WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07077OR

September 14, 2017

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 # 17-07077

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

Date for Partial	Initials	Date	Initials	Checklist Items
		7-18-17	JCB	Sample Log-In
		8-16-17	NJL	Data Compilation
		8/18/17	[illegible]	First Technical Data Review
		8/18/17	[illegible]	Second Technical Data Review
		9/6/17	[illegible]	Data Entry/Electronic Deliverable
		9/6/17	[illegible]	Case Narrative
		09/12/17	[illegible]	Electronic Deliverable Proof
		9/12/17	[illegible]	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/12/17	[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: [signature] 9/12/17

Laboratory Manager Date

Copy No. _____

SECTION I

CHAIN OF CUSTODY

USEPA

DateShipped: 7/17/2017

CarrierName: FedEx

AirbillNo:

CHAIN OF CUSTODY RECORD

Case #: 445

Contact Name: Patrick Buster

Contact Phone: 903-348-3917

17-07077

REC'D JUL 18 2017

No: 2-071417-134807-0007

Cooler #:

Lab: Eberline Analytical

Lab Phone: 865-481-0683

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Lab QC	Sample_Remarks
4	HTC-A01-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:36	1	16 oz Poly Jar	N	1031.2 g
5	HTC-A01-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:33	1	16 oz Poly Jar	N	909.5 g
6	HTC-A01-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:30	1	16 oz Poly Jar	N	925.5 g
7	HTC-A01-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:27	1	16 oz Poly Jar	N	994.1 g
8	HTC-A01-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:24	1	16 oz Poly Jar	N	838.8 g
9	HTC-A01-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:21	1	16 oz Poly Jar	N	740.9 g
10	HTC-A01-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:18	1	16 oz Poly Jar	N	967.2 g
11	HTC-A01-S001-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:15	1	16 oz Poly Jar	N	949.5 g
12	HTC-A01-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:26	1	16 oz Poly Jar	N	971.9 g
13	HTC-A01-S002-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:23	1	16 oz Poly Jar	N	1051.7 g
14	HTC-A01-S002-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:20	1	16 oz Poly Jar	N	1039.9 g
15	HTC-A01-S002-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:17	1	16 oz Poly Jar	N	1049.4 g
16	HTC-A01-S002-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:14	1	16 oz Poly Jar	N	830.7 g
17	HTC-A01-S002-2430-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:14	1	16 oz Poly Jar	N	830.7 g
18	HTC-A01-S002-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:11	1	16 oz Poly Jar	N	945.0 g
19	HTC-A01-S002-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:08	1	16 oz Poly Jar	N	1021.0 g
20	HTC-A01-S002-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:05	1	16 oz Poly Jar	N	960.8 g
	HTC-A01-S003-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:44	1	16 oz Poly Jar	N	1009.8 g
	HTC-A01-S003-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:41	1	16 oz Poly Jar	N	1024.0 g
	HTC-A01-S003-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:40	1	16 oz Poly Jar	N	1089.6 g
	HTC-A01-S003-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:38	1	16 oz Poly Jar	N	1043.5 g
	HTC-A01-S003-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:35	1	16 oz Poly Jar	N	964.0 g

Special Instructions: Gamma Spec(EPA 901.0) analysis in jar "as is" for Ra-226 using 186keV peak for samples. From U decay chain "as is": Th-234, Pa-234 or Pa-234m, Pb-214, Bi-214. From the Th decay chain "as is": Ra-228 and/or Ac-228, Ra-224, Pb-212, Bi-212, Tl-208. For Gamma Spec (homogenized) after 21 day ingrowth: Ra-226 using Bi-214 and/or Pb-214. From U decay chain: Th-234, Pa-234 or Pa-234m. From Th decay chain: Ra-228 and/or Ac-228, Ra-224, Pb-212, Bi-212, Tl-208. Other radionuclides: Cs-137, K-40. Alpha Spec: Iso U (EPA 908.0 Modified): U-233/234, U-235/236, U-238. Iso Th (EPA 907.0 Modified): Th-230, 232, 228. No rocks should be removed, all samples to be pulverized.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
all Samples all analysis	Chad Conway - Weston	7-17-17/1600	[signature]	0930 7-18-17	

0005

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07077
		Lab Deadline	8/9/2017
		Analysis	UUISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	261	L1.4
	05	167	L1.4
	06	39	L1.4
	07	52	L1.4
	08	48	L1.4
	09	47	L1.4
	10	52	L1.4
	11	44	L1.4
	12	33	L1.4
	13	45	L1.4
	14	40	L1.4
	15	31	L1.4
	16	35	L1.4
	17	35	L1.4
	18	28	L1.4
	19	42	L1.4
	20	39	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0830	Key Sai	7-19-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1210	Key Sai	7-24-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	7/24/17 1210
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/7/17 100
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/7/17 1300
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/11/17 0949
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	ICB	8/11/17 0949
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/09 0735
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		

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EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07077
		Lab Deadline	8/9/2017
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	261	L1.4
	05	167	L1.4
	06	39	L1.4
	07	52	L1.4
	08	48	L1.4
	09	47	L1.4
	10	52	L1.4
	11	44	L1.4
	12	33	L1.4
	13	45	L1.4
	14	40	L1.4
	15	31	L1.4
	16	35	L1.4
	17	35	L1.4
	18	28	L1.4
	19	42	L1.4
	20	39	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0830	Key Sai	7-19-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1210	Key Sai	7.28.17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	7/24/17 1210
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/4/17 100
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JPM	8/7/17 1300
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/14/17 0759
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	0757
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	1149
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		

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EBERLINE Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07077
		Lab Deadline	See Comments
		Analysis	Gamma - Level 4
		Sample Matrix	SO

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Re-Analysis: 221 day ingrowth: Report Ac228, Bi212, Cs137, K40, Pa234m, Pb212, Ra224, Ra226 from Bi214/Pb214, Ra228 from Ac228, Tl208, Th234 & positives. Report on dry weight basis.	04	261	L1.4
	05	167	L1.4
	06	39	L1.4
	07	52	L1.4
	08	48	L1.4
	09	47	L1.4
	10	52	L1.4
	11	44	L1.4
	12	33	L1.4
~~Original Lab Deadline: 06/15/17~~ ~~Rerun Lab Deadline: 06/15/17 Quick Count: Report Ac228, Bi212/214, Cs137, K40, Pa234m, Pb212/214, Ra224, Ra226 from 186 keV peak, Ra228 from Ac228, Tl208, Th234 & positives. Report on "AC15" basis~~ EJT 07/18/17	13	45	L1.4
	14	40	L1.4
	15	31	L1.4
	16	35	L1.4
	17	35	L1.4
	18	28	L1.4
	19	42	L1.4
	20	39	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0830	Key Sai	7-19-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1530	Key Sai	7-24-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 7/24/17	1530
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	8/14	1320
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		

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SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Weston Solutions, Inc.	0094759	Environmental	07/18/2017	28	17-07077
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/09/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																					Ttl
01	LCS	07/18/17	SO	L1.4	X	X	X																					3
02	BLANK	07/18/17	SO	L1.4	X	X	X																					3
03	DUP	07/18/17	SO	L1.4	X	X	X																					3
04	HTC-A01-S001-0006-01	05/13/17 13:36	SO	L1.4	X	X	X																					3
05	HTC-A01-S001-0612-01	05/13/17 13:33	SO	L1.4	X	X	X																					3
06	HTC-A01-S001-1218-01	05/13/17 13:30	SO	L1.4	X	X	X																					3
07	HTC-A01-S001-1824-01	05/13/17 13:27	SO	L1.4	X	X	X																					3
08	HTC-A01-S001-2430-01	05/13/17 13:24	SO	L1.4	X	X	X																					3
09	HTC-A01-S001-3036-01	05/13/17 13:21	SO	L1.4	X	X	X																					3
10	HTC-A01-S001-3642-01	05/13/17 13:18	SO	L1.4	X	X	X																					3
11	HTC-A01-S001-4248-01	05/13/17 13:15	SO	L1.4	X	X	X																					3
12	HTC-A01-S002-0006-01	05/13/17 11:26	SO	L1.4	X	X	X																					3
13	HTC-A01-S002-0612-01	05/13/17 11:23	SO	L1.4	X	X	X																					3
14	HTC-A01-S002-1218-01	05/13/17 11:20	SO	L1.4	X	X	X																					3
15	HTC-A01-S002-1824-01	05/13/17 11:17	SO	L1.4	X	X	X																					3
16	HTC-A01-S002-2430-01	05/13/17 11:14	SO	L1.4	X	X	X																					3
17	HTC-A01-S002-2430-02	05/13/17 11:14	SO	L1.4	X	X	X																					3
18	HTC-A01-S002-3036-01	05/13/17 11:11	SO	L1.4	X	X	X																					3
19	HTC-A01-S002-3642-01	05/13/17 11:08	SO	L1.4	X	X	X																					3
20	HTC-A01-S002-4248-01	05/13/17 11:05	SO	L1.4	X	X	X																					3
				Totals Per Analysis (non QA samples)	17	17	17	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
Weston Solutions, Inc.
1090 King Georges Post Road Suite 201
Edison, NJ 08837
Voice 732-585-4425
Fax

Contact
Smita Sumbaly
Voice 732-585-4410
Fax 732-225-7037

Report Data
Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837
Voice 732-585-4410
Fax 732-225-7037

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07077

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: [signature] DATE: 7-18-17

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-42653

September 14, 2017

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Road, Suite 201
Edison, NJ 08837

CASE NARRATIVE
Work Order # 17-07077-OR

SAMPLE RECEIPT

This work order contains seventeen solid samples received 07/18/2017. These samples were analyzed for Isotopic Uranium, Isotopic Thorium and by Gamma Spectroscopy.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
HTC-A01-S001-0006-01	17-07077-04	HTC-A01-S002-0612-01	17-07077-13
HTC-A01-S001-0612-01	17-07077-05	HTC-A01-S002-1218-01	17-07077-14
HTC-A01-S001-1218-01	17-07077-06	HTC-A01-S002-1824-01	17-07077-15
HTC-A01-S001-1824-01	17-07077-07	HTC-A01-S002-2430-01	17-07077-16
HTC-A01-S001-2430-01	17-07077-08	HTC-A01-S002-2430-02	17-07077-17
HTC-A01-S001-3036-01	17-07077-09	HTC-A01-S002-3036-01	17-07077-18
HTC-A01-S001-3642-01	17-07077-10	HTC-A01-S002-3642-01	17-07077-19
HTC-A01-S001-4248-01	17-07077-11	HTC-A01-S002-4248-01	17-07077-20
HTC-A01-S002-0006-01	17-07077-12		

ANALYTICAL METHODS

Isotopic Uranium was analyzed using EPA Method 908.0 Modified. Isotopic Thorium was analyzed using EPA Method 907.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

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

SPECIAL CIRCUMSTANCES

Samples were dried and ground prior to analyses. Results are reported on a "dry weight" basis.

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM

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

Samples demonstrated acceptable results for all Uranium determinations. The Uranium-233/234, Uranium-235/236 and Uranium-238 method blank demonstrated acceptable results. Chemical recovery was acceptable for all samples. Results for the Uranium-233/234, Uranium-235/236 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 determinations. The Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Chemical recovery was high for laboratory fraction -05 (Client ID: HTC-A01-S001-0612-01). Chemical recovery was acceptable for all other samples. Results for the Thorium-228, Thorium-230 and Thorium-232 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

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

Initially samples were counted on an "as received basis" and preliminary data only was emailed. After the initial count, samples were dried, pulverized and sealed for Radon-222 ingrowth. Samples demonstrated acceptable results for all gamma emitting radionuclides as reported. Results for the method blank demonstrated acceptable results for all gamma emitting radionuclides as reported. Positive Radium-224 results are artifacts of the Gamma Apex software and are not true positives. Results for the Actinium-228, Potassium-40 and Lead-212 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 9/14/2017

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:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
		21-day INGROWTH											
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Cobalt-60	EPA 901.1 Modified	1.22E+02	7.30E+00	9.62E+00	9.94E-01	pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	7.94E+01	7.21E+00	8.28E+00	1.17E+00	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	-5.08E-02	1.35E-01	1.35E-01	1.73E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	3.10E-01	2.00E-01	2.00E-01	4.38E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	4.38E-02	3.02E-02	3.02E-02	6.88E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	3.69E-01	3.07E-01	3.07E-01	4.36E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	-7.04E-01	3.86E+00	3.86E+00	4.97E+00	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	2.42E-02	2.79E-02	2.79E-02	5.88E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.08E-01	2.37E-01	2.37E-01	7.40E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	4.27E-02	6.18E-02	6.19E-02	8.21E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	-5.08E-02	1.35E-01	1.35E-01	1.73E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	5.91E-01	6.21E-01	6.21E-01	1.03E+00	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	4.63E-02	5.99E-02	6.00E-02	1.19E-01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	1.12E+02	5.46E+00	7.93E+00	2.67E+00	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	7.06E+01	5.89E+00	6.92E+00	3.77E+00	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	-6.75E-02	1.46E-01	1.46E-01	4.09E-01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.23E+01	2.90E+00	2.97E+00	4.32E+00	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.01E+02	2.90E+01	2.95E+01	4.52E+01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	1.18E+02	7.30E+00	9.50E+00	1.90E+00	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	2.72E+02	2.40E+01	2.77E+01	2.17E+01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	5.92E+01	2.98E+00	4.25E+00	1.44E+00	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	1.12E+02	5.46E+00	7.93E+00	2.67E+00	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	6.24E+01	8.98E+00	9.53E+00	1.22E+01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	1.08E+02	6.34E+00	8.41E+00	1.13E+00	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

0017

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:	
Smita Sumbaly	
Weston Solutions, Inc.	
1090 King Georges Post Rd Suite 201	
Edison, NJ 08837	

Work Order Details:	
SDG:	17-07077
Purchase Order:	0094759
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	Report Units
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	1.13E+02	5.48E+00	7.96E+00	2.91E+00	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	6.66E+01	5.69E+00	6.64E+00	4.61E+00	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	7.76E-02	1.44E-01	1.44E-01	4.02E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.21E+01	2.76E+00	2.83E+00	4.08E+00	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	5.17E+01	2.13E+01	2.15E+01	3.18E+01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	1.16E+02	7.09E+00	9.26E+00	1.90E+00	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	2.79E+02	2.45E+01	2.83E+01	2.18E+01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	6.00E+01	3.04E+00	4.33E+00	1.40E+00	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	1.13E+02	5.48E+00	7.96E+00	2.91E+00	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	4.28E+01	7.52E+00	7.83E+00	1.10E+01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	1.09E+02	6.51E+00	8.59E+00	1.16E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	4.23E+01	2.19E+00	3.08E+00	2.00E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	2.60E+01	3.04E+00	3.32E+00	3.82E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	-1.00E-01	2.29E-01	2.29E-01	3.26E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	9.57E+00	2.77E+00	2.82E+00	4.21E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	2.15E+01	1.54E+01	1.55E+01	2.53E+01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	4.31E+01	3.05E+00	3.77E+00	1.16E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	7.94E+01	9.52E+00	1.04E+01	1.33E+01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	1.67E+01	1.13E+00	1.41E+00	9.96E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	4.23E+01	2.19E+00	3.08E+00	2.00E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	9.67E+00	4.33E+00	4.36E+00	7.13E+00	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	3.98E+01	2.50E+00	3.23E+00	7.29E-01	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	2.51E+00	5.27E-01	5.43E-01	9.63E-01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	2.23E+00	1.03E+00	1.04E+00	1.56E+00	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	1.97E-01	1.26E-01	1.26E-01	2.00E-01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.50E+01	2.40E+00	2.52E+00	2.01E+00	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.40E+01	1.01E+01	1.02E+01	1.72E+01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	2.59E+00	2.84E-01	3.13E-01	3.54E-01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	7.54E+00	2.46E+00	2.49E+00	4.07E+00	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	1.59E+00	2.80E-01	2.92E-01	3.80E-01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	2.51E+00	5.27E-01	5.43E-01	9.63E-01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	2.40E+00	1.96E+00	1.96E+00	3.26E+00	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	2.47E+00	3.61E-01	3.83E-01	7.31E-02	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	2.43E+00	3.86E-01	4.06E-01	6.19E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	1.80E+00	6.24E-01	6.31E-01	9.88E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	-1.42E-02	7.35E-02	7.36E-02	1.07E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	2.23E+01	2.54E+00	2.79E+00	1.07E+00	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	7.45E+00	6.30E+00	6.31E+00	1.02E+01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	2.72E+00	2.70E-01	3.04E-01	2.72E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	6.86E+00	2.13E+00	2.16E+00	3.12E+00	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	1.74E+00	2.16E-01	2.33E-01	2.65E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	2.43E+00	3.86E-01	4.06E-01	6.19E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	5.56E+00	2.34E+00	2.36E+00	3.81E+00	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	2.29E+00	2.69E-01	2.94E-01	1.78E-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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	4.42E+00	4.79E-01	5.30E-01	5.83E-01	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	2.58E+00	1.29E+00	1.30E+00	2.01E+00	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	-5.05E-02	6.51E-02	6.52E-02	1.76E-01	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	2.07E+01	2.97E+00	3.15E+00	2.20E+00	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.03E+01	1.19E+01	1.19E+01	1.99E+01	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	5.08E+00	5.17E-01	5.79E-01	4.34E-01	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	5.04E+01	5.05E+00	5.67E+00	5.82E+00	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	2.07E+00	3.49E-01	3.65E-01	4.25E-01	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	4.42E+00	4.79E-01	5.30E-01	5.83E-01	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	9.62E+00	3.27E+00	3.31E+00	9.28E+00	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	3.81E+00	5.07E-01	5.43E-01	7.60E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	1.90E+00	2.41E-01	2.60E-01	3.48E-01	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	8.51E-01	4.86E-01	4.88E-01	7.53E-01	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	3.86E-02	6.02E-02	6.03E-02	9.57E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	2.67E+01	2.90E+00	3.21E+00	1.15E+00	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.94E+00	6.13E+00	6.13E+00	9.58E+00	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	1.75E+00	1.93E-01	2.13E-01	3.65E-01	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	5.61E+00	1.77E+00	1.79E+00	4.15E+00	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	1.32E+00	1.76E-01	1.89E-01	3.04E-01	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	1.90E+00	2.41E-01	2.60E-01	3.48E-01	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	2.95E+00	1.71E+00	1.72E+00	2.80E+00	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	1.42E+00	2.15E-01	2.27E-01	2.29E-01	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:	
Smita Sumbaly	
Weston Solutions, Inc.	
1090 King Georges Post Rd Suite 201	
Edison, NJ 08837	

Work Order Details:	
SDG:	17-07077
Purchase Order:	0094759
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	Report Units
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	1.89E+00	2.85E-01	3.01E-01	4.12E-01	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	1.05E+00	5.73E-01	5.76E-01	1.11E+00	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	-2.83E-02	7.19E-02	7.19E-02	1.02E-01	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	2.42E+01	2.81E+00	3.08E+00	1.29E+00	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.28E+01	9.27E+00	9.30E+00	1.49E+01	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	2.29E+00	2.82E-01	3.05E-01	2.99E-01	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	2.57E+01	2.85E+00	3.14E+00	3.84E+00	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	1.21E+00	1.91E-01	2.01E-01	2.15E-01	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	1.89E+00	2.85E-01	3.01E-01	4.12E-01	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	2.16E+00	1.50E+00	1.51E+00	2.03E+00	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	1.75E+00	2.39E-01	2.55E-01	4.20E-02	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	1.72E+00	3.84E-01	3.94E-01	8.22E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	1.27E+00	6.96E-01	6.99E-01	1.06E+00	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	6.19E-02	1.02E-01	1.02E-01	1.47E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	2.64E+01	3.27E+00	3.54E+00	1.41E+00	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.11E+01	1.08E+01	1.08E+01	1.69E+01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	2.13E+00	3.06E-01	3.25E-01	3.67E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	2.13E+01	2.72E+00	2.93E+00	3.93E+00	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	1.43E+00	2.75E-01	2.84E-01	4.17E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	1.72E+00	3.84E-01	3.94E-01	8.22E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	2.39E+00	1.54E+00	1.54E+00	2.32E+00	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	1.74E+00	3.31E-01	3.43E-01	7.06E-02	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:	
Smita Sumbaly	
Weston Solutions, Inc.	
1090 King Georges Post Rd Suite 201	
Edison, NJ 08837	

Work Order Details:	
SDG:	17-07077
Purchase Order:	0094759
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	Report Units
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	8.96E-01	1.34E-01	1.42E-01	3.06E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	5.36E-01	3.95E-01	3.96E-01	6.37E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	1.89E-02	4.05E-02	4.05E-02	6.31E-02	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.43E+01	1.61E+00	1.77E+00	3.93E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	1.79E+00	3.49E+00	3.50E+00	5.81E+00	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	7.94E-01	9.86E-02	1.07E-01	1.75E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.84E+00	8.81E-01	8.86E-01	1.97E+00	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	5.27E-01	1.00E-01	1.04E-01	1.33E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	8.96E-01	1.34E-01	1.42E-01	3.06E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	1.53E+00	1.18E+00	1.19E+00	1.96E+00	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	6.96E-01	1.24E-01	1.29E-01	9.22E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	8.47E-01	1.95E-01	2.00E-01	3.46E-01	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	2.31E-01	4.12E-01	4.12E-01	6.61E-01	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	-5.46E-04	5.51E-02	5.51E-02	8.35E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.56E+01	1.87E+00	2.03E+00	6.78E-01	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	3.38E+00	5.33E+00	5.34E+00	8.92E+00	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	1.09E+00	1.50E-01	1.60E-01	1.62E-01	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.28E+01	1.58E+00	1.71E+00	2.39E+00	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	5.75E-01	1.27E-01	1.31E-01	5.83E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	8.47E-01	1.95E-01	2.00E-01	3.46E-01	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	1.11E+00	1.02E+00	1.02E+00	1.69E+00	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	7.06E-01	1.51E-01	1.55E-01	1.87E-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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	7.32E-01	2.15E-01	2.18E-01	3.94E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	6.79E-01	4.35E-01	4.36E-01	1.24E+00	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	2.57E-02	6.45E-02	6.45E-02	9.57E-02	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.60E+01	2.04E+00	2.20E+00	9.81E-02	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	9.10E-01	7.99E+00	7.99E+00	1.11E+01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	7.74E-01	1.16E-01	1.23E-01	2.13E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	8.51E+00	1.38E+00	1.45E+00	2.23E+00	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	6.86E-01	1.83E-01	1.87E-01	2.52E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	7.32E-01	2.15E-01	2.18E-01	3.94E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	9.75E-01	9.63E-01	9.64E-01	1.45E+00	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	8.34E-01	1.63E-01	1.68E-01	5.44E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	5.74E-01	1.16E-01	1.19E-01	1.97E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	7.53E-01	2.87E-01	2.89E-01	3.96E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	3.14E-02	3.51E-02	3.52E-02	5.77E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.16E+01	1.38E+00	1.50E+00	6.11E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	9.95E-01	3.83E+00	3.83E+00	5.89E+00	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	6.09E-01	8.20E-02	8.78E-02	1.50E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.84E+00	7.69E-01	7.75E-01	1.69E+00	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	4.72E-01	9.88E-02	1.02E-01	1.42E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	5.74E-01	1.16E-01	1.19E-01	1.97E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	7.90E-01	8.04E-01	8.05E-01	1.07E+00	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	5.75E-01	1.08E-01	1.12E-01	8.52E-02	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	7.66E-01	1.89E-01	1.93E-01	3.36E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	5.35E-01	4.00E-01	4.01E-01	6.99E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	3.52E-02	4.91E-02	4.91E-02	8.15E-02	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.55E+01	1.90E+00	2.06E+00	7.13E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	-6.75E-01	4.96E+00	4.96E+00	7.54E+00	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	7.11E-01	1.08E-01	1.14E-01	1.64E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.81E+00	1.05E+00	1.05E+00	1.85E+00	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	4.90E-01	1.26E-01	1.28E-01	2.16E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	7.66E-01	1.89E-01	1.93E-01	3.36E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	4.71E-01	1.01E+00	1.01E+00	1.32E+00	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	6.75E-01	1.26E-01	1.30E-01	3.60E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	7.35E-01	2.64E-01	2.66E-01	5.91E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	4.17E-01	6.18E-01	6.18E-01	9.37E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	3.57E-02	7.71E-02	7.71E-02	1.15E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.47E+01	2.07E+00	2.20E+00	8.58E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	-3.55E+00	9.08E+00	9.08E+00	1.20E+01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	7.94E-01	1.39E-01	1.45E-01	2.57E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.87E+00	1.31E+00	1.31E+00	2.89E+00	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	7.75E-01	1.67E-01	1.71E-01	9.46E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	7.35E-01	2.64E-01	2.66E-01	5.91E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	1.24E+00	1.05E+00	1.05E+00	1.59E+00	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	6.73E-01	2.25E-01	2.28E-01	2.96E-01	pCi/g

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EBERLINE SERVICES

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Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	4.81E-01	1.96E-01	1.97E-01	3.70E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	4.54E-01	3.36E-01	3.37E-01	5.97E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	1.87E-02	4.26E-02	4.26E-02	6.89E-02	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.06E+01	1.43E+00	1.53E+00	6.28E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	2.80E-01	4.32E+00	4.32E+00	6.85E+00	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	5.86E-01	9.61E-02	1.01E-01	1.95E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.79E+00	9.77E-01	9.81E-01	2.20E+00	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	6.64E-01	1.32E-01	1.37E-01	1.88E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	4.81E-01	1.96E-01	1.97E-01	3.70E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	1.37E+00	1.14E+00	1.14E+00	1.89E+00	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	5.20E-01	1.26E-01	1.29E-01	3.32E-02	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	1.12E+00	2.48E-01	2.54E-01	5.56E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	8.07E-01	5.57E-01	5.59E-01	8.74E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	2.51E-02	6.52E-02	6.52E-02	1.17E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	1.57E+01	2.32E+00	2.45E+00	1.70E+00	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	-2.31E+00	9.66E+00	9.67E+00	1.31E+01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	1.23E+00	2.24E-01	2.33E-01	3.02E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	1.23E+01	1.83E+00	1.94E+00	2.89E+00	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	9.60E-01	2.02E-01	2.08E-01	2.95E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	1.12E+00	2.48E-01	2.54E-01	5.56E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	2.61E+00	1.47E+00	1.47E+00	2.40E+00	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	8.67E-01	2.06E-01	2.11E-01	6.43E-02	pCi/g

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EBERLINE SERVICES

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Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Actinium-228	EPA 901.1 Modified	9.61E-01	1.86E-01	1.93E-01	3.23E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Bismuth-212	EPA 901.1 Modified	7.75E-01	4.78E-01	4.79E-01	7.61E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Cesium-137	EPA 901.1 Modified	6.96E-04	3.25E-02	3.25E-02	6.45E-02	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Potassium-40	EPA 901.1 Modified	2.01E+01	2.14E+00	2.38E+00	9.27E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Protactinium-234m	EPA 901.1 Modified	-3.16E+00	4.59E+00	4.60E+00	6.36E+00	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Lead-212	EPA 901.1 Modified	1.12E+00	1.27E-01	1.39E-01	2.10E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Radium-224	EPA 901.1 Modified	2.99E+00	1.09E+00	1.10E+00	2.36E+00	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Radium-226	EPA 901.1 Modified	8.44E-01	1.32E-01	1.39E-01	2.05E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Radium-228	EPA 901.1 Modified	9.61E-01	1.86E-01	1.93E-01	3.23E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Thorium-234	EPA 901.1 Modified	1.71E+00	9.92E-01	9.96E-01	1.37E+00	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Thallium-208	EPA 901.1 Modified	1.04E+00	1.44E-01	1.53E-01	1.80E-01	pCi/g
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	4.86E+00	1.75E-01			pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	5.69E+00	9.65E-01	1.10E+00	1.20E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	-2.61E-02	3.45E-02	3.45E-02	1.13E-01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	3.34E+01	5.02E+00	5.93E+00	2.42E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	2.93E+01	4.26E+00	5.07E+00	1.71E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	1.57E+01	1.96E+00	2.46E+00	6.40E-02	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	2.34E+00	5.73E-01	6.13E-01	1.26E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	7.97E+00	1.48E+00	1.66E+00	9.81E-02	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	4.02E+00	8.51E-01	9.31E-01	1.15E-01	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	1.62E+00	3.89E-01	4.18E-01	6.65E-02	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	3.45E+00	9.64E-01	1.02E+00	1.77E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	1.65E+00	4.05E-01	4.34E-01	1.10E-01	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	7.35E-01	2.56E-01	2.65E-01	8.24E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	9.96E-01	3.26E-01	3.39E-01	1.61E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	9.15E-01	3.24E-01	3.35E-01	1.52E-01	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	6.60E-01	2.57E-01	2.65E-01	1.56E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	9.10E-01	3.03E-01	3.15E-01	7.78E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	7.74E-01	2.66E-01	2.76E-01	1.25E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	7.98E-01	3.40E-01	3.49E-01	1.64E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	1.31E+00	3.79E-01	3.99E-01	1.13E-01	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Thorium-228	EPA 907.0 Modified	1.17E+00	3.25E-01	3.43E-01	9.91E-02	pCi/g

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

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EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	5.41E+00	1.46E-01			pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	6.52E+00	1.08E+00	1.35E+00	1.28E-01	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	2.28E-01	1.27E-01	1.30E-01	1.01E-01	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.68E+01	2.63E+00	3.34E+00	1.49E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.44E+01	2.20E+00	2.83E+00	1.49E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	6.55E+00	8.70E-01	1.19E+00	3.77E-02	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.34E+00	3.74E-01	4.09E-01	1.07E-01	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	3.94E+00	7.95E-01	9.32E-01	5.93E-02	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	2.71E+00	6.08E-01	6.94E-01	8.01E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.12E+00	2.93E-01	3.24E-01	7.62E-02	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	2.92E+00	8.28E-01	9.03E-01	1.69E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.16E+00	3.06E-01	3.38E-01	6.94E-02	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	5.74E-01	2.13E-01	2.24E-01	8.26E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.00E+00	3.14E-01	3.37E-01	1.15E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	7.44E-01	2.72E-01	2.87E-01	9.89E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	5.07E-01	2.08E-01	2.17E-01	1.04E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	5.95E-01	2.27E-01	2.39E-01	1.07E-01	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	5.97E-01	2.17E-01	2.29E-01	8.79E-02	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	8.28E-01	3.36E-01	3.52E-01	1.50E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	1.25E+00	3.57E-01	3.89E-01	8.57E-02	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Thorium-230	EPA 907.0 Modified	8.19E-01	2.48E-01	2.68E-01	6.57E-02	pCi/g

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

EBERLINE SERVICES

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Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	4.86E+00	1.75E-01			pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	5.73E+00	9.69E-01	1.09E+00	8.04E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	3.04E-02	5.38E-02	5.39E-02	9.67E-02	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	2.61E+01	3.95E+00	4.57E+00	1.68E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	2.34E+01	3.43E+00	4.00E+00	9.54E-02	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	1.28E+01	1.62E+00	1.97E+00	4.31E-02	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	1.86E+00	4.72E-01	5.00E-01	9.69E-02	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	7.51E+00	1.39E+00	1.54E+00	8.51E-02	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	3.44E+00	7.35E-01	7.95E-01	6.36E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	1.29E+00	3.22E-01	3.42E-01	5.29E-02	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	3.67E+00	9.94E-01	1.05E+00	1.34E-01	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	1.61E+00	3.86E-01	4.11E-01	7.91E-02	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	6.44E-01	2.29E-01	2.36E-01	9.90E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	9.75E-01	3.07E-01	3.19E-01	1.00E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	7.46E-01	2.72E-01	2.80E-01	8.99E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	4.54E-01	1.95E-01	1.99E-01	1.04E-01	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	9.59E-01	3.04E-01	3.16E-01	8.91E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	5.80E-01	2.18E-01	2.24E-01	1.33E-01	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	6.10E-01	2.82E-01	2.87E-01	1.77E-01	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	9.51E-01	2.97E-01	3.09E-01	9.20E-02	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/14/2017	17-07077	Thorium-232	EPA 907.0 Modified	9.48E-01	2.73E-01	2.86E-01	8.21E-02	pCi/g

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

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Final Report of Analysis

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Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
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Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	7.24E+00	2.61E-01			pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	6.29E+00	9.31E-01	1.03E+00	8.60E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	3.86E-02	5.20E-02	5.21E-02	8.16E-02	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	2.97E+01	3.65E+00	4.22E+00	1.21E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	2.86E+01	3.58E+00	4.12E+00	1.56E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	1.41E+01	1.82E+00	2.08E+00	1.03E-01	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	2.77E+00	4.90E-01	5.29E-01	7.08E-02	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	1.93E+00	3.57E-01	3.83E-01	6.09E-02	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	2.10E+00	4.00E-01	4.27E-01	7.81E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	1.30E+00	3.31E-01	3.44E-01	8.72E-02	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	1.24E+00	2.84E-01	2.97E-01	7.26E-02	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	1.16E+00	2.70E-01	2.83E-01	6.10E-02	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/11/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	6.49E-01	1.95E-01	2.00E-01	6.25E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	8.07E-01	2.28E-01	2.36E-01	6.69E-02	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	6.65E-01	2.10E-01	2.15E-01	6.19E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	6.31E-01	2.09E-01	2.14E-01	9.23E-02	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	6.32E-01	1.88E-01	1.94E-01	7.81E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	7.73E-01	2.06E-01	2.14E-01	5.72E-02	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	7.34E-01	2.10E-01	2.17E-01	7.83E-02	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	8.35E-01	2.26E-01	2.34E-01	9.71E-02	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/12/2017	17-07077	Uranium-233/234	EPA 908.0 Modified	4.73E-01	1.61E-01	1.65E-01	6.62E-02	pCi/g

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

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Final Report of Analysis

Report To:
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1090 King Georges Post Rd Suite 201
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Work Order Details:
SDG: 17-07077
Purchase Order: 0094759
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	Report Units
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	3.15E-01	1.52E-01	1.53E-01	7.38E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	2.65E-02	4.50E-02	4.51E-02	7.64E-02	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	2.66E+00	6.35E-01	6.63E-01	1.49E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	2.60E+00	6.37E-01	6.64E-01	1.54E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.44E+00	3.47E-01	3.62E-01	8.05E-02	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	2.49E-01	1.33E-01	1.35E-01	9.97E-02	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.71E-01	1.03E-01	1.04E-01	9.01E-02	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	2.20E-01	1.21E-01	1.22E-01	7.70E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	9.90E-02	9.09E-02	9.12E-02	8.55E-02	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.61E-01	1.05E-01	1.06E-01	9.51E-02	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.81E-01	1.09E-01	1.10E-01	8.26E-02	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/11/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.10E-01	8.47E-02	8.50E-02	6.73E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.04E-01	9.03E-02	9.06E-02	1.04E-01	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.19E-01	9.65E-02	9.69E-02	9.60E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	9.17E-02	8.42E-02	8.44E-02	7.92E-02	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.63E-01	1.01E-01	1.02E-01	7.31E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	9.82E-02	7.75E-02	7.78E-02	7.05E-02	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	9.13E-02	7.85E-02	7.88E-02	7.71E-02	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	8.95E-02	7.70E-02	7.72E-02	7.56E-02	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/12/2017	17-07077	Uranium-235/236	EPA 908.0 Modified	1.40E-01	9.77E-02	9.83E-02	9.34E-02	pCi/g

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

0030

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

Smita Sumbaly
Weston Solutions, Inc.
1090 King Georges Post Rd Suite 201
Edison, NJ 08837

Work Order Details:

SDG:	**17-07077**
Purchase Order:	0094759
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	Report Units
17-07077-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	7.02E+00	2.53E-01			pCi/g
17-07077-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	6.40E+00	9.43E-01	1.05E+00	6.82E-02	pCi/g
17-07077-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	3.43E-02	4.44E-02	4.44E-02	6.17E-02	pCi/g
17-07077-03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	3.07E+01	3.76E+00	4.35E+00	1.58E-01	pCi/g
17-07077-04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	3.22E+01	3.98E+00	4.60E+00	1.09E-01	pCi/g
17-07077-05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	1.56E+01	1.99E+00	2.28E+00	8.14E-02	pCi/g
17-07077-06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	3.40E+00	5.67E-01	6.17E-01	7.04E-02	pCi/g
17-07077-07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	2.12E+00	3.80E-01	4.09E-01	5.52E-02	pCi/g
17-07077-08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	1.84E+00	3.65E-01	3.88E-01	5.42E-02	pCi/g
17-07077-09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	1.01E+00	2.82E-01	2.91E-01	6.90E-02	pCi/g
17-07077-10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	1.07E+00	2.59E-01	2.70E-01	7.67E-02	pCi/g
17-07077-11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	9.27E-01	2.37E-01	2.46E-01	7.62E-02	pCi/g
17-07077-12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	7/18/2017	8/11/2017	17-07077	Uranium-238	EPA 908.0 Modified	6.70E-01	1.98E-01	2.04E-01	6.83E-02	pCi/g
17-07077-13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	6.11E-01	1.94E-01	1.99E-01	5.82E-02	pCi/g
17-07077-14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	4.85E-01	1.76E-01	1.79E-01	6.16E-02	pCi/g
17-07077-15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	5.93E-01	2.01E-01	2.05E-01	7.33E-02	pCi/g
17-07077-16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	4.03E-01	1.46E-01	1.49E-01	5.90E-02	pCi/g
17-07077-17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	5.00E-01	1.62E-01	1.66E-01	7.50E-02	pCi/g
17-07077-18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	5.84E-01	1.83E-01	1.88E-01	5.43E-02	pCi/g
17-07077-19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	7.94E-01	2.17E-01	2.25E-01	7.64E-02	pCi/g
17-07077-20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	7/18/2017	8/12/2017	17-07077	Uranium-238	EPA 908.0 Modified	6.35E-01	1.90E-01	1.95E-01	6.59E-02	pCi/g

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

EBERLINE SERVICES

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

SECTION V

ANALYTICAL STANDARD

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

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Description of Solution

a. Mass of solution: 65.2896 g in a 50 ml flame sealed ampoule

b. Chemical form: Uranyl Nitrate in H2O

c. Carrier content: None

d. Density: Approximately 1.3202 g/ml @ 20°C.

Radioimpurities: Refer to attached technical data sheet

Radioactive Daughters: Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

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

NIST Traceability

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

Leak Test(s)

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

Notes

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

ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 7/12/2017 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: June 28, 2018

Verified & Approved By _____ Date: 7/12/2017 0:00

QC Approval _____ Date: 7/25/17

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
Solution Reference # IPL 479-50

Date 7/12/2017 0:00
Solution # U-8a

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

Radionuclide of Interest $^{234, 235, 238}U$
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: June 28, 2018

Verified & Approved By _____ Date: 7/12/2017 0:00

QC Approval _____ Date: 7/25/17

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

Description	Principal radionuclide:	**uranium 232** (U-232)	Product code: **UDP10050**
	Daughter Nuclide:	Th-228	Batch Number: 92/232/67

Measurement	Reference date:	01 March 2000
	Radioactive concentration U-232	6.739E+03 becquerels per gram of solution
	which is equivalent to	1.821E-01 microcuries per gram of solution
	Mass of solution	5.356 grams
	Volume of solution	5.035 millilitres
	Total activity of U-232	3.61E+04 becquerels
	which is equivalent to	9.76E-01 microcuries

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

Roger Wiltshire

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

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

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

CURRENT DATE: 11/7/2016 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 7, 2017

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

QC Approval _____ Date: 11/10/16

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # AEA/Amersham 92/232/67

Date 11/7/2016 0:00
Solution # U-10a

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

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

Reference Date 3/1/2000 0:00

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

Dilution Instructions:

Dilution Solvent Used 2M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in µCi/g was determined using gamma ray spectrometry.
Peak energy used for integration: 193.5 keV
Branching ratio used: 0.0441 gammas per decay

Uncertainty of Measurement:

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

Notes:

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

Ana U Khan — 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: 8/16/2017 0:00

SOLUTION REFERENCE #: IPL 867-54

SOLUTION #: Th-18

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

Radionuclide: ^{229}Th

Reference Date: 1/15/2002 0:00

Certified Activity: 1.013E+00 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross: 8.7752 Weight, Grams

Empty Ampoule: 3.7591 Weight, Grams

Solution Net: 5.0161 Weight, Grams

Total Activity in Ampoule: 1.0130 µCi

Chemical Composition of Standard Solution

$^{229}Th(NO_3)_4$ in 0.1M HNO_3

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: August 11, 2018

Verified & Approved By _____ Date: 8/16/2017 0:00

QC Approval _____ Date: 8/16/17

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 8/16/2017 0:00
Solution # Th-18a

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

Radionuclide of Interest ^{229}Th
Parent Solution Conc. 2.25E+03 dpm/ml

Reference Date 1/15/2002 0:00

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 11, 2018

Verified & Approved By _____ Date: 8/16/2017 0:00

QC Approval _____ Date: 8/16/17

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

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

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

Description of Solution

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

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 µCi/gram.

Method of Calibration

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

Uncertainty of Measurement

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

NIST Traceability

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

Notes

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

QUALITY CONTROL

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 2/28/2017 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 1, 2018

Recertified By _____ Date: 2/28/2017 0:00

QC Approval _____ Date: 3/1/17

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

Solution Reference # IPL 388-116 | **Date** 2/28/2017 0:00 | **Solution #** Th-1b

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

Radionuclide of Interest ^{230}Thorium
Parent Solution Conc. 2.30E+03 dpm/ml

Reference Date 11/1/1991 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1N HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
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 1, 2018

Recertified By _____ Date: 2/28/2017 0:00

QC Approval _____ Date: 3/1/17

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.

[signature] 9-Jan-02
Quality Control 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: 8/16/2017 0:00

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

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

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

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

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

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: August 11, 2018

Verified & Approved By _____ Date: 8/16/2017 0:00

QC Approval _____ Date: 8/16/17

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 8/16/2017 0:00
Solution # Th-18a

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

Radionuclide of Interest ^{229}Th
Parent Solution Conc. 2.25E+03 dpm/ml

Reference Date 1/15/2002 0:00

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

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

NOTES:

Expiration Date: August 11, 2018

Verified & Approved By _____ Date: 8/16/2017 0:00

QC Approval _____ Date: 8/16/17

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Reference Source

GAS - 1602

SRS Number: 104852
Source Description: Sand in 16 Ounce PP Omega Jar Filled to Capacity
Product Code: 8401-EG-SAN
Customer: Eberline Analytical Corporation
P.O. Number: OR-1610009, Item 4

This standard radionuclide source was prepared from an aliquot measured gravimetrically from a master radionuclide solution calibrated with a germanium gamma-ray spectrometer system. Additional radionuclides were added gravimetrically from solutions calibrated by gamma-ray spectrometry, ionization chamber, or liquid scintillation counting. Calibration and purity were checked using germanium gamma-ray spectrometry. 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 (NIST) 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."

Reference Date: 01-October-2016 12:00 PM EST

MGS Mixture

Isotope	Gamma-Ray Energy, keV	Half-Life, d	Activity, Bq	Flux, s^{-1}	Uncertainty u_A, %	u_B, %	U, %*	Calibration Method**
Am-241	59.5	1.580E+05	5.590E+03	1.973E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	7.668E+04	2.837E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	2.240E+03	1.917E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.659E+01	6.065E+03	4.947E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	4.528E+03	2.942E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.099E+04	2.249E+03	1.914E+03	0.7	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	7.415E+03	6.948E+03	0.7	1.7	3.7	HPGe
Y-88	1836.1			7.356E+03	0.7	1.7	3.7	
Co-60	1173.2	1.925E+03	3.562E+03	3.557E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5			3.561E+03	0.7	1.8	3.9	

Mixed Gamma (MGS) master solution is EZA's eight isotope mixture which is calibrated quarterly and consists of Cd-109, Co-57, Ce-139, Hg-203, Sn-113, Cs-137, Y-88, and Co-60. ***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." ****Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07077	UUISO	1	pCi	g	Weston Solutions, 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		86.88%	16.43%	100.00%	3.60%	7.24E+00	2.61E-01	6.29E+00	1.03E+00	U-8a	3.20E+01	3.60E+00	5.03E-01
U-238		91.26%	16.37%	100.00%	3.60%	7.02E+00	2.53E-01	6.40E+00	1.05E+00	U-8a	3.10E+01	3.60E+00	5.03E-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)

Duplicate Results

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU
U-234	0.36	3.74	2.86E+01	4.12E+00	2.97E+01	4.22E+00
U-238	0.46	4.74	3.22E+01	4.60E+00	3.07E+01	4.35E+00
U-235	0.13	2.40	2.60E+00	6.64E-01	2.66E+00	6.63E-01

QC Summary

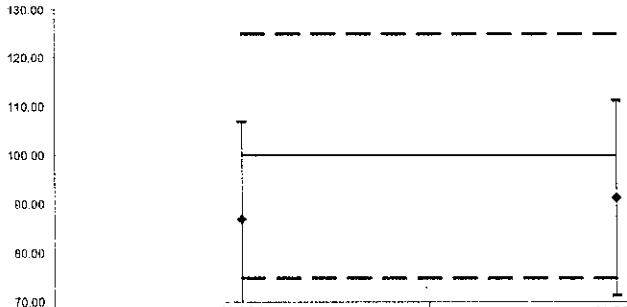
LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
0.87	OK				OK	OK
0.91	OK				OK	OK
	OK				NA	OK

0050

Version

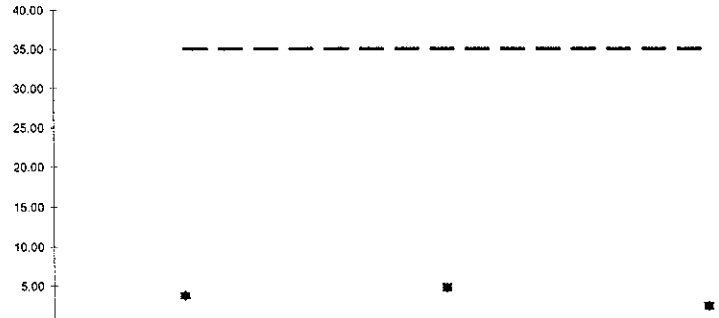
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07077	UUISO	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



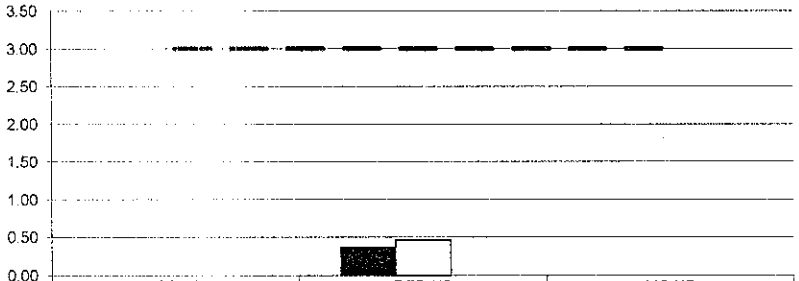
	U-234	U-238
Lower Error	66.85	71.30
Upper Error	106.91	111.23
%R	86.88	91.26
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	U-234	U-238	U-235
Lower Error	4.00	5.08	2.70
Upper Error	3.47	4.41	2.09
RPD	3.74	4.74	2.40
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.36	0.00
U-238	0.00	0.46	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07077	ThISO	1	pCi	g	Weston Solutions, 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		117.12%	19.39%	100.00%	3.60%	4.86E+00	1.75E-01	5.69E+00	1.10E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01
TH-230		120.41%	20.64%	100.00%	2.70%	5.41E+00	1.46E-01	6.52E+00	1.35E+00	Th-1b	2.35E+01	2.70E+00	5.11E-01
TH-232		117.80%	19.08%	100.00%	3.60%	4.86E+00	1.75E-01	5.73E+00	1.09E+00	Th-8b	1.04E+02	3.60E+00	1.04E-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)

Duplicate Results

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU
TH-228	1.05	13.30	2.93E+01	5.07E+00	3.34E+01	5.93E+00
TH-230	1.07	15.38	1.44E+01	2.83E+00	1.68E+01	3.34E+00
TH-232	0.88	10.99	2.34E+01	4.00E+00	2.61E+01	4.57E+00

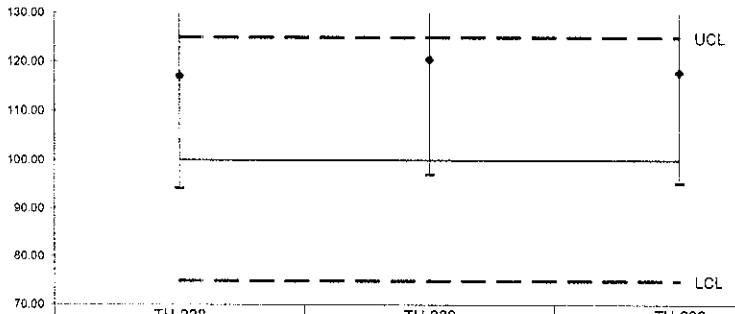
QC Summary

LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
1.17	OK				OK	OK
1.20	OK				OK	OK
1.18	OK				OK	OK

0052

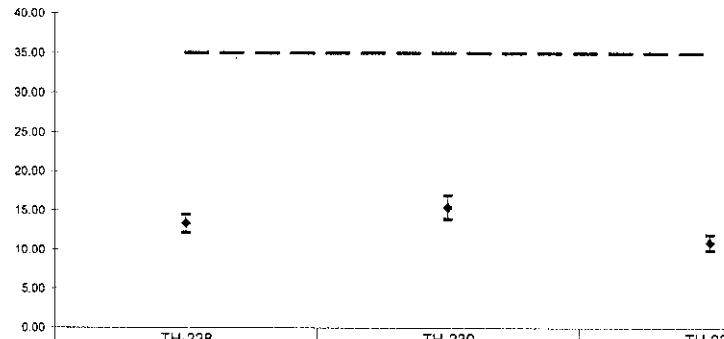
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07077	ThISO	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



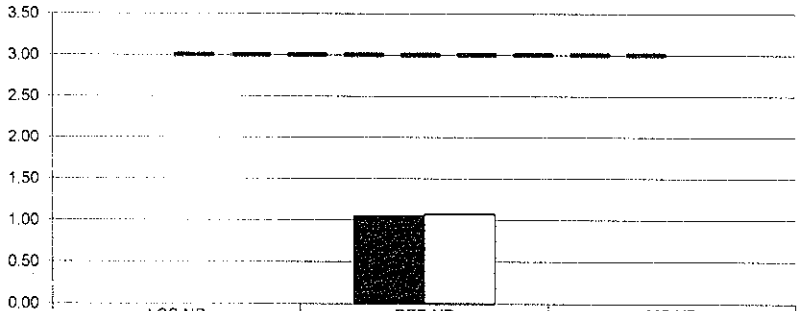
	TH-228	TH-230	TH-232
Lower Error	94.13	97.07	95.12
Upper Error	140.12	143.75	140.48
%R	117.12	120.41	117.80
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	14.46	16.90	11.95
Upper Error	12.13	13.85	10.04
RPD	13.30	15.38	10.99
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	1.05	0.00
TH-230	0.00	1.07	0.00
UCL	3	3	3

No Matrix Spike

0053

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07077	Gamma	2	pCi	g	Weston Solutions, 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		90.26%	7.88%	100.00%	3.89%	1.35E+02	5.27E+00	1.22E+02	9.62E+00	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		94.11%	10.42%	100.00%	4.01%	8.44E+01	3.38E+00	7.94E+01	8.28E+00	GAS-1402	8.44E+01	3.38E+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	0.07	0.38	1.13E+02	7.96E+00	1.12E+02	7.93E+00
K-40	0.09	1.61	1.21E+01	2.83E+00	1.23E+01	2.97E+00
PB-212	0.33	1.92	1.16E+02	9.26E+00	1.18E+02	9.50E+00

QC Summary

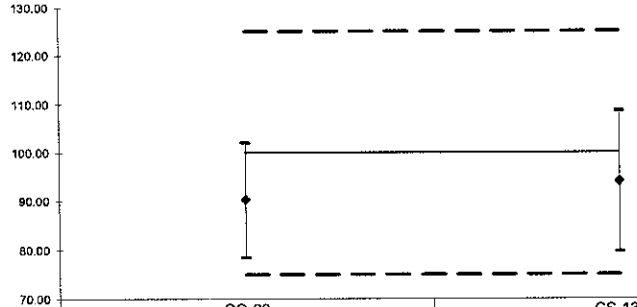
LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
0.90	OK		<CS-137	AC-228>	OK	
0.94	OK		<CO-60	K-40>	OK	OK
				PB-212>	OK	OK

0054

Version

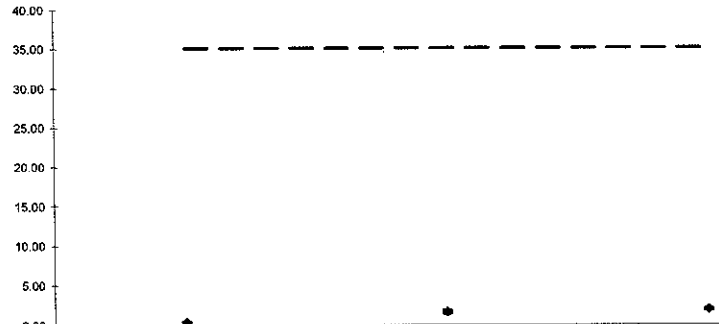
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07077	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



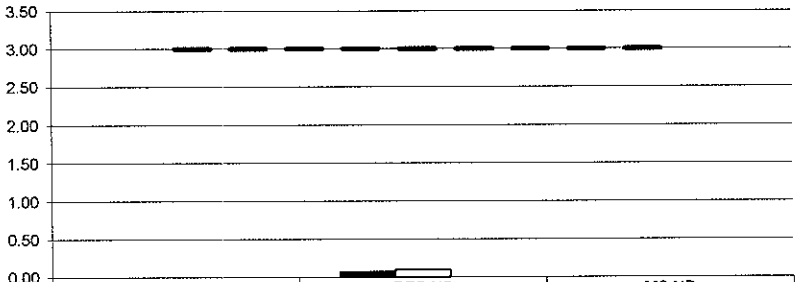
	CO-60	CS-137
Lower Error	78.48	79.68
Upper Error	102.03	108.54
%R	90.26	94.11
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	K-40	PB-212
Lower Error	0.39	1.81	2.00
Upper Error	0.36	1.42	1.84
RPD	0.38	1.61	1.92
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.07	0.00
CS-137	0.00	0.09	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

0055

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	17-07077
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/07/17 11:41	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS

JHarvey
8/7/17

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	17-07077
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/07/17 11:41	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/10/17 18:53	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.

8/10/17

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	17-07077
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/07/17 11:41	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/10/17 18:53	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	08/11/17 05:29	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

8/1/17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07077	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/7/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/7/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/7/2017
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/7/2017
017553P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/10/2017
019135S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/10/2017
019160S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/10/2017
019067D01	Hydrochloric Acid	0.5N	JDEMELAS	8/10/2017
019124S	Hydrochloric Acid	6.5N	JDEMELAS	8/10/2017
019158S	Hydrochloric Acid	8N	JDEMELAS	8/10/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/10/2017
019164S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/10/2017
019122S	Carbon substrate	Solution	TSMITH	8/11/2017
019063P	Ethyl Alcohol	1	TSMITH	8/11/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/11/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/11/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/11/2017

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyzed	Tech
8/10/17	1707097A(1-4)	UCOR	1205	2hr50	Th	KB
8/10/17	1707096A(1-3,5)	UCOR	1206	2hr50	Th229	KB
8/10/17	1707097A(1-3)	UCOR	1204	2hr50	Th229	KB
8/10/17	1707097A(4)	UCOR	1501	2hr50	Th229	KB
8/10/17	1707096A(2)	UCOR	1501	2hr50	UU	KB
8/10/17	1707097A(1-4)	UCOR	1502	2hr50	UU	KB
8/10/17	1707097A(4)	UCOR	1502	2hr50	UUNT	KB
8/10/17	1708031A(1-7)	USA	1504	2hr50	Rak	KB
8/11/17	Daily Pulser	Lab	0440	10min	NA	KB
8/11/17	CAL Check(33-48)	Lab	0503	2½hr	"	KB
8/11/17	CAL Check(49-60)	Lab	0741	2½hr	"	KB
8/11/17	1708027A(2-4)	Smoky Mt. Solutes	0813	2hr50	Am241	KB
8/11/17	1708027A(1-4)	Smoky Mt. Solutes.	0814	2hr50	Pu242	KB
8/11/17	1708027A(1-4)	Smoky Mt. Solutes	0815	2hr50	UU	KB
8/11/17	1707106A(1-3)	PCC	0818	2hr50	UU	KB
8/11/17	1707106A(10)	PCC	1015	2hr50	UU	KB
8/11/17	1707121A(1-6)	Omega	1016	2hr50	PU	KB
8/11/17	Regentest R100A(1)	Lab	1016	1hr	UUNT	KB
8/11/17	1707106A(1-2)	PCC	1017	2hr50	Th	KB
8/11/17	1707106A(3-10)	PCC	1112	2hr50	Th	KB
8/11/17	1707072A(1-6)	North Wind	1113	2hr50	UU	KB
8/11/17	1707072A(7)	North Wind	1310	2hr50	UU	KB
8/11/17	1707063A(1-7)	Accutest	1311	2hr50	Rak	KB
8/11/17	1707121A(1-2)	Omega	1312	2hr50	Pu242	KB
8/11/17	1707121A(4-5)	Omega	1408	2hr50	Am241	KB
8/11/17	1707077A(1-12)	Weston	1409	2hr50	UU	KB
8/11/17	System Bkgd	Lab	1705	16.40 hrs	"	KB
8/12/17	Daily Pulser	Lab	1003	10 min	"	KB
8/12/17	1707077A(13-20)	Weston	1022	2hr50	UU	KB
8/12/17	1707121A(1-5)	Omega	1023	2hr50	Am241	KB

ISO-TH NOTES

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07077
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/07/17 11:41	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS

JHarvey
8/7/17

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	17-07077
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/07/17 11:41	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/11/17 11:15	CHEM	TSMITH	Followed steps 12.2.1 to 12.2.5 in AP-005 . (Column separaiton for Thorium by Eichrom Anion resin)
3	08/14/17 05:10	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

8-14-17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07077	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/7/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/7/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/7/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/7/2017
019159S	Nitric Acid	8N	TSMITH	8/11/2017
018772D13	Nitric Acid	8N	TSMITH	8/11/2017
019165S	Hydrochloric Acid	8N	TSMITH	8/11/2017
018798P	Anion Exchange Resin	Reagent Grade	TSMITH	8/11/2017
019134P	Hydrochloric Acid	Reagent Grade	TSMITH	8/11/2017
019106S	Cerrium Carrier	0.1mg/ml	TSMITH	8/14/2017
019063P	Ethyl Alcohol	1	TSMITH	8/14/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/14/2017
019145S	Carbon substrate	Solution	TSMITH	8/14/2017

Alpha #1

Date	Sample #	Client	Load Time	CT Time	Analyzed	Tech
8/8/17	1707096A (3,5)	UCOR	1209	2hr50 –	Am243	KB
8/8/17	1707096A (1-3,5)	UCOR	1210	2hr50 –	ND	KB
8/9/17	Daily Pulser	Lab	0522	10min	NA	AG
8/9/17	1708018A (1-5)	Smoky Mt. Solutn	0900	2hr50 –	PU	KB
8/9/17	1708018A (1)	Smoky Mt. Solutn	0900	2hr50 –	UU	KB
8/9/17	1707097A (3-4)	UCOR	1201	2hr50 –	Am241	KB
8/9/17	1707097A (1-4)	UCOR	1201	2hr50 –	Am243	KB
8/10/17	Daily Pulser	Lab	0517	10min	NA	AG
8/10/17	1707108A (1-4,6)	Unitech	0857	2hr50 –	PU	KB
8/10/17	1707122A (1)	Omega	0900	2hr50 –	PU	KB
8/10/17	1707109A (1-6)	Grace	1202	2hr50 –	UU	KB
8/11/17	Daily Pulser	Lab	0440	10min	NA	KB
8/11/17	Cal Check	Lab	1112	2½hr	α	KB
8/11/17	1708027A (1-5)	Smoky Mt. Solutn	0813	2hr50 –	PU	KB
8/11/17	1708027A (1)	Smoky Mt. Solutn	0813	2hr50 –	Am241	KB
8/11/17	1707121A (3-5)	Omega	1345	2hr50 –	Pu242	KB
8/11/17	1707121A (1-3)	Omega	1346	2hr50 –	Am241	KB
8/11/17	System Bkgd	Lab	1705	16.40 hr	α	KB
8/14	Daily Pulser	LAB	0512	10	NA	C
8/14	1707148A (1-6)	MPA	0525	2hr50	Ra6	C
8/14	1707077A (1-6)	Weston	0742	2hr50	Th7	C

Alpha #3

Date	Sample #	Client	Transition	CT Time	Analyst	Tech
8/10/17	1707097A(1-4)	UCOR	1205	2hr50 –	Th	KB
8/10/17	1707096A(1-3,5)	UCOR	1206	2hr50 –	Th^{229}	KB
8/10/17	1707097A(1-3)	UCOR	1206	2hr50 –	Th^{229}	KB
8/10/17	1707097A(4)	UCOR	1501	2hr50 –	Th^{229}	KB
8/10/17	1707096A(2)	UCOR	1501	2hr50 –	UU	KB
8/10/17	1707097A(1-6)	UCOR	1502	2hr50 –	UU	KB
8/10/17	1707097A(4)	UCOR	1502	2hr50 –	UUNT	KB
8/10/17	1708031A(1-7)	USA	1504	2hr50 –	Ruk	KB
8/11/17	Daily Pulser	Lab	0440	10min	NA	KB
8/11/17	CAL Check(33-48)	Lab	0503	24hr	–	KB
8/11/17	CAL Check(49-60)	Lab	0741	24hr	–	KB
8/11/17	1708027A(2-4)	Smoky Mt. Solutis	0813	2hr50 –	Am^{241}	KB
8/11/17	1708027A(1-4)	Smoky Mt. Solutis	0814	2hr50 –	Pu^{242}	KB
8/11/17	1708027A(1-4)	Smoky Mt. Solutis	0815	2hr50 –	UU	KB
8/11/17	1707106A(1-3)	PCC	0818	2hr50 –	UU	KB
8/11/17	1707106A(10)	PCC	1015	2hr50 –	UU	KB
8/11/17	1707121A(1-4)	Omega	1016	2hr50 –	PU	KB
8/11/17	Regentest100A(1)	Lab	1016	1hr	UUNT	KB
8/11/17	1707106A(1-2)	PCC	1017	2hr50 –	Th	KB
8/11/17	1707106A(3-10)	PCC	1112	2hr50 –	Th	KB
8/11/17	1707072A(1-6)	North Wind	1113	2hr50 –	UU	KB
8/11/17	1707072A(7)	North Wind	1310	2hr50 –	UU	KB
8/11/17	1707063A(1-7)	Accutest	1311	2hr50 –	Ruk	KB
8/11/17	1707121A(1-2)	Omega	1312	2hr50 –	Pu^{242}	KB
8/11/17	1707121A(4-5)	Omega	1407	2hr50 –	Am^{241}	KB
8/11/17	1707077A(1-12)	Weston	1409	2hr50 –	UU	KB
8/11/17	System Blksd	Lab	1705	16.40 hrs	–	KB
8/12/17	Daily Pulser	Lab	1003	10 min	–	KB
8/12/17	1707077A(13-20)	Weston	1022	2hr50 –	UU	KB
8/12/17	1707121A(1-5)	Omega	1023	2hr50 –	Am^{241}	KB
8/14	Daily Pulser	KB	0512	10	NA	—
8/14	1707148A(1-15)	MPA	0529	2hr50	Ruk	—
8/14	1707077A(7-20)	Weston	0842	2hr50	Th230	—
8/14	1707078A(1-10)	Weston	0844	2hr50	Th230	—

GAMMA NOTES

GE 1

DATE	Sample #	Client	Lost Time	CT Time	Analysis	Tech
8/9/17	Daily Bkgd	Lab	0517	15 min	γ	AG
8/9/17	GAF-16	Lab	0539	15 min	γ	AG
8/9/17	1708026-03	UCOR	0801	4 hr	γ	AG
8/9/17	1708003-06	Weston	1215	1 hr	γ	KB
8/9/17	1708003-07	Weston	1317	1 hr	γ	KB
8/9/17	1708026-05	UCOR	1419	4 hr	γ	KB
8/9/17	1708026-02	UCOR	1818	4 hr	γ	KB
8/10/17	Daily Bkgd	Lab	0508	15 min	γ	AG
8/10/17	GAF-16	Lab	0531	15 min	γ	AG
8/10/17	1708035-~~01~~ AG 03	TWPC	0742	2 hr	γ	AG
8/10/17	1708035-04	TWPC	0943	2 hr	γ	KB
8/10/17	1708045-03	Smoky Mt. Solutns	1144	2 hr	γ	KB
8/10/17	1708045-04	Smoky Mt. Solutns	1344	2 hr	γ	KB
8/10/17	1708045-02	Smoky Mt. Solutns	1545	2 hr	γ	KB
8/11/17	Daily Bkgd	Lab	0439	15 mins	γ	KB
8/11/17	GAF-16	Lab	0505	15 min	γ	KB
8/11/17	1708040-03	ESLLC	0803	1 hr	γ	KB
8/11/17	1708040-04	ESLLC	0903	1 hr	γ	KB
8/11/17	1707063-04	Accutest	1004	15	Be	KB
8/11/17	1708044-05	CALEnergy	1021	4 hr	γ	KB
8/11/17	1708044-06	CALEnergy	1422	4 hr	γ	KB
8/11/17	1708038-03	UCOR	1922	4 hr	γ	KB
8/12/17	System Bkgd	Lab	0939	24 hr	γ	KB
8/14	GAF-16	LAB	0509	15	γ	C
8/14	Daily Bkgd	LAB	0531	15	γ	C
8/14	1707077-03	Weston	0513	2 hr	γ	C
8/14	1707077-04	Weston	0619	2 hr		
8/14	1707077-05	Weston	0801	2 hr	γ	C
8/14	1707077-12	Weston	0900	2 hr	γ	
8/14	1707077-15	Weston	1006	2 hr	γ	—
8/14/17	1708055 ~~test~~ (4)	Lab	~~1014~~ 1106	15 min	γ	KB
8/14	1707077-20	Weston	1125	2 hr	γ	—

GE 3

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/11/17	1707148-08	MPA	1725	15 min	Ba	KB
8/11/17	1707148-10	MPA	1734	15 min	Ba	KB
8/11/17	1707148-12	MPA	1608	15 —	Ba	KB
8/12/17	System Blksd	Lab	0939	24 hrs	γ	KB
8/14	[illegible]	LAB	0505	15	γ	[illegible]
8/14	[illegible]	LAB	0531	15	γ	
8/14	1707077-05	Weston	0554	[illegible]	γ	—
8/14	1707077-07	Weston	0653	[illegible]	γ	—
8/14	1707077-10	Weston	0801	[illegible]	γ	[illegible]
8/14	1707077-13	Weston	0903	[illegible]	γ	[illegible]
8/14	1707077-16	Weston	1006	[illegible]	γ	[illegible]
8/14	1707077-18	Weston	1108	[illegible]	γ	[illegible]
8/14/17	1707077-01	Weston	1209	30 min	γ	KB

GE4

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/14	1707077-06	Weston	0554	2h	✓	—
8/14	1707077-08	Weston	0602	2h	✓	—
8/14	1707077-11	Weston	0801	2h	✓	—
8/14	1707077-14	Weston	0903	2h	✓	—
8/14	1707077-17	Weston	1006	2h	✓	—
8/14	1707077-19	Weston	1108	2h	✓	—
8/14/17	1707077-02	Weston	1209	1h	✓	RB

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

17-07077
UUISO
Run 1

Work Order	17-07077
Analysis Code	UUISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 908.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.32
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S001-0006-01	261	05/13/17 13:36	5.0310E-01
04	DO	HTC-A01-S001-0006-01	261	05/13/17 13:36	5.0270E-01
05	TRG	HTC-A01-S001-0612-01	167	05/13/17 13:33	1.0180E+00
06	TRG	HTC-A01-S001-1218-01	39	05/13/17 13:30	1.0074E+00
07	TRG	HTC-A01-S001-1824-01	52	05/13/17 13:27	1.0033E+00
08	TRG	HTC-A01-S001-2430-01	48	05/13/17 13:24	1.0037E+00
09	TRG	HTC-A01-S001-3036-01	47	05/13/17 13:21	1.0143E+00
10	TRG	HTC-A01-S001-3642-01	52	05/13/17 13:18	1.0162E+00
11	TRG	HTC-A01-S001-4248-01	44	05/13/17 13:15	1.0101E+00
12	TRG	HTC-A01-S002-0006-01	33	05/13/17 11:26	1.0019E+00
13	TRG	HTC-A01-S002-0612-01	45	05/13/17 11:23	1.0063E+00
14	TRG	HTC-A01-S002-1218-01	40	05/13/17 11:20	1.0038E+00
15	TRG	HTC-A01-S002-1824-01	31	05/13/17 11:17	1.0171E+00
16	TRG	HTC-A01-S002-2430-01	35	05/13/17 11:14	1.0016E+00
17	TRG	HTC-A01-S002-2430-02	35	05/13/17 11:14	1.0064E+00
18	TRG	HTC-A01-S002-3036-01	28	05/13/17 11:11	1.0046E+00
19	TRG	HTC-A01-S002-3642-01	42	05/13/17 11:08	1.0097E+00
20	TRG	HTC-A01-S002-4248-01	39	05/13/17 11:05	1.0092E+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.

17-07077
UUISO
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.6058	11.1		0.00								
02	MBL	0.6055	11.1		0.00								
03	DUP	0.6059	11.1		0.00								
04	DO	0.6064	11.1		0.00								
05	TRG	0.6054	11.1		0.00								
06	TRG	0.6060	11.1		0.00								
07	TRG	0.6047	11.1		0.00								
08	TRG	0.6047	11.1		0.00								
09	TRG	0.6039	11.1		0.00								
10	TRG	0.6043	11.1		0.00								
11	TRG	0.6035	11.1		0.00								
12	TRG	0.6032	11.1		0.00								
13	TRG	0.6030	11.0		0.00								
14	TRG	0.6024	11.0		0.00								
15	TRG	0.6025	11.0		0.00								
16	TRG	0.6015	11.0		0.00								
17	TRG	0.6028	11.0		0.00								
18	TRG	0.6033	11.1		0.00								
19	TRG	0.6034	11.1		0.00								
20	TRG	0.5838	10.7		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.

17-07077
UUISO
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/07/17 10:45	JHARVEY				
02	MBL			08/07/17 10:45	JHARVEY				
03	DUP			08/07/17 10:45	JHARVEY				
04	DO	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
05	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
06	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
07	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
08	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
09	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
10	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
11	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
12	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
13	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
14	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
15	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
16	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
17	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
18	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
19	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				
20	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:45	JHARVEY				

* 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: 17-07077-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
Analysis Code: UUISO
Run: 1
0077

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	6.29E+00	9.31E-01	8.60E-02	7.24E+00	86.88	OK		OK	
02	U-234	MBL	BLANK	pCi/g	3.86E-02	5.20E-02	8.16E-02					OK	OK
03	U-234	DUP	HTC-A01-S001-0006-01	pCi/g	2.97E+01	3.65E+00	1.21E-01				OK	OK	
04	U-234	DO	HTC-A01-S001-0006-01	pCi/g	2.86E+01	3.58E+00	1.56E-01					OK	
05	U-234	TRG	HTC-A01-S001-0612-01	pCi/g	1.41E+01	1.82E+00	1.03E-01					OK	
06	U-234	TRG	HTC-A01-S001-1218-01	pCi/g	2.77E+00	4.90E-01	7.08E-02					OK	
07	U-234	TRG	HTC-A01-S001-1824-01	pCi/g	1.93E+00	3.57E-01	6.09E-02					OK	
08	U-234	TRG	HTC-A01-S001-2430-01	pCi/g	2.10E+00	4.00E-01	7.81E-02					OK	
09	U-234	TRG	HTC-A01-S001-3036-01	pCi/g	1.30E+00	3.31E-01	8.72E-02					OK	
10	U-234	TRG	HTC-A01-S001-3642-01	pCi/g	1.24E+00	2.84E-01	7.26E-02					OK	
11	U-234	TRG	HTC-A01-S001-4248-01	pCi/g	1.16E+00	2.70E-01	6.10E-02					OK	
12	U-234	TRG	HTC-A01-S002-0006-01	pCi/g	6.49E-01	1.95E-01	6.25E-02					OK	
13	U-234	TRG	HTC-A01-S002-0612-01	pCi/g	8.07E-01	2.28E-01	6.69E-02					OK	
14	U-234	TRG	HTC-A01-S002-1218-01	pCi/g	6.65E-01	2.10E-01	6.19E-02					OK	
15	U-234	TRG	HTC-A01-S002-1824-01	pCi/g	6.31E-01	2.09E-01	9.23E-02					OK	
16	U-234	TRG	HTC-A01-S002-2430-01	pCi/g	6.32E-01	1.88E-01	7.81E-02					OK	
17	U-234	TRG	HTC-A01-S002-2430-02	pCi/g	7.73E-01	2.06E-01	5.72E-02					OK	
18	U-234	TRG	HTC-A01-S002-3036-01	pCi/g	7.34E-01	2.10E-01	7.83E-02					OK	
19	U-234	TRG	HTC-A01-S002-3642-01	pCi/g	8.35E-01	2.26E-01	9.71E-02					OK	
20	U-234	TRG	HTC-A01-S002-4248-01	pCi/g	4.73E-01	1.61E-01	6.62E-02					OK	

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07077
Client: Weston Solutions, Inc.
0078

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	07/18/17 00:00	1.00E+00	117.24	0.00	0.00			
02	U-234	MBL	07/18/17 00:00	1.00E+00	112.40	0.00	0.00			
03	U-234	DUP	05/13/17 13:36	5.03E-01	131.90	0.00	0.00			
04	U-234	DO	05/13/17 13:36	5.03E-01	130.94	0.00	0.00			
05	U-234	TRG	05/13/17 13:33	1.02E+00	103.15	0.00	0.00			
06	U-234	TRG	05/13/17 13:30	1.01E+00	107.79	0.00	0.00			
07	U-234	TRG	05/13/17 13:27	1.00E+00	121.72	0.00	0.00			
08	U-234	TRG	05/13/17 13:24	1.00E+00	113.06	0.00	0.00			
09	U-234	TRG	05/13/17 13:21	1.01E+00	93.35	0.00	0.00			
10	U-234	TRG	05/13/17 13:18	1.02E+00	118.46	0.00	0.00			
11	U-234	TRG	05/13/17 13:15	1.01E+00	126.95	0.00	0.00			
12	U-234	TRG	05/13/17 11:26	1.00E+00	124.10	0.00	0.00			
13	U-234	TRG	05/13/17 11:23	1.01E+00	112.11	0.00	0.00			
14	U-234	TRG	05/13/17 11:20	1.00E+00	103.15	0.00	0.00			
15	U-234	TRG	05/13/17 11:17	1.02E+00	107.35	0.00	0.00			
16	U-234	TRG	05/13/17 11:14	1.00E+00	117.28	0.00	0.00			
17	U-234	TRG	05/13/17 11:14	1.01E+00	139.01	0.00	0.00			
18	U-234	TRG	05/13/17 11:11	1.00E+00	130.92	0.00	0.00			
19	U-234	TRG	05/13/17 11:08	1.01E+00	110.73	0.00	0.00			
20	U-234	TRG	05/13/17 11:05	1.01E+00	114.95	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07077-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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	08/11/17 14:08		A_Spec	Alpha_035	170	4.39 E+02	0.00 E+00	15.8
02	U-234	MBL	08/11/17 14:08		A_Spec	Alpha_036	170	2.98 E+00	6.00 E-03	18.2
03	U-234	DUP	08/11/17 14:08		A_Spec	Alpha_037	170	1.18 E+03	2.00 E-03	15.9
04	U-234	DO	08/11/17 14:08		A_Spec	Alpha_038	170	1.09 E+03	5.00 E-03	15.4
05	U-234	TRG	08/11/17 14:08		A_Spec	Alpha_039	170	1.03 E+03	1.10 E-02	18.5
06	U-234	TRG	08/11/17 14:08		A_Spec	Alpha_040	170	2.05 E+02	3.00 E-03	18.1
07	U-234	TRG	08/11/17 14:09		A_Spec	Alpha_043	170	1.66 E+02	3.00 E-03	18.7
08	U-234	TRG	08/11/17 14:09		A_Spec	Alpha_044	170	1.61 E+02	5.00 E-03	17.9
09	U-234	TRG	08/11/17 14:09		A_Spec	Alpha_045	170	7.85 E+01	3.00 E-03	16.9
10	U-234	TRG	08/11/17 14:09		A_Spec	Alpha_046	170	9.63 E+01	4.00 E-03	17.1
11	U-234	TRG	08/11/17 14:09		A_Spec	Alpha_047	170	9.07 E+01	2.00 E-03	16.2
12	U-234	TRG	08/11/17 14:09		A_Spec	Alpha_048	170	4.97 E+01	2.00 E-03	16.3
13	U-234	TRG	08/12/17 10:21		A_Spec	Alpha_033	170	5.77 E+01	2.00 E-03	16.8
14	U-234	TRG	08/12/17 10:21		A_Spec	Alpha_034	170	4.48 E+01	1.00 E-03	17.3
15	U-234	TRG	08/12/17 10:22		A_Spec	Alpha_035	170	4.10 E+01	0.00 E+00	15.8
16	U-234	TRG	08/12/17 10:22		A_Spec	Alpha_036	170	5.10 E+01	6.00 E-03	18.2
17	U-234	TRG	08/12/17 10:22		A_Spec	Alpha_037	170	6.47 E+01	2.00 E-03	15.9
18	U-234	TRG	08/12/17 10:22		A_Spec	Alpha_038	170	5.62 E+01	5.00 E-03	15.4
19	U-234	TRG	08/12/17 10:22		A_Spec	Alpha_039	170	6.51 E+01	1.10 E-02	18.5
20	U-234	TRG	08/12/17 10:22		A_Spec	Alpha_040	170	3.75 E+01	3.00 E-03	18.1

Preliminary Data Report & Analytical Calculations
Work Order: 17-07077-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07077
Client: Weston Solutions, Inc.
0800

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	6.40E+00	9.43E-01	6.82E-02	7.02E+00	91.26	OK		OK	
02	U-238	MBL	BLANK	pCi/g	3.43E-02	4.44E-02	6.17E-02					OK	OK
03	U-238	DUP	HTC-A01-S001-0006-01	pCi/g	3.07E+01	3.76E+00	1.58E-01				OK	OK	
04	U-238	DO	HTC-A01-S001-0006-01	pCi/g	3.22E+01	3.98E+00	1.09E-01					OK	
05	U-238	TRG	HTC-A01-S001-0612-01	pCi/g	1.56E+01	1.99E+00	8.14E-02					OK	
06	U-238	TRG	HTC-A01-S001-1218-01	pCi/g	3.40E+00	5.67E-01	7.04E-02					OK	
07	U-238	TRG	HTC-A01-S001-1824-01	pCi/g	2.12E+00	3.80E-01	5.52E-02					OK	
08	U-238	TRG	HTC-A01-S001-2430-01	pCi/g	1.84E+00	3.65E-01	5.42E-02					OK	
09	U-238	TRG	HTC-A01-S001-3036-01	pCi/g	1.01E+00	2.82E-01	6.90E-02					OK	
10	U-238	TRG	HTC-A01-S001-3642-01	pCi/g	1.07E+00	2.59E-01	7.67E-02					OK	
11	U-238	TRG	HTC-A01-S001-4248-01	pCi/g	9.27E-01	2.37E-01	7.62E-02					OK	
12	U-238	TRG	HTC-A01-S002-0006-01	pCi/g	6.70E-01	1.98E-01	6.83E-02					OK	
13	U-238	TRG	HTC-A01-S002-0612-01	pCi/g	6.11E-01	1.94E-01	5.82E-02					OK	
14	U-238	TRG	HTC-A01-S002-1218-01	pCi/g	4.85E-01	1.76E-01	6.16E-02					OK	
15	U-238	TRG	HTC-A01-S002-1824-01	pCi/g	5.93E-01	2.01E-01	7.33E-02					OK	
16	U-238	TRG	HTC-A01-S002-2430-01	pCi/g	4.03E-01	1.46E-01	5.90E-02					OK	
17	U-238	TRG	HTC-A01-S002-2430-02	pCi/g	5.00E-01	1.62E-01	7.50E-02					OK	
18	U-238	TRG	HTC-A01-S002-3036-01	pCi/g	5.84E-01	1.83E-01	5.43E-02					OK	
19	U-238	TRG	HTC-A01-S002-3642-01	pCi/g	7.94E-01	2.17E-01	7.64E-02					OK	
20	U-238	TRG	HTC-A01-S002-4248-01	pCi/g	6.35E-01	1.90E-01	6.59E-02					OK	

Work Order: 17-07077-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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	07/18/17 00:00	1.00E+00	117.24	0.00	0.00			
02	U-238	MBL	07/18/17 00:00	1.00E+00	112.40	0.00	0.00			
03	U-238	DUP	05/13/17 13:36	5.03E-01	131.90	0.00	0.00			
04	U-238	DO	05/13/17 13:36	5.03E-01	130.94	0.00	0.00			
05	U-238	TRG	05/13/17 13:33	1.02E+00	103.15	0.00	0.00			
06	U-238	TRG	05/13/17 13:30	1.01E+00	107.79	0.00	0.00			
07	U-238	TRG	05/13/17 13:27	1.00E+00	121.72	0.00	0.00			
08	U-238	TRG	05/13/17 13:24	1.00E+00	113.06	0.00	0.00			
09	U-238	TRG	05/13/17 13:21	1.01E+00	93.35	0.00	0.00			
10	U-238	TRG	05/13/17 13:18	1.02E+00	118.46	0.00	0.00			
11	U-238	TRG	05/13/17 13:15	1.01E+00	126.95	0.00	0.00			
12	U-238	TRG	05/13/17 11:26	1.00E+00	124.10	0.00	0.00			
13	U-238	TRG	05/13/17 11:23	1.01E+00	112.11	0.00	0.00			
14	U-238	TRG	05/13/17 11:20	1.00E+00	103.15	0.00	0.00			
15	U-238	TRG	05/13/17 11:17	1.02E+00	107.35	0.00	0.00			
16	U-238	TRG	05/13/17 11:14	1.00E+00	117.28	0.00	0.00			
17	U-238	TRG	05/13/17 11:14	1.01E+00	139.01	0.00	0.00			
18	U-238	TRG	05/13/17 11:11	1.00E+00	130.92	0.00	0.00			
19	U-238	TRG	05/13/17 11:08	1.01E+00	110.73	0.00	0.00			
20	U-238	TRG	05/13/17 11:05	1.01E+00	114.95	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07077-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07077
Client: Weston Solutions, Inc.
0082

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	08/11/17 14:08		A_Spec	Alpha_035	170	4.49 E+02	2.00 E-03	15.8
02	U-238	MBL	08/11/17 14:08		A_Spec	Alpha_036	170	2.66 E+00	2.00 E-03	18.2
03	U-238	DUP	08/11/17 14:08		A_Spec	Alpha_037	170	1.22 E+03	6.00 E-03	15.9
04	U-238	DO	08/11/17 14:08		A_Spec	Alpha_038	170	1.24 E+03	1.00 E-03	15.4
05	U-238	TRG	08/11/17 14:08		A_Spec	Alpha_039	170	1.15 E+03	5.00 E-03	18.5
06	U-238	TRG	08/11/17 14:08		A_Spec	Alpha_040	170	2.53 E+02	3.00 E-03	18.1
07	U-238	TRG	08/11/17 14:09		A_Spec	Alpha_043	170	1.84 E+02	2.00 E-03	18.7
08	U-238	TRG	08/11/17 14:09		A_Spec	Alpha_044	170	1.42 E+02	1.00 E-03	17.9
09	U-238	TRG	08/11/17 14:09		A_Spec	Alpha_045	170	6.08 E+01	1.00 E-03	16.9
10	U-238	TRG	08/11/17 14:09		A_Spec	Alpha_046	170	8.32 E+01	5.00 E-03	17.1
11	U-238	TRG	08/11/17 14:09		A_Spec	Alpha_047	170	7.30 E+01	0.00 E+00	16.2
12	U-238	TRG	08/11/17 14:09		A_Spec	Alpha_048	170	5.15 E+01	3.00 E-03	16.3
13	U-238	TRG	08/12/17 10:21		A_Spec	Alpha_033	170	4.38 E+01	1.00 E-03	16.8
14	U-238	TRG	08/12/17 10:21		A_Spec	Alpha_034	170	3.28 E+01	1.00 E-03	17.3
15	U-238	TRG	08/12/17 10:22		A_Spec	Alpha_035	170	3.87 E+01	2.00 E-03	15.8
16	U-238	TRG	08/12/17 10:22		A_Spec	Alpha_036	170	3.27 E+01	2.00 E-03	18.2
17	U-238	TRG	08/12/17 10:22		A_Spec	Alpha_037	170	4.20 E+01	6.00 E-03	15.9
18	U-238	TRG	08/12/17 10:22		A_Spec	Alpha_038	170	4.48 E+01	1.00 E-03	15.4
19	U-238	TRG	08/12/17 10:22		A_Spec	Alpha_039	170	6.22 E+01	5.00 E-03	18.5
20	U-238	TRG	08/12/17 10:22		A_Spec	Alpha_040	170	5.05 E+01	3.00 E-03	18.1

Preliminary Data Report & Analytical Calculations
Work Order: 17-07077-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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	3.15E-01	1.52E-01	7.38E-02					OK	
02	U-235	MBL	BLANK	pCi/g	2.65E-02	4.50E-02	7.64E-02					OK	OK
03	U-235	DUP	HTC-A01-S001-0006-01	pCi/g	2.66E+00	6.35E-01	1.49E-01				NA	OK	
04	U-235	DO	HTC-A01-S001-0006-01	pCi/g	2.60E+00	6.37E-01	1.54E-01					OK	
05	U-235	TRG	HTC-A01-S001-0612-01	pCi/g	1.44E+00	3.47E-01	8.05E-02					OK	
06	U-235	TRG	HTC-A01-S001-1218-01	pCi/g	2.49E-01	1.33E-01	9.97E-02					OK	
07	U-235	TRG	HTC-A01-S001-1824-01	pCi/g	1.71E-01	1.03E-01	9.01E-02					OK	
08	U-235	TRG	HTC-A01-S001-2430-01	pCi/g	2.20E-01	1.21E-01	7.70E-02					OK	
09	U-235	TRG	HTC-A01-S001-3036-01	pCi/g	9.90E-02	9.09E-02	8.55E-02					OK	
10	U-235	TRG	HTC-A01-S001-3642-01	pCi/g	1.61E-01	1.05E-01	9.51E-02					OK	
11	U-235	TRG	HTC-A01-S001-4248-01	pCi/g	1.81E-01	1.09E-01	8.26E-02					OK	
12	U-235	TRG	HTC-A01-S002-0006-01	pCi/g	1.10E-01	8.47E-02	6.73E-02					OK	
13	U-235	TRG	HTC-A01-S002-0612-01	pCi/g	1.04E-01	9.03E-02	1.04E-01					OK	
14	U-235	TRG	HTC-A01-S002-1218-01	pCi/g	1.19E-01	9.65E-02	9.60E-02					OK	
15	U-235	TRG	HTC-A01-S002-1824-01	pCi/g	9.17E-02	8.42E-02	7.92E-02					OK	
16	U-235	TRG	HTC-A01-S002-2430-01	pCi/g	1.63E-01	1.01E-01	7.31E-02					OK	
17	U-235	TRG	HTC-A01-S002-2430-02	pCi/g	9.82E-02	7.75E-02	7.05E-02					OK	
18	U-235	TRG	HTC-A01-S002-3036-01	pCi/g	9.13E-02	7.85E-02	7.71E-02					OK	
19	U-235	TRG	HTC-A01-S002-3642-01	pCi/g	8.95E-02	7.70E-02	7.56E-02					OK	
20	U-235	TRG	HTC-A01-S002-4248-01	pCi/g	1.40E-01	9.77E-02	9.34E-02					OK	

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Preliminary Data Report & Analytical Calculations
Work Order: 17-07077-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07077
Client: Weston Solutions, Inc.
7800

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	07/18/17 00:00	1.00E+00	117.24	0.00	0.00			
02	U-235	MBL	07/18/17 00:00	1.00E+00	112.40	0.00	0.00			
03	U-235	DUP	05/13/17 13:36	5.03E-01	131.90	0.00	0.00			
04	U-235	DO	05/13/17 13:36	5.03E-01	130.94	0.00	0.00			
05	U-235	TRG	05/13/17 13:33	1.02E+00	103.15	0.00	0.00			
06	U-235	TRG	05/13/17 13:30	1.01E+00	107.79	0.00	0.00			
07	U-235	TRG	05/13/17 13:27	1.00E+00	121.72	0.00	0.00			
08	U-235	TRG	05/13/17 13:24	1.00E+00	113.06	0.00	0.00			
09	U-235	TRG	05/13/17 13:21	1.01E+00	93.35	0.00	0.00			
10	U-235	TRG	05/13/17 13:18	1.02E+00	118.46	0.00	0.00			
11	U-235	TRG	05/13/17 13:15	1.01E+00	126.95	0.00	0.00			
12	U-235	TRG	05/13/17 11:26	1.00E+00	124.10	0.00	0.00			
13	U-235	TRG	05/13/17 11:23	1.01E+00	112.11	0.00	0.00			
14	U-235	TRG	05/13/17 11:20	1.00E+00	103.15	0.00	0.00			
15	U-235	TRG	05/13/17 11:17	1.02E+00	107.35	0.00	0.00			
16	U-235	TRG	05/13/17 11:14	1.00E+00	117.28	0.00	0.00			
17	U-235	TRG	05/13/17 11:14	1.01E+00	139.01	0.00	0.00			
18	U-235	TRG	05/13/17 11:11	1.00E+00	130.92	0.00	0.00			
19	U-235	TRG	05/13/17 11:08	1.01E+00	110.73	0.00	0.00			
20	U-235	TRG	05/13/17 11:05	1.01E+00	114.95	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07077-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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-235	LCS	08/11/17 14:08		A_Spec	Alpha_035	170	1.78 E+01	1.00 E-03	15.8
02	U-235	MBL	08/11/17 14:08		A_Spec	Alpha_036	170	1.66 E+00	2.00 E-03	18.2
03	U-235	DUP	08/11/17 14:08		A_Spec	Alpha_037	170	8.57 E+01	2.00 E-03	15.9
04	U-235	DO	08/11/17 14:08		A_Spec	Alpha_038	170	8.07 E+01	2.00 E-03	15.4
05	U-235	TRG	08/11/17 14:08		A_Spec	Alpha_039	170	8.57 E+01	2.00 E-03	18.5
06	U-235	TRG	08/11/17 14:08		A_Spec	Alpha_040	170	1.50 E+01	0.00 E+00	18.1
07	U-235	TRG	08/11/17 14:09		A_Spec	Alpha_043	170	1.20 E+01	6.00 E-03	18.7
08	U-235	TRG	08/11/17 14:09		A_Spec	Alpha_044	170	1.37 E+01	2.00 E-03	17.9
09	U-235	TRG	08/11/17 14:09		A_Spec	Alpha_045	170	4.83 E+00	1.00 E-03	16.9
10	U-235	TRG	08/11/17 14:09		A_Spec	Alpha_046	170	1.01 E+01	5.00 E-03	17.1
11	U-235	TRG	08/11/17 14:09		A_Spec	Alpha_047	170	1.15 E+01	3.00 E-03	16.2
12	U-235	TRG	08/11/17 14:09		A_Spec	Alpha_048	170	6.83 E+00	1.00 E-03	16.3
13	U-235	TRG	08/12/17 10:21		A_Spec	Alpha_033	170	6.00 E+00	0.00 E+00	16.8
14	U-235	TRG	08/12/17 10:21		A_Spec	Alpha_034	170	6.49 E+00	3.00 E-03	17.3
15	U-235	TRG	08/12/17 10:22		A_Spec	Alpha_035	170	4.83 E+00	1.00 E-03	15.8
16	U-235	TRG	08/12/17 10:22		A_Spec	Alpha_036	170	1.07 E+01	2.00 E-03	18.2
17	U-235	TRG	08/12/17 10:22		A_Spec	Alpha_037	170	6.66 E+00	2.00 E-03	15.9
18	U-235	TRG	08/12/17 10:22		A_Spec	Alpha_038	170	5.66 E+00	2.00 E-03	15.4
19	U-235	TRG	08/12/17 10:22		A_Spec	Alpha_039	170	5.66 E+00	2.00 E-03	18.5
20	U-235	TRG	08/12/17 10:22		A_Spec	Alpha_040	170	9.00 E+00	0.00 E+00	18.1

Count Room Report
Client: Weston Solutions, Inc.

17-07077-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	07/18/17 00:00	1.0000	0.6058	11.0983		0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000	0.6055	11.0928		0.00		
03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	0.5031	0.6059	11.1001		0.00		
04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	0.5027	0.6064	11.1092		0.00		
05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	1.0180	0.6054	11.0909		0.00		
06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	1.0074	0.6060	11.1019		0.00		
07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	1.0033	0.6047	11.0781		0.00		
08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	1.0037	0.6047	11.0781		0.00		
09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	1.0143	0.6039	11.0634		0.00		
10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	1.0162	0.6043	11.0708		0.00		
11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	1.0101	0.6035	11.0561		0.00		
12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	1.0019	0.6032	11.0506		0.00		
13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	1.0063	0.6030	11.0470		0.00		
14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	1.0038	0.6024	11.0360		0.00		
15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	1.0171	0.6025	11.0378		0.00		
16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	1.0016	0.6015	11.0195		0.00		
17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	1.0064	0.6028	11.0433		0.00		
18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	1.0046	0.6033	11.0525		0.00		
19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	1.0097	0.6034	11.0543		0.00		
20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	1.0092	0.5838	10.6952		0.00		

#33-40

0086

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/7/2017 10:45 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07077	1	UUISO	8/7/2017 10:44	JHARVEY		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	Volume Used (g)	Volume Used (g)	Volume Used (g)	Volume Used (g)	Known pCi	Error Estimate	Added pCi	Error Estimate	Known pCi	Error Estimate	Added pCi	Error Estimate
U-234	U-8a	32.000	8/7/2017	0.550	0.5025				7.24	0.261	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	31.000	8/7/2017	0.550	0.5025				7.02	0.253	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.320	8/7/2017	0.6058	0.6600
02	U-232	U-10a	18.320	8/7/2017	0.6055	0.6600
03	U-232	U-10a	18.320	8/7/2017	0.6059	0.6600
04	U-232	U-10a	18.320	8/7/2017	0.6064	0.6600
05	U-232	U-10a	18.320	8/7/2017	0.6054	0.6600
06	U-232	U-10a	18.320	8/7/2017	0.6060	0.6600
07	U-232	U-10a	18.320	8/7/2017	0.6047	0.6600
08	U-232	U-10a	18.320	8/7/2017	0.6047	0.6600
09	U-232	U-10a	18.320	8/7/2017	0.6039	0.6600
10	U-232	U-10a	18.320	8/7/2017	0.6043	0.6600
11	U-232	U-10a	18.320	8/7/2017	0.6035	0.6600
12	U-232	U-10a	18.320	8/7/2017	0.6032	0.6600
13	U-232	U-10a	18.320	8/7/2017	0.6030	0.6600
14	U-232	U-10a	18.320	8/7/2017	0.6024	0.6600
15	U-232	U-10a	18.320	8/7/2017	0.6025	0.6600
16	U-232	U-10a	18.320	8/7/2017	0.6015	0.6600
17	U-232	U-10a	18.320	8/7/2017	0.6028	0.6600
18	U-232	U-10a	18.320	8/7/2017	0.6033	0.6600
19	U-232	U-10a	18.320	8/7/2017	0.6034	0.6600
20	U-232	U-10a	18.320	8/7/2017	0.5838	0.6600

Balance Printer Tapes

Tracer	LCS
0.6058 g 0.6055 g 0.6059 g 0.6064 g 0.6054 g 0.6060 g 0.6047 g 0.6047 g 0.6039 g 0.6043 g 0.6035 g 0.6032 g 0.6030 g 0.6024 g 0.6025 g 0.6015 g 0.6028 g 0.6033 g 0.6034 g 0.5838 g	0.5025 g

Matrix Spike

0087

Version 2.0 08/99

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07077	1	UUISO	grams	8/9/2017	JHARVEY

Lab Fraction	Weston Solutions, 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	HTC-A01-S001-0006-01	DUP					5.0310E-01	5.0310E-01				
04	HTC-A01-S001-0006-01	DO					5.0270E-01	5.0270E-01				
05	HTC-A01-S001-0612-01	TRG					1.0180E+00	1.0180E+00				
06	HTC-A01-S001-1218-01	TRG					1.0074E+00	1.0074E+00				
07	HTC-A01-S001-1824-01	TRG					1.0033E+00	1.0033E+00				
08	HTC-A01-S001-2430-01	TRG					1.0037E+00	1.0037E+00				
09	HTC-A01-S001-3036-01	TRG					1.0143E+00	1.0143E+00				
10	HTC-A01-S001-3642-01	TRG					1.0162E+00	1.0162E+00				
11	HTC-A01-S001-4248-01	TRG					1.0101E+00	1.0101E+00				
12	HTC-A01-S002-0006-01	TRG					1.0019E+00	1.0019E+00				
13	HTC-A01-S002-0612-01	TRG					1.0063E+00	1.0063E+00				
14	HTC-A01-S002-1218-01	TRG					1.0038E+00	1.0038E+00				
15	HTC-A01-S002-1824-01	TRG					1.0171E+00	1.0171E+00				
16	HTC-A01-S002-2430-01	TRG					1.0016E+00	1.0016E+00				
17	HTC-A01-S002-2430-02	TRG					1.0064E+00	1.0064E+00				
18	HTC-A01-S002-3036-01	TRG					1.0046E+00	1.0046E+00				
19	HTC-A01-S002-3642-01	TRG					1.0097E+00	1.0097E+00				
20	HTC-A01-S002-4248-01	TRG					1.0092E+00	1.0092E+00				

Comments	

0088

Technician: JHarvey Date: 8/7/17

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
17-07077	8/9/2017	7/23/2017	7/24/2017	7/25/2017	KSALLINGS

Bico Pulverizer: 000302 [✓] Jaw Crusher 68275 [ ]

Eberline Fraction	Weston Solutions, 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	HTC-A01-S001-0006-01	14.4900	1031.5000	949.9200	1017.0100	935.4300	8.02%	91.98%	0.0000	0.0000	
05	HTC-A01-S001-0612-01	14.5400	916.7000	847.1000	902.1600	832.5600	7.71%	92.29%	0.0000	0.0000	
06	HTC-A01-S001-1218-01	14.5800	912.4800	727.5600	897.9000	712.9800	20.59%	79.41%	0.0000	0.0000	
07	HTC-A01-S001-1824-01	14.5300	989.2600	809.0200	974.7300	794.4900	18.49%	81.51%	0.0000	0.0000	
08	HTC-A01-S001-2430-01	14.5000	839.0000	667.5300	824.5000	653.0300	20.80%	79.20%	0.0000	0.0000	
09	HTC-A01-S001-3036-01	14.4800	743.6000	601.8500	729.1200	587.3700	19.44%	80.56%	0.0000	0.0000	
10	HTC-A01-S001-3642-01	14.5100	968.1000	776.3600	953.5900	761.8500	20.11%	79.89%	0.0000	0.0000	
11	HTC-A01-S001-4248-01	14.5600	944.8800	758.0700	930.3200	743.5100	20.08%	79.92%	0.0000	0.0000	
12	HTC-A01-S002-0006-01	14.5500	981.3400	902.2400	966.7900	887.6900	8.18%	91.82%	0.0000	0.0000	
13	HTC-A01-S002-0612-01	14.6600	1060.6000	944.8400	1045.9400	930.1800	11.07%	88.93%	0.0000	0.0000	
14	HTC-A01-S002-1218-01	14.6600	1041.7200	934.8200	1027.0600	920.1600	10.41%	89.59%	0.0000	0.0000	
15	HTC-A01-S002-1824-01	14.6400	1054.3400	966.5400	1039.7000	951.9000	8.44%	91.56%	0.0000	0.0000	
16	HTC-A01-S002-2430-01	14.6300	886.7400	793.4200	872.1100	778.7900	10.70%	89.30%	0.0000	0.0000	
17	HTC-A01-S002-2430-02	14.6000	844.3200	761.1700	829.7200	746.5700	10.02%	89.98%	0.0000	0.0000	
18	HTC-A01-S002-3036-01	14.5300	955.3800	840.6000	940.8500	826.0700	12.20%	87.80%	0.0000	0.0000	
19	HTC-A01-S002-3642-01	14.5600	1027.0800	82.0600	1012.5200	67.5000	93.33%	6.67%	0.0000	0.0000	
20	HTC-A01-S002-4248-01	14.6300	960.7000	796.6000	946.0700	781.9700	17.35%	82.65%	0.0000	0.0000	

OVENS Fisher Isotemp SN 00579 [✓] VWR SN 000588 [ ]

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

0089

Technician: Kerry Sais

Date: Analysis: Rough Prep Logbook

Analysis: UUISO Page No. 10136

Apex-Alpha™

8/14

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_035
Chamber Serial Number: 04026477A
Detector Serial Number: 58771
Env. Background: System Bkgd 193355
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/11/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:08:49 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.1852 +/- 0.0108
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 1.1724 +/- 0.0714

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.802885 +/- 0.064958
Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

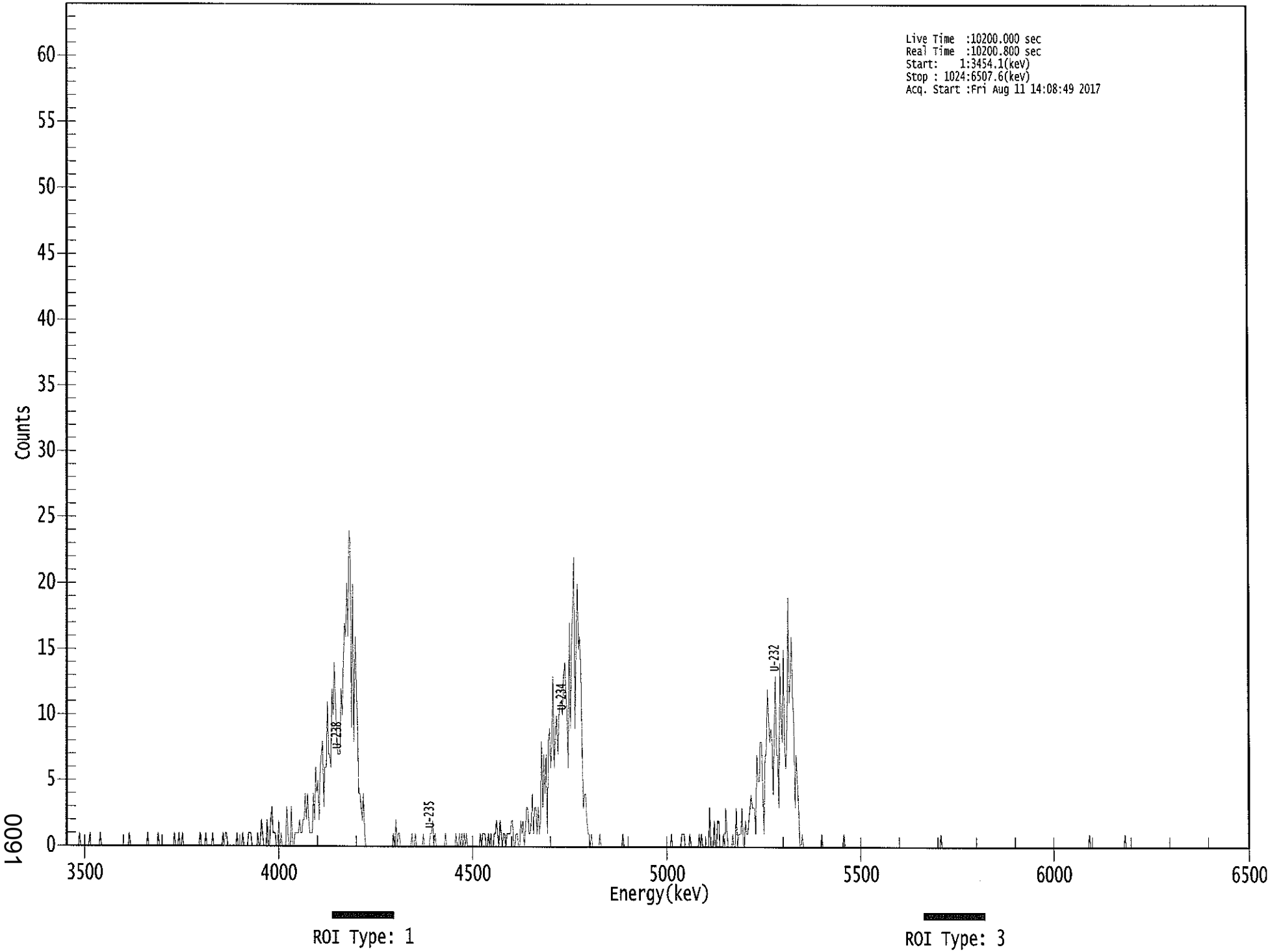
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.281	346.83	10.53	0.17	0.00E+000	17.7
U-234		4.733	439.00	9.37	0.00	0.00E+000	10.6
U-235		4.392	17.83	46.68	0.17	0.00E+000	3.0
U-238		4.153	448.66	9.26	0.34	0.00E+000	21.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	4.97E+000 +/- 5.69E-001	5.98E-002 +/- 6.85E-003
U-234	0.994	4761.50*	6.29E+000 +/- 9.31E-001	8.60E-002 +/- 9.84E-003
U-235	1.000	4385.50*	3.15E-001 +/- 1.52E-001	7.38E-002 +/- 8.45E-003
U-238	0.993	4184.40*	6.40E+000 +/- 9.43E-001	6.82E-002 +/- 7.82E-003

0000191075.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: 10201

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

369:	0	1	1	2	1	0	2	1

Sample Title: 01

Channel								
377:	0	1	1	0	1	1	1	1
385:	2	2	0	0	1	1	0	0
393:	2	1	2	0	1	3	3	1
401:	1	2	4	1	3	3	1	3
409:	1	2	8	3	7	4	7	1
417:	8	9	6	8	13	6	8	10
425:	7	10	11	11	10	13	14	12
433:	10	6	17	9	16	18	22	9
441:	16	20	15	16	13	8	3	4
449:	4	2	1	1	0	1	0	0
457:	0	0	0	0	1	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	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	0	0	0	1	1	1	0	0
537:	0	0	1	0	0	0	0	0
545:	0	0	1	0	1	0	0	0
553:	0	0	0	3	0	0	0	2
561:	0	0	2	2	0	0	0	1
569:	0	3	1	0	0	0	0	1
577:	0	0	3	0	1	1	1	3
585:	0	0	2	1	1	2	3	4
593:	3	3	3	1	7	5	5	8
601:	8	4	1	7	7	12	10	8
609:	9	8	4	9	13	7	7	3
617:	14	10	8	15	8	6	8	19
625:	11	13	16	11	10	3	7	5
633:	3	0	0	1	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	1
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	1	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

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

8/14

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_036
Chamber Serial Number: 04026477B
Detector Serial Number: 84167
Env. Background: System Bkgd 193356
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/11/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:08:50 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.2050 +/- 0.0115
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 1.1240 +/- 0.0658

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

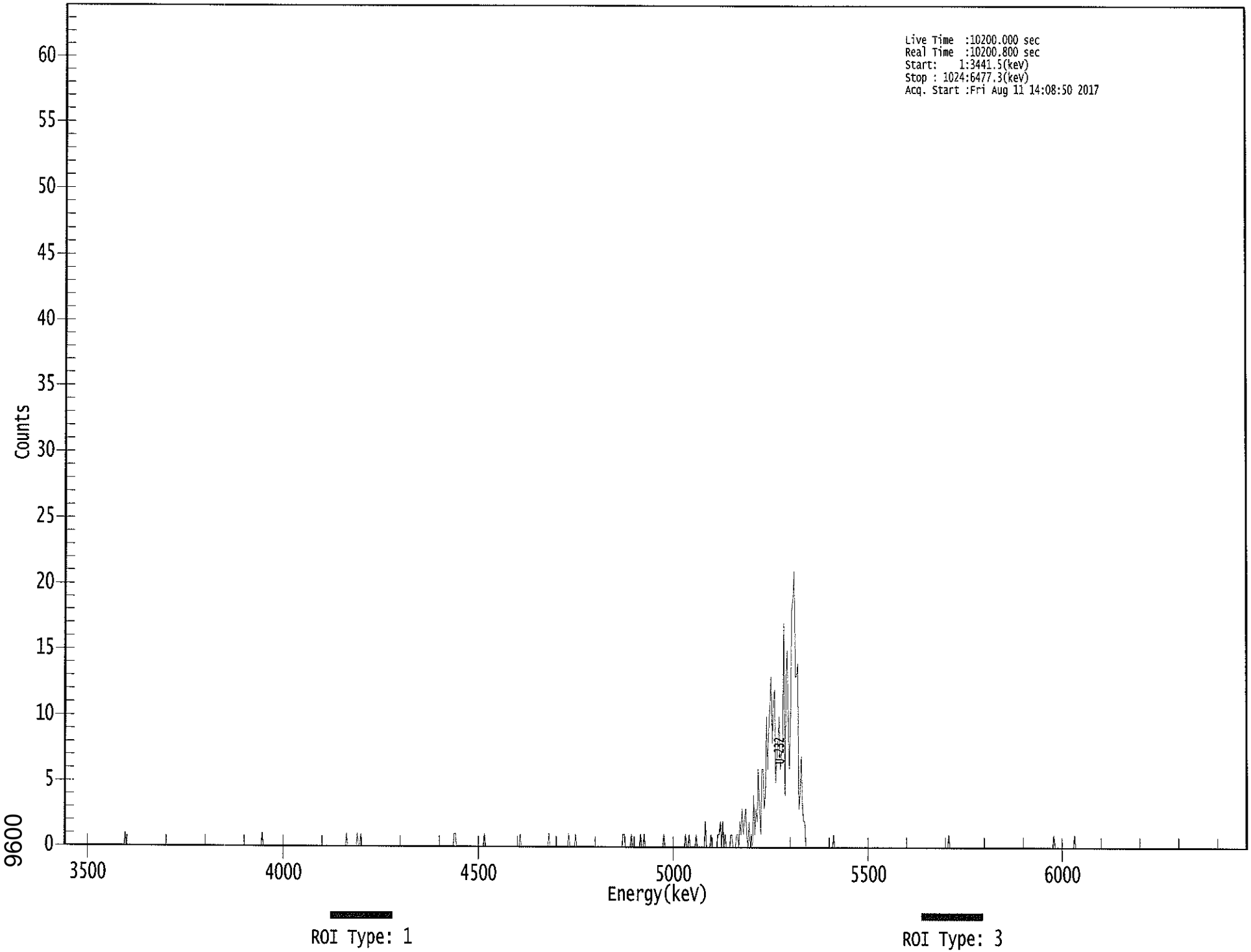
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.275	383.66	10.01	0.34	0.00E+000	19.0
U-234		4.693	2.98	134.36	1.02	0.00E+000	3.0
U-235		4.440	1.66	169.38	0.34	0.00E+000	5.9
U-238		4.183	2.66	128.85	0.34	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.97E+000 +/- 5.46E-001	6.19E-002 +/- 6.80E-003
U-234	0.967	4761.50*	3.86E-002 +/- 5.20E-002	8.16E-002 +/- 8.96E-003
U-235	0.979	4385.50*	2.65E-002 +/- 4.50E-002	7.64E-002 +/- 8.39E-003
U-238	1.000	4184.40*	3.43E-002 +/- 4.44E-002	6.17E-002 +/- 6.77E-003

0000191076.CNF



9600

****
***** 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	1	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	1	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	1	0	0	0	0
249:	0	0	0	0	1	0	0	1
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	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:	1	1	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	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	1	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	1	0	0	0	0	0
425:	0	0	0	0	0	0	0	0
433:	0	0	0	1	0	0	0	0
441:	0	1	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	1	1	0	0	0	0
489:	0	1	0	0	0	0	0	0
497:	0	1	0	0	1	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	1	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	1	0	0	1	0	0	0	0
545:	0	1	0	0	0	0	0	0
553:	0	2	0	0	0	0	1	0
561:	0	0	0	0	1	1	2	0
569:	2	0	1	0	0	0	0	1
577:	1	0	0	0	1	1	0	2
585:	1	3	1	2	3	1	0	2
593:	0	1	0	4	1	3	2	6
601:	3	1	6	6	3	4	10	6
609:	9	11	13	8	11	12	5	7
617:	8	10	6	7	8	17	4	13
625:	15	9	6	11	18	19	21	13
633:	13	14	3	4	7	3	2	2
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	1	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	1	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	1	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	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™

8/14

Sample Description: HTC-A01-S001-0006-01 DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_037
Chamber Serial Number: 04026478A
Detector Serial Number: 91133
Env. Background: System Bkgd 193357
Reagent Blank: <not performed>

Sample Size: 5.031E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:08:52 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.2094 +/- 0.0116
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.3190 +/- 0.0767

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

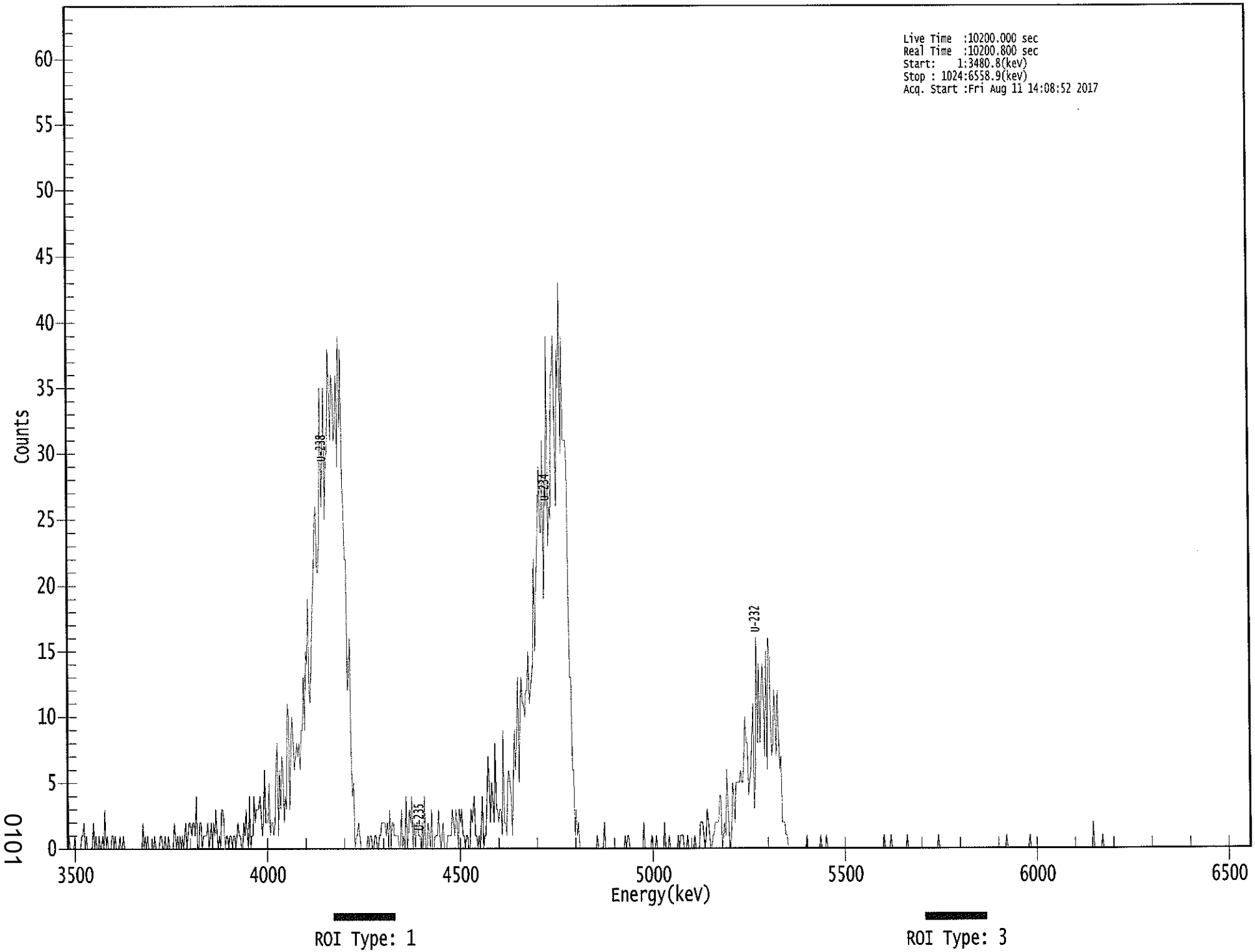
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.272	392.15	9.91	0.85	0.00E+000	5.2
U-234		4.727	1177.66	5.71	0.34	0.00E+000	61.6
U-235		4.397	85.66	21.23	0.34	0.00E+000	3.0
U-238		4.147	1222.98	5.61	1.02	0.00E+000	87.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	9.91E+000 +/- 1.08E+000	1.51E-001 +/- 1.65E-002
U-234	0.991	4761.50*	2.97E+001 +/- 3.65E+000	1.21E-001 +/- 1.31E-002
U-235	0.999	4385.50*	2.66E+000 +/- 6.35E-001	1.49E-001 +/- 1.62E-002
U-238	0.990	4184.40*	3.07E+001 +/- 3.76E+000	1.58E-001 +/- 1.72E-002

0000191077.CNF



0101

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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel							
1:	0	1	0	0	0	0	1	0
9:	0	0	0	0	1	1	2	0
17:	1	0	0	0	0	0	2	0
25:	1	0	0	1	0	0	1	0
33:	3	0	1	0	0	0	1	1
41:	0	1	0	0	0	1	0	0
49:	1	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	2	0	1	0	1	0	0
73:	0	0	0	1	0	0	0	0
81:	1	1	0	0	1	0	0	1
89:	0	0	0	0	2	1	0	1
97:	0	1	0	1	0	1	2	0
105:	1	2	2	1	2	2	1	4
113:	0	0	2	2	0	1	1	1
121:	1	2	0	1	2	0	2	1
129:	3	1	0	1	0	3	3	2
137:	0	1	1	0	1	1	0	1
145:	1	0	1	2	1	1	0	0
153:	2	1	3	1	0	4	0	1
161:	1	4	2	3	3	3	4	3
169:	1	2	6	2	2	2	5	1
177:	2	2	1	2	6	8	1	6
185:	3	7	6	2	4	3	11	10
193:	3	8	10	8	6	7	8	7
201:	8	6	9	9	13	9	15	14
209:	19	12	11	15	19	21	25	26
217:	21	21	24	35	26	29	35	25
225:	30	30	38	35	31	36	35	31
233:	32	36	29	39	32	38	28	26
241:	22	22	12	13	16	8	4	5
249:	0	1	1	2	1	0	0	0
257:	0	0	0	1	0	1	1	0
265:	0	1	1	0	0	1	1	2
273:	2	2	2	1	2	0	3	0
281:	2	2	1	1	1	1	0	0
289:	3	0	1	0	4	0	1	3
297:	2	4	0	2	0	2	2	1
305:	1	0	2	0	4	0	0	2
313:	1	0	3	0	0	1	1	1
321:	3	1	0	1	2	0	0	0
329:	1	1	1	1	3	2	1	3
337:	2	0	3	2	3	1	1	0
345:	1	1	0	0	3	2	3	4
353:	1	1	0	1	0	2	4	0
361:	1	1	4	7	5	2	5	4

369:	2	8	3	3	2	3	3	1

Sample Title: 03

Channel								
377:	9	2	2	1	5	6	5	4
385:	1	5	9	6	9	13	5	10
393:	13	11	11	10	12	12	15	11
401:	12	13	14	22	15	20	22	26
409:	29	24	24	31	19	28	26	39
417:	23	26	25	36	36	39	33	26
425:	38	35	43	30	39	31	31	31
433:	29	19	13	13	6	6	1	3
441:	1	2	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	1	0	0	0	0	0	2
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	1	0	1	1	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	2	0	0	0	0	0	0
505:	1	0	0	0	1	0	0	0
513:	0	0	0	2	0	0	0	1
521:	0	0	0	0	0	0	0	1
529:	0	1	1	1	0	0	0	1
537:	0	0	0	0	0	1	0	0
545:	0	0	2	2	2	1	0	1
553:	3	2	1	0	0	1	1	2
561:	2	2	2	4	4	0	1	2
569:	1	6	3	1	0	1	5	4
577:	2	5	5	5	5	6	5	5
585:	7	10	8	8	4	5	6	8
593:	11	3	5	16	8	14	8	11
601:	14	11	7	15	6	16	15	10
609:	7	8	12	10	7	12	9	6
617:	7	2	2	2	1	1	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	1	0
641:	0	0	0	0	0	0	0	0
649:	0	0	1	0	0	0	0	1
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	1	0	0	0	0	0	1
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	1	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	1	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 03

Channel								
809:	0	0	0	1	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	1
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	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	2	0
889:	0	0	0	0	0	0	1	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	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™

Sample Description: HTC-A01-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_038
Chamber Serial Number: 04026478B
Detector Serial Number: 91134
Env. Background: System Bkgd 193358
Reagent Blank: <not performed>

Sample Size: 5.027E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:08:54 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.2021 +/- 0.0114
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.3094 +/- 0.0771

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

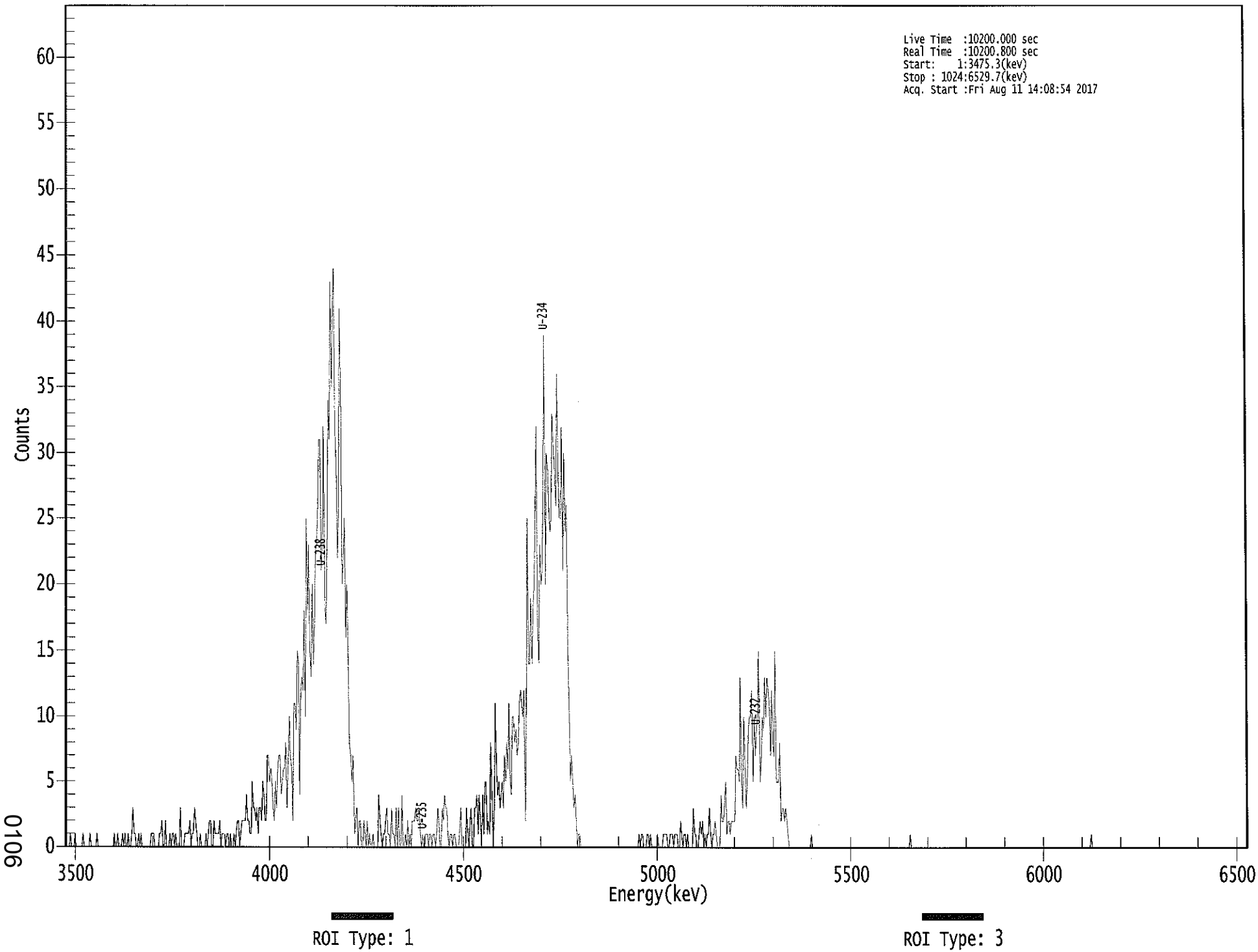
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.259	378.83	10.07	0.17	0.00E+000	10.5
U-234		4.710	1094.15	5.93	0.85	0.00E+000	71.6
U-235		4.394	80.66	21.88	0.34	0.00E+000	3.0
U-238		4.136	1236.83	5.57	0.17	0.00E+000	27.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.986	5302.50*	9.92E+000 +/- 1.10E+000	1.09E-001 +/- 1.21E-002
U-234	0.981	4761.50*	2.86E+001 +/- 3.58E+000	1.56E-001 +/- 1.73E-002
U-235	1.000	4385.50*	2.60E+000 +/- 6.37E-001	1.54E-001 +/- 1.70E-002
U-238	0.983	4184.40*	3.22E+001 +/- 3.98E+000	1.09E-001 +/- 1.20E-002

0000191078.CNF



0106

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	1	0	0	0
9:	1	0	0	0	0	0	0	1
17:	0	0	0	0	0	1	0	0
25:	0	0	0	1	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	1	0	0	1	0	0
49:	0	1	0	1	0	0	1	0
57:	0	1	3	1	1	0	0	1
65:	0	1	0	0	0	0	0	0
73:	0	0	1	1	1	0	0	0
81:	0	1	1	2	0	0	2	0
89:	0	0	1	0	1	1	0	1
97:	0	0	0	3	0	0	0	1
105:	1	1	1	2	0	1	1	3
113:	2	1	0	0	1	0	0	0
121:	0	1	0	1	2	2	0	0
129:	2	1	1	1	1	2	0	1
137:	1	1	0	1	1	0	1	0
145:	0	1	0	1	2	2	0	1
153:	2	2	2	2	4	2	2	1
161:	1	5	3	3	2	3	1	3
169:	3	2	5	4	2	2	7	7
177:	5	6	5	3	2	5	3	6
185:	7	7	4	5	6	6	8	3
193:	6	10	7	6	2	11	11	9
201:	15	14	4	12	13	12	18	10
209:	25	18	23	15	13	20	14	17
217:	23	23	26	31	31	21	24	32
225:	18	17	24	34	31	43	35	41
233:	44	32	29	22	26	41	35	20
241:	22	25	16	20	14	8	7	5
249:	7	1	2	3	0	2	2	0
257:	0	2	1	0	2	0	1	0
265:	0	1	0	0	0	0	4	2
273:	1	0	1	1	2	3	1	1
281:	0	3	1	1	0	3	0	3
289:	0	0	4	0	0	1	0	2
297:	0	1	0	2	2	2	3	2
305:	2	3	1	0	1	0	1	1
313:	1	0	1	1	0	1	1	0
321:	1	3	2	0	0	3	2	4
329:	3	3	1	0	1	1	0	1
337:	1	0	0	0	1	3	0	0
345:	0	0	3	1	0	2	3	0
353:	0	3	3	4	1	4	2	0
361:	4	1	5	5	1	2	1	8

369:	4	0	3	11	6	4	5	3

Sample Title: 04

Channel								
377:	4	5	3	7	5	8	6	11
385:	5	4	10	10	8	9	7	8
393:	11	12	11	10	12	2	11	25
401:	14	14	19	14	18	20	25	32
409:	17	14	23	20	21	27	39	20
417:	30	29	26	24	25	33	31	29
425:	26	36	28	25	25	32	21	30
433:	24	26	15	11	5	7	5	3
441:	4	2	0	1	1	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	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	1
497:	0	1	1	0	0	0	1	1
505:	0	1	0	0	0	0	0	1
513:	0	0	0	0	1	1	1	1
521:	0	0	1	1	1	0	1	1
529:	1	0	0	2	1	0	1	1
537:	0	1	0	0	0	0	3	1
545:	1	0	0	1	2	1	2	0
553:	1	0	1	1	3	1	0	1
561:	1	2	1	0	0	0	4	2
569:	2	3	5	1	2	2	1	2
577:	2	2	2	7	6	6	5	13
585:	5	3	10	7	3	5	9	10
593:	10	12	5	10	7	9	10	15
601:	5	7	10	9	13	10	13	12
609:	11	7	12	8	7	15	5	5
617:	5	8	2	3	3	2	3	2
625:	1	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	1	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	1	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

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

Apex-Alpha™

C
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Sample Description: HTC-A01-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_039
Chamber Serial Number: 06027396A
Detector Serial Number: 83109
Env. Background: System Bkgd 193359
Reagent Blank: <not performed>

Sample Size: 1.018E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:08:57 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.1910 +/- 0.0111
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 1.0315 +/- 0.0622

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

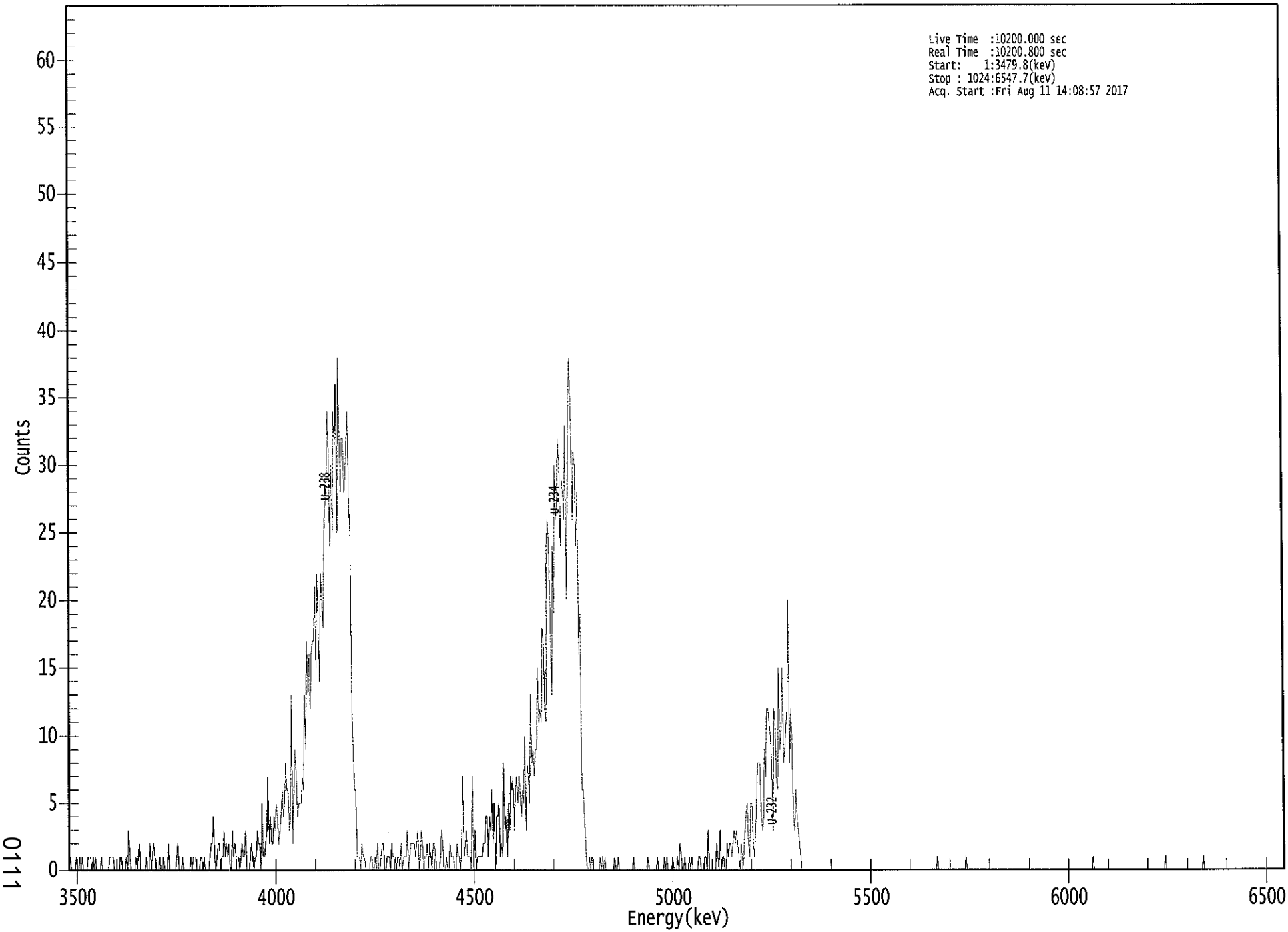
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.255	357.45	10.41	2.55	0.00E+000	10.0
U-234		4.710	1033.13	6.10	1.87	0.00E+000	62.2
U-235		4.407	85.66	21.23	0.34	0.00E+000	3.8
U-238		4.132	1146.15	5.79	0.85	0.00E+000	69.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.984	5302.50*	4.89E+000 +/- 5.55E-001	1.15E-001 +/- 1.30E-002
U-234	0.982	4761.50*	1.41E+001 +/- 1.82E+000	1.03E-001 +/- 1.17E-002
U-235	0.997	4385.50*	1.44E+000 +/- 3.47E-001	8.05E-002 +/- 9.14E-003
U-238	0.981	4184.40*	1.56E+001 +/- 1.99E+000	8.14E-002 +/- 9.24E-003

0000191083.CNF



0111

****
***** 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: 10201

Channel								
1:	0	1	0	0	0	0	1	0
9:	0	1	0	1	0	0	0	0
17:	1	1	1	0	1	0	1	0
25:	0	0	0	1	0	0	0	0
33:	0	0	1	1	1	1	0	0
41:	0	0	0	1	1	0	0	0
49:	1	0	3	1	0	0	0	0
57:	1	0	1	2	0	0	0	0
65:	0	1	0	0	2	0	1	2
73:	1	0	0	0	1	0	0	1
81:	0	0	0	2	0	0	0	0
89:	0	0	1	2	0	0	0	1
97:	0	0	0	0	0	0	1	0
105:	1	1	1	0	0	0	1	1
113:	0	1	0	0	0	0	1	2
121:	2	4	1	0	1	2	2	0
129:	1	1	3	1	2	1	2	0
137:	0	3	1	2	1	1	1	0
145:	1	2	1	1	3	0	0	0
153:	1	2	1	0	1	1	3	2
161:	2	0	5	1	1	2	3	7
169:	2	4	2	2	4	3	5	4
177:	2	3	4	6	4	5	8	6
185:	6	3	4	13	2	6	9	7
193:	4	5	5	5	7	6	13	9
201:	17	13	16	12	16	17	17	21
209:	15	22	18	14	22	20	18	24
217:	29	27	34	31	24	30	25	34
225:	31	36	25	38	32	28	32	32
233:	28	29	32	34	27	25	12	9
241:	6	6	1	1	1	0	2	1
249:	1	0	0	0	0	1	1	0
257:	0	1	0	2	0	0	1	2
265:	2	0	0	1	1	1	0	2
273:	1	1	1	0	1	1	0	2
281:	0	1	1	1	3	0	1	2
289:	2	2	2	1	2	3	0	1
297:	3	2	0	1	1	2	0	2
305:	1	0	2	2	1	0	0	0
313:	1	3	2	0	0	1	0	0
321:	2	1	1	1	0	0	2	1
329:	1	0	2	7	1	2	3	1
337:	1	1	0	7	0	3	0	1
345:	1	1	1	1	2	2	4	4
353:	1	4	3	6	2	5	0	4
361:	4	5	1	2	1	8	3	4

369:	1	5	3	7	6	7	3	6

Sample Title: 05

Channel								
377:	7	5	7	6	4	6	5	10
385:	3	8	7	5	13	8	9	7
393:	9	9	15	11	12	11	18	17
401:	12	11	24	26	24	18	13	24
409:	19	30	26	27	32	30	24	29
417:	28	26	33	20	27	35	38	34
425:	26	31	30	24	28	16	19	6
433:	6	4	2	0	0	1	0	1
441:	0	0	0	0	0	0	1	0
449:	1	0	1	0	0	0	0	0
457:	0	0	1	0	0	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	1	0	0	0	0	0
481:	0	0	0	0	0	0	1	0
489:	0	0	0	0	0	0	1	0
497:	0	0	0	0	1	0	1	0
505:	0	0	0	1	0	0	0	1
513:	0	2	1	0	0	1	0	0
521:	0	1	0	1	0	0	0	0
529:	0	1	1	0	0	0	1	1
537:	0	3	0	0	0	0	0	0
545:	2	1	0	3	0	1	1	0
553:	0	2	1	2	2	1	2	3
561:	2	3	2	1	0	2	0	1
569:	3	4	5	2	1	5	5	2
577:	1	3	5	8	8	8	4	3
585:	4	9	7	12	12	11	10	8
593:	3	12	11	7	6	15	9	10
601:	15	8	9	11	12	20	8	12
609:	10	4	3	6	4	3	2	1
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	0	0	0	0	0	0	0
729:	0	0	1	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	1	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 05

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

Apex-Alpha™

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Sample Description: HTC-A01-S001-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 193360
Reagent Blank: <not performed>

Sample Size: 1.007E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:08:58 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.1955 +/- 0.0112
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.0779 +/- 0.0643

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

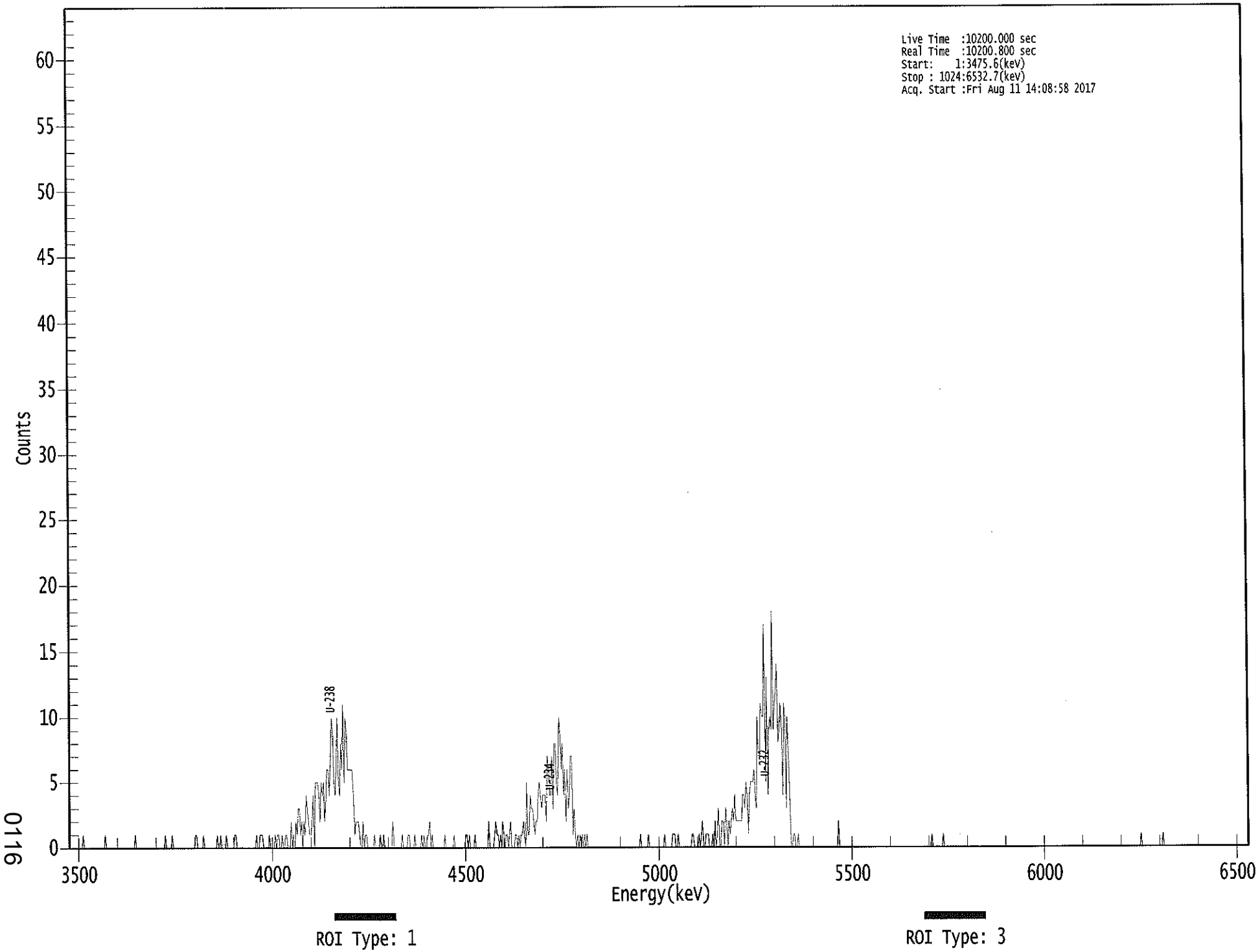
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.277	366.15	10.26	0.85	0.00E+000	6.0
U-234		4.723	205.49	13.69	0.51	0.00E+000	13.7
U-235		4.385	15.00	52.27	0.00	0.00E+000	3.0
U-238		4.154	253.49	12.32	0.51	0.00E+000	10.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.95E+000 +/- 5.55E-001	8.09E-002 +/- 9.07E-003
U-234	0.990	4761.50*	2.77E+000 +/- 4.90E-001	7.08E-002 +/- 7.93E-003
U-235	1.000	4385.50*	2.49E-001 +/- 1.33E-001	9.97E-002 +/- 1.12E-002
U-238	0.993	4184.40*	3.40E+000 +/- 5.67E-001	7.04E-002 +/- 7.89E-003

0000191079.CNF



0116

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

369:	1	2	1	1	0	1	0	2

Sample Title: 06

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

801:	0	0	0	0	0	0	0	0

Sample Title: 06

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	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	1	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	1	0	0	0
953:	0	0	0	0	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™

8/17

Sample Description: HTC-A01-S001-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 193361
Reagent Blank: <not performed>

Sample Size: 1.003E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:09:00 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.2282 +/- 0.0123
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.2172 +/- 0.0685

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

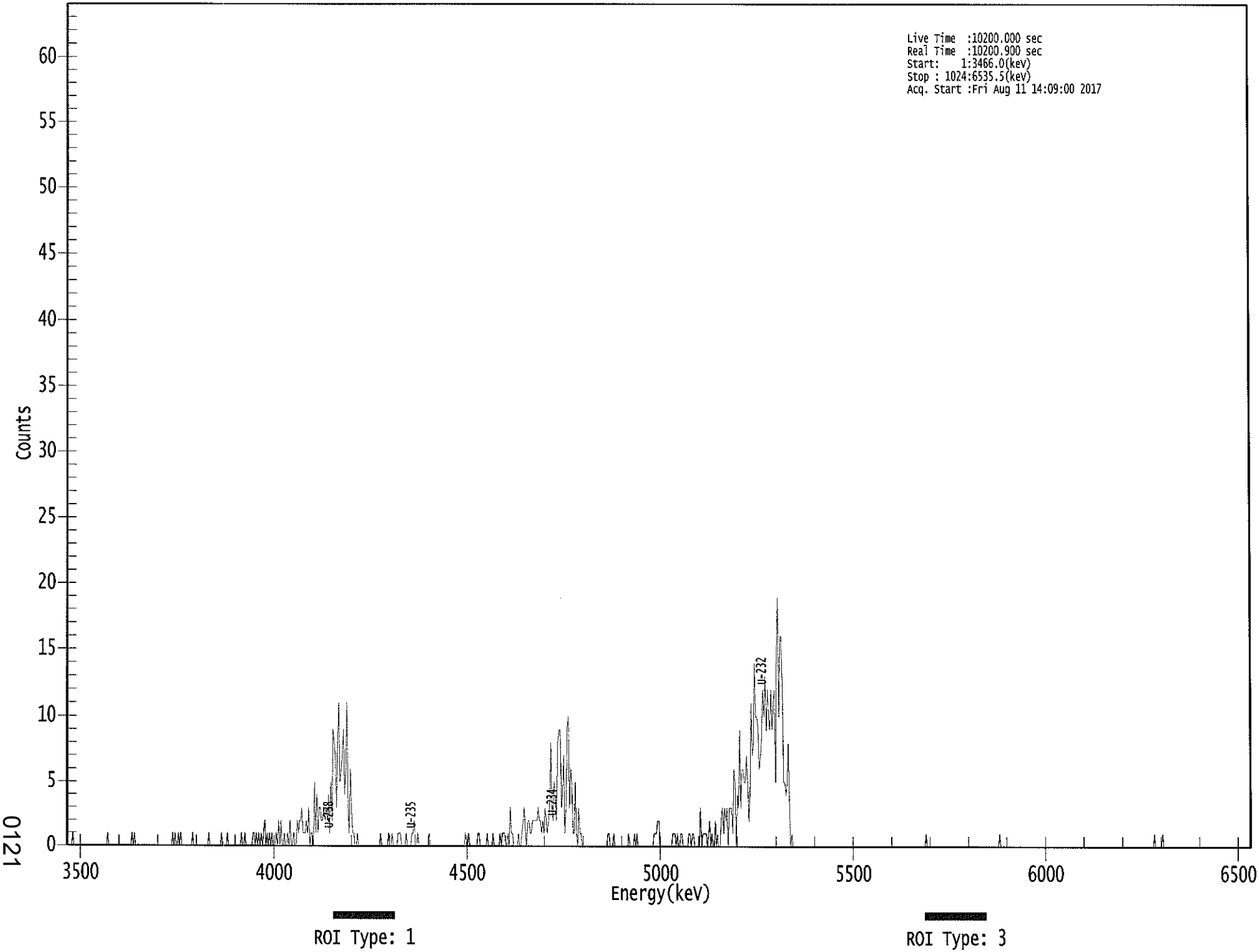
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.266	426.47	9.51	1.53	0.00E+000	17.7
U-234		4.724	166.49	15.22	0.51	0.00E+000	7.1
U-235		4.356	11.98	59.38	1.02	0.00E+000	4.5
U-238		4.145	183.66	14.48	0.34	0.00E+000	7.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	4.96E+000 +/- 5.22E-001	8.26E-002 +/- 8.70E-003
U-234	0.990	4761.50*	1.93E+000 +/- 3.57E-001	6.09E-002 +/- 6.41E-003
U-235	0.994	4385.50*	1.71E-001 +/- 1.03E-001	9.01E-002 +/- 9.49E-003
U-238	0.989	4184.40*	2.12E+000 +/- 3.80E-001	5.52E-002 +/- 5.81E-003

0000191084.CNF



0121

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

369:	0	0	0	0	0	1	0	1

Sample Title: 07

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

Sample Title: 07

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

Apex-Alpha™

8/14

Sample Description: HTC-A01-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 193362
Reagent Blank: <not performed>

Sample Size: 1.004E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:09:02 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.2027 +/- 0.0114
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.1306 +/- 0.0665

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

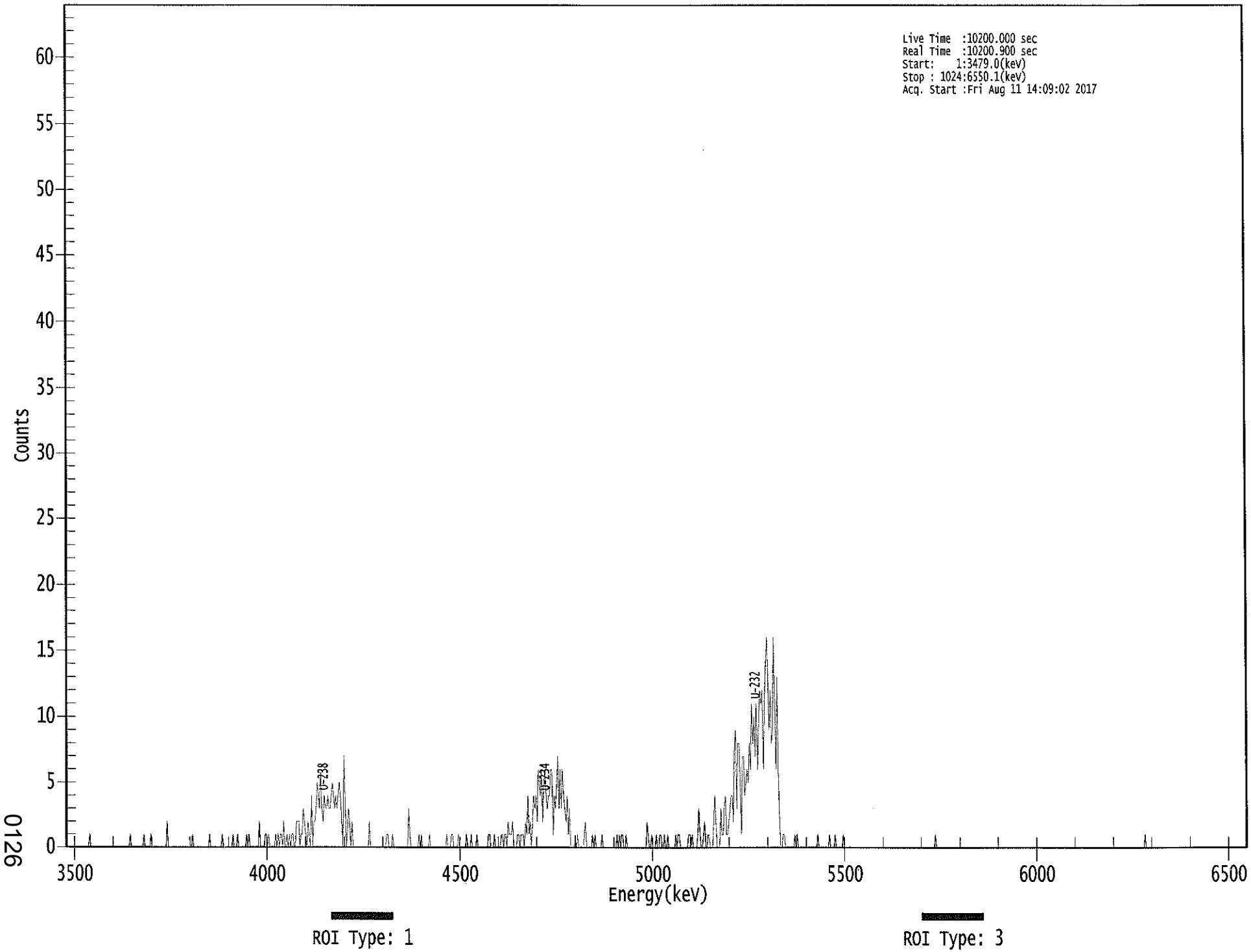
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.270	378.83	10.07	0.17	0.00E+000	19.8
U-234		4.725	161.15	15.49	0.85	0.00E+000	7.9
U-235		4.397	13.66	53.80	0.34	0.00E+000	3.8
U-238		4.147	141.83	16.47	0.17	0.00E+000	4.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.96E+000 +/- 5.47E-001	5.46E-002 +/- 6.03E-003
U-234	0.990	4761.50*	2.10E+000 +/- 4.00E-001	7.81E-002 +/- 8.62E-003
U-235	0.999	4385.50*	2.20E-001 +/- 1.21E-001	7.70E-002 +/- 8.50E-003
U-238	0.990	4184.40*	1.84E+000 +/- 3.65E-001	5.42E-002 +/- 5.99E-003

0000191085.CNF



0126

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

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 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	1	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	1
57:	0	0	0	0	0	0	0	0
65:	0	0	0	1	0	0	0	0
73:	0	1	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	2
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	1	0	0	0
129:	0	0	0	0	0	0	0	1
137:	0	0	0	0	0	0	0	0
145:	1	0	0	0	1	0	0	0
153:	0	0	0	0	1	0	1	0
161:	0	0	0	0	0	0	0	2
169:	0	0	0	0	1	1	0	1
177:	0	0	0	0	0	1	0	1
185:	0	1	1	0	2	0	0	1
193:	0	1	0	1	1	0	0	2
201:	2	2	0	1	1	3	2	1
209:	0	2	1	0	4	0	2	2
217:	3	5	4	3	6	3	2	4
225:	3	3	4	3	3	4	5	4
233:	3	4	3	4	5	4	2	0
241:	7	4	0	1	3	2	0	2
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	2	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	1	1	0
281:	0	0	1	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	3	1	0	0	0	0	0	0
305:	0	1	0	1	0	0	0	0
313:	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	1	0	0	0	1	1	0
337:	0	0	0	1	0	0	0	0
345:	0	0	1	0	0	0	1	0
353:	0	0	0	1	0	0	0	0
361:	0	0	0	0	0	1	1	0

369:	0	0	1	0	0	0	0	0

Sample Title: 08

Channel								
377:	1	1	0	1	1	0	2	1
385:	1	1	2	0	0	0	1	1
393:	0	1	1	1	0	2	1	4
401:	1	2	0	2	4	3	4	2
409:	6	5	4	6	2	5	6	4
417:	3	4	4	6	6	1	4	3
425:	5	7	3	6	3	6	4	3
433:	2	4	1	3	0	0	0	0
441:	1	0	1	0	0	0	0	0
449:	1	2	0	0	0	0	0	1
457:	0	1	0	0	0	0	0	1
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	1	0	1	0
481:	1	1	0	0	1	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	2	1
505:	0	0	1	0	0	0	1	0
513:	0	1	1	0	0	1	0	0
521:	1	0	0	0	0	0	0	1
529:	0	1	1	0	0	0	0	0
537:	0	0	1	1	0	1	0	0
545:	0	0	1	3	1	0	0	1
553:	2	0	0	1	1	0	0	0
561:	2	4	2	0	0	0	3	1
569:	1	3	4	1	1	2	3	4
577:	4	2	8	9	3	8	8	5
585:	1	7	7	4	5	6	5	8
593:	6	11	8	10	7	11	6	9
601:	12	11	12	6	11	14	16	13
609:	9	12	8	9	16	11	6	13
617:	6	2	0	0	1	1	0	0
625:	0	0	0	0	0	0	1	0
633:	1	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	1	0	0	0	0	0
657:	0	0	0	0	1	0	0	0
665:	0	1	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:	1	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 08

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

8/14

Sample Description: HTC-A01-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 193363
Reagent Blank: <not performed>

Sample Size: 1.014E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:09:04 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.604 mL
Effective Efficiency: 0.1576 +/- 0.0099
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.9335 +/- 0.0607

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

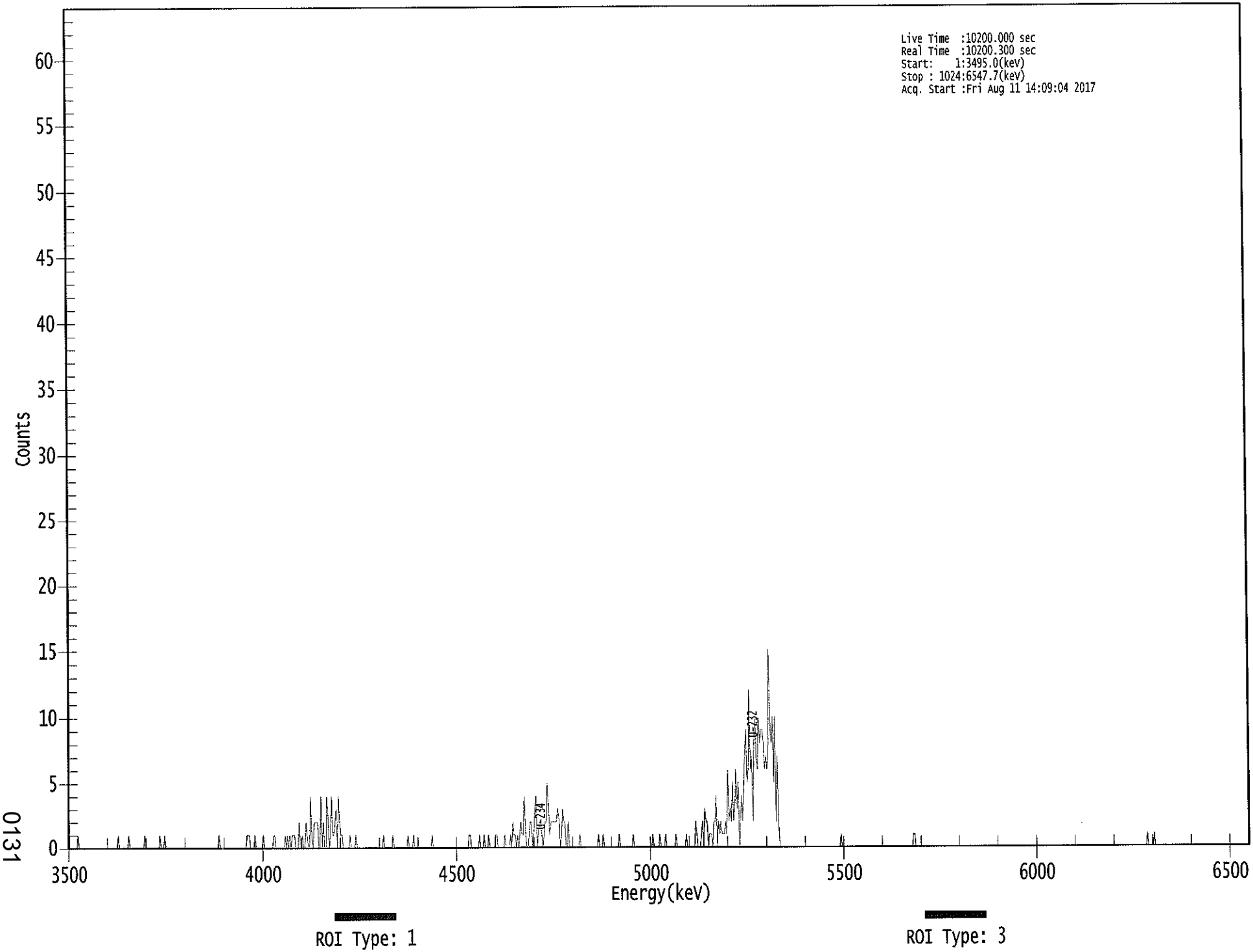
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.264	294.15	11.45	0.85	0.00E+000	13.2
U-234		4.716	78.49	22.21	0.51	0.00E+000	6.2
U-235		4.365	4.83	91.00	0.17	0.00E+000	3.0
U-238		4.142	60.83	25.17	0.17	0.00E+000	3.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	4.90E+000 +/- 6.03E-001	9.97E-002 +/- 1.23E-002
U-234	0.985	4761.50*	1.30E+000 +/- 3.31E-001	8.72E-002 +/- 1.07E-002
U-235	0.997	4385.50*	9.90E-002 +/- 9.09E-002	8.55E-002 +/- 1.05E-002
U-238	0.987	4184.40*	1.01E+000 +/- 2.82E-001	6.90E-002 +/- 8.49E-003

0000191074.CNF



0131

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	1	0	0	0	0
49:	0	0	0	0	1	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	1
81:	0	0	0	1	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	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	1	1	1	0	0	0
161:	0	1	0	0	0	0	0	0
169:	1	0	0	0	0	0	0	0
177:	0	1	1	0	0	0	0	0
185:	0	0	0	1	0	1	0	1
193:	0	1	1	1	0	0	0	2
201:	0	0	1	0	0	2	1	0
209:	0	4	1	0	2	2	2	2
217:	0	0	4	0	2	0	0	4
225:	2	0	1	4	1	1	2	3
233:	0	4	2	1	1	0	0	0
241:	0	0	0	1	0	0	0	0
249:	1	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:	1	0	0	0	0	0	0	0
281:	1	0	0	0	0	0	0	0
289:	0	0	0	0	0	1	0	0
297:	0	0	1	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	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	1	1	0	0	0	0
353:	0	0	0	1	0	0	0	1
361:	0	0	0	1	0	0	0	0

369:	0	1	1	0	0	0	0	0

Sample Title: 09

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

801:	0	0	0	0	0	0	0	0

Sample Title: 09

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

Apex-Alpha™

Sample Description: HTC-A01-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 193364
Reagent Blank: <not performed>

Sample Size: 1.016E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:09:06 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.604 mL
Effective Efficiency: 0.2030 +/- 0.0114
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.1846 +/- 0.0697

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

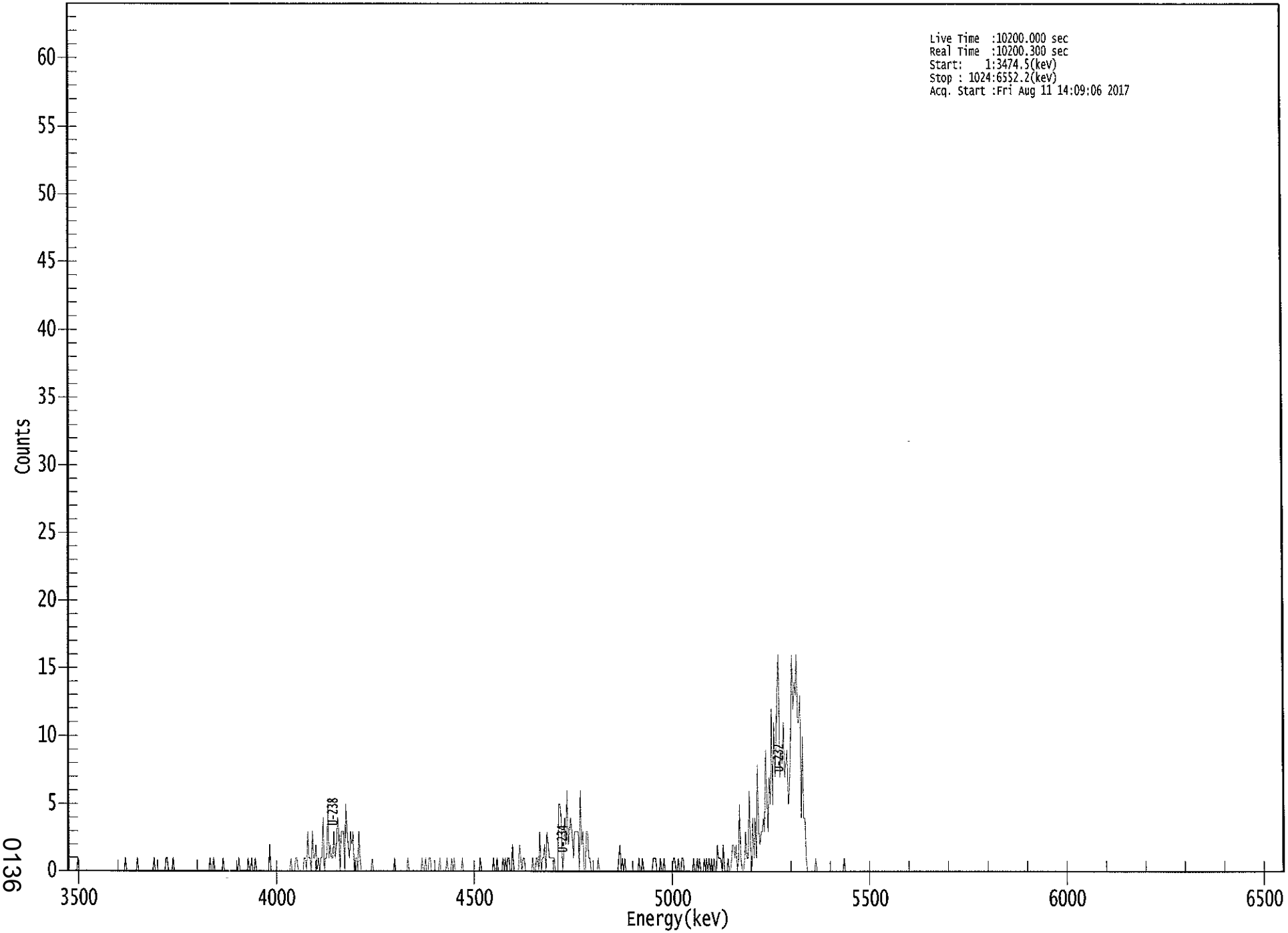
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.274	379.15	10.08	0.85	0.00E+000	10.7
U-234		4.727	96.32	20.05	0.68	0.00E+000	4.5
U-235		4.396	10.15	64.46	0.85	0.00E+000	3.0
U-238		4.145	83.15	21.62	0.85	0.00E+000	3.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.89E+000 +/- 5.40E-001	7.73E-002 +/- 8.53E-003
U-234	0.992	4761.50*	1.24E+000 +/- 2.84E-001	7.26E-002 +/- 8.02E-003
U-235	0.999	4385.50*	1.61E-001 +/- 1.05E-001	9.51E-002 +/- 1.05E-002
U-238	0.989	4184.40*	1.07E+000 +/- 2.59E-001	7.67E-002 +/- 8.47E-003

0000191080.CNF



0136

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

Sample Title: 10

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	1	0	0	2	0	0

Sample Title: 10

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

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

8/11

Sample Description: HTC-A01-S001-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 193365
Reagent Blank: <not performed>

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:09:08 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.604 mL
Effective Efficiency: 0.2060 +/- 0.0115
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.2695 +/- 0.0744

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

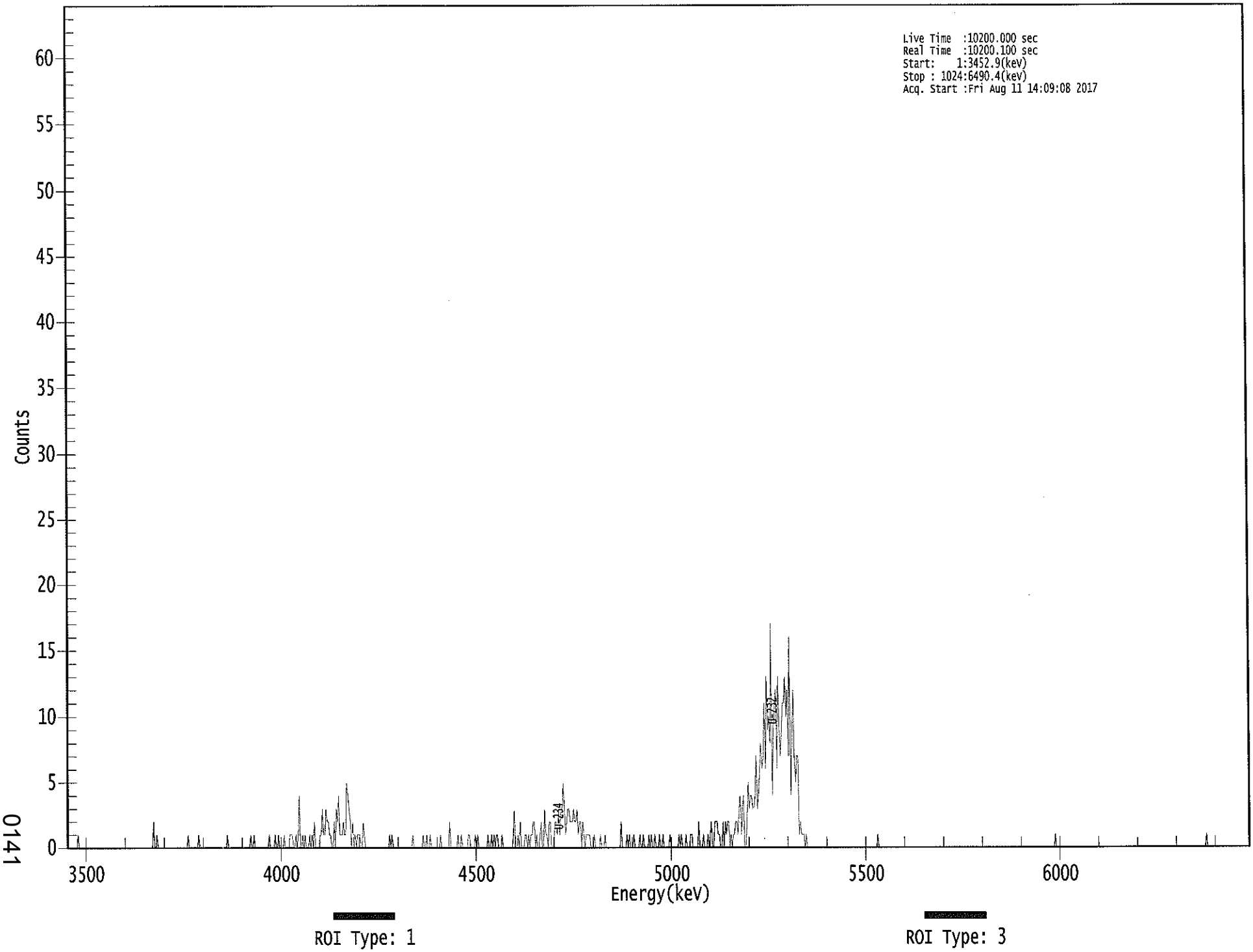
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.265	384.32	10.01	0.68	0.00E+000	4.7
U-234		4.715	90.66	20.63	0.34	0.00E+000	10.4
U-235		4.426	11.49	59.30	0.51	0.00E+000	3.0
U-238		4.130	73.00	23.10	0.00	0.00E+000	9.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	4.92E+000 +/- 5.40E-001	7.21E-002 +/- 7.92E-003
U-234	0.985	4761.50*	1.16E+000 +/- 2.70E-001	6.10E-002 +/- 6.70E-003
U-235	0.989	4385.50*	1.81E-001 +/- 1.09E-001	8.26E-002 +/- 9.07E-003
U-238	0.979	4184.40*	9.27E-001 +/- 2.37E-001	7.62E-002 +/- 8.36E-003

0000191081.CNF



0141

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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	0	1	1	0	0	0	1

Sample Title: 11

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

801:	0	0	0	0	0	0	0	0

Sample Title: 11

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	1	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	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	1	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: HTC-A01-S002-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001910
Batch Identification: 1707077A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 193366
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/11/2017 2:09:10 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.2027 +/- 0.0114
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.2410 +/- 0.0732

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

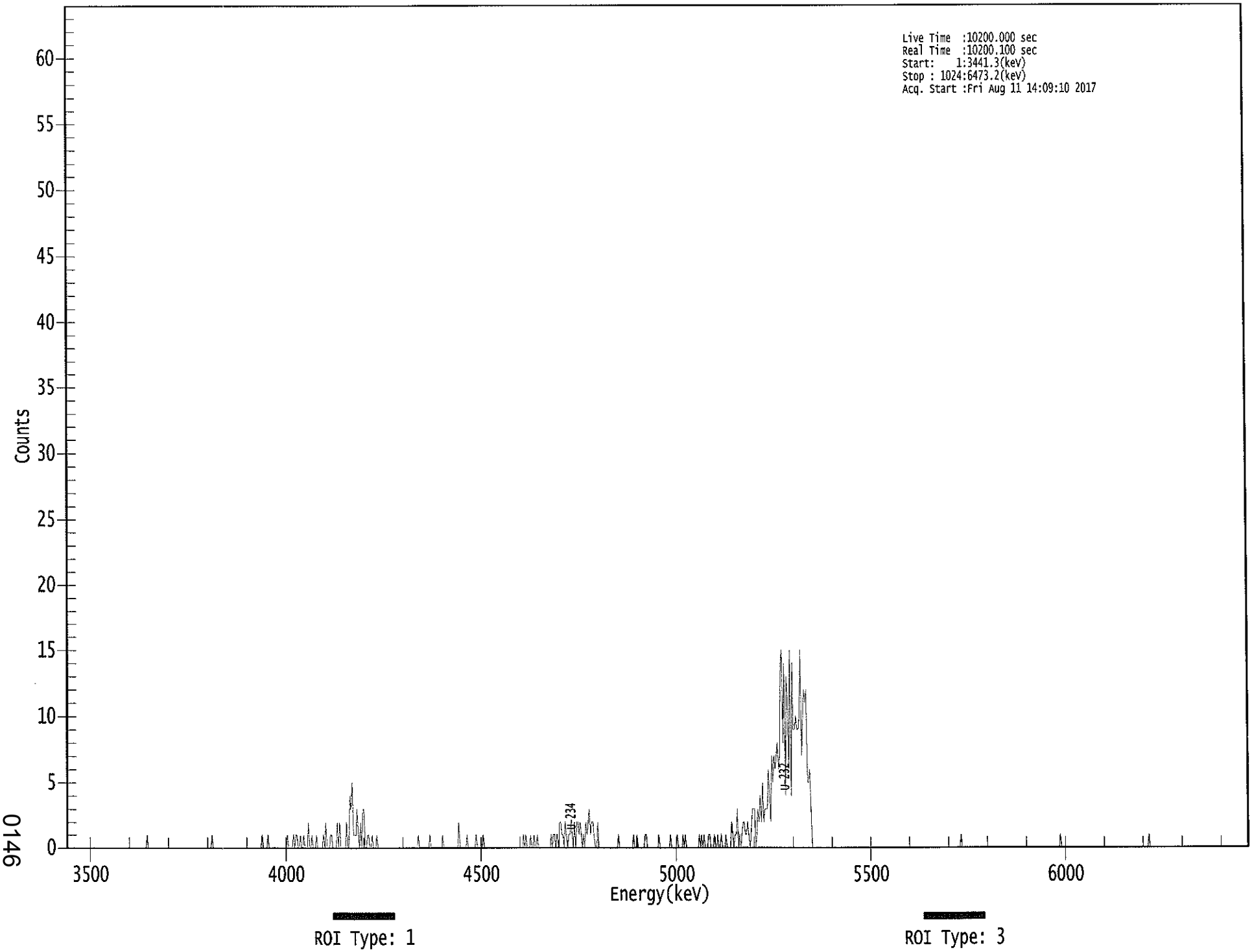
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.282	377.98	10.10	1.02	0.00E+000	13.6
U-234		4.733	49.66	27.92	0.34	0.00E+000	6.7
U-235		4.421	6.83	76.08	0.17	0.00E+000	3.0
U-238		4.145	51.49	27.47	0.51	0.00E+000	8.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	4.95E+000 +/- 5.48E-001	8.26E-002 +/- 9.13E-003
U-234	0.994	4761.50*	6.49E-001 +/- 1.95E-001	6.25E-002 +/- 6.91E-003
U-235	0.991	4385.50*	1.10E-001 +/- 8.47E-002	6.73E-002 +/- 7.44E-003
U-238	0.989	4184.40*	6.70E-001 +/- 1.98E-001	6.83E-002 +/- 7.55E-003

0000191082.CNF



0146

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

Sample Title: 12

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 12

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	1	0	1	0	0	0
401:	1	0	0	1	0	0	1	0
409:	0	0	0	0	0	0	0	0
417:	0	0	1	0	1	1	0	1
425:	0	2	2	1	1	0	2	1
433:	0	1	1	2	1	0	2	0
441:	2	2	1	2	1	0	1	0
449:	2	1	2	3	1	2	2	1
457:	0	0	2	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	1	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	1	0	0	1	0	0	0
497:	0	0	0	1	1	0	0	0
505:	0	0	0	0	0	0	0	1
513:	0	0	0	0	0	0	0	0
521:	0	1	0	0	0	0	0	1
529:	0	0	0	0	1	0	1	0
537:	0	0	0	0	0	0	0	0
545:	0	0	1	0	1	0	1	0
553:	0	0	1	1	0	0	0	1
561:	0	0	1	0	0	1	0	0
569:	0	1	0	0	0	0	2	1
577:	0	1	1	3	0	1	0	1
585:	2	2	1	1	2	1	0	1
593:	3	3	3	0	1	3	2	4
601:	2	5	2	3	3	3	6	4
609:	2	7	5	7	6	7	8	6
617:	7	14	15	8	14	4	13	11
625:	6	15	4	14	9	9	10	9
633:	9	10	15	7	10	12	11	12
641:	5	5	6	3	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	1	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 12

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

8/14

Sample Description: HTC-A01-S002-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_033
Chamber Serial Number: 04026479A
Detector Serial Number: 91132
Env. Background: System Bkgd 193353
Reagent Blank: <not performed>

Sample Size: 1.006E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:21:57 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.1885 +/- 0.0110
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 1.1211 +/- 0.0680

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

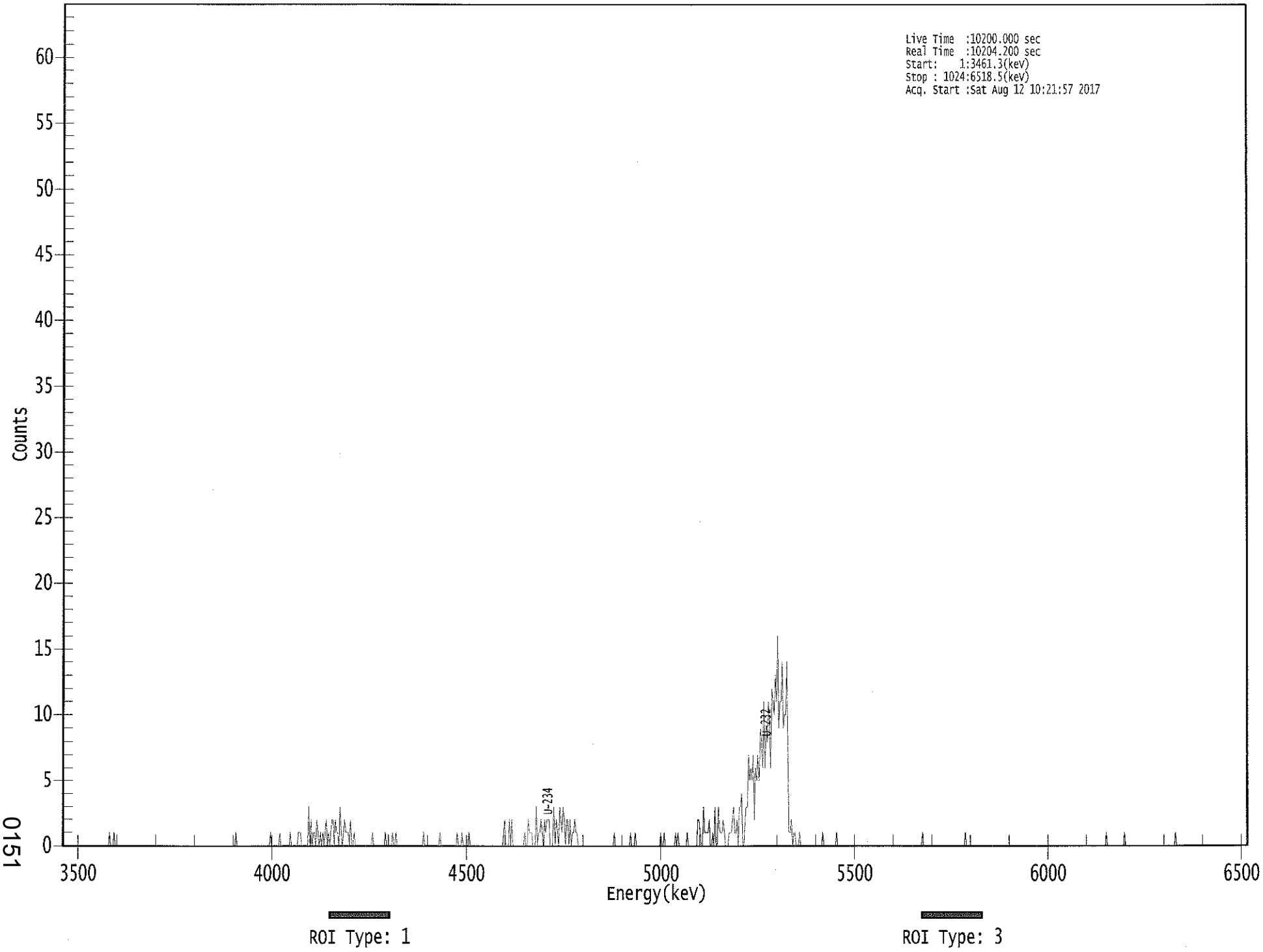
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.276	351.32	10.47	0.68	0.00E+000	43.4
U-234		4.712	57.66	25.90	0.34	0.00E+000	3.0
U-235		4.403	6.00	86.43	0.00	0.00E+000	3.0
U-238		4.143	43.83	29.67	0.17	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.93E+000 +/- 5.62E-001	7.92E-002 +/- 9.02E-003
U-234	0.983	4761.50*	8.07E-001 +/- 2.28E-001	6.69E-002 +/- 7.63E-003
U-235	0.998	4385.50*	1.04E-001 +/- 9.03E-002	1.04E-001 +/- 1.18E-002
U-238	0.988	4184.40*	6.11E-001 +/- 1.94E-001	5.82E-002 +/- 6.63E-003

0000191148.CNF



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

Sample Title: 13

Elapsed Live time: 10200
Elapsed Real Time: 10204

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	1	0	0	0	1	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	1	0	0
153:	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	1	0	0	0	0
185:	0	0	0	1	0	0	0	0
193:	0	0	0	0	1	0	0	0
201:	0	0	0	1	1	1	0	0
209:	0	0	0	0	3	0	2	0
217:	1	1	0	2	1	0	1	0
225:	1	0	1	2	0	1	0	1
233:	2	2	0	2	1	1	0	3
241:	1	0	1	2	1	1	1	0
249:	2	0	0	1	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	1	0	0	0	0
273:	0	0	0	0	0	0	1	0
281:	0	0	0	0	1	0	0	1
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	1
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	1	0	0	0
345:	1	0	0	0	0	0	1	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: 13

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

801:	0	0	0	0	0	0	0	0

Sample Title: 13

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

Apex-Alpha™

8/22

Sample Description: HTC-A01-S002-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_034
Chamber Serial Number: 04026479B
Detector Serial Number: 91136
Env. Background: System Bkgd 193354
Reagent Blank: <not performed>

Sample Size: 1.004E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:21:58 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.602 mL
Effective Efficiency: 0.1783 +/- 0.0106
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.0315 +/- 0.0639

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

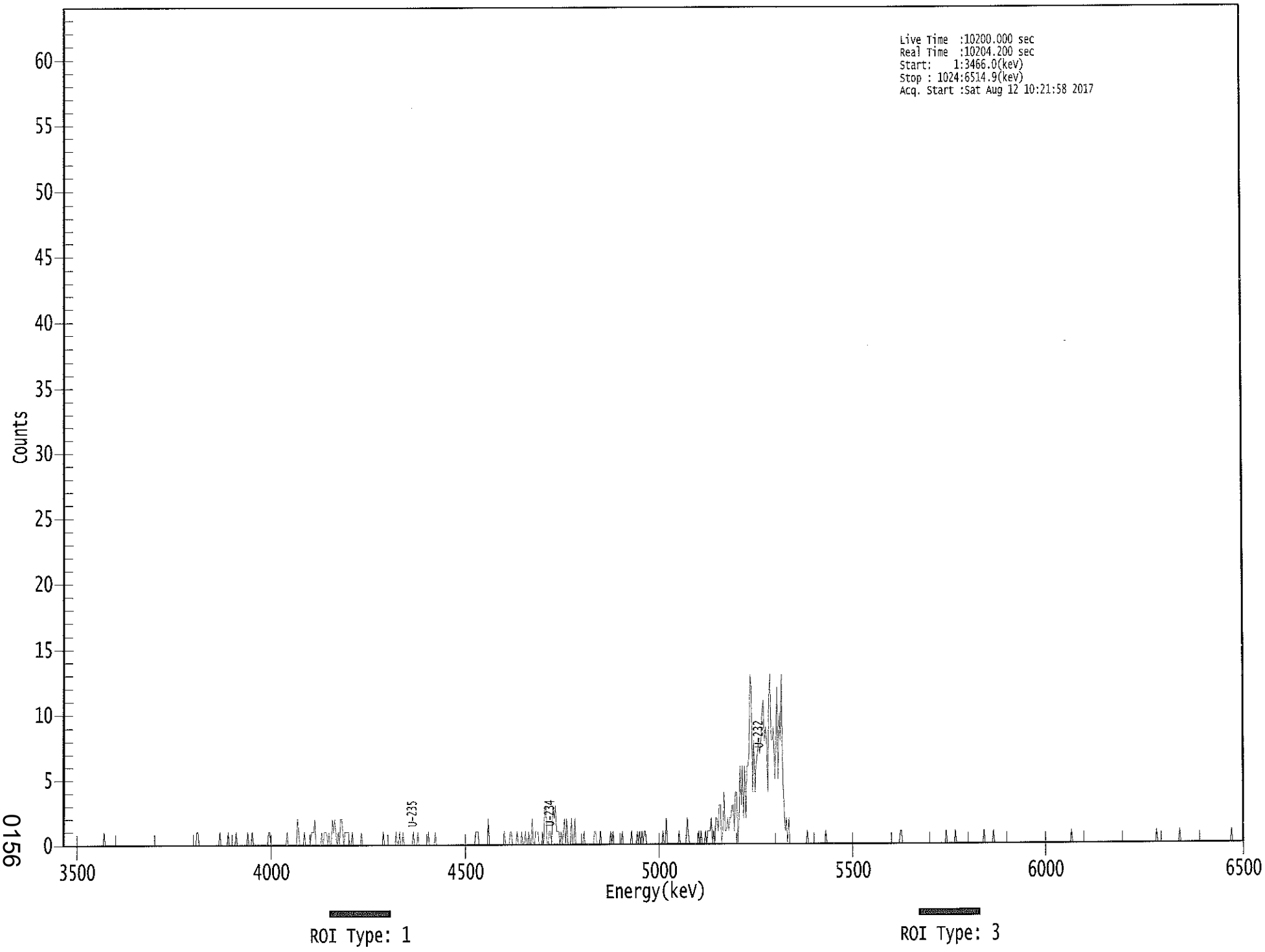
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.260	331.98	10.78	1.02	0.00E+000	9.5
U-234		4.720	44.83	29.34	0.17	0.00E+000	6.0
U-235		4.366	6.49	80.40	0.51	0.00E+000	3.0
U-238		4.147	32.83	34.31	0.17	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	4.94E+000 +/- 5.77E-001	9.37E-002 +/- 1.09E-002
U-234	0.988	4761.50*	6.65E-001 +/- 2.10E-001	6.19E-002 +/- 7.23E-003
U-235	0.997	4385.50*	1.19E-001 +/- 9.65E-002	9.60E-002 +/- 1.12E-002
U-238	0.990	4184.40*	4.85E-001 +/- 1.76E-001	6.16E-002 +/- 7.20E-003

0000191149.CNF



0156

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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10204

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

369:	0	0	0	0	0	0	0	0

Sample Title: 14

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

801:	0	0	0	0	0	1	0	0

Sample Title: 14

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

Apex-Alpha™

Sample Description: HTC-A01-S002-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_035
Chamber Serial Number: 04026477A
Detector Serial Number: 58771
Env. Background: System Bkgd 193355
Reagent Blank: <not performed>

Sample Size: 1.017E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:22:00 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.1696 +/- 0.0103
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 1.0735 +/- 0.0679

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

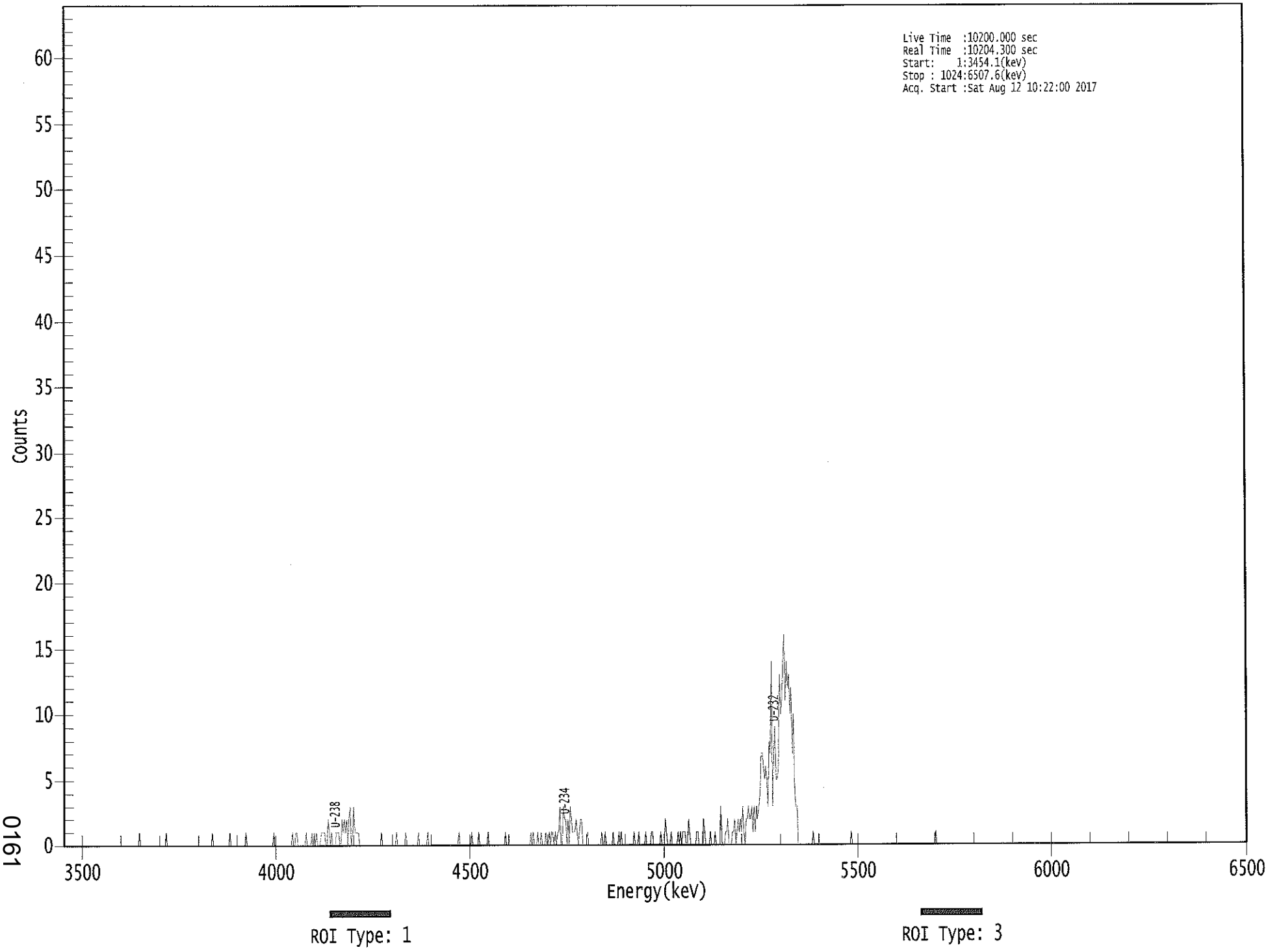
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.287	315.83	11.03	0.17	0.00E+000	34.4
U-234		4.746	41.00	30.98	0.00	0.00E+000	3.7
U-235		4.375	4.83	91.00	0.17	0.00E+000	3.0
U-238		4.154	38.66	31.68	0.34	0.00E+000	5.2

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	4.87E+000 +/- 5.81E-001	6.44E-002 +/- 7.68E-003
U-234	0.998	4761.50*	6.31E-001 +/- 2.09E-001	9.23E-002 +/- 1.10E-002
U-235	0.999	4385.50*	9.17E-002 +/- 8.42E-002	7.92E-002 +/- 9.45E-003
U-238	0.994	4184.40*	5.93E-001 +/- 2.01E-001	7.33E-002 +/- 8.73E-003

0000191145.CNF



0161

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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10204

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

369:	0	0	0	0	0	0	0	0

Sample Title: 15

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

801:	0	0	0	0	0	0	0	0

Sample Title: 15

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	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™

Sample Description: HTC-A01-S002-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_036
Chamber Serial Number: 04026477B
Detector Serial Number: 84167
Env. Background: System Bkgd 193356
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:22:01 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.601 mL
Effective Efficiency: 0.2139 +/- 0.0118
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 1.1728 +/- 0.0677

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

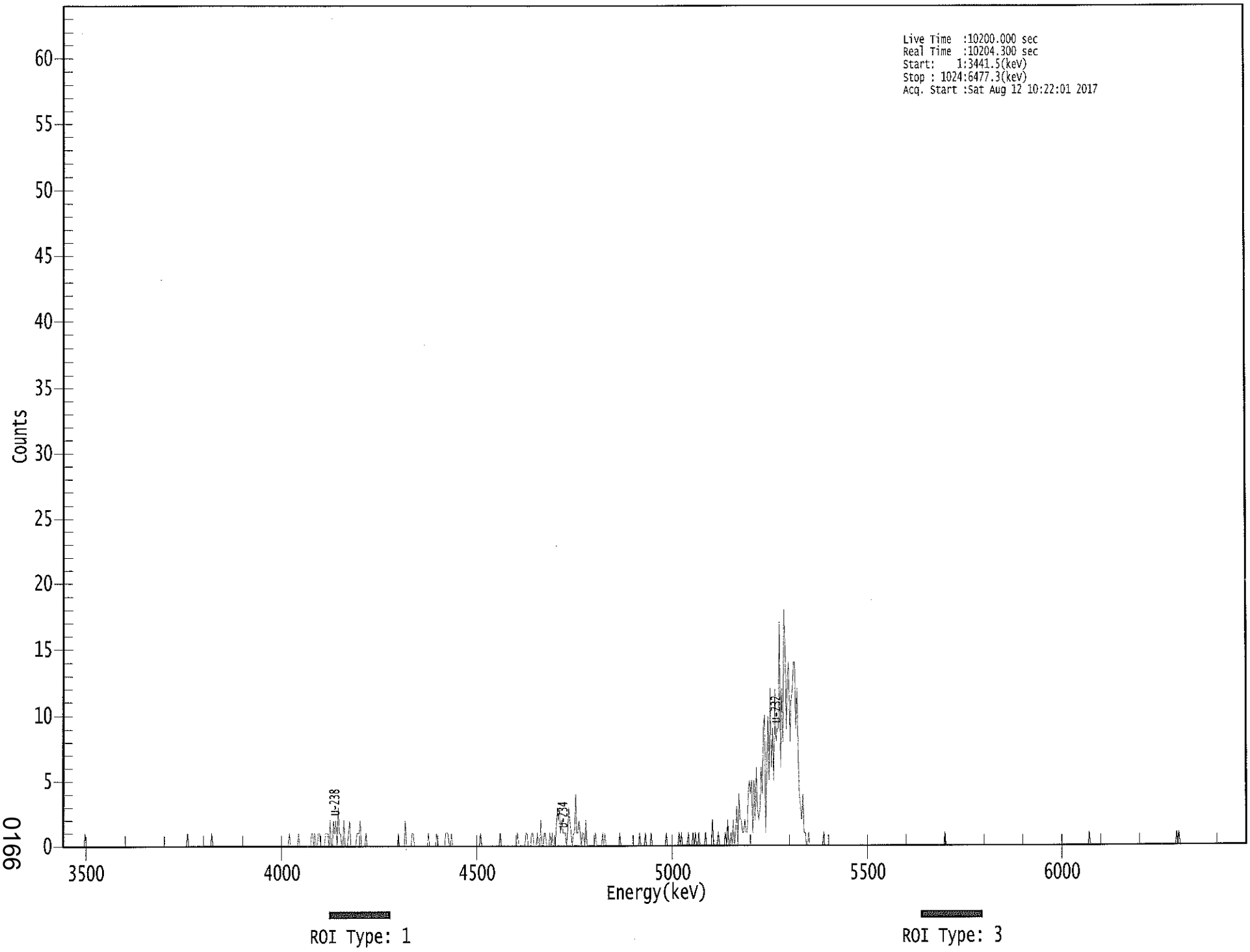
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.270	397.66	9.83	0.34	0.00E+000	8.6
U-234		4.723	50.98	27.77	1.02	0.00E+000	4.0
U-235		4.371	10.66	61.14	0.34	0.00E+000	3.0
U-238		4.138	32.66	34.50	0.34	0.00E+000	3.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.94E+000 +/- 5.35E-001	5.94E-002 +/- 6.43E-003
U-234	0.989	4761.50*	6.32E-001 +/- 1.88E-001	7.81E-002 +/- 8.45E-003
U-235	0.999	4385.50*	1.63E-001 +/- 1.01E-001	7.31E-002 +/- 7.91E-003
U-238	0.985	4184.40*	4.03E-001 +/- 1.46E-001	5.90E-002 +/- 6.38E-003

0000191144.CNF



0166

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

Sample Title: 16

Elapsed Live time: 10200
Elapsed Real Time: 10204

Channel							
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	1	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	1	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	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	1	0	0	0	0
201:	0	0	0	1	0	0	0	0
209:	0	0	0	0	0	0	1	1
217:	0	1	0	0	1	1	0	0
225:	0	0	1	1	1	0	2	0
233:	0	2	1	2	0	3	1	1
241:	0	0	2	0	0	0	1	2
249:	0	0	0	0	0	1	1	1
257:	2	0	0	0	0	1	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	1	0	0	0	0	0	2
297:	0	0	0	0	0	1	1	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	1	0	0	0	0
321:	0	0	1	0	0	0	0	0
329:	0	0	1	1	1	0	0	1
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:	1	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 16

Channel								
377:	0	1	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	1	0	0	0	0	0	0	1
401:	1	0	0	0	1	1	0	0
409:	0	1	0	0	2	0	0	1
417:	1	0	0	0	1	0	1	0
425:	0	1	3	2	3	1	2	1
433:	1	1	0	1	3	2	1	0
441:	1	1	4	1	1	2	1	0
449:	1	1	0	2	0	0	0	0
457:	0	0	0	1	0	0	0	0
465:	0	1	0	1	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	1	0	0	0	0	1	0
505:	0	0	0	1	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	1	0	0	0	0	0	0	0
529:	0	0	0	1	0	1	0	0
537:	0	0	0	1	0	0	0	1
545:	0	1	0	0	1	0	0	0
553:	0	0	1	0	0	0	0	0
561:	2	0	0	0	0	1	0	0
569:	0	0	0	1	0	2	0	0
577:	1	0	2	0	1	3	0	4
585:	2	2	1	1	2	1	1	4
593:	5	4	5	1	5	2	6	3
601:	2	3	6	4	9	10	1	6
609:	10	5	12	6	9	5	12	8
617:	9	9	17	6	12	8	18	15
625:	9	13	14	8	11	12	14	14
633:	9	12	8	4	3	2	4	1
641:	1	0	0	1	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	1	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	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	1	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 16

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

Apex-Alpha™

8/12

Sample Description: HTC-A01-S002-2430-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_037
Chamber Serial Number: 04026478A
Detector Serial Number: 91133
Env. Background: System Bkgd 193357
Reagent Blank: <not performed>

Sample Size: 1.006E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:22:03 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.2207 +/- 0.0120
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.3901 +/- 0.0794

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

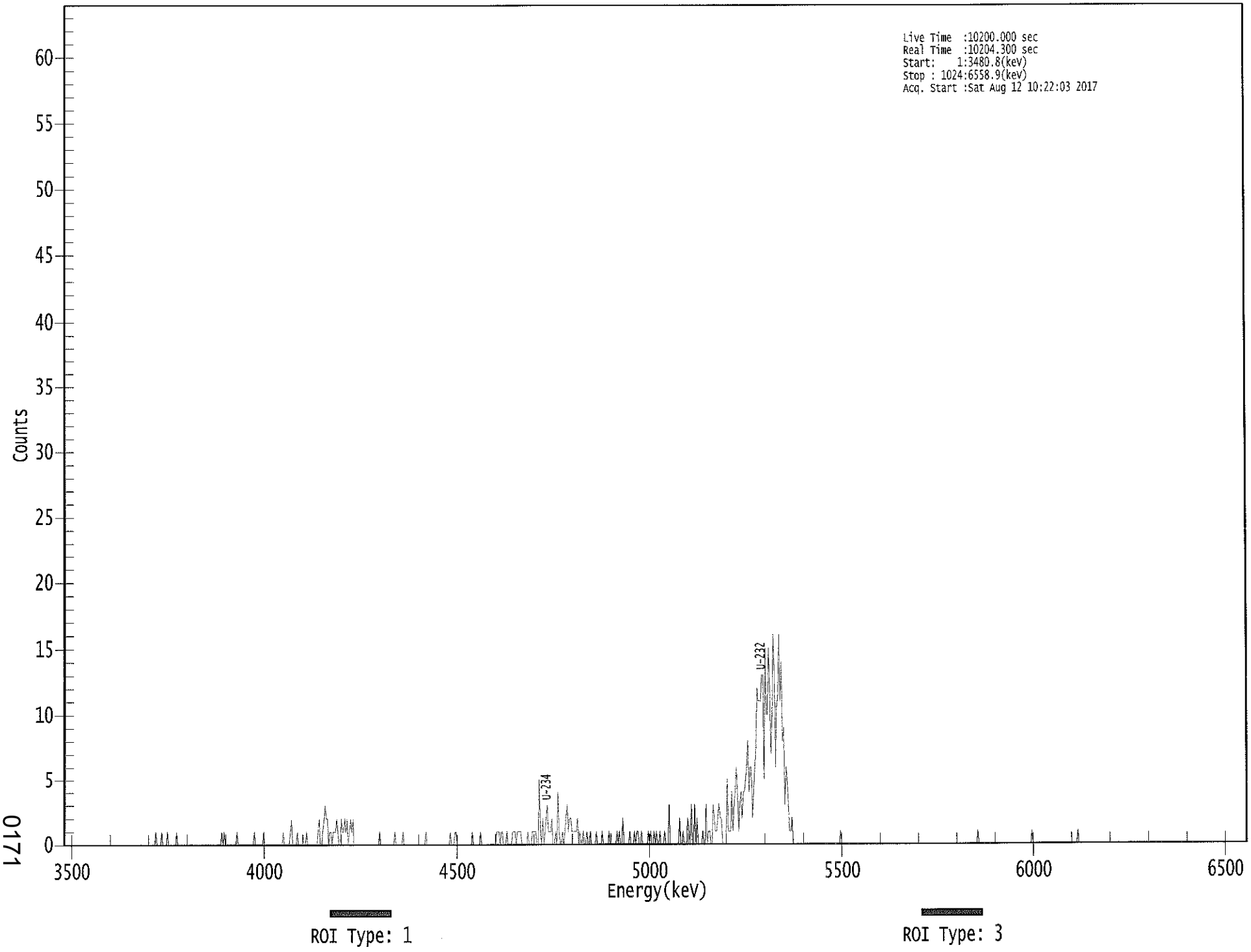
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.292	411.15	9.68	0.85	0.00E+000	10.2
U-234		4.735	64.66	24.45	0.34	0.00E+000	3.4
U-235		4.413	6.66	78.18	0.34	0.00E+000	3.0
U-238		4.166	41.98	30.68	1.02	0.00E+000	11.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	4.93E+000 +/- 5.26E-001	7.18E-002 +/- 7.66E-003
U-234	0.995	4761.50*	7.73E-001 +/- 2.06E-001	5.72E-002 +/- 6.10E-003
U-235	0.995	4385.50*	9.82E-002 +/- 7.75E-002	7.05E-002 +/- 7.53E-003
U-238	0.998	4184.40*	5.00E-001 +/- 1.62E-001	7.50E-002 +/- 8.01E-003

0000191142.CNF



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

Sample Title: 17

Elapsed Live time: 10200
Elapsed Real Time: 10204

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

369:	0	0	0	0	0	1	1	1

Sample Title: 17

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

801:	0	0	0	0	0	0	0	0

Sample Title: 17

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

Sample Description: HTC-A01-S002-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_038
Chamber Serial Number: 04026478B
Detector Serial Number: 91134
Env. Background: System Bkgd 193358
Reagent Blank: <not performed>

Sample Size: 1.005E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:22:05 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.2021 +/- 0.0114
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.3092 +/- 0.0772

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

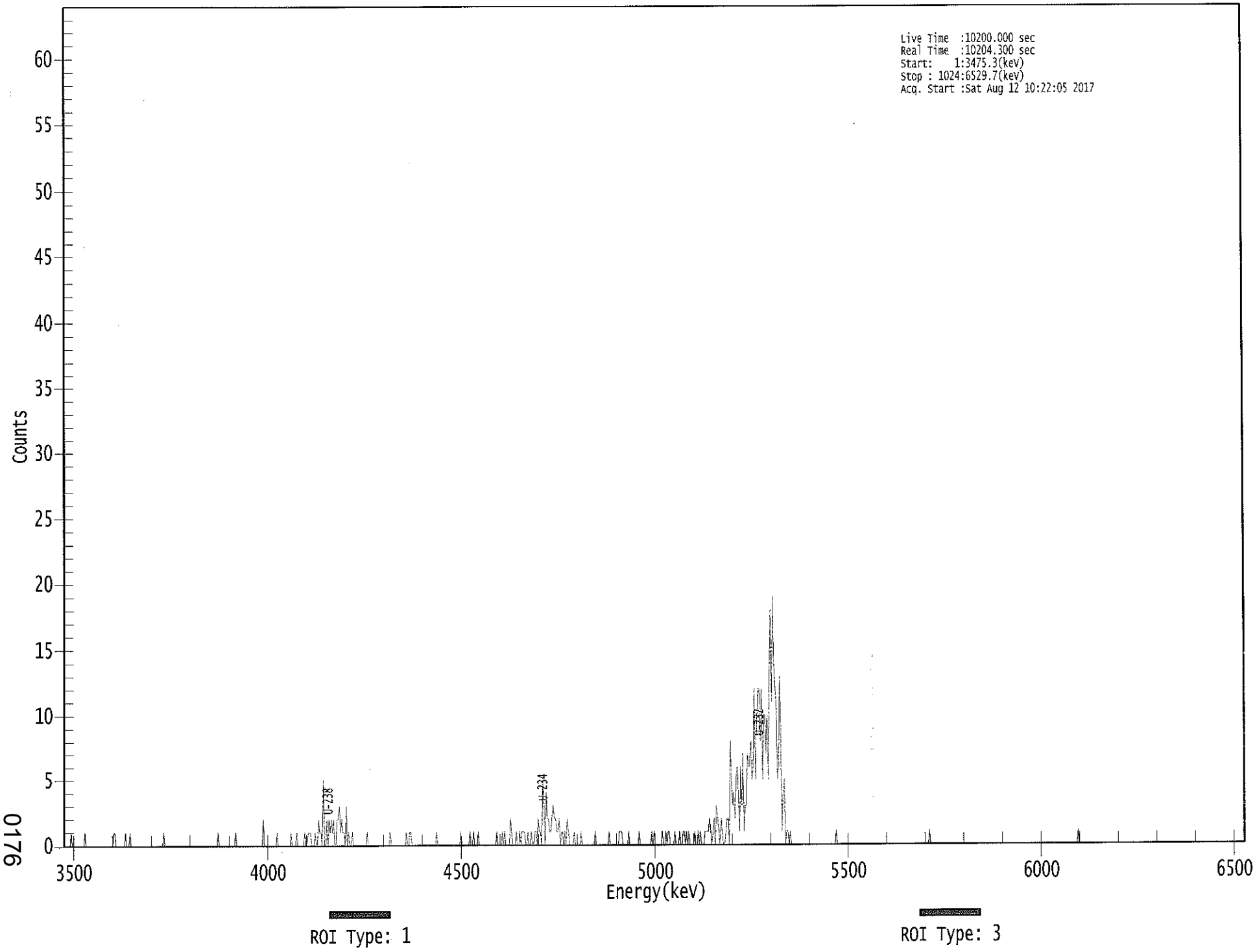
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.272	376.83	10.10	0.17	0.00E+000	20.0
U-234		4.715	56.15	26.39	0.85	0.00E+000	5.0
U-235		4.392	5.66	85.23	0.34	0.00E+000	3.0
U-238		4.159	44.83	29.34	0.17	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.94E+000 +/- 5.47E-001	5.47E-002 +/- 6.05E-003
U-234	0.985	4761.50*	7.34E-001 +/- 2.10E-001	7.83E-002 +/- 8.66E-003
U-235	1.000	4385.50*	9.13E-002 +/- 7.85E-002	7.71E-002 +/- 8.53E-003
U-238	0.995	4184.40*	5.84E-001 +/- 1.83E-001	5.43E-002 +/- 6.01E-003

0000191143.CNF



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

Sample Title: 18

Elapsed Live time: 10200
Elapsed Real Time: 10204

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

369:	0	0	0	0	0	0	1	0

Sample Title: 18

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

801:	0	0	0	0	0	0	0	0

Sample Title: 18

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

8/14

Sample Description: HTC-A01-S002-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_039
Chamber Serial Number: 06027396A
Detector Serial Number: 83109
Env. Background: System Bkgd 193359
Reagent Blank: <not performed>

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:22:07 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.2051 +/- 0.0115
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 1.1073 +/- 0.0650

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

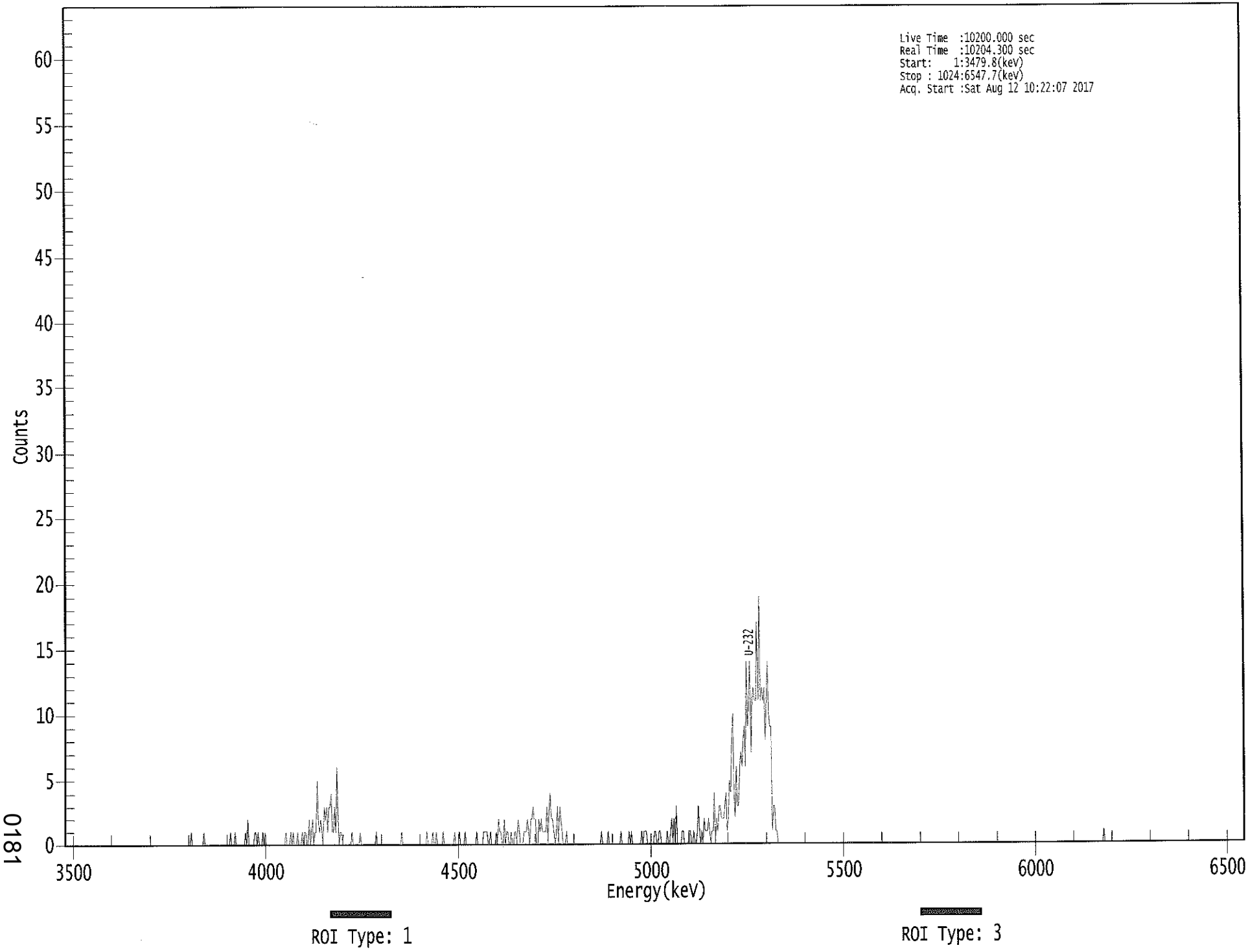
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.260	382.45	10.06	2.55	0.00E+000	33.0
U-234		4.702	65.13	24.69	1.87	0.00E+000	7.0
U-235		4.433	5.66	85.23	0.34	0.00E+000	3.0
U-238		4.149	62.15	25.06	0.85	0.00E+000	4.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	4.92E+000 +/- 5.42E-001	1.08E-001 +/- 1.19E-002
U-234	0.975	4761.50*	8.35E-001 +/- 2.26E-001	9.71E-002 +/- 1.07E-002
U-235	0.984	4385.50*	8.95E-002 +/- 7.70E-002	7.56E-002 +/- 8.34E-003
U-238	0.991	4184.40*	7.94E-001 +/- 2.17E-001	7.64E-002 +/- 8.43E-003

0000191146.CNF



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

Sample Title: 19

Elapsed Live time: 10200
Elapsed Real Time: 10204

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

369:	1	0	0	0	0	1	0	2

Sample Title: 19

Channel								
377:	1	1	0	0	2	0	1	1
385:	0	0	1	0	0	1	1	0
393:	2	1	0	0	0	1	1	1
401:	2	1	0	2	2	3	2	2
409:	0	0	2	1	2	1	1	1
417:	1	3	0	3	4	2	2	1
425:	0	1	3	0	3	2	1	0
433:	0	0	1	0	0	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	1	0	0	0	0	0	1	0
473:	0	0	0	0	0	0	0	0
481:	0	1	0	0	0	0	0	0
489:	1	0	1	0	0	0	0	0
497:	0	0	0	1	0	1	1	1
505:	0	0	0	0	0	0	1	1
513:	0	0	1	1	0	0	0	0
521:	0	1	0	0	1	2	0	2
529:	0	3	0	0	0	0	1	1
537:	0	0	0	0	1	1	0	0
545:	1	0	0	1	3	1	0	1
553:	0	2	1	1	1	2	1	0
561:	1	1	4	0	2	1	3	3
569:	2	2	2	3	4	1	2	5
577:	4	8	10	4	2	6	3	3
585:	6	7	6	8	9	6	14	9
593:	11	14	7	11	12	11	11	17
601:	11	19	11	12	11	12	8	11
609:	14	10	9	9	1	3	3	1
617:	1	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	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: 19

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

8/13

Sample Description: HTC-A01-S002-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001911
Batch Identification: 1707077A-UU
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 193360
Reagent Blank: <not performed>

Sample Size: 1.009E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 7:08:17 AM
Acquisition Date/Time: 8/12/2017 10:22:08 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.1 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.584 mL
Effective Efficiency: 0.2084 +/- 0.0118
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.1495 +/- 0.0678

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

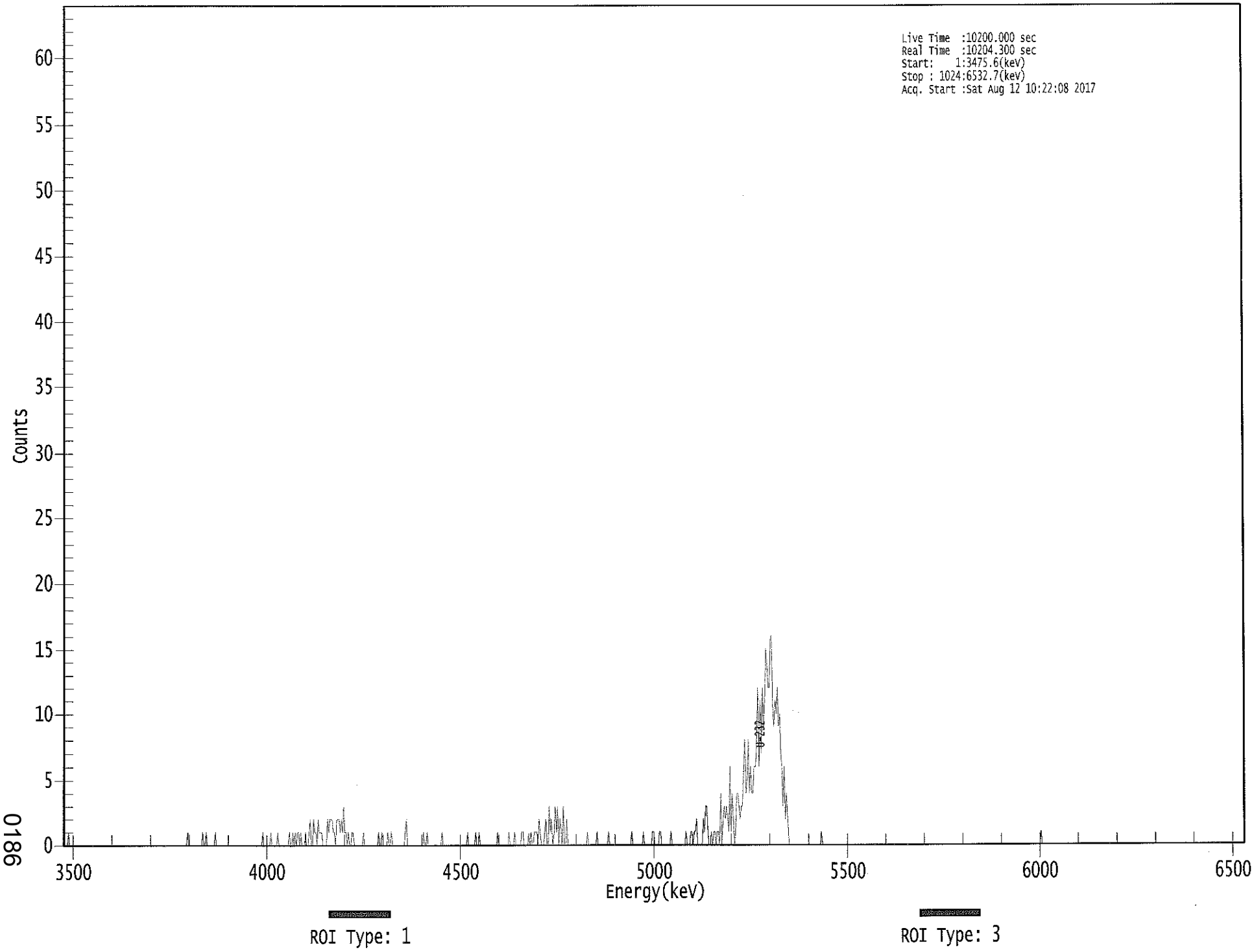
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.277	376.15	10.12	0.85	0.00E+000	49.2
U-234		4.728	37.49	32.26	0.51	0.00E+000	3.7
U-235		4.364	9.00	68.87	0.00	0.00E+000	4.5
U-238		4.151	50.49	27.75	0.51	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.76E+000 +/- 5.27E-001	7.58E-002 +/- 8.39E-003
U-234	0.992	4761.50*	4.73E-001 +/- 1.61E-001	6.62E-002 +/- 7.34E-003
U-235	0.997	4385.50*	1.40E-001 +/- 9.77E-002	9.34E-002 +/- 1.03E-002
U-238	0.992	4184.40*	6.35E-001 +/- 1.90E-001	6.59E-002 +/- 7.31E-003

0000191147.CNF



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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10204

Channel								
1:	0	0	0	0	1	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	1	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	1	0	0	1	0	0	0	0
129:	0	0	0	1	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	1	0	0	0
177:	0	0	0	1	0	0	0	0
185:	0	1	0	0	0	0	0	0
193:	0	0	0	1	0	0	1	0
201:	1	0	1	1	0	1	0	0
209:	0	1	0	0	1	2	0	0
217:	2	1	1	0	2	1	1	1
225:	0	0	0	0	2	1	2	2
233:	2	1	1	0	2	2	2	1
241:	2	1	3	1	1	0	1	0
249:	0	1	1	0	0	0	0	0
257:	0	0	0	1	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	1	0	0	1	0	0	0	0
281:	1	0	0	1	0	0	0	0
289:	0	0	0	0	0	0	0	1
297:	2	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	1
313:	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	1
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	1	0	0
353:	0	0	0	0	1	0	0	1
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	1

Sample Title: 20

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	1	0	0	0	0	1	0
393:	0	0	0	0	1	1	0	0
401:	0	0	1	0	1	0	0	1
409:	1	1	0	2	1	0	0	0
417:	1	2	0	0	3	1	2	0
425:	1	3	1	3	0	2	1	0
433:	3	0	0	2	0	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	1	0	0
457:	0	0	0	0	0	1	0	0
465:	0	0	0	0	0	0	0	1
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	1	0	0	0	0
497:	0	0	0	0	0	1	0	0
505:	0	0	0	0	0	1	1	0
513:	0	0	0	1	1	0	0	0
521:	0	0	0	0	0	1	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	1	0	0	0	1	1
545:	0	1	1	2	0	0	0	0
553:	0	2	1	3	3	1	0	0
561:	1	0	1	1	0	1	1	0
569:	4	0	2	3	2	3	2	1
577:	6	1	4	2	0	1	4	4
585:	3	2	3	3	6	8	4	5
593:	8	4	6	4	4	6	6	7
601:	12	6	11	7	12	9	11	15
609:	14	12	12	16	16	10	9	11
617:	10	12	9	10	7	6	3	6
625:	2	4	2	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	1
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: 20

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	1	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

8/11/2017 4:54:41 AM

Apex-Alpha™

QA SUMMARY REPORT
Review Of QA Results - Pulser Check

Date : 8/11/2017
Time : 4:54:41 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/11/2017 4:39:32 AM
Alpha_004	21f	ALL	Passed	8/11/2017 4:39:33 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	8/11/2017 4:39:34 AM
Alpha_011	21f	ALL	Passed	8/11/2017 4:39:35 AM
Alpha_012	21f	ALL	Passed	8/11/2017 4:39:36 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/11/2017 4:39:37 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:38 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:39 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:41 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:42 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:44 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/11/2017 4:39:45 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:47 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/11/2017 4:39:49 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:24 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:26 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:51 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:52 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:54 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:56 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:57 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:39:59 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:01 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:03 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:05 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:07 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:09 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:12 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:14 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:17 AM

Review of QA Results - Pulser Check

8/11/2017 4:54:41 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:20 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/11/2017 4:40:23 AM

APPROVED BY: KB

APPROVAL DATE: 8/11/17

8/12/2017 10:16:58 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/12/2017
Time : 10:16:58 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:16 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:18 AM
Alpha_035	Alpha Analyst100DC	Peak CPS	Action	8/12/2017 10:02:19 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:21 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:22 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/12/2017 10:02:24 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:25 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/12/2017 10:02:27 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:24 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:26 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:29 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:31 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:33 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:34 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:36 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:38 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:40 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:42 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:44 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:46 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:48 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:51 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:53 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:57 AM
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:02:59 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/12/2017 10:03:02 AM

