WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07086-OR

September 15, 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 # 17-07086

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	SGB	Sample Log-In
		8-22-17	NJL	Data Compilation
		8/28/17	[illegible]	First Technical Data Review
		8/28/17	[illegible]	Second Technical Data Review
		9/7/17	[illegible]	Data Entry/Electronic Deliverable
		9/7/17	[illegible]	Case Narrative
		09/13/17	[illegible]	Electronic Deliverable Proof
		9/13/17	[illegible]	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/13/17	[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: [illegible] [illegible] 9/13/17

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

17-07086
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
	HTC-A02-S003-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:09	1	16 oz Poly Jar	N	943.9 g
	HTC-A02-S003-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:06	1	16 oz Poly Jar	N	828.3 g
	HTC-A02-S003-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:03	1	16 oz Poly Jar	N	800.3 g
	HTC-A02-S003-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:00	1	16 oz Poly Jar	N	736.5 g
	HTC-A02-S004-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:29	1	16 oz Poly Jar	N	Weight N/A
	HTC-A02-S004-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:27	1	16 oz Poly Jar	N	Weight N/A
4	HTC-A02-S004-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:25	1	16 oz Poly Jar	N	Weight N/A
5	HTC-A02-S004-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:23	1	16 oz Poly Jar	N	Weight N/A
6	HTC-A02-S004-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:21	1	16 oz Poly Jar	N	Weight N/A
7	HTC-A02-S004-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:19	1	16 oz Poly Jar	N	Weight N/A
8	HTC-A02-S004-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:17	1	16 oz Poly Jar	N	Weight N/A
9	HTC-A02-S004-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:15	1	16 oz Poly Jar	N	Weight N/A
10 11 12	HTC-A03-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:26	1	16 oz Poly Jar	Y	712.01
13	HTC-A03-S001-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:26	1	16 oz Poly Jar	N	784.5 g
14	HTC-A03-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:23	1	16 oz Poly Jar	N	852.4 g
15	HTC-A03-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:20	1	16 oz Poly Jar	N	1092.2 g
16	HTC-A03-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:17	1	16 oz Poly Jar	N	1084.3 g
17	HTC-A03-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:14	1	16 oz Poly Jar	N	937.8 g
18	HTC-A03-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:11	1	16 oz Poly Jar	N	1029.5 g
19	HTC-A03-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:08	1	16 oz Poly Jar	N	826.3 g
20	HTC-A03-S001-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	08:05	1	16 oz Poly Jar	N	1045.3 g
	HTC-A03-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	09:39	1	16 oz Poly Jar	N	1029.3 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 Cornuby - Weston	7-17-17/1600	[signature]	0930 7-18-17	

0005

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07086
		Lab Deadline	8/10/2017
		Analysis	UUISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	272	L1.4
	05	99	L1.4
	06	45	L1.4
	07	87	L1.4
	08	38	L1.4
	09	53	L1.4
	10	32	L1.4
	11	30	L1.4
	12	30	L1.4
Fraction 11 is MS of fraction 10. Fraction 12 is MSD of fraction 10.	13	39	L1.4
	14	35	L1.4
	15	38	L1.4
	16	40	L1.4
	17	44	L1.4
	18	39	L1.4
	19	45	L1.4
	20	40	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1145	[illegible]	7-28-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	[illegible]	7-31-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 8W	[illegible]	8-9-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/10/17 0820
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-10-17 0820
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-18-17 0949
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/18 0945
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	0552
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

EBERLINE Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07086
		Lab Deadline	See Comments
		Analysis	UUISO - Level 4
		Sample Matrix	SO

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Fxns 10, 11 + 12 ONLY - MSO MS MSD Re-Analysis: 2Report on dry weight basis. Eyt 8/23/17	04	272	L1.4
	05	99	L1.4
	06	45	L1.4
	07	87	L1.4
	08	38	L1.4
	09	53	L1.4
	10	32	L1.4
	11	30	L1.4
	12	30	L1.4
Original Lab Deadline: 08/15/17 Rerun Lab Deadline: 08/15/17Fraction 11 is MS of fraction 10. Fraction 12 is MSD of fraction 10.	13	39	L1.4
	14	35	L1.4
	15	38	L1.4
	16	40	L1.4
	17	44	L1.4
	18	39	L1.4
	19	45	L1.4
	20	40	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	1000	8-23-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	315	8-23-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8/23/17 1530
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-25-17 0753
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8/25 0753
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8/25/17 1157
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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EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07086
		Lab Deadline	8/10/2017
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	272	L1.4
	05	99	L1.4
	06	45	L1.4
	07	87	L1.4
	08	38	L1.4
	09	53	L1.4
	10	32	L1.4
	11	30	L1.4
	12	30	L1.4
Fraction 11 is MS of fraction 10.	13	39	L1.4
	14	35	L1.4
	15	38	L1.4
	16	40	L1.4
	17	44	L1.4
Fraction 12 is MSD of fraction 10.	18	39	L1.4
	19	45	L1.4
	20	40	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1145	Key scj	7-28-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	Key scj	7-31-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 800	[illegible]	8-9-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/10/17 0820
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-10-17 0820
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-21-17 0855
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-21 0855
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	JCB	8/21/17 1506
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 #	17-07086
		Lab Deadline	See Comments
		Analysis	Gamma - Level 4
		Sample Matrix	SO

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Re-Analysis: 2Fractions 04-10 & 13-20 only: 21 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	272	L1.4
	05	99	L1.4
	06	45	L1.4
	07	87	L1.4
	08	38	L1.4
	09	53	L1.4
	10	32	L1.4
	13	39	L1.4
	14	35	L1.4
~~Original Lab Deadline: 08/15/17~~ Ey 07/19/17	15	38	L1.4
~~Rerun Lab Deadline: 08/15/17 Fractions 04-10 & 13-20 only: 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 "AS IS" basis.~~	16	40	L1.4
	17	44	L1.4
	18	39	L1.4
	19	45	L1.4
	20	40	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1145	Key Sig	7-28-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1210	Key Sig	7-31-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 7/31/17	1215
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	C 8/22	0755
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Weston Solutions, Inc.	0094759	Environmental	07/18/2017	28	17-07086
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/10/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																					Ttl
01	LCS	07/19/17	SO	L1.4	X	X	X																					3
02	BLANK	07/19/17	SO	L1.4	X	X	X																					3
03	DUP	07/19/17	SO	L1.4	X	X	X																					3
04	HTC-A02-S004-1218-01	05/15/17 08:25	SO	L1.4	X	X	X																					3
05	HTC-A02-S004-1824-01	05/15/17 08:23	SO	L1.4	X	X	X																					3
06	HTC-A02-S004-2430-01	05/15/17 08:21	SO	L1.4	X	X	X																					3
07	HTC-A02-S004-3036-01	05/15/17 08:19	SO	L1.4	X	X	X																					3
08	HTC-A02-S004-3642-01	05/15/17 08:17	SO	L1.4	X	X	X																					3
09	HTC-A02-S004-4248-01	05/15/17 08:15	SO	L1.4	X	X	X																					3
10	HTC-A03-S001-0006-01	05/15/17 08:26	SO	L1.4	X	X	X																					3
11	HTC-A03-S001-0006-01 MS	05/15/17 08:26	SO	L1.4		X	X																					2
12	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	SO	L1.4		X	X																					2
13	HTC-A03-S001-0006-02	05/15/17 08:26	SO	L1.4	X	X	X																					3
14	HTC-A03-S001-0612-01	05/15/17 08:23	SO	L1.4	X	X	X																					3
15	HTC-A03-S001-1218-01	05/15/17 08:20	SO	L1.4	X	X	X																					3
16	HTC-A03-S001-1824-01	05/15/17 08:17	SO	L1.4	X	X	X																					3
17	HTC-A03-S001-2430-01	05/15/17 08:14	SO	L1.4	X	X	X																					3
18	HTC-A03-S001-3036-01	05/15/17 08:11	SO	L1.4	X	X	X																					3
19	HTC-A03-S001-3642-01	05/15/17 08:08	SO	L1.4	X	X	X																					3
20	HTC-A03-S001-4248-01	05/15/17 08:05	SO	L1.4	X	X	X																					3
				Totals Per Analysis (non QA samples)	15	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
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Fax 732-225-7037

0011

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07086

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: _____ 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-42669

September 15, 2017

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

CASE NARRATIVE
Work Order # 17-07086-OR

SAMPLE RECEIPT

This work order contains fifteen 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-A02-S004-1218-01	17-07086-04	HTC-A03-S001-0006-02	17-07086-13
HTC-A02-S004-1824-01	17-07086-05	HTC-A03-S001-0612-01	17-07086-14
HTC-A02-S004-2430-01	17-07086-06	HTC-A03-S001-1218-01	17-07086-15
HTC-A02-S004-3036-01	17-07086-07	HTC-A03-S001-1824-01	17-07086-16
HTC-A02-S004-3642-01	17-07086-08	HTC-A03-S001-2430-01	17-07086-17
HTC-A02-S004-4248-01	17-07086-09	HTC-A03-S001-3036-01	17-07086-18
HTC-A03-S001-0006-01	17-07086-10	HTC-A03-S001-3642-01	17-07086-19
HTC-A03-S001-0006-01 MS	17-07086-11	HTC-A03-S001-4248-01	17-07086-20
HTC-A03-S001-0006-01 MSD	17-07086-12		

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.

1st Analytical Attempt

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 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235/236 and Uranium-238 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery. Sample HTC-A03-S001-0006-01 (laboratory fraction -10) was reanalyzed due to the lab's failure to perform a matrix spike and matrix spike duplicate.

2nd Analytical Attempt

Sample HTC-A03-S001-0006-01 (laboratory fraction -10) was reanalyzed for the lab to perform a matrix spike and matrix spike duplicate. Sample 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. Results for the Uranium-234 and Uranium-238 matrix spike and matrix spike duplicate 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 acceptable for all samples. Results for the Thorium-228 duplicate demonstrated a high relative percent difference and normalized difference. Results for the Thorium-230 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-232 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical

ANALYTICAL RESULTS CONTINUED

ISOTOPIC THORIUM CONTINUED

technique. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery. A matrix spike and matrix spike duplicate were not performed due to the lab's failure to spike sample HTC-A03-S001-0006-01 (laboratory fraction -10).

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. Results for the Actinium-228, Radium-226 and Thallium-208 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: 9/15/2017

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:	**17-07086**
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											
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Cobalt-60	EPA 901.1 Modified	1.24E+02	7.53E+00	9.87E+00	1.18E+00	pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	8.17E+01	9.98E+00	1.08E+01	1.51E+00	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	6.43E-02	7.21E-02	7.22E-02	1.59E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	1.38E-01	2.29E-01	2.29E-01	3.99E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	3.63E-03	3.76E-02	3.76E-02	5.67E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.67E-01	3.15E-01	3.15E-01	6.28E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	2.66E+00	2.99E+00	2.99E+00	6.10E+00	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	2.37E-02	3.75E-02	3.75E-02	6.22E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	2.51E-01	4.20E-01	4.20E-01	6.93E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	5.59E-02	5.91E-02	5.92E-02	1.06E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	6.43E-02	7.21E-02	7.22E-02	1.59E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	5.28E-01	3.84E-01	3.84E-01	6.46E-01	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	-5.28E-02	9.31E-02	9.31E-02	1.19E-01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.29E+02	6.00E+00	8.94E+00	3.24E+00	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	7.87E+01	6.69E+00	7.82E+00	6.14E+00	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.25E-01	2.27E-01	2.27E-01	5.05E-01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.24E+01	3.55E+00	3.61E+00	5.43E+00	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	1.39E+02	3.98E+01	4.04E+01	6.22E+01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	1.21E+02	6.88E+00	9.25E+00	1.93E+00	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	2.35E+02	1.87E+01	2.23E+01	2.19E+01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	1.01E+02	4.75E+00	7.02E+00	1.47E+00	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	1.29E+02	6.00E+00	8.94E+00	3.24E+00	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	9.33E+01	1.14E+01	1.23E+01	1.49E+01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.15E+02	6.23E+00	8.56E+00	1.36E+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

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:	Work Order Details:	
Smita Sumbaly	SDG:	17-07086
Weston Solutions, Inc.	Purchase Order:	0094759
1090 King Georges Post Rd Suite 201	Analysis Category:	ENVIRONMENTAL
Edison, NJ 08837	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
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.29E+02	6.00E+00	8.93E+00	2.60E+00	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	8.35E+01	6.77E+00	8.01E+00	6.93E+00	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	-1.22E-02	2.27E-01	2.27E-01	5.07E-01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.70E+01	3.88E+00	3.98E+00	5.66E+00	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	1.04E+02	2.92E+01	2.97E+01	4.40E+01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	1.32E+02	7.58E+00	1.02E+01	1.70E+00	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	3.40E+02	2.75E+01	3.26E+01	1.96E+01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	1.00E+02	4.63E+00	6.92E+00	1.50E+00	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	1.29E+02	6.00E+00	8.93E+00	2.60E+00	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	9.59E+01	1.15E+01	1.25E+01	1.48E+01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.12E+02	6.13E+00	8.40E+00	1.38E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.96E+01	1.08E+00	1.48E+00	1.18E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	1.22E+01	1.68E+00	1.79E+00	1.51E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.38E-01	1.48E-01	1.48E-01	2.47E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.51E+01	2.06E+00	2.20E+00	2.05E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	9.88E+00	9.15E+00	9.16E+00	1.43E+01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	2.15E+01	1.54E+00	1.89E+00	8.19E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	4.56E+01	6.12E+00	6.56E+00	9.43E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	7.40E+00	5.57E-01	6.74E-01	5.62E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	1.96E+01	1.08E+00	1.48E+00	1.18E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	7.03E+00	3.06E+00	3.09E+00	5.00E+00	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.92E+01	1.33E+00	1.66E+00	4.88E-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

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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:	17-07086
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
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	2.35E+00	3.23E-01	3.45E-01	5.98E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	2.28E+00	7.17E-01	7.27E-01	1.16E+00	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	-1.44E-03	8.11E-02	8.11E-02	1.17E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.10E+01	2.59E+00	2.81E+00	1.57E+00	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	1.53E+00	7.56E+00	7.56E+00	1.18E+01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	2.78E+00	2.78E-01	3.12E-01	2.85E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	3.57E+01	3.61E+00	4.05E+00	4.37E+00	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	1.63E+00	2.26E-01	2.41E-01	7.34E-02	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	2.35E+00	3.23E-01	3.45E-01	5.98E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	1.72E+00	1.54E+00	1.54E+00	2.56E+00	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	2.50E+00	4.37E-01	4.56E-01	5.32E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	4.04E+00	3.42E-01	4.00E-01	4.20E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	2.88E+00	6.58E-01	6.74E-01	8.74E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	-1.15E-02	5.20E-02	5.20E-02	1.01E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.56E+01	2.66E+00	2.96E+00	1.57E+00	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	5.74E+00	6.01E+00	6.02E+00	9.84E+00	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	4.54E+00	3.92E-01	4.56E-01	4.30E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	1.08E+01	2.35E+00	2.41E+00	4.88E+00	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	2.18E+00	2.18E-01	2.46E-01	3.16E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	4.04E+00	3.42E-01	4.00E-01	4.20E-01	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	3.60E+00	1.59E+00	1.60E+00	2.57E+00	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	3.87E+00	3.73E-01	4.23E-01	2.66E-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

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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:	**17-07086**
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
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.39E+00	3.55E-01	3.62E-01	6.72E-01	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	7.87E-01	6.07E-01	6.08E-01	1.02E+00	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	-5.18E-02	7.50E-02	7.51E-02	1.03E-01	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.76E+01	3.17E+00	3.47E+00	1.49E+00	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	-6.39E+00	8.14E+00	8.15E+00	1.07E+01	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	1.77E+00	2.59E-01	2.74E-01	3.12E-01	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	1.97E+01	2.42E+00	2.62E+00	3.54E+00	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	1.18E+00	2.20E-01	2.28E-01	3.36E-01	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	1.39E+00	3.55E-01	3.62E-01	6.72E-01	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	3.89E+00	1.99E+00	2.00E+00	3.25E+00	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.29E+00	2.22E-01	2.32E-01	1.24E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	7.25E+00	6.67E-01	7.63E-01	1.08E+00	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	5.87E+00	1.58E+00	1.61E+00	2.16E+00	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.23E-02	1.65E-01	1.65E-01	2.23E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.02E+01	3.02E+00	3.19E+00	2.80E+00	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	8.88E+00	9.74E+00	9.75E+00	1.62E+01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	9.38E+00	8.33E-01	9.62E-01	5.26E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	9.53E+01	8.64E+00	9.92E+00	7.36E+00	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	3.80E+00	5.15E-01	5.51E-01	6.80E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	7.25E+00	6.67E-01	7.63E-01	1.08E+00	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	3.31E+00	2.34E+00	2.34E+00	3.87E+00	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	7.59E+00	7.89E-01	8.80E-01	4.01E-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:	17-07086
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
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.94E+00	2.76E-01	2.93E-01	4.66E-01	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	1.42E+00	6.45E-01	6.49E-01	1.08E+00	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.02E-01	6.22E-02	6.24E-02	9.71E-02	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.46E+01	2.77E+00	3.04E+00	1.40E+00	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	1.71E+00	5.62E+00	5.62E+00	9.01E+00	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	1.87E+00	1.99E-01	2.21E-01	2.84E-01	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	5.72E+00	1.76E+00	1.78E+00	3.23E+00	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	1.44E+00	2.05E-01	2.17E-01	2.67E-01	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	1.94E+00	2.76E-01	2.93E-01	4.66E-01	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	2.64E+00	1.46E+00	1.46E+00	2.00E+00	pCi/g
17-07086-10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.65E+00	2.11E-01	2.27E-01	1.35E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	8.88E-01	2.57E-01	2.61E-01	5.30E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	1.03E+00	4.96E-01	4.99E-01	9.16E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.24E-01	8.10E-02	8.12E-02	1.29E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.06E+01	2.54E+00	2.75E+00	1.29E+00	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	2.00E-01	7.06E+00	7.06E+00	1.06E+01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	1.27E+00	1.66E-01	1.79E-01	2.28E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	1.55E+01	2.03E+00	2.18E+00	3.12E+00	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	8.37E-01	1.75E-01	1.80E-01	7.85E-02	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	8.88E-01	2.57E-01	2.61E-01	5.30E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	1.16E+00	1.30E+00	1.31E+00	2.18E+00	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	9.06E-01	1.90E-01	1.95E-01	1.24E-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

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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:	17-07086
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
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.24E+00	2.04E-01	2.13E-01	3.43E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	1.07E+00	4.29E-01	4.32E-01	8.86E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.66E-02	5.47E-02	5.47E-02	8.47E-02	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	2.45E+01	2.62E+00	2.91E+00	1.31E+00	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	-1.06E+00	5.45E+00	5.45E+00	8.14E+00	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	1.28E+00	1.48E-01	1.62E-01	2.05E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	4.07E+00	1.40E+00	1.42E+00	2.32E+00	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	1.09E+00	1.60E-01	1.70E-01	2.29E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	1.24E+00	2.04E-01	2.13E-01	3.43E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	2.03E+00	1.65E+00	1.65E+00	2.73E+00	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.06E+00	1.86E-01	1.94E-01	1.68E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Actinium-228	EPA 901.1 Modified	7.36E-01	1.78E-01	1.82E-01	4.23E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Bismuth-212	EPA 901.1 Modified	7.05E-01	5.34E-01	5.35E-01	8.65E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Cesium-137	EPA 901.1 Modified	-3.42E-03	5.29E-02	5.29E-02	8.01E-02	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.78E+01	2.12E+00	2.31E+00	9.96E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	-6.61E-01	5.84E+00	5.84E+00	8.88E+00	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Lead-212	EPA 901.1 Modified	9.10E-01	1.23E-01	1.31E-01	1.87E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Radium-224	EPA 901.1 Modified	2.82E+00	1.31E+00	1.32E+00	2.16E+00	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Radium-226	EPA 901.1 Modified	7.88E-01	1.47E-01	1.53E-01	2.48E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Radium-228	EPA 901.1 Modified	7.36E-01	1.78E-01	1.82E-01	4.23E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Thorium-234	EPA 901.1 Modified	1.15E+00	1.04E+00	1.05E+00	1.41E+00	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Thallium-208	EPA 901.1 Modified	8.47E-01	1.46E-01	1.52E-01	1.72E-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

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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:	17-07086
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
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Actinium-228	EPA 901.1 Modified	9.22E-01	1.69E-01	1.75E-01	3.78E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Bismuth-212	EPA 901.1 Modified	6.78E-01	2.75E-01	2.78E-01	7.44E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Cesium-137	EPA 901.1 Modified	-2.89E-02	4.25E-02	4.25E-02	5.89E-02	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.78E+01	1.91E+00	2.12E+00	6.18E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	6.53E+00	4.36E+00	4.37E+00	6.87E+00	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Lead-212	EPA 901.1 Modified	9.34E-01	1.09E-01	1.19E-01	2.01E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Radium-224	EPA 901.1 Modified	2.73E+00	9.78E-01	9.88E-01	2.27E+00	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Radium-226	EPA 901.1 Modified	8.37E-01	1.25E-01	1.32E-01	1.82E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Radium-228	EPA 901.1 Modified	9.22E-01	1.69E-01	1.75E-01	3.78E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Thorium-234	EPA 901.1 Modified	1.57E+00	9.41E-01	9.45E-01	1.28E+00	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/22/2017	17-07086	Thallium-208	EPA 901.1 Modified	8.38E-01	1.96E-01	2.01E-01	2.71E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Actinium-228	EPA 901.1 Modified	8.05E-01	1.86E-01	1.90E-01	3.93E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Bismuth-212	EPA 901.1 Modified	6.43E-01	3.50E-01	3.51E-01	5.35E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Cesium-137	EPA 901.1 Modified	0.00E+00	3.33E-02	3.33E-02	5.75E-02	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.72E+01	2.04E+00	2.22E+00	7.42E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	1.90E+00	4.43E+00	4.43E+00	7.22E+00	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Lead-212	EPA 901.1 Modified	7.44E-01	9.77E-02	1.05E-01	1.90E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Radium-224	EPA 901.1 Modified	1.49E+00	6.82E-01	6.86E-01	2.15E+00	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Radium-226	EPA 901.1 Modified	7.52E-01	1.20E-01	1.26E-01	1.76E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Radium-228	EPA 901.1 Modified	8.05E-01	1.86E-01	1.90E-01	3.93E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Thorium-234	EPA 901.1 Modified	6.62E-01	6.96E-01	6.97E-01	1.09E+00	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/22/2017	17-07086	Thallium-208	EPA 901.1 Modified	6.43E-01	1.18E-01	1.23E-01	9.48E-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:	**17-07086**
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
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Actinium-228	EPA 901.1 Modified	8.57E-01	1.94E-01	1.99E-01	3.86E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Bismuth-212	EPA 901.1 Modified	5.35E-01	4.61E-01	4.62E-01	7.54E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Cesium-137	EPA 901.1 Modified	-2.09E-02	5.18E-02	5.19E-02	7.43E-02	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.66E+01	1.97E+00	2.15E+00	8.73E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	1.89E+00	5.20E+00	5.20E+00	8.38E+00	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Lead-212	EPA 901.1 Modified	9.66E-01	1.22E-01	1.31E-01	1.84E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Radium-224	EPA 901.1 Modified	1.32E+01	1.61E+00	1.74E+00	2.41E+00	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Radium-226	EPA 901.1 Modified	7.38E-01	1.11E-01	1.17E-01	5.71E-02	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Radium-228	EPA 901.1 Modified	8.57E-01	1.94E-01	1.99E-01	3.86E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Thorium-234	EPA 901.1 Modified	8.90E-01	9.67E-01	9.68E-01	1.28E+00	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/22/2017	17-07086	Thallium-208	EPA 901.1 Modified	6.62E-01	1.39E-01	1.43E-01	1.82E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Actinium-228	EPA 901.1 Modified	1.24E+00	2.69E-01	2.77E-01	9.05E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Bismuth-212	EPA 901.1 Modified	1.05E+00	7.03E-01	7.05E-01	1.14E+00	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Cesium-137	EPA 901.1 Modified	-4.24E-03	9.74E-02	9.74E-02	1.35E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.98E+01	2.61E+00	2.80E+00	9.19E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	2.37E+00	9.91E+00	9.91E+00	1.46E+01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Lead-212	EPA 901.1 Modified	1.30E+00	2.34E-01	2.43E-01	3.11E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Radium-224	EPA 901.1 Modified	1.27E+01	1.95E+00	2.06E+00	3.10E+00	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Radium-226	EPA 901.1 Modified	9.10E-01	2.15E-01	2.20E-01	3.54E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Radium-228	EPA 901.1 Modified	1.24E+00	2.69E-01	2.77E-01	9.05E-01	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Thorium-234	EPA 901.1 Modified	1.74E+00	1.36E+00	1.36E+00	2.24E+00	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/22/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.09E+00	2.47E-01	2.54E-01	3.03E-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:	**17-07086**
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
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Actinium-228	EPA 901.1 Modified	9.79E-01	1.59E-01	1.67E-01	2.65E-01	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Bismuth-212	EPA 901.1 Modified	9.68E-01	4.58E-01	4.60E-01	7.03E-01	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Cesium-137	EPA 901.1 Modified	1.45E-01	5.80E-02	5.84E-02	8.56E-02	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Potassium-40	EPA 901.1 Modified	1.95E+01	2.17E+00	2.39E+00	1.21E+00	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Protactinium-234m	EPA 901.1 Modified	-3.36E-01	4.33E+00	4.33E+00	6.55E+00	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Lead-212	EPA 901.1 Modified	1.11E+00	1.26E-01	1.39E-01	2.17E-01	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Radium-224	EPA 901.1 Modified	3.99E+00	1.31E+00	1.32E+00	2.49E+00	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Radium-226	EPA 901.1 Modified	7.87E-01	1.55E-01	1.61E-01	1.48E-01	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Radium-228	EPA 901.1 Modified	9.79E-01	1.59E-01	1.67E-01	2.65E-01	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Thorium-234	EPA 901.1 Modified	1.62E+00	1.11E+00	1.11E+00	1.83E+00	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/22/2017	17-07086	Thallium-208	EPA 901.1 Modified	1.00E+00	1.48E-01	1.57E-01	1.39E-01	pCi/g
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	5.15E+00	1.86E-01			pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	6.29E+00	9.79E-01	1.14E+00	9.29E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	5.95E-02	8.20E-02	8.22E-02	1.32E-01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.45E+02	2.44E+01	2.80E+01	3.41E-01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	8.50E+01	1.59E+01	1.78E+01	5.91E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.78E+01	4.19E+00	4.52E+00	5.60E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.52E+00	3.49E-01	3.77E-01	9.38E-02	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	4.76E+00	9.81E-01	1.08E+00	8.66E-02	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.43E+00	4.35E-01	4.55E-01	1.51E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	5.02E+00	1.17E+00	1.27E+00	1.60E-01	pCi/g
17-07086-10	MSO	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	9.20E-01	2.95E-01	3.08E-01	8.20E-02	pCi/g
17-07086-11	MS	HTC-A03-S001-0006-01 MS	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	7.49E-01	2.52E-01	2.61E-01	1.00E-01	pCi/g
17-07086-12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	6.73E-01	2.60E-01	2.68E-01	1.11E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.10E+00	3.71E-01	3.85E-01	1.85E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.03E+00	3.00E-01	3.16E-01	7.30E-02	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	6.80E-01	2.53E-01	2.61E-01	1.10E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.20E+00	3.61E-01	3.78E-01	1.45E-01	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	8.44E-01	2.98E-01	3.09E-01	1.56E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	9.70E-01	3.05E-01	3.18E-01	7.00E-02	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.01E+00	2.89E-01	3.04E-01	8.60E-02	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/21/2017	17-07086	Thorium-228	EPA 907.0 Modified	1.06E+00	3.02E-01	3.18E-01	9.38E-02	pCi/g

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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:	**17-07086**
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
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	5.40E+00	1.46E-01			pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	6.54E+00	1.01E+00	1.29E+00	5.89E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	2.69E-02	5.13E-02	5.14E-02	9.47E-02	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	7.49E+01	1.28E+01	1.58E+01	3.10E-01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	6.92E+01	1.30E+01	1.56E+01	4.60E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	8.39E+00	2.26E+00	2.48E+00	3.69E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.47E+00	3.30E-01	3.77E-01	6.71E-02	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	2.52E+00	5.74E-01	6.53E-01	6.26E-02	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.12E+00	3.56E-01	3.82E-01	1.28E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	2.96E+00	7.48E-01	8.32E-01	1.41E-01	pCi/g
17-07086-10	MSO	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.01E+00	3.03E-01	3.28E-01	7.45E-02	pCi/g
17-07086-11	MS	HTC-A03-S001-0006-01 MS	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	6.75E-01	2.26E-01	2.41E-01	6.92E-02	pCi/g
17-07086-12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	8.31E-01	2.85E-01	3.03E-01	8.52E-02	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	7.92E-01	2.89E-01	3.05E-01	1.42E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.04E+00	2.93E-01	3.20E-01	9.14E-02	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	5.01E-01	2.03E-01	2.12E-01	9.95E-02	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.06E+00	3.21E-01	3.47E-01	9.63E-02	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	8.31E-01	2.83E-01	3.01E-01	1.24E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.06E+00	3.14E-01	3.40E-01	6.36E-02	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	7.76E-01	2.35E-01	2.54E-01	6.84E-02	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/21/2017	17-07086	Thorium-230	EPA 907.0 Modified	1.02E+00	2.85E-01	3.12E-01	6.47E-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:	**17-07086**
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
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	5.15E+00	1.86E-01			pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	6.29E+00	9.78E-01	1.12E+00	8.45E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	5.67E-02	7.26E-02	7.28E-02	1.08E-01	pCi/g
17-07086-03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	1.16E+02	1.96E+01	2.21E+01	3.09E-01	pCi/g
17-07086-04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	7.38E+01	1.39E+01	1.53E+01	4.59E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	1.37E+01	3.32E+00	3.54E+00	4.35E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	1.32E+00	3.05E-01	3.26E-01	6.37E-02	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	4.04E+00	8.41E-01	9.13E-01	6.25E-02	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	9.84E-01	3.28E-01	3.39E-01	1.28E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	4.18E+00	9.91E-01	1.06E+00	1.35E-01	pCi/g
17-07086-10	MSO	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	6.50E-01	2.28E-01	2.35E-01	6.49E-02	pCi/g
17-07086-11	MS	HTC-A03-S001-0006-01 MS	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	4.48E-01	1.78E-01	1.82E-01	9.10E-02	pCi/g
17-07086-12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	5.93E-01	2.32E-01	2.38E-01	1.00E-01	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	9.95E-01	3.32E-01	3.43E-01	1.18E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	1.03E+00	2.91E-01	3.04E-01	7.27E-02	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	7.41E-01	2.56E-01	2.64E-01	7.93E-02	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	1.01E+00	3.08E-01	3.20E-01	7.67E-02	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	7.12E-01	2.54E-01	2.62E-01	9.49E-02	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	7.98E-01	2.60E-01	2.69E-01	7.98E-02	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	6.83E-01	2.18E-01	2.27E-01	9.25E-02	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/21/2017	17-07086	Thorium-232	EPA 907.0 Modified	1.09E+00	2.98E-01	3.13E-01	5.64E-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:	17-07086
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
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	8.15E+00	2.93E-01			pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	7.08E+00	9.01E-01	1.03E+00	7.20E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	7.02E-02	6.78E-02	6.80E-02	8.42E-02	pCi/g
17-07086-03	DUP	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	8.39E-01	2.24E-01	2.32E-01	8.13E-02	pCi/g
17-07086-04	TRG	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	5.82E+01	7.60E+00	8.67E+00	1.31E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	9.76E+00	1.39E+00	1.55E+00	1.07E-01	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	1.47E+00	3.53E-01	3.68E-01	6.93E-02	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	2.70E+00	4.79E-01	5.17E-01	7.79E-02	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	1.26E+00	3.07E-01	3.20E-01	7.27E-02	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	2.34E+00	4.32E-01	4.63E-01	9.18E-02	pCi/g
17-07086-10	DMSO	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	8.35E-01	2.12E-01	2.20E-01	7.66E-02	pCi/g
17-07086-11	MS	HTC-A03-S001-0006-01 MS	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	6.72E+00	8.93E-01	1.01E+00	5.10E-02	pCi/g
17-07086-12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	6.88E+00	8.89E-01	1.02E+00	6.57E-02	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	9.48E-01	3.78E-01	3.84E-01	1.99E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	8.02E-01	2.37E-01	2.44E-01	6.45E-02	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	7.21E-01	2.33E-01	2.39E-01	9.38E-02	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	5.44E-01	1.89E-01	1.93E-01	6.34E-02	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	6.10E-01	2.05E-01	2.10E-01	1.11E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	6.54E-01	2.03E-01	2.08E-01	5.96E-02	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	5.51E-01	1.87E-01	1.91E-01	7.00E-02	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/19/2017	17-07086	Uranium-233/234	EPA 908.0 Modified	7.79E-01	2.19E-01	2.26E-01	7.11E-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:		Work Order Details:	
Smita Sumbaly		SDG:	17-07086
Weston Solutions, Inc.		Purchase Order:	0094759
1090 King Georges Post Rd Suite 201		Analysis Category:	ENVIRONMENTAL
Edison, NJ 08837		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
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	5.40E-01	1.81E-01	1.85E-01	7.95E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	0.00E+00	4.80E-02	4.80E-02	1.04E-01	pCi/g
17-07086-03	DUP	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	9.28E-02	7.72E-02	7.75E-02	6.64E-02	pCi/g
17-07086-04	TRG	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	6.55E+00	1.13E+00	1.22E+00	9.81E-02	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	1.03E+00	3.08E-01	3.17E-01	9.57E-02	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	1.98E-01	1.29E-01	1.30E-01	9.79E-02	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	2.30E-01	1.28E-01	1.29E-01	8.94E-02	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	1.34E-01	1.06E-01	1.06E-01	1.12E-01	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	4.21E-01	1.72E-01	1.74E-01	8.67E-02	pCi/g
17-07086-10	DMSO	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	9.55E-02	7.53E-02	7.56E-02	6.85E-02	pCi/g
17-07086-11	MS	HTC-A03-S001-0006-01 MS	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	6.89E-01	2.13E-01	2.19E-01	7.21E-02	pCi/g
17-07086-12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	7.39E-01	2.16E-01	2.23E-01	7.53E-02	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	8.39E-02	1.36E-01	1.36E-01	2.34E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	7.63E-02	8.41E-02	8.42E-02	1.14E-01	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	8.21E-02	9.05E-02	9.07E-02	1.23E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	1.66E-01	1.12E-01	1.13E-01	7.82E-02	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	4.33E-02	6.48E-02	6.49E-02	1.05E-01	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	2.92E-02	4.96E-02	4.96E-02	8.42E-02	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	1.08E-01	9.55E-02	9.59E-02	1.14E-01	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/19/2017	17-07086	Uranium-235/236	EPA 908.0 Modified	4.73E-02	5.72E-02	5.73E-02	6.98E-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:	17-07086
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
17-07086-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	7.89E+00	2.84E-01			pCi/g
17-07086-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	6.78E+00	8.68E-01	9.94E-01	5.44E-02	pCi/g
17-07086-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	2.56E-02	3.91E-02	3.92E-02	5.83E-02	pCi/g
17-07086-03	DUP	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	8.67E-01	2.27E-01	2.35E-01	6.74E-02	pCi/g
17-07086-04	TRG	HTC-A02-S004-1218-01	05/15/17 08:25	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	5.82E+01	7.60E+00	8.66E+00	1.14E-01	pCi/g
17-07086-05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	1.05E+01	1.47E+00	1.65E+00	8.48E-02	pCi/g
17-07086-06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	1.25E+00	3.19E-01	3.31E-01	7.90E-02	pCi/g
17-07086-07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	2.36E+00	4.37E-01	4.68E-01	5.74E-02	pCi/g
17-07086-08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	1.02E+00	2.71E-01	2.81E-01	8.54E-02	pCi/g
17-07086-09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	2.66E+00	4.71E-01	5.08E-01	9.48E-02	pCi/g
17-07086-10	DMSO	HTC-A03-S001-0006-01	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	7.35E-01	1.96E-01	2.03E-01	6.07E-02	pCi/g
17-07086-11	MS	HTC-A03-S001-0006-01 MS	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	7.42E+00	9.67E-01	1.10E+00	5.82E-02	pCi/g
17-07086-12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	7/18/2017	8/25/2017	17-07086	Uranium-238	EPA 908.0 Modified	7.37E+00	9.39E-01	1.08E+00	4.84E-02	pCi/g
17-07086-13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	9.81E-01	3.84E-01	3.90E-01	1.88E-01	pCi/g
17-07086-14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	3.80E-01	1.57E-01	1.60E-01	7.36E-02	pCi/g
17-07086-15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	5.24E-01	1.97E-01	2.01E-01	1.14E-01	pCi/g
17-07086-16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	8.14E-01	2.37E-01	2.44E-01	6.31E-02	pCi/g
17-07086-17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	6.64E-01	2.12E-01	2.18E-01	9.04E-02	pCi/g
17-07086-18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	7.65E-01	2.21E-01	2.28E-01	5.93E-02	pCi/g
17-07086-19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	5.22E-01	1.81E-01	1.85E-01	6.08E-02	pCi/g
17-07086-20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	7/18/2017	8/19/2017	17-07086	Uranium-238	EPA 908.0 Modified	6.81E-01	2.03E-01	2.09E-01	7.08E-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 LA

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.

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 UT 10/14/91 UT

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

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: 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.

Ann 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 #: IPL867-54 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

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	1.976E+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	4.669E+01	6.065E+03	4.974E+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	2.246E+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

Eberline Analytical
Analysis Control Chart

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	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		78.55%	15.19%	100.00%	3.60%	8.05E+00	2.90E-01	6.33E+00	9.61E-01	U-8a	3.20E+01	3.60E+00	5.59E-01
U-238		82.50%	15.14%	100.00%	3.60%	7.80E+00	2.81E-01	6.44E+00	9.75E-01	U-8a	3.10E+01	3.60E+00	5.59E-01

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
U-234	1.64	19.00	5.82E+01	8.67E+00	7.04E+01	1.17E+01
U-238	2.34	27.20	5.82E+01	8.66E+00	7.65E+01	1.27E+01
U-235	2.17	31.03	6.55E+00	1.22E+00	8.96E+00	1.81E+00

QC Summary

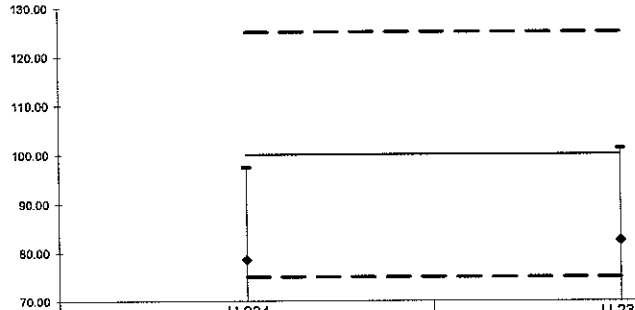
LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
0.79	OK				OK	OK
0.82	OK				INV	OK
	OK				NA	OK

0050

Version

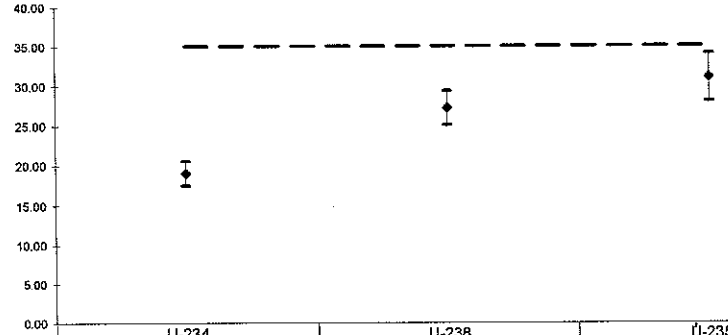
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	UUISO	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



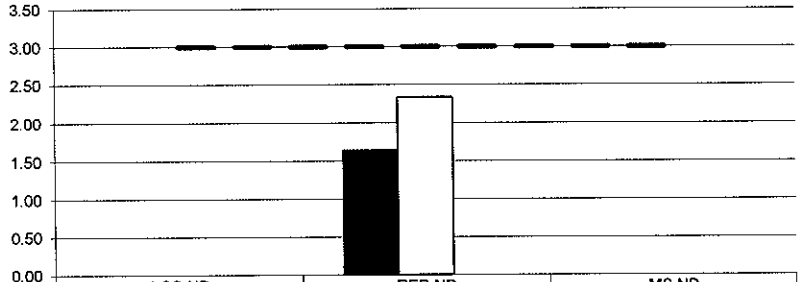
	U-234	U-238
Lower Error	59.76	63.76
Upper Error	97.34	101.24
%R	78.55	82.50
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	U-234	U-238	U-235
Lower Error	20.51	29.36	34.06
Upper Error	17.50	25.05	28.01
RPD	19.00	27.20	31.03
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	1.64	0.00
U-238	0.00	2.34	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	UUISO Apex	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)
U-234		86.94%	14.59%	100.00%	3.60%	8.15E+00	2.93E-01	7.08E+00	1.03E+00	U-8a	3.20E+01	3.60E+00	5.65E-01
U-238		85.85%	14.67%	100.00%	3.60%	7.89E+00	2.84E-01	6.78E+00	9.94E-01	U-8a	3.10E+01	3.60E+00	5.65E-01

Matrix Spike

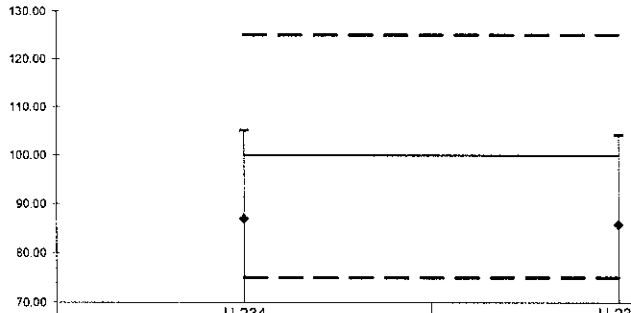
Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
U-234	4.08	72.82%	8.09E+00	2.91E-01	6.72E+00	1.01E+00	8.35E-01	2.20E-01	1.01E+00	U-8a	3.20E+01	3.60	5.65E-01
U-238	1.98	85.37%	7.84E+00	2.82E-01	7.42E+00	1.10E+00	7.35E-01	2.03E-01	1.01E+00	U-8a	3.10E+01	3.60	5.65E-01

Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	0.02	0.48	8.35E-01	2.20E-01	8.39E-01	2.32E-01	0.87	OK					OK
U-238	0.84	16.55	7.35E-01	2.03E-01	8.67E-01	2.35E-01	0.86	OK					OK
U-235	0.05	2.83	9.55E-02	7.56E-02	9.28E-02	7.75E-02		OK					OK

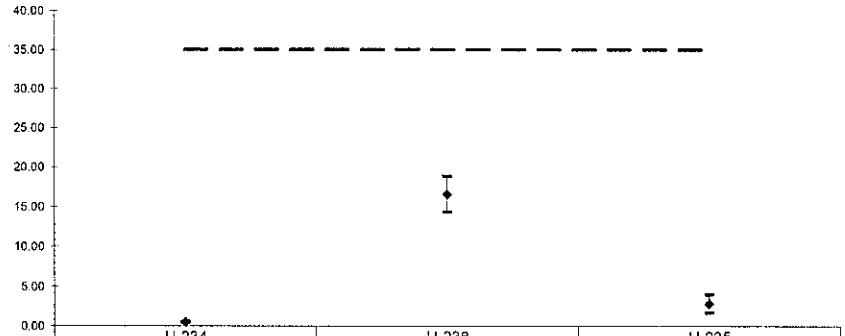
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	UUISO Apex	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



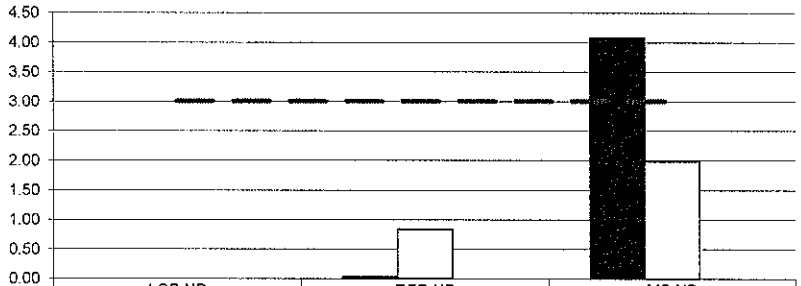
	U-234	U-238
Lower Error	68.75	67.58
Upper Error	105.13	104.12
%R	86.94	85.85
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



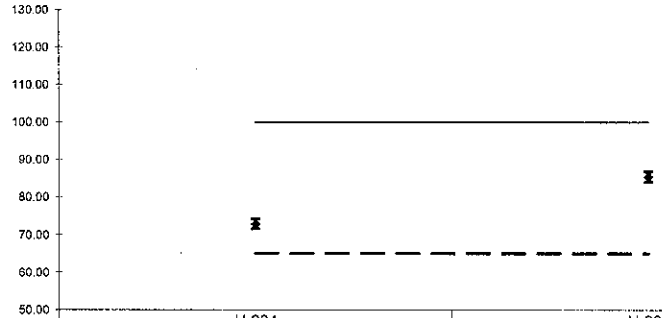
	U-234	U-238	U-235
Lower Error	0.55	18.81	3.99
Upper Error	0.42	14.28	1.68
RPD	0.48	16.55	2.83
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.02	4.08
U-238	0.00	0.84	1.98
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	71.51	83.99
Upper Error	74.13	86.76
%R	72.82	85.37
LCL	65	65
Mean	100	100
UCL	135	135

0053

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	UUISO Apex	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)
U-234		86.94%	14.59%	100.00%	3.60%	8.15E+00	2.93E-01	7.08E+00	1.03E+00	U-8a	3.20E+01	3.60E+00	5.65E-01
U-238		85.85%	14.67%	100.00%	3.60%	7.89E+00	2.84E-01	6.78E+00	9.94E-01	U-8a	3.10E+01	3.60E+00	5.65E-01

Matrix Spike Duplicate

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)
U-234	3.58	75.83%	7.98E+00	2.87E-01	6.88E+00	1.02E+00	8.35E-01	2.20E-01	1.01E+00	U-8a	3.20E+01	3.60	5.57E-01
U-238	1.93	85.86%	7.73E+00	2.78E-01	7.37E+00	1.08E+00	7.35E-01	2.03E-01	1.01E+00	U-8a	3.10E+01	3.60	5.57E-01

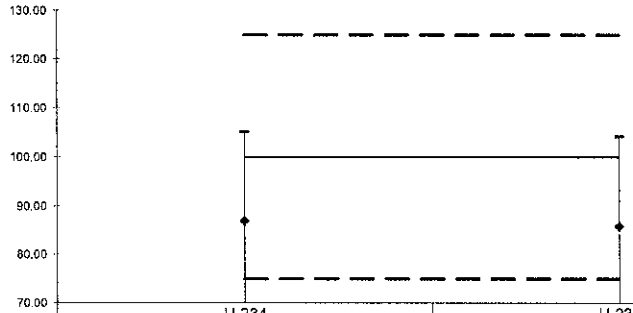
Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	0.02	0.48	8.35E-01	2.20E-01	8.39E-01	2.32E-01	0.87	OK					OK
U-238	0.84	16.55	7.35E-01	2.03E-01	8.67E-01	2.35E-01	0.86	OK					OK
U-235	0.05	2.83	9.55E-02	7.56E-02	9.28E-02	7.75E-02		OK					OK

0054

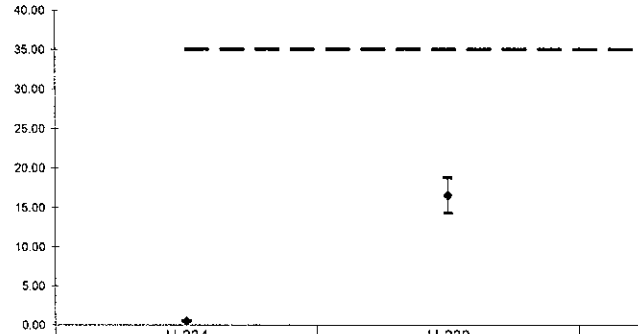
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	UUISO Apex	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



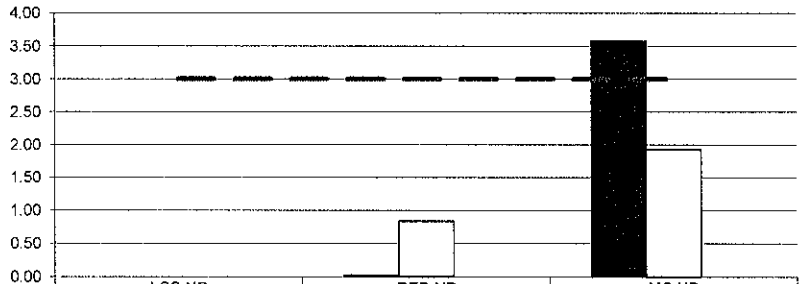
	U-234	U-238
Lower Error	88.75	67.58
Upper Error	105.13	104.12
%R	86.94	85.85
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



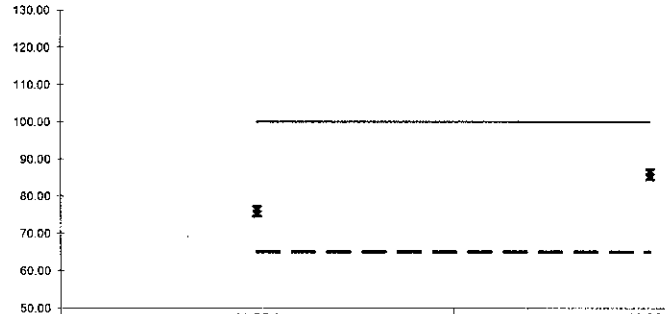
	U-234	U-238	U-235
Lower Error	0.55	18.81	3.99
Upper Error	0.42	14.28	1.68
RPD	0.48	16.55	2.83
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.02	3.58
U-238	0.00	0.84	1.93
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	74.53	84.51
Upper Error	77.13	87.22
%R	75.83	85.86
LCL	65	65
Mean	100	100
UCL	135	135

0055

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	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		122.01%	18.19%	100.00%	3.60%	5.15E+00	1.86E-01	6.29E+00	1.14E+00	Th-8b	1.04E+02	3.60E+00	1.11E-01
TH-230		120.96%	19.79%	100.00%	2.70%	5.40E+00	1.46E-01	6.54E+00	1.29E+00	Th-1b	2.35E+01	2.70E+00	5.10E-01
TH-232		121.97%	17.88%	100.00%	3.60%	5.15E+00	1.86E-01	6.29E+00	1.12E+00	Th-8b	1.04E+02	3.60E+00	1.11E-01

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
TH-228	3.55	52.23	8.50E+01	1.78E+01	1.45E+02	2.80E+01
TH-230	0.51	8.02	6.92E+01	1.56E+01	7.49E+01	1.58E+01
TH-232	3.08	44.49	7.38E+01	1.53E+01	1.16E+02	2.21E+01

QC Summary

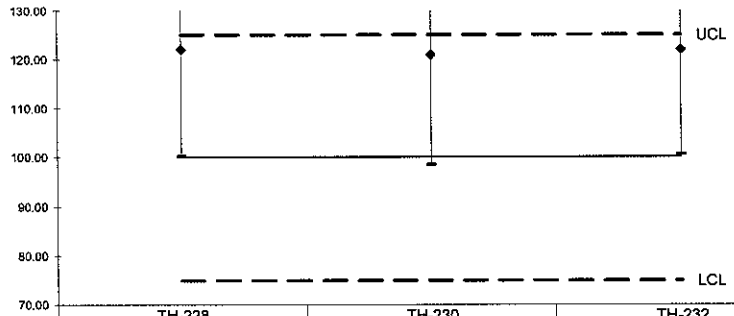
LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
1.22	OK				INV	INV
1.21	OK				OK	OK
1.22	OK				INV	INV

0056

Version

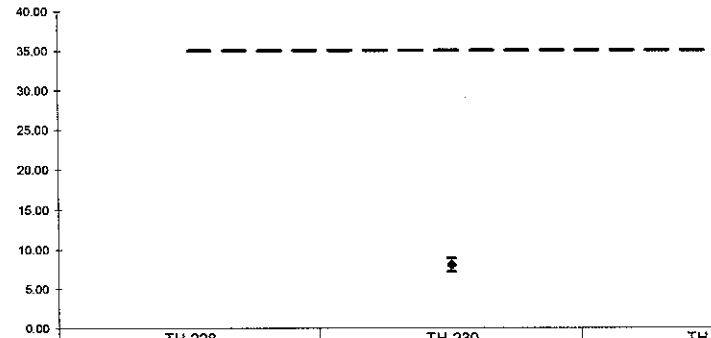
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	ThISO	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



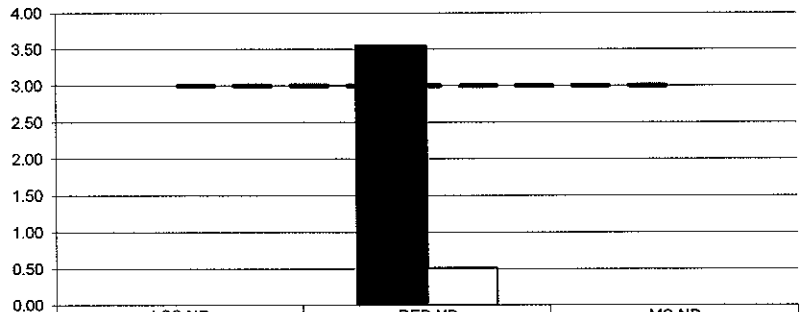
	TH-228	TH-230	TH-232
Lower Error	100.22	98.47	100.48
Upper Error	143.80	143.46	143.45
%R	122.01	120.96	121.97
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	57.42	8.89	48.87
Upper Error	47.03	7.14	40.11
RPD	52.23	8.02	44.49
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	3.55	0.00
TH-230	0.00	0.51	0.00
UCL	3	3	3

No Matrix Spike

0057

Version

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	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		91.96%	7.93%	100.00%	3.89%	1.35E+02	5.27E+00	1.24E+02	9.87E+00	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		96.86%	13.25%	100.00%	4.01%	8.44E+01	3.38E+00	8.17E+01	1.08E+01	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	0.02	0.10	1.29E+02	8.93E+00	1.29E+02	8.94E+00
RA-226	0.11	0.53	1.00E+02	6.92E+00	1.01E+02	7.02E+00
TL-208	0.43	2.31	1.12E+02	8.40E+00	1.15E+02	8.56E+00

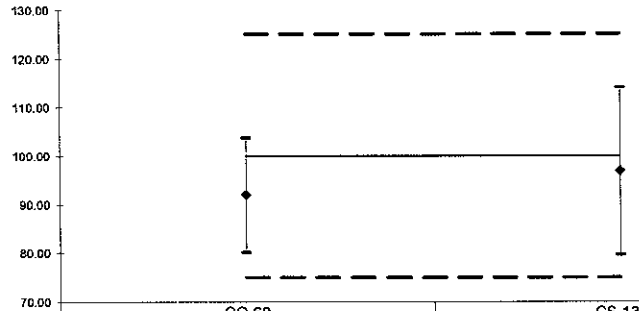
QC Summary

LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
0.92	OK		<CS-137	AC-228>	OK	
0.97	OK		<CO-60	RA-226>	OK	OK
				TL-208>	OK	OK

0058

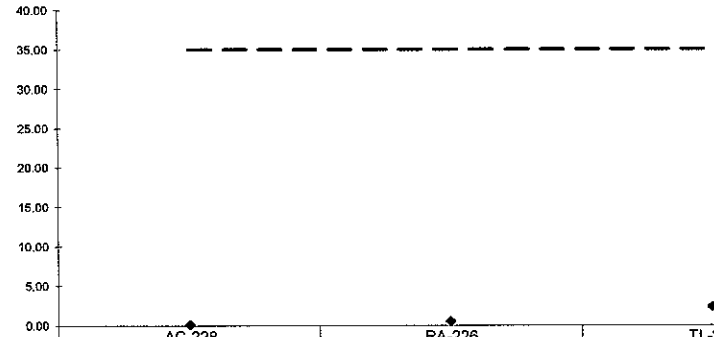
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07086	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



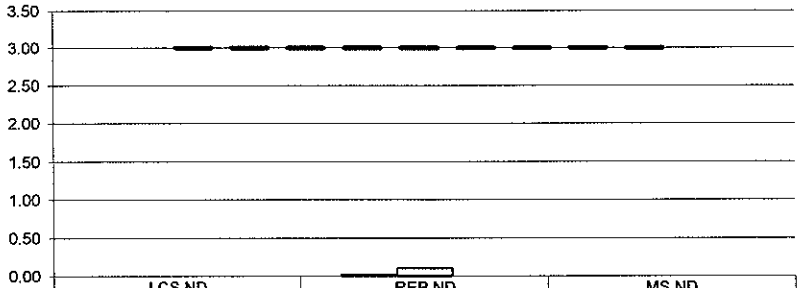
	CO-60	CS-137
Lower Error	80.13	79.60
Upper Error	103.79	114.11
%R	91.96	96.86
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	RA-226	TL-208
Lower Error	0.11	0.55	2.40
Upper Error	0.10	0.51	2.23
RPD	0.10	0.53	2.31
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.02	0.00
CS-137	0.00	0.11	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

SECTION VII

LABORATORY TECHNICIAN'S NOTES
&
RUN LOGS

ISO-U NOTES
RUN 1

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	17-07086
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 10:39	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested with HF. Samples were further digested with HNO3, HClO4, and H2SO4. Samples were submitted to separations.

8-9-17 JPachella

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07086
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 10:39	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested with HF. Samples were further digested with HNO3, HClO4, and H2SO4. Samples were submitted to separations.
2	08/17/17 16:36	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.

8/17/17

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	17-07086
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 10:39	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested with HF. Samples were further digested with HNO3, HClO4, and H2SO4. Samples were submitted to separations.
2	08/17/17 16:36	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	08/18/17 05:21	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

8-18-17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07086	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018920P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	8/9/2017
018563P	Nitric Acid	Reagent Grade	JPACHELLA	8/9/2017
018550P	Sulfuric Acid	Reagent Grade	JPACHELLA	8/9/2017
019133P	Perchloric Acid	Reagent Grade	JPACHELLA	8/9/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/17/2017
019175S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/17/2017
019188S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/17/2017
019067D01	Hydrochloric Acid	0.5N	JDEMELAS	8/17/2017
019168S	Hydrochloric Acid	6.5N	JDEMELAS	8/17/2017
019186S	Hydrochloric Acid	8N	JDEMELAS	8/17/2017
019185S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/17/2017
019134D01	Hydrochloric Acid	0.5N	JDEMELAS	8/17/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/17/2017
019163S	Carbon substrate	Solution	TSMITH	8/18/2017
019063P	Ethyl Alcohol	1	TSMITH	8/18/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/18/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/18/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/18/2017

Alpha #3

Date	Sample	Client	Time	CT Time	Analyst	Tech
8/19/17	Daily Pulses	Lab	0943	10mins	NA	KB
8/19/17	1707085A(14-20)	Weston	1000	2hr50min	UU	KB
8/19/17	1707086A(1-17)	Weston	1002	2hr50min	UU	KB
8/19/17	1707086A(18-20)	Weston	1302	2hr50min	UU	KB

ISO-U NOTES
RUN 2

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	17-07086
		Analysis Code	UUISO
		Run Number	2

#	Date	Dept	User	Notes
1	08/23/17 14:01	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested on low heat with HF. Samples were further digested in a mixed acid digestion on medium heat. Samples were submitted to separations.

8-23-17 JPachella

EBERLINE SERVICES **Work Order Analysis Notes**	**Oak Ridge Laboratory** **601 Scarboro Rd.** **Oak Ridge, TN 37830** **Voice: 865.481.0683** **www.eberlineservices.com**	Internal Work Order	17-07086
		Analysis Code	UUISO
		Run Number	2

#	Date	Dept	User	Notes
1	08/23/17 14:01	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested on low heat with HF. Samples were further digested in a mixed acid digestion on medium heat. Samples were submitted to separations.
2	08/24/17 18:11	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.

8/24/17

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	17-07086
		Analysis Code	UUISO
		Run Number	2

#	Date	Dept	User	Notes
1	08/23/17 14:01	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested on low heat with HF. Samples were further digested in a mixed acid digestion on medium heat. Samples were submitted to separations.
2	08/24/17 18:11	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	08/25/17 05:18	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

62517
JPL

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07086	
Analysis Code	Run
UUISO	2

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018920P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	8/23/2017
018563P	Nitric Acid	Reagent Grade	JPACHELLA	8/23/2017
019133P	Perchloric Acid	Reagent Grade	JPACHELLA	8/23/2017
018550P	Sulfuric Acid	Reagent Grade	JPACHELLA	8/23/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/24/2017
019215S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/24/2017
019134D01	Hydrochloric Acid	0.5N	JDEMELAS	8/24/2017
019168S	Hydrochloric Acid	6.5N	JDEMELAS	8/24/2017
019213S	Hydrochloric Acid	8N	JDEMELAS	8/24/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/24/2017
019201S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/24/2017
019187S	Carbon substrate	Solution	TSMITH	8/25/2017
019063P	Ethyl Alcohol	1	TSMITH	8/25/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/25/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/25/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/25/2017

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyzer	Tech
8/23/17	1708007A(2-4)	UWR	1131	2h50	UU	KB
8/23/17	1708006A(1-4)	UWR	1132	2h50	Th	KB
8/23/17	1708006A(1-4)	UWR	1132	2h50	Th229	KB
8/23/17	1708006A(1-4)	UWR	1133	2h50	Np	KB
8/23/17	1708006A(1-4)	UWR	1133	2h50	Pu242	KB
8/23/17	1707087A(1-5)	Weston	1134	2h50	Th	KB
8/23/17	1708101A(1-4)	USA	1431	2h50	Ra6	KB
8/23/17	1707087A(6-20)	Weston	1433	2h50	Th	KB
8/24	Daily Pulse	LAB	0520	1h	NA	C
8/24	1708008A(1-5)	Omega	0824	2h5	PuIso	C
8/24	1708008A(1-4)	Omega	0825	2h5	Pu242	C
8/24	1708008A(1-4)	Omega	0825	2h5	UUIso	C
8/24	1707145A(1-4)	Auxier	0826	2h5	UUIso	C
8/24/17	1707145A(18)	Auxier	1125	2h50	UU	KB
8/24/17	Regentest R105A(1)	Lab	1126	1h	UUNT	KB
8/24/17	1708086A(1-4)	Indust+Env.	1126	2h50	Ra6	KB
8/24/17	1708107A(1-4)	USA	1129	2h50	Ra6	KB
8/24/17	1707145A(1-14)	Auxier	1128	2h50	Th	KB
8/24/17	1708010A(1-4)	Access	1426	2h50	Ra6	KB
8/24/17	1707145A(15-18)	Auxier	1426	2h50	Th	KB
8/25	Daily Pulse	LAB	0457	1h	NA	C
8/25	SELCAL(33-48)	LAB	0513	2h5	NA	C
8/25	SELCAL (49-60)	LAB		2h5	NA	C
8/25	1708017A(1-4)	Rep. Serv.	0623	2h5	Ra6	C
8/25	1708101A(1-4)	USA	0814	2h5	UUIso	C
8/25	1707154A(1-4)	Div. Sci.	0815	2h5	UUIso	C
8/25	1707086B(1-3,10-12)	Weston	0816	2h5	UUIso	C
8/25	1708035A(1-4)	TWPC	0817	2h5	PuIso	C
8/25	1708017A(1,2)	Rep. Serv.	0818	2h5	UUIso	C

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	17-07086
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 10:39	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested with HF. Samples were further digested with HNO3, HClO4, and H2SO4. Samples were submitted to separations.

8-9-17 J Pachella

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07086
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 10:39	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested with HF. Samples were further digested with HNO3, HClO4, and H2SO4. Samples were submitted to separations.
2	08/18/17 17:39	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.

8/18/17

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	17-07086
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 10:39	PREP	JPACHELLA	Samples were aliquoted and spiked. Samples were digested with HF. Samples were further digested with HNO3, HClO4, and H2SO4. Samples were submitted to separations.
2	08/18/17 17:39	CHEM	JDEMELAS	Added concentrated HNO3 to sample beakers and heated to dryness; Added 20 ml 8N HNO3 to samples and transferred to new, labeled C-Tubes, adding 8N HNO3 to bring volume to ~35 ml; Preconditioned resin columns with 50 ml 8N HNO3; Centrifuged samples as needed, and passed through columns; Rinsed C-Tubes with 20 ml 8N HNO3; Centrifuged rinsates and loaded onto columns; Rinsed columns with 40 ml 8N HNO3; Eluted Thorium with 50 ml of 8N HCl into clean, labeled 100-ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with deiononized water, bringing volume to ~15ml. Set samples aside for later precipitation and filtering.
3	08/21/17 05:22	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

8-21-17
JMR

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07086	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018920P	Hydrofluoric Acid	Reagent Grade	JPACHELLA	8/9/2017
018563P	Nitric Acid	Reagent Grade	JPACHELLA	8/9/2017
018550P	Sulfuric Acid	Reagent Grade	JPACHELLA	8/9/2017
019133P	Perchloric Acid	Reagent Grade	JPACHELLA	8/9/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/18/2017
019183P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/18/2017
019074P	Nitric Acid	Reagent Grade	JDEMELAS	8/18/2017
019191S	Nitric Acid	8N	JDEMELAS	8/18/2017
019192S	Hydrochloric Acid	8N	JDEMELAS	8/18/2017
019106S	Cerrium Carrier	0.1mg/ml	TSMITH	8/21/2017
019063P	Ethyl Alcohol	1	TSMITH	8/21/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/21/2017
019187S	Carbon substrate	Solution	TSMITH	8/21/2017

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyzed	Tech
8/19/17	Daily Pulsers	Lab	0943	10 mins	NA	KB
8/19/17	1707085A(14-20)	Weston	1000	2h-50	UU	KB
8/19/17	1707086A(1-17)	Weston	1002	2h-50	UU	KB
8/19/17	1707086A(18-20)	Weston	1302	2h-50	UU	KB
8/21	Daily Pulser	LAB	0521	"	NA	—
8/21	1708040A(3-6)	ESLLC	0830	2h5	Pu 750	C
8/21	1708077A(1-5)	Smoky Mount	0830	2h5	Pu 750	C
8/21	1708077A(1-4)	Smoky Mount	0832	2h5	Pu 242	C
8/21	1708077A(1-4)	Smoky Mount	0832	2h5	UU 750	C
8/21	1708070A(1-4)	UCON	0834	2h5	UU 750	C
8/21	1707161A(1-3)	USA	0835	2h5	UU 750	C
8/21/17	1708081A(2-4)	USA	1131	2h-50	Rab	KB
8/21/17	1707086A(1-20)	Weston	1133	2h-50	Th	KB
8/21/17	1707093A(1)	Weston	1134	2h-50	UU	KB

GAMMA NOTES

GE1

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8118	1707167-03	MRA	0633	15	Be	[illegible]
8118	1707127-05	Weston	0650	1h	✓	—
8118	1707127-07	Weston	0751	1h	✓	—
8118	1707127-10	Weston	0854	1h	✓	—
8118	1707084-03	Weston	1230	1h	✓	[illegible]
8118	1707084-04	Weston	1334	1h	✓	
8/18/17	1708088-03	Cabeza	1211	5 mins	Rn 222	KB
8/18/17	1708088-04	Cabeza	1217	5 mins	Rn 222	KB
8/18/17	1708088-07	Caberra	1224	5 min	Rn 222	KB
8/18/17	1707084-10	Weston	1438	1hr	✓	KB
8/18/17	1707084-13	Weston	1639	1hr	✓	KB
8/18/17	1707084-16	Weston	1640	1hr	✓	KB
8/18/17	1707084-19	Weston	1742	1hr	✓	KB
8/19/17	Daily Bkgd	Lab	0602	15 mins	✓	KB
8/19/17	GAF 16	Lab	0618	15 min	✓	KB
8/19/17	1707084-20	Weston	0637	1hr	✓	KB
8/19/17	1707126-03	Weston	0737	1hr	✓	KB
8/19/17	1707126-04	Weston	0839	1hr	✓	KB
8/19/17	1707126-05	Weston	0938	1hr	✓	KB
8/19/17	1707126-06	Weston	1039	1hr	✓	KB
8/19/17	1707126-08	Weston	1139	1hr	✓	KB
8/19/17	System Bkgd	Lab	1244	24 hrs	✓	KB
8121	GAF16	Lab	0516	15	✓	[illegible]
8121	Daily Bkgd	Lab	0546	15	✓	
8121	1707126-11	Weston	0605	1h	✓	—
8121	1707126-12	Weston	0707	1h	✓	—
8121	1707126-17	Weston	0810	1h	✓	—
8121	1707085-05	Weston	0911	1h	✓	—
8121	1707126-~~03~~ 17	Weston	1012	1h	✓	—
8121	1707085-13	Weston	1215	1h	✓	[illegible]
8/21/17	1707085-15	Weston	1216	1hr	✓	KB
8/21/17	1707085-17	Weston	1323	1hr	✓	KB
8/21/17	1707086-05	Weston	1423	1hr	✓	KB

GE 1

DATE	Sample #	Client	Load Time	CT. Time	Analysis	Tech
8/21/17	1707086-07	Weston	1524	1 hr	✓	KB
8/21/17	1707086-10	Weston	1625	1 hr	✓	KB
8/21/17	1707086-14	Weston	1726	1 hr	✓	KB
8/21/17	1708086-03	Indust. + Env.	1827	4 hrs	✓	KB
8/22	GAF16	LAB	0510	15	✓	[illegible]
8/22	[illegible]	LAB	0515	15	✓	[illegible]
8/22	1707086-16	Weston	0510	2	✓	—
8/22	1707086-20	Weston	0614	2	✓	—

GE 2

DATE	SAMPLE #	Client	Load Time	CT. Time	Analysis	Tech
~~8/17~~	~~GAS 1 8/17~~	~~LAB~~				
~~8/17~~	~~8/17~~	~~LAB~~				
8/19/17	System Bksd	Lab	1244	24 hrs	r	KB
8/21	GAS 1601	LAB	0516	15	r	C
8/21	DailyR	LAB	0544	15	r	C
~~8/21~~	~~1707126-12~~	~~Weston~~	~~0605~~	~~15~~	~~r~~	~~—~~
8/21	GAS 1601	LAB	0836	15	r	C
8/21	DailyR	LAB	0853	15	r	C
8/21	1707085-06	Weston	0910	1h	r	—
8/21	1708081-01	USA	1011	15	Bu	—
8/21	1708081-04	USA	1026	15	Bu	—
8/21	1708082-03	USA	1042	15	Bu	C
8/21	1708082-06	USA	1058	15	Bu	—
8/21	~~1709~~ 1707085-12	Weston	1114	1h	r	—
8/21/17	1707085-14	Weston	1217	1h	r	KB
8/21/17	1707085-18	Weston	1315	1h	r	KB
8/21/17	1707086-03	Weston	1420	1h	r	KB
8/21/17	1707086-04	Weston	1521	1h	r	KB
8/21/17	1708091-03	Smoky Mt. Solvts.	1623	2hr	r	KB
8/21/17	1708091-04	Smoky Mt. Solvts	1823	2hr	r	KB
8/22	GAS 1601	LAB	0510	15	r	C
8/22	DailyR	LAB	0533	15	r	C
8/22	1707086-17	Weston	0550	1h	r	—
8/22	1707161-03	USA	0655	1h	r	C
8/22	1707161-04	USA		1h	r	C

GE3

DATE	Sample #	Client	Load Time	CT. Time	Analysis	Tech
8/19/A	System Blkgd	Lab	1245	24 hrs	✓	KB
8/21	~~GPS~~/1602	LAB	0516	15	✓	[illegible]
8/21	Daily R	LAB	0546	15	✓	
8/21	1707126-13	Weston	0605	[illegible]	✓	—
8/21	1707126-15	Weston	0707	[illegible]	✓	—
8/21	1707126-18	Weston	0810	[illegible]	✓	—
8/21	1707085-07	Weston	0911	[illegible]	✓	—
8/21	1708081-02	USA	1013	15	[illegible]	—
8/21	1708082-01	USA	1028	15	[illegible]	—
8/21	1708082-04	USA	1044	15	[illegible]	—
8/21	1707085-08	Weston	1101	[illegible]	✓	—
8/21/A	1707085-14	Weston	1203	1 hr	✓	KB
8/21/A	1707085-19	Weston	1223	1 hr	✓	KB
8/21/A	1707086-06	Weston	1424	1 hr	✓	KB
8/21/A	1707086-08	Weston	1524	1 hr	✓	KB
8/21/A	1707086-13	Weston	1625	1 hr	✓	KB
8/21/A	1707086-15	Weston	1726	1 hr	✓	KB
8/21/A	1708086-02	Indust. + Env.	1827	4 hrs	✓	KB
8/22	~~GPS~~/1602	LAB	0510	15	✓	[illegible]
8/22	Daily R	LAB	0533	15	✓	
8/22	1707086-18	Weston	0550	[illegible]	✓	—
8/22	1707161-05	USA	0655	[illegible]	✓	—

GE 4

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/21	Edw16	LAB	0516	15	✓	[illegible]
8/21	Daily R	LAB	0546	15	✓	
8/21	1707126-14	Weston	0605	1h	✓	—
8/21	1707126-16	Weston	0707	1h	✓	—
8/21	1707085-03	Weston	0810	1h	✓	—
8/21	1707085-04	Weston	0911	1h	✓	—
8/21	1708081-03	USA	1013	15	Ba	—
8/21	1708082-02	USA	1028	15	Ba	—
8/21	1708082-05	USA	1044	15	Ba	—
8/21	1707085-11	Weston	1107	1h	✓	[illegible]
8/21/17	1707085-01	Weston	1203	30mins	✓	KB
8/21/17	1707085-02	Weston	1234	1hr	✓	KB
8/21/17	1707085-20	Weston	1346	1hr	✓	KB
8/21/17	1707086-01	Weston	1448	30mins	✓	KB
8/21/17	1707086-02	Weston	1520	1hr	✓	KB
8/21/17	1707086-09	Weston	1621	1hr	✓	KB
~~8/21/17~~	~~1707086-~~	~~Weston~~	~~KB 8/21/17~~	~~1hr~~	~~✓~~	~~KB~~
8/21/17	1708091-01	Smoky Mt. Solutns.	1722	30min	✓	KB
8/21/17	1708086-01	Indust. + Env.	1754	30mins	✓	KB
8/21/17	1708091-02	Smoky Mt. Solutns	1826	4hrs	✓	KB
8/22	Edw16	LAB	0510	15	✓	[illegible]
8/22	Daily R	LAB	0537	15	✓	[illegible]
8/22	Edw16	LAB	0550	15	✓	[illegible]
8/22	1707086-19	Weston	0611	1h	✓	[illegible]

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

RUN 1

17-07086
UUISO
Run 1

Work Order	17-07086
Analysis Code	UUISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/10/2017
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		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A02-S004-1218-01	272	05/15/17 08:25	1.0046E+00
04	DO	HTC-A02-S004-1218-01	272	05/15/17 08:25	1.0399E+00
05	TRG	HTC-A02-S004-1824-01	99	05/15/17 08:23	1.0399E+00
06	TRG	HTC-A02-S004-2430-01	45	05/15/17 08:21	1.0175E+00
07	TRG	HTC-A02-S004-3036-01	87	05/15/17 08:19	1.0207E+00
08	TRG	HTC-A02-S004-3642-01	38	05/15/17 08:17	1.0189E+00
09	TRG	HTC-A02-S004-4248-01	53	05/15/17 08:15	1.0463E+00
10	TRG	HTC-A03-S001-0006-01	32	05/15/17 08:26	1.0182E+00
11	TRG	HTC-A03-S001-0006-01 MS	30	05/15/17 08:26	1.0174E+00
12	TRG	HTC-A03-S001-0006-01 MSD	30	05/15/17 08:26	1.0174E+00
13	TRG	HTC-A03-S001-0006-02	39	05/15/17 08:26	1.0736E+00
14	TRG	HTC-A03-S001-0612-01	35	05/15/17 08:23	1.0413E+00
15	TRG	HTC-A03-S001-1218-01	38	05/15/17 08:20	1.0509E+00
16	TRG	HTC-A03-S001-1824-01	40	05/15/17 08:17	1.0355E+00
17	TRG	HTC-A03-S001-2430-01	44	05/15/17 08:14	1.0491E+00
18	TRG	HTC-A03-S001-3036-01	39	05/15/17 08:11	1.0023E+00
19	TRG	HTC-A03-S001-3642-01	45	05/15/17 08:08	1.0289E+00
20	TRG	HTC-A03-S001-4248-01	40	05/15/17 08:05	1.0248E+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.

17-07086
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	0.6692	12.3		0.00								
02	MBL	0.6726	12.3		0.00								
03	DUP	0.6698	12.3		0.00								
04	DO	0.6765	12.4		0.00								
05	TRG	0.6743	12.4		0.00								
06	TRG	0.6688	12.3		0.00								
07	TRG	0.6737	12.3		0.00								
08	TRG	0.6690	12.3		0.00								
09	TRG	0.6703	12.3		0.00								
10	TRG	0.6854	12.6		0.00								
11	TRG	0.6744	12.4		0.00								
12	TRG	0.6739	12.3		0.00								
13	TRG	0.6749	12.4		0.00								
14	TRG	0.6748	12.4		0.00								
15	TRG	0.6739	12.3		0.00								
16	TRG	0.6740	12.3		0.00								
17	TRG	0.6745	12.4		0.00								
18	TRG	0.6746	12.4		0.00								
19	TRG	0.6741	12.3		0.00								
20	TRG	0.6735	12.3		0.00								

0088

* 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.

