2.15E+01
	15	583.53	580 -	589	9.59E+01	39.36	1.70E+02	2.81E+01
	16	610.31	604 -	632	3.61E+02	96.47	4.62E+02	1.51E+01
	17	727.43	723 -	732	4.23E+01	30.08	1.05E+02	2.23E+01
	18	768.18	765 -	772	3.31E+01	27.42	1.02E+02	2.05E+01
	19	786.10	784 -	789	1.88E+01	19.49	6.23E+01	1.43E+01
	20	911.69	907 -	916	8.37E+01	30.48	8.46E+01	2.00E+01
	21	932.53	928 -	938	2.28E+01	28.92	1.00E+02	2.24E+01
	22	945.62	943 -	948	1.48E+01	15.36	3.44E+01	1.09E+01
	23	951.33	949 -	955	2.18E+01	16.19	3.24E+01	1.09E+01
	24	969.77	967 -	973	3.37E+01	22.65	6.67E+01	1.60E+01
	25	1028.93	1026 -	1032	1.76E+01	17.41	4.28E+01	1.25E+01

Analysis Report for 1510089-05

CP3005S04-05

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
26	1120.52	1117 -	1123	6.44E+01	26.11	7.72E+01	1.69E+01
27	1299.31	1297 -	1301	1.62E+01	10.74	9.52E+00	5.83E+00
28	1377.46	1373 -	1382	2.50E+01	15.49	2.00E+01	9.73E+00
29	1406.57	1402 -	1410	2.47E+01	15.66	2.26E+01	9.95E+00
30	1461.43	1456 -	1466	4.97E+02	48.97	5.50E+01	1.67E+01
31	1518.44	1515 -	1522	1.15E+01	10.77	1.11E+01	6.88E+00
32	1541.08	1536 -	1544	1.23E+01	11.69	1.34E+01	7.69E+00
33	1662.58	1658 -	1665	1.10E+01	6.63	0.00E+00	0.00E+00
34	1729.11	1724 -	1732	1.50E+01	7.75	0.00E+00	0.00E+00
35	1764.77	1759 -	1768	7.20E+01	16.97	0.00E+00	0.00E+00
36	1839.14	1835 -	1842	6.19E+00	6.93	3.63E+00	3.96E+00
37	1848.40	1844 -	1852	1.36E+01	9.18	4.75E+00	4.48E+00
38	1968.50	1966 -	1970	4.92E+00	5.50	2.17E+00	2.67E+00
39	2036.36	2032 -	2038	5.00E+00	4.47	0.00E+00	0.00E+00
40	2111.10	2107 -	2113	5.50E+00	7.78	7.00E+00	5.10E+00
41	2204.38	2200 -	2207	2.30E+01	9.59	0.00E+00	0.00E+00
42	2614.98	2610 -	2619	5.10E+01	14.28	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 : 11/9/2015 12:54:08PM

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
M	1	76.61	72 -	97	76.95	6.19E+02	108.82	1.41E+03	.....
m	2	88.01	72 -	97	88.35	2.41E+02	85.56	9.72E+02	CD-109 LU-176 SN-126
m	3	92.59	72 -	97	92.93	4.50E+02	94.28	1.01E+03	GA-67
	4	111.59	108 -	115	111.92	9.18E+01	70.85	7.74E+02	.....
	5	143.75	141 -	148	144.07	6.36E+01	68.06	7.25E+02	U-235
	6	186.06	181 -	191	186.36	2.35E+02	84.19	8.21E+02	RA-226

Analysis Report for 1510089-05

CP3005S04-05

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	7	219.46	217 -	223	219.76	5.61E+01	45.83	3.44E+02	.....
M	8	238.56	234 -	247	238.85	3.62E+02	49.65	2.18E+02	PB-212
m	9	241.82	234 -	247	242.11	1.48E+02	44.96	1.99E+02	RA-224
	10	271.76	267 -	278	272.04	7.48E+01	68.26	5.42E+02	LU-173
	11	295.34	292 -	301	295.60	2.38E+02	63.95	4.57E+02	PB-214
	12	338.59	336 -	342	338.84	3.77E+01	43.11	3.09E+02	AC-228
	13	352.39	349 -	358	352.63	4.24E+02	58.07	2.38E+02	PB-214
	14	463.35	461 -	467	463.56	3.12E+01	28.44	1.22E+02	SB-125
	15	583.53	580 -	589	583.70	9.59E+01	39.36	1.70E+02	TL-208
	16	610.31	604 -	632	610.47	3.61E+02	96.47	4.62E+02	BI-214
	17	727.43	723 -	732	727.55	4.23E+01	30.08	1.05E+02	BI-212
	18	768.18	765 -	772	768.28	3.31E+01	27.42	1.02E+02	.....
	19	786.10	784 -	789	786.20	1.88E+01	19.49	6.23E+01	.....
	20	911.69	907 -	916	911.75	8.37E+01	30.48	8.46E+01	LU-172 AC-228
	21	932.53	928 -	938	932.58	2.28E+01	28.92	1.00E+02	.....
	22	945.62	943 -	948	945.66	1.48E+01	15.36	3.44E+01	PA-234
	23	951.33	949 -	955	951.37	2.18E+01	16.19	3.24E+01	.....
	24	969.77	967 -	973	969.81	3.37E+01	22.65	6.67E+01	AC-228
	25	1028.93	1026 -	1032	1028.95	1.76E+01	17.41	4.28E+01	.....
	26	1120.52	1117 -	1123	1120.50	6.44E+01	26.11	7.72E+01	SC-46 BI-214 TA-182
	27	1299.31	1297 -	1301	1299.22	1.62E+01	10.74	9.52E+00	.....
	28	1377.46	1373 -	1382	1377.35	2.50E+01	15.49	2.00E+01	.....
	29	1406.57	1402 -	1410	1406.44	2.47E+01	15.66	2.26E+01	.....
	30	1461.43	1456 -	1466	1461.29	4.97E+02	48.97	5.50E+01	K-40
	31	1518.44	1515 -	1522	1518.28	1.15E+01	10.77	1.11E+01	.....
	32	1541.08	1536 -	1544	1540.91	1.23E+01	11.69	1.34E+01	.....
	33	1662.58	1658 -	1665	1662.36	1.10E+01	6.63	0.00E+00	.....
	34	1729.11	1724 -	1732	1728.87	1.50E+01	7.75	0.00E+00	.....
	35	1764.77	1759 -	1768	1764.51	7.20E+01	16.97	0.00E+00	BI-214
	36	1839.14	1835 -	1842	1838.86	6.19E+00	6.93	3.63E+00	.....
	37	1848.40	1844 -	1852	1848.11	1.36E+01	9.18	4.75E+00	.....
	38	1968.50	1966 -	1970	1968.17	4.92E+00	5.50	2.17E+00	.....
	39	2036.36	2032 -	2038	2036.00	5.00E+00	4.47	0.00E+00	.....
	40	2111.10	2107 -	2113	2110.71	5.50E+00	7.78	7.00E+00	.....
	41	2204.38	2200 -	2207	2203.96	2.30E+01	9.59	0.00E+00	BI-214
	42	2614.98	2610 -	2619	2614.39	5.10E+01	14.28	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 1510089-05

CP3005S04-05

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 11/9/2015 12:54:08PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	76.61	6.19E+02	108.82	2.77E-02	2.36E-03
m	2	88.01	2.41E+02	85.56	2.85E-02	2.74E-03
m	3	92.59	4.50E+02	94.28	2.86E-02	2.65E-03
	4	111.59	9.18E+01	70.85	2.79E-02	2.28E-03
	5	143.75	6.36E+01	68.06	2.56E-02	2.12E-03
	6	186.06	2.35E+02	84.19	2.24E-02	2.03E-03
	7	219.46	5.61E+01	45.83	2.03E-02	1.78E-03
M	8	238.56	3.62E+02	49.65	1.92E-02	1.64E-03
m	9	241.82	1.48E+02	44.96	1.91E-02	1.61E-03
	10	271.76	7.48E+01	68.26	1.76E-02	1.39E-03
	11	295.34	2.38E+02	63.95	1.67E-02	1.31E-03
	12	338.59	3.77E+01	43.11	1.52E-02	1.22E-03
	13	352.39	4.24E+02	58.07	1.48E-02	1.19E-03
	14	463.35	3.12E+01	28.44	1.21E-02	1.04E-03
	15	583.53	9.59E+01	39.36	1.02E-02	9.15E-04
	16	610.31	3.61E+02	96.47	9.81E-03	8.87E-04
	17	727.43	4.23E+01	30.08	8.55E-03	7.75E-04
	18	768.18	3.31E+01	27.42	8.19E-03	7.39E-04
	19	786.10	1.88E+01	19.49	8.04E-03	7.23E-04
	20	911.69	8.37E+01	30.48	7.14E-03	6.15E-04
	21	932.53	2.28E+01	28.92	7.02E-03	6.04E-04
	22	945.62	1.48E+01	15.36	6.94E-03	5.98E-04
	23	951.33	2.18E+01	16.19	6.91E-03	5.95E-04
	24	969.77	3.37E+01	22.65	6.80E-03	5.85E-04
	25	1028.93	1.76E+01	17.41	6.49E-03	5.54E-04
	26	1120.52	6.44E+01	26.11	6.07E-03	5.07E-04
	27	1299.31	1.62E+01	10.74	5.41E-03	4.57E-04
	28	1377.46	2.50E+01	15.49	5.18E-03	4.40E-04
	29	1406.57	2.47E+01	15.66	5.11E-03	4.33E-04
	30	1461.43	4.97E+02	48.97	4.97E-03	4.19E-04
	31	1518.44	1.15E+01	10.77	4.84E-03	4.05E-04
	32	1541.08	1.23E+01	11.69	4.79E-03	3.99E-04
	33	1662.58	1.10E+01	6.63	4.56E-03	3.69E-04
	34	1729.11	1.50E+01	7.75	4.45E-03	3.52E-04
	35	1764.77	7.20E+01	16.97	4.40E-03	3.44E-04
	36	1839.14	6.19E+00	6.93	4.29E-03	3.26E-04
	37	1848.40	1.36E+01	9.18	4.28E-03	3.26E-04
	38	1968.50	4.92E+00	5.50	4.14E-03	3.26E-04
	39	2036.36	5.00E+00	4.47	4.08E-03	3.26E-04
	40	2111.10	5.50E+00	7.78	4.01E-03	3.26E-04
	41	2204.38	2.30E+01	9.59	3.95E-03	3.26E-04
	42	2614.98	5.10E+01	14.28	3.79E-03	3.26E-04

Analysis Report for 1510089-05

CP3005S04-05

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 11/9/2015 12:54:08PM

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.
M	1	76.61	6.19E+02	108.82	9.75E+00	8.28E+00	6.09E+02	1.09E+02
m	2	88.01	2.41E+02	85.56			2.41E+02	8.56E+01
m	3	92.59	4.50E+02	94.28	1.34E+02	9.83E+00	3.16E+02	9.48E+01
	4	111.59	9.18E+01	70.85			9.18E+01	7.09E+01
	5	143.75	6.36E+01	68.06	7.18E+00	7.25E+00	5.65E+01	6.84E+01
	6	186.06	2.35E+02	84.19	6.41E+01	7.38E+00	1.71E+02	8.45E+01
	7	219.46	5.61E+01	45.83	4.38E+00	6.28E+00	5.17E+01	4.63E+01
M	8	238.56	3.62E+02	49.65	2.34E+01	6.34E+00	3.38E+02	5.01E+01
m	9	241.82	1.48E+02	44.96			1.48E+02	4.50E+01
	10	271.76	7.48E+01	68.26			7.48E+01	6.83E+01
	11	295.34	2.38E+02	63.95	4.17E+00	5.50E+00	2.34E+02	6.42E+01
	12	338.59	3.77E+01	43.11	2.22E-01	4.54E+00	3.74E+01	4.33E+01
	13	352.39	4.24E+02	58.07	8.83E+00	4.91E+00	4.15E+02	5.83E+01
	14	463.35	3.12E+01	28.44			3.12E+01	2.84E+01
	15	583.53	9.59E+01	39.36	6.34E+00	3.74E+00	8.96E+01	3.95E+01
	16	610.31	3.61E+02	96.47	5.20E+00	3.69E+00	3.56E+02	9.65E+01
	17	727.43	4.23E+01	30.08			4.23E+01	3.01E+01
	18	768.18	3.31E+01	27.42			3.31E+01	2.74E+01
	19	786.10	1.88E+01	19.49			1.88E+01	1.95E+01
	20	911.69	8.37E+01	30.48	3.28E+00	2.53E+00	8.04E+01	3.06E+01
	21	932.53	2.28E+01	28.92			2.28E+01	2.89E+01
	22	945.62	1.48E+01	15.36			1.48E+01	1.54E+01
	23	951.33	2.18E+01	16.19			2.18E+01	1.62E+01
	24	969.77	3.37E+01	22.65			3.37E+01	2.26E+01
	25	1028.93	1.76E+01	17.41			1.76E+01	1.74E+01
	26	1120.52	6.44E+01	26.11	2.28E+00	2.55E+00	6.21E+01	2.62E+01
	27	1299.31	1.62E+01	10.74			1.62E+01	1.07E+01
	28	1377.46	2.50E+01	15.49			2.50E+01	1.55E+01
	29	1406.57	2.47E+01	15.66			2.47E+01	1.57E+01
	30	1461.43	4.97E+02	48.97	6.46E+00	2.33E+00	4.90E+02	4.90E+01
	31	1518.44	1.15E+01	10.77			1.15E+01	1.08E+01
	32	1541.08	1.23E+01	11.69			1.23E+01	1.17E+01
	33	1662.58	1.10E+01	6.63			1.10E+01	6.63E+00
	34	1729.11	1.50E+01	7.75			1.50E+01	7.75E+00
	35	1764.77	7.20E+01	16.97			7.20E+01	1.70E+01

Analysis Report for 1510089-05

CP3005S04-05

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1839.14	6.19E+00	6.93			6.19E+00	6.93E+00
37	1848.40	1.36E+01	9.18			1.36E+01	9.18E+00
38	1968.50	4.92E+00	5.50			4.92E+00	5.50E+00
39	2036.36	5.00E+00	4.47			5.00E+00	4.47E+00
40	2111.10	5.50E+00	7.78			5.50E+00	7.78E+00
41	2204.38	2.30E+01	9.59			2.30E+01	9.59E+00
42	2614.98	5.10E+01	14.28	3.47E+00	1.48E+00	4.75E+01	1.44E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 11/9/2015 12:54:08PM

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.
M	1	76.61	6.19E+02	108.82	9.75E+00	8.28E+00	6.09E+02	1.09E+02
m	2	88.01	2.41E+02	85.56			2.41E+02	8.56E+01
m	3	92.59	4.50E+02	94.28	1.34E+02	9.83E+00	3.16E+02	9.48E+01
	4	111.59	9.18E+01	70.85			9.18E+01	7.09E+01
	5	143.75	6.36E+01	68.06	7.18E+00	7.25E+00	5.65E+01	6.84E+01
	6	186.06	2.35E+02	84.19	6.41E+01	7.38E+00	1.71E+02	8.45E+01
	7	219.46	5.61E+01	45.83	4.38E+00	6.28E+00	5.17E+01	4.63E+01
M	8	238.56	3.62E+02	49.65	2.34E+01	6.34E+00	3.38E+02	5.01E+01
m	9	241.82	1.48E+02	44.96			1.48E+02	4.50E+01
	10	271.76	7.48E+01	68.26			7.48E+01	6.83E+01
	11	295.34	2.38E+02	63.95	4.17E+00	5.50E+00	2.34E+02	6.42E+01
	12	338.59	3.77E+01	43.11	2.22E-01	4.54E+00	3.74E+01	4.33E+01
	13	352.39	4.24E+02	58.07	8.83E+00	4.91E+00	4.15E+02	5.83E+01
	14	463.35	3.12E+01	28.44			3.12E+01	2.84E+01
	15	583.53	9.59E+01	39.36	6.34E+00	3.74E+00	8.96E+01	3.95E+01
	16	610.31	3.61E+02	96.47	5.20E+00	3.69E+00	3.56E+02	9.65E+01
	17	727.43	4.23E+01	30.08			4.23E+01	3.01E+01
	18	768.18	3.31E+01	27.42			3.31E+01	2.74E+01
	19	786.10	1.88E+01	19.49			1.88E+01	1.95E+01
	20	911.69	8.37E+01	30.48	3.28E+00	2.53E+00	8.04E+01	3.06E+01
	21	932.53	2.28E+01	28.92			2.28E+01	2.89E+01

Analysis Report for 1510089-05

CP3005S04-05

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
22	945.62	1.48E+01	15.36			1.48E+01	1.54E+01
23	951.33	2.18E+01	16.19			2.18E+01	1.62E+01
24	969.77	3.37E+01	22.65			3.37E+01	2.26E+01
25	1028.93	1.76E+01	17.41			1.76E+01	1.74E+01
26	1120.52	6.44E+01	26.11	2.28E+00	2.55E+00	6.21E+01	2.62E+01
27	1299.31	1.62E+01	10.74			1.62E+01	1.07E+01
28	1377.46	2.50E+01	15.49			2.50E+01	1.55E+01
29	1406.57	2.47E+01	15.66			2.47E+01	1.57E+01
30	1461.43	4.97E+02	48.97	6.46E+00	2.33E+00	4.90E+02	4.90E+01
31	1518.44	1.15E+01	10.77			1.15E+01	1.08E+01
32	1541.08	1.23E+01	11.69			1.23E+01	1.17E+01
33	1662.58	1.10E+01	6.63			1.10E+01	6.63E+00
34	1729.11	1.50E+01	7.75			1.50E+01	7.75E+00
35	1764.77	7.20E+01	16.97			7.20E+01	1.70E+01
36	1839.14	6.19E+00	6.93			6.19E+00	6.93E+00
37	1848.40	1.36E+01	9.18			1.36E+01	9.18E+00
38	1968.50	4.92E+00	5.50			4.92E+00	5.50E+00
39	2036.36	5.00E+00	4.47			5.00E+00	4.47E+00
40	2111.10	5.50E+00	7.78			5.50E+00	7.78E+00
41	2204.38	2.30E+01	9.59			2.30E+01	9.59E+00
42	2614.98	5.10E+01	14.28	3.47E+00	1.48E+00	4.75E+01	1.44E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.940	1460.81	*	10.67	9.58E+00	1.27E+00
GA-67	0.304	93.31	*	35.70	3.01E+02	1.31E+03
		208.95		2.24		
		300.22		16.00		
CD-109	1.000	88.03	*	3.72	2.47E+00	9.21E-01
SN-126	0.969	87.57	*	37.00	2.37E-01	8.71E-02
LU-173	0.602	100.72		5.24		
		272.11	*	21.20	2.17E-01	1.98E-01
TL-208	0.871	583.14	*	30.22	3.02E-01	1.36E-01
		860.37		4.48		

Analysis Report for 1510089-05

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.871	2614.66	*	35.85	3.62E-01	1.14E-01
BI-212	0.757	727.17	*	11.80	4.34E-01	3.11E-01
		1620.62		2.75		
PB-212	0.893	238.63	*	44.60	4.09E-01	6.98E-02
		300.09		3.41		
BI-214	0.910	609.31	*	46.30	8.12E-01	2.32E-01
		1120.29	*	15.10	7.03E-01	3.03E-01
		1764.49	*	15.80	1.07E+00	2.67E-01
		2204.22	*	4.98	1.21E+00	5.15E-01
PB-214	0.977	295.21	*	19.19	7.56E-01	2.16E-01
		351.92	*	37.19	7.85E-01	1.27E-01
RA-224	0.892	240.98	*	3.95	2.04E+00	6.43E-01
RA-226	0.996	186.21	*	3.28	2.41E+00	4.57E+00
AC-228	0.947	338.32	*	11.40	2.24E-01	2.60E-01
		911.07	*	27.70	4.21E-01	1.64E-01
		969.11	*	16.60	3.09E-01	2.10E-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 : 11/9/2015 12:54:08PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	76.61	1.69295E-01	8.95		
	4	111.59	2.55132E-02	38.57		
	5	143.75	1.56841E-02	60.61	Tol.	U-235
	7	219.46	1.43620E-02	44.73		
	14	463.35	8.65338E-03	45.65		
	18	768.18	9.19973E-03	41.40		
	19	786.10	5.23333E-03	51.73		
	21	932.53	6.33942E-03	63.37		
	22	945.62	4.11458E-03	51.86	Tol.	PA-234
	23	951.33	6.04898E-03	37.18	S-Esc	
	25	1028.93	4.88960E-03	49.44		
	27	1299.31	4.51058E-03	33.06		
	28	1377.46	6.94444E-03	30.98		

Analysis Report for 1510089-05

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
29	1406.57	6.85571E-03	31.73		
31	1518.44	3.18627E-03	46.95		
32	1541.08	3.42105E-03	47.48		
33	1662.58	3.05556E-03	30.15		
34	1729.11	4.16667E-03	25.82		
36	1839.14	1.71875E-03	55.99		
37	1848.40	3.78472E-03	33.68	Sum	
38	1968.50	1.36574E-03	55.93		
39	2036.36	1.38889E-03	44.72	Sum	
40	2111.10	1.52778E-03	70.71		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81	*	10.67	9.58E+00	1.27E+00
GA-67	0.30	93.31	*	35.70	3.01E+02	1.31E+03
		208.95		2.24		
		300.22		16.00		
CD-109	1.00	88.03	*	3.72	2.47E+00	9.21E-01
SN-126	0.96	87.57	*	37.00	2.37E-01	8.71E-02
LU-173	0.60	100.72		5.24		
		272.11	*	21.20	2.17E-01	1.98E-01
TL-208	0.87	583.14	*	30.22	3.02E-01	1.36E-01
		860.37		4.48		
		2614.66	*	35.85	3.62E-01	1.14E-01
BI-212	0.75	727.17	*	11.80	4.34E-01	3.11E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	4.09E-01	6.98E-02
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	8.12E-01	2.32E-01
		1120.29	*	15.10	7.03E-01	3.03E-01
		1764.49	*	15.80	1.07E+00	2.67E-01

Analysis Report for 1510089-05

CP3005S04-05

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.91	2204.22	*	4.98	1.21E+00	5.15E-01
PB-214	0.97	295.21	*	19.19	7.56E-01	2.16E-01
		351.92	*	37.19	7.85E-01	1.27E-01
RA-224	0.89	240.98	*	3.95	2.04E+00	6.43E-01
RA-226	0.99	186.21	*	3.28	2.41E+00	4.57E+00
AC-228	0.94	338.32	*	11.40	2.24E-01	2.60E-01
		911.07	*	27.70	4.21E-01	1.64E-01
		969.11	*	16.60	3.09E-01	2.10E-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	0.940	9.58E+00	1.27E+00	
	GA-67	0.304	3.01E+02	1.31E+03	
?	CD-109	1.000	2.47E+00	9.21E-01	
?	SN-126	0.969	2.37E-01	8.71E-02	
	LU-173	0.602	2.17E-01	1.98E-01	
	TL-208	0.871	3.38E-01	8.73E-02	
	BI-212	0.757	4.34E-01	3.11E-01	
	PB-212	0.893	4.09E-01	6.98E-02	
	BI-214	0.910	8.97E-01	1.45E-01	
	PB-214	0.977	7.77E-01	1.10E-01	
	RA-224	0.892	2.04E+00	6.43E-01	
	RA-226	0.996	2.41E+00	4.57E+00	
	AC-228	0.947	3.48E-01	1.16E-01	

Analysis Report for 1510089-05

CP3005S04-05

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

Errors quoted at 2.000sigma

Analysis Report for 1510089-05

CP3005S04-05

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 12:54:08PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	76.61	1.69295E-01	8.95		
	4	111.59	2.55132E-02	38.57		
	5	143.75	1.56841E-02	60.61	Tol.	U-235
	7	219.46	1.43620E-02	44.73		
	14	463.35	8.65338E-03	45.65		
	18	768.18	9.19973E-03	41.40		
	19	786.10	5.23333E-03	51.73		
	21	932.53	6.33942E-03	63.37		
	22	945.62	4.11458E-03	51.86	Tol.	PA-234
	23	951.33	6.04898E-03	37.18	S-Esc	
	25	1028.93	4.88960E-03	49.44		
	27	1299.31	4.51058E-03	33.06		
	28	1377.46	6.94444E-03	30.98		
	29	1406.57	6.85571E-03	31.73		
	31	1518.44	3.18627E-03	46.95		
	32	1541.08	3.42105E-03	47.48		
	33	1662.58	3.05556E-03	30.15		
	34	1729.11	4.16667E-03	25.82		
	36	1839.14	1.71875E-03	55.99		
	37	1848.40	3.78472E-03	33.68	Sum	
	38	1968.50	1.36574E-03	55.93		
	39	2036.36	1.38889E-03	44.72	Sum	
	40	2111.10	1.52778E-03	70.71		

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

Analysis Report for 1510089-05

CP3005S04-05

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	-7.44E-02	5.63E-01	5.63E-01
+	NA-22	1274.54		99.94	-1.14E-02	5.02E-02	5.02E-02
+	NA-24	1368.53		99.99	1.66E+13	8.16E+13	1.32E+14
		2754.09		99.86	-1.46E+13		8.16E+13
+	AL-26	1808.65		99.76	4.79E-03	3.80E-02	3.80E-02
+	K-40	1460.81	*	10.67	9.58E+00	7.30E-01	7.30E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	4.26E-02	4.35E-02	4.35E-02
		78.34		96.00	7.26E-02		4.93E-02
+	SC-46	889.25		99.98	2.04E-02	6.36E-02	6.36E-02
		1120.51		99.99	1.28E-01		1.11E-01
+	V-48	983.52		99.98	-2.49E-02	1.96E-01	1.96E-01
		1312.10		97.50	-1.77E-02		2.11E-01
+	CR-51	320.08		9.83	1.57E-01	7.40E-01	7.40E-01
+	MN-54	834.83		99.97	9.28E-03	5.45E-02	5.45E-02
+	CO-56	846.75		99.96	-1.30E-02	5.77E-02	5.77E-02
		1037.75		14.03	2.35E-01		4.60E-01
		1238.25		67.00	5.87E-02		1.47E-01
		1771.40		15.51	-4.05E-02		1.88E-01
		2598.48		16.90	-2.14E-02		1.99E-01
+	CO-57	122.06		85.51	5.15E-03	3.98E-02	3.98E-02
		136.48		10.60	1.87E-01		3.36E-01
+	CO-58	810.76		99.40	-2.33E-03	5.58E-02	5.58E-02
+	FE-59	1099.22		56.50	5.36E-02	1.47E-01	1.47E-01
		1291.56		43.20	6.68E-02		2.20E-01
+	CO-60	1173.22		100.00	2.04E-02	4.74E-02	6.26E-02
		1332.49		100.00	1.12E-02		4.74E-02
+	ZN-65	1115.52		50.75	1.59E-02	1.25E-01	1.25E-01
+	GA-67	93.31	*	35.70	3.01E+02	2.07E+02	3.40E+02
		208.95		2.24	1.08E+03		1.49E+03
		300.22		16.00	-3.18E+02		2.07E+02
+	SE-75	121.11		16.70	-1.32E-02	6.21E-02	2.20E-01
		136.00		59.20	7.30E-03		6.56E-02
		264.65		59.80	-1.37E-02		6.21E-02
		279.53		25.20	-1.08E-02		1.48E-01
		400.65		11.40	-5.32E-02		3.10E-01
+	RB-82	776.52		13.00	-5.88E-02	8.06E-01	8.06E-01
+	RB-83	520.41		46.00	1.98E-03	1.04E-01	1.04E-01
		529.64		30.30	5.91E-02		1.72E-01
		552.65		16.40	-1.20E-01		2.65E-01
+	KR-85	513.99		0.43	1.58E+01	1.26E+01	1.26E+01
+	SR-85	513.99		99.27	9.67E-02	7.73E-02	7.73E-02

Analysis Report for 1510089-05

CP3005S04-05

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	3.47E-02	4.49E-02	6.15E-02
		1836.01		99.38	0.00E+00		4.49E-02
+	NB-93M	16.57		9.43	-5.16E+01	4.41E+01	4.41E+01
+	NB-94	702.63		100.00	2.42E-02	4.49E-02	4.78E-02
		871.10		100.00	1.54E-02		4.49E-02
+	NB-95	765.79		99.81	5.08E-03	1.05E-01	1.05E-01
+	NB-95M	235.69		25.00	-3.13E+02	6.90E+01	6.90E+01
+	ZR-95	724.18		43.70	-2.52E-02	1.16E-01	1.39E-01
		756.72		55.30	2.31E-02		1.16E-01
+	MO-99	181.06		6.20	-3.12E+01	1.00E+03	1.65E+03
		739.58		12.80	-5.39E+02		1.00E+03
		778.00		4.50	-5.54E+02		3.15E+03
+	RU-103	497.08		89.00	1.76E-02	7.69E-02	7.69E-02
+	RU-106	621.84		9.80	-2.67E-02	4.43E-01	4.43E-01
+	AG-108M	433.93		89.90	-2.29E-02	4.10E-02	4.10E-02
		614.37		90.40	-3.53E-01		4.86E-02
		722.95		90.50	-3.89E-03		4.75E-02
+	CD-109	88.03	*	3.72	2.47E+00	3.63E+00	3.63E+00
+	AG-110M	657.75		93.14	1.16E-02	5.32E-02	5.32E-02
		677.61		10.53	-1.44E-01		4.28E-01
		706.67		16.46	1.14E-01		3.16E-01
		763.93		21.98	1.66E-02		2.31E-01
		884.67		71.63	-4.18E-03		7.33E-02
		1384.27		23.94	3.84E-02		1.60E-01
+	CD-113M	263.70		0.02	-2.77E+01	1.35E+02	1.35E+02
+	SN-113	255.12		1.93	4.80E-01	5.78E-02	2.05E+00
		391.69		64.90	-7.09E-04		5.78E-02
+	TE123M	159.00		84.10	-2.84E-03	4.49E-02	4.49E-02
+	SB-124	602.71		97.87	2.72E-03	6.36E-02	6.36E-02
		645.85		7.26	3.38E-01		8.53E-01
		722.78		11.10	-4.60E-02		5.60E-01
		1691.02		49.00	-8.49E-04		8.16E-02
+	I-125	35.49		6.49	-1.22E-02	1.97E+00	1.97E+00
+	SB-125	176.33		6.89	2.74E-01	1.41E-01	4.86E-01
		427.89		29.33	-7.01E-03		1.41E-01
		463.38		10.35	1.16E-01		4.01E-01
		600.56		17.80	-3.24E-02		2.32E-01
		635.90		11.32	2.94E-02		3.63E-01
+	SB-126	414.70		83.30	-2.44E-01	2.40E-01	2.40E-01
		666.33		99.60	6.97E-03		2.80E-01
		695.00		99.60	-4.75E-02		2.48E-01
		720.50		53.80	-1.31E-02		4.68E-01
+	SN-126	87.57	*	37.00	2.37E-01	3.48E-01	3.48E-01
+	SB-127	473.00		25.00	-1.09E+01	3.96E+01	4.83E+01
		685.20		35.70	-3.22E+00		3.96E+01
		783.80		14.70	-6.55E+00		1.11E+02
+	I-129	29.78		57.00	2.47E-02	2.80E-01	2.80E-01
		33.60		13.20	7.01E-02		7.85E-01

Analysis Report for 1510089-05

CP3005S04-05

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-129	39.58	7.52	3.79E-01	2.80E-01	8.81E-01
+	I-131	284.30	6.05	-5.42E-01	5.72E-01	8.65E+00
		364.48	81.20	-3.65E-01		5.72E-01
		636.97	7.26	1.60E+00		8.59E+00
		722.89	1.80	-3.14E+00		3.83E+01
+	TE-132	49.72	13.10	-7.26E+02	3.55E+01	3.03E+02
		228.16	88.00	1.11E+01		3.55E+01
+	BA-133	81.00	33.00	-4.40E-01	6.03E-02	1.08E-01
		302.84	17.80	-7.34E-02		1.76E-01
		356.01	60.00	-2.78E-01		6.03E-02
+	I-133	529.87	86.30	2.44E+09	7.09E+09	7.09E+09
+	XE-133	81.00	38.00	-2.68E+01	6.58E+00	6.58E+00
+	CS-134	563.23	8.38	2.65E-02	5.05E-02	4.30E-01
		569.32	15.43	-1.22E-02		2.51E-01
		604.70	97.60	7.05E-03		5.05E-02
		795.84	85.40	1.57E-02		5.74E-02
		801.93	8.73	3.01E-02		5.45E-01
+	CS-135	268.24	16.00	3.07E-02	2.21E-01	2.21E-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	5.95E-01	2.17E-01	2.35E+00
		163.89	4.61	-1.36E-01		3.76E+00
		176.55	13.56	7.43E-01		1.32E+00
		273.65	12.66	-2.77E-01		1.47E+00
		340.57	48.50	2.58E-01		4.51E-01
		818.50	99.70	-2.64E-02		2.17E-01
		1048.07	79.60	-9.99E-02		3.13E-01
		1235.34	19.70	6.58E-01		2.02E+00
+	CS-137	661.65	85.12	-6.49E-03	5.21E-02	5.21E-02
+	LA-138	788.74	34.00	3.05E-02	5.66E-02	1.47E-01
		1435.80	66.00	1.56E-03		5.66E-02
+	CE-139	165.85	80.35	-1.70E-02	4.48E-02	4.48E-02
+	BA-140	162.64	6.70	-4.11E-01	8.30E-01	2.72E+00
		304.84	4.50	-1.40E+00		3.82E+00
		423.70	3.20	-1.57E+00		6.97E+00
		437.55	2.00	2.12E+00		1.07E+01
		537.32	25.00	-1.79E-01		8.30E-01
+	LA-140	328.77	20.50	4.44E-01	2.31E-01	1.03E+00
		487.03	45.50	-1.29E-01		4.66E-01
		815.85	23.50	5.14E-02		9.65E-01
		1596.49	95.49	-9.96E-02		2.31E-01
+	CE-141	145.44	48.40	4.57E-02	1.31E-01	1.31E-01
+	CE-143	57.36	11.80	-1.58E+06	1.42E+06	3.77E+06
		293.26	42.00	3.37E+06		1.42E+06
		664.55	5.20	-1.45E+06		9.75E+06
+	CE-144	133.54	10.80	5.92E-02	3.11E-01	3.11E-01
+	PM-144	476.78	42.00	-2.82E-02	4.37E-02	9.35E-02
		618.01	98.60	5.10E-03		4.52E-02