APPROVED BY: KB

APPROVAL DATE: 8/12/17

```
*********************************************************************
*****          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)

17-07077
ThISO
Run 1

Work Order	17-07077
Analysis Code	ThISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 907.0 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		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S001-0006-01	261	05/13/17 13:36	5.0150E-01
04	DO	HTC-A01-S001-0006-01	261	05/13/17 13:36	5.0100E-01
05	TRG	HTC-A01-S001-0612-01	167	05/13/17 13:33	1.0027E+00
06	TRG	HTC-A01-S001-1218-01	39	05/13/17 13:30	1.0018E+00
07	TRG	HTC-A01-S001-1824-01	52	05/13/17 13:27	1.0028E+00
08	TRG	HTC-A01-S001-2430-01	48	05/13/17 13:24	1.0021E+00
09	TRG	HTC-A01-S001-3036-01	47	05/13/17 13:21	1.0053E+00
10	TRG	HTC-A01-S001-3642-01	52	05/13/17 13:18	1.0070E+00
11	TRG	HTC-A01-S001-4248-01	44	05/13/17 13:15	1.0140E+00
12	TRG	HTC-A01-S002-0006-01	33	05/13/17 11:26	1.0196E+00
13	TRG	HTC-A01-S002-0612-01	45	05/13/17 11:23	1.0058E+00
14	TRG	HTC-A01-S002-1218-01	40	05/13/17 11:20	1.0044E+00
15	TRG	HTC-A01-S002-1824-01	31	05/13/17 11:17	1.0022E+00
16	TRG	HTC-A01-S002-2430-01	35	05/13/17 11:14	1.0120E+00
17	TRG	HTC-A01-S002-2430-02	35	05/13/17 11:14	1.0085E+00
18	TRG	HTC-A01-S002-3036-01	28	05/13/17 11:11	1.0019E+00
19	TRG	HTC-A01-S002-3642-01	42	05/13/17 11:08	1.0068E+00
20	TRG	HTC-A01-S002-4248-01	39	05/13/17 11:05	1.0083E+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.

17-07077
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	0.4691	10.5		0.00								
02	MBL	0.2343	5.3		0.00								
03	DUP	0.2341	5.3		0.00								
04	DO	0.2337	5.2		0.00								
05	TRG	0.2337	5.2		0.00								
06	TRG	0.2329	5.2		0.00								
07	TRG	0.2340	5.3		0.00								
08	TRG	0.2331	5.2		0.00								
09	TRG	0.2329	5.2		0.00								
10	TRG	0.2317	5.2		0.00								
11	TRG	0.2325	5.2		0.00								
12	TRG	0.2311	5.2		0.00								
13	TRG	0.2325	5.2		0.00								
14	TRG	0.2319	5.2		0.00								
15	TRG	0.2313	5.2		0.00								
16	TRG	0.2321	5.2		0.00								
17	TRG	0.2309	5.2		0.00								
18	TRG	0.2316	5.2		0.00								
19	TRG	0.2299	5.2		0.00								
20	TRG	0.2300	5.2		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.

17-07077
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			08/07/17 10:43	JHARVEY				
02	MBL			08/07/17 10:43	JHARVEY				
03	DUP			08/07/17 10:43	JHARVEY				
04	DO	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
05	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
06	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
07	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
08	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
09	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
10	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
11	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
12	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
13	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
14	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
15	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
16	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
17	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
18	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
19	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				
20	TRG	07/24/17 08:01	KSALLINGS	08/07/17 10:43	JHARVEY				

* 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: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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	5.69E+00	9.65E-01	1.20E-01	4.86E+00	117.12	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	-2.61E-02	3.45E-02	1.13E-01					OK	OK
03	TH-228	DUP	HTC-A01-S001-0006-01	pCi/g	3.34E+01	5.02E+00	2.42E-01				OK	OK	
04	TH-228	DO	HTC-A01-S001-0006-01	pCi/g	2.93E+01	4.26E+00	1.71E-01					OK	
05	TH-228	TRG	HTC-A01-S001-0612-01	pCi/g	1.57E+01	1.96E+00	6.40E-02					OK	
06	TH-228	TRG	HTC-A01-S001-1218-01	pCi/g	2.34E+00	5.73E-01	1.26E-01					OK	
07	TH-228	TRG	HTC-A01-S001-1824-01	pCi/g	7.97E+00	1.48E+00	9.81E-02					OK	
08	TH-228	TRG	HTC-A01-S001-2430-01	pCi/g	4.02E+00	8.51E-01	1.15E-01					OK	
09	TH-228	TRG	HTC-A01-S001-3036-01	pCi/g	1.62E+00	3.89E-01	6.65E-02					OK	
10	TH-228	TRG	HTC-A01-S001-3642-01	pCi/g	3.45E+00	9.64E-01	1.77E-01					OK	
11	TH-228	TRG	HTC-A01-S001-4248-01	pCi/g	1.65E+00	4.05E-01	1.10E-01					OK	
12	TH-228	TRG	HTC-A01-S002-0006-01	pCi/g	7.35E-01	2.56E-01	8.24E-02					OK	
13	TH-228	TRG	HTC-A01-S002-0612-01	pCi/g	9.96E-01	3.26E-01	1.61E-01					OK	
14	TH-228	TRG	HTC-A01-S002-1218-01	pCi/g	9.15E-01	3.24E-01	1.52E-01					OK	
15	TH-228	TRG	HTC-A01-S002-1824-01	pCi/g	6.60E-01	2.57E-01	1.56E-01					OK	
16	TH-228	TRG	HTC-A01-S002-2430-01	pCi/g	9.10E-01	3.03E-01	7.78E-02					OK	
17	TH-228	TRG	HTC-A01-S002-2430-02	pCi/g	7.74E-01	2.66E-01	1.25E-01					OK	
18	TH-228	TRG	HTC-A01-S002-3036-01	pCi/g	7.98E-01	3.40E-01	1.64E-01					OK	
19	TH-228	TRG	HTC-A01-S002-3642-01	pCi/g	1.31E+00	3.79E-01	1.13E-01					OK	
20	TH-228	TRG	HTC-A01-S002-4248-01	pCi/g	1.17E+00	3.25E-01	9.91E-02					OK	

0198

Work Order: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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-228	LCS	07/18/17 00:00	1.00E+00	100.91	0.00	0.00			
02	TH-228	MBL	07/18/17 00:00	1.00E+00	91.68	0.00	0.00			
03	TH-228	DUP	05/13/17 13:36	5.02E-01	144.16	0.00	0.00			
04	TH-228	DO	05/13/17 13:36	5.01E-01	146.12	0.00	0.00			
05	TH-228	TRG	05/13/17 13:33	1.00E+00	223.44	0.00	0.00			
06	TH-228	TRG	05/13/17 13:30	1.00E+00	88.47	0.00	0.00			
07	TH-228	TRG	05/13/17 13:27	1.00E+00	110.73	0.00	0.00			
08	TH-228	TRG	05/13/17 13:24	1.00E+00	100.44	0.00	0.00			
09	TH-228	TRG	05/13/17 13:21	1.01E+00	131.58	0.00	0.00			
10	TH-228	TRG	05/13/17 13:18	1.01E+00	56.40	0.00	0.00			
11	TH-228	TRG	05/13/17 13:15	1.01E+00	124.67	0.00	0.00			
12	TH-228	TRG	05/13/17 11:26	1.02E+00	107.20	0.00	0.00			
13	TH-228	TRG	05/13/17 11:23	1.01E+00	84.84	0.00	0.00			
14	TH-228	TRG	05/13/17 11:20	1.00E+00	77.33	0.00	0.00			
15	TH-228	TRG	05/13/17 11:17	1.00E+00	81.25	0.00	0.00			
16	TH-228	TRG	05/13/17 11:14	1.01E+00	86.04	0.00	0.00			
17	TH-228	TRG	05/13/17 11:14	1.01E+00	100.02	0.00	0.00			
18	TH-228	TRG	05/13/17 11:11	1.00E+00	61.91	0.00	0.00			
19	TH-228	TRG	05/13/17 11:08	1.01E+00	99.46	0.00	0.00			
20	TH-228	TRG	05/13/17 11:05	1.01E+00	117.36	0.00	0.00			

0199

Work Order: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
Analysis Code: ThISO
Run: 1
0200

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	08/14/17 08:42		A_Spec	Alpha_003	170	3.38 E+02	9.00 E-03	15.6
02	TH-228	MBL	08/14/17 08:42		A_Spec	Alpha_004	170.02	-1.70 E+00	1.00 E-02	18.8
03	TH-228	DUP	08/14/17 08:42		A_Spec	Alpha_010	170.02	1.56 E+03	3.40 E-02	18.7
04	TH-228	DO	08/14/17 08:42		A_Spec	Alpha_011	170.02	1.47 E+03	1.60 E-02	19.9
05	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_012	170	2.27 E+03	2.00 E-02	18.8
06	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_014	170	1.31 E+02	9.00 E-03	18.5
07	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_033	170	5.12 E+02	6.00 E-03	16.8
08	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_034	170	2.41 E+02	8.00 E-03	17.3
09	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_035	170	1.17 E+02	2.00 E-03	15.8
10	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_036	170	1.23 E+02	6.00 E-03	18.2
11	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_037	170	1.14 E+02	1.10 E-02	15.9
12	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_038	170	4.27 E+01	2.00 E-03	15.4
13	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_039	170	5.41 E+01	1.70 E-02	18.5
14	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_040	170	4.43 E+01	1.00 E-02	18.1
15	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_043	170	3.46 E+01	1.40 E-02	18.7
16	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_044	170	4.88 E+01	1.00 E-03	17.9
17	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_045	170	4.53 E+01	1.00 E-02	16.9
18	TH-228	TRG	08/14/17 08:42		A_Spec	Alpha_046	170	2.91 E+01	5.00 E-03	17.1
19	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_047	170	7.30 E+01	6.00 E-03	16.2
20	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_048	170	7.78 E+01	7.00 E-03	16.3

Preliminary Data Report & Analytical Calculations

Work Order: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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	6.52E+00	1.08E+00	1.28E-01	5.41E+00	120.41	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	2.28E-01	1.27E-01	1.01E-01					OK	OK
03	TH-230	DUP	HTC-A01-S001-0006-01	pCi/g	1.68E+01	2.63E+00	1.49E-01				OK	OK	
04	TH-230	DO	HTC-A01-S001-0006-01	pCi/g	1.44E+01	2.20E+00	1.49E-01					OK	
05	TH-230	TRG	HTC-A01-S001-0612-01	pCi/g	6.55E+00	8.70E-01	3.77E-02					OK	
06	TH-230	TRG	HTC-A01-S001-1218-01	pCi/g	1.34E+00	3.74E-01	1.07E-01					OK	
07	TH-230	TRG	HTC-A01-S001-1824-01	pCi/g	3.94E+00	7.95E-01	5.93E-02					OK	
08	TH-230	TRG	HTC-A01-S001-2430-01	pCi/g	2.71E+00	6.08E-01	8.01E-02					OK	
09	TH-230	TRG	HTC-A01-S001-3036-01	pCi/g	1.12E+00	2.93E-01	7.62E-02					OK	
10	TH-230	TRG	HTC-A01-S001-3642-01	pCi/g	2.92E+00	8.28E-01	1.69E-01					OK	
11	TH-230	TRG	HTC-A01-S001-4248-01	pCi/g	1.16E+00	3.06E-01	6.94E-02					OK	
12	TH-230	TRG	HTC-A01-S002-0006-01	pCi/g	5.74E-01	2.13E-01	8.26E-02					OK	
13	TH-230	TRG	HTC-A01-S002-0612-01	pCi/g	1.00E+00	3.14E-01	1.15E-01					OK	
14	TH-230	TRG	HTC-A01-S002-1218-01	pCi/g	7.44E-01	2.72E-01	9.89E-02					OK	
15	TH-230	TRG	HTC-A01-S002-1824-01	pCi/g	5.07E-01	2.08E-01	1.04E-01					OK	
16	TH-230	TRG	HTC-A01-S002-2430-01	pCi/g	5.95E-01	2.27E-01	1.07E-01					OK	
17	TH-230	TRG	HTC-A01-S002-2430-02	pCi/g	5.97E-01	2.17E-01	8.79E-02					OK	
18	TH-230	TRG	HTC-A01-S002-3036-01	pCi/g	8.28E-01	3.36E-01	1.50E-01					OK	
19	TH-230	TRG	HTC-A01-S002-3642-01	pCi/g	1.25E+00	3.57E-01	8.57E-02					OK	
20	TH-230	TRG	HTC-A01-S002-4248-01	pCi/g	8.19E-01	2.48E-01	6.57E-02					OK	

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07077
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	07/18/17 00:00	1.00E+00	100.91	0.00	0.00			
02	TH-230	MBL	07/18/17 00:00	1.00E+00	91.68	0.00	0.00			
03	TH-230	DUP	05/13/17 13:36	5.02E-01	144.16	0.00	0.00			
04	TH-230	DO	05/13/17 13:36	5.01E-01	146.12	0.00	0.00			
05	TH-230	TRG	05/13/17 13:33	1.00E+00	223.44	0.00	0.00			
06	TH-230	TRG	05/13/17 13:30	1.00E+00	88.47	0.00	0.00			
07	TH-230	TRG	05/13/17 13:27	1.00E+00	110.73	0.00	0.00			
08	TH-230	TRG	05/13/17 13:24	1.00E+00	100.44	0.00	0.00			
09	TH-230	TRG	05/13/17 13:21	1.01E+00	131.58	0.00	0.00			
10	TH-230	TRG	05/13/17 13:18	1.01E+00	56.40	0.00	0.00			
11	TH-230	TRG	05/13/17 13:15	1.01E+00	124.67	0.00	0.00			
12	TH-230	TRG	05/13/17 11:26	1.02E+00	107.20	0.00	0.00			
13	TH-230	TRG	05/13/17 11:23	1.01E+00	84.84	0.00	0.00			
14	TH-230	TRG	05/13/17 11:20	1.00E+00	77.33	0.00	0.00			
15	TH-230	TRG	05/13/17 11:17	1.00E+00	81.25	0.00	0.00			
16	TH-230	TRG	05/13/17 11:14	1.01E+00	86.04	0.00	0.00			
17	TH-230	TRG	05/13/17 11:14	1.01E+00	100.02	0.00	0.00			
18	TH-230	TRG	05/13/17 11:11	1.00E+00	61.91	0.00	0.00			
19	TH-230	TRG	05/13/17 11:08	1.01E+00	99.46	0.00	0.00			
20	TH-230	TRG	05/13/17 11:05	1.01E+00	117.36	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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-230	LCS	08/14/17 08:42		A_Spec	Alpha_003	170	3.87 E+02	1.10 E-02	15.6
02	TH-230	MBL	08/14/17 08:42		A_Spec	Alpha_004	170.02	1.48 E+01	7.00 E-03	18.8
03	TH-230	DUP	08/14/17 08:42		A_Spec	Alpha_010	170.02	8.54 E+02	1.10 E-02	18.7
04	TH-230	DO	08/14/17 08:42		A_Spec	Alpha_011	170.02	7.89 E+02	1.40 E-02	19.9
05	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_012	170	1.04 E+03	5.00 E-03	18.8
06	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_014	170	8.28 E+01	7.00 E-03	18.5
07	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_033	170	2.77 E+02	1.00 E-03	16.8
08	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_034	170	1.77 E+02	3.00 E-03	17.3
09	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_035	170	8.80 E+01	0.00 E+00	15.8
10	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_036	170	1.14 E+02	7.00 E-03	18.2
11	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_037	170	8.75 E+01	3.00 E-03	15.9
12	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_038	170	3.65 E+01	3.00 E-03	15.4
13	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_039	170	5.96 E+01	8.00 E-03	18.5
14	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_040	170	3.95 E+01	3.00 E-03	18.1
15	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_043	170	2.91 E+01	5.00 E-03	18.7
16	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_044	170	3.50 E+01	6.00 E-03	17.9
17	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_045	170	3.83 E+01	4.00 E-03	16.9
18	TH-230	TRG	08/14/17 08:42		A_Spec	Alpha_046	170	3.32 E+01	5.00 E-03	17.1
19	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_047	170	7.65 E+01	3.00 E-03	16.2
20	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_048	170	5.97 E+01	2.00 E-03	16.3

Preliminary Data Report & Analytical Calculations
Work Order: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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	5.73E+00	9.69E-01	8.04E-02	4.86E+00	117.80	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	3.04E-02	5.38E-02	9.67E-02					OK	OK
03	TH-232	DUP	HTC-A01-S001-0006-01	pCi/g	2.61E+01	3.95E+00	1.68E-01				OK	OK	
04	TH-232	DO	HTC-A01-S001-0006-01	pCi/g	2.34E+01	3.43E+00	9.54E-02					OK	
05	TH-232	TRG	HTC-A01-S001-0612-01	pCi/g	1.28E+01	1.62E+00	4.31E-02					OK	
06	TH-232	TRG	HTC-A01-S001-1218-01	pCi/g	1.86E+00	4.72E-01	9.69E-02					OK	
07	TH-232	TRG	HTC-A01-S001-1824-01	pCi/g	7.51E+00	1.39E+00	8.51E-02					OK	
08	TH-232	TRG	HTC-A01-S001-2430-01	pCi/g	3.44E+00	7.35E-01	6.36E-02					OK	
09	TH-232	TRG	HTC-A01-S001-3036-01	pCi/g	1.29E+00	3.22E-01	5.29E-02					OK	
10	TH-232	TRG	HTC-A01-S001-3642-01	pCi/g	3.67E+00	9.94E-01	1.34E-01					OK	
11	TH-232	TRG	HTC-A01-S001-4248-01	pCi/g	1.61E+00	3.86E-01	7.91E-02					OK	
12	TH-232	TRG	HTC-A01-S002-0006-01	pCi/g	6.44E-01	2.29E-01	9.90E-02					OK	
13	TH-232	TRG	HTC-A01-S002-0612-01	pCi/g	9.75E-01	3.07E-01	1.00E-01					OK	
14	TH-232	TRG	HTC-A01-S002-1218-01	pCi/g	7.46E-01	2.72E-01	8.99E-02					OK	
15	TH-232	TRG	HTC-A01-S002-1824-01	pCi/g	4.54E-01	1.95E-01	1.04E-01					OK	
16	TH-232	TRG	HTC-A01-S002-2430-01	pCi/g	9.59E-01	3.04E-01	8.91E-02					OK	
17	TH-232	TRG	HTC-A01-S002-2430-02	pCi/g	5.80E-01	2.18E-01	1.33E-01					OK	
18	TH-232	TRG	HTC-A01-S002-3036-01	pCi/g	6.10E-01	2.82E-01	1.77E-01					OK	
19	TH-232	TRG	HTC-A01-S002-3642-01	pCi/g	9.51E-01	2.97E-01	9.20E-02					OK	
20	TH-232	TRG	HTC-A01-S002-4248-01	pCi/g	9.48E-01	2.73E-01	8.21E-02					OK	

0204

Work Order: 17-07077-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07077
Client: Weston Solutions, Inc.
0205

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	07/18/17 00:00	1.00E+00	100.91	0.00	0.00			
02	TH-232	MBL	07/18/17 00:00	1.00E+00	91.68	0.00	0.00			
03	TH-232	DUP	05/13/17 13:36	5.02E-01	144.16	0.00	0.00			
04	TH-232	DO	05/13/17 13:36	5.01E-01	146.12	0.00	0.00			
05	TH-232	TRG	05/13/17 13:33	1.00E+00	223.44	0.00	0.00			
06	TH-232	TRG	05/13/17 13:30	1.00E+00	88.47	0.00	0.00			
07	TH-232	TRG	05/13/17 13:27	1.00E+00	110.73	0.00	0.00			
08	TH-232	TRG	05/13/17 13:24	1.00E+00	100.44	0.00	0.00			
09	TH-232	TRG	05/13/17 13:21	1.01E+00	131.58	0.00	0.00			
10	TH-232	TRG	05/13/17 13:18	1.01E+00	56.40	0.00	0.00			
11	TH-232	TRG	05/13/17 13:15	1.01E+00	124.67	0.00	0.00			
12	TH-232	TRG	05/13/17 11:26	1.02E+00	107.20	0.00	0.00			
13	TH-232	TRG	05/13/17 11:23	1.01E+00	84.84	0.00	0.00			
14	TH-232	TRG	05/13/17 11:20	1.00E+00	77.33	0.00	0.00			
15	TH-232	TRG	05/13/17 11:17	1.00E+00	81.25	0.00	0.00			
16	TH-232	TRG	05/13/17 11:14	1.01E+00	86.04	0.00	0.00			
17	TH-232	TRG	05/13/17 11:14	1.01E+00	100.02	0.00	0.00			
18	TH-232	TRG	05/13/17 11:11	1.00E+00	61.91	0.00	0.00			
19	TH-232	TRG	05/13/17 11:08	1.01E+00	99.46	0.00	0.00			
20	TH-232	TRG	05/13/17 11:05	1.01E+00	117.36	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07077-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07077
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-232	LCS	08/14/17 08:42		A_Spec	Alpha_003	170	3.41 E+02	2.00 E-03	15.6
02	TH-232	MBL	08/14/17 08:42		A_Spec	Alpha_004	170.02	1.98 E+00	6.00 E-03	18.8
03	TH-232	DUP	08/14/17 08:42		A_Spec	Alpha_010	170.02	1.33 E+03	1.60 E-02	18.7
04	TH-232	DO	08/14/17 08:42		A_Spec	Alpha_011	170.02	1.29 E+03	3.00 E-03	19.9
05	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_012	170	2.04 E+03	8.00 E-03	18.8
06	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_014	170	1.15 E+02	5.00 E-03	18.5
07	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_033	170	5.29 E+02	0.00 E+00	16.8
08	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_034	170	2.26 E+02	1.00 E-03	17.3
09	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_035	170	1.02 E+02	1.00 E-03	15.8
10	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_036	170	1.43 E+02	3.00 E-03	18.2
11	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_037	170	1.22 E+02	5.00 E-03	15.9
12	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_038	170	4.10 E+01	6.00 E-03	15.4
13	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_039	170	5.82 E+01	5.00 E-03	18.5
14	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_040	170	3.97 E+01	2.00 E-03	18.1
15	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_043	170	2.61 E+01	5.00 E-03	18.7
16	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_044	170	5.65 E+01	3.00 E-03	17.9
17	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_045	170	3.73 E+01	1.60 E-02	16.9
18	TH-232	TRG	08/14/17 08:42		A_Spec	Alpha_046	170	2.45 E+01	9.00 E-03	17.1
19	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_047	170	5.83 E+01	4.00 E-03	16.2
20	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_048	170	6.92 E+01	5.00 E-03	16.3

0206

Count Room Report
Client: Weston Solutions, Inc.

17-07077-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	07/18/17 00:00	1.0000	0.4691	10.5360		0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000	0.2343	5.2624		0.00		
03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	0.5015	0.2341	5.2579		0.00		
04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	0.5010	0.2337	5.2489		0.00		
05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	1.0027	0.2337	5.2489		0.00		
06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	1.0018	0.2329	5.2309		0.00		
07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	1.0028	0.2340	5.2556		0.00		
08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	1.0021	0.2331	5.2354		0.00		
09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	1.0053	0.2329	5.2309		0.00		
10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	1.0070	0.2317	5.2040		0.00		
11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	1.0140	0.2325	5.2220		0.00		
12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	1.0196	0.2311	5.1905		0.00		
13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	1.0058	0.2325	5.2220		0.00		
14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	1.0044	0.2319	5.2085		0.00		
15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	1.0022	0.2313	5.1950		0.00		
16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	1.0120	0.2321	5.2130		0.00		
17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	1.0085	0.2309	5.1860		0.00		
18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	1.0019	0.2316	5.2017		0.00		
19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	1.0068	0.2299	5.1636		0.00		
20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	1.0083	0.2300	5.1658		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/7/2017 10:44 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07077	1	ThISO	8/7/2017 10:42	JHARVEY		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Th-228	Th-8b	103.560	8/7/2017	0.100	0.1042				4.86	0.175	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.520	8/7/2017	0.500	0.5110				5.41	0.146	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	8/7/2017	0.100	0.1042				4.86	0.175	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	Th-229	Th-18a	22.460	8/7/2017	0.4691	0.2200
02	Th-229	Th-18a	22.460	8/7/2017	0.2343	0.2200
03	Th-229	Th-18a	22.460	8/7/2017	0.2341	0.2200
04	Th-229	Th-18a	22.460	8/7/2017	0.2337	0.2200
05	Th-229	Th-18a	22.460	8/7/2017	0.2337	0.2200
06	Th-229	Th-18a	22.460	8/7/2017	0.2329	0.2200
07	Th-229	Th-18a	22.460	8/7/2017	0.2340	0.2200
08	Th-229	Th-18a	22.460	8/7/2017	0.2331	0.2200
09	Th-229	Th-18a	22.460	8/7/2017	0.2329	0.2200
10	Th-229	Th-18a	22.460	8/7/2017	0.2317	0.2200
11	Th-229	Th-18a	22.460	8/7/2017	0.2325	0.2200
12	Th-229	Th-18a	22.460	8/7/2017	0.2311	0.2200
13	Th-229	Th-18a	22.460	8/7/2017	0.2325	0.2200
14	Th-229	Th-18a	22.460	8/7/2017	0.2319	0.2200
15	Th-229	Th-18a	22.460	8/7/2017	0.2313	0.2200
16	Th-229	Th-18a	22.460	8/7/2017	0.2321	0.2200
17	Th-229	Th-18a	22.460	8/7/2017	0.2309	0.2200
18	Th-229	Th-18a	22.460	8/7/2017	0.2316	0.2200
19	Th-229	Th-18a	22.460	8/7/2017	0.2299	0.2200
20	Th-229	Th-18a	22.460	8/7/2017	0.2300	0.2200

Balance Printer Tapes

Tracer

0.4691 g
0.2343 g
0.2341 g
0.2337 g
0.2337 g
0.2329 g
0.2340 g
0.2331 g
0.2329 g
0.2317 g
0.2325 g
0.2311 g
0.2325 g
0.2319 g
0.2313 g
0.2321 g
0.2309 g
0.2316 g
0.2299 g
0.2300 g

LCS

0.5110 g
0.1042 g

Matrix Spike

0208

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07077	1	ThISO	grams	8/9/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	HTC-A01-S001-0006-01	DUP					5.0150E-01	5.0150E-01				
04	HTC-A01-S001-0006-01	DO					5.0100E-01	5.0100E-01				
05	HTC-A01-S001-0612-01	TRG					1.0027E+00	1.0027E+00				
06	HTC-A01-S001-1218-01	TRG					1.0018E+00	1.0018E+00				
07	HTC-A01-S001-1824-01	TRG					1.0028E+00	1.0028E+00				
08	HTC-A01-S001-2430-01	TRG					1.0021E+00	1.0021E+00				
09	HTC-A01-S001-3036-01	TRG					1.0053E+00	1.0053E+00				
10	HTC-A01-S001-3642-01	TRG					1.0070E+00	1.0070E+00				
11	HTC-A01-S001-4248-01	TRG					1.0140E+00	1.0140E+00				
12	HTC-A01-S002-0006-01	TRG					1.0196E+00	1.0196E+00				
13	HTC-A01-S002-0612-01	TRG					1.0058E+00	1.0058E+00				
14	HTC-A01-S002-1218-01	TRG					1.0044E+00	1.0044E+00				
15	HTC-A01-S002-1824-01	TRG					1.0022E+00	1.0022E+00				
16	HTC-A01-S002-2430-01	TRG					1.0120E+00	1.0120E+00				
17	HTC-A01-S002-2430-02	TRG					1.0085E+00	1.0085E+00				
18	HTC-A01-S002-3036-01	TRG					1.0019E+00	1.0019E+00				
19	HTC-A01-S002-3642-01	TRG					1.0068E+00	1.0068E+00				
20	HTC-A01-S002-4248-01	TRG					1.0083E+00	1.0083E+00				

Comments	

0209

Technician: _____ Date: 8/7/17

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
17-07077	8/9/2017	7/23/2017	7/24/2017	7/25/2017	KSALLINGS

Bico Pulverizer: 000302 [✓] Jaw Crusher 68275 [ ]

Eberline Fraction	Weston Solutions, 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	HTC-A01-S001-0006-01	14.4900	1031.5000	949.9200	1017.0100	935.4300	8.02%	91.98%	0.0000	0.0000	
05	HTC-A01-S001-0612-01	14.5400	916.7000	847.1000	902.1600	832.5600	7.71%	92.29%	0.0000	0.0000	
06	HTC-A01-S001-1218-01	14.5800	912.4800	727.5600	897.9000	712.9800	20.59%	79.41%	0.0000	0.0000	
07	HTC-A01-S001-1824-01	14.5300	989.2600	809.0200	974.7300	794.4900	18.49%	81.51%	0.0000	0.0000	
08	HTC-A01-S001-2430-01	14.5000	839.0000	667.5300	824.5000	653.0300	20.80%	79.20%	0.0000	0.0000	
09	HTC-A01-S001-3036-01	14.4800	743.6000	601.8500	729.1200	587.3700	19.44%	80.56%	0.0000	0.0000	
10	HTC-A01-S001-3642-01	14.5100	968.1000	776.3600	953.5900	761.8500	20.11%	79.89%	0.0000	0.0000	
11	HTC-A01-S001-4248-01	14.5600	944.8800	758.0700	930.3200	743.5100	20.08%	79.92%	0.0000	0.0000	
12	HTC-A01-S002-0006-01	14.5500	981.3400	902.2400	966.7900	887.6900	8.18%	91.82%	0.0000	0.0000	
13	HTC-A01-S002-0612-01	14.6600	1060.6000	944.8400	1045.9400	930.1800	11.07%	88.93%	0.0000	0.0000	
14	HTC-A01-S002-1218-01	14.6600	1041.7200	934.8200	1027.0600	920.1600	10.41%	89.59%	0.0000	0.0000	
15	HTC-A01-S002-1824-01	14.6400	1054.3400	966.5400	1039.7000	951.9000	8.44%	91.56%	0.0000	0.0000	
16	HTC-A01-S002-2430-01	14.6300	886.7400	793.4200	872.1100	778.7900	10.70%	89.30%	0.0000	0.0000	
17	HTC-A01-S002-2430-02	14.6000	844.3200	761.1700	829.7200	746.5700	10.02%	89.98%	0.0000	0.0000	
18	HTC-A01-S002-3036-01	14.5300	955.3800	840.6000	940.8500	826.0700	12.20%	87.80%	0.0000	0.0000	
19	HTC-A01-S002-3642-01	14.5600	1027.0800	82.0600	1012.5200	67.5000	93.33%	6.67%	0.0000	0.0000	
20	HTC-A01-S002-4248-01	14.6300	960.7000	796.6000	946.0700	781.9700	17.35%	82.65%	0.0000	0.0000	

OVENS Fisher Isotemp SN 00579 [✓] VWR SN 000588 [ ]

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

0210

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

ICB 8/14/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_003
Chamber Serial Number:
Detector Serial Number: 3
Env. Background: System Bkgd 193346
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:33 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.469 mL
Effective Efficiency: 0.1576 +/- 0.0106
Counting Efficiency: 0.1562 +/- 0.0027 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.0091 +/- 0.0701

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.177988 +/- 0.107655
Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

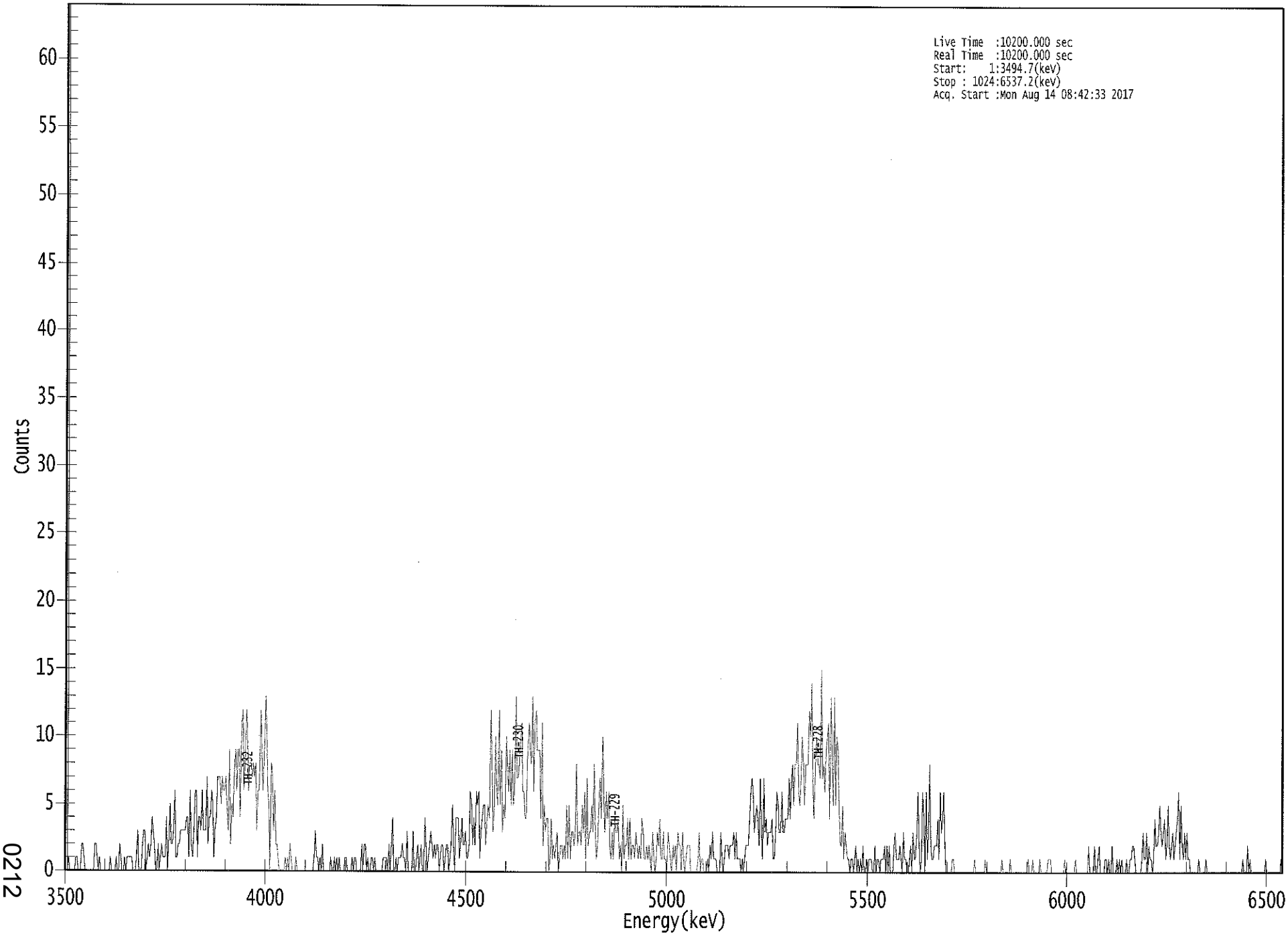
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.897	14.81	53.27	1.19	0.00E+000	3.0
TH-228		5.373	338.47	10.68	1.53	0.00E+000	5.6
TH-229	T	4.870	282.32	11.68	0.68	0.00E+000	6.4
TH-230		4.627	387.13	9.99	1.87	0.00E+000	20.3
TH-232		3.954	340.66	10.63	0.34	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)
TH-227	0.989	5850.00*	2.55E-001 +/- 1.40E-001	1.14E-001 +/- 1.50E-002
TH-228	0.996	5400.00*	5.69E+000 +/- 9.65E-001	1.20E-001 +/- 1.57E-002
TH-229	1.000	4872.00*	4.77E+000 +/- 6.28E-001	9.53E-002 +/- 1.25E-002
TH-230	0.990	4672.00*	6.52E+000 +/- 1.08E+000	1.28E-001 +/- 1.68E-002
TH-232	0.990	3997.00*	5.73E+000 +/- 9.69E-001	8.04E-002 +/- 1.06E-002

0000191241.CNF



ROI Type: 1

ROI Type: 3

0212

****
***** 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:	10200	10200	0	1	0	0	0	0
9:	0	1	1	0	0	0	2	2
17:	1	0	0	0	0	0	0	0
25:	0	2	2	1	0	1	0	0
33:	0	0	0	0	0	0	1	0
41:	0	0	0	1	0	0	2	1
49:	0	0	1	0	1	1	1	1
57:	1	0	0	0	1	3	0	0
65:	0	2	3	3	0	1	2	1
73:	2	4	3	2	0	0	2	0
81:	1	2	1	1	1	4	0	2
89:	5	2	2	3	6	1	1	2
97:	2	3	3	3	3	3	4	4
105:	1	6	2	1	3	6	6	1
113:	4	4	3	6	3	3	3	7
121:	2	4	4	6	5	1	3	4
129:	7	7	7	5	7	6	6	7
137:	5	3	9	2	5	4	8	9
145:	6	9	9	4	11	12	6	8
153:	12	10	6	8	8	7	8	7
161:	8	3	6	6	12	9	6	8
169:	13	10	6	5	0	8	7	3
177:	6	2	2	1	0	0	0	0
185:	0	1	0	1	0	2	1	0
193:	0	0	1	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	1	3	1	1	0	1	0
217:	2	0	0	0	0	0	0	1
225:	0	0	1	0	1	0	1	0
233:	0	0	0	1	1	0	0	0
241:	0	1	0	1	1	0	0	0
249:	0	2	0	2	2	0	1	0
257:	0	1	1	0	1	0	0	0
265:	0	0	0	1	1	1	1	0
273:	2	0	2	4	0	0	1	0
281:	1	1	1	2	1	1	0	3
289:	0	0	0	0	3	0	0	1
297:	2	0	1	2	0	0	4	2
305:	0	1	2	3	2	1	2	1
313:	2	2	0	1	2	2	0	1
321:	2	2	0	1	2	5	2	0
329:	4	4	4	1	2	4	2	2
337:	3	1	1	2	6	5	2	4
345:	2	6	5	6	1	3	4	5
353:	5	2	4	5	4	12	8	3
361:	5	10	6	5	12	5	9	3

369:	5	4	10	8	6	9	5	9

Sample Title: 01

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

801:	0	0	0	0	0	0	0	0

Sample Title: 01

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

Apex-Alpha™

Sample Description:	BLANK
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification:	1707077A-TH
Sample Identification:	02
Sample Geometry:	Shelf 2
Procedure Description:	Th iso
Detector Name:	Alpha_004
Chamber Serial Number:	
Detector Serial Number:	4
Env. Background:	System Bkgd 193347
Reagent Blank:	<not performed>
Sample Size:	1.000E+000 +/- 0.000E+000 gram
Sample Date/Time:	8/14/2017 6:08:58 AM
Acquisition Date/Time:	8/14/2017 8:42:34 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	Th229_S_TH-18A
Tracer Quantity:	0.234 mL
Effective Efficiency:	0.1727 +/- 0.0150
Counting Efficiency:	0.1883 +/- 0.0032 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor:	0.9168 +/- 0.0810
Peak Match Tolerance:	0.175 MeV

PEAK AREA REPORT

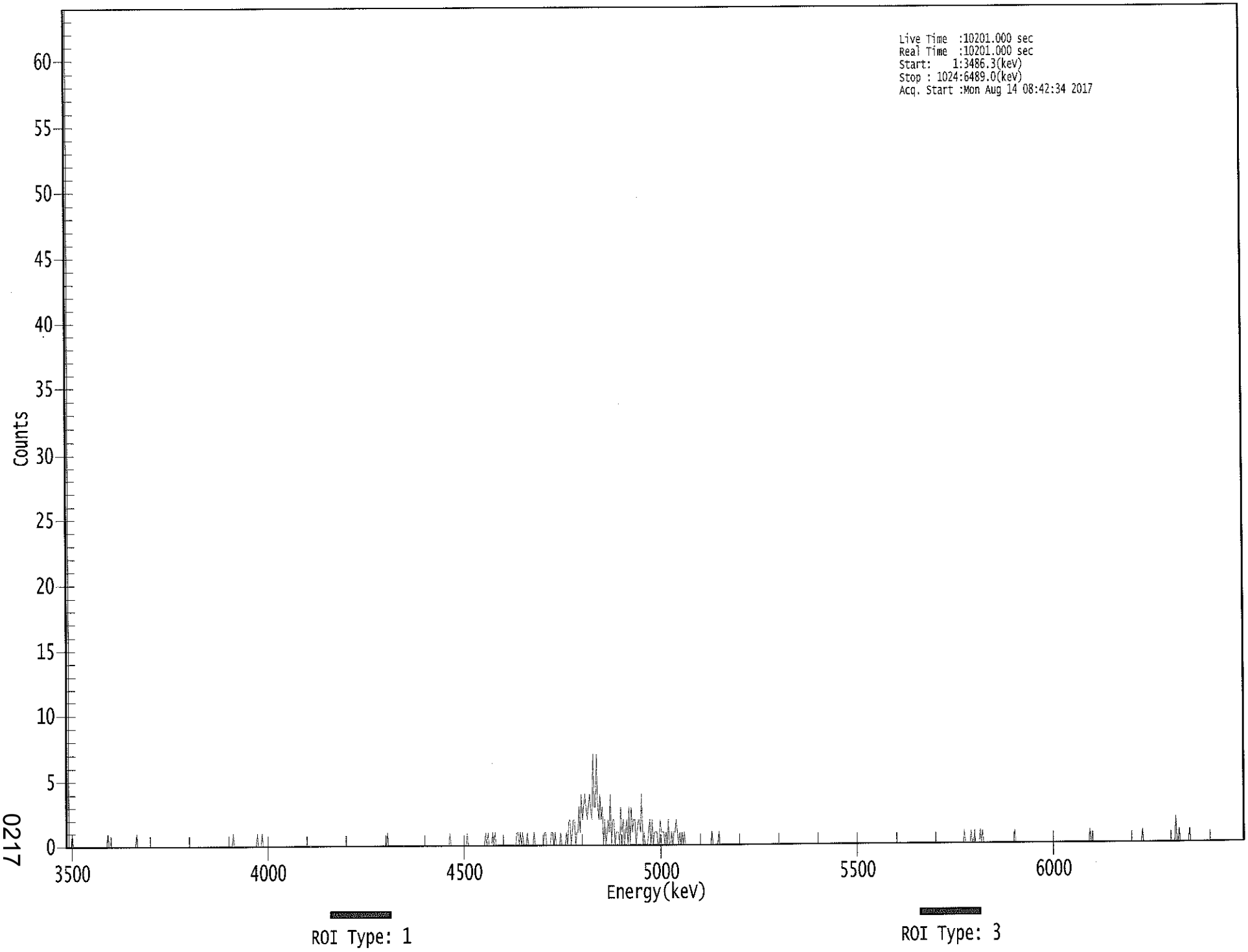
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.816	5.49	88.08	0.51	0.00E+000	2.9
TH-228		5.306	-1.70	130.89	1.70	0.00E+000	0.0
TH-229	T	4.874	154.47	15.86	1.53	0.00E+000	4.6
TH-230		4.625	14.81	53.27	1.19	0.00E+000	2.9
TH-232		3.957	1.98	176.35	1.02	0.00E+000	2.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	8.64E-002 +/- 7.75E-002	8.26E-002 +/- 1.40E-002
TH-228	0.955	5400.00*	-2.61E-002 +/- 3.45E-002	1.13E-001 +/- 1.92E-002
TH-229	1.000	4872.00*	2.38E+000 +/- 4.05E-001	1.10E-001 +/- 1.86E-002
TH-230	0.988	4672.00*	2.28E-001 +/- 1.27E-001	1.01E-001 +/- 1.72E-002
TH-232	0.992	3997.00*	3.04E-002 +/- 5.38E-002	9.67E-002 +/- 1.64E-002

0000191242.CNF



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

Sample Title: 02

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	1	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	1	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	1	0	0
65:	0	0	0	0	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	1	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	1	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	1
281:	0	0	0	0	0	0	0	0
289:	0	0	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	1	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	1	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	1	0	1	0

369:	0	0	1	0	1	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	1
393:	1	0	1	0	1	0	0	0
401:	1	0	0	0	0	0	1	0
409:	0	0	0	0	0	0	0	1
417:	1	0	0	0	0	1	1	0
425:	1	0	0	0	0	1	0	0
433:	0	0	1	0	2	2	0	1
441:	2	2	0	1	1	3	1	4
449:	2	3	4	3	2	3	4	3
457:	2	7	3	3	7	3	2	4
465:	2	3	0	2	0	1	2	1
473:	4	0	2	2	0	1	1	1
481:	0	3	1	2	0	1	2	0
489:	3	0	3	1	2	2	0	1
497:	2	2	1	4	0	1	0	0
505:	0	1	2	0	2	0	1	1
513:	1	0	0	2	1	1	1	0
521:	1	0	2	0	0	1	0	1
529:	1	2	1	0	1	0	1	0
537:	1	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	1	0	0	0	0	0	1	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	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	1	0	0	0	0
785:	0	1	0	0	1	0	0	0
793:	0	1	0	1	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	1
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	1	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	1	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	2	0	0	1	0
969:	0	0	0	0	0	0	0	1
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 9/14/17

Sample Description: HTC-A01-S001-0006-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_010
Chamber Serial Number:
Detector Serial Number: 10
Env. Background: System Bkgd 193348
Reagent Blank: <not performed>

Sample Size: 5.015E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:35 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.2699 +/- 0.0195
Counting Efficiency: 0.1872 +/- 0.0032 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.4416 +/- 0.1070

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

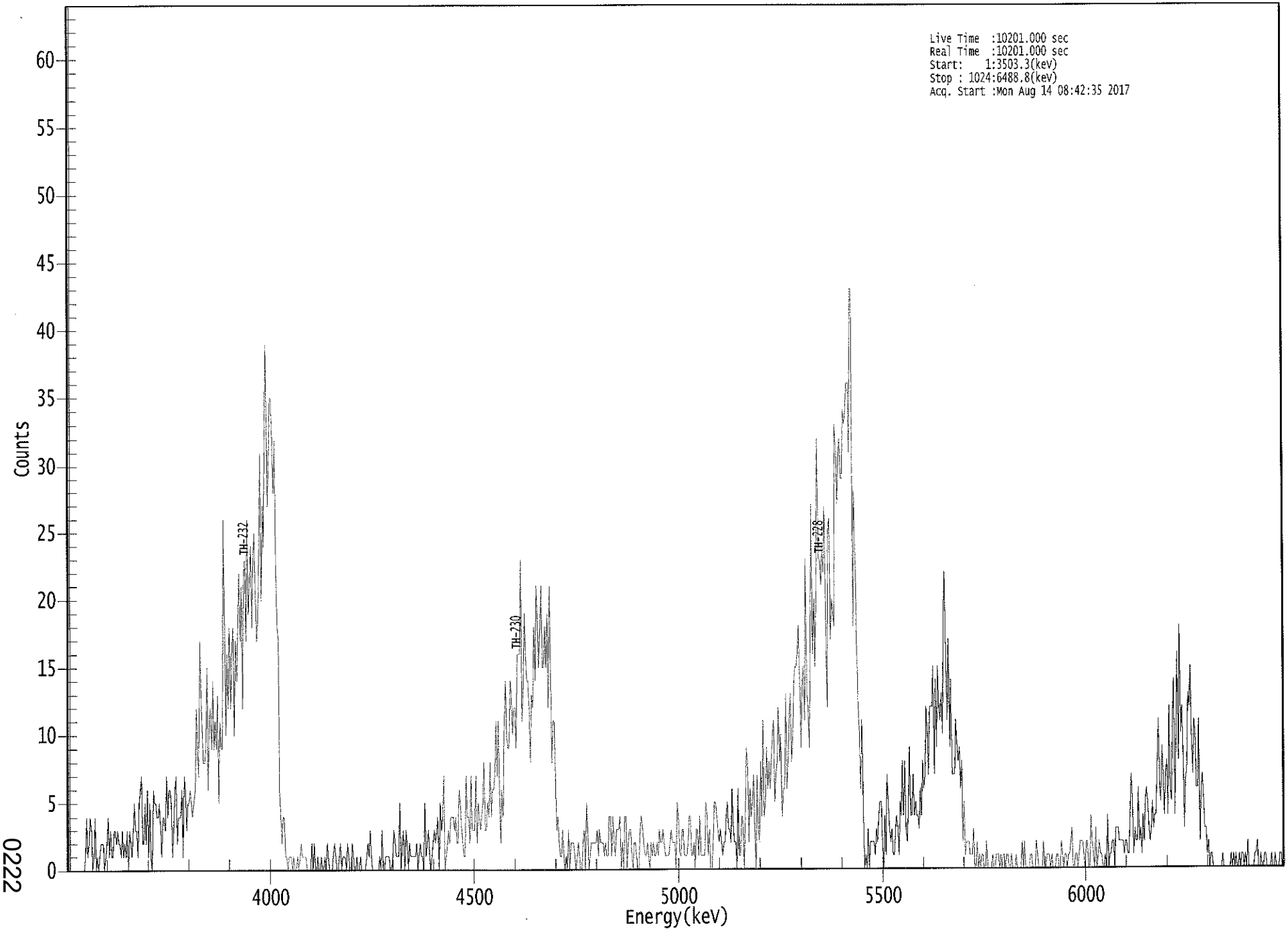
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.876	94.62	20.44	2.38	0.00E+000	4.3
TH-228		5.347	1556.22	4.98	5.78	0.00E+000	45.6
TH-229	T	4.925	241.22	12.80	5.78	0.00E+000	4.9
TH-230		4.606	854.13	6.72	1.87	0.00E+000	13.4
TH-232		3.939	1332.28	5.38	2.72	0.00E+000	45.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.996	5850.00*	1.92E+000 +/- 4.76E-001	1.66E-001 +/- 2.35E-002
TH-228	0.985	5400.00*	3.34E+001 +/- 5.02E+000	2.42E-001 +/- 3.43E-002
TH-229	0.985	4872.00*	4.74E+000 +/- 6.72E-001	2.22E-001 +/- 3.14E-002
TH-230	0.978	4672.00*	1.68E+001 +/- 2.63E+000	1.49E-001 +/- 2.10E-002
TH-232	0.983	3997.00*	2.61E+001 +/- 3.95E+000	1.68E-001 +/- 2.38E-002

0000191208.CNF



ROI Type: 1

ROI Type: 3

0222

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

Sample Title: 03

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1
17:	4	1	2	4	3	0	1	4
25:	0	1	0	1	2	2	2	0
33:	1	2	4	1	3	1	1	3
41:	3	2	3	2	2	1	3	1
49:	2	1	3	0	3	2	1	3
57:	5	3	3	1	5	6	7	2
65:	2	5	2	6	1	5	1	0
73:	6	5	5	4	4	5	3	1
81:	4	4	3	7	4	6	6	5
89:	1	3	6	7	2	4	4	4
97:	6	1	7	6	3	5	5	6
105:	5	4	5	6	12	9	7	17
113:	13	10	8	8	9	15	6	11
121:	12	9	14	9	11	9	13	5
129:	11	9	9	26	19	10	16	12
137:	18	12	16	18	10	17	14	18
145:	22	17	21	12	22	23	17	26
153:	19	21	24	18	23	25	20	17
161:	19	23	31	20	27	24	35	39
169:	27	30	35	35	32	28	32	24
177:	18	17	6	4	2	4	4	1
185:	1	0	1	1	1	0	1	0
193:	0	1	0	1	2	1	1	1
201:	1	0	0	0	0	2	0	2
209:	0	0	1	0	0	1	0	0
217:	1	0	2	1	0	0	0	1
225:	2	1	0	0	1	2	0	1
233:	1	1	0	2	1	0	0	2
241:	1	0	0	1	0	0	1	0
249:	0	0	0	1	2	1	3	1
257:	0	0	0	0	0	0	1	0
265:	3	0	0	1	1	1	1	0
273:	0	1	3	2	1	1	1	5
281:	0	2	3	0	3	2	0	2
289:	1	1	1	1	1	2	0	1
297:	2	1	1	0	5	1	2	3
305:	1	0	1	2	3	2	3	4
313:	0	5	3	4	7	0	1	2
321:	3	2	4	4	4	3	4	2
329:	2	6	5	3	2	1	1	7
337:	4	4	2	7	3	3	3	7
345:	2	5	4	3	4	5	8	3
353:	3	5	4	8	4	6	6	7
361:	11	7	11	6	2	6	4	10

369:	14	10	9	9	14	13	10	12

Sample Title: 03

Channel								
377:	12	9	16	16	16	23	11	13
385:	19	16	14	14	12	8	13	12
393:	18	14	21	18	15	18	21	15
401:	15	18	15	19	12	21	15	8
409:	11	11	7	3	4	2	1	1
417:	3	1	0	1	0	3	0	2
425:	2	2	1	0	1	2	1	0
433:	0	2	3	0	5	3	0	1
441:	2	2	2	2	2	3	1	3
449:	2	2	2	1	2	1	1	4
457:	4	1	4	2	1	3	3	3
465:	4	0	2	0	4	4	0	2
473:	3	3	1	0	2	2	1	0
481:	0	3	4	3	2	1	1	2
489:	1	0	2	1	2	1	1	2
497:	1	3	2	2	3	2	1	1
505:	1	1	2	3	2	2	2	0
513:	5	4	1	1	3	3	1	1
521:	1	2	4	4	1	1	2	0
529:	3	3	1	4	1	1	1	1
537:	5	4	1	3	0	0	2	5
545:	5	4	3	2	3	2	1	2
553:	2	4	5	3	3	2	6	3
561:	2	2	0	6	1	1	4	4
569:	0	3	9	8	2	6	4	5
577:	7	3	0	7	3	2	8	4
585:	11	4	5	9	6	8	6	8
593:	10	11	5	7	8	12	8	10
601:	4	6	6	13	6	8	11	13
609:	8	10	14	15	15	16	18	14
617:	9	14	15	11	23	13	12	9
625:	16	27	16	20	15	21	32	23
633:	23	21	24	22	27	19	12	25
641:	26	17	20	19	18	33	31	27
649:	31	32	29	29	34	33	34	36
657:	36	31	43	43	18	28	23	17
665:	12	10	6	11	5	0	1	0
673:	3	0	2	2	2	2	1	3
681:	2	4	5	5	2	0	4	1
689:	7	5	3	2	3	1	1	3
697:	4	3	1	5	4	8	4	8
705:	3	2	5	9	4	4	7	4
713:	5	4	4	3	6	4	8	6
721:	7	12	10	7	12	12	12	15
729:	7	14	9	15	12	11	13	10
737:	19	22	15	11	17	9	14	7
745:	7	7	11	9	8	9	6	8
753:	2	5	1	2	2	2	1	1
761:	1	3	0	0	2	0	1	0
769:	1	1	0	0	2	0	0	0
777:	0	1	0	0	1	1	1	0
785:	1	0	1	1	0	1	1	0
793:	0	1	0	0	0	1	0	0

801:	0	0	2	0	2	0	0	0

Sample Title: 03

Channel								
809:	0	1	1	0	0	0	2	1
817:	0	0	0	0	2	0	0	1
825:	1	1	0	1	0	0	0	1
833:	1	0	0	2	1	0	1	1
841:	0	1	1	2	3	0	0	1
849:	1	0	1	2	2	2	1	0
857:	2	2	0	0	4	2	1	0
865:	3	0	1	2	1	1	0	0
873:	1	0	4	0	1	1	2	2
881:	0	3	3	3	2	2	2	2
889:	1	2	2	1	1	4	7	5
897:	1	3	2	2	6	2	3	1
905:	4	2	5	6	5	3	2	3
913:	5	3	4	4	7	11	6	5
921:	9	7	4	7	8	4	12	6
929:	5	11	14	4	10	16	8	18
937:	10	12	8	3	7	7	13	12
945:	15	10	7	11	10	6	6	11
953:	2	6	7	5	3	3	1	2
961:	0	1	1	0	0	0	0	0
969:	0	0	0	1	0	0	0	0
977:	0	0	1	0	1	0	1	0
985:	0	1	0	1	1	0	1	0
993:	2	0	0	0	0	0	1	1
1001:	2	0	0	1	0	0	1	1
1009:	0	0	0	0	1	0	0	1
1017:	0	0	0	1	1	0	0	1

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A01-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_011
Chamber Serial Number:
Detector Serial Number: 11
Env. Background: System Bkgd 193349
Reagent Blank: <not performed>

Sample Size: 5.010E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:36 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.2910 +/- 0.0202
Counting Efficiency: 0.1991 +/- 0.0034 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.4612 +/- 0.1046

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

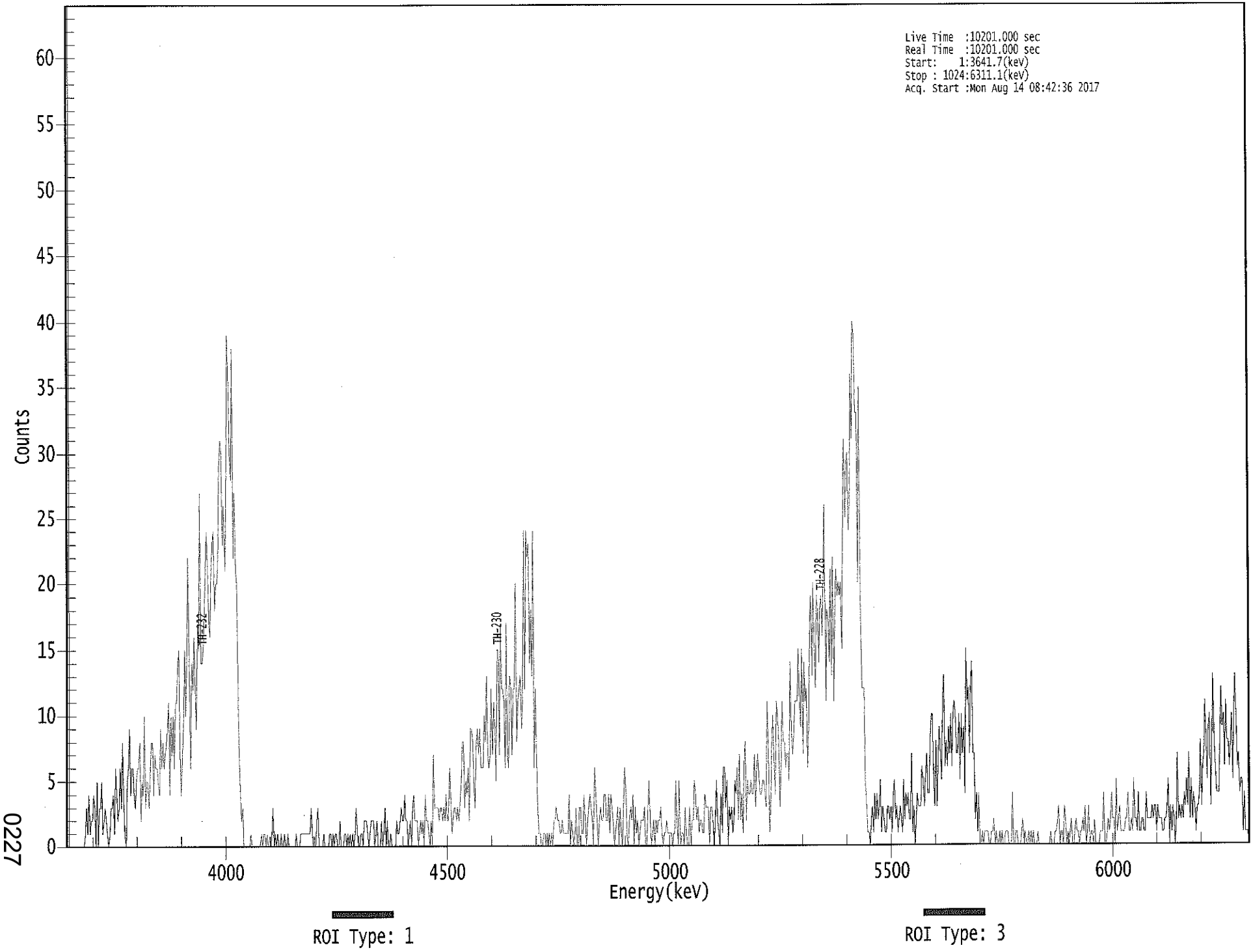
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.914	124.96	17.70	2.04	0.00E+000	2.9
TH-228		5.344	1467.28	5.12	2.72	0.00E+000	35.2
TH-229	T	4.916	259.64	12.20	1.36	0.00E+000	5.2
TH-230		4.614	788.62	6.99	2.38	0.00E+000	5.0
TH-232		3.950	1285.49	5.47	0.51	0.00E+000	47.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.979	5850.00*	2.35E+000 +/- 5.25E-001	1.46E-001 +/- 2.00E-002
TH-228	0.984	5400.00*	2.93E+001 +/- 4.26E+000	1.71E-001 +/- 2.33E-002
TH-229	0.990	4872.00*	4.74E+000 +/- 6.46E-001	1.25E-001 +/- 1.71E-002
TH-230	0.983	4672.00*	1.44E+001 +/- 2.20E+000	1.49E-001 +/- 2.03E-002
TH-232	0.989	3997.00*	2.34E+001 +/- 3.43E+000	9.54E-002 +/- 1.30E-002

0000191209.CNF



0227

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

Sample Title: 04

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	1	3	1	4	1	2	2	4
25:	3	0	5	0	3	3	5	1
33:	2	3	2	1	0	1	3	3
41:	4	1	6	4	2	3	6	3
49:	8	3	1	0	5	6	9	4
57:	6	6	4	3	5	6	6	8
65:	2	5	4	10	3	5	5	3
73:	6	8	8	4	7	6	6	5
81:	4	9	6	8	6	7	8	9
89:	11	4	10	7	10	6	11	11
97:	14	15	7	4	7	9	15	10
105:	15	22	14	6	14	12	16	12
113:	9	17	15	27	14	14	15	18
121:	21	24	21	17	16	21	23	24
129:	18	20	20	22	29	31	30	23
137:	26	21	25	39	36	30	28	38
145:	22	27	21	20	12	7	4	2
153:	3	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	0
169:	1	0	1	1	0	1	0	0
177:	0	1	3	0	1	0	1	0
185:	0	1	0	0	1	0	0	1
193:	0	0	0	0	0	0	1	0
201:	0	0	1	1	1	1	1	1
209:	1	1	1	3	1	0	0	0
217:	2	3	0	0	0	0	1	0
225:	0	0	0	1	1	0	1	0
233:	1	1	0	0	2	0	0	0
241:	1	1	0	1	0	1	0	1
249:	0	1	3	1	0	0	1	1
257:	0	2	2	2	1	0	1	2
265:	2	2	0	1	2	0	0	0
273:	2	0	1	3	0	2	0	0
281:	1	0	0	0	0	2	1	1
289:	2	3	2	2	4	2	2	0
297:	1	2	0	3	4	2	2	2
305:	0	1	2	1	2	0	4	2
313:	2	1	0	2	0	7	3	3
321:	3	3	2	3	3	2	3	2
329:	4	2	2	6	4	1	2	3
337:	3	2	3	2	3	5	8	8
345:	3	5	4	6	2	9	9	8
353:	5	3	8	9	7	9	6	6
361:	6	10	8	13	7	6	7	12

369:	7	11	9	5	15	15	7	17

Sample Title: 04

Channel								
377:	12	12	11	6	17	7	6	13
385:	12	7	12	12	20	8	11	12
393:	13	9	11	24	12	24	22	23
401:	14	18	13	24	6	12	7	3
409:	1	1	0	0	1	1	0	1
417:	0	1	0	1	0	2	2	3
425:	2	2	1	1	2	1	1	1
433:	1	1	4	0	2	1	0	1
441:	3	0	0	3	3	1	1	4
449:	2	0	2	3	4	3	2	0
457:	6	4	2	0	2	3	2	2
465:	4	4	2	2	4	1	4	3
473:	2	0	1	2	3	0	3	1
481:	0	3	6	4	1	0	2	3
489:	2	4	0	3	1	2	0	1
497:	2	2	2	3	0	0	3	5
505:	2	0	1	2	0	2	1	2
513:	2	3	1	0	1	1	2	1
521:	1	1	1	0	1	1	5	2
529:	0	5	0	1	1	0	3	1
537:	0	0	3	0	2	2	5	4
545:	2	3	1	2	2	1	1	4
553:	3	3	3	0	3	3	2	0
561:	2	5	2	1	0	4	1	6
569:	6	3	5	0	3	2	3	1
577:	2	5	4	6	2	7	2	4
585:	1	6	8	2	5	4	4	5
593:	4	4	7	3	6	7	5	4
601:	4	5	5	4	3	11	8	1
609:	3	8	10	6	4	11	10	8
617:	3	6	11	8	8	6	7	7
625:	5	14	9	7	8	11	11	11
633:	15	11	9	15	7	14	11	12
641:	6	9	17	19	13	20	15	12
649:	19	18	14	18	19	16	21	26
657:	11	18	17	14	21	13	22	11
665:	18	21	19	20	19	20	15	25
673:	31	25	29	30	24	26	36	31
681:	40	39	33	33	20	35	19	12
689:	12	12	5	3	1	1	0	2
697:	3	1	4	2	4	2	3	5
705:	1	3	2	1	1	3	3	2
713:	3	1	4	5	2	3	1	2
721:	3	2	1	5	2	4	3	4
729:	2	2	7	1	3	0	2	4
737:	3	3	3	6	5	3	5	7
745:	4	4	8	10	10	5	3	8
753:	3	7	9	7	5	11	13	6
761:	8	6	9	7	10	6	10	11
769:	10	7	7	10	5	10	7	9
777:	4	15	11	12	7	12	14	7
785:	7	2	4	1	4	0	0	1
793:	0	1	1	1	1	0	0	1

801:	1	2	0	1	0	0	1	0

Sample Title: 04

Channel								
809:	1	0	0	1	1	1	0	0
817:	0	4	0	0	1	1	0	0
825:	0	1	2	0	1	0	0	1
833:	0	1	0	1	0	0	0	1
841:	0	0	0	0	0	0	0	0
849:	0	0	1	0	0	0	1	1
857:	2	3	0	1	1	0	3	2
865:	0	1	0	1	2	0	0	1
873:	2	1	1	0	1	1	2	1
881:	3	0	1	3	0	1	1	0
889:	2	0	0	0	0	1	1	1
897:	4	0	0	1	2	1	2	4
905:	2	2	0	5	1	2	3	1
913:	1	1	1	2	2	4	1	1
921:	2	1	5	2	2	1	4	1
929:	1	2	2	1	1	4	2	2
937:	2	2	3	2	3	3	1	3
945:	2	2	2	1	1	2	2	3
953:	5	0	3	1	3	2	0	2
961:	7	2	3	2	3	2	4	3
969:	5	3	7	2	5	2	4	3
977:	1	3	3	4	8	3	6	7
985:	11	8	5	9	10	3	8	13
993:	8	6	4	4	4	8	12	9
1001:	10	6	11	8	8	6	8	10
1009:	5	10	13	10	6	7	4	5
1017:	5	1	4	1	1	1	0	0

Apex-Alpha™

MB 8/14/17

Sample Description: HTC-A01-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_012
Chamber Serial Number:
Detector Serial Number: 12
Env. Background: System Bkgd 193350
Reagent Blank: <not performed>

Sample Size: 1.003E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:37 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.4203 +/- 0.0253
Counting Efficiency: 0.1881 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 2.2344 +/- 0.1401

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

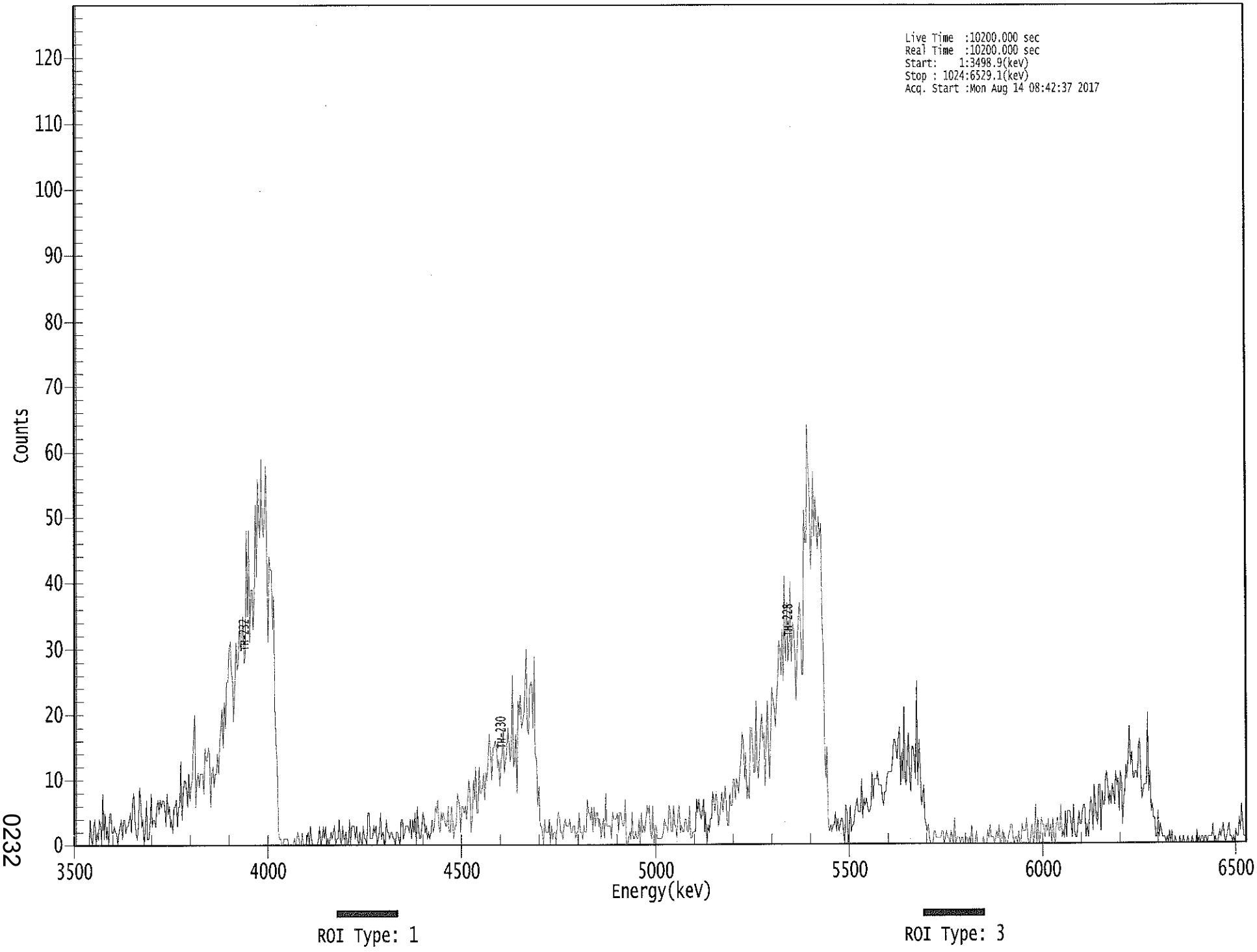
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.908	155.98	15.75	1.02	0.00E+000	3.3
TH-228		5.343	2274.60	4.11	3.40	0.00E+000	50.8
TH-229	T	4.911	374.98	10.14	1.02	0.00E+000	4.1
TH-230		4.604	1039.15	6.08	0.85	0.00E+000	45.7
TH-232		3.940	2040.64	4.34	1.36	0.00E+000	75.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.983	5850.00*	1.01E+000 +/- 2.00E-001	4.10E-002 +/- 4.84E-003
TH-228	0.983	5400.00*	1.57E+001 +/- 1.96E+000	6.40E-002 +/- 7.56E-003
TH-229	0.992	4872.00*	2.37E+000 +/- 2.80E-001	3.98E-002 +/- 4.70E-003
TH-230	0.976	4672.00*	6.55E+000 +/- 8.70E-001	3.77E-002 +/- 4.46E-003
TH-232	0.983	3997.00*	1.28E+001 +/- 1.62E+000	4.31E-002 +/- 5.09E-003

0000191205.CNF



0232

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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	4	1
17:	0	3	4	0	2	1	4	3
25:	0	8	1	5	1	3	0	5
33:	5	2	2	3	2	2	0	2
41:	3	4	1	4	4	2	3	3
49:	4	5	2	7	8	4	2	1
57:	3	9	7	3	4	0	2	7
65:	1	1	3	8	3	4	4	3
73:	6	7	5	7	6	7	7	6
81:	3	8	5	6	3	4	2	6
89:	6	7	3	6	6	13	4	8
97:	10	10	8	6	11	7	9	10
105:	16	20	6	10	11	9	11	11
113:	11	8	15	13	13	15	14	6
121:	11	12	9	11	11	14	11	16
129:	18	21	15	22	18	25	25	30
137:	31	27	25	19	25	31	27	28
145:	34	30	31	35	28	29	48	35
153:	48	31	39	39	33	38	52	41
161:	56	49	47	59	49	47	51	58
169:	44	31	44	42	42	33	38	21
177:	15	13	2	1	1	0	0	1
185:	1	1	1	0	0	0	0	0
193:	1	0	1	2	1	0	0	2
201:	0	0	0	1	2	0	3	1
209:	0	0	0	0	0	1	3	0
217:	1	3	1	3	0	1	0	1
225:	2	1	2	3	0	1	1	4
233:	1	0	3	1	1	2	0	0
241:	4	0	3	3	3	1	3	1
249:	0	2	1	0	3	1	1	0
257:	5	5	1	1	1	3	2	3
265:	0	1	2	5	1	2	1	0
273:	4	2	2	1	2	2	1	1
281:	0	2	2	1	0	4	4	1
289:	2	3	3	3	2	4	1	4
297:	2	5	0	6	3	1	1	3
305:	5	4	2	3	1	2	1	2
313:	4	2	3	6	5	7	3	2
321:	5	4	5	4	3	3	6	2
329:	2	6	4	1	3	3	8	7
337:	6	2	6	6	5	6	4	7
345:	10	8	2	4	10	7	12	5
353:	5	12	8	8	9	11	7	11
361:	10	14	17	14	10	15	15	16

369:	15	12	13	9	13	14	18	11

Sample Title: 05

Channel								
377:	13	14	18	16	13	14	26	12
385:	13	17	8	22	20	23	18	19
393:	20	24	30	18	17	24	25	24
401:	18	29	14	13	6	9	3	3
409:	2	0	4	2	2	2	4	0
417:	3	1	2	2	0	4	5	4
425:	2	2	1	3	4	3	3	3
433:	4	2	2	3	3	1	2	2
441:	5	2	2	1	3	2	2	7
449:	5	5	4	6	2	6	3	5
457:	5	3	4	1	3	4	1	8
465:	3	3	3	3	1	5	4	4
473:	4	5	2	5	5	4	3	3
481:	7	0	0	1	2	1	5	1
489:	1	2	1	1	4	0	5	2
497:	3	2	4	6	5	6	2	1
505:	6	0	3	3	1	1	1	1
513:	1	2	4	3	3	2	6	5
521:	2	2	6	3	3	1	5	6
529:	2	3	2	2	4	4	2	2
537:	6	1	1	2	2	2	7	5
545:	7	5	4	5	7	2	5	0
553:	3	2	4	4	8	7	5	8
561:	7	3	4	6	8	5	7	9
569:	6	3	3	8	6	6	10	10
577:	7	10	9	8	11	13	17	16
585:	10	14	7	9	7	18	18	15
593:	11	11	22	12	10	14	18	20
601:	16	17	9	16	22	14	10	18
609:	24	22	21	18	22	25	31	30
617:	26	33	25	41	28	37	28	31
625:	40	28	34	33	29	22	30	34
633:	37	35	26	26	51	46	46	64
641:	57	54	42	47	57	47	53	49
649:	45	50	47	49	34	29	15	10
657:	15	3	2	3	2	3	3	5
665:	2	4	2	3	4	4	2	0
673:	6	5	0	2	6	2	3	3
681:	5	6	7	5	5	5	10	4
689:	7	6	7	6	5	5	6	11
697:	7	10	10	10	11	9	9	9
705:	7	6	8	8	10	11	11	11
713:	11	13	16	16	15	13	16	18
721:	9	14	10	21	10	9	14	17
729:	10	8	15	15	13	10	25	9
737:	16	12	6	7	9	4	3	2
745:	3	1	0	0	0	2	2	1
753:	1	1	1	1	2	2	0	1
761:	2	1	1	0	2	1	0	4
769:	0	1	1	1	0	1	1	0
777:	0	1	1	0	1	0	3	0
785:	0	0	2	0	0	0	0	0
793:	1	0	0	0	2	1	3	1

801:	1	1	0	1	2	1	3	0

Sample Title: 05

Channel								
809:	0	2	1	1	0	0	1	2
817:	3	3	1	0	1	1	0	2
825:	0	0	3	2	2	2	4	1
833:	0	0	2	3	0	1	6	0
841:	4	0	1	4	3	3	1	3
849:	2	4	1	3	0	4	1	0
857:	3	4	2	2	6	1	2	1
865:	5	1	5	5	5	3	1	6
873:	2	1	1	3	5	3	3	5
881:	6	6	1	3	1	4	7	6
889:	2	9	6	4	3	9	9	2
897:	8	6	6	10	11	9	6	8
905:	6	9	8	6	11	9	10	5
913:	11	10	3	7	8	12	10	14
921:	18	12	14	10	10	11	11	10
929:	15	16	10	7	8	9	9	9
937:	20	8	11	5	6	4	4	1
945:	1	5	1	3	2	1	1	1
953:	0	1	0	2	0	2	0	0
961:	1	0	0	0	1	0	0	1
969:	0	0	0	1	0	0	0	1
977:	0	0	0	2	0	1	0	1
985:	1	0	1	1	0	1	1	1
993:	1	3	0	1	0	0	1	2
1001:	1	2	3	1	0	1	2	3
1009:	1	1	0	1	0	2	1	1
1017:	4	2	6	3	1	1	1	4

Apex-Alpha™

KB 4/17/18

Sample Description: HTC-A01-S001-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_014
Chamber Serial Number:
Detector Serial Number: 14
Env. Background: System Bkgd 193351
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:38 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1634 +/- 0.0146
Counting Efficiency: 0.1847 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 0.8847 +/- 0.0803

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

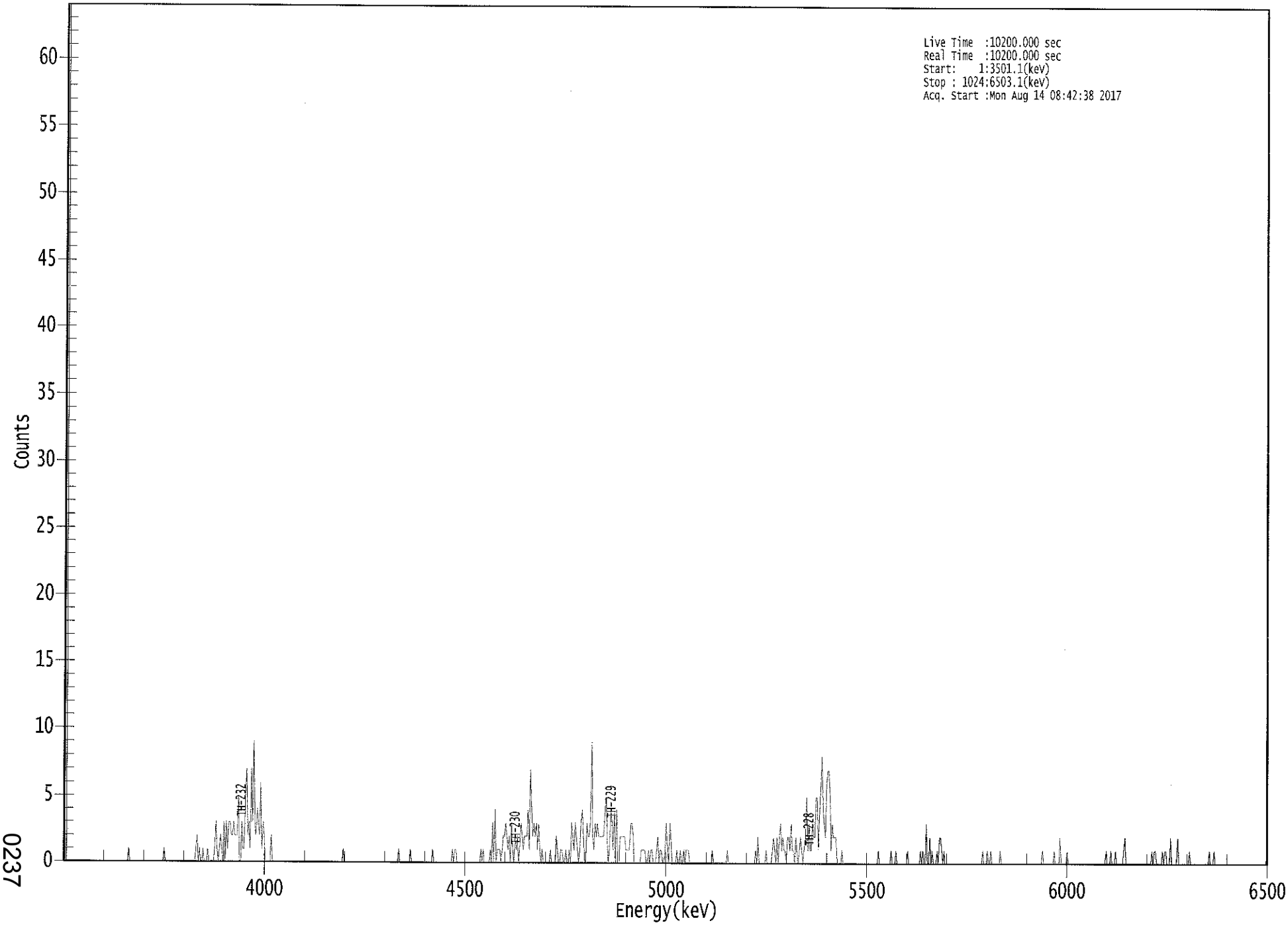
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.902	7.98	74.39	1.02	0.00E+000	2.9
TH-228		5.360	131.47	17.21	1.53	0.00E+000	8.8
TH-229	T	4.865	145.30	16.37	1.70	0.00E+000	4.1
TH-230		4.629	82.81	21.72	1.19	0.00E+000	5.4
TH-232		3.945	115.15	18.34	0.85	0.00E+000	4.4

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.986	5850.00*	1.34E-001 +/- 1.02E-001	1.05E-001 +/- 1.84E-002
TH-228	0.991	5400.00*	2.34E+000 +/- 5.73E-001	1.26E-001 +/- 2.20E-002
TH-229	1.000	4872.00*	2.36E+000 +/- 4.13E-001	1.19E-001 +/- 2.09E-002
TH-230	0.990	4672.00*	1.34E+000 +/- 3.74E-001	1.07E-001 +/- 1.87E-002
TH-232	0.986	3997.00*	1.86E+000 +/- 4.72E-001	9.69E-002 +/- 1.69E-002

0000191210.CNF



ROI Type: 1

ROI Type: 3

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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	1
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	1	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	1	2	0	1	0	0	1	0
121:	0	0	1	0	0	0	0	0
129:	1	3	1	0	1	2	1	0
137:	3	0	3	1	3	3	2	2
145:	3	2	2	2	5	0	0	3
153:	1	1	5	7	2	3	1	7
161:	3	9	3	2	4	3	2	6
169:	1	3	2	0	0	0	0	0
177:	2	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	1	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	1	0	0	0
289:	0	0	0	0	0	0	1	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	1	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	1	0	1	1	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	1	0	1	0	0	0
361:	0	0	1	0	3	0	4	0

369:	1	1	1	0	1	2	2	3

Sample Title: 06

Channel								
377:	2	1	2	0	3	1	0	2
385:	1	2	0	1	3	2	1	2
393:	2	2	4	1	7	4	2	3
401:	2	3	1	3	1	0	1	0
409:	0	0	0	0	0	1	0	0
417:	0	0	2	1	0	0	1	1
425:	0	0	1	0	0	1	0	3
433:	2	1	3	2	1	0	1	3
441:	4	2	0	0	3	2	2	3
449:	9	2	1	3	2	3	2	2
457:	2	2	2	4	5	2	0	1
465:	4	3	1	4	0	4	0	0
473:	2	2	2	2	2	1	1	1
481:	1	3	3	2	0	0	0	0
489:	0	0	1	1	1	1	0	0
497:	1	0	1	1	0	0	0	1
505:	2	0	1	1	0	0	1	3
513:	1	0	3	2	0	0	0	0
521:	1	0	0	1	0	0	1	0
529:	1	1	1	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	1	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	1	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	1	0	2	0	0
593:	0	0	0	0	1	0	0	0
601:	0	1	2	1	0	2	0	2
609:	3	1	2	1	1	0	2	2
617:	1	3	1	1	0	2	1	0
625:	1	2	1	0	1	2	5	1
633:	3	1	1	3	2	2	5	5
641:	1	4	6	8	4	3	2	6
649:	7	7	5	1	3	2	2	2
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	1	0	0	0	0
697:	0	0	0	0	0	0	1	0
705:	0	0	1	0	0	0	0	0
713:	0	0	0	0	1	0	0	0
721:	0	0	0	0	0	0	0	1
729:	0	1	0	0	3	0	0	2
737:	0	1	0	0	0	1	0	2
745:	2	1	0	1	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	1	0	0	0
785:	1	0	0	1	0	0	0	0
793:	0	0	0	1	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	1
833:	0	0	0	0	0	0	0	0
841:	0	1	0	0	0	0	2	0
849:	0	0	0	0	1	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	1	0	0
889:	0	1	0	0	0	1	0	0
897:	0	0	0	0	1	2	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	1	0	1	1
929:	0	0	0	0	0	1	0	1
937:	1	0	0	0	2	0	0	0
945:	0	0	2	0	0	0	0	0
953:	0	0	0	0	1	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	1	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	1	0

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S001-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_033
Chamber Serial Number: 04026479A
Detector Serial Number: 91132
Env. Background: System Bkgd 193353
Reagent Blank: <not performed>

Sample Size: 1.003E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:40 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.1862 +/- 0.0156
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 1.1073 +/- 0.0946

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

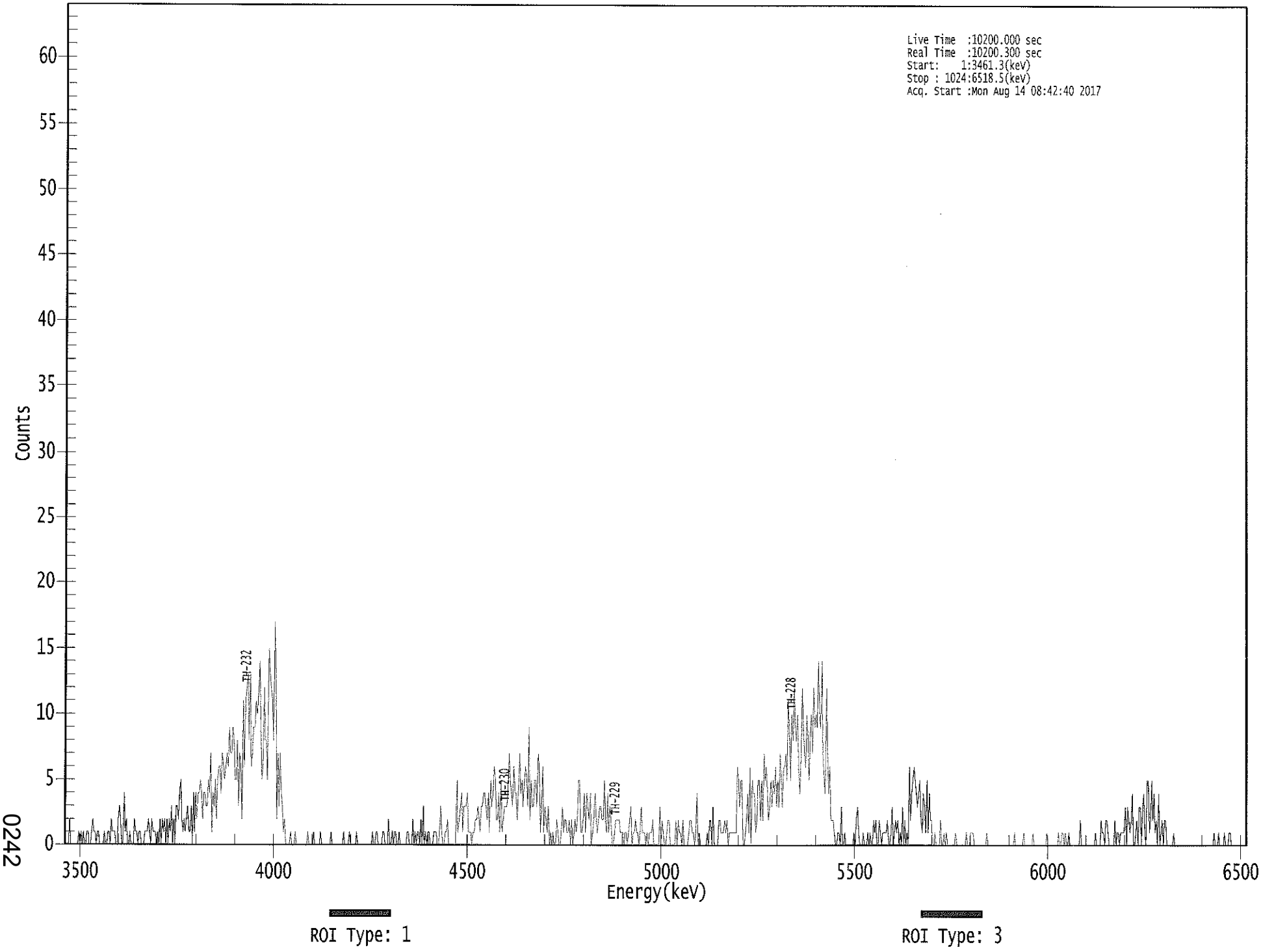
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.848	20.83	43.15	0.17	0.00E+000	3.0
TH-228		5.337	511.98	8.67	1.02	0.00E+000	26.9
TH-229	T	4.884	166.32	15.23	0.68	0.00E+000	7.3
TH-230		4.600	276.83	11.78	0.17	0.00E+000	4.2
TH-232		3.930	529.00	8.53	0.00	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	1.000	5850.00*	3.06E-001 +/- 1.41E-001	6.12E-002 +/- 1.00E-002
TH-228	0.979	5400.00*	7.97E+000 +/- 1.48E+000	9.81E-002 +/- 1.61E-002
TH-229	0.999	4872.00*	2.37E+000 +/- 3.89E-001	8.04E-002 +/- 1.32E-002
TH-230	0.974	4672.00*	3.94E+000 +/- 7.95E-001	5.93E-002 +/- 9.73E-003
TH-232	0.977	3997.00*	7.51E+000 +/- 1.39E+000	8.51E-002 +/- 1.40E-002

0000191224.CNF



0242

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

369:	5	3	4	6	5	2	2	4

Sample Title: 07

Channel								
377:	1	5	1	2	3	3	3	4
385:	7	5	4	3	6	4	4	2
393:	4	7	4	5	3	5	6	5
401:	3	9	2	5	3	3	5	5
409:	3	7	6	1	3	6	1	3
417:	2	1	3	0	1	0	1	0
425:	0	2	1	0	0	1	3	1
433:	2	2	1	1	2	0	2	0
441:	1	2	1	2	5	5	1	1
449:	2	4	1	4	3	2	4	0
457:	1	2	4	2	1	2	3	3
465:	2	2	5	2	1	4	1	3
473:	2	0	0	1	2	2	2	2
481:	1	1	1	0	1	1	0	1
489:	2	3	0	1	1	2	1	1
497:	0	1	3	1	1	1	0	1
505:	0	1	1	1	2	0	0	0
513:	0	0	3	0	2	1	0	0
521:	1	2	2	0	0	0	0	0
529:	2	0	2	1	1	0	2	0
537:	0	0	0	1	2	2	1	1
545:	0	1	4	0	1	0	0	0
553:	0	0	0	1	0	2	2	0
561:	3	0	0	0	0	2	2	1
569:	1	1	2	1	2	0	1	1
577:	1	1	1	1	1	6	5	3
585:	5	5	0	0	1	2	4	1
593:	6	0	5	4	4	1	2	5
601:	5	2	5	2	7	5	6	4
609:	2	3	5	3	5	4	6	3
617:	5	3	7	5	3	6	6	7
625:	5	11	9	5	10	8	12	9
633:	8	10	6	4	7	12	9	7
641:	6	10	8	5	9	10	7	12
649:	9	10	9	14	10	9	14	7
657:	5	4	12	7	4	6	2	2
665:	2	1	0	0	1	1	0	3
673:	0	0	1	0	0	0	0	0
681:	0	0	1	0	2	3	1	0
689:	0	0	1	0	0	0	1	0
697:	1	0	0	2	1	2	0	0
705:	2	1	0	1	1	1	1	2
713:	0	0	1	3	0	1	2	1
721:	2	0	1	0	3	0	2	0
729:	1	0	6	2	4	5	6	5
737:	4	3	4	5	2	1	4	3
745:	1	5	1	4	2	2	0	0
753:	1	0	0	0	0	2	0	0
761:	1	0	1	0	0	0	0	0
769:	0	0	1	0	0	0	0	0
777:	0	0	0	1	0	0	0	1
785:	1	1	0	0	0	0	0	0
793:	0	0	0	0	0	1	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	1	0	0
825:	0	0	0	0	0	1	0	0
833:	0	0	0	0	0	1	0	0
841:	0	0	0	0	0	0	0	0
849:	0	1	0	0	0	0	0	0
857:	0	0	0	1	0	0	1	1
865:	0	1	0	0	1	0	0	0
873:	0	0	0	0	0	0	2	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	1	0	0	0	0
897:	2	1	1	0	2	2	1	0
905:	0	0	0	0	2	0	1	1
913:	0	1	1	1	1	3	0	3
921:	2	1	2	4	0	0	1	2
929:	0	3	3	0	3	4	1	0
937:	5	5	1	2	5	2	4	1
945:	2	0	4	0	1	2	0	2
953:	2	0	0	0	0	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	1	0	0	0	1	0
1001:	0	0	0	1	0	0	0	1
1009:	1	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

KB 8/24/17

Apex-Alpha™

Sample Description: HTC-A01-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_034
Chamber Serial Number: 04026479B
Detector Serial Number: 91136
Env. Background: System Bkgd 193354
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:41 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1736 +/- 0.0150
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.0044 +/- 0.0884

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

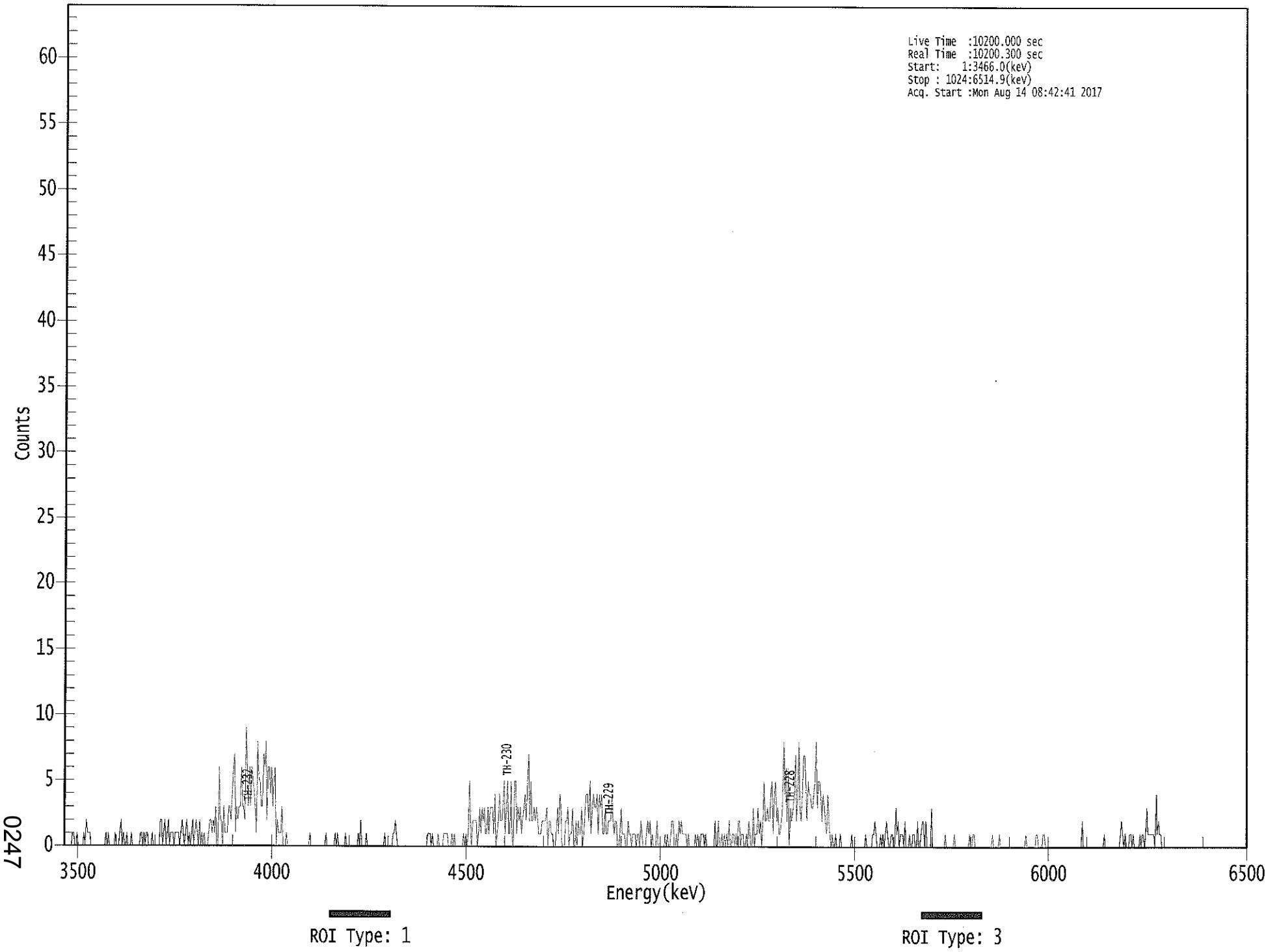
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.839	13.64	56.08	1.36	0.00E+000	3.0
TH-228		5.335	240.64	12.68	1.36	0.00E+000	5.4
TH-229	T	4.869	154.49	15.80	0.51	0.00E+000	4.3
TH-230		4.609	177.49	14.74	0.51	0.00E+000	6.6
TH-232		3.941	225.83	13.05	0.17	0.00E+000	6.4

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	2.15E-001 +/- 1.26E-001	1.08E-001 +/- 1.83E-002
TH-228	0.978	5400.00*	4.02E+000 +/- 8.51E-001	1.15E-001 +/- 1.94E-002
TH-229	1.000	4872.00*	2.36E+000 +/- 4.00E-001	8.03E-002 +/- 1.36E-002
TH-230	0.979	4672.00*	2.71E+000 +/- 6.08E-001	8.01E-002 +/- 1.36E-002
TH-232	0.983	3997.00*	3.44E+000 +/- 7.35E-001	6.36E-002 +/- 1.08E-002

0000191225.CNF



0247

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

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	3	3	3	1	4	0	1	2

Sample Title: 08

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

801:	0	0	1	0	0	0	0	0

Sample Title: 08

Channel								
809:	1	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	1
833:	0	0	0	0	0	0	0	0
841:	1	1	0	0	0	0	1	1
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	2	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	1	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	1	2	1	0	1	0	0
921:	0	1	1	0	1	0	0	0
929:	0	0	1	0	1	1	0	1
937:	3	1	1	1	1	1	1	0
945:	4	1	2	1	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	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
9/14/17

Sample Description: HTC-A01-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_035
Chamber Serial Number: 04026477A
Detector Serial Number: 58771
Env. Background: System Bkgd 193355
Reagent Blank: <not performed>

Sample Size: 1.005E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:43 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.2079 +/- 0.0166
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 1.3158 +/- 0.1075

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

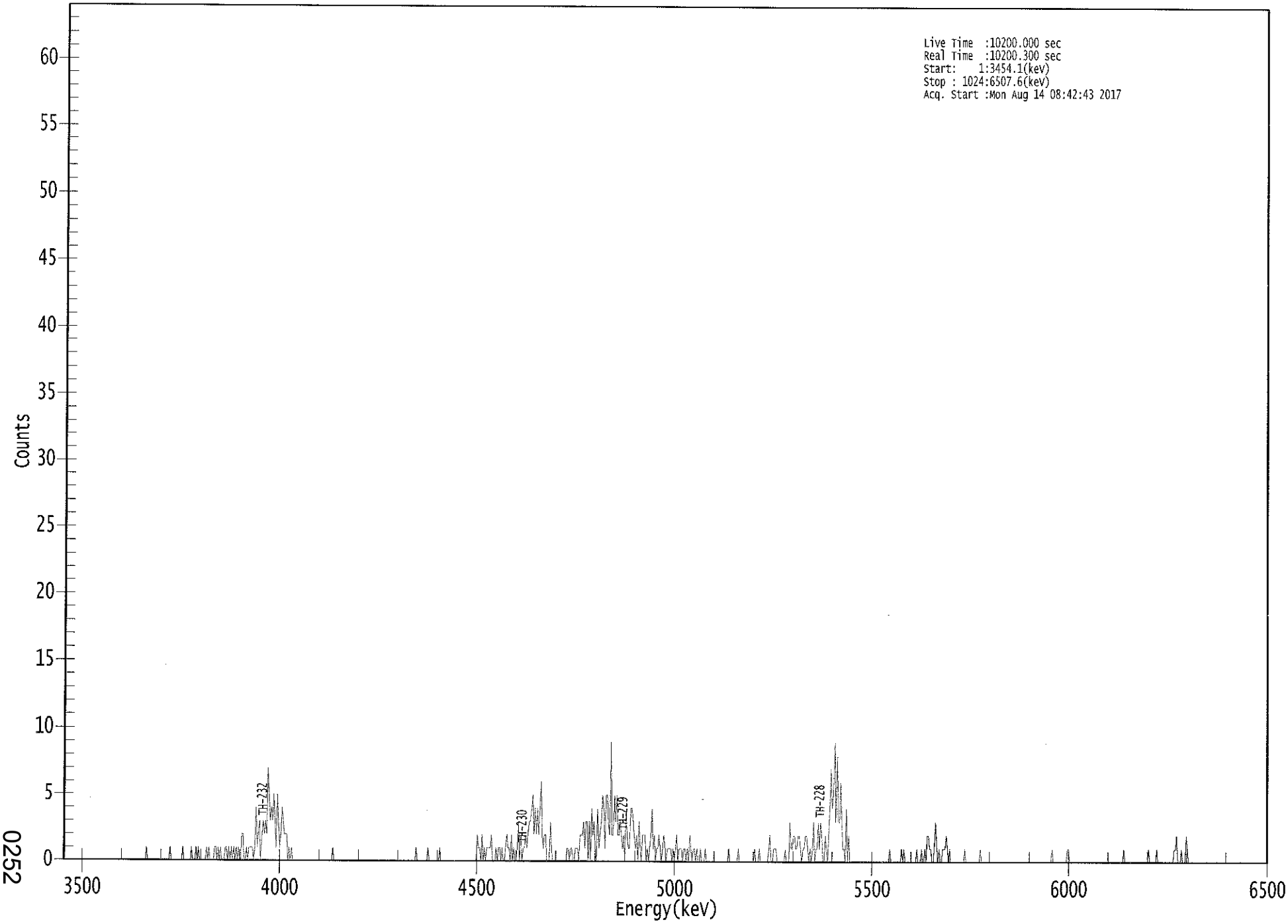
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.861	5.32	91.11	0.68	0.00E+000	3.0
TH-228		5.369	116.66	18.18	0.34	0.00E+000	6.7
TH-229	T	4.871	184.83	14.42	0.17	0.00E+000	3.8
TH-230		4.618	88.00	21.01	0.00	0.00E+000	6.7
TH-232		3.959	101.83	19.44	0.17	0.00E+000	7.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	6.97E-002 +/- 6.45E-002	7.40E-002 +/- 1.16E-002
TH-228	0.995	5400.00*	1.62E+000 +/- 3.89E-001	6.65E-002 +/- 1.04E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 3.69E-001	5.32E-002 +/- 8.32E-003
TH-230	0.985	4672.00*	1.12E+000 +/- 2.93E-001	7.62E-002 +/- 1.19E-002
TH-232	0.993	3997.00*	1.29E+000 +/- 3.22E-001	5.29E-002 +/- 8.28E-003

0000191218.CNF



ROI Type: 1

ROI Type: 3

0252

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	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	1	0	0	0	0	0
97:	0	0	0	0	0	1	0	0
105:	0	0	0	0	1	0	0	0
113:	1	0	1	0	0	0	0	0
121:	0	1	0	1	0	0	0	0
129:	1	1	0	1	0	1	0	0
137:	0	1	1	0	1	0	1	0
145:	1	0	1	0	1	0	0	2
153:	2	0	0	1	0	1	1	1
161:	1	0	1	4	1	2	3	0
169:	2	3	2	3	2	7	5	3
177:	4	3	5	3	1	5	3	1
185:	2	4	3	2	2	2	0	1
193:	0	1	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	1	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	1	0	0	0	0
305:	0	0	0	0	0	1	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	0	0	0	0
345:	0	0	0	0	0	0	0	2
353:	1	1	0	2	0	1	0	1
361:	1	1	1	2	0	0	0	1

369:	0	1	1	0	1	0	0	1

Sample Title: 09

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

801:	0	0	0	0	0	0	0	0

Sample Title: 09

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

MB 9/12/18

Apex-Alpha™

Sample Description: HTC-A01-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_036
Chamber Serial Number: 04026477B
Detector Serial Number: 84167
Env. Background: System Bkgd 193356
Reagent Blank: <not performed>

Sample Size: 1.007E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:45 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1029 +/- 0.0113
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 0.5640 +/- 0.0628

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

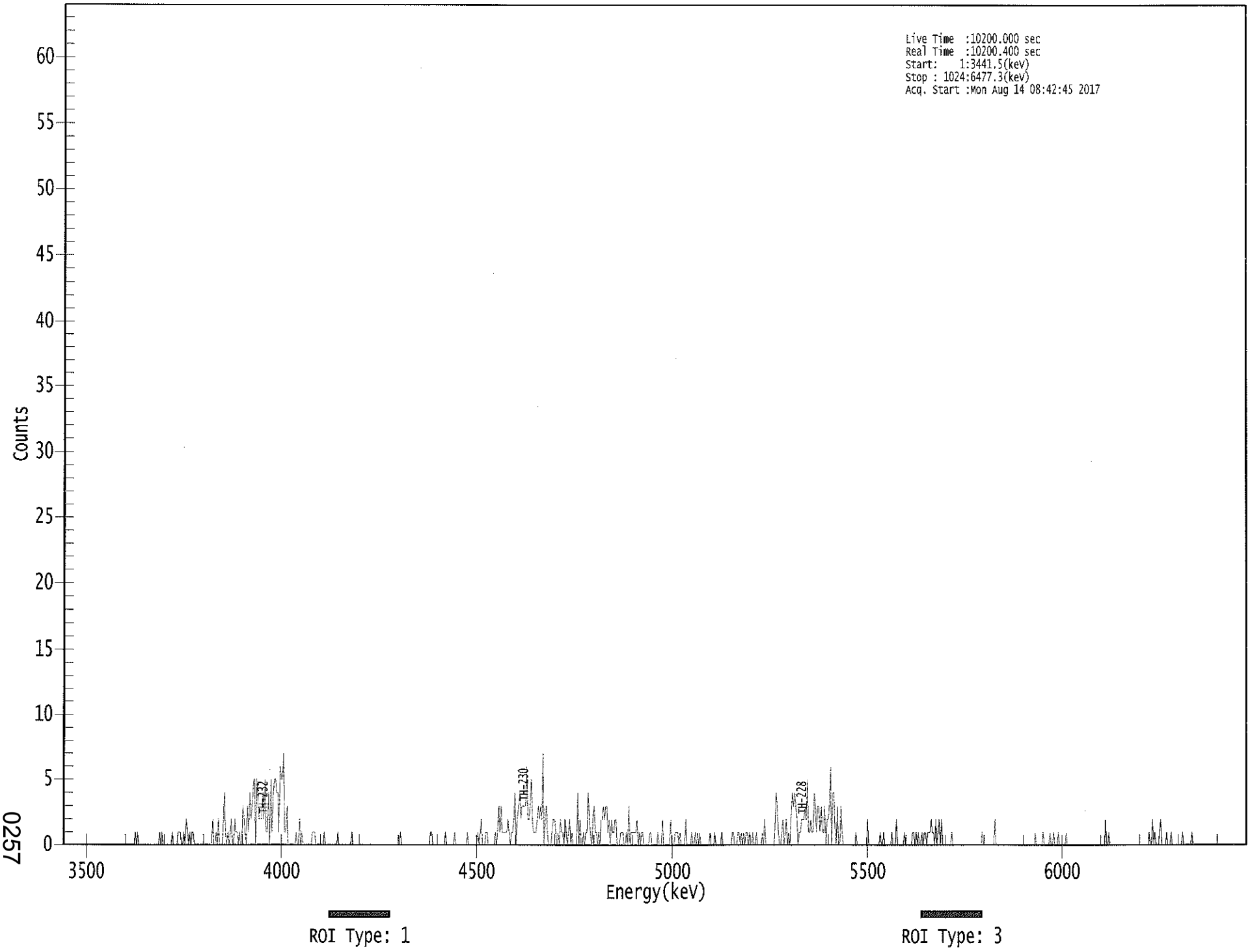
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.900	9.66	64.35	0.34	0.00E+000	3.0
TH-228		5.336	122.98	17.76	1.02	0.00E+000	4.5
TH-229	T	4.861	90.98	20.68	1.02	0.00E+000	3.0
TH-230		4.623	113.81	18.48	1.19	0.00E+000	3.6
TH-232		3.954	143.49	16.40	0.51	0.00E+000	12.1

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.987	5850.00*	2.56E-001 +/- 1.73E-001	1.26E-001 +/- 2.73E-002
TH-228	0.979	5400.00*	3.45E+000 +/- 9.64E-001	1.77E-001 +/- 3.81E-002
TH-229	0.999	4872.00*	2.34E+000 +/- 5.04E-001	1.62E-001 +/- 3.49E-002
TH-230	0.988	4672.00*	2.92E+000 +/- 8.28E-001	1.69E-001 +/- 3.64E-002
TH-232	0.990	3997.00*	3.67E+000 +/- 9.94E-001	1.34E-001 +/- 2.89E-002

0000191228.CNF



0257

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

Sample Title: 10

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	1	0	1

Sample Title: 10

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

801:	0	0	0	0	2	0	0	0

Sample Title: 10

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

Apex-Alpha™

RB 8/14/17

Sample Description: HTC-A01-S001-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_037
Chamber Serial Number: 04026478A
Detector Serial Number: 91133
Env. Background: System Bkgd 193357
Reagent Blank: <not performed>

Sample Size: 1.014E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:46 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1979 +/- 0.0162
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.2467 +/- 0.1040

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

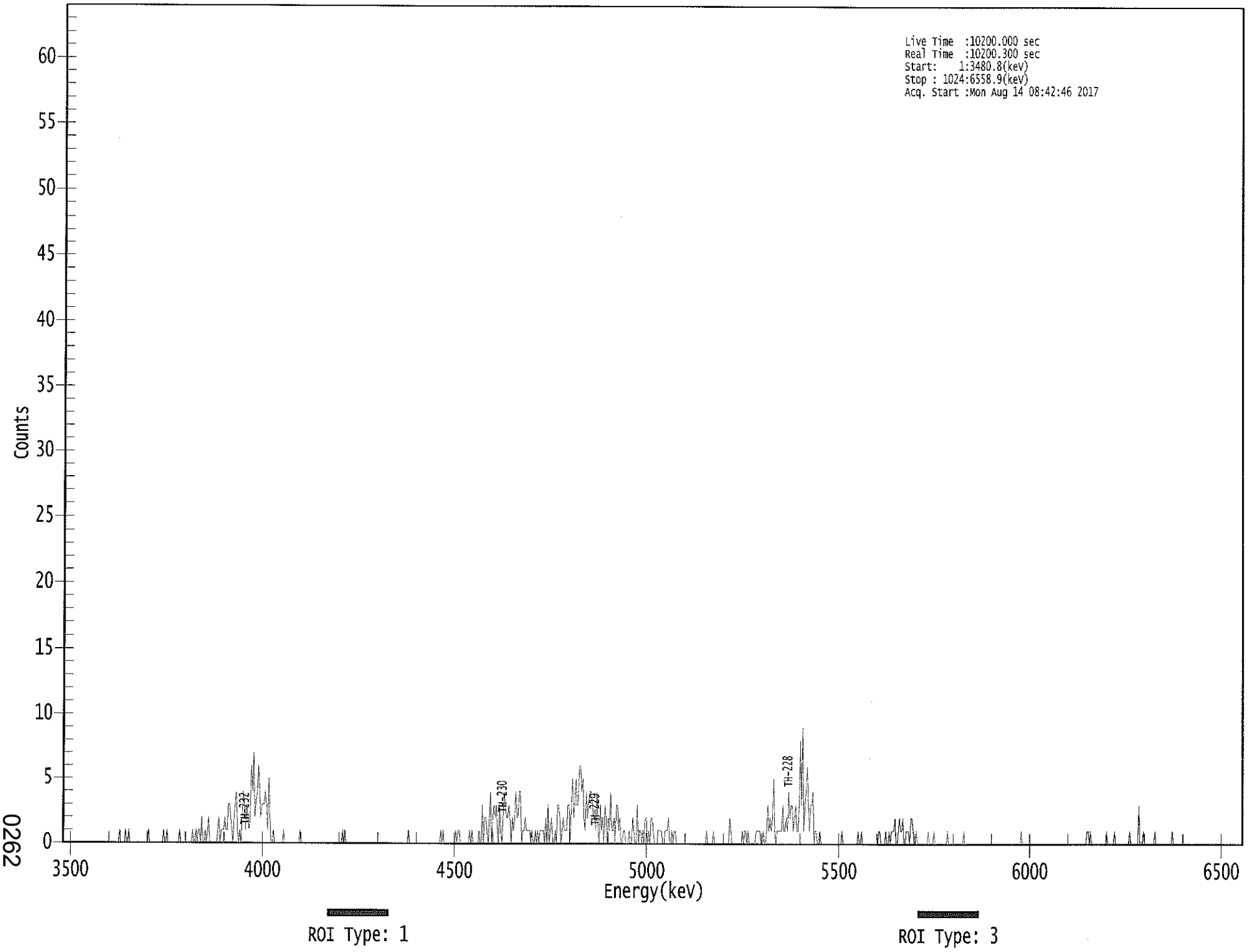
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.797	5.15	94.34	0.85	0.00E+000	3.0
TH-228		5.369	114.13	18.52	1.87	0.00E+000	3.9
TH-229	T	4.869	175.66	14.81	0.34	0.00E+000	14.0
TH-230		4.627	87.49	21.03	0.51	0.00E+000	4.5
TH-232		3.958	122.15	17.81	0.85	0.00E+000	10.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.985	5850.00*	7.03E-002 +/- 6.73E-002	8.17E-002 +/- 1.31E-002
TH-228	0.995	5400.00*	1.65E+000 +/- 4.05E-001	1.10E-001 +/- 1.76E-002
TH-229	1.000	4872.00*	2.33E+000 +/- 3.73E-001	6.34E-002 +/- 1.02E-002
TH-230	0.989	4672.00*	1.16E+000 +/- 3.06E-001	6.94E-002 +/- 1.11E-002
TH-232	0.992	3997.00*	1.61E+000 +/- 3.86E-001	7.91E-002 +/- 1.27E-002

0000191232.CNF



0262

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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	2	4	0	2	3	2	3

Sample Title: 11

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

801:	0	0	0	0	0	0	0	0

Sample Title: 11

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

KB 8/24/18

Apex-Alpha™

Sample Description: HTC-A01-S002-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_038
Chamber Serial Number: 04026478B
Detector Serial Number: 91134
Env. Background: System Bkgd 193358
Reagent Blank: <not performed>

Sample Size: 1.020E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:48 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1655 +/- 0.0147
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.0720 +/- 0.0969

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

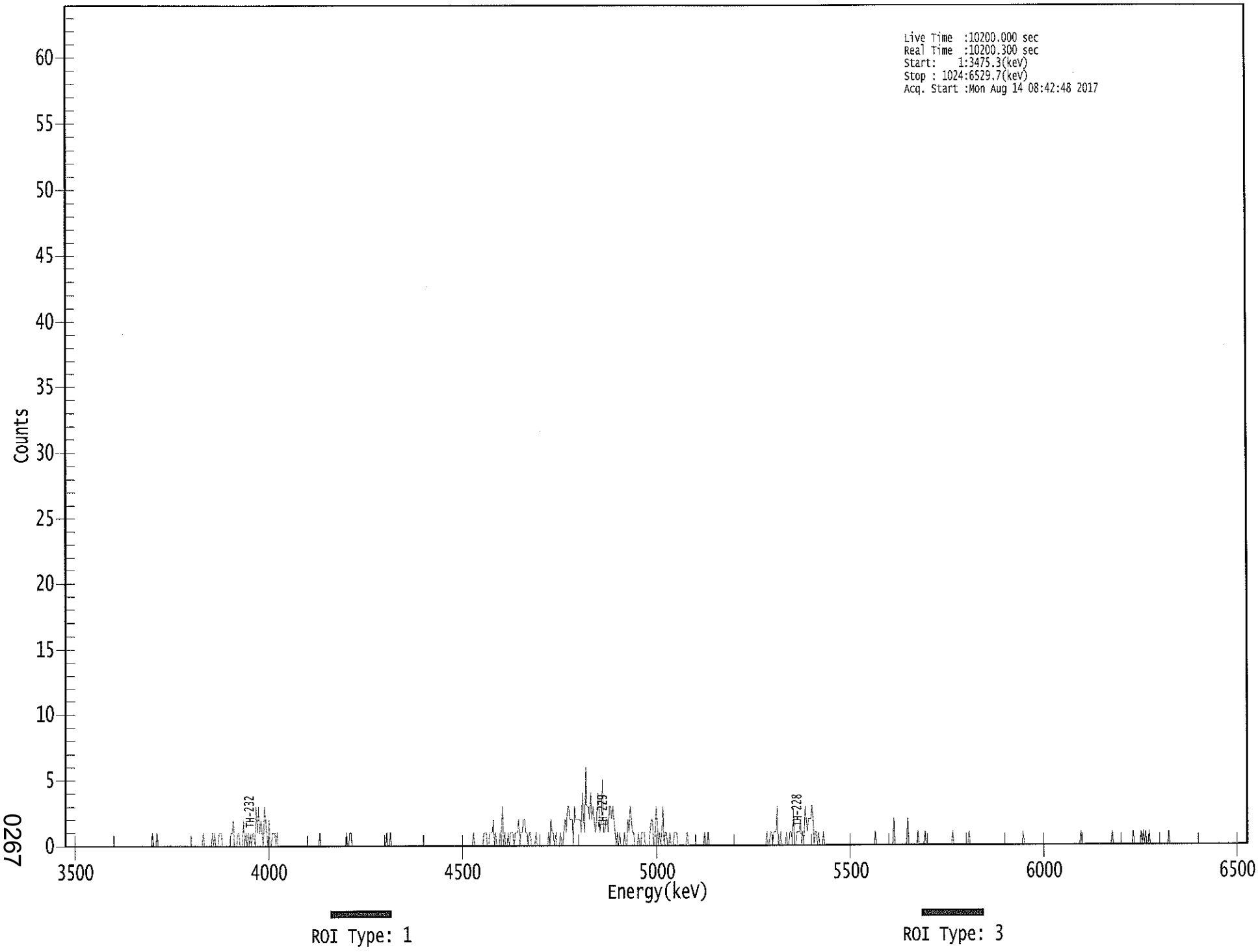
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.840	2.66	128.85	0.34	0.00E+000	3.0
TH-228		5.365	42.66	30.15	0.34	0.00E+000	3.7
TH-229	T	4.865	145.98	16.29	1.02	0.00E+000	4.8
TH-230		4.623	36.49	32.71	0.51	0.00E+000	3.7
TH-232		3.952	40.98	31.06	1.02	0.00E+000	3.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	4.32E-002 +/- 5.62E-002	7.76E-002 +/- 1.35E-002
TH-228	0.994	5400.00*	7.35E-001 +/- 2.56E-001	8.24E-002 +/- 1.43E-002
TH-229	1.000	4872.00*	2.30E+000 +/- 4.01E-001	9.94E-002 +/- 1.73E-002
TH-230	0.987	4672.00*	5.74E-001 +/- 2.13E-001	8.26E-002 +/- 1.44E-002
TH-232	0.990	3997.00*	6.44E-001 +/- 2.29E-001	9.90E-002 +/- 1.72E-002

0000191211.CNF



0267

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

Sample Title: 12

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	1	0	0	0	1
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	1
121:	0	0	0	0	0	0	0	1
129:	0	1	0	0	0	1	1	1
137:	0	0	0	0	0	0	0	1
145:	1	2	0	0	0	1	1	0
153:	0	0	2	0	1	0	1	0
161:	1	0	1	1	0	3	1	3
169:	1	2	1	0	3	2	1	0
177:	2	0	0	1	1	1	0	1
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	1	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	1	0	0	1	1
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	1	0
281:	0	1	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	0	0	0	0	0	0
353:	0	1	0	0	0	0	0	0
361:	0	0	1	1	1	0	0	1

369:	1	1	2	0	1	0	0	0

Sample Title: 12

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

801:	0	0	0	0	0	0	0	0

Sample Title: 12

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

Apex-Alpha™

Sample Description:	HTC-A01-S002-0612-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification:	1707077A-TH
Sample Identification:	13
Sample Geometry:	Shelf 2
Procedure Description:	Th iso
Detector Name:	Alpha_039
Chamber Serial Number:	06027396A
Detector Serial Number:	83109
Env. Background:	System Bkgd 193359
Reagent Blank:	<not performed>
Sample Size:	1.006E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/13/2017 6:08:58 AM
Acquisition Date/Time:	8/14/2017 8:42:50 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	Th229_S_TH-18A
Tracer Quantity:	0.233 mL
Effective Efficiency:	0.1571 +/- 0.0143
Counting Efficiency:	0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor:	0.8484 +/- 0.0785
Peak Match Tolerance:	0.175 MeV

PEAK AREA REPORT

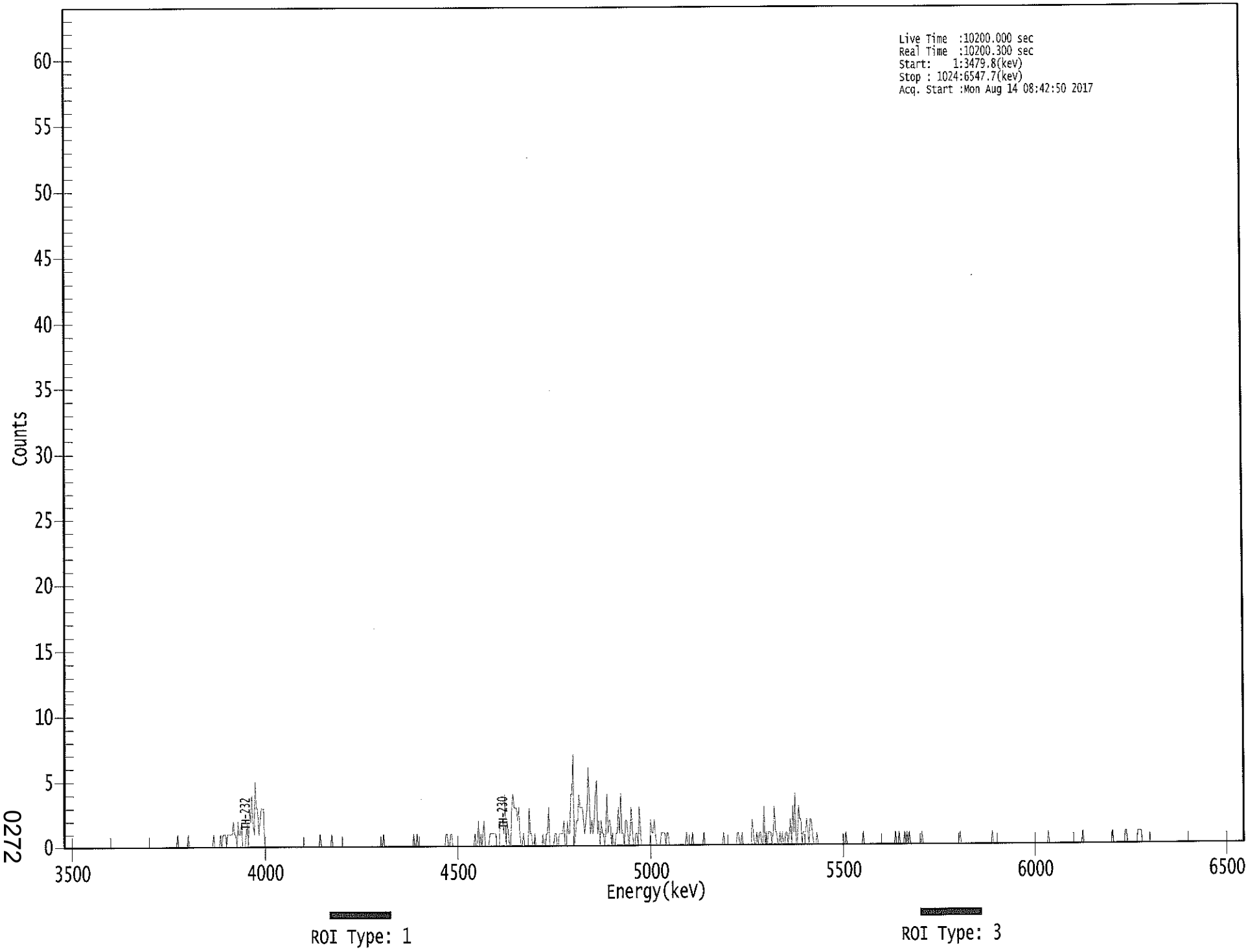
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.858	3.49	113.53	0.51	0.00E+000	3.0
TH-228		5.345	54.11	27.46	2.89	0.00E+000	3.5
TH-229	T	4.867	139.45	16.77	2.55	0.00E+000	8.0
TH-230		4.621	59.64	25.72	1.36	0.00E+000	3.5
TH-232		3.951	58.15	25.92	0.85	0.00E+000	8.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	6.05E-002 +/- 6.95E-002	9.10E-002 +/- 1.62E-002
TH-228	0.984	5400.00*	9.96E-001 +/- 3.26E-001	1.61E-001 +/- 2.87E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 4.19E-001	1.41E-001 +/- 2.52E-002
TH-230	0.986	4672.00*	1.00E+000 +/- 3.14E-001	1.15E-001 +/- 2.05E-002
TH-232	0.989	3997.00*	9.75E-001 +/- 3.07E-001	1.00E-001 +/- 1.79E-002

0000191226.CNF



0272

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

Sample Title: 13

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	1	1	1	1	1	0	0

Sample Title: 13

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

801:	0	0	0	1	0	0	0	0

Sample Title: 13

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	1	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	1	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	1	0	0	0
913:	0	0	0	0	0	0	0	1
921:	1	0	0	0	0	0	0	0
929:	0	0	1	1	1	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 8/24/17

Sample Description: HTC-A01-S002-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 193360
Reagent Blank: <not performed>

Sample Size: 1.004E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:52 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1402 +/- 0.0134
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 0.7733 +/- 0.0748

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

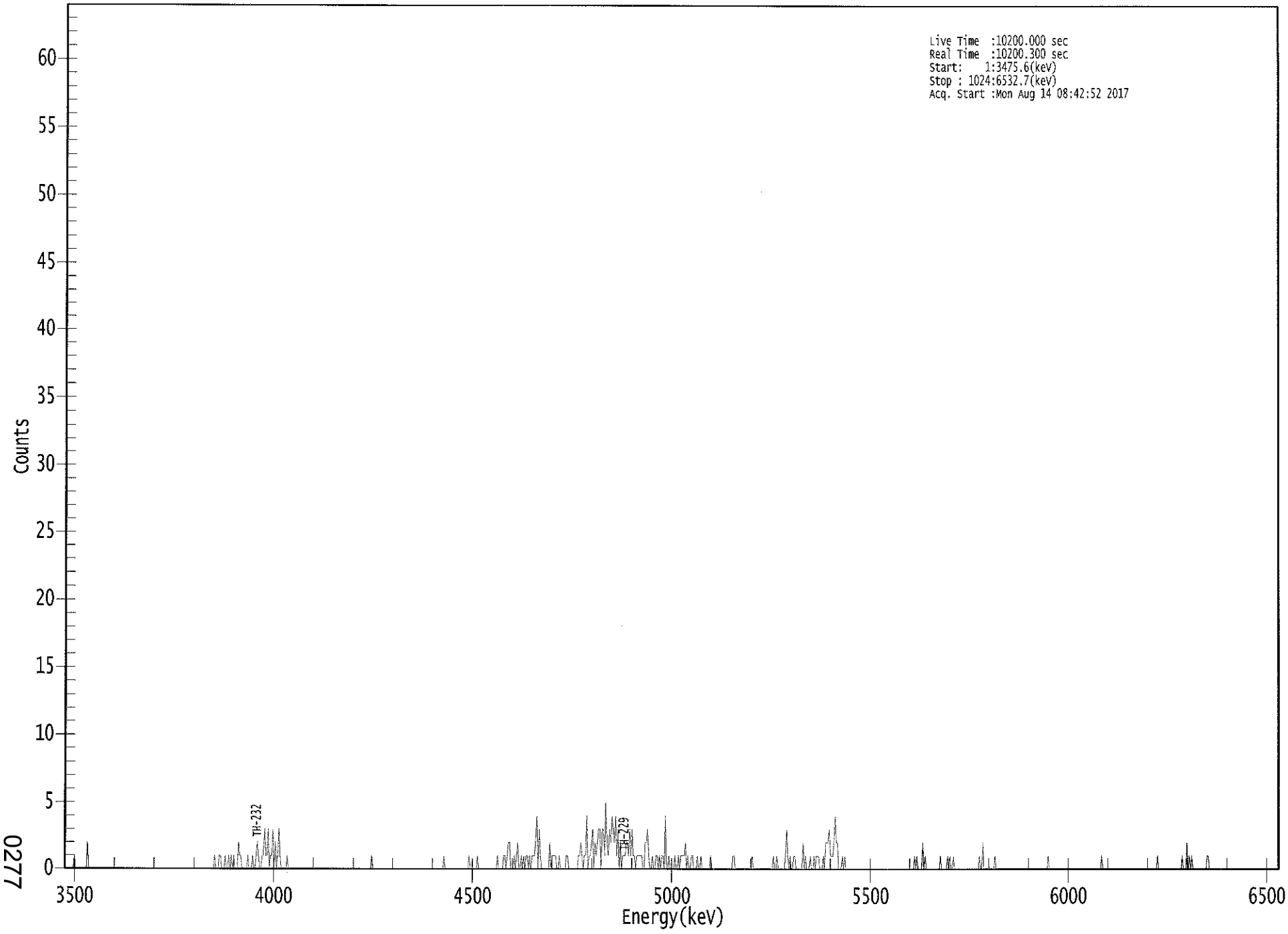
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.789	5.98	87.78	1.02	0.00E+000	3.0
TH-228		5.355	44.30	30.10	1.70	0.00E+000	6.0
TH-229	T	4.882	124.15	17.66	0.85	0.00E+000	4.4
TH-230		4.631	39.49	31.42	0.51	0.00E+000	4.5
TH-232		3.961	39.66	31.28	0.34	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.981	5850.00*	1.16E-001 +/- 1.04E-001	1.23E-001 +/- 2.29E-002
TH-228	0.989	5400.00*	9.15E-001 +/- 3.24E-001	1.52E-001 +/- 2.83E-002
TH-229	0.999	4872.00*	2.35E+000 +/- 4.38E-001	1.13E-001 +/- 2.11E-002
TH-230	0.991	4672.00*	7.44E-001 +/- 2.72E-001	9.89E-002 +/- 1.85E-002
TH-232	0.993	3997.00*	7.46E-001 +/- 2.72E-001	8.99E-002 +/- 1.68E-002

0000191229.CNF



ROI Type: 1

ROI Type: 3

0277

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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	0	0	0	0	0	0	0
17:	0	0	0	2	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	1	0
129:	0	0	1	1	0	0	0	1
137:	0	0	1	0	1	0	1	0
145:	0	0	2	1	1	0	0	0
153:	0	0	1	0	0	0	1	0
161:	0	1	2	1	0	0	1	1
169:	3	1	1	3	0	1	1	3
177:	0	2	0	1	3	1	0	0
185:	0	0	0	1	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	1	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	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	1	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	1	0	0	0

369:	0	1	1	0	1	2	2	0

Sample Title: 14

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

Sample Title: 14

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

NB 9/07/14

Apex-Alpha™

Sample Description: HTC-A01-S002-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 193361
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:54 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1523 +/- 0.0140
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 0.8125 +/- 0.0759

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

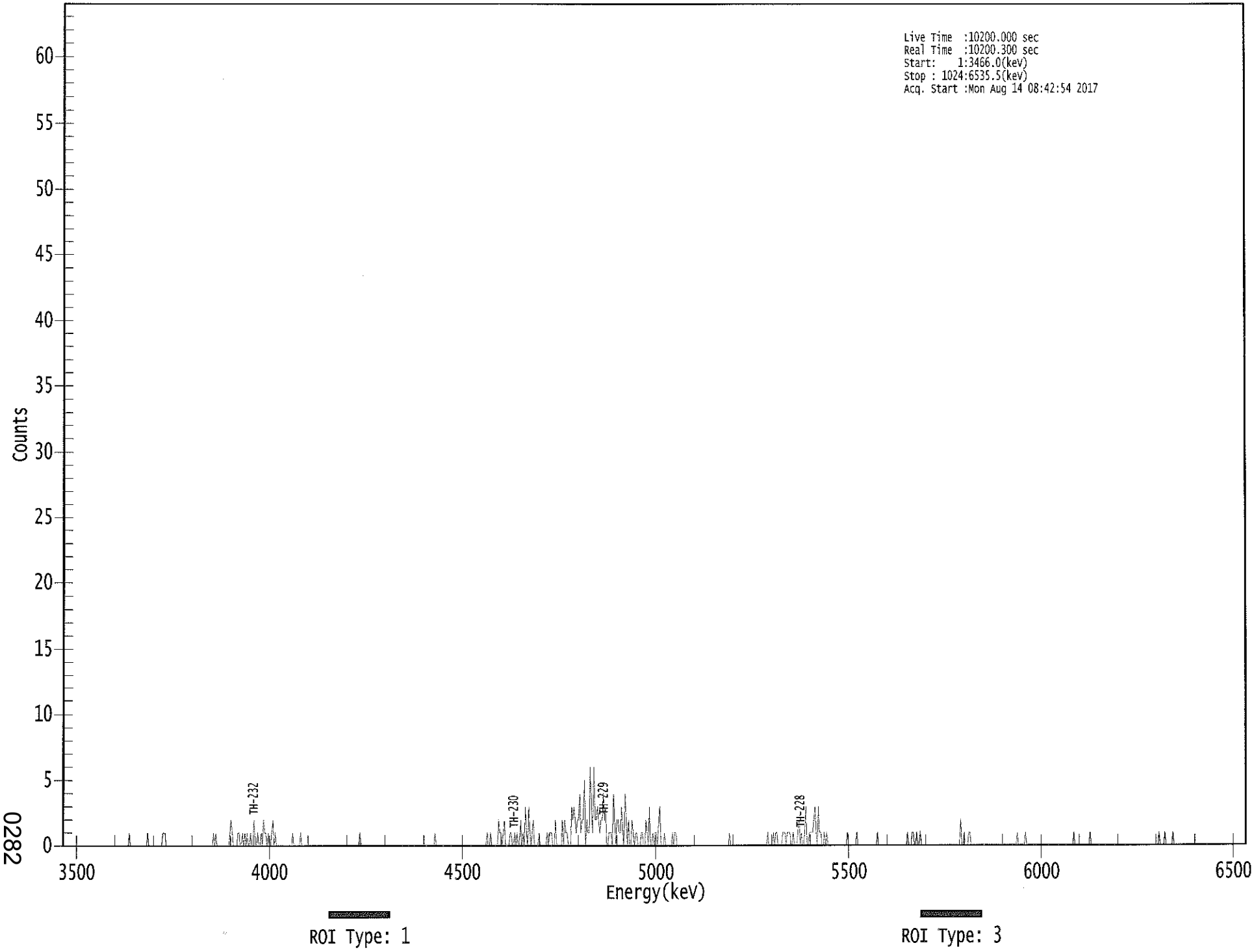
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.844	5.98	87.78	1.02	0.00E+000	3.0
TH-228		5.376	34.62	34.63	2.38	0.00E+000	3.8
TH-229	T	4.867	134.49	16.94	0.51	0.00E+000	4.8
TH-230		4.636	29.15	36.92	0.85	0.00E+000	3.8
TH-232		3.960	26.15	39.05	0.85	0.00E+000	6.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.07E-001 +/- 9.62E-002	1.13E-001 +/- 2.03E-002
TH-228	0.997	5400.00*	6.60E-001 +/- 2.57E-001	1.56E-001 +/- 2.81E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 4.22E-001	9.15E-002 +/- 1.65E-002
TH-230	0.993	4672.00*	5.07E-001 +/- 2.08E-001	1.04E-001 +/- 1.87E-002
TH-232	0.993	3997.00*	4.54E-001 +/- 1.95E-001	1.04E-001 +/- 1.87E-002

0000191227.CNF



0282

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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	0	0	0	0	0

Sample Title: 15

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

Sample Title: 15

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

VLB 9/27/17

Apex-Alpha™

Sample Description: HTC-A01-S002-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 193362
Reagent Blank: <not performed>

Sample Size: 1.012E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:55 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1542 +/- 0.0141
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 0.8604 +/- 0.0797

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

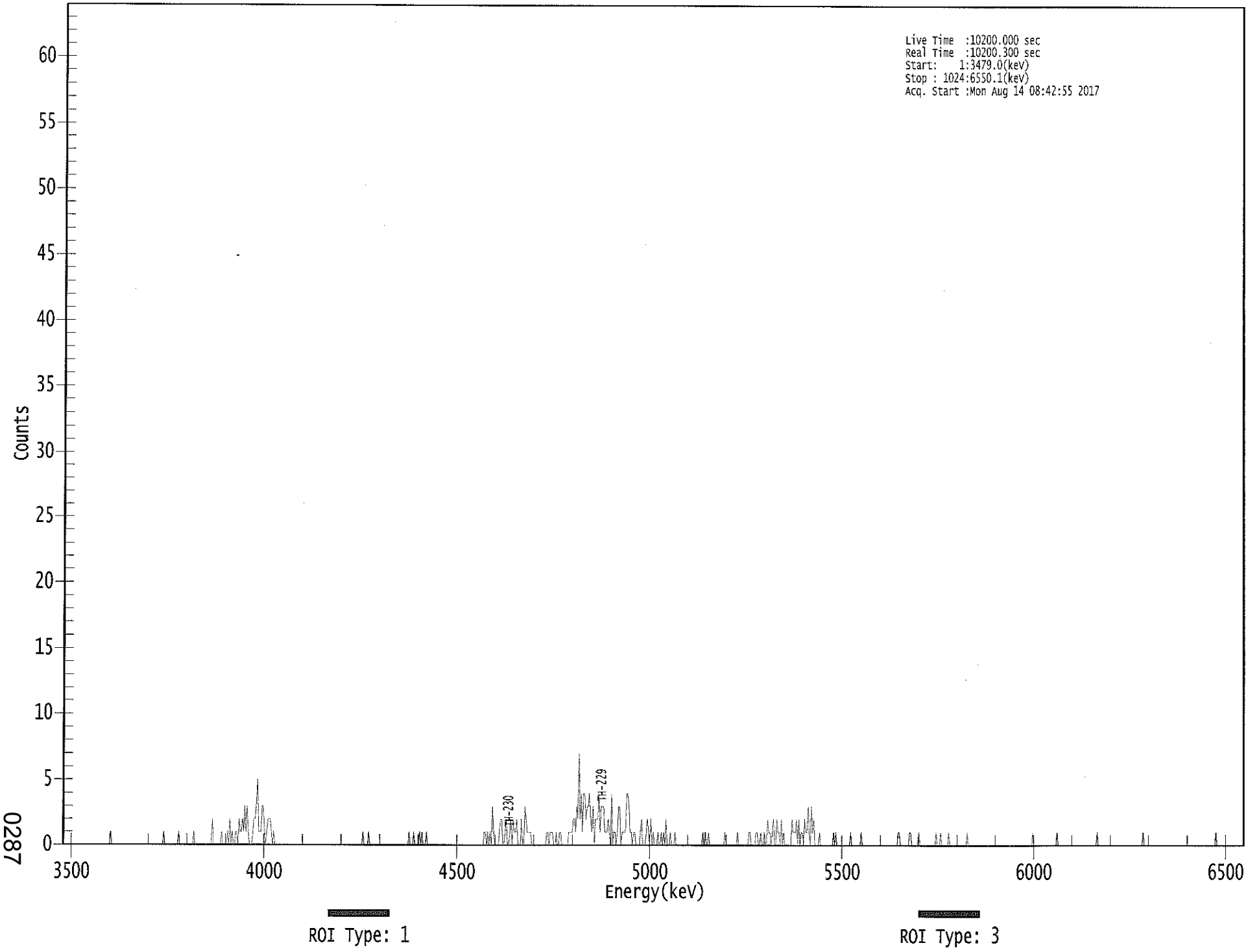
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.801	6.00	86.43	0.00	0.00E+000	3.0
TH-228		5.353	48.83	28.11	0.17	0.00E+000	4.5
TH-229	T	4.879	136.66	16.79	0.34	0.00E+000	4.2
TH-230		4.637	34.98	33.70	1.02	0.00E+000	3.8
TH-232		3.965	56.49	26.22	0.51	0.00E+000	6.4

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	1.05E-001 +/- 9.30E-002	1.05E-001 +/- 1.88E-002
TH-228	0.988	5400.00*	9.10E-001 +/- 3.03E-001	7.78E-002 +/- 1.39E-002
TH-229	1.000	4872.00*	2.33E+000 +/- 4.16E-001	8.16E-002 +/- 1.46E-002
TH-230	0.994	4672.00*	5.95E-001 +/- 2.27E-001	1.07E-001 +/- 1.91E-002
TH-232	0.995	3997.00*	9.59E-001 +/- 3.04E-001	8.91E-002 +/- 1.59E-002

0000191230.CNF



0287

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

Sample Title: 16

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	0	3	1	0	0	0

Sample Title: 16

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

801:	0	0	0	0	0	0	0	0

Sample Title: 16

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

Apex-Alpha™

KB 9/14/17

Sample Description: HTC-A01-S002-2430-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 193363
Reagent Blank: <not performed>

Sample Size: 1.008E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:57 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1688 +/- 0.0148
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.0002 +/- 0.0894

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

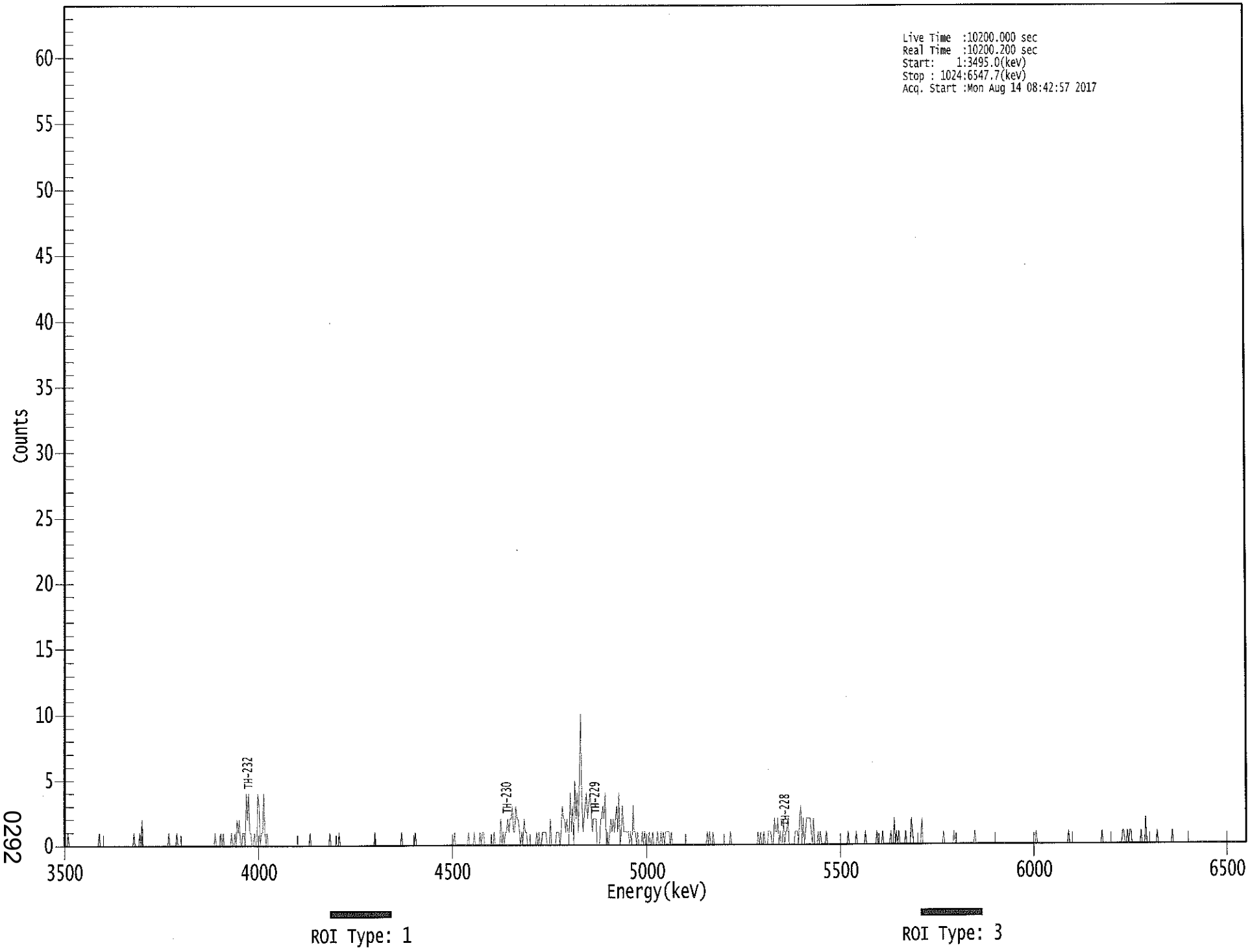
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.802	5.32	91.11	0.68	0.00E+000	3.0
TH-228		5.355	45.30	29.75	1.70	0.00E+000	5.2
TH-229	T	4.865	148.83	16.08	0.17	0.00E+000	5.5
TH-230		4.639	38.32	31.99	0.68	0.00E+000	9.7
TH-232		3.970	37.28	33.44	2.72	0.00E+000	4.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	8.56E-002 +/- 7.94E-002	9.08E-002 +/- 1.56E-002
TH-228	0.989	5400.00*	7.74E-001 +/- 2.66E-001	1.25E-001 +/- 2.16E-002
TH-229	1.000	4872.00*	2.33E+000 +/- 4.00E-001	6.53E-002 +/- 1.12E-002
TH-230	0.994	4672.00*	5.97E-001 +/- 2.17E-001	8.79E-002 +/- 1.51E-002
TH-232	0.996	3997.00*	5.80E-001 +/- 2.18E-001	1.33E-001 +/- 2.29E-002

0000191212.CNF



0292

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

Sample Title: 17

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel							
1:	0	0	0	1	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	1	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	1	0	0	0
65:	0	1	0	2	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	1	0	0	0	0	0
97:	0	1	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	1	0	0	0	0	1
137:	0	1	0	0	0	0	0	0
145:	1	0	0	1	0	2	1	2
153:	0	0	1	1	0	4	2	4
161:	1	1	0	0	1	0	0	4
169:	3	0	1	1	4	1	0	1
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	1	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	1	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	1	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	1	0	0	0	0
297:	0	0	0	0	0	0	0	1
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	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	1	0	0
353:	0	0	1	0	0	0	0	1
361:	0	1	1	0	0	0	0	0

369:	0	0	0	1	0	0	0	0

Sample Title: 17

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

801:	0	0	0	0	0	0	0	0

Sample Title: 17

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	1	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	1	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	1	1	0	0	1
921:	0	1	1	0	0	0	0	0
929:	0	0	0	1	0	0	0	2
937:	0	0	0	0	0	0	0	0
945:	0	1	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	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

NB 9/14/17

Apex-Alpha™

Sample Description: HTC-A01-S002-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 193364
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:42:59 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1061 +/- 0.0116
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.6191 +/- 0.0684

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

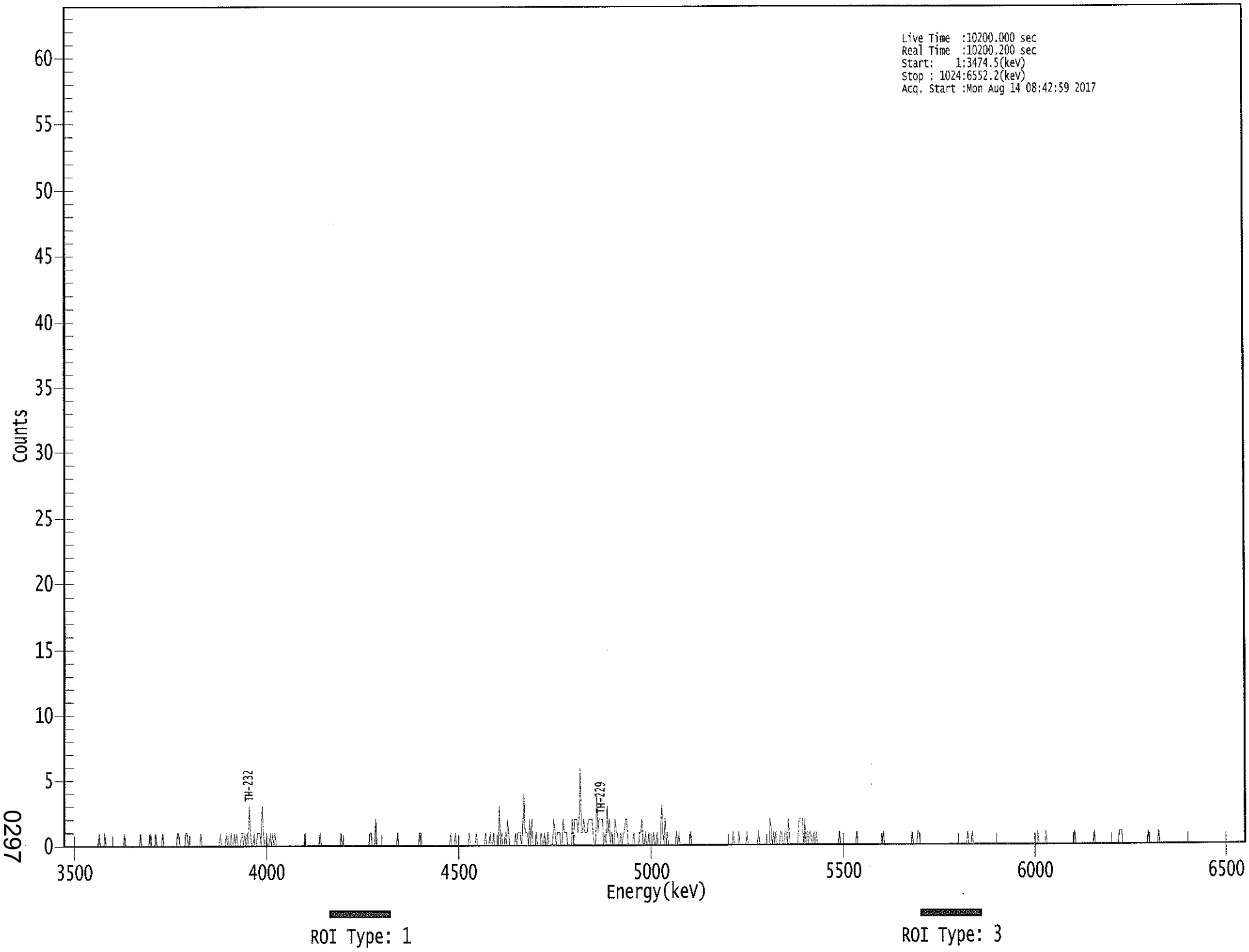
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.879	4.49	98.45	0.51	0.00E+000	3.0
TH-228		5.355	29.15	36.92	0.85	0.00E+000	4.5
TH-229	T	4.872	93.79	20.52	2.21	0.00E+000	4.1
TH-230		4.635	33.15	34.55	0.85	0.00E+000	4.0
TH-232		3.956	24.47	41.05	1.53	0.00E+000	3.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.996	5850.00*	1.16E-001 +/- 1.17E-001	1.35E-001 +/- 2.89E-002
TH-228	0.989	5400.00*	7.98E-001 +/- 3.40E-001	1.64E-001 +/- 3.51E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 5.03E-001	2.00E-001 +/- 4.29E-002
TH-230	0.993	4672.00*	8.28E-001 +/- 3.36E-001	1.50E-001 +/- 3.20E-002
TH-232	0.991	3997.00*	6.10E-001 +/- 2.82E-001	1.77E-001 +/- 3.79E-002

0000191213.CNF



0297

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

Sample Title: 18

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	0	0	1	0	0	0	0

Sample Title: 18

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

801:	0	0	0	0	0	0	0	0

Sample Title: 18

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

Apex-Alpha™

NB 9/14/17

Sample Description: HTC-A01-S002-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 193365
Reagent Blank: <not performed>

Sample Size: 1.007E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:43:01 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.230 mL
Effective Efficiency: 0.1614 +/- 0.0145
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.9946 +/- 0.0908

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

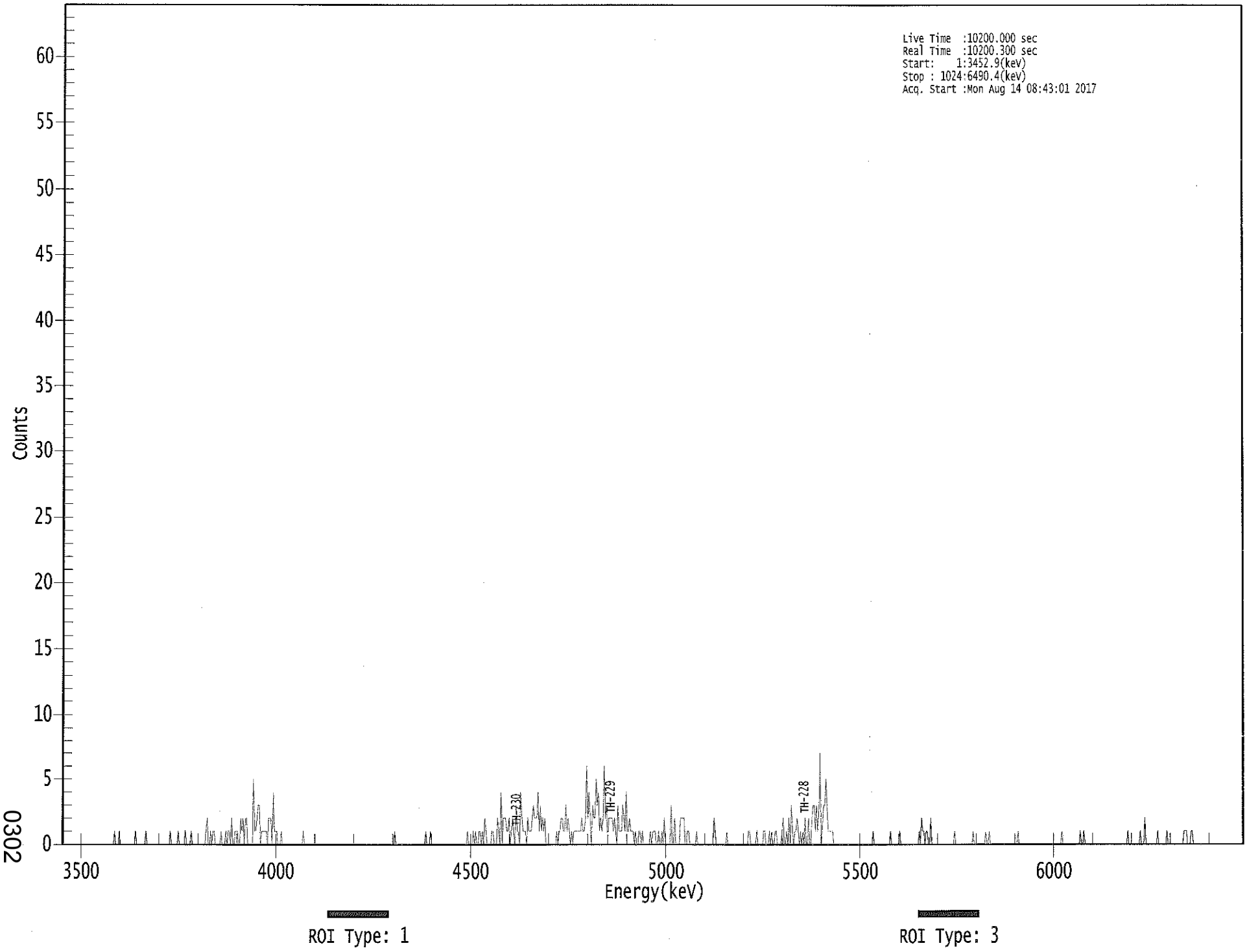
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.854	6.00	86.43	0.00	0.00E+000	3.0
TH-228		5.360	72.98	23.13	1.02	0.00E+000	4.1
TH-229	T	4.861	141.66	16.49	0.34	0.00E+000	4.5
TH-230		4.620	76.49	22.50	0.51	0.00E+000	3.0
TH-232		3.937	58.32	25.84	0.68	0.00E+000	3.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.01E-001 +/- 8.92E-002	1.01E-001 +/- 1.78E-002
TH-228	0.992	5400.00*	1.31E+000 +/- 3.79E-001	1.13E-001 +/- 1.98E-002
TH-229	0.999	4872.00*	2.32E+000 +/- 4.08E-001	7.83E-002 +/- 1.38E-002
TH-230	0.986	4672.00*	1.25E+000 +/- 3.57E-001	8.57E-002 +/- 1.51E-002
TH-232	0.981	3997.00*	9.51E-001 +/- 2.97E-001	9.20E-002 +/- 1.62E-002

0000191231.CNF



0302

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

Sample Title: 19

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	1	1	0	0	0

Sample Title: 19

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

801:	0	0	1	0	0	0	0	0

Sample Title: 19

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	1	0	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	1	0	0	1	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	1	0	0	0	0	0
929:	0	0	0	0	0	1	0	0
937:	0	2	0	0	0	0	0	0
945:	0	0	0	0	1	0	0	0
953:	0	0	0	0	1	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	1	1	1	0	0
977:	0	1	1	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/24/17

Sample Description: HTC-A01-S002-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707077A-TH
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 193366
Reagent Blank: <not performed>

Sample Size: 1.008E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:08:58 AM
Acquisition Date/Time: 8/14/2017 8:43:03 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.230 mL
Effective Efficiency: 0.1917 +/- 0.0160
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.1736 +/- 0.0997

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

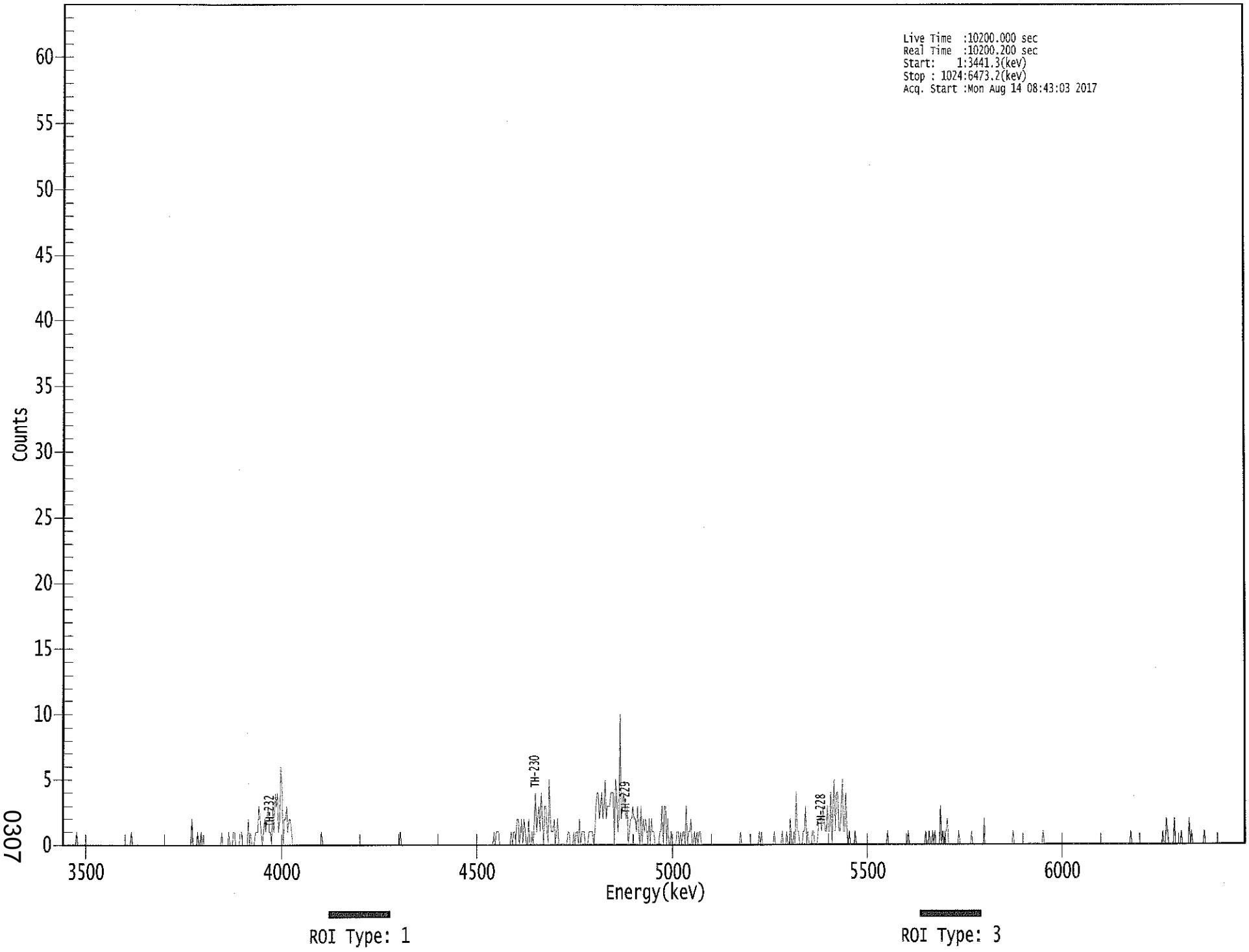
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.774	9.49	65.59	0.51	0.00E+000	4.4
TH-228		5.383	77.81	22.42	1.19	0.00E+000	5.3
TH-229	T	4.882	168.32	15.14	0.68	0.00E+000	3.7
TH-230		4.649	59.66	25.46	0.34	0.00E+000	4.0
TH-232		3.972	69.15	23.74	0.85	0.00E+000	5.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.971	5850.00*	1.35E-001 +/- 9.09E-002	7.44E-002 +/- 1.21E-002
TH-228	0.998	5400.00*	1.17E+000 +/- 3.25E-001	9.91E-002 +/- 1.62E-002
TH-229	1.000	4872.00*	2.32E+000 +/- 3.78E-001	7.77E-002 +/- 1.27E-002
TH-230	0.997	4672.00*	8.19E-001 +/- 2.48E-001	6.57E-002 +/- 1.07E-002
TH-232	0.997	3997.00*	9.48E-001 +/- 2.73E-001	8.21E-002 +/- 1.34E-002

0000191222.CNF



0307

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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	1	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	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:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	2
113:	0	0	0	0	1	0	0	1
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	1	0	0	0	0	0	1
145:	0	0	0	1	1	0	0	0
153:	0	1	1	0	0	0	0	0
161:	2	0	1	0	0	0	1	1
169:	1	3	2	1	0	1	2	1
177:	2	3	1	1	0	3	1	4
185:	3	4	1	2	6	4	0	2
193:	2	3	1	2	2	1	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	1
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	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	1	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	1	0	1	1

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/14/2017 6:46:52 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/14/2017
Time : 6:46:52 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/14/2017 5:13:15 AM
Alpha_004	21f	ALL	Passed	8/14/2017 5:13:16 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	8/14/2017 5:13:16 AM
Alpha_011	21f	ALL	Passed	8/14/2017 5:13:17 AM
Alpha_012	21f	ALL	Passed	8/14/2017 5:13:18 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/14/2017 5:13:19 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:20 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:22 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:23 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:25 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:26 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/14/2017 5:13:28 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:29 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/14/2017 5:13:31 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:24 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:26 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:33 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:34 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:36 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:37 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:39 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:41 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:42 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:44 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:46 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:48 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:51 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:53 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:55 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:58 AM

8/14/2017 6:46:52 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:14:01 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:14:04 AM

APPROVED BY: _____

APPROVAL DATE: 8/14/17

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*********************************************************************
*****          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)

17-07077
Gamma
Run 2

Work Order	17-07077
Analysis Code	Gamma
Run	2
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 901.1 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		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S001-0006-01	261	05/13/17 13:36	8.2160E+02
04	DO	HTC-A01-S001-0006-01	261	05/13/17 13:36	8.2160E+02
05	TRG	HTC-A01-S001-0612-01	167	05/13/17 13:33	8.0706E+02
06	TRG	HTC-A01-S001-1218-01	39	05/13/17 13:30	6.0597E+02
07	TRG	HTC-A01-S001-1824-01	52	05/13/17 13:27	6.9669E+02
08	TRG	HTC-A01-S001-2430-01	48	05/13/17 13:24	5.8292E+02
09	TRG	HTC-A01-S001-3036-01	47	05/13/17 13:21	5.1900E+02
10	TRG	HTC-A01-S001-3642-01	52	05/13/17 13:18	6.0200E+02
11	TRG	HTC-A01-S001-4248-01	44	05/13/17 13:15	6.2744E+02
12	TRG	HTC-A01-S002-0006-01	33	05/13/17 11:26	7.2853E+02
13	TRG	HTC-A01-S002-0612-01	45	05/13/17 11:23	7.6935E+02
14	TRG	HTC-A01-S002-1218-01	40	05/13/17 11:20	8.1356E+02
15	TRG	HTC-A01-S002-1824-01	31	05/13/17 11:17	7.8769E+02
16	TRG	HTC-A01-S002-2430-01	35	05/13/17 11:14	7.0244E+02
17	TRG	HTC-A01-S002-2430-02	35	05/13/17 11:14	6.8041E+02
18	TRG	HTC-A01-S002-3036-01	28	05/13/17 11:11	7.6278E+02
19	TRG	HTC-A01-S002-3642-01	42	05/13/17 11:08	6.8813E+02
20	TRG	HTC-A01-S002-4248-01	39	05/13/17 11:05	7.0503E+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.

17-07077
Gamma
Run 2

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS				0.00								
02	MBL				0.00								
03	DUP				0.00								
04	DO				0.00								
05	TRG				0.00								
06	TRG				0.00								
07	TRG				0.00								
08	TRG				0.00								
09	TRG				0.00								
10	TRG				0.00								
11	TRG				0.00								
12	TRG				0.00								
13	TRG				0.00								
14	TRG				0.00								
15	TRG				0.00								
16	TRG				0.00								
17	TRG				0.00								
18	TRG				0.00								
19	TRG				0.00								
20	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.

17-07077
Gamma
Run 2

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	07/24/17 08:01	KSALLINGS						
05	TRG	07/24/17 08:01	KSALLINGS						
06	TRG	07/24/17 08:01	KSALLINGS						
07	TRG	07/24/17 08:01	KSALLINGS						
08	TRG	07/24/17 08:01	KSALLINGS						
09	TRG	07/24/17 08:01	KSALLINGS						
10	TRG	07/24/17 08:01	KSALLINGS						
11	TRG	07/24/17 08:01	KSALLINGS						
12	TRG	07/24/17 08:01	KSALLINGS						
13	TRG	07/24/17 08:01	KSALLINGS						
14	TRG	07/24/17 08:01	KSALLINGS						
15	TRG	07/24/17 08:01	KSALLINGS						
16	TRG	07/24/17 08:01	KSALLINGS						
17	TRG	07/24/17 08:01	KSALLINGS						
18	TRG	07/24/17 08:01	KSALLINGS						
19	TRG	07/24/17 08:01	KSALLINGS						
20	TRG	07/24/17 08:01	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: 17-07077-Gamma-2

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	1.22E+02	7.30E+00	9.94E-01	1.35E+02	90.26	OK		07/18/17 00:00	1.00E+00	08/14/17 12:09	YES
01	CS-137	LCS	LCS	pCi/g	7.94E+01	7.21E+00	1.17E+00	8.44E+01	94.11	OK		07/18/17 00:00	1.00E+00	08/14/17 12:09	YES
02	AC-228	MBL	BLANK	pCi/g	-5.08E-02	1.35E-01	1.73E-01					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	BI-212	MBL	BLANK	pCi/g	3.10E-01	2.00E-01	4.38E-01					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	RA-226	MBL	BLANK	pCi/g	4.27E-02	6.18E-02	8.21E-02					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	CS-137	MBL	BLANK	pCi/g	4.38E-02	3.02E-02	6.88E-02					07/18/17 00:00	1.00E+00	08/14/17 12:09	YES
02	K-40	MBL	BLANK	pCi/g	3.69E-01	3.07E-01	4.36E-01					07/18/17 00:00	1.00E+00	08/14/17 12:09	YES
02	PA-234M	MBL	BLANK	pCi/g	-7.04E-01	3.86E+00	4.97E+00					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	PB-212	MBL	BLANK	pCi/g	2.42E-02	2.79E-02	5.88E-02					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	RA-224	MBL	BLANK	pCi/g	1.08E-01	2.37E-01	7.40E-01					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	RA-228	MBL	BLANK	pCi/g	-5.08E-02	1.35E-01	1.73E-01					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
02	TH-234	MBL	BLANK	pCi/g	5.91E-01	6.21E-01	1.03E+00					07/18/17 00:00	1.00E+00	08/14/17 12:09	YES
02	TL-208	MBL	BLANK	pCi/g	4.63E-02	5.99E-02	1.19E-01					07/18/17 00:00	1.00E+00	08/14/17 12:09	NO
03	AC-228	DUP	HTC-A01-S001-0006-01	pCi/g	1.12E+02	5.46E+00	2.67E+00				OK	05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	BI-212	DUP	HTC-A01-S001-0006-01	pCi/g	7.06E+01	5.89E+00	3.77E+00					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	RA-226	DUP	HTC-A01-S001-0006-01	pCi/g	5.92E+01	2.98E+00	1.44E+00					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	CS-137	DUP	HTC-A01-S001-0006-01	pCi/g	-6.75E-02	1.46E-01	4.09E-01					05/13/17 13:36	8.22E+02	08/14/17 05:52	NO
03	K-40	DUP	HTC-A01-S001-0006-01	pCi/g	1.23E+01	2.90E+00	4.32E+00				OK	05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	PA-234M	DUP	HTC-A01-S001-0006-01	pCi/g	1.01E+02	2.90E+01	4.52E+01					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	PB-212	DUP	HTC-A01-S001-0006-01	pCi/g	1.18E+02	7.30E+00	1.90E+00				OK	05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	RA-224	DUP	HTC-A01-S001-0006-01	pCi/g	2.72E+02	2.40E+01	2.17E+01					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	RA-228	DUP	HTC-A01-S001-0006-01	pCi/g	1.12E+02	5.46E+00	2.67E+00					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	TH-234	DUP	HTC-A01-S001-0006-01	pCi/g	6.24E+01	8.98E+00	1.22E+01					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
03	TL-208	DUP	HTC-A01-S001-0006-01	pCi/g	1.08E+02	6.34E+00	1.13E+00					05/13/17 13:36	8.22E+02	08/14/17 05:52	YES
04	AC-228	DO	HTC-A01-S001-0006-01	pCi/g	1.13E+02	5.48E+00	2.91E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	BI-212	DO	HTC-A01-S001-0006-01	pCi/g	6.66E+01	5.69E+00	4.61E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	RA-226	DO	HTC-A01-S001-0006-01	pCi/g	6.00E+01	3.04E+00	1.40E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	CS-137	DO	HTC-A01-S001-0006-01	pCi/g	7.76E-02	1.44E-01	4.02E-01					05/13/17 13:36	8.22E+02	08/14/17 06:58	NO
04	K-40	DO	HTC-A01-S001-0006-01	pCi/g	1.21E+01	2.76E+00	4.08E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	PA-234M	DO	HTC-A01-S001-0006-01	pCi/g	5.17E+01	2.13E+01	3.18E+01					05/13/17 13:36	8.22E+02	08/14/17 06:58	NO
04	PB-212	DO	HTC-A01-S001-0006-01	pCi/g	1.16E+02	7.09E+00	1.90E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	RA-224	DO	HTC-A01-S001-0006-01	pCi/g	2.79E+02	2.45E+01	2.18E+01					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	RA-228	DO	HTC-A01-S001-0006-01	pCi/g	1.13E+02	5.48E+00	2.91E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	TH-234	DO	HTC-A01-S001-0006-01	pCi/g	4.28E+01	7.52E+00	1.10E+01					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
04	TL-208	DO	HTC-A01-S001-0006-01	pCi/g	1.09E+02	6.51E+00	1.16E+00					05/13/17 13:36	8.22E+02	08/14/17 06:58	YES
05	AC-228	TRG	HTC-A01-S001-0612-01	pCi/g	4.23E+01	2.19E+00	2.00E+00					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	BI-212	TRG	HTC-A01-S001-0612-01	pCi/g	2.60E+01	3.04E+00	3.82E+00					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	RA-226	TRG	HTC-A01-S001-0612-01	pCi/g	1.67E+01	1.13E+00	9.96E-01					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES

0318

Work Order: 17-07077-Gamma-2

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
05	CS-137	TRG	HTC-A01-S001-0612-01	pCi/g	-1.00E-01	2.29E-01	3.26E-01					05/13/17 13:33	8.07E+02	08/14/17 05:52	NO
05	K-40	TRG	HTC-A01-S001-0612-01	pCi/g	9.57E+00	2.77E+00	4.21E+00					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	PA-234M	TRG	HTC-A01-S001-0612-01	pCi/g	2.15E+01	1.54E+01	2.53E+01					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	PB-212	TRG	HTC-A01-S001-0612-01	pCi/g	4.31E+01	3.05E+00	1.16E+00					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	RA-224	TRG	HTC-A01-S001-0612-01	pCi/g	7.94E+01	9.52E+00	1.33E+01					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	RA-228	TRG	HTC-A01-S001-0612-01	pCi/g	4.23E+01	2.19E+00	2.00E+00					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	TH-234	TRG	HTC-A01-S001-0612-01	pCi/g	9.67E+00	4.33E+00	7.13E+00					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
05	TL-208	TRG	HTC-A01-S001-0612-01	pCi/g	3.98E+01	2.50E+00	7.29E-01					05/13/17 13:33	8.07E+02	08/14/17 05:52	YES
06	AC-228	TRG	HTC-A01-S001-1218-01	pCi/g	2.51E+00	5.27E-01	9.63E-01					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	BI-212	TRG	HTC-A01-S001-1218-01	pCi/g	2.23E+00	1.03E+00	1.56E+00					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	RA-226	TRG	HTC-A01-S001-1218-01	pCi/g	1.59E+00	2.80E-01	3.80E-01					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	CS-137	TRG	HTC-A01-S001-1218-01	pCi/g	1.97E-01	1.26E-01	2.00E-01					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	K-40	TRG	HTC-A01-S001-1218-01	pCi/g	1.50E+01	2.40E+00	2.01E+00					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	PA-234M	TRG	HTC-A01-S001-1218-01	pCi/g	1.40E+01	1.01E+01	1.72E+01					05/13/17 13:30	6.06E+02	08/14/17 05:53	NO
06	PB-212	TRG	HTC-A01-S001-1218-01	pCi/g	2.59E+00	2.84E-01	3.54E-01					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	RA-224	TRG	HTC-A01-S001-1218-01	pCi/g	7.54E+00	2.46E+00	4.07E+00					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	RA-228	TRG	HTC-A01-S001-1218-01	pCi/g	2.51E+00	5.27E-01	9.63E-01					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	TH-234	TRG	HTC-A01-S001-1218-01	pCi/g	2.40E+00	1.96E+00	3.26E+00					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
06	TL-208	TRG	HTC-A01-S001-1218-01	pCi/g	2.47E+00	3.61E-01	7.31E-02					05/13/17 13:30	6.06E+02	08/14/17 05:53	YES
07	AC-228	TRG	HTC-A01-S001-1824-01	pCi/g	2.43E+00	3.86E-01	6.19E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	BI-212	TRG	HTC-A01-S001-1824-01	pCi/g	1.80E+00	6.24E-01	9.88E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	RA-226	TRG	HTC-A01-S001-1824-01	pCi/g	1.74E+00	2.16E-01	2.65E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	CS-137	TRG	HTC-A01-S001-1824-01	pCi/g	-1.42E-02	7.35E-02	1.07E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	NO
07	K-40	TRG	HTC-A01-S001-1824-01	pCi/g	2.23E+01	2.54E+00	1.07E+00					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	PA-234M	TRG	HTC-A01-S001-1824-01	pCi/g	7.45E+00	6.30E+00	1.02E+01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	PB-212	TRG	HTC-A01-S001-1824-01	pCi/g	2.72E+00	2.70E-01	2.72E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	RA-224	TRG	HTC-A01-S001-1824-01	pCi/g	6.86E+00	2.13E+00	3.12E+00					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	RA-228	TRG	HTC-A01-S001-1824-01	pCi/g	2.43E+00	3.86E-01	6.19E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	TH-234	TRG	HTC-A01-S001-1824-01	pCi/g	5.56E+00	2.34E+00	3.81E+00					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
07	TL-208	TRG	HTC-A01-S001-1824-01	pCi/g	2.29E+00	2.69E-01	1.78E-01					05/13/17 13:27	6.97E+02	08/14/17 06:59	YES
08	AC-228	TRG	HTC-A01-S001-2430-01	pCi/g	4.42E+00	4.79E-01	5.83E-01					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	BI-212	TRG	HTC-A01-S001-2430-01	pCi/g	2.58E+00	1.29E+00	2.01E+00					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	RA-226	TRG	HTC-A01-S001-2430-01	pCi/g	2.07E+00	3.49E-01	4.25E-01					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	CS-137	TRG	HTC-A01-S001-2430-01	pCi/g	-5.05E-02	6.51E-02	1.76E-01					05/13/17 13:24	5.83E+02	08/14/17 06:59	NO
08	K-40	TRG	HTC-A01-S001-2430-01	pCi/g	2.07E+01	2.97E+00	2.20E+00					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	PA-234M	TRG	HTC-A01-S001-2430-01	pCi/g	1.03E+01	1.19E+01	1.99E+01					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	PB-212	TRG	HTC-A01-S001-2430-01	pCi/g	5.08E+00	5.17E-01	4.34E-01					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	RA-224	TRG	HTC-A01-S001-2430-01	pCi/g	5.04E+01	5.05E+00	5.82E+00					05/13/17 13:24	5.83E+02	08/14/17 06:59	NO

0319

Work Order: 17-07077-Gamma-2

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
08	RA-228	TRG	HTC-A01-S001-2430-01	pCi/g	4.42E+00	4.79E-01	5.83E-01					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	TH-234	TRG	HTC-A01-S001-2430-01	pCi/g	9.62E+00	3.27E+00	9.28E+00					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
08	TL-208	TRG	HTC-A01-S001-2430-01	pCi/g	3.81E+00	5.07E-01	7.60E-02					05/13/17 13:24	5.83E+02	08/14/17 06:59	YES
09	AC-228	TRG	HTC-A01-S001-3036-01	pCi/g	1.90E+00	2.41E-01	3.48E-01					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	BI-212	TRG	HTC-A01-S001-3036-01	pCi/g	8.51E-01	4.86E-01	7.53E-01					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	RA-226	TRG	HTC-A01-S001-3036-01	pCi/g	1.32E+00	1.76E-01	3.04E-01					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	CS-137	TRG	HTC-A01-S001-3036-01	pCi/g	3.86E-02	6.02E-02	9.57E-02					05/13/17 13:21	5.19E+02	08/14/17 08:00	NO
09	K-40	TRG	HTC-A01-S001-3036-01	pCi/g	2.67E+01	2.90E+00	1.15E+00					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	PA-234M	TRG	HTC-A01-S001-3036-01	pCi/g	1.94E+00	6.13E+00	9.58E+00					05/13/17 13:21	5.19E+02	08/14/17 08:00	NO
09	PB-212	TRG	HTC-A01-S001-3036-01	pCi/g	1.75E+00	1.93E-01	3.65E-01					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	RA-224	TRG	HTC-A01-S001-3036-01	pCi/g	5.61E+00	1.77E+00	4.15E+00					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	RA-228	TRG	HTC-A01-S001-3036-01	pCi/g	1.90E+00	2.41E-01	3.48E-01					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	TH-234	TRG	HTC-A01-S001-3036-01	pCi/g	2.95E+00	1.71E+00	2.80E+00					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
09	TL-208	TRG	HTC-A01-S001-3036-01	pCi/g	1.42E+00	2.15E-01	2.29E-01					05/13/17 13:21	5.19E+02	08/14/17 08:00	YES
10	AC-228	TRG	HTC-A01-S001-3642-01	pCi/g	1.89E+00	2.85E-01	4.12E-01					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	BI-212	TRG	HTC-A01-S001-3642-01	pCi/g	1.05E+00	5.73E-01	1.11E+00					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	RA-226	TRG	HTC-A01-S001-3642-01	pCi/g	1.21E+00	1.91E-01	2.15E-01					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	CS-137	TRG	HTC-A01-S001-3642-01	pCi/g	-2.83E-02	7.19E-02	1.02E-01					05/13/17 13:18	6.02E+02	08/14/17 08:01	NO
10	K-40	TRG	HTC-A01-S001-3642-01	pCi/g	2.42E+01	2.81E+00	1.29E+00					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	PA-234M	TRG	HTC-A01-S001-3642-01	pCi/g	1.28E+01	9.27E+00	1.49E+01					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	PB-212	TRG	HTC-A01-S001-3642-01	pCi/g	2.29E+00	2.82E-01	2.99E-01					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	RA-224	TRG	HTC-A01-S001-3642-01	pCi/g	2.57E+01	2.85E+00	3.84E+00					05/13/17 13:18	6.02E+02	08/14/17 08:01	NO
10	RA-228	TRG	HTC-A01-S001-3642-01	pCi/g	1.89E+00	2.85E-01	4.12E-01					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
10	TH-234	TRG	HTC-A01-S001-3642-01	pCi/g	2.16E+00	1.50E+00	2.03E+00					05/13/17 13:18	6.02E+02	08/14/17 08:01	NO
10	TL-208	TRG	HTC-A01-S001-3642-01	pCi/g	1.75E+00	2.39E-01	4.20E-02					05/13/17 13:18	6.02E+02	08/14/17 08:01	YES
11	AC-228	TRG	HTC-A01-S001-4248-01	pCi/g	1.72E+00	3.84E-01	8.22E-01					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
11	BI-212	TRG	HTC-A01-S001-4248-01	pCi/g	1.27E+00	6.96E-01	1.06E+00					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
11	RA-226	TRG	HTC-A01-S001-4248-01	pCi/g	1.43E+00	2.75E-01	4.17E-01					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
11	CS-137	TRG	HTC-A01-S001-4248-01	pCi/g	6.19E-02	1.02E-01	1.47E-01					05/13/17 13:15	6.27E+02	08/14/17 08:01	NO
11	K-40	TRG	HTC-A01-S001-4248-01	pCi/g	2.64E+01	3.27E+00	1.41E+00					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
11	PA-234M	TRG	HTC-A01-S001-4248-01	pCi/g	1.11E+01	1.08E+01	1.69E+01					05/13/17 13:15	6.27E+02	08/14/17 08:01	NO
11	PB-212	TRG	HTC-A01-S001-4248-01	pCi/g	2.13E+00	3.06E-01	3.67E-01					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
11	RA-224	TRG	HTC-A01-S001-4248-01	pCi/g	2.13E+01	2.72E+00	3.93E+00					05/13/17 13:15	6.27E+02	08/14/17 08:01	NO
11	RA-228	TRG	HTC-A01-S001-4248-01	pCi/g	1.72E+00	3.84E-01	8.22E-01					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
11	TH-234	TRG	HTC-A01-S001-4248-01	pCi/g	2.39E+00	1.54E+00	2.32E+00					05/13/17 13:15	6.27E+02	08/14/17 08:01	NO
11	TL-208	TRG	HTC-A01-S001-4248-01	pCi/g	1.74E+00	3.31E-01	7.06E-02					05/13/17 13:15	6.27E+02	08/14/17 08:01	YES
12	AC-228	TRG	HTC-A01-S002-0006-01	pCi/g	8.96E-01	1.34E-01	3.06E-01					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	BI-212	TRG	HTC-A01-S002-0006-01	pCi/g	5.36E-01	3.95E-01	6.37E-01					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES

Preliminary Data Report & Analytical Calculations

Work Order: 17-07077-Gamma-2

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
12	RA-226	TRG	HTC-A01-S002-0006-01	pCi/g	5.27E-01	1.00E-01	1.33E-01					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	CS-137	TRG	HTC-A01-S002-0006-01	pCi/g	1.89E-02	4.05E-02	6.31E-02					05/13/17 11:26	7.29E+02	08/14/17 09:03	NO
12	K-40	TRG	HTC-A01-S002-0006-01	pCi/g	1.43E+01	1.61E+00	3.93E-01					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	PA-234M	TRG	HTC-A01-S002-0006-01	pCi/g	1.79E+00	3.49E+00	5.81E+00					05/13/17 11:26	7.29E+02	08/14/17 09:03	NO
12	PB-212	TRG	HTC-A01-S002-0006-01	pCi/g	7.94E-01	9.86E-02	1.75E-01					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	RA-224	TRG	HTC-A01-S002-0006-01	pCi/g	1.84E+00	8.81E-01	1.97E+00					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	RA-228	TRG	HTC-A01-S002-0006-01	pCi/g	8.96E-01	1.34E-01	3.06E-01					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	TH-234	TRG	HTC-A01-S002-0006-01	pCi/g	1.53E+00	1.18E+00	1.96E+00					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
12	TL-208	TRG	HTC-A01-S002-0006-01	pCi/g	6.96E-01	1.24E-01	9.22E-02					05/13/17 11:26	7.29E+02	08/14/17 09:03	YES
13	AC-228	TRG	HTC-A01-S002-0612-01	pCi/g	8.47E-01	1.95E-01	3.46E-01					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
13	BI-212	TRG	HTC-A01-S002-0612-01	pCi/g	2.31E-01	4.12E-01	6.61E-01					05/13/17 11:23	7.69E+02	08/14/17 09:03	NO
13	RA-226	TRG	HTC-A01-S002-0612-01	pCi/g	5.75E-01	1.27E-01	5.83E-02					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
13	CS-137	TRG	HTC-A01-S002-0612-01	pCi/g	-5.46E-04	5.51E-02	8.35E-02					05/13/17 11:23	7.69E+02	08/14/17 09:03	NO
13	K-40	TRG	HTC-A01-S002-0612-01	pCi/g	1.56E+01	1.87E+00	6.78E-01					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
13	PA-234M	TRG	HTC-A01-S002-0612-01	pCi/g	3.38E+00	5.33E+00	8.92E+00					05/13/17 11:23	7.69E+02	08/14/17 09:03	NO
13	PB-212	TRG	HTC-A01-S002-0612-01	pCi/g	1.09E+00	1.50E-01	1.62E-01					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
13	RA-224	TRG	HTC-A01-S002-0612-01	pCi/g	1.28E+01	1.58E+00	2.39E+00					05/13/17 11:23	7.69E+02	08/14/17 09:03	NO
13	RA-228	TRG	HTC-A01-S002-0612-01	pCi/g	8.47E-01	1.95E-01	3.46E-01					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
13	TH-234	TRG	HTC-A01-S002-0612-01	pCi/g	1.11E+00	1.02E+00	1.69E+00					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
13	TL-208	TRG	HTC-A01-S002-0612-01	pCi/g	7.06E-01	1.51E-01	1.87E-01					05/13/17 11:23	7.69E+02	08/14/17 09:03	YES
14	AC-228	TRG	HTC-A01-S002-1218-01	pCi/g	7.32E-01	2.15E-01	3.94E-01					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
14	BI-212	TRG	HTC-A01-S002-1218-01	pCi/g	6.79E-01	4.35E-01	1.24E+00					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
14	RA-226	TRG	HTC-A01-S002-1218-01	pCi/g	6.86E-01	1.83E-01	2.52E-01					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
14	CS-137	TRG	HTC-A01-S002-1218-01	pCi/g	2.57E-02	6.45E-02	9.57E-02					05/13/17 11:20	8.14E+02	08/14/17 09:03	NO
14	K-40	TRG	HTC-A01-S002-1218-01	pCi/g	1.60E+01	2.04E+00	9.81E-02					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
14	PA-234M	TRG	HTC-A01-S002-1218-01	pCi/g	9.10E-01	7.99E+00	1.11E+01					05/13/17 11:20	8.14E+02	08/14/17 09:03	NO
14	PB-212	TRG	HTC-A01-S002-1218-01	pCi/g	7.74E-01	1.16E-01	2.13E-01					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
14	RA-224	TRG	HTC-A01-S002-1218-01	pCi/g	8.51E+00	1.38E+00	2.23E+00					05/13/17 11:20	8.14E+02	08/14/17 09:03	NO
14	RA-228	TRG	HTC-A01-S002-1218-01	pCi/g	7.32E-01	2.15E-01	3.94E-01					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
14	TH-234	TRG	HTC-A01-S002-1218-01	pCi/g	9.75E-01	9.63E-01	1.45E+00					05/13/17 11:20	8.14E+02	08/14/17 09:03	NO
14	TL-208	TRG	HTC-A01-S002-1218-01	pCi/g	8.34E-01	1.63E-01	5.44E-02					05/13/17 11:20	8.14E+02	08/14/17 09:03	YES
15	AC-228	TRG	HTC-A01-S002-1824-01	pCi/g	5.74E-01	1.16E-01	1.97E-01					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
15	BI-212	TRG	HTC-A01-S002-1824-01	pCi/g	7.53E-01	2.87E-01	3.96E-01					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
15	RA-226	TRG	HTC-A01-S002-1824-01	pCi/g	4.72E-01	9.88E-02	1.42E-01					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
15	CS-137	TRG	HTC-A01-S002-1824-01	pCi/g	3.14E-02	3.51E-02	5.77E-02					05/13/17 11:17	7.88E+02	08/14/17 10:06	NO
15	K-40	TRG	HTC-A01-S002-1824-01	pCi/g	1.16E+01	1.38E+00	6.11E-01					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
15	PA-234M	TRG	HTC-A01-S002-1824-01	pCi/g	9.95E-01	3.83E+00	5.89E+00					05/13/17 11:17	7.88E+02	08/14/17 10:06	NO
15	PB-212	TRG	HTC-A01-S002-1824-01	pCi/g	6.09E-01	8.20E-02	1.50E-01					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES

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Work Order: 17-07077-Gamma-2

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
15	RA-224	TRG	HTC-A01-S002-1824-01	pCi/g	1.84E+00	7.69E-01	1.69E+00					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
15	RA-228	TRG	HTC-A01-S002-1824-01	pCi/g	5.74E-01	1.16E-01	1.97E-01					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
15	TH-234	TRG	HTC-A01-S002-1824-01	pCi/g	7.90E-01	8.04E-01	1.07E+00					05/13/17 11:17	7.88E+02	08/14/17 10:06	NO
15	TL-208	TRG	HTC-A01-S002-1824-01	pCi/g	5.75E-01	1.08E-01	8.52E-02					05/13/17 11:17	7.88E+02	08/14/17 10:06	YES
16	AC-228	TRG	HTC-A01-S002-2430-01	pCi/g	7.66E-01	1.89E-01	3.36E-01					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
16	BI-212	TRG	HTC-A01-S002-2430-01	pCi/g	5.35E-01	4.00E-01	6.99E-01					05/13/17 11:14	7.02E+02	08/14/17 10:06	NO
16	RA-226	TRG	HTC-A01-S002-2430-01	pCi/g	4.90E-01	1.26E-01	2.16E-01					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
16	CS-137	TRG	HTC-A01-S002-2430-01	pCi/g	3.52E-02	4.91E-02	8.15E-02					05/13/17 11:14	7.02E+02	08/14/17 10:06	NO
16	K-40	TRG	HTC-A01-S002-2430-01	pCi/g	1.55E+01	1.90E+00	7.13E-01					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
16	PA-234M	TRG	HTC-A01-S002-2430-01	pCi/g	-6.75E-01	4.96E+00	7.54E+00					05/13/17 11:14	7.02E+02	08/14/17 10:06	NO
16	PB-212	TRG	HTC-A01-S002-2430-01	pCi/g	7.11E-01	1.08E-01	1.64E-01					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
16	RA-224	TRG	HTC-A01-S002-2430-01	pCi/g	1.81E+00	1.05E+00	1.85E+00					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
16	RA-228	TRG	HTC-A01-S002-2430-01	pCi/g	7.66E-01	1.89E-01	3.36E-01					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
16	TH-234	TRG	HTC-A01-S002-2430-01	pCi/g	4.71E-01	1.01E+00	1.32E+00					05/13/17 11:14	7.02E+02	08/14/17 10:06	NO
16	TL-208	TRG	HTC-A01-S002-2430-01	pCi/g	6.75E-01	1.26E-01	3.60E-02					05/13/17 11:14	7.02E+02	08/14/17 10:06	YES
17	AC-228	TRG	HTC-A01-S002-2430-02	pCi/g	7.35E-01	2.64E-01	5.91E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
17	BI-212	TRG	HTC-A01-S002-2430-02	pCi/g	4.17E-01	6.18E-01	9.37E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	NO
17	RA-226	TRG	HTC-A01-S002-2430-02	pCi/g	7.75E-01	1.67E-01	9.46E-02					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
17	CS-137	TRG	HTC-A01-S002-2430-02	pCi/g	3.57E-02	7.71E-02	1.15E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	NO
17	K-40	TRG	HTC-A01-S002-2430-02	pCi/g	1.47E+01	2.07E+00	8.58E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
17	PA-234M	TRG	HTC-A01-S002-2430-02	pCi/g	-3.55E+00	9.08E+00	1.20E+01					05/13/17 11:14	6.80E+02	08/14/17 10:06	NO
17	PB-212	TRG	HTC-A01-S002-2430-02	pCi/g	7.94E-01	1.39E-01	2.57E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
17	RA-224	TRG	HTC-A01-S002-2430-02	pCi/g	1.87E+00	1.31E+00	2.89E+00					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
17	RA-228	TRG	HTC-A01-S002-2430-02	pCi/g	7.35E-01	2.64E-01	5.91E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
17	TH-234	TRG	HTC-A01-S002-2430-02	pCi/g	1.24E+00	1.05E+00	1.59E+00					05/13/17 11:14	6.80E+02	08/14/17 10:06	NO
17	TL-208	TRG	HTC-A01-S002-2430-02	pCi/g	6.73E-01	2.25E-01	2.96E-01					05/13/17 11:14	6.80E+02	08/14/17 10:06	YES
18	AC-228	TRG	HTC-A01-S002-3036-01	pCi/g	4.81E-01	1.96E-01	3.70E-01					05/13/17 11:11	7.63E+02	08/14/17 11:07	NO
18	BI-212	TRG	HTC-A01-S002-3036-01	pCi/g	4.54E-01	3.36E-01	5.97E-01					05/13/17 11:11	7.63E+02	08/14/17 11:07	NO
18	RA-226	TRG	HTC-A01-S002-3036-01	pCi/g	6.64E-01	1.32E-01	1.88E-01					05/13/17 11:11	7.63E+02	08/14/17 11:07	YES
18	CS-137	TRG	HTC-A01-S002-3036-01	pCi/g	1.87E-02	4.26E-02	6.89E-02					05/13/17 11:11	7.63E+02	08/14/17 11:07	NO
18	K-40	TRG	HTC-A01-S002-3036-01	pCi/g	1.06E+01	1.43E+00	6.28E-01					05/13/17 11:11	7.63E+02	08/14/17 11:07	YES
18	PA-234M	TRG	HTC-A01-S002-3036-01	pCi/g	2.80E-01	4.32E+00	6.85E+00					05/13/17 11:11	7.63E+02	08/14/17 11:07	NO
18	PB-212	TRG	HTC-A01-S002-3036-01	pCi/g	5.86E-01	9.61E-02	1.95E-01					05/13/17 11:11	7.63E+02	08/14/17 11:07	YES
18	RA-224	TRG	HTC-A01-S002-3036-01	pCi/g	1.79E+00	9.77E-01	2.20E+00					05/13/17 11:11	7.63E+02	08/14/17 11:07	YES
18	RA-228	TRG	HTC-A01-S002-3036-01	pCi/g	4.81E-01	1.96E-01	3.70E-01					05/13/17 11:11	7.63E+02	08/14/17 11:07	NO
18	TH-234	TRG	HTC-A01-S002-3036-01	pCi/g	1.37E+00	1.14E+00	1.89E+00					05/13/17 11:11	7.63E+02	08/14/17 11:07	YES
18	TL-208	TRG	HTC-A01-S002-3036-01	pCi/g	5.20E-01	1.26E-01	3.32E-02					05/13/17 11:11	7.63E+02	08/14/17 11:07	YES
19	AC-228	TRG	HTC-A01-S002-3642-01	pCi/g	1.12E+00	2.48E-01	5.56E-01					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES

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Work Order: 17-07077-Gamma-2

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
19	BI-212	TRG	HTC-A01-S002-3642-01	pCi/g	8.07E-01	5.57E-01	8.74E-01					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
19	RA-226	TRG	HTC-A01-S002-3642-01	pCi/g	9.60E-01	2.02E-01	2.95E-01					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
19	CS-137	TRG	HTC-A01-S002-3642-01	pCi/g	2.51E-02	6.52E-02	1.17E-01					05/13/17 11:08	6.88E+02	08/14/17 11:08	NO
19	K-40	TRG	HTC-A01-S002-3642-01	pCi/g	1.57E+01	2.32E+00	1.70E+00					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
19	PA-234M	TRG	HTC-A01-S002-3642-01	pCi/g	-2.31E+00	9.66E+00	1.31E+01					05/13/17 11:08	6.88E+02	08/14/17 11:08	NO
19	PB-212	TRG	HTC-A01-S002-3642-01	pCi/g	1.23E+00	2.24E-01	3.02E-01					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
19	RA-224	TRG	HTC-A01-S002-3642-01	pCi/g	1.23E+01	1.83E+00	2.89E+00					05/13/17 11:08	6.88E+02	08/14/17 11:08	NO
19	RA-228	TRG	HTC-A01-S002-3642-01	pCi/g	1.12E+00	2.48E-01	5.56E-01					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
19	TH-234	TRG	HTC-A01-S002-3642-01	pCi/g	2.61E+00	1.47E+00	2.40E+00					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
19	TL-208	TRG	HTC-A01-S002-3642-01	pCi/g	8.67E-01	2.06E-01	6.43E-02					05/13/17 11:08	6.88E+02	08/14/17 11:08	YES
20	AC-228	TRG	HTC-A01-S002-4248-01	pCi/g	9.61E-01	1.86E-01	3.23E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	BI-212	TRG	HTC-A01-S002-4248-01	pCi/g	7.75E-01	4.78E-01	7.61E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	RA-226	TRG	HTC-A01-S002-4248-01	pCi/g	8.44E-01	1.32E-01	2.05E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	CS-137	TRG	HTC-A01-S002-4248-01	pCi/g	6.96E-04	3.25E-02	6.45E-02					05/13/17 11:05	7.05E+02	08/14/17 11:25	NO
20	K-40	TRG	HTC-A01-S002-4248-01	pCi/g	2.01E+01	2.14E+00	9.27E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	PA-234M	TRG	HTC-A01-S002-4248-01	pCi/g	-3.16E+00	4.59E+00	6.36E+00					05/13/17 11:05	7.05E+02	08/14/17 11:25	NO
20	PB-212	TRG	HTC-A01-S002-4248-01	pCi/g	1.12E+00	1.27E-01	2.10E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	RA-224	TRG	HTC-A01-S002-4248-01	pCi/g	2.99E+00	1.09E+00	2.36E+00					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	RA-228	TRG	HTC-A01-S002-4248-01	pCi/g	9.61E-01	1.86E-01	3.23E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES
20	TH-234	TRG	HTC-A01-S002-4248-01	pCi/g	1.71E+00	9.92E-01	1.37E+00					05/13/17 11:05	7.05E+02	08/14/17 11:25	NO
20	TL-208	TRG	HTC-A01-S002-4248-01	pCi/g	1.04E+00	1.44E-01	1.80E-01					05/13/17 11:05	7.05E+02	08/14/17 11:25	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07077-Gamma-2 (pCi/g) in SO
Tracer ID:

1 hr

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	07/18/17 00:00	1.0000				0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000				0.00		
03	DUP	HTC-A01-S001-0006-01	05/13/17 13:36	821.6000				0.00		
04	DO	HTC-A01-S001-0006-01	05/13/17 13:36	821.6000				0.00		
05	TRG	HTC-A01-S001-0612-01	05/13/17 13:33	807.0600				0.00		
06	TRG	HTC-A01-S001-1218-01	05/13/17 13:30	605.9700				0.00		
07	TRG	HTC-A01-S001-1824-01	05/13/17 13:27	696.6900				0.00		
08	TRG	HTC-A01-S001-2430-01	05/13/17 13:24	582.9200				0.00		
09	TRG	HTC-A01-S001-3036-01	05/13/17 13:21	519.0000				0.00		
10	TRG	HTC-A01-S001-3642-01	05/13/17 13:18	602.0000				0.00		
11	TRG	HTC-A01-S001-4248-01	05/13/17 13:15	627.4400				0.00		
12	TRG	HTC-A01-S002-0006-01	05/13/17 11:26	728.5300				0.00		
13	TRG	HTC-A01-S002-0612-01	05/13/17 11:23	769.3500				0.00		
14	TRG	HTC-A01-S002-1218-01	05/13/17 11:20	813.5600				0.00		
15	TRG	HTC-A01-S002-1824-01	05/13/17 11:17	787.6900				0.00		
16	TRG	HTC-A01-S002-2430-01	05/13/17 11:14	702.4400				0.00		
17	TRG	HTC-A01-S002-2430-02	05/13/17 11:14	680.4100				0.00		
18	TRG	HTC-A01-S002-3036-01	05/13/17 11:11	762.7800				0.00		
19	TRG	HTC-A01-S002-3642-01	05/13/17 11:08	688.1300				0.00		
20	TRG	HTC-A01-S002-4248-01	05/13/17 11:05	705.0300				0.00		

Gel

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07077	2	Gamma	grams	8/9/2017	KSALLINGS

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	HTC-A01-S001-0006-01	DUP					8.2160E+02	8.2160E+02				
04	HTC-A01-S001-0006-01	DO					8.2160E+02	8.2160E+02				
05	HTC-A01-S001-0612-01	TRG					8.0706E+02	8.0706E+02				
06	HTC-A01-S001-1218-01	TRG					6.0597E+02	6.0597E+02				
07	HTC-A01-S001-1824-01	TRG					6.9669E+02	6.9669E+02				
08	HTC-A01-S001-2430-01	TRG					5.8292E+02	5.8292E+02				
09	HTC-A01-S001-3036-01	TRG					5.1900E+02	5.1900E+02				
10	HTC-A01-S001-3642-01	TRG					6.0200E+02	6.0200E+02				
11	HTC-A01-S001-4248-01	TRG					6.2744E+02	6.2744E+02				
12	HTC-A01-S002-0006-01	TRG					7.2853E+02	7.2853E+02				
13	HTC-A01-S002-0612-01	TRG					7.6935E+02	7.6935E+02				
14	HTC-A01-S002-1218-01	TRG					8.1356E+02	8.1356E+02				
15	HTC-A01-S002-1824-01	TRG					7.8769E+02	7.8769E+02				
16	HTC-A01-S002-2430-01	TRG					7.0244E+02	7.0244E+02				
17	HTC-A01-S002-2430-02	TRG					6.8041E+02	6.8041E+02				
18	HTC-A01-S002-3036-01	TRG					7.6278E+02	7.6278E+02				
19	HTC-A01-S002-3642-01	TRG					6.8813E+02	6.8813E+02				
20	HTC-A01-S002-4248-01	TRG					7.0503E+02	7.0503E+02				

Comments	

0325

Technician: Kerry Sacj Date: 7/24/17

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

Rough Sample Preparation
Log Book

Printed: 7/24/2017 8:01 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
17-07077	8/9/2017	7/23/2017	7/24/2017	7/25/2017	KSALLINGS

Bico Pulverizer: 000302 [✓] Jaw Crusher 68275 [ ]

Eberline Fraction	Weston Solutions, 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	HTC-A01-S001-0006-01	14.4900	1031.5000	949.9200	1017.0100	935.4300	8.02%	91.98%	0.0000	0.0000	
05	HTC-A01-S001-0612-01	14.5400	916.7000	847.1000	902.1600	832.5600	7.71%	92.29%	0.0000	0.0000	
06	HTC-A01-S001-1218-01	14.5800	912.4800	727.5600	897.9000	712.9800	20.59%	79.41%	0.0000	0.0000	
07	HTC-A01-S001-1824-01	14.5300	989.2600	809.0200	974.7300	794.4900	18.49%	81.51%	0.0000	0.0000	
08	HTC-A01-S001-2430-01	14.5000	839.0000	667.5300	824.5000	653.0300	20.80%	79.20%	0.0000	0.0000	
09	HTC-A01-S001-3036-01	14.4800	743.6000	601.8500	729.1200	587.3700	19.44%	80.56%	0.0000	0.0000	
10	HTC-A01-S001-3642-01	14.5100	968.1000	776.3600	953.5900	761.8500	20.11%	79.89%	0.0000	0.0000	
11	HTC-A01-S001-4248-01	14.5600	944.8800	758.0700	930.3200	743.5100	20.08%	79.92%	0.0000	0.0000	
12	HTC-A01-S002-0006-01	14.5500	981.3400	902.2400	966.7900	887.6900	8.18%	91.82%	0.0000	0.0000	
13	HTC-A01-S002-0612-01	14.6600	1060.6000	944.8400	1045.9400	930.1800	11.07%	88.93%	0.0000	0.0000	
14	HTC-A01-S002-1218-01	14.6600	1041.7200	934.8200	1027.0600	920.1600	10.41%	89.59%	0.0000	0.0000	
15	HTC-A01-S002-1824-01	14.6400	1054.3400	966.5400	1039.7000	951.9000	8.44%	91.56%	0.0000	0.0000	
16	HTC-A01-S002-2430-01	14.6300	886.7400	793.4200	872.1100	778.7900	10.70%	89.30%	0.0000	0.0000	
17	HTC-A01-S002-2430-02	14.6000	844.3200	761.1700	829.7200	746.5700	10.02%	89.98%	0.0000	0.0000	
18	HTC-A01-S002-3036-01	14.5300	955.3800	840.6000	940.8500	826.0700	12.20%	87.80%	0.0000	0.0000	
19	HTC-A01-S002-3642-01	14.5600	1027.0800	82.0600	1012.5200	67.5000	93.33%	6.67%	0.0000	0.0000	
20	HTC-A01-S002-4248-01	14.6300	960.7000	796.6000	946.0700	781.9700	17.35%	82.65%	0.0000	0.0000	

OVENS Fisher Isotemp SN 00579 [✓] VWR SN 000588 [ ]

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

0326

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

Analysis: Gamma Page No. 10136

Eckert & Ziegler
Analytics

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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

KD 8/14/17

Apex-Gamma

Analysis Report for 1707077-01

GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 10:30:05AM
Acquisition Started	: 8/14/2017 12:09:10PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1835.6 seconds
Dead Time	: 1.94 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55190

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 2:34:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	17.68	18.00	0.0000	0.00
2	22.33	22.65	0.0000	0.00
3	25.21	25.53	0.0000	0.00
4	32.34	32.66	0.0000	0.00
5	51.11	51.42	0.0000	0.00
6	55.81	56.12	0.0000	0.00
7	59.69	60.00	0.0000	0.00
8	67.83	68.13	0.0000	0.00
9	88.27	88.57	0.0000	0.00
10	122.32	122.61	0.0000	0.00
11	136.56	136.84	0.0000	0.00
12	166.52	166.79	0.0000	0.00
13	187.76	188.03	0.0000	0.00
14	382.93	383.13	0.0000	0.00
15	438.94	439.12	0.0000	0.00
16	661.60	661.70	0.0000	0.00
17	697.04	697.13	0.0000	0.00
18	1112.91	1112.86	0.0000	0.00
19	1172.89	1172.82	0.0000	0.00
20	1195.97	1195.89	0.0000	0.00
21	1204.02	1203.94	0.0000	0.00
22	1220.21	1220.13	0.0000	0.00
23	1256.52	1256.42	0.0000	0.00
24	1266.27	1266.17	0.0000	0.00
25	1332.08	1331.96	0.0000	0.00
26	1835.66	1835.37	0.0000	0.00
27	1914.04	1913.72	0.0000	0.00
28	2008.76	2008.41	0.0000	0.00
29	2096.44	2096.06	0.0000	0.00
30	2127.17	2126.78	0.0000	0.00
31	2157.49	2157.09	0.0000	0.00
32	2250.53	2250.09	0.0000	0.00
33	2292.60	2292.16	0.0000	0.00
34	2305.68	2305.23	0.0000	0.00
35	2504.71	2504.19	0.0000	0.00
36	2613.61	2613.06	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:34:45PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	17.68	17 -	29	18.00	4.45E+02	150.63	7.97E+03	1.38
m	2	22.33	17 -	29	22.65	8.26E+04	713.22	1.73E+04	1.86
m	3	25.21	17 -	29	25.53	2.56E+04	626.91	1.15E+04	1.88
	4	32.34	31 -	35	32.66	1.82E+03	219.53	9.11E+03	2.05
M	5	51.11	45 -	64	51.42	1.19E+04	594.24	3.72E+04	3.80
m	6	55.81	45 -	64	56.12	1.24E+04	750.70	3.21E+04	3.48
m	7	59.69	45 -	64	60.00	9.09E+04	696.07	2.00E+04	2.21
	8	67.83	66 -	72	68.13	7.32E+02	342.18	2.08E+04	3.64
	9	88.27	84 -	94	88.57	2.95E+04	560.75	2.49E+04	2.11
	10	122.32	118 -	127	122.61	4.98E+03	356.95	1.53E+04	2.11
	11	136.56	134 -	139	136.84	6.21E+02	210.39	8.33E+03	1.64
	12	166.52	164 -	170	166.79	5.26E+02	223.69	8.69E+03	2.27
	13	187.76	186 -	191	188.03	1.68E+02	205.71	8.32E+03	4.46
	14	382.93	381 -	386	383.13	1.59E+02	152.40	4.50E+03	4.00
	15	438.94	437 -	442	439.12	1.28E+02	156.67	4.78E+03	2.92
	16	661.60	657 -	667	661.70	2.03E+04	337.37	4.31E+03	2.26
	17	697.04	694 -	700	697.13	1.00E+02	117.28	2.41E+03	2.71
	18	1112.91	1107 -	1120	1112.86	3.68E+02	200.71	4.29E+03	6.88
	19	1172.89	1167 -	1179	1172.82	1.63E+04	294.55	2.51E+03	2.49
	20	1195.97	1193 -	1199	1195.89	6.40E+01	70.38	8.42E+02	1.60
	21	1204.02	1201 -	1207	1203.94	6.08E+01	63.19	6.74E+02	3.74
	22	1220.21	1217 -	1223	1220.13	5.02E+01	58.70	5.88E+02	3.09
	23	1256.52	1254 -	1259	1256.42	5.37E+01	38.70	2.55E+02	3.47
	24	1266.27	1264 -	1269	1266.17	3.80E+01	41.12	3.06E+02	2.66
	25	1332.08	1326 -	1338	1331.96	1.46E+04	251.66	5.77E+02	2.56
	26	1835.66	1831 -	1841	1835.37	3.78E+01	27.05	7.83E+01	2.37
	27	1914.04	1894 -	1931	1913.72	8.41E+01	59.33	1.48E+02	35.52
	28	2008.76	2003 -	2012	2008.41	3.28E+01	19.36	3.45E+01	4.79
	29	2096.44	2094 -	2099	2096.06	1.18E+01	12.81	2.23E+01	1.23
	30	2127.17	2123 -	2130	2126.78	2.32E+01	14.56	1.96E+01	5.12
	31	2157.49	2153 -	2162	2157.09	1.66E+01	16.67	3.08E+01	4.52
	32	2250.53	2246 -	2254	2250.09	1.85E+01	15.80	2.70E+01	1.09
	33	2292.60	2287 -	2300	2292.16	3.48E+01	18.19	2.23E+01	5.20
	34	2305.68	2302 -	2312	2305.23	1.20E+01	14.59	2.20E+01	3.35
	35	2504.71	2500 -	2508	2504.19	1.39E+02	24.75	8.29E+00	2.83
	36	2613.61	2609 -	2617	2613.06	1.80E+01	8.49	0.00E+00	2.85

Analysis Report for 1707077-01

GAS-1402

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 : 8/14/2017 2:34:45PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	17.68	17 -	29	4.45E+02	150.63	7.97E+03	1.47E+02
m	2	22.33	17 -	29	8.26E+04	713.22	1.73E+04	2.16E+02
m	3	25.21	17 -	29	2.56E+04	626.91	1.15E+04	1.77E+02
	4	32.34	31 -	35	1.82E+03	219.53	9.11E+03	1.66E+02
M	5	51.11	45 -	64	1.19E+04	594.24	3.72E+04	3.17E+02
m	6	55.81	45 -	64	1.24E+04	750.70	3.21E+04	2.94E+02
m	7	59.69	45 -	64	9.09E+04	696.07	2.00E+04	2.32E+02
	8	67.83	66 -	72	7.32E+02	342.18	2.08E+04	2.78E+02
	9	88.27	84 -	94	2.95E+04	560.75	2.49E+04	3.64E+02
	10	122.32	118 -	127	4.98E+03	356.95	1.53E+04	2.70E+02
	11	136.56	134 -	139	6.21E+02	210.39	8.33E+03	1.68E+02
	12	166.52	164 -	170	5.26E+02	223.69	8.69E+03	1.80E+02
	13	187.76	186 -	191	1.68E+02	205.71	8.32E+03	1.68E+02
	14	382.93	381 -	386	1.59E+02	152.40	4.50E+03	1.24E+02
	15	438.94	437 -	442	1.28E+02	156.67	4.78E+03	1.27E+02
	16	661.60	657 -	667	2.03E+04	337.37	4.31E+03	1.49E+02
	17	697.04	694 -	700	1.00E+02	117.28	2.41E+03	9.50E+01
	18	1112.91	1107 -	1120	3.68E+02	200.71	4.29E+03	1.62E+02
	19	1172.89	1167 -	1179	1.63E+04	294.55	2.51E+03	1.21E+02
	20	1195.97	1193 -	1199	6.40E+01	70.38	8.42E+02	5.63E+01
	21	1204.02	1201 -	1207	6.08E+01	63.19	6.74E+02	5.03E+01
	22	1220.21	1217 -	1223	5.02E+01	58.70	5.88E+02	4.68E+01
	23	1256.52	1254 -	1259	5.37E+01	38.70	2.55E+02	2.94E+01
	24	1266.27	1264 -	1269	3.80E+01	41.12	3.06E+02	3.22E+01
	25	1332.08	1326 -	1338	1.46E+04	251.66	5.77E+02	5.81E+01
	26	1835.66	1831 -	1841	3.78E+01	27.05	7.83E+01	1.13E+01
	27	1914.04	1894 -	1931	8.41E+01	59.33	1.48E+02	4.64E+01
	28	2008.76	2003 -	2012	3.28E+01	19.36	3.45E+01	1.28E+01
	29	2096.44	2094 -	2099	1.18E+01	12.81	2.23E+01	8.88E+00
	30	2127.17	2123 -	2130	2.32E+01	14.56	1.96E+01	8.98E+00
	31	2157.49	2153 -	2162	1.66E+01	16.67	3.08E+01	1.20E+01

Analysis Report for 1707077-01

GAS-1402

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	2250.53	2246 -	2254	1.85E+01	15.80	2.70E+01	1.09E+01
33	2292.60	2287 -	2300	3.48E+01	18.19	2.23E+01	1.14E+01
34	2305.68	2302 -	2312	1.20E+01	14.59	2.20E+01	1.06E+01
35	2504.71	2500 -	2508	1.39E+02	24.75	8.29E+00	6.21E+00
36	2613.61	2609 -	2617	1.80E+01	8.49	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 2:34:45PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	17.68	17 -	29	18.00	4.45E+02	150.63	7.97E+03	.....
m	2	22.33	17 -	29	22.65	8.26E+04	713.22	1.73E+04	.....
m	3	25.21	17 -	29	25.53	2.56E+04	626.91	1.15E+04	TH-231
	4	32.34	31 -	35	32.66	1.82E+03	219.53	9.11E+03	.....
M	5	51.11	45 -	64	51.42	1.19E+04	594.24	3.72E+04	.....
m	6	55.81	45 -	64	56.12	1.24E+04	750.70	3.21E+04	.....
m	7	59.69	45 -	64	60.00	9.09E+04	696.07	2.00E+04	AM-241
	8	67.83	66 -	72	68.13	7.32E+02	342.18	2.08E+04	TI-44
									TA-182
									TH-230
									HF-172
	9	88.27	84 -	94	88.57	2.95E+04	560.75	2.49E+04	LU-176
									CD-109
									SN-126
	10	122.32	118 -	127	122.61	4.98E+03	356.95	1.53E+04	CO-57
									EU-152
									EU-154
	11	136.56	134 -	139	136.84	6.21E+02	210.39	8.33E+03	CO-57
									SE-75
	12	166.52	164 -	170	166.79	5.26E+02	223.69	8.69E+03	CE-139
	13	187.76	186 -	191	188.03	1.68E+02	205.71	8.32E+03	.....

Analysis Report for 1707077-01

GAS-1402

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
14	382.93	381 -	386	383.13	1.59E+02	152.40	4.50E+03	.....
15	438.94	437 -	442	439.12	1.28E+02	156.67	4.78E+03	.....
16	661.60	657 -	667	661.70	2.03E+04	337.37	4.31E+03	CS-137
17	697.04	694 -	700	697.13	1.00E+02	117.28	2.41E+03	PM-144
18	1112.91	1107 -	1120	1112.86	3.68E+02	200.71	4.29E+03	EU-152
19	1172.89	1167 -	1179	1172.82	1.63E+04	294.55	2.51E+03	CO-60
20	1195.97	1193 -	1199	1195.89	6.40E+01	70.38	8.42E+02	.....
21	1204.02	1201 -	1207	1203.94	6.08E+01	63.19	6.74E+02	.....
22	1220.21	1217 -	1223	1220.13	5.02E+01	58.70	5.88E+02	.....
23	1256.52	1254 -	1259	1256.42	5.37E+01	38.70	2.55E+02	.....
24	1266.27	1264 -	1269	1266.17	3.80E+01	41.12	3.06E+02	.....
25	1332.08	1326 -	1338	1331.96	1.46E+04	251.66	5.77E+02	CO-60
26	1835.66	1831 -	1841	1835.37	3.78E+01	27.05	7.83E+01	Y-88
27	1914.04	1894 -	1931	1913.72	8.41E+01	59.33	1.48E+02	.....
28	2008.76	2003 -	2012	2008.41	3.28E+01	19.36	3.45E+01	.....
29	2096.44	2094 -	2099	2096.06	1.18E+01	12.81	2.23E+01	.....
30	2127.17	2123 -	2130	2126.78	2.32E+01	14.56	1.96E+01	.....
31	2157.49	2153 -	2162	2157.09	1.66E+01	16.67	3.08E+01	.....
32	2250.53	2246 -	2254	2250.09	1.85E+01	15.80	2.70E+01	.....
33	2292.60	2287 -	2300	2292.16	3.48E+01	18.19	2.23E+01	.....
34	2305.68	2302 -	2312	2305.23	1.20E+01	14.59	2.20E+01	.....
35	2504.71	2500 -	2508	2504.19	1.39E+02	24.75	8.29E+00	.....
36	2613.61	2609 -	2617	2613.06	1.80E+01	8.49	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 : 8/14/2017 2:34:45PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	17.68	4.45E+02	150.63	3.29E-04	1.73E-03
m	2	22.33	8.26E+04	713.22	1.48E-03	1.73E-03
m	3	25.21	2.56E+04	626.91	2.75E-03	1.73E-03
	4	32.34	1.82E+03	219.53	7.29E-03	1.73E-03
M	5	51.11	1.19E+04	594.24	1.98E-02	1.73E-03
m	6	55.81	1.24E+04	750.70	2.19E-02	1.73E-03
m	7	59.69	9.09E+04	696.07	2.34E-02	1.73E-03

Analysis Report for 1707077-01

GAS-1402

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
8	67.83	7.32E+02	342.18	2.55E-02	1.88E-03
9	88.27	2.95E+04	560.75	2.72E-02	2.26E-03
10	122.32	4.98E+03	356.95	2.52E-02	2.12E-03
11	136.56	6.21E+02	210.39	2.39E-02	1.96E-03
12	166.52	5.26E+02	223.69	2.12E-02	1.63E-03
13	187.76	1.68E+02	205.71	1.95E-02	1.54E-03
14	382.93	1.59E+02	152.40	1.07E-02	9.70E-04
15	438.94	1.28E+02	156.67	9.47E-03	8.90E-04
16	661.60	2.03E+04	337.37	6.54E-03	5.95E-04
17	697.04	1.00E+02	117.28	6.24E-03	5.63E-04
18	1112.91	3.68E+02	200.71	4.14E-03	3.51E-04
19	1172.89	1.63E+04	294.55	3.96E-03	3.41E-04
20	1195.97	6.40E+01	70.38	3.90E-03	3.34E-04
21	1204.02	6.08E+01	63.19	3.87E-03	3.32E-04
22	1220.21	5.02E+01	58.70	3.83E-03	3.28E-04
23	1256.52	5.37E+01	38.70	3.74E-03	3.17E-04
24	1266.27	3.80E+01	41.12	3.72E-03	3.14E-04
25	1332.08	1.46E+04	251.66	3.56E-03	2.96E-04
26	1835.66	3.78E+01	27.05	2.78E-03	2.15E-04
27	1914.04	8.41E+01	59.33	2.70E-03	2.15E-04
28	2008.76	3.28E+01	19.36	2.62E-03	2.15E-04
29	2096.44	1.18E+01	12.81	2.54E-03	2.15E-04
30	2127.17	2.32E+01	14.56	2.52E-03	2.15E-04
31	2157.49	1.66E+01	16.67	2.50E-03	2.15E-04
32	2250.53	1.85E+01	15.80	2.43E-03	2.15E-04
33	2292.60	3.48E+01	18.19	2.41E-03	2.15E-04
34	2305.68	1.20E+01	14.59	2.40E-03	2.15E-04
35	2504.71	1.39E+02	24.75	2.29E-03	2.15E-04
36	2613.61	1.80E+01	8.49	2.24E-03	2.15E-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 : 8/14/2017 2:34:45PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	17.68	4.45E+02	150.63			4.45E+02	1.51E+02

Analysis Report for 1707077-01

GAS-1402

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	2	22.33	8.26E+04	713.22	5.15E+00	6.42E+00	8.26E+04	7.13E+02
m	3	25.21	2.56E+04	626.91			2.56E+04	6.27E+02
	4	32.34	1.82E+03	219.53			1.82E+03	2.20E+02
M	5	51.11	1.19E+04	594.24			1.19E+04	5.94E+02
m	6	55.81	1.24E+04	750.70			1.24E+04	7.51E+02
m	7	59.69	9.09E+04	696.07	5.48E+00	2.08E+00	9.09E+04	6.96E+02
	8	67.83	7.32E+02	342.18			7.32E+02	3.42E+02
	9	88.27	2.95E+04	560.75			2.95E+04	5.61E+02
	10	122.32	4.98E+03	356.95			4.98E+03	3.57E+02
	11	136.56	6.21E+02	210.39			6.21E+02	2.10E+02
	12	166.52	5.26E+02	223.69			5.26E+02	2.24E+02
	13	187.76	1.68E+02	205.71			1.68E+02	2.06E+02
	14	382.93	1.59E+02	152.40			1.59E+02	1.52E+02
	15	438.94	1.28E+02	156.67			1.28E+02	1.57E+02
	16	661.60	2.03E+04	337.37			2.03E+04	3.37E+02
	17	697.04	1.00E+02	117.28			1.00E+02	1.17E+02
	18	1112.91	3.68E+02	200.71			3.68E+02	2.01E+02
	19	1172.89	1.63E+04	294.55			1.63E+04	2.95E+02
	20	1195.97	6.40E+01	70.38			6.40E+01	7.04E+01
	21	1204.02	6.08E+01	63.19			6.08E+01	6.32E+01
	22	1220.21	5.02E+01	58.70			5.02E+01	5.87E+01
	23	1256.52	5.37E+01	38.70			5.37E+01	3.87E+01
	24	1266.27	3.80E+01	41.12			3.80E+01	4.11E+01
	25	1332.08	1.46E+04	251.66			1.46E+04	2.52E+02
	26	1835.66	3.78E+01	27.05			3.78E+01	2.70E+01
	27	1914.04	8.41E+01	59.33			8.41E+01	5.93E+01
	28	2008.76	3.28E+01	19.36			3.28E+01	1.94E+01
	29	2096.44	1.18E+01	12.81			1.18E+01	1.28E+01
	30	2127.17	2.32E+01	14.56			2.32E+01	1.46E+01
	31	2157.49	1.66E+01	16.67			1.66E+01	1.67E+01
	32	2250.53	1.85E+01	15.80			1.85E+01	1.58E+01
	33	2292.60	3.48E+01	18.19			3.48E+01	1.82E+01
	34	2305.68	1.20E+01	14.59			1.20E+01	1.46E+01
	35	2504.71	1.39E+02	24.75			1.39E+02	2.47E+01
	36	2613.61	1.80E+01	8.49			1.80E+01	8.49E+00

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

Analysis Report for 1707077-01

GAS-1402

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 2:34:45PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.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	17.68	4.45E+02	150.63			4.45E+02	1.51E+02
m	2	22.33	8.26E+04	713.22	5.15E+00	6.42E+00	8.26E+04	7.13E+02
m	3	25.21	2.56E+04	626.91			2.56E+04	6.27E+02
	4	32.34	1.82E+03	219.53			1.82E+03	2.20E+02
M	5	51.11	1.19E+04	594.24			1.19E+04	5.94E+02
m	6	55.81	1.24E+04	750.70			1.24E+04	7.51E+02
m	7	59.69	9.09E+04	696.07	5.48E+00	2.08E+00	9.09E+04	6.96E+02
	8	67.83	7.32E+02	342.18			7.32E+02	3.42E+02
	9	88.27	2.95E+04	560.75			2.95E+04	5.61E+02
	10	122.32	4.98E+03	356.95			4.98E+03	3.57E+02
	11	136.56	6.21E+02	210.39			6.21E+02	2.10E+02
	12	166.52	5.26E+02	223.69			5.26E+02	2.24E+02
	13	187.76	1.68E+02	205.71			1.68E+02	2.06E+02
	14	382.93	1.59E+02	152.40			1.59E+02	1.52E+02
	15	438.94	1.28E+02	156.67			1.28E+02	1.57E+02
	16	661.60	2.03E+04	337.37			2.03E+04	3.37E+02
	17	697.04	1.00E+02	117.28			1.00E+02	1.17E+02
	18	1112.91	3.68E+02	200.71			3.68E+02	2.01E+02
	19	1172.89	1.63E+04	294.55			1.63E+04	2.95E+02
	20	1195.97	6.40E+01	70.38			6.40E+01	7.04E+01
	21	1204.02	6.08E+01	63.19			6.08E+01	6.32E+01
	22	1220.21	5.02E+01	58.70			5.02E+01	5.87E+01
	23	1256.52	5.37E+01	38.70			5.37E+01	3.87E+01
	24	1266.27	3.80E+01	41.12			3.80E+01	4.11E+01
	25	1332.08	1.46E+04	251.66			1.46E+04	2.52E+02
	26	1835.66	3.78E+01	27.05			3.78E+01	2.70E+01
	27	1914.04	8.41E+01	59.33			8.41E+01	5.93E+01
	28	2008.76	3.28E+01	19.36			3.28E+01	1.94E+01
	29	2096.44	1.18E+01	12.81			1.18E+01	1.28E+01
	30	2127.17	2.32E+01	14.56			2.32E+01	1.46E+01
	31	2157.49	1.66E+01	16.67			1.66E+01	1.67E+01
	32	2250.53	1.85E+01	15.80			1.85E+01	1.58E+01
	33	2292.60	3.48E+01	18.19			3.48E+01	1.82E+01
	34	2305.68	1.20E+01	14.59			1.20E+01	1.46E+01
	35	2504.71	1.39E+02	24.75			1.39E+02	2.47E+01
	36	2613.61	1.80E+01	8.49			1.80E+01	8.49E+00

Analysis Report for 1707077-01

GAS-1402

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	0.919	122.06	*	85.51	6.89E+01	7.67E+00
		136.48	*	10.60	7.31E+01	2.56E+01
CO-60	0.977	1173.22	*	100.00	1.23E+02	1.08E+01
		1332.49	*	100.00	1.22E+02	1.03E+01
CD-109	0.966	88.03	*	3.72	2.85E+03	2.97E+02
SN-126	0.925	87.57	*	37.00	5.99E+01	5.11E+00
CS-137	1.000	661.65	*	85.12	7.94E+01	7.35E+00
CE-139	0.697	165.85	*	80.35	1.24E+02	5.34E+01
AM-241	0.997	59.54	*	35.90	2.22E+02	1.65E+01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:34:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	17.68	2.46990E-01	16.94		

Analysis Report for 1707077-01

GAS-1402

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	22.33	4.58817E+01	0.43		
m	3	25.21	1.42000E+01	1.23	Tol.	TH-231
	4	32.34	1.01149E+00	6.03		
M	5	51.11	6.62158E+00	2.49		
m	6	55.81	6.87956E+00	3.03		
	8	67.83	4.06471E-01	23.38	Tol.	HF-172 TA-182 TH-230
	13	187.76	9.35097E-02	61.11		
	14	382.93	8.85712E-02	47.80		
	15	438.94	7.13829E-02	60.96		
	17	697.04	5.55781E-02	58.61	Tol.	PM-144
	18	1112.91	2.04184E-01	27.31	Tol.	EU-152
	20	1195.97	3.55785E-02	54.95		
	21	1204.02	3.37842E-02	51.96		
	22	1220.21	2.78965E-02	58.45		
	23	1256.52	2.98465E-02	36.02		
	24	1266.27	2.11286E-02	54.06		
	26	1835.66	2.10245E-02	35.73	Tol.	Y-88
	27	1914.04	4.67018E-02	35.29		
	28	2008.76	1.82056E-02	29.55		
	29	2096.44	6.57005E-03	54.14		
	30	2127.17	1.28872E-02	31.38		
	31	2157.49	9.21875E-03	50.24		
	32	2250.53	1.02778E-02	42.69		
	33	2292.60	1.93539E-02	26.11		
	34	2305.68	6.66667E-03	60.81		
	35	2504.71	7.71406E-02	8.91	Sum	
	36	2613.61	1.00000E-02	23.57		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707077-01

GAS-1402

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.91	122.06	*	85.51	6.89E+01	7.67E+00
		136.48	*	10.60	7.31E+01	2.56E+01
CO-60	0.97	1173.22	*	100.00	1.23E+02	1.08E+01
		1332.49	*	100.00	1.22E+02	1.03E+01
CD-109	0.96	88.03	*	3.72	2.85E+03	2.97E+02
SN-126	0.92	87.57	*	37.00	5.99E+01	5.11E+00
CS-137	1.00	661.65	*	85.12	7.94E+01	7.35E+00
CE-139	0.69	165.85	*	80.35	1.24E+02	5.34E+01
AM-241	0.99	59.54	*	35.90	2.22E+02	1.65E+01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	CO-57	0.919	6.93E+01	7.35E+00	
	CO-60	0.977	1.22E+02	7.45E+00	
?	CD-109	0.966	2.85E+03	2.97E+02	
?	SN-126	0.925	5.99E+01	5.11E+00	
	CS-137	1.000	7.94E+01	7.35E+00	
	CE-139	0.697	1.24E+02	5.34E+01	
	AM-241	0.997	2.22E+02	1.65E+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 1707077-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:34:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	17.68	2.46990E-01	16.94		
m	2	22.33	4.58817E+01	0.43		
m	3	25.21	1.42000E+01	1.23	Tol.	TH-231
	4	32.34	1.01149E+00	6.03		
M	5	51.11	6.62158E+00	2.49		
m	6	55.81	6.87956E+00	3.03		
	8	67.83	4.06471E-01	23.38	Tol.	HF-172 TA-182 TH-230
	13	187.76	9.35097E-02	61.11		
	14	382.93	8.85712E-02	47.80		
	15	438.94	7.13829E-02	60.96		
	17	697.04	5.55781E-02	58.61	Tol.	PM-144
	18	1112.91	2.04184E-01	27.31	Tol.	EU-152
	20	1195.97	3.55785E-02	54.95		
	21	1204.02	3.37842E-02	51.96		
	22	1220.21	2.78965E-02	58.45		
	23	1256.52	2.98465E-02	36.02		
	24	1266.27	2.11286E-02	54.06		
	26	1835.66	2.10245E-02	35.73	Tol.	Y-88
	27	1914.04	4.67018E-02	35.29		
	28	2008.76	1.82056E-02	29.55		
	29	2096.44	6.57005E-03	54.14		
	30	2127.17	1.28872E-02	31.38		
	31	2157.49	9.21875E-03	50.24		
	32	2250.53	1.02778E-02	42.69		
	33	2292.60	1.93539E-02	26.11		
	34	2305.68	6.66667E-03	60.81		
	35	2504.71	7.71406E-02	8.91	Sum	
	36	2613.61	1.00000E-02	23.57		

Analysis Report for 1707077-01

GAS-1402

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	2.54E+06	4.33E+06	4.33E+06
+		NA-22	1274.54		99.94	3.22E-01	8.28E-01	8.28E-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	4.99E-02	2.46E-01	2.46E-01
+		K-40	1460.81		10.67	-4.07E-02	2.42E+00	2.42E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	6.65E-01	3.38E-01	3.69E-01
			78.34		96.00	-1.54E-02		3.38E-01
+		SC-46	889.25		99.98	4.23E+02	4.43E+03	4.62E+03
			1120.51		99.99	6.59E+02		4.43E+03
+		V-48	983.52		99.98	6.92E+18	2.26E+19	4.70E+19
			1312.10		97.50	-5.72E+18		2.26E+19
+		CR-51	320.08		9.83	-6.71E+11	1.05E+12	1.05E+12
+		MN-54	834.83		99.97	-4.31E+00	7.02E+00	7.02E+00
+		CO-56	846.75		99.96	2.50E+02	1.47E+03	7.22E+03
			1037.75		14.03	5.12E+03		5.98E+04
			1238.25		67.00	1.90E+03		6.33E+03
			1771.40		15.51	-9.08E+03		1.46E+04
			2598.48		16.90	0.00E+00		1.47E+03
+		CO-57	122.06	*	85.51	6.89E+01	7.50E+00	7.50E+00
			136.48	*	10.60	7.31E+01		3.99E+01
+		CO-58	810.76		99.40	-1.06E+04	1.88E+04	1.88E+04
+		FE-59	1099.22		56.50	-6.67E+06	9.68E+06	1.71E+07
			1291.56		43.20	-2.65E+06		9.68E+06
+		CO-60	1173.22	*	100.00	1.23E+02	9.94E-01	1.83E+00
			1332.49	*	100.00	1.22E+02		9.94E-01
+		ZN-65	1115.52		50.75	2.97E+00	3.19E+01	3.19E+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	7.62E+03	1.87E+02	8.87E+02

Analysis Report for 1707077-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	3.90E+02	1.87E+02	1.87E+02
		264.65		59.80	8.83E+01		2.83E+02
		279.53		25.20	7.97E+00		6.83E+02
		400.65		11.40	-2.77E+02		1.86E+03
+	RB-82	776.52		13.00	-4.33E+12	1.07E+13	1.07E+13
+	RB-83	520.41		46.00	2.12E+03	5.18E+03	5.18E+03
		529.64		30.30	-1.14E+03		7.88E+03
		552.65		16.40	7.14E+03		1.42E+04
+	KR-85	513.99		0.43	-4.77E+01	1.45E+02	1.45E+02
+	SR-85	513.99		99.27	-1.27E+04	3.87E+04	3.87E+04
+	Y-88	898.02		93.40	1.13E+02	2.76E+02	7.85E+02
		1836.01		99.38	2.40E+02		2.76E+02
+	MO-93	263.06		56.72	4.95E-01	3.22E-01	8.35E-01
		684.67		99.68	2.75E-01		6.67E-01
		1477.11		99.08	1.09E-01		3.22E-01
+	NB-93M	16.57		9.43	1.12E+02	5.96E+02	5.96E+02
+	NB-94	702.63		100.00	-1.31E-01	5.48E-01	5.48E-01
		871.10		100.00	-5.16E-02		7.47E-01
+	NB-95	765.79		99.81	-5.70E+08	5.95E+08	5.95E+08
+	@ NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18		43.70	4.85E+04	9.25E+04	1.15E+05
		756.72		55.30	-1.10E+04		9.25E+04
+	@ MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26
	@	739.58		12.80	1.00E+26		1.00E+26
	@	778.00		4.50	1.00E+26		1.00E+26
+	RU-103	497.08		89.00	-2.29E+06	6.14E+07	6.14E+07
+	RU-106	621.84		9.80	1.88E+01	3.97E+01	3.97E+01
+	AG-108M	433.93		89.90	-1.62E-01	6.07E-01	6.13E-01
		614.37		90.40	-1.76E-01		6.07E-01
		722.95		90.50	1.24E-01		6.60E-01
+	CD-109	88.03	*	3.72	2.85E+03	7.07E+01	7.07E+01
+	AG-110M	657.75		93.14	8.57E-02	1.78E+01	2.82E+01
		677.61		10.53	-2.32E+01		9.33E+01
		706.67		16.46	-5.75E+01		6.09E+01
		763.93		21.98	-3.26E+00		4.98E+01
		884.67		71.63	4.34E+00		2.02E+01
		1384.27		23.94	-6.39E+00		1.78E+01
+	CD-113M	263.70		0.02	8.91E+02	1.97E+03	1.97E+03
+	SN-113	255.12		1.93	9.36E+03	4.15E+02	1.13E+04
		391.69		64.90	1.60E+02		4.15E+02
+	TE123M	159.00		84.10	3.02E+00	1.31E+02	1.31E+02
+	SB-124	602.71		97.87	3.01E+04	8.23E+04	9.52E+04
		645.85		7.26	4.23E+05		1.33E+06
		722.78		11.10	1.73E+05		9.22E+05
		1691.02		49.00	1.62E+04		8.23E+04
+	I-125	35.49		6.49	1.96E+06	1.96E+06	1.96E+06
+	SB-125	176.33		6.89	-6.99E-01	3.71E+00	7.92E+00
		427.89		29.33	-6.63E-01		3.71E+00

Analysis Report for 1707077-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-125	463.38		10.35	9.01E-01	3.71E+00	1.16E+01
			600.56		17.80	1.42E+00		6.15E+00
			635.90		11.32	-2.97E+00		9.89E+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	5.99E+01	1.49E+00	1.49E+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	-5.46E+01	2.25E+00	2.25E+00
			33.60		13.20	1.44E+01		7.05E+00
			39.58		7.52	-2.59E+01		7.59E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26
	@		364.48		81.20	1.00E+26		1.00E+26
	@		636.97		7.26	1.00E+26		1.00E+26
	@		722.89		1.80	1.00E+26		1.00E+26
+	@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26
	@		228.16		88.00	1.00E+26		1.00E+26
+		BA-133	81.00		33.00	-6.55E-01	9.05E-01	1.14E+00
			302.84		17.80	-2.29E-01		2.79E+00
			356.01		60.00	-4.35E-01		9.05E-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	5.91E+00	1.43E+00	1.61E+01
			569.32		15.43	1.63E+00		8.91E+00
			604.70		97.60	-9.32E-01		1.43E+00
			795.84		85.40	1.64E+00		2.05E+00
			801.93		8.73	1.68E+00		2.00E+01
+		CS-135	268.24		16.00	-1.10E-01	2.45E+00	2.45E+00
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+	@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26
	@		163.89		4.61	1.00E+26		1.00E+26
	@		176.55		13.56	1.00E+26		1.00E+26
	@		273.65		12.66	1.00E+26		1.00E+26
	@		340.57		48.50	1.00E+26		1.00E+26
	@		818.50		99.70	1.00E+26		1.00E+26
	@		1048.07		79.60	1.00E+26		1.00E+26
	@		1235.34		19.70	1.00E+26		1.00E+26
+		CS-137	661.65	*	85.12	7.94E+01	1.17E+00	1.17E+00
+		LA-138	788.74		34.00	-1.68E+00	3.62E-01	1.83E+00
			1435.80		66.00	1.21E-01		3.62E-01
+		CE-139	165.85	*	80.35	1.24E+02	8.52E+01	8.52E+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

Analysis Report for 1707077-01

GAS-1402

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@ BA-140	423.70	3.20	1.00E+26	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	1.65E+09	2.62E+09	2.62E+09
+	@ 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	-3.10E+00	2.89E+01	2.89E+01
+	PM-144	476.78	42.00	2.77E+00	4.01E+00	1.01E+01
		618.01	98.60	-9.46E-01		4.01E+00
		696.49	99.49	1.65E+00		4.15E+00
+	PM-145	36.85	21.70	2.15E+00	1.78E+00	3.33E+00
		37.36	39.70	-7.25E-01		1.78E+00
		42.30	15.10	-4.20E+00		4.24E+00
		72.40	2.31	-5.86E-01		1.54E+01
+	PM-146	453.90	39.94	3.29E-01	2.05E+00	2.05E+00
		735.90	14.01	2.50E+00		6.06E+00
		747.13	13.10	-7.48E-01		6.50E+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	2.20E+01	1.70E+00	2.00E+00
		244.69	5.40	-7.15E-01		8.36E+00
		344.27	19.13	2.38E-01		2.64E+00
		778.89	9.20	1.27E+00		7.93E+00
		964.01	10.40	7.49E-01		9.53E+00
		1085.78	7.22	5.14E+00		1.34E+01
		1112.02	9.60	8.21E+00		1.03E+01
		1407.95	14.94	-1.42E+00		1.70E+00
+	GD-153	97.43	31.30	1.16E+01	1.47E+01	1.47E+01
		103.18	22.20	-1.00E+01		2.03E+01
+	EU-154	123.07	40.50	1.25E+01	1.10E+00	1.10E+00
		723.30	19.70	7.03E-01		3.74E+00
		873.19	11.50	1.38E+00		8.19E+00
		996.32	10.30	5.44E+00		1.00E+01
		1004.76	17.90	1.99E+00		5.64E+00
		1274.45	35.50	5.28E-01		1.36E+00
+	EU-155	86.50	30.90	8.33E+01	1.62E+00	3.07E+00
		105.30	20.70	-5.31E-01		1.62E+00
+	@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26
	@	1153.47	7.20	1.00E+26		1.00E+26
	@	1230.71	8.90	1.00E+26		1.00E+26
+	HO-166M	184.41	72.60	-1.02E-01	3.95E-01	3.95E-01
		280.45	29.60	-3.71E-01		1.35E+00
		410.94	11.10	-3.71E-01		4.56E+00

Analysis Report for 1707077-01

GAS-1402

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HO-166M	711.69	54.10	-5.09E-01	3.95E-01	1.04E+00
+	TM-171	66.72	0.14	9.29E+02	6.74E+02	6.74E+02
+	HF-172	67.35	5.31	3.33E+01	6.42E+00	1.85E+01
		125.81	11.30	-6.29E+01		6.42E+00
+	@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26
	@	900.72	29.81	1.00E+26		1.00E+26
	@	1093.66	62.50	1.00E+26		1.00E+26
+	LU-173	100.72	5.24	5.06E+00	7.90E+00	1.84E+01
		272.11	21.20	-3.71E+00		7.90E+00
+	HF-175	343.40	84.00	1.50E+03	1.67E+04	1.67E+04
+	LU-176	88.34	13.30	1.63E+02	3.47E-01	4.90E+00
		201.83	86.00	-1.02E-01		3.47E-01
		306.78	94.00	-2.36E-01		4.43E-01
+	HF-181	133.02	41.70	3.77E+05	1.60E+07	1.60E+07
		345.85	17.20	-1.02E+07		7.00E+07
		482.03	82.80	2.00E+06		1.80E+07
+	TA-182	67.75	41.20	8.45E+02	4.68E+02	4.68E+02
		1121.30	34.90	-9.19E+01		1.22E+03
		1189.05	16.23	3.63E+02		2.01E+03
		1221.41	26.98	6.17E+02		1.00E+03
		1231.02	11.44	-7.51E+02		2.14E+03
+	IR-192	308.46	29.68	1.43E+04	2.25E+04	2.60E+04
		468.07	48.10	5.36E+03		2.25E+04
+	HG-203	279.19	77.30	-4.64E+05	3.04E+06	3.04E+06
+	TL-204	374.74	94.11	7.79E-02	8.39E-01	8.39E-01
		899.15	99.16	5.36E-01		1.38E+00
		911.74	91.10	-1.96E-01		1.55E+00
+	BI-207	569.67	97.72	2.39E-01	5.68E-01	5.68E-01
		1063.62	74.90	4.07E-01		1.17E+00
+	TL-208	583.14	30.22	-6.86E-01	5.71E-01	1.73E+00
		860.37	4.48	-5.62E+00		1.63E+01
		2614.66	35.85	4.07E-01		5.71E-01
+	BI-210M	262.00	45.00	1.43E-01	8.72E-01	8.72E-01
		300.00	23.00	2.79E-01		1.79E+00
+	PB-210	46.50	4.25	-9.61E+01	1.60E+01	1.60E+01
+	PB-211	404.84	2.90	-8.46E-01	1.72E+01	1.72E+01
		831.96	2.90	6.47E+00		2.39E+01
+	BI-212	727.17	11.80	-6.18E-01	4.95E+00	4.95E+00
		1620.62	2.75	-2.31E+00		8.73E+00
+	PB-212	238.63	44.60	1.33E-01	8.96E-01	8.96E-01
		300.09	3.41	1.88E+00		1.21E+01
+	BI-214	609.31	46.30	-7.85E-02	1.17E+00	1.17E+00
		1120.29	15.10	7.52E-01		5.07E+00
		1764.49	15.80	3.35E-01		1.62E+00
		2204.22	4.98	-5.20E-01		4.83E+00
+	PB-214	295.21	19.19	3.83E-01	1.22E+00	2.13E+00
		351.92	37.19	1.33E+00		1.22E+00
+	RN-219	401.80	6.50	-3.46E-01	7.62E+00	7.62E+00

Analysis Report for 1707077-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		RA-223	323.87		3.88	-2.02E+00	1.10E+01	1.10E+01
+		RA-224	240.98		3.95	6.42E+00	1.01E+01	1.01E+01
+	@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26
+		RA-226	186.21		3.28	-2.96E+00	8.86E+00	8.86E+00
+		TH-227	50.10		8.40	3.36E+01	3.50E+00	8.29E+00
			236.00		11.50	1.96E+00		3.50E+00
			256.20		6.30	-2.53E+00		6.21E+00
+		AC-228	338.32		11.40	1.26E+00	2.99E+00	3.86E+00
			911.07		27.70	-3.74E-01		2.99E+00
			969.11		16.60	7.96E-01		5.02E+00
+		TH-230	48.44		16.90	1.03E+01	4.10E+00	4.10E+00
			62.85		4.60	-4.43E+00		1.45E+01
			67.67		0.37	1.65E+02		9.13E+01
+		PA-231	283.67		1.60	1.27E+01	1.79E+01	2.51E+01
			302.67		2.30	-1.47E+00		1.79E+01
+		TH-231	25.64		14.70	-4.56E+02	5.57E+00	4.59E+01
			84.21		6.40	-3.18E+02		5.57E+00
+		PA-233	311.98		38.60	3.25E+11	5.35E+11	5.35E+11
+		PA-234	131.20		20.40	4.64E-01	1.18E+00	1.18E+00
			733.99		8.80	-1.41E+00		6.66E+00
			946.00		12.00	4.74E-01		7.58E+00
+		PA-234M	1001.03		0.92	-4.93E+01	8.79E+01	8.79E+01
+		TH-234	63.29		3.80	-6.86E+02	9.67E+00	9.67E+00
+		U-235	143.76		10.50	9.47E-01	2.35E+00	2.35E+00
			163.35		4.70	-1.23E+00		5.56E+00
			205.31		4.70	-1.10E+00		7.63E+00
+		NP-237	86.50		12.60	1.37E+02	5.04E+00	5.04E+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	2.22E+02	3.25E+00	3.25E+00
+		AM-243	74.67		66.00	-2.99E-01	4.76E-01	4.76E-01
+		CM-243	209.75		3.29	-8.59E+00	3.05E+00	1.19E+01
			228.14		10.60	-5.30E-01		4.02E+00
			277.60		14.00	-1.10E-02		3.05E+00

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

Analysis Report for 1707077-01

GAS-1402

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	4.33E+06	4.33E+06	2.54E+06	2.14E+06
	NA-22	1274.54		99.94	8.28E-01	8.28E-01	3.22E-01	3.98E-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	2.46E-01	2.46E-01	4.99E-02	1.13E-01
	K-40	1460.81		10.67	2.42E+00	2.42E+00	-4.07E-02	1.13E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.69E-01	3.38E-01	6.65E-01	1.83E-01
		78.34		96.00	3.38E-01		-1.54E-02	1.68E-01
	SC-46	889.25		99.98	4.62E+03	4.43E+03	4.23E+02	2.28E+03
		1120.51		99.99	4.43E+03		6.59E+02	2.18E+03
	V-48	983.52		99.98	4.70E+19	2.26E+19	6.92E+18	2.31E+19
		1312.10		97.50	2.26E+19		-5.72E+18	1.08E+19
	CR-51	320.08		9.83	1.05E+12	1.05E+12	-6.71E+11	5.19E+11
	MN-54	834.83		99.97	7.02E+00	7.02E+00	-4.31E+00	3.46E+00
	CO-56	846.75		99.96	7.22E+03	1.47E+03	2.50E+02	3.55E+03
		1037.75		14.03	5.98E+04		5.12E+03	2.95E+04
		1238.25		67.00	6.33E+03		1.90E+03	3.05E+03
		1771.40		15.51	1.46E+04		-9.08E+03	6.69E+03
		2598.48		16.90	1.47E+03		0.00E+00	0.00E+00
+	CO-57	122.06	*	85.51	7.50E+00	7.50E+00	6.89E+01	3.73E+00
		136.48	*	10.60	3.99E+01		7.31E+01	1.98E+01
	CO-58	810.76		99.40	1.88E+04	1.88E+04	-1.06E+04	9.28E+03
	FE-59	1099.22		56.50	1.71E+07	9.68E+06	-6.67E+06	8.43E+06
		1291.56		43.20	9.68E+06		-2.65E+06	4.64E+06
+	CO-60	1173.22	*	100.00	1.83E+00	9.94E-01	1.23E+02	9.06E-01
		1332.49	*	100.00	9.94E-01		1.22E+02	4.85E-01
	ZN-65	1115.52		50.75	3.19E+01	3.19E+01	2.97E+00	1.57E+01
@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		208.95		2.24	1.00E+26		1.00E+26	1.00E+20
@		300.22		16.00	1.00E+26		1.00E+26	1.00E+20
	SE-75	121.11		16.70	8.87E+02	1.87E+02	7.62E+03	4.41E+02
		136.00		59.20	1.87E+02		3.90E+02	9.27E+01
		264.65		59.80	2.83E+02		8.83E+01	1.40E+02
		279.53		25.20	6.83E+02		7.97E+00	3.38E+02
		400.65		11.40	1.86E+03		-2.77E+02	9.22E+02
	RB-82	776.52		13.00	1.07E+13	1.07E+13	-4.33E+12	5.25E+12
	RB-83	520.41		46.00	5.18E+03	5.18E+03	2.12E+03	2.56E+03
		529.64		30.30	7.88E+03		-1.14E+03	3.89E+03
		552.65		16.40	1.42E+04		7.14E+03	7.00E+03
	KR-85	513.99		0.43	1.45E+02	1.45E+02	-4.77E+01	7.17E+01
	SR-85	513.99		99.27	3.87E+04	3.87E+04	-1.27E+04	1.91E+04

Analysis Report for 1707077-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	7.85E+02	2.76E+02	1.13E+02	3.87E+02
		1836.01		99.38	2.76E+02		2.40E+02	1.29E+02
	MO-93	263.06		56.72	8.35E-01	3.22E-01	4.95E-01	4.14E-01
		684.67		99.68	6.67E-01		2.75E-01	3.28E-01
		1477.11		99.08	3.22E-01		1.09E-01	1.51E-01
	NB-93M	16.57		9.43	5.96E+02	5.96E+02	1.12E+02	2.96E+02
	NB-94	702.63		100.00	5.48E-01	5.48E-01	-1.31E-01	2.70E-01
		871.10		100.00	7.47E-01		-5.16E-02	3.68E-01
	NB-95	765.79		99.81	5.95E+08	5.95E+08	-5.70E+08	2.93E+08
@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	ZR-95	724.18		43.70	1.15E+05	9.25E+04	4.85E+04	5.64E+04
		756.72		55.30	9.25E+04		-1.10E+04	4.55E+04
@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		739.58		12.80	1.00E+26		1.00E+26	1.00E+20
@		778.00		4.50	1.00E+26		1.00E+26	1.00E+20
	RU-103	497.08		89.00	6.14E+07	6.14E+07	-2.29E+06	3.03E+07
	RU-106	621.84		9.80	3.97E+01	3.97E+01	1.88E+01	1.96E+01
	AG-108M	433.93		89.90	6.13E-01	6.07E-01	-1.62E-01	3.03E-01
		614.37		90.40	6.07E-01		-1.76E-01	2.99E-01
		722.95		90.50	6.60E-01		1.24E-01	3.25E-01
+	CD-109	88.03	*	3.72	7.07E+01	7.07E+01	2.85E+03	3.52E+01
	AG-110M	657.75		93.14	2.82E+01	1.78E+01	8.57E-02	1.40E+01
		677.61		10.53	9.33E+01		-2.32E+01	4.59E+01
		706.67		16.46	6.09E+01		-5.75E+01	3.00E+01
		763.93		21.98	4.98E+01		-3.26E+00	2.45E+01
		884.67		71.63	2.02E+01		4.34E+00	9.95E+00
		1384.27		23.94	1.78E+01		-6.39E+00	8.27E+00
	CD-113M	263.70		0.02	1.97E+03	1.97E+03	8.91E+02	9.74E+02
	SN-113	255.12		1.93	1.13E+04	4.15E+02	9.36E+03	5.62E+03
		391.69		64.90	4.15E+02		1.60E+02	2.05E+02
	TE123M	159.00		84.10	1.31E+02	1.31E+02	3.02E+00	6.48E+01
	SB-124	602.71		97.87	9.52E+04	8.23E+04	3.01E+04	4.69E+04
		645.85		7.26	1.33E+06		4.23E+05	6.55E+05
		722.78		11.10	9.22E+05		1.73E+05	4.54E+05
		1691.02		49.00	8.23E+04		1.62E+04	3.78E+04
	I-125	35.49		6.49	1.96E+06	1.96E+06	1.96E+06	9.73E+05
	SB-125	176.33		6.89	7.92E+00	3.71E+00	-6.99E-01	3.92E+00
		427.89		29.33	3.71E+00		-6.63E-01	1.84E+00
		463.38		10.35	1.16E+01		9.01E-01	5.75E+00
		600.56		17.80	6.15E+00		1.42E+00	3.03E+00
		635.90		11.32	9.89E+00		-2.97E+00	4.87E+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	1.49E+00	1.49E+00	5.99E+01	7.40E-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	2.25E+00	2.25E+00	-5.46E+01	1.12E+00
		33.60		13.20	7.05E+00		1.44E+01	3.50E+00
		39.58		7.52	7.59E+00		-2.59E+01	3.77E+00
@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707077-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	I-131	364.48		81.20	1.00E+26	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	1.14E+00	9.05E-01	-6.55E-01	5.69E-01
		302.84		17.80	2.79E+00		-2.29E-01	1.38E+00
		356.01		60.00	9.05E-01		-4.35E-01	4.48E-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	1.61E+01	1.43E+00	5.91E+00	7.95E+00
		569.32		15.43	8.91E+00		1.63E+00	4.39E+00
		604.70		97.60	1.43E+00		-9.32E-01	7.06E-01
		795.84		85.40	2.05E+00		1.64E+00	1.01E+00
		801.93		8.73	2.00E+01		1.68E+00	9.86E+00
	CS-135	268.24		16.00	2.45E+00	2.45E+00	-1.10E-01	1.21E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		163.89		4.61	1.00E+26		1.00E+26	1.00E+20
@		176.55		13.56	1.00E+26		1.00E+26	1.00E+20
@		273.65		12.66	1.00E+26		1.00E+26	1.00E+20
@		340.57		48.50	1.00E+26		1.00E+26	1.00E+20
@		818.50		99.70	1.00E+26		1.00E+26	1.00E+20
@		1048.07		79.60	1.00E+26		1.00E+26	1.00E+20
@		1235.34		19.70	1.00E+26		1.00E+26	1.00E+20
+	CS-137	661.65	*	85.12	1.17E+00	1.17E+00	7.94E+01	5.82E-01
	LA-138	788.74		34.00	1.83E+00	3.62E-01	-1.68E+00	8.99E-01
		1435.80		66.00	3.62E-01		1.21E-01	1.69E-01
+	CE-139	165.85	*	80.35	8.52E+01	8.52E+01	1.24E+02	4.23E+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	2.62E+09	2.62E+09	1.65E+09	1.30E+09
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	2.89E+01	2.89E+01	-3.10E+00	1.43E+01
	PM-144	476.78		42.00	1.01E+01	4.01E+00	2.77E+00	4.98E+00
		618.01		98.60	4.01E+00		-9.46E-01	1.97E+00
		696.49		99.49	4.15E+00		1.65E+00	2.04E+00
	PM-145	36.85		21.70	3.33E+00	1.78E+00	2.15E+00	1.65E+00
		37.36		39.70	1.78E+00		-7.25E-01	8.85E-01
		42.30		15.10	4.24E+00		-4.20E+00	2.10E+00
		72.40		2.31	1.54E+01		-5.86E-01	7.65E+00
	PM-146	453.90		39.94	2.05E+00	2.05E+00	3.29E-01	1.02E+00

Analysis Report for 1707077-01

GAS-1402

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	6.06E+00	2.05E+00	2.50E+00	2.98E+00
	747.13	13.10	6.50E+00		-7.48E-01	3.20E+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	2.00E+00	1.70E+00	2.20E+01	9.94E-01
	244.69	5.40	8.36E+00		-7.15E-01	4.14E+00
	344.27	19.13	2.64E+00		2.38E-01	1.31E+00
	778.89	9.20	7.93E+00		1.27E+00	3.90E+00
	964.01	10.40	9.53E+00		7.49E-01	4.70E+00
	1085.78	7.22	1.34E+01		5.14E+00	6.61E+00
	1112.02	9.60	1.03E+01		8.21E+00	5.09E+00
	1407.95	14.94	1.70E+00		-1.42E+00	7.85E-01
GD-153	97.43	31.30	1.47E+01	1.47E+01	1.16E+01	7.31E+00
	103.18	22.20	2.03E+01		-1.00E+01	1.00E+01
EU-154	123.07	40.50	1.10E+00	1.10E+00	1.25E+01	5.46E-01
	723.30	19.70	3.74E+00		7.03E-01	1.84E+00
	873.19	11.50	8.19E+00		1.38E+00	4.04E+00
	996.32	10.30	1.00E+01		5.44E+00	4.95E+00
	1004.76	17.90	5.64E+00		1.99E+00	2.78E+00
	1274.45	35.50	1.36E+00		5.28E-01	6.54E-01
EU-155	86.50	30.90	3.07E+00	1.62E+00	8.33E+01	1.53E+00
	105.30	20.70	1.62E+00		-5.31E-01	8.01E-01
@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1153.47	7.20	1.00E+26		1.00E+26	1.00E+20
@	1230.71	8.90	1.00E+26		1.00E+26	1.00E+20
HO-166M	184.41	72.60	3.95E-01	3.95E-01	-1.02E-01	1.96E-01
	280.45	29.60	1.35E+00		-3.71E-01	6.68E-01
	410.94	11.10	4.56E+00		-3.71E-01	2.25E+00
	711.69	54.10	1.04E+00		-5.09E-01	5.12E-01
TM-171	66.72	0.14	6.74E+02	6.74E+02	9.29E+02	3.35E+02
HF-172	67.35	5.31	1.85E+01	6.42E+00	3.33E+01	9.18E+00
	125.81	11.30	6.42E+00		-6.29E+01	3.18E+00
@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	900.72	29.81	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	1.84E+01	7.90E+00	5.06E+00	9.10E+00
	272.11	21.20	7.90E+00		-3.71E+00	3.91E+00
HF-175	343.40	84.00	1.67E+04	1.67E+04	1.50E+03	8.24E+03
LU-176	88.34	13.30	4.90E+00	3.47E-01	1.63E+02	2.44E+00
	201.83	86.00	3.47E-01		-1.02E-01	1.72E-01
	306.78	94.00	4.43E-01		-2.36E-01	2.19E-01
HF-181	133.02	41.70	1.60E+07	1.60E+07	3.77E+05	7.92E+06
	345.85	17.20	7.00E+07		-1.02E+07	3.46E+07
	482.03	82.80	1.80E+07		2.00E+06	8.91E+06
TA-182	67.75	41.20	4.68E+02	4.68E+02	8.45E+02	2.33E+02
	1121.30	34.90	1.22E+03		-9.19E+01	5.97E+02
	1189.05	16.23	2.01E+03		3.63E+02	9.80E+02
	1221.41	26.98	1.00E+03		6.17E+02	4.86E+02
	1231.02	11.44	2.14E+03		-7.51E+02	1.03E+03
IR-192	308.46	29.68	2.60E+04	2.25E+04	1.43E+04	1.29E+04
	468.07	48.10	2.25E+04		5.36E+03	1.11E+04
HG-203	279.19	77.30	3.04E+06	3.04E+06	-4.64E+05	1.51E+06

Analysis Report for 1707077-01

GAS-1402

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TL-204	374.74	94.11	8.39E-01	8.39E-01	7.79E-02	4.15E-01
	899.15	99.16	1.38E+00		5.36E-01	6.82E-01
	911.74	91.10	1.55E+00		-1.96E-01	7.64E-01
BI-207	569.67	97.72	5.68E-01	5.68E-01	2.39E-01	2.80E-01
	1063.62	74.90	1.17E+00		4.07E-01	5.74E-01
TL-208	583.14	30.22	1.73E+00	5.71E-01	-6.86E-01	8.52E-01
	860.37	4.48	1.63E+01		-5.62E+00	8.03E+00
	2614.66	35.85	5.71E-01		4.07E-01	2.51E-01
BI-210M	262.00	45.00	8.72E-01	8.72E-01	1.43E-01	4.32E-01
	300.00	23.00	1.79E+00		2.79E-01	8.86E-01
PB-210	46.50	4.25	1.60E+01	1.60E+01	-9.61E+01	7.95E+00
PB-211	404.84	2.90	1.72E+01	1.72E+01	-8.46E-01	8.51E+00
	831.96	2.90	2.39E+01		6.47E+00	1.18E+01
BI-212	727.17	11.80	4.95E+00	4.95E+00	-6.18E-01	2.43E+00
	1620.62	2.75	8.73E+00		-2.31E+00	4.04E+00
PB-212	238.63	44.60	8.96E-01	8.96E-01	1.33E-01	4.44E-01
	300.09	3.41	1.21E+01		1.88E+00	5.98E+00
BI-214	609.31	46.30	1.17E+00	1.17E+00	-7.85E-02	5.78E-01
	1120.29	15.10	5.07E+00		7.52E-01	2.49E+00
	1764.49	15.80	1.62E+00		3.35E-01	7.50E-01
	2204.22	4.98	4.83E+00		-5.20E-01	2.19E+00
PB-214	295.21	19.19	2.13E+00	1.22E+00	3.83E-01	1.06E+00
	351.92	37.19	1.22E+00		1.33E+00	6.05E-01
RN-219	401.80	6.50	7.62E+00	7.62E+00	-3.46E-01	3.77E+00
RA-223	323.87	3.88	1.10E+01	1.10E+01	-2.02E+00	5.46E+00
RA-224	240.98	3.95	1.01E+01	1.01E+01	6.42E+00	5.02E+00
@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
RA-226	186.21	3.28	8.86E+00	8.86E+00	-2.96E+00	4.39E+00
TH-227	50.10	8.40	8.29E+00	3.50E+00	3.36E+01	4.13E+00
	236.00	11.50	3.50E+00		1.96E+00	1.73E+00
	256.20	6.30	6.21E+00		-2.53E+00	3.08E+00
AC-228	338.32	11.40	3.86E+00	2.99E+00	1.26E+00	1.91E+00
	911.07	27.70	2.99E+00		-3.74E-01	1.47E+00
	969.11	16.60	5.02E+00		7.96E-01	2.47E+00
TH-230	48.44	16.90	4.10E+00	4.10E+00	1.03E+01	2.04E+00
	62.85	4.60	1.45E+01		-4.43E+00	7.25E+00
	67.67	0.37	9.13E+01		1.65E+02	4.54E+01
PA-231	283.67	1.60	2.51E+01	1.79E+01	1.27E+01	1.24E+01
	302.67	2.30	1.79E+01		-1.47E+00	8.85E+00
TH-231	25.64	14.70	4.59E+01	5.57E+00	-4.56E+02	2.29E+01
	84.21	6.40	5.57E+00		-3.18E+02	2.77E+00
PA-233	311.98	38.60	5.35E+11	5.35E+11	3.25E+11	2.65E+11
PA-234	131.20	20.40	1.18E+00	1.18E+00	4.64E-01	5.84E-01
	733.99	8.80	6.66E+00		-1.41E+00	3.28E+00
	946.00	12.00	7.58E+00		4.74E-01	3.74E+00
PA-234M	1001.03	0.92	8.79E+01	8.79E+01	-4.93E+01	4.33E+01
TH-234	63.29	3.80	9.67E+00	9.67E+00	-6.86E+02	4.81E+00
U-235	143.76	10.50	2.35E+00	2.35E+00	9.47E-01	1.17E+00
	163.35	4.70	5.56E+00		-1.23E+00	2.75E+00
	205.31	4.70	7.63E+00		-1.10E+00	3.78E+00
NP-237	86.50	12.60	5.04E+00	5.04E+00	1.37E+02	2.51E+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

Analysis Report for 1707077-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NP-239	277.60		14.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
+	AM-241	59.54	*	35.90	3.25E+00	3.25E+00	2.22E+02	1.62E+00
	AM-243	74.67		66.00	4.76E-01	4.76E-01	-2.99E-01	2.37E-01
	CM-243	209.75		3.29	1.19E+01	3.05E+00	-8.59E+00	5.89E+00
		228.14		10.60	4.02E+00		-5.30E-01	1.99E+00
		277.60		14.00	3.05E+00		-1.10E-02	1.51E+00

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-1402

Elapsed Live time: 1800
Elapsed Real Time: 1836

Channel								
1:	0	0	0	0	0	0	0	0
9:	121	1539	2496	4351	4614	2648	2285	2069
17:	1971	2286	1934	2227	8760	35706	41231	13646
25:	12861	12543	4032	1201	787	835	944	1642
33:	1762	1127	903	947	1212	1077	998	1065
41:	1211	1333	1501	1672	1852	1985	2299	2817
49:	3661	4472	4538	4353	4327	4285	4616	4736
57:	5011	6429	20892	43526	21835	3432	1296	1250
65:	1334	1523	1661	1644	1660	1595	1553	1508
73:	1554	1431	1565	1509	1526	1591	1596	1532
81:	1522	1518	1623	1617	1657	1739	3594	12095
89:	13734	4118	956	836	831	800	804	848
97:	823	821	798	833	779	742	818	770
105:	727	782	784	783	825	763	793	759
113:	803	794	811	771	835	812	831	835
121:	1100	2642	2888	1286	810	699	713	718
129:	731	783	772	751	705	727	738	820
137:	1022	820	661	697	660	705	714	719
145:	747	700	722	688	623	698	688	693
153:	682	620	731	701	677	643	641	679
161:	718	629	649	633	686	821	788	675
169:	675	593	619	629	658	671	635	627
177:	635	649	644	604	652	636	696	659
185:	666	735	712	743	747	691	701	676
193:	702	757	742	673	703	684	686	636
201:	686	664	644	669	669	670	694	626
209:	667	634	696	669	663	718	718	701
217:	744	729	714	667	728	711	741	710
225:	713	697	711	708	669	714	608	690
233:	655	656	711	614	678	662	703	652
241:	624	602	642	578	560	606	567	584
249:	573	554	541	635	562	591	569	552
257:	562	529	493	564	544	568	524	543
265:	497	518	507	520	474	491	558	480
273:	508	484	501	495	548	492	500	438
281:	497	488	504	507	478	490	446	489
289:	443	479	473	499	481	431	457	501
297:	462	465	479	431	453	435	527	418
305:	468	465	444	457	471	475	472	476
313:	463	429	472	438	434	432	435	441
321:	418	445	434	434	486	446	415	442
329:	464	457	391	391	460	407	437	446
337:	438	443	434	417	420	412	422	408
345:	403	397	402	354	429	404	398	470
353:	429	421	438	413	375	418	368	425
361:	416	387	397	400	433	407	425	406

369:	410	428	394	372	421	416	403	434

Sample Title: GAS-1402

Channel								
377:	391	379	400	380	409	417	418	410
385:	387	366	356	393	371	393	427	453
393:	409	380	422	397	421	392	393	416
401:	402	398	408	387	392	411	383	426
409:	389	406	395	372	413	394	389	423
417:	425	409	402	400	429	421	410	393
425:	422	429	392	396	420	416	403	454
433:	405	390	431	412	431	436	433	444
441:	402	372	393	420	463	379	412	458
449:	408	427	433	437	438	416	430	432
457:	414	410	443	441	440	424	445	416
465:	459	416	436	410	435	469	406	465
473:	374	439	432	395	350	380	364	374
481:	352	356	291	339	302	339	293	294
489:	325	294	311	334	295	284	294	309
497:	310	327	320	288	325	273	310	283
505:	282	319	307	289	324	296	298	282
513:	286	275	301	285	271	278	291	265
521:	265	265	302	271	271	238	285	292
529:	262	244	278	259	260	285	287	229
537:	280	253	245	253	255	252	281	229
545:	283	260	227	229	247	239	253	237
553:	228	241	250	207	212	211	231	245
561:	237	210	225	256	223	239	227	224
569:	245	245	250	232	229	225	214	207
577:	221	241	241	233	235	208	253	213
585:	240	196	222	243	193	224	200	226
593:	227	209	204	207	223	220	222	226
601:	214	211	237	234	228	210	205	214
609:	253	246	222	223	211	235	208	217
617:	218	209	211	203	218	207	222	228
625:	217	182	207	229	223	210	216	238
633:	204	189	191	228	230	205	227	217
641:	206	192	211	223	205	227	199	206
649:	208	190	222	207	230	219	214	226
657:	208	227	371	1775	6758	8516	3404	620
665:	213	179	171	190	183	186	182	172
673:	177	182	182	169	179	184	188	161
681:	205	199	187	195	181	195	164	207
689:	170	184	182	166	184	184	187	194
697:	196	205	176	165	163	194	209	180
705:	172	156	194	198	174	150	210	178
713:	159	198	203	194	189	193	171	201
721:	197	188	205	179	183	202	210	178
729:	188	182	174	203	203	178	188	179
737:	188	192	205	179	169	190	183	201
745:	172	185	201	183	183	181	191	192
753:	195	191	179	187	200	195	187	177
761:	199	179	168	183	171	166	201	179
769:	187	199	226	200	194	185	197	196
777:	181	206	192	180	191	217	181	200
785:	183	183	196	197	178	181	178	182
793:	210	228	234	184	220	184	216	199

801:	196	211	187	226	214	205	209	201

Sample Title: GAS-1402

Channel								
809:	188	195	214	179	192	205	197	229
817:	211	204	187	195	217	209	182	198
825:	195	205	195	207	212	208	215	196
833:	214	220	205	203	206	193	235	221
841:	218	213	210	230	215	203	229	191
849:	228	207	204	227	205	245	217	226
857:	250	202	253	219	188	222	204	245
865:	223	233	230	225	210	222	213	229
873:	257	220	223	224	227	225	216	233
881:	232	237	218	276	227	258	255	244
889:	249	239	213	268	230	247	238	241
897:	268	266	235	258	232	258	239	238
905:	248	252	270	245	263	263	254	258
913:	244	265	268	249	285	250	273	261
921:	258	264	265	297	268	286	278	287
929:	268	289	279	252	261	272	295	289
937:	247	301	266	317	284	311	283	291
945:	284	276	316	313	267	285	277	302
953:	277	308	308	279	265	300	273	300
961:	263	265	240	243	239	246	243	220
969:	214	224	236	244	222	215	211	211
977:	205	230	232	224	215	258	210	236
985:	208	224	199	206	214	226	197	215
993:	192	216	226	231	217	220	220	198
1001:	204	189	208	208	225	213	178	205
1009:	194	186	205	213	190	210	201	178
1017:	195	200	210	211	215	184	203	188
1025:	222	210	215	204	189	201	214	204
1033:	217	202	192	226	196	208	186	193
1041:	225	181	210	192	180	194	192	176
1049:	198	218	171	192	170	197	179	180
1057:	193	194	182	185	195	172	188	197
1065:	178	215	204	189	180	197	184	150
1073:	167	195	182	177	176	174	193	166
1081:	163	210	194	207	175	181	204	193
1089:	194	182	179	196	193	202	180	173
1097:	169	191	195	196	168	191	188	200
1105:	192	185	144	185	192	230	200	173
1113:	179	186	197	185	177	164	157	144
1121:	144	136	138	116	129	128	117	126
1129:	114	144	109	137	118	119	118	104
1137:	132	104	124	131	133	111	105	108
1145:	105	116	120	88	111	112	97	120
1153:	123	104	107	123	106	109	111	102
1161:	110	108	88	110	109	109	106	117
1169:	98	226	1449	4713	6358	3374	722	143
1177:	90	87	88	87	80	75	84	73
1185:	83	82	72	77	79	83	62	72
1193:	66	71	76	91	67	59	55	53
1201:	54	63	56	69	65	52	39	50
1209:	53	56	37	53	51	63	46	41
1217:	47	47	51	63	43	57	36	45
1225:	35	43	59	36	46	40	36	41

1233:	46	29	43	32	43	37	40	28

Sample Title: GAS-1402

Channel								
1241:	36	29	33	25	29	34	25	28
1249:	27	31	30	38	21	25	34	34
1257:	37	29	22	18	32	31	27	27
1265:	37	35	43	25	24	25	27	27
1273:	25	28	29	34	38	30	24	22
1281:	30	24	37	33	23	26	30	23
1289:	9	27	27	32	30	25	25	28
1297:	25	24	27	29	22	28	30	24
1305:	25	21	37	22	29	22	30	30
1313:	27	33	28	36	28	25	20	32
1321:	24	22	26	30	29	29	31	35
1329:	141	1071	3635	5537	3360	834	122	33
1337:	26	18	15	17	11	10	13	8
1345:	19	5	16	5	14	5	12	16
1353:	12	11	10	13	10	7	10	10
1361:	10	12	12	14	6	8	13	9
1369:	8	9	11	9	13	13	6	10
1377:	10	18	11	9	10	8	12	6
1385:	7	12	7	13	10	8	9	10
1393:	5	9	12	9	8	10	13	11
1401:	8	8	13	12	8	6	9	5
1409:	7	9	9	11	12	9	14	11
1417:	7	8	16	8	11	9	11	10
1425:	6	8	8	5	10	8	6	4
1433:	11	3	12	11	9	3	13	7
1441:	10	1	12	10	7	8	7	3
1449:	4	6	7	9	10	5	8	5
1457:	12	6	13	2	7	8	10	6
1465:	7	8	10	8	10	9	9	9
1473:	9	6	12	3	7	8	9	9
1481:	11	3	6	8	13	8	8	8
1489:	7	7	4	7	10	7	11	2
1497:	8	9	8	12	5	8	4	7
1505:	5	9	13	9	5	6	4	4
1513:	5	6	9	9	11	9	4	9
1521:	5	6	8	9	8	6	8	6
1529:	9	7	9	9	6	9	8	10
1537:	9	8	11	5	10	7	11	10
1545:	7	8	3	9	8	5	11	6
1553:	8	10	8	8	11	10	4	10
1561:	3	12	6	10	12	5	5	4
1569:	15	7	9	5	7	7	5	10
1577:	9	10	8	7	6	3	7	9
1585:	11	11	8	3	11	3	7	11
1593:	5	5	3	3	8	11	7	5
1601:	8	8	5	7	5	2	9	6
1609:	6	5	10	4	5	12	2	8
1617:	6	4	7	3	5	3	7	8
1625:	6	7	4	5	7	9	6	2
1633:	8	4	6	10	8	4	5	8
1641:	3	6	4	5	4	4	3	7
1649:	6	8	6	7	4	7	7	2
1657:	4	6	7	4	7	5	6	4

1665:	4	5	7	6	3	7	4	8

Sample Title: GAS-1402

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

2097:	4	3	2	1	3	3	6	1

Sample Title: GAS-1402

Channel								
2105:	3	0	3	2	1	4	7	6
2113:	1	4	2	2	2	5	1	5
2121:	3	1	2	3	6	4	6	5
2129:	6	1	1	2	1	2	3	2
2137:	4	3	2	6	1	1	1	4
2145:	3	5	3	4	3	3	3	1
2153:	1	4	1	7	2	6	3	2
2161:	4	2	2	3	2	4	1	2
2169:	3	4	2	1	2	2	2	3
2177:	2	1	4	3	2	5	0	5
2185:	2	5	0	3	5	2	3	4
2193:	0	3	5	2	7	4	3	1
2201:	3	9	1	3	9	2	2	2
2209:	1	2	7	3	8	1	0	6
2217:	6	4	5	6	6	5	4	1
2225:	3	4	2	3	3	5	5	1
2233:	6	7	3	3	6	2	3	5
2241:	7	2	3	3	2	1	0	3
2249:	14	2	1	5	5	1	2	2
2257:	4	4	3	2	3	2	2	3
2265:	2	4	2	3	2	2	3	6
2273:	3	3	3	6	2	3	7	5
2281:	3	3	1	6	4	0	1	7
2289:	2	3	1	11	6	2	4	2
2297:	1	1	4	1	1	1	4	1
2305:	6	4	2	1	2	1	1	0
2313:	2	0	1	1	1	2	1	2
2321:	1	4	0	4	0	2	2	1
2329:	2	1	2	3	5	1	2	1
2337:	2	4	0	2	3	2	2	1
2345:	2	3	0	1	2	5	0	1
2353:	2	1	2	1	0	0	5	2
2361:	1	2	3	1	1	1	1	0
2369:	0	3	1	3	1	0	5	0
2377:	2	0	2	5	1	2	0	1
2385:	2	2	0	0	1	1	0	0
2393:	0	4	1	1	1	0	0	1
2401:	1	0	1	1	0	0	1	0
2409:	1	1	1	0	2	0	2	0
2417:	0	0	1	1	2	1	1	0
2425:	0	1	0	0	0	0	1	1
2433:	0	0	0	1	0	1	0	1
2441:	0	1	0	0	0	1	1	1
2449:	0	1	2	1	0	1	0	1
2457:	0	0	0	1	0	1	0	0
2465:	0	1	1	0	0	0	0	1
2473:	1	0	0	0	2	0	0	1
2481:	1	0	3	0	0	2	0	1
2489:	1	0	0	0	0	1	0	1
2497:	0	0	2	0	3	11	27	45
2505:	40	12	5	0	0	0	0	1
2513:	0	0	0	0	0	0	0	0
2521:	0	0	0	0	0	0	0	0

2529:	0	0	1	1	0	0	0	1

Sample Title: GAS-1402

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

2961:	0	0	0	0	0	1	0	0

Sample Title: GAS-1402

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

3393:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

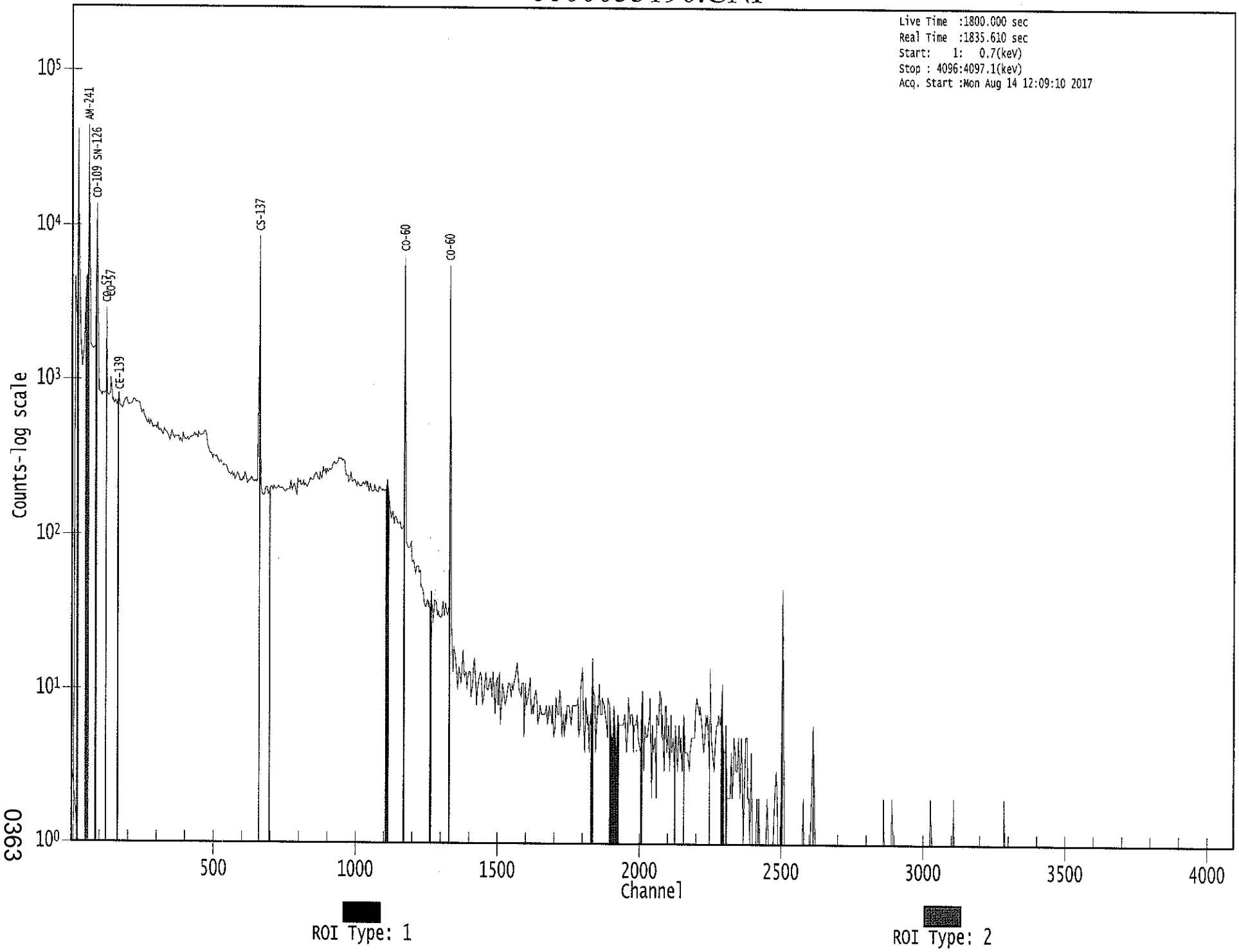
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	1	0	0	1	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	1	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

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

0000055190.CNF



0363

Apex-Gamma

8/14

Analysis Report for 1707077-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/14/2017 10:30:30AM
Acquisition Started	: 8/14/2017 12:09:18PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3619.5 seconds
Dead Time	: 0.54 %
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	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55171

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-02

BLANK

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 1:09:40PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	64.02	63.08	0.0000	0.00
2	244.04	243.15	0.0000	0.00
3	299.31	298.44	0.0000	0.00
4	350.53	349.68	0.0000	0.00
5	399.80	398.97	0.0000	0.00
6	502.67	501.87	0.0000	0.00
7	507.80	507.00	0.0000	0.00
8	526.93	526.14	0.0000	0.00
9	660.97	660.23	0.0000	0.00
10	663.97	663.23	0.0000	0.00
11	672.25	671.52	0.0000	0.00
12	685.29	684.56	0.0000	0.00
13	723.08	722.36	0.0000	0.00
14	730.12	729.41	0.0000	0.00
15	744.89	744.19	0.0000	0.00
16	833.94	833.27	0.0000	0.00
17	857.98	857.32	0.0000	0.00
18	861.17	860.51	0.0000	0.00
19	891.52	890.88	0.0000	0.00
20	898.75	898.11	0.0000	0.00
21	925.13	924.50	0.0000	0.00
22	939.80	939.17	0.0000	0.00
23	1252.96	1252.48	0.0000	0.00
24	1461.02	1460.65	0.0000	0.00
25	1522.62	1522.27	0.0000	0.00
26	1687.86	1687.60	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 1:09:40PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	64.02	57 -	70	63.08	1.04E+02	53.62	2.75E+02	3.60
	2	244.04	240 -	246	243.15	2.22E+01	23.19	7.76E+01	2.99
	3	299.31	294 -	303	298.44	2.46E+01	28.28	1.01E+02	2.18
	4	350.53	346 -	353	349.68	2.45E+01	19.39	4.30E+01	2.03
	5	399.80	395 -	402	398.97	1.72E+01	17.55	3.95E+01	3.71
	6	502.67	497 -	505	501.87	1.53E+01	17.15	3.54E+01	1.57
M	7	507.80	506 -	517	507.00	1.32E+01	7.58	9.00E+00	2.27
	8	526.93	524 -	528	526.14	9.64E+00	9.00	8.71E+00	1.78
M	9	660.97	657 -	666	660.23	2.06E+01	12.65	2.60E+01	2.57
m	10	663.97	657 -	666	663.23	1.05E+01	15.75	2.88E+01	2.57
	11	672.25	667 -	675	671.52	1.06E+01	12.53	1.68E+01	4.55
	12	685.29	681 -	688	684.56	8.86E+00	7.75	4.27E+00	1.72
	13	723.08	718 -	726	722.36	1.38E+01	9.18	4.44E+00	5.69
	14	730.12	727 -	731	729.41	7.83E+00	6.50	2.33E+00	1.25
	15	744.89	741 -	746	744.19	6.22E+00	7.35	5.56E+00	2.23
	16	833.94	829 -	836	833.27	1.02E+01	8.00	3.67E+00	3.41
M	17	857.98	856 -	863	857.32	1.03E+01	4.58	1.64E+00	2.60
m	18	861.17	856 -	863	860.51	9.43E+00	8.26	2.50E+00	2.92
	19	891.52	888 -	893	890.88	7.33E+00	9.17	9.33E+00	2.19
	20	898.75	895 -	903	898.11	8.50E+00	9.62	9.00E+00	1.18
	21	925.13	921 -	927	924.50	1.13E+01	8.02	3.46E+00	3.41
	22	939.80	935 -	941	939.17	7.71E+00	10.25	1.26E+01	1.17
	23	1252.96	1249 -	1255	1252.48	5.29E+00	6.34	3.43E+00	2.69
	24	1461.02	1456 -	1464	1460.65	9.79E+00	8.26	4.42E+00	4.27
	25	1522.62	1518 -	1526	1522.27	1.10E+01	6.63	0.00E+00	3.92
	26	1687.86	1684 -	1690	1687.60	5.00E+00	4.47	0.00E+00	1.24

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 1707077-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 1:09:40PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	64.02	57 -	70	1.04E+02	53.62	2.75E+02	4.08E+01
	2	244.04	240 -	246	2.22E+01	23.19	7.76E+01	1.74E+01
	3	299.31	294 -	303	2.46E+01	28.28	1.01E+02	2.18E+01
	4	350.53	346 -	353	2.45E+01	19.39	4.30E+01	1.37E+01
	5	399.80	395 -	402	1.72E+01	17.55	3.95E+01	1.27E+01
	6	502.67	497 -	505	1.53E+01	17.15	3.54E+01	1.25E+01
M	7	507.80	506 -	517	1.32E+01	7.58	9.00E+00	4.93E+00
	8	526.93	524 -	528	9.64E+00	9.00	8.71E+00	5.35E+00
M	9	660.97	657 -	666	2.06E+01	12.65	2.60E+01	8.38E+00
m	10	663.97	657 -	666	1.05E+01	15.75	2.88E+01	8.82E+00
	11	672.25	667 -	675	1.06E+01	12.53	1.68E+01	8.80E+00
	12	685.29	681 -	688	8.86E+00	7.75	4.27E+00	4.07E+00
	13	723.08	718 -	726	1.38E+01	9.18	4.44E+00	4.44E+00
	14	730.12	727 -	731	7.83E+00	6.50	2.33E+00	2.72E+00
	15	744.89	741 -	746	6.22E+00	7.35	5.56E+00	4.44E+00
	16	833.94	829 -	836	1.02E+01	8.00	3.67E+00	3.97E+00
M	17	857.98	856 -	863	1.03E+01	4.58	1.64E+00	2.11E+00
m	18	861.17	856 -	863	9.43E+00	8.26	2.50E+00	2.60E+00
	19	891.52	888 -	893	7.33E+00	9.17	9.33E+00	6.08E+00
	20	898.75	895 -	903	8.50E+00	9.62	9.00E+00	6.29E+00
	21	925.13	921 -	927	1.13E+01	8.02	3.46E+00	3.60E+00
	22	939.80	935 -	941	7.71E+00	10.25	1.26E+01	7.08E+00
	23	1252.96	1249 -	1255	5.29E+00	6.34	3.43E+00	3.59E+00
	24	1461.02	1456 -	1464	9.79E+00	8.26	4.42E+00	4.43E+00
	25	1522.62	1518 -	1526	1.10E+01	6.63	0.00E+00	0.00E+00
	26	1687.86	1684 -	1690	5.00E+00	4.47	0.00E+00	0.00E+00

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

Analysis Report for 1707077-02

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PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 1:09:40PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	64.02	57 -	70	63.08	1.04E+02	53.62	2.75E+02	TH-234
	2	244.04	240 -	246	243.15	2.22E+01	23.19	7.76E+01	EU-152
	3	299.31	294 -	303	298.44	2.46E+01	28.28	1.01E+02	BI-210M
									PB-212
									GA-67
	4	350.53	346 -	353	349.68	2.45E+01	19.39	4.30E+01	.....
	5	399.80	395 -	402	398.97	1.72E+01	17.55	3.95E+01	SE-75
	6	502.67	497 -	505	501.87	1.53E+01	17.15	3.54E+01	.....
M	7	507.80	506 -	517	507.00	1.32E+01	7.58	9.00E+00	.....
	8	526.93	524 -	528	526.14	9.64E+00	9.00	8.71E+00	.....
M	9	660.97	657 -	666	660.23	2.06E+01	12.65	2.60E+01	CS-137
m	10	663.97	657 -	666	663.23	1.05E+01	15.75	2.88E+01	CE-143
	11	672.25	667 -	675	671.52	1.06E+01	12.53	1.68E+01	.....
	12	685.29	681 -	688	684.56	8.86E+00	7.75	4.27E+00	SB-127
									MO-93
	13	723.08	718 -	726	722.36	1.38E+01	9.18	4.44E+00	AG-108M
									I-131
									EU-154
									SB-124
	14	730.12	727 -	731	729.41	7.83E+00	6.50	2.33E+00	.....
	15	744.89	741 -	746	744.19	6.22E+00	7.35	5.56E+00	.....
	16	833.94	829 -	836	833.27	1.02E+01	8.00	3.67E+00	MN-54
M	17	857.98	856 -	863	857.32	1.03E+01	4.58	1.64E+00	.....
m	18	861.17	856 -	863	860.51	9.43E+00	8.26	2.50E+00	TL-208
	19	891.52	888 -	893	890.88	7.33E+00	9.17	9.33E+00	.....
	20	898.75	895 -	903	898.11	8.50E+00	9.62	9.00E+00	TL-204
									Y-88
	21	925.13	921 -	927	924.50	1.13E+01	8.02	3.46E+00	.....
	22	939.80	935 -	941	939.17	7.71E+00	10.25	1.26E+01	.....
	23	1252.96	1249 -	1255	1252.48	5.29E+00	6.34	3.43E+00	.....
	24	1461.02	1456 -	1464	1460.65	9.79E+00	8.26	4.42E+00	K-40
	25	1522.62	1518 -	1526	1522.27	1.10E+01	6.63	0.00E+00	.....
	26	1687.86	1684 -	1690	1687.60	5.00E+00	4.47	0.00E+00	.....

Analysis Report for 1707077-02

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 1:09:40PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	64.02	1.04E+02	53.62	2.17E-02	1.66E-03
	2	244.04	2.22E+01	23.19	1.33E-02	1.12E-03
	3	299.31	2.46E+01	28.28	1.09E-02	9.05E-04
	4	350.53	2.45E+01	19.39	9.25E-03	7.97E-04
	5	399.80	1.72E+01	17.55	8.08E-03	7.07E-04
	6	502.67	1.53E+01	17.15	6.39E-03	6.65E-04
M	7	507.80	1.32E+01	7.58	6.32E-03	6.62E-04
	8	526.93	9.64E+00	9.00	6.09E-03	6.55E-04
M	9	660.97	2.06E+01	12.65	4.87E-03	5.99E-04
m	10	663.97	1.05E+01	15.75	4.85E-03	5.96E-04
	11	672.25	1.06E+01	12.53	4.79E-03	5.85E-04
	12	685.29	8.86E+00	7.75	4.71E-03	5.69E-04
	13	723.08	1.38E+01	9.18	4.47E-03	5.22E-04
	14	730.12	7.83E+00	6.50	4.43E-03	5.13E-04
	15	744.89	6.22E+00	7.35	4.35E-03	4.94E-04
	16	833.94	1.02E+01	8.00	3.92E-03	3.82E-04
M	17	857.98	1.03E+01	4.58	3.82E-03	3.52E-04
m	18	861.17	9.43E+00	8.26	3.81E-03	3.48E-04
	19	891.52	7.33E+00	9.17	3.69E-03	3.10E-04
	20	898.75	8.50E+00	9.62	3.66E-03	3.02E-04
	21	925.13	1.13E+01	8.02	3.57E-03	2.96E-04
	22	939.80	7.71E+00	10.25	3.52E-03	2.92E-04
	23	1252.96	5.29E+00	6.34	2.73E-03	2.32E-04
	24	1461.02	9.79E+00	8.26	2.38E-03	2.08E-04
	25	1522.62	1.10E+01	6.63	2.30E-03	1.98E-04
	26	1687.86	5.00E+00	4.47	2.09E-03	1.74E-04

Analysis Report for 1707077-02

BLANK

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 : 8/14/2017 1:09:40PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	64.02	1.04E+02	53.62	5.28E+01	8.63E+00	5.08E+01	5.43E+01
	2	244.04	2.22E+01	23.19			2.22E+01	2.32E+01
	3	299.31	2.46E+01	28.28			2.46E+01	2.83E+01
	4	350.53	2.45E+01	19.39			2.45E+01	1.94E+01
	5	399.80	1.72E+01	17.55			1.72E+01	1.75E+01
	6	502.67	1.53E+01	17.15			1.53E+01	1.71E+01
M	7	507.80	1.32E+01	7.58			1.32E+01	7.58E+00
	8	526.93	9.64E+00	9.00			9.64E+00	9.00E+00
M	9	660.97	2.06E+01	12.65	1.65E+00	3.47E+00	1.90E+01	1.31E+01
m	10	663.97	1.05E+01	15.75			1.05E+01	1.57E+01
	11	672.25	1.06E+01	12.53			1.06E+01	1.25E+01
	12	685.29	8.86E+00	7.75			8.86E+00	7.75E+00
	13	723.08	1.38E+01	9.18			1.38E+01	9.18E+00
	14	730.12	7.83E+00	6.50			7.83E+00	6.50E+00
	15	744.89	6.22E+00	7.35			6.22E+00	7.35E+00
	16	833.94	1.02E+01	8.00			1.02E+01	8.00E+00
M	17	857.98	1.03E+01	4.58			1.03E+01	4.58E+00
m	18	861.17	9.43E+00	8.26			9.43E+00	8.26E+00
	19	891.52	7.33E+00	9.17			7.33E+00	9.17E+00
	20	898.75	8.50E+00	9.62			8.50E+00	9.62E+00
	21	925.13	1.13E+01	8.02			1.13E+01	8.02E+00
	22	939.80	7.71E+00	10.25			7.71E+00	1.02E+01
	23	1252.96	5.29E+00	6.34			5.29E+00	6.34E+00
	24	1461.02	9.79E+00	8.26			9.79E+00	8.26E+00
	25	1522.62	1.10E+01	6.63			1.10E+01	6.63E+00
	26	1687.86	5.00E+00	4.47			5.00E+00	4.47E+00

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

Analysis Report for 1707077-02

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AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 1:09:40PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.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	64.02	1.04E+02	53.62	5.28E+01	8.63E+00	5.08E+01	5.43E+01
	2	244.04	2.22E+01	23.19			2.22E+01	2.32E+01
	3	299.31	2.46E+01	28.28			2.46E+01	2.83E+01
	4	350.53	2.45E+01	19.39			2.45E+01	1.94E+01
	5	399.80	1.72E+01	17.55			1.72E+01	1.75E+01
	6	502.67	1.53E+01	17.15			1.53E+01	1.71E+01
M	7	507.80	1.32E+01	7.58			1.32E+01	7.58E+00
	8	526.93	9.64E+00	9.00			9.64E+00	9.00E+00
M	9	660.97	2.06E+01	12.65	1.65E+00	3.47E+00	1.90E+01	1.31E+01
m	10	663.97	1.05E+01	15.75			1.05E+01	1.57E+01
	11	672.25	1.06E+01	12.53			1.06E+01	1.25E+01
	12	685.29	8.86E+00	7.75			8.86E+00	7.75E+00
	13	723.08	1.38E+01	9.18			1.38E+01	9.18E+00
	14	730.12	7.83E+00	6.50			7.83E+00	6.50E+00
	15	744.89	6.22E+00	7.35			6.22E+00	7.35E+00
	16	833.94	1.02E+01	8.00			1.02E+01	8.00E+00
M	17	857.98	1.03E+01	4.58			1.03E+01	4.58E+00
m	18	861.17	9.43E+00	8.26			9.43E+00	8.26E+00
	19	891.52	7.33E+00	9.17			7.33E+00	9.17E+00
	20	898.75	8.50E+00	9.62			8.50E+00	9.62E+00
	21	925.13	1.13E+01	8.02			1.13E+01	8.02E+00
	22	939.80	7.71E+00	10.25			7.71E+00	1.02E+01
	23	1252.96	5.29E+00	6.34			5.29E+00	6.34E+00
	24	1461.02	9.79E+00	8.26			9.79E+00	8.26E+00
	25	1522.62	1.10E+01	6.63			1.10E+01	6.63E+00
	26	1687.86	5.00E+00	4.47			5.00E+00	4.47E+00

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

Analysis Report for 1707077-02

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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
K-40	0.993	1460.81	*	10.67	3.69E-01	3.13E-01
MN-54	0.882	834.83	*	99.97	2.49E-02	1.97E-02
CS-137	0.929	661.65	*	85.12	4.38E-02	3.08E-02
TH-234	0.917	63.29	*	3.80	5.91E-01	6.33E-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 : 8/14/2017 1:09:40PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	244.04	6.16120E-03	52.29	Tol.	EU-152
	3	299.31	6.84074E-03	57.43	Tol.	GA-67 BI-210M PB-212
	4	350.53	6.79952E-03	39.61		
	5	399.80	4.78979E-03	50.89	Tol.	SE-75
	6	502.67	4.25505E-03	55.97		
M	7	507.80	3.67312E-03	28.67		
	8	526.93	2.67857E-03	46.67		
m	10	663.97	2.91549E-03	75.02	Tol.	CE-143
	11	672.25	2.94591E-03	59.07		
	12	685.29	2.46212E-03	43.70	Tol.	MO-93 SB-127

Analysis Report for 1707077-02

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	13	723.08	3.82813E-03	33.30	Tol.	AG-108M SB-124 I-131 EU-154
	14	730.12	2.17593E-03	41.49		
	15	744.89	1.72840E-03	59.05		
M	17	857.98	2.87084E-03	22.17		
m	18	861.17	2.61896E-03	43.81	Tol.	TL-208
	19	891.52	2.03704E-03	62.49		
	20	898.75	2.36111E-03	56.57	Sum	
	21	925.13	3.13034E-03	35.56		
	22	939.80	2.14286E-03	66.42		
	23	1252.96	1.46825E-03	60.01		
	25	1522.62	3.05556E-03	30.15		
	26	1687.86	1.38889E-03	44.72		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	3.69E-01	3.13E-01
MN-54	0.88	834.83	*	99.97	2.49E-02	1.97E-02
CS-137	0.92	661.65	*	85.12	4.38E-02	3.08E-02
TH-234	0.91	63.29	*	3.80	5.91E-01	6.33E-01

Analysis Report for 1707077-02

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.993	3.69E-01	3.13E-01	
MN-54	0.882	2.49E-02	1.97E-02	
CS-137	0.929	4.38E-02	3.08E-02	
TH-234	0.917	5.91E-01	6.33E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707077-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 1:09:40PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	244.04	6.16120E-03	52.29	Tol.	EU-152
	3	299.31	6.84074E-03	57.43	Tol.	GA-67
						BI-210M
						PB-212
	4	350.53	6.79952E-03	39.61		
	5	399.80	4.78979E-03	50.89	Tol.	SE-75
	6	502.67	4.25505E-03	55.97		
M	7	507.80	3.67312E-03	28.67		
	8	526.93	2.67857E-03	46.67		
m	10	663.97	2.91549E-03	75.02	Tol.	CE-143
	11	672.25	2.94591E-03	59.07		
	12	685.29	2.46212E-03	43.70	Tol.	MO-93
						SB-127
	13	723.08	3.82813E-03	33.30	Tol.	AG-108M
						SB-124
						I-131
						EU-154
	14	730.12	2.17593E-03	41.49		
	15	744.89	1.72840E-03	59.05		
M	17	857.98	2.87084E-03	22.17		
m	18	861.17	2.61896E-03	43.81	Tol.	TL-208
	19	891.52	2.03704E-03	62.49		
	20	898.75	2.36111E-03	56.57	Sum	
	21	925.13	3.13034E-03	35.56		
	22	939.80	2.14286E-03	66.42		
	23	1252.96	1.46825E-03	60.01		
	25	1522.62	3.05556E-03	30.15		
	26	1687.86	1.38889E-03	44.72		

Analysis Report for 1707077-02

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

NUCLIDE 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	6.16E-02	3.49E-01	3.49E-01
+	NA-22	1274.54		99.94	-1.73E-02	4.67E-02	4.67E-02
+	NA-24	1368.53		99.99	-3.35E-02	5.03E-02	5.03E-02
		2754.09		99.86	3.56E-02		1.07E-01
+	AL-26	1808.65		99.76	1.97E-02	5.92E-02	5.92E-02
+	K-40	1460.81	*	10.67	3.69E-01	4.36E-01	4.36E-01
+	AR-41	1293.64		99.16	8.17E-03	8.80E-02	8.80E-02
+	TI-44	67.88		94.40	-2.08E-03	2.03E-02	2.35E-02
		78.34		96.00	-2.33E-03		2.03E-02
+	SC-46	889.25		99.98	6.48E-03	4.49E-02	5.96E-02
		1120.51		99.99	6.19E-03		4.49E-02
+	V-48	983.52		99.98	2.61E-03	4.52E-02	5.36E-02
		1312.10		97.50	1.50E-02		4.52E-02
+	CR-51	320.08		9.83	-9.51E-02	2.59E-01	2.59E-01
+	MN-54	834.83	*	99.97	2.49E-02	2.60E-02	2.60E-02
+	CO-56	846.75		99.96	-1.85E-02	5.29E-02	5.29E-02
		1037.75		14.03	1.61E-01		4.26E-01
		1238.25		67.00	-3.63E-02		6.80E-02
		1771.40		15.51	3.11E-02		2.88E-01
		2598.48		16.90	0.00E+00		1.19E-01
+	CO-57	122.06		85.51	-6.27E-03	2.00E-02	2.00E-02
		136.48		10.60	-1.63E-02		1.77E-01
+	CO-58	810.76		99.40	-1.32E-02	4.82E-02	4.82E-02
+	FE-59	1099.22		56.50	1.47E-02	7.75E-02	1.08E-01
		1291.56		43.20	5.57E-03		7.75E-02
+	CO-60	1173.22		100.00	1.18E-02	4.67E-02	4.67E-02
		1332.49		100.00	1.30E-02		5.87E-02
+	ZN-65	1115.52		50.75	1.87E-02	1.04E-01	1.04E-01
+	GA-67	93.31		35.70	9.00E-02	6.93E-02	6.93E-02
		208.95		2.24	1.25E-01		1.09E+00
		300.22		16.00	1.10E-01		2.15E-01
+	SE-75	121.11		16.70	-7.23E-02	3.28E-02	1.00E-01

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	5.35E-03	3.28E-02	3.28E-02
		264.65	59.80	-2.17E-02		4.47E-02
		279.53	25.20	-1.70E-02		1.05E-01
		400.65	11.40	1.95E-01		3.15E-01
+	RB-82	776.52	13.00	8.27E-03	3.76E-01	3.76E-01
+	RB-83	520.41	46.00	7.80E-03	6.80E-02	6.80E-02
		529.64	30.30	-5.22E-03		1.14E-01
		552.65	16.40	6.61E-02		2.20E-01
+	KR-85	513.99	0.43	1.10E+01	1.26E+01	1.26E+01
+	SR-85	513.99	99.27	4.80E-02	5.51E-02	5.51E-02
+	Y-88	898.02	93.40	-1.40E-02	3.69E-02	5.27E-02
		1836.01	99.38	-1.67E-03		3.69E-02
+	MO-93	263.06	56.72	-9.51E-03	3.70E-02	4.58E-02
		684.67	99.68	-1.38E-02		3.70E-02
		1477.11	99.08	2.46E-03		5.37E-02
+	NB-93M	16.57	9.43	5.64E+00	4.14E+00	4.14E+00
+	NB-94	702.63	100.00	-4.69E-03	4.79E-02	5.32E-02
		871.10	100.00	1.42E-02		4.79E-02
+	NB-95	765.79	99.81	-6.80E-03	3.78E-02	3.78E-02
+	NB-95M	235.69	25.00	-2.12E-02	9.42E-02	9.42E-02
+	ZR-95	724.18	43.70	2.52E-02	6.74E-02	1.05E-01
		756.72	55.30	-3.64E-02		6.74E-02
+	MO-99	181.06	6.20	-5.08E-01	3.17E-01	3.57E-01
		739.58	12.80	7.10E-02		3.17E-01
		778.00	4.50	3.16E-01		1.14E+00
+	RU-103	497.08	89.00	-6.26E-03	3.93E-02	3.93E-02
+	RU-106	621.84	9.80	1.03E-02	3.43E-01	3.43E-01
+	AG-108M	433.93	89.90	-1.36E-02	3.22E-02	3.22E-02
		614.37	90.40	-1.80E-02		4.66E-02
		722.95	90.50	1.66E-02		5.04E-02
+	CD-109	88.03	3.72	-9.81E-01	5.55E-01	5.55E-01
+	AG-110M	657.75	93.14	-4.99E-03	5.74E-02	5.74E-02
		677.61	10.53	1.72E-02		3.19E-01
		706.67	16.46	9.55E-02		3.06E-01
		763.93	21.98	-1.03E-02		1.63E-01
		884.67	71.63	1.68E-02		7.02E-02
		1384.27	23.94	-4.11E-02		2.40E-01
+	CD-113M	263.70	0.02	-1.86E+01	1.17E+02	1.17E+02
+	SN-113	255.12	1.93	-5.85E-02	5.55E-02	1.40E+00
		391.69	64.90	3.87E-02		5.55E-02
+	TE123M	159.00	84.10	-9.35E-03	2.39E-02	2.39E-02
+	SB-124	602.71	97.87	-3.26E-02	3.46E-02	3.46E-02
		645.85	7.26	-1.03E-01		5.50E-01
		722.78	11.10	1.35E-01		4.12E-01
		1691.02	49.00	-1.57E-02		1.33E-01
+	I-125	35.49	6.49	-1.43E-01	6.00E-01	6.00E-01
+	SB-125	176.33	6.89	4.99E-02	1.06E-01	3.37E-01
		427.89	29.33	6.90E-03		1.06E-01

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	-8.01E-02	1.06E-01	3.27E-01
		600.56		17.80	4.03E-02		2.02E-01
		635.90		11.32	-1.22E-01		3.57E-01
+	SB-126	414.70		83.30	3.61E-03	3.57E-02	3.57E-02
		666.33		99.60	-4.35E-02		4.91E-02
		695.00		99.60	3.65E-02		5.78E-02
		720.50		53.80	0.00E+00		8.26E-02
+	SN-126	87.57		37.00	-9.86E-02	5.58E-02	5.58E-02
+	SB-127	473.00		25.00	-1.89E-02	1.05E-01	1.43E-01
		685.20		35.70	-3.92E-02		1.05E-01
		783.80		14.70	-3.75E-02		3.11E-01
+	I-129	29.78		57.00	-4.31E-02	1.15E-01	1.15E-01
		33.60		13.20	3.11E-02		3.44E-01
		39.58		7.52	7.79E-02		4.20E-01
+	I-131	284.30		6.05	-6.97E-02	3.71E-02	4.68E-01
		364.48		81.20	1.34E-03		3.71E-02
		636.97		7.26	-1.14E-01		5.77E-01
		722.89		1.80	8.39E-01		2.56E+00
+	TE-132	49.72		13.10	-6.92E-03	2.63E-02	2.03E-01
		228.16		88.00	4.43E-03		2.63E-02
+	BA-133	81.00		33.00	-3.74E-02	4.87E-02	5.63E-02
		302.84		17.80	-5.92E-03		1.82E-01
		356.01		60.00	9.38E-03		4.87E-02
+	I-133	529.87		86.30	-1.97E-03	4.31E-02	4.31E-02
+	XE-133	81.00		38.00	-3.28E-02	4.95E-02	4.95E-02
+	CS-134	563.23		8.38	8.32E-02	4.25E-02	4.39E-01
		569.32		15.43	8.26E-02		2.47E-01
		604.70		97.60	4.86E-04		4.25E-02
		795.84		85.40	1.19E-02		5.34E-02
		801.93		8.73	0.00E+00		6.06E-01
+	CS-135	268.24		16.00	1.15E-01	1.88E-01	1.88E-01
+	I-135	1131.51		22.50	9.30E-02	2.45E-01	3.24E-01
		1260.41		28.60	-1.93E-03		2.45E-01
		1678.03		9.54	1.80E-01		6.46E-01
+	CS-136	153.22		7.46	-3.30E-02	4.87E-02	2.68E-01
		163.89		4.61	2.83E-01		4.82E-01
		176.55		13.56	1.21E-01		1.80E-01
		273.65		12.66	-1.50E-01		2.05E-01
		340.57		48.50	4.69E-02		7.21E-02
		818.50		99.70	1.66E-02		4.87E-02
		1048.07		79.60	-3.78E-02		6.00E-02
		1235.34		19.70	1.77E-02		2.65E-01
+	CS-137	661.65	*	85.12	4.38E-02	6.88E-02	6.88E-02
+	LA-138	788.74		34.00	-4.87E-02	8.45E-02	1.08E-01
		1435.80		66.00	-7.99E-03		8.45E-02
+	CE-139	165.85		80.35	4.17E-03	2.60E-02	2.60E-02
+	BA-140	162.64		6.70	1.11E-01	1.48E-01	3.26E-01
		304.84		4.50	1.25E-01		6.66E-01
		423.70		3.20	2.77E-01		9.50E-01

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	437.55	2.00	-1.14E-02	1.48E-01	1.64E+00
		537.32	25.00	2.27E-02		1.48E-01
+	LA-140	328.77	20.50	-1.01E-02	4.26E-02	1.46E-01
		487.03	45.50	-9.01E-03		6.25E-02
		815.85	23.50	-1.26E-01		1.86E-01
		1596.49	95.49	-7.65E-03		4.26E-02
+	CE-141	145.44	48.40	-7.37E-03	4.17E-02	4.17E-02
+	CE-143	57.36	11.80	1.60E-02	7.29E-02	1.92E-01
		293.26	42.00	7.43E-03		7.29E-02
		664.55	5.20	3.00E-01		1.14E+00
+	CE-144	133.54	10.80	-1.23E-02	1.74E-01	1.74E-01
+	PM-144	476.78	42.00	6.26E-02	4.40E-02	9.40E-02
		618.01	98.60	2.04E-02		4.40E-02
		696.49	99.49	0.00E+00		5.59E-02
+	PM-145	36.85	21.70	-1.87E-02	8.77E-02	1.64E-01
		37.36	39.70	-9.97E-03		8.77E-02
		42.30	15.10	-1.51E-01		1.91E-01
		72.40	2.31	-2.02E-02		8.49E-01
+	PM-146	453.90	39.94	2.73E-03	8.95E-02	8.95E-02
		735.90	14.01	-7.25E-02		2.59E-01
		747.13	13.10	0.00E+00		3.39E-01
+	ND-147	91.11	28.90	8.25E-02	8.51E-02	8.51E-02
		531.02	13.10	-5.68E-02		2.37E-01
+	PM-149	285.90	3.10	4.74E-01	1.00E+00	1.00E+00
+	EU-152	121.78	20.50	-2.61E-02	8.31E-02	8.31E-02
		244.69	5.40	1.00E-01		5.14E-01
		344.27	19.13	-6.92E-03		1.71E-01
		778.89	9.20	2.00E-01		5.46E-01
		964.01	10.40	-1.65E-01		4.66E-01
		1085.78	7.22	3.21E-02		6.80E-01
		1112.02	9.60	6.80E-02		5.73E-01
		1407.95	14.94	3.99E-02		3.41E-01
+	GD-153	97.43	31.30	-8.74E-02	5.80E-02	5.80E-02
		103.18	22.20	-1.50E-02		7.50E-02
+	EU-154	123.07	40.50	-1.31E-02	4.23E-02	4.23E-02
		723.30	19.70	5.57E-02		2.32E-01
		873.19	11.50	1.22E-01		3.86E-01
		996.32	10.30	-1.11E-02		4.85E-01
		1004.76	17.90	-8.88E-02		2.56E-01
		1274.45	35.50	-4.88E-02		1.31E-01
+	EU-155	86.50	30.90	-6.58E-02	6.45E-02	6.45E-02
		105.30	20.70	-1.84E-02		8.36E-02
+	EU-156	811.77	10.40	-2.38E-01	4.63E-01	4.63E-01
		1153.47	7.20	-2.88E-01		6.41E-01
		1230.71	8.90	2.48E-01		6.18E-01
+	HO-166M	184.41	72.60	1.89E-02	3.45E-02	3.45E-02
		280.45	29.60	-3.33E-02		8.85E-02
		410.94	11.10	-6.43E-02		2.75E-01
		711.69	54.10	2.40E-03		7.60E-02

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72	0.14	5.57E+00	1.71E+01	1.71E+01
+	HF-172	67.35	5.31	1.46E-01	1.66E-01	4.49E-01
		125.81	11.30	5.04E-02		1.66E-01
+	LU-172	181.53	20.60	-8.34E-02	9.12E-02	1.12E-01
		900.72	29.81	2.22E-02		1.73E-01
		1093.66	62.50	2.38E-02		9.12E-02
+	LU-173	100.72	5.24	8.52E-02	1.36E-01	3.25E-01
		272.11	21.20	2.74E-02		1.36E-01
+	HF-175	343.40	84.00	-1.57E-03	3.88E-02	3.88E-02
+	LU-176	88.34	13.30	-2.74E-01	2.99E-02	1.55E-01
		201.83	86.00	-8.22E-03		2.99E-02
		306.78	94.00	-4.92E-03		3.02E-02
+	HF-181	133.02	41.70	-1.46E-02	3.60E-02	4.45E-02
		345.85	17.20	-1.07E-02		1.75E-01
		482.03	82.80	-1.23E-02		3.60E-02
+	TA-182	67.75	41.20	-4.77E-03	5.40E-02	5.40E-02
		1121.30	34.90	1.22E-03		1.20E-01
		1189.05	16.23	-6.88E-03		2.48E-01
		1221.41	26.98	-5.34E-02		1.67E-01
		1231.02	11.44	1.51E-01		4.79E-01
+	IR-192	308.46	29.68	4.92E-02	6.98E-02	9.95E-02
		468.07	48.10	8.36E-03		6.98E-02
+	HG-203	279.19	77.30	-5.74E-03	3.34E-02	3.34E-02
+	TL-204	374.74	94.11	1.41E-02	3.79E-02	3.79E-02
		899.15	99.16	1.18E-02		5.14E-02
		911.74	91.10	-4.36E-03		5.47E-02
+	BI-207	569.67	97.72	1.31E-02	3.91E-02	3.91E-02
		1063.62	74.90	2.97E-02		8.16E-02
+	TL-208	583.14	30.22	4.63E-02	1.19E-01	1.19E-01
		860.37	4.48	-3.23E-01		1.13E+00
		2614.66	35.85	8.36E-02		2.51E-01
+	BI-210M	262.00	45.00	9.14E-04	5.81E-02	5.81E-02
		300.00	23.00	7.49E-02		1.46E-01
+	PB-210	46.50	4.25	3.49E-01	6.78E-01	6.78E-01
+	PB-211	404.84	2.90	-6.22E-02	1.08E+00	1.08E+00
		831.96	2.90	0.00E+00		1.64E+00
+	BI-212	727.17	11.80	3.10E-01	4.38E-01	4.38E-01
		1620.62	2.75	5.89E-01		2.11E+00
+	PB-212	238.63	44.60	2.42E-02	5.88E-02	5.88E-02
		300.09	3.41	5.05E-01		9.88E-01
+	BI-214	609.31	46.30	4.27E-02	8.21E-02	1.06E-01
		1120.29	15.10	4.09E-02		2.97E-01
		1764.49	15.80	0.00E+00		8.21E-02
		2204.22	4.98	4.06E-02		1.13E+00
+	PB-214	295.21	19.19	2.28E-02	8.88E-02	1.55E-01
		351.92	37.19	3.10E-02		8.88E-02
+	RN-219	401.80	6.50	-6.42E-02	5.40E-01	5.40E-01
+	RA-223	323.87	3.88	7.18E-02	7.53E-01	7.53E-01

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.08E-01	7.40E-01	7.40E-01
+	RA-225	40.00		31.00	1.87E-02	1.01E-01	1.01E-01
+	RA-226	186.21		3.28	5.28E-01	7.57E-01	7.57E-01
+	TH-227	50.10		8.40	-1.05E-02	2.02E-01	3.08E-01
		236.00		11.50	-4.54E-02		2.02E-01
		256.20		6.30	-1.40E-02		4.31E-01
+	AC-228	338.32		11.40	-8.76E-03	1.73E-01	2.85E-01
		911.07		27.70	-5.08E-02		1.73E-01
		969.11		16.60	1.40E-01		3.59E-01
+	TH-230	48.44		16.90	4.96E-02	1.64E-01	1.64E-01
		62.85		4.60	4.86E-01		5.78E-01
		67.67		0.37	-5.31E-01		6.01E+00
+	PA-231	283.67		1.60	-2.61E-01	1.40E+00	1.75E+00
		302.67		2.30	-4.58E-02		1.40E+00
+	TH-231	25.64		14.70	1.14E-01	3.19E-01	7.21E-01
		84.21		6.40	2.13E-01		3.19E-01
+	PA-233	311.98		38.60	-5.78E-03	7.02E-02	7.02E-02
+	PA-234	131.20		20.40	-4.41E-03	9.21E-02	9.21E-02
		733.99		8.80	-8.11E-02		4.97E-01
		946.00		12.00	-8.37E-02		3.80E-01
+	PA-234M	1001.03		0.92	-7.04E-01	4.97E+00	4.97E+00
+	TH-234	63.29	*	3.80	5.91E-01	1.03E+00	1.03E+00
+	U-235	143.76		10.50	6.05E-02	1.96E-01	1.96E-01
		163.35		4.70	1.58E-01		4.63E-01
		205.31		4.70	2.78E-01		5.56E-01
+	NP-237	86.50		12.60	-1.61E-01	1.58E-01	1.58E-01
+	NP-239	106.10		22.70	-5.75E-02	7.69E-02	7.69E-02
		228.18		10.70	3.67E-02		2.18E-01
		277.60		14.10	3.78E-02		1.95E-01
+	AM-241	59.54		35.90	-1.43E-02	6.75E-02	6.75E-02
+	AM-243	74.67		66.00	2.56E-02	3.09E-02	3.09E-02
+	CM-243	209.75		3.29	-4.20E-01	1.92E-01	6.78E-01
		228.14		10.60	3.61E-02		2.14E-01
		277.60		14.00	3.71E-02		1.92E-01

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

Analysis Report for 1707077-02

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.49E-01	3.49E-01	6.16E-02	1.56E-01
	NA-22	1274.54		99.94	4.67E-02	4.67E-02	-1.73E-02	1.85E-02
	NA-24	1368.53		99.99	5.03E-02	5.03E-02	-3.35E-02	1.95E-02
		2754.09		99.86	1.07E-01		3.56E-02	4.14E-02
	AL-26	1808.65		99.76	5.92E-02	5.92E-02	1.97E-02	2.29E-02
+	K-40	1460.81	*	10.67	4.36E-01	4.36E-01	3.69E-01	1.67E-01
	AR-41	1293.64		99.16	8.80E-02	8.80E-02	8.17E-03	3.29E-02
	TI-44	67.88		94.40	2.35E-02	2.03E-02	-2.08E-03	1.11E-02
		78.34		96.00	2.03E-02		-2.33E-03	9.58E-03
	SC-46	889.25		99.98	5.96E-02	4.49E-02	6.48E-03	2.63E-02
		1120.51		99.99	4.49E-02		6.19E-03	1.81E-02
	V-48	983.52		99.98	5.36E-02	4.52E-02	2.61E-03	2.29E-02
		1312.10		97.50	4.52E-02		1.50E-02	1.75E-02
	CR-51	320.08		9.83	2.59E-01	2.59E-01	-9.51E-02	1.16E-01
+	MN-54	834.83	*	99.97	2.60E-02	2.60E-02	2.49E-02	9.72E-03
	CO-56	846.75		99.96	5.29E-02	5.29E-02	-1.85E-02	2.31E-02
		1037.75		14.03	4.26E-01		1.61E-01	1.85E-01
		1238.25		67.00	6.80E-02		-3.63E-02	2.70E-02
		1771.40		15.51	2.88E-01		3.11E-02	1.02E-01
		2598.48		16.90	1.19E-01		0.00E+00	0.00E+00
	CO-57	122.06		85.51	2.00E-02	2.00E-02	-6.27E-03	9.29E-03
		136.48		10.60	1.77E-01		-1.63E-02	8.29E-02
	CO-58	810.76		99.40	4.82E-02	4.82E-02	-1.32E-02	2.09E-02
	FE-59	1099.22		56.50	1.08E-01	7.75E-02	1.47E-02	4.65E-02
		1291.56		43.20	7.75E-02		5.57E-03	2.75E-02
	CO-60	1173.22		100.00	4.67E-02	4.67E-02	1.18E-02	1.89E-02
		1332.49		100.00	5.87E-02		1.30E-02	2.44E-02
	ZN-65	1115.52		50.75	1.04E-01	1.04E-01	1.87E-02	4.36E-02
	GA-67	93.31		35.70	6.93E-02	6.93E-02	9.00E-02	3.31E-02
		208.95		2.24	1.09E+00		1.25E-01	5.08E-01
		300.22		16.00	2.15E-01		1.10E-01	9.97E-02
	SE-75	121.11		16.70	1.00E-01	3.28E-02	-7.23E-02	4.67E-02
		136.00		59.20	3.28E-02		5.35E-03	1.54E-02
		264.65		59.80	4.47E-02		-2.17E-02	2.06E-02
		279.53		25.20	1.05E-01		-1.70E-02	4.80E-02
		400.65		11.40	3.15E-01		1.95E-01	1.44E-01
	RB-82	776.52		13.00	3.76E-01	3.76E-01	8.27E-03	1.64E-01
	RB-83	520.41		46.00	6.80E-02	6.80E-02	7.80E-03	2.94E-02
		529.64		30.30	1.14E-01		-5.22E-03	5.01E-02
		552.65		16.40	2.20E-01		6.61E-02	9.66E-02
	KR-85	513.99		0.43	1.26E+01	1.26E+01	1.10E+01	5.82E+00
	SR-85	513.99		99.27	5.51E-02	5.51E-02	4.80E-02	2.55E-02

Analysis Report for 1707077-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	5.27E-02	3.69E-02	-1.40E-02	2.26E-02
	1836.01	99.38	3.69E-02		-1.67E-03	1.17E-02
MO-93	263.06	56.72	4.58E-02	3.70E-02	-9.51E-03	2.11E-02
	684.67	99.68	3.70E-02		-1.38E-02	1.57E-02
	1477.11	99.08	5.37E-02		2.46E-03	2.13E-02
NB-93M	16.57	9.43	4.14E+00	4.14E+00	5.64E+00	1.98E+00
NB-94	702.63	100.00	5.32E-02	4.79E-02	-4.69E-03	2.38E-02
	871.10	100.00	4.79E-02		1.42E-02	2.05E-02
NB-95	765.79	99.81	3.78E-02	3.78E-02	-6.80E-03	1.58E-02
NB-95M	235.69	25.00	9.42E-02	9.42E-02	-2.12E-02	4.33E-02
ZR-95	724.18	43.70	1.05E-01	6.74E-02	2.52E-02	4.57E-02
	756.72	55.30	6.74E-02		-3.64E-02	2.82E-02
MO-99	181.06	6.20	3.57E-01	3.17E-01	-5.08E-01	1.66E-01
	739.58	12.80	3.17E-01		7.10E-02	1.35E-01
	778.00	4.50	1.14E+00		3.16E-01	5.00E-01
RU-103	497.08	89.00	3.93E-02	3.93E-02	-6.26E-03	1.74E-02
RU-106	621.84	9.80	3.43E-01	3.43E-01	1.03E-02	1.46E-01
AG-108M	433.93	89.90	3.22E-02	3.22E-02	-1.36E-02	1.42E-02
	614.37	90.40	4.66E-02		-1.80E-02	2.06E-02
	722.95	90.50	5.04E-02		1.66E-02	2.20E-02
CD-109	88.03	3.72	5.55E-01	5.55E-01	-9.81E-01	2.63E-01
AG-110M	657.75	93.14	5.74E-02	5.74E-02	-4.99E-03	2.59E-02
	677.61	10.53	3.19E-01		1.72E-02	1.34E-01
	706.67	16.46	3.06E-01		9.55E-02	1.36E-01
	763.93	21.98	1.63E-01		-1.03E-02	6.75E-02
	884.67	71.63	7.02E-02		1.68E-02	3.02E-02
	1384.27	23.94	2.40E-01		-4.11E-02	9.85E-02
CD-113M	263.70	0.02	1.17E+02	1.17E+02	-1.86E+01	5.38E+01
SN-113	255.12	1.93	1.40E+00	5.55E-02	-5.85E-02	6.47E-01
	391.69	64.90	5.55E-02		3.87E-02	2.53E-02
TE123M	159.00	84.10	2.39E-02	2.39E-02	-9.35E-03	1.11E-02
SB-124	602.71	97.87	3.46E-02	3.46E-02	-3.26E-02	1.48E-02
	645.85	7.26	5.50E-01		-1.03E-01	2.39E-01
	722.78	11.10	4.12E-01		1.35E-01	1.80E-01
	1691.02	49.00	1.33E-01		-1.57E-02	5.36E-02
I-125	35.49	6.49	6.00E-01	6.00E-01	-1.43E-01	2.82E-01
SB-125	176.33	6.89	3.37E-01	1.06E-01	4.99E-02	1.58E-01
	427.89	29.33	1.06E-01		6.90E-03	4.73E-02
	463.38	10.35	3.27E-01		-8.01E-02	1.46E-01
	600.56	17.80	2.02E-01		4.03E-02	8.76E-02
	635.90	11.32	3.57E-01		-1.22E-01	1.56E-01
SB-126	414.70	83.30	3.57E-02	3.57E-02	3.61E-03	1.58E-02
	666.33	99.60	4.91E-02		-4.35E-02	2.18E-02
	695.00	99.60	5.78E-02		3.65E-02	2.61E-02
	720.50	53.80	8.26E-02		0.00E+00	3.59E-02
SN-126	87.57	37.00	5.58E-02	5.58E-02	-9.86E-02	2.64E-02
SB-127	473.00	25.00	1.43E-01	1.05E-01	-1.89E-02	6.40E-02
	685.20	35.70	1.05E-01		-3.92E-02	4.47E-02
	783.80	14.70	3.11E-01		-3.75E-02	1.34E-01
I-129	29.78	57.00	1.15E-01	1.15E-01	-4.31E-02	5.46E-02
	33.60	13.20	3.44E-01		3.11E-02	1.62E-01
	39.58	7.52	4.20E-01		7.79E-02	1.97E-01
I-131	284.30	6.05	4.68E-01	3.71E-02	-6.97E-02	2.15E-01

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	3.71E-02	3.71E-02	1.34E-03	1.68E-02
		636.97		7.26	5.77E-01		-1.14E-01	2.53E-01
		722.89		1.80	2.56E+00		8.39E-01	1.12E+00
	TE-132	49.72		13.10	2.03E-01	2.63E-02	-6.92E-03	9.59E-02
		228.16		88.00	2.63E-02		4.43E-03	1.21E-02
	BA-133	81.00		33.00	5.63E-02	4.87E-02	-3.74E-02	2.65E-02
		302.84		17.80	1.82E-01		-5.92E-03	8.40E-02
		356.01		60.00	4.87E-02		9.38E-03	2.20E-02
	I-133	529.87		86.30	4.31E-02	4.31E-02	-1.97E-03	1.89E-02
	XE-133	81.00		38.00	4.95E-02	4.95E-02	-3.28E-02	2.33E-02
	CS-134	563.23		8.38	4.39E-01	4.25E-02	8.32E-02	1.93E-01
		569.32		15.43	2.47E-01		8.26E-02	1.09E-01
		604.70		97.60	4.25E-02		4.86E-04	1.87E-02
		795.84		85.40	5.34E-02		1.19E-02	2.30E-02
		801.93		8.73	6.06E-01		0.00E+00	2.67E-01
	CS-135	268.24		16.00	1.88E-01	1.88E-01	1.15E-01	8.74E-02
	I-135	1131.51		22.50	3.24E-01	2.45E-01	9.30E-02	1.38E-01
		1260.41		28.60	2.45E-01		-1.93E-03	1.02E-01
		1678.03		9.54	6.46E-01		1.80E-01	2.42E-01
	CS-136	153.22		7.46	2.68E-01	4.87E-02	-3.30E-02	1.25E-01
		163.89		4.61	4.82E-01		2.83E-01	2.26E-01
		176.55		13.56	1.80E-01		1.21E-01	8.48E-02
		273.65		12.66	2.05E-01		-1.50E-01	9.40E-02
		340.57		48.50	7.21E-02		4.69E-02	3.32E-02
		818.50		99.70	4.87E-02		1.66E-02	2.11E-02
		1048.07		79.60	6.00E-02		-3.78E-02	2.49E-02
		1235.34		19.70	2.65E-01		1.77E-02	1.09E-01
+	CS-137	661.65	*	85.12	6.88E-02	6.88E-02	4.38E-02	3.13E-02
	LA-138	788.74		34.00	1.08E-01	8.45E-02	-4.87E-02	4.49E-02
		1435.80		66.00	8.45E-02		-7.99E-03	3.42E-02
	CE-139	165.85		80.35	2.60E-02	2.60E-02	4.17E-03	1.21E-02
	BA-140	162.64		6.70	3.26E-01	1.48E-01	1.11E-01	1.52E-01
		304.84		4.50	6.66E-01		1.25E-01	3.06E-01
		423.70		3.20	9.50E-01		2.77E-01	4.22E-01
		437.55		2.00	1.64E+00		-1.14E-02	7.30E-01
		537.32		25.00	1.48E-01		2.27E-02	6.54E-02
	LA-140	328.77		20.50	1.46E-01	4.26E-02	-1.01E-02	6.63E-02
		487.03		45.50	6.25E-02		-9.01E-03	2.69E-02
		815.85		23.50	1.86E-01		-1.26E-01	7.90E-02
		1596.49		95.49	4.26E-02		-7.65E-03	1.51E-02
	CE-141	145.44		48.40	4.17E-02	4.17E-02	-7.37E-03	1.95E-02
	CE-143	57.36		11.80	1.92E-01	7.29E-02	1.60E-02	9.04E-02
		293.26		42.00	7.29E-02		7.43E-03	3.35E-02
		664.55		5.20	1.14E+00		3.00E-01	5.15E-01
	CE-144	133.54		10.80	1.74E-01	1.74E-01	-1.23E-02	8.16E-02
	PM-144	476.78		42.00	9.40E-02	4.40E-02	6.26E-02	4.24E-02
		618.01		98.60	4.40E-02		2.04E-02	1.94E-02
		696.49		99.49	5.59E-02		0.00E+00	2.51E-02
	PM-145	36.85		21.70	1.64E-01	8.77E-02	-1.87E-02	7.70E-02
		37.36		39.70	8.77E-02		-9.97E-03	4.11E-02
		42.30		15.10	1.91E-01		-1.51E-01	8.95E-02
		72.40		2.31	8.49E-01		-2.02E-02	4.00E-01
	PM-146	453.90		39.94	8.95E-02	8.95E-02	2.73E-03	4.02E-02

Analysis Report for 1707077-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	2.59E-01	8.95E-02	-7.25E-02	1.08E-01
	747.13	13.10	3.39E-01		0.00E+00	1.47E-01