17-07086
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			08/09/17 09:42	JPACHELLA				
02	MBL			08/09/17 09:42	JPACHELLA				
03	DUP			08/09/17 09:42	JPACHELLA				
04	DO	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
05	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
06	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
07	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
08	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
09	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
10	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
11	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
12	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
13	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
14	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
15	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
16	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
17	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
18	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
19	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				
20	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:42	JPACHELLA				

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

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
0600

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	6.33E+00	8.48E-01	5.82E-02	8.05E+00	78.55	OK		OK	
02	U-234	MBL	BLANK	pCi/g	2.30E-01	1.16E-01	8.54E-02					OK	OK
03	U-234	DUP	HTC-A02-S004-1218-01	pCi/g	7.04E+01	1.06E+01	1.63E-01				OK	OK	
04	U-234	DO	HTC-A02-S004-1218-01	pCi/g	5.82E+01	7.60E+00	1.31E-01					OK	
05	U-234	TRG	HTC-A02-S004-1824-01	pCi/g	9.76E+00	1.39E+00	1.07E-01					OK	
06	U-234	TRG	HTC-A02-S004-2430-01	pCi/g	1.47E+00	3.53E-01	6.93E-02					OK	
07	U-234	TRG	HTC-A02-S004-3036-01	pCi/g	2.70E+00	4.79E-01	7.79E-02					OK	
08	U-234	TRG	HTC-A02-S004-3642-01	pCi/g	1.26E+00	3.07E-01	7.27E-02					OK	
09	U-234	TRG	HTC-A02-S004-4248-01	pCi/g	2.34E+00	4.32E-01	9.18E-02					OK	
10	U-234	TRG	HTC-A03-S001-0006-01	pCi/g	8.92E-01	2.54E-01	9.34E-02					OK	
11	U-234	TRG	HTC-A03-S001-0006-01 MS	pCi/g	9.68E-01	2.46E-01	6.37E-02					OK	
12	U-234	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	8.55E-01	2.46E-01	8.08E-02					OK	
13	U-234	TRG	HTC-A03-S001-0006-02	pCi/g	9.48E-01	3.78E-01	1.99E-01					OK	
14	U-234	TRG	HTC-A03-S001-0612-01	pCi/g	8.02E-01	2.37E-01	6.45E-02					OK	
15	U-234	TRG	HTC-A03-S001-1218-01	pCi/g	7.21E-01	2.33E-01	9.38E-02					OK	
16	U-234	TRG	HTC-A03-S001-1824-01	pCi/g	5.44E-01	1.89E-01	6.34E-02					OK	
17	U-234	TRG	HTC-A03-S001-2430-01	pCi/g	6.10E-01	2.05E-01	1.11E-01					OK	
18	U-234	TRG	HTC-A03-S001-3036-01	pCi/g	6.54E-01	2.03E-01	5.96E-02					OK	
19	U-234	TRG	HTC-A03-S001-3642-01	pCi/g	5.51E-01	1.87E-01	7.00E-02					OK	
20	U-234	TRG	HTC-A03-S001-4248-01	pCi/g	7.79E-01	2.19E-01	7.11E-02					OK	

Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
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	U-234	LCS	07/19/17 00:00	1.00E+00	120.25	0.00	0.00			
02	U-234	MBL	07/19/17 00:00	1.00E+00	104.53	0.00	0.00			
03	U-234	DUP	05/15/17 08:25	1.00E+00	54.39	0.00	0.00			
04	U-234	DO	05/15/17 08:25	1.04E+00	79.39	0.00	0.00			
05	U-234	TRG	05/15/17 08:23	1.04E+00	91.85	0.00	0.00			
06	U-234	TRG	05/15/17 08:21	1.02E+00	96.89	0.00	0.00			
07	U-234	TRG	05/15/17 08:19	1.02E+00	115.36	0.00	0.00			
08	U-234	TRG	05/15/17 08:17	1.02E+00	115.14	0.00	0.00			
09	U-234	TRG	05/15/17 08:15	1.05E+00	132.25	0.00	0.00			
10	U-234	TRG	05/15/17 08:26	1.02E+00	96.19	0.00	0.00			
11	U-234	TRG	05/15/17 08:26	1.02E+00	129.35	0.00	0.00			
12	U-234	TRG	05/15/17 08:26	1.02E+00	124.26	0.00	0.00			
13	U-234	TRG	05/15/17 08:26	1.07E+00	49.04	0.00	0.00			
14	U-234	TRG	05/15/17 08:23	1.04E+00	100.15	0.00	0.00			
15	U-234	TRG	05/15/17 08:20	1.05E+00	91.23	0.00	0.00			
16	U-234	TRG	05/15/17 08:17	1.04E+00	95.00	0.00	0.00			
17	U-234	TRG	05/15/17 08:14	1.05E+00	113.15	0.00	0.00			
18	U-234	TRG	05/15/17 08:11	1.00E+00	110.41	0.00	0.00			
19	U-234	TRG	05/15/17 08:08	1.03E+00	102.01	0.00	0.00			
20	U-234	TRG	05/15/17 08:05	1.02E+00	121.04	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	08/19/17 10:00		A_Spec	Alpha_040	170	5.20 E+02	2.00 E-03	18.1
02	U-234	MBL	08/19/17 10:00		A_Spec	Alpha_043	170	1.70 E+01	6.00 E-03	18.7
03	U-234	DUP	08/19/17 10:00		A_Spec	Alpha_044	170	2.60 E+03	0.00 E+00	17.9
04	U-234	DO	08/19/17 10:00		A_Spec	Alpha_045	170	3.06 E+03	8.00 E-03	16.9
05	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_046	170	6.02 E+02	7.00 E-03	17.1
06	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_047	170	8.88 E+01	1.00 E-03	16.2
07	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_048	170	1.95 E+02	4.00 E-03	16.3
08	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_049	170	8.27 E+01	2.00 E-03	14.9
09	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_050	170	1.75 E+02	8.00 E-03	14.3
10	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_052	170	5.72 E+01	5.00 E-03	17.4
11	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_053	170	7.27 E+01	2.00 E-03	15.1
12	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_054	170	5.55 E+01	3.00 E-03	13.6
13	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_056	170	3.00 E+01	6.00 E-03	15.9
14	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_057	170	5.18 E+01	1.00 E-03	16.5
15	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_058	170	4.33 E+01	4.00 E-03	16.6
16	U-234	TRG	08/19/17 10:01		A_Spec	Alpha_059	170	3.58 E+01	1.00 E-03	17.8
17	U-234	TRG	08/19/17 10:02		A_Spec	Alpha_060	170	4.03 E+01	1.00 E-02	14.8
18	U-234	TRG	08/19/17 13:01		A_Spec	Alpha_033	170	4.58 E+01	1.00 E-03	16.8
19	U-234	TRG	08/19/17 13:01		A_Spec	Alpha_034	170	3.77 E+01	2.00 E-03	17.3
20	U-234	TRG	08/19/17 13:01		A_Spec	Alpha_035	170	5.75 E+01	3.00 E-03	15.8

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-238	LCS	LCS	pCi/g	6.44E+00	8.59E-01	7.27E-02	7.80E+00	82.50	OK		OK	
02	U-238	MBL	BLANK	pCi/g	1.98E-01	1.05E-01	6.45E-02					OK	OK
03	U-238	DUP	HTC-A02-S004-1218-01	pCi/g	7.65E+01	1.15E+01	1.13E-01				INV	OK	
04	U-238	DO	HTC-A02-S004-1218-01	pCi/g	5.82E+01	7.60E+00	1.14E-01					OK	
05	U-238	TRG	HTC-A02-S004-1824-01	pCi/g	1.05E+01	1.47E+00	8.48E-02					OK	
06	U-238	TRG	HTC-A02-S004-2430-01	pCi/g	1.25E+00	3.19E-01	7.90E-02					OK	
07	U-238	TRG	HTC-A02-S004-3036-01	pCi/g	2.36E+00	4.37E-01	5.74E-02					OK	
08	U-238	TRG	HTC-A02-S004-3642-01	pCi/g	1.02E+00	2.71E-01	8.54E-02					OK	
09	U-238	TRG	HTC-A02-S004-4248-01	pCi/g	2.66E+00	4.71E-01	9.48E-02					OK	
10	U-238	TRG	HTC-A03-S001-0006-01	pCi/g	9.42E-01	2.61E-01	7.43E-02					OK	
11	U-238	TRG	HTC-A03-S001-0006-01 MS	pCi/g	9.95E-01	2.50E-01	7.95E-02					OK	
12	U-238	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	7.74E-01	2.32E-01	8.05E-02					OK	
13	U-238	TRG	HTC-A03-S001-0006-02	pCi/g	9.81E-01	3.84E-01	1.88E-01					OK	
14	U-238	TRG	HTC-A03-S001-0612-01	pCi/g	3.80E-01	1.57E-01	7.36E-02					OK	
15	U-238	TRG	HTC-A03-S001-1218-01	pCi/g	5.24E-01	1.97E-01	1.14E-01					OK	
16	U-238	TRG	HTC-A03-S001-1824-01	pCi/g	8.14E-01	2.37E-01	6.31E-02					OK	
17	U-238	TRG	HTC-A03-S001-2430-01	pCi/g	6.64E-01	2.12E-01	9.04E-02					OK	
18	U-238	TRG	HTC-A03-S001-3036-01	pCi/g	7.65E-01	2.21E-01	5.93E-02					OK	
19	U-238	TRG	HTC-A03-S001-3642-01	pCi/g	5.22E-01	1.81E-01	6.08E-02					OK	
20	U-238	TRG	HTC-A03-S001-4248-01	pCi/g	6.81E-01	2.03E-01	7.08E-02					OK	

Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
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	U-238	LCS	07/19/17 00:00	1.00E+00	120.25	0.00	0.00			
02	U-238	MBL	07/19/17 00:00	1.00E+00	104.53	0.00	0.00			
03	U-238	DUP	05/15/17 08:25	1.00E+00	54.39	0.00	0.00			
04	U-238	DO	05/15/17 08:25	1.04E+00	79.39	0.00	0.00			
05	U-238	TRG	05/15/17 08:23	1.04E+00	91.85	0.00	0.00			
06	U-238	TRG	05/15/17 08:21	1.02E+00	96.89	0.00	0.00			
07	U-238	TRG	05/15/17 08:19	1.02E+00	115.36	0.00	0.00			
08	U-238	TRG	05/15/17 08:17	1.02E+00	115.14	0.00	0.00			
09	U-238	TRG	05/15/17 08:15	1.05E+00	132.25	0.00	0.00			
10	U-238	TRG	05/15/17 08:26	1.02E+00	96.19	0.00	0.00			
11	U-238	TRG	05/15/17 08:26	1.02E+00	129.35	0.00	0.00			
12	U-238	TRG	05/15/17 08:26	1.02E+00	124.26	0.00	0.00			
13	U-238	TRG	05/15/17 08:26	1.07E+00	49.04	0.00	0.00			
14	U-238	TRG	05/15/17 08:23	1.04E+00	100.15	0.00	0.00			
15	U-238	TRG	05/15/17 08:20	1.05E+00	91.23	0.00	0.00			
16	U-238	TRG	05/15/17 08:17	1.04E+00	95.00	0.00	0.00			
17	U-238	TRG	05/15/17 08:14	1.05E+00	113.15	0.00	0.00			
18	U-238	TRG	05/15/17 08:11	1.00E+00	110.41	0.00	0.00			
19	U-238	TRG	05/15/17 08:08	1.03E+00	102.01	0.00	0.00			
20	U-238	TRG	05/15/17 08:05	1.02E+00	121.04	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	08/19/17 10:00		A_Spec	Alpha_040	170	5.31 E+02	0.00 E+00	18.1
02	U-238	MBL	08/19/17 10:00		A_Spec	Alpha_043	170	1.47 E+01	2.00 E-03	18.7
03	U-238	DUP	08/19/17 10:00		A_Spec	Alpha_044	170	2.84 E+03	1.00 E-03	17.9
04	U-238	DO	08/19/17 10:00		A_Spec	Alpha_045	170	3.07 E+03	5.00 E-03	16.9
05	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_046	170	6.47 E+02	3.00 E-03	17.1
06	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_047	170	7.57 E+01	2.00 E-03	16.2
07	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_048	170	1.72 E+02	1.00 E-03	16.3
08	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_049	170	6.73 E+01	4.00 E-03	14.9
09	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_050	170	1.99 E+02	9.00 E-03	14.3
10	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_052	170	6.07 E+01	2.00 E-03	17.4
11	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_053	170	7.50 E+01	0.00 E+00	15.1
12	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_054	170	5.05 E+01	3.00 E-03	13.6
13	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_056	170	3.11 E+01	5.00 E-03	15.9
14	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_057	170	2.47 E+01	2.00 E-03	16.5
15	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_058	170	3.16 E+01	8.00 E-03	16.6
16	U-238	TRG	08/19/17 10:01		A_Spec	Alpha_059	170	5.38 E+01	1.00 E-03	17.8
17	U-238	TRG	08/19/17 10:02		A_Spec	Alpha_060	170	4.40 E+01	0.00 E+00	14.8
18	U-238	TRG	08/19/17 13:01		A_Spec	Alpha_033	170	5.38 E+01	1.00 E-03	16.8
19	U-238	TRG	08/19/17 13:01		A_Spec	Alpha_034	170	3.58 E+01	1.00 E-03	17.3
20	U-238	TRG	08/19/17 13:01		A_Spec	Alpha_035	170	5.05 E+01	3.00 E-03	15.8

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
9600

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	4.30E-01	1.65E-01	7.18E-02					OK	
02	U-235	MBL	BLANK	pCi/g	3.88E-02	5.80E-02	9.43E-02					OK	OK
03	U-235	DUP	HTC-A02-S004-1218-01	pCi/g	8.96E+00	1.69E+00	2.00E-01				NA	OK	
04	U-235	DO	HTC-A02-S004-1218-01	pCi/g	6.55E+00	1.13E+00	9.81E-02					OK	
05	U-235	TRG	HTC-A02-S004-1824-01	pCi/g	1.03E+00	3.08E-01	9.57E-02					OK	
06	U-235	TRG	HTC-A02-S004-2430-01	pCi/g	1.98E-01	1.29E-01	9.79E-02					OK	
07	U-235	TRG	HTC-A02-S004-3036-01	pCi/g	2.30E-01	1.28E-01	8.94E-02					OK	
08	U-235	TRG	HTC-A02-S004-3642-01	pCi/g	1.34E-01	1.06E-01	1.12E-01					OK	
09	U-235	TRG	HTC-A02-S004-4248-01	pCi/g	4.21E-01	1.72E-01	8.67E-02					OK	
10	U-235	TRG	HTC-A03-S001-0006-01	pCi/g	1.63E-01	1.15E-01	1.01E-01					OK	
11	U-235	TRG	HTC-A03-S001-0006-01 MS	pCi/g	1.29E-01	9.23E-02	6.86E-02					OK	
12	U-235	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	1.61E-01	1.14E-01	9.97E-02					OK	
13	U-235	TRG	HTC-A03-S001-0006-02	pCi/g	8.39E-02	1.36E-01	2.34E-01					OK	
14	U-235	TRG	HTC-A03-S001-0612-01	pCi/g	7.63E-02	8.41E-02	1.14E-01					OK	
15	U-235	TRG	HTC-A03-S001-1218-01	pCi/g	8.21E-02	9.05E-02	1.23E-01					OK	
16	U-235	TRG	HTC-A03-S001-1824-01	pCi/g	1.66E-01	1.12E-01	7.82E-02					OK	
17	U-235	TRG	HTC-A03-S001-2430-01	pCi/g	4.33E-02	6.48E-02	1.05E-01					OK	
18	U-235	TRG	HTC-A03-S001-3036-01	pCi/g	2.92E-02	4.96E-02	8.42E-02					OK	
19	U-235	TRG	HTC-A03-S001-3642-01	pCi/g	1.08E-01	9.55E-02	1.14E-01					OK	
20	U-235	TRG	HTC-A03-S001-4248-01	pCi/g	4.73E-02	5.72E-02	6.98E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
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	U-235	LCS	07/19/17 00:00	1.00E+00	120.25	0.00	0.00			
02	U-235	MBL	07/19/17 00:00	1.00E+00	104.53	0.00	0.00			
03	U-235	DUP	05/15/17 08:25	1.00E+00	54.39	0.00	0.00			
04	U-235	DO	05/15/17 08:25	1.04E+00	79.39	0.00	0.00			
05	U-235	TRG	05/15/17 08:23	1.04E+00	91.85	0.00	0.00			
06	U-235	TRG	05/15/17 08:21	1.02E+00	96.89	0.00	0.00			
07	U-235	TRG	05/15/17 08:19	1.02E+00	115.36	0.00	0.00			
08	U-235	TRG	05/15/17 08:17	1.02E+00	115.14	0.00	0.00			
09	U-235	TRG	05/15/17 08:15	1.05E+00	132.25	0.00	0.00			
10	U-235	TRG	05/15/17 08:26	1.02E+00	96.19	0.00	0.00			
11	U-235	TRG	05/15/17 08:26	1.02E+00	129.35	0.00	0.00			
12	U-235	TRG	05/15/17 08:26	1.02E+00	124.26	0.00	0.00			
13	U-235	TRG	05/15/17 08:26	1.07E+00	49.04	0.00	0.00			
14	U-235	TRG	05/15/17 08:23	1.04E+00	100.15	0.00	0.00			
15	U-235	TRG	05/15/17 08:20	1.05E+00	91.23	0.00	0.00			
16	U-235	TRG	05/15/17 08:17	1.04E+00	95.00	0.00	0.00			
17	U-235	TRG	05/15/17 08:14	1.05E+00	113.15	0.00	0.00			
18	U-235	TRG	05/15/17 08:11	1.00E+00	110.41	0.00	0.00			
19	U-235	TRG	05/15/17 08:08	1.03E+00	102.01	0.00	0.00			
20	U-235	TRG	05/15/17 08:05	1.02E+00	121.04	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07086
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	08/19/17 10:00		A_Spec	Alpha_040	170	2.87 E+01	2.00 E-03	18.1
02	U-235	MBL	08/19/17 10:00		A_Spec	Alpha_043	170	2.32 E+00	4.00 E-03	18.7
03	U-235	DUP	08/19/17 10:00		A_Spec	Alpha_044	170	2.68 E+02	0.00 E+00	17.9
04	U-235	DO	08/19/17 10:00		A_Spec	Alpha_045	170	2.79 E+02	1.00 E-03	16.9
05	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_046	170	5.17 E+01	2.00 E-03	17.1
06	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_047	170	9.66 E+00	2.00 E-03	16.2
07	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_048	170	1.35 E+01	3.00 E-03	16.3
08	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_049	170	7.15 E+00	5.00 E-03	14.9
09	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_050	170	2.55 E+01	3.00 E-03	14.3
10	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_052	170	8.49 E+00	3.00 E-03	17.4
11	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_053	170	7.83 E+00	1.00 E-03	15.1
12	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_054	170	8.49 E+00	3.00 E-03	13.6
13	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_056	170	2.15 E+00	5.00 E-03	15.9
14	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_057	170	4.00 E+00	0.00 E+00	16.5
15	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_058	170	4.00 E+00	0.00 E+00	16.6
16	U-235	TRG	08/19/17 10:01		A_Spec	Alpha_059	170	8.83 E+00	1.00 E-03	17.8
17	U-235	TRG	08/19/17 10:02		A_Spec	Alpha_060	170	2.32 E+00	4.00 E-03	14.8
18	U-235	TRG	08/19/17 13:01		A_Spec	Alpha_033	170	1.66 E+00	2.00 E-03	16.8
19	U-235	TRG	08/19/17 13:01		A_Spec	Alpha_034	170	5.98 E+00	6.00 E-03	17.3
20	U-235	TRG	08/19/17 13:01		A_Spec	Alpha_035	170	2.83 E+00	1.00 E-03	15.8

8600

Count Room Report
Client: Weston Solutions, Inc.

17-07086-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

#40-60

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	07/19/17 00:00	1.0000	0.6692	12.2597		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.6726	12.3220		0.00		
03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	1.0046	0.6698	12.2707		0.00		
04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	1.0399	0.6765	12.3935		0.00		
05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	1.0399	0.6743	12.3532		0.00		
06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	1.0175	0.6688	12.2524		0.00		
07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	1.0207	0.6737	12.3422		0.00		
08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	1.0189	0.6690	12.2561		0.00		
09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	1.0463	0.6703	12.2799		0.00		
10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	1.0182	0.6854	12.5565		0.00		
11	TRG	HTC-A03-S001-0006-01 MS	05/15/17 08:26	1.0174	0.6744	12.3550		0.00		
12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	1.0174	0.6739	12.3458		0.00		
13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	1.0736	0.6749	12.3642		0.00		
14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	1.0413	0.6748	12.3623		0.00		
15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	1.0509	0.6739	12.3458		0.00		
16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	1.0355	0.6740	12.3477		0.00		
17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	1.0491	0.6745	12.3568		0.00		
18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	1.0023	0.6746	12.3587		0.00		
19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	1.0289	0.6741	12.3495		0.00		
20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	1.0248	0.6735	12.3385		0.00		

#660035

Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/9/2017 9:42 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07086	1	UUISO	8/9/2017 9:27	JPACHELLA		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	Volume Used (g)	Volume Used (g)	Volume Used (g)	Volume Used (g)	Known pCi	Error Estimate	Added pCi	Error Estimate	Known pCi	Error Estimate	Added pCi	Error Estimate
U-234	U-8a	32.000	8/9/2017	0.550	0.5588				8.05	0.290	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	31.000	8/9/2017	0.550	0.5588				7.80	0.281	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.320	8/9/2017	0.6692	0.6600
02	U-232	U-10a	18.320	8/9/2017	0.6726	0.6600
03	U-232	U-10a	18.320	8/9/2017	0.6698	0.6600
04	U-232	U-10a	18.320	8/9/2017	0.6765	0.6600
05	U-232	U-10a	18.320	8/9/2017	0.6743	0.6600
06	U-232	U-10a	18.320	8/9/2017	0.6688	0.6600
07	U-232	U-10a	18.320	8/9/2017	0.6737	0.6600
08	U-232	U-10a	18.320	8/9/2017	0.6690	0.6600
09	U-232	U-10a	18.320	8/9/2017	0.6703	0.6600
10	U-232	U-10a	18.320	8/9/2017	0.6854	0.6600
11	U-232	U-10a	18.320	8/9/2017	0.6744	0.6600
12	U-232	U-10a	18.320	8/9/2017	0.6739	0.6600
13	U-232	U-10a	18.320	8/9/2017	0.6749	0.6600
14	U-232	U-10a	18.320	8/9/2017	0.6748	0.6600
15	U-232	U-10a	18.320	8/9/2017	0.6739	0.6600
16	U-232	U-10a	18.320	8/9/2017	0.6740	0.6600
17	U-232	U-10a	18.320	8/9/2017	0.6745	0.6600
18	U-232	U-10a	18.320	8/9/2017	0.6746	0.6600
19	U-232	U-10a	18.320	8/9/2017	0.6741	0.6600
20	U-232	U-10a	18.320	8/9/2017	0.6735	0.6600

Balance Printer Tapes

Tracer	LCS

Matrix Spike

0100

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07086	1	UUISO	grams	8/10/2017	JPACHELLA

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-A02-S004-1218-01	DUP					1.0046E+00	1.0046E+00				
04	HTC-A02-S004-1218-01	DO					1.0399E+00	1.0399E+00				
05	HTC-A02-S004-1824-01	TRG					1.0399E+00	1.0399E+00				
06	HTC-A02-S004-2430-01	TRG					1.0175E+00	1.0175E+00				
07	HTC-A02-S004-3036-01	TRG					1.0207E+00	1.0207E+00				
08	HTC-A02-S004-3642-01	TRG					1.0189E+00	1.0189E+00				
09	HTC-A02-S004-4248-01	TRG					1.0463E+00	1.0463E+00				
10	HTC-A03-S001-0006-01	TRG					1.0182E+00	1.0182E+00				
11	HTC-A03-S001-0006-01 MS	TRG					1.0174E+00	1.0174E+00				
12	HTC-A03-S001-0006-01 MSD	TRG					1.0174E+00	1.0174E+00				
13	HTC-A03-S001-0006-02	TRG					1.0736E+00	1.0736E+00				
14	HTC-A03-S001-0612-01	TRG					1.0413E+00	1.0413E+00				
15	HTC-A03-S001-1218-01	TRG					1.0509E+00	1.0509E+00				
16	HTC-A03-S001-1824-01	TRG					1.0355E+00	1.0355E+00				
17	HTC-A03-S001-2430-01	TRG					1.0491E+00	1.0491E+00				
18	HTC-A03-S001-3036-01	TRG					1.0023E+00	1.0023E+00				
19	HTC-A03-S001-3642-01	TRG					1.0289E+00	1.0289E+00				
20	HTC-A03-S001-4248-01	TRG					1.0248E+00	1.0248E+00				

Comments	

0101

Technician: JPachella Date: 8/9/17

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

Rough Sample Preparation
Log Book

Printed: 7/31/2017 9:09 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
17-07086	8/10/2017	7/30/2017	7/31/2017	8/1/2017	KSALLINGS

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

Eberline	Weston Solutions, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	HTC-A02-S004-1218-01	14.5800	1049.5000	928.6400	1034.9200	914.0600	11.68%	88.32%	0.0000	0.0000	
05	HTC-A02-S004-1824-01	14.5900	1027.6200	832.6800	1013.0300	818.0900	19.24%	80.76%	0.0000	0.0000	
06	HTC-A02-S004-2430-01	14.6000	976.9600	767.9500	962.3600	753.3500	21.72%	78.28%	0.0000	0.0000	
07	HTC-A02-S004-3036-01	14.6100	941.0200	766.7300	926.4100	752.1200	18.81%	81.19%	0.0000	0.0000	
08	HTC-A02-S004-3642-01	14.6500	922.6200	773.7400	907.9700	759.0900	16.40%	83.60%	0.0000	0.0000	
09	HTC-A02-S004-4248-01	14.6200	900.9200	759.4200	886.3000	744.8000	15.97%	84.03%	0.0000	0.0000	
10	HTC-A03-S001-0006-01	14.6400	719.4900	573.2900	704.8500	558.6500	20.74%	79.26%	0.0000	0.0000	
11	HTC-A03-S001-0006-01 MS	14.5900	854.6000	697.6400	840.0100	683.0500	18.69%	81.31%	0.0000	0.0000	
12	HTC-A03-S001-0006-01 MSD	14.5900	854.6000	697.6400	840.0100	683.0500	18.69%	81.31%	0.0000	0.0000	
13	HTC-A03-S001-0006-02	14.5700	791.4100	638.3400	776.8400	623.7700	19.70%	80.30%	0.0000	0.0000	
14	HTC-A03-S001-0612-01	14.5600	860.2600	731.9100	845.7000	717.3500	15.18%	84.82%	0.0000	0.0000	
15	HTC-A03-S001-1218-01	14.6200	1089.8800	936.5400	1075.2600	921.9200	14.26%	85.74%	0.0000	0.0000	
16	HTC-A03-S001-1824-01	14.5800	1091.8400	956.8200	1077.2600	942.2400	12.53%	87.47%	0.0000	0.0000	
17	HTC-A03-S001-2430-01	14.5700	936.3800	803.6200	921.8100	789.0500	14.40%	85.60%	0.0000	0.0000	
18	HTC-A03-S001-3036-01	14.5000	1028.3800	880.4200	1013.8800	865.9200	14.59%	85.41%	0.0000	0.0000	
19	HTC-A03-S001-3642-01	14.5400	828.7400	703.5200	814.2000	688.9800	15.38%	84.62%	0.0000	0.0000	
20	HTC-A03-S001-4248-01	14.5400	1036.1800	834.0400	1021.6400	819.5000	19.79%	80.21%	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)**

0102

Technician: Kerry Sai

Date: **Analysis: Rough Prep Logbook**

Analysis: UUISO Page No. 10169

Apex-Alpha™

8/21

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 194214
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/18/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:00:54 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.669 mL
Effective Efficiency: 0.2181 +/- 0.0114
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.2025 +/- 0.0663

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.725776 +/- 0.054021
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	5.268	450.98	9.24	1.02	0.00E+000	18.8
U-234		4.723	519.66	8.60	0.34	0.00E+000	6.5
U-235		4.400	28.66	36.86	0.34	0.00E+000	6.0
U-238		4.148	531.00	8.51	0.00	0.00E+000	25.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	5.49E+000 +/- 5.65E-001	7.67E-002 +/- 7.89E-003
U-234	0.990	4761.50*	6.33E+000 +/- 8.48E-001	5.82E-002 +/- 5.99E-003
U-235	0.998	4385.50*	4.30E-001 +/- 1.65E-001	7.18E-002 +/- 7.39E-003
U-238	0.991	4184.40*	6.44E+000 +/- 8.59E-001	7.27E-002 +/- 7.48E-003

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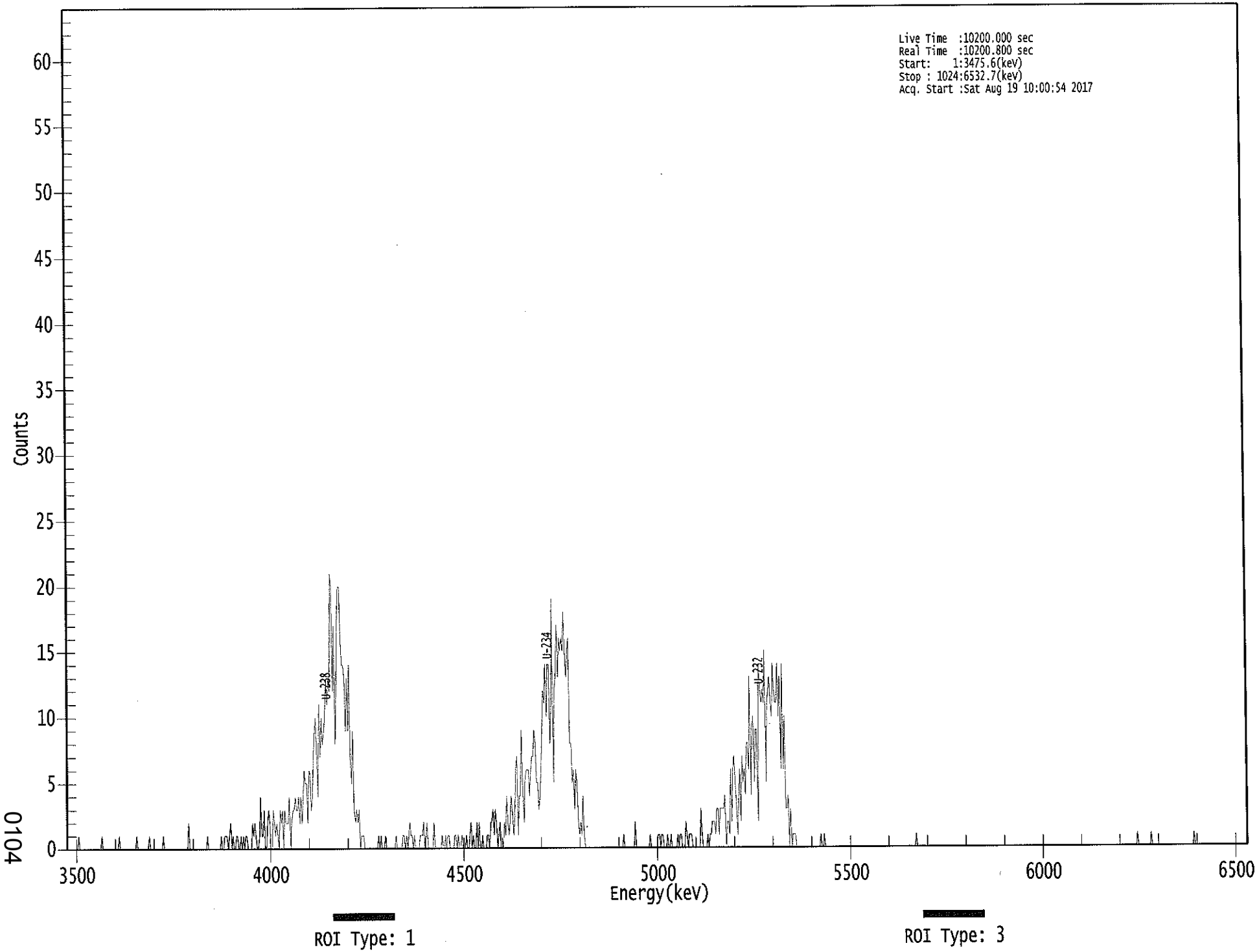
8/21/17

0000192027.CNF



0104

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

369:	3	1	3	2	0	1	2	0

Sample Title: 01

Channel								
377:	0	0	2	1	4	2	1	2
385:	4	3	1	2	6	7	1	4
393:	4	9	5	2	5	6	6	6
401:	4	6	7	7	9	8	5	5
409:	3	4	6	9	12	11	14	10
417:	14	14	8	11	19	5	12	13
425:	17	13	16	15	16	15	18	15
433:	13	15	16	8	8	5	6	3
441:	6	5	2	1	2	1	4	1
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	1	0	0	0	0	0	0
489:	0	0	0	2	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	1	0	0	0	0	0	0	1
513:	1	0	1	1	0	0	0	1
521:	0	0	1	0	0	0	0	0
529:	1	0	1	1	0	0	0	2
537:	1	0	1	1	1	0	0	0
545:	0	0	0	0	3	1	0	0
553:	0	0	1	0	1	1	2	2
561:	2	1	3	3	1	3	3	3
569:	3	4	0	2	2	1	6	2
577:	6	7	5	3	1	4	6	2
585:	7	5	6	4	8	8	6	13
593:	4	9	10	5	9	9	2	14
601:	12	11	12	11	15	5	11	12
609:	13	11	10	14	12	11	11	14
617:	10	13	6	14	6	10	3	3
625:	4	0	3	0	1	1	1	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	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	1
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 01

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

Apex-Alpha™

8/21

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 194215
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/18/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:00:56 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.673 mL
Effective Efficiency: 0.1959 +/- 0.0107
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.0453 +/- 0.0599

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.269	407.30	9.74	1.70	0.00E+000	10.1
U-234		4.695	16.98	49.21	1.02	0.00E+000	3.0
U-235		4.381	2.32	149.12	0.68	0.00E+000	3.0
U-238		4.134	14.66	51.88	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	0.992	5302.50*	5.52E+000 +/- 5.92E-001	9.95E-002 +/- 1.07E-002
U-234	0.969	4761.50*	2.30E-001 +/- 1.16E-001	8.54E-002 +/- 9.16E-003
U-235	1.000	4385.50*	3.88E-002 +/- 5.80E-002	9.43E-002 +/- 1.01E-002
U-238	0.982	4184.40*	1.98E-001 +/- 1.05E-001	6.45E-002 +/- 6.92E-003

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8/21/17

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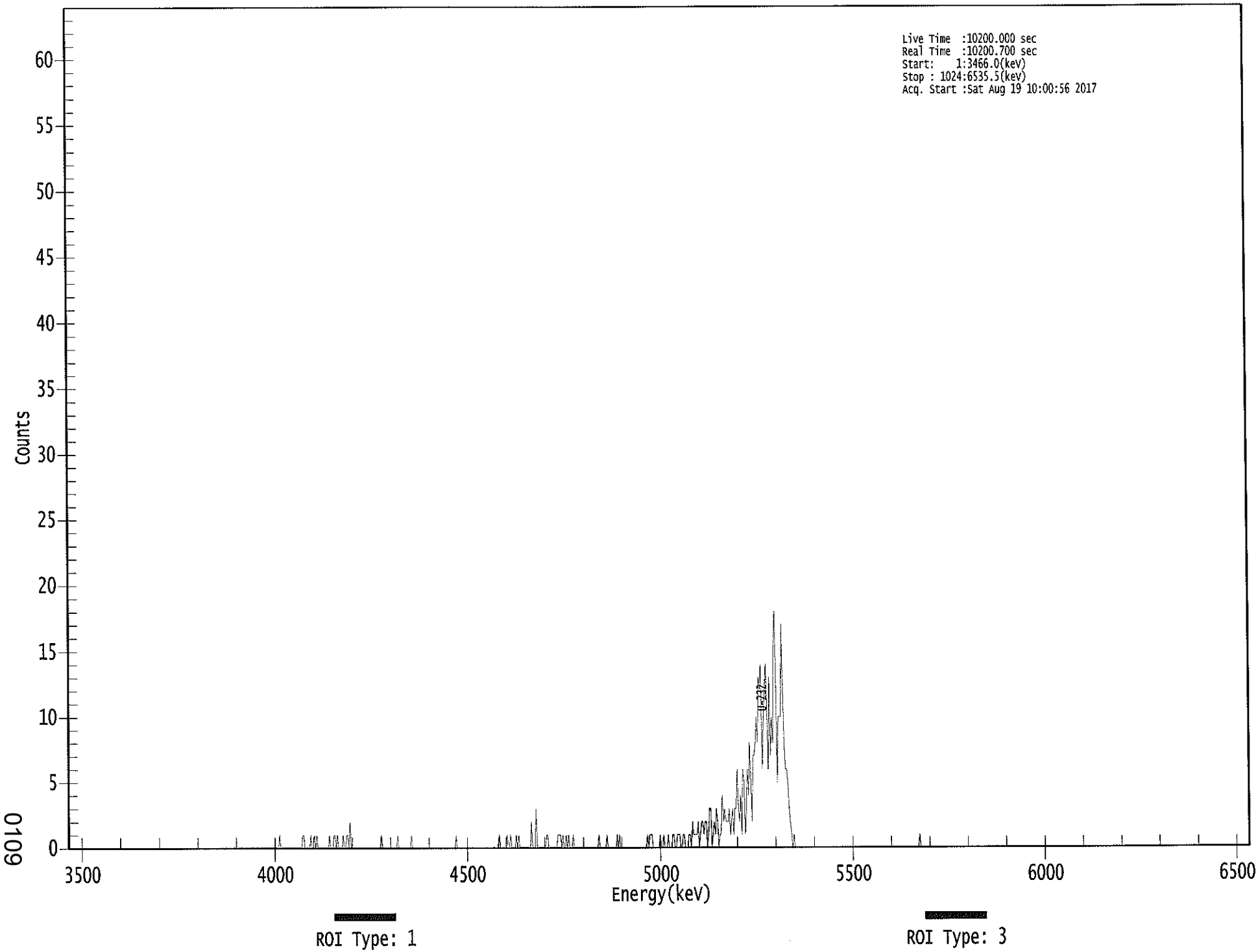

0109

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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

Sample Title: 02

Channel								
377:	0	0	0	1	0	0	1	0
385:	0	0	0	1	0	1	0	0
393:	0	0	0	0	0	0	0	0
401:	2	0	0	0	3	0	0	0
409:	0	0	0	0	0	1	1	0
417:	0	0	0	0	0	0	0	1
425:	1	1	0	1	0	0	1	0
433:	1	0	0	0	1	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	1	0	0	0	0	0
465:	0	1	0	0	0	0	0	0
473:	0	0	1	0	1	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	1	0	1	1
505:	1	0	0	0	0	0	0	1
513:	0	0	1	0	0	0	1	0
521:	0	0	1	1	0	0	1	1
529:	1	0	0	1	1	0	0	0
537:	1	1	0	2	1	1	1	1
545:	2	0	1	2	2	1	2	2
553:	0	1	3	3	0	1	2	1
561:	3	2	0	1	1	4	2	3
569:	2	2	2	3	1	2	3	1
577:	3	3	6	3	2	4	1	6
585:	5	1	3	6	4	8	5	2
593:	7	7	8	10	8	13	12	14
601:	6	10	12	14	11	6	13	7
609:	10	8	15	18	13	5	10	10
617:	10	17	12	8	6	6	5	3
625:	2	1	0	1	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	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:	1	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	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-A02-S004-1218-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 194216
Reagent Blank: <not performed>

Sample Size: 1.005E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:00:57 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.670 mL
Effective Efficiency: 0.0975 +/- 0.0072
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 0.5439 +/- 0.0413

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	5.257	201.83	13.80	0.17	0.00E+000	4.4
U-234		4.714	2599.00	3.85	0.00	0.00E+000	82.5
U-235		4.405	268.00	11.99	0.00	0.00E+000	4.7
U-238		4.134	2835.83	3.68	0.17	0.00E+000	83.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.985	5302.50*	5.49E+000 +/- 7.97E-001	1.13E-001 +/- 1.65E-002
U-234	0.984	4761.50*	7.04E+001 +/- 1.06E+001	1.63E-001 +/- 2.36E-002
U-235	0.997	4385.50*	8.96E+000 +/- 1.69E+000	2.00E-001 +/- 2.91E-002
U-238	0.982	4184.40*	7.65E+001 +/- 1.15E+001	1.13E-001 +/- 1.64E-002

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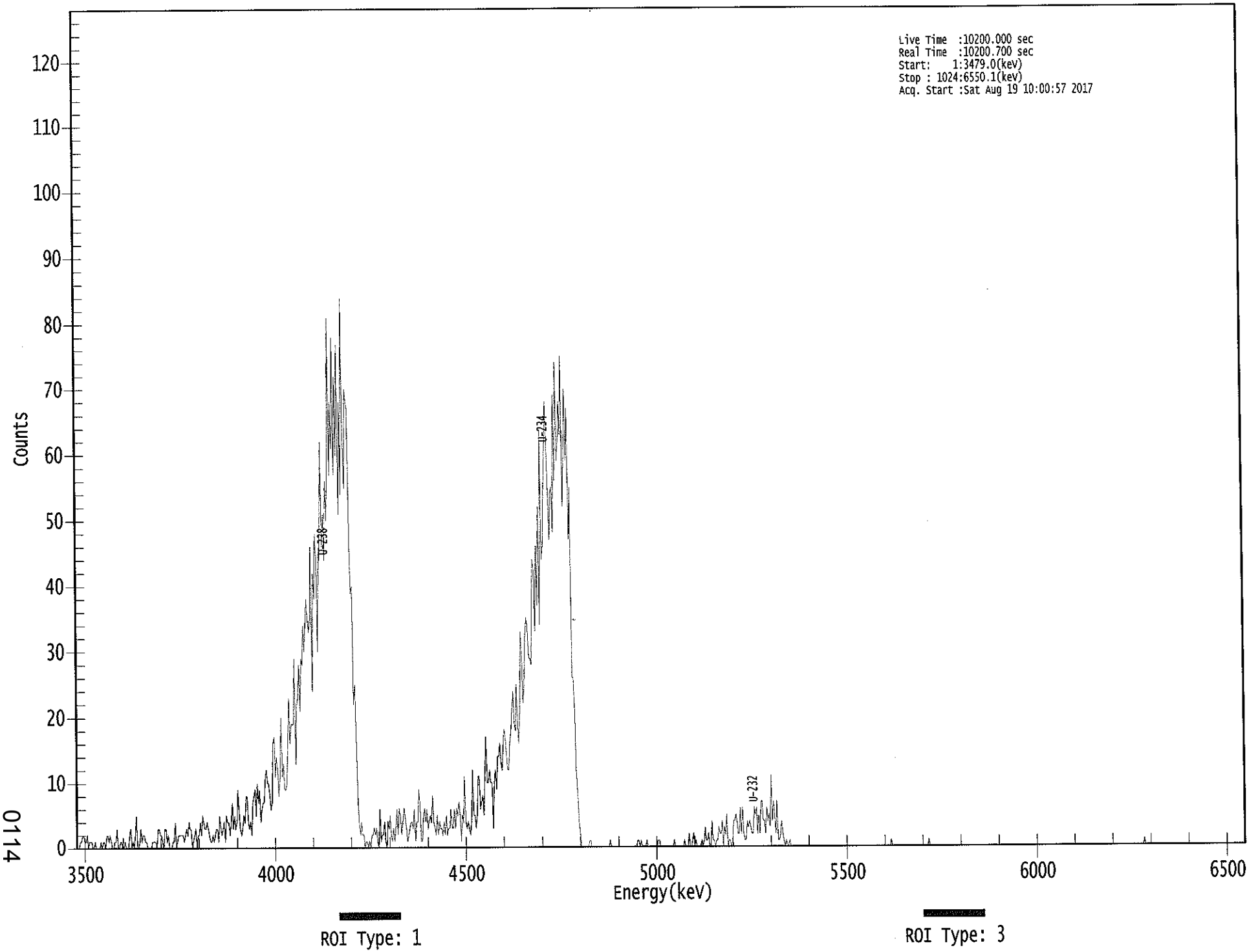
0000192029.CNF



0114

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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	1	1	2	2	1
9:	1	2	0	1	1	1	0	0
17:	1	0	0	0	0	1	0	1
25:	1	0	2	2	1	2	1	0
33:	0	1	1	3	0	0	1	1
41:	0	0	1	0	0	0	2	3
49:	0	1	0	2	5	0	0	1
57:	3	1	2	2	1	1	0	0
65:	0	0	1	1	1	1	0	3
73:	3	2	2	1	0	3	3	1
81:	2	0	0	0	1	1	4	0
89:	1	2	2	2	2	2	1	2
97:	3	2	4	3	3	0	1	2
105:	3	0	2	2	4	2	5	4
113:	3	3	4	3	2	1	1	2
121:	1	2	3	3	1	5	3	2
129:	3	4	1	5	4	4	2	4
137:	7	3	5	3	4	9	5	3
145:	2	3	5	4	8	8	4	3
153:	4	2	7	8	9	5	10	7
161:	9	4	6	7	7	11	12	10
169:	10	8	6	7	16	17	11	14
177:	12	8	11	20	11	13	9	9
185:	10	16	23	16	19	19	19	29
193:	13	22	23	28	21	29	28	34
201:	30	34	38	35	33	35	46	24
209:	42	38	48	43	30	46	44	62
217:	46	51	44	56	50	58	81	57
225:	68	61	78	57	72	60	77	51
233:	68	54	84	63	55	70	68	67
241:	48	39	40	22	25	17	7	4
249:	2	4	2	2	0	1	1	0
257:	1	0	2	2	3	2	3	1
265:	0	6	1	2	2	4	1	0
273:	4	3	5	2	1	3	1	3
281:	6	2	6	5	2	4	6	5
289:	3	1	2	3	4	4	3	6
297:	1	4	4	9	7	1	1	5
305:	6	4	6	3	4	5	4	8
313:	4	3	2	5	2	4	3	3
321:	2	4	2	5	2	3	3	6
329:	3	3	6	3	6	5	7	5
337:	1	5	4	11	4	3	4	3
345:	2	4	12	5	5	3	5	11
353:	11	6	7	8	5	12	17	10
361:	10	12	10	10	3	10	12	9

369:	14	14	16	13	12	16	18	17

Sample Title: 03

Channel								
377:	14	12	12	16	18	21	24	19
385:	18	25	19	16	21	33	29	22
393:	25	32	35	34	29	29	28	37
401:	44	42	33	46	37	52	34	64
409:	44	46	54	61	68	61	54	47
417:	54	55	48	69	56	74	59	62
425:	68	63	75	52	60	70	59	67
433:	47	55	26	26	20	12	8	4
441:	2	0	0	0	0	0	0	0
449:	1	1	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	1	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	1	1	0	1	0	0
497:	0	0	1	0	0	0	0	0
505:	0	0	0	0	1	1	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	0	0	0	1	0	0	0	2
537:	0	0	1	2	0	1	0	0
545:	0	0	1	0	1	3	1	1
553:	2	0	0	4	1	1	0	1
561:	1	3	2	2	4	0	3	2
569:	5	0	1	1	0	1	4	4
577:	5	4	2	2	6	2	6	2
585:	1	1	4	3	4	3	2	2
593:	6	5	6	2	5	2	7	7
601:	4	4	2	6	4	5	3	11
609:	4	7	5	2	7	1	1	2
617:	4	2	1	0	1	0	0	1
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	1	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	1	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 03

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

Sample Description: HTC-A02-S004-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194217
Reagent Blank: <not performed>

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:00:59 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.677 mL
Effective Efficiency: 0.1340 +/- 0.0086
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.7939 +/- 0.0527

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	5.251	280.15	11.73	0.85	0.00E+000	6.6
U-234		4.689	3055.64	3.55	1.36	0.00E+000	94.4
U-235		4.400	278.83	11.74	0.17	0.00E+000	3.8
U-238		4.118	3068.15	3.54	0.85	0.00E+000	102.4

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.981	5302.50*	5.35E+000 +/- 6.73E-001	1.14E-001 +/- 1.44E-002
U-234	0.963	4761.50*	5.82E+001 +/- 7.60E+000	1.31E-001 +/- 1.64E-002
U-235	0.999	4385.50*	6.55E+000 +/- 1.13E+000	9.81E-002 +/- 1.23E-002
U-238	0.969	4184.40*	5.82E+001 +/- 7.60E+000	1.14E-001 +/- 1.43E-002

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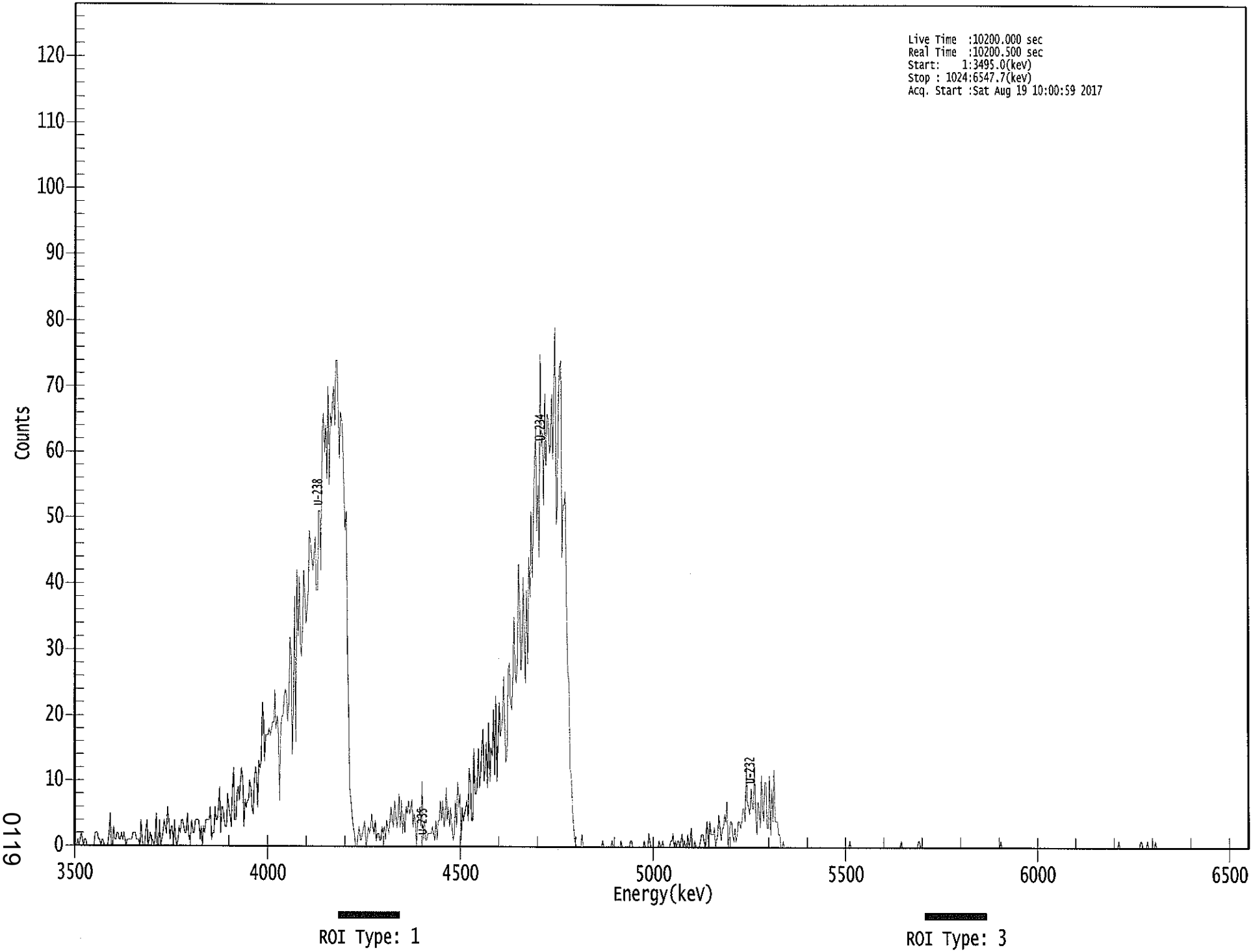
0000192019.CNF



0119

****
***** 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:	1	0	0	1	0	1	2	1
9:	0	1	1	0	0	0	0	0
17:	0	0	2	2	2	1	1	0
25:	1	1	0	0	0	0	2	5
33:	0	0	3	1	1	2	2	1
41:	1	2	1	2	1	0	1	1
49:	1	1	1	2	2	2	1	1
57:	1	0	4	1	0	0	2	4
65:	0	1	2	1	1	0	1	5
73:	0	0	4	0	1	2	4	3
81:	2	6	4	1	3	3	0	4
89:	1	0	1	3	2	4	4	3
97:	2	2	5	2	1	2	4	2
105:	2	4	4	4	4	1	3	0
113:	3	2	4	4	4	4	6	1
121:	2	2	6	4	4	6	9	2
129:	6	6	4	3	3	8	6	5
137:	3	8	12	4	4	8	9	7
145:	10	12	10	3	7	6	7	7
153:	10	9	6	5	10	12	11	6
161:	13	12	13	22	20	13	17	17
169:	17	18	17	18	19	19	24	18
177:	20	18	7	18	20	20	23	24
185:	23	19	22	32	29	14	22	38
193:	16	42	32	41	31	29	34	42
201:	39	34	36	39	48	46	44	42
209:	44	47	39	39	51	51	42	63
217:	66	60	64	56	70	55	66	64
225:	68	70	64	74	74	67	59	66
233:	65	62	54	48	51	30	21	9
241:	7	5	3	2	0	0	2	3
249:	1	1	2	3	4	0	1	3
257:	2	3	5	3	2	4	1	2
265:	2	1	1	3	2	3	1	4
273:	3	2	4	6	4	3	7	5
281:	3	4	8	3	7	2	5	2
289:	6	5	7	5	6	7	3	5
297:	4	0	4	4	6	3	10	1
305:	4	1	1	2	2	2	2	3
313:	2	1	4	1	4	4	7	4
321:	7	3	4	9	4	6	3	6
329:	3	1	2	7	3	10	6	8
337:	1	6	4	5	6	7	4	12
345:	10	4	4	15	8	8	9	15
353:	9	11	15	18	10	12	16	9
361:	19	10	15	14	21	11	23	10

369:	16	22	17	18	20	26	18	13

Sample Title: 04

Channel								
377:	14	27	28	22	21	25	35	27
385:	25	28	43	37	27	29	41	33
393:	25	39	28	44	38	51	41	50
401:	57	64	48	55	44	75	61	63
409:	52	69	58	66	65	60	61	69
417:	59	71	79	49	52	69	73	74
425:	44	52	52	54	35	27	25	12
433:	11	6	3	1	0	0	0	0
441:	0	2	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	1	0	0	0	0
465:	0	0	0	1	0	0	0	0
473:	0	0	0	1	0	0	0	0
481:	0	0	0	1	1	0	0	0
489:	0	0	0	0	0	0	0	1
497:	0	0	0	2	1	0	0	0
505:	0	0	0	0	1	0	0	1
513:	0	0	0	0	0	0	1	1
521:	2	0	1	0	1	1	0	1
529:	2	0	1	0	0	2	0	1
537:	3	0	0	1	0	0	0	0
545:	1	2	2	1	0	3	4	0
553:	4	2	2	2	3	0	1	2
561:	5	3	1	3	3	5	4	7
569:	0	2	4	4	2	1	3	1
577:	2	4	4	3	4	6	6	4
585:	13	7	6	5	9	6	6	13
593:	5	2	7	6	3	11	6	4
601:	10	10	3	3	11	2	9	4
609:	12	4	4	4	2	2	0	0
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	1	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	1
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	1	0

Sample Title: 04

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	1	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	1	1	0	0	0	0	1	0
937:	0	0	0	0	0	1	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
8/24

Sample Description: HTC-A02-S004-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194218
Reagent Blank: <not performed>

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:01 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1574 +/- 0.0094
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.9185 +/- 0.0572

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.266	327.98	10.84	1.02	0.00E+000	19.3
U-234		4.718	601.81	8.00	1.19	0.00E+000	11.8
U-235		4.400	51.66	27.37	0.34	0.00E+000	3.8
U-238		4.137	647.49	7.71	0.51	0.00E+000	19.7

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	5.33E+000 +/- 6.26E-001	1.02E-001 +/- 1.20E-002
U-234	0.986	4761.50*	9.76E+000 +/- 1.39E+000	1.07E-001 +/- 1.26E-002
U-235	0.998	4385.50*	1.03E+000 +/- 3.08E-001	9.57E-002 +/- 1.12E-002
U-238	0.984	4184.40*	1.05E+001 +/- 1.47E+000	8.48E-002 +/- 9.95E-003

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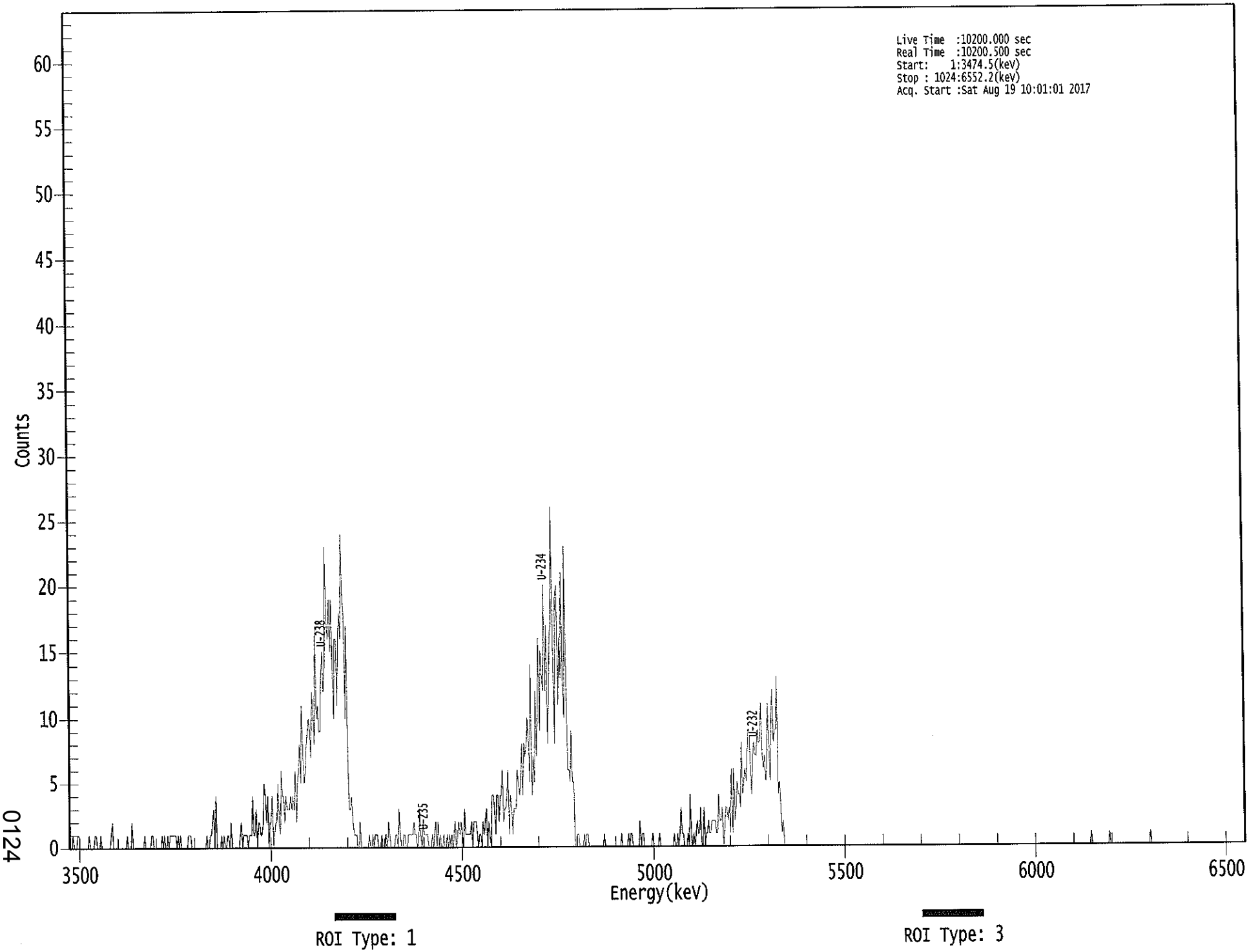
0000192020.CNF



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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	4	3	1	4	4	2	4	4

Sample Title: 05

Channel								
377:	6	2	3	3	4	6	1	4
385:	3	1	3	3	3	6	5	4
393:	5	8	4	8	7	8	10	8
401:	5	14	4	7	5	12	7	11
409:	16	9	15	13	12	20	12	17
417:	8	12	16	17	26	14	8	19
425:	20	11	16	13	21	13	10	23
433:	13	6	6	5	9	5	5	0
441:	0	1	1	0	0	0	0	1
449:	0	1	1	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	1	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	1
481:	0	0	0	0	0	1	0	1
489:	1	0	0	0	0	0	0	2
497:	0	1	1	0	0	0	0	0
505:	0	0	1	0	0	0	0	0
513:	1	0	0	0	0	0	0	0
521:	0	0	0	0	0	1	0	0
529:	1	0	1	3	1	1	0	0
537:	0	1	0	4	1	0	1	0
545:	1	2	1	1	3	0	0	3
553:	0	1	1	2	1	1	2	2
561:	2	2	1	1	4	2	2	3
569:	0	1	3	3	2	3	1	6
577:	1	6	2	3	5	4	4	3
585:	8	4	5	6	5	7	9	9
593:	6	4	7	8	7	7	9	8
601:	8	11	7	6	7	5	6	11
609:	8	5	10	12	8	9	9	13
617:	4	5	3	1	2	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: 05

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

Apex-Alpha™

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Sample Description: HTC-A02-S004-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194219
Reagent Blank: <not performed>

Sample Size: 1.018E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:02 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.669 mL
Effective Efficiency: 0.1572 +/- 0.0095
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.9689 +/- 0.0606

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	5.258	325.00	10.89	0.00	0.00E+000	6.7
U-234		4.702	88.83	20.82	0.17	0.00E+000	4.9
U-235		4.426	9.66	64.35	0.34	0.00E+000	3.0
U-238		4.124	75.66	22.59	0.34	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)
U-232	0.986	5302.50*	5.41E+000 +/- 6.37E-001	9.98E-002 +/- 1.18E-002
U-234	0.975	4761.50*	1.47E+000 +/- 3.53E-001	6.93E-002 +/- 8.16E-003
U-235	0.989	4385.50*	1.98E-001 +/- 1.29E-001	9.79E-002 +/- 1.15E-002
U-238	0.975	4184.40*	1.25E+000 +/- 3.19E-001	7.90E-002 +/- 9.31E-003

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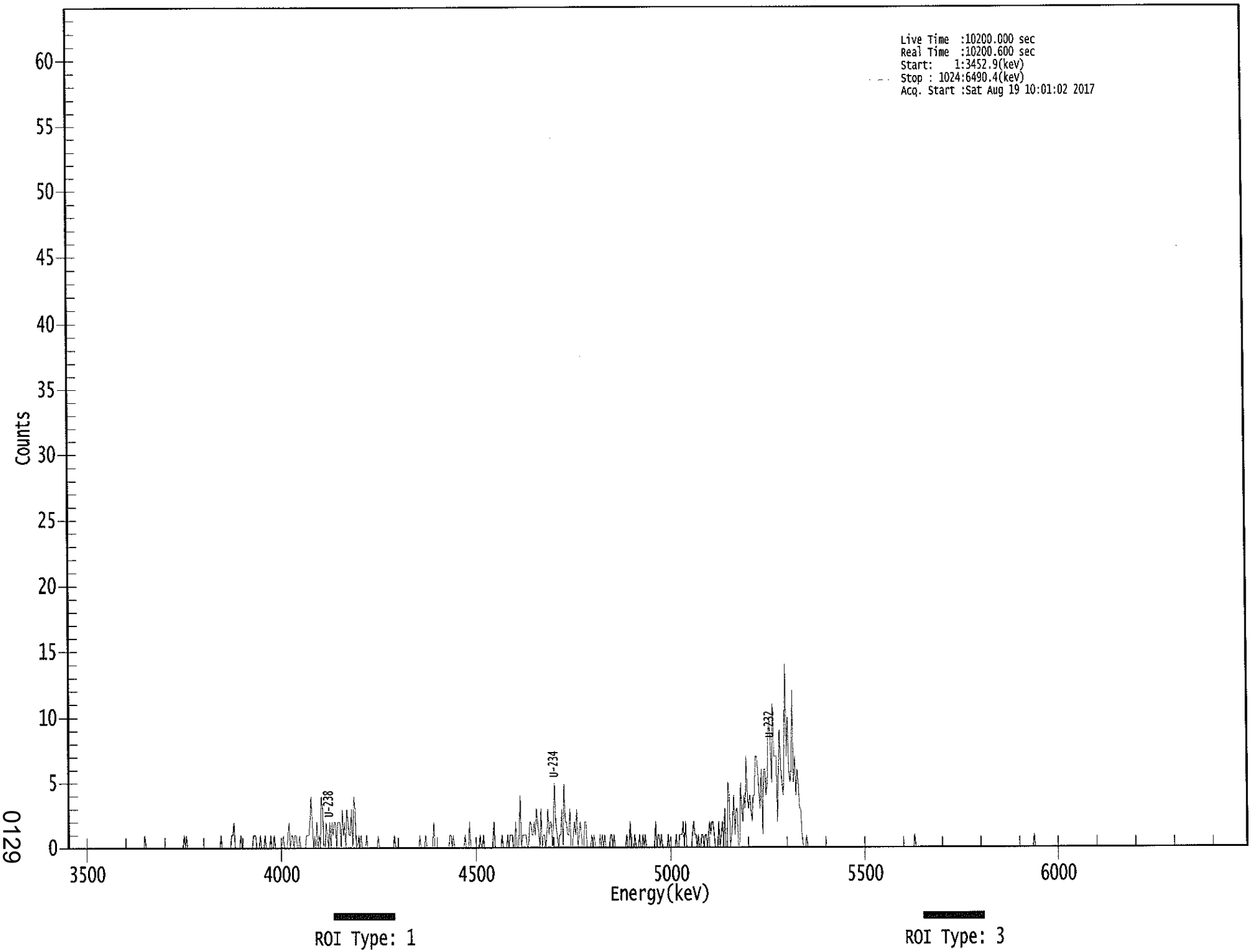
0000192021.CNF



0129

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

369:	2	0	0	0	0	0	0	1

Sample Title: 06

Channel								
377:	0	0	0	0	1	0	1	1
385:	1	0	0	2	0	0	1	4
393:	0	1	1	1	1	0	0	2
401:	2	1	1	2	1	3	2	1
409:	0	3	0	1	1	0	1	3
417:	1	2	2	0	2	5	2	1
425:	0	1	1	3	0	5	2	2
433:	1	1	3	0	0	1	2	1
441:	3	0	1	2	1	0	0	2
449:	2	0	0	0	0	1	0	1
457:	0	0	0	0	1	0	1	0
465:	1	0	0	0	0	1	1	0
473:	1	0	0	0	0	0	0	0
481:	0	0	0	1	0	0	2	0
489:	0	0	1	0	0	0	1	0
497:	0	1	0	1	0	0	0	0
505:	0	0	0	0	2	0	1	1
513:	0	1	0	0	0	0	0	1
521:	0	0	0	0	0	0	1	0
529:	0	1	1	1	2	0	2	0
537:	0	0	0	0	1	2	1	1
545:	0	1	0	0	1	1	0	1
553:	1	0	1	2	1	2	2	1
561:	0	0	0	2	0	1	2	0
569:	3	0	0	5	4	0	1	2
577:	4	1	3	3	0	0	5	3
585:	2	4	3	7	4	3	4	3
593:	2	4	4	7	7	6	4	3
601:	6	1	6	6	4	5	9	10
609:	8	5	11	7	7	7	2	6
617:	9	6	5	4	8	14	7	10
625:	6	5	6	12	5	7	4	6
633:	5	3	3	1	0	0	0	1
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	1	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	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	1	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	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™

C
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Sample Description: HTC-A02-S004-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 194220
Reagent Blank: <not performed>

Sample Size: 1.021E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:04 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1884 +/- 0.0105
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.1536 +/- 0.0670

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	5.279	392.32	9.91	0.68	0.00E+000	26.0
U-234		4.734	195.32	14.05	0.68	0.00E+000	5.9
U-235		4.381	13.49	54.53	0.51	0.00E+000	3.0
U-238		4.155	171.83	14.96	0.17	0.00E+000	3.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.43E+000 +/- 5.91E-001	7.81E-002 +/- 8.50E-003
U-234	0.994	4761.50*	2.70E+000 +/- 4.79E-001	7.79E-002 +/- 8.48E-003
U-235	1.000	4385.50*	2.30E-001 +/- 1.28E-001	8.94E-002 +/- 9.73E-003
U-238	0.994	4184.40*	2.36E+000 +/- 4.37E-001	5.74E-002 +/- 6.24E-003

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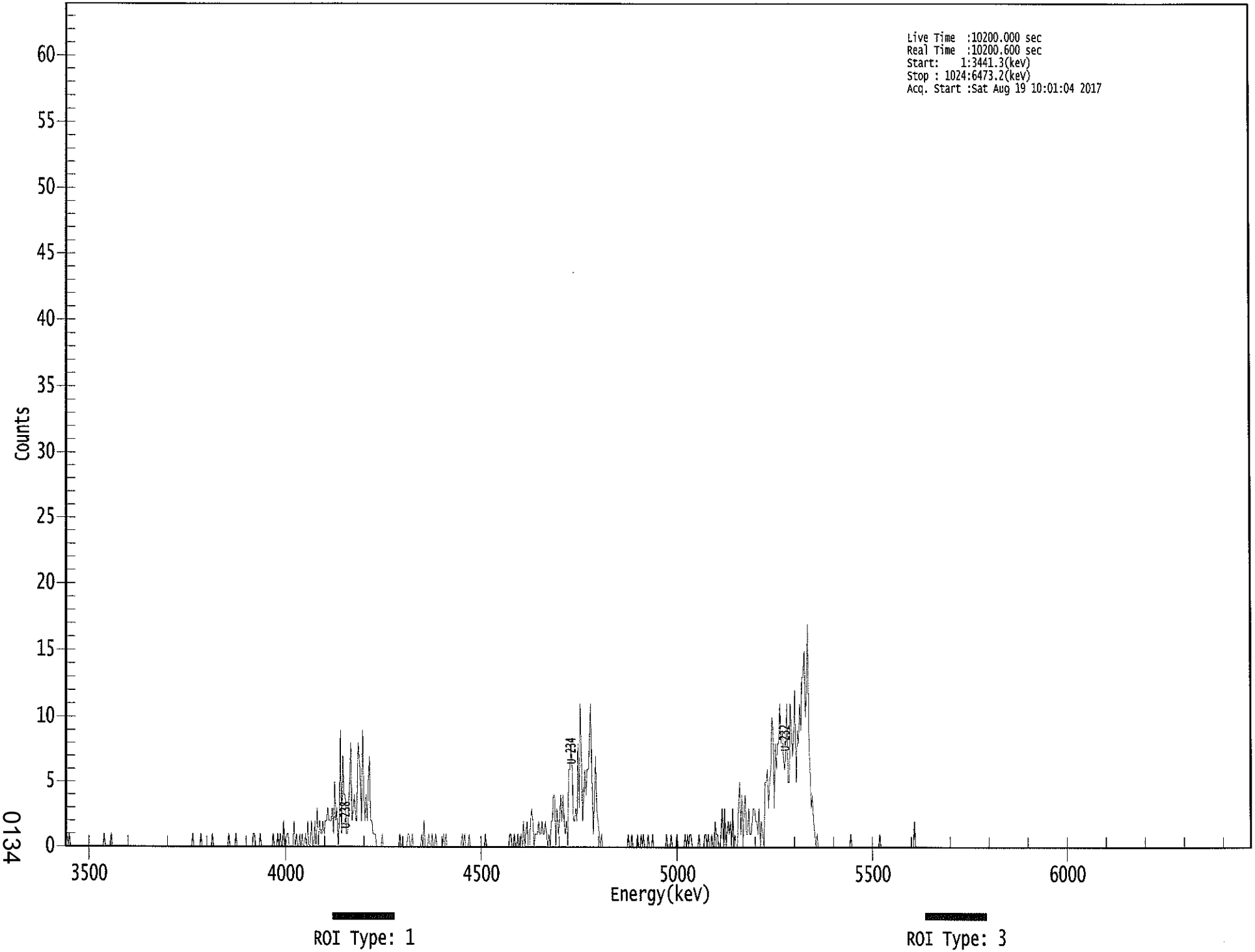
0000192022.CNF



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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	0	0	0

Sample Title: 07

Channel								
377:	0	0	0	0	0	0	1	1
385:	0	0	1	0	0	1	0	0
393:	1	0	2	0	1	2	0	0
401:	2	3	2	0	1	1	1	2
409:	1	1	2	1	1	2	1	0
417:	1	0	2	2	4	4	0	3
425:	1	2	4	2	4	2	1	2
433:	0	6	6	8	6	2	2	3
441:	2	8	3	11	7	2	4	6
449:	4	6	6	8	11	6	1	3
457:	7	3	2	1	0	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	1	0	0	1
489:	0	0	0	0	1	0	0	1
497:	0	1	0	0	0	1	0	0
505:	0	1	0	0	0	0	0	0
513:	0	0	0	0	0	1	0	0
521:	0	1	0	0	0	0	1	0
529:	0	0	0	0	0	1	0	1
537:	0	1	1	0	0	0	0	0
545:	0	1	0	0	0	0	1	1
553:	0	1	0	0	1	0	0	2
561:	1	1	0	0	1	3	0	3
569:	0	1	2	1	2	0	3	0
577:	1	0	0	3	5	1	4	0
585:	3	4	1	1	3	1	1	2
593:	3	3	2	2	1	3	0	2
601:	1	0	5	5	6	3	5	6
609:	10	9	3	8	6	8	8	11
617:	8	9	7	6	7	11	5	5
625:	11	9	7	9	12	5	9	8
633:	11	9	13	13	15	10	12	17
641:	8	6	3	4	2	1	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	1	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	1	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	2	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: 07

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	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-A02-S004-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 194221
Reagent Blank: <not performed>

Sample Size: 1.019E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:48 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.669 mL
Effective Efficiency: 0.1714 +/- 0.0099
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 1.1514 +/- 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	5.268	354.32	10.42	0.68	0.00E+000	7.9
U-234		4.727	82.66	21.61	0.34	0.00E+000	3.3
U-235		4.384	7.15	78.23	0.85	0.00E+000	3.0
U-238		4.144	67.32	24.03	0.68	0.00E+000	3.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	5.40E+000 +/- 6.14E-001	8.60E-002 +/- 9.77E-003
U-234	0.991	4761.50*	1.26E+000 +/- 3.07E-001	7.27E-002 +/- 8.26E-003
U-235	1.000	4385.50*	1.34E-001 +/- 1.06E-001	1.12E-001 +/- 1.28E-002
U-238	0.988	4184.40*	1.02E+000 +/- 2.71E-001	8.54E-002 +/- 9.70E-003

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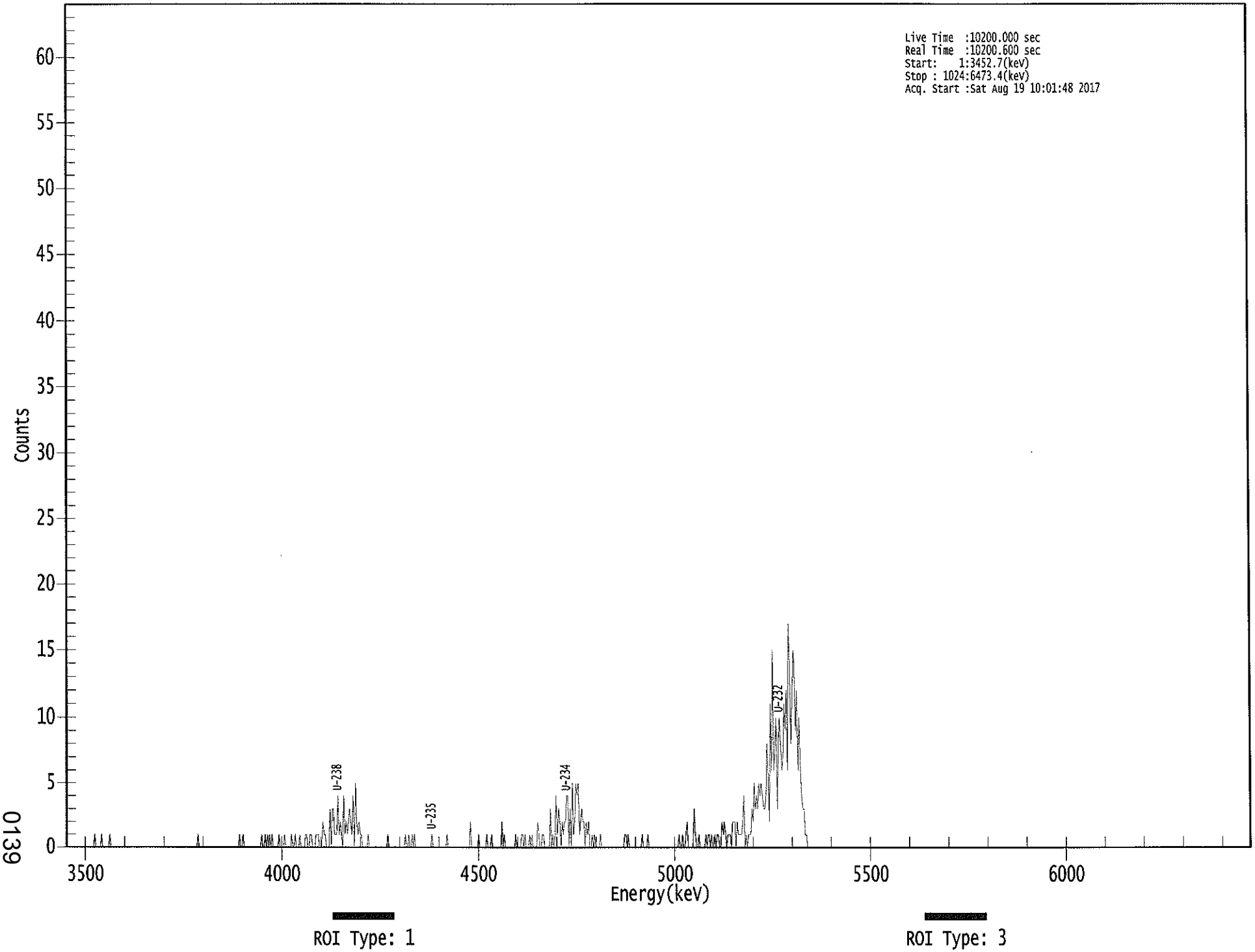