Analysis Report for 1510089-05

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-144	696.49		99.49	-7.52E-03	4.37E-02	4.37E-02
+	PM-145	36.85		21.70	8.48E-02	1.87E-01	3.64E-01
		37.36		39.70	-1.54E-01		1.87E-01
		42.30		15.10	-3.00E-01		3.63E-01
		72.40		2.31	-1.63E+00		1.86E+00
+	PM-146	453.90		39.94	3.69E-02	1.05E-01	1.05E-01
		735.90		14.01	-5.00E-02		2.80E-01
		747.13		13.10	-7.45E-02		3.07E-01
+	ND-147	91.11		28.90	-1.66E+00	1.09E+00	1.09E+00
		531.02		13.10	4.49E-01		2.33E+00
+	PM-149	285.90		3.10	5.37E+03	2.55E+04	2.55E+04
+	EU-152	121.78		20.50	1.98E-02	1.53E-01	1.53E-01
		244.69		5.40	-2.74E-01		6.74E-01
		344.27		19.13	1.02E-01		1.82E-01
		778.89		9.20	1.12E-02		4.74E-01
		964.01		10.40	7.79E-02		5.17E-01
		1085.78		7.22	-3.92E-01		6.34E-01
		1112.02		9.60	6.13E-02		5.58E-01
		1407.95		14.94	6.24E-02		3.85E-01
+	GD-153	97.43		31.30	2.18E-02	1.07E-01	1.07E-01
		103.18		22.20	4.52E-02		1.49E-01
+	EU-154	123.07		40.50	2.73E-02	7.89E-02	7.89E-02
		723.30		19.70	-1.80E-02		2.20E-01
		873.19		11.50	6.59E-02		3.85E-01
		996.32		10.30	-4.81E-01		4.16E-01
		1004.76		17.90	-3.38E-02		2.87E-01
		1274.45		35.50	-3.17E-02		1.39E-01
+	EU-155	86.50		30.90	-2.39E-03	1.29E-01	1.29E-01
		105.30		20.70	6.28E-02		1.44E-01
+	EU-156	811.77		10.40	-5.06E-02	1.69E+00	1.69E+00
		1153.47		7.20	-6.73E-01		2.93E+00
		1230.71		8.90	-1.35E-01		3.01E+00
+	HO-166M	184.41		72.60	1.05E-01	6.00E-02	6.00E-02
		280.45		29.60	-1.74E-02		1.05E-01
		410.94		11.10	3.10E-02		3.26E-01
		711.69		54.10	2.76E-02		7.98E-02
+	TM-171	66.72		0.14	-7.01E+01	2.94E+01	2.94E+01
+	HF-172	81.75		4.52	-5.53E-01	2.91E-01	8.17E-01
		125.81		11.30	7.51E-02		2.91E-01
+	LU-172	181.53		20.60	-4.05E+00	2.33E+00	4.23E+00
		810.06		16.63	1.82E-01		7.29E+00
		912.12		15.25	2.21E+01		1.39E+01
		1093.66		62.50	4.36E-02		2.33E+00
+	LU-173	100.72		5.24	9.44E-02	3.22E-01	5.97E-01
		272.11	*	21.20	2.17E-01		3.22E-01
+	HF-175	343.40		84.00	1.22E-02	5.67E-02	5.67E-02
+	LU-176	88.34		13.30	2.09E-01	3.32E-02	2.94E-01
		201.83		86.00	-9.96E-03		3.91E-02
		306.78		94.00	3.45E-03		3.32E-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	1.19E-01	1.21E-01	1.21E-01
		1121.30		34.90	4.12E-01		3.03E-01
		1189.05		16.23	-2.15E-01		3.78E-01
		1221.41		26.98	-1.10E-01		2.35E-01
		1231.02		11.44	-2.93E-02		6.55E-01
+	IR-192	308.46		29.68	3.80E-02	1.02E-01	1.48E-01
		468.07		48.10	1.50E-02		1.02E-01
+	HG-203	279.19		77.30	-7.07E-03	6.54E-02	6.54E-02
+	BI-207	569.67		97.72	1.29E-02	3.98E-02	3.98E-02
		1063.62		74.90	-2.09E-03		7.21E-02
+	TL-208	583.14	*	30.22	3.02E-01	7.09E-02	2.02E-01
		860.37		4.48	3.86E-01		1.09E+00
		2614.66	*	35.85	3.62E-01		7.09E-02
+	BI-210M	262.00		45.00	-1.49E-02	6.81E-02	6.81E-02
		300.00		23.00	-2.36E-01		1.54E-01
+	PB-210	46.50		4.25	1.48E+00	1.25E+00	1.25E+00
+	PB-211	404.84		2.90	4.25E-01	1.09E+00	1.09E+00
		831.96		2.90	-2.00E-01		1.59E+00
+	BI-212	727.17	*	11.80	4.34E-01	4.86E-01	4.86E-01
		1620.62		2.75	-4.58E-02		1.29E+00
+	PB-212	238.63	*	44.60	4.09E-01	1.39E-01	1.39E-01
		300.09		3.41	-1.59E+00		1.04E+00
+	BI-214	609.31	*	46.30	8.12E-01	4.04E-02	3.40E-01
		1120.29	*	15.10	7.03E-01		4.21E-01
		1764.49	*	15.80	1.07E+00		4.04E-02
		2204.22	*	4.98	1.21E+00		1.43E-01
+	PB-214	295.21	*	19.19	7.56E-01	1.35E-01	3.09E-01
		351.92	*	37.19	7.85E-01		1.35E-01
+	RN-219	401.80		6.50	-3.56E-01	4.38E-01	4.38E-01
+	RA-223	323.87		3.88	-2.28E-01	8.86E-01	8.86E-01
+	RA-224	240.98	*	3.95	2.04E+00	1.56E+00	1.56E+00
+	RA-225	40.00		31.00	4.04E-01	9.39E-01	9.39E-01
+	RA-226	186.21	*	3.28	2.41E+00	1.90E+00	1.90E+00
+	TH-227	50.10		8.40	-1.19E+00	3.10E-01	4.95E-01
		236.00		11.50	-1.41E+00		3.10E-01
		256.20		6.30	-8.07E-03		5.11E-01
+	AC-228	338.32	*	11.40	2.24E-01	2.28E-01	4.26E-01
		911.07	*	27.70	4.21E-01		2.28E-01
		969.11	*	16.60	3.09E-01		3.19E-01
+	TH-230	48.44		16.90	1.75E-01	2.92E-01	2.92E-01
		62.85		4.60	6.53E-01		9.69E-01
		67.67		0.37	1.09E+01		1.11E+01
+	PA-231	283.67		1.60	-2.96E-01	1.35E+00	2.00E+00
		302.67		2.30	-5.65E-01		1.35E+00
+	TH-231	25.64		14.70	-4.92E-01	5.78E-01	2.44E+00
		84.21		6.40	-9.91E-01		5.78E-01
+	PA-233	311.98		38.60	4.46E-02	1.82E-01	1.82E-01
+	PA-234	131.20		20.40	2.92E-03	1.50E-01	1.50E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	733.99	8.80	1.01E-01	1.50E-01	4.75E-01
		946.00	12.00	-2.15E-01		3.76E-01
+	PA-234M	1001.03	0.92	1.50E+00	5.82E+00	5.82E+00
+	TH-234	63.29	3.80	9.20E-01	1.18E+00	1.18E+00
+	U-235	143.76	10.50	2.31E-01	3.17E-01	3.17E-01
		163.35	4.70	-2.45E-02		6.76E-01
		205.31	4.70	-4.49E-01		7.07E-01
+	NP-237	86.50	12.60	-5.78E-03	3.13E-01	3.13E-01
+	NP-239	106.10	22.70	7.39E+02	1.69E+03	1.69E+03
		228.18	10.70	1.27E+03		4.03E+03
		277.60	14.10	-5.10E+02		2.81E+03
+	AM-241	59.54	35.90	-5.38E-02	1.12E-01	1.12E-01
+	AM-243	74.67	66.00	-4.46E-02	7.52E-02	7.52E-02
+	CM-243	209.75	3.29	1.09E-02	2.18E-01	1.07E+00
		228.14	10.60	9.83E-02		3.13E-01
		277.60	14.00	-3.95E-02		2.18E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	5.63E-01	5.63E-01	-7.44E-02	2.64E-01
	NA-22	1274.54		99.94	5.02E-02	5.02E-02	-1.14E-02	2.25E-02
	NA-24	1368.53		99.99	1.32E+14	8.16E+13	1.66E+13	5.75E+13
		2754.09		99.86	8.16E+13		-1.46E+13	2.89E+13
	AL-26	1808.65		99.76	3.80E-02	3.80E-02	4.79E-03	1.58E-02
+	K-40	1460.81	*	10.67	7.30E-01	7.30E-01	9.58E+00	3.39E-01

Analysis Report for 1510089-05

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.35E-02	4.35E-02	4.26E-02	2.12E-02
		78.34		96.00	4.93E-02		7.26E-02	2.41E-02
	SC-46	889.25		99.98	6.36E-02	6.36E-02	2.04E-02	2.93E-02
		1120.51		99.99	1.11E-01		1.28E-01	5.27E-02
	V-48	983.52		99.98	1.96E-01	1.96E-01	-2.49E-02	8.94E-02
		1312.10		97.50	2.11E-01		-1.77E-02	9.49E-02
	CR-51	320.08		9.83	7.40E-01	7.40E-01	1.57E-01	3.50E-01
	MN-54	834.83		99.97	5.45E-02	5.45E-02	9.28E-03	2.53E-02
	CO-56	846.75		99.96	5.77E-02	5.77E-02	-1.30E-02	2.64E-02
		1037.75		14.03	4.60E-01		2.35E-01	2.09E-01
		1238.25		67.00	1.47E-01		5.87E-02	6.86E-02
		1771.40		15.51	1.88E-01		-4.05E-02	6.65E-02
		2598.48		16.90	1.99E-01		-2.14E-02	7.06E-02
	CO-57	122.06		85.51	3.98E-02	3.98E-02	5.15E-03	1.92E-02
		136.48		10.60	3.36E-01		1.87E-01	1.62E-01
	CO-58	810.76		99.40	5.58E-02	5.58E-02	-2.33E-03	2.54E-02
	FE-59	1099.22		56.50	1.47E-01	1.47E-01	5.36E-02	6.66E-02
		1291.56		43.20	2.20E-01		6.68E-02	1.00E-01
	CO-60	1173.22		100.00	6.26E-02	4.74E-02	2.04E-02	2.89E-02
		1332.49		100.00	4.74E-02		1.12E-02	2.10E-02
	ZN-65	1115.52		50.75	1.25E-01	1.25E-01	1.59E-02	5.74E-02
+	GA-67	93.31	*	35.70	3.40E+02	2.07E+02	3.01E+02	1.69E+02
		208.95		2.24	1.49E+03		1.08E+03	7.14E+02
		300.22		16.00	2.07E+02		-3.18E+02	9.87E+01
	SE-75	121.11		16.70	2.20E-01	6.21E-02	-1.32E-02	1.06E-01
		136.00		59.20	6.56E-02		7.30E-03	3.17E-02
		264.65		59.80	6.21E-02		-1.37E-02	2.95E-02
		279.53		25.20	1.48E-01		-1.08E-02	7.01E-02
		400.65		11.40	3.10E-01		-5.32E-02	1.44E-01
	RB-82	776.52		13.00	8.06E-01	8.06E-01	-5.88E-02	3.71E-01
	RB-83	520.41		46.00	1.04E-01	1.04E-01	1.98E-03	4.86E-02
		529.64		30.30	1.72E-01		5.91E-02	8.05E-02
		552.65		16.40	2.65E-01		-1.20E-01	1.22E-01
	KR-85	513.99		0.43	1.26E+01	1.26E+01	1.58E+01	6.01E+00
	SR-85	513.99		99.27	7.73E-02	7.73E-02	9.67E-02	3.69E-02
	Y-88	898.02		93.40	6.15E-02	4.49E-02	3.47E-02	2.82E-02
		1836.01		99.38	4.49E-02		0.00E+00	1.84E-02
	NB-93M	16.57		9.43	4.41E+01	4.41E+01	-5.16E+01	2.02E+01
	NB-94	702.63		100.00	4.78E-02	4.49E-02	2.42E-02	2.23E-02
		871.10		100.00	4.49E-02		1.54E-02	2.06E-02
	NB-95	765.79		99.81	1.05E-01	1.05E-01	5.08E-03	4.91E-02
	NB-95M	235.69		25.00	6.90E+01	6.90E+01	-3.13E+02	3.31E+01
	ZR-95	724.18		43.70	1.39E-01	1.16E-01	-2.52E-02	6.44E-02
		756.72		55.30	1.16E-01		2.31E-02	5.37E-02
	MO-99	181.06		6.20	1.65E+03	1.00E+03	-3.12E+01	7.92E+02
		739.58		12.80	1.00E+03		-5.39E+02	4.59E+02
		778.00		4.50	3.15E+03		-5.54E+02	1.44E+03
	RU-103	497.08		89.00	7.69E-02	7.69E-02	1.76E-02	3.60E-02
	RU-106	621.84		9.80	4.43E-01	4.43E-01	-2.67E-02	2.06E-01
	AG-108M	433.93		89.90	4.10E-02	4.10E-02	-2.29E-02	1.93E-02
		614.37		90.40	4.86E-02		-3.53E-01	2.27E-02
		722.95		90.50	4.75E-02		-3.89E-03	2.19E-02

Analysis Report for 1510089-05

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	CD-109	88.03	*	3.72	3.63E+00	3.63E+00	2.47E+00	1.80E+00
	AG-110M	657.75		93.14	5.32E-02	5.32E-02	1.16E-02	2.48E-02
		677.61		10.53	4.28E-01		-1.44E-01	1.98E-01
		706.67		16.46	3.16E-01		1.14E-01	1.48E-01
		763.93		21.98	2.31E-01		1.66E-02	1.07E-01
		884.67		71.63	7.33E-02		-4.18E-03	3.37E-02
		1384.27		23.94	1.60E-01		3.84E-02	6.74E-02
	CD-113M	263.70		0.02	1.35E+02	1.35E+02	-2.77E+01	6.43E+01
	SN-113	255.12		1.93	2.05E+00	5.78E-02	4.80E-01	9.75E-01
		391.69		64.90	5.78E-02		-7.09E-04	2.70E-02
	TE123M	159.00		84.10	4.49E-02	4.49E-02	-2.84E-03	2.16E-02
	SB-124	602.71		97.87	6.36E-02	6.36E-02	2.72E-03	2.97E-02
		645.85		7.26	8.53E-01		3.38E-01	3.97E-01
		722.78		11.10	5.60E-01		-4.60E-02	2.59E-01
		1691.02		49.00	8.16E-02		-8.49E-04	3.16E-02
	I-125	35.49		6.49	1.97E+00	1.97E+00	-1.22E-02	9.47E-01
	SB-125	176.33		6.89	4.86E-01	1.41E-01	2.74E-01	2.34E-01
		427.89		29.33	1.41E-01		-7.01E-03	6.68E-02
		463.38		10.35	4.01E-01		1.16E-01	1.89E-01
		600.56		17.80	2.32E-01		-3.24E-02	1.08E-01
		635.90		11.32	3.63E-01		2.94E-02	1.68E-01
	SB-126	414.70		83.30	2.40E-01	2.40E-01	-2.44E-01	1.12E-01
		666.33		99.60	2.80E-01		6.97E-03	1.31E-01
		695.00		99.60	2.48E-01		-4.75E-02	1.14E-01
		720.50		53.80	4.68E-01		-1.31E-02	2.16E-01
+	SN-126	87.57	*	37.00	3.48E-01	3.48E-01	2.37E-01	1.73E-01
	SB-127	473.00		25.00	4.83E+01	3.96E+01	-1.09E+01	2.26E+01
		685.20		35.70	3.96E+01		-3.22E+00	1.84E+01
		783.80		14.70	1.11E+02		-6.55E+00	5.19E+01
	I-129	29.78		57.00	2.80E-01	2.80E-01	2.47E-02	1.34E-01
		33.60		13.20	7.85E-01		7.01E-02	3.78E-01
		39.58		7.52	8.81E-01		3.79E-01	4.24E-01
	I-131	284.30		6.05	8.65E+00	5.72E-01	-5.42E-01	4.11E+00
		364.48		81.20	5.72E-01		-3.65E-01	2.67E-01
		636.97		7.26	8.59E+00		1.60E+00	3.97E+00
		722.89		1.80	3.83E+01		-3.14E+00	1.77E+01
	TE-132	49.72		13.10	3.03E+02	3.55E+01	-7.26E+02	1.46E+02
		228.16		88.00	3.55E+01		1.11E+01	1.70E+01
	BA-133	81.00		33.00	1.08E-01	6.03E-02	-4.40E-01	5.25E-02
		302.84		17.80	1.76E-01		-7.34E-02	8.31E-02
		356.01		60.00	6.03E-02		-2.78E-01	2.85E-02
	I-133	529.87		86.30	7.09E+09	7.09E+09	2.44E+09	3.32E+09
	XE-133	81.00		38.00	6.58E+00	6.58E+00	-2.68E+01	3.20E+00
	CS-134	563.23		8.38	4.30E-01	5.05E-02	2.65E-02	1.99E-01
		569.32		15.43	2.51E-01		-1.22E-02	1.16E-01
		604.70		97.60	5.05E-02		7.05E-03	2.37E-02
		795.84		85.40	5.74E-02		1.57E-02	2.66E-02
		801.93		8.73	5.45E-01		3.01E-02	2.52E-01
	CS-135	268.24		16.00	2.21E-01	2.21E-01	3.07E-02	1.06E-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	2.35E+00	2.17E-01	5.95E-01	1.14E+00

Analysis Report for 1510089-05

CP3005S04-05

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	163.89	4.61	3.76E+00	2.17E-01	-1.36E-01	1.81E+00
	176.55	13.56	1.32E+00		7.43E-01	6.35E-01
	273.65	12.66	1.47E+00		-2.77E-01	7.02E-01
	340.57	48.50	4.51E-01		2.58E-01	2.15E-01
	818.50	99.70	2.17E-01		-2.64E-02	9.87E-02
	1048.07	79.60	3.13E-01		-9.99E-02	1.41E-01
	1235.34	19.70	2.02E+00		6.58E-01	9.41E-01
CS-137	661.65	85.12	5.21E-02	5.21E-02	-6.49E-03	2.43E-02
LA-138	788.74	34.00	1.47E-01	5.66E-02	3.05E-02	6.85E-02
	1435.80	66.00	5.66E-02		1.56E-03	2.41E-02
CE-139	165.85	80.35	4.48E-02	4.48E-02	-1.70E-02	2.15E-02
BA-140	162.64	6.70	2.72E+00	8.30E-01	-4.11E-01	1.31E+00
	304.84	4.50	3.82E+00		-1.40E+00	1.80E+00
	423.70	3.20	6.97E+00		-1.57E+00	3.29E+00
	437.55	2.00	1.07E+01		2.12E+00	5.04E+00
	537.32	25.00	8.30E-01		-1.79E-01	3.85E-01
LA-140	328.77	20.50	1.03E+00	2.31E-01	4.44E-01	4.92E-01
	487.03	45.50	4.66E-01		-1.29E-01	2.18E-01
	815.85	23.50	9.65E-01		5.14E-02	4.39E-01
	1596.49	95.49	2.31E-01		-9.96E-02	9.77E-02
CE-141	145.44	48.40	1.31E-01	1.31E-01	4.57E-02	6.35E-02
CE-143	57.36	11.80	3.77E+06	1.42E+06	-1.58E+06	1.83E+06
	293.26	42.00	1.42E+06		3.37E+06	6.89E+05
	664.55	5.20	9.75E+06		-1.45E+06	4.55E+06
CE-144	133.54	10.80	3.11E-01	3.11E-01	5.92E-02	1.50E-01
PM-144	476.78	42.00	9.35E-02	4.37E-02	-2.82E-02	4.37E-02
	618.01	98.60	4.52E-02		5.10E-03	2.11E-02
	696.49	99.49	4.37E-02		-7.52E-03	2.02E-02
PM-145	36.85	21.70	3.64E-01	1.87E-01	8.48E-02	1.75E-01
	37.36	39.70	1.87E-01		-1.54E-01	8.99E-02
	42.30	15.10	3.63E-01		-3.00E-01	1.75E-01
	72.40	2.31	1.86E+00		-1.63E+00	9.09E-01
PM-146	453.90	39.94	1.05E-01	1.05E-01	3.69E-02	4.95E-02
	735.90	14.01	2.80E-01		-5.00E-02	1.28E-01
	747.13	13.10	3.07E-01		-7.45E-02	1.41E-01
ND-147	91.11	28.90	1.09E+00	1.09E+00	-1.66E+00	5.30E-01
	531.02	13.10	2.33E+00		4.49E-01	1.09E+00
PM-149	285.90	3.10	2.55E+04	2.55E+04	5.37E+03	1.21E+04
EU-152	121.78	20.50	1.53E-01	1.53E-01	1.98E-02	7.42E-02
	244.69	5.40	6.74E-01		-2.74E-01	3.23E-01
	344.27	19.13	1.82E-01		1.02E-01	8.61E-02
	778.89	9.20	4.74E-01		1.12E-02	2.18E-01
	964.01	10.40	5.17E-01		7.79E-02	2.39E-01
	1085.78	7.22	6.34E-01		-3.92E-01	2.86E-01
	1112.02	9.60	5.58E-01		6.13E-02	2.55E-01
	1407.95	14.94	3.85E-01		6.24E-02	1.74E-01
GD-153	97.43	31.30	1.07E-01	1.07E-01	2.18E-02	5.16E-02
	103.18	22.20	1.49E-01		4.52E-02	7.22E-02
EU-154	123.07	40.50	7.89E-02	7.89E-02	2.73E-02	3.82E-02
	723.30	19.70	2.20E-01		-1.80E-02	1.01E-01
	873.19	11.50	3.85E-01		6.59E-02	1.76E-01
	996.32	10.30	4.16E-01		-4.81E-01	1.87E-01
	1004.76	17.90	2.87E-01		-3.38E-02	1.31E-01

Analysis Report for 1510089-05

CP3005S04-05

	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	1.39E-01	7.89E-02	-3.17E-02	6.23E-02
	EU-155	86.50		30.90	1.29E-01	1.29E-01	-2.39E-03	6.29E-02
		105.30		20.70	1.44E-01		6.28E-02	6.96E-02
	EU-156	811.77		10.40	1.69E+00	1.69E+00	-5.06E-02	7.71E-01
		1153.47		7.20	2.93E+00		-6.73E-01	1.32E+00
		1230.71		8.90	3.01E+00		-1.35E-01	1.38E+00
	HO-166M	184.41		72.60	6.00E-02	6.00E-02	1.05E-01	2.92E-02
		280.45		29.60	1.05E-01		-1.74E-02	4.97E-02
		410.94		11.10	3.26E-01		3.10E-02	1.53E-01
		711.69		54.10	7.98E-02		2.76E-02	3.69E-02
	TM-171	66.72		0.14	2.94E+01	2.94E+01	-7.01E+01	1.43E+01
	HF-172	81.75		4.52	8.17E-01	2.91E-01	-5.53E-01	3.97E-01
		125.81		11.30	2.91E-01		7.51E-02	1.41E-01
	LU-172	181.53		20.60	4.23E+00	2.33E+00	-4.05E+00	2.03E+00
		810.06		16.63	7.29E+00		1.82E-01	3.35E+00
		912.12		15.25	1.39E+01		2.21E+01	6.61E+00
		1093.66		62.50	2.33E+00		4.36E-02	1.06E+00
+	LU-173	100.72		5.24	5.97E-01	3.22E-01	9.44E-02	2.89E-01
		272.11	*	21.20	3.22E-01		2.17E-01	1.57E-01
	HF-175	343.40		84.00	5.67E-02	5.67E-02	1.22E-02	2.68E-02
	LU-176	88.34		13.30	2.94E-01	3.32E-02	2.09E-01	1.43E-01
		201.83		86.00	3.91E-02		-9.96E-03	1.88E-02
		306.78		94.00	3.32E-02		3.45E-03	1.57E-02
	TA-182	67.75		41.20	1.21E-01	1.21E-01	1.19E-01	5.89E-02
		1121.30		34.90	3.03E-01		4.12E-01	1.43E-01
		1189.05		16.23	3.78E-01		-2.15E-01	1.71E-01
		1221.41		26.98	2.35E-01		-1.10E-01	1.07E-01
		1231.02		11.44	6.55E-01		-2.93E-02	3.01E-01
	IR-192	308.46		29.68	1.48E-01	1.02E-01	3.80E-02	6.98E-02
		468.07		48.10	1.02E-01		1.50E-02	4.76E-02
	HG-203	279.19		77.30	6.54E-02	6.54E-02	-7.07E-03	3.10E-02
	BI-207	569.67		97.72	3.98E-02	3.98E-02	1.29E-02	1.85E-02
		1063.62		74.90	7.21E-02		-2.09E-03	3.31E-02
+	TL-208	583.14	*	30.22	2.02E-01	7.09E-02	3.02E-01	9.64E-02
		860.37		4.48	1.09E+00		3.86E-01	5.03E-01
		2614.66	*	35.85	7.09E-02		3.62E-01	2.51E-02
	BI-210M	262.00		45.00	6.81E-02	6.81E-02	-1.49E-02	3.23E-02
		300.00		23.00	1.54E-01		-2.36E-01	7.33E-02
	PB-210	46.50		4.25	1.25E+00	1.25E+00	1.48E+00	6.03E-01
	PB-211	404.84		2.90	1.09E+00	1.09E+00	4.25E-01	5.10E-01
		831.96		2.90	1.59E+00		-2.00E-01	7.34E-01
+	BI-212	727.17	*	11.80	4.86E-01	4.86E-01	4.34E-01	2.29E-01
		1620.62		2.75	1.29E+00		-4.58E-02	5.35E-01
+	PB-212	238.63	*	44.60	1.39E-01	1.39E-01	4.09E-01	6.81E-02
		300.09		3.41	1.04E+00		-1.59E+00	4.94E-01
+	BI-214	609.31	*	46.30	3.40E-01	4.04E-02	8.12E-01	1.67E-01
		1120.29	*	15.10	4.21E-01		7.03E-01	1.95E-01
		1764.49	*	15.80	4.04E-02		1.07E+00	0.00E+00
		2204.22	*	4.98	1.43E-01		1.21E+00	0.00E+00
+	PB-214	295.21	*	19.19	3.09E-01	1.35E-01	7.56E-01	1.50E-01
		351.92	*	37.19	1.35E-01		7.85E-01	6.47E-02
	RN-219	401.80		6.50	4.38E-01	4.38E-01	-3.56E-01	2.03E-01
	RA-223	323.87		3.88	8.86E-01	8.86E-01	-2.28E-01	4.20E-01

Analysis Report for 1510089-05

CP3005S04-05

	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	1.56E+00	1.56E+00	2.04E+00	7.61E-01
	RA-225	40.00		31.00	9.39E-01	9.39E-01	4.04E-01	4.53E-01
+	RA-226	186.21	*	3.28	1.90E+00	1.90E+00	2.41E+00	9.33E-01
	TH-227	50.10		8.40	4.95E-01	3.10E-01	-1.19E+00	2.39E-01
		236.00		11.50	3.10E-01		-1.41E+00	1.49E-01
		256.20		6.30	5.11E-01		-8.07E-03	2.43E-01
+	AC-228	338.32	*	11.40	4.26E-01	2.28E-01	2.24E-01	2.05E-01
		911.07	*	27.70	2.28E-01		4.21E-01	1.07E-01
		969.11	*	16.60	3.19E-01		3.09E-01	1.47E-01
	TH-230	48.44		16.90	2.92E-01	2.92E-01	1.75E-01	1.41E-01
		62.85		4.60	9.69E-01		6.53E-01	4.72E-01
		67.67		0.37	1.11E+01		1.09E+01	5.40E+00
	PA-231	283.67		1.60	2.00E+00	1.35E+00	-2.96E-01	9.47E-01
		302.67		2.30	1.35E+00		-5.65E-01	6.39E-01
	TH-231	25.64		14.70	2.44E+00	5.78E-01	-4.92E-01	1.17E+00
		84.21		6.40	5.78E-01		-9.91E-01	2.81E-01
	PA-233	311.98		38.60	1.82E-01	1.82E-01	4.46E-02	8.57E-02
	PA-234	131.20		20.40	1.50E-01	1.50E-01	2.92E-03	7.26E-02
		733.99		8.80	4.75E-01		1.01E-01	2.19E-01
		946.00		12.00	3.76E-01		-2.15E-01	1.71E-01
	PA-234M	1001.03		0.92	5.82E+00	5.82E+00	1.50E+00	2.68E+00
	TH-234	63.29		3.80	1.18E+00	1.18E+00	9.20E-01	5.76E-01
	U-235	143.76		10.50	3.17E-01	3.17E-01	2.31E-01	1.53E-01
		163.35		4.70	6.76E-01		-2.45E-02	3.26E-01
		205.31		4.70	7.07E-01		-4.49E-01	3.39E-01
	NP-237	86.50		12.60	3.13E-01	3.13E-01	-5.78E-03	1.52E-01
	NP-239	106.10		22.70	1.69E+03	1.69E+03	7.39E+02	8.18E+02
		228.18		10.70	4.03E+03		1.27E+03	1.93E+03
		277.60		14.10	2.81E+03		-5.10E+02	1.33E+03
	AM-241	59.54		35.90	1.12E-01	1.12E-01	-5.38E-02	5.43E-02
	AM-243	74.67		66.00	7.52E-02	7.52E-02	-4.46E-02	3.68E-02
	CM-243	209.75		3.29	1.07E+00	2.18E-01	1.09E-02	5.17E-01
		228.14		10.60	3.13E-01		9.83E-02	1.50E-01
		277.60		14.00	2.18E-01		-3.95E-02	1.03E-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.