ND-147	91.11	28.90	8.51E-02	8.51E-02	8.25E-02	4.07E-02
	531.02	13.10	2.37E-01		-5.68E-02	1.02E-01
PM-149	285.90	3.10	1.00E+00	1.00E+00	4.74E-01	4.64E-01
EU-152	121.78	20.50	8.31E-02	8.31E-02	-2.61E-02	3.87E-02
	244.69	5.40	5.14E-01		1.00E-01	2.39E-01
	344.27	19.13	1.71E-01		-6.92E-03	7.82E-02
	778.89	9.20	5.46E-01		2.00E-01	2.39E-01
	964.01	10.40	4.66E-01		-1.65E-01	1.97E-01
	1085.78	7.22	6.80E-01		3.21E-02	2.82E-01
	1112.02	9.60	5.73E-01		6.80E-02	2.42E-01
	1407.95	14.94	3.41E-01		3.99E-02	1.35E-01
GD-153	97.43	31.30	5.80E-02	5.80E-02	-8.74E-02	2.72E-02
	103.18	22.20	7.50E-02		-1.50E-02	3.50E-02
EU-154	123.07	40.50	4.23E-02	4.23E-02	-1.31E-02	1.97E-02
	723.30	19.70	2.32E-01		5.57E-02	1.01E-01
	873.19	11.50	3.86E-01		1.22E-01	1.63E-01
	996.32	10.30	4.85E-01		-1.11E-02	2.05E-01
	1004.76	17.90	2.56E-01		-8.88E-02	1.06E-01
	1274.45	35.50	1.31E-01		-4.88E-02	5.22E-02
EU-155	86.50	30.90	6.45E-02	6.45E-02	-6.58E-02	3.05E-02
	105.30	20.70	8.36E-02		-1.84E-02	3.91E-02
EU-156	811.77	10.40	4.63E-01	4.63E-01	-2.38E-01	2.00E-01
	1153.47	7.20	6.41E-01		-2.88E-01	2.59E-01
	1230.71	8.90	6.18E-01		2.48E-01	2.56E-01
HO-166M	184.41	72.60	3.45E-02	3.45E-02	1.89E-02	1.62E-02
	280.45	29.60	8.85E-02		-3.33E-02	4.05E-02
	410.94	11.10	2.75E-01		-6.43E-02	1.23E-01
	711.69	54.10	7.60E-02		2.40E-03	3.27E-02
TM-171	66.72	0.14	1.71E+01	1.71E+01	5.57E+00	8.14E+00
HF-172	67.35	5.31	4.49E-01	1.66E-01	1.46E-01	2.14E-01
	125.81	11.30	1.66E-01		5.04E-02	7.78E-02
LU-172	181.53	20.60	1.12E-01	9.12E-02	-8.34E-02	5.22E-02
	900.72	29.81	1.73E-01		2.22E-02	7.44E-02
	1093.66	62.50	9.12E-02		2.38E-02	3.88E-02
LU-173	100.72	5.24	3.25E-01	1.36E-01	8.52E-02	1.52E-01
	272.11	21.20	1.36E-01		2.74E-02	6.28E-02
HF-175	343.40	84.00	3.88E-02	3.88E-02	-1.57E-03	1.78E-02
LU-176	88.34	13.30	1.55E-01	2.99E-02	-2.74E-01	7.36E-02
	201.83	86.00	2.99E-02		-8.22E-03	1.40E-02
	306.78	94.00	3.02E-02		-4.92E-03	1.38E-02
HF-181	133.02	41.70	4.45E-02	3.60E-02	-1.46E-02	2.08E-02
	345.85	17.20	1.75E-01		-1.07E-02	7.95E-02
	482.03	82.80	3.60E-02		-1.23E-02	1.57E-02
TA-182	67.75	41.20	5.40E-02	5.40E-02	-4.77E-03	2.56E-02
	1121.30	34.90	1.20E-01		1.22E-03	4.74E-02
	1189.05	16.23	2.48E-01		-6.88E-03	9.61E-02
	1221.41	26.98	1.67E-01		-5.34E-02	6.61E-02
	1231.02	11.44	4.79E-01		1.51E-01	1.99E-01
IR-192	308.46	29.68	9.95E-02	6.98E-02	4.92E-02	4.56E-02
	468.07	48.10	6.98E-02		8.36E-03	3.10E-02
HG-203	279.19	77.30	3.34E-02	3.34E-02	-5.74E-03	1.53E-02

Analysis Report for 1707077-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	3.79E-02	3.79E-02	1.41E-02	1.73E-02
		899.15		99.16	5.14E-02		1.18E-02	2.21E-02
		911.74		91.10	5.47E-02		-4.36E-03	2.34E-02
	BI-207	569.67		97.72	3.91E-02	3.91E-02	1.31E-02	1.72E-02
		1063.62		74.90	8.16E-02		2.97E-02	3.53E-02
	TL-208	583.14		30.22	1.19E-01	1.19E-01	4.63E-02	5.19E-02
		860.37		4.48	1.13E+00		-3.23E-01	4.89E-01
		2614.66		35.85	2.51E-01		8.36E-02	9.72E-02
	BI-210M	262.00		45.00	5.81E-02	5.81E-02	9.14E-04	2.68E-02
		300.00		23.00	1.46E-01		7.49E-02	6.80E-02
	PB-210	46.50		4.25	6.78E-01	6.78E-01	3.49E-01	3.21E-01
	PB-211	404.84		2.90	1.08E+00	1.08E+00	-6.22E-02	4.82E-01
		831.96		2.90	1.64E+00		0.00E+00	7.05E-01
	BI-212	727.17		11.80	4.38E-01	4.38E-01	3.10E-01	1.95E-01
		1620.62		2.75	2.11E+00		5.89E-01	8.36E-01
	PB-212	238.63		44.60	5.88E-02	5.88E-02	2.42E-02	2.73E-02
		300.09		3.41	9.88E-01		5.05E-01	4.59E-01
	BI-214	609.31		46.30	1.06E-01	8.21E-02	4.27E-02	4.74E-02
		1120.29		15.10	2.97E-01		4.09E-02	1.20E-01
		1764.49		15.80	8.21E-02		0.00E+00	0.00E+00
		2204.22		4.98	1.13E+00		4.06E-02	4.00E-01
	PB-214	295.21		19.19	1.55E-01	8.88E-02	2.28E-02	7.14E-02
		351.92		37.19	8.88E-02		3.10E-02	4.06E-02
	RN-219	401.80		6.50	5.40E-01	5.40E-01	-6.42E-02	2.45E-01
	RA-223	323.87		3.88	7.53E-01	7.53E-01	7.18E-02	3.43E-01
	RA-224	240.98		3.95	7.40E-01	7.40E-01	1.08E-01	3.46E-01
	RA-225	40.00		31.00	1.01E-01	1.01E-01	1.87E-02	4.72E-02
	RA-226	186.21		3.28	7.57E-01	7.57E-01	5.28E-01	3.55E-01
	TH-227	50.10		8.40	3.08E-01	2.02E-01	-1.05E-02	1.46E-01
		236.00		11.50	2.02E-01		-4.54E-02	9.26E-02
		256.20		6.30	4.31E-01		-1.40E-02	1.99E-01
	AC-228	338.32		11.40	2.85E-01	1.73E-01	-8.76E-03	1.30E-01
		911.07		27.70	1.73E-01		-5.08E-02	7.38E-02
		969.11		16.60	3.59E-01		1.40E-01	1.57E-01
	TH-230	48.44		16.90	1.64E-01	1.64E-01	4.96E-02	7.77E-02
		62.85		4.60	5.78E-01		4.86E-01	2.76E-01
		67.67		0.37	6.01E+00		-5.31E-01	2.85E+00
	PA-231	283.67		1.60	1.75E+00	1.40E+00	-2.61E-01	8.05E-01
		302.67		2.30	1.40E+00		-4.58E-02	6.50E-01
	TH-231	25.64		14.70	7.21E-01	3.19E-01	1.14E-01	3.45E-01
		84.21		6.40	3.19E-01		2.13E-01	1.51E-01
	PA-233	311.98		38.60	7.02E-02	7.02E-02	-5.78E-03	3.19E-02
	PA-234	131.20		20.40	9.21E-02	9.21E-02	-4.41E-03	4.31E-02
		733.99		8.80	4.97E-01		-8.11E-02	2.15E-01
		946.00		12.00	3.80E-01		-8.37E-02	1.59E-01
	PA-234M	1001.03		0.92	4.97E+00	4.97E+00	-7.04E-01	2.06E+00
+	TH-234	63.29	*	3.80	1.03E+00	1.03E+00	5.91E-01	5.01E-01
	U-235	143.76		10.50	1.96E-01	1.96E-01	6.05E-02	9.17E-02
		163.35		4.70	4.63E-01		1.58E-01	2.17E-01
		205.31		4.70	5.56E-01		2.78E-01	2.60E-01
	NP-237	86.50		12.60	1.58E-01	1.58E-01	-1.61E-01	7.48E-02
	NP-239	106.10		22.70	7.69E-02	7.69E-02	-5.75E-02	3.59E-02
		228.18		10.70	2.18E-01		3.67E-02	1.00E-01

Analysis Report for 1707077-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	1.95E-01	7.69E-02	3.78E-02	8.97E-02
AM-241	59.54	35.90	6.75E-02	6.75E-02	-1.43E-02	3.20E-02
AM-243	74.67	66.00	3.09E-02	3.09E-02	2.56E-02	1.46E-02
CM-243	209.75	3.29	6.78E-01	1.92E-01	-4.20E-01	3.13E-01
	228.14	10.60	2.14E-01		3.61E-02	9.84E-02
	277.60	14.00	1.92E-01		3.71E-02	8.80E-02

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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: BLANK

Elapsed Live time: 3600
Elapsed Real Time: 3619

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	6	49
17:	27	41	33	20	34	23	21	27
25:	30	18	20	18	17	17	12	17
33:	16	12	6	12	8	11	13	12
41:	8	13	9	12	22	19	18	14
49:	7	11	11	16	12	12	14	11
57:	7	13	16	17	21	29	27	20
65:	19	19	16	19	8	10	11	9
73:	16	17	14	20	13	8	8	13
81:	13	17	13	16	16	17	14	10
89:	14	21	31	46	18	15	6	12
97:	7	13	10	7	14	8	11	9
105:	7	14	8	11	16	18	13	8
113:	11	13	17	14	10	9	11	4
121:	8	10	8	12	9	10	13	12
129:	11	11	5	12	7	13	9	13
137:	9	10	7	14	9	8	13	11
145:	11	11	9	10	13	10	10	11
153:	10	9	3	13	8	11	9	10
161:	10	14	12	9	9	11	4	6
169:	7	8	9	4	17	9	15	15
177:	8	6	12	9	7	7	12	15
185:	21	12	7	4	8	4	9	6
193:	6	11	3	17	14	12	9	7
201:	10	14	14	7	13	6	9	6
209:	8	11	6	4	8	13	8	5
217:	6	6	6	4	9	5	7	3
225:	9	5	6	3	10	8	5	5
233:	4	1	8	6	10	9	8	8
241:	6	14	13	10	8	2	6	8
249:	6	9	9	8	11	9	8	1
257:	5	9	6	7	6	6	5	6
265:	8	9	6	9	13	7	2	7
273:	5	8	3	8	6	9	5	3
281:	4	5	7	7	10	8	4	10
289:	7	5	8	8	6	3	8	8
297:	5	10	13	9	9	4	6	5
305:	6	3	10	4	4	7	7	3
313:	1	7	5	3	2	2	4	5
321:	7	4	5	4	5	6	7	5
329:	8	4	1	6	6	7	3	4
337:	7	10	4	6	7	5	8	5
345:	2	7	3	3	12	10	5	6
353:	0	3	4	3	8	5	4	4
361:	5	3	9	5	2	4	1	3

369:	5	3	4	5	4	6	9	6

Sample Title: BLANK

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

801:	0	1	4	2	3	1	3	2

Sample Title: BLANK

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

1233:	2	0	1	0	0	1	1	0

Sample Title: BLANK

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

1665:	0	1	0	1	0	1	0	0

Sample Title: BLANK

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

2097:	0	1	1	0	0	0	1	0

Sample Title: BLANK

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

2529:	0	0	1	0	0	0	1	0

Sample Title: BLANK

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

2961:	0	1	0	0	0	0	0	0

Sample Title: BLANK

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

3393:	0	0	0	0	0	0	0	0

Sample Title: BLANK

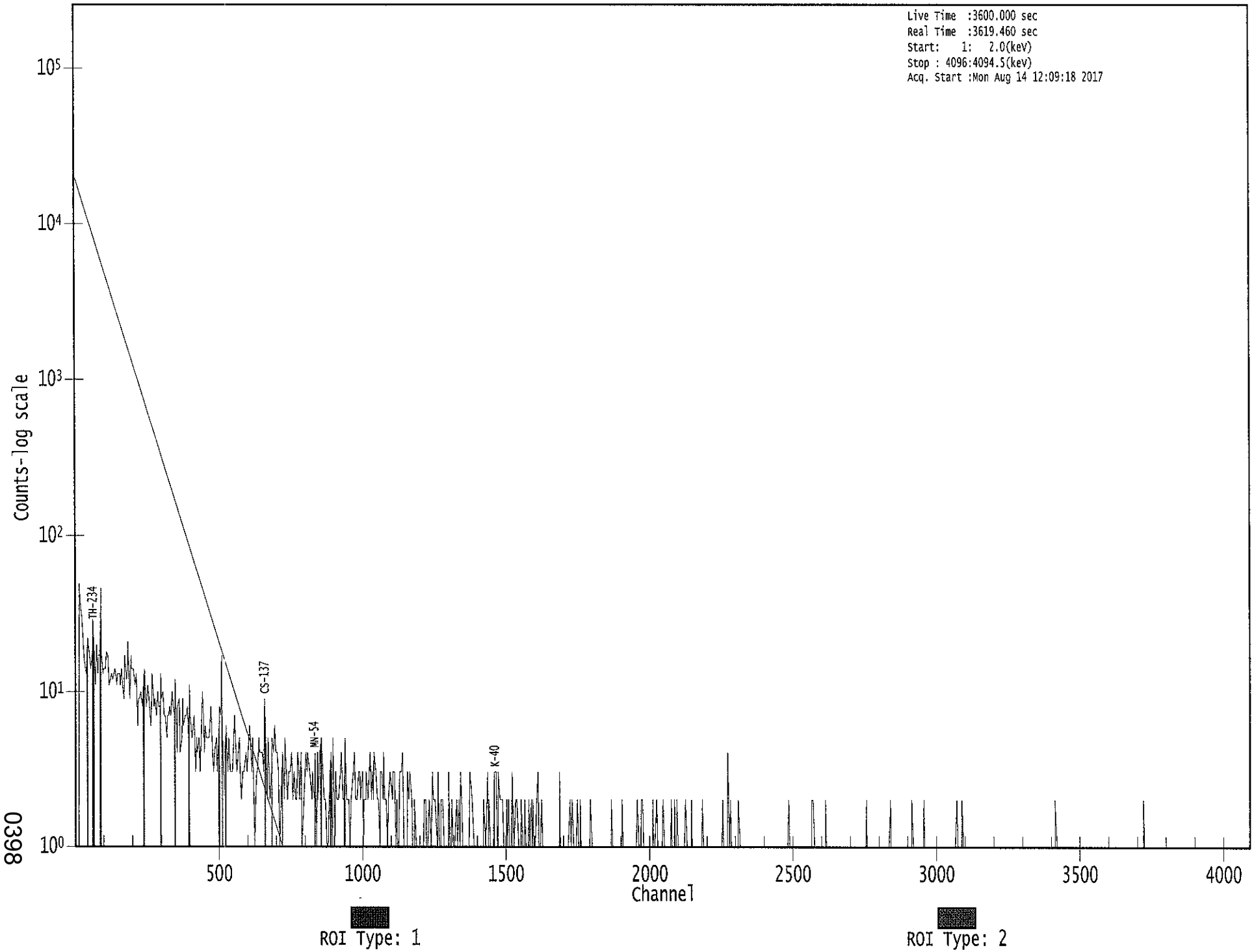
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	0	0	0	2	0	1	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	0	0	0	0
3441:	1	0	0	1	1	0	0	0
3449:	0	0	0	0	0	0	1	1
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	1	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	1	0	0	0	0	0	0	0

Sample Title: BLANK

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

0000055171.CNF



0398

Apex-Gamma

8/14

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-03
Sample Description	: HTC-A01-S001-0006-01
Sample Type	: SOIL
Sample Size	: 8.216E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:31:02AM
Acquisition Started	: 8/14/2017 5:52:36AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3676.1 seconds
Dead Time	: 2.07 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 17 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55127

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 6:53:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	34.05	34.69	0.0000	0.00
2	39.04	39.67	0.0000	0.00
3	46.15	46.77	0.0000	0.00
4	56.98	57.60	0.0000	0.00
5	63.84	64.44	0.0000	0.00
6	75.82	76.41	0.0000	0.00
7	87.68	88.26	0.0000	0.00
8	92.87	93.45	0.0000	0.00
9	98.95	99.52	0.0000	0.00
10	105.03	105.59	0.0000	0.00
11	114.53	115.09	0.0000	0.00
12	128.87	129.41	0.0000	0.00
13	143.96	144.49	0.0000	0.00
14	153.76	154.28	0.0000	0.00
15	185.72	186.20	0.0000	0.00
16	199.69	200.16	0.0000	0.00
17	209.12	209.57	0.0000	0.00
18	216.04	216.49	0.0000	0.00
19	238.42	238.85	0.0000	0.00
20	241.42	241.84	0.0000	0.00
21	252.07	252.48	0.0000	0.00
22	257.67	258.08	0.0000	0.00
23	270.05	270.44	0.0000	0.00
24	277.19	277.58	0.0000	0.00
25	288.18	288.55	0.0000	0.00
26	295.06	295.43	0.0000	0.00
27	299.85	300.21	0.0000	0.00
28	323.26	323.60	0.0000	0.00
29	327.88	328.22	0.0000	0.00
30	331.85	332.18	0.0000	0.00
31	338.19	338.51	0.0000	0.00
32	351.77	352.08	0.0000	0.00
33	355.89	356.20	0.0000	0.00
34	388.10	388.37	0.0000	0.00
35	401.72	401.98	0.0000	0.00
36	405.01	405.27	0.0000	0.00
37	409.41	409.66	0.0000	0.00
38	415.80	416.04	0.0000	0.00
39	439.68	439.90	0.0000	0.00
40	453.08	453.29	0.0000	0.00
41	462.92	463.12	0.0000	0.00
42	479.19	479.37	0.0000	0.00

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	486.92	487.10	0.0000	0.00
44	510.69	510.84	0.0000	0.00
45	562.52	562.62	0.0000	0.00
46	571.49	571.58	0.0000	0.00
47	580.05	580.13	0.0000	0.00
48	583.20	583.28	0.0000	0.00
49	587.31	587.38	0.0000	0.00
50	598.21	598.27	0.0000	0.00
51	609.33	609.38	0.0000	0.00
52	613.44	613.49	0.0000	0.00
53	665.62	665.61	0.0000	0.00
54	702.57	702.52	0.0000	0.00
55	707.52	707.47	0.0000	0.00
56	727.36	727.30	0.0000	0.00
57	742.80	742.72	0.0000	0.00
58	755.43	755.33	0.0000	0.00
59	763.75	763.64	0.0000	0.00
60	768.41	768.30	0.0000	0.00
61	772.37	772.25	0.0000	0.00
62	782.34	782.22	0.0000	0.00
63	785.80	785.67	0.0000	0.00
64	795.03	794.89	0.0000	0.00
65	806.41	806.26	0.0000	0.00
66	830.98	830.81	0.0000	0.00
67	835.98	835.80	0.0000	0.00
68	840.33	840.15	0.0000	0.00
69	860.65	860.45	0.0000	0.00
70	874.45	874.23	0.0000	0.00
71	893.43	893.20	0.0000	0.00
72	904.43	904.18	0.0000	0.00
73	911.41	911.16	0.0000	0.00
74	915.66	915.41	0.0000	0.00
75	934.33	934.05	0.0000	0.00
76	958.85	958.55	0.0000	0.00
77	965.04	964.73	0.0000	0.00
78	969.22	968.91	0.0000	0.00
79	988.72	988.39	0.0000	0.00
80	1001.57	1001.23	0.0000	0.00
81	1033.15	1032.78	0.0000	0.00
82	1052.87	1052.48	0.0000	0.00
83	1064.48	1064.08	0.0000	0.00
84	1078.98	1078.57	0.0000	0.00
85	1094.72	1094.29	0.0000	0.00
86	1110.83	1110.38	0.0000	0.00
87	1120.66	1120.21	0.0000	0.00
88	1124.78	1124.31	0.0000	0.00
89	1155.39	1154.89	0.0000	0.00
90	1207.84	1207.30	0.0000	0.00
91	1238.57	1238.00	0.0000	0.00
92	1247.14	1246.56	0.0000	0.00
93	1281.35	1280.73	0.0000	0.00
94	1287.50	1286.88	0.0000	0.00
95	1378.17	1377.46	0.0000	0.00
96	1385.96	1385.24	0.0000	0.00
97	1401.88	1401.15	0.0000	0.00

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1408.48	1407.74	0.0000	0.00
99	1459.85	1459.06	0.0000	0.00
100	1496.29	1495.46	0.0000	0.00
101	1502.21	1501.38	0.0000	0.00
102	1509.66	1508.81	0.0000	0.00
103	1513.38	1512.54	0.0000	0.00
104	1539.32	1538.45	0.0000	0.00
105	1558.94	1558.05	0.0000	0.00
106	1581.36	1580.45	0.0000	0.00
107	1584.92	1584.00	0.0000	0.00
108	1588.75	1587.83	0.0000	0.00
109	1593.18	1592.26	0.0000	0.00
110	1621.26	1620.30	0.0000	0.00
111	1625.74	1624.79	0.0000	0.00
112	1631.23	1630.27	0.0000	0.00
113	1638.82	1637.85	0.0000	0.00
114	1661.76	1660.77	0.0000	0.00
115	1667.25	1666.26	0.0000	0.00
116	1685.74	1684.73	0.0000	0.00
117	1693.30	1692.28	0.0000	0.00
118	1730.31	1729.25	0.0000	0.00
119	1765.29	1764.20	0.0000	0.00
120	1807.75	1806.61	0.0000	0.00
121	1848.08	1846.90	0.0000	0.00
122	1889.61	1888.39	0.0000	0.00
123	1897.15	1895.93	0.0000	0.00
124	2104.47	2103.05	0.0000	0.00
125	2119.54	2118.10	0.0000	0.00
126	2161.11	2159.63	0.0000	0.00
127	2177.14	2175.65	0.0000	0.00
128	2205.07	2203.55	0.0000	0.00
129	2294.86	2293.25	0.0000	0.00
130	2448.64	2446.89	0.0000	0.00
131	2494.02	2492.23	0.0000	0.00
132	2500.33	2498.53	0.0000	0.00
133	2543.22	2541.38	0.0000	0.00
134	2615.41	2613.50	0.0000	0.00
135	2619.80	2617.89	0.0000	0.00
136	2688.72	2686.75	0.0000	0.00
137	2809.44	2807.35	0.0000	0.00
138	2891.60	2889.43	0.0000	0.00
139	2968.29	2966.05	0.0000	0.00
140	2990.50	2988.24	0.0000	0.00
141	3126.09	3123.70	0.0000	0.00
142	3198.73	3196.28	0.0000	0.00
143	3475.73	3473.02	0.0000	0.00
144	3542.98	3540.20	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 6:53:55AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	34.05	30 -	43	34.69	5.28E+03	610.24	5.80E+04	2.70
m	2	39.04	30 -	43	39.67	3.11E+03	607.04	5.94E+04	2.72
	3	46.15	45 -	48	46.77	1.00E+03	366.54	3.28E+04	1.19
	4	56.98	56 -	60	57.60	7.28E+03	556.84	6.27E+04	1.89
	5	63.84	61 -	68	64.44	7.08E+03	845.95	1.15E+05	2.23
	6	75.82	71 -	81	76.41	7.36E+04	1269.33	1.76E+05	3.91
M	7	87.68	83 -	97	88.26	3.17E+04	1069.76	1.47E+05	3.93
m	8	92.87	83 -	97	93.45	1.76E+04	710.43	7.99E+04	1.88
	9	98.95	98 -	102	99.52	2.92E+03	535.00	6.07E+04	1.70
	10	105.03	103 -	108	105.59	2.36E+03	618.39	7.49E+04	1.77
	11	114.53	113 -	118	115.09	1.58E+03	603.55	7.13E+04	1.95
	12	128.87	126 -	133	129.41	7.02E+03	787.24	9.86E+04	1.95
	13	143.96	143 -	147	144.49	1.26E+03	518.45	5.86E+04	1.36
	14	153.76	152 -	157	154.28	2.42E+03	590.12	6.75E+04	1.80
	15	185.72	182 -	190	186.20	1.01E+04	791.75	9.02E+04	1.80
	16	199.69	198 -	203	200.16	1.00E+03	529.37	5.52E+04	3.25
	17	209.12	206 -	213	209.57	8.32E+03	680.44	7.13E+04	1.94
	18	216.04	215 -	219	216.49	3.64E+02	435.62	4.18E+04	1.74
M	19	238.42	233 -	250	238.85	1.06E+05	753.27	3.41E+04	1.78
m	20	241.42	233 -	250	241.84	2.20E+04	857.23	4.22E+04	2.43
	21	252.07	250 -	254	252.48	3.60E+02	349.11	2.68E+04	1.14
	22	257.67	256 -	261	258.08	7.69E+02	403.95	3.18E+04	3.10
M	23	270.05	266 -	281	270.44	9.28E+03	426.20	2.91E+04	2.07
m	24	277.19	266 -	281	277.58	4.49E+03	404.95	2.87E+04	2.06
M	25	288.18	286 -	304	288.55	6.45E+02	371.49	2.75E+04	1.91
m	26	295.06	286 -	304	295.43	1.92E+04	422.19	2.24E+04	1.61
m	27	299.85	286 -	304	300.21	7.54E+03	403.08	2.63E+04	2.06
M	28	323.26	319 -	344	323.60	1.06E+03	523.21	3.71E+04	3.34
m	29	327.88	319 -	344	328.22	5.43E+03	324.01	1.84E+04	1.66
m	30	331.85	319 -	344	332.18	1.54E+03	531.41	3.64E+04	3.35
m	31	338.19	319 -	344	338.51	2.07E+04	404.19	1.78E+04	1.73
M	32	351.77	346 -	359	352.08	3.43E+04	459.34	1.60E+04	1.67
m	33	355.89	346 -	359	356.20	1.51E+03	521.26	2.47E+04	2.54
	34	388.10	386 -	391	388.37	2.56E+02	303.21	1.81E+04	2.16
M	35	401.72	397 -	413	401.98	6.79E+02	295.56	1.70E+04	2.13
m	36	405.01	397 -	413	405.27	5.80E+02	296.83	1.68E+04	1.96
m	37	409.41	397 -	413	409.66	2.95E+03	271.87	1.37E+04	1.75
	38	415.80	414 -	419	416.04	2.59E+02	280.52	1.55E+04	4.88
	39	439.68	438 -	442	439.90	2.86E+02	226.54	1.11E+04	1.54
	40	453.08	450 -	456	453.29	5.99E+02	291.88	1.51E+04	1.81

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	462.92	459 -	467	463.12	5.99E+03	387.42	1.94E+04	1.83
	42	479.19	477 -	482	479.37	5.86E+02	245.45	1.16E+04	3.78
	43	486.92	485 -	490	487.10	3.37E+02	242.17	1.15E+04	2.46
	44	510.69	506 -	516	510.84	1.18E+04	452.19	2.10E+04	1.86
	45	562.52	559 -	566	562.62	1.18E+03	292.37	1.34E+04	2.04
	46	571.49	569 -	575	571.58	3.81E+02	258.07	1.18E+04	3.20
M	47	580.05	577 -	591	580.13	7.02E+02	260.46	9.68E+03	1.90
m	48	583.20	577 -	591	583.28	3.40E+04	416.42	7.97E+03	1.75
m	49	587.31	577 -	591	587.38	1.16E+03	341.61	1.10E+04	2.48
	50	598.21	596 -	601	598.27	1.78E+02	211.96	8.85E+03	2.63
M	51	609.33	603 -	617	609.38	2.62E+04	372.33	7.41E+03	1.80
m	52	613.44	603 -	617	613.49	8.26E+02	325.28	1.04E+04	2.34
	53	665.62	662 -	669	665.61	8.94E+02	264.05	1.10E+04	2.42
	54	702.57	700 -	705	702.52	1.87E+02	209.75	8.63E+03	1.96
	55	707.52	705 -	711	707.47	2.52E+02	227.48	9.16E+03	1.75
	56	727.36	723 -	730	727.30	7.35E+03	300.70	1.02E+04	2.01
	57	742.80	740 -	746	742.72	2.34E+02	208.95	7.74E+03	2.74
	58	755.43	752 -	759	755.33	9.81E+02	236.52	8.67E+03	2.02
M	59	763.75	760 -	776	763.64	7.66E+02	232.43	8.40E+03	2.58
m	60	768.41	760 -	776	768.30	2.49E+03	203.45	6.10E+03	1.93
m	61	772.37	760 -	776	772.25	1.67E+03	249.84	7.83E+03	2.59
M	62	782.34	779 -	789	782.22	5.58E+02	168.30	5.24E+03	2.06
m	63	785.80	779 -	789	785.67	1.55E+03	181.21	5.25E+03	1.95
	64	795.03	790 -	799	794.89	3.79E+03	276.62	8.77E+03	1.78
	65	806.41	803 -	810	806.26	6.40E+02	197.20	6.04E+03	1.77
M	66	830.98	827 -	844	830.81	5.19E+02	155.71	4.50E+03	2.16
m	67	835.98	827 -	844	835.80	1.45E+03	166.31	4.35E+03	2.17
m	68	840.33	827 -	844	840.15	1.10E+03	163.69	4.21E+03	2.13
	69	860.65	855 -	863	860.45	4.20E+03	235.57	5.93E+03	2.18
	70	874.45	872 -	876	874.23	1.00E+02	119.22	3.06E+03	2.01
	71	893.43	890 -	897	893.20	3.68E+02	176.50	4.93E+03	2.09
M	72	904.43	900 -	919	904.18	6.20E+02	125.20	3.01E+03	1.70
m	73	911.41	900 -	919	911.16	2.39E+04	336.93	3.42E+03	1.96
m	74	915.66	900 -	919	915.41	8.40E+02	327.51	4.32E+03	2.66
	75	934.33	929 -	938	934.05	1.35E+03	205.82	5.29E+03	1.98
M	76	958.85	955 -	977	958.55	2.94E+02	153.17	3.89E+03	3.22
m	77	965.04	955 -	977	964.73	4.63E+03	186.14	2.85E+03	2.10
m	78	969.22	955 -	977	968.91	1.41E+04	271.52	2.69E+03	1.97
	79	988.72	985 -	992	988.39	1.94E+02	143.40	3.29E+03	1.99
	80	1001.57	996 -	1006	1001.23	6.78E+02	188.37	4.36E+03	1.95
	81	1033.15	1029 -	1037	1032.78	1.91E+02	150.92	3.39E+03	2.73
	82	1052.87	1049 -	1056	1052.48	2.58E+02	133.24	2.78E+03	2.12
	83	1064.48	1061 -	1067	1064.08	1.31E+02	126.67	2.83E+03	1.74
	84	1078.98	1075 -	1083	1078.57	4.13E+02	147.75	3.09E+03	2.79
	85	1094.72	1089 -	1099	1094.29	5.07E+02	174.60	3.79E+03	2.13
	86	1110.83	1107 -	1114	1110.38	3.47E+02	134.42	2.77E+03	2.41
M	87	1120.66	1115 -	1127	1120.21	5.95E+03	182.74	1.90E+03	2.09
m	88	1124.78	1115 -	1127	1124.31	3.75E+02	188.53	2.37E+03	2.57
	89	1155.39	1151 -	1160	1154.89	8.15E+02	162.67	3.34E+03	2.40
	90	1207.84	1204 -	1210	1207.30	2.36E+02	108.03	1.95E+03	2.54
M	91	1238.57	1232 -	1256	1238.00	2.15E+03	141.34	2.08E+03	2.30
m	92	1247.14	1232 -	1256	1246.56	4.70E+02	152.15	2.97E+03	3.41
	93	1281.35	1277 -	1285	1280.73	4.88E+02	143.68	2.90E+03	2.28

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	94	1287.50	1285	1289	1286.88	7.12E+01	86.70	1.60E+03	1.53
	95	1378.17	1373	1380	1377.46	1.38E+03	146.45	2.65E+03	2.29
	96	1385.96	1382	1388	1385.24	2.44E+02	110.69	2.02E+03	2.10
M	97	1401.88	1394	1412	1401.15	4.96E+02	122.11	2.14E+03	2.62
m	98	1408.48	1394	1412	1407.74	8.48E+02	116.26	1.84E+03	2.35
	99	1459.85	1453	1464	1459.06	7.20E+02	161.11	2.88E+03	2.48
M	100	1496.29	1490	1516	1495.46	6.70E+02	116.38	1.78E+03	2.66
m	101	1502.21	1490	1516	1501.38	3.92E+02	113.89	1.78E+03	2.66
m	102	1509.66	1490	1516	1508.81	7.71E+02	108.57	1.56E+03	2.43
m	103	1513.38	1490	1516	1512.54	2.51E+02	116.00	1.78E+03	2.66
	104	1539.32	1536	1541	1538.45	9.02E+01	86.34	1.43E+03	1.98
	105	1558.94	1553	1563	1558.05	1.80E+02	125.62	2.01E+03	2.22
M	106	1581.36	1573	1602	1580.45	4.68E+02	118.85	1.80E+03	2.96
m	107	1584.92	1573	1602	1584.00	1.61E+02	110.11	1.41E+03	2.22
m	108	1588.75	1573	1602	1587.83	2.01E+03	130.89	1.42E+03	2.19
m	109	1593.18	1573	1602	1592.26	1.43E+03	143.72	1.63E+03	2.53
M	110	1621.26	1614	1643	1620.30	1.06E+03	109.11	1.28E+03	2.52
m	111	1625.74	1614	1643	1624.79	2.33E+02	101.19	1.24E+03	2.70
m	112	1631.23	1614	1643	1630.27	1.12E+03	109.11	1.18E+03	2.64
m	113	1638.82	1614	1643	1637.85	3.62E+02	94.45	1.10E+03	2.71
M	114	1661.76	1657	1671	1660.77	2.76E+02	76.97	9.86E+02	1.96
m	115	1667.25	1657	1671	1666.26	1.48E+02	91.48	1.24E+03	2.57
	116	1685.74	1680	1688	1684.73	1.35E+02	100.23	1.46E+03	3.28
	117	1693.30	1689	1696	1692.28	8.74E+01	88.02	1.23E+03	3.07
	118	1730.31	1724	1735	1729.25	9.90E+02	136.70	1.84E+03	2.28
	119	1765.29	1757	1770	1764.20	4.78E+03	202.76	2.44E+03	2.36
	120	1807.75	1802	1812	1806.61	1.40E+02	108.43	1.48E+03	6.85
	121	1848.08	1843	1852	1846.90	5.95E+02	115.06	1.55E+03	2.03
	122	1889.61	1882	1892	1888.39	1.15E+02	110.08	1.55E+03	5.83
	123	1897.15	1893	1899	1895.93	1.16E+02	74.90	9.38E+02	4.82
	124	2104.47	2095	2111	2103.05	2.08E+03	186.59	2.53E+03	3.63
	125	2119.54	2113	2123	2118.10	3.27E+02	118.68	1.70E+03	2.18
	126	2161.11	2157	2162	2159.63	5.89E+01	64.57	7.92E+02	2.67
	127	2177.14	2172	2179	2175.65	9.61E+01	82.92	1.09E+03	2.57
	128	2205.07	2199	2210	2203.55	1.30E+03	146.89	2.04E+03	2.70
	129	2294.86	2289	2297	2293.25	1.33E+02	108.30	1.71E+03	4.02
	130	2448.64	2442	2452	2446.89	3.17E+02	112.31	1.50E+03	2.70
	131	2494.02	2490	2495	2492.23	4.02E+01	45.99	3.88E+02	2.78
	132	2500.33	2496	2502	2498.53	4.67E+01	49.74	4.15E+02	3.74
	133	2543.22	2539	2543	2541.38	2.38E+01	29.49	1.68E+02	1.12
M	134	2615.41	2607	2623	2613.50	1.37E+04	237.39	3.94E+02	2.83
m	135	2619.80	2607	2623	2617.89	4.26E+02	218.38	3.37E+02	3.08
	136	2688.72	2681	2692	2686.75	5.13E+01	52.46	3.19E+02	3.91
	137	2809.44	2802	2812	2807.35	5.50E+01	37.08	1.54E+02	6.99
	138	2891.60	2885	2895	2889.43	5.62E+01	26.89	6.76E+01	8.57
	139	2968.29	2963	2970	2966.05	2.15E+01	22.09	6.51E+01	1.36
	140	2990.50	2984	2992	2988.24	2.65E+01	23.32	6.69E+01	4.32
	141	3126.09	3117	3132	3123.70	8.63E+01	29.93	5.15E+01	3.30
	142	3198.73	3191	3203	3196.28	2.28E+02	38.89	6.78E+01	2.63
	143	3475.73	3469	3477	3473.02	2.70E+01	14.03	1.39E+01	2.98
	144	3542.98	3537	3542	3540.20	5.00E+00	4.47	0.00E+00	2.31

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

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 : 8/14/2017 6:53:55AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	34.05	30 -	43	5.28E+03	610.24	5.80E+04	3.96E+02
m	2	39.04	30 -	43	3.11E+03	607.04	5.94E+04	4.01E+02
	3	46.15	45 -	48	1.00E+03	366.54	3.28E+04	2.97E+02
	4	56.98	56 -	60	7.28E+03	556.84	6.27E+04	4.36E+02
	5	63.84	61 -	68	7.08E+03	845.95	1.15E+05	6.81E+02
	6	75.82	71 -	81	7.36E+04	1269.33	1.76E+05	9.43E+02
M	7	87.68	83 -	97	3.17E+04	1069.76	1.47E+05	6.29E+02
m	8	92.87	83 -	97	1.76E+04	710.43	7.99E+04	4.65E+02
	9	98.95	98 -	102	2.92E+03	535.00	6.07E+04	4.31E+02
	10	105.03	103 -	108	2.36E+03	618.39	7.49E+04	5.02E+02
	11	114.53	113 -	118	1.58E+03	603.55	7.13E+04	4.92E+02
	12	128.87	126 -	133	7.02E+03	787.24	9.86E+04	6.32E+02
	13	143.96	143 -	147	1.26E+03	518.45	5.86E+04	4.22E+02
	14	153.76	152 -	157	2.42E+03	590.12	6.75E+04	4.78E+02
	15	185.72	182 -	190	1.01E+04	791.75	9.02E+04	6.30E+02
	16	199.69	198 -	203	1.00E+03	529.37	5.52E+04	4.32E+02
	17	209.12	206 -	213	8.32E+03	680.44	7.13E+04	5.39E+02
	18	216.04	215 -	219	3.64E+02	435.62	4.18E+04	3.57E+02
M	19	238.42	233 -	250	1.06E+05	753.27	3.41E+04	3.04E+02
m	20	241.42	233 -	250	2.20E+04	857.23	4.22E+04	3.38E+02
	21	252.07	250 -	254	3.60E+02	349.11	2.68E+04	2.85E+02
	22	257.67	256 -	261	7.69E+02	403.95	3.18E+04	3.29E+02
M	23	270.05	266 -	281	9.28E+03	426.20	2.91E+04	2.80E+02
m	24	277.19	266 -	281	4.49E+03	404.95	2.87E+04	2.79E+02
M	25	288.18	286 -	304	6.45E+02	371.49	2.75E+04	2.73E+02
m	26	295.06	286 -	304	1.92E+04	422.19	2.24E+04	2.46E+02
m	27	299.85	286 -	304	7.54E+03	403.08	2.63E+04	2.67E+02
M	28	323.26	319 -	344	1.06E+03	523.21	3.71E+04	3.17E+02
m	29	327.88	319 -	344	5.43E+03	324.01	1.84E+04	2.23E+02
m	30	331.85	319 -	344	1.54E+03	531.41	3.64E+04	3.14E+02
m	31	338.19	319 -	344	2.07E+04	404.19	1.78E+04	2.19E+02

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	32	351.77	346 -	359	3.43E+04	459.34	1.60E+04	2.08E+02
m	33	355.89	346 -	359	1.51E+03	521.26	2.47E+04	2.58E+02
	34	388.10	386 -	391	2.56E+02	303.21	1.81E+04	2.48E+02
M	35	401.72	397 -	413	6.79E+02	295.56	1.70E+04	2.14E+02
m	36	405.01	397 -	413	5.80E+02	296.83	1.68E+04	2.13E+02
m	37	409.41	397 -	413	2.95E+03	271.87	1.37E+04	1.92E+02
	38	415.80	414 -	419	2.59E+02	280.52	1.55E+04	2.29E+02
	39	439.68	438 -	442	2.86E+02	226.54	1.11E+04	1.84E+02
	40	453.08	450 -	456	5.99E+02	291.88	1.51E+04	2.37E+02
	41	462.92	459 -	467	5.99E+03	387.42	1.94E+04	2.92E+02
	42	479.19	477 -	482	5.86E+02	245.45	1.16E+04	1.98E+02
	43	486.92	485 -	490	3.37E+02	242.17	1.15E+04	1.97E+02
	44	510.69	506 -	516	1.18E+04	452.19	2.10E+04	3.26E+02
	45	562.52	559 -	566	1.18E+03	292.37	1.34E+04	2.34E+02
	46	571.49	569 -	575	3.81E+02	258.07	1.18E+04	2.10E+02
M	47	580.05	577 -	591	7.02E+02	260.46	9.68E+03	1.62E+02
m	48	583.20	577 -	591	3.40E+04	416.42	7.97E+03	1.47E+02
m	49	587.31	577 -	591	1.16E+03	341.61	1.10E+04	1.73E+02
	50	598.21	596 -	601	1.78E+02	211.96	8.85E+03	1.73E+02
M	51	609.33	603 -	617	2.62E+04	372.33	7.41E+03	1.41E+02
m	52	613.44	603 -	617	8.26E+02	325.28	1.04E+04	1.67E+02
	53	665.62	662 -	669	8.94E+02	264.05	1.10E+04	2.11E+02
	54	702.57	700 -	705	1.87E+02	209.75	8.63E+03	1.71E+02
	55	707.52	705 -	711	2.52E+02	227.48	9.16E+03	1.85E+02
	56	727.36	723 -	730	7.35E+03	300.70	1.02E+04	2.03E+02
	57	742.80	740 -	746	2.34E+02	208.95	7.74E+03	1.70E+02
	58	755.43	752 -	759	9.81E+02	236.52	8.67E+03	1.87E+02
M	59	763.75	760 -	776	7.66E+02	232.43	8.40E+03	1.51E+02
m	60	768.41	760 -	776	2.49E+03	203.45	6.10E+03	1.28E+02
m	61	772.37	760 -	776	1.67E+03	249.84	7.83E+03	1.45E+02
M	62	782.34	779 -	789	5.58E+02	168.30	5.24E+03	1.19E+02
m	63	785.80	779 -	789	1.55E+03	181.21	5.25E+03	1.19E+02
	64	795.03	790 -	799	3.79E+03	276.62	8.77E+03	2.04E+02
	65	806.41	803 -	810	6.40E+02	197.20	6.04E+03	1.57E+02
M	66	830.98	827 -	844	5.19E+02	155.71	4.50E+03	1.10E+02
m	67	835.98	827 -	844	1.45E+03	166.31	4.35E+03	1.08E+02
m	68	840.33	827 -	844	1.10E+03	163.69	4.21E+03	1.07E+02
	69	860.65	855 -	863	4.20E+03	235.57	5.93E+03	1.62E+02
	70	874.45	872 -	876	1.00E+02	119.22	3.06E+03	9.66E+01
	71	893.43	890 -	897	3.68E+02	176.50	4.93E+03	1.42E+02
M	72	904.43	900 -	919	6.20E+02	125.20	3.01E+03	9.02E+01
m	73	911.41	900 -	919	2.39E+04	336.93	3.42E+03	9.61E+01
m	74	915.66	900 -	919	8.40E+02	327.51	4.32E+03	1.08E+02
	75	934.33	929 -	938	1.35E+03	205.82	5.29E+03	1.58E+02
M	76	958.85	955 -	977	2.94E+02	153.17	3.89E+03	1.03E+02
m	77	965.04	955 -	977	4.63E+03	186.14	2.85E+03	8.78E+01
m	78	969.22	955 -	977	1.41E+04	271.52	2.69E+03	8.52E+01
	79	988.72	985 -	992	1.94E+02	143.40	3.29E+03	1.16E+02
	80	1001.57	996 -	1006	6.78E+02	188.37	4.36E+03	1.49E+02
	81	1033.15	1029 -	1037	1.91E+02	150.92	3.39E+03	1.22E+02
	82	1052.87	1049 -	1056	2.58E+02	133.24	2.78E+03	1.06E+02

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	83	1064.48	1061 -	1067	1.31E+02	126.67	2.83E+03	1.02E+02
	84	1078.98	1075 -	1083	4.13E+02	147.75	3.09E+03	1.17E+02
	85	1094.72	1089 -	1099	5.07E+02	174.60	3.79E+03	1.39E+02
	86	1110.83	1107 -	1114	3.47E+02	134.42	2.77E+03	1.06E+02
M	87	1120.66	1115 -	1127	5.95E+03	182.74	1.90E+03	7.17E+01
m	88	1124.78	1115 -	1127	3.75E+02	188.53	2.37E+03	8.01E+01
	89	1155.39	1151 -	1160	8.15E+02	162.67	3.34E+03	1.25E+02
	90	1207.84	1204 -	1210	2.36E+02	108.03	1.95E+03	8.51E+01
M	91	1238.57	1232 -	1256	2.15E+03	141.34	2.08E+03	7.50E+01
m	92	1247.14	1232 -	1256	4.70E+02	152.15	2.97E+03	8.96E+01
	93	1281.35	1277 -	1285	4.88E+02	143.68	2.90E+03	1.12E+02
	94	1287.50	1285 -	1289	7.12E+01	86.70	1.60E+03	6.99E+01
	95	1378.17	1373 -	1380	1.38E+03	146.45	2.65E+03	1.04E+02
	96	1385.96	1382 -	1388	2.44E+02	110.69	2.02E+03	8.73E+01
M	97	1401.88	1394 -	1412	4.96E+02	122.11	2.14E+03	7.61E+01
m	98	1408.48	1394 -	1412	8.48E+02	116.26	1.84E+03	7.05E+01
	99	1459.85	1453 -	1464	7.20E+02	161.11	2.88E+03	1.25E+02
M	100	1496.29	1490 -	1516	6.70E+02	116.38	1.78E+03	6.94E+01
m	101	1502.21	1490 -	1516	3.92E+02	113.89	1.78E+03	6.94E+01
m	102	1509.66	1490 -	1516	7.71E+02	108.57	1.56E+03	6.49E+01
m	103	1513.38	1490 -	1516	2.51E+02	116.00	1.78E+03	6.93E+01
	104	1539.32	1536 -	1541	9.02E+01	86.34	1.43E+03	6.92E+01
	105	1558.94	1553 -	1563	1.80E+02	125.62	2.01E+03	1.01E+02
M	106	1581.36	1573 -	1602	4.68E+02	118.85	1.80E+03	6.98E+01
m	107	1584.92	1573 -	1602	1.61E+02	110.11	1.41E+03	6.16E+01
m	108	1588.75	1573 -	1602	2.01E+03	130.89	1.42E+03	6.19E+01
m	109	1593.18	1573 -	1602	1.43E+03	143.72	1.63E+03	6.64E+01
M	110	1621.26	1614 -	1643	1.06E+03	109.11	1.28E+03	5.89E+01
m	111	1625.74	1614 -	1643	2.33E+02	101.19	1.24E+03	5.78E+01
m	112	1631.23	1614 -	1643	1.12E+03	109.11	1.18E+03	5.65E+01
m	113	1638.82	1614 -	1643	3.62E+02	94.45	1.10E+03	5.46E+01
M	114	1661.76	1657 -	1671	2.76E+02	76.97	9.86E+02	5.16E+01
m	115	1667.25	1657 -	1671	1.48E+02	91.48	1.24E+03	5.80E+01
	116	1685.74	1680 -	1688	1.35E+02	100.23	1.46E+03	8.01E+01
	117	1693.30	1689 -	1696	8.74E+01	88.02	1.23E+03	7.07E+01
	118	1730.31	1724 -	1735	9.90E+02	136.70	1.84E+03	9.98E+01
	119	1765.29	1757 -	1770	4.78E+03	202.76	2.44E+03	1.22E+02
	120	1807.75	1802 -	1812	1.40E+02	108.43	1.48E+03	8.70E+01
	121	1848.08	1843 -	1852	5.95E+02	115.06	1.55E+03	8.56E+01
	122	1889.61	1882 -	1892	1.15E+02	110.08	1.55E+03	8.88E+01
	123	1897.15	1893 -	1899	1.16E+02	74.90	9.38E+02	5.90E+01
	124	2104.47	2095 -	2111	2.08E+03	186.59	2.53E+03	1.34E+02
	125	2119.54	2113 -	2123	3.27E+02	118.68	1.70E+03	9.29E+01
	126	2161.11	2157 -	2162	5.89E+01	64.57	7.92E+02	5.16E+01
	127	2177.14	2172 -	2179	9.61E+01	82.92	1.09E+03	6.62E+01
	128	2205.07	2199 -	2210	1.30E+03	146.89	2.04E+03	1.05E+02
	129	2294.86	2289 -	2297	1.33E+02	108.30	1.71E+03	8.70E+01
	130	2448.64	2442 -	2452	3.17E+02	112.31	1.50E+03	8.76E+01
	131	2494.02	2490 -	2495	4.02E+01	45.99	3.88E+02	3.63E+01
	132	2500.33	2496 -	2502	4.67E+01	49.74	4.15E+02	3.93E+01
	133	2543.22	2539 -	2543	2.38E+01	29.49	1.68E+02	2.29E+01

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	134	2615.41	2607 -	2623	1.37E+04	237.39	3.94E+02	3.26E+01
m	135	2619.80	2607 -	2623	4.26E+02	218.38	3.37E+02	3.02E+01
	136	2688.72	2681 -	2692	5.13E+01	52.46	3.19E+02	4.15E+01
	137	2809.44	2802 -	2812	5.50E+01	37.08	1.54E+02	2.79E+01
	138	2891.60	2885 -	2895	5.62E+01	26.89	6.76E+01	1.83E+01
	139	2968.29	2963 -	2970	2.15E+01	22.09	6.51E+01	1.65E+01
	140	2990.50	2984 -	2992	2.65E+01	23.32	6.69E+01	1.72E+01
	141	3126.09	3117 -	3132	8.63E+01	29.93	5.15E+01	1.93E+01
	142	3198.73	3191 -	3203	2.28E+02	38.89	6.78E+01	2.01E+01
	143	3475.73	3469 -	3477	2.70E+01	14.03	1.39E+01	7.74E+00
	144	3542.98	3537 -	3542	5.00E+00	4.47	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 6:53:55AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	34.05	30 -	43	34.69	5.28E+03	610.24	5.80E+04	I-129
m	2	39.04	30 -	43	39.67	3.11E+03	607.04	5.94E+04	I-129
									RA-225
	3	46.15	45 -	48	46.77	1.00E+03	366.54	3.28E+04	PB-210
	4	56.98	56 -	60	57.60	7.28E+03	556.84	6.27E+04	CE-143
	5	63.84	61 -	68	64.44	7.08E+03	845.95	1.15E+05	TH-234
									TH-230
	6	75.82	71 -	81	76.41	7.36E+04	1269.33	1.76E+05	.....
M	7	87.68	83 -	97	88.26	3.17E+04	1069.76	1.47E+05	SN-126
									CD-109
									LU-176
m	8	92.87	83 -	97	93.45	1.76E+04	710.43	7.99E+04	GA-67
	9	98.95	98 -	102	99.52	2.92E+03	535.00	6.07E+04	.....
	10	105.03	103 -	108	105.59	2.36E+03	618.39	7.49E+04	EU-155
	11	114.53	113 -	118	115.09	1.58E+03	603.55	7.13E+04	.....

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	12	128.87	126 -	133	129.41	7.02E+03	787.24	9.86E+04	.....
	13	143.96	143 -	147	144.49	1.26E+03	518.45	5.86E+04	U-235
	14	153.76	152 -	157	154.28	2.42E+03	590.12	6.75E+04	CS-136
	15	185.72	182 -	190	186.20	1.01E+04	791.75	9.02E+04	RA-226
	16	199.69	198 -	203	200.16	1.00E+03	529.37	5.52E+04	.....
	17	209.12	206 -	213	209.57	8.32E+03	680.44	7.13E+04	GA-67
									CM-243
	18	216.04	215 -	219	216.49	3.64E+02	435.62	4.18E+04	.....
M	19	238.42	233 -	250	238.85	1.06E+05	753.27	3.41E+04	PB-212
m	20	241.42	233 -	250	241.84	2.20E+04	857.23	4.22E+04	RA-224
	21	252.07	250 -	254	252.48	3.60E+02	349.11	2.68E+04	.....
	22	257.67	256 -	261	258.08	7.69E+02	403.95	3.18E+04	.....
M	23	270.05	266 -	281	270.44	9.28E+03	426.20	2.91E+04	.....
m	24	277.19	266 -	281	277.58	4.49E+03	404.95	2.87E+04	CM-243
									NP-239
M	25	288.18	286 -	304	288.55	6.45E+02	371.49	2.75E+04	.....
m	26	295.06	286 -	304	295.43	1.92E+04	422.19	2.24E+04	PB-214
m	27	299.85	286 -	304	300.21	7.54E+03	403.08	2.63E+04	BI-210M
									PB-212
									GA-67
M	28	323.26	319 -	344	323.60	1.06E+03	523.21	3.71E+04	RA-223
m	29	327.88	319 -	344	328.22	5.43E+03	324.01	1.84E+04	LA-140
m	30	331.85	319 -	344	332.18	1.54E+03	531.41	3.64E+04	.....
m	31	338.19	319 -	344	338.51	2.07E+04	404.19	1.78E+04	AC-228
M	32	351.77	346 -	359	352.08	3.43E+04	459.34	1.60E+04	PB-214
m	33	355.89	346 -	359	356.20	1.51E+03	521.26	2.47E+04	BA-133
	34	388.10	386 -	391	388.37	2.56E+02	303.21	1.81E+04	.....
M	35	401.72	397 -	413	401.98	6.79E+02	295.56	1.70E+04	RN-219
m	36	405.01	397 -	413	405.27	5.80E+02	296.83	1.68E+04	PB-211
m	37	409.41	397 -	413	409.66	2.95E+03	271.87	1.37E+04	.....
	38	415.80	414 -	419	416.04	2.59E+02	280.52	1.55E+04	.....
	39	439.68	438 -	442	439.90	2.86E+02	226.54	1.11E+04	.....
	40	453.08	450 -	456	453.29	5.99E+02	291.88	1.51E+04	PM-146
	41	462.92	459 -	467	463.12	5.99E+03	387.42	1.94E+04	SB-125
	42	479.19	477 -	482	479.37	5.86E+02	245.45	1.16E+04	.....
	43	486.92	485 -	490	487.10	3.37E+02	242.17	1.15E+04	LA-140
	44	510.69	506 -	516	510.84	1.18E+04	452.19	2.10E+04	.....
	45	562.52	559 -	566	562.62	1.18E+03	292.37	1.34E+04	CS-134
	46	571.49	569 -	575	571.58	3.81E+02	258.07	1.18E+04	.....
M	47	580.05	577 -	591	580.13	7.02E+02	260.46	9.68E+03	.....
m	48	583.20	577 -	591	583.28	3.40E+04	416.42	7.97E+03	TL-208
m	49	587.31	577 -	591	587.38	1.16E+03	341.61	1.10E+04	.....
	50	598.21	596 -	601	598.27	1.78E+02	211.96	8.85E+03	.....
M	51	609.33	603 -	617	609.38	2.62E+04	372.33	7.41E+03	BI-214
m	52	613.44	603 -	617	613.49	8.26E+02	325.28	1.04E+04	AG-108M
	53	665.62	662 -	669	665.61	8.94E+02	264.05	1.10E+04	SB-126
	54	702.57	700 -	705	702.52	1.87E+02	209.75	8.63E+03	NB-94
	55	707.52	705 -	711	707.47	2.52E+02	227.48	9.16E+03	AG-110M
	56	727.36	723 -	730	727.30	7.35E+03	300.70	1.02E+04	BI-212
	57	742.80	740 -	746	742.72	2.34E+02	208.95	7.74E+03	.....
	58	755.43	752 -	759	755.33	9.81E+02	236.52	8.67E+03	.....
M	59	763.75	760 -	776	763.64	7.66E+02	232.43	8.40E+03	AG-110M
m	60	768.41	760 -	776	768.30	2.49E+03	203.45	6.10E+03	.....
m	61	772.37	760 -	776	772.25	1.67E+03	249.84	7.83E+03	.....

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	62	782.34	779 -	789	782.22	5.58E+02	168.30	5.24E+03	.....
m	63	785.80	779 -	789	785.67	1.55E+03	181.21	5.25E+03	.....
	64	795.03	790 -	799	794.89	3.79E+03	276.62	8.77E+03	CS-134
	65	806.41	803 -	810	806.26	6.40E+02	197.20	6.04E+03	.....
M	66	830.98	827 -	844	830.81	5.19E+02	155.71	4.50E+03	PB-211
m	67	835.98	827 -	844	835.80	1.45E+03	166.31	4.35E+03	.....
m	68	840.33	827 -	844	840.15	1.10E+03	163.69	4.21E+03	.....
	69	860.65	855 -	863	860.45	4.20E+03	235.57	5.93E+03	TL-208
	70	874.45	872 -	876	874.23	1.00E+02	119.22	3.06E+03	.....
	71	893.43	890 -	897	893.20	3.68E+02	176.50	4.93E+03	.....
M	72	904.43	900 -	919	904.18	6.20E+02	125.20	3.01E+03	.....
m	73	911.41	900 -	919	911.16	2.39E+04	336.93	3.42E+03	TL-204 AC-228
m	74	915.66	900 -	919	915.41	8.40E+02	327.51	4.32E+03	.....
	75	934.33	929 -	938	934.05	1.35E+03	205.82	5.29E+03	.....
M	76	958.85	955 -	977	958.55	2.94E+02	153.17	3.89E+03	.....
m	77	965.04	955 -	977	964.73	4.63E+03	186.14	2.85E+03	.....
m	78	969.22	955 -	977	968.91	1.41E+04	271.52	2.69E+03	AC-228
	79	988.72	985 -	992	988.39	1.94E+02	143.40	3.29E+03	.....
	80	1001.57	996 -	1006	1001.23	6.78E+02	188.37	4.36E+03	PA-234M
	81	1033.15	1029 -	1037	1032.78	1.91E+02	150.92	3.39E+03	.....
	82	1052.87	1049 -	1056	1052.48	2.58E+02	133.24	2.78E+03	.....
	83	1064.48	1061 -	1067	1064.08	1.31E+02	126.67	2.83E+03	BI-207
	84	1078.98	1075 -	1083	1078.57	4.13E+02	147.75	3.09E+03	.....
	85	1094.72	1089 -	1099	1094.29	5.07E+02	174.60	3.79E+03	.....
	86	1110.83	1107 -	1114	1110.38	3.47E+02	134.42	2.77E+03	.....
M	87	1120.66	1115 -	1127	1120.21	5.95E+03	182.74	1.90E+03	SC-46 BI-214 TA-182
m	88	1124.78	1115 -	1127	1124.31	3.75E+02	188.53	2.37E+03	.....
	89	1155.39	1151 -	1160	1154.89	8.15E+02	162.67	3.34E+03	.....
	90	1207.84	1204 -	1210	1207.30	2.36E+02	108.03	1.95E+03	.....
M	91	1238.57	1232 -	1256	1238.00	2.15E+03	141.34	2.08E+03	CO-56
m	92	1247.14	1232 -	1256	1246.56	4.70E+02	152.15	2.97E+03	.....
	93	1281.35	1277 -	1285	1280.73	4.88E+02	143.68	2.90E+03	.....
	94	1287.50	1285 -	1289	1286.88	7.12E+01	86.70	1.60E+03	.....
	95	1378.17	1373 -	1380	1377.46	1.38E+03	146.45	2.65E+03	.....
	96	1385.96	1382 -	1388	1385.24	2.44E+02	110.69	2.02E+03	.....
M	97	1401.88	1394 -	1412	1401.15	4.96E+02	122.11	2.14E+03	.....
m	98	1408.48	1394 -	1412	1407.74	8.48E+02	116.26	1.84E+03	EU-152
	99	1459.85	1453 -	1464	1459.06	7.20E+02	161.11	2.88E+03	K-40
M	100	1496.29	1490 -	1516	1495.46	6.70E+02	116.38	1.78E+03	.....
m	101	1502.21	1490 -	1516	1501.38	3.92E+02	113.89	1.78E+03	.....
m	102	1509.66	1490 -	1516	1508.81	7.71E+02	108.57	1.56E+03	.....
m	103	1513.38	1490 -	1516	1512.54	2.51E+02	116.00	1.78E+03	.....
	104	1539.32	1536 -	1541	1538.45	9.02E+01	86.34	1.43E+03	.....
	105	1558.94	1553 -	1563	1558.05	1.80E+02	125.62	2.01E+03	.....
M	106	1581.36	1573 -	1602	1580.45	4.68E+02	118.85	1.80E+03	.....
m	107	1584.92	1573 -	1602	1584.00	1.61E+02	110.11	1.41E+03	.....
m	108	1588.75	1573 -	1602	1587.83	2.01E+03	130.89	1.42E+03	.....
m	109	1593.18	1573 -	1602	1592.26	1.43E+03	143.72	1.63E+03	.....
M	110	1621.26	1614 -	1643	1620.30	1.06E+03	109.11	1.28E+03	BI-212
m	111	1625.74	1614 -	1643	1624.79	2.33E+02	101.19	1.24E+03	.....
m	112	1631.23	1614 -	1643	1630.27	1.12E+03	109.11	1.18E+03	.....

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	113	1638.82	1614 -	1643	1637.85	3.62E+02	94.45	1.10E+03	.....
M	114	1661.76	1657 -	1671	1660.77	2.76E+02	76.97	9.86E+02	.....
m	115	1667.25	1657 -	1671	1666.26	1.48E+02	91.48	1.24E+03	.....
	116	1685.74	1680 -	1688	1684.73	1.35E+02	100.23	1.46E+03	.....
	117	1693.30	1689 -	1696	1692.28	8.74E+01	88.02	1.23E+03	.....
	118	1730.31	1724 -	1735	1729.25	9.90E+02	136.70	1.84E+03	.....
	119	1765.29	1757 -	1770	1764.20	4.78E+03	202.76	2.44E+03	BI-214
	120	1807.75	1802 -	1812	1806.61	1.40E+02	108.43	1.48E+03	AL-26
	121	1848.08	1843 -	1852	1846.90	5.95E+02	115.06	1.55E+03	.....
	122	1889.61	1882 -	1892	1888.39	1.15E+02	110.08	1.55E+03	.....
	123	1897.15	1893 -	1899	1895.93	1.16E+02	74.90	9.38E+02	.....
	124	2104.47	2095 -	2111	2103.05	2.08E+03	186.59	2.53E+03	.....
	125	2119.54	2113 -	2123	2118.10	3.27E+02	118.68	1.70E+03	.....
	126	2161.11	2157 -	2162	2159.63	5.89E+01	64.57	7.92E+02	.....
	127	2177.14	2172 -	2179	2175.65	9.61E+01	82.92	1.09E+03	.....
	128	2205.07	2199 -	2210	2203.55	1.30E+03	146.89	2.04E+03	BI-214
	129	2294.86	2289 -	2297	2293.25	1.33E+02	108.30	1.71E+03	.....
	130	2448.64	2442 -	2452	2446.89	3.17E+02	112.31	1.50E+03	.....
	131	2494.02	2490 -	2495	2492.23	4.02E+01	45.99	3.88E+02	.....
	132	2500.33	2496 -	2502	2498.53	4.67E+01	49.74	4.15E+02	.....
	133	2543.22	2539 -	2543	2541.38	2.38E+01	29.49	1.68E+02	.....
M	134	2615.41	2607 -	2623	2613.50	1.37E+04	237.39	3.94E+02	TL-208
m	135	2619.80	2607 -	2623	2617.89	4.26E+02	218.38	3.37E+02	.....
	136	2688.72	2681 -	2692	2686.75	5.13E+01	52.46	3.19E+02	.....
	137	2809.44	2802 -	2812	2807.35	5.50E+01	37.08	1.54E+02	.....
	138	2891.60	2885 -	2895	2889.43	5.62E+01	26.89	6.76E+01	.....
	139	2968.29	2963 -	2970	2966.05	2.15E+01	22.09	6.51E+01	.....
	140	2990.50	2984 -	2992	2988.24	2.65E+01	23.32	6.69E+01	.....
	141	3126.09	3117 -	3132	3123.70	8.63E+01	29.93	5.15E+01	.....
	142	3198.73	3191 -	3203	3196.28	2.28E+02	38.89	6.78E+01	.....
	143	3475.73	3469 -	3477	3473.02	2.70E+01	14.03	1.39E+01	.....
	144	3542.98	3537 -	3542	3540.20	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 6:53:55AM

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	34.05	5.28E+03	610.24	2.08E-02	2.22E-03
m	2	39.04	3.11E+03	607.04	2.27E-02	2.22E-03
	3	46.15	1.00E+03	366.54	2.46E-02	2.22E-03
	4	56.98	7.28E+03	556.84	2.64E-02	2.22E-03
	5	63.84	7.08E+03	845.95	2.70E-02	2.26E-03
	6	75.82	7.36E+04	1269.33	2.75E-02	2.39E-03
M	7	87.68	3.17E+04	1069.76	2.74E-02	2.52E-03
m	8	92.87	1.76E+04	710.43	2.73E-02	2.44E-03
	9	98.95	2.92E+03	535.00	2.70E-02	2.34E-03
	10	105.03	2.36E+03	618.39	2.67E-02	2.25E-03
	11	114.53	1.58E+03	603.55	2.62E-02	2.09E-03
	12	128.87	7.02E+03	787.24	2.54E-02	1.94E-03
	13	143.96	1.26E+03	518.45	2.44E-02	1.86E-03
	14	153.76	2.42E+03	590.12	2.37E-02	1.80E-03
	15	185.72	1.01E+04	791.75	2.17E-02	1.68E-03
	16	199.69	1.00E+03	529.37	2.09E-02	1.64E-03
	17	209.12	8.32E+03	680.44	2.04E-02	1.61E-03
	18	216.04	3.64E+02	435.62	2.00E-02	1.59E-03
M	19	238.42	1.06E+05	753.27	1.89E-02	1.53E-03
m	20	241.42	2.20E+04	857.23	1.87E-02	1.52E-03
	21	252.07	3.60E+02	349.11	1.82E-02	1.49E-03
	22	257.67	7.69E+02	403.95	1.80E-02	1.47E-03
M	23	270.05	9.28E+03	426.20	1.74E-02	1.43E-03
m	24	277.19	4.49E+03	404.95	1.71E-02	1.41E-03
M	25	288.18	6.45E+02	371.49	1.67E-02	1.39E-03
m	26	295.06	1.92E+04	422.19	1.64E-02	1.37E-03
m	27	299.85	7.54E+03	403.08	1.63E-02	1.36E-03
M	28	323.26	1.06E+03	523.21	1.54E-02	1.31E-03
m	29	327.88	5.43E+03	324.01	1.53E-02	1.29E-03
m	30	331.85	1.54E+03	531.41	1.52E-02	1.28E-03
m	31	338.19	2.07E+04	404.19	1.50E-02	1.27E-03
M	32	351.77	3.43E+04	459.34	1.45E-02	1.24E-03
m	33	355.89	1.51E+03	521.26	1.44E-02	1.23E-03
	34	388.10	2.56E+02	303.21	1.35E-02	1.15E-03
M	35	401.72	6.79E+02	295.56	1.32E-02	1.14E-03
m	36	405.01	5.80E+02	296.83	1.31E-02	1.14E-03
m	37	409.41	2.95E+03	271.87	1.30E-02	1.13E-03
	38	415.80	2.59E+02	280.52	1.29E-02	1.13E-03
	39	439.68	2.86E+02	226.54	1.23E-02	1.11E-03
	40	453.08	5.99E+02	291.88	1.21E-02	1.11E-03
	41	462.92	5.99E+03	387.42	1.19E-02	1.10E-03
	42	479.19	5.86E+02	245.45	1.16E-02	1.09E-03
	43	486.92	3.37E+02	242.17	1.14E-02	1.08E-03
	44	510.69	1.18E+04	452.19	1.10E-02	1.07E-03
	45	562.52	1.18E+03	292.37	1.02E-02	1.04E-03
	46	571.49	3.81E+02	258.07	1.01E-02	1.03E-03
M	47	580.05	7.02E+02	260.46	1.00E-02	1.02E-03
m	48	583.20	3.40E+04	416.42	9.96E-03	1.02E-03
m	49	587.31	1.16E+03	341.61	9.91E-03	1.02E-03
	50	598.21	1.78E+02	211.96	9.77E-03	1.01E-03
M	51	609.33	2.62E+04	372.33	9.63E-03	1.01E-03
m	52	613.44	8.26E+02	325.28	9.58E-03	1.00E-03
	53	665.62	8.94E+02	264.05	9.00E-03	9.66E-04

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	54	702.57	1.87E+02	209.75	8.64E-03	9.07E-04
	55	707.52	2.52E+02	227.48	8.59E-03	8.99E-04
	56	727.36	7.35E+03	300.70	8.41E-03	8.68E-04
	57	742.80	2.34E+02	208.95	8.28E-03	8.43E-04
	58	755.43	9.81E+02	236.52	8.17E-03	8.23E-04
M	59	763.75	7.66E+02	232.43	8.10E-03	8.10E-04
m	60	768.41	2.49E+03	203.45	8.06E-03	8.02E-04
m	61	772.37	1.67E+03	249.84	8.03E-03	7.96E-04
M	62	782.34	5.58E+02	168.30	7.95E-03	7.80E-04
m	63	785.80	1.55E+03	181.21	7.93E-03	7.75E-04
	64	795.03	3.79E+03	276.62	7.86E-03	7.60E-04
	65	806.41	6.40E+02	197.20	7.77E-03	7.42E-04
M	66	830.98	5.19E+02	155.71	7.60E-03	7.03E-04
m	67	835.98	1.45E+03	166.31	7.56E-03	6.95E-04
m	68	840.33	1.10E+03	163.69	7.53E-03	6.88E-04
	69	860.65	4.20E+03	235.57	7.40E-03	6.56E-04
	70	874.45	1.00E+02	119.22	7.31E-03	6.34E-04
	71	893.43	3.68E+02	176.50	7.19E-03	6.04E-04
M	72	904.43	6.20E+02	125.20	7.13E-03	5.94E-04
m	73	911.41	2.39E+04	336.93	7.08E-03	5.91E-04
m	74	915.66	8.40E+02	327.51	7.06E-03	5.90E-04
	75	934.33	1.35E+03	205.82	6.95E-03	5.83E-04
M	76	958.85	2.94E+02	153.17	6.82E-03	5.73E-04
m	77	965.04	4.63E+03	186.14	6.79E-03	5.71E-04
m	78	969.22	1.41E+04	271.52	6.76E-03	5.69E-04
	79	988.72	1.94E+02	143.40	6.66E-03	5.62E-04
	80	1001.57	6.78E+02	188.37	6.60E-03	5.57E-04
	81	1033.15	1.91E+02	150.92	6.45E-03	5.45E-04
	82	1052.87	2.58E+02	133.24	6.36E-03	5.37E-04
	83	1064.48	1.31E+02	126.67	6.31E-03	5.33E-04
	84	1078.98	4.13E+02	147.75	6.24E-03	5.27E-04
	85	1094.72	5.07E+02	174.60	6.18E-03	5.21E-04
	86	1110.83	3.47E+02	134.42	6.11E-03	5.15E-04
M	87	1120.66	5.95E+03	182.74	6.07E-03	5.11E-04
m	88	1124.78	3.75E+02	188.53	6.06E-03	5.10E-04
	89	1155.39	8.15E+02	162.67	5.94E-03	4.98E-04
	90	1207.84	2.36E+02	108.03	5.75E-03	4.83E-04
M	91	1238.57	2.15E+03	141.34	5.64E-03	4.76E-04
m	92	1247.14	4.70E+02	152.15	5.61E-03	4.74E-04
	93	1281.35	4.88E+02	143.68	5.50E-03	4.66E-04
	94	1287.50	7.12E+01	86.70	5.48E-03	4.65E-04
	95	1378.17	1.38E+03	146.45	5.22E-03	4.44E-04
	96	1385.96	2.44E+02	110.69	5.20E-03	4.42E-04
M	97	1401.88	4.96E+02	122.11	5.16E-03	4.38E-04
m	98	1408.48	8.48E+02	116.26	5.14E-03	4.37E-04
	99	1459.85	7.20E+02	161.11	5.01E-03	4.25E-04
M	100	1496.29	6.70E+02	116.38	4.92E-03	4.17E-04
m	101	1502.21	3.92E+02	113.89	4.91E-03	4.15E-04
m	102	1509.66	7.71E+02	108.57	4.89E-03	4.13E-04
m	103	1513.38	2.51E+02	116.00	4.88E-03	4.13E-04
	104	1539.32	9.02E+01	86.34	4.82E-03	4.07E-04
	105	1558.94	1.80E+02	125.62	4.78E-03	4.02E-04
M	106	1581.36	4.68E+02	118.85	4.73E-03	3.97E-04

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	107	1584.92	1.61E+02	110.11	4.72E-03	3.96E-04
m	108	1588.75	2.01E+03	130.89	4.71E-03	3.95E-04
m	109	1593.18	1.43E+03	143.72	4.70E-03	3.94E-04
M	110	1621.26	1.06E+03	109.11	4.65E-03	3.88E-04
m	111	1625.74	2.33E+02	101.19	4.64E-03	3.87E-04
m	112	1631.23	1.12E+03	109.11	4.63E-03	3.85E-04
m	113	1638.82	3.62E+02	94.45	4.61E-03	3.84E-04
M	114	1661.76	2.76E+02	76.97	4.57E-03	3.78E-04
m	115	1667.25	1.48E+02	91.48	4.55E-03	3.77E-04
	116	1685.74	1.35E+02	100.23	4.52E-03	3.73E-04
	117	1693.30	8.74E+01	88.02	4.50E-03	3.71E-04
	118	1730.31	9.90E+02	136.70	4.44E-03	3.62E-04
	119	1765.29	4.78E+03	202.76	4.37E-03	3.54E-04
	120	1807.75	1.40E+02	108.43	4.30E-03	3.44E-04
	121	1848.08	5.95E+02	115.06	4.23E-03	3.38E-04
	122	1889.61	1.15E+02	110.08	4.17E-03	3.38E-04
	123	1897.15	1.16E+02	74.90	4.16E-03	3.38E-04
	124	2104.47	2.08E+03	186.59	3.86E-03	3.38E-04
	125	2119.54	3.27E+02	118.68	3.84E-03	3.38E-04
	126	2161.11	5.89E+01	64.57	3.79E-03	3.38E-04
	127	2177.14	9.61E+01	82.92	3.77E-03	3.38E-04
	128	2205.07	1.30E+03	146.89	3.74E-03	3.38E-04
	129	2294.86	1.33E+02	108.30	3.63E-03	3.38E-04
	130	2448.64	3.17E+02	112.31	3.47E-03	3.38E-04
	131	2494.02	4.02E+01	45.99	3.42E-03	3.38E-04
	132	2500.33	4.67E+01	49.74	3.41E-03	3.38E-04
	133	2543.22	2.38E+01	29.49	3.37E-03	3.38E-04
M	134	2615.41	1.37E+04	237.39	3.31E-03	3.38E-04
m	135	2619.80	4.26E+02	218.38	3.30E-03	3.38E-04
	136	2688.72	5.13E+01	52.46	3.24E-03	3.38E-04
	137	2809.44	5.50E+01	37.08	3.14E-03	3.38E-04
	138	2891.60	5.62E+01	26.89	3.07E-03	3.38E-04
	139	2968.29	2.15E+01	22.09	3.01E-03	3.38E-04
	140	2990.50	2.65E+01	23.32	2.99E-03	3.38E-04
	141	3126.09	8.63E+01	29.93	2.90E-03	3.38E-04
	142	3198.73	2.28E+02	38.89	2.85E-03	3.38E-04
	143	3475.73	2.70E+01	14.03	2.67E-03	3.38E-04
	144	3542.98	5.00E+00	4.47	2.63E-03	3.38E-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 : 8/14/2017 6:53:55AM

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	34.05	5.28E+03	610.24			5.28E+03	6.10E+02
m	2	39.04	3.11E+03	607.04			3.11E+03	6.07E+02
	3	46.15	1.00E+03	366.54	4.28E+01	8.26E+00	9.59E+02	3.67E+02
	4	56.98	7.28E+03	556.84			7.28E+03	5.57E+02
	5	63.84	7.08E+03	845.95	6.71E+01	1.02E+01	7.01E+03	8.46E+02
	6	75.82	7.36E+04	1269.33			7.36E+04	1.27E+03
M	7	87.68	3.17E+04	1069.76			3.17E+04	1.07E+03
m	8	92.87	1.76E+04	710.43	1.35E+02	7.64E+00	1.75E+04	7.10E+02
	9	98.95	2.92E+03	535.00	7.32E+00	2.91E+00	2.91E+03	5.35E+02
	10	105.03	2.36E+03	618.39			2.36E+03	6.18E+02
	11	114.53	1.58E+03	603.55			1.58E+03	6.04E+02
	12	128.87	7.02E+03	787.24			7.02E+03	7.87E+02
	13	143.96	1.26E+03	518.45	1.54E+01	2.12E+01	1.25E+03	5.19E+02
	14	153.76	2.42E+03	590.12			2.42E+03	5.90E+02
	15	185.72	1.01E+04	791.75	5.47E+01	6.99E+00	1.00E+04	7.92E+02
	16	199.69	1.00E+03	529.37			1.00E+03	5.29E+02
	17	209.12	8.32E+03	680.44			8.32E+03	6.80E+02
	18	216.04	3.64E+02	435.62			3.64E+02	4.36E+02
M	19	238.42	1.06E+05	753.27	1.58E+01	5.72E+00	1.06E+05	7.53E+02
m	20	241.42	2.20E+04	857.23			2.20E+04	8.57E+02
	21	252.07	3.60E+02	349.11			3.60E+02	3.49E+02
	22	257.67	7.69E+02	403.95			7.69E+02	4.04E+02
M	23	270.05	9.28E+03	426.20			9.28E+03	4.26E+02
m	24	277.19	4.49E+03	404.95			4.49E+03	4.05E+02
M	25	288.18	6.45E+02	371.49			6.45E+02	3.71E+02
m	26	295.06	1.92E+04	422.19			1.92E+04	4.22E+02
m	27	299.85	7.54E+03	403.08			7.54E+03	4.03E+02
M	28	323.26	1.06E+03	523.21			1.06E+03	5.23E+02
m	29	327.88	5.43E+03	324.01			5.43E+03	3.24E+02
m	30	331.85	1.54E+03	531.41			1.54E+03	5.31E+02
m	31	338.19	2.07E+04	404.19	1.94E+00	4.45E+00	2.07E+04	4.04E+02
M	32	351.77	3.43E+04	459.34	8.23E+00	4.77E+00	3.43E+04	4.59E+02
m	33	355.89	1.51E+03	521.26			1.51E+03	5.21E+02
	34	388.10	2.56E+02	303.21			2.56E+02	3.03E+02
M	35	401.72	6.79E+02	295.56			6.79E+02	2.96E+02
m	36	405.01	5.80E+02	296.83			5.80E+02	2.97E+02
m	37	409.41	2.95E+03	271.87			2.95E+03	2.72E+02
	38	415.80	2.59E+02	280.52			2.59E+02	2.81E+02
	39	439.68	2.86E+02	226.54			2.86E+02	2.27E+02
	40	453.08	5.99E+02	291.88			5.99E+02	2.92E+02
	41	462.92	5.99E+03	387.42			5.99E+03	3.87E+02
	42	479.19	5.86E+02	245.45			5.86E+02	2.45E+02
	43	486.92	3.37E+02	242.17			3.37E+02	2.42E+02
	44	510.69	1.18E+04	452.19	7.54E+01	5.68E+00	1.17E+04	4.52E+02
	45	562.52	1.18E+03	292.37			1.18E+03	2.92E+02
	46	571.49	3.81E+02	258.07			3.81E+02	2.58E+02
M	47	580.05	7.02E+02	260.46			7.02E+02	2.60E+02
m	48	583.20	3.40E+04	416.42	7.97E+00	3.93E+00	3.39E+04	4.16E+02
m	49	587.31	1.16E+03	341.61			1.16E+03	3.42E+02

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	50	598.21	1.78E+02	211.96			1.78E+02	2.12E+02
M	51	609.33	2.62E+04	372.33	5.86E+00	3.50E+00	2.62E+04	3.72E+02
m	52	613.44	8.26E+02	325.28			8.26E+02	3.25E+02
	53	665.62	8.94E+02	264.05			8.94E+02	2.64E+02
	54	702.57	1.87E+02	209.75			1.87E+02	2.10E+02
	55	707.52	2.52E+02	227.48			2.52E+02	2.27E+02
	56	727.36	7.35E+03	300.70			7.35E+03	3.01E+02
	57	742.80	2.34E+02	208.95			2.34E+02	2.09E+02
	58	755.43	9.81E+02	236.52			9.81E+02	2.37E+02
M	59	763.75	7.66E+02	232.43			7.66E+02	2.32E+02
m	60	768.41	2.49E+03	203.45			2.49E+03	2.03E+02
m	61	772.37	1.67E+03	249.84			1.67E+03	2.50E+02
M	62	782.34	5.58E+02	168.30			5.58E+02	1.68E+02
m	63	785.80	1.55E+03	181.21	1.09E+00	2.79E+00	1.55E+03	1.81E+02
	64	795.03	3.79E+03	276.62			3.79E+03	2.77E+02
	65	806.41	6.40E+02	197.20			6.40E+02	1.97E+02
M	66	830.98	5.19E+02	155.71			5.19E+02	1.56E+02
m	67	835.98	1.45E+03	166.31			1.45E+03	1.66E+02
m	68	840.33	1.10E+03	163.69			1.10E+03	1.64E+02
	69	860.65	4.20E+03	235.57			4.20E+03	2.36E+02
	70	874.45	1.00E+02	119.22			1.00E+02	1.19E+02
	71	893.43	3.68E+02	176.50			3.68E+02	1.76E+02
M	72	904.43	6.20E+02	125.20			6.20E+02	1.25E+02
m	73	911.41	2.39E+04	336.93			2.39E+04	3.37E+02
m	74	915.66	8.40E+02	327.51			8.40E+02	3.28E+02
	75	934.33	1.35E+03	205.82			1.35E+03	2.06E+02
M	76	958.85	2.94E+02	153.17			2.94E+02	1.53E+02
m	77	965.04	4.63E+03	186.14			4.63E+03	1.86E+02
m	78	969.22	1.41E+04	271.52			1.41E+04	2.72E+02
	79	988.72	1.94E+02	143.40			1.94E+02	1.43E+02
	80	1001.57	6.78E+02	188.37	5.25E+00	2.97E+00	6.73E+02	1.88E+02
	81	1033.15	1.91E+02	150.92			1.91E+02	1.51E+02
	82	1052.87	2.58E+02	133.24			2.58E+02	1.33E+02
	83	1064.48	1.31E+02	126.67			1.31E+02	1.27E+02
	84	1078.98	4.13E+02	147.75			4.13E+02	1.48E+02
	85	1094.72	5.07E+02	174.60			5.07E+02	1.75E+02
	86	1110.83	3.47E+02	134.42			3.47E+02	1.34E+02
M	87	1120.66	5.95E+03	182.74			5.95E+03	1.83E+02
m	88	1124.78	3.75E+02	188.53			3.75E+02	1.89E+02
	89	1155.39	8.15E+02	162.67			8.15E+02	1.63E+02
	90	1207.84	2.36E+02	108.03			2.36E+02	1.08E+02
M	91	1238.57	2.15E+03	141.34			2.15E+03	1.41E+02
m	92	1247.14	4.70E+02	152.15			4.70E+02	1.52E+02
	93	1281.35	4.88E+02	143.68			4.88E+02	1.44E+02
	94	1287.50	7.12E+01	86.70			7.12E+01	8.67E+01
	95	1378.17	1.38E+03	146.45			1.38E+03	1.46E+02
	96	1385.96	2.44E+02	110.69			2.44E+02	1.11E+02
M	97	1401.88	4.96E+02	122.11			4.96E+02	1.22E+02
m	98	1408.48	8.48E+02	116.26			8.48E+02	1.16E+02
	99	1459.85	7.20E+02	161.11			7.20E+02	1.61E+02
M	100	1496.29	6.70E+02	116.38			6.70E+02	1.16E+02
m	101	1502.21	3.92E+02	113.89			3.92E+02	1.14E+02
m	102	1509.66	7.71E+02	108.57			7.71E+02	1.09E+02
m	103	1513.38	2.51E+02	116.00			2.51E+02	1.16E+02

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	104	1539.32	9.02E+01	86.34			9.02E+01	8.63E+01
	105	1558.94	1.80E+02	125.62			1.80E+02	1.26E+02
M	106	1581.36	4.68E+02	118.85			4.68E+02	1.19E+02
m	107	1584.92	1.61E+02	110.11			1.61E+02	1.10E+02
m	108	1588.75	2.01E+03	130.89			2.01E+03	1.31E+02
m	109	1593.18	1.43E+03	143.72			1.43E+03	1.44E+02
M	110	1621.26	1.06E+03	109.11			1.06E+03	1.09E+02
m	111	1625.74	2.33E+02	101.19			2.33E+02	1.01E+02
m	112	1631.23	1.12E+03	109.11			1.12E+03	1.09E+02
m	113	1638.82	3.62E+02	94.45			3.62E+02	9.44E+01
M	114	1661.76	2.76E+02	76.97			2.76E+02	7.70E+01
m	115	1667.25	1.48E+02	91.48			1.48E+02	9.15E+01
	116	1685.74	1.35E+02	100.23			1.35E+02	1.00E+02
	117	1693.30	8.74E+01	88.02			8.74E+01	8.80E+01
	118	1730.31	9.90E+02	136.70			9.90E+02	1.37E+02
	119	1765.29	4.78E+03	202.76			4.78E+03	2.03E+02
	120	1807.75	1.40E+02	108.43			1.40E+02	1.08E+02
	121	1848.08	5.95E+02	115.06			5.95E+02	1.15E+02
	122	1889.61	1.15E+02	110.08			1.15E+02	1.10E+02
	123	1897.15	1.16E+02	74.90			1.16E+02	7.49E+01
	124	2104.47	2.08E+03	186.59	1.50E+00	1.48E+00	2.07E+03	1.87E+02
	125	2119.54	3.27E+02	118.68			3.27E+02	1.19E+02
	126	2161.11	5.89E+01	64.57			5.89E+01	6.46E+01
	127	2177.14	9.61E+01	82.92			9.61E+01	8.29E+01
	128	2205.07	1.30E+03	146.89			1.30E+03	1.47E+02
	129	2294.86	1.33E+02	108.30			1.33E+02	1.08E+02
	130	2448.64	3.17E+02	112.31			3.17E+02	1.12E+02
	131	2494.02	4.02E+01	45.99			4.02E+01	4.60E+01
	132	2500.33	4.67E+01	49.74			4.67E+01	4.97E+01
	133	2543.22	2.38E+01	29.49			2.38E+01	2.95E+01
M	134	2615.41	1.37E+04	237.39	5.15E+00	1.56E+00	1.37E+04	2.37E+02
m	135	2619.80	4.26E+02	218.38			4.26E+02	2.18E+02
	136	2688.72	5.13E+01	52.46			5.13E+01	5.25E+01
	137	2809.44	5.50E+01	37.08			5.50E+01	3.71E+01
	138	2891.60	5.62E+01	26.89			5.62E+01	2.69E+01
	139	2968.29	2.15E+01	22.09			2.15E+01	2.21E+01
	140	2990.50	2.65E+01	23.32			2.65E+01	2.33E+01
	141	3126.09	8.63E+01	29.93			8.63E+01	2.99E+01
	142	3198.73	2.28E+02	38.89			2.28E+02	3.89E+01
	143	3475.73	2.70E+01	14.03			2.70E+01	1.40E+01
	144	3542.98	5.00E+00	4.47			5.00E+00	4.47E+00

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

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 6:53:55AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.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	34.05	5.28E+03	610.24			5.28E+03	6.10E+02
m	2	39.04	3.11E+03	607.04			3.11E+03	6.07E+02
	3	46.15	1.00E+03	366.54	4.28E+01	8.26E+00	9.59E+02	3.67E+02
	4	56.98	7.28E+03	556.84			7.28E+03	5.57E+02
	5	63.84	7.08E+03	845.95	6.71E+01	1.02E+01	7.01E+03	8.46E+02
	6	75.82	7.36E+04	1269.33			7.36E+04	1.27E+03
M	7	87.68	3.17E+04	1069.76			3.17E+04	1.07E+03
m	8	92.87	1.76E+04	710.43	1.35E+02	7.64E+00	1.75E+04	7.10E+02
	9	98.95	2.92E+03	535.00	7.32E+00	2.91E+00	2.91E+03	5.35E+02
	10	105.03	2.36E+03	618.39			2.36E+03	6.18E+02
	11	114.53	1.58E+03	603.55			1.58E+03	6.04E+02
	12	128.87	7.02E+03	787.24			7.02E+03	7.87E+02
	13	143.96	1.26E+03	518.45	1.54E+01	2.12E+01	1.25E+03	5.19E+02
	14	153.76	2.42E+03	590.12			2.42E+03	5.90E+02
	15	185.72	1.01E+04	791.75	5.47E+01	6.99E+00	1.00E+04	7.92E+02
	16	199.69	1.00E+03	529.37			1.00E+03	5.29E+02
	17	209.12	8.32E+03	680.44			8.32E+03	6.80E+02
	18	216.04	3.64E+02	435.62			3.64E+02	4.36E+02
M	19	238.42	1.06E+05	753.27	1.58E+01	5.72E+00	1.06E+05	7.53E+02
m	20	241.42	2.20E+04	857.23			2.20E+04	8.57E+02
	21	252.07	3.60E+02	349.11			3.60E+02	3.49E+02
	22	257.67	7.69E+02	403.95			7.69E+02	4.04E+02
M	23	270.05	9.28E+03	426.20			9.28E+03	4.26E+02
m	24	277.19	4.49E+03	404.95			4.49E+03	4.05E+02
M	25	288.18	6.45E+02	371.49			6.45E+02	3.71E+02
m	26	295.06	1.92E+04	422.19			1.92E+04	4.22E+02
m	27	299.85	7.54E+03	403.08			7.54E+03	4.03E+02
M	28	323.26	1.06E+03	523.21			1.06E+03	5.23E+02
m	29	327.88	5.43E+03	324.01			5.43E+03	3.24E+02
m	30	331.85	1.54E+03	531.41			1.54E+03	5.31E+02
m	31	338.19	2.07E+04	404.19	1.94E+00	4.45E+00	2.07E+04	4.04E+02
M	32	351.77	3.43E+04	459.34	8.23E+00	4.77E+00	3.43E+04	4.59E+02
m	33	355.89	1.51E+03	521.26			1.51E+03	5.21E+02
	34	388.10	2.56E+02	303.21			2.56E+02	3.03E+02
M	35	401.72	6.79E+02	295.56			6.79E+02	2.96E+02
m	36	405.01	5.80E+02	296.83			5.80E+02	2.97E+02
m	37	409.41	2.95E+03	271.87			2.95E+03	2.72E+02
	38	415.80	2.59E+02	280.52			2.59E+02	2.81E+02
	39	439.68	2.86E+02	226.54			2.86E+02	2.27E+02
	40	453.08	5.99E+02	291.88			5.99E+02	2.92E+02
	41	462.92	5.99E+03	387.42			5.99E+03	3.87E+02

Analysis Report for 1707077-03

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	479.19	5.86E+02	245.45			5.86E+02	2.45E+02
	43	486.92	3.37E+02	242.17			3.37E+02	2.42E+02
	44	510.69	1.18E+04	452.19	7.54E+01	5.68E+00	1.17E+04	4.52E+02
	45	562.52	1.18E+03	292.37			1.18E+03	2.92E+02
	46	571.49	3.81E+02	258.07			3.81E+02	2.58E+02
M	47	580.05	7.02E+02	260.46			7.02E+02	2.60E+02
m	48	583.20	3.40E+04	416.42	7.97E+00	3.93E+00	3.39E+04	4.16E+02
m	49	587.31	1.16E+03	341.61			1.16E+03	3.42E+02
	50	598.21	1.78E+02	211.96			1.78E+02	2.12E+02
M	51	609.33	2.62E+04	372.33	5.86E+00	3.50E+00	2.62E+04	3.72E+02
m	52	613.44	8.26E+02	325.28			8.26E+02	3.25E+02
	53	665.62	8.94E+02	264.05			8.94E+02	2.64E+02
	54	702.57	1.87E+02	209.75			1.87E+02	2.10E+02
	55	707.52	2.52E+02	227.48			2.52E+02	2.27E+02
	56	727.36	7.35E+03	300.70			7.35E+03	3.01E+02
	57	742.80	2.34E+02	208.95			2.34E+02	2.09E+02
	58	755.43	9.81E+02	236.52			9.81E+02	2.37E+02
M	59	763.75	7.66E+02	232.43			7.66E+02	2.32E+02
m	60	768.41	2.49E+03	203.45			2.49E+03	2.03E+02
m	61	772.37	1.67E+03	249.84			1.67E+03	2.50E+02
M	62	782.34	5.58E+02	168.30			5.58E+02	1.68E+02
m	63	785.80	1.55E+03	181.21	1.09E+00	2.79E+00	1.55E+03	1.81E+02
	64	795.03	3.79E+03	276.62			3.79E+03	2.77E+02
	65	806.41	6.40E+02	197.20			6.40E+02	1.97E+02
M	66	830.98	5.19E+02	155.71			5.19E+02	1.56E+02
m	67	835.98	1.45E+03	166.31			1.45E+03	1.66E+02
m	68	840.33	1.10E+03	163.69			1.10E+03	1.64E+02
	69	860.65	4.20E+03	235.57			4.20E+03	2.36E+02
	70	874.45	1.00E+02	119.22			1.00E+02	1.19E+02
	71	893.43	3.68E+02	176.50			3.68E+02	1.76E+02
M	72	904.43	6.20E+02	125.20			6.20E+02	1.25E+02
m	73	911.41	2.39E+04	336.93			2.39E+04	3.37E+02
m	74	915.66	8.40E+02	327.51			8.40E+02	3.28E+02
	75	934.33	1.35E+03	205.82			1.35E+03	2.06E+02
M	76	958.85	2.94E+02	153.17			2.94E+02	1.53E+02
m	77	965.04	4.63E+03	186.14			4.63E+03	1.86E+02
m	78	969.22	1.41E+04	271.52			1.41E+04	2.72E+02
	79	988.72	1.94E+02	143.40			1.94E+02	1.43E+02
	80	1001.57	6.78E+02	188.37	5.25E+00	2.97E+00	6.73E+02	1.88E+02
	81	1033.15	1.91E+02	150.92			1.91E+02	1.51E+02
	82	1052.87	2.58E+02	133.24			2.58E+02	1.33E+02
	83	1064.48	1.31E+02	126.67			1.31E+02	1.27E+02
	84	1078.98	4.13E+02	147.75			4.13E+02	1.48E+02
	85	1094.72	5.07E+02	174.60			5.07E+02	1.75E+02
	86	1110.83	3.47E+02	134.42			3.47E+02	1.34E+02
M	87	1120.66	5.95E+03	182.74			5.95E+03	1.83E+02
m	88	1124.78	3.75E+02	188.53			3.75E+02	1.89E+02
	89	1155.39	8.15E+02	162.67			8.15E+02	1.63E+02
	90	1207.84	2.36E+02	108.03			2.36E+02	1.08E+02
M	91	1238.57	2.15E+03	141.34			2.15E+03	1.41E+02
m	92	1247.14	4.70E+02	152.15			4.70E+02	1.52E+02
	93	1281.35	4.88E+02	143.68			4.88E+02	1.44E+02
	94	1287.50	7.12E+01	86.70			7.12E+01	8.67E+01
	95	1378.17	1.38E+03	146.45			1.38E+03	1.46E+02

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	96	1385.96	2.44E+02	110.69			2.44E+02	1.11E+02
M	97	1401.88	4.96E+02	122.11			4.96E+02	1.22E+02
m	98	1408.48	8.48E+02	116.26			8.48E+02	1.16E+02
	99	1459.85	7.20E+02	161.11			7.20E+02	1.61E+02
M	100	1496.29	6.70E+02	116.38			6.70E+02	1.16E+02
m	101	1502.21	3.92E+02	113.89			3.92E+02	1.14E+02
m	102	1509.66	7.71E+02	108.57			7.71E+02	1.09E+02
m	103	1513.38	2.51E+02	116.00			2.51E+02	1.16E+02
	104	1539.32	9.02E+01	86.34			9.02E+01	8.63E+01
	105	1558.94	1.80E+02	125.62			1.80E+02	1.26E+02
M	106	1581.36	4.68E+02	118.85			4.68E+02	1.19E+02
m	107	1584.92	1.61E+02	110.11			1.61E+02	1.10E+02
m	108	1588.75	2.01E+03	130.89			2.01E+03	1.31E+02
m	109	1593.18	1.43E+03	143.72			1.43E+03	1.44E+02
M	110	1621.26	1.06E+03	109.11			1.06E+03	1.09E+02
m	111	1625.74	2.33E+02	101.19			2.33E+02	1.01E+02
m	112	1631.23	1.12E+03	109.11			1.12E+03	1.09E+02
m	113	1638.82	3.62E+02	94.45			3.62E+02	9.44E+01
M	114	1661.76	2.76E+02	76.97			2.76E+02	7.70E+01
m	115	1667.25	1.48E+02	91.48			1.48E+02	9.15E+01
	116	1685.74	1.35E+02	100.23			1.35E+02	1.00E+02
	117	1693.30	8.74E+01	88.02			8.74E+01	8.80E+01
	118	1730.31	9.90E+02	136.70			9.90E+02	1.37E+02
	119	1765.29	4.78E+03	202.76			4.78E+03	2.03E+02
	120	1807.75	1.40E+02	108.43			1.40E+02	1.08E+02
	121	1848.08	5.95E+02	115.06			5.95E+02	1.15E+02
	122	1889.61	1.15E+02	110.08			1.15E+02	1.10E+02
	123	1897.15	1.16E+02	74.90			1.16E+02	7.49E+01
	124	2104.47	2.08E+03	186.59	1.50E+00	1.48E+00	2.07E+03	1.87E+02
	125	2119.54	3.27E+02	118.68			3.27E+02	1.19E+02
	126	2161.11	5.89E+01	64.57			5.89E+01	6.46E+01
	127	2177.14	9.61E+01	82.92			9.61E+01	8.29E+01
	128	2205.07	1.30E+03	146.89			1.30E+03	1.47E+02
	129	2294.86	1.33E+02	108.30			1.33E+02	1.08E+02
	130	2448.64	3.17E+02	112.31			3.17E+02	1.12E+02
	131	2494.02	4.02E+01	45.99			4.02E+01	4.60E+01
	132	2500.33	4.67E+01	49.74			4.67E+01	4.97E+01
	133	2543.22	2.38E+01	29.49			2.38E+01	2.95E+01
M	134	2615.41	1.37E+04	237.39	5.15E+00	1.56E+00	1.37E+04	2.37E+02
m	135	2619.80	4.26E+02	218.38			4.26E+02	2.18E+02
	136	2688.72	5.13E+01	52.46			5.13E+01	5.25E+01
	137	2809.44	5.50E+01	37.08			5.50E+01	3.71E+01
	138	2891.60	5.62E+01	26.89			5.62E+01	2.69E+01
	139	2968.29	2.15E+01	22.09			2.15E+01	2.21E+01
	140	2990.50	2.65E+01	23.32			2.65E+01	2.33E+01
	141	3126.09	8.63E+01	29.93			8.63E+01	2.99E+01
	142	3198.73	2.28E+02	38.89			2.28E+02	3.89E+01
	143	3475.73	2.70E+01	14.03			2.70E+01	1.40E+01
	144	3542.98	5.00E+00	4.47			5.00E+00	4.47E+00

Analysis Report for 1707077-03

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AL-26	0.878	1808.65	*	99.76	2.98E-01	2.32E-01
K-40	0.864	1460.81	*	10.67	1.23E+01	2.96E+00
CD-109	0.980	88.03	*	3.72	3.26E+02	3.73E+01
SN-126	0.998	87.57	*	37.00	2.86E+01	2.79E+00
PM-146	0.362	453.90	*	39.94	1.17E+00	5.81E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.954	583.14	*	30.22	1.03E+02	1.06E+01
		860.37	*	4.48	1.16E+02	1.22E+01
		2614.66	*	35.85	1.06E+02	1.10E+01
PB-210	0.981	46.50	*	4.25	8.46E+00	3.32E+00
PB-211	0.924	404.84	*	2.90	1.39E+01	7.23E+00
		831.96	*	2.90	2.15E+01	6.76E+00
BI-212	0.983	727.17	*	11.80	6.76E+01	7.51E+00
		1620.62	*	2.75	7.58E+01	1.00E+01
PB-212	0.993	238.63	*	44.60	1.15E+02	9.35E+00
		300.09	*	3.41	1.24E+02	1.23E+01
BI-214	0.970	609.31	*	46.30	5.37E+01	5.65E+00
		1120.29	*	15.10	5.93E+01	5.32E+00
		1764.49	*	15.80	6.32E+01	5.78E+00
		2204.22	*	4.98	6.36E+01	9.23E+00
PB-214	0.996	295.21	*	19.19	5.57E+01	4.81E+00
		351.92	*	37.19	5.80E+01	5.00E+00
RN-219	0.999	401.80	*	6.50	7.23E+00	3.21E+00
RA-223	0.942	323.87	*	3.88	1.61E+01	8.10E+00
RA-224	0.970	240.98	*	3.95	2.72E+02	2.44E+01
RA-225	0.708	40.00	*	31.00	3.13E+02	6.83E+01
RA-226	0.961	186.21	*	3.28	1.28E+02	2.35E+02
AC-228	0.990	338.32	*	11.40	1.11E+02	9.65E+00
		911.07	*	27.70	1.11E+02	9.41E+00
		969.11	*	16.60	1.15E+02	9.91E+00
PA-234M	0.954	1001.03	*	0.92	1.01E+02	2.96E+01
TH-234	0.953	63.29	*	3.80	6.24E+01	9.16E+00
CM-243	0.354	209.75	*	3.29	1.14E+02	1.30E+01

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.354	228.14		10.60		
		277.60	*	14.00	1.72E+01	2.10E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:53:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	34.05	1.46610E+00	5.78	Tol.	I-129
	4	56.98	2.02277E+00	3.82	Tol.	CE-143
	6	75.82	2.04331E+01	0.86		
m	8	92.87	4.85098E+00	2.03	Sum	
	9	98.95	8.08633E-01	9.19	D-Esc	
	10	105.03	6.55767E-01	13.10	Tol.	EU-155
	11	114.53	4.38275E-01	19.13		
	12	128.87	1.95065E+00	5.61		
	13	143.96	3.46982E-01	20.77	Tol.	U-235
	14	153.76	6.73207E-01	12.17	Tol.	CS-136
	16	199.69	2.78794E-01	26.37		
	18	216.04	1.01047E-01	59.88		
	21	252.07	1.00112E-01	48.43		
	22	257.67	2.13586E-01	26.27		
M	23	270.05	2.57806E+00	2.30		
M	25	288.18	1.79113E-01	28.81	Sum	
m	29	327.88	1.50897E+00	2.98	Tol.	LA-140
m	30	331.85	4.27901E-01	17.25		
m	33	355.89	4.20676E-01	17.21	Tol.	BA-133
	34	388.10	7.12194E-02	59.13	Sum	
m	37	409.41	8.18321E-01	4.61		
	38	415.80	7.18635E-02	54.21	Sum	
	39	439.68	7.95634E-02	39.55	Sum	
	41	462.92	1.66352E+00	3.23	Sum	
	42	479.19	1.62864E-01	20.93	Sum	
	43	486.92	9.35760E-02	35.94	Sum	
	44	510.69	3.24311E+00	1.94		

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	45	562.52	3.27532E-01	12.40	Sum	
	46	571.49	1.05943E-01	33.83	Sum	
M	47	580.05	1.94926E-01	18.56	Sum	
m	49	587.31	3.21076E-01	14.78	Sum	
	50	598.21	4.93177E-02	59.69		
m	52	613.44	2.29369E-01	19.70	Sum	
	53	665.62	2.48267E-01	14.77	Tol.	SB-126
	54	702.57	5.19202E-02	56.11	Sum	
	55	707.52	6.99830E-02	45.15		
	57	742.80	6.50590E-02	44.61	D-Esc	
	58	755.43	2.72570E-01	12.05		
M	59	763.75	2.12787E-01	15.17		
m	60	768.41	6.91557E-01	4.09	Sum	
m	61	772.37	4.63673E-01	7.48		
M	62	782.34	1.54904E-01	15.09		
m	63	785.80	4.29441E-01	5.86	D-Esc	
	64	795.03	1.05315E+00	3.65	Sum	
	65	806.41	1.77781E-01	15.41	Sum	
m	67	835.98	4.03408E-01	5.73		
m	68	840.33	3.05997E-01	7.43		
	70	874.45	2.78255E-02	59.51		
	71	893.43	1.02241E-01	23.98		
M	72	904.43	1.72141E-01	10.10	Sum	
m	74	915.66	2.33317E-01	19.50		
	75	934.33	3.74044E-01	7.64	Sum	
M	76	958.85	8.16331E-02	26.06		
m	77	965.04	1.28731E+00	2.01	Sum	
	79	988.72	5.39051E-02	36.95	Sum	
	81	1033.15	5.30320E-02	39.52	Sum	
	82	1052.87	7.16096E-02	25.84		
	83	1064.48	3.64742E-02	48.23	Sum	
	84	1078.98	1.14766E-01	17.88	Sum	
	85	1094.72	1.40794E-01	17.22		
	86	1110.83	9.62770E-02	19.39	S-Esc	
m	88	1124.78	1.04119E-01	25.15		
	89	1155.39	2.26386E-01	9.98	Sum	
	90	1207.84	6.54824E-02	22.91	Sum	
M	91	1238.57	5.96543E-01	3.29	Tol.	CO-56
m	92	1247.14	1.30599E-01	16.18	Sum	
	93	1281.35	1.35684E-01	14.71		
	94	1287.50	1.97653E-02	60.93		
	95	1378.17	3.84664E-01	5.29		
	96	1385.96	6.78556E-02	22.66		
M	97	1401.88	1.37684E-01	12.32		
m	98	1408.48	2.35417E-01	6.86		
M	100	1496.29	1.86119E-01	8.68		
m	101	1502.21	1.08762E-01	14.54		
m	102	1509.66	2.14198E-01	7.04		
m	103	1513.38	6.97456E-02	23.10		
	104	1539.32	2.50591E-02	47.85		
	105	1558.94	5.00445E-02	34.86	Sum	
M	106	1581.36	1.29909E-01	12.71		
m	107	1584.92	4.47941E-02	34.14	Sum	
m	108	1588.75	5.58088E-01	3.26	Sum	

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	109	1593.18	3.98058E-01	5.01	D-Esc	
m	111	1625.74	6.47242E-02	21.71		
m	112	1631.23	3.11744E-01	4.86		
m	113	1638.82	1.00583E-01	13.04	Sum	
M	114	1661.76	7.66167E-02	13.95	Sum	
m	115	1667.25	4.11818E-02	30.85	Sum	
	116	1685.74	3.74844E-02	37.14	Sum	
	117	1693.30	2.42889E-02	50.33	S-Esc	
	118	1730.31	2.75105E-01	6.90	Sum	
	121	1848.08	1.65416E-01	9.66	Sum	
	122	1889.61	3.18365E-02	48.02		
	123	1897.15	3.22488E-02	32.26		
	124	2104.47	5.76039E-01	4.50	S-Esc	
	125	2119.54	9.09124E-02	18.13		
	126	2161.11	1.63492E-02	54.85		
	127	2177.14	2.66814E-02	43.16		
	129	2294.86	3.69366E-02	40.72		
	130	2448.64	8.81004E-02	17.71		
	131	2494.02	1.11645E-02	57.21		
	132	2500.33	1.29856E-02	53.20	Sum	
	133	2543.22	6.60494E-03	62.01	Sum	
m	135	2619.80	1.18389E-01	25.62		
	136	2688.72	1.42410E-02	51.16		
	137	2809.44	1.52778E-02	33.71	Sum	
	138	2891.60	1.56049E-02	23.93		
	139	2968.29	5.96451E-03	51.44		
	140	2990.50	7.36806E-03	43.96		
	141	3126.09	2.39621E-02	17.35		
	142	3198.73	6.33593E-02	8.53	Sum	
	143	3475.73	7.51226E-03	25.93	Sum	
	144	3542.98	1.38889E-03	44.72		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AL-26	0.87	1808.65	*	99.76	2.98E-01	2.32E-01
K-40	0.86	1460.81	*	10.67	1.23E+01	2.96E+00
CD-109	0.98	88.03	*	3.72	3.26E+02	3.73E+01
SN-126	0.99	87.57	*	37.00	2.86E+01	2.79E+00
PM-146	0.36	453.90	*	39.94	1.17E+00	5.81E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.95	583.14	*	30.22	1.03E+02	1.06E+01
		860.37	*	4.48	1.16E+02	1.22E+01
		2614.66	*	35.85	1.06E+02	1.10E+01
PB-210	0.98	46.50	*	4.25	8.46E+00	3.32E+00
PB-211	0.92	404.84	*	2.90	1.39E+01	7.23E+00
		831.96	*	2.90	2.15E+01	6.76E+00
BI-212	0.98	727.17	*	11.80	6.76E+01	7.51E+00
		1620.62	*	2.75	7.58E+01	1.00E+01
PB-212	0.99	238.63	*	44.60	1.15E+02	9.35E+00
		300.09	*	3.41	1.24E+02	1.23E+01
BI-214	0.97	609.31	*	46.30	5.37E+01	5.65E+00
		1120.29	*	15.10	5.93E+01	5.32E+00
		1764.49	*	15.80	6.32E+01	5.78E+00
		2204.22	*	4.98	6.36E+01	9.23E+00
PB-214	0.99	295.21	*	19.19	5.57E+01	4.81E+00
		351.92	*	37.19	5.80E+01	5.00E+00
RN-219	0.99	401.80	*	6.50	7.23E+00	3.21E+00
RA-223	0.94	323.87	*	3.88	1.61E+01	8.10E+00
RA-224	0.97	240.98	*	3.95	2.72E+02	2.44E+01
RA-225	0.70	40.00	*	31.00	3.13E+02	6.83E+01
RA-226	0.96	186.21	*	3.28	1.28E+02	2.35E+02
AC-228	0.99	338.32	*	11.40	1.11E+02	9.65E+00
		911.07	*	27.70	1.11E+02	9.41E+00
		969.11	*	16.60	1.15E+02	9.91E+00
PA-234M	0.95	1001.03	*	0.92	1.01E+02	2.96E+01
TH-234	0.95	63.29	*	3.80	6.24E+01	9.16E+00
CM-243	0.35	209.75	*	3.29	1.14E+02	1.30E+01
		228.14		10.60		
		277.60	*	14.00	1.72E+01	2.10E+00

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

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	AL-26	0.878	2.98E-01	2.32E-01	
	K-40	0.864	1.23E+01	2.96E+00	
?	CD-109	0.980	3.26E+02	3.73E+01	
?	SN-126	0.998	2.86E+01	2.79E+00	
	PM-146	0.362	1.17E+00	5.81E-01	
	TL-208	0.954	1.08E+02	6.47E+00	
	PB-210	0.981	8.46E+00	3.32E+00	
	PB-211	0.924	1.80E+01	4.94E+00	
	BI-212	0.983	7.06E+01	6.01E+00	
	PB-212	0.993	1.18E+02	7.45E+00	
	BI-214	0.970	5.92E+01	3.04E+00	
	PB-214	0.996	5.68E+01	3.46E+00	
	RN-219	0.999	7.23E+00	3.21E+00	
	RA-223	0.942	1.61E+01	8.10E+00	
	RA-224	0.970	2.72E+02	2.44E+01	
	RA-225	0.708	3.13E+02	6.83E+01	
	RA-226	0.961	1.28E+02	2.35E+02	
	AC-228	0.990	1.12E+02	5.57E+00	
	PA-234M	0.954	1.01E+02	2.96E+01	
	TH-234	0.953	6.24E+01	9.16E+00	
	CM-243	0.354	1.97E+01	2.07E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:53:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	34.05	1.46610E+00	5.78	Tol.	I-129
	4	56.98	2.02277E+00	3.82	Tol.	CE-143
	6	75.82	2.04331E+01	0.86		
m	8	92.87	4.85098E+00	2.03	Sum	
	9	98.95	8.08633E-01	9.19	D-Esc	
	10	105.03	6.55767E-01	13.10	Tol.	EU-155
	11	114.53	4.38275E-01	19.13		
	12	128.87	1.95065E+00	5.61		
	13	143.96	3.46982E-01	20.77	Tol.	U-235
	14	153.76	6.73207E-01	12.17	Tol.	CS-136
	16	199.69	2.78794E-01	26.37		
	18	216.04	1.01047E-01	59.88		
	21	252.07	1.00112E-01	48.43		
	22	257.67	2.13586E-01	26.27		
M	23	270.05	2.57806E+00	2.30		
M	25	288.18	1.79113E-01	28.81	Sum	
m	29	327.88	1.50897E+00	2.98	Tol.	LA-140
m	30	331.85	4.27901E-01	17.25		
m	33	355.89	4.20676E-01	17.21	Tol.	BA-133
	34	388.10	7.12194E-02	59.13	Sum	
m	37	409.41	8.18321E-01	4.61		
	38	415.80	7.18635E-02	54.21	Sum	
	39	439.68	7.95634E-02	39.55	Sum	
	41	462.92	1.66352E+00	3.23	Sum	
	42	479.19	1.62864E-01	20.93	Sum	
	43	486.92	9.35760E-02	35.94	Sum	
	44	510.69	3.24311E+00	1.94		
	45	562.52	3.27532E-01	12.40	Sum	
	46	571.49	1.05943E-01	33.83	Sum	
M	47	580.05	1.94926E-01	18.56	Sum	
m	49	587.31	3.21076E-01	14.78	Sum	
	50	598.21	4.93177E-02	59.69		
m	52	613.44	2.29369E-01	19.70	Sum	
	53	665.62	2.48267E-01	14.77	Tol.	SB-126
	54	702.57	5.19202E-02	56.11	Sum	

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	55	707.52	6.99830E-02	45.15		
	57	742.80	6.50590E-02	44.61	D-Esc	
	58	755.43	2.72570E-01	12.05		
M	59	763.75	2.12787E-01	15.17		
m	60	768.41	6.91557E-01	4.09	Sum	
m	61	772.37	4.63673E-01	7.48		
M	62	782.34	1.54904E-01	15.09		
m	63	785.80	4.29441E-01	5.86	D-Esc	
	64	795.03	1.05315E+00	3.65	Sum	
	65	806.41	1.77781E-01	15.41	Sum	
m	67	835.98	4.03408E-01	5.73		
m	68	840.33	3.05997E-01	7.43		
	70	874.45	2.78255E-02	59.51		
	71	893.43	1.02241E-01	23.98		
M	72	904.43	1.72141E-01	10.10	Sum	
m	74	915.66	2.33317E-01	19.50		
	75	934.33	3.74044E-01	7.64	Sum	
M	76	958.85	8.16331E-02	26.06		
m	77	965.04	1.28731E+00	2.01	Sum	
	79	988.72	5.39051E-02	36.95	Sum	
	81	1033.15	5.30320E-02	39.52	Sum	
	82	1052.87	7.16096E-02	25.84		
	83	1064.48	3.64742E-02	48.23	Sum	
	84	1078.98	1.14766E-01	17.88	Sum	
	85	1094.72	1.40794E-01	17.22		
	86	1110.83	9.62770E-02	19.39	S-Esc	
m	88	1124.78	1.04119E-01	25.15		
	89	1155.39	2.26386E-01	9.98	Sum	
	90	1207.84	6.54824E-02	22.91	Sum	
M	91	1238.57	5.96543E-01	3.29	Tol.	CO-56
m	92	1247.14	1.30599E-01	16.18	Sum	
	93	1281.35	1.35684E-01	14.71		
	94	1287.50	1.97653E-02	60.93		
	95	1378.17	3.84664E-01	5.29		
	96	1385.96	6.78556E-02	22.66		
M	97	1401.88	1.37684E-01	12.32		
m	98	1408.48	2.35417E-01	6.86		
M	100	1496.29	1.86119E-01	8.68		
m	101	1502.21	1.08762E-01	14.54		
m	102	1509.66	2.14198E-01	7.04		
m	103	1513.38	6.97456E-02	23.10		
	104	1539.32	2.50591E-02	47.85		
	105	1558.94	5.00445E-02	34.86	Sum	
M	106	1581.36	1.29909E-01	12.71		
m	107	1584.92	4.47941E-02	34.14	Sum	

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	108	1588.75	5.58088E-01	3.26	Sum	
m	109	1593.18	3.98058E-01	5.01	D-Esc	
m	111	1625.74	6.47242E-02	21.71		
m	112	1631.23	3.11744E-01	4.86		
m	113	1638.82	1.00583E-01	13.04	Sum	
M	114	1661.76	7.66167E-02	13.95	Sum	
m	115	1667.25	4.11818E-02	30.85	Sum	
	116	1685.74	3.74844E-02	37.14	Sum	
	117	1693.30	2.42889E-02	50.33	S-Esc	
	118	1730.31	2.75105E-01	6.90	Sum	
	121	1848.08	1.65416E-01	9.66	Sum	
	122	1889.61	3.18365E-02	48.02		
	123	1897.15	3.22488E-02	32.26		
	124	2104.47	5.76039E-01	4.50	S-Esc	
	125	2119.54	9.09124E-02	18.13		
	126	2161.11	1.63492E-02	54.85		
	127	2177.14	2.66814E-02	43.16		
	129	2294.86	3.69366E-02	40.72		
	130	2448.64	8.81004E-02	17.71		
	131	2494.02	1.11645E-02	57.21		
	132	2500.33	1.29856E-02	53.20	Sum	
	133	2543.22	6.60494E-03	62.01	Sum	
m	135	2619.80	1.18389E-01	25.62		
	136	2688.72	1.42410E-02	51.16		
	137	2809.44	1.52778E-02	33.71	Sum	
	138	2891.60	1.56049E-02	23.93		
	139	2968.29	5.96451E-03	51.44		
	140	2990.50	7.36806E-03	43.96		
	141	3126.09	2.39621E-02	17.35		
	142	3198.73	6.33593E-02	8.53	Sum	
	143	3475.73	7.51226E-03	25.93	Sum	
	144	3542.98	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-1.62E+00	1.02E+01	1.02E+01
+	NA-22	1274.54		99.94	1.70E-01	2.77E-01	2.77E-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	2.98E-01	3.77E-01	3.77E-01
+	K-40	1460.81	*	10.67	1.23E+01	4.32E+00	4.32E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.25E-01	3.32E-01	3.32E-01
		78.34		96.00	8.81E+00		4.62E-01
+	SC-46	889.25		99.98	5.43E-02	6.13E-01	6.13E-01
		1120.51		99.99	1.83E+01		1.29E+00
+	V-48	983.52		99.98	5.00E+00	1.42E+01	1.42E+01
		1312.10		97.50	4.73E+00		1.51E+01
+	CR-51	320.08		9.83	5.96E+00	3.32E+01	3.32E+01
+	MN-54	834.83		99.97	-5.37E-01	4.48E-01	4.48E-01
+	CO-56	846.75		99.96	-1.79E-01	6.33E-01	6.33E-01
		1037.75		14.03	1.58E+00		4.13E+00
		1238.25		67.00	1.10E+01		1.45E+00
		1771.40		15.51	-9.43E-01		3.92E+00
		2598.48		16.90	-1.98E+00		2.29E+00
+	CO-57	122.06		85.51	-3.37E-01	4.24E-01	4.24E-01
		136.48		10.60	-3.46E+00		3.55E+00
+	CO-58	810.76		99.40	-6.61E-02	7.12E-01	7.12E-01
+	FE-59	1099.22		56.50	-9.20E-01	1.90E+00	1.90E+00
		1291.56		43.20	6.29E-02		2.51E+00
+	CO-60	1173.22		100.00	-3.14E-02	2.60E-01	2.60E-01
		1332.49		100.00	1.69E-01		2.75E-01
+	ZN-65	1115.52		50.75	-2.72E+01	6.82E-01	6.82E-01
+	GA-67	93.31		35.70	3.17E+09	3.68E+08	3.68E+08
		208.95		2.24	6.20E+10		6.07E+09
		300.22		16.00	-6.89E+09		9.01E+08
+	SE-75	121.11		16.70	-1.79E+00	8.58E-01	2.91E+00
		136.00		59.20	-8.36E-01		8.58E-01
		264.65		59.80	1.32E-01		9.20E-01
		279.53		25.20	1.69E-01		2.46E+00
		400.65		11.40	-5.23E-01		5.03E+00
+	RB-82	776.52		13.00	1.31E+01	3.17E+01	3.17E+01
+	RB-83	520.41		46.00	2.41E-01	1.45E+00	1.45E+00
		529.64		30.30	3.47E-02		2.21E+00
		552.65		16.40	5.39E-01		4.12E+00
+	KR-85	513.99		0.43	9.98E+02	1.10E+02	1.10E+02
+	SR-85	513.99		99.27	1.16E+01	1.27E+00	1.27E+00
+	Y-88	898.02		93.40	1.17E-01	4.77E-01	5.42E-01
		1836.01		99.38	1.73E-01		4.77E-01
+	MO-93	263.06		56.72	8.25E-02	2.69E-01	5.75E-01
		684.67		99.68	8.51E-02		3.40E-01
		1477.11		99.08	1.82E-02		2.69E-01

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57		9.43	-3.91E-01	2.64E+00	2.64E+00
+	NB-94	702.63		100.00	1.17E-01	2.80E-01	3.59E-01
		871.10		100.00	-4.30E-04		2.80E-01
+	NB-95	765.79		99.81	1.71E+01	2.72E+00	2.72E+00
+	NB-95M	235.69		25.00	-4.61E+09	1.07E+08	1.07E+08
+	ZR-95	724.18		43.70	3.12E-01	1.78E+00	3.00E+00
		756.72		55.30	4.09E+00		1.78E+00
+	MO-99	181.06		6.20	2.60E+09	3.75E+10	7.18E+10
		739.58		12.80	-2.50E+09		3.75E+10
		778.00		4.50	4.39E+10		9.74E+10
+	RU-103	497.08		89.00	3.30E-01	1.76E+00	1.76E+00
+	RU-106	621.84		9.80	-6.73E-01	3.83E+00	3.83E+00
+	AG-108M	433.93		89.90	7.93E-02	3.47E-01	3.47E-01
		614.37		90.40	-2.54E+01		4.28E-01
		722.95		90.50	3.46E-02		4.15E-01
+	CD-109	88.03	*	3.72	3.26E+02	2.33E+01	2.33E+01
+	AG-110M	657.75		93.14	7.16E-02	4.61E-01	4.61E-01
		677.61		10.53	-2.62E-01		4.08E+00
		706.67		16.46	-1.13E-01		2.75E+00
		763.93		21.98	-1.69E+01		2.17E+00
		884.67		71.63	-2.82E-01		4.97E-01
		1384.27		23.94	6.20E-01		1.62E+00
+	CD-113M	263.70		0.02	2.03E+02	1.41E+03	1.41E+03
+	SN-113	255.12		1.93	-1.05E+01	8.77E-01	2.53E+01
		391.69		64.90	4.38E-02		8.77E-01
+	TE123M	159.00		84.10	-5.18E-02	6.10E-01	6.10E-01
+	SB-124	602.71		97.87	-1.61E+01	9.53E-01	9.53E-01
		645.85		7.26	-8.49E+00		1.28E+01
		722.78		11.10	8.21E-01		9.83E+00
		1691.02		49.00	-9.39E-02		1.46E+00
+	I-125	35.49		6.49	3.09E+01	1.36E+01	1.36E+01
+	SB-125	176.33		6.89	-2.56E-01	1.15E+00	4.68E+00
		427.89		29.33	2.13E-01		1.15E+00
		463.38		10.35	4.88E+01		4.30E+00
		600.56		17.80	5.76E-01		1.93E+00
		635.90		11.32	-3.57E-01		2.99E+00
+	SB-126	414.70		83.30	-3.57E+02	6.03E+01	6.92E+01
		666.33		99.60	1.57E+02		6.44E+01
		695.00		99.60	-7.01E+01		6.03E+01
		720.50		53.80	6.53E+01		1.13E+02
+	SN-126	87.57	*	37.00	2.86E+01	2.04E+00	2.04E+00
+	SB-127	473.00		25.00	-4.69E+06	1.70E+07	2.25E+07
		685.20		35.70	4.24E+06		1.70E+07
		783.80		14.70	2.96E+08		4.73E+07
+	I-129	29.78		57.00	-9.72E-02	5.32E-01	5.32E-01
		33.60		13.20	9.46E+00		2.36E+00
		39.58		7.52	8.87E+00		3.65E+00
+	I-131	284.30		6.05	2.63E+03	1.14E+03	1.62E+04

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-131	364.48	81.20	-5.75E+02	1.14E+03	1.14E+03
		636.97	7.26	-1.89E+03		1.31E+04
		722.89	1.80	5.20E+03		6.23E+04
+	TE-132	49.72	13.10	-1.39E+09	1.31E+08	7.31E+08
		228.16	88.00	-1.35E+07		1.31E+08
+	BA-133	81.00	33.00	-2.30E+01	7.29E-01	9.78E-01
		302.84	17.80	6.24E-01		2.18E+00
		356.01	60.00	-1.31E+01		7.29E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-4.20E+06	1.78E+05	1.78E+05
+	CS-134	563.23	8.38	1.12E+01	4.44E-01	4.56E+00
		569.32	15.43	-8.32E-02		2.36E+00
		604.70	97.60	-3.15E+01		4.44E-01
		795.84	85.40	5.62E+00		5.74E-01
		801.93	8.73	3.68E-01		3.73E+00
+	CS-135	268.24	16.00	2.66E+01	2.46E+00	2.46E+00
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.72E+03	3.86E+01	5.60E+02
		163.89	4.61	7.47E+01		8.65E+02
		176.55	13.56	-1.62E+01		2.97E+02
		273.65	12.66	-2.75E+03		3.98E+02
		340.57	48.50	3.27E+03		1.42E+02
		818.50	99.70	3.21E+00		3.86E+01
		1048.07	79.60	3.42E+00		4.13E+01
		1235.34	19.70	9.18E+02		2.61E+02
+	CS-137	661.65	85.12	-6.75E-02	4.09E-01	4.09E-01
+	LA-138	788.74	34.00	-7.59E+00	4.00E-01	1.01E+00
		1435.80	66.00	1.04E-01		4.00E-01
+	CE-139	165.85	80.35	3.88E-01	5.97E-01	5.97E-01
+	BA-140	162.64	6.70	6.45E+01	1.95E+02	6.86E+02
		304.84	4.50	-1.70E+02		1.10E+03
		423.70	3.20	5.15E+02		1.52E+03
		437.55	2.00	-8.44E+01		2.40E+03
		537.32	25.00	-1.84E+01		1.95E+02
+	LA-140	328.77	20.50	2.04E+03	5.57E+01	2.89E+02
		487.03	45.50	1.07E+02		1.06E+02
		815.85	23.50	-8.23E+01		1.85E+02
		1596.49	95.49	-5.39E+01		5.57E+01
+	CE-141	145.44	48.40	7.39E+00	4.60E+00	4.60E+00
+	@ 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	2.55E-01	3.48E+00	3.48E+00
+	PM-144	476.78	42.00	-3.62E-02	3.95E-01	9.03E-01
		618.01	98.60	5.47E-02		3.95E-01
		696.49	99.49	-2.81E-01		4.07E-01
+	PM-145	36.85	21.70	-3.45E+00	7.27E-01	1.36E+00

Analysis Report for 1707077-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36		39.70	-2.08E+00	7.27E-01	7.27E-01
		42.30		15.10	-8.22E+00		1.68E+00
		72.40		2.31	-1.74E+01		1.69E+01
+	PM-146	453.90	*	39.94	1.17E+00	9.31E-01	9.31E-01
		735.90		14.01	-2.83E+00		2.41E+00
		747.13		13.10	-2.22E-01		2.54E+00
+	ND-147	91.11		28.90	5.82E+03	4.68E+02	4.68E+02
		531.02		13.10	4.63E+02		8.57E+02
+	PM-149	285.90		3.10	9.00E+12	4.61E+13	4.61E+13
+	EU-152	121.78		20.50	-8.64E-01	1.40E+00	1.40E+00
		244.69		5.40	-5.21E+01		6.16E+00
		344.27		19.13	-1.07E+01		1.72E+00
		778.89		9.20	1.51E+00		3.49E+00
		964.01		10.40	-1.59E+02		5.08E+00
		1085.78		7.22	5.23E-01		3.42E+00
		1112.02		9.60	3.60E+00		2.91E+00
		1407.95		14.94	5.86E+00		2.38E+00
+	GD-153	97.43		31.30	-8.36E+00	1.21E+00	1.21E+00
		103.18		22.20	-1.63E-01		1.69E+00
+	EU-154	123.07		40.50	-4.44E-01	7.27E-01	7.27E-01
		723.30		19.70	1.62E-01		1.94E+00
		873.19		11.50	2.35E-01		2.49E+00
		996.32		10.30	1.22E-01		2.49E+00
		1004.76		17.90	1.69E+00		1.61E+00
		1274.45		35.50	4.56E-01		7.44E-01
+	EU-155	86.50		30.90	4.35E+00	1.25E+00	1.25E+00
		105.30		20.70	3.72E+00		1.47E+00
+	EU-156	811.77		10.40	-9.19E+01	1.87E+02	1.87E+02
		1153.47		7.20	8.03E+02		3.02E+02
		1230.71		8.90	-1.07E+01		1.92E+02
+	HO-166M	184.41		72.60	5.60E+00	5.05E-01	5.05E-01
		280.45		29.60	3.23E-01		1.18E+00
		410.94		11.10	1.52E+01		3.29E+00
		711.69		54.10	6.66E-02		6.16E-01
+	TM-171	66.72		0.14	-2.94E+02	2.48E+02	2.48E+02
+	HF-172	67.35		5.31	-4.39E+00	2.89E+00	6.47E+00
		125.81		11.30	-1.02E+00		2.89E+00
+	LU-172	181.53		20.60	8.06E+02	6.72E+03	2.23E+04
		900.72		29.81	2.97E+03		1.41E+04
		1093.66		62.50	1.27E+04		6.72E+03
+	LU-173	100.72		5.24	-1.51E+00	2.12E+00	6.20E+00
		272.11		21.20	-2.61E+00		2.12E+00
+	HF-175	343.40		84.00	-2.52E+01	9.90E-01	9.90E-01
+	LU-176	88.34		13.30	2.39E+01	3.39E-01	2.94E+00
		201.83		86.00	-1.24E-01		3.66E-01
		306.78		94.00	-6.77E-02		3.39E-01
+	HF-181	133.02		41.70	2.40E-01	1.73E+00	3.28E+00
		345.85		17.20	-2.24E+02		8.55E+00
		482.03		82.80	-4.06E-01		1.73E+00

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	-9.03E-01	1.33E+00	1.33E+00
		1121.30		34.90	4.34E+01		3.02E+00
		1189.05		16.23	-2.05E+00		2.66E+00
		1221.41		26.98	-8.08E-01		1.60E+00
		1231.02		11.44	-2.11E-01		3.80E+00
+	IR-192	308.46		29.68	-2.86E+00	1.55E+00	2.52E+00
		468.07		48.10	-2.25E-01		1.55E+00
+	HG-203	279.19		77.30	1.28E-01	1.86E+00	1.86E+00
+	TL-204	374.74		94.11	5.88E-02	2.91E-01	3.55E-01
		899.15		99.16	6.31E-02		2.91E-01
		911.74		91.10	3.43E+01		1.12E+00
+	BI-207	569.67		97.72	-1.21E-02	3.47E-01	3.47E-01
		1063.62		74.90	1.98E-01		3.60E-01
+	TL-208	583.14	*	30.22	1.03E+02	1.13E+00	2.22E+00
		860.37	*	4.48	1.16E+02		8.99E+00
		2614.66	*	35.85	1.06E+02		1.13E+00
+	BI-210M	262.00		45.00	1.02E-01	7.22E-01	7.22E-01
		300.00		23.00	-4.45E+01		1.72E+00
+	PB-210	46.50	*	4.25	8.46E+00	5.26E+00	5.26E+00
+	PB-211	404.84	*	2.90	1.39E+01	2.44E+01	2.61E+01
		831.96	*	2.90	2.15E+01		2.44E+01
+	BI-212	727.17	*	11.80	6.76E+01	3.77E+00	3.77E+00
		1620.62	*	2.75	7.58E+01		3.15E+01
+	PB-212	238.63	*	44.60	1.15E+02	1.90E+00	1.90E+00
		300.09	*	3.41	1.24E+02		2.52E+01
+	BI-214	609.31	*	46.30	5.37E+01	1.44E+00	1.44E+00
		1120.29	*	15.10	5.93E+01		2.88E+00
		1764.49	*	15.80	6.32E+01		3.26E+00
		2204.22	*	4.98	6.36E+01		1.05E+01
+	PB-214	295.21	*	19.19	5.57E+01	1.64E+00	4.41E+00
		351.92	*	37.19	5.80E+01		1.64E+00
+	RN-219	401.80	*	6.50	7.23E+00	1.16E+01	1.16E+01
+	RA-223	323.87	*	3.88	1.61E+01	2.86E+01	2.86E+01
+	RA-224	240.98	*	3.95	2.72E+02	2.17E+01	2.17E+01
+	RA-225	40.00	*	31.00	3.13E+02	1.51E+02	1.51E+02
+	RA-226	186.21	*	3.28	1.28E+02	1.62E+01	1.62E+01
+	TH-227	50.10		8.40	-5.72E+00	3.09E+00	3.09E+00
		236.00		11.50	-1.82E+02		4.25E+00
		256.20		6.30	6.24E+00		5.25E+00
+	AC-228	338.32	*	11.40	1.11E+02	2.67E+00	9.91E+00
		911.07	*	27.70	1.11E+02		2.67E+00
		969.11	*	16.60	1.15E+02		4.78E+00
+	TH-230	48.44		16.90	-5.95E-01	1.53E+00	1.53E+00
		62.85		4.60	1.93E+01		6.88E+00
		67.67		0.37	-5.73E+01		8.45E+01
+	PA-231	283.67		1.60	3.32E+00	1.66E+01	2.04E+01
		302.67		2.30	4.74E+00		1.66E+01
+	TH-231	25.64		14.70	-2.36E+00	2.33E+00	2.33E+00

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21		6.40	-1.35E+01	2.33E+00	5.42E+00
+	PA-233	311.98		38.60	5.72E-02	8.86E+00	8.86E+00
+	PA-234	131.20		20.40	-2.67E-01	1.52E+00	1.52E+00
		733.99		8.80	-6.01E+00		3.79E+00
		946.00		12.00	9.46E-01		2.26E+00
+	PA-234M	1001.03	*	0.92	1.01E+02	4.52E+01	4.52E+01
+	TH-234	63.29	*	3.80	6.24E+01	1.22E+01	1.22E+01
+	U-235	143.76		10.50	2.68E+00	2.91E+00	2.91E+00
		163.35		4.70	5.51E-01		6.38E+00
		205.31		4.70	4.15E-01		6.73E+00
+	NP-237	86.50		12.60	1.03E+01	2.95E+00	2.95E+00
+	NP-239	106.10		22.70	3.59E+12	9.60E+11	9.60E+11
		228.18		10.70	-2.17E+11		2.09E+12
		277.60		14.10	1.16E+13		1.91E+12
+	AM-241	59.54		35.90	-5.40E+00	8.54E-01	8.54E-01
+	AM-243	74.67		66.00	1.67E+00	7.14E-01	7.14E-01
+	CM-243	209.75	*	3.29	1.14E+02	2.89E+00	1.48E+01
		228.14		10.60	-3.00E-01		2.89E+00
		277.60	*	14.00	1.72E+01		5.19E+00

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	1.02E+01	1.02E+01	-1.62E+00	5.06E+00
NA-22	1274.54	99.94	2.77E-01	2.77E-01	1.70E-01	1.36E-01
@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

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HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NA-24	2754.09		99.86	1.00E+26	1.00E+26	1.00E+26	1.00E+20
+	AL-26	1808.65	*	99.76	3.77E-01	3.77E-01	2.98E-01	1.85E-01
+	K-40	1460.81	*	10.67	4.32E+00	4.32E+00	1.23E+01	2.14E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.32E-01	3.32E-01	-2.25E-01	1.66E-01
		78.34		96.00	4.62E-01		8.81E+00	2.31E-01
	SC-46	889.25		99.98	6.13E-01	6.13E-01	5.43E-02	3.03E-01
		1120.51		99.99	1.29E+00		1.83E+01	6.39E-01
	V-48	983.52		99.98	1.42E+01	1.42E+01	5.00E+00	7.00E+00
		1312.10		97.50	1.51E+01		4.73E+00	7.43E+00
	CR-51	320.08		9.83	3.32E+01	3.32E+01	5.96E+00	1.65E+01
	MN-54	834.83		99.97	4.48E-01	4.48E-01	-5.37E-01	2.22E-01
	CO-56	846.75		99.96	6.33E-01	6.33E-01	-1.79E-01	3.13E-01
		1037.75		14.03	4.13E+00		1.58E+00	2.03E+00
		1238.25		67.00	1.45E+00		1.10E+01	7.17E-01
		1771.40		15.51	3.92E+00		-9.43E-01	1.92E+00
		2598.48		16.90	2.29E+00		-1.98E+00	1.09E+00
	CO-57	122.06		85.51	4.24E-01	4.24E-01	-3.37E-01	2.11E-01
		136.48		10.60	3.55E+00		-3.46E+00	1.77E+00
	CO-58	810.76		99.40	7.12E-01	7.12E-01	-6.61E-02	3.52E-01
	FE-59	1099.22		56.50	1.90E+00	1.90E+00	-9.20E-01	9.34E-01
		1291.56		43.20	2.51E+00		6.29E-02	1.23E+00
	CO-60	1173.22		100.00	2.60E-01	2.60E-01	-3.14E-02	1.28E-01
		1332.49		100.00	2.75E-01		1.69E-01	1.35E-01
	ZN-65	1115.52		50.75	6.82E-01	6.82E-01	-2.72E+01	3.36E-01
	GA-67	93.31		35.70	3.68E+08	3.68E+08	3.17E+09	1.83E+08
		208.95		2.24	6.07E+09		6.20E+10	3.02E+09
		300.22		16.00	9.01E+08		-6.89E+09	4.49E+08
	SE-75	121.11		16.70	2.91E+00	8.58E-01	-1.79E+00	1.45E+00
		136.00		59.20	8.58E-01		-8.36E-01	4.27E-01
		264.65		59.80	9.20E-01		1.32E-01	4.58E-01
		279.53		25.20	2.46E+00		1.69E-01	1.22E+00
		400.65		11.40	5.03E+00		-5.23E-01	2.50E+00
	RB-82	776.52		13.00	3.17E+01	3.17E+01	1.31E+01	1.57E+01
	RB-83	520.41		46.00	1.45E+00	1.45E+00	2.41E-01	7.18E-01
		529.64		30.30	2.21E+00		3.47E-02	1.10E+00
		552.65		16.40	4.12E+00		5.39E-01	2.05E+00
	KR-85	513.99		0.43	1.10E+02	1.10E+02	9.98E+02	5.46E+01
	SR-85	513.99		99.27	1.27E+00	1.27E+00	1.16E+01	6.34E-01
	Y-88	898.02		93.40	5.42E-01	4.77E-01	1.17E-01	2.67E-01
		1836.01		99.38	4.77E-01		1.73E-01	2.33E-01
	MO-93	263.06		56.72	5.75E-01	2.69E-01	8.25E-02	2.86E-01
		684.67		99.68	3.40E-01		8.51E-02	1.69E-01
		1477.11		99.08	2.69E-01		1.82E-02	1.32E-01
	NB-93M	16.57		9.43	2.64E+00	2.64E+00	-3.91E-01	1.31E+00
	NB-94	702.63		100.00	3.59E-01	2.80E-01	1.17E-01	1.78E-01
		871.10		100.00	2.80E-01		-4.30E-04	1.38E-01
	NB-95	765.79		99.81	2.72E+00	2.72E+00	1.71E+01	1.35E+00
	NB-95M	235.69		25.00	1.07E+08	1.07E+08	-4.61E+09	5.36E+07
	ZR-95	724.18		43.70	3.00E+00	1.78E+00	3.12E-01	1.49E+00
		756.72		55.30	1.78E+00		4.09E+00	8.84E-01
	MO-99	181.06		6.20	7.18E+10	3.75E+10	2.60E+09	3.58E+10
		739.58		12.80	3.75E+10		-2.50E+09	1.86E+10

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MO-99	778.00		4.50	9.74E+10	3.75E+10	4.39E+10	4.82E+10
	RU-103	497.08		89.00	1.76E+00	1.76E+00	3.30E-01	8.76E-01
	RU-106	621.84		9.80	3.83E+00	3.83E+00	-6.73E-01	1.90E+00
	AG-108M	433.93		89.90	3.47E-01	3.47E-01	7.93E-02	1.73E-01
		614.37		90.40	4.28E-01		-2.54E+01	2.13E-01
		722.95		90.50	4.15E-01		3.46E-02	2.06E-01
+	CD-109	88.03	*	3.72	2.33E+01	2.33E+01	3.26E+02	1.17E+01
	AG-110M	657.75		93.14	4.61E-01	4.61E-01	7.16E-02	2.29E-01
		677.61		10.53	4.08E+00		-2.62E-01	2.02E+00
		706.67		16.46	2.75E+00		-1.13E-01	1.36E+00
		763.93		21.98	2.17E+00		-1.69E+01	1.08E+00
		884.67		71.63	4.97E-01		-2.82E-01	2.46E-01
		1384.27		23.94	1.62E+00		6.20E-01	7.95E-01
	CD-113M	263.70		0.02	1.41E+03	1.41E+03	2.03E+02	7.02E+02
	SN-113	255.12		1.93	2.53E+01	8.77E-01	-1.05E+01	1.26E+01
		391.69		64.90	8.77E-01		4.38E-02	4.36E-01
	TE123M	159.00		84.10	6.10E-01	6.10E-01	-5.18E-02	3.04E-01
	SB-124	602.71		97.87	9.53E-01	9.53E-01	-1.61E+01	4.73E-01
		645.85		7.26	1.28E+01		-8.49E+00	6.33E+00
		722.78		11.10	9.83E+00		8.21E-01	4.88E+00
		1691.02		49.00	1.46E+00		-9.39E-02	7.13E-01
	I-125	35.49		6.49	1.36E+01	1.36E+01	3.09E+01	6.78E+00
	SB-125	176.33		6.89	4.68E+00	1.15E+00	-2.56E-01	2.33E+00
		427.89		29.33	1.15E+00		2.13E-01	5.71E-01
		463.38		10.35	4.30E+00		4.88E+01	2.14E+00
		600.56		17.80	1.93E+00		5.76E-01	9.57E-01
		635.90		11.32	2.99E+00		-3.57E-01	1.48E+00
	SB-126	414.70		83.30	6.92E+01	6.03E+01	-3.57E+02	3.44E+01
		666.33		99.60	6.44E+01		1.57E+02	3.19E+01
		695.00		99.60	6.03E+01		-7.01E+01	2.99E+01
		720.50		53.80	1.13E+02		6.53E+01	5.62E+01
+	SN-126	87.57	*	37.00	2.04E+00	2.04E+00	2.86E+01	1.02E+00
	SB-127	473.00		25.00	2.25E+07	1.70E+07	-4.69E+06	1.12E+07
		685.20		35.70	1.70E+07		4.24E+06	8.41E+06
		783.80		14.70	4.73E+07		2.96E+08	2.35E+07
	I-129	29.78		57.00	5.32E-01	5.32E-01	-9.72E-02	2.65E-01
		33.60		13.20	2.36E+00		9.46E+00	1.17E+00
		39.58		7.52	3.65E+00		8.87E+00	1.82E+00
	I-131	284.30		6.05	1.62E+04	1.14E+03	2.63E+03	8.07E+03
		364.48		81.20	1.14E+03		-5.75E+02	5.65E+02
		636.97		7.26	1.31E+04		-1.89E+03	6.50E+03
		722.89		1.80	6.23E+04		5.20E+03	3.09E+04
	TE-132	49.72		13.10	7.31E+08	1.31E+08	-1.39E+09	3.64E+08
		228.16		88.00	1.31E+08		-1.35E+07	6.50E+07
	BA-133	81.00		33.00	9.78E-01	7.29E-01	-2.30E+01	4.88E-01
		302.84		17.80	2.18E+00		6.24E-01	1.09E+00
		356.01		60.00	7.29E-01		-1.31E+01	3.63E-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	1.78E+05	1.78E+05	-4.20E+06	8.90E+04
	CS-134	563.23		8.38	4.56E+00	4.44E-01	1.12E+01	2.26E+00
		569.32		15.43	2.36E+00		-8.32E-02	1.17E+00
		604.70		97.60	4.44E-01		-3.15E+01	2.20E-01
		795.84		85.40	5.74E-01		5.62E+00	2.85E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	801.93		8.73	3.73E+00	4.44E-01	3.68E-01	1.84E+00
	CS-135	268.24		16.00	2.46E+00	2.46E+00	2.66E+01	1.23E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	5.60E+02	3.86E+01	1.72E+03	2.79E+02
		163.89		4.61	8.65E+02		7.47E+01	4.31E+02
		176.55		13.56	2.97E+02		-1.62E+01	1.48E+02
		273.65		12.66	3.98E+02		-2.75E+03	1.98E+02
		340.57		48.50	1.42E+02		3.27E+03	7.07E+01
		818.50		99.70	3.86E+01		3.21E+00	1.91E+01
		1048.07		79.60	4.13E+01		3.42E+00	2.03E+01
		1235.34		19.70	2.61E+02		9.18E+02	1.29E+02
	CS-137	661.65		85.12	4.09E-01	4.09E-01	-6.75E-02	2.03E-01
	LA-138	788.74		34.00	1.01E+00	4.00E-01	-7.59E+00	5.01E-01
		1435.80		66.00	4.00E-01		1.04E-01	1.96E-01
	CE-139	165.85		80.35	5.97E-01	5.97E-01	3.88E-01	2.98E-01
	BA-140	162.64		6.70	6.86E+02	1.95E+02	6.45E+01	3.42E+02
		304.84		4.50	1.10E+03		-1.70E+02	5.46E+02
		423.70		3.20	1.52E+03		5.15E+02	7.57E+02
		437.55		2.00	2.40E+03		-8.44E+01	1.19E+03
		537.32		25.00	1.95E+02		-1.84E+01	9.69E+01
	LA-140	328.77		20.50	2.89E+02	5.57E+01	2.04E+03	1.44E+02
		487.03		45.50	1.06E+02		1.07E+02	5.25E+01
		815.85		23.50	1.85E+02		-8.23E+01	9.17E+01
		1596.49		95.49	5.57E+01		-5.39E+01	2.74E+01
	CE-141	145.44		48.40	4.60E+00	4.60E+00	7.39E+00	2.29E+00
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	3.48E+00	3.48E+00	2.55E-01	1.74E+00
	PM-144	476.78		42.00	9.03E-01	3.95E-01	-3.62E-02	4.49E-01
		618.01		98.60	3.95E-01		5.47E-02	1.96E-01
		696.49		99.49	4.07E-01		-2.81E-01	2.02E-01
	PM-145	36.85		21.70	1.36E+00	7.27E-01	-3.45E+00	6.80E-01
		37.36		39.70	7.27E-01		-2.08E+00	3.62E-01
		42.30		15.10	1.68E+00		-8.22E+00	8.38E-01
		72.40		2.31	1.69E+01		-1.74E+01	8.43E+00
+	PM-146	453.90	*	39.94	9.31E-01	9.31E-01	1.17E+00	4.63E-01
		735.90		14.01	2.41E+00		-2.83E+00	1.19E+00
		747.13		13.10	2.54E+00		-2.22E-01	1.26E+00
	ND-147	91.11		28.90	4.68E+02	4.68E+02	5.82E+03	2.33E+02
		531.02		13.10	8.57E+02		4.63E+02	4.25E+02
	PM-149	285.90		3.10	4.61E+13	4.61E+13	9.00E+12	2.30E+13
	EU-152	121.78		20.50	1.40E+00	1.40E+00	-8.64E-01	6.99E-01
		244.69		5.40	6.16E+00		-5.21E+01	3.07E+00
		344.27		19.13	1.72E+00		-1.07E+01	8.55E-01
		778.89		9.20	3.49E+00		1.51E+00	1.73E+00
		964.01		10.40	5.08E+00		-1.59E+02	2.52E+00
		1085.78		7.22	3.42E+00		5.23E-01	1.68E+00
		1112.02		9.60	2.91E+00		3.60E+00	1.44E+00
		1407.95		14.94	2.38E+00		5.86E+00	1.17E+00
	GD-153	97.43		31.30	1.21E+00	1.21E+00	-8.36E+00	6.02E-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)
	GD-153	103.18		22.20	1.69E+00	1.21E+00	-1.63E-01	8.44E-01
	EU-154	123.07		40.50	7.27E-01	7.27E-01	-4.44E-01	3.62E-01
		723.30		19.70	1.94E+00		1.62E-01	9.64E-01
		873.19		11.50	2.49E+00		2.35E-01	1.23E+00
		996.32		10.30	2.49E+00		1.22E-01	1.23E+00
		1004.76		17.90	1.61E+00		1.69E+00	7.94E-01
		1274.45		35.50	7.44E-01		4.56E-01	3.65E-01
	EU-155	86.50		30.90	1.25E+00	1.25E+00	4.35E+00	6.22E-01
		105.30		20.70	1.47E+00		3.72E+00	7.32E-01
	EU-156	811.77		10.40	1.87E+02	1.87E+02	-9.19E+01	9.27E+01
		1153.47		7.20	3.02E+02		8.03E+02	1.49E+02
		1230.71		8.90	1.92E+02		-1.07E+01	9.45E+01
	HO-166M	184.41		72.60	5.05E-01	5.05E-01	5.60E+00	2.52E-01
		280.45		29.60	1.18E+00		3.23E-01	5.87E-01
		410.94		11.10	3.29E+00		1.52E+01	1.64E+00
		711.69		54.10	6.16E-01		6.66E-02	3.05E-01
	TM-171	66.72		0.14	2.48E+02	2.48E+02	-2.94E+02	1.24E+02
	HF-172	67.35		5.31	6.47E+00	2.89E+00	-4.39E+00	3.23E+00
		125.81		11.30	2.89E+00		-1.02E+00	1.44E+00
	LU-172	181.53		20.60	2.23E+04	6.72E+03	8.06E+02	1.11E+04
		900.72		29.81	1.41E+04		2.97E+03	6.94E+03
		1093.66		62.50	6.72E+03		1.27E+04	3.31E+03
	LU-173	100.72		5.24	6.20E+00	2.12E+00	-1.51E+00	3.09E+00
		272.11		21.20	2.12E+00		-2.61E+00	1.06E+00
	HF-175	343.40		84.00	9.90E-01	9.90E-01	-2.52E+01	4.92E-01
	LU-176	88.34		13.30	2.94E+00	3.39E-01	2.39E+01	1.47E+00
		201.83		86.00	3.66E-01		-1.24E-01	1.82E-01
		306.78		94.00	3.39E-01		-6.77E-02	1.68E-01
	HF-181	133.02		41.70	3.28E+00	1.73E+00	2.40E-01	1.63E+00
		345.85		17.20	8.55E+00		-2.24E+02	4.25E+00
		482.03		82.80	1.73E+00		-4.06E-01	8.58E-01
	TA-182	67.75		41.20	1.33E+00	1.33E+00	-9.03E-01	6.64E-01
		1121.30		34.90	3.02E+00		4.34E+01	1.50E+00
		1189.05		16.23	2.66E+00		-2.05E+00	1.31E+00
		1221.41		26.98	1.60E+00		-8.08E-01	7.87E-01
		1231.02		11.44	3.80E+00		-2.11E-01	1.87E+00
	IR-192	308.46		29.68	2.52E+00	1.55E+00	-2.86E+00	1.25E+00
		468.07		48.10	1.55E+00		-2.25E-01	7.72E-01
	HG-203	279.19		77.30	1.86E+00	1.86E+00	1.28E-01	9.27E-01
	TL-204	374.74		94.11	3.55E-01	2.91E-01	5.88E-02	1.76E-01
		899.15		99.16	2.91E-01		6.31E-02	1.44E-01
		911.74		91.10	1.12E+00		3.43E+01	5.59E-01
	BI-207	569.67		97.72	3.47E-01	3.47E-01	-1.21E-02	1.72E-01
		1063.62		74.90	3.60E-01		1.98E-01	1.77E-01
+	TL-208	583.14	*	30.22	2.22E+00	1.13E+00	1.03E+02	1.10E+00
		860.37	*	4.48	8.99E+00		1.16E+02	4.46E+00
		2614.66	*	35.85	1.13E+00		1.06E+02	5.56E-01
	BI-210M	262.00		45.00	7.22E-01	7.22E-01	1.02E-01	3.59E-01
		300.00		23.00	1.72E+00		-4.45E+01	8.57E-01
+	PB-210	46.50	*	4.25	5.26E+00	5.26E+00	8.46E+00	2.62E+00
+	PB-211	404.84	*	2.90	2.61E+01	2.44E+01	1.39E+01	1.30E+01
		831.96	*	2.90	2.44E+01		2.15E+01	1.21E+01
+	BI-212	727.17	*	11.80	3.77E+00	3.77E+00	6.76E+01	1.87E+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)
	BI-212	1620.62	*	2.75	3.15E+01	3.77E+00	7.58E+01	1.56E+01
+	PB-212	238.63	*	44.60	1.90E+00	1.90E+00	1.15E+02	9.47E-01
		300.09	*	3.41	2.52E+01		1.24E+02	1.26E+01
+	BI-214	609.31	*	46.30	1.44E+00	1.44E+00	5.37E+01	7.18E-01
		1120.29	*	15.10	2.88E+00		5.93E+01	1.43E+00
		1764.49	*	15.80	3.26E+00		6.32E+01	1.61E+00
		2204.22	*	4.98	1.05E+01		6.36E+01	5.17E+00
+	PB-214	295.21	*	19.19	4.41E+00	1.64E+00	5.57E+01	2.20E+00
		351.92	*	37.19	1.64E+00		5.80E+01	8.19E-01
+	RN-219	401.80	*	6.50	1.16E+01	1.16E+01	7.23E+00	5.79E+00
+	RA-223	323.87	*	3.88	2.86E+01	2.86E+01	1.61E+01	1.43E+01
+	RA-224	240.98	*	3.95	2.17E+01	2.17E+01	2.72E+02	1.09E+01
+	RA-225	40.00	*	31.00	1.51E+02	1.51E+02	3.13E+02	7.56E+01
+	RA-226	186.21	*	3.28	1.62E+01	1.62E+01	1.28E+02	8.08E+00
	TH-227	50.10		8.40	3.09E+00	3.09E+00	-5.72E+00	1.54E+00
		236.00		11.50	4.25E+00		-1.82E+02	2.12E+00
		256.20		6.30	5.25E+00		6.24E+00	2.61E+00
+	AC-228	338.32	*	11.40	9.91E+00	2.67E+00	1.11E+02	4.95E+00
		911.07	*	27.70	2.67E+00		1.11E+02	1.33E+00
		969.11	*	16.60	4.78E+00		1.15E+02	2.38E+00
	TH-230	48.44		16.90	1.53E+00	1.53E+00	-5.95E-01	7.60E-01
		62.85		4.60	6.88E+00		1.93E+01	3.43E+00
		67.67		0.37	8.45E+01		-5.73E+01	4.21E+01
	PA-231	283.67		1.60	2.04E+01	1.66E+01	3.32E+00	1.01E+01
		302.67		2.30	1.66E+01		4.74E+00	8.28E+00
	TH-231	25.64		14.70	2.33E+00	2.33E+00	-2.36E+00	1.16E+00
		84.21		6.40	5.42E+00		-1.35E+01	2.70E+00
	PA-233	311.98		38.60	8.86E+00	8.86E+00	5.72E-02	4.41E+00
	PA-234	131.20		20.40	1.52E+00	1.52E+00	-2.67E-01	7.60E-01
		733.99		8.80	3.79E+00		-6.01E+00	1.88E+00
		946.00		12.00	2.26E+00		9.46E-01	1.12E+00
+	PA-234M	1001.03	*	0.92	4.52E+01	4.52E+01	1.01E+02	2.24E+01
+	TH-234	63.29	*	3.80	1.22E+01	1.22E+01	6.24E+01	6.07E+00
	U-235	143.76		10.50	2.91E+00	2.91E+00	2.68E+00	1.45E+00
		163.35		4.70	6.38E+00		5.51E-01	3.18E+00
		205.31		4.70	6.73E+00		4.15E-01	3.35E+00
	NP-237	86.50		12.60	2.95E+00	2.95E+00	1.03E+01	1.47E+00
	NP-239	106.10		22.70	9.60E+11	9.60E+11	3.59E+12	4.78E+11
		228.18		10.70	2.09E+12		-2.17E+11	1.04E+12
		277.60		14.10	1.91E+12		1.16E+13	9.49E+11
	AM-241	59.54		35.90	8.54E-01	8.54E-01	-5.40E+00	4.26E-01
	AM-243	74.67		66.00	7.14E-01	7.14E-01	1.67E+00	3.57E-01
+	CM-243	209.75	*	3.29	1.48E+01	2.89E+00	1.14E+02	7.39E+00
		228.14		10.60	2.89E+00		-3.00E-01	1.44E+00
		277.60	*	14.00	5.19E+00		1.72E+01	2.59E+00

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

Analysis Report for 1707077-03

HTC-A01-S001-0006-01

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: HTC-A01-S001-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3676

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	1	89	3724	3767	3690	3735	4144	3656
25:	3736	3569	3607	3556	3495	3575	3600	3863
33:	4086	4904	5645	4173	4236	4166	4432	4875
41:	4152	3874	3793	3743	3819	4277	5029	4285
49:	4330	4595	4679	4804	5344	5545	5396	6711
57:	8696	10044	7001	6156	6640	6890	8351	9616
65:	8582	8512	8040	8098	7651	7626	7907	8371
73:	9417	11673	24499	17971	28900	27207	9140	8173
81:	8187	8195	7570	9803	9978	8367	14244	15464
89:	9328	13493	10814	8877	14526	13375	8018	6430
97:	6093	6647	7042	7629	6150	5800	5965	6164
105:	7179	7783	6506	6235	6787	6490	6241	6101
113:	6331	6181	6654	6530	5766	5756	5745	5751
121:	5827	5794	6044	6116	6046	6313	6345	6822
129:	9252	8437	6420	6656	6071	6225	6187	5923
137:	5985	5933	5972	6075	6253	5938	5814	6687
145:	6235	5955	5869	5827	5868	5806	5841	5722
153:	5942	7009	6457	5602	5462	5582	5425	5361
161:	5372	5271	5293	5385	5265	5168	5318	5072
169:	5169	4936	5031	5184	5035	4938	5010	5019
177:	5113	4967	4953	4994	5092	5027	5079	5251
185:	6218	10367	8184	5260	4929	4845	5097	4963
193:	4701	4678	4581	4676	4646	4665	4947	4893
201:	4797	4738	4555	4562	4772	4681	4608	4677
209:	8302	8410	4718	4347	4213	4282	4243	4424
217:	4313	4182	4083	4157	4009	3875	3860	4061
225:	3897	3812	3788	3879	3833	3860	3775	3901
233:	3761	3925	4029	5015	5962	28369	63506	18613
241:	10064	11810	7189	4197	3177	3046	2818	2770
249:	2679	2646	2741	2759	2955	2648	2728	2891
257:	2898	2754	2946	2676	2524	2570	2517	2617
265:	2464	2422	2522	2594	3366	6240	5847	3145
273:	2616	2570	2718	2737	4017	4485	2773	2458
281:	2368	2389	2425	2404	2344	2283	2393	2552
289:	2598	2206	2305	2382	2335	3562	11455	10243
297:	2964	2302	2884	5693	4440	2170	2270	2137
305:	2198	2028	1969	1946	1995	1953	1935	1898
313:	1998	1927	1972	1974	1927	1911	1841	1831
321:	1979	2087	2003	2127	2026	1959	2528	4806
329:	3509	2131	1974	2269	2201	1985	1895	2052
337:	2961	10541	10969	3006	2305	2069	1975	1771
345:	1717	1682	1668	1713	1816	2172	7443	21076
353:	9803	2192	1881	2001	2021	1690	1505	1536
361:	1499	1436	1541	1501	1479	1522	1450	1531

369:	1539	1536	1520	1426	1535	1488	1623	1568

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Channel								
377:	1514	1565	1562	1465	1480	1502	1556	1424
385:	1562	1531	1582	1604	1638	1513	1461	1515
393:	1464	1481	1416	1465	1433	1456	1526	1480
401:	1467	1728	1573	1524	1650	1583	1428	1453
409:	2410	2805	1673	1327	1309	1367	1364	1370
417:	1362	1305	1229	1284	1272	1274	1254	1302
425:	1262	1241	1312	1318	1181	1180	1182	1205
433:	1178	1207	1151	1237	1100	1154	1157	1278
441:	1181	1085	1125	1178	1171	1081	1102	1052
449:	1048	1090	1054	1185	1333	1196	1195	1077
457:	1085	1061	1120	1073	1159	2119	4147	2728
465:	1150	1097	1091	1042	995	1063	1007	971
473:	1049	1060	1066	981	994	1118	1139	1082
481:	1083	947	944	979	947	1064	1096	1036
489:	955	964	932	971	891	928	910	902
497:	947	884	949	950	896	907	1002	983
505:	966	950	934	1138	1719	3941	6433	2828
513:	1256	999	1080	968	934	930	873	913
521:	856	908	983	952	892	856	866	937
529:	869	938	881	915	913	944	902	904
537:	896	883	865	841	892	873	903	933
545:	911	943	960	868	899	918	858	832
553:	852	852	840	879	846	821	885	835
561:	908	1253	1354	959	873	835	826	919
569:	840	936	986	959	910	837	806	823
577:	794	834	841	1111	1236	4966	17917	12207
585:	2041	1037	1206	1191	940	783	797	776
593:	756	749	736	724	785	804	788	744
601:	758	728	752	792	725	775	994	3342
609:	12891	10659	2141	904	1011	1030	889	743
617:	747	736	751	732	675	713	672	659
625:	672	705	651	693	727	696	702	683
633:	681	684	657	686	671	672	714	689
641:	674	713	706	615	690	651	649	693
649:	673	702	703	686	683	672	741	645
657:	742	717	704	691	712	745	689	801
665:	1000	988	790	683	683	623	676	717
673:	695	707	751	665	678	707	657	654
681:	625	670	659	656	673	701	647	702
689:	691	664	708	663	627	690	651	676
697:	627	694	760	711	736	837	812	732
705:	675	741	785	691	660	639	642	597
713:	646	603	629	603	581	678	684	643
721:	664	645	619	623	683	1589	4133	3157
729:	1003	626	653	687	587	590	529	597
737:	584	572	574	578	609	611	634	567
745:	546	559	513	556	565	532	542	548
753:	581	635	983	880	612	530	545	533
761:	557	585	802	742	609	684	886	1612
769:	1381	615	708	1170	1009	561	441	456
777:	493	475	398	434	509	711	521	573
785:	966	1146	631	437	428	448	439	478
793:	534	1377	2349	1153	507	447	442	435

801:	401	400	372	396	498	689	527	413

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Channel								
809:	376	391	352	368	364	373	348	375
817:	395	373	374	398	417	392	386	382
825:	428	393	374	368	399	554	589	487
833:	402	450	846	986	549	419	573	830
841:	660	405	343	348	335	312	343	330
849:	362	335	323	373	324	318	312	318
857:	370	364	708	1985	2032	757	325	369
865:	366	360	296	337	291	315	335	298
873:	331	368	355	278	320	310	342	304
881:	312	289	323	308	296	325	294	311
889:	340	304	334	367	478	437	314	304
897:	294	301	329	277	301	297	407	633
905:	470	332	344	447	760	4527	11712	7106
913:	1265	454	522	547	385	269	271	262
921:	273	246	260	271	262	247	257	267
929:	249	265	257	314	551	900	606	292
937:	303	253	287	245	262	247	242	311
945:	249	264	263	288	268	268	250	309
953:	244	238	252	247	265	338	336	252
961:	237	286	527	1740	2252	947	856	3901
969:	7011	3098	563	368	390	365	278	242
977:	227	196	207	225	207	258	218	201
985:	228	199	225	296	257	236	209	187
993:	210	209	207	201	218	217	232	328
1001:	462	326	217	239	233	186	201	206
1009:	218	217	197	213	207	188	210	219
1017:	203	217	194	206	200	201	188	211
1025:	184	180	187	175	193	202	179	235
1033:	251	256	199	191	181	203	203	217
1041:	192	176	203	181	213	180	190	167
1049:	185	174	226	266	220	202	199	178
1057:	167	210	196	189	201	225	188	253
1065:	274	210	195	220	174	231	197	209
1073:	176	188	171	177	242	314	320	243
1081:	171	169	152	180	168	205	189	167
1089:	181	194	181	192	271	330	241	241
1097:	205	180	187	155	162	178	197	198
1105:	172	182	176	201	216	298	283	217
1113:	176	166	172	172	196	309	1165	2840
1121:	1917	506	251	251	266	196	143	148
1129:	188	181	183	194	199	216	180	178
1137:	184	171	190	198	177	185	175	152
1145:	146	181	158	194	175	158	144	180
1153:	234	344	476	342	215	180	184	185
1161:	174	170	188	183	184	190	165	165
1169:	174	162	169	188	161	140	166	177
1177:	175	162	191	163	163	182	161	161
1185:	189	178	163	145	140	160	156	152
1193:	172	173	143	140	168	177	150	150
1201:	141	161	142	133	147	181	227	226
1209:	164	134	148	181	179	155	153	143
1217:	178	157	134	135	193	145	149	139
1225:	187	137	146	151	163	151	147	150

1233:	145	159	174	231	655	1073	634	224

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Channel								
1241:	184	178	176	188	231	237	301	231
1249:	184	165	157	191	200	189	168	166
1257:	131	160	154	157	141	150	155	141
1265:	151	154	148	158	167	130	167	171
1273:	137	163	168	151	135	145	176	335
1281:	379	258	170	171	167	184	209	169
1289:	141	167	153	147	152	124	139	148
1297:	152	145	147	155	134	166	169	130
1305:	157	145	152	142	159	159	168	161
1313:	150	137	147	144	144	144	141	148
1321:	151	160	143	141	142	164	142	141
1329:	161	159	157	160	145	138	158	131
1337:	148	152	138	126	153	177	133	134
1345:	150	155	175	129	151	152	132	146
1353:	162	133	151	143	141	148	142	156
1361:	143	170	156	161	129	184	158	155
1369:	141	143	130	179	169	182	176	327
1377:	702	688	315	151	164	167	151	208
1385:	242	186	178	124	135	124	135	109
1393:	143	129	139	138	139	157	145	228
1401:	329	269	189	148	147	194	385	481
1409:	243	155	140	137	122	143	150	134
1417:	138	129	107	117	125	165	154	120
1425:	137	142	137	137	130	151	139	120
1433:	151	138	156	150	119	122	122	120
1441:	116	130	131	135	138	138	111	131
1449:	116	125	153	124	124	142	129	141
1457:	162	260	357	255	188	160	123	119
1465:	114	131	126	129	117	137	125	141
1473:	138	134	130	130	117	124	129	127
1481:	120	132	130	130	112	111	134	111
1489:	127	96	127	125	125	181	343	332
1497:	221	152	145	177	252	222	170	124
1505:	121	112	182	343	387	277	162	199
1513:	193	139	125	102	120	114	125	102
1521:	114	99	127	103	106	106	127	124
1529:	136	112	104	132	119	121	111	109
1537:	124	167	155	134	115	136	171	128
1545:	100	108	121	105	109	99	89	98
1553:	82	98	102	103	148	129	115	98
1561:	109	105	96	89	106	107	88	92
1569:	85	106	95	101	98	107	93	92
1577:	89	118	196	235	221	184	177	169
1585:	122	227	691	943	506	206	348	647
1593:	514	233	147	134	122	132	147	132
1601:	100	104	102	102	88	109	88	105
1609:	79	87	86	97	92	77	100	108
1617:	105	119	221	481	413	170	113	142
1625:	164	117	100	129	271	473	404	165
1633:	105	89	106	112	161	216	150	90
1641:	94	86	61	73	79	74	80	76
1649:	89	90	88	93	78	68	83	91
1657:	81	85	89	171	205	135	76	75

1665:	118	125	105	103	75	83	72	76

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Channel								
1673:	72	81	73	82	88	89	82	81
1681:	82	93	95	120	106	112	90	87
1689:	75	84	101	104	107	85	77	68
1697:	79	88	60	66	84	89	88	76
1705:	74	82	80	76	62	80	77	85
1713:	81	75	81	65	84	69	76	68
1721:	80	77	83	74	83	80	109	265
1729:	483	359	140	85	76	91	64	86
1737:	83	77	81	63	92	95	76	80
1745:	83	71	66	71	75	81	69	74
1753:	60	62	83	85	98	83	80	73
1761:	103	302	1115	1982	1275	371	166	134
1769:	124	97	69	64	75	69	58	71
1777:	71	70	70	74	88	72	83	61
1785:	73	78	77	79	82	66	69	75
1793:	74	51	83	77	59	63	66	72
1801:	75	70	68	91	96	112	89	74
1809:	68	64	87	63	64	74	61	74
1817:	83	63	88	81	76	90	78	76
1825:	82	83	56	75	64	66	82	78
1833:	86	72	95	76	112	124	110	82
1841:	86	74	79	89	102	226	339	192
1849:	105	85	78	77	80	78	76	73
1857:	84	81	73	90	71	83	62	81
1865:	82	77	85	54	84	80	74	84
1873:	87	74	100	89	79	68	71	81
1881:	83	70	66	80	66	95	88	95
1889:	87	78	96	68	62	91	97	93
1897:	76	93	73	64	101	68	79	89
1905:	66	69	65	95	72	90	80	91
1913:	87	75	79	75	74	75	79	72
1921:	76	70	78	61	64	87	74	95
1929:	83	87	92	80	58	90	96	103
1937:	86	73	75	66	77	80	80	87
1945:	74	84	80	80	82	74	87	71
1953:	93	70	95	91	87	81	77	68
1961:	82	76	77	69	81	79	67	78
1969:	62	79	70	63	76	59	63	85
1977:	58	73	75	58	71	65	72	66
1985:	79	67	59	67	64	77	73	65
1993:	67	73	68	49	57	76	74	77
2001:	74	65	71	71	59	65	62	62
2009:	61	73	73	70	61	58	77	70
2017:	85	63	66	72	77	75	57	75
2025:	62	59	69	65	86	43	68	72
2033:	49	66	55	77	71	70	90	63
2041:	86	68	67	54	60	66	75	77
2049:	69	84	61	65	78	69	69	79
2057:	81	59	71	60	68	72	61	72
2065:	76	75	69	80	78	79	57	87
2073:	62	59	76	60	77	69	73	85
2081:	85	67	63	61	88	84	80	62
2089:	76	76	80	59	85	73	72	67

2097:	71	84	97	160	315	526	584	501

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Channel								
2105:	255	139	111	99	102	84	72	80
2113:	80	82	79	92	164	207	134	114
2121:	82	77	66	84	65	78	86	71
2129:	75	74	58	83	71	76	88	92
2137:	86	73	93	89	69	76	88	84
2145:	67	89	92	82	89	75	66	78
2153:	83	89	77	62	56	77	79	91
2161:	72	80	63	76	87	75	85	80
2169:	82	86	67	61	76	75	101	89
2177:	86	85	66	76	81	86	61	91
2185:	70	94	74	84	88	70	82	81
2193:	64	93	85	82	90	100	76	95
2201:	135	297	518	456	257	113	110	74
2209:	108	77	89	94	103	88	81	66
2217:	79	79	81	71	72	109	77	69
2225:	85	86	83	79	94	77	90	83
2233:	77	81	80	80	93	77	88	98
2241:	81	80	86	88	92	72	98	74
2249:	92	80	105	86	76	94	93	103
2257:	93	102	90	98	111	88	92	87
2265:	94	95	93	91	104	91	100	96
2273:	89	95	106	101	102	102	89	111
2281:	77	96	81	100	86	97	97	106
2289:	102	96	120	123	131	114	109	105
2297:	88	88	92	103	92	89	94	101
2305:	96	107	93	97	106	100	93	98
2313:	90	92	101	120	115	103	108	118
2321:	103	84	112	106	115	105	113	112
2329:	110	118	101	99	97	102	111	110
2337:	97	107	99	116	103	119	92	119
2345:	102	128	108	105	123	111	120	108
2353:	117	124	112	109	109	131	109	121
2361:	112	126	133	108	105	117	125	121
2369:	147	122	94	135	116	129	107	125
2377:	114	124	120	98	108	92	96	97
2385:	92	96	90	76	88	86	79	78
2393:	100	61	87	74	85	86	63	99
2401:	86	88	71	78	70	58	67	89
2409:	74	80	72	68	76	86	83	73
2417:	73	77	65	87	76	66	88	77
2425:	67	71	59	72	58	69	65	70
2433:	60	68	84	63	78	59	56	55
2441:	85	69	70	63	117	159	187	128
2449:	82	59	66	66	56	52	70	52
2457:	55	62	79	65	63	58	50	60
2465:	45	47	55	71	47	34	63	55
2473:	59	51	43	48	44	31	50	50
2481:	53	42	42	46	29	36	53	40
2489:	37	33	44	48	44	35	30	31
2497:	47	37	41	39	34	25	33	32
2505:	33	35	41	30	26	28	25	37
2513:	29	35	30	33	31	34	26	18
2521:	34	27	26	33	22	27	14	21

2529:	29	22	19	23	21	23	24	23

Sample Title: HTC-A01-S001-0006-01

Channel								
2537:	13	22	19	24	21	31	13	16
2545:	14	20	25	26	18	29	16	20
2553:	20	21	20	13	16	16	18	26
2561:	28	16	25	21	21	18	11	14
2569:	19	20	16	19	14	21	18	20
2577:	24	17	14	23	20	16	20	21
2585:	16	25	17	18	20	26	19	17
2593:	11	21	15	11	21	18	21	20
2601:	25	31	29	31	18	33	27	38
2609:	50	114	525	2096	4266	4210	1912	536
2617:	191	137	117	56	16	16	16	19
2625:	16	12	16	15	10	18	8	17
2633:	14	10	21	12	14	15	13	10
2641:	8	10	16	12	12	7	12	15
2649:	13	19	9	11	15	16	11	12
2657:	16	17	10	6	9	10	11	14
2665:	14	12	13	15	12	11	10	12
2673:	13	12	5	21	14	15	13	12
2681:	13	12	14	14	25	28	23	24
2689:	18	19	11	10	18	12	11	8
2697:	14	10	19	13	12	15	6	7
2705:	7	16	10	10	14	12	15	15
2713:	10	9	14	9	12	14	13	9
2721:	15	10	11	14	8	9	12	4
2729:	11	8	7	9	10	9	15	13
2737:	7	10	10	12	8	14	8	14
2745:	8	7	12	8	16	11	12	8
2753:	11	14	17	9	17	10	10	8
2761:	13	12	13	11	7	13	9	10
2769:	8	7	12	10	5	6	8	15
2777:	7	10	9	9	10	12	11	14
2785:	6	13	16	14	11	16	10	10
2793:	8	12	11	15	7	12	12	11
2801:	8	6	9	10	17	16	18	9
2809:	13	11	17	6	8	11	12	10
2817:	7	7	10	11	10	13	5	12
2825:	9	14	7	13	16	4	7	5
2833:	6	3	7	7	14	10	8	4
2841:	9	12	10	8	6	7	12	13
2849:	7	5	9	7	8	8	7	6
2857:	9	11	10	4	11	6	8	4
2865:	10	7	7	10	10	8	10	5
2873:	8	4	4	8	7	7	10	9
2881:	6	8	9	1	4	10	7	12
2889:	11	12	10	8	5	9	2	5
2897:	6	10	12	7	5	6	8	5
2905:	9	5	6	7	8	7	7	10
2913:	12	4	10	10	9	11	8	4
2921:	6	3	9	12	9	7	6	7
2929:	6	9	10	6	6	7	7	5
2937:	6	4	11	5	6	8	3	8
2945:	4	4	6	7	6	3	6	9
2953:	6	8	8	1	6	7	7	8

2961:	4	4	6	6	8	15	6	8

Sample Title: HTC-A01-S001-0006-01

Channel								
2969:	3	2	5	10	8	6	8	7
2977:	6	3	4	5	8	9	3	5
2985:	6	5	8	11	9	6	8	2
2993:	5	4	1	6	9	5	1	7
3001:	3	2	4	1	7	7	7	9
3009:	3	6	8	7	6	4	6	8
3017:	7	4	7	3	4	5	2	4
3025:	3	3	1	2	9	6	3	7
3033:	2	6	1	3	3	1	3	2
3041:	4	2	4	4	3	7	2	1
3049:	1	6	5	5	1	1	2	4
3057:	2	5	1	5	3	3	2	1
3065:	8	2	2	5	1	3	1	3
3073:	2	2	3	1	2	4	1	4
3081:	5	3	0	2	3	6	2	4
3089:	3	0	2	3	7	3	4	1
3097:	4	1	5	3	1	2	2	1
3105:	0	1	1	2	3	1	1	3
3113:	2	2	0	3	2	4	2	6
3121:	5	14	20	26	18	5	2	2
3129:	2	2	2	0	2	2	5	2
3137:	2	2	2	2	3	2	2	0
3145:	2	0	4	3	2	0	3	0
3153:	1	1	1	0	0	0	1	1
3161:	0	2	1	1	0	1	1	1
3169:	2	1	3	1	3	2	1	1
3177:	3	1	1	5	1	0	0	0
3185:	3	1	0	2	2	3	4	2
3193:	3	19	55	82	51	20	8	11
3201:	3	1	3	1	2	0	2	2
3209:	1	0	2	2	2	0	1	1
3217:	0	1	1	1	1	1	1	2
3225:	0	2	0	1	0	1	3	1
3233:	4	1	3	0	2	2	1	1
3241:	1	3	2	1	4	3	0	0
3249:	2	1	4	1	1	1	0	0
3257:	1	1	1	0	0	0	1	0
3265:	2	2	2	1	1	1	2	1
3273:	2	1	1	0	1	3	0	0
3281:	0	1	0	2	0	1	1	3
3289:	2	1	0	0	1	1	0	2
3297:	0	0	0	0	1	0	1	0
3305:	0	2	0	0	0	1	1	0
3313:	0	3	1	2	2	0	0	1
3321:	0	2	1	2	1	1	0	1
3329:	3	0	1	0	0	0	0	0
3337:	0	0	0	2	0	2	1	0
3345:	0	0	1	2	0	0	0	0
3353:	0	0	0	1	1	0	0	1
3361:	1	0	0	2	0	0	0	0
3369:	1	0	0	0	1	2	1	2
3377:	2	2	0	0	1	0	1	0
3385:	0	0	0	0	1	0	0	1

3393:	2	2	3	1	1	1	1	1

Sample Title: HTC-A01-S001-0006-01

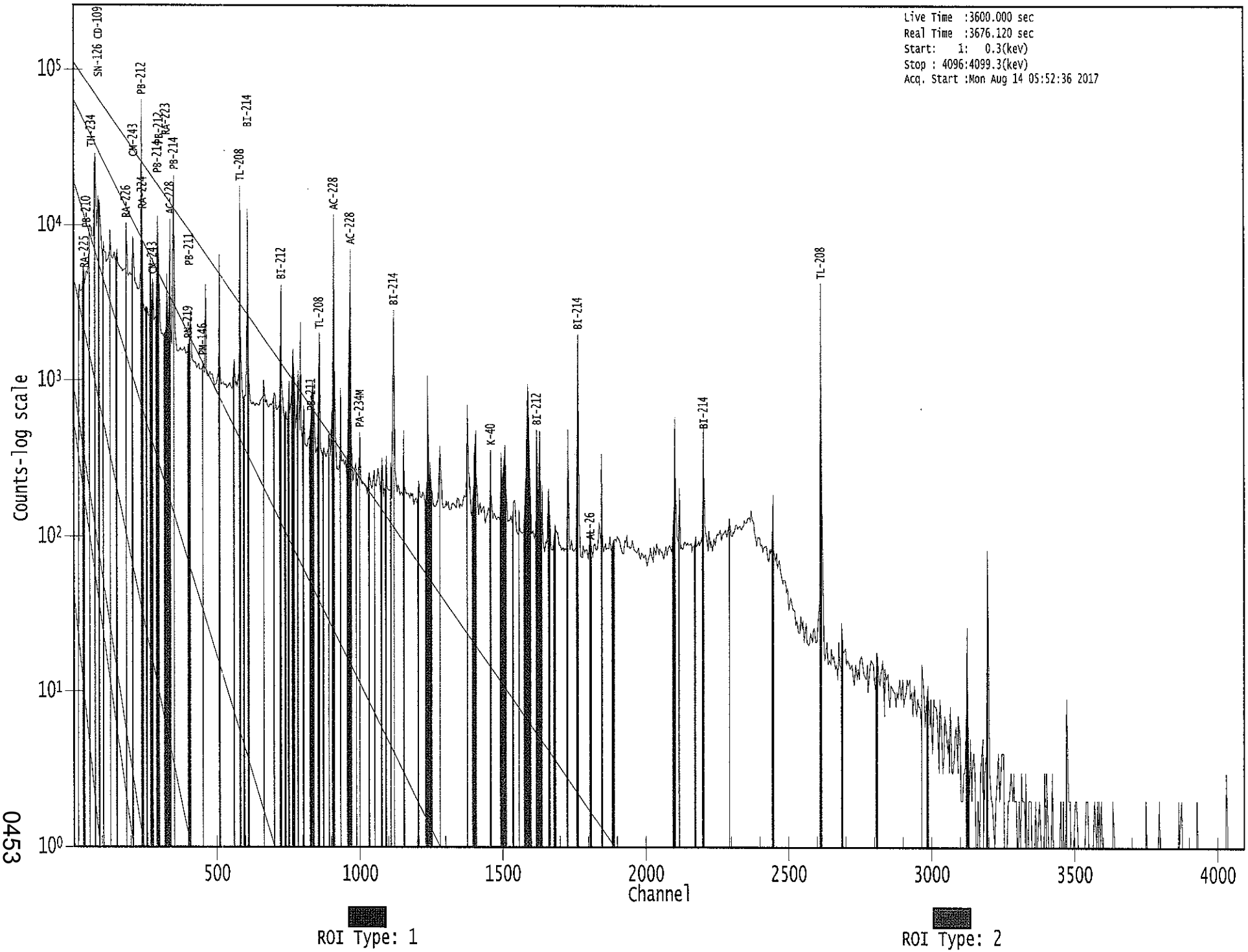
Channel								
3401:	3	0	0	0	1	1	0	1
3409:	1	0	0	0	0	0	0	0
3417:	2	1	0	2	0	3	0	0
3425:	1	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	1	0	1	0
3449:	0	1	2	1	0	0	0	0
3457:	1	2	0	2	0	1	0	0
3465:	0	1	0	1	0	2	2	9
3473:	8	7	3	3	0	2	1	0
3481:	0	0	0	2	0	0	0	0
3489:	0	1	0	1	0	1	0	1
3497:	1	0	0	0	0	2	0	0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

3825:	0	1	0	0	0	0	0	0

Sample Title: HTC-A01-S001-0006-01

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

0000055127.CNF



0453

Apex-Gamma

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Analysis Report for 1707077-04

HTC-A01-S001-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-04
Sample Description	: HTC-A01-S001-0006-01
Sample Type	: SOIL
Sample Size	: 8.216E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:31:34AM
Acquisition Started	: 8/14/2017 6:58:55AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3676.1 seconds
Dead Time	: 2.07 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 17 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55132

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 8:00:14AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	34.31	34.94	0.0000	0.00
2	39.07	39.70	0.0000	0.00
3	46.14	46.76	0.0000	0.00
4	56.99	57.60	0.0000	0.00
5	63.55	64.16	0.0000	0.00
6	75.81	76.40	0.0000	0.00
7	87.63	88.21	0.0000	0.00
8	92.89	93.46	0.0000	0.00
9	99.02	99.58	0.0000	0.00
10	104.99	105.55	0.0000	0.00
11	114.78	115.33	0.0000	0.00
12	128.88	129.42	0.0000	0.00
13	143.95	144.47	0.0000	0.00
14	153.77	154.28	0.0000	0.00
15	185.65	186.13	0.0000	0.00
16	199.71	200.17	0.0000	0.00
17	209.10	209.55	0.0000	0.00
18	216.24	216.69	0.0000	0.00
19	238.43	238.85	0.0000	0.00
20	241.37	241.80	0.0000	0.00
21	257.51	257.92	0.0000	0.00
22	270.02	270.42	0.0000	0.00
23	277.21	277.60	0.0000	0.00
24	287.06	287.43	0.0000	0.00
25	295.06	295.43	0.0000	0.00
26	299.89	300.26	0.0000	0.00
27	313.28	313.63	0.0000	0.00
28	322.39	322.73	0.0000	0.00
29	327.86	328.19	0.0000	0.00
30	332.37	332.70	0.0000	0.00
31	338.18	338.50	0.0000	0.00
32	351.76	352.07	0.0000	0.00
33	355.89	356.20	0.0000	0.00
34	388.25	388.52	0.0000	0.00
35	409.37	409.62	0.0000	0.00
36	427.14	427.37	0.0000	0.00
37	453.16	453.36	0.0000	0.00
38	462.92	463.12	0.0000	0.00
39	478.86	479.04	0.0000	0.00
40	487.27	487.45	0.0000	0.00
41	510.68	510.83	0.0000	0.00
42	534.13	534.26	0.0000	0.00

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	562.46	562.56	0.0000	0.00
44	583.18	583.26	0.0000	0.00
45	587.31	587.38	0.0000	0.00
46	609.32	609.37	0.0000	0.00
47	613.42	613.47	0.0000	0.00
48	620.52	620.56	0.0000	0.00
49	665.80	665.79	0.0000	0.00
50	677.88	677.86	0.0000	0.00
51	703.00	702.95	0.0000	0.00
52	727.38	727.31	0.0000	0.00
53	752.46	752.37	0.0000	0.00
54	755.40	755.30	0.0000	0.00
55	763.75	763.64	0.0000	0.00
56	768.39	768.28	0.0000	0.00
57	772.26	772.15	0.0000	0.00
58	782.23	782.10	0.0000	0.00
59	785.80	785.67	0.0000	0.00
60	794.99	794.86	0.0000	0.00
61	806.20	806.05	0.0000	0.00
62	830.78	830.61	0.0000	0.00
63	835.88	835.70	0.0000	0.00
64	840.26	840.08	0.0000	0.00
65	860.84	860.64	0.0000	0.00
66	893.24	893.00	0.0000	0.00
67	904.35	904.11	0.0000	0.00
68	911.40	911.15	0.0000	0.00
69	915.59	915.34	0.0000	0.00
70	934.25	933.98	0.0000	0.00
71	958.50	958.20	0.0000	0.00
72	965.10	964.80	0.0000	0.00
73	969.20	968.89	0.0000	0.00
74	987.85	987.52	0.0000	0.00
75	1002.32	1001.98	0.0000	0.00
76	1033.33	1032.95	0.0000	0.00
77	1040.38	1040.00	0.0000	0.00
78	1052.00	1051.61	0.0000	0.00
79	1062.69	1062.29	0.0000	0.00
80	1065.22	1064.81	0.0000	0.00
81	1070.34	1069.93	0.0000	0.00
82	1078.90	1078.48	0.0000	0.00
83	1095.06	1094.62	0.0000	0.00
84	1111.23	1110.78	0.0000	0.00
85	1120.59	1120.13	0.0000	0.00
86	1155.19	1154.69	0.0000	0.00
87	1182.92	1182.40	0.0000	0.00
88	1207.68	1207.14	0.0000	0.00
89	1238.55	1237.97	0.0000	0.00
90	1247.25	1246.67	0.0000	0.00
91	1281.27	1280.65	0.0000	0.00
92	1377.78	1377.06	0.0000	0.00
93	1385.97	1385.25	0.0000	0.00
94	1402.02	1401.28	0.0000	0.00
95	1408.46	1407.71	0.0000	0.00
96	1460.02	1459.22	0.0000	0.00
97	1496.51	1495.68	0.0000	0.00

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1502.11	1501.27	0.0000	0.00
99	1509.84	1509.00	0.0000	0.00
100	1513.54	1512.70	0.0000	0.00
101	1538.72	1537.85	0.0000	0.00
102	1544.06	1543.18	0.0000	0.00
103	1557.72	1556.83	0.0000	0.00
104	1580.89	1579.98	0.0000	0.00
105	1584.38	1583.47	0.0000	0.00
106	1588.75	1587.83	0.0000	0.00
107	1593.12	1592.19	0.0000	0.00
108	1621.18	1620.22	0.0000	0.00
109	1625.73	1624.78	0.0000	0.00
110	1631.17	1630.21	0.0000	0.00
111	1638.82	1637.85	0.0000	0.00
112	1661.96	1660.97	0.0000	0.00
113	1667.21	1666.22	0.0000	0.00
114	1683.51	1682.49	0.0000	0.00
115	1693.50	1692.48	0.0000	0.00
116	1730.24	1729.18	0.0000	0.00
117	1765.27	1764.17	0.0000	0.00
118	1837.91	1836.74	0.0000	0.00
119	1848.33	1847.16	0.0000	0.00
120	1890.13	1888.92	0.0000	0.00
121	2104.53	2103.11	0.0000	0.00
122	2119.35	2117.92	0.0000	0.00
123	2176.86	2175.37	0.0000	0.00
124	2205.20	2203.69	0.0000	0.00
125	2448.39	2446.64	0.0000	0.00
126	2452.26	2450.51	0.0000	0.00
127	2615.46	2613.55	0.0000	0.00
128	2619.85	2617.93	0.0000	0.00
129	2844.83	2842.70	0.0000	0.00
130	2880.67	2878.51	0.0000	0.00
131	2909.28	2907.10	0.0000	0.00
132	2914.93	2912.74	0.0000	0.00
133	3073.63	3071.29	0.0000	0.00
134	3114.99	3112.61	0.0000	0.00
135	3126.25	3123.86	0.0000	0.00
136	3198.55	3196.10	0.0000	0.00
137	3377.73	3375.11	0.0000	0.00
138	3475.74	3473.03	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 8:00:14AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	34.31	31 -	43	34.94	3.40E+03	428.13	3.69E+04	1.73
m	2	39.07	31 -	43	39.70	2.08E+03	423.39	3.77E+04	1.75
	3	46.14	45 -	49	46.76	7.82E+02	438.09	4.23E+04	1.22
	4	56.99	56 -	60	57.60	7.19E+03	558.80	6.33E+04	1.86
	5	63.55	61 -	67	64.16	4.87E+03	762.05	1.03E+05	1.86
	6	75.81	71 -	81	76.40	7.43E+04	1270.98	1.76E+05	3.90
M	7	87.63	83 -	97	88.21	3.16E+04	1066.14	1.45E+05	3.93
m	8	92.89	83 -	97	93.46	1.82E+04	708.46	7.86E+04	1.93
	9	99.02	98 -	102	99.58	2.92E+03	534.01	6.06E+04	1.81
	10	104.99	103 -	108	105.55	2.49E+03	617.44	7.45E+04	1.83
	11	114.78	113 -	118	115.33	1.55E+03	603.53	7.14E+04	2.05
	12	128.88	126 -	133	129.42	6.45E+03	790.61	9.97E+04	1.96
	13	143.95	142 -	147	144.47	1.77E+03	599.93	7.04E+04	1.52
	14	153.77	152 -	157	154.28	2.34E+03	592.46	6.80E+04	1.77
	15	185.65	182 -	190	186.13	1.01E+04	786.91	8.90E+04	1.75
	16	199.71	198 -	202	200.17	5.23E+02	459.86	4.64E+04	4.23
	17	209.10	206 -	213	209.55	8.61E+03	679.80	7.09E+04	1.96
	18	216.24	215 -	219	216.69	7.21E+02	431.45	4.06E+04	1.68
M	19	238.43	233 -	250	238.85	1.05E+05	754.29	3.42E+04	1.72
m	20	241.37	233 -	250	241.80	2.26E+04	859.44	4.25E+04	2.43
	21	257.51	256 -	261	257.92	5.78E+02	403.20	3.19E+04	4.59
M	22	270.02	266 -	281	270.42	8.52E+03	427.29	2.98E+04	1.88
m	23	277.21	266 -	281	277.60	4.20E+03	358.08	2.43E+04	1.72
M	24	287.06	285 -	304	287.43	9.29E+02	321.81	2.28E+04	2.28
m	25	295.06	285 -	304	295.43	1.95E+04	420.66	2.20E+04	1.64
m	26	299.89	285 -	304	300.26	7.26E+03	355.23	2.14E+04	1.79
	27	313.28	312 -	316	313.63	3.29E+02	296.81	1.93E+04	4.26
M	28	322.39	318 -	345	322.73	9.51E+02	511.16	3.75E+04	3.34
m	29	327.86	318 -	345	328.19	5.60E+03	321.99	1.84E+04	1.83
m	30	332.37	318 -	345	332.70	1.35E+03	430.88	2.89E+04	2.55
m	31	338.18	318 -	345	338.50	2.10E+04	405.07	1.75E+04	1.68
M	32	351.76	347 -	359	352.07	3.47E+04	459.39	1.58E+04	1.68
m	33	355.89	347 -	359	356.20	1.28E+03	400.79	2.14E+04	2.37
	34	388.25	386 -	392	388.52	5.75E+02	339.80	2.05E+04	3.93
	35	409.37	406 -	412	409.62	2.53E+03	346.08	1.98E+04	1.87
	36	427.14	425 -	430	427.37	2.78E+02	271.81	1.45E+04	2.84
	37	453.16	450 -	456	453.36	7.19E+02	293.24	1.51E+04	1.51
	38	462.92	459 -	467	463.12	6.05E+03	383.44	1.89E+04	1.65
	39	478.86	477 -	482	479.04	5.00E+02	247.01	1.18E+04	3.35
	40	487.27	485 -	490	487.45	2.06E+02	241.81	1.15E+04	1.33

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	510.68	506 -	516	510.83	1.14E+04	454.25	2.14E+04	1.85
	42	534.13	532 -	537	534.26	3.41E+02	226.88	1.00E+04	2.10
	43	562.46	560 -	565	562.56	8.35E+02	232.81	1.02E+04	1.93
M	44	583.18	577 -	591	583.26	3.40E+04	415.24	7.90E+03	1.79
m	45	587.31	577 -	591	587.38	1.39E+03	339.97	1.06E+04	2.48
M	46	609.32	603 -	617	609.37	2.67E+04	372.15	6.98E+03	1.82
m	47	613.42	603 -	617	613.47	8.81E+02	321.59	9.41E+03	2.49
	48	620.52	618 -	624	620.56	2.20E+02	229.36	9.41E+03	2.59
	49	665.80	662 -	669	665.79	7.59E+02	263.48	1.10E+04	2.04
	50	677.88	676 -	681	677.86	1.66E+02	202.17	8.02E+03	3.07
	51	703.00	700 -	706	702.95	4.64E+02	233.42	9.53E+03	3.04
	52	727.38	721 -	730	727.31	6.98E+03	346.04	1.31E+04	2.03
M	53	752.46	751 -	759	752.37	1.01E+02	107.61	3.23E+03	1.57
m	54	755.40	751 -	759	755.30	9.35E+02	167.25	5.34E+03	1.79
M	55	763.75	760 -	778	763.64	6.97E+02	230.51	8.29E+03	2.58
m	56	768.39	760 -	778	768.28	2.35E+03	201.16	6.04E+03	1.95
m	57	772.26	760 -	778	772.15	1.62E+03	247.54	7.79E+03	2.59
M	58	782.23	780 -	790	782.10	4.55E+02	103.17	2.74E+03	1.78
m	59	785.80	780 -	790	785.67	1.60E+03	182.46	5.24E+03	1.96
	60	794.99	791 -	799	794.86	3.84E+03	258.50	7.94E+03	1.77
	61	806.20	803 -	809	806.05	5.60E+02	175.95	5.21E+03	1.39
M	62	830.78	826 -	843	830.61	4.94E+02	136.38	3.83E+03	1.83
m	63	835.88	826 -	843	835.70	1.68E+03	186.50	5.12E+03	2.27
m	64	840.26	826 -	843	840.08	1.14E+03	181.36	4.85E+03	2.28
	65	860.84	856 -	866	860.64	4.26E+03	263.51	6.99E+03	2.15
	66	893.24	889 -	896	893.00	3.95E+02	174.22	4.79E+03	2.72
M	67	904.35	898 -	919	904.11	7.35E+02	158.37	4.28E+03	2.40
m	68	911.40	898 -	919	911.15	2.40E+04	337.01	3.37E+03	1.97
m	69	915.59	898 -	919	915.34	1.01E+03	327.36	4.11E+03	2.66
	70	934.25	930 -	938	933.98	1.32E+03	188.39	4.64E+03	1.97
M	71	958.50	955 -	977	958.20	2.30E+02	139.23	3.47E+03	2.22
m	72	965.10	955 -	977	964.80	4.54E+03	197.05	3.40E+03	2.22
m	73	969.20	955 -	977	968.89	1.39E+04	271.29	2.76E+03	1.94
	74	987.85	985 -	991	987.52	1.55E+02	128.52	2.91E+03	3.35
	75	1002.32	997 -	1007	1001.98	6.78E+02	191.39	4.50E+03	2.17
	76	1033.33	1030 -	1036	1032.95	2.34E+02	124.11	2.63E+03	2.07
	77	1040.38	1037 -	1043	1040.00	1.88E+02	119.75	2.46E+03	3.45
	78	1052.00	1049 -	1054	1051.61	1.41E+02	108.55	2.25E+03	1.70
M	79	1062.69	1061 -	1068	1062.29	4.76E+01	49.80	7.47E+02	1.36
m	80	1065.22	1061 -	1068	1064.81	2.47E+02	126.82	2.74E+03	2.21
	81	1070.34	1068 -	1072	1069.93	1.28E+02	93.20	1.81E+03	2.47
	82	1078.90	1074 -	1083	1078.48	4.27E+02	165.88	3.67E+03	2.47
	83	1095.06	1090 -	1099	1094.62	5.63E+02	159.34	3.29E+03	2.88
	84	1111.23	1107 -	1114	1110.78	3.01E+02	134.16	2.79E+03	2.31
	85	1120.59	1115 -	1125	1120.13	5.96E+03	236.37	4.30E+03	2.03
	86	1155.19	1149 -	1159	1154.69	8.85E+02	169.63	3.36E+03	2.82
	87	1182.92	1180 -	1185	1182.40	1.03E+02	94.99	1.72E+03	2.29
	88	1207.68	1201 -	1211	1207.14	2.94E+02	161.38	3.31E+03	2.44
	89	1238.55	1233 -	1243	1237.97	1.94E+03	193.95	4.00E+03	2.08
	90	1247.25	1243 -	1251	1246.67	2.88E+02	150.76	3.31E+03	2.94
	91	1281.27	1276 -	1285	1280.65	4.79E+02	153.35	3.09E+03	2.18
	92	1377.78	1371 -	1383	1377.06	1.51E+03	201.72	4.09E+03	2.22
	93	1385.97	1383 -	1390	1385.25	2.09E+02	122.28	2.35E+03	2.04

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	94	1402.02	1397	1412	1401.28	5.68E+02	120.60	2.12E+03	2.61
m	95	1408.46	1397	1412	1407.71	8.74E+02	125.97	1.97E+03	2.63
	96	1460.02	1454	1464	1459.22	7.08E+02	152.83	2.73E+03	2.78
M	97	1496.51	1490	1516	1495.68	5.66E+02	107.10	1.74E+03	2.43
m	98	1502.11	1490	1516	1501.27	3.37E+02	124.44	2.15E+03	2.93
m	99	1509.84	1490	1516	1509.00	7.69E+02	109.84	1.59E+03	2.50
m	100	1513.54	1490	1516	1512.70	2.48E+02	93.70	1.30E+03	1.92
	101	1538.72	1535	1541	1537.85	1.15E+02	97.00	1.63E+03	2.57
	102	1544.06	1541	1547	1543.18	1.03E+02	95.52	1.59E+03	1.19
	103	1557.72	1553	1561	1556.83	9.43E+01	111.13	1.84E+03	1.89
M	104	1580.89	1575	1602	1579.98	4.74E+02	103.77	1.41E+03	2.69
m	105	1584.38	1575	1602	1583.47	2.35E+02	107.68	1.41E+03	2.69
m	106	1588.75	1575	1602	1587.83	2.09E+03	129.35	1.22E+03	2.18
m	107	1593.12	1575	1602	1592.19	1.51E+03	134.53	1.21E+03	2.48
M	108	1621.18	1616	1642	1620.22	9.84E+02	103.58	1.15E+03	2.46
m	109	1625.73	1616	1642	1624.78	2.14E+02	96.21	1.17E+03	2.46
m	110	1631.17	1616	1642	1630.21	1.09E+03	104.60	1.20E+03	2.38
m	111	1638.82	1616	1642	1637.85	3.36E+02	89.20	1.22E+03	2.46
	112	1661.96	1658	1664	1660.97	2.37E+02	88.09	1.24E+03	1.73
	113	1667.21	1664	1670	1666.22	1.04E+02	83.24	1.17E+03	2.14
	114	1683.51	1674	1688	1682.49	2.53E+02	148.90	2.23E+03	7.98
	115	1693.50	1689	1697	1692.48	1.84E+02	96.80	1.33E+03	3.85
	116	1730.24	1725	1734	1729.18	1.05E+03	120.46	1.48E+03	2.44
	117	1765.27	1757	1770	1764.17	4.87E+03	200.24	2.29E+03	2.39
	118	1837.91	1832	1841	1836.74	9.15E+01	107.46	1.60E+03	1.51
	119	1848.33	1843	1852	1847.16	6.05E+02	115.13	1.54E+03	2.18
	120	1890.13	1886	1892	1888.92	6.60E+01	76.71	1.02E+03	2.89
	121	2104.53	2098	2111	2103.11	2.10E+03	161.60	1.96E+03	3.38
	122	2119.35	2113	2124	2117.92	3.87E+02	121.29	1.65E+03	2.97
	123	2176.86	2172	2179	2175.37	9.70E+01	83.67	1.11E+03	3.39
	124	2205.20	2199	2210	2203.69	1.32E+03	147.93	2.07E+03	2.55
M	125	2448.39	2440	2453	2446.64	3.80E+02	78.98	8.62E+02	2.49
m	126	2452.26	2440	2453	2450.51	5.81E+01	74.34	7.48E+02	2.29
M	127	2615.46	2608	2627	2613.55	1.43E+04	241.04	3.36E+02	2.92
m	128	2619.85	2608	2627	2617.93	4.54E+02	176.35	2.35E+02	2.89
	129	2844.83	2836	2850	2842.70	6.06E+01	38.11	1.27E+02	6.06
	130	2880.67	2875	2882	2878.51	3.34E+01	23.32	6.91E+01	4.77
	131	2909.28	2905	2909	2907.10	1.48E+01	16.02	4.23E+01	1.20
	132	2914.93	2910	2916	2912.74	1.74E+01	20.99	6.93E+01	3.91
	133	3073.63	3059	3086	3071.29	3.59E+01	38.47	8.02E+01	24.42
	134	3114.99	3107	3117	3112.61	1.30E+01	13.22	1.60E+01	4.78
	135	3126.25	3118	3129	3123.86	7.69E+01	21.26	1.81E+01	2.93
	136	3198.55	3189	3204	3196.10	2.94E+02	41.67	5.51E+01	3.09
	137	3377.73	3371	3377	3375.11	6.56E+00	6.65	2.88E+00	1.39
	138	3475.74	3468	3476	3473.03	3.20E+01	11.31	0.00E+00	3.95

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

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 : 8/14/2017 8:00:14AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	34.31	31 -	43	3.40E+03	428.13	3.69E+04	3.16E+02
m	2	39.07	31 -	43	2.08E+03	423.39	3.77E+04	3.19E+02
	3	46.14	45 -	49	7.82E+02	438.09	4.23E+04	3.57E+02
	4	56.99	56 -	60	7.19E+03	558.80	6.33E+04	4.38E+02
	5	63.55	61 -	67	4.87E+03	762.05	1.03E+05	6.16E+02
	6	75.81	71 -	81	7.43E+04	1270.98	1.76E+05	9.44E+02
M	7	87.63	83 -	97	3.16E+04	1066.14	1.45E+05	6.27E+02
m	8	92.89	83 -	97	1.82E+04	708.46	7.86E+04	4.61E+02
	9	99.02	98 -	102	2.92E+03	534.01	6.06E+04	4.30E+02
	10	104.99	103 -	108	2.49E+03	617.44	7.45E+04	5.01E+02
	11	114.78	113 -	118	1.55E+03	603.53	7.14E+04	4.92E+02
	12	128.88	126 -	133	6.45E+03	790.61	9.97E+04	6.36E+02
	13	143.95	142 -	147	1.77E+03	599.93	7.04E+04	4.88E+02
	14	153.77	152 -	157	2.34E+03	592.46	6.80E+04	4.80E+02
	15	185.65	182 -	190	1.01E+04	786.91	8.90E+04	6.25E+02
	16	199.71	198 -	202	5.23E+02	459.86	4.64E+04	3.76E+02
	17	209.10	206 -	213	8.61E+03	679.80	7.09E+04	5.38E+02
	18	216.24	215 -	219	7.21E+02	431.45	4.06E+04	3.52E+02
M	19	238.43	233 -	250	1.05E+05	754.29	3.42E+04	3.04E+02
m	20	241.37	233 -	250	2.26E+04	859.44	4.25E+04	3.39E+02
	21	257.51	256 -	261	5.78E+02	403.20	3.19E+04	3.29E+02
M	22	270.02	266 -	281	8.52E+03	427.29	2.98E+04	2.84E+02
m	23	277.21	266 -	281	4.20E+03	358.08	2.43E+04	2.56E+02
M	24	287.06	285 -	304	9.29E+02	321.81	2.28E+04	2.48E+02
m	25	295.06	285 -	304	1.95E+04	420.66	2.20E+04	2.44E+02
m	26	299.89	285 -	304	7.26E+03	355.23	2.14E+04	2.40E+02
	27	313.28	312 -	316	3.29E+02	296.81	1.93E+04	2.42E+02
M	28	322.39	318 -	345	9.51E+02	511.16	3.75E+04	3.18E+02
m	29	327.86	318 -	345	5.60E+03	321.99	1.84E+04	2.23E+02
m	30	332.37	318 -	345	1.35E+03	430.88	2.89E+04	2.79E+02
m	31	338.18	318 -	345	2.10E+04	405.07	1.75E+04	2.17E+02

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	32	351.76	347 -	359	3.47E+04	459.39	1.58E+04	2.07E+02
m	33	355.89	347 -	359	1.28E+03	400.79	2.14E+04	2.41E+02
	34	388.25	386 -	392	5.75E+02	339.80	2.05E+04	2.77E+02
	35	409.37	406 -	412	2.53E+03	346.08	1.98E+04	2.72E+02
	36	427.14	425 -	430	2.78E+02	271.81	1.45E+04	2.22E+02
	37	453.16	450 -	456	7.19E+02	293.24	1.51E+04	2.37E+02
	38	462.92	459 -	467	6.05E+03	383.44	1.89E+04	2.88E+02
	39	478.86	477 -	482	5.00E+02	247.01	1.18E+04	2.00E+02
	40	487.27	485 -	490	2.06E+02	241.81	1.15E+04	1.97E+02
	41	510.68	506 -	516	1.14E+04	454.25	2.14E+04	3.30E+02
	42	534.13	532 -	537	3.41E+02	226.88	1.00E+04	1.84E+02
	43	562.46	560 -	565	8.35E+02	232.81	1.02E+04	1.85E+02
M	44	583.18	577 -	591	3.40E+04	415.24	7.90E+03	1.46E+02
m	45	587.31	577 -	591	1.39E+03	339.97	1.06E+04	1.69E+02
M	46	609.32	603 -	617	2.67E+04	372.15	6.98E+03	1.37E+02
m	47	613.42	603 -	617	8.81E+02	321.59	9.41E+03	1.59E+02
	48	620.52	618 -	624	2.20E+02	229.36	9.41E+03	1.87E+02
	49	665.80	662 -	669	7.59E+02	263.48	1.10E+04	2.12E+02
	50	677.88	676 -	681	1.66E+02	202.17	8.02E+03	1.65E+02
	51	703.00	700 -	706	4.64E+02	233.42	9.53E+03	1.89E+02
	52	727.38	721 -	730	6.98E+03	346.04	1.31E+04	2.49E+02
M	53	752.46	751 -	759	1.01E+02	107.61	3.23E+03	9.34E+01
m	54	755.40	751 -	759	9.35E+02	167.25	5.34E+03	1.20E+02
M	55	763.75	760 -	778	6.97E+02	230.51	8.29E+03	1.50E+02
m	56	768.39	760 -	778	2.35E+03	201.16	6.04E+03	1.28E+02
m	57	772.26	760 -	778	1.62E+03	247.54	7.79E+03	1.45E+02
M	58	782.23	780 -	790	4.55E+02	103.17	2.74E+03	8.60E+01
m	59	785.80	780 -	790	1.60E+03	182.46	5.24E+03	1.19E+02
	60	794.99	791 -	799	3.84E+03	258.50	7.94E+03	1.86E+02
	61	806.20	803 -	809	5.60E+02	175.95	5.21E+03	1.39E+02
M	62	830.78	826 -	843	4.94E+02	136.38	3.83E+03	1.02E+02
m	63	835.88	826 -	843	1.68E+03	186.50	5.12E+03	1.18E+02
m	64	840.26	826 -	843	1.14E+03	181.36	4.85E+03	1.14E+02
	65	860.84	856 -	866	4.26E+03	263.51	6.99E+03	1.88E+02
	66	893.24	889 -	896	3.95E+02	174.22	4.79E+03	1.39E+02
M	67	904.35	898 -	919	7.35E+02	158.37	4.28E+03	1.08E+02
m	68	911.40	898 -	919	2.40E+04	337.01	3.37E+03	9.54E+01
m	69	915.59	898 -	919	1.01E+03	327.36	4.11E+03	1.05E+02
	70	934.25	930 -	938	1.32E+03	188.39	4.64E+03	1.43E+02
M	71	958.50	955 -	977	2.30E+02	139.23	3.47E+03	9.68E+01
m	72	965.10	955 -	977	4.54E+03	197.05	3.40E+03	9.59E+01
m	73	969.20	955 -	977	1.39E+04	271.29	2.76E+03	8.63E+01
	74	987.85	985 -	991	1.55E+02	128.52	2.91E+03	1.04E+02
	75	1002.32	997 -	1007	6.78E+02	191.39	4.50E+03	1.51E+02
	76	1033.33	1030 -	1036	2.34E+02	124.11	2.63E+03	9.89E+01
	77	1040.38	1037 -	1043	1.88E+02	119.75	2.46E+03	9.58E+01
	78	1052.00	1049 -	1054	1.41E+02	108.55	2.25E+03	8.71E+01
M	79	1062.69	1061 -	1068	4.76E+01	49.80	7.47E+02	4.49E+01
m	80	1065.22	1061 -	1068	2.47E+02	126.82	2.74E+03	8.61E+01
	81	1070.34	1068 -	1072	1.28E+02	93.20	1.81E+03	7.43E+01
	82	1078.90	1074 -	1083	4.27E+02	165.88	3.67E+03	1.32E+02

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	83	1095.06	1090 -	1099	5.63E+02	159.34	3.29E+03	1.25E+02
	84	1111.23	1107 -	1114	3.01E+02	134.16	2.79E+03	1.07E+02
	85	1120.59	1115 -	1125	5.96E+03	236.37	4.30E+03	1.47E+02
	86	1155.19	1149 -	1159	8.85E+02	169.63	3.36E+03	1.31E+02
	87	1182.92	1180 -	1185	1.03E+02	94.99	1.72E+03	7.63E+01
	88	1207.68	1201 -	1211	2.94E+02	161.38	3.31E+03	1.30E+02
	89	1238.55	1233 -	1243	1.94E+03	193.95	4.00E+03	1.42E+02
	90	1247.25	1243 -	1251	2.88E+02	150.76	3.31E+03	1.21E+02
	91	1281.27	1276 -	1285	4.79E+02	153.35	3.09E+03	1.21E+02
	92	1377.78	1371 -	1383	1.51E+03	201.72	4.09E+03	1.53E+02
	93	1385.97	1383 -	1390	2.09E+02	122.28	2.35E+03	9.77E+01
M	94	1402.02	1397 -	1412	5.68E+02	120.60	2.12E+03	7.58E+01
m	95	1408.46	1397 -	1412	8.74E+02	125.97	1.97E+03	7.31E+01
	96	1460.02	1454 -	1464	7.08E+02	152.83	2.73E+03	1.18E+02
M	97	1496.51	1490 -	1516	5.66E+02	107.10	1.74E+03	6.86E+01
m	98	1502.11	1490 -	1516	3.37E+02	124.44	2.15E+03	7.62E+01
m	99	1509.84	1490 -	1516	7.69E+02	109.84	1.59E+03	6.55E+01
m	100	1513.54	1490 -	1516	2.48E+02	93.70	1.30E+03	5.94E+01
	101	1538.72	1535 -	1541	1.15E+02	97.00	1.63E+03	7.78E+01
	102	1544.06	1541 -	1547	1.03E+02	95.52	1.59E+03	7.67E+01
	103	1557.72	1553 -	1561	9.43E+01	111.13	1.84E+03	8.99E+01
M	104	1580.89	1575 -	1602	4.74E+02	103.77	1.41E+03	6.18E+01
m	105	1584.38	1575 -	1602	2.35E+02	107.68	1.41E+03	6.17E+01
m	106	1588.75	1575 -	1602	2.09E+03	129.35	1.22E+03	5.75E+01
m	107	1593.12	1575 -	1602	1.51E+03	134.53	1.21E+03	5.73E+01
M	108	1621.18	1616 -	1642	9.84E+02	103.58	1.15E+03	5.58E+01
m	109	1625.73	1616 -	1642	2.14E+02	96.21	1.17E+03	5.63E+01
m	110	1631.17	1616 -	1642	1.09E+03	104.60	1.20E+03	5.68E+01
m	111	1638.82	1616 -	1642	3.36E+02	89.20	1.22E+03	5.74E+01
	112	1661.96	1658 -	1664	2.37E+02	88.09	1.24E+03	6.78E+01
	113	1667.21	1664 -	1670	1.04E+02	83.24	1.17E+03	6.63E+01
	114	1683.51	1674 -	1688	2.53E+02	148.90	2.23E+03	1.20E+02
	115	1693.50	1689 -	1697	1.84E+02	96.80	1.33E+03	7.64E+01
	116	1730.24	1725 -	1734	1.05E+03	120.46	1.48E+03	8.35E+01
	117	1765.27	1757 -	1770	4.87E+03	200.24	2.29E+03	1.18E+02
	118	1837.91	1832 -	1841	9.15E+01	107.46	1.60E+03	8.69E+01
	119	1848.33	1843 -	1852	6.05E+02	115.13	1.54E+03	8.56E+01
	120	1890.13	1886 -	1892	6.60E+01	76.71	1.02E+03	6.16E+01
	121	2104.53	2098 -	2111	2.10E+03	161.60	1.96E+03	1.09E+02
	122	2119.35	2113 -	2124	3.87E+02	121.29	1.65E+03	3.30E+01
	123	2176.86	2172 -	2179	9.70E+01	83.67	1.11E+03	6.68E+01
	124	2205.20	2199 -	2210	1.32E+03	147.93	2.07E+03	1.06E+02
M	125	2448.39	2440 -	2453	3.80E+02	78.98	8.62E+02	4.83E+01
m	126	2452.26	2440 -	2453	5.81E+01	74.34	7.48E+02	4.50E+01
M	127	2615.46	2608 -	2627	1.43E+04	241.04	3.36E+02	3.01E+01
m	128	2619.85	2608 -	2627	4.54E+02	176.35	2.35E+02	2.52E+01
	129	2844.83	2836 -	2850	6.06E+01	38.11	1.27E+02	2.86E+01
	130	2880.67	2875 -	2882	3.34E+01	23.32	6.91E+01	1.66E+01
	131	2909.28	2905 -	2909	1.48E+01	16.02	4.23E+01	1.15E+01
	132	2914.93	2910 -	2916	1.74E+01	20.99	6.93E+01	1.58E+01
	133	3073.63	3059 -	3086	3.59E+01	38.47	8.02E+01	3.01E+01

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
134	3114.99	3107 -	3117	1.30E+01	13.22	1.60E+01	9.11E+00
135	3126.25	3118 -	3129	7.69E+01	21.26	1.81E+01	9.87E+00
136	3198.55	3189 -	3204	2.94E+02	41.67	5.51E+01	1.94E+01
137	3377.73	3371 -	3377	6.56E+00	6.65	2.88E+00	3.49E+00
138	3475.74	3468 -	3476	3.20E+01	11.31	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 : 8/14/2017 8:00:14AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	34.31	31 -	43	34.94	3.40E+03	428.13	3.69E+04	I-129
m	2	39.07	31 -	43	39.70	2.08E+03	423.39	3.77E+04	I-129
									RA-225
	3	46.14	45 -	49	46.76	7.82E+02	438.09	4.23E+04	PB-210
	4	56.99	56 -	60	57.60	7.19E+03	558.80	6.33E+04	CE-143
	5	63.55	61 -	67	64.16	4.87E+03	762.05	1.03E+05	TH-234
									TH-230
	6	75.81	71 -	81	76.40	7.43E+04	1270.98	1.76E+05	.....
M	7	87.63	83 -	97	88.21	3.16E+04	1066.14	1.45E+05	SN-126
									CD-109
									LU-176
m	8	92.89	83 -	97	93.46	1.82E+04	708.46	7.86E+04	GA-67
	9	99.02	98 -	102	99.58	2.92E+03	534.01	6.06E+04	.....
	10	104.99	103 -	108	105.55	2.49E+03	617.44	7.45E+04	EU-155
	11	114.78	113 -	118	115.33	1.55E+03	603.53	7.14E+04	.....
	12	128.88	126 -	133	129.42	6.45E+03	790.61	9.97E+04	.....
	13	143.95	142 -	147	144.47	1.77E+03	599.93	7.04E+04	U-235
	14	153.77	152 -	157	154.28	2.34E+03	592.46	6.80E+04	CS-136
	15	185.65	182 -	190	186.13	1.01E+04	786.91	8.90E+04	RA-226
	16	199.71	198 -	202	200.17	5.23E+02	459.86	4.64E+04	.....
	17	209.10	206 -	213	209.55	8.61E+03	679.80	7.09E+04	GA-67

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CM-243
	18	216.24	215 -	219	216.69	7.21E+02	431.45	4.06E+04	.....
M	19	238.43	233 -	250	238.85	1.05E+05	754.29	3.42E+04	PB-212
m	20	241.37	233 -	250	241.80	2.26E+04	859.44	4.25E+04	RA-224
	21	257.51	256 -	261	257.92	5.78E+02	403.20	3.19E+04	.....
M	22	270.02	266 -	281	270.42	8.52E+03	427.29	2.98E+04	.....
m	23	277.21	266 -	281	277.60	4.20E+03	358.08	2.43E+04	CM-243
									NP-239
M	24	287.06	285 -	304	287.43	9.29E+02	321.81	2.28E+04	.....
m	25	295.06	285 -	304	295.43	1.95E+04	420.66	2.20E+04	PB-214
m	26	299.89	285 -	304	300.26	7.26E+03	355.23	2.14E+04	BI-210M
									PB-212
									GA-67
	27	313.28	312 -	316	313.63	3.29E+02	296.81	1.93E+04	.....
M	28	322.39	318 -	345	322.73	9.51E+02	511.16	3.75E+04	.....
m	29	327.86	318 -	345	328.19	5.60E+03	321.99	1.84E+04	LA-140
m	30	332.37	318 -	345	332.70	1.35E+03	430.88	2.89E+04	.....
m	31	338.18	318 -	345	338.50	2.10E+04	405.07	1.75E+04	AC-228
M	32	351.76	347 -	359	352.07	3.47E+04	459.39	1.58E+04	PB-214
m	33	355.89	347 -	359	356.20	1.28E+03	400.79	2.14E+04	BA-133
	34	388.25	386 -	392	388.52	5.75E+02	339.80	2.05E+04	.....
	35	409.37	406 -	412	409.62	2.53E+03	346.08	1.98E+04	.....
	36	427.14	425 -	430	427.37	2.78E+02	271.81	1.45E+04	SB-125
	37	453.16	450 -	456	453.36	7.19E+02	293.24	1.51E+04	PM-146
	38	462.92	459 -	467	463.12	6.05E+03	383.44	1.89E+04	SB-125
	39	478.86	477 -	482	479.04	5.00E+02	247.01	1.18E+04	.....
	40	487.27	485 -	490	487.45	2.06E+02	241.81	1.15E+04	LA-140
	41	510.68	506 -	516	510.83	1.14E+04	454.25	2.14E+04	.....
	42	534.13	532 -	537	534.26	3.41E+02	226.88	1.00E+04	.....
	43	562.46	560 -	565	562.56	8.35E+02	232.81	1.02E+04	CS-134
M	44	583.18	577 -	591	583.26	3.40E+04	415.24	7.90E+03	TL-208
m	45	587.31	577 -	591	587.38	1.39E+03	339.97	1.06E+04	.....
M	46	609.32	603 -	617	609.37	2.67E+04	372.15	6.98E+03	BI-214
m	47	613.42	603 -	617	613.47	8.81E+02	321.59	9.41E+03	AG-108M
	48	620.52	618 -	624	620.56	2.20E+02	229.36	9.41E+03	.....
	49	665.80	662 -	669	665.79	7.59E+02	263.48	1.10E+04	SB-126
	50	677.88	676 -	681	677.86	1.66E+02	202.17	8.02E+03	AG-110M
	51	703.00	700 -	706	702.95	4.64E+02	233.42	9.53E+03	NB-94
	52	727.38	721 -	730	727.31	6.98E+03	346.04	1.31E+04	BI-212
M	53	752.46	751 -	759	752.37	1.01E+02	107.61	3.23E+03	.....
m	54	755.40	751 -	759	755.30	9.35E+02	167.25	5.34E+03	.....
M	55	763.75	760 -	778	763.64	6.97E+02	230.51	8.29E+03	AG-110M
m	56	768.39	760 -	778	768.28	2.35E+03	201.16	6.04E+03	.....
m	57	772.26	760 -	778	772.15	1.62E+03	247.54	7.79E+03	.....
M	58	782.23	780 -	790	782.10	4.55E+02	103.17	2.74E+03	.....
m	59	785.80	780 -	790	785.67	1.60E+03	182.46	5.24E+03	.....
	60	794.99	791 -	799	794.86	3.84E+03	258.50	7.94E+03	CS-134
	61	806.20	803 -	809	806.05	5.60E+02	175.95	5.21E+03	.....
M	62	830.78	826 -	843	830.61	4.94E+02	136.38	3.83E+03	.....
m	63	835.88	826 -	843	835.70	1.68E+03	186.50	5.12E+03	.....
m	64	840.26	826 -	843	840.08	1.14E+03	181.36	4.85E+03	.....
	65	860.84	856 -	866	860.64	4.26E+03	263.51	6.99E+03	TL-208
	66	893.24	889 -	896	893.00	3.95E+02	174.22	4.79E+03	.....
M	67	904.35	898 -	919	904.11	7.35E+02	158.37	4.28E+03	.....

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	68	911.40	898 -	919	911.15	2.40E+04	337.01	3.37E+03	AC-228 TL-204
m	69	915.59	898 -	919	915.34	1.01E+03	327.36	4.11E+03	.....
	70	934.25	930 -	938	933.98	1.32E+03	188.39	4.64E+03	.....
M	71	958.50	955 -	977	958.20	2.30E+02	139.23	3.47E+03	.....
m	72	965.10	955 -	977	964.80	4.54E+03	197.05	3.40E+03	.....
m	73	969.20	955 -	977	968.89	1.39E+04	271.29	2.76E+03	AC-228
	74	987.85	985 -	991	987.52	1.55E+02	128.52	2.91E+03	.....
	75	1002.32	997 -	1007	1001.98	6.78E+02	191.39	4.50E+03	.....
	76	1033.33	1030 -	1036	1032.95	2.34E+02	124.11	2.63E+03	.....
	77	1040.38	1037 -	1043	1040.00	1.88E+02	119.75	2.46E+03	.....
	78	1052.00	1049 -	1054	1051.61	1.41E+02	108.55	2.25E+03	.....
M	79	1062.69	1061 -	1068	1062.29	4.76E+01	49.80	7.47E+02	BI-207
m	80	1065.22	1061 -	1068	1064.81	2.47E+02	126.82	2.74E+03	.....
	81	1070.34	1068 -	1072	1069.93	1.28E+02	93.20	1.81E+03	.....
	82	1078.90	1074 -	1083	1078.48	4.27E+02	165.88	3.67E+03	.....
	83	1095.06	1090 -	1099	1094.62	5.63E+02	159.34	3.29E+03	.....
	84	1111.23	1107 -	1114	1110.78	3.01E+02	134.16	2.79E+03	EU-152
	85	1120.59	1115 -	1125	1120.13	5.96E+03	236.37	4.30E+03	SC-46 BI-214 TA-182
	86	1155.19	1149 -	1159	1154.69	8.85E+02	169.63	3.36E+03	.....
	87	1182.92	1180 -	1185	1182.40	1.03E+02	94.99	1.72E+03	.....
	88	1207.68	1201 -	1211	1207.14	2.94E+02	161.38	3.31E+03	.....
	89	1238.55	1233 -	1243	1237.97	1.94E+03	193.95	4.00E+03	CO-56
	90	1247.25	1243 -	1251	1246.67	2.88E+02	150.76	3.31E+03	.....
	91	1281.27	1276 -	1285	1280.65	4.79E+02	153.35	3.09E+03	.....
	92	1377.78	1371 -	1383	1377.06	1.51E+03	201.72	4.09E+03	.....
	93	1385.97	1383 -	1390	1385.25	2.09E+02	122.28	2.35E+03	.....
M	94	1402.02	1397 -	1412	1401.28	5.68E+02	120.60	2.12E+03	.....
m	95	1408.46	1397 -	1412	1407.71	8.74E+02	125.97	1.97E+03	EU-152
	96	1460.02	1454 -	1464	1459.22	7.08E+02	152.83	2.73E+03	K-40
M	97	1496.51	1490 -	1516	1495.68	5.66E+02	107.10	1.74E+03	.....
m	98	1502.11	1490 -	1516	1501.27	3.37E+02	124.44	2.15E+03	.....
m	99	1509.84	1490 -	1516	1509.00	7.69E+02	109.84	1.59E+03	.....
m	100	1513.54	1490 -	1516	1512.70	2.48E+02	93.70	1.30E+03	.....
	101	1538.72	1535 -	1541	1537.85	1.15E+02	97.00	1.63E+03	.....
	102	1544.06	1541 -	1547	1543.18	1.03E+02	95.52	1.59E+03	.....
	103	1557.72	1553 -	1561	1556.83	9.43E+01	111.13	1.84E+03	.....
M	104	1580.89	1575 -	1602	1579.98	4.74E+02	103.77	1.41E+03	.....
m	105	1584.38	1575 -	1602	1583.47	2.35E+02	107.68	1.41E+03	.....
m	106	1588.75	1575 -	1602	1587.83	2.09E+03	129.35	1.22E+03	.....
m	107	1593.12	1575 -	1602	1592.19	1.51E+03	134.53	1.21E+03	.....
M	108	1621.18	1616 -	1642	1620.22	9.84E+02	103.58	1.15E+03	BI-212
m	109	1625.73	1616 -	1642	1624.78	2.14E+02	96.21	1.17E+03	.....
m	110	1631.17	1616 -	1642	1630.21	1.09E+03	104.60	1.20E+03	.....
m	111	1638.82	1616 -	1642	1637.85	3.36E+02	89.20	1.22E+03	.....
	112	1661.96	1658 -	1664	1660.97	2.37E+02	88.09	1.24E+03	.....
	113	1667.21	1664 -	1670	1666.22	1.04E+02	83.24	1.17E+03	.....
	114	1683.51	1674 -	1688	1682.49	2.53E+02	148.90	2.23E+03	.....
	115	1693.50	1689 -	1697	1692.48	1.84E+02	96.80	1.33E+03	.....
	116	1730.24	1725 -	1734	1729.18	1.05E+03	120.46	1.48E+03	.....
	117	1765.27	1757 -	1770	1764.17	4.87E+03	200.24	2.29E+03	BI-214
	118	1837.91	1832 -	1841	1836.74	9.15E+01	107.46	1.60E+03	.....

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	119	1848.33	1843 -	1852	1847.16	6.05E+02	115.13	1.54E+03	.....
	120	1890.13	1886 -	1892	1888.92	6.60E+01	76.71	1.02E+03	.....
	121	2104.53	2098 -	2111	2103.11	2.10E+03	161.60	1.96E+03	.....
	122	2119.35	2113 -	2124	2117.92	3.87E+02	121.29	1.65E+03	.....
	123	2176.86	2172 -	2179	2175.37	9.70E+01	83.67	1.11E+03	.....
	124	2205.20	2199 -	2210	2203.69	1.32E+03	147.93	2.07E+03	BI-214
M	125	2448.39	2440 -	2453	2446.64	3.80E+02	78.98	8.62E+02	.....
m	126	2452.26	2440 -	2453	2450.51	5.81E+01	74.34	7.48E+02	.....
M	127	2615.46	2608 -	2627	2613.55	1.43E+04	241.04	3.36E+02	TL-208
m	128	2619.85	2608 -	2627	2617.93	4.54E+02	176.35	2.35E+02	.....
	129	2844.83	2836 -	2850	2842.70	6.06E+01	38.11	1.27E+02	.....
	130	2880.67	2875 -	2882	2878.51	3.34E+01	23.32	6.91E+01	.....
	131	2909.28	2905 -	2909	2907.10	1.48E+01	16.02	4.23E+01	.....
	132	2914.93	2910 -	2916	2912.74	1.74E+01	20.99	6.93E+01	.....
	133	3073.63	3059 -	3086	3071.29	3.59E+01	38.47	8.02E+01	.....
	134	3114.99	3107 -	3117	3112.61	1.30E+01	13.22	1.60E+01	.....
	135	3126.25	3118 -	3129	3123.86	7.69E+01	21.26	1.81E+01	.....
	136	3198.55	3189 -	3204	3196.10	2.94E+02	41.67	5.51E+01	.....
	137	3377.73	3371 -	3377	3375.11	6.56E+00	6.65	2.88E+00	.....
	138	3475.74	3468 -	3476	3473.03	3.20E+01	11.31	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 : 8/14/2017 8:00:14AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	34.31	3.40E+03	428.13	2.09E-02	2.22E-03
m	2	39.07	2.08E+03	423.39	2.27E-02	2.22E-03
	3	46.14	7.82E+02	438.09	2.46E-02	2.22E-03
	4	56.99	7.19E+03	558.80	2.64E-02	2.22E-03
	5	63.55	4.87E+03	762.05	2.70E-02	2.26E-03
	6	75.81	7.43E+04	1270.98	2.75E-02	2.39E-03
M	7	87.63	3.16E+04	1066.14	2.74E-02	2.52E-03
m	8	92.89	1.82E+04	708.46	2.73E-02	2.44E-03
	9	99.02	2.92E+03	534.01	2.70E-02	2.34E-03
	10	104.99	2.49E+03	617.44	2.68E-02	2.25E-03

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	114.78	1.55E+03	603.53	2.62E-02	2.09E-03
	12	128.88	6.45E+03	790.61	2.54E-02	1.94E-03
	13	143.95	1.77E+03	599.93	2.44E-02	1.86E-03
	14	153.77	2.34E+03	592.46	2.37E-02	1.80E-03
	15	185.65	1.01E+04	786.91	2.17E-02	1.68E-03
	16	199.71	5.23E+02	459.86	2.09E-02	1.64E-03
	17	209.10	8.61E+03	679.80	2.04E-02	1.61E-03
	18	216.24	7.21E+02	431.45	2.00E-02	1.59E-03
M	19	238.43	1.05E+05	754.29	1.89E-02	1.53E-03
m	20	241.37	2.26E+04	859.44	1.87E-02	1.52E-03
	21	257.51	5.78E+02	403.20	1.80E-02	1.47E-03
M	22	270.02	8.52E+03	427.29	1.74E-02	1.43E-03
m	23	277.21	4.20E+03	358.08	1.71E-02	1.41E-03
M	24	287.06	9.29E+02	321.81	1.68E-02	1.39E-03
m	25	295.06	1.95E+04	420.66	1.64E-02	1.37E-03
m	26	299.89	7.26E+03	355.23	1.63E-02	1.36E-03
	27	313.28	3.29E+02	296.81	1.58E-02	1.33E-03
M	28	322.39	9.51E+02	511.16	1.55E-02	1.31E-03
m	29	327.86	5.60E+03	321.99	1.53E-02	1.29E-03
m	30	332.37	1.35E+03	430.88	1.51E-02	1.28E-03
m	31	338.18	2.10E+04	405.07	1.50E-02	1.27E-03
M	32	351.76	3.47E+04	459.39	1.45E-02	1.24E-03
m	33	355.89	1.28E+03	400.79	1.44E-02	1.23E-03
	34	388.25	5.75E+02	339.80	1.35E-02	1.15E-03
	35	409.37	2.53E+03	346.08	1.30E-02	1.13E-03
	36	427.14	2.78E+02	271.81	1.26E-02	1.12E-03
	37	453.16	7.19E+02	293.24	1.21E-02	1.11E-03
	38	462.92	6.05E+03	383.44	1.19E-02	1.10E-03
	39	478.86	5.00E+02	247.01	1.16E-02	1.09E-03
	40	487.27	2.06E+02	241.81	1.14E-02	1.08E-03
	41	510.68	1.14E+04	454.25	1.10E-02	1.07E-03
	42	534.13	3.41E+02	226.88	1.07E-02	1.05E-03
	43	562.46	8.35E+02	232.81	1.02E-02	1.04E-03
M	44	583.18	3.40E+04	415.24	9.96E-03	1.02E-03
m	45	587.31	1.39E+03	339.97	9.91E-03	1.02E-03
M	46	609.32	2.67E+04	372.15	9.63E-03	1.01E-03
m	47	613.42	8.81E+02	321.59	9.58E-03	1.00E-03
	48	620.52	2.20E+02	229.36	9.50E-03	9.98E-04
	49	665.80	7.59E+02	263.48	9.00E-03	9.65E-04
	50	677.88	1.66E+02	202.17	8.88E-03	9.46E-04
	51	703.00	4.64E+02	233.42	8.63E-03	9.06E-04
	52	727.38	6.98E+03	346.04	8.41E-03	8.68E-04
M	53	752.46	1.01E+02	107.61	8.19E-03	8.28E-04
m	54	755.40	9.35E+02	167.25	8.17E-03	8.23E-04
M	55	763.75	6.97E+02	230.51	8.10E-03	8.10E-04
m	56	768.39	2.35E+03	201.16	8.06E-03	8.02E-04
m	57	772.26	1.62E+03	247.54	8.03E-03	7.96E-04
M	58	782.23	4.55E+02	103.17	7.96E-03	7.80E-04
m	59	785.80	1.60E+03	182.46	7.93E-03	7.75E-04
	60	794.99	3.84E+03	258.50	7.86E-03	7.60E-04
	61	806.20	5.60E+02	175.95	7.77E-03	7.42E-04
M	62	830.78	4.94E+02	136.38	7.60E-03	7.03E-04
m	63	835.88	1.68E+03	186.50	7.56E-03	6.95E-04

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	64	840.26	1.14E+03	181.36	7.53E-03	6.88E-04
	65	860.84	4.26E+03	263.51	7.40E-03	6.56E-04
	66	893.24	3.95E+02	174.22	7.19E-03	6.04E-04
M	67	904.35	7.35E+02	158.37	7.13E-03	5.94E-04
m	68	911.40	2.40E+04	337.01	7.08E-03	5.91E-04
m	69	915.59	1.01E+03	327.36	7.06E-03	5.90E-04
	70	934.25	1.32E+03	188.39	6.95E-03	5.83E-04
M	71	958.50	2.30E+02	139.23	6.82E-03	5.73E-04
m	72	965.10	4.54E+03	197.05	6.79E-03	5.71E-04
m	73	969.20	1.39E+04	271.29	6.76E-03	5.69E-04
	74	987.85	1.55E+02	128.52	6.67E-03	5.62E-04
	75	1002.32	6.78E+02	191.39	6.60E-03	5.56E-04
	76	1033.33	2.34E+02	124.11	6.45E-03	5.45E-04
	77	1040.38	1.88E+02	119.75	6.42E-03	5.42E-04
	78	1052.00	1.41E+02	108.55	6.36E-03	5.37E-04
M	79	1062.69	4.76E+01	49.80	6.32E-03	5.33E-04
m	80	1065.22	2.47E+02	126.82	6.30E-03	5.32E-04
	81	1070.34	1.28E+02	93.20	6.28E-03	5.30E-04
	82	1078.90	4.27E+02	165.88	6.24E-03	5.27E-04
	83	1095.06	5.63E+02	159.34	6.18E-03	5.21E-04
	84	1111.23	3.01E+02	134.16	6.11E-03	5.15E-04
	85	1120.59	5.96E+03	236.37	6.07E-03	5.11E-04
	86	1155.19	8.85E+02	169.63	5.94E-03	4.98E-04
	87	1182.92	1.03E+02	94.99	5.83E-03	4.89E-04
	88	1207.68	2.94E+02	161.38	5.75E-03	4.83E-04
	89	1238.55	1.94E+03	193.95	5.64E-03	4.76E-04
	90	1247.25	2.88E+02	150.76	5.61E-03	4.74E-04
	91	1281.27	4.79E+02	153.35	5.50E-03	4.66E-04
	92	1377.78	1.51E+03	201.72	5.22E-03	4.44E-04
	93	1385.97	2.09E+02	122.28	5.20E-03	4.42E-04
M	94	1402.02	5.68E+02	120.60	5.16E-03	4.38E-04
m	95	1408.46	8.74E+02	125.97	5.14E-03	4.37E-04
	96	1460.02	7.08E+02	152.83	5.01E-03	4.25E-04
M	97	1496.51	5.66E+02	107.10	4.92E-03	4.16E-04
m	98	1502.11	3.37E+02	124.44	4.91E-03	4.15E-04
m	99	1509.84	7.69E+02	109.84	4.89E-03	4.13E-04
m	100	1513.54	2.48E+02	93.70	4.88E-03	4.13E-04
	101	1538.72	1.15E+02	97.00	4.82E-03	4.07E-04
	102	1544.06	1.03E+02	95.52	4.81E-03	4.05E-04
	103	1557.72	9.43E+01	111.13	4.78E-03	4.02E-04
M	104	1580.89	4.74E+02	103.77	4.73E-03	3.97E-04
m	105	1584.38	2.35E+02	107.68	4.72E-03	3.96E-04
m	106	1588.75	2.09E+03	129.35	4.71E-03	3.95E-04
m	107	1593.12	1.51E+03	134.53	4.70E-03	3.94E-04
M	108	1621.18	9.84E+02	103.58	4.65E-03	3.88E-04
m	109	1625.73	2.14E+02	96.21	4.64E-03	3.87E-04
m	110	1631.17	1.09E+03	104.60	4.63E-03	3.85E-04
m	111	1638.82	3.36E+02	89.20	4.61E-03	3.84E-04
	112	1661.96	2.37E+02	88.09	4.57E-03	3.78E-04
	113	1667.21	1.04E+02	83.24	4.55E-03	3.77E-04
	114	1683.51	2.53E+02	148.90	4.52E-03	3.73E-04
	115	1693.50	1.84E+02	96.80	4.50E-03	3.71E-04
	116	1730.24	1.05E+03	120.46	4.44E-03	3.62E-04

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	117	1765.27	4.87E+03	200.24	4.37E-03	3.54E-04
	118	1837.91	9.15E+01	107.46	4.25E-03	3.38E-04
	119	1848.33	6.05E+02	115.13	4.23E-03	3.38E-04
	120	1890.13	6.60E+01	76.71	4.17E-03	3.38E-04
	121	2104.53	2.10E+03	161.60	3.86E-03	3.38E-04
	122	2119.35	3.87E+02	121.29	3.84E-03	3.38E-04
	123	2176.86	9.70E+01	83.67	3.77E-03	3.38E-04
	124	2205.20	1.32E+03	147.93	3.74E-03	3.38E-04
M	125	2448.39	3.80E+02	78.98	3.47E-03	3.38E-04
m	126	2452.26	5.81E+01	74.34	3.46E-03	3.38E-04
M	127	2615.46	1.43E+04	241.04	3.31E-03	3.38E-04
m	128	2619.85	4.54E+02	176.35	3.30E-03	3.38E-04
	129	2844.83	6.06E+01	38.11	3.11E-03	3.38E-04
	130	2880.67	3.34E+01	23.32	3.08E-03	3.38E-04
	131	2909.28	1.48E+01	16.02	3.06E-03	3.38E-04
	132	2914.93	1.74E+01	20.99	3.05E-03	3.38E-04
	133	3073.63	3.59E+01	38.47	2.93E-03	3.38E-04
	134	3114.99	1.30E+01	13.22	2.90E-03	3.38E-04
	135	3126.25	7.69E+01	21.26	2.90E-03	3.38E-04
	136	3198.55	2.94E+02	41.67	2.85E-03	3.38E-04
	137	3377.73	6.56E+00	6.65	2.73E-03	3.38E-04
	138	3475.74	3.20E+01	11.31	2.67E-03	3.38E-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 : 8/14/2017 8:00:14AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	34.31	3.40E+03	428.13			3.40E+03	4.28E+02
m	2	39.07	2.08E+03	423.39			2.08E+03	4.23E+02
	3	46.14	7.82E+02	438.09	4.28E+01	8.26E+00	7.39E+02	4.38E+02
	4	56.99	7.19E+03	558.80			7.19E+03	5.59E+02
	5	63.55	4.87E+03	762.05	6.71E+01	1.02E+01	4.80E+03	7.62E+02
	6	75.81	7.43E+04	1270.98			7.43E+04	1.27E+03
M	7	87.63	3.16E+04	1066.14			3.16E+04	1.07E+03
m	8	92.89	1.82E+04	708.46	1.35E+02	7.64E+00	1.81E+04	7.08E+02

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	9	99.02	2.92E+03	534.01	7.32E+00	2.91E+00	2.91E+03	5.34E+02
	10	104.99	2.49E+03	617.44			2.49E+03	6.17E+02
	11	114.78	1.55E+03	603.53			1.55E+03	6.04E+02
	12	128.88	6.45E+03	790.61			6.45E+03	7.91E+02
	13	143.95	1.77E+03	599.93	1.54E+01	2.12E+01	1.76E+03	6.00E+02
	14	153.77	2.34E+03	592.46			2.34E+03	5.92E+02
	15	185.65	1.01E+04	786.91	5.47E+01	6.99E+00	1.00E+04	7.87E+02
	16	199.71	5.23E+02	459.86			5.23E+02	4.60E+02
	17	209.10	8.61E+03	679.80			8.61E+03	6.80E+02
	18	216.24	7.21E+02	431.45			7.21E+02	4.31E+02
M	19	238.43	1.05E+05	754.29	1.58E+01	5.72E+00	1.05E+05	7.54E+02
m	20	241.37	2.26E+04	859.44			2.26E+04	8.59E+02
	21	257.51	5.78E+02	403.20			5.78E+02	4.03E+02
M	22	270.02	8.52E+03	427.29			8.52E+03	4.27E+02
m	23	277.21	4.20E+03	358.08			4.20E+03	3.58E+02
M	24	287.06	9.29E+02	321.81			9.29E+02	3.22E+02
m	25	295.06	1.95E+04	420.66			1.95E+04	4.21E+02
m	26	299.89	7.26E+03	355.23			7.26E+03	3.55E+02
	27	313.28	3.29E+02	296.81			3.29E+02	2.97E+02
M	28	322.39	9.51E+02	511.16			9.51E+02	5.11E+02
m	29	327.86	5.60E+03	321.99			5.60E+03	3.22E+02
m	30	332.37	1.35E+03	430.88			1.35E+03	4.31E+02
m	31	338.18	2.10E+04	405.07	1.94E+00	4.45E+00	2.10E+04	4.05E+02
M	32	351.76	3.47E+04	459.39	8.23E+00	4.77E+00	3.47E+04	4.59E+02
m	33	355.89	1.28E+03	400.79			1.28E+03	4.01E+02
	34	388.25	5.75E+02	339.80			5.75E+02	3.40E+02
	35	409.37	2.53E+03	346.08			2.53E+03	3.46E+02
	36	427.14	2.78E+02	271.81			2.78E+02	2.72E+02
	37	453.16	7.19E+02	293.24			7.19E+02	2.93E+02
	38	462.92	6.05E+03	383.44			6.05E+03	3.83E+02
	39	478.86	5.00E+02	247.01			5.00E+02	2.47E+02
	40	487.27	2.06E+02	241.81			2.06E+02	2.42E+02
	41	510.68	1.14E+04	454.25	7.54E+01	5.68E+00	1.13E+04	4.54E+02
	42	534.13	3.41E+02	226.88			3.41E+02	2.27E+02
	43	562.46	8.35E+02	232.81			8.35E+02	2.33E+02
M	44	583.18	3.40E+04	415.24	7.97E+00	3.93E+00	3.40E+04	4.15E+02
m	45	587.31	1.39E+03	339.97			1.39E+03	3.40E+02
M	46	609.32	2.67E+04	372.15	5.86E+00	3.50E+00	2.66E+04	3.72E+02
m	47	613.42	8.81E+02	321.59			8.81E+02	3.22E+02
	48	620.52	2.20E+02	229.36			2.20E+02	2.29E+02
	49	665.80	7.59E+02	263.48			7.59E+02	2.63E+02
	50	677.88	1.66E+02	202.17			1.66E+02	2.02E+02
	51	703.00	4.64E+02	233.42			4.64E+02	2.33E+02
	52	727.38	6.98E+03	346.04			6.98E+03	3.46E+02
M	53	752.46	1.01E+02	107.61			1.01E+02	1.08E+02
m	54	755.40	9.35E+02	167.25			9.35E+02	1.67E+02
M	55	763.75	6.97E+02	230.51			6.97E+02	2.31E+02
m	56	768.39	2.35E+03	201.16			2.35E+03	2.01E+02
m	57	772.26	1.62E+03	247.54			1.62E+03	2.48E+02
M	58	782.23	4.55E+02	103.17			4.55E+02	1.03E+02
m	59	785.80	1.60E+03	182.46	1.09E+00	2.79E+00	1.60E+03	1.82E+02
	60	794.99	3.84E+03	258.50			3.84E+03	2.59E+02
	61	806.20	5.60E+02	175.95			5.60E+02	1.76E+02
M	62	830.78	4.94E+02	136.38			4.94E+02	1.36E+02

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	63	835.88	1.68E+03	186.50			1.68E+03	1.87E+02
m	64	840.26	1.14E+03	181.36			1.14E+03	1.81E+02
	65	860.84	4.26E+03	263.51			4.26E+03	2.64E+02
	66	893.24	3.95E+02	174.22			3.95E+02	1.74E+02
M	67	904.35	7.35E+02	158.37			7.35E+02	1.58E+02
m	68	911.40	2.40E+04	337.01			2.40E+04	3.37E+02
m	69	915.59	1.01E+03	327.36			1.01E+03	3.27E+02
	70	934.25	1.32E+03	188.39			1.32E+03	1.88E+02
M	71	958.50	2.30E+02	139.23			2.30E+02	1.39E+02
m	72	965.10	4.54E+03	197.05			4.54E+03	1.97E+02
m	73	969.20	1.39E+04	271.29			1.39E+04	2.71E+02
	74	987.85	1.55E+02	128.52			1.55E+02	1.29E+02
	75	1002.32	6.78E+02	191.39	5.25E+00	2.97E+00	6.73E+02	1.91E+02
	76	1033.33	2.34E+02	124.11			2.34E+02	1.24E+02
	77	1040.38	1.88E+02	119.75			1.88E+02	1.20E+02
	78	1052.00	1.41E+02	108.55			1.41E+02	1.09E+02
M	79	1062.69	4.76E+01	49.80			4.76E+01	4.98E+01
m	80	1065.22	2.47E+02	126.82			2.47E+02	1.27E+02
	81	1070.34	1.28E+02	93.20			1.28E+02	9.32E+01
	82	1078.90	4.27E+02	165.88			4.27E+02	1.66E+02
	83	1095.06	5.63E+02	159.34			5.63E+02	1.59E+02
	84	1111.23	3.01E+02	134.16			3.01E+02	1.34E+02
	85	1120.59	5.96E+03	236.37			5.96E+03	2.36E+02
	86	1155.19	8.85E+02	169.63			8.85E+02	1.70E+02
	87	1182.92	1.03E+02	94.99			1.03E+02	9.50E+01
	88	1207.68	2.94E+02	161.38			2.94E+02	1.61E+02
	89	1238.55	1.94E+03	193.95			1.94E+03	1.94E+02
	90	1247.25	2.88E+02	150.76			2.88E+02	1.51E+02
	91	1281.27	4.79E+02	153.35			4.79E+02	1.53E+02
	92	1377.78	1.51E+03	201.72			1.51E+03	2.02E+02
	93	1385.97	2.09E+02	122.28			2.09E+02	1.22E+02
M	94	1402.02	5.68E+02	120.60			5.68E+02	1.21E+02
m	95	1408.46	8.74E+02	125.97			8.74E+02	1.26E+02
	96	1460.02	7.08E+02	152.83			7.08E+02	1.53E+02
M	97	1496.51	5.66E+02	107.10			5.66E+02	1.07E+02
m	98	1502.11	3.37E+02	124.44			3.37E+02	1.24E+02
m	99	1509.84	7.69E+02	109.84			7.69E+02	1.10E+02
m	100	1513.54	2.48E+02	93.70			2.48E+02	9.37E+01
	101	1538.72	1.15E+02	97.00			1.15E+02	9.70E+01
	102	1544.06	1.03E+02	95.52			1.03E+02	9.55E+01
	103	1557.72	9.43E+01	111.13			9.43E+01	1.11E+02
M	104	1580.89	4.74E+02	103.77			4.74E+02	1.04E+02
m	105	1584.38	2.35E+02	107.68			2.35E+02	1.08E+02
m	106	1588.75	2.09E+03	129.35			2.09E+03	1.29E+02
m	107	1593.12	1.51E+03	134.53			1.51E+03	1.35E+02
M	108	1621.18	9.84E+02	103.58			9.84E+02	1.04E+02
m	109	1625.73	2.14E+02	96.21			2.14E+02	9.62E+01
m	110	1631.17	1.09E+03	104.60			1.09E+03	1.05E+02
m	111	1638.82	3.36E+02	89.20			3.36E+02	8.92E+01
	112	1661.96	2.37E+02	88.09			2.37E+02	8.81E+01
	113	1667.21	1.04E+02	83.24			1.04E+02	8.32E+01
	114	1683.51	2.53E+02	148.90			2.53E+02	1.49E+02
	115	1693.50	1.84E+02	96.80			1.84E+02	9.68E+01
	116	1730.24	1.05E+03	120.46			1.05E+03	1.20E+02

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	117	1765.27	4.87E+03	200.24			4.87E+03	2.00E+02
	118	1837.91	9.15E+01	107.46			9.15E+01	1.07E+02
	119	1848.33	6.05E+02	115.13			6.05E+02	1.15E+02
	120	1890.13	6.60E+01	76.71			6.60E+01	7.67E+01
	121	2104.53	2.10E+03	161.60	1.50E+00	1.48E+00	2.10E+03	1.62E+02
	122	2119.35	3.87E+02	121.29			3.87E+02	1.21E+02
	123	2176.86	9.70E+01	83.67			9.70E+01	8.37E+01
	124	2205.20	1.32E+03	147.93			1.32E+03	1.48E+02
M	125	2448.39	3.80E+02	78.98			3.80E+02	7.90E+01
m	126	2452.26	5.81E+01	74.34			5.81E+01	7.43E+01
M	127	2615.46	1.43E+04	241.04	5.15E+00	1.56E+00	1.43E+04	2.41E+02
m	128	2619.85	4.54E+02	176.35			4.54E+02	1.76E+02
	129	2844.83	6.06E+01	38.11			6.06E+01	3.81E+01
	130	2880.67	3.34E+01	23.32			3.34E+01	2.33E+01
	131	2909.28	1.48E+01	16.02			1.48E+01	1.60E+01
	132	2914.93	1.74E+01	20.99			1.74E+01	2.10E+01
	133	3073.63	3.59E+01	38.47			3.59E+01	3.85E+01
	134	3114.99	1.30E+01	13.22			1.30E+01	1.32E+01
	135	3126.25	7.69E+01	21.26			7.69E+01	2.13E+01
	136	3198.55	2.94E+02	41.67			2.94E+02	4.17E+01
	137	3377.73	6.56E+00	6.65			6.56E+00	6.65E+00
	138	3475.74	3.20E+01	11.31			3.20E+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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 8:00:14AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.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	34.31	3.40E+03	428.13			3.40E+03	4.28E+02
m	2	39.07	2.08E+03	423.39			2.08E+03	4.23E+02
	3	46.14	7.82E+02	438.09	4.28E+01	8.26E+00	7.39E+02	4.38E+02
	4	56.99	7.19E+03	558.80			7.19E+03	5.59E+02
	5	63.55	4.87E+03	762.05	6.71E+01	1.02E+01	4.80E+03	7.62E+02
	6	75.81	7.43E+04	1270.98			7.43E+04	1.27E+03

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	7	87.63	3.16E+04	1066.14			3.16E+04	1.07E+03
m	8	92.89	1.82E+04	708.46	1.35E+02	7.64E+00	1.81E+04	7.08E+02
	9	99.02	2.92E+03	534.01	7.32E+00	2.91E+00	2.91E+03	5.34E+02
	10	104.99	2.49E+03	617.44			2.49E+03	6.17E+02
	11	114.78	1.55E+03	603.53			1.55E+03	6.04E+02
	12	128.88	6.45E+03	790.61			6.45E+03	7.91E+02
	13	143.95	1.77E+03	599.93	1.54E+01	2.12E+01	1.76E+03	6.00E+02
	14	153.77	2.34E+03	592.46			2.34E+03	5.92E+02
	15	185.65	1.01E+04	786.91	5.47E+01	6.99E+00	1.00E+04	7.87E+02
	16	199.71	5.23E+02	459.86			5.23E+02	4.60E+02
	17	209.10	8.61E+03	679.80			8.61E+03	6.80E+02
	18	216.24	7.21E+02	431.45			7.21E+02	4.31E+02
M	19	238.43	1.05E+05	754.29	1.58E+01	5.72E+00	1.05E+05	7.54E+02
m	20	241.37	2.26E+04	859.44			2.26E+04	8.59E+02
	21	257.51	5.78E+02	403.20			5.78E+02	4.03E+02
M	22	270.02	8.52E+03	427.29			8.52E+03	4.27E+02
m	23	277.21	4.20E+03	358.08			4.20E+03	3.58E+02
M	24	287.06	9.29E+02	321.81			9.29E+02	3.22E+02
m	25	295.06	1.95E+04	420.66			1.95E+04	4.21E+02
m	26	299.89	7.26E+03	355.23			7.26E+03	3.55E+02
	27	313.28	3.29E+02	296.81			3.29E+02	2.97E+02
M	28	322.39	9.51E+02	511.16			9.51E+02	5.11E+02
m	29	327.86	5.60E+03	321.99			5.60E+03	3.22E+02
m	30	332.37	1.35E+03	430.88			1.35E+03	4.31E+02
m	31	338.18	2.10E+04	405.07	1.94E+00	4.45E+00	2.10E+04	4.05E+02
M	32	351.76	3.47E+04	459.39	8.23E+00	4.77E+00	3.47E+04	4.59E+02
m	33	355.89	1.28E+03	400.79			1.28E+03	4.01E+02
	34	388.25	5.75E+02	339.80			5.75E+02	3.40E+02
	35	409.37	2.53E+03	346.08			2.53E+03	3.46E+02
	36	427.14	2.78E+02	271.81			2.78E+02	2.72E+02
	37	453.16	7.19E+02	293.24			7.19E+02	2.93E+02
	38	462.92	6.05E+03	383.44			6.05E+03	3.83E+02
	39	478.86	5.00E+02	247.01			5.00E+02	2.47E+02
	40	487.27	2.06E+02	241.81			2.06E+02	2.42E+02
	41	510.68	1.14E+04	454.25	7.54E+01	5.68E+00	1.13E+04	4.54E+02
	42	534.13	3.41E+02	226.88			3.41E+02	2.27E+02
	43	562.46	8.35E+02	232.81			8.35E+02	2.33E+02
M	44	583.18	3.40E+04	415.24	7.97E+00	3.93E+00	3.40E+04	4.15E+02
m	45	587.31	1.39E+03	339.97			1.39E+03	3.40E+02
M	46	609.32	2.67E+04	372.15	5.86E+00	3.50E+00	2.66E+04	3.72E+02
m	47	613.42	8.81E+02	321.59			8.81E+02	3.22E+02
	48	620.52	2.20E+02	229.36			2.20E+02	2.29E+02
	49	665.80	7.59E+02	263.48			7.59E+02	2.63E+02
	50	677.88	1.66E+02	202.17			1.66E+02	2.02E+02
	51	703.00	4.64E+02	233.42			4.64E+02	2.33E+02
	52	727.38	6.98E+03	346.04			6.98E+03	3.46E+02
M	53	752.46	1.01E+02	107.61			1.01E+02	1.08E+02
m	54	755.40	9.35E+02	167.25			9.35E+02	1.67E+02
M	55	763.75	6.97E+02	230.51			6.97E+02	2.31E+02
m	56	768.39	2.35E+03	201.16			2.35E+03	2.01E+02
m	57	772.26	1.62E+03	247.54			1.62E+03	2.48E+02
M	58	782.23	4.55E+02	103.17			4.55E+02	1.03E+02
m	59	785.80	1.60E+03	182.46	1.09E+00	2.79E+00	1.60E+03	1.82E+02
	60	794.99	3.84E+03	258.50			3.84E+03	2.59E+02

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	61	806.20	5.60E+02	175.95			5.60E+02	1.76E+02
M	62	830.78	4.94E+02	136.38			4.94E+02	1.36E+02
m	63	835.88	1.68E+03	186.50			1.68E+03	1.87E+02
m	64	840.26	1.14E+03	181.36			1.14E+03	1.81E+02
	65	860.84	4.26E+03	263.51			4.26E+03	2.64E+02
	66	893.24	3.95E+02	174.22			3.95E+02	1.74E+02
M	67	904.35	7.35E+02	158.37			7.35E+02	1.58E+02
m	68	911.40	2.40E+04	337.01			2.40E+04	3.37E+02
m	69	915.59	1.01E+03	327.36			1.01E+03	3.27E+02
	70	934.25	1.32E+03	188.39			1.32E+03	1.88E+02
M	71	958.50	2.30E+02	139.23			2.30E+02	1.39E+02
m	72	965.10	4.54E+03	197.05			4.54E+03	1.97E+02
m	73	969.20	1.39E+04	271.29			1.39E+04	2.71E+02
	74	987.85	1.55E+02	128.52			1.55E+02	1.29E+02
	75	1002.32	6.78E+02	191.39	5.25E+00	2.97E+00	6.73E+02	1.91E+02
	76	1033.33	2.34E+02	124.11			2.34E+02	1.24E+02
	77	1040.38	1.88E+02	119.75			1.88E+02	1.20E+02
	78	1052.00	1.41E+02	108.55			1.41E+02	1.09E+02
M	79	1062.69	4.76E+01	49.80			4.76E+01	4.98E+01
m	80	1065.22	2.47E+02	126.82			2.47E+02	1.27E+02
	81	1070.34	1.28E+02	93.20			1.28E+02	9.32E+01
	82	1078.90	4.27E+02	165.88			4.27E+02	1.66E+02
	83	1095.06	5.63E+02	159.34			5.63E+02	1.59E+02
	84	1111.23	3.01E+02	134.16			3.01E+02	1.34E+02
	85	1120.59	5.96E+03	236.37			5.96E+03	2.36E+02
	86	1155.19	8.85E+02	169.63			8.85E+02	1.70E+02
	87	1182.92	1.03E+02	94.99			1.03E+02	9.50E+01
	88	1207.68	2.94E+02	161.38			2.94E+02	1.61E+02
	89	1238.55	1.94E+03	193.95			1.94E+03	1.94E+02
	90	1247.25	2.88E+02	150.76			2.88E+02	1.51E+02
	91	1281.27	4.79E+02	153.35			4.79E+02	1.53E+02
	92	1377.78	1.51E+03	201.72			1.51E+03	2.02E+02
	93	1385.97	2.09E+02	122.28			2.09E+02	1.22E+02
M	94	1402.02	5.68E+02	120.60			5.68E+02	1.21E+02
m	95	1408.46	8.74E+02	125.97			8.74E+02	1.26E+02
	96	1460.02	7.08E+02	152.83			7.08E+02	1.53E+02
M	97	1496.51	5.66E+02	107.10			5.66E+02	1.07E+02
m	98	1502.11	3.37E+02	124.44			3.37E+02	1.24E+02
m	99	1509.84	7.69E+02	109.84			7.69E+02	1.10E+02
m	100	1513.54	2.48E+02	93.70			2.48E+02	9.37E+01
	101	1538.72	1.15E+02	97.00			1.15E+02	9.70E+01
	102	1544.06	1.03E+02	95.52			1.03E+02	9.55E+01
	103	1557.72	9.43E+01	111.13			9.43E+01	1.11E+02
M	104	1580.89	4.74E+02	103.77			4.74E+02	1.04E+02
m	105	1584.38	2.35E+02	107.68			2.35E+02	1.08E+02
m	106	1588.75	2.09E+03	129.35			2.09E+03	1.29E+02
m	107	1593.12	1.51E+03	134.53			1.51E+03	1.35E+02
M	108	1621.18	9.84E+02	103.58			9.84E+02	1.04E+02
m	109	1625.73	2.14E+02	96.21			2.14E+02	9.62E+01
m	110	1631.17	1.09E+03	104.60			1.09E+03	1.05E+02
m	111	1638.82	3.36E+02	89.20			3.36E+02	8.92E+01
	112	1661.96	2.37E+02	88.09			2.37E+02	8.81E+01
	113	1667.21	1.04E+02	83.24			1.04E+02	8.32E+01
	114	1683.51	2.53E+02	148.90			2.53E+02	1.49E+02

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	115	1693.50	1.84E+02	96.80			1.84E+02	9.68E+01
	116	1730.24	1.05E+03	120.46			1.05E+03	1.20E+02
	117	1765.27	4.87E+03	200.24			4.87E+03	2.00E+02
	118	1837.91	9.15E+01	107.46			9.15E+01	1.07E+02
	119	1848.33	6.05E+02	115.13			6.05E+02	1.15E+02
	120	1890.13	6.60E+01	76.71			6.60E+01	7.67E+01
	121	2104.53	2.10E+03	161.60	1.50E+00	1.48E+00	2.10E+03	1.62E+02
	122	2119.35	3.87E+02	121.29			3.87E+02	1.21E+02
	123	2176.86	9.70E+01	83.67			9.70E+01	8.37E+01
	124	2205.20	1.32E+03	147.93			1.32E+03	1.48E+02
M	125	2448.39	3.80E+02	78.98			3.80E+02	7.90E+01
m	126	2452.26	5.81E+01	74.34			5.81E+01	7.43E+01
M	127	2615.46	1.43E+04	241.04	5.15E+00	1.56E+00	1.43E+04	2.41E+02
m	128	2619.85	4.54E+02	176.35			4.54E+02	1.76E+02
	129	2844.83	6.06E+01	38.11			6.06E+01	3.81E+01
	130	2880.67	3.34E+01	23.32			3.34E+01	2.33E+01
	131	2909.28	1.48E+01	16.02			1.48E+01	1.60E+01
	132	2914.93	1.74E+01	20.99			1.74E+01	2.10E+01
	133	3073.63	3.59E+01	38.47			3.59E+01	3.85E+01
	134	3114.99	1.30E+01	13.22			1.30E+01	1.32E+01
	135	3126.25	7.69E+01	21.26			7.69E+01	2.13E+01
	136	3198.55	2.94E+02	41.67			2.94E+02	4.17E+01
	137	3377.73	6.56E+00	6.65			6.56E+00	6.65E+00
	138	3475.74	3.20E+01	11.31			3.20E+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
K-40	0.905	1460.81	*	10.67	1.21E+01	2.82E+00
CD-109	0.975	88.03	*	3.72	3.25E+02	3.71E+01
SN-126	0.999	87.57	*	37.00	2.84E+01	2.78E+00
PM-146	0.372	453.90	*	39.94	1.41E+00	5.88E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.947	583.14	*	30.22	1.03E+02	1.07E+01

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.947	860.37	*	4.48	1.17E+02	1.27E+01
		2614.66	*	35.85	1.10E+02	1.14E+01
PB-210	0.979	46.50	*	4.25	6.51E+00	3.91E+00
BI-212	0.985	727.17	*	11.80	6.43E+01	7.36E+00
		1620.62	*	2.75	7.04E+01	9.45E+00
PB-212	0.993	238.63	*	44.60	1.14E+02	9.26E+00
		300.09	*	3.41	1.20E+02	1.16E+01
BI-214	0.970	609.31	*	46.30	5.46E+01	5.75E+00
		1120.29	*	15.10	5.94E+01	5.53E+00
		1764.49	*	15.80	6.45E+01	5.85E+00
		2204.22	*	4.98	6.50E+01	9.35E+00
PB-214	0.996	295.21	*	19.19	5.63E+01	4.85E+00
		351.92	*	37.19	5.85E+01	5.04E+00
RA-224	0.976	240.98	*	3.95	2.79E+02	2.50E+01
RA-225	0.715	40.00	*	31.00	2.09E+02	4.73E+01
RA-226	0.951	186.21	*	3.28	1.29E+02	2.36E+02
AC-228	0.990	338.32	*	11.40	1.13E+02	9.81E+00
		911.07	*	27.70	1.12E+02	9.45E+00
		969.11	*	16.60	1.13E+02	9.80E+00
TH-234	0.989	63.29	*	3.80	4.28E+01	7.67E+00
CM-243	0.355	209.75	*	3.29	1.18E+02	1.32E+01
		228.14		10.60		
		277.60	*	14.00	1.61E+01	1.91E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 8:00:14AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	34.31	9.45497E-01	6.29		
	4	56.99	1.99605E+00	3.89	Tol.	CE-143
	6	75.81	2.06292E+01	0.86		
m	8	92.89	5.01429E+00	1.96	Sum	
	9	99.02	8.08407E-01	9.17	D-Esc	
	10	104.99	6.92912E-01	12.38	Tol.	EU-155

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	11	114.78	4.31729E-01	19.42		
	12	128.88	1.79171E+00	6.13		
	13	143.95	4.88686E-01	17.06	Tol.	U-235
	14	153.77	6.49783E-01	12.66	Tol.	CS-136
	16	199.71	1.45373E-01	43.93		
	18	216.24	2.00221E-01	29.93		
	21	257.51	1.60686E-01	34.85		
M	22	270.02	2.36780E+00	2.51		
M	24	287.06	2.58148E-01	17.31	Sum	
	27	313.28	9.13509E-02	45.13		
M	28	322.39	2.64189E-01	26.87	Sum	
m	29	327.86	1.55523E+00	2.88	Tol.	LA-140
m	30	332.37	3.75082E-01	15.95		
m	33	355.89	3.56037E-01	15.63	Tol.	BA-133
	34	388.25	1.59599E-01	29.57	Sum	
	35	409.37	7.03720E-01	6.83		
	36	427.14	7.71152E-02	48.95	Sum	
	38	462.92	1.67971E+00	3.17	Sum	
	39	478.86	1.38923E-01	24.69	Sum	
	40	487.27	5.72940E-02	58.62	Sum	
	41	510.68	3.14881E+00	2.00		
	42	534.13	9.47867E-02	33.24	Sum	
	43	562.46	2.31939E-01	13.94		
m	45	587.31	3.87007E-01	12.20		
m	47	613.42	2.44646E-01	18.26	Tol.	AG-108M
	48	620.52	6.11105E-02	52.13		
	49	665.80	2.10846E-01	17.36	Tol.	SB-126
	50	677.88	4.60741E-02	60.94	Tol.	AG-110M
	51	703.00	1.28757E-01	25.18	Sum	
M	53	752.46	2.81884E-02	53.02	Sum	
m	54	755.40	2.59704E-01	8.94		
M	55	763.75	1.93587E-01	16.54	Tol.	AG-110M
m	56	768.39	6.51725E-01	4.29	Sum	
m	57	772.26	4.49632E-01	7.65		
M	58	782.23	1.26510E-01	11.33		
m	59	785.80	4.45256E-01	5.69		
	60	794.99	1.06797E+00	3.36	Sum	
	61	806.20	1.55436E-01	15.72		
M	62	830.78	1.37222E-01	13.80		
m	63	835.88	4.66425E-01	5.55		
m	64	840.26	3.15755E-01	7.98		
	66	893.24	1.09621E-01	22.07		
M	67	904.35	2.04169E-01	10.77	Sum	
m	69	915.59	2.81554E-01	16.15		
	70	934.25	3.67575E-01	7.12	Sum	
M	71	958.50	6.39715E-02	30.23	Sum	
m	72	965.10	1.26097E+00	2.17	Sum	
	74	987.85	4.31899E-02	41.33		
	75	1002.32	1.86825E-01	14.23		
	76	1033.33	6.50366E-02	26.50	Sum	
	77	1040.38	5.22020E-02	31.86		
	78	1052.00	3.90489E-02	38.61		
M	79	1062.69	1.32348E-02	52.26	Sum	
m	80	1065.22	6.85379E-02	25.70	Sum	

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	81	1070.34	3.56625E-02	36.30	Sum	
	82	1078.90	1.18613E-01	19.42	Sum	
	83	1095.06	1.56385E-01	14.15		
	84	1111.23	8.36874E-02	22.27	Tol.	EU-152
	86	1155.19	2.45802E-01	9.58	Sum	
	87	1182.92	2.86543E-02	46.04	D-Esc	
	88	1207.68	8.17420E-02	27.42	Sum	
	89	1238.55	5.39543E-01	4.99	Tol.	CO-56
	90	1247.25	7.99347E-02	26.20	Sum	
	91	1281.27	1.33154E-01	16.00		
	92	1377.78	4.20422E-01	6.66		
	93	1385.97	5.81937E-02	29.18		
M	94	1402.02	1.57810E-01	10.61		
m	95	1408.46	2.42883E-01	7.20	Tol.	EU-152
M	97	1496.51	1.57100E-01	9.47		
m	98	1502.11	9.35684E-02	18.47		
m	99	1509.84	2.13713E-01	7.14		
m	100	1513.54	6.88337E-02	18.91		
	101	1538.72	3.18078E-02	42.35		
	102	1544.06	2.87489E-02	46.15		
	103	1557.72	2.62050E-02	58.90		
M	104	1580.89	1.31777E-01	10.94		
m	105	1584.38	6.52881E-02	22.91		
m	106	1588.75	5.80606E-01	3.09	Sum	
m	107	1593.12	4.19075E-01	4.46	D-Esc	
m	109	1625.73	5.94322E-02	22.48		
m	110	1631.17	3.03541E-01	4.79		
m	111	1638.82	9.34633E-02	13.26	Sum	
	112	1661.96	6.58059E-02	18.59		
	113	1667.21	2.88489E-02	40.08	Sum	
	114	1683.51	7.02540E-02	29.44		
	115	1693.50	5.12083E-02	26.25	S-Esc	
	116	1730.24	2.90415E-01	5.76	Sum	
	118	1837.91	2.54140E-02	58.73		
	119	1848.33	1.68042E-01	9.52	Sum	
	120	1890.13	1.83333E-02	58.12		
	121	2104.53	5.84210E-01	3.84	S-Esc	
	122	2119.35	1.07609E-01	15.66		
	123	2176.86	2.69472E-02	43.12		
M	125	2448.39	1.05680E-01	10.38		
m	126	2452.26	1.61319E-02	64.00		
m	128	2619.85	1.26210E-01	19.41		
	129	2844.83	1.68369E-02	31.44		
	130	2880.67	9.29126E-03	34.87		
	131	2909.28	4.12037E-03	53.99		
	132	2914.93	4.82105E-03	60.48	Sum	
	133	3073.63	9.97076E-03	53.59		
	134	3114.99	3.61111E-03	50.84		
	135	3126.25	2.13695E-02	13.82		
	136	3198.55	8.17935E-02	7.07	Sum	
	137	3377.73	1.82292E-03	50.68		
	138	3475.74	8.88889E-03	17.68	Sum	

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

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	0.90	1460.81	*	10.67	1.21E+01	2.82E+00
CD-109	0.97	88.03	*	3.72	3.25E+02	3.71E+01
SN-126	0.99	87.57	*	37.00	2.84E+01	2.78E+00
PM-146	0.37	453.90	*	39.94	1.41E+00	5.88E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.94	583.14	*	30.22	1.03E+02	1.07E+01
		860.37	*	4.48	1.17E+02	1.27E+01
		2614.66	*	35.85	1.10E+02	1.14E+01
PB-210	0.97	46.50	*	4.25	6.51E+00	3.91E+00
BI-212	0.98	727.17	*	11.80	6.43E+01	7.36E+00
		1620.62	*	2.75	7.04E+01	9.45E+00
PB-212	0.99	238.63	*	44.60	1.14E+02	9.26E+00
		300.09	*	3.41	1.20E+02	1.16E+01
BI-214	0.97	609.31	*	46.30	5.46E+01	5.75E+00
		1120.29	*	15.10	5.94E+01	5.53E+00
		1764.49	*	15.80	6.45E+01	5.85E+00
		2204.22	*	4.98	6.50E+01	9.35E+00
PB-214	0.99	295.21	*	19.19	5.63E+01	4.85E+00
		351.92	*	37.19	5.85E+01	5.04E+00
RA-224	0.97	240.98	*	3.95	2.79E+02	2.50E+01
RA-225	0.71	40.00	*	31.00	2.09E+02	4.73E+01
RA-226	0.95	186.21	*	3.28	1.29E+02	2.36E+02
AC-228	0.99	338.32	*	11.40	1.13E+02	9.81E+00
		911.07	*	27.70	1.12E+02	9.45E+00
		969.11	*	16.60	1.13E+02	9.80E+00
TH-234	0.98	63.29	*	3.80	4.28E+01	7.67E+00
CM-243	0.35	209.75	*	3.29	1.18E+02	1.32E+01
		228.14		10.60		
		277.60	*	14.00	1.61E+01	1.91E+00

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.905	1.21E+01	2.82E+00	
?	CD-109	0.975	3.25E+02	3.71E+01	
?	SN-126	0.999	2.84E+01	2.78E+00	
	PM-146	0.372	1.41E+00	5.88E-01	
	TL-208	0.947	1.09E+02	6.64E+00	
	PB-210	0.979	6.51E+00	3.91E+00	
	BI-212	0.985	6.66E+01	5.81E+00	
	PB-212	0.993	1.16E+02	7.24E+00	
	BI-214	0.970	6.00E+01	3.11E+00	
	PB-214	0.996	5.74E+01	3.50E+00	
	RA-224	0.976	2.79E+02	2.50E+01	
	RA-225	0.715	2.09E+02	4.73E+01	
	RA-226	0.951	1.29E+02	2.36E+02	
	AC-228	0.990	1.13E+02	5.59E+00	
	TH-234	0.989	4.28E+01	7.67E+00	
	CM-243	0.355	1.82E+01	1.89E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 8:00:14AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	34.31	9.45497E-01	6.29		
	4	56.99	1.99605E+00	3.89	Tol.	CE-143
	6	75.81	2.06292E+01	0.86		
m	8	92.89	5.01429E+00	1.96	Sum	
	9	99.02	8.08407E-01	9.17	D-Esc	
	10	104.99	6.92912E-01	12.38	Tol.	EU-155
	11	114.78	4.31729E-01	19.42		
	12	128.88	1.79171E+00	6.13		
	13	143.95	4.88686E-01	17.06	Tol.	U-235
	14	153.77	6.49783E-01	12.66	Tol.	CS-136
	16	199.71	1.45373E-01	43.93		
	18	216.24	2.00221E-01	29.93		
	21	257.51	1.60686E-01	34.85		
M	22	270.02	2.36780E+00	2.51		
M	24	287.06	2.58148E-01	17.31	Sum	
	27	313.28	9.13509E-02	45.13		
M	28	322.39	2.64189E-01	26.87	Sum	
m	29	327.86	1.55523E+00	2.88	Tol.	LA-140
m	30	332.37	3.75082E-01	15.95		
m	33	355.89	3.56037E-01	15.63	Tol.	BA-133
	34	388.25	1.59599E-01	29.57	Sum	
	35	409.37	7.03720E-01	6.83		
	36	427.14	7.71152E-02	48.95	Sum	
	38	462.92	1.67971E+00	3.17	Sum	
	39	478.86	1.38923E-01	24.69	Sum	
	40	487.27	5.72940E-02	58.62	Sum	
	41	510.68	3.14881E+00	2.00		
	42	534.13	9.47867E-02	33.24	Sum	
	43	562.46	2.31939E-01	13.94		
m	45	587.31	3.87007E-01	12.20		
m	47	613.42	2.44646E-01	18.26	Tol.	AG-108M
	48	620.52	6.11105E-02	52.13		
	49	665.80	2.10846E-01	17.36	Tol.	SB-126
	50	677.88	4.60741E-02	60.94	Tol.	AG-110M
	51	703.00	1.28757E-01	25.18	Sum	

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	53	752.46	2.81884E-02	53.02	Sum	
m	54	755.40	2.59704E-01	8.94		
M	55	763.75	1.93587E-01	16.54	Tol.	AG-110M
m	56	768.39	6.51725E-01	4.29	Sum	
m	57	772.26	4.49632E-01	7.65		
M	58	782.23	1.26510E-01	11.33		
m	59	785.80	4.45256E-01	5.69		
	60	794.99	1.06797E+00	3.36	Sum	
	61	806.20	1.55436E-01	15.72		
M	62	830.78	1.37222E-01	13.80		
m	63	835.88	4.66425E-01	5.55		
m	64	840.26	3.15755E-01	7.98		
	66	893.24	1.09621E-01	22.07		
M	67	904.35	2.04169E-01	10.77	Sum	
m	69	915.59	2.81554E-01	16.15		
	70	934.25	3.67575E-01	7.12	Sum	
M	71	958.50	6.39715E-02	30.23	Sum	
m	72	965.10	1.26097E+00	2.17	Sum	
	74	987.85	4.31899E-02	41.33		
	75	1002.32	1.86825E-01	14.23		
	76	1033.33	6.50366E-02	26.50	Sum	
	77	1040.38	5.22020E-02	31.86		
	78	1052.00	3.90489E-02	38.61		
M	79	1062.69	1.32348E-02	52.26	Sum	
m	80	1065.22	6.85379E-02	25.70	Sum	
	81	1070.34	3.56625E-02	36.30	Sum	
	82	1078.90	1.18613E-01	19.42	Sum	
	83	1095.06	1.56385E-01	14.15		
	84	1111.23	8.36874E-02	22.27	Tol.	EU-152
	86	1155.19	2.45802E-01	9.58	Sum	
	87	1182.92	2.86543E-02	46.04	D-Esc	
	88	1207.68	8.17420E-02	27.42	Sum	
	89	1238.55	5.39543E-01	4.99	Tol.	CO-56
	90	1247.25	7.99347E-02	26.20	Sum	
	91	1281.27	1.33154E-01	16.00		
	92	1377.78	4.20422E-01	6.66		
	93	1385.97	5.81937E-02	29.18		
M	94	1402.02	1.57810E-01	10.61		
m	95	1408.46	2.42883E-01	7.20	Tol.	EU-152
M	97	1496.51	1.57100E-01	9.47		
m	98	1502.11	9.35684E-02	18.47		
m	99	1509.84	2.13713E-01	7.14		
m	100	1513.54	6.88337E-02	18.91		
	101	1538.72	3.18078E-02	42.35		
	102	1544.06	2.87489E-02	46.15		

Analysis Report for 1707077-04

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	103	1557.72	2.62050E-02	58.90		
M	104	1580.89	1.31777E-01	10.94		
m	105	1584.38	6.52881E-02	22.91		
m	106	1588.75	5.80606E-01	3.09	Sum	
m	107	1593.12	4.19075E-01	4.46	D-Esc	
m	109	1625.73	5.94322E-02	22.48		
m	110	1631.17	3.03541E-01	4.79		
m	111	1638.82	9.34633E-02	13.26	Sum	
	112	1661.96	6.58059E-02	18.59		
	113	1667.21	2.88489E-02	40.08	Sum	
	114	1683.51	7.02540E-02	29.44		
	115	1693.50	5.12083E-02	26.25	S-Esc	
	116	1730.24	2.90415E-01	5.76	Sum	
	118	1837.91	2.54140E-02	58.73		
	119	1848.33	1.68042E-01	9.52	Sum	
	120	1890.13	1.83333E-02	58.12		
	121	2104.53	5.84210E-01	3.84	S-Esc	
	122	2119.35	1.07609E-01	15.66		
	123	2176.86	2.69472E-02	43.12		
M	125	2448.39	1.05680E-01	10.38		
m	126	2452.26	1.61319E-02	64.00		
m	128	2619.85	1.26210E-01	19.41		
	129	2844.83	1.68369E-02	31.44		
	130	2880.67	9.29126E-03	34.87		
	131	2909.28	4.12037E-03	53.99		
	132	2914.93	4.82105E-03	60.48	Sum	
	133	3073.63	9.97076E-03	53.59		
	134	3114.99	3.61111E-03	50.84		
	135	3126.25	2.13695E-02	13.82		
	136	3198.55	8.17935E-02	7.07	Sum	
	137	3377.73	1.82292E-03	50.68		
	138	3475.74	8.88889E-03	17.68	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 1707077-04

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-4.32E+00	1.02E+01	1.02E+01
+	NA-22	1274.54		99.94	-6.46E-02	2.73E-01	2.73E-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	1.92E-01	2.47E-01	2.47E-01
+	K-40	1460.81	*	10.67	1.21E+01	4.08E+00	4.08E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-7.32E-02	3.31E-01	3.31E-01
		78.34		96.00	8.95E+00		4.63E-01
+	SC-46	889.25		99.98	2.02E-02	6.09E-01	6.09E-01
		1120.51		99.99	1.83E+01		1.29E+00
+	V-48	983.52		99.98	3.41E+00	1.43E+01	1.43E+01
		1312.10		97.50	-1.42E+00		1.51E+01
+	CR-51	320.08		9.83	-1.52E+01	3.35E+01	3.35E+01
+	MN-54	834.83		99.97	-5.05E-01	4.52E-01	4.52E-01
+	CO-56	846.75		99.96	2.12E-01	6.35E-01	6.35E-01
		1037.75		14.03	-1.02E+00		4.17E+00
		1238.25		67.00	1.11E+01		1.47E+00
		1771.40		15.51	-1.04E+00		3.97E+00
		2598.48		16.90	8.39E-01		2.54E+00
+	CO-57	122.06		85.51	-4.96E-01	4.25E-01	4.25E-01
		136.48		10.60	1.40E+00		3.59E+00
+	CO-58	810.76		99.40	-6.76E-03	7.12E-01	7.12E-01
+	FE-59	1099.22		56.50	-5.56E-01	1.87E+00	1.87E+00
		1291.56		43.20	-7.85E-01		2.53E+00
+	CO-60	1173.22		100.00	-1.57E-01	2.57E-01	2.57E-01
		1332.49		100.00	1.42E-01		2.80E-01
+	ZN-65	1115.52		50.75	-2.72E+01	7.06E-01	7.06E-01
+	GA-67	93.31		35.70	3.39E+09	3.71E+08	3.71E+08
		208.95		2.24	6.53E+10		6.15E+09
		300.22		16.00	-6.05E+09		9.16E+08
+	SE-75	121.11		16.70	-4.37E+00	8.66E-01	2.90E+00
		136.00		59.20	3.38E-01		8.66E-01
		264.65		59.80	4.35E-02		9.20E-01
		279.53		25.20	4.77E-01		2.46E+00
		400.65		11.40	9.84E-01		5.01E+00
+	RB-82	776.52		13.00	-7.67E+01	3.19E+01	3.19E+01
+	RB-83	520.41		46.00	-2.15E-01	1.45E+00	1.45E+00
		529.64		30.30	-7.59E-01		2.17E+00
		552.65		16.40	-9.72E-02		4.16E+00
+	KR-85	513.99		0.43	9.91E+02	1.10E+02	1.10E+02
+	SR-85	513.99		99.27	1.15E+01	1.27E+00	1.27E+00
+	Y-88	898.02		93.40	-1.46E+00	4.73E-01	5.53E-01
		1836.01		99.38	2.00E-01		4.73E-01
+	MO-93	263.06		56.72	2.71E-02	2.60E-01	5.79E-01
		684.67		99.68	1.11E-01		3.43E-01
		1477.11		99.08	-1.12E-01		2.60E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57		9.43	-1.69E+00	2.60E+00	2.60E+00
+	NB-94	702.63		100.00	2.72E-01	2.80E-01	3.59E-01
		871.10		100.00	1.78E-01		2.80E-01
+	NB-95	765.79		99.81	1.60E+01	2.68E+00	2.68E+00
+	NB-95M	235.69		25.00	-4.68E+09	1.08E+08	1.08E+08
+	ZR-95	724.18		43.70	2.84E+00	1.78E+00	2.97E+00
		756.72		55.30	4.05E+00		1.78E+00
+	MO-99	181.06		6.20	-1.85E+10	3.76E+10	7.24E+10
		739.58		12.80	3.15E+10		3.76E+10
		778.00		4.50	-5.35E+11		1.01E+11
+	RU-103	497.08		89.00	3.60E-01	1.78E+00	1.78E+00
+	RU-106	621.84		9.80	2.09E+00	3.87E+00	3.87E+00
+	AG-108M	433.93		89.90	-7.11E-02	3.43E-01	3.43E-01
		614.37		90.40	-2.53E+01		4.24E-01
		722.95		90.50	-1.10E+01		4.14E-01
+	CD-109	88.03	*	3.72	3.25E+02	2.32E+01	2.32E+01
+	AG-110M	657.75		93.14	-6.23E-02	4.51E-01	4.51E-01
		677.61		10.53	4.18E-01		4.14E+00
		706.67		16.46	8.67E-01		2.75E+00
		763.93		21.98	-1.58E+01		2.14E+00
		884.67		71.63	1.24E-01		5.00E-01
		1384.27		23.94	1.10E-01		1.60E+00
+	CD-113M	263.70		0.02	6.67E+01	1.42E+03	1.42E+03
+	SN-113	255.12		1.93	-1.77E+01	8.83E-01	2.52E+01
		391.69		64.90	2.70E-01		8.83E-01
+	TE123M	159.00		84.10	1.82E-01	6.12E-01	6.12E-01
+	SB-124	602.71		97.87	2.01E-01	9.61E-01	9.61E-01
		645.85		7.26	-1.11E+01		1.28E+01
		722.78		11.10	-2.60E+02		9.82E+00
		1691.02		49.00	-7.52E-01		1.47E+00
+	I-125	35.49		6.49	4.09E+01	1.36E+01	1.36E+01
+	SB-125	176.33		6.89	1.39E+00	1.15E+00	4.69E+00
		427.89		29.33	4.74E-01		1.15E+00
		463.38		10.35	4.82E+01		4.29E+00
		600.56		17.80	4.57E-01		1.91E+00
		635.90		11.32	4.29E-02		3.01E+00
+	SB-126	414.70		83.30	1.98E+01	6.06E+01	6.89E+01
		666.33		99.60	1.58E+02		6.43E+01
		695.00		99.60	-2.33E+01		6.06E+01
		720.50		53.80	1.75E+01		1.12E+02
+	SN-126	87.57	*	37.00	2.84E+01	2.03E+00	2.03E+00
+	SB-127	473.00		25.00	-1.89E+07	1.72E+07	2.27E+07
		685.20		35.70	5.56E+06		1.72E+07
		783.80		14.70	2.77E+08		4.80E+07
+	I-129	29.78		57.00	1.43E-01	5.33E-01	5.33E-01
		33.60		13.20	1.02E+01		2.35E+00
		39.58		7.52	8.44E+00		3.61E+00
+	I-131	284.30		6.05	-2.58E+03	1.13E+03	1.63E+04

Analysis Report for 1707077-04

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		I-131	364.48	81.20	-2.93E+02	1.13E+03	1.13E+03
			636.97	7.26	-2.37E+03		1.32E+04
			722.89	1.80	-1.65E+06		6.24E+04
+		TE-132	49.72	13.10	-2.69E+08	1.31E+08	7.43E+08
			228.16	88.00	-8.58E+07		1.31E+08
+		BA-133	81.00	33.00	-2.27E+01	7.23E-01	9.80E-01
			302.84	17.80	1.57E-01		2.19E+00
			356.01	60.00	-1.32E+01		7.23E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	-4.17E+06	1.80E+05	1.80E+05
+		CS-134	563.23	8.38	9.61E+00	4.49E-01	4.50E+00
			569.32	15.43	2.15E+00		2.35E+00
			604.70	97.60	-3.11E+01		4.49E-01
			795.84	85.40	5.79E+00		5.81E-01
			801.93	8.73	8.74E-01		3.71E+00
+		CS-135	268.24	16.00	2.57E+01	2.45E+00	2.45E+00
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	1.85E+03	3.87E+01	5.63E+02
			163.89	4.61	5.81E+02		8.71E+02
			176.55	13.56	8.80E+01		2.98E+02
			273.65	12.66	-2.86E+03		3.98E+02
			340.57	48.50	3.40E+03		1.43E+02
			818.50	99.70	9.91E+00		3.87E+01
			1048.07	79.60	1.31E-01		4.10E+01
			1235.34	19.70	9.24E+02		2.65E+02
+		CS-137	661.65	85.12	7.76E-02	4.02E-01	4.02E-01
+		LA-138	788.74	34.00	-8.54E+00	3.83E-01	1.00E+00
			1435.80	66.00	-2.00E-01		3.83E-01
+		CE-139	165.85	80.35	3.16E-01	5.96E-01	5.96E-01
+		BA-140	162.64	6.70	1.45E+02	1.94E+02	6.89E+02
			304.84	4.50	-2.63E+02		1.10E+03
			423.70	3.20	-2.34E+02		1.52E+03
			437.55	2.00	1.73E+02		2.38E+03
			537.32	25.00	-1.54E+01		1.94E+02
+		LA-140	328.77	20.50	2.03E+03	5.50E+01	2.89E+02
			487.03	45.50	6.03E+01		1.05E+02
			815.85	23.50	-1.41E+02		1.86E+02
			1596.49	95.49	-5.87E+01		5.50E+01
+		CE-141	145.44	48.40	6.79E+00	4.61E+00	4.61E+00
+	@	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	-5.02E-01	3.47E+00	3.47E+00
+		PM-144	476.78	42.00	-2.48E-01	3.93E-01	9.04E-01
			618.01	98.60	-6.28E-01		3.93E-01
			696.49	99.49	1.19E-02		4.08E-01
+		PM-145	36.85	21.70	-3.36E+00	7.22E-01	1.36E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36		39.70	-2.33E+00	7.22E-01	7.22E-01
		42.30		15.10	-9.00E+00		1.68E+00
		72.40		2.31	-5.59E+00		1.70E+01
+	PM-146	453.90	*	39.94	1.41E+00	9.33E-01	9.33E-01
		735.90		14.01	-3.52E+00		2.38E+00
		747.13		13.10	-2.86E+00		2.54E+00
+	ND-147	91.11		28.90	5.92E+03	4.69E+02	4.69E+02
		531.02		13.10	-1.05E+02		8.48E+02
+	PM-149	285.90		3.10	-1.12E+13	4.64E+13	4.64E+13
+	EU-152	121.78		20.50	-2.11E+00	1.40E+00	1.40E+00
		244.69		5.40	-5.56E+01		6.17E+00
		344.27		19.13	-9.94E+00		1.73E+00
		778.89		9.20	-3.12E+00		3.53E+00
		964.01		10.40	-1.61E+02		5.08E+00
		1085.78		7.22	8.14E-01		3.44E+00
		1112.02		9.60	2.18E+00		2.92E+00
		1407.95		14.94	6.33E+00		2.40E+00
+	GD-153	97.43		31.30	-9.47E+00	1.20E+00	1.20E+00
		103.18		22.20	5.06E-01		1.70E+00
+	EU-154	123.07		40.50	-4.90E-01	7.30E-01	7.30E-01
		723.30		19.70	-5.13E+01		1.94E+00
		873.19		11.50	9.01E-01		2.48E+00
		996.32		10.30	-7.88E-03		2.46E+00
		1004.76		17.90	3.06E+00		1.65E+00
		1274.45		35.50	-1.73E-01		7.34E-01
+	EU-155	86.50		30.90	4.18E+00	1.25E+00	1.25E+00
		105.30		20.70	4.31E+00		1.47E+00
+	EU-156	811.77		10.40	5.77E+01	1.91E+02	1.91E+02
		1153.47		7.20	1.08E+03		3.04E+02
		1230.71		8.90	-5.41E+00		1.95E+02
+	HO-166M	184.41		72.60	5.53E+00	5.01E-01	5.01E-01
		280.45		29.60	-1.74E-01		1.17E+00
		410.94		11.10	-8.63E-02		3.28E+00
		711.69		54.10	-7.97E-02		6.24E-01
+	TM-171	66.72		0.14	9.77E+01	2.47E+02	2.47E+02
+	HF-172	67.35		5.31	-1.43E+00	2.90E+00	6.46E+00
		125.81		11.30	-6.48E-01		2.90E+00
+	LU-172	181.53		20.60	-5.70E+03	6.78E+03	2.23E+04
		900.72		29.81	-4.93E+04		1.45E+04
		1093.66		62.50	1.33E+04		6.78E+03
+	LU-173	100.72		5.24	-8.39E-02	2.11E+00	6.21E+00
		272.11		21.20	-3.13E+00		2.11E+00
+	HF-175	343.40		84.00	-2.52E+01	9.94E-01	9.94E-01
+	LU-176	88.34		13.30	2.33E+01	3.35E-01	2.94E+00
		201.83		86.00	-1.60E-01		3.64E-01
		306.78		94.00	-2.68E-01		3.35E-01
+	HF-181	133.02		41.70	-4.73E-01	1.73E+00	3.27E+00
		345.85		17.20	-2.25E+02		8.64E+00
		482.03		82.80	7.49E-02		1.73E+00

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	-2.94E-01	1.33E+00	1.33E+00
		1121.30		34.90	4.33E+01		3.02E+00
		1189.05		16.23	6.68E-01		2.70E+00
		1221.41		26.98	-6.87E-01		1.61E+00
		1231.02		11.44	-1.07E-01		3.85E+00
+	IR-192	308.46		29.68	-3.09E+00	1.57E+00	2.51E+00
		468.07		48.10	5.46E-01		1.57E+00
+	HG-203	279.19		77.30	3.61E-01	1.86E+00	1.86E+00
+	TL-204	374.74		94.11	1.36E-01	2.97E-01	3.54E-01
		899.15		99.16	-1.43E+00		2.97E-01
		911.74		91.10	3.43E+01		1.12E+00
+	BI-207	569.67		97.72	3.23E-01	3.42E-01	3.42E-01
		1063.62		74.90	3.95E-01		3.67E-01
+	TL-208	583.14	*	30.22	1.03E+02	1.16E+00	2.21E+00
		860.37	*	4.48	1.17E+02		1.05E+01
		2614.66	*	35.85	1.10E+02		1.16E+00
+	BI-210M	262.00		45.00	3.35E-02	7.23E-01	7.23E-01
		300.00		23.00	-4.38E+01		1.73E+00
+	PB-210	46.50	*	4.25	6.51E+00	6.33E+00	6.33E+00
+	PB-211	404.84		2.90	7.34E+00	1.16E+01	1.16E+01
		831.96		2.90	-1.55E+01		1.19E+01
+	BI-212	727.17	*	11.80	6.43E+01	4.61E+00	4.61E+00
		1620.62	*	2.75	7.04E+01		2.99E+01
+	PB-212	238.63	*	44.60	1.14E+02	1.90E+00	1.90E+00
		300.09	*	3.41	1.20E+02		2.61E+01
+	BI-214	609.31	*	46.30	5.46E+01	1.40E+00	1.40E+00
		1120.29	*	15.10	5.94E+01		2.96E+00
		1764.49	*	15.80	6.45E+01		3.16E+00
		2204.22	*	4.98	6.50E+01		1.05E+01
+	PB-214	295.21	*	19.19	5.63E+01	1.52E+00	4.59E+00
		351.92	*	37.19	5.85E+01		1.52E+00
+	RN-219	401.80		6.50	5.27E+00	5.17E+00	5.17E+00
+	RA-223	323.87		3.88	-1.06E+02	8.68E+00	8.68E+00
+	RA-224	240.98	*	3.95	2.79E+02	2.18E+01	2.18E+01
+	RA-225	40.00	*	31.00	2.09E+02	1.40E+02	1.40E+02
+	RA-226	186.21	*	3.28	1.29E+02	1.61E+01	1.61E+01
+	TH-227	50.10		8.40	-1.25E+00	3.09E+00	3.09E+00
		236.00		11.50	-1.83E+02		4.24E+00
		256.20		6.30	-3.11E+00		5.22E+00
+	AC-228	338.32	*	11.40	1.13E+02	2.91E+00	1.06E+01
		911.07	*	27.70	1.12E+02		2.91E+00
		969.11	*	16.60	1.13E+02		4.83E+00
+	TH-230	48.44		16.90	-4.30E-01	1.53E+00	1.53E+00
		62.85		4.60	1.78E+01		6.87E+00
		67.67		0.37	-1.86E+01		8.43E+01
+	PA-231	283.67		1.60	-3.25E+00	1.67E+01	2.03E+01
		302.67		2.30	1.19E+00		1.67E+01
+	TH-231	25.64		14.70	-2.21E+00	2.34E+00	2.34E+00

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21		6.40	-1.09E+01	2.34E+00	5.43E+00
+	PA-233	311.98		38.60	-4.36E+00	8.88E+00	8.88E+00
+	PA-234	131.20		20.40	-6.58E-01	1.52E+00	1.52E+00
		733.99		8.80	-5.84E+00		3.77E+00
		946.00		12.00	9.60E-01		2.23E+00
+	PA-234M	1001.03		0.92	5.17E+01	3.18E+01	3.18E+01
+	TH-234	63.29	*	3.80	4.28E+01	1.10E+01	1.10E+01
+	U-235	143.76		10.50	6.59E+00	2.94E+00	2.94E+00
		163.35		4.70	4.28E+00		6.40E+00
		205.31		4.70	2.18E+00		6.75E+00
+	NP-237	86.50		12.60	9.89E+00	2.95E+00	2.95E+00
+	NP-239	106.10		22.70	3.93E+12	9.69E+11	9.69E+11
		228.18		10.70	-1.38E+12		2.11E+12
		277.60		14.10	1.17E+13		1.93E+12
+	AM-241	59.54		35.90	-5.04E+00	8.57E-01	8.57E-01
+	AM-243	74.67		66.00	2.48E+00	7.18E-01	7.18E-01
+	CM-243	209.75	*	3.29	1.18E+02	2.88E+00	1.48E+01
		228.14		10.60	-1.88E+00		2.88E+00
		277.60	*	14.00	1.61E+01		5.20E+00

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59	10.42	1.02E+01	1.02E+01	-4.32E+00	5.04E+00
	NA-22	1274.54	99.94	2.73E-01	2.73E-01	-6.46E-02	1.34E-01
@	NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NA-24	2754.09		99.86	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	AL-26	1808.65		99.76	2.47E-01	2.47E-01	1.92E-01	1.20E-01
+	K-40	1460.81	*	10.67	4.08E+00	4.08E+00	1.21E+01	2.01E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.31E-01	3.31E-01	-7.32E-02	1.65E-01
		78.34		96.00	4.63E-01		8.95E+00	2.31E-01
	SC-46	889.25		99.98	6.09E-01	6.09E-01	2.02E-02	3.01E-01
		1120.51		99.99	1.29E+00		1.83E+01	6.41E-01
	V-48	983.52		99.98	1.43E+01	1.43E+01	3.41E+00	7.03E+00
		1312.10		97.50	1.51E+01		-1.42E+00	7.40E+00
	CR-51	320.08		9.83	3.35E+01	3.35E+01	-1.52E+01	1.66E+01
	MN-54	834.83		99.97	4.52E-01	4.52E-01	-5.05E-01	2.24E-01
	CO-56	846.75		99.96	6.35E-01	6.35E-01	2.12E-01	3.14E-01
		1037.75		14.03	4.17E+00		-1.02E+00	2.06E+00
		1238.25		67.00	1.47E+00		1.11E+01	7.26E-01
		1771.40		15.51	3.97E+00		-1.04E+00	1.94E+00
		2598.48		16.90	2.54E+00		8.39E-01	1.22E+00
	CO-57	122.06		85.51	4.25E-01	4.25E-01	-4.96E-01	2.12E-01
		136.48		10.60	3.59E+00		1.40E+00	1.79E+00
	CO-58	810.76		99.40	7.12E-01	7.12E-01	-6.76E-03	3.52E-01
	FE-59	1099.22		56.50	1.87E+00	1.87E+00	-5.56E-01	9.21E-01
		1291.56		43.20	2.53E+00		-7.85E-01	1.24E+00
	CO-60	1173.22		100.00	2.57E-01	2.57E-01	-1.57E-01	1.26E-01
		1332.49		100.00	2.80E-01		1.42E-01	1.37E-01
	ZN-65	1115.52		50.75	7.06E-01	7.06E-01	-2.72E+01	3.48E-01
	GA-67	93.31		35.70	3.71E+08	3.71E+08	3.39E+09	1.85E+08
		208.95		2.24	6.15E+09		6.53E+10	3.06E+09
		300.22		16.00	9.16E+08		-6.05E+09	4.56E+08
	SE-75	121.11		16.70	2.90E+00	8.66E-01	-4.37E+00	1.45E+00
		136.00		59.20	8.66E-01		3.38E-01	4.32E-01
		264.65		59.80	9.20E-01		4.35E-02	4.58E-01
		279.53		25.20	2.46E+00		4.77E-01	1.22E+00
		400.65		11.40	5.01E+00		9.84E-01	2.49E+00
	RB-82	776.52		13.00	3.19E+01	3.19E+01	-7.67E+01	1.58E+01
	RB-83	520.41		46.00	1.45E+00	1.45E+00	-2.15E-01	7.20E-01
		529.64		30.30	2.17E+00		-7.59E-01	1.08E+00
		552.65		16.40	4.16E+00		-9.72E-02	2.07E+00
	KR-85	513.99		0.43	1.10E+02	1.10E+02	9.91E+02	5.45E+01
	SR-85	513.99		99.27	1.27E+00	1.27E+00	1.15E+01	6.32E-01
	Y-88	898.02		93.40	5.53E-01	4.73E-01	-1.46E+00	2.73E-01
		1836.01		99.38	4.73E-01		2.00E-01	2.31E-01
	MO-93	263.06		56.72	5.79E-01	2.60E-01	2.71E-02	2.88E-01
		684.67		99.68	3.43E-01		1.11E-01	1.70E-01
		1477.11		99.08	2.60E-01		-1.12E-01	1.28E-01
	NB-93M	16.57		9.43	2.60E+00	2.60E+00	-1.69E+00	1.29E+00
	NB-94	702.63		100.00	3.59E-01	2.80E-01	2.72E-01	1.78E-01
		871.10		100.00	2.80E-01		1.78E-01	1.39E-01
	NB-95	765.79		99.81	2.68E+00	2.68E+00	1.60E+01	1.33E+00
	NB-95M	235.69		25.00	1.08E+08	1.08E+08	-4.68E+09	5.39E+07
	ZR-95	724.18		43.70	2.97E+00	1.78E+00	2.84E+00	1.48E+00
		756.72		55.30	1.78E+00		4.05E+00	8.81E-01
	MO-99	181.06		6.20	7.24E+10	3.76E+10	-1.85E+10	3.61E+10
		739.58		12.80	3.76E+10		3.15E+10	1.86E+10

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MO-99	778.00		4.50	1.01E+11	3.76E+10	-5.35E+11	4.98E+10
	RU-103	497.08		89.00	1.78E+00	1.78E+00	3.60E-01	8.84E-01
	RU-106	621.84		9.80	3.87E+00	3.87E+00	2.09E+00	1.92E+00
	AG-108M	433.93		89.90	3.43E-01	3.43E-01	-7.11E-02	1.70E-01
		614.37		90.40	4.24E-01		-2.53E+01	2.11E-01
		722.95		90.50	4.14E-01		-1.10E+01	2.05E-01
+	CD-109	88.03	*	3.72	2.32E+01	2.32E+01	3.25E+02	1.16E+01
	AG-110M	657.75		93.14	4.51E-01	4.51E-01	-6.23E-02	2.24E-01
		677.61		10.53	4.14E+00		4.18E-01	2.05E+00
		706.67		16.46	2.75E+00		8.67E-01	1.36E+00
		763.93		21.98	2.14E+00		-1.58E+01	1.06E+00
		884.67		71.63	5.00E-01		1.24E-01	2.47E-01
		1384.27		23.94	1.60E+00		1.10E-01	7.86E-01
	CD-113M	263.70		0.02	1.42E+03	1.42E+03	6.67E+01	7.06E+02
	SN-113	255.12		1.93	2.52E+01	8.83E-01	-1.77E+01	1.25E+01
		391.69		64.90	8.83E-01		2.70E-01	4.39E-01
	TE123M	159.00		84.10	6.12E-01	6.12E-01	1.82E-01	3.05E-01
	SB-124	602.71		97.87	9.61E-01	9.61E-01	2.01E-01	4.77E-01
		645.85		7.26	1.28E+01		-1.11E+01	6.33E+00
		722.78		11.10	9.82E+00		-2.60E+02	4.87E+00
		1691.02		49.00	1.47E+00		-7.52E-01	7.18E-01