0139

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

369:	0	0	0	0	0	0	0	2

Sample Title: 08

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

8/21

Sample Description: HTC-A02-S004-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_050
Chamber Serial Number: 10006121B
Detector Serial Number: 50
Env. Background: System Bkgd 194222
Reagent Blank: <not performed>

Sample Size: 1.046E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:50 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.670 mL
Effective Efficiency: 0.1894 +/- 0.0105
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 1.3225 +/- 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	5.273	392.45	9.93	2.55	0.00E+000	33.9
U-234		4.736	174.64	14.90	1.36	0.00E+000	6.2
U-235		4.382	25.49	39.27	0.51	0.00E+000	3.0
U-238		4.147	199.47	13.94	1.53	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)
U-232	0.994	5302.50*	5.27E+000 +/- 5.75E-001	1.13E-001 +/- 1.23E-002
U-234	0.995	4761.50*	2.34E+000 +/- 4.32E-001	9.18E-002 +/- 1.00E-002
U-235	1.000	4385.50*	4.21E-001 +/- 1.72E-001	8.67E-002 +/- 9.46E-003
U-238	0.990	4184.40*	2.66E+000 +/- 4.71E-001	9.48E-002 +/- 1.03E-002

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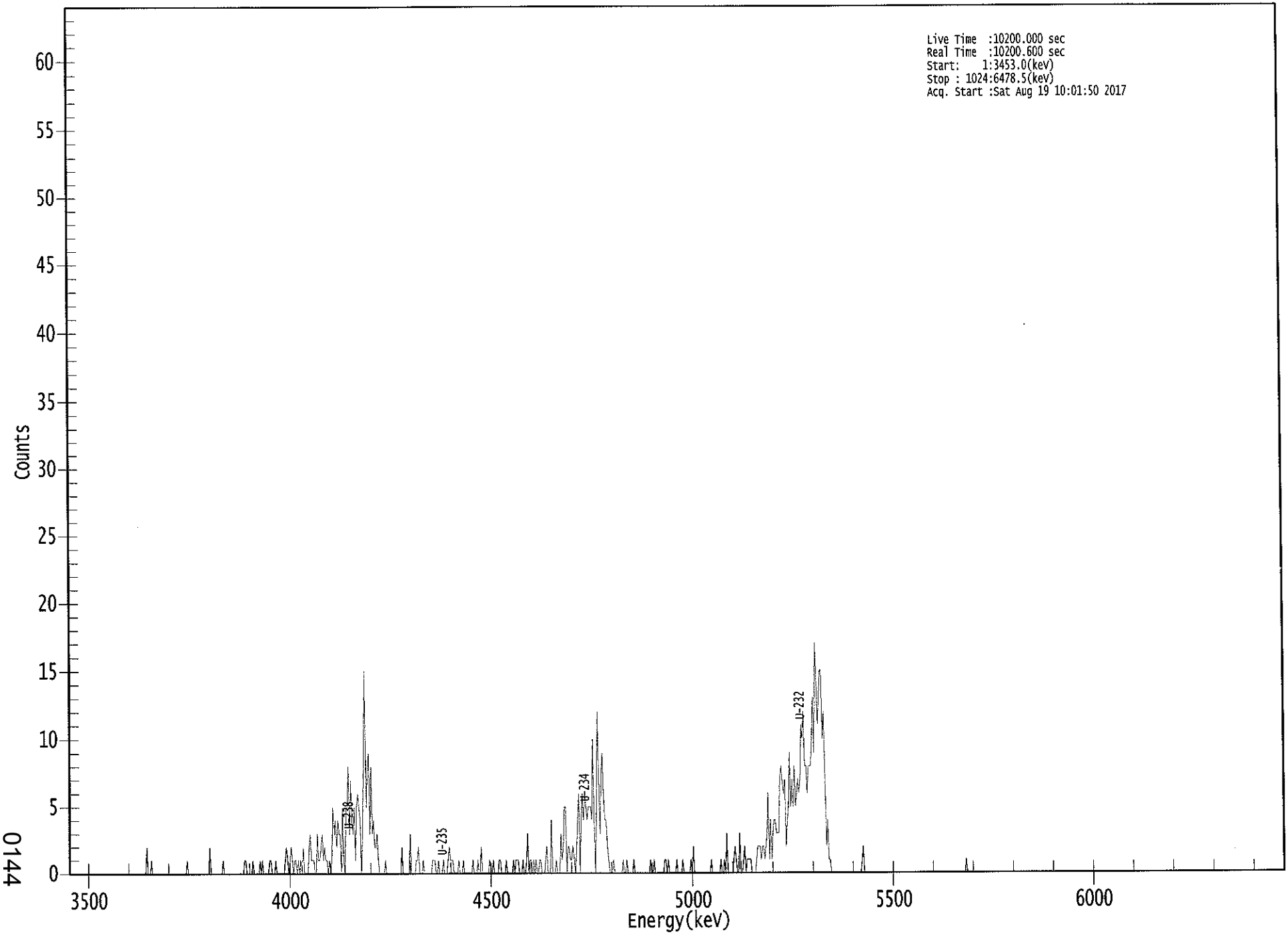
0000192031.CNF



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: 09

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	1	0	1

Sample Title: 09

Channel								
377:	1	1	0	0	0	1	0	0
385:	1	3	0	1	1	0	1	0
393:	1	0	0	1	1	0	0	0
401:	1	2	0	0	0	4	0	0
409:	0	1	0	0	0	3	1	2
417:	5	5	0	2	2	1	1	2
425:	1	0	2	4	6	0	4	6
433:	4	6	5	4	5	5	5	4
441:	10	4	0	5	12	7	3	7
449:	9	6	4	4	2	1	0	0
457:	0	1	0	0	0	0	0	0
465:	0	1	0	0	1	0	0	0
473:	0	0	1	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	1	0	0	1	0	0	0	0
497:	0	0	0	0	1	1	0	1
505:	0	0	0	0	0	0	1	0
513:	0	0	0	1	0	0	0	0
521:	0	0	1	0	2	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	1	0	0	0	0
545:	0	0	0	1	0	0	1	0
553:	3	0	0	0	0	0	1	2
561:	1	0	0	3	0	0	1	2
569:	0	1	1	1	1	0	0	0
577:	0	1	2	2	2	1	2	2
585:	1	2	3	6	1	4	1	3
593:	4	4	3	3	3	7	8	7
601:	6	7	2	4	5	9	5	7
609:	5	8	5	6	7	6	7	11
617:	10	12	8	8	6	8	8	8
625:	10	13	9	17	15	11	13	15
633:	15	10	12	7	2	4	1	1
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	1	2	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	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: 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	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™

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Sample Description: HTC-A03-S001-0006-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_056
Chamber Serial Number: 10006124B
Detector Serial Number: 56
Env. Background: System Bkgd 194227
Reagent Blank: <not performed>

Sample Size: 1.074E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:57 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.675 mL
Effective Efficiency: 0.0782 +/- 0.0064
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 0.4904 +/- 0.0411

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	163.13	15.45	1.87	0.00E+000	11.1
U-234		4.707	29.98	36.50	1.02	0.00E+000	3.0
U-235		4.413	2.15	161.66	0.85	0.00E+000	3.0
U-238		4.118	31.15	35.67	0.85	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	5.17E+000 +/- 8.32E-001	2.40E-001 +/- 3.86E-002
U-234	0.979	4761.50*	9.48E-001 +/- 3.78E-001	1.99E-001 +/- 3.21E-002
U-235	0.994	4385.50*	8.39E-002 +/- 1.36E-001	2.34E-001 +/- 3.76E-002
U-238	0.969	4184.40*	9.81E-001 +/- 3.84E-001	1.88E-001 +/- 3.03E-002

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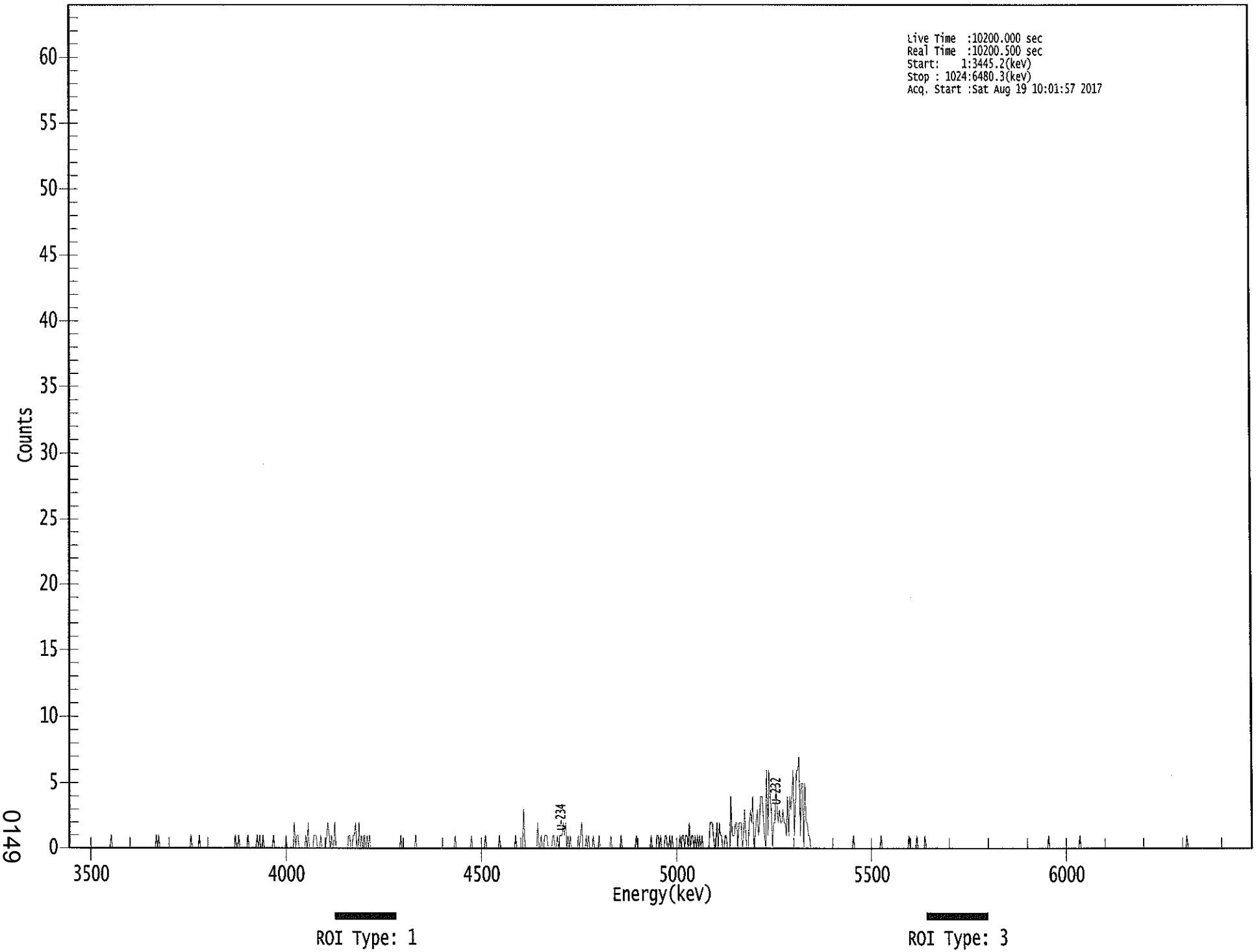
0000192034.CNF



****
***** 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: 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	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	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	1	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:	0	1	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	1
145:	0	0	1	0	0	0	0	0
153:	0	0	1	0	0	0	0	0
161:	0	0	1	0	1	0	0	1
169:	0	0	0	0	0	0	0	0
177:	1	0	0	0	0	0	0	0
185:	0	0	0	1	0	0	0	0
193:	0	0	2	0	1	1	0	0
201:	0	0	0	0	1	0	2	0
209:	0	0	0	1	1	1	0	0
217:	0	1	0	0	0	0	1	2
225:	1	0	1	0	0	2	0	0
233:	0	0	0	0	0	0	0	0
241:	0	1	1	0	0	1	1	2
249:	0	0	2	0	1	0	1	1
257:	0	1	0	1	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	1	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	1	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	1	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	1	0	0	0	0
353:	0	0	0	0	0	0	0	1
361:	0	0	0	0	0	0	0	0

369:	0	0	0	1	0	0	0	0

Sample Title: 13

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	1	0	0	0	0	0	0
393:	3	0	0	0	0	0	0	0
401:	0	0	0	0	2	0	0	1
409:	0	0	1	1	1	0	0	0
417:	0	1	1	0	0	1	0	1
425:	1	1	2	1	2	0	1	0
433:	1	0	0	0	0	0	0	1
441:	0	1	2	0	0	0	1	0
449:	1	0	0	0	1	0	0	0
457:	0	1	0	0	0	0	0	0
465:	0	0	0	1	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	0	0	0	0
497:	0	0	0	0	0	0	1	0
505:	0	0	0	1	1	0	1	0
513:	0	0	1	1	0	0	1	0
521:	1	0	0	0	0	0	0	1
529:	0	1	1	0	1	1	0	2
537:	0	1	1	0	1	0	1	0
545:	1	0	1	0	0	0	0	0
553:	0	2	2	2	1	0	0	2
561:	0	2	1	1	0	0	1	1
569:	0	0	0	4	1	1	1	2
577:	2	0	2	2	2	0	1	3
585:	1	0	0	2	3	2	4	0
593:	1	2	3	1	2	4	4	3
601:	1	0	6	1	6	4	3	0
609:	2	2	5	3	2	3	2	2
617:	3	2	2	1	4	1	4	3
625:	4	6	1	4	6	6	7	1
633:	5	5	0	5	2	2	1	1
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	1	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	1	0	0
729:	0	0	0	0	1	0	0	0
737:	0	0	0	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	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	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	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	1	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

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Sample Description: HTC-A03-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_057
Chamber Serial Number: 01017326A
Detector Serial Number: 57
Env. Background: System Bkgd 194228
Reagent Blank: <not performed>

Sample Size: 1.041E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:45 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.675 mL
Effective Efficiency: 0.1649 +/- 0.0097
Counting Efficiency: 0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor: 1.0015 +/- 0.0612

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	343.83	10.57	0.17	0.00E+000	24.7
U-234		4.718	51.83	27.28	0.17	0.00E+000	3.7
U-235		4.430	4.00	109.57	0.00	0.00E+000	3.0
U-238		4.133	24.66	39.79	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	0.989	5302.50*	5.33E+000 +/- 6.13E-001	6.47E-002 +/- 7.44E-003
U-234	0.986	4761.50*	8.02E-001 +/- 2.37E-001	6.45E-002 +/- 7.42E-003
U-235	0.986	4385.50*	7.63E-002 +/- 8.41E-002	1.14E-001 +/- 1.32E-002
U-238	0.981	4184.40*	3.80E-001 +/- 1.57E-001	7.36E-002 +/- 8.46E-003

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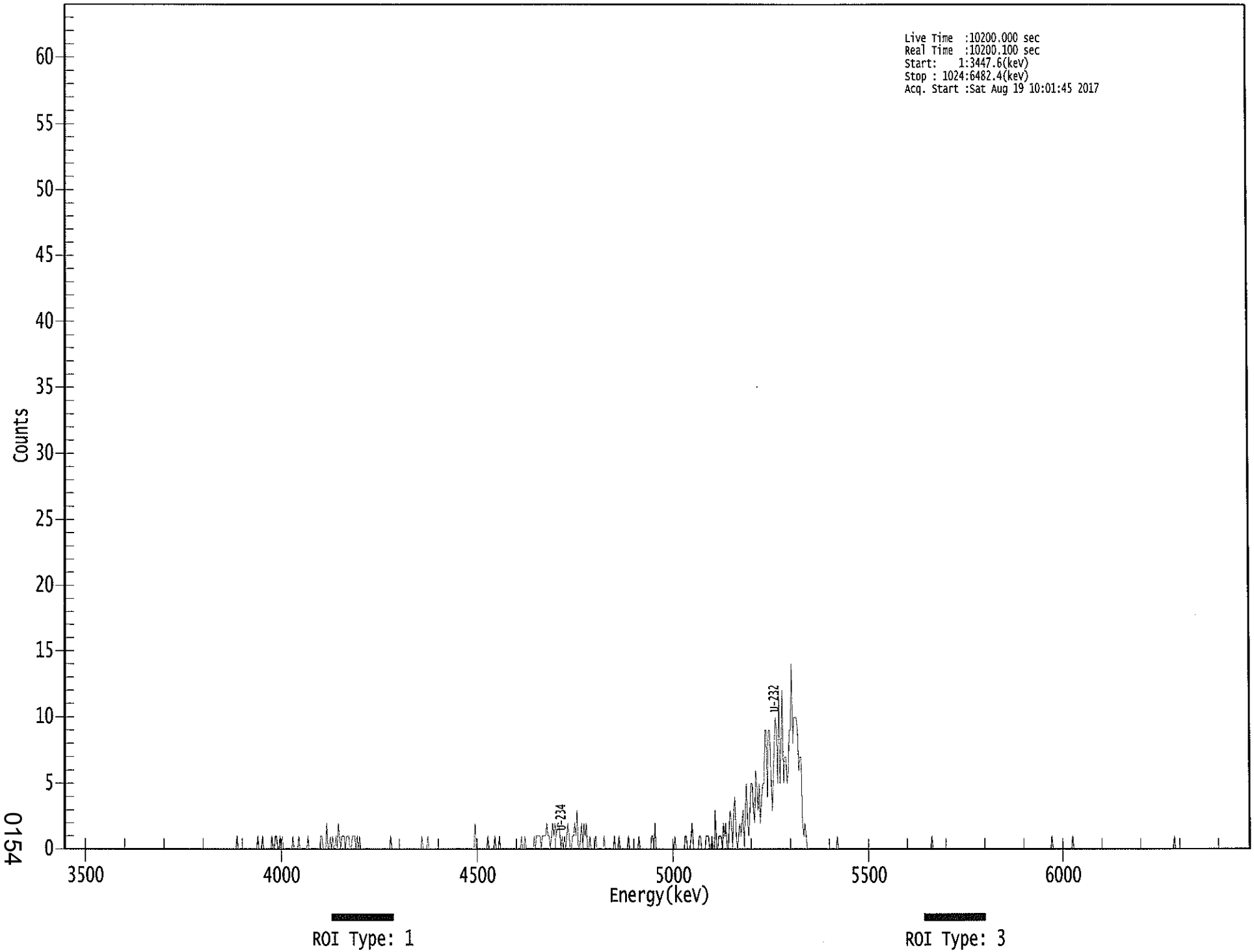
0000192037.CNF



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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	1	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	1	0	0	1	1	0
185:	0	1	0	1	0	0	0	0
193:	0	0	0	0	1	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	0	1	1	0	0
225:	0	2	0	0	1	0	1	0
233:	0	1	0	2	1	0	1	1
241:	1	0	1	1	1	0	0	1
249:	1	1	0	1	0	1	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	1	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	1	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	0
345:	0	0	0	0	0	0	0	0
353:	0	2	0	0	0	0	0	0
361:	0	0	0	0	1	0	0	0

369:	0	0	1	0	0	0	1	0

Sample Title: 14

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	1	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	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	1	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-A03-S001-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_058
Chamber Serial Number: 01017326B
Detector Serial Number: 58
Env. Background: System Bkgd 194229
Reagent Blank: <not performed>

Sample Size: 1.051E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:46 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1519 +/- 0.0092
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 0.9123 +/- 0.0576

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.258	316.32	11.03	0.68	0.00E+000	3.6
U-234		4.710	43.32	30.05	0.68	0.00E+000	6.0
U-235		4.366	4.00	109.57	0.00	0.00E+000	3.0
U-238		4.137	31.64	35.71	1.36	0.00E+000	4.5

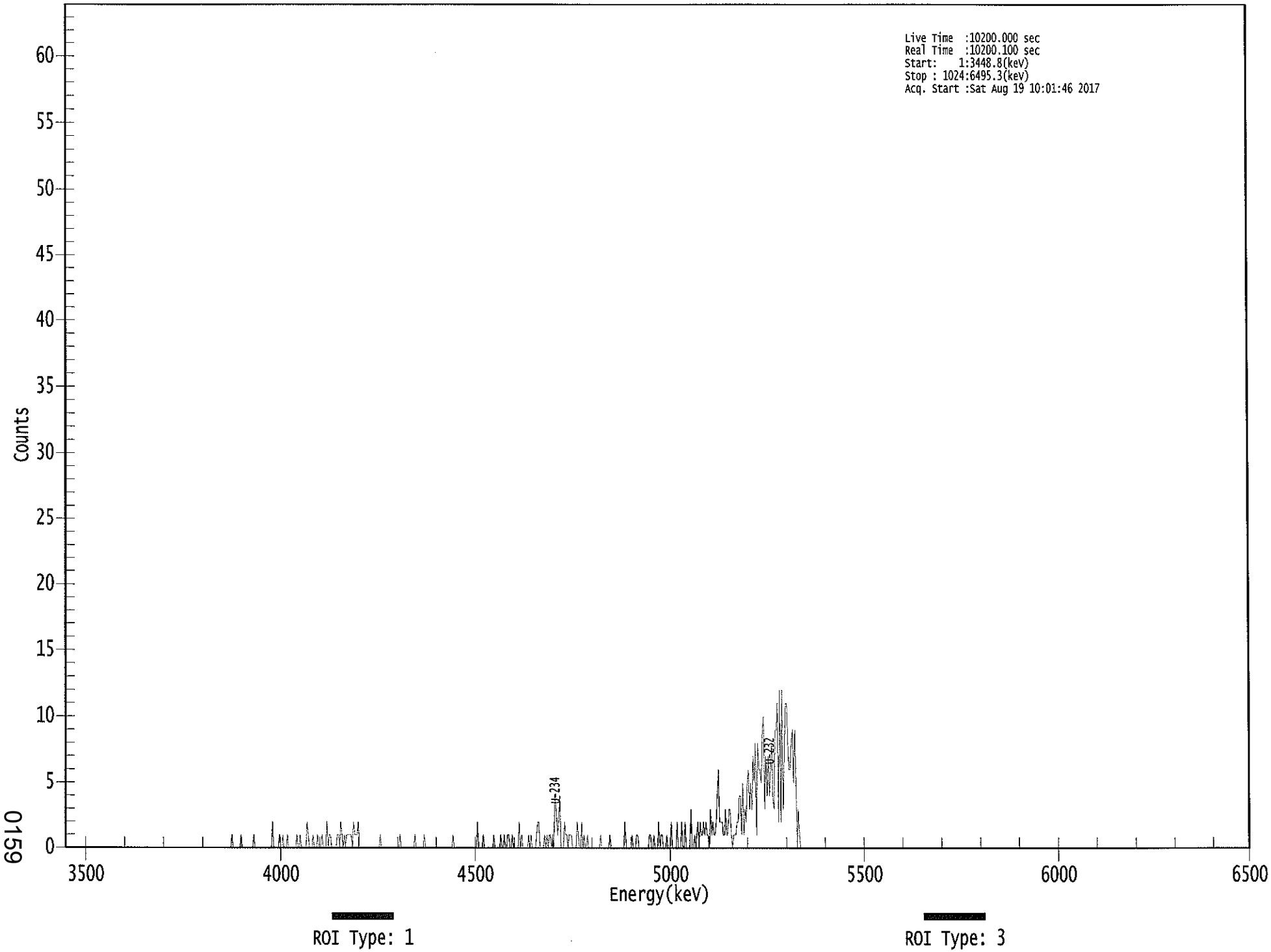
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.986	5302.50*	5.28E+000 +/- 6.29E-001	9.41E-002 +/- 1.12E-002
U-234	0.981	4761.50*	7.21E-001 +/- 2.33E-001	9.38E-002 +/- 1.12E-002
U-235	0.997	4385.50*	8.21E-002 +/- 9.05E-002	1.23E-001 +/- 1.47E-002
U-238	0.984	4184.40*	5.24E-001 +/- 1.97E-001	1.14E-001 +/- 1.35E-002

AG
8/21/17

0000192030.CNF



0159

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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	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	1
145:	0	0	0	0	0	0	0	1
153:	0	0	0	0	0	0	0	0
161:	0	0	1	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	2	0	0	0	0	0
185:	1	0	0	1	0	0	0	1
193:	0	0	0	0	0	0	0	1
201:	0	0	1	0	0	0	0	0
209:	2	1	0	0	0	1	0	0
217:	0	1	0	0	0	1	0	0
225:	0	2	0	1	1	0	0	0
233:	0	0	1	1	0	2	1	0
241:	1	0	1	1	1	1	1	0
249:	2	1	1	1	2	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	1
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	1	0	0	0	0	0	0	0
297:	0	0	0	0	0	1	0	0
305:	0	0	0	0	0	1	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	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	2	0	0	0	0
361:	1	0	0	0	0	0	0	0

369:	0	1	0	0	0	0	0	1

Sample Title: 15

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

8/21

Sample Description: HTC-A03-S001-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_059
Chamber Serial Number: 10006125A
Detector Serial Number: 59
Env. Background: System Bkgd 194230
Reagent Blank: <not performed>

Sample Size: 1.036E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:01:59 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1687 +/- 0.0098
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 0.9500 +/- 0.0575

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	5.267	351.49	10.46	0.51	0.00E+000	9.3
U-234		4.728	35.83	32.83	0.17	0.00E+000	3.7
U-235		4.434	8.83	66.70	0.17	0.00E+000	4.4
U-238		4.148	53.83	26.76	0.17	0.00E+000	4.4

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	5.35E+000 +/- 6.10E-001	7.99E-002 +/- 9.11E-003
U-234	0.992	4761.50*	5.44E-001 +/- 1.89E-001	6.34E-002 +/- 7.23E-003
U-235	0.984	4385.50*	1.66E-001 +/- 1.12E-001	7.82E-002 +/- 8.91E-003
U-238	0.991	4184.40*	8.14E-001 +/- 2.37E-001	6.31E-002 +/- 7.19E-003

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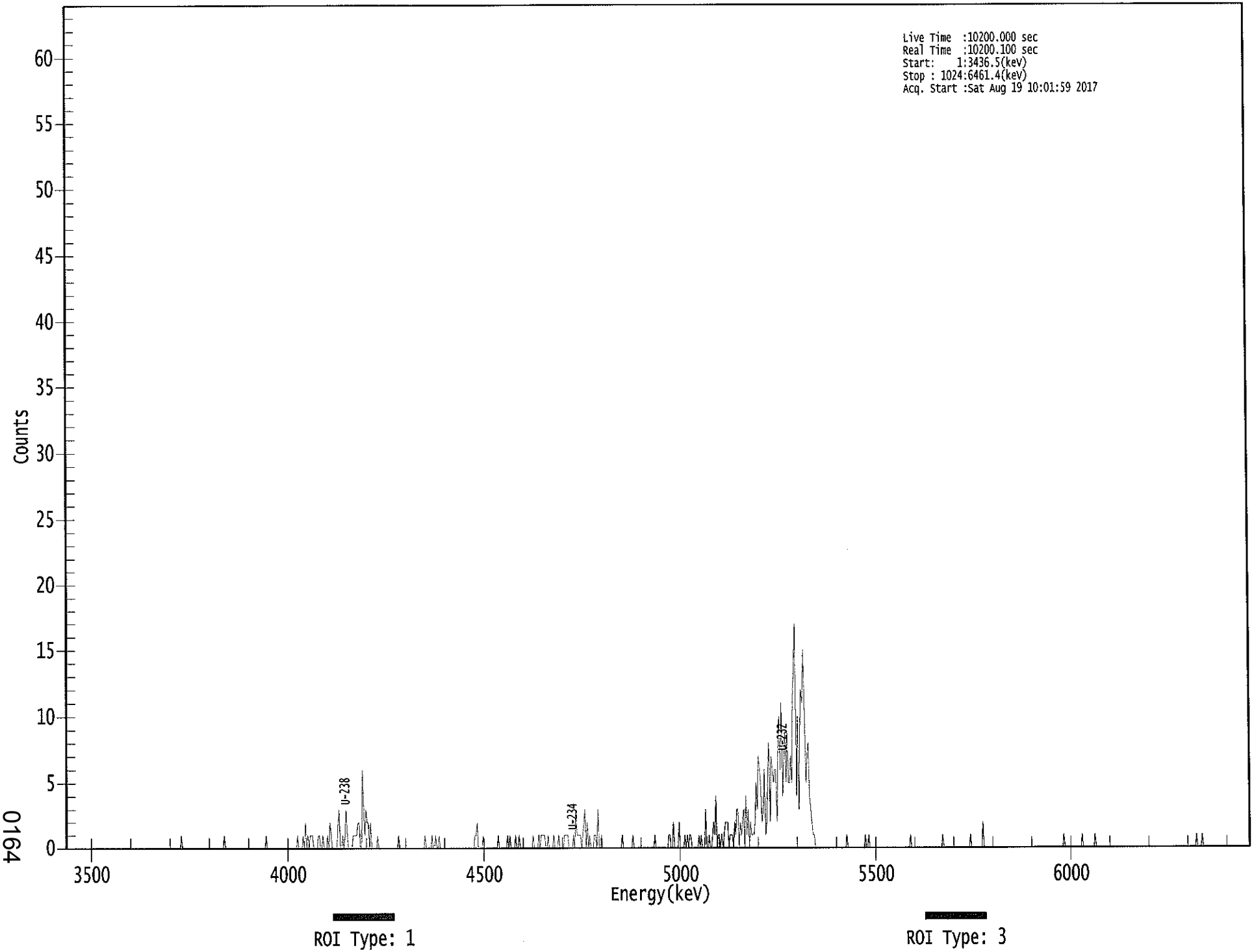
0000192038.CNF



0164

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

Sample Title: 16

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	1	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	1	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	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	1
201:	0	0	0	0	1	0	2	0
209:	1	0	1	1	1	0	0	0
217:	0	1	1	0	0	1	0	0
225:	0	1	0	2	1	0	0	0
233:	0	0	2	3	0	0	1	0
241:	1	3	1	0	0	0	0	1
249:	1	1	1	2	2	0	0	6
257:	3	1	3	2	2	0	2	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	1	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	1	0	0
313:	0	0	0	1	0	0	1	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:	1	1	2	0	0	0	0	1
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	1	0	0	0

Sample Title: 16

Channel								
377:	0	0	0	0	1	0	1	0
385:	0	0	0	1	0	0	1	0
393:	0	0	0	0	0	0	0	0
401:	0	0	1	0	0	0	0	1
409:	0	1	1	1	1	0	0	1
417:	0	0	0	0	1	0	0	0
425:	1	0	0	0	0	1	1	1
433:	1	0	0	0	0	1	0	3
441:	1	1	1	1	0	1	2	3
449:	0	2	0	1	0	0	0	1
457:	1	0	3	0	0	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	1
481:	0	0	0	0	0	0	0	0
489:	1	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	0	0	0
513:	0	0	0	0	0	0	0	1
521:	1	0	0	2	0	0	0	0
529:	2	0	0	0	0	1	0	1
537:	0	1	1	0	0	0	0	0
545:	0	1	0	1	0	0	0	3
553:	0	0	1	0	0	1	2	1
561:	4	0	1	1	0	1	0	1
569:	2	2	2	0	1	1	1	0
577:	2	1	3	3	0	2	1	2
585:	3	0	4	1	3	0	2	1
593:	1	1	2	5	3	7	6	5
601:	2	3	6	1	2	6	8	2
609:	7	6	5	6	6	2	7	10
617:	6	11	4	7	9	5	9	5
625:	5	7	5	12	13	17	4	10
633:	3	9	12	11	15	11	5	7
641:	8	4	3	2	1	1	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	1	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	1	0	0	1	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	1	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	1	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	1	0	0	0
785:	0	0	0	0	0	0	0	2
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	1	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	1	0	0
881:	0	0	0	0	0	0	0	0
889:	1	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	1	0	0	0	0	1	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8M

Sample Description: HTC-A03-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_060
Chamber Serial Number: 10006125B
Detector Serial Number: 60
Env. Background: System Bkgd 194231
Reagent Blank: <not performed>

Sample Size: 1.049E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 10:02:00 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1671 +/- 0.0098
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 1.1315 +/- 0.0689

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.280	348.32	10.51	0.68	0.00E+000	9.9
U-234		4.730	40.30	31.63	1.70	0.00E+000	7.4
U-235		4.405	2.32	149.12	0.68	0.00E+000	3.0
U-238		4.153	44.00	29.88	0.00	0.00E+000	3.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.29E+000 +/- 6.05E-001	8.57E-002 +/- 9.80E-003
U-234	0.993	4761.50*	6.10E-001 +/- 2.05E-001	1.11E-001 +/- 1.27E-002
U-235	0.997	4385.50*	4.33E-002 +/- 6.48E-002	1.05E-001 +/- 1.21E-002
U-238	0.993	4184.40*	6.64E-001 +/- 2.12E-001	9.04E-002 +/- 1.03E-002

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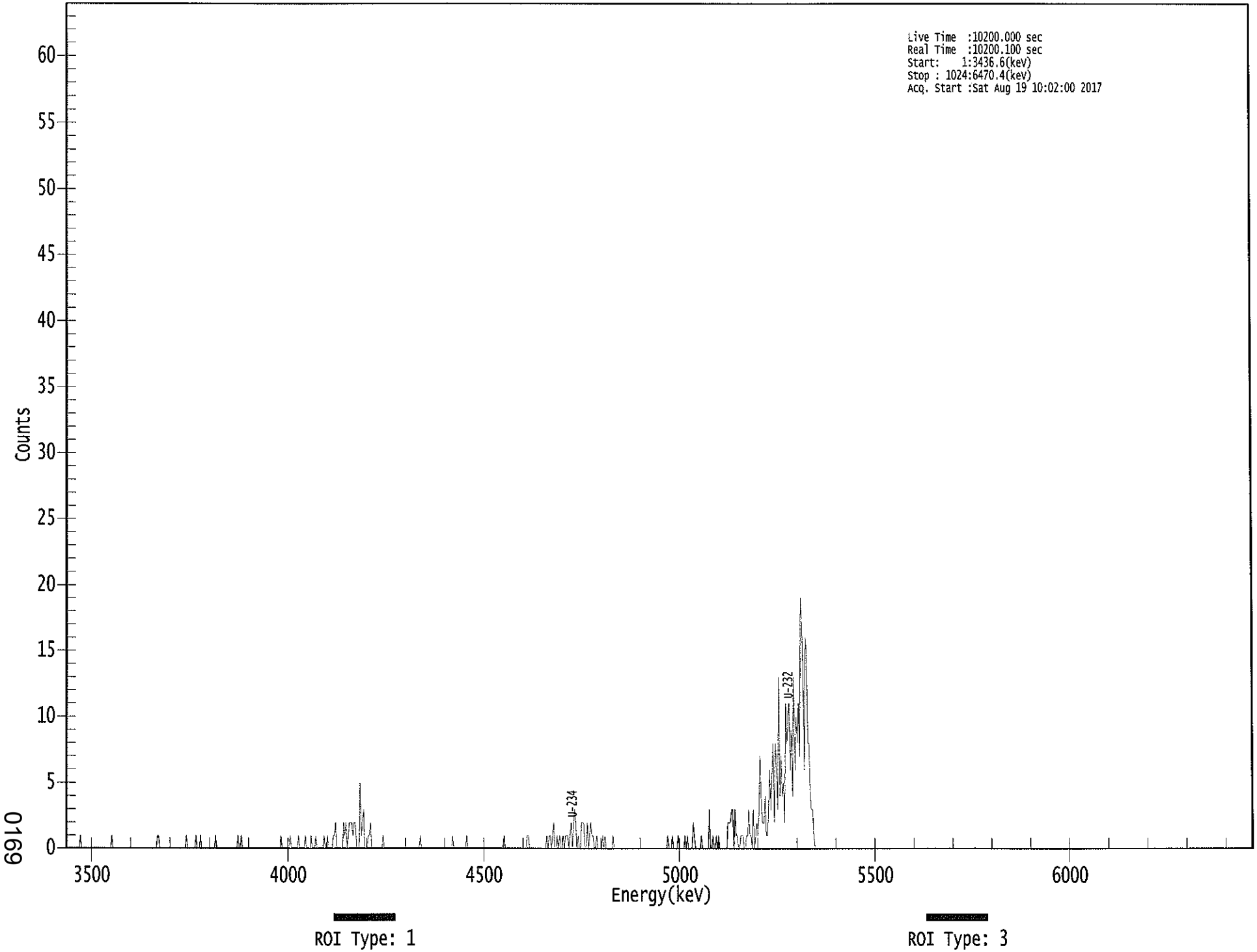
8/21/17

0000192035.CNF



0169

****
***** 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	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	1
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	1	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	1
105:	0	0	0	0	0	0	0	1
113:	0	0	0	1	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	1	0	0	1	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:	1	0	0	0	0	0	0	0
193:	1	0	0	0	0	0	0	1
201:	0	0	0	0	0	1	0	0
209:	0	0	1	0	0	0	1	0
217:	0	0	0	0	0	1	0	0
225:	1	0	0	0	0	1	1	2
233:	0	0	0	0	0	0	2	1
241:	2	0	1	2	2	2	1	2
249:	2	0	0	0	5	1	2	3
257:	0	0	0	1	1	2	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	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	1	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	1	0	0	0
337:	0	0	0	0	0	0	0	0
345:	1	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 17

Channel								
377:	1	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	1	1	0	0
401:	0	0	0	0	0	0	0	0
409:	0	0	0	0	0	1	0	1
417:	1	0	1	2	0	0	1	0
425:	1	0	0	1	0	1	1	1
433:	0	1	2	0	2	3	2	0
441:	1	0	0	2	2	2	0	0
449:	2	0	1	2	1	1	0	0
457:	1	0	0	0	0	1	0	1
465:	0	0	0	0	0	0	1	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	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	1	0	0
521:	0	1	0	0	0	0	1	0
529:	0	0	0	0	1	0	1	0
537:	0	0	0	2	1	0	0	0
545:	0	0	1	0	0	0	0	0
553:	0	3	0	0	1	0	0	1
561:	0	1	0	0	0	0	0	0
569:	0	2	2	2	3	3	0	3
577:	1	1	0	0	1	1	1	0
585:	0	1	1	3	1	1	0	3
593:	0	1	2	1	3	7	3	2
601:	2	4	1	1	3	6	3	6
609:	8	2	8	6	3	13	4	7
617:	4	5	2	11	8	10	11	6
625:	9	4	13	6	10	8	11	7
633:	19	17	14	6	16	15	8	8
641:	4	3	3	1	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	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: 17

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

Apex-Alpha™

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Sample Description: HTC-A03-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_033
Chamber Serial Number: 04026479A
Detector Serial Number: 91132
Env. Background: System Bkgd 194207
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 1:01:22 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.675 mL
Effective Efficiency: 0.1856 +/- 0.0104
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 1.1041 +/- 0.0645

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	387.00	9.98	0.00	0.00E+000	39.4
U-234		4.714	45.83	29.01	0.17	0.00E+000	9.0
U-235		4.352	1.66	169.38	0.34	0.00E+000	3.0
U-238		4.142	53.83	26.76	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*	5.54E+000 +/- 6.06E-001	8.58E-002 +/- 9.39E-003
U-234	0.984	4761.50*	6.54E-001 +/- 2.03E-001	5.96E-002 +/- 6.52E-003
U-235	0.992	4385.50*	2.92E-002 +/- 4.96E-002	8.42E-002 +/- 9.22E-003
U-238	0.987	4184.40*	7.65E-001 +/- 2.21E-001	5.93E-002 +/- 6.49E-003

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8/21/17

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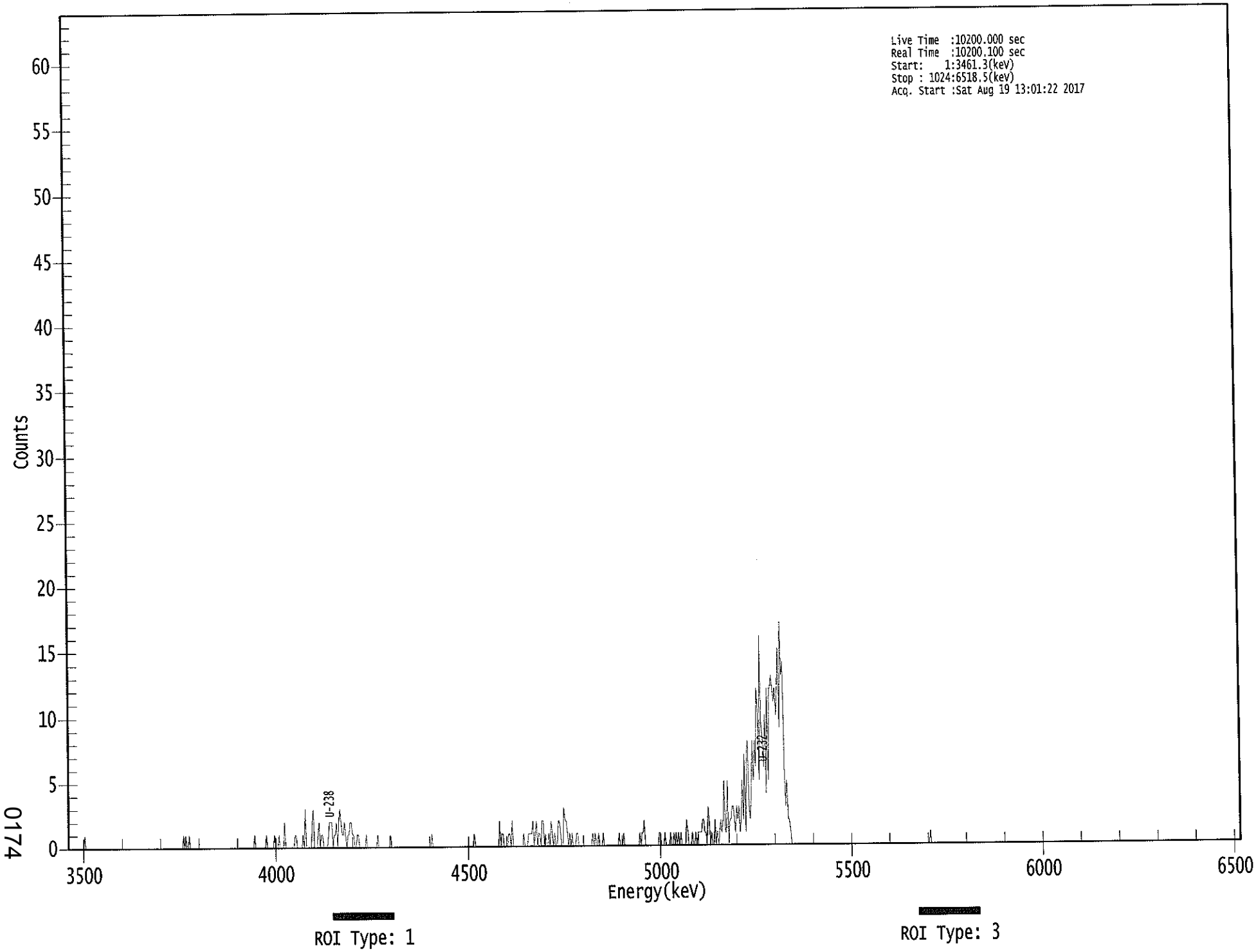

0174

****
***** 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	1	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	1	0	1	0
105:	0	1	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	1	0	0	0	0	0
169:	0	0	0	0	1	0	0	0
177:	0	0	0	1	0	0	0	1
185:	0	0	0	0	2	0	0	0
193:	0	0	0	0	0	1	1	0
201:	0	0	0	0	1	0	3	0
209:	0	0	0	0	2	3	0	0
217:	0	1	2	0	1	1	0	0
225:	0	0	1	2	2	2	0	1
233:	1	2	0	2	3	2	1	1
241:	2	1	0	1	1	2	2	1
249:	1	0	0	1	1	0	0	0
257:	0	0	0	1	0	0	0	0
265:	0	0	0	0	0	1	0	0
273:	0	0	0	0	0	0	0	0
281:	1	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	1	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	1	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	2

Sample Title: 18

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

801:	0	0	0	0	0	0	0	0

Sample Title: 18

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	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
8/21

Sample Description: HTC-A03-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_034
Chamber Serial Number: 04026479B
Detector Serial Number: 91136
Env. Background: System Bkgd 194208
Reagent Blank: <not performed>

Sample Size: 1.029E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 1:01:24 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1763 +/- 0.0101
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.0201 +/- 0.0608

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	367.32	10.24	0.68	0.00E+000	42.5
U-234		4.724	37.66	32.11	0.34	0.00E+000	3.7
U-235		4.419	5.98	87.78	1.02	0.00E+000	3.0
U-238		4.155	35.83	32.83	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	0.990	5302.50*	5.39E+000 +/- 6.03E-001	8.28E-002 +/- 9.26E-003
U-234	0.990	4761.50*	5.51E-001 +/- 1.87E-001	7.00E-002 +/- 7.83E-003
U-235	0.992	4385.50*	1.08E-001 +/- 9.55E-002	1.14E-001 +/- 1.27E-002
U-238	0.994	4184.40*	5.22E-001 +/- 1.81E-001	6.08E-002 +/- 6.80E-003

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8/21/17

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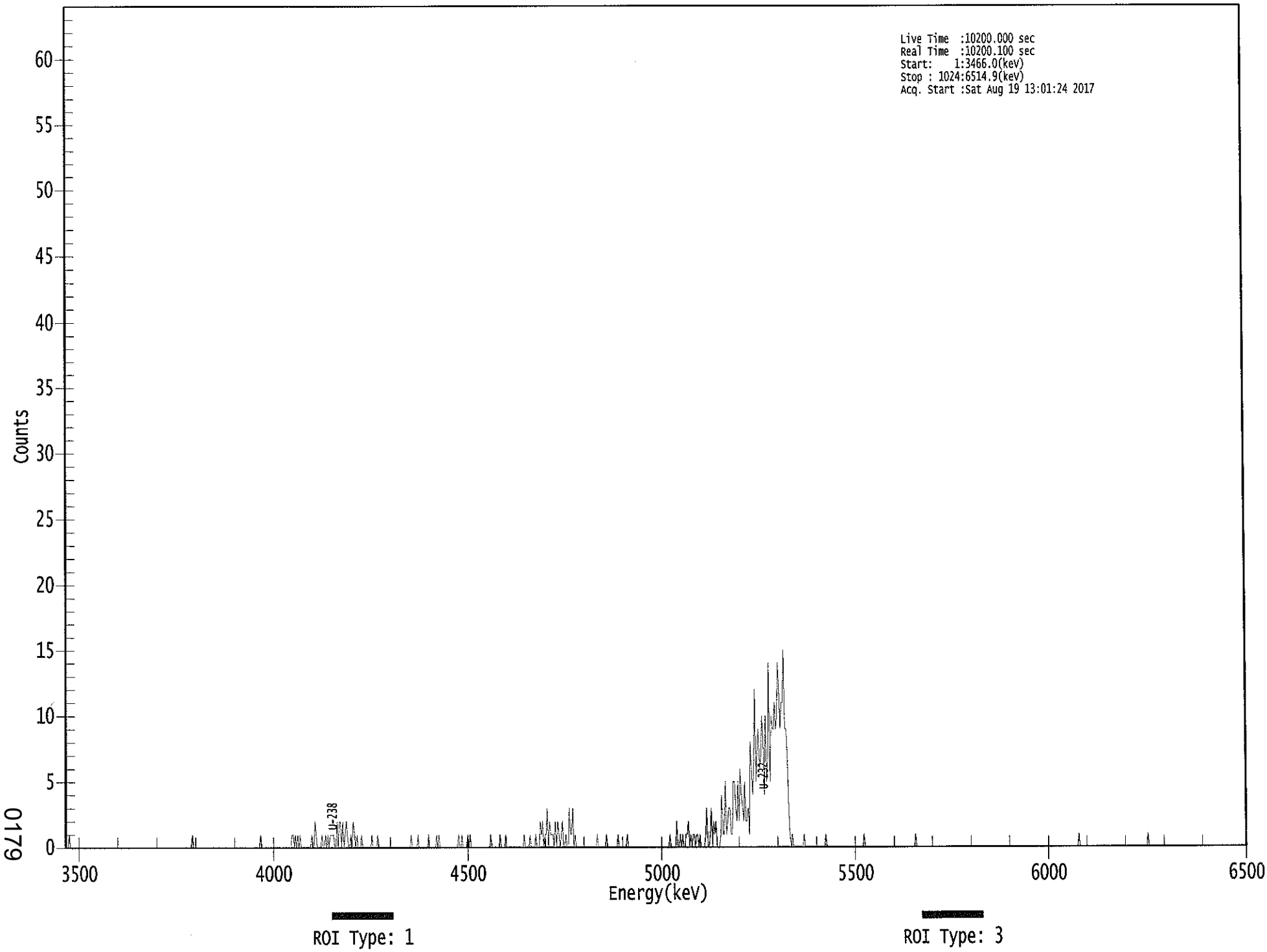

0179

****
***** 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	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	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:	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:	1	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	1	0	1	0
201:	1	0	1	0	0	0	0	0
209:	0	0	0	0	1	0	0	2
217:	1	0	0	0	0	1	0	0
225:	1	0	1	0	1	1	1	1
233:	0	0	2	0	2	2	0	2
241:	0	1	2	1	0	0	1	0
249:	2	1	0	1	0	0	0	1
257:	0	0	0	0	0	0	0	0
265:	1	0	0	0	0	1	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	1	0	0	0	0	0
305:	1	0	0	0	0	0	0	0
313:	0	1	0	0	0	0	0	0
321:	1	0	1	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	0	1	0
345:	0	0	0	1	0	1	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	1

369:	0	0	0	0	0	0	0	1

Sample Title: 19

Channel								
377:	0	0	0	0	1	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	1	0	0	0
401:	0	1	0	0	0	0	1	0
409:	0	0	2	1	2	0	1	1
417:	3	0	2	1	1	1	0	2
425:	0	2	1	0	1	2	0	0
433:	1	0	0	3	1	1	3	0
441:	1	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0
457:	0	0	0	1	0	0	0	0
465:	0	0	0	1	0	0	0	0
473:	0	0	0	0	0	1	0	0
481:	0	0	0	0	0	1	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	2	0	0	1	0	1	0	0
537:	1	1	2	0	1	0	1	1
545:	0	1	1	0	1	0	0	0
553:	0	1	3	0	0	1	3	0
561:	2	1	2	0	0	0	1	4
569:	1	1	5	1	2	3	3	1
577:	1	5	5	3	2	5	2	6
585:	4	3	2	5	2	2	3	1
593:	8	6	4	6	12	5	8	9
601:	6	7	10	8	4	10	5	7
609:	14	5	10	9	9	11	9	10
617:	14	12	9	11	11	15	9	9
625:	7	3	1	0	1	0	0	0
633:	0	0	0	0	0	0	1	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	1	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	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	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	1
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	1	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	1	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
8/21

Sample Description: HTC-A03-S001-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001920
Batch Identification: 1707086A-UU
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_035
Chamber Serial Number: 04026477A
Detector Serial Number: 58771
Env. Background: System Bkgd 194209
Reagent Blank: <not performed>

Sample Size: 1.025E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:30:38 AM
Acquisition Date/Time: 8/19/2017 1:01:20 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.674 mL
Effective Efficiency: 0.1912 +/- 0.0106
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 1.2104 +/- 0.0700

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	398.00	9.84	0.00	0.00E+000	5.7
U-234		4.720	57.49	25.98	0.51	0.00E+000	3.5
U-235		4.395	2.83	120.53	0.17	0.00E+000	3.0
U-238		4.132	50.49	27.75	0.51	0.00E+000	5.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	5.41E+000 +/- 5.85E-001	8.15E-002 +/- 8.82E-003
U-234	0.988	4761.50*	7.79E-001 +/- 2.19E-001	7.11E-002 +/- 7.69E-003
U-235	0.999	4385.50*	4.73E-002 +/- 5.72E-002	6.98E-002 +/- 7.55E-003
U-238	0.981	4184.40*	6.81E-001 +/- 2.03E-001	7.08E-002 +/- 7.66E-003

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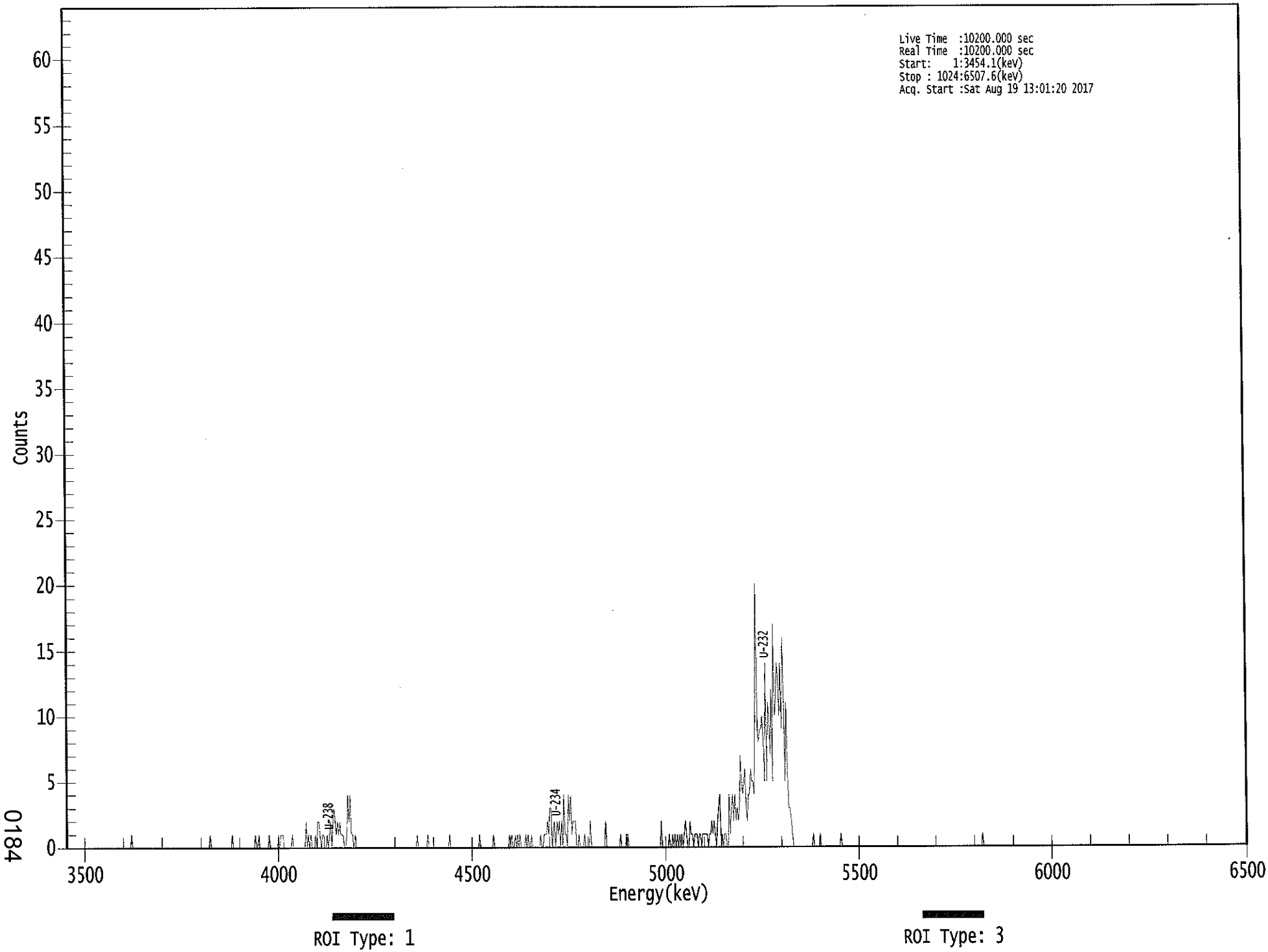
8/21/17

0000192040.CNF



0184

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

369:	0	1	0	0	0	0	0	0

Sample Title: 20

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

8/18/2017 5:22:23 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/18/2017
Time : 5:22:23 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/18/2017 4:58:18 AM
Alpha_004	21f	ALL	Passed	8/18/2017 4:58:18 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	8/18/2017 4:58:19 AM
Alpha_011	21f	ALL	Passed	8/18/2017 4:58:20 AM
Alpha_012	21f	ALL	Passed	8/18/2017 4:58:21 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/18/2017 4:58:22 AM
Alpha_015	21f	Peak FWHM	Action	8/18/2017 4:58:23 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:24 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:26 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:27 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:29 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:31 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/18/2017 4:58:33 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:35 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/18/2017 4:58:38 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:40 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:43 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:45 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:48 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:50 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:53 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:55 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:58:58 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:01 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:04 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:06 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:09 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:12 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:14 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:17 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:20 AM

Review of QA Results - Pulser Check

8/18/2017 5:22:23 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha 059	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:23 AM
Alpha 060	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:26 AM

APPROVED BY: _____

APPROVAL DATE: 8/18/17

8/19/2017 9:59:11 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/19/2017
Time : 9:59:11 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/19/2017 9:42:05 AM
Alpha_004	21f	ALL	Passed	8/19/2017 9:42:06 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	8/19/2017 9:42:07 AM
Alpha_011	21f	ALL	Passed	8/19/2017 9:42:08 AM
Alpha_012	21f	ALL	Passed	8/19/2017 9:42:09 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/19/2017 9:42:10 AM
Alpha_015	21f	Peak FWHM	Action	8/18/2017 4:58:23 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:11 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:13 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:14 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:16 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:18 AM
Alpha_038	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:19 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:20 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/19/2017 9:42:22 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:24 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:26 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:27 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:29 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:30 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:32 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:34 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:36 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:01 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:38 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:39 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:41 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:12 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:43 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:45 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:47 AM

Review of QA Results - Pulser Check

8/19/2017 9:59:11 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:49 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/19/2017 9:42:51 AM

APPROVED BY: KB

APPROVAL DATE: 8/19/17

```
*********************************************************************
*****          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

RUN 2

Eberline Analytical
Oak Ridge Laboratory
Analysis Sheet

17-07086
UUISO
Run 2

Work Order	17-07086
Analysis Code	UUISO
Run	2
Date Received	7/18/2017
Lab Deadline	8/10/2017
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)	18.31
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A03-S001-0006-01	32	05/15/17 08:26	1.0007E+00
10	DO	HTC-A03-S001-0006-01	32	05/15/17 08:26	1.0006E+00
11	TRG	HTC-A03-S001-0006-01 MS	30	05/15/17 08:26	1.0072E+00
12	TRG	HTC-A03-S001-0006-01 MSD	30	05/15/17 08:26	1.0006E+00

0194

* 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.

17-07086
UUISO
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	0.6772	12.4		0.00								
02	MBL	0.6723	12.3		0.00								
03	DUP	0.6708	12.3		0.00								
10	DO	0.6704	12.3		0.00								
11	TRG	0.6712	12.3		0.00								
12	TRG	0.6705	12.3		0.00								

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

17-07086
UUISO
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			08/23/17 10:48	JPACHELLA				
02	MBL			08/23/17 10:48	JPACHELLA				
03	DUP			08/23/17 10:48	JPACHELLA				
10	DO	07/31/17 09:09	KSALLINGS	08/23/17 10:48	JPACHELLA				
11	TRG	07/31/17 09:09	KSALLINGS	08/23/17 10:48	JPACHELLA				
12	TRG	07/31/17 09:09	KSALLINGS	08/23/17 10:48	JPACHELLA				

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

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-2

Client: Weston Solutions, Inc. 0197
Eberline Analytical Work Order: 17-07086
Analysis Code: UUISO
Run: 2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	7.08E+00	9.01E-01	7.20E-02	8.15E+00	86.94	OK		OK	
02	U-234	MBL	BLANK	pCi/g	7.02E-02	6.78E-02	8.42E-02					OK	OK
03	U-234	DUP	HTC-A03-S001-0006-01	pCi/g	8.39E-01	2.24E-01	8.13E-02					OK	
10	U-234	DMSO	HTC-A03-S001-0006-01	pCi/g	8.35E-01	2.12E-01	7.66E-02					OK	
11	U-234	MS	HTC-A03-S001-0006-01	pCi/g	6.72E+00	8.93E-01	5.10E-02					OK	
12	U-234	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	6.88E+00	8.89E-01	6.57E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc. 0198	17-07086	UUISO	2

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	07/19/17 00:00	1.00E+00	123.98	0.00	0.00			
02	U-234	MBL	07/19/17 00:00	1.00E+00	105.49	0.00	0.00			
03	U-234	DUP	05/15/17 08:26	1.00E+00	121.80	0.00	0.00			
10	U-234	DMSO	05/15/17 08:26	1.00E+00	133.26	0.00	0.00			
11	U-234	MS	05/15/17 08:26	1.01E+00	132.81	0.00	0.00			
12	U-234	TRG	05/15/17 08:26	1.00E+00	139.57	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Run: 2
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
0199

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	U-234	LCS	08/25/17 08:16		A_Spec	Alpha_043	170	6.20 E+02	6.00 E-03	18.7	
02	U-234	MBL	08/25/17 08:16		A_Spec	Alpha_044	170	5.00 E+00	0.00 E+00	17.9	
03	U-234	DUP	08/25/17 08:16		A_Spec	Alpha_045	170	6.50 E+01	6.00 E-03	16.9	
10	U-234	DMSO	08/25/17 08:16		A_Spec	Alpha_046	170	7.18 E+01	7.00 E-03	17.1	
11	U-234	MS	08/25/17 08:16		A_Spec	Alpha_047	170	5.50 E+02	1.00 E-03	16.2	
12	U-234	TRG	08/25/17 08:16		A_Spec	Alpha_048	170	5.91 E+02	4.00 E-03	16.3	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Run: 2
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
0200

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	6.78E+00	8.68E-01	5.44E-02	7.89E+00	85.85	OK		OK	
02	U-238	MBL	BLANK	pCi/g	2.56E-02	3.91E-02	5.83E-02					OK	OK
03	U-238	DUP	HTC-A03-S001-0006-01	pCi/g	8.67E-01	2.27E-01	6.74E-02					OK	
10	U-238	DMSO	HTC-A03-S001-0006-01	pCi/g	7.35E-01	1.96E-01	6.07E-02					OK	
11	U-238	MS	HTC-A03-S001-0006-01	pCi/g	7.42E+00	9.67E-01	5.82E-02					OK	
12	U-238	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	7.37E+00	9.39E-01	4.84E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Run	Analysis Code	Eberline Analytical Work Order	Client
2	UUISO	17-07086	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	U-238	LCS	07/19/17 00:00	1.00E+00	123.98	0.00	0.00			
02	U-238	MBL	07/19/17 00:00	1.00E+00	105.49	0.00	0.00			
03	U-238	DUP	05/15/17 08:26	1.00E+00	121.80	0.00	0.00			
10	U-238	DMSO	05/15/17 08:26	1.00E+00	133.26	0.00	0.00			
11	U-238	MS	05/15/17 08:26	1.01E+00	132.81	0.00	0.00			
12	U-238	TRG	05/15/17 08:26	1.00E+00	139.57	0.00	0.00			

0201

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Run	Analysis Code	Eberline Analytical Work Order	Client
2	UUISO	17-07086	Weston Solutions, Inc.

0202

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	U-238	LCS	08/25/17 08:16		A_Spec	Alpha_043	170	5.96 E+02	2.00 E-03	18.7	
02	U-238	MBL	08/25/17 08:16		A_Spec	Alpha_044	170	1.83 E+00	1.00 E-03	17.9	
03	U-238	DUP	08/25/17 08:16		A_Spec	Alpha_045	170	6.75 E+01	3.00 E-03	16.9	
10	U-238	DMSO	08/25/17 08:16		A_Spec	Alpha_046	170	6.35 E+01	3.00 E-03	17.1	
11	U-238	MS	08/25/17 08:16		A_Spec	Alpha_047	170	6.10 E+02	2.00 E-03	16.2	
12	U-238	TRG	08/25/17 08:16		A_Spec	Alpha_048	170	6.36 E+02	1.00 E-03	16.3	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-UUISO-2

Run: 2
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
0203

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	5.40E-01	1.81E-01	7.95E-02					OK	
02	U-235	MBL	BLANK	pCi/g	0.00E+00	4.80E-02	1.04E-01					OK	OK
03	U-235	DUP	HTC-A03-S001-0006-01	pCi/g	9.28E-02	7.72E-02	6.64E-02					OK	
10	U-235	DMSO	HTC-A03-S001-0006-01	pCi/g	9.55E-02	7.53E-02	6.85E-02					OK	
11	U-235	MS	HTC-A03-S001-0006-01	pCi/g	6.89E-01	2.13E-01	7.21E-02					OK	
12	U-235	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	7.39E-01	2.16E-01	7.53E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07086	UUISO	2

0204

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	07/19/17 00:00	1.00E+00	123.98	0.00	0.00			
02	U-235	MBL	07/19/17 00:00	1.00E+00	105.49	0.00	0.00			
03	U-235	DUP	05/15/17 08:26	1.00E+00	121.80	0.00	0.00			
10	U-235	DMSO	05/15/17 08:26	1.00E+00	133.26	0.00	0.00			
11	U-235	MS	05/15/17 08:26	1.01E+00	132.81	0.00	0.00			
12	U-235	TRG	05/15/17 08:26	1.00E+00	139.57	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-UUISO-2

Run: 2
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
0205

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	U-235	LCS	08/25/17 08:16		A_Spec	Alpha_043	170	3.83 E+01	4.00 E-03	18.7	
02	U-235	MBL	08/25/17 08:16		A_Spec	Alpha_044	170	1.00 E+00	0.00 E+00	17.9	
03	U-235	DUP	08/25/17 08:16		A_Spec	Alpha_045	170	5.83 E+00	1.00 E-03	16.9	
10	U-235	DMSO	08/25/17 08:16		A_Spec	Alpha_046	170	6.66 E+00	2.00 E-03	17.1	
11	U-235	MS	08/25/17 08:16		A_Spec	Alpha_047	170	4.57 E+01	2.00 E-03	16.2	
12	U-235	TRG	08/25/17 08:16		A_Spec	Alpha_048	170	5.15 E+01	3.00 E-03	16.3	

Count Room Report
Client: Weston Solutions, Inc.

17-07086-UUISO-2 (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	07/19/17 00:00	1.0000	0.6772	12.3995		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.6723	12.3098		0.00		
03	DUP	HTC-A03-S001-0006-01	05/15/17 08:26	1.0007	0.6708	12.2823		0.00		
10	DO	HTC-A03-S001-0006-01	05/15/17 08:26	1.0006	0.6704	12.2750		0.00		
11	TRG	HTC-A03-S001-0006-01 MS	05/15/17 08:26	1.0072	0.6712	12.2897		0.00		
12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	1.0006	0.6705	12.2769		0.00		

43
9180
48

0206

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/23/2017 10:48 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07086	2	UUISO	8/23/2017 10:42	JPACHELLA	JPM	

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	8/23/2017	0.550	0.5652	0.5585		0.5573	8.15	0.293	8.05	0.290	0.00	0.000	8.03	0.289
U-238	U-8a	31.000	8/23/2017	0.550	0.5652	0.5585		0.5573	7.89	0.284	7.80	0.281	0.00	0.000	7.78	0.280

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.310	8/23/2017	0.6772	0.6600
02	U-232	U-10a	18.310	8/23/2017	0.6723	0.6600
03	U-232	U-10a	18.310	8/23/2017	0.6708	0.6600
10	U-232	U-10a	18.310	8/23/2017	0.6704	0.6600
11	U-232	U-10a	18.310	8/23/2017	0.6712	0.6600
12	U-232	U-10a	18.310	8/23/2017	0.6705	0.6600

Balance Printer Tapes

Tracer

0.5652 g
0.5585 g
0.5573 g

0.6772 g
0.6723 g
0.6708 g
0.6704 g
0.6712 g
0.6705 g

LCS

Matrix Spike

0207

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07086	2	UUISO	grams	8/10/2017	JPACHELLA

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-A03-S001-0006-01	DUP					1.0007E+00	1.0007E+00				
10	HTC-A03-S001-0006-01	DO					1.0006E+00	1.0006E+00				
11	HTC-A03-S001-0006-01 MS	TRG					1.0072E+00	1.0072E+00				
12	HTC-A03-S001-0006-01 MSD	TRG					1.0006E+00	1.0006E+00				

Comments	

0208

Technician: JPachella Date: 8/23/17

Apex-Alpha™

VB 9/25/17

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001926
Batch Identification: 1707086B-UU
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 194215
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/25/2017 6:25:22 AM
Acquisition Date/Time: 8/25/2017 8:16:32 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.677 mL
Effective Efficiency: 0.2324 +/- 0.0118
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.2398 +/- 0.0665

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.755273 +/- 0.054331
Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

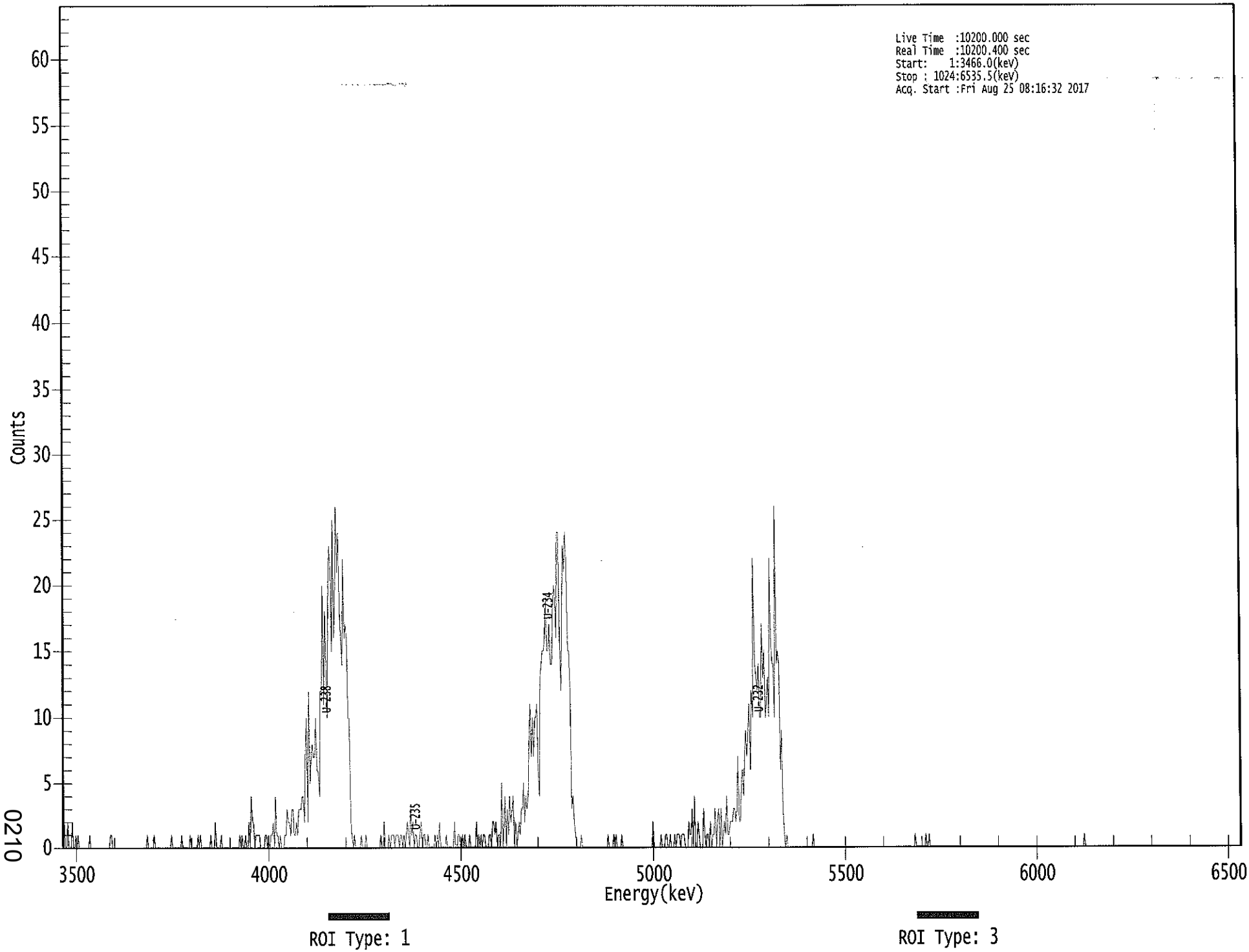
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.279	486.30	8.91	1.70	0.00E+000	11.8
U-234		4.731	619.98	7.88	1.02	0.00E+000	54.3
U-235		4.383	38.32	31.99	0.68	0.00E+000	3.8
U-238		4.154	595.66	8.03	0.34	0.00E+000	51.6

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.56E+000 +/- 5.55E-001	8.39E-002 +/- 8.38E-003
U-234	0.994	4761.50*	7.08E+000 +/- 9.01E-001	7.20E-002 +/- 7.19E-003
U-235	1.000	4385.50*	5.40E-001 +/- 1.81E-001	7.95E-002 +/- 7.94E-003
U-238	0.994	4184.40*	6.78E+000 +/- 8.68E-001	5.44E-002 +/- 5.43E-003

0000192608.CNF



0210

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

Sample Title: 01

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	1	0	2	2	1	2

Sample Title: 01

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

801:	0	0	0	0	0	0	0	0

Sample Title: 01

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

JCB 8/25/17

Apex-Alpha™

Sample Description:	BLANK
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001926
Batch Identification:	1707086B-UU
Sample Identification:	02
Sample Geometry:	Shelf 2
Procedure Description:	U iso
Detector Name:	Alpha_044
Chamber Serial Number:	04026481B
Detector Serial Number:	84168
Env. Background:	System Bkgd 194216
Reagent Blank:	<not performed>
Sample Size:	1.000E+000 +/- 0.000E+000 gram
Sample Date/Time:	8/25/2017 6:25:22 AM
Acquisition Date/Time:	8/25/2017 8:16:34 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	U232_UU-10A
Tracer Quantity:	0.672 mL
Effective Efficiency:	0.1891 +/- 0.0105
Counting Efficiency:	0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor:	1.0549 +/- 0.0612
Peak Match Tolerance:	0.150 MeV

PEAK AREA REPORT

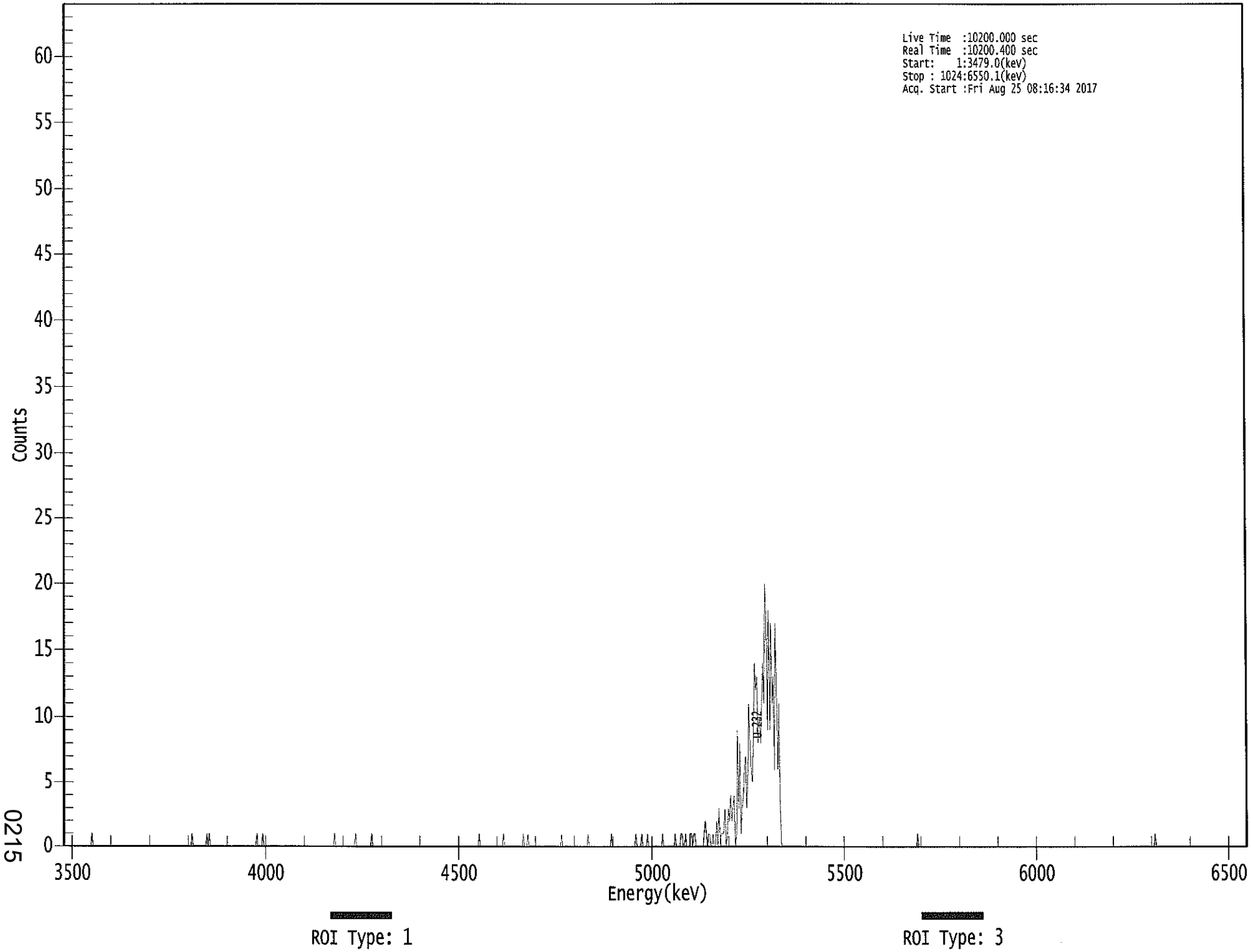
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.279	392.83	9.89	0.17	0.00E+000	15.7
U-234		4.713	5.00	96.02	0.00	0.00E+000	3.0
U-235		4.398	0.00	1960.0	0.00	0.00E+000	0.0
U-238		4.206	1.83	152.56	0.17	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.52E+000 +/- 6.00E-001	5.86E-002 +/- 6.37E-003
U-234	0.984	4761.50*	7.02E-002 +/- 6.78E-002	8.42E-002 +/- 9.15E-003
U-235	0.999	4385.50*	0.00E+000 +/- 4.80E-002	1.04E-001 +/- 1.13E-002
U-238	0.997	4184.40*	2.56E-002 +/- 3.91E-002	5.83E-002 +/- 6.34E-003

0000192606.CNF



0215

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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel							
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	1	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	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	1	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	1	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	1	0
169:	0	0	0	1	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	1	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	1	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	1	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	1	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	1	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	0	1	0	0	0
401:	1	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	0	0	0	0
425:	0	0	0	0	0	1	0	0
433:	0	0	0	0	0	0	0	0
441:	0	0	0	0	0	0	0	0
449:	0	0	0	0	1	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	1	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	1	0	0
497:	0	0	1	0	0	0	0	1
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	1	0	0	0
521:	0	0	0	0	0	0	0	1
529:	0	0	0	0	1	1	0	0
537:	1	0	0	0	1	1	0	1
545:	1	0	0	0	0	0	0	0
553:	1	2	1	0	1	1	0	0
561:	1	0	0	2	0	3	0	1
569:	1	1	3	0	1	3	2	4
577:	2	3	4	0	1	9	3	8
585:	1	3	4	6	7	3	5	11
593:	8	6	5	9	14	12	13	8
601:	10	8	11	14	11	20	18	9
609:	18	9	17	11	13	6	17	12
617:	6	11	3	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	1	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 02

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

ICB 8/25/17

Sample Description: HTC-A03-S001-0006-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001926
Batch Identification: 1707086B-UU
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194217
Reagent Blank: <not performed>

Sample Size: 1.001E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:25:22 AM
Acquisition Date/Time: 8/25/2017 8:16:35 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.671 mL
Effective Efficiency: 0.2056 +/- 0.0110
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.2180 +/- 0.0686

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

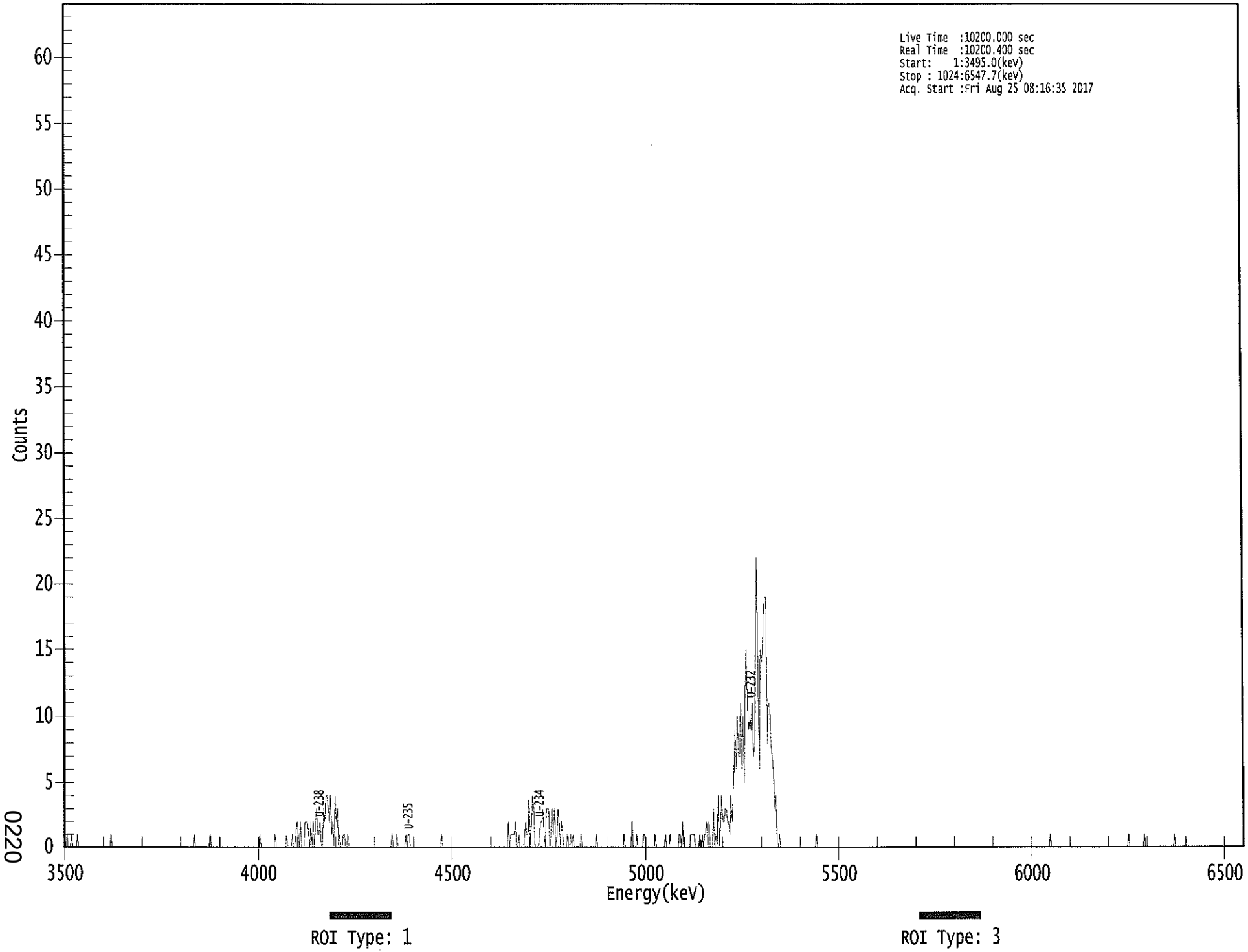
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.272	426.15	9.51	0.85	0.00E+000	8.0
U-234		4.726	64.98	24.54	1.02	0.00E+000	3.5
U-235		4.383	5.83	82.55	0.17	0.00E+000	3.0
U-238		4.154	67.49	23.96	0.51	0.00E+000	11.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.51E+000 +/- 5.80E-001	7.75E-002 +/- 8.15E-003
U-234	0.991	4761.50*	8.39E-001 +/- 2.24E-001	8.13E-002 +/- 8.55E-003
U-235	1.000	4385.50*	9.28E-002 +/- 7.72E-002	6.64E-002 +/- 6.99E-003
U-238	0.993	4184.40*	8.67E-001 +/- 2.27E-001	6.74E-002 +/- 7.09E-003

0000192603.CNF



0220

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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel							
1:	0	0	1	0	0	0	1	0
9:	0	0	0	1	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	1	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	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:	1	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	1	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	1	0	0	0	0	0	0
177:	0	0	0	0	0	0	1	0
185:	0	0	0	0	0	0	0	0
193:	1	0	0	0	0	1	0	0
201:	1	2	1	0	2	0	0	0
209:	2	2	2	1	0	2	0	2
217:	0	2	3	1	1	2	0	0
225:	3	2	4	4	3	2	4	1
233:	2	0	4	2	3	0	1	0
241:	0	1	1	0	0	1	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	1	0	0	0	1
289:	0	0	0	0	0	0	0	1
297:	0	1	1	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	1	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 03

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

801:	0	0	0	0	0	0	0	0

Sample Title: 03

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

Apex-Alpha™

Sample Description:	HTC-A03-S001-0006-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001926
Batch Identification:	1707086B-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 194218
Reagent Blank:	<not performed>
Sample Size:	1.001E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/15/2017 6:25:22 AM
Acquisition Date/Time:	8/25/2017 8:16:38 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	U232_UU-10A
Tracer Quantity:	0.670 mL
Effective Efficiency:	0.2283 +/- 0.0118
Counting Efficiency:	0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor:	1.3326 +/- 0.0723
Peak Match Tolerance:	0.150 MeV

PEAK AREA REPORT

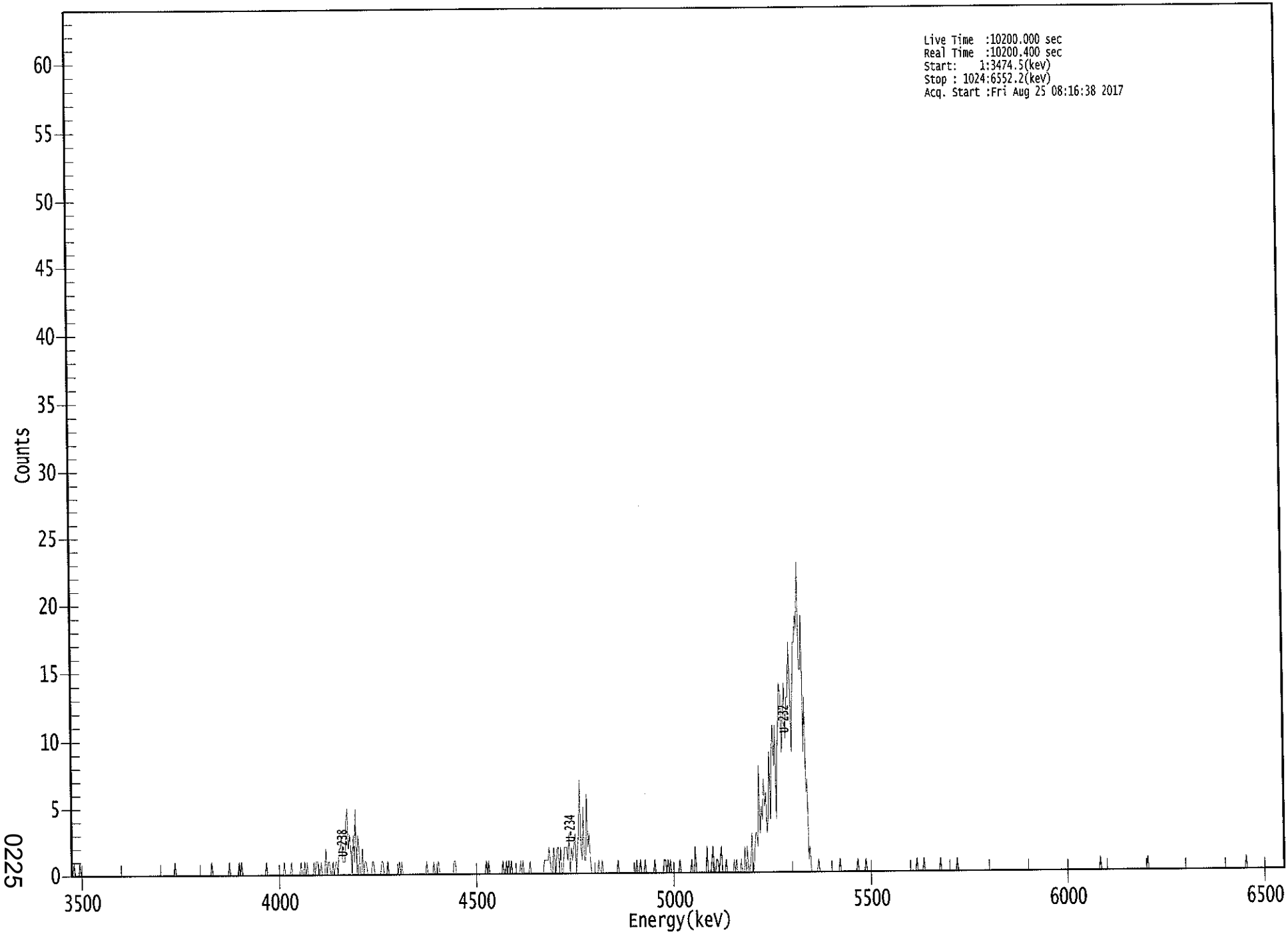
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.286	472.98	9.02	1.02	0.00E+000	27.5
U-234		4.741	71.81	23.35	1.19	0.00E+000	4.7
U-235		4.382	6.66	78.18	0.34	0.00E+000	3.0
U-238		4.164	63.49	24.71	0.51	0.00E+000	7.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	5.51E+000 +/- 5.56E-001	7.34E-002 +/- 7.41E-003
U-234	0.997	4761.50*	8.35E-001 +/- 2.12E-001	7.66E-002 +/- 7.72E-003
U-235	1.000	4385.50*	9.55E-002 +/- 7.53E-002	6.85E-002 +/- 6.92E-003
U-238	0.997	4184.40*	7.35E-001 +/- 1.96E-001	6.07E-002 +/- 6.13E-003

0000192604.CNF



ROI Type: 1

ROI Type: 3

0225