Analysis Report for 1510089-05

CP3005S04-05

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: CP3005S04-05

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	41	79	58	71	56	77
25:	48	46	37	33	49	37	49	35
33:	41	47	51	46	38	47	49	40
41:	59	48	45	37	38	67	115	55
49:	42	47	60	47	68	69	66	64
57:	59	63	70	75	79	77	98	174
65:	70	93	90	75	106	105	76	76
73:	90	104	207	156	209	253	94	80
81:	79	86	65	103	97	89	94	152
89:	81	103	79	85	218	144	79	76
97:	51	55	58	63	54	59	57	56
105:	59	64	54	45	55	66	66	61
113:	77	64	45	50	43	49	47	57
121:	59	54	61	62	63	52	62	57
129:	51	73	48	47	44	54	54	70
137:	53	55	63	47	50	59	51	67
145:	59	56	44	40	46	43	51	53
153:	53	56	50	44	45	48	38	53
161:	49	50	55	46	35	47	46	38
169:	43	45	41	55	45	41	41	50
177:	52	43	42	35	38	39	39	48
185:	61	128	114	51	40	49	38	38
193:	39	36	42	44	62	28	49	38
201:	43	32	47	44	41	28	41	41
209:	48	53	36	37	44	41	33	20
217:	24	35	35	33	47	28	26	27
225:	35	28	32	37	43	29	31	27
233:	28	18	31	38	31	71	247	98
241:	65	106	83	22	25	37	19	19
249:	33	23	25	25	28	26	24	25
257:	37	24	27	29	22	28	20	20
265:	31	22	26	28	21	41	40	37
273:	27	19	38	20	25	24	19	20
281:	26	22	24	19	28	23	27	25
289:	26	17	21	16	22	29	116	141
297:	35	28	25	28	26	26	17	13
305:	18	18	26	11	26	21	22	16
313:	22	12	17	13	16	12	20	22
321:	27	20	18	24	24	26	25	26
329:	24	26	27	15	21	20	28	19
337:	22	30	61	21	20	19	23	21
345:	20	21	19	17	8	15	38	209
353:	166	33	24	21	17	12	11	19
361:	15	17	14	13	13	12	13	19

369:	20	16	13	10	17	13	19	9

Sample Title: CP3005S04-05

Channel								
377:	21	9	12	24	12	11	18	10
385:	14	20	7	11	16	17	10	13
393:	17	10	14	13	14	17	16	12
401:	9	12	9	12	11	23	12	8
409:	12	22	8	13	14	10	8	7
417:	9	10	17	17	11	8	17	14
425:	16	12	19	10	18	16	13	14
433:	16	9	12	11	8	10	19	14
441:	11	10	9	21	12	15	7	12
449:	14	6	17	12	8	15	13	23
457:	11	9	17	15	6	14	24	19
465:	15	7	7	8	8	12	14	11
473:	10	3	12	10	14	14	9	10
481:	10	17	15	7	10	10	11	10
489:	12	10	7	9	12	14	8	13
497:	11	11	7	11	3	14	8	15
505:	11	14	19	10	6	33	43	37
513:	16	15	11	6	17	4	9	9
521:	9	13	9	10	6	7	10	18
529:	7	13	8	8	9	9	10	9
537:	9	9	9	5	6	13	6	13
545:	13	9	8	8	9	4	3	12
553:	11	6	6	4	9	9	8	11
561:	3	8	7	7	10	3	7	4
569:	11	10	10	11	7	9	5	3
577:	10	13	5	8	7	16	42	50
585:	12	11	11	12	12	8	3	5
593:	8	9	8	12	8	8	8	4
601:	9	13	11	7	12	12	8	22
609:	131	178	44	11	8	13	7	10
617:	9	11	5	14	6	8	5	9
625:	11	8	7	6	7	9	11	3
633:	12	4	8	5	7	10	8	8
641:	7	3	7	9	11	5	8	10
649:	10	7	8	7	14	7	11	10
657:	9	9	10	5	12	10	3	11
665:	11	12	8	10	12	11	5	8
673:	10	7	6	3	7	7	12	10
681:	6	9	10	6	5	7	10	8
689:	7	10	5	10	6	9	5	9
697:	3	6	7	9	6	9	10	10
705:	11	11	1	12	9	11	3	8
713:	4	4	13	5	5	4	9	10
721:	7	2	8	7	8	8	10	19
729:	13	8	8	6	5	8	5	8
737:	6	4	3	9	3	3	10	10
745:	8	1	7	6	7	1	10	4
753:	10	8	8	9	6	11	3	7
761:	4	8	4	12	3	12	11	19
769:	17	8	8	6	5	10	7	3
777:	4	5	9	8	7	9	4	4
785:	10	11	15	6	4	8	7	9
793:	6	5	20	6	6	6	4	5

801:	5	7	10	6	12	5	10	4

Sample Title: CP3005S04-05

Channel								
809:	3	7	5	6	7	4	4	3
817:	5	7	4	6	2	7	4	9
825:	7	7	7	4	6	5	7	7
833:	9	7	5	10	7	11	6	10
841:	4	7	5	7	5	6	4	8
849:	5	4	7	7	5	6	3	9
857:	4	6	5	7	13	9	5	5
865:	4	7	4	4	4	7	5	11
873:	3	6	6	0	5	5	3	4
881:	6	6	6	8	6	7	4	8
889:	7	9	5	6	6	1	6	2
897:	6	8	6	6	7	2	4	4
905:	9	6	3	7	10	6	25	40
913:	18	10	5	2	6	6	4	4
921:	6	4	2	3	5	5	2	4
929:	6	1	7	10	11	8	9	7
937:	6	4	8	6	4	8	0	6
945:	9	10	6	1	3	9	8	7
953:	5	5	1	4	7	6	6	6
961:	5	10	3	9	10	6	6	7
969:	23	11	9	9	2	6	9	6
977:	5	5	5	7	5	3	8	3
985:	6	8	5	7	5	4	8	5
993:	2	6	5	5	3	2	5	6
1001:	14	6	8	5	4	9	5	4
1009:	5	3	5	4	8	4	7	3
1017:	6	6	5	6	5	4	7	6
1025:	4	1	4	9	11	6	6	2
1033:	5	4	5	5	4	6	6	3
1041:	6	2	1	5	5	2	6	4
1049:	5	4	4	9	6	4	4	3
1057:	6	5	7	4	7	10	5	4
1065:	9	3	4	8	5	1	4	4
1073:	1	2	7	4	3	9	3	5
1081:	4	10	3	4	7	3	4	4
1089:	3	8	4	6	8	6	3	7
1097:	3	4	6	6	6	2	2	3
1105:	2	5	5	6	6	6	5	3
1113:	5	7	6	6	3	8	10	21
1121:	46	9	6	7	7	5	4	6
1129:	1	5	4	4	8	4	3	4
1137:	4	4	4	5	4	5	2	2
1145:	7	4	2	2	6	2	5	3
1153:	5	6	2	6	8	4	3	4
1161:	6	5	4	5	7	4	2	9
1169:	7	9	7	9	5	6	7	5
1177:	4	3	6	4	9	4	4	8
1185:	4	3	8	4	3	4	1	7
1193:	3	11	5	8	5	3	5	7
1201:	7	5	10	7	8	7	10	9
1209:	5	8	3	4	6	3	4	5
1217:	6	5	3	5	3	6	3	6
1225:	6	8	5	5	7	5	4	5

1233:	8	10	6	7	8	19	16	4

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Channel								
1241:	5	5	6	1	4	1	5	3
1249:	1	7	2	6	3	2	2	5
1257:	8	8	5	5	4	6	5	3
1265:	4	2	3	2	5	5	4	4
1273:	3	5	1	4	4	4	4	4
1281:	4	4	6	4	7	3	5	4
1289:	5	7	10	4	3	2	4	3
1297:	2	5	7	7	0	0	6	4
1305:	4	3	8	3	6	0	6	4
1313:	2	5	3	2	4	4	3	4
1321:	1	1	3	2	4	5	2	3
1329:	5	3	2	4	2	2	3	1
1337:	3	1	2	3	3	0	4	2
1345:	2	5	2	2	6	0	3	4
1353:	2	3	5	2	5	2	1	1
1361:	1	2	2	3	1	1	2	4
1369:	1	3	3	2	0	3	3	5
1377:	6	5	9	2	1	1	1	1
1385:	1	2	3	1	0	0	2	2
1393:	4	3	2	1	2	2	5	1
1401:	0	2	4	2	4	3	8	7
1409:	5	1	2	4	4	1	1	1
1417:	4	3	2	4	2	1	3	2
1425:	5	1	3	1	2	2	3	0
1433:	2	2	1	1	0	2	3	1
1441:	2	3	0	3	1	3	0	3
1449:	2	1	2	2	2	2	3	2
1457:	3	1	6	89	221	155	32	5
1465:	6	4	1	1	1	0	1	2
1473:	2	3	2	1	2	3	1	4
1481:	1	0	0	1	1	2	2	2
1489:	1	1	1	0	0	0	5	2
1497:	2	1	3	2	1	0	3	2
1505:	3	1	1	1	6	5	1	3
1513:	2	0	2	1	3	3	5	2
1521:	1	0	1	0	3	1	1	1
1529:	0	2	0	1	2	1	0	1
1537:	1	2	1	3	3	3	5	0
1545:	2	1	1	0	3	0	1	3
1553:	3	1	1	0	2	1	0	0
1561:	1	3	1	1	2	2	1	2
1569:	3	1	1	2	0	1	1	2
1577:	3	1	5	1	2	1	0	4
1585:	0	2	2	3	4	1	4	1
1593:	0	1	2	2	3	1	1	4
1601:	1	1	2	3	0	0	0	1
1609:	1	1	1	0	0	0	1	0
1617:	0	1	0	2	4	0	1	1
1625:	3	0	0	1	0	2	2	0
1633:	1	1	2	1	1	1	0	2
1641:	1	2	2	0	3	1	1	1
1649:	1	0	1	1	1	1	0	2
1657:	0	0	0	1	3	1	3	3

1665:	0	0	2	1	0	1	0	0

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Channel								
1673:	0	1	2	1	1	1	0	1
1681:	0	3	1	2	3	0	0	0
1689:	0	1	0	1	1	1	3	0
1697:	0	0	0	3	1	0	1	2
1705:	1	3	0	0	0	1	1	1
1713:	2	1	1	0	2	0	0	1
1721:	3	0	0	0	1	1	2	1
1729:	3	4	3	0	0	1	0	0
1737:	0	1	0	1	1	0	1	0
1745:	0	0	2	0	0	0	1	2
1753:	2	1	1	0	2	0	0	2
1761:	2	3	5	19	23	15	3	0
1769:	0	2	0	0	0	0	1	0
1777:	1	0	0	0	0	0	1	1
1785:	0	0	2	0	2	0	1	0
1793:	0	1	1	0	1	2	1	1
1801:	0	1	3	1	1	2	0	2
1809:	0	2	1	0	0	1	2	1
1817:	2	1	1	0	2	0	0	0
1825:	1	1	0	0	2	0	0	1
1833:	1	0	1	0	0	2	3	1
1841:	1	0	0	0	1	1	2	6
1849:	3	1	2	0	1	1	0	2
1857:	1	1	0	0	0	0	0	1
1865:	2	1	1	1	2	1	1	0
1873:	0	0	0	2	0	0	0	2
1881:	0	0	0	1	0	0	1	0
1889:	1	1	0	1	0	3	0	0
1897:	0	0	3	0	0	0	1	1
1905:	0	0	0	1	1	1	2	0
1913:	1	0	0	2	0	0	1	3
1921:	0	1	0	1	2	1	0	1
1929:	0	0	2	2	0	1	0	1
1937:	0	0	1	2	0	0	0	0
1945:	0	0	1	0	0	0	0	0
1953:	1	0	1	1	0	0	0	0
1961:	0	1	3	0	1	0	0	5
1969:	1	0	0	0	0	1	0	1
1977:	0	2	0	1	2	1	1	1
1985:	0	1	0	0	0	0	1	1
1993:	1	2	1	1	0	1	1	1
2001:	1	0	0	0	1	0	3	1
2009:	1	0	1	1	0	1	0	0
2017:	0	0	0	0	1	1	0	0
2025:	0	0	0	1	0	0	0	0
2033:	0	0	2	1	2	0	0	0
2041:	0	2	0	1	2	1	1	0
2049:	0	1	1	0	0	1	0	0
2057:	0	1	0	3	0	1	0	0
2065:	1	0	1	1	1	1	1	1
2073:	1	0	2	0	0	1	0	0
2081:	0	2	1	0	1	0	1	1
2089:	0	1	0	0	1	0	1	0

2097:	0	0	1	2	1	1	1	2

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

2529:	0	0	0	0	0	0	0	0

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Channel								
2537:	0	0	0	0	1	0	0	0
2545:	2	0	0	0	0	1	0	0
2553:	0	0	0	0	0	0	1	0
2561:	1	0	1	0	0	1	0	1
2569:	0	0	2	0	0	1	0	0
2577:	0	0	0	1	0	0	0	0
2585:	0	0	0	0	0	0	0	0
2593:	1	0	0	0	0	0	0	0
2601:	1	1	0	1	0	0	0	2
2609:	0	0	0	3	9	19	10	6
2617:	3	1	0	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	1	1	0
2641:	0	0	0	0	1	0	0	0
2649:	0	0	0	0	1	0	0	0
2657:	0	0	0	0	0	0	1	0
2665:	1	0	1	0	0	2	0	0
2673:	1	0	1	0	0	0	1	0
2681:	1	0	0	0	1	1	0	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	1	0	0	0	0	0	0
2713:	0	0	1	0	0	0	0	0
2721:	0	0	0	0	0	1	0	0
2729:	0	0	0	0	0	0	1	0
2737:	0	0	0	0	2	0	0	0
2745:	0	1	0	0	0	0	0	0
2753:	0	0	1	0	1	0	1	1
2761:	0	2	0	0	0	0	1	1
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	1	1	0	0
2785:	0	0	0	0	1	0	0	1
2793:	0	1	1	0	0	0	0	0
2801:	0	1	0	0	0	1	1	0
2809:	0	0	0	1	0	0	0	0
2817:	0	0	0	1	0	0	0	1
2825:	1	0	0	1	0	0	1	0
2833:	0	0	0	0	1	0	0	0
2841:	0	0	1	0	0	0	1	0
2849:	0	0	0	0	1	0	0	0
2857:	0	0	1	0	0	0	1	0
2865:	0	1	0	0	1	0	0	3
2873:	0	0	0	0	1	0	0	0
2881:	0	0	0	2	0	0	0	0
2889:	1	0	0	0	1	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	1	0	1	0	0	0
2937:	0	1	1	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	1	0	0	0	0

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

3393:	0	0	1	0	0	0	0	1

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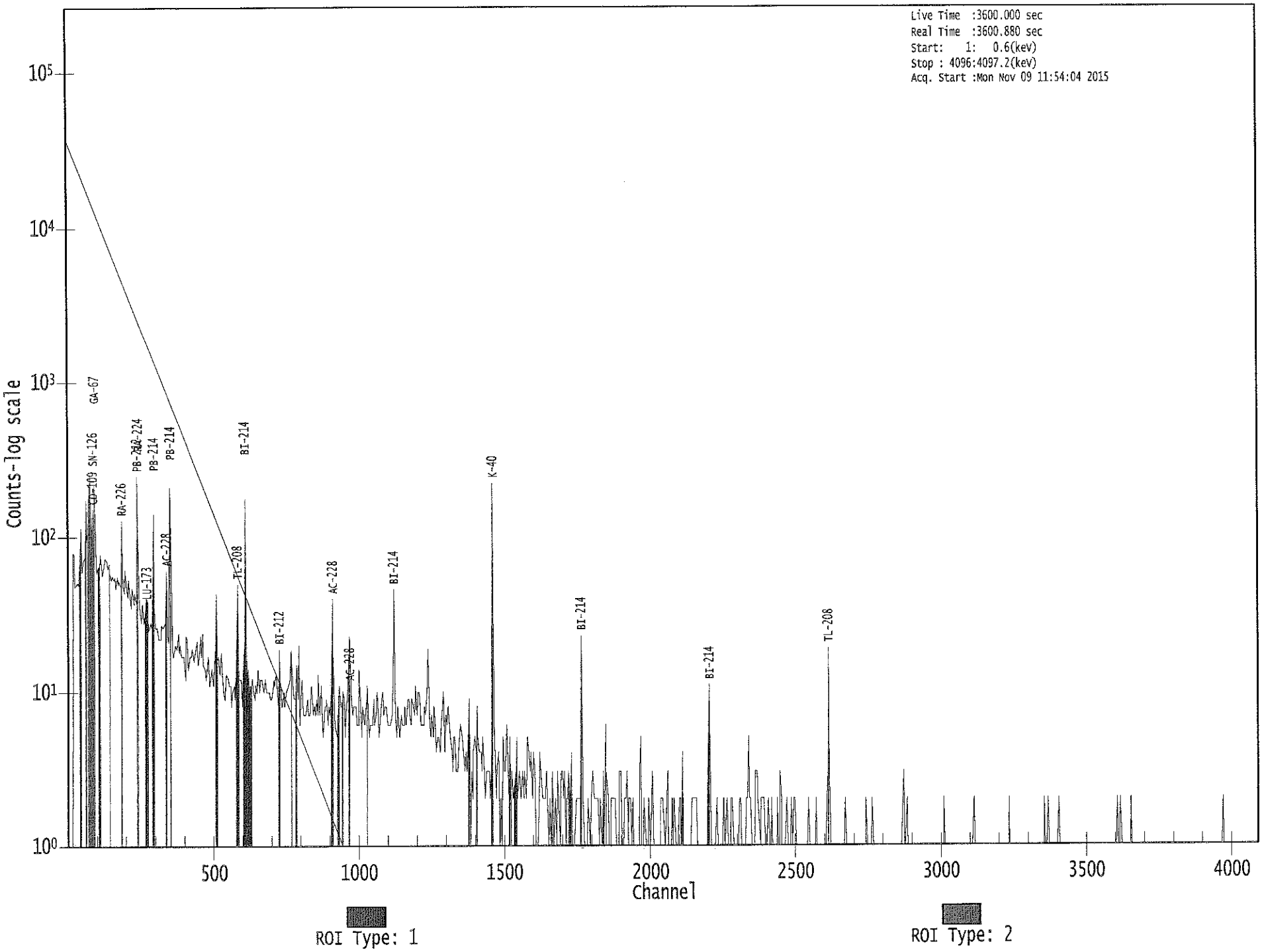
Channel								
3401:	0	1	0	0	0	2	0	0
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	1	0	0
3449:	1	0	0	0	0	0	0	0
3457:	1	0	0	0	0	0	0	1
3465:	0	0	1	1	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	1	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: CP3005S04-05

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

0000029333.CNF



Apex-Gamma

Analysis Report for 1510089-06
CP3005S07-08

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-06
Sample Description	: CP3005S07-08
Sample Type	: SOIL
Sample Size	: 6.356E+02 grams
Facility	: Countroom
Sample Taken On	: 10/8/2015 7:45:58AM
Acquisition Started	: 11/9/2015 12:22:52PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3600.9 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	: 29335

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
11/10/15

Analysis Report for 1510089-06

CP3005S07-08

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 1:22:56PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	76.43	76.52	0.0000	0.00
2	151.95	152.00	0.0000	0.00
3	185.92	185.95	0.0000	0.00
4	208.43	208.44	0.0000	0.00
5	236.13	236.13	0.0000	0.00
6	239.04	239.04	0.0000	0.00
7	294.95	294.92	0.0000	0.00
8	300.52	300.48	0.0000	0.00
9	338.51	338.46	0.0000	0.00
10	352.07	352.01	0.0000	0.00
11	462.80	462.68	0.0000	0.00
12	560.84	560.67	0.0000	0.00
13	583.19	583.01	0.0000	0.00
14	609.64	609.45	0.0000	0.00
15	677.02	676.80	0.0000	0.00
16	720.91	720.66	0.0000	0.00
17	858.95	858.65	0.0000	0.00
18	899.64	899.32	0.0000	0.00
19	911.42	911.09	0.0000	0.00
20	933.40	933.07	0.0000	0.00
21	949.94	949.60	0.0000	0.00
22	969.18	968.83	0.0000	0.00
23	1049.67	1049.29	0.0000	0.00
24	1119.92	1119.52	0.0000	0.00
25	1461.05	1460.53	0.0000	0.00
26	1498.78	1498.24	0.0000	0.00
27	1510.66	1510.13	0.0000	0.00
28	1764.76	1764.16	0.0000	0.00
29	2024.17	2023.51	0.0000	0.00
30	2103.59	2102.92	0.0000	0.00
31	2614.64	2613.89	0.0000	0.00
32	2891.48	2890.73	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-06

CP3005S07-08

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 1:22:56PM

Peak Analysis From Channel : 1

Peak Analysis To Channel : 4096

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	76.43	72	83	76.52	4.11E+02	113.26	1.40E+03	3.99
	2	151.95	149	155	152.00	6.87E+01	51.33	4.33E+02	4.81
	3	185.92	182	189	185.95	9.60E+01	59.57	5.26E+02	1.36
	4	208.43	206	211	208.44	4.88E+01	40.96	3.00E+02	2.32
M	5	236.13	234	244	236.13	2.64E+01	28.43	1.83E+02	1.41
m	6	239.04	234	244	239.04	2.50E+02	43.17	1.80E+02	1.41
	7	294.95	290	298	294.92	1.13E+02	49.37	3.05E+02	1.90
	8	300.52	299	303	300.48	3.44E+01	28.73	1.53E+02	1.28
	9	338.51	333	342	338.46	5.61E+01	45.93	2.68E+02	2.64
	10	352.07	348	354	352.01	1.64E+02	42.56	2.11E+02	1.42
	11	462.80	459	466	462.68	3.98E+01	33.11	1.56E+02	4.01
	12	560.84	558	564	560.67	2.11E+01	23.88	8.98E+01	3.00
	13	583.19	579	588	583.01	8.29E+01	39.12	1.74E+02	1.83
	14	609.64	606	613	609.45	9.62E+01	34.58	1.34E+02	1.43
	15	677.02	674	679	676.80	1.57E+01	18.63	5.65E+01	2.10
	16	720.91	718	724	720.66	1.92E+01	22.21	7.36E+01	2.18
	17	858.95	854	864	858.65	2.70E+01	30.55	1.10E+02	3.50
	18	899.64	895	903	899.32	3.18E+01	24.41	7.24E+01	4.71
	19	911.42	907	915	911.09	6.33E+01	34.82	1.45E+02	1.51
	20	933.40	920	945	933.07	1.10E+02	50.82	1.42E+02	21.11
	21	949.94	946	954	949.60	2.23E+01	25.47	8.74E+01	2.51
	22	969.18	964	972	968.83	3.71E+01	27.00	8.78E+01	1.51
	23	1049.67	1047	1052	1049.29	1.58E+01	17.92	5.25E+01	3.45
	24	1119.92	1114	1122	1119.52	3.36E+01	27.88	9.88E+01	2.28
	25	1461.05	1454	1464	1460.53	8.96E+02	61.64	3.24E+01	2.29
	26	1498.78	1493	1503	1498.24	1.66E+01	10.31	4.89E+00	5.34
	27	1510.66	1505	1516	1510.13	1.28E+01	10.00	6.50E+00	2.57
	28	1764.76	1759	1768	1764.16	3.20E+01	11.31	0.00E+00	2.08
	29	2024.17	2018	2027	2023.51	9.79E+00	8.54	4.42E+00	2.60
	30	2103.59	2098	2107	2102.92	1.37E+01	9.43	4.69E+00	5.87
	31	2614.64	2609	2619	2613.89	3.80E+01	12.33	0.00E+00	3.79
	32	2891.48	2886	2894	2890.73	6.78E+00	7.50	4.44E+00	3.56

Analysis Report for 1510089-06

CP3005S07-08

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 : 11/9/2015 1:22:56PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	76.43	72 -	83	4.11E+02	113.26	1.40E+03	8.69E+01
	2	151.95	149 -	155	6.87E+01	51.33	4.33E+02	3.99E+01
	3	185.92	182 -	189	9.60E+01	59.57	5.26E+02	4.62E+01
	4	208.43	206 -	211	4.88E+01	40.96	3.00E+02	3.17E+01
M	5	236.13	234 -	244	2.64E+01	28.43	1.83E+02	2.23E+01
m	6	239.04	234 -	244	2.50E+02	43.17	1.80E+02	2.21E+01
	7	294.95	290 -	298	1.13E+02	49.37	3.05E+02	3.66E+01
	8	300.52	299 -	303	3.44E+01	28.73	1.53E+02	2.16E+01
	9	338.51	333 -	342	5.61E+01	45.93	2.68E+02	3.57E+01
	10	352.07	348 -	354	1.64E+02	42.56	2.11E+02	2.80E+01
	11	462.80	459 -	466	3.98E+01	33.11	1.56E+02	2.52E+01
	12	560.84	558 -	564	2.11E+01	23.88	8.98E+01	1.81E+01
	13	583.19	579 -	588	8.29E+01	39.12	1.74E+02	2.85E+01
	14	609.64	606 -	613	9.62E+01	34.58	1.34E+02	2.34E+01
	15	677.02	674 -	679	1.57E+01	18.63	5.65E+01	1.39E+01
	16	720.91	718 -	724	1.92E+01	22.21	7.36E+01	1.68E+01
	17	858.95	854 -	864	2.70E+01	30.55	1.10E+02	2.36E+01
	18	899.64	895 -	903	3.18E+01	24.41	7.24E+01	1.78E+01
	19	911.42	907 -	915	6.33E+01	34.82	1.45E+02	2.55E+01
	20	933.40	920 -	945	1.10E+02	50.82	1.42E+02	3.81E+01
	21	949.94	946 -	954	2.23E+01	25.47	8.74E+01	1.94E+01
	22	969.18	964 -	972	3.71E+01	27.00	8.78E+01	1.98E+01
	23	1049.67	1047 -	1052	1.58E+01	17.92	5.25E+01	1.32E+01
	24	1119.92	1114 -	1122	3.36E+01	27.88	9.88E+01	2.08E+01
	25	1461.05	1454 -	1464	8.96E+02	61.64	3.24E+01	1.21E+01
	26	1498.78	1493 -	1503	1.66E+01	10.31	4.89E+00	5.20E+00
	27	1510.66	1505 -	1516	1.28E+01	10.00	6.50E+00	5.75E+00
	28	1764.76	1759 -	1768	3.20E+01	11.31	0.00E+00	0.00E+00
	29	2024.17	2018 -	2027	9.79E+00	8.54	4.42E+00	4.78E+00
	30	2103.59	2098 -	2107	1.37E+01	9.43	4.69E+00	4.82E+00
	31	2614.64	2609 -	2619	3.80E+01	12.33	0.00E+00	0.00E+00

Analysis Report for 1510089-06

CP3005S07-08

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	2891.48	2886 -	2894	6.78E+00	7.50	4.44E+00	4.44E+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 : 11/9/2015 1:22:56PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	76.43	72 -	83	76.52	4.11E+02	113.26	1.40E+03	.....
	2	151.95	149 -	155	152.00	6.87E+01	51.33	4.33E+02	.....
	3	185.92	182 -	189	185.95	9.60E+01	59.57	5.26E+02	RA-226
	4	208.43	206 -	211	208.44	4.88E+01	40.96	3.00E+02	GA-67
M	5	236.13	234 -	244	236.13	2.64E+01	28.43	1.83E+02	TH-227
									NB-95M
m	6	239.04	234 -	244	239.04	2.50E+02	43.17	1.80E+02	PB-212
	7	294.95	290 -	298	294.92	1.13E+02	49.37	3.05E+02	PB-214
	8	300.52	299 -	303	300.48	3.44E+01	28.73	1.53E+02	GA-67
									PB-212
									BI-210M
	9	338.51	333 -	342	338.46	5.61E+01	45.93	2.68E+02	AC-228
	10	352.07	348 -	354	352.01	1.64E+02	42.56	2.11E+02	PB-214
	11	462.80	459 -	466	462.68	3.98E+01	33.11	1.56E+02	SB-125
	12	560.84	558 -	564	560.67	2.11E+01	23.88	8.98E+01	.....
	13	583.19	579 -	588	583.01	8.29E+01	39.12	1.74E+02	TL-208
	14	609.64	606 -	613	609.45	9.62E+01	34.58	1.34E+02	BI-214
	15	677.02	674 -	679	676.80	1.57E+01	18.63	5.65E+01	AG-110M
	16	720.91	718 -	724	720.66	1.92E+01	22.21	7.36E+01	SB-126
	17	858.95	854 -	864	858.65	2.70E+01	30.55	1.10E+02	.....
	18	899.64	895 -	903	899.32	3.18E+01	24.41	7.24E+01	.....
	19	911.42	907 -	915	911.09	6.33E+01	34.82	1.45E+02	AC-228
									LU-172
	20	933.40	920 -	945	933.07	1.10E+02	50.82	1.42E+02	.....
	21	949.94	946 -	954	949.60	2.23E+01	25.47	8.74E+01	.....

Analysis Report for 1510089-06

CP3005S07-08

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
22	969.18	964 -	972	968.83	3.71E+01	27.00	8.78E+01	AC-228
23	1049.67	1047 -	1052	1049.29	1.58E+01	17.92	5.25E+01	.....
24	1119.92	1114 -	1122	1119.52	3.36E+01	27.88	9.88E+01	BI-214 SC-46
25	1461.05	1454 -	1464	1460.53	8.96E+02	61.64	3.24E+01	K-40
26	1498.78	1493 -	1503	1498.24	1.66E+01	10.31	4.89E+00	.....
27	1510.66	1505 -	1516	1510.13	1.28E+01	10.00	6.50E+00	.....
28	1764.76	1759 -	1768	1764.16	3.20E+01	11.31	0.00E+00	BI-214
29	2024.17	2018 -	2027	2023.51	9.79E+00	8.54	4.42E+00	.....
30	2103.59	2098 -	2107	2102.92	1.37E+01	9.43	4.69E+00	.....
31	2614.64	2609 -	2619	2613.89	3.80E+01	12.33	0.00E+00	TL-208
32	2891.48	2886 -	2894	2890.73	6.78E+00	7.50	4.44E+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 : 11/9/2015 1:22:56PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.43	4.11E+02	113.26	2.74E-02	3.35E-03
	2	151.95	6.87E+01	51.33	2.39E-02	2.09E-03
	3	185.92	9.60E+01	59.57	2.11E-02	1.65E-03
	4	208.43	4.88E+01	40.96	1.96E-02	1.63E-03
M	5	236.13	2.64E+01	28.43	1.80E-02	1.60E-03
m	6	239.04	2.50E+02	43.17	1.79E-02	1.60E-03
	7	294.95	1.13E+02	49.37	1.55E-02	1.48E-03
	8	300.52	3.44E+01	28.73	1.53E-02	1.46E-03
	9	338.51	5.61E+01	45.93	1.41E-02	1.27E-03
	10	352.07	1.64E+02	42.56	1.37E-02	1.21E-03
	11	462.80	3.98E+01	33.11	1.13E-02	9.47E-04
	12	560.84	2.11E+01	23.88	9.86E-03	8.48E-04
	13	583.19	8.29E+01	39.12	9.58E-03	8.25E-04
	14	609.64	9.62E+01	34.58	9.27E-03	7.98E-04
	15	677.02	1.57E+01	18.63	8.55E-03	7.35E-04
	16	720.91	1.92E+01	22.21	8.14E-03	7.07E-04
	17	858.95	2.70E+01	30.55	7.08E-03	6.18E-04
	18	899.64	3.18E+01	24.41	6.82E-03	5.93E-04

Analysis Report for 1510089-06

CP3005S07-08

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
19	911.42	6.33E+01	34.82	6.74E-03	5.87E-04
20	933.40	1.10E+02	50.82	6.61E-03	5.75E-04
21	949.94	2.23E+01	25.47	6.52E-03	5.67E-04
22	969.18	3.71E+01	27.00	6.41E-03	5.57E-04
23	1049.67	1.58E+01	17.92	6.01E-03	5.16E-04
24	1119.92	3.36E+01	27.88	5.70E-03	4.80E-04
25	1461.05	8.96E+02	61.64	4.67E-03	4.73E-04
26	1498.78	1.66E+01	10.31	4.59E-03	4.58E-04
27	1510.66	1.28E+01	10.00	4.57E-03	4.53E-04
28	1764.76	3.20E+01	11.31	4.18E-03	3.47E-04
29	2024.17	9.79E+00	8.54	3.98E-03	3.18E-04
30	2103.59	1.37E+01	9.43	3.95E-03	3.18E-04
31	2614.64	3.80E+01	12.33	4.05E-03	3.18E-04
32	2891.48	6.78E+00	7.50	4.31E-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 : 11/9/2015 1:22:56PM

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	76.43	4.11E+02	113.26			4.11E+02	1.13E+02
	2	151.95	6.87E+01	51.33			6.87E+01	5.13E+01
	3	185.92	9.60E+01	59.57	4.72E+01	7.97E+00	4.88E+01	6.01E+01
	4	208.43	4.88E+01	40.96			4.88E+01	4.10E+01
M	5	236.13	2.64E+01	28.43			2.64E+01	2.84E+01
m	6	239.04	2.50E+02	43.17	2.36E+01	1.35E+01	2.26E+02	4.52E+01
	7	294.95	1.13E+02	49.37	8.57E+00	6.10E+00	1.04E+02	4.97E+01
	8	300.52	3.44E+01	28.73			3.44E+01	2.87E+01
	9	338.51	5.61E+01	45.93			5.61E+01	4.59E+01
	10	352.07	1.64E+02	42.56	1.40E+01	5.55E+00	1.50E+02	4.29E+01
	11	462.80	3.98E+01	33.11			3.98E+01	3.31E+01
	12	560.84	2.11E+01	23.88			2.11E+01	2.39E+01
	13	583.19	8.29E+01	39.12	7.32E+00	4.08E+00	7.56E+01	3.93E+01
	14	609.64	9.62E+01	34.58	1.30E+01	3.89E+00	8.32E+01	3.48E+01
	15	677.02	1.57E+01	18.63			1.57E+01	1.86E+01
	16	720.91	1.92E+01	22.21			1.92E+01	2.22E+01

Analysis Report for 1510089-06

CP3005S07-08

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
17	858.95	2.70E+01	30.55			2.70E+01	3.05E+01
18	899.64	3.18E+01	24.41			3.18E+01	2.44E+01
19	911.42	6.33E+01	34.82	5.60E+00	3.32E+00	5.77E+01	3.50E+01
20	933.40	1.10E+02	50.82			1.10E+02	5.08E+01
21	949.94	2.23E+01	25.47			2.23E+01	2.55E+01
22	969.18	3.71E+01	27.00			3.71E+01	2.70E+01
23	1049.67	1.58E+01	17.92			1.58E+01	1.79E+01
24	1119.92	3.36E+01	27.88	3.93E+00	2.96E+00	2.97E+01	2.80E+01
25	1461.05	8.96E+02	61.64	1.12E+01	2.55E+00	8.85E+02	6.17E+01
26	1498.78	1.66E+01	10.31			1.66E+01	1.03E+01
27	1510.66	1.28E+01	10.00			1.28E+01	1.00E+01
28	1764.76	3.20E+01	11.31	4.23E+00	2.21E+00	2.78E+01	1.15E+01
29	2024.17	9.79E+00	8.54			9.79E+00	8.54E+00
30	2103.59	1.37E+01	9.43			1.37E+01	9.43E+00
31	2614.64	3.80E+01	12.33	7.38E+00	1.57E+00	3.06E+01	1.24E+01
32	2891.48	6.78E+00	7.50			6.78E+00	7.50E+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 : 11/9/2015 1:22:56PM