	I-125	35.49		6.49	1.36E+01	1.36E+01	4.09E+01	6.76E+00
	SB-125	176.33		6.89	4.69E+00	1.15E+00	1.39E+00	2.34E+00
		427.89		29.33	1.15E+00		4.74E-01	5.71E-01
		463.38		10.35	4.29E+00		4.82E+01	2.14E+00
		600.56		17.80	1.91E+00		4.57E-01	9.48E-01
		635.90		11.32	3.01E+00		4.29E-02	1.49E+00
	SB-126	414.70		83.30	6.89E+01	6.06E+01	1.98E+01	3.43E+01
		666.33		99.60	6.43E+01		1.58E+02	3.19E+01
		695.00		99.60	6.06E+01		-2.33E+01	3.01E+01
		720.50		53.80	1.12E+02		1.75E+01	5.56E+01
+	SN-126	87.57	*	37.00	2.03E+00	2.03E+00	2.84E+01	1.02E+00
	SB-127	473.00		25.00	2.27E+07	1.72E+07	-1.89E+07	1.13E+07
		685.20		35.70	1.72E+07		5.56E+06	8.53E+06
		783.80		14.70	4.80E+07		2.77E+08	2.38E+07
	I-129	29.78		57.00	5.33E-01	5.33E-01	1.43E-01	2.65E-01
		33.60		13.20	2.35E+00		1.02E+01	1.17E+00
		39.58		7.52	3.61E+00		8.44E+00	1.80E+00
	I-131	284.30		6.05	1.63E+04	1.13E+03	-2.58E+03	8.09E+03
		364.48		81.20	1.13E+03		-2.93E+02	5.62E+02
		636.97		7.26	1.32E+04		-2.37E+03	6.57E+03
		722.89		1.80	6.24E+04		-1.65E+06	3.10E+04
	TE-132	49.72		13.10	7.43E+08	1.31E+08	-2.69E+08	3.70E+08
		228.16		88.00	1.31E+08		-8.58E+07	6.53E+07
	BA-133	81.00		33.00	9.80E-01	7.23E-01	-2.27E+01	4.89E-01
		302.84		17.80	2.19E+00		1.57E-01	1.09E+00
		356.01		60.00	7.23E-01		-1.32E+01	3.60E-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	1.80E+05	1.80E+05	-4.17E+06	8.97E+04
	CS-134	563.23		8.38	4.50E+00	4.49E-01	9.61E+00	2.23E+00
		569.32		15.43	2.35E+00		2.15E+00	1.17E+00
		604.70		97.60	4.49E-01		-3.11E+01	2.23E-01
		795.84		85.40	5.81E-01		5.79E+00	2.88E-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)
	CS-134	801.93		8.73	3.71E+00	4.49E-01	8.74E-01	1.83E+00
	CS-135	268.24		16.00	2.45E+00	2.45E+00	2.57E+01	1.22E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	5.63E+02	3.87E+01	1.85E+03	2.81E+02
		163.89		4.61	8.71E+02		5.81E+02	4.34E+02
		176.55		13.56	2.98E+02		8.80E+01	1.49E+02
		273.65		12.66	3.98E+02		-2.86E+03	1.98E+02
		340.57		48.50	1.43E+02		3.40E+03	7.14E+01
		818.50		99.70	3.87E+01		9.91E+00	1.91E+01
		1048.07		79.60	4.10E+01		1.31E-01	2.02E+01
		1235.34		19.70	2.65E+02		9.24E+02	1.31E+02
	CS-137	661.65		85.12	4.02E-01	4.02E-01	7.76E-02	1.99E-01
	LA-138	788.74		34.00	1.00E+00	3.83E-01	-8.54E+00	4.98E-01
		1435.80		66.00	3.83E-01		-2.00E-01	1.88E-01
	CE-139	165.85		80.35	5.96E-01	5.96E-01	3.16E-01	2.97E-01
	BA-140	162.64		6.70	6.89E+02	1.94E+02	1.45E+02	3.44E+02
		304.84		4.50	1.10E+03		-2.63E+02	5.46E+02
		423.70		3.20	1.52E+03		-2.34E+02	7.56E+02
		437.55		2.00	2.38E+03		1.73E+02	1.18E+03
		537.32		25.00	1.94E+02		-1.54E+01	9.63E+01
	LA-140	328.77		20.50	2.89E+02	5.50E+01	2.03E+03	1.44E+02
		487.03		45.50	1.05E+02		6.03E+01	5.23E+01
		815.85		23.50	1.86E+02		-1.41E+02	9.20E+01
		1596.49		95.49	5.50E+01		-5.87E+01	2.71E+01
	CE-141	145.44		48.40	4.61E+00	4.61E+00	6.79E+00	2.30E+00
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	3.47E+00	3.47E+00	-5.02E-01	1.73E+00
	PM-144	476.78		42.00	9.04E-01	3.93E-01	-2.48E-01	4.49E-01
		618.01		98.60	3.93E-01		-6.28E-01	1.95E-01
		696.49		99.49	4.08E-01		1.19E-02	2.02E-01
	PM-145	36.85		21.70	1.36E+00	7.22E-01	-3.36E+00	6.76E-01
		37.36		39.70	7.22E-01		-2.33E+00	3.60E-01
		42.30		15.10	1.68E+00		-9.00E+00	8.36E-01
		72.40		2.31	1.70E+01		-5.59E+00	8.46E+00
+	PM-146	453.90	*	39.94	9.33E-01	9.33E-01	1.41E+00	4.64E-01
		735.90		14.01	2.38E+00		-3.52E+00	1.18E+00
		747.13		13.10	2.54E+00		-2.86E+00	1.26E+00
	ND-147	91.11		28.90	4.69E+02	4.69E+02	5.92E+03	2.34E+02
		531.02		13.10	8.48E+02		-1.05E+02	4.21E+02
	PM-149	285.90		3.10	4.64E+13	4.64E+13	-1.12E+13	2.31E+13
	EU-152	121.78		20.50	1.40E+00	1.40E+00	-2.11E+00	6.99E-01
		244.69		5.40	6.17E+00		-5.56E+01	3.07E+00
		344.27		19.13	1.73E+00		-9.94E+00	8.62E-01
		778.89		9.20	3.53E+00		-3.12E+00	1.75E+00
		964.01		10.40	5.08E+00		-1.61E+02	2.52E+00
		1085.78		7.22	3.44E+00		8.14E-01	1.69E+00
		1112.02		9.60	2.92E+00		2.18E+00	1.44E+00
		1407.95		14.94	2.40E+00		6.33E+00	1.18E+00
	GD-153	97.43		31.30	1.20E+00	1.20E+00	-9.47E+00	5.99E-01

Analysis Report for 1707077-04

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GD-153	103.18		22.20	1.70E+00	1.20E+00	5.06E-01	8.47E-01
	EU-154	123.07		40.50	7.30E-01	7.30E-01	-4.90E-01	3.64E-01
		723.30		19.70	1.94E+00		-5.13E+01	9.62E-01
		873.19		11.50	2.48E+00		9.01E-01	1.22E+00
		996.32		10.30	2.46E+00		-7.88E-03	1.21E+00
		1004.76		17.90	1.65E+00		3.06E+00	8.12E-01
		1274.45		35.50	7.34E-01		-1.73E-01	3.60E-01
	EU-155	86.50		30.90	1.25E+00	1.25E+00	4.18E+00	6.21E-01
		105.30		20.70	1.47E+00		4.31E+00	7.31E-01
	EU-156	811.77		10.40	1.91E+02	1.91E+02	5.77E+01	9.42E+01
		1153.47		7.20	3.04E+02		1.08E+03	1.50E+02
		1230.71		8.90	1.95E+02		-5.41E+00	9.60E+01
	HO-166M	184.41		72.60	5.01E-01	5.01E-01	5.53E+00	2.50E-01
		280.45		29.60	1.17E+00		-1.74E-01	5.83E-01
		410.94		11.10	3.28E+00		-8.63E-02	1.63E+00
		711.69		54.10	6.24E-01		-7.97E-02	3.09E-01
	TM-171	66.72		0.14	2.47E+02	2.47E+02	9.77E+01	1.23E+02
	HF-172	67.35		5.31	6.46E+00	2.90E+00	-1.43E+00	3.22E+00
		125.81		11.30	2.90E+00		-6.48E-01	1.45E+00
	LU-172	181.53		20.60	2.23E+04	6.78E+03	-5.70E+03	1.11E+04
		900.72		29.81	1.45E+04		-4.93E+04	7.17E+03
		1093.66		62.50	6.78E+03		1.33E+04	3.34E+03
	LU-173	100.72		5.24	6.21E+00	2.11E+00	-8.39E-02	3.10E+00
		272.11		21.20	2.11E+00		-3.13E+00	1.05E+00
	HF-175	343.40		84.00	9.94E-01	9.94E-01	-2.52E+01	4.95E-01
	LU-176	88.34		13.30	2.94E+00	3.35E-01	2.33E+01	1.46E+00
		201.83		86.00	3.64E-01		-1.60E-01	1.82E-01
		306.78		94.00	3.35E-01		-2.68E-01	1.67E-01
	HF-181	133.02		41.70	3.27E+00	1.73E+00	-4.73E-01	1.63E+00
		345.85		17.20	8.64E+00		-2.25E+02	4.30E+00
		482.03		82.80	1.73E+00		7.49E-02	8.58E-01
	TA-182	67.75		41.20	1.33E+00	1.33E+00	-2.94E-01	6.63E-01
		1121.30		34.90	3.02E+00		4.33E+01	1.50E+00
		1189.05		16.23	2.70E+00		6.68E-01	1.32E+00
		1221.41		26.98	1.61E+00		-6.87E-01	7.90E-01
		1231.02		11.44	3.85E+00		-1.07E-01	1.89E+00
	IR-192	308.46		29.68	2.51E+00	1.57E+00	-3.09E+00	1.25E+00
		468.07		48.10	1.57E+00		5.46E-01	7.79E-01
	HG-203	279.19		77.30	1.86E+00	1.86E+00	3.61E-01	9.27E-01
	TL-204	374.74		94.11	3.54E-01	2.97E-01	1.36E-01	1.76E-01
		899.15		99.16	2.97E-01		-1.43E+00	1.47E-01
		911.74		91.10	1.12E+00		3.43E+01	5.60E-01
	BI-207	569.67		97.72	3.42E-01	3.42E-01	3.23E-01	1.70E-01
		1063.62		74.90	3.67E-01		3.95E-01	1.81E-01
+	TL-208	583.14	*	30.22	2.21E+00	1.16E+00	1.03E+02	1.10E+00
		860.37	*	4.48	1.05E+01		1.17E+02	5.19E+00
		2614.66	*	35.85	1.16E+00		1.10E+02	5.71E-01
	BI-210M	262.00		45.00	7.23E-01	7.23E-01	3.35E-02	3.60E-01
		300.00		23.00	1.73E+00		-4.38E+01	8.61E-01
+	PB-210	46.50	*	4.25	6.33E+00	6.33E+00	6.51E+00	3.15E+00
	PB-211	404.84		2.90	1.16E+01	1.16E+01	7.34E+00	5.77E+00
		831.96		2.90	1.19E+01		-1.55E+01	5.91E+00
+	BI-212	727.17	*	11.80	4.61E+00	4.61E+00	6.43E+01	2.29E+00

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-212	1620.62	*	2.75	2.99E+01	4.61E+00	7.04E+01	1.49E+01
+	PB-212	238.63	*	44.60	1.90E+00	1.90E+00	1.14E+02	9.49E-01
		300.09	*	3.41	2.61E+01		1.20E+02	1.30E+01
+	BI-214	609.31	*	46.30	1.40E+00	1.40E+00	5.46E+01	6.97E-01
		1120.29	*	15.10	2.96E+00		5.94E+01	1.47E+00
		1764.49	*	15.80	3.16E+00		6.45E+01	1.56E+00
		2204.22	*	4.98	1.05E+01		6.50E+01	5.21E+00
+	PB-214	295.21	*	19.19	4.59E+00	1.52E+00	5.63E+01	2.29E+00
		351.92	*	37.19	1.52E+00		5.85E+01	7.60E-01
	RN-219	401.80		6.50	5.17E+00	5.17E+00	5.27E+00	2.57E+00
	RA-223	323.87		3.88	8.68E+00	8.68E+00	-1.06E+02	4.32E+00
+	RA-224	240.98	*	3.95	2.18E+01	2.18E+01	2.79E+02	1.09E+01
+	RA-225	40.00	*	31.00	1.40E+02	1.40E+02	2.09E+02	6.96E+01
+	RA-226	186.21	*	3.28	1.61E+01	1.61E+01	1.29E+02	8.02E+00
	TH-227	50.10		8.40	3.09E+00	3.09E+00	-1.25E+00	1.54E+00
		236.00		11.50	4.24E+00		-1.83E+02	2.11E+00
		256.20		6.30	5.22E+00		-3.11E+00	2.60E+00
+	AC-228	338.32	*	11.40	1.06E+01	2.91E+00	1.13E+02	5.29E+00
		911.07	*	27.70	2.91E+00		1.12E+02	1.45E+00
		969.11	*	16.60	4.83E+00		1.13E+02	2.41E+00
	TH-230	48.44		16.90	1.53E+00	1.53E+00	-4.30E-01	7.64E-01
		62.85		4.60	6.87E+00		1.78E+01	3.43E+00
		67.67		0.37	8.43E+01		-1.86E+01	4.20E+01
	PA-231	283.67		1.60	2.03E+01	1.67E+01	-3.25E+00	1.01E+01
		302.67		2.30	1.67E+01		1.19E+00	8.31E+00
	TH-231	25.64		14.70	2.34E+00	2.34E+00	-2.21E+00	1.16E+00
		84.21		6.40	5.43E+00		-1.09E+01	2.71E+00
	PA-233	311.98		38.60	8.88E+00	8.88E+00	-4.36E+00	4.42E+00
	PA-234	131.20		20.40	1.52E+00	1.52E+00	-6.58E-01	7.58E-01
		733.99		8.80	3.77E+00		-5.84E+00	1.87E+00
		946.00		12.00	2.23E+00		9.60E-01	1.10E+00
	PA-234M	1001.03		0.92	3.18E+01	3.18E+01	5.17E+01	1.57E+01
+	TH-234	63.29	*	3.80	1.10E+01	1.10E+01	4.28E+01	5.49E+00
	U-235	143.76		10.50	2.94E+00	2.94E+00	6.59E+00	1.47E+00
		163.35		4.70	6.40E+00		4.28E+00	3.19E+00
		205.31		4.70	6.75E+00		2.18E+00	3.36E+00
	NP-237	86.50		12.60	2.95E+00	2.95E+00	9.89E+00	1.47E+00
	NP-239	106.10		22.70	9.69E+11	9.69E+11	3.93E+12	4.83E+11
		228.18		10.70	2.11E+12		-1.38E+12	1.05E+12
		277.60		14.10	1.93E+12		1.17E+13	9.60E+11
	AM-241	59.54		35.90	8.57E-01	8.57E-01	-5.04E+00	4.27E-01
	AM-243	74.67		66.00	7.18E-01	7.18E-01	2.48E+00	3.59E-01
+	CM-243	209.75	*	3.29	1.48E+01	2.88E+00	1.18E+02	7.37E+00
		228.14		10.60	2.88E+00		-1.88E+00	1.43E+00
		277.60	*	14.00	5.20E+00		1.61E+01	2.60E+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

Analysis Report for 1707077-04

HTC-A01-S001-0006-01

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: HTC-A01-S001-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3676

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	2	75	3620	3801	3731	3790	4131	3797
25:	3678	3634	3434	3606	3501	3673	3589	3772
33:	4014	4795	5691	4222	4111	4151	4259	4856
41:	4108	3747	3776	3893	3778	4360	5113	4360
49:	4315	4689	4694	4950	5145	5336	5450	6716
57:	8694	10113	7027	6262	6694	6855	8304	9637
65:	8439	8446	7891	8186	7600	7649	7875	8316
73:	9448	11897	24847	17873	29443	27052	9093	8173
81:	8230	8193	7530	9990	10062	8300	14303	15339
89:	9208	13421	10752	8927	14411	13506	8016	6387
97:	6006	6484	7022	7568	6256	5881	6000	6112
105:	7350	7705	6362	6223	6588	6305	6098	6101
113:	6171	6190	6546	6601	5956	5793	5849	5860
121:	5778	5901	5905	6039	6322	6382	6420	6785
129:	9185	8506	6509	6358	6170	6114	6152	6076
137:	6066	6131	6146	6016	5963	6020	6014	6775
145:	6287	6084	5812	5755	5875	5785	5925	5929
153:	5888	7011	6541	5517	5475	5512	5414	5354
161:	5438	5458	5282	5355	5171	5332	5187	5014
169:	4949	5004	5059	5041	4993	5072	4870	5058
177:	5085	5029	5114	4984	4930	5086	5005	5266
185:	6149	10269	7952	5121	4913	4824	4957	4783
193:	4628	4733	4754	4737	4789	4668	4859	4903
201:	4585	4733	4446	4653	4774	4671	4531	4838
209:	8277	8513	4765	4273	4193	4230	4201	4461
217:	4252	4069	4023	3886	4053	3906	3930	3920
225:	3969	3932	3864	3749	3776	3795	3787	3829
233:	3832	3889	4027	4819	5940	28440	64096	18469
241:	10262	11937	7205	4120	3185	3015	2958	2834
249:	2649	2703	2740	2829	2969	2727	2664	2863
257:	2908	2643	2827	2674	2632	2550	2572	2584
265:	2530	2509	2473	2490	3409	6239	5705	3091
273:	2537	2648	2729	2642	4084	4407	2794	2422
281:	2386	2430	2346	2255	2337	2387	2374	2593
289:	2452	2220	2177	2313	2418	3535	11395	10263
297:	2880	2172	3019	5808	4494	2308	2252	2164
305:	2042	2026	2005	1883	1925	1906	1855	1986
313:	2024	2018	1992	1955	1915	1893	1910	1948
321:	2007	2114	1947	2086	1946	1985	2692	4695
329:	3403	2159	1913	2229	2290	1947	1882	1923
337:	3002	10945	10991	2961	2211	2107	2067	1907
345:	1707	1652	1641	1718	1869	2217	7534	21210
353:	9776	2128	1805	1944	1955	1641	1518	1521
361:	1420	1521	1530	1505	1452	1388	1471	1425

369:	1493	1508	1490	1545	1512	1559	1531	1514

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Channel								
377:	1518	1480	1520	1468	1509	1454	1542	1506
385:	1473	1506	1613	1635	1617	1575	1500	1403
393:	1501	1524	1497	1429	1494	1485	1469	1523
401:	1547	1685	1521	1452	1583	1519	1389	1526
409:	2481	2773	1496	1247	1369	1331	1393	1311
417:	1382	1244	1234	1323	1247	1271	1257	1250
425:	1228	1312	1288	1282	1203	1226	1154	1169
433:	1209	1128	1095	1133	1173	1115	1138	1202
441:	1178	1127	1121	1116	1218	1101	1155	1086
449:	1081	1082	1050	1203	1450	1207	1187	1095
457:	1060	1057	1013	1066	1086	2020	4369	2622
465:	1186	1072	1071	1057	1052	1078	1056	974
473:	1021	1082	1051	944	1044	1142	1086	1100
481:	1028	995	954	993	952	946	1147	1041
489:	913	965	936	969	923	940	906	936
497:	1004	935	930	940	907	931	1008	1002
505:	975	961	989	1103	1680	3929	6386	2762
513:	1224	1008	1081	1006	953	905	880	960
521:	874	925	932	956	912	861	852	852
529:	885	884	848	862	922	974	895	890
537:	797	839	866	871	886	876	853	866
545:	873	923	946	935	899	944	902	878
553:	851	849	862	869	859	849	838	828
561:	874	1219	1289	902	817	904	882	855
569:	840	878	902	975	858	801	828	850
577:	814	848	884	1036	1265	5112	17852	11877
585:	2054	1058	1263	1239	918	793	762	739
593:	751	778	715	774	777	762	763	768
601:	776	744	718	736	776	839	992	3492
609:	13055	10643	2076	935	991	1004	856	794
617:	687	645	720	741	759	682	704	675
625:	679	700	691	678	713	728	638	697
633:	696	714	702	613	672	756	684	698
641:	717	687	673	675	672	637	635	702
649:	672	691	729	747	701	690	649	667
657:	672	666	702	661	716	692	653	750
665:	980	1027	747	737	698	662	648	736
673:	664	733	683	696	748	683	738	657
681:	653	654	711	719	674	633	721	656
689:	668	681	610	618	713	643	695	640
697:	640	707	723	699	757	790	839	791
705:	706	648	670	744	667	692	642	681
713:	630	618	597	608	619	565	653	685
721:	626	631	620	628	659	1596	4017	3132
729:	1015	618	694	661	579	601	562	561
737:	513	536	583	576	595	598	679	558
745:	512	588	557	558	520	551	528	600
753:	564	682	981	856	568	532	498	562
761:	531	575	817	650	606	666	877	1541
769:	1314	612	694	1163	938	591	466	473
777:	475	461	479	446	545	677	567	545
785:	1003	1143	642	452	443	441	399	439
793:	587	1413	2434	1176	486	443	439	477

801:	424	366	391	380	438	718	496	378

Sample Title: HTC-A01-S001-0006-01

Channel								
809:	366	370	388	376	354	404	389	378
817:	352	367	367	406	417	377	361	421
825:	381	410	392	344	396	585	581	455
833:	379	465	884	1065	499	462	603	810
841:	643	395	324	350	351	348	334	333
849:	346	323	297	319	329	339	315	324
857:	320	332	665	1991	1994	682	369	377
865:	375	319	313	308	311	332	352	309
873:	327	343	290	305	323	301	306	301
881:	304	317	301	294	335	310	306	320
889:	281	333	323	372	440	407	354	282
897:	316	304	328	311	314	329	432	624
905:	471	335	323	428	757	4692	11597	7133
913:	1258	489	595	562	363	298	250	254
921:	247	259	254	261	249	281	263	280
929:	262	263	289	299	541	870	575	303
937:	251	252	256	241	248	231	264	315
945:	261	243	243	259	250	258	256	263
953:	260	250	248	252	276	342	337	271
961:	257	268	535	1785	2187	935	877	3975
969:	6968	2966	575	365	374	348	279	262
977:	233	204	234	220	201	247	243	209
985:	176	249	247	278	256	193	210	228
993:	197	176	230	234	209	197	215	358
1001:	456	330	215	247	267	239	193	188
1009:	186	201	225	179	201	193	219	226
1017:	234	218	213	237	185	210	199	201
1025:	205	201	198	206	182	198	213	220
1033:	272	281	184	180	192	207	211	228
1041:	213	183	183	153	183	181	174	170
1049:	195	169	235	275	208	183	199	206
1057:	217	208	213	178	186	238	200	257
1065:	317	228	194	188	232	242	214	155
1073:	193	200	198	182	253	330	341	231
1081:	185	182	158	188	170	188	166	188
1089:	174	173	150	191	282	350	279	241
1097:	195	178	171	144	163	178	188	173
1105:	174	191	175	162	196	290	305	226
1113:	180	162	173	210	227	331	1257	2860
1121:	1816	463	269	253	248	192	154	188
1129:	186	192	157	187	185	187	188	167
1137:	150	198	164	172	153	161	188	174
1145:	163	166	155	166	150	165	172	178
1153:	250	383	439	320	188	169	151	145
1161:	167	157	159	185	183	176	186	195
1169:	176	158	147	181	157	179	174	143
1177:	169	171	147	147	162	185	188	151
1185:	129	152	143	183	152	163	168	161
1193:	165	167	144	155	158	155	141	158
1201:	148	157	163	168	164	174	241	237
1209:	190	157	152	145	153	154	154	173
1217:	160	150	156	140	151	142	159	162
1225:	159	154	148	158	154	155	147	164

1233:	156	152	158	228	675	1115	657	241

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Channel								
1241:	177	183	202	200	214	253	276	253
1249:	192	173	178	176	196	176	150	139
1257:	155	163	147	163	137	160	158	145
1265:	178	142	187	138	154	153	154	129
1273:	162	160	141	165	152	167	196	283
1281:	344	227	164	173	152	159	186	158
1289:	176	144	140	157	137	156	157	143
1297:	136	144	151	166	160	148	142	159
1305:	137	158	137	158	149	135	162	154
1313:	169	137	161	157	158	156	152	148
1321:	154	120	150	139	146	136	144	140
1329:	169	159	145	167	189	140	150	145
1337:	161	147	149	138	135	141	153	134
1345:	155	173	137	156	161	138	138	162
1353:	135	159	146	138	146	148	162	137
1361:	143	137	143	145	160	154	159	180
1369:	133	133	148	147	196	207	192	317
1377:	730	718	286	155	163	154	148	197
1385:	245	197	164	144	148	139	148	134
1393:	157	142	151	151	124	119	179	223
1401:	330	305	167	145	151	209	411	436
1409:	264	159	148	108	128	134	150	128
1417:	120	123	117	111	158	132	112	151
1425:	126	142	138	130	122	144	152	155
1433:	113	139	126	110	122	108	130	123
1441:	138	125	123	153	126	130	97	114
1449:	130	118	122	124	139	120	131	130
1457:	156	300	369	294	176	147	133	117
1465:	122	122	130	107	116	101	107	131
1473:	117	135	120	103	133	120	118	156
1481:	118	133	116	129	130	122	111	115
1489:	141	117	131	125	122	176	316	318
1497:	225	143	124	185	224	217	112	142
1505:	115	127	165	289	414	292	172	204
1513:	212	154	101	107	106	109	103	122
1521:	111	103	124	87	119	119	123	124
1529:	132	137	125	124	100	127	106	116
1537:	171	163	150	110	112	120	198	132
1545:	120	104	111	119	96	98	94	103
1553:	110	100	103	136	156	118	97	104
1561:	88	109	99	110	88	104	91	92
1569:	89	98	90	96	103	93	84	86
1577:	101	115	204	258	210	149	173	154
1585:	143	212	702	966	508	199	384	660
1593:	510	229	152	121	101	133	139	117
1601:	91	82	90	92	118	101	111	104
1609:	102	93	92	99	109	92	85	77
1617:	107	110	249	460	415	191	115	162
1625:	167	123	106	137	263	525	411	163
1633:	95	108	100	96	170	228	152	100
1641:	78	86	90	95	78	87	88	87
1649:	87	84	79	81	89	97	81	100
1657:	89	79	98	148	217	136	108	73

1665:	112	148	129	86	72	71	88	76

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Channel								
1673:	75	76	72	78	98	97	107	85
1681:	71	78	97	124	122	108	87	66
1689:	80	92	99	116	116	108	75	85
1697:	78	71	80	66	90	94	86	80
1705:	77	69	66	96	79	80	89	68
1713:	75	77	75	75	69	60	79	65
1721:	88	87	76	77	69	77	129	283
1729:	476	351	157	78	83	81	68	76
1737:	83	97	83	80	71	80	67	64
1745:	72	72	80	65	64	83	82	72
1753:	71	67	93	81	79	85	72	82
1761:	112	321	1138	1976	1252	381	150	144
1769:	133	93	74	66	85	68	76	84
1777:	59	71	68	65	53	71	73	65
1785:	65	75	81	83	73	66	73	63
1793:	88	63	72	68	82	69	69	71
1801:	67	68	67	77	92	90	83	77
1809:	78	87	83	71	71	72	73	60
1817:	70	62	81	66	74	76	74	72
1825:	92	73	59	58	69	78	73	76
1833:	85	82	94	83	92	118	96	82
1841:	85	85	76	70	116	213	332	217
1849:	92	89	94	77	72	70	56	76
1857:	80	70	72	70	72	68	70	83
1865:	70	77	84	73	79	89	92	91
1873:	87	87	72	69	82	68	87	75
1881:	91	70	84	71	76	70	83	92
1889:	84	103	71	74	72	71	98	92
1897:	77	83	73	91	60	82	82	77
1905:	82	74	69	94	93	77	90	92
1913:	77	78	68	71	72	77	81	81
1921:	75	84	86	77	92	83	74	83
1929:	86	84	92	77	84	81	88	94
1937:	85	78	74	85	61	83	77	82
1945:	66	64	83	84	71	77	98	99
1953:	52	81	84	87	74	93	97	84
1961:	71	73	88	77	66	71	80	71
1969:	69	73	72	77	68	62	79	75
1977:	61	67	59	71	72	82	64	75
1985:	72	68	69	64	53	70	62	57
1993:	52	82	70	75	76	74	72	64
2001:	65	80	73	68	72	61	76	67
2009:	76	75	71	80	62	76	69	65
2017:	92	65	77	87	66	79	65	85
2025:	78	66	68	63	83	80	77	83
2033:	76	70	64	68	59	55	73	77
2041:	76	62	76	70	78	69	79	72
2049:	67	62	75	68	81	56	69	54
2057:	72	73	68	79	66	59	66	89
2065:	65	54	80	62	69	70	71	60
2073:	68	62	71	61	59	77	74	73
2081:	80	77	73	59	65	67	69	72
2089:	73	74	74	50	71	78	69	82

2097:	82	60	104	149	321	531	625	448

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Channel								
2105:	256	123	107	98	93	99	72	67
2113:	66	89	71	95	176	177	137	103
2121:	66	84	78	70	71	85	77	73
2129:	69	70	63	81	84	79	70	63
2137:	94	74	71	84	86	72	81	66
2145:	79	72	74	80	105	87	84	79
2153:	75	84	90	66	77	67	71	78
2161:	81	83	78	60	83	76	76	68
2169:	83	77	71	60	85	80	101	87
2177:	84	86	67	77	81	67	72	65
2185:	89	78	88	98	76	74	95	77
2193:	67	79	95	83	104	93	84	90
2201:	120	295	527	466	223	138	110	113
2209:	104	87	82	88	74	105	79	82
2217:	80	88	110	85	87	99	104	80
2225:	78	79	72	82	97	86	93	87
2233:	97	93	89	85	98	88	89	90
2241:	77	103	91	99	102	82	85	91
2249:	81	71	86	99	94	94	96	79
2257:	89	83	82	101	84	76	95	92
2265:	97	94	85	90	91	104	91	90
2273:	85	104	101	105	82	94	100	101
2281:	80	102	98	97	83	77	80	103
2289:	90	110	98	125	129	91	99	95
2297:	107	105	99	99	87	110	101	106
2305:	116	95	93	119	100	96	108	113
2313:	107	98	103	74	110	94	103	92
2321:	103	106	105	99	112	130	118	112
2329:	98	86	119	110	101	98	108	116
2337:	132	111	125	126	123	111	124	120
2345:	119	100	111	132	115	108	100	129
2353:	109	113	127	113	99	101	112	113
2361:	114	111	123	108	119	120	119	109
2369:	130	118	114	116	105	118	113	118
2377:	120	122	131	114	111	96	89	84
2385:	95	91	89	92	94	101	81	88
2393:	71	81	75	67	83	75	62	78
2401:	80	76	62	71	76	70	73	70
2409:	80	76	88	76	78	78	65	74
2417:	81	85	82	69	68	74	77	78
2425:	80	78	64	73	75	72	83	53
2433:	79	62	70	64	68	56	84	63
2441:	76	68	62	62	114	175	202	114
2449:	74	65	77	55	38	62	57	65
2457:	60	49	53	55	69	62	59	63
2465:	64	65	62	51	50	56	40	65
2473:	55	63	51	56	50	50	50	62
2481:	31	59	44	41	56	44	49	51
2489:	37	28	51	46	42	37	45	44
2497:	38	41	42	32	27	37	22	27
2505:	28	27	27	35	44	31	34	28
2513:	31	27	22	36	27	28	33	24
2521:	20	24	30	25	25	24	17	24

2529:	23	24	29	20	24	21	32	22

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Channel								
2537:	14	22	21	20	21	13	24	17
2545:	24	21	19	15	22	24	22	16
2553:	27	17	23	21	25	13	25	15
2561:	20	17	13	18	20	18	17	14
2569:	20	17	20	19	15	13	20	22
2577:	17	20	24	25	15	18	17	20
2585:	20	27	19	24	16	17	12	27
2593:	13	22	25	20	28	21	28	20
2601:	26	24	17	20	29	29	28	21
2609:	60	132	535	2110	4278	4303	2000	527
2617:	206	174	113	41	24	12	18	16
2625:	10	13	8	17	11	16	9	19
2633:	12	18	14	10	8	9	11	15
2641:	18	13	12	12	13	11	13	12
2649:	9	16	13	15	15	22	12	11
2657:	15	16	4	13	17	12	8	12
2665:	16	7	15	9	9	8	15	14
2673:	13	16	16	7	14	10	17	16
2681:	11	12	17	21	25	23	22	29
2689:	24	13	21	13	18	14	11	13
2697:	16	16	18	13	13	11	16	10
2705:	16	9	13	11	10	11	11	7
2713:	15	15	11	5	7	12	17	11
2721:	10	8	10	11	12	11	6	12
2729:	7	9	12	10	13	10	10	15
2737:	13	5	14	13	9	8	14	17
2745:	9	6	7	10	9	11	5	3
2753:	9	12	8	18	12	9	13	4
2761:	11	7	12	9	9	12	8	8
2769:	13	18	10	11	10	11	7	7
2777:	11	17	11	5	14	7	7	13
2785:	10	11	12	10	13	7	12	13
2793:	6	9	13	9	11	9	15	12
2801:	10	7	11	6	5	10	8	9
2809:	5	8	11	8	6	9	8	6
2817:	6	3	9	8	11	7	7	8
2825:	9	13	15	7	9	7	8	5
2833:	8	9	4	5	7	7	15	5
2841:	9	10	15	12	6	6	7	7
2849:	9	4	4	7	7	5	8	6
2857:	4	5	7	11	8	5	10	9
2865:	7	9	12	8	5	6	6	9
2873:	7	3	4	6	15	11	7	7
2881:	11	7	3	11	8	10	9	9
2889:	9	11	17	12	11	7	14	11
2897:	2	4	10	9	6	7	7	5
2905:	6	5	16	7	2	5	7	10
2913:	8	11	8	3	9	8	10	8
2921:	8	8	7	5	6	1	8	6
2929:	10	3	11	7	5	4	3	4
2937:	4	11	8	7	5	6	8	3
2945:	6	4	5	8	4	5	10	4
2953:	5	7	7	7	7	6	6	6

2961:	7	5	5	12	3	8	6	9

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Channel								
2969:	6	2	4	7	5	8	3	8
2977:	8	8	9	7	10	9	7	6
2985:	5	3	7	2	5	7	8	7
2993:	7	5	8	7	10	9	4	8
3001:	6	5	5	5	9	5	6	5
3009:	5	5	4	4	6	3	8	3
3017:	4	5	11	2	4	1	5	7
3025:	4	3	2	8	3	1	1	4
3033:	3	1	5	3	3	4	3	6
3041:	1	6	5	3	4	1	5	2
3049:	6	3	6	1	3	3	2	2
3057:	6	2	2	0	7	5	3	4
3065:	3	2	3	4	2	5	2	2
3073:	3	3	1	3	2	3	1	5
3081:	1	2	2	2	4	0	2	3
3089:	0	2	0	0	0	3	2	0
3097:	4	1	2	0	1	3	5	0
3105:	4	0	2	1	1	1	4	1
3113:	5	1	4	1	0	1	2	2
3121:	3	5	25	17	16	8	4	3
3129:	0	2	3	1	1	1	0	1
3137:	2	3	2	1	2	3	0	3
3145:	0	3	2	1	2	3	2	0
3153:	1	1	2	3	2	1	1	2
3161:	1	1	2	1	2	3	4	3
3169:	1	5	2	3	3	3	0	2
3177:	2	2	3	0	1	2	1	0
3185:	1	2	2	2	2	3	3	4
3193:	5	24	77	89	66	25	8	3
3201:	6	2	3	2	1	1	1	2
3209:	3	0	0	2	2	2	4	0
3217:	3	1	2	1	1	1	1	4
3225:	1	1	1	0	1	2	0	2
3233:	2	0	0	2	0	0	0	0
3241:	1	1	1	0	2	1	1	2
3249:	2	2	1	1	2	1	1	0
3257:	0	0	0	0	1	3	1	1
3265:	1	1	0	1	1	4	1	1
3273:	3	2	0	1	0	1	2	2
3281:	0	1	0	2	1	2	2	0
3289:	1	1	1	0	0	3	1	1
3297:	2	0	0	0	1	0	0	0
3305:	2	1	0	0	3	1	2	1
3313:	1	1	1	0	0	2	0	2
3321:	0	0	1	1	0	0	0	0
3329:	1	1	1	1	1	2	0	0
3337:	0	0	1	1	0	1	1	0
3345:	1	2	1	0	1	0	0	0
3353:	3	1	1	0	1	2	1	1
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	0	1	1	2	4
3377:	0	1	1	1	1	1	1	0
3385:	0	0	0	0	2	1	1	1

3393:	0	0	1	1	0	1	1	0

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

3825:	0	0	1	0	0	0	0	0

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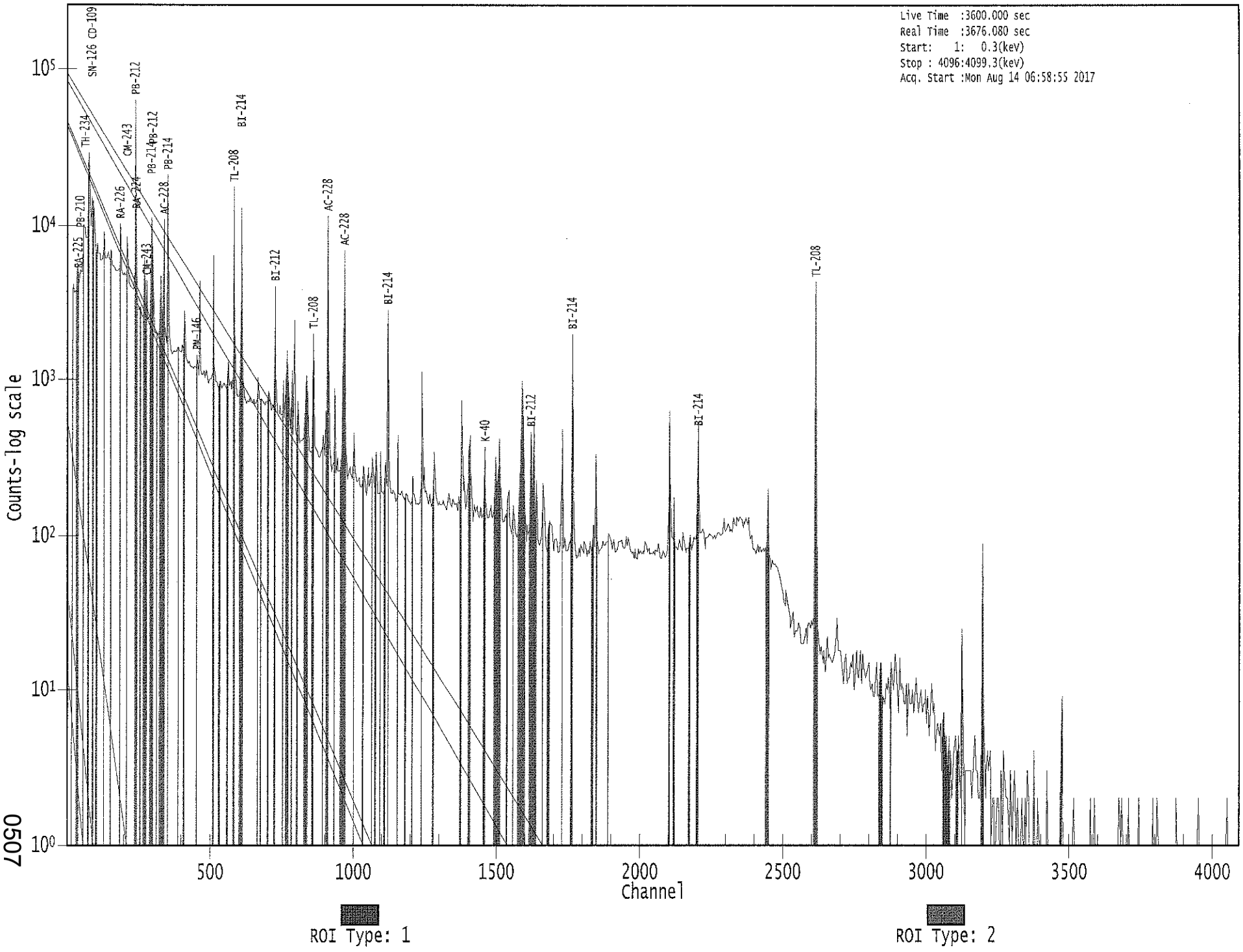
Channel								
3833:	0	0	0	0	0	1	0	0
3841:	0	0	1	1	0	0	0	1
3849:	0	0	0	0	0	0	1	0
3857:	0	1	0	0	0	0	0	0
3865:	0	1	0	0	0	0	0	1
3873:	2	0	0	0	0	0	0	0
3881:	0	0	0	0	1	0	0	1
3889:	0	0	0	0	0	0	1	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	1	1	0	0	0	0
3921:	0	1	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0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

0000055132.CNF



0607

Apex-Gamma

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

8/14

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-05
Sample Description	: HTC-A01-S001-0612-01
Sample Type	: SOIL
Sample Size	: 8.071E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:32:26AM
Acquisition Started	: 8/14/2017 5:52:57AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3664.5 seconds
Dead Time	: 1.76 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55128

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 6:54:33AM
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	16.49	16.82	0.0000	0.00
2	40.13	40.45	0.0000	0.00
3	46.50	46.81	0.0000	0.00
4	57.59	57.90	0.0000	0.00
5	63.39	63.69	0.0000	0.00
6	76.23	76.53	0.0000	0.00
7	84.70	85.00	0.0000	0.00
8	90.70	91.00	0.0000	0.00
9	99.40	99.70	0.0000	0.00
10	105.48	105.77	0.0000	0.00
11	114.91	115.20	0.0000	0.00
12	129.29	129.58	0.0000	0.00
13	144.26	144.54	0.0000	0.00
14	154.31	154.59	0.0000	0.00
15	186.13	186.40	0.0000	0.00
16	209.43	209.69	0.0000	0.00
17	217.85	218.10	0.0000	0.00
18	238.79	239.04	0.0000	0.00
19	241.51	241.76	0.0000	0.00
20	258.57	258.81	0.0000	0.00
21	267.12	267.36	0.0000	0.00
22	270.43	270.67	0.0000	0.00
23	277.40	277.64	0.0000	0.00
24	287.92	288.15	0.0000	0.00
25	295.36	295.58	0.0000	0.00
26	300.27	300.49	0.0000	0.00
27	328.10	328.32	0.0000	0.00
28	338.56	338.77	0.0000	0.00
29	352.05	352.26	0.0000	0.00
30	376.42	376.62	0.0000	0.00
31	388.55	388.74	0.0000	0.00
32	403.03	403.22	0.0000	0.00
33	409.55	409.74	0.0000	0.00
34	453.67	453.84	0.0000	0.00
35	463.21	463.39	0.0000	0.00
36	479.49	479.66	0.0000	0.00
37	504.30	504.45	0.0000	0.00
38	510.80	510.96	0.0000	0.00
39	555.52	555.66	0.0000	0.00
40	562.59	562.72	0.0000	0.00
41	583.17	583.30	0.0000	0.00
42	609.30	609.42	0.0000	0.00

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	664.65	664.75	0.0000	0.00
44	678.20	678.30	0.0000	0.00
45	702.19	702.28	0.0000	0.00
46	727.15	727.24	0.0000	0.00
47	755.45	755.52	0.0000	0.00
48	762.93	763.00	0.0000	0.00
49	768.17	768.24	0.0000	0.00
50	772.12	772.19	0.0000	0.00
51	784.95	785.01	0.0000	0.00
52	794.91	794.97	0.0000	0.00
53	806.09	806.15	0.0000	0.00
54	835.64	835.68	0.0000	0.00
55	840.61	840.65	0.0000	0.00
56	860.36	860.39	0.0000	0.00
57	893.96	893.98	0.0000	0.00
58	911.11	911.13	0.0000	0.00
59	915.77	915.79	0.0000	0.00
60	934.10	934.12	0.0000	0.00
61	964.68	964.68	0.0000	0.00
62	968.86	968.86	0.0000	0.00
63	1000.46	1000.45	0.0000	0.00
64	1063.18	1063.15	0.0000	0.00
65	1079.02	1078.98	0.0000	0.00
66	1094.14	1094.09	0.0000	0.00
67	1110.38	1110.33	0.0000	0.00
68	1120.06	1120.01	0.0000	0.00
69	1154.85	1154.79	0.0000	0.00
70	1215.75	1215.67	0.0000	0.00
71	1237.87	1237.78	0.0000	0.00
72	1245.64	1245.55	0.0000	0.00
73	1280.93	1280.83	0.0000	0.00
74	1377.40	1377.26	0.0000	0.00
75	1405.72	1405.57	0.0000	0.00
76	1459.92	1459.75	0.0000	0.00
77	1496.22	1496.04	0.0000	0.00
78	1509.26	1509.08	0.0000	0.00
79	1512.27	1512.09	0.0000	0.00
80	1529.55	1529.36	0.0000	0.00
81	1541.73	1541.53	0.0000	0.00
82	1580.63	1580.43	0.0000	0.00
83	1587.70	1587.49	0.0000	0.00
84	1592.30	1592.09	0.0000	0.00
85	1620.46	1620.24	0.0000	0.00
86	1630.14	1629.92	0.0000	0.00
87	1638.35	1638.12	0.0000	0.00
88	1729.11	1728.85	0.0000	0.00
89	1764.04	1763.77	0.0000	0.00
90	1792.97	1792.69	0.0000	0.00
91	1838.66	1838.37	0.0000	0.00
92	1847.89	1847.59	0.0000	0.00
93	1933.75	1933.42	0.0000	0.00
94	2048.74	2048.38	0.0000	0.00
95	2103.24	2102.86	0.0000	0.00
96	2118.45	2118.06	0.0000	0.00
97	2203.45	2203.03	0.0000	0.00

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	2218.24	2217.82	0.0000	0.00
99	2445.69	2445.19	0.0000	0.00
100	2614.10	2613.55	0.0000	0.00
101	2855.78	2855.14	0.0000	0.00
102	2962.10	2961.43	0.0000	0.00
103	3088.11	3087.40	0.0000	0.00
104	3196.10	3195.35	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 6:54:33AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	16.49	15 -	19	16.82	3.58E+02	280.23	1.70E+04	5.00
	2	40.13	38 -	42	40.45	2.16E+02	259.84	1.48E+04	1.66
	3	46.50	45 -	49	46.81	4.49E+02	277.99	1.69E+04	1.50
	4	57.59	56 -	60	57.90	8.48E+02	344.67	2.59E+04	1.63
	5	63.39	61 -	66	63.69	1.01E+03	435.82	3.75E+04	2.30
	6	76.23	71 -	81	76.53	3.42E+04	818.85	7.09E+04	4.01
M	7	84.70	82 -	97	85.00	1.79E+03	379.97	2.82E+04	1.53
m	8	90.70	82 -	97	91.00	3.24E+03	390.52	2.52E+04	1.53
	9	99.40	98 -	103	99.70	1.13E+03	374.16	2.71E+04	2.48
	10	105.48	104 -	108	105.77	1.22E+03	329.20	2.31E+04	2.03
	11	114.91	113 -	118	115.20	6.58E+02	364.37	2.59E+04	1.91
	12	129.29	126 -	133	129.58	2.66E+03	474.80	3.58E+04	2.28
	13	144.26	143 -	147	144.54	3.50E+02	308.68	2.08E+04	1.53
	14	154.31	152 -	157	154.59	8.59E+02	343.35	2.28E+04	2.22
	15	186.13	183 -	190	186.40	2.40E+03	411.91	2.66E+04	2.14
	16	209.43	206 -	213	209.69	3.10E+03	388.50	2.29E+04	2.01
	17	217.85	216 -	221	218.10	2.86E+02	282.52	1.57E+04	2.86
M	18	238.79	235 -	250	239.04	3.40E+04	456.38	1.31E+04	1.98
m	19	241.51	235 -	250	241.76	5.39E+03	482.82	1.35E+04	2.49
	20	258.57	257 -	261	258.81	2.69E+02	194.74	8.16E+03	2.36
M	21	267.12	266 -	281	267.36	1.54E+02	98.10	3.19E+03	2.09
m	22	270.43	266 -	281	270.67	2.40E+03	235.82	9.27E+03	2.09
m	23	277.40	266 -	281	277.64	1.29E+03	226.49	8.86E+03	2.10
M	24	287.92	286 -	304	288.15	2.80E+02	179.96	7.05E+03	1.54
m	25	295.36	286 -	304	295.58	4.73E+03	244.08	8.28E+03	2.06
m	26	300.27	286 -	304	300.49	1.98E+03	221.51	8.06E+03	1.98
	27	328.10	325 -	331	328.32	1.48E+03	234.46	8.91E+03	1.94
	28	338.56	334 -	344	338.77	6.43E+03	351.47	1.30E+04	2.14
	29	352.05	348 -	357	352.26	8.24E+03	321.06	1.00E+04	2.11
	30	376.42	374 -	379	376.62	1.96E+02	168.77	5.53E+03	3.91
	31	388.55	386 -	392	388.74	2.06E+02	191.08	6.48E+03	2.34
	32	403.03	401 -	406	403.22	2.76E+02	167.79	5.41E+03	1.41
	33	409.55	406 -	413	409.74	7.47E+02	214.79	7.15E+03	1.80
	34	453.67	451 -	456	453.84	1.22E+02	146.20	4.17E+03	2.72
	35	463.21	459 -	468	463.39	1.92E+03	227.33	6.28E+03	2.27
	36	479.49	477 -	483	479.66	1.75E+02	155.15	4.24E+03	4.05
M	37	504.30	501 -	516	504.45	2.03E+02	170.33	4.62E+03	3.25
m	38	510.80	501 -	516	510.96	3.27E+03	190.38	4.22E+03	2.29
	39	555.52	553 -	559	555.66	1.93E+02	141.38	3.51E+03	2.84
	40	562.59	560 -	567	562.72	2.87E+02	165.26	4.37E+03	2.72

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	583.17	577 -	588	583.30	9.55E+03	297.13	6.26E+03	2.24
	42	609.30	604 -	615	609.42	5.48E+03	257.43	5.55E+03	2.26
	43	664.65	660 -	669	664.75	2.85E+02	175.52	4.23E+03	3.42
	44	678.20	676 -	681	678.30	1.00E+02	115.76	2.59E+03	1.29
	45	702.19	699 -	706	702.28	1.36E+02	145.62	3.44E+03	2.04
	46	727.15	722 -	732	727.24	2.00E+03	196.95	4.11E+03	2.24
	47	755.45	752 -	759	755.52	3.44E+02	127.45	2.47E+03	2.13
M	48	762.93	760 -	778	763.00	2.33E+02	87.24	1.51E+03	2.47
m	49	768.17	760 -	778	768.24	5.20E+02	118.58	2.08E+03	2.19
m	50	772.12	760 -	778	772.19	3.94E+02	121.36	2.07E+03	2.48
	51	784.95	780 -	789	785.01	4.25E+02	146.12	2.80E+03	2.26
	52	794.91	790 -	800	794.97	1.08E+03	161.31	2.89E+03	2.42
	53	806.09	803 -	810	806.15	2.13E+02	105.91	1.72E+03	2.63
	54	835.64	833 -	838	835.68	2.41E+02	96.17	1.66E+03	2.24
	55	840.61	838 -	844	840.65	1.49E+02	99.64	1.63E+03	2.05
	56	860.36	856 -	865	860.39	1.17E+03	132.33	1.84E+03	2.37
	57	893.96	889 -	898	893.98	1.07E+02	114.20	1.79E+03	2.04
M	58	911.11	900 -	918	911.13	6.04E+03	174.79	1.12E+03	2.26
m	59	915.77	900 -	918	915.79	9.36E+01	121.38	1.09E+03	2.33
	60	934.10	930 -	938	934.12	2.77E+02	96.89	1.27E+03	2.26
M	61	964.68	960 -	975	964.68	1.11E+03	106.84	1.12E+03	2.20
m	62	968.86	960 -	975	968.86	3.54E+03	150.18	1.04E+03	2.28
	63	1000.46	997 -	1003	1000.45	9.64E+01	70.28	8.31E+02	2.02
	64	1063.18	1058 -	1068	1063.15	1.18E+02	94.98	1.14E+03	7.46
	65	1079.02	1075 -	1082	1078.98	9.09E+01	75.10	8.78E+02	1.86
	66	1094.14	1091 -	1098	1094.09	1.17E+02	70.85	7.63E+02	2.70
	67	1110.38	1108 -	1113	1110.33	5.10E+01	56.15	5.88E+02	2.23
	68	1120.06	1114 -	1126	1120.01	1.12E+03	125.32	1.32E+03	2.28
	69	1154.85	1150 -	1159	1154.79	8.74E+01	87.06	1.03E+03	2.94
	70	1215.75	1213 -	1218	1215.67	4.83E+01	52.16	5.03E+02	2.27
	71	1237.87	1233 -	1242	1237.78	4.30E+02	90.92	9.36E+02	2.11
	72	1245.64	1243 -	1248	1245.55	7.20E+01	56.59	5.84E+02	3.60
	73	1280.93	1277 -	1284	1280.83	1.13E+02	70.26	7.47E+02	2.33
	74	1377.40	1371 -	1382	1377.26	2.81E+02	97.84	1.06E+03	2.32
	75	1405.72	1399 -	1410	1405.57	1.84E+02	97.10	1.09E+03	1.90
	76	1459.92	1453 -	1466	1459.75	3.63E+02	102.92	1.02E+03	3.64
M	77	1496.22	1491 -	1515	1496.04	1.45E+02	61.61	5.76E+02	2.59
m	78	1509.26	1491 -	1515	1509.08	1.48E+02	62.83	4.96E+02	2.59
m	79	1512.27	1491 -	1515	1512.09	8.79E+01	57.42	4.18E+02	2.49
	80	1529.55	1524 -	1536	1529.36	1.11E+02	76.88	6.43E+02	6.80
	81	1541.73	1536 -	1547	1541.53	1.29E+02	69.86	5.43E+02	7.81
M	82	1580.63	1575 -	1597	1580.43	1.24E+02	62.10	3.86E+02	3.17
m	83	1587.70	1575 -	1597	1587.49	5.10E+02	67.38	3.48E+02	2.74
m	84	1592.30	1575 -	1597	1592.09	6.12E+02	82.75	4.56E+02	3.12
M	85	1620.46	1616 -	1642	1620.24	2.27E+02	58.45	4.08E+02	2.64
m	86	1630.14	1616 -	1642	1629.92	2.38E+02	58.45	4.08E+02	2.64
m	87	1638.35	1616 -	1642	1638.12	6.68E+01	51.11	4.08E+02	2.64
	88	1729.11	1725 -	1734	1728.85	1.42E+02	59.16	4.17E+02	2.43
	89	1764.04	1756 -	1768	1763.77	9.21E+02	90.94	5.40E+02	2.96
	90	1792.97	1790 -	1795	1792.69	2.80E+01	34.41	2.12E+02	2.43
	91	1838.66	1832 -	1842	1838.37	5.28E+01	58.54	4.28E+02	4.70
	92	1847.89	1843 -	1854	1847.59	1.37E+02	68.12	5.17E+02	3.18
	93	1933.75	1928 -	1937	1933.42	4.99E+01	56.84	4.28E+02	4.90

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
94	2048.74	2042 -	2055	2048.38	7.92E+01	65.51	4.44E+02	9.21
95	2103.24	2095 -	2111	2102.86	4.88E+02	101.21	7.86E+02	4.12
96	2118.45	2114 -	2122	2118.06	5.50E+01	52.05	3.84E+02	2.62
97	2203.45	2198 -	2208	2203.03	2.19E+02	69.02	5.22E+02	2.81
98	2218.24	2214 -	2221	2217.82	5.53E+01	48.33	3.53E+02	4.47
99	2445.69	2439 -	2450	2445.19	8.47E+01	63.15	4.57E+02	6.30
100	2614.10	2606 -	2622	2613.55	3.20E+03	118.84	1.28E+02	3.21
101	2855.78	2851 -	2858	2855.14	1.03E+01	12.49	1.74E+01	4.04
102	2962.10	2958 -	2965	2961.43	7.86E+00	10.20	1.23E+01	4.58
103	3088.11	3084 -	3090	3087.40	5.00E+00	4.47	0.00E+00	1.00
104	3196.10	3189 -	3200	3195.35	4.00E+01	12.65	0.00E+00	3.07

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 : 8/14/2017 6:54:33AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	16.49	15 -	19	3.58E+02	280.23	1.70E+04	2.28E+02
	2	40.13	38 -	42	2.16E+02	259.84	1.48E+04	2.12E+02
	3	46.50	45 -	49	4.49E+02	277.99	1.69E+04	2.26E+02
	4	57.59	56 -	60	8.48E+02	344.67	2.59E+04	2.79E+02
	5	63.39	61 -	66	1.01E+03	435.82	3.75E+04	3.54E+02
	6	76.23	71 -	81	3.42E+04	818.85	7.09E+04	6.01E+02
M	7	84.70	82 -	97	1.79E+03	379.97	2.82E+04	2.76E+02
m	8	90.70	82 -	97	3.24E+03	390.52	2.52E+04	2.61E+02
	9	99.40	98 -	103	1.13E+03	374.16	2.71E+04	3.03E+02
	10	105.48	104 -	108	1.22E+03	329.20	2.31E+04	2.64E+02
	11	114.91	113 -	118	6.58E+02	364.37	2.59E+04	2.97E+02
	12	129.29	126 -	133	2.66E+03	474.80	3.58E+04	3.81E+02
	13	144.26	143 -	147	3.50E+02	308.68	2.08E+04	2.52E+02
	14	154.31	152 -	157	8.59E+02	343.35	2.28E+04	2.78E+02
	15	186.13	183 -	190	2.40E+03	411.91	2.66E+04	3.29E+02
	16	209.43	206 -	213	3.10E+03	388.50	2.29E+04	3.06E+02
	17	217.85	216 -	221	2.86E+02	282.52	1.57E+04	2.31E+02

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	18	238.79	235 -	250	3.40E+04	456.38	1.31E+04	1.88E+02
m	19	241.51	235 -	250	5.39E+03	482.82	1.35E+04	1.91E+02
	20	258.57	257 -	261	2.69E+02	194.74	8.16E+03	1.58E+02
M	21	267.12	266 -	281	1.54E+02	98.10	3.19E+03	9.29E+01
m	22	270.43	266 -	281	2.40E+03	235.82	9.27E+03	1.58E+02
m	23	277.40	266 -	281	1.29E+03	226.49	8.86E+03	1.55E+02
M	24	287.92	286 -	304	2.80E+02	179.96	7.05E+03	1.38E+02
m	25	295.36	286 -	304	4.73E+03	244.08	8.28E+03	1.50E+02
m	26	300.27	286 -	304	1.98E+03	221.51	8.06E+03	1.48E+02
	27	328.10	325 -	331	1.48E+03	234.46	8.91E+03	1.82E+02
	28	338.56	334 -	344	6.43E+03	351.47	1.30E+04	2.57E+02
	29	352.05	348 -	357	8.24E+03	321.06	1.00E+04	2.18E+02
	30	376.42	374 -	379	1.96E+02	168.77	5.53E+03	1.37E+02
	31	388.55	386 -	392	2.06E+02	191.08	6.48E+03	1.55E+02
	32	403.03	401 -	406	2.76E+02	167.79	5.41E+03	1.35E+02
	33	409.55	406 -	413	7.47E+02	214.79	7.15E+03	1.71E+02
	34	453.67	451 -	456	1.22E+02	146.20	4.17E+03	1.19E+02
	35	463.21	459 -	468	1.92E+03	227.33	6.28E+03	1.72E+02
	36	479.49	477 -	483	1.75E+02	155.15	4.24E+03	1.26E+02
M	37	504.30	501 -	516	2.03E+02	170.33	4.62E+03	1.12E+02
m	38	510.80	501 -	516	3.27E+03	190.38	4.22E+03	1.07E+02
	39	555.52	553 -	559	1.93E+02	141.38	3.51E+03	1.14E+02
	40	562.59	560 -	567	2.87E+02	165.26	4.37E+03	1.33E+02
	41	583.17	577 -	588	9.55E+03	297.13	6.26E+03	1.84E+02
	42	609.30	604 -	615	5.48E+03	257.43	5.55E+03	1.73E+02
	43	664.65	660 -	669	2.85E+02	175.52	4.23E+03	1.42E+02
	44	678.20	676 -	681	1.00E+02	115.76	2.59E+03	9.37E+01
	45	702.19	699 -	706	1.36E+02	145.62	3.44E+03	1.18E+02
	46	727.15	722 -	732	2.00E+03	196.95	4.11E+03	1.44E+02
	47	755.45	752 -	759	3.44E+02	127.45	2.47E+03	1.00E+02
M	48	762.93	760 -	778	2.33E+02	87.24	1.51E+03	6.39E+01
m	49	768.17	760 -	778	5.20E+02	118.58	2.08E+03	7.51E+01
m	50	772.12	760 -	778	3.94E+02	121.36	2.07E+03	7.47E+01
	51	784.95	780 -	789	4.25E+02	146.12	2.80E+03	1.15E+02
	52	794.91	790 -	800	1.08E+03	161.31	2.89E+03	1.21E+02
	53	806.09	803 -	810	2.13E+02	105.91	1.72E+03	8.37E+01
	54	835.64	833 -	838	2.41E+02	96.17	1.66E+03	7.48E+01
	55	840.61	838 -	844	1.49E+02	99.64	1.63E+03	7.94E+01
	56	860.36	856 -	865	1.17E+03	132.33	1.84E+03	9.31E+01
	57	893.96	889 -	898	1.07E+02	114.20	1.79E+03	9.23E+01
M	58	911.11	900 -	918	6.04E+03	174.79	1.12E+03	5.49E+01
m	59	915.77	900 -	918	9.36E+01	121.38	1.09E+03	5.44E+01
	60	934.10	930 -	938	2.77E+02	96.89	1.27E+03	7.48E+01
M	61	964.68	960 -	975	1.11E+03	106.84	1.12E+03	5.51E+01
m	62	968.86	960 -	975	3.54E+03	150.18	1.04E+03	5.30E+01
	63	1000.46	997 -	1003	9.64E+01	70.28	8.31E+02	5.55E+01
	64	1063.18	1058 -	1068	1.18E+02	94.98	1.14E+03	7.60E+01
	65	1079.02	1075 -	1082	9.09E+01	75.10	8.78E+02	5.97E+01
	66	1094.14	1091 -	1098	1.17E+02	70.85	7.63E+02	5.54E+01
	67	1110.38	1108 -	1113	5.10E+01	56.15	5.88E+02	4.46E+01
	68	1120.06	1114 -	1126	1.12E+03	125.32	1.32E+03	8.71E+01

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	69	1154.85	1150 -	1159	8.74E+01	87.06	1.03E+03	6.99E+01
	70	1215.75	1213 -	1218	4.83E+01	52.16	5.03E+02	4.13E+01
	71	1237.87	1233 -	1242	4.30E+02	90.92	9.36E+02	6.65E+01
	72	1245.64	1243 -	1248	7.20E+01	56.59	5.84E+02	4.44E+01
	73	1280.93	1277 -	1284	1.13E+02	70.26	7.47E+02	5.51E+01
	74	1377.40	1371 -	1382	2.81E+02	97.84	1.06E+03	7.56E+01
	75	1405.72	1399 -	1410	1.84E+02	97.10	1.09E+03	7.66E+01
	76	1459.92	1453 -	1466	3.63E+02	102.92	1.02E+03	7.86E+01
M	77	1496.22	1491 -	1515	1.45E+02	61.61	5.76E+02	3.95E+01
m	78	1509.26	1491 -	1515	1.48E+02	62.83	4.96E+02	3.66E+01
m	79	1512.27	1491 -	1515	8.79E+01	57.42	4.18E+02	3.36E+01
	80	1529.55	1524 -	1536	1.11E+02	76.88	6.43E+02	6.08E+01
	81	1541.73	1536 -	1547	1.29E+02	69.86	5.43E+02	5.43E+01
M	82	1580.63	1575 -	1597	1.24E+02	62.10	3.86E+02	3.23E+01
m	83	1587.70	1575 -	1597	5.10E+02	67.38	3.48E+02	3.07E+01
m	84	1592.30	1575 -	1597	6.12E+02	82.75	4.56E+02	3.51E+01
M	85	1620.46	1616 -	1642	2.27E+02	58.45	4.08E+02	3.32E+01
m	86	1630.14	1616 -	1642	2.38E+02	58.45	4.08E+02	3.32E+01
m	87	1638.35	1616 -	1642	6.68E+01	51.11	4.08E+02	3.32E+01
	88	1729.11	1725 -	1734	1.42E+02	59.16	4.17E+02	4.45E+01
	89	1764.04	1756 -	1768	9.21E+02	90.94	5.40E+02	5.57E+01
	90	1792.97	1790 -	1795	2.80E+01	34.41	2.12E+02	2.69E+01
	91	1838.66	1832 -	1842	5.28E+01	58.54	4.28E+02	4.66E+01
	92	1847.89	1843 -	1854	1.37E+02	68.12	5.17E+02	5.26E+01
	93	1933.75	1928 -	1937	4.99E+01	56.84	4.28E+02	4.53E+01
	94	2048.74	2042 -	2055	7.92E+01	65.51	4.44E+02	5.18E+01
	95	2103.24	2095 -	2111	4.88E+02	101.21	7.86E+02	7.48E+01
	96	2118.45	2114 -	2122	5.50E+01	52.05	3.84E+02	4.10E+01
	97	2203.45	2198 -	2208	2.19E+02	69.02	5.22E+02	5.12E+01
	98	2218.24	2214 -	2221	5.53E+01	48.33	3.53E+02	3.78E+01
	99	2445.69	2439 -	2450	8.47E+01	63.15	4.57E+02	4.97E+01
	100	2614.10	2606 -	2622	3.20E+03	118.84	1.28E+02	3.01E+01
	101	2855.78	2851 -	2858	1.03E+01	12.49	1.74E+01	8.81E+00
	102	2962.10	2958 -	2965	7.86E+00	10.20	1.23E+01	7.00E+00
	103	3088.11	3084 -	3090	5.00E+00	4.47	0.00E+00	0.00E+00
	104	3196.10	3189 -	3200	4.00E+01	12.65	0.00E+00	0.00E+00

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

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 6:54:33AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	16.49	15 -	19	16.82	3.58E+02	280.23	1.70E+04	NB-93M
	2	40.13	38 -	42	40.45	2.16E+02	259.84	1.48E+04	RA-225
									I-129
	3	46.50	45 -	49	46.81	4.49E+02	277.99	1.69E+04	PB-210
	4	57.59	56 -	60	57.90	8.48E+02	344.67	2.59E+04	CE-143
	5	63.39	61 -	66	63.69	1.01E+03	435.82	3.75E+04	TH-234
									TH-230
	6	76.23	71 -	81	76.53	3.42E+04	818.85	7.09E+04	.....
M	7	84.70	82 -	97	85.00	1.79E+03	379.97	2.82E+04	TH-231
m	8	90.70	82 -	97	91.00	3.24E+03	390.52	2.52E+04	ND-147
	9	99.40	98 -	103	99.70	1.13E+03	374.16	2.71E+04	.....
	10	105.48	104 -	108	105.77	1.22E+03	329.20	2.31E+04	EU-155
									NP-239
	11	114.91	113 -	118	115.20	6.58E+02	364.37	2.59E+04	.....
	12	129.29	126 -	133	129.58	2.66E+03	474.80	3.58E+04	.....
	13	144.26	143 -	147	144.54	3.50E+02	308.68	2.08E+04	U-235
	14	154.31	152 -	157	154.59	8.59E+02	343.35	2.28E+04	.....
	15	186.13	183 -	190	186.40	2.40E+03	411.91	2.66E+04	RA-226
	16	209.43	206 -	213	209.69	3.10E+03	388.50	2.29E+04	CM-243
									GA-67
	17	217.85	216 -	221	218.10	2.86E+02	282.52	1.57E+04	.....
M	18	238.79	235 -	250	239.04	3.40E+04	456.38	1.31E+04	PB-212
m	19	241.51	235 -	250	241.76	5.39E+03	482.82	1.35E+04	RA-224
	20	258.57	257 -	261	258.81	2.69E+02	194.74	8.16E+03	.....
M	21	267.12	266 -	281	267.36	1.54E+02	98.10	3.19E+03	.....
m	22	270.43	266 -	281	270.67	2.40E+03	235.82	9.27E+03	.....
m	23	277.40	266 -	281	277.64	1.29E+03	226.49	8.86E+03	CM-243
									NP-239
M	24	287.92	286 -	304	288.15	2.80E+02	179.96	7.05E+03	.....
m	25	295.36	286 -	304	295.58	4.73E+03	244.08	8.28E+03	PB-214
m	26	300.27	286 -	304	300.49	1.98E+03	221.51	8.06E+03	GA-67
									PB-212
									BI-210M
	27	328.10	325 -	331	328.32	1.48E+03	234.46	8.91E+03	LA-140
	28	338.56	334 -	344	338.77	6.43E+03	351.47	1.30E+04	AC-228
	29	352.05	348 -	357	352.26	8.24E+03	321.06	1.00E+04	PB-214
	30	376.42	374 -	379	376.62	1.96E+02	168.77	5.53E+03	.....
	31	388.55	386 -	392	388.74	2.06E+02	191.08	6.48E+03	.....
	32	403.03	401 -	406	403.22	2.76E+02	167.79	5.41E+03	.....
	33	409.55	406 -	413	409.74	7.47E+02	214.79	7.15E+03	.....
	34	453.67	451 -	456	453.84	1.22E+02	146.20	4.17E+03	PM-146

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	35	463.21	459 -	468	463.39	1.92E+03	227.33	6.28E+03	SB-125
	36	479.49	477 -	483	479.66	1.75E+02	155.15	4.24E+03	.....
M	37	504.30	501 -	516	504.45	2.03E+02	170.33	4.62E+03	.....
m	38	510.80	501 -	516	510.96	3.27E+03	190.38	4.22E+03	.....
	39	555.52	553 -	559	555.66	1.93E+02	141.38	3.51E+03	.....
	40	562.59	560 -	567	562.72	2.87E+02	165.26	4.37E+03	CS-134
	41	583.17	577 -	588	583.30	9.55E+03	297.13	6.26E+03	TL-208
	42	609.30	604 -	615	609.42	5.48E+03	257.43	5.55E+03	BI-214
	43	664.65	660 -	669	664.75	2.85E+02	175.52	4.23E+03	CE-143
	44	678.20	676 -	681	678.30	1.00E+02	115.76	2.59E+03	AG-110M
	45	702.19	699 -	706	702.28	1.36E+02	145.62	3.44E+03	NB-94
	46	727.15	722 -	732	727.24	2.00E+03	196.95	4.11E+03	BI-212
	47	755.45	752 -	759	755.52	3.44E+02	127.45	2.47E+03	.....
M	48	762.93	760 -	778	763.00	2.33E+02	87.24	1.51E+03	.....
m	49	768.17	760 -	778	768.24	5.20E+02	118.58	2.08E+03	.....
m	50	772.12	760 -	778	772.19	3.94E+02	121.36	2.07E+03	.....
	51	784.95	780 -	789	785.01	4.25E+02	146.12	2.80E+03	.....
	52	794.91	790 -	800	794.97	1.08E+03	161.31	2.89E+03	CS-134
	53	806.09	803 -	810	806.15	2.13E+02	105.91	1.72E+03	.....
	54	835.64	833 -	838	835.68	2.41E+02	96.17	1.66E+03	MN-54
	55	840.61	838 -	844	840.65	1.49E+02	99.64	1.63E+03	.....
	56	860.36	856 -	865	860.39	1.17E+03	132.33	1.84E+03	TL-208
	57	893.96	889 -	898	893.98	1.07E+02	114.20	1.79E+03	.....
M	58	911.11	900 -	918	911.13	6.04E+03	174.79	1.12E+03	AC-228 TL-204
m	59	915.77	900 -	918	915.79	9.36E+01	121.38	1.09E+03	.....
	60	934.10	930 -	938	934.12	2.77E+02	96.89	1.27E+03	.....
M	61	964.68	960 -	975	964.68	1.11E+03	106.84	1.12E+03	EU-152
m	62	968.86	960 -	975	968.86	3.54E+03	150.18	1.04E+03	AC-228
	63	1000.46	997 -	1003	1000.45	9.64E+01	70.28	8.31E+02	PA-234M
	64	1063.18	1058 -	1068	1063.15	1.18E+02	94.98	1.14E+03	BI-207
	65	1079.02	1075 -	1082	1078.98	9.09E+01	75.10	8.78E+02	.....
	66	1094.14	1091 -	1098	1094.09	1.17E+02	70.85	7.63E+02	LU-172
	67	1110.38	1108 -	1113	1110.33	5.10E+01	56.15	5.88E+02	.....
	68	1120.06	1114 -	1126	1120.01	1.12E+03	125.32	1.32E+03	BI-214 SC-46
	69	1154.85	1150 -	1159	1154.79	8.74E+01	87.06	1.03E+03	.....
	70	1215.75	1213 -	1218	1215.67	4.83E+01	52.16	5.03E+02	.....
	71	1237.87	1233 -	1242	1237.78	4.30E+02	90.92	9.36E+02	CO-56
	72	1245.64	1243 -	1248	1245.55	7.20E+01	56.59	5.84E+02	.....
	73	1280.93	1277 -	1284	1280.83	1.13E+02	70.26	7.47E+02	.....
	74	1377.40	1371 -	1382	1377.26	2.81E+02	97.84	1.06E+03	.....
	75	1405.72	1399 -	1410	1405.57	1.84E+02	97.10	1.09E+03	.....
	76	1459.92	1453 -	1466	1459.75	3.63E+02	102.92	1.02E+03	K-40
M	77	1496.22	1491 -	1515	1496.04	1.45E+02	61.61	5.76E+02	.....
m	78	1509.26	1491 -	1515	1509.08	1.48E+02	62.83	4.96E+02	.....
m	79	1512.27	1491 -	1515	1512.09	8.79E+01	57.42	4.18E+02	.....
	80	1529.55	1524 -	1536	1529.36	1.11E+02	76.88	6.43E+02	.....
	81	1541.73	1536 -	1547	1541.53	1.29E+02	69.86	5.43E+02	.....
M	82	1580.63	1575 -	1597	1580.43	1.24E+02	62.10	3.86E+02	.....
m	83	1587.70	1575 -	1597	1587.49	5.10E+02	67.38	3.48E+02	.....
m	84	1592.30	1575 -	1597	1592.09	6.12E+02	82.75	4.56E+02	.....
M	85	1620.46	1616 -	1642	1620.24	2.27E+02	58.45	4.08E+02	BI-212
m	86	1630.14	1616 -	1642	1629.92	2.38E+02	58.45	4.08E+02	.....

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	87	1638.35	1616 -	1642	1638.12	6.68E+01	51.11	4.08E+02	.....
	88	1729.11	1725 -	1734	1728.85	1.42E+02	59.16	4.17E+02	.....
	89	1764.04	1756 -	1768	1763.77	9.21E+02	90.94	5.40E+02	BI-214
	90	1792.97	1790 -	1795	1792.69	2.80E+01	34.41	2.12E+02	.....
	91	1838.66	1832 -	1842	1838.37	5.28E+01	58.54	4.28E+02	.....
	92	1847.89	1843 -	1854	1847.59	1.37E+02	68.12	5.17E+02	.....
	93	1933.75	1928 -	1937	1933.42	4.99E+01	56.84	4.28E+02	.....
	94	2048.74	2042 -	2055	2048.38	7.92E+01	65.51	4.44E+02	.....
	95	2103.24	2095 -	2111	2102.86	4.88E+02	101.21	7.86E+02	.....
	96	2118.45	2114 -	2122	2118.06	5.50E+01	52.05	3.84E+02	.....
	97	2203.45	2198 -	2208	2203.03	2.19E+02	69.02	5.22E+02	BI-214
	98	2218.24	2214 -	2221	2217.82	5.53E+01	48.33	3.53E+02	.....
	99	2445.69	2439 -	2450	2445.19	8.47E+01	63.15	4.57E+02	.....
	100	2614.10	2606 -	2622	2613.55	3.20E+03	118.84	1.28E+02	TL-208
	101	2855.78	2851 -	2858	2855.14	1.03E+01	12.49	1.74E+01	.....
	102	2962.10	2958 -	2965	2961.43	7.86E+00	10.20	1.23E+01	.....
	103	3088.11	3084 -	3090	3087.40	5.00E+00	4.47	0.00E+00	.....
	104	3196.10	3189 -	3200	3195.35	4.00E+01	12.65	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 : 8/14/2017 6:54:33AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	16.49	3.58E+02	280.23	1.93E-04	1.73E-03
	2	40.13	2.16E+02	259.84	1.30E-02	1.73E-03
	3	46.50	4.49E+02	277.99	1.72E-02	1.73E-03
	4	57.59	8.48E+02	344.67	2.26E-02	1.73E-03
	5	63.39	1.01E+03	435.82	2.44E-02	1.80E-03
	6	76.23	3.42E+04	818.85	2.66E-02	2.04E-03
M	7	84.70	1.79E+03	379.97	2.71E-02	2.20E-03
m	8	90.70	3.24E+03	390.52	2.71E-02	2.25E-03
	9	99.40	1.13E+03	374.16	2.69E-02	2.21E-03
	10	105.48	1.22E+03	329.20	2.65E-02	2.19E-03
	11	114.91	6.58E+02	364.37	2.58E-02	2.15E-03
	12	129.29	2.66E+03	474.80	2.46E-02	2.04E-03

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	13	144.26	3.50E+02	308.68	2.32E-02	1.87E-03
	14	154.31	8.59E+02	343.35	2.22E-02	1.76E-03
	15	186.13	2.40E+03	411.91	1.96E-02	1.55E-03
	16	209.43	3.10E+03	388.50	1.79E-02	1.46E-03
	17	217.85	2.86E+02	282.52	1.74E-02	1.42E-03
M	18	238.79	3.40E+04	456.38	1.61E-02	1.34E-03
m	19	241.51	5.39E+03	482.82	1.60E-02	1.33E-03
	20	258.57	2.69E+02	194.74	1.51E-02	1.26E-03
M	21	267.12	1.54E+02	98.10	1.47E-02	1.23E-03
m	22	270.43	2.40E+03	235.82	1.45E-02	1.21E-03
m	23	277.40	1.29E+03	226.49	1.42E-02	1.19E-03
M	24	287.92	2.80E+02	179.96	1.38E-02	1.16E-03
m	25	295.36	4.73E+03	244.08	1.35E-02	1.15E-03
m	26	300.27	1.98E+03	221.51	1.33E-02	1.14E-03
	27	328.10	1.48E+03	234.46	1.23E-02	1.08E-03
	28	338.56	6.43E+03	351.47	1.19E-02	1.06E-03
	29	352.05	8.24E+03	321.06	1.15E-02	1.03E-03
	30	376.42	1.96E+02	168.77	1.09E-02	9.83E-04
	31	388.55	2.06E+02	191.08	1.06E-02	9.59E-04
	32	403.03	2.76E+02	167.79	1.02E-02	9.37E-04
	33	409.55	7.47E+02	214.79	1.01E-02	9.29E-04
	34	453.67	1.22E+02	146.20	9.19E-03	8.70E-04
	35	463.21	1.92E+03	227.33	9.02E-03	8.58E-04
	36	479.49	1.75E+02	155.15	8.74E-03	8.36E-04
M	37	504.30	2.03E+02	170.33	8.35E-03	8.03E-04
m	38	510.80	3.27E+03	190.38	8.26E-03	7.95E-04
	39	555.52	1.93E+02	141.38	7.65E-03	7.35E-04
	40	562.59	2.87E+02	165.26	7.57E-03	7.26E-04
	41	583.17	9.55E+03	297.13	7.33E-03	6.99E-04
	42	609.30	5.48E+03	257.43	7.04E-03	6.64E-04
	43	664.65	2.85E+02	175.52	6.51E-03	5.92E-04
	44	678.20	1.00E+02	115.76	6.40E-03	5.80E-04
	45	702.19	1.36E+02	145.62	6.20E-03	5.59E-04
	46	727.15	2.00E+03	196.95	6.01E-03	5.37E-04
	47	755.45	3.44E+02	127.45	5.81E-03	5.12E-04
M	48	762.93	2.33E+02	87.24	5.76E-03	5.05E-04
m	49	768.17	5.20E+02	118.58	5.72E-03	5.01E-04
m	50	772.12	3.94E+02	121.36	5.70E-03	4.97E-04
	51	784.95	4.25E+02	146.12	5.61E-03	4.86E-04
	52	794.91	1.08E+03	161.31	5.55E-03	4.77E-04
	53	806.09	2.13E+02	105.91	5.48E-03	4.67E-04
	54	835.64	2.41E+02	96.17	5.31E-03	4.41E-04
	55	840.61	1.49E+02	99.64	5.28E-03	4.37E-04
	56	860.36	1.17E+03	132.33	5.18E-03	4.19E-04
	57	893.96	1.07E+02	114.20	5.00E-03	3.90E-04
M	58	911.11	6.04E+03	174.79	4.92E-03	3.84E-04
m	59	915.77	9.36E+01	121.38	4.90E-03	3.83E-04
	60	934.10	2.77E+02	96.89	4.82E-03	3.80E-04
M	61	964.68	1.11E+03	106.84	4.68E-03	3.75E-04
m	62	968.86	3.54E+03	150.18	4.66E-03	3.74E-04
	63	1000.46	9.64E+01	70.28	4.54E-03	3.69E-04
	64	1063.18	1.18E+02	94.98	4.31E-03	3.59E-04
	65	1079.02	9.09E+01	75.10	4.25E-03	3.56E-04

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	66	1094.14	1.17E+02	70.85	4.20E-03	3.54E-04
	67	1110.38	5.10E+01	56.15	4.15E-03	3.51E-04
	68	1120.06	1.12E+03	125.32	4.12E-03	3.50E-04
	69	1154.85	8.74E+01	87.06	4.01E-03	3.44E-04
	70	1215.75	4.83E+01	52.16	3.84E-03	3.29E-04
	71	1237.87	4.30E+02	90.92	3.79E-03	3.23E-04
	72	1245.64	7.20E+01	56.59	3.77E-03	3.20E-04
	73	1280.93	1.13E+02	70.26	3.68E-03	3.10E-04
	74	1377.40	2.81E+02	97.84	3.47E-03	2.88E-04
	75	1405.72	1.84E+02	97.10	3.41E-03	2.84E-04
	76	1459.92	3.63E+02	102.92	3.31E-03	2.75E-04
M	77	1496.22	1.45E+02	61.61	3.25E-03	2.69E-04
m	78	1509.26	1.48E+02	62.83	3.23E-03	2.67E-04
m	79	1512.27	8.79E+01	57.42	3.22E-03	2.67E-04
	80	1529.55	1.11E+02	76.88	3.19E-03	2.64E-04
	81	1541.73	1.29E+02	69.86	3.17E-03	2.62E-04
M	82	1580.63	1.24E+02	62.10	3.11E-03	2.56E-04
m	83	1587.70	5.10E+02	67.38	3.10E-03	2.55E-04
m	84	1592.30	6.12E+02	82.75	3.09E-03	2.54E-04
M	85	1620.46	2.27E+02	58.45	3.05E-03	2.50E-04
m	86	1630.14	2.38E+02	58.45	3.04E-03	2.48E-04
m	87	1638.35	6.68E+01	51.11	3.03E-03	2.47E-04
	88	1729.11	1.42E+02	59.16	2.91E-03	2.32E-04
	89	1764.04	9.21E+02	90.94	2.87E-03	2.27E-04
	90	1792.97	2.80E+01	34.41	2.83E-03	2.22E-04
	91	1838.66	5.28E+01	58.54	2.78E-03	2.15E-04
	92	1847.89	1.37E+02	68.12	2.77E-03	2.15E-04
	93	1933.75	4.99E+01	56.84	2.68E-03	2.15E-04
	94	2048.74	7.92E+01	65.51	2.58E-03	2.15E-04
	95	2103.24	4.88E+02	101.21	2.54E-03	2.15E-04
	96	2118.45	5.50E+01	52.05	2.53E-03	2.15E-04
	97	2203.45	2.19E+02	69.02	2.46E-03	2.15E-04
	98	2218.24	5.53E+01	48.33	2.45E-03	2.15E-04
	99	2445.69	8.47E+01	63.15	2.32E-03	2.15E-04
	100	2614.10	3.20E+03	118.84	2.24E-03	2.15E-04
	101	2855.78	1.03E+01	12.49	2.15E-03	2.15E-04
	102	2962.10	7.86E+00	10.20	2.12E-03	2.15E-04
	103	3088.11	5.00E+00	4.47	2.08E-03	2.15E-04
	104	3196.10	4.00E+01	12.65	2.06E-03	2.15E-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 : 8/14/2017 6:54:33AM

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	16.49	3.58E+02	280.23			3.58E+02	2.80E+02
	2	40.13	2.16E+02	259.84			2.16E+02	2.60E+02
	3	46.50	4.49E+02	277.99	4.84E+01	1.23E+01	4.00E+02	2.78E+02
	4	57.59	8.48E+02	344.67			8.48E+02	3.45E+02
	5	63.39	1.01E+03	435.82	4.29E+01	6.03E+00	9.65E+02	4.36E+02
	6	76.23	3.42E+04	818.85	1.67E+01	8.84E+00	3.41E+04	8.19E+02
M	7	84.70	1.79E+03	379.97	9.54E+00	8.76E+00	1.78E+03	3.80E+02
m	8	90.70	3.24E+03	390.52			3.24E+03	3.91E+02
	9	99.40	1.13E+03	374.16			1.13E+03	3.74E+02
	10	105.48	1.22E+03	329.20			1.22E+03	3.29E+02
	11	114.91	6.58E+02	364.37			6.58E+02	3.64E+02
	12	129.29	2.66E+03	474.80			2.66E+03	4.75E+02
	13	144.26	3.50E+02	308.68			3.50E+02	3.09E+02
	14	154.31	8.59E+02	343.35			8.59E+02	3.43E+02
	15	186.13	2.40E+03	411.91	2.99E+01	5.81E+00	2.37E+03	4.12E+02
	16	209.43	3.10E+03	388.50			3.10E+03	3.88E+02
	17	217.85	2.86E+02	282.52			2.86E+02	2.83E+02
M	18	238.79	3.40E+04	456.38	9.49E+00	5.63E+00	3.40E+04	4.56E+02
m	19	241.51	5.39E+03	482.82			5.39E+03	4.83E+02
	20	258.57	2.69E+02	194.74			2.69E+02	1.95E+02
M	21	267.12	1.54E+02	98.10			1.54E+02	9.81E+01
m	22	270.43	2.40E+03	235.82			2.40E+03	2.36E+02
m	23	277.40	1.29E+03	226.49			1.29E+03	2.26E+02
M	24	287.92	2.80E+02	179.96			2.80E+02	1.80E+02
m	25	295.36	4.73E+03	244.08			4.73E+03	2.44E+02
m	26	300.27	1.98E+03	221.51			1.98E+03	2.22E+02
	27	328.10	1.48E+03	234.46			1.48E+03	2.34E+02
	28	338.56	6.43E+03	351.47	4.73E+00	4.47E+00	6.43E+03	3.51E+02
	29	352.05	8.24E+03	321.06			8.24E+03	3.21E+02
	30	376.42	1.96E+02	168.77			1.96E+02	1.69E+02
	31	388.55	2.06E+02	191.08			2.06E+02	1.91E+02
	32	403.03	2.76E+02	167.79			2.76E+02	1.68E+02
	33	409.55	7.47E+02	214.79			7.47E+02	2.15E+02
	34	453.67	1.22E+02	146.20			1.22E+02	1.46E+02
	35	463.21	1.92E+03	227.33			1.92E+03	2.27E+02
	36	479.49	1.75E+02	155.15			1.75E+02	1.55E+02
M	37	504.30	2.03E+02	170.33			2.03E+02	1.70E+02
m	38	510.80	3.27E+03	190.38			3.27E+03	1.90E+02
	39	555.52	1.93E+02	141.38			1.93E+02	1.41E+02
	40	562.59	2.87E+02	165.26			2.87E+02	1.65E+02
	41	583.17	9.55E+03	297.13			9.55E+03	2.97E+02
	42	609.30	5.48E+03	257.43	4.09E+00	3.07E+00	5.48E+03	2.57E+02
	43	664.65	2.85E+02	175.52			2.85E+02	1.76E+02
	44	678.20	1.00E+02	115.76			1.00E+02	1.16E+02
	45	702.19	1.36E+02	145.62			1.36E+02	1.46E+02
	46	727.15	2.00E+03	196.95			2.00E+03	1.97E+02
	47	755.45	3.44E+02	127.45			3.44E+02	1.27E+02
M	48	762.93	2.33E+02	87.24			2.33E+02	8.72E+01
m	49	768.17	5.20E+02	118.58			5.20E+02	1.19E+02

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	50	772.12	3.94E+02	121.36			3.94E+02	1.21E+02
	51	784.95	4.25E+02	146.12			4.25E+02	1.46E+02
	52	794.91	1.08E+03	161.31			1.08E+03	1.61E+02
	53	806.09	2.13E+02	105.91			2.13E+02	1.06E+02
	54	835.64	2.41E+02	96.17			2.41E+02	9.62E+01
	55	840.61	1.49E+02	99.64			1.49E+02	9.96E+01
	56	860.36	1.17E+03	132.33			1.17E+03	1.32E+02
	57	893.96	1.07E+02	114.20			1.07E+02	1.14E+02
M	58	911.11	6.04E+03	174.79			6.04E+03	1.75E+02
m	59	915.77	9.36E+01	121.38			9.36E+01	1.21E+02
	60	934.10	2.77E+02	96.89			2.77E+02	9.69E+01
M	61	964.68	1.11E+03	106.84			1.11E+03	1.07E+02
m	62	968.86	3.54E+03	150.18			3.54E+03	1.50E+02
	63	1000.46	9.64E+01	70.28			9.64E+01	7.03E+01
	64	1063.18	1.18E+02	94.98			1.18E+02	9.50E+01
	65	1079.02	9.09E+01	75.10			9.09E+01	7.51E+01
	66	1094.14	1.17E+02	70.85			1.17E+02	7.09E+01
	67	1110.38	5.10E+01	56.15			5.10E+01	5.62E+01
	68	1120.06	1.12E+03	125.32			1.12E+03	1.25E+02
	69	1154.85	8.74E+01	87.06			8.74E+01	8.71E+01
	70	1215.75	4.83E+01	52.16			4.83E+01	5.22E+01
	71	1237.87	4.30E+02	90.92			4.30E+02	9.09E+01
	72	1245.64	7.20E+01	56.59			7.20E+01	5.66E+01
	73	1280.93	1.13E+02	70.26			1.13E+02	7.03E+01
	74	1377.40	2.81E+02	97.84			2.81E+02	9.78E+01
	75	1405.72	1.84E+02	97.10			1.84E+02	9.71E+01
	76	1459.92	3.63E+02	102.92			3.63E+02	1.03E+02
M	77	1496.22	1.45E+02	61.61			1.45E+02	6.16E+01
m	78	1509.26	1.48E+02	62.83			1.48E+02	6.28E+01
m	79	1512.27	8.79E+01	57.42			8.79E+01	5.74E+01
	80	1529.55	1.11E+02	76.88			1.11E+02	7.69E+01
	81	1541.73	1.29E+02	69.86			1.29E+02	6.99E+01
M	82	1580.63	1.24E+02	62.10			1.24E+02	6.21E+01
m	83	1587.70	5.10E+02	67.38			5.10E+02	6.74E+01
m	84	1592.30	6.12E+02	82.75			6.12E+02	8.27E+01
M	85	1620.46	2.27E+02	58.45			2.27E+02	5.84E+01
m	86	1630.14	2.38E+02	58.45			2.38E+02	5.84E+01
m	87	1638.35	6.68E+01	51.11			6.68E+01	5.11E+01
	88	1729.11	1.42E+02	59.16			1.42E+02	5.92E+01
	89	1764.04	9.21E+02	90.94			9.21E+02	9.09E+01
	90	1792.97	2.80E+01	34.41			2.80E+01	3.44E+01
	91	1838.66	5.28E+01	58.54			5.28E+01	5.85E+01
	92	1847.89	1.37E+02	68.12			1.37E+02	6.81E+01
	93	1933.75	4.99E+01	56.84			4.99E+01	5.68E+01
	94	2048.74	7.92E+01	65.51			7.92E+01	6.55E+01
	95	2103.24	4.88E+02	101.21			4.88E+02	1.01E+02
	96	2118.45	5.50E+01	52.05			5.50E+01	5.21E+01
	97	2203.45	2.19E+02	69.02			2.19E+02	6.90E+01
	98	2218.24	5.53E+01	48.33			5.53E+01	4.83E+01
	99	2445.69	8.47E+01	63.15			8.47E+01	6.32E+01
	100	2614.10	3.20E+03	118.84			3.20E+03	1.19E+02
	101	2855.78	1.03E+01	12.49			1.03E+01	1.25E+01
	102	2962.10	7.86E+00	10.20			7.86E+00	1.02E+01
	103	3088.11	5.00E+00	4.47			5.00E+00	4.47E+00

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
104	3196.10	4.00E+01	12.65			4.00E+01	1.26E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 6:54:33AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.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	16.49	3.58E+02	280.23			3.58E+02	2.80E+02
	2	40.13	2.16E+02	259.84			2.16E+02	2.60E+02
	3	46.50	4.49E+02	277.99	4.84E+01	1.23E+01	4.00E+02	2.78E+02
	4	57.59	8.48E+02	344.67			8.48E+02	3.45E+02
	5	63.39	1.01E+03	435.82	4.29E+01	6.03E+00	9.65E+02	4.36E+02
	6	76.23	3.42E+04	818.85	1.67E+01	8.84E+00	3.41E+04	8.19E+02
M	7	84.70	1.79E+03	379.97	9.54E+00	8.76E+00	1.78E+03	3.80E+02
m	8	90.70	3.24E+03	390.52			3.24E+03	3.91E+02
	9	99.40	1.13E+03	374.16			1.13E+03	3.74E+02
	10	105.48	1.22E+03	329.20			1.22E+03	3.29E+02
	11	114.91	6.58E+02	364.37			6.58E+02	3.64E+02
	12	129.29	2.66E+03	474.80			2.66E+03	4.75E+02
	13	144.26	3.50E+02	308.68			3.50E+02	3.09E+02
	14	154.31	8.59E+02	343.35			8.59E+02	3.43E+02
	15	186.13	2.40E+03	411.91	2.99E+01	5.81E+00	2.37E+03	4.12E+02
	16	209.43	3.10E+03	388.50			3.10E+03	3.88E+02
	17	217.85	2.86E+02	282.52			2.86E+02	2.83E+02
M	18	238.79	3.40E+04	456.38	9.49E+00	5.63E+00	3.40E+04	4.56E+02
m	19	241.51	5.39E+03	482.82			5.39E+03	4.83E+02
	20	258.57	2.69E+02	194.74			2.69E+02	1.95E+02
M	21	267.12	1.54E+02	98.10			1.54E+02	9.81E+01
m	22	270.43	2.40E+03	235.82			2.40E+03	2.36E+02
m	23	277.40	1.29E+03	226.49			1.29E+03	2.26E+02
M	24	287.92	2.80E+02	179.96			2.80E+02	1.80E+02
m	25	295.36	4.73E+03	244.08			4.73E+03	2.44E+02
m	26	300.27	1.98E+03	221.51			1.98E+03	2.22E+02
	27	328.10	1.48E+03	234.46			1.48E+03	2.34E+02

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	28	338.56	6.43E+03	351.47	4.73E+00	4.47E+00	6.43E+03	3.51E+02
	29	352.05	8.24E+03	321.06			8.24E+03	3.21E+02
	30	376.42	1.96E+02	168.77			1.96E+02	1.69E+02
	31	388.55	2.06E+02	191.08			2.06E+02	1.91E+02
	32	403.03	2.76E+02	167.79			2.76E+02	1.68E+02
	33	409.55	7.47E+02	214.79			7.47E+02	2.15E+02
	34	453.67	1.22E+02	146.20			1.22E+02	1.46E+02
	35	463.21	1.92E+03	227.33			1.92E+03	2.27E+02
	36	479.49	1.75E+02	155.15			1.75E+02	1.55E+02
M	37	504.30	2.03E+02	170.33			2.03E+02	1.70E+02
m	38	510.80	3.27E+03	190.38			3.27E+03	1.90E+02
	39	555.52	1.93E+02	141.38			1.93E+02	1.41E+02
	40	562.59	2.87E+02	165.26			2.87E+02	1.65E+02
	41	583.17	9.55E+03	297.13			9.55E+03	2.97E+02
	42	609.30	5.48E+03	257.43	4.09E+00	3.07E+00	5.48E+03	2.57E+02
	43	664.65	2.85E+02	175.52			2.85E+02	1.76E+02
	44	678.20	1.00E+02	115.76			1.00E+02	1.16E+02
	45	702.19	1.36E+02	145.62			1.36E+02	1.46E+02
	46	727.15	2.00E+03	196.95			2.00E+03	1.97E+02
	47	755.45	3.44E+02	127.45			3.44E+02	1.27E+02
M	48	762.93	2.33E+02	87.24			2.33E+02	8.72E+01
m	49	768.17	5.20E+02	118.58			5.20E+02	1.19E+02
m	50	772.12	3.94E+02	121.36			3.94E+02	1.21E+02
	51	784.95	4.25E+02	146.12			4.25E+02	1.46E+02
	52	794.91	1.08E+03	161.31			1.08E+03	1.61E+02
	53	806.09	2.13E+02	105.91			2.13E+02	1.06E+02
	54	835.64	2.41E+02	96.17			2.41E+02	9.62E+01
	55	840.61	1.49E+02	99.64			1.49E+02	9.96E+01
	56	860.36	1.17E+03	132.33			1.17E+03	1.32E+02
	57	893.96	1.07E+02	114.20			1.07E+02	1.14E+02
M	58	911.11	6.04E+03	174.79			6.04E+03	1.75E+02
m	59	915.77	9.36E+01	121.38			9.36E+01	1.21E+02
	60	934.10	2.77E+02	96.89			2.77E+02	9.69E+01
M	61	964.68	1.11E+03	106.84			1.11E+03	1.07E+02
m	62	968.86	3.54E+03	150.18			3.54E+03	1.50E+02
	63	1000.46	9.64E+01	70.28			9.64E+01	7.03E+01
	64	1063.18	1.18E+02	94.98			1.18E+02	9.50E+01
	65	1079.02	9.09E+01	75.10			9.09E+01	7.51E+01
	66	1094.14	1.17E+02	70.85			1.17E+02	7.09E+01
	67	1110.38	5.10E+01	56.15			5.10E+01	5.62E+01
	68	1120.06	1.12E+03	125.32			1.12E+03	1.25E+02
	69	1154.85	8.74E+01	87.06			8.74E+01	8.71E+01
	70	1215.75	4.83E+01	52.16			4.83E+01	5.22E+01
	71	1237.87	4.30E+02	90.92			4.30E+02	9.09E+01
	72	1245.64	7.20E+01	56.59			7.20E+01	5.66E+01
	73	1280.93	1.13E+02	70.26			1.13E+02	7.03E+01
	74	1377.40	2.81E+02	97.84			2.81E+02	9.78E+01
	75	1405.72	1.84E+02	97.10			1.84E+02	9.71E+01
	76	1459.92	3.63E+02	102.92			3.63E+02	1.03E+02
M	77	1496.22	1.45E+02	61.61			1.45E+02	6.16E+01
m	78	1509.26	1.48E+02	62.83			1.48E+02	6.28E+01
m	79	1512.27	8.79E+01	57.42			8.79E+01	5.74E+01
	80	1529.55	1.11E+02	76.88			1.11E+02	7.69E+01
	81	1541.73	1.29E+02	69.86			1.29E+02	6.99E+01

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	82	1580.63	1.24E+02	62.10			1.24E+02	6.21E+01
m	83	1587.70	5.10E+02	67.38			5.10E+02	6.74E+01
m	84	1592.30	6.12E+02	82.75			6.12E+02	8.27E+01
M	85	1620.46	2.27E+02	58.45			2.27E+02	5.84E+01
m	86	1630.14	2.38E+02	58.45			2.38E+02	5.84E+01
m	87	1638.35	6.68E+01	51.11			6.68E+01	5.11E+01
	88	1729.11	1.42E+02	59.16			1.42E+02	5.92E+01
	89	1764.04	9.21E+02	90.94			9.21E+02	9.09E+01
	90	1792.97	2.80E+01	34.41			2.80E+01	3.44E+01
	91	1838.66	5.28E+01	58.54			5.28E+01	5.85E+01
	92	1847.89	1.37E+02	68.12			1.37E+02	6.81E+01
	93	1933.75	4.99E+01	56.84			4.99E+01	5.68E+01
	94	2048.74	7.92E+01	65.51			7.92E+01	6.55E+01
	95	2103.24	4.88E+02	101.21			4.88E+02	1.01E+02
	96	2118.45	5.50E+01	52.05			5.50E+01	5.21E+01
	97	2203.45	2.19E+02	69.02			2.19E+02	6.90E+01
	98	2218.24	5.53E+01	48.33			5.53E+01	4.83E+01
	99	2445.69	8.47E+01	63.15			8.47E+01	6.32E+01
	100	2614.10	3.20E+03	118.84			3.20E+03	1.19E+02
	101	2855.78	1.03E+01	12.49			1.03E+01	1.25E+01
	102	2962.10	7.86E+00	10.20			7.86E+00	1.02E+01
	103	3088.11	5.00E+00	4.47			5.00E+00	4.47E+00
	104	3196.10	4.00E+01	12.65			4.00E+01	1.26E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.881	1460.81	*	10.67	9.57E+00	2.83E+00
MN-54	0.900	834.83	*	99.97	5.18E-01	2.11E-01
NB-93M	0.999	16.57	*	9.43	1.85E+02	1.67E+03
PM-146	0.431	453.90	*	39.94	3.18E-01	3.84E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.466	91.11	*	28.90	1.35E+03	1.97E+02
		531.02		13.10		

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.975	583.14	*	30.22	4.01E+01	4.02E+00
		860.37	*	4.48	4.70E+01	6.53E+00
		2614.66	*	35.85	3.70E+01	3.81E+00
PB-210	1.000	46.50	*	4.25	5.12E+00	3.60E+00
BI-212	0.999	727.17	*	11.80	2.62E+01	3.49E+00
		1620.62	*	2.75	2.52E+01	6.80E+00
PB-212	0.996	238.63	*	44.60	4.40E+01	3.70E+00
		300.09	*	3.41	4.07E+01	5.73E+00
BI-214	0.987	609.31	*	46.30	1.56E+01	1.65E+00
		1120.29	*	15.10	1.68E+01	2.35E+00
		1764.49	*	15.80	1.89E+01	2.39E+00
		2204.22	*	4.98	1.66E+01	5.43E+00
PB-214	0.997	295.21	*	19.19	1.70E+01	1.70E+00
		351.92	*	37.19	1.79E+01	1.74E+00
RA-224	0.956	240.98	*	3.95	7.94E+01	9.71E+00
RA-225	0.819	40.00	*	31.00	3.85E+01	4.66E+01
RA-226	0.999	186.21	*	3.28	3.43E+01	6.32E+01
AC-228	0.995	338.32	*	11.40	4.39E+01	4.57E+00
		911.07	*	27.70	4.12E+01	3.43E+00
		969.11	*	16.60	4.26E+01	3.86E+00
PA-234M	0.949	1001.03	*	0.92	2.15E+01	1.58E+01
TH-234	0.999	63.29	*	3.80	9.67E+00	4.42E+00
CM-243	0.364	209.75	*	3.29	4.93E+01	7.36E+00
		228.14		10.60		
		277.60	*	14.00	6.05E+00	1.18E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:54:33AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	4	57.59	2.35447E-01	20.33	Sum	
	6	76.23	9.48460E+00	1.20		
M	7	84.70	4.95432E-01	10.65	Tol.	TH-231
	9	99.40	3.13294E-01	16.59		

Analysis Report for 1707077-05

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	10	105.48	3.40272E-01	13.44	Tol.	EU-155 NP-239
	11	114.91	1.82782E-01	27.69		
	12	129.29	7.40220E-01	8.91		
	13	144.26	9.73480E-02	44.04	Tol.	U-235
	14	154.31	2.38702E-01	19.98	Sum	
	17	217.85	7.94594E-02	49.38		
	20	258.57	7.48021E-02	36.16	Sum	
M	21	267.12	4.28187E-02	31.82		
m	22	270.43	6.65302E-01	4.92		
M	24	287.92	7.78666E-02	32.10	Sum	
	27	328.10	4.11287E-01	7.92	Tol.	LA-140
	30	376.42	5.44299E-02	43.07		
	31	388.55	5.73255E-02	46.30		
	32	403.03	7.67219E-02	30.38		
	33	409.55	2.07439E-01	14.38		
	35	463.21	5.34129E-01	5.91	Sum	
	36	479.49	4.87201E-02	44.23	Sum	
M	37	504.30	5.63634E-02	41.97	Sum	
m	38	510.80	9.07501E-01	2.91		
	39	555.52	5.35679E-02	36.66	Sum	
	40	562.59	7.97662E-02	28.78	Tol.	CS-134
	43	664.65	7.91375E-02	30.80		
	44	678.20	2.78151E-02	57.80	Tol.	AG-110M
	45	702.19	3.78650E-02	53.41	Tol.	NB-94
	47	755.45	9.55750E-02	18.52		
M	48	762.93	6.47530E-02	18.71		
m	49	768.17	1.44480E-01	11.40	Sum	
m	50	772.12	1.09348E-01	15.41		
	51	784.95	1.18176E-01	17.17		
	52	794.91	3.00889E-01	7.45	Sum	
	53	806.09	5.90315E-02	24.92	Sum	
	55	840.61	4.14944E-02	33.35		
	57	893.96	2.96412E-02	53.51		
m	59	915.77	2.59953E-02	64.85		
	60	934.10	7.68297E-02	17.51		
M	61	964.68	3.08740E-01	4.81	Tol.	EU-152
	64	1063.18	3.27170E-02	40.32	Sum	
	65	1079.02	2.52390E-02	41.33	Sum	
	66	1094.14	3.26305E-02	30.16	Tol.	LU-172
	67	1110.38	1.41566E-02	55.09	S-Esc	
	69	1154.85	2.42730E-02	49.81	Sum	
	70	1215.75	1.34060E-02	54.04		
	71	1237.87	1.19434E-01	10.57	Tol.	CO-56
	72	1245.64	1.99939E-02	39.31	Sum	
	73	1280.93	3.12989E-02	31.18		
	74	1377.40	7.79512E-02	17.43		
	75	1405.72	5.12447E-02	26.32		
M	77	1496.22	4.03981E-02	21.18		
m	78	1509.26	4.11456E-02	21.21		
m	79	1512.27	2.44049E-02	32.68		
	80	1529.55	3.07253E-02	34.75		
	81	1541.73	3.59279E-02	27.01		
M	82	1580.63	3.43328E-02	25.12		

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	83	1587.70	1.41635E-01	6.61	Sum	
m	84	1592.30	1.69985E-01	6.76	D-Esc	
m	86	1630.14	6.62212E-02	12.26		
m	87	1638.35	1.85571E-02	38.25	Sum	
	88	1729.11	3.93159E-02	20.90	Sum	
	90	1792.97	7.77778E-03	61.45		
	91	1838.66	1.46614E-02	55.46		
	92	1847.89	3.79335E-02	24.94	Sum	
	93	1933.75	1.38742E-02	56.90		
	94	2048.74	2.19929E-02	41.37		
	95	2103.24	1.35582E-01	10.37	S-Esc	
	96	2118.45	1.52710E-02	47.34		
	98	2218.24	1.53568E-02	43.71	Sum	
	99	2445.69	2.35277E-02	37.28	Sum	
	101	2855.78	2.86550E-03	60.54	Sum	
	102	2962.10	2.18254E-03	64.90		
	103	3088.11	1.38889E-03	44.72		
	104	3196.10	1.11111E-02	15.81		

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	0.88	1460.81	*	10.67	9.57E+00	2.83E+00
MN-54	0.90	834.83	*	99.97	5.18E-01	2.11E-01
NB-93M	0.99	16.57	*	9.43	1.85E+02	1.67E+03
PM-146	0.43	453.90	*	39.94	3.18E-01	3.84E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.46	91.11	*	28.90	1.35E+03	1.97E+02
		531.02		13.10		
TL-208	0.97	583.14	*	30.22	4.01E+01	4.02E+00
		860.37	*	4.48	4.70E+01	6.53E+00

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.97	2614.66	*	35.85	3.70E+01	3.81E+00
PB-210	1.00	46.50	*	4.25	5.12E+00	3.60E+00
BI-212	0.99	727.17	*	11.80	2.62E+01	3.49E+00
		1620.62	*	2.75	2.52E+01	6.80E+00
PB-212	0.99	238.63	*	44.60	4.40E+01	3.70E+00
		300.09	*	3.41	4.07E+01	5.73E+00
BI-214	0.98	609.31	*	46.30	1.56E+01	1.65E+00
		1120.29	*	15.10	1.68E+01	2.35E+00
		1764.49	*	15.80	1.89E+01	2.39E+00
		2204.22	*	4.98	1.66E+01	5.43E+00
PB-214	0.99	295.21	*	19.19	1.70E+01	1.70E+00
		351.92	*	37.19	1.79E+01	1.74E+00
RA-224	0.95	240.98	*	3.95	7.94E+01	9.71E+00
RA-225	0.81	40.00	*	31.00	3.85E+01	4.66E+01
RA-226	0.99	186.21	*	3.28	3.43E+01	6.32E+01
AC-228	0.99	338.32	*	11.40	4.39E+01	4.57E+00
		911.07	*	27.70	4.12E+01	3.43E+00
		969.11	*	16.60	4.26E+01	3.86E+00
PA-234M	0.94	1001.03	*	0.92	2.15E+01	1.58E+01
TH-234	0.99	63.29	*	3.80	9.67E+00	4.42E+00
CM-243	0.36	209.75	*	3.29	4.93E+01	7.36E+00
		228.14		10.60		
		277.60	*	14.00	6.05E+00	1.18E+00

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.881	9.57E+00	2.83E+00	
MN-54	0.900	5.18E-01	2.11E-01	
NB-93M	0.999	1.85E+02	1.67E+03	
PM-146	0.431	3.18E-01	3.84E-01	

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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
ND-147	0.466	1.35E+03	1.97E+02	
TL-208	0.975	3.98E+01	2.55E+00	
PB-210	1.000	5.12E+00	3.60E+00	
BI-212	0.999	2.60E+01	3.10E+00	
PB-212	0.996	4.31E+01	3.11E+00	
BI-214	0.987	1.67E+01	1.15E+00	
PB-214	0.997	1.74E+01	1.22E+00	
RA-224	0.956	7.94E+01	9.71E+00	
RA-225	0.819	3.85E+01	4.66E+01	
RA-226	0.999	3.43E+01	6.32E+01	
AC-228	0.995	4.23E+01	2.24E+00	
PA-234M	0.949	2.15E+01	1.58E+01	
TH-234	0.999	9.67E+00	4.42E+00	
CM-243	0.364	7.13E+00	1.16E+00	

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

Errors quoted at 2.000sigma

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:54:33AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	4	57.59	2.35447E-01	20.33	Sum	
	6	76.23	9.48460E+00	1.20		
M	7	84.70	4.95432E-01	10.65	Tol.	TH-231
	9	99.40	3.13294E-01	16.59		
	10	105.48	3.40272E-01	13.44	Tol.	EU-155 NP-239
	11	114.91	1.82782E-01	27.69		
	12	129.29	7.40220E-01	8.91		
	13	144.26	9.73480E-02	44.04	Tol.	U-235
	14	154.31	2.38702E-01	19.98	Sum	
	17	217.85	7.94594E-02	49.38		
	20	258.57	7.48021E-02	36.16	Sum	
M	21	267.12	4.28187E-02	31.82		
m	22	270.43	6.65302E-01	4.92		
M	24	287.92	7.78666E-02	32.10	Sum	
	27	328.10	4.11287E-01	7.92	Tol.	LA-140
	30	376.42	5.44299E-02	43.07		
	31	388.55	5.73255E-02	46.30		
	32	403.03	7.67219E-02	30.38		
	33	409.55	2.07439E-01	14.38		
	35	463.21	5.34129E-01	5.91	Sum	
	36	479.49	4.87201E-02	44.23	Sum	
M	37	504.30	5.63634E-02	41.97	Sum	
m	38	510.80	9.07501E-01	2.91		
	39	555.52	5.35679E-02	36.66	Sum	
	40	562.59	7.97662E-02	28.78	Tol.	CS-134
	43	664.65	7.91375E-02	30.80		
	44	678.20	2.78151E-02	57.80	Tol.	AG-110M
	45	702.19	3.78650E-02	53.41	Tol.	NB-94
	47	755.45	9.55750E-02	18.52		
M	48	762.93	6.47530E-02	18.71		
m	49	768.17	1.44480E-01	11.40	Sum	
m	50	772.12	1.09348E-01	15.41		
	51	784.95	1.18176E-01	17.17		
	52	794.91	3.00889E-01	7.45	Sum	

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	53	806.09	5.90315E-02	24.92	Sum	
	55	840.61	4.14944E-02	33.35		
	57	893.96	2.96412E-02	53.51		
m	59	915.77	2.59953E-02	64.85		
	60	934.10	7.68297E-02	17.51		
M	61	964.68	3.08740E-01	4.81	Tol.	EU-152
	64	1063.18	3.27170E-02	40.32	Sum	
	65	1079.02	2.52390E-02	41.33	Sum	
	66	1094.14	3.26305E-02	30.16	Tol.	LU-172
	67	1110.38	1.41566E-02	55.09	S-Esc	
	69	1154.85	2.42730E-02	49.81	Sum	
	70	1215.75	1.34060E-02	54.04		
	71	1237.87	1.19434E-01	10.57	Tol.	CO-56
	72	1245.64	1.99939E-02	39.31	Sum	
	73	1280.93	3.12989E-02	31.18		
	74	1377.40	7.79512E-02	17.43		
	75	1405.72	5.12447E-02	26.32		
M	77	1496.22	4.03981E-02	21.18		
m	78	1509.26	4.11456E-02	21.21		
m	79	1512.27	2.44049E-02	32.68		
	80	1529.55	3.07253E-02	34.75		
	81	1541.73	3.59279E-02	27.01		
M	82	1580.63	3.43328E-02	25.12		
m	83	1587.70	1.41635E-01	6.61	Sum	
m	84	1592.30	1.69985E-01	6.76	D-Esc	
m	86	1630.14	6.62212E-02	12.26		
m	87	1638.35	1.85571E-02	38.25	Sum	
	88	1729.11	3.93159E-02	20.90	Sum	
	90	1792.97	7.77778E-03	61.45		
	91	1838.66	1.46614E-02	55.46		
	92	1847.89	3.79335E-02	24.94	Sum	
	93	1933.75	1.38742E-02	56.90		
	94	2048.74	2.19929E-02	41.37		
	95	2103.24	1.35582E-01	10.37	S-Esc	
	96	2118.45	1.52710E-02	47.34		
	98	2218.24	1.53568E-02	43.71	Sum	
	99	2445.69	2.35277E-02	37.28	Sum	
	101	2855.78	2.86550E-03	60.54	Sum	
	102	2962.10	2.18254E-03	64.90		
	103	3088.11	1.38889E-03	44.72		
	104	3196.10	1.11111E-02	15.81		

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-8.76E-01	7.69E+00	7.69E+00
+		NA-22	1274.54		99.94	8.05E-02	2.43E-01	2.43E-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	2.71E-02	2.30E-01	2.30E-01
+		K-40	1460.81	*	10.67	9.57E+00	4.21E+00	4.21E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	9.96E-02	2.38E-01	2.38E-01
			78.34		96.00	3.98E+00		3.12E-01
+		SC-46	889.25		99.98	1.18E-01	4.92E-01	4.92E-01
			1120.51		99.99	5.15E+00		8.76E-01
+		V-48	983.52		99.98	6.14E+00	1.23E+01	1.23E+01
			1312.10		97.50	3.85E+00		1.30E+01
+		CR-51	320.08		9.83	-9.60E+00	2.38E+01	2.38E+01
+		MN-54	834.83	*	99.97	5.18E-01	3.28E-01	3.28E-01
+		CO-56	846.75		99.96	1.23E-01	5.05E-01	5.05E-01
			1037.75		14.03	5.66E-01		3.30E+00
			1238.25		67.00	3.61E+00		1.09E+00
			1771.40		15.51	7.13E-02		3.55E+00
			2598.48		16.90	4.62E-01		2.17E+00
+		CO-57	122.06		85.51	-2.22E-02	2.67E-01	2.67E-01
			136.48		10.60	-6.57E-01		2.24E+00
+		CO-58	810.76		99.40	5.00E-02	5.61E-01	5.61E-01
+		FE-59	1099.22		56.50	3.07E-01	1.57E+00	1.57E+00
			1291.56		43.20	-2.92E-01		2.22E+00
+		CO-60	1173.22		100.00	7.75E-02	2.26E-01	2.27E-01
			1332.49		100.00	2.33E-02		2.26E-01
+		ZN-65	1115.52		50.75	-6.29E+00	5.81E-01	5.81E-01
+		GA-67	93.31		35.70	1.09E+09	2.28E+08	2.28E+08
			208.95		2.24	2.66E+10		4.61E+09
			300.22		16.00	-4.45E+09		6.50E+08
+		SE-75	121.11		16.70	-9.77E-01	5.42E-01	1.83E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-3.06E-01	5.42E-01	5.42E-01
		264.65		59.80	-1.11E-01		6.36E-01
		279.53		25.20	-2.05E-02		1.69E+00
		400.65		11.40	-1.49E+00		3.74E+00
+	RB-82	776.52		13.00	-6.86E+01	2.43E+01	2.43E+01
+	RB-83	520.41		46.00	-3.15E-01	1.11E+00	1.11E+00
		529.64		30.30	7.76E-02		1.70E+00
		552.65		16.40	-1.07E-02		3.23E+00
+	KR-85	513.99		0.43	4.21E+02	8.29E+01	8.29E+01
+	SR-85	513.99		99.27	4.88E+00	9.62E-01	9.62E-01
+	Y-88	898.02		93.40	-7.36E-01	4.36E-01	4.36E-01
		1836.01		99.38	-1.54E-02		4.39E-01
+	MO-93	263.06		56.72	-6.91E-02	2.55E-01	3.97E-01
		684.67		99.68	-4.21E-02		2.72E-01
		1477.11		99.08	2.33E-01		2.55E-01
+	NB-93M	16.57	*	9.43	1.85E+02	2.38E+02	2.38E+02
+	NB-94	702.63		100.00	1.81E-01	2.25E-01	2.86E-01
		871.10		100.00	5.53E-02		2.25E-01
+	NB-95	765.79		99.81	3.65E+00	2.00E+00	2.00E+00
+	NB-95M	235.69		25.00	8.88E+06	1.07E+08	1.07E+08
+	ZR-95	724.18		43.70	-3.35E-01	1.41E+00	2.25E+00
		756.72		55.30	1.54E+00		1.41E+00
+	MO-99	181.06		6.20	-1.21E+10	2.97E+10	4.65E+10
		739.58		12.80	1.38E+10		2.97E+10
		778.00		4.50	-2.02E+11		8.03E+10
+	RU-103	497.08		89.00	7.01E-01	1.37E+00	1.37E+00
+	RU-106	621.84		9.80	7.95E-01	3.08E+00	3.08E+00
+	AG-108M	433.93		89.90	-6.14E-02	2.58E-01	2.58E-01
		614.37		90.40	1.32E-02		3.29E-01
		722.95		90.50	-2.58E-02		3.25E-01
+	CD-109	88.03		3.72	4.83E+01	7.67E+00	7.67E+00
+	AG-110M	657.75		93.14	1.25E-01	3.67E-01	3.67E-01
		677.61		10.53	2.30E+00		3.41E+00
		706.67		16.46	4.11E-01		2.20E+00
		763.93		21.98	-3.42E+00		1.70E+00
		884.67		71.63	2.58E-02		4.04E-01
		1384.27		23.94	2.66E-01		1.26E+00
+	CD-113M	263.70		0.02	-1.70E+02	9.78E+02	9.78E+02
+	SN-113	255.12		1.93	2.98E+00	6.49E-01	2.03E+01
		391.69		64.90	-1.96E-01		6.49E-01
+	TE123M	159.00		84.10	-1.13E-01	3.87E-01	3.87E-01
+	SB-124	602.71		97.87	2.73E-01	7.57E-01	7.57E-01
		645.85		7.26	-1.90E+00		1.04E+01
		722.78		11.10	-6.12E-01		7.71E+00
		1691.02		49.00	-5.80E-01		1.39E+00
+	I-125	35.49		6.49	1.11E+00	1.74E+01	1.74E+01
+	SB-125	176.33		6.89	9.45E-01	8.60E-01	3.06E+00
		427.89		29.33	2.30E-01		8.60E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38	10.35	2.03E+01	8.60E-01	3.20E+00
		600.56	17.80	-5.13E-02		1.50E+00
		635.90	11.32	-3.09E-01		2.40E+00
+	SB-126	414.70	83.30	7.04E+00	4.86E+01	5.09E+01
		666.33	99.60	4.68E+01		5.05E+01
		695.00	99.60	-8.22E+00		4.86E+01
		720.50	53.80	1.69E+01		8.85E+01
+	SN-126	87.57	37.00	4.23E+00	6.72E-01	6.72E-01
+	SB-127	473.00	25.00	-4.87E+04	1.35E+07	1.70E+07
		685.20	35.70	-2.10E+06		1.35E+07
		783.80	14.70	8.11E+07		3.61E+07
+	I-129	29.78	57.00	-2.07E-01	1.18E+00	1.18E+00
		33.60	13.20	-1.01E+00		3.42E+00
		39.58	7.52	7.52E-01		4.01E+00
+	I-131	284.30	6.05	6.38E+02	8.33E+02	1.12E+04
		364.48	81.20	-2.18E+01		8.33E+02
		636.97	7.26	6.22E+02		1.05E+04
		722.89	1.80	-3.88E+03		4.88E+04
+	TE-132	49.72	13.10	-6.37E+08	1.04E+08	6.26E+08
		228.16	88.00	-1.15E+08		1.04E+08
+	BA-133	81.00	33.00	-1.67E+01	5.26E-01	6.48E-01
		302.84	17.80	-2.08E-03		1.52E+00
		356.01	60.00	-2.76E-02		5.26E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-3.04E+06	1.18E+05	1.18E+05
+	CS-134	563.23	8.38	3.90E+00	3.36E-01	3.53E+00
		569.32	15.43	-8.50E-02		1.84E+00
		604.70	97.60	2.28E-02		3.36E-01
		795.84	85.40	2.20E+00		4.48E-01
		801.93	8.73	-7.09E-02		3.01E+00
+	CS-135	268.24	16.00	6.11E+00	1.63E+00	1.63E+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	5.56E+02	3.05E+01	3.55E+02
		163.89	4.61	2.26E+02		5.59E+02
		176.55	13.56	5.99E+01		1.94E+02
		273.65	12.66	-7.84E+02		2.73E+02
		340.57	48.50	1.24E+03		1.00E+02
		818.50	99.70	-7.83E+00		3.05E+01
		1048.07	79.60	3.63E+00		3.39E+01
		1235.34	19.70	3.01E+02		2.03E+02
+	CS-137	661.65	85.12	-1.00E-01	3.26E-01	3.26E-01
+	LA-138	788.74	34.00	-3.21E+00	3.20E-01	7.88E-01
		1435.80	66.00	-1.06E-01		3.20E-01
+	CE-139	165.85	80.35	3.57E-02	3.86E-01	3.86E-01
+	BA-140	162.64	6.70	2.73E+01	1.48E+02	4.40E+02
		304.84	4.50	-4.09E+01		7.85E+02
		423.70	3.20	-3.64E+02		1.13E+03

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	2.87E+02	1.48E+02	1.78E+03
			537.32		25.00	-8.84E+01		1.48E+02
+		LA-140	328.77		20.50	8.17E+02	5.91E+01	2.05E+02
			487.03		45.50	1.74E+01		7.91E+01
			815.85		23.50	-3.39E+01		1.46E+02
			1596.49		95.49	9.46E+00		5.91E+01
+		CE-141	145.44		48.40	2.03E+00	2.91E+00	2.91E+00
+	@	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	-4.25E-01	2.20E+00	2.20E+00
+		PM-144	476.78		42.00	-7.84E-03	3.10E-01	6.81E-01
			618.01		98.60	-3.54E-02		3.10E-01
			696.49		99.49	-9.76E-02		3.26E-01
+		PM-145	36.85		21.70	4.04E-01	8.75E-01	1.64E+00
			37.36		39.70	7.85E-02		8.75E-01
			42.30		15.10	2.04E-01		1.76E+00
			72.40		2.31	-1.19E+02		1.18E+01
+		PM-146	453.90	*	39.94	3.18E-01	6.29E-01	6.29E-01
			735.90		14.01	-6.70E-01		1.92E+00
			747.13		13.10	-3.78E-01		2.04E+00
+		ND-147	91.11	*	28.90	1.35E+03	5.83E+02	5.83E+02
			531.02		13.10	-1.34E+01		6.50E+02
+		PM-149	285.90		3.10	6.16E+12	3.20E+13	3.20E+13
+		EU-152	121.78		20.50	-7.40E-02	8.90E-01	8.90E-01
			244.69		5.40	-8.88E+01		5.12E+00
			344.27		19.13	-7.31E-02		1.25E+00
			778.89		9.20	-3.49E+00		2.79E+00
			964.01		10.40	-4.99E+01		4.01E+00
			1085.78		7.22	8.56E-01		2.85E+00
			1112.02		9.60	-8.05E-02		2.28E+00
			1407.95		14.94	3.40E+00		1.88E+00
+		GD-153	97.43		31.30	-4.39E+00	7.49E-01	7.49E-01
			103.18		22.20	-3.46E+00		1.05E+00
+		EU-154	123.07		40.50	9.86E-02	4.60E-01	4.60E-01
			723.30		19.70	-1.21E-01		1.52E+00
			873.19		11.50	-7.03E-02		1.96E+00
			996.32		10.30	-5.94E-01		1.95E+00
			1004.76		17.90	9.40E-02		1.23E+00
			1274.45		35.50	2.16E-01		6.51E-01
+		EU-155	86.50		30.90	3.22E+00	8.19E-01	8.19E-01
			105.30		20.70	2.02E+00		9.28E-01
+		EU-156	811.77		10.40	1.32E+01	1.48E+02	1.48E+02
			1153.47		7.20	2.22E+02		2.28E+02
			1230.71		8.90	3.78E+00		1.69E+02
+		HO-166M	184.41		72.60	1.32E+00	3.14E-01	3.14E-01
			280.45		29.60	1.32E-01		8.15E-01
			410.94		11.10	7.60E+00		2.43E+00
			711.69		54.10	3.69E-01		5.15E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	1.03E+02	1.77E+02	1.77E+02
+	HF-172	67.35		5.31	1.95E+00	1.84E+00	4.65E+00
		125.81		11.30	1.03E-01		1.84E+00
+	LU-172	181.53		20.60	-1.08E+03	5.35E+03	1.45E+04
		900.72		29.81	-8.14E+03		1.17E+04
		1093.66		62.50	5.98E+03		5.35E+03
+	LU-173	100.72		5.24	1.09E+00	1.44E+00	3.90E+00
		272.11		21.20	4.78E+00		1.44E+00
+	HF-175	343.40		84.00	-4.11E-02	7.05E-01	7.05E-01
+	LU-176	88.34		13.30	1.31E+01	2.40E-01	1.90E+00
		201.83		86.00	-8.03E-03		2.42E-01
		306.78		94.00	2.57E-02		2.40E-01
+	HF-181	133.02		41.70	-1.17E-02	1.32E+00	2.10E+00
		345.85		17.20	-3.68E-01		6.06E+00
		482.03		82.80	5.58E-02		1.32E+00
+	TA-182	67.75		41.20	4.00E-01	9.55E-01	9.55E-01
		1121.30		34.90	1.21E+01		2.04E+00
		1189.05		16.23	-2.20E-01		2.16E+00
		1221.41		26.98	3.73E-01		1.40E+00
		1231.02		11.44	7.46E-02		3.34E+00
+	IR-192	308.46		29.68	-3.14E-01	1.20E+00	1.80E+00
		468.07		48.10	8.13E-02		1.20E+00
+	HG-203	279.19		77.30	3.75E+00	1.29E+00	1.29E+00
+	TL-204	374.74		94.11	-2.35E-02	2.39E-01	2.61E-01
		899.15		99.16	-3.42E-01		2.39E-01
		911.74		91.10	1.29E+01		8.30E-01
+	BI-207	569.67		97.72	-5.01E-03	2.69E-01	2.69E-01
		1063.62		74.90	2.37E-01		3.05E-01
+	TL-208	583.14	*	30.22	4.01E+01	7.29E-01	1.56E+00
		860.37	*	4.48	4.70E+01		7.58E+00
		2614.66	*	35.85	3.70E+01		7.29E-01
+	BI-210M	262.00		45.00	-8.54E-02	4.96E-01	4.96E-01
		300.00		23.00	-8.35E+00		1.22E+00
+	PB-210	46.50	*	4.25	5.12E+00	5.83E+00	5.83E+00
+	PB-211	404.84		2.90	-3.21E+01	8.73E+00	8.73E+00
		831.96		2.90	4.57E+00		9.49E+00
+	BI-212	727.17	*	11.80	2.62E+01	3.82E+00	3.82E+00
		1620.62	*	2.75	2.52E+01		2.57E+01
+	PB-212	238.63	*	44.60	4.40E+01	1.16E+00	1.16E+00
		300.09	*	3.41	4.07E+01		1.74E+01
+	BI-214	609.31	*	46.30	1.56E+01	9.96E-01	9.96E-01
		1120.29	*	15.10	1.68E+01		2.65E+00
		1764.49	*	15.80	1.89E+01		2.34E+00
		2204.22	*	4.98	1.66E+01		7.98E+00
+	PB-214	295.21	*	19.19	1.70E+01	9.50E-01	3.06E+00
		351.92	*	37.19	1.79E+01		9.50E-01
+	RN-219	401.80		6.50	-1.01E+00	3.86E+00	3.86E+00
+	RA-223	323.87		3.88	2.26E+00	6.20E+00	6.20E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	7.94E+01	1.33E+01	1.33E+01
+	RA-225	40.00	*	31.00	3.85E+01	7.61E+01	7.61E+01
+	RA-226	186.21	*	3.28	3.43E+01	9.57E+00	9.57E+00
+	TH-227	50.10		8.40	-2.61E+00	2.57E+00	2.57E+00
		236.00		11.50	3.51E-01		4.24E+00
		256.20		6.30	4.43E-01		3.59E+00
+	AC-228	338.32	*	11.40	4.39E+01	2.00E+00	3.53E+00
		911.07	*	27.70	4.12E+01		2.00E+00
		969.11	*	16.60	4.26E+01		2.92E+00
+	TH-230	48.44		16.90	-1.83E-01	1.35E+00	1.35E+00
		62.85		4.60	1.15E+01		5.00E+00
		67.67		0.37	2.54E+01		6.06E+01
+	PA-231	283.67		1.60	8.06E-01	1.15E+01	1.40E+01
		302.67		2.30	-1.58E-02		1.15E+01
+	TH-231	25.64		14.70	-4.97E+00	3.51E+00	8.53E+00
		84.21		6.40	-6.90E+00		3.51E+00
+	PA-233	311.98		38.60	4.76E-02	6.29E+00	6.29E+00
+	PA-234	131.20		20.40	3.93E+00	1.01E+00	1.01E+00
		733.99		8.80	-3.45E-01		3.00E+00
		946.00		12.00	7.77E-02		1.77E+00
+	PA-234M	1001.03	*	0.92	2.15E+01	2.53E+01	2.53E+01
+	TH-234	63.29	*	3.80	9.67E+00	7.13E+00	7.13E+00
+	U-235	143.76		10.50	1.64E+00	1.85E+00	1.85E+00
		163.35		4.70	1.67E+00		4.12E+00
		205.31		4.70	1.75E-01		5.53E+00
+	NP-237	86.50		12.60	7.62E+00	1.94E+00	1.94E+00
+	NP-239	106.10		22.70	1.30E+12	6.00E+11	6.00E+11
		228.18		10.70	-1.84E+12		1.66E+12
		277.60		14.10	4.61E+12		1.31E+12
+	AM-241	59.54		35.90	-1.34E+00	6.28E-01	6.28E-01
+	AM-243	74.67		66.00	5.32E+00	4.96E-01	4.96E-01
+	CM-243	209.75	*	3.29	4.93E+01	2.30E+00	9.77E+00
		228.14		10.60	-2.55E+00		2.30E+00
		277.60	*	14.00	6.05E+00		3.58E+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

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	7.69E+00	7.69E+00	-8.76E-01	3.80E+00
	NA-22	1274.54		99.94	2.43E-01	2.43E-01	8.05E-02	1.18E-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	2.30E-01	2.30E-01	2.71E-02	1.10E-01
+	K-40	1460.81	*	10.67	4.21E+00	4.21E+00	9.57E+00	2.07E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	2.38E-01	2.38E-01	9.96E-02	1.18E-01
		78.34		96.00	3.12E-01		3.98E+00	1.56E-01
	SC-46	889.25		99.98	4.92E-01	4.92E-01	1.18E-01	2.41E-01
		1120.51		99.99	8.76E-01		5.15E+00	4.31E-01
	V-48	983.52		99.98	1.23E+01	1.23E+01	6.14E+00	5.98E+00
		1312.10		97.50	1.30E+01		3.85E+00	6.31E+00
	CR-51	320.08		9.83	2.38E+01	2.38E+01	-9.60E+00	1.18E+01
+	MN-54	834.83	*	99.97	3.28E-01	3.28E-01	5.18E-01	1.61E-01
	CO-56	846.75		99.96	5.05E-01	5.05E-01	1.23E-01	2.47E-01
		1037.75		14.03	3.30E+00		5.66E-01	1.61E+00
		1238.25		67.00	1.09E+00		3.61E+00	5.34E-01
		1771.40		15.51	3.55E+00		7.13E-02	1.71E+00
		2598.48		16.90	2.17E+00		4.62E-01	1.01E+00
	CO-57	122.06		85.51	2.67E-01	2.67E-01	-2.22E-02	1.33E-01
		136.48		10.60	2.24E+00		-6.57E-01	1.11E+00
	CO-58	810.76		99.40	5.61E-01	5.61E-01	5.00E-02	2.75E-01
	FE-59	1099.22		56.50	1.57E+00	1.57E+00	3.07E-01	7.64E-01
		1291.56		43.20	2.22E+00		-2.92E-01	1.07E+00
	CO-60	1173.22		100.00	2.27E-01	2.26E-01	7.75E-02	1.10E-01
		1332.49		100.00	2.26E-01		2.33E-02	1.09E-01
	ZN-65	1115.52		50.75	5.81E-01	5.81E-01	-6.29E+00	2.83E-01
	GA-67	93.31		35.70	2.28E+08	2.28E+08	1.09E+09	1.14E+08
		208.95		2.24	4.61E+09		2.66E+10	2.29E+09
		300.22		16.00	6.50E+08		-4.45E+09	3.23E+08
	SE-75	121.11		16.70	1.83E+00	5.42E-01	-9.77E-01	9.09E-01
		136.00		59.20	5.42E-01		-3.06E-01	2.70E-01
		264.65		59.80	6.36E-01		-1.11E-01	3.15E-01
		279.53		25.20	1.69E+00		-2.05E-02	8.39E-01
		400.65		11.40	3.74E+00		-1.49E+00	1.85E+00
	RB-82	776.52		13.00	2.43E+01	2.43E+01	-6.86E+01	1.20E+01
	RB-83	520.41		46.00	1.11E+00	1.11E+00	-3.15E-01	5.48E-01
		529.64		30.30	1.70E+00		7.76E-02	8.38E-01
		552.65		16.40	3.23E+00		-1.07E-02	1.59E+00
	KR-85	513.99		0.43	8.29E+01	8.29E+01	4.21E+02	4.11E+01
	SR-85	513.99		99.27	9.62E-01	9.62E-01	4.88E+00	4.77E-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)
	Y-88	898.02		93.40	4.36E-01	4.36E-01	-7.36E-01	2.13E-01
		1836.01		99.38	4.39E-01		-1.54E-02	2.11E-01
	MO-93	263.06		56.72	3.97E-01	2.55E-01	-6.91E-02	1.97E-01
		684.67		99.68	2.72E-01		-4.21E-02	1.34E-01
		1477.11		99.08	2.55E-01		2.33E-01	1.23E-01
+	NB-93M	16.57	*	9.43	2.38E+02	2.38E+02	1.85E+02	1.18E+02
	NB-94	702.63		100.00	2.86E-01	2.25E-01	1.81E-01	1.41E-01
		871.10		100.00	2.25E-01		5.53E-02	1.10E-01
	NB-95	765.79		99.81	2.00E+00	2.00E+00	3.65E+00	9.84E-01
	NB-95M	235.69		25.00	1.07E+08	1.07E+08	8.88E+06	5.34E+07
	ZR-95	724.18		43.70	2.25E+00	1.41E+00	-3.35E-01	1.11E+00
		756.72		55.30	1.41E+00		1.54E+00	6.93E-01
	MO-99	181.06		6.20	4.65E+10	2.97E+10	-1.21E+10	2.31E+10
		739.58		12.80	2.97E+10		1.38E+10	1.46E+10
		778.00		4.50	8.03E+10		-2.02E+11	3.94E+10
	RU-103	497.08		89.00	1.37E+00	1.37E+00	7.01E-01	6.77E-01
	RU-106	621.84		9.80	3.08E+00	3.08E+00	7.95E-01	1.52E+00
	AG-108M	433.93		89.90	2.58E-01	2.58E-01	-6.14E-02	1.28E-01
		614.37		90.40	3.29E-01		1.32E-02	1.62E-01
		722.95		90.50	3.25E-01		-2.58E-02	1.60E-01
	CD-109	88.03		3.72	7.67E+00	7.67E+00	4.83E+01	3.82E+00
	AG-110M	657.75		93.14	3.67E-01	3.67E-01	1.25E-01	1.81E-01
		677.61		10.53	3.41E+00		2.30E+00	1.68E+00
		706.67		16.46	2.20E+00		4.11E-01	1.08E+00
		763.93		21.98	1.70E+00		-3.42E+00	8.35E-01
		884.67		71.63	4.04E-01		2.58E-02	1.98E-01
		1384.27		23.94	1.26E+00		2.66E-01	6.09E-01
	CD-113M	263.70		0.02	9.78E+02	9.78E+02	-1.70E+02	4.85E+02
	SN-113	255.12		1.93	2.03E+01	6.49E-01	2.98E+00	1.01E+01
		391.69		64.90	6.49E-01		-1.96E-01	3.21E-01
	TE123M	159.00		84.10	3.87E-01	3.87E-01	-1.13E-01	1.92E-01
	SB-124	602.71		97.87	7.57E-01	7.57E-01	2.73E-01	3.73E-01
		645.85		7.26	1.04E+01		-1.90E+00	5.11E+00
		722.78		11.10	7.71E+00		-6.12E-01	3.80E+00
		1691.02		49.00	1.39E+00		-5.80E-01	6.70E-01
	I-125	35.49		6.49	1.74E+01	1.74E+01	1.11E+00	8.66E+00
	SB-125	176.33		6.89	3.06E+00	8.60E-01	9.45E-01	1.52E+00
		427.89		29.33	8.60E-01		2.30E-01	4.25E-01
		463.38		10.35	3.20E+00		2.03E+01	1.58E+00
		600.56		17.80	1.50E+00		-5.13E-02	7.37E-01
		635.90		11.32	2.40E+00		-3.09E-01	1.18E+00
	SB-126	414.70		83.30	5.09E+01	4.86E+01	7.04E+00	2.52E+01
		666.33		99.60	5.05E+01		4.68E+01	2.49E+01
		695.00		99.60	4.86E+01		-8.22E+00	2.40E+01
		720.50		53.80	8.85E+01		1.69E+01	4.36E+01
	SN-126	87.57		37.00	6.72E-01	6.72E-01	4.23E+00	3.35E-01
	SB-127	473.00		25.00	1.70E+07	1.35E+07	-4.87E+04	8.41E+06
		685.20		35.70	1.35E+07		-2.10E+06	6.67E+06
		783.80		14.70	3.61E+07		8.11E+07	1.78E+07
	I-129	29.78		57.00	1.18E+00	1.18E+00	-2.07E-01	5.88E-01
		33.60		13.20	3.42E+00		-1.01E+00	1.70E+00
		39.58		7.52	4.01E+00		7.52E-01	1.99E+00
	I-131	284.30		6.05	1.12E+04	8.33E+02	6.38E+02	5.57E+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)
	I-131	364.48		81.20	8.33E+02	8.33E+02	-2.18E+01	4.12E+02
		636.97		7.26	1.05E+04		6.22E+02	5.19E+03
		722.89		1.80	4.88E+04		-3.88E+03	2.41E+04
	TE-132	49.72		13.10	6.26E+08	1.04E+08	-6.37E+08	3.11E+08
		228.16		88.00	1.04E+08		-1.15E+08	5.15E+07
	BA-133	81.00		33.00	6.48E-01	5.26E-01	-1.67E+01	3.23E-01
		302.84		17.80	1.52E+00		-2.08E-03	7.53E-01
		356.01		60.00	5.26E-01		-2.76E-02	2.61E-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	1.18E+05	1.18E+05	-3.04E+06	5.89E+04
	CS-134	563.23		8.38	3.53E+00	3.36E-01	3.90E+00	1.74E+00
		569.32		15.43	1.84E+00		-8.50E-02	9.07E-01
		604.70		97.60	3.36E-01		2.28E-02	1.66E-01
		795.84		85.40	4.48E-01		2.20E+00	2.21E-01
		801.93		8.73	3.01E+00		-7.09E-02	1.48E+00
	CS-135	268.24		16.00	1.63E+00	1.63E+00	6.11E+00	8.10E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	3.55E+02	3.05E+01	5.56E+02	1.77E+02
		163.89		4.61	5.59E+02		2.26E+02	2.78E+02
		176.55		13.56	1.94E+02		5.99E+01	9.64E+01
		273.65		12.66	2.73E+02		-7.84E+02	1.35E+02
		340.57		48.50	1.00E+02		1.24E+03	4.99E+01
		818.50		99.70	3.05E+01		-7.83E+00	1.49E+01
		1048.07		79.60	3.39E+01		3.63E+00	1.64E+01
		1235.34		19.70	2.03E+02		3.01E+02	9.92E+01
	CS-137	661.65		85.12	3.26E-01	3.26E-01	-1.00E-01	1.61E-01
	LA-138	788.74		34.00	7.88E-01	3.20E-01	-3.21E+00	3.88E-01
		1435.80		66.00	3.20E-01		-1.06E-01	1.55E-01
	CE-139	165.85		80.35	3.86E-01	3.86E-01	3.57E-02	1.92E-01
	BA-140	162.64		6.70	4.40E+02	1.48E+02	2.73E+01	2.19E+02
		304.84		4.50	7.85E+02		-4.09E+01	3.89E+02
		423.70		3.20	1.13E+03		-3.64E+02	5.57E+02
		437.55		2.00	1.78E+03		2.87E+02	8.79E+02
		537.32		25.00	1.48E+02		-8.84E+01	7.31E+01
	LA-140	328.77		20.50	2.05E+02	5.91E+01	8.17E+02	1.02E+02
		487.03		45.50	7.91E+01		1.74E+01	3.91E+01
		815.85		23.50	1.46E+02		-3.39E+01	7.13E+01
		1596.49		95.49	5.91E+01		9.46E+00	2.89E+01
	CE-141	145.44		48.40	2.91E+00	2.91E+00	2.03E+00	1.45E+00
@	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	2.20E+00	2.20E+00	-4.25E-01	1.09E+00
	PM-144	476.78		42.00	6.81E-01	3.10E-01	-7.84E-03	3.36E-01
		618.01		98.60	3.10E-01		-3.54E-02	1.53E-01
		696.49		99.49	3.26E-01		-9.76E-02	1.61E-01
	PM-145	36.85		21.70	1.64E+00	8.75E-01	4.04E-01	8.15E-01
		37.36		39.70	8.75E-01		7.85E-02	4.35E-01
		42.30		15.10	1.76E+00		2.04E-01	8.75E-01
		72.40		2.31	1.18E+01		-1.19E+02	5.88E+00
+	PM-146	453.90	*	39.94	6.29E-01	6.29E-01	3.18E-01	3.11E-01

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	1.92E+00	6.29E-01	-6.70E-01	9.43E-01
		747.13		13.10	2.04E+00		-3.78E-01	1.00E+00
+	ND-147	91.11	*	28.90	5.83E+02	5.83E+02	1.35E+03	2.91E+02
		531.02		13.10	6.50E+02		-1.34E+01	3.21E+02
	PM-149	285.90		3.10	3.20E+13	3.20E+13	6.16E+12	1.59E+13
	EU-152	121.78		20.50	8.90E-01	8.90E-01	-7.40E-02	4.43E-01
		244.69		5.40	5.12E+00		-8.88E+01	2.54E+00
		344.27		19.13	1.25E+00		-7.31E-02	6.21E-01
		778.89		9.20	2.79E+00		-3.49E+00	1.37E+00
		964.01		10.40	4.01E+00		-4.99E+01	1.98E+00
		1085.78		7.22	2.85E+00		8.56E-01	1.38E+00
		1112.02		9.60	2.28E+00		-8.05E-02	1.11E+00
		1407.95		14.94	1.88E+00		3.40E+00	9.17E-01
	GD-153	97.43		31.30	7.49E-01	7.49E-01	-4.39E+00	3.73E-01
		103.18		22.20	1.05E+00		-3.46E+00	5.21E-01
	EU-154	123.07		40.50	4.60E-01	4.60E-01	9.86E-02	2.29E-01
		723.30		19.70	1.52E+00		-1.21E-01	7.51E-01
		873.19		11.50	1.96E+00		-7.03E-02	9.58E-01
		996.32		10.30	1.95E+00		-5.94E-01	9.50E-01
		1004.76		17.90	1.23E+00		9.40E-02	5.97E-01
		1274.45		35.50	6.51E-01		2.16E-01	3.16E-01
	EU-155	86.50		30.90	8.19E-01	8.19E-01	3.22E+00	4.08E-01
		105.30		20.70	9.28E-01		2.02E+00	4.61E-01
	EU-156	811.77		10.40	1.48E+02	1.48E+02	1.32E+01	7.25E+01
		1153.47		7.20	2.28E+02		2.22E+02	1.11E+02
		1230.71		8.90	1.69E+02		3.78E+00	8.19E+01
	HO-166M	184.41		72.60	3.14E-01	3.14E-01	1.32E+00	1.56E-01
		280.45		29.60	8.15E-01		1.32E-01	4.04E-01
		410.94		11.10	2.43E+00		7.60E+00	1.20E+00
		711.69		54.10	5.15E-01		3.69E-01	2.54E-01
	TM-171	66.72		0.14	1.77E+02	1.77E+02	1.03E+02	8.81E+01
	HF-172	67.35		5.31	4.65E+00	1.84E+00	1.95E+00	2.32E+00
		125.81		11.30	1.84E+00		1.03E-01	9.15E-01
	LU-172	181.53		20.60	1.45E+04	5.35E+03	-1.08E+03	7.19E+03
		900.72		29.81	1.17E+04		-8.14E+03	5.73E+03
		1093.66		62.50	5.35E+03		5.98E+03	2.60E+03
	LU-173	100.72		5.24	3.90E+00	1.44E+00	1.09E+00	1.94E+00
		272.11		21.20	1.44E+00		4.78E+00	7.16E-01
	HF-175	343.40		84.00	7.05E-01	7.05E-01	-4.11E-02	3.49E-01
	LU-176	88.34		13.30	1.90E+00	2.40E-01	1.31E+01	9.46E-01
		201.83		86.00	2.42E-01		-8.03E-03	1.20E-01
		306.78		94.00	2.40E-01		2.57E-02	1.19E-01
	HF-181	133.02		41.70	2.10E+00	1.32E+00	-1.17E-02	1.04E+00
		345.85		17.20	6.06E+00		-3.68E-01	3.00E+00
		482.03		82.80	1.32E+00		5.58E-02	6.53E-01
	TA-182	67.75		41.20	9.55E-01	9.55E-01	4.00E-01	4.75E-01
		1121.30		34.90	2.04E+00		1.21E+01	1.00E+00
		1189.05		16.23	2.16E+00		-2.20E-01	1.04E+00
		1221.41		26.98	1.40E+00		3.73E-01	6.81E-01
		1231.02		11.44	3.34E+00		7.46E-02	1.62E+00
	IR-192	308.46		29.68	1.80E+00	1.20E+00	-3.14E-01	8.90E-01
		468.07		48.10	1.20E+00		8.13E-02	5.94E-01
	HG-203	279.19		77.30	1.29E+00	1.29E+00	3.75E+00	6.39E-01

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	2.61E-01	2.39E-01	-2.35E-02	1.29E-01
		899.15		99.16	2.39E-01		-3.42E-01	1.17E-01
		911.74		91.10	8.30E-01		1.29E+01	4.12E-01
	BI-207	569.67		97.72	2.69E-01	2.69E-01	-5.01E-03	1.33E-01
		1063.62		74.90	3.05E-01		2.37E-01	1.48E-01
+	TL-208	583.14	*	30.22	1.56E+00	7.29E-01	4.01E+01	7.74E-01
		860.37	*	4.48	7.58E+00		4.70E+01	3.74E+00
		2614.66	*	35.85	7.29E-01		3.70E+01	3.49E-01
	BI-210M	262.00		45.00	4.96E-01	4.96E-01	-8.54E-02	2.46E-01
		300.00		23.00	1.22E+00		-8.35E+00	6.05E-01
+	PB-210	46.50	*	4.25	5.83E+00	5.83E+00	5.12E+00	2.90E+00
	PB-211	404.84		2.90	8.73E+00	8.73E+00	-3.21E+01	4.32E+00
		831.96		2.90	9.49E+00		4.57E+00	4.67E+00
+	BI-212	727.17	*	11.80	3.82E+00	3.82E+00	2.62E+01	1.89E+00
		1620.62	*	2.75	2.57E+01		2.52E+01	1.27E+01
+	PB-212	238.63	*	44.60	1.16E+00	1.16E+00	4.40E+01	5.79E-01
		300.09	*	3.41	1.74E+01		4.07E+01	8.69E+00
+	BI-214	609.31	*	46.30	9.96E-01	9.96E-01	1.56E+01	4.94E-01
		1120.29	*	15.10	2.65E+00		1.68E+01	1.30E+00
		1764.49	*	15.80	2.34E+00		1.89E+01	1.14E+00
		2204.22	*	4.98	7.98E+00		1.66E+01	3.89E+00
+	PB-214	295.21	*	19.19	3.06E+00	9.50E-01	1.70E+01	1.52E+00
		351.92	*	37.19	9.50E-01		1.79E+01	4.72E-01
	RN-219	401.80		6.50	3.86E+00	3.86E+00	-1.01E+00	1.91E+00
	RA-223	323.87		3.88	6.20E+00	6.20E+00	2.26E+00	3.07E+00
+	RA-224	240.98	*	3.95	1.33E+01	1.33E+01	7.94E+01	6.61E+00
+	RA-225	40.00	*	31.00	7.61E+01	7.61E+01	3.85E+01	3.78E+01
+	RA-226	186.21	*	3.28	9.57E+00	9.57E+00	3.43E+01	4.77E+00
	TH-227	50.10		8.40	2.57E+00	2.57E+00	-2.61E+00	1.28E+00
		236.00		11.50	4.24E+00		3.51E-01	2.11E+00
		256.20		6.30	3.59E+00		4.43E-01	1.78E+00
+	AC-228	338.32	*	11.40	3.53E+00	2.00E+00	4.39E+01	1.76E+00
		911.07	*	27.70	2.00E+00		4.12E+01	9.90E-01
		969.11	*	16.60	2.92E+00		4.26E+01	1.44E+00
	TH-230	48.44		16.90	1.35E+00	1.35E+00	-1.83E-01	6.69E-01
		62.85		4.60	5.00E+00		1.15E+01	2.49E+00
		67.67		0.37	6.06E+01		2.54E+01	3.02E+01
	PA-231	283.67		1.60	1.40E+01	1.15E+01	8.06E-01	6.93E+00
		302.67		2.30	1.15E+01		-1.58E-02	5.73E+00
	TH-231	25.64		14.70	8.53E+00	3.51E+00	-4.97E+00	4.24E+00
		84.21		6.40	3.51E+00		-6.90E+00	1.75E+00
	PA-233	311.98		38.60	6.29E+00	6.29E+00	4.76E-02	3.12E+00
	PA-234	131.20		20.40	1.01E+00	1.01E+00	3.93E+00	5.04E-01
		733.99		8.80	3.00E+00		-3.45E-01	1.48E+00
		946.00		12.00	1.77E+00		7.77E-02	8.64E-01
+	PA-234M	1001.03	*	0.92	2.53E+01	2.53E+01	2.15E+01	1.24E+01
+	TH-234	63.29	*	3.80	7.13E+00	7.13E+00	9.67E+00	3.55E+00
	U-235	143.76		10.50	1.85E+00	1.85E+00	1.64E+00	9.22E-01
		163.35		4.70	4.12E+00		1.67E+00	2.05E+00
		205.31		4.70	5.53E+00		1.75E-01	2.75E+00
	NP-237	86.50		12.60	1.94E+00	1.94E+00	7.62E+00	9.65E-01
	NP-239	106.10		22.70	6.00E+11	6.00E+11	1.30E+12	2.99E+11
		228.18		10.70	1.66E+12		-1.84E+12	8.26E+11

Analysis Report for 1707077-05

HTC-A01-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	1.31E+12	6.00E+11	4.61E+12	6.49E+11
	AM-241	59.54		35.90	6.28E-01	6.28E-01	-1.34E+00	3.12E-01
	AM-243	74.67		66.00	4.96E-01	4.96E-01	5.32E+00	2.47E-01
+	CM-243	209.75	*	3.29	9.77E+00	2.30E+00	4.93E+01	4.86E+00
		228.14		10.60	2.30E+00		-2.55E+00	1.14E+00
		277.60	*	14.00	3.58E+00		6.05E+00	1.78E+00

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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: HTC-A01-S001-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3665

Channel								
1:	0	0	0	0	0	0	0	0
9:	237	2319	1997	1830	1876	1804	1839	1856
17:	1774	1711	1684	1565	1521	1519	1509	1498
25:	1451	1434	1481	1436	1505	1417	1463	1406
33:	1445	1414	1474	1500	1477	1469	1461	1640
41:	1612	1444	1532	1574	1558	1795	2019	1782
49:	1735	1809	1864	1912	2156	2154	2134	2452
57:	2632	3058	2901	2750	2844	3029	3505	3661
65:	3473	3229	3508	3497	3513	3466	3553	3615
73:	4044	5556	9719	9071	11462	11607	4961	3129
81:	2903	3038	3010	3708	3933	3677	5324	6087
89:	4254	4775	4507	3435	4714	4890	3304	2429
97:	2182	2400	2639	2724	2473	2251	2168	2292
105:	2711	2937	2544	2274	2440	2352	2291	2201
113:	2340	2252	2374	2430	2159	2053	2110	2070
121:	2197	2171	2206	2258	2279	2245	2308	2597
129:	3129	3205	2439	2375	2249	2180	2121	2122
137:	2077	2131	2099	2089	2086	2056	2186	2161
145:	2254	2122	2040	2075	2084	1967	2027	1994
153:	1993	2271	2200	1981	1803	1834	1823	1866
161:	1738	1838	1806	1909	1765	1767	1792	1742
169:	1822	1706	1683	1753	1706	1707	1734	1724
177:	1740	1691	1670	1680	1662	1732	1678	1748
185:	1940	2737	2530	1896	1586	1598	1668	1621
193:	1601	1581	1558	1563	1640	1524	1565	1591
201:	1590	1539	1472	1535	1606	1495	1536	1665
209:	2489	2857	1763	1411	1357	1332	1423	1331
217:	1479	1341	1405	1296	1261	1248	1185	1363
225:	1262	1219	1260	1200	1247	1272	1205	1335
233:	1328	1306	1249	1322	2056	8667	17446	9503
241:	3591	2995	2037	1128	999	911	874	854
249:	875	830	831	851	951	840	902	836
257:	847	929	903	856	816	784	830	820
265:	816	793	853	779	975	1635	1816	1062
273:	798	796	858	819	1198	1342	974	811
281:	698	732	750	753	726	695	753	837
289:	814	702	723	707	660	1044	2470	2602
297:	1225	754	873	1459	1466	844	685	678
305:	650	651	663	618	645	617	565	640
313:	634	598	641	602	606	607	561	621
321:	629	669	637	657	639	632	821	1382
329:	1143	706	611	643	659	618	613	621
337:	1044	2808	3318	1399	698	640	611	536
345:	564	505	511	493	533	659	1785	4141
353:	3098	972	512	555	497	503	486	501
361:	494	490	481	495	485	476	458	463

369:	472	460	459	459	477	457	518	510

Sample Title: HTC-A01-S001-0612-01

Channel								
377:	501	503	474	440	479	490	490	476
385:	470	477	497	521	537	482	484	446
393:	463	465	462	481	526	470	483	453
401:	446	566	506	504	496	464	440	500
409:	692	863	543	409	411	432	406	394
417:	431	413	383	431	419	418	382	376
425:	375	415	378	414	397	387	381	368
433:	404	355	369	346	342	352	372	362
441:	396	336	344	378	347	364	359	362
449:	366	366	335	348	424	367	399	336
457:	356	316	315	313	380	613	1068	905
465:	459	326	356	329	297	332	345	304
473:	310	334	321	307	309	348	338	350
481:	345	311	296	303	329	297	331	298
489:	289	295	294	298	309	285	292	310
497:	320	310	281	310	258	285	338	322
505:	332	319	309	330	506	1079	1673	1063
513:	454	312	304	318	304	300	264	305
521:	308	265	313	253	298	270	283	260
529:	283	265	283	290	310	260	296	267
537:	278	265	257	270	289	269	272	273
545:	283	290	291	275	281	294	284	224
553:	239	287	289	316	263	275	281	251
561:	310	350	387	341	278	275	280	277
569:	255	296	302	292	284	301	280	239
577:	262	275	263	299	404	1587	4128	3628
585:	1000	304	270	256	287	240	255	227
593:	237	248	234	260	231	208	233	237
601:	259	264	226	220	248	245	306	870
609:	2364	2235	781	262	231	260	239	238
617:	230	222	224	246	244	218	240	212
625:	210	214	220	245	232	244	217	211
633:	233	213	236	223	223	208	217	233
641:	234	204	223	218	260	221	211	214
649:	199	237	224	238	188	221	206	246
657:	230	211	232	198	237	244	228	257
665:	289	280	266	200	203	215	197	213
673:	227	216	244	207	267	240	232	233
681:	216	202	221	230	208	208	198	214
689:	213	205	209	225	209	222	209	195
697:	211	210	223	222	224	270	262	225
705:	218	213	215	217	225	226	204	216
713:	220	206	211	174	191	199	209	181
721:	188	169	207	187	226	478	1009	881
729:	336	172	195	196	193	200	161	170
737:	166	161	186	185	170	172	218	180
745:	162	175	171	164	179	154	167	149
753:	175	201	257	295	183	175	146	158
761:	183	181	248	203	189	165	253	344
769:	326	204	212	322	265	187	159	165
777:	138	133	158	136	150	178	196	170
785:	262	270	180	149	134	134	142	149
793:	177	392	567	403	161	132	142	128

801:	130	116	111	132	150	183	154	132

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Channel								
809:	104	106	100	119	102	107	116	91
817:	124	109	105	105	123	128	115	128
825:	130	124	121	133	129	155	164	153
833:	120	148	242	249	180	131	148	193
841:	177	116	109	92	92	124	99	103
849:	82	109	89	98	103	94	108	67
857:	104	124	249	525	495	219	100	116
865:	91	100	83	91	122	95	91	90
873:	74	114	91	95	74	93	81	88
881:	100	94	91	85	86	102	92	102
889:	89	92	87	110	134	115	91	102
897:	101	83	87	77	88	110	119	137
905:	130	116	94	105	298	1330	2584	1760
913:	449	132	85	113	88	76	80	95
921:	77	73	68	76	58	69	86	81
929:	72	68	70	97	121	177	149	72
937:	83	77	66	88	61	76	87	80
945:	62	73	70	76	73	78	77	74
953:	78	68	67	73	83	95	88	77
961:	85	90	180	440	535	269	333	1062
969:	1528	791	199	78	63	86	68	68
977:	57	66	69	61	65	71	78	75
985:	64	78	82	70	62	59	64	52
993:	48	50	71	53	58	74	53	83
1001:	105	83	56	69	80	64	71	56
1009:	64	65	52	56	57	48	64	52
1017:	49	54	45	57	49	54	49	60
1025:	62	75	53	49	73	58	56	58
1033:	88	53	64	41	65	51	57	65
1041:	66	46	43	46	57	64	58	43
1049:	54	58	60	68	57	61	51	43
1057:	56	39	62	57	62	68	74	72
1065:	78	78	52	48	64	67	46	58
1073:	58	56	56	52	56	82	102	70
1081:	60	52	56	56	44	58	58	54
1089:	45	48	40	57	73	93	75	67
1097:	50	44	57	61	51	60	62	50
1105:	55	62	49	52	57	72	67	54
1113:	43	53	58	64	63	109	253	482
1121:	347	121	76	56	49	51	56	52
1129:	63	43	43	53	44	65	54	43
1137:	52	49	46	45	42	46	56	36
1145:	58	49	53	41	63	47	59	53
1153:	58	91	76	76	60	42	39	58
1161:	47	39	61	56	66	41	57	53
1169:	56	51	46	62	59	47	62	55
1177:	47	46	50	53	45	57	52	58
1185:	36	38	44	36	51	36	55	45
1193:	47	39	43	42	44	48	58	43
1201:	52	43	55	53	66	42	66	70
1209:	42	45	56	45	43	52	54	61
1217:	44	46	35	47	63	50	51	51
1225:	45	47	62	42	52	55	52	50

1233:	42	51	56	85	155	226	121	63

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Channel								
1241:	58	41	54	64	56	74	72	44
1249:	55	56	58	56	54	64	45	42
1257:	48	52	47	49	59	44	48	44
1265:	46	42	46	48	43	32	47	57
1273:	56	55	42	43	52	48	47	76
1281:	96	77	44	46	46	65	55	46
1289:	57	35	65	51	40	50	42	46
1297:	50	35	53	46	40	48	56	38
1305:	61	39	41	49	43	47	52	50
1313:	45	48	48	44	42	59	44	40
1321:	46	47	30	53	37	41	39	42
1329:	41	49	36	39	45	46	46	37
1337:	49	43	45	34	48	39	55	43
1345:	50	46	52	40	51	43	46	37
1353:	43	43	36	50	48	50	47	51
1361:	49	48	41	43	41	50	43	47
1369:	36	46	40	45	52	49	51	78
1377:	148	126	79	49	43	49	41	47
1385:	51	47	46	41	40	50	38	40
1393:	42	39	41	39	33	46	40	62
1401:	66	60	48	41	46	53	109	88
1409:	63	52	43	39	30	38	30	36
1417:	36	40	38	33	29	30	39	36
1425:	31	36	40	41	41	36	48	45
1433:	36	43	39	32	39	36	25	28
1441:	41	39	46	36	41	36	28	32
1449:	31	41	32	38	31	43	34	46
1457:	54	71	117	123	114	73	45	46
1465:	39	36	40	34	39	34	29	31
1473:	36	26	40	46	30	40	32	47
1481:	36	22	31	37	31	30	34	36
1489:	32	37	39	35	29	50	77	93
1497:	51	37	45	48	63	58	46	31
1505:	37	33	47	62	91	65	53	67
1513:	46	33	27	30	29	33	35	33
1521:	40	38	26	24	32	36	42	34
1529:	48	32	33	38	36	29	27	21
1537:	28	47	33	39	30	35	44	40
1545:	35	28	21	22	27	34	36	36
1553:	37	33	33	26	44	40	28	43
1561:	33	26	32	25	34	29	29	25
1569:	26	21	36	22	29	18	18	21
1577:	32	23	41	63	55	39	39	34
1585:	36	79	185	177	119	94	155	218
1593:	171	78	44	29	24	33	40	24
1601:	25	26	21	33	25	25	19	44
1609:	26	24	25	27	31	34	27	24
1617:	29	39	58	114	93	50	39	44
1625:	44	37	35	26	86	115	77	43
1633:	27	22	19	30	30	52	33	35
1641:	24	21	30	25	26	24	29	27
1649:	24	29	21	27	19	23	26	23
1657:	14	29	27	41	47	45	30	24

1665:	33	25	38	28	22	20	27	28

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Channel								
1673:	20	26	33	27	30	33	37	27
1681:	27	23	22	29	40	32	29	29
1689:	27	23	23	29	26	26	25	22
1697:	28	24	21	32	18	21	34	21
1705:	17	21	36	21	21	25	25	37
1713:	21	21	19	20	23	21	21	15
1721:	20	24	24	17	27	16	30	57
1729:	78	54	25	22	21	20	20	27
1737:	23	18	23	22	23	20	22	27
1745:	22	19	21	19	26	19	23	25
1753:	14	33	21	21	28	30	28	27
1761:	42	99	230	311	236	86	33	20
1769:	21	30	25	28	22	33	28	24
1777:	29	17	16	20	21	33	21	22
1785:	25	24	25	15	25	15	24	26
1793:	31	24	14	18	27	24	27	19
1801:	21	25	17	25	23	28	25	25
1809:	21	13	22	23	17	28	17	15
1817:	18	20	18	19	24	20	26	26
1825:	25	23	11	19	18	26	23	18
1833:	19	25	13	21	38	29	25	30
1841:	30	19	18	22	28	48	58	54
1849:	35	24	30	23	31	24	24	21
1857:	23	30	21	18	21	21	35	26
1865:	19	23	26	29	27	27	25	24
1873:	24	25	27	27	26	15	22	27
1881:	19	27	27	19	24	35	27	31
1889:	24	22	18	20	23	26	28	27
1897:	27	15	31	17	28	22	23	20
1905:	26	22	37	28	23	17	29	22
1913:	24	22	23	13	30	32	21	25
1921:	29	32	21	25	24	22	24	26
1929:	23	25	32	23	29	28	36	24
1937:	18	19	18	25	28	26	23	23
1945:	24	27	24	25	14	19	33	26
1953:	21	27	20	29	27	31	25	22
1961:	19	27	20	25	18	18	27	29
1969:	26	19	27	23	30	19	25	26
1977:	23	25	26	35	22	13	26	26
1985:	20	24	20	20	16	17	26	13
1993:	19	22	20	18	22	24	24	23
2001:	27	20	25	21	19	27	26	17
2009:	21	25	25	21	28	40	21	25
2017:	25	15	16	19	25	24	19	24
2025:	25	18	30	30	22	19	26	19
2033:	22	17	11	20	21	24	21	20
2041:	15	13	21	21	28	34	14	12
2049:	25	18	25	20	30	26	14	21
2057:	27	22	26	22	20	20	22	24
2065:	28	23	22	20	28	23	21	16
2073:	27	23	24	28	15	21	25	26
2081:	26	31	26	20	24	21	27	23
2089:	25	30	17	20	25	28	22	23

2097:	30	28	33	55	86	127	129	111

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Channel								
2105:	70	45	25	29	26	20	22	21
2113:	24	17	29	21	30	45	37	33
2121:	20	15	29	22	18	16	23	15
2129:	16	21	20	20	23	20	27	22
2137:	18	23	29	25	23	16	22	28
2145:	32	27	30	26	19	25	25	25
2153:	25	18	17	24	29	22	18	23
2161:	16	24	27	21	24	26	26	31
2169:	21	29	33	23	30	26	18	26
2177:	18	35	26	30	25	20	27	15
2185:	24	31	20	26	27	24	34	28
2193:	34	27	18	32	18	23	29	22
2201:	28	70	102	84	52	21	24	25
2209:	28	22	19	30	24	18	21	36
2217:	33	38	35	31	20	26	36	30
2225:	21	27	24	25	30	23	33	34
2233:	21	32	33	22	33	27	26	34
2241:	33	24	29	32	22	36	28	28
2249:	22	38	33	40	29	32	30	24
2257:	31	23	24	35	19	32	22	35
2265:	32	23	32	26	25	32	26	24
2273:	29	31	32	32	29	34	31	23
2281:	31	26	37	33	42	28	34	24
2289:	25	28	37	28	34	17	32	29
2297:	34	29	25	29	32	35	38	42
2305:	40	35	37	35	30	29	27	22
2313:	30	36	43	32	21	35	40	34
2321:	28	24	31	32	35	35	49	28
2329:	35	29	30	36	38	32	38	35
2337:	40	30	34	25	29	38	42	34
2345:	28	44	38	35	43	27	46	32
2353:	32	44	37	37	41	40	44	33
2361:	36	43	39	41	46	37	36	42
2369:	35	45	41	39	43	32	40	38
2377:	34	34	47	40	31	36	28	28
2385:	31	22	34	22	19	21	21	25
2393:	25	32	20	36	23	20	32	22
2401:	22	19	18	24	27	23	22	33
2409:	24	29	22	23	30	28	21	21
2417:	16	27	28	16	21	27	22	31
2425:	26	23	27	15	23	24	20	21
2433:	25	23	18	27	18	16	21	24
2441:	18	29	20	29	28	37	36	30
2449:	24	17	22	24	17	19	21	14
2457:	11	21	18	10	17	12	15	30
2465:	12	17	15	15	24	30	17	18
2473:	19	18	12	10	12	17	22	14
2481:	16	13	19	12	11	17	12	14
2489:	14	12	13	7	12	9	12	6
2497:	12	10	9	12	19	17	9	9
2505:	10	10	8	11	11	15	9	6
2513:	14	7	6	8	6	10	10	9
2521:	7	9	8	14	8	6	8	8

2529:	7	7	7	12	7	5	3	3

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Channel								
2537:	4	7	11	5	11	8	5	14
2545:	7	9	10	13	6	6	9	8
2553:	6	7	4	5	3	7	5	5
2561:	9	10	7	4	11	3	6	6
2569:	4	4	7	5	12	8	8	5
2577:	8	10	4	6	4	7	8	6
2585:	8	4	7	8	6	3	6	4
2593:	4	5	4	5	12	4	6	10
2601:	6	9	8	8	5	2	5	7
2609:	9	28	159	488	881	913	540	162
2617:	29	9	10	8	3	7	1	0
2625:	4	1	2	1	5	5	4	0
2633:	3	2	5	3	3	6	4	4
2641:	1	0	2	2	4	7	4	5
2649:	1	5	1	4	5	6	8	2
2657:	1	4	3	1	1	1	4	4
2665:	1	2	2	6	2	3	2	2
2673:	3	3	4	1	5	0	3	7
2681:	3	5	6	7	5	4	8	4
2689:	1	5	5	4	3	4	1	0
2697:	3	3	6	2	6	7	1	3
2705:	5	4	2	5	4	4	3	1
2713:	4	5	1	3	7	4	2	2
2721:	0	4	2	2	0	3	0	7
2729:	5	4	4	2	2	2	4	1
2737:	3	3	2	5	2	1	2	0
2745:	2	3	2	3	2	0	2	3
2753:	2	4	3	1	2	4	4	2
2761:	4	2	5	6	5	3	3	3
2769:	4	1	4	2	2	4	2	1
2777:	5	3	1	1	5	3	0	4
2785:	3	0	3	5	3	5	2	3
2793:	4	5	3	2	4	2	0	3
2801:	3	1	3	1	1	0	0	0
2809:	3	3	0	0	5	0	3	2
2817:	0	4	3	3	1	4	2	2
2825:	3	1	3	1	2	2	2	1
2833:	1	2	1	1	0	4	0	3
2841:	2	1	1	4	3	2	0	5
2849:	0	3	2	0	5	1	4	5
2857:	2	0	0	2	1	4	1	1
2865:	1	2	1	2	2	2	6	0
2873:	2	2	3	2	1	2	0	2
2881:	1	1	2	1	0	2	1	0
2889:	1	4	3	5	4	0	2	1
2897:	1	4	2	0	1	0	1	2
2905:	2	0	1	1	3	1	3	0
2913:	0	2	0	1	2	1	1	3
2921:	0	3	2	4	1	0	4	1
2929:	1	1	0	1	3	1	1	2
2937:	1	2	2	1	0	1	0	2
2945:	2	0	1	4	2	0	1	1
2953:	1	4	0	1	1	0	1	3

2961:	4	2	0	3	1	1	3	1

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Channel								
2969:	1	3	1	1	0	1	4	1
2977:	1	3	2	0	0	0	2	2
2985:	2	2	0	1	0	3	1	0
2993:	1	1	1	1	0	1	0	3
3001:	1	0	2	1	2	1	1	0
3009:	2	0	2	1	1	2	1	4
3017:	1	1	1	2	1	0	0	0
3025:	0	0	1	2	1	0	2	2
3033:	2	2	0	1	0	1	2	1
3041:	1	0	1	1	0	1	0	2
3049:	0	0	2	3	0	1	0	0
3057:	1	1	0	1	0	0	0	1
3065:	0	0	0	0	0	1	0	0
3073:	0	1	0	1	0	1	0	0
3081:	0	0	0	0	0	0	4	0
3089:	1	0	0	0	0	1	1	0
3097:	0	0	2	0	1	0	2	1
3105:	2	1	1	0	0	1	1	0
3113:	0	0	0	0	0	1	1	0
3121:	0	2	1	4	5	1	1	1
3129:	0	1	2	0	0	0	1	1
3137:	1	1	0	0	1	0	1	1
3145:	0	0	1	0	0	0	1	0
3153:	0	1	0	0	0	1	0	0
3161:	0	1	2	0	0	1	0	0
3169:	0	3	1	0	1	0	0	0
3177:	0	0	0	0	1	0	0	1
3185:	0	0	1	0	0	2	2	1
3193:	2	3	8	10	6	4	2	0
3201:	0	1	0	1	1	0	0	3
3209:	0	0	0	0	0	0	0	0
3217:	0	0	1	0	0	0	0	0
3225:	0	0	0	1	0	1	0	1
3233:	1	0	0	0	1	0	0	1
3241:	0	0	0	0	0	0	0	0
3249:	0	0	1	0	0	0	0	0
3257:	0	0	0	0	1	0	0	0
3265:	0	1	1	1	0	0	0	1
3273:	0	0	0	0	1	0	0	1
3281:	0	0	0	1	0	0	1	0
3289:	0	0	0	0	0	0	0	0
3297:	0	1	1	0	0	0	0	1
3305:	1	0	0	0	1	0	1	0
3313:	0	0	0	0	0	0	0	1
3321:	0	0	0	0	0	0	1	0
3329:	0	2	0	0	0	0	0	0
3337:	1	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	2	0	0	0	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	1	0	0	1	0	0
3377:	0	0	0	0	0	1	0	0
3385:	0	0	0	1	0	0	0	0

3393:	0	1	0	0	0	0	1	0

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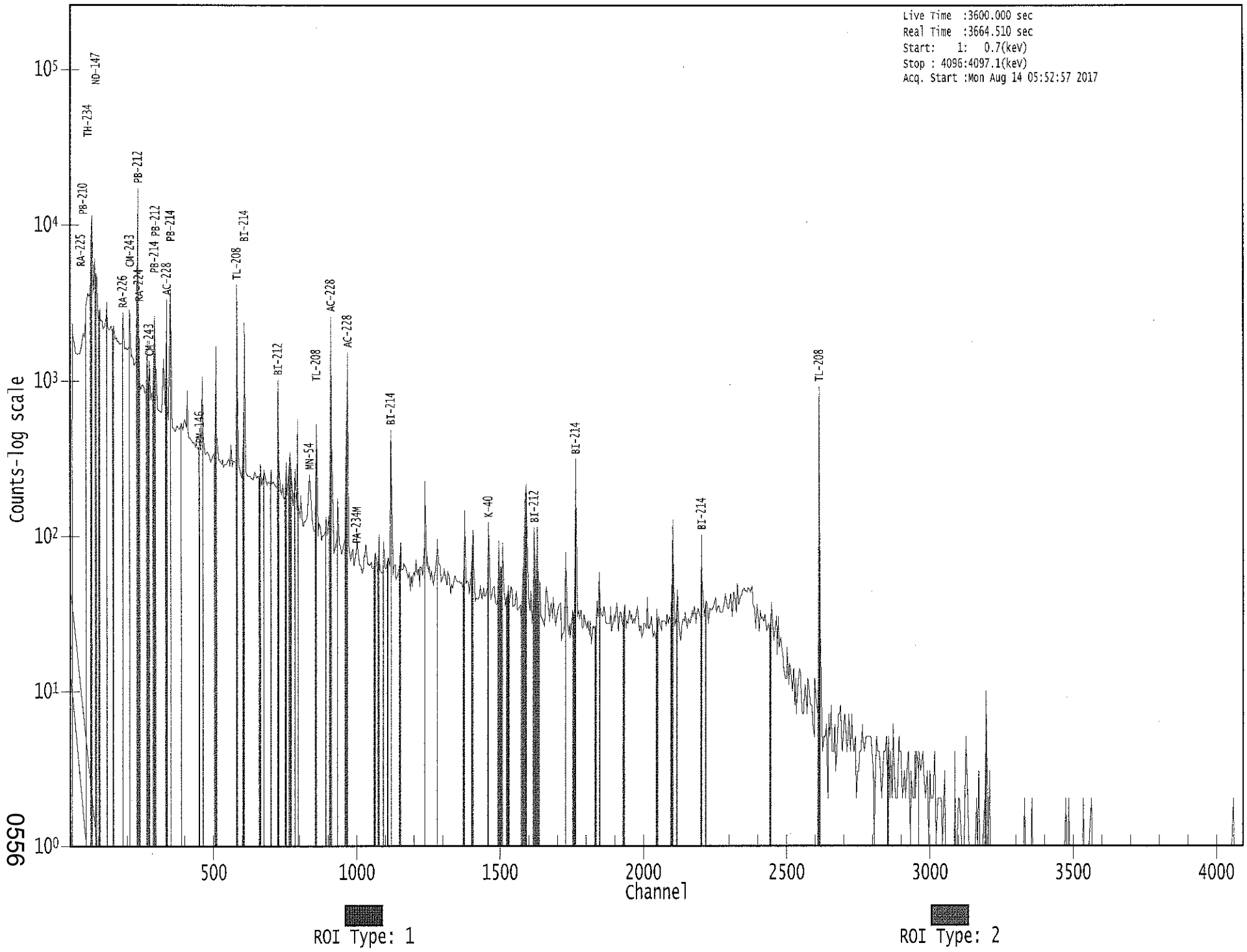
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	1
3425:	1	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	1	0	0	0	0	0	0
3465:	0	0	0	0	0	1	0	0
3473:	2	2	1	0	0	0	0	0
3481:	1	0	0	2	0	0	0	1
3489:	0	0	0	0	1	0	0	0
3497:	0	1	0	1	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-0612-01

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

0000055128.CNF



0556

Apex-Gamma

8/14

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-06
Sample Description	: HTC-A01-S001-1218-01
Sample Type	: SOIL
Sample Size	: 6.060E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:32:58AM
Acquisition Started	: 8/14/2017 5:53:16AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3604.2 seconds
Dead Time	: 0.12 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55129

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 6:53:23AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	38.59	37.64	0.0000	0.00
2	45.85	44.90	0.0000	0.00
3	63.58	62.63	0.0000	0.00
4	76.25	75.30	0.0000	0.00
5	87.14	86.20	0.0000	0.00
6	92.95	92.01	0.0000	0.00
7	129.39	128.46	0.0000	0.00
8	185.76	184.85	0.0000	0.00
9	208.46	207.56	0.0000	0.00
10	238.70	237.81	0.0000	0.00
11	241.29	240.40	0.0000	0.00
12	270.21	269.33	0.0000	0.00
13	296.20	295.32	0.0000	0.00
14	327.93	327.07	0.0000	0.00
15	337.91	337.05	0.0000	0.00
16	351.82	350.96	0.0000	0.00
17	463.15	462.34	0.0000	0.00
18	510.97	510.17	0.0000	0.00
19	583.28	582.51	0.0000	0.00
20	609.18	608.43	0.0000	0.00
21	661.70	660.96	0.0000	0.00
22	727.21	726.50	0.0000	0.00
23	860.63	859.97	0.0000	0.00
24	911.30	910.67	0.0000	0.00
25	967.66	967.05	0.0000	0.00
26	1119.76	1119.22	0.0000	0.00
27	1141.00	1140.47	0.0000	0.00
28	1238.99	1238.50	0.0000	0.00
29	1268.84	1268.37	0.0000	0.00
30	1437.51	1437.12	0.0000	0.00
31	1460.70	1460.32	0.0000	0.00
32	1539.52	1539.18	0.0000	0.00
33	1589.08	1588.77	0.0000	0.00
34	1630.40	1630.11	0.0000	0.00
35	1691.53	1691.28	0.0000	0.00
36	1700.10	1699.85	0.0000	0.00
37	1729.61	1729.38	0.0000	0.00
38	1764.09	1763.88	0.0000	0.00
39	1978.61	1978.52	0.0000	0.00
40	2102.37	2102.35	0.0000	0.00
41	2175.94	2175.97	0.0000	0.00
42	2270.53	2270.62	0.0000	0.00

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2279.76	2279.86	0.0000	0.00
44	2287.65	2287.75	0.0000	0.00
45	2614.28	2614.60	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 6:53:23AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	38.59	35 -	40	37.64	8.74E+01	73.34	1.01E+03	4.08
	2	45.85	41 -	49	44.90	1.70E+02	111.03	1.80E+03	4.96
	3	63.58	59 -	66	62.63	2.12E+02	131.58	2.75E+03	1.80
	4	76.25	70 -	79	75.30	1.78E+03	177.78	3.49E+03	4.03
M	5	87.14	81 -	96	86.20	5.92E+02	157.72	2.98E+03	4.20
m	6	92.95	81 -	96	92.01	6.47E+02	133.48	2.03E+03	2.86
	7	129.39	125 -	131	128.46	1.26E+02	89.02	1.33E+03	1.46
	8	185.76	179 -	188	184.85	3.10E+02	105.39	1.41E+03	2.06
	9	208.46	202 -	212	207.56	1.35E+02	105.26	1.40E+03	2.10
M	10	238.70	233 -	246	237.81	1.28E+03	92.72	5.92E+02	2.12
m	11	241.29	233 -	246	240.40	3.23E+02	104.06	7.13E+02	2.82
	12	270.21	266 -	272	269.33	1.11E+02	55.00	4.70E+02	2.94
	13	296.20	289 -	301	295.32	3.02E+02	95.42	9.28E+02	2.52
	14	327.93	324 -	330	327.07	1.02E+02	48.01	3.42E+02	2.13
	15	337.91	331 -	342	337.05	2.74E+02	74.89	5.64E+02	2.56
	16	351.82	344 -	357	350.96	4.31E+02	92.37	7.57E+02	2.26
	17	463.15	458 -	466	462.34	7.47E+01	48.18	3.13E+02	2.02
	18	510.97	504 -	517	510.17	2.05E+02	64.41	3.67E+02	3.24
	19	583.28	578 -	588	582.51	3.50E+02	55.92	2.27E+02	2.43
	20	609.18	603 -	614	608.43	3.00E+02	55.89	2.42E+02	2.55
	21	661.70	656 -	666	660.96	6.70E+01	41.87	1.98E+02	3.80
	22	727.21	721 -	732	726.50	9.44E+01	43.22	1.87E+02	2.05
	23	860.63	857 -	863	859.97	4.28E+01	22.19	5.64E+01	4.44
	24	911.30	905 -	917	910.67	1.75E+02	52.82	2.42E+02	2.47
	25	967.66	961 -	973	967.05	1.69E+02	41.60	1.25E+02	3.57
	26	1119.76	1114 -	1123	1119.22	4.73E+01	29.80	9.94E+01	1.69
	27	1141.00	1136 -	1145	1140.47	3.92E+01	25.50	7.15E+01	3.40
	28	1238.99	1234 -	1245	1238.50	3.41E+01	30.13	9.77E+01	4.10
	29	1268.84	1265 -	1271	1268.37	1.56E+01	19.19	4.88E+01	2.52
	30	1437.51	1434 -	1440	1437.12	1.43E+01	12.22	1.55E+01	3.71
	31	1460.70	1454 -	1466	1460.32	3.08E+02	42.22	6.50E+01	2.56
	32	1539.52	1535 -	1543	1539.18	1.30E+01	14.04	2.19E+01	5.29
	33	1589.08	1579 -	1598	1588.77	4.50E+01	20.49	2.00E+01	7.24
	34	1630.40	1628 -	1633	1630.11	7.00E+00	9.38	1.20E+01	1.35
	35	1691.53	1687 -	1694	1691.28	8.07E+00	10.20	1.19E+01	1.92
	36	1700.10	1697 -	1702	1699.85	5.64E+00	6.08	2.71E+00	3.08
	37	1729.61	1724 -	1734	1729.38	2.45E+01	13.44	1.10E+01	3.12
	38	1764.09	1758 -	1770	1763.88	5.55E+01	18.23	1.30E+01	3.22
	39	1978.61	1975 -	1982	1978.52	1.09E+01	9.38	6.14E+00	1.33
	40	2102.37	2098 -	2105	2102.35	1.21E+01	11.83	1.39E+01	3.19

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2175.94	2172 -	2180	2175.97	9.31E+00	9.62	7.38E+00	2.16
42	2270.53	2268 -	2274	2270.62	7.60E+00	8.03	4.80E+00	2.01
43	2279.76	2277 -	2283	2279.86	5.00E+00	6.34	4.00E+00	1.44
44	2287.65	2284 -	2292	2287.75	1.12E+01	8.50	3.54E+00	4.62
45	2614.28	2609 -	2618	2614.60	8.40E+01	18.33	0.00E+00	2.80

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 : 8/14/2017 6:53:23AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	38.59	35 -	40	8.74E+01	73.34	1.01E+03	5.83E+01
	2	45.85	41 -	49	1.70E+02	111.03	1.80E+03	8.87E+01
	3	63.58	59 -	66	2.12E+02	131.58	2.75E+03	1.05E+02
	4	76.25	70 -	79	1.78E+03	177.78	3.49E+03	1.29E+02
M	5	87.14	81 -	96	5.92E+02	157.72	2.98E+03	8.98E+01
m	6	92.95	81 -	96	6.47E+02	133.48	2.03E+03	7.40E+01
	7	129.39	125 -	131	1.26E+02	89.02	1.33E+03	7.08E+01
	8	185.76	179 -	188	3.10E+02	105.39	1.41E+03	8.17E+01
	9	208.46	202 -	212	1.35E+02	105.26	1.40E+03	8.44E+01
M	10	238.70	233 -	246	1.28E+03	92.72	5.92E+02	4.00E+01
m	11	241.29	233 -	246	3.23E+02	104.06	7.13E+02	4.39E+01
	12	270.21	266 -	272	1.11E+02	55.00	4.70E+02	4.18E+01
	13	296.20	289 -	301	3.02E+02	95.42	9.28E+02	7.31E+01
	14	327.93	324 -	330	1.02E+02	48.01	3.42E+02	3.58E+01
	15	337.91	331 -	342	2.74E+02	74.89	5.64E+02	5.52E+01
	16	351.82	344 -	357	4.31E+02	92.37	7.57E+02	6.78E+01
	17	463.15	458 -	466	7.47E+01	48.18	3.13E+02	3.70E+01
	18	510.97	504 -	517	2.05E+02	64.41	3.67E+02	1.24E+01
	19	583.28	578 -	588	3.50E+02	55.92	2.27E+02	3.41E+01
	20	609.18	603 -	614	3.00E+02	55.89	2.42E+02	3.61E+01
	21	661.70	656 -	666	6.70E+01	41.87	1.98E+02	3.17E+01
	22	727.21	721 -	732	9.44E+01	43.22	1.87E+02	3.17E+01

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
23	860.63	857 -	863	4.28E+01	22.19	5.64E+01	1.47E+01
24	911.30	905 -	917	1.75E+02	52.82	2.42E+02	3.76E+01
25	967.66	961 -	973	1.69E+02	41.60	1.25E+02	2.67E+01
26	1119.76	1114 -	1123	4.73E+01	29.80	9.94E+01	2.17E+01
27	1141.00	1136 -	1145	3.92E+01	25.50	7.15E+01	1.83E+01
28	1238.99	1234 -	1245	3.41E+01	30.13	9.77E+01	2.28E+01
29	1268.84	1265 -	1271	1.56E+01	19.19	4.88E+01	1.44E+01
30	1437.51	1434 -	1440	1.43E+01	12.22	1.55E+01	7.89E+00
31	1460.70	1454 -	1466	3.08E+02	42.22	6.50E+01	1.93E+01
32	1539.52	1535 -	1543	1.30E+01	14.04	2.19E+01	9.90E+00
33	1589.08	1579 -	1598	4.50E+01	20.49	2.00E+01	1.27E+01
34	1630.40	1628 -	1633	7.00E+00	9.38	1.20E+01	6.37E+00
35	1691.53	1687 -	1694	8.07E+00	10.20	1.19E+01	6.96E+00
36	1700.10	1697 -	1702	5.64E+00	6.08	2.71E+00	3.12E+00
37	1729.61	1724 -	1734	2.45E+01	13.44	1.10E+01	7.47E+00
38	1764.09	1758 -	1770	5.55E+01	18.23	1.30E+01	8.64E+00
39	1978.61	1975 -	1982	1.09E+01	9.38	6.14E+00	5.47E+00
40	2102.37	2098 -	2105	1.21E+01	11.83	1.39E+01	7.88E+00
41	2175.94	2172 -	2180	9.31E+00	9.62	7.38E+00	6.11E+00
42	2270.53	2268 -	2274	7.60E+00	8.03	4.80E+00	4.80E+00
43	2279.76	2277 -	2283	5.00E+00	6.34	4.00E+00	3.70E+00
44	2287.65	2284 -	2292	1.12E+01	8.50	3.54E+00	4.30E+00
45	2614.28	2609 -	2618	8.40E+01	18.33	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 : 8/14/2017 6:53:23AM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	38.59	35 -	40	37.64	8.74E+01	73.34	1.01E+03	I-129
2	45.85	41 -	49	44.90	1.70E+02	111.03	1.80E+03	PB-210

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	3	63.58	59 -	66	62.63	2.12E+02	131.58	2.75E+03	TH-234 TH-230
	4	76.25	70 -	79	75.30	1.78E+03	177.78	3.49E+03	.....
M	5	87.14	81 -	96	86.20	5.92E+02	157.72	2.98E+03	SN-126 NP-237 EU-155 CD-109
m	6	92.95	81 -	96	92.01	6.47E+02	133.48	2.03E+03	GA-67
	7	129.39	125 -	131	128.46	1.26E+02	89.02	1.33E+03	.....
	8	185.76	179 -	188	184.85	3.10E+02	105.39	1.41E+03	RA-226
	9	208.46	202 -	212	207.56	1.35E+02	105.26	1.40E+03	GA-67
M	10	238.70	233 -	246	237.81	1.28E+03	92.72	5.92E+02	PB-212
m	11	241.29	233 -	246	240.40	3.23E+02	104.06	7.13E+02	RA-224
	12	270.21	266 -	272	269.33	1.11E+02	55.00	4.70E+02	.....
	13	296.20	289 -	301	295.32	3.02E+02	95.42	9.28E+02	PB-214
	14	327.93	324 -	330	327.07	1.02E+02	48.01	3.42E+02	LA-140
	15	337.91	331 -	342	337.05	2.74E+02	74.89	5.64E+02	AC-228
	16	351.82	344 -	357	350.96	4.31E+02	92.37	7.57E+02	PB-214
	17	463.15	458 -	466	462.34	7.47E+01	48.18	3.13E+02	SB-125
	18	510.97	504 -	517	510.17	2.05E+02	64.41	3.67E+02	.....
	19	583.28	578 -	588	582.51	3.50E+02	55.92	2.27E+02	TL-208
	20	609.18	603 -	614	608.43	3.00E+02	55.89	2.42E+02	BI-214
	21	661.70	656 -	666	660.96	6.70E+01	41.87	1.98E+02	CS-137
	22	727.21	721 -	732	726.50	9.44E+01	43.22	1.87E+02	BI-212
	23	860.63	857 -	863	859.97	4.28E+01	22.19	5.64E+01	TL-208
	24	911.30	905 -	917	910.67	1.75E+02	52.82	2.42E+02	AC-228 TL-204
	25	967.66	961 -	973	967.05	1.69E+02	41.60	1.25E+02	.....
	26	1119.76	1114 -	1123	1119.22	4.73E+01	29.80	9.94E+01	BI-214 SC-46
	27	1141.00	1136 -	1145	1140.47	3.92E+01	25.50	7.15E+01	.....
	28	1238.99	1234 -	1245	1238.50	3.41E+01	30.13	9.77E+01	CO-56
	29	1268.84	1265 -	1271	1268.37	1.56E+01	19.19	4.88E+01	.....
	30	1437.51	1434 -	1440	1437.12	1.43E+01	12.22	1.55E+01	.....
	31	1460.70	1454 -	1466	1460.32	3.08E+02	42.22	6.50E+01	K-40
	32	1539.52	1535 -	1543	1539.18	1.30E+01	14.04	2.19E+01	.....
	33	1589.08	1579 -	1598	1588.77	4.50E+01	20.49	2.00E+01	.....
	34	1630.40	1628 -	1633	1630.11	7.00E+00	9.38	1.20E+01	.....
	35	1691.53	1687 -	1694	1691.28	8.07E+00	10.20	1.19E+01	SB-124
	36	1700.10	1697 -	1702	1699.85	5.64E+00	6.08	2.71E+00	.....
	37	1729.61	1724 -	1734	1729.38	2.45E+01	13.44	1.10E+01	.....
	38	1764.09	1758 -	1770	1763.88	5.55E+01	18.23	1.30E+01	BI-214
	39	1978.61	1975 -	1982	1978.52	1.09E+01	9.38	6.14E+00	.....
	40	2102.37	2098 -	2105	2102.35	1.21E+01	11.83	1.39E+01	.....
	41	2175.94	2172 -	2180	2175.97	9.31E+00	9.62	7.38E+00	.....
	42	2270.53	2268 -	2274	2270.62	7.60E+00	8.03	4.80E+00	.....
	43	2279.76	2277 -	2283	2279.86	5.00E+00	6.34	4.00E+00	.....
	44	2287.65	2284 -	2292	2287.75	1.12E+01	8.50	3.54E+00	.....
	45	2614.28	2609 -	2618	2614.60	8.40E+01	18.33	0.00E+00	TL-208

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

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 : 8/14/2017 6:53:23AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	38.59	8.74E+01	73.34	1.27E-02	1.56E-03
	2	45.85	1.70E+02	111.03	1.62E-02	1.56E-03
	3	63.58	2.12E+02	131.58	2.16E-02	1.65E-03
	4	76.25	1.78E+03	177.78	2.32E-02	1.92E-03
M	5	87.14	5.92E+02	157.72	2.37E-02	2.15E-03
m	6	92.95	6.47E+02	133.48	2.37E-02	2.09E-03
	7	129.39	1.26E+02	89.02	2.15E-02	1.62E-03
	8	185.76	3.10E+02	105.39	1.69E-02	1.40E-03
	9	208.46	1.35E+02	105.26	1.54E-02	1.29E-03
M	10	238.70	1.28E+03	92.72	1.36E-02	1.14E-03
m	11	241.29	3.23E+02	104.06	1.34E-02	1.13E-03
	12	270.21	1.11E+02	55.00	1.21E-02	9.90E-04
	13	296.20	3.02E+02	95.42	1.10E-02	9.11E-04
	14	327.93	1.02E+02	48.01	9.91E-03	8.44E-04
	15	337.91	2.74E+02	74.89	9.61E-03	8.24E-04
	16	351.82	4.31E+02	92.37	9.22E-03	7.94E-04
	17	463.15	7.47E+01	48.18	6.94E-03	6.81E-04
	18	510.97	2.05E+02	64.41	6.28E-03	6.61E-04
	19	583.28	3.50E+02	55.92	5.50E-03	6.31E-04
	20	609.18	3.00E+02	55.89	5.27E-03	6.20E-04
	21	661.70	6.70E+01	41.87	4.87E-03	5.99E-04
	22	727.21	9.44E+01	43.22	4.45E-03	5.16E-04
	23	860.63	4.28E+01	22.19	3.81E-03	3.49E-04
	24	911.30	1.75E+02	52.82	3.62E-03	2.99E-04
	25	967.66	1.69E+02	41.60	3.43E-03	2.86E-04
	26	1119.76	4.73E+01	29.80	3.02E-03	2.50E-04
	27	1141.00	3.92E+01	25.50	2.97E-03	2.45E-04
	28	1238.99	3.41E+01	30.13	2.76E-03	2.33E-04
	29	1268.84	1.56E+01	19.19	2.70E-03	2.31E-04
	30	1437.51	1.43E+01	12.22	2.42E-03	2.11E-04
	31	1460.70	3.08E+02	42.22	2.38E-03	2.08E-04
	32	1539.52	1.30E+01	14.04	2.27E-03	1.96E-04
	33	1589.08	4.50E+01	20.49	2.21E-03	1.88E-04
	34	1630.40	7.00E+00	9.38	2.16E-03	1.82E-04

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1691.53	8.07E+00	10.20	2.08E-03	1.73E-04
36	1700.10	5.64E+00	6.08	2.07E-03	1.72E-04
37	1729.61	2.45E+01	13.44	2.04E-03	1.67E-04
38	1764.09	5.55E+01	18.23	2.00E-03	1.62E-04
39	1978.61	1.09E+01	9.38	1.78E-03	1.51E-04
40	2102.37	1.21E+01	11.83	1.67E-03	1.51E-04
41	2175.94	9.31E+00	9.62	1.60E-03	1.51E-04
42	2270.53	7.60E+00	8.03	1.53E-03	1.51E-04
43	2279.76	5.00E+00	6.34	1.52E-03	1.51E-04
44	2287.65	1.12E+01	8.50	1.51E-03	1.51E-04
45	2614.28	8.40E+01	18.33	1.28E-03	1.51E-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 : 8/14/2017 6:53:23AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	38.59	8.74E+01	73.34			8.74E+01	7.33E+01
	2	45.85	1.70E+02	111.03	2.81E+01	7.56E+00	1.42E+02	1.11E+02
	3	63.58	2.12E+02	131.58	5.28E+01	8.63E+00	1.59E+02	1.32E+02
	4	76.25	1.78E+03	177.78			1.78E+03	1.78E+02
M	5	87.14	5.92E+02	157.72			5.92E+02	1.58E+02
m	6	92.95	6.47E+02	133.48	6.21E+01	4.71E+00	5.85E+02	1.34E+02
	7	129.39	1.26E+02	89.02			1.26E+02	8.90E+01
	8	185.76	3.10E+02	105.39	2.34E+01	8.57E+00	2.86E+02	1.06E+02
	9	208.46	1.35E+02	105.26			1.35E+02	1.05E+02
M	10	238.70	1.28E+03	92.72	8.90E+00	6.12E+00	1.27E+03	9.29E+01
m	11	241.29	3.23E+02	104.06			3.23E+02	1.04E+02
	12	270.21	1.11E+02	55.00			1.11E+02	5.50E+01
	13	296.20	3.02E+02	95.42			3.02E+02	9.54E+01
	14	327.93	1.02E+02	48.01			1.02E+02	4.80E+01
	15	337.91	2.74E+02	74.89			2.74E+02	7.49E+01
	16	351.82	4.31E+02	92.37			4.31E+02	9.24E+01
	17	463.15	7.47E+01	48.18			7.47E+01	4.82E+01
	18	510.97	2.05E+02	64.41	4.43E+01	4.80E+00	1.60E+02	6.46E+01
	19	583.28	3.50E+02	55.92	3.56E+00	2.78E+00	3.47E+02	5.60E+01

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
20	609.18	3.00E+02	55.89			3.00E+02	5.59E+01
21	661.70	6.70E+01	41.87	1.65E+00	3.47E+00	6.54E+01	4.20E+01
22	727.21	9.44E+01	43.22			9.44E+01	4.32E+01
23	860.63	4.28E+01	22.19			4.28E+01	2.22E+01
24	911.30	1.75E+02	52.82			1.75E+02	5.28E+01
25	967.66	1.69E+02	41.60			1.69E+02	4.16E+01
26	1119.76	4.73E+01	29.80			4.73E+01	2.98E+01
27	1141.00	3.92E+01	25.50			3.92E+01	2.55E+01
28	1238.99	3.41E+01	30.13			3.41E+01	3.01E+01
29	1268.84	1.56E+01	19.19			1.56E+01	1.92E+01
30	1437.51	1.43E+01	12.22			1.43E+01	1.22E+01
31	1460.70	3.08E+02	42.22			3.08E+02	4.22E+01
32	1539.52	1.30E+01	14.04			1.30E+01	1.40E+01
33	1589.08	4.50E+01	20.49			4.50E+01	2.05E+01
34	1630.40	7.00E+00	9.38			7.00E+00	9.38E+00
35	1691.53	8.07E+00	10.20			8.07E+00	1.02E+01
36	1700.10	5.64E+00	6.08			5.64E+00	6.08E+00
37	1729.61	2.45E+01	13.44			2.45E+01	1.34E+01
38	1764.09	5.55E+01	18.23			5.55E+01	1.82E+01
39	1978.61	1.09E+01	9.38			1.09E+01	9.38E+00
40	2102.37	1.21E+01	11.83			1.21E+01	1.18E+01
41	2175.94	9.31E+00	9.62			9.31E+00	9.62E+00
42	2270.53	7.60E+00	8.03			7.60E+00	8.03E+00
43	2279.76	5.00E+00	6.34			5.00E+00	6.34E+00
44	2287.65	1.12E+01	8.50			1.12E+01	8.50E+00
45	2614.28	8.40E+01	18.33			8.40E+01	1.83E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 6:53:23AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.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	38.59	8.74E+01	73.34			8.74E+01	7.33E+01
2	45.85	1.70E+02	111.03	2.81E+01	7.56E+00	1.42E+02	1.11E+02

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	3	63.58	2.12E+02	131.58	5.28E+01	8.63E+00	1.59E+02	1.32E+02
	4	76.25	1.78E+03	177.78			1.78E+03	1.78E+02
M	5	87.14	5.92E+02	157.72			5.92E+02	1.58E+02
m	6	92.95	6.47E+02	133.48	6.21E+01	4.71E+00	5.85E+02	1.34E+02
	7	129.39	1.26E+02	89.02			1.26E+02	8.90E+01
	8	185.76	3.10E+02	105.39	2.34E+01	8.57E+00	2.86E+02	1.06E+02
	9	208.46	1.35E+02	105.26			1.35E+02	1.05E+02
M	10	238.70	1.28E+03	92.72	8.90E+00	6.12E+00	1.27E+03	9.29E+01
m	11	241.29	3.23E+02	104.06			3.23E+02	1.04E+02
	12	270.21	1.11E+02	55.00			1.11E+02	5.50E+01
	13	296.20	3.02E+02	95.42			3.02E+02	9.54E+01
	14	327.93	1.02E+02	48.01			1.02E+02	4.80E+01
	15	337.91	2.74E+02	74.89			2.74E+02	7.49E+01
	16	351.82	4.31E+02	92.37			4.31E+02	9.24E+01
	17	463.15	7.47E+01	48.18			7.47E+01	4.82E+01
	18	510.97	2.05E+02	64.41	4.43E+01	4.80E+00	1.60E+02	6.46E+01
	19	583.28	3.50E+02	55.92	3.56E+00	2.78E+00	3.47E+02	5.60E+01
	20	609.18	3.00E+02	55.89			3.00E+02	5.59E+01
	21	661.70	6.70E+01	41.87	1.65E+00	3.47E+00	6.54E+01	4.20E+01
	22	727.21	9.44E+01	43.22			9.44E+01	4.32E+01
	23	860.63	4.28E+01	22.19			4.28E+01	2.22E+01
	24	911.30	1.75E+02	52.82			1.75E+02	5.28E+01
	25	967.66	1.69E+02	41.60			1.69E+02	4.16E+01
	26	1119.76	4.73E+01	29.80			4.73E+01	2.98E+01
	27	1141.00	3.92E+01	25.50			3.92E+01	2.55E+01
	28	1238.99	3.41E+01	30.13			3.41E+01	3.01E+01
	29	1268.84	1.56E+01	19.19			1.56E+01	1.92E+01
	30	1437.51	1.43E+01	12.22			1.43E+01	1.22E+01
	31	1460.70	3.08E+02	42.22			3.08E+02	4.22E+01
	32	1539.52	1.30E+01	14.04			1.30E+01	1.40E+01
	33	1589.08	4.50E+01	20.49			4.50E+01	2.05E+01
	34	1630.40	7.00E+00	9.38			7.00E+00	9.38E+00
	35	1691.53	8.07E+00	10.20			8.07E+00	1.02E+01
	36	1700.10	5.64E+00	6.08			5.64E+00	6.08E+00
	37	1729.61	2.45E+01	13.44			2.45E+01	1.34E+01
	38	1764.09	5.55E+01	18.23			5.55E+01	1.82E+01
	39	1978.61	1.09E+01	9.38			1.09E+01	9.38E+00
	40	2102.37	1.21E+01	11.83			1.21E+01	1.18E+01
	41	2175.94	9.31E+00	9.62			9.31E+00	9.62E+00
	42	2270.53	7.60E+00	8.03			7.60E+00	8.03E+00
	43	2279.76	5.00E+00	6.34			5.00E+00	6.34E+00
	44	2287.65	1.12E+01	8.50			1.12E+01	8.50E+00
	45	2614.28	8.40E+01	18.33			8.40E+01	1.83E+01

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

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.998	1460.81	*	10.67	1.50E+01	2.45E+00
CD-109	0.881	88.03	*	3.72	9.56E+00	2.75E+00
SN-126	0.971	87.57	*	37.00	8.37E-01	2.36E-01
CS-137	1.000	661.65	*	85.12	1.97E-01	1.29E-01
EU-155	0.323	86.50	*	30.90	1.04E+00	2.92E-01
		105.30		20.70		
TL-208	0.986	583.14	*	30.22	2.58E+00	5.11E-01
		860.37	*	4.48	3.11E+00	1.64E+00
		2614.66	*	35.85	2.27E+00	5.63E-01
PB-210	0.935	46.50	*	4.25	2.58E+00	2.04E+00
BI-212	0.776	727.17	*	11.80	2.23E+00	1.05E+00
		1620.62		2.75		
PB-212	0.897	238.63	*	44.60	2.59E+00	2.89E-01
		300.09		3.41		
BI-214	0.923	609.31	*	46.30	1.52E+00	3.35E-01
		1120.29	*	15.10	1.29E+00	8.18E-01
		1764.49	*	15.80	2.18E+00	7.37E-01
		2204.22		4.98		
PB-214	0.948	295.21	*	19.19	1.77E+00	5.79E-01
		351.92	*	37.19	1.56E+00	3.60E-01
RA-224	0.984	240.98	*	3.95	7.54E+00	2.51E+00
RA-226	0.967	186.21	*	3.28	6.38E+00	1.19E+01
AC-228	0.576	338.32	*	11.40	3.10E+00	8.87E-01
		911.07	*	27.70	2.16E+00	6.77E-01
		969.11		16.60		
TH-234	0.987	63.29	*	3.80	2.40E+00	2.00E+00
NP-237	0.936	86.50	*	12.60	2.46E+00	6.92E-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

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:53:23AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	38.59	2.42743E-02	41.96	Tol.	I-129
	4	76.25	4.93297E-01	5.01		
m	6	92.95	1.62507E-01	11.41	Tol.	GA-67
	7	129.39	3.51009E-02	35.22		
	9	208.46	3.74390E-02	39.05	Tol.	GA-67
	12	270.21	3.08663E-02	24.75		
	14	327.93	2.83191E-02	23.55	Sum	
	17	463.15	2.07413E-02	32.26	Tol.	SB-125
	18	510.97	4.45289E-02	20.15		
	25	967.66	4.70402E-02	12.28	Sum	
	27	1141.00	1.09000E-02	32.49		
	28	1238.99	9.48460E-03	44.13	Tol.	CO-56
	29	1268.84	4.33681E-03	61.46		
	30	1437.51	3.96465E-03	42.80		
	32	1539.52	3.62269E-03	53.85		
	33	1589.08	1.25000E-02	22.77		
	34	1630.40	1.94444E-03	67.01		
	35	1691.53	2.24206E-03	63.17	Tol.	SB-124
	36	1700.10	1.56746E-03	53.90	Sum	
	37	1729.61	6.80556E-03	27.42	Sum	
	39	1978.61	3.03571E-03	42.92		
	40	2102.37	3.34795E-03	49.09	S-Esc	
	41	2175.94	2.58547E-03	51.67		
	42	2270.53	2.11111E-03	52.84		
	43	2279.76	1.38889E-03	63.44		
	44	2287.65	3.11966E-03	37.84		

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 1707077-06

HTC-A01-S001-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.50E+01	2.45E+00
CD-109	0.88	88.03	*	3.72	9.56E+00	2.75E+00
SN-126	0.97	87.57	*	37.00	8.37E-01	2.36E-01
CS-137	1.00	661.65	*	85.12	1.97E-01	1.29E-01
EU-155	0.32	86.50	*	30.90	1.04E+00	2.92E-01
		105.30		20.70		
TL-208	0.98	583.14	*	30.22	2.58E+00	5.11E-01
		860.37	*	4.48	3.11E+00	1.64E+00
		2614.66	*	35.85	2.27E+00	5.63E-01
PB-210	0.93	46.50	*	4.25	2.58E+00	2.04E+00
BI-212	0.77	727.17	*	11.80	2.23E+00	1.05E+00
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	2.59E+00	2.89E-01
		300.09		3.41		
BI-214	0.92	609.31	*	46.30	1.52E+00	3.35E-01
		1120.29	*	15.10	1.29E+00	8.18E-01
		1764.49	*	15.80	2.18E+00	7.37E-01
		2204.22		4.98		
PB-214	0.94	295.21	*	19.19	1.77E+00	5.79E-01
		351.92	*	37.19	1.56E+00	3.60E-01
RA-224	0.98	240.98	*	3.95	7.54E+00	2.51E+00
RA-226	0.96	186.21	*	3.28	6.38E+00	1.19E+01
AC-228	0.57	338.32	*	11.40	3.10E+00	8.87E-01
		911.07	*	27.70	2.16E+00	6.77E-01
		969.11		16.60		
TH-234	0.98	63.29	*	3.80	2.40E+00	2.00E+00
NP-237	0.93	86.50	*	12.60	2.46E+00	6.92E-01

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.998	1.50E+01	2.45E+00	
?	CD-109	0.881	9.56E+00	2.75E+00	
?	SN-126	0.971	8.37E-01	2.36E-01	
	CS-137	1.000	1.97E-01	1.29E-01	
?	EU-155	0.323	1.04E+00	2.92E-01	
	TL-208	0.986	2.47E+00	3.69E-01	
	PB-210	0.935	2.58E+00	2.04E+00	
	BI-212	0.776	2.23E+00	1.05E+00	
	PB-212	0.897	2.59E+00	2.89E-01	
	BI-214	0.923	1.59E+00	2.86E-01	
	PB-214	0.948	1.62E+00	3.06E-01	
	RA-224	0.984	7.54E+00	2.51E+00	
	RA-226	0.967	6.38E+00	1.19E+01	
	AC-228	0.576	2.51E+00	5.38E-01	
	TH-234	0.987	2.40E+00	2.00E+00	
?	NP-237	0.936	2.46E+00	6.92E-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 1707077-06

HTC-A01-S001-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:53:23AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	38.59	2.42743E-02	41.96	Tol.	I-129
	4	76.25	4.93297E-01	5.01		
m	6	92.95	1.62507E-01	11.41	Tol.	GA-67
	7	129.39	3.51009E-02	35.22		
	9	208.46	3.74390E-02	39.05	Tol.	GA-67
	12	270.21	3.08663E-02	24.75		
	14	327.93	2.83191E-02	23.55	Sum	
	17	463.15	2.07413E-02	32.26	Tol.	SB-125
	18	510.97	4.45289E-02	20.15		
	25	967.66	4.70402E-02	12.28	Sum	
	27	1141.00	1.09000E-02	32.49		
	28	1238.99	9.48460E-03	44.13	Tol.	CO-56
	29	1268.84	4.33681E-03	61.46		
	30	1437.51	3.96465E-03	42.80		
	32	1539.52	3.62269E-03	53.85		
	33	1589.08	1.25000E-02	22.77		
	34	1630.40	1.94444E-03	67.01		
	35	1691.53	2.24206E-03	63.17	Tol.	SB-124
	36	1700.10	1.56746E-03	53.90	Sum	
	37	1729.61	6.80556E-03	27.42	Sum	
	39	1978.61	3.03571E-03	42.92		
	40	2102.37	3.34795E-03	49.09	S-Esc	
	41	2175.94	2.58547E-03	51.67		
	42	2270.53	2.11111E-03	52.84		
	43	2279.76	1.38889E-03	63.44		
	44	2287.65	3.11966E-03	37.84		

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 1707077-06

HTC-A01-S001-1218-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	9.13E-01	3.38E+00	3.38E+00
+	NA-22	1274.54		99.94	1.04E-02	1.60E-01	1.60E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	0.00E+00		1.00E+26
+	AL-26	1808.65		99.76	3.82E-02	1.20E-01	1.20E-01
+	K-40	1460.81	*	10.67	1.50E+01	2.01E+00	2.01E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.80E-03	9.95E-02	9.95E-02
		78.34		96.00	6.92E-01		1.35E-01
+	SC-46	889.25		99.98	2.40E-02	2.59E-01	2.59E-01
		1120.51		99.99	4.11E-01		4.15E-01
+	V-48	983.52		99.98	4.61E-01	7.44E+00	7.54E+00
		1312.10		97.50	-1.65E+00		7.44E+00
+	CR-51	320.08		9.83	5.49E+00	9.54E+00	9.54E+00
+	MN-54	834.83		99.97	5.27E-02	1.78E-01	1.78E-01
+	CO-56	846.75		99.96	1.20E-01	3.10E-01	3.10E-01
		1037.75		14.03	1.10E+00		2.23E+00
		1238.25		67.00	3.69E-01		6.23E-01
		1771.40		15.51	5.05E-03		1.88E+00
		2598.48		16.90	-3.43E-01		1.19E+00
+	CO-57	122.06		85.51	-1.51E-02	1.05E-01	1.05E-01
		136.48		10.60	-3.76E-02		8.68E-01
+	CO-58	810.76		99.40	-1.57E-02	3.16E-01	3.16E-01
+	FE-59	1099.22		56.50	-1.90E-01	1.10E+00	1.10E+00
		1291.56		43.20	1.04E+00		1.59E+00
+	CO-60	1173.22		100.00	-3.17E-02	1.44E-01	1.71E-01
		1332.49		100.00	-1.98E-02		1.44E-01
+	ZN-65	1115.52		50.75	-3.85E-02	4.34E-01	4.34E-01
+	GA-67	93.31		35.70	2.80E+08	1.01E+08	1.01E+08
		208.95		2.24	1.57E+09		1.52E+09
		300.22		16.00	-3.54E+08		2.35E+08
+	SE-75	121.11		16.70	-3.52E-01	2.08E-01	7.20E-01
		136.00		59.20	-1.29E-02		2.08E-01
		264.65		59.80	1.15E-02		2.22E-01
		279.53		25.20	1.80E-01		6.16E-01
		400.65		11.40	8.76E-02		1.40E+00
+	RB-82	776.52		13.00	-2.19E+00	1.27E+01	1.27E+01
+	RB-83	520.41		46.00	5.98E-02	4.62E-01	4.62E-01
		529.64		30.30	-2.52E-02		7.04E-01
		552.65		16.40	-1.37E+00		1.29E+00
+	KR-85	513.99		0.43	4.16E+01	3.38E+01	3.38E+01
+	SR-85	513.99		99.27	4.82E-01	3.92E-01	3.92E-01

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	3.16E-02	1.88E-01	2.72E-01
		1836.01		99.38	1.38E-02		1.88E-01
+	MO-93	263.06		56.72	4.38E-02	1.35E-01	1.46E-01
		684.67		99.68	1.97E-02		1.37E-01
		1477.11		99.08	2.20E-02		1.35E-01
+	NB-93M	16.57		9.43	2.19E+01	9.51E+00	9.51E+00
+	NB-94	702.63		100.00	-8.22E-02	1.28E-01	1.33E-01
		871.10		100.00	6.06E-02		1.28E-01
+	NB-95	765.79		99.81	1.07E+00	9.88E-01	9.88E-01
+	NB-95M	235.69		25.00	1.23E+08	3.51E+07	3.51E+07
+	ZR-95	724.18		43.70	-6.62E-02	6.79E-01	9.91E-01
		756.72		55.30	9.98E-04		6.79E-01
+	MO-99	181.06		6.20	-6.25E+08	1.59E+10	1.84E+10
		739.58		12.80	7.86E+09		1.59E+10
		778.00		4.50	-4.43E+10		4.00E+10
+	RU-103	497.08		89.00	1.86E-01	5.84E-01	5.84E-01
+	RU-106	621.84		9.80	1.90E-01	1.22E+00	1.22E+00
+	AG-108M	433.93		89.90	-1.98E-02	1.02E-01	1.02E-01
		614.37		90.40	-4.55E-03		1.25E-01
		722.95		90.50	-1.23E-02		1.56E-01
+	CD-109	88.03	*	3.72	9.56E+00	5.27E+00	5.27E+00
+	AG-110M	657.75		93.14	-1.72E-02	1.91E-01	1.91E-01
		677.61		10.53	8.11E-01		1.63E+00
		706.67		16.46	-1.61E-01		1.03E+00
		763.93		21.98	-4.81E-01		8.49E-01
		884.67		71.63	6.39E-02		2.28E-01
		1384.27		23.94	1.34E-01		6.69E-01
+	CD-113M	263.70		0.02	-4.27E+00	3.45E+02	3.45E+02
+	SN-113	255.12		1.93	-2.21E+00	2.54E-01	7.49E+00
		391.69		64.90	-4.00E-02		2.54E-01
+	TE123M	159.00		84.10	-5.90E-02	1.52E-01	1.52E-01
+	SB-124	602.71		97.87	-1.28E-02	3.34E-01	3.34E-01
		645.85		7.26	5.25E-01		4.21E+00
		722.78		11.10	-2.90E-01		3.71E+00
		1691.02		49.00	2.45E-01		7.54E-01
+	I-125	35.49		6.49	-8.17E-01	6.05E+00	6.05E+00
+	SB-125	176.33		6.89	-2.35E-01	3.60E-01	1.17E+00
		427.89		29.33	-3.56E-02		3.60E-01
		463.38		10.35	1.18E+00		1.25E+00
		600.56		17.80	4.07E-01		6.89E-01
		635.90		11.32	8.18E-02		1.08E+00
+	SB-126	414.70		83.30	-5.74E+00	2.06E+01	2.06E+01
		666.33		99.60	6.52E+00		2.45E+01
		695.00		99.60	1.62E+01		2.66E+01
		720.50		53.80	-6.95E+00		4.17E+01
+	SN-126	87.57	*	37.00	8.37E-01	4.62E-01	4.62E-01
+	SB-127	473.00		25.00	-1.94E+06	6.82E+06	7.26E+06
		685.20		35.70	9.84E+05		6.82E+06

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-127	783.80		14.70	2.62E+06	6.82E+06	1.76E+07
+		I-129	29.78		57.00	-1.18E-01	3.17E-01	3.17E-01
			33.60		13.20	-3.51E-01		1.09E+00
			39.58		7.52	-1.97E-01		1.57E+00
+		I-131	284.30		6.05	-2.95E+03	3.39E+02	4.14E+03
			364.48		81.20	2.11E+02		3.39E+02
			636.97		7.26	-2.89E+03		4.45E+03
			722.89		1.80	-1.84E+03		2.35E+04
+		TE-132	49.72		13.10	-1.91E+07	3.61E+07	2.84E+08
			228.16		88.00	-1.33E+07		3.61E+07
+		BA-133	81.00		33.00	-1.20E+00	2.01E-01	3.01E-01
			302.84		17.80	-6.63E-02		5.31E-01
			356.01		60.00	-9.83E-02		2.01E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-2.18E+05	5.50E+04	5.50E+04
+		CS-134	563.23		8.38	5.64E-02	1.44E-01	1.49E+00
			569.32		15.43	-3.54E-01		7.78E-01
			604.70		97.60	7.52E-03		1.44E-01
			795.84		85.40	7.68E-02		1.95E-01
			801.93		8.73	-1.79E+00		1.60E+00
+		CS-135	268.24		16.00	6.50E-02	5.68E-01	5.68E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	6.63E+01	1.79E+01	1.40E+02
			163.89		4.61	9.03E+01		2.22E+02
			176.55		13.56	-2.24E+00		7.45E+01
			273.65		12.66	-3.80E+01		9.42E+01
			340.57		48.50	5.78E+01		3.30E+01
			818.50		99.70	-4.08E-01		1.79E+01
			1048.07		79.60	4.96E-01		2.19E+01
			1235.34		19.70	-7.62E+00		1.17E+02
+		CS-137	661.65	*	85.12	1.97E-01	2.00E-01	2.00E-01
+		LA-138	788.74		34.00	-3.66E-01	2.25E-01	4.29E-01
			1435.80		66.00	8.27E-03		2.25E-01
+		CE-139	165.85		80.35	2.26E-02	1.54E-01	1.54E-01
+		BA-140	162.64		6.70	1.59E+01	6.43E+01	1.73E+02
			304.84		4.50	-1.00E+02		2.91E+02
			423.70		3.20	-1.14E+01		4.69E+02
			437.55		2.00	1.50E+02		7.05E+02
			537.32		25.00	1.21E+01		6.43E+01
+		LA-140	328.77		20.50	7.22E+01	2.12E+01	7.51E+01
			487.03		45.50	1.72E+01		3.52E+01
			815.85		23.50	1.53E+01		8.56E+01
			1596.49		95.49	7.02E-01		2.12E+01
+		CE-141	145.44		48.40	-3.07E-02	1.16E+00	1.16E+00
+	@	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

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54		10.80	-1.94E-01	8.24E-01	8.24E-01
+	PM-144	476.78		42.00	-3.75E-02	1.22E-01	2.92E-01
		618.01		98.60	-2.15E-02		1.22E-01
		696.49		99.49	7.94E-02		1.76E-01
+	PM-145	36.85		21.70	-1.18E-01	3.19E-01	5.97E-01
		37.36		39.70	-6.29E-02		3.19E-01
		42.30		15.10	-8.99E-01		7.28E-01
		72.40		2.31	-4.19E-01		4.79E+00
+	PM-146	453.90		39.94	7.26E-02	2.56E-01	2.56E-01
		735.90		14.01	8.44E-02		9.77E-01
		747.13		13.10	4.44E-01		1.08E+00
+	ND-147	91.11		28.90	2.52E+02	1.25E+02	1.25E+02
		531.02		13.10	-1.26E+02		2.65E+02
+	PM-149	285.90		3.10	4.39E+12	1.20E+13	1.20E+13
+	EU-152	121.78		20.50	-5.01E-02	3.49E-01	3.49E-01
		244.69		5.40	-5.34E+00		1.76E+00
		344.27		19.13	-1.36E+00		4.63E-01
		778.89		9.20	-1.34E+00		1.41E+00
		964.01		10.40	-2.45E-01		1.87E+00
		1085.78		7.22	3.68E-01		2.05E+00
		1112.02		9.60	-1.87E-01		1.56E+00
		1407.95		14.94	-1.19E-01		9.46E-01
+	GD-153	97.43		31.30	6.88E-02	3.29E-01	3.29E-01
		103.18		22.20	2.79E-01		4.36E-01
+	EU-154	123.07		40.50	2.83E-03	1.80E-01	1.80E-01
		723.30		19.70	-5.48E-02		8.20E-01
		873.19		11.50	4.17E-01		1.11E+00
		996.32		10.30	-1.12E-01		1.35E+00
		1004.76		17.90	3.45E-02		8.80E-01
		1274.45		35.50	2.80E-02		4.30E-01
+	EU-155	86.50	*	30.90	1.04E+00	3.65E-01	5.73E-01
		105.30		20.70	8.28E-02		3.65E-01
+	EU-156	811.77		10.40	-5.29E+00	8.47E+01	8.47E+01
		1153.47		7.20	6.24E+01		1.59E+02
		1230.71		8.90	-3.64E+01		1.11E+02
+	HO-166M	184.41		72.60	3.10E-01	1.35E-01	1.35E-01
		280.45		29.60	2.08E-02		3.03E-01
		410.94		11.10	1.05E-01		8.98E-01
		711.69		54.10	4.15E-02		2.40E-01
+	TM-171	66.72		0.14	-2.08E+00	7.73E+01	7.73E+01
+	HF-172	67.35		5.31	-5.48E-02	7.32E-01	2.03E+00
		125.81		11.30	5.00E-02		7.32E-01
+	LU-172	181.53		20.60	-1.74E+04	3.17E+03	5.93E+03
		900.72		29.81	2.24E+03		7.64E+03
		1093.66		62.50	-1.37E+03		3.17E+03
+	LU-173	100.72		5.24	6.55E-02	5.10E-01	1.58E+00
		272.11		21.20	-2.84E-03		5.10E-01
+	HF-175	343.40		84.00	-7.67E-01	2.60E-01	2.60E-01
+	LU-176	88.34		13.30	-4.48E-01	9.06E-02	7.40E-01

Analysis Report for 1707077-06

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-6.38E-03	9.06E-02	9.51E-02
		306.78		94.00	-1.16E-03		9.06E-02
+	HF-181	133.02		41.70	0.00E+00	5.86E-01	7.97E-01
		345.85		17.20	-7.28E+00		2.33E+00
		482.03		82.80	1.13E-01		5.86E-01
+	TA-182	67.75		41.20	-1.13E-02	3.99E-01	3.99E-01
		1121.30		34.90	-4.48E-02		9.48E-01
		1189.05		16.23	-7.21E-01		1.50E+00
		1221.41		26.98	6.81E-01		1.14E+00
		1231.02		11.44	-1.61E-01		2.32E+00
+	IR-192	308.46		29.68	9.57E-02	5.25E-01	6.86E-01
		468.07		48.10	4.63E-03		5.25E-01
+	HG-203	279.19		77.30	2.10E-01	4.67E-01	4.67E-01
+	TL-204	374.74		94.11	-4.39E-02	1.02E-01	1.02E-01
		899.15		99.16	1.24E-02		1.56E-01
		911.74		91.10	7.40E-01		3.07E-01
+	BI-207	569.67		97.72	-5.17E-02	1.13E-01	1.13E-01
		1063.62		74.90	3.56E-02		1.75E-01
+	TL-208	583.14	*	30.22	2.58E+00	7.31E-02	5.32E-01
		860.37	*	4.48	3.11E+00		2.34E+00
		2614.66	*	35.85	2.27E+00		7.31E-02
+	BI-210M	262.00		45.00	7.07E-02	1.83E-01	1.83E-01
		300.00		23.00	-6.63E-01		4.40E-01
+	PB-210	46.50	*	4.25	2.58E+00	3.30E+00	3.30E+00
+	PB-211	404.84		2.90	-5.28E-01	3.29E+00	3.29E+00
		831.96		2.90	3.51E-01		4.88E+00
+	BI-212	727.17	*	11.80	2.23E+00	1.56E+00	1.56E+00
		1620.62		2.75	-3.63E-01		4.55E+00
+	PB-212	238.63	*	44.60	2.59E+00	3.54E-01	3.54E-01
		300.09		3.41	-4.47E+00		2.97E+00
+	BI-214	609.31	*	46.30	1.52E+00	3.80E-01	3.80E-01
		1120.29	*	15.10	1.29E+00		1.26E+00
		1764.49	*	15.80	2.18E+00		7.84E-01
		2204.22		4.98	9.44E-01		3.53E+00
+	PB-214	295.21	*	19.19	1.77E+00	5.00E-01	8.74E-01
		351.92	*	37.19	1.56E+00		5.00E-01
+	RN-219	401.80		6.50	-2.63E-01	1.41E+00	1.41E+00
+	RA-223	323.87		3.88	-1.38E-01	2.35E+00	2.35E+00
+	RA-224	240.98	*	3.95	7.54E+00	4.07E+00	4.07E+00
+	RA-225	40.00		31.00	-3.64E+00	2.90E+01	2.90E+01
+	RA-226	186.21	*	3.28	6.38E+00	3.73E+00	3.73E+00
+	TH-227	50.10		8.40	-7.83E-02	1.17E+00	1.17E+00
		236.00		11.50	4.88E+00		1.39E+00
		256.20		6.30	2.72E-02		1.31E+00
+	AC-228	338.32	*	11.40	3.10E+00	9.63E-01	1.28E+00
		911.07	*	27.70	2.16E+00		9.63E-01
		969.11		16.60	2.57E+00		1.49E+00
+	TH-230	48.44		16.90	9.15E-02	5.97E-01	5.97E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	3.29E+00	5.97E-01	2.24E+00
		67.67		0.37	-7.15E-01		2.54E+01
+	PA-231	283.67		1.60	-3.73E+00	4.04E+00	5.22E+00
		302.67		2.30	-5.04E-01		4.04E+00
+	TH-231	25.64		14.70	1.81E+00	1.43E+00	1.89E+00
		84.21		6.40	-6.85E-01		1.43E+00
+	PA-233	311.98		38.60	-3.88E-01	2.35E+00	2.35E+00
+	PA-234	131.20		20.40	-1.37E-02	3.77E-01	3.77E-01
		733.99		8.80	-1.82E-01		1.55E+00
		946.00		12.00	-7.87E-02		1.14E+00
+	PA-234M	1001.03		0.92	1.40E+01	1.72E+01	1.72E+01
+	TH-234	63.29	*	3.80	2.40E+00	3.26E+00	3.26E+00
+	U-235	143.76		10.50	1.86E-01	7.39E-01	7.39E-01
		163.35		4.70	1.49E-01		1.62E+00
		205.31		4.70	-1.55E+00		1.83E+00
+	NP-237	86.50	*	12.60	2.46E+00	1.36E+00	1.36E+00
+	NP-239	106.10		22.70	3.83E+10	2.33E+11	2.33E+11
		228.18		10.70	-2.12E+11		5.78E+11
		277.60		14.10	4.55E+11		4.79E+11
+	AM-241	59.54		35.90	-2.39E-03	2.72E-01	2.72E-01
+	AM-243	74.67		66.00	1.32E+00	2.08E-01	2.08E-01
+	CM-243	209.75		3.29	2.02E+00	6.61E-01	2.78E+00
		228.14		10.60	-2.94E-01		8.00E-01
		277.60		14.00	6.29E-01		6.61E-01

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-06

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.38E+00	3.38E+00	9.13E-01	1.61E+00
	NA-22	1274.54		99.94	1.60E-01	1.60E-01	1.04E-02	7.34E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	1.20E-01	1.20E-01	3.82E-02	5.13E-02
+	K-40	1460.81	*	10.67	2.01E+00	2.01E+00	1.50E+01	9.41E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	9.95E-02	9.95E-02	-2.80E-03	4.90E-02
		78.34		96.00	1.35E-01		6.92E-01	6.66E-02
	SC-46	889.25		99.98	2.59E-01	2.59E-01	2.40E-02	1.20E-01
		1120.51		99.99	4.15E-01		4.11E-01	1.95E-01
	V-48	983.52		99.98	7.54E+00	7.44E+00	4.61E-01	3.49E+00
		1312.10		97.50	7.44E+00		-1.65E+00	3.35E+00
	CR-51	320.08		9.83	9.54E+00	9.54E+00	5.49E+00	4.60E+00
	MN-54	834.83		99.97	1.78E-01	1.78E-01	5.27E-02	8.39E-02
	CO-56	846.75		99.96	3.10E-01	3.10E-01	1.20E-01	1.45E-01
		1037.75		14.03	2.23E+00		1.10E+00	1.03E+00
		1238.25		67.00	6.23E-01		3.69E-01	2.91E-01
		1771.40		15.51	1.88E+00		5.05E-03	8.18E-01
		2598.48		16.90	1.19E+00		-3.43E-01	4.23E-01
	CO-57	122.06		85.51	1.05E-01	1.05E-01	-1.51E-02	5.13E-02
		136.48		10.60	8.68E-01		-3.76E-02	4.24E-01
	CO-58	810.76		99.40	3.16E-01	3.16E-01	-1.57E-02	1.47E-01
	FE-59	1099.22		56.50	1.10E+00	1.10E+00	-1.90E-01	5.07E-01
		1291.56		43.20	1.59E+00		1.04E+00	7.34E-01
	CO-60	1173.22		100.00	1.71E-01	1.44E-01	-3.17E-02	7.97E-02
		1332.49		100.00	1.44E-01		-1.98E-02	6.51E-02
	ZN-65	1115.52		50.75	4.34E-01	4.34E-01	-3.85E-02	2.03E-01
	GA-67	93.31		35.70	1.01E+08	1.01E+08	2.80E+08	4.99E+07
		208.95		2.24	1.52E+09		1.57E+09	7.40E+08
		300.22		16.00	2.35E+08		-3.54E+08	1.14E+08
	SE-75	121.11		16.70	7.20E-01	2.08E-01	-3.52E-01	3.52E-01
		136.00		59.20	2.08E-01		-1.29E-02	1.02E-01
		264.65		59.80	2.22E-01		1.15E-02	1.07E-01
		279.53		25.20	6.16E-01		1.80E-01	2.98E-01
		400.65		11.40	1.40E+00		8.76E-02	6.70E-01
	RB-82	776.52		13.00	1.27E+01	1.27E+01	-2.19E+00	5.95E+00
	RB-83	520.41		46.00	4.62E-01	4.62E-01	5.98E-02	2.19E-01
		529.64		30.30	7.04E-01		-2.52E-02	3.33E-01
		552.65		16.40	1.29E+00		-1.37E+00	6.06E-01
	KR-85	513.99		0.43	3.38E+01	3.38E+01	4.16E+01	1.63E+01
	SR-85	513.99		99.27	3.92E-01	3.92E-01	4.82E-01	1.89E-01
	Y-88	898.02		93.40	2.72E-01	1.88E-01	3.16E-02	1.27E-01
		1836.01		99.38	1.88E-01		1.38E-02	7.81E-02
	MO-93	263.06		56.72	1.46E-01	1.35E-01	4.38E-02	7.03E-02
		684.67		99.68	1.37E-01		1.97E-02	6.48E-02
		1477.11		99.08	1.35E-01		2.20E-02	6.00E-02
	NB-93M	16.57		9.43	9.51E+00	9.51E+00	2.19E+01	4.64E+00
	NB-94	702.63		100.00	1.33E-01	1.28E-01	-8.22E-02	6.27E-02
		871.10		100.00	1.28E-01		6.06E-02	5.97E-02
	NB-95	765.79		99.81	9.88E-01	9.88E-01	1.07E+00	4.69E-01
	NB-95M	235.69		25.00	3.51E+07	3.51E+07	1.23E+08	1.73E+07
	ZR-95	724.18		43.70	9.91E-01	6.79E-01	-6.62E-02	4.72E-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)
	ZR-95	756.72		55.30	6.79E-01	6.79E-01	9.98E-04	3.20E-01
	MO-99	181.06		6.20	1.84E+10	1.59E+10	-6.25E+08	8.99E+09
		739.58		12.80	1.59E+10		7.86E+09	7.51E+09
		778.00		4.50	4.00E+10		-4.43E+10	1.87E+10
	RU-103	497.08		89.00	5.84E-01	5.84E-01	1.86E-01	2.77E-01
	RU-106	621.84		9.80	1.22E+00	1.22E+00	1.90E-01	5.71E-01
	AG-108M	433.93		89.90	1.02E-01	1.02E-01	-1.98E-02	4.85E-02
		614.37		90.40	1.25E-01		-4.55E-03	5.89E-02
		722.95		90.50	1.56E-01		-1.23E-02	7.41E-02
+	CD-109	88.03	*	3.72	5.27E+00	5.27E+00	9.56E+00	2.62E+00
	AG-110M	657.75		93.14	1.91E-01	1.91E-01	-1.72E-02	9.07E-02
		677.61		10.53	1.63E+00		8.11E-01	7.70E-01
		706.67		16.46	1.03E+00		-1.61E-01	4.88E-01
		763.93		21.98	8.49E-01		-4.81E-01	4.01E-01
		884.67		71.63	2.28E-01		6.39E-02	1.06E-01
		1384.27		23.94	6.69E-01		1.34E-01	2.98E-01
	CD-113M	263.70		0.02	3.45E+02	3.45E+02	-4.27E+00	1.66E+02
	SN-113	255.12		1.93	7.49E+00	2.54E-01	-2.21E+00	3.62E+00
		391.69		64.90	2.54E-01		-4.00E-02	1.21E-01
	TE123M	159.00		84.10	1.52E-01	1.52E-01	-5.90E-02	7.44E-02
	SB-124	602.71		97.87	3.34E-01	3.34E-01	-1.28E-02	1.58E-01
		645.85		7.26	4.21E+00		5.25E-01	1.97E+00
		722.78		11.10	3.71E+00		-2.90E-01	1.76E+00
		1691.02		49.00	7.54E-01		2.45E-01	3.29E-01
	I-125	35.49		6.49	6.05E+00	6.05E+00	-8.17E-01	2.96E+00
	SB-125	176.33		6.89	1.17E+00	3.60E-01	-2.35E-01	5.69E-01
		427.89		29.33	3.60E-01		-3.56E-02	1.72E-01
		463.38		10.35	1.25E+00		1.18E+00	6.02E-01
		600.56		17.80	6.89E-01		4.07E-01	3.26E-01
		635.90		11.32	1.08E+00		8.18E-02	5.09E-01
	SB-126	414.70		83.30	2.06E+01	2.06E+01	-5.74E+00	9.83E+00
		666.33		99.60	2.45E+01		6.52E+00	1.16E+01
		695.00		99.60	2.66E+01		1.62E+01	1.26E+01
		720.50		53.80	4.17E+01		-6.95E+00	1.96E+01
+	SN-126	87.57	*	37.00	4.62E-01	4.62E-01	8.37E-01	2.29E-01
	SB-127	473.00		25.00	7.26E+06	6.82E+06	-1.94E+06	3.45E+06
		685.20		35.70	6.82E+06		9.84E+05	3.23E+06
		783.80		14.70	1.76E+07		2.62E+06	8.30E+06
	I-129	29.78		57.00	3.17E-01	3.17E-01	-1.18E-01	1.55E-01
		33.60		13.20	1.09E+00		-3.51E-01	5.31E-01
		39.58		7.52	1.57E+00		-1.97E-01	7.69E-01
	I-131	284.30		6.05	4.14E+03	3.39E+02	-2.95E+03	2.00E+03
		364.48		81.20	3.39E+02		2.11E+02	1.63E+02
		636.97		7.26	4.45E+03		-2.89E+03	2.09E+03
		722.89		1.80	2.35E+04		-1.84E+03	1.11E+04
	TE-132	49.72		13.10	2.84E+08	3.61E+07	-1.91E+07	1.39E+08
		228.16		88.00	3.61E+07		-1.33E+07	1.75E+07
	BA-133	81.00		33.00	3.01E-01	2.01E-01	-1.20E+00	1.48E-01
		302.84		17.80	5.31E-01		-6.63E-02	2.57E-01
		356.01		60.00	2.01E-01		-9.83E-02	9.71E-02
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	5.50E+04	5.50E+04	-2.18E+05	2.71E+04
	CS-134	563.23		8.38	1.49E+00	1.44E-01	5.64E-02	7.05E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	569.32		15.43	7.78E-01	1.44E-01	-3.54E-01	3.68E-01
		604.70		97.60	1.44E-01		7.52E-03	6.82E-02
		795.84		85.40	1.95E-01		7.68E-02	9.20E-02
		801.93		8.73	1.60E+00		-1.79E+00	7.51E-01
	CS-135	268.24		16.00	5.68E-01	5.68E-01	6.50E-02	2.75E-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	1.40E+02	1.79E+01	6.63E+01	6.87E+01
		163.89		4.61	2.22E+02		9.03E+01	1.09E+02
		176.55		13.56	7.45E+01		-2.24E+00	3.63E+01
		273.65		12.66	9.42E+01		-3.80E+01	4.56E+01
		340.57		48.50	3.30E+01		5.78E+01	1.60E+01
		818.50		99.70	1.79E+01		-4.08E-01	8.40E+00
		1048.07		79.60	2.19E+01		4.96E-01	1.01E+01
		1235.34		19.70	1.17E+02		-7.62E+00	5.44E+01
+	CS-137	661.65	*	85.12	2.00E-01	2.00E-01	1.97E-01	9.59E-02
	LA-138	788.74		34.00	4.29E-01	2.25E-01	-3.66E-01	2.02E-01
		1435.80		66.00	2.25E-01		8.27E-03	1.02E-01
	CE-139	165.85		80.35	1.54E-01	1.54E-01	2.26E-02	7.50E-02
	BA-140	162.64		6.70	1.73E+02	6.43E+01	1.59E+01	8.45E+01
		304.84		4.50	2.91E+02		-1.00E+02	1.40E+02
		423.70		3.20	4.69E+02		-1.14E+01	2.24E+02
		437.55		2.00	7.05E+02		1.50E+02	3.35E+02
		537.32		25.00	6.43E+01		1.21E+01	3.04E+01
	LA-140	328.77		20.50	7.51E+01	2.12E+01	7.22E+01	3.63E+01
		487.03		45.50	3.52E+01		1.72E+01	1.68E+01
		815.85		23.50	8.56E+01		1.53E+01	4.01E+01
		1596.49		95.49	2.12E+01		7.02E-01	9.40E+00
	CE-141	145.44		48.40	1.16E+00	1.16E+00	-3.07E-02	5.68E-01
@	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	8.24E-01	8.24E-01	-1.94E-01	4.03E-01
	PM-144	476.78		42.00	2.92E-01	1.22E-01	-3.75E-02	1.39E-01
		618.01		98.60	1.22E-01		-2.15E-02	5.73E-02
		696.49		99.49	1.76E-01		7.94E-02	8.37E-02
	PM-145	36.85		21.70	5.97E-01	3.19E-01	-1.18E-01	2.92E-01
		37.36		39.70	3.19E-01		-6.29E-02	1.56E-01
		42.30		15.10	7.28E-01		-8.99E-01	3.56E-01
		72.40		2.31	4.79E+00		-4.19E-01	2.36E+00
	PM-146	453.90		39.94	2.56E-01	2.56E-01	7.26E-02	1.22E-01
		735.90		14.01	9.77E-01		8.44E-02	4.60E-01
		747.13		13.10	1.08E+00		4.44E-01	5.07E-01
	ND-147	91.11		28.90	1.25E+02	1.25E+02	2.52E+02	6.15E+01
		531.02		13.10	2.65E+02		-1.26E+02	1.25E+02
	PM-149	285.90		3.10	1.20E+13	1.20E+13	4.39E+12	5.81E+12
	EU-152	121.78		20.50	3.49E-01	3.49E-01	-5.01E-02	1.71E-01
		244.69		5.40	1.76E+00		-5.34E+00	8.57E-01
		344.27		19.13	4.63E-01		-1.36E+00	2.22E-01
		778.89		9.20	1.41E+00		-1.34E+00	6.63E-01
		964.01		10.40	1.87E+00		-2.45E-01	8.86E-01
		1085.78		7.22	2.05E+00		3.68E-01	9.50E-01

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.56E+00	3.49E-01	-1.87E-01	7.23E-01
		1407.95		14.94	9.46E-01		-1.19E-01	4.27E-01
	GD-153	97.43		31.30	3.29E-01	3.29E-01	6.88E-02	1.62E-01
		103.18		22.20	4.36E-01		2.79E-01	2.14E-01
	EU-154	123.07		40.50	1.80E-01	1.80E-01	2.83E-03	8.79E-02
		723.30		19.70	8.20E-01		-5.48E-02	3.91E-01
		873.19		11.50	1.11E+00		4.17E-01	5.13E-01
		996.32		10.30	1.35E+00		-1.12E-01	6.28E-01
		1004.76		17.90	8.80E-01		3.45E-02	4.11E-01
		1274.45		35.50	4.30E-01		2.80E-02	1.97E-01
+	EU-155	86.50	*	30.90	5.73E-01	3.65E-01	1.04E+00	2.84E-01
		105.30		20.70	3.65E-01		8.28E-02	1.79E-01
	EU-156	811.77		10.40	8.47E+01	8.47E+01	-5.29E+00	3.96E+01
		1153.47		7.20	1.59E+02		6.24E+01	7.41E+01
		1230.71		8.90	1.11E+02		-3.64E+01	5.10E+01
	HO-166M	184.41		72.60	1.35E-01	1.35E-01	3.10E-01	6.60E-02
		280.45		29.60	3.03E-01		2.08E-02	1.46E-01
		410.94		11.10	8.98E-01		1.05E-01	4.30E-01
		711.69		54.10	2.40E-01		4.15E-02	1.13E-01
	TM-171	66.72		0.14	7.73E+01	7.73E+01	-2.08E+00	3.80E+01
	HF-172	67.35		5.31	2.03E+00	7.32E-01	-5.48E-02	1.00E+00
		125.81		11.30	7.32E-01		5.00E-02	3.59E-01
	LU-172	181.53		20.60	5.93E+03	3.17E+03	-1.74E+04	2.89E+03
		900.72		29.81	7.64E+03		2.24E+03	3.59E+03
		1093.66		62.50	3.17E+03		-1.37E+03	1.45E+03
	LU-173	100.72		5.24	1.58E+00	5.10E-01	6.55E-02	7.75E-01
		272.11		21.20	5.10E-01		-2.84E-03	2.47E-01
	HF-175	343.40		84.00	2.60E-01	2.60E-01	-7.67E-01	1.25E-01
	LU-176	88.34		13.30	7.40E-01	9.06E-02	-4.48E-01	3.65E-01
		201.83		86.00	9.51E-02		-6.38E-03	4.63E-02
		306.78		94.00	9.06E-02		-1.16E-03	4.36E-02
	HF-181	133.02		41.70	7.97E-01	5.86E-01	0.00E+00	3.90E-01
		345.85		17.20	2.33E+00		-7.28E+00	1.12E+00
		482.03		82.80	5.86E-01		1.13E-01	2.79E-01
	TA-182	67.75		41.20	3.99E-01	3.99E-01	-1.13E-02	1.96E-01
		1121.30		34.90	9.48E-01		-4.48E-02	4.46E-01
		1189.05		16.23	1.50E+00		-7.21E-01	6.89E-01
		1221.41		26.98	1.14E+00		6.81E-01	5.32E-01
		1231.02		11.44	2.32E+00		-1.61E-01	1.07E+00
	IR-192	308.46		29.68	6.86E-01	5.25E-01	9.57E-02	3.30E-01
		468.07		48.10	5.25E-01		4.63E-03	2.51E-01
	HG-203	279.19		77.30	4.67E-01	4.67E-01	2.10E-01	2.26E-01
	TL-204	374.74		94.11	1.02E-01	1.02E-01	-4.39E-02	4.87E-02
		899.15		99.16	1.56E-01		1.24E-02	7.30E-02
		911.74		91.10	3.07E-01		7.40E-01	1.48E-01
	BI-207	569.67		97.72	1.13E-01	1.13E-01	-5.17E-02	5.37E-02
		1063.62		74.90	1.75E-01		3.56E-02	8.04E-02
+	TL-208	583.14	*	30.22	5.32E-01	7.31E-02	2.58E+00	2.56E-01
		860.37	*	4.48	2.34E+00		3.11E+00	1.07E+00
		2614.66	*	35.85	7.31E-02		2.27E+00	0.00E+00
	BI-210M	262.00		45.00	1.83E-01	1.83E-01	7.07E-02	8.83E-02
		300.00		23.00	4.40E-01		-6.63E-01	2.13E-01
+	PB-210	46.50	*	4.25	3.30E+00	3.30E+00	2.58E+00	1.62E+00

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	3.29E+00	3.29E+00	-5.28E-01	1.57E+00
		831.96		2.90	4.88E+00		3.51E-01	2.29E+00
+	BI-212	727.17	*	11.80	1.56E+00	1.56E+00	2.23E+00	7.49E-01
		1620.62		2.75	4.55E+00		-3.63E-01	1.99E+00
+	PB-212	238.63	*	44.60	3.54E-01	3.54E-01	2.59E+00	1.74E-01
		300.09		3.41	2.97E+00		-4.47E+00	1.44E+00
+	BI-214	609.31	*	46.30	3.80E-01	3.80E-01	1.52E+00	1.83E-01
		1120.29	*	15.10	1.26E+00		1.29E+00	5.92E-01
		1764.49	*	15.80	7.84E-01		2.18E+00	3.39E-01
		2204.22		4.98	3.53E+00		9.44E-01	1.55E+00
+	PB-214	295.21	*	19.19	8.74E-01	5.00E-01	1.77E+00	4.29E-01
		351.92	*	37.19	5.00E-01		1.56E+00	2.45E-01
	RN-219	401.80		6.50	1.41E+00	1.41E+00	-2.63E-01	6.71E-01
	RA-223	323.87		3.88	2.35E+00	2.35E+00	-1.38E-01	1.13E+00
+	RA-224	240.98	*	3.95	4.07E+00	4.07E+00	7.54E+00	2.00E+00
	RA-225	40.00		31.00	2.90E+01	2.90E+01	-3.64E+00	1.42E+01
+	RA-226	186.21	*	3.28	3.73E+00	3.73E+00	6.38E+00	1.84E+00
	TH-227	50.10		8.40	1.17E+00	1.17E+00	-7.83E-02	5.72E-01
		236.00		11.50	1.39E+00		4.88E+00	6.83E-01
		256.20		6.30	1.31E+00		2.72E-02	6.37E-01
+	AC-228	338.32	*	11.40	1.28E+00	9.63E-01	3.10E+00	6.25E-01
		911.07	*	27.70	9.63E-01		2.16E+00	4.65E-01
		969.11		16.60	1.49E+00		2.57E+00	7.13E-01
	TH-230	48.44		16.90	5.97E-01	5.97E-01	9.15E-02	2.93E-01
		62.85		4.60	2.24E+00		3.29E+00	1.10E+00
		67.67		0.37	2.54E+01		-7.15E-01	1.25E+01
	PA-231	283.67		1.60	5.22E+00	4.04E+00	-3.73E+00	2.52E+00
		302.67		2.30	4.04E+00		-5.04E-01	1.95E+00
	TH-231	25.64		14.70	1.89E+00	1.43E+00	1.81E+00	9.25E-01
		84.21		6.40	1.43E+00		-6.85E-01	7.02E-01
	PA-233	311.98		38.60	2.35E+00	2.35E+00	-3.88E-01	1.13E+00
	PA-234	131.20		20.40	3.77E-01	3.77E-01	-1.37E-02	1.85E-01
		733.99		8.80	1.55E+00		-1.82E-01	7.31E-01
		946.00		12.00	1.14E+00		-7.87E-02	5.32E-01
	PA-234M	1001.03		0.92	1.72E+01	1.72E+01	1.40E+01	8.04E+00
+	TH-234	63.29	*	3.80	3.26E+00	3.26E+00	2.40E+00	1.61E+00
	U-235	143.76		10.50	7.39E-01	7.39E-01	1.86E-01	3.62E-01
		163.35		4.70	1.62E+00		1.49E-01	7.90E-01
		205.31		4.70	1.83E+00		-1.55E+00	8.91E-01
+	NP-237	86.50	*	12.60	1.36E+00	1.36E+00	2.46E+00	6.72E-01
	NP-239	106.10		22.70	2.33E+11	2.33E+11	3.83E+10	1.14E+11
		228.18		10.70	5.78E+11		-2.12E+11	2.81E+11
		277.60		14.10	4.79E+11		4.55E+11	2.32E+11
	AM-241	59.54		35.90	2.72E-01	2.72E-01	-2.39E-03	1.34E-01
	AM-243	74.67		66.00	2.08E-01	2.08E-01	1.32E+00	1.03E-01
	CM-243	209.75		3.29	2.78E+00	6.61E-01	2.02E+00	1.35E+00
		228.14		10.60	8.00E-01		-2.94E-01	3.89E-01
		277.60		14.00	6.61E-01		6.29E-01	3.20E-01

Analysis Report for 1707077-06

HTC-A01-S001-1218-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S001-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3604

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	29	133
17:	112	118	109	90	98	99	118	103
25:	95	85	84	93	66	74	80	90
33:	72	87	78	110	105	94	112	92
41:	78	113	123	112	128	154	143	112
49:	109	118	101	149	136	133	132	142
57:	138	162	166	146	181	257	308	195
65:	168	167	190	162	204	188	206	224
73:	383	476	502	640	529	218	154	155
81:	156	158	176	200	222	289	242	207
89:	218	210	269	329	258	154	119	98
97:	103	132	139	107	128	109	125	122
105:	134	92	119	105	110	106	111	88
113:	110	103	106	111	109	99	109	100
121:	94	96	93	113	105	91	108	172
129:	126	106	85	85	99	105	83	86
137:	97	100	94	94	113	93	117	110
145:	88	102	102	95	99	101	100	88
153:	95	100	99	81	83	72	82	78
161:	88	85	83	79	84	97	71	87
169:	82	78	79	69	70	80	60	86
177:	73	70	76	71	87	78	85	114
185:	198	155	87	63	73	66	72	61
193:	81	76	78	66	74	62	78	60
201:	68	69	67	74	72	80	83	110
209:	91	69	61	58	61	66	72	57
217:	53	54	56	72	62	71	65	55
225:	56	64	63	68	55	45	55	64
233:	54	51	62	129	437	604	314	169
241:	143	83	56	41	44	34	41	43
249:	58	38	46	54	36	51	39	43
257:	44	45	52	40	39	35	41	41
265:	36	30	34	59	74	70	49	30
273:	38	47	39	49	63	57	41	33
281:	35	37	39	42	42	30	44	39
289:	34	37	30	36	71	129	123	73
297:	36	51	58	53	35	35	30	34
305:	36	33	30	35	30	28	34	33
313:	27	26	37	28	42	35	41	29
321:	29	40	26	27	30	54	68	42
329:	38	14	32	28	32	34	33	50
337:	90	110	67	34	25	21	27	23
345:	29	29	26	34	45	115	206	146
353:	44	28	30	22	33	25	22	9
361:	27	24	28	33	21	29	24	25

369:	24	33	23	23	35	20	24	23

Sample Title: HTC-A01-S001-1218-01

Channel								
377:	24	25	32	26	22	18	23	32
385:	23	29	24	18	24	22	27	23
393:	29	23	23	25	25	23	16	19
401:	23	28	22	17	23	19	27	25
409:	33	22	14	23	25	24	25	29
417:	12	23	20	20	21	22	24	26
425:	17	23	25	20	22	20	23	22
433:	12	12	13	24	20	17	21	18
441:	19	12	20	20	16	16	21	23
449:	17	23	17	28	13	20	20	14
457:	12	18	15	16	22	50	48	22
465:	21	19	20	22	19	22	16	26
473:	9	20	14	18	21	25	24	16
481:	21	14	15	22	18	16	20	24
489:	15	10	15	15	17	18	11	14
497:	18	18	20	9	18	13	15	14
505:	24	17	18	29	50	60	63	32
513:	26	15	13	17	10	14	12	17
521:	16	11	24	12	19	15	8	17
529:	12	16	19	14	10	18	16	18
537:	8	17	16	13	13	17	10	17
545:	11	13	18	22	8	11	13	16
553:	15	17	10	20	20	16	14	12
561:	15	19	16	19	20	10	19	10
569:	15	21	16	13	15	19	17	10
577:	12	11	17	19	54	128	134	55
585:	12	9	16	9	10	15	13	18
593:	18	15	7	13	23	16	10	19
601:	17	10	7	16	17	6	54	101
609:	111	46	25	14	12	12	11	12
617:	7	11	9	11	11	11	7	11
625:	7	11	19	12	13	10	19	20
633:	9	11	14	17	12	7	9	13
641:	12	12	14	8	10	7	9	12
649:	8	7	15	15	6	5	14	4
657:	8	14	22	22	28	24	9	17
665:	12	6	12	5	17	15	8	9
673:	12	13	14	11	12	13	13	6
681:	13	11	8	18	13	13	15	11
689:	5	14	13	12	15	17	14	16
697:	13	14	8	17	9	10	9	13
705:	9	11	13	16	5	11	10	11
713:	5	10	12	10	8	9	9	5
721:	9	9	11	14	15	27	38	17
729:	23	9	9	7	10	9	9	10
737:	11	12	14	12	12	8	15	8
745:	8	8	12	9	16	10	5	5
753:	11	18	10	12	7	15	6	9
761:	14	11	11	13	12	9	16	20
769:	15	6	7	21	9	4	11	8
777:	4	10	10	5	11	13	12	10
785:	9	13	11	14	10	17	10	3
793:	18	17	23	11	7	8	8	7

801:	6	9	12	7	8	10	10	4

Sample Title: HTC-A01-S001-1218-01

Channel								
809:	7	7	6	7	9	8	11	5
817:	9	10	8	8	7	10	3	15
825:	10	7	8	5	10	7	10	6
833:	11	16	9	13	5	9	10	7
841:	11	6	7	7	9	9	8	9
849:	12	7	3	5	6	13	6	7
857:	4	12	15	15	11	11	3	3
865:	7	5	7	5	8	9	6	9
873:	6	6	5	4	4	2	6	9
881:	6	7	0	10	7	9	4	5
889:	4	8	5	4	5	5	6	12
897:	5	9	7	9	10	7	12	13
905:	9	11	5	9	30	72	81	41
913:	8	6	10	6	8	8	7	6
921:	3	4	6	5	9	4	1	6
929:	3	3	4	8	10	9	4	3
937:	7	5	7	9	7	8	3	3
945:	8	7	7	8	9	6	6	3
953:	10	3	7	8	5	6	6	3
961:	4	13	13	16	19	17	27	44
969:	32	33	5	5	4	8	7	6
977:	6	3	6	11	5	2	5	7
985:	4	5	8	7	6	6	4	5
993:	4	4	2	8	1	8	10	12
1001:	6	10	4	14	5	6	6	6
1009:	6	7	7	6	10	7	9	8
1017:	5	6	7	10	3	4	5	7
1025:	5	5	2	4	7	3	5	4
1033:	5	4	10	7	2	2	8	5
1041:	8	3	3	5	6	9	8	3
1049:	4	3	4	3	6	2	6	4
1057:	3	4	4	2	4	7	4	10
1065:	3	4	5	5	4	10	5	3
1073:	8	6	3	6	7	4	6	6
1081:	5	7	3	10	5	8	3	7
1089:	5	5	4	3	6	4	8	4
1097:	4	10	5	8	3	8	2	7
1105:	8	5	4	5	9	7	6	4
1113:	6	5	6	8	11	9	14	25
1121:	12	2	5	4	4	4	5	5
1129:	2	5	4	6	9	9	1	3
1137:	7	6	7	9	10	14	9	7
1145:	3	7	4	4	4	4	10	5
1153:	11	9	4	7	8	5	5	6
1161:	3	9	3	6	6	7	3	9
1169:	7	6	9	8	4	7	6	4
1177:	9	7	6	12	7	9	9	5
1185:	6	4	7	6	1	1	1	7
1193:	7	5	4	6	4	6	5	12
1201:	2	8	5	9	8	4	6	8
1209:	8	8	4	7	7	6	4	6
1217:	7	7	9	9	4	7	8	6
1225:	6	3	2	6	9	3	7	3

1233:	4	3	8	5	13	10	7	10

Sample Title: HTC-A01-S001-1218-01

Channel								
1241:	8	4	6	6	3	6	11	4
1249:	2	3	2	4	5	7	7	4
1257:	6	6	6	4	5	5	5	7
1265:	7	7	3	10	7	6	0	3
1273:	6	5	7	3	4	7	5	5
1281:	5	7	2	0	1	4	4	6
1289:	5	8	4	7	3	7	4	2
1297:	3	6	4	4	2	2	2	2
1305:	5	7	3	6	1	4	4	3
1313:	2	3	2	3	3	4	2	1
1321:	2	1	7	4	4	2	6	5
1329:	1	3	4	5	3	4	3	4
1337:	4	6	2	5	1	2	4	6
1345:	6	2	3	2	2	2	3	3
1353:	8	4	6	7	3	3	5	0
1361:	3	6	1	7	2	3	5	4
1369:	3	4	5	3	5	1	5	2
1377:	4	5	3	1	2	6	2	5
1385:	0	1	0	6	0	1	0	1
1393:	5	0	2	2	4	0	2	1
1401:	8	3	5	3	4	1	3	4
1409:	1	4	6	3	1	5	0	1
1417:	0	1	1	0	2	3	3	1
1425:	3	2	2	2	2	2	5	2
1433:	3	1	4	5	3	6	3	0
1441:	1	1	2	0	3	3	5	5
1449:	4	2	3	3	5	0	3	2
1457:	9	17	50	109	91	41	9	6
1465:	2	1	4	2	2	3	1	4
1473:	5	2	0	1	3	6	2	1
1481:	3	1	3	1	2	2	4	0
1489:	0	2	2	1	1	4	2	4
1497:	0	2	3	3	4	2	0	1
1505:	2	2	3	4	7	2	1	5
1513:	2	3	1	1	2	5	2	4
1521:	5	1	2	1	2	1	1	2
1529:	1	1	1	1	3	2	1	1
1537:	4	5	4	3	3	3	0	2
1545:	1	1	1	1	1	1	2	2
1553:	0	1	1	0	2	0	4	1
1561:	3	0	3	0	1	3	4	2
1569:	1	1	2	1	0	2	1	2
1577:	2	0	1	2	1	2	1	3
1585:	2	4	5	7	4	3	3	6
1593:	4	2	1	3	1	0	1	2
1601:	1	2	0	4	0	2	4	2
1609:	2	2	3	1	1	1	1	1
1617:	1	3	0	3	1	2	2	4
1625:	4	4	2	0	2	7	3	1
1633:	0	2	2	3	2	2	2	1
1641:	3	0	1	0	0	2	3	3
1649:	1	3	0	2	1	0	1	3
1657:	0	0	0	3	1	1	1	2

1665:	2	1	0	0	1	1	0	2

Sample Title: HTC-A01-S001-1218-01

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

2097:	0	0	0	0	5	3	7	4

Sample Title: HTC-A01-S001-1218-01

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

2529:	0	0	0	0	1	2	0	2

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Channel								
2537:	1	1	0	0	1	1	0	0
2545:	0	0	0	0	0	0	0	1
2553:	0	1	0	1	1	0	0	1
2561:	1	0	0	0	0	2	1	0
2569:	0	0	0	1	0	0	1	1
2577:	0	0	0	1	0	1	0	0
2585:	0	1	1	0	0	0	1	0
2593:	0	0	0	0	2	0	0	0
2601:	0	0	0	2	0	0	0	0
2609:	0	2	1	3	7	26	23	15
2617:	7	0	0	0	0	0	0	0
2625:	1	0	0	0	0	0	1	0
2633:	0	0	0	0	1	2	0	0
2641:	1	0	0	1	0	0	0	0
2649:	1	0	0	0	1	0	0	0
2657:	0	0	0	0	0	2	0	1
2665:	0	0	0	0	0	1	0	0
2673:	0	0	0	0	1	0	0	0
2681:	1	0	0	0	0	0	0	1
2689:	1	1	1	1	0	1	0	0
2697:	0	1	0	0	0	0	0	0
2705:	0	0	0	0	0	1	0	0
2713:	1	0	0	0	0	1	0	0
2721:	0	0	0	1	2	0	0	0
2729:	0	1	0	1	1	0	0	0
2737:	1	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	1	0	0	0	0	0
2769:	0	0	0	0	0	1	0	0
2777:	0	0	0	0	0	0	0	0
2785:	1	1	0	0	0	0	0	0
2793:	0	2	0	1	1	1	0	0
2801:	0	0	0	0	1	0	2	0
2809:	0	0	0	1	0	1	0	0
2817:	1	0	0	0	0	1	1	0
2825:	0	0	0	0	0	1	0	0
2833:	0	0	0	0	0	0	1	0
2841:	0	0	0	1	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	2	0	0	0	0	0	0	1
2865:	0	0	0	0	0	0	1	0
2873:	0	0	0	0	0	0	0	0
2881:	0	1	0	0	0	0	0	1
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	1	0	0	1
2913:	0	0	0	1	0	0	0	0
2921:	0	2	2	0	0	1	0	0
2929:	0	0	0	0	0	0	0	0
2937:	1	0	0	0	1	1	0	1
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	0	0	1	1	0

2961:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S001-1218-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-1218-01

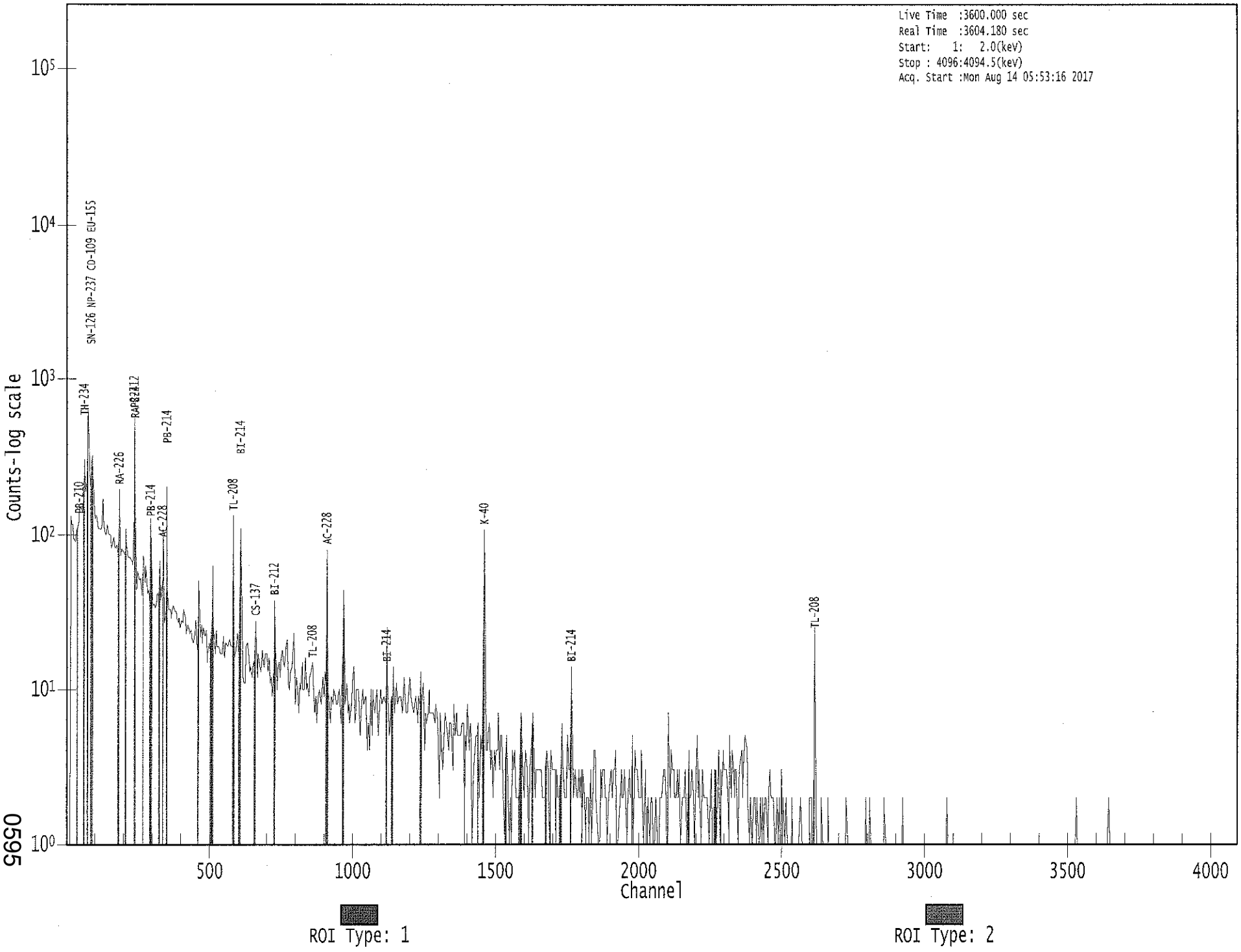
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	1	0
3425:	1	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	1	0	0	0
3449:	0	0	0	1	0	0	1	0
3457:	0	0	0	0	0	0	0	1
3465:	0	0	1	0	0	0	0	0
3473:	0	0	0	0	0	1	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	1	1	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	1	0	0	0	0	0	0

Sample Title: HTC-A01-S001-1218-01

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

0000055129.CNF



0696

Apex-Gamma

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-07
Sample Description	: HTC-A01-S001-1824-01
Sample Type	: SOIL
Sample Size	: 6.967E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:33:42AM
Acquisition Started	: 8/14/2017 6:59:02AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3610.3 seconds
Dead Time	: 0.28 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55133

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 7:59:14AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.06	63.36	0.0000	0.00
2	75.03	75.33	0.0000	0.00
3	77.45	77.75	0.0000	0.00
4	88.04	88.34	0.0000	0.00
5	93.31	93.61	0.0000	0.00
6	104.86	105.15	0.0000	0.00
7	129.75	130.03	0.0000	0.00
8	186.34	186.61	0.0000	0.00
9	209.55	209.81	0.0000	0.00
10	238.95	239.20	0.0000	0.00
11	241.80	242.04	0.0000	0.00
12	270.11	270.34	0.0000	0.00
13	277.23	277.47	0.0000	0.00
14	295.48	295.71	0.0000	0.00
15	300.80	301.03	0.0000	0.00
16	327.50	327.72	0.0000	0.00
17	338.50	338.72	0.0000	0.00
18	352.15	352.36	0.0000	0.00
19	388.29	388.49	0.0000	0.00
20	463.07	463.24	0.0000	0.00
21	511.13	511.29	0.0000	0.00
22	562.69	562.83	0.0000	0.00
23	583.34	583.47	0.0000	0.00
24	609.43	609.55	0.0000	0.00
25	636.97	637.09	0.0000	0.00
26	727.22	727.30	0.0000	0.00
27	754.23	754.30	0.0000	0.00
28	794.81	794.87	0.0000	0.00
29	831.93	831.98	0.0000	0.00
30	835.39	835.44	0.0000	0.00
31	860.75	860.79	0.0000	0.00
32	864.76	864.79	0.0000	0.00
33	911.29	911.31	0.0000	0.00
34	967.77	967.77	0.0000	0.00
35	1000.73	1000.72	0.0000	0.00
36	1120.34	1120.29	0.0000	0.00
37	1231.53	1231.44	0.0000	0.00
38	1237.95	1237.86	0.0000	0.00
39	1279.45	1279.34	0.0000	0.00
40	1439.03	1438.88	0.0000	0.00
41	1460.72	1460.55	0.0000	0.00
42	1585.83	1585.62	0.0000	0.00

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1589.21	1589.00	0.0000	0.00
44	1592.42	1592.21	0.0000	0.00
45	1599.34	1599.13	0.0000	0.00
46	1620.65	1620.43	0.0000	0.00
47	1639.98	1639.76	0.0000	0.00
48	1649.18	1648.95	0.0000	0.00
49	1660.34	1660.11	0.0000	0.00
50	1667.73	1667.50	0.0000	0.00
51	1672.22	1671.98	0.0000	0.00
52	1678.50	1678.26	0.0000	0.00
53	1722.54	1722.28	0.0000	0.00
54	1729.52	1729.26	0.0000	0.00
55	1764.32	1764.05	0.0000	0.00
56	1846.48	1846.18	0.0000	0.00
57	1925.78	1925.45	0.0000	0.00
58	1943.89	1943.56	0.0000	0.00
59	2022.24	2021.89	0.0000	0.00
60	2103.30	2102.92	0.0000	0.00
61	2153.48	2153.08	0.0000	0.00
62	2203.78	2203.36	0.0000	0.00
63	2392.02	2391.54	0.0000	0.00
64	2448.28	2447.79	0.0000	0.00
65	2454.10	2453.60	0.0000	0.00
66	2510.85	2510.33	0.0000	0.00
67	2614.18	2613.63	0.0000	0.00
68	2653.77	2653.20	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 7:59:14AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.06	58 -	68	63.36	5.20E+02	202.14	5.19E+03	2.25
M	2	75.03	71 -	81	75.33	8.98E+02	167.54	3.57E+03	2.21
m	3	77.45	71 -	81	77.75	1.46E+03	153.53	2.85E+03	2.06
	4	88.04	86 -	91	88.34	1.48E+02	135.61	3.56E+03	1.04
	5	93.31	91 -	96	93.61	5.64E+02	127.58	2.69E+03	2.29
	6	104.86	103 -	108	105.15	8.15E+01	96.22	1.79E+03	2.67
	7	129.75	126 -	134	130.03	1.17E+02	132.43	2.62E+03	3.91
	8	186.34	183 -	191	186.61	2.79E+02	116.15	1.90E+03	2.02
	9	209.55	206 -	214	209.81	1.15E+02	110.59	1.78E+03	1.72
M	10	238.95	235 -	246	239.20	1.84E+03	109.29	8.65E+02	2.10
m	11	241.80	235 -	246	242.04	4.01E+02	122.49	9.78E+02	2.74
	12	270.11	267 -	274	270.34	1.62E+02	74.08	8.13E+02	2.57
	13	277.23	275 -	280	277.47	6.40E+01	58.84	6.40E+02	1.27
	14	295.48	292 -	298	295.71	4.27E+02	75.04	7.12E+02	2.51
	15	300.80	299 -	304	301.03	8.68E+01	55.79	5.50E+02	2.88
	16	327.50	323 -	331	327.72	8.59E+01	76.31	8.46E+02	2.11
	17	338.50	335 -	343	338.72	3.36E+02	78.52	7.39E+02	2.09
	18	352.15	349 -	357	352.36	7.02E+02	85.24	6.89E+02	2.17
	19	388.29	385 -	392	388.49	4.71E+01	56.21	4.94E+02	2.78
	20	463.07	459 -	467	463.24	1.17E+02	55.08	3.92E+02	2.34
	21	511.13	507 -	516	511.29	2.39E+02	62.39	4.19E+02	2.24
	22	562.69	558 -	567	562.83	4.50E+01	52.63	3.70E+02	1.72
	23	583.34	578 -	586	583.47	5.07E+02	63.70	3.16E+02	2.32
	24	609.43	605 -	613	609.55	4.76E+02	63.99	3.37E+02	2.37
	25	636.97	630 -	643	637.09	6.26E+01	59.84	3.67E+02	9.98
	26	727.22	723 -	731	727.30	1.20E+02	43.77	2.21E+02	2.23
	27	754.23	750 -	757	754.30	3.61E+01	39.04	2.26E+02	4.16
	28	794.81	791 -	798	794.87	5.39E+01	36.93	1.90E+02	2.19
M	29	831.93	821 -	844	831.98	2.84E+01	31.87	1.40E+02	2.51
m	30	835.39	821 -	844	835.44	3.51E+01	32.68	1.39E+02	2.51
M	31	860.75	856 -	867	860.79	4.51E+01	31.01	1.40E+02	2.30
m	32	864.76	856 -	867	864.79	2.56E+01	29.76	1.21E+02	2.30
	33	911.29	905 -	916	911.31	2.95E+02	57.38	2.64E+02	2.15
	34	967.77	963 -	974	967.77	2.17E+02	55.96	2.87E+02	2.58
	35	1000.73	997 -	1003	1000.72	2.88E+01	24.79	9.03E+01	3.33
	36	1120.34	1115 -	1124	1120.29	1.19E+02	42.06	1.85E+02	1.75
	37	1231.53	1228 -	1234	1231.44	2.68E+01	27.28	1.16E+02	1.71
	38	1237.95	1235 -	1242	1237.86	4.25E+01	34.06	1.67E+02	1.54
	39	1279.45	1273 -	1283	1279.34	2.79E+01	35.48	1.50E+02	3.73
	40	1439.03	1435 -	1441	1438.88	1.50E+01	14.63	2.80E+01	1.60

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1460.72	1454 -	1465	1460.55	7.32E+02	57.58	5.09E+01	2.51
M	42	1585.83	1574 -	1596	1585.62	1.09E+01	18.71	3.00E+01	3.17
m	43	1589.21	1574 -	1596	1589.00	2.10E+01	15.80	2.10E+01	2.39
m	44	1592.42	1574 -	1596	1592.21	3.09E+01	17.55	2.40E+01	2.60
	45	1599.34	1596 -	1602	1599.13	1.50E+01	11.70	1.40E+01	3.25
	46	1620.65	1617 -	1623	1620.43	1.25E+01	13.48	2.30E+01	1.43
	47	1639.98	1635 -	1645	1639.76	1.55E+01	12.02	1.10E+01	7.45
	48	1649.18	1646 -	1651	1648.95	1.16E+01	7.81	2.77E+00	1.20
	49	1660.34	1656 -	1663	1660.11	1.02E+01	12.65	1.96E+01	1.55
M	50	1667.73	1664 -	1674	1667.50	1.91E+01	11.72	1.66E+01	2.89
m	51	1672.22	1664 -	1674	1671.98	7.74E+00	11.72	1.96E+01	3.72
	52	1678.50	1676 -	1680	1678.26	5.60E+00	8.06	8.80E+00	1.92
	53	1722.54	1720 -	1725	1722.28	8.04E+00	8.89	9.92E+00	2.87
	54	1729.52	1726 -	1735	1729.26	1.48E+01	17.52	3.64E+01	2.29
	55	1764.32	1759 -	1770	1764.05	9.95E+01	21.07	5.01E+00	2.49
	56	1846.48	1843 -	1849	1846.18	1.33E+01	9.62	7.41E+00	1.50
	57	1925.78	1921 -	1929	1925.45	9.00E+00	12.37	1.80E+01	6.81
	58	1943.89	1941 -	1945	1943.56	4.57E+00	6.36	4.86E+00	1.00
	59	2022.24	2019 -	2024	2021.89	9.00E+00	6.00	0.00E+00	2.75
	60	2103.30	2100 -	2107	2102.92	2.50E+01	10.00	0.00E+00	3.13
	61	2153.48	2149 -	2158	2153.08	1.35E+01	11.22	1.11E+01	2.17
	62	2203.78	2199 -	2210	2203.36	1.75E+01	20.20	4.30E+01	1.27
	63	2392.02	2387 -	2397	2391.54	1.25E+01	11.51	1.10E+01	3.35
	64	2448.28	2443 -	2450	2447.79	9.16E+00	12.49	1.97E+01	2.87
	65	2454.10	2451 -	2455	2453.60	8.80E+00	6.80	2.40E+00	1.05
	66	2510.85	2507 -	2512	2510.33	6.00E+00	4.90	0.00E+00	1.00
	67	2614.18	2608 -	2618	2613.63	1.57E+02	25.89	5.58E+00	2.67
	68	2653.77	2649 -	2656	2653.20	5.00E+00	4.47	0.00E+00	1.16

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 : 8/14/2017 7:59:14AM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.06	58 -	68	5.20E+02	202.14	5.19E+03	1.62E+02
M	2	75.03	71 -	81	8.98E+02	167.54	3.57E+03	9.83E+01
m	3	77.45	71 -	81	1.46E+03	153.53	2.85E+03	8.78E+01
	4	88.04	86 -	91	1.48E+02	135.61	3.56E+03	1.10E+02
	5	93.31	91 -	96	5.64E+02	127.58	2.69E+03	9.73E+01
	6	104.86	103 -	108	8.15E+01	96.22	1.79E+03	7.77E+01
	7	129.75	126 -	134	1.17E+02	132.43	2.62E+03	1.07E+02
	8	186.34	183 -	191	2.79E+02	116.15	1.90E+03	9.14E+01
	9	209.55	206 -	214	1.15E+02	110.59	1.78E+03	8.92E+01
M	10	238.95	235 -	246	1.84E+03	109.29	8.65E+02	4.84E+01
m	11	241.80	235 -	246	4.01E+02	122.49	9.78E+02	5.14E+01
	12	270.11	267 -	274	1.62E+02	74.08	8.13E+02	5.72E+01
	13	277.23	275 -	280	6.40E+01	58.84	6.40E+02	4.65E+01
	14	295.48	292 -	298	4.27E+02	75.04	7.12E+02	5.15E+01
	15	300.80	299 -	304	8.68E+01	55.79	5.50E+02	4.32E+01
	16	327.50	323 -	331	8.59E+01	76.31	8.46E+02	6.08E+01
	17	338.50	335 -	343	3.36E+02	78.52	7.39E+02	5.71E+01
	18	352.15	349 -	357	7.02E+02	85.24	6.89E+02	5.49E+01
	19	388.29	385 -	392	4.71E+01	56.21	4.94E+02	4.48E+01
	20	463.07	459 -	467	1.17E+02	55.08	3.92E+02	4.16E+01
	21	511.13	507 -	516	2.39E+02	62.39	4.19E+02	4.46E+01
	22	562.69	558 -	567	4.50E+01	52.63	3.70E+02	4.18E+01
	23	583.34	578 -	586	5.07E+02	63.70	3.16E+02	3.70E+01
	24	609.43	605 -	613	4.76E+02	63.99	3.37E+02	3.85E+01
	25	636.97	630 -	643	6.26E+01	59.84	3.67E+02	4.74E+01
	26	727.22	723 -	731	1.20E+02	43.77	2.21E+02	3.11E+01
	27	754.23	750 -	757	3.61E+01	39.04	2.26E+02	3.05E+01
	28	794.81	791 -	798	5.39E+01	36.93	1.90E+02	2.79E+01
M	29	831.93	821 -	844	2.84E+01	31.87	1.40E+02	1.95E+01
m	30	835.39	821 -	844	3.51E+01	32.68	1.39E+02	1.94E+01
M	31	860.75	856 -	867	4.51E+01	31.01	1.40E+02	1.94E+01
m	32	864.76	856 -	867	2.56E+01	29.76	1.21E+02	1.81E+01
	33	911.29	905 -	916	2.95E+02	57.38	2.64E+02	3.78E+01
	34	967.77	963 -	974	2.17E+02	55.96	2.87E+02	3.91E+01
	35	1000.73	997 -	1003	2.88E+01	24.79	9.03E+01	1.84E+01
	36	1120.34	1115 -	1124	1.19E+02	42.06	1.85E+02	2.96E+01
	37	1231.53	1228 -	1234	2.68E+01	27.28	1.16E+02	2.07E+01
	38	1237.95	1235 -	1242	4.25E+01	34.06	1.67E+02	2.59E+01
	39	1279.45	1273 -	1283	2.79E+01	35.48	1.50E+02	2.78E+01
	40	1439.03	1435 -	1441	1.50E+01	14.63	2.80E+01	1.02E+01
	41	1460.72	1454 -	1465	7.32E+02	57.58	5.09E+01	1.62E+01
M	42	1585.83	1574 -	1596	1.09E+01	18.71	3.00E+01	9.00E+00
m	43	1589.21	1574 -	1596	2.10E+01	15.80	2.10E+01	7.53E+00
m	44	1592.42	1574 -	1596	3.09E+01	17.55	2.40E+01	8.05E+00
	45	1599.34	1596 -	1602	1.50E+01	11.70	1.40E+01	7.21E+00
	46	1620.65	1617 -	1623	1.25E+01	13.48	2.30E+01	9.44E+00
	47	1639.98	1635 -	1645	1.55E+01	12.02	1.10E+01	7.47E+00
	48	1649.18	1646 -	1651	1.16E+01	7.81	2.77E+00	3.13E+00
	49	1660.34	1656 -	1663	1.02E+01	12.65	1.96E+01	8.97E+00
M	50	1667.73	1664 -	1674	1.91E+01	11.72	1.66E+01	6.71E+00
m	51	1672.22	1664 -	1674	7.74E+00	11.72	1.96E+01	7.28E+00

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
52	1678.50	1676 -	1680	5.60E+00	8.06	8.80E+00	5.37E+00
53	1722.54	1720 -	1725	8.04E+00	8.89	9.92E+00	5.63E+00
54	1729.52	1726 -	1735	1.48E+01	17.52	3.64E+01	1.29E+01
55	1764.32	1759 -	1770	9.95E+01	21.07	5.01E+00	5.58E+00
56	1846.48	1843 -	1849	1.33E+01	9.62	7.41E+00	5.15E+00
57	1925.78	1921 -	1929	9.00E+00	12.37	1.80E+01	8.89E+00
58	1943.89	1941 -	1945	4.57E+00	6.36	4.86E+00	3.87E+00
59	2022.24	2019 -	2024	9.00E+00	6.00	0.00E+00	0.00E+00
60	2103.30	2100 -	2107	2.50E+01	10.00	0.00E+00	0.00E+00
61	2153.48	2149 -	2158	1.35E+01	11.22	1.11E+01	6.98E+00
62	2203.78	2199 -	2210	1.75E+01	20.20	4.30E+01	1.51E+01
63	2392.02	2387 -	2397	1.25E+01	11.51	1.10E+01	7.47E+00
64	2448.28	2443 -	2450	9.16E+00	12.49	1.97E+01	8.98E+00
65	2454.10	2451 -	2455	8.80E+00	6.80	2.40E+00	2.73E+00
66	2510.85	2507 -	2512	6.00E+00	4.90	0.00E+00	0.00E+00
67	2614.18	2608 -	2618	1.57E+02	25.89	5.58E+00	5.29E+00
68	2653.77	2649 -	2656	5.00E+00	4.47	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 7:59:14AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.06	58 -	68	63.36	5.20E+02	202.14	5.19E+03	TH-230
									TH-234
M	2	75.03	71 -	81	75.33	8.98E+02	167.54	3.57E+03	AM-243
m	3	77.45	71 -	81	77.75	1.46E+03	153.53	2.85E+03	TI-44
	4	88.04	86 -	91	88.34	1.48E+02	135.61	3.56E+03	CD-109
									LU-176
									SN-126
	5	93.31	91 -	96	93.61	5.64E+02	127.58	2.69E+03	GA-67

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	6	104.86	103 -	108	105.15	8.15E+01	96.22	1.79E+03	EU-155
	7	129.75	126 -	134	130.03	1.17E+02	132.43	2.62E+03	.....
	8	186.34	183 -	191	186.61	2.79E+02	116.15	1.90E+03	RA-226
	9	209.55	206 -	214	209.81	1.15E+02	110.59	1.78E+03	CM-243
									GA-67
M	10	238.95	235 -	246	239.20	1.84E+03	109.29	8.65E+02	PB-212
m	11	241.80	235 -	246	242.04	4.01E+02	122.49	9.78E+02	RA-224
	12	270.11	267 -	274	270.34	1.62E+02	74.08	8.13E+02	.....
	13	277.23	275 -	280	277.47	6.40E+01	58.84	6.40E+02	CM-243
									NP-239
	14	295.48	292 -	298	295.71	4.27E+02	75.04	7.12E+02	PB-214
	15	300.80	299 -	304	301.03	8.68E+01	55.79	5.50E+02	GA-67
									PB-212
									BI-210M
	16	327.50	323 -	331	327.72	8.59E+01	76.31	8.46E+02	.....
	17	338.50	335 -	343	338.72	3.36E+02	78.52	7.39E+02	AC-228
	18	352.15	349 -	357	352.36	7.02E+02	85.24	6.89E+02	PB-214
	19	388.29	385 -	392	388.49	4.71E+01	56.21	4.94E+02	.....
	20	463.07	459 -	467	463.24	1.17E+02	55.08	3.92E+02	SB-125
	21	511.13	507 -	516	511.29	2.39E+02	62.39	4.19E+02	.....
	22	562.69	558 -	567	562.83	4.50E+01	52.63	3.70E+02	CS-134
	23	583.34	578 -	586	583.47	5.07E+02	63.70	3.16E+02	TL-208
	24	609.43	605 -	613	609.55	4.76E+02	63.99	3.37E+02	BI-214
	25	636.97	630 -	643	637.09	6.26E+01	59.84	3.67E+02	I-131
	26	727.22	723 -	731	727.30	1.20E+02	43.77	2.21E+02	BI-212
	27	754.23	750 -	757	754.30	3.61E+01	39.04	2.26E+02	.....
	28	794.81	791 -	798	794.87	5.39E+01	36.93	1.90E+02	.....
M	29	831.93	821 -	844	831.98	2.84E+01	31.87	1.40E+02	PB-211
m	30	835.39	821 -	844	835.44	3.51E+01	32.68	1.39E+02	MN-54
M	31	860.75	856 -	867	860.79	4.51E+01	31.01	1.40E+02	TL-208
m	32	864.76	856 -	867	864.79	2.56E+01	29.76	1.21E+02	.....
	33	911.29	905 -	916	911.31	2.95E+02	57.38	2.64E+02	AC-228
									TL-204
	34	967.77	963 -	974	967.77	2.17E+02	55.96	2.87E+02	.....
	35	1000.73	997 -	1003	1000.72	2.88E+01	24.79	9.03E+01	PA-234M
	36	1120.34	1115 -	1124	1120.29	1.19E+02	42.06	1.85E+02	BI-214
									SC-46
									TA-182
	37	1231.53	1228 -	1234	1231.44	2.68E+01	27.28	1.16E+02	TA-182
									EU-156
	38	1237.95	1235 -	1242	1237.86	4.25E+01	34.06	1.67E+02	CO-56
	39	1279.45	1273 -	1283	1279.34	2.79E+01	35.48	1.50E+02	.....
	40	1439.03	1435 -	1441	1438.88	1.50E+01	14.63	2.80E+01	.....
	41	1460.72	1454 -	1465	1460.55	7.32E+02	57.58	5.09E+01	K-40
M	42	1585.83	1574 -	1596	1585.62	1.09E+01	18.71	3.00E+01	.....
m	43	1589.21	1574 -	1596	1589.00	2.10E+01	15.80	2.10E+01	.....
m	44	1592.42	1574 -	1596	1592.21	3.09E+01	17.55	2.40E+01	.....
	45	1599.34	1596 -	1602	1599.13	1.50E+01	11.70	1.40E+01	.....
	46	1620.65	1617 -	1623	1620.43	1.25E+01	13.48	2.30E+01	BI-212
	47	1639.98	1635 -	1645	1639.76	1.55E+01	12.02	1.10E+01	.....
	48	1649.18	1646 -	1651	1648.95	1.16E+01	7.81	2.77E+00	.....
	49	1660.34	1656 -	1663	1660.11	1.02E+01	12.65	1.96E+01	.....
M	50	1667.73	1664 -	1674	1667.50	1.91E+01	11.72	1.66E+01	.....
m	51	1672.22	1664 -	1674	1671.98	7.74E+00	11.72	1.96E+01	.....

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
52	1678.50	1676 -	1680	1678.26	5.60E+00	8.06	8.80E+00	I-135
53	1722.54	1720 -	1725	1722.28	8.04E+00	8.89	9.92E+00	.....
54	1729.52	1726 -	1735	1729.26	1.48E+01	17.52	3.64E+01	.....
55	1764.32	1759 -	1770	1764.05	9.95E+01	21.07	5.01E+00	BI-214
56	1846.48	1843 -	1849	1846.18	1.33E+01	9.62	7.41E+00	.....
57	1925.78	1921 -	1929	1925.45	9.00E+00	12.37	1.80E+01	.....
58	1943.89	1941 -	1945	1943.56	4.57E+00	6.36	4.86E+00	.....
59	2022.24	2019 -	2024	2021.89	9.00E+00	6.00	0.00E+00	.....
60	2103.30	2100 -	2107	2102.92	2.50E+01	10.00	0.00E+00	.....
61	2153.48	2149 -	2158	2153.08	1.35E+01	11.22	1.11E+01	.....
62	2203.78	2199 -	2210	2203.36	1.75E+01	20.20	4.30E+01	BI-214
63	2392.02	2387 -	2397	2391.54	1.25E+01	11.51	1.10E+01	.....
64	2448.28	2443 -	2450	2447.79	9.16E+00	12.49	1.97E+01	.....
65	2454.10	2451 -	2455	2453.60	8.80E+00	6.80	2.40E+00	.....
66	2510.85	2507 -	2512	2510.33	6.00E+00	4.90	0.00E+00	.....
67	2614.18	2608 -	2618	2613.63	1.57E+02	25.89	5.58E+00	TL-208
68	2653.77	2649 -	2656	2653.20	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 7:59:14AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.06	5.20E+02	202.14	2.44E-02	1.79E-03
M	2	75.03	8.98E+02	167.54	2.65E-02	2.02E-03
m	3	77.45	1.46E+03	153.53	2.68E-02	2.06E-03
	4	88.04	1.48E+02	135.61	2.72E-02	2.26E-03
	5	93.31	5.64E+02	127.58	2.71E-02	2.24E-03
	6	104.86	8.15E+01	96.22	2.65E-02	2.19E-03
	7	129.75	1.17E+02	132.43	2.45E-02	2.03E-03
	8	186.34	2.79E+02	116.15	1.96E-02	1.55E-03
	9	209.55	1.15E+02	110.59	1.79E-02	1.45E-03
M	10	238.95	1.84E+03	109.29	1.61E-02	1.34E-03
m	11	241.80	4.01E+02	122.49	1.60E-02	1.33E-03
	12	270.11	1.62E+02	74.08	1.45E-02	1.21E-03
	13	277.23	6.40E+01	58.84	1.42E-02	1.19E-03

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	14	295.48	4.27E+02	75.04	1.35E-02	1.15E-03
	15	300.80	8.68E+01	55.79	1.33E-02	1.14E-03
	16	327.50	8.59E+01	76.31	1.23E-02	1.08E-03
	17	338.50	3.36E+02	78.52	1.19E-02	1.06E-03
	18	352.15	7.02E+02	85.24	1.15E-02	1.03E-03
	19	388.29	4.71E+01	56.21	1.06E-02	9.59E-04
	20	463.07	1.17E+02	55.08	9.02E-03	8.58E-04
	21	511.13	2.39E+02	62.39	8.25E-03	7.94E-04
	22	562.69	4.50E+01	52.63	7.57E-03	7.26E-04
	23	583.34	5.07E+02	63.70	7.32E-03	6.98E-04
	24	609.43	4.76E+02	63.99	7.04E-03	6.64E-04
	25	636.97	6.26E+01	59.84	6.77E-03	6.27E-04
	26	727.22	1.20E+02	43.77	6.01E-03	5.37E-04
	27	754.23	3.61E+01	39.04	5.82E-03	5.13E-04
	28	794.81	5.39E+01	36.93	5.55E-03	4.77E-04
M	29	831.93	2.84E+01	31.87	5.33E-03	4.44E-04
m	30	835.39	3.51E+01	32.68	5.31E-03	4.41E-04
M	31	860.75	4.51E+01	31.01	5.17E-03	4.19E-04
m	32	864.76	2.56E+01	29.76	5.15E-03	4.15E-04
	33	911.29	2.95E+02	57.38	4.92E-03	3.84E-04
	34	967.77	2.17E+02	55.96	4.67E-03	3.75E-04
	35	1000.73	2.88E+01	24.79	4.54E-03	3.69E-04
	36	1120.34	1.19E+02	42.06	4.12E-03	3.50E-04
	37	1231.53	2.68E+01	27.28	3.80E-03	3.24E-04
	38	1237.95	4.25E+01	34.06	3.79E-03	3.23E-04
	39	1279.45	2.79E+01	35.48	3.68E-03	3.11E-04
	40	1439.03	1.50E+01	14.63	3.35E-03	2.79E-04
	41	1460.72	7.32E+02	57.58	3.31E-03	2.75E-04
M	42	1585.83	1.09E+01	18.71	3.10E-03	2.55E-04
m	43	1589.21	2.10E+01	15.80	3.10E-03	2.55E-04
m	44	1592.42	3.09E+01	17.55	3.09E-03	2.54E-04
	45	1599.34	1.50E+01	11.70	3.08E-03	2.53E-04
	46	1620.65	1.25E+01	13.48	3.05E-03	2.49E-04
	47	1639.98	1.55E+01	12.02	3.03E-03	2.46E-04
	48	1649.18	1.16E+01	7.81	3.01E-03	2.45E-04
	49	1660.34	1.02E+01	12.65	3.00E-03	2.43E-04
M	50	1667.73	1.91E+01	11.72	2.99E-03	2.42E-04
m	51	1672.22	7.74E+00	11.72	2.98E-03	2.41E-04
	52	1678.50	5.60E+00	8.06	2.97E-03	2.40E-04
	53	1722.54	8.04E+00	8.89	2.92E-03	2.33E-04
	54	1729.52	1.48E+01	17.52	2.91E-03	2.32E-04
	55	1764.32	9.95E+01	21.07	2.87E-03	2.26E-04
	56	1846.48	1.33E+01	9.62	2.77E-03	2.15E-04
	57	1925.78	9.00E+00	12.37	2.69E-03	2.15E-04
	58	1943.89	4.57E+00	6.36	2.68E-03	2.15E-04
	59	2022.24	9.00E+00	6.00	2.60E-03	2.15E-04
	60	2103.30	2.50E+01	10.00	2.54E-03	2.15E-04
	61	2153.48	1.35E+01	11.22	2.50E-03	2.15E-04
	62	2203.78	1.75E+01	20.20	2.46E-03	2.15E-04
	63	2392.02	1.25E+01	11.51	2.35E-03	2.15E-04
	64	2448.28	9.16E+00	12.49	2.32E-03	2.15E-04
	65	2454.10	8.80E+00	6.80	2.31E-03	2.15E-04
	66	2510.85	6.00E+00	4.90	2.29E-03	2.15E-04

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
67	2614.18	1.57E+02	25.89	2.24E-03	2.15E-04
68	2653.77	5.00E+00	4.47	2.22E-03	2.15E-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 : 8/14/2017 7:59:14AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.06	5.20E+02	202.14	4.29E+01	6.03E+00	4.77E+02	2.02E+02
M	2	75.03	8.98E+02	167.54	1.67E+01	8.84E+00	8.81E+02	1.68E+02
m	3	77.45	1.46E+03	153.53			1.46E+03	1.54E+02
	4	88.04	1.48E+02	135.61			1.48E+02	1.36E+02
	5	93.31	5.64E+02	127.58	6.90E+01	7.61E+00	4.95E+02	1.28E+02
	6	104.86	8.15E+01	96.22			8.15E+01	9.62E+01
	7	129.75	1.17E+02	132.43			1.17E+02	1.32E+02
	8	186.34	2.79E+02	116.15	2.99E+01	5.81E+00	2.49E+02	1.16E+02
	9	209.55	1.15E+02	110.59			1.15E+02	1.11E+02
M	10	238.95	1.84E+03	109.29	9.49E+00	5.63E+00	1.83E+03	1.09E+02
m	11	241.80	4.01E+02	122.49			4.01E+02	1.22E+02
	12	270.11	1.62E+02	74.08			1.62E+02	7.41E+01
	13	277.23	6.40E+01	58.84			6.40E+01	5.88E+01
	14	295.48	4.27E+02	75.04			4.27E+02	7.50E+01
	15	300.80	8.68E+01	55.79			8.68E+01	5.58E+01
	16	327.50	8.59E+01	76.31			8.59E+01	7.63E+01
	17	338.50	3.36E+02	78.52	4.73E+00	4.47E+00	3.32E+02	7.86E+01
	18	352.15	7.02E+02	85.24			7.02E+02	8.52E+01
	19	388.29	4.71E+01	56.21			4.71E+01	5.62E+01
	20	463.07	1.17E+02	55.08			1.17E+02	5.51E+01
	21	511.13	2.39E+02	62.39	5.37E+01	4.54E+00	1.85E+02	6.26E+01
	22	562.69	4.50E+01	52.63			4.50E+01	5.26E+01
	23	583.34	5.07E+02	63.70			5.07E+02	6.37E+01
	24	609.43	4.76E+02	63.99	4.09E+00	3.07E+00	4.72E+02	6.41E+01
	25	636.97	6.26E+01	59.84			6.26E+01	5.98E+01
	26	727.22	1.20E+02	43.77			1.20E+02	4.38E+01
	27	754.23	3.61E+01	39.04			3.61E+01	3.90E+01
	28	794.81	5.39E+01	36.93			5.39E+01	3.69E+01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	29	831.93	2.84E+01	31.87			2.84E+01	3.19E+01
m	30	835.39	3.51E+01	32.68			3.51E+01	3.27E+01
M	31	860.75	4.51E+01	31.01			4.51E+01	3.10E+01
m	32	864.76	2.56E+01	29.76			2.56E+01	2.98E+01
	33	911.29	2.95E+02	57.38			2.95E+02	5.74E+01
	34	967.77	2.17E+02	55.96			2.17E+02	5.60E+01
	35	1000.73	2.88E+01	24.79			2.88E+01	2.48E+01
	36	1120.34	1.19E+02	42.06			1.19E+02	4.21E+01
	37	1231.53	2.68E+01	27.28			2.68E+01	2.73E+01
	38	1237.95	4.25E+01	34.06			4.25E+01	3.41E+01
	39	1279.45	2.79E+01	35.48			2.79E+01	3.55E+01
	40	1439.03	1.50E+01	14.63			1.50E+01	1.46E+01
	41	1460.72	7.32E+02	57.58			7.32E+02	5.76E+01
M	42	1585.83	1.09E+01	18.71			1.09E+01	1.87E+01
m	43	1589.21	2.10E+01	15.80			2.10E+01	1.58E+01
m	44	1592.42	3.09E+01	17.55			3.09E+01	1.75E+01
	45	1599.34	1.50E+01	11.70			1.50E+01	1.17E+01
	46	1620.65	1.25E+01	13.48			1.25E+01	1.35E+01
	47	1639.98	1.55E+01	12.02			1.55E+01	1.20E+01
	48	1649.18	1.16E+01	7.81			1.16E+01	7.81E+00
	49	1660.34	1.02E+01	12.65			1.02E+01	1.26E+01
M	50	1667.73	1.91E+01	11.72			1.91E+01	1.17E+01
m	51	1672.22	7.74E+00	11.72			7.74E+00	1.17E+01
	52	1678.50	5.60E+00	8.06			5.60E+00	8.06E+00
	53	1722.54	8.04E+00	8.89			8.04E+00	8.89E+00
	54	1729.52	1.48E+01	17.52			1.48E+01	1.75E+01
	55	1764.32	9.95E+01	21.07			9.95E+01	2.11E+01
	56	1846.48	1.33E+01	9.62			1.33E+01	9.62E+00
	57	1925.78	9.00E+00	12.37			9.00E+00	1.24E+01
	58	1943.89	4.57E+00	6.36			4.57E+00	6.36E+00
	59	2022.24	9.00E+00	6.00			9.00E+00	6.00E+00
	60	2103.30	2.50E+01	10.00			2.50E+01	1.00E+01
	61	2153.48	1.35E+01	11.22			1.35E+01	1.12E+01
	62	2203.78	1.75E+01	20.20			1.75E+01	2.02E+01
	63	2392.02	1.25E+01	11.51			1.25E+01	1.15E+01
	64	2448.28	9.16E+00	12.49			9.16E+00	1.25E+01
	65	2454.10	8.80E+00	6.80			8.80E+00	6.80E+00
	66	2510.85	6.00E+00	4.90			6.00E+00	4.90E+00
	67	2614.18	1.57E+02	25.89			1.57E+02	2.59E+01
	68	2653.77	5.00E+00	4.47			5.00E+00	4.47E+00

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

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 7:59:14AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.06	5.20E+02	202.14	4.29E+01	6.03E+00	4.77E+02	2.02E+02
M	2	75.03	8.98E+02	167.54	1.67E+01	8.84E+00	8.81E+02	1.68E+02
m	3	77.45	1.46E+03	153.53			1.46E+03	1.54E+02
	4	88.04	1.48E+02	135.61			1.48E+02	1.36E+02
	5	93.31	5.64E+02	127.58	6.90E+01	7.61E+00	4.95E+02	1.28E+02
	6	104.86	8.15E+01	96.22			8.15E+01	9.62E+01
	7	129.75	1.17E+02	132.43			1.17E+02	1.32E+02
	8	186.34	2.79E+02	116.15	2.99E+01	5.81E+00	2.49E+02	1.16E+02
	9	209.55	1.15E+02	110.59			1.15E+02	1.11E+02
M	10	238.95	1.84E+03	109.29	9.49E+00	5.63E+00	1.83E+03	1.09E+02
m	11	241.80	4.01E+02	122.49			4.01E+02	1.22E+02
	12	270.11	1.62E+02	74.08			1.62E+02	7.41E+01
	13	277.23	6.40E+01	58.84			6.40E+01	5.88E+01
	14	295.48	4.27E+02	75.04			4.27E+02	7.50E+01
	15	300.80	8.68E+01	55.79			8.68E+01	5.58E+01
	16	327.50	8.59E+01	76.31			8.59E+01	7.63E+01
	17	338.50	3.36E+02	78.52	4.73E+00	4.47E+00	3.32E+02	7.86E+01
	18	352.15	7.02E+02	85.24			7.02E+02	8.52E+01
	19	388.29	4.71E+01	56.21			4.71E+01	5.62E+01
	20	463.07	1.17E+02	55.08			1.17E+02	5.51E+01
	21	511.13	2.39E+02	62.39	5.37E+01	4.54E+00	1.85E+02	6.26E+01
	22	562.69	4.50E+01	52.63			4.50E+01	5.26E+01
	23	583.34	5.07E+02	63.70			5.07E+02	6.37E+01
	24	609.43	4.76E+02	63.99	4.09E+00	3.07E+00	4.72E+02	6.41E+01
	25	636.97	6.26E+01	59.84			6.26E+01	5.98E+01
	26	727.22	1.20E+02	43.77			1.20E+02	4.38E+01
	27	754.23	3.61E+01	39.04			3.61E+01	3.90E+01
	28	794.81	5.39E+01	36.93			5.39E+01	3.69E+01
M	29	831.93	2.84E+01	31.87			2.84E+01	3.19E+01
m	30	835.39	3.51E+01	32.68			3.51E+01	3.27E+01
M	31	860.75	4.51E+01	31.01			4.51E+01	3.10E+01
m	32	864.76	2.56E+01	29.76			2.56E+01	2.98E+01
	33	911.29	2.95E+02	57.38			2.95E+02	5.74E+01
	34	967.77	2.17E+02	55.96			2.17E+02	5.60E+01
	35	1000.73	2.88E+01	24.79			2.88E+01	2.48E+01
	36	1120.34	1.19E+02	42.06			1.19E+02	4.21E+01
	37	1231.53	2.68E+01	27.28			2.68E+01	2.73E+01
	38	1237.95	4.25E+01	34.06			4.25E+01	3.41E+01
	39	1279.45	2.79E+01	35.48			2.79E+01	3.55E+01
	40	1439.03	1.50E+01	14.63			1.50E+01	1.46E+01
	41	1460.72	7.32E+02	57.58			7.32E+02	5.76E+01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	42	1585.83	1.09E+01	18.71			1.09E+01	1.87E+01
m	43	1589.21	2.10E+01	15.80			2.10E+01	1.58E+01
m	44	1592.42	3.09E+01	17.55			3.09E+01	1.75E+01
	45	1599.34	1.50E+01	11.70			1.50E+01	1.17E+01
	46	1620.65	1.25E+01	13.48			1.25E+01	1.35E+01
	47	1639.98	1.55E+01	12.02			1.55E+01	1.20E+01
	48	1649.18	1.16E+01	7.81			1.16E+01	7.81E+00
	49	1660.34	1.02E+01	12.65			1.02E+01	1.26E+01
M	50	1667.73	1.91E+01	11.72			1.91E+01	1.17E+01
m	51	1672.22	7.74E+00	11.72			7.74E+00	1.17E+01
	52	1678.50	5.60E+00	8.06			5.60E+00	8.06E+00
	53	1722.54	8.04E+00	8.89			8.04E+00	8.89E+00
	54	1729.52	1.48E+01	17.52			1.48E+01	1.75E+01
	55	1764.32	9.95E+01	21.07			9.95E+01	2.11E+01
	56	1846.48	1.33E+01	9.62			1.33E+01	9.62E+00
	57	1925.78	9.00E+00	12.37			9.00E+00	1.24E+01
	58	1943.89	4.57E+00	6.36			4.57E+00	6.36E+00
	59	2022.24	9.00E+00	6.00			9.00E+00	6.00E+00
	60	2103.30	2.50E+01	10.00			2.50E+01	1.00E+01
	61	2153.48	1.35E+01	11.22			1.35E+01	1.12E+01
	62	2203.78	1.75E+01	20.20			1.75E+01	2.02E+01
	63	2392.02	1.25E+01	11.51			1.25E+01	1.15E+01
	64	2448.28	9.16E+00	12.49			9.16E+00	1.25E+01
	65	2454.10	8.80E+00	6.80			8.80E+00	6.80E+00
	66	2510.85	6.00E+00	4.90			6.00E+00	4.90E+00
	67	2614.18	1.57E+02	25.89			1.57E+02	2.59E+01
	68	2653.77	5.00E+00	4.47			5.00E+00	4.47E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.999	1460.81	*	10.67	2.23E+01	2.60E+00
MN-54	0.950	834.83	*	99.97	8.76E-02	8.18E-02
CD-109	1.000	88.03	*	3.72	1.81E+00	1.67E+00
SN-126	0.965	87.57	*	37.00	1.58E-01	1.46E-01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.977	583.14	*	30.22	2.47E+00	3.89E-01
		860.37	*	4.48	2.10E+00	1.45E+00
		2614.66	*	35.85	2.11E+00	4.02E-01
BI-212	1.000	727.17	*	11.80	1.83E+00	6.85E-01
		1620.62	*	2.75	1.60E+00	1.74E+00
PB-212	0.979	238.63	*	44.60	2.75E+00	2.81E-01
		300.09	*	3.41	2.07E+00	1.34E+00
BI-214	0.996	609.31	*	46.30	1.56E+00	2.58E-01
		1120.29	*	15.10	2.05E+00	7.50E-01
		1764.49	*	15.80	2.37E+00	5.35E-01
		2204.22	*	4.98	1.54E+00	1.78E+00
PB-214	0.991	295.21	*	19.19	1.78E+00	3.48E-01
		351.92	*	37.19	1.76E+00	2.66E-01
RA-224	0.899	240.98	*	3.95	6.86E+00	2.17E+00
RA-226	0.997	186.21	*	3.28	4.18E+00	7.90E+00
AC-228	0.575	338.32	*	11.40	2.62E+00	6.64E-01