```
*****************************************************
*****   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	1	0	0	0	0	1
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	1
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	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	1	0	1
145:	0	0	0	0	0	0	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	0	0	0	0
177:	0	0	0	1	0	0	0	0
185:	0	1	0	0	0	0	0	0
193:	0	1	0	0	1	0	1	0
201:	0	0	0	0	1	0	1	1
209:	0	0	1	0	0	0	2	0
217:	1	1	0	0	1	0	1	1
225:	0	2	2	3	1	1	1	4
233:	5	2	3	2	0	3	1	5
241:	0	3	2	0	0	2	0	1
249:	1	0	0	0	0	1	1	0
257:	0	0	0	0	0	1	1	0
265:	0	0	1	0	0	0	0	0
273:	0	0	0	0	1	0	1	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	1	0	0	0	1	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	1	1	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	1	0	1
353:	0	0	0	0	0	0	0	0
361:	0	0	0	1	0	0	1	0

369:	1	0	1	0	0	0	0	0

Sample Title: 10

Channel								
377:	0	0	1	0	1	0	0	0
385:	0	0	1	0	0	0	0	0
393:	0	0	0	0	0	0	1	1
401:	1	1	2	1	0	0	2	1
409:	0	2	2	0	2	0	0	2
417:	2	2	1	3	0	2	1	2
425:	3	0	2	3	7	2	1	5
433:	1	1	6	2	3	1	0	0
441:	0	0	0	0	1	0	0	1
449:	0	0	0	0	0	0	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	1	0	0	1
481:	0	0	0	1	0	0	0	0
489:	0	0	0	1	0	0	0	0
497:	0	0	0	1	1	0	1	0
505:	1	0	0	0	0	0	0	0
513:	1	0	0	0	0	0	0	0
521:	0	0	1	0	0	2	0	0
529:	0	0	0	0	0	0	0	2
537:	0	0	0	1	2	0	0	1
545:	1	0	1	2	0	0	0	1
553:	0	0	0	0	0	0	1	0
561:	1	0	0	0	1	0	0	2
569:	0	2	0	0	1	3	0	1
577:	3	3	2	8	3	5	4	7
585:	5	6	3	4	9	4	9	11
593:	8	11	4	9	11	14	13	9
601:	12	14	10	13	13	17	14	9
609:	13	17	17	19	18	23	15	15
617:	19	9	13	6	7	1	2	0
625:	0	0	0	0	0	1	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	1
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	1	0
665:	0	0	0	0	0	1	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:	1	0	0	0	0	0	1	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	1	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	1	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	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	1	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	1	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	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	1	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

WB 8/25/17

Apex-Alpha™

Sample Description: HTC-A03-S001-0006-01 MS
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001926
Batch Identification: 1707086B-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 194219
Reagent Blank: <not performed>

Sample Size: 1.007E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:25:22 AM
Acquisition Date/Time: 8/25/2017 8:16:40 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.671 mL
Effective Efficiency: 0.2155 +/- 0.0113
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.3281 +/- 0.0735

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

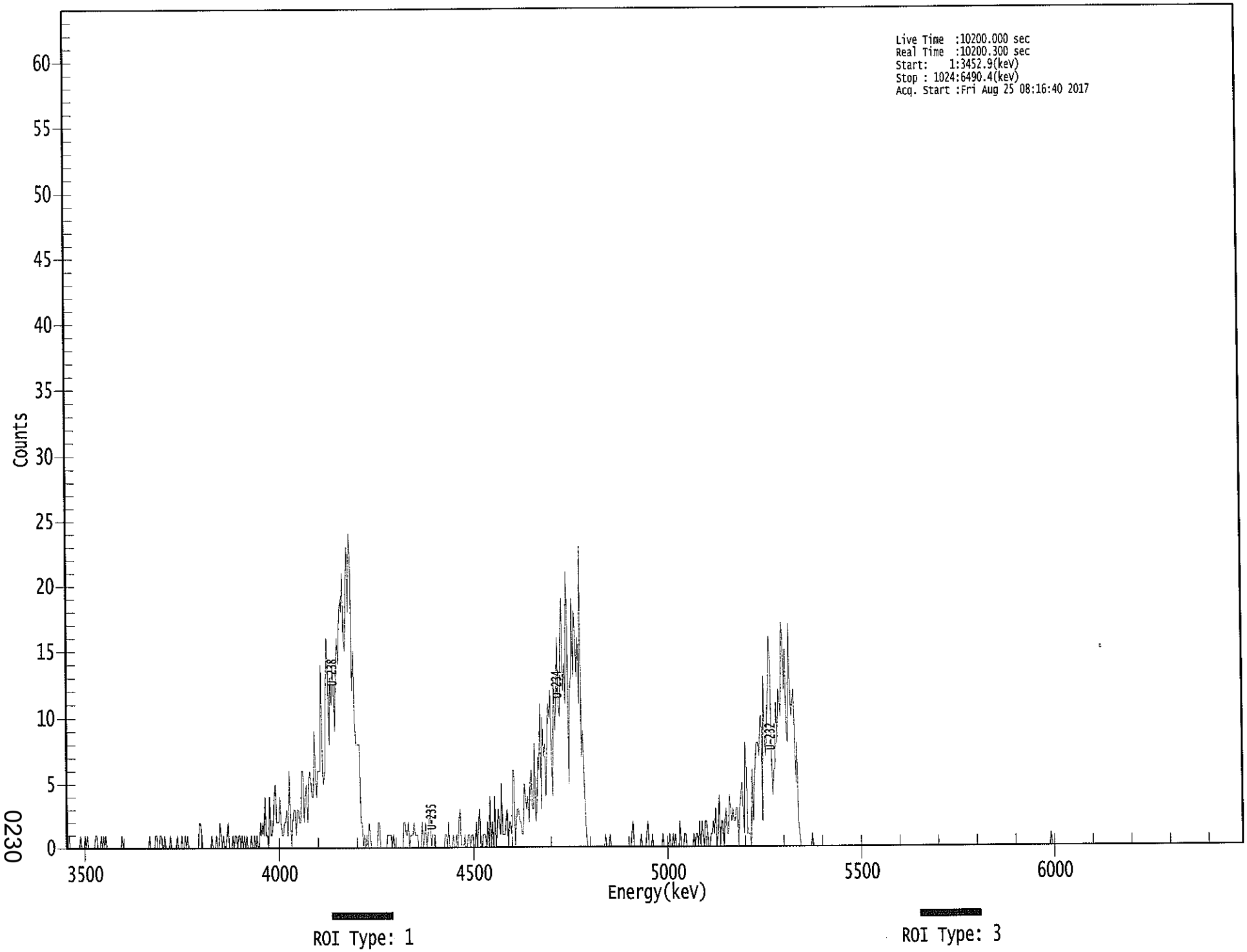
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.269	447.00	9.28	0.00	0.00E+000	24.9
U-234		4.721	549.83	8.36	0.17	0.00E+000	5.0
U-235		4.394	45.66	29.13	0.34	0.00E+000	5.9
U-238		4.141	609.66	7.94	0.34	0.00E+000	42.8

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	5.48E+000 +/- 5.66E-001	7.35E-002 +/- 7.59E-003
U-234	0.988	4761.50*	6.72E+000 +/- 8.93E-001	5.10E-002 +/- 5.27E-003
U-235	0.999	4385.50*	6.89E-001 +/- 2.13E-001	7.21E-002 +/- 7.44E-003
U-238	0.987	4184.40*	7.42E+000 +/- 9.67E-001	5.82E-002 +/- 6.01E-003

0000192609.CNF



0230

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

369:	0	2	0	4	0	1	3	2

Sample Title: 11

Channel								
377:	1	5	1	1	1	2	3	0
385:	2	2	1	6	6	0	2	3
393:	3	2	2	1	1	5	4	3
401:	4	2	5	6	3	3	8	2
409:	3	7	6	11	3	10	7	8
417:	4	8	11	10	12	7	4	13
425:	9	11	16	11	10	16	19	12
433:	14	11	21	18	5	12	13	19
441:	13	18	16	13	16	11	23	7
449:	9	6	3	1	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	1	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	1	2	0	0	0	0
497:	0	0	1	0	0	0	0	1
505:	2	0	0	0	1	0	0	0
513:	0	0	0	0	0	1	0	0
521:	0	0	0	1	0	0	1	0
529:	1	0	0	0	2	0	0	0
537:	1	1	0	0	0	0	0	0
545:	1	0	1	1	0	2	0	2
553:	1	0	2	2	1	0	0	1
561:	1	2	1	3	0	1	4	0
569:	2	2	0	2	3	1	1	4
577:	3	2	3	2	2	3	3	0
585:	3	4	5	3	1	8	6	1
593:	1	1	0	6	2	5	7	8
601:	8	7	10	10	2	13	8	7
609:	10	12	16	14	7	4	6	6
617:	11	8	12	11	10	17	16	12
625:	15	9	8	17	13	10	11	12
633:	9	5	8	2	1	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:	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: 11

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	1
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	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-A03-S001-0006-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001926
Batch Identification: 1707086B-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 194220
Reagent Blank: <not performed>

Sample Size: 1.001E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:25:22 AM
Acquisition Date/Time: 8/25/2017 8:16:42 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.670 mL
Effective Efficiency: 0.2280 +/- 0.0117
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.3957 +/- 0.0757

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

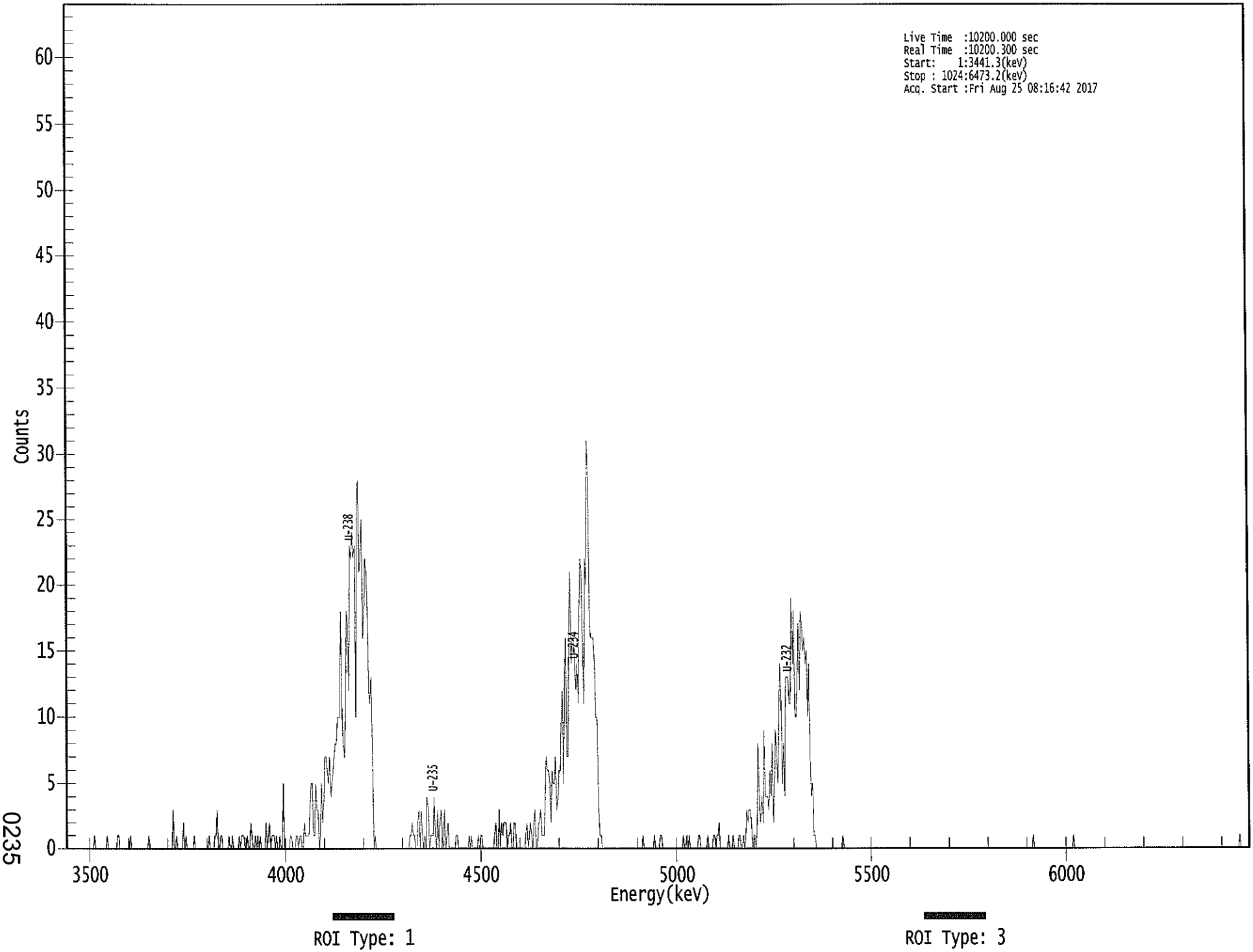
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.289	472.32	9.03	0.68	0.00E+000	62.3
U-234		4.744	591.32	8.07	0.68	0.00E+000	23.2
U-235		4.381	51.49	27.47	0.51	0.00E+000	5.4
U-238		4.166	635.83	7.77	0.17	0.00E+000	30.9

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	5.51E+000 +/- 5.56E-001	6.58E-002 +/- 6.64E-003
U-234	0.998	4761.50*	6.88E+000 +/- 8.89E-001	6.57E-002 +/- 6.63E-003
U-235	1.000	4385.50*	7.39E-001 +/- 2.16E-001	7.53E-002 +/- 7.60E-003
U-238	0.998	4184.40*	7.37E+000 +/- 9.39E-001	4.84E-002 +/- 4.88E-003

0000192610.CNF



0235

****
***** 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:	1	0	0	0	0	0	0	0
33:	0	0	0	1	0	0	0	0
41:	0	0	0	0	1	1	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	1
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	3	0	0	1
97:	0	0	0	0	0	2	0	1
105:	0	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	1	0	0	0	0
129:	1	1	3	0	0	1	1	0
137:	0	0	0	0	1	0	0	1
145:	0	0	0	0	0	1	0	1
153:	1	1	0	0	1	0	0	2
161:	1	0	0	1	0	1	0	1
169:	0	0	0	0	2	0	1	2
177:	0	1	1	1	0	1	0	0
185:	1	0	0	5	0	0	0	0
193:	0	1	1	0	0	0	1	1
201:	0	1	1	0	0	2	1	1
209:	1	1	3	5	5	1	1	5
217:	3	3	0	1	5	2	4	7
225:	7	6	5	7	4	5	6	7
233:	8	8	10	10	10	18	10	8
241:	7	10	18	17	12	23	22	24
249:	22	23	10	26	28	21	22	25
257:	16	18	22	21	18	12	11	13
265:	8	0	1	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:	1	1	2	1	1	0	0	2
305:	3	0	3	1	0	1	0	4
313:	3	0	1	1	1	4	1	0
321:	3	0	2	3	1	0	3	0
329:	1	2	0	0	0	0	0	0
337:	1	1	0	0	0	0	0	0
345:	0	0	0	1	0	1	0	0
353:	0	0	0	1	0	1	1	0
361:	0	0	0	0	0	0	0	0

369:	0	1	2	0	0	3	0	2

Sample Title: 12

Channel								
377:	1	2	2	2	0	1	1	2
385:	0	0	2	2	0	0	0	0
393:	0	0	0	0	1	2	0	1
401:	2	1	0	2	3	0	0	2
409:	2	3	1	1	1	4	7	6
417:	6	5	2	6	5	5	7	3
425:	4	6	6	10	12	5	13	16
433:	7	7	17	21	14	16	16	14
441:	12	14	11	18	22	21	15	11
449:	22	20	31	29	17	16	16	16
457:	14	10	10	3	1	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	1	0	0	0	0	0	0
505:	0	0	0	1	0	0	0	0
513:	1	1	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	1	0	0	1
537:	0	1	0	0	0	0	0	0
545:	0	1	1	0	0	0	0	0
553:	0	1	0	0	0	0	1	1
561:	0	1	1	2	0	0	0	0
569:	0	0	0	1	0	0	0	1
577:	0	0	0	0	1	1	0	0
585:	1	0	1	3	2	3	3	2
593:	0	1	1	0	2	8	3	2
601:	4	2	9	4	4	4	3	6
609:	4	8	2	5	9	7	5	10
617:	14	11	5	8	4	13	13	13
625:	11	11	19	14	18	10	10	13
633:	17	12	18	17	15	16	14	15
641:	10	14	7	4	5	1	1	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	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	1	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	1	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	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	1	0
1017:	0	0	0	0	0	0	0	0

8/25/2017 5:39:49 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/25/2017
Time : 5:39:49 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/25/2017 4:57:31 AM
Alpha_004	21f	ALL	Passed	8/25/2017 4:57:32 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	8/25/2017 4:57:33 AM
Alpha_011	21f	ALL	Passed	8/25/2017 4:57:34 AM
Alpha_012	21f	ALL	Passed	8/25/2017 4:57:35 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/25/2017 4:57:35 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:37 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:38 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:40 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:41 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:43 AM
Alpha_038	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:45 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:47 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/25/2017 4:57:49 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:52 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:54 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:56 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:57:59 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:01 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:04 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:07 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:09 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:12 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:15 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:18 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:20 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:23 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:26 AM

Review of QA Results - Pulser Check

8/25/2017 5:39:49 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:29 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/25/2017 4:58:32 AM

APPROVED BY: _____

APPROVAL DATE: 8/25/17

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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: 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)

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

17-07086
ThISO
Run 1

Work Order	17-07086
Analysis Code	ThISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/10/2017
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		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A02-S004-1218-01	272	05/15/17 08:25	2.6780E-01
04	DO	HTC-A02-S004-1218-01	272	05/15/17 08:25	2.6320E-01
05	TRG	HTC-A02-S004-1824-01	99	05/15/17 08:23	2.5430E-01
06	TRG	HTC-A02-S004-2430-01	45	05/15/17 08:21	1.0284E+00
07	TRG	HTC-A02-S004-3036-01	87	05/15/17 08:19	1.0026E+00
08	TRG	HTC-A02-S004-3642-01	38	05/15/17 08:17	1.0032E+00
09	TRG	HTC-A02-S004-4248-01	53	05/15/17 08:15	1.0058E+00
10	TRG	HTC-A03-S001-0006-01	32	05/15/17 08:26	1.0280E+00
11	TRG	HTC-A03-S001-0006-01 MS	30	05/15/17 08:26	1.0277E+00
12	TRG	HTC-A03-S001-0006-01 MSD	30	05/15/17 08:26	1.0275E+00
13	TRG	HTC-A03-S001-0006-02	39	05/15/17 08:26	1.0316E+00
14	TRG	HTC-A03-S001-0612-01	35	05/15/17 08:23	1.0041E+00
15	TRG	HTC-A03-S001-1218-01	38	05/15/17 08:20	1.0132E+00
16	TRG	HTC-A03-S001-1824-01	40	05/15/17 08:17	1.0307E+00
17	TRG	HTC-A03-S001-2430-01	44	05/15/17 08:14	1.0866E+00
18	TRG	HTC-A03-S001-3036-01	39	05/15/17 08:11	1.0959E+00
19	TRG	HTC-A03-S001-3642-01	45	05/15/17 08:08	1.0270E+00
20	TRG	HTC-A03-S001-4248-01	40	05/15/17 08:05	1.0045E+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.

17-07086
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	0.4517	10.1		0.00								
02	MBL	0.2246	5.0		0.00								
03	DUP	0.2289	5.1		0.00								
04	DO	0.2244	5.0		0.00								
05	TRG	0.2257	5.1		0.00								
06	TRG	0.2244	5.0		0.00								
07	TRG	0.2250	5.1		0.00								
08	TRG	0.2242	5.0		0.00								
09	TRG	0.2236	5.0		0.00								
10	TRG	0.2246	5.0		0.00								
11	TRG	0.2233	5.0		0.00								
12	TRG	0.2234	5.0		0.00								
13	TRG	0.2230	5.0		0.00								
14	TRG	0.2236	5.0		0.00								
15	TRG	0.2237	5.0		0.00								
16	TRG	0.2235	5.0		0.00								
17	TRG	0.2247	5.0		0.00								
18	TRG	0.2252	5.1		0.00								
19	TRG	0.2238	5.0		0.00								
20	TRG	0.2246	5.0		0.00								

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

17-07086
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			08/09/17 09:14	JPACHELLA				
02	MBL			08/09/17 09:14	JPACHELLA				
03	DUP			08/09/17 09:14	JPACHELLA				
04	DO	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
05	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
06	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
07	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
08	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
09	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
10	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
11	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
12	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
13	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
14	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
15	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
16	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
17	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
18	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
19	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				
20	TRG	07/31/17 09:09	KSALLINGS	08/09/17 09:14	JPACHELLA				

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

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	6.29E+00	9.79E-01	9.29E-02	5.15E+00	122.01	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	5.95E-02	8.20E-02	1.32E-01					OK	OK
03	TH-228	DUP	HTC-A02-S004-1218-01	pCi/g	1.45E+02	2.44E+01	3.41E-01				INV	OK	
04	TH-228	DO	HTC-A02-S004-1218-01	pCi/g	8.50E+01	1.59E+01	5.91E-01					OK	
05	TH-228	TRG	HTC-A02-S004-1824-01	pCi/g	1.78E+01	4.19E+00	5.60E-01					OK	
06	TH-228	TRG	HTC-A02-S004-2430-01	pCi/g	1.52E+00	3.49E-01	9.38E-02					OK	
07	TH-228	TRG	HTC-A02-S004-3036-01	pCi/g	4.76E+00	9.81E-01	8.66E-02					OK	
08	TH-228	TRG	HTC-A02-S004-3642-01	pCi/g	1.43E+00	4.35E-01	1.51E-01					OK	
09	TH-228	TRG	HTC-A02-S004-4248-01	pCi/g	5.02E+00	1.17E+00	1.60E-01					OK	
10	TH-228	TRG	HTC-A03-S001-0006-01	pCi/g	9.20E-01	2.95E-01	8.20E-02					OK	
11	TH-228	TRG	HTC-A03-S001-0006-01 MS	pCi/g	7.49E-01	2.52E-01	1.00E-01					OK	
12	TH-228	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	6.73E-01	2.60E-01	1.11E-01					OK	
13	TH-228	TRG	HTC-A03-S001-0006-02	pCi/g	1.10E+00	3.71E-01	1.85E-01					OK	
14	TH-228	TRG	HTC-A03-S001-0612-01	pCi/g	1.03E+00	3.00E-01	7.30E-02					OK	
15	TH-228	TRG	HTC-A03-S001-1218-01	pCi/g	6.80E-01	2.53E-01	1.10E-01					OK	
16	TH-228	TRG	HTC-A03-S001-1824-01	pCi/g	1.20E+00	3.61E-01	1.45E-01					OK	
17	TH-228	TRG	HTC-A03-S001-2430-01	pCi/g	8.44E-01	2.98E-01	1.56E-01					OK	
18	TH-228	TRG	HTC-A03-S001-3036-01	pCi/g	9.70E-01	3.05E-01	7.00E-02					OK	
19	TH-228	TRG	HTC-A03-S001-3642-01	pCi/g	1.01E+00	2.89E-01	8.60E-02					OK	
20	TH-228	TRG	HTC-A03-S001-4248-01	pCi/g	1.06E+00	3.02E-01	9.38E-02					OK	

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Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
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-228	LCS	07/19/17 00:00	1.00E+00	103.07	0.00	0.00			
02	TH-228	MBL	07/19/17 00:00	1.00E+00	92.68	0.00	0.00			
03	TH-228	DUP	05/15/17 08:25	2.68E-01	124.18	0.00	0.00			
04	TH-228	DO	05/15/17 08:25	2.63E-01	86.96	0.00	0.00			
05	TH-228	TRG	05/15/17 08:23	2.54E-01	74.55	0.00	0.00			
06	TH-228	TRG	05/15/17 08:21	1.03E+00	129.30	0.00	0.00			
07	TH-228	TRG	05/15/17 08:19	1.00E+00	98.49	0.00	0.00			
08	TH-228	TRG	05/15/17 08:17	1.00E+00	83.75	0.00	0.00			
09	TH-228	TRG	05/15/17 08:15	1.01E+00	77.81	0.00	0.00			
10	TH-228	TRG	05/15/17 08:26	1.03E+00	102.16	0.00	0.00			
11	TH-228	TRG	05/15/17 08:26	1.03E+00	109.26	0.00	0.00			
12	TH-228	TRG	05/15/17 08:26	1.03E+00	97.41	0.00	0.00			
13	TH-228	TRG	05/15/17 08:26	1.03E+00	95.50	0.00	0.00			
14	TH-228	TRG	05/15/17 08:23	1.00E+00	109.67	0.00	0.00			
15	TH-228	TRG	05/15/17 08:20	1.01E+00	104.11	0.00	0.00			
16	TH-228	TRG	05/15/17 08:17	1.03E+00	117.48	0.00	0.00			
17	TH-228	TRG	05/15/17 08:14	1.09E+00	90.86	0.00	0.00			
18	TH-228	TRG	05/15/17 08:11	1.10E+00	96.55	0.00	0.00			
19	TH-228	TRG	05/15/17 08:08	1.03E+00	119.04	0.00	0.00			
20	TH-228	TRG	05/15/17 08:05	1.00E+00	109.97	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	TH-228	LCS	08/21/17 11:32		A_Spec	Alpha_036	170	4.46 E+02	7.00 E-03	18.2	
02	TH-228	MBL	08/21/17 11:32		A_Spec	Alpha_037	170	3.30 E+00	1.00 E-02	15.9	
03	TH-228	DUP	08/21/17 11:32		A_Spec	Alpha_038	170	2.55 E+03	5.00 E-03	15.4	
04	TH-228	DO	08/21/17 11:32		A_Spec	Alpha_039	170	1.23 E+03	1.60 E-02	18.5	
05	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_040	170	2.10 E+02	7.00 E-03	18.1	
06	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_043	170	1.30 E+02	1.30 E-02	18.7	
07	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_044	170	2.88 E+02	3.00 E-03	17.9	
08	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_045	170	6.93 E+01	1.00 E-02	16.9	
09	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_046	170	2.30 E+02	1.00 E-02	17.1	
10	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_047	170	5.37 E+01	2.00 E-03	16.2	
11	TH-228	TRG	08/21/17 11:32		A_Spec	Alpha_048	170	4.70 E+01	6.00 E-03	16.3	
12	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_049	170	3.43 E+01	4.00 E-03	14.9	
13	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_050	170	5.29 E+01	1.80 E-02	14.3	
14	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_052	170	6.77 E+01	2.00 E-03	17.4	
15	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_053	170	3.72 E+01	5.00 E-03	15.1	
16	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_054	170	6.76 E+01	1.40 E-02	13.6	
17	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_056	170	4.55 E+01	1.50 E-02	15.9	
18	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_057	170	5.78 E+01	1.00 E-03	16.5	
19	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_058	170	7.02 E+01	5.00 E-03	16.6	
20	TH-228	TRG	08/21/17 11:33		A_Spec	Alpha_059	170	7.10 E+01	6.00 E-03	17.8	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

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Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	6.54E+00	1.01E+00	5.89E-02	5.40E+00	120.96	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	2.69E-02	5.13E-02	9.47E-02					OK	OK
03	TH-230	DUP	HTC-A02-S004-1218-01	pCi/g	7.49E+01	1.28E+01	3.10E-01				OK	OK	
04	TH-230	DO	HTC-A02-S004-1218-01	pCi/g	6.92E+01	1.30E+01	4.60E-01					OK	
05	TH-230	TRG	HTC-A02-S004-1824-01	pCi/g	8.39E+00	2.26E+00	3.69E-01					OK	
06	TH-230	TRG	HTC-A02-S004-2430-01	pCi/g	1.47E+00	3.30E-01	6.71E-02					OK	
07	TH-230	TRG	HTC-A02-S004-3036-01	pCi/g	2.52E+00	5.74E-01	6.26E-02					OK	
08	TH-230	TRG	HTC-A02-S004-3642-01	pCi/g	1.12E+00	3.56E-01	1.28E-01					OK	
09	TH-230	TRG	HTC-A02-S004-4248-01	pCi/g	2.96E+00	7.48E-01	1.41E-01					OK	
10	TH-230	TRG	HTC-A03-S001-0006-01	pCi/g	1.01E+00	3.03E-01	7.45E-02					OK	
11	TH-230	TRG	HTC-A03-S001-0006-01 MS	pCi/g	6.75E-01	2.26E-01	6.92E-02					OK	
12	TH-230	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	8.31E-01	2.85E-01	8.52E-02					OK	
13	TH-230	TRG	HTC-A03-S001-0006-02	pCi/g	7.92E-01	2.89E-01	1.42E-01					OK	
14	TH-230	TRG	HTC-A03-S001-0612-01	pCi/g	1.04E+00	2.93E-01	9.14E-02					OK	
15	TH-230	TRG	HTC-A03-S001-1218-01	pCi/g	5.01E-01	2.03E-01	9.95E-02					OK	
16	TH-230	TRG	HTC-A03-S001-1824-01	pCi/g	1.06E+00	3.21E-01	9.63E-02					OK	
17	TH-230	TRG	HTC-A03-S001-2430-01	pCi/g	8.31E-01	2.83E-01	1.24E-01					OK	
18	TH-230	TRG	HTC-A03-S001-3036-01	pCi/g	1.06E+00	3.14E-01	6.36E-02					OK	
19	TH-230	TRG	HTC-A03-S001-3642-01	pCi/g	7.76E-01	2.35E-01	6.84E-02					OK	
20	TH-230	TRG	HTC-A03-S001-4248-01	pCi/g	1.02E+00	2.85E-01	6.47E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.
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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	07/19/17 00:00	1.00E+00	103.07	0.00	0.00			
02	TH-230	MBL	07/19/17 00:00	1.00E+00	92.68	0.00	0.00			
03	TH-230	DUP	05/15/17 08:25	2.68E-01	124.18	0.00	0.00			
04	TH-230	DO	05/15/17 08:25	2.63E-01	86.96	0.00	0.00			
05	TH-230	TRG	05/15/17 08:23	2.54E-01	74.55	0.00	0.00			
06	TH-230	TRG	05/15/17 08:21	1.03E+00	129.30	0.00	0.00			
07	TH-230	TRG	05/15/17 08:19	1.00E+00	98.49	0.00	0.00			
08	TH-230	TRG	05/15/17 08:17	1.00E+00	83.75	0.00	0.00			
09	TH-230	TRG	05/15/17 08:15	1.01E+00	77.81	0.00	0.00			
10	TH-230	TRG	05/15/17 08:26	1.03E+00	102.16	0.00	0.00			
11	TH-230	TRG	05/15/17 08:26	1.03E+00	109.26	0.00	0.00			
12	TH-230	TRG	05/15/17 08:26	1.03E+00	97.41	0.00	0.00			
13	TH-230	TRG	05/15/17 08:26	1.03E+00	95.50	0.00	0.00			
14	TH-230	TRG	05/15/17 08:23	1.00E+00	109.67	0.00	0.00			
15	TH-230	TRG	05/15/17 08:20	1.01E+00	104.11	0.00	0.00			
16	TH-230	TRG	05/15/17 08:17	1.03E+00	117.48	0.00	0.00			
17	TH-230	TRG	05/15/17 08:14	1.09E+00	90.86	0.00	0.00			
18	TH-230	TRG	05/15/17 08:11	1.10E+00	96.55	0.00	0.00			
19	TH-230	TRG	05/15/17 08:08	1.03E+00	119.04	0.00	0.00			
20	TH-230	TRG	05/15/17 08:05	1.00E+00	109.97	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	TH-230	LCS	08/21/17 11:32		A_Spec	Alpha_036	170	4.63 E+02	1.00 E-03	18.2	
02	TH-230	MBL	08/21/17 11:32		A_Spec	Alpha_037	170	1.49 E+00	3.00 E-03	15.9	
03	TH-230	DUP	08/21/17 11:32		A_Spec	Alpha_038	170	1.45 E+03	0.00 E+00	15.4	
04	TH-230	DO	08/21/17 11:32		A_Spec	Alpha_039	170	1.10 E+03	1.00 E-02	18.5	
05	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_040	170	1.09 E+02	2.00 E-03	18.1	
06	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_043	170	1.38 E+02	6.00 E-03	18.7	
07	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_044	170	1.68 E+02	1.00 E-03	17.9	
08	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_045	170	5.96 E+01	8.00 E-03	16.9	
09	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_046	170	1.49 E+02	9.00 E-03	17.1	
10	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_047	170	6.47 E+01	2.00 E-03	16.2	
11	TH-230	TRG	08/21/17 11:32		A_Spec	Alpha_048	170	4.67 E+01	2.00 E-03	16.3	
12	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_049	170	4.67 E+01	2.00 E-03	14.9	
13	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_050	170	4.21 E+01	1.10 E-02	14.3	
14	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_052	170	7.48 E+01	7.00 E-03	17.4	
15	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_053	170	3.01 E+01	5.00 E-03	15.1	
16	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_054	170	6.62 E+01	5.00 E-03	13.6	
17	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_056	170	4.93 E+01	1.00 E-02	15.9	
18	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_057	170	6.98 E+01	1.00 E-03	16.5	
19	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_058	170	5.95 E+01	3.00 E-03	16.6	
20	TH-230	TRG	08/21/17 11:33		A_Spec	Alpha_059	170	7.57 E+01	2.00 E-03	17.8	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	6.29E+00	9.78E-01	8.45E-02	5.15E+00	121.97	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	5.67E-02	7.26E-02	1.08E-01					OK	OK
03	TH-232	DUP	HTC-A02-S004-1218-01	pCi/g	1.16E+02	1.96E+01	3.09E-01				INV	OK	
04	TH-232	DO	HTC-A02-S004-1218-01	pCi/g	7.38E+01	1.39E+01	4.59E-01					OK	
05	TH-232	TRG	HTC-A02-S004-1824-01	pCi/g	1.37E+01	3.32E+00	4.35E-01					OK	
06	TH-232	TRG	HTC-A02-S004-2430-01	pCi/g	1.32E+00	3.05E-01	6.37E-02					OK	
07	TH-232	TRG	HTC-A02-S004-3036-01	pCi/g	4.04E+00	8.41E-01	6.25E-02					OK	
08	TH-232	TRG	HTC-A02-S004-3642-01	pCi/g	9.84E-01	3.28E-01	1.28E-01					OK	
09	TH-232	TRG	HTC-A02-S004-4248-01	pCi/g	4.18E+00	9.91E-01	1.35E-01					OK	
10	TH-232	TRG	HTC-A03-S001-0006-01	pCi/g	6.50E-01	2.28E-01	6.49E-02					OK	
11	TH-232	TRG	HTC-A03-S001-0006-01 MS	pCi/g	4.48E-01	1.78E-01	9.10E-02					OK	
12	TH-232	TRG	HTC-A03-S001-0006-01 MSD	pCi/g	5.93E-01	2.32E-01	1.00E-01					OK	
13	TH-232	TRG	HTC-A03-S001-0006-02	pCi/g	9.95E-01	3.32E-01	1.18E-01					OK	
14	TH-232	TRG	HTC-A03-S001-0612-01	pCi/g	1.03E+00	2.91E-01	7.27E-02					OK	
15	TH-232	TRG	HTC-A03-S001-1218-01	pCi/g	7.41E-01	2.56E-01	7.93E-02					OK	
16	TH-232	TRG	HTC-A03-S001-1824-01	pCi/g	1.01E+00	3.08E-01	7.67E-02					OK	
17	TH-232	TRG	HTC-A03-S001-2430-01	pCi/g	7.12E-01	2.54E-01	9.49E-02					OK	
18	TH-232	TRG	HTC-A03-S001-3036-01	pCi/g	7.98E-01	2.60E-01	7.98E-02					OK	
19	TH-232	TRG	HTC-A03-S001-3642-01	pCi/g	6.83E-01	2.18E-01	9.25E-02					OK	
20	TH-232	TRG	HTC-A03-S001-4248-01	pCi/g	1.09E+00	2.98E-01	5.64E-02					OK	

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Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
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-232	LCS	07/19/17 00:00	1.00E+00	103.07	0.00	0.00			
02	TH-232	MBL	07/19/17 00:00	1.00E+00	92.68	0.00	0.00			
03	TH-232	DUP	05/15/17 08:25	2.68E-01	124.18	0.00	0.00			
04	TH-232	DO	05/15/17 08:25	2.63E-01	86.96	0.00	0.00			
05	TH-232	TRG	05/15/17 08:23	2.54E-01	74.55	0.00	0.00			
06	TH-232	TRG	05/15/17 08:21	1.03E+00	129.30	0.00	0.00			
07	TH-232	TRG	05/15/17 08:19	1.00E+00	98.49	0.00	0.00			
08	TH-232	TRG	05/15/17 08:17	1.00E+00	83.75	0.00	0.00			
09	TH-232	TRG	05/15/17 08:15	1.01E+00	77.81	0.00	0.00			
10	TH-232	TRG	05/15/17 08:26	1.03E+00	102.16	0.00	0.00			
11	TH-232	TRG	05/15/17 08:26	1.03E+00	109.26	0.00	0.00			
12	TH-232	TRG	05/15/17 08:26	1.03E+00	97.41	0.00	0.00			
13	TH-232	TRG	05/15/17 08:26	1.03E+00	95.50	0.00	0.00			
14	TH-232	TRG	05/15/17 08:23	1.00E+00	109.67	0.00	0.00			
15	TH-232	TRG	05/15/17 08:20	1.01E+00	104.11	0.00	0.00			
16	TH-232	TRG	05/15/17 08:17	1.03E+00	117.48	0.00	0.00			
17	TH-232	TRG	05/15/17 08:14	1.09E+00	90.86	0.00	0.00			
18	TH-232	TRG	05/15/17 08:11	1.10E+00	96.55	0.00	0.00			
19	TH-232	TRG	05/15/17 08:08	1.03E+00	119.04	0.00	0.00			
20	TH-232	TRG	05/15/17 08:05	1.00E+00	109.97	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07086-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07086
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff	A to B, Cor
01	TH-232	LCS	08/21/17 11:32		A_Spec	Alpha_036	170	4.46 E+02	0.00 E+00	18.2	
02	TH-232	MBL	08/21/17 11:32		A_Spec	Alpha_037	170	3.15 E+00	5.00 E-03	15.9	
03	TH-232	DUP	08/21/17 11:32		A_Spec	Alpha_038	170	2.25 E+03	5.00 E-03	15.4	
04	TH-232	DO	08/21/17 11:32		A_Spec	Alpha_039	170	1.18 E+03	1.00 E-02	18.5	
05	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_040	170	1.78 E+02	4.00 E-03	18.1	
06	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_043	170	1.24 E+02	0.00 E+00	18.7	
07	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_044	170	2.70 E+02	1.00 E-03	17.9	
08	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_045	170	5.26 E+01	8.00 E-03	16.9	
09	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_046	170	2.12 E+02	8.00 E-03	17.1	
10	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_047	170	4.18 E+01	1.00 E-03	16.2	
11	TH-232	TRG	08/21/17 11:32		A_Spec	Alpha_048	170	3.10 E+01	6.00 E-03	16.3	
12	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_049	170	3.33 E+01	4.00 E-03	14.9	
13	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_050	170	5.30 E+01	6.00 E-03	14.3	
14	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_052	170	7.45 E+01	3.00 E-03	17.4	
15	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_053	170	4.47 E+01	2.00 E-03	15.1	
16	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_054	170	6.27 E+01	2.00 E-03	13.6	
17	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_056	170	4.23 E+01	4.00 E-03	15.9	
18	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_057	170	5.25 E+01	3.00 E-03	16.5	
19	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_058	170	5.25 E+01	9.00 E-03	16.6	
20	TH-232	TRG	08/21/17 11:33		A_Spec	Alpha_059	170	8.08 E+01	1.00 E-03	17.8	

Count Room Report
Client: Weston Solutions, Inc.

17-07086-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

#36-59

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	07/19/17 00:00	1.0000	0.4517	10.1452		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.2246	5.0445		0.00		
03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	0.2678	0.2289	5.1411		0.00		
04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	0.2632	0.2244	5.0400		0.00		
05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	0.2543	0.2257	5.0692		0.00		
06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	1.0284	0.2244	5.0400		0.00		
07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	1.0026	0.2250	5.0535		0.00		
08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	1.0032	0.2242	5.0355		0.00		
09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	1.0058	0.2236	5.0221		0.00		
10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	1.0280	0.2246	5.0445		0.00		
11	TRG	HTC-A03-S001-0006-01 MS	05/15/17 08:26	1.0277	0.2233	5.0153		0.00		
12	TRG	HTC-A03-S001-0006-01 MSD	05/15/17 08:26	1.0275	0.2234	5.0176		0.00		
13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	1.0316	0.2230	5.0086		0.00		
14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	1.0041	0.2236	5.0221		0.00		
15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	1.0132	0.2237	5.0243		0.00		
16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	1.0307	0.2235	5.0198		0.00		
17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	1.0866	0.2247	5.0468		0.00		
18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	1.0959	0.2252	5.0580		0.00		
19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	1.0270	0.2238	5.0265		0.00		
20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	1.0045	0.2246	5.0445		0.00		

Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/9/2017 9:14 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07086	1	ThISO	8/9/2017 9:03	JPACHELLA		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Th-228	Th-8b	103.560	8/9/2017	0.100	0.1105				5.15	0.186	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.520	8/9/2017	0.500	0.5100				5.40	0.146	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	8/9/2017	0.100	0.1105				5.15	0.186	0.00	0.000	0.00	0.000	0.00	0.000
Tc-99 MS	Tc-2a	22043.636	7/5/2014	0.1												

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	Th-229	Th-18a	22.460	8/9/2017	0.4517	0.2200
02	Th-229	Th-18a	22.460	8/9/2017	0.2246	0.2200
03	Th-229	Th-18a	22.460	8/9/2017	0.2289	0.2200
04	Th-229	Th-18a	22.460	8/9/2017	0.2244	0.2200
05	Th-229	Th-18a	22.460	8/9/2017	0.2257	0.2200
06	Th-229	Th-18a	22.460	8/9/2017	0.2244	0.2200
07	Th-229	Th-18a	22.460	8/9/2017	0.2250	0.2200
08	Th-229	Th-18a	22.460	8/9/2017	0.2242	0.2200
09	Th-229	Th-18a	22.460	8/9/2017	0.2236	0.2200
10	Th-229	Th-18a	22.460	8/9/2017	0.2246	0.2200
11	Th-229	Th-18a	22.460	8/9/2017	0.2233	0.2200
12	Th-229	Th-18a	22.460	8/9/2017	0.2234	0.2200
13	Th-229	Th-18a	22.460	8/9/2017	0.2230	0.2200
14	Th-229	Th-18a	22.460	8/9/2017	0.2236	0.2200
15	Th-229	Th-18a	22.460	8/9/2017	0.2237	0.2200
16	Th-229	Th-18a	22.460	8/9/2017	0.2235	0.2200
17	Th-229	Th-18a	22.460	8/9/2017	0.2247	0.2200
18	Th-229	Th-18a	22.460	8/9/2017	0.2252	0.2200
19	Th-229	Th-18a	22.460	8/9/2017	0.2238	0.2200
20	Th-229	Th-18a	22.460	8/9/2017	0.2246	0.2200

Balance Printer Tapes

Tracer	LCS

Matrix Spike

0256

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07086	1	ThISO	grams	8/10/2017	JPACHELLA

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-A02-S004-1218-01	DUP					2.6780E-01	2.6780E-01				
04	HTC-A02-S004-1218-01	DO					2.6320E-01	2.6320E-01				
05	HTC-A02-S004-1824-01	TRG					2.5430E-01	2.5430E-01				
06	HTC-A02-S004-2430-01	TRG					1.0284E+00	1.0284E+00				
07	HTC-A02-S004-3036-01	TRG					1.0026E+00	1.0026E+00				
08	HTC-A02-S004-3642-01	TRG					1.0032E+00	1.0032E+00				
09	HTC-A02-S004-4248-01	TRG					1.0058E+00	1.0058E+00				
10	HTC-A03-S001-0006-01	TRG					1.0280E+00	1.0280E+00				
11	HTC-A03-S001-0006-01 MS	TRG					1.0277E+00	1.0277E+00				
12	HTC-A03-S001-0006-01 MSD	TRG					1.0275E+00	1.0275E+00				
13	HTC-A03-S001-0006-02	TRG					1.0316E+00	1.0316E+00				
14	HTC-A03-S001-0612-01	TRG					1.0041E+00	1.0041E+00				
15	HTC-A03-S001-1218-01	TRG					1.0132E+00	1.0132E+00				
16	HTC-A03-S001-1824-01	TRG					1.0307E+00	1.0307E+00				
17	HTC-A03-S001-2430-01	TRG					1.0866E+00	1.0866E+00				
18	HTC-A03-S001-3036-01	TRG					1.0959E+00	1.0959E+00				
19	HTC-A03-S001-3642-01	TRG					1.0270E+00	1.0270E+00				
20	HTC-A03-S001-4248-01	TRG					1.0045E+00	1.0045E+00				

Comments	

0257

Technician: JPachella Date: 8/9/17

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

Rough Sample Preparation
Log Book

Printed: 7/31/2017 9:09 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
17-07086	8/10/2017	7/30/2017	7/31/2017	8/1/2017	KSALLINGS

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

Eberline	Weston Solutions, Inc.	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	HTC-A02-S004-1218-01	14.5800	1049.5000	928.6400	1034.9200	914.0600	11.68%	88.32%	0.0000	0.0000	
05	HTC-A02-S004-1824-01	14.5900	1027.6200	832.6800	1013.0300	818.0900	19.24%	80.76%	0.0000	0.0000	
06	HTC-A02-S004-2430-01	14.6000	976.9600	767.9500	962.3600	753.3500	21.72%	78.28%	0.0000	0.0000	
07	HTC-A02-S004-3036-01	14.6100	941.0200	766.7300	926.4100	752.1200	18.81%	81.19%	0.0000	0.0000	
08	HTC-A02-S004-3642-01	14.6500	922.6200	773.7400	907.9700	759.0900	16.40%	83.60%	0.0000	0.0000	
09	HTC-A02-S004-4248-01	14.6200	900.9200	759.4200	886.3000	744.8000	15.97%	84.03%	0.0000	0.0000	
10	HTC-A03-S001-0006-01	14.6400	719.4900	573.2900	704.8500	558.6500	20.74%	79.26%	0.0000	0.0000	
11	HTC-A03-S001-0006-01 MS	14.5900	854.6000	697.6400	840.0100	683.0500	18.69%	81.31%	0.0000	0.0000	
12	HTC-A03-S001-0006-01 MSD	14.5900	854.6000	697.6400	840.0100	683.0500	18.69%	81.31%	0.0000	0.0000	
13	HTC-A03-S001-0006-02	14.5700	791.4100	638.3400	776.8400	623.7700	19.70%	80.30%	0.0000	0.0000	
14	HTC-A03-S001-0612-01	14.5600	860.2600	731.9100	845.7000	717.3500	15.18%	84.82%	0.0000	0.0000	
15	HTC-A03-S001-1218-01	14.6200	1089.8800	936.5400	1075.2600	921.9200	14.26%	85.74%	0.0000	0.0000	
16	HTC-A03-S001-1824-01	14.5800	1091.8400	956.8200	1077.2600	942.2400	12.53%	87.47%	0.0000	0.0000	
17	HTC-A03-S001-2430-01	14.5700	936.3800	803.6200	921.8100	789.0500	14.40%	85.60%	0.0000	0.0000	
18	HTC-A03-S001-3036-01	14.5000	1028.3800	880.4200	1013.8800	865.9200	14.59%	85.41%	0.0000	0.0000	
19	HTC-A03-S001-3642-01	14.5400	828.7400	703.5200	814.2000	688.9800	15.38%	84.62%	0.0000	0.0000	
20	HTC-A03-S001-4248-01	14.5400	1036.1800	834.0400	1021.6400	819.5000	19.79%	80.21%	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)**

0258

Technician: Kerry Gary Date: **Analysis: Rough Prep Logbook** **Analysis: ThISO Page No. 10169**

KB 8/21/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_036
Chamber Serial Number: 04026477B
Detector Serial Number: 84167
Env. Background: System Bkgd 194210
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/21/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:02 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.452 mL
Effective Efficiency: 0.1880 +/- 0.0120
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 1.0307 +/- 0.0679

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.219662 +/- 0.103511
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		5.893	31.49	35.26	0.51	0.00E+000	3.7
TH-228		5.379	445.81	9.30	1.19	0.00E+000	29.7
TH-229	T	4.865	324.15	10.90	0.85	0.00E+000	5.7
TH-230		4.637	462.83	9.11	0.17	0.00E+000	12.9
TH-232		3.962	446.00	9.29	0.00	0.00E+000	21.6

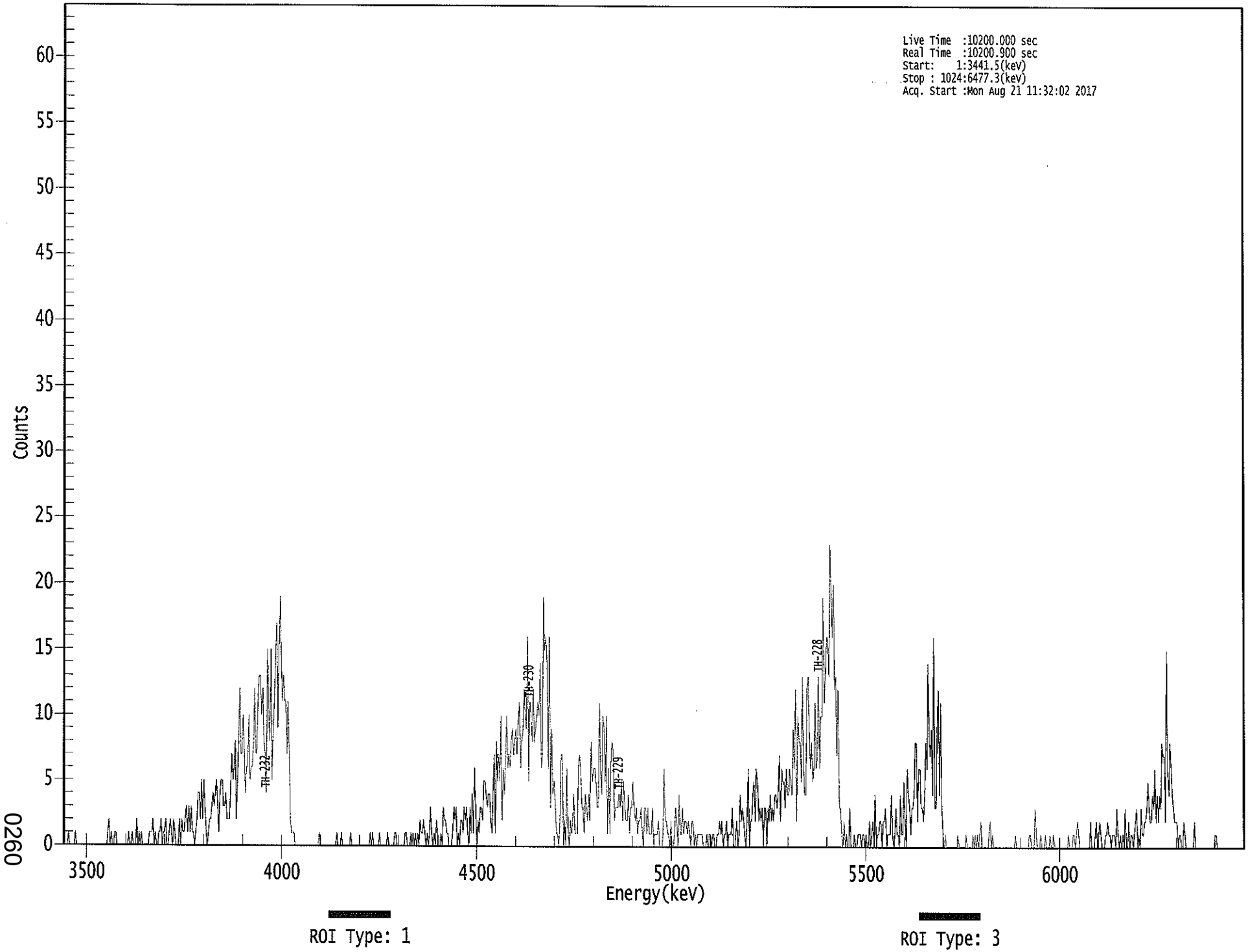
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.990	5850.00*	4.55E-001 +/- 1.70E-001	7.59E-002 +/- 9.47E-003
TH-228	0.998	5400.00*	6.29E+000 +/- 9.79E-001	9.29E-002 +/- 1.16E-002
TH-229	1.000	4872.00*	4.59E+000 +/- 5.73E-001	8.48E-002 +/- 1.06E-002
TH-230	0.994	4672.00*	6.54E+000 +/- 1.01E+000	5.89E-002 +/- 7.36E-003
TH-232	0.994	3997.00*	6.29E+000 +/- 9.78E-001	8.45E-002 +/- 1.05E-002

AG 8/22/17

0000192150.CNF



0260

****
***** 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	1	0	0	0
9:	0	0	1	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	1	2
41:	0	1	0	0	1	1	0	0
49:	0	0	0	0	0	0	0	0
57:	1	0	0	1	0	0	0	2
65:	0	1	0	1	0	0	0	0
73:	0	0	1	1	1	2	0	1
81:	0	0	1	1	2	0	1	1
89:	2	0	0	1	2	1	0	2
97:	1	0	0	0	2	0	2	1
105:	1	2	3	1	3	1	3	1
113:	1	0	1	2	4	4	2	5
121:	2	5	3	1	0	1	2	2
129:	3	4	3	4	5	3	1	4
137:	5	5	3	3	4	2	2	2
145:	4	7	5	6	8	2	5	8
153:	12	7	7	10	7	4	6	6
161:	10	5	6	6	8	12	7	7
169:	12	13	13	10	12	8	7	4
177:	15	10	8	15	5	9	11	15
185:	17	9	15	19	14	11	13	11
193:	11	7	11	7	2	1	1	1
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	0
233:	0	0	0	0	1	0	0	0
241:	1	0	0	0	0	0	0	0
249:	1	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	1	0	1	0	0	0	0
273:	0	1	0	0	0	0	0	0
281:	1	0	0	0	0	0	1	1
289:	0	0	0	0	0	0	0	1
297:	1	0	0	0	1	0	1	0
305:	1	0	1	0	2	1	1	2
313:	1	0	1	0	1	3	1	0
321:	1	0	2	1	0	0	1	0
329:	3	2	2	1	1	0	0	0
337:	1	3	2	3	0	1	0	2
345:	2	1	3	2	3	1	0	3
353:	1	4	1	6	3	0	2	1
361:	3	3	2	5	5	4	3	4

369:	4	2	1	4	7	1	8	5

Sample Title: 01

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

801:	0	1	2	0	1	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:	1	0	0	0	0	0	0	0
833:	0	0	0	0	1	1	0	0
841:	0	3	1	0	0	0	1	0
849:	0	0	1	0	0	0	1	0
857:	0	1	0	0	0	0	0	0
865:	0	0	0	0	0	0	1	0
873:	0	0	1	1	0	1	2	1
881:	0	0	0	0	0	0	0	0
889:	0	2	0	0	0	1	2	0
897:	1	2	1	0	0	0	1	1
905:	2	1	1	0	1	1	1	0
913:	3	1	0	1	0	1	0	3
921:	0	0	2	0	1	1	0	1
929:	2	3	0	1	0	3	1	1
937:	2	2	3	5	3	2	2	4
945:	3	6	2	4	2	4	3	8
953:	7	7	2	15	6	4	8	6
961:	4	3	2	2	2	0	1	1
969:	0	0	2	1	0	0	0	0
977:	0	0	0	2	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	1	1	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/21/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_037
Chamber Serial Number: 04026478A
Detector Serial Number: 91133
Env. Background: System Bkgd 194211
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/21/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:04 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.225 mL
Effective Efficiency: 0.1471 +/- 0.0139
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 0.9268 +/- 0.0891

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		5.775	3.98	112.01	1.02	0.00E+000	3.0
TH-228		5.355	3.30	136.59	1.70	0.00E+000	3.0
TH-229	T	4.897	126.15	17.52	0.85	0.00E+000	7.8
TH-230		4.674	1.49	190.02	0.51	0.00E+000	3.0
TH-232		3.977	3.15	126.67	0.85	0.00E+000	3.0

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.971	5850.00*	7.35E-002 +/- 8.35E-002	1.16E-001 +/- 2.16E-002
TH-228	0.989	5400.00*	5.95E-002 +/- 8.20E-002	1.32E-001 +/- 2.46E-002
TH-229	0.997	4872.00*	2.28E+000 +/- 4.23E-001	1.08E-001 +/- 2.01E-002
TH-230	1.000	4672.00*	2.69E-002 +/- 5.13E-002	9.47E-002 +/- 1.76E-002
TH-232	0.998	3997.00*	5.67E-002 +/- 7.26E-002	1.08E-001 +/- 2.00E-002

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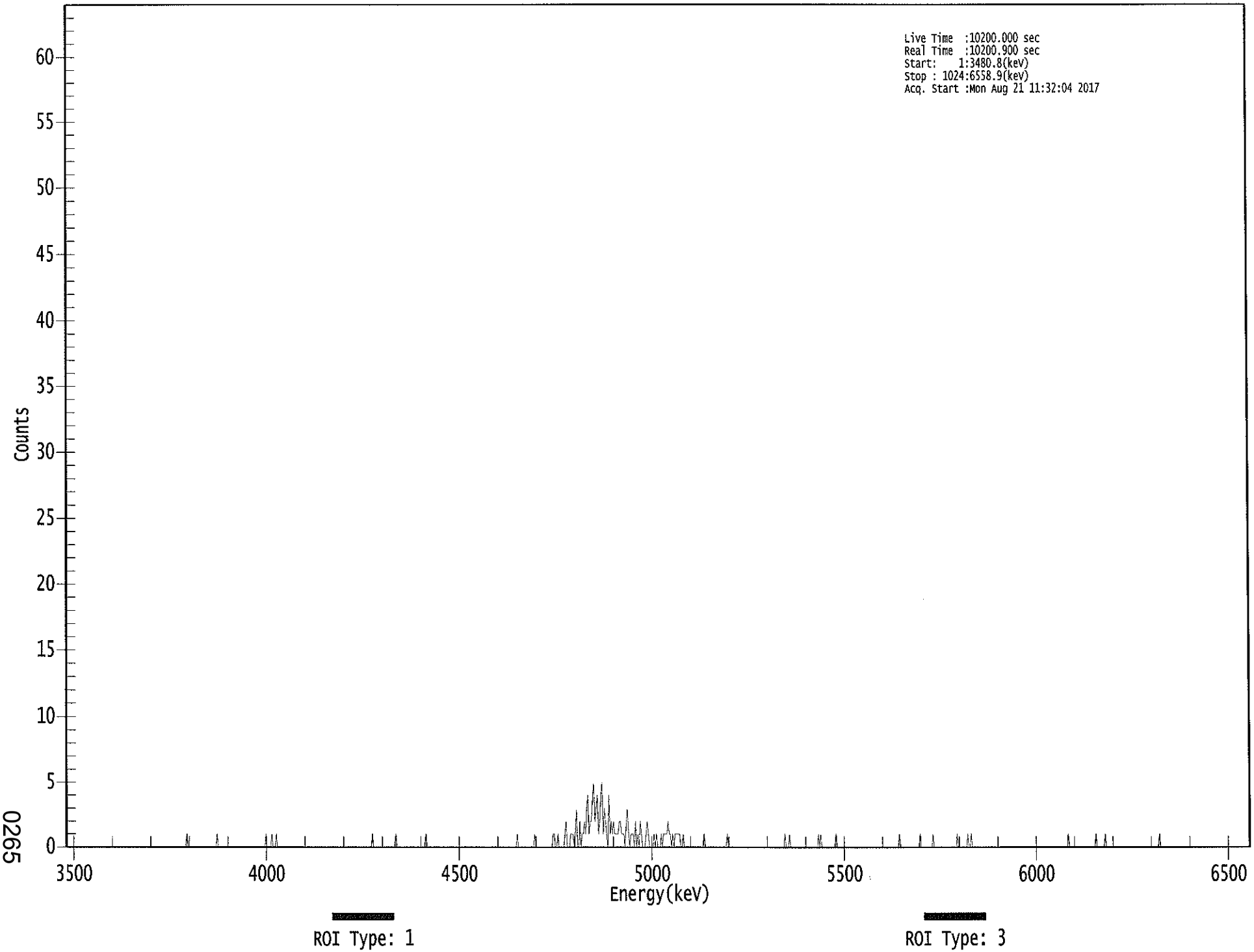

0265

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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	1	0	0
393:	0	0	0	0	0	0	0	0
401:	0	0	0	0	1	0	0	0
409:	0	0	0	0	0	0	0	0
417:	0	0	0	0	1	1	0	0
425:	1	0	0	0	0	0	1	2
433:	0	0	0	1	1	1	0	1
441:	3	0	0	2	0	1	1	2
449:	1	3	4	1	2	2	4	5
457:	2	3	4	1	2	4	5	1
465:	3	2	1	0	4	1	2	1
473:	2	1	1	1	1	2	2	1
481:	1	1	0	2	3	1	0	1
489:	1	1	0	2	0	1	0	2
497:	1	0	0	0	1	2	1	0
505:	0	0	0	1	0	1	0	0
513:	0	1	0	1	1	1	1	2
521:	1	1	0	1	0	1	1	1
529:	1	1	0	0	1	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	0	0	0	0	0
569:	0	0	1	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	1	0	0	0
625:	1	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	1	0	1	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	1
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	1	0	0	0	0	0	0
745:	0	0	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	1	0	0	0	0	0	0
777:	0	0	1	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: 02

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

Apex-Alpha™

Sample Description: HTC-A02-S004-1218-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_038
Chamber Serial Number: 04026478B
Detector Serial Number: 91134
Env. Background: System Bkgd 194212
Reagent Blank: <not performed>

Sample Size: 2.678E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:06 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.229 mL
Effective Efficiency: 0.1917 +/- 0.0160
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.2418 +/- 0.1057

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.914	155.49	15.75	0.51	0.00E+000	4.8
TH-228		5.337	2549.15	3.88	0.85	0.00E+000	52.8
TH-229	T	4.931	167.49	15.17	0.51	0.00E+000	4.4
TH-230		4.602	1449.00	5.15	0.00	0.00E+000	74.1
TH-232		3.936	2247.15	4.14	0.85	0.00E+000	85.5

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.979	5850.00*	8.30E+000 +/- 1.88E+000	2.80E-001 +/- 4.58E-002
TH-228	0.979	5400.00*	1.45E+002 +/- 2.44E+001	3.41E-001 +/- 5.57E-002
TH-229	0.982	4872.00*	8.69E+000 +/- 1.42E+000	2.72E-001 +/- 4.45E-002
TH-230	0.975	4672.00*	7.49E+001 +/- 1.28E+001	3.10E-001 +/- 5.07E-002
TH-232	0.981	3997.00*	1.16E+002 +/- 1.96E+001	3.09E-001 +/- 5.05E-002