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	76.43	4.11E+02	113.26			4.11E+02	1.13E+02
	2	151.95	6.87E+01	51.33			6.87E+01	5.13E+01
	3	185.92	9.60E+01	59.57	4.72E+01	7.97E+00	4.88E+01	6.01E+01
	4	208.43	4.88E+01	40.96			4.88E+01	4.10E+01
M	5	236.13	2.64E+01	28.43			2.64E+01	2.84E+01
m	6	239.04	2.50E+02	43.17	2.36E+01	1.35E+01	2.26E+02	4.52E+01
	7	294.95	1.13E+02	49.37	8.57E+00	6.10E+00	1.04E+02	4.97E+01
	8	300.52	3.44E+01	28.73			3.44E+01	2.87E+01
	9	338.51	5.61E+01	45.93			5.61E+01	4.59E+01
	10	352.07	1.64E+02	42.56	1.40E+01	5.55E+00	1.50E+02	4.29E+01
	11	462.80	3.98E+01	33.11			3.98E+01	3.31E+01
	12	560.84	2.11E+01	23.88			2.11E+01	2.39E+01

Analysis Report for 1510089-06

CP3005S07-08

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
13	583.19	8.29E+01	39.12	7.32E+00	4.08E+00	7.56E+01	3.93E+01
14	609.64	9.62E+01	34.58	1.30E+01	3.89E+00	8.32E+01	3.48E+01
15	677.02	1.57E+01	18.63			1.57E+01	1.86E+01
16	720.91	1.92E+01	22.21			1.92E+01	2.22E+01
17	858.95	2.70E+01	30.55			2.70E+01	3.05E+01
18	899.64	3.18E+01	24.41			3.18E+01	2.44E+01
19	911.42	6.33E+01	34.82	5.60E+00	3.32E+00	5.77E+01	3.50E+01
20	933.40	1.10E+02	50.82			1.10E+02	5.08E+01
21	949.94	2.23E+01	25.47			2.23E+01	2.55E+01
22	969.18	3.71E+01	27.00			3.71E+01	2.70E+01
23	1049.67	1.58E+01	17.92			1.58E+01	1.79E+01
24	1119.92	3.36E+01	27.88	3.93E+00	2.96E+00	2.97E+01	2.80E+01
25	1461.05	8.96E+02	61.64	1.12E+01	2.55E+00	8.85E+02	6.17E+01
26	1498.78	1.66E+01	10.31			1.66E+01	1.03E+01
27	1510.66	1.28E+01	10.00			1.28E+01	1.00E+01
28	1764.76	3.20E+01	11.31	4.23E+00	2.21E+00	2.78E+01	1.15E+01
29	2024.17	9.79E+00	8.54			9.79E+00	8.54E+00
30	2103.59	1.37E+01	9.43			1.37E+01	9.43E+00
31	2614.64	3.80E+01	12.33	7.38E+00	1.57E+00	3.06E+01	1.24E+01
32	2891.48	6.78E+00	7.50			6.78E+00	7.50E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.991	1460.81	*	10.67	2.10E+01	2.61E+00
NB-95M	0.651	235.69	*	25.00	3.37E+01	3.63E+01
TL-208	0.892	583.14	*	30.22	3.08E-01	1.63E-01
		860.37		4.48		
		2614.66	*	35.85	2.49E-01	1.03E-01
PB-212	0.973	238.63	*	44.60	3.35E-01	7.35E-02
		300.09	*	3.41	7.80E-01	6.55E-01
BI-214	0.912	609.31	*	46.30	2.29E-01	9.78E-02
		1120.29	*	15.10	4.07E-01	3.86E-01
		1764.49	*	15.80	4.96E-01	2.10E-01
		2204.22		4.98		

Analysis Report for 1510089-06

CP3005S07-08

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.994	295.21	*	19.19	4.14E-01	2.02E-01
		351.92	*	37.19	3.46E-01	1.04E-01
RA-226	0.987	186.21	*	3.28	8.33E-01	1.84E+00
AC-228	0.989	338.32	*	11.40	4.12E-01	3.40E-01
		911.07	*	27.70	3.65E-01	2.23E-01
		969.11	*	16.60	4.11E-01	3.02E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 1:22:56PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	76.43	1.14297E-01	13.76		
2	151.95	1.90931E-02	37.34		
4	208.43	1.35650E-02	41.94	Tol.	GA-67
11	462.80	1.10452E-02	41.63	Tol.	SB-125
12	560.84	5.85438E-03	56.65		
15	677.02	4.36869E-03	59.22	Sum	
16	720.91	5.33730E-03	57.81	Tol.	SB-126
17	858.95	7.50000E-03	56.56		
18	899.64	8.83170E-03	38.39		
20	933.40	3.05548E-02	23.10		
21	949.94	6.19529E-03	57.10	S-Esc	
23	1049.67	4.37500E-03	56.88		
26	1498.78	4.59795E-03	31.14		
27	1510.66	3.54167E-03	39.22		
29	2024.17	2.71991E-03	43.63		
30	2103.59	3.79340E-03	34.54	S-Esc	
32	2891.48	1.88272E-03	55.33		

Analysis Report for 1510089-06
CP3005S07-08

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	0.99	1460.81	*	10.67	2.10E+01	2.61E+00
NB-95M	0.65	235.69	*	25.00	3.37E+01	3.63E+01
TL-208	0.89	583.14	*	30.22	3.08E-01	1.63E-01
		860.37		4.48		
		2614.66	*	35.85	2.49E-01	1.03E-01
PB-212	0.97	238.63	*	44.60	3.35E-01	7.35E-02
		300.09	*	3.41	7.80E-01	6.55E-01
BI-214	0.91	609.31	*	46.30	2.29E-01	9.78E-02
		1120.29	*	15.10	4.07E-01	3.86E-01
		1764.49	*	15.80	4.96E-01	2.10E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	4.14E-01	2.02E-01
		351.92	*	37.19	3.46E-01	1.04E-01
RA-226	0.98	186.21	*	3.28	8.33E-01	1.84E+00
AC-228	0.98	338.32	*	11.40	4.12E-01	3.40E-01
		911.07	*	27.70	3.65E-01	2.23E-01
		969.11	*	16.60	4.11E-01	3.02E-01

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

Analysis Report for 1510089-06

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INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.991	2.10E+01	2.61E+00	
NB-95M	0.651	3.37E+01	3.63E+01	
TL-208	0.892	2.66E-01	8.70E-02	
PB-212	0.973	3.41E-01	7.30E-02	
BI-214	0.912	2.83E-01	8.64E-02	
PB-214	0.994	3.61E-01	9.24E-02	
RA-226	0.987	8.33E-01	1.84E+00	
AC-228	0.989	3.88E-01	1.59E-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 1510089-06

CP3005S07-08

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 1:22:56PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
1	76.43	1.14297E-01	13.76		
2	151.95	1.90931E-02	37.34		
4	208.43	1.35650E-02	41.94	Tol.	GA-67
11	462.80	1.10452E-02	41.63	Tol.	SB-125
12	560.84	5.85438E-03	56.65		
15	677.02	4.36869E-03	59.22	Sum	
16	720.91	5.33730E-03	57.81	Tol.	SB-126
17	858.95	7.50000E-03	56.56		
18	899.64	8.83170E-03	38.39		
20	933.40	3.05548E-02	23.10		
21	949.94	6.19529E-03	57.10	S-Esc	
23	1049.67	4.37500E-03	56.88		
26	1498.78	4.59795E-03	31.14		
27	1510.66	3.54167E-03	39.22		
29	2024.17	2.71991E-03	43.63		
30	2103.59	3.79340E-03	34.54	S-Esc	
32	2891.48	1.88272E-03	55.33		

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)

Analysis Report for 1510089-06

CP3005S07-08

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	4.41E-02	5.53E-01	5.53E-01
+	NA-22	1274.54		99.94	2.27E-03	6.71E-02	6.71E-02
+	NA-24	1368.53		99.99	-2.64E+13	1.00E+14	1.49E+14
		2754.09		99.86	1.03E+13		1.00E+14
+	AL-26	1808.65		99.76	-2.13E-02	3.08E-02	3.08E-02
+	K-40	1460.81	*	10.67	2.10E+01	7.02E-01	7.02E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.27E-02	3.30E-02	3.30E-02
		78.34		96.00	5.91E-02		4.14E-02
+	SC-46	889.25		99.98	4.91E-02	8.27E-02	8.27E-02
		1120.51		99.99	6.96E-02		1.14E-01
+	V-48	983.52		99.98	1.08E-01	2.48E-01	2.48E-01
		1312.10		97.50	1.39E-01		2.90E-01
+	CR-51	320.08		9.83	5.19E-01	9.09E-01	9.09E-01
+	MN-54	834.83		99.97	-6.13E-03	6.57E-02	6.57E-02
+	CO-56	846.75		99.96	-3.90E-02	7.28E-02	7.28E-02
		1037.75		14.03	1.92E-01		5.78E-01
		1238.25		67.00	0.00E+00		1.76E-01
		1771.40		15.51	-2.06E-01		3.17E-01
		2598.48		16.90	-3.83E-03		2.13E-01
+	CO-57	122.06		85.51	2.21E-02	4.28E-02	4.28E-02
		136.48		10.60	-9.16E-03		3.56E-01
+	CO-58	810.76		99.40	-1.81E-02	7.53E-02	7.53E-02
+	FE-59	1099.22		56.50	1.49E-02	1.93E-01	1.93E-01
		1291.56		43.20	0.00E+00		2.53E-01
+	CO-60	1173.22		100.00	2.42E-02	5.24E-02	8.74E-02
		1332.49		100.00	-1.04E-02		5.24E-02
+	ZN-65	1115.52		50.75	1.42E-03	1.53E-01	1.53E-01
+	GA-67	93.31		35.70	2.20E+01	1.03E+02	1.03E+02
		208.95		2.24	9.06E+02		1.64E+03
		300.22		16.00	1.18E+02		2.33E+02
+	SE-75	121.11		16.70	-2.31E-02	6.96E-02	2.37E-01
		136.00		59.20	4.12E-03		6.96E-02
		264.65		59.80	2.43E-02		7.16E-02
		279.53		25.20	-2.13E-02		1.89E-01
		400.65		11.40	-3.29E-02		4.03E-01
+	RB-82	776.52		13.00	1.71E-02	1.00E+00	1.00E+00
+	RB-83	520.41		46.00	-3.67E-02	1.10E-01	1.10E-01
		529.64		30.30	4.91E-03		1.84E-01
		552.65		16.40	-1.37E-01		2.94E-01
+	KR-85	513.99		0.43	-2.74E+00	1.18E+01	1.18E+01
+	SR-85	513.99		99.27	-1.68E-02	7.24E-02	7.24E-02
+	Y-88	898.02		93.40	2.16E-02	4.67E-02	8.28E-02
		1836.01		99.38	-1.43E-02		4.67E-02
+	NB-93M	16.57		9.43	-1.02E+04	4.22E+03	4.22E+03
+	NB-94	702.63		100.00	-8.13E-03	5.06E-02	5.06E-02
		871.10		100.00	-1.87E-03		5.55E-02

Analysis Report for 1510089-06

CP3005S07-08

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95	765.79		99.81	8.32E-02	1.25E-01	1.25E-01
+	NB-95M	235.69	*	25.00	3.37E+01	1.20E+02	1.20E+02
+	ZR-95	724.18		43.70	-1.88E-02	1.34E-01	1.73E-01
		756.72		55.30	-3.04E-02		1.34E-01
+	MO-99	181.06		6.20	7.47E+02	1.48E+03	1.89E+03
		739.58		12.80	-4.01E+01		1.48E+03
		778.00		4.50	-1.61E+03		3.93E+03
+	RU-103	497.08		89.00	-1.30E-02	8.02E-02	8.02E-02
+	RU-106	621.84		9.80	-1.38E-01	5.22E-01	5.22E-01
+	AG-108M	433.93		89.90	1.16E-02	4.12E-02	4.12E-02
		614.37		90.40	-1.24E-03		5.58E-02
		722.95		90.50	-1.08E-02		5.83E-02
+	CD-109	88.03		3.72	6.50E-01	1.13E+00	1.13E+00
+	AG-110M	657.75		93.14	-1.88E-02	5.80E-02	5.80E-02
		677.61		10.53	2.84E-01		5.06E-01
		706.67		16.46	-7.40E-02		3.50E-01
		763.93		21.98	-1.05E-01		2.95E-01
		884.67		71.63	-2.40E-02		8.85E-02
		1384.27		23.94	-1.50E-02		2.17E-01
+	CD-113M	263.70		0.02	-3.38E+01	1.54E+02	1.54E+02
+	SN-113	255.12		1.93	-1.39E+00	7.82E-02	2.32E+00
		391.69		64.90	1.65E-02		7.82E-02
+	TE123M	159.00		84.10	2.18E-02	5.13E-02	5.13E-02
+	SB-124	602.71		97.87	1.63E-02	7.89E-02	7.89E-02
		645.85		7.26	2.62E-01		1.01E+00
		722.78		11.10	-1.27E-01		6.88E-01
		1691.02		49.00	2.14E-02		9.81E-02
+	I-125	35.49		6.49	5.67E+00	4.83E+00	4.83E+00
+	SB-125	176.33		6.89	7.81E-02	1.34E-01	5.23E-01
		427.89		29.33	-5.15E-03		1.34E-01
		463.38		10.35	4.92E-01		4.95E-01
		600.56		17.80	-4.14E-02		3.09E-01
		635.90		11.32	-1.35E-01		4.42E-01
+	SB-126	414.70		83.30	4.25E-02	2.80E-01	2.80E-01
		666.33		99.60	-9.95E-02		2.98E-01
		695.00		99.60	2.14E-02		3.19E-01
		720.50		53.80	2.01E-01		6.22E-01
+	SN-126	87.57		37.00	6.23E-02	1.08E-01	1.08E-01
+	SB-127	473.00		25.00	-1.35E+01	4.69E+01	4.69E+01
		685.20		35.70	-4.38E+00		4.72E+01
		783.80		14.70	5.45E+01		1.32E+02
+	I-129	29.78		57.00	-1.58E-01	9.55E-01	9.55E-01
		33.60		13.20	-1.11E+00		2.04E+00
		39.58		7.52	1.04E+00		1.74E+00
+	I-131	284.30		6.05	-2.99E+00	7.51E-01	1.02E+01
		364.48		81.20	-2.90E-01		7.51E-01
		636.97		7.26	1.06E+00		1.13E+01
		722.89		1.80	-8.69E+00		4.71E+01

Analysis Report for 1510089-06

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		TE-132	49.72	13.10	9.46E+01	4.10E+01	4.47E+02
			228.16	88.00	1.94E+01		4.10E+01
+		BA-133	81.00	33.00	5.13E-02	6.33E-02	8.83E-02
			302.84	17.80	-2.19E-03		2.13E-01
			356.01	60.00	6.61E-04		6.33E-02
+		I-133	529.87	86.30	2.79E+09	7.84E+09	7.84E+09
+		XE-133	81.00	38.00	3.13E+00	5.39E+00	5.39E+00
+		CS-134	563.23	8.38	-6.83E-02	5.34E-02	5.11E-01
			569.32	15.43	5.66E-02		2.93E-01
			604.70	97.60	-7.91E-03		5.34E-02
			795.84	85.40	3.96E-03		6.68E-02
			801.93	8.73	-3.30E-02		6.25E-01
+		CS-135	268.24	16.00	4.99E-02	2.30E-01	2.30E-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	1.00E+00	2.79E-01	2.59E+00
			163.89	4.61	-2.07E+00		4.06E+00
			176.55	13.56	-1.58E-02		1.37E+00
			273.65	12.66	8.07E-01		1.59E+00
			340.57	48.50	-2.71E-01		4.32E-01
			818.50	99.70	-7.37E-02		2.79E-01
			1048.07	79.60	1.83E-03		4.79E-01
			1235.34	19.70	5.49E-01		2.53E+00
+		CS-137	661.65	85.12	8.96E-03	6.09E-02	6.09E-02
+		LA-138	788.74	34.00	4.35E-03	7.37E-02	1.63E-01
			1435.80	66.00	8.15E-03		7.37E-02
+		CE-139	165.85	80.35	-1.67E-02	5.05E-02	5.05E-02
+		BA-140	162.64	6.70	1.44E+00	8.04E-01	3.00E+00
			304.84	4.50	2.29E+00		4.89E+00
			423.70	3.20	-5.16E-01		6.30E+00
			437.55	2.00	3.33E+00		1.07E+01
			537.32	25.00	-8.40E-02		8.04E-01
+		LA-140	328.77	20.50	9.23E-01	2.80E-01	1.18E+00
			487.03	45.50	2.23E-02		4.84E-01
			815.85	23.50	3.82E-02		1.32E+00
			1596.49	95.49	-2.89E-02		2.80E-01
+		CE-141	145.44	48.40	1.21E-01	1.41E-01	1.41E-01
+		CE-143	57.36	11.80	-2.82E+06	1.27E+06	3.46E+06
			293.26	42.00	-1.81E+05		1.27E+06
			664.55	5.20	-7.80E+05		1.09E+07
+		CE-144	133.54	10.80	-1.06E-01	3.37E-01	3.37E-01
+		PM-144	476.78	42.00	7.65E-03	5.46E-02	9.59E-02
			618.01	98.60	1.59E-02		5.46E-02
			696.49	99.49	1.02E-02		5.57E-02
+		PM-145	36.85	21.70	-1.31E-01	4.13E-01	8.04E-01
			37.36	39.70	-6.73E-02		4.13E-01
			42.30	15.10	-2.43E-02		6.72E-01
			72.40	2.31	-1.15E+00		1.28E+00

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-146	453.90	39.94	2.47E-02	1.03E-01	1.03E-01
		735.90	14.01	-3.72E-02		3.99E-01
		747.13	13.10	-2.52E-02		4.36E-01
+	ND-147	91.11	28.90	-1.87E-01	1.07E+00	1.07E+00
		531.02	13.10	9.09E-01		2.56E+00
+	PM-149	285.90	3.10	-9.77E+03	3.03E+04	3.03E+04
+	EU-152	121.78	20.50	8.53E-02	1.65E-01	1.65E-01
		244.69	5.40	8.84E-02		6.92E-01
		344.27	19.13	-7.30E-02		1.88E-01
		778.89	9.20	-1.42E-01		5.89E-01
		964.01	10.40	-2.84E-02		5.88E-01
		1085.78	7.22	3.12E-01		1.05E+00
		1112.02	9.60	-7.54E-02		6.76E-01
		1407.95	14.94	7.77E-02		3.53E-01
+	GD-153	97.43	31.30	5.10E-02	1.14E-01	1.14E-01
		103.18	22.20	-1.12E-01		1.49E-01
+	EU-154	123.07	40.50	4.70E-02	8.54E-02	8.54E-02
		723.30	19.70	-4.98E-02		2.70E-01
		873.19	11.50	5.61E-02		4.92E-01
		996.32	10.30	3.20E-03		6.31E-01
		1004.76	17.90	4.02E-02		3.87E-01
		1274.45	35.50	6.29E-03		1.86E-01
+	EU-155	86.50	30.90	-3.12E-02	1.28E-01	1.28E-01
		105.30	20.70	3.69E-02		1.56E-01
+	EU-156	811.77	10.40	1.25E-01	2.35E+00	2.35E+00
		1153.47	7.20	3.07E+00		4.76E+00
		1230.71	8.90	-1.20E+00		4.19E+00
+	HO-166M	184.41	72.60	7.94E-03	5.74E-02	5.74E-02
		280.45	29.60	-1.51E-02		1.34E-01
		410.94	11.10	-1.07E-01		3.29E-01
		711.69	54.10	-9.47E-03		1.04E-01
+	TM-171	66.72	0.14	1.16E+01	2.47E+01	2.47E+01
+	HF-172	81.75	4.52	-4.08E-01	2.97E-01	6.13E-01
		125.81	11.30	-3.29E-01		2.97E-01
+	LU-172	181.53	20.60	9.48E-01	2.75E+00	4.77E+00
		810.06	16.63	-2.21E+00		9.19E+00
		912.12	15.25	2.13E+01		1.69E+01
		1093.66	62.50	-1.25E+00		2.75E+00
+	LU-173	100.72	5.24	-3.86E-02	1.87E-01	6.11E-01
		272.11	21.20	2.52E-02		1.87E-01
+	HF-175	343.40	84.00	-1.06E-02	5.58E-02	5.58E-02
+	LU-176	88.34	13.30	1.73E-01	4.18E-02	3.00E-01
		201.83	86.00	1.62E-02		4.18E-02
		306.78	94.00	2.75E-02		4.31E-02
+	TA-182	67.75	41.20	-6.32E-02	9.20E-02	9.20E-02
		1121.30	34.90	5.95E-02		3.04E-01
		1189.05	16.23	-6.50E-02		5.52E-01
		1221.41	26.98	-3.42E-02		3.90E-01
		1231.02	11.44	3.08E-01		9.46E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	IR-192	308.46		29.68	4.32E-02	1.20E-01	1.79E-01
		468.07		48.10	5.76E-02		1.20E-01
+	HG-203	279.19		77.30	4.90E-02	8.24E-02	8.24E-02
+	BI-207	569.67		97.72	8.69E-03	4.50E-02	4.50E-02
		1063.62		74.90	-1.82E-02		8.03E-02
+	TL-208	583.14	*	30.22	3.08E-01	9.77E-02	2.48E-01
		860.37		4.48	5.14E-01		1.41E+00
		2614.66	*	35.85	2.49E-01		9.77E-02
+	BI-210M	262.00		45.00	-6.26E-03	7.92E-02	7.92E-02
		300.00		23.00	8.73E-02		1.72E-01
+	PB-210	46.50		4.25	1.27E+00	1.89E+00	1.89E+00
+	PB-211	404.84		2.90	1.27E-01	1.38E+00	1.38E+00
		831.96		2.90	4.81E-01		2.10E+00
+	BI-212	727.17		11.80	1.89E-01	4.68E-01	4.68E-01
		1620.62		2.75	4.36E-01		1.64E+00
+	PB-212	238.63	*	44.60	3.35E-01	1.45E-01	1.45E-01
		300.09	*	3.41	7.80E-01		1.04E+00
+	BI-214	609.31	*	46.30	2.29E-01	1.42E-01	1.42E-01
		1120.29	*	15.10	4.07E-01		6.20E-01
		1764.49	*	15.80	4.96E-01		1.86E-01
		2204.22		4.98	9.16E-02		1.01E+00
+	PB-214	295.21	*	19.19	4.14E-01	1.41E-01	3.07E-01
		351.92	*	37.19	3.46E-01		1.41E-01
+	RN-219	401.80		6.50	1.71E-02	5.92E-01	5.92E-01
+	RA-223	323.87		3.88	-4.80E-01	9.29E-01	9.29E-01
+	RA-224	240.98		3.95	3.35E+00	1.55E+00	1.55E+00
+	RA-225	40.00		31.00	1.10E+00	1.83E+00	1.83E+00
+	RA-226	186.21	*	3.28	8.33E-01	1.69E+00	1.69E+00
+	TH-227	50.10		8.40	1.53E-01	3.95E-01	7.24E-01
		236.00		11.50	-1.82E+00		3.95E-01
		256.20		6.30	3.41E-01		6.16E-01
+	AC-228	338.32	*	11.40	4.12E-01	3.45E-01	5.45E-01
		911.07	*	27.70	3.65E-01		3.45E-01
		969.11	*	16.60	4.11E-01		4.70E-01
+	TH-230	48.44		16.90	-1.56E-01	3.93E-01	3.93E-01
		62.85		4.60	5.16E-01		8.65E-01
		67.67		0.37	-5.79E+00		8.44E+00
+	PA-231	283.67		1.60	-7.03E-01	1.64E+00	2.39E+00
		302.67		2.30	-1.69E-02		1.64E+00
+	TH-231	25.64		14.70	3.08E+00	4.35E-01	1.19E+01
		84.21		6.40	1.58E-01		4.35E-01
+	PA-233	311.98		38.60	-1.52E-01	2.23E-01	2.23E-01
+	PA-234	131.20		20.40	1.05E-01	1.73E-01	1.73E-01
		733.99		8.80	1.36E-01		6.48E-01
		946.00		12.00	-2.91E-01		5.21E-01
+	PA-234M	1001.03		0.92	1.99E-01	7.18E+00	7.18E+00
+	TH-234	63.29		3.80	6.20E-01	1.04E+00	1.04E+00

Analysis Report for 1510089-06

CP3005S07-08

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	U-235	143.76	10.50	7.34E-03	3.25E-01	3.25E-01
		163.35	4.70	3.59E-01		7.49E-01
		205.31	4.70	1.11E-02		7.17E-01
+	NP-237	86.50	12.60	-7.55E-02	3.11E-01	3.11E-01
+	NP-239	106.10	22.70	-1.02E+02	1.86E+03	1.86E+03
		228.18	10.70	2.21E+03		4.68E+03
		277.60	14.10	-8.18E+02		3.55E+03
+	AM-241	59.54	35.90	-8.74E-03	1.07E-01	1.07E-01
+	AM-243	74.67	66.00	-3.34E-02	5.97E-02	5.97E-02
+	CM-243	209.75	3.29	2.70E-01	2.73E-01	1.19E+00
		228.14	10.60	1.71E-01		3.61E-01
		277.60	14.00	-6.29E-02		2.73E-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	5.53E-01	5.53E-01	4.41E-02	2.55E-01
	NA-22	1274.54		99.94	6.71E-02	6.71E-02	2.27E-03	3.04E-02
	NA-24	1368.53		99.99	1.49E+14	1.00E+14	-2.64E+13	6.38E+13
		2754.09		99.86	1.00E+14		1.03E+13	3.75E+13
	AL-26	1808.65		99.76	3.08E-02	3.08E-02	-2.13E-02	1.15E-02
+	K-40	1460.81	*	10.67	7.02E-01	7.02E-01	2.10E+01	3.19E-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	3.30E-02	3.30E-02	-2.27E-02	1.58E-02
		78.34		96.00	4.14E-02		5.91E-02	2.01E-02
	SC-46	889.25		99.98	8.27E-02	8.27E-02	4.91E-02	3.83E-02