		911.07	*	27.70	2.33E+00	4.89E-01
		969.11		16.60		
PA-234M	0.986	1001.03	*	0.92	7.45E+00	6.43E+00
TH-234	0.991	63.29	*	3.80	5.56E+00	2.39E+00
AM-243	0.980	74.67	*	66.00	5.43E-01	1.11E-01
CM-243	0.358	209.75	*	3.29	2.12E+00	2.04E+00
		228.14		10.60		
		277.60	*	14.00	3.49E-01	3.22E-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 : 8/14/2017 7:59:14AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.45	4.04336E-01	5.27	Tol.	TI-44
	5	93.31	1.37459E-01	12.91		
	6	104.86	2.26514E-02	59.00	Tol.	EU-155
	7	129.75	3.24584E-02	56.67		
	12	270.11	4.49181E-02	22.91		

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	16	327.50	2.38570E-02	44.42	Sum	
	19	388.29	1.30763E-02	59.71	Sum	
	20	463.07	3.24787E-02	23.55	Sum	
	21	511.13	5.13790E-02	16.91	Sum	
	22	562.69	1.25000E-02	58.48	Sum	
	25	636.97	1.73826E-02	47.81	Tol.	I-131
	27	754.23	1.00280E-02	54.07		
	28	794.81	1.49646E-02	34.28	Sum	
M	29	831.93	7.89950E-03	56.04	Tol.	PB-211
m	32	864.76	7.10064E-03	58.21		
	34	967.77	6.01794E-02	12.92		
	37	1231.53	7.43954E-03	50.93	Tol.	EU-156 TA-182
	38	1237.95	1.18034E-02	40.08	Tol.	CO-56
	39	1279.45	7.74542E-03	63.63		
	40	1439.03	4.16667E-03	48.76		
M	42	1585.83	3.02746E-03	85.83		
m	43	1589.21	5.83394E-03	37.60		
m	44	1592.42	8.58806E-03	28.38	D-Esc	
	45	1599.34	4.16667E-03	39.02		
	47	1639.98	4.30556E-03	38.78		
	48	1649.18	3.22650E-03	33.62		
	49	1660.34	2.83333E-03	62.01		
M	50	1667.73	5.29662E-03	30.72		
m	51	1672.22	2.14888E-03	75.72		
	52	1678.50	1.55556E-03	71.98	Tol.	I-135
	53	1722.54	2.23291E-03	55.29		
	54	1729.52	4.11616E-03	59.12	Sum	
	56	1846.48	3.69281E-03	36.17		
	57	1925.78	2.50000E-03	68.72		
	58	1943.89	1.26984E-03	69.61		
	59	2022.24	2.50000E-03	33.33		
	60	2103.30	6.94444E-03	20.00	S-Esc	
	61	2153.48	3.74269E-03	41.66		
	63	2392.02	3.47222E-03	46.04		
	64	2448.28	2.54386E-03	68.19		
	65	2454.10	2.44444E-03	38.64		
	66	2510.85	1.66667E-03	40.82		
	68	2653.77	1.38889E-03	44.72		

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

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

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	2.23E+01	2.60E+00
MN-54	0.95	834.83	*	99.97	8.76E-02	8.18E-02
CD-109	1.00	88.03	*	3.72	1.81E+00	1.67E+00
SN-126	0.96	87.57	*	37.00	1.58E-01	1.46E-01
TL-208	0.97	583.14	*	30.22	2.47E+00	3.89E-01
		860.37	*	4.48	2.10E+00	1.45E+00
		2614.66	*	35.85	2.11E+00	4.02E-01
BI-212	1.00	727.17	*	11.80	1.83E+00	6.85E-01
		1620.62	*	2.75	1.60E+00	1.74E+00
PB-212	0.97	238.63	*	44.60	2.75E+00	2.81E-01
		300.09	*	3.41	2.07E+00	1.34E+00
BI-214	0.99	609.31	*	46.30	1.56E+00	2.58E-01
		1120.29	*	15.10	2.05E+00	7.50E-01
		1764.49	*	15.80	2.37E+00	5.35E-01
		2204.22	*	4.98	1.54E+00	1.78E+00
PB-214	0.99	295.21	*	19.19	1.78E+00	3.48E-01
		351.92	*	37.19	1.76E+00	2.66E-01
RA-224	0.89	240.98	*	3.95	6.86E+00	2.17E+00
RA-226	0.99	186.21	*	3.28	4.18E+00	7.90E+00
AC-228	0.57	338.32	*	11.40	2.62E+00	6.64E-01
		911.07	*	27.70	2.33E+00	4.89E-01
		969.11		16.60		
PA-234M	0.98	1001.03	*	0.92	7.45E+00	6.43E+00
TH-234	0.99	63.29	*	3.80	5.56E+00	2.39E+00
AM-243	0.98	74.67	*	66.00	5.43E-01	1.11E-01
CM-243	0.35	209.75	*	3.29	2.12E+00	2.04E+00
		228.14		10.60		
		277.60	*	14.00	3.49E-01	3.22E-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 1707077-07

HTC-A01-S001-1824-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.999	2.23E+01	2.60E+00	
	MN-54	0.950	8.76E-02	8.18E-02	
?	CD-109	1.000	1.81E+00	1.67E+00	
?	SN-126	0.965	1.58E-01	1.46E-01	
	TL-208	0.977	2.29E+00	2.75E-01	
	BI-212	1.000	1.80E+00	6.37E-01	
	PB-212	0.979	2.72E+00	2.75E-01	
	BI-214	0.996	1.74E+00	2.20E-01	
	PB-214	0.991	1.77E+00	2.11E-01	
	RA-224	0.899	6.86E+00	2.17E+00	
	RA-226	0.997	4.18E+00	7.90E+00	
	AC-228	0.575	2.43E+00	3.94E-01	
	PA-234M	0.986	7.45E+00	6.43E+00	
	TH-234	0.991	5.56E+00	2.39E+00	
	AM-243	0.980	5.43E-01	1.11E-01	
	CM-243	0.358	3.92E-01	3.18E-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 1707077-07

HTC-A01-S001-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 7:59:14AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.45	4.04336E-01	5.27	Tol.	TI-44
	5	93.31	1.37459E-01	12.91		
	6	104.86	2.26514E-02	59.00	Tol.	EU-155
	7	129.75	3.24584E-02	56.67		
	12	270.11	4.49181E-02	22.91		
	16	327.50	2.38570E-02	44.42	Sum	
	19	388.29	1.30763E-02	59.71	Sum	
	20	463.07	3.24787E-02	23.55	Sum	
	21	511.13	5.13790E-02	16.91	Sum	
	22	562.69	1.25000E-02	58.48	Sum	
	25	636.97	1.73826E-02	47.81	Tol.	I-131
	27	754.23	1.00280E-02	54.07		
	28	794.81	1.49646E-02	34.28	Sum	
M	29	831.93	7.89950E-03	56.04	Tol.	PB-211
m	32	864.76	7.10064E-03	58.21		
	34	967.77	6.01794E-02	12.92		
	37	1231.53	7.43954E-03	50.93	Tol.	EU-156 TA-182
	38	1237.95	1.18034E-02	40.08	Tol.	CO-56
	39	1279.45	7.74542E-03	63.63		
	40	1439.03	4.16667E-03	48.76		
M	42	1585.83	3.02746E-03	85.83		
m	43	1589.21	5.83394E-03	37.60		
m	44	1592.42	8.58806E-03	28.38	D-Esc	
	45	1599.34	4.16667E-03	39.02		
	47	1639.98	4.30556E-03	38.78		
	48	1649.18	3.22650E-03	33.62		
	49	1660.34	2.83333E-03	62.01		
M	50	1667.73	5.29662E-03	30.72		
m	51	1672.22	2.14888E-03	75.72		
	52	1678.50	1.55556E-03	71.98	Tol.	I-135
	53	1722.54	2.23291E-03	55.29		
	54	1729.52	4.11616E-03	59.12	Sum	
	56	1846.48	3.69281E-03	36.17		
	57	1925.78	2.50000E-03	68.72		

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
58	1943.89	1.26984E-03	69.61		
59	2022.24	2.50000E-03	33.33		
60	2103.30	6.94444E-03	20.00	S-Esc	
61	2153.48	3.74269E-03	41.66		
63	2392.02	3.47222E-03	46.04		
64	2448.28	2.54386E-03	68.19		
65	2454.10	2.44444E-03	38.64		
66	2510.85	1.66667E-03	40.82		
68	2653.77	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-3.53E-01	2.56E+00	2.56E+00
+	NA-22	1274.54		99.94	-9.37E-03	1.18E-01	1.18E-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	7.68E-03	6.96E-02	6.96E-02
+	K-40	1460.81	*	10.67	2.23E+01	1.07E+00	1.07E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-8.13E-03	7.70E-02	7.70E-02
		78.34		96.00	3.65E-01		9.99E-02
+	SC-46	889.25		99.98	4.53E-02	2.02E-01	2.02E-01
		1120.51		99.99	6.37E-01		3.66E-01
+	V-48	983.52		99.98	7.87E-01	5.38E+00	5.38E+00
		1312.10		97.50	-4.35E-01		5.67E+00
+	CR-51	320.08		9.83	-2.55E+00	7.42E+00	7.42E+00
+	MN-54	834.83	*	99.97	8.76E-02	3.06E-01	3.06E-01
+	CO-56	846.75		99.96	-4.50E-02	1.97E-01	1.97E-01
		1037.75		14.03	4.36E-02		1.69E+00
		1238.25		67.00	3.13E-01		5.02E-01
		1771.40		15.51	4.13E-02		9.99E-01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	2598.48		16.90	4.50E-01	1.97E-01	1.12E+00
+	CO-57	122.06		85.51	-5.98E-04	7.93E-02	7.93E-02
		136.48		10.60	-4.15E-02		6.74E-01
+	CO-58	810.76		99.40	-6.92E-02	2.07E-01	2.07E-01
+	FE-59	1099.22		56.50	8.68E-02	7.70E-01	7.70E-01
		1291.56		43.20	-1.90E-01		9.59E-01
+	CO-60	1173.22		100.00	4.32E-02	1.08E-01	1.19E-01
		1332.49		100.00	5.61E-02		1.08E-01
+	ZN-65	1115.52		50.75	3.30E-02	2.91E-01	2.91E-01
+	GA-67	93.31		35.70	1.95E+08	7.85E+07	7.85E+07
		208.95		2.24	1.53E+09		1.37E+09
		300.22		16.00	-4.67E+08		2.03E+08
+	SE-75	121.11		16.70	1.62E-02	1.62E-01	5.41E-01
		136.00		59.20	2.59E-02		1.62E-01
		264.65		59.80	-3.13E-02		1.95E-01
		279.53		25.20	-3.85E-02		5.13E-01
		400.65		11.40	2.17E-01		1.20E+00
+	RB-82	776.52		13.00	-9.03E-01	8.69E+00	8.69E+00
+	RB-83	520.41		46.00	-1.52E-02	3.53E-01	3.53E-01
		529.64		30.30	-3.45E-02		5.39E-01
		552.65		16.40	1.42E-01		1.06E+00
+	KR-85	513.99		0.43	4.80E+01	2.69E+01	2.69E+01
+	SR-85	513.99		99.27	5.57E-01	3.13E-01	3.13E-01
+	Y-88	898.02		93.40	5.19E-02	1.75E-01	1.93E-01
		1836.01		99.38	1.12E-01		1.75E-01
+	MO-93	263.06		56.72	-2.45E-02	8.26E-02	1.25E-01
		684.67		99.68	2.01E-02		9.34E-02
		1477.11		99.08	-5.27E-02		8.26E-02
+	NB-93M	16.57		9.43	-9.00E+01	7.39E+01	7.39E+01
+	NB-94	702.63		100.00	2.06E-02	9.00E-02	9.00E-02
		871.10		100.00	5.18E-02		9.44E-02
+	NB-95	765.79		99.81	5.21E-01	6.91E-01	6.91E-01
+	NB-95M	235.69		25.00	1.74E+06	2.91E+07	2.91E+07
+	ZR-95	724.18		43.70	4.47E-02	4.99E-01	6.73E-01
		756.72		55.30	5.76E-03		4.99E-01
+	MO-99	181.06		6.20	5.73E+09	1.06E+10	1.43E+10
		739.58		12.80	4.50E+09		1.06E+10
		778.00		4.50	-2.99E+09		2.84E+10
+	RU-103	497.08		89.00	1.25E-01	4.72E-01	4.72E-01
+	RU-106	621.84		9.80	2.95E-01	1.06E+00	1.06E+00
+	AG-108M	433.93		89.90	-2.91E-02	8.47E-02	8.47E-02
		614.37		90.40	9.08E-03		1.18E-01
		722.95		90.50	9.06E-03		1.04E-01
+	CD-109	88.03	*	3.72	1.81E+00	2.72E+00	2.72E+00
+	AG-110M	657.75		93.14	-1.05E-01	1.18E-01	1.18E-01
		677.61		10.53	-8.05E-02		1.11E+00
		706.67		16.46	2.74E-02		7.11E-01
		763.93		21.98	-8.30E-01		5.61E-01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	884.67		71.63	-2.51E-02	1.18E-01	1.70E-01
		1384.27		23.94	-1.72E-02		4.53E-01
+	CD-113M	263.70		0.02	-4.35E+01	3.04E+02	3.04E+02
+	SN-113	255.12		1.93	1.08E+00	2.12E-01	6.43E+00
		391.69		64.90	2.17E-02		2.12E-01
+	TE123M	159.00		84.10	2.66E-02	1.21E-01	1.21E-01
+	SB-124	602.71		97.87	-5.16E-02	2.52E-01	2.52E-01
		645.85		7.26	-1.30E+00		3.17E+00
		722.78		11.10	2.15E-01		2.47E+00
		1691.02		49.00	-5.42E-02		4.74E-01
+	I-125	35.49		6.49	-1.25E+00	6.53E+00	6.53E+00
+	SB-125	176.33		6.89	3.03E-01	2.87E-01	9.49E-01
		427.89		29.33	1.96E-02		2.87E-01
		463.38		10.35	1.10E+00		9.58E-01
		600.56		17.80	-5.32E-02		5.04E-01
		635.90		11.32	-5.37E-01		7.84E-01
+	SB-126	414.70		83.30	-1.22E+01	1.62E+01	1.73E+01
		666.33		99.60	3.41E+00		1.69E+01
		695.00		99.60	1.87E+00		1.62E+01
		720.50		53.80	-2.08E+00		2.90E+01
+	SN-126	87.57	*	37.00	1.58E-01	2.38E-01	2.38E-01
+	SB-127	473.00		25.00	4.33E+06	4.69E+06	6.14E+06
		685.20		35.70	1.01E+06		4.69E+06
		783.80		14.70	6.08E+06		1.13E+07
+	I-129	29.78		57.00	3.29E-02	4.31E-01	4.31E-01
		33.60		13.20	7.00E-02		1.28E+00
		39.58		7.52	3.86E-01		1.50E+00
+	I-131	284.30		6.05	6.24E+02	2.73E+02	3.63E+03
		364.48		81.20	-1.04E+02		2.73E+02
		636.97		7.26	-3.82E+03		3.35E+03
		722.89		1.80	1.37E+03		1.57E+04
+	TE-132	49.72		13.10	-1.11E+08	3.26E+07	2.39E+08
		228.16		88.00	-2.35E+05		3.26E+07
+	BA-133	81.00		33.00	-1.13E-01	1.82E-01	2.14E-01
		302.84		17.80	-1.13E-03		4.50E-01
		356.01		60.00	-7.28E-03		1.82E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.08E+04	3.92E+04	3.92E+04
+	CS-134	563.23		8.38	8.25E-01	1.16E-01	1.20E+00
		569.32		15.43	-3.27E-02		6.07E-01
		604.70		97.60	-7.62E-03		1.16E-01
		795.84		85.40	8.41E-02		1.41E-01
		801.93		8.73	2.52E-01		1.19E+00
+	CS-135	268.24		16.00	-4.62E-02	4.85E-01	4.85E-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	5.94E+00	1.17E+01	1.04E+02
		163.89		4.61	-6.63E+01		1.67E+02

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	176.55	13.56	1.92E+01	1.17E+01	6.03E+01
		273.65	12.66	-7.01E+01		8.14E+01
		340.57	48.50	7.10E+01		2.90E+01
		818.50	99.70	3.21E+00		1.17E+01
		1048.07	79.60	-2.36E+00		1.71E+01
		1235.34	19.70	4.75E+01		1.01E+02
+	CS-137	661.65	85.12	-1.42E-02	1.07E-01	1.07E-01
+	LA-138	788.74	34.00	-3.70E-02	1.26E-01	2.66E-01
		1435.80	66.00	2.43E-03		1.26E-01
+	CE-139	165.85	80.35	-9.87E-03	1.17E-01	1.17E-01
+	BA-140	162.64	6.70	9.29E+00	4.86E+01	1.35E+02
		304.84	4.50	-2.31E+01		2.51E+02
		423.70	3.20	-5.20E+01		3.75E+02
		437.55	2.00	2.49E+02		6.16E+02
		537.32	25.00	-3.33E+01		4.86E+01
+	LA-140	328.77	20.50	5.91E+01	1.94E+01	6.45E+01
		487.03	45.50	1.65E+00		2.56E+01
		815.85	23.50	2.46E+01		5.82E+01
		1596.49	95.49	1.29E+01		1.94E+01
+	CE-141	145.44	48.40	3.02E-01	8.93E-01	8.93E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	1.84E-01	6.70E-01	6.70E-01
+	PM-144	476.78	42.00	-6.28E-02	1.07E-01	2.29E-01
		618.01	98.60	3.49E-02		1.07E-01
		696.49	99.49	3.30E-02		1.09E-01
+	PM-145	36.85	21.70	1.70E-01	3.25E-01	6.19E-01
		37.36	39.70	-9.45E-02		3.25E-01
		42.30	15.10	-6.43E-01		6.53E-01
		72.40	2.31	-9.35E+00		3.71E+00
+	PM-146	453.90	39.94	1.36E-01	2.21E-01	2.21E-01
		735.90	14.01	-6.13E-02		6.61E-01
		747.13	13.10	-2.47E-03		7.29E-01
+	ND-147	91.11	28.90	-8.11E+01	9.20E+01	9.20E+01
		531.02	13.10	6.29E+01		2.10E+02
+	PM-149	285.90	3.10	7.59E+11	1.03E+13	1.03E+13
+	EU-152	121.78	20.50	-1.99E-03	2.64E-01	2.64E-01
		244.69	5.40	-1.19E-01		1.58E+00
		344.27	19.13	3.96E-02		3.97E-01
		778.89	9.20	1.90E-01		9.84E-01
		964.01	10.40	-2.53E-01		1.34E+00
		1085.78	7.22	-5.25E-01		1.40E+00
		1112.02	9.60	2.96E-02		1.10E+00
		1407.95	14.94	6.82E-02		6.97E-01
+	GD-153	97.43	31.30	-3.94E-02	2.37E-01	2.37E-01
		103.18	22.20	2.29E-02		3.23E-01
+	EU-154	123.07	40.50	-8.89E-03	1.36E-01	1.36E-01
		723.30	19.70	4.24E-02		4.88E-01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	873.19		11.50	3.40E-01	1.36E-01	8.24E-01
		996.32		10.30	2.40E-01		9.08E-01
		1004.76		17.90	-2.48E-01		4.97E-01
		1274.45		35.50	-2.51E-02		3.17E-01
+	EU-155	86.50		30.90	2.76E-01	2.53E-01	2.53E-01
		105.30		20.70	1.07E-01		2.80E-01
+	EU-156	811.77		10.40	-2.01E+01	5.30E+01	5.30E+01
		1153.47		7.20	-1.04E+02		1.01E+02
		1230.71		8.90	1.91E+01		1.01E+02
+	HO-166M	184.41		72.60	1.80E-01	1.01E-01	1.01E-01
		280.45		29.60	6.00E-02		2.59E-01
		410.94		11.10	2.90E-01		7.72E-01
		711.69		54.10	-3.05E-02		1.72E-01
+	TM-171	66.72		0.14	-1.11E+02	5.79E+01	5.79E+01
+	HF-172	67.35		5.31	-1.59E-01	5.43E-01	1.51E+00
		125.81		11.30	-7.63E-02		5.43E-01
+	LU-172	181.53		20.60	1.04E+03	2.74E+03	4.24E+03
		900.72		29.81	-1.27E+03		4.85E+03
		1093.66		62.50	1.76E+03		2.74E+03
+	LU-173	100.72		5.24	4.95E-01	4.37E-01	1.21E+00
		272.11		21.20	4.81E-01		4.37E-01
+	HF-175	343.40		84.00	2.23E-02	2.23E-01	2.23E-01
+	LU-176	88.34		13.30	4.10E-01	7.12E-02	5.70E-01
		201.83		86.00	-3.33E-02		7.12E-02
		306.78		94.00	1.02E-02		7.63E-02
+	HF-181	133.02		41.70	-6.33E-02	4.38E-01	6.40E-01
		345.85		17.20	2.44E-02		1.96E+00
		482.03		82.80	2.23E-02		4.38E-01
+	TA-182	67.75		41.20	-3.26E-02	3.09E-01	3.09E-01
		1121.30		34.90	1.33E+00		8.49E-01
		1189.05		16.23	-1.12E-01		1.29E+00
		1221.41		26.98	-6.92E-01		7.26E-01
		1231.02		11.44	3.76E-01		1.98E+00
+	IR-192	308.46		29.68	1.90E-01	3.92E-01	5.79E-01
		468.07		48.10	-4.71E-02		3.92E-01
+	HG-203	279.19		77.30	-7.37E-02	3.89E-01	3.89E-01
+	TL-204	374.74		94.11	3.54E-02	8.86E-02	8.86E-02
		899.15		99.16	6.40E-02		1.09E-01
		911.74		91.10	7.27E-01		2.31E-01
+	BI-207	569.67		97.72	4.25E-02	9.04E-02	9.04E-02
		1063.62		74.90	1.53E-02		1.45E-01
+	TL-208	583.14	*	30.22	2.47E+00	1.78E-01	3.74E-01
		860.37	*	4.48	2.10E+00		3.26E+00
		2614.66	*	35.85	2.11E+00		1.78E-01
+	BI-210M	262.00		45.00	9.20E-02	1.61E-01	1.61E-01
		300.00		23.00	-8.67E-01		3.77E-01
+	PB-210	46.50		4.25	2.59E+00	2.16E+00	2.16E+00
+	PB-211	404.84		2.90	-2.29E+00	2.71E+00	2.71E+00
		831.96		2.90	1.46E+00		3.54E+00

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-212	727.17	*	11.80	1.83E+00	9.88E-01	9.88E-01
		1620.62	*	2.75	1.60E+00		2.77E+00
+	PB-212	238.63	*	44.60	2.75E+00	2.72E-01	2.72E-01
		300.09	*	3.41	2.07E+00		2.13E+00
+	BI-214	609.31	*	46.30	1.56E+00	2.65E-01	2.65E-01
		1120.29	*	15.10	2.05E+00		1.07E+00
		1764.49	*	15.80	2.37E+00		3.30E-01
		2204.22	*	4.98	1.54E+00		2.89E+00
+	PB-214	295.21	*	19.19	1.78E+00	2.83E-01	4.41E-01
		351.92	*	37.19	1.76E+00		2.83E-01
+	RN-219	401.80		6.50	3.23E-01	1.24E+00	1.24E+00
+	RA-223	323.87		3.88	-1.85E-01	1.98E+00	1.98E+00
+	RA-224	240.98	*	3.95	6.86E+00	3.12E+00	3.12E+00
+	RA-225	40.00		31.00	7.08E+00	2.75E+01	2.75E+01
+	RA-226	186.21	*	3.28	4.18E+00	3.14E+00	3.14E+00
+	TH-227	50.10		8.40	-4.49E-01	9.70E-01	9.70E-01
		236.00		11.50	6.83E-02		1.14E+00
		256.20		6.30	5.17E-01		1.16E+00
+	AC-228	338.32	*	11.40	2.62E+00	6.19E-01	9.29E-01
		911.07	*	27.70	2.33E+00		6.19E-01
		969.11		16.60	1.99E+00		1.10E+00
+	TH-230	48.44		16.90	-2.19E-01	5.07E-01	5.07E-01
		62.85		4.60	3.33E+00		1.84E+00
		67.67		0.37	-2.07E+00		1.96E+01
+	PA-231	283.67		1.60	2.09E+00	3.42E+00	4.64E+00
		302.67		2.30	-8.60E-03		3.42E+00
+	TH-231	25.64		14.70	-2.46E-01	1.10E+00	3.04E+00
		84.21		6.40	-1.50E-01		1.10E+00
+	PA-233	311.98		38.60	-8.53E-01	1.98E+00	1.98E+00
+	PA-234	131.20		20.40	2.18E-01	2.98E-01	2.98E-01
		733.99		8.80	1.15E-01		1.00E+00
		946.00		12.00	-4.29E-01		6.96E-01
+	PA-234M	1001.03	*	0.92	7.45E+00	1.02E+01	1.02E+01
+	TH-234	63.29	*	3.80	5.56E+00	3.81E+00	3.81E+00
+	U-235	143.76		10.50	3.21E-01	5.73E-01	5.73E-01
		163.35		4.70	-4.87E-01		1.23E+00
		205.31		4.70	-2.55E-02		1.67E+00
+	NP-237	86.50		12.60	6.54E-01	5.98E-01	5.98E-01
+	NP-239	106.10		22.70	7.04E+10	1.84E+11	1.84E+11
		228.18		10.70	-3.78E+09		5.24E+11
		277.60		14.10	1.48E+11		3.99E+11
+	AM-241	59.54		35.90	-2.76E-01	2.15E-01	2.15E-01
+	AM-243	74.67	*	66.00	5.43E-01	1.98E-01	1.98E-01
+	CM-243	209.75	*	3.29	2.12E+00	5.22E-01	3.33E+00
		228.14		10.60	-5.16E-03		7.16E-01
		277.60	*	14.00	3.49E-01		5.22E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.56E+00	2.56E+00	-3.53E-01	1.23E+00
	NA-22	1274.54		99.94	1.18E-01	1.18E-01	-9.37E-03	5.48E-02
@	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	6.96E-02	6.96E-02	7.68E-03	2.96E-02
+	K-40	1460.81	*	10.67	1.07E+00	1.07E+00	2.23E+01	4.96E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.70E-02	7.70E-02	-8.13E-03	3.79E-02
		78.34		96.00	9.99E-02		3.65E-01	4.94E-02
	SC-46	889.25		99.98	2.02E-01	2.02E-01	4.53E-02	9.49E-02
		1120.51		99.99	3.66E-01		6.37E-01	1.76E-01
	V-48	983.52		99.98	5.38E+00	5.38E+00	7.87E-01	2.51E+00
		1312.10		97.50	5.67E+00		-4.35E-01	2.60E+00
	CR-51	320.08		9.83	7.42E+00	7.42E+00	-2.55E+00	3.59E+00
+	MN-54	834.83	*	99.97	3.06E-01	3.06E-01	8.76E-02	1.50E-01
	CO-56	846.75		99.96	1.97E-01	1.97E-01	-4.50E-02	9.24E-02
		1037.75		14.03	1.69E+00		4.36E-02	7.92E-01
		1238.25		67.00	5.02E-01		3.13E-01	2.38E-01
		1771.40		15.51	9.99E-01		4.13E-02	4.25E-01
		2598.48		16.90	1.12E+00		4.50E-01	4.73E-01
	CO-57	122.06		85.51	7.93E-02	7.93E-02	-5.98E-04	3.88E-02
		136.48		10.60	6.74E-01		-4.15E-02	3.30E-01
	CO-58	810.76		99.40	2.07E-01	2.07E-01	-6.92E-02	9.67E-02
	FE-59	1099.22		56.50	7.70E-01	7.70E-01	8.68E-02	3.59E-01
		1291.56		43.20	9.59E-01		-1.90E-01	4.40E-01
	CO-60	1173.22		100.00	1.19E-01	1.08E-01	4.32E-02	5.59E-02
		1332.49		100.00	1.08E-01		5.61E-02	4.99E-02
	ZN-65	1115.52		50.75	2.91E-01	2.91E-01	3.30E-02	1.36E-01
	GA-67	93.31		35.70	7.85E+07	7.85E+07	1.95E+08	3.87E+07

Analysis Report for 1707077-07

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	1.37E+09	7.85E+07	1.53E+09	6.71E+08
		300.22		16.00	2.03E+08		-4.67E+08	9.89E+07
	SE-75	121.11		16.70	5.41E-01	1.62E-01	1.62E-02	2.65E-01
		136.00		59.20	1.62E-01		2.59E-02	7.92E-02
		264.65		59.80	1.95E-01		-3.13E-02	9.45E-02
		279.53		25.20	5.13E-01		-3.85E-02	2.49E-01
		400.65		11.40	1.20E+00		2.17E-01	5.80E-01
	RB-82	776.52		13.00	8.69E+00	8.69E+00	-9.03E-01	4.10E+00
	RB-83	520.41		46.00	3.53E-01	3.53E-01	-1.52E-02	1.68E-01
		529.64		30.30	5.39E-01		-3.45E-02	2.57E-01
		552.65		16.40	1.06E+00		1.42E-01	5.05E-01
	KR-85	513.99		0.43	2.69E+01	2.69E+01	4.80E+01	1.31E+01
	SR-85	513.99		99.27	3.13E-01	3.13E-01	5.57E-01	1.51E-01
	Y-88	898.02		93.40	1.93E-01	1.75E-01	5.19E-02	9.08E-02
		1836.01		99.38	1.75E-01		1.12E-01	7.77E-02
	MO-93	263.06		56.72	1.25E-01	8.26E-02	-2.45E-02	6.09E-02
		684.67		99.68	9.34E-02		2.01E-02	4.43E-02
		1477.11		99.08	8.26E-02		-5.27E-02	3.68E-02
	NB-93M	16.57		9.43	7.39E+01	7.39E+01	-9.00E+01	3.62E+01
	NB-94	702.63		100.00	9.00E-02	9.00E-02	2.06E-02	4.26E-02
		871.10		100.00	9.44E-02		5.18E-02	4.43E-02
	NB-95	765.79		99.81	6.91E-01	6.91E-01	5.21E-01	3.29E-01
	NB-95M	235.69		25.00	2.91E+07	2.91E+07	1.74E+06	1.44E+07
	ZR-95	724.18		43.70	6.73E-01	4.99E-01	4.47E-02	3.22E-01
		756.72		55.30	4.99E-01		5.76E-03	2.37E-01
	MO-99	181.06		6.20	1.43E+10	1.06E+10	5.73E+09	6.95E+09
		739.58		12.80	1.06E+10		4.50E+09	5.01E+09
		778.00		4.50	2.84E+10		-2.99E+09	1.34E+10
	RU-103	497.08		89.00	4.72E-01	4.72E-01	1.25E-01	2.26E-01
	RU-106	621.84		9.80	1.06E+00	1.06E+00	2.95E-01	5.04E-01
	AG-108M	433.93		89.90	8.47E-02	8.47E-02	-2.91E-02	4.07E-02
		614.37		90.40	1.18E-01		9.08E-03	5.69E-02
		722.95		90.50	1.04E-01		9.06E-03	4.95E-02
+	CD-109	88.03	*	3.72	2.72E+00	2.72E+00	1.81E+00	1.34E+00
	AG-110M	657.75		93.14	1.18E-01	1.18E-01	-1.05E-01	5.58E-02
		677.61		10.53	1.11E+00		-8.05E-02	5.25E-01
		706.67		16.46	7.11E-01		2.74E-02	3.37E-01
		763.93		21.98	5.61E-01		-8.30E-01	2.65E-01
		884.67		71.63	1.70E-01		-2.51E-02	7.97E-02
		1384.27		23.94	4.53E-01		-1.72E-02	2.04E-01
	CD-113M	263.70		0.02	3.04E+02	3.04E+02	-4.35E+01	1.47E+02
	SN-113	255.12		1.93	6.43E+00	2.12E-01	1.08E+00	3.13E+00
		391.69		64.90	2.12E-01		2.17E-02	1.02E-01
	TE123M	159.00		84.10	1.21E-01	1.21E-01	2.66E-02	5.91E-02
	SB-124	602.71		97.87	2.52E-01	2.52E-01	-5.16E-02	1.20E-01
		645.85		7.26	3.17E+00		-1.30E+00	1.50E+00
		722.78		11.10	2.47E+00		2.15E-01	1.17E+00
		1691.02		49.00	4.74E-01		-5.42E-02	2.08E-01
	I-125	35.49		6.49	6.53E+00	6.53E+00	-1.25E+00	3.20E+00
	SB-125	176.33		6.89	9.49E-01	2.87E-01	3.03E-01	4.63E-01
		427.89		29.33	2.87E-01		1.96E-02	1.38E-01
		463.38		10.35	9.58E-01		1.10E+00	4.63E-01
		600.56		17.80	5.04E-01		-5.32E-02	2.40E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	7.84E-01	2.87E-01	-5.37E-01	3.72E-01
	SB-126	414.70		83.30	1.73E+01	1.62E+01	-1.22E+01	8.36E+00
		666.33		99.60	1.69E+01		3.41E+00	8.03E+00
		695.00		99.60	1.62E+01		1.87E+00	7.69E+00
		720.50		53.80	2.90E+01		-2.08E+00	1.37E+01
+	SN-126	87.57	*	37.00	2.38E-01	2.38E-01	1.58E-01	1.18E-01
	SB-127	473.00		25.00	6.14E+06	4.69E+06	4.33E+06	2.95E+06
		685.20		35.70	4.69E+06		1.01E+06	2.23E+06
		783.80		14.70	1.13E+07		6.08E+06	5.32E+06
	I-129	29.78		57.00	4.31E-01	4.31E-01	3.29E-02	2.11E-01
		33.60		13.20	1.28E+00		7.00E-02	6.25E-01
		39.58		7.52	1.50E+00		3.86E-01	7.33E-01
	I-131	284.30		6.05	3.63E+03	2.73E+02	6.24E+02	1.76E+03
		364.48		81.20	2.73E+02		-1.04E+02	1.31E+02
		636.97		7.26	3.35E+03		-3.82E+03	1.58E+03
		722.89		1.80	1.57E+04		1.37E+03	7.45E+03
	TE-132	49.72		13.10	2.39E+08	3.26E+07	-1.11E+08	1.17E+08
		228.16		88.00	3.26E+07		-2.35E+05	1.59E+07
	BA-133	81.00		33.00	2.14E-01	1.82E-01	-1.13E-01	1.05E-01
		302.84		17.80	4.50E-01		-1.13E-03	2.19E-01
		356.01		60.00	1.82E-01		-7.28E-03	8.87E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.92E+04	3.92E+04	-2.08E+04	1.93E+04
	CS-134	563.23		8.38	1.20E+00	1.16E-01	8.25E-01	5.73E-01
		569.32		15.43	6.07E-01		-3.27E-02	2.90E-01
		604.70		97.60	1.16E-01		-7.62E-03	5.55E-02
		795.84		85.40	1.41E-01		8.41E-02	6.72E-02
		801.93		8.73	1.19E+00		2.52E-01	5.62E-01
	CS-135	268.24		16.00	4.85E-01	4.85E-01	-4.62E-02	2.36E-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	1.04E+02	1.17E+01	5.94E+00	5.10E+01
		163.89		4.61	1.67E+02		-6.63E+01	8.16E+01
		176.55		13.56	6.03E+01		1.92E+01	2.94E+01
		273.65		12.66	8.14E+01		-7.01E+01	3.96E+01
		340.57		48.50	2.90E+01		7.10E+01	1.42E+01
		818.50		99.70	1.17E+01		3.21E+00	5.47E+00
		1048.07		79.60	1.71E+01		-2.36E+00	7.99E+00
		1235.34		19.70	1.01E+02		4.75E+01	4.81E+01
	CS-137	661.65		85.12	1.07E-01	1.07E-01	-1.42E-02	5.07E-02
	LA-138	788.74		34.00	2.66E-01	1.26E-01	-3.70E-02	1.25E-01
		1435.80		66.00	1.26E-01		2.43E-03	5.66E-02
	CE-139	165.85		80.35	1.17E-01	1.17E-01	-9.87E-03	5.71E-02
	BA-140	162.64		6.70	1.35E+02	4.86E+01	9.29E+00	6.59E+01
		304.84		4.50	2.51E+02		-2.31E+01	1.22E+02
		423.70		3.20	3.75E+02		-5.20E+01	1.80E+02
		437.55		2.00	6.16E+02		2.49E+02	2.96E+02
		537.32		25.00	4.86E+01		-3.33E+01	2.32E+01
	LA-140	328.77		20.50	6.45E+01	1.94E+01	5.91E+01	3.14E+01
		487.03		45.50	2.56E+01		1.65E+00	1.22E+01
		815.85		23.50	5.82E+01		2.46E+01	2.73E+01
		1596.49		95.49	1.94E+01		1.29E+01	8.94E+00

Analysis Report for 1707077-07

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	8.93E-01	8.93E-01	3.02E-01	4.37E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.70E-01	6.70E-01	1.84E-01	3.28E-01
PM-144	476.78	42.00	2.29E-01	1.07E-01	-6.28E-02	1.10E-01
	618.01	98.60	1.07E-01		3.49E-02	5.11E-02
	696.49	99.49	1.09E-01		3.30E-02	5.19E-02
PM-145	36.85	21.70	6.19E-01	3.25E-01	1.70E-01	3.03E-01
	37.36	39.70	3.25E-01		-9.45E-02	1.59E-01
	42.30	15.10	6.53E-01		-6.43E-01	3.20E-01
	72.40	2.31	3.71E+00		-9.35E+00	1.83E+00
PM-146	453.90	39.94	2.21E-01	2.21E-01	1.36E-01	1.07E-01
	735.90	14.01	6.61E-01		-6.13E-02	3.12E-01
	747.13	13.10	7.29E-01		-2.47E-03	3.45E-01
ND-147	91.11	28.90	9.20E+01	9.20E+01	-8.11E+01	4.54E+01
	531.02	13.10	2.10E+02		6.29E+01	1.00E+02
PM-149	285.90	3.10	1.03E+13	1.03E+13	7.59E+11	5.02E+12
EU-152	121.78	20.50	2.64E-01	2.64E-01	-1.99E-03	1.29E-01
	244.69	5.40	1.58E+00		-1.19E-01	7.71E-01
	344.27	19.13	3.97E-01		3.96E-02	1.92E-01
	778.89	9.20	9.84E-01		1.90E-01	4.63E-01
	964.01	10.40	1.34E+00		-2.53E-01	6.38E-01
	1085.78	7.22	1.40E+00		-5.25E-01	6.50E-01
	1112.02	9.60	1.10E+00		2.96E-02	5.15E-01
	1407.95	14.94	6.97E-01		6.82E-02	3.19E-01
GD-153	97.43	31.30	2.37E-01	2.37E-01	-3.94E-02	1.16E-01
	103.18	22.20	3.23E-01		2.29E-02	1.58E-01
EU-154	123.07	40.50	1.36E-01	1.36E-01	-8.89E-03	6.63E-02
	723.30	19.70	4.88E-01		4.24E-02	2.32E-01
	873.19	11.50	8.24E-01		3.40E-01	3.87E-01
	996.32	10.30	9.08E-01		2.40E-01	4.22E-01
	1004.76	17.90	4.97E-01		-2.48E-01	2.30E-01
	1274.45	35.50	3.17E-01		-2.51E-02	1.47E-01
EU-155	86.50	30.90	2.53E-01	2.53E-01	2.76E-01	1.24E-01
	105.30	20.70	2.80E-01		1.07E-01	1.37E-01
EU-156	811.77	10.40	5.30E+01	5.30E+01	-2.01E+01	2.47E+01
	1153.47	7.20	1.01E+02		-1.04E+02	4.69E+01
	1230.71	8.90	1.01E+02		1.91E+01	4.73E+01
HO-166M	184.41	72.60	1.01E-01	1.01E-01	1.80E-01	4.94E-02
	280.45	29.60	2.59E-01		6.00E-02	1.26E-01
	410.94	11.10	7.72E-01		2.90E-01	3.73E-01
	711.69	54.10	1.72E-01		-3.05E-02	8.18E-02
TM-171	66.72	0.14	5.79E+01	5.79E+01	-1.11E+02	2.85E+01
HF-172	67.35	5.31	1.51E+00	5.43E-01	-1.59E-01	7.41E-01
	125.81	11.30	5.43E-01		-7.63E-02	2.66E-01
LU-172	181.53	20.60	4.24E+03	2.74E+03	1.04E+03	2.07E+03
	900.72	29.81	4.85E+03		-1.27E+03	2.28E+03
	1093.66	62.50	2.74E+03		1.76E+03	1.29E+03
LU-173	100.72	5.24	1.21E+00	4.37E-01	4.95E-01	5.95E-01
	272.11	21.20	4.37E-01		4.81E-01	2.13E-01
HF-175	343.40	84.00	2.23E-01	2.23E-01	2.23E-02	1.08E-01
LU-176	88.34	13.30	5.70E-01	7.12E-02	4.10E-01	2.81E-01

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	7.12E-02	7.12E-02	-3.33E-02	3.47E-02
		306.78		94.00	7.63E-02		1.02E-02	3.70E-02
	HF-181	133.02		41.70	6.40E-01	4.38E-01	-6.33E-02	3.13E-01
		345.85		17.20	1.96E+00		2.44E-02	9.47E-01
		482.03		82.80	4.38E-01		2.23E-02	2.10E-01
	TA-182	67.75		41.20	3.09E-01	3.09E-01	-3.26E-02	1.52E-01
		1121.30		34.90	8.49E-01		1.33E+00	4.07E-01
		1189.05		16.23	1.29E+00		-1.12E-01	6.04E-01
		1221.41		26.98	7.26E-01		-6.92E-01	3.38E-01
		1231.02		11.44	1.98E+00		3.76E-01	9.32E-01
	IR-192	308.46		29.68	5.79E-01	3.92E-01	1.90E-01	2.81E-01
		468.07		48.10	3.92E-01		-4.71E-02	1.88E-01
	HG-203	279.19		77.30	3.89E-01	3.89E-01	-7.37E-02	1.89E-01
	TL-204	374.74		94.11	8.86E-02	8.86E-02	3.54E-02	4.28E-02
		899.15		99.16	1.09E-01		6.40E-02	5.13E-02
		911.74		91.10	2.31E-01		7.27E-01	1.12E-01
	BI-207	569.67		97.72	9.04E-02	9.04E-02	4.25E-02	4.32E-02
		1063.62		74.90	1.45E-01		1.53E-02	6.82E-02
+	TL-208	583.14	*	30.22	3.74E-01	1.78E-01	2.47E+00	1.80E-01
		860.37	*	4.48	3.26E+00		2.10E+00	1.57E+00
		2614.66	*	35.85	1.78E-01		2.11E+00	7.11E-02
	BI-210M	262.00		45.00	1.61E-01	1.61E-01	9.20E-02	7.82E-02
		300.00		23.00	3.77E-01		-8.67E-01	1.84E-01
	PB-210	46.50		4.25	2.16E+00	2.16E+00	2.59E+00	1.06E+00
	PB-211	404.84		2.90	2.71E+00	2.71E+00	-2.29E+00	1.31E+00
		831.96		2.90	3.54E+00		1.46E+00	1.68E+00
+	BI-212	727.17	*	11.80	9.88E-01	9.88E-01	1.83E+00	4.74E-01
		1620.62	*	2.75	2.77E+00		1.60E+00	1.21E+00
+	PB-212	238.63	*	44.60	2.72E-01	2.72E-01	2.75E+00	1.34E-01
		300.09	*	3.41	2.13E+00		2.07E+00	1.03E+00
+	BI-214	609.31	*	46.30	2.65E-01	2.65E-01	1.56E+00	1.28E-01
		1120.29	*	15.10	1.07E+00		2.05E+00	5.13E-01
		1764.49	*	15.80	3.30E-01		2.37E+00	1.33E-01
		2204.22	*	4.98	2.89E+00		1.54E+00	1.33E+00
+	PB-214	295.21	*	19.19	4.41E-01	2.83E-01	1.78E+00	2.15E-01
		351.92	*	37.19	2.83E-01		1.76E+00	1.38E-01
	RN-219	401.80		6.50	1.24E+00	1.24E+00	3.23E-01	5.97E-01
	RA-223	323.87		3.88	1.98E+00	1.98E+00	-1.85E-01	9.61E-01
+	RA-224	240.98	*	3.95	3.12E+00	3.12E+00	6.86E+00	1.54E+00
	RA-225	40.00		31.00	2.75E+01	2.75E+01	7.08E+00	1.35E+01
+	RA-226	186.21	*	3.28	3.14E+00	3.14E+00	4.18E+00	1.55E+00
	TH-227	50.10		8.40	9.70E-01	9.70E-01	-4.49E-01	4.76E-01
		236.00		11.50	1.14E+00		6.83E-02	5.63E-01
		256.20		6.30	1.16E+00		5.17E-01	5.65E-01
+	AC-228	338.32	*	11.40	9.29E-01	6.19E-01	2.62E+00	4.54E-01
		911.07	*	27.70	6.19E-01		2.33E+00	2.99E-01
		969.11		16.60	1.10E+00		1.99E+00	5.32E-01
	TH-230	48.44		16.90	5.07E-01	5.07E-01	-2.19E-01	2.49E-01
		62.85		4.60	1.84E+00		3.33E+00	9.08E-01
		67.67		0.37	1.96E+01		-2.07E+00	9.65E+00
	PA-231	283.67		1.60	4.64E+00	3.42E+00	2.09E+00	2.25E+00
		302.67		2.30	3.42E+00		-8.60E-03	1.66E+00
	TH-231	25.64		14.70	3.04E+00	1.10E+00	-2.46E-01	1.49E+00

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.10E+00	1.10E+00	-1.50E-01	5.40E-01
	PA-233	311.98		38.60	1.98E+00	1.98E+00	-8.53E-01	9.57E-01
	PA-234	131.20		20.40	2.98E-01	2.98E-01	2.18E-01	1.46E-01
		733.99		8.80	1.00E+00		1.15E-01	4.73E-01
		946.00		12.00	6.96E-01		-4.29E-01	3.22E-01
+	PA-234M	1001.03	*	0.92	1.02E+01	1.02E+01	7.45E+00	4.75E+00
+	TH-234	63.29	*	3.80	3.81E+00	3.81E+00	5.56E+00	1.89E+00
	U-235	143.76		10.50	5.73E-01	5.73E-01	3.21E-01	2.81E-01
		163.35		4.70	1.23E+00		-4.87E-01	6.00E-01
		205.31		4.70	1.67E+00		-2.55E-02	8.20E-01
	NP-237	86.50		12.60	5.98E-01	5.98E-01	6.54E-01	2.95E-01
	NP-239	106.10		22.70	1.84E+11	1.84E+11	7.04E+10	9.01E+10
		228.18		10.70	5.24E+11		-3.78E+09	2.56E+11
		277.60		14.10	3.99E+11		1.48E+11	1.94E+11
	AM-241	59.54		35.90	2.15E-01	2.15E-01	-2.76E-01	1.06E-01
+	AM-243	74.67	*	66.00	1.98E-01	1.98E-01	5.43E-01	9.81E-02
+	CM-243	209.75	*	3.29	3.33E+00	5.22E-01	2.12E+00	1.64E+00
		228.14		10.60	7.16E-01		-5.16E-03	3.49E-01
		277.60	*	14.00	5.22E-01		3.49E-01	2.54E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707077-07

HTC-A01-S001-1824-01

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

Sample Title: HTC-A01-S001-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3610

Channel								
1:	0	0	0	0	0	0	0	0
9:	12	235	223	227	196	196	163	140
17:	166	115	138	163	121	119	126	139
25:	147	130	122	131	142	136	144	138
33:	146	141	156	149	145	153	159	148
41:	160	151	149	142	167	201	206	181
49:	189	162	210	203	200	210	218	203
57:	218	212	217	260	270	288	349	418
65:	315	258	262	265	244	284	276	293
73:	301	405	645	647	757	907	418	269
81:	209	231	223	259	309	287	317	420
89:	283	303	317	274	450	425	278	163
97:	178	179	178	202	192	150	136	183
105:	160	202	145	152	156	178	157	153
113:	145	143	158	163	131	131	115	145
121:	130	135	154	127	149	148	148	164
129:	178	188	159	172	145	126	161	137
137:	138	122	132	136	148	136	146	164
145:	154	144	124	134	141	123	123	116
153:	128	140	141	132	119	120	129	145
161:	127	113	113	115	141	100	117	120
169:	125	126	104	114	117	105	116	113
177:	125	114	124	107	115	110	101	85
185:	124	252	235	132	89	115	98	114
193:	108	83	101	94	97	96	91	96
201:	91	94	104	96	112	117	105	105
209:	143	167	106	83	99	82	94	85
217:	102	88	91	84	80	68	82	82
225:	93	108	74	82	80	80	87	93
233:	86	91	79	81	141	379	913	604
241:	245	208	161	79	54	60	47	62
249:	76	44	57	48	60	63	69	67
257:	62	72	73	65	67	60	60	56
265:	58	40	52	54	74	104	105	70
273:	62	47	62	62	59	86	61	54
281:	51	57	60	71	47	56	60	39
289:	54	54	55	53	58	74	203	215
297:	134	46	50	77	74	67	53	41
305:	48	45	43	50	51	48	35	54
313:	37	45	34	54	46	44	29	49
321:	45	40	46	52	47	45	66	71
329:	89	48	45	56	45	46	39	48
337:	61	151	192	90	39	45	41	39
345:	45	37	43	40	33	45	131	341
353:	287	94	41	36	39	40	32	33
361:	44	36	26	39	37	37	45	32

369:	43	40	39	31	45	38	34	43

Sample Title: HTC-A01-S001-1824-01

Channel								
377:	42	47	28	36	33	32	40	33
385:	31	35	44	37	50	29	37	31
393:	29	40	35	34	28	33	42	37
401:	34	37	33	35	34	38	32	28
409:	48	48	47	40	31	33	33	37
417:	34	29	38	36	36	26	34	28
425:	24	35	32	34	23	33	35	32
433:	27	21	31	25	23	35	31	42
441:	27	20	37	24	41	36	27	37
449:	24	34	30	28	38	36	30	39
457:	27	17	31	21	26	41	56	62
465:	26	28	22	18	29	27	32	33
473:	29	30	23	29	24	18	29	30
481:	27	27	23	18	20	28	25	21
489:	26	17	21	17	16	23	23	25
497:	18	34	26	26	29	26	24	20
505:	22	25	18	20	37	66	116	81
513:	39	29	27	15	26	16	17	22
521:	19	24	17	26	20	21	19	13
529:	18	17	21	22	28	22	18	13
537:	22	20	19	27	24	29	18	20
545:	19	22	24	21	21	18	18	19
553:	29	25	18	18	19	18	21	19
561:	25	26	39	28	17	23	14	23
569:	23	16	29	22	30	23	16	22
577:	20	20	25	18	27	71	200	211
585:	82	11	18	13	22	20	23	23
593:	14	18	25	20	16	16	24	17
601:	19	12	19	23	17	24	20	83
609:	175	204	81	28	12	23	22	24
617:	15	15	24	17	20	17	16	22
625:	15	14	21	20	13	17	17	18
633:	28	16	20	16	8	14	12	21
641:	26	22	11	12	18	20	11	18
649:	9	16	22	21	13	29	19	18
657:	10	19	18	9	18	18	29	19
665:	14	28	17	10	16	17	17	19
673:	22	10	9	14	16	20	24	17
681:	19	24	14	15	19	19	13	17
689:	16	12	18	13	15	20	16	19
697:	19	11	12	19	16	13	17	18
705:	16	12	16	16	18	15	21	11
713:	24	16	12	19	20	13	16	14
721:	18	12	11	14	16	31	51	62
729:	21	15	10	16	17	18	12	11
737:	14	19	10	12	21	12	20	11
745:	15	14	16	13	22	14	15	20
753:	24	22	20	23	11	11	18	18
761:	12	17	16	13	8	18	23	38
769:	28	13	15	18	21	14	11	16
777:	18	15	11	9	7	14	7	15
785:	17	13	19	11	7	14	12	14
793:	10	30	38	24	12	9	13	18

801:	13	15	11	12	16	16	12	12

Sample Title: HTC-A01-S001-1824-01

Channel								
809:	6	8	10	8	12	15	6	15
817:	7	14	13	11	7	11	19	15
825:	13	9	13	7	9	12	14	22
833:	15	10	25	17	12	11	15	13
841:	15	17	11	7	10	9	12	9
849:	14	12	20	11	8	19	11	12
857:	8	14	15	27	30	13	14	7
865:	20	9	9	7	11	12	14	13
873:	11	14	5	10	8	9	13	15
881:	7	14	11	10	15	13	7	9
889:	11	15	11	12	7	8	7	16
897:	16	15	7	14	10	15	10	11
905:	13	10	10	17	17	45	137	114
913:	37	6	11	10	10	7	8	11
921:	10	4	9	11	11	10	5	14
929:	9	11	8	12	15	18	16	10
937:	10	6	11	9	12	7	10	6
945:	7	7	11	6	7	9	15	13
953:	5	7	6	11	10	10	15	10
961:	9	15	6	34	32	25	29	64
969:	78	47	17	10	9	9	17	8
977:	10	7	8	10	14	8	7	5
985:	10	10	13	7	10	8	7	6
993:	8	9	11	7	7	5	13	13
1001:	18	16	2	10	7	8	4	6
1009:	14	9	13	11	7	12	10	6
1017:	10	11	12	5	6	7	10	9
1025:	11	12	4	9	11	11	10	10
1033:	8	10	8	8	16	11	13	8
1041:	10	10	13	10	2	13	13	12
1049:	9	14	6	9	11	8	7	5
1057:	10	13	10	12	8	10	10	6
1065:	22	5	15	10	9	9	7	8
1073:	10	8	8	6	7	8	11	3
1081:	7	11	11	9	12	5	9	5
1089:	10	4	20	6	14	8	9	12
1097:	13	9	7	8	5	10	11	6
1105:	9	15	8	9	8	8	8	12
1113:	10	11	8	12	15	9	26	59
1121:	34	21	15	12	6	12	7	12
1129:	8	9	8	7	11	6	13	11
1137:	11	17	12	7	14	12	10	9
1145:	11	9	11	15	11	6	5	9
1153:	4	16	9	12	13	19	11	10
1161:	10	7	14	11	13	14	10	10
1169:	7	10	8	8	16	6	8	17
1177:	7	9	14	14	8	9	8	11
1185:	10	13	11	12	9	9	15	7
1193:	13	11	16	14	8	13	4	10
1201:	7	10	8	12	11	9	13	15
1209:	13	11	10	10	14	4	10	17
1217:	16	5	8	13	9	5	10	13
1225:	13	12	6	9	9	13	11	20

1233:	15	8	10	15	18	30	16	12

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Channel								
1241:	12	13	10	10	8	14	15	11
1249:	6	8	6	8	8	9	14	13
1257:	6	12	4	6	13	10	10	5
1265:	4	7	7	5	8	13	9	9
1273:	9	12	8	5	5	10	16	11
1281:	14	10	3	7	4	5	7	1
1289:	9	5	9	8	6	5	9	7
1297:	12	9	5	8	5	6	5	10
1305:	6	6	5	5	6	3	8	5
1313:	6	8	6	8	7	4	5	6
1321:	9	6	3	5	8	5	5	5
1329:	7	5	8	6	9	4	8	4
1337:	3	6	7	5	10	6	6	5
1345:	3	4	5	3	7	2	2	2
1353:	7	5	4	3	2	3	3	5
1361:	3	6	6	8	3	9	2	5
1369:	2	1	4	2	4	4	3	7
1377:	16	14	6	3	2	3	4	2
1385:	4	10	2	3	4	6	6	2
1393:	1	8	4	7	4	6	3	5
1401:	9	6	3	5	5	3	8	9
1409:	5	6	5	4	9	5	1	3
1417:	3	5	3	3	2	2	5	4
1425:	7	3	3	2	5	5	6	2
1433:	4	2	2	3	4	4	6	9
1441:	1	3	5	3	4	1	4	8
1449:	4	2	2	3	5	2	2	2
1457:	10	24	95	231	255	104	26	6
1465:	0	1	1	1	2	4	3	2
1473:	3	1	0	5	3	5	2	2
1481:	1	6	5	5	6	7	3	2
1489:	4	1	5	1	5	2	3	4
1497:	4	5	1	6	5	2	4	3
1505:	2	2	5	9	7	2	6	8
1513:	2	2	2	4	2	5	4	5
1521:	1	3	3	3	2	3	4	3
1529:	1	3	2	3	5	1	4	2
1537:	3	2	4	5	0	1	4	0
1545:	5	2	5	4	0	6	3	1
1553:	4	2	2	4	1	1	0	3
1561:	5	7	2	1	1	1	3	0
1569:	0	4	2	2	1	2	2	1
1577:	1	2	4	5	4	2	4	1
1585:	5	1	14	6	10	3	5	17
1593:	7	3	2	0	3	4	5	6
1601:	3	1	1	4	1	3	1	0
1609:	2	3	1	2	2	3	1	4
1617:	1	3	4	5	9	2	0	2
1625:	1	0	1	2	5	4	2	3
1633:	2	1	0	1	4	4	3	1
1641:	1	1	4	2	0	1	2	2
1649:	2	6	0	0	0	1	2	1
1657:	2	2	2	7	4	2	0	2

1665:	2	0	5	9	0	1	2	5

Sample Title: HTC-A01-S001-1824-01

Channel								
1673:	1	1	2	1	2	4	3	0
1681:	1	1	2	1	4	2	4	0
1689:	2	0	3	1	3	3	1	1
1697:	2	0	1	1	1	0	1	1
1705:	2	2	1	1	4	2	3	1
1713:	2	1	1	1	0	2	0	0
1721:	3	2	5	2	1	2	1	8
1729:	7	5	3	3	3	1	0	4
1737:	3	2	2	1	1	1	3	4
1745:	3	1	2	2	0	0	1	2
1753:	3	3	2	2	0	1	0	2
1761:	3	6	22	36	22	6	3	1
1769:	1	0	0	1	0	2	3	2
1777:	2	2	2	2	4	2	3	2
1785:	2	2	0	2	2	3	4	2
1793:	0	0	0	1	1	1	4	3
1801:	2	1	1	2	2	0	4	1
1809:	1	0	0	1	2	0	2	0
1817:	0	6	2	1	0	3	1	4
1825:	1	1	2	2	3	1	1	2
1833:	4	3	3	0	2	4	4	0
1841:	1	0	0	1	3	7	2	4
1849:	0	2	1	2	2	2	1	2
1857:	1	1	2	1	2	0	0	0
1865:	2	2	1	4	3	2	2	0
1873:	3	0	2	0	2	2	2	0
1881:	0	0	0	0	2	0	1	2
1889:	1	2	3	2	1	2	1	1
1897:	2	1	3	3	1	3	0	2
1905:	1	3	2	0	1	1	1	0
1913:	0	0	1	1	2	4	0	1
1921:	1	4	0	2	1	3	3	4
1929:	0	2	1	1	0	1	1	2
1937:	1	1	1	0	0	1	1	5
1945:	0	2	1	2	3	0	2	0
1953:	0	3	1	2	0	0	2	2
1961:	1	0	1	2	0	0	2	0
1969:	0	1	1	0	2	0	2	2
1977:	1	0	3	2	1	1	1	1
1985:	3	0	3	2	0	2	0	2
1993:	2	1	3	0	0	2	0	1
2001:	1	0	2	1	1	2	0	1
2009:	0	1	2	1	0	1	2	1
2017:	1	0	0	1	2	3	3	0
2025:	0	1	2	2	0	1	0	2
2033:	2	0	2	2	0	4	0	3
2041:	0	1	1	1	5	0	1	4
2049:	1	1	2	0	2	2	1	0
2057:	0	1	1	3	2	0	3	1
2065:	0	2	1	2	4	1	1	3
2073:	0	0	1	1	0	1	2	0
2081:	1	3	0	0	0	0	1	2
2089:	1	3	2	1	1	1	0	1

2097:	5	2	0	0	5	6	7	3

Sample Title: HTC-A01-S001-1824-01

Channel								
2105:	1	3	0	0	2	1	4	1
2113:	1	2	2	2	3	1	5	1
2121:	0	1	2	0	1	1	2	2
2129:	2	1	1	3	3	2	1	1
2137:	0	0	2	0	2	0	1	0
2145:	1	1	1	0	0	1	2	5
2153:	4	1	1	2	3	0	2	2
2161:	2	0	1	0	1	5	2	1
2169:	1	6	0	3	2	2	2	1
2177:	3	0	2	2	2	2	4	1
2185:	2	2	5	0	3	0	1	0
2193:	1	2	0	2	0	3	0	2
2201:	3	2	14	6	3	4	1	1
2209:	1	2	2	1	2	4	0	1
2217:	2	3	5	0	1	1	0	2
2225:	1	4	0	2	1	1	3	2
2233:	2	1	0	4	0	2	0	2
2241:	2	1	1	1	1	3	0	2
2249:	2	1	0	1	0	1	1	3
2257:	2	2	2	1	3	1	0	1
2265:	0	1	2	0	1	4	1	2
2273:	2	1	3	1	1	2	0	2
2281:	3	1	1	5	0	0	3	3
2289:	1	1	5	3	3	2	3	1
2297:	0	2	0	4	3	0	5	1
2305:	3	1	2	2	2	1	3	0
2313:	2	2	5	0	1	3	3	1
2321:	0	3	0	2	3	3	3	4
2329:	0	2	3	1	2	1	2	3
2337:	1	1	4	2	2	3	0	5
2345:	1	2	2	1	2	2	2	3
2353:	3	2	1	3	0	3	0	0
2361:	2	1	1	4	2	2	2	0
2369:	4	1	2	1	2	2	0	2
2377:	0	0	0	3	2	2	3	2
2385:	1	1	0	1	2	5	0	4
2393:	2	1	2	1	0	1	2	1
2401:	3	0	0	2	2	1	1	0
2409:	1	1	2	1	1	2	2	0
2417:	0	0	1	0	0	0	1	0
2425:	1	2	1	3	0	0	3	0
2433:	0	1	0	1	0	1	0	0
2441:	0	3	1	2	1	3	4	3
2449:	5	0	1	1	1	7	0	0
2457:	1	2	0	0	1	2	0	1
2465:	1	2	1	2	1	1	3	1
2473:	1	0	1	0	1	1	2	1
2481:	1	1	0	0	3	3	1	0
2489:	1	1	3	1	2	2	2	1
2497:	1	1	0	0	0	3	1	0
2505:	1	0	0	0	2	0	4	0
2513:	0	0	0	0	1	1	1	0
2521:	1	0	1	0	0	2	0	1

2529:	2	0	0	0	1	0	0	1

Sample Title: HTC-A01-S001-1824-01

Channel								
2537:	0	2	0	1	1	0	1	0
2545:	0	0	0	1	2	0	2	1
2553:	1	1	0	1	0	2	1	0
2561:	2	1	0	1	0	0	0	0
2569:	0	0	0	1	0	0	0	1
2577:	0	1	0	0	0	0	1	0
2585:	1	1	0	1	0	0	0	1
2593:	0	2	0	2	1	2	0	1
2601:	0	2	0	0	1	2	0	1
2609:	1	0	6	24	38	54	25	10
2617:	1	0	0	0	0	0	0	0
2625:	0	1	1	0	1	0	0	0
2633:	0	0	0	0	0	0	1	1
2641:	0	0	1	1	0	0	1	0
2649:	0	0	0	0	4	1	0	0
2657:	0	0	1	1	0	0	1	0
2665:	0	0	0	1	0	0	0	0
2673:	0	1	0	1	1	0	0	0
2681:	0	0	0	1	0	1	1	1
2689:	0	0	0	0	0	0	0	0
2697:	1	0	1	0	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	1	0	2	0	0
2721:	1	0	0	0	2	0	1	0
2729:	0	0	0	1	0	1	0	0
2737:	0	2	1	0	0	1	1	0
2745:	0	0	0	0	0	0	1	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	1	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	1	0	0	0	0	0	0
2785:	0	1	1	0	0	1	0	0
2793:	0	1	1	0	0	0	0	0
2801:	0	0	0	1	0	0	0	1
2809:	1	1	0	0	0	0	0	0
2817:	0	0	0	2	0	1	1	0
2825:	0	0	0	0	0	1	1	0
2833:	0	0	0	0	1	1	1	1
2841:	0	1	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	0	1	0	0	0	0	0
2873:	0	1	0	0	1	0	0	0
2881:	1	1	0	0	1	0	0	1
2889:	0	0	0	1	0	0	0	0
2897:	0	0	1	1	1	0	0	0
2905:	0	0	0	0	1	0	0	1
2913:	0	0	0	0	0	1	0	0
2921:	0	1	2	0	0	0	0	0
2929:	1	0	1	1	0	1	0	0
2937:	0	0	0	0	0	0	1	0
2945:	0	0	0	0	0	0	0	0
2953:	1	1	0	1	0	0	0	1

2961:	0	1	0	0	1	0	0	0

Sample Title: HTC-A01-S001-1824-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-1824-01

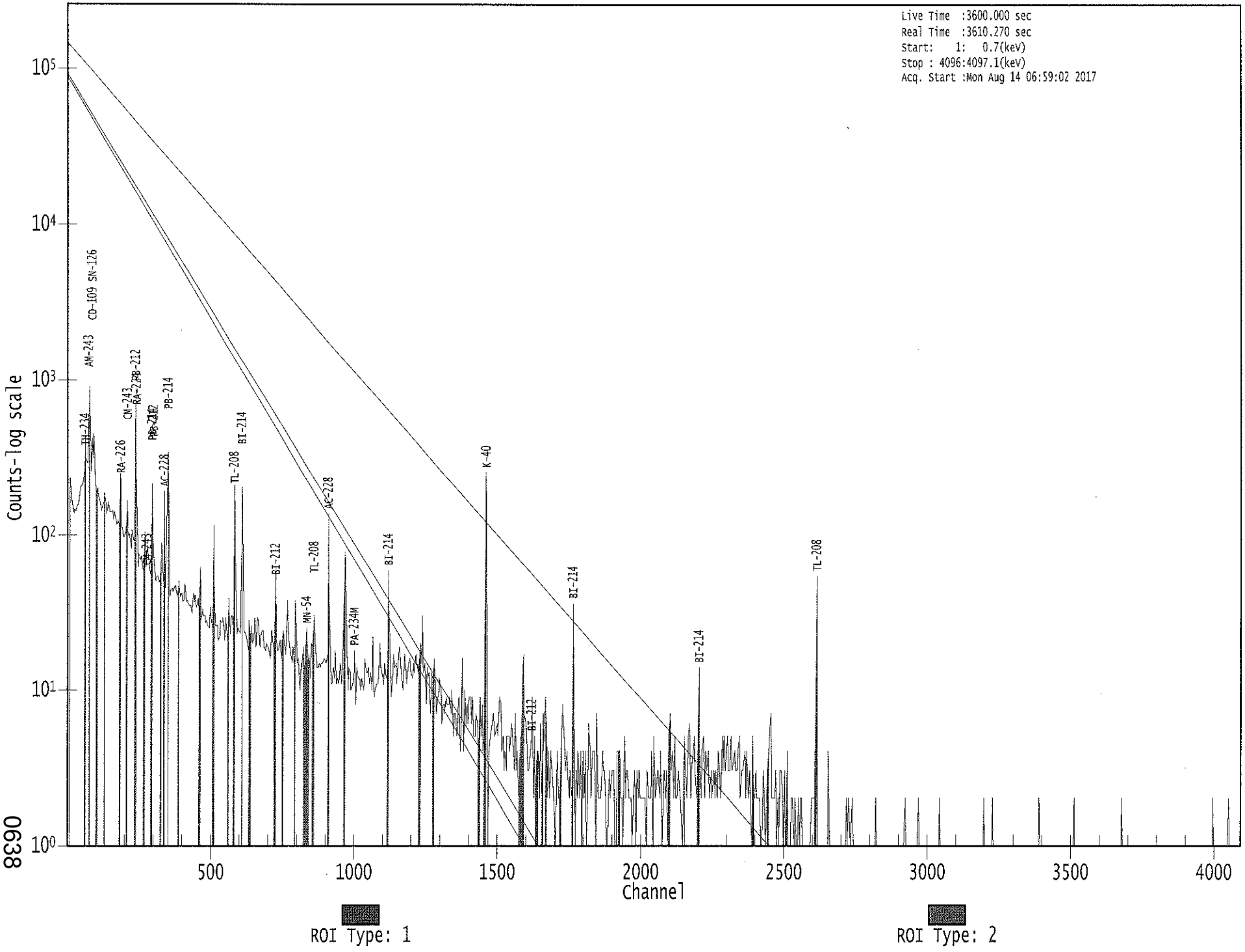
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	1	0
3425:	0	1	0	1	0	0	0	1
3433:	0	0	0	1	0	0	0	1
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	1	0	0	0
3465:	1	0	0	0	1	0	0	1
3473:	0	0	0	1	1	0	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1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

3825:	0	1	0	0	0	1	1	0

Sample Title: HTC-A01-S001-1824-01

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

0000055133.CNF



0638

Apex-Gamma

8/14

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-08
Sample Description	: HTC-A01-S001-2430-01
Sample Type	: SOIL
Sample Size	: 5.829E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:34:16AM
Acquisition Started	: 8/14/2017 6:59:12AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.9 seconds
Dead Time	: 0.08 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55134

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 7:59:44AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	64.18	63.23	0.0000	0.00
2	76.18	75.24	0.0000	0.00
3	84.06	83.12	0.0000	0.00
4	87.13	86.19	0.0000	0.00
5	89.95	89.01	0.0000	0.00
6	93.12	92.18	0.0000	0.00
7	129.20	128.28	0.0000	0.00
8	153.97	153.05	0.0000	0.00
9	185.98	185.07	0.0000	0.00
10	209.06	208.16	0.0000	0.00
11	238.99	238.10	0.0000	0.00
12	269.92	269.04	0.0000	0.00
13	277.40	276.52	0.0000	0.00
14	295.28	294.41	0.0000	0.00
15	300.46	299.59	0.0000	0.00
16	328.42	327.55	0.0000	0.00
17	338.72	337.86	0.0000	0.00
18	351.82	350.97	0.0000	0.00
19	359.78	358.93	0.0000	0.00
20	369.58	368.73	0.0000	0.00
21	409.18	408.34	0.0000	0.00
22	463.04	462.23	0.0000	0.00
23	510.73	509.93	0.0000	0.00
24	557.73	556.95	0.0000	0.00
25	583.19	582.42	0.0000	0.00
26	609.22	608.46	0.0000	0.00
27	658.53	657.79	0.0000	0.00
28	727.82	727.10	0.0000	0.00
29	768.75	768.05	0.0000	0.00
30	795.23	794.55	0.0000	0.00
31	830.84	830.17	0.0000	0.00
32	860.89	860.23	0.0000	0.00
33	911.10	910.46	0.0000	0.00
34	964.52	963.90	0.0000	0.00
35	968.92	968.31	0.0000	0.00
36	1001.54	1000.95	0.0000	0.00
37	1078.61	1078.05	0.0000	0.00
38	1120.08	1119.54	0.0000	0.00
39	1242.64	1242.15	0.0000	0.00
40	1268.95	1268.48	0.0000	0.00
41	1341.96	1341.52	0.0000	0.00
42	1377.60	1377.18	0.0000	0.00

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1407.83	1407.43	0.0000	0.00
44	1460.54	1460.16	0.0000	0.00
45	1588.57	1588.26	0.0000	0.00
46	1592.21	1591.90	0.0000	0.00
47	1631.09	1630.80	0.0000	0.00
48	1729.42	1729.19	0.0000	0.00
49	1764.17	1763.96	0.0000	0.00
50	1846.17	1846.01	0.0000	0.00
51	2105.18	2105.17	0.0000	0.00
52	2145.56	2145.57	0.0000	0.00
53	2152.27	2152.29	0.0000	0.00
54	2164.02	2164.04	0.0000	0.00
55	2203.03	2203.08	0.0000	0.00
56	2225.18	2225.24	0.0000	0.00
57	2260.12	2260.20	0.0000	0.00
58	2354.54	2354.68	0.0000	0.00
59	2415.79	2415.98	0.0000	0.00
60	2446.28	2446.48	0.0000	0.00
61	2614.34	2614.66	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 7:59:44AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	64.18	55 -	80	63.23	6.69E+02	208.43	4.49E+03	4.19
m	2	76.18	55 -	80	75.24	2.96E+03	205.85	4.01E+03	4.22
M	3	84.06	81 -	95	83.12	2.43E+02	81.56	1.46E+03	1.98
m	4	87.13	81 -	95	86.19	6.06E+02	132.50	2.43E+03	2.19
m	5	89.95	81 -	95	89.01	4.21E+02	133.11	2.36E+03	2.41
m	6	93.12	81 -	95	92.18	6.07E+02	128.29	2.21E+03	2.41
	7	129.20	125 -	131	128.28	9.18E+01	110.90	2.16E+03	1.95
	8	153.97	149 -	156	153.05	1.35E+02	110.76	1.94E+03	5.68
	9	185.98	181 -	188	185.07	3.15E+02	102.98	1.55E+03	2.23
	10	209.06	204 -	211	208.16	1.81E+02	96.23	1.41E+03	2.25
	11	238.99	231 -	244	238.10	2.41E+03	156.52	1.65E+03	2.29
	12	269.92	265 -	272	269.04	1.88E+02	73.40	7.73E+02	1.91
	13	277.40	274 -	280	276.52	6.51E+01	64.14	6.96E+02	3.27
M	14	295.28	290 -	302	294.41	3.82E+02	73.62	6.50E+02	2.61
m	15	300.46	290 -	302	299.59	1.35E+02	60.99	5.10E+02	2.21
	16	328.42	323 -	332	327.55	1.70E+02	75.17	7.11E+02	2.67
	17	338.72	333 -	344	337.86	4.44E+02	90.49	7.95E+02	2.39
	18	351.82	346 -	355	350.97	6.02E+02	81.72	6.11E+02	2.02
	19	359.78	356 -	362	358.93	4.80E+01	49.12	4.00E+02	1.81
	20	369.58	365 -	372	368.73	5.40E+01	54.74	4.62E+02	2.12
	21	409.18	404 -	412	408.34	5.17E+01	59.57	5.17E+02	1.57
	22	463.04	457 -	467	462.23	7.13E+01	66.94	5.55E+02	1.94
	23	510.73	505 -	515	509.93	2.34E+02	65.12	4.42E+02	2.40
	24	557.73	555 -	559	556.95	3.01E+01	26.98	1.32E+02	2.97
	25	583.19	578 -	588	582.42	4.85E+02	70.16	4.01E+02	2.23
	26	609.22	603 -	612	608.46	4.23E+02	62.71	3.19E+02	2.46
	27	658.53	653 -	661	657.79	3.80E+01	41.00	2.28E+02	2.63
	28	727.82	723 -	733	727.10	1.05E+02	52.29	3.10E+02	2.62
	29	768.75	765 -	772	768.05	3.47E+01	36.06	1.97E+02	3.03
	30	795.23	790 -	799	794.55	7.07E+01	43.90	2.35E+02	1.58
	31	830.84	828 -	832	830.17	2.06E+01	23.02	9.88E+01	1.28
	32	860.89	857 -	863	860.23	3.39E+01	28.94	1.24E+02	2.59
	33	911.10	906 -	914	910.46	3.20E+02	44.20	1.03E+02	2.53
M	34	964.52	958 -	973	963.90	6.66E+01	32.06	1.10E+02	2.66
m	35	968.92	958 -	973	968.31	1.99E+02	37.52	7.65E+01	2.53
	36	1001.54	997 -	1005	1000.95	2.45E+01	28.81	1.13E+02	2.03
	37	1078.61	1073 -	1081	1078.05	2.25E+01	26.94	9.50E+01	1.42
	38	1120.08	1115 -	1123	1119.54	5.51E+01	34.41	1.48E+02	2.29
	39	1242.64	1232 -	1256	1242.15	1.54E+02	47.14	1.00E+02	13.40
	40	1268.95	1257 -	1289	1268.48	1.03E+02	72.83	2.69E+02	22.32

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1341.96	1338 -	1344	1341.52	1.37E+01	13.77	2.47E+01	1.87
	42	1377.60	1373 -	1382	1377.18	2.59E+01	24.96	7.22E+01	3.95
	43	1407.83	1403 -	1411	1407.43	2.25E+01	19.56	4.50E+01	2.57
	44	1460.54	1455 -	1467	1460.16	4.08E+02	47.42	7.51E+01	2.74
M	45	1588.57	1582 -	1597	1588.26	2.47E+01	19.43	3.23E+01	2.90
m	46	1592.21	1582 -	1597	1591.90	3.43E+01	19.33	1.38E+01	2.91
	47	1631.09	1628 -	1635	1630.80	1.53E+01	12.65	1.74E+01	3.63
	48	1729.42	1724 -	1733	1729.19	1.50E+01	16.06	2.40E+01	2.92
	49	1764.17	1759 -	1767	1763.96	4.35E+01	21.60	4.51E+01	3.23
	50	1846.17	1841 -	1850	1846.01	1.96E+01	10.63	4.86E+00	2.69
	51	2105.18	2100 -	2111	2105.17	2.87E+01	19.60	2.66E+01	3.70
	52	2145.56	2143 -	2148	2145.57	1.07E+01	9.80	8.53E+00	2.56
	53	2152.27	2150 -	2155	2152.29	7.94E+00	6.71	2.11E+00	1.79
	54	2164.02	2161 -	2167	2164.04	9.59E+00	7.50	2.82E+00	1.57
	55	2203.03	2197 -	2208	2203.08	1.50E+01	18.65	3.60E+01	3.29
	56	2225.18	2222 -	2228	2225.24	8.08E+00	9.42	9.85E+00	1.81
	57	2260.12	2251 -	2267	2260.20	1.76E+01	15.76	1.68E+01	12.14
	58	2354.54	2352 -	2357	2354.68	8.70E+00	7.00	2.60E+00	2.76
	59	2415.79	2411 -	2420	2415.98	2.26E+01	11.18	4.84E+00	3.29
	60	2446.28	2443 -	2449	2446.48	1.15E+01	9.19	6.93E+00	3.50
	61	2614.34	2610 -	2620	2614.66	1.46E+02	24.17	0.00E+00	2.56

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 7:59:44AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	64.18	55 -	80	6.69E+02	208.43	4.49E+03	1.10E+02
m	2	76.18	55 -	80	2.96E+03	205.85	4.01E+03	1.04E+02
M	3	84.06	81 -	95	2.43E+02	81.56	1.46E+03	6.28E+01
m	4	87.13	81 -	95	6.06E+02	132.50	2.43E+03	8.10E+01
m	5	89.95	81 -	95	4.21E+02	133.11	2.36E+03	7.98E+01
m	6	93.12	81 -	95	6.07E+02	128.29	2.21E+03	7.73E+01
	7	129.20	125 -	131	9.18E+01	110.90	2.16E+03	8.98E+01

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	8	153.97	149 -	156	1.35E+02	110.76	1.94E+03	8.90E+01
	9	185.98	181 -	188	3.15E+02	102.98	1.55E+03	7.95E+01
	10	209.06	204 -	211	1.81E+02	96.23	1.41E+03	7.59E+01
	11	238.99	231 -	244	2.41E+03	156.52	1.65E+03	1.00E+02
	12	269.92	265 -	272	1.88E+02	73.40	7.73E+02	5.60E+01
	13	277.40	274 -	280	6.51E+01	64.14	6.96E+02	5.10E+01
M	14	295.28	290 -	302	3.82E+02	73.62	6.50E+02	4.19E+01
m	15	300.46	290 -	302	1.35E+02	60.99	5.10E+02	3.71E+01
	16	328.42	323 -	332	1.70E+02	75.17	7.11E+02	5.80E+01
	17	338.72	333 -	344	4.44E+02	90.49	7.95E+02	6.58E+01
	18	351.82	346 -	355	6.02E+02	81.72	6.11E+02	5.37E+01
	19	359.78	356 -	362	4.80E+01	49.12	4.00E+02	3.87E+01
	20	369.58	365 -	372	5.40E+01	54.74	4.62E+02	4.33E+01
	21	409.18	404 -	412	5.17E+01	59.57	5.17E+02	4.75E+01
	22	463.04	457 -	467	7.13E+01	66.94	5.55E+02	5.32E+01
	23	510.73	505 -	515	2.34E+02	65.12	4.42E+02	4.73E+01
	24	557.73	555 -	559	3.01E+01	26.98	1.32E+02	2.03E+01
	25	583.19	578 -	588	4.85E+02	70.16	4.01E+02	4.49E+01
	26	609.22	603 -	612	4.23E+02	62.71	3.19E+02	3.89E+01
	27	658.53	653 -	661	3.80E+01	41.00	2.28E+02	3.21E+01
	28	727.82	723 -	733	1.05E+02	52.29	3.10E+02	3.95E+01
	29	768.75	765 -	772	3.47E+01	36.06	1.97E+02	2.80E+01
	30	795.23	790 -	799	7.07E+01	43.90	2.35E+02	3.33E+01
	31	830.84	828 -	832	2.06E+01	23.02	9.88E+01	1.74E+01
	32	860.89	857 -	863	3.39E+01	28.94	1.24E+02	2.18E+01
	33	911.10	906 -	914	3.20E+02	44.20	1.03E+02	2.13E+01
M	34	964.52	958 -	973	6.66E+01	32.06	1.10E+02	1.73E+01
m	35	968.92	958 -	973	1.99E+02	37.52	7.65E+01	1.44E+01
	36	1001.54	997 -	1005	2.45E+01	28.81	1.13E+02	2.22E+01
	37	1078.61	1073 -	1081	2.25E+01	26.94	9.50E+01	2.07E+01
	38	1120.08	1115 -	1123	5.51E+01	34.41	1.48E+02	2.55E+01
	39	1242.64	1232 -	1256	1.54E+02	47.14	1.00E+02	3.30E+01
	40	1268.95	1257 -	1289	1.03E+02	72.83	2.69E+02	5.75E+01
	41	1341.96	1338 -	1344	1.37E+01	13.77	2.47E+01	9.55E+00
	42	1377.60	1373 -	1382	2.59E+01	24.96	7.22E+01	1.87E+01
	43	1407.83	1403 -	1411	2.25E+01	19.56	4.50E+01	1.41E+01
	44	1460.54	1455 -	1467	4.08E+02	47.42	7.51E+01	2.04E+01
M	45	1588.57	1582 -	1597	2.47E+01	19.43	3.23E+01	9.34E+00
m	46	1592.21	1582 -	1597	3.43E+01	19.33	1.38E+01	6.10E+00
	47	1631.09	1628 -	1635	1.53E+01	12.65	1.74E+01	8.17E+00
	48	1729.42	1724 -	1733	1.50E+01	16.06	2.40E+01	1.16E+01
	49	1764.17	1759 -	1767	4.35E+01	21.60	4.51E+01	1.41E+01
	50	1846.17	1841 -	1850	1.96E+01	10.63	4.86E+00	4.84E+00
	51	2105.18	2100 -	2111	2.87E+01	19.60	2.66E+01	1.35E+01
	52	2145.56	2143 -	2148	1.07E+01	9.80	8.53E+00	5.99E+00
	53	2152.27	2150 -	2155	7.94E+00	6.71	2.11E+00	2.99E+00
	54	2164.02	2161 -	2167	9.59E+00	7.50	2.82E+00	3.48E+00
	55	2203.03	2197 -	2208	1.50E+01	18.65	3.60E+01	1.39E+01
	56	2225.18	2222 -	2228	8.08E+00	9.42	9.85E+00	6.18E+00
	57	2260.12	2251 -	2267	1.76E+01	15.76	1.68E+01	1.10E+01
	58	2354.54	2352 -	2357	8.70E+00	7.00	2.60E+00	3.10E+00

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
59	2415.79	2411 -	2420	2.26E+01	11.18	4.84E+00	4.84E+00
60	2446.28	2443 -	2449	1.15E+01	9.19	6.93E+00	5.09E+00
61	2614.34	2610 -	2620	1.46E+02	24.17	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 7:59:44AM

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	64.18	55 -	80	63.23	6.69E+02	208.43	4.49E+03	TH-234
m	2	76.18	55 -	80	75.24	2.96E+03	205.85	4.01E+03	.....
M	3	84.06	81 -	95	83.12	2.43E+02	81.56	1.46E+03	TH-231
m	4	87.13	81 -	95	86.19	6.06E+02	132.50	2.43E+03	SN-126
									NP-237
									EU-155
									CD-109
m	5	89.95	81 -	95	89.01	4.21E+02	133.11	2.36E+03	.....
m	6	93.12	81 -	95	92.18	6.07E+02	128.29	2.21E+03	GA-67
	7	129.20	125 -	131	128.28	9.18E+01	110.90	2.16E+03	.....
	8	153.97	149 -	156	153.05	1.35E+02	110.76	1.94E+03	CS-136
	9	185.98	181 -	188	185.07	3.15E+02	102.98	1.55E+03	RA-226
	10	209.06	204 -	211	208.16	1.81E+02	96.23	1.41E+03	GA-67
									CM-243
	11	238.99	231 -	244	238.10	2.41E+03	156.52	1.65E+03	PB-212
	12	269.92	265 -	272	269.04	1.88E+02	73.40	7.73E+02	.....
	13	277.40	274 -	280	276.52	6.51E+01	64.14	6.96E+02	CM-243
									NP-239
M	14	295.28	290 -	302	294.41	3.82E+02	73.62	6.50E+02	PB-214
m	15	300.46	290 -	302	299.59	1.35E+02	60.99	5.10E+02	GA-67
									PB-212
									BI-210M
	16	328.42	323 -	332	327.55	1.70E+02	75.17	7.11E+02	LA-140

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	17	338.72	333 -	344	337.86	4.44E+02	90.49	7.95E+02	AC-228
	18	351.82	346 -	355	350.97	6.02E+02	81.72	6.11E+02	PB-214
	19	359.78	356 -	362	358.93	4.80E+01	49.12	4.00E+02	.....
	20	369.58	365 -	372	368.73	5.40E+01	54.74	4.62E+02	.....
	21	409.18	404 -	412	408.34	5.17E+01	59.57	5.17E+02	.....
	22	463.04	457 -	467	462.23	7.13E+01	66.94	5.55E+02	SB-125
	23	510.73	505 -	515	509.93	2.34E+02	65.12	4.42E+02	.....
	24	557.73	555 -	559	556.95	3.01E+01	26.98	1.32E+02	.....
	25	583.19	578 -	588	582.42	4.85E+02	70.16	4.01E+02	TL-208
	26	609.22	603 -	612	608.46	4.23E+02	62.71	3.19E+02	BI-214
	27	658.53	653 -	661	657.79	3.80E+01	41.00	2.28E+02	AG-110M
	28	727.82	723 -	733	727.10	1.05E+02	52.29	3.10E+02	BI-212
	29	768.75	765 -	772	768.05	3.47E+01	36.06	1.97E+02	.....
	30	795.23	790 -	799	794.55	7.07E+01	43.90	2.35E+02	CS-134
	31	830.84	828 -	832	830.17	2.06E+01	23.02	9.88E+01	.....
	32	860.89	857 -	863	860.23	3.39E+01	28.94	1.24E+02	TL-208
	33	911.10	906 -	914	910.46	3.20E+02	44.20	1.03E+02	AC-228
									TL-204
M	34	964.52	958 -	973	963.90	6.66E+01	32.06	1.10E+02	EU-152
m	35	968.92	958 -	973	968.31	1.99E+02	37.52	7.65E+01	AC-228
	36	1001.54	997 -	1005	1000.95	2.45E+01	28.81	1.13E+02	PA-234M
	37	1078.61	1073 -	1081	1078.05	2.25E+01	26.94	9.50E+01	.....
	38	1120.08	1115 -	1123	1119.54	5.51E+01	34.41	1.48E+02	BI-214
									SC-46
	39	1242.64	1232 -	1256	1242.15	1.54E+02	47.14	1.00E+02	.....
	40	1268.95	1257 -	1289	1268.48	1.03E+02	72.83	2.69E+02	.....
	41	1341.96	1338 -	1344	1341.52	1.37E+01	13.77	2.47E+01	.....
	42	1377.60	1373 -	1382	1377.18	2.59E+01	24.96	7.22E+01	.....
	43	1407.83	1403 -	1411	1407.43	2.25E+01	19.56	4.50E+01	EU-152
	44	1460.54	1455 -	1467	1460.16	4.08E+02	47.42	7.51E+01	K-40
M	45	1588.57	1582 -	1597	1588.26	2.47E+01	19.43	3.23E+01	.....
m	46	1592.21	1582 -	1597	1591.90	3.43E+01	19.33	1.38E+01	.....
	47	1631.09	1628 -	1635	1630.80	1.53E+01	12.65	1.74E+01	.....
	48	1729.42	1724 -	1733	1729.19	1.50E+01	16.06	2.40E+01	.....
	49	1764.17	1759 -	1767	1763.96	4.35E+01	21.60	4.51E+01	BI-214
	50	1846.17	1841 -	1850	1846.01	1.96E+01	10.63	4.86E+00	.....
	51	2105.18	2100 -	2111	2105.17	2.87E+01	19.60	2.66E+01	.....
	52	2145.56	2143 -	2148	2145.57	1.07E+01	9.80	8.53E+00	.....
	53	2152.27	2150 -	2155	2152.29	7.94E+00	6.71	2.11E+00	.....
	54	2164.02	2161 -	2167	2164.04	9.59E+00	7.50	2.82E+00	.....
	55	2203.03	2197 -	2208	2203.08	1.50E+01	18.65	3.60E+01	.....
	56	2225.18	2222 -	2228	2225.24	8.08E+00	9.42	9.85E+00	.....
	57	2260.12	2251 -	2267	2260.20	1.76E+01	15.76	1.68E+01	.....
	58	2354.54	2352 -	2357	2354.68	8.70E+00	7.00	2.60E+00	.....
	59	2415.79	2411 -	2420	2415.98	2.26E+01	11.18	4.84E+00	.....
	60	2446.28	2443 -	2449	2446.48	1.15E+01	9.19	6.93E+00	.....
	61	2614.34	2610 -	2620	2614.66	1.46E+02	24.17	0.00E+00	TL-208

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

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 : 8/14/2017 7:59:44AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	64.18	6.69E+02	208.43	2.17E-02	1.66E-03
m	2	76.18	2.96E+03	205.85	2.32E-02	1.91E-03
M	3	84.06	2.43E+02	81.56	2.36E-02	2.08E-03
m	4	87.13	6.06E+02	132.50	2.37E-02	2.15E-03
m	5	89.95	4.21E+02	133.11	2.37E-02	2.14E-03
m	6	93.12	6.07E+02	128.29	2.36E-02	2.09E-03
	7	129.20	9.18E+01	110.90	2.15E-02	1.63E-03
	8	153.97	1.35E+02	110.76	1.95E-02	1.54E-03
	9	185.98	3.15E+02	102.98	1.69E-02	1.40E-03
	10	209.06	1.81E+02	96.23	1.53E-02	1.29E-03
	11	238.99	2.41E+03	156.52	1.36E-02	1.14E-03
	12	269.92	1.88E+02	73.40	1.21E-02	9.92E-04
	13	277.40	6.51E+01	64.14	1.17E-02	9.55E-04
M	14	295.28	3.82E+02	73.62	1.10E-02	9.13E-04
m	15	300.46	1.35E+02	60.99	1.08E-02	9.02E-04
	16	328.42	1.70E+02	75.17	9.90E-03	8.43E-04
	17	338.72	4.44E+02	90.49	9.59E-03	8.22E-04
	18	351.82	6.02E+02	81.72	9.22E-03	7.94E-04
	19	359.78	4.80E+01	49.12	9.01E-03	7.78E-04
	20	369.58	5.40E+01	54.74	8.76E-03	7.57E-04
	21	409.18	5.17E+01	59.57	7.89E-03	7.03E-04
	22	463.04	7.13E+01	66.94	6.94E-03	6.81E-04
	23	510.73	2.34E+02	65.12	6.29E-03	6.61E-04
	24	557.73	3.01E+01	26.98	5.75E-03	6.42E-04
	25	583.19	4.85E+02	70.16	5.51E-03	6.31E-04
	26	609.22	4.23E+02	62.71	5.27E-03	6.20E-04
	27	658.53	3.80E+01	41.00	4.89E-03	6.00E-04
	28	727.82	1.05E+02	52.29	4.45E-03	5.16E-04
	29	768.75	3.47E+01	36.06	4.23E-03	4.64E-04
	30	795.23	7.07E+01	43.90	4.10E-03	4.31E-04
	31	830.84	2.06E+01	23.02	3.93E-03	3.86E-04
	32	860.89	3.39E+01	28.94	3.81E-03	3.49E-04
	33	911.10	3.20E+02	44.20	3.62E-03	2.99E-04
M	34	964.52	6.66E+01	32.06	3.44E-03	2.86E-04

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	35	968.92	1.99E+02	37.52	3.43E-03	2.85E-04
	36	1001.54	2.45E+01	28.81	3.33E-03	2.78E-04
	37	1078.61	2.25E+01	26.94	3.12E-03	2.60E-04
	38	1120.08	5.51E+01	34.41	3.02E-03	2.50E-04
	39	1242.64	1.54E+02	47.14	2.75E-03	2.33E-04
	40	1268.95	1.03E+02	72.83	2.70E-03	2.31E-04
	41	1341.96	1.37E+01	13.77	2.57E-03	2.26E-04
	42	1377.60	2.59E+01	24.96	2.51E-03	2.20E-04
	43	1407.83	2.25E+01	19.56	2.47E-03	2.16E-04
	44	1460.54	4.08E+02	47.42	2.39E-03	2.08E-04
M	45	1588.57	2.47E+01	19.43	2.21E-03	1.89E-04
m	46	1592.21	3.43E+01	19.33	2.20E-03	1.88E-04
	47	1631.09	1.53E+01	12.65	2.15E-03	1.82E-04
	48	1729.42	1.50E+01	16.06	2.04E-03	1.67E-04
	49	1764.17	4.35E+01	21.60	2.00E-03	1.62E-04
	50	1846.17	1.96E+01	10.63	1.91E-03	1.51E-04
	51	2105.18	2.87E+01	19.60	1.67E-03	1.51E-04
	52	2145.56	1.07E+01	9.80	1.63E-03	1.51E-04
	53	2152.27	7.94E+00	6.71	1.62E-03	1.51E-04
	54	2164.02	9.59E+00	7.50	1.61E-03	1.51E-04
	55	2203.03	1.50E+01	18.65	1.58E-03	1.51E-04
	56	2225.18	8.08E+00	9.42	1.56E-03	1.51E-04
	57	2260.12	1.76E+01	15.76	1.54E-03	1.51E-04
	58	2354.54	8.70E+00	7.00	1.46E-03	1.51E-04
	59	2415.79	2.26E+01	11.18	1.42E-03	1.51E-04
	60	2446.28	1.15E+01	9.19	1.40E-03	1.51E-04
	61	2614.34	1.46E+02	24.17	1.28E-03	1.51E-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 : 8/14/2017 7:59:44AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	64.18	6.69E+02	208.43	5.28E+01	8.63E+00	6.16E+02	2.09E+02
m	2	76.18	2.96E+03	205.85			2.96E+03	2.06E+02
M	3	84.06	2.43E+02	81.56	7.68E+00	3.13E+00	2.36E+02	8.16E+01

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	4	87.13	6.06E+02	132.50			6.06E+02	1.33E+02
m	5	89.95	4.21E+02	133.11			4.21E+02	1.33E+02
m	6	93.12	6.07E+02	128.29	6.21E+01	4.71E+00	5.45E+02	1.28E+02
	7	129.20	9.18E+01	110.90			9.18E+01	1.11E+02
	8	153.97	1.35E+02	110.76			1.35E+02	1.11E+02
	9	185.98	3.15E+02	102.98	2.34E+01	8.57E+00	2.92E+02	1.03E+02
	10	209.06	1.81E+02	96.23			1.81E+02	9.62E+01
	11	238.99	2.41E+03	156.52	8.90E+00	6.12E+00	2.40E+03	1.57E+02
	12	269.92	1.88E+02	73.40			1.88E+02	7.34E+01
	13	277.40	6.51E+01	64.14			6.51E+01	6.41E+01
M	14	295.28	3.82E+02	73.62			3.82E+02	7.36E+01
m	15	300.46	1.35E+02	60.99			1.35E+02	6.10E+01
	16	328.42	1.70E+02	75.17			1.70E+02	7.52E+01
	17	338.72	4.44E+02	90.49			4.44E+02	9.05E+01
	18	351.82	6.02E+02	81.72			6.02E+02	8.17E+01
	19	359.78	4.80E+01	49.12			4.80E+01	4.91E+01
	20	369.58	5.40E+01	54.74			5.40E+01	5.47E+01
	21	409.18	5.17E+01	59.57			5.17E+01	5.96E+01
	22	463.04	7.13E+01	66.94			7.13E+01	6.69E+01
	23	510.73	2.34E+02	65.12	4.43E+01	4.80E+00	1.90E+02	6.53E+01
	24	557.73	3.01E+01	26.98			3.01E+01	2.70E+01
	25	583.19	4.85E+02	70.16	3.56E+00	2.78E+00	4.82E+02	7.02E+01
	26	609.22	4.23E+02	62.71			4.23E+02	6.27E+01
	27	658.53	3.80E+01	41.00			3.80E+01	4.10E+01
	28	727.82	1.05E+02	52.29			1.05E+02	5.23E+01
	29	768.75	3.47E+01	36.06			3.47E+01	3.61E+01
	30	795.23	7.07E+01	43.90			7.07E+01	4.39E+01
	31	830.84	2.06E+01	23.02			2.06E+01	2.30E+01
	32	860.89	3.39E+01	28.94			3.39E+01	2.89E+01
	33	911.10	3.20E+02	44.20			3.20E+02	4.42E+01
M	34	964.52	6.66E+01	32.06			6.66E+01	3.21E+01
m	35	968.92	1.99E+02	37.52			1.99E+02	3.75E+01
	36	1001.54	2.45E+01	28.81			2.45E+01	2.88E+01
	37	1078.61	2.25E+01	26.94			2.25E+01	2.69E+01
	38	1120.08	5.51E+01	34.41			5.51E+01	3.44E+01
	39	1242.64	1.54E+02	47.14			1.54E+02	4.71E+01
	40	1268.95	1.03E+02	72.83			1.03E+02	7.28E+01
	41	1341.96	1.37E+01	13.77			1.37E+01	1.38E+01
	42	1377.60	2.59E+01	24.96			2.59E+01	2.50E+01
	43	1407.83	2.25E+01	19.56			2.25E+01	1.96E+01
	44	1460.54	4.08E+02	47.42			4.08E+02	4.74E+01
M	45	1588.57	2.47E+01	19.43			2.47E+01	1.94E+01
m	46	1592.21	3.43E+01	19.33			3.43E+01	1.93E+01
	47	1631.09	1.53E+01	12.65			1.53E+01	1.26E+01
	48	1729.42	1.50E+01	16.06			1.50E+01	1.61E+01
	49	1764.17	4.35E+01	21.60			4.35E+01	2.16E+01
	50	1846.17	1.96E+01	10.63			1.96E+01	1.06E+01
	51	2105.18	2.87E+01	19.60			2.87E+01	1.96E+01
	52	2145.56	1.07E+01	9.80			1.07E+01	9.80E+00
	53	2152.27	7.94E+00	6.71			7.94E+00	6.71E+00
	54	2164.02	9.59E+00	7.50			9.59E+00	7.50E+00
	55	2203.03	1.50E+01	18.65			1.50E+01	1.87E+01
	56	2225.18	8.08E+00	9.42			8.08E+00	9.42E+00
	57	2260.12	1.76E+01	15.76			1.76E+01	1.58E+01

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
58	2354.54	8.70E+00	7.00			8.70E+00	7.00E+00
59	2415.79	2.26E+01	11.18			2.26E+01	1.12E+01
60	2446.28	1.15E+01	9.19			1.15E+01	9.19E+00
61	2614.34	1.46E+02	24.17			1.46E+02	2.42E+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 : 8/14/2017 7:59:44AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.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	64.18	6.69E+02	208.43	5.28E+01	8.63E+00	6.16E+02	2.09E+02
m	2	76.18	2.96E+03	205.85			2.96E+03	2.06E+02
M	3	84.06	2.43E+02	81.56	7.68E+00	3.13E+00	2.36E+02	8.16E+01
m	4	87.13	6.06E+02	132.50			6.06E+02	1.33E+02
m	5	89.95	4.21E+02	133.11			4.21E+02	1.33E+02
m	6	93.12	6.07E+02	128.29	6.21E+01	4.71E+00	5.45E+02	1.28E+02
	7	129.20	9.18E+01	110.90			9.18E+01	1.11E+02
	8	153.97	1.35E+02	110.76			1.35E+02	1.11E+02
	9	185.98	3.15E+02	102.98	2.34E+01	8.57E+00	2.92E+02	1.03E+02
	10	209.06	1.81E+02	96.23			1.81E+02	9.62E+01
	11	238.99	2.41E+03	156.52	8.90E+00	6.12E+00	2.40E+03	1.57E+02
	12	269.92	1.88E+02	73.40			1.88E+02	7.34E+01
	13	277.40	6.51E+01	64.14			6.51E+01	6.41E+01
M	14	295.28	3.82E+02	73.62			3.82E+02	7.36E+01
m	15	300.46	1.35E+02	60.99			1.35E+02	6.10E+01
	16	328.42	1.70E+02	75.17			1.70E+02	7.52E+01
	17	338.72	4.44E+02	90.49			4.44E+02	9.05E+01
	18	351.82	6.02E+02	81.72			6.02E+02	8.17E+01
	19	359.78	4.80E+01	49.12			4.80E+01	4.91E+01
	20	369.58	5.40E+01	54.74			5.40E+01	5.47E+01
	21	409.18	5.17E+01	59.57			5.17E+01	5.96E+01
	22	463.04	7.13E+01	66.94			7.13E+01	6.69E+01
	23	510.73	2.34E+02	65.12	4.43E+01	4.80E+00	1.90E+02	6.53E+01
	24	557.73	3.01E+01	26.98			3.01E+01	2.70E+01

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	25	583.19	4.85E+02	70.16	3.56E+00	2.78E+00	4.82E+02	7.02E+01
	26	609.22	4.23E+02	62.71			4.23E+02	6.27E+01
	27	658.53	3.80E+01	41.00			3.80E+01	4.10E+01
	28	727.82	1.05E+02	52.29			1.05E+02	5.23E+01
	29	768.75	3.47E+01	36.06			3.47E+01	3.61E+01
	30	795.23	7.07E+01	43.90			7.07E+01	4.39E+01
	31	830.84	2.06E+01	23.02			2.06E+01	2.30E+01
	32	860.89	3.39E+01	28.94			3.39E+01	2.89E+01
	33	911.10	3.20E+02	44.20			3.20E+02	4.42E+01
M	34	964.52	6.66E+01	32.06			6.66E+01	3.21E+01
m	35	968.92	1.99E+02	37.52			1.99E+02	3.75E+01
	36	1001.54	2.45E+01	28.81			2.45E+01	2.88E+01
	37	1078.61	2.25E+01	26.94			2.25E+01	2.69E+01
	38	1120.08	5.51E+01	34.41			5.51E+01	3.44E+01
	39	1242.64	1.54E+02	47.14			1.54E+02	4.71E+01
	40	1268.95	1.03E+02	72.83			1.03E+02	7.28E+01
	41	1341.96	1.37E+01	13.77			1.37E+01	1.38E+01
	42	1377.60	2.59E+01	24.96			2.59E+01	2.50E+01
	43	1407.83	2.25E+01	19.56			2.25E+01	1.96E+01
	44	1460.54	4.08E+02	47.42			4.08E+02	4.74E+01
M	45	1588.57	2.47E+01	19.43			2.47E+01	1.94E+01
m	46	1592.21	3.43E+01	19.33			3.43E+01	1.93E+01
	47	1631.09	1.53E+01	12.65			1.53E+01	1.26E+01
	48	1729.42	1.50E+01	16.06			1.50E+01	1.61E+01
	49	1764.17	4.35E+01	21.60			4.35E+01	2.16E+01
	50	1846.17	1.96E+01	10.63			1.96E+01	1.06E+01
	51	2105.18	2.87E+01	19.60			2.87E+01	1.96E+01
	52	2145.56	1.07E+01	9.80			1.07E+01	9.80E+00
	53	2152.27	7.94E+00	6.71			7.94E+00	6.71E+00
	54	2164.02	9.59E+00	7.50			9.59E+00	7.50E+00
	55	2203.03	1.50E+01	18.65			1.50E+01	1.87E+01
	56	2225.18	8.08E+00	9.42			8.08E+00	9.42E+00
	57	2260.12	1.76E+01	15.76			1.76E+01	1.58E+01
	58	2354.54	8.70E+00	7.00			8.70E+00	7.00E+00
	59	2415.79	2.26E+01	11.18			2.26E+01	1.12E+01
	60	2446.28	1.15E+01	9.19			1.15E+01	9.19E+00
	61	2614.34	1.46E+02	24.17			1.46E+02	2.42E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.988	1460.81	*	10.67	2.07E+01	3.03E+00
CD-109	0.877	88.03	*	3.72	1.02E+01	2.48E+00
SN-126	0.969	87.57	*	37.00	8.91E-01	2.11E-01
EU-155	0.325	86.50	*	30.90	1.11E+00	2.62E-01
		105.30		20.70		
TL-208	0.989	583.14	*	30.22	3.73E+00	6.92E-01
		860.37	*	4.48	2.56E+00	2.20E+00
		2614.66	*	35.85	4.10E+00	8.34E-01
BI-212	0.723	727.17	*	11.80	2.58E+00	1.32E+00
		1620.62		2.75		
PB-212	0.979	238.63	*	44.60	5.11E+00	5.44E-01
		300.09	*	3.41	4.70E+00	2.16E+00
BI-214	0.933	609.31	*	46.30	2.23E+00	4.22E-01
		1120.29	*	15.10	1.56E+00	9.82E-01
		1764.49	*	15.80	1.77E+00	8.92E-01
		2204.22		4.98		
PB-214	0.999	295.21	*	19.19	2.32E+00	4.88E-01
		351.92	*	37.19	2.26E+00	3.64E-01
RA-226	0.992	186.21	*	3.28	6.77E+00	1.26E+01
AC-228	0.993	338.32	*	11.40	5.23E+00	1.16E+00
		911.07	*	27.70	4.11E+00	6.62E-01
		969.11	*	16.60	4.50E+00	9.29E-01
PA-234M	0.959	1001.03	*	0.92	1.03E+01	1.22E+01
TH-234	0.881	63.29	*	3.80	9.62E+00	3.34E+00
NP-237	0.940	86.50	*	12.60	2.62E+00	6.19E-01
CM-243	0.354	209.75	*	3.29	4.65E+00	2.50E+00
		228.14		10.60		
		277.60	*	14.00	5.13E-01	5.07E-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 : 8/14/2017 7:59:44AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	76.18	8.23368E-01	3.47		
M	3	84.06	6.54585E-02	17.32	Tol.	TH-231
m	5	89.95	1.16976E-01	15.80		
m	6	93.12	1.51411E-01	11.78		
	7	129.20	2.55093E-02	60.38	Sum	
	8	153.97	3.75422E-02	40.98	Tol.	CS-136
	12	269.92	5.23068E-02	19.49		
	16	328.42	4.71053E-02	22.16	Tol.	LA-140
	19	359.78	1.33457E-02	51.12	Sum	
	20	369.58	1.49971E-02	50.69		
	21	409.18	1.43683E-02	57.58		
	22	463.04	1.98018E-02	46.95	Sum	
	23	510.73	5.26988E-02	17.21		
	24	557.73	8.35069E-03	44.87		
	27	658.53	1.05574E-02	53.94		
	29	768.75	9.63032E-03	52.00	Sum	
	30	795.23	1.96483E-02	31.03	Sum	
	31	830.84	5.72222E-03	55.88		
M	34	964.52	1.84927E-02	24.08	Tol.	EU-152
	37	1078.61	6.25000E-03	59.86		
	39	1242.64	4.27403E-02	15.32		
	40	1268.95	2.84810E-02	35.52	Sum	
	41	1341.96	3.79808E-03	50.37		
	42	1377.60	7.18862E-03	48.22		
	43	1407.83	6.25000E-03	43.46	Tol.	EU-152
M	45	1588.57	6.86234E-03	39.32	Sum	
m	46	1592.21	9.52962E-03	28.17	D-Esc	
	47	1631.09	4.24769E-03	41.36		
	48	1729.42	4.16667E-03	53.54	Sum	
	50	1846.17	5.43561E-03	27.16		
	51	2105.18	7.97619E-03	34.12		
	52	2145.56	2.98148E-03	45.64		
	53	2152.27	2.20679E-03	42.22		
	54	2164.02	2.66414E-03	39.10		
	55	2203.03	4.16667E-03	62.18		
	56	2225.18	2.24359E-03	58.32		
	57	2260.12	4.89316E-03	44.74		
	58	2354.54	2.41667E-03	40.23		
	59	2415.79	6.27222E-03	24.76		
	60	2446.28	3.20370E-03	39.85		

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 1707077-08

HTC-A01-S001-2430-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.07E+01	3.03E+00
CD-109	0.87	88.03	*	3.72	1.02E+01	2.48E+00
SN-126	0.96	87.57	*	37.00	8.91E-01	2.11E-01
EU-155	0.32	86.50	*	30.90	1.11E+00	2.62E-01
		105.30		20.70		
TL-208	0.98	583.14	*	30.22	3.73E+00	6.92E-01
		860.37	*	4.48	2.56E+00	2.20E+00
		2614.66	*	35.85	4.10E+00	8.34E-01
BI-212	0.72	727.17	*	11.80	2.58E+00	1.32E+00
		1620.62		2.75		
PB-212	0.97	238.63	*	44.60	5.11E+00	5.44E-01
		300.09	*	3.41	4.70E+00	2.16E+00
BI-214	0.93	609.31	*	46.30	2.23E+00	4.22E-01
		1120.29	*	15.10	1.56E+00	9.82E-01
		1764.49	*	15.80	1.77E+00	8.92E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	2.32E+00	4.88E-01
		351.92	*	37.19	2.26E+00	3.64E-01
RA-226	0.99	186.21	*	3.28	6.77E+00	1.26E+01
AC-228	0.99	338.32	*	11.40	5.23E+00	1.16E+00
		911.07	*	27.70	4.11E+00	6.62E-01
		969.11	*	16.60	4.50E+00	9.29E-01
PA-234M	0.95	1001.03	*	0.92	1.03E+01	1.22E+01
TH-234	0.88	63.29	*	3.80	9.62E+00	3.34E+00
NP-237	0.94	86.50	*	12.60	2.62E+00	6.19E-01
CM-243	0.35	209.75	*	3.29	4.65E+00	2.50E+00
		228.14		10.60		
		277.60	*	14.00	5.13E-01	5.07E-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 1707077-08

HTC-A01-S001-2430-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.988	2.07E+01	3.03E+00	
?	CD-109	0.877	1.02E+01	2.48E+00	
?	SN-126	0.969	8.91E-01	2.11E-01	
?	EU-155	0.325	1.11E+00	2.62E-01	
	TL-208	0.989	3.81E+00	5.17E-01	
	BI-212	0.723	2.58E+00	1.32E+00	
	PB-212	0.979	5.08E+00	5.27E-01	
	BI-214	0.933	2.07E+00	3.56E-01	
	PB-214	0.999	2.28E+00	2.91E-01	
	RA-226	0.992	6.77E+00	1.26E+01	
	AC-228	0.993	4.42E+00	4.88E-01	
	PA-234M	0.959	1.03E+01	1.22E+01	
	TH-234	0.881	9.62E+00	3.34E+00	
?	NP-237	0.940	2.62E+00	6.19E-01	
	CM-243	0.354	6.76E-01	4.97E-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 1707077-08

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 7:59:44AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	76.18	8.23368E-01	3.47		
M	3	84.06	6.54585E-02	17.32	Tol.	TH-231
m	5	89.95	1.16976E-01	15.80		
m	6	93.12	1.51411E-01	11.78		
	7	129.20	2.55093E-02	60.38	Sum	
	8	153.97	3.75422E-02	40.98	Tol.	CS-136
	12	269.92	5.23068E-02	19.49		
	16	328.42	4.71053E-02	22.16	Tol.	LA-140
	19	359.78	1.33457E-02	51.12	Sum	
	20	369.58	1.49971E-02	50.69		
	21	409.18	1.43683E-02	57.58		
	22	463.04	1.98018E-02	46.95	Sum	
	23	510.73	5.26988E-02	17.21		
	24	557.73	8.35069E-03	44.87		
	27	658.53	1.05574E-02	53.94		
	29	768.75	9.63032E-03	52.00	Sum	
	30	795.23	1.96483E-02	31.03	Sum	
	31	830.84	5.72222E-03	55.88		
M	34	964.52	1.84927E-02	24.08	Tol.	EU-152
	37	1078.61	6.25000E-03	59.86		
	39	1242.64	4.27403E-02	15.32		
	40	1268.95	2.84810E-02	35.52	Sum	
	41	1341.96	3.79808E-03	50.37		
	42	1377.60	7.18862E-03	48.22		
	43	1407.83	6.25000E-03	43.46	Tol.	EU-152
M	45	1588.57	6.86234E-03	39.32	Sum	
m	46	1592.21	9.52962E-03	28.17	D-Esc	
	47	1631.09	4.24769E-03	41.36		
	48	1729.42	4.16667E-03	53.54	Sum	
	50	1846.17	5.43561E-03	27.16		
	51	2105.18	7.97619E-03	34.12		
	52	2145.56	2.98148E-03	45.64		
	53	2152.27	2.20679E-03	42.22		
	54	2164.02	2.66414E-03	39.10		
	55	2203.03	4.16667E-03	62.18		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	2225.18	2.24359E-03	58.32		
57	2260.12	4.89316E-03	44.74		
58	2354.54	2.41667E-03	40.23		
59	2415.79	6.27222E-03	24.76		
60	2446.28	3.20370E-03	39.85		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	1.94E-01	3.66E+00	3.66E+00
+	NA-22	1274.54		99.94	-1.27E-01	2.05E-01	2.05E-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	4.21E-02	1.33E-01	1.33E-01
+	K-40	1460.81	*	10.67	2.07E+01	2.20E+00	2.20E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.34E-01	1.22E-01	1.22E-01
		78.34		96.00	1.10E+00		1.67E-01
+	SC-46	889.25		99.98	1.16E-02	3.15E-01	3.15E-01
		1120.51		99.99	4.51E-01		5.08E-01
+	V-48	983.52		99.98	8.79E-02	9.05E+00	9.05E+00
		1312.10		97.50	2.27E+00		9.41E+00
+	CR-51	320.08		9.83	2.53E+00	1.05E+01	1.05E+01
+	MN-54	834.83		99.97	-4.66E-02	2.25E-01	2.25E-01
+	CO-56	846.75		99.96	-7.47E-02	3.34E-01	3.34E-01
		1037.75		14.03	-6.04E-01		2.67E+00
		1238.25		67.00	6.89E-01		7.98E-01
		1771.40		15.51	-1.26E+00		2.01E+00
		2598.48		16.90	8.03E-01		1.89E+00
+	CO-57	122.06		85.51	2.06E-05	1.29E-01	1.29E-01
		136.48		10.60	-1.50E-01		1.08E+00
+	CO-58	810.76		99.40	-1.73E-01	3.90E-01	3.90E-01
+	FE-59	1099.22		56.50	-3.27E-01	1.24E+00	1.24E+00

Analysis Report for 1707077-08

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	FE-59	1291.56		43.20	-4.88E-01	1.24E+00	1.72E+00
+	CO-60	1173.22		100.00	1.76E-02	1.71E-01	1.94E-01
		1332.49		100.00	1.08E-01		1.71E-01
+	ZN-65	1115.52		50.75	4.74E-02	5.24E-01	5.24E-01
+	GA-67	93.31		35.70	2.74E+08	1.21E+08	1.21E+08
		208.95		2.24	2.27E+09		1.87E+09
		300.22		16.00	-5.34E+08		2.79E+08
+	SE-75	121.11		16.70	-5.26E-01	2.61E-01	8.76E-01
		136.00		59.20	-6.53E-02		2.61E-01
		264.65		59.80	-1.21E-01		2.66E-01
		279.53		25.20	8.82E-02		7.22E-01
		400.65		11.40	-1.36E-01		1.73E+00
+	RB-82	776.52		13.00	-4.56E+00	1.52E+01	1.52E+01
+	RB-83	520.41		46.00	1.43E-01	5.72E-01	5.72E-01
		529.64		30.30	-6.04E-02		8.43E-01
		552.65		16.40	1.14E-01		1.70E+00
+	KR-85	513.99		0.43	4.47E+01	4.01E+01	4.01E+01
+	SR-85	513.99		99.27	5.19E-01	4.66E-01	4.66E-01
+	Y-88	898.02		93.40	1.69E-02	2.24E-01	2.94E-01
		1836.01		99.38	1.01E-02		2.24E-01
+	MO-93	263.06		56.72	-9.51E-02	1.26E-01	1.66E-01
		684.67		99.68	6.63E-02		1.67E-01
		1477.11		99.08	4.14E-03		1.26E-01
+	NB-93M	16.57		9.43	3.12E+01	1.15E+01	1.15E+01
+	NB-94	702.63		100.00	3.36E-03	1.49E-01	1.62E-01
		871.10		100.00	-6.69E-02		1.49E-01
+	NB-95	765.79		99.81	-5.52E-02	1.13E+00	1.13E+00
+	NB-95M	235.69		25.00	2.15E+08	4.48E+07	4.48E+07
+	ZR-95	724.18		43.70	1.84E-01	8.37E-01	1.28E+00
		756.72		55.30	1.86E-01		8.37E-01
+	MO-99	181.06		6.20	-2.43E+09	1.71E+10	2.26E+10
		739.58		12.80	-1.09E+09		1.71E+10
		778.00		4.50	-2.06E+10		5.16E+10
+	RU-103	497.08		89.00	-1.57E-01	6.71E-01	6.71E-01
+	RU-106	621.84		9.80	1.44E-01	1.60E+00	1.60E+00
+	AG-108M	433.93		89.90	-2.97E-02	1.26E-01	1.26E-01
		614.37		90.40	3.15E-02		1.55E-01
		722.95		90.50	2.45E-02		2.07E-01
+	CD-109	88.03	*	3.72	1.02E+01	5.78E+00	5.78E+00
+	AG-110M	657.75		93.14	1.34E-01	2.20E-01	2.20E-01
		677.61		10.53	-8.62E-01		1.91E+00
		706.67		16.46	1.00E+00		1.35E+00
		763.93		21.98	1.85E-01		1.00E+00
		884.67		71.63	2.99E-03		2.54E-01
		1384.27		23.94	1.02E-01		7.84E-01
+	CD-113M	263.70		0.02	-1.76E+02	4.07E+02	4.07E+02
+	SN-113	255.12		1.93	3.79E+00	3.26E-01	9.23E+00
		391.69		64.90	9.25E-02		3.26E-01

Analysis Report for 1707077-08

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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	-5.50E-02	1.92E-01	1.92E-01
+		SB-124	602.71		97.87	6.94E-02	3.94E-01	3.94E-01
			645.85		7.26	-1.25E+00		5.01E+00
			722.78		11.10	5.80E-01		4.92E+00
			1691.02		49.00	3.45E-01		9.20E-01
+		I-125	35.49		6.49	-1.27E-01	7.30E+00	7.30E+00
+		SB-125	176.33		6.89	-4.21E-01	4.35E-01	1.45E+00
			427.89		29.33	-5.87E-02		4.35E-01
			463.38		10.35	1.76E+00		1.47E+00
			600.56		17.80	-5.35E-02		7.52E-01
			635.90		11.32	3.93E-01		1.30E+00
+		SB-126	414.70		83.30	1.63E+00	2.45E+01	2.45E+01
			666.33		99.60	-1.17E+01		2.58E+01
			695.00		99.60	7.19E+00		2.76E+01
			720.50		53.80	1.07E+01		5.55E+01
+		SN-126	87.57	*	37.00	8.91E-01	5.05E-01	5.05E-01
+		SB-127	473.00		25.00	-4.56E+06	7.78E+06	7.78E+06
			685.20		35.70	3.33E+06		8.38E+06
			783.80		14.70	7.33E+06		2.13E+07
+		I-129	29.78		57.00	-3.47E-02	4.05E-01	4.05E-01
			33.60		13.20	2.14E-01		1.36E+00
			39.58		7.52	-7.70E-01		1.79E+00
+		I-131	284.30		6.05	2.89E+03	3.87E+02	5.15E+03
			364.48		81.20	-1.45E+01		3.87E+02
			636.97		7.26	4.27E+02		5.57E+03
			722.89		1.80	3.69E+03		3.12E+04
+		TE-132	49.72		13.10	-9.15E+07	4.40E+07	3.31E+08
			228.16		88.00	1.68E+07		4.40E+07
+		BA-133	81.00		33.00	-2.03E+00	2.35E-01	3.65E-01
			302.84		17.80	-1.12E-01		6.34E-01
			356.01		60.00	-4.42E-01		2.35E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-3.73E+05	6.70E+04	6.70E+04
+		CS-134	563.23		8.38	-3.32E-02	1.74E-01	1.55E+00
			569.32		15.43	-4.03E-02		9.35E-01
			604.70		97.60	1.02E-02		1.74E-01
			795.84		85.40	3.44E-01		2.60E-01
			801.93		8.73	-3.83E-01		2.03E+00
+		CS-135	268.24		16.00	9.83E-01	7.11E-01	7.11E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	1.66E+02	2.22E+01	1.75E+02
			163.89		4.61	-4.48E+01		2.69E+02
			176.55		13.56	7.14E+00		9.24E+01
			273.65		12.66	-1.26E+02		1.16E+02
			340.57		48.50	1.26E+02		4.38E+01
			818.50		99.70	1.36E+01		2.22E+01
			1048.07		79.60	-9.25E-01		2.59E+01

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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	8.93E+01	2.22E+01	1.51E+02
+		CS-137	661.65		85.12	-5.05E-02	1.76E-01	1.76E-01
+		LA-138	788.74		34.00	4.43E-02	2.37E-01	5.00E-01
			1435.80		66.00	4.83E-02		2.37E-01
+		CE-139	165.85		80.35	1.74E-02	1.85E-01	1.85E-01
+		BA-140	162.64		6.70	1.09E+02	8.29E+01	2.15E+02
			304.84		4.50	-1.56E+00		3.43E+02
			423.70		3.20	-1.45E+02		5.58E+02
			437.55		2.00	1.83E+02		8.53E+02
			537.32		25.00	4.19E+01		8.29E+01
+		LA-140	328.77		20.50	1.59E+02	2.77E+01	9.49E+01
			487.03		45.50	-9.36E+00		3.96E+01
			815.85		23.50	-7.15E+01		9.95E+01
			1596.49		95.49	-5.65E+00		2.77E+01
+		CE-141	145.44		48.40	-5.01E-02	1.39E+00	1.39E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	1.73E-01	1.06E+00	1.06E+00
+		PM-144	476.78		42.00	2.11E-01	1.62E-01	3.31E-01
			618.01		98.60	-3.47E-04		1.62E-01
			696.49		99.49	-1.73E-01		1.75E-01
+		PM-145	36.85		21.70	1.59E-01	3.80E-01	7.12E-01
			37.36		39.70	8.48E-02		3.80E-01
			42.30		15.10	-6.64E-01		8.39E-01
			72.40		2.31	-2.61E+01		5.96E+00
+		PM-146	453.90		39.94	2.46E-02	3.17E-01	3.17E-01
			735.90		14.01	2.48E-02		1.21E+00
			747.13		13.10	2.56E-01		1.18E+00
+		ND-147	91.11		28.90	3.66E+02	1.51E+02	1.51E+02
			531.02		13.10	-2.18E+01		3.36E+02
+		PM-149	285.90		3.10	7.74E+12	1.48E+13	1.48E+13
+		EU-152	121.78		20.50	6.87E-05	4.28E-01	4.28E-01
			244.69		5.40	-3.91E-01		2.03E+00
			344.27		19.13	-2.03E+00		5.62E-01
			778.89		9.20	-3.13E-01		1.74E+00
			964.01		10.40	-4.97E+00		2.33E+00
			1085.78		7.22	8.16E-01		2.35E+00
			1112.02		9.60	7.25E-01		1.97E+00
			1407.95		14.94	9.02E-01		1.21E+00
+		GD-153	97.43		31.30	6.64E-02	3.97E-01	3.97E-01
			103.18		22.20	-7.21E-02		5.06E-01
+		EU-154	123.07		40.50	-7.22E-02	2.21E-01	2.21E-01
			723.30		19.70	1.53E-01		1.06E+00
			873.19		11.50	3.20E-01		1.39E+00
			996.32		10.30	5.61E-03		1.54E+00
			1004.76		17.90	8.85E-02		9.81E-01
			1274.45		35.50	-3.40E-01		5.49E-01
+		EU-155	86.50	*	30.90	1.11E+00	4.29E-01	6.27E-01

Analysis Report for 1707077-08

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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	-1.64E-01	4.29E-01	4.29E-01
+	EU-156	811.77		10.40	-8.59E+00	1.05E+02	1.05E+02
		1153.47		7.20	5.78E+01		1.85E+02
		1230.71		8.90	3.84E+01		1.37E+02
+	HO-166M	184.41		72.60	3.09E-01	1.56E-01	1.56E-01
		280.45		29.60	1.74E-03		3.51E-01
		410.94		11.10	8.87E-01		1.14E+00
		711.69		54.10	-1.13E-01		2.86E-01
+	TM-171	66.72		0.14	-8.13E+01	9.26E+01	9.26E+01
+	HF-172	67.35		5.31	-2.14E+00	9.04E-01	2.44E+00
		125.81		11.30	5.31E-02		9.04E-01
+	LU-172	181.53		20.60	-4.78E+01	4.44E+03	7.21E+03
		900.72		29.81	2.44E+03		7.51E+03
		1093.66		62.50	-1.84E+02		4.44E+03
+	LU-173	100.72		5.24	-1.43E-01	6.28E-01	1.87E+00
		272.11		21.20	4.31E-01		6.28E-01
+	HF-175	343.40		84.00	-1.14E+00	3.16E-01	3.16E-01
+	LU-176	88.34		13.30	4.17E-01	1.07E-01	9.25E-01
		201.83		86.00	-3.22E-02		1.15E-01
		306.78		94.00	1.56E-02		1.07E-01
+	HF-181	133.02		41.70	3.23E-01	6.26E-01	1.04E+00
		345.85		17.20	-9.86E+00		2.81E+00
		482.03		82.80	-7.22E-02		6.26E-01
+	TA-182	67.75		41.20	-1.34E+00	4.91E-01	4.91E-01
		1121.30		34.90	6.88E-02		1.22E+00
		1189.05		16.23	-4.45E-01		1.80E+00
		1221.41		26.98	-1.02E-01		1.25E+00
		1231.02		11.44	6.12E-03		2.78E+00
+	IR-192	308.46		29.68	-1.08E-01	5.85E-01	8.11E-01
		468.07		48.10	2.94E-02		5.85E-01
+	HG-203	279.19		77.30	2.81E-01	5.52E-01	5.52E-01
+	TL-204	374.74		94.11	2.50E-02	1.19E-01	1.19E-01
		899.15		99.16	2.22E-02		1.59E-01
		911.74		91.10	1.26E+00		3.79E-01
+	BI-207	569.67		97.72	-5.88E-03	1.36E-01	1.36E-01
		1063.62		74.90	-4.81E-02		1.95E-01
+	TL-208	583.14	*	30.22	3.73E+00	7.60E-02	7.19E-01
		860.37	*	4.48	2.56E+00		3.49E+00
		2614.66	*	35.85	4.10E+00		7.60E-02
+	BI-210M	262.00		45.00	-1.34E-01	2.09E-01	2.09E-01
		300.00		23.00	-9.92E-01		5.17E-01
+	PB-210	46.50		4.25	1.08E+00	2.84E+00	2.84E+00
+	PB-211	404.84		2.90	3.20E-01	3.99E+00	3.99E+00
		831.96		2.90	-4.52E-01		6.11E+00
+	BI-212	727.17	*	11.80	2.58E+00	2.01E+00	2.01E+00
		1620.62		2.75	1.57E+00		5.90E+00
+	PB-212	238.63	*	44.60	5.11E+00	4.34E-01	4.34E-01
		300.09	*	3.41	4.70E+00		5.15E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-214	609.31	*	46.30	2.23E+00	4.25E-01	4.25E-01
		1120.29	*	15.10	1.56E+00		1.52E+00
		1764.49	*	15.80	1.77E+00		1.26E+00
		2204.22		4.98	1.55E+00		4.47E+00
+	PB-214	295.21	*	19.19	2.32E+00	4.14E-01	9.15E-01
		351.92	*	37.19	2.26E+00		4.14E-01
+	RN-219	401.80		6.50	-7.72E-02	1.75E+00	1.75E+00
+	RA-223	323.87		3.88	3.77E-01	2.70E+00	2.70E+00
+	RA-224	240.98		3.95	5.04E+01	5.82E+00	5.82E+00
+	RA-225	40.00		31.00	-1.42E+01	3.32E+01	3.32E+01
+	RA-226	186.21	*	3.28	6.77E+00	3.78E+00	3.78E+00
+	TH-227	50.10		8.40	-3.72E-01	1.35E+00	1.35E+00
		236.00		11.50	8.43E+00		1.76E+00
		256.20		6.30	5.67E-01		1.62E+00
+	AC-228	338.32	*	11.40	5.23E+00	5.83E-01	1.58E+00
		911.07	*	27.70	4.11E+00		5.83E-01
		969.11	*	16.60	4.50E+00		1.56E+00
+	TH-230	48.44		16.90	-4.78E-02	6.83E-01	6.83E-01
		62.85		4.60	3.81E+00		2.70E+00
		67.67		0.37	-8.51E+01		3.12E+01
+	PA-231	283.67		1.60	3.63E+00	4.83E+00	6.48E+00
		302.67		2.30	-8.52E-01		4.83E+00
+	TH-231	25.64		14.70	9.17E-01	1.75E+00	2.26E+00
		84.21		6.40	-1.66E+00		1.75E+00
+	PA-233	311.98		38.60	-3.25E-01	2.86E+00	2.86E+00
+	PA-234	131.20		20.40	7.20E-03	4.77E-01	4.77E-01
		733.99		8.80	2.11E-01		1.91E+00
		946.00		12.00	-8.41E-02		1.26E+00
+	PA-234M	1001.03	*	0.92	1.03E+01	1.99E+01	1.99E+01
+	TH-234	63.29	*	3.80	9.62E+00	9.28E+00	9.28E+00
+	U-235	143.76		10.50	4.84E-02	8.79E-01	8.79E-01
		163.35		4.70	1.01E+00		2.01E+00
		205.31		4.70	3.71E-04		2.20E+00
+	NP-237	86.50	*	12.60	2.62E+00	1.48E+00	1.48E+00
+	NP-239	106.10		22.70	1.03E+11	2.84E+11	2.84E+11
		228.18		10.70	2.70E+11		7.07E+11
		277.60		14.10	2.51E+11		5.63E+11
+	AM-241	59.54		35.90	6.38E-02	3.35E-01	3.35E-01
+	AM-243	74.67		66.00	2.07E+00	2.59E-01	2.59E-01
+	CM-243	209.75	*	3.29	4.65E+00	8.26E-01	3.97E+00
		228.14		10.60	3.69E-01		9.65E-01
		277.60	*	14.00	5.13E-01		8.26E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.66E+00	3.66E+00	1.94E-01	1.75E+00
	NA-22	1274.54		99.94	2.05E-01	2.05E-01	-1.27E-01	9.53E-02
@	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	1.33E-01	1.33E-01	4.21E-02	5.76E-02
+	K-40	1460.81	*	10.67	2.20E+00	2.20E+00	2.07E+01	1.03E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.22E-01	1.22E-01	-3.34E-01	6.03E-02
		78.34		96.00	1.67E-01		1.10E+00	8.27E-02
	SC-46	889.25		99.98	3.15E-01	3.15E-01	1.16E-02	1.47E-01
		1120.51		99.99	5.08E-01		4.51E-01	2.41E-01
	V-48	983.52		99.98	9.05E+00	9.05E+00	8.79E-02	4.24E+00
		1312.10		97.50	9.41E+00		2.27E+00	4.32E+00
	CR-51	320.08		9.83	1.05E+01	1.05E+01	2.53E+00	5.05E+00
	MN-54	834.83		99.97	2.25E-01	2.25E-01	-4.66E-02	1.07E-01
	CO-56	846.75		99.96	3.34E-01	3.34E-01	-7.47E-02	1.57E-01
		1037.75		14.03	2.67E+00		-6.04E-01	1.25E+00
		1238.25		67.00	7.98E-01		6.89E-01	3.78E-01
		1771.40		15.51	2.01E+00		-1.26E+00	8.79E-01
		2598.48		16.90	1.89E+00		8.03E-01	7.62E-01
	CO-57	122.06		85.51	1.29E-01	1.29E-01	2.06E-05	6.31E-02
		136.48		10.60	1.08E+00		-1.50E-01	5.28E-01
	CO-58	810.76		99.40	3.90E-01	3.90E-01	-1.73E-01	1.84E-01
	FE-59	1099.22		56.50	1.24E+00	1.24E+00	-3.27E-01	5.76E-01
		1291.56		43.20	1.72E+00		-4.88E-01	7.95E-01
	CO-60	1173.22		100.00	1.94E-01	1.71E-01	1.76E-02	9.08E-02
		1332.49		100.00	1.71E-01		1.08E-01	7.85E-02
	ZN-65	1115.52		50.75	5.24E-01	5.24E-01	4.74E-02	2.47E-01
	GA-67	93.31		35.70	1.21E+08	1.21E+08	2.74E+08	6.00E+07

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	1.87E+09	1.21E+08	2.27E+09	9.15E+08
		300.22		16.00	2.79E+08		-5.34E+08	1.36E+08
	SE-75	121.11		16.70	8.76E-01	2.61E-01	-5.26E-01	4.30E-01
		136.00		59.20	2.61E-01		-6.53E-02	1.28E-01
		264.65		59.80	2.66E-01		-1.21E-01	1.29E-01
		279.53		25.20	7.22E-01		8.82E-02	3.51E-01
		400.65		11.40	1.73E+00		-1.36E-01	8.32E-01
	RB-82	776.52		13.00	1.52E+01	1.52E+01	-4.56E+00	7.21E+00
	RB-83	520.41		46.00	5.72E-01	5.72E-01	1.43E-01	2.73E-01
		529.64		30.30	8.43E-01		-6.04E-02	4.02E-01
		552.65		16.40	1.70E+00		1.14E-01	8.13E-01
	KR-85	513.99		0.43	4.01E+01	4.01E+01	4.47E+01	1.94E+01
	SR-85	513.99		99.27	4.66E-01	4.66E-01	5.19E-01	2.25E-01
	Y-88	898.02		93.40	2.94E-01	2.24E-01	1.69E-02	1.38E-01
		1836.01		99.38	2.24E-01		1.01E-02	9.52E-02
	MO-93	263.06		56.72	1.66E-01	1.26E-01	-9.51E-02	8.02E-02
		684.67		99.68	1.67E-01		6.63E-02	7.97E-02
		1477.11		99.08	1.26E-01		4.14E-03	5.52E-02
	NB-93M	16.57		9.43	1.15E+01	1.15E+01	3.12E+01	5.61E+00
	NB-94	702.63		100.00	1.62E-01	1.49E-01	3.36E-03	7.74E-02
		871.10		100.00	1.49E-01		-6.69E-02	6.98E-02
	NB-95	765.79		99.81	1.13E+00	1.13E+00	-5.52E-02	5.40E-01
	NB-95M	235.69		25.00	4.48E+07	4.48E+07	2.15E+08	2.21E+07
	ZR-95	724.18		43.70	1.28E+00	8.37E-01	1.84E-01	6.18E-01
		756.72		55.30	8.37E-01		1.86E-01	3.98E-01
	MO-99	181.06		6.20	2.26E+10	1.71E+10	-2.43E+09	1.11E+10
		739.58		12.80	1.71E+10		-1.09E+09	8.12E+09
		778.00		4.50	5.16E+10		-2.06E+10	2.44E+10
	RU-103	497.08		89.00	6.71E-01	6.71E-01	-1.57E-01	3.20E-01
	RU-106	621.84		9.80	1.60E+00	1.60E+00	1.44E-01	7.59E-01
	AG-108M	433.93		89.90	1.26E-01	1.26E-01	-2.97E-02	6.03E-02
		614.37		90.40	1.55E-01		3.15E-02	7.40E-02
		722.95		90.50	2.07E-01		2.45E-02	9.94E-02
+	CD-109	88.03	*	3.72	5.78E+00	5.78E+00	1.02E+01	2.86E+00
	AG-110M	657.75		93.14	2.20E-01	2.20E-01	1.34E-01	1.05E-01
		677.61		10.53	1.91E+00		-8.62E-01	9.09E-01
		706.67		16.46	1.35E+00		1.00E+00	6.45E-01
		763.93		21.98	1.00E+00		1.85E-01	4.77E-01
		884.67		71.63	2.54E-01		2.99E-03	1.18E-01
		1384.27		23.94	7.84E-01		1.02E-01	3.54E-01
	CD-113M	263.70		0.02	4.07E+02	4.07E+02	-1.76E+02	1.97E+02
	SN-113	255.12		1.93	9.23E+00	3.26E-01	3.79E+00	4.49E+00
		391.69		64.90	3.26E-01		9.25E-02	1.58E-01
	TE123M	159.00		84.10	1.92E-01	1.92E-01	-5.50E-02	9.39E-02
	SB-124	602.71		97.87	3.94E-01	3.94E-01	6.94E-02	1.87E-01
		645.85		7.26	5.01E+00		-1.25E+00	2.36E+00
		722.78		11.10	4.92E+00		5.80E-01	2.36E+00
		1691.02		49.00	9.20E-01		3.45E-01	4.10E-01
	I-125	35.49		6.49	7.30E+00	7.30E+00	-1.27E-01	3.58E+00
	SB-125	176.33		6.89	1.45E+00	4.35E-01	-4.21E-01	7.08E-01
		427.89		29.33	4.35E-01		-5.87E-02	2.09E-01
		463.38		10.35	1.47E+00		1.76E+00	7.07E-01
		600.56		17.80	7.52E-01		-5.35E-02	3.57E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	1.30E+00	4.35E-01	3.93E-01	6.16E-01
	SB-126	414.70		83.30	2.45E+01	2.45E+01	1.63E+00	1.18E+01
		666.33		99.60	2.58E+01		-1.17E+01	1.22E+01
		695.00		99.60	2.76E+01		7.19E+00	1.31E+01
		720.50		53.80	5.55E+01		1.07E+01	2.65E+01
+	SN-126	87.57	*	37.00	5.05E-01	5.05E-01	8.91E-01	2.51E-01
	SB-127	473.00		25.00	7.78E+06	7.78E+06	-4.56E+06	3.70E+06
		685.20		35.70	8.38E+06		3.33E+06	4.00E+06
		783.80		14.70	2.13E+07		7.33E+06	1.01E+07
	I-129	29.78		57.00	4.05E-01	4.05E-01	-3.47E-02	1.99E-01
		33.60		13.20	1.36E+00		2.14E-01	6.67E-01
		39.58		7.52	1.79E+00		-7.70E-01	8.79E-01
	I-131	284.30		6.05	5.15E+03	3.87E+02	2.89E+03	2.50E+03
		364.48		81.20	3.87E+02		-1.45E+01	1.86E+02
		636.97		7.26	5.57E+03		4.27E+02	2.64E+03
		722.89		1.80	3.12E+04		3.69E+03	1.50E+04
	TE-132	49.72		13.10	3.31E+08	4.40E+07	-9.15E+07	1.63E+08
		228.16		88.00	4.40E+07		1.68E+07	2.15E+07
	BA-133	81.00		33.00	3.65E-01	2.35E-01	-2.03E+00	1.80E-01
		302.84		17.80	6.34E-01		-1.12E-01	3.08E-01
		356.01		60.00	2.35E-01		-4.42E-01	1.14E-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	6.70E+04	6.70E+04	-3.73E+05	3.31E+04
	CS-134	563.23		8.38	1.55E+00	1.74E-01	-3.32E-02	7.36E-01
		569.32		15.43	9.35E-01		-4.03E-02	4.45E-01
		604.70		97.60	1.74E-01		1.02E-02	8.35E-02
		795.84		85.40	2.60E-01		3.44E-01	1.25E-01
		801.93		8.73	2.03E+00		-3.83E-01	9.60E-01
	CS-135	268.24		16.00	7.11E-01	7.11E-01	9.83E-01	3.47E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.75E+02	2.22E+01	1.66E+02	8.58E+01
		163.89		4.61	2.69E+02		-4.48E+01	1.32E+02
		176.55		13.56	9.24E+01		7.14E+00	4.52E+01
		273.65		12.66	1.16E+02		-1.26E+02	5.63E+01
		340.57		48.50	4.38E+01		1.26E+02	2.14E+01
		818.50		99.70	2.22E+01		1.36E+01	1.05E+01
		1048.07		79.60	2.59E+01		-9.25E-01	1.20E+01
		1235.34		19.70	1.51E+02		8.93E+01	7.13E+01
	CS-137	661.65		85.12	1.76E-01	1.76E-01	-5.05E-02	8.36E-02
	LA-138	788.74		34.00	5.00E-01	2.37E-01	4.43E-02	2.38E-01
		1435.80		66.00	2.37E-01		4.83E-02	1.08E-01
	CE-139	165.85		80.35	1.85E-01	1.85E-01	1.74E-02	9.07E-02
	BA-140	162.64		6.70	2.15E+02	8.29E+01	1.09E+02	1.06E+02
		304.84		4.50	3.43E+02		-1.56E+00	1.66E+02
		423.70		3.20	5.58E+02		-1.45E+02	2.68E+02
		437.55		2.00	8.53E+02		1.83E+02	4.09E+02
		537.32		25.00	8.29E+01		4.19E+01	3.97E+01
	LA-140	328.77		20.50	9.49E+01	2.77E+01	1.59E+02	4.61E+01
		487.03		45.50	3.96E+01		-9.36E+00	1.89E+01
		815.85		23.50	9.95E+01		-7.15E+01	4.69E+01
		1596.49		95.49	2.77E+01		-5.65E+00	1.26E+01

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CE-141	145.44		48.40	1.39E+00	1.39E+00	-5.01E-02	6.80E-01
@	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	1.06E+00	1.06E+00	1.73E-01	5.20E-01
	PM-144	476.78		42.00	3.31E-01	1.62E-01	2.11E-01	1.58E-01
		618.01		98.60	1.62E-01		-3.47E-04	7.67E-02
		696.49		99.49	1.75E-01		-1.73E-01	8.28E-02
	PM-145	36.85		21.70	7.12E-01	3.80E-01	1.59E-01	3.49E-01
		37.36		39.70	3.80E-01		8.48E-02	1.86E-01
		42.30		15.10	8.39E-01		-6.64E-01	4.11E-01
		72.40		2.31	5.96E+00		-2.61E+01	2.95E+00
	PM-146	453.90		39.94	3.17E-01	3.17E-01	2.46E-02	1.52E-01
		735.90		14.01	1.21E+00		2.48E-02	5.76E-01
		747.13		13.10	1.18E+00		2.56E-01	5.58E-01
	ND-147	91.11		28.90	1.51E+02	1.51E+02	3.66E+02	7.48E+01
		531.02		13.10	3.36E+02		-2.18E+01	1.60E+02
	PM-149	285.90		3.10	1.48E+13	1.48E+13	7.74E+12	7.16E+12
	EU-152	121.78		20.50	4.28E-01	4.28E-01	6.87E-05	2.10E-01
		244.69		5.40	2.03E+00		-3.91E-01	9.88E-01
		344.27		19.13	5.62E-01		-2.03E+00	2.71E-01
		778.89		9.20	1.74E+00		-3.13E-01	8.25E-01
		964.01		10.40	2.33E+00		-4.97E+00	1.12E+00
		1085.78		7.22	2.35E+00		8.16E-01	1.09E+00
		1112.02		9.60	1.97E+00		7.25E-01	9.26E-01
		1407.95		14.94	1.21E+00		9.02E-01	5.59E-01
	GD-153	97.43		31.30	3.97E-01	3.97E-01	6.64E-02	1.96E-01
		103.18		22.20	5.06E-01		-7.21E-02	2.49E-01
	EU-154	123.07		40.50	2.21E-01	2.21E-01	-7.22E-02	1.08E-01
		723.30		19.70	1.06E+00		1.53E-01	5.11E-01
		873.19		11.50	1.39E+00		3.20E-01	6.52E-01
		996.32		10.30	1.54E+00		5.61E-03	7.16E-01
		1004.76		17.90	9.81E-01		8.85E-02	4.60E-01
		1274.45		35.50	5.49E-01		-3.40E-01	2.56E-01
+	EU-155	86.50	*	30.90	6.27E-01	4.29E-01	1.11E+00	3.11E-01
		105.30		20.70	4.29E-01		-1.64E-01	2.11E-01
	EU-156	811.77		10.40	1.05E+02	1.05E+02	-8.59E+00	4.97E+01
		1153.47		7.20	1.85E+02		5.78E+01	8.66E+01
		1230.71		8.90	1.37E+02		3.84E+01	6.34E+01
	HO-166M	184.41		72.60	1.56E-01	1.56E-01	3.09E-01	7.68E-02
		280.45		29.60	3.51E-01		1.74E-03	1.70E-01
		410.94		11.10	1.14E+00		8.87E-01	5.48E-01
		711.69		54.10	2.86E-01		-1.13E-01	1.36E-01
	TM-171	66.72		0.14	9.26E+01	9.26E+01	-8.13E+01	4.57E+01
	HF-172	67.35		5.31	2.44E+00	9.04E-01	-2.14E+00	1.20E+00
		125.81		11.30	9.04E-01		5.31E-02	4.44E-01
	LU-172	181.53		20.60	7.21E+03	4.44E+03	-4.78E+01	3.53E+03
		900.72		29.81	7.51E+03		2.44E+03	3.52E+03
		1093.66		62.50	4.44E+03		-1.84E+02	2.09E+03
	LU-173	100.72		5.24	1.87E+00	6.28E-01	-1.43E-01	9.19E-01
		272.11		21.20	6.28E-01		4.31E-01	3.06E-01
	HF-175	343.40		84.00	3.16E-01	3.16E-01	-1.14E+00	1.53E-01
	LU-176	88.34		13.30	9.25E-01	1.07E-01	4.17E-01	4.57E-01

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	1.15E-01	1.07E-01	-3.22E-02	5.62E-02
		306.78		94.00	1.07E-01		1.56E-02	5.15E-02
	HF-181	133.02		41.70	1.04E+00	6.26E-01	3.23E-01	5.09E-01
		345.85		17.20	2.81E+00		-9.86E+00	1.35E+00
		482.03		82.80	6.26E-01		-7.22E-02	2.99E-01
	TA-182	67.75		41.20	4.91E-01	4.91E-01	-1.34E+00	2.42E-01
		1121.30		34.90	1.22E+00		6.88E-02	5.79E-01
		1189.05		16.23	1.80E+00		-4.45E-01	8.32E-01
		1221.41		26.98	1.25E+00		-1.02E-01	5.83E-01
		1231.02		11.44	2.78E+00		6.12E-03	1.29E+00
	IR-192	308.46		29.68	8.11E-01	5.85E-01	-1.08E-01	3.92E-01
		468.07		48.10	5.85E-01		2.94E-02	2.80E-01
	HG-203	279.19		77.30	5.52E-01	5.52E-01	2.81E-01	2.68E-01
	TL-204	374.74		94.11	1.19E-01	1.19E-01	2.50E-02	5.72E-02
		899.15		99.16	1.59E-01		2.22E-02	7.44E-02
		911.74		91.10	3.79E-01		1.26E+00	1.84E-01
	BI-207	569.67		97.72	1.36E-01	1.36E-01	-5.88E-03	6.50E-02
		1063.62		74.90	1.95E-01		-4.81E-02	9.01E-02
+	TL-208	583.14	*	30.22	7.19E-01	7.60E-02	3.73E+00	3.49E-01
		860.37	*	4.48	3.49E+00		2.56E+00	1.64E+00
		2614.66	*	35.85	7.60E-02		4.10E+00	0.00E+00
	BI-210M	262.00		45.00	2.09E-01	2.09E-01	-1.34E-01	1.01E-01
		300.00		23.00	5.17E-01		-9.92E-01	2.52E-01
	PB-210	46.50		4.25	2.84E+00	2.84E+00	1.08E+00	1.40E+00
	PB-211	404.84		2.90	3.99E+00	3.99E+00	3.20E-01	1.92E+00
		831.96		2.90	6.11E+00		-4.52E-01	2.90E+00
+	BI-212	727.17	*	11.80	2.01E+00	2.01E+00	2.58E+00	9.71E-01
		1620.62		2.75	5.90E+00		1.57E+00	2.66E+00
+	PB-212	238.63	*	44.60	4.34E-01	4.34E-01	5.11E+00	2.14E-01
		300.09	*	3.41	5.15E+00		4.70E+00	2.53E+00
+	BI-214	609.31	*	46.30	4.25E-01	4.25E-01	2.23E+00	2.05E-01
		1120.29	*	15.10	1.52E+00		1.56E+00	7.22E-01
		1764.49	*	15.80	1.26E+00		1.77E+00	5.74E-01
		2204.22		4.98	4.47E+00		1.55E+00	2.01E+00
+	PB-214	295.21	*	19.19	9.15E-01	4.14E-01	2.32E+00	4.49E-01
		351.92	*	37.19	4.14E-01		2.26E+00	2.02E-01
	RN-219	401.80		6.50	1.75E+00	1.75E+00	-7.72E-02	8.43E-01
	RA-223	323.87		3.88	2.70E+00	2.70E+00	3.77E-01	1.30E+00
	RA-224	240.98		3.95	5.82E+00	5.82E+00	5.04E+01	2.87E+00
	RA-225	40.00		31.00	3.32E+01	3.32E+01	-1.42E+01	1.63E+01
+	RA-226	186.21	*	3.28	3.78E+00	3.78E+00	6.77E+00	1.86E+00
	TH-227	50.10		8.40	1.35E+00	1.35E+00	-3.72E-01	6.62E-01
		236.00		11.50	1.76E+00		8.43E+00	8.67E-01
		256.20		6.30	1.62E+00		5.67E-01	7.89E-01
+	AC-228	338.32	*	11.40	1.58E+00	5.83E-01	5.23E+00	7.76E-01
		911.07	*	27.70	5.83E-01		4.11E+00	2.74E-01
		969.11	*	16.60	1.56E+00		4.50E+00	7.51E-01
	TH-230	48.44		16.90	6.83E-01	6.83E-01	-4.78E-02	3.35E-01
		62.85		4.60	2.70E+00		3.81E+00	1.33E+00
		67.67		0.37	3.12E+01		-8.51E+01	1.54E+01
	PA-231	283.67		1.60	6.48E+00	4.83E+00	3.63E+00	3.15E+00
		302.67		2.30	4.83E+00		-8.52E-01	2.34E+00
	TH-231	25.64		14.70	2.26E+00	1.75E+00	9.17E-01	1.11E+00

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.75E+00	1.75E+00	-1.66E+00	8.62E-01
	PA-233	311.98		38.60	2.86E+00	2.86E+00	-3.25E-01	1.38E+00
	PA-234	131.20		20.40	4.77E-01	4.77E-01	7.20E-03	2.35E-01
		733.99		8.80	1.91E+00		2.11E-01	9.10E-01
		946.00		12.00	1.26E+00		-8.41E-02	5.88E-01
+	PA-234M	1001.03	*	0.92	1.99E+01	1.99E+01	1.03E+01	9.37E+00
+	TH-234	63.29	*	3.80	9.28E+00	9.28E+00	9.62E+00	4.62E+00
	U-235	143.76		10.50	8.79E-01	8.79E-01	4.84E-02	4.31E-01
		163.35		4.70	2.01E+00		1.01E+00	9.84E-01
		205.31		4.70	2.20E+00		3.71E-04	1.08E+00
+	NP-237	86.50	*	12.60	1.48E+00	1.48E+00	2.62E+00	7.36E-01
	NP-239	106.10		22.70	2.84E+11	2.84E+11	1.03E+11	1.39E+11
		228.18		10.70	7.07E+11		2.70E+11	3.45E+11
		277.60		14.10	5.63E+11		2.51E+11	2.74E+11
	AM-241	59.54		35.90	3.35E-01	3.35E-01	6.38E-02	1.65E-01
	AM-243	74.67		66.00	2.59E-01	2.59E-01	2.07E+00	1.28E-01
+	CM-243	209.75	*	3.29	3.97E+00	8.26E-01	4.65E+00	1.95E+00
		228.14		10.60	9.65E-01		3.69E-01	4.71E-01
		277.60	*	14.00	8.26E-01		5.13E-01	4.03E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707077-08

HTC-A01-S001-2430-01

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

Sample Title: HTC-A01-S001-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3603

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	30	165
17:	189	151	145	124	132	138	127	129
25:	123	141	122	121	108	122	127	131
33:	132	121	111	118	121	127	139	106
41:	119	121	130	151	160	165	146	140
49:	153	147	167	180	170	168	169	184
57:	196	208	237	244	236	370	333	259
65:	241	252	261	265	249	263	303	337
73:	497	740	775	919	686	314	206	177
81:	197	223	303	262	303	430	375	301
89:	339	297	308	401	341	207	145	159
97:	146	190	171	149	148	135	156	160
105:	165	158	143	165	157	133	131	145
113:	125	152	149	123	134	152	137	127
121:	131	150	133	155	167	133	163	204
129:	208	155	143	156	136	143	144	126
137:	120	136	147	129	133	137	142	129
145:	125	148	126	129	132	142	132	143
153:	150	144	139	125	104	132	130	122
161:	108	125	123	107	117	103	102	116
169:	102	116	98	112	103	111	101	110
177:	96	95	119	103	102	113	115	147
185:	222	189	117	86	99	93	95	94
193:	92	86	85	92	95	101	85	80
201:	118	72	94	101	99	100	109	151
209:	151	100	76	86	80	80	97	95
217:	74	88	86	86	73	80	81	82
225:	71	71	71	92	96	68	60	73
233:	71	78	98	193	633	942	497	193
241:	164	119	56	57	51	52	45	59
249:	54	55	59	56	63	58	67	64
257:	77	59	61	58	44	47	38	50
265:	44	60	58	71	128	94	71	49
273:	50	56	63	69	72	63	50	40
281:	55	55	47	54	57	64	52	44
289:	44	47	52	54	80	176	167	78
297:	51	57	74	91	57	32	37	36
305:	47	51	41	42	40	39	35	47
313:	50	40	34	48	49	30	32	30
321:	43	40	30	41	44	59	89	78
329:	59	42	43	40	32	48	45	77
337:	165	182	91	44	45	46	41	25
345:	37	22	39	45	54	141	296	184
353:	66	31	29	34	26	50	45	32
361:	38	23	30	32	28	38	34	35

369:	45	48	31	26	30	27	40	39

Sample Title: HTC-A01-S001-2430-01

Channel								
377:	26	34	26	31	39	28	31	29
385:	38	28	34	40	33	32	36	51
393:	35	32	37	35	34	28	33	30
401:	40	33	24	28	32	27	36	33
409:	54	42	27	31	31	22	31	35
417:	23	23	30	20	30	35	28	35
425:	25	28	36	34	26	25	38	24
433:	18	26	31	18	29	24	19	24
441:	23	24	21	22	32	22	22	25
449:	33	29	32	24	28	26	29	26
457:	30	21	25	27	46	58	36	30
465:	31	25	20	26	18	17	14	22
473:	25	18	18	24	24	25	23	18
481:	14	24	16	25	16	24	31	23
489:	17	28	27	15	22	15	22	17
497:	20	23	24	16	31	22	22	19
505:	19	25	21	41	75	103	62	40
513:	27	24	18	24	14	24	33	15
521:	24	19	21	16	20	15	26	17
529:	24	16	19	19	24	19	29	20
537:	31	22	29	16	10	25	15	17
545:	18	25	24	19	25	29	25	17
553:	22	15	17	26	16	26	11	12
561:	18	15	19	21	20	14	20	28
569:	25	21	19	14	21	20	26	18
577:	19	14	16	30	81	188	221	69
585:	18	11	19	19	20	15	23	18
593:	19	15	22	14	13	15	16	19
601:	20	18	12	22	18	30	56	161
609:	164	81	26	13	21	17	21	18
617:	20	21	10	14	18	17	23	13
625:	14	13	13	14	11	18	11	16
633:	22	21	14	17	14	18	10	21
641:	14	18	9	17	12	14	15	11
649:	12	16	16	17	18	21	9	19
657:	17	20	17	24	7	11	9	11
665:	16	17	15	14	16	11	16	17
673:	20	11	21	10	16	21	11	10
681:	18	18	21	16	12	19	16	21
689:	13	12	19	15	10	15	15	14
697:	12	15	8	10	16	25	12	16
705:	18	21	22	14	16	13	12	12
713:	10	12	13	12	16	12	14	22
721:	20	14	13	18	22	45	49	33
729:	13	16	17	22	12	17	12	17
737:	13	8	14	11	11	15	8	11
745:	11	11	9	16	13	11	11	9
753:	12	20	11	22	13	12	19	15
761:	20	11	15	11	8	20	13	29
769:	21	11	19	12	17	17	7	10
777:	12	12	14	10	12	15	13	11
785:	25	12	15	10	14	10	17	10
793:	17	46	29	21	9	15	14	9

801:	9	7	20	11	15	11	14	9

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Channel								
809:	15	13	8	10	9	9	13	14
817:	7	14	8	17	11	17	7	9
825:	15	13	9	12	15	16	22	5
833:	14	15	14	18	10	16	16	21
841:	7	6	11	5	8	5	12	11
849:	8	14	5	7	11	7	12	17
857:	6	12	19	25	18	13	3	11
865:	13	4	8	5	11	11	11	7
873:	11	9	11	8	6	9	10	3
881:	5	7	5	11	12	5	11	7
889:	6	4	5	13	8	6	9	7
897:	10	5	7	12	10	7	7	9
905:	7	5	7	16	48	120	106	53
913:	12	5	6	7	9	10	11	10
921:	9	10	9	6	9	5	9	6
929:	9	3	6	6	12	13	12	4
937:	10	13	4	9	3	8	13	6
945:	9	8	5	7	9	6	12	5
953:	7	7	6	10	8	8	8	9
961:	6	13	20	40	20	16	41	77
969:	64	24	8	10	1	6	9	7
977:	9	4	7	11	10	11	5	7
985:	6	4	11	12	6	6	11	5
993:	8	7	6	8	4	7	9	11
1001:	18	13	9	5	5	8	7	4
1009:	9	1	5	10	10	7	5	6
1017:	3	10	7	4	6	7	4	9
1025:	3	6	9	9	7	10	9	12
1033:	3	5	12	5	8	13	5	12
1041:	6	8	6	5	9	14	4	2
1049:	7	8	4	7	6	6	10	7
1057:	1	10	3	3	8	8	3	7
1065:	3	10	5	7	8	6	10	7
1073:	8	6	5	7	10	16	6	9
1081:	3	4	6	6	2	10	10	9
1089:	15	7	5	10	11	11	9	5
1097:	8	9	9	5	6	5	6	5
1105:	7	8	9	5	11	10	8	10
1113:	8	7	11	4	4	16	27	36
1121:	20	5	6	9	11	7	8	8
1129:	10	6	7	5	7	6	6	7
1137:	6	6	7	14	5	4	7	7
1145:	10	6	2	7	9	6	5	11
1153:	10	11	9	8	9	9	10	8
1161:	4	2	7	6	5	6	8	5
1169:	9	9	4	9	4	7	12	8
1177:	10	7	12	7	5	6	8	6
1185:	4	4	5	10	5	9	4	6
1193:	7	8	10	4	8	10	6	12
1201:	4	5	12	6	6	11	10	8
1209:	8	8	7	14	5	6	7	9
1217:	12	11	8	7	6	9	3	5
1225:	9	11	9	6	4	7	5	2

1233:	11	2	15	10	18	20	12	11

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Channel								
1241:	12	6	5	7	11	10	6	12
1249:	3	6	5	2	2	8	7	1
1257:	1	6	10	7	10	3	7	7
1265:	6	7	10	7	12	10	5	12
1273:	7	5	5	6	5	9	6	17
1281:	7	5	8	4	7	7	7	7
1289:	5	9	7	4	5	3	5	10
1297:	5	8	9	7	6	4	9	7
1305:	4	3	2	4	4	4	6	3
1313:	6	7	5	4	4	6	4	7
1321:	5	4	8	2	4	2	3	3
1329:	9	2	5	6	4	5	5	4
1337:	2	1	3	2	6	9	4	1
1345:	3	3	3	4	4	5	4	8
1353:	1	5	3	4	5	4	2	6
1361:	3	5	4	3	4	4	3	5
1369:	4	6	4	3	6	1	6	11
1377:	12	9	9	5	2	1	5	3
1385:	3	4	1	6	3	0	7	3
1393:	4	3	1	3	4	2	4	6
1401:	3	2	3	2	4	6	10	9
1409:	5	5	1	4	3	1	2	3
1417:	4	4	2	1	3	5	5	6
1425:	3	3	1	4	1	4	1	4
1433:	3	4	5	2	4	2	8	2
1441:	6	1	4	2	2	4	2	2
1449:	8	1	4	3	0	3	1	4
1457:	6	30	80	143	113	48	7	3
1465:	3	5	3	4	2	2	1	4
1473:	2	1	4	3	2	3	1	2
1481:	0	1	0	4	4	1	3	4
1489:	1	0	0	7	3	7	3	3
1497:	4	3	2	3	2	3	5	0
1505:	2	2	3	4	6	5	4	3
1513:	3	5	3	2	2	1	1	1
1521:	3	4	4	3	2	2	3	2
1529:	3	3	4	4	1	3	2	4
1537:	3	4	1	2	0	4	3	1
1545:	3	2	0	2	3	2	2	0
1553:	2	6	1	2	3	2	1	3
1561:	3	1	2	3	0	1	4	0
1569:	2	3	1	4	1	1	1	1
1577:	0	3	4	2	4	2	4	5
1585:	1	5	8	10	9	4	9	13
1593:	9	3	5	1	0	0	2	0
1601:	2	3	4	2	1	2	1	3
1609:	1	3	5	1	3	0	5	0
1617:	3	4	4	4	8	1	3	1
1625:	1	4	1	0	4	4	6	5
1633:	2	2	1	2	3	4	2	1
1641:	3	1	4	1	0	1	3	3
1649:	0	0	2	3	2	3	2	3
1657:	1	2	1	1	3	1	3	1

1665:	1	2	2	1	2	1	2	1

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Channel								
1673:	3	3	1	1	1	1	2	1
1681:	1	1	1	0	0	4	2	2
1689:	2	3	1	6	4	2	1	1
1697:	2	2	3	1	2	1	2	0
1705:	1	3	0	1	2	1	3	1
1713:	0	1	1	2	3	1	2	1
1721:	4	2	3	3	2	4	1	3
1729:	7	2	4	1	0	0	3	0
1737:	1	1	0	0	1	3	2	2
1745:	3	2	1	4	1	6	1	0
1753:	1	0	2	1	2	3	3	2
1761:	1	8	14	17	16	5	0	4
1769:	0	2	2	2	0	3	3	1
1777:	0	2	1	3	2	0	0	1
1785:	1	2	1	0	2	2	2	2
1793:	2	1	1	1	1	2	0	1
1801:	0	2	2	0	1	2	2	1
1809:	3	2	1	2	0	0	1	0
1817:	0	1	2	2	1	2	5	0
1825:	0	3	2	3	1	1	0	0
1833:	1	0	3	1	1	2	2	1
1841:	0	2	3	0	2	6	4	3
1849:	2	0	0	1	2	2	2	0
1857:	2	1	2	2	3	1	2	2
1865:	2	1	5	2	1	1	1	3
1873:	3	3	3	2	4	2	0	5
1881:	0	2	2	2	2	0	2	2
1889:	1	2	3	2	0	0	3	2
1897:	3	4	3	2	1	0	0	4
1905:	1	2	2	2	0	1	1	0
1913:	3	1	1	1	1	0	2	0
1921:	2	2	3	1	3	1	2	3
1929:	2	1	1	1	1	2	3	5
1937:	0	2	3	1	0	0	1	3
1945:	2	0	1	4	2	1	4	2
1953:	0	2	3	2	2	2	2	0
1961:	1	5	2	1	3	2	3	5
1969:	1	2	0	3	3	0	1	1
1977:	3	1	0	3	2	2	4	2
1985:	1	4	1	1	3	2	1	1
1993:	1	0	1	1	2	1	1	0
2001:	2	1	0	1	1	2	3	1
2009:	0	2	1	2	0	1	1	1
2017:	2	0	1	3	2	2	1	3
2025:	3	1	1	4	4	2	0	2
2033:	1	2	0	2	0	0	5	1
2041:	2	0	3	0	1	1	1	1
2049:	0	1	0	1	1	1	2	2
2057:	0	1	1	2	3	1	3	0
2065:	2	2	1	4	1	4	4	1
2073:	1	2	3	0	0	1	2	1
2081:	0	1	1	3	2	1	1	3
2089:	2	2	1	0	0	0	2	2

2097:	1	4	4	2	4	4	6	8

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

2529:	0	1	2	1	0	1	0	1

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Channel								
2537:	2	0	0	0	0	0	1	1
2545:	2	0	0	0	0	0	0	0
2553:	0	1	1	1	0	1	0	1
2561:	0	0	0	1	1	0	0	0
2569:	1	1	0	1	0	0	0	1
2577:	0	0	0	2	1	0	0	1
2585:	1	0	1	2	0	0	0	0
2593:	0	0	1	0	2	0	1	0
2601:	1	0	1	0	0	0	0	0
2609:	0	0	3	5	17	47	36	21
2617:	15	1	1	0	0	0	0	0
2625:	0	2	1	0	0	2	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	1	0	1	1	0	0
2649:	1	0	1	0	0	0	0	0
2657:	0	0	0	0	1	1	2	0
2665:	0	0	1	0	0	0	0	1
2673:	0	0	0	1	0	0	0	0
2681:	1	0	0	0	0	0	0	0
2689:	1	0	0	0	0	1	0	0
2697:	0	0	1	1	0	1	1	0
2705:	1	0	0	0	0	0	0	0
2713:	0	1	0	0	0	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	1	0	1	0	0	0	2	1
2737:	0	0	2	0	1	1	1	0
2745:	0	0	0	0	1	0	0	0
2753:	0	1	0	1	0	0	0	0
2761:	1	0	1	1	0	1	0	0
2769:	0	1	0	1	1	1	0	0
2777:	0	1	0	1	0	0	0	0
2785:	0	0	0	0	0	1	0	1
2793:	1	1	1	1	0	0	0	0
2801:	0	0	0	0	0	1	0	1
2809:	0	0	0	0	0	0	0	0
2817:	1	0	0	0	0	0	0	0
2825:	0	0	0	0	0	1	0	1
2833:	0	0	2	0	0	0	0	0
2841:	0	0	0	0	0	0	1	0
2849:	0	0	0	0	1	0	0	0
2857:	0	1	0	0	0	0	0	0
2865:	1	0	0	0	0	0	0	0
2873:	1	0	0	0	0	0	1	0
2881:	0	0	0	0	1	0	0	2
2889:	0	0	2	0	1	1	0	1
2897:	0	0	1	0	0	0	0	0
2905:	0	1	0	0	1	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	1	0	0
2929:	1	0	0	0	1	0	1	0
2937:	0	2	0	0	0	1	0	0
2945:	0	0	0	0	0	0	2	0
2953:	0	0	1	0	0	0	0	0

2961:	0	1	0	0	0	1	0	1

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

3393:	0	0	0	0	0	0	0	0

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

3825:	0	1	0	0	0	1	0	0

Sample Title: HTC-A01-S001-2430-01

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

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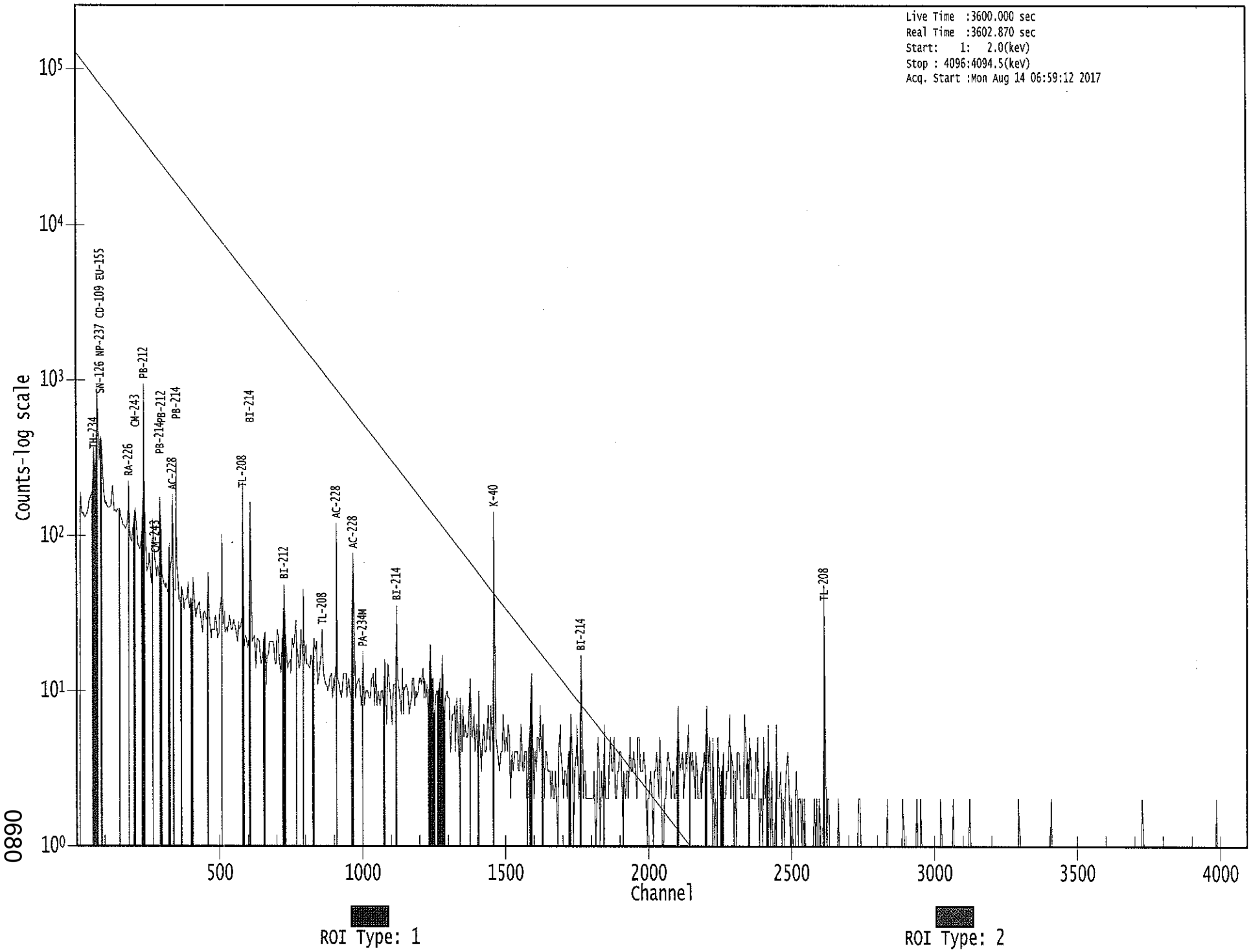

0890

Apex-Gamma

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-09
Sample Description	: HTC-A01-S001-3036-01
Sample Type	: SOIL
Sample Size	: 5.190E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:34:50AM
Acquisition Started	: 8/14/2017 8:00:56AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.4 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 19 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55142

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 9:01:02AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.12	46.74	0.0000	0.00
2	63.58	64.19	0.0000	0.00
3	76.06	76.65	0.0000	0.00
4	89.27	89.85	0.0000	0.00
5	92.58	93.15	0.0000	0.00
6	99.06	99.63	0.0000	0.00
7	185.81	186.29	0.0000	0.00
8	238.49	238.92	0.0000	0.00
9	241.58	242.00	0.0000	0.00
10	269.70	270.10	0.0000	0.00
11	276.88	277.27	0.0000	0.00
12	295.02	295.39	0.0000	0.00
13	299.95	300.31	0.0000	0.00
14	327.24	327.57	0.0000	0.00
15	338.09	338.41	0.0000	0.00
16	352.02	352.33	0.0000	0.00
17	388.65	388.93	0.0000	0.00
18	426.16	426.40	0.0000	0.00
19	463.03	463.23	0.0000	0.00
20	510.91	511.06	0.0000	0.00
21	583.32	583.39	0.0000	0.00
22	604.15	604.21	0.0000	0.00
23	609.39	609.44	0.0000	0.00
24	615.96	616.00	0.0000	0.00
25	653.53	653.54	0.0000	0.00
26	727.24	727.17	0.0000	0.00
27	767.26	767.15	0.0000	0.00
28	800.06	799.92	0.0000	0.00
29	836.73	836.55	0.0000	0.00
30	842.84	842.65	0.0000	0.00
31	861.35	861.15	0.0000	0.00
32	911.35	911.10	0.0000	0.00
33	937.15	936.87	0.0000	0.00
34	964.79	964.48	0.0000	0.00
35	969.38	969.07	0.0000	0.00
36	1077.46	1077.04	0.0000	0.00
37	1120.48	1120.03	0.0000	0.00
38	1238.34	1237.76	0.0000	0.00
39	1377.71	1377.00	0.0000	0.00
40	1381.68	1380.96	0.0000	0.00
41	1461.48	1460.69	0.0000	0.00
42	1589.86	1588.93	0.0000	0.00

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1729.74	1728.69	0.0000	0.00
44	1753.14	1752.06	0.0000	0.00
45	1765.04	1763.95	0.0000	0.00
46	1848.20	1847.02	0.0000	0.00
47	1855.63	1854.45	0.0000	0.00
48	2106.13	2104.71	0.0000	0.00
49	2119.82	2118.38	0.0000	0.00
50	2154.03	2152.56	0.0000	0.00
51	2172.34	2170.86	0.0000	0.00
52	2204.69	2203.17	0.0000	0.00
53	2263.93	2262.36	0.0000	0.00
54	2310.15	2308.53	0.0000	0.00
55	2369.62	2367.95	0.0000	0.00
56	2379.85	2378.17	0.0000	0.00
57	2396.82	2395.11	0.0000	0.00
58	2404.25	2402.54	0.0000	0.00
59	2448.42	2446.67	0.0000	0.00
60	2615.19	2613.28	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 9:01:02AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.12	44 -	49	46.74	1.34E+02	70.82	8.94E+02	1.60
	2	63.58	61 -	69	64.19	2.76E+02	122.21	2.13E+03	1.94
	3	76.06	72 -	83	76.65	1.21E+03	171.98	3.09E+03	3.83
m	4	89.27	84 -	97	89.85	2.16E+02	79.17	1.05E+03	1.67
m	5	92.58	84 -	97	93.15	3.55E+02	79.30	8.81E+02	1.67
	6	99.06	98 -	103	99.63	6.68E+01	69.58	9.14E+02	2.41
	7	185.81	182 -	188	186.29	1.33E+02	76.56	9.69E+02	1.60
M	8	238.49	233 -	252	238.92	1.04E+03	81.54	4.67E+02	1.85
m	9	241.58	233 -	252	242.00	2.87E+02	89.34	5.14E+02	2.46
	10	269.70	267 -	273	270.10	6.26E+01	53.27	4.73E+02	2.74
	11	276.88	274 -	280	277.27	6.40E+01	54.47	4.92E+02	2.78
	12	295.02	292 -	298	295.39	3.23E+02	62.11	4.68E+02	1.96
	13	299.95	299 -	303	300.31	5.83E+01	41.07	3.17E+02	1.42
	14	327.24	324 -	331	327.57	6.44E+01	51.42	4.01E+02	2.64
	15	338.09	334 -	342	338.41	2.59E+02	60.58	4.06E+02	2.03
	16	352.02	348 -	357	352.33	5.51E+02	71.87	4.17E+02	1.80
	17	388.65	385 -	393	388.93	4.55E+01	47.01	3.05E+02	3.85
	18	426.16	424 -	429	426.40	2.93E+01	33.45	1.99E+02	2.88
	19	463.03	460 -	466	463.23	5.07E+01	40.68	2.61E+02	1.26
	20	510.91	507 -	515	511.06	1.77E+02	50.87	2.92E+02	1.75
	21	583.32	579 -	588	583.39	2.94E+02	55.41	2.71E+02	2.17
M	22	604.15	604 -	619	604.21	1.38E+01	0.00	0.00E+00	2.74
m	23	609.39	604 -	619	609.44	4.21E+02	47.53	1.34E+02	1.98
m	24	615.96	604 -	619	616.00	1.84E+01	26.36	1.06E+02	1.87
	25	653.53	651 -	657	653.54	2.63E+01	29.01	1.35E+02	3.63
	26	727.24	724 -	731	727.17	5.84E+01	33.47	1.47E+02	1.83
	27	767.26	761 -	772	767.15	6.08E+01	44.41	2.16E+02	1.96
	28	800.06	790 -	811	799.92	7.26E+01	69.71	3.49E+02	1.85
M	29	836.73	832 -	847	836.55	2.21E+01	28.64	1.22E+02	2.62
m	30	842.84	832 -	847	842.65	2.74E+01	28.50	1.06E+02	2.62
	31	861.35	857 -	866	861.15	4.95E+01	37.01	1.61E+02	2.17
	32	911.35	907 -	915	911.10	2.36E+02	40.97	1.14E+02	1.96
	33	937.15	929 -	945	936.87	4.70E+01	52.68	2.46E+02	1.35
M	34	964.79	959 -	975	964.48	7.01E+01	32.32	8.79E+01	2.96
m	35	969.38	959 -	975	969.07	1.57E+02	34.93	7.50E+01	2.59
	36	1077.46	1071 -	1083	1077.04	4.35E+01	36.54	1.37E+02	10.04
	37	1120.48	1118 -	1125	1120.03	5.73E+01	35.89	1.85E+02	1.50
	38	1238.34	1234 -	1241	1237.76	4.44E+01	33.53	1.53E+02	1.96
M	39	1377.71	1373 -	1383	1377.00	2.29E+01	16.25	3.60E+01	2.16
m	40	1381.68	1373 -	1383	1380.96	1.13E+01	18.52	4.20E+01	2.38

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1461.48	1455 -	1467	1460.69	9.92E+02	67.22	6.34E+01	2.38
42	1589.86	1582 -	1595	1588.93	2.05E+01	19.92	3.51E+01	6.53
43	1729.74	1723 -	1733	1728.69	1.88E+01	19.07	3.85E+01	2.80
44	1753.14	1748 -	1756	1752.06	7.50E+00	9.41	9.00E+00	1.28
45	1765.04	1759 -	1768	1763.95	6.94E+01	22.87	3.51E+01	1.62
46	1848.20	1844 -	1849	1847.02	7.75E+00	10.86	1.65E+01	1.64
47	1855.63	1851 -	1857	1854.45	6.31E+00	6.65	3.38E+00	2.82
48	2106.13	2100 -	2110	2104.71	2.27E+01	11.41	4.60E+00	6.39
49	2119.82	2115 -	2121	2118.38	1.30E+01	7.21	0.00E+00	1.35
50	2154.03	2148 -	2156	2152.56	7.75E+00	7.76	4.50E+00	3.12
51	2172.34	2168 -	2173	2170.86	7.00E+00	5.29	0.00E+00	2.70
52	2204.69	2199 -	2208	2203.17	1.99E+01	13.53	1.41E+01	2.14
53	2263.93	2259 -	2265	2262.36	7.91E+00	8.28	6.18E+00	2.61
54	2310.15	2306 -	2311	2308.53	7.83E+00	6.71	2.33E+00	2.92
55	2369.62	2365 -	2371	2367.95	8.50E+00	8.51	7.00E+00	2.63
56	2379.85	2376 -	2381	2378.17	1.20E+01	6.93	0.00E+00	2.97
57	2396.82	2393 -	2397	2395.11	4.58E+00	5.50	2.83E+00	1.84
58	2404.25	2398 -	2406	2402.54	1.38E+01	9.18	4.31E+00	4.79
59	2448.42	2441 -	2451	2446.67	1.50E+01	7.75	0.00E+00	6.44
60	2615.19	2609 -	2618	2613.28	1.22E+02	23.71	1.13E+01	2.76

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 9:01:02AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.12	44 -	49	1.34E+02	70.82	8.94E+02	5.50E+01
	2	63.58	61 -	69	2.76E+02	122.21	2.13E+03	9.67E+01
	3	76.06	72 -	83	1.21E+03	171.98	3.09E+03	1.29E+02
m	4	89.27	84 -	97	2.16E+02	79.17	1.05E+03	5.34E+01
m	5	92.58	84 -	97	3.55E+02	79.30	8.81E+02	4.88E+01
	6	99.06	98 -	103	6.68E+01	69.58	9.14E+02	5.56E+01
	7	185.81	182 -	188	1.33E+02	76.56	9.69E+02	6.00E+01
M	8	238.49	233 -	252	1.04E+03	81.54	4.67E+02	3.55E+01

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	9	241.58	233 -	252	2.87E+02	89.34	5.14E+02	3.73E+01
	10	269.70	267 -	273	6.26E+01	53.27	4.73E+02	4.18E+01
	11	276.88	274 -	280	6.40E+01	54.47	4.92E+02	4.28E+01
	12	295.02	292 -	298	3.23E+02	62.11	4.68E+02	4.16E+01
	13	299.95	299 -	303	5.83E+01	41.07	3.17E+02	3.13E+01
	14	327.24	324 -	331	6.44E+01	51.42	4.01E+02	4.02E+01
	15	338.09	334 -	342	2.59E+02	60.58	4.06E+02	1.88E+01
	16	352.02	348 -	357	5.51E+02	71.87	4.17E+02	4.47E+01
	17	388.65	385 -	393	4.55E+01	47.01	3.05E+02	3.70E+01
	18	426.16	424 -	429	2.93E+01	33.45	1.99E+02	2.60E+01
	19	463.03	460 -	466	5.07E+01	40.68	2.61E+02	3.13E+01
	20	510.91	507 -	515	1.77E+02	50.87	2.92E+02	3.56E+01
	21	583.32	579 -	588	2.94E+02	55.41	2.71E+02	3.58E+01
M	22	604.15	604 -	619	1.38E+01	0.00	0.00E+00	0.00E+00
m	23	609.39	604 -	619	4.21E+02	47.53	1.34E+02	1.90E+01
m	24	615.96	604 -	619	1.84E+01	26.36	1.06E+02	1.69E+01
	25	653.53	651 -	657	2.63E+01	29.01	1.35E+02	2.23E+01
	26	727.24	724 -	731	5.84E+01	33.47	1.47E+02	2.45E+01
	27	767.26	761 -	772	6.08E+01	44.41	2.16E+02	3.42E+01
	28	800.06	790 -	811	7.26E+01	69.71	3.49E+02	1.66E+01
M	29	836.73	832 -	847	2.21E+01	28.64	1.22E+02	1.82E+01
m	30	842.84	832 -	847	2.74E+01	28.50	1.06E+02	1.69E+01
	31	861.35	857 -	866	4.95E+01	37.01	1.61E+02	2.81E+01
	32	911.35	907 -	915	2.36E+02	40.97	1.14E+02	2.23E+01
	33	937.15	929 -	945	4.70E+01	52.68	2.46E+02	1.54E+01
M	34	964.79	959 -	975	7.01E+01	32.32	8.79E+01	1.54E+01
m	35	969.38	959 -	975	1.57E+02	34.93	7.50E+01	1.42E+01
	36	1077.46	1071 -	1083	4.35E+01	36.54	1.37E+02	2.80E+01
	37	1120.48	1118 -	1125	5.73E+01	35.89	1.85E+02	2.67E+01
	38	1238.34	1234 -	1241	4.44E+01	33.53	1.53E+02	2.53E+01
M	39	1377.71	1373 -	1383	2.29E+01	16.25	3.60E+01	9.86E+00
m	40	1381.68	1373 -	1383	1.13E+01	18.52	4.20E+01	1.07E+01
	41	1461.48	1455 -	1467	9.92E+02	67.22	6.34E+01	1.93E+01
	42	1589.86	1582 -	1595	2.05E+01	19.92	3.51E+01	1.46E+01
	43	1729.74	1723 -	1733	1.88E+01	19.07	3.85E+01	1.40E+01
	44	1753.14	1748 -	1756	7.50E+00	9.41	9.00E+00	6.29E+00
	45	1765.04	1759 -	1768	6.94E+01	22.87	3.51E+01	1.29E+01
	46	1848.20	1844 -	1849	7.75E+00	10.86	1.65E+01	7.67E+00
	47	1855.63	1851 -	1857	6.31E+00	6.65	3.38E+00	3.58E+00
	48	2106.13	2100 -	2110	2.27E+01	11.41	4.60E+00	5.16E+00
	49	2119.82	2115 -	2121	1.30E+01	7.21	0.00E+00	0.00E+00
	50	2154.03	2148 -	2156	7.75E+00	7.76	4.50E+00	4.45E+00
	51	2172.34	2168 -	2173	7.00E+00	5.29	0.00E+00	0.00E+00
	52	2204.69	2199 -	2208	1.99E+01	13.53	1.41E+01	8.35E+00
	53	2263.93	2259 -	2265	7.91E+00	8.28	6.18E+00	4.99E+00
	54	2310.15	2306 -	2311	7.83E+00	6.71	2.33E+00	3.04E+00
	55	2369.62	2365 -	2371	8.50E+00	8.51	7.00E+00	5.10E+00
	56	2379.85	2376 -	2381	1.20E+01	6.93	0.00E+00	0.00E+00
	57	2396.82	2393 -	2397	4.58E+00	5.50	2.83E+00	2.84E+00
	58	2404.25	2398 -	2406	1.38E+01	9.18	4.31E+00	4.42E+00
	59	2448.42	2441 -	2451	1.50E+01	7.75	0.00E+00	0.00E+00

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2615.19	2609 -	2618	1.22E+02	23.71	1.13E+01	7.01E+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 : 8/14/2017 9:01:02AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.12	44 -	49	46.74	1.34E+02	70.82	8.94E+02	PB-210
	2	63.58	61 -	69	64.19	2.76E+02	122.21	2.13E+03	TH-234
									TH-230
	3	76.06	72 -	83	76.65	1.21E+03	171.98	3.09E+03	.....
m	4	89.27	84 -	97	89.85	2.16E+02	79.17	1.05E+03	LU-176
m	5	92.58	84 -	97	93.15	3.55E+02	79.30	8.81E+02	GA-67
	6	99.06	98 -	103	99.63	6.68E+01	69.58	9.14E+02	.....
	7	185.81	182 -	188	186.29	1.33E+02	76.56	9.69E+02	RA-226
M	8	238.49	233 -	252	238.92	1.04E+03	81.54	4.67E+02	PB-212
m	9	241.58	233 -	252	242.00	2.87E+02	89.34	5.14E+02	RA-224
	10	269.70	267 -	273	270.10	6.26E+01	53.27	4.73E+02	.....
	11	276.88	274 -	280	277.27	6.40E+01	54.47	4.92E+02	CM-243
									NP-239
	12	295.02	292 -	298	295.39	3.23E+02	62.11	4.68E+02	PB-214
	13	299.95	299 -	303	300.31	5.83E+01	41.07	3.17E+02	BI-210M
									PB-212
									GA-67
	14	327.24	324 -	331	327.57	6.44E+01	51.42	4.01E+02	.....
	15	338.09	334 -	342	338.41	2.59E+02	60.58	4.06E+02	AC-228
	16	352.02	348 -	357	352.33	5.51E+02	71.87	4.17E+02	PB-214
	17	388.65	385 -	393	388.93	4.55E+01	47.01	3.05E+02	.....
	18	426.16	424 -	429	426.40	2.93E+01	33.45	1.99E+02	.....
	19	463.03	460 -	466	463.23	5.07E+01	40.68	2.61E+02	SB-125
	20	510.91	507 -	515	511.06	1.77E+02	50.87	2.92E+02	.....
	21	583.32	579 -	588	583.39	2.94E+02	55.41	2.71E+02	TL-208

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	22	604.15	604 -	619	604.21	1.38E+01	0.00	0.00E+00	CS-134
m	23	609.39	604 -	619	609.44	4.21E+02	47.53	1.34E+02	BI-214
m	24	615.96	604 -	619	616.00	1.84E+01	26.36	1.06E+02	.....
	25	653.53	651 -	657	653.54	2.63E+01	29.01	1.35E+02	.....
	26	727.24	724 -	731	727.17	5.84E+01	33.47	1.47E+02	BI-212
	27	767.26	761 -	772	767.15	6.08E+01	44.41	2.16E+02	.....
	28	800.06	790 -	811	799.92	7.26E+01	69.71	3.49E+02	.....
M	29	836.73	832 -	847	836.55	2.21E+01	28.64	1.22E+02	.....
m	30	842.84	832 -	847	842.65	2.74E+01	28.50	1.06E+02	.....
	31	861.35	857 -	866	861.15	4.95E+01	37.01	1.61E+02	TL-208
	32	911.35	907 -	915	911.10	2.36E+02	40.97	1.14E+02	AC-228 TL-204
	33	937.15	929 -	945	936.87	4.70E+01	52.68	2.46E+02	.....
M	34	964.79	959 -	975	964.48	7.01E+01	32.32	8.79E+01	EU-152
m	35	969.38	959 -	975	969.07	1.57E+02	34.93	7.50E+01	AC-228
	36	1077.46	1071 -	1083	1077.04	4.35E+01	36.54	1.37E+02	.....
	37	1120.48	1118 -	1125	1120.03	5.73E+01	35.89	1.85E+02	SC-46 BI-214 TA-182
	38	1238.34	1234 -	1241	1237.76	4.44E+01	33.53	1.53E+02	CO-56
M	39	1377.71	1373 -	1383	1377.00	2.29E+01	16.25	3.60E+01	.....
m	40	1381.68	1373 -	1383	1380.96	1.13E+01	18.52	4.20E+01	.....
	41	1461.48	1455 -	1467	1460.69	9.92E+02	67.22	6.34E+01	K-40
	42	1589.86	1582 -	1595	1588.93	2.05E+01	19.92	3.51E+01	.....
	43	1729.74	1723 -	1733	1728.69	1.88E+01	19.07	3.85E+01	.....
	44	1753.14	1748 -	1756	1752.06	7.50E+00	9.41	9.00E+00	.....
	45	1765.04	1759 -	1768	1763.95	6.94E+01	22.87	3.51E+01	BI-214
	46	1848.20	1844 -	1849	1847.02	7.75E+00	10.86	1.65E+01	.....
	47	1855.63	1851 -	1857	1854.45	6.31E+00	6.65	3.38E+00	.....
	48	2106.13	2100 -	2110	2104.71	2.27E+01	11.41	4.60E+00	.....
	49	2119.82	2115 -	2121	2118.38	1.30E+01	7.21	0.00E+00	.....
	50	2154.03	2148 -	2156	2152.56	7.75E+00	7.76	4.50E+00	.....
	51	2172.34	2168 -	2173	2170.86	7.00E+00	5.29	0.00E+00	.....
	52	2204.69	2199 -	2208	2203.17	1.99E+01	13.53	1.41E+01	BI-214
	53	2263.93	2259 -	2265	2262.36	7.91E+00	8.28	6.18E+00	.....
	54	2310.15	2306 -	2311	2308.53	7.83E+00	6.71	2.33E+00	.....
	55	2369.62	2365 -	2371	2367.95	8.50E+00	8.51	7.00E+00	.....
	56	2379.85	2376 -	2381	2378.17	1.20E+01	6.93	0.00E+00	.....
	57	2396.82	2393 -	2397	2395.11	4.58E+00	5.50	2.83E+00	.....
	58	2404.25	2398 -	2406	2402.54	1.38E+01	9.18	4.31E+00	.....
	59	2448.42	2441 -	2451	2446.67	1.50E+01	7.75	0.00E+00	.....
	60	2615.19	2609 -	2618	2613.28	1.22E+02	23.71	1.13E+01	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 1707077-09

HTC-A01-S001-3036-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 9:01:02AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.12	1.34E+02	70.82	2.46E-02	2.22E-03
	2	63.58	2.76E+02	122.21	2.70E-02	2.26E-03
	3	76.06	1.21E+03	171.98	2.75E-02	2.39E-03
m	4	89.27	2.16E+02	79.17	2.74E-02	2.50E-03
m	5	92.58	3.55E+02	79.30	2.73E-02	2.45E-03
	6	99.06	6.68E+01	69.58	2.70E-02	2.34E-03
	7	185.81	1.33E+02	76.56	2.17E-02	1.68E-03
M	8	238.49	1.04E+03	81.54	1.89E-02	1.53E-03
m	9	241.58	2.87E+02	89.34	1.87E-02	1.52E-03
	10	269.70	6.26E+01	53.27	1.75E-02	1.44E-03
	11	276.88	6.40E+01	54.47	1.72E-02	1.41E-03
	12	295.02	3.23E+02	62.11	1.64E-02	1.37E-03
	13	299.95	5.83E+01	41.07	1.63E-02	1.36E-03
	14	327.24	6.44E+01	51.42	1.53E-02	1.30E-03
	15	338.09	2.59E+02	60.58	1.50E-02	1.27E-03
	16	352.02	5.51E+02	71.87	1.45E-02	1.24E-03
	17	388.65	4.55E+01	47.01	1.35E-02	1.15E-03
	18	426.16	2.93E+01	33.45	1.26E-02	1.12E-03
	19	463.03	5.07E+01	40.68	1.19E-02	1.10E-03
	20	510.91	1.77E+02	50.87	1.10E-02	1.07E-03
	21	583.32	2.94E+02	55.41	9.96E-03	1.02E-03
M	22	604.15	1.38E+01	0.00	9.70E-03	1.01E-03
m	23	609.39	4.21E+02	47.53	9.63E-03	1.01E-03
m	24	615.96	1.84E+01	26.36	9.55E-03	1.00E-03
	25	653.53	2.63E+01	29.01	9.13E-03	9.77E-04
	26	727.24	5.84E+01	33.47	8.41E-03	8.68E-04
	27	767.26	6.08E+01	44.41	8.07E-03	8.04E-04
	28	800.06	7.26E+01	69.71	7.82E-03	7.52E-04
M	29	836.73	2.21E+01	28.64	7.56E-03	6.94E-04
m	30	842.84	2.74E+01	28.50	7.52E-03	6.84E-04
	31	861.35	4.95E+01	37.01	7.39E-03	6.55E-04
	32	911.35	2.36E+02	40.97	7.08E-03	5.91E-04
	33	937.15	4.70E+01	52.68	6.94E-03	5.81E-04
M	34	964.79	7.01E+01	32.32	6.79E-03	5.71E-04
m	35	969.38	1.57E+02	34.93	6.76E-03	5.69E-04
	36	1077.46	4.35E+01	36.54	6.25E-03	5.28E-04
	37	1120.48	5.73E+01	35.89	6.07E-03	5.11E-04
	38	1238.34	4.44E+01	33.53	5.64E-03	4.76E-04
M	39	1377.71	2.29E+01	16.25	5.22E-03	4.44E-04
m	40	1381.68	1.13E+01	18.52	5.21E-03	4.43E-04
	41	1461.48	9.92E+02	67.22	5.00E-03	4.25E-04
	42	1589.86	2.05E+01	19.92	4.71E-03	3.95E-04
	43	1729.74	1.88E+01	19.07	4.44E-03	3.62E-04
	44	1753.14	7.50E+00	9.41	4.39E-03	3.57E-04
	45	1765.04	6.94E+01	22.87	4.37E-03	3.54E-04

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1848.20	7.75E+00	10.86	4.23E-03	3.38E-04
47	1855.63	6.31E+00	6.65	4.22E-03	3.38E-04
48	2106.13	2.27E+01	11.41	3.86E-03	3.38E-04
49	2119.82	1.30E+01	7.21	3.84E-03	3.38E-04
50	2154.03	7.75E+00	7.76	3.80E-03	3.38E-04
51	2172.34	7.00E+00	5.29	3.78E-03	3.38E-04
52	2204.69	1.99E+01	13.53	3.74E-03	3.38E-04
53	2263.93	7.91E+00	8.28	3.67E-03	3.38E-04
54	2310.15	7.83E+00	6.71	3.61E-03	3.38E-04
55	2369.62	8.50E+00	8.51	3.55E-03	3.38E-04
56	2379.85	1.20E+01	6.93	3.54E-03	3.38E-04
57	2396.82	4.58E+00	5.50	3.52E-03	3.38E-04
58	2404.25	1.38E+01	9.18	3.51E-03	3.38E-04
59	2448.42	1.50E+01	7.75	3.47E-03	3.38E-04
60	2615.19	1.22E+02	23.71	3.31E-03	3.38E-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 : 8/14/2017 9:01:02AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.12	1.34E+02	70.82	4.28E+01	8.26E+00	9.13E+01	7.13E+01
	2	63.58	2.76E+02	122.21	6.71E+01	1.02E+01	2.09E+02	1.23E+02
	3	76.06	1.21E+03	171.98			1.21E+03	1.72E+02
m	4	89.27	2.16E+02	79.17			2.16E+02	7.92E+01
m	5	92.58	3.55E+02	79.30	1.35E+02	7.64E+00	2.20E+02	7.97E+01
	6	99.06	6.68E+01	69.58	7.32E+00	2.91E+00	5.95E+01	6.96E+01
	7	185.81	1.33E+02	76.56	5.47E+01	6.99E+00	7.79E+01	7.69E+01
M	8	238.49	1.04E+03	81.54	1.58E+01	5.72E+00	1.02E+03	8.17E+01
m	9	241.58	2.87E+02	89.34			2.87E+02	8.93E+01
	10	269.70	6.26E+01	53.27			6.26E+01	5.33E+01
	11	276.88	6.40E+01	54.47			6.40E+01	5.45E+01
	12	295.02	3.23E+02	62.11			3.23E+02	6.21E+01
	13	299.95	5.83E+01	41.07			5.83E+01	4.11E+01
	14	327.24	6.44E+01	51.42			6.44E+01	5.14E+01
	15	338.09	2.59E+02	60.58	1.94E+00	4.45E+00	2.57E+02	6.07E+01

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	16	352.02	5.51E+02	71.87	8.23E+00	4.77E+00	5.43E+02	7.20E+01
	17	388.65	4.55E+01	47.01			4.55E+01	4.70E+01
	18	426.16	2.93E+01	33.45			2.93E+01	3.35E+01
	19	463.03	5.07E+01	40.68			5.07E+01	4.07E+01
	20	510.91	1.77E+02	50.87	7.54E+01	5.68E+00	1.02E+02	5.12E+01
	21	583.32	2.94E+02	55.41	7.97E+00	3.93E+00	2.87E+02	5.55E+01
M	22	604.15	1.38E+01	0.00			1.38E+01	0.00E+00
m	23	609.39	4.21E+02	47.53	5.86E+00	3.50E+00	4.15E+02	4.77E+01
m	24	615.96	1.84E+01	26.36			1.84E+01	2.64E+01
	25	653.53	2.63E+01	29.01			2.63E+01	2.90E+01
	26	727.24	5.84E+01	33.47			5.84E+01	3.35E+01
	27	767.26	6.08E+01	44.41			6.08E+01	4.44E+01
	28	800.06	7.26E+01	69.71			7.26E+01	6.97E+01
M	29	836.73	2.21E+01	28.64			2.21E+01	2.86E+01
m	30	842.84	2.74E+01	28.50			2.74E+01	2.85E+01
	31	861.35	4.95E+01	37.01			4.95E+01	3.70E+01
	32	911.35	2.36E+02	40.97			2.36E+02	4.10E+01
	33	937.15	4.70E+01	52.68			4.70E+01	5.27E+01
M	34	964.79	7.01E+01	32.32			7.01E+01	3.23E+01
m	35	969.38	1.57E+02	34.93			1.57E+02	3.49E+01
	36	1077.46	4.35E+01	36.54			4.35E+01	3.65E+01
	37	1120.48	5.73E+01	35.89			5.73E+01	3.59E+01
	38	1238.34	4.44E+01	33.53			4.44E+01	3.35E+01
M	39	1377.71	2.29E+01	16.25			2.29E+01	1.62E+01
m	40	1381.68	1.13E+01	18.52			1.13E+01	1.85E+01
	41	1461.48	9.92E+02	67.22	7.31E+00	2.50E+00	9.85E+02	6.73E+01
	42	1589.86	2.05E+01	19.92			2.05E+01	1.99E+01
	43	1729.74	1.88E+01	19.07			1.88E+01	1.91E+01
	44	1753.14	7.50E+00	9.41			7.50E+00	9.41E+00
	45	1765.04	6.94E+01	22.87			6.94E+01	2.29E+01
	46	1848.20	7.75E+00	10.86			7.75E+00	1.09E+01
	47	1855.63	6.31E+00	6.65			6.31E+00	6.65E+00
	48	2106.13	2.27E+01	11.41			2.27E+01	1.14E+01
	49	2119.82	1.30E+01	7.21			1.30E+01	7.21E+00
	50	2154.03	7.75E+00	7.76			7.75E+00	7.76E+00
	51	2172.34	7.00E+00	5.29			7.00E+00	5.29E+00
	52	2204.69	1.99E+01	13.53			1.99E+01	1.35E+01
	53	2263.93	7.91E+00	8.28			7.91E+00	8.28E+00
	54	2310.15	7.83E+00	6.71			7.83E+00	6.71E+00
	55	2369.62	8.50E+00	8.51			8.50E+00	8.51E+00
	56	2379.85	1.20E+01	6.93			1.20E+01	6.93E+00
	57	2396.82	4.58E+00	5.50			4.58E+00	5.50E+00
	58	2404.25	1.38E+01	9.18			1.38E+01	9.18E+00
	59	2448.42	1.50E+01	7.75			1.50E+01	7.75E+00
	60	2615.19	1.22E+02	23.71	5.15E+00	1.56E+00	1.17E+02	2.38E+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 1707077-09

HTC-A01-S001-3036-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 9:01:02AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.12	1.34E+02	70.82	4.28E+01	8.26E+00	9.13E+01	7.13E+01
	2	63.58	2.76E+02	122.21	6.71E+01	1.02E+01	2.09E+02	1.23E+02
	3	76.06	1.21E+03	171.98			1.21E+03	1.72E+02
m	4	89.27	2.16E+02	79.17			2.16E+02	7.92E+01
m	5	92.58	3.55E+02	79.30	1.35E+02	7.64E+00	2.20E+02	7.97E+01
	6	99.06	6.68E+01	69.58	7.32E+00	2.91E+00	5.95E+01	6.96E+01
	7	185.81	1.33E+02	76.56	5.47E+01	6.99E+00	7.79E+01	7.69E+01
M	8	238.49	1.04E+03	81.54	1.58E+01	5.72E+00	1.02E+03	8.17E+01
m	9	241.58	2.87E+02	89.34			2.87E+02	8.93E+01
	10	269.70	6.26E+01	53.27			6.26E+01	5.33E+01
	11	276.88	6.40E+01	54.47			6.40E+01	5.45E+01
	12	295.02	3.23E+02	62.11			3.23E+02	6.21E+01
	13	299.95	5.83E+01	41.07			5.83E+01	4.11E+01
	14	327.24	6.44E+01	51.42			6.44E+01	5.14E+01
	15	338.09	2.59E+02	60.58	1.94E+00	4.45E+00	2.57E+02	6.07E+01
	16	352.02	5.51E+02	71.87	8.23E+00	4.77E+00	5.43E+02	7.20E+01
	17	388.65	4.55E+01	47.01			4.55E+01	4.70E+01
	18	426.16	2.93E+01	33.45			2.93E+01	3.35E+01
	19	463.03	5.07E+01	40.68			5.07E+01	4.07E+01
	20	510.91	1.77E+02	50.87	7.54E+01	5.68E+00	1.02E+02	5.12E+01
	21	583.32	2.94E+02	55.41	7.97E+00	3.93E+00	2.87E+02	5.55E+01
M	22	604.15	1.38E+01	0.00			1.38E+01	0.00E+00
m	23	609.39	4.21E+02	47.53	5.86E+00	3.50E+00	4.15E+02	4.77E+01
m	24	615.96	1.84E+01	26.36			1.84E+01	2.64E+01
	25	653.53	2.63E+01	29.01			2.63E+01	2.90E+01
	26	727.24	5.84E+01	33.47			5.84E+01	3.35E+01
	27	767.26	6.08E+01	44.41			6.08E+01	4.44E+01
	28	800.06	7.26E+01	69.71			7.26E+01	6.97E+01
M	29	836.73	2.21E+01	28.64			2.21E+01	2.86E+01
m	30	842.84	2.74E+01	28.50			2.74E+01	2.85E+01
	31	861.35	4.95E+01	37.01			4.95E+01	3.70E+01
	32	911.35	2.36E+02	40.97			2.36E+02	4.10E+01
	33	937.15	4.70E+01	52.68			4.70E+01	5.27E+01
M	34	964.79	7.01E+01	32.32			7.01E+01	3.23E+01
m	35	969.38	1.57E+02	34.93			1.57E+02	3.49E+01
	36	1077.46	4.35E+01	36.54			4.35E+01	3.65E+01
	37	1120.48	5.73E+01	35.89			5.73E+01	3.59E+01
	38	1238.34	4.44E+01	33.53			4.44E+01	3.35E+01
M	39	1377.71	2.29E+01	16.25			2.29E+01	1.62E+01

Analysis Report for 1707077-09

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	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	40	1381.68	1.13E+01	18.52			1.13E+01	1.85E+01
	41	1461.48	9.92E+02	67.22	7.31E+00	2.50E+00	9.85E+02	6.73E+01
	42	1589.86	2.05E+01	19.92			2.05E+01	1.99E+01
	43	1729.74	1.88E+01	19.07			1.88E+01	1.91E+01
	44	1753.14	7.50E+00	9.41			7.50E+00	9.41E+00
	45	1765.04	6.94E+01	22.87			6.94E+01	2.29E+01
	46	1848.20	7.75E+00	10.86			7.75E+00	1.09E+01
	47	1855.63	6.31E+00	6.65			6.31E+00	6.65E+00
	48	2106.13	2.27E+01	11.41			2.27E+01	1.14E+01
	49	2119.82	1.30E+01	7.21			1.30E+01	7.21E+00
	50	2154.03	7.75E+00	7.76			7.75E+00	7.76E+00
	51	2172.34	7.00E+00	5.29			7.00E+00	5.29E+00
	52	2204.69	1.99E+01	13.53			1.99E+01	1.35E+01
	53	2263.93	7.91E+00	8.28			7.91E+00	8.28E+00
	54	2310.15	7.83E+00	6.71			7.83E+00	6.71E+00
	55	2369.62	8.50E+00	8.51			8.50E+00	8.51E+00
	56	2379.85	1.20E+01	6.93			1.20E+01	6.93E+00
	57	2396.82	4.58E+00	5.50			4.58E+00	5.50E+00
	58	2404.25	1.38E+01	9.18			1.38E+01	9.18E+00
	59	2448.42	1.50E+01	7.75			1.50E+01	7.75E+00
	60	2615.19	1.22E+02	23.71	5.15E+00	1.56E+00	1.17E+02	2.38E+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	0.930	1460.81	*	10.67	2.67E+01	2.96E+00
TL-208	0.966	583.14	*	30.22	1.38E+00	3.02E-01
		860.37	*	4.48	2.16E+00	1.63E+00
		2614.66	*	35.85	1.43E+00	3.25E-01
PB-210	0.977	46.50	*	4.25	1.27E+00	1.00E+00
BI-212	0.763	727.17	*	11.80	8.51E-01	4.96E-01
		1620.62		2.75		
PB-212	0.997	238.63	*	44.60	1.76E+00	2.00E-01
		300.09	*	3.41	1.52E+00	1.08E+00
BI-214	0.987	609.31	*	46.30	1.35E+00	2.09E-01

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.987	1120.29	*	15.10	9.04E-01	5.71E-01
		1764.49	*	15.80	1.45E+00	4.93E-01
		2204.22	*	4.98	1.55E+00	1.06E+00
PB-214	0.997	295.21	*	19.19	1.48E+00	3.10E-01
		351.92	*	37.19	1.45E+00	2.29E-01
RA-224	0.944	240.98	*	3.95	5.61E+00	1.81E+00
RA-226	0.975	186.21	*	3.28	1.58E+00	3.29E+00
AC-228	0.988	338.32	*	11.40	2.18E+00	5.47E-01
		911.07	*	27.70	1.74E+00	3.35E-01
		969.11	*	16.60	2.03E+00	4.81E-01
TH-234	0.986	63.29	*	3.80	2.95E+00	1.75E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 9:01:02AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.06	3.34872E-01	7.13		
m	4	89.27	5.99248E-02	18.35	Tol.	LU-176
m	5	92.58	6.11218E-02	18.10	Sum	
	6	99.06	1.65254E-02	58.53	D-Esc	
	10	269.70	1.73802E-02	42.57		
	11	276.88	1.77832E-02	42.54	Tol.	NP-239
						CM-243
	14	327.24	1.79025E-02	39.89		
	17	388.65	1.26347E-02	51.67		
	18	426.16	8.13953E-03	57.08		
	19	463.03	1.40738E-02	40.15	Tol.	SB-125
	20	510.91	2.82627E-02	25.16		
M	22	604.15	3.82575E-03	0.00		
m	24	615.96	5.11238E-03	71.62		
	25	653.53	7.29610E-03	55.22		
	27	767.26	1.68918E-02	36.51		
	28	800.06	2.01698E-02	48.00		
M	29	836.73	6.12675E-03	64.91		

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	30	842.84	7.60139E-03	52.07		
	33	937.15	1.30498E-02	56.07		
M	34	964.79	1.94593E-02	23.07	Sum	
	36	1077.46	1.20771E-02	42.02		
	38	1238.34	1.23416E-02	37.73		
M	39	1377.71	6.35296E-03	35.52		
m	40	1381.68	3.14619E-03	81.76		
	42	1589.86	5.68713E-03	48.66		
	43	1729.74	5.20833E-03	50.86	Sum	
	44	1753.14	2.08333E-03	62.72		
	46	1848.20	2.15278E-03	70.08	Sum	
	47	1855.63	1.75347E-03	52.69		
	48	2106.13	6.30556E-03	25.14		
	49	2119.82	3.61111E-03	27.74		
	50	2154.03	2.15278E-03	50.08		
	51	2172.34	1.94444E-03	37.80		
	53	2263.93	2.19697E-03	52.32		
	54	2310.15	2.17593E-03	42.82		
	55	2369.62	2.36111E-03	50.09		
	56	2379.85	3.33333E-03	28.87		
	57	2396.82	1.27315E-03	60.00		
	58	2404.25	3.84549E-03	33.15		
	59	2448.42	4.16667E-03	25.82		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.93	1460.81	*	10.67	2.67E+01	2.96E+00
TL-208	0.96	583.14	*	30.22	1.38E+00	3.02E-01
		860.37	*	4.48	2.16E+00	1.63E+00
		2614.66	*	35.85	1.43E+00	3.25E-01
PB-210	0.97	46.50	*	4.25	1.27E+00	1.00E+00

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.76	727.17	*	11.80	8.51E-01	4.96E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.76E+00	2.00E-01
		300.09	*	3.41	1.52E+00	1.08E+00
BI-214	0.98	609.31	*	46.30	1.35E+00	2.09E-01
		1120.29	*	15.10	9.04E-01	5.71E-01
		1764.49	*	15.80	1.45E+00	4.93E-01
		2204.22	*	4.98	1.55E+00	1.06E+00
PB-214	0.99	295.21	*	19.19	1.48E+00	3.10E-01
		351.92	*	37.19	1.45E+00	2.29E-01
RA-224	0.94	240.98	*	3.95	5.61E+00	1.81E+00
RA-226	0.97	186.21	*	3.28	1.58E+00	3.29E+00
AC-228	0.98	338.32	*	11.40	2.18E+00	5.47E-01
		911.07	*	27.70	1.74E+00	3.35E-01
		969.11	*	16.60	2.03E+00	4.81E-01
TH-234	0.98	63.29	*	3.80	2.95E+00	1.75E+00

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.930	2.67E+01	2.96E+00	
TL-208	0.966	1.42E+00	2.19E-01	
PB-210	0.977	1.27E+00	1.00E+00	
BI-212	0.763	8.51E-01	4.96E-01	
PB-212	0.997	1.75E+00	1.97E-01	
BI-214	0.987	1.32E+00	1.80E-01	
PB-214	0.997	1.46E+00	1.84E-01	
RA-224	0.944	5.61E+00	1.81E+00	
RA-226	0.975	1.58E+00	3.29E+00	
AC-228	0.988	1.90E+00	2.46E-01	
TH-234	0.986	2.95E+00	1.75E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 9:01:02AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.06	3.34872E-01	7.13		
m	4	89.27	5.99248E-02	18.35	Tol.	LU-176
m	5	92.58	6.11218E-02	18.10	Sum	
	6	99.06	1.65254E-02	58.53	D-Esc	
	10	269.70	1.73802E-02	42.57		
	11	276.88	1.77832E-02	42.54	Tol.	NP-239
						CM-243
	14	327.24	1.79025E-02	39.89		
	17	388.65	1.26347E-02	51.67		
	18	426.16	8.13953E-03	57.08		
	19	463.03	1.40738E-02	40.15	Tol.	SB-125
	20	510.91	2.82627E-02	25.16		
M	22	604.15	3.82575E-03	0.00		
m	24	615.96	5.11238E-03	71.62		
	25	653.53	7.29610E-03	55.22		
	27	767.26	1.68918E-02	36.51		
	28	800.06	2.01698E-02	48.00		
M	29	836.73	6.12675E-03	64.91		
m	30	842.84	7.60139E-03	52.07		
	33	937.15	1.30498E-02	56.07		
M	34	964.79	1.94593E-02	23.07	Sum	
	36	1077.46	1.20771E-02	42.02		
	38	1238.34	1.23416E-02	37.73		
M	39	1377.71	6.35296E-03	35.52		
m	40	1381.68	3.14619E-03	81.76		
	42	1589.86	5.68713E-03	48.66		
	43	1729.74	5.20833E-03	50.86	Sum	
	44	1753.14	2.08333E-03	62.72		
	46	1848.20	2.15278E-03	70.08	Sum	
	47	1855.63	1.75347E-03	52.69		
	48	2106.13	6.30556E-03	25.14		
	49	2119.82	3.61111E-03	27.74		
	50	2154.03	2.15278E-03	50.08		
	51	2172.34	1.94444E-03	37.80		
	53	2263.93	2.19697E-03	52.32		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2310.15	2.17593E-03	42.82		
55	2369.62	2.36111E-03	50.09		
56	2379.85	3.33333E-03	28.87		
57	2396.82	1.27315E-03	60.00		
58	2404.25	3.84549E-03	33.15		
59	2448.42	4.16667E-03	25.82		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	1:16E-01	2.07E+00	2.07E+00
+	NA-22	1274.54		99.94	1.95E-02	9.11E-02	9.11E-02
+	@ 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	2.20E-02	7.38E-02	7.38E-02
+	K-40	1460.81	*	10.67	2.67E+01	1.15E+00	1.15E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-4.54E-02	6.74E-02	6.74E-02
		78.34		96.00	2.34E-01		9.53E-02
+	SC-46	889.25		99.98	3.03E-02	1.71E-01	1.71E-01
		1120.51		99.99	3.26E-01		2.86E-01
+	V-48	983.52		99.98	1.40E-02	4.26E+00	4.26E+00
		1312.10		97.50	-5.08E-01		5.19E+00
+	CR-51	320.08		9.83	-4.79E-01	6.45E+00	6.45E+00
+	MN-54	834.83		99.97	-2.82E-04	1.01E-01	1.01E-01
+	CO-56	846.75		99.96	8.55E-03	1.64E-01	1.64E-01
		1037.75		14.03	-5.19E-01		1.39E+00
		1238.25		67.00	2.61E-01		4.44E-01
		1771.40		15.51	1.90E-01		8.07E-01
		2598.48		16.90	1.93E-01		7.66E-01
+	CO-57	122.06		85.51	-2.06E-02	7.80E-02	7.80E-02
		136.48		10.60	3.58E-01		6.64E-01
+	CO-58	810.76		99.40	1.56E-03	1.84E-01	1.84E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	FE-59	1099.22	56.50	-6.35E-02	6.49E-01	6.49E-01
		1291.56	43.20	-5.40E-02		7.83E-01
+	CO-60	1173.22	100.00	2.49E-02	7.52E-02	1.01E-01
		1332.49	100.00	-1.24E-02		7.52E-02
+	ZN-65	1115.52	50.75	-2.38E-01	2.27E-01	2.27E-01
+	GA-67	93.31	35.70	1.68E+08	7.82E+07	7.82E+07
		208.95	2.24	4.89E+08		1.04E+09
		300.22	16.00	-4.33E+08		1.70E+08
+	SE-75	121.11	16.70	-2.58E-01	1.60E-01	5.21E-01
		136.00	59.20	8.65E-02		1.60E-01
		264.65	59.80	5.22E-02		1.77E-01
		279.53	25.20	7.49E-02		4.78E-01
		400.65	11.40	-3.04E-01		9.38E-01
+	RB-82	776.52	13.00	2.23E+00	7.25E+00	7.25E+00
+	RB-83	520.41	46.00	-9.44E-02	3.19E-01	3.19E-01
		529.64	30.30	-4.42E-01		4.31E-01
		552.65	16.40	-2.12E-01		8.58E-01
+	KR-85	513.99	0.43	7.28E-01	2.39E+01	2.39E+01
+	SR-85	513.99	99.27	8.45E-03	2.77E-01	2.77E-01
+	Y-88	898.02	93.40	7.88E-02	9.40E-02	1.62E-01
		1836.01	99.38	-3.49E-02		9.40E-02
+	MO-93	263.06	56.72	7.71E-03	5.62E-02	1.12E-01
		684.67	99.68	0.00E+00		6.97E-02
		1477.11	99.08	-2.69E-02		5.62E-02
+	NB-93M	16.57	9.43	-5.77E-02	6.21E-01	6.21E-01
+	NB-94	702.63	100.00	1.71E-02	8.09E-02	8.09E-02
		871.10	100.00	1.82E-02		8.32E-02
+	NB-95	765.79	99.81	3.24E-01	5.82E-01	5.82E-01
+	NB-95M	235.69	25.00	-9.72E+07	1.69E+07	1.69E+07
+	ZR-95	724.18	43.70	4.63E-02	3.58E-01	5.67E-01
		756.72	55.30	-6.67E-02		3.58E-01
+	MO-99	181.06	6.20	2.43E+09	7.58E+09	1.32E+10
		739.58	12.80	-3.39E+09		7.58E+09
		778.00	4.50	3.95E+08		2.35E+10
+	RU-103	497.08	89.00	7.84E-02	3.70E-01	3.70E-01
+	RU-106	621.84	9.80	2.46E-02	7.87E-01	7.87E-01
+	AG-108M	433.93	89.90	2.30E-02	7.31E-02	7.31E-02
		614.37	90.40	-5.71E-01		8.91E-02
		722.95	90.50	2.33E-02		8.97E-02
+	CD-109	88.03	3.72	-1.67E-01	2.36E+00	2.36E+00
+	AG-110M	657.75	93.14	1.97E-02	1.05E-01	1.05E-01
		677.61	10.53	1.44E-01		8.87E-01
		706.67	16.46	-2.06E-01		5.93E-01
		763.93	21.98	-5.75E-01		4.60E-01
		884.67	71.63	-2.89E-02		1.34E-01
		1384.27	23.94	1.13E-01		4.30E-01
+	CD-113M	263.70	0.02	3.45E+01	2.70E+02	2.70E+02
+	SN-113	255.12	1.93	8.66E-01	1.64E-01	4.94E+00

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SN-113	391.69	64.90	-3.70E-02	1.64E-01	1.64E-01
+	TE123M	159.00	84.10	-9.72E-04	1.11E-01	1.11E-01
+	SB-124	602.71	97.87	-2.81E-02	2.17E-01	2.17E-01
		645.85	7.26	7.63E-01		2.78E+00
		722.78	11.10	5.53E-01		2.13E+00
		1691.02	49.00	2.86E-02		2.50E-01
+	I-125	35.49	6.49	1.92E+00	2.76E+00	2.76E+00
+	SB-125	176.33	6.89	-5.97E-01	2.53E-01	8.07E-01
		427.89	29.33	2.50E-02		2.53E-01
		463.38	10.35	6.14E-01		8.17E-01
		600.56	17.80	-8.93E-02		4.31E-01
		635.90	11.32	2.11E-01		6.59E-01
+	SB-126	414.70	83.30	-4.02E+00	1.36E+01	1.46E+01
		666.33	99.60	-4.51E+00		1.36E+01
		695.00	99.60	6.79E+00		1.47E+01
		720.50	53.80	6.29E+00		2.55E+01
+	SN-126	87.57	37.00	1.49E-01	1.99E-01	1.99E-01
+	SB-127	473.00	25.00	1.60E+06	3.53E+06	4.89E+06
		685.20	35.70	0.00E+00		3.53E+06
		783.80	14.70	-3.98E+05		9.04E+06
+	I-129	29.78	57.00	4.61E-02	1.17E-01	1.17E-01
		33.60	13.20	8.80E-02		4.74E-01
		39.58	7.52	-1.18E-01		7.77E-01
+	I-131	284.30	6.05	1.07E+02	2.24E+02	3.18E+03
		364.48	81.20	-6.10E+01		2.24E+02
		636.97	7.26	6.02E+02		2.89E+03
		722.89	1.80	3.53E+03		1.36E+04
+	TE-132	49.72	13.10	-5.98E+06	2.42E+07	1.62E+08
		228.16	88.00	6.31E+06		2.42E+07
+	BA-133	81.00	33.00	-5.53E-01	1.46E-01	1.99E-01
		302.84	17.80	1.76E-01		4.22E-01
		356.01	60.00	-3.13E-02		1.46E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.02E+05	3.68E+04	3.68E+04
+	CS-134	563.23	8.38	-1.29E-01	9.26E-02	8.52E-01
		569.32	15.43	-1.16E-01		4.79E-01
		604.70	97.60	-6.40E-03		9.26E-02
		795.84	85.40	9.62E-02		1.17E-01
		801.93	8.73	-4.39E-01		9.69E-01
+	CS-135	268.24	16.00	2.12E-01	4.32E-01	4.32E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	3.91E+01	9.61E+00	1.01E+02
		163.89	4.61	6.00E+01		1.63E+02
		176.55	13.56	-3.80E+01		5.14E+01
		273.65	12.66	-6.08E+01		7.41E+01
		340.57	48.50	-1.02E+00		2.55E+01
		818.50	99.70	-5.13E-01		9.61E+00

Analysis Report for 1707077-09

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	1048.07	79.60	1.07E+00	9.61E+00	1.46E+01
			1235.34	19.70	6.01E+00		9.08E+01
+		CS-137	661.65	85.12	3.86E-02	9.57E-02	9.57E-02
+		LA-138	788.74	34.00	7.71E-02	1.10E-01	2.15E-01
			1435.80	66.00	-6.13E-03		1.10E-01
+		CE-139	165.85	80.35	-1.61E-02	1.10E-01	1.10E-01
+		BA-140	162.64	6.70	1.41E+01	4.50E+01	1.28E+02
			304.84	4.50	5.96E+01		2.25E+02
			423.70	3.20	4.61E+01		3.42E+02
			437.55	2.00	1.95E+02		5.20E+02
			537.32	25.00	3.14E+01		4.50E+01
+		LA-140	328.77	20.50	5.98E+01	1.06E+01	5.38E+01
			487.03	45.50	6.58E+00		2.30E+01
			815.85	23.50	1.72E+01		4.87E+01
			1596.49	95.49	1.82E+00		1.06E+01
+		CE-141	145.44	48.40	1.21E-01	8.26E-01	8.26E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-1.35E-01	6.48E-01	6.48E-01
+		PM-144	476.78	42.00	-6.15E-02	7.95E-02	1.78E-01
			618.01	98.60	-9.80E-03		7.95E-02
			696.49	99.49	4.31E-02		9.74E-02
+		PM-145	36.85	21.70	-3.34E-01	1.51E-01	2.70E-01
			37.36	39.70	-2.61E-02		1.51E-01
			42.30	15.10	-3.07E-02		3.85E-01
			72.40	2.31	2.74E-01		3.44E+00
+		PM-146	453.90	39.94	3.67E-02	1.85E-01	1.85E-01
			735.90	14.01	2.88E-01		5.63E-01
			747.13	13.10	9.77E-02		6.10E-01
+		ND-147	91.11	28.90	2.27E+02	9.85E+01	9.85E+01
			531.02	13.10	-7.19E+01		1.77E+02
+		PM-149	285.90	3.10	3.29E+12	9.30E+12	9.30E+12
+		EU-152	121.78	20.50	-1.25E-01	2.52E-01	2.52E-01
			244.69	5.40	-6.24E-01		1.18E+00
			344.27	19.13	-3.45E-02		3.29E-01
			778.89	9.20	-9.58E-02		7.85E-01
			964.01	10.40	-1.89E+00		1.10E+00
			1085.78	7.22	1.57E-01		1.20E+00
			1112.02	9.60	5.16E-01		1.01E+00
			1407.95	14.94	4.83E-02		5.69E-01
+		GD-153	97.43	31.30	-3.03E-01	2.23E-01	2.23E-01
			103.18	22.20	-2.87E-02		3.02E-01
+		EU-154	123.07	40.50	3.77E-03	1.35E-01	1.35E-01
			723.30	19.70	1.09E-01		4.20E-01
			873.19	11.50	4.12E-01		7.54E-01
			996.32	10.30	3.66E-02		8.57E-01
			1004.76	17.90	-9.80E-02		4.62E-01
			1274.45	35.50	5.22E-02		2.45E-01

Analysis Report for 1707077-09

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-155	86.50		30.90	1.68E-02	2.40E-01	2.40E-01
		105.30		20.70	3.08E-02		2.62E-01
+	EU-156	811.77		10.40	-2.32E-01	4.80E+01	4.80E+01
		1153.47		7.20	-2.17E+00		9.16E+01
		1230.71		8.90	-3.18E+01		8.39E+01
+	HO-166M	184.41		72.60	1.28E-01	9.62E-02	9.62E-02
		280.45		29.60	1.76E-02		2.32E-01
		410.94		11.10	3.05E-01		6.59E-01
		711.69		54.10	1.97E-02		1.34E-01
+	TM-171	66.72		0.14	-4.26E+01	5.13E+01	5.13E+01
+	HF-172	67.35		5.31	-8.85E-01	5.39E-01	1.31E+00
		125.81		11.30	-3.12E-01		5.39E-01
+	LU-172	181.53		20.60	7.44E+02	2.15E+03	4.05E+03
		900.72		29.81	-1.67E+03		3.93E+03
		1093.66		62.50	8.92E+02		2.15E+03
+	LU-173	100.72		5.24	9.15E-01	3.80E-01	1.16E+00
		272.11		21.20	-1.40E-01		3.80E-01
+	HF-175	343.40		84.00	-1.95E-02	1.91E-01	1.91E-01
+	LU-176	88.34		13.30	-4.06E-02	6.46E-02	5.74E-01
		201.83		86.00	1.23E-03		6.46E-02
		306.78		94.00	3.11E-02		6.98E-02
+	HF-181	133.02		41.70	-1.27E-01	3.63E-01	6.11E-01
		345.85		17.20	-1.74E-01		1.67E+00
		482.03		82.80	5.59E-03		3.63E-01
+	TA-182	67.75		41.20	-1.82E-01	2.70E-01	2.70E-01
		1121.30		34.90	7.31E-01		6.81E-01
		1189.05		16.23	3.33E-01		1.14E+00
		1221.41		26.98	-1.37E-01		6.69E-01
		1231.02		11.44	-6.25E-01		1.65E+00
+	IR-192	308.46		29.68	-1.42E-01	3.33E-01	5.03E-01
		468.07		48.10	7.03E-02		3.33E-01
+	HG-203	279.19		77.30	5.68E-02	3.62E-01	3.62E-01
+	TL-204	374.74		94.11	3.87E-02	7.36E-02	7.36E-02
		899.15		99.16	1.78E-02		8.83E-02
		911.74		91.10	5.49E-01		1.89E-01
+	BI-207	569.67		97.72	1.96E-02	7.22E-02	7.22E-02
		1063.62		74.90	1.12E-02		1.18E-01
+	TL-208	583.14	*	30.22	1.38E+00	2.29E-01	3.61E-01
		860.37	*	4.48	2.16E+00		2.58E+00
		2614.66	*	35.85	1.43E+00		2.29E-01
+	BI-210M	262.00		45.00	1.60E-02	1.40E-01	1.40E-01
		300.00		23.00	-1.47E+00		3.19E-01
+	PB-210	46.50	*	4.25	1.27E+00	1.62E+00	1.62E+00
+	PB-211	404.84		2.90	-6.65E-01	2.35E+00	2.35E+00
		831.96		2.90	1.92E-01		2.68E+00
+	BI-212	727.17	*	11.80	8.51E-01	7.53E-01	7.53E-01
		1620.62		2.75	-5.66E-02		2.20E+00
+	PB-212	238.63	*	44.60	1.76E+00	3.65E-01	3.65E-01

Analysis Report for 1707077-09

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-212	300.09	*	3.41	1.52E+00	3.65E-01	1.71E+00
+	BI-214	609.31	*	46.30	1.35E+00	3.04E-01	3.04E-01
		1120.29	*	15.10	9.04E-01		8.87E-01
		1764.49	*	15.80	1.45E+00		5.96E-01
		2204.22	*	4.98	1.55E+00		1.51E+00
+	PB-214	295.21	*	19.19	1.48E+00	2.49E-01	3.94E-01
		351.92	*	37.19	1.45E+00		2.49E-01
+	RN-219	401.80		6.50	-2.18E-01	9.90E-01	9.90E-01
+	RA-223	323.87		3.88	-4.25E-02	1.64E+00	1.64E+00
+	RA-224	240.98	*	3.95	5.61E+00	4.15E+00	4.15E+00
+	RA-225	40.00		31.00	5.42E+00	1.48E+01	1.48E+01
+	RA-226	186.21	*	3.28	1.58E+00	2.55E+00	2.55E+00
+	TH-227	50.10		8.40	-4.25E-01	6.58E-01	6.60E-01
		236.00		11.50	-3.78E+00		6.58E-01
		256.20		6.30	5.72E-01		1.02E+00
+	AC-228	338.32	*	11.40	2.18E+00	3.48E-01	7.43E-01
		911.07	*	27.70	1.74E+00		3.48E-01
		969.11	*	16.60	2.03E+00		8.62E-01
+	TH-230	48.44		16.90	-5.11E-02	3.54E-01	3.54E-01
		62.85		4.60	1.31E+00		1.58E+00
		67.67		0.37	-1.15E+01		1.71E+01
+	PA-231	283.67		1.60	-1.99E+00	3.21E+00	3.99E+00
		302.67		2.30	1.34E+00		3.21E+00
+	TH-231	25.64		14.70	-4.17E+00	5.69E-01	5.69E-01
		84.21		6.40	-1.07E+00		1.03E+00
+	PA-233	311.98		38.60	2.28E-01	1.77E+00	1.77E+00
+	PA-234	131.20		20.40	-7.12E-02	2.79E-01	2.79E-01
		733.99		8.80	5.06E-01		8.72E-01
		946.00		12.00	-1.18E-01		6.73E-01
+	PA-234M	1001.03		0.92	1.94E+00	9.58E+00	9.58E+00
+	TH-234	63.29	*	3.80	2.95E+00	2.80E+00	2.80E+00
+	U-235	143.76		10.50	2.03E-01	5.27E-01	5.27E-01
		163.35		4.70	4.40E-01		1.20E+00
		205.31		4.70	-1.49E+00		1.18E+00
+	NP-237	86.50		12.60	3.98E-02	5.68E-01	5.68E-01
+	NP-239	106.10		22.70	1.18E+10	1.75E+11	1.75E+11
		228.18		10.70	1.02E+11		3.90E+11
		277.60		14.10	2.62E+11		3.82E+11
+	AM-241	59.54		35.90	9.86E-02	1.82E-01	1.82E-01
+	AM-243	74.67		66.00	-5.87E-02	1.44E-01	1.44E-01
+	CM-243	209.75		3.29	1.08E+00	5.14E-01	1.91E+00
		228.14		10.60	1.37E-01		5.26E-01
		277.60		14.00	3.52E-01		5.14E-01

Analysis Report for 1707077-09

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.07E+00	2.07E+00	1.16E-01	9.79E-01
	NA-22	1274.54		99.94	9.11E-02	9.11E-02	1.95E-02	4.18E-02
@	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	7.38E-02	7.38E-02	2.20E-02	3.24E-02
+	K-40	1460.81	*	10.67	1.15E+00	1.15E+00	2.67E+01	5.39E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.74E-02	6.74E-02	-4.54E-02	3.29E-02
		78.34		96.00	9.53E-02		2.34E-01	4.69E-02
	SC-46	889.25		99.98	1.71E-01	1.71E-01	3.03E-02	7.98E-02
		1120.51		99.99	2.86E-01		3.26E-01	1.36E-01
	V-48	983.52		99.98	4.26E+00	4.26E+00	1.40E-02	1.97E+00
		1312.10		97.50	5.19E+00		-5.08E-01	2.39E+00
	CR-51	320.08		9.83	6.45E+00	6.45E+00	-4.79E-01	3.09E+00
	MN-54	834.83		99.97	1.01E-01	1.01E-01	-2.82E-04	4.73E-02
	CO-56	846.75		99.96	1.64E-01	1.64E-01	8.55E-03	7.62E-02
		1037.75		14.03	1.39E+00		-5.19E-01	6.44E-01
		1238.25		67.00	4.44E-01		2.61E-01	2.11E-01
		1771.40		15.51	8.07E-01		1.90E-01	3.38E-01
		2598.48		16.90	7.66E-01		1.93E-01	3.04E-01
	CO-57	122.06		85.51	7.80E-02	7.80E-02	-2.06E-02	3.79E-02
		136.48		10.60	6.64E-01		3.58E-01	3.23E-01
	CO-58	810.76		99.40	1.84E-01	1.84E-01	1.56E-03	8.55E-02
	FE-59	1099.22		56.50	6.49E-01	6.49E-01	-6.35E-02	3.01E-01
		1291.56		43.20	7.83E-01		-5.40E-02	3.57E-01
	CO-60	1173.22		100.00	1.01E-01	7.52E-02	2.49E-02	4.70E-02
		1332.49		100.00	7.52E-02		-1.24E-02	3.38E-02
	ZN-65	1115.52		50.75	2.27E-01	2.27E-01	-2.38E-01	1.05E-01
	GA-67	93.31		35.70	7.82E+07	7.82E+07	1.68E+08	3.83E+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)
GA-67	208.95	2.24	1.04E+09	7.82E+07	4.89E+08	5.02E+08
	300.22	16.00	1.70E+08		-4.33E+08	8.19E+07
SE-75	121.11	16.70	5.21E-01	1.60E-01	-2.58E-01	2.53E-01
	136.00	59.20	1.60E-01		8.65E-02	7.79E-02
	264.65	59.80	1.77E-01		5.22E-02	8.53E-02
	279.53	25.20	4.78E-01		7.49E-02	2.31E-01
	400.65	11.40	9.38E-01		-3.04E-01	4.47E-01
RB-82	776.52	13.00	7.25E+00	7.25E+00	2.23E+00	3.39E+00
RB-83	520.41	46.00	3.19E-01	3.19E-01	-9.44E-02	1.51E-01
	529.64	30.30	4.31E-01		-4.42E-01	2.03E-01
	552.65	16.40	8.58E-01		-2.12E-01	4.05E-01
KR-85	513.99	0.43	2.39E+01	2.39E+01	7.28E-01	1.15E+01
SR-85	513.99	99.27	2.77E-01	2.77E-01	8.45E-03	1.34E-01
Y-88	898.02	93.40	1.62E-01	9.40E-02	7.88E-02	7.59E-02
	1836.01	99.38	9.40E-02		-3.49E-02	3.85E-02
MO-93	263.06	56.72	1.12E-01	5.62E-02	7.71E-03	5.42E-02
	684.67	99.68	6.97E-02		0.00E+00	3.26E-02
	1477.11	99.08	5.62E-02		-2.69E-02	2.41E-02
NB-93M	16.57	9.43	6.21E-01	6.21E-01	-5.77E-02	2.91E-01
NB-94	702.63	100.00	8.09E-02	8.09E-02	1.71E-02	3.82E-02
	871.10	100.00	8.32E-02		1.82E-02	3.90E-02
NB-95	765.79	99.81	5.82E-01	5.82E-01	3.24E-01	2.76E-01
NB-95M	235.69	25.00	1.69E+07	1.69E+07	-9.72E+07	8.23E+06
ZR-95	724.18	43.70	5.67E-01	3.58E-01	4.63E-02	2.69E-01
	756.72	55.30	3.58E-01		-6.67E-02	1.67E-01
MO-99	181.06	6.20	1.32E+10	7.58E+09	2.43E+09	6.40E+09
	739.58	12.80	7.58E+09		-3.39E+09	3.52E+09
	778.00	4.50	2.35E+10		3.95E+08	1.09E+10
RU-103	497.08	89.00	3.70E-01	3.70E-01	7.84E-02	1.75E-01
RU-106	621.84	9.80	7.87E-01	7.87E-01	2.46E-02	3.68E-01
AG-108M	433.93	89.90	7.31E-02	7.31E-02	2.30E-02	3.48E-02
	614.37	90.40	8.91E-02		-5.71E-01	4.23E-02
	722.95	90.50	8.97E-02		2.33E-02	4.23E-02
CD-109	88.03	3.72	2.36E+00	2.36E+00	-1.67E-01	1.16E+00
AG-110M	657.75	93.14	1.05E-01	1.05E-01	1.97E-02	4.96E-02
	677.61	10.53	8.87E-01		1.44E-01	4.17E-01
	706.67	16.46	5.93E-01		-2.06E-01	2.79E-01
	763.93	21.98	4.60E-01		-5.75E-01	2.16E-01
	884.67	71.63	1.34E-01		-2.89E-02	6.22E-02
	1384.27	23.94	4.30E-01		1.13E-01	1.95E-01
CD-113M	263.70	0.02	2.70E+02	2.70E+02	3.45E+01	1.30E+02
SN-113	255.12	1.93	4.94E+00	1.64E-01	8.66E-01	2.37E+00
	391.69	64.90	1.64E-01		-3.70E-02	7.81E-02
TE123M	159.00	84.10	1.11E-01	1.11E-01	-9.72E-04	5.40E-02
SB-124	602.71	97.87	2.17E-01	2.17E-01	-2.81E-02	1.03E-01
	645.85	7.26	2.78E+00		7.63E-01	1.30E+00
	722.78	11.10	2.13E+00		5.53E-01	1.00E+00
	1691.02	49.00	2.50E-01		2.86E-02	9.93E-02
I-125	35.49	6.49	2.76E+00	2.76E+00	1.92E+00	1.34E+00
SB-125	176.33	6.89	8.07E-01	2.53E-01	-5.97E-01	3.90E-01
	427.89	29.33	2.53E-01		2.50E-02	1.21E-01
	463.38	10.35	8.17E-01		6.14E-01	3.92E-01
	600.56	17.80	4.31E-01		-8.93E-02	2.04E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-125	635.90	11.32	6.59E-01	2.53E-01	2.11E-01	3.10E-01
SB-126	414.70	83.30	1.46E+01	1.36E+01	-4.02E+00	6.98E+00
	666.33	99.60	1.36E+01		-4.51E+00	6.42E+00
	695.00	99.60	1.47E+01		6.79E+00	6.92E+00
	720.50	53.80	2.55E+01		6.29E+00	1.20E+01
SN-126	87.57	37.00	1.99E-01	1.99E-01	1.49E-01	9.76E-02
SB-127	473.00	25.00	4.89E+06	3.53E+06	1.60E+06	2.32E+06
	685.20	35.70	3.53E+06		0.00E+00	1.65E+06
	783.80	14.70	9.04E+06		-3.98E+05	4.21E+06
I-129	29.78	57.00	1.17E-01	1.17E-01	4.61E-02	5.69E-02
	33.60	13.20	4.74E-01		8.80E-02	2.30E-01
	39.58	7.52	7.77E-01		-1.18E-01	3.77E-01
I-131	284.30	6.05	3.18E+03	2.24E+02	1.07E+02	1.53E+03
	364.48	81.20	2.24E+02		-6.10E+01	1.07E+02
	636.97	7.26	2.89E+03		6.02E+02	1.36E+03
	722.89	1.80	1.36E+04		3.53E+03	6.39E+03
TE-132	49.72	13.10	1.62E+08	2.42E+07	-5.98E+06	7.87E+07
	228.16	88.00	2.42E+07		6.31E+06	1.16E+07
BA-133	81.00	33.00	1.99E-01	1.46E-01	-5.53E-01	9.74E-02
	302.84	17.80	4.22E-01		1.76E-01	2.04E-01
	356.01	60.00	1.46E-01		-3.13E-02	7.09E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	3.68E+04	3.68E+04	-1.02E+05	1.80E+04
CS-134	563.23	8.38	8.52E-01	9.26E-02	-1.29E-01	4.01E-01
	569.32	15.43	4.79E-01		-1.16E-01	2.26E-01
	604.70	97.60	9.26E-02		-6.40E-03	4.40E-02
	795.84	85.40	1.17E-01		9.62E-02	5.55E-02
	801.93	8.73	9.69E-01		-4.39E-01	4.53E-01
CS-135	268.24	16.00	4.32E-01	4.32E-01	2.12E-01	2.09E-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	1.01E+02	9.61E+00	3.91E+01	4.88E+01
	163.89	4.61	1.63E+02		6.00E+01	7.93E+01
	176.55	13.56	5.14E+01		-3.80E+01	2.48E+01
	273.65	12.66	7.41E+01		-6.08E+01	3.58E+01
	340.57	48.50	2.55E+01		-1.02E+00	1.24E+01
	818.50	99.70	9.61E+00		-5.13E-01	4.46E+00
	1048.07	79.60	1.46E+01		1.07E+00	6.79E+00
	1235.34	19.70	9.08E+01		6.01E+00	4.31E+01
CS-137	661.65	85.12	9.57E-02	9.57E-02	3.86E-02	4.53E-02
LA-138	788.74	34.00	2.15E-01	1.10E-01	7.71E-02	1.00E-01
	1435.80	66.00	1.10E-01		-6.13E-03	4.93E-02
CE-139	165.85	80.35	1.10E-01	1.10E-01	-1.61E-02	5.32E-02
BA-140	162.64	6.70	1.28E+02	4.50E+01	1.41E+01	6.19E+01
	304.84	4.50	2.25E+02		5.96E+01	1.08E+02
	423.70	3.20	3.42E+02		4.61E+01	1.64E+02
	437.55	2.00	5.20E+02		1.95E+02	2.48E+02
	537.32	25.00	4.50E+01		3.14E+01	2.14E+01
LA-140	328.77	20.50	5.38E+01	1.06E+01	5.98E+01	2.59E+01
	487.03	45.50	2.30E+01		6.58E+00	1.09E+01
	815.85	23.50	4.87E+01		1.72E+01	2.27E+01
	1596.49	95.49	1.06E+01		1.82E+00	4.61E+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)
CE-141	145.44	48.40	8.26E-01	8.26E-01	1.21E-01	4.01E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.48E-01	6.48E-01	-1.35E-01	3.15E-01
PM-144	476.78	42.00	1.78E-01	7.95E-02	-6.15E-02	8.40E-02
	618.01	98.60	7.95E-02		-9.80E-03	3.73E-02
	696.49	99.49	9.74E-02		4.31E-02	4.60E-02
PM-145	36.85	21.70	2.70E-01	1.51E-01	-3.34E-01	1.31E-01
	37.36	39.70	1.51E-01		-2.61E-02	7.33E-02
	42.30	15.10	3.85E-01		-3.07E-02	1.87E-01
	72.40	2.31	3.44E+00		2.74E-01	1.69E+00
PM-146	453.90	39.94	1.85E-01	1.85E-01	3.67E-02	8.81E-02
	735.90	14.01	5.63E-01		2.88E-01	2.64E-01
	747.13	13.10	6.10E-01		9.77E-02	2.86E-01
ND-147	91.11	28.90	9.85E+01	9.85E+01	2.27E+02	4.84E+01
	531.02	13.10	1.77E+02		-7.19E+01	8.34E+01
PM-149	285.90	3.10	9.30E+12	9.30E+12	3.29E+12	4.48E+12
EU-152	121.78	20.50	2.52E-01	2.52E-01	-1.25E-01	1.22E-01
	244.69	5.40	1.18E+00		-6.24E-01	5.71E-01
	344.27	19.13	3.29E-01		-3.45E-02	1.57E-01
	778.89	9.20	7.85E-01		-9.58E-02	3.66E-01
	964.01	10.40	1.10E+00		-1.89E+00	5.24E-01
	1085.78	7.22	1.20E+00		1.57E-01	5.58E-01
	1112.02	9.60	1.01E+00		5.16E-01	4.69E-01
	1407.95	14.94	5.69E-01		4.83E-02	2.59E-01
GD-153	97.43	31.30	2.23E-01	2.23E-01	-3.03E-01	1.08E-01
	103.18	22.20	3.02E-01		-2.87E-02	1.47E-01
EU-154	123.07	40.50	1.35E-01	1.35E-01	3.77E-03	6.57E-02
	723.30	19.70	4.20E-01		1.09E-01	1.98E-01
	873.19	11.50	7.54E-01		4.12E-01	3.53E-01
	996.32	10.30	8.57E-01		3.66E-02	3.99E-01
	1004.76	17.90	4.62E-01		-9.80E-02	2.14E-01
	1274.45	35.50	2.45E-01		5.22E-02	1.12E-01
EU-155	86.50	30.90	2.40E-01	2.40E-01	1.68E-02	1.18E-01
	105.30	20.70	2.62E-01		3.08E-02	1.28E-01
EU-156	811.77	10.40	4.80E+01	4.80E+01	-2.32E-01	2.23E+01
	1153.47	7.20	9.16E+01		-2.17E+00	4.26E+01
	1230.71	8.90	8.39E+01		-3.18E+01	3.93E+01
HO-166M	184.41	72.60	9.62E-02	9.62E-02	1.28E-01	4.69E-02
	280.45	29.60	2.32E-01		1.76E-02	1.12E-01
	410.94	11.10	6.59E-01		3.05E-01	3.16E-01
	711.69	54.10	1.34E-01		1.97E-02	6.30E-02
TM-171	66.72	0.14	5.13E+01	5.13E+01	-4.26E+01	2.51E+01
HF-172	67.35	5.31	1.31E+00	5.39E-01	-8.85E-01	6.42E-01
	125.81	11.30	5.39E-01		-3.12E-01	2.62E-01
LU-172	181.53	20.60	4.05E+03	2.15E+03	7.44E+02	1.96E+03
	900.72	29.81	3.93E+03		-1.67E+03	1.83E+03
	1093.66	62.50	2.15E+03		8.92E+02	1.00E+03
LU-173	100.72	5.24	1.16E+00	3.80E-01	9.15E-01	5.66E-01
	272.11	21.20	3.80E-01		-1.40E-01	1.84E-01
HF-175	343.40	84.00	1.91E-01	1.91E-01	-1.95E-02	9.14E-02
LU-176	88.34	13.30	5.74E-01	6.46E-02	-4.06E-02	2.82E-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)
	LU-176	201.83		86.00	6.46E-02	6.46E-02	1.23E-03	3.12E-02
		306.78		94.00	6.98E-02		3.11E-02	3.36E-02
	HF-181	133.02		41.70	6.11E-01	3.63E-01	-1.27E-01	2.97E-01
		345.85		17.20	1.67E+00		-1.74E-01	7.99E-01
		482.03		82.80	3.63E-01		5.59E-03	1.72E-01
	TA-182	67.75		41.20	2.70E-01	2.70E-01	-1.82E-01	1.32E-01
		1121.30		34.90	6.81E-01		7.31E-01	3.24E-01
		1189.05		16.23	1.14E+00		3.33E-01	5.35E-01
		1221.41		26.98	6.69E-01		-1.37E-01	3.12E-01
		1231.02		11.44	1.65E+00		-6.25E-01	7.73E-01
	IR-192	308.46		29.68	5.03E-01	3.33E-01	-1.42E-01	2.42E-01
		468.07		48.10	3.33E-01		7.03E-02	1.58E-01
	HG-203	279.19		77.30	3.62E-01	3.62E-01	5.68E-02	1.75E-01
	TL-204	374.74		94.11	7.36E-02	7.36E-02	3.87E-02	3.53E-02
		899.15		99.16	8.83E-02		1.78E-02	4.13E-02
		911.74		91.10	1.89E-01		5.49E-01	9.11E-02
	BI-207	569.67		97.72	7.22E-02	7.22E-02	1.96E-02	3.41E-02
		1063.62		74.90	1.18E-01		1.12E-02	5.50E-02
+	TL-208	583.14	*	30.22	3.61E-01	2.29E-01	1.38E+00	1.74E-01
		860.37	*	4.48	2.58E+00		2.16E+00	1.23E+00
		2614.66	*	35.85	2.29E-01		1.43E+00	9.82E-02
	BI-210M	262.00		45.00	1.40E-01	1.40E-01	1.60E-02	6.77E-02
		300.00		23.00	3.19E-01		-1.47E+00	1.54E-01
+	PB-210	46.50	*	4.25	1.62E+00	1.62E+00	1.27E+00	7.89E-01
	PB-211	404.84		2.90	2.35E+00	2.35E+00	-6.65E-01	1.12E+00
		831.96		2.90	2.68E+00		1.92E-01	1.25E+00
+	BI-212	727.17	*	11.80	7.53E-01	7.53E-01	8.51E-01	3.57E-01
		1620.62		2.75	2.20E+00		-5.66E-02	9.49E-01
+	PB-212	238.63	*	44.60	3.65E-01	3.65E-01	1.76E+00	1.80E-01
		300.09	*	3.41	1.71E+00		1.52E+00	8.18E-01
+	BI-214	609.31	*	46.30	3.04E-01	3.04E-01	1.35E+00	1.47E-01
		1120.29	*	15.10	8.87E-01		9.04E-01	4.22E-01
		1764.49	*	15.80	5.96E-01		1.45E+00	2.70E-01
		2204.22	*	4.98	1.51E+00		1.55E+00	6.50E-01
+	PB-214	295.21	*	19.19	3.94E-01	2.49E-01	1.48E+00	1.91E-01
		351.92	*	37.19	2.49E-01		1.45E+00	1.21E-01
	RN-219	401.80		6.50	9.90E-01	9.90E-01	-2.18E-01	4.72E-01
	RA-223	323.87		3.88	1.64E+00	1.64E+00	-4.25E-02	7.89E-01
+	RA-224	240.98	*	3.95	4.15E+00	4.15E+00	5.61E+00	2.05E+00
	RA-225	40.00		31.00	1.48E+01	1.48E+01	5.42E+00	7.19E+00
+	RA-226	186.21	*	3.28	2.55E+00	2.55E+00	1.58E+00	1.25E+00
	TH-227	50.10		8.40	6.60E-01	6.58E-01	-4.25E-01	3.21E-01
		236.00		11.50	6.58E-01		-3.78E+00	3.20E-01
		256.20		6.30	1.02E+00		5.72E-01	4.93E-01
+	AC-228	338.32	*	11.40	7.43E-01	3.48E-01	2.18E+00	3.60E-01
		911.07	*	27.70	3.48E-01		1.74E+00	1.64E-01
		969.11	*	16.60	8.62E-01		2.03E+00	4.14E-01
	TH-230	48.44		16.90	3.54E-01	3.54E-01	-5.11E-02	1.72E-01
		62.85		4.60	1.58E+00		1.31E+00	7.76E-01
		67.67		0.37	1.71E+01		-1.15E+01	8.38E+00
	PA-231	283.67		1.60	3.99E+00	3.21E+00	-1.99E+00	1.92E+00
		302.67		2.30	3.21E+00		1.34E+00	1.55E+00
	TH-231	25.64		14.70	5.69E-01	5.69E-01	-4.17E+00	2.77E-01

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.03E+00	5.69E-01	-1.07E+00	5.04E-01
	PA-233	311.98		38.60	1.77E+00	1.77E+00	2.28E-01	8.52E-01
	PA-234	131.20		20.40	2.79E-01	2.79E-01	-7.12E-02	1.36E-01
		733.99		8.80	8.72E-01		5.06E-01	4.10E-01
		946.00		12.00	6.73E-01		-1.18E-01	3.13E-01
	PA-234M	1001.03		0.92	9.58E+00	9.58E+00	1.94E+00	4.47E+00
+	TH-234	63.29	*	3.80	2.80E+00	2.80E+00	2.95E+00	1.38E+00
	U-235	143.76		10.50	5.27E-01	5.27E-01	2.03E-01	2.56E-01
		163.35		4.70	1.20E+00		4.40E-01	5.82E-01
		205.31		4.70	1.18E+00		-1.49E+00	5.68E-01
	NP-237	86.50		12.60	5.68E-01	5.68E-01	3.98E-02	2.78E-01
	NP-239	106.10		22.70	1.75E+11	1.75E+11	1.18E+10	8.49E+10
		228.18		10.70	3.90E+11		1.02E+11	1.88E+11
		277.60		14.10	3.82E+11		2.62E+11	1.85E+11
	AM-241	59.54		35.90	1.82E-01	1.82E-01	9.86E-02	8.88E-02
	AM-243	74.67		66.00	1.44E-01	1.44E-01	-5.87E-02	7.07E-02
	CM-243	209.75		3.29	1.91E+00	5.14E-01	1.08E+00	9.27E-01
		228.14		10.60	5.26E-01		1.37E-01	2.53E-01
		277.60		14.00	5.14E-01		3.52E-01	2.49E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707077-09

HTC-A01-S001-3036-01

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

Sample Title: HTC-A01-S001-3036-01

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	75	79	91	174	513	115
25:	74	87	56	78	65	66	59	65
33:	62	79	73	68	71	67	57	95
41:	76	75	81	72	80	116	155	87
49:	71	75	83	92	92	121	91	108
57:	103	112	141	131	108	146	185	230
65:	149	149	131	116	125	109	138	124
73:	160	182	387	287	437	480	154	148
81:	129	137	125	129	163	95	182	235
89:	141	212	161	153	298	212	112	86
97:	65	88	96	102	82	76	80	72
105:	65	102	84	87	74	88	81	90
113:	85	69	83	81	71	76	74	65
121:	67	66	89	72	89	81	100	76
129:	107	107	95	75	77	75	95	86
137:	60	89	67	61	69	88	60	79
145:	68	84	67	75	80	61	71	67
153:	80	85	81	59	62	74	74	63
161:	57	72	80	66	70	65	67	66
169:	68	62	51	55	62	77	49	63
177:	54	60	53	63	70	71	48	59
185:	76	175	128	60	76	71	62	67
193:	60	56	72	63	69	56	60	57
201:	52	59	49	58	53	52	47	57
209:	81	91	49	58	62	62	45	47
217:	51	57	42	60	54	55	49	47
225:	45	46	55	44	49	48	40	37
233:	47	44	41	58	47	241	627	221
241:	126	150	109	56	42	40	35	30
249:	42	30	42	23	45	39	33	42
257:	41	43	41	38	32	33	37	37
265:	41	36	26	35	50	58	60	38
273:	32	40	41	44	50	57	49	29
281:	40	32	40	35	25	41	25	40
289:	39	27	28	33	35	50	186	177
297:	44	32	40	69	46	35	27	32
305:	42	43	28	23	32	26	32	19
313:	26	31	37	25	34	21	27	30
321:	34	28	15	28	23	29	40	49
329:	41	31	24	32	28	15	34	25
337:	40	120	132	39	33	24	23	25
345:	26	24	26	22	27	25	100	297
353:	175	32	30	33	19	18	14	23
361:	27	22	21	15	22	27	18	22

369:	18	26	24	28	23	17	26	29

Sample Title: HTC-A01-S001-3036-01

Channel								
377:	15	33	18	13	20	24	15	25
385:	17	22	24	29	31	23	24	14
393:	14	14	14	18	27	17	24	18
401:	13	25	27	13	25	19	27	26
409:	34	33	19	24	21	26	24	18
417:	20	20	19	27	31	22	19	16
425:	25	24	28	19	17	15	27	17
433:	19	14	20	21	16	11	23	27
441:	23	20	15	16	13	15	15	21
449:	21	17	21	21	27	22	24	19
457:	15	16	24	19	19	21	59	31
465:	17	15	18	15	19	23	18	15
473:	18	10	15	21	13	13	19	13
481:	17	19	14	14	18	14	23	24
489:	11	17	13	15	20	12	19	11
497:	17	20	8	16	11	9	13	14
505:	18	13	13	11	27	50	98	52
513:	37	17	18	20	15	16	16	17
521:	18	12	14	20	13	25	10	12
529:	15	16	10	10	13	21	17	15
537:	12	19	22	14	10	14	17	17
545:	11	14	19	13	20	12	11	15
553:	13	13	17	13	16	12	14	13
561:	13	11	11	17	14	9	16	12
569:	18	15	12	11	16	13	13	13
577:	10	16	10	20	13	47	131	130
585:	31	17	17	14	14	13	13	20
593:	8	19	13	14	15	14	14	15
601:	13	15	13	13	20	10	12	46
609:	202	160	38	17	12	14	10	18
617:	9	14	7	10	8	9	15	16
625:	8	7	15	13	15	12	13	6
633:	13	14	10	15	10	10	11	12
641:	8	14	14	12	8	7	14	15
649:	9	9	8	16	16	19	17	10
657:	8	13	12	17	16	20	9	21
665:	11	14	13	8	14	15	11	8
673:	14	5	9	9	27	9	6	10
681:	10	13	9	10	11	8	7	12
689:	10	10	8	12	16	20	15	11
697:	8	16	12	12	11	21	15	14
705:	10	13	11	11	10	13	14	8
713:	10	11	9	11	7	8	13	15
721:	15	11	12	7	13	19	39	25
729:	15	7	7	11	13	12	15	11
737:	11	11	6	7	8	4	10	7
745:	11	10	17	12	11	11	11	15
753:	5	13	14	15	3	10	5	7
761:	10	12	17	12	8	11	8	30
769:	25	16	9	11	8	14	7	9
777:	14	10	9	10	4	6	9	9
785:	11	19	5	6	12	6	5	11
793:	7	14	28	20	9	12	13	10

801:	9	10	7	14	8	13	16	11

Sample Title: HTC-A01-S001-3036-01

Channel								
809:	12	6	6	8	9	10	8	13
817:	8	9	6	8	6	6	10	9
825:	6	7	14	8	9	12	10	7
833:	10	9	10	18	13	8	14	7
841:	8	18	11	13	9	7	5	7
849:	9	6	4	10	8	9	9	14
857:	8	14	14	23	22	9	13	11
865:	9	7	5	13	7	8	9	8
873:	12	15	11	12	4	6	10	8
881:	5	10	8	8	8	9	7	9
889:	9	7	14	8	9	7	8	12
897:	8	12	7	11	10	9	3	16
905:	7	2	9	8	14	38	115	77
913:	19	7	6	8	8	7	12	11
921:	9	12	8	9	8	3	11	11
929:	4	9	12	7	6	22	14	10
937:	7	14	8	12	7	11	7	14
945:	6	8	9	7	8	12	7	5
953:	9	6	6	8	9	6	4	8
961:	6	11	15	27	28	18	13	39
969:	66	41	17	7	4	12	6	3
977:	8	13	7	9	8	5	4	6
985:	7	9	2	7	7	7	7	3
993:	11	8	5	10	14	8	7	10
1001:	13	10	5	12	3	7	4	10
1009:	8	8	5	13	10	9	6	9
1017:	5	6	4	11	9	7	5	6
1025:	8	5	6	9	6	9	12	7
1033:	9	7	10	9	8	8	10	6
1041:	13	11	8	4	12	6	7	10
1049:	7	6	11	12	7	9	5	7
1057:	5	7	10	10	9	7	10	8
1065:	6	9	5	10	5	6	4	9
1073:	11	9	13	7	4	10	14	12
1081:	4	12	3	8	12	9	4	6
1089:	4	9	10	8	9	3	10	10
1097:	6	8	7	5	11	7	10	9
1105:	7	4	8	10	9	8	13	12
1113:	7	8	8	5	4	11	20	49
1121:	26	9	11	9	15	13	10	8
1129:	4	10	12	8	7	5	4	4
1137:	8	6	7	10	10	7	12	11
1145:	9	8	9	7	5	11	6	6
1153:	4	9	10	15	9	14	9	14
1161:	13	7	6	12	7	8	6	13
1169:	7	9	6	8	10	7	12	11
1177:	6	5	14	10	8	8	13	11
1185:	8	12	8	13	5	10	13	12
1193:	9	7	7	10	4	11	8	6
1201:	8	8	9	7	12	8	8	10
1209:	9	12	12	3	12	10	10	10
1217:	10	11	10	13	8	9	7	8
1225:	14	8	8	12	6	9	8	16

1233:	13	12	16	14	15	28	22	8

Sample Title: HTC-A01-S001-3036-01

Channel								
1241:	6	9	12	7	9	5	11	10
1249:	10	11	5	10	6	2	5	6
1257:	9	8	8	7	8	5	13	3
1265:	8	10	6	5	5	10	7	7
1273:	8	2	1	10	6	4	2	7
1281:	11	9	4	8	3	7	7	11
1289:	2	2	2	4	6	8	5	3
1297:	7	6	6	10	5	4	9	5
1305:	8	6	9	6	6	3	3	6
1313:	10	10	7	5	8	4	10	3
1321:	4	3	8	2	4	5	4	3
1329:	3	9	5	2	4	1	3	5
1337:	5	3	4	6	4	2	4	4
1345:	1	3	5	3	0	2	4	4
1353:	8	5	4	5	4	3	6	0
1361:	2	4	3	1	2	3	1	2
1369:	3	2	5	2	4	1	3	4
1377:	13	13	5	4	8	4	2	4
1385:	5	4	4	2	2	1	1	1
1393:	0	2	5	1	3	3	4	4
1401:	8	4	6	3	2	4	5	11
1409:	5	4	4	4	3	2	3	3
1417:	4	2	2	3	1	3	2	1
1425:	3	5	1	2	2	2	3	3
1433:	3	5	3	2	5	3	3	6
1441:	2	1	2	3	3	6	4	1
1449:	5	1	3	2	0	3	3	6
1457:	3	21	104	323	367	144	19	11
1465:	10	10	3	1	2	7	3	3
1473:	4	0	5	0	0	0	3	4
1481:	2	2	1	6	4	2	1	2
1489:	3	0	0	2	3	1	1	2
1497:	1	1	2	2	0	8	4	0
1505:	3	3	2	4	8	3	2	6
1513:	2	5	1	2	3	2	5	5
1521:	1	4	0	1	0	1	3	3
1529:	2	4	2	2	3	2	0	1
1537:	3	0	3	2	3	5	2	2
1545:	2	3	1	3	2	2	0	3
1553:	0	1	2	1	1	3	1	1
1561:	2	1	0	0	3	1	3	0
1569:	2	1	1	2	2	5	2	1
1577:	3	1	1	0	2	0	2	3
1585:	1	1	6	7	2	2	2	5
1593:	5	2	0	3	2	2	2	3
1601:	0	1	0	4	2	2	0	3
1609:	1	1	0	1	2	2	4	1
1617:	0	1	5	3	2	1	1	2
1625:	1	1	2	2	2	8	6	1
1633:	3	2	1	4	3	1	1	2
1641:	0	1	0	0	1	1	2	0
1649:	1	0	1	1	0	0	3	0
1657:	2	1	3	3	1	2	2	3

1665:	2	3	1	1	0	3	1	0

Sample Title: HTC-A01-S001-3036-01

Channel								
1673:	0	1	0	1	1	2	1	1
1681:	2	2	3	2	1	0	2	0
1689:	0	0	2	1	0	1	0	1
1697:	1	3	1	0	1	3	2	2
1705:	1	2	1	3	0	1	3	0
1713:	2	1	2	2	0	1	0	4
1721:	0	1	2	2	2	1	0	9
1729:	8	9	2	2	1	3	3	0
1737:	4	0	1	0	1	1	0	4
1745:	0	1	0	1	0	0	4	2
1753:	2	1	1	1	0	1	2	2
1761:	1	4	16	39	16	5	1	1
1769:	3	2	1	0	1	1	0	2
1777:	2	0	0	0	2	0	1	1
1785:	2	2	0	3	1	1	2	0
1793:	0	0	0	3	0	2	0	3
1801:	1	3	2	2	1	3	3	1
1809:	2	3	4	1	1	0	1	1
1817:	2	2	2	2	1	1	1	0
1825:	1	2	1	2	3	1	3	0
1833:	1	1	0	1	2	2	2	1
1841:	3	0	4	1	1	4	7	3
1849:	0	1	0	0	2	2	3	1
1857:	0	0	1	1	2	0	2	0
1865:	1	3	2	1	2	2	0	2
1873:	2	3	2	2	0	2	1	1
1881:	0	2	1	1	1	0	0	0
1889:	1	1	3	0	0	0	1	3
1897:	2	0	2	2	0	1	1	2
1905:	1	2	0	1	0	3	0	1
1913:	0	1	0	2	1	0	1	0
1921:	3	3	1	0	1	0	0	1
1929:	0	0	3	0	2	1	3	1
1937:	1	0	2	1	2	3	0	1
1945:	4	3	0	0	0	0	2	1
1953:	0	0	1	0	1	3	0	2
1961:	1	1	0	2	3	0	1	2
1969:	2	1	0	0	1	2	0	0
1977:	2	1	3	1	1	0	1	2
1985:	0	0	3	0	0	1	0	0
1993:	1	1	0	3	0	1	0	1
2001:	0	3	2	1	1	2	1	1
2009:	1	4	1	2	1	0	3	0
2017:	1	0	0	2	2	2	0	1
2025:	1	1	1	1	0	0	1	0
2033:	0	0	1	1	1	3	1	1
2041:	3	1	0	1	0	0	0	0
2049:	0	2	0	0	1	1	0	0
2057:	1	0	1	3	1	0	0	2
2065:	2	1	1	0	4	1	2	1
2073:	1	0	1	0	1	0	1	1
2081:	0	1	0	1	0	0	0	0
2089:	1	1	0	0	1	1	0	0

2097:	2	0	1	0	3	2	4	6

Sample Title: HTC-A01-S001-3036-01

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

2529:	0	0	0	1	0	1	0	0

Sample Title: HTC-A01-S001-3036-01

Channel								
2537:	0	1	0	0	0	2	0	0
2545:	0	1	0	0	1	0	0	1
2553:	0	0	0	2	0	0	0	2
2561:	1	0	1	2	1	0	0	1
2569:	0	1	2	0	0	0	0	0
2577:	0	1	1	0	0	0	1	0
2585:	1	1	0	1	1	0	0	0
2593:	0	0	0	0	1	1	2	1
2601:	0	0	1	0	0	1	0	0
2609:	0	3	4	24	38	41	12	4
2617:	2	0	2	1	0	1	0	0
2625:	1	0	0	1	0	0	0	1
2633:	1	0	0	0	0	0	0	0
2641:	0	1	0	0	1	0	0	0
2649:	0	0	0	1	1	0	1	1
2657:	0	1	0	0	0	1	0	0
2665:	1	1	1	0	0	0	1	0
2673:	1	0	1	0	0	0	1	0
2681:	0	0	0	0	0	0	0	2
2689:	0	1	0	0	0	0	1	0
2697:	0	0	0	0	1	0	0	1
2705:	0	0	0	0	1	0	0	0
2713:	0	1	0	1	0	0	1	0
2721:	0	0	0	0	0	0	0	0
2729:	0	1	0	1	2	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	1	0	0	1	0
2753:	0	1	0	1	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	3	0	0
2777:	1	1	0	0	0	0	0	0
2785:	0	0	0	0	0	2	0	0
2793:	1	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	1	0	0	0	1	1	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	1	0	1	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	1	0	1	0
2849:	0	0	0	0	0	0	0	1
2857:	1	0	1	0	0	0	1	1
2865:	1	1	0	0	0	0	1	0
2873:	0	0	0	0	0	1	0	0
2881:	0	1	1	0	0	0	1	1
2889:	0	1	1	0	0	0	0	1
2897:	0	0	0	0	1	0	0	0
2905:	1	0	0	1	0	0	1	0
2913:	1	0	0	0	2	0	2	0
2921:	1	0	1	0	0	2	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	1
2945:	0	0	0	0	0	1	0	1
2953:	0	0	0	0	0	0	0	0

2961:	1	0	0	0	0	1	1	0

Sample Title: HTC-A01-S001-3036-01

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

3393:	0	0	0	0	0	0	1	0

Sample Title: HTC-A01-S001-3036-01

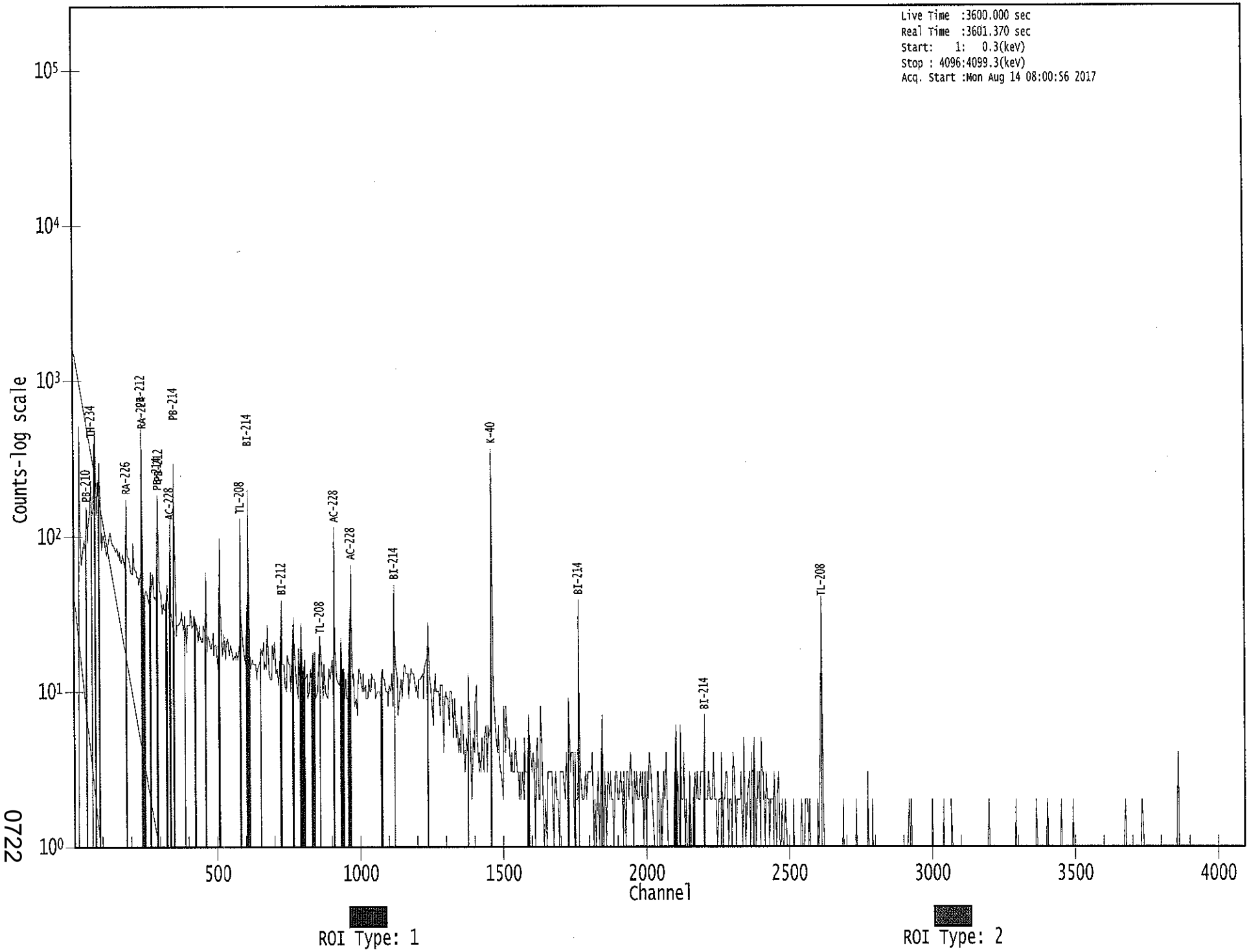
Channel								
3401:	0	0	2	1	0	0	0	0
3409:	0	0	0	1	0	0	0	0
3417:	0	0	0	1	1	0	1	0
3425:	0	0	1	0	0	0	0	0
3433:	1	0	1	0	0	0	0	0
3441:	0	0	0	0	0	0	1	1
3449:	0	2	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	1	0	0	0	0
3473:	0	0	0	1	0	0	1	0
3481:	0	0	1	0	0	0	0	0
3489:	1	0	0	2	0	1	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-3036-01

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

0000055142.CNF



0722

Apex-Gamma

8/14

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-10
Sample Description	: HTC-A01-S001-3642-01
Sample Type	: SOIL
Sample Size	: 6.020E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:35:23AM
Acquisition Started	: 8/14/2017 8:01:06AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3609.0 seconds
Dead Time	: 0.25 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55143

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 9:01:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	24.29	24.61	0.0000	0.00
2	69.55	69.86	0.0000	0.00
3	76.50	76.80	0.0000	0.00
4	87.89	88.18	0.0000	0.00
5	93.01	93.31	0.0000	0.00
6	98.99	99.29	0.0000	0.00
7	129.19	129.47	0.0000	0.00
8	144.42	144.70	0.0000	0.00
9	186.73	186.99	0.0000	0.00
10	209.71	209.96	0.0000	0.00
11	239.34	239.59	0.0000	0.00
12	261.51	261.75	0.0000	0.00
13	274.00	274.24	0.0000	0.00
14	295.60	295.83	0.0000	0.00
15	300.75	300.98	0.0000	0.00
16	307.34	307.56	0.0000	0.00
17	329.09	329.31	0.0000	0.00
18	338.56	338.77	0.0000	0.00
19	352.22	352.43	0.0000	0.00
20	463.38	463.55	0.0000	0.00
21	510.89	511.05	0.0000	0.00
22	522.20	522.35	0.0000	0.00
23	583.51	583.64	0.0000	0.00
24	609.57	609.69	0.0000	0.00
25	723.12	723.20	0.0000	0.00
26	726.93	727.01	0.0000	0.00
27	766.64	766.70	0.0000	0.00
28	795.07	795.13	0.0000	0.00
29	804.29	804.34	0.0000	0.00
30	860.73	860.77	0.0000	0.00
31	877.37	877.40	0.0000	0.00
32	911.44	911.46	0.0000	0.00
33	933.67	933.68	0.0000	0.00
34	969.39	969.40	0.0000	0.00
35	1002.03	1002.02	0.0000	0.00
36	1120.36	1120.31	0.0000	0.00
37	1143.32	1143.26	0.0000	0.00
38	1148.55	1148.49	0.0000	0.00
39	1155.03	1154.97	0.0000	0.00
40	1327.22	1327.09	0.0000	0.00
41	1332.36	1332.24	0.0000	0.00
42	1377.39	1377.25	0.0000	0.00

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1460.71	1460.55	0.0000	0.00
44	1509.64	1509.46	0.0000	0.00
45	1589.92	1589.71	0.0000	0.00
46	1667.43	1667.19	0.0000	0.00
47	1719.92	1719.67	0.0000	0.00
48	1730.57	1730.32	0.0000	0.00
49	1764.69	1764.42	0.0000	0.00
50	1893.45	1893.14	0.0000	0.00
51	1899.70	1899.38	0.0000	0.00
52	2103.29	2102.91	0.0000	0.00
53	2136.87	2136.48	0.0000	0.00
54	2173.17	2172.77	0.0000	0.00
55	2350.41	2349.94	0.0000	0.00
56	2366.77	2366.30	0.0000	0.00
57	2552.87	2552.33	0.0000	0.00
58	2614.14	2613.59	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 9:01:31AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	24.29	22 -	27	24.61	7.77E+01	76.28	1.10E+03	3.60
M	2	69.55	59 -	81	69.86	1.50E+02	168.30	3.43E+03	3.53
m	3	76.50	59 -	81	76.80	1.63E+03	179.99	3.42E+03	3.56
M	4	87.89	83 -	97	88.18	5.05E+02	144.35	2.71E+03	3.97
m	5	93.01	83 -	97	93.31	4.16E+02	120.96	1.90E+03	2.64
	6	98.99	97 -	101	99.29	8.43E+01	69.23	9.87E+02	1.30
	7	129.19	125 -	133	129.47	1.87E+02	106.67	1.63E+03	2.06
	8	144.42	142 -	149	144.70	1.22E+02	91.65	1.32E+03	3.99
	9	186.73	182 -	191	186.99	1.71E+02	103.37	1.43E+03	2.21
	10	209.71	206 -	214	209.96	1.63E+02	86.20	1.04E+03	2.00
	11	239.34	234 -	245	239.59	1.35E+03	126.11	1.31E+03	2.05
	12	261.51	258 -	265	261.75	6.60E+01	58.55	5.26E+02	2.06
	13	274.00	267 -	283	274.24	2.12E+02	118.24	1.26E+03	8.82
M	14	295.60	292 -	304	295.83	2.48E+02	54.58	3.96E+02	1.92
m	15	300.75	292 -	304	300.98	7.19E+01	47.02	3.37E+02	1.93
	16	307.34	305 -	311	307.56	4.30E+01	46.84	3.68E+02	2.82
	17	329.09	324 -	334	329.31	8.49E+01	72.12	6.46E+02	2.44
	18	338.56	335 -	343	338.77	2.11E+02	64.66	5.14E+02	2.25
	19	352.22	348 -	356	352.43	4.07E+02	67.71	4.55E+02	2.16
	20	463.38	459 -	467	463.55	6.27E+01	48.06	3.11E+02	2.09
	21	510.89	506 -	515	511.05	1.48E+02	55.01	3.42E+02	1.79
	22	522.20	516 -	529	522.35	6.04E+01	54.77	3.01E+02	10.63
	23	583.51	580 -	588	583.64	3.32E+02	53.04	2.26E+02	2.22
	24	609.57	607 -	614	609.69	3.20E+02	48.04	1.71E+02	2.31
M	25	723.12	722 -	731	723.20	1.47E+01	12.92	5.14E+01	2.07
m	26	726.93	722 -	731	727.01	5.95E+01	32.84	1.42E+02	2.23
	27	766.64	763 -	771	766.70	3.19E+01	36.14	1.84E+02	3.97
	28	795.07	791 -	799	795.13	3.96E+01	31.67	1.29E+02	3.87
	29	804.29	800 -	809	804.34	4.46E+01	31.29	1.13E+02	6.05
	30	860.73	857 -	864	860.77	4.64E+01	30.85	1.27E+02	1.31
	31	877.37	874 -	881	877.40	2.52E+01	24.66	8.56E+01	1.65
	32	911.44	908 -	916	911.46	2.12E+02	38.85	1.08E+02	2.39
	33	933.67	930 -	938	933.68	2.40E+01	28.25	1.08E+02	1.95
	34	969.39	966 -	973	969.40	1.09E+02	38.42	1.60E+02	1.53
	35	1002.03	997 -	1008	1002.02	4.27E+01	31.43	1.03E+02	5.83
	36	1120.36	1114 -	1124	1120.31	5.43E+01	41.75	2.03E+02	2.38
M	37	1143.32	1141 -	1151	1143.26	1.29E+01	14.97	4.57E+01	2.73
m	38	1148.55	1141 -	1151	1148.49	2.76E+01	22.66	6.87E+01	2.88
	39	1155.03	1152 -	1158	1154.97	2.65E+01	20.79	5.89E+01	2.96
M	40	1327.22	1322 -	1335	1327.09	2.04E+01	24.47	6.75E+01	3.69

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1332.36	1322 -	1335	1332.24	1.04E+01	16.70	3.73E+01	3.05
	42	1377.39	1373 -	1380	1377.25	2.11E+01	17.32	3.58E+01	2.29
	43	1460.71	1456 -	1467	1460.55	6.85E+02	56.25	4.96E+01	2.56
	44	1509.64	1505 -	1514	1509.46	1.67E+01	14.42	2.07E+01	6.11
	45	1589.92	1583 -	1599	1589.71	2.80E+01	23.69	4.39E+01	6.87
	46	1667.43	1664 -	1670	1667.19	9.50E+00	8.75	7.00E+00	4.39
	47	1719.92	1715 -	1724	1719.67	1.20E+01	6.93	0.00E+00	7.84
	48	1730.57	1726 -	1736	1730.32	1.90E+01	8.72	0.00E+00	4.81
	49	1764.69	1760 -	1769	1764.42	4.68E+01	19.00	2.43E+01	2.42
	50	1893.45	1890 -	1895	1893.14	7.50E+00	6.71	3.00E+00	1.08
	51	1899.70	1897 -	1902	1899.38	6.88E+00	6.40	2.25E+00	1.42
	52	2103.29	2098 -	2107	2102.91	3.03E+01	13.78	9.37E+00	2.81
	53	2136.87	2133 -	2139	2136.48	7.28E+00	6.95	3.44E+00	3.40
	54	2173.17	2170 -	2175	2172.77	5.71E+00	6.08	2.57E+00	2.74
	55	2350.41	2346 -	2353	2349.94	7.00E+00	8.72	8.00E+00	1.28
	56	2366.77	2360 -	2370	2366.30	9.42E+00	12.76	1.72E+01	5.72
	57	2552.87	2548 -	2556	2552.33	9.00E+00	6.00	0.00E+00	5.98
	58	2614.14	2609 -	2619	2613.59	1.02E+02	20.20	0.00E+00	3.20

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 : 8/14/2017 9:01:31AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	24.29	22 -	27	7.77E+01	76.28	1.10E+03	6.10E+01
M	2	69.55	59 -	81	1.50E+02	168.30	3.43E+03	9.63E+01
m	3	76.50	59 -	81	1.63E+03	179.99	3.42E+03	9.62E+01
M	4	87.89	83 -	97	5.05E+02	144.35	2.71E+03	8.56E+01
m	5	93.01	83 -	97	4.16E+02	120.96	1.90E+03	7.17E+01
	6	98.99	97 -	101	8.43E+01	69.23	9.87E+02	5.49E+01
	7	129.19	125 -	133	1.87E+02	106.67	1.63E+03	8.48E+01
	8	144.42	142 -	149	1.22E+02	91.65	1.32E+03	7.31E+01
	9	186.73	182 -	191	1.71E+02	103.37	1.43E+03	8.22E+01
	10	209.71	206 -	214	1.63E+02	86.20	1.04E+03	6.77E+01

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	11	239.34	234 -	245	1.35E+03	126.11	1.31E+03	8.42E+01
	12	261.51	258 -	265	6.60E+01	58.55	5.26E+02	4.62E+01
	13	274.00	267 -	283	2.12E+02	118.24	1.26E+03	9.42E+01
M	14	295.60	292 -	304	2.48E+02	54.58	3.96E+02	3.27E+01
m	15	300.75	292 -	304	7.19E+01	47.02	3.37E+02	3.02E+01
	16	307.34	305 -	311	4.30E+01	46.84	3.68E+02	3.70E+01
	17	329.09	324 -	334	8.49E+01	72.12	6.46E+02	5.73E+01
	18	338.56	335 -	343	2.11E+02	64.66	5.14E+02	4.75E+01
	19	352.22	348 -	356	4.07E+02	67.71	4.55E+02	4.47E+01
	20	463.38	459 -	467	6.27E+01	48.06	3.11E+02	3.73E+01
	21	510.89	506 -	515	1.48E+02	55.01	3.42E+02	4.05E+01
	22	522.20	516 -	529	6.04E+01	54.77	3.01E+02	4.32E+01
	23	583.51	580 -	588	3.32E+02	53.04	2.26E+02	3.17E+01
	24	609.57	607 -	614	3.20E+02	48.04	1.71E+02	2.64E+01
M	25	723.12	722 -	731	1.47E+01	12.92	5.14E+01	1.18E+01
m	26	726.93	722 -	731	5.95E+01	32.84	1.42E+02	1.96E+01
	27	766.64	763 -	771	3.19E+01	36.14	1.84E+02	2.82E+01
	28	795.07	791 -	799	3.96E+01	31.67	1.29E+02	2.39E+01
	29	804.29	800 -	809	4.46E+01	31.29	1.13E+02	2.33E+01
	30	860.73	857 -	864	4.64E+01	30.85	1.27E+02	2.28E+01
	31	877.37	874 -	881	2.52E+01	24.66	8.56E+01	1.85E+01
	32	911.44	908 -	916	2.12E+02	38.85	1.08E+02	2.11E+01
	33	933.67	930 -	938	2.40E+01	28.25	1.08E+02	2.18E+01
	34	969.39	966 -	973	1.09E+02	38.42	1.60E+02	2.65E+01
	35	1002.03	997 -	1008	4.27E+01	31.43	1.03E+02	2.35E+01
	36	1120.36	1114 -	1124	5.43E+01	41.75	2.03E+02	3.21E+01
M	37	1143.32	1141 -	1151	1.29E+01	14.97	4.57E+01	1.11E+01
m	38	1148.55	1141 -	1151	2.76E+01	22.66	6.87E+01	1.36E+01
	39	1155.03	1152 -	1158	2.65E+01	20.79	5.89E+01	1.48E+01
M	40	1327.22	1322 -	1335	2.04E+01	24.47	6.75E+01	1.35E+01
m	41	1332.36	1322 -	1335	1.04E+01	16.70	3.73E+01	1.00E+01
	42	1377.39	1373 -	1380	2.11E+01	17.32	3.58E+01	1.21E+01
	43	1460.71	1456 -	1467	6.85E+02	56.25	4.96E+01	1.69E+01
	44	1509.64	1505 -	1514	1.67E+01	14.42	2.07E+01	9.77E+00
	45	1589.92	1583 -	1599	2.80E+01	23.69	4.39E+01	1.74E+01
	46	1667.43	1664 -	1670	9.50E+00	8.75	7.00E+00	5.10E+00
	47	1719.92	1715 -	1724	1.20E+01	6.93	0.00E+00	0.00E+00
	48	1730.57	1726 -	1736	1.90E+01	8.72	0.00E+00	0.00E+00
	49	1764.69	1760 -	1769	4.68E+01	19.00	2.43E+01	1.08E+01
	50	1893.45	1890 -	1895	7.50E+00	6.71	3.00E+00	3.18E+00
	51	1899.70	1897 -	1902	6.88E+00	6.40	2.25E+00	3.02E+00
	52	2103.29	2098 -	2107	3.03E+01	13.78	9.37E+00	6.82E+00
	53	2136.87	2133 -	2139	7.28E+00	6.95	3.44E+00	3.60E+00
	54	2173.17	2170 -	2175	5.71E+00	6.08	2.57E+00	3.09E+00
	55	2350.41	2346 -	2353	7.00E+00	8.72	8.00E+00	5.70E+00
	56	2366.77	2360 -	2370	9.42E+00	12.76	1.72E+01	9.19E+00
	57	2552.87	2548 -	2556	9.00E+00	6.00	0.00E+00	0.00E+00
	58	2614.14	2609 -	2619	1.02E+02	20.20	0.00E+00	0.00E+00

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

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 : 8/14/2017 9:01:31AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	24.29	22 -	27	24.61	7.77E+01	76.28	1.10E+03	.....
M	2	69.55	59 -	81	69.86	1.50E+02	168.30	3.43E+03	.....
m	3	76.50	59 -	81	76.80	1.63E+03	179.99	3.42E+03	.....
M	4	87.89	83 -	97	88.18	5.05E+02	144.35	2.71E+03	CD-109
									SN-126
									LU-176
m	5	93.01	83 -	97	93.31	4.16E+02	120.96	1.90E+03	GA-67
	6	98.99	97 -	101	99.29	8.43E+01	69.23	9.87E+02	.....
	7	129.19	125 -	133	129.47	1.87E+02	106.67	1.63E+03	.....
	8	144.42	142 -	149	144.70	1.22E+02	91.65	1.32E+03	U-235
	9	186.73	182 -	191	186.99	1.71E+02	103.37	1.43E+03	RA-226
	10	209.71	206 -	214	209.96	1.63E+02	86.20	1.04E+03	CM-243
									GA-67
	11	239.34	234 -	245	239.59	1.35E+03	126.11	1.31E+03	PB-212
	12	261.51	258 -	265	261.75	6.60E+01	58.55	5.26E+02	BI-210M
	13	274.00	267 -	283	274.24	2.12E+02	118.24	1.26E+03	CS-136
M	14	295.60	292 -	304	295.83	2.48E+02	54.58	3.96E+02	PB-214
m	15	300.75	292 -	304	300.98	7.19E+01	47.02	3.37E+02	GA-67
									PB-212
									BI-210M
	16	307.34	305 -	311	307.56	4.30E+01	46.84	3.68E+02	LU-176
	17	329.09	324 -	334	329.31	8.49E+01	72.12	6.46E+02	LA-140
	18	338.56	335 -	343	338.77	2.11E+02	64.66	5.14E+02	AC-228
	19	352.22	348 -	356	352.43	4.07E+02	67.71	4.55E+02	PB-214
	20	463.38	459 -	467	463.55	6.27E+01	48.06	3.11E+02	SB-125
	21	510.89	506 -	515	511.05	1.48E+02	55.01	3.42E+02	.....
	22	522.20	516 -	529	522.35	6.04E+01	54.77	3.01E+02	.....
	23	583.51	580 -	588	583.64	3.32E+02	53.04	2.26E+02	TL-208
	24	609.57	607 -	614	609.69	3.20E+02	48.04	1.71E+02	BI-214
M	25	723.12	722 -	731	723.20	1.47E+01	12.92	5.14E+01	AG-108M

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									EU-154
									I-131
									SB-124
m	26	726.93	722 -	731	727.01	5.95E+01	32.84	1.42E+02	BI-212
	27	766.64	763 -	771	766.70	3.19E+01	36.14	1.84E+02	NB-95
	28	795.07	791 -	799	795.13	3.96E+01	31.67	1.29E+02	CS-134
	29	804.29	800 -	809	804.34	4.46E+01	31.29	1.13E+02	.....
	30	860.73	857 -	864	860.77	4.64E+01	30.85	1.27E+02	TL-208
	31	877.37	874 -	881	877.40	2.52E+01	24.66	8.56E+01	.....
	32	911.44	908 -	916	911.46	2.12E+02	38.85	1.08E+02	TL-204
									AC-228
	33	933.67	930 -	938	933.68	2.40E+01	28.25	1.08E+02	.....
	34	969.39	966 -	973	969.40	1.09E+02	38.42	1.60E+02	AC-228
	35	1002.03	997 -	1008	1002.02	4.27E+01	31.43	1.03E+02	PA-234M
	36	1120.36	1114 -	1124	1120.31	5.43E+01	41.75	2.03E+02	BI-214
									SC-46
									TA-182
M	37	1143.32	1141 -	1151	1143.26	1.29E+01	14.97	4.57E+01	.....
m	38	1148.55	1141 -	1151	1148.49	2.76E+01	22.66	6.87E+01	.....
	39	1155.03	1152 -	1158	1154.97	2.65E+01	20.79	5.89E+01	.....
M	40	1327.22	1322 -	1335	1327.09	2.04E+01	24.47	6.75E+01	.....
m	41	1332.36	1322 -	1335	1332.24	1.04E+01	16.70	3.73E+01	CO-60
	42	1377.39	1373 -	1380	1377.25	2.11E+01	17.32	3.58E+01	.....
	43	1460.71	1456 -	1467	1460.55	6.85E+02	56.25	4.96E+01	K-40
	44	1509.64	1505 -	1514	1509.46	1.67E+01	14.42	2.07E+01	.....
	45	1589.92	1583 -	1599	1589.71	2.80E+01	23.69	4.39E+01	.....
	46	1667.43	1664 -	1670	1667.19	9.50E+00	8.75	7.00E+00	.....
	47	1719.92	1715 -	1724	1719.67	1.20E+01	6.93	0.00E+00	.....
	48	1730.57	1726 -	1736	1730.32	1.90E+01	8.72	0.00E+00	.....
	49	1764.69	1760 -	1769	1764.42	4.68E+01	19.00	2.43E+01	BI-214
	50	1893.45	1890 -	1895	1893.14	7.50E+00	6.71	3.00E+00	.....
	51	1899.70	1897 -	1902	1899.38	6.88E+00	6.40	2.25E+00	.....
	52	2103.29	2098 -	2107	2102.91	3.03E+01	13.78	9.37E+00	.....
	53	2136.87	2133 -	2139	2136.48	7.28E+00	6.95	3.44E+00	.....
	54	2173.17	2170 -	2175	2172.77	5.71E+00	6.08	2.57E+00	.....
	55	2350.41	2346 -	2353	2349.94	7.00E+00	8.72	8.00E+00	.....
	56	2366.77	2360 -	2370	2366.30	9.42E+00	12.76	1.72E+01	.....
	57	2552.87	2548 -	2556	2552.33	9.00E+00	6.00	0.00E+00	.....
	58	2614.14	2609 -	2619	2613.59	1.02E+02	20.20	0.00E+00	TL-208

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

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 9:01:31AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	24.29	7.77E+01	76.28	2.30E-03	1.73E-03
M	2	69.55	1.50E+02	168.30	2.58E-02	1.91E-03
m	3	76.50	1.63E+03	179.99	2.67E-02	2.04E-03
M	4	87.89	5.05E+02	144.35	2.72E-02	2.26E-03
m	5	93.01	4.16E+02	120.96	2.71E-02	2.24E-03
	6	98.99	8.43E+01	69.23	2.69E-02	2.21E-03
	7	129.19	1.87E+02	106.67	2.46E-02	2.04E-03
	8	144.42	1.22E+02	91.65	2.32E-02	1.87E-03
	9	186.73	1.71E+02	103.37	1.95E-02	1.55E-03
	10	209.71	1.63E+02	86.20	1.79E-02	1.45E-03
	11	239.34	1.35E+03	126.11	1.61E-02	1.34E-03
	12	261.51	6.60E+01	58.55	1.49E-02	1.25E-03
	13	274.00	2.12E+02	118.24	1.44E-02	1.20E-03
M	14	295.60	2.48E+02	54.58	1.35E-02	1.15E-03
m	15	300.75	7.19E+01	47.02	1.33E-02	1.14E-03
	16	307.34	4.30E+01	46.84	1.30E-02	1.12E-03
	17	329.09	8.49E+01	72.12	1.22E-02	1.08E-03
	18	338.56	2.11E+02	64.66	1.19E-02	1.06E-03
	19	352.22	4.07E+02	67.71	1.15E-02	1.03E-03
	20	463.38	6.27E+01	48.06	9.02E-03	8.57E-04
	21	510.89	1.48E+02	55.01	8.26E-03	7.94E-04
	22	522.20	6.04E+01	54.77	8.09E-03	7.79E-04
	23	583.51	3.32E+02	53.04	7.32E-03	6.98E-04
	24	609.57	3.20E+02	48.04	7.04E-03	6.64E-04
M	25	723.12	1.47E+01	12.92	6.04E-03	5.40E-04
m	26	726.93	5.95E+01	32.84	6.01E-03	5.37E-04
	27	766.64	3.19E+01	36.14	5.73E-03	5.02E-04
	28	795.07	3.96E+01	31.67	5.55E-03	4.77E-04
	29	804.29	4.46E+01	31.29	5.49E-03	4.69E-04
	30	860.73	4.64E+01	30.85	5.17E-03	4.19E-04
	31	877.37	2.52E+01	24.66	5.09E-03	4.04E-04
	32	911.44	2.12E+02	38.85	4.92E-03	3.84E-04
	33	933.67	2.40E+01	28.25	4.82E-03	3.80E-04
	34	969.39	1.09E+02	38.42	4.66E-03	3.74E-04
	35	1002.03	4.27E+01	31.43	4.53E-03	3.69E-04
	36	1120.36	5.43E+01	41.75	4.12E-03	3.50E-04
M	37	1143.32	1.29E+01	14.97	4.05E-03	3.46E-04
m	38	1148.55	2.76E+01	22.66	4.03E-03	3.45E-04
	39	1155.03	2.65E+01	20.79	4.01E-03	3.44E-04
M	40	1327.22	2.04E+01	24.47	3.57E-03	2.97E-04
m	41	1332.36	1.04E+01	16.70	3.56E-03	2.96E-04
	42	1377.39	2.11E+01	17.32	3.47E-03	2.88E-04
	43	1460.71	6.85E+02	56.25	3.31E-03	2.75E-04
	44	1509.64	1.67E+01	14.42	3.22E-03	2.67E-04
	45	1589.92	2.80E+01	23.69	3.10E-03	2.54E-04

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1667.43	9.50E+00	8.75	2.99E-03	2.42E-04
47	1719.92	1.20E+01	6.93	2.92E-03	2.34E-04
48	1730.57	1.90E+01	8.72	2.91E-03	2.32E-04
49	1764.69	4.68E+01	19.00	2.87E-03	2.26E-04
50	1893.45	7.50E+00	6.71	2.72E-03	2.15E-04
51	1899.70	6.88E+00	6.40	2.72E-03	2.15E-04
52	2103.29	3.03E+01	13.78	2.54E-03	2.15E-04
53	2136.87	7.28E+00	6.95	2.51E-03	2.15E-04
54	2173.17	5.71E+00	6.08	2.49E-03	2.15E-04
55	2350.41	7.00E+00	8.72	2.37E-03	2.15E-04
56	2366.77	9.42E+00	12.76	2.36E-03	2.15E-04
57	2552.87	9.00E+00	6.00	2.27E-03	2.15E-04
58	2614.14	1.02E+02	20.20	2.24E-03	2.15E-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 : 8/14/2017 9:01:31AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	24.29	7.77E+01	76.28			7.77E+01	7.63E+01
M	2	69.55	1.50E+02	168.30			1.50E+02	1.68E+02
m	3	76.50	1.63E+03	179.99	1.67E+01	8.84E+00	1.62E+03	1.80E+02
M	4	87.89	5.05E+02	144.35			5.05E+02	1.44E+02
m	5	93.01	4.16E+02	120.96	6.90E+01	7.61E+00	3.47E+02	1.21E+02
	6	98.99	8.43E+01	69.23			8.43E+01	6.92E+01
	7	129.19	1.87E+02	106.67			1.87E+02	1.07E+02
	8	144.42	1.22E+02	91.65			1.22E+02	9.17E+01
	9	186.73	1.71E+02	103.37	2.99E+01	5.81E+00	1.41E+02	1.04E+02
	10	209.71	1.63E+02	86.20			1.63E+02	8.62E+01
	11	239.34	1.35E+03	126.11	9.49E+00	5.63E+00	1.34E+03	1.26E+02
	12	261.51	6.60E+01	58.55			6.60E+01	5.85E+01
	13	274.00	2.12E+02	118.24			2.12E+02	1.18E+02
M	14	295.60	2.48E+02	54.58			2.48E+02	5.46E+01
m	15	300.75	7.19E+01	47.02			7.19E+01	4.70E+01
	16	307.34	4.30E+01	46.84			4.30E+01	4.68E+01
	17	329.09	8.49E+01	72.12			8.49E+01	7.21E+01

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	338.56	2.11E+02	64.66	4.73E+00	4.47E+00	2.06E+02	6.48E+01
	19	352.22	4.07E+02	67.71			4.07E+02	6.77E+01
	20	463.38	6.27E+01	48.06			6.27E+01	4.81E+01
	21	510.89	1.48E+02	55.01	5.37E+01	4.54E+00	9.45E+01	5.52E+01
	22	522.20	6.04E+01	54.77			6.04E+01	5.48E+01
	23	583.51	3.32E+02	53.04			3.32E+02	5.30E+01
	24	609.57	3.20E+02	48.04	4.09E+00	3.07E+00	3.15E+02	4.81E+01
M	25	723.12	1.47E+01	12.92			1.47E+01	1.29E+01
m	26	726.93	5.95E+01	32.84			5.95E+01	3.28E+01
	27	766.64	3.19E+01	36.14			3.19E+01	3.61E+01
	28	795.07	3.96E+01	31.67			3.96E+01	3.17E+01
	29	804.29	4.46E+01	31.29	2.49E+00	2.85E+00	4.21E+01	3.14E+01
	30	860.73	4.64E+01	30.85			4.64E+01	3.09E+01
	31	877.37	2.52E+01	24.66			2.52E+01	2.47E+01
	32	911.44	2.12E+02	38.85			2.12E+02	3.89E+01
	33	933.67	2.40E+01	28.25			2.40E+01	2.82E+01
	34	969.39	1.09E+02	38.42			1.09E+02	3.84E+01
	35	1002.03	4.27E+01	31.43			4.27E+01	3.14E+01
	36	1120.36	5.43E+01	41.75			5.43E+01	4.18E+01
M	37	1143.32	1.29E+01	14.97			1.29E+01	1.50E+01
m	38	1148.55	2.76E+01	22.66			2.76E+01	2.27E+01
	39	1155.03	2.65E+01	20.79			2.65E+01	2.08E+01
M	40	1327.22	2.04E+01	24.47			2.04E+01	2.45E+01
m	41	1332.36	1.04E+01	16.70			1.04E+01	1.67E+01
	42	1377.39	2.11E+01	17.32			2.11E+01	1.73E+01
	43	1460.71	6.85E+02	56.25			6.85E+02	5.62E+01
	44	1509.64	1.67E+01	14.42			1.67E+01	1.44E+01
	45	1589.92	2.80E+01	23.69			2.80E+01	2.37E+01
	46	1667.43	9.50E+00	8.75			9.50E+00	8.75E+00
	47	1719.92	1.20E+01	6.93			1.20E+01	6.93E+00
	48	1730.57	1.90E+01	8.72			1.90E+01	8.72E+00
	49	1764.69	4.68E+01	19.00			4.68E+01	1.90E+01
	50	1893.45	7.50E+00	6.71			7.50E+00	6.71E+00
	51	1899.70	6.88E+00	6.40			6.88E+00	6.40E+00
	52	2103.29	3.03E+01	13.78			3.03E+01	1.38E+01
	53	2136.87	7.28E+00	6.95			7.28E+00	6.95E+00
	54	2173.17	5.71E+00	6.08			5.71E+00	6.08E+00
	55	2350.41	7.00E+00	8.72			7.00E+00	8.72E+00
	56	2366.77	9.42E+00	12.76			9.42E+00	1.28E+01
	57	2552.87	9.00E+00	6.00			9.00E+00	6.00E+00
	58	2614.14	1.02E+02	20.20			1.02E+02	2.02E+01

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

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 9:01:31AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.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	24.29	7.77E+01	76.28			7.77E+01	7.63E+01
M	2	69.55	1.50E+02	168.30			1.50E+02	1.68E+02
m	3	76.50	1.63E+03	179.99	1.67E+01	8.84E+00	1.62E+03	1.80E+02
M	4	87.89	5.05E+02	144.35			5.05E+02	1.44E+02
m	5	93.01	4.16E+02	120.96	6.90E+01	7.61E+00	3.47E+02	1.21E+02
	6	98.99	8.43E+01	69.23			8.43E+01	6.92E+01
	7	129.19	1.87E+02	106.67			1.87E+02	1.07E+02
	8	144.42	1.22E+02	91.65			1.22E+02	9.17E+01
	9	186.73	1.71E+02	103.37	2.99E+01	5.81E+00	1.41E+02	1.04E+02
	10	209.71	1.63E+02	86.20			1.63E+02	8.62E+01
	11	239.34	1.35E+03	126.11	9.49E+00	5.63E+00	1.34E+03	1.26E+02
	12	261.51	6.60E+01	58.55			6.60E+01	5.85E+01
	13	274.00	2.12E+02	118.24			2.12E+02	1.18E+02
M	14	295.60	2.48E+02	54.58			2.48E+02	5.46E+01
m	15	300.75	7.19E+01	47.02			7.19E+01	4.70E+01
	16	307.34	4.30E+01	46.84			4.30E+01	4.68E+01
	17	329.09	8.49E+01	72.12			8.49E+01	7.21E+01
	18	338.56	2.11E+02	64.66	4.73E+00	4.47E+00	2.06E+02	6.48E+01
	19	352.22	4.07E+02	67.71			4.07E+02	6.77E+01
	20	463.38	6.27E+01	48.06			6.27E+01	4.81E+01
	21	510.89	1.48E+02	55.01	5.37E+01	4.54E+00	9.45E+01	5.52E+01
	22	522.20	6.04E+01	54.77			6.04E+01	5.48E+01
	23	583.51	3.32E+02	53.04			3.32E+02	5.30E+01
	24	609.57	3.20E+02	48.04	4.09E+00	3.07E+00	3.15E+02	4.81E+01
M	25	723.12	1.47E+01	12.92			1.47E+01	1.29E+01
m	26	726.93	5.95E+01	32.84			5.95E+01	3.28E+01
	27	766.64	3.19E+01	36.14			3.19E+01	3.61E+01
	28	795.07	3.96E+01	31.67			3.96E+01	3.17E+01
	29	804.29	4.46E+01	31.29	2.49E+00	2.85E+00	4.21E+01	3.14E+01
	30	860.73	4.64E+01	30.85			4.64E+01	3.09E+01
	31	877.37	2.52E+01	24.66			2.52E+01	2.47E+01
	32	911.44	2.12E+02	38.85			2.12E+02	3.89E+01
	33	933.67	2.40E+01	28.25			2.40E+01	2.82E+01
	34	969.39	1.09E+02	38.42			1.09E+02	3.84E+01
	35	1002.03	4.27E+01	31.43			4.27E+01	3.14E+01
	36	1120.36	5.43E+01	41.75			5.43E+01	4.18E+01
M	37	1143.32	1.29E+01	14.97			1.29E+01	1.50E+01
m	38	1148.55	2.76E+01	22.66			2.76E+01	2.27E+01
	39	1155.03	2.65E+01	20.79			2.65E+01	2.08E+01
M	40	1327.22	2.04E+01	24.47			2.04E+01	2.45E+01
m	41	1332.36	1.04E+01	16.70			1.04E+01	1.67E+01

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1377.39	2.11E+01	17.32			2.11E+01	1.73E+01
43	1460.71	6.85E+02	56.25			6.85E+02	5.62E+01
44	1509.64	1.67E+01	14.42			1.67E+01	1.44E+01
45	1589.92	2.80E+01	23.69			2.80E+01	2.37E+01
46	1667.43	9.50E+00	8.75			9.50E+00	8.75E+00
47	1719.92	1.20E+01	6.93			1.20E+01	6.93E+00
48	1730.57	1.90E+01	8.72			1.90E+01	8.72E+00
49	1764.69	4.68E+01	19.00			4.68E+01	1.90E+01
50	1893.45	7.50E+00	6.71			7.50E+00	6.71E+00
51	1899.70	6.88E+00	6.40			6.88E+00	6.40E+00
52	2103.29	3.03E+01	13.78			3.03E+01	1.38E+01
53	2136.87	7.28E+00	6.95			7.28E+00	6.95E+00
54	2173.17	5.71E+00	6.08			5.71E+00	6.08E+00
55	2350.41	7.00E+00	8.72			7.00E+00	8.72E+00
56	2366.77	9.42E+00	12.76			9.42E+00	1.28E+01
57	2552.87	9.00E+00	6.00			9.00E+00	6.00E+00
58	2614.14	1.02E+02	20.20			1.02E+02	2.02E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.999	1460.81	*	10.67	2.42E+01	2.87E+00
NB-95	0.861	765.79	*	99.81	4.37E-01	4.96E-01
CD-109	0.996	88.03	*	3.72	7.16E+00	2.17E+00
SN-126	0.984	87.57	*	37.00	6.27E-01	1.87E-01
TL-208	0.968	583.14	*	30.22	1.87E+00	3.48E-01
		860.37	*	4.48	2.50E+00	1.67E+00
		2614.66	*	35.85	1.58E+00	3.49E-01
BI-210M	0.946	262.00	*	45.00	1.22E-01	1.09E-01
		300.00	*	23.00	2.94E-01	1.94E-01
BI-212	0.765	727.17	*	11.80	1.05E+00	5.85E-01
		1620.62		2.75		
PB-212	0.922	238.63	*	44.60	2.33E+00	2.93E-01
		300.09	*	3.41	1.99E+00	1.31E+00
BI-214	0.926	609.31	*	46.30	1.21E+00	2.17E-01

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.926	1120.29	*	15.10	1.09E+00	8.43E-01
		1764.49	*	15.80	1.29E+00	5.33E-01
		2204.22		4.98		
PB-214	0.982	295.21	*	19.19	1.20E+00	2.83E-01
		351.92	*	37.19	1.18E+00	2.24E-01
RA-226	0.958	186.21	*	3.28	2.75E+00	5.43E+00
AC-228	0.984	338.32	*	11.40	1.89E+00	6.17E-01
		911.07	*	27.70	1.94E+00	3.86E-01
		969.11	*	16.60	1.76E+00	6.35E-01
PA-234M	0.853	1001.03	*	0.92	1.28E+01	9.46E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 9:01:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	24.29	2.15797E-02	49.10		
M	2	69.55	4.16899E-02	56.07		
m	3	76.50	4.49173E-01	5.57		
m	5	93.01	9.62904E-02	17.48		
	6	98.99	2.34194E-02	41.06	D-Esc	
	7	129.19	5.18624E-02	28.57		
	8	144.42	3.37803E-02	37.68	Tol.	U-235
	10	209.71	4.53477E-02	26.40	Tol.	CM-243
	13	274.00	5.89613E-02	27.85	Sum	
	16	307.34	1.19310E-02	54.53	Tol.	LU-176
	17	329.09	2.35805E-02	42.48	Tol.	LA-140
	20	463.38	1.74038E-02	38.35	Tol.	SB-125
	21	510.89	2.62552E-02	29.20		
	22	522.20	1.67759E-02	45.35	Sum	
M	25	723.12	4.08347E-03	43.95	Tol.	SB-124 I-131 EU-154

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	28	795.07	1.10043E-02	39.98	Tol.	CS-134
	29	804.29	1.16847E-02	37.35		
	31	877.37	6.99755E-03	48.94		
	33	933.67	6.66667E-03	58.85		
M	37	1143.32	3.57616E-03	58.13		
m	38	1148.55	7.65353E-03	41.11		
	39	1155.03	7.36855E-03	39.19		
M	40	1327.22	5.67222E-03	59.93		
m	41	1332.36	2.89940E-03	80.01	Tol.	CO-60
	42	1377.39	5.85470E-03	41.09		
	44	1509.64	4.62963E-03	43.27		
	45	1589.92	7.78889E-03	42.24		
	46	1667.43	2.63889E-03	46.03		
	47	1719.92	3.33333E-03	28.87		
	48	1730.57	5.27778E-03	22.94	Sum	
	50	1893.45	2.08333E-03	44.72		
	51	1899.70	1.90972E-03	46.57		
	52	2103.29	8.42064E-03	22.74	S-Esc	
	53	2136.87	2.02160E-03	47.72		
	54	2173.17	1.58730E-03	53.22		
	55	2350.41	1.94444E-03	62.27		
	56	2366.77	2.61574E-03	67.74		
	57	2552.87	2.50000E-03	33.33		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.42E+01	2.87E+00
NB-95	0.86	765.79	*	99.81	4.37E-01	4.96E-01
CD-109	0.99	88.03	*	3.72	7.16E+00	2.17E+00
SN-126	0.98	87.57	*	37.00	6.27E-01	1.87E-01
TL-208	0.96	583.14	*	30.22	1.87E+00	3.48E-01

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.96	860.37	*	4.48	2.50E+00	1.67E+00
		2614.66	*	35.85	1.58E+00	3.49E-01
BI-210M	0.94	262.00	*	45.00	1.22E-01	1.09E-01
		300.00	*	23.00	2.94E-01	1.94E-01
BI-212	0.76	727.17	*	11.80	1.05E+00	5.85E-01
		1620.62		2.75		
PB-212	0.92	238.63	*	44.60	2.33E+00	2.93E-01
		300.09	*	3.41	1.99E+00	1.31E+00
BI-214	0.92	609.31	*	46.30	1.21E+00	2.17E-01
		1120.29	*	15.10	1.09E+00	8.43E-01
		1764.49	*	15.80	1.29E+00	5.33E-01
		2204.22		4.98		
PB-214	0.98	295.21	*	19.19	1.20E+00	2.83E-01
		351.92	*	37.19	1.18E+00	2.24E-01
RA-226	0.95	186.21	*	3.28	2.75E+00	5.43E+00
AC-228	0.98	338.32	*	11.40	1.89E+00	6.17E-01
		911.07	*	27.70	1.94E+00	3.86E-01
		969.11	*	16.60	1.76E+00	6.35E-01
PA-234M	0.85	1001.03	*	0.92	1.28E+01	9.46E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.999	2.42E+01	2.87E+00	
	NB-95	0.861	4.37E-01	4.96E-01	
?	CD-109	0.996	7.16E+00	2.17E+00	
?	SN-126	0.984	6.27E-01	1.87E-01	
	TL-208	0.968	1.75E+00	2.44E-01	
	BI-210M	0.946	8.22E-02	9.56E-02	
	BI-212	0.765	1.05E+00	5.85E-01	
	PB-212	0.922	2.29E+00	2.87E-01	

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-214	0.926	1.21E+00	1.95E-01	
PB-214	0.982	1.19E+00	1.75E-01	
RA-226	0.958	2.75E+00	5.43E+00	
AC-228	0.984	1.89E+00	2.91E-01	
PA-234M	0.853	1.28E+01	9.46E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 9:01:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	24.29	2.15797E-02	49.10		
M	2	69.55	4.16899E-02	56.07		
m	3	76.50	4.49173E-01	5.57		
m	5	93.01	9.62904E-02	17.48		
	6	98.99	2.34194E-02	41.06	D-Esc	
	7	129.19	5.18624E-02	28.57		
	8	144.42	3.37803E-02	37.68	Tol.	U-235
	10	209.71	4.53477E-02	26.40	Tol.	CM-243
	13	274.00	5.89613E-02	27.85	Sum	
	16	307.34	1.19310E-02	54.53	Tol.	LU-176
	17	329.09	2.35805E-02	42.48	Tol.	LA-140
	20	463.38	1.74038E-02	38.35	Tol.	SB-125
	21	510.89	2.62552E-02	29.20		
	22	522.20	1.67759E-02	45.35	Sum	
M	25	723.12	4.08347E-03	43.95	Tol.	SB-124 I-131 EU-154
	28	795.07	1.10043E-02	39.98	Tol.	CS-134
	29	804.29	1.16847E-02	37.35		
	31	877.37	6.99755E-03	48.94		
	33	933.67	6.66667E-03	58.85		
M	37	1143.32	3.57616E-03	58.13		
m	38	1148.55	7.65353E-03	41.11		
	39	1155.03	7.36855E-03	39.19		
M	40	1327.22	5.67222E-03	59.93		
m	41	1332.36	2.89940E-03	80.01	Tol.	CO-60
	42	1377.39	5.85470E-03	41.09		
	44	1509.64	4.62963E-03	43.27		
	45	1589.92	7.78889E-03	42.24		
	46	1667.43	2.63889E-03	46.03		
	47	1719.92	3.33333E-03	28.87		
	48	1730.57	5.27778E-03	22.94	Sum	
	50	1893.45	2.08333E-03	44.72		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
51	1899.70	1.90972E-03	46.57		
52	2103.29	8.42064E-03	22.74	S-Esc	
53	2136.87	2.02160E-03	47.72		
54	2173.17	1.58730E-03	53.22		
55	2350.41	1.94444E-03	62.27		
56	2366.77	2.61574E-03	67.74		
57	2552.87	2.50000E-03	33.33		

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-2.63E-01	2.29E+00	2.29E+00
+		NA-22	1274.54		99.94	-2.32E-02	1.25E-01	1.25E-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	1.33E-02	6.26E-02	6.26E-02
+		K-40	1460.81	*	10.67	2.42E+01	1.29E+00	1.29E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.46E-02	7.43E-02	7.43E-02
			78.34		96.00	2.32E-01		9.28E-02
+		SC-46	889.25		99.98	9.79E-02	2.23E-01	2.23E-01
			1120.51		99.99	3.84E-01		3.53E-01
+		V-48	983.52		99.98	-1.07E+00	5.02E+00	5.02E+00
			1312.10		97.50	-3.56E-01		6.12E+00