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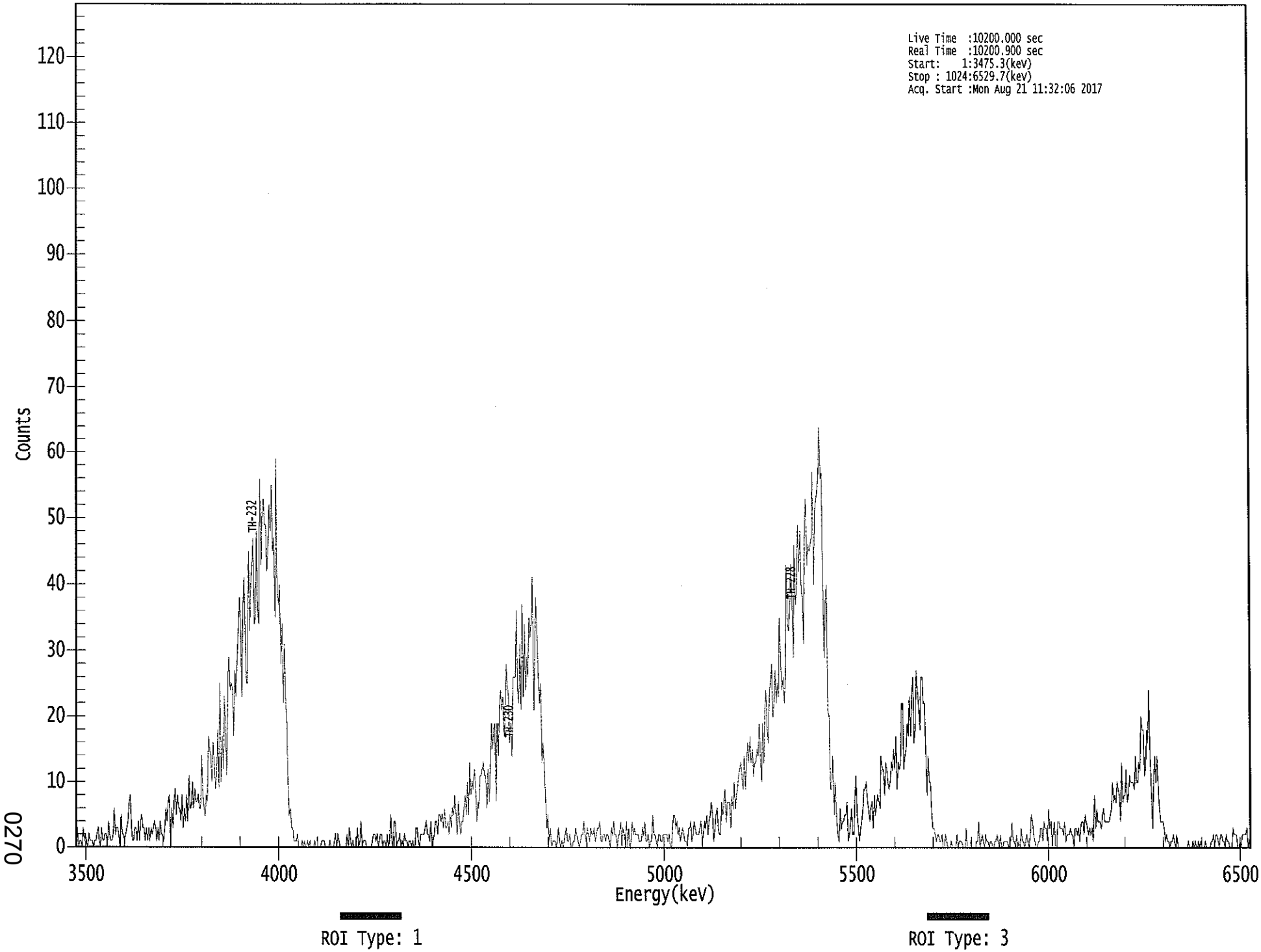

0270

****
***** 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	3	0	1	1	0	3	1
9:	2	1	0	2	1	1	1	0
17:	1	1	2	3	1	0	3	1
25:	1	2	2	0	4	2	1	1
33:	2	6	2	3	3	2	0	5
41:	2	2	1	2	3	4	7	8
49:	3	1	1	3	3	1	4	1
57:	4	5	3	3	1	3	1	3
65:	1	3	2	3	4	3	1	3
73:	1	4	2	2	1	3	6	4
81:	7	8	0	6	3	7	9	5
89:	8	6	6	4	8	3	6	4
97:	8	4	11	6	6	10	6	9
105:	7	7	8	6	6	14	8	6
113:	5	8	7	17	15	14	10	16
121:	13	9	11	18	9	25	10	17
129:	12	23	18	11	26	29	24	25
137:	24	17	27	23	29	33	38	34
145:	23	36	41	33	25	25	45	33
153:	40	43	47	34	35	48	36	34
161:	56	43	51	53	49	49	42	45
169:	52	48	55	45	47	35	59	39
177:	37	40	28	34	22	31	22	20
185:	10	5	6	3	3	1	1	1
193:	2	0	0	0	1	0	1	0
201:	0	1	0	1	0	0	0	1
209:	0	0	0	0	0	1	1	1
217:	0	0	0	0	1	0	0	0
225:	1	2	0	2	1	0	0	0
233:	0	0	0	2	0	3	1	0
241:	1	0	0	0	3	0	1	4
249:	0	1	1	1	0	0	0	0
257:	0	1	2	2	1	2	0	1
265:	2	2	0	1	1	0	2	0
273:	1	5	1	0	4	4	0	1
281:	1	2	0	1	0	2	1	1
289:	0	1	1	0	1	0	0	3
297:	3	1	0	2	2	2	2	3
305:	4	2	2	1	4	0	1	2
313:	4	4	2	5	5	4	5	3
321:	6	3	3	4	2	5	3	6
329:	5	8	5	2	7	4	2	4
337:	4	6	8	5	10	5	13	8
345:	10	9	12	10	4	7	6	11
353:	11	12	13	11	11	6	12	7
361:	11	19	15	18	19	7	19	14

369:	21	24	21	23	17	20	28	25

Sample Title: 03

Channel								
377:	23	16	19	14	26	26	26	36
385:	24	22	31	21	37	23	34	24
393:	29	26	35	32	35	41	21	30
401:	38	32	27	22	25	13	16	12
409:	8	3	5	1	3	0	1	1
417:	1	0	1	3	1	0	1	0
425:	1	2	3	1	1	2	0	0
433:	1	1	3	2	1	0	1	2
441:	2	4	2	1	3	2	1	3
449:	2	2	3	1	2	3	3	4
457:	1	1	2	2	1	2	2	1
465:	0	3	2	4	2	2	0	2
473:	2	4	0	3	2	1	4	0
481:	3	0	1	4	2	3	2	2
489:	2	1	1	1	3	2	4	1
497:	1	2	0	1	1	5	2	2
505:	1	0	2	2	1	1	2	2
513:	2	2	1	2	0	0	3	5
521:	5	3	4	2	3	1	2	3
529:	2	1	1	0	3	3	4	1
537:	2	4	3	2	2	2	3	4
545:	1	2	4	3	5	2	4	5
553:	7	5	1	3	5	6	3	2
561:	2	7	5	7	9	4	7	7
569:	7	3	8	6	10	6	8	9
577:	11	12	13	11	9	14	9	13
585:	16	13	17	13	15	11	13	13
593:	15	14	19	14	10	19	13	21
601:	24	18	16	24	25	28	20	22
609:	27	22	25	23	35	28	24	26
617:	22	26	43	34	33	38	43	37
625:	29	46	37	39	49	42	48	39
633:	38	31	49	53	43	46	45	46
641:	47	57	40	51	53	54	57	64
649:	56	57	40	29	37	40	21	20
657:	9	9	14	5	10	4	2	1
665:	6	3	4	4	5	5	7	1
673:	2	4	6	2	2	7	11	5
681:	3	1	3	4	6	9	9	10
689:	7	6	4	6	7	3	8	5
697:	7	8	7	6	14	12	12	8
705:	13	12	10	9	10	13	12	15
713:	12	17	9	13	12	13	22	22
721:	12	14	15	19	17	23	17	23
729:	26	16	18	27	24	22	18	26
737:	26	22	22	15	8	14	10	10
745:	5	3	3	2	1	2	2	1
753:	1	2	0	0	2	1	0	0
761:	0	1	0	0	0	0	2	0
769:	1	1	1	0	0	0	3	0
777:	0	0	1	0	0	0	0	1
785:	1	4	0	1	2	1	0	2
793:	1	1	0	1	1	0	0	1

801:	1	2	1	0	2	0	0	1

Sample Title: 03

Channel								
809:	1	1	1	0	1	1	4	1
817:	1	0	2	0	1	0	3	1
825:	1	0	1	2	1	0	2	5
833:	4	2	1	0	0	1	1	3
841:	3	1	4	3	3	1	6	3
849:	4	0	2	4	0	0	4	4
857:	3	3	3	2	4	1	2	2
865:	2	3	2	2	0	3	3	2
873:	3	1	3	4	4	2	5	4
881:	3	2	3	2	3	1	8	3
889:	6	4	4	4	3	5	6	4
897:	4	4	4	4	5	6	10	7
905:	8	7	10	9	8	4	13	7
913:	8	8	12	7	8	11	10	10
921:	10	9	14	10	10	13	12	20
929:	18	18	11	12	18	16	24	14
937:	8	3	10	14	10	14	9	6
945:	4	4	4	3	1	2	1	1
953:	0	1	1	2	1	0	2	0
961:	0	0	0	0	0	0	0	0
969:	1	0	0	0	1	0	1	0
977:	0	1	0	1	0	0	0	1
985:	0	0	0	0	1	1	2	0
993:	2	2	1	0	2	2	1	1
1001:	0	2	1	1	0	0	0	3
1009:	2	2	2	0	0	1	0	2
1017:	2	2	2	3	0	1	2	0

Apex-Alpha™

Sample Description: HTC-A02-S004-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_039
Chamber Serial Number: 06027396A
Detector Serial Number: 83109
Env. Background: System Bkgd 194213
Reagent Blank: <not performed>

Sample Size: 2.632E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:07 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1610 +/- 0.0147
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 0.8696 +/- 0.0807

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		5.911	100.32	19.65	0.68	0.00E+000	3.5
TH-228		5.315	1233.28	5.59	2.72	0.00E+000	5.4
TH-229	T	4.924	137.96	16.83	2.04	0.00E+000	3.8
TH-230		4.566	1104.30	5.90	1.70	0.00E+000	18.1
TH-232		3.877	1180.30	5.71	1.70	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)
TH-227	0.981	5850.00*	6.49E+000 +/- 1.72E+000	3.65E-001 +/- 6.53E-002
TH-228	0.963	5400.00*	8.50E+001 +/- 1.59E+001	5.91E-001 +/- 1.06E-001
TH-229	0.986	4872.00*	8.67E+000 +/- 1.55E+000	4.89E-001 +/- 8.76E-002
TH-230	0.943	4672.00*	6.92E+001 +/- 1.30E+001	4.60E-001 +/- 8.23E-002
TH-232	0.927	3997.00*	7.38E+001 +/- 1.39E+001	4.59E-001 +/- 8.22E-002

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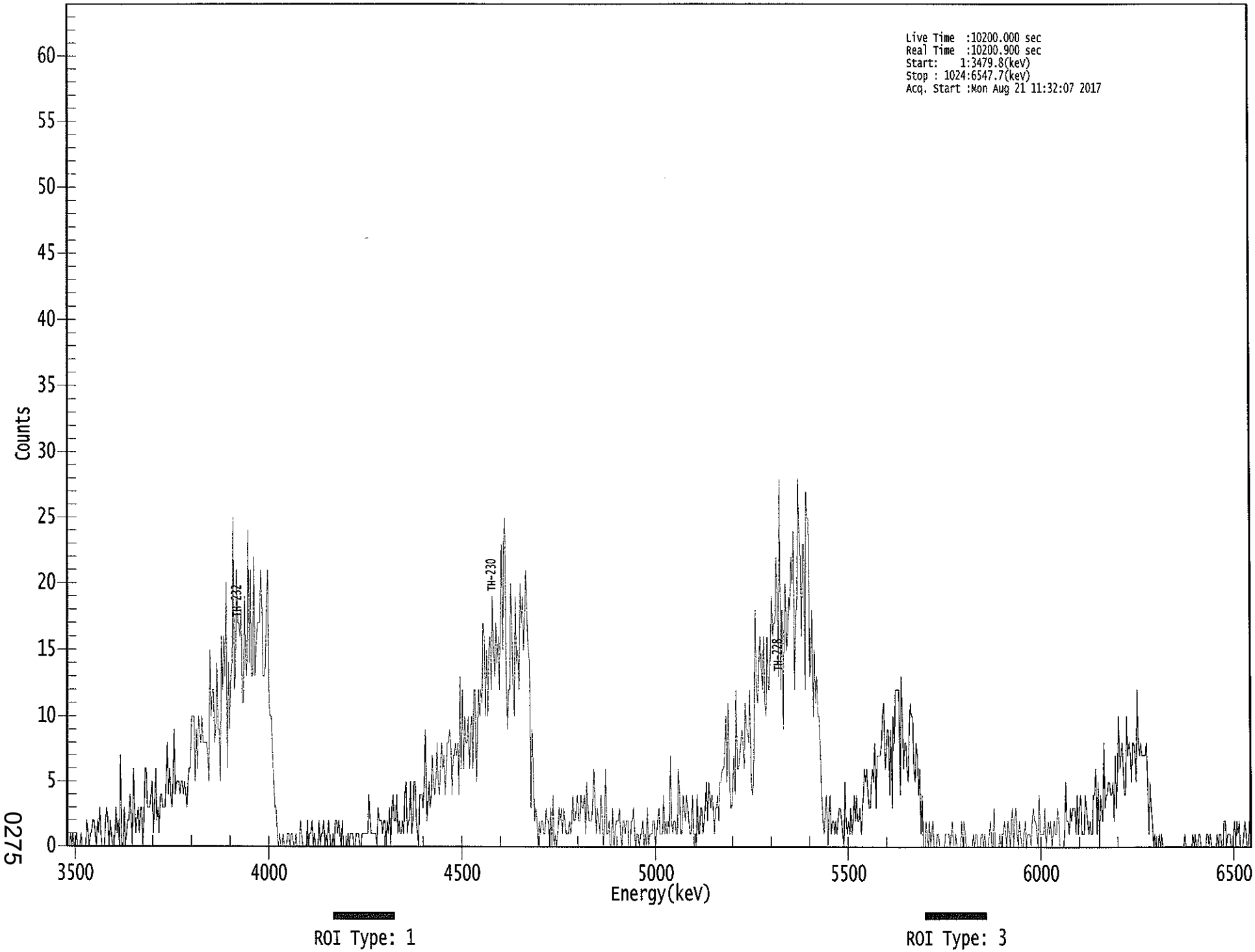
8/22/17

0000192125.CNF



0275

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

369:	15	13	17	14	16	12	18	23

Sample Title: 04

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

801:	3	0	0	0	0	1	0	1

Sample Title: 04

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

LB
8/21/17

Apex-Alpha™

Sample Description: HTC-A02-S004-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_040
Chamber Serial Number: 06027396B
Detector Serial Number: 91135
Env. Background: System Bkgd 194214
Reagent Blank: <not performed>

Sample Size: 2.543E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:10 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.226 mL
Effective Efficiency: 0.1352 +/- 0.0132
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 0.7455 +/- 0.0741

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		5.807	14.32	53.21	0.68	0.00E+000	5.5
TH-228		5.366	209.81	13.58	1.19	0.00E+000	3.9
TH-229	T	4.873	116.49	18.21	0.51	0.00E+000	3.7
TH-230		4.625	108.66	18.84	0.34	0.00E+000	4.4
TH-232		3.963	178.32	14.71	0.68	0.00E+000	20.2

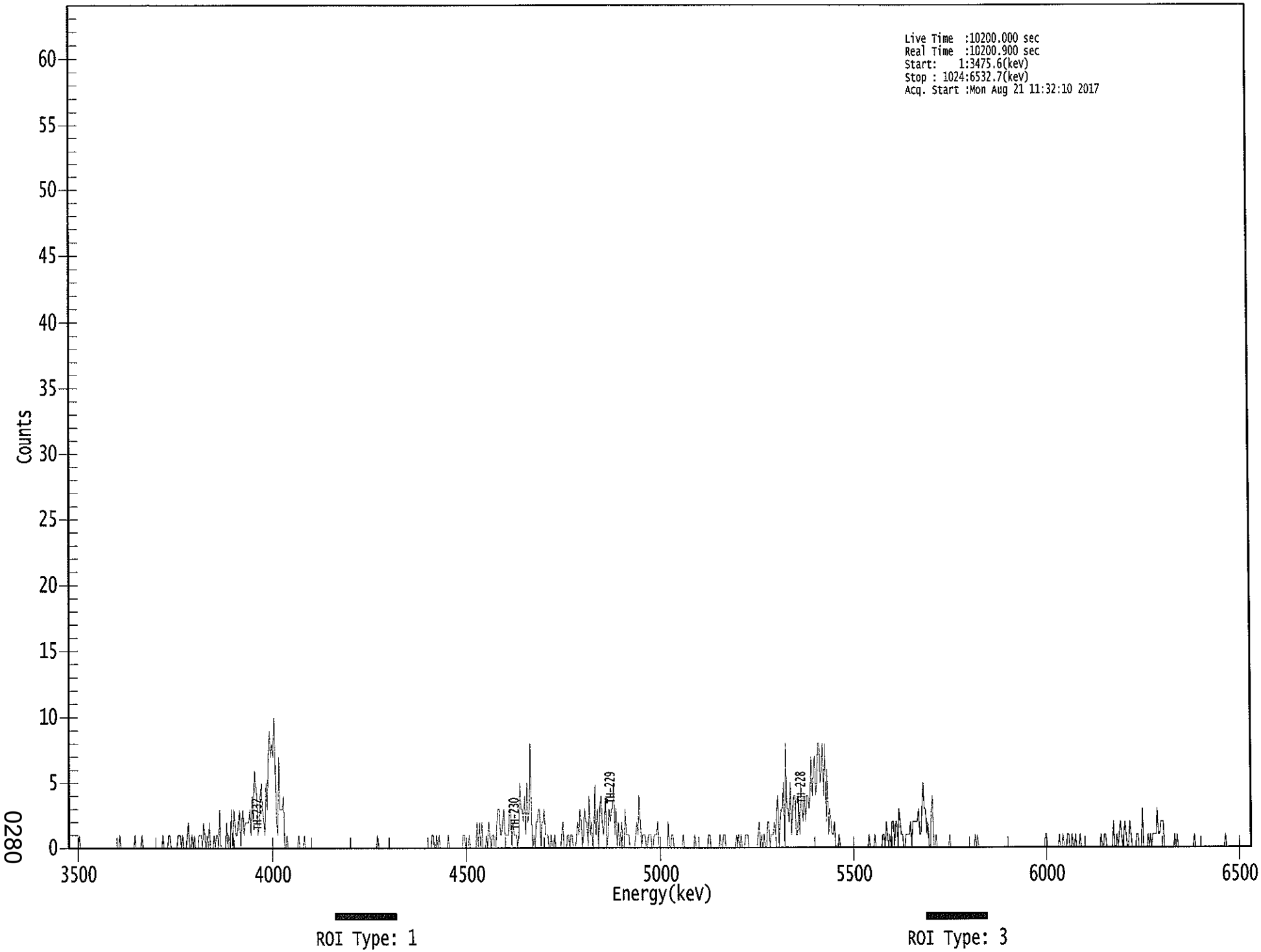
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.990	5850.00*	1.14E+000 +/- 6.46E-001	4.50E-001 +/- 8.63E-002
TH-228	0.994	5400.00*	1.78E+001 +/- 4.19E+000	5.60E-001 +/- 1.07E-001
TH-229	1.000	4872.00*	9.02E+000 +/- 1.73E+000	4.06E-001 +/- 7.80E-002
TH-230	0.988	4672.00*	8.39E+000 +/- 2.26E+000	3.69E-001 +/- 7.09E-002
TH-232	0.994	3997.00*	1.37E+001 +/- 3.32E+000	4.35E-001 +/- 8.34E-002

AG
8/22/17

0000192126.CNF



0280

****
***** 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	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	1	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	1	0	0	0	0	0	1
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	1	0	0	0	0	1	1
89:	0	0	0	0	0	0	1	1
97:	1	0	1	0	0	0	1	2
105:	0	0	1	0	1	0	0	0
113:	1	1	1	0	2	1	0	1
121:	0	2	0	0	0	1	0	1
129:	1	0	3	0	0	0	0	0
137:	2	0	1	0	3	0	3	2
145:	1	1	2	3	0	2	3	1
153:	2	2	2	2	3	1	4	2
161:	6	5	4	1	2	4	5	3
169:	2	1	5	3	7	9	7	8
177:	7	10	6	2	1	7	3	3
185:	3	4	0	0	1	0	0	0
193:	0	0	0	0	0	0	1	0
201:	0	0	0	1	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	1	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	1	1	0	0	1	0	1
321:	0	0	0	0	0	0	0	1
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	1	1	0	0
345:	0	1	0	0	0	0	0	0
353:	2	0	2	0	2	0	0	0
361:	1	0	2	1	0	1	1	0

369:	0	2	3	3	1	1	2	3

Sample Title: 05

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

KB 8/21/17

Apex-Alpha™

Sample Description: HTC-A02-S004-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_043
Chamber Serial Number: 04026481A
Detector Serial Number: 91088
Env. Background: System Bkgd 194215
Reagent Blank: <not performed>

Sample Size: 1.028E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:12 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.2424 +/- 0.0185
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 1.2930 +/- 0.1010

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		5.832	16.81	49.75	1.19	0.00E+000	3.0
TH-228		5.377	129.79	17.37	2.21	0.00E+000	8.5
TH-229	T	4.881	207.64	13.65	1.36	0.00E+000	9.6
TH-230		4.642	137.98	16.76	1.02	0.00E+000	10.5
TH-232		3.964	124.00	17.67	0.00	0.00E+000	4.2

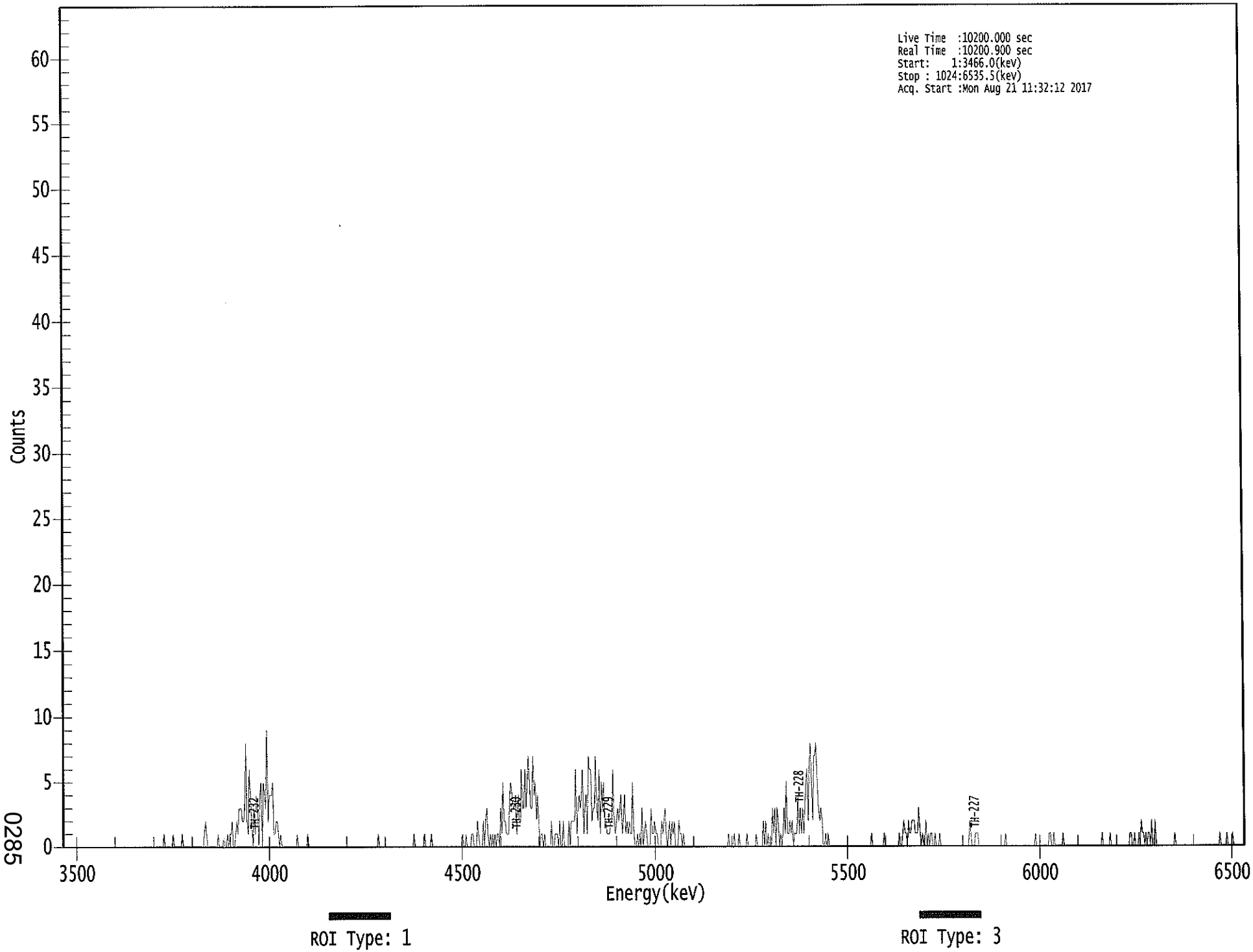
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.85E-001 +/- 9.60E-002	7.24E-002 +/- 1.08E-002
TH-228	0.997	5400.00*	1.52E+000 +/- 3.49E-001	9.38E-002 +/- 1.40E-002
TH-229	1.000	4872.00*	2.22E+000 +/- 3.31E-001	7.32E-002 +/- 1.09E-002
TH-230	0.995	4672.00*	1.47E+000 +/- 3.30E-001	6.71E-002 +/- 1.00E-002
TH-232	0.994	3997.00*	1.32E+000 +/- 3.05E-001	6.37E-002 +/- 9.53E-003

AG 8/22/17

0000192139.CNF



0285

****
***** 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	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	1
89:	0	0	0	0	0	0	0	1
97:	0	0	0	0	0	0	0	1
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	1	2	1	0	0	0
129:	0	0	0	0	0	0	1	0
137:	0	0	0	1	0	0	1	0
145:	1	1	2	0	0	1	2	1
153:	3	3	3	2	2	3	8	2
161:	1	6	4	2	0	3	1	4
169:	3	0	4	5	0	5	4	3
177:	9	2	4	4	4	5	1	1
185:	2	2	1	0	1	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	1	0	0	0	0	0
209:	0	0	0	1	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:	1	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:	1	0	0	0	0	0	1	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	1	0	0	1	0	0	0
353:	0	1	1	0	0	0	2	1
361:	0	0	0	2	0	2	3	1

369:	0	1	0	1	0	1	0	1

Sample Title: 06

Channel								
377:	1	0	3	1	5	2	2	1
385:	1	1	4	5	4	3	3	4
393:	1	4	2	2	6	3	3	6
401:	3	5	7	5	3	3	7	4
409:	5	2	4	2	0	1	1	0
417:	1	0	0	0	0	0	2	0
425:	0	1	1	1	0	2	0	0
433:	2	0	0	0	0	2	0	2
441:	2	2	2	6	1	3	4	3
449:	4	6	1	3	4	1	7	6
457:	6	2	3	3	7	3	2	6
465:	1	5	3	5	2	2	1	1
473:	1	2	2	6	2	1	2	3
481:	2	3	4	1	2	4	1	2
489:	1	2	1	1	5	1	0	0
497:	1	0	1	0	3	0	1	2
505:	1	0	0	0	3	1	1	2
513:	1	1	0	0	0	2	1	2
521:	3	1	0	1	2	0	2	1
529:	2	0	0	0	2	1	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:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	1
577:	0	0	0	0	1	0	0	0
585:	1	0	0	0	0	0	0	1
593:	0	0	0	0	0	0	0	1
601:	0	0	0	0	0	2	0	2
609:	0	1	0	0	0	3	1	3
617:	0	3	2	0	1	0	1	3
625:	1	5	1	1	2	1	2	0
633:	1	1	1	4	1	3	1	3
641:	1	3	5	6	2	6	8	5
649:	2	7	7	8	5	3	2	3
657:	2	0	0	1	0	1	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	1	0	0	0	0
705:	0	0	0	0	0	0	1	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	1	0	0	1	2
729:	1	1	0	2	1	1	2	2
737:	2	1	1	1	3	1	0	1
745:	0	0	2	0	1	0	1	1
753:	0	0	1	0	0	0	1	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	2	1	0	0	0	1	1	1
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	1
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	1	0	0	0	0	0	0
849:	0	0	0	0	0	1	1	0
857:	0	1	0	0	0	0	0	0
865:	0	1	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	1	0	0	0	0
905:	0	0	1	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	1	1	0	0	1
929:	0	0	0	1	0	2	1	1
937:	0	1	0	1	1	0	2	0
945:	0	2	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	1	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	1	0	0	0	0	0	1
1009:	0	0	0	0	1	0	0	0
1017:	0	0	0	0	0	0	0	0

KB 8/21/17

Apex-Alpha™

Sample Description: HTC-A02-S004-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_044
Chamber Serial Number: 04026481B
Detector Serial Number: 84168
Env. Background: System Bkgd 194216
Reagent Blank: <not performed>

Sample Size: 1.003E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:15 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.225 mL
Effective Efficiency: 0.1766 +/- 0.0154
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 0.9849 +/- 0.0873

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		5.833	17.32	48.17	0.68	0.00E+000	4.5
TH-228		5.350	288.49	11.55	0.51	0.00E+000	5.3
TH-229	T	4.859	151.66	15.94	0.34	0.00E+000	3.9
TH-230		4.616	167.83	15.14	0.17	0.00E+000	4.7
TH-232		3.944	269.83	11.94	0.17	0.00E+000	4.8

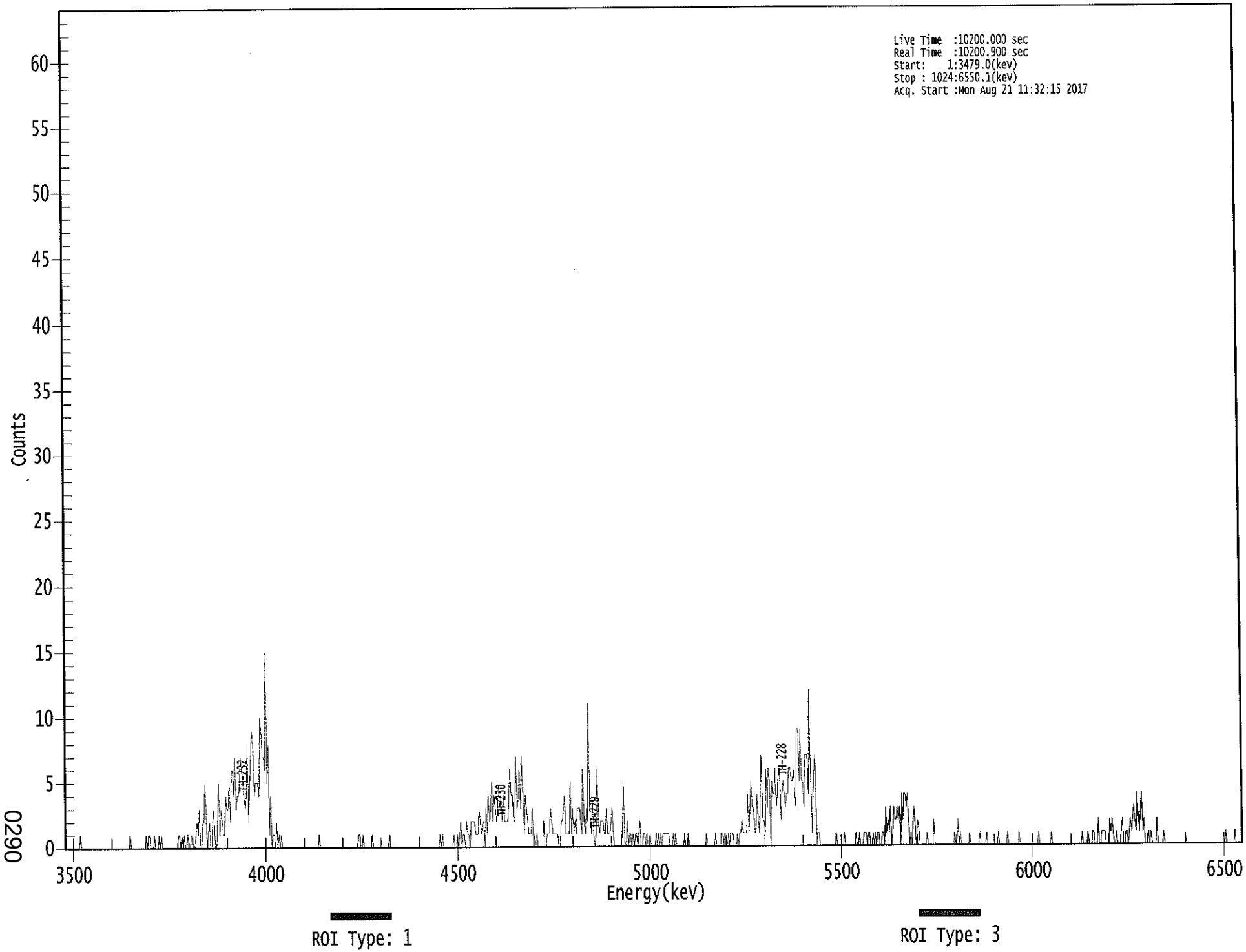
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	2.68E-001 +/- 1.37E-001	8.73E-002 +/- 1.49E-002
TH-228	0.987	5400.00*	4.76E+000 +/- 9.81E-001	8.66E-002 +/- 1.48E-002
TH-229	0.999	4872.00*	2.28E+000 +/- 3.89E-001	7.19E-002 +/- 1.23E-002
TH-230	0.984	4672.00*	2.52E+000 +/- 5.74E-001	6.26E-002 +/- 1.07E-002
TH-232	0.986	3997.00*	4.04E+000 +/- 8.41E-001	6.25E-002 +/- 1.07E-002

AG 8/22/17

0000192140.CNF



0290

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel							
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	1	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	1	0
73:	1	1	0	0	0	1	0	0
81:	0	1	0	1	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	1	1	0	1	0	1
105:	0	0	1	0	0	1	1	0
113:	0	1	2	1	3	0	0	2
121:	2	5	3	0	1	2	0	0
129:	3	2	0	0	2	5	1	3
137:	2	1	1	4	3	3	5	2
145:	6	6	4	7	3	4	4	5
153:	7	6	5	4	3	4	8	2
161:	5	7	9	8	4	5	5	5
169:	4	10	9	7	7	6	15	5
177:	8	1	4	0	1	1	0	2
185:	0	1	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	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	0	0	0	0	0
249:	0	0	0	0	0	0	1	1
257:	0	0	1	0	0	0	0	0
265:	0	0	1	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	1	0	0	0	0	0	0
289:	0	0	0	0	0	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	1	0	1
329:	0	0	0	0	0	0	0	0
337:	0	1	0	0	1	0	1	2
345:	0	1	1	0	2	1	1	0
353:	2	2	2	2	1	1	1	3
361:	2	1	2	2	0	3	1	4

369:	2	3	5	2	4	3	2	3

Sample Title: 07

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

801:	1	0	0	0	0	0	0	0

Sample Title: 07

Channel								
809:	0	0	1	0	0	0	0	0
817:	0	0	1	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	1	0	0
849:	0	0	0	0	0	0	0	0
857:	1	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	1	0	0	0	0
889:	1	0	0	0	1	1	0	0
897:	0	2	0	0	1	1	1	1
905:	0	0	0	2	1	2	1	0
913:	0	1	0	0	0	1	2	0
921:	0	1	1	0	1	2	1	2
929:	3	2	1	4	2	1	3	4
937:	1	2	0	0	0	1	0	1
945:	0	0	0	0	2	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:	1	0	0	0	0	0	0	0
1017:	1	0	0	0	0	0	0	0

NG 8/22/17

Apex-Alpha™

Sample Description: HTC-A02-S004-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_045
Chamber Serial Number: 04026482A
Detector Serial Number: 91131
Env. Background: System Bkgd 194217
Reagent Blank: <not performed>

Sample Size: 1.003E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:17 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1414 +/- 0.0136
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.8375 +/- 0.0820

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.845	4.49	98.45	0.51	0.00E+000	3.0
TH-228		5.373	69.30	23.88	1.70	0.00E+000	3.2
TH-229	T	4.875	121.00	17.89	0.00	0.00E+000	5.2
TH-230		4.636	59.64	25.72	1.36	0.00E+000	4.7
TH-232		3.981	52.64	27.42	1.36	0.00E+000	6.2

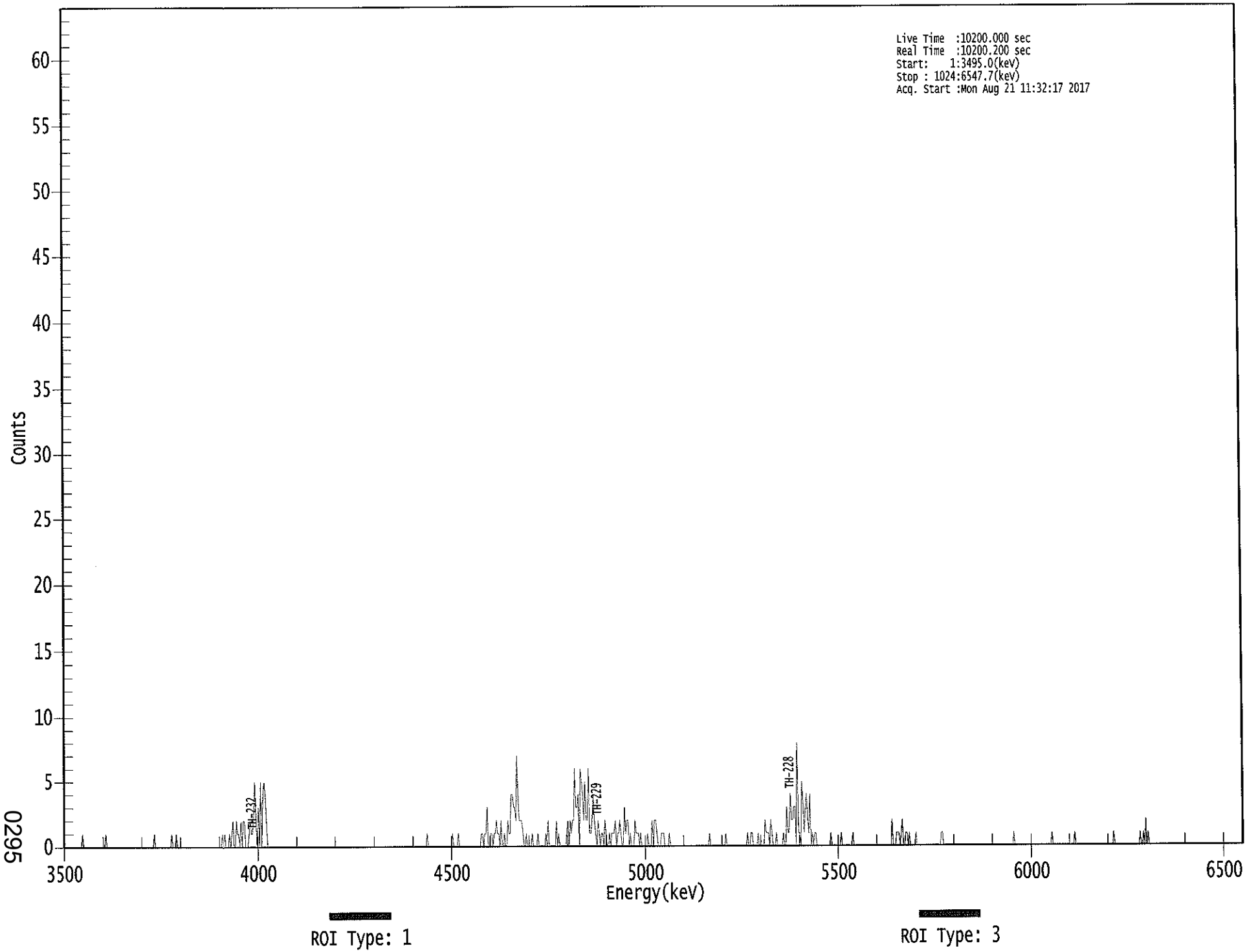
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	8.68E-002 +/- 8.70E-002	1.01E-001 +/- 1.92E-002
TH-228	0.996	5400.00*	1.43E+000 +/- 4.35E-001	1.51E-001 +/- 2.86E-002
TH-229	1.000	4872.00*	2.27E+000 +/- 4.29E-001	1.13E-001 +/- 2.13E-002
TH-230	0.993	4672.00*	1.12E+000 +/- 3.56E-001	1.28E-001 +/- 2.42E-002
TH-232	0.999	3997.00*	9.84E-001 +/- 3.28E-001	1.28E-001 +/- 2.42E-002

AG 8/22/17

0000192120.CNF



0295

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

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	1	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	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	1	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	1	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:	0	1	0	1	0	0	0	1
145:	0	1	2	0	0	2	1	1
153:	0	2	0	2	2	0	0	0
161:	1	2	1	1	3	5	2	0
169:	3	0	5	0	4	5	4	2
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	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	1	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	1	0	0	0	0	1	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	1	1	0	1	1	3	0

369:	0	1	1	0	1	1	2	1

Sample Title: 08

Channel								
377:	1	0	2	0	0	1	0	0
385:	2	1	1	4	4	3	3	2
393:	7	3	2	2	2	1	0	0
401:	1	0	0	0	0	1	0	0
409:	0	0	1	0	0	0	0	0
417:	0	1	0	2	0	0	0	0
425:	0	0	2	0	1	0	0	0
433:	0	0	0	1	2	0	2	1
441:	2	2	6	3	3	4	0	6
449:	5	4	2	5	2	2	6	1
457:	1	2	4	2	1	0	2	1
465:	0	1	1	0	2	1	0	0
473:	1	0	1	1	1	2	0	1
481:	1	2	1	0	0	3	1	2
489:	2	0	1	0	0	0	2	1
497:	1	1	0	1	0	0	0	0
505:	0	1	0	0	0	2	0	2
513:	2	1	0	0	0	1	1	1
521:	0	0	0	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	0	0	0	0	1
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	1	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	1	0	0	1	1	0	0	0
601:	0	1	0	0	0	0	0	2
609:	1	1	1	0	2	1	0	0
617:	0	1	0	0	0	0	0	1
625:	0	0	3	1	1	4	2	2
633:	3	3	0	8	1	1	0	5
641:	3	1	3	4	2	1	4	0
649:	1	0	1	1	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	1	0	0	0	0	0	0	0
673:	0	1	0	0	0	0	0	0
681:	0	0	0	1	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	2	0	0
721:	0	1	1	1	0	1	2	0
729:	0	1	1	0	1	0	0	0
737:	0	0	1	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	1	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: 08

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:	1	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	1	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	1	0	0
937:	1	0	2	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™

16
8/21/17

Sample Description: HTC-A02-S004-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_046
Chamber Serial Number: 04026482B
Detector Serial Number: 58762
Env. Background: System Bkgd 194218
Reagent Blank: <not performed>

Sample Size: 1.006E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:20 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1333 +/- 0.0132
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.7781 +/- 0.0784

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.818	18.81	46.83	1.19	0.00E+000	3.0
TH-228		5.367	230.30	12.97	1.70	0.00E+000	6.0
TH-229	T	4.863	113.81	18.48	1.19	0.00E+000	5.0
TH-230		4.614	149.47	16.13	1.53	0.00E+000	5.6
TH-232		3.944	211.64	13.52	1.36	0.00E+000	6.2

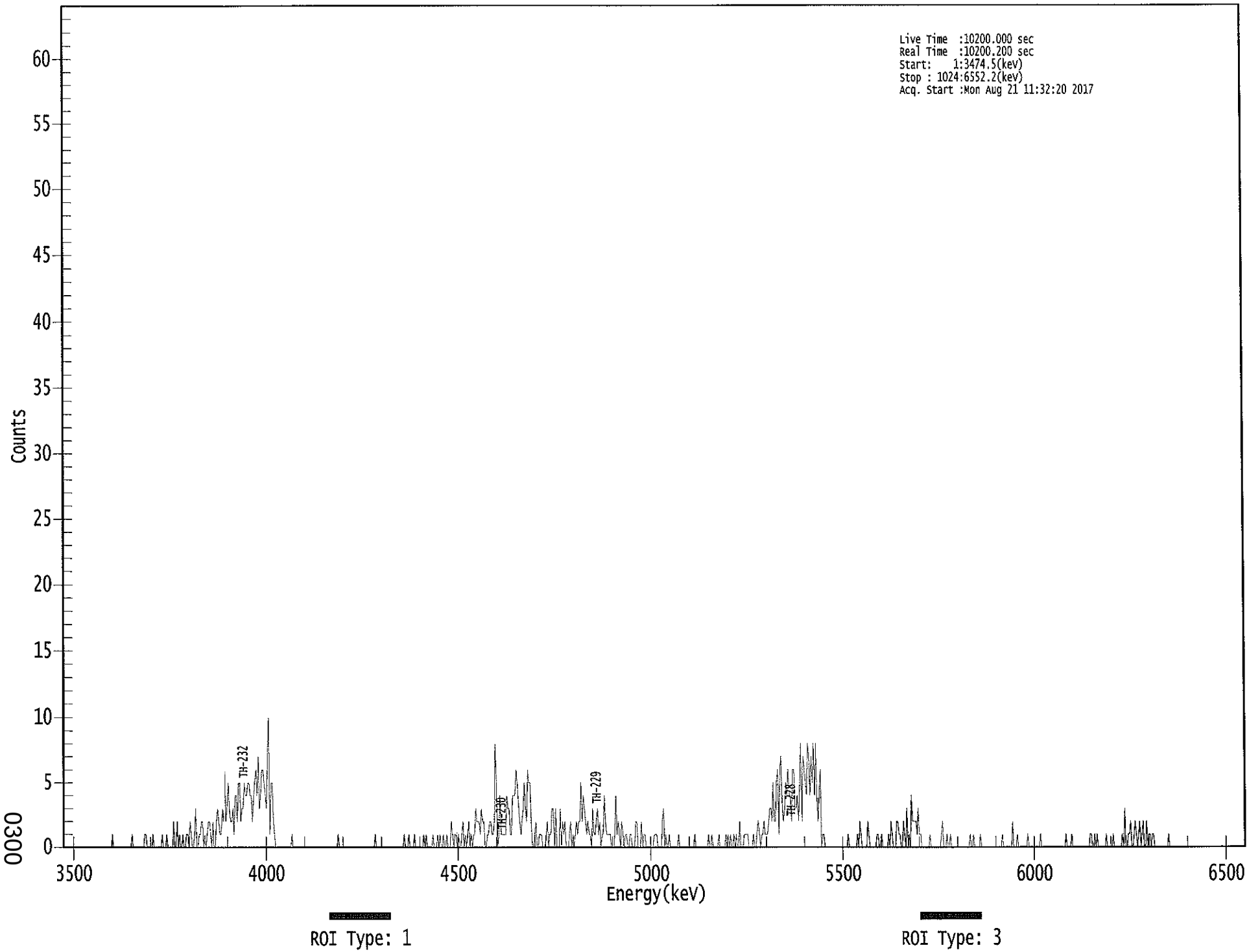
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.995	5850.00*	3.84E-001 +/- 1.95E-001	1.35E-001 +/- 2.62E-002
TH-228	0.994	5400.00*	5.02E+000 +/- 1.17E+000	1.60E-001 +/- 3.12E-002
TH-229	1.000	4872.00*	2.26E+000 +/- 4.40E-001	1.31E-001 +/- 2.55E-002
TH-230	0.983	4672.00*	2.96E+000 +/- 7.48E-001	1.41E-001 +/- 2.74E-002
TH-232	0.985	3997.00*	4.18E+000 +/- 9.91E-001	1.35E-001 +/- 2.64E-002

AG
8/22/17

0000192121.CNF



0300

****
***** 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	1	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	1	1
73:	0	0	0	0	0	1	0	0
81:	0	0	0	0	0	1	0	0
89:	0	1	0	0	0	0	0	2
97:	0	0	2	0	1	0	0	1
105:	0	0	1	1	0	2	1	0
113:	0	1	3	0	0	1	1	2
121:	2	0	1	0	1	2	2	1
129:	0	2	0	0	2	3	2	1
137:	1	3	2	6	2	3	5	3
145:	2	2	3	1	4	4	2	5
153:	5	2	3	3	5	4	4	5
161:	5	4	4	2	4	5	6	4
169:	7	3	4	6	6	5	4	3
177:	7	10	1	5	5	2	1	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	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	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	1	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	1	0
297:	0	0	1	0	0	0	0	1
305:	0	0	0	0	0	0	0	1
313:	0	1	0	0	0	0	0	1
321:	0	0	0	1	0	1	0	0
329:	1	0	0	1	0	0	0	2
337:	1	0	1	1	0	1	0	0
345:	1	2	0	1	0	1	2	0
353:	1	0	1	1	3	2	2	2
361:	1	3	2	2	0	0	1	1

369:	2	2	1	1	2	8	5	0

Sample Title: 09

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

801:	0	0	0	0	0	0	0	0

Sample Title: 09

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

KP 8/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_047
Chamber Serial Number: 02030596A
Detector Serial Number: 91086
Env. Background: System Bkgd 194219
Reagent Blank: <not performed>

Sample Size: 1.028E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:23 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.225 mL
Effective Efficiency: 0.1658 +/- 0.0149
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 1.0216 +/- 0.0933

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.838	5.49	88.08	0.51	0.00E+000	3.0
TH-228		5.375	53.66	26.86	0.34	0.00E+000	3.5
TH-229	T	4.865	142.15	16.50	0.85	0.00E+000	9.2
TH-230		4.622	64.66	24.45	0.34	0.00E+000	3.0
TH-232		3.945	41.83	30.38	0.17	0.00E+000	8.9

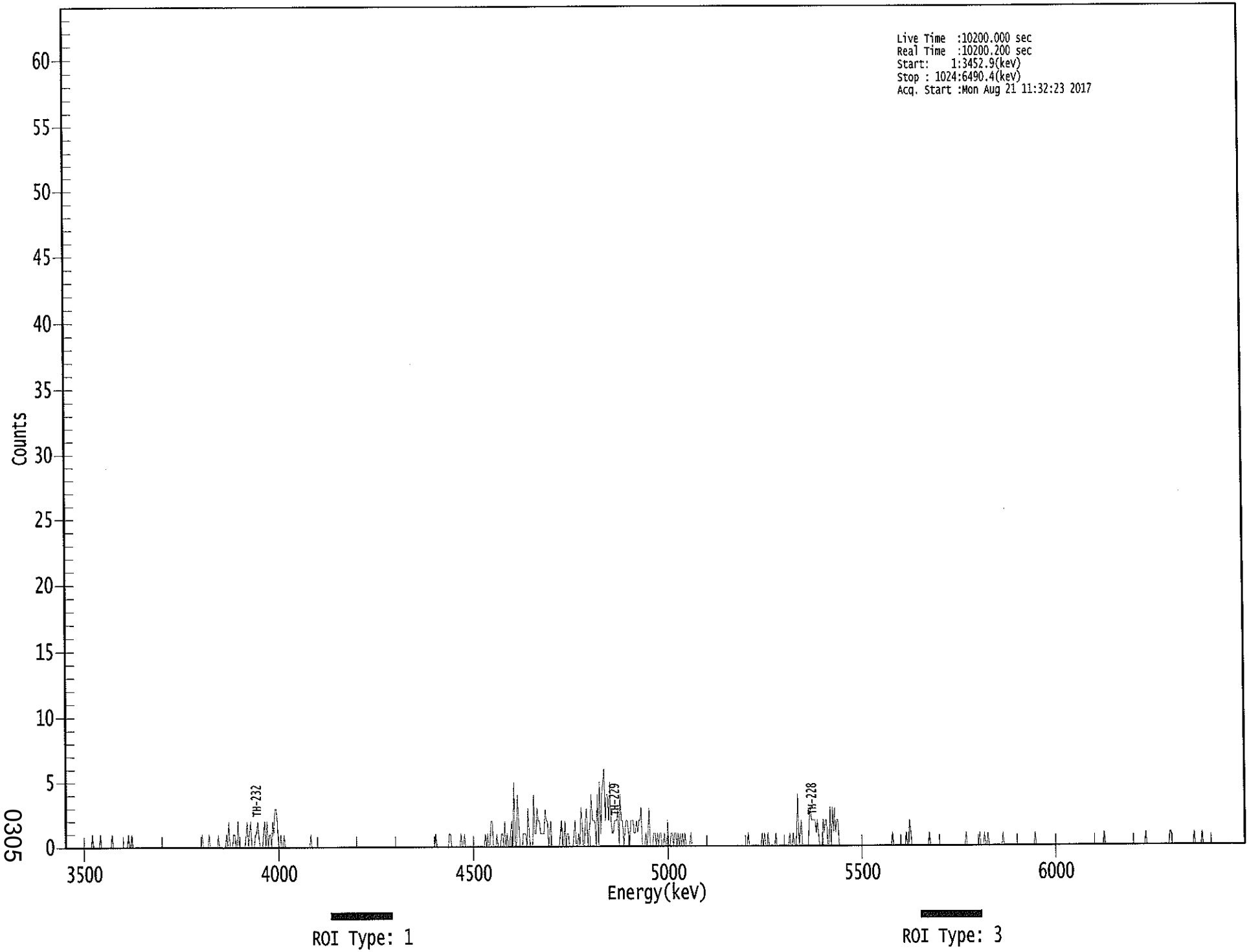
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	8.83E-002 +/- 7.93E-002	8.44E-002 +/- 1.48E-002
TH-228	0.997	5400.00*	9.20E-001 +/- 2.95E-001	8.20E-002 +/- 1.44E-002
TH-229	1.000	4872.00*	2.22E+000 +/- 3.90E-001	9.35E-002 +/- 1.64E-002
TH-230	0.987	4672.00*	1.01E+000 +/- 3.03E-001	7.45E-002 +/- 1.31E-002
TH-232	0.986	3997.00*	6.50E-001 +/- 2.28E-001	6.49E-002 +/- 1.14E-002

AG 8/22/17

0000192127.CNF



0305

****
***** 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	1
25:	0	0	0	0	0	0	1	0
33:	0	0	0	0	0	0	0	0
41:	1	0	0	0	0	0	0	0
49:	0	0	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	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	1	0
121:	0	0	0	0	1	0	0	0
129:	0	0	0	0	1	0	0	0
137:	0	0	0	1	0	2	0	0
145:	0	1	1	0	0	2	0	0
153:	0	0	0	0	1	2	0	1
161:	2	0	0	0	1	1	2	1
169:	0	0	0	1	2	0	2	0
177:	1	1	0	2	1	3	3	2
185:	0	0	1	0	0	1	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	1	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	1	0	0	0	0	0	0	0
329:	0	0	0	0	1	1	0	0
337:	0	0	0	0	0	0	1	0
345:	0	1	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	1	0	1	0	0

369:	2	2	0	0	0	1	0	0

Sample Title: 10

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

801:	0	0	0	0	0	0	0	0

Sample Title: 10

Channel								
809:	0	0	0	0	1	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	1	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	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:	1	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	1	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

KB 8/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-0006-01 MS
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_048
Chamber Serial Number: 02030596B
Detector Serial Number: 83111
Env. Background: System Bkgd 194220
Reagent Blank: <not performed>

Sample Size: 1.028E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:32:25 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.223 mL
Effective Efficiency: 0.1785 +/- 0.0155
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 1.0926 +/- 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		5.836	9.49	65.59	0.51	0.00E+000	5.9
TH-228		5.391	46.98	28.96	1.02	0.00E+000	4.0
TH-229	T	4.893	152.15	15.94	0.85	0.00E+000	10.1
TH-230		4.657	46.66	28.82	0.34	0.00E+000	3.7
TH-232		3.985	30.98	35.89	1.02	0.00E+000	3.0

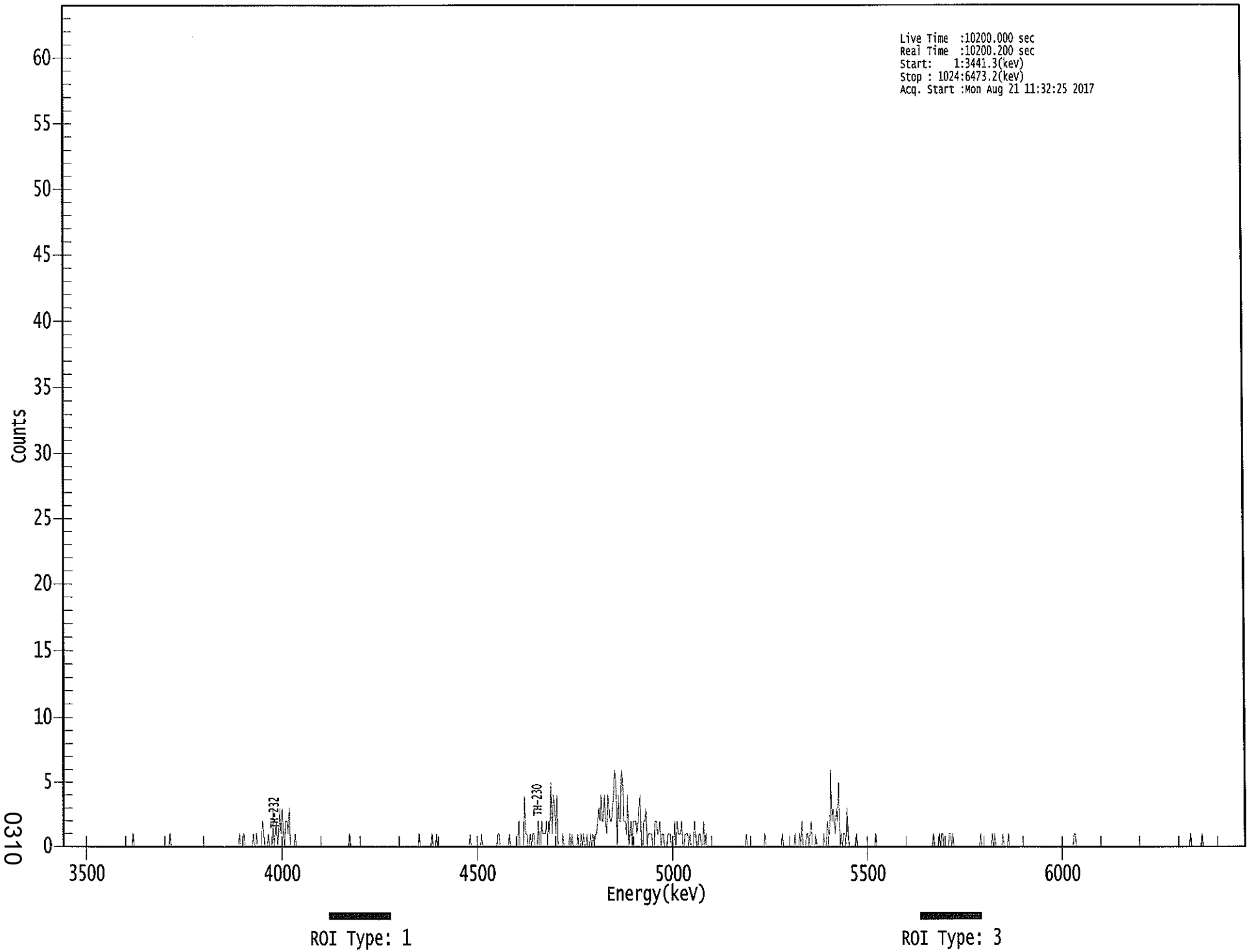
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.42E-001 +/- 9.61E-002	7.84E-002 +/- 1.34E-002
TH-228	0.999	5400.00*	7.49E-001 +/- 2.52E-001	1.00E-001 +/- 1.71E-002
TH-229	0.998	4872.00*	2.21E+000 +/- 3.77E-001	8.69E-002 +/- 1.48E-002
TH-230	0.999	4672.00*	6.75E-001 +/- 2.26E-001	6.92E-002 +/- 1.18E-002
TH-232	0.999	3997.00*	4.48E-001 +/- 1.78E-001	9.10E-002 +/- 1.55E-002

AG
8/22/17

0000192128.CNF



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

Sample Title: 11

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	1	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	1	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:	1	0	0	0	1	0	0	0
161:	0	0	0	0	1	0	0	1
169:	0	0	0	0	2	1	0	0
177:	0	1	0	0	0	3	0	1
185:	2	0	1	3	1	3	1	0
193:	2	2	1	3	0	0	0	0
201:	1	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	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	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	1	0	0	0	0
313:	0	0	0	0	0	0	1	0
321:	0	0	1	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	1
353:	0	0	0	0	0	0	0	0
361:	0	1	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	1

Sample Title: 11

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

801:	0	0	0	1	0	1	0	0

Sample Title: 11

Channel								
809:	0	0	0	0	1	0	0	0
817:	0	1	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	1	1	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	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	1
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

KB 9/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-0006-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 194221
Reagent Blank: <not performed>

Sample Size: 1.028E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:07 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.223 mL
Effective Efficiency: 0.1450 +/- 0.0138
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 0.9741 +/- 0.0943

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.846	1.15	249.59	0.85	0.00E+000	3.0
TH-228		5.381	34.32	33.84	0.68	0.00E+000	3.0
TH-229	T	4.861	123.66	17.65	0.34	0.00E+000	11.1
TH-230		4.643	46.66	28.82	0.34	0.00E+000	7.4
TH-232		3.976	33.32	34.36	0.68	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	1.000	5850.00*	2.12E-002 +/- 5.30E-002	1.10E-001 +/- 2.06E-002
TH-228	0.998	5400.00*	6.73E-001 +/- 2.60E-001	1.11E-001 +/- 2.07E-002
TH-229	0.999	4872.00*	2.21E+000 +/- 4.13E-001	8.54E-002 +/- 1.60E-002
TH-230	0.996	4672.00*	8.31E-001 +/- 2.85E-001	8.52E-002 +/- 1.59E-002
TH-232	0.998	3997.00*	5.93E-001 +/- 2.32E-001	1.00E-001 +/- 1.87E-002

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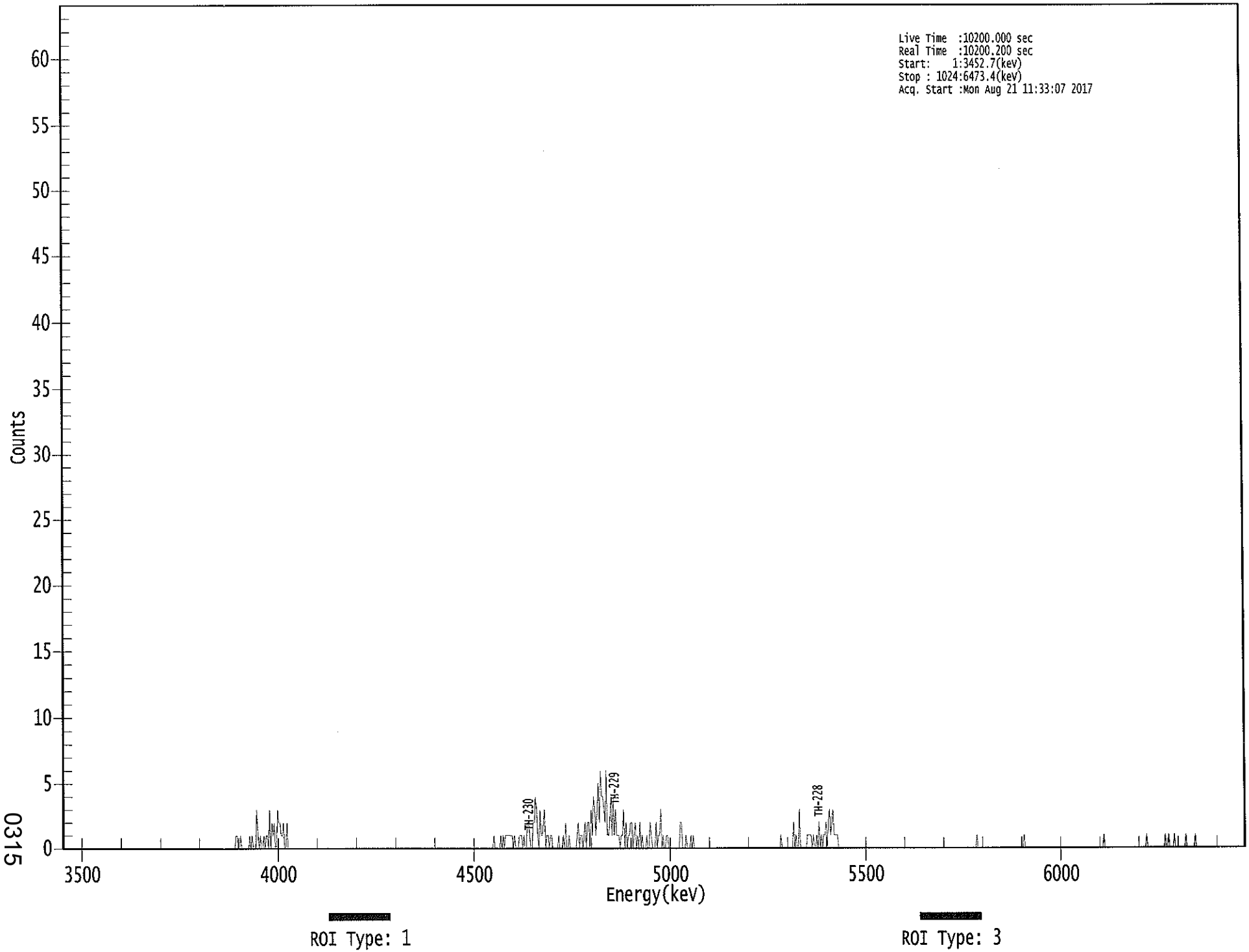
0000192129.CNF



0315

****
***** 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	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	1	0
153:	0	1	0	0	0	0	0	0
161:	0	1	0	1	0	0	0	3
169:	1	0	1	0	0	1	0	1
177:	1	0	3	0	2	1	2	0
185:	0	3	2	2	1	1	2	0
193:	0	2	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	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	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	1	0	0	0

Sample Title: 12

Channel								
377:	0	0	1	0	1	0	1	1
385:	1	1	1	1	1	0	1	0
393:	0	0	1	1	1	0	1	0
401:	0	2	2	1	0	0	2	2
409:	4	3	1	0	3	1	1	2
417:	3	0	1	1	0	1	1	0
425:	0	0	0	0	1	0	0	0
433:	1	0	2	0	0	1	0	0
441:	0	0	0	0	1	2	0	1
449:	1	0	1	2	0	2	2	0
457:	3	1	4	3	1	3	5	2
465:	6	4	4	3	2	6	1	1
473:	2	4	1	4	1	3	1	1
481:	1	0	1	1	3	0	2	0
489:	1	1	2	2	0	1	2	0
497:	1	0	2	0	1	0	0	0
505:	1	0	0	2	1	0	0	0
513:	2	0	1	1	3	0	1	0
521:	0	1	1	0	0	0	0	0
529:	0	0	0	0	0	2	2	0
537:	0	0	1	0	0	0	1	0
545:	1	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	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	1	0	0	0
625:	0	0	0	0	0	0	0	2
633:	0	1	0	0	3	0	0	0
641:	0	0	0	1	1	1	1	0
649:	1	0	0	1	0	2	0	1
657:	0	1	1	2	0	2	3	1
665:	2	3	1	1	1	1	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	1	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	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	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	1	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	1	0	0	1	0	0	0
961:	0	1	0	0	0	0	0	0
969:	0	0	0	1	0	0	0	0
977:	0	0	0	1	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

ICB 8/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-0006-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_050
Chamber Serial Number: 10006121B
Detector Serial Number: 50
Env. Background: System Bkgd 194222
Reagent Blank: <not performed>

Sample Size: 1.032E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:10 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.223 mL
Effective Efficiency: 0.1368 +/- 0.0135
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 0.9550 +/- 0.0954

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.845	4.47	109.71	1.53	0.00E+000	3.0
TH-228		5.375	52.94	27.83	3.06	0.00E+000	3.9
TH-229	T	4.891	116.47	18.30	1.53	0.00E+000	4.9
TH-230		4.639	42.13	30.97	1.87	0.00E+000	7.4
TH-232		3.986	52.98	27.23	1.02	0.00E+000	3.3

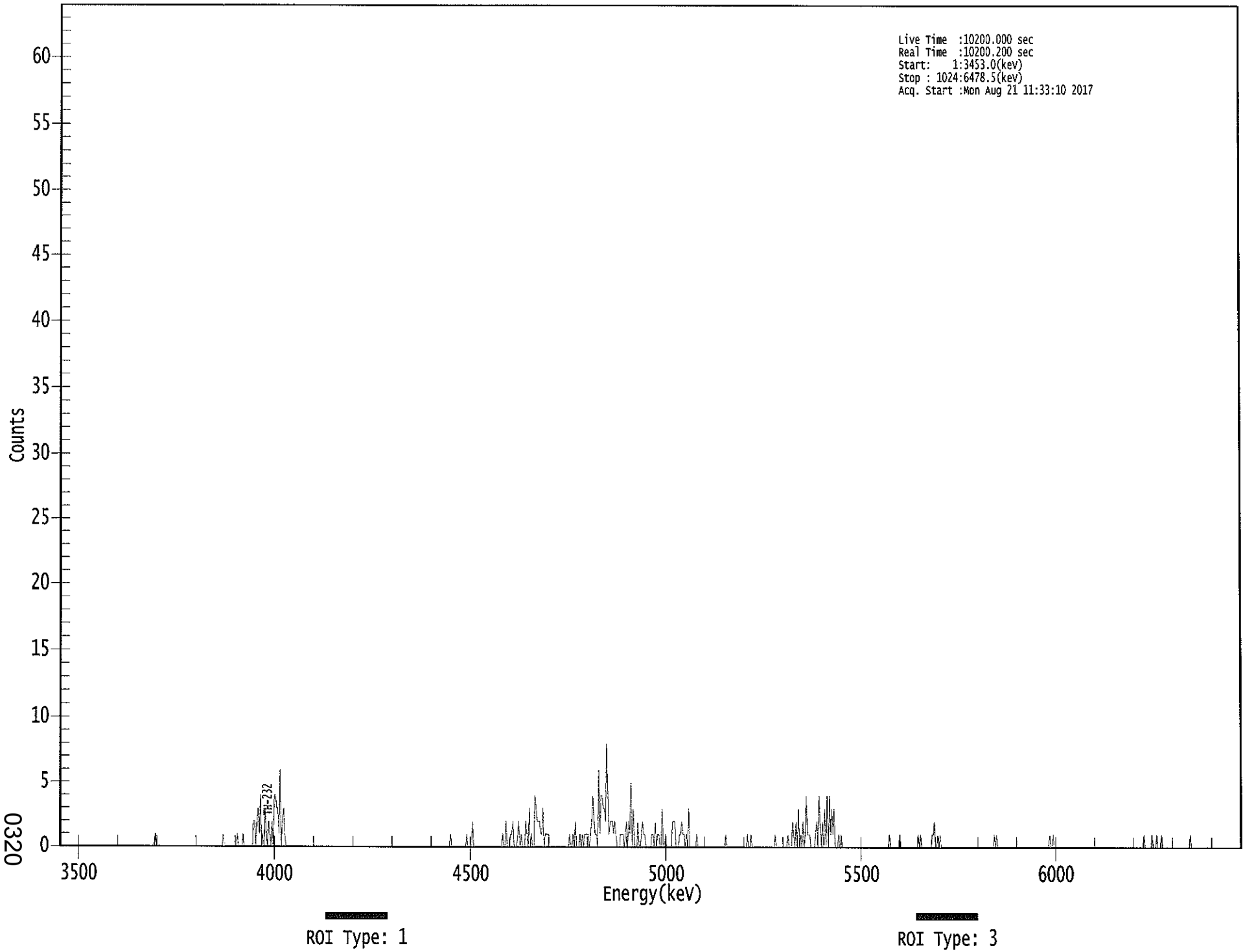
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	8.68E-002 +/- 9.67E-002	1.38E-001 +/- 2.66E-002
TH-228	0.997	5400.00*	1.10E+000 +/- 3.71E-001	1.85E-001 +/- 3.57E-002
TH-229	0.998	4872.00*	2.20E+000 +/- 4.24E-001	1.34E-001 +/- 2.59E-002
TH-230	0.994	4672.00*	7.92E-001 +/- 2.89E-001	1.42E-001 +/- 2.75E-002
TH-232	0.999	3997.00*	9.95E-001 +/- 3.32E-001	1.18E-001 +/- 2.28E-002

AG 8/22/17

0000192131.CNF



0320

****
***** 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	1	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	1	0	0
145:	0	0	0	0	0	0	0	0
153:	0	1	0	0	0	0	1	0
161:	0	0	0	0	0	0	0	2
169:	2	0	2	3	1	4	0	1
177:	0	3	1	0	2	1	0	2
185:	0	4	4	3	3	1	6	0
193:	2	3	1	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	1
353:	0	0	0	0	2	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	0	0	1	0
385:	0	2	0	0	0	1	1	2
393:	0	0	0	1	2	0	1	0
401:	0	0	2	1	0	3	0	1
409:	0	0	4	3	2	2	2	1
417:	1	3	0	1	1	1	1	0
425:	0	0	0	0	0	0	0	0
433:	0	0	0	0	0	0	0	0
441:	1	0	0	1	0	2	0	0
449:	0	1	0	1	0	1	1	1
457:	1	0	1	2	4	2	1	1
465:	0	6	1	4	4	3	3	2
473:	8	4	1	2	2	2	1	2
481:	1	0	0	0	1	1	1	0
489:	1	2	0	2	1	5	0	3
497:	0	0	0	2	0	0	1	2
505:	1	1	0	0	0	0	0	1
513:	1	0	2	0	1	1	0	0
521:	3	0	0	1	0	0	0	0
529:	0	2	2	2	0	0	0	1
537:	1	2	1	1	0	1	0	3
545:	0	0	0	0	0	0	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	1
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	1	0	0	1	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	1	0	0	0	0	0
625:	0	0	0	0	0	1	0	0
633:	0	2	1	0	2	0	3	0
641:	1	0	2	0	1	4	1	1
649:	1	0	0	0	0	1	2	0
657:	4	2	0	2	0	3	0	4
665:	0	4	1	3	1	3	0	0
673:	0	1	0	1	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	1	0	0
721:	0	0	0	0	0	0	1	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	1	0
745:	1	0	0	0	0	0	0	0
753:	0	0	1	1	2	0	0	1
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: 13

Channel								
809:	1	0	1	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:	1	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:	0	0	1	0	0	0	0	0
945:	0	1	0	0	0	1	0	0
953:	0	1	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	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

KB 8/22/17

Apex-Alpha™

Sample Description: HTC-A03-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_052
Chamber Serial Number: 10006123B
Detector Serial Number: 52
Env. Background: System Bkgd 194223
Reagent Blank: <not performed>

Sample Size: 1.004E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:16 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1905 +/- 0.0161
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 1.0967 +/- 0.0944

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.802	6.66	78.18	0.34	0.00E+000	3.0
TH-228		5.384	67.66	23.90	0.34	0.00E+000	4.0
TH-229	T	4.866	162.66	15.39	0.34	0.00E+000	4.0
TH-230		4.638	74.81	22.87	1.19	0.00E+000	9.3
TH-232		3.974	74.49	22.80	0.51	0.00E+000	4.7

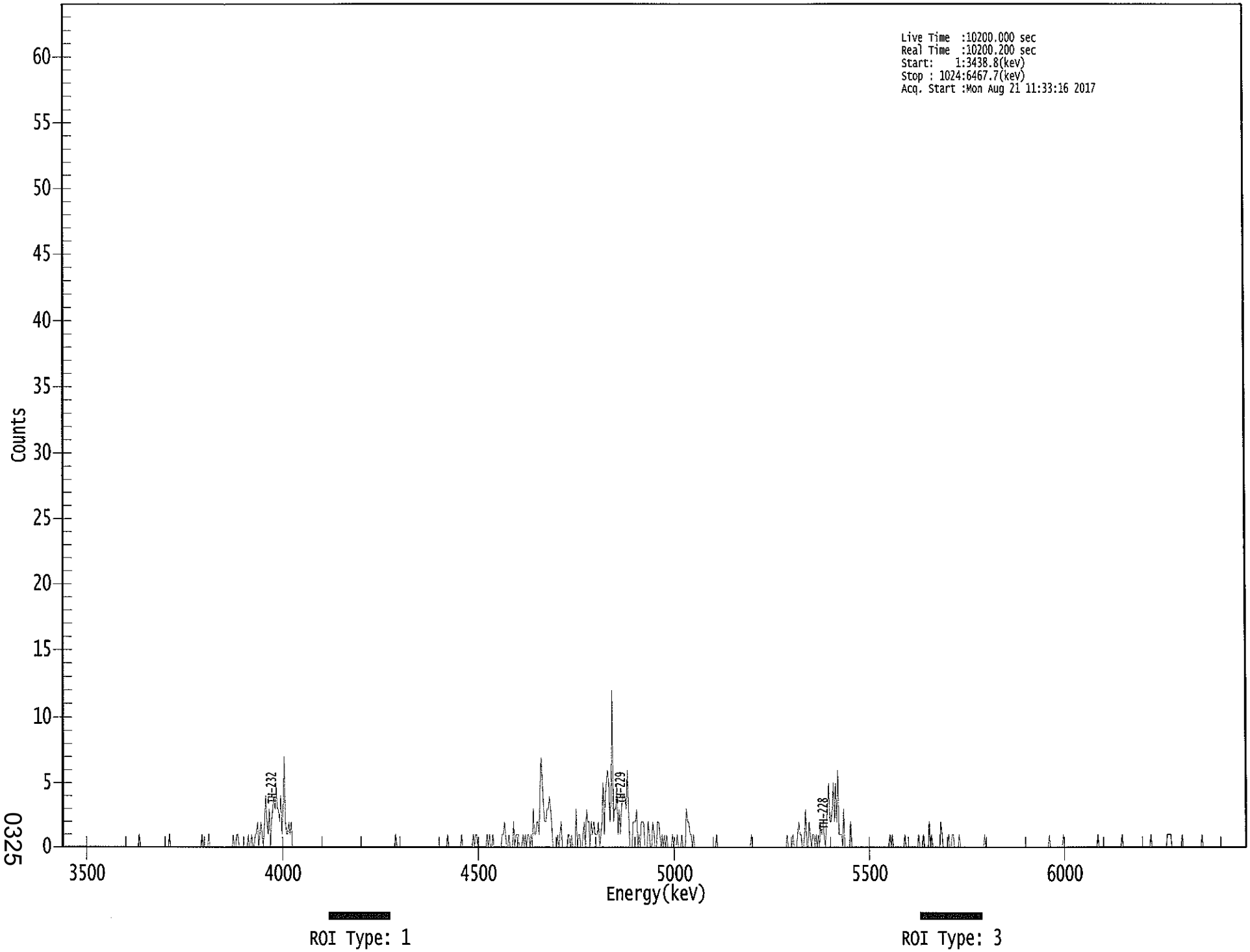
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	9.54E-002 +/- 7.62E-002	6.85E-002 +/- 1.13E-002
TH-228	0.999	5400.00*	1.03E+000 +/- 3.00E-001	7.30E-002 +/- 1.21E-002
TH-229	1.000	4872.00*	2.26E+000 +/- 3.74E-001	6.65E-002 +/- 1.10E-002
TH-230	0.994	4672.00*	1.04E+000 +/- 2.93E-001	9.14E-002 +/- 1.51E-002
TH-232	0.997	3997.00*	1.03E+000 +/- 2.91E-001	7.27E-002 +/- 1.20E-002