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CP3005S07-08

	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	1.14E-01	8.27E-02	6.96E-02	5.34E-02
	V-48	983.52		99.98	2.48E-01	2.48E-01	1.08E-01	1.14E-01
		1312.10		97.50	2.90E-01		1.39E-01	1.32E-01
	CR-51	320.08		9.83	9.09E-01	9.09E-01	5.19E-01	4.30E-01
	MN-54	834.83		99.97	6.57E-02	6.57E-02	-6.13E-03	3.05E-02
	CO-56	846.75		99.96	7.28E-02	7.28E-02	-3.90E-02	3.34E-02
		1037.75		14.03	5.78E-01		1.92E-01	2.64E-01
		1238.25		67.00	1.76E-01		0.00E+00	8.20E-02
		1771.40		15.51	3.17E-01		-2.06E-01	1.26E-01
		2598.48		16.90	2.13E-01		-3.83E-03	7.56E-02
	CO-57	122.06		85.51	4.28E-02	4.28E-02	2.21E-02	2.06E-02
		136.48		10.60	3.56E-01		-9.16E-03	1.72E-01
	CO-58	810.76		99.40	7.53E-02	7.53E-02	-1.81E-02	3.47E-02
	FE-59	1099.22		56.50	1.93E-01	1.93E-01	1.49E-02	8.87E-02
		1291.56		43.20	2.53E-01		0.00E+00	1.14E-01
	CO-60	1173.22		100.00	8.74E-02	5.24E-02	2.42E-02	4.08E-02
		1332.49		100.00	5.24E-02		-1.04E-02	2.30E-02
	ZN-65	1115.52		50.75	1.53E-01	1.53E-01	1.42E-03	7.03E-02
	GA-67	93.31		35.70	1.03E+02	1.03E+02	2.20E+01	4.99E+01
		208.95		2.24	1.64E+03		9.06E+02	7.86E+02
		300.22		16.00	2.33E+02		1.18E+02	1.10E+02
	SE-75	121.11		16.70	2.37E-01	6.96E-02	-2.31E-02	1.14E-01
		136.00		59.20	6.96E-02		4.12E-03	3.35E-02
		264.65		59.80	7.16E-02		2.43E-02	3.39E-02
		279.53		25.20	1.89E-01		-2.13E-02	8.96E-02
		400.65		11.40	4.03E-01		-3.29E-02	1.88E-01
	RB-82	776.52		13.00	1.00E+00	1.00E+00	1.71E-02	4.62E-01
	RB-83	520.41		46.00	1.10E-01	1.10E-01	-3.67E-02	5.09E-02
		529.64		30.30	1.84E-01		4.91E-03	8.55E-02
		552.65		16.40	2.94E-01		-1.37E-01	1.34E-01
	KR-85	513.99		0.43	1.18E+01	1.18E+01	-2.74E+00	5.55E+00
	SR-85	513.99		99.27	7.24E-02	7.24E-02	-1.68E-02	3.40E-02
	Y-88	898.02		93.40	8.28E-02	4.67E-02	2.16E-02	3.83E-02
		1836.01		99.38	4.67E-02		-1.43E-02	1.85E-02
	NB-93M	16.57		9.43	4.22E+03	4.22E+03	-1.02E+04	2.04E+03
	NB-94	702.63		100.00	5.06E-02	5.06E-02	-8.13E-03	2.34E-02
		871.10		100.00	5.55E-02		-1.87E-03	2.55E-02
	NB-95	765.79		99.81	1.25E-01	1.25E-01	8.32E-02	5.88E-02
+	NB-95M	235.69	*	25.00	1.20E+02	1.20E+02	3.37E+01	5.83E+01
	ZR-95	724.18		43.70	1.73E-01	1.34E-01	-1.88E-02	8.00E-02
		756.72		55.30	1.34E-01		-3.04E-02	6.16E-02
	MO-99	181.06		6.20	1.89E+03	1.48E+03	7.47E+02	9.05E+02
		739.58		12.80	1.48E+03		-4.01E+01	6.87E+02
		778.00		4.50	3.93E+03		-1.61E+03	1.81E+03
	RU-103	497.08		89.00	8.02E-02	8.02E-02	-1.30E-02	3.71E-02
	RU-106	621.84		9.80	5.22E-01	5.22E-01	-1.38E-01	2.42E-01
	AG-108M	433.93		89.90	4.12E-02	4.12E-02	1.16E-02	1.91E-02
		614.37		90.40	5.58E-02		-1.24E-03	2.60E-02
		722.95		90.50	5.83E-02		-1.08E-02	2.70E-02
	CD-109	88.03		3.72	1.13E+00	1.13E+00	6.50E-01	5.47E-01
	AG-110M	657.75		93.14	5.80E-02	5.80E-02	-1.88E-02	2.69E-02
		677.61		10.53	5.06E-01		2.84E-01	2.34E-01
		706.67		16.46	3.50E-01		-7.40E-02	1.62E-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	2.95E-01	5.80E-02	-1.05E-01	1.37E-01
	884.67	71.63	8.85E-02		-2.40E-02	4.07E-02
	1384.27	23.94	2.17E-01		-1.50E-02	9.33E-02
CD-113M	263.70	0.02	1.54E+02	1.54E+02	-3.38E+01	7.29E+01
SN-113	255.12	1.93	2.32E+00	7.82E-02	-1.39E+00	1.10E+00
	391.69	64.90	7.82E-02		1.65E-02	3.67E-02
TE123M	159.00	84.10	5.13E-02	5.13E-02	2.18E-02	2.47E-02
SB-124	602.71	97.87	7.89E-02	7.89E-02	1.63E-02	3.69E-02
	645.85	7.26	1.01E+00		2.62E-01	4.67E-01
	722.78	11.10	6.88E-01		-1.27E-01	3.18E-01
	1691.02	49.00	9.81E-02		2.14E-02	3.80E-02
I-125	35.49	6.49	4.83E+00	4.83E+00	5.67E+00	2.34E+00
SB-125	176.33	6.89	5.23E-01	1.34E-01	7.81E-02	2.51E-01
	427.89	29.33	1.34E-01		-5.15E-03	6.24E-02
	463.38	10.35	4.95E-01		4.92E-01	2.34E-01
	600.56	17.80	3.09E-01		-4.14E-02	1.45E-01
	635.90	11.32	4.42E-01		-1.35E-01	2.05E-01
SB-126	414.70	83.30	2.80E-01	2.80E-01	4.25E-02	1.30E-01
	666.33	99.60	2.98E-01		-9.95E-02	1.38E-01
	695.00	99.60	3.19E-01		2.14E-02	1.48E-01
	720.50	53.80	6.22E-01		2.01E-01	2.89E-01
SN-126	87.57	37.00	1.08E-01	1.08E-01	6.23E-02	5.25E-02
SB-127	473.00	25.00	4.69E+01	4.69E+01	-1.35E+01	2.16E+01
	685.20	35.70	4.72E+01		-4.38E+00	2.18E+01
	783.80	14.70	1.32E+02		5.45E+01	6.12E+01
I-129	29.78	57.00	9.55E-01	9.55E-01	-1.58E-01	4.62E-01
	33.60	13.20	2.04E+00		-1.11E+00	9.85E-01
	39.58	7.52	1.74E+00		1.04E+00	8.44E-01
I-131	284.30	6.05	1.02E+01	7.51E-01	-2.99E+00	4.82E+00
	364.48	81.20	7.51E-01		-2.90E-01	3.52E-01
	636.97	7.26	1.13E+01		1.06E+00	5.26E+00
	722.89	1.80	4.71E+01		-8.69E+00	2.18E+01
TE-132	49.72	13.10	4.47E+02	4.10E+01	9.46E+01	2.16E+02
	228.16	88.00	4.10E+01		1.94E+01	1.96E+01
BA-133	81.00	33.00	8.83E-02	6.33E-02	5.13E-02	4.24E-02
	302.84	17.80	2.13E-01		-2.19E-03	1.01E-01
	356.01	60.00	6.33E-02		6.61E-04	2.97E-02
I-133	529.87	86.30	7.84E+09	7.84E+09	2.79E+09	3.64E+09
XE-133	81.00	38.00	5.39E+00	5.39E+00	3.13E+00	2.59E+00
CS-134	563.23	8.38	5.11E-01	5.34E-02	-6.83E-02	2.35E-01
	569.32	15.43	2.93E-01		5.66E-02	1.36E-01
	604.70	97.60	5.34E-02		-7.91E-03	2.49E-02
	795.84	85.40	6.68E-02		3.96E-03	3.08E-02
	801.93	8.73	6.25E-01		-3.30E-02	2.87E-01
CS-135	268.24	16.00	2.30E-01	2.30E-01	4.99E-02	1.09E-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	2.59E+00	2.79E-01	1.00E+00	1.25E+00
	163.89	4.61	4.06E+00		-2.07E+00	1.95E+00
	176.55	13.56	1.37E+00		-1.58E-02	6.55E-01
	273.65	12.66	1.59E+00		8.07E-01	7.52E-01
	340.57	48.50	4.32E-01		-2.71E-01	2.03E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	818.50	99.70	2.79E-01	2.79E-01	-7.37E-02	1.28E-01
	1048.07	79.60	4.79E-01		1.83E-03	2.21E-01
	1235.34	19.70	2.53E+00		5.49E-01	1.18E+00
CS-137	661.65	85.12	6.09E-02	6.09E-02	8.96E-03	2.83E-02
LA-138	788.74	34.00	1.63E-01	7.37E-02	4.35E-03	7.54E-02
	1435.80	66.00	7.37E-02		8.15E-03	3.17E-02
CE-139	165.85	80.35	5.05E-02	5.05E-02	-1.67E-02	2.42E-02
BA-140	162.64	6.70	3.00E+00	8.04E-01	1.44E+00	1.44E+00
	304.84	4.50	4.89E+00		2.29E+00	2.31E+00
	423.70	3.20	6.30E+00		-5.16E-01	2.91E+00
	437.55	2.00	1.07E+01		3.33E+00	4.95E+00
	537.32	25.00	8.04E-01		-8.40E-02	3.66E-01
LA-140	328.77	20.50	1.18E+00	2.80E-01	9.23E-01	5.60E-01
	487.03	45.50	4.84E-01		2.23E-02	2.24E-01
	815.85	23.50	1.32E+00		3.82E-02	6.09E-01
	1596.49	95.49	2.80E-01		-2.89E-02	1.18E-01
CE-141	145.44	48.40	1.41E-01	1.41E-01	1.21E-01	6.79E-02
CE-143	57.36	11.80	3.46E+06	1.27E+06	-2.82E+06	1.66E+06
	293.26	42.00	1.27E+06		-1.81E+05	6.06E+05
	664.55	5.20	1.09E+07		-7.80E+05	5.05E+06
CE-144	133.54	10.80	3.37E-01	3.37E-01	-1.06E-01	1.62E-01
PM-144	476.78	42.00	9.59E-02	5.46E-02	7.65E-03	4.43E-02
	618.01	98.60	5.46E-02		1.59E-02	2.54E-02
	696.49	99.49	5.57E-02		1.02E-02	2.58E-02
PM-145	36.85	21.70	8.04E-01	4.13E-01	-1.31E-01	3.89E-01
	37.36	39.70	4.13E-01		-6.73E-02	2.00E-01
	42.30	15.10	6.72E-01		-2.43E-02	3.26E-01
	72.40	2.31	1.28E+00		-1.15E+00	6.16E-01
PM-146	453.90	39.94	1.03E-01	1.03E-01	2.47E-02	4.80E-02
	735.90	14.01	3.99E-01		-3.72E-02	1.85E-01
	747.13	13.10	4.36E-01		-2.52E-02	2.02E-01
ND-147	91.11	28.90	1.07E+00	1.07E+00	-1.87E-01	5.21E-01
	531.02	13.10	2.56E+00		9.09E-01	1.19E+00
PM-149	285.90	3.10	3.03E+04	3.03E+04	-9.77E+03	1.44E+04
EU-152	121.78	20.50	1.65E-01	1.65E-01	8.53E-02	7.96E-02
	244.69	5.40	6.92E-01		8.84E-02	3.29E-01
	344.27	19.13	1.88E-01		-7.30E-02	8.79E-02
	778.89	9.20	5.89E-01		-1.42E-01	2.72E-01
	964.01	10.40	5.88E-01		-2.84E-02	2.70E-01
	1085.78	7.22	1.05E+00		3.12E-01	4.89E-01
	1112.02	9.60	6.76E-01		-7.54E-02	3.09E-01
	1407.95	14.94	3.53E-01		7.77E-02	1.54E-01
GD-153	97.43	31.30	1.14E-01	1.14E-01	5.10E-02	5.52E-02
	103.18	22.20	1.49E-01		-1.12E-01	7.16E-02
EU-154	123.07	40.50	8.54E-02	8.54E-02	4.70E-02	4.12E-02
	723.30	19.70	2.70E-01		-4.98E-02	1.25E-01
	873.19	11.50	4.92E-01		5.61E-02	2.26E-01
	996.32	10.30	6.31E-01		3.20E-03	2.91E-01
	1004.76	17.90	3.87E-01		4.02E-02	1.79E-01
	1274.45	35.50	1.86E-01		6.29E-03	8.42E-02
EU-155	86.50	30.90	1.28E-01	1.28E-01	-3.12E-02	6.23E-02
	105.30	20.70	1.56E-01		3.69E-02	7.53E-02
EU-156	811.77	10.40	2.35E+00	2.35E+00	1.25E-01	1.09E+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	4.76E+00	2.35E+00	3.07E+00	2.21E+00
		1230.71		8.90	4.19E+00		-1.20E+00	1.95E+00
	HO-166M	184.41		72.60	5.74E-02	5.74E-02	7.94E-03	2.77E-02
		280.45		29.60	1.34E-01		-1.51E-02	6.35E-02
		410.94		11.10	3.29E-01		-1.07E-01	1.53E-01
		711.69		54.10	1.04E-01		-9.47E-03	4.82E-02
	TM-171	66.72		0.14	2.47E+01	2.47E+01	1.16E+01	1.19E+01
	HF-172	81.75		4.52	6.13E-01	2.97E-01	-4.08E-01	2.93E-01
		125.81		11.30	2.97E-01		-3.29E-01	1.43E-01
	LU-172	181.53		20.60	4.77E+00	2.75E+00	9.48E-01	2.28E+00
		810.06		16.63	9.19E+00		-2.21E+00	4.23E+00
		912.12		15.25	1.69E+01		2.13E+01	8.03E+00
		1093.66		62.50	2.75E+00		-1.25E+00	1.25E+00
	LU-173	100.72		5.24	6.11E-01	1.87E-01	-3.86E-02	2.94E-01
		272.11		21.20	1.87E-01		2.52E-02	8.85E-02
	HF-175	343.40		84.00	5.58E-02	5.58E-02	-1.06E-02	2.60E-02
	LU-176	88.34		13.30	3.00E-01	4.18E-02	1.73E-01	1.46E-01
		201.83		86.00	4.18E-02		1.62E-02	2.00E-02
		306.78		94.00	4.31E-02		2.75E-02	2.04E-02
	TA-182	67.75		41.20	9.20E-02	9.20E-02	-6.32E-02	4.42E-02
		1121.30		34.90	3.04E-01		5.95E-02	1.42E-01
		1189.05		16.23	5.52E-01		-6.50E-02	2.54E-01
		1221.41		26.98	3.90E-01		-3.42E-02	1.81E-01
		1231.02		11.44	9.46E-01		3.08E-01	4.41E-01
	IR-192	308.46		29.68	1.79E-01	1.20E-01	4.32E-02	8.46E-02
		468.07		48.10	1.20E-01		5.76E-02	5.58E-02
	HG-203	279.19		77.30	8.24E-02	8.24E-02	4.90E-02	3.91E-02
	BI-207	569.67		97.72	4.50E-02	4.50E-02	8.69E-03	2.08E-02
		1063.62		74.90	8.03E-02		-1.82E-02	3.66E-02
+	TL-208	583.14	*	30.22	2.48E-01	9.77E-02	3.08E-01	1.18E-01
		860.37		4.48	1.41E+00		5.14E-01	6.55E-01
		2614.66	*	35.85	9.77E-02		2.49E-01	3.78E-02
	BI-210M	262.00		45.00	7.92E-02	7.92E-02	-6.26E-03	3.75E-02
		300.00		23.00	1.72E-01		8.73E-02	8.15E-02
	PB-210	46.50		4.25	1.89E+00	1.89E+00	1.27E+00	9.14E-01
	PB-211	404.84		2.90	1.38E+00	1.38E+00	1.27E-01	6.45E-01
		831.96		2.90	2.10E+00		4.81E-01	9.76E-01
	BI-212	727.17		11.80	4.68E-01	4.68E-01	1.89E-01	2.17E-01
		1620.62		2.75	1.64E+00		4.36E-01	6.85E-01
+	PB-212	238.63	*	44.60	1.45E-01	1.45E-01	3.35E-01	7.07E-02
		300.09	*	3.41	1.04E+00		7.80E-01	4.89E-01
+	BI-214	609.31	*	46.30	1.42E-01	1.42E-01	2.29E-01	6.71E-02
		1120.29	*	15.10	6.20E-01		4.07E-01	2.91E-01
		1764.49	*	15.80	1.86E-01		4.96E-01	6.86E-02
		2204.22		4.98	1.01E+00		9.16E-02	4.21E-01
+	PB-214	295.21	*	19.19	3.07E-01	1.41E-01	4.14E-01	1.48E-01
		351.92	*	37.19	1.41E-01		3.46E-01	6.71E-02
	RN-219	401.80		6.50	5.92E-01	5.92E-01	1.71E-02	2.76E-01
	RA-223	323.87		3.88	9.29E-01	9.29E-01	-4.80E-01	4.36E-01
	RA-224	240.98		3.95	1.55E+00	1.55E+00	3.35E+00	7.53E-01
	RA-225	40.00		31.00	1.83E+00	1.83E+00	1.10E+00	8.89E-01
+	RA-226	186.21	*	3.28	1.69E+00	1.69E+00	8.33E-01	8.21E-01
	TH-227	50.10		8.40	7.24E-01	3.95E-01	1.53E-01	3.50E-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	3.95E-01	3.95E-01	-1.82E+00	1.90E-01
		256.20		6.30	6.16E-01		3.41E-01	2.93E-01
+	AC-228	338.32	*	11.40	5.45E-01	3.45E-01	4.12E-01	2.63E-01
		911.07	*	27.70	3.45E-01		3.65E-01	1.64E-01
		969.11	*	16.60	4.70E-01		4.11E-01	2.20E-01
	TH-230	48.44		16.90	3.93E-01	3.93E-01	-1.56E-01	1.90E-01
		62.85		4.60	8.65E-01		5.16E-01	4.18E-01
		67.67		0.37	8.44E+00		-5.79E+00	4.05E+00
	PA-231	283.67		1.60	2.39E+00	1.64E+00	-7.03E-01	1.13E+00
		302.67		2.30	1.64E+00		-1.69E-02	7.74E-01
	TH-231	25.64		14.70	1.19E+01	4.35E-01	3.08E+00	5.75E+00
		84.21		6.40	4.35E-01		1.58E-01	2.09E-01
	PA-233	311.98		38.60	2.23E-01	2.23E-01	-1.52E-01	1.05E-01
	PA-234	131.20		20.40	1.73E-01	1.73E-01	1.05E-01	8.36E-02
		733.99		8.80	6.48E-01		1.36E-01	3.01E-01
		946.00		12.00	5.21E-01		-2.91E-01	2.40E-01
	PA-234M	1001.03		0.92	7.18E+00	7.18E+00	1.99E-01	3.31E+00
	TH-234	63.29		3.80	1.04E+00	1.04E+00	6.20E-01	5.01E-01
	U-235	143.76		10.50	3.25E-01	3.25E-01	7.34E-03	1.56E-01
		163.35		4.70	7.49E-01		3.59E-01	3.60E-01
		205.31		4.70	7.17E-01		1.11E-02	3.41E-01
	NP-237	86.50		12.60	3.11E-01	3.11E-01	-7.55E-02	1.51E-01
	NP-239	106.10		22.70	1.86E+03	1.86E+03	-1.02E+02	8.98E+02
		228.18		10.70	4.68E+03		2.21E+03	2.23E+03
		277.60		14.10	3.55E+03		-8.18E+02	1.68E+03
	AM-241	59.54		35.90	1.07E-01	1.07E-01	-8.74E-03	5.14E-02
	AM-243	74.67		66.00	5.97E-02	5.97E-02	-3.34E-02	2.90E-02
	CM-243	209.75		3.29	1.19E+00	2.73E-01	2.70E-01	5.68E-01
		228.14		10.60	3.61E-01		1.71E-01	1.72E-01
		277.60		14.00	2.73E-01		-6.29E-02	1.30E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 1510089-06

CP3005S07-08

No Data Review Comments Entered.

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

Sample Title: CP3005S07-08

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	1	151
9:	542	1105	1057	410	567	1595	306	98
17:	117	106	109	99	92	106	83	96
25:	100	89	98	85	80	97	103	105
33:	114	74	110	119	113	82	109	111
41:	108	97	113	105	112	117	135	104
49:	92	106	100	88	83	92	65	60
57:	54	59	80	66	72	82	85	104
65:	76	79	71	66	54	79	58	59
73:	72	85	169	101	169	137	71	75
81:	66	60	46	70	73	64	86	94
89:	69	90	67	55	136	81	46	62
97:	51	50	49	53	46	30	52	45
105:	47	56	46	56	50	45	53	56
113:	38	36	53	48	45	46	39	36
121:	66	42	54	51	44	47	40	42
129:	65	50	50	52	40	42	49	44
137:	50	46	49	52	53	35	46	51
145:	47	37	36	29	24	44	42	49
153:	41	50	35	34	40	44	49	38
161:	41	38	44	46	29	30	46	35
169:	40	36	33	41	36	46	38	34
177:	37	25	33	26	43	26	43	33
185:	47	91	49	33	37	26	32	34
193:	36	30	41	31	34	30	37	31
201:	34	34	32	25	20	22	34	37
209:	49	33	24	32	31	29	31	42
217:	22	47	30	29	34	39	34	30
225:	31	34	29	29	33	24	20	26
233:	27	19	19	39	35	93	204	44
241:	42	51	28	18	26	22	34	29
249:	21	25	27	30	17	30	28	16
257:	27	30	22	18	28	18	17	25
265:	22	21	19	17	22	31	18	17
273:	23	25	21	21	15	30	21	26
281:	28	15	31	23	18	23	23	25
289:	22	16	27	23	13	28	72	54
297:	21	11	19	35	20	24	13	18
305:	22	23	24	18	24	14	16	18
313:	19	26	26	22	19	25	19	24
321:	15	18	12	22	16	12	24	31
329:	18	25	12	15	15	14	17	13
337:	19	38	25	25	11	13	11	16
345:	14	18	23	10	16	19	43	121
353:	49	11	16	15	14	21	20	15
361:	15	23	15	14	9	14	20	11

369:	12	18	13	17	11	12	15	11

Sample Title: CP3005S07-08

Channel								
377:	13	13	10	18	10	19	14	9
385:	7	14	11	11	17	16	14	17
393:	16	20	13	19	12	15	12	13
401:	11	13	17	13	14	18	10	14
409:	15	17	11	10	5	16	14	14
417:	15	11	14	8	10	11	7	11
425:	14	8	10	14	16	13	8	17
433:	8	7	14	9	8	8	16	14
441:	5	13	13	7	12	10	9	10
449:	11	12	14	10	17	9	9	18
457:	8	10	9	8	21	19	21	21
465:	13	6	14	15	17	14	9	12
473:	9	6	8	10	6	14	12	11
481:	11	10	5	6	9	12	10	7
489:	12	8	17	10	13	11	9	8
497:	14	10	13	12	12	15	8	11
505:	8	14	8	13	21	39	54	38
513:	11	13	10	12	4	13	10	11
521:	7	6	12	15	11	5	11	13
529:	9	11	12	13	13	6	7	9
537:	8	3	8	4	9	9	12	10
545:	4	10	8	9	11	3	7	10
553:	9	9	10	12	3	7	7	13
561:	10	15	7	7	8	10	11	5
569:	11	15	10	8	10	12	10	10
577:	4	8	5	4	11	24	56	35
585:	10	6	9	10	11	5	6	10
593:	12	12	10	19	9	7	13	17
601:	10	7	11	8	10	9	8	11
609:	69	36	13	8	9	6	9	4
617:	13	8	8	11	9	7	7	10
625:	3	12	5	3	8	7	9	7
633:	8	7	10	9	9	5	7	13
641:	8	9	11	8	4	10	10	6
649:	8	8	3	5	7	10	6	4
657:	8	8	7	11	9	9	11	3
665:	6	11	5	6	9	9	9	3
673:	3	7	5	7	11	10	4	5
681:	5	5	5	9	9	6	6	13
689:	15	7	8	9	4	13	6	11
697:	9	3	8	7	4	9	8	4
705:	10	14	5	6	7	14	7	9
713:	9	9	10	8	5	8	9	8
721:	12	11	5	3	6	7	9	15
729:	8	9	10	7	6	5	13	9
737:	10	5	8	7	10	9	6	10
745:	11	6	12	8	6	4	12	6
753:	5	10	6	6	8	6	6	9
761:	5	6	11	11	6	18	4	13
769:	14	8	8	7	7	9	6	9
777:	3	8	7	7	6	8	10	7
785:	8	8	10	4	6	7	7	7
793:	5	9	11	7	4	8	5	4

801:	9	4	8	8	6	10	4	7

Sample Title: CP3005S07-08

Channel								
809:	4	5	9	8	9	7	8	5
817:	7	4	5	6	4	4	8	7
825:	2	5	4	6	9	10	7	9
833:	6	5	10	8	8	10	8	9
841:	14	4	10	8	3	6	6	5
849:	5	7	10	7	4	6	7	9
857:	8	10	5	12	14	4	4	3
865:	7	6	8	6	4	5	12	3
873:	5	7	7	4	8	4	9	8
881:	2	8	6	6	5	10	8	10
889:	4	10	4	8	4	4	3	5
897:	6	16	5	12	5	11	5	4
905:	8	9	10	11	10	19	42	20
913:	6	8	10	4	6	7	2	2
921:	5	8	9	7	4	5	5	8
929:	8	6	5	7	6	13	6	9
937:	7	5	9	8	9	11	8	7
945:	4	3	5	8	12	12	6	8
953:	7	5	7	4	6	8	4	7
961:	7	6	6	7	8	5	4	12
969:	25	11	6	3	4	6	8	8
977:	8	3	6	2	9	5	3	13
985:	6	4	2	5	7	4	3	9
993:	9	6	2	7	7	3	12	4
1001:	10	6	5	8	3	10	10	5
1009:	7	8	6	8	5	3	9	4
1017:	8	6	9	2	5	8	10	5
1025:	5	6	7	8	5	7	6	1
1033:	5	10	3	9	4	2	2	8
1041:	5	4	4	3	6	5	2	10
1049:	10	8	9	3	7	9	10	7
1057:	6	4	5	7	3	4	7	5
1065:	6	3	9	5	10	4	5	6
1073:	4	7	7	6	6	9	3	9
1081:	10	9	6	10	6	6	10	9
1089:	6	2	6	3	9	5	6	4
1097:	10	3	4	6	8	6	5	6
1105:	8	7	5	9	6	6	4	4
1113:	7	6	5	7	11	6	13	19
1121:	14	2	7	11	3	4	7	4
1129:	6	11	4	4	11	7	10	5
1137:	6	5	8	10	12	6	3	7
1145:	2	6	12	7	5	7	5	6
1153:	10	7	11	9	3	3	9	5
1161:	8	9	7	6	5	8	11	7
1169:	9	9	13	11	8	8	10	6
1177:	7	8	7	5	3	7	7	10
1185:	4	8	7	5	1	11	7	6
1193:	8	6	9	6	10	6	6	11
1201:	12	8	9	10	8	8	8	9
1209:	6	7	10	5	13	9	13	6
1217:	10	12	10	5	10	8	8	8
1225:	13	7	7	9	12	9	6	10

1233:	6	12	8	7	9	15	8	10

Sample Title: CP3005S07-08

Channel								
1241:	6	12	6	9	6	7	7	8
1249:	7	8	8	9	5	4	5	6
1257:	5	6	4	9	10	8	7	5
1265:	8	9	6	6	2	4	7	6
1273:	2	4	6	5	1	5	5	7
1281:	2	4	7	5	4	4	2	6
1289:	3	3	6	4	4	5	6	5
1297:	6	2	4	1	6	4	3	2
1305:	4	4	1	4	7	5	3	9
1313:	3	1	6	4	2	1	4	4
1321:	3	4	3	2	5	2	6	3
1329:	3	2	3	3	0	3	3	1
1337:	3	1	3	2	3	2	2	6
1345:	3	5	3	6	3	3	4	1
1353:	3	5	2	3	2	1	5	2
1361:	5	4	5	0	1	5	1	1
1369:	0	2	2	1	3	4	3	3
1377:	6	6	2	1	0	4	3	0
1385:	2	1	3	2	3	3	1	1
1393:	2	2	1	0	2	3	0	2
1401:	9	1	4	3	2	3	1	2
1409:	3	2	2	0	1	4	2	1
1417:	2	2	0	0	3	2	0	1
1425:	4	0	1	1	2	1	1	2
1433:	3	0	1	2	3	2	2	2
1441:	3	0	1	1	3	1	1	3
1449:	0	3	2	0	4	1	2	1
1457:	6	16	97	334	330	99	26	0
1465:	0	1	1	0	0	2	2	2
1473:	0	0	0	1	0	2	0	1
1481:	0	0	2	3	2	0	1	1
1489:	0	2	2	0	1	1	1	3
1497:	1	4	3	2	2	1	0	0
1505:	0	0	1	2	3	4	1	1
1513:	2	1	1	0	1	2	0	4
1521:	1	1	2	2	0	0	1	1
1529:	0	0	1	1	1	1	2	2
1537:	2	1	2	1	2	4	0	0
1545:	2	2	0	0	0	1	0	1
1553:	1	0	3	3	1	2	2	0
1561:	0	1	0	2	0	2	0	0
1569:	2	1	0	0	1	0	2	0
1577:	2	1	2	2	0	0	0	0
1585:	0	2	3	0	1	0	2	2
1593:	1	2	0	1	1	1	2	0
1601:	0	3	1	0	0	0	3	1
1609:	0	1	1	1	4	1	1	1
1617:	1	1	0	0	2	2	0	2
1625:	0	0	0	3	1	0	3	2
1633:	2	0	3	1	0	2	5	0
1641:	1	0	0	3	0	2	0	1
1649:	1	1	1	1	1	0	1	1
1657:	1	2	1	0	3	0	1	0

1665:	2	1	0	0	1	0	0	1

Sample Title: CP3005S07-08

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

2097:	1	0	1	3	1	1	4	2

Sample Title: CP3005S07-08

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

2529:	1	0	0	0	0	0	0	0

Sample Title: CP3005S07-08

Channel								
2537:	0	1	1	1	0	0	0	0
2545:	0	0	2	2	0	0	0	0
2553:	0	0	1	0	1	0	0	0
2561:	0	0	2	0	0	0	0	0
2569:	1	0	0	0	0	1	0	0
2577:	0	0	0	1	0	0	0	0
2585:	0	0	0	0	0	0	0	0
2593:	1	0	0	0	0	0	1	0
2601:	0	1	0	0	0	1	0	0
2609:	0	1	1	4	11	10	3	6
2617:	1	1	0	0	0	0	0	0
2625:	0	0	0	0	0	1	0	0
2633:	0	0	0	0	3	0	1	0
2641:	0	0	1	0	0	0	0	0
2649:	0	1	2	1	0	0	0	2
2657:	0	0	0	0	0	0	0	1
2665:	0	0	0	0	0	2	1	0
2673:	1	0	0	0	1	0	0	1
2681:	0	1	0	0	1	0	0	0
2689:	0	1	0	0	0	0	0	0
2697:	0	0	0	0	1	0	1	0
2705:	0	0	1	0	0	0	0	0
2713:	1	0	0	0	0	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	1	0	0	0	0
2737:	2	0	0	0	1	2	1	0
2745:	0	1	0	0	0	0	0	1
2753:	0	0	0	2	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	1	2	0	0	0	0	0	0
2777:	0	0	1	0	0	1	0	0
2785:	0	0	1	0	0	0	0	0
2793:	0	1	0	0	1	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	1	1	0	0	0	0
2817:	0	0	0	0	0	0	0	1
2825:	1	0	0	1	0	0	1	1
2833:	0	1	1	1	0	0	0	0
2841:	0	0	0	0	1	0	1	0
2849:	1	0	0	1	0	0	0	1
2857:	0	0	0	1	0	0	1	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	1	1	0
2881:	0	1	0	1	0	1	0	0
2889:	2	0	3	2	1	0	0	0
2897:	0	1	0	0	1	0	0	0
2905:	0	0	0	0	1	1	0	1
2913:	0	0	0	0	1	0	1	1
2921:	0	0	0	0	0	0	0	1
2929:	0	0	0	0	0	1	2	2
2937:	0	1	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	0	1	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: CP3005S07-08

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

3393:	0	0	0	0	0	0	0	0

Sample Title: CP3005S07-08

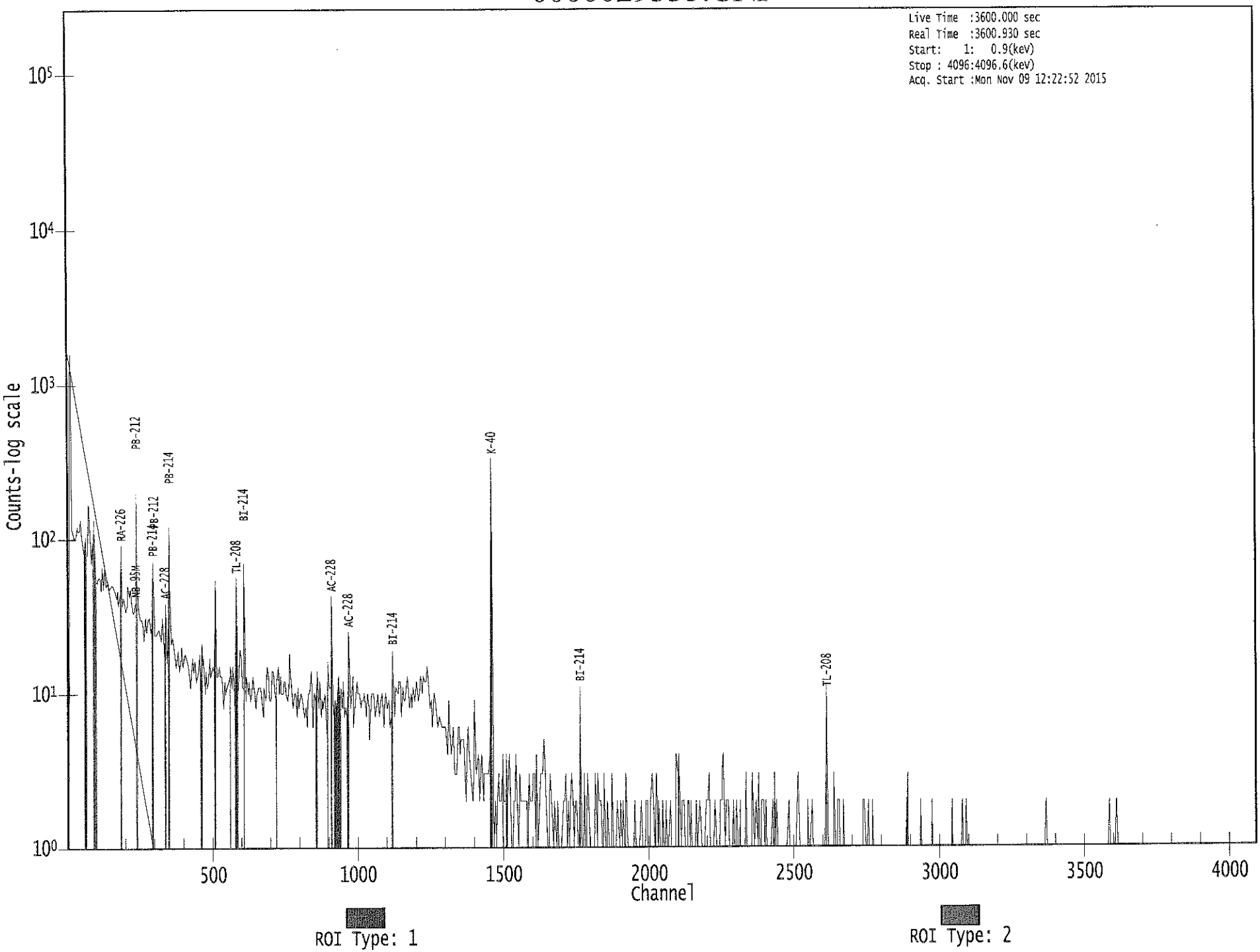
Channel								
3401:	0	0	1	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	1	1	0	0	0	0
3441:	0	0	0	0	1	0	0	0
3449:	0	0	1	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	1	0	1
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	1	0	0	0	0	0	0	0

Sample Title: CP3005S07-08

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

0000029335.CNF



h6600

KB 11/9/15

Apex-Gamma

Analysis Report for 1510089-07
CP3005S12-13

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1510089-07
Sample Description	: CP3005S12-13
Sample Type	: SOIL
Sample Size	: 6.928E+02 grams
Facility	: Countroom
Sample Taken On	: 10/8/2015 7:46:32AM
Acquisition Started	: 11/9/2015 1:23:44PM
Procedure	: GAS-1402 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1402
Live Time	: 3600.0 seconds
Real Time	: 3601.1 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 29339

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 11/10/15

Analysis Report for 1510089-07

CP3005S12-13

PEAK LOCATE REPORT

Peak Locate Performed on : 11/9/2015 2:23:48PM
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	53.49	53.59	0.0000	0.00
2	76.19	76.28	0.0000	0.00
3	186.11	186.13	0.0000	0.00
4	209.51	209.52	0.0000	0.00
5	239.32	239.32	0.0000	0.00
6	253.43	253.42	0.0000	0.00
7	288.21	288.18	0.0000	0.00
8	295.25	295.22	0.0000	0.00
9	299.92	299.88	0.0000	0.00
10	328.92	328.86	0.0000	0.00
11	338.75	338.69	0.0000	0.00
12	352.01	351.95	0.0000	0.00
13	463.09	462.97	0.0000	0.00
14	511.21	511.07	0.0000	0.00
15	519.24	519.10	0.0000	0.00
16	523.40	523.25	0.0000	0.00
17	529.81	529.66	0.0000	0.00
18	563.89	563.72	0.0000	0.00
19	583.25	583.07	0.0000	0.00
20	609.33	609.14	0.0000	0.00
21	647.26	647.05	0.0000	0.00
22	670.97	670.75	0.0000	0.00
23	727.23	726.99	0.0000	0.00
24	795.69	795.41	0.0000	0.00
25	859.86	859.56	0.0000	0.00
26	911.40	911.07	0.0000	0.00
27	934.04	933.71	0.0000	0.00
28	950.52	950.18	0.0000	0.00
29	973.42	973.07	0.0000	0.00
30	1087.71	1087.31	0.0000	0.00
31	1094.56	1094.17	0.0000	0.00
32	1102.54	1102.14	0.0000	0.00
33	1120.18	1119.77	0.0000	0.00
34	1216.72	1216.28	0.0000	0.00
35	1238.29	1237.84	0.0000	0.00
36	1279.90	1279.44	0.0000	0.00
37	1343.90	1343.41	0.0000	0.00
38	1357.69	1357.20	0.0000	0.00
39	1378.75	1378.25	0.0000	0.00
40	1456.13	1455.61	0.0000	0.00
41	1461.05	1460.53	0.0000	0.00
42	1509.57	1509.04	0.0000	0.00

Analysis Report for 1510089-07

CP3005S12-13

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1570.17	1569.62	0.0000	0.00
44	1621.12	1620.56	0.0000	0.00
45	1629.91	1629.34	0.0000	0.00
46	1729.48	1728.88	0.0000	0.00
47	1764.59	1763.98	0.0000	0.00
48	1846.53	1845.91	0.0000	0.00
49	1920.67	1920.03	0.0000	0.00
50	1947.31	1946.67	0.0000	0.00
51	2039.92	2039.25	0.0000	0.00
52	2138.54	2137.86	0.0000	0.00
53	2203.82	2203.12	0.0000	0.00
54	2276.94	2276.24	0.0000	0.00
55	2295.37	2294.67	0.0000	0.00
56	2404.33	2403.61	0.0000	0.00
57	2614.26	2613.52	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1510089-07