+		CR-51	320.08		9.83	8.74E-01	7.40E+00	7.40E+00
+		MN-54	834.83		99.97	1.85E-02	1.12E-01	1.12E-01
+		CO-56	846.75		99.96	3.50E-02	2.01E-01	2.21E-01
			1037.75		14.03	4.04E-01		1.59E+00
			1238.25		67.00	3.15E-01		5.33E-01
			1771.40		15.51	4.55E-03		1.20E+00
			2598.48		16.90	0.00E+00		2.01E-01
+		CO-57	122.06		85.51	-3.25E-02	7.40E-02	7.40E-02
			136.48		10.60	1.38E-01		6.44E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-58	810.76		99.40	1.70E-02	2.16E-01	2.16E-01
+	FE-59	1099.22		56.50	-2.89E-01	7.57E-01	7.57E-01
		1291.56		43.20	-5.34E-01		9.28E-01
+	CO-60	1173.22		100.00	0.00E+00	1.07E-01	1.15E-01
		1332.49		100.00	1.20E-02		1.07E-01
+	ZN-65	1115.52		50.75	6.88E-03	2.93E-01	2.93E-01
+	GA-67	93.31		35.70	1.07E+08	7.08E+07	7.08E+07
		208.95		2.24	1.51E+09		1.33E+09
		300.22		16.00	-3.06E+08		1.97E+08
+	SE-75	121.11		16.70	-6.67E-02	1.53E-01	5.17E-01
		136.00		59.20	-4.98E-02		1.53E-01
		264.65		59.80	-1.36E-01		1.94E-01
		279.53		25.20	1.97E-01		5.28E-01
		400.65		11.40	2.27E-01		1.19E+00
+	RB-82	776.52		13.00	-4.38E+00	8.82E+00	8.82E+00
+	RB-83	520.41		46.00	5.12E-02	3.68E-01	3.68E-01
		529.64		30.30	-1.62E-01		5.09E-01
		552.65		16.40	6.45E-01		1.18E+00
+	KR-85	513.99		0.43	1.97E+01	2.54E+01	2.54E+01
+	SR-85	513.99		99.27	2.29E-01	2.95E-01	2.95E-01
+	Y-88	898.02		93.40	3.65E-02	1.85E-01	1.88E-01
		1836.01		99.38	9.46E-02		1.85E-01
+	MO-93	263.06		56.72	5.19E-02	8.75E-02	1.23E-01
		684.67		99.68	4.99E-03		8.94E-02
		1477.11		99.08	7.58E-03		8.75E-02
+	NB-93M	16.57		9.43	3.03E+01	7.50E+01	7.50E+01
+	NB-94	702.63		100.00	-9.56E-03	8.75E-02	8.92E-02
		871.10		100.00	1.17E-02		8.75E-02
+	NB-95	765.79	*	99.81	4.37E-01	8.10E-01	8.10E-01
+	NB-95M	235.69		25.00	5.25E+07	2.77E+07	2.77E+07
+	ZR-95	724.18		43.70	1.11E-01	4.31E-01	7.21E-01
		756.72		55.30	-2.84E-01		4.31E-01
+	MO-99	181.06		6.20	-1.24E+09	9.01E+09	1.34E+10
		739.58		12.80	-6.64E+09		9.01E+09
		778.00		4.50	-6.63E+09		3.02E+10
+	RU-103	497.08		89.00	1.24E-01	4.57E-01	4.57E-01
+	RU-106	621.84		9.80	1.51E-01	9.83E-01	9.83E-01
+	AG-108M	433.93		89.90	-4.23E-02	8.21E-02	8.21E-02
		614.37		90.40	-1.38E-02		1.12E-01
		722.95		90.50	3.20E-03		1.16E-01
+	CD-109	88.03	*	3.72	7.16E+00	4.38E+00	4.38E+00
+	AG-110M	657.75		93.14	1.95E-03	1.22E-01	1.22E-01
		677.61		10.53	-1.07E-01		1.02E+00
		706.67		16.46	1.67E-01		7.01E-01
		763.93		21.98	2.20E-02		5.98E-01
		884.67		71.63	-1.65E-02		1.73E-01
		1384.27		23.94	-7.17E-02		4.88E-01
+	CD-113M	263.70		0.02	5.42E+01	3.01E+02	3.01E+02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SN-113	255.12		1.93	1.74E+00	2.16E-01	6.04E+00
		391.69		64.90	1.04E-01		2.16E-01
+	TE123M	159.00		84.10	-3.73E-02	1.10E-01	1.10E-01
+	SB-124	602.71		97.87	-2.08E-01	2.63E-01	2.63E-01
		645.85		7.26	1.27E+00		3.65E+00
		722.78		11.10	7.59E-02		2.74E+00
		1691.02		49.00	-1.93E-03		4.89E-01
+	I-125	35.49		6.49	8.86E-01	6.20E+00	6.20E+00
+	SB-125	176.33		6.89	1.06E-01	2.83E-01	8.69E-01
		427.89		29.33	-5.14E-02		2.83E-01
		463.38		10.35	3.79E-01		9.15E-01
		600.56		17.80	-5.85E-02		5.18E-01
		635.90		11.32	4.21E-01		8.89E-01
+	SB-126	414.70		83.30	-3.93E+00	1.63E+01	1.65E+01
		666.33		99.60	3.49E+00		1.63E+01
		695.00		99.60	2.06E+00		1.72E+01
		720.50		53.80	-4.53E+00		3.34E+01
+	SN-126	87.57	*	37.00	6.27E-01	3.83E-01	3.83E-01
+	SB-127	473.00		25.00	-2.01E+06	4.52E+06	5.25E+06
		685.20		35.70	2.52E+05		4.52E+06
		783.80		14.70	7.28E+06		1.29E+07
+	I-129	29.78		57.00	3.95E-01	4.37E-01	4.37E-01
		33.60		13.20	1.16E-01		1.21E+00
		39.58		7.52	4.75E-01		1.50E+00
+	I-131	284.30		6.05	-1.68E+02	2.44E+02	3.54E+03
		364.48		81.20	-2.03E+01		2.44E+02
		636.97		7.26	2.05E+03		3.94E+03
		722.89		1.80	4.84E+02		1.75E+04
+	TE-132	49.72		13.10	-1.54E+08	3.13E+07	2.23E+08
		228.16		88.00	9.64E+06		3.13E+07
+	BA-133	81.00		33.00	-9.22E-01	1.74E-01	1.99E-01
		302.84		17.80	-9.32E-03		4.27E-01
		356.01		60.00	4.19E-02		1.74E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.70E+05	3.67E+04	3.67E+04
+	CS-134	563.23		8.38	-2.26E-01	1.08E-01	1.05E+00
		569.32		15.43	-1.28E-01		6.06E-01
		604.70		97.60	-6.99E-02		1.08E-01
		795.84		85.40	9.78E-02		1.32E-01
		801.93		8.73	-2.21E-01		1.18E+00
+	CS-135	268.24		16.00	-8.19E-02	4.57E-01	4.57E-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	-7.55E+00	1.24E+01	9.94E+01
		163.89		4.61	6.52E+01		1.63E+02
		176.55		13.56	6.73E+00		5.53E+01
		273.65		12.66	-1.16E+01		8.57E+01
		340.57		48.50	5.71E+01		2.77E+01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	818.50	99.70	4.00E+00	1.24E+01	1.24E+01
		1048.07	79.60	1.69E+00		1.71E+01
		1235.34	19.70	5.55E+01		1.04E+02
+	CS-137	661.65	85.12	-2.83E-02	1.02E-01	1.02E-01
+	LA-138	788.74	34.00	2.89E-02	1.35E-01	2.77E-01
		1435.80	66.00	1.25E-02		1.35E-01
+	CE-139	165.85	80.35	8.35E-03	1.11E-01	1.11E-01
+	BA-140	162.64	6.70	3.63E+01	5.20E+01	1.28E+02
		304.84	4.50	-1.86E+02		2.42E+02
		423.70	3.20	4.12E+01		3.63E+02
		437.55	2.00	-3.38E+02		5.57E+02
		537.32	25.00	1.18E+01		5.20E+01
+	LA-140	328.77	20.50	4.47E+01	1.60E+01	6.17E+01
		487.03	45.50	-6.33E+00		2.52E+01
		815.85	23.50	-1.65E+01		5.78E+01
		1596.49	95.49	3.75E+00		1.60E+01
+	CE-141	145.44	48.40	5.75E-01	8.79E-01	8.79E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	1.58E-01	6.20E-01	6.20E-01
+	PM-144	476.78	42.00	-1.33E-01	1.05E-01	1.95E-01
		618.01	98.60	6.92E-02		1.05E-01
		696.49	99.49	5.84E-02		1.16E-01
+	PM-145	36.85	21.70	-6.77E-02	3.19E-01	5.86E-01
		37.36	39.70	6.07E-02		3.19E-01
		42.30	15.10	-2.83E-01		6.48E-01
		72.40	2.31	-9.36E+00		3.48E+00
+	PM-146	453.90	39.94	-4.62E-03	2.11E-01	2.11E-01
		735.90	14.01	1.24E-01		6.17E-01
		747.13	13.10	1.22E-01		7.89E-01
+	ND-147	91.11	28.90	2.12E+00	8.72E+01	8.72E+01
		531.02	13.10	2.40E+01		2.05E+02
+	PM-149	285.90	3.10	2.86E+12	1.03E+13	1.03E+13
+	EU-152	121.78	20.50	-1.08E-01	2.46E-01	2.46E-01
		244.69	5.40	1.09E-01		1.58E+00
		344.27	19.13	4.27E-02		3.79E-01
		778.89	9.20	-1.36E-01		1.02E+00
		964.01	10.40	2.97E-01		1.26E+00
		1085.78	7.22	-2.42E-01		1.58E+00
		1112.02	9.60	1.14E-01		1.20E+00
		1407.95	14.94	1.08E-01		6.44E-01
+	GD-153	97.43	31.30	-1.83E-01	2.26E-01	2.26E-01
		103.18	22.20	-1.38E-01		2.92E-01
+	EU-154	123.07	40.50	-1.44E-02	1.28E-01	1.28E-01
		723.30	19.70	1.50E-02		5.41E-01
		873.19	11.50	1.33E-01		7.78E-01
		996.32	10.30	7.14E-02		1.00E+00
		1004.76	17.90	4.27E-01		6.14E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	1274.45		35.50	-6.23E-02	1.28E-01	3.36E-01
+	EU-155	86.50		30.90	2.08E-01	2.38E-01	2.38E-01
		105.30		20.70	9.53E-03		2.56E-01
+	EU-156	811.77		10.40	-2.76E+00	5.73E+01	5.73E+01
		1153.47		7.20	-1.62E+01		1.14E+02
		1230.71		8.90	-3.60E+01		9.90E+01
+	HO-166M	184.41		72.60	8.79E-02	9.22E-02	9.22E-02
		280.45		29.60	6.89E-02		2.61E-01
		410.94		11.10	2.98E-01		7.25E-01
		711.69		54.10	-1.47E-02		1.69E-01
+	TM-171	66.72		0.14	-3.94E+01	5.58E+01	5.58E+01
+	HF-172	67.35		5.31	-2.87E-01	5.23E-01	1.45E+00
		125.81		11.30	-6.45E-01		5.23E-01
+	LU-172	181.53		20.60	-1.76E+02	2.57E+03	4.12E+03
		900.72		29.81	2.50E+02		5.02E+03
		1093.66		62.50	9.05E+02		2.57E+03
+	LU-173	100.72		5.24	-2.25E-02	4.36E-01	1.15E+00
		272.11		21.20	3.42E-01		4.36E-01
+	HF-175	343.40		84.00	2.41E-02	2.13E-01	2.13E-01
+	LU-176	88.34		13.30	3.89E-01	6.98E-02	5.49E-01
		201.83		86.00	7.19E-03		6.98E-02
		306.78		94.00	-5.65E-03		7.35E-02
+	HF-181	133.02		41.70	2.12E-02	4.13E-01	5.88E-01
		345.85		17.20	2.15E-01		1.85E+00
		482.03		82.80	-2.40E-02		4.13E-01
+	TA-182	67.75		41.20	-5.88E-02	2.98E-01	2.98E-01
		1121.30		34.90	7.45E-01		8.25E-01
		1189.05		16.23	-4.03E-01		1.25E+00
		1221.41		26.98	3.72E-01		8.71E-01
		1231.02		11.44	-7.09E-01		1.95E+00
+	IR-192	308.46		29.68	1.47E-01	3.83E-01	5.60E-01
		468.07		48.10	7.81E-02		3.83E-01
+	HG-203	279.19		77.30	2.49E-01	4.11E-01	4.11E-01
+	TL-204	374.74		94.11	2.54E-03	8.15E-02	8.15E-02
		899.15		99.16	-7.17E-02		9.68E-02
		911.74		91.10	6.06E-01		2.23E-01
+	BI-207	569.67		97.72	5.11E-02	9.09E-02	9.09E-02
		1063.62		74.90	-3.06E-02		1.35E-01
+	TL-208	583.14	*	30.22	1.87E+00	4.20E-02	3.72E-01
		860.37	*	4.48	2.50E+00		2.60E+00
		2614.66	*	35.85	1.58E+00		4.20E-02
+	BI-210M	262.00	*	45.00	1.22E-01	1.77E-01	1.77E-01
		300.00	*	23.00	2.94E-01		5.34E-01
+	PB-210	46.50		4.25	1.47E+00	2.08E+00	2.08E+00
+	PB-211	404.84		2.90	-1.57E+00	2.65E+00	2.65E+00
		831.96		2.90	2.33E+00		3.38E+00
+	BI-212	727.17	*	11.80	1.05E+00	1.11E+00	1.11E+00
		1620.62		2.75	-6.08E-02		3.64E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-212	238.63	*	44.60	2.33E+00	2.99E-01	2.99E-01
		300.09	*	3.41	1.99E+00		3.60E+00
+	BI-214	609.31	*	46.30	1.21E+00	2.15E-01	2.15E-01
		1120.29	*	15.10	1.09E+00		1.34E+00
		1764.49	*	15.80	1.29E+00		6.72E-01
		2204.22		4.98	3.05E-01		2.28E+00
+	PB-214	295.21	*	19.19	1.20E+00	2.68E-01	6.37E-01
		351.92	*	37.19	1.18E+00		2.68E-01
+	RN-219	401.80		6.50	1.94E-02	1.19E+00	1.19E+00
+	RA-223	323.87		3.88	-1.14E-02	1.85E+00	1.85E+00
+	RA-224	240.98		3.95	2.57E+01	3.84E+00	3.84E+00
+	RA-225	40.00		31.00	8.73E+00	2.75E+01	2.75E+01
+	RA-226	186.21	*	3.28	2.75E+00	3.28E+00	3.28E+00
+	TH-227	50.10		8.40	-6.21E-01	8.96E-01	8.96E-01
		236.00		11.50	2.04E+00		1.08E+00
		256.20		6.30	1.63E-01		1.06E+00
+	AC-228	338.32	*	11.40	1.89E+00	4.12E-01	9.00E-01
		911.07	*	27.70	1.94E+00		4.12E-01
		969.11	*	16.60	1.76E+00		8.98E-01
+	TH-230	48.44		16.90	1.60E-01	4.89E-01	4.89E-01
		62.85		4.60	2.25E+00		1.69E+00
		67.67		0.37	-3.73E+00		1.89E+01
+	PA-231	283.67		1.60	5.11E-02	3.25E+00	4.48E+00
		302.67		2.30	-7.09E-02		3.25E+00
+	TH-231	25.64		14.70	1.39E-01	1.01E+00	3.13E+00
		84.21		6.40	-1.31E+00		1.01E+00
+	PA-233	311.98		38.60	-8.61E-02	1.92E+00	1.92E+00
+	PA-234	131.20		20.40	2.77E-01	2.92E-01	2.92E-01
		733.99		8.80	2.74E-01		9.70E-01
		946.00		12.00	5.94E-02		8.05E-01
+	PA-234M	1001.03	*	0.92	1.28E+01	1.49E+01	1.49E+01
+	TH-234	63.29		3.80	2.16E+00	2.03E+00	2.03E+00
+	U-235	143.76		10.50	2.91E-01	5.55E-01	5.55E-01
		163.35		4.70	4.78E-01		1.20E+00
		205.31		4.70	-1.04E-01		1.53E+00
+	NP-237	86.50		12.60	4.93E-01	5.64E-01	5.64E-01
+	NP-239	106.10		22.70	6.33E+09	1.70E+11	1.70E+11
		228.18		10.70	1.55E+11		5.05E+11
		277.60		14.10	2.73E+11		4.23E+11
+	AM-241	59.54		35.90	-1.08E-01	2.05E-01	2.05E-01
+	AM-243	74.67		66.00	2.47E-01	1.46E-01	1.46E-01
+	CM-243	209.75		3.29	3.52E+00	5.69E-01	2.42E+00
		228.14		10.60	2.10E-01		6.82E-01
		277.60		14.00	3.68E-01		5.69E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.29E+00	2.29E+00	-2.63E-01	1.09E+00
	NA-22	1274.54		99.94	1.25E-01	1.25E-01	-2.32E-02	5.76E-02
@	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	6.26E-02	6.26E-02	1.33E-02	2.53E-02
+	K-40	1460.81	*	10.67	1.29E+00	1.29E+00	2.42E+01	5.98E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.43E-02	7.43E-02	-1.46E-02	3.65E-02
		78.34		96.00	9.28E-02		2.32E-01	4.57E-02
	SC-46	889.25		99.98	2.23E-01	2.23E-01	9.79E-02	1.04E-01
		1120.51		99.99	3.53E-01		3.84E-01	1.68E-01
	V-48	983.52		99.98	5.02E+00	5.02E+00	-1.07E+00	2.30E+00
		1312.10		97.50	6.12E+00		-3.56E-01	2.79E+00
	CR-51	320.08		9.83	7.40E+00	7.40E+00	8.74E-01	3.56E+00
	MN-54	834.83		99.97	1.12E-01	1.12E-01	1.85E-02	5.20E-02
	CO-56	846.75		99.96	2.21E-01	2.01E-01	3.50E-02	1.03E-01
		1037.75		14.03	1.59E+00		4.04E-01	7.31E-01
		1238.25		67.00	5.33E-01		3.15E-01	2.51E-01
		1771.40		15.51	1.20E+00		4.55E-03	5.14E-01
		2598.48		16.90	2.01E-01		0.00E+00	0.00E+00
	CO-57	122.06		85.51	7.40E-02	7.40E-02	-3.25E-02	3.60E-02
		136.48		10.60	6.44E-01		1.38E-01	3.14E-01
	CO-58	810.76		99.40	2.16E-01	2.16E-01	1.70E-02	1.00E-01
	FE-59	1099.22		56.50	7.57E-01	7.57E-01	-2.89E-01	3.48E-01
		1291.56		43.20	9.28E-01		-5.34E-01	4.19E-01
	CO-60	1173.22		100.00	1.15E-01	1.07E-01	0.00E+00	5.30E-02
		1332.49		100.00	1.07E-01		1.20E-02	4.84E-02
	ZN-65	1115.52		50.75	2.93E-01	2.93E-01	6.88E-03	1.36E-01
	GA-67	93.31		35.70	7.08E+07	7.08E+07	1.07E+08	3.48E+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)
	GA-67	208.95		2.24	1.33E+09	7.08E+07	1.51E+09	6.48E+08
		300.22		16.00	1.97E+08		-3.06E+08	9.53E+07
	SE-75	121.11		16.70	5.17E-01	1.53E-01	-6.67E-02	2.52E-01
		136.00		59.20	1.53E-01		-4.98E-02	7.45E-02
		264.65		59.80	1.94E-01		-1.36E-01	9.39E-02
		279.53		25.20	5.28E-01		1.97E-01	2.56E-01
		400.65		11.40	1.19E+00		2.27E-01	5.72E-01
	RB-82	776.52		13.00	8.82E+00	8.82E+00	-4.38E+00	4.13E+00
	RB-83	520.41		46.00	3.68E-01	3.68E-01	5.12E-02	1.74E-01
		529.64		30.30	5.09E-01		-1.62E-01	2.40E-01
		552.65		16.40	1.18E+00		6.45E-01	5.60E-01
	KR-85	513.99		0.43	2.54E+01	2.54E+01	1.97E+01	1.22E+01
	SR-85	513.99		99.27	2.95E-01	2.95E-01	2.29E-01	1.42E-01
	Y-88	898.02		93.40	1.88E-01	1.85E-01	3.65E-02	8.76E-02
		1836.01		99.38	1.85E-01		9.46E-02	8.14E-02
	MO-93	263.06		56.72	1.23E-01	8.75E-02	5.19E-02	5.93E-02
		684.67		99.68	8.94E-02		4.99E-03	4.20E-02
		1477.11		99.08	8.75E-02		7.58E-03	3.85E-02
	NB-93M	16.57		9.43	7.50E+01	7.50E+01	3.03E+01	3.66E+01
	NB-94	702.63		100.00	8.92E-02	8.75E-02	-9.56E-03	4.19E-02
		871.10		100.00	8.75E-02		1.17E-02	4.05E-02
+	NB-95	765.79	*	99.81	8.10E-01	8.10E-01	4.37E-01	3.86E-01
	NB-95M	235.69		25.00	2.77E+07	2.77E+07	5.25E+07	1.36E+07
	ZR-95	724.18		43.70	7.21E-01	4.31E-01	1.11E-01	3.43E-01
		756.72		55.30	4.31E-01		-2.84E-01	2.01E-01
	MO-99	181.06		6.20	1.34E+10	9.01E+09	-1.24E+09	6.52E+09
		739.58		12.80	9.01E+09		-6.64E+09	4.18E+09
		778.00		4.50	3.02E+10		-6.63E+09	1.41E+10
	RU-103	497.08		89.00	4.57E-01	4.57E-01	1.24E-01	2.17E-01
	RU-106	621.84		9.80	9.83E-01	9.83E-01	1.51E-01	4.62E-01
	AG-108M	433.93		89.90	8.21E-02	8.21E-02	-4.23E-02	3.91E-02
		614.37		90.40	1.12E-01		-1.38E-02	5.32E-02
		722.95		90.50	1.16E-01		3.20E-03	5.47E-02
+	CD-109	88.03	*	3.72	4.38E+00	4.38E+00	7.16E+00	2.17E+00
	AG-110M	657.75		93.14	1.22E-01	1.22E-01	1.95E-03	5.75E-02
		677.61		10.53	1.02E+00		-1.07E-01	4.76E-01
		706.67		16.46	7.01E-01		1.67E-01	3.29E-01
		763.93		21.98	5.98E-01		2.20E-02	2.82E-01
		884.67		71.63	1.73E-01		-1.65E-02	8.04E-02
		1384.27		23.94	4.88E-01		-7.17E-02	2.18E-01
	CD-113M	263.70		0.02	3.01E+02	3.01E+02	5.42E+01	1.46E+02
	SN-113	255.12		1.93	6.04E+00	2.16E-01	1.74E+00	2.92E+00
		391.69		64.90	2.16E-01		1.04E-01	1.04E-01
	TE123M	159.00		84.10	1.10E-01	1.10E-01	-3.73E-02	5.36E-02
	SB-124	602.71		97.87	2.63E-01	2.63E-01	-2.08E-01	1.25E-01
		645.85		7.26	3.65E+00		1.27E+00	1.73E+00
		722.78		11.10	2.74E+00		7.59E-02	1.30E+00
		1691.02		49.00	4.89E-01		-1.93E-03	2.10E-01
	I-125	35.49		6.49	6.20E+00	6.20E+00	8.86E-01	3.02E+00
	SB-125	176.33		6.89	8.69E-01	2.83E-01	1.06E-01	4.22E-01
		427.89		29.33	2.83E-01		-5.14E-02	1.35E-01
		463.38		10.35	9.15E-01		3.79E-01	4.38E-01
		600.56		17.80	5.18E-01		-5.85E-02	2.45E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	8.89E-01	2.83E-01	4.21E-01	4.21E-01
	SB-126	414.70		83.30	1.65E+01	1.63E+01	-3.93E+00	7.89E+00
		666.33		99.60	1.63E+01		3.49E+00	7.70E+00
		695.00		99.60	1.72E+01		2.06E+00	8.09E+00
		720.50		53.80	3.34E+01		-4.53E+00	1.58E+01
+	SN-126	87.57	*	37.00	3.83E-01	3.83E-01	6.27E-01	1.90E-01
	SB-127	473.00		25.00	5.25E+06	4.52E+06	-2.01E+06	2.48E+06
		685.20		35.70	4.52E+06		2.52E+05	2.12E+06
		783.80		14.70	1.29E+07		7.28E+06	6.10E+06
	I-129	29.78		57.00	4.37E-01	4.37E-01	3.95E-01	2.13E-01
		33.60		13.20	1.21E+00		1.16E-01	5.88E-01
		39.58		7.52	1.50E+00		4.75E-01	7.31E-01
	I-131	284.30		6.05	3.54E+03	2.44E+02	-1.68E+02	1.71E+03
		364.48		81.20	2.44E+02		-2.03E+01	1.16E+02
		636.97		7.26	3.94E+03		2.05E+03	1.87E+03
		722.89		1.80	1.75E+04		4.84E+02	8.27E+03
	TE-132	49.72		13.10	2.23E+08	3.13E+07	-1.54E+08	1.09E+08
		228.16		88.00	3.13E+07		9.64E+06	1.52E+07
	BA-133	81.00		33.00	1.99E-01	1.74E-01	-9.22E-01	9.75E-02
		302.84		17.80	4.27E-01		-9.32E-03	2.06E-01
		356.01		60.00	1.74E-01		4.19E-02	8.44E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.67E+04	3.67E+04	-1.70E+05	1.80E+04
	CS-134	563.23		8.38	1.05E+00	1.08E-01	-2.26E-01	4.96E-01
		569.32		15.43	6.06E-01		-1.28E-01	2.87E-01
		604.70		97.60	1.08E-01		-6.99E-02	5.15E-02
		795.84		85.40	1.32E-01		9.78E-02	6.22E-02
		801.93		8.73	1.18E+00		-2.21E-01	5.54E-01
	CS-135	268.24		16.00	4.57E-01	4.57E-01	-8.19E-02	2.21E-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	9.94E+01	1.24E+01	-7.55E+00	4.83E+01
		163.89		4.61	1.63E+02		6.52E+01	7.94E+01
		176.55		13.56	5.53E+01		6.73E+00	2.69E+01
		273.65		12.66	8.57E+01		-1.16E+01	4.16E+01
		340.57		48.50	2.77E+01		5.71E+01	1.35E+01
		818.50		99.70	1.24E+01		4.00E+00	5.79E+00
		1048.07		79.60	1.71E+01		1.69E+00	7.89E+00
		1235.34		19.70	1.04E+02		5.55E+01	4.89E+01
	CS-137	661.65		85.12	1.02E-01	1.02E-01	-2.83E-02	4.78E-02
	LA-138	788.74		34.00	2.77E-01	1.35E-01	2.89E-02	1.30E-01
		1435.80		66.00	1.35E-01		1.25E-02	6.00E-02
	CE-139	165.85		80.35	1.11E-01	1.11E-01	8.35E-03	5.39E-02
	BA-140	162.64		6.70	1.28E+02	5.20E+01	3.63E+01	6.24E+01
		304.84		4.50	2.42E+02		-1.86E+02	1.17E+02
		423.70		3.20	3.63E+02		4.12E+01	1.73E+02
		437.55		2.00	5.57E+02		-3.38E+02	2.65E+02
		537.32		25.00	5.20E+01		1.18E+01	2.47E+01
	LA-140	328.77		20.50	6.17E+01	1.60E+01	4.47E+01	2.98E+01
		487.03		45.50	2.52E+01		-6.33E+00	1.19E+01
		815.85		23.50	5.78E+01		-1.65E+01	2.69E+01
		1596.49		95.49	1.60E+01		3.75E+00	7.10E+00

Analysis Report for 1707077-10

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	8.79E-01	8.79E-01	5.75E-01	4.28E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.20E-01	6.20E-01	1.58E-01	3.02E-01
PM-144	476.78	42.00	1.95E-01	1.05E-01	-1.33E-01	9.20E-02
	618.01	98.60	1.05E-01		6.92E-02	4.95E-02
	696.49	99.49	1.16E-01		5.84E-02	5.49E-02
PM-145	36.85	21.70	5.86E-01	3.19E-01	-6.77E-02	2.85E-01
	37.36	39.70	3.19E-01		6.07E-02	1.56E-01
	42.30	15.10	6.48E-01		-2.83E-01	3.16E-01
	72.40	2.31	3.48E+00		-9.36E+00	1.71E+00
PM-146	453.90	39.94	2.11E-01	2.11E-01	-4.62E-03	1.01E-01
	735.90	14.01	6.17E-01		1.24E-01	2.88E-01
	747.13	13.10	7.89E-01		1.22E-01	3.72E-01
ND-147	91.11	28.90	8.72E+01	8.72E+01	2.12E+00	4.29E+01
	531.02	13.10	2.05E+02		2.40E+01	9.70E+01
PM-149	285.90	3.10	1.03E+13	1.03E+13	2.86E+12	4.96E+12
EU-152	121.78	20.50	2.46E-01	2.46E-01	-1.08E-01	1.20E-01
	244.69	5.40	1.58E+00		1.09E-01	7.68E-01
	344.27	19.13	3.79E-01		4.27E-02	1.82E-01
	778.89	9.20	1.02E+00		-1.36E-01	4.76E-01
	964.01	10.40	1.26E+00		2.97E-01	5.94E-01
	1085.78	7.22	1.58E+00		-2.42E-01	7.33E-01
	1112.02	9.60	1.20E+00		1.14E-01	5.58E-01
	1407.95	14.94	6.44E-01		1.08E-01	2.89E-01
GD-153	97.43	31.30	2.26E-01	2.26E-01	-1.83E-01	1.11E-01
	103.18	22.20	2.92E-01		-1.38E-01	1.42E-01
EU-154	123.07	40.50	1.28E-01	1.28E-01	-1.44E-02	6.22E-02
	723.30	19.70	5.41E-01		1.50E-02	2.56E-01
	873.19	11.50	7.78E-01		1.33E-01	3.60E-01
	996.32	10.30	1.00E+00		7.14E-02	4.64E-01
	1004.76	17.90	6.14E-01		4.27E-01	2.86E-01
	1274.45	35.50	3.36E-01		-6.23E-02	1.55E-01
EU-155	86.50	30.90	2.38E-01	2.38E-01	2.08E-01	1.17E-01
	105.30	20.70	2.56E-01		9.53E-03	1.25E-01
EU-156	811.77	10.40	5.73E+01	5.73E+01	-2.76E+00	2.66E+01
	1153.47	7.20	1.14E+02		-1.62E+01	5.30E+01
	1230.71	8.90	9.90E+01		-3.60E+01	4.61E+01
HO-166M	184.41	72.60	9.22E-02	9.22E-02	8.79E-02	4.49E-02
	280.45	29.60	2.61E-01		6.89E-02	1.26E-01
	410.94	11.10	7.25E-01		2.98E-01	3.47E-01
	711.69	54.10	1.69E-01		-1.47E-02	7.93E-02
TM-171	66.72	0.14	5.58E+01	5.58E+01	-3.94E+01	2.74E+01
HF-172	67.35	5.31	1.45E+00	5.23E-01	-2.87E-01	7.13E-01
	125.81	11.30	5.23E-01		-6.45E-01	2.55E-01
LU-172	181.53	20.60	4.12E+03	2.57E+03	-1.76E+02	2.00E+03
	900.72	29.81	5.02E+03		2.50E+02	2.34E+03
	1093.66	62.50	2.57E+03		9.05E+02	1.19E+03
LU-173	100.72	5.24	1.15E+00	4.36E-01	-2.25E-02	5.62E-01
	272.11	21.20	4.36E-01		3.42E-01	2.12E-01
HF-175	343.40	84.00	2.13E-01	2.13E-01	2.41E-02	1.02E-01
LU-176	88.34	13.30	5.49E-01	6.98E-02	3.89E-01	2.70E-01

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	6.98E-02	6.98E-02	7.19E-03	3.38E-02
		306.78		94.00	7.35E-02		-5.65E-03	3.54E-02
	HF-181	133.02		41.70	5.88E-01	4.13E-01	2.12E-02	2.86E-01
		345.85		17.20	1.85E+00		2.15E-01	8.85E-01
		482.03		82.80	4.13E-01		-2.40E-02	1.96E-01
	TA-182	67.75		41.20	2.98E-01	2.98E-01	-5.88E-02	1.46E-01
		1121.30		34.90	8.25E-01		7.45E-01	3.92E-01
		1189.05		16.23	1.25E+00		-4.03E-01	5.78E-01
		1221.41		26.98	8.71E-01		3.72E-01	4.07E-01
		1231.02		11.44	1.95E+00		-7.09E-01	9.07E-01
	IR-192	308.46		29.68	5.60E-01	3.83E-01	1.47E-01	2.69E-01
		468.07		48.10	3.83E-01		7.81E-02	1.82E-01
	HG-203	279.19		77.30	4.11E-01	4.11E-01	2.49E-01	1.99E-01
	TL-204	374.74		94.11	8.15E-02	8.15E-02	2.54E-03	3.90E-02
		899.15		99.16	9.68E-02		-7.17E-02	4.48E-02
		911.74		91.10	2.23E-01		6.06E-01	1.08E-01
	BI-207	569.67		97.72	9.09E-02	9.09E-02	5.11E-02	4.31E-02
		1063.62		74.90	1.35E-01		-3.06E-02	6.20E-02
+	TL-208	583.14	*	30.22	3.72E-01	4.20E-02	1.87E+00	1.79E-01
		860.37	*	4.48	2.60E+00		2.50E+00	1.23E+00
		2614.66	*	35.85	4.20E-02		1.58E+00	0.00E+00
+	BI-210M	262.00	*	45.00	1.77E-01	1.77E-01	1.22E-01	8.58E-02
		300.00	*	23.00	5.34E-01		2.94E-01	2.61E-01
	PB-210	46.50		4.25	2.08E+00	2.08E+00	1.47E+00	1.02E+00
	PB-211	404.84		2.90	2.65E+00	2.65E+00	-1.57E+00	1.27E+00
		831.96		2.90	3.38E+00		2.33E+00	1.58E+00
+	BI-212	727.17	*	11.80	1.11E+00	1.11E+00	1.05E+00	5.33E-01
		1620.62		2.75	3.64E+00		-6.08E-02	1.62E+00
+	PB-212	238.63	*	44.60	2.99E-01	2.99E-01	2.33E+00	1.47E-01
		300.09	*	3.41	3.60E+00		1.99E+00	1.76E+00
+	BI-214	609.31	*	46.30	2.15E-01	2.15E-01	1.21E+00	1.02E-01
		1120.29	*	15.10	1.34E+00		1.09E+00	6.45E-01
		1764.49	*	15.80	6.72E-01		1.29E+00	2.99E-01
		2204.22		4.98	2.28E+00		3.05E-01	1.00E+00
+	PB-214	295.21	*	19.19	6.37E-01	2.68E-01	1.20E+00	3.12E-01
		351.92	*	37.19	2.68E-01		1.18E+00	1.30E-01
	RN-219	401.80		6.50	1.19E+00	1.19E+00	1.94E-02	5.71E-01
	RA-223	323.87		3.88	1.85E+00	1.85E+00	-1.14E-02	8.91E-01
	RA-224	240.98		3.95	3.84E+00	3.84E+00	2.57E+01	1.89E+00
	RA-225	40.00		31.00	2.75E+01	2.75E+01	8.73E+00	1.34E+01
+	RA-226	186.21	*	3.28	3.28E+00	3.28E+00	2.75E+00	1.61E+00
	TH-227	50.10		8.40	8.96E-01	8.96E-01	-6.21E-01	4.38E-01
		236.00		11.50	1.08E+00		2.04E+00	5.30E-01
		256.20		6.30	1.06E+00		1.63E-01	5.13E-01
+	AC-228	338.32	*	11.40	9.00E-01	4.12E-01	1.89E+00	4.38E-01
		911.07	*	27.70	4.12E-01		1.94E+00	1.93E-01
		969.11	*	16.60	8.98E-01		1.76E+00	4.27E-01
	TH-230	48.44		16.90	4.89E-01	4.89E-01	1.60E-01	2.39E-01
		62.85		4.60	1.69E+00		2.25E+00	8.29E-01
		67.67		0.37	1.89E+01		-3.73E+00	9.29E+00
	PA-231	283.67		1.60	4.48E+00	3.25E+00	5.11E-02	2.16E+00
		302.67		2.30	3.25E+00		-7.09E-02	1.57E+00
	TH-231	25.64		14.70	3.13E+00	1.01E+00	1.39E-01	1.53E+00

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.01E+00	1.01E+00	-1.31E+00	4.93E-01
	PA-233	311.98		38.60	1.92E+00	1.92E+00	-8.61E-02	9.24E-01
	PA-234	131.20		20.40	2.92E-01	2.92E-01	2.77E-01	1.43E-01
		733.99		8.80	9.70E-01		2.74E-01	4.53E-01
		946.00		12.00	8.05E-01		5.94E-02	3.73E-01
+	PA-234M	1001.03	*	0.92	1.49E+01	1.49E+01	1.28E+01	7.03E+00
	TH-234	63.29		3.80	2.03E+00	2.03E+00	2.16E+00	9.95E-01
	U-235	143.76		10.50	5.55E-01	5.55E-01	2.91E-01	2.71E-01
		163.35		4.70	1.20E+00		4.78E-01	5.82E-01
		205.31		4.70	1.53E+00		-1.04E-01	7.45E-01
	NP-237	86.50		12.60	5.64E-01	5.64E-01	4.93E-01	2.77E-01
	NP-239	106.10		22.70	1.70E+11	1.70E+11	6.33E+09	8.28E+10
		228.18		10.70	5.05E+11		1.55E+11	2.46E+11
		277.60		14.10	4.23E+11		2.73E+11	2.05E+11
	AM-241	59.54		35.90	2.05E-01	2.05E-01	-1.08E-01	1.00E-01
	AM-243	74.67		66.00	1.46E-01	1.46E-01	2.47E-01	7.20E-02
	CM-243	209.75		3.29	2.42E+00	5.69E-01	3.52E+00	1.18E+00
		228.14		10.60	6.82E-01		2.10E-01	3.31E-01
		277.60		14.00	5.69E-01		3.68E-01	2.76E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707077-10

HTC-A01-S001-3642-01

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

Sample Title: HTC-A01-S001-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	17	287	242	169	150	126	137	127
17:	118	74	96	88	87	95	116	102
25:	114	126	76	109	97	113	95	113
33:	92	90	78	109	94	124	99	113
41:	121	115	116	114	96	128	177	144
49:	102	111	120	120	109	136	127	167
57:	138	169	143	154	180	192	214	226
65:	209	171	164	206	175	192	172	185
73:	209	265	422	497	489	586	270	157
81:	136	175	128	177	188	176	200	284
89:	220	213	212	174	260	241	152	114
97:	90	125	124	153	86	107	101	103
105:	98	119	105	93	103	101	103	100
113:	86	106	115	125	95	91	114	77
121:	91	91	85	101	89	100	102	112
129:	144	166	106	101	82	92	94	99
137:	83	84	106	95	85	72	116	109
145:	116	104	103	84	80	92	87	96
153:	79	80	91	84	95	69	87	71
161:	71	87	80	89	79	74	73	79
169:	66	81	77	94	69	76	70	85
177:	78	63	70	63	77	71	77	70
185:	79	146	119	104	59	92	67	71
193:	66	73	72	67	61	91	63	75
201:	76	62	55	74	60	60	67	67
209:	99	121	78	74	63	54	58	63
217:	73	59	59	55	58	61	48	54
225:	57	62	58	73	42	60	53	51
233:	60	57	54	67	80	253	598	395
241:	150	134	107	65	45	57	48	41
249:	47	38	41	44	44	49	43	39
257:	36	32	44	36	42	59	49	38
265:	29	35	34	36	40	67	78	60
273:	45	53	44	47	56	63	54	48
281:	41	46	28	50	34	44	34	35
289:	49	35	40	35	41	34	125	144
297:	74	41	37	47	62	51	29	21
305:	31	28	43	34	37	29	25	28
313:	36	27	29	34	32	26	31	38
321:	34	25	33	29	29	29	40	58
329:	52	40	30	33	38	30	26	29
337:	42	93	121	70	31	28	28	30
345:	20	33	24	25	21	22	76	192
353:	198	51	30	20	32	30	23	20
361:	18	17	24	22	18	22	27	16

369:	17	30	26	30	17	25	24	28

Sample Title: HTC-A01-S001-3642-01

Channel								
377:	29	21	15	29	32	33	27	23
385:	29	29	25	22	28	28	28	22
393:	25	32	30	25	20	30	27	24
401:	26	15	31	29	20	31	17	23
409:	23	41	22	28	23	18	23	17
417:	26	22	26	13	19	11	26	24
425:	20	24	23	17	24	32	14	22
433:	23	24	23	13	15	22	18	21
441:	15	24	21	25	29	20	12	20
449:	21	24	18	27	28	21	21	24
457:	13	23	20	23	16	25	40	43
465:	20	20	11	17	25	13	22	19
473:	15	14	16	7	16	16	15	12
481:	23	16	18	17	12	17	17	16
489:	11	20	20	16	13	10	23	20
497:	14	17	20	16	15	16	22	19
505:	26	18	26	22	24	40	85	51
513:	24	16	13	13	16	19	22	19
521:	10	11	13	19	18	13	14	15
529:	9	9	19	14	10	22	17	13
537:	21	15	14	17	14	21	13	18
545:	17	8	12	20	11	27	19	18
553:	16	16	25	12	9	19	10	13
561:	13	13	15	24	10	11	17	16
569:	13	16	21	16	18	17	11	19
577:	13	16	18	10	14	46	141	139
585:	45	18	20	12	11	14	17	12
593:	15	17	17	13	18	9	17	16
601:	15	10	16	18	18	12	10	43
609:	114	138	59	19	11	11	10	14
617:	10	14	16	13	19	6	9	9
625:	10	13	7	10	16	13	13	13
633:	15	21	12	22	12	17	10	16
641:	7	14	9	15	14	13	15	16
649:	16	12	13	16	15	14	18	9
657:	11	11	14	12	13	9	13	10
665:	12	19	12	11	14	14	10	10
673:	8	13	11	10	14	9	6	7
681:	16	8	15	12	13	12	7	14
689:	12	10	17	7	12	15	12	12
697:	20	15	12	11	9	13	9	13
705:	16	9	9	13	9	10	8	10
713:	13	18	14	14	13	9	13	14
721:	16	11	20	14	4	27	38	28
729:	15	12	8	8	12	9	14	9
737:	7	8	5	6	10	14	5	13
745:	11	9	14	16	14	14	15	13
753:	15	9	5	8	6	13	13	12
761:	18	7	9	14	16	13	13	24
769:	17	9	9	15	16	11	12	10
777:	10	9	11	8	11	12	8	13
785:	14	15	16	6	11	7	9	8
793:	10	18	17	14	14	8	6	7

801:	7	15	15	12	9	11	12	8

Sample Title: HTC-A01-S001-3642-01

Channel								
809:	5	5	11	9	10	9	7	12
817:	9	8	4	12	8	12	10	4
825:	8	15	4	4	12	11	8	11
833:	7	9	13	7	8	5	8	5
841:	10	14	7	7	13	12	6	12
849:	7	11	6	9	5	12	13	8
857:	9	7	11	19	37	9	10	8
865:	7	7	9	8	6	16	6	7
873:	2	6	6	8	10	15	7	9
881:	7	6	9	10	7	10	9	9
889:	12	8	10	12	4	9	11	6
897:	8	8	10	7	9	5	11	14
905:	12	9	4	1	11	36	83	73
913:	27	11	11	13	4	8	9	12
921:	2	8	5	7	8	7	8	9
929:	4	8	7	7	10	18	14	5
937:	5	4	8	9	3	8	6	11
945:	9	10	5	9	4	8	9	9
953:	5	8	5	4	9	4	8	10
961:	7	10	15	16	21	13	15	32
969:	66	28	18	8	9	2	13	8
977:	5	11	9	5	7	7	5	6
985:	8	4	5	6	8	5	9	6
993:	8	9	7	6	2	11	11	4
1001:	5	14	12	8	9	9	4	5
1009:	4	6	9	6	7	7	5	6
1017:	7	7	6	7	8	8	9	10
1025:	8	5	8	5	8	4	10	9
1033:	4	5	7	8	10	7	8	3
1041:	4	9	3	9	11	7	9	8
1049:	5	3	7	5	9	5	6	12
1057:	5	5	8	5	5	9	4	3
1065:	11	7	8	12	6	5	5	11
1073:	5	6	7	15	7	10	4	9
1081:	16	5	12	3	11	2	9	11
1089:	10	9	7	7	9	10	9	5
1097:	5	2	4	13	8	8	5	9
1105:	4	9	4	5	7	7	7	10
1113:	8	10	8	9	7	5	21	30
1121:	36	15	8	7	12	12	6	9
1129:	11	6	6	6	9	10	8	9
1137:	4	6	7	5	7	5	10	13
1145:	3	13	10	11	15	9	3	6
1153:	6	11	9	14	6	4	4	7
1161:	7	8	7	11	5	10	9	9
1169:	5	7	6	3	9	8	9	7
1177:	10	4	10	7	7	8	13	5
1185:	12	8	9	8	6	8	7	6
1193:	8	11	9	7	4	10	11	8
1201:	6	8	12	12	12	16	16	15
1209:	12	6	10	9	5	8	13	10
1217:	10	11	6	7	13	12	11	8
1225:	4	6	14	11	8	7	9	8

1233:	9	8	10	12	20	22	11	10

Sample Title: HTC-A01-S001-3642-01

Channel								
1241:	9	13	7	9	12	7	6	3
1249:	5	7	11	6	5	11	9	7
1257:	9	4	9	5	5	8	6	5
1265:	13	4	5	8	6	8	8	10
1273:	5	9	4	8	3	4	12	8
1281:	9	4	5	5	2	8	6	6
1289:	3	5	2	4	3	6	3	9
1297:	7	6	7	1	5	5	4	5
1305:	4	4	7	6	3	4	10	4
1313:	4	5	6	5	4	5	7	2
1321:	3	4	3	4	2	12	5	8
1329:	5	8	5	3	7	3	2	3
1337:	3	4	4	3	2	2	4	2
1345:	6	4	4	3	2	2	5	1
1353:	1	2	3	2	3	1	3	6
1361:	4	5	2	5	1	1	2	4
1369:	4	3	3	2	3	3	2	5
1377:	10	10	4	2	2	2	2	7
1385:	4	5	1	7	2	3	2	1
1393:	4	2	0	6	3	2	7	2
1401:	4	7	7	1	2	2	4	6
1409:	5	1	5	1	3	8	4	6
1417:	1	1	2	2	4	4	2	5
1425:	4	4	1	4	2	2	2	1
1433:	3	4	2	3	5	1	3	5
1441:	2	1	5	2	4	3	2	5
1449:	3	1	1	4	3	3	5	1
1457:	3	20	91	230	236	101	23	2
1465:	1	1	1	2	1	2	2	1
1473:	4	1	1	1	3	1	4	1
1481:	2	4	0	0	1	2	1	3
1489:	5	0	2	1	2	2	7	2
1497:	3	2	2	1	3	2	2	1
1505:	0	2	3	6	3	3	2	3
1513:	5	0	3	1	2	3	0	2
1521:	0	3	3	2	1	1	1	1
1529:	2	1	4	1	3	4	2	2
1537:	0	1	4	2	3	1	1	1
1545:	1	1	1	2	2	2	2	0
1553:	1	0	2	1	2	1	1	2
1561:	0	2	0	2	2	1	0	1
1569:	1	2	1	2	2	1	1	3
1577:	0	3	2	1	4	1	1	2
1585:	2	1	6	6	8	4	1	4
1593:	6	4	1	2	1	1	0	3
1601:	1	2	1	3	1	1	1	0
1609:	2	4	4	3	3	0	4	0
1617:	3	2	1	5	2	4	3	2
1625:	5	1	1	4	2	5	5	1
1633:	1	5	4	3	3	1	1	3
1641:	1	3	1	0	0	0	0	0
1649:	1	1	2	1	1	4	2	0
1657:	2	1	2	4	0	2	1	0

1665:	2	3	2	3	3	0	1	0

Sample Title: HTC-A01-S001-3642-01

Channel								
1673:	1	2	1	1	2	1	1	1
1681:	1	3	2	1	1	1	1	1
1689:	0	1	1	2	3	4	0	2
1697:	2	1	1	3	0	0	1	2
1705:	2	1	1	1	0	0	1	3
1713:	0	0	0	3	1	1	1	0
1721:	2	0	4	0	0	0	1	3
1729:	4	4	1	3	1	1	1	0
1737:	0	0	0	2	2	0	2	3
1745:	2	2	4	1	2	0	3	1
1753:	0	0	1	1	3	0	2	1
1761:	2	3	9	18	17	4	2	3
1769:	0	2	0	4	0	0	1	1
1777:	1	2	0	0	2	1	1	1
1785:	1	0	2	1	3	0	0	1
1793:	0	0	1	3	0	1	2	1
1801:	0	0	0	1	2	1	0	0
1809:	0	0	2	0	1	0	0	3
1817:	1	3	1	2	0	2	0	2
1825:	1	3	1	0	0	0	2	3
1833:	1	2	1	3	1	3	2	2
1841:	0	1	0	0	3	2	0	3
1849:	0	0	1	2	0	2	2	1
1857:	1	0	0	1	2	1	1	0
1865:	2	1	0	2	1	2	1	0
1873:	1	1	0	1	1	1	0	0
1881:	2	0	0	2	1	0	2	0
1889:	1	0	2	1	1	5	0	0
1897:	1	0	4	2	1	0	0	1
1905:	2	1	0	1	0	0	0	0
1913:	0	0	1	3	1	0	0	1
1921:	2	1	0	1	1	1	0	0
1929:	1	0	0	2	0	1	0	1
1937:	2	1	0	1	1	1	1	1
1945:	1	0	1	1	0	2	1	2
1953:	0	1	0	3	3	2	0	1
1961:	1	2	2	0	0	2	1	0
1969:	1	0	1	2	1	0	0	1
1977:	3	1	0	0	1	1	1	1
1985:	2	0	1	2	0	1	1	1
1993:	2	0	0	1	0	0	2	1
2001:	1	2	0	2	0	0	2	2
2009:	0	1	1	1	0	2	0	1
2017:	2	0	1	0	2	0	1	3
2025:	0	1	2	2	0	3	0	1
2033:	2	2	2	1	0	1	1	0
2041:	0	0	0	0	1	1	2	1
2049:	1	3	3	1	1	0	2	2
2057:	1	2	3	1	1	2	0	0
2065:	1	1	1	4	2	1	3	0
2073:	3	1	1	3	1	0	0	1
2081:	2	3	0	1	1	2	2	0
2089:	1	1	0	1	1	0	1	1

2097:	2	0	2	4	3	5	9	6

Sample Title: HTC-A01-S001-3642-01

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

2529:	1	1	0	0	1	0	0	0

Sample Title: HTC-A01-S001-3642-01

Channel								
2537:	0	0	0	0	0	1	0	0
2545:	0	0	0	0	2	1	0	0
2553:	2	3	1	0	0	1	1	2
2561:	0	1	2	0	0	0	0	1
2569:	0	0	0	0	1	1	1	0
2577:	0	0	1	1	0	1	0	0
2585:	1	1	0	0	0	1	1	1
2593:	1	0	0	0	0	0	0	0
2601:	0	0	0	0	0	0	1	0
2609:	0	5	8	8	25	26	23	3
2617:	2	2	0	0	0	0	1	0
2625:	0	0	0	0	0	0	0	0
2633:	1	0	0	0	0	0	0	0
2641:	0	0	0	1	0	0	0	1
2649:	0	0	0	0	1	1	0	1
2657:	0	1	0	0	0	0	0	0
2665:	0	1	0	0	0	0	0	1
2673:	0	0	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	1	0	1	1	1	1	0	0
2697:	0	0	0	1	0	1	0	0
2705:	0	0	1	0	0	1	0	2
2713:	0	0	0	1	0	1	0	1
2721:	0	2	0	0	1	0	1	0
2729:	0	0	0	0	1	2	0	0
2737:	0	0	1	0	0	0	0	1
2745:	1	0	1	0	0	0	0	0
2753:	1	0	0	0	0	0	0	0
2761:	0	1	0	1	0	0	0	0
2769:	0	0	0	0	0	1	0	1
2777:	0	0	0	0	0	1	0	1
2785:	1	0	0	0	0	0	0	2
2793:	0	0	0	0	1	0	0	0
2801:	1	0	0	0	0	0	0	0
2809:	1	0	0	0	1	0	0	1
2817:	0	0	0	1	0	0	1	1
2825:	0	1	1	0	0	0	0	0
2833:	0	1	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	1
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	1	0	0	1	1	0	0	0
2873:	1	0	0	0	1	0	0	0
2881:	0	1	0	1	0	0	0	0
2889:	0	1	0	0	0	0	0	0
2897:	1	0	0	1	0	1	0	0
2905:	0	0	0	0	0	0	0	0
2913:	1	0	0	0	1	0	1	0
2921:	0	0	0	1	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	1	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	1	1	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-3642-01

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

3393:	1	0	1	0	0	0	0	0

Sample Title: HTC-A01-S001-3642-01

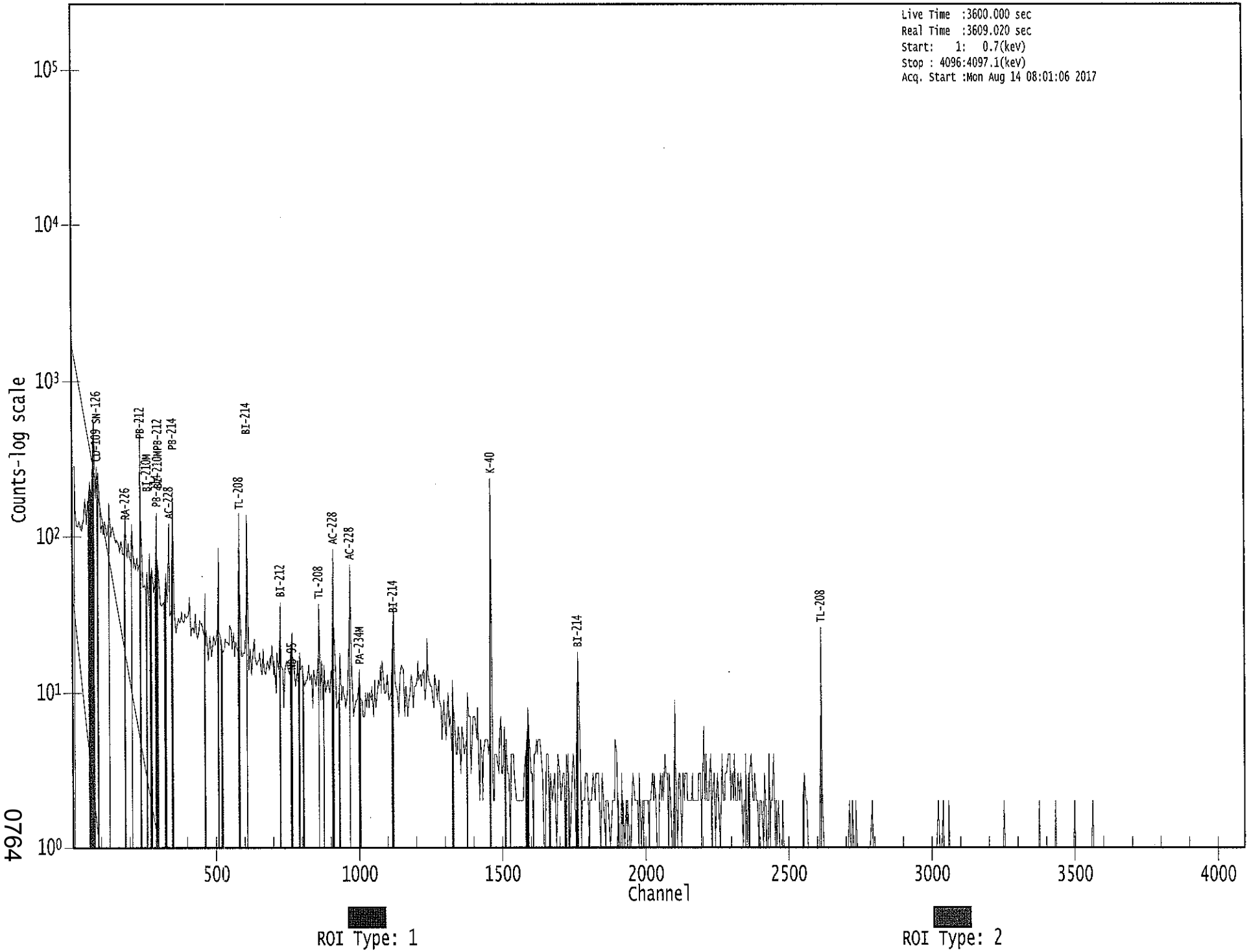
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	1	0	2
3433:	0	1	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	1	0
3457:	0	0	0	0	0	0	0	0
3465:	0	1	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	2	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-3642-01

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

0000055143.CNF



0764

Apex-Gamma

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Analysis Report for 1707077-11

HTC-A01-S001-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-11
Sample Description	: HTC-A01-S001-4248-01
Sample Type	: SOIL
Sample Size	: 6.274E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:36:03AM
Acquisition Started	: 8/14/2017 8:01:15AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3603.1 seconds
Dead Time	: 0.08 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55144

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 9:01:58AM
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	76.26	75.31	0.0000	0.00
2	86.66	85.72	0.0000	0.00
3	89.70	88.76	0.0000	0.00
4	93.06	92.13	0.0000	0.00
5	103.60	102.66	0.0000	0.00
6	185.94	185.03	0.0000	0.00
7	209.84	208.94	0.0000	0.00
8	239.10	238.21	0.0000	0.00
9	270.02	269.14	0.0000	0.00
10	295.16	294.29	0.0000	0.00
11	327.24	326.37	0.0000	0.00
12	338.60	337.74	0.0000	0.00
13	352.02	351.16	0.0000	0.00
14	359.56	358.71	0.0000	0.00
15	510.97	510.17	0.0000	0.00
16	524.61	523.82	0.0000	0.00
17	583.10	582.33	0.0000	0.00
18	609.13	608.37	0.0000	0.00
19	627.58	626.83	0.0000	0.00
20	727.03	726.32	0.0000	0.00
21	865.42	864.77	0.0000	0.00
22	911.39	910.75	0.0000	0.00
23	969.13	968.51	0.0000	0.00
24	976.79	976.19	0.0000	0.00
25	1119.84	1119.30	0.0000	0.00
26	1239.11	1238.63	0.0000	0.00
27	1280.29	1279.82	0.0000	0.00
28	1378.09	1377.67	0.0000	0.00
29	1460.58	1460.20	0.0000	0.00
30	1498.41	1498.05	0.0000	0.00
31	1618.94	1618.64	0.0000	0.00
32	1630.52	1630.23	0.0000	0.00
33	1639.67	1639.38	0.0000	0.00
34	1745.43	1745.21	0.0000	0.00
35	1763.75	1763.54	0.0000	0.00
36	1959.67	1959.57	0.0000	0.00
37	1980.04	1979.95	0.0000	0.00
38	2103.18	2103.16	0.0000	0.00
39	2206.05	2206.10	0.0000	0.00
40	2231.39	2231.45	0.0000	0.00
41	2325.97	2326.10	0.0000	0.00
42	2335.54	2335.67	0.0000	0.00

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2356.98	2357.12	0.0000	0.00
44	2613.98	2614.30	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 9:01:58AM

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	76.26	69 -	80	75.31	1.41E+03	182.67	3.45E+03	4.36
M	2	86.66	81 -	95	85.72	2.93E+02	113.54	1.81E+03	2.64
m	3	89.70	81 -	95	88.76	2.50E+02	114.84	1.71E+03	2.65
m	4	93.06	81 -	95	92.13	3.00E+02	101.65	1.42E+03	2.43
	5	103.60	97 -	107	102.66	1.09E+02	122.89	1.95E+03	8.67
	6	185.94	182 -	188	185.03	1.55E+02	74.57	8.96E+02	1.81
	7	209.84	206 -	212	208.94	8.95E+01	68.23	7.77E+02	2.63
	8	239.10	232 -	245	238.21	1.09E+03	129.02	1.37E+03	2.59
	9	270.02	266 -	273	269.14	8.77E+01	60.03	5.47E+02	2.46
	10	295.16	291 -	299	294.29	2.17E+02	69.67	6.26E+02	2.61
	11	327.24	322 -	331	326.37	6.99E+01	61.28	5.00E+02	3.71
	12	338.60	333 -	342	337.74	1.43E+02	66.72	5.53E+02	2.77
	13	352.02	345 -	355	351.16	3.83E+02	70.99	4.68E+02	2.33
	14	359.56	356 -	361	358.71	4.23E+01	34.97	2.07E+02	3.54
	15	510.97	505 -	515	510.17	1.36E+02	53.06	3.04E+02	2.02
	16	524.61	521 -	526	523.82	2.78E+01	25.22	1.00E+02	2.74
	17	583.10	577 -	588	582.33	2.23E+02	58.14	3.08E+02	2.45
	18	609.13	603 -	614	608.37	2.43E+02	58.99	3.18E+02	2.36
	19	627.58	622 -	630	626.83	2.56E+01	32.68	1.49E+02	1.14
	20	727.03	723 -	729	726.32	5.57E+01	30.48	1.27E+02	2.86
	21	865.42	855 -	878	864.77	5.79E+01	66.45	2.92E+02	12.21
	22	911.39	906 -	918	910.75	1.47E+02	46.96	1.96E+02	2.60
M	23	969.13	962 -	979	968.51	8.75E+01	35.50	1.21E+02	3.27
m	24	976.79	962 -	979	976.19	1.87E+01	24.98	7.73E+01	3.27
	25	1119.84	1113 -	1127	1119.30	8.09E+01	39.25	1.30E+02	3.41
	26	1239.11	1233 -	1246	1238.63	3.99E+01	40.84	1.66E+02	4.24
	27	1280.29	1273 -	1285	1279.82	2.74E+01	30.62	9.71E+01	7.66
	28	1378.09	1374 -	1381	1377.67	1.40E+01	15.75	3.20E+01	1.62
	29	1460.58	1454 -	1466	1460.20	5.62E+02	50.23	3.28E+01	2.58
	30	1498.41	1493 -	1504	1498.05	2.23E+01	14.97	1.33E+01	4.23
	31	1618.94	1616 -	1622	1618.64	6.00E+00	8.03	8.00E+00	1.84
M	32	1630.52	1627 -	1641	1630.23	1.29E+01	8.54	4.81E+00	3.88
m	33	1639.67	1627 -	1641	1639.38	1.61E+01	7.21	3.89E-01	3.89
	34	1745.43	1741 -	1749	1745.21	1.10E+01	8.50	4.08E+00	2.32
	35	1763.75	1756 -	1770	1763.54	5.84E+01	17.44	7.29E+00	2.97
	36	1959.67	1957 -	1962	1959.57	5.63E+00	7.07	4.75E+00	1.54
	37	1980.04	1977 -	1983	1979.95	5.07E+00	6.34	3.86E+00	1.89
	38	2103.18	2098 -	2106	2103.16	1.65E+01	11.16	9.00E+00	4.32
	39	2206.05	2202 -	2210	2206.10	1.73E+01	11.16	7.43E+00	3.90
	40	2231.39	2227 -	2234	2231.45	5.94E+00	6.93	4.13E+00	1.28

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2325.97	2321 -	2330	2326.10	7.65E+00	8.06	4.70E+00	7.94
42	2335.54	2332 -	2339	2335.67	7.00E+00	8.72	8.00E+00	2.12
43	2356.98	2352 -	2361	2357.12	7.55E+00	8.06	4.90E+00	7.26
44	2613.98	2608 -	2618	2614.30	7.40E+01	17.20	0.00E+00	3.30

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 : 8/14/2017 9:01:58AM

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	76.26	69 -	80	1.41E+03	182.67	3.45E+03	1.37E+02
M	2	86.66	81 -	95	2.93E+02	113.54	1.81E+03	6.99E+01
m	3	89.70	81 -	95	2.50E+02	114.84	1.71E+03	6.79E+01
m	4	93.06	81 -	95	3.00E+02	101.65	1.42E+03	6.19E+01
	5	103.60	97 -	107	1.09E+02	122.89	1.95E+03	9.95E+01
	6	185.94	182 -	188	1.55E+02	74.57	8.96E+02	5.78E+01
	7	209.84	206 -	212	8.95E+01	68.23	7.77E+02	5.39E+01
	8	239.10	232 -	245	1.09E+03	129.02	1.37E+03	9.12E+01
	9	270.02	266 -	273	8.77E+01	60.03	5.47E+02	4.69E+01
	10	295.16	291 -	299	2.17E+02	69.67	6.26E+02	5.19E+01
	11	327.24	322 -	331	6.99E+01	61.28	5.00E+02	4.85E+01
	12	338.60	333 -	342	1.43E+02	66.72	5.53E+02	5.12E+01
	13	352.02	345 -	355	3.83E+02	70.99	4.68E+02	4.87E+01
	14	359.56	356 -	361	4.23E+01	34.97	2.07E+02	2.67E+01
	15	510.97	505 -	515	1.36E+02	53.06	3.04E+02	3.92E+01
	16	524.61	521 -	526	2.78E+01	25.22	1.00E+02	1.88E+01
	17	583.10	577 -	588	2.23E+02	58.14	3.08E+02	4.10E+01
	18	609.13	603 -	614	2.43E+02	58.99	3.18E+02	4.12E+01
	19	627.58	622 -	630	2.56E+01	32.68	1.49E+02	2.55E+01
	20	727.03	723 -	729	5.57E+01	30.48	1.27E+02	2.18E+01
	21	865.42	855 -	878	5.79E+01	66.45	2.92E+02	5.32E+01
	22	911.39	906 -	918	1.47E+02	46.96	1.96E+02	3.31E+01
M	23	969.13	962 -	979	8.75E+01	35.50	1.21E+02	1.81E+01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	24	976.79	962 -	979	1.87E+01	24.98	7.73E+01	1.45E+01
	25	1119.84	1113 -	1127	8.09E+01	39.25	1.30E+02	2.87E+01
	26	1239.11	1233 -	1246	3.99E+01	40.84	1.66E+02	3.19E+01
	27	1280.29	1273 -	1285	2.74E+01	30.62	9.71E+01	2.37E+01
	28	1378.09	1374 -	1381	1.40E+01	15.75	3.20E+01	1.14E+01
	29	1460.58	1454 -	1466	5.62E+02	50.23	3.28E+01	1.37E+01
	30	1498.41	1493 -	1504	2.23E+01	14.97	1.33E+01	9.54E+00
	31	1618.94	1616 -	1622	6.00E+00	8.03	8.00E+00	5.23E+00
M	32	1630.52	1627 -	1641	1.29E+01	8.54	4.81E+00	3.60E+00
m	33	1639.67	1627 -	1641	1.61E+01	7.21	3.89E-01	1.03E+00
	34	1745.43	1741 -	1749	1.10E+01	8.50	4.08E+00	4.38E+00
	35	1763.75	1756 -	1770	5.84E+01	17.44	7.29E+00	6.92E+00
	36	1959.67	1957 -	1962	5.63E+00	7.07	4.75E+00	4.31E+00
	37	1980.04	1977 -	1983	5.07E+00	6.34	3.86E+00	3.67E+00
	38	2103.18	2098 -	2106	1.65E+01	11.16	9.00E+00	6.29E+00
	39	2206.05	2202 -	2210	1.73E+01	11.16	7.43E+00	6.12E+00
	40	2231.39	2227 -	2234	5.94E+00	6.93	4.13E+00	4.05E+00
	41	2325.97	2321 -	2330	7.65E+00	8.06	4.70E+00	4.82E+00
	42	2335.54	2332 -	2339	7.00E+00	8.72	8.00E+00	5.70E+00
	43	2356.98	2352 -	2361	7.55E+00	8.06	4.90E+00	4.85E+00
	44	2613.98	2608 -	2618	7.40E+01	17.20	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 9:01:58AM

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	76.26	69 -	80	75.31	1.41E+03	182.67	3.45E+03	.....
M	2	86.66	81 -	95	85.72	2.93E+02	113.54	1.81E+03	NP-237 EU-155 SN-126

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	3	89.70	81 -	95	88.76	2.50E+02	114.84	1.71E+03	.....
m	4	93.06	81 -	95	92.13	3.00E+02	101.65	1.42E+03	GA-67
	5	103.60	97 -	107	102.66	1.09E+02	122.89	1.95E+03	GD-153
	6	185.94	182 -	188	185.03	1.55E+02	74.57	8.96E+02	RA-226
	7	209.84	206 -	212	208.94	8.95E+01	68.23	7.77E+02	CM-243 GA-67
	8	239.10	232 -	245	238.21	1.09E+03	129.02	1.37E+03	PB-212
	9	270.02	266 -	273	269.14	8.77E+01	60.03	5.47E+02	.....
	10	295.16	291 -	299	294.29	2.17E+02	69.67	6.26E+02	PB-214
	11	327.24	322 -	331	326.37	6.99E+01	61.28	5.00E+02	.....
	12	338.60	333 -	342	337.74	1.43E+02	66.72	5.53E+02	AC-228
	13	352.02	345 -	355	351.16	3.83E+02	70.99	4.68E+02	PB-214
	14	359.56	356 -	361	358.71	4.23E+01	34.97	2.07E+02	.....
	15	510.97	505 -	515	510.17	1.36E+02	53.06	3.04E+02	.....
	16	524.61	521 -	526	523.82	2.78E+01	25.22	1.00E+02	.....
	17	583.10	577 -	588	582.33	2.23E+02	58.14	3.08E+02	TL-208
	18	609.13	603 -	614	608.37	2.43E+02	58.99	3.18E+02	BI-214
	19	627.58	622 -	630	626.83	2.56E+01	32.68	1.49E+02	.....
	20	727.03	723 -	729	726.32	5.57E+01	30.48	1.27E+02	BI-212
	21	865.42	855 -	878	864.77	5.79E+01	66.45	2.92E+02	.....
	22	911.39	906 -	918	910.75	1.47E+02	46.96	1.96E+02	AC-228 TL-204
M	23	969.13	962 -	979	968.51	8.75E+01	35.50	1.21E+02	AC-228
m	24	976.79	962 -	979	976.19	1.87E+01	24.98	7.73E+01	.....
	25	1119.84	1113 -	1127	1119.30	8.09E+01	39.25	1.30E+02	BI-214 SC-46
	26	1239.11	1233 -	1246	1238.63	3.99E+01	40.84	1.66E+02	CO-56
	27	1280.29	1273 -	1285	1279.82	2.74E+01	30.62	9.71E+01	.....
	28	1378.09	1374 -	1381	1377.67	1.40E+01	15.75	3.20E+01	.....
	29	1460.58	1454 -	1466	1460.20	5.62E+02	50.23	3.28E+01	K-40
	30	1498.41	1493 -	1504	1498.05	2.23E+01	14.97	1.33E+01	.....
	31	1618.94	1616 -	1622	1618.64	6.00E+00	8.03	8.00E+00	.....
M	32	1630.52	1627 -	1641	1630.23	1.29E+01	8.54	4.81E+00	.....
m	33	1639.67	1627 -	1641	1639.38	1.61E+01	7.21	3.89E-01	.....
	34	1745.43	1741 -	1749	1745.21	1.10E+01	8.50	4.08E+00	.....
	35	1763.75	1756 -	1770	1763.54	5.84E+01	17.44	7.29E+00	BI-214
	36	1959.67	1957 -	1962	1959.57	5.63E+00	7.07	4.75E+00	.....
	37	1980.04	1977 -	1983	1979.95	5.07E+00	6.34	3.86E+00	.....
	38	2103.18	2098 -	2106	2103.16	1.65E+01	11.16	9.00E+00	.....
	39	2206.05	2202 -	2210	2206.10	1.73E+01	11.16	7.43E+00	.....
	40	2231.39	2227 -	2234	2231.45	5.94E+00	6.93	4.13E+00	.....
	41	2325.97	2321 -	2330	2326.10	7.65E+00	8.06	4.70E+00	.....
	42	2335.54	2332 -	2339	2335.67	7.00E+00	8.72	8.00E+00	.....
	43	2356.98	2352 -	2361	2357.12	7.55E+00	8.06	4.90E+00	.....
	44	2613.98	2608 -	2618	2614.30	7.40E+01	17.20	0.00E+00	TL-208

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

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 : 8/14/2017 9:01:58AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.26	1.41E+03	182.67	2.32E-02	1.92E-03
M	2	86.66	2.93E+02	113.54	2.37E-02	2.14E-03
m	3	89.70	2.50E+02	114.84	2.37E-02	2.14E-03
m	4	93.06	3.00E+02	101.65	2.37E-02	2.09E-03
	5	103.60	1.09E+02	122.89	2.33E-02	1.93E-03
	6	185.94	1.55E+02	74.57	1.69E-02	1.40E-03
	7	209.84	8.95E+01	68.23	1.53E-02	1.28E-03
	8	239.10	1.09E+03	129.02	1.36E-02	1.14E-03
	9	270.02	8.77E+01	60.03	1.21E-02	9.91E-04
	10	295.16	2.17E+02	69.67	1.10E-02	9.13E-04
	11	327.24	6.99E+01	61.28	9.93E-03	8.46E-04
	12	338.60	1.43E+02	66.72	9.59E-03	8.22E-04
	13	352.02	3.83E+02	70.99	9.21E-03	7.94E-04
	14	359.56	4.23E+01	34.97	9.01E-03	7.78E-04
	15	510.97	1.36E+02	53.06	6.28E-03	6.61E-04
	16	524.61	2.78E+01	25.22	6.12E-03	6.55E-04
	17	583.10	2.23E+02	58.14	5.51E-03	6.31E-04
	18	609.13	2.43E+02	58.99	5.27E-03	6.20E-04
	19	627.58	2.56E+01	32.68	5.12E-03	6.13E-04
	20	727.03	5.57E+01	30.48	4.45E-03	5.17E-04
	21	865.42	5.79E+01	66.45	3.79E-03	3.43E-04
	22	911.39	1.47E+02	46.96	3.62E-03	2.99E-04
M	23	969.13	8.75E+01	35.50	3.43E-03	2.85E-04
m	24	976.79	1.87E+01	24.98	3.40E-03	2.83E-04
	25	1119.84	8.09E+01	39.25	3.02E-03	2.50E-04
	26	1239.11	3.99E+01	40.84	2.76E-03	2.33E-04
	27	1280.29	2.74E+01	30.62	2.68E-03	2.31E-04
	28	1378.09	1.40E+01	15.75	2.51E-03	2.20E-04
	29	1460.58	5.62E+02	50.23	2.39E-03	2.08E-04
	30	1498.41	2.23E+01	14.97	2.33E-03	2.02E-04
	31	1618.94	6.00E+00	8.03	2.17E-03	1.84E-04
M	32	1630.52	1.29E+01	8.54	2.16E-03	1.82E-04
m	33	1639.67	1.61E+01	7.21	2.14E-03	1.81E-04
	34	1745.43	1.10E+01	8.50	2.02E-03	1.65E-04

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1763.75	5.84E+01	17.44	2.00E-03	1.62E-04
36	1959.67	5.63E+00	7.07	1.80E-03	1.51E-04
37	1980.04	5.07E+00	6.34	1.78E-03	1.51E-04
38	2103.18	1.65E+01	11.16	1.67E-03	1.51E-04
39	2206.05	1.73E+01	11.16	1.58E-03	1.51E-04
40	2231.39	5.94E+00	6.93	1.56E-03	1.51E-04
41	2325.97	7.65E+00	8.06	1.48E-03	1.51E-04
42	2335.54	7.00E+00	8.72	1.48E-03	1.51E-04
43	2356.98	7.55E+00	8.06	1.46E-03	1.51E-04
44	2613.98	7.40E+01	17.20	1.28E-03	1.51E-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 : 8/14/2017 9:01:58AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.26	1.41E+03	182.67			1.41E+03	1.83E+02
M	2	86.66	2.93E+02	113.54			2.93E+02	1.14E+02
m	3	89.70	2.50E+02	114.84			2.50E+02	1.15E+02
m	4	93.06	3.00E+02	101.65	6.21E+01	4.71E+00	2.38E+02	1.02E+02
	5	103.60	1.09E+02	122.89			1.09E+02	1.23E+02
	6	185.94	1.55E+02	74.57	2.34E+01	8.57E+00	1.32E+02	7.51E+01
	7	209.84	8.95E+01	68.23			8.95E+01	6.82E+01
	8	239.10	1.09E+03	129.02	8.90E+00	6.12E+00	1.08E+03	1.29E+02
	9	270.02	8.77E+01	60.03			8.77E+01	6.00E+01
	10	295.16	2.17E+02	69.67			2.17E+02	6.97E+01
	11	327.24	6.99E+01	61.28			6.99E+01	6.13E+01
	12	338.60	1.43E+02	66.72			1.43E+02	6.67E+01
	13	352.02	3.83E+02	70.99			3.83E+02	7.10E+01
	14	359.56	4.23E+01	34.97			4.23E+01	3.50E+01
	15	510.97	1.36E+02	53.06	4.43E+01	4.80E+00	9.18E+01	5.33E+01
	16	524.61	2.78E+01	25.22			2.78E+01	2.52E+01
	17	583.10	2.23E+02	58.14	3.56E+00	2.78E+00	2.20E+02	5.82E+01
	18	609.13	2.43E+02	58.99			2.43E+02	5.90E+01
	19	627.58	2.56E+01	32.68			2.56E+01	3.27E+01
	20	727.03	5.57E+01	30.48			5.57E+01	3.05E+01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	21	865.42	5.79E+01	66.45			5.79E+01	6.65E+01
	22	911.39	1.47E+02	46.96			1.47E+02	4.70E+01
M	23	969.13	8.75E+01	35.50			8.75E+01	3.55E+01
m	24	976.79	1.87E+01	24.98			1.87E+01	2.50E+01
	25	1119.84	8.09E+01	39.25			8.09E+01	3.92E+01
	26	1239.11	3.99E+01	40.84			3.99E+01	4.08E+01
	27	1280.29	2.74E+01	30.62			2.74E+01	3.06E+01
	28	1378.09	1.40E+01	15.75			1.40E+01	1.57E+01
	29	1460.58	5.62E+02	50.23			5.62E+02	5.02E+01
	30	1498.41	2.23E+01	14.97			2.23E+01	1.50E+01
	31	1618.94	6.00E+00	8.03			6.00E+00	8.03E+00
M	32	1630.52	1.29E+01	8.54			1.29E+01	8.54E+00
m	33	1639.67	1.61E+01	7.21			1.61E+01	7.21E+00
	34	1745.43	1.10E+01	8.50			1.10E+01	8.50E+00
	35	1763.75	5.84E+01	17.44			5.84E+01	1.74E+01
	36	1959.67	5.63E+00	7.07			5.63E+00	7.07E+00
	37	1980.04	5.07E+00	6.34			5.07E+00	6.34E+00
	38	2103.18	1.65E+01	11.16			1.65E+01	1.12E+01
	39	2206.05	1.73E+01	11.16			1.73E+01	1.12E+01
	40	2231.39	5.94E+00	6.93			5.94E+00	6.93E+00
	41	2325.97	7.65E+00	8.06			7.65E+00	8.06E+00
	42	2335.54	7.00E+00	8.72			7.00E+00	8.72E+00
	43	2356.98	7.55E+00	8.06			7.55E+00	8.06E+00
	44	2613.98	7.40E+01	17.20			7.40E+01	1.72E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 9:01:58AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.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	76.26	1.41E+03	182.67			1.41E+03	1.83E+02
M	2	86.66	2.93E+02	113.54			2.93E+02	1.14E+02
m	3	89.70	2.50E+02	114.84			2.50E+02	1.15E+02
m	4	93.06	3.00E+02	101.65	6.21E+01	4.71E+00	2.38E+02	1.02E+02

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	5	103.60	1.09E+02	122.89			1.09E+02	1.23E+02
	6	185.94	1.55E+02	74.57	2.34E+01	8.57E+00	1.32E+02	7.51E+01
	7	209.84	8.95E+01	68.23			8.95E+01	6.82E+01
	8	239.10	1.09E+03	129.02	8.90E+00	6.12E+00	1.08E+03	1.29E+02
	9	270.02	8.77E+01	60.03			8.77E+01	6.00E+01
	10	295.16	2.17E+02	69.67			2.17E+02	6.97E+01
	11	327.24	6.99E+01	61.28			6.99E+01	6.13E+01
	12	338.60	1.43E+02	66.72			1.43E+02	6.67E+01
	13	352.02	3.83E+02	70.99			3.83E+02	7.10E+01
	14	359.56	4.23E+01	34.97			4.23E+01	3.50E+01
	15	510.97	1.36E+02	53.06	4.43E+01	4.80E+00	9.18E+01	5.33E+01
	16	524.61	2.78E+01	25.22			2.78E+01	2.52E+01
	17	583.10	2.23E+02	58.14	3.56E+00	2.78E+00	2.20E+02	5.82E+01
	18	609.13	2.43E+02	58.99			2.43E+02	5.90E+01
	19	627.58	2.56E+01	32.68			2.56E+01	3.27E+01
	20	727.03	5.57E+01	30.48			5.57E+01	3.05E+01
	21	865.42	5.79E+01	66.45			5.79E+01	6.65E+01
	22	911.39	1.47E+02	46.96			1.47E+02	4.70E+01
M	23	969.13	8.75E+01	35.50			8.75E+01	3.55E+01
m	24	976.79	1.87E+01	24.98			1.87E+01	2.50E+01
	25	1119.84	8.09E+01	39.25			8.09E+01	3.92E+01
	26	1239.11	3.99E+01	40.84			3.99E+01	4.08E+01
	27	1280.29	2.74E+01	30.62			2.74E+01	3.06E+01
	28	1378.09	1.40E+01	15.75			1.40E+01	1.57E+01
	29	1460.58	5.62E+02	50.23			5.62E+02	5.02E+01
	30	1498.41	2.23E+01	14.97			2.23E+01	1.50E+01
	31	1618.94	6.00E+00	8.03			6.00E+00	8.03E+00
M	32	1630.52	1.29E+01	8.54			1.29E+01	8.54E+00
m	33	1639.67	1.61E+01	7.21			1.61E+01	7.21E+00
	34	1745.43	1.10E+01	8.50			1.10E+01	8.50E+00
	35	1763.75	5.84E+01	17.44			5.84E+01	1.74E+01
	36	1959.67	5.63E+00	7.07			5.63E+00	7.07E+00
	37	1980.04	5.07E+00	6.34			5.07E+00	6.34E+00
	38	2103.18	1.65E+01	11.16			1.65E+01	1.12E+01
	39	2206.05	1.73E+01	11.16			1.73E+01	1.12E+01
	40	2231.39	5.94E+00	6.93			5.94E+00	6.93E+00
	41	2325.97	7.65E+00	8.06			7.65E+00	8.06E+00
	42	2335.54	7.00E+00	8.72			7.00E+00	8.72E+00
	43	2356.98	7.55E+00	8.06			7.55E+00	8.06E+00
	44	2613.98	7.40E+01	17.20			7.40E+01	1.72E+01

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

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

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	2.64E+01	3.34E+00
SN-126	0.875	87.57	*	37.00	4.00E-01	1.59E-01
EU-155	0.360	86.50	*	30.90	4.97E-01	1.98E-01
		105.30		20.70		
TL-208	0.847	583.14	*	30.22	1.58E+00	4.56E-01
		860.37		4.48		
		2614.66	*	35.85	1.93E+00	5.03E-01
BI-212	0.774	727.17	*	11.80	1.27E+00	7.10E-01
		1620.62		2.75		
PB-212	0.866	238.63	*	44.60	2.13E+00	3.12E-01
		300.09		3.41		
BI-214	0.913	609.31	*	46.30	1.19E+00	3.21E-01
		1120.29	*	15.10	2.13E+00	1.05E+00
		1764.49	*	15.80	2.21E+00	6.85E-01
		2204.22		4.98		
PB-214	0.999	295.21	*	19.19	1.23E+00	4.07E-01
		351.92	*	37.19	1.34E+00	2.73E-01
RA-226	0.988	186.21	*	3.28	2.84E+00	5.44E+00
AC-228	0.990	338.32	*	11.40	1.56E+00	7.42E-01
		911.07	*	27.70	1.75E+00	5.79E-01
		969.11	*	16.60	1.84E+00	7.63E-01
NP-237	0.996	86.50	*	12.60	1.18E+00	4.68E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 9:01:58AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.26	3.90966E-01	6.49		
m	3	89.70	6.94759E-02	22.96		
m	4	93.06	6.59823E-02	21.42		
	5	103.60	3.03913E-02	56.16	Tol.	GD-153
	7	209.84	2.48512E-02	38.14	Tol.	CM-243
	9	270.02	2.43544E-02	34.24		
	11	327.24	1.94306E-02	43.80		
	14	359.56	1.17466E-02	41.35		
	15	510.97	2.55013E-02	29.02		
	16	524.61	7.71368E-03	45.41	Sum	
	19	627.58	7.11667E-03	63.79		
	21	865.42	1.60859E-02	57.38		
m	24	976.79	5.18093E-03	66.97		
	26	1239.11	1.10930E-02	51.13		
	27	1280.29	7.62427E-03	55.78		
	28	1378.09	3.88889E-03	56.24		
	30	1498.41	6.20211E-03	33.52		
	31	1618.94	1.66667E-03	66.93		
M	32	1630.52	3.58556E-03	33.10		
m	33	1639.67	4.46380E-03	22.44		
	34	1745.43	3.04487E-03	38.77		
	36	1959.67	1.56250E-03	62.85		
	37	1980.04	1.40873E-03	62.55		
	38	2103.18	4.58333E-03	33.81	S-Esc	
	39	2206.05	4.80159E-03	32.28		
	40	2231.39	1.64931E-03	58.34		
	41	2325.97	2.12500E-03	52.69		
	42	2335.54	1.94444E-03	62.27		
	43	2356.98	2.09722E-03	53.39		

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 1707077-11

HTC-A01-S001-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.64E+01	3.34E+00
SN-126	0.87	87.57	*	37.00	4.00E-01	1.59E-01
EU-155	0.36	86.50	*	30.90	4.97E-01	1.98E-01
		105.30		20.70		
TL-208	0.84	583.14	*	30.22	1.58E+00	4.56E-01
		860.37		4.48		
		2614.66	*	35.85	1.93E+00	5.03E-01
BI-212	0.77	727.17	*	11.80	1.27E+00	7.10E-01
		1620.62		2.75		
PB-212	0.86	238.63	*	44.60	2.13E+00	3.12E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	1.19E+00	3.21E-01
		1120.29	*	15.10	2.13E+00	1.05E+00
		1764.49	*	15.80	2.21E+00	6.85E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.23E+00	4.07E-01
		351.92	*	37.19	1.34E+00	2.73E-01
RA-226	0.98	186.21	*	3.28	2.84E+00	5.44E+00
AC-228	0.99	338.32	*	11.40	1.56E+00	7.42E-01
		911.07	*	27.70	1.75E+00	5.79E-01
		969.11	*	16.60	1.84E+00	7.63E-01
NP-237	0.99	86.50	*	12.60	1.18E+00	4.68E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.991	2.64E+01	3.34E+00	
?	SN-126	0.875	4.00E-01	1.59E-01	
?	EU-155	0.360	4.97E-01	1.98E-01	
	TL-208	0.847	1.74E+00	3.38E-01	
	BI-212	0.774	1.27E+00	7.10E-01	

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	PB-212	0.866	2.13E+00	3.12E-01	
	BI-214	0.913	1.43E+00	2.80E-01	
	PB-214	0.999	1.30E+00	2.27E-01	
	RA-226	0.988	2.84E+00	5.44E+00	
	AC-228	0.990	1.72E+00	3.92E-01	
?	NP-237	0.996	1.18E+00	4.68E-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 1707077-11

HTC-A01-S001-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 9:01:58AM
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	76.26	3.90966E-01	6.49		
m	3	89.70	6.94759E-02	22.96		
m	4	93.06	6.59823E-02	21.42		
	5	103.60	3.03913E-02	56.16	Tol.	GD-153
	7	209.84	2.48512E-02	38.14	Tol.	CM-243
	9	270.02	2.43544E-02	34.24		
	11	327.24	1.94306E-02	43.80		
	14	359.56	1.17466E-02	41.35		
	15	510.97	2.55013E-02	29.02		
	16	524.61	7.71368E-03	45.41	Sum	
	19	627.58	7.11667E-03	63.79		
	21	865.42	1.60859E-02	57.38		
m	24	976.79	5.18093E-03	66.97		
	26	1239.11	1.10930E-02	51.13		
	27	1280.29	7.62427E-03	55.78		
	28	1378.09	3.88889E-03	56.24		
	30	1498.41	6.20211E-03	33.52		
	31	1618.94	1.66667E-03	66.93		
M	32	1630.52	3.58556E-03	33.10		
m	33	1639.67	4.46380E-03	22.44		
	34	1745.43	3.04487E-03	38.77		
	36	1959.67	1.56250E-03	62.85		
	37	1980.04	1.40873E-03	62.55		
	38	2103.18	4.58333E-03	33.81	S-Esc	
	39	2206.05	4.80159E-03	32.28		
	40	2231.39	1.64931E-03	58.34		
	41	2325.97	2.12500E-03	52.69		
	42	2335.54	1.94444E-03	62.27		
	43	2356.98	2.09722E-03	53.39		

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.10E+00	2.95E+00	2.95E+00
+		NA-22	1274.54		99.94	4.46E-02	1.81E-01	1.81E-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	4.92E-03	1.27E-01	1.27E-01
+		K-40	1460.81	*	10.67	2.64E+01	1.41E+00	1.41E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-8.33E-02	8.75E-02	8.75E-02
			78.34		96.00	5.16E-01		1.17E-01
+		SC-46	889.25		99.98	-4.53E-02	2.90E-01	2.90E-01
			1120.51		99.99	5.22E-01		4.45E-01
+		V-48	983.52		99.98	4.12E+00	8.03E+00	8.03E+00
			1312.10		97.50	-2.37E+00		8.38E+00
+		CR-51	320.08		9.83	5.52E-01	7.85E+00	7.85E+00
+		MN-54	834.83		99.97	6.71E-02	1.81E-01	1.81E-01
+		CO-56	846.75		99.96	5.77E-02	2.82E-01	2.82E-01
			1037.75		14.03	2.29E+00		2.62E+00
			1238.25		67.00	2.52E-01		6.75E-01
			1771.40		15.51	-2.11E-01		1.65E+00
			2598.48		16.90	1.80E-01		1.34E+00
+		CO-57	122.06		85.51	-4.01E-02	9.26E-02	9.26E-02
			136.48		10.60	2.44E-01		8.12E-01
+		CO-58	810.76		99.40	-2.44E-01	3.01E-01	3.01E-01
+		FE-59	1099.22		56.50	-7.80E-02	1.21E+00	1.21E+00
			1291.56		43.20	3.08E-01		1.64E+00
+		CO-60	1173.22		100.00	1.44E-01	1.41E-01	1.88E-01
			1332.49		100.00	-1.27E-02		1.41E-01
+		ZN-65	1115.52		50.75	-5.92E-02	4.28E-01	4.28E-01
+		GA-67	93.31		35.70	1.05E+08	8.57E+07	8.57E+07
			208.95		2.24	1.17E+09		1.39E+09
			300.22		16.00	2.49E+07		2.13E+08
+		SE-75	121.11		16.70	-2.19E-01	1.97E-01	6.41E-01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	3.26E-02	1.97E-01	1.97E-01
		264.65	59.80	-2.83E-02		2.05E-01
		279.53	25.20	1.51E-01		5.28E-01
		400.65	11.40	-2.67E-01		1.33E+00
+	RB-82	776.52	13.00	-7.52E+00	1.25E+01	1.25E+01
+	RB-83	520.41	46.00	2.97E-02	4.26E-01	4.26E-01
		529.64	30.30	1.57E-01		6.31E-01
		552.65	16.40	9.48E-01		1.44E+00
+	KR-85	513.99	0.43	3.14E+01	3.13E+01	3.13E+01
+	SR-85	513.99	99.27	3.64E-01	3.64E-01	3.64E-01
+	Y-88	898.02	93.40	7.29E-02	2.08E-01	2.71E-01
		1836.01	99.38	7.92E-02		2.08E-01
+	MO-93	263.06	56.72	-1.01E-02	1.32E-01	1.32E-01
		684.67	99.68	-9.07E-04		1.32E-01
		1477.11	99.08	7.28E-02		1.37E-01
+	NB-93M	16.57	9.43	1.84E+01	8.47E+00	8.47E+00
+	NB-94	702.63	100.00	-1.23E-02	1.31E-01	1.31E-01
		871.10	100.00	4.84E-02		1.33E-01
+	NB-95	765.79	99.81	3.72E-01	9.71E-01	9.71E-01
+	NB-95M	235.69	25.00	6.26E+07	2.95E+07	2.95E+07
+	ZR-95	724.18	43.70	1.56E-01	6.73E-01	9.81E-01
		756.72	55.30	-1.18E-01		6.73E-01
+	MO-99	181.06	6.20	-2.64E+09	1.40E+10	1.68E+10
		739.58	12.80	-5.19E+09		1.40E+10
		778.00	4.50	-2.40E+10		4.32E+10
+	RU-103	497.08	89.00	-2.97E-01	5.04E-01	5.04E-01
+	RU-106	621.84	9.80	1.15E-01	1.15E+00	1.15E+00
+	AG-108M	433.93	89.90	4.03E-02	1.05E-01	1.05E-01
		614.37	90.40	8.19E-03		1.20E-01
		722.95	90.50	-2.64E-02		1.61E-01
+	CD-109	88.03	3.72	9.38E-01	2.68E+00	2.68E+00
+	AG-110M	657.75	93.14	-1.06E-03	1.64E-01	1.64E-01
		677.61	10.53	9.02E-01		1.58E+00
		706.67	16.46	1.38E-01		1.06E+00
		763.93	21.98	9.43E-02		8.72E-01
		884.67	71.63	3.83E-02		2.39E-01
		1384.27	23.94	-3.31E-02		6.59E-01
+	CD-113M	263.70	0.02	-1.83E+01	3.15E+02	3.15E+02
+	SN-113	255.12	1.93	2.40E-01	2.40E-01	6.95E+00
		391.69	64.90	-3.47E-02		2.40E-01
+	TE123M	159.00	84.10	-8.19E-02	1.34E-01	1.34E-01
+	SB-124	602.71	97.87	3.66E-02	3.03E-01	3.03E-01
		645.85	7.26	2.22E+00		4.35E+00
		722.78	11.10	-6.27E-01		3.83E+00
		1691.02	49.00	-8.54E-02		6.88E-01
+	I-125	35.49	6.49	-6.03E+00	5.55E+00	5.55E+00
+	SB-125	176.33	6.89	-4.90E-01	3.17E-01	1.05E+00
		427.89	29.33	-3.53E-02		3.17E-01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	5.89E-01	3.17E-01	1.06E+00
		600.56		17.80	1.72E-01		6.07E-01
		635.90		11.32	3.65E-01		9.75E-01
+	SB-126	414.70		83.30	-8.69E+00	2.07E+01	2.07E+01
		666.33		99.60	1.36E+01		2.23E+01
		695.00		99.60	-1.20E+01		2.32E+01
		720.50		53.80	1.43E+01		4.46E+01
+	SN-126	87.57	*	37.00	4.00E-01	3.81E-01	3.81E-01
+	SB-127	473.00		25.00	-5.15E+06	6.14E+06	6.14E+06
		685.20		35.70	-4.59E+04		6.66E+06
		783.80		14.70	4.60E+06		1.76E+07
+	I-129	29.78		57.00	2.07E-02	3.10E-01	3.10E-01
		33.60		13.20	-7.90E-02		1.03E+00
		39.58		7.52	1.06E+00		1.46E+00
+	I-131	284.30		6.05	-5.67E+02	3.08E+02	3.83E+03
		364.48		81.20	2.03E+00		3.08E+02
		636.97		7.26	3.24E+03		4.38E+03
		722.89		1.80	-4.00E+03		2.44E+04
+	TE-132	49.72		13.10	3.75E+07	3.30E+07	2.65E+08
		228.16		88.00	6.83E+06		3.30E+07
+	BA-133	81.00		33.00	-7.37E-01	1.87E-01	2.68E-01
		302.84		17.80	-4.06E-02		4.70E-01
		356.01		60.00	-1.38E-01		1.87E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.36E+05	4.94E+04	4.94E+04
+	CS-134	563.23		8.38	-5.05E-01	1.39E-01	1.18E+00
		569.32		15.43	1.80E-01		7.16E-01
		604.70		97.60	5.53E-03		1.39E-01
		795.84		85.40	1.69E-01		1.92E-01
		801.93		8.73	1.11E+00		1.82E+00
+	CS-135	268.24		16.00	6.58E-02	5.30E-01	5.30E-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	1.60E+00	1.74E+01	1.20E+02
		163.89		4.61	-2.28E+00		2.00E+02
		176.55		13.56	-3.27E+01		6.73E+01
		273.65		12.66	5.82E+00		8.79E+01
		340.57		48.50	5.14E+01		3.00E+01
		818.50		99.70	8.84E+00		1.74E+01
		1048.07		79.60	4.85E+00		2.34E+01
		1235.34		19.70	-5.02E+00		1.31E+02
+	CS-137	661.65		85.12	6.19E-02	1.47E-01	1.47E-01
+	LA-138	788.74		34.00	-3.40E-01	1.64E-01	4.02E-01
		1435.80		66.00	-3.74E-02		1.64E-01
+	CE-139	165.85		80.35	7.30E-02	1.40E-01	1.40E-01
+	BA-140	162.64		6.70	2.83E+01	5.50E+01	1.57E+02
		304.84		4.50	-3.48E+01		2.70E+02
		423.70		3.20	-1.53E+02		4.17E+02

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	1.48E+02	5.50E+01	7.12E+02
			537.32		25.00	-6.62E-01		5.50E+01
+		LA-140	328.77		20.50	4.46E+01	2.23E+01	6.90E+01
			487.03		45.50	3.71E+00		2.98E+01
			815.85		23.50	-2.64E+01		7.93E+01
			1596.49		95.49	-7.30E-01		2.23E+01
+		CE-141	145.44		48.40	7.12E-01	1.05E+00	1.05E+00
+	@	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	3.21E-02	8.00E-01	8.00E-01
+		PM-144	476.78		42.00	1.77E-01	1.31E-01	2.66E-01
			618.01		98.60	4.01E-02		1.31E-01
			696.49		99.49	3.91E-02		1.61E-01
+		PM-145	36.85		21.70	-3.85E-01	2.91E-01	5.46E-01
			37.36		39.70	-2.05E-01		2.91E-01
			42.30		15.10	-7.59E-01		6.66E-01
			72.40		2.31	-8.18E+00		4.29E+00
+		PM-146	453.90		39.94	6.24E-02	2.30E-01	2.30E-01
			735.90		14.01	-3.33E-01		8.98E-01
			747.13		13.10	-3.30E-01		9.46E-01
+		ND-147	91.11		28.90	1.80E+02	1.06E+02	1.06E+02
			531.02		13.10	1.45E+02		2.56E+02
+		PM-149	285.90		3.10	3.75E+11	1.12E+13	1.12E+13
+		EU-152	121.78		20.50	-1.34E-01	3.08E-01	3.08E-01
			244.69		5.40	1.23E-01		1.69E+00
			344.27		19.13	1.18E-02		4.32E-01
			778.89		9.20	-2.03E-01		1.46E+00
			964.01		10.40	-4.57E-02		1.56E+00
			1085.78		7.22	2.72E-01		2.26E+00
			1112.02		9.60	-2.60E-01		1.47E+00
			1407.95		14.94	6.45E-02		8.39E-01
+		GD-153	97.43		31.30	-2.56E-01	2.86E-01	2.86E-01
			103.18		22.20	4.83E-02		3.78E-01
+		EU-154	123.07		40.50	-7.23E-02	1.58E-01	1.58E-01
			723.30		19.70	1.29E-01		8.11E-01
			873.19		11.50	7.67E-01		1.21E+00
			996.32		10.30	1.56E-01		1.41E+00
			1004.76		17.90	5.99E-01		9.11E-01
			1274.45		35.50	1.20E-01		4.87E-01
+		EU-155	86.50	*	30.90	4.97E-01	3.19E-01	4.72E-01
			105.30		20.70	-3.64E-02		3.19E-01
+		EU-156	811.77		10.40	-3.82E+01	7.87E+01	7.87E+01
			1153.47		7.20	-6.81E+01		1.60E+02
			1230.71		8.90	7.00E-02		1.50E+02
+		HO-166M	184.41		72.60	1.58E-01	1.15E-01	1.15E-01
			280.45		29.60	-9.25E-02		2.57E-01
			410.94		11.10	1.59E-01		8.80E-01
			711.69		54.10	-2.57E-02		2.50E-01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-5.35E+00	6.68E+01	6.68E+01
+	HF-172	67.35		5.31	-1.41E-01	6.39E-01	1.76E+00
		125.81		11.30	-1.27E-01		6.39E-01
+	LU-172	181.53		20.60	-9.80E+01	3.74E+03	5.30E+03
		900.72		29.81	1.31E+03		6.79E+03
		1093.66		62.50	1.35E+03		3.74E+03
+	LU-173	100.72		5.24	-5.16E-01	4.71E-01	1.37E+00
		272.11		21.20	4.25E-01		4.71E-01
+	HF-175	343.40		84.00	6.62E-03	2.43E-01	2.43E-01
+	LU-176	88.34		13.30	2.28E-01	8.22E-02	6.52E-01
		201.83		86.00	1.19E-02		8.71E-02
		306.78		94.00	-6.35E-03		8.22E-02
+	HF-181	133.02		41.70	-3.81E-02	4.69E-01	7.59E-01
		345.85		17.20	5.93E-02		2.11E+00
		482.03		82.80	-5.21E-02		4.69E-01
+	TA-182	67.75		41.20	-3.35E-01	3.51E-01	3.51E-01
		1121.30		34.90	1.05E+00		1.02E+00
		1189.05		16.23	-7.31E-01		1.96E+00
		1221.41		26.98	-1.85E-01		1.23E+00
		1231.02		11.44	-6.48E-01		2.81E+00
+	IR-192	308.46		29.68	1.47E-01	4.41E-01	6.17E-01
		468.07		48.10	-1.71E-01		4.41E-01
+	HG-203	279.19		77.30	9.19E-02	4.04E-01	4.04E-01
+	TL-204	374.74		94.11	1.60E-02	9.21E-02	9.21E-02
		899.15		99.16	-5.78E-03		1.43E-01
		911.74		91.10	6.08E-01		2.71E-01
+	BI-207	569.67		97.72	2.62E-02	1.04E-01	1.04E-01
		1063.62		74.90	-1.21E-02		2.20E-01
+	TL-208	583.14	*	30.22	1.58E+00	7.06E-02	6.12E-01
		860.37		4.48	2.89E+00		3.47E+00
		2614.66	*	35.85	1.93E+00		7.06E-02
+	BI-210M	262.00		45.00	6.17E-03	1.64E-01	1.64E-01
		300.00		23.00	4.58E-02		3.92E-01
+	PB-210	46.50		4.25	4.11E-01	2.25E+00	2.25E+00
+	PB-211	404.84		2.90	-2.61E+00	3.09E+00	3.09E+00
		831.96		2.90	1.02E+00		4.84E+00
+	BI-212	727.17	*	11.80	1.27E+00	1.06E+00	1.06E+00
		1620.62		2.75	2.68E-01		3.78E+00
+	PB-212	238.63	*	44.60	2.13E+00	3.67E-01	3.67E-01
		300.09		3.41	3.09E-01		2.65E+00
+	BI-214	609.31	*	46.30	1.19E+00	4.17E-01	4.17E-01
		1120.29	*	15.10	2.13E+00		1.58E+00
		1764.49	*	15.80	2.21E+00		6.27E-01
		2204.22		4.98	1.92E-01		3.80E+00
+	PB-214	295.21	*	19.19	1.23E+00	3.50E-01	6.02E-01
		351.92	*	37.19	1.34E+00		3.50E-01
+	RN-219	401.80		6.50	-2.89E-01	1.36E+00	1.36E+00
+	RA-223	323.87		3.88	1.60E-01	2.08E+00	2.08E+00

Analysis Report for 1707077-11

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	2.13E+01	3.93E+00	3.93E+00
+	RA-225	40.00		31.00	1.96E+01	2.71E+01	2.71E+01
+	RA-226	186.21	*	3.28	2.84E+00	2.59E+00	2.59E+00
+	TH-227	50.10		8.40	1.51E-01	1.07E+00	1.07E+00
		236.00		11.50	2.44E+00		1.15E+00
		256.20		6.30	1.62E-02		1.22E+00
+	AC-228	338.32	*	11.40	1.56E+00	8.22E-01	1.15E+00
		911.07	*	27.70	1.75E+00		8.22E-01
		969.11	*	16.60	1.84E+00		1.68E+00
+	TH-230	48.44		16.90	7.07E-02	5.45E-01	5.45E-01
		62.85		4.60	1.99E+00		1.93E+00
		67.67		0.37	-2.12E+01		2.23E+01
+	PA-231	283.67		1.60	-7.10E-01	3.57E+00	4.80E+00
		302.67		2.30	-3.09E-01		3.57E+00
+	TH-231	25.64		14.70	1.15E+00	1.25E+00	1.74E+00
		84.21		6.40	-1.46E+00		1.25E+00
+	PA-233	311.98		38.60	-6.97E-01	2.09E+00	2.09E+00
+	PA-234	131.20		20.40	8.05E-02	3.41E-01	3.41E-01
		733.99		8.80	-5.35E-02		1.37E+00
		946.00		12.00	2.43E-01		1.15E+00
+	PA-234M	1001.03		0.92	1.11E+01	1.69E+01	1.69E+01
+	TH-234	63.29		3.80	2.39E+00	2.32E+00	2.32E+00
+	U-235	143.76		10.50	-1.33E-01	6.43E-01	6.43E-01
		163.35		4.70	2.64E-01		1.46E+00
		205.31		4.70	3.92E-01		1.60E+00
+	NP-237	86.50	*	12.60	1.18E+00	1.12E+00	1.12E+00
+	NP-239	106.10		22.70	-2.29E+10	2.11E+11	2.11E+11
		228.18		10.70	1.10E+11		5.33E+11
		277.60		14.10	8.21E+10		4.21E+11
+	AM-241	59.54		35.90	-7.55E-02	2.40E-01	2.40E-01
+	AM-243	74.67		66.00	9.55E-01	1.79E-01	1.79E-01
+	CM-243	209.75		3.29	1.58E+00	5.67E-01	2.50E+00
		228.14		10.60	1.49E-01		7.18E-01
		277.60		14.00	1.11E-01		5.67E-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 1707077-11

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NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.95E+00	2.95E+00	1.10E+00	1.40E+00
	NA-22	1274.54		99.94	1.81E-01	1.81E-01	4.46E-02	8.43E-02
@	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	1.27E-01	1.27E-01	4.92E-03	5.54E-02
+	K-40	1460.81	*	10.67	1.41E+00	1.41E+00	2.64E+01	6.43E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	8.75E-02	8.75E-02	-8.33E-02	4.30E-02
		78.34		96.00	1.17E-01		5.16E-01	5.78E-02
	SC-46	889.25		99.98	2.90E-01	2.90E-01	-4.53E-02	1.36E-01
		1120.51		99.99	4.45E-01		5.22E-01	2.11E-01
	V-48	983.52		99.98	8.03E+00	8.03E+00	4.12E+00	3.75E+00
		1312.10		97.50	8.38E+00		-2.37E+00	3.83E+00
	CR-51	320.08		9.83	7.85E+00	7.85E+00	5.52E-01	3.76E+00
	MN-54	834.83		99.97	1.81E-01	1.81E-01	6.71E-02	8.56E-02
	CO-56	846.75		99.96	2.82E-01	2.82E-01	5.77E-02	1.32E-01
		1037.75		14.03	2.62E+00		2.29E+00	1.23E+00
		1238.25		67.00	6.75E-01		2.52E-01	3.18E-01
		1771.40		15.51	1.65E+00		-2.11E-01	7.07E-01
		2598.48		16.90	1.34E+00		1.80E-01	5.01E-01
	CO-57	122.06		85.51	9.26E-02	9.26E-02	-4.01E-02	4.52E-02
		136.48		10.60	8.12E-01		2.44E-01	3.97E-01
	CO-58	810.76		99.40	3.01E-01	3.01E-01	-2.44E-01	1.40E-01
	FE-59	1099.22		56.50	1.21E+00	1.21E+00	-7.80E-02	5.65E-01
		1291.56		43.20	1.64E+00		3.08E-01	7.60E-01
	CO-60	1173.22		100.00	1.88E-01	1.41E-01	1.44E-01	8.84E-02
		1332.49		100.00	1.41E-01		-1.27E-02	6.39E-02
	ZN-65	1115.52		50.75	4.28E-01	4.28E-01	-5.92E-02	2.00E-01
	GA-67	93.31		35.70	8.57E+07	8.57E+07	1.05E+08	4.21E+07
		208.95		2.24	1.39E+09		1.17E+09	6.79E+08
		300.22		16.00	2.13E+08		2.49E+07	1.03E+08
	SE-75	121.11		16.70	6.41E-01	1.97E-01	-2.19E-01	3.13E-01
		136.00		59.20	1.97E-01		3.26E-02	9.62E-02
		264.65		59.80	2.05E-01		-2.83E-02	9.89E-02
		279.53		25.20	5.28E-01		1.51E-01	2.55E-01
		400.65		11.40	1.33E+00		-2.67E-01	6.37E-01
	RB-82	776.52		13.00	1.25E+01	1.25E+01	-7.52E+00	5.86E+00
	RB-83	520.41		46.00	4.26E-01	4.26E-01	2.97E-02	2.01E-01
		529.64		30.30	6.31E-01		1.57E-01	2.97E-01
		552.65		16.40	1.44E+00		9.48E-01	6.84E-01
	KR-85	513.99		0.43	3.13E+01	3.13E+01	3.14E+01	1.51E+01
	SR-85	513.99		99.27	3.64E-01	3.64E-01	3.64E-01	1.75E-01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	2.71E-01	2.08E-01	7.29E-02	1.27E-01
		1836.01		99.38	2.08E-01		7.92E-02	8.84E-02
	MO-93	263.06		56.72	1.32E-01	1.32E-01	-1.01E-02	6.35E-02
		684.67		99.68	1.32E-01		-9.07E-04	6.23E-02
		1477.11		99.08	1.37E-01		7.28E-02	6.17E-02
	NB-93M	16.57		9.43	8.47E+00	8.47E+00	1.84E+01	4.12E+00
	NB-94	702.63		100.00	1.31E-01	1.31E-01	-1.23E-02	6.17E-02
		871.10		100.00	1.33E-01		4.84E-02	6.22E-02
	NB-95	765.79		99.81	9.71E-01	9.71E-01	3.72E-01	4.62E-01
	NB-95M	235.69		25.00	2.95E+07	2.95E+07	6.26E+07	1.45E+07
	ZR-95	724.18		43.70	9.81E-01	6.73E-01	1.56E-01	4.68E-01
		756.72		55.30	6.73E-01		-1.18E-01	3.18E-01
	MO-99	181.06		6.20	1.68E+10	1.40E+10	-2.64E+09	8.20E+09
		739.58		12.80	1.40E+10		-5.19E+09	6.57E+09
		778.00		4.50	4.32E+10		-2.40E+10	2.03E+10
	RU-103	497.08		89.00	5.04E-01	5.04E-01	-2.97E-01	2.37E-01
	RU-106	621.84		9.80	1.15E+00	1.15E+00	1.15E-01	5.36E-01
	AG-108M	433.93		89.90	1.05E-01	1.05E-01	4.03E-02	5.00E-02
		614.37		90.40	1.20E-01		8.19E-03	5.65E-02
		722.95		90.50	1.61E-01		-2.64E-02	7.66E-02
	CD-109	88.03		3.72	2.68E+00	2.68E+00	9.38E-01	1.32E+00
	AG-110M	657.75		93.14	1.64E-01	1.64E-01	-1.06E-03	7.74E-02
		677.61		10.53	1.58E+00		9.02E-01	7.51E-01
		706.67		16.46	1.06E+00		1.38E-01	5.02E-01
		763.93		21.98	8.72E-01		9.43E-02	4.13E-01
		884.67		71.63	2.39E-01		3.83E-02	1.12E-01
		1384.27		23.94	6.59E-01		-3.31E-02	2.95E-01
	CD-113M	263.70		0.02	3.15E+02	3.15E+02	-1.83E+01	1.52E+02
	SN-113	255.12		1.93	6.95E+00	2.40E-01	2.40E-01	3.36E+00
		391.69		64.90	2.40E-01		-3.47E-02	1.15E-01
	TE123M	159.00		84.10	1.34E-01	1.34E-01	-8.19E-02	6.53E-02
	SB-124	602.71		97.87	3.03E-01	3.03E-01	3.66E-02	1.43E-01
		645.85		7.26	4.35E+00		2.22E+00	2.04E+00
		722.78		11.10	3.83E+00		-6.27E-01	1.82E+00
		1691.02		49.00	6.88E-01		-8.54E-02	2.98E-01
	I-125	35.49		6.49	5.55E+00	5.55E+00	-6.03E+00	2.71E+00
	SB-125	176.33		6.89	1.05E+00	3.17E-01	-4.90E-01	5.13E-01
		427.89		29.33	3.17E-01		-3.53E-02	1.51E-01
		463.38		10.35	1.06E+00		5.89E-01	5.06E-01
		600.56		17.80	6.07E-01		1.72E-01	2.86E-01
		635.90		11.32	9.75E-01		3.65E-01	4.58E-01
	SB-126	414.70		83.30	2.07E+01	2.07E+01	-8.69E+00	9.88E+00
		666.33		99.60	2.23E+01		1.36E+01	1.06E+01
		695.00		99.60	2.32E+01		-1.20E+01	1.09E+01
		720.50		53.80	4.46E+01		1.43E+01	2.11E+01
+	SN-126	87.57	*	37.00	3.81E-01	3.81E-01	4.00E-01	1.89E-01
	SB-127	473.00		25.00	6.14E+06	6.14E+06	-5.15E+06	2.89E+06
		685.20		35.70	6.66E+06		-4.59E+04	3.15E+06
		783.80		14.70	1.76E+07		4.60E+06	8.31E+06
	I-129	29.78		57.00	3.10E-01	3.10E-01	2.07E-02	1.51E-01
		33.60		13.20	1.03E+00		-7.90E-02	5.05E-01
		39.58		7.52	1.46E+00		1.06E+00	7.14E-01
	I-131	284.30		6.05	3.83E+03	3.08E+02	-5.67E+02	1.85E+03

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	3.08E+02	3.08E+02	2.03E+00	1.47E+02
	636.97	7.26	4.38E+03		3.24E+03	2.06E+03
	722.89	1.80	2.44E+04		-4.00E+03	1.16E+04
TE-132	49.72	13.10	2.65E+08	3.30E+07	3.75E+07	1.30E+08
	228.16	88.00	3.30E+07		6.83E+06	1.60E+07
BA-133	81.00	33.00	2.68E-01	1.87E-01	-7.37E-01	1.32E-01
	302.84	17.80	4.70E-01		-4.06E-02	2.26E-01
	356.01	60.00	1.87E-01		-1.38E-01	9.06E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	4.94E+04	4.94E+04	-1.36E+05	2.43E+04
CS-134	563.23	8.38	1.18E+00	1.39E-01	-5.05E-01	5.54E-01
	569.32	15.43	7.16E-01		1.80E-01	3.38E-01
	604.70	97.60	1.39E-01		5.53E-03	6.59E-02
	795.84	85.40	1.92E-01		1.69E-01	9.10E-02
	801.93	8.73	1.82E+00		1.11E+00	8.59E-01
CS-135	268.24	16.00	5.30E-01	5.30E-01	6.58E-02	2.57E-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	1.20E+02	1.74E+01	1.60E+00	5.87E+01
	163.89	4.61	2.00E+02		-2.28E+00	9.76E+01
	176.55	13.56	6.73E+01		-3.27E+01	3.27E+01
	273.65	12.66	8.79E+01		5.82E+00	4.25E+01
	340.57	48.50	3.00E+01		5.14E+01	1.46E+01
	818.50	99.70	1.74E+01		8.84E+00	8.15E+00
	1048.07	79.60	2.34E+01		4.85E+00	1.08E+01
	1235.34	19.70	1.31E+02		-5.02E+00	6.17E+01
CS-137	661.65	85.12	1.47E-01	1.47E-01	6.19E-02	6.96E-02
LA-138	788.74	34.00	4.02E-01	1.64E-01	-3.40E-01	1.89E-01
	1435.80	66.00	1.64E-01		-3.74E-02	7.18E-02
CE-139	165.85	80.35	1.40E-01	1.40E-01	7.30E-02	6.85E-02
BA-140	162.64	6.70	1.57E+02	5.50E+01	2.83E+01	7.68E+01
	304.84	4.50	2.70E+02		-3.48E+01	1.30E+02
	423.70	3.20	4.17E+02		-1.53E+02	1.98E+02
	437.55	2.00	7.12E+02		1.48E+02	3.39E+02
	537.32	25.00	5.50E+01		-6.62E-01	2.58E+01
LA-140	328.77	20.50	6.90E+01	2.23E+01	4.46E+01	3.33E+01
	487.03	45.50	2.98E+01		3.71E+00	1.40E+01
	815.85	23.50	7.93E+01		-2.64E+01	3.70E+01
	1596.49	95.49	2.23E+01		-7.30E-01	9.99E+00
CE-141	145.44	48.40	1.05E+00	1.05E+00	7.12E-01	5.11E-01
@ 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	8.00E-01	8.00E-01	3.21E-02	3.91E-01
PM-144	476.78	42.00	2.66E-01	1.31E-01	1.77E-01	1.26E-01
	618.01	98.60	1.31E-01		4.01E-02	6.18E-02
	696.49	99.49	1.61E-01		3.91E-02	7.63E-02
PM-145	36.85	21.70	5.46E-01	2.91E-01	-3.85E-01	2.66E-01
	37.36	39.70	2.91E-01		-2.05E-01	1.42E-01
	42.30	15.10	6.66E-01		-7.59E-01	3.26E-01
	72.40	2.31	4.29E+00		-8.18E+00	2.11E+00
PM-146	453.90	39.94	2.30E-01	2.30E-01	6.24E-02	1.09E-01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	8.98E-01	2.30E-01	-3.33E-01	4.22E-01
		747.13		13.10	9.46E-01		-3.30E-01	4.44E-01
	ND-147	91.11		28.90	1.06E+02	1.06E+02	1.80E+02	5.23E+01
		531.02		13.10	2.56E+02		1.45E+02	1.21E+02
	PM-149	285.90		3.10	1.12E+13	1.12E+13	3.75E+11	5.38E+12
	EU-152	121.78		20.50	3.08E-01	3.08E-01	-1.34E-01	1.51E-01
		244.69		5.40	1.69E+00		1.23E-01	8.25E-01
		344.27		19.13	4.32E-01		1.18E-02	2.07E-01
		778.89		9.20	1.46E+00		-2.03E-01	6.89E-01
		964.01		10.40	1.56E+00		-4.57E-02	7.35E-01
		1085.78		7.22	2.26E+00		2.72E-01	1.05E+00
		1112.02		9.60	1.47E+00		-2.60E-01	6.78E-01
		1407.95		14.94	8.39E-01		6.45E-02	3.75E-01
	GD-153	97.43		31.30	2.86E-01	2.86E-01	-2.56E-01	1.40E-01
		103.18		22.20	3.78E-01		4.83E-02	1.85E-01
	EU-154	123.07		40.50	1.58E-01	1.58E-01	-7.23E-02	7.73E-02
		723.30		19.70	8.11E-01		1.29E-01	3.87E-01
		873.19		11.50	1.21E+00		7.67E-01	5.65E-01
		996.32		10.30	1.41E+00		1.56E-01	6.55E-01
		1004.76		17.90	9.11E-01		5.99E-01	4.28E-01
		1274.45		35.50	4.87E-01		1.20E-01	2.26E-01
+	EU-155	86.50	*	30.90	4.72E-01	3.19E-01	4.97E-01	2.34E-01
		105.30		20.70	3.19E-01		-3.64E-02	1.56E-01
	EU-156	811.77		10.40	7.87E+01	7.87E+01	-3.82E+01	3.67E+01
		1153.47		7.20	1.60E+02		-6.81E+01	7.47E+01
		1230.71		8.90	1.50E+02		7.00E-02	7.04E+01
	HO-166M	184.41		72.60	1.15E-01	1.15E-01	1.58E-01	5.61E-02
		280.45		29.60	2.57E-01		-9.25E-02	1.24E-01
		410.94		11.10	8.80E-01		1.59E-01	4.21E-01
		711.69		54.10	2.50E-01		-2.57E-02	1.18E-01
	TM-171	66.72		0.14	6.68E+01	6.68E+01	-5.35E+00	3.28E+01
	HF-172	67.35		5.31	1.76E+00	6.39E-01	-1.41E-01	8.64E-01
		125.81		11.30	6.39E-01		-1.27E-01	3.12E-01
	LU-172	181.53		20.60	5.30E+03	3.74E+03	-9.80E+01	2.58E+03
		900.72		29.81	6.79E+03		1.31E+03	3.17E+03
		1093.66		62.50	3.74E+03		1.35E+03	1.74E+03
	LU-173	100.72		5.24	1.37E+00	4.71E-01	-5.16E-01	6.69E-01
		272.11		21.20	4.71E-01		4.25E-01	2.28E-01
	HF-175	343.40		84.00	2.43E-01	2.43E-01	6.62E-03	1.16E-01
	LU-176	88.34		13.30	6.52E-01	8.22E-02	2.28E-01	3.21E-01
		201.83		86.00	8.71E-02		1.19E-02	4.23E-02
		306.78		94.00	8.22E-02		-6.35E-03	3.95E-02
	HF-181	133.02		41.70	7.59E-01	4.69E-01	-3.81E-02	3.71E-01
		345.85		17.20	2.11E+00		5.93E-02	1.01E+00
		482.03		82.80	4.69E-01		-5.21E-02	2.21E-01
	TA-182	67.75		41.20	3.51E-01	3.51E-01	-3.35E-01	1.72E-01
		1121.30		34.90	1.02E+00		1.05E+00	4.85E-01
		1189.05		16.23	1.96E+00		-7.31E-01	9.17E-01
		1221.41		26.98	1.23E+00		-1.85E-01	5.80E-01
		1231.02		11.44	2.81E+00		-6.48E-01	1.31E+00
	IR-192	308.46		29.68	6.17E-01	4.41E-01	1.47E-01	2.96E-01
		468.07		48.10	4.41E-01		-1.71E-01	2.09E-01
	HG-203	279.19		77.30	4.04E-01	4.04E-01	9.19E-02	1.95E-01

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	9.21E-02	9.21E-02	1.60E-02	4.39E-02
		899.15		99.16	1.43E-01		-5.78E-03	6.67E-02
		911.74		91.10	2.71E-01		6.08E-01	1.30E-01
	BI-207	569.67		97.72	1.04E-01	1.04E-01	2.62E-02	4.93E-02
		1063.62		74.90	2.20E-01		-1.21E-02	1.03E-01
+	TL-208	583.14	*	30.22	6.12E-01	7.06E-02	1.58E+00	2.96E-01
		860.37		4.48	3.47E+00		2.89E+00	1.64E+00
		2614.66	*	35.85	7.06E-02		1.93E+00	0.00E+00
	BI-210M	262.00		45.00	1.64E-01	1.64E-01	6.17E-03	7.89E-02
		300.00		23.00	3.92E-01		4.58E-02	1.90E-01
	PB-210	46.50		4.25	2.25E+00	2.25E+00	4.11E-01	1.10E+00
	PB-211	404.84		2.90	3.09E+00	3.09E+00	-2.61E+00	1.47E+00
		831.96		2.90	4.84E+00		1.02E+00	2.28E+00
+	BI-212	727.17	*	11.80	1.06E+00	1.06E+00	1.27E+00	4.98E-01
		1620.62		2.75	3.78E+00		2.68E-01	1.62E+00
+	PB-212	238.63	*	44.60	3.67E-01	3.67E-01	2.13E+00	1.81E-01
		300.09		3.41	2.65E+00		3.09E-01	1.28E+00
+	BI-214	609.31	*	46.30	4.17E-01	4.17E-01	1.19E+00	2.02E-01
		1120.29	*	15.10	1.58E+00		2.13E+00	7.54E-01
		1764.49	*	15.80	6.27E-01		2.21E+00	2.62E-01
		2204.22		4.98	3.80E+00		1.92E-01	1.70E+00
+	PB-214	295.21	*	19.19	6.02E-01	3.50E-01	1.23E+00	2.94E-01
		351.92	*	37.19	3.50E-01		1.34E+00	1.70E-01
	RN-219	401.80		6.50	1.36E+00	1.36E+00	-2.89E-01	6.50E-01
	RA-223	323.87		3.88	2.08E+00	2.08E+00	1.60E-01	1.00E+00
	RA-224	240.98		3.95	3.93E+00	3.93E+00	2.13E+01	1.94E+00
	RA-225	40.00		31.00	2.71E+01	2.71E+01	1.96E+01	1.32E+01
+	RA-226	186.21	*	3.28	2.59E+00	2.59E+00	2.84E+00	1.27E+00
	TH-227	50.10		8.40	1.07E+00	1.07E+00	1.51E-01	5.24E-01
		236.00		11.50	1.15E+00		2.44E+00	5.64E-01
		256.20		6.30	1.22E+00		1.62E-02	5.90E-01
+	AC-228	338.32	*	11.40	1.15E+00	8.22E-01	1.56E+00	5.61E-01
		911.07	*	27.70	8.22E-01		1.75E+00	3.95E-01
		969.11	*	16.60	1.68E+00		1.84E+00	8.09E-01
	TH-230	48.44		16.90	5.45E-01	5.45E-01	7.07E-02	2.67E-01
		62.85		4.60	1.93E+00		1.99E+00	9.46E-01
		67.67		0.37	2.23E+01		-2.12E+01	1.09E+01
	PA-231	283.67		1.60	4.80E+00	3.57E+00	-7.10E-01	2.31E+00
		302.67		2.30	3.57E+00		-3.09E-01	1.72E+00
	TH-231	25.64		14.70	1.74E+00	1.25E+00	1.15E+00	8.48E-01
		84.21		6.40	1.25E+00		-1.46E+00	6.15E-01
	PA-233	311.98		38.60	2.09E+00	2.09E+00	-6.97E-01	9.99E-01
	PA-234	131.20		20.40	3.41E-01	3.41E-01	8.05E-02	1.67E-01
		733.99		8.80	1.37E+00		-5.35E-02	6.45E-01
		946.00		12.00	1.15E+00		2.43E-01	5.38E-01
	PA-234M	1001.03		0.92	1.69E+01	1.69E+01	1.11E+01	7.92E+00
	TH-234	63.29		3.80	2.32E+00	2.32E+00	2.39E+00	1.14E+00
	U-235	143.76		10.50	6.43E-01	6.43E-01	-1.33E-01	3.14E-01
		163.35		4.70	1.46E+00		2.64E-01	7.14E-01
		205.31		4.70	1.60E+00		3.92E-01	7.80E-01
+	NP-237	86.50	*	12.60	1.12E+00	1.12E+00	1.18E+00	5.54E-01
	NP-239	106.10		22.70	2.11E+11	2.11E+11	-2.29E+10	1.03E+11
		228.18		10.70	5.33E+11		1.10E+11	2.58E+11

Analysis Report for 1707077-11

HTC-A01-S001-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	4.21E+11	2.11E+11	8.21E+10	2.03E+11
AM-241	59.54	35.90	2.40E-01	2.40E-01	-7.55E-02	1.18E-01
AM-243	74.67	66.00	1.79E-01	1.79E-01	9.55E-01	8.86E-02
CM-243	209.75	3.29	2.50E+00	5.67E-01	1.58E+00	1.22E+00
	228.14	10.60	7.18E-01		1.49E-01	3.48E-01
	277.60	14.00	5.67E-01		1.11E-01	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

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: HTC-A01-S001-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3603

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	15	103
17:	107	102	97	84	77	85	90	94
25:	84	91	82	83	67	78	100	86
33:	88	68	76	76	99	78	102	112
41:	83	100	82	92	134	128	120	96
49:	99	111	116	128	105	115	120	102
57:	132	137	146	145	149	182	220	132
65:	151	143	136	173	159	158	174	192
73:	291	431	393	464	415	192	144	118
81:	129	146	160	164	168	231	216	189
89:	205	145	178	221	175	135	87	102
97:	87	107	115	97	84	91	91	110
105:	107	107	87	80	106	101	89	108
113:	95	96	101	92	92	81	81	94
121:	88	83	72	87	84	96	95	115
129:	106	86	103	94	85	104	88	97
137:	82	78	87	76	70	88	91	78
145:	88	88	90	88	84	72	58	82
153:	77	79	77	68	62	62	71	64
161:	78	72	84	66	72	74	77	79
169:	55	72	70	68	66	59	65	72
177:	59	53	70	68	75	57	79	85
185:	148	114	64	56	69	77	64	60
193:	65	70	57	64	55	65	61	56
201:	57	62	74	53	63	55	57	89
209:	95	81	53	48	58	61	53	56
217:	62	43	51	45	56	61	40	42
225:	45	51	53	47	58	53	49	40
233:	51	48	63	97	304	422	277	121
241:	109	75	60	55	51	55	34	36
249:	40	46	38	46	44	29	45	40
257:	46	37	41	39	31	32	30	41
265:	34	26	39	49	67	65	40	39
273:	36	39	37	41	38	36	32	34
281:	33	32	29	27	45	33	33	38
289:	37	30	21	37	71	114	106	62
297:	43	39	37	47	38	23	31	31
305:	27	24	39	22	26	32	25	20
313:	23	29	27	25	23	27	28	30
321:	24	17	30	25	39	31	49	43
329:	34	26	26	32	26	25	27	41
337:	84	73	61	31	26	25	28	20
345:	24	21	25	21	36	86	170	153
353:	38	19	24	17	28	27	31	26
361:	17	13	30	23	20	29	29	26

369:	26	11	26	19	17	23	22	26

Sample Title: HTC-A01-S001-4248-01

Channel								
377:	17	19	23	22	22	20	18	23
385:	24	24	15	24	29	24	21	17
393:	24	20	29	25	20	20	23	24
401:	29	12	23	18	23	24	21	25
409:	40	22	22	29	15	22	24	35
417:	16	22	26	16	27	17	15	20
425:	18	14	21	17	18	18	22	20
433:	19	15	29	20	20	14	19	19
441:	17	16	14	24	18	21	10	13
449:	19	17	15	15	24	18	17	10
457:	11	16	13	21	23	40	20	16
465:	13	17	19	17	16	10	11	9
473:	16	11	19	24	15	13	17	12
481:	13	14	10	13	9	11	16	21
489:	17	12	13	26	12	14	13	13
497:	13	8	18	15	15	18	18	16
505:	7	13	12	22	42	67	38	37
513:	19	15	16	16	17	13	13	11
521:	13	9	18	17	16	5	7	18
529:	13	16	9	18	14	11	7	19
537:	13	11	10	10	9	8	12	16
545:	14	19	11	11	17	21	20	14
553:	15	23	13	9	18	9	7	12
561:	11	12	10	9	15	13	14	15
569:	13	10	15	14	9	14	13	19
577:	10	15	15	20	51	97	93	32
585:	10	10	11	13	10	9	13	10
593:	20	14	11	8	11	13	8	18
601:	15	10	9	13	11	23	46	85
609:	112	50	16	11	9	17	16	13
617:	10	13	10	12	7	9	8	8
625:	14	11	11	22	9	8	9	9
633:	18	13	8	11	8	11	12	6
641:	5	11	11	10	13	15	11	12
649:	11	11	10	8	15	11	5	7
657:	14	16	9	10	9	12	12	12
665:	12	15	9	8	12	11	5	9
673:	6	13	20	10	10	8	13	15
681:	14	10	11	10	11	11	15	10
689:	15	11	10	11	13	17	8	10
697:	13	9	17	14	10	13	11	10
705:	9	11	14	11	16	15	13	9
713:	15	10	6	15	14	4	14	10
721:	9	16	6	15	19	31	24	19
729:	5	10	9	11	8	12	10	4
737:	12	10	6	11	16	7	5	11
745:	12	6	10	10	8	8	6	9
753:	12	13	15	11	6	11	11	10
761:	16	15	6	10	12	17	18	16
769:	15	11	14	7	15	7	12	8
777:	3	12	13	8	9	16	12	8
785:	10	13	9	16	6	5	8	16
793:	13	17	11	8	11	13	13	10

801:	7	9	7	17	14	9	4	8

Sample Title: HTC-A01-S001-4248-01

Channel								
809:	6	9	6	6	6	12	6	8
817:	6	5	11	12	8	8	9	3
825:	10	4	5	11	4	17	10	8
833:	13	11	8	7	13	9	12	7
841:	11	7	6	6	6	8	10	9
849:	6	7	4	4	8	12	3	12
857:	9	10	12	18	16	7	8	9
865:	5	7	7	4	12	5	13	8
873:	8	7	6	5	10	3	7	6
881:	4	8	8	9	13	3	6	11
889:	4	13	4	8	8	11	6	6
897:	7	14	8	4	9	8	7	6
905:	7	4	7	7	29	47	63	33
913:	17	7	7	4	10	10	8	7
921:	6	13	6	8	11	4	8	6
929:	8	4	7	8	9	8	7	7
937:	8	5	6	9	8	8	4	6
945:	10	8	9	9	4	6	5	10
953:	9	7	6	7	6	7	6	5
961:	9	6	9	8	10	9	25	36
969:	38	13	13	7	6	8	12	6
977:	12	5	4	5	5	11	12	5
985:	7	9	7	5	6	3	6	10
993:	3	3	3	12	7	5	9	11
1001:	9	8	8	7	5	9	9	14
1009:	3	6	2	3	8	2	9	7
1017:	7	9	9	9	8	10	4	5
1025:	5	13	7	4	7	10	6	5
1033:	11	8	6	8	5	5	17	11
1041:	7	4	3	2	7	6	13	1
1049:	9	7	7	4	6	3	5	5
1057:	7	14	4	8	6	8	11	11
1065:	11	11	6	6	8	6	6	5
1073:	11	5	6	11	10	10	4	11
1081:	7	4	11	9	10	9	5	10
1089:	5	8	6	7	10	8	8	5
1097:	8	4	4	10	16	8	6	9
1105:	5	9	6	4	11	5	3	3
1113:	3	8	6	9	8	11	21	18
1121:	19	9	9	8	6	5	6	5
1129:	8	8	6	4	8	5	1	4
1137:	3	3	10	8	6	9	3	8
1145:	12	9	10	8	10	3	5	10
1153:	10	9	8	5	7	9	10	10
1161:	6	11	5	12	8	4	5	5
1169:	8	11	9	8	4	9	9	7
1177:	14	5	7	4	8	13	7	9
1185:	7	8	11	9	10	9	11	4
1193:	7	10	10	12	6	9	4	6
1201:	14	11	9	7	10	9	12	13
1209:	9	9	6	9	7	8	8	8
1217:	5	10	5	8	8	9	8	16
1225:	11	14	11	9	6	10	6	8

1233:	5	12	6	12	18	11	4	15

Sample Title: HTC-A01-S001-4248-01

Channel								
1241:	3	6	7	11	8	5	6	12
1249:	5	10	4	6	10	7	6	6
1257:	4	7	7	10	4	4	9	8
1265:	5	7	7	3	7	9	8	5
1273:	3	4	4	4	12	9	8	5
1281:	9	1	6	9	2	5	7	3
1289:	6	6	6	9	6	5	7	5
1297:	5	6	5	5	7	3	6	3
1305:	8	6	2	2	6	7	6	6
1313:	2	4	2	4	4	7	5	4
1321:	5	2	2	4	9	3	3	1
1329:	3	3	3	10	4	3	1	5
1337:	2	4	3	4	3	2	4	3
1345:	3	4	3	4	2	4	7	2
1353:	3	1	1	5	5	2	3	4
1361:	3	2	2	3	3	3	1	3
1369:	3	4	4	3	2	2	3	3
1377:	6	9	2	4	1	3	2	2
1385:	3	4	3	2	5	1	4	2
1393:	2	7	0	2	4	0	4	1
1401:	9	3	1	2	3	1	2	3
1409:	5	2	3	3	0	1	1	6
1417:	1	0	3	2	2	0	1	1
1425:	1	1	1	3	4	2	2	1
1433:	2	3	2	2	0	4	1	2
1441:	3	1	0	2	2	1	5	2
1449:	2	3	3	3	1	1	3	5
1457:	6	34	96	195	160	63	10	3
1465:	1	1	2	0	3	2	0	2
1473:	4	3	2	3	2	1	2	4
1481:	5	1	1	2	2	3	2	0
1489:	1	3	2	1	2	2	3	5
1497:	1	5	6	2	1	1	1	0
1505:	0	3	3	3	2	5	2	3
1513:	3	2	1	1	1	3	1	0
1521:	2	2	2	2	2	4	1	1
1529:	2	2	3	0	4	0	1	1
1537:	3	0	2	1	1	1	1	1
1545:	1	0	0	1	0	0	1	4
1553:	2	1	2	5	1	2	2	2
1561:	3	0	2	2	2	2	3	0
1569:	1	0	3	0	1	4	2	3
1577:	1	4	1	2	2	1	0	0
1585:	4	7	3	6	7	3	7	6
1593:	6	3	1	2	1	4	1	0
1601:	2	1	2	1	4	0	0	2
1609:	0	1	1	3	1	1	0	0
1617:	0	4	3	2	1	0	2	0
1625:	0	1	0	2	3	4	2	5
1633:	2	1	3	1	1	2	6	4
1641:	0	0	0	1	0	0	2	0
1649:	0	0	3	0	1	1	0	1
1657:	2	0	1	3	0	4	0	1

1665:	0	3	0	1	2	0	1	1

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

2097:	1	0	0	0	4	2	6	5

Sample Title: HTC-A01-S001-4248-01

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

2529:	0	0	1	0	0	0	1	1

Sample Title: HTC-A01-S001-4248-01

Channel								
2537:	1	1	0	0	0	0	1	1
2545:	1	0	1	0	1	0	0	1
2553:	0	1	0	0	0	0	1	0
2561:	0	0	0	0	0	0	0	0
2569:	2	0	1	1	1	0	0	0
2577:	0	1	0	0	0	1	1	0
2585:	0	1	0	1	0	0	0	0
2593:	1	1	0	1	1	0	1	0
2601:	0	0	0	0	0	0	0	0
2609:	2	1	3	3	9	19	19	13
2617:	5	0	0	0	0	1	0	0
2625:	0	0	0	0	1	0	0	0
2633:	0	0	0	0	0	0	1	0
2641:	0	1	0	0	0	0	0	0
2649:	1	0	0	0	0	0	0	0
2657:	1	0	0	0	0	0	0	1
2665:	0	0	0	0	0	0	0	1
2673:	0	2	1	0	0	1	0	0
2681:	0	0	1	0	1	0	0	1
2689:	1	0	0	0	1	0	1	0
2697:	0	0	0	0	0	2	0	1
2705:	0	0	0	0	0	0	0	0
2713:	0	0	0	0	1	1	0	1
2721:	0	0	0	0	1	0	0	0
2729:	0	0	1	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	1	0	0	1
2753:	0	0	0	0	0	0	0	1
2761:	1	1	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	1	0	0
2785:	0	0	1	0	0	0	0	1
2793:	0	0	0	0	1	0	0	0
2801:	0	0	0	1	0	0	0	0
2809:	1	0	0	0	1	1	0	0
2817:	0	1	1	0	0	0	0	0
2825:	0	1	0	0	0	0	0	1
2833:	0	0	0	0	0	0	1	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	1	0	1	0	0
2857:	0	0	0	0	1	0	0	0
2865:	0	0	0	0	0	1	0	0
2873:	0	0	0	1	0	0	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	2	0	0	0	0
2897:	0	1	1	0	2	0	0	0
2905:	0	0	0	0	0	0	0	1
2913:	0	0	0	0	1	0	0	0
2921:	0	0	1	0	1	0	0	1
2929:	0	0	0	0	0	0	1	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	1	0	0	0	0	0
2953:	0	0	0	0	0	0	0	1

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S001-4248-01

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

3393:	0	0	0	0	0	2	0	0

Sample Title: HTC-A01-S001-4248-01

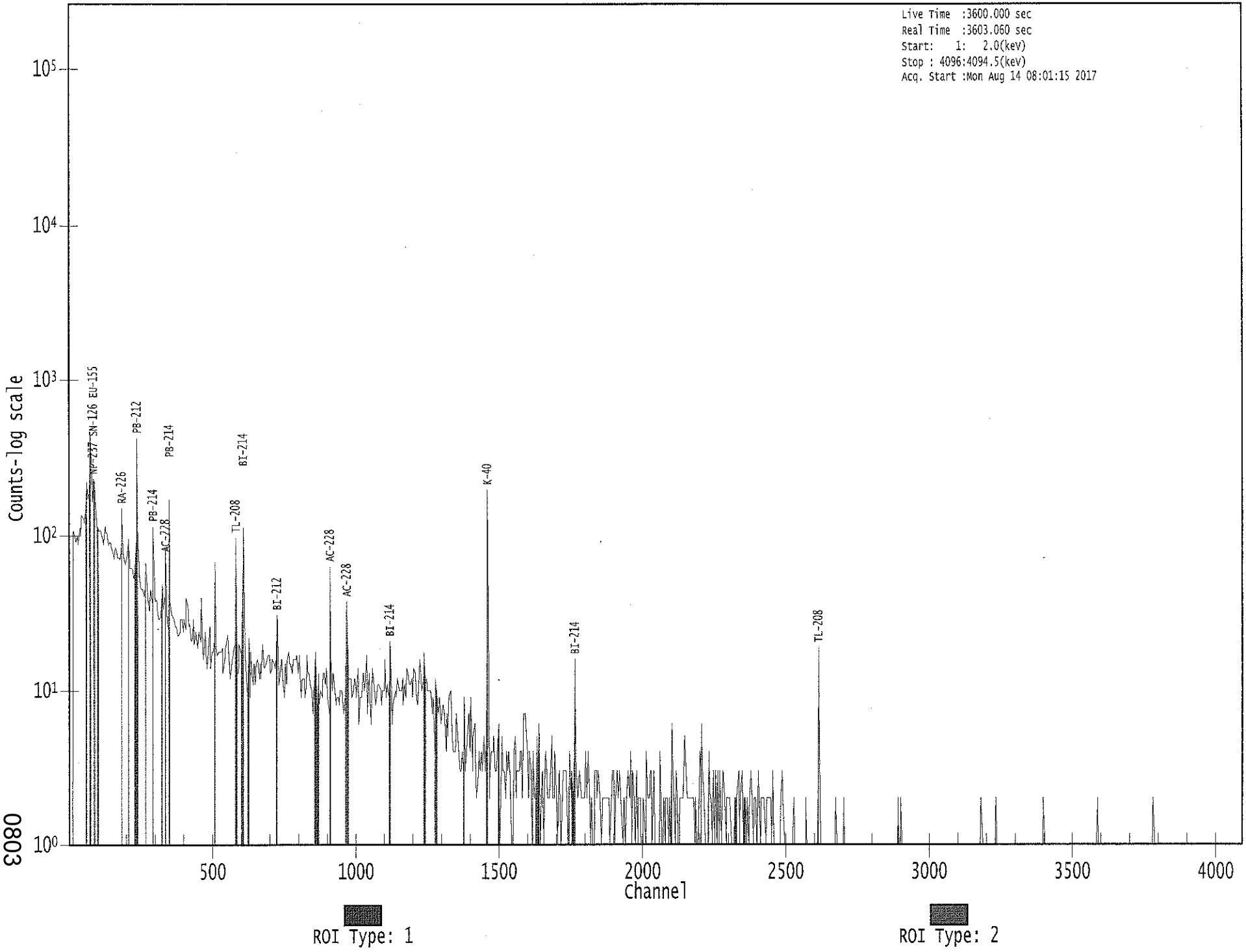
Channel								
3401:	0	1	0	1	0	0	0	0
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	1	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	1	1	0	0	1	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	1	0

Sample Title: HTC-A01-S001-4248-01

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

0000055144.CNF



0803

Apex-Gamma

8/14

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-12
Sample Description	: HTC-A01-S002-0006-01
Sample Type	: SOIL
Sample Size	: 7.285E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:36:36AM
Acquisition Started	: 8/14/2017 9:03:38AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
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)	: 18 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55148

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 10:03:43AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.04	63.64	0.0000	0.00
2	76.01	76.60	0.0000	0.00
3	92.46	93.04	0.0000	0.00
4	185.86	186.34	0.0000	0.00
5	209.74	210.19	0.0000	0.00
6	238.56	238.99	0.0000	0.00
7	241.74	242.17	0.0000	0.00
8	270.03	270.42	0.0000	0.00
9	277.60	277.99	0.0000	0.00
10	295.27	295.64	0.0000	0.00
11	299.86	300.23	0.0000	0.00
12	338.72	339.05	0.0000	0.00
13	351.82	352.13	0.0000	0.00
14	355.52	355.83	0.0000	0.00
15	410.04	410.29	0.0000	0.00
16	463.15	463.35	0.0000	0.00
17	511.07	511.22	0.0000	0.00
18	583.29	583.37	0.0000	0.00
19	609.44	609.49	0.0000	0.00
20	727.98	727.91	0.0000	0.00
21	766.63	766.53	0.0000	0.00
22	794.78	794.64	0.0000	0.00
23	825.82	825.66	0.0000	0.00
24	861.00	860.80	0.0000	0.00
25	907.31	907.06	0.0000	0.00
26	911.45	911.20	0.0000	0.00
27	925.20	924.93	0.0000	0.00
28	933.86	933.58	0.0000	0.00
29	964.66	964.36	0.0000	0.00
30	969.24	968.93	0.0000	0.00
31	1121.25	1120.79	0.0000	0.00
32	1237.82	1237.24	0.0000	0.00
33	1400.94	1400.21	0.0000	0.00
34	1426.33	1425.56	0.0000	0.00
35	1461.37	1460.57	0.0000	0.00
36	1466.11	1465.31	0.0000	0.00
37	1515.00	1514.15	0.0000	0.00
38	1593.63	1592.70	0.0000	0.00
39	1730.22	1729.16	0.0000	0.00
40	1765.26	1764.16	0.0000	0.00
41	2104.72	2103.30	0.0000	0.00
42	2237.47	2235.92	0.0000	0.00

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2368.70	2367.02	0.0000	0.00
44	2615.52	2613.61	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 10:03:43AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.04	59 -	68	63.64	2.19E+02	119.04	1.91E+03	1.48
	2	76.01	73 -	80	76.60	6.37E+02	112.21	1.66E+03	3.83
	3	92.46	90 -	97	93.04	2.85E+02	99.28	1.42E+03	1.93
	4	185.86	183 -	190	186.34	1.62E+02	72.80	7.74E+02	1.91
	5	209.74	206 -	213	210.19	8.18E+01	64.81	6.32E+02	2.69
M	6	238.56	234 -	247	238.99	6.61E+02	63.91	3.44E+02	1.78
m	7	241.74	234 -	247	242.17	1.32E+02	63.60	3.05E+02	1.82
	8	270.03	267 -	274	270.42	9.40E+01	52.23	3.92E+02	4.28
	9	277.60	275 -	282	277.99	5.64E+01	51.26	4.01E+02	2.62
M	10	295.27	291 -	306	295.64	2.03E+02	47.19	3.02E+02	2.02
m	11	299.86	291 -	306	300.23	5.66E+01	45.88	3.31E+02	2.26
	12	338.72	335 -	344	339.05	1.54E+02	56.22	3.59E+02	1.90
M	13	351.82	348 -	364	352.13	3.03E+02	45.63	2.06E+02	1.76
m	14	355.52	348 -	364	355.83	2.65E+01	39.28	2.23E+02	1.91
	15	410.04	407 -	415	410.29	4.03E+01	42.50	2.55E+02	3.13
	16	463.15	460 -	467	463.35	3.48E+01	38.78	2.26E+02	1.93
	17	511.07	506 -	517	511.22	1.89E+02	49.88	2.17E+02	2.65
	18	583.29	579 -	587	583.37	1.94E+02	47.63	2.29E+02	1.96
	19	609.44	605 -	612	609.49	2.25E+02	44.50	1.81E+02	2.12
	20	727.98	723 -	733	727.91	5.16E+01	38.39	1.65E+02	2.05
	21	766.63	762 -	770	766.53	3.19E+01	32.18	1.40E+02	1.70
	22	794.78	792 -	798	794.64	2.06E+01	23.45	8.68E+01	2.12
	23	825.82	823 -	828	825.66	1.56E+01	16.43	4.09E+01	2.48
	24	861.00	858 -	866	860.80	2.60E+01	29.78	1.18E+02	1.14
M	25	907.31	904 -	921	907.06	2.42E+01	21.05	4.83E+01	2.20
m	26	911.45	904 -	921	911.20	1.59E+02	29.79	4.56E+01	2.20
	27	925.20	922 -	930	924.93	2.56E+01	22.70	6.48E+01	4.43
	28	933.86	931 -	936	933.58	1.80E+01	18.95	5.81E+01	1.58
M	29	964.66	961 -	974	964.36	2.78E+01	20.37	6.33E+01	2.07
m	30	969.24	961 -	974	968.93	1.16E+02	31.05	7.31E+01	2.52
	31	1121.25	1116 -	1127	1120.79	6.05E+01	35.38	1.27E+02	2.68
	32	1237.82	1233 -	1241	1237.24	2.22E+01	27.53	1.02E+02	2.60
	33	1400.94	1396 -	1404	1400.21	1.85E+01	15.80	2.70E+01	1.91
	34	1426.33	1422 -	1430	1425.56	1.16E+01	14.75	2.48E+01	5.69
M	35	1461.37	1454 -	1470	1460.57	7.50E+02	54.74	3.73E+00	2.52
m	36	1466.11	1454 -	1470	1465.31	2.72E+01	41.38	3.68E-01	2.65
	37	1515.00	1511 -	1517	1514.15	1.20E+01	11.18	1.40E+01	2.75
	38	1593.63	1590 -	1596	1592.70	1.86E+01	12.70	1.28E+01	3.60
	39	1730.22	1725 -	1731	1729.16	1.16E+01	10.23	1.08E+01	2.68
	40	1765.26	1760 -	1769	1764.16	3.84E+01	17.20	2.12E+01	2.81

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2104.72	2099 -	2107	2103.30	8.91E+00	8.02	4.18E+00	3.80
42	2237.47	2233 -	2238	2235.92	4.50E+00	5.74	3.00E+00	1.25
43	2368.70	2362 -	2370	2367.02	9.63E+00	8.26	4.75E+00	1.63
44	2615.52	2610 -	2619	2613.61	9.20E+01	19.18	0.00E+00	2.72

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 : 8/14/2017 10:03:43AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.04	59 -	68	2.19E+02	119.04	1.91E+03	9.48E+01
	2	76.01	73 -	80	6.37E+02	112.21	1.66E+03	8.24E+01
	3	92.46	90 -	97	2.85E+02	99.28	1.42E+03	7.67E+01
	4	185.86	183 -	190	1.62E+02	72.80	7.74E+02	5.61E+01
	5	209.74	206 -	213	8.18E+01	64.81	6.32E+02	5.12E+01
M	6	238.56	234 -	247	6.61E+02	63.91	3.44E+02	3.05E+01
m	7	241.74	234 -	247	1.32E+02	63.60	3.05E+02	2.87E+01
	8	270.03	267 -	274	9.40E+01	52.23	3.92E+02	3.99E+01
	9	277.60	275 -	282	5.64E+01	51.26	4.01E+02	4.03E+01
M	10	295.27	291 -	306	2.03E+02	47.19	3.02E+02	2.86E+01
m	11	299.86	291 -	306	5.66E+01	45.88	3.31E+02	2.99E+01
	12	338.72	335 -	344	1.54E+02	56.22	3.59E+02	4.15E+01
M	13	351.82	348 -	364	3.03E+02	45.63	2.06E+02	2.36E+01
m	14	355.52	348 -	364	2.65E+01	39.28	2.23E+02	2.45E+01
	15	410.04	407 -	415	4.03E+01	42.50	2.55E+02	3.33E+01
	16	463.15	460 -	467	3.48E+01	38.78	2.26E+02	3.04E+01
	17	511.07	506 -	517	1.89E+02	49.88	2.17E+02	3.42E+01
	18	583.29	579 -	587	1.94E+02	47.63	2.29E+02	3.17E+01
	19	609.44	605 -	612	2.25E+02	44.50	1.81E+02	2.70E+01
	20	727.98	723 -	733	5.16E+01	38.39	1.65E+02	2.93E+01
	21	766.63	762 -	770	3.19E+01	32.18	1.40E+02	2.48E+01
	22	794.78	792 -	798	2.06E+01	23.45	8.68E+01	1.78E+01
	23	825.82	823 -	828	1.56E+01	16.43	4.09E+01	1.18E+01

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	24	861.00	858 -	866	2.60E+01	29.78	1.18E+02	2.30E+01
M	25	907.31	904 -	921	2.42E+01	21.05	4.83E+01	1.14E+01
m	26	911.45	904 -	921	1.59E+02	29.79	4.56E+01	1.11E+01
	27	925.20	922 -	930	2.56E+01	22.70	6.48E+01	1.67E+01
	28	933.86	931 -	936	1.80E+01	18.95	5.81E+01	1.39E+01
M	29	964.66	961 -	974	2.78E+01	20.37	6.33E+01	1.31E+01
m	30	969.24	961 -	974	1.16E+02	31.05	7.31E+01	1.41E+01
	31	1121.25	1116 -	1127	6.05E+01	35.38	1.27E+02	2.61E+01
	32	1237.82	1233 -	1241	2.22E+01	27.53	1.02E+02	2.13E+01
	33	1400.94	1396 -	1404	1.85E+01	15.80	2.70E+01	1.09E+01
	34	1426.33	1422 -	1430	1.16E+01	14.75	2.48E+01	1.08E+01
M	35	1461.37	1454 -	1470	7.50E+02	54.74	3.73E+00	3.18E+00
m	36	1466.11	1454 -	1470	2.72E+01	41.38	3.68E-01	9.98E-01
	37	1515.00	1511 -	1517	1.20E+01	11.18	1.40E+01	7.21E+00
	38	1593.63	1590 -	1596	1.86E+01	12.70	1.28E+01	7.66E+00
	39	1730.22	1725 -	1731	1.16E+01	10.23	1.08E+01	6.28E+00
	40	1765.26	1760 -	1769	3.84E+01	17.20	2.12E+01	9.81E+00
	41	2104.72	2099 -	2107	8.91E+00	8.02	4.18E+00	4.40E+00
	42	2237.47	2233 -	2238	4.50E+00	5.74	3.00E+00	3.18E+00
	43	2368.70	2362 -	2370	9.63E+00	8.26	4.75E+00	4.48E+00
	44	2615.52	2610 -	2619	9.20E+01	19.18	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 : 8/14/2017 10:03:43AM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	63.04	59 -	68	63.64	2.19E+02	119.04	1.91E+03	TH-230 TH-234
2	76.01	73 -	80	76.60	6.37E+02	112.21	1.66E+03	.....
3	92.46	90 -	97	93.04	2.85E+02	99.28	1.42E+03	GA-67

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	4	185.86	183 -	190	186.34	1.62E+02	72.80	7.74E+02	RA-226
	5	209.74	206 -	213	210.19	8.18E+01	64.81	6.32E+02	CM-243
									GA-67
M	6	238.56	234 -	247	238.99	6.61E+02	63.91	3.44E+02	PB-212
m	7	241.74	234 -	247	242.17	1.32E+02	63.60	3.05E+02	RA-224
	8	270.03	267 -	274	270.42	9.40E+01	52.23	3.92E+02	.....
	9	277.60	275 -	282	277.99	5.64E+01	51.26	4.01E+02	CM-243
									NP-239
M	10	295.27	291 -	306	295.64	2.03E+02	47.19	3.02E+02	PB-214
m	11	299.86	291 -	306	300.23	5.66E+01	45.88	3.31E+02	BI-210M
									PB-212
									GA-67
	12	338.72	335 -	344	339.05	1.54E+02	56.22	3.59E+02	AC-228
M	13	351.82	348 -	364	352.13	3.03E+02	45.63	2.06E+02	PB-214
m	14	355.52	348 -	364	355.83	2.65E+01	39.28	2.23E+02	BA-133
	15	410.04	407 -	415	410.29	4.03E+01	42.50	2.55E+02	HO-166M
	16	463.15	460 -	467	463.35	3.48E+01	38.78	2.26E+02	SB-125
	17	511.07	506 -	517	511.22	1.89E+02	49.88	2.17E+02	.....
	18	583.29	579 -	587	583.37	1.94E+02	47.63	2.29E+02	TL-208
	19	609.44	605 -	612	609.49	2.25E+02	44.50	1.81E+02	BI-214
	20	727.98	723 -	733	727.91	5.16E+01	38.39	1.65E+02	BI-212
	21	766.63	762 -	770	766.53	3.19E+01	32.18	1.40E+02	NB-95
	22	794.78	792 -	798	794.64	2.06E+01	23.45	8.68E+01	.....
	23	825.82	823 -	828	825.66	1.56E+01	16.43	4.09E+01	.....
	24	861.00	858 -	866	860.80	2.60E+01	29.78	1.18E+02	TL-208
M	25	907.31	904 -	921	907.06	2.42E+01	21.05	4.83E+01	.....
m	26	911.45	904 -	921	911.20	1.59E+02	29.79	4.56E+01	TL-204
									AC-228
	27	925.20	922 -	930	924.93	2.56E+01	22.70	6.48E+01	.....
	28	933.86	931 -	936	933.58	1.80E+01	18.95	5.81E+01	.....
M	29	964.66	961 -	974	964.36	2.78E+01	20.37	6.33E+01	EU-152
m	30	969.24	961 -	974	968.93	1.16E+02	31.05	7.31E+01	AC-228
	31	1121.25	1116 -	1127	1120.79	6.05E+01	35.38	1.27E+02	TA-182
									SC-46
									BI-214
	32	1237.82	1233 -	1241	1237.24	2.22E+01	27.53	1.02E+02	CO-56
	33	1400.94	1396 -	1404	1400.21	1.85E+01	15.80	2.70E+01	.....
	34	1426.33	1422 -	1430	1425.56	1.16E+01	14.75	2.48E+01	.....
M	35	1461.37	1454 -	1470	1460.57	7.50E+02	54.74	3.73E+00	K-40
m	36	1466.11	1454 -	1470	1465.31	2.72E+01	41.38	3.68E-01	.....
	37	1515.00	1511 -	1517	1514.15	1.20E+01	11.18	1.40E+01	.....
	38	1593.63	1590 -	1596	1592.70	1.86E+01	12.70	1.28E+01	.....
	39	1730.22	1725 -	1731	1729.16	1.16E+01	10.23	1.08E+01	.....
	40	1765.26	1760 -	1769	1764.16	3.84E+01	17.20	2.12E+01	BI-214
	41	2104.72	2099 -	2107	2103.30	8.91E+00	8.02	4.18E+00	.....
	42	2237.47	2233 -	2238	2235.92	4.50E+00	5.74	3.00E+00	.....
	43	2368.70	2362 -	2370	2367.02	9.63E+00	8.26	4.75E+00	.....
	44	2615.52	2610 -	2619	2613.61	9.20E+01	19.18	0.00E+00	TL-208

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

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 : 8/14/2017 10:03:43AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.04	2.19E+02	119.04	2.70E-02	2.25E-03
	2	76.01	6.37E+02	112.21	2.75E-02	2.39E-03
	3	92.46	2.85E+02	99.28	2.73E-02	2.45E-03
	4	185.86	1.62E+02	72.80	2.17E-02	1.68E-03
	5	209.74	8.18E+01	64.81	2.04E-02	1.61E-03
M	6	238.56	6.61E+02	63.91	1.89E-02	1.53E-03
m	7	241.74	1.32E+02	63.60	1.87E-02	1.52E-03
	8	270.03	9.40E+01	52.23	1.74E-02	1.43E-03
	9	277.60	5.64E+01	51.26	1.71E-02	1.41E-03
M	10	295.27	2.03E+02	47.19	1.64E-02	1.37E-03
m	11	299.86	5.66E+01	45.88	1.63E-02	1.36E-03
	12	338.72	1.54E+02	56.22	1.49E-02	1.27E-03
M	13	351.82	3.03E+02	45.63	1.45E-02	1.24E-03
m	14	355.52	2.65E+01	39.28	1.44E-02	1.23E-03
	15	410.04	4.03E+01	42.50	1.30E-02	1.13E-03
	16	463.15	3.48E+01	38.78	1.19E-02	1.10E-03
	17	511.07	1.89E+02	49.88	1.10E-02	1.07E-03
	18	583.29	1.94E+02	47.63	9.96E-03	1.02E-03
	19	609.44	2.25E+02	44.50	9.63E-03	1.01E-03
	20	727.98	5.16E+01	38.39	8.40E-03	8.67E-04
	21	766.63	3.19E+01	32.18	8.08E-03	8.05E-04
	22	794.78	2.06E+01	23.45	7.86E-03	7.60E-04
	23	825.82	1.56E+01	16.43	7.63E-03	7.11E-04
	24	861.00	2.60E+01	29.78	7.40E-03	6.55E-04
M	25	907.31	2.42E+01	21.05	7.11E-03	5.93E-04
m	26	911.45	1.59E+02	29.79	7.08E-03	5.91E-04
	27	925.20	2.56E+01	22.70	7.00E-03	5.86E-04
	28	933.86	1.80E+01	18.95	6.96E-03	5.83E-04
M	29	964.66	2.78E+01	20.37	6.79E-03	5.71E-04
m	30	969.24	1.16E+02	31.05	6.76E-03	5.69E-04
	31	1121.25	6.05E+01	35.38	6.07E-03	5.11E-04
	32	1237.82	2.22E+01	27.53	5.64E-03	4.76E-04
	33	1400.94	1.85E+01	15.80	5.16E-03	4.39E-04
	34	1426.33	1.16E+01	14.75	5.09E-03	4.33E-04

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	35	1461.37	7.50E+02	54.74	5.00E-03	4.25E-04
m	36	1466.11	2.72E+01	41.38	4.99E-03	4.24E-04
	37	1515.00	1.20E+01	11.18	4.88E-03	4.12E-04
	38	1593.63	1.86E+01	12.70	4.70E-03	3.94E-04
	39	1730.22	1.16E+01	10.23	4.44E-03	3.62E-04
	40	1765.26	3.84E+01	17.20	4.37E-03	3.54E-04
	41	2104.72	8.91E+00	8.02	3.86E-03	3.38E-04
	42	2237.47	4.50E+00	5.74	3.70E-03	3.38E-04
	43	2368.70	9.63E+00	8.26	3.55E-03	3.38E-04
	44	2615.52	9.20E+01	19.18	3.30E-03	3.38E-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 : 8/14/2017 10:03:43AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.04	2.19E+02	119.04	6.71E+01	1.02E+01	1.52E+02	1.19E+02
	2	76.01	6.37E+02	112.21			6.37E+02	1.12E+02
	3	92.46	2.85E+02	99.28	1.35E+02	7.64E+00	1.50E+02	9.96E+01
	4	185.86	1.62E+02	72.80	5.47E+01	6.99E+00	1.07E+02	7.31E+01
	5	209.74	8.18E+01	64.81			8.18E+01	6.48E+01
M	6	238.56	6.61E+02	63.91	1.58E+01	5.72E+00	6.46E+02	6.42E+01
m	7	241.74	1.32E+02	63.60			1.32E+02	6.36E+01
	8	270.03	9.40E+01	52.23			9.40E+01	5.22E+01
	9	277.60	5.64E+01	51.26			5.64E+01	5.13E+01
M	10	295.27	2.03E+02	47.19			2.03E+02	4.72E+01
m	11	299.86	5.66E+01	45.88			5.66E+01	4.59E+01
	12	338.72	1.54E+02	56.22	1.94E+00	4.45E+00	1.52E+02	5.64E+01
M	13	351.82	3.03E+02	45.63	8.23E+00	4.77E+00	2.95E+02	4.59E+01
m	14	355.52	2.65E+01	39.28			2.65E+01	3.93E+01
	15	410.04	4.03E+01	42.50			4.03E+01	4.25E+01
	16	463.15	3.48E+01	38.78			3.48E+01	3.88E+01
	17	511.07	1.89E+02	49.88	7.54E+01	5.68E+00	1.14E+02	5.02E+01
	18	583.29	1.94E+02	47.63	7.97E+00	3.93E+00	1.86E+02	4.78E+01
	19	609.44	2.25E+02	44.50	5.86E+00	3.50E+00	2.19E+02	4.46E+01
	20	727.98	5.16E+01	38.39			5.16E+01	3.84E+01

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	21	766.63	3.19E+01	32.18			3.19E+01	3.22E+01
	22	794.78	2.06E+01	23.45			2.06E+01	2.35E+01
	23	825.82	1.56E+01	16.43			1.56E+01	1.64E+01
	24	861.00	2.60E+01	29.78			2.60E+01	2.98E+01
M	25	907.31	2.42E+01	21.05			2.42E+01	2.11E+01
m	26	911.45	1.59E+02	29.79			1.59E+02	2.98E+01
	27	925.20	2.56E+01	22.70			2.56E+01	2.27E+01
	28	933.86	1.80E+01	18.95			1.80E+01	1.89E+01
M	29	964.66	2.78E+01	20.37			2.78E+01	2.04E+01
m	30	969.24	1.16E+02	31.05			1.16E+02	3.10E+01
	31	1121.25	6.05E+01	35.38			6.05E+01	3.54E+01
	32	1237.82	2.22E+01	27.53			2.22E+01	2.75E+01
	33	1400.94	1.85E+01	15.80			1.85E+01	1.58E+01
	34	1426.33	1.16E+01	14.75			1.16E+01	1.47E+01
M	35	1461.37	7.50E+02	54.74	7.31E+00	2.50E+00	7.42E+02	5.48E+01
m	36	1466.11	2.72E+01	41.38			2.72E+01	4.14E+01
	37	1515.00	1.20E+01	11.18			1.20E+01	1.12E+01
	38	1593.63	1.86E+01	12.70			1.86E+01	1.27E+01
	39	1730.22	1.16E+01	10.23			1.16E+01	1.02E+01
	40	1765.26	3.84E+01	17.20			3.84E+01	1.72E+01
	41	2104.72	8.91E+00	8.02			8.91E+00	8.02E+00
	42	2237.47	4.50E+00	5.74			4.50E+00	5.74E+00
	43	2368.70	9.63E+00	8.26			9.63E+00	8.26E+00
	44	2615.52	9.20E+01	19.18	5.15E+00	1.56E+00	8.69E+01	1.92E+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 : 8/14/2017 10:03:43AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	63.04	2.19E+02	119.04	6.71E+01	1.02E+01	1.52E+02	1.19E+02
2	76.01	6.37E+02	112.21			6.37E+02	1.12E+02
3	92.46	2.85E+02	99.28	1.35E+02	7.64E+00	1.50E+02	9.96E+01
4	185.86	1.62E+02	72.80	5.47E+01	6.99E+00	1.07E+02	7.31E+01

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	5	209.74	8.18E+01	64.81			8.18E+01	6.48E+01
M	6	238.56	6.61E+02	63.91	1.58E+01	5.72E+00	6.46E+02	6.42E+01
m	7	241.74	1.32E+02	63.60			1.32E+02	6.36E+01
	8	270.03	9.40E+01	52.23			9.40E+01	5.22E+01
	9	277.60	5.64E+01	51.26			5.64E+01	5.13E+01
M	10	295.27	2.03E+02	47.19			2.03E+02	4.72E+01
m	11	299.86	5.66E+01	45.88			5.66E+01	4.59E+01
	12	338.72	1.54E+02	56.22	1.94E+00	4.45E+00	1.52E+02	5.64E+01
M	13	351.82	3.03E+02	45.63	8.23E+00	4.77E+00	2.95E+02	4.59E+01
m	14	355.52	2.65E+01	39.28			2.65E+01	3.93E+01
	15	410.04	4.03E+01	42.50			4.03E+01	4.25E+01
	16	463.15	3.48E+01	38.78			3.48E+01	3.88E+01
	17	511.07	1.89E+02	49.88	7.54E+01	5.68E+00	1.14E+02	5.02E+01
	18	583.29	1.94E+02	47.63	7.97E+00	3.93E+00	1.86E+02	4.78E+01
	19	609.44	2.25E+02	44.50	5.86E+00	3.50E+00	2.19E+02	4.46E+01
	20	727.98	5.16E+01	38.39			5.16E+01	3.84E+01
	21	766.63	3.19E+01	32.18			3.19E+01	3.22E+01
	22	794.78	2.06E+01	23.45			2.06E+01	2.35E+01
	23	825.82	1.56E+01	16.43			1.56E+01	1.64E+01
	24	861.00	2.60E+01	29.78			2.60E+01	2.98E+01
M	25	907.31	2.42E+01	21.05			2.42E+01	2.11E+01
m	26	911.45	1.59E+02	29.79			1.59E+02	2.98E+01
	27	925.20	2.56E+01	22.70			2.56E+01	2.27E+01
	28	933.86	1.80E+01	18.95			1.80E+01	1.89E+01
M	29	964.66	2.78E+01	20.37			2.78E+01	2.04E+01
m	30	969.24	1.16E+02	31.05			1.16E+02	3.10E+01
	31	1121.25	6.05E+01	35.38			6.05E+01	3.54E+01
	32	1237.82	2.22E+01	27.53			2.22E+01	2.75E+01
	33	1400.94	1.85E+01	15.80			1.85E+01	1.58E+01
	34	1426.33	1.16E+01	14.75			1.16E+01	1.47E+01
M	35	1461.37	7.50E+02	54.74	7.31E+00	2.50E+00	7.42E+02	5.48E+01
m	36	1466.11	2.72E+01	41.38			2.72E+01	4.14E+01
	37	1515.00	1.20E+01	11.18			1.20E+01	1.12E+01
	38	1593.63	1.86E+01	12.70			1.86E+01	1.27E+01
	39	1730.22	1.16E+01	10.23			1.16E+01	1.02E+01
	40	1765.26	3.84E+01	17.20			3.84E+01	1.72E+01
	41	2104.72	8.91E+00	8.02			8.91E+00	8.02E+00
	42	2237.47	4.50E+00	5.74			4.50E+00	5.74E+00
	43	2368.70	9.63E+00	8.26			9.63E+00	8.26E+00
	44	2615.52	9.20E+01	19.18	5.15E+00	1.56E+00	8.69E+01	1.92E+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 1707077-12

HTC-A01-S002-0006-01

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	0.951	1460.81	*	10.67	1.43E+01	1.64E+00
NB-95	0.862	765.79	*	99.81	2.56E-01	2.60E-01
TL-208	0.937	583.14	*	30.22	6.38E-01	1.76E-01
		860.37	*	4.48	8.08E-01	9.29E-01
		2614.66	*	35.85	7.55E-01	1.84E-01
BI-212	0.683	727.17	*	11.80	5.36E-01	4.03E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	7.91E-01	1.01E-01
		300.09	*	3.41	1.05E+00	8.57E-01
BI-214	0.886	609.31	*	46.30	5.05E-01	1.16E-01
		1120.29	*	15.10	6.81E-01	4.02E-01
		1764.49	*	15.80	5.73E-01	2.61E-01
		2204.22		4.98		
PB-214	0.999	295.21	*	19.19	6.65E-01	1.64E-01
		351.92	*	37.19	5.62E-01	9.96E-02
RA-224	0.911	240.98	*	3.95	1.84E+00	8.99E-01
RA-226	0.980	186.21	*	3.28	1.55E+00	3.04E+00
AC-228	0.982	338.32	*	11.40	9.22E-01	3.50E-01
		911.07	*	27.70	8.34E-01	1.71E-01
		969.11	*	16.60	1.07E+00	2.99E-01
TH-234	0.990	63.29	*	3.80	1.53E+00	1.21E+00
CM-243	0.375	209.75	*	3.29	1.27E+00	1.01E+00
		228.14		10.60		
		277.60	*	14.00	2.44E-01	2.23E-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 1707077-12

HTC-A01-S002-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 10:03:43AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.01	1.76863E-01	8.81		
	3	92.46	4.16538E-02	33.20		
	8	270.03	2.61111E-02	27.78		
m	14	355.52	7.36310E-03	74.10	Tol.	BA-133
	15	410.04	1.11905E-02	52.74	Tol.	HO-166M
	16	463.15	9.67812E-03	55.65	Sum	
	17	511.07	3.16668E-02	22.02		
	22	794.78	5.72917E-03	56.85	Sum	
	23	825.82	4.32099E-03	52.82	Sum	
M	25	907.31	6.71708E-03	43.53		
	27	925.20	7.11686E-03	44.31		
	28	933.86	4.98818E-03	52.76		
M	29	964.66	7.71601E-03	36.67	Tol.	EU-152
	32	1237.82	6.15677E-03	62.10		
	33	1400.94	5.13889E-03	42.69		
	34	1426.33	3.21759E-03	63.66		
m	36	1466.11	7.56117E-03	76.00		
	37	1515.00	3.33333E-03	46.58		
	38	1593.63	5.16667E-03	34.14	D-Esc	
	39	1730.22	3.21895E-03	44.16	Sum	
	41	2104.72	2.47475E-03	44.99	S-Esc	
	42	2237.47	1.25000E-03	63.83		
	43	2368.70	2.67361E-03	42.92		

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 1707077-12

HTC-A01-S002-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.95	1460.81	*	10.67	1.43E+01	1.64E+00
NB-95	0.86	765.79	*	99.81	2.56E-01	2.60E-01
TL-208	0.93	583.14	*	30.22	6.38E-01	1.76E-01
		860.37	*	4.48	8.08E-01	9.29E-01
		2614.66	*	35.85	7.55E-01	1.84E-01
BI-212	0.68	727.17	*	11.80	5.36E-01	4.03E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	7.91E-01	1.01E-01
		300.09	*	3.41	1.05E+00	8.57E-01
BI-214	0.88	609.31	*	46.30	5.05E-01	1.16E-01
		1120.29	*	15.10	6.81E-01	4.02E-01
		1764.49	*	15.80	5.73E-01	2.61E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	6.65E-01	1.64E-01
		351.92	*	37.19	5.62E-01	9.96E-02
RA-224	0.91	240.98	*	3.95	1.84E+00	8.99E-01
RA-226	0.98	186.21	*	3.28	1.55E+00	3.04E+00
AC-228	0.98	338.32	*	11.40	9.22E-01	3.50E-01
		911.07	*	27.70	8.34E-01	1.71E-01
		969.11	*	16.60	1.07E+00	2.99E-01
TH-234	0.99	63.29	*	3.80	1.53E+00	1.21E+00
CM-243	0.37	209.75	*	3.29	1.27E+00	1.01E+00
		228.14		10.60		
		277.60	*	14.00	2.44E-01	2.23E-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	0.951	1.43E+01	1.64E+00	
NB-95	0.862	2.56E-01	2.60E-01	
TL-208	0.937	6.96E-01	1.26E-01	

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-212	0.683	5.36E-01	4.03E-01	
PB-212	0.999	7.94E-01	1.01E-01	
BI-214	0.886	5.27E-01	1.02E-01	
PB-214	0.999	5.89E-01	8.51E-02	
RA-224	0.911	1.84E+00	8.99E-01	
RA-226	0.980	1.55E+00	3.04E+00	
AC-228	0.982	8.96E-01	1.37E-01	
TH-234	0.990	1.53E+00	1.21E+00	
CM-243	0.375	2.91E-01	2.17E-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 1707077-12

HTC-A01-S002-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 10:03:43AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.01	1.76863E-01	8.81		
	3	92.46	4.16538E-02	33.20		
	8	270.03	2.61111E-02	27.78		
m	14	355.52	7.36310E-03	74.10	Tol.	BA-133
	15	410.04	1.11905E-02	52.74	Tol.	HO-166M
	16	463.15	9.67812E-03	55.65	Sum	
	17	511.07	3.16668E-02	22.02		
	22	794.78	5.72917E-03	56.85	Sum	
	23	825.82	4.32099E-03	52.82	Sum	
M	25	907.31	6.71708E-03	43.53		
	27	925.20	7.11686E-03	44.31		
	28	933.86	4.98818E-03	52.76		
M	29	964.66	7.71601E-03	36.67	Tol.	EU-152
	32	1237.82	6.15677E-03	62.10		
	33	1400.94	5.13889E-03	42.69		
	34	1426.33	3.21759E-03	63.66		
m	36	1466.11	7.56117E-03	76.00		
	37	1515.00	3.33333E-03	46.58		
	38	1593.63	5.16667E-03	34.14	D-Esc	
	39	1730.22	3.21895E-03	44.16	Sum	
	41	2104.72	2.47475E-03	44.99	S-Esc	
	42	2237.47	1.25000E-03	63.83		
	43	2368.70	2.67361E-03	42.92		

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 1707077-12

HTC-A01-S002-0006-01

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	-2.90E-01	1.32E+00	1.32E+00
+	NA-22	1274.54		99.94	-2.71E-02	5.54E-02	5.54E-02
+	@ 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	7.21E-03	4.19E-02	4.19E-02
+	K-40	1460.81	*	10.67	1.43E+01	3.93E-01	3.93E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-5.07E-03	4.58E-02	4.58E-02
		78.34		96.00	7.52E-02		5.46E-02
+	SC-46	889.25		99.98	-5.06E-02	8.94E-02	8.94E-02
		1120.51		99.99	1.65E-01		1.74E-01
+	V-48	983.52		99.98	1.39E+00	2.83E+00	2.83E+00
		1312.10		97.50	5.88E-01		3.21E+00
+	CR-51	320.08		9.83	4.89E-01	4.26E+00	4.26E+00
+	MN-54	834.83		99.97	-8.67E-03	6.33E-02	6.33E-02
+	CO-56	846.75		99.96	-1.38E-02	1.10E-01	1.10E-01
		1037.75		14.03	-1.02E-01		8.51E-01
		1238.25		67.00	1.02E-01		2.37E-01
		1771.40		15.51	8.13E-02		6.72E-01
		2598.48		16.90	-1.25E-01		5.87E-01
+	CO-57	122.06		85.51	8.75E-04	5.16E-02	5.16E-02
		136.48		10.60	-2.01E-01		4.12E-01
+	CO-58	810.76		99.40	-4.53E-02	1.16E-01	1.16E-01
+	FE-59	1099.22		56.50	1.29E-01	4.78E-01	4.78E-01
		1291.56		43.20	2.77E-02		4.88E-01
+	CO-60	1173.22		100.00	-7.55E-03	5.53E-02	6.46E-02
		1332.49		100.00	1.17E-02		5.53E-02
+	ZN-65	1115.52		50.75	9.26E-03	1.46E-01	1.46E-01
+	GA-67	93.31		35.70	7.77E+07	4.94E+07	4.94E+07
		208.95		2.24	4.64E+08		6.82E+08
		300.22		16.00	-1.41E+08		1.05E+08
+	SE-75	121.11		16.70	1.12E-01	9.96E-02	3.58E-01
		136.00		59.20	-4.86E-02		9.96E-02
		264.65		59.80	-4.31E-03		1.15E-01
		279.53		25.20	1.30E-01		2.96E-01
		400.65		11.40	-1.83E-01		5.89E-01
+	RB-82	776.52		13.00	-1.06E+00	4.27E+00	4.27E+00
+	RB-83	520.41		46.00	1.65E-02	1.97E-01	1.97E-01
		529.64		30.30	-1.40E-01		2.79E-01
		552.65		16.40	7.17E-02		5.43E-01
+	KR-85	513.99		0.43	1.81E+01	1.50E+01	1.50E+01
+	SR-85	513.99		99.27	2.10E-01	1.74E-01	1.74E-01

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-4.70E-03	5.85E-02	8.63E-02
		1836.01		99.38	-8.92E-03		5.85E-02
+	MO-93	263.06		56.72	-1.64E-02	3.71E-02	7.28E-02
		684.67		99.68	6.69E-03		4.76E-02
		1477.11		99.08	-7.02E-03		3.71E-02
+	NB-93M	16.57		9.43	-6.24E-02	4.25E-01	4.25E-01
+	NB-94	702.63		100.00	-6.56E-03	4.72E-02	4.90E-02
		871.10		100.00	5.72E-03		4.72E-02
+	NB-95	765.79	*	99.81	2.56E-01	4.20E-01	4.20E-01
+	NB-95M	235.69		25.00	-5.35E+07	1.07E+07	1.07E+07
+	ZR-95	724.18		43.70	-4.15E-02	2.70E-01	3.33E-01
		756.72		55.30	1.40E-01		2.70E-01
+	MO-99	181.06		6.20	1.40E+09	5.80E+09	8.50E+09
		739.58		12.80	2.46E+08		5.80E+09
		778.00		4.50	-2.13E+08		1.45E+10
+	RU-103	497.08		89.00	-1.02E-01	2.44E-01	2.44E-01
+	RU-106	621.84		9.80	1.93E-01	5.46E-01	5.46E-01
+	AG-108M	433.93		89.90	-1.03E-02	4.60E-02	4.60E-02
		614.37		90.40	-5.23E-04		5.25E-02
		722.95		90.50	-4.02E-03		5.35E-02
+	CD-109	88.03		3.72	5.82E-01	1.41E+00	1.41E+00
+	AG-110M	657.75		93.14	-2.25E-02	6.69E-02	6.69E-02
		677.61		10.53	-2.93E-01		5.48E-01
		706.67		16.46	4.27E-02		3.84E-01
		763.93		21.98	-2.46E-01		3.03E-01
		884.67		71.63	3.17E-02		8.72E-02
		1384.27		23.94	-1.07E-01		2.83E-01
+	CD-113M	263.70		0.02	-1.11E+01	1.75E+02	1.75E+02
+	SN-113	255.12		1.93	3.83E-01	1.15E-01	3.24E+00
		391.69		64.90	-4.73E-02		1.15E-01
+	TE123M	159.00		84.10	-2.14E-02	7.08E-02	7.08E-02
+	SB-124	602.71		97.87	1.16E-02	1.41E-01	1.41E-01
		645.85		7.26	-2.69E-01		1.73E+00
		722.78		11.10	-9.55E-02		1.27E+00
		1691.02		49.00	-1.79E-02		2.16E-01
+	I-125	35.49		6.49	2.26E-01	1.74E+00	1.74E+00
+	SB-125	176.33		6.89	-1.86E-01	1.44E-01	5.16E-01
		427.89		29.33	4.23E-02		1.44E-01
		463.38		10.35	3.72E-01		5.06E-01
		600.56		17.80	3.59E-02		2.77E-01
		635.90		11.32	-1.40E-01		4.16E-01
+	SB-126	414.70		83.30	1.07E+00	8.71E+00	9.55E+00
		666.33		99.60	-5.29E+00		8.71E+00
		695.00		99.60	1.50E+00		9.17E+00
		720.50		53.80	1.46E+00		1.62E+01
+	SN-126	87.57		37.00	1.35E-02	1.20E-01	1.20E-01
+	SB-127	473.00		25.00	1.29E+06	2.43E+06	3.14E+06
		685.20		35.70	3.41E+05		2.43E+06

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	-8.18E+05	2.43E+06	5.72E+06
+	I-129	29.78	57.00	-1.01E-02	7.04E-02	7.04E-02
		33.60	13.20	1.13E-01		2.90E-01
		39.58	7.52	3.63E-02		5.05E-01
+	I-131	284.30	6.05	1.66E+02	1.43E+02	2.03E+03
		364.48	81.20	1.65E+00		1.43E+02
		636.97	7.26	3.46E+02		1.88E+03
		722.89	1.80	-6.10E+02		8.12E+03
+	TE-132	49.72	13.10	-8.87E+07	1.64E+07	1.00E+08
		228.16	88.00	4.78E+06		1.64E+07
+	BA-133	81.00	33.00	4.50E-03	8.80E-02	1.24E-01
		302.84	17.80	1.80E-01		2.50E-01
		356.01	60.00	-1.10E-01		8.80E-02
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	8.36E+02	2.30E+04	2.30E+04
+	CS-134	563.23	8.38	1.90E-01	6.06E-02	6.00E-01
		569.32	15.43	-7.98E-02		2.96E-01
		604.70	97.60	7.65E-03		6.06E-02
		795.84	85.40	1.91E-02		6.88E-02
		801.93	8.73	2.46E-01		6.53E-01
+	CS-135	268.24	16.00	2.61E-01	2.88E-01	2.88E-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	1.89E+00	6.46E+00	6.20E+01
		163.89	4.61	2.76E+01		1.04E+02
		176.55	13.56	-1.19E+01		3.29E+01
		273.65	12.66	-1.98E+01		4.73E+01
		340.57	48.50	2.16E+01		1.48E+01
		818.50	99.70	3.87E+00		6.46E+00
		1048.07	79.60	-1.90E+00		8.20E+00
		1235.34	19.70	1.61E+01		4.87E+01
+	CS-137	661.65	85.12	1.89E-02	6.31E-02	6.31E-02
+	LA-138	788.74	34.00	2.47E-02	6.38E-02	1.37E-01
		1435.80	66.00	-1.54E-03		6.38E-02
+	CE-139	165.85	80.35	-9.81E-03	6.96E-02	6.96E-02
+	BA-140	162.64	6.70	4.71E+01	2.62E+01	8.36E+01
		304.84	4.50	-9.26E+00		1.30E+02
		423.70	3.20	1.07E+01		1.93E+02
		437.55	2.00	-2.55E-01		3.34E+02
		537.32	25.00	-6.68E-01		2.62E+01
+	LA-140	328.77	20.50	2.91E+01	7.34E+00	3.60E+01
		487.03	45.50	-7.30E-01		1.52E+01
		815.85	23.50	-7.07E+00		3.01E+01
		1596.49	95.49	-5.31E-01		7.34E+00
+	CE-141	145.44	48.40	4.25E-01	5.60E-01	5.60E-01
+	@ 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

Analysis Report for 1707077-12

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	-2.09E-02	4.10E-01	4.10E-01
+	PM-144	476.78	42.00	-2.11E-02	4.83E-02	1.18E-01
		618.01	98.60	-2.52E-02		4.83E-02
		696.49	99.49	1.75E-02		6.04E-02
+	PM-145	36.85	21.70	-7.32E-02	9.90E-02	1.78E-01
		37.36	39.70	4.27E-02		9.90E-02
		42.30	15.10	-1.77E-01		2.35E-01
		72.40	2.31	5.02E-01		2.12E+00
+	PM-146	453.90	39.94	-7.92E-03	1.07E-01	1.07E-01
		735.90	14.01	1.09E-01		3.36E-01
		747.13	13.10	-2.57E-01		3.64E-01
+	ND-147	91.11	28.90	9.21E+01	5.95E+01	5.95E+01
		531.02	13.10	-9.53E+00		1.10E+02
+	PM-149	285.90	3.10	-4.46E+11	5.90E+12	5.90E+12
+	EU-152	121.78	20.50	5.38E-02	1.73E-01	1.73E-01
		244.69	5.40	-8.91E-02		7.25E-01
		344.27	19.13	2.28E-02		2.16E-01
		778.89	9.20	-1.05E-01		4.72E-01
		964.01	10.40	-1.63E+00		6.32E-01
		1085.78	7.22	2.12E-01		7.64E-01
		1112.02	9.60	1.68E-02		6.04E-01
		1407.95	14.94	4.08E-02		2.90E-01
+	GD-153	97.43	31.30	6.35E-03	1.50E-01	1.50E-01
		103.18	22.20	9.89E-03		2.03E-01
+	EU-154	123.07	40.50	-1.26E-02	8.75E-02	8.75E-02
		723.30	19.70	-1.88E-02		2.50E-01
		873.19	11.50	-4.91E-02		4.06E-01
		996.32	10.30	-1.39E-01		4.72E-01
		1004.76	17.90	1.62E-01		3.06E-01
		1274.45	35.50	-7.27E-02		1.49E-01
+	EU-155	86.50	30.90	3.97E-02	1.49E-01	1.49E-01
		105.30	20.70	-5.65E-02		1.71E-01
+	EU-156	811.77	10.40	-1.19E+01	2.99E+01	2.99E+01
		1153.47	7.20	3.43E+01		6.23E+01
		1230.71	8.90	3.58E+00		4.96E+01
+	HO-166M	184.41	72.60	9.26E-02	6.20E-02	6.20E-02
		280.45	29.60	1.16E-04		1.44E-01
		410.94	11.10	3.01E-01		4.16E-01
		711.69	54.10	-2.58E-02		8.63E-02
+	TM-171	66.72	0.14	-1.96E+01	3.43E+01	3.43E+01
+	HF-172	67.35	5.31	-9.89E-02	3.41E-01	8.94E-01
		125.81	11.30	-2.81E-01		3.41E-01
+	LU-172	181.53	20.60	4.27E+02	1.37E+03	2.59E+03
		900.72	29.81	6.35E+02		2.22E+03
		1093.66	62.50	-1.02E+02		1.37E+03
+	LU-173	100.72	5.24	2.75E-01	2.45E-01	7.70E-01
		272.11	21.20	-6.31E-02		2.45E-01
+	HF-175	343.40	84.00	1.28E-02	1.25E-01	1.25E-01
+	LU-176	88.34	13.30	1.42E-01	4.13E-02	3.44E-01

Analysis Report for 1707077-12

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-1.92E-02	4.13E-02	4.20E-02
		306.78		94.00	3.86E-04		4.13E-02
+	HF-181	133.02		41.70	-1.97E-02	2.52E-01	3.87E-01
		345.85		17.20	1.15E-01		1.06E+00
		482.03		82.80	1.26E-01		2.52E-01
+	TA-182	67.75		41.20	-2.04E-02	1.84E-01	1.84E-01
		1121.30		34.90	4.14E-01		4.09E-01
		1189.05		16.23	-1.44E-01		6.51E-01
		1221.41		26.98	-3.07E-02		4.15E-01
		1231.02		11.44	7.04E-02		9.75E-01
+	IR-192	308.46		29.68	-9.80E-03	2.12E-01	3.11E-01
		468.07		48.10	1.67E-02		2.12E-01
+	HG-203	279.19		77.30	9.84E-02	2.25E-01	2.25E-01
+	TL-204	374.74		94.11	5.10E-03	4.50E-02	4.50E-02
		899.15		99.16	2.21E-02		4.83E-02
		911.74		91.10	1.91E-01		1.10E-01
+	BI-207	569.67		97.72	-3.11E-03	4.35E-02	4.35E-02
		1063.62		74.90	7.23E-03		7.80E-02
+	TL-208	583.14	*	30.22	6.38E-01	9.22E-02	2.30E-01
		860.37	*	4.48	8.08E-01		1.52E+00
		2614.66	*	35.85	7.55E-01		9.22E-02
+	BI-210M	262.00		45.00	3.37E-02	9.19E-02	9.19E-02
		300.00		23.00	-4.66E-01		1.99E-01
+	PB-210	46.50		4.25	5.54E-01	8.76E-01	8.76E-01
+	PB-211	404.84		2.90	-1.89E-01	1.38E+00	1.38E+00
		831.96		2.90	3.63E-01		1.73E+00
+	BI-212	727.17	*	11.80	5.36E-01	6.37E-01	6.37E-01
		1620.62		2.75	-1.33E-01		1.40E+00
+	PB-212	238.63	*	44.60	7.91E-01	1.75E-01	1.75E-01
		300.09	*	3.41	1.05E+00		2.61E+00
+	BI-214	609.31	*	46.30	5.05E-01	1.33E-01	1.33E-01
		1120.29	*	15.10	6.81E-01		6.18E-01
		1764.49	*	15.80	5.73E-01		3.33E-01
		2204.22		4.98	3.93E-01		1.39E+00
+	PB-214	295.21	*	19.19	6.65E-01	2.51E-01	4.57E-01
		351.92	*	37.19	5.62E-01		2.51E-01
+	RN-219	401.80		6.50	-1.05E-02	6.08E-01	6.08E-01
+	RA-223	323.87		3.88	-1.58E+00	1.02E+00	1.02E+00
+	RA-224	240.98	*	3.95	1.84E+00	1.97E+00	1.97E+00
+	RA-225	40.00		31.00	4.69E+00	9.54E+00	9.54E+00
+	RA-226	186.21	*	3.28	1.55E+00	1.71E+00	1.71E+00
+	TH-227	50.10		8.40	-6.61E-01	3.98E-01	3.98E-01
		236.00		11.50	-2.06E+00		4.11E-01
		256.20		6.30	2.36E-01		6.68E-01
+	AC-228	338.32	*	11.40	9.22E-01	3.06E-01	5.21E-01
		911.07	*	27.70	8.34E-01		3.06E-01
		969.11	*	16.60	1.07E+00		5.20E-01
+	TH-230	48.44		16.90	1.12E-01	2.16E-01	2.16E-01

Analysis Report for 1707077-12

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	3.04E-01	2.16E-01	9.97E-01
		67.67		0.37	-1.29E+00		1.17E+01
+	PA-231	283.67		1.60	-6.33E-01	1.90E+00	2.51E+00
		302.67		2.30	1.37E+00		1.90E+00
+	TH-231	25.64		14.70	-2.85E+00	3.69E-01	3.69E-01
		84.21		6.40	-2.20E-01		6.61E-01
+	PA-233	311.98		38.60	2.57E-01	1.16E+00	1.16E+00
+	PA-234	131.20		20.40	8.89E-02	1.83E-01	1.83E-01
		733.99		8.80	-2.76E-02		5.17E-01
		946.00		12.00	-6.77E-02		3.91E-01
+	PA-234M	1001.03		0.92	1.79E+00	5.81E+00	5.81E+00
+	TH-234	63.29	*	3.80	1.53E+00	1.96E+00	1.96E+00
+	U-235	143.76		10.50	9.94E-02	3.58E-01	3.58E-01
		163.35		4.70	2.02E-01		7.64E-01
		205.31		4.70	-7.78E-02		7.60E-01
+	NP-237	86.50		12.60	9.40E-02	3.52E-01	3.52E-01
+	NP-239	106.10		22.70	1.64E+10	1.19E+11	1.19E+11
		228.18		10.70	7.74E+10		2.65E+11
		277.60		14.10	1.71E+11		2.40E+11
+	AM-241	59.54		35.90	-7.70E-02	1.11E-01	1.11E-01
+	AM-243	74.67		66.00	-6.05E-02	8.39E-02	8.39E-02
+	CM-243	209.75	*	3.29	1.27E+00	3.53E-01	1.63E+00
		228.14		10.60	1.03E-01		3.53E-01
		277.60	*	14.00	2.44E-01		3.60E-01

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.32E+00	1.32E+00	-2.90E-01	6.21E-01
	NA-22	1274.54		99.94	5.54E-02	5.54E-02	-2.71E-02	2.50E-02
@	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	4.19E-02	4.19E-02	7.21E-03	1.77E-02
+	K-40	1460.81	*	10.67	3.93E-01	3.93E-01	1.43E+01	1.70E-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	4.58E-02	4.58E-02	-5.07E-03	2.24E-02
		78.34		96.00	5.46E-02		7.52E-02	2.68E-02
	SC-46	889.25		99.98	8.94E-02	8.94E-02	-5.06E-02	4.05E-02
		1120.51		99.99	1.74E-01		1.65E-01	8.21E-02
	V-48	983.52		99.98	2.83E+00	2.83E+00	1.39E+00	1.30E+00
		1312.10		97.50	3.21E+00		5.88E-01	1.45E+00
	CR-51	320.08		9.83	4.26E+00	4.26E+00	4.89E-01	2.04E+00
	MN-54	834.83		99.97	6.33E-02	6.33E-02	-8.67E-03	2.94E-02
	CO-56	846.75		99.96	1.10E-01	1.10E-01	-1.38E-02	5.08E-02
		1037.75		14.03	8.51E-01		-1.02E-01	3.90E-01
		1238.25		67.00	2.37E-01		1.02E-01	1.10E-01
		1771.40		15.51	6.72E-01		8.13E-02	2.89E-01
		2598.48		16.90	5.87E-01		-1.25E-01	2.37E-01
	CO-57	122.06		85.51	5.16E-02	5.16E-02	8.75E-04	2.50E-02
		136.48		10.60	4.12E-01		-2.01E-01	1.99E-01
	CO-58	810.76		99.40	1.16E-01	1.16E-01	-4.53E-02	5.36E-02
	FE-59	1099.22		56.50	4.78E-01	4.78E-01	1.29E-01	2.22E-01
		1291.56		43.20	4.88E-01		2.77E-02	2.19E-01
	CO-60	1173.22		100.00	6.46E-02	5.53E-02	-7.55E-03	2.99E-02
		1332.49		100.00	5.53E-02		1.17E-02	2.50E-02
	ZN-65	1115.52		50.75	1.46E-01	1.46E-01	9.26E-03	6.69E-02
	GA-67	93.31		35.70	4.94E+07	4.94E+07	7.77E+07	2.41E+07
		208.95		2.24	6.82E+08		4.64E+08	3.29E+08
		300.22		16.00	1.05E+08		-1.41E+08	5.05E+07
	SE-75	121.11		16.70	3.58E-01	9.96E-02	1.12E-01	1.74E-01
		136.00		59.20	9.96E-02		-4.86E-02	4.82E-02
		264.65		59.80	1.15E-01		-4.31E-03	5.54E-02
		279.53		25.20	2.96E-01		1.30E-01	1.43E-01
		400.65		11.40	5.89E-01		-1.83E-01	2.79E-01
	RB-82	776.52		13.00	4.27E+00	4.27E+00	-1.06E+00	1.97E+00
	RB-83	520.41		46.00	1.97E-01	1.97E-01	1.65E-02	9.28E-02
		529.64		30.30	2.79E-01		-1.40E-01	1.30E-01
		552.65		16.40	5.43E-01		7.17E-02	2.54E-01
	KR-85	513.99		0.43	1.50E+01	1.50E+01	1.81E+01	7.18E+00
	SR-85	513.99		99.27	1.74E-01	1.74E-01	2.10E-01	8.34E-02
	Y-88	898.02		93.40	8.63E-02	5.85E-02	-4.70E-03	3.93E-02
		1836.01		99.38	5.85E-02		-8.92E-03	2.32E-02
	MO-93	263.06		56.72	7.28E-02	3.71E-02	-1.64E-02	3.50E-02
		684.67		99.68	4.76E-02		6.69E-03	2.22E-02
		1477.11		99.08	3.71E-02		-7.02E-03	1.57E-02
	NB-93M	16.57		9.43	4.25E-01	4.25E-01	-6.24E-02	1.99E-01
	NB-94	702.63		100.00	4.90E-02	4.72E-02	-6.56E-03	2.29E-02
		871.10		100.00	4.72E-02		5.72E-03	2.17E-02
+	NB-95	765.79	*	99.81	4.20E-01	4.20E-01	2.56E-01	1.99E-01
	NB-95M	235.69		25.00	1.07E+07	1.07E+07	-5.35E+07	5.16E+06
	ZR-95	724.18		43.70	3.33E-01	2.70E-01	-4.15E-02	1.56E-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)
ZR-95	756.72	55.30	2.70E-01	2.70E-01	1.40E-01	1.27E-01
MO-99	181.06	6.20	8.50E+09	5.80E+09	1.40E+09	4.10E+09
	739.58	12.80	5.80E+09		2.46E+08	2.70E+09
	778.00	4.50	1.45E+10		-2.13E+08	6.65E+09
RU-103	497.08	89.00	2.44E-01	2.44E-01	-1.02E-01	1.15E-01
RU-106	621.84	9.80	5.46E-01	5.46E-01	1.93E-01	2.55E-01
AG-108M	433.93	89.90	4.60E-02	4.60E-02	-1.03E-02	2.17E-02
	614.37	90.40	5.25E-02		-5.23E-04	2.47E-02
	722.95	90.50	5.35E-02		-4.02E-03	2.49E-02
CD-109	88.03	3.72	1.41E+00	1.41E+00	5.82E-01	6.92E-01
AG-110M	657.75	93.14	6.69E-02	6.69E-02	-2.25E-02	3.13E-02
	677.61	10.53	5.48E-01		-2.93E-01	2.55E-01
	706.67	16.46	3.84E-01		4.27E-02	1.79E-01
	763.93	21.98	3.03E-01		-2.46E-01	1.42E-01
	884.67	71.63	8.72E-02		3.17E-02	4.01E-02
	1384.27	23.94	2.83E-01		-1.07E-01	1.27E-01
CD-113M	263.70	0.02	1.75E+02	1.75E+02	-1.11E+01	8.43E+01
SN-113	255.12	1.93	3.24E+00	1.15E-01	3.83E-01	1.55E+00
	391.69	64.90	1.15E-01		-4.73E-02	5.46E-02
TE123M	159.00	84.10	7.08E-02	7.08E-02	-2.14E-02	3.42E-02
SB-124	602.71	97.87	1.41E-01	1.41E-01	1.16E-02	6.62E-02
	645.85	7.26	1.73E+00		-2.69E-01	8.03E-01
	722.78	11.10	1.27E+00		-9.55E-02	5.92E-01
	1691.02	49.00	2.16E-01		-1.79E-02	8.95E-02
I-125	35.49	6.49	1.74E+00	1.74E+00	2.26E-01	8.43E-01
SB-125	176.33	6.89	5.16E-01	1.44E-01	-1.86E-01	2.48E-01
	427.89	29.33	1.44E-01		4.23E-02	6.81E-02
	463.38	10.35	5.06E-01		3.72E-01	2.41E-01
	600.56	17.80	2.77E-01		3.59E-02	1.30E-01
	635.90	11.32	4.16E-01		-1.40E-01	1.94E-01
SB-126	414.70	83.30	9.55E+00	8.71E+00	1.07E+00	4.54E+00
	666.33	99.60	8.71E+00		-5.29E+00	4.07E+00
	695.00	99.60	9.17E+00		1.50E+00	4.29E+00
	720.50	53.80	1.62E+01		1.46E+00	7.54E+00
SN-126	87.57	37.00	1.20E-01	1.20E-01	1.35E-02	5.89E-02
SB-127	473.00	25.00	3.14E+06	2.43E+06	1.29E+06	1.48E+06
	685.20	35.70	2.43E+06		3.41E+05	1.13E+06
	783.80	14.70	5.72E+06		-8.18E+05	2.64E+06
I-129	29.78	57.00	7.04E-02	7.04E-02	-1.01E-02	3.39E-02
	33.60	13.20	2.90E-01		1.13E-01	1.40E-01
	39.58	7.52	5.05E-01		3.63E-02	2.44E-01
I-131	284.30	6.05	2.03E+03	1.43E+02	1.66E+02	9.74E+02
	364.48	81.20	1.43E+02		1.65E+00	6.81E+01
	636.97	7.26	1.88E+03		3.46E+02	8.78E+02
	722.89	1.80	8.12E+03		-6.10E+02	3.78E+03
TE-132	49.72	13.10	1.00E+08	1.64E+07	-8.87E+07	4.84E+07
	228.16	88.00	1.64E+07		4.78E+06	7.87E+06
BA-133	81.00	33.00	1.24E-01	8.80E-02	4.50E-03	6.04E-02
	302.84	17.80	2.50E-01		1.80E-01	1.20E-01
	356.01	60.00	8.80E-02		-1.10E-01	4.24E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	2.30E+04	2.30E+04	8.36E+02	1.12E+04
CS-134	563.23	8.38	6.00E-01	6.06E-02	1.90E-01	2.82E-01

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	2.96E-01	6.06E-02	-7.98E-02	1.39E-01
	604.70	97.60	6.06E-02		7.65E-03	2.87E-02
	795.84	85.40	6.88E-02		1.91E-02	3.21E-02
	801.93	8.73	6.53E-01		2.46E-01	3.04E-01
CS-135	268.24	16.00	2.88E-01	2.88E-01	2.61E-01	1.39E-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	6.20E+01	6.46E+00	1.89E+00	2.99E+01
	163.89	4.61	1.04E+02		2.76E+01	5.04E+01
	176.55	13.56	3.29E+01		-1.19E+01	1.58E+01
	273.65	12.66	4.73E+01		-1.98E+01	2.28E+01
	340.57	48.50	1.48E+01		2.16E+01	7.16E+00
	818.50	99.70	6.46E+00		3.87E+00	2.99E+00
	1048.07	79.60	8.20E+00		-1.90E+00	3.74E+00
	1235.34	19.70	4.87E+01		1.61E+01	2.27E+01
CS-137	661.65	85.12	6.31E-02	6.31E-02	1.89E-02	2.97E-02
LA-138	788.74	34.00	1.37E-01	6.38E-02	2.47E-02	6.31E-02
	1435.80	66.00	6.38E-02		-1.54E-03	2.78E-02
CE-139	165.85	80.35	6.96E-02	6.96E-02	-9.81E-03	3.36E-02
BA-140	162.64	6.70	8.36E+01	2.62E+01	4.71E+01	4.04E+01
	304.84	4.50	1.30E+02		-9.26E+00	6.19E+01
	423.70	3.20	1.93E+02		1.07E+01	9.10E+01
	437.55	2.00	3.34E+02		-2.55E-01	1.59E+02
	537.32	25.00	2.62E+01		-6.68E-01	1.23E+01
LA-140	328.77	20.50	3.60E+01	7.34E+00	2.91E+01	1.73E+01
	487.03	45.50	1.52E+01		-7.30E-01	7.17E+00
	815.85	23.50	3.01E+01		-7.07E+00	1.38E+01
	1596.49	95.49	7.34E+00		-5.31E-01	3.19E+00
CE-141	145.44	48.40	5.60E-01	5.60E-01	4.25E-01	2.71E-01
@ 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	4.10E-01	4.10E-01	-2.09E-02	1.99E-01
PM-144	476.78	42.00	1.18E-01	4.83E-02	-2.11E-02	5.57E-02
	618.01	98.60	4.83E-02		-2.52E-02	2.24E-02
	696.49	99.49	6.04E-02		1.75E-02	2.83E-02
PM-145	36.85	21.70	1.78E-01	9.90E-02	-7.32E-02	8.58E-02
	37.36	39.70	9.90E-02		4.27E-02	4.79E-02
	42.30	15.10	2.35E-01		-1.77E-01	1.14E-01
	72.40	2.31	2.12E+00		5.02E-01	1.04E+00
PM-146	453.90	39.94	1.07E-01	1.07E-01	-7.92E-03	5.04E-02
	735.90	14.01	3.36E-01		1.09E-01	1.56E-01
	747.13	13.10	3.64E-01		-2.57E-01	1.69E-01
ND-147	91.11	28.90	5.95E+01	5.95E+01	9.21E+01	2.91E+01
	531.02	13.10	1.10E+02		-9.53E+00	5.13E+01
PM-149	285.90	3.10	5.90E+12	5.90E+12	-4.46E+11	2.83E+12
EU-152	121.78	20.50	1.73E-01	1.73E-01	5.38E-02	8.38E-02
	244.69	5.40	7.25E-01		-8.91E-02	3.48E-01
	344.27	19.13	2.16E-01		2.28E-02	1.03E-01
	778.89	9.20	4.72E-01		-1.05E-01	2.17E-01
	964.01	10.40	6.32E-01		-1.63E+00	2.96E-01
	1085.78	7.22	7.64E-01		2.12E-01	3.51E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	6.04E-01	1.73E-01	1.68E-02	2.78E-01
		1407.95		14.94	2.90E-01		4.08E-02	1.26E-01
	GD-153	97.43		31.30	1.50E-01	1.50E-01	6.35E-03	7.28E-02
		103.18		22.20	2.03E-01		9.89E-03	9.86E-02
	EU-154	123.07		40.50	8.75E-02	8.75E-02	-1.26E-02	4.24E-02
		723.30		19.70	2.50E-01		-1.88E-02	1.17E-01
		873.19		11.50	4.06E-01		-4.91E-02	1.86E-01
		996.32		10.30	4.72E-01		-1.39E-01	2.15E-01
		1004.76		17.90	3.06E-01		1.62E-01	1.41E-01
		1274.45		35.50	1.49E-01		-7.27E-02	6.71E-02
	EU-155	86.50		30.90	1.49E-01	1.49E-01	3.97E-02	7.27E-02
		105.30		20.70	1.71E-01		-5.65E-02	8.31E-02
	EU-156	811.77		10.40	2.99E+01	2.99E+01	-1.19E+01	1.37E+01
		1153.47		7.20	6.23E+01		3.43E+01	2.89E+01
		1230.71		8.90	4.96E+01		3.58E+00	2.29E+01
	HO-166M	184.41		72.60	6.20E-02	6.20E-02	9.26E-02	3.01E-02
		280.45		29.60	1.44E-01		1.16E-04	6.93E-02
		410.94		11.10	4.16E-01		3.01E-01	1.98E-01
		711.69		54.10	8.63E-02		-2.58E-02	4.01E-02
	TM-171	66.72		0.14	3.43E+01	3.43E+01	-1.96E+01	1.68E+01
	HF-172	67.35		5.31	8.94E-01	3.41E-01	-9.89E-02	4.36E-01
		125.81		11.30	3.41E-01		-2.81E-01	1.65E-01
	LU-172	181.53		20.60	2.59E+03	1.37E+03	4.27E+02	1.25E+03
		900.72		29.81	2.22E+03		6.35E+02	1.01E+03
		1093.66		62.50	1.37E+03		-1.02E+02	6.32E+02
	LU-173	100.72		5.24	7.70E-01	2.45E-01	2.75E-01	3.74E-01
		272.11		21.20	2.45E-01		-6.31E-02	1.18E-01
	HF-175	343.40		84.00	1.25E-01	1.25E-01	1.28E-02	5.95E-02
	LU-176	88.34		13.30	3.44E-01	4.13E-02	1.42E-01	1.68E-01
		201.83		86.00	4.20E-02		-1.92E-02	2.02E-02
		306.78		94.00	4.13E-02		3.86E-04	1.97E-02
	HF-181	133.02		41.70	3.87E-01	2.52E-01	-1.97E-02	1.87E-01
		345.85		17.20	1.06E+00		1.15E-01	5.05E-01
		482.03		82.80	2.52E-01		1.26E-01	1.19E-01
	TA-182	67.75		41.20	1.84E-01	1.84E-01	-2.04E-02	8.98E-02
		1121.30		34.90	4.09E-01		4.14E-01	1.93E-01
		1189.05		16.23	6.51E-01		-1.44E-01	2.99E-01
		1221.41		26.98	4.15E-01		-3.07E-02	1.92E-01
		1231.02		11.44	9.75E-01		7.04E-02	4.50E-01
	IR-192	308.46		29.68	3.11E-01	2.12E-01	-9.80E-03	1.49E-01
		468.07		48.10	2.12E-01		1.67E-02	1.00E-01
	HG-203	279.19		77.30	2.25E-01	2.25E-01	9.84E-02	1.08E-01
	TL-204	374.74		94.11	4.50E-02	4.50E-02	5.10E-03	2.14E-02
		899.15		99.16	4.83E-02		2.21E-02	2.21E-02
		911.74		91.10	1.10E-01		1.91E-01	5.25E-02
	BI-207	569.67		97.72	4.35E-02	4.35E-02	-3.11E-03	2.03E-02
		1063.62		74.90	7.80E-02		7.23E-03	3.60E-02
+	TL-208	583.14	*	30.22	2.30E-01	9.22E-02	6.38E-01	1.10E-01
		860.37	*	4.48	1.52E+00		8.08E-01	7.16E-01
		2614.66	*	35.85	9.22E-02		7.55E-01	3.43E-02
	BI-210M	262.00		45.00	9.19E-02	9.19E-02	3.37E-02	4.42E-02
		300.00		23.00	1.99E-01		-4.66E-01	9.57E-02
	PB-210	46.50		4.25	8.76E-01	8.76E-01	5.54E-01	4.25E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	1.38E+00	1.38E+00	-1.89E-01	6.51E-01
		831.96		2.90	1.73E+00		3.63E-01	8.00E-01
+	BI-212	727.17	*	11.80	6.37E-01	6.37E-01	5.36E-01	3.04E-01
		1620.62		2.75	1.40E+00		-1.33E-01	5.93E-01
+	PB-212	238.63	*	44.60	1.75E-01	1.75E-01	7.91E-01	8.58E-02
		300.09	*	3.41	2.61E+00		1.05E+00	1.28E+00
+	BI-214	609.31	*	46.30	1.33E-01	1.33E-01	5.05E-01	6.35E-02
		1120.29	*	15.10	6.18E-01		6.81E-01	2.94E-01
		1764.49	*	15.80	3.33E-01		5.73E-01	1.46E-01
		2204.22		4.98	1.39E+00		3.93E-01	6.18E-01
+	PB-214	295.21	*	19.19	4.57E-01	2.51E-01	6.65E-01	2.24E-01
		351.92	*	37.19	2.51E-01		5.62E-01	1.23E-01
	RN-219	401.80		6.50	6.08E-01	6.08E-01	-1.05E-02	2.88E-01
	RA-223	323.87		3.88	1.02E+00	1.02E+00	-1.58E+00	4.89E-01
+	RA-224	240.98	*	3.95	1.97E+00	1.97E+00	1.84E+00	9.65E-01
	RA-225	40.00		31.00	9.54E+00	9.54E+00	4.69E+00	4.62E+00
+	RA-226	186.21	*	3.28	1.71E+00	1.71E+00	1.55E+00	8.34E-01
	TH-227	50.10		8.40	3.98E-01	3.98E-01	-6.61E-01	1.92E-01
		236.00		11.50	4.11E-01		-2.06E+00	1.99E-01
		256.20		6.30	6.68E-01		2.36E-01	3.22E-01
+	AC-228	338.32	*	11.40	5.21E-01	3.06E-01	9.22E-01	2.52E-01
		911.07	*	27.70	3.06E-01		8.34E-01	1.46E-01
		969.11	*	16.60	5.20E-01		1.07E+00	2.48E-01
	TH-230	48.44		16.90	2.16E-01	2.16E-01	1.12E-01	1.05E-01
		62.85		4.60	9.97E-01		3.04E-01	4.87E-01
		67.67		0.37	1.17E+01		-1.29E+00	5.70E+00
	PA-231	283.67		1.60	2.51E+00	1.90E+00	-6.33E-01	1.20E+00
		302.67		2.30	1.90E+00		1.37E+00	9.14E-01
	TH-231	25.64		14.70	3.69E-01	3.69E-01	-2.85E+00	1.79E-01
		84.21		6.40	6.61E-01		-2.20E-01	3.22E-01
	PA-233	311.98		38.60	1.16E+00	1.16E+00	2.57E-01	5.55E-01
	PA-234	131.20		20.40	1.83E-01	1.83E-01	8.89E-02	8.86E-02
		733.99		8.80	5.17E-01		-2.76E-02	2.40E-01
		946.00		12.00	3.91E-01		-6.77E-02	1.79E-01
	PA-234M	1001.03		0.92	5.81E+00	5.81E+00	1.79E+00	2.68E+00
+	TH-234	63.29	*	3.80	1.96E+00	1.96E+00	1.53E+00	9.67E-01
	U-235	143.76		10.50	3.58E-01	3.58E-01	9.94E-02	1.74E-01
		163.35		4.70	7.64E-01		2.02E-01	3.69E-01
		205.31		4.70	7.60E-01		-7.78E-02	3.66E-01
	NP-237	86.50		12.60	3.52E-01	3.52E-01	9.40E-02	1.72E-01
	NP-239	106.10		22.70	1.19E+11	1.19E+11	1.64E+10	5.76E+10
		228.18		10.70	2.65E+11		7.74E+10	1.27E+11
		277.60		14.10	2.40E+11		1.71E+11	1.16E+11
	AM-241	59.54		35.90	1.11E-01	1.11E-01	-7.70E-02	5.42E-02
	AM-243	74.67		66.00	8.39E-02	8.39E-02	-6.05E-02	4.12E-02
+	CM-243	209.75	*	3.29	1.63E+00	3.53E-01	1.27E+00	7.93E-01
		228.14		10.60	3.53E-01		1.03E-01	1.70E-01
		277.60	*	14.00	3.60E-01		2.44E-01	1.74E-01

Analysis Report for 1707077-12

HTC-A01-S002-0006-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S002-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	1	68	74	75	170	519	108
25:	70	58	50	52	54	52	37	38
33:	48	54	53	61	51	61	58	70
41:	53	64	66	49	48	67	98	66
49:	60	62	56	55	60	99	67	70
57:	83	78	80	98	108	104	127	179
65:	117	136	116	109	112	101	114	123
73:	104	129	267	201	270	302	101	94
81:	99	101	94	117	116	93	139	176
89:	91	121	128	115	204	169	95	78
97:	86	69	87	69	73	66	80	58
105:	67	81	63	74	80	71	72	85
113:	62	58	67	80	47	59	48	69
121:	70	67	65	62	65	67	73	60
129:	86	92	64	68	69	68	65	50
137:	55	59	70	72	63	74	57	77
145:	79	57	64	59	44	50	55	51
153:	56	67	48	52	60	51	58	46
161:	55	58	65	55	55	47	45	60
169:	51	49	47	49	52	44	41	52
177:	39	52	39	50	52	50	49	45
185:	73	130	99	53	48	52	43	55
193:	51	53	38	50	42	54	58	40
201:	53	45	53	36	49	50	40	43
209:	60	71	57	46	31	33	56	40
217:	41	40	32	38	47	35	27	37
225:	36	26	48	41	37	40	43	49
233:	35	41	44	39	49	156	407	164
241:	63	102	69	42	33	34	29	27
249:	23	27	32	20	38	32	39	32
257:	26	37	37	30	33	27	33	23
265:	35	28	21	36	40	49	47	44
273:	31	22	27	35	36	44	27	32
281:	33	23	28	25	25	27	23	37
289:	22	29	25	36	20	30	101	112
297:	40	31	17	51	44	17	23	24
305:	22	20	25	16	18	28	21	23
313:	30	16	33	20	27	30	25	17
321:	19	16	27	20	18	24	25	54
329:	37	25	23	27	30	20	20	21
337:	33	56	81	34	26	27	18	18
345:	15	22	25	19	19	29	66	184
353:	99	27	17	33	14	18	18	14
361:	20	15	18	11	24	10	26	13

369:	24	16	16	18	11	20	18	19

Sample Title: HTC-A01-S002-0006-01

Channel								
377:	22	16	20	15	7	20	18	14
385:	21	20	16	28	24	19	17	17
393:	19	19	14	19	24	14	17	17
401:	12	12	16	17	15	13	12	22
409:	17	27	20	21	19	16	14	17
417:	20	20	19	17	14	12	13	13
425:	15	18	15	8	13	13	15	9
433:	13	21	17	11	17	16	22	19
441:	11	15	16	17	12	14	19	17
449:	16	13	14	11	10	13	21	12
457:	15	12	16	14	12	19	34	28
465:	15	12	14	13	11	14	19	14
473:	13	19	11	5	13	7	17	18
481:	17	12	12	18	14	15	11	14
489:	15	15	16	18	13	16	16	11
497:	9	14	8	13	15	15	14	14
505:	9	8	9	18	31	35	65	49
513:	33	11	15	15	9	10	12	14
521:	6	10	21	11	13	9	11	8
529:	9	12	11	7	12	13	16	7
537:	12	9	10	11	15	10	11	12
545:	8	15	7	6	11	9	12	8
553:	13	12	6	13	9	12	9	8
561:	14	11	16	15	14	8	10	10
569:	10	11	9	11	9	9	11	11
577:	10	12	14	11	11	34	110	82
585:	24	15	8	17	12	11	12	7
593:	7	9	9	10	8	4	16	12
601:	7	15	10	14	13	10	13	33
609:	108	108	27	3	15	10	11	6
617:	7	6	9	6	9	6	12	14
625:	13	9	9	10	11	5	13	8
633:	9	5	9	15	8	11	7	12
641:	11	6	8	6	6	10	7	11
649:	11	11	9	9	5	6	12	10
657:	8	8	6	11	18	25	12	8
665:	10	12	14	8	7	8	9	8
673:	10	14	9	13	13	3	8	7
681:	6	12	10	9	8	12	5	8
689:	10	9	5	10	15	9	7	9
697:	12	12	9	14	5	6	10	7
705:	14	12	14	7	6	7	9	10
713:	14	6	8	7	13	9	9	11
721:	2	12	7	12	6	13	25	29
729:	11	9	9	10	3	9	10	6
737:	7	8	11	7	6	13	13	11
745:	9	10	5	6	5	8	11	10
753:	7	7	13	12	12	9	12	11
761:	5	9	11	8	13	7	13	20
769:	13	8	9	14	6	7	8	8
777:	8	5	5	7	4	6	7	7
785:	8	9	7	5	13	6	4	6
793:	5	17	16	11	5	4	10	14

801:	6	7	8	7	11	12	5	9

Sample Title: HTC-A01-S002-0006-01

Channel								
809:	6	7	7	10	3	6	5	13
817:	5	4	10	5	9	3	5	3
825:	10	9	7	2	4	8	8	5
833:	10	14	5	10	7	6	12	7
841:	14	10	9	7	7	5	4	7
849:	11	8	8	4	7	5	13	6
857:	8	7	11	11	26	7	7	5
865:	7	4	8	6	8	10	3	5
873:	3	9	4	7	5	7	6	10
881:	5	6	6	9	6	7	6	3
889:	1	3	5	7	9	4	3	6
897:	6	6	6	3	6	6	3	4
905:	3	5	15	6	7	31	79	40
913:	9	10	9	10	9	7	8	8
921:	4	2	9	11	10	5	8	5
929:	5	3	5	6	9	14	7	6
937:	5	14	5	6	6	7	6	8
945:	3	6	4	5	6	6	6	5
953:	10	5	6	6	9	8	9	4
961:	7	4	9	16	18	7	13	27
969:	64	23	9	4	7	1	7	2
977:	5	6	3	7	8	7	5	3
985:	5	6	5	1	5	9	3	6
993:	4	4	8	4	5	5	6	4
1001:	12	8	8	3	8	3	4	4
1009:	3	5	8	4	5	6	8	7
1017:	5	12	4	5	6	4	6	7
1025:	6	6	10	9	8	9	2	11
1033:	6	7	6	9	7	7	5	1
1041:	6	5	7	5	2	6	3	6
1049:	2	6	10	5	7	2	3	10
1057:	7	4	6	11	8	3	2	5
1065:	11	10	6	10	6	4	8	7
1073:	8	5	7	5	6	8	9	5
1081:	7	5	7	2	6	6	8	8
1089:	2	5	9	3	6	9	9	5
1097:	11	6	5	14	12	5	7	3
1105:	7	3	4	8	9	5	5	6
1113:	7	9	4	6	7	5	16	24
1121:	18	12	11	8	9	4	4	7
1129:	4	4	10	4	2	7	8	8
1137:	5	8	7	7	5	6	7	7
1145:	7	4	3	6	7	6	4	11
1153:	9	4	11	10	2	5	10	5
1161:	4	7	9	3	5	10	9	8
1169:	12	5	7	10	9	5	6	8
1177:	5	7	9	10	8	6	10	5
1185:	10	6	7	8	6	6	5	7
1193:	9	6	3	3	11	6	7	6
1201:	4	8	5	9	5	10	10	6
1209:	12	8	3	8	12	3	8	10
1217:	8	5	5	9	7	10	5	8
1225:	7	5	5	10	6	7	7	7

1233:	6	8	6	9	14	12	9	5

Sample Title: HTC-A01-S002-0006-01

Channel								
1241:	4	6	5	5	5	9	7	4
1249:	2	7	5	1	5	6	7	5
1257:	6	2	8	4	6	3	4	1
1265:	4	2	4	4	9	2	7	2
1273:	5	1	4	6	4	7	6	6
1281:	4	4	4	4	4	3	4	2
1289:	3	4	3	3	6	5	6	1
1297:	3	4	3	1	6	4	7	3
1305:	3	4	3	3	7	8	3	6
1313:	1	4	6	2	4	4	6	1
1321:	5	9	3	5	2	6	4	1
1329:	1	4	6	6	4	4	4	3
1337:	5	1	4	3	2	2	7	3
1345:	4	3	3	1	2	3	5	3
1353:	4	1	0	7	2	0	3	1
1361:	2	3	0	3	2	1	2	3
1369:	1	2	2	4	3	3	5	3
1377:	7	8	4	8	4	3	4	3
1385:	6	2	4	5	4	1	1	1
1393:	2	4	2	1	3	3	3	7
1401:	9	2	3	1	2	2	2	3
1409:	4	2	3	1	1	3	2	4
1417:	2	1	2	2	3	1	3	5
1425:	4	5	2	1	3	0	2	1
1433:	0	2	4	4	2	2	4	3
1441:	2	2	4	2	0	2	4	2
1449:	2	3	1	5	0	1	2	2
1457:	6	13	60	263	272	104	21	6
1465:	12	6	2	1	3	0	0	2
1473:	2	1	2	1	1	2	1	1
1481:	4	0	2	2	1	3	1	1
1489:	2	4	1	1	1	5	3	2
1497:	4	6	0	2	1	2	0	3
1505:	2	2	3	4	3	0	2	2
1513:	2	6	3	4	0	2	0	3
1521:	1	3	1	1	1	0	3	0
1529:	0	3	0	3	2	2	3	0
1537:	0	5	0	1	2	1	2	1
1545:	3	2	1	0	0	0	0	2
1553:	0	2	2	2	2	1	1	2
1561:	0	1	3	0	1	0	1	1
1569:	2	2	0	2	1	0	0	2
1577:	2	2	1	6	1	3	0	2
1585:	1	1	3	6	5	0	7	5
1593:	7	4	2	0	0	0	2	1
1601:	2	2	2	1	1	0	1	2
1609:	0	2	0	1	0	1	2	2
1617:	3	1	2	1	1	1	1	2
1625:	1	2	4	1	2	1	4	3
1633:	1	0	2	1	1	3	2	1
1641:	1	1	1	2	1	0	2	2
1649:	2	1	2	1	2	1	0	1
1657:	0	2	0	2	2	3	3	0

1665:	0	4	1	1	2	0	0	0

Sample Title: HTC-A01-S002-0006-01

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

2097:	0	1	0	0	2	2	2	3

Sample Title: HTC-A01-S002-0006-01

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

2529:	1	1	0	1	0	0	0	0

Sample Title: HTC-A01-S002-0006-01

Channel								
2537:	0	1	0	1	1	2	0	1
2545:	1	0	0	0	0	1	0	0
2553:	1	1	0	1	2	0	0	0
2561:	0	0	0	0	0	0	1	1
2569:	0	0	0	0	0	0	0	0
2577:	1	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	1	1
2593:	0	1	2	1	0	0	2	0
2601:	0	1	1	1	0	1	0	0
2609:	0	0	1	16	29	29	10	4
2617:	2	1	0	0	0	0	1	0
2625:	0	0	0	0	1	2	0	0
2633:	0	1	0	0	0	2	0	0
2641:	0	0	0	1	1	0	0	0
2649:	0	1	0	0	0	2	0	0
2657:	0	0	1	0	0	1	0	0
2665:	0	0	0	0	0	0	1	0
2673:	0	1	0	0	0	0	0	0
2681:	0	0	1	0	0	0	1	0
2689:	0	0	1	0	0	2	1	0
2697:	0	1	0	0	0	0	0	0
2705:	0	0	0	0	0	0	0	1
2713:	0	0	0	0	1	0	0	0
2721:	1	1	0	0	0	0	1	0
2729:	3	0	0	0	0	0	0	0
2737:	0	1	0	0	0	0	1	1
2745:	0	0	0	0	0	1	0	0
2753:	0	1	0	0	2	0	0	0
2761:	0	0	1	2	0	0	0	0
2769:	0	0	0	0	1	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	1	0	0	0	0	0
2793:	0	1	1	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	1	0	0	0	0	0	0	1
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	1	1	0	2	0
2833:	1	0	1	0	0	0	0	0
2841:	1	0	0	0	0	0	2	0
2849:	0	1	0	1	0	0	0	0
2857:	1	0	0	0	0	0	0	0
2865:	1	0	0	2	0	0	0	0
2873:	1	0	0	1	0	1	0	0
2881:	0	0	1	0	0	0	0	2
2889:	0	0	0	1	0	0	0	2
2897:	0	0	0	0	0	0	0	1
2905:	0	1	0	0	0	0	0	0
2913:	0	1	1	0	1	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	1
2953:	0	0	0	1	0	0	0	1

2961:	0	1	0	1	0	0	0	0

Sample Title: HTC-A01-S002-0006-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-0006-01

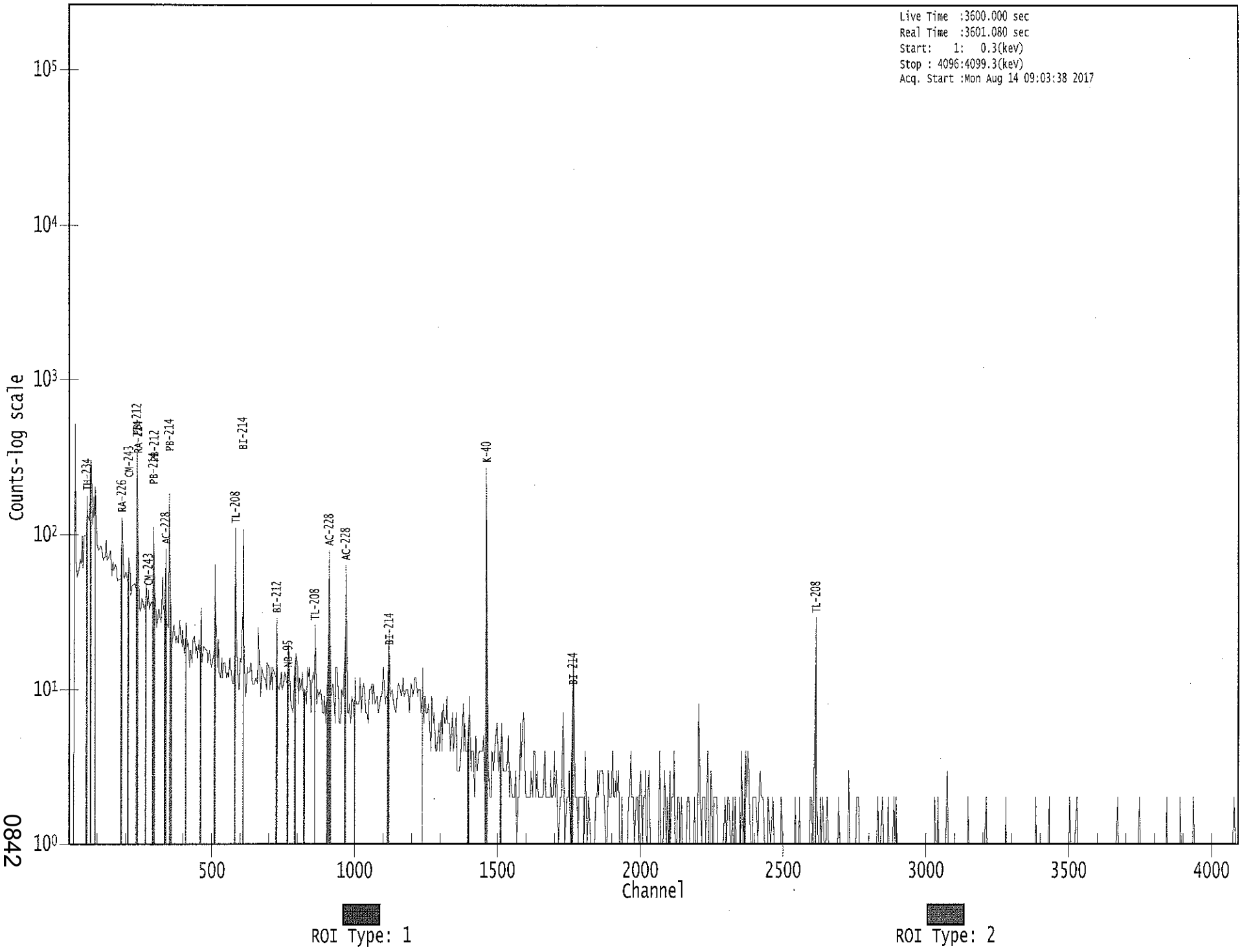
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	1	0	0	1
3417:	0	0	0	0	0	1	0	0
3425:	1	0	1	0	0	0	0	2
3433:	1	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	1	0	0	0	1	0
3457:	0	0	0	0	1	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	1	0	0	0	1	0
3489:	0	0	0	0	0	0	0	1
3497:	0	0	0	0	0	2	1	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-0006-01

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

0000055148.CNF



0842

Apex-Gamma

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

C
8/14

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-13
Sample Description	: HTC-A01-S002-0612-01
Sample Type	: SOIL
Sample Size	: 7.693E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:37:08AM
Acquisition Started	: 8/14/2017 9:03:46AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.3 seconds
Dead Time	: 0.23 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55149

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 10:04:08AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.24	63.55	0.0000	0.00
2	75.20	75.50	0.0000	0.00
3	77.48	77.78	0.0000	0.00
4	87.71	88.01	0.0000	0.00
5	93.19	93.48	0.0000	0.00
6	186.43	186.69	0.0000	0.00
7	193.61	193.88	0.0000	0.00
8	239.58	239.82	0.0000	0.00
9	256.67	256.91	0.0000	0.00
10	270.54	270.77	0.0000	0.00
11	295.36	295.59	0.0000	0.00
12	311.77	311.99	0.0000	0.00
13	327.82	328.04	0.0000	0.00
14	338.81	339.02	0.0000	0.00
15	352.02	352.23	0.0000	0.00
16	462.66	462.83	0.0000	0.00
17	501.31	501.47	0.0000	0.00
18	511.07	511.22	0.0000	0.00
19	583.55	583.68	0.0000	0.00
20	609.62	609.75	0.0000	0.00
21	862.64	862.68	0.0000	0.00
22	911.25	911.27	0.0000	0.00
23	957.19	957.19	0.0000	0.00
24	969.23	969.23	0.0000	0.00
25	1039.17	1039.15	0.0000	0.00
26	1120.97	1120.92	0.0000	0.00
27	1128.05	1128.00	0.0000	0.00
28	1238.04	1237.95	0.0000	0.00
29	1244.57	1244.47	0.0000	0.00
30	1375.44	1375.30	0.0000	0.00
31	1460.62	1460.46	0.0000	0.00
32	1518.05	1517.87	0.0000	0.00
33	1540.42	1540.23	0.0000	0.00
34	1543.18	1542.99	0.0000	0.00
35	1553.97	1553.78	0.0000	0.00
36	1591.39	1591.18	0.0000	0.00
37	1593.15	1592.94	0.0000	0.00
38	1630.91	1630.69	0.0000	0.00
39	1666.27	1666.03	0.0000	0.00
40	1728.40	1728.15	0.0000	0.00
41	1764.67	1764.40	0.0000	0.00
42	1788.96	1788.68	0.0000	0.00

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2140.85	2140.45	0.0000	0.00
44	2202.42	2202.00	0.0000	0.00
45	2614.33	2613.77	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 10:04:08AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.24	61 -	67	63.55	1.48E+02	98.00	1.65E+03	3.47
M	2	75.20	73 -	83	75.50	3.34E+02	101.57	1.47E+03	1.95
m	3	77.48	73 -	83	77.78	5.14E+02	102.06	1.42E+03	2.02
M	4	87.71	83 -	97	88.01	2.47E+02	119.92	1.87E+03	3.97
m	5	93.19	83 -	97	93.48	2.77E+02	99.90	1.35E+03	2.57
	6	186.43	183 -	189	186.69	1.11E+02	67.63	7.43E+02	2.30
	7	193.61	191 -	197	193.88	5.80E+01	63.89	7.00E+02	4.77
	8	239.58	237 -	246	239.82	8.13E+02	90.61	6.92E+02	2.35
	9	256.67	254 -	260	256.91	3.96E+01	48.63	3.99E+02	3.35
	10	270.54	267 -	273	270.77	6.80E+01	50.50	4.10E+02	2.23
	11	295.36	292 -	299	295.59	1.63E+02	60.33	5.02E+02	2.11
	12	311.77	309 -	315	311.99	3.67E+01	42.59	3.01E+02	1.77
	13	327.82	325 -	330	328.04	3.42E+01	37.93	2.60E+02	1.59
	14	338.81	335 -	343	339.02	1.23E+02	58.25	4.38E+02	1.79
	15	352.02	347 -	357	352.23	3.17E+02	64.15	3.79E+02	2.10
	16	462.66	460 -	465	462.83	3.52E+01	31.22	1.70E+02	2.03
	17	501.31	498 -	505	501.47	3.25E+01	34.47	1.77E+02	1.78
	18	511.07	507 -	515	511.22	1.38E+02	47.14	2.58E+02	1.64
	19	583.55	578 -	589	583.68	2.17E+02	52.80	2.39E+02	1.98
	20	609.62	605 -	615	609.75	1.91E+02	53.90	2.83E+02	2.05
	21	862.64	858 -	870	862.68	4.88E+01	35.31	1.24E+02	3.53
	22	911.25	906 -	915	911.27	1.15E+02	35.07	1.10E+02	1.75
	23	957.19	953 -	960	957.19	2.33E+01	23.83	7.75E+01	3.53
	24	969.23	965 -	973	969.23	7.29E+01	35.73	1.48E+02	1.78
	25	1039.17	1036 -	1042	1039.15	1.55E+01	18.75	5.30E+01	1.12
M	26	1120.97	1115 -	1132	1120.92	5.67E+01	31.42	9.94E+01	3.23
m	27	1128.05	1115 -	1132	1128.00	1.44E+01	21.18	5.38E+01	2.21
M	28	1238.04	1234 -	1252	1237.95	3.49E+01	24.49	7.78E+01	3.30
m	29	1244.57	1234 -	1252	1244.47	1.48E+01	22.63	7.50E+01	2.73
	30	1375.44	1369 -	1380	1375.30	2.33E+01	22.89	5.35E+01	3.17
	31	1460.62	1455 -	1464	1460.46	5.64E+02	49.33	2.54E+01	2.40
	32	1518.05	1514 -	1521	1517.87	6.00E+00	8.49	8.00E+00	1.75
M	33	1540.42	1539 -	1545	1540.23	6.61E+00	3.46	0.00E+00	3.93
m	34	1543.18	1539 -	1545	1542.99	7.89E+00	6.63	0.00E+00	3.29
	35	1553.97	1549 -	1557	1553.78	9.00E+00	6.00	0.00E+00	1.33
M	36	1591.39	1586 -	1595	1591.18	1.87E+01	14.17	1.16E+01	5.63
m	37	1593.15	1586 -	1595	1592.94	1.32E+01	11.45	4.38E+00	3.17
	38	1630.91	1625 -	1636	1630.69	1.90E+01	11.14	6.00E+00	4.33
	39	1666.27	1661 -	1669	1666.03	1.03E+01	11.35	1.34E+01	4.07
	40	1728.40	1725 -	1731	1728.15	1.10E+01	9.84	8.00E+00	4.12

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1764.67	1761 -	1767	1764.40	2.50E+01	10.00	0.00E+00	2.05
42	1788.96	1785 -	1792	1788.68	1.10E+01	9.59	8.00E+00	3.21
43	2140.85	2137 -	2144	2140.45	6.83E+00	7.21	4.33E+00	1.96
44	2202.42	2197 -	2206	2202.00	1.00E+01	10.49	1.00E+01	1.75
45	2614.33	2609 -	2617	2613.77	4.53E+01	15.51	9.36E+00	2.86

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 : 8/14/2017 10:04:08AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.24	61 -	67	1.48E+02	98.00	1.65E+03	7.80E+01
M	2	75.20	73 -	83	3.34E+02	101.57	1.47E+03	6.31E+01
m	3	77.48	73 -	83	5.14E+02	102.06	1.42E+03	6.20E+01
M	4	87.71	83 -	97	2.47E+02	119.92	1.87E+03	7.10E+01
m	5	93.19	83 -	97	2.77E+02	99.90	1.35E+03	6.05E+01
	6	186.43	183 -	189	1.11E+02	67.63	7.43E+02	5.28E+01
	7	193.61	191 -	197	5.80E+01	63.89	7.00E+02	5.10E+01
	8	239.58	237 -	246	8.13E+02	90.61	6.92E+02	5.79E+01
	9	256.67	254 -	260	3.96E+01	48.63	3.99E+02	3.86E+01
	10	270.54	267 -	273	6.80E+01	50.50	4.10E+02	3.92E+01
	11	295.36	292 -	299	1.63E+02	60.33	5.02E+02	4.49E+01
	12	311.77	309 -	315	3.67E+01	42.59	3.01E+02	3.36E+01
	13	327.82	325 -	330	3.42E+01	37.93	2.60E+02	2.97E+01
	14	338.81	335 -	343	1.23E+02	58.25	4.38E+02	4.43E+01
	15	352.02	347 -	357	3.17E+02	64.15	3.79E+02	4.38E+01
	16	462.66	460 -	465	3.52E+01	31.22	1.70E+02	2.37E+01
	17	501.31	498 -	505	3.25E+01	34.47	1.77E+02	2.67E+01
	18	511.07	507 -	515	1.38E+02	47.14	2.58E+02	3.36E+01
	19	583.55	578 -	589	2.17E+02	52.80	2.39E+02	3.60E+01
	20	609.62	605 -	615	1.91E+02	53.90	2.83E+02	3.80E+01
	21	862.64	858 -	870	4.88E+01	35.31	1.24E+02	2.67E+01
	22	911.25	906 -	915	1.15E+02	35.07	1.10E+02	2.28E+01

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	23	957.19	953 -	960	2.33E+01	23.83	7.75E+01	1.79E+01
	24	969.23	965 -	973	7.29E+01	35.73	1.48E+02	2.58E+01
	25	1039.17	1036 -	1042	1.55E+01	18.75	5.30E+01	1.40E+01
M	26	1120.97	1115 -	1132	5.67E+01	31.42	9.94E+01	1.64E+01
m	27	1128.05	1115 -	1132	1.44E+01	21.18	5.38E+01	1.21E+01
M	28	1238.04	1234 -	1252	3.49E+01	24.49	7.78E+01	1.45E+01
m	29	1244.57	1234 -	1252	1.48E+01	22.63	7.50E+01	1.42E+01
	30	1375.44	1369 -	1380	2.33E+01	22.89	5.35E+01	1.71E+01
	31	1460.62	1455 -	1464	5.64E+02	49.33	2.54E+01	1.09E+01
	32	1518.05	1514 -	1521	6.00E+00	8.49	8.00E+00	5.70E+00
M	33	1540.42	1539 -	1545	6.61E+00	3.46	0.00E+00	0.00E+00
m	34	1543.18	1539 -	1545	7.89E+00	6.63	0.00E+00	0.00E+00
	35	1553.97	1549 -	1557	9.00E+00	6.00	0.00E+00	0.00E+00
M	36	1591.39	1586 -	1595	1.87E+01	14.17	1.16E+01	5.60E+00
m	37	1593.15	1586 -	1595	1.32E+01	11.45	4.38E+00	3.44E+00
	38	1630.91	1625 -	1636	1.90E+01	11.14	6.00E+00	5.70E+00
	39	1666.27	1661 -	1669	1.03E+01	11.35	1.34E+01	7.69E+00
	40	1728.40	1725 -	1731	1.10E+01	9.84	8.00E+00	5.97E+00
	41	1764.67	1761 -	1767	2.50E+01	10.00	0.00E+00	0.00E+00
	42	1788.96	1785 -	1792	1.10E+01	9.59	8.00E+00	5.70E+00
	43	2140.85	2137 -	2144	6.83E+00	7.21	4.33E+00	4.08E+00
	44	2202.42	2197 -	2206	1.00E+01	10.49	1.00E+01	6.88E+00
	45	2614.33	2609 -	2617	4.53E+01	15.51	9.36E+00	6.33E+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 : 8/14/2017 10:04:08AM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	63.24	61 -	67	63.55	1.48E+02	98.00	1.65E+03	TH-234 TH-230

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	2	75.20	73 -	83	75.50	3.34E+02	101.57	1.47E+03	AM-243
m	3	77.48	73 -	83	77.78	5.14E+02	102.06	1.42E+03	TI-44
M	4	87.71	83 -	97	88.01	2.47E+02	119.92	1.87E+03	SN-126
									CD-109
									LU-176
m	5	93.19	83 -	97	93.48	2.77E+02	99.90	1.35E+03	GA-67
	6	186.43	183 -	189	186.69	1.11E+02	67.63	7.43E+02	RA-226
	7	193.61	191 -	197	193.88	5.80E+01	63.89	7.00E+02	.....
	8	239.58	237 -	246	239.82	8.13E+02	90.61	6.92E+02	PB-212
	9	256.67	254 -	260	256.91	3.96E+01	48.63	3.99E+02	TH-227
	10	270.54	267 -	273	270.77	6.80E+01	50.50	4.10E+02	.....
	11	295.36	292 -	299	295.59	1.63E+02	60.33	5.02E+02	PB-214
	12	311.77	309 -	315	311.99	3.67E+01	42.59	3.01E+02	PA-233
	13	327.82	325 -	330	328.04	3.42E+01	37.93	2.60E+02	LA-140
	14	338.81	335 -	343	339.02	1.23E+02	58.25	4.38E+02	AC-228
	15	352.02	347 -	357	352.23	3.17E+02	64.15	3.79E+02	PB-214
	16	462.66	460 -	465	462.83	3.52E+01	31.22	1.70E+02	SB-125
	17	501.31	498 -	505	501.47	3.25E+01	34.47	1.77E+02	.....
	18	511.07	507 -	515	511.22	1.38E+02	47.14	2.58E+02	.....
	19	583.55	578 -	589	583.68	2.17E+02	52.80	2.39E+02	TL-208
	20	609.62	605 -	615	609.75	1.91E+02	53.90	2.83E+02	BI-214
	21	862.64	858 -	870	862.68	4.88E+01	35.31	1.24E+02	.....
	22	911.25	906 -	915	911.27	1.15E+02	35.07	1.10E+02	AC-228
									TL-204
	23	957.19	953 -	960	957.19	2.33E+01	23.83	7.75E+01	.....
	24	969.23	965 -	973	969.23	7.29E+01	35.73	1.48E+02	AC-228
	25	1039.17	1036 -	1042	1039.15	1.55E+01	18.75	5.30E+01	.....
M	26	1120.97	1115 -	1132	1120.92	5.67E+01	31.42	9.94E+01	TA-182
									SC-46
									BI-214
m	27	1128.05	1115 -	1132	1128.00	1.44E+01	21.18	5.38E+01	.....
M	28	1238.04	1234 -	1252	1237.95	3.49E+01	24.49	7.78E+01	CO-56
m	29	1244.57	1234 -	1252	1244.47	1.48E+01	22.63	7.50E+01	.....
	30	1375.44	1369 -	1380	1375.30	2.33E+01	22.89	5.35E+01	.....
	31	1460.62	1455 -	1464	1460.46	5.64E+02	49.33	2.54E+01	K-40
	32	1518.05	1514 -	1521	1517.87	6.00E+00	8.49	8.00E+00	.....
M	33	1540.42	1539 -	1545	1540.23	6.61E+00	3.46	0.00E+00	.....
m	34	1543.18	1539 -	1545	1542.99	7.89E+00	6.63	0.00E+00	.....
	35	1553.97	1549 -	1557	1553.78	9.00E+00	6.00	0.00E+00	.....
M	36	1591.39	1586 -	1595	1591.18	1.87E+01	14.17	1.16E+01	.....
m	37	1593.15	1586 -	1595	1592.94	1.32E+01	11.45	4.38E+00	.....
	38	1630.91	1625 -	1636	1630.69	1.90E+01	11.14	6.00E+00	.....
	39	1666.27	1661 -	1669	1666.03	1.03E+01	11.35	1.34E+01	.....
	40	1728.40	1725 -	1731	1728.15	1.10E+01	9.84	8.00E+00	.....
	41	1764.67	1761 -	1767	1764.40	2.50E+01	10.00	0.00E+00	BI-214
	42	1788.96	1785 -	1792	1788.68	1.10E+01	9.59	8.00E+00	.....
	43	2140.85	2137 -	2144	2140.45	6.83E+00	7.21	4.33E+00	.....
	44	2202.42	2197 -	2206	2202.00	1.00E+01	10.49	1.00E+01	.....
	45	2614.33	2609 -	2617	2613.77	4.53E+01	15.51	9.36E+00	TL-208

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

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 : 8/14/2017 10:04:08AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.24	1.48E+02	98.00	2.44E-02	1.80E-03
M	2	75.20	3.34E+02	101.57	2.65E-02	2.02E-03
m	3	77.48	5.14E+02	102.06	2.68E-02	2.06E-03
M	4	87.71	2.47E+02	119.92	2.72E-02	2.25E-03
m	5	93.19	2.77E+02	99.90	2.71E-02	2.24E-03
	6	186.43	1.11E+02	67.63	1.96E-02	1.55E-03
	7	193.61	5.80E+01	63.89	1.90E-02	1.52E-03
	8	239.58	8.13E+02	90.61	1.61E-02	1.34E-03
	9	256.67	3.96E+01	48.63	1.52E-02	1.27E-03
	10	270.54	6.80E+01	50.50	1.45E-02	1.21E-03
	11	295.36	1.63E+02	60.33	1.35E-02	1.15E-03
	12	311.77	3.67E+01	42.59	1.28E-02	1.11E-03
	13	327.82	3.42E+01	37.93	1.23E-02	1.08E-03
	14	338.81	1.23E+02	58.25	1.19E-02	1.06E-03
	15	352.02	3.17E+02	64.15	1.15E-02	1.03E-03
	16	462.66	3.52E+01	31.22	9.03E-03	8.58E-04
	17	501.31	3.25E+01	34.47	8.40E-03	8.07E-04
	18	511.07	1.38E+02	47.14	8.25E-03	7.94E-04
	19	583.55	2.17E+02	52.80	7.32E-03	6.98E-04
	20	609.62	1.91E+02	53.90	7.04E-03	6.64E-04
	21	862.64	4.88E+01	35.31	5.16E-03	4.17E-04
	22	911.25	1.15E+02	35.07	4.92E-03	3.84E-04
	23	957.19	2.33E+01	23.83	4.71E-03	3.76E-04
	24	969.23	7.29E+01	35.73	4.66E-03	3.74E-04
	25	1039.17	1.55E+01	18.75	4.39E-03	3.63E-04
M	26	1120.97	5.67E+01	31.42	4.12E-03	3.49E-04
m	27	1128.05	1.44E+01	21.18	4.09E-03	3.48E-04
M	28	1238.04	3.49E+01	24.49	3.79E-03	3.22E-04
m	29	1244.57	1.48E+01	22.63	3.77E-03	3.21E-04
	30	1375.44	2.33E+01	22.89	3.47E-03	2.89E-04
	31	1460.62	5.64E+02	49.33	3.31E-03	2.75E-04
	32	1518.05	6.00E+00	8.49	3.21E-03	2.66E-04
M	33	1540.42	6.61E+00	3.46	3.17E-03	2.62E-04
m	34	1543.18	7.89E+00	6.63	3.17E-03	2.62E-04

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1553.97	9.00E+00	6.00	3.15E-03	2.60E-04
M	36	1591.39	1.87E+01	14.17	3.10E-03	2.54E-04
m	37	1593.15	1.32E+01	11.45	3.09E-03	2.54E-04
	38	1630.91	1.90E+01	11.14	3.04E-03	2.48E-04
	39	1666.27	1.03E+01	11.35	2.99E-03	2.42E-04
	40	1728.40	1.10E+01	9.84	2.91E-03	2.32E-04
	41	1764.67	2.50E+01	10.00	2.87E-03	2.26E-04
	42	1788.96	1.10E+01	9.59	2.84E-03	2.23E-04
	43	2140.85	6.83E+00	7.21	2.51E-03	2.15E-04
	44	2202.42	1.00E+01	10.49	2.47E-03	2.15E-04
	45	2614.33	4.53E+01	15.51	2.24E-03	2.15E-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 : 8/14/2017 10:04:08AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.24	1.48E+02	98.00	4.29E+01	6.03E+00	1.05E+02	9.82E+01
M	2	75.20	3.34E+02	101.57	1.67E+01	8.84E+00	3.18E+02	1.02E+02
m	3	77.48	5.14E+02	102.06			5.14E+02	1.02E+02
M	4	87.71	2.47E+02	119.92			2.47E+02	1.20E+02
m	5	93.19	2.77E+02	99.90	6.90E+01	7.61E+00	2.08E+02	1.00E+02
	6	186.43	1.11E+02	67.63	2.99E+01	5.81E+00	8.07E+01	6.79E+01
	7	193.61	5.80E+01	63.89			5.80E+01	6.39E+01
	8	239.58	8.13E+02	90.61	9.49E+00	5.63E+00	8.03E+02	9.08E+01
	9	256.67	3.96E+01	48.63			3.96E+01	4.86E+01
	10	270.54	6.80E+01	50.50			6.80E+01	5.05E+01
	11	295.36	1.63E+02	60.33			1.63E+02	6.03E+01
	12	311.77	3.67E+01	42.59			3.67E+01	4.26E+01
	13	327.82	3.42E+01	37.93			3.42E+01	3.79E+01
	14	338.81	1.23E+02	58.25	4.73E+00	4.47E+00	1.18E+02	5.84E+01
	15	352.02	3.17E+02	64.15			3.17E+02	6.42E+01
	16	462.66	3.52E+01	31.22			3.52E+01	3.12E+01
	17	501.31	3.25E+01	34.47			3.25E+01	3.45E+01
	18	511.07	1.38E+02	47.14	5.37E+01	4.54E+00	8.41E+01	4.74E+01
	19	583.55	2.17E+02	52.80			2.17E+02	5.28E+01

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	20	609.62	1.91E+02	53.90	4.09E+00	3.07E+00	1.87E+02	5.40E+01
	21	862.64	4.88E+01	35.31			4.88E+01	3.53E+01
	22	911.25	1.15E+02	35.07			1.15E+02	3.51E+01
	23	957.19	2.33E+01	23.83			2.33E+01	2.38E+01
	24	969.23	7.29E+01	35.73			7.29E+01	3.57E+01
	25	1039.17	1.55E+01	18.75			1.55E+01	1.88E+01
M	26	1120.97	5.67E+01	31.42			5.67E+01	3.14E+01
m	27	1128.05	1.44E+01	21.18			1.44E+01	2.12E+01
M	28	1238.04	3.49E+01	24.49			3.49E+01	2.45E+01
m	29	1244.57	1.48E+01	22.63			1.48E+01	2.26E+01
	30	1375.44	2.33E+01	22.89			2.33E+01	2.29E+01
	31	1460.62	5.64E+02	49.33			5.64E+02	4.93E+01
	32	1518.05	6.00E+00	8.49			6.00E+00	8.49E+00
M	33	1540.42	6.61E+00	3.46			6.61E+00	3.46E+00
m	34	1543.18	7.89E+00	6.63			7.89E+00	6.63E+00
	35	1553.97	9.00E+00	6.00			9.00E+00	6.00E+00
M	36	1591.39	1.87E+01	14.17			1.87E+01	1.42E+01
m	37	1593.15	1.32E+01	11.45			1.32E+01	1.14E+01
	38	1630.91	1.90E+01	11.14			1.90E+01	1.11E+01
	39	1666.27	1.03E+01	11.35			1.03E+01	1.13E+01
	40	1728.40	1.10E+01	9.84			1.10E+01	9.84E+00
	41	1764.67	2.50E+01	10.00			2.50E+01	1.00E+01
	42	1788.96	1.10E+01	9.59			1.10E+01	9.59E+00
	43	2140.85	6.83E+00	7.21			6.83E+00	7.21E+00
	44	2202.42	1.00E+01	10.49			1.00E+01	1.05E+01
	45	2614.33	4.53E+01	15.51			4.53E+01	1.55E+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 : 8/14/2017 10:04:08AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.24	1.48E+02	98.00	4.29E+01	6.03E+00	1.05E+02	9.82E+01
M	2	75.20	3.34E+02	101.57	1.67E+01	8.84E+00	3.18E+02	1.02E+02

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	3	77.48	5.14E+02	102.06			5.14E+02	1.02E+02
M	4	87.71	2.47E+02	119.92			2.47E+02	1.20E+02
m	5	93.19	2.77E+02	99.90	6.90E+01	7.61E+00	2.08E+02	1.00E+02
	6	186.43	1.11E+02	67.63	2.99E+01	5.81E+00	8.07E+01	6.79E+01
	7	193.61	5.80E+01	63.89			5.80E+01	6.39E+01
	8	239.58	8.13E+02	90.61	9.49E+00	5.63E+00	8.03E+02	9.08E+01
	9	256.67	3.96E+01	48.63			3.96E+01	4.86E+01
	10	270.54	6.80E+01	50.50			6.80E+01	5.05E+01
	11	295.36	1.63E+02	60.33			1.63E+02	6.03E+01
	12	311.77	3.67E+01	42.59			3.67E+01	4.26E+01
	13	327.82	3.42E+01	37.93			3.42E+01	3.79E+01
	14	338.81	1.23E+02	58.25	4.73E+00	4.47E+00	1.18E+02	5.84E+01
	15	352.02	3.17E+02	64.15			3.17E+02	6.42E+01
	16	462.66	3.52E+01	31.22			3.52E+01	3.12E+01
	17	501.31	3.25E+01	34.47			3.25E+01	3.45E+01
	18	511.07	1.38E+02	47.14	5.37E+01	4.54E+00	8.41E+01	4.74E+01
	19	583.55	2.17E+02	52.80			2.17E+02	5.28E+01
	20	609.62	1.91E+02	53.90	4.09E+00	3.07E+00	1.87E+02	5.40E+01
	21	862.64	4.88E+01	35.31			4.88E+01	3.53E+01
	22	911.25	1.15E+02	35.07			1.15E+02	3.51E+01
	23	957.19	2.33E+01	23.83			2.33E+01	2.38E+01
	24	969.23	7.29E+01	35.73			7.29E+01	3.57E+01
	25	1039.17	1.55E+01	18.75			1.55E+01	1.88E+01
M	26	1120.97	5.67E+01	31.42			5.67E+01	3.14E+01
m	27	1128.05	1.44E+01	21.18			1.44E+01	2.12E+01
M	28	1238.04	3.49E+01	24.49			3.49E+01	2.45E+01
m	29	1244.57	1.48E+01	22.63			1.48E+01	2.26E+01
	30	1375.44	2.33E+01	22.89			2.33E+01	2.29E+01
	31	1460.62	5.64E+02	49.33			5.64E+02	4.93E+01
	32	1518.05	6.00E+00	8.49			6.00E+00	8.49E+00
M	33	1540.42	6.61E+00	3.46			6.61E+00	3.46E+00
m	34	1543.18	7.89E+00	6.63			7.89E+00	6.63E+00
	35	1553.97	9.00E+00	6.00			9.00E+00	6.00E+00
M	36	1591.39	1.87E+01	14.17			1.87E+01	1.42E+01
m	37	1593.15	1.32E+01	11.45			1.32E+01	1.14E+01
	38	1630.91	1.90E+01	11.14			1.90E+01	1.11E+01
	39	1666.27	1.03E+01	11.35			1.03E+01	1.13E+01
	40	1728.40	1.10E+01	9.84			1.10E+01	9.84E+00
	41	1764.67	2.50E+01	10.00			2.50E+01	1.00E+01
	42	1788.96	1.10E+01	9.59			1.10E+01	9.59E+00
	43	2140.85	6.83E+00	7.21			6.83E+00	7.21E+00
	44	2202.42	1.00E+01	10.49			1.00E+01	1.05E+01
	45	2614.33	4.53E+01	15.51			4.53E+01	1.55E+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 1707077-13

HTC-A01-S002-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.994	1460.81	*	10.67	1.56E+01	1.91E+00
CD-109	0.984	88.03	*	3.72	2.74E+00	1.36E+00
SN-126	0.997	87.57	*	37.00	2.40E-01	1.18E-01
TL-208	0.868	583.14	*	30.22	9.59E-01	2.50E-01
		860.37		4.48		
		2614.66	*	35.85	5.51E-01	1.96E-01
PB-212	0.772	238.63	*	44.60	1.09E+00	1.53E-01
		300.09		3.41		
BI-214	0.910	609.31	*	46.30	5.61E-01	1.70E-01
		1120.29	*	15.10	8.90E-01	4.99E-01
		1764.49	*	15.80	5.39E-01	2.20E-01
		2204.22		4.98		
PB-214	0.998	295.21	*	19.19	6.17E-01	2.34E-01
		351.92	*	37.19	7.22E-01	1.60E-01
RA-226	0.992	186.21	*	3.28	1.23E+00	2.47E+00
AC-228	0.989	338.32	*	11.40	8.47E-01	4.26E-01
		911.07	*	27.70	8.25E-01	2.59E-01
		969.11	*	16.60	9.19E-01	4.56E-01
PA-233	0.936	311.98	*	38.60	7.85E-01	9.29E-01
TH-234	1.000	63.29	*	3.80	1.11E+00	1.04E+00
AM-243	0.957	74.67	*	66.00	1.77E-01	5.84E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 10:04:08AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.48	1.42681E-01	9.93	Tol.	TI-44
m	5	93.19	5.78043E-02	24.07	Tol.	GA-67
	7	193.61	1.61111E-02	55.08		
	9	256.67	1.10129E-02	61.33	Tol.	TH-227
	10	270.54	1.88904E-02	37.13		
	13	327.82	9.49356E-03	55.50	Sum	
	16	462.66	9.77431E-03	44.37	Tol.	SB-125
	17	501.31	9.04040E-03	52.95		
	18	511.07	2.33578E-02	28.16		
	21	862.64	1.35485E-02	36.20		
	23	957.19	6.46057E-03	51.24		
	25	1039.17	4.30225E-03	60.55		
m	27	1128.05	4.00846E-03	73.40		
M	28	1238.04	9.70403E-03	35.06		
m	29	1244.57	4.12449E-03	76.20		
	30	1375.44	6.46389E-03	49.19		
	32	1518.05	1.66667E-03	70.71		
M	33	1540.42	1.83649E-03	26.20		
m	34	1543.18	2.19216E-03	42.03		
	35	1553.97	2.50000E-03	33.33		
M	36	1591.39	5.18377E-03	37.96	D-Esc	
m	37	1593.15	3.68032E-03	43.19	D-Esc	
	38	1630.91	5.27778E-03	29.30		
	39	1666.27	2.86765E-03	54.96		
	40	1728.40	3.05556E-03	44.71		
	42	1788.96	3.05556E-03	43.60		
	43	2140.85	1.89815E-03	52.76		
	44	2202.42	2.77778E-03	52.44		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

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

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.56E+01	1.91E+00
CD-109	0.98	88.03	*	3.72	2.74E+00	1.36E+00
SN-126	0.99	87.57	*	37.00	2.40E-01	1.18E-01
TL-208	0.86	583.14	*	30.22	9.59E-01	2.50E-01
		860.37		4.48		
		2614.66	*	35.85	5.51E-01	1.96E-01
PB-212	0.77	238.63	*	44.60	1.09E+00	1.53E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	5.61E-01	1.70E-01
		1120.29	*	15.10	8.90E-01	4.99E-01
		1764.49	*	15.80	5.39E-01	2.20E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	6.17E-01	2.34E-01
		351.92	*	37.19	7.22E-01	1.60E-01
RA-226	0.99	186.21	*	3.28	1.23E+00	2.47E+00
AC-228	0.98	338.32	*	11.40	8.47E-01	4.26E-01
		911.07	*	27.70	8.25E-01	2.59E-01
		969.11	*	16.60	9.19E-01	4.56E-01
PA-233	0.93	311.98	*	38.60	7.85E-01	9.29E-01
TH-234	1.00	63.29	*	3.80	1.11E+00	1.04E+00
AM-243	0.95	74.67	*	66.00	1.77E-01	5.84E-02

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.994	1.56E+01	1.91E+00	
?	CD-109	0.984	2.74E+00	1.36E+00	
?	SN-126	0.997	2.40E-01	1.18E-01	
	TL-208	0.868	7.06E-01	1.54E-01	
	PB-212	0.772	1.09E+00	1.53E-01	
	BI-214	0.910	5.75E-01	1.30E-01	

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-214	0.998	6.88E-01	1.32E-01	
RA-226	0.992	1.23E+00	2.47E+00	
AC-228	0.989	8.47E-01	1.99E-01	
PA-233	0.936	7.85E-01	9.29E-01	
TH-234	1.000	1.11E+00	1.04E+00	
AM-243	0.957	1.77E-01	5.84E-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 1707077-13

HTC-A01-S002-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 10:04:08AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.48	1.42681E-01	9.93	Tol.	TI-44
m	5	93.19	5.78043E-02	24.07	Tol.	GA-67
	7	193.61	1.61111E-02	55.08		
	9	256.67	1.10129E-02	61.33	Tol.	TH-227
	10	270.54	1.88904E-02	37.13		
	13	327.82	9.49356E-03	55.50	Sum	
	16	462.66	9.77431E-03	44.37	Tol.	SB-125
	17	501.31	9.04040E-03	52.95		
	18	511.07	2.33578E-02	28.16		
	21	862.64	1.35485E-02	36.20		
	23	957.19	6.46057E-03	51.24		
	25	1039.17	4.30225E-03	60.55		
m	27	1128.05	4.00846E-03	73.40		
M	28	1238.04	9.70403E-03	35.06		
m	29	1244.57	4.12449E-03	76.20		
	30	1375.44	6.46389E-03	49.19		
	32	1518.05	1.66667E-03	70.71		
M	33	1540.42	1.83649E-03	26.20		
m	34	1543.18	2.19216E-03	42.03		
	35	1553.97	2.50000E-03	33.33		
M	36	1591.39	5.18377E-03	37.96	D-Esc	
m	37	1593.15	3.68032E-03	43.19	D-Esc	
	38	1630.91	5.27778E-03	29.30		
	39	1666.27	2.86765E-03	54.96		
	40	1728.40	3.05556E-03	44.71		
	42	1788.96	3.05556E-03	43.60		
	43	2140.85	1.89815E-03	52.76		
	44	2202.42	2.77778E-03	52.44		

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 1707077-13

HTC-A01-S002-0612-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	4.17E-01	1.75E+00	1.75E+00
+		NA-22	1274.54		99.94	2.36E-02	8.87E-02	8.87E-02
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	0.00E+00		1.00E+26
+		AL-26	1808.65		99.76	8.69E-03	5.22E-02	5.22E-02
+		K-40	1460.81	*	10.67	1.56E+01	6.78E-01	6.78E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	3.60E-02	4.98E-02	4.98E-02
			78.34		96.00	1.38E-01		5.98E-02
+		SC-46	889.25		99.98	-2.72E-02	1.43E-01	1.43E-01
			1120.51		99.99	3.02E-01		2.58E-01
+		V-48	983.52		99.98	7.63E-01	3.77E+00	4.10E+00
			1312.10		97.50	-1.80E+00		3.77E+00
+		CR-51	320.08		9.83	1.44E+00	5.10E+00	5.10E+00
+		MN-54	834.83		99.97	3.39E-02	9.46E-02	9.46E-02
+		CO-56	846.75		99.96	6.45E-04	1.49E-01	1.49E-01
			1037.75		14.03	4.18E-01		1.22E+00
			1238.25		67.00	2.15E-01		3.58E-01
			1771.40		15.51	-2.91E-02		7.04E-01
			2598.48		16.90	1.94E-02		5.41E-01
+		CO-57	122.06		85.51	-1.25E-02	5.10E-02	5.10E-02
			136.48		10.60	-1.97E-01		4.23E-01
+		CO-58	810.76		99.40	-4.58E-02	1.55E-01	1.55E-01
+		FE-59	1099.22		56.50	8.48E-02	5.99E-01	5.99E-01
			1291.56		43.20	1.57E-01		7.49E-01
+		CO-60	1173.22		100.00	4.73E-02	7.74E-02	9.24E-02
			1332.49		100.00	0.00E+00		7.74E-02
+		ZN-65	1115.52		50.75	3.79E-03	2.05E-01	2.05E-01
+		GA-67	93.31		35.70	6.90E+07	4.79E+07	4.79E+07
			208.95		2.24	5.50E+08		8.79E+08
			300.22		16.00	5.02E+07		1.29E+08
+		SE-75	121.11		16.70	-3.63E-02	1.05E-01	3.53E-01
			136.00		59.20	1.83E-02		1.05E-01
			264.65		59.80	4.22E-02		1.40E-01
			279.53		25.20	1.43E-02		3.29E-01
			400.65		11.40	-4.45E-02		7.98E-01
+		RB-82	776.52		13.00	2.47E+00	6.29E+00	6.29E+00
+		RB-83	520.41		46.00	2.70E-02	2.61E-01	2.61E-01
			529.64		30.30	-1.82E-01		3.61E-01
			552.65		16.40	-4.10E-01		6.98E-01

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99		0.43	3.09E-01	1.97E+01	1.97E+01
+	SR-85	513.99		99.27	3.59E-03	2.29E-01	2.29E-01
+	Y-88	898.02		93.40	-5.95E-02	6.95E-02	1.19E-01
		1836.01		99.38	-6.45E-02		6.95E-02
+	MO-93	263.06		56.72	2.49E-02	5.74E-02	8.52E-02
		684.67		99.68	-2.05E-02		6.17E-02
		1477.11		99.08	-2.39E-02		5.74E-02
+	NB-93M	16.57		9.43	-5.03E+00	5.08E+01	5.08E+01
+	NB-94	702.63		100.00	-3.84E-03	6.69E-02	6.69E-02
		871.10		100.00	7.87E-03		6.79E-02
+	NB-95	765.79		99.81	2.70E-01	4.83E-01	4.83E-01
+	NB-95M	235.69		25.00	-1.65E+07	1.70E+07	1.70E+07
+	ZR-95	724.18		43.70	-1.29E-01	3.32E-01	4.46E-01
		756.72		55.30	1.90E-02		3.32E-01
+	MO-99	181.06		6.20	2.75E+08	6.43E+09	9.49E+09
		739.58		12.80	-5.69E+09		6.43E+09
		778.00		4.50	-9.33E+08		2.12E+10
+	RU-103	497.08		89.00	-5.52E-02	2.99E-01	2.99E-01
+	RU-106	621.84		9.80	-5.98E-01	6.54E-01	6.54E-01
+	AG-108M	433.93		89.90	5.08E-03	5.75E-02	5.75E-02
		614.37		90.40	-1.71E-03		8.03E-02
		722.95		90.50	-7.80E-02		7.34E-02
+	CD-109	88.03	*	3.72	2.74E+00	2.86E+00	2.86E+00
+	AG-110M	657.75		93.14	-2.17E-02	9.56E-02	9.56E-02
		677.61		10.53	-1.38E-01		7.96E-01
		706.67		16.46	2.35E-01		5.55E-01
		763.93		21.98	-2.69E-01		4.05E-01
		884.67		71.63	6.07E-02		1.25E-01
		1384.27		23.94	1.43E-01		3.67E-01
+	CD-113M	263.70		0.02	6.13E+01	2.12E+02	2.12E+02
+	SN-113	255.12		1.93	3.31E-01	1.43E-01	4.47E+00
		391.69		64.90	-1.87E-02		1.43E-01
+	TE123M	159.00		84.10	5.36E-03	7.87E-02	7.87E-02
+	SB-124	602.71		97.87	-2.21E-02	1.82E-01	1.82E-01
		645.85		7.26	8.70E-02		2.24E+00
		722.78		11.10	-1.85E+00		1.74E+00
		1691.02		49.00	-2.23E-01		2.36E-01
+	I-125	35.49		6.49	-7.60E-01	4.29E+00	4.29E+00
+	SB-125	176.33		6.89	-1.37E-01	1.93E-01	5.81E-01
		427.89		29.33	9.15E-03		1.93E-01
		463.38		10.35	8.55E-02		6.67E-01
		600.56		17.80	2.78E-02		3.63E-01
		635.90		11.32	2.26E-01		5.53E-01
+	SB-126	414.70		83.30	-1.25E+00	1.09E+01	1.18E+01
		666.33		99.60	-2.46E+00		1.19E+01
		695.00		99.60	-9.46E-01		1.09E+01
		720.50		53.80	4.20E+00		2.22E+01
+	SN-126	87.57	*	37.00	2.40E-01	2.51E-01	2.51E-01

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-127	473.00	25.00	1.31E+06	3.15E+06	4.41E+06
		685.20	35.70	-1.04E+06		3.15E+06
		783.80	14.70	7.67E+04		8.49E+06
+	I-129	29.78	57.00	-1.33E-01	2.96E-01	2.96E-01
		33.60	13.20	2.48E-01		8.55E-01
		39.58	7.52	-4.22E-02		9.83E-01
+	I-131	284.30	6.05	-3.42E+02	1.94E+02	2.41E+03
		364.48	81.20	4.04E+01		1.94E+02
		636.97	7.26	-5.76E+02		2.29E+03
		722.89	1.80	-1.18E+04		1.11E+04
+	TE-132	49.72	13.10	-2.55E+07	2.25E+07	1.58E+08
		228.16	88.00	9.18E+06		2.25E+07
+	BA-133	81.00	33.00	-2.13E-01	1.07E-01	1.33E-01
		302.84	17.80	-8.15E-03		2.84E-01
		356.01	60.00	-2.51E-02		1.07E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-3.94E+04	2.47E+04	2.47E+04
+	CS-134	563.23	8.38	3.77E-01	7.56E-02	7.52E-01
		569.32	15.43	-2.21E-01		3.86E-01
		604.70	97.60	1.96E-03		7.56E-02
		795.84	85.40	-9.69E-03		7.69E-02
		801.93	8.73	1.12E-01		8.43E-01
+	CS-135	268.24	16.00	-1.41E-02	3.31E-01	3.31E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	4.16E+00	8.62E+00	6.95E+01
		163.89	4.61	-9.32E+00		1.13E+02
		176.55	13.56	-8.73E+00		3.71E+01
		273.65	12.66	-1.42E+01		5.34E+01
		340.57	48.50	3.38E+01		1.82E+01
		818.50	99.70	-5.33E-01		8.62E+00
		1048.07	79.60	-2.86E+00		1.14E+01
		1235.34	19.70	-1.18E+01		6.39E+01
+	CS-137	661.65	85.12	-5.46E-04	8.35E-02	8.35E-02
+	LA-138	788.74	34.00	7.74E-02	1.01E-01	2.09E-01
		1435.80	66.00	-7.77E-03		1.01E-01
+	CE-139	165.85	80.35	7.78E-03	7.84E-02	7.84E-02
+	BA-140	162.64	6.70	-3.92E+01	3.36E+01	8.89E+01
		304.84	4.50	-1.27E+02		1.61E+02
		423.70	3.20	2.29E+01		2.62E+02
		437.55	2.00	-6.47E+01		3.83E+02
		537.32	25.00	1.06E+01		3.36E+01
+	LA-140	328.77	20.50	1.56E+00	1.20E+01	4.10E+01
		487.03	45.50	6.99E+00		1.85E+01
		815.85	23.50	-5.48E+00		4.12E+01
		1596.49	95.49	-1.79E+00		1.20E+01
+	CE-141	145.44	48.40	-1.59E-01	5.78E-01	5.78E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707077-13

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
@	CE-143	293.26	42.00	1.00E+26	1.00E+26	1.00E+26
@		664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-2.89E-01	4.16E-01	4.16E-01
+	PM-144	476.78	42.00	4.40E-02	6.98E-02	1.59E-01
		618.01	98.60	-1.79E-03		6.98E-02
		696.49	99.49	-1.42E-02		7.15E-02
+	PM-145	36.85	21.70	-1.58E-01	2.15E-01	3.97E-01
		37.36	39.70	-1.88E-02		2.15E-01
		42.30	15.10	-1.75E-01		4.44E-01
		72.40	2.31	-7.40E-01		2.16E+00
+	PM-146	453.90	39.94	-3.07E-03	1.38E-01	1.38E-01
		735.90	14.01	1.18E-01		4.39E-01
		747.13	13.10	-5.02E-02		5.35E-01
+	ND-147	91.11	28.90	-1.54E+01	5.64E+01	5.64E+01
		531.02	13.10	1.32E+01		1.47E+02
+	PM-149	285.90	3.10	7.34E+10	7.12E+12	7.12E+12
+	EU-152	121.78	20.50	-4.17E-02	1.70E-01	1.70E-01
		244.69	5.40	-4.10E-02		1.03E+00
		344.27	19.13	-5.90E-02		2.54E-01
		778.89	9.20	-1.37E-01		7.02E-01
		964.01	10.40	-1.05E-01		7.92E-01
		1085.78	7.22	1.47E-01		1.03E+00
		1112.02	9.60	1.93E-01		8.43E-01
		1407.95	14.94	-1.09E-02		5.04E-01
+	GD-153	97.43	31.30	1.10E-01	1.53E-01	1.53E-01
		103.18	22.20	-1.99E-01		2.00E-01
+	EU-154	123.07	40.50	7.76E-03	8.81E-02	8.81E-02
		723.30	19.70	-3.65E-01		3.44E-01
		873.19	11.50	2.11E-01		6.09E-01
		996.32	10.30	1.10E-01		7.56E-01
		1004.76	17.90	2.38E-01		4.69E-01
		1274.45	35.50	6.33E-02		2.38E-01
+	EU-155	86.50	30.90	7.15E-02	1.52E-01	1.52E-01
		105.30	20.70	4.43E-02		1.78E-01
+	EU-156	811.77	10.40	-9.28E+00	4.02E+01	4.02E+01
		1153.47	7.20	-7.46E+00		8.73E+01
		1230.71	8.90	1.02E+01		7.20E+01
+	HO-166M	184.41	72.60	6.22E-02	6.29E-02	6.29E-02
		280.45	29.60	1.41E-02		1.64E-01
		410.94	11.10	1.14E-02		4.93E-01
		711.69	54.10	-1.16E-02		1.16E-01
+	TM-171	66.72	0.14	-5.13E+00	3.72E+01	3.72E+01
+	HF-172	67.35	5.31	7.04E-01	3.40E-01	9.73E-01
		125.81	11.30	-2.56E-01		3.40E-01
+	LU-172	181.53	20.60	3.40E+02	1.99E+03	2.90E+03
		900.72	29.81	3.08E+02		3.28E+03
		1093.66	62.50	1.26E+03		1.99E+03
+	LU-173	100.72	5.24	3.91E-01	2.88E-01	7.90E-01
		272.11	21.20	3.24E-02		2.88E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HF-175	343.40		84.00	-3.32E-02	1.43E-01	1.43E-01
+	LU-176	88.34		13.30	3.72E-03	4.81E-02	3.46E-01
		201.83		86.00	1.54E-02		4.81E-02
		306.78		94.00	8.97E-03		5.11E-02
+	HF-181	133.02		41.70	-5.11E-02	2.87E-01	4.06E-01
		345.85		17.20	-2.97E-01		1.24E+00
		482.03		82.80	-6.44E-02		2.87E-01
+	TA-182	67.75		41.20	1.45E-01	2.00E-01	2.00E-01
		1121.30		34.90	5.85E-01		6.01E-01
		1189.05		16.23	-5.46E-01		8.96E-01
		1221.41		26.98	1.19E-01		5.74E-01
		1231.02		11.44	2.01E-01		1.42E+00
+	IR-192	308.46		29.68	5.48E-02	2.94E-01	4.10E-01
		468.07		48.10	1.62E-02		2.94E-01
+	HG-203	279.19		77.30	-6.24E-02	2.43E-01	2.43E-01
+	TL-204	374.74		94.11	-1.02E-02	5.34E-02	5.34E-02
		899.15		99.16	-5.11E-02		6.26E-02
		911.74		91.10	2.48E-01		1.37E-01
+	BI-207	569.67		97.72	-5.42E-03	5.88E-02	5.88E-02
		1063.62		74.90	3.02E-02		1.05E-01
+	TL-208	583.14	*	30.22	9.59E-01	1.87E-01	3.30E-01
		860.37		4.48	6.50E-01		1.73E+00
		2614.66	*	35.85	5.51E-01		1.87E-01
+	BI-210M	262.00		45.00	1.07E-02	1.04E-01	1.04E-01
		300.00		23.00	9.15E-02		2.35E-01
+	PB-210	46.50		4.25	1.33E+00	1.48E+00	1.48E+00
+	PB-211	404.84		2.90	4.66E-01	1.88E+00	1.88E+00
		831.96		2.90	-6.56E-01		2.35E+00
+	BI-212	727.17		11.80	2.31E-01	6.61E-01	6.61E-01
		1620.62		2.75	-1.83E-01		1.75E+00
+	PB-212	238.63	*	44.60	1.09E+00	1.62E-01	1.62E-01
		300.09		3.41	6.18E-01		1.59E+00
+	BI-214	609.31	*	46.30	5.61E-01	5.83E-02	2.37E-01
		1120.29	*	15.10	8.90E-01		1.12E+00
		1764.49	*	15.80	5.39E-01		5.83E-02
		2204.22		4.98	2.65E-02		1.55E+00
+	PB-214	295.21	*	19.19	6.17E-01	2.06E-01	3.50E-01
		351.92	*	37.19	7.22E-01		2.06E-01
+	RN-219	401.80		6.50	-1.32E-01	8.20E-01	8.20E-01
+	RA-223	323.87		3.88	-1.97E-01	1.26E+00	1.26E+00
+	RA-224	240.98		3.95	1.28E+01	2.39E+00	2.39E+00
+	RA-225	40.00		31.00	-7.77E-01	1.81E+01	1.81E+01
+	RA-226	186.21	*	3.28	1.23E+00	1.68E+00	1.68E+00
+	TH-227	50.10		8.40	-1.01E-01	6.28E-01	6.28E-01
		236.00		11.50	-6.37E-01		6.55E-01
		256.20		6.30	2.92E-01		7.77E-01
+	AC-228	338.32	*	11.40	8.47E-01	3.46E-01	6.59E-01
		911.07	*	27.70	8.25E-01		3.46E-01

Analysis Report for 1707077-13

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	9.19E-01	3.46E-01	6.85E-01
+	TH-230	48.44		16.90	1.88E-01	3.40E-01	3.40E-01
		62.85		4.60	1.41E+00		1.12E+00
		67.67		0.37	9.18E+00		1.27E+01
+	PA-231	283.67		1.60	-5.46E-01	2.16E+00	3.02E+00
		302.67		2.30	-6.20E-02		2.16E+00
+	TH-231	25.64		14.70	-2.45E-01	6.67E-01	2.13E+00
		84.21		6.40	-2.57E-01		6.67E-01
+	PA-233	311.98	*	38.60	7.85E-01	1.50E+00	1.50E+00
+	PA-234	131.20		20.40	1.68E-01	1.91E-01	1.91E-01
		733.99		8.80	-4.35E-02		7.15E-01
		946.00		12.00	-3.35E-01		5.03E-01
+	PA-234M	1001.03		0.92	3.38E+00	8.92E+00	8.92E+00
+	TH-234	63.29	*	3.80	1.11E+00	1.69E+00	1.69E+00
+	U-235	143.76		10.50	1.35E-01	3.71E-01	3.71E-01
		163.35		4.70	-6.82E-02		8.28E-01
		205.31		4.70	-4.99E-01		1.05E+00
+	NP-237	86.50		12.60	1.69E-01	3.59E-01	3.59E-01
+	NP-239	106.10		22.70	2.98E+10	1.20E+11	1.20E+11
		228.18		10.70	1.49E+11		3.64E+11
		277.60		14.10	1.49E+10		2.57E+11
+	AM-241	59.54		35.90	4.52E-02	1.35E-01	1.35E-01
+	AM-243	74.67	*	66.00	1.77E-01	1.23E-01	1.23E-01
+	CM-243	209.75		3.29	1.32E+00	3.41E-01	1.58E+00
		228.14		10.60	1.98E-01		4.84E-01
		277.60		14.00	1.98E-02		3.41E-01

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	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	1.75E+00	1.75E+00	4.17E-01	8.25E-01
	NA-22	1274.54		99.94	8.87E-02	8.87E-02	2.36E-02	4.05E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	5.22E-02	5.22E-02	8.69E-03	2.14E-02
+	K-40	1460.81	*	10.67	6.78E-01	6.78E-01	1.56E+01	3.01E-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	4.98E-02	4.98E-02	3.60E-02	2.43E-02
		78.34		96.00	5.98E-02		1.38E-01	2.94E-02
	SC-46	889.25		99.98	1.43E-01	1.43E-01	-2.72E-02	6.61E-02
		1120.51		99.99	2.58E-01		3.02E-01	1.22E-01
	V-48	983.52		99.98	4.10E+00	3.77E+00	7.63E-01	1.89E+00
		1312.10		97.50	3.77E+00		-1.80E+00	1.67E+00
	CR-51	320.08		9.83	5.10E+00	5.10E+00	1.44E+00	2.44E+00
	MN-54	834.83		99.97	9.46E-02	9.46E-02	3.39E-02	4.42E-02
	CO-56	846.75		99.96	1.49E-01	1.49E-01	6.45E-04	6.86E-02
		1037.75		14.03	1.22E+00		4.18E-01	5.60E-01
		1238.25		67.00	3.58E-01		2.15E-01	1.67E-01
		1771.40		15.51	7.04E-01		-2.91E-02	2.84E-01
		2598.48		16.90	5.41E-01		1.94E-02	1.92E-01
	CO-57	122.06		85.51	5.10E-02	5.10E-02	-1.25E-02	2.47E-02
		136.48		10.60	4.23E-01		-1.97E-01	2.05E-01
	CO-58	810.76		99.40	1.55E-01	1.55E-01	-4.58E-02	7.13E-02
	FE-59	1099.22		56.50	5.99E-01	5.99E-01	8.48E-02	2.76E-01
		1291.56		43.20	7.49E-01		1.57E-01	3.39E-01
	CO-60	1173.22		100.00	9.24E-02	7.74E-02	4.73E-02	4.27E-02
		1332.49		100.00	7.74E-02		0.00E+00	3.49E-02
	ZN-65	1115.52		50.75	2.05E-01	2.05E-01	3.79E-03	9.45E-02
	GA-67	93.31		35.70	4.79E+07	4.79E+07	6.90E+07	2.34E+07
		208.95		2.24	8.79E+08		5.50E+08	4.27E+08
		300.22		16.00	1.29E+08		5.02E+07	6.22E+07
	SE-75	121.11		16.70	3.53E-01	1.05E-01	-3.63E-02	1.71E-01
		136.00		59.20	1.05E-01		1.83E-02	5.10E-02
		264.65		59.80	1.40E-01		4.22E-02	6.72E-02
		279.53		25.20	3.29E-01		1.43E-02	1.58E-01
		400.65		11.40	7.98E-01		-4.45E-02	3.80E-01
	RB-82	776.52		13.00	6.29E+00	6.29E+00	2.47E+00	2.92E+00
	RB-83	520.41		46.00	2.61E-01	2.61E-01	2.70E-02	1.23E-01
		529.64		30.30	3.61E-01		-1.82E-01	1.69E-01
		552.65		16.40	6.98E-01		-4.10E-01	3.27E-01
	KR-85	513.99		0.43	1.97E+01	1.97E+01	3.09E-01	9.50E+00
	SR-85	513.99		99.27	2.29E-01	2.29E-01	3.59E-03	1.10E-01
	Y-88	898.02		93.40	1.19E-01	6.95E-02	-5.95E-02	5.43E-02
		1836.01		99.38	6.95E-02		-6.45E-02	2.60E-02
	MO-93	263.06		56.72	8.52E-02	5.74E-02	2.49E-02	4.10E-02
		684.67		99.68	6.17E-02		-2.05E-02	2.87E-02
		1477.11		99.08	5.74E-02		-2.39E-02	2.46E-02
	NB-93M	16.57		9.43	5.08E+01	5.08E+01	-5.03E+00	2.47E+01
	NB-94	702.63		100.00	6.69E-02	6.69E-02	-3.84E-03	3.13E-02
		871.10		100.00	6.79E-02		7.87E-03	3.14E-02
	NB-95	765.79		99.81	4.83E-01	4.83E-01	2.70E-01	2.27E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NB-95M	235.69		25.00	1.70E+07	1.70E+07	-1.65E+07	8.31E+06
	ZR-95	724.18		43.70	4.46E-01	3.32E-01	-1.29E-01	2.09E-01
		756.72		55.30	3.32E-01		1.90E-02	1.55E-01
	MO-99	181.06		6.20	9.49E+09	6.43E+09	2.75E+08	4.58E+09
		739.58		12.80	6.43E+09		-5.69E+09	2.96E+09
		778.00		4.50	2.12E+10		-9.33E+08	9.83E+09
	RU-103	497.08		89.00	2.99E-01	2.99E-01	-5.52E-02	1.40E-01
	RU-106	621.84		9.80	6.54E-01	6.54E-01	-5.98E-01	3.04E-01
	AG-108M	433.93		89.90	5.75E-02	5.75E-02	5.08E-03	2.72E-02
		614.37		90.40	8.03E-02		-1.71E-03	3.81E-02
		722.95		90.50	7.34E-02		-7.80E-02	3.43E-02
+	CD-109	88.03	*	3.72	2.86E+00	2.86E+00	2.74E+00	1.42E+00
	AG-110M	657.75		93.14	9.56E-02	9.56E-02	-2.17E-02	4.50E-02
		677.61		10.53	7.96E-01		-1.38E-01	3.72E-01
		706.67		16.46	5.55E-01		2.35E-01	2.61E-01
		763.93		21.98	4.05E-01		-2.69E-01	1.89E-01
		884.67		71.63	1.25E-01		6.07E-02	5.80E-02
		1384.27		23.94	3.67E-01		1.43E-01	1.63E-01
	CD-113M	263.70		0.02	2.12E+02	2.12E+02	6.13E+01	1.02E+02
	SN-113	255.12		1.93	4.47E+00	1.43E-01	3.31E-01	2.15E+00
		391.69		64.90	1.43E-01		-1.87E-02	6.81E-02
	TE123M	159.00		84.10	7.87E-02	7.87E-02	5.36E-03	3.81E-02
	SB-124	602.71		97.87	1.82E-01	1.82E-01	-2.21E-02	8.56E-02
		645.85		7.26	2.24E+00		8.70E-02	1.04E+00
		722.78		11.10	1.74E+00		-1.85E+00	8.14E-01
		1691.02		49.00	2.36E-01		-2.23E-01	9.14E-02
	I-125	35.49		6.49	4.29E+00	4.29E+00	-7.60E-01	2.08E+00
	SB-125	176.33		6.89	5.81E-01	1.93E-01	-1.37E-01	2.80E-01
		427.89		29.33	1.93E-01		9.15E-03	9.17E-02
		463.38		10.35	6.67E-01		8.55E-02	3.19E-01
		600.56		17.80	3.63E-01		2.78E-02	1.70E-01
		635.90		11.32	5.53E-01		2.26E-01	2.58E-01
	SB-126	414.70		83.30	1.18E+01	1.09E+01	-1.25E+00	5.63E+00
		666.33		99.60	1.19E+01		-2.46E+00	5.59E+00
		695.00		99.60	1.09E+01		-9.46E-01	5.05E+00
		720.50		53.80	2.22E+01		4.20E+00	1.04E+01
+	SN-126	87.57	*	37.00	2.51E-01	2.51E-01	2.40E-01	1.24E-01
	SB-127	473.00		25.00	4.41E+06	3.15E+06	1.31E+06	2.09E+06
		685.20		35.70	3.15E+06		-1.04E+06	1.47E+06
		783.80		14.70	8.49E+06		7.67E+04	3.95E+06
	I-129	29.78		57.00	2.96E-01	2.96E-01	-1.33E-01	1.44E-01
		33.60		13.20	8.55E-01		2.48E-01	4.15E-01
		39.58		7.52	9.83E-01		-4.22E-02	4.78E-01
	I-131	284.30		6.05	2.41E+03	1.94E+02	-3.42E+02	1.16E+03
		364.48		81.20	1.94E+02		4.04E+01	9.28E+01
		636.97		7.26	2.29E+03		-5.76E+02	1.06E+03
		722.89		1.80	1.11E+04		-1.18E+04	5.20E+03
	TE-132	49.72		13.10	1.58E+08	2.25E+07	-2.55E+07	7.68E+07
		228.16		88.00	2.25E+07		9.18E+06	1.09E+07
	BA-133	81.00		33.00	1.33E-01	1.07E-01	-2.13E-01	6.51E-02
		302.84		17.80	2.84E-01		-8.15E-03	1.36E-01
		356.01		60.00	1.07E-01		-2.51E-02	5.15E-02
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
XE-133	81.00	38.00	2.47E+04	2.47E+04	-3.94E+04	1.21E+04
CS-134	563.23	8.38	7.52E-01	7.56E-02	3.77E-01	3.53E-01
	569.32	15.43	3.86E-01		-2.21E-01	1.80E-01
	604.70	97.60	7.56E-02		1.96E-03	3.57E-02
	795.84	85.40	7.69E-02		-9.69E-03	3.54E-02
	801.93	8.73	8.43E-01		1.12E-01	3.92E-01
CS-135	268.24	16.00	3.31E-01	3.31E-01	-1.41E-02	1.60E-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	6.95E+01	8.62E+00	4.16E+00	3.37E+01
	163.89	4.61	1.13E+02		-9.32E+00	5.48E+01
	176.55	13.56	3.71E+01		-8.73E+00	1.79E+01
	273.65	12.66	5.34E+01		-1.42E+01	2.57E+01
	340.57	48.50	1.82E+01		3.38E+01	8.80E+00
	818.50	99.70	8.62E+00		-5.33E-01	3.98E+00
	1048.07	79.60	1.14E+01		-2.86E+00	5.18E+00
	1235.34	19.70	6.39E+01		-1.18E+01	2.96E+01
CS-137	661.65	85.12	8.35E-02	8.35E-02	-5.46E-04	3.93E-02
LA-138	788.74	34.00	2.09E-01	1.01E-01	7.74E-02	9.78E-02
	1435.80	66.00	1.01E-01		-7.77E-03	4.47E-02
CE-139	165.85	80.35	7.84E-02	7.84E-02	7.78E-03	3.79E-02
BA-140	162.64	6.70	8.89E+01	3.36E+01	-3.92E+01	4.30E+01
	304.84	4.50	1.61E+02		-1.27E+02	7.72E+01
	423.70	3.20	2.62E+02		2.29E+01	1.25E+02
	437.55	2.00	3.83E+02		-6.47E+01	1.81E+02
	537.32	25.00	3.36E+01		1.06E+01	1.58E+01
LA-140	328.77	20.50	4.10E+01	1.20E+01	1.56E+00	1.97E+01
	487.03	45.50	1.85E+01		6.99E+00	8.74E+00
	815.85	23.50	4.12E+01		-5.48E+00	1.90E+01
	1596.49	95.49	1.20E+01		-1.79E+00	5.31E+00
CE-141	145.44	48.40	5.78E-01	5.78E-01	-1.59E-01	2.81E-01
@ 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	4.16E-01	4.16E-01	-2.89E-01	2.02E-01
PM-144	476.78	42.00	1.59E-01	6.98E-02	4.40E-02	7.53E-02
	618.01	98.60	6.98E-02		-1.79E-03	3.26E-02
	696.49	99.49	7.15E-02		-1.42E-02	3.32E-02
PM-145	36.85	21.70	3.97E-01	2.15E-01	-1.58E-01	1.93E-01
	37.36	39.70	2.15E-01		-1.88E-02	1.04E-01
	42.30	15.10	4.44E-01		-1.75E-01	2.16E-01
	72.40	2.31	2.16E+00		-7.40E-01	1.06E+00
PM-146	453.90	39.94	1.38E-01	1.38E-01	-3.07E-03	6.55E-02
	735.90	14.01	4.39E-01		1.18E-01	2.03E-01
	747.13	13.10	5.35E-01		-5.02E-02	2.50E-01
ND-147	91.11	28.90	5.64E+01	5.64E+01	-1.54E+01	2.76E+01
	531.02	13.10	1.47E+02		1.32E+01	6.92E+01
PM-149	285.90	3.10	7.12E+12	7.12E+12	7.34E+10	3.42E+12
EU-152	121.78	20.50	1.70E-01	1.70E-01	-4.17E-02	8.22E-02
	244.69	5.40	1.03E+00		-4.10E-02	4.98E-01
	344.27	19.13	2.54E-01		-5.90E-02	1.21E-01
	778.89	9.20	7.02E-01		-1.37E-01	3.25E-01

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	964.01		10.40	7.92E-01	1.70E-01	-1.05E-01	3.69E-01
		1085.78		7.22	1.03E+00		1.47E-01	4.70E-01
		1112.02		9.60	8.43E-01		1.93E-01	3.88E-01
		1407.95		14.94	5.04E-01		-1.09E-02	2.26E-01
	GD-153	97.43		31.30	1.53E-01	1.53E-01	1.10E-01	7.45E-02
		103.18		22.20	2.00E-01		-1.99E-01	9.69E-02
	EU-154	123.07		40.50	8.81E-02	8.81E-02	7.76E-03	4.27E-02
		723.30		19.70	3.44E-01		-3.65E-01	1.61E-01
		873.19		11.50	6.09E-01		2.11E-01	2.82E-01
		996.32		10.30	7.56E-01		1.10E-01	3.49E-01
		1004.76		17.90	4.69E-01		2.38E-01	2.18E-01
		1274.45		35.50	2.38E-01		6.33E-02	1.09E-01
	EU-155	86.50		30.90	1.52E-01	1.52E-01	7.15E-02	7.41E-02
		105.30		20.70	1.78E-01		4.43E-02	8.65E-02
	EU-156	811.77		10.40	4.02E+01	4.02E+01	-9.28E+00	1.85E+01
		1153.47		7.20	8.73E+01		-7.46E+00	4.05E+01
		1230.71		8.90	7.20E+01		1.02E+01	3.33E+01
	HO-166M	184.41		72.60	6.29E-02	6.29E-02	6.22E-02	3.05E-02
		280.45		29.60	1.64E-01		1.41E-02	7.88E-02
		410.94		11.10	4.93E-01		1.14E-02	2.35E-01
		711.69		54.10	1.16E-01		-1.16E-02	5.39E-02
	TM-171	66.72		0.14	3.72E+01	3.72E+01	-5.13E+00	1.82E+01
	HF-172	67.35		5.31	9.73E-01	3.40E-01	7.04E-01	4.76E-01
		125.81		11.30	3.40E-01		-2.56E-01	1.65E-01
	LU-172	181.53		20.60	2.90E+03	1.99E+03	3.40E+02	1.40E+03
		900.72		29.81	3.28E+03		3.08E+02	1.51E+03
		1093.66		62.50	1.99E+03		1.26E+03	9.18E+02
	LU-173	100.72		5.24	7.90E-01	2.88E-01	3.91E-01	3.84E-01
		272.11		21.20	2.88E-01		3.24E-02	1.39E-01
	HF-175	343.40		84.00	1.43E-01	1.43E-01	-3.32E-02	6.81E-02
	LU-176	88.34		13.30	3.46E-01	4.81E-02	3.72E-03	1.69E-01
		201.83		86.00	4.81E-02		1.54E-02	2.32E-02
		306.78		94.00	5.11E-02		8.97E-03	2.45E-02
	HF-181	133.02		41.70	4.06E-01	2.87E-01	-5.11E-02	1.97E-01
		345.85		17.20	1.24E+00		-2.97E-01	5.89E-01
		482.03		82.80	2.87E-01		-6.44E-02	1.35E-01
	TA-182	67.75		41.20	2.00E-01	2.00E-01	1.45E-01	9.77E-02
		1121.30		34.90	6.01E-01		5.85E-01	2.84E-01
		1189.05		16.23	8.96E-01		-5.46E-01	4.11E-01
		1221.41		26.98	5.74E-01		1.19E-01	2.65E-01
		1231.02		11.44	1.42E+00		2.01E-01	6.54E-01
	IR-192	308.46		29.68	4.10E-01	2.94E-01	5.48E-02	1.97E-01
		468.07		48.10	2.94E-01		1.62E-02	1.40E-01
	HG-203	279.19		77.30	2.43E-01	2.43E-01	-6.24E-02	1.17E-01
	TL-204	374.74		94.11	5.34E-02	5.34E-02	-1.02E-02	2.54E-02
		899.15		99.16	6.26E-02		-5.11E-02	2.85E-02
		911.74		91.10	1.37E-01		2.48E-01	6.54E-02
	BI-207	569.67		97.72	5.88E-02	5.88E-02	-5.42E-03	2.76E-02
		1063.62		74.90	1.05E-01		3.02E-02	4.85E-02
+	TL-208	583.14	*	30.22	3.30E-01	1.87E-01	9.59E-01	1.59E-01
		860.37		4.48	1.73E+00		6.50E-01	8.07E-01
		2614.66	*	35.85	1.87E-01		5.51E-01	7.70E-02
	BI-210M	262.00		45.00	1.04E-01	1.04E-01	1.07E-02	4.99E-02

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-210M	300.00		23.00	2.35E-01	1.04E-01	9.15E-02	1.13E-01
	PB-210	46.50		4.25	1.48E+00	1.48E+00	1.33E+00	7.20E-01
	PB-211	404.84		2.90	1.88E+00	1.88E+00	4.66E-01	8.97E-01
		831.96		2.90	2.35E+00		-6.56E-01	1.09E+00
	BI-212	727.17		11.80	6.61E-01	6.61E-01	2.31E-01	3.12E-01
		1620.62		2.75	1.75E+00		-1.83E-01	7.15E-01
+	PB-212	238.63	*	44.60	1.62E-01	1.62E-01	1.09E+00	7.94E-02
		300.09		3.41	1.59E+00		6.18E-01	7.65E-01
+	BI-214	609.31	*	46.30	2.37E-01	5.83E-02	5.61E-01	1.15E-01
		1120.29	*	15.10	1.12E+00		8.90E-01	5.38E-01
		1764.49	*	15.80	5.83E-02		5.39E-01	0.00E+00
		2204.22		4.98	1.55E+00		2.65E-02	6.67E-01
+	PB-214	295.21	*	19.19	3.50E-01	2.06E-01	6.17E-01	1.70E-01
		351.92	*	37.19	2.06E-01		7.22E-01	9.98E-02
	RN-219	401.80		6.50	8.20E-01	8.20E-01	-1.32E-01	3.90E-01
	RA-223	323.87		3.88	1.26E+00	1.26E+00	-1.97E-01	6.03E-01
	RA-224	240.98		3.95	2.39E+00	2.39E+00	1.28E+01	1.17E+00
	RA-225	40.00		31.00	1.81E+01	1.81E+01	-7.77E-01	8.80E+00
+	RA-226	186.21	*	3.28	1.68E+00	1.68E+00	1.23E+00	8.19E-01
	TH-227	50.10		8.40	6.28E-01	6.28E-01	-1.01E-01	3.06E-01
		236.00		11.50	6.55E-01		-6.37E-01	3.21E-01
		256.20		6.30	7.77E-01		2.92E-01	3.75E-01
+	AC-228	338.32	*	11.40	6.59E-01	3.46E-01	8.47E-01	3.20E-01
		911.07	*	27.70	3.46E-01		8.25E-01	1.63E-01
		969.11	*	16.60	6.85E-01		9.19E-01	3.25E-01
	TH-230	48.44		16.90	3.40E-01	3.40E-01	1.88E-01	1.66E-01
		62.85		4.60	1.12E+00		1.41E+00	5.50E-01
		67.67		0.37	1.27E+01		9.18E+00	6.20E+00
	PA-231	283.67		1.60	3.02E+00	2.16E+00	-5.46E-01	1.45E+00
		302.67		2.30	2.16E+00		-6.20E-02	1.03E+00
	TH-231	25.64		14.70	2.13E+00	6.67E-01	-2.45E-01	1.03E+00
		84.21		6.40	6.67E-01		-2.57E-01	3.26E-01
+	PA-233	311.98	*	38.60	1.50E+00	1.50E+00	7.85E-01	7.19E-01
	PA-234	131.20		20.40	1.91E-01	1.91E-01	1.68E-01	9.29E-02
		733.99		8.80	7.15E-01		-4.35E-02	3.33E-01
		946.00		12.00	5.03E-01		-3.35E-01	2.28E-01
	PA-234M	1001.03		0.92	8.92E+00	8.92E+00	3.38E+00	4.14E+00
+	TH-234	63.29	*	3.80	1.69E+00	1.69E+00	1.11E+00	8.31E-01
	U-235	143.76		10.50	3.71E-01	3.71E-01	1.35E-01	1.80E-01
		163.35		4.70	8.28E-01		-6.82E-02	4.01E-01
		205.31		4.70	1.05E+00		-4.99E-01	5.07E-01
	NP-237	86.50		12.60	3.59E-01	3.59E-01	1.69E-01	1.75E-01
	NP-239	106.10		22.70	1.20E+11	1.20E+11	2.98E+10	5.81E+10
		228.18		10.70	3.64E+11		1.49E+11	1.76E+11
		277.60		14.10	2.57E+11		1.49E+10	1.23E+11
	AM-241	59.54		35.90	1.35E-01	1.35E-01	4.52E-02	6.61E-02
+	AM-243	74.67	*	66.00	1.23E-01	1.23E-01	1.77E-01	6.08E-02
	CM-243	209.75		3.29	1.58E+00	3.41E-01	1.32E+00	7.69E-01
		228.14		10.60	4.84E-01		1.98E-01	2.35E-01
		277.60		14.00	3.41E-01		1.98E-02	1.64E-01

Analysis Report for 1707077-13

HTC-A01-S002-0612-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S002-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	5	148	152	144	114	97	77	87
17:	83	74	89	75	73	89	78	80
25:	76	78	81	79	83	88	67	76
33:	91	83	61	82	77	82	73	82
41:	94	68	83	86	96	101	123	113
49:	99	87	92	85	84	108	99	100
57:	85	110	122	106	107	148	150	172
65:	157	121	119	134	135	151	106	136
73:	122	166	253	283	305	370	196	117
81:	117	106	95	127	124	131	144	165
89:	135	136	144	132	179	170	131	75
97:	80	81	113	100	64	79	80	73
105:	78	84	84	88	77	72	82	94
113:	77	81	72	72	65	71	82	58
121:	66	70	70	78	68	72	64	63
129:	88	92	91	62	81	72	62	64
137:	71	76	51	73	68	66	78	75
145:	80	74	57	75	82	79	58	80
153:	71	67	66	63	54	65	73	67
161:	65	62	64	64	59	68	73	55
169:	69	54	40	64	48	68	56	49
177:	54	55	50	61	50	63	59	53
185:	61	102	96	70	41	53	47	67
193:	68	55	56	69	46	54	51	60
201:	50	56	41	56	43	46	60	55
209:	64	66	60	43	45	48	42	43
217:	44	49	43	56	47	52	41	33
225:	50	51	57	36	52	47	39	43
233:	49	48	38	46	32	159	327	251
241:	115	89	76	48	34	28	37	30
249:	38	35	40	35	36	25	37	40
257:	38	44	30	25	29	38	28	43
265:	25	37	30	33	34	52	61	42
273:	21	31	32	24	27	29	40	25
281:	27	27	34	27	34	29	25	25
289:	34	32	31	25	34	44	88	113
297:	60	24	26	42	38	23	20	25
305:	21	22	32	26	21	27	30	37
313:	26	26	20	20	32	17	24	26
321:	24	20	25	20	25	24	26	32
329:	39	18	24	37	29	30	29	23
337:	31	54	87	50	25	22	21	20
345:	17	13	22	20	18	28	58	152
353:	120	36	15	15	23	11	14	23
361:	21	23	16	22	24	16	22	28

369:	12	24	22	15	15	19	18	14

Sample Title: HTC-A01-S002-0612-01

Channel								
377:	19	20	14	16	18	21	20	19
385:	18	17	26	22	18	18	23	21
393:	27	13	16	15	21	19	23	19
401:	13	21	15	21	19	21	19	20
409:	22	15	26	15	21	14	22	14
417:	19	25	25	12	24	14	18	12
425:	25	13	18	13	19	13	15	20
433:	14	21	8	13	15	9	18	20
441:	13	12	13	15	20	19	13	13
449:	20	13	9	16	15	14	16	21
457:	14	20	8	12	16	20	32	29
465:	11	24	19	22	12	12	23	19
473:	15	20	14	18	18	9	12	14
481:	14	7	11	14	16	15	14	15
489:	13	9	10	15	9	10	17	10
497:	8	13	15	9	19	24	14	16
505:	11	12	13	14	19	33	81	46
513:	24	18	19	13	14	10	12	12
521:	14	11	16	17	11	12	10	10
529:	10	12	8	14	9	18	12	10
537:	10	11	9	9	7	9	12	15
545:	14	10	11	18	12	10	12	7
553:	10	14	10	11	12	15	8	14
561:	11	9	18	12	9	9	5	8
569:	16	8	9	16	16	17	12	10
577:	11	10	14	12	14	35	67	101
585:	32	13	15	16	8	11	10	10
593:	13	11	7	11	7	10	14	9
601:	11	11	10	15	13	12	12	27
609:	74	102	41	15	12	13	12	12
617:	7	11	8	8	10	9	6	6
625:	11	20	13	8	10	8	8	12
633:	13	5	10	10	4	16	9	4
641:	6	9	10	5	7	13	6	11
649:	6	8	9	14	12	11	12	13
657:	13	15	8	14	13	18	14	5
665:	20	11	14	7	7	8	13	12
673:	15	11	10	12	16	11	5	11
681:	8	9	12	10	10	6	7	8
689:	6	17	6	6	9	13	11	3
697:	7	10	9	5	9	12	11	10
705:	12	14	16	8	10	11	7	7
713:	6	11	10	8	7	11	8	9
721:	6	9	17	8	12	7	20	22
729:	13	13	6	13	10	7	11	7
737:	5	7	5	3	5	9	10	13
745:	11	8	10	9	10	6	8	13
753:	7	11	9	10	11	4	9	10
761:	5	11	9	14	5	10	12	16
769:	17	10	7	10	4	8	7	7
777:	12	8	10	6	5	6	13	6
785:	5	19	6	9	9	9	8	7
793:	6	11	8	6	5	4	6	5

801:	9	9	8	9	12	13	8	10

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Channel								
809:	4	7	8	3	6	9	7	6
817:	6	7	7	7	11	6	3	11
825:	7	4	6	7	4	6	12	5
833:	10	7	11	13	11	14	4	10
841:	10	8	7	4	5	9	8	6
849:	9	8	6	7	7	1	8	8
857:	6	3	11	12	9	18	9	9
865:	5	7	9	5	7	7	3	11
873:	8	9	8	5	3	5	5	6
881:	2	8	4	7	8	6	8	10
889:	6	5	6	5	8	7	9	5
897:	5	2	6	3	7	7	8	10
905:	8	5	7	6	9	25	59	31
913:	21	3	4	5	7	12	4	5
921:	5	6	10	5	5	11	7	10
929:	4	8	5	2	5	8	8	7
937:	5	7	10	7	10	4	5	3
945:	6	1	5	4	9	10	6	6
953:	7	4	7	12	9	11	7	5
961:	2	8	8	11	10	12	10	17
969:	45	29	9	8	7	6	7	5
977:	5	7	3	6	8	9	5	4
985:	6	4	10	8	5	4	5	5
993:	5	8	8	10	3	8	8	10
1001:	5	9	8	10	5	7	9	10
1009:	4	4	5	6	3	6	4	10
1017:	5	9	5	4	3	8	2	5
1025:	5	11	4	7	9	6	6	1
1033:	7	4	4	3	3	13	6	8
1041:	8	1	7	7	7	5	4	7
1049:	4	2	6	8	3	7	3	12
1057:	6	10	3	6	7	4	7	3
1065:	10	9	7	1	11	4	5	4
1073:	6	4	6	5	8	5	4	7
1081:	4	8	4	7	3	6	5	9
1089:	5	0	8	8	4	6	7	11
1097:	6	6	4	8	6	5	3	8
1105:	2	5	6	6	6	11	5	6
1113:	5	9	3	8	8	6	17	27
1121:	22	13	12	8	7	9	4	10
1129:	5	9	10	0	7	7	8	4
1137:	6	6	6	3	4	8	7	4
1145:	13	3	5	5	9	4	7	10
1153:	7	10	7	10	8	11	10	8
1161:	6	4	4	4	6	5	9	3
1169:	6	5	9	8	8	5	8	9
1177:	6	4	9	10	8	11	4	15
1185:	7	7	4	5	10	5	4	8
1193:	10	5	4	11	2	1	7	8
1201:	7	8	4	11	3	10	9	17
1209:	5	9	3	6	7	7	4	7
1217:	5	6	10	10	5	6	4	6
1225:	7	4	8	9	11	3	14	4

1233:	4	6	8	9	13	9	20	4

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Channel								
1241:	5	6	8	11	3	9	6	11
1249:	8	5	5	2	7	4	7	7
1257:	5	2	2	9	6	4	6	8
1265:	8	2	2	7	6	7	10	3
1273:	8	5	4	4	4	2	4	5
1281:	4	5	7	2	4	6	3	5
1289:	5	2	8	8	0	3	1	5
1297:	1	6	5	7	5	3	6	4
1305:	4	7	7	5	4	5	3	4
1313:	3	0	2	4	4	4	0	4
1321:	2	7	7	3	4	3	6	2
1329:	1	4	3	3	6	4	7	5
1337:	3	3	2	5	2	3	1	3
1345:	2	1	4	3	1	2	5	4
1353:	2	7	0	2	4	4	4	2
1361:	2	4	4	0	4	1	2	2
1369:	1	2	4	3	4	3	7	6
1377:	10	6	3	1	5	3	3	5
1385:	1	3	1	1	2	2	3	3
1393:	1	1	3	5	1	5	4	0
1401:	2	4	1	5	6	4	2	5
1409:	4	2	2	6	2	0	3	0
1417:	3	3	1	1	2	4	3	1
1425:	3	1	2	2	2	3	3	2
1433:	1	2	2	2	5	3	4	4
1441:	3	3	2	4	2	1	3	6
1449:	2	2	3	4	2	1	2	3
1457:	3	9	75	204	204	68	9	0
1465:	2	1	3	3	2	2	0	5
1473:	1	2	4	0	0	1	0	3
1481:	1	1	3	1	3	1	3	2
1489:	1	2	0	2	1	3	2	4
1497:	0	4	1	5	0	3	3	1
1505:	3	1	2	1	1	1	1	0
1513:	0	1	0	0	2	4	2	1
1521:	0	1	0	1	1	1	2	3
1529:	0	2	1	0	1	3	2	1
1537:	3	0	0	3	1	1	5	1
1545:	0	0	0	0	0	0	0	2
1553:	1	4	1	1	0	0	1	1
1561:	0	1	0	2	0	1	3	0
1569:	0	3	1	3	1	2	2	0
1577:	3	0	2	4	0	0	1	3
1585:	1	2	3	1	5	4	5	7
1593:	5	5	0	0	1	1	1	0
1601:	1	0	1	1	1	2	0	1
1609:	0	0	0	1	2	2	2	2
1617:	0	1	2	0	1	1	0	0
1625:	0	1	1	1	4	2	4	3
1633:	2	2	1	1	0	1	3	1
1641:	1	0	0	1	1	0	2	0
1649:	3	2	1	1	0	2	1	0
1657:	0	1	1	1	1	1	1	4

1665:	0	3	5	2	0	1	4	0

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

2097:	0	2	2	3	0	2	3	2

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

2529:	0	1	0	0	0	1	0	0

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Channel								
2537:	0	0	2	0	1	1	1	0
2545:	1	0	0	0	0	1	0	1
2553:	1	0	0	1	2	0	0	0
2561:	1	0	0	0	1	0	0	1
2569:	0	0	0	0	0	1	0	0
2577:	0	0	0	0	1	0	1	0
2585:	0	0	0	0	1	0	0	0
2593:	1	0	0	1	0	0	0	0
2601:	0	1	0	0	0	0	0	2
2609:	0	0	1	6	14	17	11	1
2617:	0	0	0	0	0	0	0	0
2625:	0	2	0	0	0	1	1	0
2633:	1	0	0	0	0	1	0	0
2641:	1	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	1	0	0	0	1	0	2
2665:	1	0	0	0	0	2	0	0
2673:	0	0	0	1	1	0	0	0
2681:	0	0	1	0	0	1	0	1
2689:	0	0	0	0	0	0	1	0
2697:	0	0	0	0	0	0	0	0
2705:	1	0	0	0	1	0	0	0
2713:	0	0	0	0	2	0	0	1
2721:	0	1	0	1	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	1	0	0