AG 8/22/17

0000192130.CNF



0325

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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	0	0	1	0	0	0	0

Sample Title: 14

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

801:	0	0	0	0	0	0	0	0

Sample Title: 14

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

NOB 8/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_053
Chamber Serial Number: 10006122A
Detector Serial Number: 53
Env. Background: System Bkgd 194224
Reagent Blank: <not performed>

Sample Size: 1.013E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:12 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1577 +/- 0.0145
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 1.0411 +/- 0.0971

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		5.730	8.83	66.70	0.17	0.00E+000	5.9
TH-228		5.393	37.15	32.58	0.85	0.00E+000	3.0
TH-229	T	4.904	134.66	16.92	0.34	0.00E+000	3.8
TH-230		4.672	30.15	36.28	0.85	0.00E+000	4.5
TH-232		4.008	44.66	29.46	0.34	0.00E+000	6.2

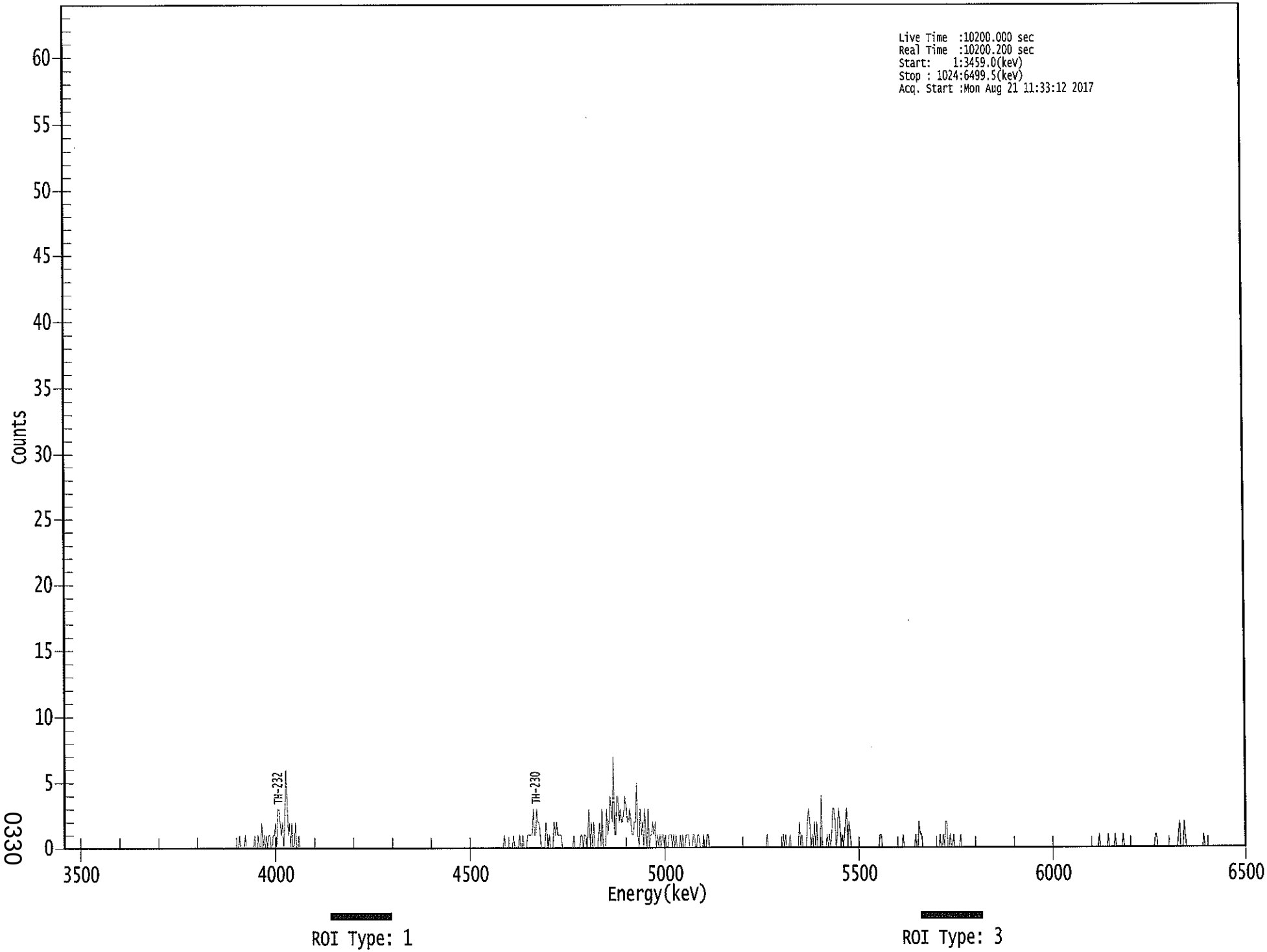
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.928	5850.00*	1.51E-001 +/- 1.05E-001	7.16E-002 +/- 1.29E-002
TH-228	1.000	5400.00*	6.80E-001 +/- 2.53E-001	1.10E-001 +/- 1.97E-002
TH-229	0.995	4872.00*	2.24E+000 +/- 4.03E-001	7.97E-002 +/- 1.43E-002
TH-230	1.000	4672.00*	5.01E-001 +/- 2.03E-001	9.95E-002 +/- 1.79E-002
TH-232	0.999	3997.00*	7.41E-001 +/- 2.56E-001	7.93E-002 +/- 1.43E-002

AG 8/22/17

0000192133.CNF



0330

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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel							
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	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	1
153:	0	0	0	0	1	0	0	0
161:	0	0	0	0	1	0	0	1
169:	0	0	2	0	1	0	1	0
177:	1	1	0	0	1	1	2	0
185:	3	3	2	1	2	0	2	6
193:	4	1	2	0	2	0	0	2
201:	0	0	1	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	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	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: 15

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

801:	0	0	0	0	0	0	0	0

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	1
897:	0	0	0	0	0	0	0	1
905:	0	0	0	0	0	1	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:	1	1	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	1	2	0	0
969:	0	2	1	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	1	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

JCB 3/21/17

Apex-Alpha™

Sample Description:	HTC-A03-S001-1824-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification:	1707086A-TH
Sample Identification:	16
Sample Geometry:	Shelf 2
Procedure Description:	Th iso
Detector Name:	Alpha_054
Chamber Serial Number:	10006122B
Detector Serial Number:	54
Env. Background:	System Bkgd 194225
Reagent Blank:	<not performed>
Sample Size:	1.031E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/15/2017 6:32:55 AM
Acquisition Date/Time:	8/21/2017 11:33:14 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	Th229_S_TH-18A
Tracer Quantity:	0.223 mL
Effective Efficiency:	0.1602 +/- 0.0146
Counting Efficiency:	0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor:	1.1748 +/- 0.1090
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		5.830	7.66	72.63	0.34	0.00E+000	3.0
TH-228		5.375	67.62	24.32	2.38	0.00E+000	7.7
TH-229	T	4.874	136.66	16.79	0.34	0.00E+000	8.1
TH-230		4.632	66.15	24.28	0.85	0.00E+000	3.7
TH-232		3.979	62.66	24.84	0.34	0.00E+000	4.3

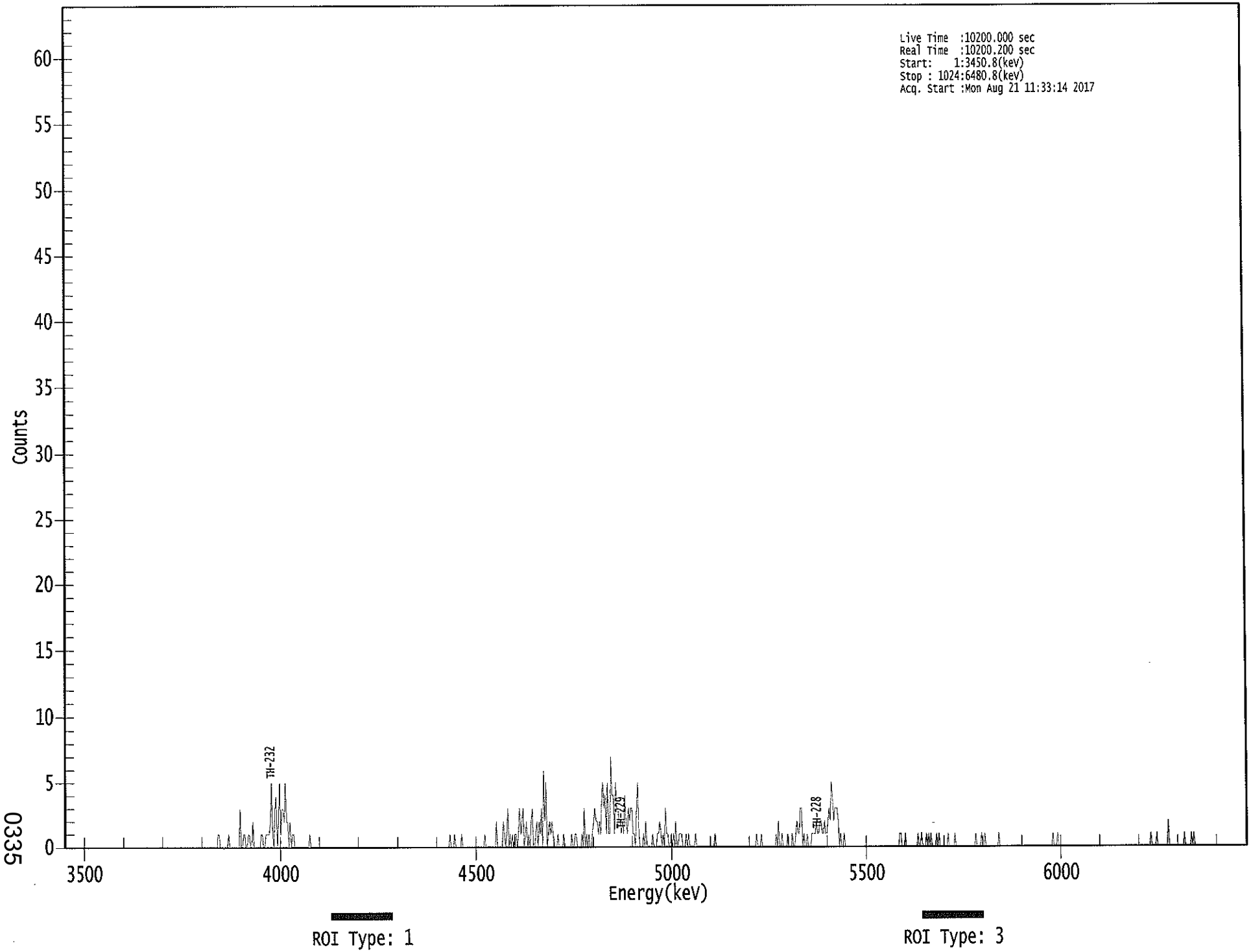
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.27E-001 +/- 9.51E-002	7.94E-002 +/- 1.42E-002
TH-228	0.997	5400.00*	1.20E+000 +/- 3.61E-001	1.45E-001 +/- 2.59E-002
TH-229	1.000	4872.00*	2.20E+000 +/- 3.94E-001	7.71E-002 +/- 1.38E-002
TH-230	0.992	4672.00*	1.06E+000 +/- 3.21E-001	9.63E-002 +/- 1.72E-002
TH-232	0.998	3997.00*	1.01E+000 +/- 3.08E-001	7.67E-002 +/- 1.37E-002

AG 8/22/17

0000192134.CNF



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

Sample Title: 16

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	2	0	0	0

Sample Title: 16

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

801:	0	0	0	0	0	0	0	1

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

VCB 9/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_056
Chamber Serial Number: 10006124B
Detector Serial Number: 56
Env. Background: System Bkgd 194227
Reagent Blank: <not performed>

Sample Size: 1.087E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:18 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.225 mL
Effective Efficiency: 0.1449 +/- 0.0138
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 0.9086 +/- 0.0882

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		5.909	5.81	90.53	1.19	0.00E+000	3.0
TH-228		5.381	45.45	30.01	2.55	0.00E+000	3.0
TH-229	T	4.879	124.30	17.72	1.70	0.00E+000	5.9
TH-230		4.628	49.30	28.47	1.70	0.00E+000	8.5
TH-232		3.960	42.32	30.41	0.68	0.00E+000	4.5

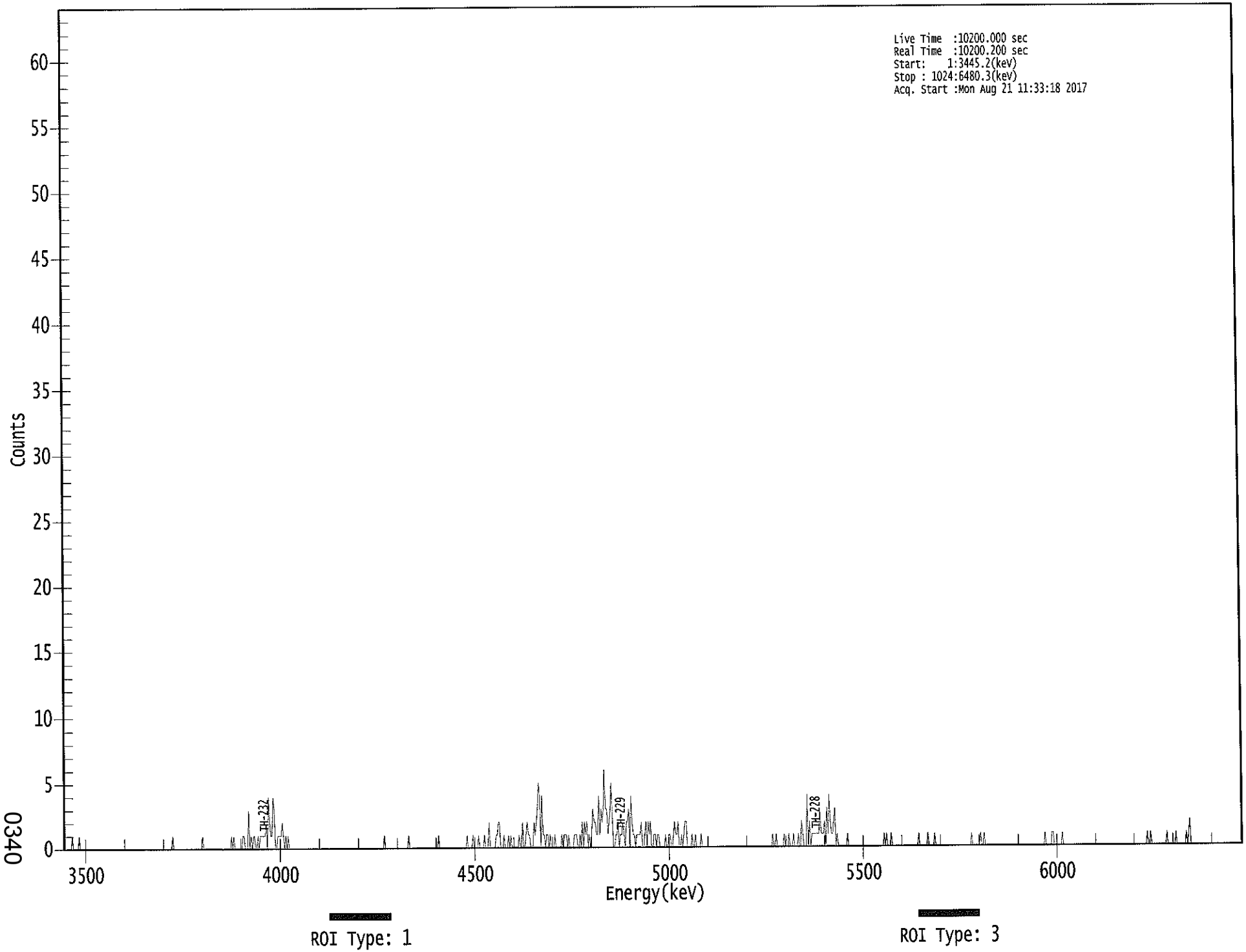
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.982	5850.00*	1.01E-001 +/- 9.35E-002	1.15E-001 +/- 2.15E-002
TH-228	0.998	5400.00*	8.44E-001 +/- 2.98E-001	1.56E-001 +/- 2.92E-002
TH-229	1.000	4872.00*	2.10E+000 +/- 3.94E-001	1.24E-001 +/- 2.33E-002
TH-230	0.990	4672.00*	8.31E-001 +/- 2.83E-001	1.24E-001 +/- 2.32E-002
TH-232	0.993	3997.00*	7.12E-001 +/- 2.54E-001	9.49E-002 +/- 1.78E-002

AG 8/22/17

0000192135.CNF



0340

****
***** 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	0	0	0	0	1
9:	0	0	0	0	0	1	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	1	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	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	0
145:	0	1	0	1	0	0	0	0
153:	0	0	0	1	1	0	0	0
161:	3	0	1	0	1	1	0	0
169:	1	0	1	1	1	1	1	2
177:	0	4	2	1	1	4	3	0
185:	0	1	1	1	1	2	1	0
193:	1	0	1	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	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	1	0	0
281:	0	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	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	1	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	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	0	0	0	1	0	0	0

369:	2	0	0	0	0	0	1	1

Sample Title: 17

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

801:	0	0	0	0	0	0	0	0

Sample Title: 17

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	1	0	0	0	0
857:	0	1	1	0	0	0	0	0
865:	0	0	1	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	1	0	0	1
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	0
961:	0	0	0	0	0	1	0	0
969:	0	0	0	0	0	0	1	0
977:	1	2	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 8/21/17

Apex-Alpha™

Sample Description:	HTC-A03-S001-3036-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification:	1707086A-TH
Sample Identification:	18
Sample Geometry:	Shelf 2
Procedure Description:	Th iso
Detector Name:	Alpha_057
Chamber Serial Number:	01017326A
Detector Serial Number:	57
Env. Background:	System Bkgd 194228
Reagent Blank:	<not performed>
Sample Size:	1.096E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/15/2017 6:32:55 AM
Acquisition Date/Time:	8/21/2017 11:33:00 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	Th229_S_TH-18A
Tracer Quantity:	0.225 mL
Effective Efficiency:	0.1590 +/- 0.0145
Counting Efficiency:	0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor:	0.9655 +/- 0.0895
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		5.863	7.00	79.20	0.00	0.00E+000	3.0
TH-228		5.375	57.83	25.82	0.17	0.00E+000	6.3
TH-229	T	4.876	136.66	16.79	0.34	0.00E+000	4.1
TH-230		4.645	69.83	23.49	0.17	0.00E+000	4.9
TH-232		3.974	52.49	27.21	0.51	0.00E+000	5.9

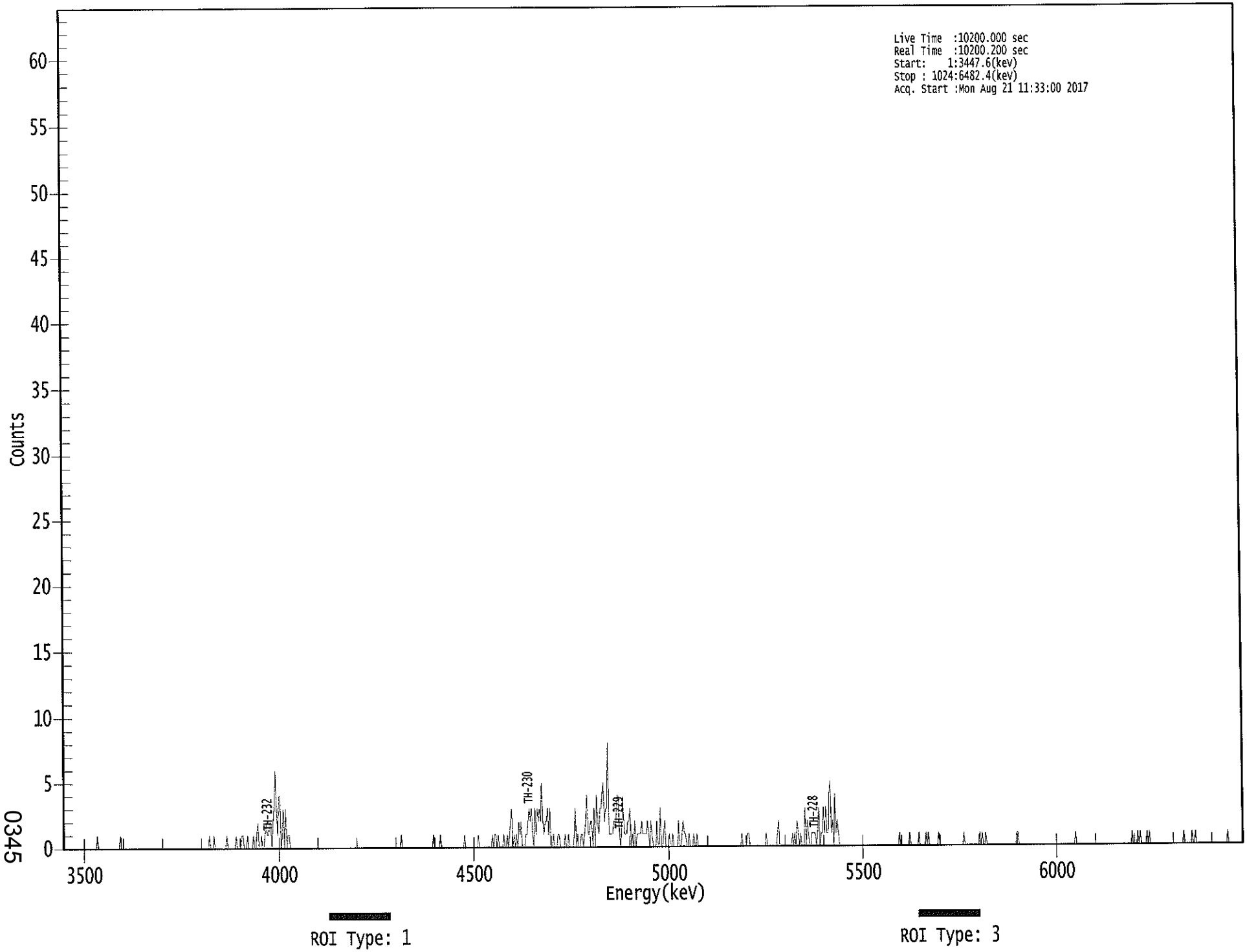
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.10E-001 +/- 8.94E-002	9.43E-002 +/- 1.68E-002
TH-228	0.997	5400.00*	9.70E-001 +/- 3.05E-001	7.00E-002 +/- 1.25E-002
TH-229	1.000	4872.00*	2.09E+000 +/- 3.73E-001	7.31E-002 +/- 1.30E-002
TH-230	0.996	4672.00*	1.06E+000 +/- 3.14E-001	6.36E-002 +/- 1.14E-002
TH-232	0.997	3997.00*	7.98E-001 +/- 2.60E-001	7.98E-002 +/- 1.43E-002

AG
8/22/17

0000192132.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: 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	1	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	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	0	0	0	0	0
137:	0	0	0	0	0	1	0	0
145:	0	0	0	0	0	1	0	0
153:	0	0	1	1	0	0	0	1
161:	0	0	0	0	1	0	0	1
169:	2	0	0	1	0	0	1	2
177:	1	1	2	2	0	2	3	6
185:	3	1	4	4	0	1	3	0
193:	3	0	1	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	1	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:	1	0	0	0	0	0	1	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	1	0	0	0	0
353:	0	0	0	0	0	0	0	1
361:	0	0	0	0	0	0	0	0

369:	0	0	0	1	0	1	1	0

Sample Title: 18

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

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	1	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	0	0	0	0	0	0	0
873:	0	0	0	0	0	1	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	1	0
929:	0	0	0	1	0	1	0	0
937:	0	0	0	1	0	1	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	1	0	0	0	0
977:	0	0	1	0	0	1	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	1	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

VCP 8/21/17

Apex-Alpha™

Sample Description: HTC-A03-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_058
Chamber Serial Number: 01017326B
Detector Serial Number: 58
Env. Background: System Bkgd 194229
Reagent Blank: <not performed>

Sample Size: 1.027E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:04 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.224 mL
Effective Efficiency: 0.1982 +/- 0.0165
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 1.1904 +/- 0.1009

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		5.837	9.66	64.35	0.34	0.00E+000	3.0
TH-228		5.381	70.15	23.57	0.85	0.00E+000	9.9
TH-229	T	4.878	169.32	15.10	0.68	0.00E+000	11.2
TH-230		4.623	59.49	25.54	0.51	0.00E+000	4.0
TH-232		3.963	52.47	27.52	1.53	0.00E+000	6.3

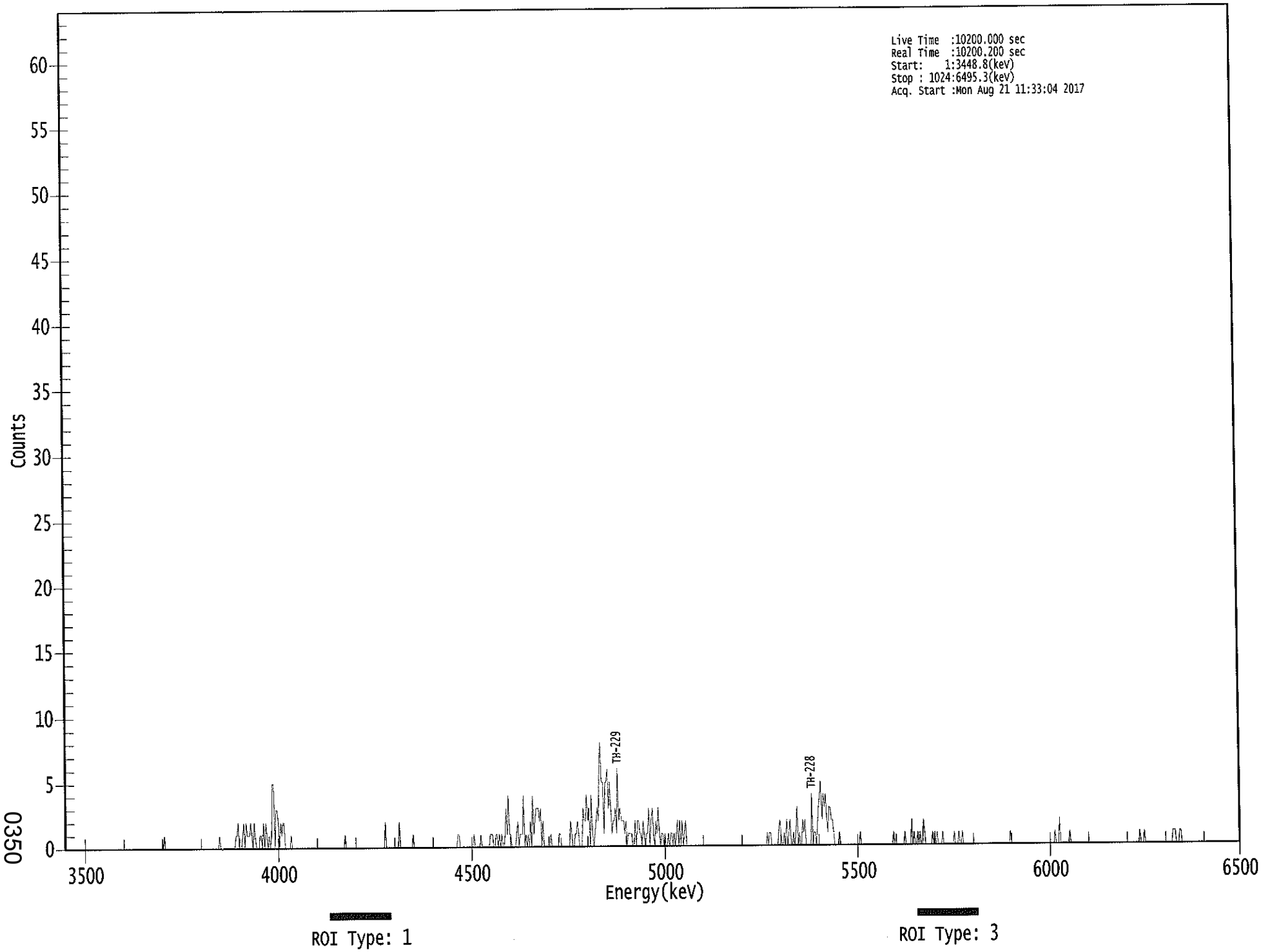
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.30E-001 +/- 8.64E-002	6.44E-002 +/- 1.05E-002
TH-228	0.998	5400.00*	1.01E+000 +/- 2.89E-001	8.60E-002 +/- 1.40E-002
TH-229	1.000	4872.00*	2.22E+000 +/- 3.61E-001	7.38E-002 +/- 1.20E-002
TH-230	0.988	4672.00*	7.76E-001 +/- 2.35E-001	6.84E-002 +/- 1.11E-002
TH-232	0.994	3997.00*	6.83E-001 +/- 2.18E-001	9.25E-002 +/- 1.51E-002

AG
8/22/17

0000192136.CNF



0350

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

369:	0	1	1	1	0	0	1	1

Sample Title: 19

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

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

KD 8/22/17

Apex-Alpha™

Sample Description: HTC-A03-S001-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001921
Batch Identification: 1707086A-TH
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_059
Chamber Serial Number: 10006125A
Detector Serial Number: 59
Env. Background: System Bkgd 194230
Reagent Blank: <not performed>

Sample Size: 1.005E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:32:55 AM
Acquisition Date/Time: 8/21/2017 11:33:20 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.225 mL
Effective Efficiency: 0.1953 +/- 0.0163
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 1.0997 +/- 0.0936

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.804	5.15	94.34	0.85	0.00E+000	0.0
TH-228		5.385	70.98	23.46	1.02	0.00E+000	6.2
TH-229	T	4.874	167.49	15.17	0.51	0.00E+000	8.9
TH-230		4.645	75.66	22.59	0.34	0.00E+000	12.6
TH-232		3.981	80.83	21.83	0.17	0.00E+000	6.9

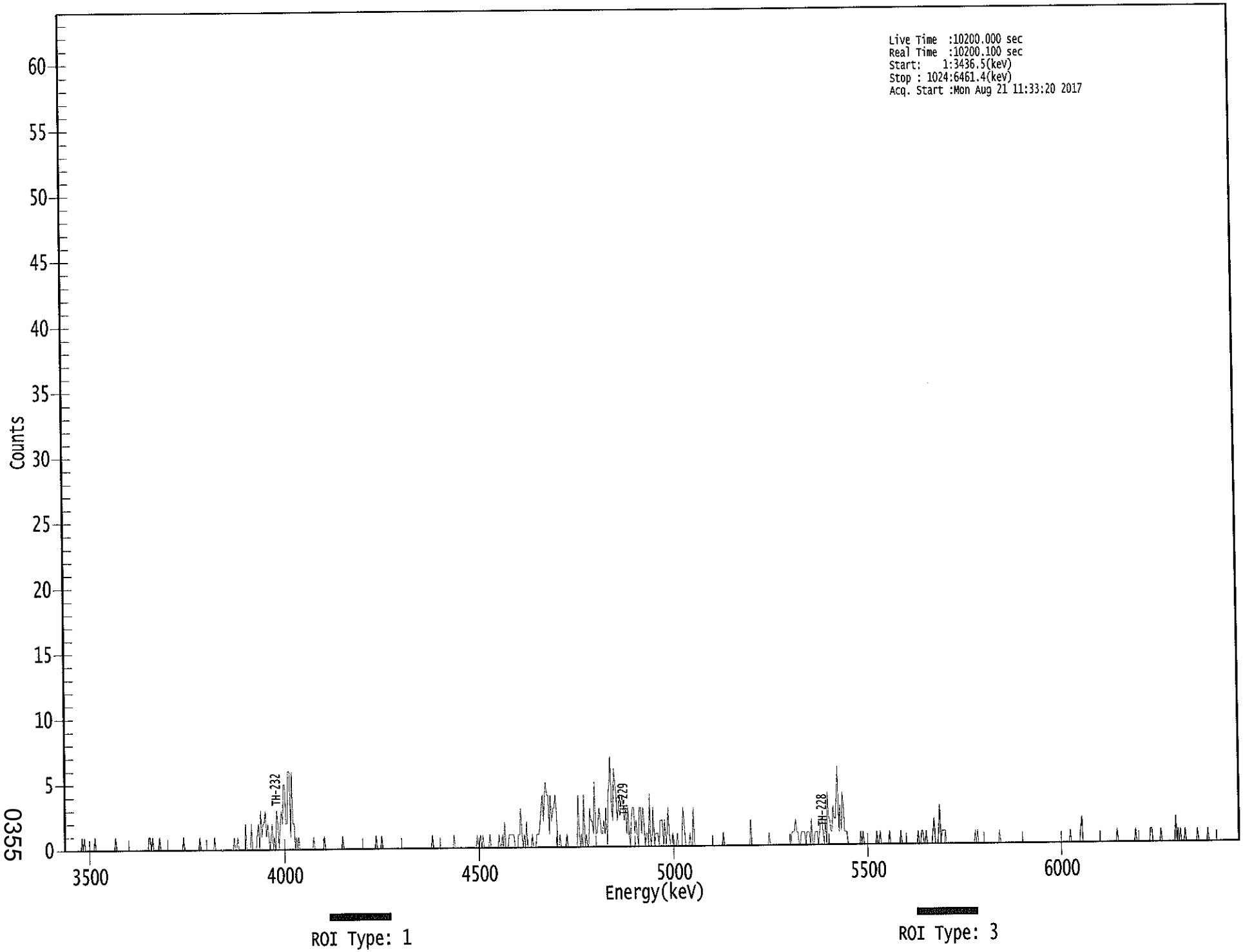
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.989	5850.00*	7.19E-002 +/- 6.89E-002	8.36E-002 +/- 1.37E-002
TH-228	0.999	5400.00*	1.06E+000 +/- 3.02E-001	9.38E-002 +/- 1.53E-002
TH-229	1.000	4872.00*	2.27E+000 +/- 3.71E-001	7.12E-002 +/- 1.16E-002
TH-230	0.996	4672.00*	1.02E+000 +/- 2.85E-001	6.47E-002 +/- 1.06E-002
TH-232	0.999	3997.00*	1.09E+000 +/- 2.98E-001	5.64E-002 +/- 9.21E-003

AG
8/22/17

0000192141.CNF



0355

****
***** 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	0	0	0	1
17:	0	1	0	0	0	0	0	0
25:	0	0	1	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	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	1	1	0	1	0	0	0
81:	0	0	1	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	1
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	1	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	1	0	0	1	0
153:	0	0	0	0	0	2	0	0
161:	0	0	2	0	0	0	0	1
169:	2	0	3	1	2	2	3	1
177:	2	1	0	1	2	0	1	0
185:	3	2	0	2	3	2	5	5
193:	2	2	6	6	1	6	2	2
201:	0	1	0	1	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	1	0	0	0	0	0	0	0
225:	0	1	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	1	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	1	0
273:	0	0	0	1	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	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	1	0
361:	0	1	0	1	0	0	0	0

369:	0	1	0	0	0	0	0	0

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/21/2017 5:47:34 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/21/2017
Time : 5:47:34 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/21/2017 5:21:49 AM
Alpha_004	21f	ALL	Passed	8/21/2017 5:21:49 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	8/21/2017 5:21:50 AM
Alpha_011	21f	ALL	Passed	8/21/2017 5:21:51 AM
Alpha_012	21f	ALL	Passed	8/21/2017 5:21:52 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/21/2017 5:21:53 AM
Alpha_015	21f	Peak FWHM	Action	8/18/2017 4:58:23 AM
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:21:54 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:21:56 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:21:57 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:21:59 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:00 AM
Alpha_038	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:02 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:04 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/21/2017 5:22:05 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:07 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:08 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:10 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:12 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:14 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:15 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:17 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:19 AM
Alpha_051	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:01 AM
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:20 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:22 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:24 AM
Alpha_055	Alpha Analyst100DC	ALL	Passed	8/18/2017 4:59:12 AM
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:26 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:28 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:30 AM

Review of QA Results - Pulser Check

8/21/2017 5:47:34 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:32 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/21/2017 5:22:34 AM

APPROVED BY: _____

APPROVAL DATE: 8/21/17

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

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

17-07086
Gamma
Run 2

Work Order	17-07086
Analysis Code	Gamma
Run	2
Date Received	7/18/2017
Lab Deadline	8/10/2017
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		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A02-S004-1218-01	272	05/15/17 08:25	7.0440E+02
04	DO	HTC-A02-S004-1218-01	272	05/15/17 08:25	7.0440E+02
05	TRG	HTC-A02-S004-1824-01	99	05/15/17 08:23	6.9429E+02
06	TRG	HTC-A02-S004-2430-01	45	05/15/17 08:21	6.1145E+02
07	TRG	HTC-A02-S004-3036-01	87	05/15/17 08:19	6.6579E+02
08	TRG	HTC-A02-S004-3642-01	38	05/15/17 08:17	5.6793E+02
09	TRG	HTC-A02-S004-4248-01	53	05/15/17 08:15	6.7226E+02
10	TRG	HTC-A03-S001-0006-01	32	05/15/17 08:26	5.1035E+02
13	TRG	HTC-A03-S001-0006-02	39	05/15/17 08:26	5.7171E+02
14	TRG	HTC-A03-S001-0612-01	35	05/15/17 08:23	5.6514E+02
15	TRG	HTC-A03-S001-1218-01	38	05/15/17 08:20	7.2853E+02
16	TRG	HTC-A03-S001-1824-01	40	05/15/17 08:17	7.6773E+02
17	TRG	HTC-A03-S001-2430-01	44	05/15/17 08:14	7.1295E+02
18	TRG	HTC-A03-S001-3036-01	39	05/15/17 08:11	7.8536E+02
19	TRG	HTC-A03-S001-3642-01	45	05/15/17 08:08	6.2475E+02
20	TRG	HTC-A03-S001-4248-01	40	05/15/17 08:05	7.3665E+02

0363

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

Eberline Services
Oak Ridge Laboratory
Analysis Sheet

17-07086
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								
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								

0364

* 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.

17-07086
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	07/31/17 09:09	KSALLINGS						
05	TRG	07/31/17 09:09	KSALLINGS						
06	TRG	07/31/17 09:09	KSALLINGS						
07	TRG	07/31/17 09:09	KSALLINGS						
08	TRG	07/31/17 09:09	KSALLINGS						
09	TRG	07/31/17 09:09	KSALLINGS						
10	TRG	07/31/17 09:09	KSALLINGS						
13	TRG	07/31/17 09:09	KSALLINGS						
14	TRG	07/31/17 09:09	KSALLINGS						
15	TRG	07/31/17 09:09	KSALLINGS						
16	TRG	07/31/17 09:09	KSALLINGS						
17	TRG	07/31/17 09:09	KSALLINGS						
18	TRG	07/31/17 09:09	KSALLINGS						
19	TRG	07/31/17 09:09	KSALLINGS						
20	TRG	07/31/17 09:09	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: 17-07086-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	1.24E+02	7.53E+00	1.18E+00	1.35E+02	91.96	OK		07/19/17 00:00	1.00E+00	08/21/17 14:48	YES
01	CS-137	LCS	LCS	pCi/g	8.17E+01	9.98E+00	1.51E+00	8.44E+01	96.86	OK		07/19/17 00:00	1.00E+00	08/21/17 14:48	YES
02	AC-228	MBL	BLANK	pCi/g	6.43E-02	7.21E-02	1.59E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	BI-212	MBL	BLANK	pCi/g	1.38E-01	2.29E-01	3.99E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	RA-226	MBL	BLANK	pCi/g	5.59E-02	5.91E-02	1.06E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	CS-137	MBL	BLANK	pCi/g	3.63E-03	3.76E-02	5.67E-02					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	K-40	MBL	BLANK	pCi/g	1.67E-01	3.15E-01	6.28E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	PA-234M	MBL	BLANK	pCi/g	2.66E+00	2.99E+00	6.10E+00					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	PB-212	MBL	BLANK	pCi/g	2.37E-02	3.75E-02	6.22E-02					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	RA-224	MBL	BLANK	pCi/g	2.51E-01	4.20E-01	6.93E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	RA-228	MBL	BLANK	pCi/g	6.43E-02	7.21E-02	1.59E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	TH-234	MBL	BLANK	pCi/g	5.28E-01	3.84E-01	6.46E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
02	TL-208	MBL	BLANK	pCi/g	-5.28E-02	9.31E-02	1.19E-01					07/19/17 00:00	1.00E+00	08/21/17 15:20	NO
03	AC-228	DUP	HTC-A02-S004-1218-01	pCi/g	1.29E+02	6.00E+00	3.24E+00				OK	05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	BI-212	DUP	HTC-A02-S004-1218-01	pCi/g	7.87E+01	6.69E+00	6.14E+00					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	RA-226	DUP	HTC-A02-S004-1218-01	pCi/g	1.01E+02	4.75E+00	1.47E+00				OK	05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	CS-137	DUP	HTC-A02-S004-1218-01	pCi/g	1.25E-01	2.27E-01	5.05E-01					05/15/17 08:25	7.04E+02	08/21/17 14:20	NO
03	K-40	DUP	HTC-A02-S004-1218-01	pCi/g	1.24E+01	3.55E+00	5.43E+00					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	PA-234M	DUP	HTC-A02-S004-1218-01	pCi/g	1.39E+02	3.98E+01	6.22E+01					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	PB-212	DUP	HTC-A02-S004-1218-01	pCi/g	1.21E+02	6.88E+00	1.93E+00					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	RA-224	DUP	HTC-A02-S004-1218-01	pCi/g	2.35E+02	1.87E+01	2.19E+01					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	RA-228	DUP	HTC-A02-S004-1218-01	pCi/g	1.29E+02	6.00E+00	3.24E+00					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	TH-234	DUP	HTC-A02-S004-1218-01	pCi/g	9.33E+01	1.14E+01	1.49E+01					05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
03	TL-208	DUP	HTC-A02-S004-1218-01	pCi/g	1.15E+02	6.23E+00	1.36E+00				OK	05/15/17 08:25	7.04E+02	08/21/17 14:20	YES
04	AC-228	DO	HTC-A02-S004-1218-01	pCi/g	1.29E+02	6.00E+00	2.60E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	BI-212	DO	HTC-A02-S004-1218-01	pCi/g	8.35E+01	6.77E+00	6.93E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	RA-226	DO	HTC-A02-S004-1218-01	pCi/g	1.00E+02	4.63E+00	1.50E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	CS-137	DO	HTC-A02-S004-1218-01	pCi/g	-1.22E-02	2.27E-01	5.07E-01					05/15/17 08:25	7.04E+02	08/21/17 15:21	NO
04	K-40	DO	HTC-A02-S004-1218-01	pCi/g	1.70E+01	3.88E+00	5.66E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	PA-234M	DO	HTC-A02-S004-1218-01	pCi/g	1.04E+02	2.92E+01	4.40E+01					05/15/17 08:25	7.04E+02	08/21/17 15:21	NO
04	PB-212	DO	HTC-A02-S004-1218-01	pCi/g	1.32E+02	7.58E+00	1.70E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	RA-224	DO	HTC-A02-S004-1218-01	pCi/g	3.40E+02	2.75E+01	1.96E+01					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	RA-228	DO	HTC-A02-S004-1218-01	pCi/g	1.29E+02	6.00E+00	2.60E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	TH-234	DO	HTC-A02-S004-1218-01	pCi/g	9.59E+01	1.15E+01	1.48E+01					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
04	TL-208	DO	HTC-A02-S004-1218-01	pCi/g	1.12E+02	6.13E+00	1.38E+00					05/15/17 08:25	7.04E+02	08/21/17 15:21	YES
05	AC-228	TRG	HTC-A02-S004-1824-01	pCi/g	1.96E+01	1.08E+00	1.18E+00					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	BI-212	TRG	HTC-A02-S004-1824-01	pCi/g	1.22E+01	1.68E+00	1.51E+00					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	RA-226	TRG	HTC-A02-S004-1824-01	pCi/g	7.40E+00	5.57E-01	5.62E-01					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES

Work Order: 17-07086-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-A02-S004-1824-01	pCi/g	1.38E-01	1.48E-01	2.47E-01					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	K-40	TRG	HTC-A02-S004-1824-01	pCi/g	1.51E+01	2.06E+00	2.05E+00					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	PA-234M	TRG	HTC-A02-S004-1824-01	pCi/g	9.88E+00	9.15E+00	1.43E+01					05/15/17 08:23	6.94E+02	08/21/17 14:23	NO
05	PB-212	TRG	HTC-A02-S004-1824-01	pCi/g	2.15E+01	1.54E+00	8.19E-01					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	RA-224	TRG	HTC-A02-S004-1824-01	pCi/g	4.56E+01	6.12E+00	9.43E+00					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	RA-228	TRG	HTC-A02-S004-1824-01	pCi/g	1.96E+01	1.08E+00	1.18E+00					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	TH-234	TRG	HTC-A02-S004-1824-01	pCi/g	7.03E+00	3.06E+00	5.00E+00					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
05	TL-208	TRG	HTC-A02-S004-1824-01	pCi/g	1.92E+01	1.33E+00	4.88E-01					05/15/17 08:23	6.94E+02	08/21/17 14:23	YES
06	AC-228	TRG	HTC-A02-S004-2430-01	pCi/g	2.35E+00	3.23E-01	5.98E-01					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	BI-212	TRG	HTC-A02-S004-2430-01	pCi/g	2.28E+00	7.17E-01	1.16E+00					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	RA-226	TRG	HTC-A02-S004-2430-01	pCi/g	1.63E+00	2.26E-01	7.34E-02					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	CS-137	TRG	HTC-A02-S004-2430-01	pCi/g	-1.44E-03	8.11E-02	1.17E-01					05/15/17 08:21	6.11E+02	08/21/17 14:24	NO
06	K-40	TRG	HTC-A02-S004-2430-01	pCi/g	2.10E+01	2.59E+00	1.57E+00					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	PA-234M	TRG	HTC-A02-S004-2430-01	pCi/g	1.53E+00	7.56E+00	1.18E+01					05/15/17 08:21	6.11E+02	08/21/17 14:24	NO
06	PB-212	TRG	HTC-A02-S004-2430-01	pCi/g	2.78E+00	2.78E-01	2.85E-01					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	RA-224	TRG	HTC-A02-S004-2430-01	pCi/g	3.57E+01	3.61E+00	4.37E+00					05/15/17 08:21	6.11E+02	08/21/17 14:24	NO
06	RA-228	TRG	HTC-A02-S004-2430-01	pCi/g	2.35E+00	3.23E-01	5.98E-01					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	TH-234	TRG	HTC-A02-S004-2430-01	pCi/g	1.72E+00	1.54E+00	2.56E+00					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
06	TL-208	TRG	HTC-A02-S004-2430-01	pCi/g	2.50E+00	4.37E-01	5.32E-01					05/15/17 08:21	6.11E+02	08/21/17 14:24	YES
07	AC-228	TRG	HTC-A02-S004-3036-01	pCi/g	4.04E+00	3.42E-01	4.20E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	BI-212	TRG	HTC-A02-S004-3036-01	pCi/g	2.88E+00	6.58E-01	8.74E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	RA-226	TRG	HTC-A02-S004-3036-01	pCi/g	2.18E+00	2.18E-01	3.16E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	CS-137	TRG	HTC-A02-S004-3036-01	pCi/g	-1.15E-02	5.20E-02	1.01E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	NO
07	K-40	TRG	HTC-A02-S004-3036-01	pCi/g	2.56E+01	2.66E+00	1.57E+00					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	PA-234M	TRG	HTC-A02-S004-3036-01	pCi/g	5.74E+00	6.01E+00	9.84E+00					05/15/17 08:19	6.66E+02	08/21/17 15:24	NO
07	PB-212	TRG	HTC-A02-S004-3036-01	pCi/g	4.54E+00	3.92E-01	4.30E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	RA-224	TRG	HTC-A02-S004-3036-01	pCi/g	1.08E+01	2.35E+00	4.88E+00					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	RA-228	TRG	HTC-A02-S004-3036-01	pCi/g	4.04E+00	3.42E-01	4.20E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	TH-234	TRG	HTC-A02-S004-3036-01	pCi/g	3.60E+00	1.59E+00	2.57E+00					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
07	TL-208	TRG	HTC-A02-S004-3036-01	pCi/g	3.87E+00	3.73E-01	2.66E-01					05/15/17 08:19	6.66E+02	08/21/17 15:24	YES
08	AC-228	TRG	HTC-A02-S004-3642-01	pCi/g	1.39E+00	3.55E-01	6.72E-01					05/15/17 08:17	5.68E+02	08/21/17 15:24	NO
08	BI-212	TRG	HTC-A02-S004-3642-01	pCi/g	7.87E-01	6.07E-01	1.02E+00					05/15/17 08:17	5.68E+02	08/21/17 15:24	NO
08	RA-226	TRG	HTC-A02-S004-3642-01	pCi/g	1.18E+00	2.20E-01	3.36E-01					05/15/17 08:17	5.68E+02	08/21/17 15:24	YES
08	CS-137	TRG	HTC-A02-S004-3642-01	pCi/g	-5.18E-02	7.50E-02	1.03E-01					05/15/17 08:17	5.68E+02	08/21/17 15:24	NO
08	K-40	TRG	HTC-A02-S004-3642-01	pCi/g	2.76E+01	3.17E+00	1.49E+00					05/15/17 08:17	5.68E+02	08/21/17 15:24	YES
08	PA-234M	TRG	HTC-A02-S004-3642-01	pCi/g	-6.39E+00	8.14E+00	1.07E+01					05/15/17 08:17	5.68E+02	08/21/17 15:24	NO
08	PB-212	TRG	HTC-A02-S004-3642-01	pCi/g	1.77E+00	2.59E-01	3.12E-01					05/15/17 08:17	5.68E+02	08/21/17 15:24	YES
08	RA-224	TRG	HTC-A02-S004-3642-01	pCi/g	1.97E+01	2.42E+00	3.54E+00					05/15/17 08:17	5.68E+02	08/21/17 15:24	NO

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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-A02-S004-3642-01	pCi/g	1.39E+00	3.55E-01	6.72E-01					05/15/17 08:17	5.68E+02	08/21/17 15:24	NO
08	TH-234	TRG	HTC-A02-S004-3642-01	pCi/g	3.89E+00	1.99E+00	3.25E+00					05/15/17 08:17	5.68E+02	08/21/17 15:24	YES
08	TL-208	TRG	HTC-A02-S004-3642-01	pCi/g	1.29E+00	2.22E-01	1.24E-01					05/15/17 08:17	5.68E+02	08/21/17 15:24	YES
09	AC-228	TRG	HTC-A02-S004-4248-01	pCi/g	7.25E+00	6.67E-01	1.08E+00					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	BI-212	TRG	HTC-A02-S004-4248-01	pCi/g	5.87E+00	1.58E+00	2.16E+00					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	RA-226	TRG	HTC-A02-S004-4248-01	pCi/g	3.80E+00	5.15E-01	6.80E-01					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	CS-137	TRG	HTC-A02-S004-4248-01	pCi/g	1.23E-02	1.65E-01	2.23E-01					05/15/17 08:15	6.72E+02	08/21/17 16:21	NO
09	K-40	TRG	HTC-A02-S004-4248-01	pCi/g	2.02E+01	3.02E+00	2.80E+00					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	PA-234M	TRG	HTC-A02-S004-4248-01	pCi/g	8.88E+00	9.74E+00	1.62E+01					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	PB-212	TRG	HTC-A02-S004-4248-01	pCi/g	9.38E+00	8.33E-01	5.26E-01					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	RA-224	TRG	HTC-A02-S004-4248-01	pCi/g	9.53E+01	8.64E+00	7.36E+00					05/15/17 08:15	6.72E+02	08/21/17 16:21	NO
09	RA-228	TRG	HTC-A02-S004-4248-01	pCi/g	7.25E+00	6.67E-01	1.08E+00					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	TH-234	TRG	HTC-A02-S004-4248-01	pCi/g	3.31E+00	2.34E+00	3.87E+00					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
09	TL-208	TRG	HTC-A02-S004-4248-01	pCi/g	7.59E+00	7.89E-01	4.01E-01					05/15/17 08:15	6.72E+02	08/21/17 16:21	YES
10	AC-228	TRG	HTC-A03-S001-0006-01	pCi/g	1.94E+00	2.76E-01	4.66E-01					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	BI-212	TRG	HTC-A03-S001-0006-01	pCi/g	1.42E+00	6.45E-01	1.08E+00					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	RA-226	TRG	HTC-A03-S001-0006-01	pCi/g	1.44E+00	2.05E-01	2.67E-01					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	CS-137	TRG	HTC-A03-S001-0006-01	pCi/g	1.02E-01	6.22E-02	9.71E-02					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	K-40	TRG	HTC-A03-S001-0006-01	pCi/g	2.46E+01	2.77E+00	1.40E+00					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	PA-234M	TRG	HTC-A03-S001-0006-01	pCi/g	1.71E+00	5.62E+00	9.01E+00					05/15/17 08:26	5.10E+02	08/21/17 16:25	NO
10	PB-212	TRG	HTC-A03-S001-0006-01	pCi/g	1.87E+00	1.99E-01	2.84E-01					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	RA-224	TRG	HTC-A03-S001-0006-01	pCi/g	5.72E+00	1.76E+00	3.23E+00					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	RA-228	TRG	HTC-A03-S001-0006-01	pCi/g	1.94E+00	2.76E-01	4.66E-01					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
10	TH-234	TRG	HTC-A03-S001-0006-01	pCi/g	2.64E+00	1.46E+00	2.00E+00					05/15/17 08:26	5.10E+02	08/21/17 16:25	NO
10	TL-208	TRG	HTC-A03-S001-0006-01	pCi/g	1.65E+00	2.11E-01	1.35E-01					05/15/17 08:26	5.10E+02	08/21/17 16:25	YES
13	AC-228	TRG	HTC-A03-S001-0006-02	pCi/g	8.88E-01	2.57E-01	5.30E-01					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	BI-212	TRG	HTC-A03-S001-0006-02	pCi/g	1.03E+00	4.96E-01	9.16E-01					05/15/17 08:26	5.72E+02	08/21/17 16:25	NO
13	RA-226	TRG	HTC-A03-S001-0006-02	pCi/g	8.37E-01	1.75E-01	7.85E-02					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	CS-137	TRG	HTC-A03-S001-0006-02	pCi/g	1.24E-01	8.10E-02	1.29E-01					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	K-40	TRG	HTC-A03-S001-0006-02	pCi/g	2.06E+01	2.54E+00	1.29E+00					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	PA-234M	TRG	HTC-A03-S001-0006-02	pCi/g	2.00E-01	7.06E+00	1.06E+01					05/15/17 08:26	5.72E+02	08/21/17 16:25	NO
13	PB-212	TRG	HTC-A03-S001-0006-02	pCi/g	1.27E+00	1.66E-01	2.28E-01					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	RA-224	TRG	HTC-A03-S001-0006-02	pCi/g	1.55E+01	2.03E+00	3.12E+00					05/15/17 08:26	5.72E+02	08/21/17 16:25	NO
13	RA-228	TRG	HTC-A03-S001-0006-02	pCi/g	8.88E-01	2.57E-01	5.30E-01					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	TH-234	TRG	HTC-A03-S001-0006-02	pCi/g	1.16E+00	1.30E+00	2.18E+00					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
13	TL-208	TRG	HTC-A03-S001-0006-02	pCi/g	9.06E-01	1.90E-01	1.24E-01					05/15/17 08:26	5.72E+02	08/21/17 16:25	YES
14	AC-228	TRG	HTC-A03-S001-0612-01	pCi/g	1.24E+00	2.04E-01	3.43E-01					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	BI-212	TRG	HTC-A03-S001-0612-01	pCi/g	1.07E+00	4.29E-01	8.86E-01					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES

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Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
14	RA-226	TRG	HTC-A03-S001-0612-01	pCi/g	1.09E+00	1.60E-01	2.29E-01					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	CS-137	TRG	HTC-A03-S001-0612-01	pCi/g	1.66E-02	5.47E-02	8.47E-02					05/15/17 08:23	5.65E+02	08/21/17 17:26	NO
14	K-40	TRG	HTC-A03-S001-0612-01	pCi/g	2.45E+01	2.62E+00	1.31E+00					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	PA-234M	TRG	HTC-A03-S001-0612-01	pCi/g	-1.06E+00	5.45E+00	8.14E+00					05/15/17 08:23	5.65E+02	08/21/17 17:26	NO
14	PB-212	TRG	HTC-A03-S001-0612-01	pCi/g	1.28E+00	1.48E-01	2.05E-01					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	RA-224	TRG	HTC-A03-S001-0612-01	pCi/g	4.07E+00	1.40E+00	2.32E+00					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	RA-228	TRG	HTC-A03-S001-0612-01	pCi/g	1.24E+00	2.04E-01	3.43E-01					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	TH-234	TRG	HTC-A03-S001-0612-01	pCi/g	2.03E+00	1.65E+00	2.73E+00					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
14	TL-208	TRG	HTC-A03-S001-0612-01	pCi/g	1.06E+00	1.86E-01	1.68E-01					05/15/17 08:23	5.65E+02	08/21/17 17:26	YES
15	AC-228	TRG	HTC-A03-S001-1218-01	pCi/g	7.36E-01	1.78E-01	4.23E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	BI-212	TRG	HTC-A03-S001-1218-01	pCi/g	7.05E-01	5.34E-01	8.65E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	RA-226	TRG	HTC-A03-S001-1218-01	pCi/g	7.88E-01	1.47E-01	2.48E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	CS-137	TRG	HTC-A03-S001-1218-01	pCi/g	-3.42E-03	5.29E-02	8.01E-02					05/15/17 08:20	7.29E+02	08/21/17 17:26	NO
15	K-40	TRG	HTC-A03-S001-1218-01	pCi/g	1.78E+01	2.12E+00	9.96E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	PA-234M	TRG	HTC-A03-S001-1218-01	pCi/g	-6.61E-01	5.84E+00	8.88E+00					05/15/17 08:20	7.29E+02	08/21/17 17:26	NO
15	PB-212	TRG	HTC-A03-S001-1218-01	pCi/g	9.10E-01	1.23E-01	1.87E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	RA-224	TRG	HTC-A03-S001-1218-01	pCi/g	2.82E+00	1.31E+00	2.16E+00					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	RA-228	TRG	HTC-A03-S001-1218-01	pCi/g	7.36E-01	1.78E-01	4.23E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
15	TH-234	TRG	HTC-A03-S001-1218-01	pCi/g	1.15E+00	1.04E+00	1.41E+00					05/15/17 08:20	7.29E+02	08/21/17 17:26	NO
15	TL-208	TRG	HTC-A03-S001-1218-01	pCi/g	8.47E-01	1.46E-01	1.72E-01					05/15/17 08:20	7.29E+02	08/21/17 17:26	YES
16	AC-228	TRG	HTC-A03-S001-1824-01	pCi/g	9.22E-01	1.69E-01	3.78E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	BI-212	TRG	HTC-A03-S001-1824-01	pCi/g	6.78E-01	2.75E-01	7.44E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	RA-226	TRG	HTC-A03-S001-1824-01	pCi/g	8.37E-01	1.25E-01	1.82E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	CS-137	TRG	HTC-A03-S001-1824-01	pCi/g	-2.89E-02	4.25E-02	5.89E-02					05/15/17 08:17	7.68E+02	08/22/17 05:50	NO
16	K-40	TRG	HTC-A03-S001-1824-01	pCi/g	1.78E+01	1.91E+00	6.18E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	PA-234M	TRG	HTC-A03-S001-1824-01	pCi/g	6.53E+00	4.36E+00	6.87E+00					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	PB-212	TRG	HTC-A03-S001-1824-01	pCi/g	9.34E-01	1.09E-01	2.01E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	RA-224	TRG	HTC-A03-S001-1824-01	pCi/g	2.73E+00	9.78E-01	2.27E+00					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	RA-228	TRG	HTC-A03-S001-1824-01	pCi/g	9.22E-01	1.69E-01	3.78E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
16	TH-234	TRG	HTC-A03-S001-1824-01	pCi/g	1.57E+00	9.41E-01	1.28E+00					05/15/17 08:17	7.68E+02	08/22/17 05:50	NO
16	TL-208	TRG	HTC-A03-S001-1824-01	pCi/g	8.38E-01	1.96E-01	2.71E-01					05/15/17 08:17	7.68E+02	08/22/17 05:50	YES
17	AC-228	TRG	HTC-A03-S001-2430-01	pCi/g	8.05E-01	1.86E-01	3.93E-01					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
17	BI-212	TRG	HTC-A03-S001-2430-01	pCi/g	6.43E-01	3.50E-01	5.35E-01					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
17	RA-226	TRG	HTC-A03-S001-2430-01	pCi/g	7.52E-01	1.20E-01	1.76E-01					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
17	CS-137	TRG	HTC-A03-S001-2430-01	pCi/g	0.00E+00	3.33E-02	5.75E-02					05/15/17 08:14	7.13E+02	08/22/17 05:50	NO
17	K-40	TRG	HTC-A03-S001-2430-01	pCi/g	1.72E+01	2.04E+00	7.42E-01					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
17	PA-234M	TRG	HTC-A03-S001-2430-01	pCi/g	1.90E+00	4.43E+00	7.22E+00					05/15/17 08:14	7.13E+02	08/22/17 05:50	NO
17	PB-212	TRG	HTC-A03-S001-2430-01	pCi/g	7.44E-01	9.77E-02	1.90E-01					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES

0369

Preliminary Data Report & Analytical Calculations

Work Order: 17-07086-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
17	RA-224	TRG	HTC-A03-S001-2430-01	pCi/g	1.49E+00	6.82E-01	2.15E+00					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
17	RA-228	TRG	HTC-A03-S001-2430-01	pCi/g	8.05E-01	1.86E-01	3.93E-01					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
17	TH-234	TRG	HTC-A03-S001-2430-01	pCi/g	6.62E-01	6.96E-01	1.09E+00					05/15/17 08:14	7.13E+02	08/22/17 05:50	NO
17	TL-208	TRG	HTC-A03-S001-2430-01	pCi/g	6.43E-01	1.18E-01	9.48E-02					05/15/17 08:14	7.13E+02	08/22/17 05:50	YES
18	AC-228	TRG	HTC-A03-S001-3036-01	pCi/g	8.57E-01	1.94E-01	3.86E-01					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
18	BI-212	TRG	HTC-A03-S001-3036-01	pCi/g	5.35E-01	4.61E-01	7.54E-01					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
18	RA-226	TRG	HTC-A03-S001-3036-01	pCi/g	7.38E-01	1.11E-01	5.71E-02					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
18	CS-137	TRG	HTC-A03-S001-3036-01	pCi/g	-2.09E-02	5.18E-02	7.43E-02					05/15/17 08:11	7.85E+02	08/22/17 05:50	NO
18	K-40	TRG	HTC-A03-S001-3036-01	pCi/g	1.66E+01	1.97E+00	8.73E-01					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
18	PA-234M	TRG	HTC-A03-S001-3036-01	pCi/g	1.89E+00	5.20E+00	8.38E+00					05/15/17 08:11	7.85E+02	08/22/17 05:50	NO
18	PB-212	TRG	HTC-A03-S001-3036-01	pCi/g	9.66E-01	1.22E-01	1.84E-01					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
18	RA-224	TRG	HTC-A03-S001-3036-01	pCi/g	1.32E+01	1.61E+00	2.41E+00					05/15/17 08:11	7.85E+02	08/22/17 05:50	NO
18	RA-228	TRG	HTC-A03-S001-3036-01	pCi/g	8.57E-01	1.94E-01	3.86E-01					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
18	TH-234	TRG	HTC-A03-S001-3036-01	pCi/g	8.90E-01	9.67E-01	1.28E+00					05/15/17 08:11	7.85E+02	08/22/17 05:50	NO
18	TL-208	TRG	HTC-A03-S001-3036-01	pCi/g	6.62E-01	1.39E-01	1.82E-01					05/15/17 08:11	7.85E+02	08/22/17 05:50	YES
19	AC-228	TRG	HTC-A03-S001-3642-01	pCi/g	1.24E+00	2.69E-01	9.05E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
19	BI-212	TRG	HTC-A03-S001-3642-01	pCi/g	1.05E+00	7.03E-01	1.14E+00					05/15/17 08:08	6.25E+02	08/22/17 06:11	NO
19	RA-226	TRG	HTC-A03-S001-3642-01	pCi/g	9.10E-01	2.15E-01	3.54E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
19	CS-137	TRG	HTC-A03-S001-3642-01	pCi/g	-4.24E-03	9.74E-02	1.35E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	NO
19	K-40	TRG	HTC-A03-S001-3642-01	pCi/g	1.98E+01	2.61E+00	9.19E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
19	PA-234M	TRG	HTC-A03-S001-3642-01	pCi/g	2.37E+00	9.91E+00	1.46E+01					05/15/17 08:08	6.25E+02	08/22/17 06:11	NO
19	PB-212	TRG	HTC-A03-S001-3642-01	pCi/g	1.30E+00	2.34E-01	3.11E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
19	RA-224	TRG	HTC-A03-S001-3642-01	pCi/g	1.27E+01	1.95E+00	3.10E+00					05/15/17 08:08	6.25E+02	08/22/17 06:11	NO
19	RA-228	TRG	HTC-A03-S001-3642-01	pCi/g	1.24E+00	2.69E-01	9.05E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
19	TH-234	TRG	HTC-A03-S001-3642-01	pCi/g	1.74E+00	1.36E+00	2.24E+00					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
19	TL-208	TRG	HTC-A03-S001-3642-01	pCi/g	1.09E+00	2.47E-01	3.03E-01					05/15/17 08:08	6.25E+02	08/22/17 06:11	YES
20	AC-228	TRG	HTC-A03-S001-4248-01	pCi/g	9.79E-01	1.59E-01	2.65E-01					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	BI-212	TRG	HTC-A03-S001-4248-01	pCi/g	9.68E-01	4.58E-01	7.03E-01					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	RA-226	TRG	HTC-A03-S001-4248-01	pCi/g	7.87E-01	1.55E-01	1.48E-01					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	CS-137	TRG	HTC-A03-S001-4248-01	pCi/g	1.45E-01	5.80E-02	8.56E-02					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	K-40	TRG	HTC-A03-S001-4248-01	pCi/g	1.95E+01	2.17E+00	1.21E+00					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	PA-234M	TRG	HTC-A03-S001-4248-01	pCi/g	-3.36E-01	4.33E+00	6.55E+00					05/15/17 08:05	7.37E+02	08/22/17 06:54	NO
20	PB-212	TRG	HTC-A03-S001-4248-01	pCi/g	1.11E+00	1.26E-01	2.17E-01					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	RA-224	TRG	HTC-A03-S001-4248-01	pCi/g	3.99E+00	1.31E+00	2.49E+00					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	RA-228	TRG	HTC-A03-S001-4248-01	pCi/g	9.79E-01	1.59E-01	2.65E-01					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	TH-234	TRG	HTC-A03-S001-4248-01	pCi/g	1.62E+00	1.11E+00	1.83E+00					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES
20	TL-208	TRG	HTC-A03-S001-4248-01	pCi/g	1.00E+00	1.48E-01	1.39E-01					05/15/17 08:05	7.37E+02	08/22/17 06:54	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07086-Gamma-2 (pCi/g) in SO
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/19/17 00:00	1.0000				0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000				0.00		
03	DUP	HTC-A02-S004-1218-01	05/15/17 08:25	704.4000				0.00		
04	DO	HTC-A02-S004-1218-01	05/15/17 08:25	704.4000				0.00		
05	TRG	HTC-A02-S004-1824-01	05/15/17 08:23	694.2900				0.00		
06	TRG	HTC-A02-S004-2430-01	05/15/17 08:21	611.4500				0.00		
07	TRG	HTC-A02-S004-3036-01	05/15/17 08:19	665.7900				0.00		
08	TRG	HTC-A02-S004-3642-01	05/15/17 08:17	567.9300				0.00		
09	TRG	HTC-A02-S004-4248-01	05/15/17 08:15	672.2600				0.00		
10	TRG	HTC-A03-S001-0006-01	05/15/17 08:26	510.3500				0.00		
13	TRG	HTC-A03-S001-0006-02	05/15/17 08:26	571.7100				0.00		
14	TRG	HTC-A03-S001-0612-01	05/15/17 08:23	565.1400				0.00		
15	TRG	HTC-A03-S001-1218-01	05/15/17 08:20	728.5300				0.00		
16	TRG	HTC-A03-S001-1824-01	05/15/17 08:17	767.7300				0.00		
17	TRG	HTC-A03-S001-2430-01	05/15/17 08:14	712.9500				0.00		
18	TRG	HTC-A03-S001-3036-01	05/15/17 08:11	785.3600				0.00		
19	TRG	HTC-A03-S001-3642-01	05/15/17 08:08	624.7500				0.00		
20	TRG	HTC-A03-S001-4248-01	05/15/17 08:05	736.6500				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07086	2	Gamma	grams	8/10/2017	KSALLINGS

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-A02-S004-1218-01	DUP					7.0440E+02	7.0440E+02				
04	HTC-A02-S004-1218-01	DO					7.0440E+02	7.0440E+02				
05	HTC-A02-S004-1824-01	TRG					6.9429E+02	6.9429E+02				
06	HTC-A02-S004-2430-01	TRG					6.1145E+02	6.1145E+02				
07	HTC-A02-S004-3036-01	TRG					6.6579E+02	6.6579E+02				
08	HTC-A02-S004-3642-01	TRG					5.6793E+02	5.6793E+02				
09	HTC-A02-S004-4248-01	TRG					6.7226E+02	6.7226E+02				
10	HTC-A03-S001-0006-01	TRG					5.1035E+02	5.1035E+02				
13	HTC-A03-S001-0006-02	TRG					5.7171E+02	5.7171E+02				
14	HTC-A03-S001-0612-01	TRG					5.6514E+02	5.6514E+02				
15	HTC-A03-S001-1218-01	TRG					7.2853E+02	7.2853E+02				
16	HTC-A03-S001-1824-01	TRG					7.6773E+02	7.6773E+02				
17	HTC-A03-S001-2430-01	TRG					7.1295E+02	7.1295E+02				
18	HTC-A03-S001-3036-01	TRG					7.8536E+02	7.8536E+02				
19	HTC-A03-S001-3642-01	TRG					6.2475E+02	6.2475E+02				
20	HTC-A03-S001-4248-01	TRG					7.3665E+02	7.3665E+02				

Comments	

0372

Technician: Kenny Sallings Date: 7/31/17

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
17-07086	8/10/2017	7/30/2017	7/31/2017	8/1/2017	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-A02-S004-1218-01	14.5800	1049.5000	928.6400	1034.9200	914.0600	11.68%	88.32%	0.0000	0.0000	
05	HTC-A02-S004-1824-01	14.5900	1027.6200	832.6800	1013.0300	818.0900	19.24%	80.76%	0.0000	0.0000	
06	HTC-A02-S004-2430-01	14.6000	976.9600	767.9500	962.3600	753.3500	21.72%	78.28%	0.0000	0.0000	
07	HTC-A02-S004-3036-01	14.6100	941.0200	766.7300	926.4100	752.1200	18.81%	81.19%	0.0000	0.0000	
08	HTC-A02-S004-3642-01	14.6500	922.6200	773.7400	907.9700	759.0900	16.40%	83.60%	0.0000	0.0000	
09	HTC-A02-S004-4248-01	14.6200	900.9200	759.4200	886.3000	744.8000	15.97%	84.03%	0.0000	0.0000	
10	HTC-A03-S001-0006-01	14.6400	719.4900	573.2900	704.8500	558.6500	20.74%	79.26%	0.0000	0.0000	
11	HTC-A03-S001-0006-01 MS	14.5900	854.6000	697.6400	840.0100	683.0500	18.69%	81.31%	0.0000	0.0000	
12	HTC-A03-S001-0006-01 MSD	14.5900	854.6000	697.6400	840.0100	683.0500	18.69%	81.31%	0.0000	0.0000	
13	HTC-A03-S001-0006-02	14.5700	791.4100	638.3400	776.8400	623.7700	19.70%	80.30%	0.0000	0.0000	
14	HTC-A03-S001-0612-01	14.5600	860.2600	731.9100	845.7000	717.3500	15.18%	84.82%	0.0000	0.0000	
15	HTC-A03-S001-1218-01	14.6200	1089.8800	936.5400	1075.2600	921.9200	14.26%	85.74%	0.0000	0.0000	
16	HTC-A03-S001-1824-01	14.5800	1091.8400	956.8200	1077.2600	942.2400	12.53%	87.47%	0.0000	0.0000	
17	HTC-A03-S001-2430-01	14.5700	936.3800	803.6200	921.8100	789.0500	14.40%	85.60%	0.0000	0.0000	
18	HTC-A03-S001-3036-01	14.5000	1028.3800	880.4200	1013.8800	865.9200	14.59%	85.41%	0.0000	0.0000	
19	HTC-A03-S001-3642-01	14.5400	828.7400	703.5200	814.2000	688.9800	15.38%	84.62%	0.0000	0.0000	
20	HTC-A03-S001-4248-01	14.5400	1036.1800	834.0400	1021.6400	819.5000	19.79%	80.21%	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)**

0373

Technician: Kenny Sallings Date: **Analysis: Rough Prep Logbook** **Analysis: Gamma Page No. 10169**

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)

ANA Form005 Rev. —

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Apex-Gamma

Analysis Report for 1707086-01
GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 9:06:13AM
Acquisition Started	: 8/21/2017 2:48:42PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1825.0 seconds
Dead Time	: 1.37 %
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	: 55652

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 3:19:10PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	22.69	21.73	0.0000	0.00
2	32.12	31.17	0.0000	0.00
3	53.04	52.09	0.0000	0.00
4	59.53	58.59	0.0000	0.00
5	67.60	66.66	0.0000	0.00
6	87.99	87.05	0.0000	0.00
7	122.08	121.16	0.0000	0.00
8	136.68	135.76	0.0000	0.00
9	165.69	164.77	0.0000	0.00
10	223.49	222.59	0.0000	0.00
11	238.66	237.77	0.0000	0.00
12	475.71	474.90	0.0000	0.00
13	510.48	509.68	0.0000	0.00
14	518.81	518.02	0.0000	0.00
15	609.23	608.47	0.0000	0.00
16	661.54	660.80	0.0000	0.00
17	682.21	681.48	0.0000	0.00
18	779.02	778.33	0.0000	0.00
19	898.53	897.89	0.0000	0.00
20	947.95	947.33	0.0000	0.00
21	1116.18	1115.63	0.0000	0.00
22	1172.92	1172.40	0.0000	0.00
23	1332.09	1331.64	0.0000	0.00
24	1453.37	1452.99	0.0000	0.00
25	1716.07	1715.83	0.0000	0.00
26	1835.85	1835.68	0.0000	0.00
27	1881.17	1881.02	0.0000	0.00
28	2114.55	2114.54	0.0000	0.00
29	2331.16	2331.29	0.0000	0.00
30	2504.75	2504.99	0.0000	0.00
31	2613.52	2613.83	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 3:19:10PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	22.69	20 -	25	21.73	7.03E+04	876.10	8.76E+04	2.01
	2	32.12	29 -	34	31.17	1.52E+03	242.56	1.07E+04	2.18
M	3	53.04	42 -	62	52.09	1.54E+04	868.77	4.07E+04	5.02
m	4	59.53	42 -	62	58.59	8.05E+04	666.45	1.75E+04	2.25
	5	67.60	64 -	70	66.66	6.79E+02	323.03	1.86E+04	3.75
	6	87.99	81 -	92	87.05	2.71E+04	561.02	2.54E+04	2.27
	7	122.08	116 -	126	121.16	4.39E+03	366.46	1.56E+04	2.25
	8	136.68	133 -	139	135.76	5.17E+02	232.60	9.44E+03	2.09
	9	165.69	162 -	167	164.77	3.55E+02	192.44	7.12E+03	2.60
	10	223.49	220 -	225	222.59	1.92E+02	193.25	7.30E+03	3.24
	11	238.66	235 -	241	237.77	2.33E+02	209.68	7.82E+03	3.02
	12	475.71	473 -	478	474.90	1.28E+02	141.16	3.84E+03	4.45
	13	510.48	507 -	513	509.68	1.49E+02	137.41	3.34E+03	2.77
	14	518.81	515 -	522	518.02	1.33E+02	151.13	3.71E+03	3.73
	15	609.23	606 -	612	608.47	1.37E+02	121.14	2.57E+03	1.90
	16	661.54	655 -	665	660.80	1.55E+04	303.11	3.97E+03	2.44
	17	682.21	679 -	684	681.48	1.03E+02	97.28	1.81E+03	2.88
	18	779.02	776 -	781	778.33	8.16E+01	95.06	1.73E+03	1.93
	19	898.53	895 -	901	897.89	1.07E+02	127.90	2.88E+03	1.67
	20	947.95	944 -	951	947.33	1.40E+02	150.94	3.72E+03	3.79
	21	1116.18	1112 -	1119	1115.63	1.60E+02	112.94	1.99E+03	4.83
	22	1172.92	1165 -	1179	1172.40	1.22E+04	265.95	2.30E+03	2.61
	23	1332.09	1324 -	1336	1331.64	1.07E+04	215.52	4.55E+02	2.69
	24	1453.37	1436 -	1463	1452.99	5.32E+01	59.80	2.12E+02	21.62
	25	1716.07	1709 -	1723	1715.83	2.21E+01	24.20	5.19E+01	8.93
	26	1835.85	1830 -	1841	1835.68	3.78E+01	26.08	6.63E+01	3.79
	27	1881.17	1869 -	1891	1881.02	4.04E+01	32.76	5.92E+01	16.88
	28	2114.55	2109 -	2120	2114.54	1.20E+01	15.49	2.40E+01	2.99
	29	2331.16	2328 -	2334	2331.29	7.00E+00	5.29	0.00E+00	3.24
	30	2504.75	2500 -	2510	2504.99	7.16E+01	21.19	2.07E+01	3.15
	31	2613.52	2609 -	2617	2613.83	1.80E+01	8.49	0.00E+00	3.50