CP3005S12-13

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 2:23:48PM

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	53.49	51 -	55	53.59	7.49E+01	66.83	9.08E+02	1.32
	2	76.19	72 -	79	76.28	6.89E+02	104.40	1.35E+03	3.92
	3	186.11	183 -	189	186.13	1.60E+02	66.06	6.73E+02	1.32
	4	209.51	207 -	212	209.52	5.67E+01	51.94	4.89E+02	2.04
	5	239.32	235 -	243	239.32	5.80E+02	81.32	6.58E+02	1.48
	6	253.43	246 -	261	253.42	1.12E+02	91.91	7.99E+02	12.40
	7	288.21	285 -	291	288.18	5.74E+01	41.81	2.75E+02	3.67
M	8	295.25	292 -	303	295.22	1.63E+02	41.55	2.17E+02	1.81
m	9	299.92	292 -	303	299.88	2.75E+01	34.33	2.44E+02	1.82
	10	328.92	323 -	334	328.86	8.50E+01	62.64	4.42E+02	4.69
	11	338.75	335 -	344	338.69	9.25E+01	52.18	3.39E+02	1.76
	12	352.01	348 -	355	351.95	3.06E+02	55.39	3.07E+02	1.38
	13	463.09	460 -	466	462.97	4.77E+01	33.16	1.67E+02	1.48
	14	511.21	506 -	516	511.07	1.87E+02	47.57	1.98E+02	2.33
M	15	519.24	517 -	526	519.10	1.70E+01	14.74	4.25E+01	3.09
m	16	523.40	517 -	526	523.25	2.70E+01	26.37	1.03E+02	2.90
	17	529.81	527 -	533	529.66	2.56E+01	25.68	1.01E+02	4.11
	18	563.89	558 -	571	563.72	3.77E+01	47.25	2.33E+02	9.18
	19	583.25	578 -	587	583.07	1.63E+02	49.35	2.54E+02	1.67
	20	609.33	605 -	613	609.14	2.66E+02	44.99	1.45E+02	1.91
	21	647.26	645 -	649	647.05	2.20E+01	16.37	4.00E+01	2.56
	22	670.97	668 -	673	670.75	2.30E+01	22.16	7.81E+01	2.65
	23	727.23	724 -	730	726.99	3.26E+01	30.37	1.45E+02	1.17
	24	795.69	792 -	799	795.41	2.63E+01	27.71	1.07E+02	2.04
	25	859.86	855 -	863	859.56	3.47E+01	27.45	9.46E+01	2.15
	26	911.40	907 -	915	911.07	1.03E+02	34.62	1.20E+02	1.66
	27	934.04	929 -	938	933.71	3.32E+01	29.97	1.08E+02	1.96
	28	950.52	946 -	954	950.18	2.27E+01	28.18	1.09E+02	1.88
	29	973.42	965 -	990	973.07	7.13E+01	81.27	3.71E+02	1.73
M	30	1087.71	1083 -	1110	1087.31	2.74E+01	22.09	4.69E+01	2.76
m	31	1094.56	1083 -	1110	1094.17	1.96E+01	22.63	5.99E+01	2.77
m	32	1102.54	1083 -	1110	1102.14	1.78E+01	22.27	7.44E+01	2.78
	33	1120.18	1116 -	1122	1119.77	6.69E+01	29.04	1.04E+02	3.00
	34	1216.72	1214 -	1219	1216.28	1.72E+01	19.62	6.35E+01	2.79
	35	1238.29	1235 -	1242	1237.84	2.35E+01	26.46	1.03E+02	3.26
	36	1279.90	1276 -	1283	1279.44	2.72E+01	20.40	4.96E+01	3.03
	37	1343.90	1341 -	1347	1343.41	1.35E+01	13.02	2.10E+01	3.88
	38	1357.69	1353 -	1361	1357.20	1.60E+01	17.26	3.60E+01	6.79
	39	1378.75	1375 -	1383	1378.25	2.86E+01	16.90	2.49E+01	2.11
M	40	1456.13	1453 -	1466	1455.61	1.18E+01	13.04	2.38E+01	3.38

Analysis Report for 1510089-07

CP3005S12-13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1461.05	1453 -	1466	1460.53	8.62E+02	59.64	2.10E+01	2.34
	42	1509.57	1506 -	1512	1509.04	9.23E+00	8.75	7.54E+00	1.69
	43	1570.17	1566 -	1572	1569.62	5.56E+00	7.78	6.89E+00	1.11
	44	1621.12	1617 -	1624	1620.56	9.00E+00	6.00	0.00E+00	1.47
	45	1629.91	1626 -	1633	1629.34	1.16E+01	9.80	8.88E+00	3.91
	46	1729.48	1726 -	1731	1728.88	1.36E+01	8.31	2.80E+00	1.35
	47	1764.59	1759 -	1767	1763.98	4.58E+01	17.35	1.84E+01	1.63
	48	1846.53	1841 -	1850	1845.91	1.36E+01	9.43	4.81E+00	1.66
	49	1920.67	1916 -	1922	1920.03	5.22E+00	7.78	7.56E+00	1.90
	50	1947.31	1943 -	1949	1946.67	9.00E+00	6.00	0.00E+00	1.66
	51	2039.92	2035 -	2042	2039.25	8.00E+00	5.66	0.00E+00	2.74
	52	2138.54	2134 -	2140	2137.86	7.00E+00	5.29	0.00E+00	1.92
	53	2203.82	2198 -	2208	2203.12	1.65E+01	10.31	5.00E+00	2.97
	54	2276.94	2272 -	2279	2276.24	6.00E+00	6.93	4.00E+00	2.63
	55	2295.37	2292 -	2297	2294.67	9.00E+00	6.00	0.00E+00	1.45
	56	2404.33	2399 -	2407	2403.61	4.93E+00	6.95	4.14E+00	1.10
	57	2614.26	2609 -	2619	2613.52	7.30E+01	17.09	0.00E+00	1.98

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 11/9/2015 2:23:48PM

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	53.49	51 -	55	7.49E+01	66.83	9.08E+02	5.31E+01
	2	76.19	72 -	79	6.89E+02	104.40	1.35E+03	7.42E+01
	3	186.11	183 -	189	1.60E+02	66.06	6.73E+02	5.02E+01
	4	209.51	207 -	212	5.67E+01	51.94	4.89E+02	4.09E+01
	5	239.32	235 -	243	5.80E+02	81.32	6.58E+02	5.39E+01
	6	253.43	246 -	261	1.12E+02	91.91	7.99E+02	7.35E+01
	7	288.21	285 -	291	5.74E+01	41.81	2.75E+02	3.20E+01
M	8	295.25	292 -	303	1.63E+02	41.55	2.17E+02	2.42E+01
m	9	299.92	292 -	303	2.75E+01	34.33	2.44E+02	2.57E+01
	10	328.92	323 -	334	8.50E+01	62.64	4.42E+02	4.92E+01
	11	338.75	335 -	344	9.25E+01	52.18	3.39E+02	2.12E+01

Analysis Report for 1510089-07

CP3005S12-13

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	12	352.01	348 -	355	3.06E+02	55.39	3.07E+02	3.53E+01
	13	463.09	460 -	466	4.77E+01	33.16	1.67E+02	2.48E+01
	14	511.21	506 -	516	1.87E+02	47.57	1.98E+02	3.20E+01
M	15	519.24	517 -	526	1.70E+01	14.74	4.25E+01	1.07E+01
m	16	523.40	517 -	526	2.70E+01	26.37	1.03E+02	1.67E+01
	17	529.81	527 -	533	2.56E+01	25.68	1.01E+02	1.94E+01
	18	563.89	558 -	571	3.77E+01	47.25	2.33E+02	3.75E+01
	19	583.25	578 -	587	1.63E+02	49.35	2.54E+02	3.47E+01
	20	609.33	605 -	613	2.66E+02	44.99	1.45E+02	2.54E+01
	21	647.26	645 -	649	2.20E+01	16.37	4.00E+01	1.10E+01
	22	670.97	668 -	673	2.30E+01	22.16	7.81E+01	1.64E+01
	23	727.23	724 -	730	3.26E+01	30.37	1.45E+02	2.31E+01
	24	795.69	792 -	799	2.63E+01	27.71	1.07E+02	2.12E+01
	25	859.86	855 -	863	3.47E+01	27.45	9.46E+01	2.04E+01
	26	911.40	907 -	915	1.03E+02	34.62	1.20E+02	2.31E+01
	27	934.04	929 -	938	3.32E+01	29.97	1.08E+02	2.27E+01
	28	950.52	946 -	954	2.27E+01	28.18	1.09E+02	2.18E+01
	29	973.42	965 -	990	7.13E+01	81.27	3.71E+02	1.68E+01
M	30	1087.71	1083 -	1110	2.74E+01	22.09	4.69E+01	1.13E+01
m	31	1094.56	1083 -	1110	1.96E+01	22.63	5.99E+01	1.27E+01
m	32	1102.54	1083 -	1110	1.78E+01	22.27	7.44E+01	1.42E+01
	33	1120.18	1116 -	1122	6.69E+01	29.04	1.04E+02	1.97E+01
	34	1216.72	1214 -	1219	1.72E+01	19.62	6.35E+01	1.46E+01
	35	1238.29	1235 -	1242	2.35E+01	26.46	1.03E+02	2.02E+01
	36	1279.90	1276 -	1283	2.72E+01	20.40	4.96E+01	1.44E+01
	37	1343.90	1341 -	1347	1.35E+01	13.02	2.10E+01	8.83E+00
	38	1357.69	1353 -	1361	1.60E+01	17.26	3.60E+01	1.26E+01
	39	1378.75	1375 -	1383	2.86E+01	16.90	2.49E+01	1.08E+01
M	40	1456.13	1453 -	1466	1.18E+01	13.04	2.38E+01	8.03E+00
m	41	1461.05	1453 -	1466	8.62E+02	59.64	2.10E+01	7.53E+00
	42	1509.57	1506 -	1512	9.23E+00	8.75	7.54E+00	5.17E+00
	43	1570.17	1566 -	1572	5.56E+00	7.78	6.89E+00	5.09E+00
	44	1621.12	1617 -	1624	9.00E+00	6.00	0.00E+00	0.00E+00
	45	1629.91	1626 -	1633	1.16E+01	9.80	8.88E+00	5.80E+00
	46	1729.48	1726 -	1731	1.36E+01	8.31	2.80E+00	3.14E+00
	47	1764.59	1759 -	1767	4.58E+01	17.35	1.84E+01	8.92E+00
	48	1846.53	1841 -	1850	1.36E+01	9.43	4.81E+00	4.84E+00
	49	1920.67	1916 -	1922	5.22E+00	7.78	7.56E+00	5.17E+00
	50	1947.31	1943 -	1949	9.00E+00	6.00	0.00E+00	0.00E+00
	51	2039.92	2035 -	2042	8.00E+00	5.66	0.00E+00	0.00E+00
	52	2138.54	2134 -	2140	7.00E+00	5.29	0.00E+00	0.00E+00
	53	2203.82	2198 -	2208	1.65E+01	10.31	5.00E+00	5.22E+00
	54	2276.94	2272 -	2279	6.00E+00	6.93	4.00E+00	4.03E+00
	55	2295.37	2292 -	2297	9.00E+00	6.00	0.00E+00	0.00E+00
	56	2404.33	2399 -	2407	4.93E+00	6.95	4.14E+00	4.39E+00
	57	2614.26	2609 -	2619	7.30E+01	17.09	0.00E+00	0.00E+00

Analysis Report for 1510089-07

CP3005S12-13

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 : 11/9/2015 2:23:48PM

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	53.49	51 -	55	53.59	7.49E+01	66.83	9.08E+02	.....
	2	76.19	72 -	79	76.28	6.89E+02	104.40	1.35E+03	.....
	3	186.11	183 -	189	186.13	1.60E+02	66.06	6.73E+02	RA-226
	4	209.51	207 -	212	209.52	5.67E+01	51.94	4.89E+02	CM-243
									GA-67
	5	239.32	235 -	243	239.32	5.80E+02	81.32	6.58E+02	PB-212
	6	253.43	246 -	261	253.42	1.12E+02	91.91	7.99E+02	.....
	7	288.21	285 -	291	288.18	5.74E+01	41.81	2.75E+02	.....
M	8	295.25	292 -	303	295.22	1.63E+02	41.55	2.17E+02	PB-214
m	9	299.92	292 -	303	299.88	2.75E+01	34.33	2.44E+02	BI-210M
									PB-212
									GA-67
	10	328.92	323 -	334	328.86	8.50E+01	62.64	4.42E+02	LA-140
	11	338.75	335 -	344	338.69	9.25E+01	52.18	3.39E+02	AC-228
	12	352.01	348 -	355	351.95	3.06E+02	55.39	3.07E+02	PB-214
	13	463.09	460 -	466	462.97	4.77E+01	33.16	1.67E+02	SB-125
	14	511.21	506 -	516	511.07	1.87E+02	47.57	1.98E+02	.....
M	15	519.24	517 -	526	519.10	1.70E+01	14.74	4.25E+01	.....
m	16	523.40	517 -	526	523.25	2.70E+01	26.37	1.03E+02	.....
	17	529.81	527 -	533	529.66	2.56E+01	25.68	1.01E+02	I-133
									RB-83
	18	563.89	558 -	571	563.72	3.77E+01	47.25	2.33E+02	CS-134
	19	583.25	578 -	587	583.07	1.63E+02	49.35	2.54E+02	TL-208
	20	609.33	605 -	613	609.14	2.66E+02	44.99	1.45E+02	BI-214
	21	647.26	645 -	649	647.05	2.20E+01	16.37	4.00E+01	.....
	22	670.97	668 -	673	670.75	2.30E+01	22.16	7.81E+01	.....
	23	727.23	724 -	730	726.99	3.26E+01	30.37	1.45E+02	BI-212
	24	795.69	792 -	799	795.41	2.63E+01	27.71	1.07E+02	CS-134
	25	859.86	855 -	863	859.56	3.47E+01	27.45	9.46E+01	TL-208
	26	911.40	907 -	915	911.07	1.03E+02	34.62	1.20E+02	AC-228

Analysis Report for 1510089-07

CP3005S12-13

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									LU-172
	27	934.04	929 -	938	933.71	3.32E+01	29.97	1.08E+02	.....
	28	950.52	946 -	954	950.18	2.27E+01	28.18	1.09E+02	.....
	29	973.42	965 -	990	973.07	7.13E+01	81.27	3.71E+02	.....
M	30	1087.71	1083 -	1110	1087.31	2.74E+01	22.09	4.69E+01	.....
m	31	1094.56	1083 -	1110	1094.17	1.96E+01	22.63	5.99E+01	LU-172
m	32	1102.54	1083 -	1110	1102.14	1.78E+01	22.27	7.44E+01	.....
	33	1120.18	1116 -	1122	1119.77	6.69E+01	29.04	1.04E+02	BI-214
									SC-46
	34	1216.72	1214 -	1219	1216.28	1.72E+01	19.62	6.35E+01	.....
	35	1238.29	1235 -	1242	1237.84	2.35E+01	26.46	1.03E+02	CO-56
	36	1279.90	1276 -	1283	1279.44	2.72E+01	20.40	4.96E+01	.....
	37	1343.90	1341 -	1347	1343.41	1.35E+01	13.02	2.10E+01	.....
	38	1357.69	1353 -	1361	1357.20	1.60E+01	17.26	3.60E+01	.....
	39	1378.75	1375 -	1383	1378.25	2.86E+01	16.90	2.49E+01	.....
M	40	1456.13	1453 -	1466	1455.61	1.18E+01	13.04	2.38E+01	.....
m	41	1461.05	1453 -	1466	1460.53	8.62E+02	59.64	2.10E+01	K-40
	42	1509.57	1506 -	1512	1509.04	9.23E+00	8.75	7.54E+00	.....
	43	1570.17	1566 -	1572	1569.62	5.56E+00	7.78	6.89E+00	.....
	44	1621.12	1617 -	1624	1620.56	9.00E+00	6.00	0.00E+00	BI-212
	45	1629.91	1626 -	1633	1629.34	1.16E+01	9.80	8.88E+00	.....
	46	1729.48	1726 -	1731	1728.88	1.36E+01	8.31	2.80E+00	.....
	47	1764.59	1759 -	1767	1763.98	4.58E+01	17.35	1.84E+01	BI-214
	48	1846.53	1841 -	1850	1845.91	1.36E+01	9.43	4.81E+00	.....
	49	1920.67	1916 -	1922	1920.03	5.22E+00	7.78	7.56E+00	.....
	50	1947.31	1943 -	1949	1946.67	9.00E+00	6.00	0.00E+00	.....
	51	2039.92	2035 -	2042	2039.25	8.00E+00	5.66	0.00E+00	.....
	52	2138.54	2134 -	2140	2137.86	7.00E+00	5.29	0.00E+00	.....
	53	2203.82	2198 -	2208	2203.12	1.65E+01	10.31	5.00E+00	BI-214
	54	2276.94	2272 -	2279	2276.24	6.00E+00	6.93	4.00E+00	.....
	55	2295.37	2292 -	2297	2294.67	9.00E+00	6.00	0.00E+00	.....
	56	2404.33	2399 -	2407	2403.61	4.93E+00	6.95	4.14E+00	.....
	57	2614.26	2609 -	2619	2613.52	7.30E+01	17.09	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 : 11/9/2015 2:23:48PM

Analysis Report for 1510089-07

CP3005S12-13

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	53.49	7.49E+01	66.83	1.85E-02	1.68E-03
	2	76.19	6.89E+02	104.40	2.74E-02	3.33E-03
	3	186.11	1.60E+02	66.06	2.11E-02	1.65E-03
	4	209.51	5.67E+01	51.94	1.95E-02	1.63E-03
	5	239.32	5.80E+02	81.32	1.78E-02	1.60E-03
	6	253.43	1.12E+02	91.91	1.72E-02	1.58E-03
	7	288.21	5.74E+01	41.81	1.57E-02	1.51E-03
M	8	295.25	1.63E+02	41.55	1.55E-02	1.48E-03
m	9	299.92	2.75E+01	34.33	1.53E-02	1.46E-03
	10	328.92	8.50E+01	62.64	1.44E-02	1.32E-03
	11	338.75	9.25E+01	52.18	1.41E-02	1.27E-03
	12	352.01	3.06E+02	55.39	1.37E-02	1.21E-03
	13	463.09	4.77E+01	33.16	1.13E-02	9.47E-04
	14	511.21	1.87E+02	47.57	1.06E-02	8.98E-04
M	15	519.24	1.70E+01	14.74	1.04E-02	8.90E-04
m	16	523.40	2.70E+01	26.37	1.04E-02	8.86E-04
	17	529.81	2.56E+01	25.68	1.03E-02	8.79E-04
	18	563.89	3.77E+01	47.25	9.82E-03	8.45E-04
	19	583.25	1.63E+02	49.35	9.58E-03	8.25E-04
	20	609.33	2.66E+02	44.99	9.27E-03	7.98E-04
	21	647.26	2.20E+01	16.37	8.85E-03	7.60E-04
	22	670.97	2.30E+01	22.16	8.61E-03	7.39E-04
	23	727.23	3.26E+01	30.37	8.09E-03	7.03E-04
	24	795.69	2.63E+01	27.71	7.53E-03	6.59E-04
	25	859.86	3.47E+01	27.45	7.07E-03	6.18E-04
	26	911.40	1.03E+02	34.62	6.74E-03	5.87E-04
	27	934.04	3.32E+01	29.97	6.61E-03	5.75E-04
	28	950.52	2.27E+01	28.18	6.52E-03	5.67E-04
	29	973.42	7.13E+01	81.27	6.39E-03	5.55E-04
M	30	1087.71	2.74E+01	22.09	5.84E-03	4.96E-04
m	31	1094.56	1.96E+01	22.63	5.81E-03	4.93E-04
m	32	1102.54	1.78E+01	22.27	5.78E-03	4.89E-04
	33	1120.18	6.69E+01	29.04	5.70E-03	4.80E-04
	34	1216.72	1.72E+01	19.62	5.34E-03	4.73E-04
	35	1238.29	2.35E+01	26.46	5.27E-03	4.83E-04
	36	1279.90	2.72E+01	20.40	5.14E-03	5.02E-04
	37	1343.90	1.35E+01	13.02	4.96E-03	5.22E-04
	38	1357.69	1.60E+01	17.26	4.92E-03	5.16E-04
	39	1378.75	2.86E+01	16.90	4.87E-03	5.07E-04
M	40	1456.13	1.18E+01	13.04	4.68E-03	4.75E-04
m	41	1461.05	8.62E+02	59.64	4.67E-03	4.73E-04
	42	1509.57	9.23E+00	8.75	4.57E-03	4.53E-04
	43	1570.17	5.56E+00	7.78	4.46E-03	4.28E-04
	44	1621.12	9.00E+00	6.00	4.38E-03	4.07E-04
	45	1629.91	1.16E+01	9.80	4.36E-03	4.03E-04
	46	1729.48	1.36E+01	8.31	4.23E-03	3.62E-04
	47	1764.59	4.58E+01	17.35	4.19E-03	3.47E-04
	48	1846.53	1.36E+01	9.43	4.10E-03	3.18E-04
	49	1920.67	5.22E+00	7.78	4.04E-03	3.18E-04
	50	1947.31	9.00E+00	6.00	4.02E-03	3.18E-04
	51	2039.92	8.00E+00	5.66	3.97E-03	3.18E-04
	52	2138.54	7.00E+00	5.29	3.94E-03	3.18E-04
	53	2203.82	1.65E+01	10.31	3.93E-03	3.18E-04

Analysis Report for 1510089-07

CP3005S12-13

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2276.94	6.00E+00	6.93	3.93E-03	3.18E-04
55	2295.37	9.00E+00	6.00	3.93E-03	3.18E-04
56	2404.33	4.93E+00	6.95	3.95E-03	3.18E-04
57	2614.26	7.30E+01	17.09	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 : 11/9/2015 2:23:48PM

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	53.49	7.49E+01	66.83			7.49E+01	6.68E+01
	2	76.19	6.89E+02	104.40			6.89E+02	1.04E+02
	3	186.11	1.60E+02	66.06	4.72E+01	7.97E+00	1.13E+02	6.65E+01
	4	209.51	5.67E+01	51.94			5.67E+01	5.19E+01
	5	239.32	5.80E+02	81.32	2.36E+01	1.35E+01	5.57E+02	8.24E+01
	6	253.43	1.12E+02	91.91	0.00E+00	0.00E+00	1.12E+02	9.19E+01
	7	288.21	5.74E+01	41.81			5.74E+01	4.18E+01
M	8	295.25	1.63E+02	41.55	8.57E+00	6.10E+00	1.54E+02	4.20E+01
m	9	299.92	2.75E+01	34.33			2.75E+01	3.43E+01
	10	328.92	8.50E+01	62.64	0.00E+00	0.00E+00	8.50E+01	6.26E+01
	11	338.75	9.25E+01	52.18			9.25E+01	5.22E+01
	12	352.01	3.06E+02	55.39	1.40E+01	5.55E+00	2.92E+02	5.57E+01
	13	463.09	4.77E+01	33.16			4.77E+01	3.32E+01
	14	511.21	1.87E+02	47.57	8.41E+01	5.50E+00	1.03E+02	4.79E+01
M	15	519.24	1.70E+01	14.74			1.70E+01	1.47E+01
m	16	523.40	2.70E+01	26.37			2.70E+01	2.64E+01
	17	529.81	2.56E+01	25.68			2.56E+01	2.57E+01
	18	563.89	3.77E+01	47.25			3.77E+01	4.73E+01
	19	583.25	1.63E+02	49.35	7.32E+00	4.08E+00	1.55E+02	4.95E+01
	20	609.33	2.66E+02	44.99	1.30E+01	3.89E+00	2.53E+02	4.52E+01
	21	647.26	2.20E+01	16.37			2.20E+01	1.64E+01
	22	670.97	2.30E+01	22.16			2.30E+01	2.22E+01
	23	727.23	3.26E+01	30.37			3.26E+01	3.04E+01
	24	795.69	2.63E+01	27.71			2.63E+01	2.77E+01
	25	859.86	3.47E+01	27.45			3.47E+01	2.74E+01
	26	911.40	1.03E+02	34.62	5.60E+00	3.32E+00	9.74E+01	3.48E+01

Analysis Report for 1510089-07

CP3005S12-13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	27	934.04	3.32E+01	29.97			3.32E+01	3.00E+01
	28	950.52	2.27E+01	28.18			2.27E+01	2.82E+01
	29	973.42	7.13E+01	81.27			7.13E+01	8.13E+01
M	30	1087.71	2.74E+01	22.09			2.74E+01	2.21E+01
m	31	1094.56	1.96E+01	22.63			1.96E+01	2.26E+01
m	32	1102.54	1.78E+01	22.27			1.78E+01	2.23E+01
	33	1120.18	6.69E+01	29.04	3.93E+00	2.96E+00	6.30E+01	2.92E+01
	34	1216.72	1.72E+01	19.62			1.72E+01	1.96E+01
	35	1238.29	2.35E+01	26.46			2.35E+01	2.65E+01
	36	1279.90	2.72E+01	20.40			2.72E+01	2.04E+01
	37	1343.90	1.35E+01	13.02			1.35E+01	1.30E+01
	38	1357.69	1.60E+01	17.26			1.60E+01	1.73E+01
	39	1378.75	2.86E+01	16.90			2.86E+01	1.69E+01
M	40	1456.13	1.18E+01	13.04			1.18E+01	1.30E+01
m	41	1461.05	8.62E+02	59.64	1.12E+01	2.55E+00	8.51E+02	5.97E+01
	42	1509.57	9.23E+00	8.75			9.23E+00	8.75E+00
	43	1570.17	5.56E+00	7.78			5.56E+00	7.78E+00
	44	1621.12	9.00E+00	6.00			9.00E+00	6.00E+00
	45	1629.91	1.16E+01	9.80			1.16E+01	9.80E+00
	46	1729.48	1.36E+01	8.31			1.36E+01	8.31E+00
	47	1764.59	4.58E+01	17.35	4.23E+00	2.21E+00	4.16E+01	1.75E+01
	48	1846.53	1.36E+01	9.43			1.36E+01	9.43E+00
	49	1920.67	5.22E+00	7.78			5.22E+00	7.78E+00
	50	1947.31	9.00E+00	6.00			9.00E+00	6.00E+00
	51	2039.92	8.00E+00	5.66			8.00E+00	5.66E+00
	52	2138.54	7.00E+00	5.29			7.00E+00	5.29E+00
	53	2203.82	1.65E+01	10.31	5.94E-01	1.16E+00	1.59E+01	1.04E+01
	54	2276.94	6.00E+00	6.93			6.00E+00	6.93E+00
	55	2295.37	9.00E+00	6.00			9.00E+00	6.00E+00
	56	2404.33	4.93E+00	6.95			4.93E+00	6.95E+00
	57	2614.26	7.30E+01	17.09	7.38E+00	1.57E+00	6.56E+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 : 11/9/2015 2:23:48PM

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 1510089-07

CP3005S12-13

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	53.49	7.49E+01	66.83			7.49E+01	6.68E+01
	2	76.19	6.89E+02	104.40			6.89E+02	1.04E+02
	3	186.11	1.60E+02	66.06	4.72E+01	7.97E+00	1.13E+02	6.65E+01
	4	209.51	5.67E+01	51.94			5.67E+01	5.19E+01
	5	239.32	5.80E+02	81.32	2.36E+01	1.35E+01	5.57E+02	8.24E+01
	6	253.43	1.12E+02	91.91	0.00E+00	0.00E+00	1.12E+02	9.19E+01
	7	288.21	5.74E+01	41.81			5.74E+01	4.18E+01
M	8	295.25	1.63E+02	41.55	8.57E+00	6.10E+00	1.54E+02	4.20E+01
m	9	299.92	2.75E+01	34.33			2.75E+01	3.43E+01
	10	328.92	8.50E+01	62.64	0.00E+00	0.00E+00	8.50E+01	6.26E+01
	11	338.75	9.25E+01	52.18			9.25E+01	5.22E+01
	12	352.01	3.06E+02	55.39	1.40E+01	5.55E+00	2.92E+02	5.57E+01
	13	463.09	4.77E+01	33.16			4.77E+01	3.32E+01
	14	511.21	1.87E+02	47.57	8.41E+01	5.50E+00	1.03E+02	4.79E+01
M	15	519.24	1.70E+01	14.74			1.70E+01	1.47E+01
m	16	523.40	2.70E+01	26.37			2.70E+01	2.64E+01
	17	529.81	2.56E+01	25.68			2.56E+01	2.57E+01
	18	563.89	3.77E+01	47.25			3.77E+01	4.73E+01
	19	583.25	1.63E+02	49.35	7.32E+00	4.08E+00	1.55E+02	4.95E+01
	20	609.33	2.66E+02	44.99	1.30E+01	3.89E+00	2.53E+02	4.52E+01
	21	647.26	2.20E+01	16.37			2.20E+01	1.64E+01
	22	670.97	2.30E+01	22.16			2.30E+01	2.22E+01
	23	727.23	3.26E+01	30.37			3.26E+01	3.04E+01
	24	795.69	2.63E+01	27.71			2.63E+01	2.77E+01
	25	859.86	3.47E+01	27.45			3.47E+01	2.74E+01
	26	911.40	1.03E+02	34.62	5.60E+00	3.32E+00	9.74E+01	3.48E+01
	27	934.04	3.32E+01	29.97			3.32E+01	3.00E+01
	28	950.52	2.27E+01	28.18			2.27E+01	2.82E+01
	29	973.42	7.13E+01	81.27			7.13E+01	8.13E+01
M	30	1087.71	2.74E+01	22.09			2.74E+01	2.21E+01
m	31	1094.56	1.96E+01	22.63			1.96E+01	2.26E+01
m	32	1102.54	1.78E+01	22.27			1.78E+01	2.23E+01
	33	1120.18	6.69E+01	29.04	3.93E+00	2.96E+00	6.30E+01	2.92E+01
	34	1216.72	1.72E+01	19.62			1.72E+01	1.96E+01
	35	1238.29	2.35E+01	26.46			2.35E+01	2.65E+01
	36	1279.90	2.72E+01	20.40			2.72E+01	2.04E+01
	37	1343.90	1.35E+01	13.02			1.35E+01	1.30E+01
	38	1357.69	1.60E+01	17.26			1.60E+01	1.73E+01
	39	1378.75	2.86E+01	16.90			2.86E+01	1.69E+01
M	40	1456.13	1.18E+01	13.04			1.18E+01	1.30E+01
m	41	1461.05	8.62E+02	59.64	1.12E+01	2.55E+00	8.51E+02	5.97E+01
	42	1509.57	9.23E+00	8.75			9.23E+00	8.75E+00
	43	1570.17	5.56E+00	7.78			5.56E+00	7.78E+00
	44	1621.12	9.00E+00	6.00			9.00E+00	6.00E+00
	45	1629.91	1.16E+01	9.80			1.16E+01	9.80E+00
	46	1729.48	1.36E+01	8.31			1.36E+01	8.31E+00
	47	1764.59	4.58E+01	17.35	4.23E+00	2.21E+00	4.16E+01	1.75E+01
	48	1846.53	1.36E+01	9.43			1.36E+01	9.43E+00
	49	1920.67	5.22E+00	7.78			5.22E+00	7.78E+00
	50	1947.31	9.00E+00	6.00			9.00E+00	6.00E+00
	51	2039.92	8.00E+00	5.66			8.00E+00	5.66E+00
	52	2138.54	7.00E+00	5.29			7.00E+00	5.29E+00
	53	2203.82	1.65E+01	10.31	5.94E-01	1.16E+00	1.59E+01	1.04E+01
	54	2276.94	6.00E+00	6.93			6.00E+00	6.93E+00

Analysis Report for 1510089-07

CP3005S12-13

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2295.37	9.00E+00	6.00			9.00E+00	6.00E+00
56	2404.33	4.93E+00	6.95			4.93E+00	6.95E+00
57	2614.26	7.30E+01	17.09	7.38E+00	1.57E+00	6.56E+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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.991	1460.81	*	10.67	1.85E+01	2.31E+00
TL-208	0.984	583.14	*	30.22	5.82E-01	1.92E-01
		860.37	*	4.48	1.19E+00	9.45E-01
		2614.66	*	35.85	4.90E-01	1.34E-01
BI-212	0.992	727.17	*	11.80	3.71E-01	3.46E-01
		1620.62	*	2.75	8.10E-01	5.46E-01
PB-212	0.931	238.63	*	44.60	7.58E-01	1.31E-01
		300.09	*	3.41	5.71E-01	7.15E-01
BI-214	0.998	609.31	*	46.30	6.40E-01	1.27E-01
		1120.29	*	15.10	7.92E-01	3.73E-01
		1764.49	*	15.80	6.81E-01	2.92E-01
		2204.22	*	4.98	8.81E-01	5.79E-01
PB-214	0.999	295.21	*	19.19	5.63E-01	1.63E-01
		351.92	*	37.19	6.19E-01	1.30E-01
RA-226	0.998	186.21	*	3.28	1.78E+00	3.41E+00
AC-228	0.557	338.32	*	11.40	6.24E-01	3.57E-01
		911.07	*	27.70	5.65E-01	2.08E-01
		969.11		16.60		