2745:	1	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	1
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	1	0	2	0	0
2777:	0	0	0	0	0	0	0	0
2785:	1	1	0	0	1	0	1	0
2793:	0	0	0	0	1	1	0	0
2801:	0	1	0	0	0	0	0	0
2809:	0	0	0	1	0	0	0	0
2817:	1	0	0	0	0	1	0	1
2825:	1	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	1	1	1	0	1	1
2849:	1	0	1	0	0	1	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	1	0	0	0	0	1	1
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	0	0	1	0	0
2889:	2	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	1	1	1	1	1	1	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	1	0	0	0	0	0
2945:	1	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	1	0	0	0	0	0

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

3393:	1	0	0	0	0	0	0	0

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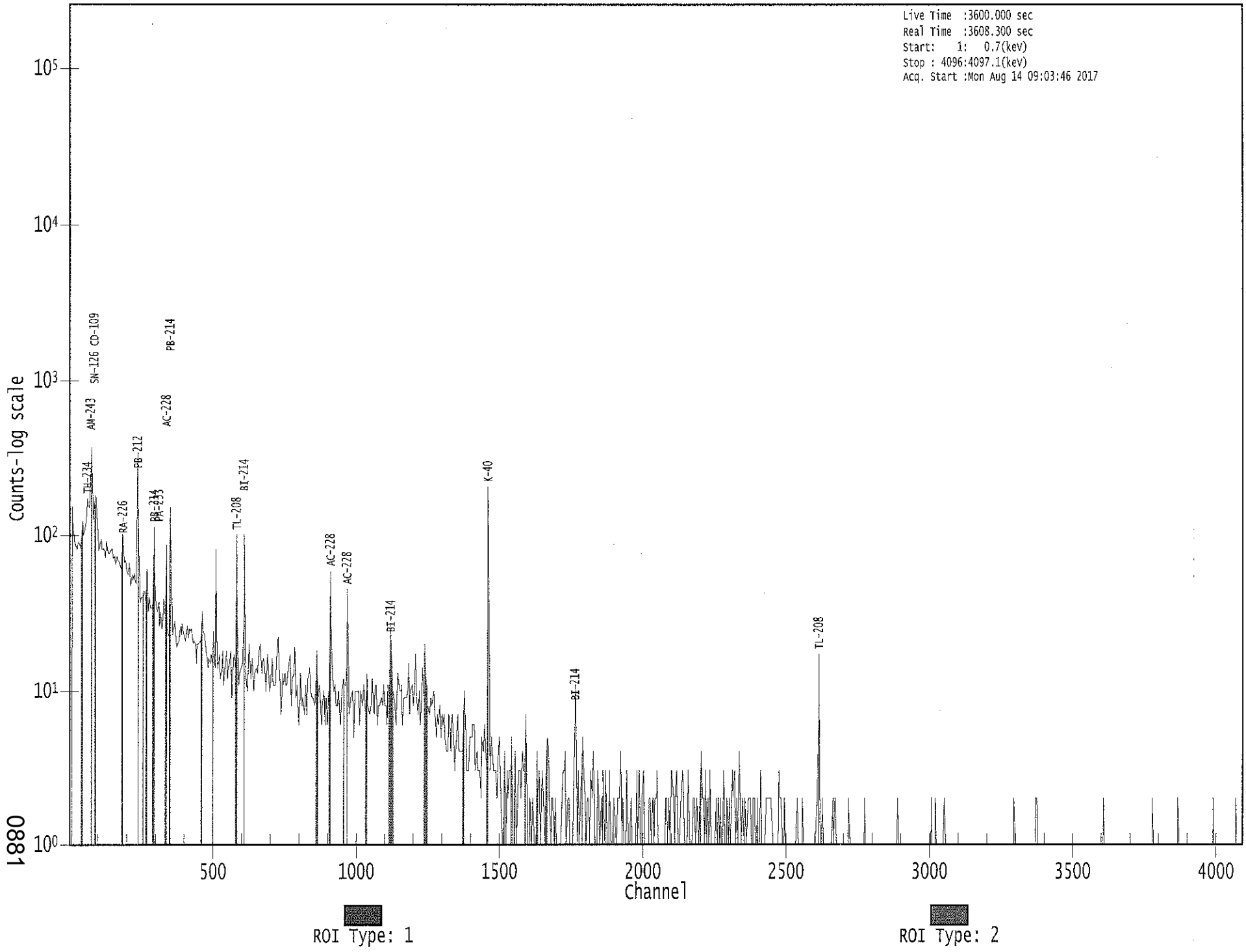
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	1	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	1	0	0	0	0	1	0
3433:	0	0	1	1	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	1	0
3457:	0	0	0	1	0	0	0	0
3465:	0	1	1	0	0	1	0	0
3473:	0	0	0	1	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	1	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-0612-01

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

0000055149.CNF



0081

Apex-Gamma

8/14

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-14
Sample Description	: HTC-A01-S002-1218-01
Sample Type	: SOIL
Sample Size	: 8.136E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:37:40AM
Acquisition Started	: 8/14/2017 9:03:53AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3603.1 seconds
Dead Time	: 0.08 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55150

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 10:04:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	76.30	75.36	0.0000	0.00
2	182.82	181.91	0.0000	0.00
3	186.23	185.32	0.0000	0.00
4	238.79	237.90	0.0000	0.00
5	242.61	241.72	0.0000	0.00
6	295.15	294.27	0.0000	0.00
7	301.43	300.56	0.0000	0.00
8	338.76	337.90	0.0000	0.00
9	351.90	351.05	0.0000	0.00
10	403.04	402.21	0.0000	0.00
11	409.74	408.91	0.0000	0.00
12	461.75	460.94	0.0000	0.00
13	510.89	510.10	0.0000	0.00
14	583.56	582.79	0.0000	0.00
15	609.13	608.37	0.0000	0.00
16	727.60	726.89	0.0000	0.00
17	736.47	735.76	0.0000	0.00
18	795.14	794.46	0.0000	0.00
19	860.70	860.04	0.0000	0.00
20	911.39	910.75	0.0000	0.00
21	968.15	967.54	0.0000	0.00
22	1121.19	1120.65	0.0000	0.00
23	1141.93	1141.39	0.0000	0.00
24	1348.51	1348.08	0.0000	0.00
25	1430.30	1429.91	0.0000	0.00
26	1460.49	1460.11	0.0000	0.00
27	1538.85	1538.51	0.0000	0.00
28	1545.61	1545.27	0.0000	0.00
29	1559.73	1559.40	0.0000	0.00
30	1613.76	1613.47	0.0000	0.00
31	1762.86	1762.64	0.0000	0.00
32	1846.60	1846.43	0.0000	0.00
33	2102.29	2102.27	0.0000	0.00
34	2614.82	2615.14	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 10:04:31AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	76.30	69 -	81	75.36	8.11E+02	149.49	2.24E+03	3.76
M	2	182.82	179 -	190	181.91	4.20E+01	51.58	4.89E+02	2.78
m	3	186.23	179 -	190	185.32	1.21E+02	67.56	6.39E+02	2.77
M	4	238.79	233 -	247	237.90	5.17E+02	64.80	4.01E+02	2.50
m	5	242.61	233 -	247	241.72	7.02E+01	65.15	3.69E+02	2.63
M	6	295.15	289 -	304	294.27	1.36E+02	48.17	2.98E+02	2.59
m	7	301.43	289 -	304	300.56	4.29E+01	54.49	3.51E+02	3.47
	8	338.76	334 -	342	337.90	7.16E+01	51.15	3.55E+02	2.28
	9	351.90	346 -	357	351.05	2.71E+02	61.51	3.41E+02	2.29
	10	403.04	398 -	405	402.21	4.34E+01	35.67	1.73E+02	2.94
	11	409.74	406 -	412	408.91	3.11E+01	29.97	1.42E+02	3.15
	12	461.75	458 -	466	460.94	4.64E+01	33.28	1.47E+02	4.79
	13	510.89	505 -	516	510.10	1.01E+02	46.13	2.14E+02	2.30
	14	583.56	579 -	588	582.79	1.62E+02	35.64	8.54E+01	2.73
	15	609.13	601 -	614	608.37	1.72E+02	46.90	1.68E+02	2.94
M	16	727.60	722 -	738	726.89	3.86E+01	24.82	9.37E+01	2.60
m	17	736.47	722 -	738	735.76	1.89E+01	18.89	4.23E+01	2.60
	18	795.14	791 -	797	794.46	2.74E+01	17.28	3.33E+01	3.52
	19	860.70	857 -	863	860.04	3.26E+01	20.78	5.28E+01	2.91
	20	911.39	906 -	915	910.75	8.01E+01	30.22	8.39E+01	2.86
	21	968.15	962 -	972	967.54	5.70E+01	34.17	1.22E+02	2.07
	22	1121.19	1114 -	1129	1120.65	6.10E+01	36.99	1.14E+02	3.55
	23	1141.93	1138 -	1144	1141.39	1.58E+01	19.50	5.44E+01	2.52
	24	1348.51	1343 -	1354	1348.08	1.38E+01	14.14	1.85E+01	2.28
	25	1430.30	1425 -	1434	1429.91	1.38E+01	12.45	1.24E+01	7.75
	26	1460.49	1453 -	1467	1460.11	4.40E+02	41.95	0.00E+00	3.01
	27	1538.85	1534 -	1541	1538.51	6.78E+00	7.21	4.44E+00	3.64
	28	1545.61	1542 -	1548	1545.27	1.10E+01	6.63	0.00E+00	4.20
	29	1559.73	1556 -	1562	1559.40	6.25E+00	6.65	3.50E+00	2.51
	30	1613.76	1610 -	1615	1613.47	6.11E+00	7.35	5.78E+00	1.62
	31	1762.86	1756 -	1767	1762.64	1.93E+01	14.83	1.75E+01	2.96
	32	1846.60	1842 -	1849	1846.43	7.00E+00	5.29	0.00E+00	1.47
	33	2102.29	2099 -	2105	2102.27	9.41E+00	7.50	3.18E+00	1.39
	34	2614.82	2611 -	2619	2615.14	3.60E+01	12.00	0.00E+00	3.07

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

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 : 8/14/2017 10:04:31AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	76.30	69 -	81	8.11E+02	149.49	2.24E+03	1.14E+02
M	2	182.82	179 -	190	4.20E+01	51.58	4.89E+02	3.64E+01
m	3	186.23	179 -	190	1.21E+02	67.56	6.39E+02	4.15E+01
M	4	238.79	233 -	247	5.17E+02	64.80	4.01E+02	3.29E+01
m	5	242.61	233 -	247	7.02E+01	65.15	3.69E+02	3.16E+01
M	6	295.15	289 -	304	1.36E+02	48.17	2.98E+02	2.84E+01
m	7	301.43	289 -	304	4.29E+01	54.49	3.51E+02	3.08E+01
	8	338.76	334 -	342	7.16E+01	51.15	3.55E+02	3.97E+01
	9	351.90	346 -	357	2.71E+02	61.51	3.41E+02	4.27E+01
	10	403.04	398 -	405	4.34E+01	35.67	1.73E+02	2.72E+01
	11	409.74	406 -	412	3.11E+01	29.97	1.42E+02	2.29E+01
	12	461.75	458 -	466	4.64E+01	33.28	1.47E+02	2.50E+01
	13	510.89	505 -	516	1.01E+02	46.13	2.14E+02	3.41E+01
	14	583.56	579 -	588	1.62E+02	35.64	8.54E+01	2.05E+01
	15	609.13	601 -	614	1.72E+02	46.90	1.68E+02	3.20E+01
M	16	727.60	722 -	738	3.86E+01	24.82	9.37E+01	1.59E+01
m	17	736.47	722 -	738	1.89E+01	18.89	4.23E+01	1.07E+01
	18	795.14	791 -	797	2.74E+01	17.28	3.33E+01	1.13E+01
	19	860.70	857 -	863	3.26E+01	20.78	5.28E+01	1.43E+01
	20	911.39	906 -	915	8.01E+01	30.22	8.39E+01	2.00E+01
	21	968.15	962 -	972	5.70E+01	34.17	1.22E+02	2.52E+01
	22	1121.19	1114 -	1129	6.10E+01	36.99	1.14E+02	2.76E+01
	23	1141.93	1138 -	1144	1.58E+01	19.50	5.44E+01	1.46E+01
	24	1348.51	1343 -	1354	1.38E+01	14.14	1.85E+01	9.90E+00
	25	1430.30	1425 -	1434	1.38E+01	12.45	1.24E+01	8.22E+00
	26	1460.49	1453 -	1467	4.40E+02	41.95	0.00E+00	0.00E+00
	27	1538.85	1534 -	1541	6.78E+00	7.21	4.44E+00	4.10E+00
	28	1545.61	1542 -	1548	1.10E+01	6.63	0.00E+00	0.00E+00
	29	1559.73	1556 -	1562	6.25E+00	6.65	3.50E+00	3.61E+00
	30	1613.76	1610 -	1615	6.11E+00	7.35	5.78E+00	4.47E+00
	31	1762.86	1756 -	1767	1.93E+01	14.83	1.75E+01	9.83E+00

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1846.60	1842 -	1849	7.00E+00	5.29	0.00E+00	0.00E+00
33	2102.29	2099 -	2105	9.41E+00	7.50	3.18E+00	3.55E+00
34	2614.82	2611 -	2619	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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 10:04:31AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	76.30	69 -	81	75.36	8.11E+02	149.49	2.24E+03	.....
M	2	182.82	179 -	190	181.91	4.20E+01	51.58	4.89E+02	.....
m	3	186.23	179 -	190	185.32	1.21E+02	67.56	6.39E+02	RA-226
M	4	238.79	233 -	247	237.90	5.17E+02	64.80	4.01E+02	PB-212
m	5	242.61	233 -	247	241.72	7.02E+01	65.15	3.69E+02	.....
M	6	295.15	289 -	304	294.27	1.36E+02	48.17	2.98E+02	PB-214
m	7	301.43	289 -	304	300.56	4.29E+01	54.49	3.51E+02	.....
	8	338.76	334 -	342	337.90	7.16E+01	51.15	3.55E+02	AC-228
	9	351.90	346 -	357	351.05	2.71E+02	61.51	3.41E+02	PB-214
	10	403.04	398 -	405	402.21	4.34E+01	35.67	1.73E+02	.....
	11	409.74	406 -	412	408.91	3.11E+01	29.97	1.42E+02	.....
	12	461.75	458 -	466	460.94	4.64E+01	33.28	1.47E+02	.....
	13	510.89	505 -	516	510.10	1.01E+02	46.13	2.14E+02	.....
	14	583.56	579 -	588	582.79	1.62E+02	35.64	8.54E+01	TL-208
	15	609.13	601 -	614	608.37	1.72E+02	46.90	1.68E+02	BI-214
M	16	727.60	722 -	738	726.89	3.86E+01	24.82	9.37E+01	BI-212
m	17	736.47	722 -	738	735.76	1.89E+01	18.89	4.23E+01	PM-146
	18	795.14	791 -	797	794.46	2.74E+01	17.28	3.33E+01	CS-134
	19	860.70	857 -	863	860.04	3.26E+01	20.78	5.28E+01	TL-208
	20	911.39	906 -	915	910.75	8.01E+01	30.22	8.39E+01	AC-228 TL-204
	21	968.15	962 -	972	967.54	5.70E+01	34.17	1.22E+02	AC-228
	22	1121.19	1114 -	1129	1120.65	6.10E+01	36.99	1.14E+02	TA-182

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								SC-46 BI-214
23	1141.93	1138 -	1144	1141.39	1.58E+01	19.50	5.44E+01	.....
24	1348.51	1343 -	1354	1348.08	1.38E+01	14.14	1.85E+01	.....
25	1430.30	1425 -	1434	1429.91	1.38E+01	12.45	1.24E+01	.....
26	1460.49	1453 -	1467	1460.11	4.40E+02	41.95	0.00E+00	K-40
27	1538.85	1534 -	1541	1538.51	6.78E+00	7.21	4.44E+00	.....
28	1545.61	1542 -	1548	1545.27	1.10E+01	6.63	0.00E+00	.....
29	1559.73	1556 -	1562	1559.40	6.25E+00	6.65	3.50E+00	.....
30	1613.76	1610 -	1615	1613.47	6.11E+00	7.35	5.78E+00	.....
31	1762.86	1756 -	1767	1762.64	1.93E+01	14.83	1.75E+01	.....
32	1846.60	1842 -	1849	1846.43	7.00E+00	5.29	0.00E+00	.....
33	2102.29	2099 -	2105	2102.27	9.41E+00	7.50	3.18E+00	.....
34	2614.82	2611 -	2619	2615.14	3.60E+01	12.00	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 10:04:31AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.30	8.11E+02	149.49	2.32E-02	1.92E-03
M	2	182.82	4.20E+01	51.58	1.72E-02	1.41E-03
m	3	186.23	1.21E+02	67.56	1.69E-02	1.40E-03
M	4	238.79	5.17E+02	64.80	1.36E-02	1.14E-03
m	5	242.61	7.02E+01	65.15	1.34E-02	1.12E-03
M	6	295.15	1.36E+02	48.17	1.10E-02	9.13E-04
m	7	301.43	4.29E+01	54.49	1.08E-02	9.00E-04
	8	338.76	7.16E+01	51.15	9.59E-03	8.22E-04
	9	351.90	2.71E+02	61.51	9.22E-03	7.94E-04
	10	403.04	4.34E+01	35.67	8.01E-03	7.06E-04
	11	409.74	3.11E+01	29.97	7.88E-03	7.03E-04
	12	461.75	4.64E+01	33.28	6.96E-03	6.82E-04
	13	510.89	1.01E+02	46.13	6.28E-03	6.61E-04
	14	583.56	1.62E+02	35.64	5.50E-03	6.31E-04
	15	609.13	1.72E+02	46.90	5.27E-03	6.20E-04
M	16	727.60	3.86E+01	24.82	4.45E-03	5.16E-04

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	17	736.47	1.89E+01	18.89	4.40E-03	5.05E-04
	18	795.14	2.74E+01	17.28	4.10E-03	4.31E-04
	19	860.70	3.26E+01	20.78	3.81E-03	3.49E-04
	20	911.39	8.01E+01	30.22	3.62E-03	2.99E-04
	21	968.15	5.70E+01	34.17	3.43E-03	2.86E-04
	22	1121.19	6.10E+01	36.99	3.01E-03	2.50E-04
	23	1141.93	1.58E+01	19.50	2.96E-03	2.45E-04
	24	1348.51	1.38E+01	14.14	2.56E-03	2.25E-04
	25	1430.30	1.38E+01	12.45	2.43E-03	2.12E-04
	26	1460.49	4.40E+02	41.95	2.39E-03	2.08E-04
	27	1538.85	6.78E+00	7.21	2.27E-03	1.96E-04
	28	1545.61	1.10E+01	6.63	2.27E-03	1.95E-04
	29	1559.73	6.25E+00	6.65	2.25E-03	1.93E-04
	30	1613.76	6.11E+00	7.35	2.18E-03	1.85E-04
	31	1762.86	1.93E+01	14.83	2.00E-03	1.62E-04
	32	1846.60	7.00E+00	5.29	1.91E-03	1.51E-04
	33	2102.29	9.41E+00	7.50	1.67E-03	1.51E-04
	34	2614.82	3.60E+01	12.00	1.28E-03	1.51E-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 : 8/14/2017 10:04:31AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.30	8.11E+02	149.49			8.11E+02	1.49E+02
M	2	182.82	4.20E+01	51.58			4.20E+01	5.16E+01
m	3	186.23	1.21E+02	67.56	2.34E+01	8.57E+00	9.72E+01	6.81E+01
M	4	238.79	5.17E+02	64.80	8.90E+00	6.12E+00	5.08E+02	6.51E+01
m	5	242.61	7.02E+01	65.15			7.02E+01	6.51E+01
M	6	295.15	1.36E+02	48.17			1.36E+02	4.82E+01
m	7	301.43	4.29E+01	54.49			4.29E+01	5.45E+01
	8	338.76	7.16E+01	51.15			7.16E+01	5.11E+01
	9	351.90	2.71E+02	61.51			2.71E+02	6.15E+01
	10	403.04	4.34E+01	35.67			4.34E+01	3.57E+01
	11	409.74	3.11E+01	29.97			3.11E+01	3.00E+01
	12	461.75	4.64E+01	33.28			4.64E+01	3.33E+01

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	13	510.89	1.01E+02	46.13	4.43E+01	4.80E+00	5.66E+01	4.64E+01
	14	583.56	1.62E+02	35.64	3.56E+00	2.78E+00	1.59E+02	3.57E+01
	15	609.13	1.72E+02	46.90			1.72E+02	4.69E+01
M	16	727.60	3.86E+01	24.82			3.86E+01	2.48E+01
m	17	736.47	1.89E+01	18.89			1.89E+01	1.89E+01
	18	795.14	2.74E+01	17.28			2.74E+01	1.73E+01
	19	860.70	3.26E+01	20.78			3.26E+01	2.08E+01
	20	911.39	8.01E+01	30.22			8.01E+01	3.02E+01
	21	968.15	5.70E+01	34.17			5.70E+01	3.42E+01
	22	1121.19	6.10E+01	36.99			6.10E+01	3.70E+01
	23	1141.93	1.58E+01	19.50			1.58E+01	1.95E+01
	24	1348.51	1.38E+01	14.14			1.38E+01	1.41E+01
	25	1430.30	1.38E+01	12.45			1.38E+01	1.24E+01
	26	1460.49	4.40E+02	41.95			4.40E+02	4.20E+01
	27	1538.85	6.78E+00	7.21			6.78E+00	7.21E+00
	28	1545.61	1.10E+01	6.63			1.10E+01	6.63E+00
	29	1559.73	6.25E+00	6.65			6.25E+00	6.65E+00
	30	1613.76	6.11E+00	7.35			6.11E+00	7.35E+00
	31	1762.86	1.93E+01	14.83			1.93E+01	1.48E+01
	32	1846.60	7.00E+00	5.29			7.00E+00	5.29E+00
	33	2102.29	9.41E+00	7.50			9.41E+00	7.50E+00
	34	2614.82	3.60E+01	12.00			3.60E+01	1.20E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 10:04:31AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.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	76.30	8.11E+02	149.49			8.11E+02	1.49E+02
M	2	182.82	4.20E+01	51.58			4.20E+01	5.16E+01
m	3	186.23	1.21E+02	67.56	2.34E+01	8.57E+00	9.72E+01	6.81E+01
M	4	238.79	5.17E+02	64.80	8.90E+00	6.12E+00	5.08E+02	6.51E+01
m	5	242.61	7.02E+01	65.15			7.02E+01	6.51E+01
M	6	295.15	1.36E+02	48.17			1.36E+02	4.82E+01

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	7	301.43	4.29E+01	54.49			4.29E+01	5.45E+01
	8	338.76	7.16E+01	51.15			7.16E+01	5.11E+01
	9	351.90	2.71E+02	61.51			2.71E+02	6.15E+01
	10	403.04	4.34E+01	35.67			4.34E+01	3.57E+01
	11	409.74	3.11E+01	29.97			3.11E+01	3.00E+01
	12	461.75	4.64E+01	33.28			4.64E+01	3.33E+01
	13	510.89	1.01E+02	46.13	4.43E+01	4.80E+00	5.66E+01	4.64E+01
	14	583.56	1.62E+02	35.64	3.56E+00	2.78E+00	1.59E+02	3.57E+01
	15	609.13	1.72E+02	46.90			1.72E+02	4.69E+01
M	16	727.60	3.86E+01	24.82			3.86E+01	2.48E+01
m	17	736.47	1.89E+01	18.89			1.89E+01	1.89E+01
	18	795.14	2.74E+01	17.28			2.74E+01	1.73E+01
	19	860.70	3.26E+01	20.78			3.26E+01	2.08E+01
	20	911.39	8.01E+01	30.22			8.01E+01	3.02E+01
	21	968.15	5.70E+01	34.17			5.70E+01	3.42E+01
	22	1121.19	6.10E+01	36.99			6.10E+01	3.70E+01
	23	1141.93	1.58E+01	19.50			1.58E+01	1.95E+01
	24	1348.51	1.38E+01	14.14			1.38E+01	1.41E+01
	25	1430.30	1.38E+01	12.45			1.38E+01	1.24E+01
	26	1460.49	4.40E+02	41.95			4.40E+02	4.20E+01
	27	1538.85	6.78E+00	7.21			6.78E+00	7.21E+00
	28	1545.61	1.10E+01	6.63			1.10E+01	6.63E+00
	29	1559.73	6.25E+00	6.65			6.25E+00	6.65E+00
	30	1613.76	6.11E+00	7.35			6.11E+00	7.35E+00
	31	1762.86	1.93E+01	14.83			1.93E+01	1.48E+01
	32	1846.60	7.00E+00	5.29			7.00E+00	5.29E+00
	33	2102.29	9.41E+00	7.50			9.41E+00	7.50E+00
	34	2614.82	3.60E+01	12.00			3.60E+01	1.20E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.983	1460.81	*	10.67	1.60E+01	2.09E+00
TL-208	0.985	583.14	*	30.22	8.81E-01	2.23E-01
		860.37	*	4.48	1.76E+00	1.14E+00

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TL-208	0.985	2614.66	*	35.85	7.24E-01	2.56E-01
BI-212	0.753	727.17	*	11.80	6.79E-01	4.43E-01
		1620.62		2.75		
PB-212	0.894	238.63	*	44.60	7.74E-01	1.19E-01
		300.09		3.41		
BI-214	0.690	609.31	*	46.30	6.50E-01	1.93E-01
		1120.29	*	15.10	1.24E+00	7.57E-01
		1764.49		15.80		
		2204.22		4.98		
PB-214	1.000	295.21	*	19.19	5.93E-01	2.16E-01
		351.92	*	37.19	7.31E-01	1.77E-01
RA-226	1.000	186.21	*	3.28	1.62E+00	3.17E+00
AC-228	0.943	338.32	*	11.40	6.05E-01	4.35E-01
		911.07	*	27.70	7.37E-01	2.85E-01
		969.11	*	16.60	9.25E-01	5.59E-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 : 8/14/2017 10:04:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.30	2.25381E-01	9.21		
M	2	182.82	1.16695E-02	61.38		
m	5	242.61	1.94899E-02	46.42		
m	7	301.43	1.19047E-02	63.57		
	10	403.04	1.20641E-02	41.06		
	11	409.74	8.64107E-03	48.17		
	12	461.75	1.28900E-02	35.86		
	13	510.89	1.57297E-02	40.95		
m	17	736.47	5.25269E-03	49.96	Tol.	PM-146
	18	795.14	7.60101E-03	31.57	Sum	
	23	1141.93	4.39276E-03	61.65		
	24	1348.51	3.82246E-03	51.39		
	25	1430.30	3.82639E-03	45.19		
	27	1538.85	1.88272E-03	53.20		

Analysis Report for 1707077-14

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
28	1545.61	3.05556E-03	30.15		
29	1559.73	1.73611E-03	53.22		
30	1613.76	1.69753E-03	60.12		
31	1762.86	5.35218E-03	38.49		
32	1846.60	1.94444E-03	37.80		
33	2102.29	2.61364E-03	39.86		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	1.60E+01	2.09E+00
TL-208	0.98	583.14	*	30.22	8.81E-01	2.23E-01
		860.37	*	4.48	1.76E+00	1.14E+00
		2614.66	*	35.85	7.24E-01	2.56E-01
BI-212	0.75	727.17	*	11.80	6.79E-01	4.43E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	7.74E-01	1.19E-01
		300.09		3.41		
BI-214	0.69	609.31	*	46.30	6.50E-01	1.93E-01
		1120.29	*	15.10	1.24E+00	7.57E-01
		1764.49		15.80		
		2204.22		4.98		
PB-214	1.00	295.21	*	19.19	5.93E-01	2.16E-01
		351.92	*	37.19	7.31E-01	1.77E-01
RA-226	1.00	186.21	*	3.28	1.62E+00	3.17E+00
AC-228	0.94	338.32	*	11.40	6.05E-01	4.35E-01
		911.07	*	27.70	7.37E-01	2.85E-01
		969.11	*	16.60	9.25E-01	5.59E-01

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

* = 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	0.983	1.60E+01	2.09E+00	
TL-208	0.985	8.34E-01	1.66E-01	
BI-212	0.753	6.79E-01	4.43E-01	
PB-212	0.894	7.74E-01	1.19E-01	
BI-214	0.690	6.86E-01	1.87E-01	
PB-214	1.000	6.75E-01	1.37E-01	
RA-226	1.000	1.62E+00	3.17E+00	
AC-228	0.943	7.32E-01	2.19E-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 1707077-14

HTC-A01-S002-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 10:04:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.30	2.25381E-01	9.21		
M	2	182.82	1.16695E-02	61.38		
m	5	242.61	1.94899E-02	46.42		
m	7	301.43	1.19047E-02	63.57		
	10	403.04	1.20641E-02	41.06		
	11	409.74	8.64107E-03	48.17		
	12	461.75	1.28900E-02	35.86		
	13	510.89	1.57297E-02	40.95		
m	17	736.47	5.25269E-03	49.96	Tol.	PM-146
	18	795.14	7.60101E-03	31.57	Sum	
	23	1141.93	4.39276E-03	61.65		
	24	1348.51	3.82246E-03	51.39		
	25	1430.30	3.82639E-03	45.19		
	27	1538.85	1.88272E-03	53.20		
	28	1545.61	3.05556E-03	30.15		
	29	1559.73	1.73611E-03	53.22		
	30	1613.76	1.69753E-03	60.12		
	31	1762.86	5.35218E-03	38.49		
	32	1846.60	1.94444E-03	37.80		
	33	2102.29	2.61364E-03	39.86		

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 1707077-14

HTC-A01-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	3.63E-01	1.98E+00	1.98E+00
+	NA-22	1274.54		99.94	-2.19E-02	1.05E-01	1.05E-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	4.22E-03	5.10E-02	5.10E-02
+	K-40	1460.81	*	10.67	1.60E+01	9.81E-02	9.81E-02
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.13E-02	5.56E-02	5.56E-02
		78.34		96.00	2.49E-01		6.97E-02
+	SC-46	889.25		99.98	1.06E-02	1.73E-01	1.73E-01
		1120.51		99.99	1.90E-01		2.87E-01
+	V-48	983.52		99.98	-1.14E+00	4.90E+00	5.34E+00
		1312.10		97.50	-2.91E-01		4.90E+00
+	CR-51	320.08		9.83	-6.73E-02	5.50E+00	5.50E+00
+	MN-54	834.83		99.97	2.00E-02	1.16E-01	1.16E-01
+	CO-56	846.75		99.96	-1.58E-02	1.80E-01	1.80E-01
		1037.75		14.03	-2.08E-01		1.40E+00
		1238.25		67.00	2.44E-01		4.38E-01
		1771.40		15.51	1.77E-02		1.40E+00
		2598.48		16.90	1.92E-01		8.91E-01
+	CO-57	122.06		85.51	-1.99E-02	6.05E-02	6.05E-02
		136.48		10.60	2.08E-01		5.13E-01
+	CO-58	810.76		99.40	1.00E-01	2.22E-01	2.22E-01
+	FE-59	1099.22		56.50	-2.37E-01	6.36E-01	6.36E-01
		1291.56		43.20	-3.21E-02		1.04E+00
+	CO-60	1173.22		100.00	3.84E-02	9.91E-02	1.31E-01
		1332.49		100.00	-3.51E-02		9.91E-02
+	ZN-65	1115.52		50.75	1.01E-02	2.86E-01	2.86E-01
+	GA-67	93.31		35.70	5.93E+07	5.29E+07	5.29E+07
		208.95		2.24	7.37E+08		9.00E+08
		300.22		16.00	-1.62E+08		1.34E+08
+	SE-75	121.11		16.70	-2.35E-01	1.23E-01	4.13E-01
		136.00		59.20	-4.42E-02		1.23E-01
		264.65		59.80	2.80E-02		1.53E-01
		279.53		25.20	5.71E-03		3.52E-01
		400.65		11.40	7.33E-01		9.59E-01
+	RB-82	776.52		13.00	6.21E+00	8.55E+00	8.55E+00
+	RB-83	520.41		46.00	1.01E-01	2.94E-01	2.94E-01
		529.64		30.30	2.96E-01		4.76E-01
		552.65		16.40	2.86E-01		7.99E-01
+	KR-85	513.99		0.43	2.00E+01	1.95E+01	1.95E+01
+	SR-85	513.99		99.27	2.32E-01	2.27E-01	2.27E-01
+	Y-88	898.02		93.40	2.38E-02	1.47E-01	1.76E-01
		1836.01		99.38	5.54E-02		1.47E-01
+	MO-93	263.06		56.72	-1.31E-02	7.81E-02	9.29E-02
		684.67		99.68	2.36E-02		8.26E-02
		1477.11		99.08	1.50E-02		7.81E-02

Analysis Report for 1707077-14

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57	9.43	1.04E+01	5.77E+00	5.77E+00
+	NB-94	702.63	100.00	1.02E-02	8.36E-02	8.36E-02
		871.10	100.00	5.13E-03		8.88E-02
+	NB-95	765.79	99.81	2.50E-01	5.66E-01	5.66E-01
+	NB-95M	235.69	25.00	2.59E+07	1.75E+07	1.75E+07
+	ZR-95	724.18	43.70	5.33E-02	4.37E-01	6.12E-01
		756.72	55.30	-4.26E-02		4.37E-01
+	MO-99	181.06	6.20	2.22E+09	8.71E+09	1.12E+10
		739.58	12.80	-2.31E+09		8.71E+09
		778.00	4.50	4.03E+09		2.81E+10
+	RU-103	497.08	89.00	-1.65E-01	3.30E-01	3.30E-01
+	RU-106	621.84	9.80	4.34E-02	8.73E-01	8.73E-01
+	AG-108M	433.93	89.90	-3.34E-02	6.38E-02	6.38E-02
		614.37	90.40	3.01E-03		7.57E-02
		722.95	90.50	-1.20E-02		9.81E-02
+	CD-109	88.03	3.72	-3.36E-01	1.58E+00	1.58E+00
+	AG-110M	657.75	93.14	1.11E-02	1.10E-01	1.10E-01
		677.61	10.53	-2.04E-01		9.92E-01
		706.67	16.46	-2.54E-01		6.38E-01
		763.93	21.98	-1.99E-01		5.18E-01
		884.67	71.63	4.52E-02		1.49E-01
		1384.27	23.94	-9.63E-02		4.25E-01
+	CD-113M	263.70	0.02	7.86E+01	2.31E+02	2.31E+02
+	SN-113	255.12	1.93	1.27E+00	1.56E-01	4.33E+00
		391.69	64.90	1.29E-02		1.56E-01
+	TE123M	159.00	84.10	1.88E-03	8.96E-02	8.96E-02
+	SB-124	602.71	97.87	-1.93E-03	2.00E-01	2.00E-01
		645.85	7.26	-6.50E-01		2.74E+00
		722.78	11.10	-2.86E-01		2.33E+00
		1691.02	49.00	1.18E-01		4.59E-01
+	I-125	35.49	6.49	-1.30E+00	3.60E+00	3.60E+00
+	SB-125	176.33	6.89	4.48E-01	2.21E-01	6.98E-01
		427.89	29.33	-3.95E-03		2.21E-01
		463.38	10.35	2.27E-01		6.68E-01
		600.56	17.80	2.07E-02		4.03E-01
		635.90	11.32	1.89E-01		6.28E-01
+	SB-126	414.70	83.30	2.57E+00	1.31E+01	1.31E+01
		666.33	99.60	-2.06E+00		1.39E+01
		695.00	99.60	3.95E+00		1.52E+01
		720.50	53.80	8.80E+00		3.04E+01
+	SN-126	87.57	37.00	-2.94E-02	1.38E-01	1.38E-01
+	SB-127	473.00	25.00	3.27E+06	4.21E+06	4.91E+06
		685.20	35.70	1.20E+06		4.21E+06
		783.80	14.70	1.38E+06		1.13E+07
+	I-129	29.78	57.00	-6.31E-02	1.91E-01	1.91E-01
		33.60	13.20	-2.41E-01		6.50E-01
		39.58	7.52	2.95E-01		9.46E-01
+	I-131	284.30	6.05	1.08E+03	1.96E+02	2.65E+03

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		I-131	364.48	81.20	5.51E+01	1.96E+02	1.96E+02
			636.97	7.26	-4.26E+01		2.71E+03
			722.89	1.80	-1.83E+03		1.49E+04
+		TE-132	49.72	13.10	7.00E+07	2.14E+07	1.63E+08
			228.16	88.00	-1.14E+07		2.14E+07
+		BA-133	81.00	33.00	-5.35E-04	1.16E-01	1.66E-01
			302.84	17.80	5.62E-02		3.08E-01
			356.01	60.00	-1.30E-01		1.16E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	-9.92E+01	3.09E+04	3.09E+04
+		CS-134	563.23	8.38	2.79E-02	8.44E-02	8.65E-01
			569.32	15.43	-9.26E-02		4.58E-01
			604.70	97.60	-2.57E-01		8.44E-02
			795.84	85.40	-2.11E-02		1.02E-01
			801.93	8.73	-9.10E-02		9.90E-01
+		CS-135	268.24	16.00	-8.57E-03	3.36E-01	3.36E-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	-1.40E+01	1.15E+01	7.69E+01
			163.89	4.61	-2.16E+00		1.28E+02
			176.55	13.56	2.95E+01		4.46E+01
			273.65	12.66	-2.97E+01		5.31E+01
			340.57	48.50	2.30E+01		1.85E+01
			818.50	99.70	2.37E+00		1.15E+01
			1048.07	79.60	-5.64E-03		1.61E+01
			1235.34	19.70	3.78E+01		9.11E+01
+		CS-137	661.65	85.12	2.57E-02	9.57E-02	9.57E-02
+		LA-138	788.74	34.00	9.91E-02	1.09E-01	2.51E-01
			1435.80	66.00	-3.66E-02		1.09E-01
+		CE-139	165.85	80.35	4.53E-03	8.82E-02	8.82E-02
+		BA-140	162.64	6.70	-6.85E+00	4.12E+01	1.01E+02
			304.84	4.50	-2.65E+01		1.77E+02
			423.70	3.20	1.21E+01		2.97E+02
			437.55	2.00	-3.17E+01		4.62E+02
			537.32	25.00	6.52E+00		4.12E+01
+		LA-140	328.77	20.50	-2.10E+01	1.52E+01	3.90E+01
			487.03	45.50	-2.80E+00		2.09E+01
			815.85	23.50	1.20E+01		5.63E+01
			1596.49	95.49	6.30E+00		1.52E+01
+		CE-141	145.44	48.40	3.20E-02	6.49E-01	6.49E-01
+	@	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	4.72E-03	4.99E-01	4.99E-01
+		PM-144	476.78	42.00	5.91E-02	8.13E-02	1.81E-01
			618.01	98.60	-2.03E-02		8.13E-02
			696.49	99.49	-3.68E-02		1.01E-01
+		PM-145	36.85	21.70	3.90E-02	1.89E-01	3.54E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36	39.70	2.08E-02	1.89E-01	1.89E-01
		42.30	15.10	-2.81E-01		4.34E-01
		72.40	2.31	-6.17E+00		2.46E+00
+	PM-146	453.90	39.94	1.65E-01	1.66E-01	1.66E-01
		735.90	14.01	3.54E-03		5.94E-01
		747.13	13.10	-4.52E-02		6.39E-01
+	ND-147	91.11	28.90	6.19E+01	6.37E+01	6.37E+01
		531.02	13.10	-2.18E+01		1.75E+02
+	PM-149	285.90	3.10	3.33E+12	7.66E+12	7.66E+12
+	EU-152	121.78	20.50	-6.63E-02	2.01E-01	2.01E-01
		244.69	5.40	-1.36E+00		9.78E-01
		344.27	19.13	4.39E-02		2.81E-01
		778.89	9.20	-5.53E-01		9.06E-01
		964.01	10.40	-9.42E-02		1.15E+00
		1085.78	7.22	-5.48E-01		1.30E+00
		1112.02	9.60	1.85E-01		1.07E+00
		1407.95	14.94	-3.54E-01		4.95E-01
+	GD-153	97.43	31.30	-8.02E-02	1.79E-01	1.79E-01
		103.18	22.20	1.72E-03		2.39E-01
+	EU-154	123.07	40.50	-2.30E-02	1.04E-01	1.04E-01
		723.30	19.70	4.40E-02		5.06E-01
		873.19	11.50	5.20E-01		7.89E-01
		996.32	10.30	-7.92E-01		8.89E-01
		1004.76	17.90	3.88E-01		6.28E-01
		1274.45	35.50	-5.88E-02		2.82E-01
+	EU-155	86.50	30.90	1.65E-01	1.73E-01	1.73E-01
		105.30	20.70	-1.74E-02		2.04E-01
+	EU-156	811.77	10.40	-4.65E+01	5.42E+01	5.42E+01
		1153.47	7.20	1.22E+01		1.09E+02
		1230.71	8.90	-3.64E+01		1.01E+02
+	HO-166M	184.41	72.60	9.93E-02	7.58E-02	7.58E-02
		280.45	29.60	3.49E-02		1.78E-01
		410.94	11.10	2.18E-01		5.48E-01
		711.69	54.10	-4.71E-02		1.53E-01
+	TM-171	66.72	0.14	-1.52E+01	4.14E+01	4.14E+01
+	HF-172	67.35	5.31	-4.01E-01	4.27E-01	1.09E+00
		125.81	11.30	5.31E-02		4.27E-01
+	LU-172	181.53	20.60	-4.03E+03	2.44E+03	3.50E+03
		900.72	29.81	2.20E+03		4.85E+03
		1093.66	62.50	5.78E+02		2.44E+03
+	LU-173	100.72	5.24	-2.98E-01	2.79E-01	8.66E-01
		272.11	21.20	1.60E-02		2.79E-01
+	HF-175	343.40	84.00	2.47E-02	1.58E-01	1.58E-01
+	LU-176	88.34	13.30	-8.18E-02	5.59E-02	3.83E-01
		201.83	86.00	-2.41E-02		5.60E-02
		306.78	94.00	6.30E-04		5.59E-02
+	HF-181	133.02	41.70	-2.36E-02	3.27E-01	4.74E-01
		345.85	17.20	2.21E-01		1.39E+00
		482.03	82.80	1.27E-01		3.27E-01

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TA-182	67.75		41.20	-1.26E-01	2.23E-01	2.23E-01
		1121.30		34.90	4.46E-01		6.83E-01
		1189.05		16.23	4.71E-02		1.32E+00
		1221.41		26.98	-8.49E-02		8.26E-01
		1231.02		11.44	-6.51E-01		2.07E+00
+	IR-192	308.46		29.68	1.77E-01	2.89E-01	4.34E-01
		468.07		48.10	-1.19E-02		2.89E-01
+	HG-203	279.19		77.30	-9.14E-02	2.61E-01	2.61E-01
+	TL-204	374.74		94.11	-1.07E-02	5.88E-02	5.88E-02
		899.15		99.16	-2.32E-02		9.65E-02
		911.74		91.10	2.20E-01		1.57E-01
+	BI-207	569.67		97.72	-1.35E-02	6.68E-02	6.68E-02
		1063.62		74.90	-5.47E-03		1.29E-01
+	TL-208	583.14	*	30.22	8.81E-01	5.44E-02	2.47E-01
		860.37	*	4.48	1.76E+00		1.69E+00
		2614.66	*	35.85	7.24E-01		5.44E-02
+	BI-210M	262.00		45.00	4.05E-02	1.16E-01	1.16E-01
		300.00		23.00	-2.95E-01		2.45E-01
+	PB-210	46.50		4.25	5.55E-01	1.41E+00	1.41E+00
+	PB-211	404.84		2.90	-8.84E-01	1.97E+00	1.97E+00
		831.96		2.90	-7.65E-01		3.04E+00
+	BI-212	727.17	*	11.80	6.79E-01	1.24E+00	1.24E+00
		1620.62		2.75	-7.74E-01		2.46E+00
+	PB-212	238.63	*	44.60	7.74E-01	2.13E-01	2.13E-01
		300.09		3.41	-1.99E+00		1.65E+00
+	BI-214	609.31	*	46.30	6.50E-01	2.52E-01	2.52E-01
		1120.29	*	15.10	1.24E+00		1.17E+00
		1764.49		15.80	9.50E-02		7.45E-01
		2204.22		4.98	7.03E-01		1.95E+00
+	PB-214	295.21	*	19.19	5.93E-01	2.37E-01	5.32E-01
		351.92	*	37.19	7.31E-01		2.37E-01
+	RN-219	401.80		6.50	7.74E-01	9.52E-01	9.52E-01
+	RA-223	323.87		3.88	-5.22E-01	1.33E+00	1.33E+00
+	RA-224	240.98		3.95	8.51E+00	2.23E+00	2.23E+00
+	RA-225	40.00		31.00	5.47E+00	1.76E+01	1.76E+01
+	RA-226	186.21	*	3.28	1.62E+00	2.37E+00	2.37E+00
+	TH-227	50.10		8.40	2.80E-01	6.53E-01	6.53E-01
		236.00		11.50	9.99E-01		6.73E-01
		256.20		6.30	3.23E-01		7.75E-01
+	AC-228	338.32	*	11.40	6.05E-01	3.94E-01	6.93E-01
		911.07	*	27.70	7.37E-01		3.94E-01
		969.11	*	16.60	9.25E-01		8.61E-01
+	TH-230	48.44		16.90	-8.02E-02	3.36E-01	3.36E-01
		62.85		4.60	8.08E-01		1.20E+00
		67.67		0.37	-7.97E+00		1.42E+01
+	PA-231	283.67		1.60	1.35E+00	2.34E+00	3.31E+00
		302.67		2.30	4.28E-01		2.34E+00
+	TH-231	25.64		14.70	-2.45E-01	7.77E-01	1.08E+00

Analysis Report for 1707077-14

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21	6.40	3.22E-02	7.77E-01	7.77E-01
+	PA-233	311.98	38.60	5.18E-02	1.52E+00	1.52E+00
+	PA-234	131.20	20.40	2.91E-02	2.18E-01	2.18E-01
		733.99	8.80	-3.29E-01		9.42E-01
		946.00	12.00	5.39E-01		8.18E-01
+	PA-234M	1001.03	0.92	9.10E-01	1.11E+01	1.11E+01
+	TH-234	63.29	3.80	9.75E-01	1.45E+00	1.45E+00
+	U-235	143.76	10.50	-1.13E-01	4.07E-01	4.07E-01
		163.35	4.70	-6.36E-02		9.36E-01
		205.31	4.70	-3.52E-01		1.08E+00
+	NP-237	86.50	12.60	3.90E-01	4.10E-01	4.10E-01
+	NP-239	106.10	22.70	7.49E+10	1.41E+11	1.41E+11
		228.18	10.70	-1.85E+11		3.47E+11
		277.60	14.10	7.43E+10		2.77E+11
+	AM-241	59.54	35.90	2.62E-02	1.50E-01	1.50E-01
+	AM-243	74.67	66.00	2.96E-01	1.03E-01	1.03E-01
+	CM-243	209.75	3.29	1.50E+00	3.68E-01	1.60E+00
		228.14	10.60	-2.46E-01		4.62E-01
		277.60	14.00	9.87E-02		3.68E-01

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

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	1.98E+00	1.98E+00	3.63E-01	9.32E-01
	NA-22	1274.54	99.94	1.05E-01	1.05E-01	-2.19E-02	4.75E-02
@	NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NA-24	2754.09		99.86	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	AL-26	1808.65		99.76	5.10E-02	5.10E-02	4.22E-03	1.91E-02
+	K-40	1460.81	*	10.67	9.81E-02	9.81E-02	1.60E+01	0.00E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.56E-02	5.56E-02	-3.13E-02	2.72E-02
		78.34		96.00	6.97E-02		2.49E-01	3.43E-02
	SC-46	889.25		99.98	1.73E-01	1.73E-01	1.06E-02	7.92E-02
		1120.51		99.99	2.87E-01		1.90E-01	1.35E-01
	V-48	983.52		99.98	5.34E+00	4.90E+00	-1.14E+00	2.46E+00
		1312.10		97.50	4.90E+00		-2.91E-01	2.17E+00
	CR-51	320.08		9.83	5.50E+00	5.50E+00	-6.73E-02	2.62E+00
	MN-54	834.83		99.97	1.16E-01	1.16E-01	2.00E-02	5.39E-02
	CO-56	846.75		99.96	1.80E-01	1.80E-01	-1.58E-02	8.25E-02
		1037.75		14.03	1.40E+00		-2.08E-01	6.36E-01
		1238.25		67.00	4.38E-01		2.44E-01	2.04E-01
		1771.40		15.51	1.40E+00		1.77E-02	6.10E-01
		2598.48		16.90	8.91E-01		1.92E-01	3.16E-01
	CO-57	122.06		85.51	6.05E-02	6.05E-02	-1.99E-02	2.94E-02
		136.48		10.60	5.13E-01		2.08E-01	2.49E-01
	CO-58	810.76		99.40	2.22E-01	2.22E-01	1.00E-01	1.03E-01
	FE-59	1099.22		56.50	6.36E-01	6.36E-01	-2.37E-01	2.88E-01
		1291.56		43.20	1.04E+00		-3.21E-02	4.75E-01
	CO-60	1173.22		100.00	1.31E-01	9.91E-02	3.84E-02	6.09E-02
		1332.49		100.00	9.91E-02		-3.51E-02	4.46E-02
	ZN-65	1115.52		50.75	2.86E-01	2.86E-01	1.01E-02	1.32E-01
	GA-67	93.31		35.70	5.29E+07	5.29E+07	5.93E+07	2.59E+07
		208.95		2.24	9.00E+08		7.37E+08	4.36E+08
		300.22		16.00	1.34E+08		-1.62E+08	6.45E+07
	SE-75	121.11		16.70	4.13E-01	1.23E-01	-2.35E-01	2.01E-01
		136.00		59.20	1.23E-01		-4.42E-02	5.97E-02
		264.65		59.80	1.53E-01		2.80E-02	7.36E-02
		279.53		25.20	3.52E-01		5.71E-03	1.69E-01
		400.65		11.40	9.59E-01		7.33E-01	4.56E-01
	RB-82	776.52		13.00	8.55E+00	8.55E+00	6.21E+00	3.99E+00
	RB-83	520.41		46.00	2.94E-01	2.94E-01	1.01E-01	1.37E-01
		529.64		30.30	4.76E-01		2.96E-01	2.24E-01
		552.65		16.40	7.99E-01		2.86E-01	3.72E-01
	KR-85	513.99		0.43	1.95E+01	1.95E+01	2.00E+01	9.29E+00
	SR-85	513.99		99.27	2.27E-01	2.27E-01	2.32E-01	1.08E-01
	Y-88	898.02		93.40	1.76E-01	1.47E-01	2.38E-02	8.11E-02
		1836.01		99.38	1.47E-01		5.54E-02	6.17E-02
	MO-93	263.06		56.72	9.29E-02	7.81E-02	-1.31E-02	4.46E-02
		684.67		99.68	8.26E-02		2.36E-02	3.86E-02
		1477.11		99.08	7.81E-02		1.50E-02	3.36E-02
	NB-93M	16.57		9.43	5.77E+00	5.77E+00	1.04E+01	2.79E+00
	NB-94	702.63		100.00	8.36E-02	8.36E-02	1.02E-02	3.91E-02
		871.10		100.00	8.88E-02		5.13E-03	4.11E-02
	NB-95	765.79		99.81	5.66E-01	5.66E-01	2.50E-01	2.65E-01
	NB-95M	235.69		25.00	1.75E+07	1.75E+07	2.59E+07	8.52E+06
	ZR-95	724.18		43.70	6.12E-01	4.37E-01	5.33E-02	2.89E-01
		756.72		55.30	4.37E-01		-4.26E-02	2.04E-01
	MO-99	181.06		6.20	1.12E+10	8.71E+09	2.22E+09	5.42E+09
		739.58		12.80	8.71E+09		-2.31E+09	4.03E+09

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MO-99	778.00	4.50	2.81E+10	8.71E+09	4.03E+09	1.30E+10
RU-103	497.08	89.00	3.30E-01	3.30E-01	-1.65E-01	1.54E-01
RU-106	621.84	9.80	8.73E-01	8.73E-01	4.34E-02	4.07E-01
AG-108M	433.93	89.90	6.38E-02	6.38E-02	-3.34E-02	3.00E-02
	614.37	90.40	7.57E-02		3.01E-03	3.52E-02
	722.95	90.50	9.81E-02		-1.20E-02	4.60E-02
CD-109	88.03	3.72	1.58E+00	1.58E+00	-3.36E-01	7.71E-01
AG-110M	657.75	93.14	1.10E-01	1.10E-01	1.11E-02	5.17E-02
	677.61	10.53	9.92E-01		-2.04E-01	4.64E-01
	706.67	16.46	6.38E-01		-2.54E-01	2.98E-01
	763.93	21.98	5.18E-01		-1.99E-01	2.42E-01
	884.67	71.63	1.49E-01		4.52E-02	6.84E-02
	1384.27	23.94	4.25E-01		-9.63E-02	1.85E-01
CD-113M	263.70	0.02	2.31E+02	2.31E+02	7.86E+01	1.11E+02
SN-113	255.12	1.93	4.33E+00	1.56E-01	1.27E+00	2.08E+00
	391.69	64.90	1.56E-01		1.29E-02	7.39E-02
TE123M	159.00	84.10	8.96E-02	8.96E-02	1.88E-03	4.34E-02
SB-124	602.71	97.87	2.00E-01	2.00E-01	-1.93E-03	9.30E-02
	645.85	7.26	2.74E+00		-6.50E-01	1.27E+00
	722.78	11.10	2.33E+00		-2.86E-01	1.09E+00
	1691.02	49.00	4.59E-01		1.18E-01	1.94E-01
I-125	35.49	6.49	3.60E+00	3.60E+00	-1.30E+00	1.75E+00
SB-125	176.33	6.89	6.98E-01	2.21E-01	4.48E-01	3.38E-01
	427.89	29.33	2.21E-01		-3.95E-03	1.05E-01
	463.38	10.35	6.68E-01		2.27E-01	3.15E-01
	600.56	17.80	4.03E-01		2.07E-02	1.88E-01
	635.90	11.32	6.28E-01		1.89E-01	2.91E-01
SB-126	414.70	83.30	1.31E+01	1.31E+01	2.57E+00	6.19E+00
	666.33	99.60	1.39E+01		-2.06E+00	6.49E+00
	695.00	99.60	1.52E+01		3.95E+00	7.11E+00
	720.50	53.80	3.04E+01		8.80E+00	1.43E+01
SN-126	87.57	37.00	1.38E-01	1.38E-01	-2.94E-02	6.75E-02
SB-127	473.00	25.00	4.91E+06	4.21E+06	3.27E+06	2.32E+06
	685.20	35.70	4.21E+06		1.20E+06	1.97E+06
	783.80	14.70	1.13E+07		1.38E+06	5.26E+06
I-129	29.78	57.00	1.91E-01	1.91E-01	-6.31E-02	9.25E-02
	33.60	13.20	6.50E-01		-2.41E-01	3.15E-01
	39.58	7.52	9.46E-01		2.95E-01	4.60E-01
I-131	284.30	6.05	2.65E+03	1.96E+02	1.08E+03	1.27E+03
	364.48	81.20	1.96E+02		5.51E+01	9.26E+01
	636.97	7.26	2.71E+03		-4.26E+01	1.25E+03
	722.89	1.80	1.49E+04		-1.83E+03	6.98E+03
TE-132	49.72	13.10	1.63E+08	2.14E+07	7.00E+07	7.97E+07
	228.16	88.00	2.14E+07		-1.14E+07	1.03E+07
BA-133	81.00	33.00	1.66E-01	1.16E-01	-5.35E-04	8.16E-02
	302.84	17.80	3.08E-01		5.62E-02	1.47E-01
	356.01	60.00	1.16E-01		-1.30E-01	5.56E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	3.09E+04	3.09E+04	-9.92E+01	1.51E+04
CS-134	563.23	8.38	8.65E-01	8.44E-02	2.79E-02	4.04E-01
	569.32	15.43	4.58E-01		-9.26E-02	2.13E-01
	604.70	97.60	8.44E-02		-2.57E-01	3.96E-02
	795.84	85.40	1.02E-01		-2.11E-02	4.73E-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)
CS-134	801.93	8.73	9.90E-01	8.44E-02	-9.10E-02	4.57E-01
CS-135	268.24	16.00	3.36E-01	3.36E-01	-8.57E-03	1.61E-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	7.69E+01	1.15E+01	-1.40E+01	3.73E+01
	163.89	4.61	1.28E+02		-2.16E+00	6.22E+01
	176.55	13.56	4.46E+01		2.95E+01	2.16E+01
	273.65	12.66	5.31E+01		-2.97E+01	2.54E+01
	340.57	48.50	1.85E+01		2.30E+01	8.91E+00
	818.50	99.70	1.15E+01		2.37E+00	5.31E+00
	1048.07	79.60	1.61E+01		-5.64E-03	7.40E+00
	1235.34	19.70	9.11E+01		3.78E+01	4.25E+01
CS-137	661.65	85.12	9.57E-02	9.57E-02	2.57E-02	4.48E-02
LA-138	788.74	34.00	2.51E-01	1.09E-01	9.91E-02	1.17E-01
	1435.80	66.00	1.09E-01		-3.66E-02	4.65E-02
CE-139	165.85	80.35	8.82E-02	8.82E-02	4.53E-03	4.27E-02
BA-140	162.64	6.70	1.01E+02	4.12E+01	-6.85E+00	4.89E+01
	304.84	4.50	1.77E+02		-2.65E+01	8.46E+01
	423.70	3.20	2.97E+02		1.21E+01	1.41E+02
	437.55	2.00	4.62E+02		-3.17E+01	2.18E+02
	537.32	25.00	4.12E+01		6.52E+00	1.93E+01
LA-140	328.77	20.50	3.90E+01	1.52E+01	-2.10E+01	1.85E+01
	487.03	45.50	2.09E+01		-2.80E+00	9.80E+00
	815.85	23.50	5.63E+01		1.20E+01	2.61E+01
	1596.49	95.49	1.52E+01		6.30E+00	6.69E+00
CE-141	145.44	48.40	6.49E-01	6.49E-01	3.20E-02	3.15E-01
@ 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	4.99E-01	4.99E-01	4.72E-03	2.42E-01
PM-144	476.78	42.00	1.81E-01	8.13E-02	5.91E-02	8.54E-02
	618.01	98.60	8.13E-02		-2.03E-02	3.77E-02
	696.49	99.49	1.01E-01		-3.68E-02	4.75E-02
PM-145	36.85	21.70	3.54E-01	1.89E-01	3.90E-02	1.72E-01
	37.36	39.70	1.89E-01		2.08E-02	9.20E-02
	42.30	15.10	4.34E-01		-2.81E-01	2.11E-01
	72.40	2.31	2.46E+00		-6.17E+00	1.21E+00
PM-146	453.90	39.94	1.66E-01	1.66E-01	1.65E-01	7.83E-02
	735.90	14.01	5.94E-01		3.54E-03	2.76E-01
	747.13	13.10	6.39E-01		-4.52E-02	2.97E-01
ND-147	91.11	28.90	6.37E+01	6.37E+01	6.19E+01	3.12E+01
	531.02	13.10	1.75E+02		-2.18E+01	8.19E+01
PM-149	285.90	3.10	7.66E+12	7.66E+12	3.33E+12	3.67E+12
EU-152	121.78	20.50	2.01E-01	2.01E-01	-6.63E-02	9.78E-02
	244.69	5.40	9.78E-01		-1.36E+00	4.71E-01
	344.27	19.13	2.81E-01		4.39E-02	1.34E-01
	778.89	9.20	9.06E-01		-5.53E-01	4.20E-01
	964.01	10.40	1.15E+00		-9.42E-02	5.40E-01
	1085.78	7.22	1.30E+00		-5.48E-01	5.91E-01
	1112.02	9.60	1.07E+00		1.85E-01	4.90E-01
	1407.95	14.94	4.95E-01		-3.54E-01	2.13E-01
GD-153	97.43	31.30	1.79E-01	1.79E-01	-8.02E-02	8.72E-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)
	GD-153	103.18		22.20	2.39E-01	1.79E-01	1.72E-03	1.16E-01
	EU-154	123.07		40.50	1.04E-01	1.04E-01	-2.30E-02	5.08E-02
		723.30		19.70	5.06E-01		4.40E-02	2.38E-01
		873.19		11.50	7.89E-01		5.20E-01	3.65E-01
		996.32		10.30	8.89E-01		-7.92E-01	4.07E-01
		1004.76		17.90	6.28E-01		3.88E-01	2.93E-01
		1274.45		35.50	2.82E-01		-5.88E-02	1.28E-01
	EU-155	86.50		30.90	1.73E-01	1.73E-01	1.65E-01	8.48E-02
		105.30		20.70	2.04E-01		-1.74E-02	9.94E-02
	EU-156	811.77		10.40	5.42E+01	5.42E+01	-4.65E+01	2.50E+01
		1153.47		7.20	1.09E+02		1.22E+01	5.04E+01
		1230.71		8.90	1.01E+02		-3.64E+01	4.72E+01
	HO-166M	184.41		72.60	7.58E-02	7.58E-02	9.93E-02	3.69E-02
		280.45		29.60	1.78E-01		3.49E-02	8.54E-02
		410.94		11.10	5.48E-01		2.18E-01	2.60E-01
		711.69		54.10	1.53E-01		-4.71E-02	7.15E-02
	TM-171	66.72		0.14	4.14E+01	4.14E+01	-1.52E+01	2.03E+01
	HF-172	67.35		5.31	1.09E+00	4.27E-01	-4.01E-01	5.33E-01
		125.81		11.30	4.27E-01		5.31E-02	2.08E-01
	LU-172	181.53		20.60	3.50E+03	2.44E+03	-4.03E+03	1.70E+03
		900.72		29.81	4.85E+03		2.20E+03	2.25E+03
		1093.66		62.50	2.44E+03		5.78E+02	1.12E+03
	LU-173	100.72		5.24	8.66E-01	2.79E-01	-2.98E-01	4.22E-01
		272.11		21.20	2.79E-01		1.60E-02	1.34E-01
	HF-175	343.40		84.00	1.58E-01	1.58E-01	2.47E-02	7.53E-02
	LU-176	88.34		13.30	3.83E-01	5.59E-02	-8.18E-02	1.88E-01
		201.83		86.00	5.60E-02		-2.41E-02	2.71E-02
		306.78		94.00	5.59E-02		6.30E-04	2.67E-02
	HF-181	133.02		41.70	4.74E-01	3.27E-01	-2.36E-02	2.31E-01
		345.85		17.20	1.39E+00		2.21E-01	6.58E-01
		482.03		82.80	3.27E-01		1.27E-01	1.53E-01
	TA-182	67.75		41.20	2.23E-01	2.23E-01	-1.26E-01	1.09E-01
		1121.30		34.90	6.83E-01		4.46E-01	3.21E-01
		1189.05		16.23	1.32E+00		4.71E-02	6.13E-01
		1221.41		26.98	8.26E-01		-8.49E-02	3.84E-01
		1231.02		11.44	2.07E+00		-6.51E-01	9.64E-01
	IR-192	308.46		29.68	4.34E-01	2.89E-01	1.77E-01	2.08E-01
		468.07		48.10	2.89E-01		-1.19E-02	1.35E-01
	HG-203	279.19		77.30	2.61E-01	2.61E-01	-9.14E-02	1.25E-01
	TL-204	374.74		94.11	5.88E-02	5.88E-02	-1.07E-02	2.78E-02
		899.15		99.16	9.65E-02		-2.32E-02	4.47E-02
		911.74		91.10	1.57E-01		2.20E-01	7.48E-02
	BI-207	569.67		97.72	6.68E-02	6.68E-02	-1.35E-02	3.11E-02
		1063.62		74.90	1.29E-01		-5.47E-03	5.92E-02
+	TL-208	583.14	*	30.22	2.47E-01	5.44E-02	8.81E-01	1.16E-01
		860.37	*	4.48	1.69E+00		1.76E+00	7.72E-01
		2614.66	*	35.85	5.44E-02		7.24E-01	0.00E+00
	BI-210M	262.00		45.00	1.16E-01	1.16E-01	4.05E-02	5.58E-02
		300.00		23.00	2.45E-01		-2.95E-01	1.18E-01
	PB-210	46.50		4.25	1.41E+00	1.41E+00	5.55E-01	6.87E-01
	PB-211	404.84		2.90	1.97E+00	1.97E+00	-8.84E-01	9.33E-01
		831.96		2.90	3.04E+00		-7.65E-01	1.41E+00
+	BI-212	727.17	*	11.80	1.24E+00	1.24E+00	6.79E-01	5.97E-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)
	BI-212	1620.62		2.75	2.46E+00	1.24E+00	-7.74E-01	1.02E+00
+	PB-212	238.63	*	44.60	2.13E-01	2.13E-01	7.74E-01	1.04E-01
		300.09		3.41	1.65E+00		-1.99E+00	7.93E-01
+	BI-214	609.31	*	46.30	2.52E-01	2.52E-01	6.50E-01	1.21E-01
		1120.29	*	15.10	1.17E+00		1.24E+00	5.59E-01
		1764.49		15.80	7.45E-01		9.50E-02	3.33E-01
		2204.22		4.98	1.95E+00		7.03E-01	8.18E-01
+	PB-214	295.21	*	19.19	5.32E-01	2.37E-01	5.93E-01	2.60E-01
		351.92	*	37.19	2.37E-01		7.31E-01	1.15E-01
	RN-219	401.80		6.50	9.52E-01	9.52E-01	7.74E-01	4.52E-01
	RA-223	323.87		3.88	1.33E+00	1.33E+00	-5.22E-01	6.33E-01
	RA-224	240.98		3.95	2.23E+00	2.23E+00	8.51E+00	1.09E+00
	RA-225	40.00		31.00	1.76E+01	1.76E+01	5.47E+00	8.54E+00
+	RA-226	186.21	*	3.28	2.37E+00	2.37E+00	1.62E+00	1.16E+00
	TH-227	50.10		8.40	6.53E-01	6.53E-01	2.80E-01	3.18E-01
		236.00		11.50	6.73E-01		9.99E-01	3.29E-01
		256.20		6.30	7.75E-01		3.23E-01	3.72E-01
+	AC-228	338.32	*	11.40	6.93E-01	3.94E-01	6.05E-01	3.35E-01
		911.07	*	27.70	3.94E-01		7.37E-01	1.84E-01
		969.11	*	16.60	8.61E-01		9.25E-01	4.09E-01
	TH-230	48.44		16.90	3.36E-01	3.36E-01	-8.02E-02	1.64E-01
		62.85		4.60	1.20E+00		8.08E-01	5.89E-01
		67.67		0.37	1.42E+01		-7.97E+00	6.93E+00
	PA-231	283.67		1.60	3.31E+00	2.34E+00	1.35E+00	1.59E+00
		302.67		2.30	2.34E+00		4.28E-01	1.12E+00
	TH-231	25.64		14.70	1.08E+00	7.77E-01	-2.45E-01	5.26E-01
		84.21		6.40	7.77E-01		3.22E-02	3.80E-01
	PA-233	311.98		38.60	1.52E+00	1.52E+00	5.18E-02	7.24E-01
	PA-234	131.20		20.40	2.18E-01	2.18E-01	2.91E-02	1.06E-01
		733.99		8.80	9.42E-01		-3.29E-01	4.39E-01
		946.00		12.00	8.18E-01		5.39E-01	3.79E-01
	PA-234M	1001.03		0.92	1.11E+01	1.11E+01	9.10E-01	5.15E+00
	TH-234	63.29		3.80	1.45E+00	1.45E+00	9.75E-01	7.10E-01
	U-235	143.76		10.50	4.07E-01	4.07E-01	-1.13E-01	1.97E-01
		163.35		4.70	9.36E-01		-6.36E-02	4.54E-01
		205.31		4.70	1.08E+00		-3.52E-01	5.24E-01
	NP-237	86.50		12.60	4.10E-01	4.10E-01	3.90E-01	2.01E-01
	NP-239	106.10		22.70	1.41E+11	1.41E+11	7.49E+10	6.88E+10
		228.18		10.70	3.47E+11		-1.85E+11	1.67E+11
		277.60		14.10	2.77E+11		7.43E+10	1.33E+11
	AM-241	59.54		35.90	1.50E-01	1.50E-01	2.62E-02	7.33E-02
	AM-243	74.67		66.00	1.03E-01	1.03E-01	2.96E-01	5.05E-02
	CM-243	209.75		3.29	1.60E+00	3.68E-01	1.50E+00	7.76E-01
		228.14		10.60	4.62E-01		-2.46E-01	2.23E-01
		277.60		14.00	3.68E-01		9.87E-02	1.76E-01

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

Analysis Report for 1707077-14

HTC-A01-S002-1218-01

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: HTC-A01-S002-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3603

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	14	76
17:	77	77	84	63	70	75	50	51
25:	62	50	58	48	57	52	48	56
33:	62	53	54	50	77	49	67	76
41:	47	88	58	74	72	97	68	61
49:	62	58	66	83	60	56	65	76
57:	89	82	94	77	106	121	121	107
65:	107	108	88	83	99	117	113	111
73:	134	208	218	281	222	135	105	109
81:	80	84	106	100	91	147	125	100
89:	108	88	115	135	119	76	74	62
97:	60	69	65	67	45	67	76	67
105:	73	62	71	72	64	68	64	74
113:	73	62	71	68	55	52	59	69
121:	53	54	66	63	64	68	77	80
129:	67	72	48	65	54	79	47	59
137:	43	59	72	58	44	57	52	61
145:	60	53	57	50	55	61	43	43
153:	61	47	48	50	57	54	45	50
161:	54	44	53	41	58	47	45	55
169:	56	35	46	36	57	48	48	40
177:	48	46	37	36	59	47	58	68
185:	89	79	52	49	57	38	39	39
193:	46	33	41	49	40	37	40	48
201:	47	43	38	41	53	45	52	56
209:	52	44	34	44	29	25	43	36
217:	33	29	36	33	44	41	33	41
225:	25	49	28	40	31	26	46	38
233:	29	34	30	61	164	229	135	66
241:	49	54	35	24	37	23	19	22
249:	24	20	20	29	26	31	22	24
257:	33	27	23	29	25	34	38	35
265:	22	28	35	21	42	30	31	22
273:	21	26	21	27	31	29	22	24
281:	19	30	32	23	28	28	21	19
289:	20	24	19	23	42	67	58	36
297:	19	21	27	36	25	23	22	19
305:	15	25	22	25	26	28	20	15
313:	22	20	19	23	22	18	20	20
321:	26	13	22	20	15	16	26	22
329:	16	14	20	28	20	24	20	19
337:	46	48	32	26	18	16	20	19
345:	13	11	16	22	24	76	117	69
353:	34	18	20	21	14	18	13	17
361:	21	13	19	19	13	12	9	11

369:	13	19	12	15	11	25	11	12

Sample Title: HTC-A01-S002-1218-01

Channel								
377:	15	17	14	10	16	14	10	11
385:	17	12	15	17	23	12	8	18
393:	16	17	17	16	18	16	14	15
401:	23	22	22	9	9	4	12	17
409:	21	19	15	14	13	17	18	16
417:	14	12	14	11	20	15	15	16
425:	16	14	19	14	12	11	12	17
433:	13	8	14	12	16	20	15	9
441:	15	11	17	10	12	13	11	11
449:	12	21	13	12	13	16	13	12
457:	4	5	17	15	16	20	18	9
465:	10	10	12	12	11	12	16	11
473:	14	12	22	8	6	11	16	8
481:	9	10	12	8	7	11	11	17
489:	13	14	15	10	7	8	4	11
497:	11	8	15	13	10	15	10	8
505:	11	12	13	17	22	45	37	19
513:	5	9	12	6	11	5	12	13
521:	11	4	18	8	8	16	8	9
529:	11	7	16	15	7	8	13	9
537:	15	10	8	13	6	12	9	13
545:	7	5	11	3	7	7	14	7
553:	9	11	6	7	6	10	8	8
561:	8	10	7	10	17	11	11	8
569:	10	9	5	9	11	5	12	13
577:	5	7	4	11	32	46	56	21
585:	11	13	8	3	4	17	9	11
593:	6	8	4	12	7	11	10	6
601:	6	10	11	8	9	5	28	57
609:	52	35	9	11	10	5	7	9
617:	9	5	11	11	16	9	9	4
625:	8	10	11	7	10	5	7	8
633:	5	6	9	9	5	11	5	7
641:	7	7	5	8	11	9	8	6
649:	6	15	7	7	9	6	9	6
657:	9	6	6	8	13	9	7	10
665:	6	8	5	5	7	8	6	6
673:	5	11	9	7	4	9	8	9
681:	8	13	9	8	6	4	3	9
689:	4	6	7	12	8	12	6	6
697:	6	9	10	4	14	10	7	6
705:	3	7	9	7	7	9	9	9
713:	7	4	6	12	11	4	15	10
721:	4	11	6	6	8	11	21	8
729:	5	5	6	9	9	8	2	11
737:	8	4	2	7	8	4	4	6
745:	9	8	4	8	4	11	5	7
753:	5	9	7	7	7	10	10	6
761:	11	5	3	4	15	3	9	9
769:	10	5	2	11	9	6	3	5
777:	8	7	10	7	4	5	6	9
785:	11	6	7	9	3	4	3	6
793:	7	8	10	9	1	2	4	10

801:	5	8	4	5	9	12	3	8

Sample Title: HTC-A01-S002-1218-01

Channel								
809:	6	5	5	5	7	9	1	5
817:	10	9	4	4	6	6	3	6
825:	6	9	2	5	5	7	7	5
833:	5	5	15	7	7	6	10	5
841:	4	8	5	2	6	5	7	2
849:	4	4	7	4	6	8	10	3
857:	7	5	12	15	14	6	0	6
865:	4	8	3	6	4	6	6	8
873:	4	7	7	5	5	3	1	4
881:	5	7	2	7	4	5	2	7
889:	4	6	3	4	5	6	2	5
897:	2	8	11	5	6	7	6	8
905:	8	2	4	5	21	24	34	15
913:	7	8	2	5	5	4	5	7
921:	4	7	5	4	5	3	8	1
929:	4	4	7	7	6	8	7	7
937:	5	2	5	5	4	7	6	4
945:	10	5	7	5	7	3	1	7
953:	6	7	2	6	4	8	3	10
961:	6	9	8	10	12	12	9	20
969:	21	7	8	2	6	3	5	5
977:	8	7	5	5	9	4	6	3
985:	6	5	4	4	6	7	10	3
993:	4	2	4	6	6	4	4	8
1001:	7	7	4	8	9	7	11	2
1009:	5	4	3	8	6	8	8	3
1017:	6	4	5	5	2	2	4	8
1025:	1	3	7	4	6	4	6	7
1033:	3	5	7	5	4	1	3	4
1041:	3	4	2	2	1	2	7	8
1049:	8	8	5	8	5	5	8	6
1057:	8	7	6	7	6	5	1	2
1065:	3	9	3	2	4	8	2	1
1073:	3	5	6	5	2	5	4	5
1081:	7	1	2	5	4	5	3	4
1089:	6	4	9	5	5	4	5	4
1097:	3	5	4	1	1	4	3	6
1105:	3	8	4	4	11	4	7	5
1113:	2	2	4	5	8	13	7	17
1121:	9	5	8	5	8	6	8	7
1129:	6	4	5	8	7	1	5	7
1137:	5	7	5	5	10	8	6	2
1145:	3	4	2	8	2	8	4	8
1153:	6	8	7	4	4	8	3	6
1161:	4	5	5	9	5	6	7	2
1169:	8	5	5	7	6	7	10	8
1177:	7	5	8	6	9	10	6	6
1185:	8	6	6	6	8	7	4	5
1193:	7	4	5	7	5	3	6	9
1201:	3	7	6	5	7	8	8	7
1209:	7	7	8	13	6	3	6	11
1217:	4	4	8	6	5	7	6	11
1225:	8	5	10	7	8	5	8	6

1233:	4	8	10	8	7	13	1	7

Sample Title: HTC-A01-S002-1218-01

Channel								
1241:	4	2	5	1	4	7	5	4
1249:	6	3	4	4	5	8	3	4
1257:	5	10	3	4	4	3	5	3
1265:	5	2	8	7	2	0	2	6
1273:	5	4	5	3	2	4	3	2
1281:	3	2	1	6	3	7	6	4
1289:	4	4	7	3	2	2	4	1
1297:	4	5	3	3	1	5	5	4
1305:	2	7	2	4	1	0	4	4
1313:	3	2	2	1	4	1	0	4
1321:	1	3	3	4	4	3	4	0
1329:	6	3	2	7	3	4	1	1
1337:	7	3	3	2	2	0	1	2
1345:	1	2	4	4	1	1	1	2
1353:	2	2	0	2	2	8	2	2
1361:	5	2	3	2	3	2	2	0
1369:	3	0	2	1	2	4	2	4
1377:	1	5	4	3	2	1	1	1
1385:	4	3	1	0	2	1	2	4
1393:	0	2	2	1	1	5	1	3
1401:	4	3	4	1	0	3	1	3
1409:	0	1	1	3	3	3	1	2
1417:	1	0	2	3	2	4	1	1
1425:	2	3	2	2	1	2	3	2
1433:	3	0	0	0	0	2	2	3
1441:	1	5	2	2	3	1	1	0
1449:	2	0	0	0	0	3	6	4
1457:	8	25	80	129	125	50	5	1
1465:	2	2	0	0	0	0	2	3
1473:	2	0	0	2	1	1	4	2
1481:	1	0	1	0	3	2	2	0
1489:	3	2	2	2	2	3	4	1
1497:	1	1	0	3	1	2	1	0
1505:	1	0	4	5	0	2	0	2
1513:	2	1	1	2	1	1	0	0
1521:	2	2	1	2	1	0	1	1
1529:	0	1	0	1	1	0	0	0
1537:	3	1	3	2	0	0	1	3
1545:	2	2	3	0	0	1	2	0
1553:	1	2	0	0	1	0	3	2
1561:	2	0	1	1	0	0	1	0
1569:	1	1	0	0	2	0	1	0
1577:	2	1	1	2	0	2	4	1
1585:	1	2	4	2	0	3	1	1
1593:	4	3	1	0	2	1	4	2
1601:	0	0	2	0	0	0	1	0
1609:	1	1	1	0	3	4	0	0
1617:	1	1	0	0	2	2	1	1
1625:	0	1	0	0	1	2	1	1
1633:	3	1	0	0	2	0	0	1
1641:	1	1	2	1	0	0	1	0
1649:	0	0	2	1	0	0	0	2
1657:	1	1	1	0	1	3	0	1

1665:	0	1	2	0	1	0	2	0

Sample Title: HTC-A01-S002-1218-01

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

2097:	1	1	0	2	0	3	6	0

Sample Title: HTC-A01-S002-1218-01

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

2529:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S002-1218-01

Channel								
2537:	0	0	0	0	0	2	1	0
2545:	0	0	0	0	1	0	0	0
2553:	0	0	1	1	0	0	1	0
2561:	0	1	1	0	1	1	0	0
2569:	0	0	0	0	0	1	0	0
2577:	1	0	1	0	0	1	1	0
2585:	0	1	1	0	1	1	1	0
2593:	0	0	1	0	0	0	1	0
2601:	0	0	0	0	0	0	1	1
2609:	0	0	0	2	3	6	10	9
2617:	4	2	0	0	0	1	0	0
2625:	1	0	0	0	0	1	0	0
2633:	0	0	1	0	0	0	0	0
2641:	1	0	1	1	0	0	0	0
2649:	1	1	1	2	0	0	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	1	0
2681:	0	0	0	0	1	2	0	0
2689:	1	0	0	1	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	2	0	0	0	0	0	0
2721:	1	0	1	0	0	0	1	0
2729:	0	0	0	1	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	1	0
2753:	0	1	0	0	0	0	0	0
2761:	1	0	1	1	0	0	0	1
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	1	0
2785:	1	0	0	0	0	0	0	0
2793:	0	1	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	1	0	0	0	0	1	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	0	0	1	0
2849:	0	0	0	0	0	0	0	0
2857:	0	1	0	0	1	0	1	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	1	0	0
2881:	0	0	0	0	0	0	0	0
2889:	1	0	0	0	0	0	0	1
2897:	0	1	0	0	1	0	0	0
2905:	1	0	0	0	0	0	0	0
2913:	1	0	0	0	1	0	0	0
2921:	0	0	0	0	1	0	0	0
2929:	0	1	0	0	1	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	2	0	0	1

2961:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S002-1218-01

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

3393:	0	0	0	1	0	0	1	0

Sample Title: HTC-A01-S002-1218-01

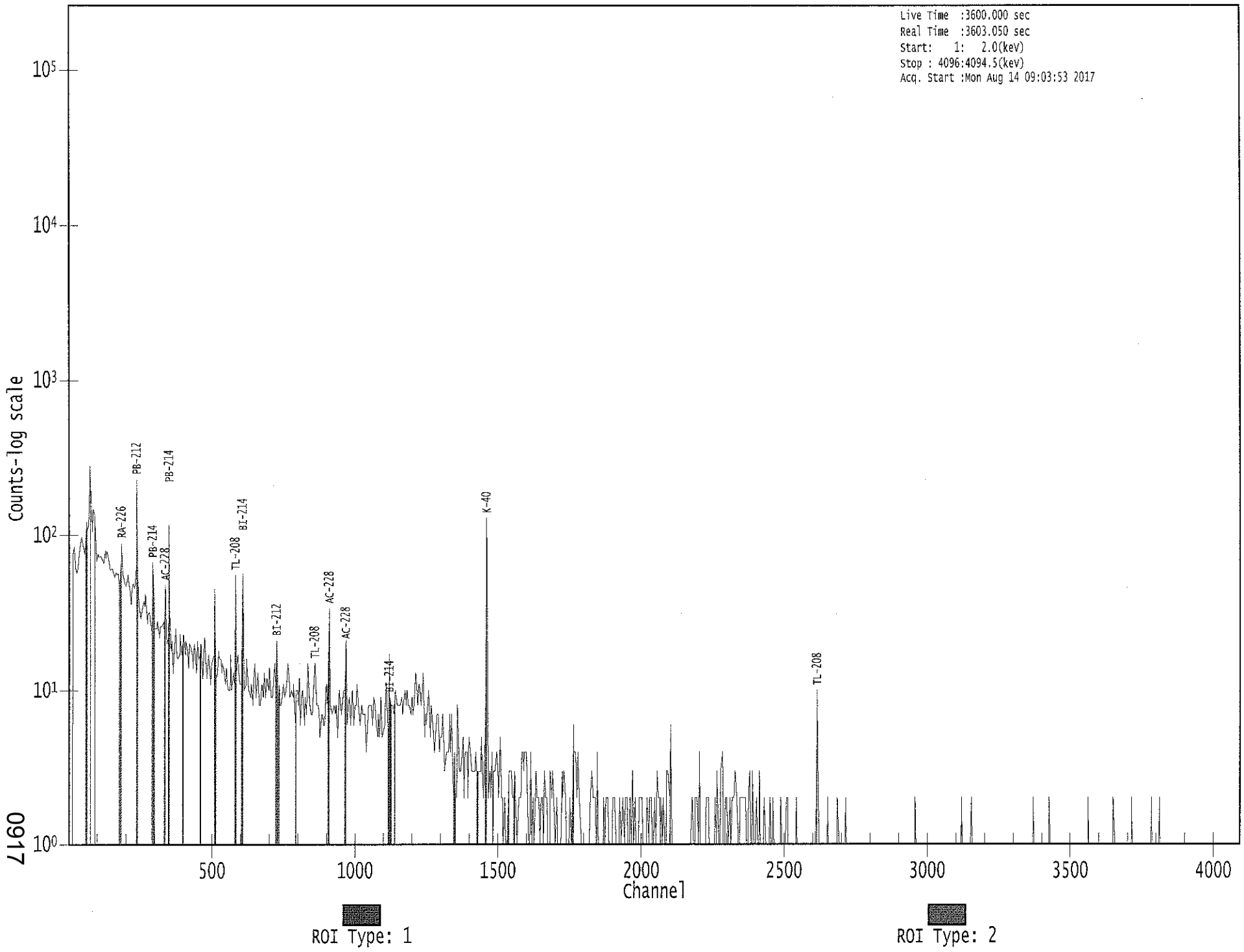
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	1	1	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	2	0	0	0	0	1	0	0
3433:	0	0	0	1	0	0	0	0
3441:	0	1	0	0	1	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	1	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	1	1	1
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S002-1218-01

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

0000055150.CNF



0917

Apex-Gamma

8/14

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-15
Sample Description	: HTC-A01-S002-1824-01
Sample Type	: SOIL
Sample Size	: 7.877E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:38:11AM
Acquisition Started	: 8/14/2017 10:06:01AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.0 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 18 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55156

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 11:06:06AM
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	72.22	72.81	0.0000	0.00
2	75.32	75.91	0.0000	0.00
3	87.57	88.15	0.0000	0.00
4	208.97	209.43	0.0000	0.00
5	238.54	238.97	0.0000	0.00
6	241.74	242.17	0.0000	0.00
7	270.80	271.20	0.0000	0.00
8	277.48	277.86	0.0000	0.00
9	294.81	295.18	0.0000	0.00
10	327.06	327.40	0.0000	0.00
11	338.14	338.47	0.0000	0.00
12	351.78	352.09	0.0000	0.00
13	408.60	408.86	0.0000	0.00
14	463.52	463.72	0.0000	0.00
15	510.93	511.08	0.0000	0.00
16	538.49	538.61	0.0000	0.00
17	583.28	583.35	0.0000	0.00
18	608.99	609.04	0.0000	0.00
19	662.74	662.74	0.0000	0.00
20	728.11	728.04	0.0000	0.00
21	795.02	794.89	0.0000	0.00
22	860.60	860.40	0.0000	0.00
23	911.45	911.20	0.0000	0.00
24	935.12	934.84	0.0000	0.00
25	965.10	964.80	0.0000	0.00
26	969.11	968.80	0.0000	0.00
27	989.83	989.50	0.0000	0.00
28	1094.43	1094.00	0.0000	0.00
29	1099.70	1099.26	0.0000	0.00
30	1120.78	1120.32	0.0000	0.00
31	1189.18	1188.65	0.0000	0.00
32	1238.71	1238.13	0.0000	0.00
33	1378.15	1377.44	0.0000	0.00
34	1461.38	1460.59	0.0000	0.00
35	1559.23	1558.33	0.0000	0.00
36	1588.70	1587.78	0.0000	0.00
37	1593.83	1592.91	0.0000	0.00
38	1681.75	1680.73	0.0000	0.00
39	1718.12	1717.08	0.0000	0.00
40	1726.00	1724.94	0.0000	0.00
41	1731.00	1729.94	0.0000	0.00
42	1739.07	1738.00	0.0000	0.00

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1764.92	1763.82	0.0000	0.00
44	1847.30	1846.13	0.0000	0.00
45	1935.66	1934.40	0.0000	0.00
46	1966.29	1965.00	0.0000	0.00
47	1977.30	1976.00	0.0000	0.00
48	2104.14	2102.72	0.0000	0.00
49	2204.49	2202.97	0.0000	0.00
50	2615.04	2613.14	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 11:06:06AM

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	72.22	71 -	81	72.81	6.07E+01	56.89	7.24E+02	2.09
m	2	75.32	71 -	81	75.91	4.22E+02	99.09	1.31E+03	2.41
M	3	87.57	84 -	97	88.15	1.23E+02	66.42	8.25E+02	1.67
	4	208.97	206 -	213	209.43	7.89E+01	65.60	6.58E+02	1.92
M	5	238.54	235 -	248	238.97	5.53E+02	59.45	2.99E+02	1.82
m	6	241.74	235 -	248	242.17	1.43E+02	59.72	2.60E+02	1.82
	7	270.80	267 -	274	271.20	7.88E+01	47.29	3.20E+02	2.25
	8	277.48	275 -	283	277.86	7.25E+01	48.39	3.07E+02	2.36
	9	294.81	291 -	299	295.18	1.22E+02	60.92	4.97E+02	1.92
	10	327.06	325 -	331	327.40	4.64E+01	38.95	2.43E+02	2.71
	11	338.14	334 -	342	338.47	9.64E+01	51.92	3.55E+02	1.68
	12	351.78	347 -	356	352.09	3.24E+02	62.07	3.65E+02	1.58
	13	408.60	406 -	412	408.86	3.85E+01	33.60	1.75E+02	3.08
	14	463.52	460 -	467	463.72	4.67E+01	34.41	1.63E+02	2.62
	15	510.93	506 -	516	511.08	1.49E+02	50.42	2.61E+02	2.86
	16	538.49	533 -	544	538.61	4.66E+01	40.30	1.79E+02	5.12
	17	583.28	579 -	587	583.35	1.53E+02	42.55	1.84E+02	1.65
	18	608.99	603 -	613	609.04	2.23E+02	48.63	1.93E+02	2.10
	19	662.74	657 -	668	662.74	5.71E+01	36.99	1.38E+02	5.06
	20	728.11	724 -	733	728.04	7.84E+01	29.33	7.33E+01	2.74
	21	795.02	792 -	797	794.89	2.76E+01	21.73	7.27E+01	2.10
	22	860.60	855 -	866	860.40	3.36E+01	28.43	8.49E+01	3.24
	23	911.45	907 -	914	911.20	1.03E+02	30.66	8.80E+01	2.02
	24	935.12	931 -	938	934.84	2.17E+01	19.90	5.05E+01	3.52
M	25	965.10	957 -	972	964.80	2.89E+01	21.07	4.84E+01	2.22
m	26	969.11	957 -	972	968.80	9.06E+01	26.38	5.58E+01	2.22
	27	989.83	986 -	993	989.50	2.63E+01	23.66	7.55E+01	1.22
M	28	1094.43	1090 -	1106	1094.00	1.94E+01	15.59	3.82E+01	2.07
m	29	1099.70	1090 -	1106	1099.26	1.66E+01	23.13	5.22E+01	3.33
	30	1120.78	1116 -	1125	1120.32	4.40E+01	32.95	1.30E+02	1.87
	31	1189.18	1186 -	1191	1188.65	2.23E+01	17.38	4.34E+01	2.80
	32	1238.71	1233 -	1244	1238.13	4.45E+01	35.16	1.33E+02	2.26
	33	1378.15	1373 -	1381	1377.44	1.35E+01	16.05	3.11E+01	3.38
	34	1461.38	1454 -	1465	1460.59	6.60E+02	54.52	4.02E+01	2.29
	35	1559.23	1554 -	1562	1558.33	1.09E+01	8.50	4.15E+00	3.50
M	36	1588.70	1582 -	1596	1587.78	1.69E+01	10.99	1.18E+01	2.45
m	37	1593.83	1582 -	1596	1592.91	1.27E+01	10.62	8.57E+00	2.45
	38	1681.75	1676 -	1684	1680.73	1.04E+01	11.35	1.33E+01	4.31
	39	1718.12	1713 -	1722	1717.08	1.02E+01	8.77	5.62E+00	3.08
M	40	1726.00	1724 -	1732	1724.94	6.02E+00	0.50	1.00E+00	3.01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1731.00	1724 -	1732	1729.94	1.24E+01	7.81	1.94E+00	2.61
	42	1739.07	1735 -	1740	1738.00	8.00E+00	5.66	0.00E+00	2.96
	43	1764.92	1757 -	1767	1763.82	3.38E+01	21.49	4.23E+01	2.51
	44	1847.30	1841 -	1849	1846.13	1.51E+01	9.39	3.82E+00	1.21
	45	1935.66	1931 -	1937	1934.40	6.25E+00	6.65	3.50E+00	1.27
	46	1966.29	1961 -	1968	1965.00	1.00E+01	6.32	0.00E+00	2.98
	47	1977.30	1972 -	1979	1976.00	8.00E+00	5.66	0.00E+00	3.49
	48	2104.14	2099 -	2105	2102.72	8.50E+00	8.51	7.00E+00	2.05
	49	2204.49	2199 -	2208	2202.97	1.50E+01	11.40	1.00E+01	1.93
	50	2615.04	2606 -	2619	2613.14	9.60E+01	19.60	0.00E+00	2.65

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 : 8/14/2017 11:06:06AM

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	72.22	71 -	81	6.07E+01	56.89	7.24E+02	4.42E+01
m	2	75.32	71 -	81	4.22E+02	99.09	1.31E+03	5.94E+01
M	3	87.57	84 -	97	1.23E+02	66.42	8.25E+02	4.72E+01
	4	208.97	206 -	213	7.89E+01	65.60	6.58E+02	5.19E+01
M	5	238.54	235 -	248	5.53E+02	59.45	2.99E+02	2.84E+01
m	6	241.74	235 -	248	1.43E+02	59.72	2.60E+02	2.65E+01
	7	270.80	267 -	274	7.88E+01	47.29	3.20E+02	3.60E+01
	8	277.48	275 -	283	7.25E+01	48.39	3.07E+02	3.72E+01
	9	294.81	291 -	299	1.22E+02	60.92	4.97E+02	4.67E+01
	10	327.06	325 -	331	4.64E+01	38.95	2.43E+02	3.00E+01
	11	338.14	334 -	342	9.64E+01	51.92	3.55E+02	3.95E+01
	12	351.78	347 -	356	3.24E+02	62.07	3.65E+02	4.16E+01
	13	408.60	406 -	412	3.85E+01	33.60	1.75E+02	2.57E+01
	14	463.52	460 -	467	4.67E+01	34.41	1.63E+02	2.60E+01
	15	510.93	506 -	516	1.49E+02	50.42	2.61E+02	3.62E+01
	16	538.49	533 -	544	4.66E+01	40.30	1.79E+02	3.12E+01
	17	583.28	579 -	587	1.53E+02	42.55	1.84E+02	2.85E+01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	608.99	603 -	613	2.23E+02	48.63	1.93E+02	3.16E+01
	19	662.74	657 -	668	5.71E+01	36.99	1.38E+02	2.77E+01
	20	728.11	724 -	733	7.84E+01	29.33	7.33E+01	1.92E+01
	21	795.02	792 -	797	2.76E+01	21.73	7.27E+01	1.56E+01
	22	860.60	855 -	866	3.36E+01	28.43	8.49E+01	2.13E+01
	23	911.45	907 -	914	1.03E+02	30.66	8.80E+01	1.89E+01
	24	935.12	931 -	938	2.17E+01	19.90	5.05E+01	1.45E+01
M	25	965.10	957 -	972	2.89E+01	21.07	4.84E+01	1.14E+01
m	26	969.11	957 -	972	9.06E+01	26.38	5.58E+01	1.23E+01
	27	989.83	986 -	993	2.63E+01	23.66	7.55E+01	1.75E+01
M	28	1094.43	1090 -	1106	1.94E+01	15.59	3.82E+01	1.02E+01
m	29	1099.70	1090 -	1106	1.66E+01	23.13	5.22E+01	1.19E+01
	30	1120.78	1116 -	1125	4.40E+01	32.95	1.30E+02	2.48E+01
	31	1189.18	1186 -	1191	2.23E+01	17.38	4.34E+01	1.20E+01
	32	1238.71	1233 -	1244	4.45E+01	35.16	1.33E+02	2.67E+01
	33	1378.15	1373 -	1381	1.35E+01	16.05	3.11E+01	1.17E+01
	34	1461.38	1454 -	1465	6.60E+02	54.52	4.02E+01	1.50E+01
	35	1559.23	1554 -	1562	1.09E+01	8.50	4.15E+00	4.39E+00
M	36	1588.70	1582 -	1596	1.69E+01	10.99	1.18E+01	5.64E+00
m	37	1593.83	1582 -	1596	1.27E+01	10.62	8.57E+00	4.81E+00
	38	1681.75	1676 -	1684	1.04E+01	11.35	1.33E+01	7.68E+00
	39	1718.12	1713 -	1722	1.02E+01	8.77	5.62E+00	4.95E+00
M	40	1726.00	1724 -	1732	6.02E+00	0.50	1.00E+00	1.64E+00
m	41	1731.00	1724 -	1732	1.24E+01	7.81	1.94E+00	2.29E+00
	42	1739.07	1735 -	1740	8.00E+00	5.66	0.00E+00	0.00E+00
	43	1764.92	1757 -	1767	3.38E+01	21.49	4.23E+01	1.49E+01
	44	1847.30	1841 -	1849	1.51E+01	9.39	3.82E+00	4.34E+00
	45	1935.66	1931 -	1937	6.25E+00	6.65	3.50E+00	3.61E+00
	46	1966.29	1961 -	1968	1.00E+01	6.32	0.00E+00	0.00E+00
	47	1977.30	1972 -	1979	8.00E+00	5.66	0.00E+00	0.00E+00
	48	2104.14	2099 -	2105	8.50E+00	8.51	7.00E+00	5.10E+00
	49	2204.49	2199 -	2208	1.50E+01	11.40	1.00E+01	6.88E+00
	50	2615.04	2606 -	2619	9.60E+01	19.60	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 1707077-15

HTC-A01-S002-1824-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 11:06:06AM

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	72.22	71 -	81	72.81	6.07E+01	56.89	7.24E+02	PM-145
m	2	75.32	71 -	81	75.91	4.22E+02	99.09	1.31E+03	AM-243
M	3	87.57	84 -	97	88.15	1.23E+02	66.42	8.25E+02	SN-126
									CD-109
									LU-176
	4	208.97	206 -	213	209.43	7.89E+01	65.60	6.58E+02	GA-67
									CM-243
M	5	238.54	235 -	248	238.97	5.53E+02	59.45	2.99E+02	PB-212
m	6	241.74	235 -	248	242.17	1.43E+02	59.72	2.60E+02	RA-224
	7	270.80	267 -	274	271.20	7.88E+01	47.29	3.20E+02	.....
	8	277.48	275 -	283	277.86	7.25E+01	48.39	3.07E+02	CM-243
									NP-239
	9	294.81	291 -	299	295.18	1.22E+02	60.92	4.97E+02	PB-214
	10	327.06	325 -	331	327.40	4.64E+01	38.95	2.43E+02	.....
	11	338.14	334 -	342	338.47	9.64E+01	51.92	3.55E+02	AC-228
	12	351.78	347 -	356	352.09	3.24E+02	62.07	3.65E+02	PB-214
	13	408.60	406 -	412	408.86	3.85E+01	33.60	1.75E+02	.....
	14	463.52	460 -	467	463.72	4.67E+01	34.41	1.63E+02	SB-125
	15	510.93	506 -	516	511.08	1.49E+02	50.42	2.61E+02	.....
	16	538.49	533 -	544	538.61	4.66E+01	40.30	1.79E+02	.....
	17	583.28	579 -	587	583.35	1.53E+02	42.55	1.84E+02	TL-208
	18	608.99	603 -	613	609.04	2.23E+02	48.63	1.93E+02	BI-214
	19	662.74	657 -	668	662.74	5.71E+01	36.99	1.38E+02	.....
	20	728.11	724 -	733	728.04	7.84E+01	29.33	7.33E+01	BI-212
	21	795.02	792 -	797	794.89	2.76E+01	21.73	7.27E+01	CS-134
	22	860.60	855 -	866	860.40	3.36E+01	28.43	8.49E+01	TL-208
	23	911.45	907 -	914	911.20	1.03E+02	30.66	8.80E+01	TL-204
									AC-228
	24	935.12	931 -	938	934.84	2.17E+01	19.90	5.05E+01	.....
M	25	965.10	957 -	972	964.80	2.89E+01	21.07	4.84E+01	.....
m	26	969.11	957 -	972	968.80	9.06E+01	26.38	5.58E+01	AC-228
	27	989.83	986 -	993	989.50	2.63E+01	23.66	7.55E+01	.....
M	28	1094.43	1090 -	1106	1094.00	1.94E+01	15.59	3.82E+01	LU-172
m	29	1099.70	1090 -	1106	1099.26	1.66E+01	23.13	5.22E+01	FE-59
	30	1120.78	1116 -	1125	1120.32	4.40E+01	32.95	1.30E+02	SC-46
									BI-214
									TA-182
	31	1189.18	1186 -	1191	1188.65	2.23E+01	17.38	4.34E+01	TA-182
	32	1238.71	1233 -	1244	1238.13	4.45E+01	35.16	1.33E+02	CO-56
	33	1378.15	1373 -	1381	1377.44	1.35E+01	16.05	3.11E+01	.....
	34	1461.38	1454 -	1465	1460.59	6.60E+02	54.52	4.02E+01	K-40

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	35	1559.23	1554 -	1562	1558.33	1.09E+01	8.50	4.15E+00	.....
M	36	1588.70	1582 -	1596	1587.78	1.69E+01	10.99	1.18E+01	.....
m	37	1593.83	1582 -	1596	1592.91	1.27E+01	10.62	8.57E+00	.....
	38	1681.75	1676 -	1684	1680.73	1.04E+01	11.35	1.33E+01	.....
	39	1718.12	1713 -	1722	1717.08	1.02E+01	8.77	5.62E+00	.....
M	40	1726.00	1724 -	1732	1724.94	6.02E+00	0.50	1.00E+00	.....
m	41	1731.00	1724 -	1732	1729.94	1.24E+01	7.81	1.94E+00	.....
	42	1739.07	1735 -	1740	1738.00	8.00E+00	5.66	0.00E+00	.....
	43	1764.92	1757 -	1767	1763.82	3.38E+01	21.49	4.23E+01	BI-214
	44	1847.30	1841 -	1849	1846.13	1.51E+01	9.39	3.82E+00	.....
	45	1935.66	1931 -	1937	1934.40	6.25E+00	6.65	3.50E+00	.....
	46	1966.29	1961 -	1968	1965.00	1.00E+01	6.32	0.00E+00	.....
	47	1977.30	1972 -	1979	1976.00	8.00E+00	5.66	0.00E+00	.....
	48	2104.14	2099 -	2105	2102.72	8.50E+00	8.51	7.00E+00	.....
	49	2204.49	2199 -	2208	2202.97	1.50E+01	11.40	1.00E+01	BI-214
	50	2615.04	2606 -	2619	2613.14	9.60E+01	19.60	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 : 8/14/2017 11:06:06AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	72.22	6.07E+01	56.89	2.74E-02	2.35E-03
m	2	75.32	4.22E+02	99.09	2.75E-02	2.39E-03
M	3	87.57	1.23E+02	66.42	2.74E-02	2.52E-03
	4	208.97	7.89E+01	65.60	2.04E-02	1.61E-03
M	5	238.54	5.53E+02	59.45	1.89E-02	1.53E-03
m	6	241.74	1.43E+02	59.72	1.87E-02	1.52E-03
	7	270.80	7.88E+01	47.29	1.74E-02	1.43E-03
	8	277.48	7.25E+01	48.39	1.71E-02	1.41E-03
	9	294.81	1.22E+02	60.92	1.65E-02	1.37E-03
	10	327.06	4.64E+01	38.95	1.53E-02	1.30E-03
	11	338.14	9.64E+01	51.92	1.50E-02	1.27E-03
	12	351.78	3.24E+02	62.07	1.45E-02	1.24E-03
	13	408.60	3.85E+01	33.60	1.30E-02	1.13E-03
	14	463.52	4.67E+01	34.41	1.19E-02	1.10E-03

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	15	510.93	1.49E+02	50.42	1.10E-02	1.07E-03
	16	538.49	4.66E+01	40.30	1.06E-02	1.05E-03
	17	583.28	1.53E+02	42.55	9.96E-03	1.02E-03
	18	608.99	2.23E+02	48.63	9.64E-03	1.01E-03
	19	662.74	5.71E+01	36.99	9.03E-03	9.70E-04
	20	728.11	7.84E+01	29.33	8.40E-03	8.66E-04
	21	795.02	2.76E+01	21.73	7.86E-03	7.60E-04
	22	860.60	3.36E+01	28.43	7.40E-03	6.56E-04
	23	911.45	1.03E+02	30.66	7.08E-03	5.91E-04
	24	935.12	2.17E+01	19.90	6.95E-03	5.82E-04
M	25	965.10	2.89E+01	21.07	6.79E-03	5.71E-04
m	26	969.11	9.06E+01	26.38	6.77E-03	5.69E-04
	27	989.83	2.63E+01	23.66	6.66E-03	5.61E-04
M	28	1094.43	1.94E+01	15.59	6.18E-03	5.21E-04
m	29	1099.70	1.66E+01	23.13	6.16E-03	5.19E-04
	30	1120.78	4.40E+01	32.95	6.07E-03	5.11E-04
	31	1189.18	2.23E+01	17.38	5.81E-03	4.87E-04
	32	1238.71	4.45E+01	35.16	5.64E-03	4.76E-04
	33	1378.15	1.35E+01	16.05	5.22E-03	4.44E-04
	34	1461.38	6.60E+02	54.52	5.00E-03	4.25E-04
	35	1559.23	1.09E+01	8.50	4.78E-03	4.02E-04
M	36	1588.70	1.69E+01	10.99	4.71E-03	3.95E-04
m	37	1593.83	1.27E+01	10.62	4.70E-03	3.94E-04
	38	1681.75	1.04E+01	11.35	4.53E-03	3.74E-04
	39	1718.12	1.02E+01	8.77	4.46E-03	3.65E-04
M	40	1726.00	6.02E+00	0.50	4.44E-03	3.63E-04
m	41	1731.00	1.24E+01	7.81	4.43E-03	3.62E-04
	42	1739.07	8.00E+00	5.66	4.42E-03	3.60E-04
	43	1764.92	3.38E+01	21.49	4.37E-03	3.54E-04
	44	1847.30	1.51E+01	9.39	4.23E-03	3.38E-04
	45	1935.66	6.25E+00	6.65	4.10E-03	3.38E-04
	46	1966.29	1.00E+01	6.32	4.05E-03	3.38E-04
	47	1977.30	8.00E+00	5.66	4.04E-03	3.38E-04
	48	2104.14	8.50E+00	8.51	3.86E-03	3.38E-04
	49	2204.49	1.50E+01	11.40	3.74E-03	3.38E-04
	50	2615.04	9.60E+01	19.60	3.31E-03	3.38E-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 : 8/14/2017 11:06:06AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	72.22	6.07E+01	56.89			6.07E+01	5.69E+01
m	2	75.32	4.22E+02	99.09			4.22E+02	9.91E+01
M	3	87.57	1.23E+02	66.42			1.23E+02	6.64E+01
	4	208.97	7.89E+01	65.60			7.89E+01	6.56E+01
M	5	238.54	5.53E+02	59.45	1.58E+01	5.72E+00	5.37E+02	5.97E+01
m	6	241.74	1.43E+02	59.72			1.43E+02	5.97E+01
	7	270.80	7.88E+01	47.29			7.88E+01	4.73E+01
	8	277.48	7.25E+01	48.39			7.25E+01	4.84E+01
	9	294.81	1.22E+02	60.92			1.22E+02	6.09E+01
	10	327.06	4.64E+01	38.95			4.64E+01	3.90E+01
	11	338.14	9.64E+01	51.92	1.94E+00	4.45E+00	9.44E+01	5.21E+01
	12	351.78	3.24E+02	62.07	8.23E+00	4.77E+00	3.16E+02	6.23E+01
	13	408.60	3.85E+01	33.60			3.85E+01	3.36E+01
	14	463.52	4.67E+01	34.41			4.67E+01	3.44E+01
	15	510.93	1.49E+02	50.42	7.54E+01	5.68E+00	7.41E+01	5.07E+01
	16	538.49	4.66E+01	40.30			4.66E+01	4.03E+01
	17	583.28	1.53E+02	42.55	7.97E+00	3.93E+00	1.45E+02	4.27E+01
	18	608.99	2.23E+02	48.63	5.86E+00	3.50E+00	2.17E+02	4.88E+01
	19	662.74	5.71E+01	36.99			5.71E+01	3.70E+01
	20	728.11	7.84E+01	29.33			7.84E+01	2.93E+01
	21	795.02	2.76E+01	21.73			2.76E+01	2.17E+01
	22	860.60	3.36E+01	28.43			3.36E+01	2.84E+01
	23	911.45	1.03E+02	30.66			1.03E+02	3.07E+01
	24	935.12	2.17E+01	19.90			2.17E+01	1.99E+01
M	25	965.10	2.89E+01	21.07			2.89E+01	2.11E+01
m	26	969.11	9.06E+01	26.38			9.06E+01	2.64E+01
	27	989.83	2.63E+01	23.66			2.63E+01	2.37E+01
M	28	1094.43	1.94E+01	15.59			1.94E+01	1.56E+01
m	29	1099.70	1.66E+01	23.13			1.66E+01	2.31E+01
	30	1120.78	4.40E+01	32.95			4.40E+01	3.30E+01
	31	1189.18	2.23E+01	17.38			2.23E+01	1.74E+01
	32	1238.71	4.45E+01	35.16			4.45E+01	3.52E+01
	33	1378.15	1.35E+01	16.05			1.35E+01	1.61E+01
	34	1461.38	6.60E+02	54.52	7.31E+00	2.50E+00	6.53E+02	5.46E+01
	35	1559.23	1.09E+01	8.50			1.09E+01	8.50E+00
M	36	1588.70	1.69E+01	10.99			1.69E+01	1.10E+01
m	37	1593.83	1.27E+01	10.62			1.27E+01	1.06E+01
	38	1681.75	1.04E+01	11.35			1.04E+01	1.13E+01
	39	1718.12	1.02E+01	8.77			1.02E+01	8.77E+00
M	40	1726.00	6.02E+00	0.50			6.02E+00	5.00E-01
m	41	1731.00	1.24E+01	7.81			1.24E+01	7.81E+00
	42	1739.07	8.00E+00	5.66			8.00E+00	5.66E+00
	43	1764.92	3.38E+01	21.49			3.38E+01	2.15E+01
	44	1847.30	1.51E+01	9.39			1.51E+01	9.39E+00
	45	1935.66	6.25E+00	6.65			6.25E+00	6.65E+00
	46	1966.29	1.00E+01	6.32			1.00E+01	6.32E+00
	47	1977.30	8.00E+00	5.66			8.00E+00	5.66E+00
	48	2104.14	8.50E+00	8.51	1.50E+00	1.48E+00	7.00E+00	8.64E+00
	49	2204.49	1.50E+01	11.40			1.50E+01	1.14E+01
	50	2615.04	9.60E+01	19.60	5.15E+00	1.56E+00	9.09E+01	1.97E+01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

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 : 8/14/2017 11:06:06AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.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	72.22	6.07E+01	56.89			6.07E+01	5.69E+01
m	2	75.32	4.22E+02	99.09			4.22E+02	9.91E+01
M	3	87.57	1.23E+02	66.42			1.23E+02	6.64E+01
	4	208.97	7.89E+01	65.60			7.89E+01	6.56E+01
M	5	238.54	5.53E+02	59.45	1.58E+01	5.72E+00	5.37E+02	5.97E+01
m	6	241.74	1.43E+02	59.72			1.43E+02	5.97E+01
	7	270.80	7.88E+01	47.29			7.88E+01	4.73E+01
	8	277.48	7.25E+01	48.39			7.25E+01	4.84E+01
	9	294.81	1.22E+02	60.92			1.22E+02	6.09E+01
	10	327.06	4.64E+01	38.95			4.64E+01	3.90E+01
	11	338.14	9.64E+01	51.92	1.94E+00	4.45E+00	9.44E+01	5.21E+01
	12	351.78	3.24E+02	62.07	8.23E+00	4.77E+00	3.16E+02	6.23E+01
	13	408.60	3.85E+01	33.60			3.85E+01	3.36E+01
	14	463.52	4.67E+01	34.41			4.67E+01	3.44E+01
	15	510.93	1.49E+02	50.42	7.54E+01	5.68E+00	7.41E+01	5.07E+01
	16	538.49	4.66E+01	40.30			4.66E+01	4.03E+01
	17	583.28	1.53E+02	42.55	7.97E+00	3.93E+00	1.45E+02	4.27E+01
	18	608.99	2.23E+02	48.63	5.86E+00	3.50E+00	2.17E+02	4.88E+01
	19	662.74	5.71E+01	36.99			5.71E+01	3.70E+01
	20	728.11	7.84E+01	29.33			7.84E+01	2.93E+01
	21	795.02	2.76E+01	21.73			2.76E+01	2.17E+01
	22	860.60	3.36E+01	28.43			3.36E+01	2.84E+01
	23	911.45	1.03E+02	30.66			1.03E+02	3.07E+01
	24	935.12	2.17E+01	19.90			2.17E+01	1.99E+01
M	25	965.10	2.89E+01	21.07			2.89E+01	2.11E+01
m	26	969.11	9.06E+01	26.38			9.06E+01	2.64E+01
	27	989.83	2.63E+01	23.66			2.63E+01	2.37E+01
M	28	1094.43	1.94E+01	15.59			1.94E+01	1.56E+01
m	29	1099.70	1.66E+01	23.13			1.66E+01	2.31E+01
	30	1120.78	4.40E+01	32.95			4.40E+01	3.30E+01
	31	1189.18	2.23E+01	17.38			2.23E+01	1.74E+01
	32	1238.71	4.45E+01	35.16			4.45E+01	3.52E+01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	1378.15	1.35E+01	16.05			1.35E+01	1.61E+01
	34	1461.38	6.60E+02	54.52	7.31E+00	2.50E+00	6.53E+02	5.46E+01
	35	1559.23	1.09E+01	8.50			1.09E+01	8.50E+00
M	36	1588.70	1.69E+01	10.99			1.69E+01	1.10E+01
m	37	1593.83	1.27E+01	10.62			1.27E+01	1.06E+01
	38	1681.75	1.04E+01	11.35			1.04E+01	1.13E+01
	39	1718.12	1.02E+01	8.77			1.02E+01	8.77E+00
M	40	1726.00	6.02E+00	0.50			6.02E+00	5.00E-01
m	41	1731.00	1.24E+01	7.81			1.24E+01	7.81E+00
	42	1739.07	8.00E+00	5.66			8.00E+00	5.66E+00
	43	1764.92	3.38E+01	21.49			3.38E+01	2.15E+01
	44	1847.30	1.51E+01	9.39			1.51E+01	9.39E+00
	45	1935.66	6.25E+00	6.65			6.25E+00	6.65E+00
	46	1966.29	1.00E+01	6.32			1.00E+01	6.32E+00
	47	1977.30	8.00E+00	5.66			8.00E+00	5.66E+00
	48	2104.14	8.50E+00	8.51	1.50E+00	1.48E+00	7.00E+00	8.64E+00
	49	2204.49	1.50E+01	11.40			1.50E+01	1.14E+01
	50	2615.04	9.60E+01	19.60	5.15E+00	1.56E+00	9.09E+01	1.97E+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	0.949	1460.81	*	10.67	1.16E+01	1.41E+00
FE-59	0.303	1099.22	*	56.50	1.92E-01	2.69E-01
		1291.56		43.20		
CD-109	0.966	88.03	*	3.72	1.32E+00	7.28E-01
SN-126	1.000	87.57	*	37.00	1.16E-01	6.33E-02
TL-208	0.986	583.14	*	30.22	4.59E-01	1.43E-01
		860.37	*	4.48	9.65E-01	8.22E-01
		2614.66	*	35.85	7.31E-01	1.75E-01
BI-212	0.656	727.17	*	11.80	7.53E-01	2.92E-01
		1620.62		2.75		
PB-212	0.893	238.63	*	44.60	6.09E-01	8.37E-02
		300.09		3.41		
BI-214	0.978	609.31	*	46.30	4.63E-01	1.15E-01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.978	1120.29	*	15.10	4.57E-01	3.45E-01
		1764.49	*	15.80	4.67E-01	2.99E-01
		2204.22	*	4.98	7.68E-01	5.88E-01
PB-214	0.989	295.21	*	19.19	3.69E-01	1.86E-01
		351.92	*	37.19	5.57E-01	1.20E-01
RA-224	0.911	240.98	*	3.95	1.84E+00	7.84E-01
AC-228	0.987	338.32	*	11.40	5.28E-01	2.95E-01
		911.07	*	27.70	5.00E-01	1.55E-01
		969.11	*	16.60	7.69E-01	2.33E-01
AM-243	0.934	74.67	*	66.00	2.22E-01	5.55E-02
CM-243	0.362	209.75	*	3.29	1.13E+00	9.42E-01
		228.14		10.60		
		277.60	*	14.00	2.90E-01	1.95E-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 : 8/14/2017 11:06:06AM
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	72.22	1.68478E-02	46.90	Tol.	PM-145
	7	270.80	2.18840E-02	30.01		
	10	327.06	1.28968E-02	41.95	Sum	
	13	408.60	1.06989E-02	43.61		
	14	463.52	1.29601E-02	36.88	Tol.	SB-125
	15	510.93	2.05910E-02	34.22		
	16	538.49	1.29330E-02	43.28		
	19	662.74	1.58642E-02	32.38		
	21	795.02	7.67795E-03	39.30	Tol.	CS-134
	24	935.12	6.03723E-03	45.78	Sum	
M	25	965.10	8.03406E-03	36.42		
	27	989.83	7.29167E-03	45.07		
M	28	1094.43	5.38797E-03	40.18	Tol.	LU-172
	31	1189.18	6.19949E-03	38.93	Sum	
	32	1238.71	1.23674E-02	39.48		
	33	1378.15	3.74042E-03	59.61	Sum	

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	35	1559.23	3.03419E-03	38.91		
M	36	1588.70	4.69039E-03	32.54	Sum	
m	37	1593.83	3.52885E-03	41.79	D-Esc	
	38	1681.75	2.87582E-03	54.80		
	39	1718.12	2.83120E-03	43.05		
M	40	1726.00	1.67161E-03	4.15		
m	41	1731.00	3.45449E-03	31.40		
	42	1739.07	2.22222E-03	35.36	Sum	
	44	1847.30	4.19118E-03	31.13		
	45	1935.66	1.73611E-03	53.22		
	46	1966.29	2.77778E-03	31.62		
	47	1977.30	2.22222E-03	35.36		
	48	2104.14	1.94444E-03	61.74	S-Esc	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.94	1460.81	*	10.67	1.16E+01	1.41E+00
FE-59	0.30	1099.22	*	56.50	1.92E-01	2.69E-01
		1291.56		43.20		
CD-109	0.96	88.03	*	3.72	1.32E+00	7.28E-01
SN-126	1.00	87.57	*	37.00	1.16E-01	6.33E-02
TL-208	0.98	583.14	*	30.22	4.59E-01	1.43E-01
		860.37	*	4.48	9.65E-01	8.22E-01
		2614.66	*	35.85	7.31E-01	1.75E-01
BI-212	0.65	727.17	*	11.80	7.53E-01	2.92E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	6.09E-01	8.37E-02
		300.09		3.41		
BI-214	0.97	609.31	*	46.30	4.63E-01	1.15E-01
		1120.29	*	15.10	4.57E-01	3.45E-01
		1764.49	*	15.80	4.67E-01	2.99E-01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.97	2204.22	*	4.98	7.68E-01	5.88E-01
PB-214	0.98	295.21	*	19.19	3.69E-01	1.86E-01
		351.92	*	37.19	5.57E-01	1.20E-01
RA-224	0.91	240.98	*	3.95	1.84E+00	7.84E-01
AC-228	0.98	338.32	*	11.40	5.28E-01	2.95E-01
		911.07	*	27.70	5.00E-01	1.55E-01
		969.11	*	16.60	7.69E-01	2.33E-01
AM-243	0.93	74.67	*	66.00	2.22E-01	5.55E-02
CM-243	0.36	209.75	*	3.29	1.13E+00	9.42E-01
		228.14		10.60		
		277.60	*	14.00	2.90E-01	1.95E-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	0.949	1.16E+01	1.41E+00	
	FE-59	0.303	1.92E-01	2.69E-01	
?	CD-109	0.966	1.32E+00	7.28E-01	
?	SN-126	1.000	1.16E-01	6.33E-02	
	TL-208	0.986	5.75E-01	1.10E-01	
	BI-212	0.656	7.53E-01	2.92E-01	
	PB-212	0.893	6.09E-01	8.37E-02	
	BI-214	0.978	4.72E-01	1.01E-01	
	PB-214	0.989	5.02E-01	1.01E-01	
	RA-224	0.911	1.84E+00	7.84E-01	
	AC-228	0.987	5.74E-01	1.18E-01	
	AM-243	0.934	2.22E-01	5.55E-02	
	CM-243	0.362	3.24E-01	1.91E-01	

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

? = 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 1707077-15

HTC-A01-S002-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 11:06:06AM
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	72.22	1.68478E-02	46.90	Tol.	PM-145
	7	270.80	2.18840E-02	30.01		
	10	327.06	1.28968E-02	41.95	Sum	
	13	408.60	1.06989E-02	43.61		
	14	463.52	1.29601E-02	36.88	Tol.	SB-125
	15	510.93	2.05910E-02	34.22		
	16	538.49	1.29330E-02	43.28		
	19	662.74	1.58642E-02	32.38		
	21	795.02	7.67795E-03	39.30	Tol.	CS-134
	24	935.12	6.03723E-03	45.78	Sum	
M	25	965.10	8.03406E-03	36.42		
	27	989.83	7.29167E-03	45.07		
M	28	1094.43	5.38797E-03	40.18	Tol.	LU-172
	31	1189.18	6.19949E-03	38.93	Sum	
	32	1238.71	1.23674E-02	39.48		
	33	1378.15	3.74042E-03	59.61	Sum	
	35	1559.23	3.03419E-03	38.91		
M	36	1588.70	4.69039E-03	32.54	Sum	
m	37	1593.83	3.52885E-03	41.79	D-Esc	
	38	1681.75	2.87582E-03	54.80		
	39	1718.12	2.83120E-03	43.05		
M	40	1726.00	1.67161E-03	4.15		
m	41	1731.00	3.45449E-03	31.40		
	42	1739.07	2.22222E-03	35.36	Sum	
	44	1847.30	4.19118E-03	31.13		
	45	1935.66	1.73611E-03	53.22		
	46	1966.29	2.77778E-03	31.62		
	47	1977.30	2.22222E-03	35.36		
	48	2104.14	1.94444E-03	61.74	S-Esc	

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	9.65E-02	1.24E+00	1.24E+00
+	NA-22	1274.54		99.94	-1.56E-02	4.88E-02	4.88E-02
+	@ 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	6.95E-03	3.53E-02	3.53E-02
+	K-40	1460.81	*	10.67	1.16E+01	6.11E-01	6.11E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	8.74E-03	3.91E-02	3.91E-02
		78.34		96.00	6.75E-02		4.91E-02
+	SC-46	889.25		99.98	-2.24E-02	8.50E-02	8.50E-02
		1120.51		99.99	1.51E-01		1.59E-01
+	V-48	983.52		99.98	-7.75E-01	2.59E+00	2.59E+00
		1312.10		97.50	1.31E+00		2.93E+00
+	CR-51	320.08		9.83	1.77E+00	3.87E+00	3.87E+00
+	MN-54	834.83		99.97	1.97E-02	6.04E-02	6.04E-02
+	CO-56	846.75		99.96	2.39E-02	1.01E-01	1.01E-01
		1037.75		14.03	2.25E-01		8.76E-01
		1238.25		67.00	1.68E-01		2.50E-01
		1771.40		15.51	3.51E-01		6.42E-01
		2598.48		16.90	3.85E-02		2.83E-01
+	CO-57	122.06		85.51	-1.35E-02	4.43E-02	4.43E-02
		136.48		10.60	3.52E-02		3.83E-01
+	CO-58	810.76		99.40	-6.31E-02	8.81E-02	8.81E-02
+	FE-59	1099.22	*	56.50	1.92E-01	4.02E-01	6.04E-01
		1291.56		43.20	7.22E-02		4.02E-01
+	CO-60	1173.22		100.00	-2.58E-03	4.95E-02	5.46E-02
		1332.49		100.00	8.50E-03		4.95E-02
+	ZN-65	1115.52		50.75	1.78E-02	1.26E-01	1.26E-01
+	GA-67	93.31		35.70	6.60E+07	4.52E+07	4.52E+07
		208.95		2.24	6.55E+08		6.54E+08
		300.22		16.00	1.46E+07		9.01E+07
+	SE-75	121.11		16.70	1.79E-01	9.25E-02	3.19E-01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	8.51E-03	9.25E-02	9.25E-02
		264.65		59.80	1.60E-02		9.28E-02
		279.53		25.20	3.24E-02		2.44E-01
		400.65		11.40	-1.79E-01		5.17E-01
+	RB-82	776.52		13.00	5.43E-01	3.67E+00	3.67E+00
+	RB-83	520.41		46.00	-3.71E-02	1.74E-01	1.74E-01
		529.64		30.30	7.52E-02		2.68E-01
		552.65		16.40	1.59E-01		5.05E-01
+	KR-85	513.99		0.43	1.76E+01	1.40E+01	1.40E+01
+	SR-85	513.99		99.27	2.05E-01	1.62E-01	1.62E-01
+	Y-88	898.02		93.40	1.94E-02	4.96E-02	9.11E-02
		1836.01		99.38	-8.26E-03		4.96E-02
+	MO-93	263.06		56.72	1.77E-04	2.96E-02	6.12E-02
		684.67		99.68	1.03E-04		4.24E-02
		1477.11		99.08	3.80E-03		2.96E-02
+	NB-93M	16.57		9.43	-3.85E-02	3.74E-01	3.74E-01
+	NB-94	702.63		100.00	3.17E-03	4.13E-02	4.66E-02
		871.10		100.00	-7.53E-03		4.13E-02
+	NB-95	765.79		99.81	1.30E-01	3.13E-01	3.13E-01
+	NB-95M	235.69		25.00	-3.91E+07	9.41E+06	9.41E+06
+	ZR-95	724.18		43.70	1.53E-02	2.19E-01	3.02E-01
		756.72		55.30	2.46E-02		2.19E-01
+	MO-99	181.06		6.20	-1.37E+10	5.10E+09	7.40E+09
		739.58		12.80	5.68E+08		5.10E+09
		778.00		4.50	-9.12E+09		1.11E+10
+	RU-103	497.08		89.00	-4.66E-02	2.08E-01	2.08E-01
+	RU-106	621.84		9.80	2.04E-01	5.48E-01	5.48E-01
+	AG-108M	433.93		89.90	-1.12E-02	4.37E-02	4.37E-02
		614.37		90.40	1.81E-02		5.27E-02
		722.95		90.50	3.96E-03		4.87E-02
+	CD-109	88.03	*	3.72	1.32E+00	2.38E+00	2.38E+00
+	AG-110M	657.75		93.14	4.20E-03	6.03E-02	6.03E-02
		677.61		10.53	-2.61E-02		5.27E-01
		706.67		16.46	-6.84E-02		3.60E-01
		763.93		21.98	-5.15E-02		2.68E-01
		884.67		71.63	2.43E-02		7.55E-02
		1384.27		23.94	-4.42E-02		1.99E-01
+	CD-113M	263.70		0.02	-7.20E+01	1.41E+02	1.41E+02
+	SN-113	255.12		1.93	-1.29E+00	9.97E-02	2.83E+00
		391.69		64.90	-4.46E-02		9.97E-02
+	TE123M	159.00		84.10	-2.60E-02	6.27E-02	6.27E-02
+	SB-124	602.71		97.87	-1.61E-02	1.15E-01	1.15E-01
		645.85		7.26	4.91E-01		1.78E+00
		722.78		11.10	9.42E-02		1.16E+00
		1691.02		49.00	-4.41E-02		1.65E-01
+	I-125	35.49		6.49	9.28E-01	1.59E+00	1.59E+00
+	SB-125	176.33		6.89	-6.23E-02	1.45E-01	4.74E-01
		427.89		29.33	2.64E-02		1.45E-01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	3.07E-01	1.45E-01	4.37E-01
		600.56		17.80	-6.01E-02		2.29E-01
		635.90		11.32	-5.84E-02		3.67E-01
+	SB-126	414.70		83.30	-6.29E-01	6.88E+00	7.20E+00
		666.33		99.60	-3.86E+00		7.34E+00
		695.00		99.60	-5.55E+00		6.88E+00
		720.50		53.80	9.46E-01		1.46E+01
+	SN-126	87.57	*	37.00	1.16E-01	2.08E-01	2.08E-01
+	SB-127	473.00		25.00	2.03E+04	2.18E+06	2.67E+06
		685.20		35.70	5.28E+03		2.18E+06
		783.80		14.70	2.71E+06		5.48E+06
+	I-129	29.78		57.00	1.11E-02	6.67E-02	6.67E-02
		33.60		13.20	-1.89E-01		2.61E-01
		39.58		7.52	-1.10E-01		4.47E-01
+	I-131	284.30		6.05	-2.21E+02	1.36E+02	1.63E+03
		364.48		81.20	7.10E+01		1.36E+02
		636.97		7.26	-2.63E+01		1.62E+03
		722.89		1.80	6.04E+02		7.42E+03
+	TE-132	49.72		13.10	-5.21E+07	1.48E+07	9.65E+07
		228.16		88.00	1.16E+06		1.48E+07
+	BA-133	81.00		33.00	-3.58E-04	8.34E-02	1.09E-01
		302.84		17.80	2.60E-03		2.06E-01
		356.01		60.00	1.95E-02		8.34E-02
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-6.68E+01	2.04E+04	2.04E+04
+	CS-134	563.23		8.38	3.44E-01	5.12E-02	5.61E-01
		569.32		15.43	-2.62E-02		2.96E-01
		604.70		97.60	-2.60E-01		5.12E-02
		795.84		85.40	1.66E-04		6.53E-02
		801.93		8.73	-9.05E-02		5.37E-01
+	CS-135	268.24		16.00	1.54E-01	2.39E-01	2.39E-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	0.00E+00		1.00E+26
+	CS-136	153.22		7.46	-3.39E-01	5.11E+00	5.70E+01
		163.89		4.61	-3.01E-01		9.21E+01
		176.55		13.56	-3.98E+00		3.03E+01
		273.65		12.66	2.12E+00		4.31E+01
		340.57		48.50	2.78E+00		1.33E+01
		818.50		99.70	-2.12E+00		5.11E+00
		1048.07		79.60	-2.69E+00		8.27E+00
		1235.34		19.70	9.14E+00		4.71E+01
+	CS-137	661.65		85.12	3.14E-02	5.77E-02	5.77E-02
+	LA-138	788.74		34.00	1.68E-02	6.24E-02	1.29E-01
		1435.80		66.00	-2.42E-02		6.24E-02
+	CE-139	165.85		80.35	1.81E-02	6.48E-02	6.48E-02
+	BA-140	162.64		6.70	-1.31E+01	2.56E+01	7.24E+01
		304.84		4.50	-1.24E+02		1.15E+02
		423.70		3.20	-5.44E+00		1.89E+02

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	437.55	2.00	1.26E+02	2.56E+01	3.13E+02
		537.32	25.00	6.27E+00		2.56E+01
+	LA-140	328.77	20.50	2.07E+01	6.60E+00	3.02E+01
		487.03	45.50	2.68E+00		1.31E+01
		815.85	23.50	1.56E+00		2.46E+01
		1596.49	95.49	-1.64E-01		6.60E+00
+	CE-141	145.44	48.40	-9.49E-02	4.78E-01	4.78E-01
+	@ 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	-8.60E-02	3.74E-01	3.74E-01
+	PM-144	476.78	42.00	-9.36E-02	4.64E-02	1.04E-01
		618.01	98.60	1.64E-02		5.73E-02
		696.49	99.49	-1.70E-02		4.64E-02
+	PM-145	36.85	21.70	-1.62E-02	8.74E-02	1.59E-01
		37.36	39.70	-3.27E-02		8.74E-02
		42.30	15.10	2.95E-02		2.26E-01
		72.40	2.31	-3.83E-01		1.88E+00
+	PM-146	453.90	39.94	4.54E-04	1.00E-01	1.00E-01
		735.90	14.01	8.53E-02		2.77E-01
		747.13	13.10	-2.58E-02		3.36E-01
+	ND-147	91.11	28.90	1.03E+02	5.44E+01	5.44E+01
		531.02	13.10	-2.69E+00		1.02E+02
+	PM-149	285.90	3.10	-1.45E+11	4.83E+12	4.83E+12
+	EU-152	121.78	20.50	8.65E-02	1.54E-01	1.54E-01
		244.69	5.40	-3.28E-01		6.15E-01
		344.27	19.13	1.61E-02		1.94E-01
		778.89	9.20	-9.45E-02		3.87E-01
		964.01	10.40	-1.39E+00		5.50E-01
		1085.78	7.22	1.18E-01		6.07E-01
		1112.02	9.60	6.18E-02		4.78E-01
		1407.95	14.94	-9.07E-02		2.89E-01
+	GD-153	97.43	31.30	1.53E-02	1.36E-01	1.36E-01
		103.18	22.20	1.69E-02		1.80E-01
+	EU-154	123.07	40.50	-6.08E-02	7.45E-02	7.45E-02
		723.30	19.70	1.86E-02		2.28E-01
		873.19	11.50	9.56E-02		4.04E-01
		996.32	10.30	-2.14E-01		4.58E-01
		1004.76	17.90	9.42E-02		3.17E-01
		1274.45	35.50	-4.19E-02		1.31E-01
+	EU-155	86.50	30.90	3.76E-02	1.30E-01	1.30E-01
		105.30	20.70	3.88E-03		1.53E-01
+	EU-156	811.77	10.40	8.66E+00	2.56E+01	2.56E+01
		1153.47	7.20	5.06E-01		5.32E+01
		1230.71	8.90	6.86E+00		4.51E+01
+	HO-166M	184.41	72.60	5.00E-02	5.12E-02	5.12E-02
		280.45	29.60	-4.99E-02		1.13E-01
		410.94	11.10	3.87E-02		3.62E-01
		711.69	54.10	-2.80E-02		7.73E-02

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-2.81E+01	2.92E+01	2.92E+01
+	HF-172	67.35		5.31	1.70E-01	3.01E-01	7.63E-01
		125.81		11.30	-1.30E-01		3.01E-01
+	LU-172	181.53		20.60	-4.14E+03	1.15E+03	2.24E+03
		900.72		29.81	5.02E+02		2.31E+03
		1093.66		62.50	-4.12E+02		1.15E+03
+	LU-173	100.72		5.24	-1.99E-01	2.16E-01	6.71E-01
		272.11		21.20	-3.84E-02		2.16E-01
+	HF-175	343.40		84.00	9.07E-03	1.10E-01	1.10E-01
+	LU-176	88.34		13.30	-1.27E-01	3.73E-02	3.07E-01
		201.83		86.00	-3.43E-03		3.81E-02
		306.78		94.00	4.83E-03		3.73E-02
+	HF-181	133.02		41.70	-8.11E-02	2.28E-01	3.53E-01
		345.85		17.20	8.11E-02		9.81E-01
		482.03		82.80	9.33E-02		2.28E-01
+	TA-182	67.75		41.20	3.51E-02	1.57E-01	1.57E-01
		1121.30		34.90	4.15E-01		3.78E-01
		1189.05		16.23	2.23E-01		6.32E-01
		1221.41		26.98	1.56E-02		3.73E-01
		1231.02		11.44	1.35E-01		8.85E-01
+	IR-192	308.46		29.68	7.76E-02	1.80E-01	2.87E-01
		468.07		48.10	8.49E-03		1.80E-01
+	HG-203	279.19		77.30	2.46E-02	1.85E-01	1.85E-01
+	TL-204	374.74		94.11	4.84E-03	4.16E-02	4.16E-02
		899.15		99.16	1.69E-02		4.87E-02
		911.74		91.10	1.60E-01		9.00E-02
+	BI-207	569.67		97.72	-1.01E-02	4.31E-02	4.31E-02
		1063.62		74.90	-4.78E-03		5.88E-02
+	TL-208	583.14	*	30.22	4.59E-01	8.52E-02	1.92E-01
		860.37	*	4.48	9.65E-01		1.31E+00
		2614.66	*	35.85	7.31E-01		8.52E-02
+	BI-210M	262.00		45.00	3.19E-02	7.92E-02	7.92E-02
		300.00		23.00	4.42E-02		1.66E-01
+	PB-210	46.50		4.25	2.99E-01	8.23E-01	8.23E-01
+	PB-211	404.84		2.90	1.98E-01	1.32E+00	1.32E+00
		831.96		2.90	3.05E-01		1.65E+00
+	BI-212	727.17	*	11.80	7.53E-01	3.96E-01	3.96E-01
		1620.62		2.75	2.21E-01		1.40E+00
+	PB-212	238.63	*	44.60	6.09E-01	1.50E-01	1.50E-01
		300.09		3.41	2.98E-01		1.12E+00
+	BI-214	609.31	*	46.30	4.63E-01	1.42E-01	1.42E-01
		1120.29	*	15.10	4.57E-01		5.44E-01
		1764.49	*	15.80	4.67E-01		4.47E-01
		2204.22	*	4.98	7.68E-01		8.44E-01
+	PB-214	295.21	*	19.19	3.69E-01	1.53E-01	2.90E-01
		351.92	*	37.19	5.57E-01		1.53E-01
+	RN-219	401.80		6.50	-1.87E-01	5.36E-01	5.36E-01
+	RA-223	323.87		3.88	2.42E-01	9.92E-01	9.92E-01

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	1.84E+00	1.69E+00	1.69E+00
+	RA-225	40.00		31.00	1.08E+00	8.46E+00	8.46E+00
+	RA-226	186.21		3.28	1.52E+00	1.16E+00	1.16E+00
+	TH-227	50.10		8.40	-2.50E-01	3.60E-01	3.77E-01
		236.00		11.50	-1.50E+00		3.60E-01
		256.20		6.30	5.21E-01		6.09E-01
+	AC-228	338.32	*	11.40	5.28E-01	1.97E-01	4.60E-01
		911.07	*	27.70	5.00E-01		1.97E-01
		969.11	*	16.60	7.69E-01		4.80E-01
+	TH-230	48.44		16.90	6.23E-02	2.03E-01	2.03E-01
		62.85		4.60	9.26E-01		8.79E-01
		67.67		0.37	2.22E+00		9.96E+00
+	PA-231	283.67		1.60	3.92E-01	1.56E+00	2.03E+00
		302.67		2.30	1.98E-02		1.56E+00
+	TH-231	25.64		14.70	-2.80E+00	3.32E-01	3.32E-01
		84.21		6.40	-4.00E-01		5.64E-01
+	PA-233	311.98		38.60	-3.25E-02	1.02E+00	1.02E+00
+	PA-234	131.20		20.40	3.18E-03	1.61E-01	1.61E-01
		733.99		8.80	7.11E-02		4.21E-01
		946.00		12.00	5.41E-02		3.99E-01
+	PA-234M	1001.03		0.92	9.95E-01	5.89E+00	5.89E+00
+	TH-234	63.29		3.80	7.90E-01	1.07E+00	1.07E+00
+	U-235	143.76		10.50	3.61E-02	3.07E-01	3.07E-01
		163.35		4.70	-2.20E-03		6.73E-01
		205.31		4.70	-4.67E-02		7.27E-01
+	NP-237	86.50		12.60	8.90E-02	3.07E-01	3.07E-01
+	NP-239	106.10		22.70	5.88E+10	1.07E+11	1.07E+11
		228.18		10.70	1.88E+10		2.41E+11
		277.60		14.10	1.59E+11		2.05E+11
+	AM-241	59.54		35.90	-1.20E-01	9.93E-02	9.93E-02
+	AM-243	74.67	*	66.00	2.22E-01	1.04E-01	1.04E-01
+	CM-243	209.75	*	3.29	1.13E+00	3.09E-01	1.52E+00
		228.14		10.60	2.48E-02		3.17E-01
		277.60	*	14.00	2.90E-01		3.09E-01

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

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.24E+00	1.24E+00	9.65E-02	5.84E-01
	NA-22	1274.54		99.94	4.88E-02	4.88E-02	-1.56E-02	2.19E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	3.53E-02	3.53E-02	6.95E-03	1.46E-02
+	K-40	1460.81	*	10.67	6.11E-01	6.11E-01	1.16E+01	2.82E-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	3.91E-02	3.91E-02	8.74E-03	1.91E-02
		78.34		96.00	4.91E-02		6.75E-02	2.41E-02
	SC-46	889.25		99.98	8.50E-02	8.50E-02	-2.24E-02	3.87E-02
		1120.51		99.99	1.59E-01		1.51E-01	7.47E-02
	V-48	983.52		99.98	2.59E+00	2.59E+00	-7.75E-01	1.19E+00
		1312.10		97.50	2.93E+00		1.31E+00	1.33E+00
	CR-51	320.08		9.83	3.87E+00	3.87E+00	1.77E+00	1.85E+00
	MN-54	834.83		99.97	6.04E-02	6.04E-02	1.97E-02	2.81E-02
	CO-56	846.75		99.96	1.01E-01	1.01E-01	2.39E-02	4.65E-02
		1037.75		14.03	8.76E-01		2.25E-01	4.06E-01
		1238.25		67.00	2.50E-01		1.68E-01	1.17E-01
		1771.40		15.51	6.42E-01		3.51E-01	2.78E-01
		2598.48		16.90	2.83E-01		3.85E-02	8.96E-02
	CO-57	122.06		85.51	4.43E-02	4.43E-02	-1.35E-02	2.14E-02
		136.48		10.60	3.83E-01		3.52E-02	1.85E-01
	CO-58	810.76		99.40	8.81E-02	8.81E-02	-6.31E-02	3.99E-02
+	FE-59	1099.22	*	56.50	6.04E-01	4.02E-01	1.92E-01	2.86E-01
		1291.56		43.20	4.02E-01		7.22E-02	1.78E-01
	CO-60	1173.22		100.00	5.46E-02	4.95E-02	-2.58E-03	2.50E-02
		1332.49		100.00	4.95E-02		8.50E-03	2.23E-02
	ZN-65	1115.52		50.75	1.26E-01	1.26E-01	1.78E-02	5.75E-02
	GA-67	93.31		35.70	4.52E+07	4.52E+07	6.60E+07	2.21E+07
		208.95		2.24	6.54E+08		6.55E+08	3.16E+08
		300.22		16.00	9.01E+07		1.46E+07	4.31E+07
	SE-75	121.11		16.70	3.19E-01	9.25E-02	1.79E-01	1.54E-01
		136.00		59.20	9.25E-02		8.51E-03	4.48E-02
		264.65		59.80	9.28E-02		1.60E-02	4.43E-02
		279.53		25.20	2.44E-01		3.24E-02	1.17E-01
		400.65		11.40	5.17E-01		-1.79E-01	2.44E-01
	RB-82	776.52		13.00	3.67E+00	3.67E+00	5.43E-01	1.68E+00
	RB-83	520.41		46.00	1.74E-01	1.74E-01	-3.71E-02	8.17E-02
		529.64		30.30	2.68E-01		7.52E-02	1.26E-01
		552.65		16.40	5.05E-01		1.59E-01	2.37E-01
	KR-85	513.99		0.43	1.40E+01	1.40E+01	1.76E+01	6.71E+00
	SR-85	513.99		99.27	1.62E-01	1.62E-01	2.05E-01	7.80E-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	9.11E-02	4.96E-02	1.94E-02	4.20E-02
		1836.01		99.38	4.96E-02		-8.26E-03	1.92E-02
	MO-93	263.06		56.72	6.12E-02	2.96E-02	1.77E-04	2.93E-02
		684.67		99.68	4.24E-02		1.03E-04	1.97E-02
		1477.11		99.08	2.96E-02		3.80E-03	1.21E-02
	NB-93M	16.57		9.43	3.74E-01	3.74E-01	-3.85E-02	1.74E-01
	NB-94	702.63		100.00	4.66E-02	4.13E-02	3.17E-03	2.18E-02
		871.10		100.00	4.13E-02		-7.53E-03	1.89E-02
	NB-95	765.79		99.81	3.13E-01	3.13E-01	1.30E-01	1.47E-01
	NB-95M	235.69		25.00	9.41E+06	9.41E+06	-3.91E+07	4.55E+06
	ZR-95	724.18		43.70	3.02E-01	2.19E-01	1.53E-02	1.42E-01
		756.72		55.30	2.19E-01		2.46E-02	1.02E-01
	MO-99	181.06		6.20	7.40E+09	5.10E+09	-1.37E+10	3.56E+09
		739.58		12.80	5.10E+09		5.68E+08	2.37E+09
		778.00		4.50	1.11E+10		-9.12E+09	4.99E+09
	RU-103	497.08		89.00	2.08E-01	2.08E-01	-4.66E-02	9.73E-02
	RU-106	621.84		9.80	5.48E-01	5.48E-01	2.04E-01	2.57E-01
	AG-108M	433.93		89.90	4.37E-02	4.37E-02	-1.12E-02	2.07E-02
		614.37		90.40	5.27E-02		1.81E-02	2.49E-02
		722.95		90.50	4.87E-02		3.96E-03	2.27E-02
+	CD-109	88.03	*	3.72	2.38E+00	2.38E+00	1.32E+00	1.17E+00
	AG-110M	657.75		93.14	6.03E-02	6.03E-02	4.20E-03	2.82E-02
		677.61		10.53	5.27E-01		-2.61E-02	2.46E-01
		706.67		16.46	3.60E-01		-6.84E-02	1.68E-01
		763.93		21.98	2.68E-01		-5.15E-02	1.25E-01
		884.67		71.63	7.55E-02		2.43E-02	3.45E-02
		1384.27		23.94	1.99E-01		-4.42E-02	8.62E-02
	CD-113M	263.70		0.02	1.41E+02	1.41E+02	-7.20E+01	6.71E+01
	SN-113	255.12		1.93	2.83E+00	9.97E-02	-1.29E+00	1.35E+00
		391.69		64.90	9.97E-02		-4.46E-02	4.73E-02
	TE123M	159.00		84.10	6.27E-02	6.27E-02	-2.60E-02	3.02E-02
	SB-124	602.71		97.87	1.15E-01	1.15E-01	-1.61E-02	5.36E-02
		645.85		7.26	1.78E+00		4.91E-01	8.32E-01
		722.78		11.10	1.16E+00		9.42E-02	5.39E-01
		1691.02		49.00	1.65E-01		-4.41E-02	6.55E-02
	I-125	35.49		6.49	1.59E+00	1.59E+00	9.28E-01	7.70E-01
	SB-125	176.33		6.89	4.74E-01	1.45E-01	-6.23E-02	2.28E-01
		427.89		29.33	1.45E-01		2.64E-02	6.86E-02
		463.38		10.35	4.37E-01		3.07E-01	2.07E-01
		600.56		17.80	2.29E-01		-6.01E-02	1.06E-01
		635.90		11.32	3.67E-01		-5.84E-02	1.71E-01
	SB-126	414.70		83.30	7.20E+00	6.88E+00	-6.29E-01	3.38E+00
		666.33		99.60	7.34E+00		-3.86E+00	3.41E+00
		695.00		99.60	6.88E+00		-5.55E+00	3.17E+00
		720.50		53.80	1.46E+01		9.46E-01	6.76E+00
+	SN-126	87.57	*	37.00	2.08E-01	2.08E-01	1.16E-01	1.03E-01
	SB-127	473.00		25.00	2.67E+06	2.18E+06	2.03E+04	1.25E+06
		685.20		35.70	2.18E+06		5.28E+03	1.01E+06
		783.80		14.70	5.48E+06		2.71E+06	2.53E+06
	I-129	29.78		57.00	6.67E-02	6.67E-02	1.11E-02	3.21E-02
		33.60		13.20	2.61E-01		-1.89E-01	1.26E-01
		39.58		7.52	4.47E-01		-1.10E-01	2.16E-01
	I-131	284.30		6.05	1.63E+03	1.36E+02	-2.21E+02	7.75E+02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	1.36E+02	1.36E+02	7.10E+01	6.45E+01
	636.97	7.26	1.62E+03		-2.63E+01	7.51E+02
	722.89	1.80	7.42E+03		6.04E+02	3.45E+03
TE-132	49.72	13.10	9.65E+07	1.48E+07	-5.21E+07	4.67E+07
	228.16	88.00	1.48E+07		1.16E+06	7.11E+06
BA-133	81.00	33.00	1.09E-01	8.34E-02	-3.58E-04	5.32E-02
	302.84	17.80	2.06E-01		2.60E-03	9.83E-02
	356.01	60.00	8.34E-02		1.95E-02	4.02E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	2.04E+04	2.04E+04	-6.68E+01	9.93E+03
CS-134	563.23	8.38	5.61E-01	5.12E-02	3.44E-01	2.64E-01
	569.32	15.43	2.96E-01		-2.62E-02	1.39E-01
	604.70	97.60	5.12E-02		-2.60E-01	2.41E-02
	795.84	85.40	6.53E-02		1.66E-04	3.06E-02
	801.93	8.73	5.37E-01		-9.05E-02	2.48E-01
CS-135	268.24	16.00	2.39E-01	2.39E-01	1.54E-01	1.15E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		0.00E+00	1.00E+20
CS-136	153.22	7.46	5.70E+01	5.11E+00	-3.39E-01	2.75E+01
	163.89	4.61	9.21E+01		-3.01E-01	4.44E+01
	176.55	13.56	3.03E+01		-3.98E+00	1.46E+01
	273.65	12.66	4.31E+01		2.12E+00	2.08E+01
	340.57	48.50	1.33E+01		2.78E+00	6.39E+00
	818.50	99.70	5.11E+00		-2.12E+00	2.33E+00
	1048.07	79.60	8.27E+00		-2.69E+00	3.79E+00
	1235.34	19.70	4.71E+01		9.14E+00	2.20E+01
CS-137	661.65	85.12	5.77E-02	5.77E-02	3.14E-02	2.72E-02
LA-138	788.74	34.00	1.29E-01	6.24E-02	1.68E-02	5.95E-02
	1435.80	66.00	6.24E-02		-2.42E-02	2.73E-02
CE-139	165.85	80.35	6.48E-02	6.48E-02	1.81E-02	3.13E-02
BA-140	162.64	6.70	7.24E+01	2.56E+01	-1.31E+01	3.49E+01
	304.84	4.50	1.15E+02		-1.24E+02	5.48E+01
	423.70	3.20	1.89E+02		-5.44E+00	8.97E+01
	437.55	2.00	3.13E+02		1.26E+02	1.48E+02
	537.32	25.00	2.56E+01		6.27E+00	1.21E+01
LA-140	328.77	20.50	3.02E+01	6.60E+00	2.07E+01	1.45E+01
	487.03	45.50	1.31E+01		2.68E+00	6.18E+00
	815.85	23.50	2.46E+01		1.56E+00	1.12E+01
	1596.49	95.49	6.60E+00		-1.64E-01	2.86E+00
CE-141	145.44	48.40	4.78E-01	4.78E-01	-9.49E-02	2.31E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	3.74E-01	3.74E-01	-8.60E-02	1.81E-01
PM-144	476.78	42.00	1.04E-01	4.64E-02	-9.36E-02	4.88E-02
	618.01	98.60	5.73E-02		1.64E-02	2.70E-02
	696.49	99.49	4.64E-02		-1.70E-02	2.14E-02
PM-145	36.85	21.70	1.59E-01	8.74E-02	-1.62E-02	7.70E-02
	37.36	39.70	8.74E-02		-3.27E-02	4.22E-02
	42.30	15.10	2.26E-01		2.95E-02	1.09E-01
	72.40	2.31	1.88E+00		-3.83E-01	9.21E-01
PM-146	453.90	39.94	1.00E-01	1.00E-01	4.54E-04	4.73E-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)
PM-146	735.90	14.01	2.77E-01	1.00E-01	8.53E-02	1.27E-01
	747.13	13.10	3.36E-01		-2.58E-02	1.56E-01
ND-147	91.11	28.90	5.44E+01	5.44E+01	1.03E+02	2.66E+01
	531.02	13.10	1.02E+02		-2.69E+00	4.76E+01
PM-149	285.90	3.10	4.83E+12	4.83E+12	-1.45E+11	2.30E+12
EU-152	121.78	20.50	1.54E-01	1.54E-01	8.65E-02	7.44E-02
	244.69	5.40	6.15E-01		-3.28E-01	2.95E-01
	344.27	19.13	1.94E-01		1.61E-02	9.24E-02
	778.89	9.20	3.87E-01		-9.45E-02	1.76E-01
	964.01	10.40	5.50E-01		-1.39E+00	2.56E-01
	1085.78	7.22	6.07E-01		1.18E-01	2.74E-01
	1112.02	9.60	4.78E-01		6.18E-02	2.17E-01
	1407.95	14.94	2.89E-01		-9.07E-02	1.27E-01
GD-153	97.43	31.30	1.36E-01	1.36E-01	1.53E-02	6.58E-02
	103.18	22.20	1.80E-01		1.69E-02	8.73E-02
EU-154	123.07	40.50	7.45E-02	7.45E-02	-6.08E-02	3.60E-02
	723.30	19.70	2.28E-01		1.86E-02	1.06E-01
	873.19	11.50	4.04E-01		9.56E-02	1.86E-01
	996.32	10.30	4.58E-01		-2.14E-01	2.10E-01
	1004.76	17.90	3.17E-01		9.42E-02	1.47E-01
	1274.45	35.50	1.31E-01		-4.19E-02	5.88E-02
EU-155	86.50	30.90	1.30E-01	1.30E-01	3.76E-02	6.32E-02
	105.30	20.70	1.53E-01		3.88E-03	7.43E-02
EU-156	811.77	10.40	2.56E+01	2.56E+01	8.66E+00	1.17E+01
	1153.47	7.20	5.32E+01		5.06E-01	2.45E+01
	1230.71	8.90	4.51E+01		6.86E+00	2.08E+01
HO-166M	184.41	72.60	5.12E-02	5.12E-02	5.00E-02	2.48E-02
	280.45	29.60	1.13E-01		-4.99E-02	5.41E-02
	410.94	11.10	3.62E-01		3.87E-02	1.72E-01
	711.69	54.10	7.73E-02		-2.80E-02	3.59E-02
TM-171	66.72	0.14	2.92E+01	2.92E+01	-2.81E+01	1.42E+01
HF-172	67.35	5.31	7.63E-01	3.01E-01	1.70E-01	3.72E-01
	125.81	11.30	3.01E-01		-1.30E-01	1.45E-01
LU-172	181.53	20.60	2.24E+03	1.15E+03	-4.14E+03	1.08E+03
	900.72	29.81	2.31E+03		5.02E+02	1.06E+03
	1093.66	62.50	1.15E+03		-4.12E+02	5.26E+02
LU-173	100.72	5.24	6.71E-01	2.16E-01	-1.99E-01	3.25E-01
	272.11	21.20	2.16E-01		-3.84E-02	1.04E-01
HF-175	343.40	84.00	1.10E-01	1.10E-01	9.07E-03	5.24E-02
LU-176	88.34	13.30	3.07E-01	3.73E-02	-1.27E-01	1.50E-01
	201.83	86.00	3.81E-02		-3.43E-03	1.84E-02
	306.78	94.00	3.73E-02		4.83E-03	1.78E-02
HF-181	133.02	41.70	3.53E-01	2.28E-01	-8.11E-02	1.71E-01
	345.85	17.20	9.81E-01		8.11E-02	4.67E-01
	482.03	82.80	2.28E-01		9.33E-02	1.08E-01
TA-182	67.75	41.20	1.57E-01	1.57E-01	3.51E-02	7.65E-02
	1121.30	34.90	3.78E-01		4.15E-01	1.78E-01
	1189.05	16.23	6.32E-01		2.23E-01	2.92E-01
	1221.41	26.98	3.73E-01		1.56E-02	1.72E-01
	1231.02	11.44	8.85E-01		1.35E-01	4.07E-01
IR-192	308.46	29.68	2.87E-01	1.80E-01	7.76E-02	1.37E-01
	468.07	48.10	1.80E-01		8.49E-03	8.46E-02
HG-203	279.19	77.30	1.85E-01	1.85E-01	2.46E-02	8.87E-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)
	TL-204	374.74		94.11	4.16E-02	4.16E-02	4.84E-03	1.98E-02
		899.15		99.16	4.87E-02		1.69E-02	2.24E-02
		911.74		91.10	9.00E-02		1.60E-01	4.29E-02
	BI-207	569.67		97.72	4.31E-02	4.31E-02	-1.01E-02	2.02E-02
		1063.62		74.90	5.88E-02		-4.78E-03	2.67E-02
+	TL-208	583.14	*	30.22	1.92E-01	8.52E-02	4.59E-01	9.19E-02
		860.37	*	4.48	1.31E+00		9.65E-01	6.14E-01
		2614.66	*	35.85	8.52E-02		7.31E-01	3.17E-02
	BI-210M	262.00		45.00	7.92E-02	7.92E-02	3.19E-02	3.80E-02
		300.00		23.00	1.66E-01		4.42E-02	7.98E-02
	PB-210	46.50		4.25	8.23E-01	8.23E-01	2.99E-01	3.99E-01
	PB-211	404.84		2.90	1.32E+00	1.32E+00	1.98E-01	6.24E-01
		831.96		2.90	1.65E+00		3.05E-01	7.67E-01
+	BI-212	727.17	*	11.80	3.96E-01	3.96E-01	7.53E-01	1.85E-01
		1620.62		2.75	1.40E+00		2.21E-01	6.01E-01
+	PB-212	238.63	*	44.60	1.50E-01	1.50E-01	6.09E-01	7.35E-02
		300.09		3.41	1.12E+00		2.98E-01	5.38E-01
+	BI-214	609.31	*	46.30	1.42E-01	1.42E-01	4.63E-01	6.83E-02
		1120.29	*	15.10	5.44E-01		4.57E-01	2.58E-01
		1764.49	*	15.80	4.47E-01		4.67E-01	2.05E-01
		2204.22	*	4.98	8.44E-01		7.68E-01	3.53E-01
+	PB-214	295.21	*	19.19	2.90E-01	1.53E-01	3.69E-01	1.41E-01
		351.92	*	37.19	1.53E-01		5.57E-01	7.41E-02
	RN-219	401.80		6.50	5.36E-01	5.36E-01	-1.87E-01	2.53E-01
	RA-223	323.87		3.88	9.92E-01	9.92E-01	2.42E-01	4.75E-01
+	RA-224	240.98	*	3.95	1.69E+00	1.69E+00	1.84E+00	8.26E-01
	RA-225	40.00		31.00	8.46E+00	8.46E+00	1.08E+00	4.09E+00
	RA-226	186.21		3.28	1.16E+00	1.16E+00	1.52E+00	5.64E-01
	TH-227	50.10		8.40	3.77E-01	3.60E-01	-2.50E-01	1.82E-01
		236.00		11.50	3.60E-01		-1.50E+00	1.74E-01
		256.20		6.30	6.09E-01		5.21E-01	2.93E-01
+	AC-228	338.32	*	11.40	4.60E-01	1.97E-01	5.28E-01	2.22E-01
		911.07	*	27.70	1.97E-01		5.00E-01	9.18E-02
		969.11	*	16.60	4.80E-01		7.69E-01	2.29E-01
	TH-230	48.44		16.90	2.03E-01	2.03E-01	6.23E-02	9.82E-02
		62.85		4.60	8.79E-01		9.26E-01	4.29E-01
		67.67		0.37	9.96E+00		2.22E+00	4.85E+00
	PA-231	283.67		1.60	2.03E+00	1.56E+00	3.92E-01	9.68E-01
		302.67		2.30	1.56E+00		1.98E-02	7.47E-01
	TH-231	25.64		14.70	3.32E-01	3.32E-01	-2.80E+00	1.61E-01
		84.21		6.40	5.64E-01		-4.00E-01	2.75E-01
	PA-233	311.98		38.60	1.02E+00	1.02E+00	-3.25E-02	4.89E-01
	PA-234	131.20		20.40	1.61E-01	1.61E-01	3.18E-03	7.80E-02
		733.99		8.80	4.21E-01		7.11E-02	1.93E-01
		946.00		12.00	3.99E-01		5.41E-02	1.84E-01
	PA-234M	1001.03		0.92	5.89E+00	5.89E+00	9.95E-01	2.73E+00
	TH-234	63.29		3.80	1.07E+00	1.07E+00	7.90E-01	5.22E-01
	U-235	143.76		10.50	3.07E-01	3.07E-01	3.61E-02	1.49E-01
		163.35		4.70	6.73E-01		-2.20E-03	3.25E-01
		205.31		4.70	7.27E-01		-4.67E-02	3.50E-01
	NP-237	86.50		12.60	3.07E-01	3.07E-01	8.90E-02	1.50E-01
	NP-239	106.10		22.70	1.07E+11	1.07E+11	5.88E+10	5.18E+10
		228.18		10.70	2.41E+11		1.88E+10	1.16E+11

Analysis Report for 1707077-15

HTC-A01-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	2.05E+11	1.07E+11	1.59E+11	9.85E+10
	AM-241	59.54		35.90	9.93E-02	9.93E-02	-1.20E-01	4.83E-02
+	AM-243	74.67	*	66.00	1.04E-01	1.04E-01	2.22E-01	5.11E-02
+	CM-243	209.75	*	3.29	1.52E+00	3.09E-01	1.13E+00	7.43E-01
		228.14		10.60	3.17E-01		2.48E-02	1.52E-01
		277.60	*	14.00	3.09E-01		2.90E-01	1.49E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S002-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	1	61	65	61	157	556	108
25:	61	55	56	38	53	63	46	45
33:	40	55	49	51	68	50	49	55
41:	68	58	54	58	66	61	99	69
49:	55	67	62	67	56	75	69	54
57:	64	82	95	90	84	84	142	163
65:	103	92	110	98	95	92	86	111
73:	100	136	246	190	240	280	108	93
81:	95	103	76	92	85	85	137	146
89:	91	133	99	109	207	167	79	72
97:	80	79	72	69	72	62	56	62
105:	71	72	49	66	78	55	58	64
113:	70	61	55	58	56	61	55	67
121:	61	56	63	60	42	54	69	72
129:	75	69	67	60	62	69	59	60
137:	64	65	54	62	47	72	56	73
145:	47	47	58	59	68	47	66	58
153:	52	49	56	55	61	44	62	47
161:	46	46	48	59	51	49	54	53
169:	51	49	47	58	49	53	47	48
177:	31	48	46	44	41	43	44	40
185:	59	106	64	46	53	43	44	45
193:	38	40	39	45	36	37	52	39
201:	40	51	44	45	46	45	51	47
209:	69	76	44	42	34	42	37	46
217:	53	42	33	40	40	40	44	44
225:	39	33	44	45	26	40	41	33
233:	46	33	33	36	49	143	339	140
241:	69	101	66	34	21	32	20	15
249:	32	30	28	25	29	35	33	21
257:	30	28	41	38	16	25	25	14
265:	29	24	15	20	24	40	52	36
273:	36	16	25	26	43	41	26	14
281:	18	22	11	19	27	14	28	17
289:	25	28	24	34	26	41	77	89
297:	26	25	29	29	33	19	20	18
305:	18	20	20	19	24	27	18	22
313:	16	24	22	19	29	22	16	18
321:	25	19	26	22	11	30	31	37
329:	20	21	18	18	26	14	24	14
337:	30	51	76	26	21	18	21	28
345:	18	13	18	19	19	16	65	199
353:	100	26	27	18	24	26	17	13
361:	15	22	13	22	23	15	14	13

369:	16	10	19	19	16	19	21	14

Sample Title: HTC-A01-S002-1824-01

Channel								
377:	16	19	17	20	14	21	10	19
385:	13	23	20	23	18	17	11	20
393:	15	17	15	14	22	14	16	11
401:	10	9	14	20	16	12	17	27
409:	25	26	12	7	16	12	13	10
417:	12	12	16	15	16	16	22	13
425:	11	14	21	16	18	18	17	14
433:	12	13	18	17	18	19	15	15
441:	13	13	15	21	11	20	11	15
449:	14	12	11	15	13	15	18	12
457:	15	17	13	12	18	12	22	26
465:	19	13	6	11	10	17	6	14
473:	8	15	5	13	15	8	16	9
481:	25	19	8	11	15	11	13	14
489:	11	13	9	10	12	1	14	12
497:	11	14	11	10	9	16	8	10
505:	11	8	9	15	14	48	66	56
513:	28	10	13	13	15	12	11	14
521:	11	13	6	9	5	17	14	9
529:	14	12	11	9	7	10	9	20
537:	11	15	8	14	13	13	10	6
545:	8	13	7	12	12	13	13	11
553:	11	5	12	9	5	8	5	11
561:	12	17	11	12	16	9	10	10
569:	13	13	12	14	9	12	15	8
577:	8	13	8	12	10	19	100	60
585:	20	8	8	12	10	6	10	7
593:	7	8	6	12	12	8	11	6
601:	11	6	6	13	10	10	11	33
609:	101	93	19	13	10	14	13	15
617:	10	11	4	16	23	9	12	7
625:	11	12	5	9	11	14	9	3
633:	14	6	6	11	9	9	3	13
641:	9	7	11	13	10	9	13	8
649:	10	11	8	6	6	6	7	10
657:	6	9	10	14	13	21	9	12
665:	9	13	7	3	5	5	11	10
673:	8	4	11	10	11	11	6	10
681:	5	12	11	8	8	2	6	12
689:	9	9	13	7	5	7	11	9
697:	5	3	9	12	4	12	13	12
705:	4	15	13	13	8	4	12	8
713:	9	4	11	8	7	9	9	9
721:	8	11	6	5	9	13	22	28
729:	17	7	7	6	1	4	5	9
737:	9	9	5	8	5	6	15	5
745:	11	9	8	9	8	4	7	6
753:	11	12	7	13	7	6	8	4
761:	4	10	6	11	6	15	8	14
769:	12	10	7	10	12	6	6	6
777:	4	2	4	4	3	10	3	8
785:	7	10	10	4	7	10	5	6
793:	7	13	20	14	4	9	5	4

801:	9	9	8	7	7	12	6	1

Sample Title: HTC-A01-S002-1824-01

Channel								
809:	6	6	5	5	3	5	7	5
817:	3	7	5	3	6	12	6	4
825:	6	6	9	4	10	6	5	8
833:	7	5	17	8	8	8	6	10
841:	5	7	5	8	10	8	5	11
849:	3	3	9	2	6	4	2	7
857:	5	3	11	10	11	7	4	6
865:	8	2	6	3	6	3	5	4
873:	9	9	6	12	8	6	4	6
881:	8	3	6	8	5	2	7	3
889:	4	8	3	7	10	1	9	5
897:	6	11	5	3	9	8	4	6
905:	3	6	5	7	8	19	54	41
913:	10	3	8	3	9	7	4	7
921:	8	5	10	5	1	2	6	5
929:	9	6	2	4	7	11	8	9
937:	5	1	4	11	7	4	7	5
945:	9	3	6	8	9	9	4	6
953:	5	6	4	3	3	5	7	5
961:	5	10	12	12	16	5	5	26
969:	47	22	7	3	6	5	6	7
977:	6	4	9	5	6	5	8	6
985:	3	7	8	3	16	9	7	7
993:	7	2	6	5	4	9	7	6
1001:	12	7	7	8	10	8	7	6
1009:	8	2	8	8	6	7	7	7
1017:	7	9	6	4	4	9	6	4
1025:	8	11	6	6	3	7	4	7
1033:	6	10	6	5	4	9	9	10
1041:	7	5	9	5	3	6	6	9
1049:	5	4	9	7	9	7	8	5
1057:	7	8	7	5	1	8	5	4
1065:	7	2	4	2	6	10	4	6
1073:	8	3	9	4	5	4	11	3
1081:	4	3	5	4	4	3	2	9
1089:	6	1	3	2	3	12	10	6
1097:	3	9	7	5	7	4	2	5
1105:	7	0	4	2	5	3	3	4
1113:	5	5	7	6	4	7	14	30
1121:	20	8	7	8	5	8	6	11
1129:	6	7	6	8	7	9	2	11
1137:	6	8	8	7	5	8	3	2
1145:	4	4	7	7	9	6	11	3
1153:	9	3	8	6	1	10	10	3
1161:	3	6	10	10	4	1	4	0
1169:	8	6	4	5	3	7	9	7
1177:	10	6	4	5	7	7	7	7
1185:	2	3	5	12	11	10	3	6
1193:	4	8	9	8	5	3	7	5
1201:	7	6	3	7	8	4	10	4
1209:	11	7	7	9	9	7	9	7
1217:	4	8	6	6	7	5	7	7
1225:	6	8	6	6	9	8	7	6

1233:	4	7	8	6	17	20	12	8

Sample Title: HTC-A01-S002-1824-01

Channel								
1241:	7	6	10	6	6	6	2	6
1249:	4	6	7	6	3	4	4	5
1257:	5	4	3	6	6	3	5	8
1265:	3	4	6	6	5	3	1	5
1273:	3	0	4	7	6	7	5	8
1281:	6	2	3	5	3	1	3	4
1289:	0	1	3	5	4	3	4	1
1297:	2	2	4	2	4	1	5	2
1305:	3	3	7	5	4	3	1	6
1313:	8	4	0	1	3	4	2	3
1321:	2	2	0	2	3	2	5	2
1329:	5	4	5	1	3	8	1	4
1337:	2	3	5	2	3	3	5	4
1345:	5	4	1	1	2	1	4	4
1353:	1	3	2	2	2	1	3	0
1361:	1	4	5	6	1	6	2	1
1369:	3	1	5	0	4	1	1	3
1377:	6	5	6	3	0	3	2	3
1385:	2	3	1	3	5	2	2	8
1393:	3	3	4	1	4	2	5	0
1401:	3	5	3	2	3	1	2	5
1409:	2	4	3	4	3	3	2	2
1417:	5	2	2	1	1	2	0	3
1425:	0	0	2	4	4	1	8	3
1433:	0	5	1	4	2	2	4	2
1441:	1	2	5	3	4	1	1	7
1449:	0	2	4	1	1	1	4	4
1457:	1	8	61	224	261	95	13	6
1465:	2	3	4	1	1	3	1	1
1473:	2	1	0	1	0	0	3	0
1481:	1	1	0	4	1	3	3	1
1489:	4	2	1	1	0	3	4	0
1497:	5	0	2	1	4	4	1	4
1505:	2	3	2	3	4	2	3	3
1513:	3	2	2	2	0	0	2	1
1521:	0	2	1	2	0	0	2	1
1529:	1	1	0	2	2	2	2	2
1537:	3	3	0	3	2	2	1	2
1545:	1	2	0	0	0	0	1	1
1553:	0	1	0	0	4	2	3	2
1561:	1	0	0	2	0	2	1	3
1569:	1	2	1	2	2	0	1	2
1577:	1	2	2	3	2	0	1	1
1585:	2	1	5	8	3	1	3	2
1593:	6	3	1	0	1	2	1	2
1601:	2	0	2	2	0	1	1	0
1609:	2	1	3	1	1	2	1	1
1617:	2	1	1	3	3	1	1	1
1625:	2	2	1	0	3	2	1	2
1633:	1	1	3	1	1	3	1	1
1641:	3	1	0	1	1	1	0	1
1649:	2	1	0	0	2	0	1	0
1657:	0	1	1	1	1	1	2	1

1665:	0	0	0	0	2	0	2	2

Sample Title: HTC-A01-S002-1824-01

Channel								
1673:	1	1	0	1	0	0	3	3
1681:	5	1	4	0	2	1	1	1
1689:	0	1	0	1	1	2	0	0
1697:	1	1	1	1	1	2	2	1
1705:	1	2	2	3	1	1	0	0
1713:	0	1	1	2	3	3	1	1
1721:	1	0	1	0	3	1	1	1
1729:	3	6	2	0	0	0	0	0
1737:	3	2	3	0	0	1	0	2
1745:	1	1	0	2	2	1	1	3
1753:	2	0	0	2	1	1	1	2
1761:	2	4	12	18	13	1	0	5
1769:	2	3	0	1	3	0	1	0
1777:	4	3	1	2	0	1	2	0
1785:	1	2	1	1	1	0	1	0
1793:	3	2	1	1	2	3	0	1
1801:	1	2	0	1	1	0	0	1
1809:	2	1	3	0	2	0	0	3
1817:	0	0	1	1	2	0	1	1
1825:	1	3	0	1	0	1	0	0
1833:	1	2	1	0	0	0	2	0
1841:	0	2	1	0	0	2	10	2
1849:	0	1	0	0	2	1	2	0
1857:	0	0	3	1	0	1	1	1
1865:	0	0	1	0	1	2	0	0
1873:	0	0	0	0	0	0	0	0
1881:	0	1	0	0	1	1	0	2
1889:	2	2	1	0	1	0	0	1
1897:	1	0	1	0	1	1	0	1
1905:	3	0	0	1	1	0	0	0
1913:	1	2	1	4	1	0	2	0
1921:	0	0	2	1	0	2	1	0
1929:	0	0	0	0	1	4	1	2
1937:	0	1	2	1	0	1	1	0
1945:	0	1	2	0	0	1	0	0
1953:	1	1	1	0	1	1	0	0
1961:	0	1	1	1	3	2	2	0
1969:	0	0	0	0	0	1	3	0
1977:	3	1	0	0	0	1	0	0
1985:	1	0	0	0	0	1	1	2
1993:	0	1	1	2	0	2	0	1
2001:	1	0	1	1	0	3	0	0
2009:	0	3	0	0	1	0	0	3
2017:	0	1	0	0	3	0	0	2
2025:	0	0	2	2	0	0	2	0
2033:	0	0	1	0	1	1	1	2
2041:	3	0	0	2	0	1	0	0
2049:	3	2	0	0	2	1	0	0
2057:	0	2	2	3	1	2	0	1
2065:	0	0	2	0	0	0	1	0
2073:	0	2	2	0	3	2	3	1
2081:	0	1	0	1	0	1	0	0
2089:	2	0	1	1	0	0	0	2

2097:	2	0	1	1	1	2	3	4

Sample Title: HTC-A01-S002-1824-01

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

2529:	2	1	0	1	0	0	0	0

Sample Title: HTC-A01-S002-1824-01

Channel								
2537:	0	0	0	0	0	0	0	1
2545:	0	0	0	0	0	1	0	0
2553:	0	0	0	0	1	0	1	1
2561:	0	0	0	0	1	1	0	1
2569:	0	0	1	0	1	1	0	1
2577:	0	0	0	0	1	0	0	1
2585:	2	0	1	0	0	0	0	0
2593:	0	0	0	0	0	1	0	0
2601:	0	0	0	0	0	0	1	1
2609:	2	2	6	13	29	27	12	1
2617:	1	1	0	0	1	0	1	1
2625:	1	0	0	0	0	1	0	0
2633:	0	0	0	3	0	1	0	0
2641:	0	0	2	0	1	0	0	3
2649:	0	0	0	0	0	0	0	0
2657:	1	0	1	0	0	0	0	1
2665:	0	0	0	1	0	0	0	0
2673:	0	0	1	0	0	0	0	1
2681:	0	0	0	0	0	0	2	0
2689:	1	1	0	1	0	0	0	1
2697:	0	0	0	0	0	1	0	0
2705:	0	0	1	0	0	0	0	0
2713:	1	1	0	1	0	0	0	0
2721:	0	1	0	0	0	1	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	1	1	0	0
2753:	1	1	0	0	0	0	0	0
2761:	0	0	1	0	0	1	1	1
2769:	0	0	0	0	0	1	0	0
2777:	0	0	0	0	0	0	0	1
2785:	2	0	1	0	0	0	1	0
2793:	0	0	1	0	1	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	1	0	0	0	0	0	0
2817:	0	0	0	0	0	0	1	0
2825:	0	0	1	0	0	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	0	0	1	0	1	1	1	0
2849:	0	0	0	0	0	1	0	0
2857:	0	0	1	0	0	0	1	2
2865:	0	0	1	0	1	3	0	0
2873:	1	0	0	0	0	0	0	0
2881:	0	1	1	0	1	1	0	0
2889:	0	0	0	0	1	0	0	0
2897:	1	1	1	0	0	0	1	0
2905:	0	0	0	0	1	0	0	0
2913:	2	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	1	1
2929:	0	0	0	0	0	0	0	1
2937:	0	0	0	0	0	2	1	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	1	0	0	1

Sample Title: HTC-A01-S002-1824-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-1824-01

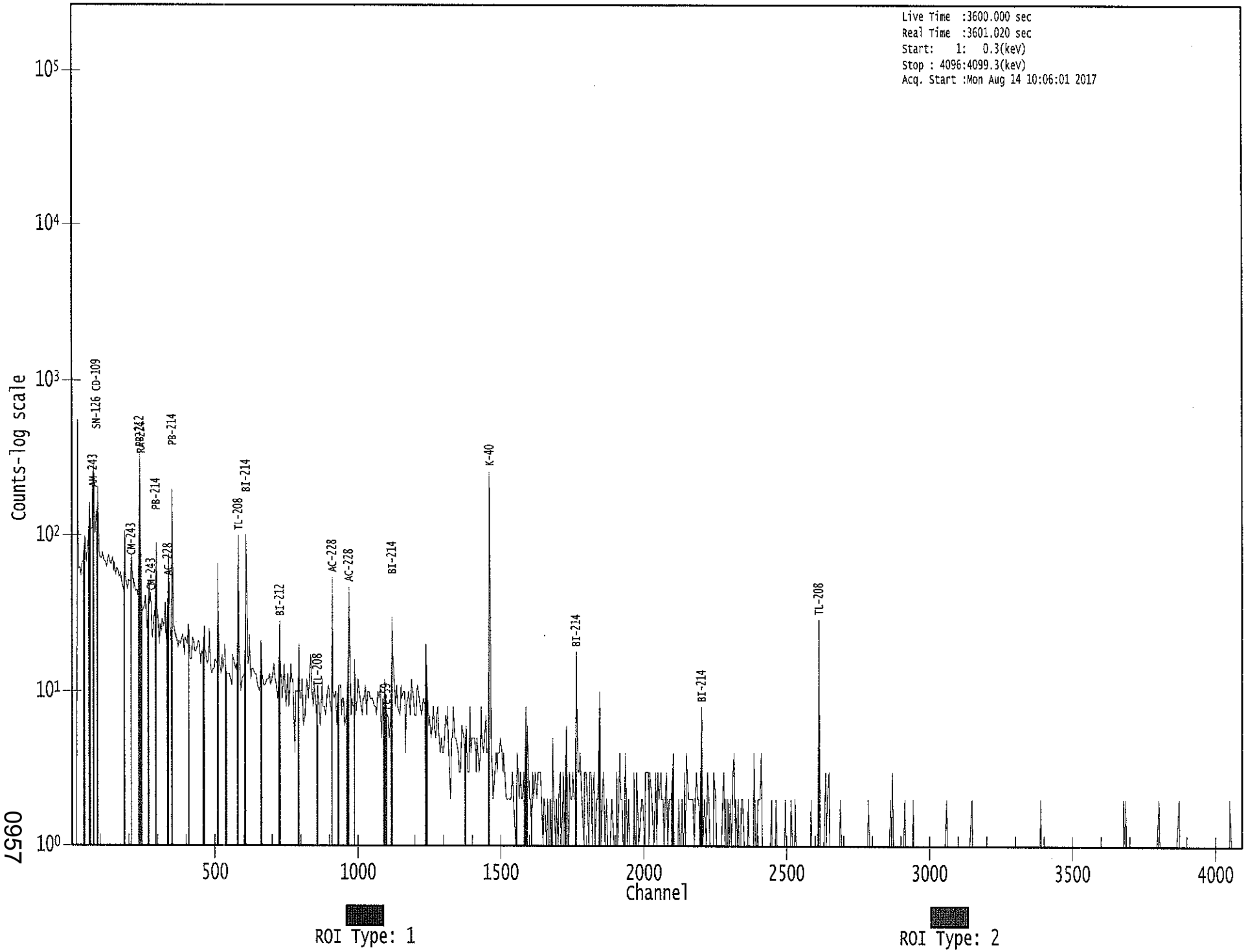
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	0	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	1	0	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-1824-01

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

0000055156.CNF



0967

Apex-Gamma

8/14

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-16
Sample Description	: HTC-A01-S002-2430-01
Sample Type	: SOIL
Sample Size	: 7.024E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:38:45AM
Acquisition Started	: 8/14/2017 10:06:10AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3607.8 seconds
Dead Time	: 0.22 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55157

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 11:06:32AM
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	75.20	75.51	0.0000	0.00
2	77.66	77.97	0.0000	0.00
3	86.39	86.69	0.0000	0.00
4	93.27	93.57	0.0000	0.00
5	185.60	185.86	0.0000	0.00
6	238.92	239.17	0.0000	0.00
7	241.58	241.83	0.0000	0.00
8	295.37	295.60	0.0000	0.00
9	328.21	328.43	0.0000	0.00
10	338.53	338.74	0.0000	0.00
11	352.27	352.48	0.0000	0.00
12	402.57	402.76	0.0000	0.00
13	459.74	459.91	0.0000	0.00
14	463.02	463.19	0.0000	0.00
15	490.89	491.05	0.0000	0.00
16	510.99	511.14	0.0000	0.00
17	579.87	580.00	0.0000	0.00
18	583.28	583.41	0.0000	0.00
19	609.67	609.79	0.0000	0.00
20	636.38	636.49	0.0000	0.00
21	662.80	662.90	0.0000	0.00
22	668.56	668.67	0.0000	0.00
23	795.10	795.16	0.0000	0.00
24	799.94	800.00	0.0000	0.00
25	911.08	911.10	0.0000	0.00
26	969.60	969.60	0.0000	0.00
27	987.09	987.08	0.0000	0.00
28	1020.39	1020.37	0.0000	0.00
29	1119.95	1119.90	0.0000	0.00
30	1150.27	1150.21	0.0000	0.00
31	1171.76	1171.69	0.0000	0.00
32	1403.63	1403.48	0.0000	0.00
33	1460.79	1460.63	0.0000	0.00
34	1507.80	1507.62	0.0000	0.00
35	1514.15	1513.97	0.0000	0.00
36	1567.63	1567.43	0.0000	0.00
37	1728.90	1728.64	0.0000	0.00
38	1764.00	1763.73	0.0000	0.00
39	1885.84	1885.53	0.0000	0.00
40	2203.54	2203.12	0.0000	0.00
41	2446.67	2446.17	0.0000	0.00
42	2614.58	2614.02	0.0000	0.00

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 11:06:32AM

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	75.20	71 -	82	75.51	3.54E+02	101.46	1.36E+03	2.21
m	2	77.66	71 -	82	77.97	4.66E+02	101.38	1.22E+03	2.22
	3	86.39	83 -	90	86.69	1.51E+02	95.79	1.44E+03	3.97
	4	93.27	91 -	96	93.57	2.22E+02	75.15	9.22E+02	2.38
	5	185.60	182 -	190	185.86	1.29E+02	75.42	7.94E+02	1.98
M	6	238.92	235 -	245	239.17	4.87E+02	62.64	3.49E+02	1.87
m	7	241.58	235 -	245	241.83	1.07E+02	62.48	3.44E+02	1.87
	8	295.37	292 -	298	295.60	1.41E+02	48.53	3.27E+02	1.56
	9	328.21	325 -	332	328.43	3.80E+01	44.45	3.04E+02	1.94
	10	338.53	335 -	343	338.74	1.05E+02	50.58	3.31E+02	2.62
	11	352.27	348 -	356	352.48	2.30E+02	57.31	3.62E+02	2.12
	12	402.57	400 -	405	402.76	2.77E+01	31.06	1.71E+02	3.00
M	13	459.74	459 -	467	459.91	1.40E+01	11.53	3.04E+01	2.06
m	14	463.02	459 -	467	463.19	3.41E+01	26.32	1.10E+02	2.06
	15	490.89	489 -	494	491.05	2.13E+01	23.94	9.54E+01	2.47
	16	510.99	506 -	516	511.14	1.38E+02	44.66	1.91E+02	3.48
M	17	579.87	577 -	586	580.00	1.85E+01	24.90	9.60E+01	1.94
m	18	583.28	577 -	586	583.41	1.60E+02	33.88	9.60E+01	2.13
	19	609.67	606 -	615	609.79	1.44E+02	44.96	2.09E+02	2.02
	20	636.38	634 -	639	636.49	2.33E+01	19.60	5.54E+01	1.63
	21	662.80	660 -	666	662.90	2.90E+01	24.04	8.40E+01	4.21
	22	668.56	667 -	671	668.67	1.53E+01	17.48	5.34E+01	1.76
M	23	795.10	789 -	805	795.16	3.35E+01	29.66	9.16E+01	3.65
m	24	799.94	789 -	805	800.00	1.86E+01	18.22	4.27E+01	2.06
	25	911.08	906 -	915	911.10	9.57E+01	31.26	8.46E+01	2.38
	26	969.60	965 -	974	969.60	5.77E+01	32.31	1.07E+02	1.72
	27	987.09	982 -	991	987.08	2.20E+01	23.96	6.79E+01	3.84
	28	1020.39	1016 -	1025	1020.37	3.80E+01	20.78	4.00E+01	2.67
	29	1119.95	1115 -	1123	1119.90	4.82E+01	25.69	7.15E+01	2.34
	30	1150.27	1146 -	1152	1150.21	1.60E+01	20.21	6.20E+01	1.25
	31	1171.76	1167 -	1175	1171.69	2.81E+01	24.08	7.18E+01	4.84
	32	1403.63	1396 -	1412	1403.48	2.90E+01	21.75	3.40E+01	10.11
	33	1460.79	1454 -	1464	1460.63	5.11E+02	46.96	1.98E+01	2.44
	34	1507.80	1503 -	1510	1507.62	9.50E+00	10.39	1.10E+01	1.21
	35	1514.15	1512 -	1516	1513.97	5.95E+00	7.66	8.10E+00	2.77
	36	1567.63	1563 -	1572	1567.43	7.95E+00	8.06	4.10E+00	8.07
	37	1728.90	1724 -	1732	1728.64	7.90E+00	7.76	4.20E+00	1.04
	38	1764.00	1759 -	1767	1763.73	1.62E+01	12.36	1.36E+01	4.36
	39	1885.84	1882 -	1888	1885.53	6.31E+00	6.65	3.38E+00	1.59
	40	2203.54	2200 -	2207	2203.12	1.07E+01	8.25	4.69E+00	1.31

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2446.67	2443 -	2448	2446.17	5.00E+00	7.07	6.00E+00	1.89
42	2614.58	2610 -	2617	2614.02	4.30E+01	13.11	0.00E+00	2.89

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 11:06:32AM

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	75.20	71 -	82	3.54E+02	101.46	1.36E+03	6.07E+01
m	2	77.66	71 -	82	4.66E+02	101.38	1.22E+03	5.75E+01
	3	86.39	83 -	90	1.51E+02	95.79	1.44E+03	7.61E+01
	4	93.27	91 -	96	2.22E+02	75.15	9.22E+02	5.67E+01
	5	185.60	182 -	190	1.29E+02	75.42	7.94E+02	5.91E+01
M	6	238.92	235 -	245	4.87E+02	62.64	3.49E+02	3.07E+01
m	7	241.58	235 -	245	1.07E+02	62.48	3.44E+02	3.05E+01
	8	295.37	292 -	298	1.41E+02	48.53	3.27E+02	3.48E+01
	9	328.21	325 -	332	3.80E+01	44.45	3.04E+02	3.51E+01
	10	338.53	335 -	343	1.05E+02	50.58	3.31E+02	3.80E+01
	11	352.27	348 -	356	2.30E+02	57.31	3.62E+02	4.00E+01
	12	402.57	400 -	405	2.77E+01	31.06	1.71E+02	2.40E+01
M	13	459.74	459 -	467	1.40E+01	11.53	3.04E+01	9.06E+00
m	14	463.02	459 -	467	3.41E+01	26.32	1.10E+02	1.72E+01
	15	490.89	489 -	494	2.13E+01	23.94	9.54E+01	1.82E+01
	16	510.99	506 -	516	1.38E+02	44.66	1.91E+02	3.12E+01
M	17	579.87	577 -	586	1.85E+01	24.90	9.60E+01	1.61E+01
m	18	583.28	577 -	586	1.60E+02	33.88	9.60E+01	1.61E+01
	19	609.67	606 -	615	1.44E+02	44.96	2.09E+02	3.12E+01
	20	636.38	634 -	639	2.33E+01	19.60	5.54E+01	1.40E+01
	21	662.80	660 -	666	2.90E+01	24.04	8.40E+01	1.77E+01
	22	668.56	667 -	671	1.53E+01	17.48	5.34E+01	1.28E+01
M	23	795.10	789 -	805	3.35E+01	29.66	9.16E+01	1.57E+01
m	24	799.94	789 -	805	1.86E+01	18.22	4.27E+01	1.07E+01
	25	911.08	906 -	915	9.57E+01	31.26	8.46E+01	2.00E+01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
26	969.60	965 -	974	5.77E+01	32.31	1.07E+02	2.34E+01
27	987.09	982 -	991	2.20E+01	23.96	6.79E+01	1.81E+01
28	1020.39	1016 -	1025	3.80E+01	20.78	4.00E+01	1.38E+01
29	1119.95	1115 -	1123	4.82E+01	25.69	7.15E+01	8.76E+00
30	1150.27	1146 -	1152	1.60E+01	20.21	6.20E+01	1.53E+01
31	1171.76	1167 -	1175	2.81E+01	24.08	7.18E+01	1.78E+01
32	1403.63	1396 -	1412	2.90E+01	21.75	3.40E+01	1.55E+01
33	1460.79	1454 -	1464	5.11E+02	46.96	1.98E+01	1.04E+01
34	1507.80	1503 -	1510	9.50E+00	10.39	1.10E+01	6.88E+00
35	1514.15	1512 -	1516	5.95E+00	7.66	8.10E+00	4.86E+00
36	1567.63	1563 -	1572	7.95E+00	8.06	4.10E+00	4.74E+00
37	1728.90	1724 -	1732	7.90E+00	7.76	4.20E+00	4.40E+00
38	1764.00	1759 -	1767	1.62E+01	12.36	1.36E+01	7.71E+00
39	1885.84	1882 -	1888	6.31E+00	6.65	3.38E+00	3.58E+00
40	2203.54	2200 -	2207	1.07E+01	8.25	4.69E+00	4.14E+00
41	2446.67	2443 -	2448	5.00E+00	7.07	6.00E+00	4.50E+00
42	2614.58	2610 -	2617	4.30E+01	13.11	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 : 8/14/2017 11:06:32AM

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	75.20	71 -	82	75.51	3.54E+02	101.46	1.36E+03	AM-243
m	2	77.66	71 -	82	77.97	4.66E+02	101.38	1.22E+03	TI-44
	3	86.39	83 -	90	86.69	1.51E+02	95.79	1.44E+03	EU-155
									NP-237
	4	93.27	91 -	96	93.57	2.22E+02	75.15	9.22E+02	GA-67
	5	185.60	182 -	190	185.86	1.29E+02	75.42	7.94E+02	RA-226
M	6	238.92	235 -	245	239.17	4.87E+02	62.64	3.49E+02	PB-212
m	7	241.58	235 -	245	241.83	1.07E+02	62.48	3.44E+02	RA-224

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	8	295.37	292 -	298	295.60	1.41E+02	48.53	3.27E+02	PB-214
	9	328.21	325 -	332	328.43	3.80E+01	44.45	3.04E+02	LA-140
	10	338.53	335 -	343	338.74	1.05E+02	50.58	3.31E+02	AC-228
	11	352.27	348 -	356	352.48	2.30E+02	57.31	3.62E+02	PB-214
	12	402.57	400 -	405	402.76	2.77E+01	31.06	1.71E+02	RN-219
M	13	459.74	459 -	467	459.91	1.40E+01	11.53	3.04E+01	.....
m	14	463.02	459 -	467	463.19	3.41E+01	26.32	1.10E+02	SB-125
	15	490.89	489 -	494	491.05	2.13E+01	23.94	9.54E+01	.....
	16	510.99	506 -	516	511.14	1.38E+02	44.66	1.91E+02	.....
M	17	579.87	577 -	586	580.00	1.85E+01	24.90	9.60E+01	.....
m	18	583.28	577 -	586	583.41	1.60E+02	33.88	9.60E+01	TL-208
	19	609.67	606 -	615	609.79	1.44E+02	44.96	2.09E+02	BI-214
	20	636.38	634 -	639	636.49	2.33E+01	19.60	5.54E+01	SB-125 I-131
	21	662.80	660 -	666	662.90	2.90E+01	24.04	8.40E+01	.....
	22	668.56	667 -	671	668.67	1.53E+01	17.48	5.34E+01	.....
M	23	795.10	789 -	805	795.16	3.35E+01	29.66	9.16E+01	CS-134
m	24	799.94	789 -	805	800.00	1.86E+01	18.22	4.27E+01	.....
	25	911.08	906 -	915	911.10	9.57E+01	31.26	8.46E+01	AC-228 TL-204
	26	969.60	965 -	974	969.60	5.77E+01	32.31	1.07E+02	AC-228
	27	987.09	982 -	991	987.08	2.20E+01	23.96	6.79E+01	.....
	28	1020.39	1016 -	1025	1020.37	3.80E+01	20.78	4.00E+01	.....
	29	1119.95	1115 -	1123	1119.90	4.82E+01	25.69	7.15E+01	BI-214 SC-46
	30	1150.27	1146 -	1152	1150.21	1.60E+01	20.21	6.20E+01	.....
	31	1171.76	1167 -	1175	1171.69	2.81E+01	24.08	7.18E+01	.....
	32	1403.63	1396 -	1412	1403.48	2.90E+01	21.75	3.40E+01	.....
	33	1460.79	1454 -	1464	1460.63	5.11E+02	46.96	1.98E+01	K-40
	34	1507.80	1503 -	1510	1507.62	9.50E+00	10.39	1.10E+01	.....
	35	1514.15	1512 -	1516	1513.97	5.95E+00	7.66	8.10E+00	.....
	36	1567.63	1563 -	1572	1567.43	7.95E+00	8.06	4.10E+00	.....
	37	1728.90	1724 -	1732	1728.64	7.90E+00	7.76	4.20E+00	.....
	38	1764.00	1759 -	1767	1763.73	1.62E+01	12.36	1.36E+01	BI-214
	39	1885.84	1882 -	1888	1885.53	6.31E+00	6.65	3.38E+00	.....
	40	2203.54	2200 -	2207	2203.12	1.07E+01	8.25	4.69E+00	BI-214
	41	2446.67	2443 -	2448	2446.17	5.00E+00	7.07	6.00E+00	.....
	42	2614.58	2610 -	2617	2614.02	4.30E+01	13.11	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 1707077-16

HTC-A01-S002-2430-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 11:06:32AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	75.20	3.54E+02	101.46	2.65E-02	2.02E-03
m	2	77.66	4.66E+02	101.38	2.68E-02	2.07E-03
	3	86.39	1.51E+02	95.79	2.71E-02	2.23E-03
	4	93.27	2.22E+02	75.15	2.71E-02	2.24E-03
	5	185.60	1.29E+02	75.42	1.96E-02	1.55E-03
M	6	238.92	4.87E+02	62.64	1.61E-02	1.34E-03
m	7	241.58	1.07E+02	62.48	1.60E-02	1.33E-03
	8	295.37	1.41E+02	48.53	1.35E-02	1.15E-03
	9	328.21	3.80E+01	44.45	1.23E-02	1.08E-03
	10	338.53	1.05E+02	50.58	1.19E-02	1.06E-03
	11	352.27	2.30E+02	57.31	1.15E-02	1.03E-03
	12	402.57	2.77E+01	31.06	1.02E-02	9.38E-04
M	13	459.74	1.40E+01	11.53	9.08E-03	8.62E-04
m	14	463.02	3.41E+01	26.32	9.02E-03	8.58E-04
	15	490.89	2.13E+01	23.94	8.56E-03	8.21E-04
	16	510.99	1.38E+02	44.66	8.25E-03	7.94E-04
M	17	579.87	1.85E+01	24.90	7.36E-03	7.03E-04
m	18	583.28	1.60E+02	33.88	7.32E-03	6.98E-04
	19	609.67	1.44E+02	44.96	7.04E-03	6.63E-04
	20	636.38	2.33E+01	19.60	6.77E-03	6.28E-04
	21	662.80	2.90E+01	24.04	6.53E-03	5.94E-04
	22	668.56	1.53E+01	17.48	6.48E-03	5.88E-04
M	23	795.10	3.35E+01	29.66	5.55E-03	4.77E-04
m	24	799.94	1.86E+01	18.22	5.52E-03	4.73E-04
	25	911.08	9.57E+01	31.26	4.92E-03	3.84E-04
	26	969.60	5.77E+01	32.31	4.66E-03	3.74E-04
	27	987.09	2.20E+01	23.96	4.59E-03	3.71E-04
	28	1020.39	3.80E+01	20.78	4.46E-03	3.66E-04
	29	1119.95	4.82E+01	25.69	4.12E-03	3.50E-04
	30	1150.27	1.60E+01	20.21	4.03E-03	3.45E-04
	31	1171.76	2.81E+01	24.08	3.96E-03	3.41E-04
	32	1403.63	2.90E+01	21.75	3.42E-03	2.84E-04
	33	1460.79	5.11E+02	46.96	3.31E-03	2.75E-04
	34	1507.80	9.50E+00	10.39	3.23E-03	2.68E-04
	35	1514.15	5.95E+00	7.66	3.22E-03	2.67E-04
	36	1567.63	7.95E+00	8.06	3.13E-03	2.58E-04
	37	1728.90	7.90E+00	7.76	2.91E-03	2.32E-04
	38	1764.00	1.62E+01	12.36	2.87E-03	2.27E-04
	39	1885.84	6.31E+00	6.65	2.73E-03	2.15E-04
	40	2203.54	1.07E+01	8.25	2.46E-03	2.15E-04
	41	2446.67	5.00E+00	7.07	2.32E-03	2.15E-04
	42	2614.58	4.30E+01	13.11	2.24E-03	2.15E-04

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

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 : 8/14/2017 11:06:32AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	75.20	3.54E+02	101.46	1.67E+01	8.84E+00	3.38E+02	1.02E+02
m	2	77.66	4.66E+02	101.38			4.66E+02	1.01E+02
	3	86.39	1.51E+02	95.79			1.51E+02	9.58E+01
	4	93.27	2.22E+02	75.15	6.90E+01	7.61E+00	1.53E+02	7.55E+01
	5	185.60	1.29E+02	75.42	2.99E+01	5.81E+00	9.93E+01	7.56E+01
M	6	238.92	4.87E+02	62.64	9.49E+00	5.63E+00	4.78E+02	6.29E+01
m	7	241.58	1.07E+02	62.48			1.07E+02	6.25E+01
	8	295.37	1.41E+02	48.53			1.41E+02	4.85E+01
	9	328.21	3.80E+01	44.45			3.80E+01	4.45E+01
	10	338.53	1.05E+02	50.58	4.73E+00	4.47E+00	9.98E+01	5.08E+01
	11	352.27	2.30E+02	57.31			2.30E+02	5.73E+01
	12	402.57	2.77E+01	31.06			2.77E+01	3.11E+01
M	13	459.74	1.40E+01	11.53			1.40E+01	1.15E+01
m	14	463.02	3.41E+01	26.32			3.41E+01	2.63E+01
	15	490.89	2.13E+01	23.94			2.13E+01	2.39E+01
	16	510.99	1.38E+02	44.66	5.37E+01	4.54E+00	8.48E+01	4.49E+01
M	17	579.87	1.85E+01	24.90			1.85E+01	2.49E+01
m	18	583.28	1.60E+02	33.88			1.60E+02	3.39E+01
	19	609.67	1.44E+02	44.96	4.09E+00	3.07E+00	1.40E+02	4.51E+01
	20	636.38	2.33E+01	19.60			2.33E+01	1.96E+01
	21	662.80	2.90E+01	24.04	4.67E+00	3.34E+00	2.43E+01	2.43E+01
	22	668.56	1.53E+01	17.48			1.53E+01	1.75E+01
M	23	795.10	3.35E+01	29.66			3.35E+01	2.97E+01
m	24	799.94	1.86E+01	18.22			1.86E+01	1.82E+01
	25	911.08	9.57E+01	31.26			9.57E+01	3.13E+01
	26	969.60	5.77E+01	32.31			5.77E+01	3.23E+01
	27	987.09	2.20E+01	23.96			2.20E+01	2.40E+01
	28	1020.39	3.80E+01	20.78			3.80E+01	2.08E+01
	29	1119.95	4.82E+01	25.69			4.82E+01	2.57E+01
	30	1150.27	1.60E+01	20.21			1.60E+01	2.02E+01
	31	1171.76	2.81E+01	24.08			2.81E+01	2.41E+01
	32	1403.63	2.90E+01	21.75			2.90E+01	2.17E+01
	33	1460.79	5.11E+02	46.96			5.11E+02	4.70E+01
	34	1507.80	9.50E+00	10.39			9.50E+00	1.04E+01
	35	1514.15	5.95E+00	7.66			5.95E+00	7.66E+00

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1567.63	7.95E+00	8.06			7.95E+00	8.06E+00
37	1728.90	7.90E+00	7.76			7.90E+00	7.76E+00
38	1764.00	1.62E+01	12.36			1.62E+01	1.24E+01
39	1885.84	6.31E+00	6.65			6.31E+00	6.65E+00
40	2203.54	1.07E+01	8.25			1.07E+01	8.25E+00
41	2446.67	5.00E+00	7.07			5.00E+00	7.07E+00
42	2614.58	4.30E+01	13.11			4.30E+01	1.31E+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 : 8/14/2017 11:06:32AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.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	75.20	3.54E+02	101.46	1.67E+01	8.84E+00	3.38E+02	1.02E+02
m	2	77.66	4.66E+02	101.38			4.66E+02	1.01E+02
	3	86.39	1.51E+02	95.79			1.51E+02	9.58E+01
	4	93.27	2.22E+02	75.15	6.90E+01	7.61E+00	1.53E+02	7.55E+01
	5	185.60	1.29E+02	75.42	2.99E+01	5.81E+00	9.93E+01	7.56E+01
M	6	238.92	4.87E+02	62.64	9.49E+00	5.63E+00	4.78E+02	6.29E+01
m	7	241.58	1.07E+02	62.48			1.07E+02	6.25E+01
	8	295.37	1.41E+02	48.53			1.41E+02	4.85E+01
	9	328.21	3.80E+01	44.45			3.80E+01	4.45E+01
	10	338.53	1.05E+02	50.58	4.73E+00	4.47E+00	9.98E+01	5.08E+01
	11	352.27	2.30E+02	57.31			2.30E+02	5.73E+01
	12	402.57	2.77E+01	31.06			2.77E+01	3.11E+01
M	13	459.74	1.40E+01	11.53			1.40E+01	1.15E+01
m	14	463.02	3.41E+01	26.32			3.41E+01	2.63E+01
	15	490.89	2.13E+01	23.94			2.13E+01	2.39E+01
	16	510.99	1.38E+02	44.66	5.37E+01	4.54E+00	8.48E+01	4.49E+01
M	17	579.87	1.85E+01	24.90			1.85E+01	2.49E+01
m	18	583.28	1.60E+02	33.88			1.60E+02	3.39E+01
	19	609.67	1.44E+02	44.96	4.09E+00	3.07E+00	1.40E+02	4.51E+01
	20	636.38	2.33E+01	19.60			2.33E+01	1.96E+01
	21	662.80	2.90E+01	24.04	4.67E+00	3.34E+00	2.43E+01	2.43E+01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	22	668.56	1.53E+01	17.48			1.53E+01	1.75E+01
M	23	795.10	3.35E+01	29.66			3.35E+01	2.97E+01
m	24	799.94	1.86E+01	18.22			1.86E+01	1.82E+01
	25	911.08	9.57E+01	31.26			9.57E+01	3.13E+01
	26	969.60	5.77E+01	32.31			5.77E+01	3.23E+01
	27	987.09	2.20E+01	23.96			2.20E+01	2.40E+01
	28	1020.39	3.80E+01	20.78			3.80E+01	2.08E+01
	29	1119.95	4.82E+01	25.69			4.82E+01	2.57E+01
	30	1150.27	1.60E+01	20.21			1.60E+01	2.02E+01
	31	1171.76	2.81E+01	24.08			2.81E+01	2.41E+01
	32	1403.63	2.90E+01	21.75			2.90E+01	2.17E+01
	33	1460.79	5.11E+02	46.96			5.11E+02	4.70E+01
	34	1507.80	9.50E+00	10.39			9.50E+00	1.04E+01
	35	1514.15	5.95E+00	7.66			5.95E+00	7.66E+00
	36	1567.63	7.95E+00	8.06			7.95E+00	8.06E+00
	37	1728.90	7.90E+00	7.76			7.90E+00	7.76E+00
	38	1764.00	1.62E+01	12.36			1.62E+01	1.24E+01
	39	1885.84	6.31E+00	6.65			6.31E+00	6.65E+00
	40	2203.54	1.07E+01	8.25			1.07E+01	8.25E+00
	41	2446.67	5.00E+00	7.07			5.00E+00	7.07E+00
	42	2614.58	4.30E+01	13.11			4.30E+01	1.31E+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	1.000	1460.81	*	10.67	1.55E+01	1.94E+00
EU-155	0.361	86.50	*	30.90	1.99E-01	1.28E-01
		105.30		20.70		
TL-208	0.886	583.14	*	30.22	7.73E-01	1.79E-01
		860.37		4.48		
		2614.66	*	35.85	5.73E-01	1.83E-01
PB-212	0.884	238.63	*	44.60	7.11E-01	1.11E-01
		300.09		3.41		
BI-214	0.973	609.31	*	46.30	4.60E-01	1.54E-01
		1120.29	*	15.10	8.29E-01	4.47E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.973	1764.49	*	15.80	3.82E-01	2.93E-01
		2204.22	*	4.98	9.28E-01	7.23E-01
PB-214	0.986	295.21	*	19.19	5.82E-01	2.07E-01
		351.92	*	37.19	5.74E-01	1.52E-01
RN-219	0.911	401.80	*	6.50	4.45E-01	5.01E-01
RA-224	0.944	240.98	*	3.95	1.81E+00	1.07E+00
RA-226	0.942	186.21	*	3.28	1.65E+00	3.27E+00
AC-228	0.987	338.32	*	11.40	7.83E-01	4.05E-01
		911.07	*	27.70	7.50E-01	2.52E-01
		969.11	*	16.60	7.97E-01	4.51E-01
NP-237	0.998	86.50	*	12.60	4.71E-01	3.02E-01
AM-243	0.955	74.67	*	66.00	2.06E-01	6.41E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 11:06:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.66	1.29540E-01	10.87		
	4	93.27	4.24848E-02	24.69		
	9	328.21	1.05556E-02	58.49	Sum	
M	13	459.74	3.87850E-03	41.30		
m	14	463.02	9.46705E-03	38.62		
	15	490.89	5.90982E-03	56.26		
	16	510.99	2.35525E-02	26.47		
M	17	579.87	5.14645E-03	67.20	Sum	
	20	636.38	6.47059E-03	42.06	Tol.	I-131
	21	662.80	6.75895E-03	49.88		
	22	668.56	4.24603E-03	57.17		
M	23	795.10	9.31078E-03	44.25	Sum	
m	24	799.94	5.17594E-03	48.89		
	27	987.09	6.12103E-03	54.36	Sum	
	28	1020.39	1.05556E-02	27.35		
	30	1150.27	4.43853E-03	63.24	Sum	

Analysis Report for 1707077-16

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
31	1171.76	7.81250E-03	42.81		
32	1403.63	8.05556E-03	37.50		
34	1507.80	2.63889E-03	54.70		
35	1514.15	1.65278E-03	64.41		
36	1567.63	2.20833E-03	50.71		
37	1728.90	2.19444E-03	49.13	Sum	
39	1885.84	1.75347E-03	52.69		
41	2446.67	1.38889E-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	1.00	1460.81	*	10.67	1.55E+01	1.94E+00
EU-155	0.36	86.50	*	30.90	1.99E-01	1.28E-01
		105.30		20.70		
TL-208	0.88	583.14	*	30.22	7.73E-01	1.79E-01
		860.37		4.48		
		2614.66	*	35.85	5.73E-01	1.83E-01
PB-212	0.88	238.63	*	44.60	7.11E-01	1.11E-01
		300.09		3.41		
BI-214	0.97	609.31	*	46.30	4.60E-01	1.54E-01
		1120.29	*	15.10	8.29E-01	4.47E-01
		1764.49	*	15.80	3.82E-01	2.93E-01
		2204.22	*	4.98	9.28E-01	7.23E-01
PB-214	0.98	295.21	*	19.19	5.82E-01	2.07E-01
		351.92	*	37.19	5.74E-01	1.52E-01
RN-219	0.91	401.80	*	6.50	4.45E-01	5.01E-01
RA-224	0.94	240.98	*	3.95	1.81E+00	1.07E+00
RA-226	0.94	186.21	*	3.28	1.65E+00	3.27E+00
AC-228	0.98	338.32	*	11.40	7.83E-01	4.05E-01
		911.07	*	27.70	7.50E-01	2.52E-01
		969.11	*	16.60	7.97E-01	4.51E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
NP-237	0.99	86.50	*	12.60	4.71E-01	3.02E-01
AM-243	0.95	74.67	*	66.00	2.06E-01	6.41E-02

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	1.000	1.55E+01	1.94E+00	
?	EU-155	0.361	1.99E-01	1.28E-01	
	TL-208	0.886	6.75E-01	1.28E-01	
	PB-212	0.884	7.11E-01	1.11E-01	
	BI-214	0.973	4.90E-01	1.28E-01	
	PB-214	0.986	5.76E-01	1.22E-01	
	RN-219	0.911	4.45E-01	5.01E-01	
	RA-224	0.944	1.81E+00	1.07E+00	
	RA-226	0.942	1.65E+00	3.27E+00	
	AC-228	0.987	7.66E-01	1.93E-01	
?	NP-237	0.998	4.71E-01	3.02E-01	
	AM-243	0.955	2.06E-01	6.41E-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 1707077-16

HTC-A01-S002-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 11:06:32AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.66	1.29540E-01	10.87		
	4	93.27	4.24848E-02	24.69		
	9	328.21	1.05556E-02	58.49	Sum	
M	13	459.74	3.87850E-03	41.30		
m	14	463.02	9.46705E-03	38.62		
	15	490.89	5.90982E-03	56.26		
	16	510.99	2.35525E-02	26.47		
M	17	579.87	5.14645E-03	67.20	Sum	
	20	636.38	6.47059E-03	42.06	Tol.	I-131
	21	662.80	6.75895E-03	49.88		
	22	668.56	4.24603E-03	57.17		
M	23	795.10	9.31078E-03	44.25	Sum	
m	24	799.94	5.17594E-03	48.89		
	27	987.09	6.12103E-03	54.36	Sum	
	28	1020.39	1.05556E-02	27.35		
	30	1150.27	4.43853E-03	63.24	Sum	
	31	1171.76	7.81250E-03	42.81		
	32	1403.63	8.05556E-03	37.50		
	34	1507.80	2.63889E-03	54.70		
	35	1514.15	1.65278E-03	64.41		
	36	1567.63	2.20833E-03	50.71		
	37	1728.90	2.19444E-03	49.13	Sum	
	39	1885.84	1.75347E-03	52.69		
	41	2446.67	1.38889E-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 1707077-16

HTC-A01-S002-2430-01

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-1.28E-01	1.55E+00	1.55E+00
+		NA-22	1274.54		99.94	1.32E-02	7.90E-02	7.90E-02
+	@	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	5.71E-03	5.37E-02	5.37E-02
+		K-40	1460.81	*	10.67	1.55E+01	7.13E-01	7.13E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	3.13E-02	5.05E-02	5.05E-02
			78.34		96.00	1.20E-01		6.00E-02
+		SC-46	889.25		99.98	-2.27E-02	1.39E-01	1.39E-01
			1120.51		99.99	2.41E-01		2.39E-01
+		V-48	983.52		99.98	-2.26E+00	4.08E+00	4.08E+00
			1312.10		97.50	-2.03E-01		4.92E+00
+		CR-51	320.08		9.83	1.40E-02	4.89E+00	4.89E+00
+		MN-54	834.83		99.97	-2.57E-02	8.30E-02	8.30E-02
+		CO-56	846.75		99.96	-6.44E-02	1.30E-01	1.30E-01
			1037.75		14.03	2.89E-01		1.12E+00
			1238.25		67.00	1.69E-01		3.79E-01
			1771.40		15.51	-1.34E-01		9.52E-01
			2598.48		16.90	-4.26E-02		4.70E-01
+		CO-57	122.06		85.51	1.26E-02	5.41E-02	5.41E-02
			136.48		10.60	3.48E-04		4.23E-01
+		CO-58	810.76		99.40	2.24E-02	1.61E-01	1.61E-01
+		FE-59	1099.22		56.50	-2.43E-01	5.56E-01	5.56E-01
			1291.56		43.20	4.02E-01		8.67E-01
+		CO-60	1173.22		100.00	5.27E-02	7.29E-02	1.07E-01
			1332.49		100.00	7.75E-03		7.29E-02
+		ZN-65	1115.52		50.75	2.65E-02	2.23E-01	2.23E-01
+		GA-67	93.31		35.70	8.24E+07	4.87E+07	4.87E+07
			208.95		2.24	6.70E+08		8.79E+08
			300.22		16.00	5.52E+07		1.37E+08
+		SE-75	121.11		16.70	3.47E-02	1.03E-01	3.71E-01
			136.00		59.20	1.64E-02		1.03E-01
			264.65		59.80	-5.68E-02		1.29E-01
			279.53		25.20	1.21E-01		3.39E-01
			400.65		11.40	1.13E-02		8.81E-01
+		RB-82	776.52		13.00	-1.96E+00	6.38E+00	6.38E+00
+		RB-83	520.41		46.00	4.94E-02	2.38E-01	2.38E-01
			529.64		30.30	-6.56E-02		3.75E-01
			552.65		16.40	-2.89E-01		6.77E-01
+		KR-85	513.99		0.43	6.41E+00	1.80E+01	1.80E+01
+		SR-85	513.99		99.27	7.45E-02	2.09E-01	2.09E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02	93.40	2.36E-02	8.49E-02	1.35E-01
		1836.01	99.38	2.83E-02		8.49E-02
+	MO-93	263.06	56.72	-4.42E-02	5.82E-02	8.02E-02
		684.67	99.68	3.48E-02		7.15E-02
		1477.11	99.08	-2.04E-02		5.82E-02
+	NB-93M	16.57	9.43	-5.84E+00	5.40E+01	5.40E+01
+	NB-94	702.63	100.00	3.45E-03	6.68E-02	6.68E-02
		871.10	100.00	4.82E-02		8.15E-02
+	NB-95	765.79	99.81	-4.11E-02	4.40E-01	4.40E-01
+	NB-95M	235.69	25.00	3.66E+06	1.69E+07	1.69E+07
+	ZR-95	724.18	43.70	-1.63E-01	3.25E-01	4.71E-01
		756.72	55.30	-8.67E-02		3.25E-01
+	MO-99	181.06	6.20	-2.75E+08	6.97E+09	9.83E+09
		739.58	12.80	-2.87E+09		6.97E+09
		778.00	4.50	-1.65E+10		2.18E+10
+	RU-103	497.08	89.00	1.19E-01	3.10E-01	3.10E-01
+	RU-106	621.84	9.80	4.89E-02	7.17E-01	7.17E-01
+	AG-108M	433.93	89.90	-3.09E-02	6.18E-02	6.18E-02
		614.37	90.40	8.17E-03		8.26E-02
		722.95	90.50	-7.05E-02		7.59E-02
+	CD-109	88.03	3.72	4.93E-01	1.39E+00	1.39E+00
+	AG-110M	657.75	93.14	2.08E-02	9.02E-02	9.02E-02
		677.61	10.53	-1.29E-01		7.24E-01
		706.67	16.46	6.14E-02		5.16E-01
		763.93	21.98	1.26E-01		4.21E-01
		884.67	71.63	-3.47E-02		1.16E-01
		1384.27	23.94	-9.64E-02		3.66E-01
+	CD-113M	263.70	0.02	-9.69E+01	1.96E+02	1.96E+02
+	SN-113	255.12	1.93	-1.84E+00	1.33E-01	4.35E+00
		391.69	64.90	-4.81E-02		1.33E-01
+	TE123M	159.00	84.10	-1.81E-02	7.52E-02	7.52E-02
+	SB-124	602.71	97.87	2.75E-02	1.84E-01	1.84E-01
		645.85	7.26	-1.19E-01		2.35E+00
		722.78	11.10	-1.67E+00		1.80E+00
		1691.02	49.00	4.54E-02		3.59E-01
+	I-125	35.49	6.49	-4.05E+00	4.21E+00	4.21E+00
+	SB-125	176.33	6.89	-1.04E-01	1.96E-01	5.80E-01
		427.89	29.33	-6.85E-02		1.96E-01
		463.38	10.35	1.58E-01		6.04E-01
		600.56	17.80	7.64E-02		3.73E-01
		635.90	11.32	1.37E-01		5.57E-01
+	SB-126	414.70	83.30	-5.03E+00	1.18E+01	1.20E+01
		666.33	99.60	5.37E+00		1.28E+01
		695.00	99.60	-4.01E+00		1.18E+01
		720.50	53.80	-3.86E+00		2.17E+01
+	SN-126	87.57	37.00	4.31E-02	1.21E-01	1.21E-01
+	SB-127	473.00	25.00	-4.04E+05	3.68E+06	3.71E+06
		685.20	35.70	1.79E+06		3.68E+06

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	7.01E+06	3.68E+06	9.65E+06
+	I-129	29.78	57.00	-4.60E-02	3.21E-01	3.21E-01
		33.60	13.20	-3.33E-01		8.68E-01
		39.58	7.52	5.45E-01		1.01E+00
+	I-131	284.30	6.05	1.46E+02	1.86E+02	2.37E+03
		364.48	81.20	-3.39E+01		1.86E+02
		636.97	7.26	7.54E+02		2.48E+03
		722.89	1.80	-1.07E+04		1.16E+04
+	TE-132	49.72	13.10	-1.01E+08	2.28E+07	1.60E+08
		228.16	88.00	6.53E+05		2.28E+07
+	BA-133	81.00	33.00	-3.51E-01	1.20E-01	1.34E-01
		302.84	17.80	1.34E-01		3.03E-01
		356.01	60.00	1.11E-02		1.20E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-6.55E+04	2.49E+04	2.49E+04
+	CS-134	563.23	8.38	-1.10E-02	7.28E-02	7.12E-01
		569.32	15.43	2.57E-01		4.22E-01
		604.70	97.60	1.09E-02		7.28E-02
		795.84	85.40	7.08E-02		1.03E-01
		801.93	8.73	3.15E-01		8.62E-01
+	CS-135	268.24	16.00	-3.59E-02	3.08E-01	3.08E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	3.39E+01	8.24E+00	7.11E+01
		163.89	4.61	2.58E+01		1.13E+02
		176.55	13.56	-6.67E+00		3.71E+01
		273.65	12.66	5.97E+00		5.46E+01
		340.57	48.50	2.40E+01		1.83E+01
		818.50	99.70	-3.15E+00		8.24E+00
		1048.07	79.60	-3.77E-01		1.41E+01
		1235.34	19.70	-3.24E+01		7.08E+01
+	CS-137	661.65	85.12	3.52E-02	8.15E-02	8.15E-02
+	LA-138	788.74	34.00	-1.01E-02	8.75E-02	1.89E-01
		1435.80	66.00	-4.37E-02		8.75E-02
+	CE-139	165.85	80.35	3.17E-02	7.82E-02	7.82E-02
+	BA-140	162.64	6.70	-9.92E+00	3.51E+01	8.65E+01
		304.84	4.50	-9.97E+01		1.65E+02
		423.70	3.20	6.15E+01		2.73E+02
		437.55	2.00	1.79E+02		4.38E+02
		537.32	25.00	3.77E+00		3.51E+01
+	LA-140	328.77	20.50	1.81E+01	1.35E+01	4.20E+01
		487.03	45.50	1.72E+00		2.05E+01
		815.85	23.50	5.64E+00		4.07E+01
		1596.49	95.49	6.40E+00		1.35E+01
+	CE-141	145.44	48.40	3.83E-02	5.56E-01	5.56E-01
+	@ 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

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54		10.80	-6.29E-02	4.14E-01	4.14E-01
+	PM-144	476.78		42.00	6.92E-03	7.70E-02	1.37E-01
		618.01		98.60	3.11E-02		7.70E-02
		696.49		99.49	2.59E-02		8.26E-02
+	PM-145	36.85		21.70	2.03E-02	2.15E-01	4.04E-01
		37.36		39.70	-3.23E-03		2.15E-01
		42.30		15.10	-2.48E-01		4.39E-01
		72.40		2.31	-3.83E+00		2.27E+00
+	PM-146	453.90		39.94	6.56E-02	1.36E-01	1.36E-01
		735.90		14.01	1.39E-01		4.89E-01
		747.13		13.10	-2.29E-01		4.82E-01
+	ND-147	91.11		28.90	-3.25E+01	5.53E+01	5.53E+01
		531.02		13.10	-3.15E+01		1.45E+02
+	PM-149	285.90		3.10	-8.65E+11	6.83E+12	6.83E+12
+	EU-152	121.78		20.50	4.19E-02	1.80E-01	1.80E-01
		244.69		5.40	1.79E-01		1.03E+00
		344.27		19.13	3.01E-02		2.80E-01
		778.89		9.20	-4.07E-01		7.28E-01
		964.01		10.40	7.33E-02		7.91E-01
		1085.78		7.22	1.61E-01		1.11E+00
		1112.02		9.60	9.23E-02		8.34E-01
		1407.95		14.94	3.19E-01		5.22E-01
+	GD-153	97.43		31.30	-6.68E-02	1.44E-01	1.44E-01
		103.18		22.20	-5.41E-04		2.09E-01
+	EU-154	123.07		40.50	1.29E-02	9.19E-02	9.19E-02
		723.30		19.70	-3.30E-01		3.55E-01
		873.19		11.50	-9.50E-02		6.67E-01
		996.32		10.30	4.34E-01		7.30E-01
		1004.76		17.90	5.06E-02		3.86E-01
		1274.45		35.50	3.53E-02		2.12E-01
+	EU-155	86.50	*	30.90	1.99E-01	1.75E-01	2.05E-01
		105.30		20.70	3.08E-02		1.75E-01
+	EU-156	811.77		10.40	6.45E+00	4.36E+01	4.36E+01
		1153.47		7.20	6.07E+00		9.58E+01
		1230.71		8.90	2.97E+01		7.97E+01
+	HO-166M	184.41		72.60	9.20E-02	6.68E-02	6.68E-02
		280.45		29.60	5.56E-03		1.64E-01
		410.94		11.10	6.89E-02		5.36E-01
		711.69		54.10	1.03E-02		1.23E-01
+	TM-171	66.72		0.14	-3.53E+01	3.68E+01	3.68E+01
+	HF-172	67.35		5.31	6.13E-01	3.53E-01	9.88E-01
		125.81		11.30	-1.44E-01		3.53E-01
+	LU-172	181.53		20.60	-2.33E+02	2.08E+03	3.01E+03
		900.72		29.81	-5.50E+02		3.24E+03
		1093.66		62.50	3.63E+02		2.08E+03
+	LU-173	100.72		5.24	1.09E-01	2.74E-01	7.73E-01
		272.11		21.20	3.31E-02		2.74E-01
+	HF-175	343.40		84.00	1.70E-02	1.58E-01	1.58E-01
+	LU-176	88.34		13.30	-1.11E-01	4.77E-02	3.37E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-1.94E-03	4.77E-02	4.77E-02
		306.78		94.00	-6.20E-03		4.94E-02
+	HF-181	133.02		41.70	-2.22E-01	2.97E-01	3.92E-01
		345.85		17.20	1.52E-01		1.40E+00
		482.03		82.80	5.92E-03		2.97E-01
+	TA-182	67.75		41.20	1.26E-01	2.03E-01	2.03E-01
		1121.30		34.90	2.91E-01		5.33E-01
		1189.05		16.23	3.29E-01		1.06E+00
		1221.41		26.98	-3.66E-01		5.84E-01
		1231.02		11.44	5.82E-01		1.56E+00
+	IR-192	308.46		29.68	-9.61E-02	2.78E-01	3.66E-01
		468.07		48.10	1.01E-01		2.78E-01
+	HG-203	279.19		77.30	1.50E-01	2.61E-01	2.61E-01
+	TL-204	374.74		94.11	-3.91E-02	5.39E-02	5.39E-02
		899.15		99.16	-1.73E-02		7.12E-02
		911.74		91.10	2.07E-01		1.38E-01
+	BI-207	569.67		97.72	1.62E-02	5.91E-02	5.91E-02
		1063.62		74.90	1.53E-02		1.05E-01
+	TL-208	583.14	*	30.22	7.73E-01	3.60E-02	2.63E-01
		860.37		4.48	1.10E+00		1.66E+00
		2614.66	*	35.85	5.73E-01		3.60E-02
+	BI-210M	262.00		45.00	-4.91E-02	1.01E-01	1.01E-01
		300.00		23.00	9.98E-02		2.48E-01
+	PB-210	46.50		4.25	1.91E+00	1.51E+00	1.51E+00
+	PB-211	404.84		2.90	-2.49E-01	2.09E+00	2.09E+00
		831.96		2.90	-2.29E-01		2.32E+00
+	BI-212	727.17		11.80	5.35E-01	6.99E-01	6.99E-01
		1620.62		2.75	9.55E-02		2.40E+00
+	PB-212	238.63	*	44.60	7.11E-01	1.64E-01	1.64E-01
		300.09		3.41	6.73E-01		1.67E+00
+	BI-214	609.31	*	46.30	4.60E-01	2.16E-01	2.16E-01
		1120.29	*	15.10	8.29E-01		6.58E-01
		1764.49	*	15.80	3.82E-01		4.28E-01
		2204.22	*	4.98	9.28E-01		9.57E-01
+	PB-214	295.21	*	19.19	5.82E-01	2.06E-01	2.99E-01
		351.92	*	37.19	5.74E-01		2.06E-01
+	RN-219	401.80	*	6.50	4.45E-01	8.16E-01	8.16E-01
+	RA-223	323.87		3.88	6.06E-02	1.29E+00	1.29E+00
+	RA-224	240.98	*	3.95	1.81E+00	1.85E+00	1.85E+00
+	RA-225	40.00		31.00	1.01E+01	1.86E+01	1.86E+01
+	RA-226	186.21	*	3.28	1.65E+00	2.04E+00	2.04E+00
+	TH-227	50.10		8.40	-4.00E-01	6.34E-01	6.34E-01
		236.00		11.50	1.40E-01		6.47E-01
		256.20		6.30	-8.25E-02		7.61E-01
+	AC-228	338.32	*	11.40	7.83E-01	3.36E-01	6.24E-01
		911.07	*	27.70	7.50E-01		3.36E-01
		969.11	*	16.60	7.97E-01		6.85E-01
+	TH-230	48.44		16.90	2.48E-01	3.48E-01	3.48E-01

Analysis Report for 1707077-16

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	1.35E-01	3.48E-01	1.09E+00
		67.67		0.37	7.98E+00		1.29E+01
+	PA-231	283.67		1.60	1.02E+00	2.31E+00	3.01E+00
		302.67		2.30	1.02E+00		2.31E+00
+	TH-231	25.64		14.70	-4.99E-01	6.62E-01	2.23E+00
		84.21		6.40	-3.43E-01		6.62E-01
+	PA-233	311.98		38.60	4.33E-01	1.33E+00	1.33E+00
+	PA-234	131.20		20.40	9.01E-02	1.84E-01	1.84E-01
		733.99		8.80	7.08E-02		7.77E-01
		946.00		12.00	-2.43E-01		5.19E-01
+	PA-234M	1001.03		0.92	-6.75E-01	7.54E+00	7.54E+00
+	TH-234	63.29		3.80	4.71E-01	1.32E+00	1.32E+00
+	U-235	143.76		10.50	8.32E-02	3.50E-01	3.50E-01
		163.35		4.70	1.88E-01		8.24E-01
		205.31		4.70	-3.35E-01		1.07E+00
+	NP-237	86.50	*	12.60	4.71E-01	4.84E-01	4.84E-01
+	NP-239	106.10		22.70	2.09E+10	1.19E+11	1.19E+11
		228.18		10.70	1.06E+10		3.70E+11
		277.60		14.10	8.02E+10		2.73E+11
+	AM-241	59.54		35.90	-5.83E-02	1.38E-01	1.38E-01
+	AM-243	74.67	*	66.00	2.06E-01	1.30E-01	1.30E-01
+	CM-243	209.75		3.29	1.70E-01	3.59E-01	1.52E+00
		228.14		10.60	1.40E-02		4.87E-01
		277.60		14.00	1.05E-01		3.59E-01

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	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	1.55E+00	1.55E+00	-1.28E-01	7.21E-01
	NA-22	1274.54		99.94	7.90E-02	7.90E-02	1.32E-02	3.53E-02
@	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	5.37E-02	5.37E-02	5.71E-03	2.17E-02
+	K-40	1460.81	*	10.67	7.13E-01	7.13E-01	1.55E+01	3.15E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.05E-02	5.05E-02	3.13E-02	2.46E-02
		78.34		96.00	6.00E-02		1.20E-01	2.94E-02
	SC-46	889.25		99.98	1.39E-01	1.39E-01	-2.27E-02	6.31E-02
		1120.51		99.99	2.39E-01		2.41E-01	1.12E-01
	V-48	983.52		99.98	4.08E+00	4.08E+00	-2.26E+00	1.86E+00
		1312.10		97.50	4.92E+00		-2.03E-01	2.23E+00
	CR-51	320.08		9.83	4.89E+00	4.89E+00	1.40E-02	2.33E+00
	MN-54	834.83		99.97	8.30E-02	8.30E-02	-2.57E-02	3.81E-02
	CO-56	846.75		99.96	1.30E-01	1.30E-01	-6.44E-02	5.88E-02
		1037.75		14.03	1.12E+00		2.89E-01	5.09E-01
		1238.25		67.00	3.79E-01		1.69E-01	1.76E-01
		1771.40		15.51	9.52E-01		-1.34E-01	4.02E-01
		2598.48		16.90	4.70E-01		-4.26E-02	1.49E-01
	CO-57	122.06		85.51	5.41E-02	5.41E-02	1.26E-02	2.62E-02
		136.48		10.60	4.23E-01		3.48E-04	2.04E-01
	CO-58	810.76		99.40	1.61E-01	1.61E-01	2.24E-02	7.39E-02
	FE-59	1099.22		56.50	5.56E-01	5.56E-01	-2.43E-01	2.52E-01
		1291.56		43.20	8.67E-01		4.02E-01	3.95E-01
	CO-60	1173.22		100.00	1.07E-01	7.29E-02	5.27E-02	4.99E-02
		1332.49		100.00	7.29E-02		7.75E-03	3.23E-02
	ZN-65	1115.52		50.75	2.23E-01	2.23E-01	2.65E-02	1.02E-01
	GA-67	93.31		35.70	4.87E+07	4.87E+07	8.24E+07	2.38E+07
		208.95		2.24	8.79E+08		6.70E+08	4.25E+08
		300.22		16.00	1.37E+08		5.52E+07	6.60E+07
	SE-75	121.11		16.70	3.71E-01	1.03E-01	3.47E-02	1.80E-01
		136.00		59.20	1.03E-01		1.64E-02	4.99E-02
		264.65		59.80	1.29E-01		-5.68E-02	6.16E-02
		279.53		25.20	3.39E-01		1.21E-01	1.62E-01
		400.65		11.40	8.81E-01		1.13E-02	4.19E-01
	RB-82	776.52		13.00	6.38E+00	6.38E+00	-1.96E+00	2.94E+00
	RB-83	520.41		46.00	2.38E-01	2.38E-01	4.94E-02	1.11E-01
		529.64		30.30	3.75E-01		-6.56E-02	1.75E-01
		552.65		16.40	6.77E-01		-2.89E-01	3.14E-01
	KR-85	513.99		0.43	1.80E+01	1.80E+01	6.41E+00	8.57E+00
	SR-85	513.99		99.27	2.09E-01	2.09E-01	7.45E-02	9.96E-02
	Y-88	898.02		93.40	1.35E-01	8.49E-02	2.36E-02	6.18E-02
		1836.01		99.38	8.49E-02		2.83E-02	3.29E-02
	MO-93	263.06		56.72	8.02E-02	5.82E-02	-4.42E-02	3.84E-02
		684.67		99.68	7.15E-02		3.48E-02	3.34E-02
		1477.11		99.08	5.82E-02		-2.04E-02	2.46E-02
	NB-93M	16.57		9.43	5.40E+01	5.40E+01	-5.84E+00	2.62E+01
	NB-94	702.63		100.00	6.68E-02	6.68E-02	3.45E-03	3.11E-02
		871.10		100.00	8.15E-02		4.82E-02	3.79E-02
	NB-95	765.79		99.81	4.40E-01	4.40E-01	-4.11E-02	2.04E-01
	NB-95M	235.69		25.00	1.69E+07	1.69E+07	3.66E+06	8.25E+06
	ZR-95	724.18		43.70	4.71E-01	3.25E-01	-1.63E-01	2.21E-01

Analysis Report for 1707077-16

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
ZR-95	756.72	55.30	3.25E-01	3.25E-01	-8.67E-02	1.50E-01
MO-99	181.06	6.20	9.83E+09	6.97E+09	-2.75E+08	4.74E+09
	739.58	12.80	6.97E+09		-2.87E+09	3.20E+09
	778.00	4.50	2.18E+10		-1.65E+10	1.01E+10
RU-103	497.08	89.00	3.10E-01	3.10E-01	1.19E-01	1.45E-01
RU-106	621.84	9.80	7.17E-01	7.17E-01	4.89E-02	3.33E-01
AG-108M	433.93	89.90	6.18E-02	6.18E-02	-3.09E-02	2.92E-02
	614.37	90.40	8.26E-02		8.17E-03	3.90E-02
	722.95	90.50	7.59E-02		-7.05E-02	3.53E-02
CD-109	88.03	3.72	1.39E+00	1.39E+00	4.93E-01	6.76E-01
AG-110M	657.75	93.14	9.02E-02	9.02E-02	2.08E-02	4.20E-02
	677.61	10.53	7.24E-01		-1.29E-01	3.34E-01
	706.67	16.46	5.16E-01		6.14E-02	2.39E-01
	763.93	21.98	4.21E-01		1.26E-01	1.96E-01
	884.67	71.63	1.16E-01		-3.47E-02	5.26E-02
	1384.27	23.94	3.66E-01		-9.64E-02	1.60E-01
CD-113M	263.70	0.02	1.96E+02	1.96E+02	-9.69E+01	9.39E+01
SN-113	255.12	1.93	4.35E+00	1.33E-01	-1.84E+00	2.09E+00
	391.69	64.90	1.33E-01		-4.81E-02	6.30E-02
TE123M	159.00	84.10	7.52E-02	7.52E-02	-1.81E-02	3.62E-02
SB-124	602.71	97.87	1.84E-01	1.84E-01	2.75E-02	8.60E-02
	645.85	7.26	2.35E+00		-1.19E-01	1.09E+00
	722.78	11.10	1.80E+00		-1.67E+00	8.38E-01
	1691.02	49.00	3.59E-01		4.54E-02	1.50E-01
I-125	35.49	6.49	4.21E+00	4.21E+00	-4.05E+00	2.04E+00
SB-125	176.33	6.89	5.80E-01	1.96E-01	-1.04E-01	2.79E-01
	427.89	29.33	1.96E-01		-6.85E-02	9.28E-02
	463.38	10.35	6.04E-01		1.58E-01	2.85E-01
	600.56	17.80	3.73E-01		7.64E-02	1.75E-01
	635.90	11.32	5.57E-01		1.37E-01	2.59E-01
SB-126	414.70	83.30	1.20E+01	1.18E+01	-5.03E+00	5.69E+00
	666.33	99.60	1.28E+01		5.37E+00	5.98E+00
	695.00	99.60	1.18E+01		-4.01E+00	5.50E+00
	720.50	53.80	2.17E+01		-3.86E+00	1.01E+01
SN-126	87.57	37.00	1.21E-01	1.21E-01	4.31E-02	5.92E-02
SB-127	473.00	25.00	3.71E+06	3.68E+06	-4.04E+05	1.73E+06
	685.20	35.70	3.68E+06		1.79E+06	1.72E+06
	783.80	14.70	9.65E+06		7.01E+06	4.50E+06
I-129	29.78	57.00	3.21E-01	3.21E-01	-4.60E-02	1.56E-01
	33.60	13.20	8.68E-01		-3.33E-01	4.21E-01
	39.58	7.52	1.01E+00		5.45E-01	4.88E-01
I-131	284.30	6.05	2.37E+03	1.86E+02	1.46E+02	1.13E+03
	364.48	81.20	1.86E+02		-3.39E+01	8.83E+01
	636.97	7.26	2.48E+03		7.54E+02	1.15E+03
	722.89	1.80	1.16E+04		-1.07E+04	5.37E+03
TE-132	49.72	13.10	1.60E+08	2.28E+07	-1.01E+08	7.80E+07
	228.16	88.00	2.28E+07		6.53E+05	1.10E+07
BA-133	81.00	33.00	1.34E-01	1.20E-01	-3.51E-01	6.52E-02
	302.84	17.80	3.03E-01		1.34E-01	1.45E-01
	356.01	60.00	1.20E-01		1.11E-02	5.76E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	2.49E+04	2.49E+04	-6.55E+04	1.22E+04
CS-134	563.23	8.38	7.12E-01	7.28E-02	-1.10E-02	3.31E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	4.22E-01	7.28E-02	2.57E-01	1.98E-01
	604.70	97.60	7.28E-02		1.09E-02	3.41E-02
	795.84	85.40	1.03E-01		7.08E-02	4.82E-02
	801.93	8.73	8.62E-01		3.15E-01	3.98E-01
CS-135	268.24	16.00	3.08E-01	3.08E-01	-3.59E-02	1.48E-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	7.11E+01	8.24E+00	3.39E+01	3.44E+01
	163.89	4.61	1.13E+02		2.58E+01	5.45E+01
	176.55	13.56	3.71E+01		-6.67E+00	1.78E+01
	273.65	12.66	5.46E+01		5.97E+00	2.62E+01
	340.57	48.50	1.83E+01		2.40E+01	8.81E+00
	818.50	99.70	8.24E+00		-3.15E+00	3.76E+00
	1048.07	79.60	1.41E+01		-3.77E-01	6.52E+00
	1235.34	19.70	7.08E+01		-3.24E+01	3.28E+01
CS-137	661.65	85.12	8.15E-02	8.15E-02	3.52E-02	3.81E-02
LA-138	788.74	34.00	1.89E-01	8.75E-02	-1.01E-02	8.68E-02
	1435.80	66.00	8.75E-02		-4.37E-02	3.72E-02
CE-139	165.85	80.35	7.82E-02	7.82E-02	3.17E-02	3.77E-02
BA-140	162.64	6.70	8.65E+01	3.51E+01	-9.92E+00	4.17E+01
	304.84	4.50	1.65E+02		-9.97E+01	7.88E+01
	423.70	3.20	2.73E+02		6.15E+01	1.29E+02
	437.55	2.00	4.38E+02		1.79E+02	2.07E+02
	537.32	25.00	3.51E+01		3.77E+00	1.64E+01
LA-140	328.77	20.50	4.20E+01	1.35E+01	1.81E+01	2.01E+01
	487.03	45.50	2.05E+01		1.72E+00	9.69E+00
	815.85	23.50	4.07E+01		5.64E+00	1.86E+01
	1596.49	95.49	1.35E+01		6.40E+00	5.97E+00
CE-141	145.44	48.40	5.56E-01	5.56E-01	3.83E-02	2.69E-01
@ 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	4.14E-01	4.14E-01	-6.29E-02	2.00E-01
PM-144	476.78	42.00	1.37E-01	7.70E-02	6.92E-03	6.39E-02
	618.01	98.60	7.70E-02		3.11E-02	3.60E-02
	696.49	99.49	8.26E-02		2.59E-02	3.85E-02
PM-145	36.85	21.70	4.04E-01	2.15E-01	2.03E-02	1.96E-01
	37.36	39.70	2.15E-01		-3.23E-03	1.04E-01
	42.30	15.10	4.39E-01		-2.48E-01	2.13E-01
	72.40	2.31	2.27E+00		-3.83E+00	1.11E+00
PM-146	453.90	39.94	1.36E-01	1.36E-01	6.56E-02	6.41E-02
	735.90	14.01	4.89E-01		1.39E-01	2.26E-01
	747.13	13.10	4.82E-01		-2.29E-01	2.22E-01
ND-147	91.11	28.90	5.53E+01	5.53E+01	-3.25E+01	2.70E+01
	531.02	13.10	1.45E+02		-3.15E+01	6.75E+01
PM-149	285.90	3.10	6.83E+12	6.83E+12	-8.65E+11	3.26E+12
EU-152	121.78	20.50	1.80E-01	1.80E-01	4.19E-02	8.71E-02
	244.69	5.40	1.03E+00		1.79E-01	4.97E-01
	344.27	19.13	2.80E-01		3.01E-02	1.33E-01
	778.89	9.20	7.28E-01		-4.07E-01	3.36E-01
	964.01	10.40	7.91E-01		7.33E-02	3.66E-01
	1085.78	7.22	1.11E+00		1.61E-01	5.09E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	8.34E-01	1.80E-01	9.23E-02	3.80E-01
		1407.95		14.94	5.22E-01		3.19E-01	2.32E-01
	GD-153	97.43		31.30	1.44E-01	1.44E-01	-6.68E-02	6.99E-02
		103.18		22.20	2.09E-01		-5.41E-04	1.01E-01
	EU-154	123.07		40.50	9.19E-02	9.19E-02	1.29E-02	4.45E-02
		723.30		19.70	3.55E-01		-3.30E-01	1.65E-01
		873.19		11.50	6.67E-01		-9.50E-02	3.08E-01
		996.32		10.30	7.30E-01		4.34E-01	3.33E-01
		1004.76		17.90	3.86E-01		5.06E-02	1.75E-01
		1274.45		35.50	2.12E-01		3.53E-02	9.47E-02
+	EU-155	86.50	*	30.90	2.05E-01	1.75E-01	1.99E-01	1.01E-01
		105.30		20.70	1.75E-01		3.08E-02	8.50E-02
	EU-156	811.77		10.40	4.36E+01	4.36E+01	6.45E+00	2.00E+01
		1153.47		7.20	9.58E+01		6.07E+00	4.44E+01
		1230.71		8.90	7.97E+01		2.97E+01	3.69E+01
	HO-166M	184.41		72.60	6.68E-02	6.68E-02	9.20E-02	3.24E-02
		280.45		29.60	1.64E-01		5.56E-03	7.87E-02
		410.94		11.10	5.36E-01		6.89E-02	2.55E-01
		711.69		54.10	1.23E-01		1.03E-02	5.71E-02
	TM-171	66.72		0.14	3.68E+01	3.68E+01	-3.53E+01	1.79E+01
	HF-172	67.35		5.31	9.88E-01	3.53E-01	6.13E-01	4.82E-01
		125.81		11.30	3.53E-01		-1.44E-01	1.71E-01
	LU-172	181.53		20.60	3.01E+03	2.08E+03	-2.33E+02	1.45E+03
		900.72		29.81	3.24E+03		-5.50E+02	1.48E+03
		1093.66		62.50	2.08E+03		3.63E+02	9.58E+02
	LU-173	100.72		5.24	7.73E-01	2.74E-01	1.09E-01	3.75E-01
		272.11		21.20	2.74E-01		3.31E-02	1.32E-01
	HF-175	343.40		84.00	1.58E-01	1.58E-01	1.70E-02	7.51E-02
	LU-176	88.34		13.30	3.37E-01	4.77E-02	-1.11E-01	1.65E-01
		201.83		86.00	4.77E-02		-1.94E-03	2.29E-02
		306.78		94.00	4.94E-02		-6.20E-03	2.35E-02
	HF-181	133.02		41.70	3.92E-01	2.97E-01	-2.22E-01	1.90E-01
		345.85		17.20	1.40E+00		1.52E-01	6.65E-01
		482.03		82.80	2.97E-01		5.92E-03	1.39E-01
	TA-182	67.75		41.20	2.03E-01	2.03E-01	1.26E-01	9.90E-02
		1121.30		34.90	5.33E-01		2.91E-01	2.49E-01
		1189.05		16.23	1.06E+00		3.29E-01	4.91E-01
		1221.41		26.98	5.84E-01		-3.66E-01	2.67E-01
		1231.02		11.44	1.56E+00		5.82E-01	7.24E-01
	IR-192	308.46		29.68	3.66E-01	2.78E-01	-9.61E-02	1.74E-01
		468.07		48.10	2.78E-01		1.01E-01	1.31E-01
	HG-203	279.19		77.30	2.61E-01	2.61E-01	1.50E-01	1.25E-01
	TL-204	374.74		94.11	5.39E-02	5.39E-02	-3.91E-02	2.55E-02
		899.15		99.16	7.12E-02		-1.73E-02	3.25E-02
		911.74		91.10	1.38E-01		2.07E-01	6.55E-02
	BI-207	569.67		97.72	5.91E-02	5.91E-02	1.62E-02	2.76E-02
		1063.62		74.90	1.05E-01		1.53E-02	4.78E-02
+	TL-208	583.14	*	30.22	2.63E-01	3.60E-02	7.73E-01	1.25E-01
		860.37		4.48	1.66E+00		1.10E+00	7.66E-01
		2614.66	*	35.85	3.60E-02		5.73E-01	0.00E+00
	BI-210M	262.00		45.00	1.01E-01	1.01E-01	-4.91E-02	4.83E-02
		300.00		23.00	2.48E-01		9.98E-02	1.19E-01
	PB-210	46.50		4.25	1.51E+00	1.51E+00	1.91E+00	7.35E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.09E+00	2.09E+00	-2.49E-01	9.96E-01
		831.96		2.90	2.32E+00		-2.29E-01	1.07E+00
	BI-212	727.17		11.80	6.99E-01	6.99E-01	5.35E-01	3.29E-01
		1620.62		2.75	2.40E+00		9.55E-02	1.03E+00
+	PB-212	238.63	*	44.60	1.64E-01	1.64E-01	7.11E-01	8.00E-02
		300.09		3.41	1.67E+00		6.73E-01	8.05E-01
+	BI-214	609.31	*	46.30	2.16E-01	2.16E-01	4.60E-01	1.03E-01
		1120.29	*	15.10	6.58E-01		8.29E-01	3.06E-01
		1764.49	*	15.80	4.28E-01		3.82E-01	1.82E-01
		2204.22	*	4.98	9.57E-01		9.28E-01	3.61E-01
+	PB-214	295.21	*	19.19	2.99E-01	2.06E-01	5.82E-01	1.44E-01
		351.92	*	37.19	2.06E-01		5.74E-01	9.97E-02
+	RN-219	401.80	*	6.50	8.16E-01	8.16E-01	4.45E-01	3.86E-01
	RA-223	323.87		3.88	1.29E+00	1.29E+00	6.06E-02	6.13E-01
+	RA-224	240.98	*	3.95	1.85E+00	1.85E+00	1.81E+00	9.03E-01
	RA-225	40.00		31.00	1.86E+01	1.86E+01	1.01E+01	9.00E+00
+	RA-226	186.21	*	3.28	2.04E+00	2.04E+00	1.65E+00	9.97E-01
	TH-227	50.10		8.40	6.34E-01	6.34E-01	-4.00E-01	3.08E-01
		236.00		11.50	6.47E-01		1.40E-01	3.16E-01
		256.20		6.30	7.61E-01		-8.25E-02	3.65E-01
+	AC-228	338.32	*	11.40	6.24E-01	3.36E-01	7.83E-01	3.01E-01
		911.07	*	27.70	3.36E-01		7.50E-01	1.57E-01
		969.11	*	16.60	6.85E-01		7.97E-01	3.24E-01
	TH-230	48.44		16.90	3.48E-01	3.48E-01	2.48E-01	1.69E-01
		62.85		4.60	1.09E+00		1.35E-01	5.32E-01
		67.67		0.37	1.29E+01		7.98E+00	6.28E+00
	PA-231	283.67		1.60	3.01E+00	2.31E+00	1.02E+00	1.44E+00
		302.67		2.30	2.31E+00		1.02E+00	1.11E+00
	TH-231	25.64		14.70	2.23E+00	6.62E-01	-4.99E-01	1.08E+00
		84.21		6.40	6.62E-01		-3.43E-01	3.22E-01
	PA-233	311.98		38.60	1.33E+00	1.33E+00	4.33E-01	6.32E-01
	PA-234	131.20		20.40	1.84E-01	1.84E-01	9.01E-02	8.93E-02
		733.99		8.80	7.77E-01		7.08E-02	3.61E-01
		946.00		12.00	5.19E-01		-2.43E-01	2.34E-01
	PA-234M	1001.03		0.92	7.54E+00	7.54E+00	-6.75E-01	3.42E+00
	TH-234	63.29		3.80	1.32E+00	1.32E+00	4.71E-01	6.45E-01
	U-235	143.76		10.50	3.50E-01	3.50E-01	8.32E-02	1.69E-01
		163.35		4.70	8.24E-01		1.88E-01	3.98E-01
		205.31		4.70	1.07E+00		-3.35E-01	5.20E-01
+	NP-237	86.50	*	12.60	4.84E-01	4.84E-01	4.71E-01	2.38E-01
	NP-239	106.10		22.70	1.19E+11	1.19E+11	2.09E+10	5.79E+10
		228.18		10.70	3.70E+11		1.06E+10	1.79E+11
		277.60		14.10	2.73E+11		8.02E+10	1.31E+11
	AM-241	59.54		35.90	1.38E-01	1.38E-01	-5.83E-02	6.72E-02
+	AM-243	74.67	*	66.00	1.30E-01	1.30E-01	2.06E-01	6.43E-02
	CM-243	209.75		3.29	1.52E+00	3.59E-01	1.70E-01	7.34E-01
		228.14		10.60	4.87E-01		1.40E-02	2.35E-01
		277.60		14.00	3.59E-01		1.05E-01	1.72E-01

Analysis Report for 1707077-16

HTC-A01-S002-2430-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S002-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	4	167	167	132	103	101	76	100
17:	74	71	64	66	69	57	66	67
25:	64	82	83	64	83	72	89	76
33:	77	62	59	62	65	59	78	65
41:	71	74	56	67	78	89	112	94
49:	89	66	86	67	81	82	69	92
57:	102	90	99	108	106	108	118	147
65:	93	114	109	106	119	117	103	109
73:	120	146	238	256	245	308	170	115
81:	86	79	77	106	115	104	104	151
89:	117	96	104	103	156	156	103	61
97:	63	66	79	61	84	65	57	76
105:	60	70	65	57	48	79	62	56
113:	66	61	64	64	72	51	58	65
121:	62	80	52	61	63	64	58	63
129:	75	66	67	63	48	54	51	64
137:	62	44	48	53	58	44	52	60
145:	60	59	41	55	64	51	48	49
153:	70	59	70	46	47	59	47	51
161:	40	52	46	54	53	55	49	52
169:	51	38	47	49	48	42	42	40
177:	45	41	50	46	48	43	60	56
185:	56	95	81	49	40	46	40	48
193:	47	38	46	52	37	37	32	38
201:	55	39	46	36	52	46	48	45
209:	47	58	45	31	24	38	35	37
217:	28	43	36	38	37	30	39	33
225:	44	36	43	28	41	38	48	42
233:	42	40	19	28	38	110	288	172
241:	84	83	59	29	25	32	26	29
249:	16	30	36	36	31	25	28	22
257:	24	34	34	31	17	18	24	26
265:	20	28	29	19	27	33	37	38
273:	26	23	20	30	31	32	22	22
281:	30	24	23	21	22	19	28	23
289:	17	22	18	21	17	34	63	106
297:	38	25	29	31	43	23	26	21
305:	20	18	17	21	18	19	17	17
313:	23	17	23	11	18	18	17	17
321:	14	26	17	21	17	23	23	31
329:	36	21	22	17	21	23	11	24
337:	23	52	58	41	26	16	19	20
345:	16	19	26	19	20	22	42	122
353:	116	38	18	14	22	14	22	18
361:	17	19	11	14	12	27	14	16

369:	17	18	20	14	7	21	15	12

Sample Title: HTC-A01-S002-2430-01

Channel								
377:	17	15	18	22	19	18	19	21
385:	15	11	17	18	16	13	13	14
393:	12	12	17	17	14	14	17	12
401:	18	24	25	23	11	17	22	18
409:	18	29	17	22	14	13	19	14
417:	13	15	18	14	19	14	19	17
425:	19	8	15	13	13	15	16	17
433:	14	13	13	16	13	15	27	11
441:	10	9	13	10	8	9	12	4
449:	10	12	8	12	7	16	16	11
457:	14	5	9	15	8	14	27	14
465:	12	15	11	12	14	10	16	6
473:	6	10	10	10	8	9	11	5
481:	10	11	10	13	18	12	15	11
489:	8	21	9	14	8	9	5	11
497:	15	10	9	14	12	3	9	7
505:	11	8	15	15	16	43	36	42
513:	24	13	15	7	9	13	14	5
521:	8	3	10	9	7	8	10	7
529:	11	8	10	6	13	9	16	7
537:	11	9	10	9	11	8	11	5
545:	8	10	14	15	10	10	7	10
553:	9	5	5	11	10	8	11	8
561:	9	5	14	8	5	11	8	8
569:	11	13	9	11	5	8	7	9
577:	7	12	8	17	8	31	69	68
585:	22	5	11	10	8	9	12	8
593:	8	7	8	9	8	9	11	10
601:	9	12	7	12	11	7	10	17
609:	59	81	32	8	16	11	8	15
617:	8	9	9	8	12	5	7	9
625:	8	11	4	3	2	5	9	9
633:	5	8	9	9	15	8	2	5
641:	5	7	10	5	8	11	9	6
649:	4	15	3	6	5	4	9	11
657:	12	7	7	5	13	12	10	15
665:	10	6	6	12	15	6	3	7
673:	6	8	9	7	6	7	8	7
681:	5	9	8	9	10	15	11	8
689:	7	9	8	7	9	5	9	10
697:	9	9	11	12	5	9	6	8
705:	13	7	9	5	8	7	11	4
713:	9	10	9	8	9	4	6	7
721:	12	12	3	9	7	10	20	20
729:	16	6	6	9	10	8	13	8
737:	4	5	6	9	2	5	11	7
745:	4	8	8	2	8	7	12	6
753:	11	6	10	7	11	3	7	6
761:	11	6	10	9	4	9	10	10
769:	4	10	7	9	10	7	10	9
777:	9	4	5	5	5	11	12	9
785:	9	7	11	4	6	9	4	3
793:	10	16	9	14	9	7	6	12

801:	3	10	7	9	3	3	4	8

Sample Title: HTC-A01-S002-2430-01

Channel								
809:	7	7	5	4	5	6	9	4
817:	6	5	3	5	5	9	5	8
825:	9	4	8	8	7	7	8	5
833:	9	5	3	6	6	10	8	8
841:	10	5	7	3	5	4	6	3
849:	4	5	8	5	4	7	2	4
857:	8	6	7	10	9	6	5	6
865:	3	1	8	14	8	7	6	11
873:	8	7	8	4	4	8	11	7
881:	5	6	5	6	3	5	6	4
889:	6	7	5	2	4	9	6	10
897:	6	2	9	4	3	4	4	8
905:	6	1	4	6	10	20	37	39
913:	10	6	5	5	9	2	3	8
921:	7	3	5	9	4	6	7	3
929:	4	12	5	4	3	7	3	5
937:	6	2	5	3	7	6	2	4
945:	1	7	7	1	7	3	8	2
953:	5	2	7	5	1	5	6	1
961:	5	6	3	11	8	6	11	16
969:	29	15	12	4	8	2	3	4
977:	7	1	10	6	3	6	5	4
985:	2	10	7	7	8	4	3	2
993:	3	7	3	5	7	6	7	2
1001:	4	5	6	3	5	4	3	5
1009:	5	4	3	4	6	4	2	2
1017:	6	2	13	8	8	6	7	4
1025:	2	2	5	6	3	9	4	8
1033:	3	2	6	4	3	3	7	5
1041:	3	4	4	10	10	4	6	7
1049:	8	5	6	4	9	6	4	5
1057:	5	6	8	5	5	5	8	7
1065:	1	5	7	4	3	8	8	5
1073:	2	7	6	5	4	4	9	3
1081:	7	2	5	4	5	9	5	5
1089:	5	5	5	8	8	8	6	1
1097:	9	7	5	5	2	3	6	6
1105:	6	3	5	4	3	4	6	9
1113:	4	6	4	6	10	5	11	21
1121:	14	10	3	3	5	6	6	7
1129:	6	4	3	7	10	5	4	6
1137:	4	4	3	6	10	4	5	1
1145:	8	4	8	3	5	9	16	2
1153:	4	6	6	12	3	5	8	4
1161:	15	5	4	12	3	3	3	4
1169:	3	12	10	8	7	12	5	5
1177:	7	7	6	4	7	5	5	5
1185:	7	9	11	7	5	5	6	8
1193:	4	7	4	3	5	5	6	7
1201:	7	3	9	5	7	1	4	7
1209:	6	8	7	6	8	7	8	7
1217:	9	8	8	1	6	5	5	7
1225:	10	8	3	7	5	10	7	8

1233:	7	8	4	7	10	10	13	10

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Channel								
1241:	9	8	3	9	7	6	8	6
1249:	2	11	4	6	7	5	5	5
1257:	2	5	4	7	2	4	12	7
1265:	6	1	6	2	4	4	6	1
1273:	5	3	2	1	6	1	3	8
1281:	4	5	3	1	5	1	5	5
1289:	3	7	7	2	7	4	2	4
1297:	4	3	6	5	1	9	4	2
1305:	4	3	2	5	6	1	8	1
1313:	3	6	6	4	7	1	3	2
1321:	3	3	4	3	3	2	4	1
1329:	1	2	4	5	1	3	4	3
1337:	2	0	4	0	2	2	2	3
1345:	5	3	4	7	4	0	4	1
1353:	4	2	1	0	1	2	2	1
1361:	3	1	2	2	1	1	3	2
1369:	1	0	1	0	0	1	2	3
1377:	7	5	4	3	1	1	5	1
1385:	1	6	2	1	5	2	0	6
1393:	1	3	0	2	2	0	4	5
1401:	4	5	1	1	4	4	4	4
1409:	3	1	2	0	2	2	5	1
1417:	0	1	1	2	0	0	3	3
1425:	3	4	2	3	2	1	3	4
1433:	3	3	0	1	1	0	3	4
1441:	1	2	2	1	3	3	1	1
1449:	0	0	0	3	0	1	1	1
1457:	3	13	48	154	195	92	13	0
1465:	3	1	3	0	1	4	1	0
1473:	3	1	1	1	1	0	0	2
1481:	1	5	0	1	2	1	3	1
1489:	1	2	2	0	1	2	0	2
1497:	1	2	1	2	3	1	2	2
1505:	1	1	2	2	5	0	0	1
1513:	3	2	4	0	2	2	0	1
1521:	0	2	0	2	2	0	0	0
1529:	3	2	2	2	1	1	3	0
1537:	1	0	2	1	1	1	1	0
1545:	2	4	1	1	1	0	2	0
1553:	1	2	0	4	1	2	0	1
1561:	4	0	1	2	2	0	0	0
1569:	2	1	2	0	0	0	1	1
1577:	0	2	2	1	0	3	1	0
1585:	1	2	1	6	3	1	3	4
1593:	4	2	1	0	4	3	2	1
1601:	0	1	1	2	2	1	1	3
1609:	5	2	1	2	0	1	2	1
1617:	1	2	0	1	1	3	2	1
1625:	0	2	1	0	0	4	3	3
1633:	1	2	0	2	0	2	2	0
1641:	3	0	0	0	2	0	1	0
1649:	2	1	0	3	0	1	0	0
1657:	1	2	0	4	1	1	2	0

1665:	1	0	2	0	1	1	2	1

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

2097:	1	1	1	0	1	3	1	1

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

2529:	1	0	0	1	0	1	0	0

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Channel								
2537:	1	0	0	0	0	2	1	1
2545:	0	0	0	0	0	0	0	0
2553:	1	0	0	0	1	0	0	0
2561:	1	1	0	0	0	1	0	0
2569:	0	1	0	0	0	1	0	0
2577:	1	0	0	1	0	0	0	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	0	0	1	0	0
2601:	0	0	1	0	0	0	0	0
2609:	0	0	2	2	10	11	15	3
2617:	0	0	0	0	1	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	1	0	1	0	0	0	1	0
2641:	0	0	0	0	0	1	0	0
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	0	0	0	1
2681:	0	0	1	0	0	0	0	0
2689:	0	0	1	0	0	1	0	1
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	0	2	0	1	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	1	0	0	0	0	1	1	0
2737:	1	0	0	0	0	0	0	0
2745:	0	0	1	0	0	0	0	0
2753:	1	0	3	0	0	0	0	0
2761:	0	0	0	0	1	1	1	0
2769:	0	0	0	2	1	1	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	0	1	0	0	0	0
2801:	0	0	1	0	0	1	0	0
2809:	0	1	0	0	0	0	0	1
2817:	0	0	0	0	1	0	0	0
2825:	0	0	0	1	0	0	0	0
2833:	0	0	0	1	0	0	0	1
2841:	0	1	1	0	0	0	0	0
2849:	0	0	0	0	1	0	0	0
2857:	0	0	0	0	1	0	0	0
2865:	1	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	0	1
2881:	0	2	2	0	0	0	0	0
2889:	1	0	0	0	1	0	0	2
2897:	0	0	0	0	0	0	0	0
2905:	0	0	3	0	0	0	0	0
2913:	0	0	0	1	0	0	0	0
2921:	0	0	1	1	0	1	0	0
2929:	0	0	0	0	0	0	0	0
2937:	1	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	0	0	0	0	0

2961:	0	0	0	0	0	0	1	1

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-2430-01

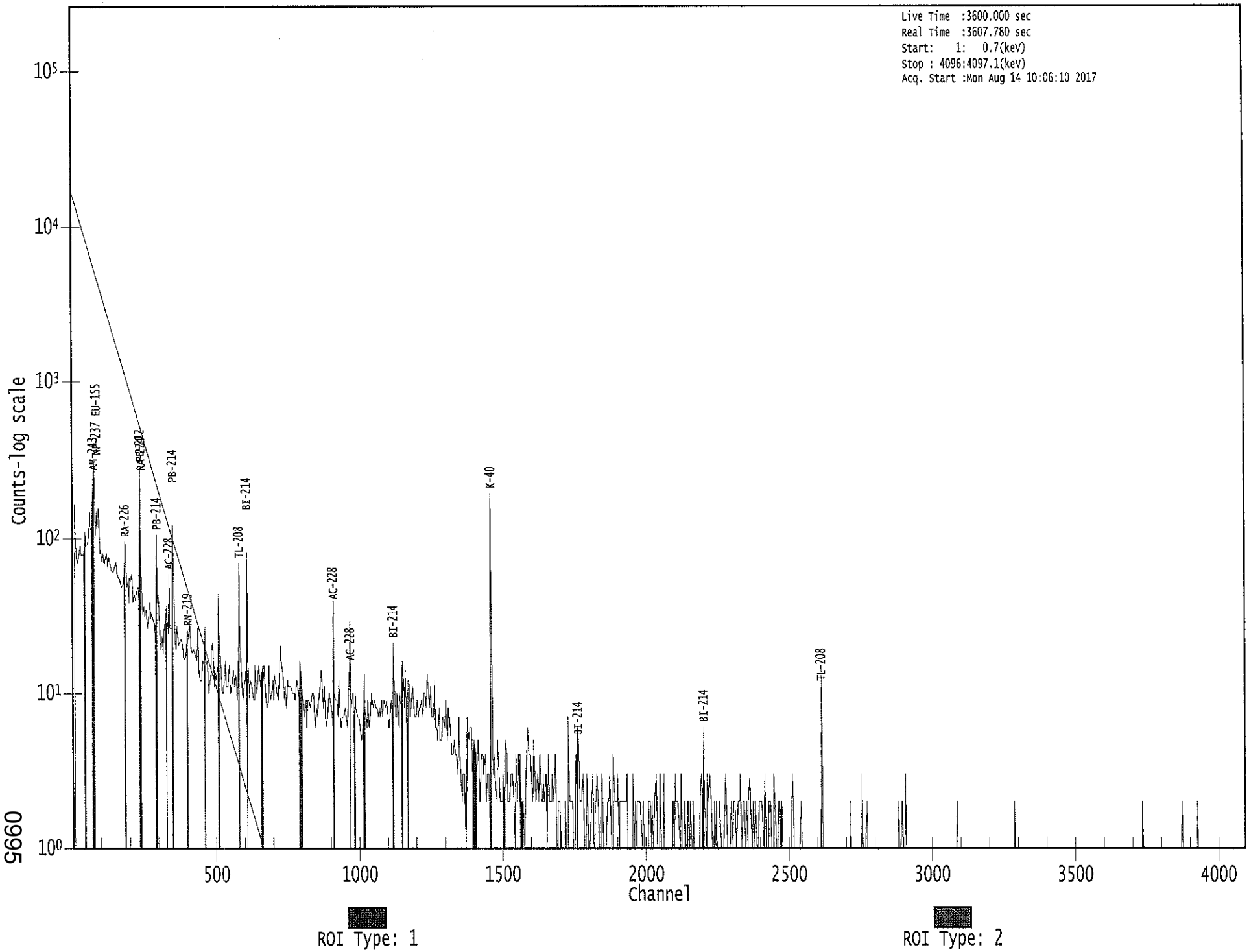
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	1	0	0	0	0	0
3417:	0	0	1	0	0	1	0	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	1	0	0	1
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	1	0	0	0	0	1	0	0
3473:	0	0	0	0	1	0	0	0
3481:	0	0	0	0	1	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	1	0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

3825:	1	0	0	0	1	0	0	0

Sample Title: HTC-A01-S002-2430-01

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

0000055157.CNF



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Apex-Gamma

8/14

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-17
Sample Description	: HTC-A01-S002-2430-02
Sample Type	: SOIL
Sample Size	: 6.804E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:39:18AM
Acquisition Started	: 8/14/2017 10:06:18AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.1 seconds
Dead Time	: 0.06 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55158

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 11:06:54AM
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	76.38	75.43	0.0000	0.00
2	86.97	86.03	0.0000	0.00
3	92.76	91.82	0.0000	0.00
4	129.39	128.46	0.0000	0.00
5	153.55	152.63	0.0000	0.00
6	164.86	163.94	0.0000	0.00
7	186.95	186.04	0.0000	0.00
8	209.17	208.27	0.0000	0.00
9	238.80	237.91	0.0000	0.00
10	241.91	241.02	0.0000	0.00
11	278.35	277.48	0.0000	0.00
12	291.87	291.00	0.0000	0.00
13	295.42	294.55	0.0000	0.00
14	338.67	337.81	0.0000	0.00
15	351.81	350.96	0.0000	0.00
16	393.29	392.45	0.0000	0.00
17	542.85	542.06	0.0000	0.00
18	547.27	546.48	0.0000	0.00
19	583.59	582.82	0.0000	0.00
20	609.49	608.73	0.0000	0.00
21	679.08	678.35	0.0000	0.00
22	743.93	743.22	0.0000	0.00
23	768.46	767.76	0.0000	0.00
24	771.93	771.24	0.0000	0.00
25	910.78	910.15	0.0000	0.00
26	964.86	964.25	0.0000	0.00
27	968.86	968.25	0.0000	0.00
28	984.17	983.56	0.0000	0.00
29	1053.06	1052.49	0.0000	0.00
30	1076.36	1075.79	0.0000	0.00
31	1120.83	1120.29	0.0000	0.00
32	1237.63	1237.14	0.0000	0.00
33	1243.93	1243.45	0.0000	0.00
34	1448.30	1447.91	0.0000	0.00
35	1460.50	1460.13	0.0000	0.00
36	1544.41	1544.07	0.0000	0.00
37	1620.85	1620.56	0.0000	0.00
38	1730.15	1729.92	0.0000	0.00
39	1764.65	1764.43	0.0000	0.00
40	1808.99	1808.80	0.0000	0.00
41	1822.64	1822.46	0.0000	0.00
42	2109.97	2109.96	0.0000	0.00

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2357.86	2358.00	0.0000	0.00
44	2494.52	2494.75	0.0000	0.00
45	2614.09	2614.41	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 11:06:54AM

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	76.38	70 -	80	75.43	6.38E+02	123.27	1.68E+03	4.70
m	2	86.97	82 -	88	86.03	8.67E+01	64.39	8.73E+02	1.68
	3	92.76	88 -	95	91.82	1.72E+02	90.49	1.21E+03	2.18
	4	129.39	125 -	132	128.46	8.75E+01	67.20	6.91E+02	4.31
	5	153.55	148 -	156	152.63	6.71E+01	72.01	7.58E+02	4.56
	6	164.86	159 -	168	163.94	1.08E+02	72.74	6.92E+02	5.78
	7	186.95	180 -	191	186.04	1.15E+02	87.86	8.94E+02	2.01
	8	209.17	205 -	212	208.27	6.32E+01	56.78	4.94E+02	2.27
M	9	238.80	231 -	245	237.91	4.45E+02	68.35	4.37E+02	2.56
m	10	241.91	231 -	245	241.02	8.98E+01	63.56	3.66E+02	2.37
	11	278.35	275 -	282	277.48	5.90E+01	42.10	2.56E+02	2.94
M	12	291.87	289 -	303	291.00	2.30E+01	24.41	1.44E+02	2.15
m	13	295.42	289 -	303	294.55	1.22E+02	46.09	2.67E+02	2.61
	14	338.67	333 -	343	337.81	7.32E+01	55.92	3.74E+02	2.35
	15	351.81	345 -	357	350.96	2.07E+02	64.85	4.00E+02	2.36
	16	393.29	389 -	396	392.45	3.91E+01	33.11	1.58E+02	5.17
M	17	542.85	538 -	548	542.06	2.29E+01	22.45	6.69E+01	3.34
m	18	547.27	538 -	548	546.48	1.49E+01	16.07	4.41E+01	2.24
	19	583.59	577 -	589	582.82	8.72E+01	48.26	2.30E+02	2.43
	20	609.49	604 -	614	608.73	1.64E+02	40.10	1.29E+02	3.12
	21	679.08	674 -	681	678.35	1.97E+01	24.58	8.65E+01	1.62
	22	743.93	741 -	747	743.22	1.71E+01	17.41	4.39E+01	2.82
M	23	768.46	765 -	775	767.76	2.55E+01	20.05	7.07E+01	2.62
m	24	771.93	765 -	775	771.24	1.96E+01	25.69	8.36E+01	2.62
	25	910.78	906 -	917	910.15	6.70E+01	35.04	1.20E+02	2.72
M	26	964.86	963 -	974	964.25	1.45E+01	11.63	3.44E+01	2.42
m	27	968.86	963 -	974	968.25	3.75E+01	25.06	8.31E+01	2.63
	28	984.17	982 -	986	983.56	1.09E+01	11.12	1.83E+01	1.37
	29	1053.06	1048 -	1057	1052.49	2.53E+01	18.63	3.54E+01	3.87
	30	1076.36	1073 -	1080	1075.79	1.65E+01	19.60	5.50E+01	4.10
	31	1120.83	1113 -	1127	1120.29	5.06E+01	35.61	1.11E+02	2.77
M	32	1237.63	1234 -	1256	1237.14	2.51E+01	15.81	2.80E+01	3.73
m	33	1243.93	1234 -	1256	1243.45	2.20E+01	23.92	4.80E+01	4.09
	34	1448.30	1443 -	1452	1447.91	1.37E+01	11.05	8.67E+00	5.92
	35	1460.50	1453 -	1465	1460.13	3.38E+02	38.22	1.17E+01	3.10
	36	1544.41	1540 -	1547	1544.07	1.40E+01	7.48	0.00E+00	2.67
	37	1620.85	1616 -	1624	1620.56	1.28E+01	8.96	4.33E+00	2.08
	38	1730.15	1726 -	1732	1729.92	5.00E+00	7.52	6.00E+00	1.95
	39	1764.65	1760 -	1767	1764.43	2.30E+01	9.59	0.00E+00	2.70
	40	1808.99	1806 -	1811	1808.80	5.00E+00	4.47	0.00E+00	2.41

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1822.64	1818 -	1825	1822.46	8.25E+00	7.48	3.50E+00	4.47
42	2109.97	2107 -	2112	2109.96	6.50E+00	6.40	3.00E+00	2.83
43	2357.86	2353 -	2360	2358.00	6.00E+00	4.90	0.00E+00	2.87
44	2494.52	2491 -	2498	2494.75	8.00E+00	5.66	0.00E+00	2.98
45	2614.09	2609 -	2618	2614.41	3.27E+01	12.85	4.54E+00	3.21

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 11:06:54AM

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	76.38	70 -	80	6.38E+02	123.27	1.68E+03	9.24E+01
m	2	86.97	82 -	88	8.67E+01	64.39	8.73E+02	4.86E+01
	3	92.76	88 -	95	1.72E+02	90.49	1.21E+03	7.12E+01
	4	129.39	125 -	132	8.75E+01	67.20	6.91E+02	5.31E+01
	5	153.55	148 -	156	6.71E+01	72.01	7.58E+02	5.76E+01
	6	164.86	159 -	168	1.08E+02	72.74	6.92E+02	5.73E+01
	7	186.95	180 -	191	1.15E+02	87.86	8.94E+02	7.00E+01
	8	209.17	205 -	212	6.32E+01	56.78	4.94E+02	4.48E+01
M	9	238.80	231 -	245	4.45E+02	68.35	4.37E+02	3.44E+01
m	10	241.91	231 -	245	8.98E+01	63.56	3.66E+02	3.14E+01
	11	278.35	275 -	282	5.90E+01	42.10	2.56E+02	3.22E+01
M	12	291.87	289 -	303	2.30E+01	24.41	1.44E+02	1.97E+01
m	13	295.42	289 -	303	1.22E+02	46.09	2.67E+02	2.68E+01
	14	338.67	333 -	343	7.32E+01	55.92	3.74E+02	4.38E+01
	15	351.81	345 -	357	2.07E+02	64.85	4.00E+02	4.78E+01
	16	393.29	389 -	396	3.91E+01	33.11	1.58E+02	2.52E+01
M	17	542.85	538 -	548	2.29E+01	22.45	6.69E+01	1.34E+01
m	18	547.27	538 -	548	1.49E+01	16.07	4.41E+01	1.09E+01
	19	583.59	577 -	589	8.72E+01	48.26	2.30E+02	3.66E+01
	20	609.49	604 -	614	1.64E+02	40.10	1.29E+02	2.54E+01
	21	679.08	674 -	681	1.97E+01	24.58	8.65E+01	1.88E+01
	22	743.93	741 -	747	1.71E+01	17.41	4.39E+01	1.26E+01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	23	768.46	765 -	775	2.55E+01	20.05	7.07E+01	1.38E+01
m	24	771.93	765 -	775	1.96E+01	25.69	8.36E+01	1.50E+01
	25	910.78	906 -	917	6.70E+01	35.04	1.20E+02	2.55E+01
M	26	964.86	963 -	974	1.45E+01	11.63	3.44E+01	9.65E+00
m	27	968.86	963 -	974	3.75E+01	25.06	8.31E+01	1.50E+01
	28	984.17	982 -	986	1.09E+01	11.12	1.83E+01	7.37E+00
	29	1053.06	1048 -	1057	2.53E+01	18.63	3.54E+01	1.29E+01
	30	1076.36	1073 -	1080	1.65E+01	19.60	5.50E+01	1.47E+01
	31	1120.83	1113 -	1127	5.06E+01	35.61	1.11E+02	2.68E+01
M	32	1237.63	1234 -	1256	2.51E+01	15.81	2.80E+01	8.70E+00
m	33	1243.93	1234 -	1256	2.20E+01	23.92	4.80E+01	1.14E+01
	34	1448.30	1443 -	1452	1.37E+01	11.05	8.67E+00	6.75E+00
	35	1460.50	1453 -	1465	3.38E+02	38.22	1.17E+01	8.54E+00
	36	1544.41	1540 -	1547	1.40E+01	7.48	0.00E+00	0.00E+00
	37	1620.85	1616 -	1624	1.28E+01	8.96	4.33E+00	4.42E+00
	38	1730.15	1726 -	1732	5.00E+00	7.52	6.00E+00	4.97E+00
	39	1764.65	1760 -	1767	2.30E+01	9.59	0.00E+00	0.00E+00
	40	1808.99	1806 -	1811	5.00E+00	4.47	0.00E+00	0.00E+00
	41	1822.64	1818 -	1825	8.25E+00	7.48	3.50E+00	3.94E+00
	42	2109.97	2107 -	2112	6.50E+00	6.40	3.00E+00	3.18E+00
	43	2357.86	2353 -	2360	6.00E+00	4.90	0.00E+00	0.00E+00
	44	2494.52	2491 -	2498	8.00E+00	5.66	0.00E+00	0.00E+00
	45	2614.09	2609 -	2618	3.27E+01	12.85	4.54E+00	4.80E+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 : 8/14/2017 11:06:54AM

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	76.38	70 -	80	75.43	6.38E+02	123.27	1.68E+03	.....
m	2	86.97	82 -	88	86.03	8.67E+01	64.39	8.73E+02	NP-237

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									EU-155
									SN-126
	3	92.76	88 -	95	91.82	1.72E+02	90.49	1.21E+03	GA-67
	4	129.39	125 -	132	128.46	8.75E+01	67.20	6.91E+02	.....
	5	153.55	148 -	156	152.63	6.71E+01	72.01	7.58E+02	CS-136
	6	164.86	159 -	168	163.94	1.08E+02	72.74	6.92E+02	CS-136
									CE-139
	7	186.95	180 -	191	186.04	1.15E+02	87.86	8.94E+02	RA-226
	8	209.17	205 -	212	208.27	6.32E+01	56.78	4.94E+02	GA-67
									CM-243
M	9	238.80	231 -	245	237.91	4.45E+02	68.35	4.37E+02	PB-212
m	10	241.91	231 -	245	241.02	8.98E+01	63.56	3.66E+02	RA-224
	11	278.35	275 -	282	277.48	5.90E+01	42.10	2.56E+02	CM-243
									NP-239
									HG-203
M	12	291.87	289 -	303	291.00	2.30E+01	24.41	1.44E+02	.....
m	13	295.42	289 -	303	294.55	1.22E+02	46.09	2.67E+02	PB-214
	14	338.67	333 -	343	337.81	7.32E+01	55.92	3.74E+02	AC-228
	15	351.81	345 -	357	350.96	2.07E+02	64.85	4.00E+02	PB-214
	16	393.29	389 -	396	392.45	3.91E+01	33.11	1.58E+02	.....
M	17	542.85	538 -	548	542.06	2.29E+01	22.45	6.69E+01	.....
m	18	547.27	538 -	548	546.48	1.49E+01	16.07	4.41E+01	.....
	19	583.59	577 -	589	582.82	8.72E+01	48.26	2.30E+02	TL-208
	20	609.49	604 -	614	608.73	1.64E+02	40.10	1.29E+02	BI-214
	21	679.08	674 -	681	678.35	1.97E+01	24.58	8.65E+01	.....
	22	743.93	741 -	747	743.22	1.71E+01	17.41	4.39E+01	.....
M	23	768.46	765 -	775	767.76	2.55E+01	20.05	7.07E+01	.....
m	24	771.93	765 -	775	771.24	1.96E+01	25.69	8.36E+01	.....
	25	910.78	906 -	917	910.15	6.70E+01	35.04	1.20E+02	AC-228
									TL-204
M	26	964.86	963 -	974	964.25	1.45E+01	11.63	3.44E+01	EU-152
m	27	968.86	963 -	974	968.25	3.75E+01	25.06	8.31E+01	AC-228
	28	984.17	982 -	986	983.56	1.09E+01	11.12	1.83E+01	V-48
	29	1053.06	1048 -	1057	1052.49	2.53E+01	18.63	3.54E+01	.....
	30	1076.36	1073 -	1080	1075.79	1.65E+01	19.60	5.50E+01	.....
	31	1120.83	1113 -	1127	1120.29	5.06E+01	35.61	1.11E+02	SC-46
									TA-182
									BI-214
M	32	1237.63	1234 -	1256	1237.14	2.51E+01	15.81	2.80E+01	CO-56
m	33	1243.93	1234 -	1256	1243.45	2.20E+01	23.92	4.80E+01	.....
	34	1448.30	1443 -	1452	1447.91	1.37E+01	11.05	8.67E+00	.....
	35	1460.50	1453 -	1465	1460.13	3.38E+02	38.22	1.17E+01	K-40
	36	1544.41	1540 -	1547	1544.07	1.40E+01	7.48	0.00E+00	.....
	37	1620.85	1616 -	1624	1620.56	1.28E+01	8.96	4.33E+00	BI-212
	38	1730.15	1726 -	1732	1729.92	5.00E+00	7.52	6.00E+00	.....
	39	1764.65	1760 -	1767	1764.43	2.30E+01	9.59	0.00E+00	BI-214
	40	1808.99	1806 -	1811	1808.80	5.00E+00	4.47	0.00E+00	AL-26
	41	1822.64	1818 -	1825	1822.46	8.25E+00	7.48	3.50E+00	.....
	42	2109.97	2107 -	2112	2109.96	6.50E+00	6.40	3.00E+00	.....
	43	2357.86	2353 -	2360	2358.00	6.00E+00	4.90	0.00E+00	.....
	44	2494.52	2491 -	2498	2494.75	8.00E+00	5.66	0.00E+00	.....
	45	2614.09	2609 -	2618	2614.41	3.27E+01	12.85	4.54E+00	TL-208

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 11:06:54AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.38	6.38E+02	123.27	2.33E-02	1.92E-03
m	2	86.97	8.67E+01	64.39	2.37E-02	2.14E-03
	3	92.76	1.72E+02	90.49	2.37E-02	2.09E-03
	4	129.39	8.75E+01	67.20	2.15E-02	1.62E-03
	5	153.55	6.71E+01	72.01	1.95E-02	1.54E-03
	6	164.86	1.08E+02	72.74	1.86E-02	1.50E-03
	7	186.95	1.15E+02	87.86	1.69E-02	1.39E-03
	8	209.17	6.32E+01	56.78	1.53E-02	1.29E-03
M	9	238.80	4.45E+02	68.35	1.36E-02	1.14E-03
m	10	241.91	8.98E+01	63.56	1.34E-02	1.13E-03
	11	278.35	5.90E+01	42.10	1.17E-02	9.51E-04
M	12	291.87	2.30E+01	24.41	1.12E-02	9.20E-04
m	13	295.42	1.22E+02	46.09	1.10E-02	9.13E-04
	14	338.67	7.32E+01	55.92	9.59E-03	8.22E-04
	15	351.81	2.07E+02	64.85	9.22E-03	7.94E-04
	16	393.29	3.91E+01	33.11	8.22E-03	7.10E-04
M	17	542.85	2.29E+01	22.45	5.91E-03	6.48E-04
m	18	547.27	1.49E+01	16.07	5.86E-03	6.46E-04
	19	583.59	8.72E+01	48.26	5.50E-03	6.31E-04
	20	609.49	1.64E+02	40.10	5.27E-03	6.20E-04
	21	679.08	1.97E+01	24.58	4.75E-03	5.77E-04
	22	743.93	1.71E+01	17.41	4.36E-03	4.95E-04
M	23	768.46	2.55E+01	20.05	4.23E-03	4.65E-04
m	24	771.93	1.96E+01	25.69	4.21E-03	4.60E-04
	25	910.78	6.70E+01	35.04	3.62E-03	2.99E-04
M	26	964.86	1.45E+01	11.63	3.44E-03	2.86E-04
m	27	968.86	3.75E+01	25.06	3.43E-03	2.85E-04
	28	984.17	1.09E+01	11.12	3.38E-03	2.82E-04
	29	1053.06	2.53E+01	18.63	3.18E-03	2.66E-04
	30	1076.36	1.65E+01	19.60	3.12E-03	2.60E-04
	31	1120.83	5.06E+01	35.61	3.01E-03	2.50E-04
M	32	1237.63	2.51E+01	15.81	2.76E-03	2.33E-04
m	33	1243.93	2.20E+01	23.92	2.75E-03	2.33E-04
	34	1448.30	1.37E+01	11.05	2.40E-03	2.10E-04

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1460.50	3.38E+02	38.22	2.39E-03	2.08E-04
36	1544.41	1.40E+01	7.48	2.27E-03	1.95E-04
37	1620.85	1.28E+01	8.96	2.17E-03	1.84E-04
38	1730.15	5.00E+00	7.52	2.04E-03	1.67E-04
39	1764.65	2.30E+01	9.59	2.00E-03	1.62E-04
40	1808.99	5.00E+00	4.47	1.95E-03	1.55E-04
41	1822.64	8.25E+00	7.48	1.94E-03	1.53E-04
42	2109.97	6.50E+00	6.40	1.66E-03	1.51E-04
43	2357.86	6.00E+00	4.90	1.46E-03	1.51E-04
44	2494.52	8.00E+00	5.66	1.36E-03	1.51E-04
45	2614.09	3.27E+01	12.85	1.28E-03	1.51E-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 : 8/14/2017 11:06:54AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.38	6.38E+02	123.27			6.38E+02	1.23E+02
m	2	86.97	8.67E+01	64.39			8.67E+01	6.44E+01
	3	92.76	1.72E+02	90.49	6.21E+01	4.71E+00	1.10E+02	9.06E+01
	4	129.39	8.75E+01	67.20			8.75E+01	6.72E+01
	5	153.55	6.71E+01	72.01			6.71E+01	7.20E+01
	6	164.86	1.08E+02	72.74			1.08E+02	7.27E+01
	7	186.95	1.15E+02	87.86			1.15E+02	8.79E+01
	8	209.17	6.32E+01	56.78			6.32E+01	5.68E+01
M	9	238.80	4.45E+02	68.35	8.90E+00	6.12E+00	4.36E+02	6.86E+01
m	10	241.91	8.98E+01	63.56			8.98E+01	6.36E+01
	11	278.35	5.90E+01	42.10			5.90E+01	4.21E+01
M	12	291.87	2.30E+01	24.41			2.30E+01	2.44E+01
m	13	295.42	1.22E+02	46.09			1.22E+02	4.61E+01
	14	338.67	7.32E+01	55.92			7.32E+01	5.59E+01
	15	351.81	2.07E+02	64.85			2.07E+02	6.48E+01
	16	393.29	3.91E+01	33.11			3.91E+01	3.31E+01
M	17	542.85	2.29E+01	22.45			2.29E+01	2.24E+01
m	18	547.27	1.49E+01	16.07			1.49E+01	1.61E+01
	19	583.59	8.72E+01	48.26	3.56E+00	2.78E+00	8.36E+01	4.83E+01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	20	609.49	1.64E+02	40.10			1.64E+02	4.01E+01
	21	679.08	1.97E+01	24.58			1.97E+01	2.46E+01
	22	743.93	1.71E+01	17.41			1.71E+01	1.74E+01
M	23	768.46	2.55E+01	20.05			2.55E+01	2.00E+01
m	24	771.93	1.96E+01	25.69			1.96E+01	2.57E+01
	25	910.78	6.70E+01	35.04			6.70E+01	3.50E+01
M	26	964.86	1.45E+01	11.63			1.45E+01	1.16E+01
m	27	968.86	3.75E+01	25.06			3.75E+01	2.51E+01
	28	984.17	1.09E+01	11.12			1.09E+01	1.11E+01
	29	1053.06	2.53E+01	18.63			2.53E+01	1.86E+01
	30	1076.36	1.65E+01	19.60			1.65E+01	1.96E+01
	31	1120.83	5.06E+01	35.61			5.06E+01	3.56E+01
M	32	1237.63	2.51E+01	15.81			2.51E+01	1.58E+01
m	33	1243.93	2.20E+01	23.92			2.20E+01	2.39E+01
	34	1448.30	1.37E+01	11.05			1.37E+01	1.10E+01
	35	1460.50	3.38E+02	38.22			3.38E+02	3.82E+01
	36	1544.41	1.40E+01	7.48			1.40E+01	7.48E+00
	37	1620.85	1.28E+01	8.96			1.28E+01	8.96E+00
	38	1730.15	5.00E+00	7.52			5.00E+00	7.52E+00
	39	1764.65	2.30E+01	9.59			2.30E+01	9.59E+00
	40	1808.99	5.00E+00	4.47			5.00E+00	4.47E+00
	41	1822.64	8.25E+00	7.48			8.25E+00	7.48E+00
	42	2109.97	6.50E+00	6.40			6.50E+00	6.40E+00
	43	2357.86	6.00E+00	4.90			6.00E+00	4.90E+00
	44	2494.52	8.00E+00	5.66			8.00E+00	5.66E+00
	45	2614.09	3.27E+01	12.85			3.27E+01	1.28E+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 : 8/14/2017 11:06:54AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.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	76.38	6.38E+02	123.27			6.38E+02	1.23E+02
m	2	86.97	8.67E+01	64.39			8.67E+01	6.44E+01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	3	92.76	1.72E+02	90.49	6.21E+01	4.71E+00	1.10E+02	9.06E+01
	4	129.39	8.75E+01	67.20			8.75E+01	6.72E+01
	5	153.55	6.71E+01	72.01			6.71E+01	7.20E+01
	6	164.86	1.08E+02	72.74			1.08E+02	7.27E+01
	7	186.95	1.15E+02	87.86			1.15E+02	8.79E+01
	8	209.17	6.32E+01	56.78			6.32E+01	5.68E+01
M	9	238.80	4.45E+02	68.35	8.90E+00	6.12E+00	4.36E+02	6.86E+01
m	10	241.91	8.98E+01	63.56			8.98E+01	6.36E+01
	11	278.35	5.90E+01	42.10			5.90E+01	4.21E+01
M	12	291.87	2.30E+01	24.41			2.30E+01	2.44E+01
m	13	295.42	1.22E+02	46.09			1.22E+02	4.61E+01
	14	338.67	7.32E+01	55.92			7.32E+01	5.59E+01
	15	351.81	2.07E+02	64.85			2.07E+02	6.48E+01
	16	393.29	3.91E+01	33.11			3.91E+01	3.31E+01
M	17	542.85	2.29E+01	22.45			2.29E+01	2.24E+01
m	18	547.27	1.49E+01	16.07			1.49E+01	1.61E+01
	19	583.59	8.72E+01	48.26	3.56E+00	2.78E+00	8.36E+01	4.83E+01
	20	609.49	1.64E+02	40.10			1.64E+02	4.01E+01
	21	679.08	1.97E+01	24.58			1.97E+01	2.46E+01
	22	743.93	1.71E+01	17.41			1.71E+01	1.74E+01
M	23	768.46	2.55E+01	20.05			2.55E+01	2.00E+01
m	24	771.93	1.96E+01	25.69			1.96E+01	2.57E+01
	25	910.78	6.70E+01	35.04			6.70E+01	3.50E+01
M	26	964.86	1.45E+01	11.63			1.45E+01	1.16E+01
m	27	968.86	3.75E+01	25.06			3.75E+01	2.51E+01
	28	984.17	1.09E+01	11.12			1.09E+01	1.11E+01
	29	1053.06	2.53E+01	18.63			2.53E+01	1.86E+01
	30	1076.36	1.65E+01	19.60			1.65E+01	1.96E+01
	31	1120.83	5.06E+01	35.61			5.06E+01	3.56E+01
M	32	1237.63	2.51E+01	15.81			2.51E+01	1.58E+01
m	33	1243.93	2.20E+01	23.92			2.20E+01	2.39E+01
	34	1448.30	1.37E+01	11.05			1.37E+01	1.10E+01
	35	1460.50	3.38E+02	38.22			3.38E+02	3.82E+01
	36	1544.41	1.40E+01	7.48			1.40E+01	7.48E+00
	37	1620.85	1.28E+01	8.96			1.28E+01	8.96E+00
	38	1730.15	5.00E+00	7.52			5.00E+00	7.52E+00
	39	1764.65	2.30E+01	9.59			2.30E+01	9.59E+00
	40	1808.99	5.00E+00	4.47			5.00E+00	4.47E+00
	41	1822.64	8.25E+00	7.48			8.25E+00	7.48E+00
	42	2109.97	6.50E+00	6.40			6.50E+00	6.40E+00
	43	2357.86	6.00E+00	4.90			6.00E+00	4.90E+00
	44	2494.52	8.00E+00	5.66			8.00E+00	5.66E+00
	45	2614.09	3.27E+01	12.85			3.27E+01	1.28E+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 1707077-17

HTC-A01-S002-2430-02

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
AL-26	0.982	1808.65	*	99.76	2.84E-02	2.55E-02
K-40	0.985	1460.81	*	10.67	1.47E+01	2.11E+00
SN-126	0.944	87.57	*	37.00	1.09E-01	8.17E-02
CE-139	0.852	165.85	*	80.35	1.28E-01	8.65E-02
EU-155	0.341	86.50	*	30.90	1.35E-01	1.01E-01
		105.30		20.70		
TL-208	0.844	583.14	*	30.22	5.55E-01	3.27E-01
		860.37		4.48		
		2614.66	*	35.85	7.87E-01	3.23E-01
PB-212	0.893	238.63	*	44.60	7.94E-01	1.42E-01
		300.09		3.41		
BI-214	0.926	609.31	*	46.30	7.40E-01	2.01E-01
		1120.29	*	15.10	1.23E+00	8.69E-01
		1764.49	*	15.80	8.04E-01	3.41E-01
		2204.22		4.98		
PB-214	0.996	295.21	*	19.19	6.38E-01	2.46E-01
		351.92	*	37.19	6.66E-01	2.16E-01
RA-224	0.871	240.98	*	3.95	1.87E+00	1.33E+00
RA-226	0.916	186.21	*	3.28	2.30E+00	4.56E+00
AC-228	0.987	338.32	*	11.40	7.39E-01	5.68E-01
		911.07	*	27.70	7.37E-01	3.90E-01
		969.11	*	16.60	7.27E-01	4.90E-01
NP-237	0.965	86.50	*	12.60	3.21E-01	2.40E-01
CM-243	0.315	209.75	*	3.29	1.39E+00	1.26E+00
		228.14		10.60		
		277.60	*	14.00	4.00E-01	2.87E-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 1707077-17

HTC-A01-S002-2430-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 11:06:54AM
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	76.38	1.77096E-01	9.67		
	3	92.76	3.06179E-02	41.10	Tol.	GA-67
	4	129.39	2.43091E-02	38.40		
	5	153.55	1.86435E-02	53.65	Tol.	CS-136
M	12	291.87	6.40184E-03	52.96		
	16	393.29	1.08557E-02	42.36		
M	17	542.85	6.35717E-03	49.05		
m	18	547.27	4.14781E-03	53.81	Sum	
	21	679.08	5.48060E-03	62.28		
	22	743.93	4.74003E-03	51.00		
M	23	768.46	7.08445E-03	39.31		
m	24	771.93	5.44759E-03	65.50		
M	26	964.86	4.03237E-03	40.06	Tol.	EU-152
	28	984.17	3.01389E-03	51.26		
	29	1053.06	7.02196E-03	36.84		
	30	1076.36	4.58965E-03	59.30	Sum	
M	32	1237.63	6.96804E-03	31.52	Tol.	CO-56
m	33	1243.93	6.11419E-03	54.33		
	34	1448.30	3.79630E-03	40.41		
	36	1544.41	3.88889E-03	26.73		
	37	1620.85	3.56482E-03	34.90	Tol.	BI-212
	38	1730.15	1.38889E-03	75.17	Sum	
	41	1822.64	2.29167E-03	45.35		
	42	2109.97	1.80556E-03	49.25		
	43	2357.86	1.66667E-03	40.82		
	44	2494.52	2.22222E-03	35.36		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AL-26	0.98	1808.65	*	99.76	2.84E-02	2.55E-02
K-40	0.98	1460.81	*	10.67	1.47E+01	2.11E+00
SN-126	0.94	87.57	*	37.00	1.09E-01	8.17E-02
CE-139	0.85	165.85	*	80.35	1.28E-01	8.65E-02
EU-155	0.34	86.50	*	30.90	1.35E-01	1.01E-01
		105.30		20.70		
TL-208	0.84	583.14	*	30.22	5.55E-01	3.27E-01
		860.37		4.48		
		2614.66	*	35.85	7.87E-01	3.23E-01
PB-212	0.89	238.63	*	44.60	7.94E-01	1.42E-01
		300.09		3.41		
BI-214	0.92	609.31	*	46.30	7.40E-01	2.01E-01
		1120.29	*	15.10	1.23E+00	8.69E-01
		1764.49	*	15.80	8.04E-01	3.41E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	6.38E-01	2.46E-01
		351.92	*	37.19	6.66E-01	2.16E-01
RA-224	0.87	240.98	*	3.95	1.87E+00	1.33E+00
RA-226	0.91	186.21	*	3.28	2.30E+00	4.56E+00
AC-228	0.98	338.32	*	11.40	7.39E-01	5.68E-01
		911.07	*	27.70	7.37E-01	3.90E-01
		969.11	*	16.60	7.27E-01	4.90E-01
NP-237	0.96	86.50	*	12.60	3.21E-01	2.40E-01
CM-243	0.31	209.75	*	3.29	1.39E+00	1.26E+00
		228.14		10.60		
		277.60	*	14.00	4.00E-01	2.87E-01

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	AL-26	0.982	2.84E-02	2.55E-02	
	K-40	0.985	1.47E+01	2.11E+00	
?	SN-126	0.944	1.09E-01	8.17E-02	
	CE-139	0.852	1.28E-01	8.65E-02	
?	EU-155	0.341	1.35E-01	1.01E-01	
X	HG-203	0.877			
	TL-208	0.844	6.73E-01	2.30E-01	
	PB-212	0.893	7.94E-01	1.42E-01	
	BI-214	0.926	7.75E-01	1.70E-01	
	PB-214	0.996	6.54E-01	1.63E-01	
	RA-224	0.871	1.87E+00	1.33E+00	
	RA-226	0.916	2.30E+00	4.56E+00	
	AC-228	0.987	7.35E-01	2.69E-01	
?	NP-237	0.965	3.21E-01	2.40E-01	
	CM-243	0.315	4.49E-01	2.80E-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 1707077-17

HTC-A01-S002-2430-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 11:06:54AM
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	76.38	1.77096E-01	9.67		
	3	92.76	3.06179E-02	41.10	Tol.	GA-67
	4	129.39	2.43091E-02	38.40		
	5	153.55	1.86435E-02	53.65	Tol.	CS-136
M	12	291.87	6.40184E-03	52.96		
	16	393.29	1.08557E-02	42.36		
M	17	542.85	6.35717E-03	49.05		
m	18	547.27	4.14781E-03	53.81	Sum	
	21	679.08	5.48060E-03	62.28		
	22	743.93	4.74003E-03	51.00		
M	23	768.46	7.08445E-03	39.31		
m	24	771.93	5.44759E-03	65.50		
M	26	964.86	4.03237E-03	40.06	Tol.	EU-152
	28	984.17	3.01389E-03	51.26		
	29	1053.06	7.02196E-03	36.84		
	30	1076.36	4.58965E-03	59.30	Sum	
M	32	1237.63	6.96804E-03	31.52	Tol.	CO-56
m	33	1243.93	6.11419E-03	54.33		
	34	1448.30	3.79630E-03	40.41		
	36	1544.41	3.88889E-03	26.73		
	37	1620.85	3.56482E-03	34.90	Tol.	BI-212
	38	1730.15	1.38889E-03	75.17	Sum	
	41	1822.64	2.29167E-03	45.35		
	42	2109.97	1.80556E-03	49.25		
	43	2357.86	1.66667E-03	40.82		
	44	2494.52	2.22222E-03	35.36		

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

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

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	7.77E-01	2.17E+00	2.17E+00
+		NA-22	1274.54		99.94	-1.74E-02	1.20E-01	1.20E-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	2.84E-02	1.53E-02	1.53E-02
+		K-40	1460.81	*	10.67	1.47E+01	8.58E-01	8.58E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-2.12E-02	6.04E-02	6.04E-02
			78.34		96.00	2.20E-01		7.62E-02
+		SC-46	889.25		99.98	-4.89E-02	2.16E-01	2.16E-01
			1120.51		99.99	3.66E-01		3.54E-01
+		V-48	983.52		99.98	-1.46E+00	5.66E+00	5.66E+00
			1312.10		97.50	4.27E-01		6.23E+00
+		CR-51	320.08		9.83	-3.54E+00	5.75E+00	5.75E+00
+		MN-54	834.83		99.97	5.40E-03	1.32E-01	1.32E-01
+		CO-56	846.75		99.96	-7.55E-02	2.17E-01	2.17E-01
			1037.75		14.03	7.44E-01		1.84E+00
			1238.25		67.00	-5.16E-02		4.86E-01
			1771.40		15.51	-1.19E+00		1.14E+00
			2598.48		16.90	-1.15E-01		1.07E+00
+		CO-57	122.06		85.51	4.41E-03	6.76E-02	6.76E-02
			136.48		10.60	3.69E-01		5.84E-01
+		CO-58	810.76		99.40	2.38E-02	2.23E-01	2.23E-01
+		FE-59	1099.22		56.50	-3.67E-02	8.87E-01	8.87E-01
			1291.56		43.20	1.22E-01		1.04E+00
+		CO-60	1173.22		100.00	-4.40E-02	1.08E-01	1.44E-01
			1332.49		100.00	-1.12E-02		1.08E-01
+		ZN-65	1115.52		50.75	1.62E-02	3.45E-01	3.45E-01
+		GA-67	93.31		35.70	8.28E+07	6.29E+07	6.29E+07
			208.95		2.24	4.95E+08		9.98E+08
			300.22		16.00	-1.74E+08		1.50E+08
+		SE-75	121.11		16.70	-5.39E-02	1.35E-01	4.68E-01
			136.00		59.20	1.76E-02		1.35E-01
			264.65		59.80	-1.30E-01		1.49E-01
			279.53		25.20	3.50E-01		4.09E-01
			400.65		11.40	3.46E-03		9.88E-01
+		RB-82	776.52		13.00	8.35E-01	9.48E+00	9.48E+00
+		RB-83	520.41		46.00	-1.01E-01	2.95E-01	2.95E-01
			529.64		30.30	1.78E-01		5.36E-01
			552.65		16.40	4.29E-02		8.95E-01
+		KR-85	513.99		0.43	2.29E+01	2.38E+01	2.38E+01
+		SR-85	513.99		99.27	2.66E-01	2.77E-01	2.77E-01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	6.15E-02	1.59E-01	1.96E-01
		1836.01		99.38	5.09E-02		1.59E-01
+	MO-93	263.06		56.72	-6.05E-02	8.35E-02	9.51E-02
		684.67		99.68	2.05E-02		9.87E-02
		1477.11		99.08	1.18E-02		8.35E-02
+	NB-93M	16.57		9.43	1.34E+01	6.57E+00	6.57E+00
+	NB-94	702.63		100.00	1.38E-02	9.79E-02	9.79E-02
		871.10		100.00	7.32E-02		1.14E-01
+	NB-95	765.79		99.81	3.52E-02	6.54E-01	6.54E-01
+	NB-95M	235.69		25.00	3.02E+07	2.02E+07	2.02E+07
+	ZR-95	724.18		43.70	1.71E-01	5.16E-01	6.69E-01
		756.72		55.30	3.59E-01		5.16E-01
+	MO-99	181.06		6.20	-2.29E+08	1.06E+10	1.25E+10
		739.58		12.80	-5.00E+09		1.06E+10
		778.00		4.50	4.52E+09		3.34E+10
+	RU-103	497.08		89.00	2.87E-01	4.17E-01	4.17E-01
+	RU-106	621.84		9.80	4.14E-01	1.04E+00	1.04E+00
+	AG-108M	433.93		89.90	-2.48E-03	7.30E-02	7.30E-02
		614.37		90.40	-8.22E-04		9.26E-02
		722.95		90.50	6.35E-02		1.19E-01
+	CD-109	88.03		3.72	3.71E-02	1.85E+00	1.85E+00
+	AG-110M	657.75		93.14	5.07E-02	1.36E-01	1.36E-01
		677.61		10.53	3.79E-01		1.16E+00
		706.67		16.46	-2.46E-02		7.79E-01
		763.93		21.98	-4.06E-03		5.49E-01
		884.67		71.63	-2.41E-02		1.78E-01
		1384.27		23.94	4.21E-03		5.22E-01
+	CD-113M	263.70		0.02	-1.71E+02	2.30E+02	2.30E+02
+	SN-113	255.12		1.93	-1.40E+00	1.80E-01	4.98E+00
		391.69		64.90	3.05E-02		1.80E-01
+	TE123M	159.00		84.10	5.37E-03	9.80E-02	9.80E-02
+	SB-124	602.71		97.87	3.49E-02	2.24E-01	2.24E-01
		645.85		7.26	7.48E-01		3.23E+00
		722.78		11.10	1.51E+00		2.84E+00
		1691.02		49.00	1.49E-01		5.72E-01
+	I-125	35.49		6.49	-3.62E-01	4.11E+00	4.11E+00
+	SB-125	176.33		6.89	-2.28E-01	2.47E-01	7.97E-01
		427.89		29.33	5.35E-02		2.47E-01
		463.38		10.35	1.48E-01		7.83E-01
		600.56		17.80	-1.50E-02		4.52E-01
		635.90		11.32	-3.71E-01		6.67E-01
+	SB-126	414.70		83.30	-6.44E+00	1.41E+01	1.41E+01
		666.33		99.60	-9.46E+00		1.68E+01
		695.00		99.60	2.19E+00		1.67E+01
		720.50		53.80	-2.34E+01		3.18E+01
+	SN-126	87.57	*	37.00	1.09E-01	1.61E-01	1.61E-01
+	SB-127	473.00		25.00	-3.90E+06	4.70E+06	4.70E+06
		685.20		35.70	1.05E+06		5.07E+06

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80		14.70	-3.02E+06	4.70E+06	1.32E+07
+	I-129	29.78		57.00	-9.40E-02	2.19E-01	2.19E-01
		33.60		13.20	-1.69E-01		7.46E-01
		39.58		7.52	-2.04E-02		1.04E+00
+	I-131	284.30		6.05	2.76E+02	2.40E+02	2.73E+03
		364.48		81.20	1.04E+02		2.40E+02
		636.97		7.26	1.00E+02		3.10E+03
		722.89		1.80	9.67E+03		1.82E+04
+	TE-132	49.72		13.10	-1.11E+08	2.50E+07	1.83E+08
		228.16		88.00	3.31E+06		2.50E+07
+	BA-133	81.00		33.00	-2.70E-01	1.39E-01	1.85E-01
		302.84		17.80	-4.45E-02		3.36E-01
		356.01		60.00	-1.03E-02		1.39E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-5.04E+04	3.44E+04	3.44E+04
+	CS-134	563.23		8.38	-2.21E-01	9.72E-02	9.98E-01
		569.32		15.43	-2.97E-02		5.83E-01
		604.70		97.60	-1.49E-03		9.72E-02
		795.84		85.40	7.28E-03		1.28E-01
		801.93		8.73	4.03E-01		1.23E+00
+	CS-135	268.24		16.00	-7.45E-02	3.55E-01	3.55E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	7.65E+01	1.11E+01	9.36E+01
		163.89		4.61	1.12E+02		1.51E+02
		176.55		13.56	1.31E+01		5.18E+01
		273.65		12.66	7.09E+00		6.46E+01
		340.57		48.50	3.18E+01		2.14E+01
		818.50		99.70	-2.98E+00		1.11E+01
		1048.07		79.60	4.83E+00		1.71E+01
		1235.34		19.70	-6.19E+00		9.48E+01
+	CS-137	661.65		85.12	3.57E-02	1.15E-01	1.15E-01
+	LA-138	788.74		34.00	-8.44E-02	1.39E-01	3.07E-01
		1435.80		66.00	-2.76E-02		1.39E-01
+	CE-139	165.85	*	80.35	1.28E-01	1.39E-01	1.39E-01
+	BA-140	162.64		6.70	1.85E+01	4.10E+01	1.19E+02
		304.84		4.50	-1.02E+01		1.91E+02
		423.70		3.20	-1.01E+02		3.18E+02
		437.55		2.00	2.45E+02		5.22E+02
		537.32		25.00	1.70E+01		4.10E+01
+	LA-140	328.77		20.50	1.28E+00	1.82E+01	4.96E+01
		487.03		45.50	6.89E+00		2.25E+01
		815.85		23.50	-5.21E+01		5.11E+01
		1596.49		95.49	9.88E+00		1.82E+01
+	CE-141	145.44		48.40	1.89E-01	7.18E-01	7.18E-01
+	@ 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

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54		10.80	1.36E-01	5.48E-01	5.48E-01
+	PM-144	476.78		42.00	9.84E-02	1.02E-01	1.98E-01
		618.01		98.60	5.82E-02		1.02E-01
		696.49		99.49	-8.14E-02		1.04E-01
+	PM-145	36.85		21.70	8.41E-02	2.16E-01	4.04E-01
		37.36		39.70	4.49E-02		2.16E-01
		42.30		15.10	-3.12E-01		4.84E-01
		72.40		2.31	6.24E-01		2.82E+00
+	PM-146	453.90		39.94	1.62E-02	1.82E-01	1.82E-01
		735.90		14.01	5.01E-01		7.32E-01
		747.13		13.10	0.00E+00		7.39E-01
+	ND-147	91.11		28.90	9.28E+01	7.53E+01	7.53E+01
		531.02		13.10	-9.88E+00		2.03E+02
+	PM-149	285.90		3.10	3.03E+12	8.10E+12	8.10E+12
+	EU-152	121.78		20.50	1.47E-02	2.25E-01	2.25E-01
		244.69		5.40	-6.89E-02		1.16E+00
		344.27		19.13	-4.49E-01		3.18E-01
		778.89		9.20	4.51E-01		1.09E+00
		964.01		10.40	-1.44E-01		1.21E+00
		1085.78		7.22	-8.59E-01		1.64E+00
		1112.02		9.60	-8.34E-03		1.18E+00
		1407.95		14.94	-3.71E-02		6.29E-01
+	GD-153	97.43		31.30	1.33E-02	2.07E-01	2.07E-01
		103.18		22.20	-9.24E-02		2.74E-01
+	EU-154	123.07		40.50	5.45E-02	1.16E-01	1.16E-01
		723.30		19.70	1.41E-01		5.53E-01
		873.19		11.50	1.87E-01		9.10E-01
		996.32		10.30	1.00E-01		1.16E+00
		1004.76		17.90	1.17E-01		6.50E-01
		1274.45		35.50	-4.67E-02		3.22E-01
+	EU-155	86.50	*	30.90	1.35E-01	1.99E-01	1.99E-01
		105.30		20.70	9.24E-02		2.39E-01
+	EU-156	811.77		10.40	8.49E+00	5.84E+01	5.84E+01
		1153.47		7.20	9.47E+00		1.22E+02
		1230.71		8.90	-1.61E+01		1.07E+02
+	HO-166M	184.41		72.60	4.57E-02	8.10E-02	8.10E-02
		280.45		29.60	3.00E-02		1.95E-01
		410.94		11.10	0.00E+00		5.96E-01
		711.69		54.10	1.07E-01		1.82E-01
+	TM-171	66.72		0.14	-2.67E+00	4.60E+01	4.60E+01
+	HF-172	67.35		5.31	-7.02E-02	4.63E-01	1.21E+00
		125.81		11.30	1.59E-02		4.63E-01
+	LU-172	181.53		20.60	-3.63E+02	3.19E+03	3.78E+03
		900.72		29.81	-1.33E+03		4.79E+03
		1093.66		62.50	1.63E+02		3.19E+03
+	LU-173	100.72		5.24	-5.65E-01	3.27E-01	9.80E-01
		272.11		21.20	5.44E-02		3.27E-01
+	HF-175	343.40		84.00	-2.53E-01	1.79E-01	1.79E-01
+	LU-176	88.34		13.30	9.02E-03	5.77E-02	4.50E-01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	7.73E-03	5.77E-02	6.48E-02
		306.78		94.00	-1.80E-02		5.77E-02
+	HF-181	133.02		41.70	8.47E-02	3.07E-01	5.20E-01
		345.85		17.20	-2.81E+00		1.60E+00
		482.03		82.80	-3.69E-01		3.07E-01
+	TA-182	67.75		41.20	-8.50E-02	2.42E-01	2.42E-01
		1121.30		34.90	9.82E-01		8.41E-01
		1189.05		16.23	7.47E-01		1.67E+00
		1221.41		26.98	2.13E-01		1.01E+00
		1231.02		11.44	-5.44E-01		2.03E+00
+	IR-192	308.46		29.68	1.64E-01	3.32E-01	4.54E-01
		468.07		48.10	-1.65E-03		3.32E-01
+	HG-203	279.19	*	77.30	2.87E-01	3.27E-01	3.27E-01
+	TL-204	374.74		94.11	-7.99E-03	7.17E-02	7.17E-02
		899.15		99.16	5.23E-03		1.05E-01
		911.74		91.10	2.25E-01		1.82E-01
+	BI-207	569.67		97.72	-4.34E-03	8.50E-02	8.50E-02
		1063.62		74.90	1.80E-02		1.46E-01
+	TL-208	583.14	*	30.22	5.55E-01	2.96E-01	5.06E-01
		860.37		4.48	-7.76E-01		2.21E+00
		2614.66	*	35.85	7.87E-01		2.96E-01
+	BI-210M	262.00		45.00	-3.07E-03	1.22E-01	1.22E-01
		300.00		23.00	-3.14E-01		2.71E-01
+	PB-210	46.50		4.25	1.60E+00	1.63E+00	1.63E+00
+	PB-211	404.84		2.90	1.72E-01	2.30E+00	2.30E+00
		831.96		2.90	1.52E-01		3.48E+00
+	BI-212	727.17		11.80	4.17E-01	9.37E-01	9.37E-01
		1620.62		2.75	5.35E-01		3.84E+00
+	PB-212	238.63	*	44.60	7.94E-01	2.57E-01	2.57E-01
		300.09		3.41	-2.12E+00		1.83E+00
+	BI-214	609.31	*	46.30	7.40E-01	9.46E-02	2.42E-01
		1120.29	*	15.10	1.23E+00		1.37E+00
		1764.49	*	15.80	8.04E-01		9.46E-02
		2204.22		4.98	8.56E-01		2.34E+00
+	PB-214	295.21	*	19.19	6.38E-01	3.16E-01	5.73E-01
		351.92	*	37.19	6.66E-01		3.16E-01
+	RN-219	401.80		6.50	2.25E-01	1.03E+00	1.03E+00
+	RA-223	323.87		3.88	-2.97E-01	1.59E+00	1.59E+00
+	RA-224	240.98	*	3.95	1.87E+00	2.89E+00	2.89E+00
+	RA-225	40.00		31.00	-3.79E-01	1.94E+01	1.94E+01
+	RA-226	186.21	*	3.28	2.30E+00	2.85E+00	2.85E+00
+	TH-227	50.10		8.40	-4.40E-01	7.24E-01	7.24E-01
		236.00		11.50	1.16E+00		7.74E-01
		256.20		6.30	-1.12E-01		8.82E-01
+	AC-228	338.32	*	11.40	7.39E-01	5.91E-01	9.11E-01
		911.07	*	27.70	7.37E-01		5.91E-01
		969.11	*	16.60	7.27E-01		1.02E+00
+	TH-230	48.44		16.90	3.25E-01	3.89E-01	3.89E-01

Analysis Report for 1707077-17

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	1.03E+00	3.89E-01	1.32E+00
		67.67		0.37	-5.39E+00		1.54E+01
+	PA-231	283.67		1.60	3.43E-01	2.56E+00	3.40E+00
		302.67		2.30	-3.38E-01		2.56E+00
+	TH-231	25.64		14.70	4.95E-02	8.77E-01	1.24E+00
		84.21		6.40	-5.64E-01		8.77E-01
+	PA-233	311.98		38.60	1.11E-01	1.58E+00	1.58E+00
+	PA-234	131.20		20.40	4.14E-02	2.38E-01	2.38E-01
		733.99		8.80	-5.31E-01		1.09E+00
		946.00		12.00	-5.86E-02		8.35E-01
+	PA-234M	1001.03		0.92	-3.55E+00	1.20E+01	1.20E+01
+	TH-234	63.29		3.80	1.24E+00	1.59E+00	1.59E+00
+	U-235	143.76		10.50	3.89E-02	4.57E-01	4.57E-01
		163.35		4.70	1.71E-01		1.10E+00
		205.31		4.70	8.81E-02		1.19E+00
+	NP-237	86.50	*	12.60	3.21E-01	4.72E-01	4.72E-01
+	NP-239	106.10		22.70	7.45E+10	1.62E+11	1.62E+11
		228.18		10.70	5.39E+10		4.06E+11
		277.60		14.10	1.05E+11		3.26E+11
+	AM-241	59.54		35.90	-3.83E-02	1.63E-01	1.63E-01
+	AM-243	74.67		66.00	3.35E-01	1.15E-01	1.15E-01