Analysis Report for 1707086-01

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 : 8/21/2017 3:19:10PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	22.69	20 -	25	7.03E+04	876.10	8.76E+04	5.73E+02
	2	32.12	29 -	34	1.52E+03	242.56	1.07E+04	1.89E+02
M	3	53.04	42 -	62	1.54E+04	868.77	4.07E+04	3.32E+02
m	4	59.53	42 -	62	8.05E+04	666.45	1.75E+04	2.18E+02
	5	67.60	64 -	70	6.79E+02	323.03	1.86E+04	2.62E+02
	6	87.99	81 -	92	2.71E+04	561.02	2.54E+04	3.73E+02
	7	122.08	116 -	126	4.39E+03	366.46	1.56E+04	2.81E+02
	8	136.68	133 -	139	5.17E+02	232.60	9.44E+03	1.88E+02
	9	165.69	162 -	167	3.55E+02	192.44	7.12E+03	1.55E+02
	10	223.49	220 -	225	1.92E+02	193.25	7.30E+03	1.57E+02
	11	238.66	235 -	241	2.33E+02	209.68	7.82E+03	1.71E+02
	12	475.71	473 -	478	1.28E+02	141.16	3.84E+03	1.15E+02
	13	510.48	507 -	513	1.49E+02	137.41	3.34E+03	1.11E+02
	14	518.81	515 -	522	1.33E+02	151.13	3.71E+03	1.23E+02
	15	609.23	606 -	612	1.37E+02	121.14	2.57E+03	9.77E+01
	16	661.54	655 -	665	1.55E+04	303.11	3.97E+03	1.42E+02
	17	682.21	679 -	684	1.03E+02	97.28	1.81E+03	7.82E+01
	18	779.02	776 -	781	8.16E+01	95.06	1.73E+03	7.67E+01
	19	898.53	895 -	901	1.07E+02	127.90	2.88E+03	1.04E+02
	20	947.95	944 -	951	1.40E+02	150.94	3.72E+03	1.23E+02
	21	1116.18	1112 -	1119	1.60E+02	112.94	1.99E+03	9.05E+01
	22	1172.92	1165 -	1179	1.22E+04	265.95	2.30E+03	1.22E+02
	23	1332.09	1324 -	1336	1.07E+04	215.52	4.55E+02	5.00E+01
	24	1453.37	1436 -	1463	5.32E+01	59.80	2.12E+02	4.77E+01
	25	1716.07	1709 -	1723	2.21E+01	24.20	5.19E+01	1.83E+01
	26	1835.85	1830 -	1841	3.78E+01	26.08	6.63E+01	1.89E+01
	27	1881.17	1869 -	1891	4.04E+01	32.76	5.92E+01	2.48E+01
	28	2114.55	2109 -	2120	1.20E+01	15.49	2.40E+01	1.14E+01
	29	2331.16	2328 -	2334	7.00E+00	5.29	0.00E+00	0.00E+00
	30	2504.75	2500 -	2510	7.16E+01	21.19	2.07E+01	1.05E+01
	31	2613.52	2609 -	2617	1.80E+01	8.49	0.00E+00	0.00E+00

Analysis Report for 1707086-01

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 WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 3:19:10PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	22.69	20 -	25	21.73	7.03E+04	876.10	8.76E+04	.....
	2	32.12	29 -	34	31.17	1.52E+03	242.56	1.07E+04	.....
M	3	53.04	42 -	62	52.09	1.54E+04	868.77	4.07E+04	.....
m	4	59.53	42 -	62	58.59	8.05E+04	666.45	1.75E+04	AM-241
	5	67.60	64 -	70	66.66	6.79E+02	323.03	1.86E+04	TH-230
									TA-182
									HF-172
									TI-44
									TM-171
	6	87.99	81 -	92	87.05	2.71E+04	561.02	2.54E+04	CD-109
									LU-176
									SN-126
	7	122.08	116 -	126	121.16	4.39E+03	366.46	1.56E+04	CO-57
									EU-152
									SE-75
									EU-154
	8	136.68	133 -	139	135.76	5.17E+02	232.60	9.44E+03	CO-57
									SE-75
	9	165.69	162 -	167	164.77	3.55E+02	192.44	7.12E+03	CE-139
	10	223.49	220 -	225	222.59	1.92E+02	193.25	7.30E+03	.....
	11	238.66	235 -	241	237.77	2.33E+02	209.68	7.82E+03	PB-212
	12	475.71	473 -	478	474.90	1.28E+02	141.16	3.84E+03	.....
	13	510.48	507 -	513	509.68	1.49E+02	137.41	3.34E+03	.....
	14	518.81	515 -	522	518.02	1.33E+02	151.13	3.71E+03	.....
	15	609.23	606 -	612	608.47	1.37E+02	121.14	2.57E+03	BI-214
	16	661.54	655 -	665	660.80	1.55E+04	303.11	3.97E+03	CS-137
	17	682.21	679 -	684	681.48	1.03E+02	97.28	1.81E+03	.....
	18	779.02	776 -	781	778.33	8.16E+01	95.06	1.73E+03	EU-152
	19	898.53	895 -	901	897.89	1.07E+02	127.90	2.88E+03	Y-88
									TL-204

Analysis Report for 1707086-01

GAS-1402

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
20	947.95	944 -	951	947.33	1.40E+02	150.94	3.72E+03	.....
21	1116.18	1112 -	1119	1115.63	1.60E+02	112.94	1.99E+03	ZN-65
22	1172.92	1165 -	1179	1172.40	1.22E+04	265.95	2.30E+03	CO-60
23	1332.09	1324 -	1336	1331.64	1.07E+04	215.52	4.55E+02	CO-60
24	1453.37	1436 -	1463	1452.99	5.32E+01	59.80	2.12E+02	.....
25	1716.07	1709 -	1723	1715.83	2.21E+01	24.20	5.19E+01	.....
26	1835.85	1830 -	1841	1835.68	3.78E+01	26.08	6.63E+01	Y-88
27	1881.17	1869 -	1891	1881.02	4.04E+01	32.76	5.92E+01	.....
28	2114.55	2109 -	2120	2114.54	1.20E+01	15.49	2.40E+01	.....
29	2331.16	2328 -	2334	2331.29	7.00E+00	5.29	0.00E+00	.....
30	2504.75	2500 -	2510	2504.99	7.16E+01	21.19	2.07E+01	.....
31	2613.52	2609 -	2617	2613.83	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 : 8/21/2017 3:19:10PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.69	7.03E+04	876.10	3.99E-03	1.56E-03
	2	32.12	1.52E+03	242.56	9.15E-03	1.56E-03
M	3	53.04	1.54E+04	868.77	1.89E-02	1.56E-03
m	4	59.53	8.05E+04	666.45	2.07E-02	1.56E-03
	5	67.60	6.79E+02	323.03	2.23E-02	1.73E-03
	6	87.99	2.71E+04	561.02	2.37E-02	2.17E-03
	7	122.08	4.39E+03	366.46	2.21E-02	1.65E-03
	8	136.68	5.17E+02	232.60	2.09E-02	1.60E-03
	9	165.69	3.55E+02	192.44	1.85E-02	1.49E-03
	10	223.49	1.92E+02	193.25	1.44E-02	1.22E-03
	11	238.66	2.33E+02	209.68	1.36E-02	1.14E-03
	12	475.71	1.28E+02	141.16	6.76E-03	6.76E-04
	13	510.48	1.49E+02	137.41	6.29E-03	6.61E-04
	14	518.81	1.33E+02	151.13	6.19E-03	6.58E-04
	15	609.23	1.37E+02	121.14	5.27E-03	6.20E-04
	16	661.54	1.55E+04	303.11	4.87E-03	5.99E-04
	17	682.21	1.03E+02	97.28	4.73E-03	5.73E-04
	18	779.02	8.16E+01	95.06	4.17E-03	4.51E-04

Analysis Report for 1707086-01

GAS-1402

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
19	898.53	1.07E+02	127.90	3.66E-03	3.02E-04
20	947.95	1.40E+02	150.94	3.49E-03	2.90E-04
21	1116.18	1.60E+02	112.94	3.02E-03	2.51E-04
22	1172.92	1.22E+04	265.95	2.90E-03	2.38E-04
23	1332.09	1.07E+04	215.52	2.59E-03	2.27E-04
24	1453.37	5.32E+01	59.80	2.40E-03	2.09E-04
25	1716.07	2.21E+01	24.20	2.05E-03	1.69E-04
26	1835.85	3.78E+01	26.08	1.92E-03	1.51E-04
27	1881.17	4.04E+01	32.76	1.88E-03	1.51E-04
28	2114.55	1.20E+01	15.49	1.66E-03	1.51E-04
29	2331.16	7.00E+00	5.29	1.48E-03	1.51E-04
30	2504.75	7.16E+01	21.19	1.35E-03	1.51E-04
31	2613.52	1.80E+01	8.49	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 : 8/21/2017 3:19:10PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	22.69	7.03E+04	876.10			7.03E+04	8.76E+02
	2	32.12	1.52E+03	242.56			1.52E+03	2.43E+02
M	3	53.04	1.54E+04	868.77			1.54E+04	8.69E+02
m	4	59.53	8.05E+04	666.45			8.05E+04	6.66E+02
	5	67.60	6.79E+02	323.03			6.79E+02	3.23E+02
	6	87.99	2.71E+04	561.02			2.71E+04	5.61E+02
	7	122.08	4.39E+03	366.46			4.39E+03	3.66E+02
	8	136.68	5.17E+02	232.60			5.17E+02	2.33E+02
	9	165.69	3.55E+02	192.44			3.55E+02	1.92E+02
	10	223.49	1.92E+02	193.25			1.92E+02	1.93E+02
	11	238.66	2.33E+02	209.68	5.32E+00	3.00E+00	2.28E+02	2.10E+02
	12	475.71	1.28E+02	141.16			1.28E+02	1.41E+02
	13	510.48	1.49E+02	137.41	2.28E+01	2.50E+00	1.26E+02	1.37E+02
	14	518.81	1.33E+02	151.13			1.33E+02	1.51E+02
	15	609.23	1.37E+02	121.14			1.37E+02	1.21E+02
	16	661.54	1.55E+04	303.11			1.55E+04	3.03E+02
	17	682.21	1.03E+02	97.28			1.03E+02	9.73E+01

Analysis Report for 1707086-01

GAS-1402

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
18	779.02	8.16E+01	95.06			8.16E+01	9.51E+01
19	898.53	1.07E+02	127.90			1.07E+02	1.28E+02
20	947.95	1.40E+02	150.94			1.40E+02	1.51E+02
21	1116.18	1.60E+02	112.94			1.60E+02	1.13E+02
22	1172.92	1.22E+04	265.95			1.22E+04	2.66E+02
23	1332.09	1.07E+04	215.52			1.07E+04	2.16E+02
24	1453.37	5.32E+01	59.80			5.32E+01	5.98E+01
25	1716.07	2.21E+01	24.20			2.21E+01	2.42E+01
26	1835.85	3.78E+01	26.08			3.78E+01	2.61E+01
27	1881.17	4.04E+01	32.76			4.04E+01	3.28E+01
28	2114.55	1.20E+01	15.49			1.20E+01	1.55E+01
29	2331.16	7.00E+00	5.29			7.00E+00	5.29E+00
30	2504.75	7.16E+01	21.19			7.16E+01	2.12E+01
31	2613.52	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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 3:19:10PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	22.69	7.03E+04	876.10			7.03E+04	8.76E+02
	2	32.12	1.52E+03	242.56			1.52E+03	2.43E+02
M	3	53.04	1.54E+04	868.77			1.54E+04	8.69E+02
m	4	59.53	8.05E+04	666.45			8.05E+04	6.66E+02
	5	67.60	6.79E+02	323.03			6.79E+02	3.23E+02
	6	87.99	2.71E+04	561.02			2.71E+04	5.61E+02
	7	122.08	4.39E+03	366.46			4.39E+03	3.66E+02
	8	136.68	5.17E+02	232.60			5.17E+02	2.33E+02
	9	165.69	3.55E+02	192.44			3.55E+02	1.92E+02
	10	223.49	1.92E+02	193.25			1.92E+02	1.93E+02
	11	238.66	2.33E+02	209.68	5.32E+00	3.00E+00	2.28E+02	2.10E+02
	12	475.71	1.28E+02	141.16			1.28E+02	1.41E+02
	13	510.48	1.49E+02	137.41	2.28E+01	2.50E+00	1.26E+02	1.37E+02
	14	518.81	1.33E+02	151.13			1.33E+02	1.51E+02

Analysis Report for 1707086-01

GAS-1402

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
15	609.23	1.37E+02	121.14			1.37E+02	1.21E+02
16	661.54	1.55E+04	303.11			1.55E+04	3.03E+02
17	682.21	1.03E+02	97.28			1.03E+02	9.73E+01
18	779.02	8.16E+01	95.06			8.16E+01	9.51E+01
19	898.53	1.07E+02	127.90			1.07E+02	1.28E+02
20	947.95	1.40E+02	150.94			1.40E+02	1.51E+02
21	1116.18	1.60E+02	112.94			1.60E+02	1.13E+02
22	1172.92	1.22E+04	265.95			1.22E+04	2.66E+02
23	1332.09	1.07E+04	215.52			1.07E+04	2.16E+02
24	1453.37	5.32E+01	59.80			5.32E+01	5.98E+01
25	1716.07	2.21E+01	24.20			2.21E+01	2.42E+01
26	1835.85	3.78E+01	26.08			3.78E+01	2.61E+01
27	1881.17	4.04E+01	32.76			4.04E+01	3.28E+01
28	2114.55	1.20E+01	15.49			1.20E+01	1.55E+01
29	2331.16	7.00E+00	5.29			7.00E+00	5.29E+00
30	2504.75	7.16E+01	21.19			7.16E+01	2.12E+01
31	2613.52	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

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	0.926	122.06	*	85.51	7.05E+01	7.95E+00
		136.48	*	10.60	7.08E+01	3.24E+01
CO-60	0.979	1173.22	*	100.00	1.26E+02	1.07E+01
		1332.49	*	100.00	1.23E+02	1.11E+01
ZN-65	0.850	1115.52	*	50.75	4.23E+01	3.01E+01
Y-88	0.599	898.02	*	93.40	6.10E+02	7.30E+02
		1836.01	*	99.38	3.86E+02	2.68E+02
CD-109	0.974	88.03	*	3.72	3.04E+03	3.38E+02
SN-126	0.972	87.57	*	37.00	6.32E+01	5.92E+00
CS-137	0.998	661.65	*	85.12	8.17E+01	1.02E+01
CE-139	0.742	165.85	*	80.35	9.88E+01	5.42E+01
TM-171	0.873	66.72	*	0.14	1.26E+03	6.07E+02
PB-212	0.898	238.63	*	44.60	7.67E-01	7.09E-01
		300.09		3.41		

Analysis Report for 1707086-01

GAS-1402

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.455	609.31	*	46.30	1.15E+00	1.02E+00
		1120.29		15.10		
		1764.49		15.80		
		2204.22		4.98		
AM-241	1.000	59.54	*	35.90	2.22E+02	1.68E+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 : 8/21/2017 3:19:10PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	22.69	3.90345E+01	0.62		
	2	32.12	8.41934E-01	8.00		
M	3	53.04	8.57830E+00	2.81		
	10	223.49	1.06627E-01	50.34		
	12	475.71	7.13528E-02	54.95		
	13	510.48	7.02697E-02	54.33		
	14	518.81	7.37842E-02	56.90		
	17	682.21	5.71209E-02	47.31		
	18	779.02	4.53210E-02	58.26	Tol.	EU-152
	20	947.95	7.79119E-02	53.82		
	24	1453.37	2.95388E-02	56.23	Sum	
	25	1716.07	1.22512E-02	54.88		
	27	1881.17	2.24365E-02	40.56		
	28	2114.55	6.66667E-03	64.55		
	29	2331.16	3.88889E-03	37.80		
	30	2504.75	3.97968E-02	14.79	Sum	
	31	2613.52	1.00000E-02	23.57		

Analysis Report for 1707086-01

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	0.92	122.06	*	85.51	7.05E+01	7.95E+00
		136.48	*	10.60	7.08E+01	3.24E+01
CO-60	0.97	1173.22	*	100.00	1.26E+02	1.07E+01
		1332.49	*	100.00	1.23E+02	1.11E+01
ZN-65	0.85	1115.52	*	50.75	4.23E+01	3.01E+01
Y-88	0.59	898.02	*	93.40	6.10E+02	7.30E+02
		1836.01	*	99.38	3.86E+02	2.68E+02
CD-109	0.97	88.03	*	3.72	3.04E+03	3.38E+02
SN-126	0.97	87.57	*	37.00	6.32E+01	5.92E+00
CS-137	0.99	661.65	*	85.12	8.17E+01	1.02E+01
CE-139	0.74	165.85	*	80.35	9.88E+01	5.42E+01
TM-171	0.87	66.72	*	0.14	1.26E+03	6.07E+02
PB-212	0.89	238.63	*	44.60	7.67E-01	7.09E-01
		300.09		3.41		
BI-214	0.45	609.31	*	46.30	1.15E+00	1.02E+00
		1120.29		15.10		
		1764.49		15.80		
		2204.22		4.98		
AM-241	1.00	59.54	*	35.90	2.22E+02	1.68E+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

Analysis Report for 1707086-01

GAS-1402

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	CO-57	0.926	7.05E+01	7.73E+00	
	CO-60	0.979	1.24E+02	7.69E+00	
	ZN-65	0.850	4.23E+01	3.01E+01	
	Y-88	0.599	4.13E+02	2.51E+02	
?	CD-109	0.974	3.04E+03	3.38E+02	
?	SN-126	0.972	6.32E+01	5.92E+00	
	CS-137	0.998	8.17E+01	1.02E+01	
	CE-139	0.742	9.88E+01	5.42E+01	
	TM-171	0.873	1.26E+03	6.07E+02	
	PB-212	0.898	7.67E-01	7.09E-01	
	BI-214	0.455	1.15E+00	1.02E+00	
	AM-241	1.000	2.22E+02	1.68E+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 1707086-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 3:19:10PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	22.69	3.90345E+01	0.62		
	2	32.12	8.41934E-01	8.00		
M	3	53.04	8.57830E+00	2.81		
	10	223.49	1.06627E-01	50.34		
	12	475.71	7.13528E-02	54.95		
	13	510.48	7.02697E-02	54.33		
	14	518.81	7.37842E-02	56.90		
	17	682.21	5.71209E-02	47.31		
	18	779.02	4.53210E-02	58.26	Tol.	EU-152
	20	947.95	7.79119E-02	53.82		
	24	1453.37	2.95388E-02	56.23	Sum	
	25	1716.07	1.22512E-02	54.88		
	27	1881.17	2.24365E-02	40.56		
	28	2114.55	6.66667E-03	64.55		
	29	2331.16	3.88889E-03	37.80		
	30	2504.75	3.97968E-02	14.79	Sum	
	31	2613.52	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 MDA REPORT

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

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

Analysis Report for 1707086-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-5.62E+05	5.76E+06	5.76E+06
+		NA-22	1274.54		99.94	-9.90E-02	1.13E+00	1.13E+00
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	-1.14E-01	2.57E-01	2.57E-01
+		K-40	1460.81		10.67	9.34E-01	3.13E+00	3.13E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	8.38E-01	4.38E-01	4.67E-01
			78.34		96.00	-1.43E-01		4.38E-01
+		SC-46	889.25		99.98	-1.42E+03	6.62E+03	6.92E+03
			1120.51		99.99	4.08E+02		6.62E+03
+	@	V-48	983.52		99.98	1.00E+26	1.00E+26	1.00E+26
	@		1312.10		97.50	1.00E+26		1.00E+26
+		CR-51	320.08		9.83	-1.70E+11	1.45E+12	1.45E+12
+		MN-54	834.83		99.97	-7.20E+00	1.04E+01	1.04E+01
+		CO-56	846.75		99.96	-9.70E+02	2.73E+03	1.10E+04
			1037.75		14.03	-3.03E+04		8.94E+04
			1238.25		67.00	3.10E+03		9.88E+03
			1771.40		15.51	-2.50E+03		2.24E+04
			2598.48		16.90	0.00E+00		2.73E+03
+		CO-57	122.06	*	85.51	7.05E+01	9.07E+00	9.07E+00
			136.48	*	10.60	7.08E+01		5.18E+01
+		CO-58	810.76		99.40	7.78E+03	2.94E+04	2.94E+04
+		FE-59	1099.22		56.50	1.02E+07	1.56E+07	2.83E+07
			1291.56		43.20	2.99E+06		1.56E+07
+		CO-60	1173.22	*	100.00	1.26E+02	1.18E+00	2.54E+00
			1332.49	*	100.00	1.23E+02		1.18E+00
+		ZN-65	1115.52	*	50.75	4.23E+01	4.87E+01	4.87E+01
+	@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26
	@		208.95		2.24	1.00E+26		1.00E+26
	@		300.22		16.00	1.00E+26		1.00E+26
+		SE-75	121.11		16.70	1.07E+04	2.51E+02	1.12E+03
			136.00		59.20	3.63E+02		2.51E+02
			264.65		59.80	-2.77E+02		3.30E+02
			279.53		25.20	-3.65E+02		8.04E+02
			400.65		11.40	3.20E+02		2.35E+03
+		RB-82	776.52		13.00	-8.73E+11	1.84E+13	1.84E+13
+		RB-83	520.41		46.00	2.07E+03	6.84E+03	6.84E+03
			529.64		30.30	-2.53E+03		1.04E+04
			552.65		16.40	-1.40E+04		1.84E+04
+		KR-85	513.99		0.43	-8.92E+00	1.81E+02	1.81E+02
+		SR-85	513.99		99.27	-2.56E+03	5.20E+04	5.20E+04
+		Y-88	898.02	*	93.40	6.10E+02	4.13E+02	1.20E+03
			1836.01	*	99.38	3.86E+02		4.13E+02
+		MO-93	263.06		56.72	3.19E-01	4.06E-01	9.37E-01
			684.67		99.68	-1.12E-01		9.54E-01
			1477.11		99.08	1.47E-01		4.06E-01

Analysis Report for 1707086-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		NB-93M	16.57		9.43	-8.42E+03	8.10E+01	8.10E+01
+		NB-94	702.63		100.00	-1.82E-01	7.95E-01	7.95E-01
			871.10		100.00	4.17E-02		1.07E+00
+		NB-95	765.79		99.81	-3.56E+08	9.88E+08	9.88E+08
+	@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+		ZR-95	724.18		43.70	-2.79E+04	1.42E+05	1.75E+05
			756.72		55.30	-6.74E+02		1.42E+05
+	@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26
	@		739.58		12.80	1.00E+26		1.00E+26
	@		778.00		4.50	1.00E+26		1.00E+26
+		RU-103	497.08		89.00	-2.44E+07	8.39E+07	8.39E+07
+		RU-106	621.84		9.80	-5.42E+00	4.98E+01	4.98E+01
+		AG-108M	433.93		89.90	5.28E-02	7.11E-01	7.11E-01
			614.37		90.40	4.78E-02		7.54E-01
			722.95		90.50	3.94E-01		9.40E-01
+		CD-109	88.03	*	3.72	3.04E+03	8.40E+01	8.40E+01
+		AG-110M	657.75		93.14	8.85E-01	2.48E+01	4.55E+01
			677.61		10.53	4.43E+01		1.39E+02
			706.67		16.46	6.57E+01		9.12E+01
			763.93		21.98	-1.13E+01		7.25E+01
			884.67		71.63	-5.73E+00		2.87E+01
			1384.27		23.94	4.75E+00		2.48E+01
+		CD-113M	263.70		0.02	-1.67E+03	2.20E+03	2.20E+03
+		SN-113	255.12		1.93	-9.36E+03	5.23E+02	1.29E+04
			391.69		64.90	-1.86E+01		5.23E+02
+		TE123M	159.00		84.10	-7.11E+01	1.74E+02	1.74E+02
+		SB-124	602.71		97.87	-2.72E+04	1.17E+05	1.28E+05
			645.85		7.26	-1.32E+06		1.81E+06
			722.78		11.10	5.98E+05		1.43E+06
			1691.02		49.00	1.24E+04		1.17E+05
+		I-125	35.49		6.49	-2.20E+05	2.21E+06	2.21E+06
+		SB-125	176.33		6.89	-5.71E+00	4.46E+00	1.04E+01
			427.89		29.33	4.12E+00		4.46E+00
			463.38		10.35	-7.59E+00		1.42E+01
			600.56		17.80	7.32E-01		7.70E+00
			635.90		11.32	-1.87E+01		1.18E+01
+	@	SB-126	414.70		83.30	1.00E+26	1.00E+26	1.00E+26
	@		666.33		99.60	1.00E+26		1.00E+26
	@		695.00		99.60	1.00E+26		1.00E+26
	@		720.50		53.80	1.00E+26		1.00E+26
+		SN-126	87.57	*	37.00	6.32E+01	1.75E+00	1.75E+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	-1.81E+01	2.05E+00	2.05E+00
			33.60		13.20	2.53E+00		6.55E+00
			39.58		7.52	-2.33E+01		8.73E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707086-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	@	I-131	364.48		81.20	1.00E+26	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	-1.04E+00	1.07E+00	1.49E+00
			302.84		17.80	1.12E+00		3.30E+00
			356.01		60.00	5.42E-02		1.07E+00
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	2.92E+00	1.82E+00	2.05E+01
			569.32		15.43	3.13E+00		1.10E+01
			604.70		97.60	4.29E-01		1.82E+00
			795.84		85.40	2.34E-01		2.84E+00
			801.93		8.73	1.20E+01		2.82E+01
+		CS-135	268.24		16.00	-2.13E-01	2.79E+00	2.79E+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	0.00E+00		1.00E+26
+	@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26
	@		163.89		4.61	1.00E+26		1.00E+26
	@		176.55		13.56	1.00E+26		1.00E+26
	@		273.65		12.66	1.00E+26		1.00E+26
	@		340.57		48.50	1.00E+26		1.00E+26
	@		818.50		99.70	1.00E+26		1.00E+26
	@		1048.07		79.60	1.00E+26		1.00E+26
	@		1235.34		19.70	1.00E+26		1.00E+26
+		CS-137	661.65	*	85.12	8.17E+01	1.51E+00	1.51E+00
+		LA-138	788.74		34.00	1.36E+00	4.28E-01	2.71E+00
			1435.80		66.00	-1.06E-03		4.28E-01
+		CE-139	165.85	*	80.35	9.88E+01	8.73E+01	8.73E+01
+	@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26
	@		304.84		4.50	1.00E+26		1.00E+26
	@		423.70		3.20	1.00E+26		1.00E+26
	@		437.55		2.00	1.00E+26		1.00E+26
	@		537.32		25.00	1.00E+26		1.00E+26
+	@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26
	@		487.03		45.50	1.00E+26		1.00E+26
	@		815.85		23.50	1.00E+26		1.00E+26
	@		1596.49		95.49	1.00E+26		1.00E+26
+		CE-141	145.44		48.40	1.43E+09	3.95E+09	3.95E+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	6.11E+00	3.98E+01	3.98E+01
+		PM-144	476.78		42.00	5.72E+00	5.11E+00	1.23E+01
			618.01		98.60	5.94E-02		5.11E+00
			696.49		99.49	-2.25E+00		5.91E+00

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-145	36.85		21.70	-3.84E+00	1.89E+00	3.54E+00
		37.36		39.70	-2.05E+00		1.89E+00
		42.30		15.10	-8.76E+00		4.74E+00
		72.40		2.31	-6.49E+00		2.02E+01
+	PM-146	453.90		39.94	-1.65E+00	2.48E+00	2.48E+00
		735.90		14.01	1.82E+00		8.66E+00
		747.13		13.10	5.59E+00		9.58E+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	2.17E+01	2.35E+00	2.35E+00
		244.69		5.40	-3.02E+00		9.50E+00
		344.27		19.13	-5.09E-01		3.15E+00
		778.89		9.20	-7.22E+00		1.09E+01
		964.01		10.40	-1.97E+00		1.39E+01
		1085.78		7.22	9.20E+00		1.95E+01
		1112.02		9.60	1.18E+00		1.44E+01
		1407.95		14.94	-1.11E+00		2.49E+00
+	GD-153	97.43		31.30	-1.09E+01	1.92E+01	1.92E+01
		103.18		22.20	-9.62E+00		2.72E+01
+	EU-154	123.07		40.50	1.20E+01	1.29E+00	1.29E+00
		723.30		19.70	-8.48E-01		5.31E+00
		873.19		11.50	-6.08E+00		1.16E+01
		996.32		10.30	-7.03E+00		1.42E+01
		1004.76		17.90	2.08E+00		8.27E+00
		1274.45		35.50	-1.62E-01		1.84E+00
+	EU-155	86.50		30.90	1.10E+02	2.12E+00	3.62E+00
		105.30		20.70	-3.29E-01		2.12E+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	3.29E-02	5.15E-01	5.15E-01
		280.45		29.60	-3.97E-01		1.54E+00
		410.94		11.10	4.17E+00		5.54E+00
		711.69		54.10	1.62E-01		1.48E+00
+	TM-171	66.72	*	0.14	1.26E+03	9.78E+02	9.78E+02
+	HF-172	67.35		5.31	-3.35E+01	9.10E+00	2.33E+01
		125.81		11.30	-2.08E+00		9.10E+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	2.07E+01	9.30E+00	2.43E+01
		272.11		21.20	7.13E+00		9.30E+00
+	HF-175	343.40		84.00	-3.44E+03	2.13E+04	2.13E+04
+	LU-176	88.34		13.30	1.69E+02	4.58E-01	5.56E+00
		201.83		86.00	-1.73E-01		4.58E-01
		306.78		94.00	-4.72E-02		5.20E-01
+	HF-181	133.02		41.70	4.62E+06	2.40E+07	2.40E+07
		345.85		17.20	3.72E+07		9.40E+07

Analysis Report for 1707086-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	HF-181	482.03		82.80	7.97E+06	2.40E+07	2.51E+07
+	TA-182	67.75		41.20	1.11E+03	6.19E+02	6.19E+02
		1121.30		34.90	-1.20E+02		1.81E+03
		1189.05		16.23	1.43E+02		2.89E+03
		1221.41		26.98	-1.68E+02		1.41E+03
		1231.02		11.44	-1.80E+03		3.10E+03
+	IR-192	308.46		29.68	1.72E+03	2.93E+04	3.22E+04
		468.07		48.10	1.79E+04		2.93E+04
+	HG-203	279.19		77.30	-1.48E+06	3.83E+06	3.83E+06
+	TL-204	374.74		94.11	-2.82E-01	1.00E+00	1.00E+00
		899.15		99.16	1.61E-01		2.00E+00
		911.74		91.10	-1.60E-01		2.22E+00
+	BI-207	569.67		97.72	1.99E-01	6.99E-01	6.99E-01
		1063.62		74.90	4.53E-01		1.67E+00
+	TL-208	583.14		30.22	7.17E-01	1.02E+00	2.16E+00
		860.37		4.48	1.79E+00		2.37E+01
		2614.66		35.85	-4.45E-02		1.02E+00
+	BI-210M	262.00		45.00	5.85E-01	9.86E-01	9.86E-01
		300.00		23.00	-4.05E-01		2.09E+00
+	PB-210	46.50		4.25	-6.02E+00	2.03E+01	2.03E+01
+	PB-211	404.84		2.90	-1.22E+01	2.04E+01	2.04E+01
		831.96		2.90	7.59E+00		3.47E+01
+	BI-212	727.17		11.80	4.28E+00	7.11E+00	7.11E+00
		1620.62		2.75	-3.58E-01		1.03E+01
+	PB-212	238.63	*	44.60	7.67E-01	1.16E+00	1.16E+00
		300.09		3.41	-2.73E+00		1.41E+01
+	BI-214	609.31	*	46.30	1.15E+00	1.66E+00	1.66E+00
		1120.29		15.10	4.39E-01		7.13E+00
		1764.49		15.80	-3.86E-01		1.96E+00
		2204.22		4.98	-1.30E+00		4.52E+00
+	PB-214	295.21		19.19	-4.29E-02	1.41E+00	2.46E+00
		351.92		37.19	-3.32E-01		1.41E+00
+	RN-219	401.80		6.50	-2.64E-01	9.13E+00	9.13E+00
+	RA-223	323.87		3.88	4.00E+00	1.27E+01	1.27E+01
+	RA-224	240.98		3.95	1.42E-01	1.15E+01	1.15E+01
+	@ RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21		3.28	-2.04E-01	1.15E+01	1.15E+01
+	TH-227	50.10		8.40	6.03E+01	3.90E+00	1.01E+01
		236.00		11.50	-1.22E-01		3.90E+00
		256.20		6.30	-2.49E+00		6.92E+00
+	AC-228	338.32		11.40	1.57E+00	4.31E+00	4.50E+00
		911.07		27.70	1.56E+00		4.31E+00
		969.11		16.60	6.61E+00		7.22E+00
+	TH-230	48.44		16.90	1.21E+01	4.73E+00	4.73E+00
		62.85		4.60	5.79E+02		2.20E+01
		67.67		0.37	2.07E+02		1.16E+02
+	PA-231	283.67		1.60	-1.41E+01	2.11E+01	2.87E+01
		302.67		2.30	7.16E+00		2.11E+01

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TH-231	25.64		14.70	-9.96E+01	7.94E+00	2.91E+01
		84.21		6.40	-2.76E+02		7.94E+00
+	PA-233	311.98		38.60	3.88E+11	7.41E+11	7.41E+11
+	PA-234	131.20		20.40	-3.57E-01	1.53E+00	1.53E+00
		733.99		8.80	-2.79E+00		9.53E+00
		946.00		12.00	1.55E+00		1.08E+01
+	PA-234M	1001.03		0.92	2.16E+01	1.28E+02	1.28E+02
+	TH-234	63.29		3.80	6.97E+02	2.65E+01	2.65E+01
+	U-235	143.76		10.50	4.99E-01	3.06E+00	3.06E+00
		163.35		4.70	-9.26E-02		7.29E+00
		205.31		4.70	-2.28E+00		8.53E+00
+	NP-237	86.50		12.60	1.81E+02	5.93E+00	5.93E+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	3.54E+00	3.54E+00
+	AM-243	74.67		66.00	4.07E-01	6.27E-01	6.27E-01
+	CM-243	209.75		3.29	6.54E+00	3.48E+00	1.35E+01
		228.14		10.60	-1.81E+00		4.41E+00
		277.60		14.00	1.12E+00		3.48E+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	5.76E+06	5.76E+06	-5.62E+05	2.84E+06

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NA-22	1274.54		99.94	1.13E+00	1.13E+00	-9.90E-02	5.41E-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	2.57E-01	2.57E-01	-1.14E-01	1.14E-01
	K-40	1460.81		10.67	3.13E+00	3.13E+00	9.34E-01	1.46E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.67E-01	4.38E-01	8.38E-01	2.32E-01
		78.34		96.00	4.38E-01		-1.43E-01	2.18E-01
	SC-46	889.25		99.98	6.92E+03	6.62E+03	-1.42E+03	3.41E+03
		1120.51		99.99	6.62E+03		4.08E+02	3.25E+03
@	V-48	983.52		99.98	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1312.10		97.50	1.00E+26		1.00E+26	1.00E+20
	CR-51	320.08		9.83	1.45E+12	1.45E+12	-1.70E+11	7.16E+11
	MN-54	834.83		99.97	1.04E+01	1.04E+01	-7.20E+00	5.11E+00
	CO-56	846.75		99.96	1.10E+04	2.73E+03	-9.70E+02	5.44E+03
		1037.75		14.03	8.94E+04		-3.03E+04	4.41E+04
		1238.25		67.00	9.88E+03		3.10E+03	4.78E+03
		1771.40		15.51	2.24E+04		-2.50E+03	1.02E+04
		2598.48		16.90	2.73E+03		0.00E+00	0.00E+00
+	CO-57	122.06	*	85.51	9.07E+00	9.07E+00	7.05E+01	4.52E+00
		136.48	*	10.60	5.18E+01		7.08E+01	2.57E+01
	CO-58	810.76		99.40	2.94E+04	2.94E+04	7.78E+03	1.45E+04
	FE-59	1099.22		56.50	2.83E+07	1.56E+07	1.02E+07	1.39E+07
		1291.56		43.20	1.56E+07		2.99E+06	7.48E+06
+	CO-60	1173.22	*	100.00	2.54E+00	1.18E+00	1.26E+02	1.25E+00
		1332.49	*	100.00	1.18E+00		1.23E+02	5.76E-01
+	ZN-65	1115.52	*	50.75	4.87E+01	4.87E+01	4.23E+01	2.40E+01
@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		208.95		2.24	1.00E+26		1.00E+26	1.00E+20
@		300.22		16.00	1.00E+26		1.00E+26	1.00E+20
	SE-75	121.11		16.70	1.12E+03	2.51E+02	1.07E+04	5.55E+02
		136.00		59.20	2.51E+02		3.63E+02	1.25E+02
		264.65		59.80	3.30E+02		-2.77E+02	1.63E+02
		279.53		25.20	8.04E+02		-3.65E+02	3.98E+02
		400.65		11.40	2.35E+03		3.20E+02	1.16E+03
	RB-82	776.52		13.00	1.84E+13	1.84E+13	-8.73E+11	9.07E+12
	RB-83	520.41		46.00	6.84E+03	6.84E+03	2.07E+03	3.37E+03
		529.64		30.30	1.04E+04		-2.53E+03	5.10E+03
		552.65		16.40	1.84E+04		-1.40E+04	9.04E+03
	KR-85	513.99		0.43	1.81E+02	1.81E+02	-8.92E+00	8.91E+01
	SR-85	513.99		99.27	5.20E+04	5.20E+04	-2.56E+03	2.56E+04
+	Y-88	898.02	*	93.40	1.20E+03	4.13E+02	6.10E+02	5.91E+02
		1836.01	*	99.38	4.13E+02		3.86E+02	1.93E+02
	MO-93	263.06		56.72	9.37E-01	4.06E-01	3.19E-01	4.64E-01
		684.67		99.68	9.54E-01		-1.12E-01	4.70E-01
		1477.11		99.08	4.06E-01		1.47E-01	1.89E-01
	NB-93M	16.57		9.43	8.10E+01	8.10E+01	-8.42E+03	4.03E+01
	NB-94	702.63		100.00	7.95E-01	7.95E-01	-1.82E-01	3.92E-01
		871.10		100.00	1.07E+00		4.17E-02	5.26E-01
	NB-95	765.79		99.81	9.88E+08	9.88E+08	-3.56E+08	4.86E+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	1.75E+05	1.42E+05	-2.79E+04	8.61E+04
		756.72		55.30	1.42E+05		-6.74E+02	6.99E+04

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	MO-99	181.06		6.20	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	8.39E+07	8.39E+07	-2.44E+07	4.14E+07
	RU-106	621.84		9.80	4.98E+01	4.98E+01	-5.42E+00	2.45E+01
	AG-108M	433.93		89.90	7.11E-01	7.11E-01	5.28E-02	3.51E-01
		614.37		90.40	7.54E-01		4.78E-02	3.71E-01
		722.95		90.50	9.40E-01		3.94E-01	4.63E-01
+	CD-109	88.03	*	3.72	8.40E+01	8.40E+01	3.04E+03	4.18E+01
	AG-110M	657.75		93.14	4.55E+01	2.48E+01	8.85E-01	2.27E+01
		677.61		10.53	1.39E+02		4.43E+01	6.85E+01
		706.67		16.46	9.12E+01		6.57E+01	4.49E+01
		763.93		21.98	7.25E+01		-1.13E+01	3.57E+01
		884.67		71.63	2.87E+01		-5.73E+00	1.42E+01
		1384.27		23.94	2.48E+01		4.75E+00	1.16E+01
	CD-113M	263.70		0.02	2.20E+03	2.20E+03	-1.67E+03	1.09E+03
	SN-113	255.12		1.93	1.29E+04	5.23E+02	-9.36E+03	6.41E+03
		391.69		64.90	5.23E+02		-1.86E+01	2.58E+02
	TE123M	159.00		84.10	1.74E+02	1.74E+02	-7.11E+01	8.63E+01
	SB-124	602.71		97.87	1.28E+05	1.17E+05	-2.72E+04	6.31E+04
		645.85		7.26	1.81E+06		-1.32E+06	8.92E+05
		722.78		11.10	1.43E+06		5.98E+05	7.02E+05
		1691.02		49.00	1.17E+05		1.24E+04	5.35E+04
	I-125	35.49		6.49	2.21E+06	2.21E+06	-2.20E+05	1.10E+06
	SB-125	176.33		6.89	1.04E+01	4.46E+00	-5.71E+00	5.16E+00
		427.89		29.33	4.46E+00		4.12E+00	2.21E+00
		463.38		10.35	1.42E+01		-7.59E+00	7.02E+00
		600.56		17.80	7.70E+00		7.32E-01	3.79E+00
		635.90		11.32	1.18E+01		-1.87E+01	5.80E+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	1.75E+00	1.75E+00	6.32E+01	8.70E-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	2.05E+00	2.05E+00	-1.81E+01	1.02E+00
		33.60		13.20	6.55E+00		2.53E+00	3.25E+00
		39.58		7.52	8.73E+00		-2.33E+01	4.33E+00
@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		364.48		81.20	1.00E+26		1.00E+26	1.00E+20
@		636.97		7.26	1.00E+26		1.00E+26	1.00E+20
@		722.89		1.80	1.00E+26		1.00E+26	1.00E+20
@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		228.16		88.00	1.00E+26		1.00E+26	1.00E+20
	BA-133	81.00		33.00	1.49E+00	1.07E+00	-1.04E+00	7.40E-01
		302.84		17.80	3.30E+00		1.12E+00	1.63E+00
		356.01		60.00	1.07E+00		5.42E-02	5.31E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-134	563.23		8.38	2.05E+01	1.82E+00	2.92E+00	1.01E+01
		569.32		15.43	1.10E+01		3.13E+00	5.42E+00

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-134	604.70		97.60	1.82E+00	1.82E+00	4.29E-01	8.97E-01
		795.84		85.40	2.84E+00		2.34E-01	1.40E+00
		801.93		8.73	2.82E+01		1.20E+01	1.39E+01
	CS-135	268.24		16.00	2.79E+00	2.79E+00	-2.13E-01	1.38E+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		0.00E+00	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	1.51E+00	1.51E+00	8.17E+01	7.46E-01
	LA-138	788.74		34.00	2.71E+00	4.28E-01	1.36E+00	1.34E+00
		1435.80		66.00	4.28E-01		-1.06E-03	1.97E-01
+	CE-139	165.85	*	80.35	8.73E+01	8.73E+01	9.88E+01	4.33E+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	3.95E+09	3.95E+09	1.43E+09	1.96E+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	3.98E+01	3.98E+01	6.11E+00	1.98E+01
	PM-144	476.78		42.00	1.23E+01	5.11E+00	5.72E+00	6.08E+00
		618.01		98.60	5.11E+00		5.94E-02	2.52E+00
		696.49		99.49	5.91E+00		-2.25E+00	2.91E+00
	PM-145	36.85		21.70	3.54E+00	1.89E+00	-3.84E+00	1.76E+00
		37.36		39.70	1.89E+00		-2.05E+00	9.38E-01
		42.30		15.10	4.74E+00		-8.76E+00	2.36E+00
		72.40		2.31	2.02E+01		-6.49E+00	1.00E+01
	PM-146	453.90		39.94	2.48E+00	2.48E+00	-1.65E+00	1.23E+00
		735.90		14.01	8.66E+00		1.82E+00	4.27E+00
		747.13		13.10	9.58E+00		5.59E+00	4.72E+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	2.35E+00	2.35E+00	2.17E+01	1.17E+00
		244.69		5.40	9.50E+00		-3.02E+00	4.70E+00
		344.27		19.13	3.15E+00		-5.09E-01	1.55E+00
		778.89		9.20	1.09E+01		-7.22E+00	5.38E+00
		964.01		10.40	1.39E+01		-1.97E+00	6.87E+00
		1085.78		7.22	1.95E+01		9.20E+00	9.63E+00
		1112.02		9.60	1.44E+01		1.18E+00	7.08E+00

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1407.95		14.94	2.49E+00	2.35E+00	-1.11E+00	1.16E+00
	GD-153	97.43		31.30	1.92E+01	1.92E+01	-1.09E+01	9.55E+00
		103.18		22.20	2.72E+01		-9.62E+00	1.35E+01
	EU-154	123.07		40.50	1.29E+00	1.29E+00	1.20E+01	6.41E-01
		723.30		19.70	5.31E+00		-8.48E-01	2.62E+00
		873.19		11.50	1.16E+01		-6.08E+00	5.71E+00
		996.32		10.30	1.42E+01		-7.03E+00	7.01E+00
		1004.76		17.90	8.27E+00		2.08E+00	4.08E+00
		1274.45		35.50	1.84E+00		-1.62E-01	8.86E-01
	EU-155	86.50		30.90	3.62E+00	2.12E+00	1.10E+02	1.81E+00
		105.30		20.70	2.12E+00		-3.29E-01	1.05E+00
@	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	5.15E-01	5.15E-01	3.29E-02	2.55E-01
		280.45		29.60	1.54E+00		-3.97E-01	7.61E-01
		410.94		11.10	5.54E+00		4.17E+00	2.74E+00
		711.69		54.10	1.48E+00		1.62E-01	7.30E-01
+	TM-171	66.72	*	0.14	9.78E+02	9.78E+02	1.26E+03	4.87E+02
	HF-172	67.35		5.31	2.33E+01	9.10E+00	-3.35E+01	1.16E+01
		125.81		11.30	9.10E+00		-2.08E+00	4.52E+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	2.43E+01	9.30E+00	2.07E+01	1.20E+01
		272.11		21.20	9.30E+00		7.13E+00	4.60E+00
	HF-175	343.40		84.00	2.13E+04	2.13E+04	-3.44E+03	1.05E+04
	LU-176	88.34		13.30	5.56E+00	4.58E-01	1.69E+02	2.77E+00
		201.83		86.00	4.58E-01		-1.73E-01	2.27E-01
		306.78		94.00	5.20E-01		-4.72E-02	2.57E-01
	HF-181	133.02		41.70	2.40E+07	2.40E+07	4.62E+06	1.19E+07
		345.85		17.20	9.40E+07		3.72E+07	4.65E+07
		482.03		82.80	2.51E+07		7.97E+06	1.24E+07
	TA-182	67.75		41.20	6.19E+02	6.19E+02	1.11E+03	3.08E+02
		1121.30		34.90	1.81E+03		-1.20E+02	8.87E+02
		1189.05		16.23	2.89E+03		1.43E+02	1.41E+03
		1221.41		26.98	1.41E+03		-1.68E+02	6.85E+02
		1231.02		11.44	3.10E+03		-1.80E+03	1.50E+03
	IR-192	308.46		29.68	3.22E+04	2.93E+04	1.72E+03	1.59E+04
		468.07		48.10	2.93E+04		1.79E+04	1.45E+04
	HG-203	279.19		77.30	3.83E+06	3.83E+06	-1.48E+06	1.90E+06
	TL-204	374.74		94.11	1.00E+00	1.00E+00	-2.82E-01	4.96E-01
		899.15		99.16	2.00E+00		1.61E-01	9.86E-01
		911.74		91.10	2.22E+00		-1.60E-01	1.10E+00
	BI-207	569.67		97.72	6.99E-01	6.99E-01	1.99E-01	3.44E-01
		1063.62		74.90	1.67E+00		4.53E-01	8.24E-01
	TL-208	583.14		30.22	2.16E+00	1.02E+00	7.17E-01	1.06E+00
		860.37		4.48	2.37E+01		1.79E+00	1.17E+01
		2614.66		35.85	1.02E+00		-4.45E-02	4.51E-01
	BI-210M	262.00		45.00	9.86E-01	9.86E-01	5.85E-01	4.88E-01
		300.00		23.00	2.09E+00		-4.05E-01	1.03E+00
	PB-210	46.50		4.25	2.03E+01	2.03E+01	-6.02E+00	1.01E+01
	PB-211	404.84		2.90	2.04E+01	2.04E+01	-1.22E+01	1.01E+01

Analysis Report for 1707086-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	831.96		2.90	3.47E+01	2.04E+01	7.59E+00	1.71E+01
	BI-212	727.17		11.80	7.11E+00	7.11E+00	4.28E+00	3.50E+00
		1620.62		2.75	1.03E+01		-3.58E-01	4.71E+00
+	PB-212	238.63	*	44.60	1.16E+00	1.16E+00	7.67E-01	5.75E-01
		300.09		3.41	1.41E+01		-2.73E+00	6.97E+00
+	BI-214	609.31	*	46.30	1.66E+00	1.66E+00	1.15E+00	8.18E-01
		1120.29		15.10	7.13E+00		4.39E-01	3.50E+00
		1764.49		15.80	1.96E+00		-3.86E-01	8.90E-01
		2204.22		4.98	4.52E+00		-1.30E+00	1.91E+00
	PB-214	295.21		19.19	2.46E+00	1.41E+00	-4.29E-02	1.22E+00
		351.92		37.19	1.41E+00		-3.32E-01	6.97E-01
	RN-219	401.80		6.50	9.13E+00	9.13E+00	-2.64E-01	4.51E+00
	RA-223	323.87		3.88	1.27E+01	1.27E+01	4.00E+00	6.27E+00
	RA-224	240.98		3.95	1.15E+01	1.15E+01	1.42E-01	5.70E+00
@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	RA-226	186.21		3.28	1.15E+01	1.15E+01	-2.04E-01	5.71E+00
	TH-227	50.10		8.40	1.01E+01	3.90E+00	6.03E+01	5.03E+00
		236.00		11.50	3.90E+00		-1.22E-01	1.93E+00
		256.20		6.30	6.92E+00		-2.49E+00	3.42E+00
	AC-228	338.32		11.40	4.50E+00	4.31E+00	1.57E+00	2.22E+00
		911.07		27.70	4.31E+00		1.56E+00	2.13E+00
		969.11		16.60	7.22E+00		6.61E+00	3.56E+00
	TH-230	48.44		16.90	4.73E+00	4.73E+00	1.21E+01	2.36E+00
		62.85		4.60	2.20E+01		5.79E+02	1.10E+01
		67.67		0.37	1.16E+02		2.07E+02	5.74E+01
	PA-231	283.67		1.60	2.87E+01	2.11E+01	-1.41E+01	1.42E+01
		302.67		2.30	2.11E+01		7.16E+00	1.04E+01
	TH-231	25.64		14.70	2.91E+01	7.94E+00	-9.96E+01	1.45E+01
		84.21		6.40	7.94E+00		-2.76E+02	3.95E+00
	PA-233	311.98		38.60	7.41E+11	7.41E+11	3.88E+11	3.66E+11
	PA-234	131.20		20.40	1.53E+00	1.53E+00	-3.57E-01	7.57E-01
		733.99		8.80	9.53E+00		-2.79E+00	4.69E+00
		946.00		12.00	1.08E+01		1.55E+00	5.34E+00
	PA-234M	1001.03		0.92	1.28E+02	1.28E+02	2.16E+01	6.30E+01
	TH-234	63.29		3.80	2.65E+01	2.65E+01	6.97E+02	1.32E+01
	U-235	143.76		10.50	3.06E+00	3.06E+00	4.99E-01	1.52E+00
		163.35		4.70	7.29E+00		-9.26E-02	3.61E+00
		205.31		4.70	8.53E+00		-2.28E+00	4.23E+00
	NP-237	86.50		12.60	5.93E+00	5.93E+00	1.81E+02	2.96E+00
@	NP-239	106.10		22.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		228.18		10.70	1.00E+26		1.00E+26	1.00E+20
@		277.60		14.10	1.00E+26		1.00E+26	1.00E+20
+	AM-241	59.54	*	35.90	3.54E+00	3.54E+00	2.22E+02	1.77E+00
	AM-243	74.67		66.00	6.27E-01	6.27E-01	4.07E-01	3.12E-01
	CM-243	209.75		3.29	1.35E+01	3.48E+00	6.54E+00	6.70E+00
		228.14		10.60	4.41E+00		-1.81E+00	2.19E+00
		277.60		14.00	3.48E+00		1.12E+00	1.72E+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 1707086-01

GAS-1402

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: 1825

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	255	1866
17:	2089	1904	4743	19560	37179	25606	11682	12287
25:	7773	2502	1004	724	839	1120	1574	1428
33:	994	895	1035	1114	990	1029	1079	1152
41:	1373	1504	1665	1696	1944	2302	2972	3799
49:	4163	4053	4051	3918	3934	4059	4394	4854
57:	10351	28554	32399	12534	2069	1131	1179	1289
65:	1385	1497	1456	1517	1430	1392	1404	1433
73:	1378	1436	1499	1449	1423	1380	1362	1388
81:	1414	1521	1523	1630	2010	6379	12145	8576
89:	2256	823	779	787	727	718	746	693
97:	738	778	756	735	763	734	706	672
105:	710	766	695	735	696	752	762	710
113:	766	760	704	733	751	759	831	1474
121:	2503	2003	997	683	723	706	688	654
129:	695	733	686	713	667	738	847	895
137:	717	697	677	649	682	663	671	620
145:	681	688	649	621	611	630	635	591
153:	643	616	626	554	573	625	602	594
161:	607	585	623	714	743	681	569	614
169:	619	633	588	613	556	556	592	602
177:	600	607	617	613	606	653	629	582
185:	619	659	666	634	641	669	641	649
193:	676	610	615	643	669	601	579	609
201:	648	584	617	591	589	599	625	649
209:	627	638	636	608	618	613	654	645
217:	634	597	616	623	665	626	679	636
225:	615	587	604	601	564	556	605	586
233:	575	565	557	598	639	611	600	572
241:	567	547	550	567	511	515	502	541
249:	523	508	485	467	476	476	502	477
257:	451	481	511	458	472	451	488	444
265:	440	437	451	501	475	451	462	443
273:	463	460	442	417	422	437	466	445
281:	389	434	433	454	448	423	444	455
289:	439	394	414	391	436	445	412	438
297:	399	438	407	403	416	449	416	441
305:	429	399	410	394	433	409	415	419
313:	376	400	365	386	386	352	411	357
321:	375	382	376	389	371	398	336	377
329:	397	385	361	348	362	369	333	379
337:	370	413	390	376	375	366	387	358
345:	371	368	360	358	315	359	404	371
353:	375	344	373	372	361	358	322	377
361:	332	340	327	337	360	348	316	395

369:	372	317	361	337	329	360	376	358

Sample Title: GAS-1402

Channel								
377:	380	365	403	336	344	343	353	353
385:	330	341	363	356	338	374	386	355
393:	377	382	369	392	374	375	374	331
401:	355	349	351	332	337	327	353	377
409:	365	362	356	395	316	358	317	368
417:	368	304	319	380	376	316	344	342
425:	401	339	356	349	358	339	322	317
433:	333	348	372	332	321	321	360	373
441:	350	393	384	367	398	386	366	410
449:	399	344	370	333	374	398	392	387
457:	372	399	407	399	396	379	356	360
465:	386	379	401	387	364	374	359	341
473:	364	370	352	351	304	309	289	305
481:	291	326	311	303	288	277	281	272
489:	266	301	298	244	274	269	272	260
497:	237	248	240	253	270	258	282	270
505:	263	216	240	264	257	294	252	251
513:	259	233	237	257	276	230	284	255
521:	226	225	235	220	246	218	241	228
529:	253	240	233	248	252	253	206	225
537:	219	217	195	234	211	213	192	234
545:	208	202	233	198	209	207	194	210
553:	196	209	177	240	205	209	218	215
561:	227	231	193	181	220	208	211	191
569:	195	197	204	208	178	203	178	206
577:	183	198	195	199	201	207	175	213
585:	194	176	201	214	182	217	195	209
593:	192	176	193	188	203	198	159	200
601:	207	185	208	221	165	194	196	235
609:	214	198	192	195	179	186	196	203
617:	174	174	186	194	190	185	187	171
625:	191	179	165	166	167	189	198	157
633:	171	155	158	172	181	159	179	235
641:	200	158	215	184	158	199	199	179
649:	182	199	188	183	181	213	180	208
657:	190	316	1478	4580	6239	3244	736	198
665:	155	172	179	151	159	156	143	157
673:	157	167	175	169	174	153	145	176
681:	182	184	160	162	143	167	164	162
689:	151	182	160	168	155	151	163	145
697:	170	154	175	140	175	147	162	177
705:	160	149	159	181	145	173	136	141
713:	150	158	182	144	171	164	171	162
721:	170	170	163	176	167	169	148	174
729:	168	169	135	157	174	181	156	177
737:	156	168	185	151	159	169	175	182
745:	172	178	183	167	162	161	172	156
753:	174	163	156	169	181	157	155	141
761:	161	154	162	165	164	158	154	150
769:	156	168	190	175	158	168	157	156
777:	163	172	183	142	129	142	178	167
785:	175	174	176	192	171	173	180	153
793:	172	159	165	164	188	170	175	159

801:	170	180	178	192	140	150	176	173

Sample Title: GAS-1402

Channel								
809:	178	157	175	171	206	194	171	176
817:	176	185	156	188	187	205	185	184
825:	163	201	186	180	212	186	208	181
833:	167	199	169	195	172	174	195	205
841:	197	192	191	187	191	164	192	185
849:	175	205	177	181	204	213	186	175
857:	200	198	193	187	188	197	212	214
865:	190	190	188	207	184	185	204	211
873:	180	197	178	194	182	208	203	185
881:	215	191	209	200	224	209	173	206
889:	222	190	218	211	213	231	205	235
897:	223	257	228	210	190	204	221	192
905:	219	238	229	216	244	224	229	199
913:	231	210	224	224	219	227	213	262
921:	235	222	242	245	275	217	253	235
929:	268	238	244	246	241	253	238	231
937:	275	229	239	221	235	269	225	210
945:	257	230	278	278	253	257	237	252
953:	224	292	249	234	288	218	267	234
961:	230	200	215	222	222	210	199	210
969:	200	189	177	193	154	172	179	219
977:	190	185	171	191	181	190	221	182
985:	210	181	170	188	181	177	173	213
993:	189	183	166	174	160	183	184	186
1001:	216	196	149	204	188	181	167	164
1009:	186	162	178	182	168	170	183	173
1017:	186	184	174	156	174	180	182	176
1025:	163	179	163	168	200	174	202	158
1033:	167	163	152	182	182	153	185	162
1041:	167	161	181	157	191	163	172	159
1049:	162	170	164	166	168	180	151	170
1057:	147	167	181	160	179	158	150	163
1065:	169	150	185	155	172	182	179	149
1073:	167	173	149	153	179	187	152	180
1081:	179	175	160	151	172	168	170	166
1089:	193	154	159	171	156	163	158	156
1097:	188	165	169	175	158	167	168	157
1105:	163	186	145	174	184	162	134	150
1113:	144	154	159	147	146	134	123	101
1121:	129	104	128	114	104	89	103	112
1129:	103	106	103	92	116	102	97	108
1137:	112	101	103	98	106	91	101	101
1145:	102	97	106	79	96	86	93	91
1153:	102	73	78	93	95	74	91	88
1161:	90	93	103	92	84	94	90	98
1169:	134	518	1973	4180	3984	1583	312	90
1177:	75	76	60	72	66	61	58	80
1185:	41	57	64	61	61	51	63	84
1193:	50	47	55	53	61	47	50	59
1201:	49	50	54	47	55	62	38	42
1209:	51	48	44	44	44	43	47	39
1217:	38	37	37	34	44	29	28	40
1225:	45	29	33	40	18	23	40	25

1233:	37	35	31	36	33	37	32	32

Sample Title: GAS-1402

Channel								
1241:	37	25	24	32	26	19	36	19
1249:	20	25	31	17	20	15	30	27
1257:	29	22	18	24	22	19	21	22
1265:	27	22	24	24	27	16	23	21
1273:	21	17	23	23	29	29	20	20
1281:	24	26	24	25	21	22	11	19
1289:	24	33	21	21	15	27	20	17
1297:	14	21	21	19	19	28	20	24
1305:	24	24	17	19	16	15	21	23
1313:	23	19	26	13	21	17	20	15
1321:	26	23	21	24	25	26	37	52
1329:	266	1247	3239	3622	1877	453	44	3
1337:	18	8	8	11	4	9	13	4
1345:	9	5	7	10	5	8	2	9
1353:	11	10	2	6	11	9	5	11
1361:	5	5	9	6	10	10	10	7
1369:	7	5	9	9	11	7	9	11
1377:	8	3	8	8	6	7	6	9
1385:	7	7	7	4	3	5	9	4
1393:	9	7	8	9	5	3	6	10
1401:	8	8	5	4	9	2	7	10
1409:	8	7	7	6	9	11	10	9
1417:	4	7	6	7	5	7	4	5
1425:	7	3	6	3	9	3	2	7
1433:	3	7	5	4	4	6	6	11
1441:	3	3	5	3	5	7	1	2
1449:	7	5	9	6	4	5	5	7
1457:	5	9	9	12	8	5	3	3
1465:	7	5	6	7	5	3	4	6
1473:	8	8	9	4	9	3	5	6
1481:	8	1	6	10	6	6	4	4
1489:	8	6	3	2	4	4	8	3
1497:	3	9	3	10	1	5	3	4
1505:	10	9	7	11	3	2	7	7
1513:	6	2	5	6	5	3	5	3
1521:	7	7	3	4	5	3	2	5
1529:	6	4	2	5	2	5	3	5
1537:	9	2	6	5	1	8	7	2
1545:	5	2	9	2	7	8	5	9
1553:	5	3	4	5	7	3	8	7
1561:	6	5	7	5	2	6	3	10
1569:	6	1	3	3	3	8	6	5
1577:	3	3	3	2	5	3	4	3
1585:	9	5	2	5	3	5	5	9
1593:	5	5	2	7	4	8	4	7
1601:	0	6	6	6	5	7	3	1
1609:	3	4	2	1	7	5	3	5
1617:	8	1	3	2	4	7	2	3
1625:	3	3	4	7	1	3	3	2
1633:	6	4	1	4	5	2	5	8
1641:	6	1	5	5	2	1	3	2
1649:	3	4	6	4	6	7	6	4
1657:	6	4	1	6	4	2	6	3

1665:	3	3	3	4	2	1	5	2

Sample Title: GAS-1402

Channel								
1673:	2	3	3	2	2	6	2	2
1681:	3	4	1	3	5	2	6	6
1689:	4	4	4	4	2	3	4	5
1697:	4	3	3	0	2	4	7	4
1705:	6	7	0	1	3	4	0	2
1713:	6	6	5	2	1	3	3	4
1721:	5	2	2	1	3	4	2	3
1729:	2	2	2	1	5	10	2	3
1737:	2	3	4	0	8	4	2	8
1745:	6	4	3	1	6	2	4	1
1753:	7	0	1	1	5	3	4	2
1761:	6	4	1	6	5	5	3	3
1769:	4	2	9	7	3	5	2	3
1777:	7	2	2	4	5	3	5	1
1785:	4	2	3	2	2	1	7	1
1793:	3	2	2	6	1	4	3	1
1801:	6	6	2	2	1	2	4	3
1809:	2	1	3	4	3	2	3	2
1817:	4	8	0	8	5	5	6	4
1825:	1	1	6	4	3	2	4	3
1833:	9	4	10	15	7	4	6	2
1841:	5	1	5	0	2	1	2	3
1849:	2	5	5	2	2	5	2	2
1857:	4	3	4	2	2	1	5	2
1865:	1	4	5	1	5	3	2	2
1873:	3	7	6	3	2	1	4	5
1881:	2	5	2	2	1	2	3	1
1889:	5	4	0	0	4	2	2	1
1897:	2	4	3	7	3	1	4	3
1905:	2	5	2	4	4	3	5	4
1913:	2	4	3	1	6	1	2	1
1921:	2	3	3	7	4	3	1	3
1929:	3	4	6	2	0	3	3	3
1937:	5	5	3	3	2	3	3	3
1945:	2	2	2	1	2	2	1	0
1953:	4	1	4	2	3	0	1	3
1961:	0	3	1	5	5	0	1	1
1969:	2	3	2	1	1	4	2	2
1977:	4	3	2	2	3	4	1	7
1985:	1	2	6	2	2	4	3	0
1993:	4	3	6	7	2	1	3	1
2001:	4	2	3	4	3	1	3	2
2009:	4	3	2	1	2	1	5	4
2017:	4	3	4	2	4	1	3	4
2025:	6	1	3	3	5	4	4	2
2033:	2	3	2	1	1	5	1	0
2041:	7	3	0	3	2	3	4	3
2049:	1	2	5	4	2	0	3	4
2057:	1	2	3	3	0	3	2	3
2065:	2	3	4	7	4	5	5	3
2073:	2	5	1	3	8	3	2	3
2081:	2	6	2	4	3	2	1	3
2089:	4	1	4	4	0	4	3	5

2097:	1	6	1	1	2	7	3	1

Sample Title: GAS-1402

Channel								
2105:	0	2	2	2	0	1	2	2
2113:	2	5	3	4	1	1	2	1
2121:	1	2	0	2	1	4	1	2
2129:	3	2	2	3	2	2	4	2
2137:	1	0	2	4	1	2	2	1
2145:	2	5	2	2	4	2	2	4
2153:	3	0	3	4	1	1	2	5
2161:	1	0	2	3	4	4	2	2
2169:	5	2	0	2	4	4	5	2
2177:	1	1	2	3	3	3	4	1
2185:	5	4	2	2	4	1	2	0
2193:	2	3	3	1	2	0	3	0
2201:	0	0	0	2	2	3	0	3
2209:	3	1	1	1	1	2	3	1
2217:	2	0	1	3	2	4	2	0
2225:	3	3	1	4	2	3	3	2
2233:	2	2	2	1	2	3	1	1
2241:	1	0	0	1	1	2	1	2
2249:	4	1	4	1	5	3	3	2
2257:	1	2	3	3	3	3	1	0
2265:	2	0	2	2	3	0	2	1
2273:	3	5	3	1	2	2	2	3
2281:	1	3	4	1	2	4	3	2
2289:	3	2	4	1	1	1	1	2
2297:	3	2	1	2	1	2	2	1
2305:	0	0	3	1	1	0	2	0
2313:	1	0	0	1	0	0	1	0
2321:	1	1	1	3	0	1	0	0
2329:	0	3	0	3	1	0	0	3
2337:	0	1	0	1	0	0	2	0
2345:	1	0	1	0	2	1	0	0
2353:	0	2	1	1	0	0	0	2
2361:	1	1	0	0	0	3	0	1
2369:	1	2	0	1	1	0	0	0
2377:	1	2	0	0	1	0	0	2
2385:	0	0	0	1	1	0	0	1
2393:	0	1	0	0	1	2	0	0
2401:	2	2	0	1	1	0	0	0
2409:	0	2	0	0	0	0	0	0
2417:	0	0	1	1	0	0	1	0
2425:	0	0	0	0	0	1	0	0
2433:	0	1	0	0	0	0	1	1
2441:	0	1	0	0	1	0	1	1
2449:	0	1	0	0	2	0	0	1
2457:	0	0	0	0	0	0	0	1
2465:	0	0	0	0	0	1	0	0
2473:	0	0	1	0	0	0	0	0
2481:	0	1	1	1	0	0	0	0
2489:	0	1	0	1	0	0	0	0
2497:	3	1	1	2	0	2	8	21
2505:	18	24	4	2	1	0	1	0
2513:	0	0	0	0	1	0	1	0
2521:	0	0	0	1	0	0	0	0

2529:	0	0	0	1	0	0	0	1

Sample Title: GAS-1402

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

2961:	0	0	0	0	0	0	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	1
2993:	0	1	1	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	0	1	0	0	1	0
3033:	0	0	0	0	0	0	0	0
3041:	0	0	1	0	0	0	1	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	0	0	0
3065:	0	0	1	0	0	0	0	1
3073:	0	0	0	0	0	0	0	0
3081:	1	0	0	0	0	0	0	1
3089:	0	0	0	0	1	0	0	0
3097:	0	0	0	0	0	0	1	0
3105:	0	0	1	0	0	0	0	0
3113:	0	0	0	0	0	0	0	0
3121:	0	0	0	0	0	0	0	0
3129:	0	0	0	0	0	0	0	1
3137:	0	0	0	0	0	0	0	0
3145:	0	0	0	0	0	0	0	0
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	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	0	0	0	0	0
3201:	0	0	0	1	0	0	0	0
3209:	0	1	0	0	0	0	0	0
3217:	1	0	0	0	0	0	0	0
3225:	0	0	0	1	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	1	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	1	0	0	0	0	0	0
3329:	0	0	0	0	0	0	1	0
3337:	0	0	0	0	0	1	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	1	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

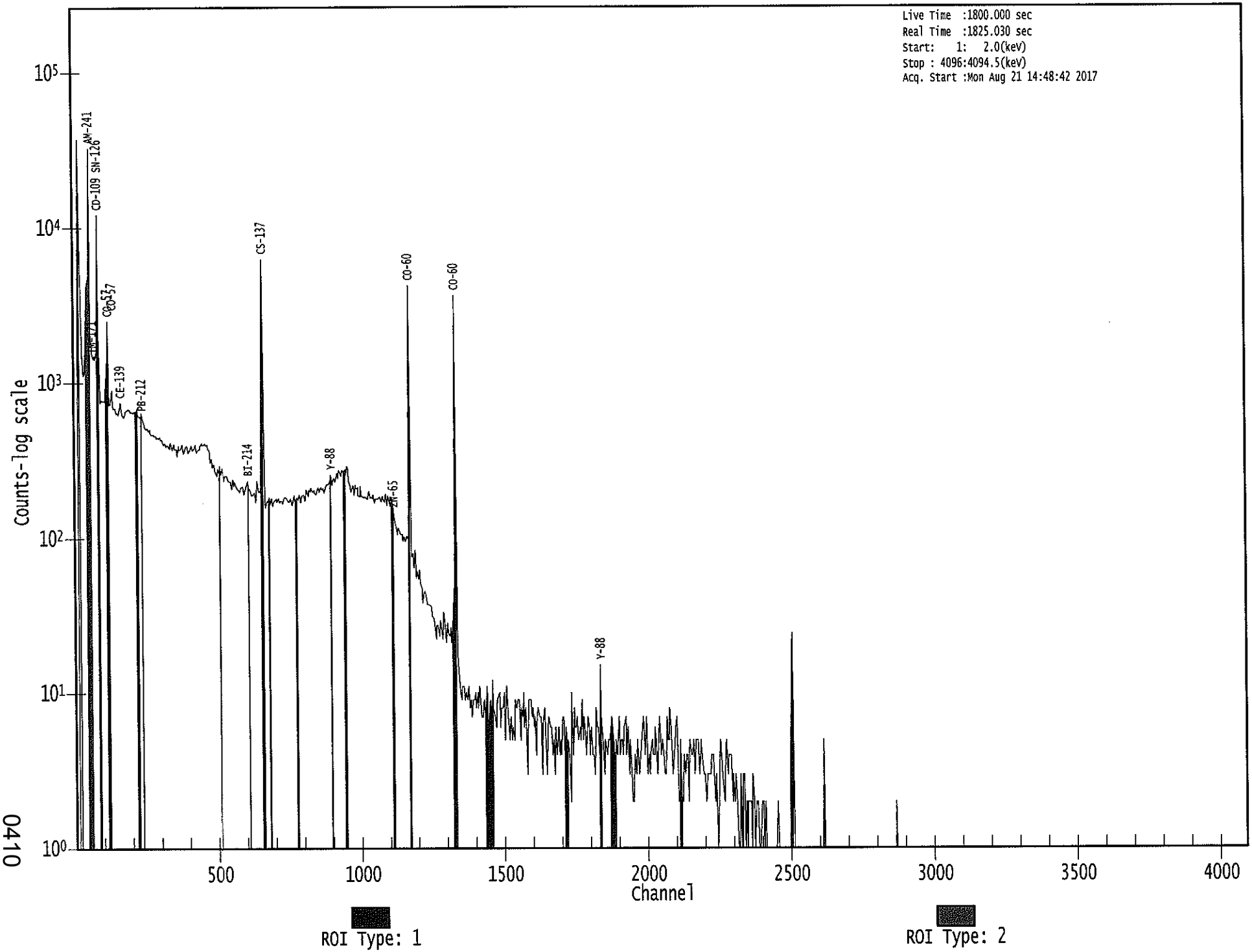
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	1	1	0	1	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

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

0000055652.CNF



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NB 8/21/17

Apex-Gamma

Analysis Report for 1707086-02
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GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/21/2017 9:06:33AM
Acquisition Started	: 8/21/2017 3:20:28PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3600.8 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55653

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 4:20:30PM
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	77.54	76.59	0.0000	0.00
2	260.69	259.81	0.0000	0.00
3	692.90	692.17	0.0000	0.00
4	698.72	698.00	0.0000	0.00
5	706.95	706.23	0.0000	0.00
6	787.06	786.38	0.0000	0.00
7	811.61	810.93	0.0000	0.00
8	1032.83	1032.25	0.0000	0.00
9	1478.24	1477.88	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 4:20:30PM

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	77.54	74 -	80	76.59	2.72E+01	31.16	1.56E+02	2.77
2	260.69	256 -	263	259.81	2.15E+01	24.33	8.51E+01	1.30
3	692.90	689 -	695	692.17	9.05E+00	12.39	2.19E+01	1.58
4	698.72	695 -	701	698.00	1.24E+01	11.00	1.11E+01	4.14
5	706.95	703 -	709	706.23	1.05E+01	8.97	7.00E+00	2.62
6	787.06	784 -	789	786.38	7.00E+00	7.62	6.00E+00	1.75
7	811.61	807 -	814	810.93	7.18E+00	8.72	7.64E+00	1.56
8	1032.83	1030 -	1034	1032.25	5.14E+00	6.36	3.71E+00	1.11
9	1478.24	1474 -	1481	1477.88	8.00E+00	5.66	0.00E+00	2.22

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 : 8/21/2017 4:20:30PM

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	77.54	74 -	80	2.72E+01	31.16	1.56E+02	2.41E+01
2	260.69	256 -	263	2.15E+01	24.33	8.51E+01	1.85E+01
3	692.90	689 -	695	9.05E+00	12.39	2.19E+01	8.90E+00
4	698.72	695 -	701	1.24E+01	11.00	1.11E+01	6.94E+00
5	706.95	703 -	709	1.05E+01	8.97	7.00E+00	5.10E+00
6	787.06	784 -	789	7.00E+00	7.62	6.00E+00	4.50E+00

Analysis Report for 1707086-02

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Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
7	811.61	807 -	814	7.18E+00	8.72	7.64E+00	5.65E+00
8	1032.83	1030 -	1034	5.14E+00	6.36	3.71E+00	3.67E+00
9	1478.24	1474 -	1481	8.00E+00	5.66	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 4:20:30PM

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	77.54	74 -	80	76.59	2.72E+01	31.16	1.56E+02	TI-44
2	260.69	256 -	263	259.81	2.15E+01	24.33	8.51E+01	.....
3	692.90	689 -	695	692.17	9.05E+00	12.39	2.19E+01	.....
4	698.72	695 -	701	698.00	1.24E+01	11.00	1.11E+01	.....
5	706.95	703 -	709	706.23	1.05E+01	8.97	7.00E+00	AG-110M
6	787.06	784 -	789	786.38	7.00E+00	7.62	6.00E+00	.....
7	811.61	807 -	814	810.93	7.18E+00	8.72	7.64E+00	EU-156 CO-58
8	1032.83	1030 -	1034	1032.25	5.14E+00	6.36	3.71E+00	.....
9	1478.24	1474 -	1481	1477.88	8.00E+00	5.66	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 1707086-02