* = 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 1510089-07

CP3005S12-13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 2:23:48PM
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	53.49	2.08076E-02	44.61		
	2	76.19	1.91487E-01	7.57		
	4	209.51	1.57512E-02	45.80	Tol.	GA-67 CM-243
	6	253.43	3.12446E-02	40.86		
	7	288.21	1.59551E-02	36.39		
	10	328.92	2.36211E-02	36.83	Tol.	LA-140
	13	463.09	1.32581E-02	34.74		
	14	511.21	2.86429E-02	23.22		
M	15	519.24	4.71270E-03	43.44		
m	16	523.40	7.50298E-03	48.81		
	17	529.81	7.11988E-03	50.09	Tol.	RB-83 I-133
	18	563.89	1.04618E-02	62.73	Tol.	CS-134
	21	647.26	6.11111E-03	37.21	Sum	
	22	670.97	6.37545E-03	48.27		
	24	795.69	7.31250E-03	52.64	Sum	
	27	934.04	9.21456E-03	45.17		
	28	950.52	6.29870E-03	62.13	S-Esc	
	29	973.42	1.98076E-02	56.99		
M	30	1087.71	7.60229E-03	40.36		
m	31	1094.56	5.44095E-03	57.76	Tol.	LU-172
m	32	1102.54	4.93119E-03	62.73		
	34	1216.72	4.78742E-03	56.92		
	35	1238.29	6.52778E-03	56.29		
	36	1279.90	7.55876E-03	37.48		
	37	1343.90	3.75000E-03	48.22		
	38	1357.69	4.44444E-03	53.95		
	39	1378.75	7.93360E-03	29.58		
M	40	1456.13	3.27535E-03	55.29		
	42	1509.57	2.56410E-03	47.38		
	43	1570.17	1.54321E-03	70.00		
	45	1629.91	3.21181E-03	42.37		
	46	1729.48	3.77778E-03	30.54	Sum	
	48	1846.53	3.77604E-03	34.70	Sum	
	49	1920.67	1.45062E-03	74.47	Sum	
	50	1947.31	2.50000E-03	33.33		
	51	2039.92	2.22222E-03	35.36		
	52	2138.54	1.94444E-03	37.80		
	54	2276.94	1.66667E-03	57.74		
	55	2295.37	2.50000E-03	33.33		
	56	2404.33	1.36905E-03	70.47		

Analysis Report for 1510089-07

CP3005S12-13

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

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.85E+01	2.31E+00
TL-208	0.98	583.14	*	30.22	5.82E-01	1.92E-01
		860.37	*	4.48	1.19E+00	9.45E-01
		2614.66	*	35.85	4.90E-01	1.34E-01
BI-212	0.99	727.17	*	11.80	3.71E-01	3.46E-01
		1620.62	*	2.75	8.10E-01	5.46E-01
PB-212	0.93	238.63	*	44.60	7.58E-01	1.31E-01
		300.09	*	3.41	5.71E-01	7.15E-01
BI-214	0.99	609.31	*	46.30	6.40E-01	1.27E-01
		1120.29	*	15.10	7.92E-01	3.73E-01
		1764.49	*	15.80	6.81E-01	2.92E-01
		2204.22	*	4.98	8.81E-01	5.79E-01
PB-214	0.99	295.21	*	19.19	5.63E-01	1.63E-01
		351.92	*	37.19	6.19E-01	1.30E-01
RA-226	0.99	186.21	*	3.28	1.78E+00	3.41E+00
AC-228	0.55	338.32	*	11.40	6.24E-01	3.57E-01
		911.07	*	27.70	5.65E-01	2.08E-01
		969.11		16.60		

* = 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 1510089-07

CP3005S12-13

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.991	1.85E+01	2.31E+00	
TL-208	0.984	5.29E-01	1.09E-01	
BI-212	0.992	4.97E-01	2.92E-01	
PB-212	0.931	7.52E-01	1.29E-01	
BI-214	0.998	6.67E-01	1.09E-01	
PB-214	0.999	5.97E-01	1.02E-01	
RA-226	0.998	1.78E+00	3.41E+00	
AC-228	0.557	5.80E-01	1.79E-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 1510089-07
CP3005S12-13

UNIDENTIFIED PEAKS

Peak Locate Performed on : 11/9/2015 2:23:48PM
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	53.49	2.08076E-02	44.61		
	2	76.19	1.91487E-01	7.57		
	4	209.51	1.57512E-02	45.80	Tol.	GA-67
						CM-243
	6	253.43	3.12446E-02	40.86		
	7	288.21	1.59551E-02	36.39		
	10	328.92	2.36211E-02	36.83	Tol.	LA-140
	13	463.09	1.32581E-02	34.74		
	14	511.21	2.86429E-02	23.22		
M	15	519.24	4.71270E-03	43.44		
m	16	523.40	7.50298E-03	48.81		
	17	529.81	7.11988E-03	50.09	Tol.	RB-83
						I-133
	18	563.89	1.04618E-02	62.73	Tol.	CS-134
	21	647.26	6.11111E-03	37.21	Sum	
	22	670.97	6.37545E-03	48.27		
	24	795.69	7.31250E-03	52.64	Sum	
	27	934.04	9.21456E-03	45.17		
	28	950.52	6.29870E-03	62.13	S-Esc	
	29	973.42	1.98076E-02	56.99		
M	30	1087.71	7.60229E-03	40.36		
m	31	1094.56	5.44095E-03	57.76	Tol.	LU-172
m	32	1102.54	4.93119E-03	62.73		
	34	1216.72	4.78742E-03	56.92		
	35	1238.29	6.52778E-03	56.29		
	36	1279.90	7.55876E-03	37.48		
	37	1343.90	3.75000E-03	48.22		
	38	1357.69	4.44444E-03	53.95		
	39	1378.75	7.93360E-03	29.58		
M	40	1456.13	3.27535E-03	55.29		
	42	1509.57	2.56410E-03	47.38		
	43	1570.17	1.54321E-03	70.00		
	45	1629.91	3.21181E-03	42.37		
	46	1729.48	3.77778E-03	30.54	Sum	
	48	1846.53	3.77604E-03	34.70	Sum	

Analysis Report for 1510089-07

CP3005S12-13

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
49	1920.67	1.45062E-03	74.47	Sum	
50	1947.31	2.50000E-03	33.33		
51	2039.92	2.22222E-03	35.36		
52	2138.54	1.94444E-03	37.80		
54	2276.94	1.66667E-03	57.74		
55	2295.37	2.50000E-03	33.33		
56	2404.33	1.36905E-03	70.47		

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	-2.83E-01	5.21E-01	5.21E-01
+	NA-22	1274.54		99.94	5.92E-03	7.15E-02	7.15E-02
+	NA-24	1368.53		99.99	-3.80E+13	2.42E+13	1.62E+14
		2754.09		99.86	0.00E+00		2.42E+13
+	AL-26	1808.65		99.76	-8.92E-03	3.44E-02	3.44E-02
+	K-40	1460.81	*	10.67	1.85E+01	7.63E-01	7.63E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-9.27E-03	3.75E-02	3.75E-02
		78.34		96.00	1.18E-01		4.72E-02
+	SC-46	889.25		99.98	3.28E-02	7.05E-02	7.05E-02
		1120.51		99.99	1.37E-01		1.31E-01
+	V-48	983.52		99.98	4.22E-02	2.42E-01	2.42E-01
		1312.10		97.50	-7.59E-02		2.52E-01
+	CR-51	320.08		9.83	3.06E-01	8.84E-01	8.84E-01
+	MN-54	834.83		99.97	-5.42E-04	5.51E-02	5.51E-02
+	CO-56	846.75		99.96	-1.02E-02	6.89E-02	6.89E-02
		1037.75		14.03	-3.80E-02		5.85E-01
		1238.25		67.00	6.32E-02		1.67E-01
		1771.40		15.51	-1.40E-01		3.52E-01
		2598.48		16.90	-9.84E-02		1.55E-01
+	CO-57	122.06		85.51	-2.11E-02	4.11E-02	4.11E-02
		136.48		10.60	-6.30E-02		3.69E-01

Analysis Report for 1510089-07

CP3005S12-13

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-58	810.76	99.40	-2.09E-02	8.34E-02	8.34E-02
+	FE-59	1099.22	56.50	-3.51E-02	2.02E-01	2.02E-01
		1291.56	43.20	-3.65E-02		2.42E-01
+	CO-60	1173.22	100.00	1.49E-02	6.01E-02	7.85E-02
		1332.49	100.00	4.40E-03		6.01E-02
+	ZN-65	1115.52	50.75	2.98E-02	1.62E-01	1.62E-01
+	GA-67	93.31	35.70	5.37E+01	1.12E+02	1.12E+02
		208.95	2.24	1.55E+03		1.85E+03
		300.22	16.00	3.57E+01		2.47E+02
+	SE-75	121.11	16.70	7.89E-02	7.32E-02	2.36E-01
		136.00	59.20	-7.66E-03		7.32E-02
		264.65	59.80	3.75E-02		7.49E-02
		279.53	25.20	-2.37E-02		1.96E-01
		400.65	11.40	1.54E-01		4.25E-01
+	RB-82	776.52	13.00	-5.22E-01	9.61E-01	9.61E-01
+	RB-83	520.41	46.00	-1.22E-02	1.16E-01	1.16E-01
		529.64	30.30	7.43E-02		1.73E-01
		552.65	16.40	-6.71E-02		3.00E-01
+	KR-85	513.99	0.43	-8.02E+00	1.12E+01	1.12E+01
+	SR-85	513.99	99.27	-4.92E-02	6.90E-02	6.90E-02
+	Y-88	898.02	93.40	4.56E-02	3.52E-02	8.06E-02
		1836.01	99.38	4.00E-03		3.52E-02
+	NB-93M	16.57	9.43	-4.47E+03	4.22E+03	4.22E+03
+	NB-94	702.63	100.00	-1.41E-02	5.25E-02	5.54E-02
		871.10	100.00	-7.28E-03		5.25E-02
+	NB-95	765.79	99.81	3.49E-02	1.14E-01	1.14E-01
+	NB-95M	235.69	25.00	-6.38E+02	1.03E+02	1.03E+02
+	ZR-95	724.18	43.70	4.04E-03	1.43E-01	2.09E-01
		756.72	55.30	5.86E-02		1.43E-01
+	MO-99	181.06	6.20	-7.41E+02	1.43E+03	2.07E+03
		739.58	12.80	1.57E+02		1.43E+03
		778.00	4.50	-1.19E+03		3.89E+03
+	RU-103	497.08	89.00	-2.72E-02	6.90E-02	6.90E-02
+	RU-106	621.84	9.80	3.04E-01	6.09E-01	6.09E-01
+	AG-108M	433.93	89.90	-3.54E-02	4.15E-02	4.15E-02
		614.37	90.40	-4.37E-03		5.04E-02
		722.95	90.50	-7.84E-03		5.97E-02
+	CD-109	88.03	3.72	1.87E+00	1.27E+00	1.27E+00
+	AG-110M	657.75	93.14	-3.03E-03	6.14E-02	6.14E-02
		677.61	10.53	-8.56E-02		5.06E-01
		706.67	16.46	1.92E-01		3.93E-01
		763.93	21.98	-6.59E-02		2.75E-01
		884.67	71.63	9.69E-03		8.04E-02
		1384.27	23.94	2.04E-02		1.99E-01
+	CD-113M	263.70	0.02	-1.68E+00	1.60E+02	1.60E+02
+	SN-113	255.12	1.93	-2.50E-01	7.87E-02	2.52E+00
		391.69	64.90	1.59E-03		7.87E-02

Analysis Report for 1510089-07

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TE123M	159.00	84.10	-8.02E-03	5.24E-02	5.24E-02
+	SB-124	602.71	97.87	1.44E-02	7.92E-02	7.92E-02
		645.85	7.26	-1.65E-01		8.69E-01
		722.78	11.10	-9.26E-02		7.06E-01
		1691.02	49.00	3.70E-02		1.13E-01
+	I-125	35.49	6.49	-1.51E+00	4.35E+00	4.35E+00
+	SB-125	176.33	6.89	2.83E-01	1.44E-01	5.81E-01
		427.89	29.33	1.58E-02		1.44E-01
		463.38	10.35	4.44E-01		4.80E-01
		600.56	17.80	1.33E-01		3.11E-01
		635.90	11.32	-5.96E-02		4.09E-01
+	SB-126	414.70	83.30	-3.87E-02	2.81E-01	2.81E-01
		666.33	99.60	-4.10E-03		3.22E-01
		695.00	99.60	-2.69E-02		3.24E-01
		720.50	53.80	-1.27E-01		6.16E-01
+	SN-126	87.57	37.00	1.79E-01	1.22E-01	1.22E-01
+	SB-127	473.00	25.00	7.61E+00	4.51E+01	5.38E+01
		685.20	35.70	-1.07E+01		4.51E+01
		783.80	14.70	7.77E+01		1.31E+02
+	I-129	29.78	57.00	-2.46E-01	9.06E-01	9.06E-01
		33.60	13.20	-3.84E-01		1.93E+00
		39.58	7.52	-8.14E-01		1.61E+00
+	I-131	284.30	6.05	2.40E+00	7.49E-01	9.77E+00
		364.48	81.20	-1.91E-01		7.49E-01
		636.97	7.26	-3.91E+00		1.00E+01
		722.89	1.80	-6.35E+00		4.84E+01
+	TE-132	49.72	13.10	-1.03E+02	4.26E+01	4.26E+02
		228.16	88.00	-2.18E+00		4.26E+01
+	BA-133	81.00	33.00	3.02E-02	6.54E-02	9.09E-02
		302.84	17.80	2.82E-02		2.20E-01
		356.01	60.00	3.91E-03		6.54E-02
+	I-133	529.87	86.30	5.67E+09	7.85E+09	7.85E+09
+	XE-133	81.00	38.00	1.85E+00	5.58E+00	5.58E+00
+	CS-134	563.23	8.38	2.99E-01	6.76E-02	5.60E-01
		569.32	15.43	-4.44E-02		2.64E-01
		604.70	97.60	4.54E-03		6.76E-02
		795.84	85.40	2.91E-02		7.42E-02
		801.93	8.73	2.57E-01		6.67E-01
+	CS-135	268.24	16.00	-1.52E-01	2.49E-01	2.49E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	-3.53E-01	3.03E-01	2.76E+00
		163.89	4.61	3.65E+00		4.55E+00
		176.55	13.56	1.39E-01		1.54E+00
		273.65	12.66	-1.84E+00		1.71E+00
		340.57	48.50	-3.22E-01		4.73E-01
		818.50	99.70	7.73E-02		3.03E-01
		1048.07	79.60	-1.22E-01		4.28E-01

Analysis Report for 1510089-07

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	1235.34	19.70	-2.37E-01	3.03E-01	2.26E+00
+	CS-137	661.65	85.12	-9.07E-03	6.38E-02	6.38E-02
+	LA-138	788.74	34.00	6.31E-02	7.20E-02	1.68E-01
		1435.80	66.00	-3.60E-02		7.20E-02
+	CE-139	165.85	80.35	-2.10E-03	5.51E-02	5.51E-02
+	BA-140	162.64	6.70	-1.06E+00	8.79E-01	3.16E+00
		304.84	4.50	-1.04E+00		4.98E+00
		423.70	3.20	4.82E+00		7.97E+00
		437.55	2.00	1.63E+00		1.21E+01
		537.32	25.00	1.19E-01		8.79E-01
+	LA-140	328.77	20.50	3.52E-01	2.97E-01	1.27E+00
		487.03	45.50	2.50E-02		5.10E-01
		815.85	23.50	-3.18E-02		1.41E+00
		1596.49	95.49	-1.65E-01		2.97E-01
+	CE-141	145.44	48.40	4.74E-02	1.48E-01	1.48E-01
+	CE-143	57.36	11.80	-6.62E+05	1.36E+06	3.87E+06
		293.26	42.00	-6.89E+05		1.36E+06
		664.55	5.20	4.13E+06		1.24E+07
+	CE-144	133.54	10.80	5.85E-02	3.65E-01	3.65E-01
+	PM-144	476.78	42.00	-4.90E-02	5.38E-02	9.04E-02
		618.01	98.60	1.30E-02		5.38E-02
		696.49	99.49	8.19E-03		5.57E-02
+	PM-145	36.85	21.70	1.93E-01	3.97E-01	7.73E-01
		37.36	39.70	9.91E-02		3.97E-01
		42.30	15.10	-2.14E-02		6.35E-01
		72.40	2.31	-1.47E+00		1.46E+00
+	PM-146	453.90	39.94	-9.26E-03	1.02E-01	1.02E-01
		735.90	14.01	-1.85E-01		3.51E-01
		747.13	13.10	1.48E-01		4.22E-01
+	ND-147	91.11	28.90	-1.37E+00	1.14E+00	1.14E+00
		531.02	13.10	8.05E-01		2.32E+00
+	PM-149	285.90	3.10	-1.88E+04	3.07E+04	3.07E+04
+	EU-152	121.78	20.50	-8.14E-02	1.59E-01	1.59E-01
		244.69	5.40	-2.76E-01		6.65E-01
		344.27	19.13	4.09E-02		2.07E-01
		778.89	9.20	-4.43E-02		5.65E-01
		964.01	10.40	1.69E-01		6.67E-01
		1085.78	7.22	1.93E-01		9.18E-01
		1112.02	9.60	1.95E-01		7.17E-01
		1407.95	14.94	-9.88E-02		3.06E-01
+	GD-153	97.43	31.30	1.36E-02	1.15E-01	1.15E-01
		103.18	22.20	-1.16E-01		1.58E-01
+	EU-154	123.07	40.50	1.01E-03	8.25E-02	8.25E-02
		723.30	19.70	-3.62E-02		2.76E-01
		873.19	11.50	5.45E-02		4.56E-01
		996.32	10.30	4.34E-02		5.96E-01
		1004.76	17.90	-5.70E-02		3.52E-01
		1274.45	35.50	1.64E-02		1.98E-01
+	EU-155	86.50	30.90	-1.15E-01	1.43E-01	1.43E-01

Analysis Report for 1510089-07

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-155	105.30		20.70	5.99E-02	1.43E-01	1.68E-01
+	EU-156	811.77		10.40	1.53E-01	2.53E+00	2.53E+00
		1153.47		7.20	-7.22E-01		4.56E+00
		1230.71		8.90	2.15E+00		3.97E+00
+	HO-166M	184.41		72.60	8.96E-03	6.45E-02	6.45E-02
		280.45		29.60	-1.68E-02		1.39E-01
		410.94		11.10	1.24E-01		3.73E-01
		711.69		54.10	-4.81E-02		9.93E-02
+	TM-171	66.72		0.14	1.28E+01	2.68E+01	2.68E+01
+	HF-172	81.75		4.52	-4.40E-01	3.16E-01	6.76E-01
		125.81		11.30	-2.41E-02		3.16E-01
+	LU-172	181.53		20.60	-1.38E-01	3.10E+00	5.20E+00
		810.06		16.63	-2.57E+00		1.02E+01
		912.12		15.25	3.03E+01		1.77E+01
		1093.66		62.50	-1.31E+00		3.10E+00
+	LU-173	100.72		5.24	-2.11E-01	2.17E-01	6.40E-01
		272.11		21.20	7.45E-02		2.17E-01
+	HF-175	343.40		84.00	1.40E-02	6.32E-02	6.32E-02
+	LU-176	88.34		13.30	4.98E-01	4.20E-02	3.39E-01
		201.83		86.00	-6.50E-03		4.50E-02
		306.78		94.00	-3.64E-05		4.20E-02
+	TA-182	67.75		41.20	-2.58E-02	1.04E-01	1.04E-01
		1121.30		34.90	-4.68E-02		3.56E-01
		1189.05		16.23	1.43E-01		5.91E-01
		1221.41		26.98	1.57E-01		3.55E-01
		1231.02		11.44	2.12E-01		8.43E-01
+	IR-192	308.46		29.68	1.89E-02	1.21E-01	1.79E-01
		468.07		48.10	4.91E-03		1.21E-01
+	HG-203	279.19		77.30	5.52E-02	8.88E-02	8.88E-02
+	BI-207	569.67		97.72	-6.83E-03	4.06E-02	4.06E-02
		1063.62		74.90	4.29E-02		8.92E-02
+	TL-208	583.14	*	30.22	5.82E-01	8.96E-02	2.74E-01
		860.37	*	4.48	1.19E+00		1.49E+00
		2614.66	*	35.85	4.90E-01		8.96E-02
+	BI-210M	262.00		45.00	1.38E-02	8.21E-02	8.21E-02
		300.00		23.00	2.62E-02		1.81E-01
+	PB-210	46.50		4.25	2.32E+00	1.92E+00	1.92E+00
+	PB-211	404.84		2.90	-2.94E-01	1.42E+00	1.42E+00
		831.96		2.90	-8.47E-01		1.76E+00
+	BI-212	727.17	*	11.80	3.71E-01	2.44E-01	5.56E-01
		1620.62	*	2.75	8.10E-01		2.44E-01
+	PB-212	238.63	*	44.60	7.58E-01	1.55E-01	1.55E-01
		300.09	*	3.41	5.71E-01		2.14E+00
+	BI-214	609.31	*	46.30	6.40E-01	1.40E-01	1.40E-01
		1120.29	*	15.10	7.92E-01		5.41E-01
		1764.49	*	15.80	6.81E-01		3.63E-01
		2204.22	*	4.98	8.81E-01		7.54E-01
+	PB-214	295.21	*	19.19	5.63E-01	1.59E-01	3.77E-01

Analysis Report for 1510089-07

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-214	351.92	*	37.19	6.19E-01	1.59E-01	1.59E-01
+	RN-219	401.80		6.50	-4.53E-01	5.90E-01	5.90E-01
+	RA-223	323.87		3.88	-2.53E-01	1.01E+00	1.01E+00
+	RA-224	240.98		3.95	6.05E+00	1.84E+00	1.84E+00
+	RA-225	40.00		31.00	-8.58E-01	1.70E+00	1.70E+00
+	RA-226	186.21	*	3.28	1.78E+00	1.67E+00	1.67E+00
+	TH-227	50.10		8.40	-1.66E-01	4.57E-01	6.83E-01
		236.00		11.50	-2.83E+00		4.57E-01
		256.20		6.30	2.83E-01		6.44E-01
+	AC-228	338.32	*	11.40	6.24E-01	2.89E-01	5.57E-01
		911.07	*	27.70	5.65E-01		2.89E-01
		969.11		16.60	5.10E-01		5.48E-01
+	TH-230	48.44		16.90	-1.89E-01	3.81E-01	3.81E-01
		62.85		4.60	5.73E-01		8.70E-01
		67.67		0.37	-2.37E+00		9.58E+00
+	PA-231	283.67		1.60	5.62E-01	1.70E+00	2.29E+00
		302.67		2.30	2.17E-01		1.70E+00
+	TH-231	25.64		14.70	3.23E+00	4.97E-01	1.14E+01
		84.21		6.40	2.22E-01		4.97E-01
+	PA-233	311.98		38.60	-5.18E-02	2.25E-01	2.25E-01
+	PA-234	131.20		20.40	5.06E-02	1.83E-01	1.83E-01
		733.99		8.80	-1.48E-01		5.71E-01
		946.00		12.00	1.26E-01		4.92E-01
+	PA-234M	1001.03		0.92	2.28E+00	6.90E+00	6.90E+00
+	TH-234	63.29		3.80	6.88E-01	1.04E+00	1.04E+00
+	U-235	143.76		10.50	-1.84E-01	3.35E-01	3.35E-01
		163.35		4.70	-2.63E-01		7.86E-01
		205.31		4.70	1.52E-01		8.48E-01
+	NP-237	86.50		12.60	-2.80E-01	3.46E-01	3.46E-01
+	NP-239	106.10		22.70	8.30E+02	2.03E+03	2.03E+03
		228.18		10.70	-2.49E+02		4.87E+03
		277.60		14.10	1.23E+03		4.02E+03
+	AM-241	59.54		35.90	-6.45E-03	1.11E-01	1.11E-01
+	AM-243	74.67		66.00	-5.62E-02	6.94E-02	6.94E-02
+	CM-243	209.75		3.29	8.84E-01	3.06E-01	1.31E+00
		228.14		10.60	-1.90E-02		3.71E-01
		277.60		14.00	9.38E-02		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
? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

Analysis Report for 1510089-07

CP3005S12-13

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	5.21E-01	5.21E-01	-2.83E-01	2.41E-01
	NA-22	1274.54		99.94	7.15E-02	7.15E-02	5.92E-03	3.28E-02
	NA-24	1368.53		99.99	1.62E+14	2.42E+13	-3.80E+13	7.08E+13
		2754.09		99.86	2.42E+13		0.00E+00	0.00E+00
	AL-26	1808.65		99.76	3.44E-02	3.44E-02	-8.92E-03	1.37E-02
+	K-40	1460.81	*	10.67	7.63E-01	7.63E-01	1.85E+01	3.52E-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	3.75E-02	3.75E-02	-9.27E-03	1.81E-02
		78.34		96.00	4.72E-02		1.18E-01	2.30E-02
	SC-46	889.25		99.98	7.05E-02	7.05E-02	3.28E-02	3.25E-02
		1120.51		99.99	1.31E-01		1.37E-01	6.22E-02
	V-48	983.52		99.98	2.42E-01	2.42E-01	4.22E-02	1.12E-01
		1312.10		97.50	2.52E-01		-7.59E-02	1.14E-01
	CR-51	320.08		9.83	8.84E-01	8.84E-01	3.06E-01	4.19E-01
	MN-54	834.83		99.97	5.51E-02	5.51E-02	-5.42E-04	2.54E-02
	CO-56	846.75		99.96	6.89E-02	6.89E-02	-1.02E-02	3.17E-02
		1037.75		14.03	5.85E-01		-3.80E-02	2.70E-01
		1238.25		67.00	1.67E-01		6.32E-02	7.82E-02
		1771.40		15.51	3.52E-01		-1.40E-01	1.46E-01
		2598.48		16.90	1.55E-01		-9.84E-02	4.90E-02
	CO-57	122.06		85.51	4.11E-02	4.11E-02	-2.11E-02	1.99E-02
		136.48		10.60	3.69E-01		-6.30E-02	1.79E-01
	CO-58	810.76		99.40	8.34E-02	8.34E-02	-2.09E-02	3.90E-02
	FE-59	1099.22		56.50	2.02E-01	2.02E-01	-3.51E-02	9.34E-02
		1291.56		43.20	2.42E-01		-3.65E-02	1.10E-01
	CO-60	1173.22		100.00	7.85E-02	6.01E-02	1.49E-02	3.65E-02
		1332.49		100.00	6.01E-02		4.40E-03	2.71E-02
	ZN-65	1115.52		50.75	1.62E-01	1.62E-01	2.98E-02	7.55E-02
	GA-67	93.31		35.70	1.12E+02	1.12E+02	5.37E+01	5.44E+01
		208.95		2.24	1.85E+03		1.55E+03	8.94E+02
		300.22		16.00	2.47E+02		3.57E+01	1.18E+02
	SE-75	121.11		16.70	2.36E-01	7.32E-02	7.89E-02	1.14E-01
		136.00		59.20	7.32E-02		-7.66E-03	3.54E-02
		264.65		59.80	7.49E-02		3.75E-02	3.57E-02
		279.53		25.20	1.96E-01		-2.37E-02	9.38E-02
		400.65		11.40	4.25E-01		1.54E-01	2.00E-01
	RB-82	776.52		13.00	9.61E-01	9.61E-01	-5.22E-01	4.45E-01
	RB-83	520.41		46.00	1.16E-01	1.16E-01	-1.22E-02	5.41E-02
		529.64		30.30	1.73E-01		7.43E-02	8.05E-02
		552.65		16.40	3.00E-01		-6.71E-02	1.38E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
KR-85	513.99	0.43	1.12E+01	1.12E+01	-8.02E+00	5.30E+00
SR-85	513.99	99.27	6.90E-02	6.90E-02	-4.92E-02	3.25E-02
Y-88	898.02	93.40	8.06E-02	3.52E-02	4.56E-02	3.75E-02
	1836.01	99.38	3.52E-02		4.00E-03	1.32E-02
NB-93M	16.57	9.43	4.22E+03	4.22E+03	-4.47E+03	2.05E+03
NB-94	702.63	100.00	5.54E-02	5.25E-02	-1.41E-02	2.59E-02
	871.10	100.00	5.25E-02		-7.28E-03	2.42E-02
NB-95	765.79	99.81	1.14E-01	1.14E-01	3.49E-02	5.33E-02
NB-95M	235.69	25.00	1.03E+02	1.03E+02	-6.38E+02	4.98E+01
ZR-95	724.18	43.70	2.09E-01	1.43E-01	4.04E-03	9.88E-02
	756.72	55.30	1.43E-01		5.86E-02	6.65E-02
MO-99	181.06	6.20	2.07E+03	1.43E+03	-7.41E+02	9.99E+02
	739.58	12.80	1.43E+03		1.57E+02	6.69E+02
	778.00	4.50	3.89E+03		-1.19E+03	1.80E+03
RU-103	497.08	89.00	6.90E-02	6.90E-02	-2.72E-02	3.18E-02
RU-106	621.84	9.80	6.09E-01	6.09E-01	3.04E-01	2.87E-01
AG-108M	433.93	89.90	4.15E-02	4.15E-02	-3.54E-02	1.94E-02
	614.37	90.40	5.04E-02		-4.37E-03	2.35E-02
	722.95	90.50	5.97E-02		-7.84E-03	2.79E-02
CD-109	88.03	3.72	1.27E+00	1.27E+00	1.87E+00	6.21E-01
AG-110M	657.75	93.14	6.14E-02	6.14E-02	-3.03E-03	2.87E-02
	677.61	10.53	5.06E-01		-8.56E-02	2.35E-01
	706.67	16.46	3.93E-01		1.92E-01	1.85E-01
	763.93	21.98	2.75E-01		-6.59E-02	1.28E-01
	884.67	71.63	8.04E-02		9.69E-03	3.70E-02
	1384.27	23.94	1.99E-01		2.04E-02	8.56E-02
CD-113M	263.70	0.02	1.60E+02	1.60E+02	-1.68E+00	7.60E+01
SN-113	255.12	1.93	2.52E+00	7.87E-02	-2.50E-01	1.21E+00
	391.69	64.90	7.87E-02		1.59E-03	3.72E-02
TE123M	159.00	84.10	5.24E-02	5.24E-02	-8.02E-03	2.53E-02
SB-124	602.71	97.87	7.92E-02	7.92E-02	1.44E-02	3.73E-02
	645.85	7.26	8.69E-01		-1.65E-01	4.01E-01
	722.78	11.10	7.06E-01		-9.26E-02	3.29E-01
	1691.02	49.00	1.13E-01		3.70E-02	4.62E-02
I-125	35.49	6.49	4.35E+00	4.35E+00	-1.51E+00	2.11E+00
SB-125	176.33	6.89	5.81E-01	1.44E-01	2.83E-01	2.81E-01
	427.89	29.33	1.44E-01		1.58E-02	6.76E-02
	463.38	10.35	4.80E-01		4.44E-01	2.27E-01
	600.56	17.80	3.11E-01		1.33E-01	1.47E-01
	635.90	11.32	4.09E-01		-5.96E-02	1.90E-01
SB-126	414.70	83.30	2.81E-01	2.81E-01	-3.87E-02	1.32E-01
	666.33	99.60	3.22E-01		-4.10E-03	1.51E-01
	695.00	99.60	3.24E-01		-2.69E-02	1.51E-01
	720.50	53.80	6.16E-01		-1.27E-01	2.88E-01
SN-126	87.57	37.00	1.22E-01	1.22E-01	1.79E-01	5.95E-02
SB-127	473.00	25.00	5.38E+01	4.51E+01	7.61E+00	2.51E+01
	685.20	35.70	4.51E+01		-1.07E+01	2.09E+01
	783.80	14.70	1.31E+02		7.77E+01	6.13E+01
I-129	29.78	57.00	9.06E-01	9.06E-01	-2.46E-01	4.38E-01
	33.60	13.20	1.93E+00		-3.84E-01	9.34E-01
	39.58	7.52	1.61E+00		-8.14E-01	7.82E-01
I-131	284.30	6.05	9.77E+00	7.49E-01	2.40E+00	4.64E+00
	364.48	81.20	7.49E-01		-1.91E-01	3.53E-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)
I-131	636.97	7.26	1.00E+01	7.49E-01	-3.91E+00	4.63E+00
	722.89	1.80	4.84E+01		-6.35E+00	2.26E+01
TE-132	49.72	13.10	4.26E+02	4.26E+01	-1.03E+02	2.06E+02
	228.16	88.00	4.26E+01		-2.18E+00	2.04E+01
BA-133	81.00	33.00	9.09E-02	6.54E-02	3.02E-02	4.38E-02
	302.84	17.80	2.20E-01		2.82E-02	1.05E-01
	356.01	60.00	6.54E-02		3.91E-03	3.09E-02
I-133	529.87	86.30	7.85E+09	7.85E+09	5.67E+09	3.66E+09
XE-133	81.00	38.00	5.58E+00	5.58E+00	1.85E+00	2.69E+00
CS-134	563.23	8.38	5.60E-01	6.76E-02	2.99E-01	2.62E-01
	569.32	15.43	2.64E-01		-4.44E-02	1.22E-01
	604.70	97.60	6.76E-02		4.54E-03	3.22E-02
	795.84	85.40	7.42E-02		2.91E-02	3.48E-02
	801.93	8.73	6.67E-01		2.57E-01	3.11E-01
CS-135	268.24	16.00	2.49E-01	2.49E-01	-1.52E-01	1.19E-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	2.76E+00	3.03E-01	-3.53E-01	1.33E+00
	163.89	4.61	4.55E+00		3.65E+00	2.20E+00
	176.55	13.56	1.54E+00		1.39E-01	7.42E-01
	273.65	12.66	1.71E+00		-1.84E+00	8.16E-01
	340.57	48.50	4.73E-01		-3.22E-01	2.25E-01
	818.50	99.70	3.03E-01		7.73E-02	1.41E-01
	1048.07	79.60	4.28E-01		-1.22E-01	1.97E-01
	1235.34	19.70	2.26E+00		-2.37E-01	1.05E+00
CS-137	661.65	85.12	6.38E-02	6.38E-02	-9.07E-03	2.99E-02
LA-138	788.74	34.00	1.68E-01	7.20E-02	6.31E-02	7.82E-02
	1435.80	66.00	7.20E-02		-3.60E-02	3.13E-02
CE-139	165.85	80.35	5.51E-02	5.51E-02	-2.10E-03	2.66E-02
BA-140	162.64	6.70	3.16E+00	8.79E-01	-1.06E+00	1.53E+00
	304.84	4.50	4.98E+00		-1.04E+00	2.37E+00
	423.70	3.20	7.97E+00		4.82E+00	3.77E+00
	437.55	2.00	1.21E+01		1.63E+00	5.69E+00
	537.32	25.00	8.79E-01		1.19E-01	4.06E-01
LA-140	328.77	20.50	1.27E+00	2.97E-01	3.52E-01	6.06E-01
	487.03	45.50	5.10E-01		2.50E-02	2.38E-01
	815.85	23.50	1.41E+00		-3.18E-02	6.58E-01
	1596.49	95.49	2.97E-01		-1.65E-01	1.28E-01
CE-141	145.44	48.40	1.48E-01	1.48E-01	4.74E-02	7.17E-02
CE-143	57.36	11.80	3.87E+06	1.36E+06	-6.62E+05	1.87E+06
	293.26	42.00	1.36E+06		-6.89E+05	6.54E+05
	664.55	5.20	1.24E+07		4.13E+06	5.83E+06
CE-144	133.54	10.80	3.65E-01	3.65E-01	5.85E-02	1.77E-01
PM-144	476.78	42.00	9.04E-02	5.38E-02	-4.90E-02	4.19E-02
	618.01	98.60	5.38E-02		1.30E-02	2.52E-02
	696.49	99.49	5.57E-02		8.19E-03	2.60E-02
PM-145	36.85	21.70	7.73E-01	3.97E-01	1.93E-01	3.75E-01
	37.36	39.70	3.97E-01		9.91E-02	1.93E-01
	42.30	15.10	6.35E-01		-2.14E-02	3.08E-01
	72.40	2.31	1.46E+00		-1.47E+00	7.04E-01
PM-146	453.90	39.94	1.02E-01	1.02E-01	-9.26E-03	4.78E-02
	735.90	14.01	3.51E-01		-1.85E-01	1.62E-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)
	PM-146	747.13		13.10	4.22E-01	1.02E-01	1.48E-01	1.97E-01
	ND-147	91.11		28.90	1.14E+00	1.14E+00	-1.37E+00	5.58E-01
		531.02		13.10	2.32E+00		8.05E-01	1.07E+00
	PM-149	285.90		3.10	3.07E+04	3.07E+04	-1.88E+04	1.46E+04
	EU-152	121.78		20.50	1.59E-01	1.59E-01	-8.14E-02	7.66E-02
		244.69		5.40	6.65E-01		-2.76E-01	3.17E-01
		344.27		19.13	2.07E-01		4.09E-02	9.78E-02
		778.89		9.20	5.65E-01		-4.43E-02	2.62E-01
		964.01		10.40	6.67E-01		1.69E-01	3.12E-01
		1085.78		7.22	9.18E-01		1.93E-01	4.24E-01
		1112.02		9.60	7.17E-01		1.95E-01	3.32E-01
		1407.95		14.94	3.06E-01		-9.88E-02	1.32E-01
	GD-153	97.43		31.30	1.15E-01	1.15E-01	1.36E-02	5.57E-02
		103.18		22.20	1.58E-01		-1.16E-01	7.64E-02
	EU-154	123.07		40.50	8.25E-02	8.25E-02	1.01E-03	3.99E-02
		723.30		19.70	2.76E-01		-3.62E-02	1.29E-01
		873.19		11.50	4.56E-01		5.45E-02	2.10E-01
		996.32		10.30	5.96E-01		4.34E-02	2.75E-01
		1004.76		17.90	3.52E-01		-5.70E-02	1.63E-01
		1274.45		35.50	1.98E-01		1.64E-02	9.09E-02
	EU-155	86.50		30.90	1.43E-01	1.43E-01	-1.15E-01	6.97E-02
		105.30		20.70	1.68E-01		5.99E-02	8.15E-02
	EU-156	811.77		10.40	2.53E+00	2.53E+00	1.53E-01	1.18E+00
		1153.47		7.20	4.56E+00		-7.22E-01	2.12E+00
		1230.71		8.90	3.97E+00		2.15E+00	1.85E+00
	HO-166M	184.41		72.60	6.45E-02	6.45E-02	8.96E-03	3.13E-02
		280.45		29.60	1.39E-01		-1.68E-02	6.64E-02
		410.94		11.10	3.73E-01		1.24E-01	1.76E-01
		711.69		54.10	9.93E-02		-4.81E-02	4.64E-02
	TM-171	66.72		0.14	2.68E+01	2.68E+01	1.28E+01	1.30E+01
	HF-172	81.75		4.52	6.76E-01	3.16E-01	-4.40E-01	3.26E-01
		125.81		11.30	3.16E-01		-2.41E-02	1.53E-01
	LU-172	181.53		20.60	5.20E+00	3.10E+00	-1.38E-01	2.51E+00
		810.06		16.63	1.02E+01		-2.57E+00	4.77E+00
		912.12		15.25	1.77E+01		3.03E+01	8.45E+00
		1093.66		62.50	3.10E+00		-1.31E+00	1.43E+00
	LU-173	100.72		5.24	6.40E-01	2.17E-01	-2.11E-01	3.10E-01
		272.11		21.20	2.17E-01		7.45E-02	1.04E-01
	HF-175	343.40		84.00	6.32E-02	6.32E-02	1.40E-02	2.99E-02
	LU-176	88.34		13.30	3.39E-01	4.20E-02	4.98E-01	1.65E-01
		201.83		86.00	4.50E-02		-6.50E-03	2.17E-02
		306.78		94.00	4.20E-02		-3.64E-05	2.00E-02
	TA-182	67.75		41.20	1.04E-01	1.04E-01	-2.58E-02	5.05E-02
		1121.30		34.90	3.56E-01		-4.68E-02	1.69E-01
		1189.05		16.23	5.91E-01		1.43E-01	2.76E-01
		1221.41		26.98	3.55E-01		1.57E-01	1.65E-01
		1231.02		11.44	8.43E-01		2.12E-01	3.92E-01
	IR-192	308.46		29.68	1.79E-01	1.21E-01	1.89E-02	8.49E-02
		468.07		48.10	1.21E-01		4.91E-03	5.67E-02
	HG-203	279.19		77.30	8.88E-02	8.88E-02	5.52E-02	4.25E-02
	BI-207	569.67		97.72	4.06E-02	4.06E-02	-6.83E-03	1.87E-02
		1063.62		74.90	8.92E-02		4.29E-02	4.13E-02
+	TL-208	583.14	*	30.22	2.74E-01	8.96E-02	5.82E-01	1.32E-01