+	CM-243	209.75	*	3.29	1.39E+00	4.55E-01	2.03E+00
		228.14		10.60	7.09E-02		5.35E-01
		277.60	*	14.00	4.00E-01		4.55E-01

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.17E+00	2.17E+00	7.77E-01	1.02E+00
	NA-22	1274.54		99.94	1.20E-01	1.20E-01	-1.74E-02	5.40E-02
@	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	1.53E-02	1.53E-02	2.84E-02	0.00E+00
+	K-40	1460.81	*	10.67	8.58E-01	8.58E-01	1.47E+01	3.70E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.04E-02	6.04E-02	-2.12E-02	2.95E-02
		78.34		96.00	7.62E-02		2.20E-01	3.74E-02
	SC-46	889.25		99.98	2.16E-01	2.16E-01	-4.89E-02	9.93E-02
		1120.51		99.99	3.54E-01		3.66E-01	1.66E-01
	V-48	983.52		99.98	5.66E+00	5.66E+00	-1.46E+00	2.58E+00
		1312.10		97.50	6.23E+00		4.27E-01	2.78E+00
	CR-51	320.08		9.83	5.75E+00	5.75E+00	-3.54E+00	2.72E+00
	MN-54	834.83		99.97	1.32E-01	1.32E-01	5.40E-03	6.13E-02
	CO-56	846.75		99.96	2.17E-01	2.17E-01	-7.55E-02	9.99E-02
		1037.75		14.03	1.84E+00		7.44E-01	8.44E-01
		1238.25		67.00	4.86E-01		-5.16E-02	2.25E-01
		1771.40		15.51	1.14E+00		-1.19E+00	4.62E-01
		2598.48		16.90	1.07E+00		-1.15E-01	3.77E-01
	CO-57	122.06		85.51	6.76E-02	6.76E-02	4.41E-03	3.28E-02
		136.48		10.60	5.84E-01		3.69E-01	2.83E-01
	CO-58	810.76		99.40	2.23E-01	2.23E-01	2.38E-02	1.02E-01
	FE-59	1099.22		56.50	8.87E-01	8.87E-01	-3.67E-02	4.07E-01
		1291.56		43.20	1.04E+00		1.22E-01	4.64E-01
	CO-60	1173.22		100.00	1.44E-01	1.08E-01	-4.40E-02	6.67E-02
		1332.49		100.00	1.08E-01		-1.12E-02	4.81E-02
	ZN-65	1115.52		50.75	3.45E-01	3.45E-01	1.62E-02	1.60E-01
	GA-67	93.31		35.70	6.29E+07	6.29E+07	8.28E+07	3.08E+07
		208.95		2.24	9.98E+08		4.95E+08	4.82E+08
		300.22		16.00	1.50E+08		-1.74E+08	7.17E+07
	SE-75	121.11		16.70	4.68E-01	1.35E-01	-5.39E-02	2.27E-01
		136.00		59.20	1.35E-01		1.76E-02	6.57E-02
		264.65		59.80	1.49E-01		-1.30E-01	7.10E-02
		279.53		25.20	4.09E-01		3.50E-01	1.96E-01
		400.65		11.40	9.88E-01		3.46E-03	4.66E-01
	RB-82	776.52		13.00	9.48E+00	9.48E+00	8.35E-01	4.40E+00
	RB-83	520.41		46.00	2.95E-01	2.95E-01	-1.01E-01	1.36E-01
		529.64		30.30	5.36E-01		1.78E-01	2.51E-01
		552.65		16.40	8.95E-01		4.29E-02	4.15E-01
	KR-85	513.99		0.43	2.38E+01	2.38E+01	2.29E+01	1.14E+01
	SR-85	513.99		99.27	2.77E-01	2.77E-01	2.66E-01	1.32E-01
	Y-88	898.02		93.40	1.96E-01	1.59E-01	6.15E-02	9.00E-02
		1836.01		99.38	1.59E-01		5.09E-02	6.51E-02
	MO-93	263.06		56.72	9.51E-02	8.35E-02	-6.05E-02	4.54E-02
		684.67		99.68	9.87E-02		2.05E-02	4.61E-02
		1477.11		99.08	8.35E-02		1.18E-02	3.53E-02
	NB-93M	16.57		9.43	6.57E+00	6.57E+00	1.34E+01	3.18E+00
	NB-94	702.63		100.00	9.79E-02	9.79E-02	1.38E-02	4.57E-02
		871.10		100.00	1.14E-01		7.32E-02	5.32E-02
	NB-95	765.79		99.81	6.54E-01	6.54E-01	3.52E-02	3.05E-01
	NB-95M	235.69		25.00	2.02E+07	2.02E+07	3.02E+07	9.87E+06
	ZR-95	724.18		43.70	6.69E-01	5.16E-01	1.71E-01	3.14E-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)
	ZR-95	756.72		55.30	5.16E-01	5.16E-01	3.59E-01	2.41E-01
	MO-99	181.06		6.20	1.25E+10	1.06E+10	-2.29E+08	6.05E+09
		739.58		12.80	1.06E+10		-5.00E+09	4.91E+09
		778.00		4.50	3.34E+10		4.52E+09	1.55E+10
	RU-103	497.08		89.00	4.17E-01	4.17E-01	2.87E-01	1.95E-01
	RU-106	621.84		9.80	1.04E+00	1.04E+00	4.14E-01	4.87E-01
	AG-108M	433.93		89.90	7.30E-02	7.30E-02	-2.48E-03	3.42E-02
		614.37		90.40	9.26E-02		-8.22E-04	4.31E-02
		722.95		90.50	1.19E-01		6.35E-02	5.61E-02
	CD-109	88.03		3.72	1.85E+00	1.85E+00	3.71E-02	9.04E-01
	AG-110M	657.75		93.14	1.36E-01	1.36E-01	5.07E-02	6.39E-02
		677.61		10.53	1.16E+00		3.79E-01	5.43E-01
		706.67		16.46	7.79E-01		-2.46E-02	3.64E-01
		763.93		21.98	5.49E-01		-4.06E-03	2.54E-01
		884.67		71.63	1.78E-01		-2.41E-02	8.18E-02
		1384.27		23.94	5.22E-01		4.21E-03	2.29E-01
	CD-113M	263.70		0.02	2.30E+02	2.30E+02	-1.71E+02	1.10E+02
	SN-113	255.12		1.93	4.98E+00	1.80E-01	-1.40E+00	2.38E+00
		391.69		64.90	1.80E-01		3.05E-02	8.52E-02
	TE123M	159.00		84.10	9.80E-02	9.80E-02	5.37E-03	4.74E-02
	SB-124	602.71		97.87	2.24E-01	2.24E-01	3.49E-02	1.04E-01
		645.85		7.26	3.23E+00		7.48E-01	1.49E+00
		722.78		11.10	2.84E+00		1.51E+00	1.33E+00
		1691.02		49.00	5.72E-01		1.49E-01	2.43E-01
	I-125	35.49		6.49	4.11E+00	4.11E+00	-3.62E-01	1.99E+00
	SB-125	176.33		6.89	7.97E-01	2.47E-01	-2.28E-01	3.86E-01
		427.89		29.33	2.47E-01		5.35E-02	1.16E-01
		463.38		10.35	7.83E-01		1.48E-01	3.69E-01
		600.56		17.80	4.52E-01		-1.50E-02	2.09E-01
		635.90		11.32	6.67E-01		-3.71E-01	3.06E-01
	SB-126	414.70		83.30	1.41E+01	1.41E+01	-6.44E+00	6.61E+00
		666.33		99.60	1.68E+01		-9.46E+00	7.84E+00
		695.00		99.60	1.67E+01		2.19E+00	7.78E+00
		720.50		53.80	3.18E+01		-2.34E+01	1.48E+01
+	SN-126	87.57	*	37.00	1.61E-01	1.61E-01	1.09E-01	7.87E-02
	SB-127	473.00		25.00	4.70E+06	4.70E+06	-3.90E+06	2.19E+06
		685.20		35.70	5.07E+06		1.05E+06	2.37E+06
		783.80		14.70	1.32E+07		-3.02E+06	6.14E+06
	I-129	29.78		57.00	2.19E-01	2.19E-01	-9.40E-02	1.06E-01
		33.60		13.20	7.46E-01		-1.69E-01	3.62E-01
		39.58		7.52	1.04E+00		-2.04E-02	5.05E-01
	I-131	284.30		6.05	2.73E+03	2.40E+02	2.76E+02	1.30E+03
		364.48		81.20	2.40E+02		1.04E+02	1.14E+02
		636.97		7.26	3.10E+03		1.00E+02	1.42E+03
		722.89		1.80	1.82E+04		9.67E+03	8.54E+03
	TE-132	49.72		13.10	1.83E+08	2.50E+07	-1.11E+08	8.90E+07
		228.16		88.00	2.50E+07		3.31E+06	1.20E+07
	BA-133	81.00		33.00	1.85E-01	1.39E-01	-2.70E-01	9.03E-02
		302.84		17.80	3.36E-01		-4.45E-02	1.60E-01
		356.01		60.00	1.39E-01		-1.03E-02	6.69E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.44E+04	3.44E+04	-5.04E+04	1.69E+04
	CS-134	563.23		8.38	9.98E-01	9.72E-02	-2.21E-01	4.65E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	569.32		15.43	5.83E-01	9.72E-02	-2.97E-02	2.73E-01
		604.70		97.60	9.72E-02		-1.49E-03	4.54E-02
		795.84		85.40	1.28E-01		7.28E-03	5.93E-02
		801.93		8.73	1.23E+00		4.03E-01	5.68E-01
	CS-135	268.24		16.00	3.55E-01	3.55E-01	-7.45E-02	1.70E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	9.36E+01	1.11E+01	7.65E+01	4.54E+01
		163.89		4.61	1.51E+02		1.12E+02	7.34E+01
		176.55		13.56	5.18E+01		1.31E+01	2.50E+01
		273.65		12.66	6.46E+01		7.09E+00	3.10E+01
		340.57		48.50	2.14E+01		3.18E+01	1.03E+01
		818.50		99.70	1.11E+01		-2.98E+00	5.05E+00
		1048.07		79.60	1.71E+01		4.83E+00	7.77E+00
		1235.34		19.70	9.48E+01		-6.19E+00	4.37E+01
	CS-137	661.65		85.12	1.15E-01	1.15E-01	3.57E-02	5.40E-02
	LA-138	788.74		34.00	3.07E-01	1.39E-01	-8.44E-02	1.43E-01
		1435.80		66.00	1.39E-01		-2.76E-02	6.01E-02
+	CE-139	165.85	*	80.35	1.39E-01	1.39E-01	1.28E-01	6.77E-02
	BA-140	162.64		6.70	1.19E+02	4.10E+01	1.85E+01	5.75E+01
		304.84		4.50	1.91E+02		-1.02E+01	9.08E+01
		423.70		3.20	3.18E+02		-1.01E+02	1.49E+02
		437.55		2.00	5.22E+02		2.45E+02	2.46E+02
		537.32		25.00	4.10E+01		1.70E+01	1.90E+01
	LA-140	328.77		20.50	4.96E+01	1.82E+01	1.28E+00	2.36E+01
		487.03		45.50	2.25E+01		6.89E+00	1.05E+01
		815.85		23.50	5.11E+01		-5.21E+01	2.31E+01
		1596.49		95.49	1.82E+01		9.88E+00	8.01E+00
	CE-141	145.44		48.40	7.18E-01	7.18E-01	1.89E-01	3.48E-01
@	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	5.48E-01	5.48E-01	1.36E-01	2.66E-01
	PM-144	476.78		42.00	1.98E-01	1.02E-01	9.84E-02	9.25E-02
		618.01		98.60	1.02E-01		5.82E-02	4.75E-02
		696.49		99.49	1.04E-01		-8.14E-02	4.79E-02
	PM-145	36.85		21.70	4.04E-01	2.16E-01	8.41E-02	1.96E-01
		37.36		39.70	2.16E-01		4.49E-02	1.05E-01
		42.30		15.10	4.84E-01		-3.12E-01	2.35E-01
		72.40		2.31	2.82E+00		6.24E-01	1.38E+00
	PM-146	453.90		39.94	1.82E-01	1.82E-01	1.62E-02	8.58E-02
		735.90		14.01	7.32E-01		5.01E-01	3.41E-01
		747.13		13.10	7.39E-01		0.00E+00	3.43E-01
	ND-147	91.11		28.90	7.53E+01	7.53E+01	9.28E+01	3.69E+01
		531.02		13.10	2.03E+02		-9.88E+00	9.48E+01
	PM-149	285.90		3.10	8.10E+12	8.10E+12	3.03E+12	3.86E+12
	EU-152	121.78		20.50	2.25E-01	2.25E-01	1.47E-02	1.09E-01
		244.69		5.40	1.16E+00		-6.89E-02	5.60E-01
		344.27		19.13	3.18E-01		-4.49E-01	1.51E-01
		778.89		9.20	1.09E+00		4.51E-01	5.07E-01
		964.01		10.40	1.21E+00		-1.44E-01	5.63E-01
		1085.78		7.22	1.64E+00		-8.59E-01	7.53E-01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.18E+00	2.25E-01	-8.34E-03	5.36E-01
		1407.95		14.94	6.29E-01		-3.71E-02	2.73E-01
	GD-153	97.43		31.30	2.07E-01	2.07E-01	1.33E-02	1.01E-01
		103.18		22.20	2.74E-01		-9.24E-02	1.33E-01
	EU-154	123.07		40.50	1.16E-01	1.16E-01	5.45E-02	5.65E-02
		723.30		19.70	5.53E-01		1.41E-01	2.59E-01
		873.19		11.50	9.10E-01		1.87E-01	4.20E-01
		996.32		10.30	1.16E+00		1.00E-01	5.38E-01
		1004.76		17.90	6.50E-01		1.17E-01	2.99E-01
		1274.45		35.50	3.22E-01		-4.67E-02	1.45E-01
+	EU-155	86.50	*	30.90	1.99E-01	1.99E-01	1.35E-01	9.76E-02
		105.30		20.70	2.39E-01		9.24E-02	1.16E-01
	EU-156	811.77		10.40	5.84E+01	5.84E+01	8.49E+00	2.67E+01
		1153.47		7.20	1.22E+02		9.47E+00	5.61E+01
		1230.71		8.90	1.07E+02		-1.61E+01	4.91E+01
	HO-166M	184.41		72.60	8.10E-02	8.10E-02	4.57E-02	3.93E-02
		280.45		29.60	1.95E-01		3.00E-02	9.30E-02
		410.94		11.10	5.96E-01		0.00E+00	2.81E-01
		711.69		54.10	1.82E-01		1.07E-01	8.49E-02
	TM-171	66.72		0.14	4.60E+01	4.60E+01	-2.67E+00	2.25E+01
	HF-172	67.35		5.31	1.21E+00	4.63E-01	-7.02E-02	5.92E-01
		125.81		11.30	4.63E-01		1.59E-02	2.25E-01
	LU-172	181.53		20.60	3.78E+03	3.19E+03	-3.63E+02	1.82E+03
		900.72		29.81	4.79E+03		-1.33E+03	2.19E+03
		1093.66		62.50	3.19E+03		1.63E+02	1.48E+03
	LU-173	100.72		5.24	9.80E-01	3.27E-01	-5.65E-01	4.76E-01
		272.11		21.20	3.27E-01		5.44E-02	1.57E-01
	HF-175	343.40		84.00	1.79E-01	1.79E-01	-2.53E-01	8.48E-02
	LU-176	88.34		13.30	4.50E-01	5.77E-02	9.02E-03	2.20E-01
		201.83		86.00	6.48E-02		7.73E-03	3.13E-02
		306.78		94.00	5.77E-02		-1.80E-02	2.74E-02
	HF-181	133.02		41.70	5.20E-01	3.07E-01	8.47E-02	2.52E-01
		345.85		17.20	1.60E+00		-2.81E+00	7.56E-01
		482.03		82.80	3.07E-01		-3.69E-01	1.41E-01
	TA-182	67.75		41.20	2.42E-01	2.42E-01	-8.50E-02	1.18E-01
		1121.30		34.90	8.41E-01		9.82E-01	3.95E-01
		1189.05		16.23	1.67E+00		7.47E-01	7.77E-01
		1221.41		26.98	1.01E+00		2.13E-01	4.71E-01
		1231.02		11.44	2.03E+00		-5.44E-01	9.31E-01
	IR-192	308.46		29.68	4.54E-01	3.32E-01	1.64E-01	2.15E-01
		468.07		48.10	3.32E-01		-1.65E-03	1.55E-01
	HG-203	279.19	*	77.30	3.27E-01	3.27E-01	2.87E-01	1.57E-01
	TL-204	374.74		94.11	7.17E-02	7.17E-02	-7.99E-03	3.39E-02
		899.15		99.16	1.05E-01		5.23E-03	4.80E-02
		911.74		91.10	1.82E-01		2.25E-01	8.64E-02
	BI-207	569.67		97.72	8.50E-02	8.50E-02	-4.34E-03	3.98E-02
		1063.62		74.90	1.46E-01		1.80E-02	6.64E-02
+	TL-208	583.14	*	30.22	5.06E-01	2.96E-01	5.55E-01	2.44E-01
		860.37		4.48	2.21E+00		-7.76E-01	1.02E+00
		2614.66	*	35.85	2.96E-01		7.87E-01	1.15E-01
	BI-210M	262.00		45.00	1.22E-01	1.22E-01	-3.07E-03	5.84E-02
		300.00		23.00	2.71E-01		-3.14E-01	1.30E-01
	PB-210	46.50		4.25	1.63E+00	1.63E+00	1.60E+00	7.95E-01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.30E+00	2.30E+00	1.72E-01	1.09E+00
		831.96		2.90	3.48E+00		1.52E-01	1.61E+00
	BI-212	727.17		11.80	9.37E-01	9.37E-01	4.17E-01	4.40E-01
		1620.62		2.75	3.84E+00		5.35E-01	1.67E+00
+	PB-212	238.63	*	44.60	2.57E-01	2.57E-01	7.94E-01	1.26E-01
		300.09		3.41	1.83E+00		-2.12E+00	8.75E-01
+	BI-214	609.31	*	46.30	2.42E-01	9.46E-02	7.40E-01	1.15E-01
		1120.29	*	15.10	1.37E+00		1.23E+00	6.51E-01
		1764.49	*	15.80	9.46E-02		8.04E-01	0.00E+00
		2204.22		4.98	2.34E+00		8.56E-01	9.78E-01
+	PB-214	295.21	*	19.19	5.73E-01	3.16E-01	6.38E-01	2.80E-01
		351.92	*	37.19	3.16E-01		6.66E-01	1.54E-01
	RN-219	401.80		6.50	1.03E+00	1.03E+00	2.25E-01	4.84E-01
	RA-223	323.87		3.88	1.59E+00	1.59E+00	-2.97E-01	7.57E-01
+	RA-224	240.98	*	3.95	2.89E+00	2.89E+00	1.87E+00	1.42E+00
	RA-225	40.00		31.00	1.94E+01	1.94E+01	-3.79E-01	9.40E+00
+	RA-226	186.21	*	3.28	2.85E+00	2.85E+00	2.30E+00	1.40E+00
	TH-227	50.10		8.40	7.24E-01	7.24E-01	-4.40E-01	3.52E-01
		236.00		11.50	7.74E-01		1.16E+00	3.78E-01
		256.20		6.30	8.82E-01		-1.12E-01	4.22E-01
+	AC-228	338.32	*	11.40	9.11E-01	5.91E-01	7.39E-01	4.42E-01
		911.07	*	27.70	5.91E-01		7.37E-01	2.80E-01
		969.11	*	16.60	1.02E+00		7.27E-01	4.85E-01
	TH-230	48.44		16.90	3.89E-01	3.89E-01	3.25E-01	1.89E-01
		62.85		4.60	1.32E+00		1.03E+00	6.43E-01
		67.67		0.37	1.54E+01		-5.39E+00	7.51E+00
	PA-231	283.67		1.60	3.40E+00	2.56E+00	3.43E-01	1.62E+00
		302.67		2.30	2.56E+00		-3.38E-01	1.22E+00
	TH-231	25.64		14.70	1.24E+00	8.77E-01	4.95E-02	6.03E-01
		84.21		6.40	8.77E-01		-5.64E-01	4.29E-01
	PA-233	311.98		38.60	1.58E+00	1.58E+00	1.11E-01	7.47E-01
	PA-234	131.20		20.40	2.38E-01	2.38E-01	4.14E-02	1.16E-01
		733.99		8.80	1.09E+00		-5.31E-01	5.08E-01
		946.00		12.00	8.35E-01		-5.86E-02	3.82E-01
	PA-234M	1001.03		0.92	1.20E+01	1.20E+01	-3.55E+00	5.50E+00
	TH-234	63.29		3.80	1.59E+00	1.59E+00	1.24E+00	7.75E-01
	U-235	143.76		10.50	4.57E-01	4.57E-01	3.89E-02	2.22E-01
		163.35		4.70	1.10E+00		1.71E-01	5.32E-01
		205.31		4.70	1.19E+00		8.81E-02	5.75E-01
+	NP-237	86.50	*	12.60	4.72E-01	4.72E-01	3.21E-01	2.31E-01
	NP-239	106.10		22.70	1.62E+11	1.62E+11	7.45E+10	7.90E+10
		228.18		10.70	4.06E+11		5.39E+10	1.96E+11
		277.60		14.10	3.26E+11		1.05E+11	1.56E+11
	AM-241	59.54		35.90	1.63E-01	1.63E-01	-3.83E-02	7.97E-02
	AM-243	74.67		66.00	1.15E-01	1.15E-01	3.35E-01	5.63E-02
+	CM-243	209.75	*	3.29	2.03E+00	4.55E-01	1.39E+00	9.87E-01
		228.14		10.60	5.35E-01		7.09E-02	2.57E-01
		277.60	*	14.00	4.55E-01		4.00E-01	2.18E-01

Analysis Report for 1707077-17

HTC-A01-S002-2430-02

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

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: HTC-A01-S002-2430-02

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	12	76
17:	66	73	70	56	42	50	53	59
25:	54	58	43	46	60	46	39	47
33:	60	44	54	55	50	53	58	64
41:	49	54	55	64	79	72	58	70
49:	63	55	48	58	55	80	64	56
57:	62	62	62	87	97	107	107	68
65:	83	74	93	98	91	75	82	108
73:	146	192	179	215	198	128	82	72
81:	69	68	104	93	95	137	113	86
89:	105	100	105	129	130	64	60	58
97:	62	54	66	60	52	61	46	67
105:	72	82	60	52	53	60	44	67
113:	57	59	64	63	45	41	62	48
121:	58	50	61	42	49	48	63	73
129:	57	52	58	33	50	50	61	52
137:	49	49	62	44	45	57	42	53
145:	45	53	40	42	47	43	59	46
153:	65	51	59	34	52	36	37	44
161:	36	54	56	50	54	42	51	30
169:	36	48	41	36	48	46	43	42
177:	47	32	45	47	36	26	50	45
185:	84	72	46	48	36	38	34	26
193:	30	43	45	43	34	39	41	37
201:	40	37	53	28	36	39	36	47
209:	51	38	35	28	32	27	29	27
217:	23	42	31	38	28	34	29	33
225:	35	33	27	35	29	32	27	33
233:	33	31	33	67	135	208	128	61
241:	69	44	31	21	24	26	23	29
249:	27	18	27	15	20	24	31	24
257:	29	30	31	27	15	19	23	17
265:	17	26	24	24	28	29	34	25
273:	30	16	16	34	34	29	21	20
281:	19	14	18	16	21	26	25	16
289:	21	13	28	21	35	59	57	21
297:	24	22	26	27	18	21	17	12
305:	17	16	20	15	16	15	22	14
313:	15	19	12	17	19	19	12	12
321:	15	13	29	16	22	25	27	23
329:	17	20	12	23	16	24	11	18
337:	49	44	32	20	17	17	12	18
345:	7	18	23	13	18	54	98	80
353:	28	24	14	14	16	20	10	12
361:	11	16	20	15	16	13	20	16

369:	12	19	21	15	10	21	9	17

Sample Title: HTC-A01-S002-2430-02

Channel								
377:	12	17	15	17	9	9	16	18
385:	13	16	12	11	5	19	10	18
393:	19	21	15	11	12	11	16	11
401:	16	13	16	14	14	12	11	7
409:	19	16	9	19	10	16	10	11
417:	10	12	15	10	13	10	14	10
425:	15	12	16	13	10	12	14	7
433:	14	15	10	7	9	14	17	11
441:	7	8	14	15	8	12	8	9
449:	8	11	18	11	7	13	13	11
457:	14	13	15	16	12	21	13	13
465:	9	10	10	12	10	6	6	5
473:	13	12	8	15	15	7	3	9
481:	8	6	9	2	13	7	12	11
489:	9	9	6	8	8	13	10	14
497:	10	5	12	3	8	8	13	11
505:	9	10	10	18	22	36	33	23
513:	15	5	13	14	9	8	9	7
521:	9	7	2	6	7	13	12	7
529:	11	9	10	10	9	10	10	11
537:	6	2	5	7	14	8	11	7
545:	4	14	7	6	3	8	11	10
553:	6	6	9	10	6	14	6	7
561:	5	16	9	6	14	11	10	14
569:	8	12	7	10	13	9	8	12
577:	9	7	10	14	16	39	41	23
585:	7	8	13	8	7	8	7	10
593:	11	8	10	9	4	10	12	6
601:	7	10	4	6	7	11	26	50
609:	54	38	12	11	10	3	10	6
617:	11	11	10	12	4	8	15	5
625:	6	6	6	12	10	11	7	5
633:	6	10	2	4	6	8	9	7
641:	6	6	4	8	10	10	8	6
649:	6	6	6	4	11	3	9	8
657:	6	5	9	11	15	5	12	5
665:	7	4	7	6	6	14	6	8
673:	4	9	4	7	6	8	16	10
681:	3	6	4	13	11	3	11	8
689:	6	8	11	5	9	1	9	5
697:	6	6	4	7	9	8	10	8
705:	7	8	13	3	6	5	10	5
713:	9	10	5	3	2	7	8	5
721:	8	13	11	2	10	14	5	14
729:	5	7	7	7	8	13	3	6
737:	3	9	7	3	2	10	8	9
745:	4	5	1	6	5	6	3	11
753:	6	9	5	6	12	5	8	4
761:	3	5	2	10	3	3	13	16
769:	9	7	13	5	9	5	4	5
777:	7	8	5	8	6	8	5	4
785:	12	7	6	11	5	5	5	6
793:	7	11	6	4	8	3	5	5

801:	8	6	4	5	8	5	3	2

Sample Title: HTC-A01-S002-2430-02

Channel								
809:	10	6	5	4	4	2	3	2
817:	2	5	3	3	8	6	5	6
825:	3	9	7	5	2	6	2	6
833:	7	9	7	5	5	11	8	10
841:	4	2	2	5	11	7	5	4
849:	5	3	7	4	7	5	4	4
857:	6	1	8	6	7	7	5	2
865:	6	10	9	6	5	6	8	6
873:	5	6	2	6	4	2	3	2
881:	5	8	5	7	2	4	6	4
889:	9	6	5	4	4	3	8	7
897:	6	3	6	3	3	3	3	4
905:	6	4	5	7	24	30	23	7
913:	5	6	5	5	6	4	2	7
921:	6	6	3	5	9	6	3	4
929:	2	3	3	10	3	12	8	3
937:	7	4	3	5	5	2	4	7
945:	6	6	3	4	2	9	1	7
953:	6	4	9	5	5	5	3	10
961:	6	6	6	12	4	6	7	20
969:	13	4	7	4	3	2	7	6
977:	2	6	6	3	3	0	10	6
985:	4	0	4	8	3	6	5	6
993:	5	6	9	5	2	6	4	7
1001:	3	7	6	3	5	4	8	3
1009:	3	5	2	6	5	2	5	4
1017:	6	6	4	1	2	5	3	5
1025:	3	6	4	4	7	4	2	4
1033:	6	5	2	5	1	9	11	3
1041:	1	3	4	7	4	3	2	1
1049:	4	4	4	10	2	8	7	2
1057:	1	3	5	1	6	7	4	1
1065:	5	3	5	7	3	7	2	3
1073:	1	9	4	8	10	6	3	3
1081:	6	4	4	3	5	5	5	6
1089:	4	11	8	4	1	12	2	8
1097:	4	6	6	3	3	5	5	4
1105:	3	3	2	6	3	2	4	6
1113:	3	4	6	3	5	7	16	20
1121:	13	9	5	4	6	3	2	4
1129:	0	7	6	7	5	5	6	3
1137:	4	3	9	5	4	1	4	2
1145:	3	6	1	9	3	4	7	4
1153:	7	6	5	4	4	3	5	4
1161:	5	6	2	5	5	8	5	6
1169:	8	7	5	9	5	3	4	7
1177:	5	7	9	7	4	3	7	3
1185:	9	6	9	8	6	8	7	7
1193:	4	6	5	6	4	7	6	5
1201:	8	3	7	6	10	6	4	7
1209:	4	6	5	5	7	10	9	3
1217:	6	6	6	9	6	4	4	9
1225:	12	7	5	2	10	7	5	6

1233:	2	2	4	8	7	9	5	3

Sample Title: HTC-A01-S002-2430-02

Channel								
1241:	7	6	7	8	8	3	6	2
1249:	6	5	8	4	3	3	5	1
1257:	3	5	5	2	3	2	6	4
1265:	4	4	3	1	5	5	1	3
1273:	4	2	2	3	6	2	6	4
1281:	2	1	1	3	2	2	3	2
1289:	3	2	2	0	6	5	1	4
1297:	2	1	4	1	6	1	6	1
1305:	2	5	4	3	4	5	0	1
1313:	3	4	2	2	2	1	2	3
1321:	1	1	4	0	1	6	3	2
1329:	3	3	6	1	0	3	3	1
1337:	3	1	3	3	2	4	1	1
1345:	3	3	5	0	3	1	3	0
1353:	0	2	3	0	2	3	1	3
1361:	4	2	1	2	2	1	4	1
1369:	1	0	5	2	1	4	1	1
1377:	3	1	6	1	2	3	1	2
1385:	1	5	1	1	0	0	2	1
1393:	4	3	2	2	1	1	5	0
1401:	0	1	3	3	2	2	3	2
1409:	1	2	0	0	2	3	1	1
1417:	2	4	2	2	3	0	2	2
1425:	2	2	1	2	3	1	0	3
1433:	1	1	2	2	1	2	2	1
1441:	4	1	1	2	3	2	0	2
1449:	3	4	1	0	0	2	1	3
1457:	3	23	67	101	95	38	8	2
1465:	1	1	2	3	1	1	1	0
1473:	0	3	0	1	0	2	1	2
1481:	1	2	1	0	0	2	1	0
1489:	0	0	0	1	1	2	0	2
1497:	1	0	1	3	0	1	1	1
1505:	2	1	1	2	3	5	0	2
1513:	2	1	0	1	2	2	1	0
1521:	0	0	5	0	0	1	0	1
1529:	2	2	0	3	1	2	1	1
1537:	1	1	0	0	1	0	3	5
1545:	3	2	0	0	1	1	0	1
1553:	0	1	0	0	2	1	0	1
1561:	1	0	2	2	1	2	0	4
1569:	1	1	1	2	1	1	1	0
1577:	0	0	2	0	0	3	2	1
1585:	0	2	3	4	3	2	2	2
1593:	3	6	3	2	1	0	0	1
1601:	0	0	0	3	1	2	0	2
1609:	0	2	0	1	0	2	1	0
1617:	1	1	2	3	5	2	1	0
1625:	0	2	3	3	2	1	1	2
1633:	1	1	0	0	1	1	0	1
1641:	2	1	0	0	0	0	0	0
1649:	1	0	1	0	0	1	2	1
1657:	0	2	1	1	0	3	0	0

1665:	1	0	0	3	1	0	0	0

Sample Title: HTC-A01-S002-2430-02

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

2097:	0	0	2	1	3	2	2	1

Sample Title: HTC-A01-S002-2430-02

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

2529:	0	1	0	0	0	1	0	0

Sample Title: HTC-A01-S002-2430-02

Channel								
2537:	0	0	0	0	0	1	0	0
2545:	1	1	0	0	0	0	0	1
2553:	0	0	0	0	0	0	1	0
2561:	0	0	0	2	0	0	2	0
2569:	1	0	1	0	0	0	1	1
2577:	0	0	0	0	0	0	0	0
2585:	0	1	0	1	0	0	0	1
2593:	1	1	0	1	0	0	0	1
2601:	0	0	0	0	0	0	0	0
2609:	0	1	0	1	8	7	10	4
2617:	4	0	1	0	1	0	0	0
2625:	1	0	0	0	2	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	1	1	1	0	0	0	0	1
2665:	0	0	0	0	0	0	1	0
2673:	0	0	0	1	0	0	0	0
2681:	0	0	0	0	1	0	0	0
2689:	0	1	0	0	1	0	0	0
2697:	0	1	0	0	0	0	0	0
2705:	0	0	3	0	0	0	1	1
2713:	0	0	0	0	0	0	1	0
2721:	0	0	0	0	0	0	0	1
2729:	0	0	1	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	1	0	0	0	0	0	0	0
2753:	0	0	1	0	0	1	0	0
2761:	0	1	0	1	0	1	0	0
2769:	0	1	0	1	0	0	0	0
2777:	1	0	0	0	0	0	0	1
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	0	0	0	0	0
2801:	0	0	0	0	1	0	1	0
2809:	0	0	0	0	0	0	1	0
2817:	1	1	0	0	1	0	0	1
2825:	0	0	0	0	0	1	0	0
2833:	0	0	0	0	0	1	0	0
2841:	0	0	1	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	0	0	2	1
2873:	0	1	0	0	0	0	0	0
2881:	0	1	0	1	0	0	0	0
2889:	0	0	1	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	1	0	1	1	0	0
2913:	1	0	0	0	0	0	0	0
2921:	0	0	0	1	1	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	1	0	1	0	1	1	0
2953:	0	0	0	0	1	0	0	0

2961:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S002-2430-02

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

Sample Title: HTC-A01-S002-2430-02

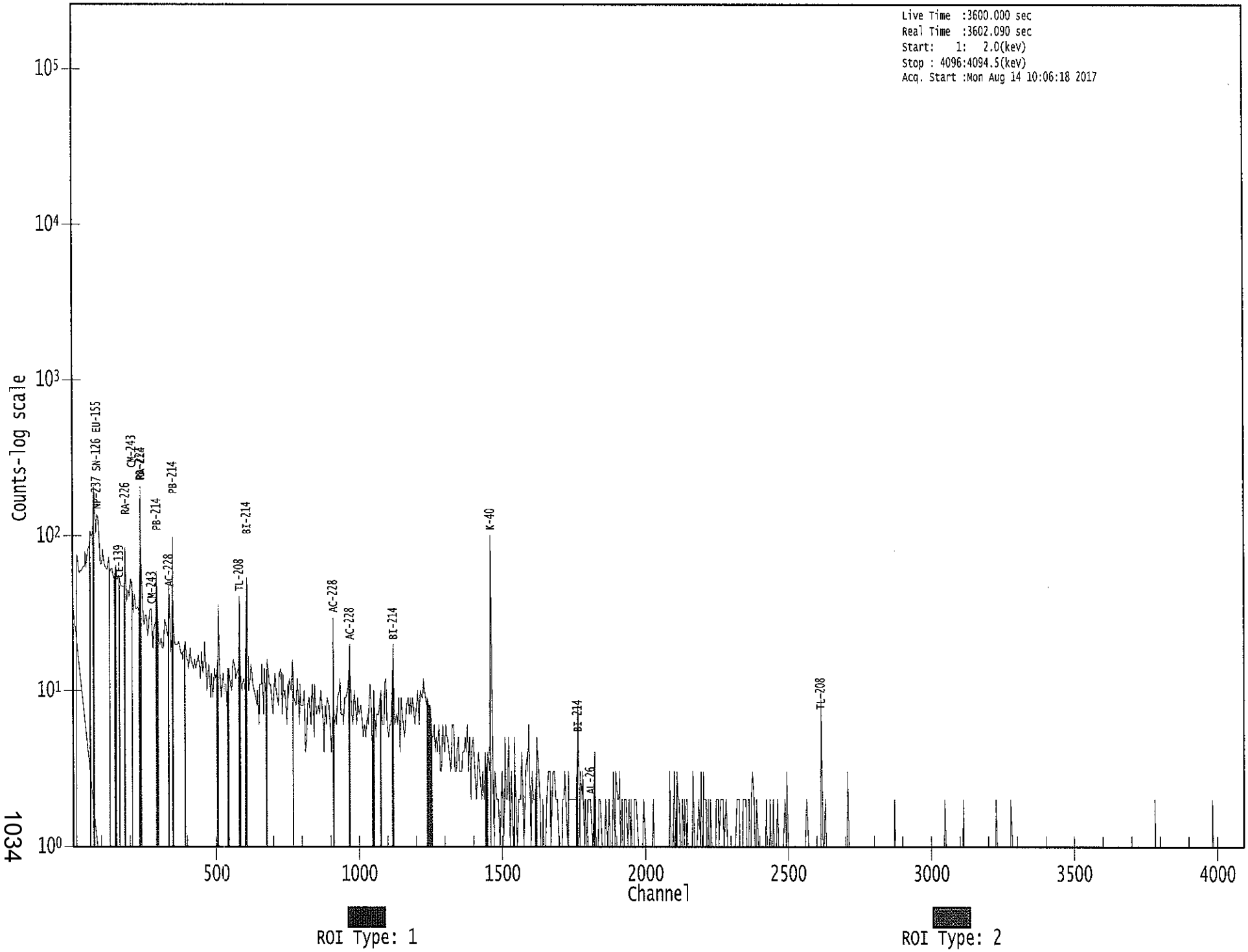
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	1	0	0	1	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	1	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-2430-02

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

0000055158.CNF



KB 8/14/17

Apex-Gamma

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-18
Sample Description	: HTC-A01-S002-3036-01
Sample Type	: SOIL
Sample Size	: 7.628E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:39:51AM
Acquisition Started	: 8/14/2017 11:07:54AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.1 seconds
Dead Time	: 0.22 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 10 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55164

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 12:08:03PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.66	46.97	0.0000	0.00
2	63.28	63.59	0.0000	0.00
3	76.84	77.14	0.0000	0.00
4	93.21	93.50	0.0000	0.00
5	186.39	186.65	0.0000	0.00
6	221.11	221.37	0.0000	0.00
7	228.65	228.90	0.0000	0.00
8	238.92	239.17	0.0000	0.00
9	241.92	242.17	0.0000	0.00
10	270.45	270.68	0.0000	0.00
11	296.18	296.41	0.0000	0.00
12	338.45	338.67	0.0000	0.00
13	352.22	352.43	0.0000	0.00
14	463.96	464.13	0.0000	0.00
15	477.58	477.75	0.0000	0.00
16	484.90	485.06	0.0000	0.00
17	510.81	510.96	0.0000	0.00
18	554.67	554.81	0.0000	0.00
19	583.76	583.89	0.0000	0.00
20	609.60	609.72	0.0000	0.00
21	628.56	628.67	0.0000	0.00
22	734.08	734.16	0.0000	0.00
23	740.45	740.53	0.0000	0.00
24	817.46	817.52	0.0000	0.00
25	860.54	860.58	0.0000	0.00
26	912.08	912.10	0.0000	0.00
27	927.04	927.06	0.0000	0.00
28	968.18	968.18	0.0000	0.00
29	1012.44	1012.43	0.0000	0.00
30	1120.04	1119.99	0.0000	0.00
31	1222.17	1222.08	0.0000	0.00
32	1440.58	1440.42	0.0000	0.00
33	1448.96	1448.80	0.0000	0.00
34	1460.63	1460.47	0.0000	0.00
35	1499.54	1499.36	0.0000	0.00
36	1508.58	1508.40	0.0000	0.00
37	1601.81	1601.60	0.0000	0.00
38	1629.64	1629.42	0.0000	0.00
39	1729.51	1729.25	0.0000	0.00
40	1764.79	1764.52	0.0000	0.00
41	1940.44	1940.12	0.0000	0.00
42	2103.89	2103.51	0.0000	0.00

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2117.26	2116.87	0.0000	0.00
44	2203.20	2202.78	0.0000	0.00
45	2613.70	2613.15	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 12:08:03PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.66	43 -	51	46.97	1.36E+02	92.33	1.24E+03	1.75
	2	63.28	59 -	67	63.59	1.72E+02	108.86	1.72E+03	1.60
	3	76.84	73 -	86	77.14	6.28E+02	170.26	2.87E+03	4.02
	4	93.21	91 -	98	93.50	1.92E+02	93.30	1.24E+03	1.72
	5	186.39	182 -	192	186.65	1.39E+02	81.85	8.18E+02	2.20
	6	221.11	217 -	225	221.37	5.56E+01	60.44	5.21E+02	3.94
	7	228.65	226 -	232	228.90	3.85E+01	46.24	3.61E+02	2.06
M	8	238.92	235 -	248	239.17	4.37E+02	61.94	3.93E+02	1.87
m	9	241.92	235 -	248	242.17	1.15E+02	63.10	3.78E+02	1.87
	10	270.45	268 -	273	270.68	3.19E+01	36.96	2.50E+02	2.50
	11	296.18	291 -	302	296.41	2.37E+02	64.81	4.03E+02	2.40
	12	338.45	335 -	342	338.67	9.90E+01	46.04	2.86E+02	1.49
	13	352.22	348 -	355	352.43	2.89E+02	51.19	2.45E+02	2.21
M	14	463.96	460 -	481	464.13	3.50E+01	31.24	1.47E+02	2.74
m	15	477.58	460 -	481	477.75	2.48E+01	29.66	1.13E+02	2.75
	16	484.90	483 -	489	485.06	2.53E+01	27.79	1.27E+02	2.60
	17	510.81	505 -	514	510.96	1.01E+02	42.04	1.94E+02	2.47
M	18	554.67	550 -	561	554.81	2.17E+01	23.45	9.02E+01	2.12
	19	583.76	577 -	590	583.89	1.16E+02	45.72	1.75E+02	2.32
	20	609.60	604 -	614	609.72	2.18E+02	46.37	1.70E+02	2.47
	21	628.56	626 -	633	628.67	1.84E+01	23.15	7.93E+01	2.17
	22	734.08	733 -	736	734.16	1.45E+01	14.56	3.10E+01	3.41
	23	740.45	737 -	745	740.53	2.37E+01	25.55	8.66E+01	1.59
	24	817.46	813 -	822	817.52	3.01E+01	24.02	6.58E+01	5.34
	25	860.54	857 -	865	860.58	2.94E+01	24.82	7.71E+01	1.62
	26	912.08	905 -	919	912.10	1.02E+02	37.36	9.97E+01	2.79
	27	927.04	924 -	930	927.06	2.12E+01	16.69	3.57E+01	3.79
	28	968.18	962 -	973	968.18	5.70E+01	35.83	1.32E+02	2.47
	29	1012.44	1010 -	1015	1012.43	1.38E+01	12.61	2.03E+01	2.01
	30	1120.04	1114 -	1126	1119.99	3.37E+01	32.71	1.09E+02	2.55
	31	1222.17	1219 -	1225	1222.08	2.79E+01	18.85	4.22E+01	4.69
	32	1440.58	1438 -	1442	1440.42	6.44E+00	6.96	5.11E+00	1.64
	33	1448.96	1445 -	1453	1448.80	1.15E+01	10.22	9.00E+00	3.87
	34	1460.63	1455 -	1466	1460.47	3.82E+02	40.89	1.85E+01	2.46
	35	1499.54	1494 -	1505	1499.36	1.75E+01	14.56	1.70E+01	3.08
	36	1508.58	1506 -	1510	1508.40	9.50E+00	7.78	5.00E+00	1.65
	37	1601.81	1599 -	1604	1601.60	5.00E+00	4.47	0.00E+00	1.24
	38	1629.64	1626 -	1632	1629.42	1.20E+01	6.93	0.00E+00	1.58
	39	1729.51	1722 -	1733	1729.25	1.11E+01	13.71	1.79E+01	5.13
	40	1764.79	1759 -	1770	1764.52	3.77E+01	15.62	1.07E+01	2.98

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1940.44	1936 -	1944	1940.12	1.10E+01	8.50	3.92E+00	3.12
42	2103.89	2099 -	2106	2103.51	9.88E+00	8.00	4.25E+00	1.22
43	2117.26	2111 -	2120	2116.87	8.53E+00	11.79	1.49E+01	1.28
44	2203.20	2199 -	2206	2202.78	7.73E+00	8.72	6.55E+00	3.09
45	2613.70	2608 -	2617	2613.15	4.10E+01	12.81	0.00E+00	3.18

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 : 8/14/2017 12:08:03PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.66	43 -	51	1.36E+02	92.33	1.24E+03	7.34E+01
	2	63.28	59 -	67	1.72E+02	108.86	1.72E+03	8.68E+01
	3	76.84	73 -	86	6.28E+02	170.26	2.87E+03	6.85E+01
	4	93.21	91 -	98	1.92E+02	93.30	1.24E+03	7.32E+01
	5	186.39	182 -	192	1.39E+02	81.85	8.18E+02	6.44E+01
	6	221.11	217 -	225	5.56E+01	60.44	5.21E+02	4.82E+01
	7	228.65	226 -	232	3.85E+01	46.24	3.61E+02	3.66E+01
M	8	238.92	235 -	248	4.37E+02	61.94	3.93E+02	3.26E+01
m	9	241.92	235 -	248	1.15E+02	63.10	3.78E+02	3.20E+01
	10	270.45	268 -	273	3.19E+01	36.96	2.50E+02	2.89E+01
	11	296.18	291 -	302	2.37E+02	64.81	4.03E+02	4.69E+01
	12	338.45	335 -	342	9.90E+01	46.04	2.86E+02	3.41E+01
	13	352.22	348 -	355	2.89E+02	51.19	2.45E+02	3.15E+01
M	14	463.96	460 -	481	3.50E+01	31.24	1.47E+02	1.99E+01
m	15	477.58	460 -	481	2.48E+01	29.66	1.13E+02	1.74E+01
	16	484.90	483 -	489	2.53E+01	27.79	1.27E+02	2.13E+01
	17	510.81	505 -	514	1.01E+02	42.04	1.94E+02	3.04E+01
M	18	554.67	550 -	561	2.17E+01	23.45	9.02E+01	1.56E+01
	19	583.76	577 -	590	1.16E+02	45.72	1.75E+02	3.31E+01
	20	609.60	604 -	614	2.18E+02	46.37	1.70E+02	2.94E+01
	21	628.56	626 -	633	1.84E+01	23.15	7.93E+01	1.77E+01
	22	734.08	733 -	736	1.45E+01	14.56	3.10E+01	1.02E+01

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
23	740.45	737 -	745	2.37E+01	25.55	8.66E+01	1.94E+01
24	817.46	813 -	822	3.01E+01	24.02	6.58E+01	1.76E+01
25	860.54	857 -	865	2.94E+01	24.82	7.71E+01	1.84E+01
26	912.08	905 -	919	1.02E+02	37.36	9.97E+01	2.58E+01
27	927.04	924 -	930	2.12E+01	16.69	3.57E+01	1.14E+01
28	968.18	962 -	973	5.70E+01	35.83	1.32E+02	1.34E+01
29	1012.44	1010 -	1015	1.38E+01	12.61	2.03E+01	8.37E+00
30	1120.04	1114 -	1126	3.37E+01	32.71	1.09E+02	2.51E+01
31	1222.17	1219 -	1225	2.79E+01	18.85	4.22E+01	1.28E+01
32	1440.58	1438 -	1442	6.44E+00	6.96	5.11E+00	3.92E+00
33	1448.96	1445 -	1453	1.15E+01	10.22	9.00E+00	6.29E+00
34	1460.63	1455 -	1466	3.82E+02	40.89	1.85E+01	9.90E+00
35	1499.54	1494 -	1505	1.75E+01	14.56	1.70E+01	9.80E+00
36	1508.58	1506 -	1510	9.50E+00	7.78	5.00E+00	3.90E+00
37	1601.81	1599 -	1604	5.00E+00	4.47	0.00E+00	0.00E+00
38	1629.64	1626 -	1632	1.20E+01	6.93	0.00E+00	0.00E+00
39	1729.51	1722 -	1733	1.11E+01	13.71	1.79E+01	9.85E+00
40	1764.79	1759 -	1770	3.77E+01	15.62	1.07E+01	7.94E+00
41	1940.44	1936 -	1944	1.10E+01	8.50	3.92E+00	4.36E+00
42	2103.89	2099 -	2106	9.88E+00	8.00	4.25E+00	4.07E+00
43	2117.26	2111 -	2120	8.53E+00	11.79	1.49E+01	8.42E+00
44	2203.20	2199 -	2206	7.73E+00	8.72	6.55E+00	5.52E+00
45	2613.70	2608 -	2617	4.10E+01	12.81	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 : 8/14/2017 12:08:03PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	46.66	43 -	51	46.97	1.36E+02	92.33	1.24E+03	PB-210
2	63.28	59 -	67	63.59	1.72E+02	108.86	1.72E+03	TH-234

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									TH-230
	3	76.84	73 -	86	77.14	6.28E+02	170.26	2.87E+03	.....
	4	93.21	91 -	98	93.50	1.92E+02	93.30	1.24E+03	GA-67
	5	186.39	182 -	192	186.65	1.39E+02	81.85	8.18E+02	RA-226
	6	221.11	217 -	225	221.37	5.56E+01	60.44	5.21E+02	.....
	7	228.65	226 -	232	228.90	3.85E+01	46.24	3.61E+02	NP-239
									TE-132
									CM-243
M	8	238.92	235 -	248	239.17	4.37E+02	61.94	3.93E+02	PB-212
m	9	241.92	235 -	248	242.17	1.15E+02	63.10	3.78E+02	RA-224
	10	270.45	268 -	273	270.68	3.19E+01	36.96	2.50E+02	.....
	11	296.18	291 -	302	296.41	2.37E+02	64.81	4.03E+02	PB-214
	12	338.45	335 -	342	338.67	9.90E+01	46.04	2.86E+02	AC-228
	13	352.22	348 -	355	352.43	2.89E+02	51.19	2.45E+02	PB-214
M	14	463.96	460 -	481	464.13	3.50E+01	31.24	1.47E+02	SB-125
m	15	477.58	460 -	481	477.75	2.48E+01	29.66	1.13E+02	BE-7
									PM-144
	16	484.90	483 -	489	485.06	2.53E+01	27.79	1.27E+02	.....
	17	510.81	505 -	514	510.96	1.01E+02	42.04	1.94E+02	.....
M	18	554.67	550 -	561	554.81	2.17E+01	23.45	9.02E+01	.....
	19	583.76	577 -	590	583.89	1.16E+02	45.72	1.75E+02	TL-208
	20	609.60	604 -	614	609.72	2.18E+02	46.37	1.70E+02	BI-214
	21	628.56	626 -	633	628.67	1.84E+01	23.15	7.93E+01	.....
	22	734.08	733 -	736	734.16	1.45E+01	14.56	3.10E+01	PA-234
	23	740.45	737 -	745	740.53	2.37E+01	25.55	8.66E+01	MO-99
	24	817.46	813 -	822	817.52	3.01E+01	24.02	6.58E+01	.....
	25	860.54	857 -	865	860.58	2.94E+01	24.82	7.71E+01	TL-208
	26	912.08	905 -	919	912.10	1.02E+02	37.36	9.97E+01	TL-204
	27	927.04	924 -	930	927.06	2.12E+01	16.69	3.57E+01	.....
	28	968.18	962 -	973	968.18	5.70E+01	35.83	1.32E+02	AC-228
	29	1012.44	1010 -	1015	1012.43	1.38E+01	12.61	2.03E+01	.....
	30	1120.04	1114 -	1126	1119.99	3.37E+01	32.71	1.09E+02	BI-214
									SC-46
	31	1222.17	1219 -	1225	1222.08	2.79E+01	18.85	4.22E+01	TA-182
	32	1440.58	1438 -	1442	1440.42	6.44E+00	6.96	5.11E+00	.....
	33	1448.96	1445 -	1453	1448.80	1.15E+01	10.22	9.00E+00	.....
	34	1460.63	1455 -	1466	1460.47	3.82E+02	40.89	1.85E+01	K-40
	35	1499.54	1494 -	1505	1499.36	1.75E+01	14.56	1.70E+01	.....
	36	1508.58	1506 -	1510	1508.40	9.50E+00	7.78	5.00E+00	.....
	37	1601.81	1599 -	1604	1601.60	5.00E+00	4.47	0.00E+00	.....
	38	1629.64	1626 -	1632	1629.42	1.20E+01	6.93	0.00E+00	.....
	39	1729.51	1722 -	1733	1729.25	1.11E+01	13.71	1.79E+01	.....
	40	1764.79	1759 -	1770	1764.52	3.77E+01	15.62	1.07E+01	BI-214
	41	1940.44	1936 -	1944	1940.12	1.10E+01	8.50	3.92E+00	.....
	42	2103.89	2099 -	2106	2103.51	9.88E+00	8.00	4.25E+00	.....
	43	2117.26	2111 -	2120	2116.87	8.53E+00	11.79	1.49E+01	.....
	44	2203.20	2199 -	2206	2202.78	7.73E+00	8.72	6.55E+00	.....
	45	2613.70	2608 -	2617	2613.15	4.10E+01	12.81	0.00E+00	TL-208

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

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 : 8/14/2017 12:08:03PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.66	1.36E+02	92.33	1.73E-02	1.73E-03
	2	63.28	1.72E+02	108.86	2.44E-02	1.80E-03
	3	76.84	6.28E+02	170.26	2.67E-02	2.05E-03
	4	93.21	1.92E+02	93.30	2.71E-02	2.24E-03
	5	186.39	1.39E+02	81.85	1.96E-02	1.55E-03
	6	221.11	5.56E+01	60.44	1.72E-02	1.41E-03
	7	228.65	3.85E+01	46.24	1.67E-02	1.38E-03
M	8	238.92	4.37E+02	61.94	1.61E-02	1.34E-03
m	9	241.92	1.15E+02	63.10	1.59E-02	1.33E-03
	10	270.45	3.19E+01	36.96	1.45E-02	1.21E-03
	11	296.18	2.37E+02	64.81	1.34E-02	1.14E-03
	12	338.45	9.90E+01	46.04	1.19E-02	1.06E-03
	13	352.22	2.89E+02	51.19	1.15E-02	1.03E-03
M	14	463.96	3.50E+01	31.24	9.01E-03	8.57E-04
m	15	477.58	2.48E+01	29.66	8.77E-03	8.39E-04
	16	484.90	2.53E+01	27.79	8.65E-03	8.29E-04
	17	510.81	1.01E+02	42.04	8.26E-03	7.95E-04
M	18	554.67	2.17E+01	23.45	7.66E-03	7.36E-04
	19	583.76	1.16E+02	45.72	7.32E-03	6.98E-04
	20	609.60	2.18E+02	46.37	7.04E-03	6.64E-04
	21	628.56	1.84E+01	23.15	6.85E-03	6.38E-04
	22	734.08	1.45E+01	14.56	5.96E-03	5.31E-04
	23	740.45	2.37E+01	25.55	5.91E-03	5.25E-04
	24	817.46	3.01E+01	24.02	5.41E-03	4.57E-04
	25	860.54	2.94E+01	24.82	5.17E-03	4.19E-04
	26	912.08	1.02E+02	37.36	4.92E-03	3.84E-04
	27	927.04	2.12E+01	16.69	4.85E-03	3.81E-04
	28	968.18	5.70E+01	35.83	4.67E-03	3.75E-04
	29	1012.44	1.38E+01	12.61	4.49E-03	3.67E-04
	30	1120.04	3.37E+01	32.71	4.12E-03	3.50E-04
	31	1222.17	2.79E+01	18.85	3.83E-03	3.27E-04
	32	1440.58	6.44E+00	6.96	3.35E-03	2.78E-04
	33	1448.96	1.15E+01	10.22	3.33E-03	2.77E-04
	34	1460.63	3.82E+02	40.89	3.31E-03	2.75E-04

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1499.54	1.75E+01	14.56	3.24E-03	2.69E-04
36	1508.58	9.50E+00	7.78	3.23E-03	2.67E-04
37	1601.81	5.00E+00	4.47	3.08E-03	2.52E-04
38	1629.64	1.20E+01	6.93	3.04E-03	2.48E-04
39	1729.51	1.11E+01	13.71	2.91E-03	2.32E-04
40	1764.79	3.77E+01	15.62	2.86E-03	2.26E-04
41	1940.44	1.10E+01	8.50	2.68E-03	2.15E-04
42	2103.89	9.88E+00	8.00	2.54E-03	2.15E-04
43	2117.26	8.53E+00	11.79	2.53E-03	2.15E-04
44	2203.20	7.73E+00	8.72	2.46E-03	2.15E-04
45	2613.70	4.10E+01	12.81	2.24E-03	2.15E-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 : 8/14/2017 12:08:03PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.66	1.36E+02	92.33	4.84E+01	1.23E+01	8.79E+01	9.31E+01
	2	63.28	1.72E+02	108.86	4.29E+01	6.03E+00	1.29E+02	1.09E+02
	3	76.84	6.28E+02	170.26			6.28E+02	1.70E+02
	4	93.21	1.92E+02	93.30	6.90E+01	7.61E+00	1.23E+02	9.36E+01
	5	186.39	1.39E+02	81.85	2.99E+01	5.81E+00	1.09E+02	8.21E+01
	6	221.11	5.56E+01	60.44			5.56E+01	6.04E+01
	7	228.65	3.85E+01	46.24			3.85E+01	4.62E+01
M	8	238.92	4.37E+02	61.94	9.49E+00	5.63E+00	4.28E+02	6.22E+01
m	9	241.92	1.15E+02	63.10			1.15E+02	6.31E+01
	10	270.45	3.19E+01	36.96			3.19E+01	3.70E+01
	11	296.18	2.37E+02	64.81			2.37E+02	6.48E+01
	12	338.45	9.90E+01	46.04	4.73E+00	4.47E+00	9.43E+01	4.63E+01
	13	352.22	2.89E+02	51.19			2.89E+02	5.12E+01
M	14	463.96	3.50E+01	31.24			3.50E+01	3.12E+01
m	15	477.58	2.48E+01	29.66			2.48E+01	2.97E+01
	16	484.90	2.53E+01	27.79			2.53E+01	2.78E+01
	17	510.81	1.01E+02	42.04			1.01E+02	4.20E+01
M	18	554.67	2.17E+01	23.45			2.17E+01	2.35E+01
	19	583.76	1.16E+02	45.72			1.16E+02	4.57E+01

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
20	609.60	2.18E+02	46.37	4.09E+00	3.07E+00	2.14E+02	4.65E+01
21	628.56	1.84E+01	23.15			1.84E+01	2.32E+01
22	734.08	1.45E+01	14.56			1.45E+01	1.46E+01
23	740.45	2.37E+01	25.55			2.37E+01	2.55E+01
24	817.46	3.01E+01	24.02			3.01E+01	2.40E+01
25	860.54	2.94E+01	24.82			2.94E+01	2.48E+01
26	912.08	1.02E+02	37.36			1.02E+02	3.74E+01
27	927.04	2.12E+01	16.69			2.12E+01	1.67E+01
28	968.18	5.70E+01	35.83			5.70E+01	3.58E+01
29	1012.44	1.38E+01	12.61			1.38E+01	1.26E+01
30	1120.04	3.37E+01	32.71			3.37E+01	3.27E+01
31	1222.17	2.79E+01	18.85			2.79E+01	1.88E+01
32	1440.58	6.44E+00	6.96			6.44E+00	6.96E+00
33	1448.96	1.15E+01	10.22			1.15E+01	1.02E+01
34	1460.63	3.82E+02	40.89			3.82E+02	4.09E+01
35	1499.54	1.75E+01	14.56			1.75E+01	1.46E+01
36	1508.58	9.50E+00	7.78			9.50E+00	7.78E+00
37	1601.81	5.00E+00	4.47			5.00E+00	4.47E+00
38	1629.64	1.20E+01	6.93			1.20E+01	6.93E+00
39	1729.51	1.11E+01	13.71			1.11E+01	1.37E+01
40	1764.79	3.77E+01	15.62			3.77E+01	1.56E+01
41	1940.44	1.10E+01	8.50			1.10E+01	8.50E+00
42	2103.89	9.88E+00	8.00			9.88E+00	8.00E+00
43	2117.26	8.53E+00	11.79			8.53E+00	1.18E+01
44	2203.20	7.73E+00	8.72			7.73E+00	8.72E+00
45	2613.70	4.10E+01	12.81			4.10E+01	1.28E+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 : 8/14/2017 12:08:03PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	46.66	1.36E+02	92.33	4.84E+01	1.23E+01	8.79E+01	9.31E+01
2	63.28	1.72E+02	108.86	4.29E+01	6.03E+00	1.29E+02	1.09E+02

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	3	76.84	6.28E+02	170.26			6.28E+02	1.70E+02
	4	93.21	1.92E+02	93.30	6.90E+01	7.61E+00	1.23E+02	9.36E+01
	5	186.39	1.39E+02	81.85	2.99E+01	5.81E+00	1.09E+02	8.21E+01
	6	221.11	5.56E+01	60.44			5.56E+01	6.04E+01
	7	228.65	3.85E+01	46.24			3.85E+01	4.62E+01
M	8	238.92	4.37E+02	61.94	9.49E+00	5.63E+00	4.28E+02	6.22E+01
m	9	241.92	1.15E+02	63.10			1.15E+02	6.31E+01
	10	270.45	3.19E+01	36.96			3.19E+01	3.70E+01
	11	296.18	2.37E+02	64.81			2.37E+02	6.48E+01
	12	338.45	9.90E+01	46.04	4.73E+00	4.47E+00	9.43E+01	4.63E+01
	13	352.22	2.89E+02	51.19			2.89E+02	5.12E+01
M	14	463.96	3.50E+01	31.24			3.50E+01	3.12E+01
m	15	477.58	2.48E+01	29.66			2.48E+01	2.97E+01
	16	484.90	2.53E+01	27.79			2.53E+01	2.78E+01
	17	510.81	1.01E+02	42.04			1.01E+02	4.20E+01
M	18	554.67	2.17E+01	23.45			2.17E+01	2.35E+01
	19	583.76	1.16E+02	45.72			1.16E+02	4.57E+01
	20	609.60	2.18E+02	46.37	4.09E+00	3.07E+00	2.14E+02	4.65E+01
	21	628.56	1.84E+01	23.15			1.84E+01	2.32E+01
	22	734.08	1.45E+01	14.56			1.45E+01	1.46E+01
	23	740.45	2.37E+01	25.55			2.37E+01	2.55E+01
	24	817.46	3.01E+01	24.02			3.01E+01	2.40E+01
	25	860.54	2.94E+01	24.82			2.94E+01	2.48E+01
	26	912.08	1.02E+02	37.36			1.02E+02	3.74E+01
	27	927.04	2.12E+01	16.69			2.12E+01	1.67E+01
	28	968.18	5.70E+01	35.83			5.70E+01	3.58E+01
	29	1012.44	1.38E+01	12.61			1.38E+01	1.26E+01
	30	1120.04	3.37E+01	32.71			3.37E+01	3.27E+01
	31	1222.17	2.79E+01	18.85			2.79E+01	1.88E+01
	32	1440.58	6.44E+00	6.96			6.44E+00	6.96E+00
	33	1448.96	1.15E+01	10.22			1.15E+01	1.02E+01
	34	1460.63	3.82E+02	40.89			3.82E+02	4.09E+01
	35	1499.54	1.75E+01	14.56			1.75E+01	1.46E+01
	36	1508.58	9.50E+00	7.78			9.50E+00	7.78E+00
	37	1601.81	5.00E+00	4.47			5.00E+00	4.47E+00
	38	1629.64	1.20E+01	6.93			1.20E+01	6.93E+00
	39	1729.51	1.11E+01	13.71			1.11E+01	1.37E+01
	40	1764.79	3.77E+01	15.62			3.77E+01	1.56E+01
	41	1940.44	1.10E+01	8.50			1.10E+01	8.50E+00
	42	2103.89	9.88E+00	8.00			9.88E+00	8.00E+00
	43	2117.26	8.53E+00	11.79			8.53E+00	1.18E+01
	44	2203.20	7.73E+00	8.72			7.73E+00	8.72E+00
	45	2613.70	4.10E+01	12.81			4.10E+01	1.28E+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 1707077-18

HTC-A01-S002-3036-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BE-7	0.985	477.59	*	10.42	8.91E-01	1.07E+00
K-40	0.995	1460.81	*	10.67	1.06E+01	1.46E+00
TL-208	0.904	583.14	*	30.22	5.18E-01	2.09E-01
		860.37	*	4.48	1.25E+00	1.06E+00
		2614.66	*	35.85	5.03E-01	1.64E-01
PB-210	0.996	46.50	*	4.25	1.18E+00	1.26E+00
PB-212	0.884	238.63	*	44.60	5.86E-01	9.81E-02
		300.09		3.41		
BI-214	0.922	609.31	*	46.30	6.46E-01	1.53E-01
		1120.29	*	15.10	5.33E-01	5.20E-01
		1764.49	*	15.80	8.19E-01	3.46E-01
		2204.22		4.98		
PB-214	0.942	295.21	*	19.19	9.04E-01	2.59E-01
		351.92	*	37.19	6.62E-01	1.32E-01
RA-224	0.867	240.98	*	3.95	1.79E+00	9.97E-01
RA-226	0.995	186.21	*	3.28	1.68E+00	3.32E+00
TH-234	1.000	63.29	*	3.80	1.37E+00	1.16E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 12:08:03PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.84	1.74541E-01	13.55		
	4	93.21	3.41243E-02	38.10	Sum	
	6	221.11	1.54342E-02	54.39		
	7	228.65	1.06875E-02	60.09	Tol.	TE-132 NP-239 CM-243
	10	270.45	8.86058E-03	57.93		
	12	338.45	2.61936E-02	24.53	Tol.	AC-228
M	14	463.96	9.71928E-03	44.64	Tol.	SB-125
	16	484.90	7.02871E-03	54.92		
	17	510.81	2.80366E-02	20.82		
M	18	554.67	6.02368E-03	54.07		
	21	628.56	5.10057E-03	63.04		
	22	734.08	4.02778E-03	50.21	Tol.	PA-234
	23	740.45	6.58789E-03	53.86	Tol.	MO-99
	24	817.46	8.35979E-03	39.91		
	26	912.08	2.83681E-02	18.29	Tol.	TL-204
	27	927.04	5.87607E-03	39.45		
	28	968.18	1.58333E-02	31.43	Tol.	AC-228
	29	1012.44	3.84259E-03	45.58		
	31	1222.17	7.75227E-03	33.77	Tol.	TA-182
	32	1440.58	1.79012E-03	54.03		
	33	1448.96	3.19444E-03	44.45		
	35	1499.54	4.85577E-03	41.65		
	36	1508.58	2.63889E-03	40.94		
	37	1601.81	1.38889E-03	44.72		
	38	1629.64	3.33333E-03	28.87		
	39	1729.51	3.07639E-03	61.90	Sum	
	41	1940.44	3.06624E-03	38.50		
	42	2103.89	2.74306E-03	40.51		
	43	2117.26	2.36979E-03	69.10	Sum	
	44	2203.20	2.14646E-03	56.41		

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 1707077-18

HTC-A01-S002-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BE-7	0.98	477.59	*	10.42	8.91E-01	1.07E+00
K-40	0.99	1460.81	*	10.67	1.06E+01	1.46E+00
TL-208	0.90	583.14	*	30.22	5.18E-01	2.09E-01
		860.37	*	4.48	1.25E+00	1.06E+00
		2614.66	*	35.85	5.03E-01	1.64E-01
PB-210	0.99	46.50	*	4.25	1.18E+00	1.26E+00
PB-212	0.88	238.63	*	44.60	5.86E-01	9.81E-02
		300.09		3.41		
BI-214	0.92	609.31	*	46.30	6.46E-01	1.53E-01
		1120.29	*	15.10	5.33E-01	5.20E-01
		1764.49	*	15.80	8.19E-01	3.46E-01
		2204.22		4.98		
PB-214	0.94	295.21	*	19.19	9.04E-01	2.59E-01
		351.92	*	37.19	6.62E-01	1.32E-01
RA-224	0.86	240.98	*	3.95	1.79E+00	9.97E-01
RA-226	0.99	186.21	*	3.28	1.68E+00	3.32E+00
TH-234	1.00	63.29	*	3.80	1.37E+00	1.16E+00

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BE-7	0.985	8.91E-01	1.07E+00	
K-40	0.995	1.06E+01	1.46E+00	
TL-208	0.904	5.20E-01	1.28E-01	
PB-210	0.996	1.18E+00	1.26E+00	
PB-212	0.884	5.86E-01	9.81E-02	
BI-214	0.922	6.64E-01	1.35E-01	
PB-214	0.942	7.12E-01	1.17E-01	
RA-224	0.867	1.79E+00	9.97E-01	
RA-226	0.995	1.68E+00	3.32E+00	
TH-234	1.000	1.37E+00	1.16E+00	

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

? = 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 1707077-18

HTC-A01-S002-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 12:08:03PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.84	1.74541E-01	13.55		
	4	93.21	3.41243E-02	38.10	Sum	
	6	221.11	1.54342E-02	54.39		
	7	228.65	1.06875E-02	60.09	Tol.	TE-132
						NP-239
						CM-243
	10	270.45	8.86058E-03	57.93		
	12	338.45	2.61936E-02	24.53	Tol.	AC-228
M	14	463.96	9.71928E-03	44.64	Tol.	SB-125
	16	484.90	7.02871E-03	54.92		
	17	510.81	2.80366E-02	20.82		
M	18	554.67	6.02368E-03	54.07		
	21	628.56	5.10057E-03	63.04		
	22	734.08	4.02778E-03	50.21	Tol.	PA-234
	23	740.45	6.58789E-03	53.86	Tol.	MO-99
	24	817.46	8.35979E-03	39.91		
	26	912.08	2.83681E-02	18.29	Tol.	TL-204
	27	927.04	5.87607E-03	39.45		
	28	968.18	1.58333E-02	31.43	Tol.	AC-228
	29	1012.44	3.84259E-03	45.58		
	31	1222.17	7.75227E-03	33.77	Tol.	TA-182
	32	1440.58	1.79012E-03	54.03		
	33	1448.96	3.19444E-03	44.45		
	35	1499.54	4.85577E-03	41.65		
	36	1508.58	2.63889E-03	40.94		
	37	1601.81	1.38889E-03	44.72		
	38	1629.64	3.33333E-03	28.87		
	39	1729.51	3.07639E-03	61.90	Sum	
	41	1940.44	3.06624E-03	38.50		
	42	2103.89	2.74306E-03	40.51		
	43	2117.26	2.36979E-03	69.10	Sum	
	44	2203.20	2.14646E-03	56.41		

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HTC-A01-S002-3036-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59	*	10.42	8.91E-01	3.94E+00	3.94E+00
+		NA-22	1274.54		99.94	8.66E-03	7.79E-02	7.79E-02
+	@	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	-1.75E-02	4.21E-02	4.21E-02
+		K-40	1460.81	*	10.67	1.06E+01	6.28E-01	6.28E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-2.29E-02	4.44E-02	4.44E-02
			78.34		96.00	9.70E-02		5.41E-02
+		SC-46	889.25		99.98	-5.89E-02	1.17E-01	1.17E-01
			1120.51		99.99	1.77E-01		2.05E-01
+		V-48	983.52		99.98	8.46E-01	3.76E+00	3.76E+00
			1312.10		97.50	9.80E-01		4.19E+00
+		CR-51	320.08		9.83	1.02E+00	4.81E+00	4.81E+00
+		MN-54	834.83		99.97	-1.91E-02	7.31E-02	7.31E-02
+		CO-56	846.75		99.96	1.46E-02	1.22E-01	1.22E-01
			1037.75		14.03	4.60E-01		1.11E+00
			1238.25		67.00	1.10E-01		3.10E-01
			1771.40		15.51	0.00E+00		6.60E-01
			2598.48		16.90	1.76E-01		6.33E-01
+		CO-57	122.06		85.51	4.55E-03	4.78E-02	4.78E-02
			136.48		10.60	1.09E-01		4.13E-01
+		CO-58	810.76		99.40	5.41E-02	1.53E-01	1.53E-01
+		FE-59	1099.22		56.50	-1.96E-01	4.67E-01	4.67E-01
			1291.56		43.20	1.76E-01		6.99E-01
+		CO-60	1173.22		100.00	1.95E-02	6.72E-02	8.07E-02
			1332.49		100.00	1.71E-02		6.72E-02
+		ZN-65	1115.52		50.75	-3.82E-03	1.82E-01	1.82E-01
+		GA-67	93.31		35.70	6.77E+07	4.47E+07	4.47E+07
			208.95		2.24	6.19E+08		7.85E+08
			300.22		16.00	-1.75E+08		1.21E+08
+		SE-75	121.11		16.70	1.09E-01	9.91E-02	3.30E-01

Analysis Report for 1707077-18

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	2.74E-02	9.91E-02	9.91E-02
		264.65	59.80	1.04E-02		1.17E-01
		279.53	25.20	6.13E-02		3.11E-01
		400.65	11.40	-2.63E-01		7.32E-01
+	RB-82	776.52	13.00	-2.50E-01	5.48E+00	5.48E+00
+	RB-83	520.41	46.00	2.35E-02	2.32E-01	2.32E-01
		529.64	30.30	-3.68E-02		3.58E-01
		552.65	16.40	3.19E-01		7.31E-01
+	KR-85	513.99	0.43	-2.59E-01	1.68E+01	1.68E+01
+	SR-85	513.99	99.27	-3.01E-03	1.95E-01	1.95E-01
+	Y-88	898.02	93.40	-1.72E-03	9.19E-02	1.19E-01
		1836.01	99.38	2.28E-02		9.19E-02
+	MO-93	263.06	56.72	2.83E-02	5.37E-02	7.58E-02
		684.67	99.68	-7.19E-03		5.37E-02
		1477.11	99.08	-1.63E-02		6.19E-02
+	NB-93M	16.57	9.43	-9.68E+00	5.04E+01	5.04E+01
+	NB-94	702.63	100.00	2.51E-02	6.11E-02	6.11E-02
		871.10	100.00	3.82E-02		6.72E-02
+	NB-95	765.79	99.81	1.32E-01	4.19E-01	4.19E-01
+	NB-95M	235.69	25.00	-2.95E+05	1.51E+07	1.51E+07
+	ZR-95	724.18	43.70	-2.07E-01	2.73E-01	3.87E-01
		756.72	55.30	-3.77E-02		2.73E-01
+	MO-99	181.06	6.20	-6.35E+08	7.03E+09	8.35E+09
		739.58	12.80	4.32E+08		7.03E+09
		778.00	4.50	-1.14E+10		1.75E+10
+	RU-103	497.08	89.00	2.25E-02	2.69E-01	2.69E-01
+	RU-106	621.84	9.80	-1.63E-01	5.81E-01	5.81E-01
+	AG-108M	433.93	89.90	-1.50E-02	5.20E-02	5.20E-02
		614.37	90.40	-3.57E-03		7.46E-02
		722.95	90.50	-3.87E-02		6.82E-02
+	CD-109	88.03	3.72	5.03E-01	1.26E+00	1.26E+00
+	AG-110M	657.75	93.14	3.16E-03	7.94E-02	7.94E-02
		677.61	10.53	-2.81E-02		6.21E-01
		706.67	16.46	-2.46E-01		4.35E-01
		763.93	21.98	-1.01E-01		3.65E-01
		884.67	71.63	1.23E-02		1.06E-01
		1384.27	23.94	-3.08E-02		2.68E-01
+	CD-113M	263.70	0.02	2.00E+01	1.83E+02	1.83E+02
+	SN-113	255.12	1.93	5.28E-01	1.25E-01	4.02E+00
		391.69	64.90	-4.37E-02		1.25E-01
+	TE123M	159.00	84.10	-1.76E-02	6.91E-02	6.91E-02
+	SB-124	602.71	97.87	3.69E-02	1.68E-01	1.68E-01
		645.85	7.26	7.37E-01		2.19E+00
		722.78	11.10	-9.19E-01		1.62E+00
		1691.02	49.00	-1.54E-01		2.98E-01
+	I-125	35.49	6.49	5.49E-01	4.26E+00	4.26E+00
+	SB-125	176.33	6.89	-1.34E-01	1.70E-01	5.32E-01
		427.89	29.33	7.19E-03		1.70E-01

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38	10.35	3.48E-01	1.70E-01	5.66E-01
		600.56	17.80	7.57E-02		3.30E-01
		635.90	11.32	8.82E-02		5.00E-01
+	SB-126	414.70	83.30	-3.24E+00	9.55E+00	1.05E+01
		666.33	99.60	1.13E+00		9.55E+00
		695.00	99.60	3.69E+00		1.11E+01
		720.50	53.80	-9.11E+00		1.91E+01
+	SN-126	87.57	37.00	4.40E-02	1.10E-01	1.10E-01
+	SB-127	473.00	25.00	-3.14E+06	2.78E+06	3.12E+06
		685.20	35.70	-3.72E+05		2.78E+06
		783.80	14.70	2.67E+06		7.37E+06
+	I-129	29.78	57.00	-3.34E-01	2.74E-01	2.74E-01
		33.60	13.20	7.21E-01		8.57E-01
		39.58	7.52	-1.23E-01		8.97E-01
+	I-131	284.30	6.05	-1.71E+02	1.62E+02	2.22E+03
		364.48	81.20	-1.94E+01		1.62E+02
		636.97	7.26	5.78E+02		2.31E+03
		722.89	1.80	-5.91E+03		1.04E+04
+	TE-132	49.72	13.10	-1.62E+08	1.89E+07	1.52E+08
		228.16	88.00	1.92E+06		1.89E+07
+	BA-133	81.00	33.00	-2.99E-01	1.09E-01	1.24E-01
		302.84	17.80	-4.01E-02		2.53E-01
		356.01	60.00	-1.54E-02		1.09E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-5.61E+04	2.33E+04	2.33E+04
+	CS-134	563.23	8.38	1.71E-01	6.79E-02	6.56E-01
		569.32	15.43	1.71E-01		3.94E-01
		604.70	97.60	-5.16E-04		6.79E-02
		795.84	85.40	8.13E-03		8.35E-02
		801.93	8.73	-4.10E-02		7.87E-01
+	CS-135	268.24	16.00	-3.19E-02	2.63E-01	2.63E-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	1.31E+01	8.65E+00	6.30E+01
		163.89	4.61	3.43E+01		1.03E+02
		176.55	13.56	-8.59E+00		3.41E+01
		273.65	12.66	-4.60E+00		4.81E+01
		340.57	48.50	1.96E+00		1.66E+01
		818.50	99.70	3.62E+00		8.65E+00
		1048.07	79.60	3.45E+00		1.15E+01
		1235.34	19.70	1.55E+01		6.24E+01
+	CS-137	661.65	85.12	1.87E-02	6.89E-02	6.89E-02
+	LA-138	788.74	34.00	-5.29E-02	7.05E-02	1.70E-01
		1435.80	66.00	1.24E-02		7.05E-02
+	CE-139	165.85	80.35	-2.76E-02	6.78E-02	6.78E-02
+	BA-140	162.64	6.70	-2.61E+01	3.09E+01	7.75E+01
		304.84	4.50	-6.95E+01		1.40E+02
		423.70	3.20	-3.33E+01		2.41E+02

Analysis Report for 1707077-18

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		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	1.16E+02	3.09E+01	3.58E+02
			537.32	25.00	1.08E+01		3.09E+01
+		LA-140	328.77	20.50	-1.89E+00	8.20E+00	3.48E+01
			487.03	45.50	1.42E+01		1.92E+01
			815.85	23.50	3.67E+00		4.05E+01
			1596.49	95.49	2.07E+00		8.20E+00
+		CE-141	145.44	48.40	1.68E-02	5.08E-01	5.08E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-1.36E-01	3.88E-01	3.88E-01
+		PM-144	476.78	42.00	1.20E-01	6.33E-02	1.41E-01
			618.01	98.60	-1.85E-02		6.33E-02
			696.49	99.49	-4.99E-03		7.22E-02
+		PM-145	36.85	21.70	-1.02E-01	2.05E-01	3.89E-01
			37.36	39.70	7.59E-02		2.05E-01
			42.30	15.10	-1.02E-01		3.96E-01
			72.40	2.31	1.46E-01		2.12E+00
+		PM-146	453.90	39.94	-1.14E-02	1.15E-01	1.15E-01
			735.90	14.01	-3.81E-01		4.05E-01
			747.13	13.10	4.32E-02		4.75E-01
+		ND-147	91.11	28.90	-1.69E+01	5.12E+01	5.12E+01
			531.02	13.10	8.72E+00		1.41E+02
+		PM-149	285.90	3.10	2.46E+12	6.66E+12	6.66E+12
+		EU-152	121.78	20.50	1.51E-02	1.59E-01	1.59E-01
			244.69	5.40	-1.33E+00		1.01E+00
			344.27	19.13	8.99E-02		2.42E-01
			778.89	9.20	-3.86E-01		5.65E-01
			964.01	10.40	-9.38E-01		7.22E-01
			1085.78	7.22	-2.40E-01		9.07E-01
			1112.02	9.60	2.05E-01		7.28E-01
			1407.95	14.94	6.05E-02		4.29E-01
+		GD-153	97.43	31.30	8.79E-03	1.30E-01	1.30E-01
			103.18	22.20	-1.76E-01		1.74E-01
+		EU-154	123.07	40.50	1.35E-02	8.16E-02	8.16E-02
			723.30	19.70	-1.81E-01		3.19E-01
			873.19	11.50	-5.02E-02		5.86E-01
			996.32	10.30	-2.89E-02		6.30E-01
			1004.76	17.90	3.21E-02		3.45E-01
			1274.45	35.50	2.32E-02		2.09E-01
+		EU-155	86.50	30.90	7.32E-02	1.37E-01	1.37E-01
			105.30	20.70	7.56E-03		1.57E-01
+		EU-156	811.77	10.40	3.44E+00	3.85E+01	3.85E+01
			1153.47	7.20	-4.05E+00		7.09E+01
			1230.71	8.90	1.01E+01		6.13E+01
+		HO-166M	184.41	72.60	4.98E-02	5.72E-02	5.72E-02
			280.45	29.60	2.92E-02		1.55E-01
			410.94	11.10	-2.88E-01		4.14E-01
			711.69	54.10	2.29E-02		1.04E-01

Analysis Report for 1707077-18

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	9.46E+00	3.43E+01	3.43E+01
+	HF-172	67.35		5.31	-4.48E-01	3.13E-01	8.69E-01
		125.81		11.30	-1.51E-01		3.13E-01
+	LU-172	181.53		20.60	3.21E+02	1.69E+03	2.57E+03
		900.72		29.81	-2.07E+02		3.04E+03
		1093.66		62.50	5.39E+02		1.69E+03
+	LU-173	100.72		5.24	2.45E-01	2.40E-01	6.64E-01
		272.11		21.20	-2.25E-02		2.40E-01
+	HF-175	343.40		84.00	5.07E-02	1.37E-01	1.37E-01
+	LU-176	88.34		13.30	1.22E-01	4.15E-02	3.18E-01
		201.83		86.00	-8.06E-03		4.15E-02
		306.78		94.00	1.45E-02		4.56E-02
+	HF-181	133.02		41.70	-1.36E-01	2.64E-01	3.66E-01
		345.85		17.20	4.54E-01		1.19E+00
		482.03		82.80	-2.30E-01		2.64E-01
+	TA-182	67.75		41.20	-9.21E-02	1.78E-01	1.78E-01
		1121.30		34.90	3.25E-01		4.70E-01
		1189.05		16.23	1.25E-01		8.33E-01
		1221.41		26.98	3.56E-01		6.07E-01
		1231.02		11.44	1.98E-01		1.20E+00
+	IR-192	308.46		29.68	-3.18E-02	2.45E-01	3.38E-01
		468.07		48.10	6.24E-02		2.45E-01
+	HG-203	279.19		77.30	1.43E-02	2.36E-01	2.36E-01
+	TL-204	374.74		94.11	8.51E-03	4.99E-02	4.99E-02
		899.15		99.16	1.37E-03		6.56E-02
		911.74		91.10	1.49E-01		1.19E-01
+	BI-207	569.67		97.72	2.96E-02	5.86E-02	5.86E-02
		1063.62		74.90	2.56E-02		9.75E-02
+	TL-208	583.14	*	30.22	5.18E-01	3.32E-02	3.07E-01
		860.37	*	4.48	1.25E+00		1.67E+00
		2614.66	*	35.85	5.03E-01		3.32E-02
+	BI-210M	262.00		45.00	5.82E-02	9.65E-02	9.65E-02
		300.00		23.00	-3.13E-01		2.16E-01
+	PB-210	46.50	*	4.25	1.18E+00	2.06E+00	2.06E+00
+	PB-211	404.84		2.90	3.04E-01	1.74E+00	1.74E+00
		831.96		2.90	-3.72E-01		1.85E+00
+	BI-212	727.17		11.80	4.54E-01	5.97E-01	5.97E-01
		1620.62		2.75	6.81E-01		1.86E+00
+	PB-212	238.63	*	44.60	5.86E-01	1.95E-01	1.95E-01
		300.09		3.41	-2.11E+00		1.46E+00
+	BI-214	609.31	*	46.30	6.46E-01	1.88E-01	1.88E-01
		1120.29	*	15.10	5.33E-01		8.39E-01
		1764.49	*	15.80	8.19E-01		4.04E-01
		2204.22		4.98	-2.67E-02		1.45E+00
+	PB-214	295.21	*	19.19	9.04E-01	1.51E-01	3.69E-01
		351.92	*	37.19	6.62E-01		1.51E-01
+	RN-219	401.80		6.50	-3.76E-01	7.48E-01	7.48E-01
+	RA-223	323.87		3.88	-1.23E-01	1.17E+00	1.17E+00

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	1.79E+00	2.20E+00	2.20E+00
+	RA-225	40.00		31.00	-2.27E+00	1.66E+01	1.66E+01
+	RA-226	186.21	*	3.28	1.68E+00	2.04E+00	2.04E+00
+	TH-227	50.10		8.40	-6.33E-01	5.72E-01	5.95E-01
		236.00		11.50	-1.12E-02		5.72E-01
		256.20		6.30	2.24E-01		7.07E-01
+	AC-228	338.32		11.40	5.91E-01	3.70E-01	5.17E-01
		911.07		27.70	4.81E-01		3.70E-01
		969.11		16.60	5.26E-01		5.96E-01
+	TH-230	48.44		16.90	1.94E-01	3.26E-01	3.26E-01
		62.85		4.60	8.56E-01		1.06E+00
		67.67		0.37	-5.84E+00		1.13E+01
+	PA-231	283.67		1.60	-2.33E-02	1.93E+00	2.76E+00
		302.67		2.30	-3.05E-01		1.93E+00
+	TH-231	25.64		14.70	9.43E-01	5.98E-01	2.09E+00
		84.21		6.40	-6.03E-01		5.98E-01
+	PA-233	311.98		38.60	-2.54E-01	1.19E+00	1.19E+00
+	PA-234	131.20		20.40	5.28E-02	1.70E-01	1.70E-01
		733.99		8.80	9.43E-02		6.43E-01
		946.00		12.00	2.98E-01		5.41E-01
+	PA-234M	1001.03		0.92	2.80E-01	6.85E+00	6.85E+00
+	TH-234	63.29	*	3.80	1.37E+00	1.89E+00	1.89E+00
+	U-235	143.76		10.50	1.25E-02	3.20E-01	3.20E-01
		163.35		4.70	2.50E-01		7.47E-01
		205.31		4.70	2.29E-01		9.48E-01
+	NP-237	86.50		12.60	1.73E-01	3.23E-01	3.23E-01
+	NP-239	106.10		22.70	5.21E+09	1.08E+11	1.08E+11
		228.18		10.70	3.14E+10		3.08E+11
		277.60		14.10	5.77E+10		2.50E+11
+	AM-241	59.54		35.90	-8.07E-02	1.24E-01	1.24E-01
+	AM-243	74.67		66.00	3.82E-02	8.26E-02	8.26E-02
+	CM-243	209.75		3.29	1.83E-01	3.24E-01	1.35E+00
		228.14		10.60	4.07E-02		4.00E-01
		277.60		14.00	7.48E-02		3.24E-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 1707077-18

HTC-A01-S002-3036-01

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	3.94E+00	3.94E+00	8.91E-01	1.92E+00
	NA-22	1274.54		99.94	7.79E-02	7.79E-02	8.66E-03	3.51E-02
@	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	4.21E-02	4.21E-02	-1.75E-02	1.63E-02
+	K-40	1460.81	*	10.67	6.28E-01	6.28E-01	1.06E+01	2.76E-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	4.44E-02	4.44E-02	-2.29E-02	2.17E-02
		78.34		96.00	5.41E-02		9.70E-02	2.65E-02
	SC-46	889.25		99.98	1.17E-01	1.17E-01	-5.89E-02	5.29E-02
		1120.51		99.99	2.05E-01		1.77E-01	9.53E-02
	V-48	983.52		99.98	3.76E+00	3.76E+00	8.46E-01	1.72E+00
		1312.10		97.50	4.19E+00		9.80E-01	1.88E+00
	CR-51	320.08		9.83	4.81E+00	4.81E+00	1.02E+00	2.29E+00
	MN-54	834.83		99.97	7.31E-02	7.31E-02	-1.91E-02	3.35E-02
	CO-56	846.75		99.96	1.22E-01	1.22E-01	1.46E-02	5.51E-02
		1037.75		14.03	1.11E+00		4.60E-01	5.05E-01
		1238.25		67.00	3.10E-01		1.10E-01	1.43E-01
		1771.40		15.51	6.60E-01		0.00E+00	2.62E-01
		2598.48		16.90	6.33E-01		1.76E-01	2.37E-01
	CO-57	122.06		85.51	4.78E-02	4.78E-02	4.55E-03	2.31E-02
		136.48		10.60	4.13E-01		1.09E-01	2.00E-01
	CO-58	810.76		99.40	1.53E-01	1.53E-01	5.41E-02	7.04E-02
	FE-59	1099.22		56.50	4.67E-01	4.67E-01	-1.96E-01	2.09E-01
		1291.56		43.20	6.99E-01		1.76E-01	3.14E-01
	CO-60	1173.22		100.00	8.07E-02	6.72E-02	1.95E-02	3.69E-02
		1332.49		100.00	6.72E-02		1.71E-02	2.97E-02
	ZN-65	1115.52		50.75	1.82E-01	1.82E-01	-3.82E-03	8.29E-02
	GA-67	93.31		35.70	4.47E+07	4.47E+07	6.77E+07	2.18E+07
		208.95		2.24	7.85E+08		6.19E+08	3.80E+08
		300.22		16.00	1.21E+08		-1.75E+08	5.80E+07
	SE-75	121.11		16.70	3.30E-01	9.91E-02	1.09E-01	1.60E-01
		136.00		59.20	9.91E-02		2.74E-02	4.80E-02
		264.65		59.80	1.17E-01		1.04E-02	5.61E-02
		279.53		25.20	3.11E-01		6.13E-02	1.49E-01
		400.65		11.40	7.32E-01		-2.63E-01	3.46E-01
	RB-82	776.52		13.00	5.48E+00	5.48E+00	-2.50E-01	2.51E+00
	RB-83	520.41		46.00	2.32E-01	2.32E-01	2.35E-02	1.08E-01
		529.64		30.30	3.58E-01		-3.68E-02	1.67E-01
		552.65		16.40	7.31E-01		3.19E-01	3.43E-01
	KR-85	513.99		0.43	1.68E+01	1.68E+01	-2.59E-01	8.00E+00
	SR-85	513.99		99.27	1.95E-01	1.95E-01	-3.01E-03	9.30E-02

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	1.19E-01	9.19E-02	-1.72E-03	5.40E-02
	1836.01	99.38	9.19E-02		2.28E-02	3.71E-02
MO-93	263.06	56.72	7.58E-02	5.37E-02	2.83E-02	3.63E-02
	684.67	99.68	5.37E-02		-7.19E-03	2.47E-02
	1477.11	99.08	6.19E-02		-1.63E-02	2.68E-02
NB-93M	16.57	9.43	5.04E+01	5.04E+01	-9.68E+00	2.45E+01
NB-94	702.63	100.00	6.11E-02	6.11E-02	2.51E-02	2.84E-02
	871.10	100.00	6.72E-02		3.82E-02	3.10E-02
NB-95	765.79	99.81	4.19E-01	4.19E-01	1.32E-01	1.95E-01
NB-95M	235.69	25.00	1.51E+07	1.51E+07	-2.95E+05	7.35E+06
ZR-95	724.18	43.70	3.87E-01	2.73E-01	-2.07E-01	1.80E-01
	756.72	55.30	2.73E-01		-3.77E-02	1.25E-01
MO-99	181.06	6.20	8.35E+09	7.03E+09	-6.35E+08	4.01E+09
	739.58	12.80	7.03E+09		4.32E+08	3.25E+09
	778.00	4.50	1.75E+10		-1.14E+10	7.97E+09
RU-103	497.08	89.00	2.69E-01	2.69E-01	2.25E-02	1.25E-01
RU-106	621.84	9.80	5.81E-01	5.81E-01	-1.63E-01	2.67E-01
AG-108M	433.93	89.90	5.20E-02	5.20E-02	-1.50E-02	2.44E-02
	614.37	90.40	7.46E-02		-3.57E-03	3.52E-02
	722.95	90.50	6.82E-02		-3.87E-02	3.17E-02
CD-109	88.03	3.72	1.26E+00	1.26E+00	5.03E-01	6.13E-01
AG-110M	657.75	93.14	7.94E-02	7.94E-02	3.16E-03	3.69E-02
	677.61	10.53	6.21E-01		-2.81E-02	2.85E-01
	706.67	16.46	4.35E-01		-2.46E-01	2.00E-01
	763.93	21.98	3.65E-01		-1.01E-01	1.69E-01
	884.67	71.63	1.06E-01		1.23E-02	4.85E-02
	1384.27	23.94	2.68E-01		-3.08E-02	1.13E-01
CD-113M	263.70	0.02	1.83E+02	1.83E+02	2.00E+01	8.78E+01
SN-113	255.12	1.93	4.02E+00	1.25E-01	5.28E-01	1.93E+00
	391.69	64.90	1.25E-01		-4.37E-02	5.92E-02
TE123M	159.00	84.10	6.91E-02	6.91E-02	-1.76E-02	3.33E-02
SB-124	602.71	97.87	1.68E-01	1.68E-01	3.69E-02	7.86E-02
	645.85	7.26	2.19E+00		7.37E-01	1.01E+00
	722.78	11.10	1.62E+00		-9.19E-01	7.52E-01
	1691.02	49.00	2.98E-01		-1.54E-01	1.22E-01
I-125	35.49	6.49	4.26E+00	4.26E+00	5.49E-01	2.07E+00
SB-125	176.33	6.89	5.32E-01	1.70E-01	-1.34E-01	2.56E-01
	427.89	29.33	1.70E-01		7.19E-03	8.01E-02
	463.38	10.35	5.66E-01		3.48E-01	2.68E-01
	600.56	17.80	3.30E-01		7.57E-02	1.54E-01
	635.90	11.32	5.00E-01		8.82E-02	2.32E-01
SB-126	414.70	83.30	1.05E+01	9.55E+00	-3.24E+00	4.95E+00
	666.33	99.60	9.55E+00		1.13E+00	4.40E+00
	695.00	99.60	1.11E+01		3.69E+00	5.16E+00
	720.50	53.80	1.91E+01		-9.11E+00	8.83E+00
SN-126	87.57	37.00	1.10E-01	1.10E-01	4.40E-02	5.36E-02
SB-127	473.00	25.00	3.12E+06	2.78E+06	-3.14E+06	1.44E+06
	685.20	35.70	2.78E+06		-3.72E+05	1.28E+06
	783.80	14.70	7.37E+06		2.67E+06	3.38E+06
I-129	29.78	57.00	2.74E-01	2.74E-01	-3.34E-01	1.33E-01
	33.60	13.20	8.57E-01		7.21E-01	4.16E-01
	39.58	7.52	8.97E-01		-1.23E-01	4.35E-01
I-131	284.30	6.05	2.22E+03	1.62E+02	-1.71E+02	1.06E+03

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	1.62E+02	1.62E+02	-1.94E+01	7.68E+01
	636.97	7.26	2.31E+03		5.78E+02	1.07E+03
	722.89	1.80	1.04E+04		-5.91E+03	4.84E+03
TE-132	49.72	13.10	1.52E+08	1.89E+07	-1.62E+08	7.39E+07
	228.16	88.00	1.89E+07		1.92E+06	9.09E+06
BA-133	81.00	33.00	1.24E-01	1.09E-01	-2.99E-01	6.05E-02
	302.84	17.80	2.53E-01		-4.01E-02	1.21E-01
	356.01	60.00	1.09E-01		-1.54E-02	5.27E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	2.33E+04	2.33E+04	-5.61E+04	1.14E+04
CS-134	563.23	8.38	6.56E-01	6.79E-02	1.71E-01	3.05E-01
	569.32	15.43	3.94E-01		1.71E-01	1.84E-01
	604.70	97.60	6.79E-02		-5.16E-04	3.18E-02
	795.84	85.40	8.35E-02		8.13E-03	3.87E-02
	801.93	8.73	7.87E-01		-4.10E-02	3.63E-01
CS-135	268.24	16.00	2.63E-01	2.63E-01	-3.19E-02	1.26E-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	6.30E+01	8.65E+00	1.31E+01	3.04E+01
	163.89	4.61	1.03E+02		3.43E+01	4.95E+01
	176.55	13.56	3.41E+01		-8.59E+00	1.64E+01
	273.65	12.66	4.81E+01		-4.60E+00	2.30E+01
	340.57	48.50	1.66E+01		1.96E+00	7.97E+00
	818.50	99.70	8.65E+00		3.62E+00	3.99E+00
	1048.07	79.60	1.15E+01		3.45E+00	5.25E+00
	1235.34	19.70	6.24E+01		1.55E+01	2.88E+01
CS-137	661.65	85.12	6.89E-02	6.89E-02	1.87E-02	3.21E-02
LA-138	788.74	34.00	1.70E-01	7.05E-02	-5.29E-02	7.81E-02
	1435.80	66.00	7.05E-02		1.24E-02	2.92E-02
CE-139	165.85	80.35	6.78E-02	6.78E-02	-2.76E-02	3.27E-02
BA-140	162.64	6.70	7.75E+01	3.09E+01	-2.61E+01	3.73E+01
	304.84	4.50	1.40E+02		-6.95E+01	6.67E+01
	423.70	3.20	2.41E+02		-3.33E+01	1.14E+02
	437.55	2.00	3.58E+02		1.16E+02	1.68E+02
	537.32	25.00	3.09E+01		1.08E+01	1.44E+01
LA-140	328.77	20.50	3.48E+01	8.20E+00	-1.89E+00	1.66E+01
	487.03	45.50	1.92E+01		1.42E+01	9.08E+00
	815.85	23.50	4.05E+01		3.67E+00	1.87E+01
	1596.49	95.49	8.20E+00		2.07E+00	3.40E+00
CE-141	145.44	48.40	5.08E-01	5.08E-01	1.68E-02	2.45E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	3.88E-01	3.88E-01	-1.36E-01	1.88E-01
PM-144	476.78	42.00	1.41E-01	6.33E-02	1.20E-01	6.63E-02
	618.01	98.60	6.33E-02		-1.85E-02	2.93E-02
	696.49	99.49	7.22E-02		-4.99E-03	3.35E-02
PM-145	36.85	21.70	3.89E-01	2.05E-01	-1.02E-01	1.89E-01
	37.36	39.70	2.05E-01		7.59E-02	9.95E-02
	42.30	15.10	3.96E-01		-1.02E-01	1.92E-01
	72.40	2.31	2.12E+00		1.46E-01	1.04E+00
PM-146	453.90	39.94	1.15E-01	1.15E-01	-1.14E-02	5.39E-02

Analysis Report for 1707077-18

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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	735.90	14.01	4.05E-01	1.15E-01	-3.81E-01	1.86E-01
	747.13	13.10	4.75E-01		4.32E-02	2.20E-01
ND-147	91.11	28.90	5.12E+01	5.12E+01	-1.69E+01	2.50E+01
	531.02	13.10	1.41E+02		8.72E+00	6.61E+01
PM-149	285.90	3.10	6.66E+12	6.66E+12	2.46E+12	3.19E+12
EU-152	121.78	20.50	1.59E-01	1.59E-01	1.51E-02	7.69E-02
	244.69	5.40	1.01E+00		-1.33E+00	4.87E-01
	344.27	19.13	2.42E-01		8.99E-02	1.15E-01
	778.89	9.20	5.65E-01		-3.86E-01	2.56E-01
	964.01	10.40	7.22E-01		-9.38E-01	3.33E-01
	1085.78	7.22	9.07E-01		-2.40E-01	4.09E-01
	1112.02	9.60	7.28E-01		2.05E-01	3.30E-01
	1407.95	14.94	4.29E-01		6.05E-02	1.88E-01
GD-153	97.43	31.30	1.30E-01	1.30E-01	8.79E-03	6.30E-02
	103.18	22.20	1.74E-01		-1.76E-01	8.38E-02
EU-154	123.07	40.50	8.16E-02	8.16E-02	1.35E-02	3.95E-02
	723.30	19.70	3.19E-01		-1.81E-01	1.48E-01
	873.19	11.50	5.86E-01		-5.02E-02	2.70E-01
	996.32	10.30	6.30E-01		-2.89E-02	2.86E-01
	1004.76	17.90	3.45E-01		3.21E-02	1.55E-01
	1274.45	35.50	2.09E-01		2.32E-02	9.42E-02
EU-155	86.50	30.90	1.37E-01	1.37E-01	7.32E-02	6.66E-02
	105.30	20.70	1.57E-01		7.56E-03	7.61E-02
EU-156	811.77	10.40	3.85E+01	3.85E+01	3.44E+00	1.76E+01
	1153.47	7.20	7.09E+01		-4.05E+00	3.22E+01
	1230.71	8.90	6.13E+01		1.01E+01	2.79E+01
HO-166M	184.41	72.60	5.72E-02	5.72E-02	4.98E-02	2.77E-02
	280.45	29.60	1.55E-01		2.92E-02	7.43E-02
	410.94	11.10	4.14E-01		-2.88E-01	1.95E-01
	711.69	54.10	1.04E-01		2.29E-02	4.79E-02
TM-171	66.72	0.14	3.43E+01	3.43E+01	9.46E+00	1.67E+01
HF-172	67.35	5.31	8.69E-01	3.13E-01	-4.48E-01	4.24E-01
	125.81	11.30	3.13E-01		-1.51E-01	1.51E-01
LU-172	181.53	20.60	2.57E+03	1.69E+03	3.21E+02	1.23E+03
	900.72	29.81	3.04E+03		-2.07E+02	1.38E+03
	1093.66	62.50	1.69E+03		5.39E+02	7.70E+02
LU-173	100.72	5.24	6.64E-01	2.40E-01	2.45E-01	3.21E-01
	272.11	21.20	2.40E-01		-2.25E-02	1.15E-01
HF-175	343.40	84.00	1.37E-01	1.37E-01	5.07E-02	6.49E-02
LU-176	88.34	13.30	3.18E-01	4.15E-02	1.22E-01	1.55E-01
	201.83	86.00	4.15E-02		-8.06E-03	1.99E-02
	306.78	94.00	4.56E-02		1.45E-02	2.17E-02
HF-181	133.02	41.70	3.66E-01	2.64E-01	-1.36E-01	1.77E-01
	345.85	17.20	1.19E+00		4.54E-01	5.65E-01
	482.03	82.80	2.64E-01		-2.30E-01	1.23E-01
TA-182	67.75	41.20	1.78E-01	1.78E-01	-9.21E-02	8.70E-02
	1121.30	34.90	4.70E-01		3.25E-01	2.19E-01
	1189.05	16.23	8.33E-01		1.25E-01	3.80E-01
	1221.41	26.98	6.07E-01		3.56E-01	2.81E-01
	1231.02	11.44	1.20E+00		1.98E-01	5.47E-01
IR-192	308.46	29.68	3.38E-01	2.45E-01	-3.18E-02	1.61E-01
	468.07	48.10	2.45E-01		6.24E-02	1.15E-01
HG-203	279.19	77.30	2.36E-01	2.36E-01	1.43E-02	1.13E-01

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	4.99E-02	4.99E-02	8.51E-03	2.36E-02
		899.15		99.16	6.56E-02		1.37E-03	3.00E-02
		911.74		91.10	1.19E-01		1.49E-01	5.62E-02
	BI-207	569.67		97.72	5.86E-02	5.86E-02	2.96E-02	2.74E-02
		1063.62		74.90	9.75E-02		2.56E-02	4.46E-02
+	TL-208	583.14	*	30.22	3.07E-01	3.32E-02	5.18E-01	1.47E-01
		860.37	*	4.48	1.67E+00		1.25E+00	7.80E-01
		2614.66	*	35.85	3.32E-02		5.03E-01	0.00E+00
	BI-210M	262.00		45.00	9.65E-02	9.65E-02	5.82E-02	4.63E-02
		300.00		23.00	2.16E-01		-3.13E-01	1.04E-01
+	PB-210	46.50	*	4.25	2.06E+00	2.06E+00	1.18E+00	1.01E+00
	PB-211	404.84		2.90	1.74E+00	1.74E+00	3.04E-01	8.24E-01
		831.96		2.90	1.85E+00		-3.72E-01	8.38E-01
	BI-212	727.17		11.80	5.97E-01	5.97E-01	4.54E-01	2.80E-01
		1620.62		2.75	1.86E+00		6.81E-01	7.71E-01
+	PB-212	238.63	*	44.60	1.95E-01	1.95E-01	5.86E-01	9.54E-02
		300.09		3.41	1.46E+00		-2.11E+00	7.01E-01
+	BI-214	609.31	*	46.30	1.88E-01	1.88E-01	6.46E-01	8.97E-02
		1120.29	*	15.10	8.39E-01		5.33E-01	3.98E-01
		1764.49	*	15.80	4.04E-01		8.19E-01	1.73E-01
		2204.22		4.98	1.45E+00		-2.67E-02	6.19E-01
+	PB-214	295.21	*	19.19	3.69E-01	1.51E-01	9.04E-01	1.79E-01
		351.92	*	37.19	1.51E-01		6.62E-01	7.23E-02
	RN-219	401.80		6.50	7.48E-01	7.48E-01	-3.76E-01	3.54E-01
	RA-223	323.87		3.88	1.17E+00	1.17E+00	-1.23E-01	5.58E-01
+	RA-224	240.98	*	3.95	2.20E+00	2.20E+00	1.79E+00	1.08E+00
	RA-225	40.00		31.00	1.66E+01	1.66E+01	-2.27E+00	8.04E+00
+	RA-226	186.21	*	3.28	2.04E+00	2.04E+00	1.68E+00	1.00E+00
	TH-227	50.10		8.40	5.95E-01	5.72E-01	-6.33E-01	2.89E-01
		236.00		11.50	5.72E-01		-1.12E-02	2.79E-01
		256.20		6.30	7.07E-01		2.24E-01	3.40E-01
	AC-228	338.32		11.40	5.17E-01	3.70E-01	5.91E-01	2.49E-01
		911.07		27.70	3.70E-01		4.81E-01	1.75E-01
		969.11		16.60	5.96E-01		5.26E-01	2.81E-01
	TH-230	48.44		16.90	3.26E-01	3.26E-01	1.94E-01	1.59E-01
		62.85		4.60	1.06E+00		8.56E-01	5.16E-01
		67.67		0.37	1.13E+01		-5.84E+00	5.52E+00
	PA-231	283.67		1.60	2.76E+00	1.93E+00	-2.33E-02	1.32E+00
		302.67		2.30	1.93E+00		-3.05E-01	9.19E-01
	TH-231	25.64		14.70	2.09E+00	5.98E-01	9.43E-01	1.02E+00
		84.21		6.40	5.98E-01		-6.03E-01	2.91E-01
	PA-233	311.98		38.60	1.19E+00	1.19E+00	-2.54E-01	5.68E-01
	PA-234	131.20		20.40	1.70E-01	1.70E-01	5.28E-02	8.21E-02
		733.99		8.80	6.43E-01		9.43E-02	2.96E-01
		946.00		12.00	5.41E-01		2.98E-01	2.47E-01
	PA-234M	1001.03		0.92	6.85E+00	6.85E+00	2.80E-01	3.10E+00
+	TH-234	63.29	*	3.80	1.89E+00	1.89E+00	1.37E+00	9.30E-01
	U-235	143.76		10.50	3.20E-01	3.20E-01	1.25E-02	1.55E-01
		163.35		4.70	7.47E-01		2.50E-01	3.61E-01
		205.31		4.70	9.48E-01		2.29E-01	4.58E-01
	NP-237	86.50		12.60	3.23E-01	3.23E-01	1.73E-01	1.58E-01
	NP-239	106.10		22.70	1.08E+11	1.08E+11	5.21E+09	5.24E+10
		228.18		10.70	3.08E+11		3.14E+10	1.48E+11

Analysis Report for 1707077-18

HTC-A01-S002-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	2.50E+11	1.08E+11	5.77E+10	1.20E+11
AM-241	59.54	35.90	1.24E-01	1.24E-01	-8.07E-02	6.02E-02
AM-243	74.67	66.00	8.26E-02	8.26E-02	3.82E-02	4.05E-02
CM-243	209.75	3.29	1.35E+00	3.24E-01	1.83E-01	6.54E-01
	228.14	10.60	4.00E-01		4.07E-02	1.93E-01
	277.60	14.00	3.24E-01		7.48E-02	1.55E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S002-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	156	157	128	112	94	87	82
17:	87	61	79	76	58	80	76	70
25:	57	90	91	67	60	73	52	76
33:	84	81	73	74	68	75	64	72
41:	58	56	67	77	74	73	129	106
49:	84	79	65	84	90	96	77	88
57:	93	88	89	104	102	101	123	177
65:	131	110	97	107	109	91	132	126
73:	114	151	217	225	251	275	169	95
81:	95	88	88	117	99	81	102	167
89:	106	97	128	104	145	168	76	71
97:	71	49	67	58	59	60	56	51
105:	49	84	69	57	63	64	64	66
113:	77	60	56	51	39	56	56	59
121:	73	47	60	55	60	56	55	59
129:	67	78	64	60	49	59	59	64
137:	54	64	63	49	67	48	54	59
145:	55	55	55	46	50	60	54	54
153:	50	65	49	49	48	61	41	56
161:	37	54	55	49	35	59	46	43
169:	52	50	44	44	55	46	35	58
177:	49	41	33	48	41	35	47	43
185:	44	78	87	55	49	38	39	33
193:	40	33	31	45	53	40	40	38
201:	41	28	46	37	34	48	45	35
209:	48	49	36	34	32	30	43	35
217:	32	34	36	42	37	41	44	27
225:	23	28	24	39	43	32	31	22
233:	30	32	36	32	27	109	254	173
241:	74	87	74	43	30	36	28	23
249:	38	34	25	30	36	17	40	28
257:	29	21	31	21	28	33	20	28
265:	23	20	15	21	21	30	35	31
273:	19	27	20	25	29	36	20	27
281:	23	23	25	29	22	23	21	21
289:	27	20	18	24	19	36	67	97
297:	60	24	17	27	34	15	15	24
305:	19	14	10	26	26	16	16	20
313:	18	16	15	24	18	20	21	17
321:	35	21	13	15	22	15	17	21
329:	22	24	23	16	28	15	23	15
337:	21	47	79	24	21	12	22	18
345:	19	12	21	12	14	17	52	139
353:	125	42	10	18	12	15	19	13
361:	15	11	14	17	14	17	14	13

369:	11	21	9	9	18	14	16	12

Sample Title: HTC-A01-S002-3036-01

Channel								
377:	16	17	14	10	12	10	10	10
385:	12	20	19	16	16	17	13	16
393:	18	10	11	17	16	16	12	13
401:	19	18	11	18	15	23	19	9
409:	13	15	15	19	13	6	17	13
417:	16	14	21	13	23	17	12	14
425:	14	9	12	13	16	10	13	19
433:	4	12	12	8	16	15	14	11
441:	5	13	8	11	4	16	9	14
449:	9	11	12	9	11	7	12	12
457:	7	9	13	7	11	12	19	19
465:	22	13	9	10	12	10	6	5
473:	6	9	12	7	20	10	11	11
481:	8	5	3	20	14	17	15	9
489:	11	15	12	13	8	13	11	6
497:	12	5	7	10	8	7	9	9
505:	9	9	10	15	16	27	46	38
513:	20	8	13	14	11	12	13	9
521:	11	9	10	6	7	8	10	15
529:	8	13	11	7	6	12	13	8
537:	13	8	6	4	10	5	13	7
545:	10	6	4	10	10	8	10	11
553:	13	10	18	10	8	7	15	8
561:	4	8	17	7	7	9	8	9
569:	10	14	12	11	12	5	10	12
577:	6	9	11	9	10	17	42	46
585:	20	10	3	8	8	5	3	7
593:	12	4	6	3	10	7	7	14
601:	9	10	8	9	8	9	4	30
609:	81	92	46	8	13	3	11	9
617:	4	13	5	8	4	6	14	3
625:	4	3	11	10	8	8	5	9
633:	4	8	8	8	11	7	7	8
641:	7	7	4	8	7	9	11	6
649:	9	5	5	6	5	7	12	8
657:	7	6	7	10	8	10	9	6
665:	10	6	9	3	4	7	2	10
673:	6	7	5	8	7	5	4	6
681:	7	4	8	9	7	4	8	5
689:	9	6	8	7	8	9	7	11
697:	5	13	4	9	5	14	9	6
705:	7	9	5	4	10	6	6	10
713:	6	7	3	6	7	8	5	9
721:	9	9	2	6	11	11	9	21
729:	8	9	5	8	11	9	9	1
737:	3	7	3	14	11	4	8	8
745:	9	6	8	6	6	8	2	7
753:	7	2	5	8	7	4	5	10
761:	8	4	9	10	2	9	10	11
769:	9	6	9	6	11	12	7	2
777:	2	12	5	2	4	6	4	8
785:	8	5	7	5	5	5	7	8
793:	7	7	10	11	8	6	5	9

801:	5	6	6	6	12	8	7	12

Sample Title: HTC-A01-S002-3036-01

Channel								
809:	9	6	8	2	3	5	6	8
817:	5	10	8	9	5	4	4	5
825:	5	5	4	4	1	6	5	7
833:	6	5	2	7	6	7	5	11
841:	7	4	1	3	2	5	4	4
849:	5	8	5	6	3	5	8	4
857:	4	8	6	10	17	8	6	4
865:	5	4	3	4	7	7	4	8
873:	10	8	6	3	8	8	5	5
881:	4	2	7	7	7	3	4	5
889:	5	4	7	1	2	9	6	5
897:	5	4	8	3	5	8	2	5
905:	5	6	5	4	10	17	29	31
913:	16	2	5	8	7	3	4	0
921:	3	6	2	2	4	11	5	6
929:	8	3	3	7	5	10	5	6
937:	2	2	4	3	4	3	8	3
945:	2	5	7	6	7	3	2	7
953:	4	0	3	2	5	4	5	3
961:	4	7	5	7	11	6	9	25
969:	20	15	8	7	3	8	7	6
977:	6	4	5	1	9	7	3	3
985:	9	2	4	7	3	9	1	6
993:	4	6	4	3	7	4	5	4
1001:	8	5	3	3	4	4	7	3
1009:	2	2	4	8	5	4	1	2
1017:	2	3	3	6	6	5	10	6
1025:	4	4	5	3	5	2	4	3
1033:	3	3	6	7	7	6	4	4
1041:	2	5	2	6	4	9	5	3
1049:	1	9	4	3	4	2	3	2
1057:	7	4	3	8	5	6	7	2
1065:	6	8	5	3	4	3	5	5
1073:	4	4	4	4	0	6	4	7
1081:	3	8	2	7	7	4	3	2
1089:	4	3	7	3	3	10	5	3
1097:	3	5	2	3	9	1	1	6
1105:	3	6	4	5	6	6	6	1
1113:	7	3	3	7	6	7	12	13
1121:	18	4	3	4	3	5	2	4
1129:	3	4	2	3	4	2	3	7
1137:	5	4	4	4	9	2	7	6
1145:	5	7	6	5	3	2	6	7
1153:	4	6	3	6	8	4	5	8
1161:	3	6	2	8	7	4	7	4
1169:	9	8	5	5	6	4	7	3
1177:	3	3	9	2	8	1	8	4
1185:	4	4	4	2	4	7	8	7
1193:	6	4	3	5	8	5	8	6
1201:	3	8	7	6	6	5	5	6
1209:	3	3	7	7	5	6	7	6
1217:	8	5	4	9	8	10	8	8
1225:	2	2	5	3	3	7	5	6

1233:	6	5	4	6	13	9	7	4

Sample Title: HTC-A01-S002-3036-01

Channel								
1241:	6	5	5	3	1	2	5	6
1249:	2	5	3	6	4	1	4	1
1257:	3	2	5	2	4	6	5	2
1265:	3	3	5	5	4	2	4	2
1273:	5	4	7	3	3	3	5	1
1281:	7	4	2	5	3	4	2	2
1289:	6	2	1	1	5	9	3	2
1297:	5	1	5	3	0	4	3	7
1305:	3	2	3	1	1	5	3	4
1313:	8	4	1	4	3	4	4	4
1321:	1	1	2	0	6	0	1	3
1329:	5	3	3	2	2	3	2	0
1337:	4	5	0	6	2	4	2	1
1345:	5	0	5	1	4	1	5	3
1353:	1	0	1	4	3	6	3	3
1361:	1	3	2	0	1	2	2	5
1369:	1	3	2	2	0	2	1	5
1377:	4	6	1	5	2	2	2	1
1385:	0	2	1	2	0	0	1	1
1393:	1	1	2	6	1	3	2	1
1401:	2	2	2	1	0	1	2	5
1409:	6	1	2	2	3	1	1	2
1417:	1	0	2	2	2	1	2	0
1425:	1	2	1	3	1	1	2	1
1433:	2	1	1	3	0	0	1	3
1441:	5	0	2	0	1	0	2	5
1449:	3	1	3	1	0	1	0	3
1457:	3	11	50	132	124	48	16	1
1465:	2	1	1	4	1	2	4	1
1473:	3	2	3	1	2	2	0	1
1481:	0	2	2	1	2	1	0	4
1489:	1	3	1	5	0	2	2	2
1497:	2	3	2	4	2	5	1	1
1505:	0	1	1	4	6	0	1	3
1513:	1	3	2	0	1	0	1	0
1521:	0	1	0	1	1	1	3	2
1529:	2	2	0	3	2	2	0	1
1537:	3	0	0	1	1	1	1	1
1545:	1	0	1	3	3	1	2	0
1553:	2	0	2	3	0	2	1	0
1561:	0	0	1	1	2	1	2	1
1569:	1	0	1	0	0	0	1	0
1577:	2	0	1	1	1	1	1	0
1585:	0	3	2	1	3	2	2	3
1593:	1	1	0	2	1	0	0	0
1601:	3	1	1	0	0	0	2	0
1609:	0	1	1	1	4	1	0	1
1617:	0	0	2	2	0	1	1	1
1625:	0	0	1	1	3	6	1	0
1633:	0	0	0	1	1	3	1	0
1641:	0	0	2	0	1	0	0	0
1649:	0	2	1	0	0	0	0	1
1657:	0	3	2	0	0	2	0	2

1665:	1	1	2	0	1	0	2	1

Sample Title: HTC-A01-S002-3036-01

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

2097:	0	1	0	1	1	2	0	6

Sample Title: HTC-A01-S002-3036-01

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

2529:	0	0	1	0	0	1	0	0

Sample Title: HTC-A01-S002-3036-01

Channel								
2537:	0	0	1	1	1	1	0	1
2545:	0	1	0	0	0	0	0	1
2553:	2	1	0	0	0	0	1	0
2561:	0	0	0	0	0	0	0	0
2569:	1	0	0	1	0	0	0	0
2577:	0	0	1	0	0	0	1	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	1	0	1	0	0
2601:	0	1	0	0	0	0	0	0
2609:	0	2	2	9	12	9	5	2
2617:	0	0	0	0	0	1	2	0
2625:	1	0	0	0	0	0	0	0
2633:	1	1	0	0	0	0	1	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	1	0	0	0	0	0	0
2665:	0	0	0	0	0	0	0	0
2673:	0	1	0	0	0	0	1	0
2681:	0	0	0	0	0	0	0	0
2689:	0	1	0	1	0	0	0	1
2697:	0	1	0	0	0	2	1	0
2705:	1	2	1	0	1	0	0	0
2713:	0	0	1	0	0	0	0	1
2721:	0	0	0	0	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	1	0	0	0	1
2745:	0	0	0	0	0	0	2	0
2753:	0	0	0	0	1	1	0	0
2761:	0	0	1	2	0	0	1	0
2769:	0	0	0	0	0	0	0	1
2777:	1	0	1	0	0	0	0	0
2785:	0	0	0	1	1	0	0	0
2793:	0	0	0	0	1	1	0	1
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	1	0	1	0
2817:	0	0	0	0	0	0	1	0
2825:	0	0	0	1	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	2	0	0	0	0
2849:	0	1	0	0	0	1	0	0
2857:	0	0	0	0	0	1	0	1
2865:	0	1	0	0	0	0	0	0
2873:	0	1	0	0	0	1	0	0
2881:	2	0	1	0	0	1	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	1	0	0
2913:	0	0	0	1	1	0	0	0
2921:	1	0	1	0	0	0	0	1
2929:	0	0	0	1	0	0	1	0
2937:	0	1	0	0	0	0	0	0
2945:	0	0	0	0	2	1	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	1	0	0	0	1

Sample Title: HTC-A01-S002-3036-01

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

3393:	1	0	0	1	0	0	0	0

Sample Title: HTC-A01-S002-3036-01

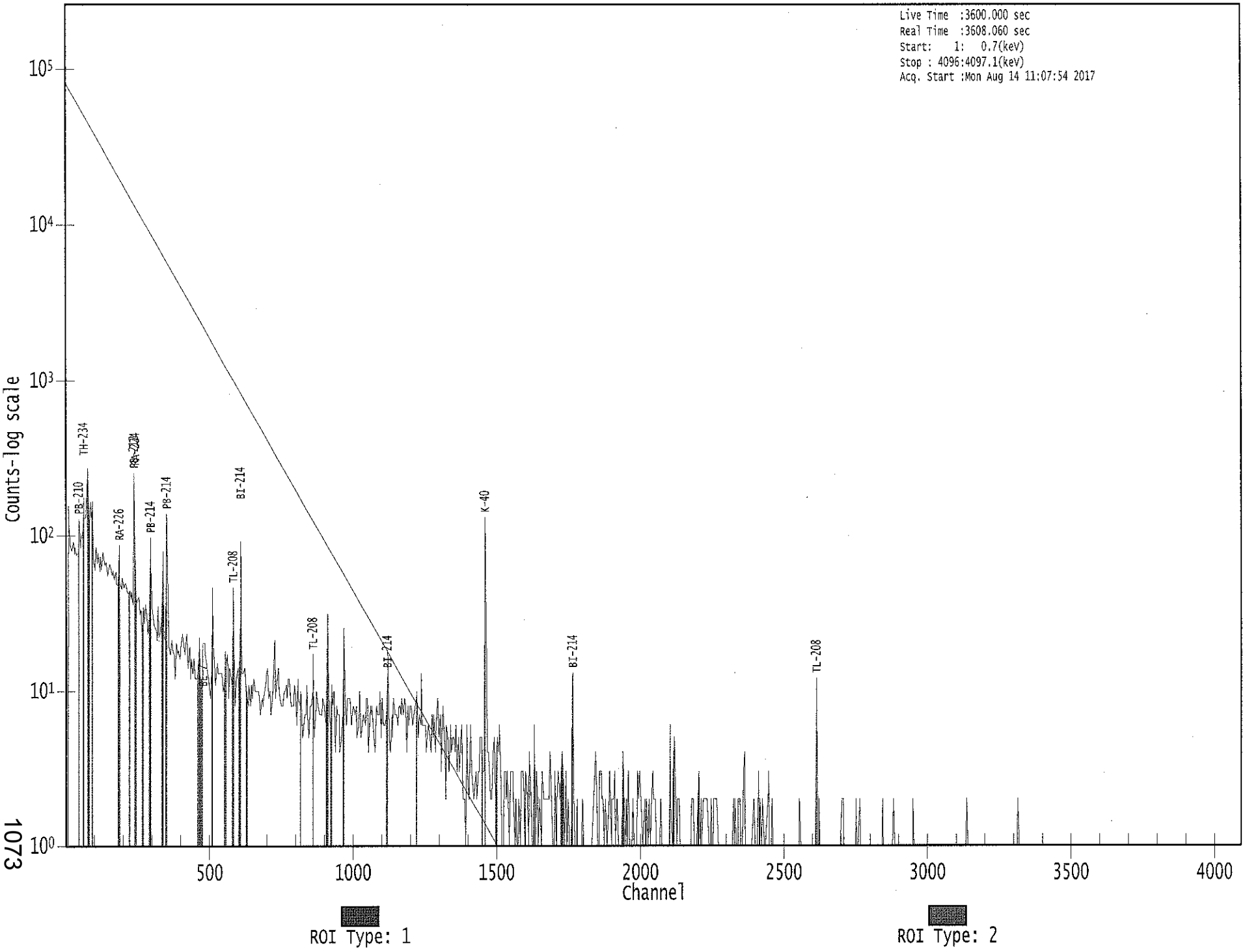
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	1	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	1	0	0	0	0
3465:	0	0	0	1	0	0	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-3036-01

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

0000055164.CNF



VB 8/14/17

Apex-Gamma

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-19
Sample Description	: HTC-A01-S002-3642-01
Sample Type	: SOIL
Sample Size	: 6.881E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:40:24AM
Acquisition Started	: 8/14/2017 11:08:04AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.8 seconds
Dead Time	: 0.05 %
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	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55165

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 12:08:28PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.95	63.00	0.0000	0.00
2	76.19	75.25	0.0000	0.00
3	87.22	86.28	0.0000	0.00
4	130.18	129.26	0.0000	0.00
5	185.97	185.06	0.0000	0.00
6	208.84	207.94	0.0000	0.00
7	239.44	238.55	0.0000	0.00
8	269.22	268.34	0.0000	0.00
9	295.45	294.58	0.0000	0.00
10	325.86	325.00	0.0000	0.00
11	338.40	337.54	0.0000	0.00
12	352.13	351.28	0.0000	0.00
13	358.53	357.68	0.0000	0.00
14	461.55	460.73	0.0000	0.00
15	582.96	582.19	0.0000	0.00
16	609.40	608.64	0.0000	0.00
17	670.28	669.54	0.0000	0.00
18	727.58	726.87	0.0000	0.00
19	768.00	767.31	0.0000	0.00
20	800.00	799.32	0.0000	0.00
21	911.43	910.80	0.0000	0.00
22	964.32	963.71	0.0000	0.00
23	969.08	968.47	0.0000	0.00
24	1119.33	1118.79	0.0000	0.00
25	1128.05	1127.51	0.0000	0.00
26	1237.09	1236.60	0.0000	0.00
27	1377.79	1377.37	0.0000	0.00
28	1460.53	1460.16	0.0000	0.00
29	1524.57	1524.22	0.0000	0.00
30	1536.94	1536.60	0.0000	0.00
31	1618.30	1618.01	0.0000	0.00
32	1638.90	1638.62	0.0000	0.00
33	1764.37	1764.15	0.0000	0.00
34	1886.88	1886.74	0.0000	0.00
35	2146.39	2146.40	0.0000	0.00
36	2250.72	2250.80	0.0000	0.00
37	2613.94	2614.26	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 12:08:28PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.95	59 -	67	63.00	2.50E+02	111.58	1.77E+03	4.20
	2	76.19	69 -	80	75.25	8.31E+02	155.22	2.59E+03	3.92
	3	87.22	82 -	90	86.28	1.24E+02	117.70	2.06E+03	1.88
	4	130.18	125 -	133	129.26	8.22E+01	87.63	1.12E+03	5.09
	5	185.97	181 -	189	185.06	1.05E+02	78.34	8.75E+02	1.76
	6	208.84	204 -	211	207.94	8.26E+01	62.61	5.95E+02	2.20
	7	239.44	232 -	246	238.55	6.91E+02	112.73	1.03E+03	2.71
	8	269.22	264 -	272	268.34	5.75E+01	54.62	4.25E+02	1.57
	9	295.45	290 -	298	294.58	1.56E+02	60.08	4.60E+02	1.97
M	10	325.86	323 -	345	325.00	3.19E+01	28.46	1.72E+02	2.17
m	11	338.40	323 -	345	337.54	1.08E+02	44.27	2.42E+02	2.64
M	12	352.13	346 -	361	351.28	3.24E+02	51.42	2.24E+02	2.82
m	13	358.53	346 -	361	357.68	2.65E+01	43.34	2.52E+02	3.53
	14	461.55	456 -	465	460.73	5.27E+01	41.06	2.13E+02	1.59
	15	582.96	577 -	587	582.19	1.62E+02	45.30	1.88E+02	2.32
	16	609.40	603 -	613	608.64	1.98E+02	47.72	1.97E+02	2.49
	17	670.28	664 -	676	669.54	4.05E+01	37.84	1.49E+02	9.64
	18	727.58	723 -	730	726.87	3.88E+01	26.98	9.43E+01	3.68
	19	768.00	762 -	774	767.31	3.31E+01	41.73	1.92E+02	5.20
	20	800.00	789 -	811	799.32	7.19E+01	54.04	1.92E+02	18.47
	21	911.43	905 -	915	910.80	9.19E+01	35.09	1.14E+02	2.62
M	22	964.32	960 -	973	963.71	4.04E+01	19.47	4.33E+01	2.97
m	23	969.08	960 -	973	968.47	6.97E+01	24.90	5.35E+01	2.56
	24	1119.33	1114 -	1123	1118.79	4.98E+01	27.57	8.05E+01	2.33
	25	1128.05	1124 -	1130	1127.51	2.01E+01	20.11	5.78E+01	2.99
	26	1237.09	1231 -	1241	1236.60	4.57E+01	28.91	8.46E+01	2.47
	27	1377.79	1373 -	1381	1377.37	2.10E+01	15.14	2.21E+01	2.88
	28	1460.53	1453 -	1466	1460.16	3.66E+02	44.36	5.60E+01	2.76
	29	1524.57	1521 -	1529	1524.22	1.28E+01	11.86	1.44E+01	4.11
	30	1536.94	1531 -	1541	1536.60	1.58E+01	12.02	1.04E+01	8.52
	31	1618.30	1613 -	1621	1618.01	8.30E+00	10.99	1.34E+01	2.67
	32	1638.90	1636 -	1642	1638.62	7.60E+00	8.03	4.80E+00	2.01
	33	1764.37	1760 -	1767	1764.15	3.41E+01	15.23	1.58E+01	3.68
	34	1886.88	1883 -	1889	1886.74	6.19E+00	6.65	3.63E+00	2.91
	35	2146.39	2143 -	2148	2146.40	5.00E+00	4.47	0.00E+00	1.24
	36	2250.72	2248 -	2253	2250.80	5.00E+00	4.47	0.00E+00	2.41
	37	2613.94	2609 -	2618	2614.26	3.10E+01	11.14	0.00E+00	2.87

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

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 : 8/14/2017 12:08:28PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.95	59 -	67	2.50E+02	111.58	1.77E+03	8.80E+01
	2	76.19	69 -	80	8.31E+02	155.22	2.59E+03	1.18E+02
	3	87.22	82 -	90	1.24E+02	117.70	2.06E+03	9.50E+01
	4	130.18	125 -	133	8.22E+01	87.63	1.12E+03	7.05E+01
	5	185.97	181 -	189	1.05E+02	78.34	8.75E+02	6.22E+01
	6	208.84	204 -	211	8.26E+01	62.61	5.95E+02	4.93E+01
	7	239.44	232 -	246	6.91E+02	112.73	1.03E+03	8.20E+01
	8	269.22	264 -	272	5.75E+01	54.62	4.25E+02	4.31E+01
	9	295.45	290 -	298	1.56E+02	60.08	4.60E+02	4.49E+01
M	10	325.86	323 -	345	3.19E+01	28.46	1.72E+02	2.15E+01
m	11	338.40	323 -	345	1.08E+02	44.27	2.42E+02	2.56E+01
M	12	352.13	346 -	361	3.24E+02	51.42	2.24E+02	2.46E+01
m	13	358.53	346 -	361	2.65E+01	43.34	2.52E+02	2.61E+01
	14	461.55	456 -	465	5.27E+01	41.06	2.13E+02	3.16E+01
	15	582.96	577 -	587	1.62E+02	45.30	1.88E+02	3.08E+01
	16	609.40	603 -	613	1.98E+02	47.72	1.97E+02	3.17E+01
	17	670.28	664 -	676	4.05E+01	37.84	1.49E+02	2.93E+01
	18	727.58	723 -	730	3.88E+01	26.98	9.43E+01	1.97E+01
	19	768.00	762 -	774	3.31E+01	41.73	1.92E+02	3.30E+01
	20	800.00	789 -	811	7.19E+01	54.04	1.92E+02	4.22E+01
	21	911.43	905 -	915	9.19E+01	35.09	1.14E+02	2.42E+01
M	22	964.32	960 -	973	4.04E+01	19.47	4.33E+01	1.08E+01
m	23	969.08	960 -	973	6.97E+01	24.90	5.35E+01	1.20E+01
	24	1119.33	1114 -	1123	4.98E+01	27.57	8.05E+01	1.95E+01
	25	1128.05	1124 -	1130	2.01E+01	20.11	5.78E+01	1.48E+01
	26	1237.09	1231 -	1241	4.57E+01	28.91	8.46E+01	2.10E+01
	27	1377.79	1373 -	1381	2.10E+01	15.14	2.21E+01	9.91E+00
	28	1460.53	1453 -	1466	3.66E+02	44.36	5.60E+01	1.85E+01
	29	1524.57	1521 -	1529	1.28E+01	11.86	1.44E+01	7.78E+00
	30	1536.94	1531 -	1541	1.58E+01	12.02	1.04E+01	7.41E+00
	31	1618.30	1613 -	1621	8.30E+00	10.99	1.34E+01	7.69E+00

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1638.90	1636 -	1642	7.60E+00	8.03	4.80E+00	4.80E+00
33	1764.37	1760 -	1767	3.41E+01	15.23	1.58E+01	8.03E+00
34	1886.88	1883 -	1889	6.19E+00	6.65	3.63E+00	3.63E+00
35	2146.39	2143 -	2148	5.00E+00	4.47	0.00E+00	0.00E+00
36	2250.72	2248 -	2253	5.00E+00	4.47	0.00E+00	0.00E+00
37	2613.94	2609 -	2618	3.10E+01	11.14	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 : 8/14/2017 12:08:28PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.95	59 -	67	63.00	2.50E+02	111.58	1.77E+03	TH-234
	2	76.19	69 -	80	75.25	8.31E+02	155.22	2.59E+03	.....
	3	87.22	82 -	90	86.28	1.24E+02	117.70	2.06E+03	SN-126
									NP-237
									EU-155
									CD-109
	4	130.18	125 -	133	129.26	8.22E+01	87.63	1.12E+03	.....
	5	185.97	181 -	189	185.06	1.05E+02	78.34	8.75E+02	RA-226
	6	208.84	204 -	211	207.94	8.26E+01	62.61	5.95E+02	GA-67
									CM-243
	7	239.44	232 -	246	238.55	6.91E+02	112.73	1.03E+03	PB-212
	8	269.22	264 -	272	268.34	5.75E+01	54.62	4.25E+02	CS-135
	9	295.45	290 -	298	294.58	1.56E+02	60.08	4.60E+02	PB-214
M	10	325.86	323 -	345	325.00	3.19E+01	28.46	1.72E+02	.....
m	11	338.40	323 -	345	337.54	1.08E+02	44.27	2.42E+02	AC-228
M	12	352.13	346 -	361	351.28	3.24E+02	51.42	2.24E+02	PB-214
m	13	358.53	346 -	361	357.68	2.65E+01	43.34	2.52E+02	.....
	14	461.55	456 -	465	460.73	5.27E+01	41.06	2.13E+02	.....
	15	582.96	577 -	587	582.19	1.62E+02	45.30	1.88E+02	TL-208
	16	609.40	603 -	613	608.64	1.98E+02	47.72	1.97E+02	BI-214

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	17	670.28	664 -	676	669.54	4.05E+01	37.84	1.49E+02	.....
	18	727.58	723 -	730	726.87	3.88E+01	26.98	9.43E+01	BI-212
	19	768.00	762 -	774	767.31	3.31E+01	41.73	1.92E+02	.....
	20	800.00	789 -	811	799.32	7.19E+01	54.04	1.92E+02	.....
	21	911.43	905 -	915	910.80	9.19E+01	35.09	1.14E+02	TL-204
									AC-228
M	22	964.32	960 -	973	963.71	4.04E+01	19.47	4.33E+01	EU-152
m	23	969.08	960 -	973	968.47	6.97E+01	24.90	5.35E+01	AC-228
	24	1119.33	1114 -	1123	1118.79	4.98E+01	27.57	8.05E+01	BI-214
	25	1128.05	1124 -	1130	1127.51	2.01E+01	20.11	5.78E+01	.....
	26	1237.09	1231 -	1241	1236.60	4.57E+01	28.91	8.46E+01	.....
	27	1377.79	1373 -	1381	1377.37	2.10E+01	15.14	2.21E+01	.....
	28	1460.53	1453 -	1466	1460.16	3.66E+02	44.36	5.60E+01	K-40
	29	1524.57	1521 -	1529	1524.22	1.28E+01	11.86	1.44E+01	.....
	30	1536.94	1531 -	1541	1536.60	1.58E+01	12.02	1.04E+01	.....
	31	1618.30	1613 -	1621	1618.01	8.30E+00	10.99	1.34E+01	.....
	32	1638.90	1636 -	1642	1638.62	7.60E+00	8.03	4.80E+00	.....
	33	1764.37	1760 -	1767	1764.15	3.41E+01	15.23	1.58E+01	BI-214
	34	1886.88	1883 -	1889	1886.74	6.19E+00	6.65	3.63E+00	.....
	35	2146.39	2143 -	2148	2146.40	5.00E+00	4.47	0.00E+00	.....
	36	2250.72	2248 -	2253	2250.80	5.00E+00	4.47	0.00E+00	.....
	37	2613.94	2609 -	2618	2614.26	3.10E+01	11.14	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 : 8/14/2017 12:08:28PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	63.95	2.50E+02	111.58	2.17E-02	1.65E-03
2	76.19	8.31E+02	155.22	2.32E-02	1.91E-03
3	87.22	1.24E+02	117.70	2.37E-02	2.15E-03
4	130.18	8.22E+01	87.63	2.15E-02	1.62E-03
5	185.97	1.05E+02	78.34	1.69E-02	1.40E-03
6	208.84	8.26E+01	62.61	1.53E-02	1.29E-03
7	239.44	6.91E+02	112.73	1.35E-02	1.14E-03
8	269.22	5.75E+01	54.62	1.21E-02	9.95E-04

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	9	295.45	1.56E+02	60.08	1.10E-02	9.13E-04
M	10	325.86	3.19E+01	28.46	9.98E-03	8.49E-04
m	11	338.40	1.08E+02	44.27	9.60E-03	8.22E-04
M	12	352.13	3.24E+02	51.42	9.21E-03	7.94E-04
m	13	358.53	2.65E+01	43.34	9.04E-03	7.80E-04
	14	461.55	5.27E+01	41.06	6.97E-03	6.82E-04
	15	582.96	1.62E+02	45.30	5.51E-03	6.31E-04
	16	609.40	1.98E+02	47.72	5.27E-03	6.20E-04
	17	670.28	4.05E+01	37.84	4.81E-03	5.88E-04
	18	727.58	3.88E+01	26.98	4.45E-03	5.16E-04
	19	768.00	3.31E+01	41.73	4.23E-03	4.65E-04
	20	800.00	7.19E+01	54.04	4.07E-03	4.25E-04
	21	911.43	9.19E+01	35.09	3.62E-03	2.99E-04
M	22	964.32	4.04E+01	19.47	3.44E-03	2.86E-04
m	23	969.08	6.97E+01	24.90	3.43E-03	2.85E-04
	24	1119.33	4.98E+01	27.57	3.02E-03	2.50E-04
	25	1128.05	2.01E+01	20.11	3.00E-03	2.48E-04
	26	1237.09	4.57E+01	28.91	2.76E-03	2.33E-04
	27	1377.79	2.10E+01	15.14	2.51E-03	2.20E-04
	28	1460.53	3.66E+02	44.36	2.39E-03	2.08E-04
	29	1524.57	1.28E+01	11.86	2.29E-03	1.98E-04
	30	1536.94	1.58E+01	12.02	2.28E-03	1.96E-04
	31	1618.30	8.30E+00	10.99	2.17E-03	1.84E-04
	32	1638.90	7.60E+00	8.03	2.15E-03	1.81E-04
	33	1764.37	3.41E+01	15.23	2.00E-03	1.62E-04
	34	1886.88	6.19E+00	6.65	1.87E-03	1.51E-04
	35	2146.39	5.00E+00	4.47	1.63E-03	1.51E-04
	36	2250.72	5.00E+00	4.47	1.54E-03	1.51E-04
	37	2613.94	3.10E+01	11.14	1.28E-03	1.51E-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 : 8/14/2017 12:08:28PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	63.95	2.50E+02	111.58	5.28E+01	8.63E+00	1.97E+02	1.12E+02

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	2	76.19	8.31E+02	155.22			8.31E+02	1.55E+02
	3	87.22	1.24E+02	117.70			1.24E+02	1.18E+02
	4	130.18	8.22E+01	87.63			8.22E+01	8.76E+01
	5	185.97	1.05E+02	78.34	2.34E+01	8.57E+00	8.12E+01	7.88E+01
	6	208.84	8.26E+01	62.61			8.26E+01	6.26E+01
	7	239.44	6.91E+02	112.73	8.90E+00	6.12E+00	6.83E+02	1.13E+02
	8	269.22	5.75E+01	54.62			5.75E+01	5.46E+01
	9	295.45	1.56E+02	60.08			1.56E+02	6.01E+01
M	10	325.86	3.19E+01	28.46			3.19E+01	2.85E+01
m	11	338.40	1.08E+02	44.27			1.08E+02	4.43E+01
M	12	352.13	3.24E+02	51.42			3.24E+02	5.14E+01
m	13	358.53	2.65E+01	43.34			2.65E+01	4.33E+01
	14	461.55	5.27E+01	41.06			5.27E+01	4.11E+01
	15	582.96	1.62E+02	45.30	3.56E+00	2.78E+00	1.58E+02	4.54E+01
	16	609.40	1.98E+02	47.72			1.98E+02	4.77E+01
	17	670.28	4.05E+01	37.84			4.05E+01	3.78E+01
	18	727.58	3.88E+01	26.98			3.88E+01	2.70E+01
	19	768.00	3.31E+01	41.73			3.31E+01	4.17E+01
	20	800.00	7.19E+01	54.04			7.19E+01	5.40E+01
	21	911.43	9.19E+01	35.09			9.19E+01	3.51E+01
M	22	964.32	4.04E+01	19.47			4.04E+01	1.95E+01
m	23	969.08	6.97E+01	24.90			6.97E+01	2.49E+01
	24	1119.33	4.98E+01	27.57			4.98E+01	2.76E+01
	25	1128.05	2.01E+01	20.11			2.01E+01	2.01E+01
	26	1237.09	4.57E+01	28.91			4.57E+01	2.89E+01
	27	1377.79	2.10E+01	15.14			2.10E+01	1.51E+01
	28	1460.53	3.66E+02	44.36			3.66E+02	4.44E+01
	29	1524.57	1.28E+01	11.86			1.28E+01	1.19E+01
	30	1536.94	1.58E+01	12.02			1.58E+01	1.20E+01
	31	1618.30	8.30E+00	10.99			8.30E+00	1.10E+01
	32	1638.90	7.60E+00	8.03			7.60E+00	8.03E+00
	33	1764.37	3.41E+01	15.23			3.41E+01	1.52E+01
	34	1886.88	6.19E+00	6.65			6.19E+00	6.65E+00
	35	2146.39	5.00E+00	4.47			5.00E+00	4.47E+00
	36	2250.72	5.00E+00	4.47			5.00E+00	4.47E+00
	37	2613.94	3.10E+01	11.14			3.10E+01	1.11E+01

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

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 12:08:28PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.95	2.50E+02	111.58	5.28E+01	8.63E+00	1.97E+02	1.12E+02
	2	76.19	8.31E+02	155.22			8.31E+02	1.55E+02
	3	87.22	1.24E+02	117.70			1.24E+02	1.18E+02
	4	130.18	8.22E+01	87.63			8.22E+01	8.76E+01
	5	185.97	1.05E+02	78.34	2.34E+01	8.57E+00	8.12E+01	7.88E+01
	6	208.84	8.26E+01	62.61			8.26E+01	6.26E+01
	7	239.44	6.91E+02	112.73	8.90E+00	6.12E+00	6.83E+02	1.13E+02
	8	269.22	5.75E+01	54.62			5.75E+01	5.46E+01
	9	295.45	1.56E+02	60.08			1.56E+02	6.01E+01
M	10	325.86	3.19E+01	28.46			3.19E+01	2.85E+01
m	11	338.40	1.08E+02	44.27			1.08E+02	4.43E+01
M	12	352.13	3.24E+02	51.42			3.24E+02	5.14E+01
m	13	358.53	2.65E+01	43.34			2.65E+01	4.33E+01
	14	461.55	5.27E+01	41.06			5.27E+01	4.11E+01
	15	582.96	1.62E+02	45.30	3.56E+00	2.78E+00	1.58E+02	4.54E+01
	16	609.40	1.98E+02	47.72			1.98E+02	4.77E+01
	17	670.28	4.05E+01	37.84			4.05E+01	3.78E+01
	18	727.58	3.88E+01	26.98			3.88E+01	2.70E+01
	19	768.00	3.31E+01	41.73			3.31E+01	4.17E+01
	20	800.00	7.19E+01	54.04			7.19E+01	5.40E+01
	21	911.43	9.19E+01	35.09			9.19E+01	3.51E+01
M	22	964.32	4.04E+01	19.47			4.04E+01	1.95E+01
m	23	969.08	6.97E+01	24.90			6.97E+01	2.49E+01
	24	1119.33	4.98E+01	27.57			4.98E+01	2.76E+01
	25	1128.05	2.01E+01	20.11			2.01E+01	2.01E+01
	26	1237.09	4.57E+01	28.91			4.57E+01	2.89E+01
	27	1377.79	2.10E+01	15.14			2.10E+01	1.51E+01
	28	1460.53	3.66E+02	44.36			3.66E+02	4.44E+01
	29	1524.57	1.28E+01	11.86			1.28E+01	1.19E+01
	30	1536.94	1.58E+01	12.02			1.58E+01	1.20E+01
	31	1618.30	8.30E+00	10.99			8.30E+00	1.10E+01
	32	1638.90	7.60E+00	8.03			7.60E+00	8.03E+00
	33	1764.37	3.41E+01	15.23			3.41E+01	1.52E+01
	34	1886.88	6.19E+00	6.65			6.19E+00	6.65E+00
	35	2146.39	5.00E+00	4.47			5.00E+00	4.47E+00
	36	2250.72	5.00E+00	4.47			5.00E+00	4.47E+00
	37	2613.94	3.10E+01	11.14			3.10E+01	1.11E+01

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.988	1460.81	*	10.67	1.57E+01	2.36E+00
CD-109	0.900	88.03	*	3.72	1.77E+00	1.69E+00
SN-126	0.981	87.57	*	37.00	1.55E-01	1.47E-01
CS-135	0.856	268.24	*	16.00	3.24E-01	3.09E-01
EU-155	0.313	86.50	*	30.90	1.92E-01	1.83E-01
		105.30		20.70		
TL-208	0.840	583.14	*	30.22	1.04E+00	3.20E-01
		860.37		4.48		
		2614.66	*	35.85	7.37E-01	2.79E-01
BI-212	0.755	727.17	*	11.80	8.07E-01	5.69E-01
		1620.62		2.75		
PB-212	0.804	238.63	*	44.60	1.23E+00	2.29E-01
		300.09		3.41		
BI-214	0.910	609.31	*	46.30	8.87E-01	2.37E-01
		1120.29	*	15.10	1.19E+00	6.68E-01
		1764.49	*	15.80	1.18E+00	5.35E-01
		2204.22		4.98		
PB-214	0.992	295.21	*	19.19	8.05E-01	3.17E-01
		351.92	*	37.19	1.03E+00	1.86E-01
RA-226	0.991	186.21	*	3.28	1.60E+00	3.31E+00
AC-228	0.989	338.32	*	11.40	1.08E+00	4.51E-01
		911.07	*	27.70	1.00E+00	3.91E-01
		969.11	*	16.60	1.34E+00	4.91E-01
TH-234	0.933	63.29	*	3.80	2.61E+00	1.50E+00
NP-237	0.921	86.50	*	12.60	4.54E-01	4.32E-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 1707077-19

HTC-A01-S002-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 12:08:28PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.19	2.30785E-01	9.34		
	4	130.18	2.28468E-02	53.27		
	6	208.84	2.29313E-02	37.92	Tol.	CM-243
M	10	325.86	8.87125E-03	44.55	Sum	
m	13	358.53	7.36417E-03	81.73	Sum	
	14	461.55	1.46331E-02	38.97		
	17	670.28	1.12597E-02	46.67	Sum	
	19	768.00	9.18282E-03	63.11	Sum	
	20	800.00	1.99752E-02	37.57		
M	22	964.32	1.12162E-02	24.11	Tol.	EU-152
	25	1128.05	5.58107E-03	50.04		
	26	1237.09	1.26957E-02	31.63		
	27	1377.79	5.82465E-03	36.10		
	29	1524.57	3.54861E-03	46.43	Sum	
	30	1536.94	4.39153E-03	38.02		
	31	1618.30	2.30556E-03	66.20		
	32	1638.90	2.11111E-03	52.84	Sum	
	34	1886.88	1.71875E-03	53.75		
	35	2146.39	1.38889E-03	44.72		
	36	2250.72	1.38889E-03	44.72		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	1.57E+01	2.36E+00
CD-109	0.90	88.03	*	3.72	1.77E+00	1.69E+00
SN-126	0.98	87.57	*	37.00	1.55E-01	1.47E-01
CS-135	0.85	268.24	*	16.00	3.24E-01	3.09E-01
EU-155	0.31	86.50	*	30.90	1.92E-01	1.83E-01
		105.30		20.70		
TL-208	0.84	583.14	*	30.22	1.04E+00	3.20E-01
		860.37		4.48		
		2614.66	*	35.85	7.37E-01	2.79E-01
BI-212	0.75	727.17	*	11.80	8.07E-01	5.69E-01
		1620.62		2.75		
PB-212	0.80	238.63	*	44.60	1.23E+00	2.29E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	8.87E-01	2.37E-01
		1120.29	*	15.10	1.19E+00	6.68E-01
		1764.49	*	15.80	1.18E+00	5.35E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	8.05E-01	3.17E-01
		351.92	*	37.19	1.03E+00	1.86E-01
RA-226	0.99	186.21	*	3.28	1.60E+00	3.31E+00
AC-228	0.98	338.32	*	11.40	1.08E+00	4.51E-01
		911.07	*	27.70	1.00E+00	3.91E-01
		969.11	*	16.60	1.34E+00	4.91E-01
TH-234	0.93	63.29	*	3.80	2.61E+00	1.50E+00
NP-237	0.92	86.50	*	12.60	4.54E-01	4.32E-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	0.988	1.57E+01	2.36E+00	
?	CD-109	0.900	1.77E+00	1.69E+00	

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	SN-126	0.981	1.55E-01	1.47E-01	
	CS-135	0.856	3.24E-01	3.09E-01	
?	EU-155	0.313	1.92E-01	1.83E-01	
	TL-208	0.840	8.67E-01	2.10E-01	
	BI-212	0.755	8.07E-01	5.69E-01	
	PB-212	0.804	1.23E+00	2.29E-01	
	BI-214	0.910	9.60E-01	2.06E-01	
	PB-214	0.992	9.73E-01	1.61E-01	
	RA-226	0.991	1.60E+00	3.31E+00	
	AC-228	0.989	1.12E+00	2.53E-01	
	TH-234	0.933	2.61E+00	1.50E+00	
?	NP-237	0.921	4.54E-01	4.32E-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 1707077-19

HTC-A01-S002-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 12:08:28PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	76.19	2.30785E-01	9.34		
	4	130.18	2.28468E-02	53.27		
	6	208.84	2.29313E-02	37.92	Tol.	CM-243
M	10	325.86	8.87125E-03	44.55	Sum	
m	13	358.53	7.36417E-03	81.73	Sum	
	14	461.55	1.46331E-02	38.97		
	17	670.28	1.12597E-02	46.67	Sum	
	19	768.00	9.18282E-03	63.11	Sum	
	20	800.00	1.99752E-02	37.57		
M	22	964.32	1.12162E-02	24.11	Tol.	EU-152
	25	1128.05	5.58107E-03	50.04		
	26	1237.09	1.26957E-02	31.63		
	27	1377.79	5.82465E-03	36.10		
	29	1524.57	3.54861E-03	46.43	Sum	
	30	1536.94	4.39153E-03	38.02		
	31	1618.30	2.30556E-03	66.20		
	32	1638.90	2.11111E-03	52.84	Sum	
	34	1886.88	1.71875E-03	53.75		
	35	2146.39	1.38889E-03	44.72		
	36	2250.72	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	3.23E-01	2.40E+00	2.40E+00
+		NA-22	1274.54		99.94	2.17E-02	1.46E-01	1.46E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	0.00E+00		1.00E+26
+		AL-26	1808.65		99.76	-1.92E-02	6.73E-02	6.73E-02
+		K-40	1460.81	*	10.67	1.57E+01	1.70E+00	1.70E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-8.57E-02	7.10E-02	7.10E-02
			78.34		96.00	2.66E-01		8.73E-02
+		SC-46	889.25		99.98	3.45E-02	2.35E-01	2.35E-01
			1120.51		99.99	2.01E-01		3.54E-01
+		V-48	983.52		99.98	1.93E+00	6.70E+00	6.70E+00
			1312.10		97.50	5.16E-01		7.31E+00
+		CR-51	320.08		9.83	6.61E-01	6.60E+00	6.60E+00
+		MN-54	834.83		99.97	1.07E-01	1.44E-01	1.44E-01
+		CO-56	846.75		99.96	-1.93E-02	2.19E-01	2.19E-01
			1037.75		14.03	3.42E-02		1.98E+00
			1238.25		67.00	3.87E-01		5.64E-01
			1771.40		15.51	-1.28E+00		1.05E+00
			2598.48		16.90	-6.81E-01		8.35E-01
+		CO-57	122.06		85.51	2.21E-02	7.51E-02	7.51E-02
			136.48		10.60	-1.84E-02		6.14E-01
+		CO-58	810.76		99.40	-1.95E-02	2.48E-01	2.48E-01
+		FE-59	1099.22		56.50	-1.85E-01	9.60E-01	9.60E-01
			1291.56		43.20	-3.34E-01		1.29E+00
+		CO-60	1173.22		100.00	2.63E-02	1.15E-01	1.41E-01
			1332.49		100.00	-5.36E-02		1.15E-01
+		ZN-65	1115.52		50.75	-1.85E-03	3.75E-01	3.75E-01
+		GA-67	93.31		35.70	5.88E+07	6.89E+07	6.89E+07
			208.95		2.24	8.27E+08		1.09E+09
			300.22		16.00	7.65E+07		1.74E+08
+		SE-75	121.11		16.70	-1.82E-01	1.51E-01	5.05E-01
			136.00		59.20	2.08E-02		1.51E-01
			264.65		59.80	2.41E-02		1.66E-01
			279.53		25.20	1.90E-01		4.63E-01
			400.65		11.40	4.85E-03		1.04E+00
+		RB-82	776.52		13.00	3.70E+00	1.14E+01	1.14E+01
+		RB-83	520.41		46.00	1.55E-01	3.94E-01	3.94E-01
			529.64		30.30	2.63E-02		5.63E-01
			552.65		16.40	-1.31E-01		9.45E-01
+		KR-85	513.99		0.43	6.39E+00	2.45E+01	2.45E+01
+		SR-85	513.99		99.27	7.43E-02	2.85E-01	2.85E-01
+		Y-88	898.02		93.40	-1.53E-01	1.37E-01	1.79E-01
			1836.01		99.38	-3.63E-02		1.37E-01
+		MO-93	263.06		56.72	7.48E-04	9.36E-02	1.03E-01
			684.67		99.68	-3.61E-02		9.36E-02
			1477.11		99.08	2.17E-02		1.04E-01

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-93M	16.57		9.43	1.32E+01	7.04E+00	7.04E+00
+	NB-94	702.63		100.00	-6.65E-02	1.03E-01	1.03E-01
		871.10		100.00	4.90E-02		1.03E-01
+	NB-95	765.79		99.81	2.94E-01	7.56E-01	7.56E-01
+	NB-95M	235.69		25.00	2.66E+07	2.23E+07	2.23E+07
+	ZR-95	724.18		43.70	-3.85E-02	4.96E-01	7.09E-01
		756.72		55.30	6.60E-03		4.96E-01
+	MO-99	181.06		6.20	-6.00E+08	1.26E+10	1.37E+10
		739.58		12.80	7.24E+09		1.26E+10
		778.00		4.50	1.35E+10		3.97E+10
+	RU-103	497.08		89.00	2.21E-01	4.12E-01	4.12E-01
+	RU-106	621.84		9.80	2.01E-02	1.03E+00	1.03E+00
+	AG-108M	433.93		89.90	-2.72E-02	7.87E-02	7.87E-02
		614.37		90.40	0.00E+00		9.87E-02
		722.95		90.50	2.52E-02		1.21E-01
+	CD-109	88.03	*	3.72	1.77E+00	2.74E+00	2.74E+00
+	AG-110M	657.75		93.14	-2.45E-02	1.31E-01	1.31E-01
		677.61		10.53	3.43E-02		1.19E+00
		706.67		16.46	2.02E-01		8.65E-01
		763.93		21.98	9.24E-03		6.50E-01
		884.67		71.63	4.07E-02		2.04E-01
		1384.27		23.94	-3.40E-02		4.89E-01
+	CD-113M	263.70		0.02	4.63E+01	2.57E+02	2.57E+02
+	SN-113	255.12		1.93	2.30E+00	1.97E-01	5.70E+00
		391.69		64.90	9.64E-02		1.97E-01
+	TE123M	159.00		84.10	-6.95E-02	1.13E-01	1.13E-01
+	SB-124	602.71		97.87	8.23E-02	2.66E-01	2.66E-01
		645.85		7.26	4.66E-01		3.64E+00
		722.78		11.10	5.99E-01		2.87E+00
		1691.02		49.00	-8.47E-02		4.69E-01
+	I-125	35.49		6.49	-9.61E-01	4.54E+00	4.54E+00
+	SB-125	176.33		6.89	2.70E-02	2.64E-01	8.49E-01
		427.89		29.33	7.29E-02		2.64E-01
		463.38		10.35	6.00E-01		8.66E-01
		600.56		17.80	-2.38E-01		4.91E-01
		635.90		11.32	-2.64E-01		7.23E-01
+	SB-126	414.70		83.30	-1.44E+01	1.62E+01	1.62E+01
		666.33		99.60	1.34E-01		1.81E+01
		695.00		99.60	7.62E+00		1.93E+01
		720.50		53.80	-1.28E+00		3.32E+01
+	SN-126	87.57	*	37.00	1.55E-01	2.40E-01	2.40E-01
+	SB-127	473.00		25.00	9.56E+05	4.84E+06	5.75E+06
		685.20		35.70	-1.87E+06		4.84E+06
		783.80		14.70	5.36E+06		1.45E+07
+	I-129	29.78		57.00	1.40E-02	2.51E-01	2.51E-01
		33.60		13.20	2.01E-02		8.49E-01
		39.58		7.52	5.01E-01		1.15E+00
+	I-131	284.30		6.05	1.78E+02	2.26E+02	3.37E+03

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		I-131	364.48		81.20	-8.82E+01	2.26E+02	2.26E+02
			636.97		7.26	-1.24E+03		3.20E+03
			722.89		1.80	3.85E+03		1.85E+04
+		TE-132	49.72		13.10	-5.52E+06	2.86E+07	2.21E+08
			228.16		88.00	2.80E+06		2.86E+07
+		BA-133	81.00		33.00	-4.93E-01	1.57E-01	2.07E-01
			302.84		17.80	-8.19E-02		3.72E-01
			356.01		60.00	1.96E-02		1.57E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-9.25E+04	3.88E+04	3.88E+04
+		CS-134	563.23		8.38	-1.46E-01	1.13E-01	1.12E+00
			569.32		15.43	1.90E-01		6.40E-01
			604.70		97.60	1.25E-02		1.13E-01
			795.84		85.40	7.16E-02		1.45E-01
			801.93		8.73	-7.01E-02		1.29E+00
+		CS-135	268.24	*	16.00	3.24E-01	5.02E-01	5.02E-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	3.85E+01	1.25E+01	1.04E+02
			163.89		4.61	-5.56E+01		1.63E+02
			176.55		13.56	-2.14E+01		5.34E+01
			273.65		12.66	-4.06E+00		6.73E+01
			340.57		48.50	2.79E+01		2.26E+01
			818.50		99.70	2.63E+00		1.25E+01
			1048.07		79.60	1.43E+01		2.11E+01
			1235.34		19.70	9.22E+01		1.20E+02
+		CS-137	661.65		85.12	2.51E-02	1.17E-01	1.17E-01
+		LA-138	788.74		34.00	4.46E-02	1.41E-01	3.17E-01
			1435.80		66.00	-1.36E-02		1.41E-01
+		CE-139	165.85		80.35	9.54E-02	1.15E-01	1.15E-01
+		BA-140	162.64		6.70	-2.75E+01	4.99E+01	1.30E+02
			304.84		4.50	-1.16E+02		2.16E+02
			423.70		3.20	-8.21E+01		3.43E+02
			437.55		2.00	1.78E+02		5.78E+02
			537.32		25.00	-1.83E+01		4.99E+01
+		LA-140	328.77		20.50	6.16E+01	1.72E+01	5.49E+01
			487.03		45.50	6.48E+00		2.62E+01
			815.85		23.50	-1.56E+01		5.97E+01
			1596.49		95.49	1.71E+00		1.72E+01
+		CE-141	145.44		48.40	6.08E-02	7.98E-01	7.98E-01
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-1.78E-01	6.06E-01	6.06E-01
+		PM-144	476.78		42.00	-4.41E-02	1.04E-01	2.04E-01
			618.01		98.60	-2.36E-02		1.04E-01
			696.49		99.49	4.22E-02		1.27E-01
+		PM-145	36.85		21.70	2.20E-02	2.36E-01	4.41E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	37.36		39.70	1.18E-02	2.36E-01	2.36E-01
		42.30		15.10	-7.44E-01		5.25E-01
		72.40		2.31	-6.97E+00		3.21E+00
+	PM-146	453.90		39.94	-2.14E-02	1.75E-01	1.75E-01
		735.90		14.01	-5.96E-01		7.19E-01
		747.13		13.10	-7.76E-01		7.25E-01
+	ND-147	91.11		28.90	7.34E+01	8.31E+01	8.31E+01
		531.02		13.10	7.55E+00		2.21E+02
+	PM-149	285.90		3.10	5.01E+12	1.00E+13	1.00E+13
+	EU-152	121.78		20.50	7.34E-02	2.50E-01	2.50E-01
		244.69		5.40	-2.05E+00		1.31E+00
		344.27		19.13	-3.80E-01		3.53E-01
		778.89		9.20	1.87E-01		1.26E+00
		964.01		10.40	-1.80E+00		1.29E+00
		1085.78		7.22	4.39E-01		1.62E+00
		1112.02		9.60	-2.79E-01		1.26E+00
		1407.95		14.94	2.02E-01		8.33E-01
+	GD-153	97.43		31.30	-5.36E-02	2.26E-01	2.26E-01
		103.18		22.20	1.16E-02		2.92E-01
+	EU-154	123.07		40.50	2.58E-02	1.27E-01	1.27E-01
		723.30		19.70	-3.18E-02		5.86E-01
		873.19		11.50	-1.81E-01		8.55E-01
		996.32		10.30	-3.41E-01		1.15E+00
		1004.76		17.90	2.87E-01		6.86E-01
		1274.45		35.50	5.82E-02		3.91E-01
+	EU-155	86.50	*	30.90	1.92E-01	2.45E-01	2.98E-01
		105.30		20.70	-1.08E-01		2.45E-01
+	EU-156	811.77		10.40	-7.06E+00	6.55E+01	6.55E+01
		1153.47		7.20	2.52E+01		1.42E+02
		1230.71		8.90	-1.81E+01		1.18E+02
+	HO-166M	184.41		72.60	1.17E-01	9.00E-02	9.00E-02
		280.45		29.60	2.07E-02		2.26E-01
		410.94		11.10	2.22E-01		7.43E-01
		711.69		54.10	9.12E-02		2.01E-01
+	TM-171	66.72		0.14	-1.61E+01	5.41E+01	5.41E+01
+	HF-172	67.35		5.31	-4.24E-01	5.17E-01	1.42E+00
		125.81		11.30	4.89E-02		5.17E-01
+	LU-172	181.53		20.60	1.42E+02	2.94E+03	4.27E+03
		900.72		29.81	1.18E+02		5.04E+03
		1093.66		62.50	1.06E+03		2.94E+03
+	LU-173	100.72		5.24	-2.04E-01	3.55E-01	1.07E+00
		272.11		21.20	-3.61E-02		3.55E-01
+	HF-175	343.40		84.00	-2.14E-01	1.99E-01	1.99E-01
+	LU-176	88.34		13.30	1.62E-01	6.65E-02	5.01E-01
		201.83		86.00	-3.83E-03		6.70E-02
		306.78		94.00	-2.50E-02		6.65E-02
+	HF-181	133.02		41.70	-1.82E-01	3.92E-01	5.76E-01
		345.85		17.20	-3.78E+00		1.80E+00
		482.03		82.80	-2.23E-01		3.92E-01

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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	-3.45E-01	2.85E-01	2.85E-01
		1121.30		34.90	2.61E-01		8.31E-01
		1189.05		16.23	-6.19E-02		1.52E+00
		1221.41		26.98	4.21E-01		1.09E+00
		1231.02		11.44	-1.34E-01		2.30E+00
+	IR-192	308.46		29.68	2.14E-02	3.64E-01	5.31E-01
		468.07		48.10	6.28E-02		3.64E-01
+	HG-203	279.19		77.30	4.46E-02	3.45E-01	3.45E-01
+	TL-204	374.74		94.11	2.22E-02	7.75E-02	7.75E-02
		899.15		99.16	-2.28E-02		1.01E-01
		911.74		91.10	2.60E-01		1.98E-01
+	BI-207	569.67		97.72	2.77E-02	9.33E-02	9.33E-02
		1063.62		74.90	-5.84E-02		1.67E-01
+	TL-208	583.14	*	30.22	1.04E+00	6.43E-02	4.25E-01
		860.37		4.48	2.78E-02		2.50E+00
		2614.66	*	35.85	7.37E-01		6.43E-02
+	BI-210M	262.00		45.00	4.01E-03	1.31E-01	1.31E-01
		300.00		23.00	1.37E-01		3.11E-01
+	PB-210	46.50		4.25	-5.31E-01	1.78E+00	1.78E+00
+	PB-211	404.84		2.90	-2.08E+00	2.53E+00	2.53E+00
		831.96		2.90	2.24E-02		3.77E+00
+	BI-212	727.17	*	11.80	8.07E-01	8.74E-01	8.74E-01
		1620.62		2.75	-4.27E-01		3.68E+00
+	PB-212	238.63	*	44.60	1.23E+00	3.02E-01	3.02E-01
		300.09		3.41	9.25E-01		2.10E+00
+	BI-214	609.31	*	46.30	8.87E-01	2.95E-01	2.95E-01
		1120.29	*	15.10	1.19E+00		9.98E-01
		1764.49	*	15.80	1.18E+00		6.49E-01
		2204.22		4.98	2.77E-01		2.20E+00
+	PB-214	295.21	*	19.19	8.05E-01	3.41E-01	4.78E-01
		351.92	*	37.19	1.03E+00		3.41E-01
+	RN-219	401.80		6.50	-6.19E-02	1.07E+00	1.07E+00
+	RA-223	323.87		3.88	2.71E-01	1.61E+00	1.61E+00
+	RA-224	240.98		3.95	1.23E+01	2.89E+00	2.89E+00
+	RA-225	40.00		31.00	9.33E+00	2.15E+01	2.15E+01
+	RA-226	186.21	*	3.28	1.60E+00	2.53E+00	2.53E+00
+	TH-227	50.10		8.40	-2.17E-02	8.46E-01	8.67E-01
		236.00		11.50	1.01E+00		8.46E-01
		256.20		6.30	3.51E-01		9.99E-01
+	AC-228	338.32	*	11.40	1.08E+00	5.56E-01	1.57E+00
		911.07	*	27.70	1.00E+00		5.56E-01
		969.11	*	16.60	1.34E+00		9.13E-01
+	TH-230	48.44		16.90	-6.11E-02	4.33E-01	4.33E-01
		62.85		4.60	2.23E+00		1.59E+00
		67.67		0.37	-2.18E+01		1.81E+01
+	PA-231	283.67		1.60	2.20E-01	2.83E+00	4.17E+00
		302.67		2.30	-6.23E-01		2.83E+00
+	TH-231	25.64		14.70	1.22E-01	9.83E-01	1.41E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-231	84.21		6.40	-6.48E-01	9.83E-01	9.83E-01
+	PA-233	311.98		38.60	9.63E-02	1.94E+00	1.94E+00
+	PA-234	131.20		20.40	2.89E-01	2.71E-01	2.71E-01
		733.99		8.80	-6.34E-02		1.14E+00
		946.00		12.00	-2.88E-01		9.59E-01
+	PA-234M	1001.03		0.92	-2.31E+00	1.31E+01	1.31E+01
+	TH-234	63.29	*	3.80	2.61E+00	2.40E+00	2.40E+00
+	U-235	143.76		10.50	-3.09E-02	4.97E-01	4.97E-01
		163.35		4.70	-2.54E-01		1.20E+00
		205.31		4.70	2.05E-02		1.26E+00
+	NP-237	86.50	*	12.60	4.54E-01	7.05E-01	7.05E-01
+	NP-239	106.10		22.70	6.39E+10	1.73E+11	1.73E+11
		228.18		10.70	4.57E+10		4.67E+11
		277.60		14.10	4.03E+10		3.66E+11
+	AM-241	59.54		35.90	1.40E-03	1.94E-01	1.94E-01
+	AM-243	74.67		66.00	5.38E-01	1.34E-01	1.34E-01
+	CM-243	209.75		3.29	1.09E+00	4.74E-01	1.90E+00
		228.14		10.60	5.93E-02		6.07E-01
		277.60		14.00	5.22E-02		4.74E-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	2.40E+00	2.40E+00	3.23E-01	1.13E+00
	NA-22	1274.54	99.94	1.46E-01	1.46E-01	2.17E-02	6.70E-02
@	NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NA-24	2754.09		99.86	1.00E+26	1.00E+26	0.00E+00	1.00E+20
	AL-26	1808.65		99.76	6.73E-02	6.73E-02	-1.92E-02	2.61E-02
+	K-40	1460.81	*	10.67	1.70E+00	1.70E+00	1.57E+01	7.92E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.10E-02	7.10E-02	-8.57E-02	3.48E-02
		78.34		96.00	8.73E-02		2.66E-01	4.30E-02
	SC-46	889.25		99.98	2.35E-01	2.35E-01	3.45E-02	1.09E-01
		1120.51		99.99	3.54E-01		2.01E-01	1.67E-01
	V-48	983.52		99.98	6.70E+00	6.70E+00	1.93E+00	3.10E+00
		1312.10		97.50	7.31E+00		5.16E-01	3.33E+00
	CR-51	320.08		9.83	6.60E+00	6.60E+00	6.61E-01	3.15E+00
	MN-54	834.83		99.97	1.44E-01	1.44E-01	1.07E-01	6.76E-02
	CO-56	846.75		99.96	2.19E-01	2.19E-01	-1.93E-02	1.01E-01
		1037.75		14.03	1.98E+00		3.42E-02	9.18E-01
		1238.25		67.00	5.64E-01		3.87E-01	2.64E-01
		1771.40		15.51	1.05E+00		-1.28E+00	4.17E-01
		2598.48		16.90	8.35E-01		-6.81E-01	2.64E-01
	CO-57	122.06		85.51	7.51E-02	7.51E-02	2.21E-02	3.66E-02
		136.48		10.60	6.14E-01		-1.84E-02	2.98E-01
	CO-58	810.76		99.40	2.48E-01	2.48E-01	-1.95E-02	1.15E-01
	FE-59	1099.22		56.50	9.60E-01	9.60E-01	-1.85E-01	4.44E-01
		1291.56		43.20	1.29E+00		-3.34E-01	5.92E-01
	CO-60	1173.22		100.00	1.41E-01	1.15E-01	2.63E-02	6.54E-02
		1332.49		100.00	1.15E-01		-5.36E-02	5.17E-02
	ZN-65	1115.52		50.75	3.75E-01	3.75E-01	-1.85E-03	1.75E-01
	GA-67	93.31		35.70	6.89E+07	6.89E+07	5.88E+07	3.38E+07
		208.95		2.24	1.09E+09		8.27E+08	5.27E+08
		300.22		16.00	1.74E+08		7.65E+07	8.36E+07
	SE-75	121.11		16.70	5.05E-01	1.51E-01	-1.82E-01	2.46E-01
		136.00		59.20	1.51E-01		2.08E-02	7.35E-02
		264.65		59.80	1.66E-01		2.41E-02	7.93E-02
		279.53		25.20	4.63E-01		1.90E-01	2.23E-01
		400.65		11.40	1.04E+00		4.85E-03	4.94E-01
	RB-82	776.52		13.00	1.14E+01	1.14E+01	3.70E+00	5.37E+00
	RB-83	520.41		46.00	3.94E-01	3.94E-01	1.55E-01	1.86E-01
		529.64		30.30	5.63E-01		2.63E-02	2.65E-01
		552.65		16.40	9.45E-01		-1.31E-01	4.40E-01
	KR-85	513.99		0.43	2.45E+01	2.45E+01	6.39E+00	1.17E+01
	SR-85	513.99		99.27	2.85E-01	2.85E-01	7.43E-02	1.36E-01
	Y-88	898.02		93.40	1.79E-01	1.37E-01	-1.53E-01	8.14E-02
		1836.01		99.38	1.37E-01		-3.63E-02	5.44E-02
	MO-93	263.06		56.72	1.03E-01	9.36E-02	7.48E-04	4.92E-02
		684.67		99.68	9.36E-02		-3.61E-02	4.36E-02
		1477.11		99.08	1.04E-01		2.17E-02	4.55E-02
	NB-93M	16.57		9.43	7.04E+00	7.04E+00	1.32E+01	3.41E+00
	NB-94	702.63		100.00	1.03E-01	1.03E-01	-6.65E-02	4.84E-02
		871.10		100.00	1.03E-01		4.90E-02	4.76E-02
	NB-95	765.79		99.81	7.56E-01	7.56E-01	2.94E-01	3.56E-01
	NB-95M	235.69		25.00	2.23E+07	2.23E+07	2.66E+07	1.09E+07
	ZR-95	724.18		43.70	7.09E-01	4.96E-01	-3.85E-02	3.34E-01
		756.72		55.30	4.96E-01		6.60E-03	2.31E-01
	MO-99	181.06		6.20	1.37E+10	1.26E+10	-6.00E+08	6.63E+09
		739.58		12.80	1.26E+10		7.24E+09	5.92E+09

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MO-99	778.00		4.50	3.97E+10	1.26E+10	1.35E+10	1.87E+10
	RU-103	497.08		89.00	4.12E-01	4.12E-01	2.21E-01	1.93E-01
	RU-106	621.84		9.80	1.03E+00	1.03E+00	2.01E-02	4.81E-01
	AG-108M	433.93		89.90	7.87E-02	7.87E-02	-2.72E-02	3.71E-02
		614.37		90.40	9.87E-02		0.00E+00	4.62E-02
		722.95		90.50	1.21E-01		2.52E-02	5.68E-02
+	CD-109	88.03	*	3.72	2.74E+00	2.74E+00	1.77E+00	1.35E+00
	AG-110M	657.75		93.14	1.31E-01	1.31E-01	-2.45E-02	6.11E-02
		677.61		10.53	1.19E+00		3.43E-02	5.56E-01
		706.67		16.46	8.65E-01		2.02E-01	4.07E-01
		763.93		21.98	6.50E-01		9.24E-03	3.05E-01
		884.67		71.63	2.04E-01		4.07E-02	9.48E-02
		1384.27		23.94	4.89E-01		-3.40E-02	2.12E-01
	CD-113M	263.70		0.02	2.57E+02	2.57E+02	4.63E+01	1.23E+02
	SN-113	255.12		1.93	5.70E+00	1.97E-01	2.30E+00	2.75E+00
		391.69		64.90	1.97E-01		9.64E-02	9.39E-02
	TE123M	159.00		84.10	1.13E-01	1.13E-01	-6.95E-02	5.51E-02
	SB-124	602.71		97.87	2.66E-01	2.66E-01	8.23E-02	1.25E-01
		645.85		7.26	3.64E+00		4.66E-01	1.70E+00
		722.78		11.10	2.87E+00		5.99E-01	1.35E+00
		1691.02		49.00	4.69E-01		-8.47E-02	1.92E-01
	I-125	35.49		6.49	4.54E+00	4.54E+00	-9.61E-01	2.21E+00
	SB-125	176.33		6.89	8.49E-01	2.64E-01	2.70E-02	4.12E-01
		427.89		29.33	2.64E-01		7.29E-02	1.25E-01
		463.38		10.35	8.66E-01		6.00E-01	4.11E-01
		600.56		17.80	4.91E-01		-2.38E-01	2.29E-01
		635.90		11.32	7.23E-01		-2.64E-01	3.34E-01
	SB-126	414.70		83.30	1.62E+01	1.62E+01	-1.44E+01	7.69E+00
		666.33		99.60	1.81E+01		1.34E-01	8.50E+00
		695.00		99.60	1.93E+01		7.62E+00	9.07E+00
		720.50		53.80	3.32E+01		-1.28E+00	1.55E+01
+	SN-126	87.57	*	37.00	2.40E-01	2.40E-01	1.55E-01	1.18E-01
	SB-127	473.00		25.00	5.75E+06	4.84E+06	9.56E+05	2.71E+06
		685.20		35.70	4.84E+06		-1.87E+06	2.26E+06
		783.80		14.70	1.45E+07		5.36E+06	6.78E+06
	I-129	29.78		57.00	2.51E-01	2.51E-01	1.40E-02	1.22E-01
		33.60		13.20	8.49E-01		2.01E-02	4.13E-01
		39.58		7.52	1.15E+00		5.01E-01	5.61E-01
	I-131	284.30		6.05	3.37E+03	2.26E+02	1.78E+02	1.62E+03
		364.48		81.20	2.26E+02		-8.82E+01	1.07E+02
		636.97		7.26	3.20E+03		-1.24E+03	1.48E+03
		722.89		1.80	1.85E+04		3.85E+03	8.69E+03
	TE-132	49.72		13.10	2.21E+08	2.86E+07	-5.52E+06	1.08E+08
		228.16		88.00	2.86E+07		2.80E+06	1.39E+07
	BA-133	81.00		33.00	2.07E-01	1.57E-01	-4.93E-01	1.02E-01
		302.84		17.80	3.72E-01		-8.19E-02	1.78E-01
		356.01		60.00	1.57E-01		1.96E-02	7.56E-02
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.88E+04	3.88E+04	-9.25E+04	1.91E+04
	CS-134	563.23		8.38	1.12E+00	1.13E-01	-1.46E-01	5.28E-01
		569.32		15.43	6.40E-01		1.90E-01	3.02E-01
		604.70		97.60	1.13E-01		1.25E-02	5.36E-02
		795.84		85.40	1.45E-01		7.16E-02	6.81E-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)
	CS-134	801.93		8.73	1.29E+00	1.13E-01	-7.01E-02	5.99E-01
+	CS-135	268.24	*	16.00	5.02E-01	5.02E-01	3.24E-01	2.43E-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	1.04E+02	1.25E+01	3.85E+01	5.05E+01
		163.89		4.61	1.63E+02		-5.56E+01	7.90E+01
		176.55		13.56	5.34E+01		-2.14E+01	2.59E+01
		273.65		12.66	6.73E+01		-4.06E+00	3.23E+01
		340.57		48.50	2.26E+01		2.79E+01	1.09E+01
		818.50		99.70	1.25E+01		2.63E+00	5.75E+00
		1048.07		79.60	2.11E+01		1.43E+01	9.76E+00
		1235.34		19.70	1.20E+02		9.22E+01	5.63E+01
	CS-137	661.65		85.12	1.17E-01	1.17E-01	2.51E-02	5.51E-02
	LA-138	788.74		34.00	3.17E-01	1.41E-01	4.46E-02	1.48E-01
		1435.80		66.00	1.41E-01		-1.36E-02	6.15E-02
	CE-139	165.85		80.35	1.15E-01	1.15E-01	9.54E-02	5.58E-02
	BA-140	162.64		6.70	1.30E+02	4.99E+01	-2.75E+01	6.31E+01
		304.84		4.50	2.16E+02		-1.16E+02	1.03E+02
		423.70		3.20	3.43E+02		-8.21E+01	1.62E+02
		437.55		2.00	5.78E+02		1.78E+02	2.74E+02
		537.32		25.00	4.99E+01		-1.83E+01	2.34E+01
	LA-140	328.77		20.50	5.49E+01	1.72E+01	6.16E+01	2.63E+01
		487.03		45.50	2.62E+01		6.48E+00	1.24E+01
		815.85		23.50	5.97E+01		-1.56E+01	2.74E+01
		1596.49		95.49	1.72E+01		1.71E+00	7.49E+00
	CE-141	145.44		48.40	7.98E-01	7.98E-01	6.08E-02	3.88E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	6.06E-01	6.06E-01	-1.78E-01	2.95E-01
	PM-144	476.78		42.00	2.04E-01	1.04E-01	-4.41E-02	9.58E-02
		618.01		98.60	1.04E-01		-2.36E-02	4.84E-02
		696.49		99.49	1.27E-01		4.22E-02	5.99E-02
	PM-145	36.85		21.70	4.41E-01	2.36E-01	2.20E-02	2.15E-01
		37.36		39.70	2.36E-01		1.18E-02	1.15E-01
		42.30		15.10	5.25E-01		-7.44E-01	2.56E-01
		72.40		2.31	3.21E+00		-6.97E+00	1.58E+00
	PM-146	453.90		39.94	1.75E-01	1.75E-01	-2.14E-02	8.23E-02
		735.90		14.01	7.19E-01		-5.96E-01	3.35E-01
		747.13		13.10	7.25E-01		-7.76E-01	3.36E-01
	ND-147	91.11		28.90	8.31E+01	8.31E+01	7.34E+01	4.08E+01
		531.02		13.10	2.21E+02		7.55E+00	1.04E+02
	PM-149	285.90		3.10	1.00E+13	1.00E+13	5.01E+12	4.81E+12
	EU-152	121.78		20.50	2.50E-01	2.50E-01	7.34E-02	1.22E-01
		244.69		5.40	1.31E+00		-2.05E+00	6.33E-01
		344.27		19.13	3.53E-01		-3.80E-01	1.68E-01
		778.89		9.20	1.26E+00		1.87E-01	5.91E-01
		964.01		10.40	1.29E+00		-1.80E+00	6.05E-01
		1085.78		7.22	1.62E+00		4.39E-01	7.45E-01
		1112.02		9.60	1.26E+00		-2.79E-01	5.79E-01
		1407.95		14.94	8.33E-01		2.02E-01	3.76E-01
	GD-153	97.43		31.30	2.26E-01	2.26E-01	-5.36E-02	1.10E-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)
	GD-153	103.18		22.20	2.92E-01	2.26E-01	1.16E-02	1.42E-01
	EU-154	123.07		40.50	1.27E-01	1.27E-01	2.58E-02	6.18E-02
		723.30		19.70	5.86E-01		-3.18E-02	2.76E-01
		873.19		11.50	8.55E-01		-1.81E-01	3.93E-01
		996.32		10.30	1.15E+00		-3.41E-01	5.32E-01
		1004.76		17.90	6.86E-01		2.87E-01	3.17E-01
		1274.45		35.50	3.91E-01		5.82E-02	1.80E-01
+	EU-155	86.50	*	30.90	2.98E-01	2.45E-01	1.92E-01	1.47E-01
		105.30		20.70	2.45E-01		-1.08E-01	1.19E-01
	EU-156	811.77		10.40	6.55E+01	6.55E+01	-7.06E+00	3.03E+01
		1153.47		7.20	1.42E+02		2.52E+01	6.59E+01
		1230.71		8.90	1.18E+02		-1.81E+01	5.46E+01
	HO-166M	184.41		72.60	9.00E-02	9.00E-02	1.17E-01	4.38E-02
		280.45		29.60	2.26E-01		2.07E-02	1.09E-01
		410.94		11.10	7.43E-01		2.22E-01	3.54E-01
		711.69		54.10	2.01E-01		9.12E-02	9.47E-02
	TM-171	66.72		0.14	5.41E+01	5.41E+01	-1.61E+01	2.65E+01
	HF-172	67.35		5.31	1.42E+00	5.17E-01	-4.24E-01	6.98E-01
		125.81		11.30	5.17E-01		4.89E-02	2.52E-01
	LU-172	181.53		20.60	4.27E+03	2.94E+03	1.42E+02	2.07E+03
		900.72		29.81	5.04E+03		1.18E+02	2.31E+03
		1093.66		62.50	2.94E+03		1.06E+03	1.35E+03
	LU-173	100.72		5.24	1.07E+00	3.55E-01	-2.04E-01	5.21E-01
		272.11		21.20	3.55E-01		-3.61E-02	1.71E-01
	HF-175	343.40		84.00	1.99E-01	1.99E-01	-2.14E-01	9.47E-02
	LU-176	88.34		13.30	5.01E-01	6.65E-02	1.62E-01	2.46E-01
		201.83		86.00	6.70E-02		-3.83E-03	3.24E-02
		306.78		94.00	6.65E-02		-2.50E-02	3.18E-02
	HF-181	133.02		41.70	5.76E-01	3.92E-01	-1.82E-01	2.80E-01
		345.85		17.20	1.80E+00		-3.78E+00	8.58E-01
		482.03		82.80	3.92E-01		-2.23E-01	1.84E-01
	TA-182	67.75		41.20	2.85E-01	2.85E-01	-3.45E-01	1.40E-01
		1121.30		34.90	8.31E-01		2.61E-01	3.91E-01
		1189.05		16.23	1.52E+00		-6.19E-02	7.06E-01
		1221.41		26.98	1.09E+00		4.21E-01	5.12E-01
		1231.02		11.44	2.30E+00		-1.34E-01	1.07E+00
	IR-192	308.46		29.68	5.31E-01	3.64E-01	2.14E-02	2.54E-01
		468.07		48.10	3.64E-01		6.28E-02	1.71E-01
	HG-203	279.19		77.30	3.45E-01	3.45E-01	4.46E-02	1.66E-01
	TL-204	374.74		94.11	7.75E-02	7.75E-02	2.22E-02	3.69E-02
		899.15		99.16	1.01E-01		-2.28E-02	4.63E-02
		911.74		91.10	1.98E-01		2.60E-01	9.41E-02
	BI-207	569.67		97.72	9.33E-02	9.33E-02	2.77E-02	4.40E-02
		1063.62		74.90	1.67E-01		-5.84E-02	7.71E-02
+	TL-208	583.14	*	30.22	4.25E-01	6.43E-02	1.04E+00	2.04E-01
		860.37		4.48	2.50E+00		2.78E-02	1.16E+00
		2614.66	*	35.85	6.43E-02		7.37E-01	0.00E+00
	BI-210M	262.00		45.00	1.31E-01	1.31E-01	4.01E-03	6.31E-02
		300.00		23.00	3.11E-01		1.37E-01	1.50E-01
	PB-210	46.50		4.25	1.78E+00	1.78E+00	-5.31E-01	8.69E-01
	PB-211	404.84		2.90	2.53E+00	2.53E+00	-2.08E+00	1.20E+00
		831.96		2.90	3.77E+00		2.24E-02	1.75E+00
+	BI-212	727.17	*	11.80	8.74E-01	8.74E-01	8.07E-01	4.09E-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)
	BI-212	1620.62		2.75	3.68E+00	8.74E-01	-4.27E-01	1.59E+00
+	PB-212	238.63	*	44.60	3.02E-01	3.02E-01	1.23E+00	1.49E-01
		300.09		3.41	2.10E+00		9.25E-01	1.01E+00
+	BI-214	609.31	*	46.30	2.95E-01	2.95E-01	8.87E-01	1.42E-01
		1120.29	*	15.10	9.98E-01		1.19E+00	4.67E-01
		1764.49	*	15.80	6.49E-01		1.18E+00	2.78E-01
		2204.22		4.98	2.20E+00		2.77E-01	9.12E-01
+	PB-214	295.21	*	19.19	4.78E-01	3.41E-01	8.05E-01	2.32E-01
		351.92	*	37.19	3.41E-01		1.03E+00	1.66E-01
	RN-219	401.80		6.50	1.07E+00	1.07E+00	-6.19E-02	5.07E-01
	RA-223	323.87		3.88	1.61E+00	1.61E+00	2.71E-01	7.68E-01
	RA-224	240.98		3.95	2.89E+00	2.89E+00	1.23E+01	1.42E+00
	RA-225	40.00		31.00	2.15E+01	2.15E+01	9.33E+00	1.05E+01
+	RA-226	186.21	*	3.28	2.53E+00	2.53E+00	1.60E+00	1.24E+00
	TH-227	50.10		8.40	8.67E-01	8.46E-01	-2.17E-02	4.24E-01
		236.00		11.50	8.46E-01		1.01E+00	4.14E-01
		256.20		6.30	9.99E-01		3.51E-01	4.81E-01
+	AC-228	338.32	*	11.40	1.57E+00	5.56E-01	1.08E+00	7.70E-01
		911.07	*	27.70	5.56E-01		1.00E+00	2.63E-01
		969.11	*	16.60	9.13E-01		1.34E+00	4.30E-01
	TH-230	48.44		16.90	4.33E-01	4.33E-01	-6.11E-02	2.11E-01
		62.85		4.60	1.59E+00		2.23E+00	7.79E-01
		67.67		0.37	1.81E+01		-2.18E+01	8.86E+00
	PA-231	283.67		1.60	4.17E+00	2.83E+00	2.20E-01	2.01E+00
		302.67		2.30	2.83E+00		-6.23E-01	1.35E+00
	TH-231	25.64		14.70	1.41E+00	9.83E-01	1.22E-01	6.87E-01
		84.21		6.40	9.83E-01		-6.48E-01	4.82E-01
	PA-233	311.98		38.60	1.94E+00	1.94E+00	9.63E-02	9.29E-01
	PA-234	131.20		20.40	2.71E-01	2.71E-01	2.89E-01	1.32E-01
		733.99		8.80	1.14E+00		-6.34E-02	5.31E-01
		946.00		12.00	9.59E-01		-2.88E-01	4.44E-01
	PA-234M	1001.03		0.92	1.31E+01	1.31E+01	-2.31E+00	6.09E+00
+	TH-234	63.29	*	3.80	2.40E+00	2.40E+00	2.61E+00	1.18E+00
	U-235	143.76		10.50	4.97E-01	4.97E-01	-3.09E-02	2.42E-01
		163.35		4.70	1.20E+00		-2.54E-01	5.83E-01
		205.31		4.70	1.26E+00		2.05E-02	6.08E-01
+	NP-237	86.50	*	12.60	7.05E-01	7.05E-01	4.54E-01	3.48E-01
	NP-239	106.10		22.70	1.73E+11	1.73E+11	6.39E+10	8.44E+10
		228.18		10.70	4.67E+11		4.57E+10	2.26E+11
		277.60		14.10	3.66E+11		4.03E+10	1.76E+11
	AM-241	59.54		35.90	1.94E-01	1.94E-01	1.40E-03	9.50E-02
	AM-243	74.67		66.00	1.34E-01	1.34E-01	5.38E-01	6.59E-02
	CM-243	209.75		3.29	1.90E+00	4.74E-01	1.09E+00	9.22E-01
		228.14		10.60	6.07E-01		5.93E-02	2.93E-01
		277.60		14.00	4.74E-01		5.22E-02	2.28E-01

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

Analysis Report for 1707077-19

HTC-A01-S002-3642-01

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: HTC-A01-S002-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	14	83
17:	83	86	84	69	71	67	74	61
25:	78	67	69	65	55	76	69	59
33:	67	56	61	73	60	79	63	66
41:	65	77	64	67	90	124	72	70
49:	77	88	105	91	102	95	97	94
57:	86	107	80	110	131	167	154	137
65:	139	125	90	114	115	109	129	130
73:	205	254	254	335	262	127	116	90
81:	114	101	123	122	119	155	162	115
89:	134	124	117	157	147	92	67	75
97:	72	75	75	78	47	62	82	79
105:	70	67	67	74	71	66	78	73
113:	78	71	75	59	56	64	65	65
121:	63	58	66	79	57	72	75	88
129:	75	86	54	76	61	55	49	67
137:	69	63	59	41	69	68	65	57
145:	58	55	49	69	54	70	59	76
153:	80	60	66	52	73	52	63	45
161:	61	66	65	53	54	52	68	60
169:	42	47	46	58	58	44	52	40
177:	45	46	44	56	48	53	48	73
185:	110	77	47	49	37	55	40	46
193:	43	46	40	42	46	49	42	39
201:	43	49	39	41	48	40	48	64
209:	67	41	31	39	37	37	51	50
217:	40	47	35	32	46	50	38	38
225:	46	46	45	41	43	39	39	40
233:	37	46	44	60	185	251	171	96
241:	82	55	41	33	39	28	33	29
249:	27	34	33	32	38	31	30	35
257:	32	32	23	29	29	36	16	28
265:	18	29	24	32	55	38	25	21
273:	29	25	29	37	33	40	28	23
281:	29	37	27	31	25	39	27	25
289:	23	26	25	32	35	72	96	45
297:	25	30	23	44	26	24	16	20
305:	21	32	21	22	24	23	29	31
313:	27	27	29	21	14	31	18	22
321:	19	21	14	14	31	18	27	31
329:	29	25	23	19	15	24	16	29
337:	51	51	24	18	25	19	30	19
345:	14	14	25	21	24	75	113	116
353:	39	24	16	17	26	18	16	16
361:	14	14	18	13	12	11	17	22

369:	16	13	17	17	15	18	21	22

Sample Title: HTC-A01-S002-3642-01

Channel								
377:	17	12	22	13	19	10	16	21
385:	17	19	11	22	15	17	15	21
393:	23	15	12	16	11	10	13	20
401:	18	18	19	11	23	13	18	27
409:	30	26	16	16	15	22	16	16
417:	16	21	19	13	15	11	17	12
425:	19	14	13	13	16	17	14	10
433:	11	16	12	15	17	17	13	15
441:	19	10	10	8	14	5	13	12
449:	17	15	15	10	12	12	6	9
457:	14	12	17	19	13	31	23	6
465:	15	12	11	9	18	16	9	16
473:	11	14	9	17	10	8	11	18
481:	8	12	11	8	14	16	13	8
489:	19	15	9	4	11	11	7	11
497:	7	8	17	5	10	11	19	13
505:	12	15	11	19	32	46	38	20
513:	11	10	16	10	17	17	17	11
521:	11	15	9	13	7	13	11	11
529:	8	15	12	12	14	11	15	10
537:	16	6	11	10	11	17	7	11
545:	11	11	9	11	5	5	7	13
553:	12	11	8	7	11	11	9	9
561:	20	14	11	2	18	14	14	11
569:	10	17	13	11	10	13	3	9
577:	6	9	12	11	36	73	55	25
585:	11	10	8	11	11	8	5	11
593:	9	6	20	13	6	6	13	8
601:	11	14	7	12	12	14	31	74
609:	76	37	14	14	6	9	9	14
617:	8	14	6	7	16	7	8	7
625:	7	9	8	8	12	7	11	8
633:	8	5	6	5	8	10	7	11
641:	6	14	9	7	10	15	4	10
649:	10	9	6	9	12	9	6	4
657:	7	7	5	11	11	11	9	3
665:	16	13	6	5	9	7	11	10
673:	10	13	6	6	5	8	12	2
681:	10	5	11	6	6	4	11	8
689:	7	8	6	12	7	6	8	14
697:	11	11	4	10	8	8	9	10
705:	11	6	8	14	8	13	9	7
713:	6	10	9	3	9	12	9	6
721:	8	6	8	5	10	18	18	10
729:	12	5	5	13	7	5	5	5
737:	9	8	5	12	12	10	8	5
745:	5	3	0	11	2	9	10	8
753:	8	11	5	8	4	5	4	9
761:	5	5	8	7	13	9	15	12
769:	15	11	8	10	11	5	14	11
777:	7	10	9	8	8	6	8	9
785:	12	9	6	3	7	6	3	12
793:	16	13	9	6	3	8	4	5

801:	6	5	7	11	10	6	6	6

Sample Title: HTC-A01-S002-3642-01

Channel								
809:	4	12	3	4	5	7	4	7
817:	3	5	5	5	5	4	5	3
825:	7	10	5	3	5	7	9	6
833:	4	11	12	7	3	13	5	5
841:	4	7	8	3	5	7	6	5
849:	4	1	7	5	7	6	11	6
857:	9	3	9	12	10	5	1	6
865:	3	8	5	5	3	7	4	5
873:	4	9	2	4	5	4	8	8
881:	8	6	8	8	5	4	6	6
889:	6	5	10	6	6	2	4	2
897:	5	4	2	8	3	6	6	7
905:	6	7	6	10	13	28	38	24
913:	11	4	2	6	8	5	5	6
921:	8	3	6	5	7	8	2	5
929:	5	4	10	4	6	8	9	7
937:	9	5	8	6	1	7	3	8
945:	5	6	6	7	11	5	10	7
953:	0	8	4	8	6	6	2	4
961:	5	3	9	19	6	9	14	28
969:	23	15	5	3	4	3	2	5
977:	4	6	7	6	11	3	3	4
985:	5	6	8	5	4	10	6	3
993:	3	5	9	5	6	8	5	6
1001:	8	3	8	5	10	3	5	5
1009:	5	0	7	4	12	8	5	6
1017:	6	3	4	2	4	4	8	2
1025:	2	7	4	6	4	1	3	9
1033:	2	11	10	2	3	10	5	6
1041:	3	5	6	10	5	9	3	2
1049:	4	5	9	4	1	7	3	7
1057:	6	7	6	7	5	6	6	3
1065:	6	6	6	12	3	8	5	4
1073:	7	4	5	4	3	6	3	5
1081:	7	8	6	4	4	2	4	3
1089:	4	3	4	5	5	5	7	6
1097:	7	5	3	9	3	3	8	8
1105:	7	3	5	3	2	7	8	5
1113:	2	4	7	5	5	11	19	21
1121:	7	6	5	5	6	7	11	10
1129:	9	1	6	6	3	6	2	5
1137:	7	4	6	4	1	6	8	8
1145:	5	6	5	5	8	8	6	9
1153:	5	6	9	6	5	8	5	7
1161:	6	12	5	8	5	8	10	3
1169:	6	6	7	10	5	3	6	2
1177:	7	3	4	4	7	7	9	4
1185:	5	2	4	9	8	4	9	4
1193:	9	6	7	4	12	5	10	6
1201:	5	8	5	12	8	11	12	7
1209:	8	5	4	7	6	8	8	7
1217:	14	9	6	8	6	7	10	5
1225:	10	6	5	6	7	7	4	11

1233:	5	7	6	11	15	17	5	6

Sample Title: HTC-A01-S002-3642-01

Channel								
1241:	1	4	5	3	3	7	2	5
1249:	5	4	7	2	5	8	6	5
1257:	4	1	5	9	2	7	7	5
1265:	4	9	5	2	4	3	4	5
1273:	5	5	5	3	6	8	6	4
1281:	5	7	3	4	9	6	3	6
1289:	9	4	4	2	2	3	7	5
1297:	6	3	6	1	2	5	1	2
1305:	6	4	3	1	4	5	4	4
1313:	2	6	6	3	1	3	5	3
1321:	4	6	6	2	8	2	4	2
1329:	1	2	2	2	3	1	6	7
1337:	1	5	5	1	3	0	2	4
1345:	3	1	2	4	2	1	2	1
1353:	3	0	4	3	2	2	0	2
1361:	2	1	2	2	2	0	3	1
1369:	1	1	4	2	1	2	3	5
1377:	8	6	4	3	0	2	3	1
1385:	1	2	2	1	2	1	2	1
1393:	2	2	2	3	1	2	2	0
1401:	4	1	4	0	2	5	7	1
1409:	6	3	1	4	3	2	1	3
1417:	1	1	3	4	4	3	4	1
1425:	5	1	3	1	3	0	3	1
1433:	1	1	3	0	2	2	2	1
1441:	5	1	1	2	1	0	2	0
1449:	3	3	1	2	2	2	1	3
1457:	8	18	79	129	104	35	9	2
1465:	2	0	4	1	1	2	1	0
1473:	2	3	3	0	0	2	3	3
1481:	1	3	2	0	1	2	1	3
1489:	0	2	3	3	2	3	2	5
1497:	2	2	2	2	0	1	1	1
1505:	1	1	1	2	2	0	2	2
1513:	3	5	2	4	1	1	1	1
1521:	0	3	4	2	5	3	2	1
1529:	0	2	0	3	1	4	2	1
1537:	1	3	2	4	0	0	2	1
1545:	3	0	0	1	1	0	1	1
1553:	1	1	3	1	1	1	0	1
1561:	2	1	1	1	0	1	3	1
1569:	1	1	2	1	0	3	2	0
1577:	3	2	1	2	1	1	0	2
1585:	2	3	3	5	1	3	5	3
1593:	4	2	2	2	1	2	0	0
1601:	1	0	2	2	2	1	0	0
1609:	1	1	2	0	2	1	0	2
1617:	1	3	2	4	0	1	1	0
1625:	1	2	1	1	0	1	2	3
1633:	2	1	0	2	0	3	3	1
1641:	1	0	0	1	0	1	0	1
1649:	1	1	1	1	1	0	1	1
1657:	1	0	1	2	1	3	1	1

1665:	1	0	2	0	3	0	2	3

Sample Title: HTC-A01-S002-3642-01

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

2097:	1	0	0	0	1	1	2	4

Sample Title: HTC-A01-S002-3642-01

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

2529:	0	0	0	0	2	0	0	0

Sample Title: HTC-A01-S002-3642-01

Channel								
2537:	1	0	1	0	0	1	2	0
2545:	2	0	0	0	3	0	1	0
2553:	0	0	0	0	0	0	0	1
2561:	0	0	1	0	0	0	0	0
2569:	0	2	1	1	0	0	1	0
2577:	0	0	0	0	0	0	0	0
2585:	0	1	0	1	0	0	0	0
2593:	0	0	0	0	1	0	0	0
2601:	0	0	0	0	2	1	0	0
2609:	0	0	0	2	6	10	9	3
2617:	1	0	0	0	0	0	0	0
2625:	0	0	1	0	0	2	0	0
2633:	0	2	0	0	0	1	0	0
2641:	0	0	0	1	1	0	0	0
2649:	0	1	0	0	0	1	1	0
2657:	1	1	0	0	0	0	0	0
2665:	0	1	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	0	0	1	0	0	0	0	0
2689:	0	0	1	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	0	0	0	1
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	0	0	0	0	1
2737:	0	0	1	0	0	1	0	0
2745:	0	0	0	1	1	1	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	1	0	0	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	0	2	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	1	1	1	0	0	0	0
2809:	1	0	0	0	0	0	0	0
2817:	1	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	1	0
2833:	1	0	0	0	0	0	0	0
2841:	1	0	1	0	0	0	1	0
2849:	1	0	0	0	0	1	0	1
2857:	0	0	0	1	0	0	0	1
2865:	0	0	0	0	0	0	1	0
2873:	0	0	0	1	0	0	0	1
2881:	0	0	0	0	0	0	1	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	1
2905:	0	0	0	0	0	0	1	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	1	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	1	1
2945:	1	0	0	1	0	0	0	0
2953:	1	1	0	1	0	1	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-3642-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-3642-01

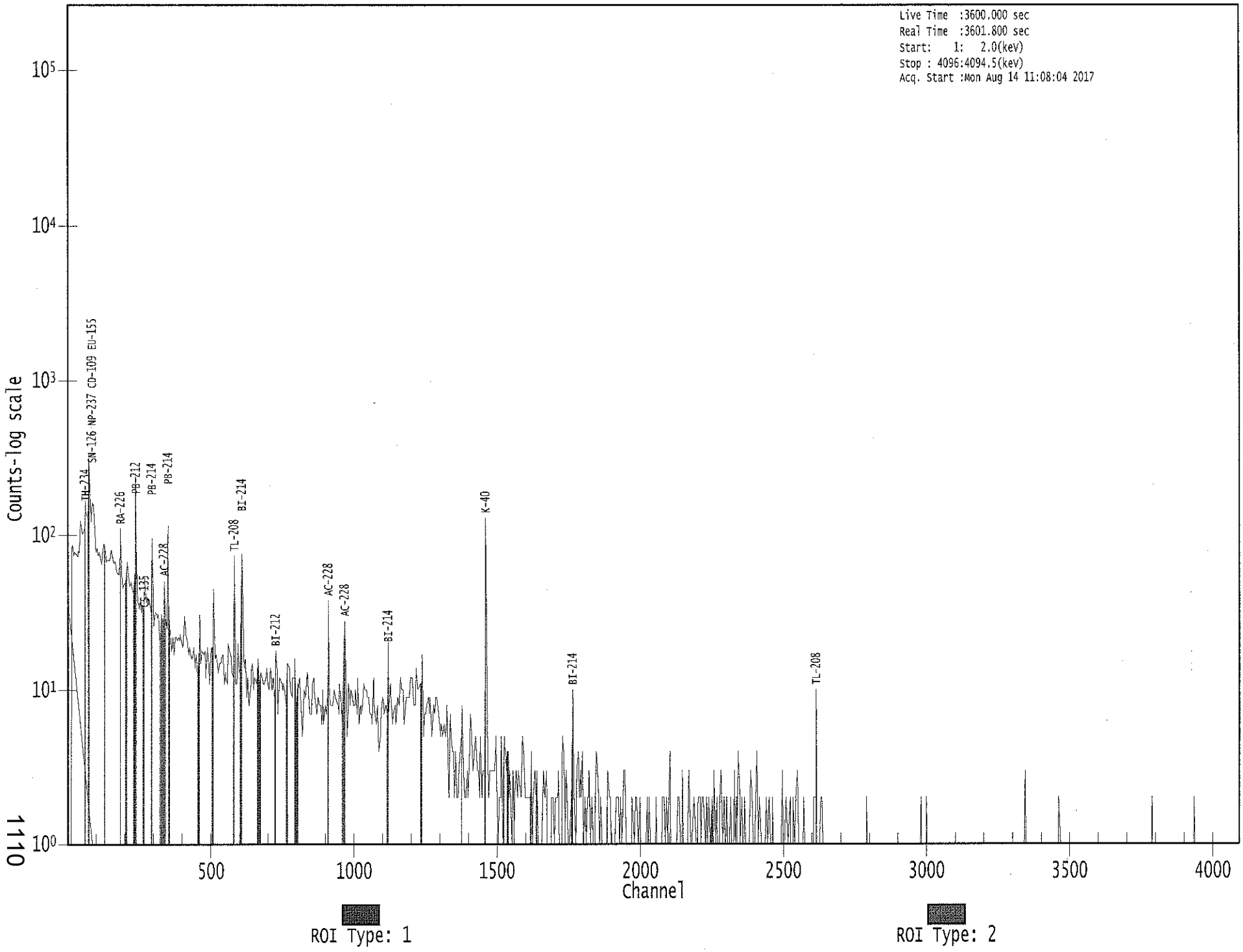
Channel								
3401:	0	0	0	1	1	0	0	0
3409:	0	0	1	0	0	0	1	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	1	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	2	0	0	0
3465:	1	0	0	1	0	1	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	1	1	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	1	0	1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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S002-3642-01

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

0000055165.CNF



1110

KLB 8/14/17

Apex-Gamma

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707077-20
Sample Description	: HTC-A01-S002-4248-01
Sample Type	: SOIL
Sample Size	: 7.050E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 10:40:51AM
Acquisition Started	: 8/14/2017 11:25:23AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.3 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 19 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55167

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 12:25:28PM
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	45.92	46.54	0.0000	0.00
2	73.10	73.69	0.0000	0.00
3	76.93	77.52	0.0000	0.00
4	87.18	87.76	0.0000	0.00
5	92.80	93.38	0.0000	0.00
6	129.33	129.87	0.0000	0.00
7	153.54	154.05	0.0000	0.00
8	185.49	185.97	0.0000	0.00
9	238.62	239.05	0.0000	0.00
10	241.74	242.17	0.0000	0.00
11	270.99	271.38	0.0000	0.00
12	278.16	278.55	0.0000	0.00
13	295.23	295.59	0.0000	0.00
14	299.53	299.89	0.0000	0.00
15	338.47	338.79	0.0000	0.00
16	351.83	352.14	0.0000	0.00
17	408.96	409.22	0.0000	0.00
18	462.57	462.77	0.0000	0.00
19	510.78	510.93	0.0000	0.00
20	580.00	580.08	0.0000	0.00
21	583.11	583.19	0.0000	0.00
22	609.34	609.39	0.0000	0.00
23	666.02	666.01	0.0000	0.00
24	669.01	669.00	0.0000	0.00
25	727.60	727.53	0.0000	0.00
26	768.23	768.12	0.0000	0.00
27	772.52	772.41	0.0000	0.00
28	792.31	792.18	0.0000	0.00
29	808.18	808.03	0.0000	0.00
30	858.40	858.20	0.0000	0.00
31	861.40	861.20	0.0000	0.00
32	865.01	864.80	0.0000	0.00
33	911.49	911.23	0.0000	0.00
34	957.20	956.90	0.0000	0.00
35	969.40	969.09	0.0000	0.00
36	1037.23	1036.86	0.0000	0.00
37	1090.78	1090.35	0.0000	0.00
38	1120.20	1119.74	0.0000	0.00
39	1239.30	1238.72	0.0000	0.00
40	1378.13	1377.41	0.0000	0.00
41	1401.69	1400.95	0.0000	0.00
42	1407.88	1407.14	0.0000	0.00

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1461.35	1460.55	0.0000	0.00
44	1465.90	1465.10	0.0000	0.00
45	1500.44	1499.61	0.0000	0.00
46	1591.53	1590.61	0.0000	0.00
47	1631.34	1630.38	0.0000	0.00
48	1692.67	1691.65	0.0000	0.00
49	1726.28	1725.23	0.0000	0.00
50	1730.28	1729.23	0.0000	0.00
51	1765.37	1764.28	0.0000	0.00
52	1802.70	1801.57	0.0000	0.00
53	1808.53	1807.40	0.0000	0.00
54	2191.84	2190.34	0.0000	0.00
55	2205.05	2203.53	0.0000	0.00
56	2211.27	2209.74	0.0000	0.00
57	2281.52	2279.93	0.0000	0.00
58	2361.73	2360.07	0.0000	0.00
59	2615.36	2613.45	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 12:25:28PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	45.92	44 -	49	46.54	9.98E+01	69.09	8.86E+02	1.31
M	2	73.10	71 -	82	73.69	1.75E+02	84.14	1.32E+03	2.19
m	3	76.93	71 -	82	77.52	8.28E+02	118.21	1.71E+03	2.20
M	4	87.18	83 -	101	87.76	3.54E+02	123.46	2.02E+03	3.25
m	5	92.80	83 -	101	93.38	4.10E+02	95.38	1.21E+03	2.45
	6	129.33	128 -	132	129.87	6.17E+01	60.57	7.55E+02	2.23
	7	153.54	151 -	157	154.05	8.60E+01	71.11	8.56E+02	1.47
	8	185.49	182 -	190	185.97	2.04E+02	88.79	1.08E+03	1.76
M	9	238.62	233 -	246	239.05	9.00E+02	74.21	4.66E+02	1.80
m	10	241.74	233 -	246	242.17	2.07E+02	75.54	4.07E+02	1.82
	11	270.99	267 -	276	271.38	1.09E+02	71.85	6.76E+02	2.00
	12	278.16	277 -	281	278.55	4.04E+01	39.23	3.01E+02	1.04
M	13	295.23	292 -	302	295.59	2.75E+02	49.92	3.24E+02	1.82
m	14	299.53	292 -	302	299.89	5.58E+01	47.27	3.94E+02	1.88
	15	338.47	334 -	342	338.79	1.50E+02	59.78	4.54E+02	1.82
	16	351.83	347 -	356	352.14	3.94E+02	73.91	5.56E+02	1.74
	17	408.96	406 -	412	409.22	3.47E+01	39.68	2.59E+02	1.70
	18	462.57	457 -	467	462.77	7.30E+01	52.60	3.30E+02	1.96
	19	510.78	506 -	515	510.93	2.19E+02	49.86	2.30E+02	2.92
M	20	580.00	579 -	587	580.08	2.01E+01	12.96	4.22E+01	2.04
m	21	583.11	579 -	587	583.19	3.06E+02	42.76	1.32E+02	2.04
	22	609.34	604 -	614	609.39	3.38E+02	62.20	3.36E+02	2.07
M	23	666.02	664 -	672	666.01	3.22E+01	20.69	7.36E+01	2.08
m	24	669.01	664 -	672	669.00	1.91E+01	27.18	1.22E+02	2.09
	25	727.60	723 -	734	727.53	7.22E+01	44.81	2.12E+02	2.41
M	26	768.23	764 -	775	768.12	3.40E+01	26.68	1.14E+02	2.00
m	27	772.52	764 -	775	772.41	2.14E+01	28.09	1.04E+02	2.35
	28	792.31	783 -	798	792.18	7.36E+01	48.62	2.03E+02	11.00
	29	808.18	804 -	811	808.03	3.15E+01	28.14	1.09E+02	3.21
M	30	858.40	856 -	867	858.20	1.81E+01	20.81	8.23E+01	2.18
m	31	861.40	856 -	867	861.20	3.32E+01	27.84	9.98E+01	2.18
m	32	865.01	856 -	867	864.80	2.33E+01	19.32	5.90E+01	2.18
	33	911.49	906 -	916	911.23	2.05E+02	44.87	1.58E+02	2.01
	34	957.20	954 -	959	956.90	2.21E+01	19.26	5.57E+01	2.04
	35	969.40	966 -	973	969.09	6.77E+01	42.14	2.33E+02	1.63
	36	1037.23	1035 -	1039	1036.86	1.82E+01	17.18	4.56E+01	2.69
	37	1090.78	1082 -	1099	1090.35	4.11E+01	48.44	2.00E+02	13.86
	38	1120.20	1115 -	1123	1119.74	9.75E+01	32.58	1.03E+02	2.17
	39	1239.30	1235 -	1244	1238.72	3.79E+01	36.24	1.68E+02	2.00
	40	1378.13	1372 -	1382	1377.41	3.40E+01	21.59	4.40E+01	2.13

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1401.69	1398 -	1410	1400.95	1.73E+01	12.25	1.49E+01	2.62
m	42	1407.88	1398 -	1410	1407.14	1.39E+01	14.42	2.78E+01	2.62
M	43	1461.35	1456 -	1469	1460.55	1.01E+03	65.60	4.22E+01	2.28
m	44	1465.90	1456 -	1469	1465.10	2.97E+01	30.12	3.52E+01	2.22
	45	1500.44	1495 -	1504	1499.61	1.47E+01	14.00	1.86E+01	7.72
	46	1591.53	1584 -	1595	1590.61	2.71E+01	19.80	3.38E+01	5.59
	47	1631.34	1627 -	1633	1630.38	1.55E+01	10.81	9.00E+00	2.35
	48	1692.67	1689 -	1694	1691.65	8.63E+00	8.66	6.75E+00	2.77
M	49	1726.28	1724 -	1737	1725.23	1.15E+01	5.10	2.93E-01	2.06
m	50	1730.28	1724 -	1737	1729.23	2.23E+01	12.35	6.15E+00	2.49
	51	1765.37	1757 -	1770	1764.28	6.47E+01	23.94	3.47E+01	2.59
	52	1802.70	1798 -	1804	1801.57	7.00E+00	5.29	0.00E+00	3.00
	53	1808.53	1805 -	1810	1807.40	1.00E+01	6.32	0.00E+00	1.85
	54	2191.84	2186 -	2194	2190.34	9.23E+00	9.62	7.54E+00	2.01
M	55	2205.05	2201 -	2215	2203.53	1.17E+01	6.63	3.36E+00	3.43
m	56	2211.27	2201 -	2215	2209.74	7.05E+00	10.05	3.28E+00	3.50
	57	2281.52	2275 -	2284	2279.93	1.21E+01	10.86	9.76E+00	3.20
	58	2361.73	2354 -	2365	2360.07	1.12E+01	13.71	1.75E+01	6.86
	59	2615.36	2609 -	2617	2613.45	1.18E+02	23.68	1.35E+01	2.47

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 : 8/14/2017 12:25:28PM

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	45.92	44 -	49	9.98E+01	69.09	8.86E+02	5.44E+01
M	2	73.10	71 -	82	1.75E+02	84.14	1.32E+03	5.98E+01
m	3	76.93	71 -	82	8.28E+02	118.21	1.71E+03	6.80E+01
M	4	87.18	83 -	101	3.54E+02	123.46	2.02E+03	7.39E+01
m	5	92.80	83 -	101	4.10E+02	95.38	1.21E+03	5.73E+01
	6	129.33	128 -	132	6.17E+01	60.57	7.55E+02	4.81E+01
	7	153.54	151 -	157	8.60E+01	71.11	8.56E+02	5.64E+01
	8	185.49	182 -	190	2.04E+02	88.79	1.08E+03	6.91E+01
M	9	238.62	233 -	246	9.00E+02	74.21	4.66E+02	3.55E+01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	10	241.74	233 -	246	2.07E+02	75.54	4.07E+02	3.32E+01
	11	270.99	267 -	276	1.09E+02	71.85	6.76E+02	5.65E+01
	12	278.16	277 -	281	4.04E+01	39.23	3.01E+02	3.05E+01
M	13	295.23	292 -	302	2.75E+02	49.92	3.24E+02	2.96E+01
m	14	299.53	292 -	302	5.58E+01	47.27	3.94E+02	3.26E+01
	15	338.47	334 -	342	1.50E+02	59.78	4.54E+02	4.48E+01
	16	351.83	347 -	356	3.94E+02	73.91	5.56E+02	5.12E+01
	17	408.96	406 -	412	3.47E+01	39.68	2.59E+02	3.11E+01
	18	462.57	457 -	467	7.30E+01	52.60	3.30E+02	4.09E+01
	19	510.78	506 -	515	2.19E+02	49.86	2.30E+02	3.30E+01
M	20	580.00	579 -	587	2.01E+01	12.96	4.22E+01	1.07E+01
m	21	583.11	579 -	587	3.06E+02	42.76	1.32E+02	1.89E+01
	22	609.34	604 -	614	3.38E+02	62.20	3.36E+02	4.12E+01
M	23	666.02	664 -	672	3.22E+01	20.69	7.36E+01	1.41E+01
m	24	669.01	664 -	672	1.91E+01	27.18	1.22E+02	1.82E+01
	25	727.60	723 -	734	7.22E+01	44.81	2.12E+02	3.41E+01
M	26	768.23	764 -	775	3.40E+01	26.68	1.14E+02	1.76E+01
m	27	772.52	764 -	775	2.14E+01	28.09	1.04E+02	1.68E+01
	28	792.31	783 -	798	7.36E+01	48.62	2.03E+02	3.74E+01
	29	808.18	804 -	811	3.15E+01	28.14	1.09E+02	2.12E+01
M	30	858.40	856 -	867	1.81E+01	20.81	8.23E+01	1.49E+01
m	31	861.40	856 -	867	3.32E+01	27.84	9.98E+01	1.64E+01
m	32	865.01	856 -	867	2.33E+01	19.32	5.90E+01	1.26E+01
	33	911.49	906 -	916	2.05E+02	44.87	1.58E+02	2.84E+01
	34	957.20	954 -	959	2.21E+01	19.26	5.57E+01	1.38E+01
	35	969.40	966 -	973	6.77E+01	42.14	2.33E+02	3.19E+01
	36	1037.23	1035 -	1039	1.82E+01	17.18	4.56E+01	1.23E+01
	37	1090.78	1082 -	1099	4.11E+01	48.44	2.00E+02	3.84E+01
	38	1120.20	1115 -	1123	9.75E+01	32.58	1.03E+02	2.13E+01
	39	1239.30	1235 -	1244	3.79E+01	36.24	1.68E+02	2.80E+01
	40	1378.13	1372 -	1382	3.40E+01	21.59	4.40E+01	1.49E+01
M	41	1401.69	1398 -	1410	1.73E+01	12.25	1.49E+01	6.35E+00
m	42	1407.88	1398 -	1410	1.39E+01	14.42	2.78E+01	8.67E+00
M	43	1461.35	1456 -	1469	1.01E+03	65.60	4.22E+01	1.07E+01
m	44	1465.90	1456 -	1469	2.97E+01	30.12	3.52E+01	9.76E+00
	45	1500.44	1495 -	1504	1.47E+01	14.00	1.86E+01	9.63E+00
	46	1591.53	1584 -	1595	2.71E+01	19.80	3.38E+01	1.38E+01
	47	1631.34	1627 -	1633	1.55E+01	10.81	9.00E+00	6.08E+00
	48	1692.67	1689 -	1694	8.63E+00	8.66	6.75E+00	5.23E+00
M	49	1726.28	1724 -	1737	1.15E+01	5.10	2.93E-01	8.89E-01
m	50	1730.28	1724 -	1737	2.23E+01	12.35	6.15E+00	4.08E+00
	51	1765.37	1757 -	1770	6.47E+01	23.94	3.47E+01	1.46E+01
	52	1802.70	1798 -	1804	7.00E+00	5.29	0.00E+00	0.00E+00
	53	1808.53	1805 -	1810	1.00E+01	6.32	0.00E+00	0.00E+00
	54	2191.84	2186 -	2194	9.23E+00	9.62	7.54E+00	6.13E+00
M	55	2205.05	2201 -	2215	1.17E+01	6.63	3.36E+00	3.01E+00
m	56	2211.27	2201 -	2215	7.05E+00	10.05	3.28E+00	2.98E+00
	57	2281.52	2275 -	2284	1.21E+01	10.86	9.76E+00	6.85E+00
	58	2361.73	2354 -	2365	1.12E+01	13.71	1.75E+01	9.83E+00
	59	2615.36	2609 -	2617	1.18E+02	23.68	1.35E+01	7.70E+00

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

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 : 8/14/2017 12:25:28PM

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	45.92	44 -	49	46.54	9.98E+01	69.09	8.86E+02	PB-210
M	2	73.10	71 -	82	73.69	1.75E+02	84.14	1.32E+03	PM-145
m	3	76.93	71 -	82	77.52	8.28E+02	118.21	1.71E+03	.....
M	4	87.18	83 -	101	87.76	3.54E+02	123.46	2.02E+03	SN-126
									NP-237
									EU-155
									CD-109
m	5	92.80	83 -	101	93.38	4.10E+02	95.38	1.21E+03	GA-67
	6	129.33	128 -	132	129.87	6.17E+01	60.57	7.55E+02	.....
	7	153.54	151 -	157	154.05	8.60E+01	71.11	8.56E+02	CS-136
	8	185.49	182 -	190	185.97	2.04E+02	88.79	1.08E+03	RA-226
M	9	238.62	233 -	246	239.05	9.00E+02	74.21	4.66E+02	PB-212
m	10	241.74	233 -	246	242.17	2.07E+02	75.54	4.07E+02	RA-224
	11	270.99	267 -	276	271.38	1.09E+02	71.85	6.76E+02	.....
	12	278.16	277 -	281	278.55	4.04E+01	39.23	3.01E+02	CM-243
									NP-239
M	13	295.23	292 -	302	295.59	2.75E+02	49.92	3.24E+02	PB-214
m	14	299.53	292 -	302	299.89	5.58E+01	47.27	3.94E+02	BI-210M
									PB-212
									GA-67
	15	338.47	334 -	342	338.79	1.50E+02	59.78	4.54E+02	AC-228
	16	351.83	347 -	356	352.14	3.94E+02	73.91	5.56E+02	PB-214
	17	408.96	406 -	412	409.22	3.47E+01	39.68	2.59E+02	.....
	18	462.57	457 -	467	462.77	7.30E+01	52.60	3.30E+02	SB-125
	19	510.78	506 -	515	510.93	2.19E+02	49.86	2.30E+02	.....
M	20	580.00	579 -	587	580.08	2.01E+01	12.96	4.22E+01	.....
m	21	583.11	579 -	587	583.19	3.06E+02	42.76	1.32E+02	TL-208
	22	609.34	604 -	614	609.39	3.38E+02	62.20	3.36E+02	BI-214
M	23	666.02	664 -	672	666.01	3.22E+01	20.69	7.36E+01	SB-126
m	24	669.01	664 -	672	669.00	1.91E+01	27.18	1.22E+02	.....

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	25	727.60	723 -	734	727.53	7.22E+01	44.81	2.12E+02	BI-212
M	26	768.23	764 -	775	768.12	3.40E+01	26.68	1.14E+02	.....
m	27	772.52	764 -	775	772.41	2.14E+01	28.09	1.04E+02	.....
	28	792.31	783 -	798	792.18	7.36E+01	48.62	2.03E+02	.....
	29	808.18	804 -	811	808.03	3.15E+01	28.14	1.09E+02	.....
M	30	858.40	856 -	867	858.20	1.81E+01	20.81	8.23E+01	.....
m	31	861.40	856 -	867	861.20	3.32E+01	27.84	9.98E+01	.....
m	32	865.01	856 -	867	864.80	2.33E+01	19.32	5.90E+01	.....
	33	911.49	906 -	916	911.23	2.05E+02	44.87	1.58E+02	TL-204 AC-228
	34	957.20	954 -	959	956.90	2.21E+01	19.26	5.57E+01	.....
	35	969.40	966 -	973	969.09	6.77E+01	42.14	2.33E+02	AC-228
	36	1037.23	1035 -	1039	1036.86	1.82E+01	17.18	4.56E+01	CO-56
	37	1090.78	1082 -	1099	1090.35	4.11E+01	48.44	2.00E+02	.....
	38	1120.20	1115 -	1123	1119.74	9.75E+01	32.58	1.03E+02	BI-214 SC-46
	39	1239.30	1235 -	1244	1238.72	3.79E+01	36.24	1.68E+02	.....
	40	1378.13	1372 -	1382	1377.41	3.40E+01	21.59	4.40E+01	.....
M	41	1401.69	1398 -	1410	1400.95	1.73E+01	12.25	1.49E+01	.....
m	42	1407.88	1398 -	1410	1407.14	1.39E+01	14.42	2.78E+01	EU-152
M	43	1461.35	1456 -	1469	1460.55	1.01E+03	65.60	4.22E+01	K-40
m	44	1465.90	1456 -	1469	1465.10	2.97E+01	30.12	3.52E+01	.....
	45	1500.44	1495 -	1504	1499.61	1.47E+01	14.00	1.86E+01	.....
	46	1591.53	1584 -	1595	1590.61	2.71E+01	19.80	3.38E+01	.....
	47	1631.34	1627 -	1633	1630.38	1.55E+01	10.81	9.00E+00	.....
	48	1692.67	1689 -	1694	1691.65	8.63E+00	8.66	6.75E+00	.....
M	49	1726.28	1724 -	1737	1725.23	1.15E+01	5.10	2.93E-01	.....
m	50	1730.28	1724 -	1737	1729.23	2.23E+01	12.35	6.15E+00	.....
	51	1765.37	1757 -	1770	1764.28	6.47E+01	23.94	3.47E+01	BI-214
	52	1802.70	1798 -	1804	1801.57	7.00E+00	5.29	0.00E+00	.....
	53	1808.53	1805 -	1810	1807.40	1.00E+01	6.32	0.00E+00	AL-26
	54	2191.84	2186 -	2194	2190.34	9.23E+00	9.62	7.54E+00	.....
M	55	2205.05	2201 -	2215	2203.53	1.17E+01	6.63	3.36E+00	BI-214
m	56	2211.27	2201 -	2215	2209.74	7.05E+00	10.05	3.28E+00	.....
	57	2281.52	2275 -	2284	2279.93	1.21E+01	10.86	9.76E+00	.....
	58	2361.73	2354 -	2365	2360.07	1.12E+01	13.71	1.75E+01	.....
	59	2615.36	2609 -	2617	2613.45	1.18E+02	23.68	1.35E+01	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 : 8/14/2017 12:25:28PM

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	45.92	9.98E+01	69.09	2.45E-02	2.22E-03
M	2	73.10	1.75E+02	84.14	2.74E-02	2.36E-03
m	3	76.93	8.28E+02	118.21	2.75E-02	2.40E-03
M	4	87.18	3.54E+02	123.46	2.74E-02	2.51E-03
m	5	92.80	4.10E+02	95.38	2.73E-02	2.44E-03
	6	129.33	6.17E+01	60.57	2.53E-02	1.93E-03
	7	153.54	8.60E+01	71.11	2.38E-02	1.80E-03
	8	185.49	2.04E+02	88.79	2.17E-02	1.68E-03
M	9	238.62	9.00E+02	74.21	1.89E-02	1.53E-03
m	10	241.74	2.07E+02	75.54	1.87E-02	1.52E-03
	11	270.99	1.09E+02	71.85	1.74E-02	1.43E-03
	12	278.16	4.04E+01	39.23	1.71E-02	1.41E-03
M	13	295.23	2.75E+02	49.92	1.64E-02	1.37E-03
m	14	299.53	5.58E+01	47.27	1.63E-02	1.36E-03
	15	338.47	1.50E+02	59.78	1.50E-02	1.27E-03
	16	351.83	3.94E+02	73.91	1.45E-02	1.24E-03
	17	408.96	3.47E+01	39.68	1.30E-02	1.13E-03
	18	462.57	7.30E+01	52.60	1.19E-02	1.10E-03
	19	510.78	2.19E+02	49.86	1.10E-02	1.07E-03
M	20	580.00	2.01E+01	12.96	1.00E-02	1.02E-03
m	21	583.11	3.06E+02	42.76	9.96E-03	1.02E-03
	22	609.34	3.38E+02	62.20	9.63E-03	1.01E-03
M	23	666.02	3.22E+01	20.69	9.00E-03	9.65E-04
m	24	669.01	1.91E+01	27.18	8.97E-03	9.60E-04
	25	727.60	7.22E+01	44.81	8.41E-03	8.67E-04
M	26	768.23	3.40E+01	26.68	8.07E-03	8.03E-04
m	27	772.52	2.14E+01	28.09	8.03E-03	7.96E-04
	28	792.31	7.36E+01	48.62	7.88E-03	7.64E-04
	29	808.18	3.15E+01	28.14	7.76E-03	7.39E-04
M	30	858.40	1.81E+01	20.81	7.41E-03	6.59E-04
m	31	861.40	3.32E+01	27.84	7.39E-03	6.55E-04
m	32	865.01	2.33E+01	19.32	7.37E-03	6.49E-04
	33	911.49	2.05E+02	44.87	7.08E-03	5.91E-04
	34	957.20	2.21E+01	19.26	6.83E-03	5.74E-04
	35	969.40	6.77E+01	42.14	6.76E-03	5.69E-04
	36	1037.23	1.82E+01	17.18	6.43E-03	5.43E-04
	37	1090.78	4.11E+01	48.44	6.19E-03	5.23E-04
	38	1120.20	9.75E+01	32.58	6.07E-03	5.11E-04
	39	1239.30	3.79E+01	36.24	5.64E-03	4.76E-04
	40	1378.13	3.40E+01	21.59	5.22E-03	4.44E-04
M	41	1401.69	1.73E+01	12.25	5.16E-03	4.38E-04
m	42	1407.88	1.39E+01	14.42	5.14E-03	4.37E-04
M	43	1461.35	1.01E+03	65.60	5.00E-03	4.25E-04
m	44	1465.90	2.97E+01	30.12	4.99E-03	4.24E-04
	45	1500.44	1.47E+01	14.00	4.91E-03	4.16E-04
	46	1591.53	2.71E+01	19.80	4.71E-03	3.94E-04
	47	1631.34	1.55E+01	10.81	4.63E-03	3.85E-04
	48	1692.67	8.63E+00	8.66	4.51E-03	3.71E-04
M	49	1726.28	1.15E+01	5.10	4.44E-03	3.63E-04
m	50	1730.28	2.23E+01	12.35	4.44E-03	3.62E-04

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	51	1765.37	6.47E+01	23.94	4.37E-03	3.54E-04
	52	1802.70	7.00E+00	5.29	4.31E-03	3.46E-04
	53	1808.53	1.00E+01	6.32	4.30E-03	3.44E-04
	54	2191.84	9.23E+00	9.62	3.75E-03	3.38E-04
M	55	2205.05	1.17E+01	6.63	3.74E-03	3.38E-04
m	56	2211.27	7.05E+00	10.05	3.73E-03	3.38E-04
	57	2281.52	1.21E+01	10.86	3.65E-03	3.38E-04
	58	2361.73	1.12E+01	13.71	3.56E-03	3.38E-04
	59	2615.36	1.18E+02	23.68	3.31E-03	3.38E-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 : 8/14/2017 12:25:28PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	45.92	9.98E+01	69.09	4.28E+01	8.26E+00	5.70E+01	6.96E+01
M	2	73.10	1.75E+02	84.14			1.75E+02	8.41E+01
m	3	76.93	8.28E+02	118.21	7.83E+00	3.45E+00	8.20E+02	1.18E+02
M	4	87.18	3.54E+02	123.46			3.54E+02	1.23E+02
m	5	92.80	4.10E+02	95.38	1.35E+02	7.64E+00	2.75E+02	9.57E+01
	6	129.33	6.17E+01	60.57			6.17E+01	6.06E+01
	7	153.54	8.60E+01	71.11			8.60E+01	7.11E+01
	8	185.49	2.04E+02	88.79	5.47E+01	6.99E+00	1.49E+02	8.91E+01
M	9	238.62	9.00E+02	74.21	1.58E+01	5.72E+00	8.84E+02	7.44E+01
m	10	241.74	2.07E+02	75.54			2.07E+02	7.55E+01
	11	270.99	1.09E+02	71.85			1.09E+02	7.19E+01
	12	278.16	4.04E+01	39.23			4.04E+01	3.92E+01
M	13	295.23	2.75E+02	49.92			2.75E+02	4.99E+01
m	14	299.53	5.58E+01	47.27			5.58E+01	4.73E+01
	15	338.47	1.50E+02	59.78	1.94E+00	4.45E+00	1.48E+02	5.99E+01
	16	351.83	3.94E+02	73.91	8.23E+00	4.77E+00	3.86E+02	7.41E+01
	17	408.96	3.47E+01	39.68			3.47E+01	3.97E+01
	18	462.57	7.30E+01	52.60			7.30E+01	5.26E+01
	19	510.78	2.19E+02	49.86	7.54E+01	5.68E+00	1.44E+02	5.02E+01
M	20	580.00	2.01E+01	12.96			2.01E+01	1.30E+01
m	21	583.11	3.06E+02	42.76	7.97E+00	3.93E+00	2.98E+02	4.29E+01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	22	609.34	3.38E+02	62.20	5.86E+00	3.50E+00	3.32E+02	6.23E+01
M	23	666.02	3.22E+01	20.69			3.22E+01	2.07E+01
m	24	669.01	1.91E+01	27.18			1.91E+01	2.72E+01
	25	727.60	7.22E+01	44.81			7.22E+01	4.48E+01
M	26	768.23	3.40E+01	26.68			3.40E+01	2.67E+01
m	27	772.52	2.14E+01	28.09			2.14E+01	2.81E+01
	28	792.31	7.36E+01	48.62			7.36E+01	4.86E+01
	29	808.18	3.15E+01	28.14			3.15E+01	2.81E+01
M	30	858.40	1.81E+01	20.81			1.81E+01	2.08E+01
m	31	861.40	3.32E+01	27.84			3.32E+01	2.78E+01
m	32	865.01	2.33E+01	19.32			2.33E+01	1.93E+01
	33	911.49	2.05E+02	44.87			2.05E+02	4.49E+01
	34	957.20	2.21E+01	19.26			2.21E+01	1.93E+01
	35	969.40	6.77E+01	42.14			6.77E+01	4.21E+01
	36	1037.23	1.82E+01	17.18			1.82E+01	1.72E+01
	37	1090.78	4.11E+01	48.44			4.11E+01	4.84E+01
	38	1120.20	9.75E+01	32.58			9.75E+01	3.26E+01
	39	1239.30	3.79E+01	36.24			3.79E+01	3.62E+01
	40	1378.13	3.40E+01	21.59			3.40E+01	2.16E+01
M	41	1401.69	1.73E+01	12.25			1.73E+01	1.22E+01
m	42	1407.88	1.39E+01	14.42			1.39E+01	1.44E+01
M	43	1461.35	1.01E+03	65.60	7.31E+00	2.50E+00	1.01E+03	6.56E+01
m	44	1465.90	2.97E+01	30.12			2.97E+01	3.01E+01
	45	1500.44	1.47E+01	14.00			1.47E+01	1.40E+01
	46	1591.53	2.71E+01	19.80			2.71E+01	1.98E+01
	47	1631.34	1.55E+01	10.81			1.55E+01	1.08E+01
	48	1692.67	8.63E+00	8.66			8.63E+00	8.66E+00
M	49	1726.28	1.15E+01	5.10			1.15E+01	5.10E+00
m	50	1730.28	2.23E+01	12.35			2.23E+01	1.23E+01
	51	1765.37	6.47E+01	23.94			6.47E+01	2.39E+01
	52	1802.70	7.00E+00	5.29			7.00E+00	5.29E+00
	53	1808.53	1.00E+01	6.32			1.00E+01	6.32E+00
	54	2191.84	9.23E+00	9.62			9.23E+00	9.62E+00
M	55	2205.05	1.17E+01	6.63			1.17E+01	6.63E+00
m	56	2211.27	7.05E+00	10.05			7.05E+00	1.00E+01
	57	2281.52	1.21E+01	10.86			1.21E+01	1.09E+01
	58	2361.73	1.12E+01	13.71			1.12E+01	1.37E+01
	59	2615.36	1.18E+02	23.68	5.15E+00	1.56E+00	1.13E+02	2.37E+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 1707077-20

HTC-A01-S002-4248-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 12:25:28PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.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	45.92	9.98E+01	69.09	4.28E+01	8.26E+00	5.70E+01	6.96E+01
M	2	73.10	1.75E+02	84.14			1.75E+02	8.41E+01
m	3	76.93	8.28E+02	118.21	7.83E+00	3.45E+00	8.20E+02	1.18E+02
M	4	87.18	3.54E+02	123.46			3.54E+02	1.23E+02
m	5	92.80	4.10E+02	95.38	1.35E+02	7.64E+00	2.75E+02	9.57E+01
	6	129.33	6.17E+01	60.57			6.17E+01	6.06E+01
	7	153.54	8.60E+01	71.11			8.60E+01	7.11E+01
	8	185.49	2.04E+02	88.79	5.47E+01	6.99E+00	1.49E+02	8.91E+01
M	9	238.62	9.00E+02	74.21	1.58E+01	5.72E+00	8.84E+02	7.44E+01
m	10	241.74	2.07E+02	75.54			2.07E+02	7.55E+01
	11	270.99	1.09E+02	71.85			1.09E+02	7.19E+01
	12	278.16	4.04E+01	39.23			4.04E+01	3.92E+01
M	13	295.23	2.75E+02	49.92			2.75E+02	4.99E+01
m	14	299.53	5.58E+01	47.27			5.58E+01	4.73E+01
	15	338.47	1.50E+02	59.78	1.94E+00	4.45E+00	1.48E+02	5.99E+01
	16	351.83	3.94E+02	73.91	8.23E+00	4.77E+00	3.86E+02	7.41E+01
	17	408.96	3.47E+01	39.68			3.47E+01	3.97E+01
	18	462.57	7.30E+01	52.60			7.30E+01	5.26E+01
	19	510.78	2.19E+02	49.86	7.54E+01	5.68E+00	1.44E+02	5.02E+01
M	20	580.00	2.01E+01	12.96			2.01E+01	1.30E+01
m	21	583.11	3.06E+02	42.76	7.97E+00	3.93E+00	2.98E+02	4.29E+01
	22	609.34	3.38E+02	62.20	5.86E+00	3.50E+00	3.32E+02	6.23E+01
M	23	666.02	3.22E+01	20.69			3.22E+01	2.07E+01
m	24	669.01	1.91E+01	27.18			1.91E+01	2.72E+01
	25	727.60	7.22E+01	44.81			7.22E+01	4.48E+01
M	26	768.23	3.40E+01	26.68			3.40E+01	2.67E+01
m	27	772.52	2.14E+01	28.09			2.14E+01	2.81E+01
	28	792.31	7.36E+01	48.62			7.36E+01	4.86E+01
	29	808.18	3.15E+01	28.14			3.15E+01	2.81E+01
M	30	858.40	1.81E+01	20.81			1.81E+01	2.08E+01
m	31	861.40	3.32E+01	27.84			3.32E+01	2.78E+01
m	32	865.01	2.33E+01	19.32			2.33E+01	1.93E+01
	33	911.49	2.05E+02	44.87			2.05E+02	4.49E+01
	34	957.20	2.21E+01	19.26			2.21E+01	1.93E+01
	35	969.40	6.77E+01	42.14			6.77E+01	4.21E+01
	36	1037.23	1.82E+01	17.18			1.82E+01	1.72E+01
	37	1090.78	4.11E+01	48.44			4.11E+01	4.84E+01
	38	1120.20	9.75E+01	32.58			9.75E+01	3.26E+01
	39	1239.30	3.79E+01	36.24			3.79E+01	3.62E+01
	40	1378.13	3.40E+01	21.59			3.40E+01	2.16E+01
M	41	1401.69	1.73E+01	12.25			1.73E+01	1.22E+01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	42	1407.88	1.39E+01	14.42			1.39E+01	1.44E+01
M	43	1461.35	1.01E+03	65.60	7.31E+00	2.50E+00	1.01E+03	6.56E+01
m	44	1465.90	2.97E+01	30.12			2.97E+01	3.01E+01
	45	1500.44	1.47E+01	14.00			1.47E+01	1.40E+01
	46	1591.53	2.71E+01	19.80			2.71E+01	1.98E+01
	47	1631.34	1.55E+01	10.81			1.55E+01	1.08E+01
	48	1692.67	8.63E+00	8.66			8.63E+00	8.66E+00
M	49	1726.28	1.15E+01	5.10			1.15E+01	5.10E+00
m	50	1730.28	2.23E+01	12.35			2.23E+01	1.23E+01
	51	1765.37	6.47E+01	23.94			6.47E+01	2.39E+01
	52	1802.70	7.00E+00	5.29			7.00E+00	5.29E+00
	53	1808.53	1.00E+01	6.32			1.00E+01	6.32E+00
	54	2191.84	9.23E+00	9.62			9.23E+00	9.62E+00
M	55	2205.05	1.17E+01	6.63			1.17E+01	6.63E+00
m	56	2211.27	7.05E+00	10.05			7.05E+00	1.00E+01
	57	2281.52	1.21E+01	10.86			1.21E+01	1.09E+01
	58	2361.73	1.12E+01	13.71			1.12E+01	1.37E+01
	59	2615.36	1.18E+02	23.68	5.15E+00	1.56E+00	1.13E+02	2.37E+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
AL-26	0.998	1808.65	*	99.76	2.48E-02	1.58E-02
K-40	0.954	1460.81	*	10.67	2.01E+01	2.19E+00
CD-109	0.890	88.03	*	3.72	4.24E+00	1.55E+00
SN-126	0.976	87.57	*	37.00	3.71E-01	1.34E-01
EU-155	0.320	86.50	*	30.90	4.61E-01	1.66E-01
		105.30		20.70		
TL-208	0.848	583.14	*	30.22	1.05E+00	1.86E-01
		860.37		4.48		
		2614.66	*	35.85	1.02E+00	2.37E-01
PB-210	0.947	46.50	*	4.25	5.87E-01	7.18E-01
BI-212	0.740	727.17	*	11.80	7.75E-01	4.88E-01
		1620.62		2.75		
PB-212	0.996	238.63	*	44.60	1.12E+00	1.31E-01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.996	300.09	*	3.41	1.07E+00	9.11E-01
BI-214	0.970	609.31	*	46.30	7.93E-01	1.70E-01
		1120.29	*	15.10	1.13E+00	3.90E-01
		1764.49	*	15.80	9.96E-01	3.78E-01
		2204.22	*	4.98	6.69E-01	3.85E-01
PB-214	0.999	295.21	*	19.19	9.28E-01	1.85E-01
		351.92	*	37.19	7.60E-01	1.60E-01
RA-224	0.911	240.98	*	3.95	2.99E+00	1.12E+00
RA-226	0.919	186.21	*	3.28	2.23E+00	4.29E+00
AC-228	0.982	338.32	*	11.40	9.24E-01	3.83E-01
		911.07	*	27.70	1.11E+00	2.61E-01
		969.11	*	16.60	6.42E-01	4.03E-01
NP-237	0.929	86.50	*	12.60	1.09E+00	3.93E-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 : 8/14/2017 12:25:28PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	73.10	4.85482E-02	24.07	Tol.	PM-145
m	3	76.93	2.27797E-01	7.21		
m	5	92.80	7.63317E-02	17.41	Sum	
	6	129.33	1.71267E-02	49.12		
	7	153.54	2.38929E-02	41.34		
	11	270.99	3.03418E-02	32.89		
	12	278.16	1.12086E-02	48.61	Tol.	NP-239 CM-243
	17	408.96	9.64854E-03	57.12		
	18	462.57	2.02778E-02	36.03	Tol.	SB-125
	19	510.78	3.98976E-02	17.47		
M	20	580.00	5.58111E-03	32.26	Sum	
M	23	666.02	8.94151E-03	32.14		
m	24	669.01	5.31490E-03	71.04		
M	26	768.23	9.43807E-03	39.27	Sum	
m	27	772.52	5.94582E-03	65.61	Sum	

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	28	792.31	2.04460E-02	33.03		
	29	808.18	8.75000E-03	44.67		
M	30	858.40	5.02515E-03	57.53		
m	31	861.40	9.22413E-03	41.92		
m	32	865.01	6.47028E-03	41.47		
	34	957.20	6.14722E-03	43.52	Sum	
	36	1037.23	5.05759E-03	47.19	Tol.	CO-56
	37	1090.78	1.14145E-02	58.94		
	39	1239.30	1.05168E-02	47.85		
	40	1378.13	9.44444E-03	31.75		
M	41	1401.69	4.79467E-03	35.48		
m	42	1407.88	3.85435E-03	51.97	Tol.	EU-152
m	44	1465.90	8.24001E-03	50.76		
	45	1500.44	4.08565E-03	47.59		
	46	1591.53	7.52525E-03	36.54		
	47	1631.34	4.30556E-03	34.86		
	48	1692.67	2.39583E-03	50.20		
M	49	1726.28	3.18719E-03	22.22		
m	50	1730.28	6.20633E-03	27.64	Sum	
	52	1802.70	1.94444E-03	37.80		
	54	2191.84	2.56410E-03	52.10		
m	56	2211.27	1.95873E-03	71.26		
	57	2281.52	3.36601E-03	44.82		
	58	2361.73	3.11806E-03	61.07		

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
AL-26	0.99	1808.65	*	99.76	2.48E-02	1.58E-02
K-40	0.95	1460.81	*	10.67	2.01E+01	2.19E+00
CD-109	0.89	88.03	*	3.72	4.24E+00	1.55E+00
SN-126	0.97	87.57	*	37.00	3.71E-01	1.34E-01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.32	86.50	*	30.90	4.61E-01	1.66E-01
		105.30		20.70		
TL-208	0.84	583.14	*	30.22	1.05E+00	1.86E-01
		860.37		4.48		
		2614.66	*	35.85	1.02E+00	2.37E-01
PB-210	0.94	46.50	*	4.25	5.87E-01	7.18E-01
BI-212	0.74	727.17	*	11.80	7.75E-01	4.88E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.12E+00	1.31E-01
		300.09	*	3.41	1.07E+00	9.11E-01
BI-214	0.97	609.31	*	46.30	7.93E-01	1.70E-01
		1120.29	*	15.10	1.13E+00	3.90E-01
		1764.49	*	15.80	9.96E-01	3.78E-01
		2204.22	*	4.98	6.69E-01	3.85E-01
PB-214	0.99	295.21	*	19.19	9.28E-01	1.85E-01
		351.92	*	37.19	7.60E-01	1.60E-01
RA-224	0.91	240.98	*	3.95	2.99E+00	1.12E+00
RA-226	0.91	186.21	*	3.28	2.23E+00	4.29E+00
AC-228	0.98	338.32	*	11.40	9.24E-01	3.83E-01
		911.07	*	27.70	1.11E+00	2.61E-01
		969.11	*	16.60	6.42E-01	4.03E-01
NP-237	0.92	86.50	*	12.60	1.09E+00	3.93E-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
	AL-26	0.998	2.48E-02	1.58E-02	
	K-40	0.954	2.01E+01	2.19E+00	
?	CD-109	0.890	4.24E+00	1.55E+00	
?	SN-126	0.976	3.71E-01	1.34E-01	
?	EU-155	0.320	4.61E-01	1.66E-01	

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	TL-208	0.848	1.04E+00	1.47E-01	
	PB-210	0.947	5.87E-01	7.18E-01	
	BI-212	0.740	7.75E-01	4.88E-01	
	PB-212	0.996	1.12E+00	1.29E-01	
	BI-214	0.970	8.44E-01	1.35E-01	
	PB-214	0.999	8.31E-01	1.21E-01	
	RA-224	0.911	2.99E+00	1.12E+00	
	RA-226	0.919	2.23E+00	4.29E+00	
	AC-228	0.982	9.61E-01	1.90E-01	
?	NP-237	0.929	1.09E+00	3.93E-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 1707077-20

HTC-A01-S002-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 12:25:28PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	73.10	4.85482E-02	24.07	Tol.	PM-145
m	3	76.93	2.27797E-01	7.21		
m	5	92.80	7.63317E-02	17.41	Sum	
	6	129.33	1.71267E-02	49.12		
	7	153.54	2.38929E-02	41.34		
	11	270.99	3.03418E-02	32.89		
	12	278.16	1.12086E-02	48.61	Tol.	NP-239 CM-243
	17	408.96	9.64854E-03	57.12		
	18	462.57	2.02778E-02	36.03	Tol.	SB-125
	19	510.78	3.98976E-02	17.47		
M	20	580.00	5.58111E-03	32.26	Sum	
M	23	666.02	8.94151E-03	32.14		
m	24	669.01	5.31490E-03	71.04		
M	26	768.23	9.43807E-03	39.27	Sum	
m	27	772.52	5.94582E-03	65.61	Sum	
	28	792.31	2.04460E-02	33.03		
	29	808.18	8.75000E-03	44.67		
M	30	858.40	5.02515E-03	57.53		
m	31	861.40	9.22413E-03	41.92		
m	32	865.01	6.47028E-03	41.47		
	34	957.20	6.14722E-03	43.52	Sum	
	36	1037.23	5.05759E-03	47.19	Tol.	CO-56
	37	1090.78	1.14145E-02	58.94		
	39	1239.30	1.05168E-02	47.85		
	40	1378.13	9.44444E-03	31.75		
M	41	1401.69	4.79467E-03	35.48		
m	42	1407.88	3.85435E-03	51.97	Tol.	EU-152
m	44	1465.90	8.24001E-03	50.76		
	45	1500.44	4.08565E-03	47.59		
	46	1591.53	7.52525E-03	36.54		
	47	1631.34	4.30556E-03	34.86		
	48	1692.67	2.39583E-03	50.20		
M	49	1726.28	3.18719E-03	22.22		
m	50	1730.28	6.20633E-03	27.64	Sum	

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	52	1802.70	1.94444E-03	37.80		
	54	2191.84	2.56410E-03	52.10		
m	56	2211.27	1.95873E-03	71.26		
	57	2281.52	3.36601E-03	44.82		
	58	2361.73	3.11806E-03	61.07		

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	2.17E-01	1.49E+00	1.49E+00
+	NA-22	1274.54		99.94	8.52E-03	7.14E-02	7.14E-02
+	@ 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	2.48E-02	6.72E-03	6.72E-03
+	K-40	1460.81	*	10.67	2.01E+01	9.27E-01	9.27E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	7.38E-03	5.12E-02	5.12E-02
		78.34		96.00	1.63E-01		6.80E-02
+	SC-46	889.25		99.98	4.53E-02	1.21E-01	1.21E-01
		1120.51		99.99	2.08E-01		2.10E-01
+	V-48	983.52		99.98	-2.60E+00	2.80E+00	2.80E+00
		1312.10		97.50	1.18E+00		3.81E+00
+	CR-51	320.08		9.83	-1.43E+00	4.80E+00	4.80E+00
+	MN-54	834.83		99.97	1.65E-02	7.89E-02	7.89E-02
+	CO-56	846.75		99.96	-3.71E-02	1.20E-01	1.20E-01
		1037.75		14.03	4.09E-01		9.97E-01
		1238.25		67.00	1.54E-01		3.04E-01
		1771.40		15.51	3.27E-02		7.81E-01
		2598.48		16.90	-1.36E-01		4.63E-01
+	CO-57	122.06		85.51	-2.53E-02	5.70E-02	5.70E-02
		136.48		10.60	8.15E-02		5.00E-01
+	CO-58	810.76		99.40	1.87E-02	1.43E-01	1.43E-01
+	FE-59	1099.22		56.50	-1.31E-01	4.36E-01	4.36E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	FE-59	1291.56		43.20	-1.26E-01	4.36E-01	6.21E-01
+	CO-60	1173.22		100.00	-2.69E-02	5.05E-02	6.80E-02
		1332.49		100.00	-3.50E-02		5.05E-02
+	ZN-65	1115.52		50.75	2.93E-03	1.92E-01	1.92E-01
+	GA-67	93.31		35.70	8.39E+07	5.77E+07	5.77E+07
		208.95		2.24	2.06E+08		7.95E+08
		300.22		16.00	7.01E+06		1.27E+08
+	SE-75	121.11		16.70	-1.75E-01	1.21E-01	3.90E-01
		136.00		59.20	1.97E-02		1.21E-01
		264.65		59.80	4.64E-03		1.35E-01
		279.53		25.20	1.50E-02		3.31E-01
		400.65		11.40	2.00E-01		7.45E-01
+	RB-82	776.52		13.00	-5.95E-01	5.14E+00	5.14E+00
+	RB-83	520.41		46.00	9.33E-03	2.26E-01	2.26E-01
		529.64		30.30	-3.89E-03		3.38E-01
		552.65		16.40	2.78E-02		6.45E-01
+	KR-85	513.99		0.43	1.14E+00	1.66E+01	1.66E+01
+	SR-85	513.99		99.27	1.32E-02	1.93E-01	1.93E-01
+	Y-88	898.02		93.40	3.35E-02	8.68E-02	1.16E-01
		1836.01		99.38	2.31E-02		8.68E-02
+	MO-93	263.06		56.72	2.26E-02	4.56E-02	8.66E-02
		684.67		99.68	8.08E-04		5.37E-02
		1477.11		99.08	1.67E-02		4.56E-02
+	NB-93M	16.57		9.43	0.00E+00	4.57E-01	4.57E-01
+	NB-94	702.63		100.00	1.90E-02	4.98E-02	5.81E-02
		871.10		100.00	8.86E-03		4.98E-02
+	NB-95	765.79		99.81	3.70E-01	4.30E-01	4.30E-01
+	NB-95M	235.69		25.00	-8.29E+07	1.25E+07	1.25E+07
+	ZR-95	724.18		43.70	2.37E-02	2.74E-01	4.07E-01
		756.72		55.30	2.70E-03		2.74E-01
+	MO-99	181.06		6.20	-2.84E+09	6.77E+09	1.01E+10
		739.58		12.80	-2.11E+09		6.77E+09
		778.00		4.50	2.73E+09		1.82E+10
+	RU-103	497.08		89.00	-8.74E-02	2.78E-01	2.78E-01
+	RU-106	621.84		9.80	-5.24E-02	6.12E-01	6.12E-01
+	AG-108M	433.93		89.90	9.05E-03	5.40E-02	5.40E-02
		614.37		90.40	-4.24E-03		6.99E-02
		722.95		90.50	-6.40E-03		6.18E-02
+	CD-109	88.03	*	3.72	4.24E+00	3.85E+00	3.85E+00
+	AG-110M	657.75		93.14	-1.46E-02	7.09E-02	7.09E-02
		677.61		10.53	7.37E-02		6.61E-01
		706.67		16.46	-9.88E-02		4.54E-01
		763.93		21.98	-2.25E-02		3.43E-01
		884.67		71.63	-1.07E-02		9.37E-02
		1384.27		23.94	-4.13E-02		2.97E-01
+	CD-113M	263.70		0.02	4.01E+01	2.11E+02	2.11E+02
+	SN-113	255.12		1.93	-2.76E-02	1.24E-01	3.71E+00
		391.69		64.90	3.26E-03		1.24E-01

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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	2.79E-03	7.93E-02	7.93E-02
+	SB-124	602.71		97.87	-6.88E-03	1.64E-01	1.64E-01
		645.85		7.26	-9.76E-01		2.02E+00
		722.78		11.10	-1.52E-01		1.47E+00
		1691.02		49.00	-9.38E-03		2.92E-01
+	I-125	35.49		6.49	-5.39E-01	1.94E+00	1.94E+00
+	SB-125	176.33		6.89	1.85E-01	1.74E-01	6.41E-01
		427.89		29.33	-7.98E-03		1.74E-01
		463.38		10.35	5.02E-01		5.90E-01
		600.56		17.80	9.68E-02		3.34E-01
		635.90		11.32	-1.34E-01		4.98E-01
+	SB-126	414.70		83.30	2.37E+00	9.99E+00	1.07E+01
		666.33		99.60	2.29E+00		1.11E+01
		695.00		99.60	-2.24E+00		9.99E+00
		720.50		53.80	-1.16E+01		1.67E+01
+	SN-126	87.57	*	37.00	3.71E-01	3.37E-01	3.37E-01
+	SB-127	473.00		25.00	2.06E+05	2.78E+06	3.62E+06
		685.20		35.70	4.19E+04		2.78E+06
		783.80		14.70	1.33E+06		7.63E+06
+	I-129	29.78		57.00	1.86E-02	8.74E-02	8.74E-02
		33.60		13.20	4.95E-02		3.53E-01
		39.58		7.52	2.73E-01		5.54E-01
+	I-131	284.30		6.05	-3.90E+02	1.72E+02	2.35E+03
		364.48		81.20	-4.29E+01		1.72E+02
		636.97		7.26	2.45E+02		2.33E+03
		722.89		1.80	-9.79E+02		9.46E+03
+	TE-132	49.72		13.10	4.07E+07	1.94E+07	1.29E+08
		228.16		88.00	2.30E+05		1.94E+07
+	BA-133	81.00		33.00	-4.95E-01	1.07E-01	1.41E-01
		302.84		17.80	-9.71E-03		2.90E-01
		356.01		60.00	9.67E-03		1.07E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-9.31E+04	2.65E+04	2.65E+04
+	CS-134	563.23		8.38	-3.76E-01	7.13E-02	6.88E-01
		569.32		15.43	1.66E-01		3.80E-01
		604.70		97.60	8.87E-03		7.13E-02
		795.84		85.40	-9.86E-03		7.49E-02
		801.93		8.73	1.11E-01		6.70E-01
+	CS-135	268.24		16.00	-3.84E-02	3.22E-01	3.22E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	6.26E+01	6.59E+00	7.57E+01
		163.89		4.61	2.78E+01		1.20E+02
		176.55		13.56	1.19E+01		4.11E+01
		273.65		12.66	-2.17E+01		5.49E+01
		340.57		48.50	2.41E+00		1.73E+01
		818.50		99.70	-3.47E+00		6.59E+00
		1048.07		79.60	3.19E+00		1.13E+01

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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	5.30E+00	6.59E+00	5.76E+01
+	CS-137	661.65	85.12	6.96E-04	6.45E-02	6.45E-02
+	LA-138	788.74	34.00	1.93E-02	6.60E-02	1.76E-01
		1435.80	66.00	-3.93E-02		6.60E-02
+	CE-139	165.85	80.35	4.29E-02	8.25E-02	8.25E-02
+	BA-140	162.64	6.70	-4.10E+01	3.05E+01	9.19E+01
		304.84	4.50	-5.69E+00		1.62E+02
		423.70	3.20	9.42E+00		2.35E+02
		437.55	2.00	-7.55E+01		3.68E+02
		537.32	25.00	2.80E+00		3.05E+01
+	LA-140	328.77	20.50	2.45E+01	7.16E+00	4.05E+01
		487.03	45.50	2.07E+00		1.64E+01
		815.85	23.50	-6.21E+00		3.33E+01
		1596.49	95.49	-4.41E-01		7.16E+00
+	CE-141	145.44	48.40	3.43E-01	6.34E-01	6.34E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-1.11E-01	4.58E-01	4.58E-01
+	PM-144	476.78	42.00	-9.45E-03	6.56E-02	1.31E-01
		618.01	98.60	9.49E-03		6.57E-02
		696.49	99.49	-2.39E-02		6.56E-02
+	PM-145	36.85	21.70	-5.38E-02	1.09E-01	1.97E-01
		37.36	39.70	3.95E-03		1.09E-01
		42.30	15.10	3.91E-02		2.70E-01
		72.40	2.31	-2.33E+00		2.53E+00
+	PM-146	453.90	39.94	-2.10E-02	1.13E-01	1.13E-01
		735.90	14.01	6.12E-02		3.95E-01
		747.13	13.10	-3.00E-01		4.18E-01
+	ND-147	91.11	28.90	1.17E+02	6.90E+01	6.90E+01
		531.02	13.10	-2.74E+00		1.32E+02
+	PM-149	285.90	3.10	1.14E+12	7.08E+12	7.08E+12
+	EU-152	121.78	20.50	-8.46E-02	1.88E-01	1.88E-01
		244.69	5.40	-7.56E-01		8.39E-01
		344.27	19.13	2.18E-02		2.45E-01
		778.89	9.20	2.48E-01		6.16E-01
		964.01	10.40	3.07E-01		7.48E-01
		1085.78	7.22	3.94E-01		8.72E-01
		1112.02	9.60	-3.69E-01		6.73E-01
		1407.95	14.94	4.05E-02		3.65E-01
+	GD-153	97.43	31.30	-9.05E-02	1.73E-01	1.73E-01
		103.18	22.20	-4.86E-02		2.32E-01
+	EU-154	123.07	40.50	-1.66E-02	9.84E-02	9.84E-02
		723.30	19.70	-2.99E-02		2.89E-01
		873.19	11.50	-1.16E-01		4.20E-01
		996.32	10.30	-1.52E-01		5.62E-01
		1004.76	17.90	6.37E-02		3.40E-01
		1274.45	35.50	2.29E-02		1.92E-01
+	EU-155	86.50 *	30.90	4.61E-01	2.07E-01	4.19E-01

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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	1.12E-01	2.07E-01	2.07E-01
+	EU-156	811.77		10.40	1.38E+01	3.77E+01	3.77E+01
		1153.47		7.20	-4.34E-01		6.52E+01
		1230.71		8.90	3.00E+01		6.30E+01
+	HO-166M	184.41		72.60	1.49E-01	7.26E-02	7.26E-02
		280.45		29.60	5.60E-02		1.67E-01
		410.94		11.10	-1.21E-02		4.56E-01
		711.69		54.10	8.54E-02		1.16E-01
+	TM-171	66.72		0.14	-7.69E+01	3.75E+01	3.75E+01
+	HF-172	67.35		5.31	1.44E-01	3.90E-01	9.98E-01
		125.81		11.30	3.05E-03		3.90E-01
+	LU-172	181.53		20.60	-8.52E+02	1.69E+03	3.02E+03
		900.72		29.81	-2.00E+03		2.84E+03
		1093.66		62.50	9.47E+02		1.69E+03
+	LU-173	100.72		5.24	-2.52E-01	2.91E-01	8.34E-01
		272.11		21.20	9.94E-02		2.91E-01
+	HF-175	343.40		84.00	1.23E-02	1.42E-01	1.42E-01
+	LU-176	88.34		13.30	-8.85E-03	4.75E-02	4.06E-01
		201.83		86.00	-2.11E-02		4.75E-02
		306.78		94.00	5.21E-03		4.94E-02
+	HF-181	133.02		41.70	-1.05E-01	2.47E-01	4.32E-01
		345.85		17.20	1.10E-01		1.27E+00
		482.03		82.80	-6.20E-02		2.47E-01
+	TA-182	67.75		41.20	2.97E-02	2.05E-01	2.05E-01
		1121.30		34.90	3.60E-01		4.83E-01
		1189.05		16.23	-4.13E-02		7.98E-01
		1221.41		26.98	9.13E-02		4.96E-01
		1231.02		11.44	5.86E-01		1.23E+00
+	IR-192	308.46		29.68	-3.30E-02	2.28E-01	3.65E-01
		468.07		48.10	-5.36E-02		2.28E-01
+	HG-203	279.19		77.30	1.14E-02	2.51E-01	2.51E-01
+	TL-204	374.74		94.11	-9.88E-03	5.20E-02	5.20E-02
		899.15		99.16	-1.26E-02		6.23E-02
		911.74		91.10	3.27E-01		1.32E-01
+	BI-207	569.67		97.72	1.45E-02	5.44E-02	5.44E-02
		1063.62		74.90	1.44E-02		8.98E-02
+	TL-208	583.14	*	30.22	1.05E+00	1.80E-01	2.11E-01
		860.37		4.48	6.18E-01		1.60E+00
		2614.66	*	35.85	1.02E+00		1.80E-01
+	BI-210M	262.00		45.00	3.79E-02	1.09E-01	1.09E-01
		300.00		23.00	-6.89E-01		2.39E-01
+	PB-210	46.50	*	4.25	5.87E-01	1.18E+00	1.18E+00
+	PB-211	404.84		2.90	5.02E-01	1.73E+00	1.73E+00
		831.96		2.90	3.21E-01		2.08E+00
+	BI-212	727.17	*	11.80	7.75E-01	7.61E-01	7.61E-01
		1620.62		2.75	-8.58E-02		1.82E+00
+	PB-212	238.63	*	44.60	1.12E+00	2.10E-01	2.10E-01
		300.09	*	3.41	1.07E+00		2.22E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-214	609.31	*	46.30	7.93E-01	2.05E-01	2.05E-01
		1120.29	*	15.10	1.13E+00		5.26E-01
		1764.49	*	15.80	9.96E-01		4.91E-01
		2204.22	*	4.98	6.69E-01		9.02E-01
+	PB-214	295.21	*	19.19	9.28E-01	2.09E-01	3.85E-01
		351.92	*	37.19	7.60E-01		2.09E-01
+	RN-219	401.80		6.50	6.47E-02	7.59E-01	7.59E-01
+	RA-223	323.87		3.88	-1.46E+00	1.22E+00	1.22E+00
+	RA-224	240.98	*	3.95	2.99E+00	2.36E+00	2.36E+00
+	RA-225	40.00		31.00	5.30E+00	1.04E+01	1.04E+01
+	RA-226	186.21	*	3.28	2.23E+00	2.14E+00	2.14E+00
+	TH-227	50.10		8.40	1.71E-01	4.72E-01	5.08E-01
		236.00		11.50	-3.14E+00		4.72E-01
		256.20		6.30	-5.66E-02		7.66E-01
+	AC-228	338.32	*	11.40	9.24E-01	3.23E-01	5.80E-01
		911.07	*	27.70	1.11E+00		3.23E-01
		969.11	*	16.60	6.42E-01		6.31E-01
+	TH-230	48.44		16.90	1.02E-01	2.71E-01	2.71E-01
		62.85		4.60	1.40E+00		1.13E+00
		67.67		0.37	1.88E+00		1.30E+01
+	PA-231	283.67		1.60	-6.42E-01	2.21E+00	2.83E+00
		302.67		2.30	-7.39E-02		2.21E+00
+	TH-231	25.64		14.70	-3.17E+00	3.97E-01	3.97E-01
		84.21		6.40	-4.47E-01		7.56E-01
+	PA-233	311.98		38.60	-2.95E-01	1.28E+00	1.28E+00
+	PA-234	131.20		20.40	-3.99E-02	2.00E-01	2.00E-01
		733.99		8.80	6.97E-02		5.83E-01
		946.00		12.00	-7.96E-03		4.63E-01
+	PA-234M	1001.03		0.92	-3.16E+00	6.36E+00	6.36E+00
+	TH-234	63.29		3.80	1.71E+00	1.37E+00	1.37E+00
+	U-235	143.76		10.50	2.05E-01	4.09E-01	4.09E-01
		163.35		4.70	2.03E-01		8.71E-01
		205.31		4.70	-1.31E+00		8.79E-01
+	NP-237	86.50	*	12.60	1.09E+00	9.90E-01	9.90E-01
+	NP-239	106.10		22.70	1.45E+10	1.41E+11	1.41E+11
		228.18		10.70	3.75E+09		3.16E+11
		277.60		14.10	-9.15E+10		2.69E+11
+	AM-241	59.54		35.90	3.74E-02	1.31E-01	1.31E-01
+	AM-243	74.67		66.00	-1.50E-01	1.03E-01	1.03E-01
+	CM-243	209.75		3.29	7.68E-01	3.48E-01	1.43E+00
		228.14		10.60	4.86E-03		4.09E-01
		277.60		14.00	-1.18E-01		3.48E-01

Analysis Report for 1707077-20

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.49E+00	1.49E+00	2.17E-01	7.05E-01
	NA-22	1274.54		99.94	7.14E-02	7.14E-02	8.52E-03	3.29E-02
@	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	6.72E-03	6.72E-03	2.48E-02	0.00E+00
+	K-40	1460.81	*	10.67	9.27E-01	9.27E-01	2.01E+01	4.36E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.12E-02	5.12E-02	7.38E-03	2.50E-02
		78.34		96.00	6.80E-02		1.63E-01	3.34E-02
	SC-46	889.25		99.98	1.21E-01	1.21E-01	4.53E-02	5.64E-02
		1120.51		99.99	2.10E-01		2.08E-01	1.00E-01
	V-48	983.52		99.98	2.80E+00	2.80E+00	-2.60E+00	1.28E+00
		1312.10		97.50	3.81E+00		1.18E+00	1.75E+00
	CR-51	320.08		9.83	4.80E+00	4.80E+00	-1.43E+00	2.30E+00
	MN-54	834.83		99.97	7.89E-02	7.89E-02	1.65E-02	3.71E-02
	CO-56	846.75		99.96	1.20E-01	1.20E-01	-3.71E-02	5.57E-02
		1037.75		14.03	9.97E-01		4.09E-01	4.62E-01
		1238.25		67.00	3.04E-01		1.54E-01	1.43E-01
		1771.40		15.51	7.81E-01		3.27E-02	3.42E-01
		2598.48		16.90	4.63E-01		-1.36E-01	1.73E-01
	CO-57	122.06		85.51	5.70E-02	5.70E-02	-2.53E-02	2.77E-02
		136.48		10.60	5.00E-01		8.15E-02	2.43E-01
	CO-58	810.76		99.40	1.43E-01	1.43E-01	1.87E-02	6.70E-02
	FE-59	1099.22		56.50	4.36E-01	4.36E-01	-1.31E-01	2.00E-01
		1291.56		43.20	6.21E-01		-1.26E-01	2.85E-01
	CO-60	1173.22		100.00	6.80E-02	5.05E-02	-2.69E-02	3.15E-02
		1332.49		100.00	5.05E-02		-3.50E-02	2.25E-02
	ZN-65	1115.52		50.75	1.92E-01	1.92E-01	2.93E-03	8.97E-02
	GA-67	93.31		35.70	5.77E+07	5.77E+07	8.39E+07	2.83E+07

Analysis Report for 1707077-20

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	7.95E+08	5.77E+07	2.06E+08	3.85E+08
		300.22		16.00	1.27E+08		7.01E+06	6.16E+07
	SE-75	121.11		16.70	3.90E-01	1.21E-01	-1.75E-01	1.89E-01
		136.00		59.20	1.21E-01		1.97E-02	5.87E-02
		264.65		59.80	1.35E-01		4.64E-03	6.50E-02
		279.53		25.20	3.31E-01		1.50E-02	1.60E-01
		400.65		11.40	7.45E-01		2.00E-01	3.56E-01
	RB-82	776.52		13.00	5.14E+00	5.14E+00	-5.95E-01	2.40E+00
	RB-83	520.41		46.00	2.26E-01	2.26E-01	9.33E-03	1.07E-01
		529.64		30.30	3.38E-01		-3.89E-03	1.59E-01
		552.65		16.40	6.45E-01		2.78E-02	3.04E-01
	KR-85	513.99		0.43	1.66E+01	1.66E+01	1.14E+00	7.98E+00
	SR-85	513.99		99.27	1.93E-01	1.93E-01	1.32E-02	9.29E-02
	Y-88	898.02		93.40	1.16E-01	8.68E-02	3.35E-02	5.42E-02
		1836.01		99.38	8.68E-02		2.31E-02	3.72E-02
	MO-93	263.06		56.72	8.66E-02	4.56E-02	2.26E-02	4.19E-02
		684.67		99.68	5.37E-02		8.08E-04	2.52E-02
		1477.11		99.08	4.56E-02		1.67E-02	1.98E-02
	NB-93M	16.57		9.43	4.57E-01	4.57E-01	0.00E+00	2.14E-01
	NB-94	702.63		100.00	5.81E-02	4.98E-02	1.90E-02	2.74E-02
		871.10		100.00	4.98E-02		8.86E-03	2.29E-02
	NB-95	765.79		99.81	4.30E-01	4.30E-01	3.70E-01	2.04E-01
	NB-95M	235.69		25.00	1.25E+07	1.25E+07	-8.29E+07	6.06E+06
	ZR-95	724.18		43.70	4.07E-01	2.74E-01	2.37E-02	1.93E-01
		756.72		55.30	2.74E-01		2.70E-03	1.28E-01
	MO-99	181.06		6.20	1.01E+10	6.77E+09	-2.84E+09	4.88E+09
		739.58		12.80	6.77E+09		-2.11E+09	3.18E+09
		778.00		4.50	1.82E+10		2.73E+09	8.46E+09
	RU-103	497.08		89.00	2.78E-01	2.78E-01	-8.74E-02	1.32E-01
	RU-106	621.84		9.80	6.12E-01	6.12E-01	-5.24E-02	2.88E-01
	AG-108M	433.93		89.90	5.40E-02	5.40E-02	9.05E-03	2.57E-02
		614.37		90.40	6.99E-02		-4.24E-03	3.33E-02
		722.95		90.50	6.18E-02		-6.40E-03	2.90E-02
+	CD-109	88.03	*	3.72	3.85E+00	3.85E+00	4.24E+00	1.91E+00
	AG-110M	657.75		93.14	7.09E-02	7.09E-02	-1.46E-02	3.33E-02
		677.61		10.53	6.61E-01		7.37E-02	3.11E-01
		706.67		16.46	4.54E-01		-9.88E-02	2.14E-01
		763.93		21.98	3.43E-01		-2.25E-02	1.61E-01
		884.67		71.63	9.37E-02		-1.07E-02	4.33E-02
		1384.27		23.94	2.97E-01		-4.13E-02	1.34E-01
	CD-113M	263.70		0.02	2.11E+02	2.11E+02	4.01E+01	1.02E+02
	SN-113	255.12		1.93	3.71E+00	1.24E-01	-2.76E-02	1.78E+00
		391.69		64.90	1.24E-01		3.26E-03	5.92E-02
	TE123M	159.00		84.10	7.93E-02	7.93E-02	2.79E-03	3.84E-02
	SB-124	602.71		97.87	1.64E-01	1.64E-01	-6.88E-03	7.76E-02
		645.85		7.26	2.02E+00		-9.76E-01	9.49E-01
		722.78		11.10	1.47E+00		-1.52E-01	6.90E-01
		1691.02		49.00	2.92E-01		-9.38E-03	1.27E-01
	I-125	35.49		6.49	1.94E+00	1.94E+00	-5.39E-01	9.39E-01
	SB-125	176.33		6.89	6.41E-01	1.74E-01	1.85E-01	3.11E-01
		427.89		29.33	1.74E-01		-7.98E-03	8.30E-02
		463.38		10.35	5.90E-01		5.02E-01	2.83E-01
		600.56		17.80	3.34E-01		9.68E-02	1.58E-01

Analysis Report for 1707077-20

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-125	635.90		11.32	4.98E-01	1.74E-01	-1.34E-01	2.35E-01
	SB-126	414.70		83.30	1.07E+01	9.99E+00	2.37E+00	5.13E+00
		666.33		99.60	1.11E+01		2.29E+00	5.27E+00
		695.00		99.60	9.99E+00		-2.24E+00	4.70E+00
		720.50		53.80	1.67E+01		-1.16E+01	7.77E+00
+	SN-126	87.57	*	37.00	3.37E-01	3.37E-01	3.71E-01	1.67E-01
	SB-127	473.00		25.00	3.62E+06	2.78E+06	2.06E+05	1.72E+06
		685.20		35.70	2.78E+06		4.19E+04	1.30E+06
		783.80		14.70	7.63E+06		1.33E+06	3.58E+06
	I-129	29.78		57.00	8.74E-02	8.74E-02	1.86E-02	4.24E-02
		33.60		13.20	3.53E-01		4.95E-02	1.71E-01
		39.58		7.52	5.54E-01		2.73E-01	2.69E-01
	I-131	284.30		6.05	2.35E+03	1.72E+02	-3.90E+02	1.13E+03
		364.48		81.20	1.72E+02		-4.29E+01	8.22E+01
		636.97		7.26	2.33E+03		2.45E+02	1.10E+03
		722.89		1.80	9.46E+03		-9.79E+02	4.44E+03
	TE-132	49.72		13.10	1.29E+08	1.94E+07	4.07E+07	6.29E+07
		228.16		88.00	1.94E+07		2.30E+05	9.35E+06
	BA-133	81.00		33.00	1.41E-01	1.07E-01	-4.95E-01	6.90E-02
		302.84		17.80	2.90E-01		-9.71E-03	1.40E-01
		356.01		60.00	1.07E-01		9.67E-03	5.18E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	2.65E+04	2.65E+04	-9.31E+04	1.30E+04
	CS-134	563.23		8.38	6.88E-01	7.13E-02	-3.76E-01	3.26E-01
		569.32		15.43	3.80E-01		1.66E-01	1.80E-01
		604.70		97.60	7.13E-02		8.87E-03	3.40E-02
		795.84		85.40	7.49E-02		-9.86E-03	3.51E-02
		801.93		8.73	6.70E-01		1.11E-01	3.12E-01
	CS-135	268.24		16.00	3.22E-01	3.22E-01	-3.84E-02	1.56E-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	7.57E+01	6.59E+00	6.26E+01	3.67E+01
		163.89		4.61	1.20E+02		2.78E+01	5.80E+01
		176.55		13.56	4.11E+01		1.19E+01	1.99E+01
		273.65		12.66	5.49E+01		-2.17E+01	2.66E+01
		340.57		48.50	1.73E+01		2.41E+00	8.38E+00
		818.50		99.70	6.59E+00		-3.47E+00	3.04E+00
		1048.07		79.60	1.13E+01		3.19E+00	5.25E+00
		1235.34		19.70	5.76E+01		5.30E+00	2.71E+01
	CS-137	661.65		85.12	6.45E-02	6.45E-02	6.96E-04	3.04E-02
	LA-138	788.74		34.00	1.76E-01	6.60E-02	1.93E-02	8.24E-02
		1435.80		66.00	6.60E-02		-3.93E-02	2.87E-02
	CE-139	165.85		80.35	8.25E-02	8.25E-02	4.29E-02	4.00E-02
	BA-140	162.64		6.70	9.19E+01	3.05E+01	-4.10E+01	4.45E+01
		304.84		4.50	1.62E+02		-5.69E+00	7.80E+01
		423.70		3.20	2.35E+02		9.42E+00	1.12E+02
		437.55		2.00	3.68E+02		-7.55E+01	1.75E+02
		537.32		25.00	3.05E+01		2.80E+00	1.44E+01
	LA-140	328.77		20.50	4.05E+01	7.16E+00	2.45E+01	1.96E+01
		487.03		45.50	1.64E+01		2.07E+00	7.77E+00
		815.85		23.50	3.33E+01		-6.21E+00	1.54E+01
		1596.49		95.49	7.16E+00		-4.41E-01	3.08E+00

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CE-141	145.44		48.40	6.34E-01	6.34E-01	3.43E-01	3.08E-01
@	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	4.58E-01	4.58E-01	-1.11E-01	2.22E-01
	PM-144	476.78		42.00	1.31E-01	6.56E-02	-9.45E-03	6.18E-02
		618.01		98.60	6.57E-02		9.49E-03	3.10E-02
		696.49		99.49	6.56E-02		-2.39E-02	3.08E-02
	PM-145	36.85		21.70	1.97E-01	1.09E-01	-5.38E-02	9.55E-02
		37.36		39.70	1.09E-01		3.95E-03	5.28E-02
		42.30		15.10	2.70E-01		3.91E-02	1.31E-01
		72.40		2.31	2.53E+00		-2.33E+00	1.24E+00
	PM-146	453.90		39.94	1.13E-01	1.13E-01	-2.10E-02	5.36E-02
		735.90		14.01	3.95E-01		6.12E-02	1.85E-01
		747.13		13.10	4.18E-01		-3.00E-01	1.95E-01
	ND-147	91.11		28.90	6.90E+01	6.90E+01	1.17E+02	3.38E+01
		531.02		13.10	1.32E+02		-2.74E+00	6.22E+01
	PM-149	285.90		3.10	7.08E+12	7.08E+12	1.14E+12	3.41E+12
	EU-152	121.78		20.50	1.88E-01	1.88E-01	-8.46E-02	9.12E-02
		244.69		5.40	8.39E-01		-7.56E-01	4.05E-01
		344.27		19.13	2.45E-01		2.18E-02	1.17E-01
		778.89		9.20	6.16E-01		2.48E-01	2.88E-01
		964.01		10.40	7.48E-01		3.07E-01	3.54E-01
		1085.78		7.22	8.72E-01		3.94E-01	4.03E-01
		1112.02		9.60	6.73E-01		-3.69E-01	3.12E-01
		1407.95		14.94	3.65E-01		4.05E-02	1.63E-01
	GD-153	97.43		31.30	1.73E-01	1.73E-01	-9.05E-02	8.44E-02
		103.18		22.20	2.32E-01		-4.86E-02	1.13E-01
	EU-154	123.07		40.50	9.84E-02	9.84E-02	-1.66E-02	4.78E-02
		723.30		19.70	2.89E-01		-2.99E-02	1.36E-01
		873.19		11.50	4.20E-01		-1.16E-01	1.92E-01
		996.32		10.30	5.62E-01		-1.52E-01	2.59E-01
		1004.76		17.90	3.40E-01		6.37E-02	1.58E-01
		1274.45		35.50	1.92E-01		2.29E-02	8.83E-02
+	EU-155	86.50	*	30.90	4.19E-01	2.07E-01	4.61E-01	2.07E-01
		105.30		20.70	2.07E-01		1.12E-01	1.01E-01
	EU-156	811.77		10.40	3.77E+01	3.77E+01	1.38E+01	1.76E+01
		1153.47		7.20	6.52E+01		-4.34E-01	3.02E+01
		1230.71		8.90	6.30E+01		3.00E+01	2.95E+01
	HO-166M	184.41		72.60	7.26E-02	7.26E-02	1.49E-01	3.54E-02
		280.45		29.60	1.67E-01		5.60E-02	8.04E-02
		410.94		11.10	4.56E-01		-1.21E-02	2.18E-01
		711.69		54.10	1.16E-01		8.54E-02	5.49E-02
	TM-171	66.72		0.14	3.75E+01	3.75E+01	-7.69E+01	1.83E+01
	HF-172	67.35		5.31	9.98E-01	3.90E-01	1.44E-01	4.88E-01
		125.81		11.30	3.90E-01		3.05E-03	1.90E-01
	LU-172	181.53		20.60	3.02E+03	1.69E+03	-8.52E+02	1.46E+03
		900.72		29.81	2.84E+03		-2.00E+03	1.32E+03
		1093.66		62.50	1.69E+03		9.47E+02	7.90E+02
	LU-173	100.72		5.24	8.34E-01	2.91E-01	-2.52E-01	4.05E-01
		272.11		21.20	2.91E-01		9.94E-02	1.41E-01
	HF-175	343.40		84.00	1.42E-01	1.42E-01	1.23E-02	6.81E-02
	LU-176	88.34		13.30	4.06E-01	4.75E-02	-8.85E-03	1.99E-01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	4.75E-02	4.75E-02	-2.11E-02	2.29E-02
		306.78		94.00	4.94E-02		5.21E-03	2.37E-02
	HF-181	133.02		41.70	4.32E-01	2.47E-01	-1.05E-01	2.10E-01
		345.85		17.20	1.27E+00		1.10E-01	6.08E-01
		482.03		82.80	2.47E-01		-6.20E-02	1.17E-01
	TA-182	67.75		41.20	2.05E-01	2.05E-01	2.97E-02	1.00E-01
		1121.30		34.90	4.83E-01		3.60E-01	2.30E-01
		1189.05		16.23	7.98E-01		-4.13E-02	3.72E-01
		1221.41		26.98	4.96E-01		9.13E-02	2.32E-01
		1231.02		11.44	1.23E+00		5.86E-01	5.78E-01
	IR-192	308.46		29.68	3.65E-01	2.28E-01	-3.30E-02	1.75E-01
		468.07		48.10	2.28E-01		-5.36E-02	1.08E-01
	HG-203	279.19		77.30	2.51E-01	2.51E-01	1.14E-02	1.21E-01
	TL-204	374.74		94.11	5.20E-02	5.20E-02	-9.88E-03	2.49E-02
		899.15		99.16	6.23E-02		-1.26E-02	2.90E-02
		911.74		91.10	1.32E-01		3.27E-01	6.35E-02
	BI-207	569.67		97.72	5.44E-02	5.44E-02	1.45E-02	2.57E-02
		1063.62		74.90	8.98E-02		1.44E-02	4.18E-02
+	TL-208	583.14	*	30.22	2.11E-01	1.80E-01	1.05E+00	1.01E-01
		860.37		4.48	1.60E+00		6.18E-01	7.55E-01
		2614.66	*	35.85	1.80E-01		1.02E+00	7.78E-02
	BI-210M	262.00		45.00	1.09E-01	1.09E-01	3.79E-02	5.27E-02
		300.00		23.00	2.39E-01		-6.89E-01	1.16E-01
+	PB-210	46.50	*	4.25	1.18E+00	1.18E+00	5.87E-01	5.75E-01
	PB-211	404.84		2.90	1.73E+00	1.73E+00	5.02E-01	8.28E-01
		831.96		2.90	2.08E+00		3.21E-01	9.75E-01
+	BI-212	727.17	*	11.80	7.61E-01	7.61E-01	7.75E-01	3.66E-01
		1620.62		2.75	1.82E+00		-8.58E-02	7.99E-01
+	PB-212	238.63	*	44.60	2.10E-01	2.10E-01	1.12E+00	1.03E-01
		300.09	*	3.41	2.22E+00		1.07E+00	1.08E+00
+	BI-214	609.31	*	46.30	2.05E-01	2.05E-01	7.93E-01	9.92E-02
		1120.29	*	15.10	5.26E-01		1.13E+00	2.48E-01
		1764.49	*	15.80	4.91E-01		9.96E-01	2.25E-01
		2204.22	*	4.98	9.02E-01		6.69E-01	3.74E-01
+	PB-214	295.21	*	19.19	3.85E-01	2.09E-01	9.28E-01	1.88E-01
		351.92	*	37.19	2.09E-01		7.60E-01	1.02E-01
	RN-219	401.80		6.50	7.59E-01	7.59E-01	6.47E-02	3.63E-01
	RA-223	323.87		3.88	1.22E+00	1.22E+00	-1.46E+00	5.87E-01
+	RA-224	240.98	*	3.95	2.36E+00	2.36E+00	2.99E+00	1.16E+00
	RA-225	40.00		31.00	1.04E+01	1.04E+01	5.30E+00	5.05E+00
+	RA-226	186.21	*	3.28	2.14E+00	2.14E+00	2.23E+00	1.05E+00
	TH-227	50.10		8.40	5.08E-01	4.72E-01	1.71E-01	2.47E-01
		236.00		11.50	4.72E-01		-3.14E+00	2.29E-01
		256.20		6.30	7.66E-01		-5.66E-02	3.71E-01
+	AC-228	338.32	*	11.40	5.80E-01	3.23E-01	9.24E-01	2.82E-01
		911.07	*	27.70	3.23E-01		1.11E+00	1.54E-01
		969.11	*	16.60	6.31E-01		6.42E-01	3.03E-01
	TH-230	48.44		16.90	2.71E-01	2.71E-01	1.02E-01	1.32E-01
		62.85		4.60	1.13E+00		1.40E+00	5.55E-01
		67.67		0.37	1.30E+01		1.88E+00	6.37E+00
	PA-231	283.67		1.60	2.83E+00	2.21E+00	-6.42E-01	1.36E+00
		302.67		2.30	2.21E+00		-7.39E-02	1.06E+00
	TH-231	25.64		14.70	3.97E-01	3.97E-01	-3.17E+00	1.93E-01

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	7.56E-01	3.97E-01	-4.47E-01	3.70E-01
	PA-233	311.98		38.60	1.28E+00	1.28E+00	-2.95E-01	6.16E-01
	PA-234	131.20		20.40	2.00E-01	2.00E-01	-3.99E-02	9.71E-02
		733.99		8.80	5.83E-01		6.97E-02	2.72E-01
		946.00		12.00	4.63E-01		-7.96E-03	2.14E-01
	PA-234M	1001.03		0.92	6.36E+00	6.36E+00	-3.16E+00	2.94E+00
	TH-234	63.29		3.80	1.37E+00	1.37E+00	1.71E+00	6.69E-01
	U-235	143.76		10.50	4.09E-01	4.09E-01	2.05E-01	1.99E-01
		163.35		4.70	8.71E-01		2.03E-01	4.22E-01
		205.31		4.70	8.79E-01		-1.31E+00	4.24E-01
+	NP-237	86.50	*	12.60	9.90E-01	9.90E-01	1.09E+00	4.91E-01
	NP-239	106.10		22.70	1.41E+11	1.41E+11	1.45E+10	6.86E+10
		228.18		10.70	3.16E+11		3.75E+09	1.53E+11
		277.60		14.10	2.69E+11		-9.15E+10	1.30E+11
	AM-241	59.54		35.90	1.31E-01	1.31E-01	3.74E-02	6.40E-02
	AM-243	74.67		66.00	1.03E-01	1.03E-01	-1.50E-01	5.09E-02
	CM-243	209.75		3.29	1.43E+00	3.48E-01	7.68E-01	6.94E-01
		228.14		10.60	4.09E-01		4.86E-03	1.98E-01
		277.60		14.00	3.48E-01		-1.18E-01	1.68E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707077-20

HTC-A01-S002-4248-01

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

Sample Title: HTC-A01-S002-4248-01

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	75	75	66	190	556	119
25:	66	61	60	61	52	61	82	85
33:	68	67	59	76	60	63	71	73
41:	74	66	61	58	90	89	141	93
49:	72	98	106	85	92	95	109	106
57:	89	105	120	119	129	138	135	238
65:	132	124	115	145	145	143	130	148
73:	184	166	362	307	368	491	149	122
81:	133	137	89	137	140	125	198	214
89:	121	154	170	144	247	204	124	95
97:	102	104	91	97	75	70	80	99
105:	83	100	95	93	87	89	90	90
113:	76	65	81	79	85	68	73	88
121:	73	62	84	63	95	84	88	74
129:	103	108	89	65	79	65	85	81
137:	76	98	75	90	80	78	75	92
145:	81	96	62	72	74	59	65	64
153:	75	108	77	59	66	55	69	69
161:	65	59	61	65	74	84	66	59
169:	58	63	56	72	62	65	51	60
177:	73	71	72	64	52	73	66	56
185:	83	177	130	58	49	54	63	58
193:	57	56	45	60	66	55	73	54
201:	52	59	57	52	57	64	58	44
209:	96	88	48	71	56	62	52	54
217:	55	47	45	55	45	50	47	55
225:	49	59	50	45	63	60	47	58
233:	46	51	52	58	59	189	548	243
241:	103	153	100	43	44	32	43	42
249:	37	38	35	40	42	43	45	33
257:	46	39	42	41	46	40	36	37
265:	48	32	35	34	40	69	58	43
273:	52	46	38	32	36	60	29	43
281:	23	33	38	41	27	25	34	35
289:	40	33	39	25	28	38	137	160
297:	57	28	53	56	44	28	38	29
305:	34	26	37	24	27	31	24	27
313:	29	25	31	29	30	27	28	20
321:	33	29	25	31	30	29	24	51
329:	53	33	29	35	30	28	26	24
337:	29	84	105	31	33	17	27	33
345:	23	24	28	23	26	34	81	244
353:	146	39	26	25	34	21	25	20
361:	27	21	20	19	27	23	19	28

369:	25	26	25	23	20	20	28	23

Sample Title: HTC-A01-S002-4248-01

Channel								
377:	18	25	29	17	22	21	21	28
385:	22	22	17	22	23	19	14	24
393:	20	21	21	23	18	24	26	14
401:	19	22	28	27	22	19	26	18
409:	36	28	23	14	20	22	20	26
417:	24	24	21	23	21	19	20	12
425:	21	20	28	17	19	14	16	20
433:	24	22	13	20	20	18	20	24
441:	13	21	14	14	16	11	13	17
449:	19	21	18	11	17	11	15	18
457:	12	16	17	20	16	29	48	33
465:	16	17	14	16	16	9	19	21
473:	18	12	19	17	15	17	11	13
481:	14	11	16	23	8	14	16	18
489:	14	18	13	19	18	16	21	18
497:	15	11	19	7	19	15	18	14
505:	11	12	12	17	30	67	83	61
513:	25	19	8	15	17	16	11	18
521:	16	15	14	14	12	15	15	13
529:	10	23	10	16	11	15	14	13
537:	16	16	10	15	13	14	20	15
545:	13	10	14	17	11	15	22	9
553:	11	19	7	15	11	16	18	13
561:	16	13	22	13	13	17	24	18
569:	16	11	11	12	13	11	13	16
577:	12	11	10	21	15	34	150	119
585:	19	20	11	12	15	16	18	8
593:	14	12	15	13	14	19	17	12
601:	13	18	15	14	12	20	24	39
609:	161	143	46	16	17	14	18	11
617:	13	14	16	13	12	11	11	9
625:	10	13	10	10	12	11	12	15
633:	9	16	12	14	12	13	12	18
641:	12	16	8	9	13	17	9	11
649:	10	10	18	9	15	9	14	10
657:	9	9	10	8	17	16	9	8
665:	20	17	23	13	20	13	11	9
673:	13	9	9	11	14	6	13	16
681:	13	9	13	8	14	9	10	14
689:	8	8	16	14	10	9	15	10
697:	13	11	13	15	11	17	15	11
705:	12	10	11	9	21	15	15	10
713:	15	16	13	16	3	10	10	4
721:	15	10	10	14	8	19	34	32
729:	16	14	9	7	9	6	10	11
737:	13	13	9	11	12	9	13	12
745:	19	8	6	6	12	5	20	11
753:	12	9	10	14	7	11	13	9
761:	10	9	13	10	14	11	13	29
769:	21	9	10	18	13	10	6	7
777:	12	8	9	11	12	12	7	8
785:	9	25	7	11	7	8	11	11
793:	9	15	21	18	6	2	5	11

801:	13	7	7	10	9	8	16	13

Sample Title: HTC-A01-S002-4248-01

Channel								
809:	12	10	8	3	16	8	10	2
817:	4	8	5	10	10	6	9	12
825:	10	8	8	10	12	6	8	10
833:	9	11	19	9	12	15	10	18
841:	13	9	10	9	9	8	6	6
849:	7	10	6	13	10	8	11	7
857:	8	17	14	17	23	15	8	11
865:	17	7	5	6	10	6	7	5
873:	6	6	3	8	4	9	6	11
881:	7	8	13	5	5	4	7	8
889:	6	10	17	6	7	8	10	13
897:	4	8	13	5	11	9	6	16
905:	8	8	14	9	8	35	98	68
913:	19	12	7	6	7	9	8	2
921:	8	7	10	13	11	5	3	9
929:	6	8	12	4	13	16	12	8
937:	9	8	5	7	5	12	3	10
945:	11	9	3	5	10	7	6	9
953:	5	6	8	7	13	12	4	4
961:	5	8	11	17	26	20	12	33
969:	60	32	9	8	10	9	10	6
977:	7	11	9	6	8	5	4	4
985:	5	5	7	11	6	4	5	10
993:	11	2	3	11	9	10	3	11
1001:	7	9	4	8	5	15	6	5
1009:	8	5	12	7	6	9	9	13
1017:	15	4	6	16	5	10	7	6
1025:	9	1	4	9	7	7	13	7
1033:	5	10	5	16	7	11	2	4
1041:	3	8	8	6	10	7	6	7
1049:	10	12	12	10	6	4	4	6
1057:	5	5	10	7	14	8	8	10
1065:	9	7	11	6	1	11	10	9
1073:	10	10	10	4	8	16	10	4
1081:	4	5	4	8	13	8	9	5
1089:	5	7	14	10	7	13	10	5
1097:	3	11	4	9	6	6	13	10
1105:	11	10	11	14	11	7	2	10
1113:	10	6	7	13	13	15	13	36
1121:	38	13	1	9	13	10	10	9
1129:	15	10	6	7	10	8	9	7
1137:	12	12	5	8	13	9	10	12
1145:	8	6	8	11	9	7	9	6
1153:	10	7	9	8	6	7	6	9
1161:	6	8	8	2	8	8	13	7
1169:	13	8	4	6	9	7	6	12
1177:	10	8	14	3	10	7	9	8
1185:	7	9	3	9	8	15	13	8
1193:	13	10	10	8	4	7	11	11
1201:	8	10	6	8	13	11	10	11
1209:	8	12	9	8	10	9	7	10
1217:	7	10	7	9	12	12	11	6
1225:	10	7	8	7	15	16	5	12

1233:	11	6	8	7	16	22	14	15

Sample Title: HTC-A01-S002-4248-01

Channel								
1241:	11	11	11	7	12	11	8	3
1249:	7	9	11	10	7	5	5	10
1257:	6	4	8	10	11	5	2	5
1265:	9	8	3	6	7	7	8	7
1273:	4	7	10	5	6	4	7	9
1281:	9	9	6	4	5	6	10	5
1289:	6	10	6	4	5	5	7	5
1297:	7	3	6	6	8	3	3	4
1305:	5	4	7	8	3	4	8	4
1313:	13	3	3	5	2	7	4	4
1321:	6	5	2	4	9	4	9	4
1329:	5	4	2	2	3	3	3	3
1337:	7	1	3	2	2	5	4	8
1345:	5	2	2	4	6	3	1	8
1353:	3	5	7	1	4	0	2	3
1361:	6	4	3	2	2	5	5	1
1369:	4	2	1	3	4	2	3	5
1377:	13	11	4	3	6	2	2	3
1385:	5	6	3	5	5	4	5	2
1393:	2	6	3	2	2	0	4	3
1401:	9	5	3	2	1	6	8	1
1409:	6	1	3	2	3	1	1	3
1417:	7	2	1	3	3	1	2	8
1425:	2	2	1	3	1	2	3	2
1433:	0	2	6	2	2	1	3	7
1441:	0	5	3	2	5	4	2	3
1449:	1	2	4	3	4	6	5	2
1457:	8	17	121	359	382	136	16	16
1465:	14	5	2	1	0	5	0	0
1473:	4	3	3	1	2	1	1	1
1481:	2	2	1	2	1	2	2	2
1489:	0	1	1	5	3	2	1	6
1497:	3	0	1	2	4	3	4	0
1505:	1	4	2	5	3	3	4	2
1513:	6	2	0	3	1	0	2	0
1521:	2	1	4	3	1	2	1	0
1529:	4	2	0	2	0	1	0	3
1537:	2	2	1	3	0	0	1	1
1545:	2	1	5	3	0	3	0	1
1553:	0	1	2	3	3	1	3	4
1561:	1	3	1	1	1	2	0	1
1569:	2	0	0	3	1	2	1	2
1577:	4	3	0	4	0	2	6	0
1585:	3	3	4	5	8	3	5	5
1593:	6	2	0	0	2	2	1	3
1601:	1	2	3	4	0	1	2	0
1609:	1	3	2	2	3	1	3	0
1617:	2	1	5	1	2	3	3	4
1625:	3	2	1	4	1	5	6	3
1633:	0	0	2	0	3	1	3	2
1641:	0	1	2	0	2	1	1	2
1649:	0	1	1	2	2	2	2	4
1657:	1	2	1	2	1	1	4	0

1665:	3	0	2	1	0	0	0	1

Sample Title: HTC-A01-S002-4248-01

Channel								
1673:	3	0	2	0	0	2	1	1
1681:	1	2	1	3	1	4	1	2
1689:	1	2	4	3	2	0	0	1
1697:	0	1	0	2	1	2	0	1
1705:	0	0	0	2	1	3	0	2
1713:	1	2	2	2	0	2	0	4
1721:	0	0	0	0	6	3	2	3
1729:	10	6	2	2	2	1	1	3
1737:	0	2	1	1	0	2	5	1
1745:	0	3	1	3	2	1	1	0
1753:	2	1	0	2	0	2	1	1
1761:	1	3	16	25	19	3	3	4
1769:	3	1	2	1	3	1	2	1
1777:	3	0	2	1	2	0	2	0
1785:	3	1	1	3	2	1	1	1
1793:	1	0	1	0	0	0	1	0
1801:	3	0	3	0	0	1	5	3
1809:	1	0	0	1	1	1	0	0
1817:	1	1	0	2	0	2	2	1
1825:	4	1	0	2	0	0	2	1
1833:	2	3	0	2	4	0	0	2
1841:	0	1	1	3	0	4	3	1
1849:	1	1	0	1	2	0	1	1
1857:	1	1	0	1	0	0	2	1
1865:	2	1	2	3	2	0	0	2
1873:	0	3	1	0	0	0	1	2
1881:	0	3	2	1	0	1	1	1
1889:	1	2	1	1	0	0	1	3
1897:	0	0	0	4	1	0	1	0
1905:	1	0	0	0	1	0	1	1
1913:	3	1	1	2	0	0	1	2
1921:	0	2	1	0	1	1	1	1
1929:	0	0	1	0	2	0	0	3
1937:	0	0	0	2	1	0	0	0
1945:	0	1	0	0	3	0	0	3
1953:	2	1	0	1	0	0	2	0
1961:	2	0	1	1	0	0	2	0
1969:	1	0	1	0	0	1	1	1
1977:	1	1	1	2	0	0	1	3
1985:	2	1	3	1	0	0	1	2
1993:	2	2	1	1	0	3	0	2
2001:	0	0	0	2	1	1	1	0
2009:	1	0	0	1	0	0	3	1
2017:	2	1	1	1	0	1	0	0
2025:	1	1	1	2	0	2	1	1
2033:	0	0	0	1	0	0	4	1
2041:	1	2	0	0	0	2	0	2
2049:	0	0	1	3	0	0	3	2
2057:	2	2	0	2	2	1	1	1
2065:	2	2	0	3	1	0	2	1
2073:	1	2	1	2	0	0	0	1
2081:	0	0	1	0	1	2	0	0
2089:	1	0	2	2	1	1	0	2

2097:	1	1	1	3	4	3	3	3

Sample Title: HTC-A01-S002-4248-01

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

2529:	0	0	0	0	0	0	1	0

Sample Title: HTC-A01-S002-4248-01

Channel								
2537:	0	0	0	1	0	1	0	1
2545:	1	0	2	0	2	1	0	1
2553:	1	2	0	0	0	2	0	1
2561:	0	0	1	1	0	2	0	0
2569:	0	0	0	0	0	0	0	0
2577:	0	1	1	0	1	0	0	4
2585:	1	0	0	1	0	0	1	0
2593:	0	0	1	0	0	0	0	1
2601:	1	1	1	0	0	0	0	1
2609:	0	2	2	16	43	43	17	2
2617:	0	2	0	1	0	0	0	1
2625:	1	1	0	0	1	0	0	0
2633:	0	0	0	0	0	2	1	1
2641:	1	0	0	1	0	0	1	0
2649:	1	0	0	0	0	1	0	0
2657:	0	0	1	0	2	0	0	0
2665:	0	0	0	0	0	2	0	0
2673:	1	1	0	1	0	0	1	1
2681:	0	0	0	1	0	1	1	1
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	0	1	0	1
2705:	0	0	0	1	1	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	1	1	0	0	1	0	0
2729:	2	1	0	1	2	0	2	0
2737:	1	0	1	0	0	1	0	0
2745:	0	0	0	2	0	1	0	0
2753:	0	0	1	0	0	0	1	1
2761:	0	0	0	0	1	0	1	1
2769:	1	1	1	1	0	0	1	0
2777:	0	0	0	0	1	1	0	1
2785:	0	0	0	0	1	0	0	0
2793:	1	0	1	1	0	1	2	0
2801:	0	1	0	1	0	0	1	0
2809:	0	0	1	2	1	0	0	0
2817:	1	0	0	0	0	0	1	1
2825:	1	1	0	0	1	0	1	1
2833:	0	0	0	0	0	1	0	0
2841:	0	0	1	1	0	1	0	1
2849:	0	0	0	0	2	1	1	0
2857:	0	0	1	0	0	1	1	0
2865:	0	1	0	2	3	0	0	0
2873:	0	0	0	1	0	0	0	0
2881:	1	0	1	0	0	1	0	2
2889:	0	1	0	0	0	1	0	0
2897:	0	0	1	0	0	0	0	0
2905:	0	0	0	1	0	0	0	0
2913:	0	0	1	0	0	0	0	0
2921:	1	0	1	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	2	1	0	0	0	0
2945:	0	0	0	0	0	0	1	0
2953:	1	0	0	0	0	1	0	0

2961:	0	1	0	0	0	1	0	0

Sample Title: HTC-A01-S002-4248-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S002-4248-01

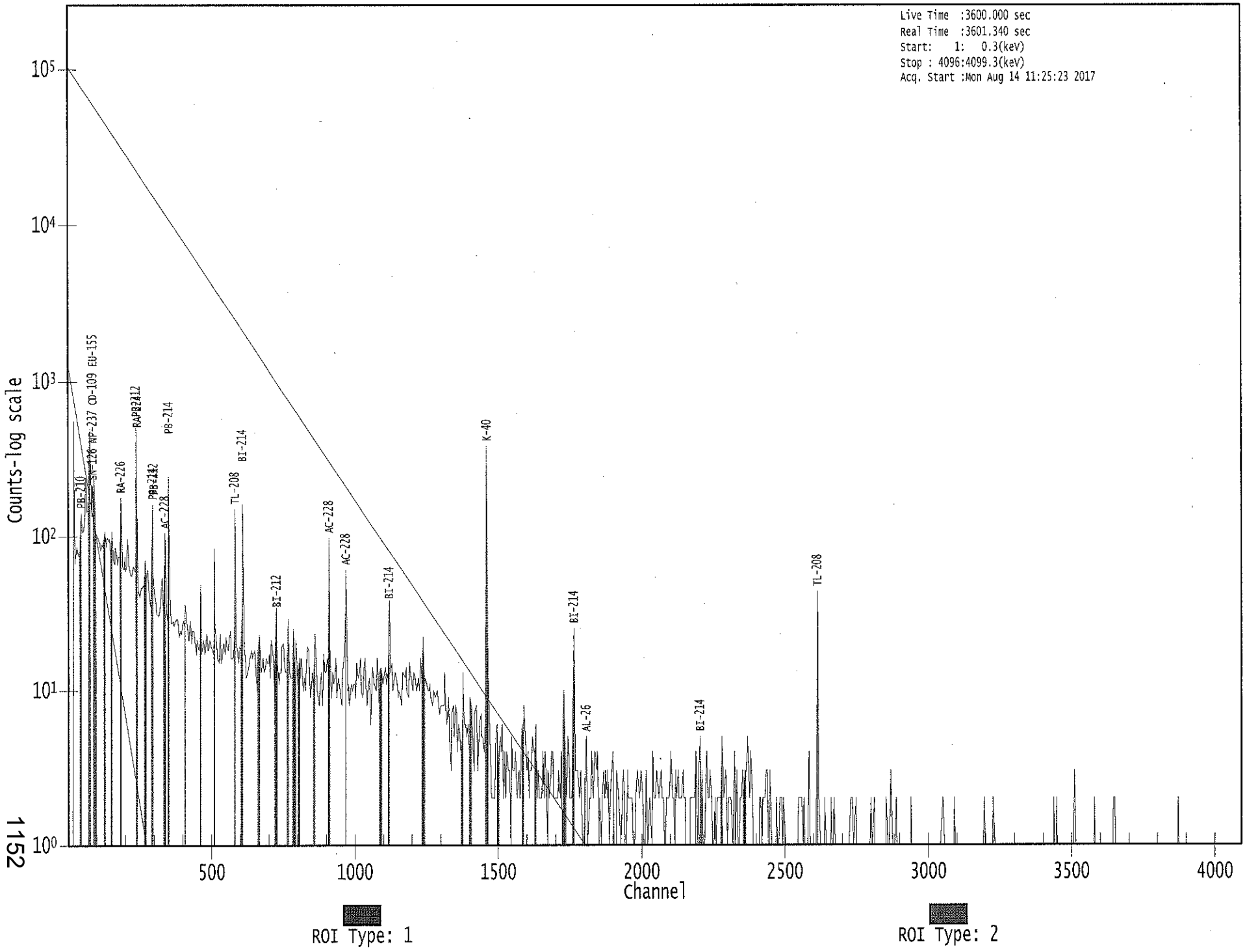
Channel								
3401:	0	1	0	0	0	0	1	1
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	1
3425:	0	0	0	0	1	0	0	1
3433:	0	0	0	0	0	2	0	0
3441:	0	0	0	0	0	0	0	2
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	0	1	0	0	0
3465:	1	1	0	0	0	0	1	1
3473:	1	0	0	0	0	0	1	0
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	1	0	0	0	0	0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

3825:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S002-4248-01

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

0000055167.CNF



****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

8/14

Last Results Report
8/14/17 5:25:03 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-16C.QCK

Detector: GE1
Geometry: <None>
Certificate: GAF-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/14/17 5:09:19 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 929.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9965E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6175E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3324E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8356E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4229E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	1.8403E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.2135E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7055E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5120E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.7942E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Decay corrected activity 1.0504E+004
Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity Boundary Limits: [1.690E-002, 2.534E-002]	2.0247E+004	< : : : >

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)

8/14

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/14/17 5:25:52 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003GAS-1602C.QC

Detector: GE3
Geometry: <None>
Certificate: GAS-1602
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/14/17 5:09:54 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 934.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9956E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6160E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3321E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8354E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.8860E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.2622E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.4804E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.8192E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5637E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Decay corrected activity	6.1032E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 9.3562E+004
Boundary Limits: [7.700E-002, 1.155E-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	1.8730E+005	
Boundary Limits: [1.600E-001, 2.400E-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)

8/14

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*****************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
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Last Results Report
8/14/17 5:26:25 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004GAW-16C.QCK

Detector: GE4
Geometry: <None>
Certificate: GAW-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/14/17 5:10:01 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 968.4 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8359E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6067E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3318E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	2.0719E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.4579E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6793E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0235E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		<Ab 0 Sim : : : >
Decay corrected activity	1.2547E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.2860E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >
Decay corrected activity	9.0449E+004	

Boundary Limits: [7.743E-002, 1.161E-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	1.8698E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
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Last Results Report
8/14/17 5:45:54 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: 8/14/17 5:30:39 AM
Measurement Date: 8/14/17 5:30:40 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.2767E+000+/- 1.249]	2.1678E+000	-8.7138E-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)

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*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
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Last Results Report
8/14/17 5:46:04 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: 8/14/17 5:30:46 AM
Measurement Date: 8/14/17 5:30:49 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 903.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE2	2.7233E+002	3.1766E-002
[SD:-1.7169E+035+/-******]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

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Last Results Report
8/14/17 5:46:14 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003B.QCK

Detector: GE3
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/14/17 5:30:56 AM
Measurement Date: 8/14/17 5:30:57 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3	1.8760E+003	-2.6000E-001
[SD: 2.1825E+003+/-1178.7]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
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Last Results Report
8/14/17 5:46:24 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: 8/14/17 5:31:04 AM
Measurement Date: 8/14/17 5:31:06 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 7.1760E+000+/-131.65]	1.5989E+000	-4.2360E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)