Analysis Report for 1510089-07

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-208	860.37	*	4.48	1.49E+00	8.96E-02	1.19E+00	6.97E-01
		2614.66	*	35.85	8.96E-02		4.90E-01	3.47E-02
	BI-210M	262.00		45.00	8.21E-02	8.21E-02	1.38E-02	3.91E-02
		300.00		23.00	1.81E-01		2.62E-02	8.63E-02
	PB-210	46.50		4.25	1.92E+00	1.92E+00	2.32E+00	9.36E-01
	PB-211	404.84		2.90	1.42E+00	1.42E+00	-2.94E-01	6.69E-01
		831.96		2.90	1.76E+00		-8.47E-01	8.12E-01
+	BI-212	727.17	*	11.80	5.56E-01	2.44E-01	3.71E-01	2.63E-01
		1620.62	*	2.75	2.44E-01		8.10E-01	0.00E+00
+	PB-212	238.63	*	44.60	1.55E-01	1.55E-01	7.58E-01	7.57E-02
		300.09	*	3.41	2.14E+00		5.71E-01	1.04E+00
+	BI-214	609.31	*	46.30	1.40E-01	1.40E-01	6.40E-01	6.65E-02
		1120.29	*	15.10	5.41E-01		7.92E-01	2.54E-01
		1764.49	*	15.80	3.63E-01		6.81E-01	1.59E-01
		2204.22	*	4.98	7.54E-01		8.81E-01	3.02E-01
+	PB-214	295.21	*	19.19	3.77E-01	1.59E-01	5.63E-01	1.84E-01
		351.92	*	37.19	1.59E-01		6.19E-01	7.68E-02
	RN-219	401.80		6.50	5.90E-01	5.90E-01	-4.53E-01	2.77E-01
	RA-223	323.87		3.88	1.01E+00	1.01E+00	-2.53E-01	4.78E-01
	RA-224	240.98		3.95	1.84E+00	1.84E+00	6.05E+00	9.01E-01
	RA-225	40.00		31.00	1.70E+00	1.70E+00	-8.58E-01	8.24E-01
+	RA-226	186.21	*	3.28	1.67E+00	1.67E+00	1.78E+00	8.13E-01
	TH-227	50.10		8.40	6.83E-01	4.57E-01	-1.66E-01	3.31E-01
		236.00		11.50	4.57E-01		-2.83E+00	2.22E-01
		256.20		6.30	6.44E-01		2.83E-01	3.08E-01
+	AC-228	338.32	*	11.40	5.57E-01	2.89E-01	6.24E-01	2.69E-01
		911.07	*	27.70	2.89E-01		5.65E-01	1.37E-01
		969.11		16.60	5.48E-01		5.10E-01	2.60E-01
	TH-230	48.44		16.90	3.81E-01	3.81E-01	-1.89E-01	1.85E-01
		62.85		4.60	8.70E-01		5.73E-01	4.21E-01
		67.67		0.37	9.58E+00		-2.37E+00	4.63E+00
	PA-231	283.67		1.60	2.29E+00	1.70E+00	5.62E-01	1.09E+00
		302.67		2.30	1.70E+00		2.17E-01	8.06E-01
	TH-231	25.64		14.70	1.14E+01	4.97E-01	3.23E+00	5.54E+00
		84.21		6.40	4.97E-01		2.22E-01	2.40E-01
	PA-233	311.98		38.60	2.25E-01	2.25E-01	-5.18E-02	1.07E-01
	PA-234	131.20		20.40	1.83E-01	1.83E-01	5.06E-02	8.85E-02
		733.99		8.80	5.71E-01		-1.48E-01	2.65E-01
		946.00		12.00	4.92E-01		1.26E-01	2.27E-01
	PA-234M	1001.03		0.92	6.90E+00	6.90E+00	2.28E+00	3.19E+00
	TH-234	63.29		3.80	1.04E+00	1.04E+00	6.88E-01	5.06E-01
	U-235	143.76		10.50	3.35E-01	3.35E-01	-1.84E-01	1.62E-01
		163.35		4.70	7.86E-01		-2.63E-01	3.80E-01
		205.31		4.70	8.48E-01		1.52E-01	4.08E-01
	NP-237	86.50		12.60	3.46E-01	3.46E-01	-2.80E-01	1.69E-01
	NP-239	106.10		22.70	2.03E+03	2.03E+03	8.30E+02	9.82E+02
		228.18		10.70	4.87E+03		-2.49E+02	2.33E+03
		277.60		14.10	4.02E+03		1.23E+03	1.92E+03
	AM-241	59.54		35.90	1.11E-01	1.11E-01	-6.45E-03	5.37E-02
	AM-243	74.67		66.00	6.94E-02	6.94E-02	-5.62E-02	3.39E-02
	CM-243	209.75		3.29	1.31E+00	3.06E-01	8.84E-01	6.34E-01
		228.14		10.60	3.71E-01		-1.90E-02	1.78E-01
		277.60		14.00	3.06E-01		9.38E-02	1.46E-01

Analysis Report for 1510089-07

CP3005S12-13

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: CP3005S12-13

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	2	2	8	9	24	172
9:	580	1146	1138	402	572	1734	276	146
17:	142	95	114	112	83	112	111	108
25:	103	112	101	92	100	108	92	115
33:	96	122	100	110	118	118	112	117
41:	105	130	103	112	126	139	172	132
49:	98	110	108	108	97	124	92	66
57:	81	103	85	95	103	92	116	120
65:	83	99	106	100	91	109	93	97
73:	103	134	286	157	287	236	65	85
81:	91	79	82	108	107	91	136	163
89:	76	150	75	93	172	122	72	59
97:	60	71	67	63	55	53	65	63
105:	62	78	75	69	60	67	65	64
113:	75	76	62	62	58	60	53	57
121:	61	59	52	45	69	57	65	69
129:	70	78	65	63	66	60	61	71
137:	59	55	61	67	65	51	54	62
145:	61	47	63	53	60	58	54	56
153:	55	68	61	63	58	65	49	49
161:	44	51	60	42	65	64	43	53
169:	50	53	50	39	58	53	60	44
177:	62	49	38	47	54	47	56	39
185:	59	164	89	49	41	50	50	51
193:	36	48	53	44	45	51	56	44
201:	33	44	45	52	38	49	42	47
209:	70	63	45	34	41	49	44	44
217:	41	45	42	33	38	48	42	38
225:	42	33	39	38	40	39	36	35
233:	39	50	30	36	40	175	345	82
241:	73	74	54	13	29	22	23	40
249:	41	31	29	38	30	36	34	33
257:	36	33	28	33	25	24	20	35
265:	22	32	28	20	24	52	52	28
273:	29	26	37	29	36	46	34	26
281:	26	24	31	22	19	24	36	33
289:	36	28	19	19	29	41	108	82
297:	31	25	30	44	24	22	25	27
305:	27	23	22	29	25	24	21	18
313:	25	25	25	24	18	21	21	25
321:	23	24	20	29	19	22	27	46
329:	29	25	25	30	18	16	15	16
337:	28	65	45	12	18	31	17	15
345:	21	22	17	24	28	19	69	204
353:	71	24	20	16	22	17	16	18
361:	19	18	16	16	20	19	21	15

369:	24	22	17	20	13	27	23	19

Sample Title: CP3005S12-13

Channel								
377:	15	12	16	18	22	13	23	20
385:	20	18	20	18	20	16	20	25
393:	14	26	20	20	13	18	21	11
401:	22	15	20	12	24	18	18	24
409:	20	23	15	14	19	14	9	18
417:	17	15	21	11	21	22	16	20
425:	22	21	14	12	15	23	14	11
433:	20	13	12	11	19	24	20	18
441:	13	15	12	14	20	20	18	16
449:	11	13	17	10	16	16	19	13
457:	17	15	11	10	16	21	35	17
465:	18	14	12	21	14	20	16	17
473:	12	16	9	9	12	10	13	18
481:	12	11	15	11	8	16	17	16
489:	10	14	12	12	9	13	6	12
497:	10	6	13	13	13	12	11	12
505:	12	11	15	12	21	62	74	37
513:	18	15	15	6	8	12	18	8
521:	12	13	16	19	9	8	7	13
529:	18	14	7	13	4	10	6	12
537:	8	15	10	10	12	10	10	11
545:	8	13	7	14	10	7	7	14
553:	9	11	7	14	9	6	8	12
561:	15	14	16	10	14	9	9	9
569:	13	12	7	11	11	12	13	10
577:	18	9	16	13	15	38	105	58
585:	15	9	12	12	10	10	10	11
593:	10	7	13	7	14	10	11	13
601:	12	17	13	9	11	12	13	52
609:	138	84	16	6	7	6	10	5
617:	10	9	11	15	12	10	12	16
625:	16	9	11	10	6	13	5	12
633:	10	3	11	5	11	8	8	9
641:	9	9	5	3	5	9	12	12
649:	4	4	9	8	10	8	10	10
657:	7	8	11	10	16	12	12	8
665:	12	17	5	11	7	14	9	17
673:	4	7	9	10	10	3	14	6
681:	10	7	8	9	7	10	11	5
689:	7	14	8	11	5	10	6	11
697:	14	11	8	11	4	14	12	14
705:	10	9	14	13	11	9	8	7
713:	6	13	15	11	11	10	12	6
721:	12	9	8	11	8	12	36	16
729:	11	11	11	9	7	6	5	4
737:	13	12	4	13	7	11	10	12
745:	9	12	6	6	14	5	7	3
753:	8	7	9	10	11	14	6	7
761:	10	5	10	10	9	7	12	13
769:	14	9	11	14	12	8	10	7
777:	4	7	6	9	10	10	7	7
785:	11	10	12	6	4	10	11	6
793:	8	11	21	17	8	6	3	8

801:	8	9	12	4	17	8	11	12

Sample Title: CP3005S12-13

Channel								
809:	6	7	13	14	6	11	10	9
817:	7	11	8	6	5	5	6	14
825:	11	7	10	9	6	5	12	5
833:	5	6	7	10	7	6	3	7
841:	8	6	7	5	6	14	4	3
849:	7	8	7	7	6	8	2	7
857:	9	8	10	19	17	6	4	7
865:	11	8	10	7	5	8	2	7
873:	7	9	8	3	4	7	6	6
881:	9	8	4	4	4	6	9	7
889:	4	8	7	5	3	6	8	7
897:	9	7	9	9	10	5	7	11
905:	7	11	4	9	7	27	66	33
913:	9	3	5	7	7	5	8	5
921:	6	7	5	6	6	13	5	8
929:	5	8	9	10	8	17	13	7
937:	6	4	5	3	6	6	9	8
945:	7	3	6	8	9	12	17	9
953:	6	7	7	6	6	6	3	6
961:	11	6	8	16	9	11	7	28
969:	42	18	6	9	6	11	10	8
977:	11	5	4	6	6	12	7	5
985:	7	5	5	9	7	3	5	4
993:	7	9	6	11	4	8	4	8
1001:	8	11	6	8	5	4	9	9
1009:	10	8	10	11	6	8	6	12
1017:	4	7	5	5	11	8	8	11
1025:	6	6	8	6	9	6	6	5
1033:	8	3	6	5	10	10	11	2
1041:	7	8	6	8	5	5	9	9
1049:	7	5	7	7	11	9	6	4
1057:	11	5	4	6	7	7	9	11
1065:	5	8	5	6	9	10	4	4
1073:	7	7	10	4	9	5	8	8
1081:	5	3	2	7	7	7	8	16
1089:	5	6	6	8	8	13	7	6
1097:	10	9	6	3	7	13	9	6
1105:	7	3	8	11	7	3	8	8
1113:	5	12	9	9	6	14	31	27
1121:	26	6	6	10	7	12	7	6
1129:	4	13	12	8	5	6	6	9
1137:	11	8	5	11	8	10	9	7
1145:	9	2	4	10	11	4	10	7
1153:	11	9	8	11	7	10	14	6
1161:	7	7	6	3	7	8	4	7
1169:	8	6	9	12	13	9	4	9
1177:	7	9	6	7	11	10	10	6
1185:	8	12	11	11	9	7	5	8
1193:	8	8	9	10	9	12	10	6
1201:	8	8	8	10	7	11	7	15
1209:	11	9	11	2	7	3	11	10
1217:	14	7	4	7	13	10	7	12
1225:	9	5	7	7	10	7	14	7

1233:	11	4	6	10	10	15	13	5

Sample Title: CP3005S12-13

Channel								
1241:	9	7	8	10	5	6	5	9
1249:	7	4	7	6	6	5	4	3
1257:	4	7	7	5	9	1	6	8
1265:	0	8	5	6	6	7	6	8
1273:	9	6	3	5	6	9	6	13
1281:	7	5	1	4	5	3	8	3
1289:	2	4	8	4	5	8	8	3
1297:	4	7	3	4	10	6	4	5
1305:	4	6	8	3	5	5	7	2
1313:	3	3	5	6	5	3	2	5
1321:	7	2	2	3	4	6	4	8
1329:	3	3	4	7	6	2	3	1
1337:	3	6	6	1	2	5	5	5
1345:	5	1	1	2	3	2	5	3
1353:	1	8	1	5	2	5	4	8
1361:	0	4	3	3	2	2	3	6
1369:	1	2	0	4	2	4	0	5
1377:	6	13	9	3	2	2	1	1
1385:	2	4	1	2	1	3	0	2
1393:	0	1	1	1	1	0	2	4
1401:	4	2	1	1	3	1	2	5
1409:	1	1	5	3	3	1	2	3
1417:	0	4	3	3	4	1	2	0
1425:	2	2	2	0	4	4	5	1
1433:	1	3	1	1	3	5	2	3
1441:	3	1	3	4	4	2	2	4
1449:	2	1	5	2	2	3	2	7
1457:	2	13	108	300	323	105	20	2
1465:	2	2	0	3	2	1	0	1
1473:	1	3	2	1	0	3	1	1
1481:	1	2	1	1	4	1	1	0
1489:	1	1	4	3	1	1	0	3
1497:	1	1	2	3	1	0	0	4
1505:	0	0	1	1	6	4	1	0
1513:	2	1	1	0	2	4	1	2
1521:	0	0	0	1	0	2	2	1
1529:	1	1	1	1	1	0	1	2
1537:	3	2	1	0	1	1	0	1
1545:	2	0	0	2	0	3	3	2
1553:	0	4	1	1	2	0	0	0
1561:	1	0	0	0	2	0	0	1
1569:	5	1	2	0	0	2	2	1
1577:	1	1	3	3	0	0	1	1
1585:	3	1	3	3	2	4	1	2
1593:	3	0	2	0	4	1	0	2
1601:	2	4	2	2	0	1	2	2
1609:	1	0	3	0	0	2	0	0
1617:	0	1	0	4	2	1	1	0
1625:	0	0	3	3	0	5	2	3
1633:	0	2	1	1	0	1	2	3
1641:	1	0	0	1	1	0	2	0
1649:	1	0	0	2	0	2	0	2
1657:	1	1	0	3	1	1	0	0

1665:	0	3	0	0	1	0	1	0

Sample Title: CP3005S12-13

Channel								
1673:	0	1	0	0	0	0	1	2
1681:	3	1	2	0	0	1	0	0
1689:	1	1	1	1	0	2	0	1
1697:	0	1	0	1	1	1	1	3
1705:	1	0	1	2	1	0	1	0
1713:	2	0	1	1	0	1	1	0
1721:	2	0	1	1	1	0	1	3
1729:	9	2	0	0	1	1	1	0
1737:	2	1	1	2	0	1	0	1
1745:	0	1	0	0	1	1	0	0
1753:	3	1	0	1	3	1	2	3
1761:	0	4	8	22	10	6	0	1
1769:	1	0	0	1	3	1	1	1
1777:	0	1	1	0	1	0	1	1
1785:	0	0	1	0	0	0	0	0
1793:	0	0	3	1	1	1	2	3
1801:	0	2	0	1	0	0	0	0
1809:	0	2	1	1	0	3	1	2
1817:	0	1	1	1	1	1	0	1
1825:	0	1	2	0	0	0	0	0
1833:	1	0	1	1	0	0	0	0
1841:	0	1	1	0	2	6	3	1
1849:	1	1	0	2	2	2	2	1
1857:	1	1	0	0	1	1	0	5
1865:	1	1	2	0	1	1	0	3
1873:	1	0	0	1	0	0	0	1
1881:	1	0	0	0	1	0	1	3
1889:	0	0	2	2	0	1	1	0
1897:	2	1	3	0	0	1	1	2
1905:	0	1	0	0	3	0	0	1
1913:	0	1	2	0	0	2	1	3
1921:	3	0	0	1	1	0	0	0
1929:	1	1	2	0	0	0	2	1
1937:	0	0	1	0	0	0	0	0
1945:	2	1	4	2	0	0	0	1
1953:	0	2	3	0	2	1	0	2
1961:	1	1	0	0	0	1	0	0
1969:	1	1	0	0	0	0	0	0
1977:	0	2	0	0	1	1	1	0
1985:	1	0	0	0	0	1	1	0
1993:	0	2	0	0	1	1	1	1
2001:	2	1	1	1	0	0	1	0
2009:	1	1	2	2	2	1	0	0
2017:	0	1	0	1	0	1	1	1
2025:	0	3	0	1	2	0	0	1
2033:	0	0	0	1	1	0	2	1
2041:	3	0	0	0	2	1	2	1
2049:	1	1	1	0	0	2	1	1
2057:	2	2	0	1	2	2	1	0
2065:	1	0	2	0	1	0	1	2
2073:	2	1	0	0	0	1	2	1
2081:	0	1	1	0	1	0	0	1
2089:	1	0	0	1	1	0	1	0

2097:	0	2	3	1	4	2	1	2

Sample Title: CP3005S12-13

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

2529:	0	0	0	0	1	0	0	0

Sample Title: CP3005S12-13

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	0	0	2	0	0	0	0	0
2553:	1	0	0	0	1	1	0	1
2561:	0	0	0	0	1	1	0	0
2569:	0	0	1	0	0	0	0	1
2577:	0	1	0	0	1	2	0	0
2585:	0	2	0	0	1	0	0	0
2593:	1	0	1	0	0	0	0	0
2601:	0	0	1	1	0	0	0	0
2609:	0	3	2	9	27	15	9	6
2617:	1	1	0	0	1	0	0	0
2625:	1	0	1	1	0	0	1	0
2633:	0	2	0	0	0	0	1	0
2641:	0	0	1	1	0	1	0	1
2649:	0	0	0	0	0	0	1	0
2657:	0	0	1	0	0	0	0	0
2665:	0	1	0	0	1	2	0	1
2673:	0	0	0	0	1	0	0	0
2681:	1	1	0	0	0	0	0	0
2689:	0	0	1	0	1	0	0	0
2697:	1	0	0	2	1	1	0	1
2705:	0	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	0	0	0	0	0	0	0
2737:	0	1	0	0	0	0	0	0
2745:	1	1	1	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	1	0	0	0	0	1	1	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	0	1	0	0	0	0
2793:	0	0	0	0	0	0	0	1
2801:	0	1	1	0	0	1	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	1	0
2825:	0	0	0	0	1	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	1
2849:	0	0	0	1	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	1	1	2	0	0	0	1
2873:	0	0	0	0	0	0	0	0
2881:	0	0	1	1	0	0	0	0
2889:	0	0	0	0	1	0	0	2
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	2
2913:	0	0	0	0	0	0	0	0
2921:	1	0	0	0	1	0	0	0
2929:	1	1	0	0	0	1	1	0
2937:	0	1	1	0	1	0	0	0
2945:	0	1	1	1	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	1	1

Sample Title: CP3005S12-13

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

3393:	0	0	0	0	0	0	1	1

Sample Title: CP3005S12-13

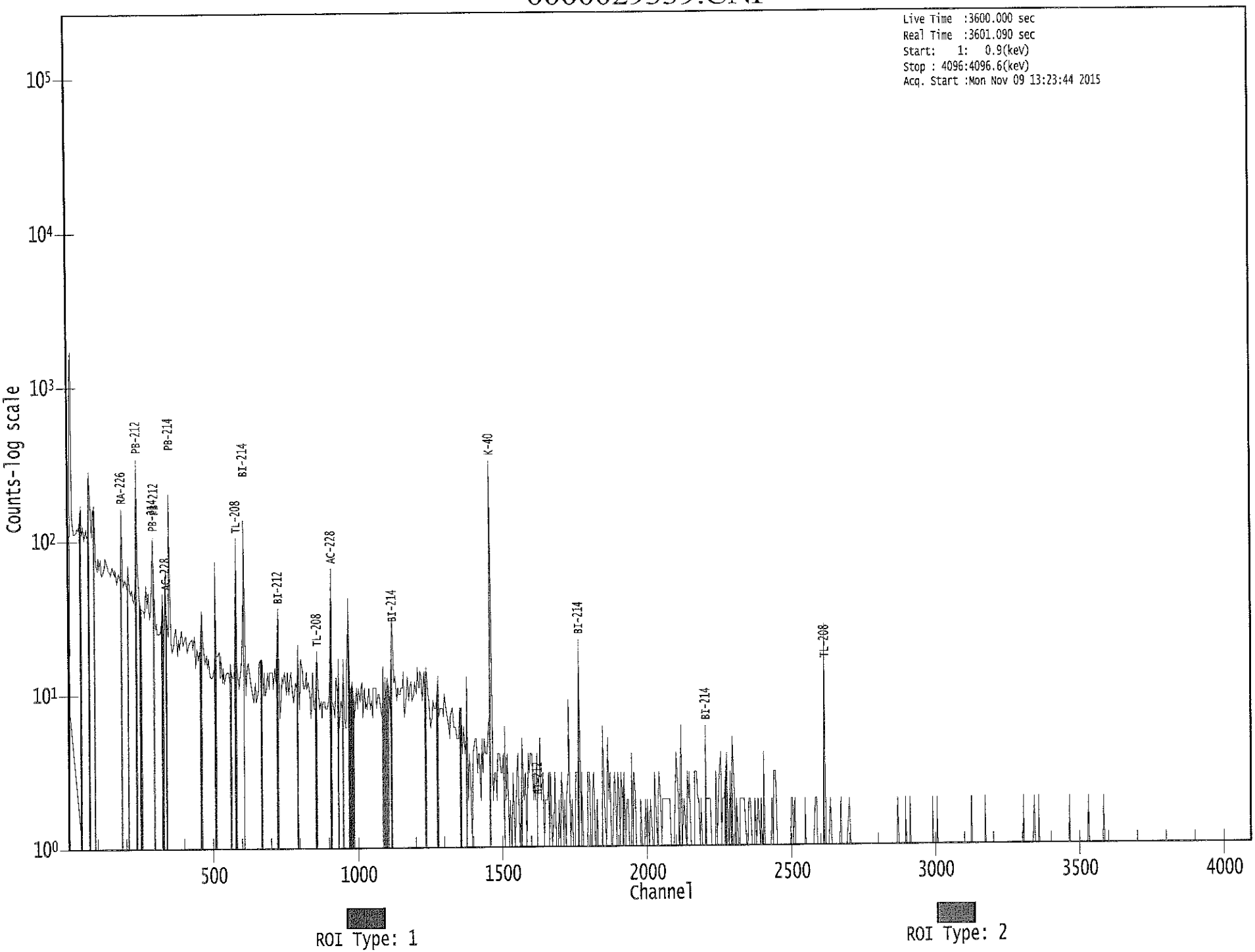
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	0	0	1	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	1	0	0	0	0	0
3433:	0	1	0	0	0	1	1	1
3441:	0	0	0	0	0	1	1	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	2
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	0	0	0	0	0
3497:	1	0	1	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	1

Sample Title: CP3005S12-13

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

0000029339.CNF



1115

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Last Results Report
11/9/15 6:05:56 AM

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: 11/9/15 5:50:26 AM
Measurement Date: 11/9/15 5:50:27 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 915.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4	1.5133E+000	-4.4122E-002
[SD: 8.7352E+000+/-163.68]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** GENIE QUALITY ASSURANCE *****
****

1115

Last Results Report
11/9/15 6:05:29 AM

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: 11/9/15 5:50:14 AM
Measurement Date: 11/9/15 5:50:15 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE2 [SD: 4.5526E+000+/- 0.280]	4.4344E+000	-4.2111E-001 < : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** GENIE QUALITY ASSURANCE *****
****

1119

Last Results Report
11/9/15 6:05:21 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001B.QCK

Detector: GE1
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 11/9/15 5:50:07 AM
Measurement Date: 11/9/15 5:50:09 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1	2.0333E+000	-1.5908E-001
[SD: 2.3025E+000+/- 1.692]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** GENIE QUALITY ASSURANCE *****
****

Last Results Report
11/9/15 5:36:24 AM

1119

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: 11/9/15 5:20:14 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 958.6 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8768E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6108E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3322E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.1 kev	1.8361E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.2287E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.7059E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.9628E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0641E+000	
Boundary Limits: [5.000E-001, 3.500E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	1.2370E+005	
Boundary Limits: [1.200E-001, 1.816E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	6.4324E+004	
Boundary Limits: [4.918E-002, 7.377E-002]		< : : : >

Decay corrected activity 9.6134E+004
Boundary Limits: [7.892E-002, 1.184E-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	2.0628E+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)

****
***** GENIE QUALITY ASSURANCE *****
****

Last Results Report
11/9/15 5:35:35 AM

1115

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-1401C.QC

Detector: GE2
Geometry: <None>
Certificate: GAS-1401
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/14 12:00:00 AM
Measurement Date: 11/9/15 5:19:57 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 926.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54kev	6.0000E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6150E+002	
Boundary Limits: [6.600E+002, 6.640E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3322E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.1 kev	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.3298E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.1672E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.2216E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.6185E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5495E+005	
Boundary Limits: [1.224E-001, 1.836E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 6.3689E+004
Boundary Limits: [4.971E-002, 7.457E-002] < : : : >
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 Boundary Limits: [7.978E-002, 1.197E-001] Trend Test: The last 9 samples exhibit a bias trend.	1.0397E+005	< : : : >
Decay corrected activity Boundary Limits: [1.714E-001, 2.571E-001]	2.2859E+005	< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** GENIE QUALITY ASSURANCE *****
****

Last Results Report
11/9/15 5:35:25 AM

11105

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: 11/9/15 5:19:47 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 924.4 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0189E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6200E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3327E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8362E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.0488E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.5732E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.1058E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-90	2.3049E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.4699E+004	
Boundary Limits: [1.170E-002, 1.754E-002]		< : : : >
Decay corrected activity	6.2225E+003	

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Boundary Limits: [4.716E-003, 7.075E-003]		< : : : >
Decay corrected activity	1.0515E+004	
Boundary Limits: [7.572E-003, 1.136E-002]		< : : : >
Decay corrected activity	2.0051E+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)