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PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 4:20:30PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	77.54	2.72E+01	31.16	2.33E-02	1.94E-03
2	260.69	2.15E+01	24.33	1.25E-02	1.04E-03
3	692.90	9.05E+00	12.39	4.66E-03	5.59E-04
4	698.72	1.24E+01	11.00	4.62E-03	5.52E-04
5	706.95	1.05E+01	8.97	4.57E-03	5.42E-04
6	787.06	7.00E+00	7.62	4.13E-03	4.41E-04
7	811.61	7.18E+00	8.72	4.02E-03	4.10E-04
8	1032.83	5.14E+00	6.36	3.24E-03	2.70E-04
9	1478.24	8.00E+00	5.66	2.36E-03	2.05E-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 : 8/21/2017 4:20:30PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	77.54	2.72E+01	31.16			2.72E+01	3.12E+01
2	260.69	2.15E+01	24.33			2.15E+01	2.43E+01
3	692.90	9.05E+00	12.39			9.05E+00	1.24E+01
4	698.72	1.24E+01	11.00			1.24E+01	1.10E+01
5	706.95	1.05E+01	8.97			1.05E+01	8.97E+00
6	787.06	7.00E+00	7.62			7.00E+00	7.62E+00
7	811.61	7.18E+00	8.72			7.18E+00	8.72E+00
8	1032.83	5.14E+00	6.36			5.14E+00	6.36E+00
9	1478.24	8.00E+00	5.66			8.00E+00	5.66E+00

Analysis Report for 1707086-02

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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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 4:20:30PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.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	77.54	2.72E+01	31.16			2.72E+01	3.12E+01
2	260.69	2.15E+01	24.33			2.15E+01	2.43E+01
3	692.90	9.05E+00	12.39			9.05E+00	1.24E+01
4	698.72	1.24E+01	11.00			1.24E+01	1.10E+01
5	706.95	1.05E+01	8.97			1.05E+01	8.97E+00
6	787.06	7.00E+00	7.62			7.00E+00	7.62E+00
7	811.61	7.18E+00	8.72			7.18E+00	8.72E+00
8	1032.83	5.14E+00	6.36			5.14E+00	6.36E+00
9	1478.24	8.00E+00	5.66			8.00E+00	5.66E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

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

Analysis Report for 1707086-02

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-58	0.890	810.76	*	99.40	1.73E-02	2.10E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 4:20:30PM
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	77.54	7.55952E-03	57.26		
2	260.69	5.96137E-03	56.69		
3	692.90	2.51389E-03	68.45		
4	698.72	3.45679E-03	44.20		
5	706.95	2.91667E-03	42.72	Tol.	AG-110M
6	787.06	1.94444E-03	54.40		
8	1032.83	1.42857E-03	61.87		
9	1478.24	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 1707086-02
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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-58	0.89	810.76	*	99.40	1.73E-02	2.10E-02

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
CO-58	0.890	1.73E-02	2.10E-02	

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

Errors quoted at 2.000sigma

Analysis Report for 1707086-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 4:20:30PM
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	77.54	7.55952E-03	57.26		
2	260.69	5.96137E-03	56.69		
3	692.90	2.51389E-03	68.45		
4	698.72	3.45679E-03	44.20		
5	706.95	2.91667E-03	42.72	Tol.	AG-110M
6	787.06	1.94444E-03	54.40		
8	1032.83	1.42857E-03	61.87		
9	1478.24	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 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	-1.93E-02	3.30E-01	3.30E-01
+	NA-22	1274.54	99.94	-2.08E-02	4.28E-02	4.28E-02
+	NA-24	1368.53	99.99	-1.72E-02	8.10E-02	9.01E-02
		2754.09	99.86	7.33E-03		8.10E-02
+	AL-26	1808.65	99.76	-1.37E-02	5.30E-02	5.30E-02
+	K-40	1460.81	10.67	1.67E-01	6.28E-01	6.28E-01
+	AR-41	1293.64	99.16	9.30E-02	6.09E-01	6.09E-01
+	TI-44	67.88	94.40	-2.29E-02	2.15E-02	2.16E-02
		78.34	96.00	8.90E-03		2.15E-02

Analysis Report for 1707086-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SC-46	889.25		99.98	-3.23E-02	4.12E-02	4.12E-02
		1120.51		99.99	-1.18E-02		4.79E-02
+	V-48	983.52		99.98	-1.04E-02	2.79E-02	4.55E-02
		1312.10		97.50	1.26E-03		2.79E-02
+	CR-51	320.08		9.83	-1.06E-01	2.96E-01	2.96E-01
+	MN-54	834.83		99.97	-2.38E-02	4.44E-02	4.44E-02
+	CO-56	846.75		99.96	-2.17E-03	3.94E-02	3.94E-02
		1037.75		14.03	1.06E-02		4.27E-01
		1238.25		67.00	7.79E-03		9.77E-02
		1771.40		15.51	-9.33E-02		3.35E-01
		2598.48		16.90	-3.30E-02		5.29E-01
+	CO-57	122.06		85.51	-3.61E-03	2.07E-02	2.07E-02
		136.48		10.60	-6.40E-02		1.75E-01
+	CO-58	810.76	*	99.40	1.73E-02	3.37E-02	3.37E-02
+	FE-59	1099.22		56.50	1.02E-02	9.26E-02	9.26E-02
		1291.56		43.20	1.12E-03		1.10E-01
+	CO-60	1173.22		100.00	-2.21E-03	3.44E-02	5.52E-02
		1332.49		100.00	-7.40E-03		3.44E-02
+	ZN-65	1115.52		50.75	4.01E-02	1.26E-01	1.26E-01
+	GA-67	93.31		35.70	6.51E-02	6.84E-02	6.84E-02
		208.95		2.24	3.06E-01		1.18E+00
		300.22		16.00	3.97E-03		1.75E-01
+	SE-75	121.11		16.70	2.77E-02	3.11E-02	1.10E-01
		136.00		59.20	-1.03E-02		3.11E-02
		264.65		59.80	9.42E-03		4.86E-02
		279.53		25.20	3.08E-02		1.11E-01
		400.65		11.40	-7.31E-02		2.46E-01
+	RB-82	776.52		13.00	1.01E-01	4.35E-01	4.35E-01
+	RB-83	520.41		46.00	2.71E-02	8.30E-02	8.30E-02
		529.64		30.30	6.21E-02		1.47E-01
		552.65		16.40	-1.74E-02		2.26E-01
+	KR-85	513.99		0.43	2.75E+00	1.17E+01	1.17E+01
+	SR-85	513.99		99.27	1.20E-02	5.15E-02	5.15E-02
+	Y-88	898.02		93.40	4.23E-02	5.41E-02	6.14E-02
		1836.01		99.38	-5.59E-04		5.41E-02
+	MO-93	263.06		56.72	1.12E-02	5.20E-02	5.37E-02
		684.67		99.68	2.31E-02		5.20E-02
		1477.11		99.08	2.05E-02		6.50E-02
+	NB-93M	16.57		9.43	6.12E+00	4.19E+00	4.19E+00
+	NB-94	702.63		100.00	-2.63E-02	4.68E-02	4.68E-02
		871.10		100.00	-1.27E-03		4.95E-02
+	NB-95	765.79		99.81	5.69E-03	4.58E-02	4.58E-02
+	NB-95M	235.69		25.00	1.16E-02	1.13E-01	1.13E-01
+	ZR-95	724.18		43.70	-2.46E-03	7.06E-02	9.59E-02
		756.72		55.30	-1.50E-02		7.06E-02
+	MO-99	181.06		6.20	-3.07E-01	3.77E-01	3.77E-01
		739.58		12.80	-1.43E-01		3.80E-01
		778.00		4.50	2.32E-01		1.29E+00

Analysis Report for 1707086-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RU-103	497.08	89.00	1.30E-02	4.27E-02	4.27E-02
+	RU-106	621.84	9.80	-5.76E-02	3.43E-01	3.43E-01
+	AG-108M	433.93	89.90	8.62E-03	3.38E-02	3.38E-02
		614.37	90.40	-1.15E-02		4.55E-02
		722.95	90.50	-1.34E-02		4.45E-02
+	CD-109	88.03	3.72	-7.69E-01	4.96E-01	4.96E-01
+	AG-110M	657.75	93.14	8.62E-03	4.95E-02	4.95E-02
		677.61	10.53	-1.87E-02		4.69E-01
		706.67	16.46	1.06E-01		2.64E-01
		763.93	21.98	-4.94E-02		2.00E-01
		884.67	71.63	-1.95E-02		6.28E-02
		1384.27	23.94	2.85E-02		1.72E-01
+	CD-113M	263.70	0.02	3.49E+01	1.30E+02	1.30E+02
+	SN-113	255.12	1.93	-2.73E-01	4.57E-02	1.28E+00
		391.69	64.90	-1.20E-02		4.57E-02
+	TE123M	159.00	84.10	-1.39E-03	2.39E-02	2.39E-02
+	SB-124	602.71	97.87	-3.02E-02	3.93E-02	3.93E-02
		645.85	7.26	1.20E-01		5.67E-01
		722.78	11.10	-1.10E-01		3.64E-01
		1691.02	49.00	5.65E-02		1.33E-01
+	I-125	35.49	6.49	1.23E-01	6.57E-01	6.57E-01
+	SB-125	176.33	6.89	-2.92E-02	9.50E-02	3.30E-01
		427.89	29.33	-2.71E-02		9.50E-02
		463.38	10.35	-1.00E-01		3.00E-01
		600.56	17.80	4.16E-02		2.31E-01
		635.90	11.32	-2.30E-02		3.57E-01
+	SB-126	414.70	83.30	3.27E-03	3.76E-02	3.76E-02
		666.33	99.60	1.28E-02		5.06E-02
		695.00	99.60	2.55E-02		6.02E-02
		720.50	53.80	-5.76E-02		7.02E-02
+	SN-126	87.57	37.00	-7.72E-02	4.99E-02	4.99E-02
+	SB-127	473.00	25.00	3.30E-02	1.48E-01	1.48E-01
		685.20	35.70	6.78E-02		1.53E-01
		783.80	14.70	-4.13E-03		3.52E-01
+	I-129	29.78	57.00	5.96E-02	1.18E-01	1.18E-01
		33.60	13.20	7.83E-02		3.66E-01
		39.58	7.52	-5.62E-02		4.37E-01
+	I-131	284.30	6.05	-7.28E-02	3.66E-02	4.50E-01
		364.48	81.20	1.29E-02		3.66E-02
		636.97	7.26	1.66E-01		6.30E-01
		722.89	1.80	-6.91E-01		2.29E+00
+	TE-132	49.72	13.10	7.93E-03	2.68E-02	2.21E-01
		228.16	88.00	-5.13E-03		2.68E-02
+	BA-133	81.00	33.00	2.44E-03	5.02E-02	5.96E-02
		302.84	17.80	-6.56E-02		1.51E-01
		356.01	60.00	2.14E-02		5.02E-02
+	I-133	529.87	86.30	2.72E-02	6.47E-02	6.47E-02
+	XE-133	81.00	38.00	2.20E-03	5.37E-02	5.37E-02

Analysis Report for 1707086-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CS-134	563.23	8.38	5.02E-02	4.15E-02	4.72E-01
		569.32	15.43	-2.29E-02		2.15E-01
		604.70	97.60	-2.19E-02		4.15E-02
		795.84	85.40	-1.49E-02		5.16E-02
		801.93	8.73	2.45E-01		5.26E-01
+	CS-135	268.24	16.00	6.08E-03	1.60E-01	1.60E-01
+	I-135	1131.51	22.50	1.26E-01	4.16E-01	4.58E-01
		1260.41	28.60	2.06E-01		4.16E-01
		1678.03	9.54	9.70E-02		1.04E+00
+	CS-136	153.22	7.46	-2.67E-02	4.26E-02	2.67E-01
		163.89	4.61	-5.82E-02		4.28E-01
		176.55	13.56	-1.82E-02		1.69E-01
		273.65	12.66	-1.54E-02		2.00E-01
		340.57	48.50	-1.64E-02		6.02E-02
		818.50	99.70	8.93E-03		4.26E-02
		1048.07	79.60	-8.36E-03		6.07E-02
		1235.34	19.70	3.95E-02		3.24E-01
+	CS-137	661.65	85.12	3.63E-03	5.67E-02	5.67E-02
+	LA-138	788.74	34.00	-5.12E-03	7.20E-02	1.37E-01
		1435.80	66.00	-1.95E-02		7.20E-02
+	CE-139	165.85	80.35	-7.18E-03	2.38E-02	2.38E-02
+	BA-140	162.64	6.70	5.99E-02	1.39E-01	3.12E-01
		304.84	4.50	3.90E-02		6.65E-01
		423.70	3.20	6.08E-02		1.00E+00
		437.55	2.00	-4.03E-01		1.55E+00
		537.32	25.00	-7.82E-02		1.39E-01
+	LA-140	328.77	20.50	-2.13E-02	4.30E-02	1.45E-01
		487.03	45.50	4.15E-03		6.91E-02
		815.85	23.50	3.18E-02		2.21E-01
		1596.49	95.49	-4.63E-03		4.30E-02
+	CE-141	145.44	48.40	3.03E-03	4.14E-02	4.14E-02
+	CE-143	57.36	11.80	-6.46E-02	7.34E-02	2.04E-01
		293.26	42.00	-1.60E-02		7.34E-02
		664.55	5.20	6.00E-01		1.18E+00
+	CE-144	133.54	10.80	2.73E-02	1.78E-01	1.78E-01
+	PM-144	476.78	42.00	-9.52E-03	4.09E-02	8.14E-02
		618.01	98.60	8.08E-03		4.09E-02
		696.49	99.49	4.77E-02		6.03E-02
+	PM-145	36.85	21.70	4.97E-02	9.48E-02	1.77E-01
		37.36	39.70	2.65E-02		9.48E-02
		42.30	15.10	-3.21E-01		1.92E-01
		72.40	2.31	-1.93E-01		8.66E-01
+	PM-146	453.90	39.94	2.77E-02	8.95E-02	8.95E-02
		735.90	14.01	-1.22E-01		3.13E-01
		747.13	13.10	-4.41E-02		3.28E-01
+	ND-147	91.11	28.90	5.38E-02	7.89E-02	7.89E-02
		531.02	13.10	1.06E-01		3.42E-01
+	PM-149	285.90	3.10	-1.89E-01	9.19E-01	9.19E-01
+	EU-152	121.78	20.50	-1.50E-02	8.62E-02	8.62E-02

Analysis Report for 1707086-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	244.69	5.40	-2.54E-01	8.62E-02	4.25E-01
		344.27	19.13	4.56E-02		1.73E-01
		778.89	9.20	8.21E-02		5.74E-01
		964.01	10.40	-4.55E-02		4.66E-01
		1085.78	7.22	-4.71E-01		6.04E-01
		1112.02	9.60	1.57E-02		6.62E-01
		1407.95	14.94	1.57E-01		4.34E-01
+	GD-153	97.43	31.30	-2.65E-03	6.44E-02	6.44E-02
		103.18	22.20	-1.69E-02		7.92E-02
+	EU-154	123.07	40.50	-4.20E-03	4.41E-02	4.41E-02
		723.30	19.70	-5.44E-03		2.12E-01
		873.19	11.50	-1.88E-02		4.32E-01
		996.32	10.30	-2.61E-01		4.42E-01
		1004.76	17.90	-7.26E-02		2.56E-01
		1274.45	35.50	-5.85E-02		1.20E-01
+	EU-155	86.50	30.90	-5.64E-02	5.88E-02	5.88E-02
		105.30	20.70	-2.16E-02		8.69E-02
+	EU-156	811.77	10.40	2.53E-01	4.52E-01	4.52E-01
		1153.47	7.20	1.38E-01		7.64E-01
		1230.71	8.90	1.96E-02		6.23E-01
+	HO-166M	184.41	72.60	8.70E-03	3.35E-02	3.35E-02
		280.45	29.60	2.33E-02		9.36E-02
		410.94	11.10	-4.29E-02		2.59E-01
		711.69	54.10	1.07E-02		8.31E-02
+	TM-171	66.72	0.14	-2.14E+00	1.59E+01	1.59E+01
+	HF-172	67.35	5.31	-5.63E-02	1.60E-01	4.18E-01
		125.81	11.30	1.95E-02		1.60E-01
+	LU-172	181.53	20.60	-8.16E-02	9.30E-02	1.12E-01
		900.72	29.81	-9.05E-03		1.58E-01
		1093.66	62.50	4.43E-03		9.30E-02
+	LU-173	100.72	5.24	-6.78E-02	1.13E-01	3.32E-01
		272.11	21.20	-1.31E-02		1.13E-01
+	HF-175	343.40	84.00	1.04E-02	3.93E-02	3.93E-02
+	LU-176	88.34	13.30	-2.15E-01	2.67E-02	1.39E-01
		201.83	86.00	-1.22E-02		2.67E-02
		306.78	94.00	1.04E-02		3.29E-02
+	HF-181	133.02	41.70	1.20E-02	4.19E-02	4.59E-02
		345.85	17.20	1.02E-01		1.96E-01
		482.03	82.80	1.90E-02		4.19E-02
+	TA-182	67.75	41.20	-5.26E-02	4.97E-02	4.97E-02
		1121.30	34.90	-4.57E-02		1.37E-01
		1189.05	16.23	-4.82E-02		3.28E-01
		1221.41	26.98	-2.55E-02		1.53E-01
		1231.02	11.44	-1.15E-01		4.54E-01
+	IR-192	308.46	29.68	7.82E-02	6.53E-02	1.09E-01
		468.07	48.10	-2.07E-02		6.53E-02
+	HG-203	279.19	77.30	1.65E-02	3.69E-02	3.69E-02
+	TL-204	374.74	94.11	7.14E-03	3.12E-02	3.12E-02
		899.15	99.16	1.15E-02		5.14E-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TL-204	911.74	91.10	5.17E-03	3.12E-02	4.85E-02
+	BI-207	569.67	97.72	-3.62E-03	3.39E-02	3.39E-02
		1063.62	74.90	4.46E-02		7.36E-02
+	TL-208	583.14	30.22	-5.28E-02	1.19E-01	1.19E-01
		860.37	4.48	3.65E-01		1.32E+00
		2614.66	35.85	1.16E-02		2.25E-01
+	BI-210M	262.00	45.00	1.20E-02	6.54E-02	6.54E-02
		300.00	23.00	2.60E-03		1.15E-01
+	PB-210	46.50	4.25	6.16E-01	7.18E-01	7.18E-01
+	PB-211	404.84	2.90	3.96E-01	1.06E+00	1.06E+00
		831.96	2.90	-9.17E-01		1.47E+00
+	BI-212	727.17	11.80	1.38E-01	3.99E-01	3.99E-01
		1620.62	2.75	-3.21E-01		1.18E+00
+	PB-212	238.63	44.60	2.37E-02	6.22E-02	6.22E-02
		300.09	3.41	1.75E-02		7.73E-01
+	BI-214	609.31	46.30	5.59E-02	1.06E-01	1.06E-01
		1120.29	15.10	-7.82E-02		3.16E-01
		1764.49	15.80	1.52E-01		3.98E-01
		2204.22	4.98	6.08E-01		1.60E+00
+	PB-214	295.21	19.19	4.23E-02	7.76E-02	1.44E-01
		351.92	37.19	-3.91E-02		7.76E-02
+	RN-219	401.80	6.50	-1.76E-01	4.22E-01	4.22E-01
+	RA-223	323.87	3.88	2.98E-01	8.43E-01	8.43E-01
+	RA-224	240.98	3.95	2.51E-01	6.93E-01	6.93E-01
+	RA-225	40.00	31.00	-1.36E-02	1.06E-01	1.06E-01
+	RA-226	186.21	3.28	1.79E-01	7.43E-01	7.43E-01
+	TH-227	50.10	8.40	1.16E-02	2.33E-01	3.22E-01
		236.00	11.50	2.40E-02		2.33E-01
		256.20	6.30	-6.79E-02		3.89E-01
+	AC-228	338.32	11.40	-1.05E-01	1.59E-01	2.43E-01
		911.07	27.70	6.43E-02		1.59E-01
		969.11	16.60	8.43E-03		3.39E-01
+	TH-230	48.44	16.90	9.15E-02	1.73E-01	1.73E-01
		62.85	4.60	4.38E-01		5.36E-01
		67.67	0.37	-5.85E+00		5.53E+00
+	PA-231	283.67	1.60	-2.68E-01	1.17E+00	1.66E+00
		302.67	2.30	-5.07E-01		1.17E+00
+	TH-231	25.64	14.70	7.43E-02	2.94E-01	6.90E-01
		84.21	6.40	1.58E-02		2.94E-01
+	PA-233	311.98	38.60	-2.32E-02	7.43E-02	7.43E-02
+	PA-234	131.20	20.40	1.20E-02	9.33E-02	9.33E-02
		733.99	8.80	2.47E-03		5.12E-01
		946.00	12.00	-5.70E-02		4.14E-01
+	PA-234M	1001.03	0.92	2.66E+00	6.10E+00	6.10E+00
+	TH-234	63.29	3.80	5.28E-01	6.46E-01	6.46E-01
+	U-235	143.76	10.50	3.02E-02	1.92E-01	1.92E-01
		163.35	4.70	8.44E-02		4.39E-01
		205.31	4.70	-1.60E-01		4.91E-01

Analysis Report for 1707086-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	12.60	-1.38E-01	1.44E-01	1.44E-01
+	NP-239	106.10	22.70	2.32E-02	9.17E-02	9.17E-02
		228.18	10.70	-4.31E-02		2.26E-01
		277.60	14.10	0.00E+00		2.07E-01
+	AM-241	59.54	35.90	-1.66E-02	6.25E-02	6.25E-02
+	AM-243	74.67	66.00	-4.80E-03	3.22E-02	3.22E-02
+	CM-243	209.75	3.29	1.32E-01	1.92E-01	7.49E-01
		228.14	10.60	-4.01E-02		2.10E-01
		277.60	14.00	0.00E+00		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

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	3.30E-01	3.30E-01	-1.93E-02	1.46E-01
NA-22	1274.54	99.94	4.28E-02	4.28E-02	-2.08E-02	1.66E-02
NA-24	1368.53	99.99	9.01E-02	8.10E-02	-1.72E-02	3.81E-02
	2754.09	99.86	8.10E-02		7.33E-03	2.56E-02
AL-26	1808.65	99.76	5.30E-02	5.30E-02	-1.37E-02	1.98E-02
K-40	1460.81	10.67	6.28E-01	6.28E-01	1.67E-01	2.63E-01
AR-41	1293.64	99.16	6.09E-01	6.09E-01	9.30E-02	2.42E-01
TI-44	67.88	94.40	2.16E-02	2.15E-02	-2.29E-02	1.02E-02
	78.34	96.00	2.15E-02		8.90E-03	1.02E-02
SC-46	889.25	99.98	4.12E-02	4.12E-02	-3.23E-02	1.71E-02
	1120.51	99.99	4.79E-02		-1.18E-02	1.96E-02
V-48	983.52	99.98	4.55E-02	2.79E-02	-1.04E-02	1.89E-02
	1312.10	97.50	2.79E-02		1.26E-03	8.82E-03
CR-51	320.08	9.83	2.96E-01	2.96E-01	-1.06E-01	1.35E-01

Analysis Report for 1707086-02

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MN-54	834.83		99.97	4.44E-02	4.44E-02	-2.38E-02	1.89E-02
	CO-56	846.75		99.96	3.94E-02	3.94E-02	-2.17E-03	1.64E-02
		1037.75		14.03	4.27E-01		1.06E-02	1.85E-01
		1238.25		67.00	9.77E-02		7.79E-03	4.18E-02
		1771.40		15.51	3.35E-01		-9.33E-02	1.25E-01
		2598.48		16.90	5.29E-01		-3.30E-02	2.05E-01
	CO-57	122.06		85.51	2.07E-02	2.07E-02	-3.61E-03	9.67E-03
		136.48		10.60	1.75E-01		-6.40E-02	8.17E-02
+	CO-58	810.76	*	99.40	3.37E-02	3.37E-02	1.73E-02	1.36E-02
	FE-59	1099.22		56.50	9.26E-02	9.26E-02	1.02E-02	3.88E-02
		1291.56		43.20	1.10E-01		1.12E-03	4.36E-02
	CO-60	1173.22		100.00	5.52E-02	3.44E-02	-2.21E-03	2.31E-02
		1332.49		100.00	3.44E-02		-7.40E-03	1.22E-02
	ZN-65	1115.52		50.75	1.26E-01	1.26E-01	4.01E-02	5.44E-02
	GA-67	93.31		35.70	6.84E-02	6.84E-02	6.51E-02	3.26E-02
		208.95		2.24	1.18E+00		3.06E-01	5.51E-01
		300.22		16.00	1.75E-01		3.97E-03	7.95E-02
	SE-75	121.11		16.70	1.10E-01	3.11E-02	2.77E-02	5.15E-02
		136.00		59.20	3.11E-02		-1.03E-02	1.45E-02
		264.65		59.80	4.86E-02		9.42E-03	2.25E-02
		279.53		25.20	1.11E-01		3.08E-02	5.10E-02
		400.65		11.40	2.46E-01		-7.31E-02	1.09E-01
	RB-82	776.52		13.00	4.35E-01	4.35E-01	1.01E-01	1.94E-01
	RB-83	520.41		46.00	8.30E-02	8.30E-02	2.71E-02	3.69E-02
		529.64		30.30	1.47E-01		6.21E-02	6.67E-02
		552.65		16.40	2.26E-01		-1.74E-02	9.95E-02
	KR-85	513.99		0.43	1.17E+01	1.17E+01	2.75E+00	5.39E+00
	SR-85	513.99		99.27	5.15E-02	5.15E-02	1.20E-02	2.37E-02
	Y-88	898.02		93.40	6.14E-02	5.41E-02	4.23E-02	2.69E-02
		1836.01		99.38	5.41E-02		-5.59E-04	2.03E-02
	MO-93	263.06		56.72	5.37E-02	5.20E-02	1.12E-02	2.50E-02
		684.67		99.68	5.20E-02		2.31E-02	2.33E-02
		1477.11		99.08	6.50E-02		2.05E-02	2.70E-02
	NB-93M	16.57		9.43	4.19E+00	4.19E+00	6.12E+00	2.00E+00
	NB-94	702.63		100.00	4.68E-02	4.68E-02	-2.63E-02	2.06E-02
		871.10		100.00	4.95E-02		-1.27E-03	2.13E-02
	NB-95	765.79		99.81	4.58E-02	4.58E-02	5.69E-03	1.98E-02
	NB-95M	235.69		25.00	1.13E-01	1.13E-01	1.16E-02	5.26E-02
	ZR-95	724.18		43.70	9.59E-02	7.06E-02	-2.46E-03	4.13E-02
		756.72		55.30	7.06E-02		-1.50E-02	2.98E-02
	MO-99	181.06		6.20	3.77E-01	3.77E-01	-3.07E-01	1.76E-01
		739.58		12.80	3.80E-01		-1.43E-01	1.65E-01
		778.00		4.50	1.29E+00		2.32E-01	5.69E-01
	RU-103	497.08		89.00	4.27E-02	4.27E-02	1.30E-02	1.91E-02
	RU-106	621.84		9.80	3.43E-01	3.43E-01	-5.76E-02	1.46E-01
	AG-108M	433.93		89.90	3.38E-02	3.38E-02	8.62E-03	1.49E-02
		614.37		90.40	4.55E-02		-1.15E-02	2.00E-02
		722.95		90.50	4.45E-02		-1.34E-02	1.91E-02
	CD-109	88.03		3.72	4.96E-01	4.96E-01	-7.69E-01	2.33E-01
	AG-110M	657.75		93.14	4.95E-02	4.95E-02	8.62E-03	2.19E-02
		677.61		10.53	4.69E-01		-1.87E-02	2.09E-01
		706.67		16.46	2.64E-01		1.06E-01	1.15E-01
		763.93		21.98	2.00E-01		-4.94E-02	8.61E-02

Analysis Report for 1707086-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-110M	884.67	71.63	6.28E-02	4.95E-02	-1.95E-02	2.65E-02
	1384.27	23.94	1.72E-01		2.85E-02	6.45E-02
CD-113M	263.70	0.02	1.30E+02	1.30E+02	3.49E+01	6.03E+01
SN-113	255.12	1.93	1.28E+00	4.57E-02	-2.73E-01	5.88E-01
	391.69	64.90	4.57E-02		-1.20E-02	2.04E-02
TE123M	159.00	84.10	2.39E-02	2.39E-02	-1.39E-03	1.12E-02
SB-124	602.71	97.87	3.93E-02	3.93E-02	-3.02E-02	1.72E-02
	645.85	7.26	5.67E-01		1.20E-01	2.47E-01
	722.78	11.10	3.64E-01		-1.10E-01	1.56E-01
	1691.02	49.00	1.33E-01		5.65E-02	5.37E-02
I-125	35.49	6.49	6.57E-01	6.57E-01	1.23E-01	3.11E-01
SB-125	176.33	6.89	3.30E-01	9.50E-02	-2.92E-02	1.54E-01
	427.89	29.33	9.50E-02		-2.71E-02	4.16E-02
	463.38	10.35	3.00E-01		-1.00E-01	1.32E-01
	600.56	17.80	2.31E-01		4.16E-02	1.02E-01
	635.90	11.32	3.57E-01		-2.30E-02	1.56E-01
SB-126	414.70	83.30	3.76E-02	3.76E-02	3.27E-03	1.68E-02
	666.33	99.60	5.06E-02		1.28E-02	2.26E-02
	695.00	99.60	6.02E-02		2.55E-02	2.73E-02
	720.50	53.80	7.02E-02		-5.76E-02	2.96E-02
SN-126	87.57	37.00	4.99E-02	4.99E-02	-7.72E-02	2.35E-02
SB-127	473.00	25.00	1.48E-01	1.48E-01	3.30E-02	6.62E-02
	685.20	35.70	1.53E-01		6.78E-02	6.83E-02
	783.80	14.70	3.52E-01		-4.13E-03	1.54E-01
I-129	29.78	57.00	1.18E-01	1.18E-01	5.96E-02	5.62E-02
	33.60	13.20	3.66E-01		7.83E-02	1.73E-01
	39.58	7.52	4.37E-01		-5.62E-02	2.06E-01
I-131	284.30	6.05	4.50E-01	3.66E-02	-7.28E-02	2.06E-01
	364.48	81.20	3.66E-02		1.29E-02	1.64E-02
	636.97	7.26	6.30E-01		1.66E-01	2.79E-01
	722.89	1.80	2.29E+00		-6.91E-01	9.82E-01
TE-132	49.72	13.10	2.21E-01	2.68E-02	7.93E-03	1.04E-01
	228.16	88.00	2.68E-02		-5.13E-03	1.23E-02
BA-133	81.00	33.00	5.96E-02	5.02E-02	2.44E-03	2.81E-02
	302.84	17.80	1.51E-01		-6.56E-02	6.89E-02
	356.01	60.00	5.02E-02		2.14E-02	2.27E-02
I-133	529.87	86.30	6.47E-02	6.47E-02	2.72E-02	2.92E-02
XE-133	81.00	38.00	5.37E-02	5.37E-02	2.20E-03	2.54E-02
CS-134	563.23	8.38	4.72E-01	4.15E-02	5.02E-02	2.09E-01
	569.32	15.43	2.15E-01		-2.29E-02	9.24E-02
	604.70	97.60	4.15E-02		-2.19E-02	1.82E-02
	795.84	85.40	5.16E-02		-1.49E-02	2.21E-02
	801.93	8.73	5.26E-01		2.45E-01	2.27E-01
CS-135	268.24	16.00	1.60E-01	1.60E-01	6.08E-03	7.35E-02
I-135	1131.51	22.50	4.58E-01	4.16E-01	1.26E-01	1.90E-01
	1260.41	28.60	4.16E-01		2.06E-01	1.74E-01
	1678.03	9.54	1.04E+00		9.70E-02	3.91E-01
CS-136	153.22	7.46	2.67E-01	4.26E-02	-2.67E-02	1.24E-01
	163.89	4.61	4.28E-01		-5.82E-02	1.99E-01
	176.55	13.56	1.69E-01		-1.82E-02	7.91E-02
	273.65	12.66	2.00E-01		-1.54E-02	9.13E-02
	340.57	48.50	6.02E-02		-1.64E-02	2.72E-02
	818.50	99.70	4.26E-02		8.93E-03	1.80E-02

Analysis Report for 1707086-02

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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-136	1048.07	79.60	6.07E-02	4.26E-02	-8.36E-03	2.52E-02
	1235.34	19.70	3.24E-01		3.95E-02	1.38E-01
CS-137	661.65	85.12	5.67E-02	5.67E-02	3.63E-03	2.52E-02
LA-138	788.74	34.00	1.37E-01	7.20E-02	-5.12E-03	5.95E-02
	1435.80	66.00	7.20E-02		-1.95E-02	2.79E-02
CE-139	165.85	80.35	2.38E-02	2.38E-02	-7.18E-03	1.10E-02
BA-140	162.64	6.70	3.12E-01	1.39E-01	5.99E-02	1.45E-01
	304.84	4.50	6.65E-01		3.90E-02	3.05E-01
	423.70	3.20	1.00E+00		6.08E-02	4.46E-01
	437.55	2.00	1.55E+00		-4.03E-01	6.88E-01
	537.32	25.00	1.39E-01		-7.82E-02	6.06E-02
LA-140	328.77	20.50	1.45E-01	4.30E-02	-2.13E-02	6.61E-02
	487.03	45.50	6.91E-02		4.15E-03	3.02E-02
	815.85	23.50	2.21E-01		3.18E-02	9.63E-02
	1596.49	95.49	4.30E-02		-4.63E-03	1.52E-02
CE-141	145.44	48.40	4.14E-02	4.14E-02	3.03E-03	1.94E-02
CE-143	57.36	11.80	2.04E-01	7.34E-02	-6.46E-02	9.59E-02
	293.26	42.00	7.34E-02		-1.60E-02	3.35E-02
	664.55	5.20	1.18E+00		6.00E-01	5.29E-01
CE-144	133.54	10.80	1.78E-01	1.78E-01	2.73E-02	8.33E-02
PM-144	476.78	42.00	8.14E-02	4.09E-02	-9.52E-03	3.61E-02
	618.01	98.60	4.09E-02		8.08E-03	1.79E-02
	696.49	99.49	6.03E-02		4.77E-02	2.74E-02
PM-145	36.85	21.70	1.77E-01	9.48E-02	4.97E-02	8.37E-02
	37.36	39.70	9.48E-02		2.65E-02	4.47E-02
	42.30	15.10	1.92E-01		-3.21E-01	9.01E-02
	72.40	2.31	8.66E-01		-1.93E-01	4.09E-01
PM-146	453.90	39.94	8.95E-02	8.95E-02	2.77E-02	4.02E-02
	735.90	14.01	3.13E-01		-1.22E-01	1.35E-01
	747.13	13.10	3.28E-01		-4.41E-02	1.41E-01
ND-147	91.11	28.90	7.89E-02	7.89E-02	5.38E-02	3.75E-02
	531.02	13.10	3.42E-01		1.06E-01	1.54E-01
PM-149	285.90	3.10	9.19E-01	9.19E-01	-1.89E-01	4.19E-01
EU-152	121.78	20.50	8.62E-02	8.62E-02	-1.50E-02	4.02E-02
	244.69	5.40	4.25E-01		-2.54E-01	1.94E-01
	344.27	19.13	1.73E-01		4.56E-02	7.92E-02
	778.89	9.20	5.74E-01		8.21E-02	2.53E-01
	964.01	10.40	4.66E-01		-4.55E-02	1.97E-01
	1085.78	7.22	6.04E-01		-4.71E-01	2.44E-01
	1112.02	9.60	6.62E-01		1.57E-02	2.86E-01
	1407.95	14.94	4.34E-01		1.57E-01	1.82E-01
GD-153	97.43	31.30	6.44E-02	6.44E-02	-2.65E-03	3.04E-02
	103.18	22.20	7.92E-02		-1.69E-02	3.71E-02
EU-154	123.07	40.50	4.41E-02	4.41E-02	-4.20E-03	2.06E-02
	723.30	19.70	2.12E-01		-5.44E-03	9.12E-02
	873.19	11.50	4.32E-01		-1.88E-02	1.86E-01
	996.32	10.30	4.42E-01		-2.61E-01	1.83E-01
	1004.76	17.90	2.56E-01		-7.26E-02	1.06E-01
	1274.45	35.50	1.20E-01		-5.85E-02	4.67E-02
EU-155	86.50	30.90	5.88E-02	5.88E-02	-5.64E-02	2.76E-02
	105.30	20.70	8.69E-02		-2.16E-02	4.07E-02
EU-156	811.77	10.40	4.52E-01	4.52E-01	2.53E-01	1.95E-01
	1153.47	7.20	7.64E-01		1.38E-01	3.20E-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-156	1230.71	8.90	6.23E-01	4.52E-01	1.96E-02	2.58E-01
HO-166M	184.41	72.60	3.35E-02	3.35E-02	8.70E-03	1.57E-02
	280.45	29.60	9.36E-02		2.33E-02	4.30E-02
	410.94	11.10	2.59E-01		-4.29E-02	1.14E-01
	711.69	54.10	8.31E-02		1.07E-02	3.63E-02
TM-171	66.72	0.14	1.59E+01	1.59E+01	-2.14E+00	7.54E+00
HF-172	67.35	5.31	4.18E-01	1.60E-01	-5.63E-02	1.98E-01
	125.81	11.30	1.60E-01		1.95E-02	7.46E-02
LU-172	181.53	20.60	1.12E-01	9.30E-02	-8.16E-02	5.24E-02
	900.72	29.81	1.58E-01		-9.05E-03	6.66E-02
	1093.66	62.50	9.30E-02		4.43E-03	3.96E-02
LU-173	100.72	5.24	3.32E-01	1.13E-01	-6.78E-02	1.55E-01
	272.11	21.20	1.13E-01		-1.31E-02	5.13E-02
HF-175	343.40	84.00	3.93E-02	3.93E-02	1.04E-02	1.80E-02
LU-176	88.34	13.30	1.39E-01	2.67E-02	-2.15E-01	6.53E-02
	201.83	86.00	2.67E-02		-1.22E-02	1.24E-02
	306.78	94.00	3.29E-02		1.04E-02	1.52E-02
HF-181	133.02	41.70	4.59E-02	4.19E-02	1.20E-02	2.15E-02
	345.85	17.20	1.96E-01		1.02E-01	8.99E-02
	482.03	82.80	4.19E-02		1.90E-02	1.86E-02
TA-182	67.75	41.20	4.97E-02	4.97E-02	-5.26E-02	2.34E-02
	1121.30	34.90	1.37E-01		-4.57E-02	5.62E-02
	1189.05	16.23	3.28E-01		-4.82E-02	1.36E-01
	1221.41	26.98	1.53E-01		-2.55E-02	5.92E-02
	1231.02	11.44	4.54E-01		-1.15E-01	1.86E-01
IR-192	308.46	29.68	1.09E-01	6.53E-02	7.82E-02	5.05E-02
	468.07	48.10	6.53E-02		-2.07E-02	2.87E-02
HG-203	279.19	77.30	3.69E-02	3.69E-02	1.65E-02	1.70E-02
TL-204	374.74	94.11	3.12E-02	3.12E-02	7.14E-03	1.40E-02
	899.15	99.16	5.14E-02		1.15E-02	2.21E-02
	911.74	91.10	4.85E-02		5.17E-03	2.03E-02
BI-207	569.67	97.72	3.39E-02	3.39E-02	-3.62E-03	1.46E-02
	1063.62	74.90	7.36E-02		4.46E-02	3.13E-02
TL-208	583.14	30.22	1.19E-01	1.19E-01	-5.28E-02	5.19E-02
	860.37	4.48	1.32E+00		3.65E-01	5.84E-01
	2614.66	35.85	2.25E-01		1.16E-02	8.42E-02
BI-210M	262.00	45.00	6.54E-02	6.54E-02	1.20E-02	3.04E-02
	300.00	23.00	1.15E-01		2.60E-03	5.21E-02
PB-210	46.50	4.25	7.18E-01	7.18E-01	6.16E-01	3.41E-01
PB-211	404.84	2.90	1.06E+00	1.06E+00	3.96E-01	4.72E-01
	831.96	2.90	1.47E+00		-9.17E-01	6.19E-01
BI-212	727.17	11.80	3.99E-01	3.99E-01	1.38E-01	1.75E-01
	1620.62	2.75	1.18E+00		-3.21E-01	3.74E-01
PB-212	238.63	44.60	6.22E-02	6.22E-02	2.37E-02	2.90E-02
	300.09	3.41	7.73E-01		1.75E-02	3.51E-01
BI-214	609.31	46.30	1.06E-01	1.06E-01	5.59E-02	4.74E-02
	1120.29	15.10	3.16E-01		-7.82E-02	1.30E-01
	1764.49	15.80	3.98E-01		1.52E-01	1.58E-01
	2204.22	4.98	1.60E+00		6.08E-01	6.33E-01
PB-214	295.21	19.19	1.44E-01	7.76E-02	4.23E-02	6.58E-02
	351.92	37.19	7.76E-02		-3.91E-02	3.50E-02
RN-219	401.80	6.50	4.22E-01	4.22E-01	-1.76E-01	1.86E-01
RA-223	323.87	3.88	8.43E-01	8.43E-01	2.98E-01	3.88E-01

Analysis Report for 1707086-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
RA-224	240.98	3.95	6.93E-01	6.93E-01	2.51E-01	3.22E-01
RA-225	40.00	31.00	1.06E-01	1.06E-01	-1.36E-02	4.97E-02
RA-226	186.21	3.28	7.43E-01	7.43E-01	1.79E-01	3.48E-01
TH-227	50.10	8.40	3.22E-01	2.33E-01	1.16E-02	1.52E-01
	236.00	11.50	2.33E-01		2.40E-02	1.08E-01
	256.20	6.30	3.89E-01		-6.79E-02	1.78E-01
AC-228	338.32	11.40	2.43E-01	1.59E-01	-1.05E-01	1.10E-01
	911.07	27.70	1.59E-01		6.43E-02	6.67E-02
	969.11	16.60	3.39E-01		8.43E-03	1.47E-01
TH-230	48.44	16.90	1.73E-01	1.73E-01	9.15E-02	8.21E-02
	62.85	4.60	5.36E-01		4.38E-01	2.55E-01
	67.67	0.37	5.53E+00		-5.85E+00	2.61E+00
PA-231	283.67	1.60	1.66E+00	1.17E+00	-2.68E-01	7.58E-01
	302.67	2.30	1.17E+00		-5.07E-01	5.33E-01
TH-231	25.64	14.70	6.90E-01	2.94E-01	7.43E-02	3.29E-01
	84.21	6.40	2.94E-01		1.58E-02	1.38E-01
PA-233	311.98	38.60	7.43E-02	7.43E-02	-2.32E-02	3.39E-02
PA-234	131.20	20.40	9.33E-02	9.33E-02	1.20E-02	4.37E-02
	733.99	8.80	5.12E-01		2.47E-03	2.22E-01
	946.00	12.00	4.14E-01		-5.70E-02	1.76E-01
PA-234M	1001.03	0.92	6.10E+00	6.10E+00	2.66E+00	2.63E+00
TH-234	63.29	3.80	6.46E-01	6.46E-01	5.28E-01	3.07E-01
U-235	143.76	10.50	1.92E-01	1.92E-01	3.02E-02	8.99E-02
	163.35	4.70	4.39E-01		8.44E-02	2.05E-01
	205.31	4.70	4.91E-01		-1.60E-01	2.28E-01
NP-237	86.50	12.60	1.44E-01	1.44E-01	-1.38E-01	6.77E-02
NP-239	106.10	22.70	9.17E-02	9.17E-02	2.32E-02	4.32E-02
	228.18	10.70	2.26E-01		-4.31E-02	1.03E-01
	277.60	14.10	2.07E-01		0.00E+00	9.49E-02
AM-241	59.54	35.90	6.25E-02	6.25E-02	-1.66E-02	2.95E-02
AM-243	74.67	66.00	3.22E-02	3.22E-02	-4.80E-03	1.53E-02
CM-243	209.75	3.29	7.49E-01	1.92E-01	1.32E-01	3.49E-01
	228.14	10.60	2.10E-01		-4.01E-02	9.62E-02
	277.60	14.00	1.92E-01		0.00E+00	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.

Analysis Report for 1707086-02

BLANK

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: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	4	51
17:	39	33	33	33	18	23	19	20
25:	16	19	27	19	14	16	12	19
33:	8	15	15	20	8	14	12	12
41:	4	14	9	14	22	33	15	7
49:	14	10	11	15	13	13	8	7
57:	10	10	18	11	16	25	31	12
65:	14	11	15	12	15	14	15	14
73:	13	11	24	12	20	11	14	13
81:	8	14	16	14	8	15	11	11
89:	7	19	25	31	24	20	9	16
97:	8	13	11	12	3	11	15	10
105:	12	18	8	14	13	14	11	13
113:	10	11	10	6	14	10	11	9
121:	9	11	9	8	11	11	7	11
129:	8	10	17	10	10	10	7	9
137:	8	11	11	8	12	9	12	11
145:	12	10	9	8	10	9	9	13
153:	8	12	3	10	11	9	13	7
161:	11	9	9	9	7	5	9	6
169:	9	10	13	11	7	14	3	12
177:	13	11	10	10	9	3	6	17
185:	16	13	12	8	9	9	10	6
193:	10	8	11	13	13	7	7	7
201:	6	12	8	10	8	9	3	13
209:	10	11	10	6	7	7	14	5
217:	14	4	11	8	7	7	5	5
225:	4	12	7	6	3	5	7	8
233:	8	6	8	8	9	12	9	10
241:	6	7	6	6	5	4	5	6
249:	9	5	7	5	8	4	4	5
257:	9	6	8	8	16	8	4	8
265:	10	5	4	3	6	5	5	6
273:	6	3	6	6	8	5	7	7
281:	8	4	5	6	3	6	4	9
289:	2	8	4	3	7	2	11	5
297:	7	3	4	6	3	6	5	2
305:	9	8	9	7	6	4	7	5
313:	2	6	3	8	3	4	4	5
321:	2	10	13	4	7	5	5	6
329:	7	2	3	2	6	5	4	6
337:	4	5	1	4	7	7	3	7
345:	5	8	6	6	3	1	5	8
353:	1	5	5	6	5	1	2	3
361:	3	4	4	4	4	5	3	3

369:	2	2	7	2	2	3	3	2

Sample Title: BLANK

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

801:	4	0	4	0	0	0	0	0

Sample Title: BLANK

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

1233:	2	1	1	2	0	1	3	1

Sample Title: BLANK

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

1665:	2	1	2	0	1	0	0	0

Sample Title: BLANK

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

2097:	1	0	0	0	0	0	0	0

Sample Title: BLANK

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

2529:	0	0	0	0	0	0	0	0

Sample Title: BLANK

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

Sample Title: BLANK

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

3393:	0	0	0	1	0	0	0	0

Sample Title: BLANK

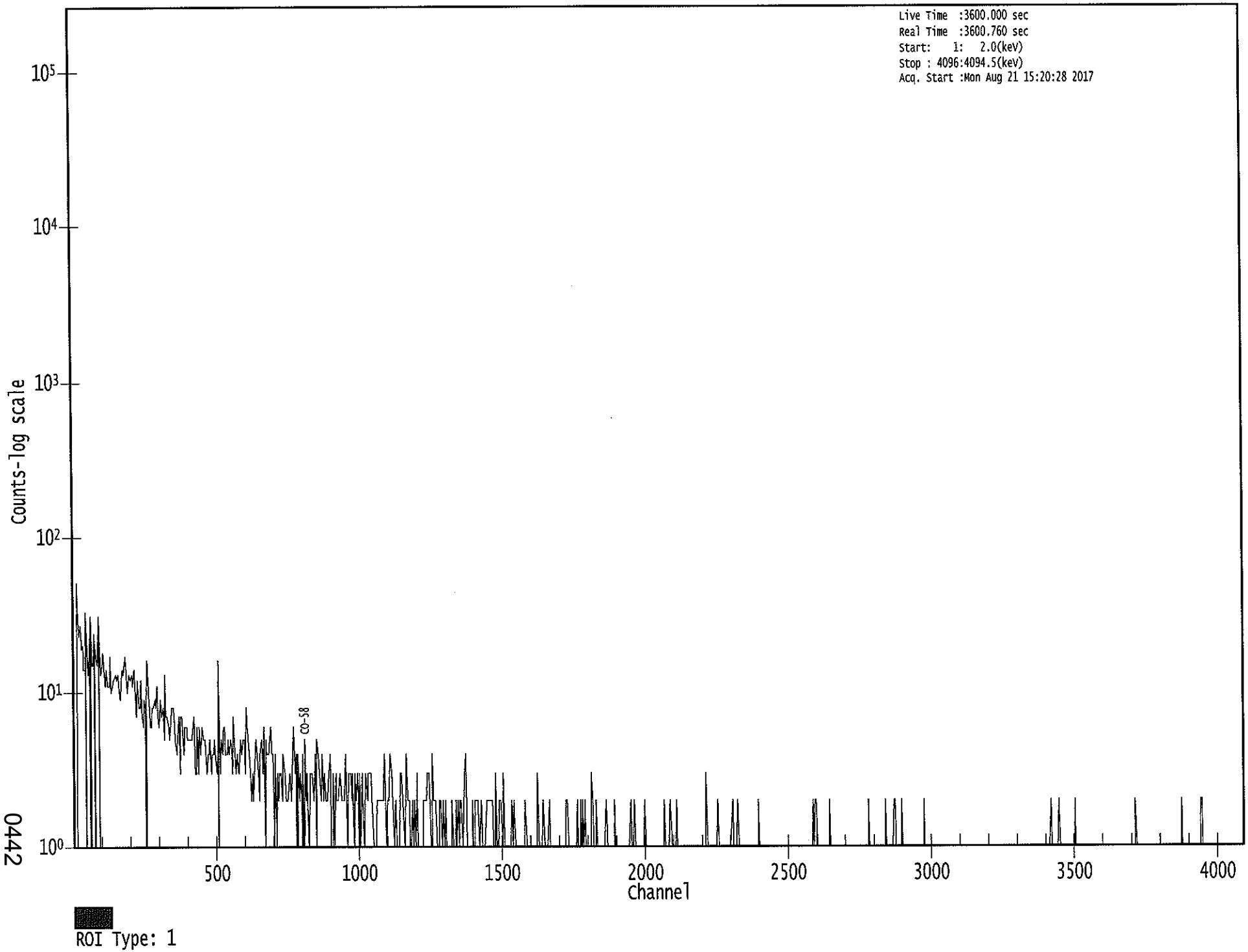
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	1	1	0	0
3417:	0	0	0	2	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	1	0	0	0	1	2	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	1	0	0	0	0	0	1	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	2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

3825:	0	0	1	0	0	0	0	0

Sample Title: BLANK

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

0000055653.CNF



0442

Apex-Gamma

Analysis Report for 1707086-03
HTC-A02-S004-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-03
Sample Description	: HTC-A02-S004-1218-01
Sample Type	: SOIL
Sample Size	: 7.044E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:07:00AM
Acquisition Started	: 8/21/2017 2:20:03PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3668.7 seconds
Dead Time	: 1.87 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 28 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55649

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 3:21:15PM
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	39.85	40.20	0.0000	0.00
2	46.58	46.93	0.0000	0.00
3	57.26	57.59	0.0000	0.00
4	63.85	64.17	0.0000	0.00
5	76.28	76.59	0.0000	0.00
6	79.69	80.00	0.0000	0.00
7	87.20	87.50	0.0000	0.00
8	93.23	93.52	0.0000	0.00
9	99.35	99.64	0.0000	0.00
10	105.30	105.58	0.0000	0.00
11	115.27	115.54	0.0000	0.00
12	129.30	129.56	0.0000	0.00
13	144.20	144.44	0.0000	0.00
14	154.08	154.31	0.0000	0.00
15	186.02	186.21	0.0000	0.00
16	199.32	199.50	0.0000	0.00
17	209.36	209.53	0.0000	0.00
18	216.13	216.29	0.0000	0.00
19	235.86	236.00	0.0000	0.00
20	238.77	238.91	0.0000	0.00
21	241.61	241.75	0.0000	0.00
22	252.23	252.36	0.0000	0.00
23	258.86	258.98	0.0000	0.00
24	270.25	270.35	0.0000	0.00
25	276.91	277.00	0.0000	0.00
26	295.29	295.37	0.0000	0.00
27	300.20	300.27	0.0000	0.00
28	313.27	313.33	0.0000	0.00
29	323.02	323.07	0.0000	0.00
30	328.07	328.12	0.0000	0.00
31	331.95	331.98	0.0000	0.00
32	338.39	338.43	0.0000	0.00
33	351.99	352.01	0.0000	0.00
34	388.26	388.24	0.0000	0.00
35	409.65	409.61	0.0000	0.00
36	439.46	439.39	0.0000	0.00
37	453.44	453.36	0.0000	0.00
38	463.11	463.01	0.0000	0.00
39	479.73	479.62	0.0000	0.00
40	487.53	487.40	0.0000	0.00
41	503.90	503.77	0.0000	0.00
42	510.80	510.66	0.0000	0.00

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	523.68	523.52	0.0000	0.00
44	562.80	562.61	0.0000	0.00
45	571.54	571.33	0.0000	0.00
46	583.36	583.14	0.0000	0.00
47	609.50	609.26	0.0000	0.00
48	616.82	616.57	0.0000	0.00
49	622.21	621.95	0.0000	0.00
50	665.63	665.33	0.0000	0.00
51	687.80	687.48	0.0000	0.00
52	702.87	702.53	0.0000	0.00
53	727.58	727.22	0.0000	0.00
54	742.51	742.13	0.0000	0.00
55	755.44	755.05	0.0000	0.00
56	764.00	763.61	0.0000	0.00
57	768.65	768.25	0.0000	0.00
58	772.35	771.95	0.0000	0.00
59	782.44	782.03	0.0000	0.00
60	786.08	785.66	0.0000	0.00
61	795.22	794.79	0.0000	0.00
62	803.79	803.36	0.0000	0.00
63	806.51	806.07	0.0000	0.00
64	830.86	830.40	0.0000	0.00
65	836.20	835.73	0.0000	0.00
66	840.35	839.88	0.0000	0.00
67	860.87	860.39	0.0000	0.00
68	893.92	893.40	0.0000	0.00
69	904.65	904.12	0.0000	0.00
70	911.58	911.05	0.0000	0.00
71	934.48	933.92	0.0000	0.00
72	960.00	959.42	0.0000	0.00
73	965.28	964.69	0.0000	0.00
74	969.39	968.80	0.0000	0.00
75	1001.70	1001.08	0.0000	0.00
76	1033.75	1033.10	0.0000	0.00
77	1053.44	1052.77	0.0000	0.00
78	1065.43	1064.75	0.0000	0.00
79	1070.53	1069.85	0.0000	0.00
80	1079.13	1078.43	0.0000	0.00
81	1094.77	1094.06	0.0000	0.00
82	1111.00	1110.28	0.0000	0.00
83	1120.72	1119.99	0.0000	0.00
84	1155.24	1154.48	0.0000	0.00
85	1208.23	1207.42	0.0000	0.00
86	1238.58	1237.75	0.0000	0.00
87	1247.27	1246.42	0.0000	0.00
88	1254.51	1253.66	0.0000	0.00
89	1281.48	1280.61	0.0000	0.00
90	1289.68	1288.80	0.0000	0.00
91	1316.72	1315.81	0.0000	0.00
92	1378.26	1377.30	0.0000	0.00
93	1385.97	1385.01	0.0000	0.00
94	1402.46	1401.49	0.0000	0.00
95	1408.52	1407.54	0.0000	0.00
96	1460.28	1459.26	0.0000	0.00
97	1496.55	1495.50	0.0000	0.00

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1502.16	1501.10	0.0000	0.00
99	1509.96	1508.90	0.0000	0.00
100	1544.44	1543.34	0.0000	0.00
101	1581.12	1580.00	0.0000	0.00
102	1584.27	1583.14	0.0000	0.00
103	1588.98	1587.85	0.0000	0.00
104	1593.22	1592.09	0.0000	0.00
105	1621.47	1620.31	0.0000	0.00
106	1625.98	1624.82	0.0000	0.00
107	1631.45	1630.29	0.0000	0.00
108	1638.46	1637.29	0.0000	0.00
109	1662.15	1660.96	0.0000	0.00
110	1679.87	1678.67	0.0000	0.00
111	1685.45	1684.24	0.0000	0.00
112	1694.05	1692.84	0.0000	0.00
113	1730.29	1729.05	0.0000	0.00
114	1765.20	1763.93	0.0000	0.00
115	1839.39	1838.06	0.0000	0.00
116	1848.11	1846.77	0.0000	0.00
117	1897.07	1895.70	0.0000	0.00
118	1936.36	1934.96	0.0000	0.00
119	2104.00	2102.47	0.0000	0.00
120	2119.76	2118.22	0.0000	0.00
121	2176.92	2175.34	0.0000	0.00
122	2204.80	2203.20	0.0000	0.00
123	2295.41	2293.75	0.0000	0.00
124	2448.57	2446.81	0.0000	0.00
125	2615.21	2613.35	0.0000	0.00
126	2688.75	2686.84	0.0000	0.00
127	3010.17	3008.08	0.0000	0.00
128	3125.24	3123.08	0.0000	0.00
129	3180.13	3177.94	0.0000	0.00
130	3198.33	3196.13	0.0000	0.00
131	3206.09	3203.89	0.0000	0.00
132	3223.02	3220.81	0.0000	0.00
133	3475.14	3472.81	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 3:21:15PM

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	39.85	39 -	42	40.20	7.74E+02	361.56	3.19E+04	1.12
	2	46.58	46 -	49	46.93	2.26E+03	395.49	3.71E+04	1.10
	3	57.26	56 -	60	57.59	1.09E+04	589.90	6.84E+04	1.56
	4	63.85	61 -	67	64.17	8.04E+03	790.87	1.09E+05	1.71
M	5	76.28	72 -	82	76.59	7.15E+04	1041.89	1.21E+05	2.60
m	6	79.69	72 -	82	80.00	5.77E+02	397.00	4.24E+04	1.00
	7	87.20	86 -	89	87.50	1.46E+03	590.17	9.13E+04	1.47
	8	93.23	92 -	97	93.52	1.59E+04	700.22	8.16E+04	1.80
	9	99.35	98 -	102	99.64	3.80E+03	512.26	5.47E+04	1.75
	10	105.30	103 -	108	105.58	2.48E+03	593.60	6.89E+04	1.60
	11	115.27	114 -	117	115.54	1.19E+03	423.85	4.36E+04	1.82
	12	129.30	127 -	133	129.56	6.01E+03	678.74	7.92E+04	1.70
	13	144.20	143 -	146	144.44	1.59E+03	425.50	4.37E+04	1.20
	14	154.08	152 -	157	154.31	2.62E+03	568.62	6.23E+04	1.66
	15	186.02	184 -	190	186.21	1.30E+04	634.78	6.37E+04	1.59
	16	199.32	198 -	201	199.50	5.42E+02	369.37	3.35E+04	1.60
	17	209.36	207 -	213	209.53	8.77E+03	579.03	5.44E+04	1.89
	18	216.13	215 -	219	216.29	6.61E+02	410.27	3.68E+04	1.33
M	19	235.86	234 -	248	236.00	8.68E+02	329.56	2.69E+04	1.20
m	20	238.77	234 -	248	238.91	8.79E+04	690.86	2.41E+04	1.45
m	21	241.61	234 -	248	241.75	1.49E+04	452.83	2.11E+04	1.46
	22	252.23	250 -	254	252.36	3.73E+02	337.96	2.50E+04	1.77
	23	258.86	257 -	261	258.98	5.87E+02	339.59	2.49E+04	1.16
M	24	270.25	266 -	281	270.35	7.88E+03	365.72	2.27E+04	1.69
m	25	276.91	266 -	281	277.00	3.22E+03	532.33	4.05E+04	3.04
M	26	295.29	285 -	304	295.37	2.65E+04	412.78	1.64E+04	1.45
m	27	300.20	285 -	304	300.27	5.57E+03	293.93	1.59E+04	1.39
	28	313.27	311 -	316	313.33	3.47E+02	330.46	2.15E+04	1.30
M	29	323.02	319 -	342	323.07	9.79E+02	456.83	3.14E+04	2.92
m	30	328.07	319 -	342	328.12	5.15E+03	314.97	1.74E+04	1.54
m	31	331.95	319 -	342	331.98	1.17E+03	516.84	3.46E+04	3.17
m	32	338.39	319 -	342	338.43	1.91E+04	391.06	1.71E+04	1.58
	33	351.99	348 -	355	352.01	4.64E+04	578.15	2.48E+04	1.40
	34	388.26	385 -	392	388.24	8.79E+02	373.87	2.27E+04	3.10
	35	409.65	406 -	413	409.61	2.41E+03	374.88	2.16E+04	1.88
	36	439.46	437 -	442	439.39	2.47E+02	254.78	1.27E+04	1.04
	37	453.44	450 -	456	453.36	5.77E+02	288.58	1.47E+04	1.47
	38	463.11	459 -	467	463.01	5.55E+03	367.82	1.74E+04	1.49
	39	479.73	477 -	482	479.62	4.76E+02	240.77	1.12E+04	3.69
	40	487.53	485 -	490	487.40	4.51E+02	232.92	1.05E+04	2.04

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	503.90	501 -	506	503.77	2.21E+02	229.62	1.04E+04	1.99
	42	510.80	506 -	515	510.66	1.04E+04	403.94	1.74E+04	1.85
	43	523.68	521 -	526	523.52	1.84E+02	223.92	9.84E+03	3.38
	44	562.80	559 -	565	562.61	9.50E+02	249.54	1.06E+04	2.01
	45	571.54	568 -	574	571.33	3.80E+02	245.66	1.07E+04	2.42
	46	583.36	578 -	587	583.14	3.02E+04	480.36	1.57E+04	1.77
	47	609.50	604 -	614	609.26	3.50E+04	500.01	1.46E+04	1.92
	48	616.82	615 -	619	616.57	2.34E+02	170.79	6.26E+03	2.06
	49	622.21	620 -	625	621.95	1.67E+02	195.21	7.50E+03	1.77
	50	665.63	662 -	669	665.33	8.92E+02	255.45	1.02E+04	1.94
	51	687.80	685 -	691	687.48	2.45E+02	219.57	8.60E+03	2.90
	52	702.87	700 -	706	702.53	3.75E+02	229.87	9.32E+03	2.85
	53	727.58	721 -	731	727.22	6.41E+03	345.81	1.25E+04	1.93
	54	742.51	740 -	745	742.13	2.60E+02	180.14	6.27E+03	2.70
	55	755.44	751 -	759	755.05	9.86E+02	247.37	8.80E+03	1.89
M	56	764.00	760 -	777	763.61	6.48E+02	198.14	6.63E+03	2.44
m	57	768.65	760 -	777	768.25	3.14E+03	202.78	5.46E+03	1.90
m	58	772.35	760 -	777	771.95	1.27E+03	223.96	6.13E+03	2.45
M	59	782.44	779 -	790	782.03	5.56E+02	190.03	5.74E+03	2.19
m	60	786.08	779 -	790	785.66	1.81E+03	198.13	5.55E+03	2.22
	61	795.22	791 -	799	794.79	3.35E+03	241.36	6.91E+03	1.83
M	62	803.79	802 -	809	803.36	1.08E+02	88.32	2.16E+03	1.53
m	63	806.51	802 -	809	806.07	7.09E+02	139.29	3.60E+03	1.78
M	64	830.86	827 -	844	830.40	4.45E+02	152.03	4.42E+03	2.04
m	65	836.20	827 -	844	835.73	1.44E+03	181.33	4.88E+03	2.30
m	66	840.35	827 -	844	839.88	1.00E+03	183.40	4.63E+03	2.30
	67	860.87	855 -	865	860.39	3.69E+03	257.54	6.87E+03	2.20
	68	893.92	890 -	897	893.40	3.19E+02	173.95	4.83E+03	1.86
M	69	904.65	899 -	916	904.12	5.41E+02	141.40	3.58E+03	2.16
m	70	911.58	899 -	916	911.05	2.04E+04	314.96	3.43E+03	2.05
	71	934.48	930 -	937	933.92	1.71E+03	178.55	4.16E+03	2.05
M	72	960.00	955 -	974	959.42	2.31E+02	141.19	3.44E+03	2.43
m	73	965.28	955 -	974	964.69	4.30E+03	195.16	3.41E+03	2.41
m	74	969.39	955 -	974	968.80	1.18E+04	253.32	2.85E+03	2.03
	75	1001.70	996 -	1006	1001.08	6.95E+02	193.17	4.61E+03	2.15
	76	1033.75	1030 -	1036	1033.10	2.10E+02	126.21	2.74E+03	1.63
	77	1053.44	1049 -	1056	1052.77	2.24E+02	136.50	2.95E+03	3.22
	78	1065.43	1062 -	1067	1064.75	1.79E+02	113.47	2.43E+03	1.98
	79	1070.53	1068 -	1073	1069.85	1.21E+02	111.62	2.39E+03	1.66
	80	1079.13	1074 -	1082	1078.43	4.28E+02	153.74	3.36E+03	2.24
	81	1094.77	1089 -	1099	1094.06	4.56E+02	176.75	3.92E+03	2.05
	82	1111.00	1106 -	1113	1110.28	2.51E+02	135.09	2.87E+03	2.14
	83	1120.72	1115 -	1125	1119.99	7.45E+03	244.27	3.99E+03	2.10
	84	1155.24	1148 -	1159	1154.48	1.03E+03	187.58	3.88E+03	2.06
	85	1208.23	1204 -	1211	1207.42	1.89E+02	126.13	2.53E+03	2.81
	86	1238.58	1231 -	1241	1237.75	2.68E+03	190.05	3.37E+03	2.31
	87	1247.27	1243 -	1250	1246.42	2.58E+02	132.88	2.77E+03	3.24
	88	1254.51	1251 -	1257	1253.66	1.32E+02	114.63	2.28E+03	3.43
	89	1281.48	1277 -	1283	1280.61	5.90E+02	120.32	2.21E+03	2.29
	90	1289.68	1286 -	1292	1288.80	1.11E+02	110.37	2.12E+03	3.99
	91	1316.72	1313 -	1319	1315.81	8.99E+01	107.42	2.01E+03	2.16
M	92	1378.26	1370 -	1389	1377.30	1.86E+03	136.03	1.98E+03	2.37
m	93	1385.97	1370 -	1389	1385.01	3.87E+02	122.43	2.23E+03	2.56

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	94	1402.46	1395	1412	1401.49	6.53E+02	134.02	2.29E+03	3.12
m	95	1408.52	1395	1412	1407.54	1.14E+03	131.21	2.09E+03	2.82
	96	1460.28	1455	1464	1459.26	5.31E+02	146.59	2.77E+03	3.43
M	97	1496.55	1491	1515	1495.50	5.19E+02	118.39	1.94E+03	2.60
m	98	1502.16	1491	1515	1501.10	3.13E+02	115.76	1.98E+03	2.75
m	99	1509.96	1491	1515	1508.90	9.55E+02	127.01	2.04E+03	2.65
	100	1544.44	1541	1547	1543.34	9.44E+01	99.16	1.70E+03	1.76
M	101	1581.12	1576	1598	1580.00	3.42E+02	111.86	1.61E+03	2.59
m	102	1584.27	1576	1598	1583.14	3.03E+02	117.34	1.65E+03	2.71
m	103	1588.98	1576	1598	1587.85	1.66E+03	138.92	1.78E+03	2.72
m	104	1593.22	1576	1598	1592.09	1.09E+03	140.01	1.90E+03	2.72
M	105	1621.47	1615	1642	1620.31	8.32E+02	107.00	1.42E+03	2.62
m	106	1625.98	1615	1642	1624.82	1.90E+02	115.26	1.54E+03	3.02
m	107	1631.45	1615	1642	1630.29	9.06E+02	108.31	1.32E+03	2.83
m	108	1638.46	1615	1642	1637.29	2.50E+02	95.62	1.26E+03	2.58
	109	1662.15	1657	1665	1660.96	2.65E+02	109.27	1.68E+03	2.07
M	110	1679.87	1675	1687	1678.67	1.03E+02	74.46	9.15E+02	3.01
m	111	1685.45	1675	1687	1684.24	9.61E+01	67.41	8.48E+02	2.16
	112	1694.05	1688	1697	1692.84	1.42E+02	99.39	1.32E+03	4.45
	113	1730.29	1723	1735	1729.05	1.31E+03	145.22	1.86E+03	2.57
	114	1765.20	1757	1770	1763.93	5.90E+03	207.24	2.14E+03	2.63
	115	1839.39	1835	1841	1838.06	1.13E+02	76.88	9.96E+02	1.75
	116	1848.11	1842	1853	1846.77	8.45E+02	128.42	1.62E+03	2.63
	117	1897.07	1893	1898	1895.70	5.62E+01	67.64	8.66E+02	2.64
	118	1936.36	1931	1939	1934.96	1.04E+02	92.27	1.24E+03	3.82
	119	2104.00	2096	2111	2102.47	1.63E+03	172.72	2.32E+03	3.55
	120	2119.76	2111	2124	2118.22	4.28E+02	135.87	1.86E+03	2.52
	121	2176.92	2173	2179	2175.34	6.31E+01	71.15	8.80E+02	2.23
	122	2204.80	2195	2211	2203.20	1.70E+03	177.29	2.34E+03	3.26
	123	2295.41	2289	2298	2293.75	1.53E+02	108.31	1.58E+03	2.31
	124	2448.57	2442	2451	2446.81	3.60E+02	100.48	1.23E+03	2.99
	125	2615.21	2605	2620	2613.35	1.11E+04	227.63	7.64E+02	3.19
	126	2688.75	2682	2692	2686.84	4.93E+01	43.76	2.23E+02	3.37
	127	3010.17	3003	3017	3008.08	2.46E+01	28.68	8.08E+01	8.96
	128	3125.24	3116	3128	3123.08	7.60E+01	21.70	1.99E+01	3.51
	129	3180.13	3174	3181	3177.94	9.18E+00	7.75	3.64E+00	1.95
	130	3198.33	3190	3200	3196.13	1.72E+02	32.62	5.21E+01	2.76
	131	3206.09	3201	3206	3203.89	9.00E+00	6.00	0.00E+00	2.75
	132	3223.02	3218	3223	3220.81	6.69E+00	6.40	2.63E+00	2.40
	133	3475.14	3468	3478	3472.81	2.60E+01	10.20	0.00E+00	4.11

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 1707086-03

HTC-A02-S004-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 3:21:15PM

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	39.85	39 -	42	7.74E+02	361.56	3.19E+04	2.94E+02
	2	46.58	46 -	49	2.26E+03	395.49	3.71E+04	3.60E+02
	3	57.26	56 -	60	1.09E+04	589.90	6.84E+04	5.08E+02
	4	63.85	61 -	67	8.04E+03	790.87	1.09E+05	6.33E+02
M	5	76.28	72 -	82	7.15E+04	1041.89	1.21E+05	5.71E+02
m	6	79.69	72 -	82	5.77E+02	397.00	4.24E+04	3.39E+02
	7	87.20	86 -	89	1.46E+03	590.17	9.13E+04	6.85E+02
	8	93.23	92 -	97	1.59E+04	700.22	8.16E+04	5.37E+02
	9	99.35	98 -	102	3.80E+03	512.26	5.47E+04	4.09E+02
	10	105.30	103 -	108	2.48E+03	593.60	6.89E+04	4.81E+02
	11	115.27	114 -	117	1.19E+03	423.85	4.36E+04	3.44E+02
	12	129.30	127 -	133	6.01E+03	678.74	7.92E+04	5.43E+02
	13	144.20	143 -	146	1.59E+03	425.50	4.37E+04	3.44E+02
	14	154.08	152 -	157	2.62E+03	568.62	6.23E+04	4.60E+02
	15	186.02	184 -	190	1.30E+04	634.78	6.37E+04	4.87E+02
	16	199.32	198 -	201	5.42E+02	369.37	3.35E+04	3.01E+02
	17	209.36	207 -	213	8.77E+03	579.03	5.44E+04	4.50E+02
	18	216.13	215 -	219	6.61E+02	410.27	3.68E+04	3.35E+02
M	19	235.86	234 -	248	8.68E+02	329.56	2.69E+04	2.70E+02
m	20	238.77	234 -	248	8.79E+04	690.86	2.41E+04	2.55E+02
m	21	241.61	234 -	248	1.49E+04	452.83	2.11E+04	2.39E+02
	22	252.23	250 -	254	3.73E+02	337.96	2.50E+04	2.76E+02
	23	258.86	257 -	261	5.87E+02	339.59	2.49E+04	2.76E+02
M	24	270.25	266 -	281	7.88E+03	365.72	2.27E+04	2.48E+02
m	25	276.91	266 -	281	3.22E+03	532.33	4.05E+04	3.31E+02
M	26	295.29	285 -	304	2.65E+04	412.78	1.64E+04	2.11E+02
m	27	300.20	285 -	304	5.57E+03	293.93	1.59E+04	2.08E+02
	28	313.27	311 -	316	3.47E+02	330.46	2.15E+04	2.70E+02
M	29	323.02	319 -	342	9.79E+02	456.83	3.14E+04	2.91E+02
m	30	328.07	319 -	342	5.15E+03	314.97	1.74E+04	2.17E+02
m	31	331.95	319 -	342	1.17E+03	516.84	3.46E+04	3.06E+02
m	32	338.39	319 -	342	1.91E+04	391.06	1.71E+04	2.15E+02
	33	351.99	348 -	355	4.64E+04	578.15	2.48E+04	3.17E+02
	34	388.26	385 -	392	8.79E+02	373.87	2.27E+04	3.03E+02
	35	409.65	406 -	413	2.41E+03	374.88	2.16E+04	2.97E+02
	36	439.46	437 -	442	2.47E+02	254.78	1.27E+04	2.08E+02
	37	453.44	450 -	456	5.77E+02	288.58	1.47E+04	2.34E+02
	38	463.11	459 -	467	5.55E+03	367.82	1.74E+04	2.76E+02
	39	479.73	477 -	482	4.76E+02	240.77	1.12E+04	1.95E+02
	40	487.53	485 -	490	4.51E+02	232.92	1.05E+04	1.88E+02
	41	503.90	501 -	506	2.21E+02	229.62	1.04E+04	1.87E+02

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	510.80	506 -	515	1.04E+04	403.94	1.74E+04	2.87E+02
	43	523.68	521 -	526	1.84E+02	223.92	9.84E+03	1.83E+02
	44	562.80	559 -	565	9.50E+02	249.54	1.06E+04	1.99E+02
	45	571.54	568 -	574	3.80E+02	245.66	1.07E+04	1.99E+02
	46	583.36	578 -	587	3.02E+04	480.36	1.57E+04	2.73E+02
	47	609.50	604 -	614	3.50E+04	500.01	1.46E+04	2.72E+02
	48	616.82	615 -	619	2.34E+02	170.79	6.26E+03	1.38E+02
	49	622.21	620 -	625	1.67E+02	195.21	7.50E+03	1.59E+02
	50	665.63	662 -	669	8.92E+02	255.45	1.02E+04	2.04E+02
	51	687.80	685 -	691	2.45E+02	219.57	8.60E+03	1.79E+02
	52	702.87	700 -	706	3.75E+02	229.87	9.32E+03	1.86E+02
	53	727.58	721 -	731	6.41E+03	345.81	1.25E+04	2.52E+02
	54	742.51	740 -	745	2.60E+02	180.14	6.27E+03	1.46E+02
	55	755.44	751 -	759	9.86E+02	247.37	8.80E+03	1.97E+02
M	56	764.00	760 -	777	6.48E+02	198.14	6.63E+03	1.34E+02
m	57	768.65	760 -	777	3.14E+03	202.78	5.46E+03	1.21E+02
m	58	772.35	760 -	777	1.27E+03	223.96	6.13E+03	1.29E+02
M	59	782.44	779 -	790	5.56E+02	190.03	5.74E+03	1.25E+02
m	60	786.08	779 -	790	1.81E+03	198.13	5.55E+03	1.22E+02
	61	795.22	791 -	799	3.35E+03	241.36	6.91E+03	1.74E+02
M	62	803.79	802 -	809	1.08E+02	88.32	2.16E+03	7.63E+01
m	63	806.51	802 -	809	7.09E+02	139.29	3.60E+03	9.87E+01
M	64	830.86	827 -	844	4.45E+02	152.03	4.42E+03	1.09E+02
m	65	836.20	827 -	844	1.44E+03	181.33	4.88E+03	1.15E+02
m	66	840.35	827 -	844	1.00E+03	183.40	4.63E+03	1.12E+02
	67	860.87	855 -	865	3.69E+03	257.54	6.87E+03	1.87E+02
	68	893.92	890 -	897	3.19E+02	173.95	4.83E+03	1.40E+02
M	69	904.65	899 -	916	5.41E+02	141.40	3.58E+03	9.84E+01
m	70	911.58	899 -	916	2.04E+04	314.96	3.43E+03	9.63E+01
	71	934.48	930 -	937	1.71E+03	178.55	4.16E+03	1.30E+02
M	72	960.00	955 -	974	2.31E+02	141.19	3.44E+03	9.65E+01
m	73	965.28	955 -	974	4.30E+03	195.16	3.41E+03	9.60E+01
m	74	969.39	955 -	974	1.18E+04	253.32	2.85E+03	8.77E+01
	75	1001.70	996 -	1006	6.95E+02	193.17	4.61E+03	1.53E+02
	76	1033.75	1030 -	1036	2.10E+02	126.21	2.74E+03	1.01E+02
	77	1053.44	1049 -	1056	2.24E+02	136.50	2.95E+03	1.09E+02
	78	1065.43	1062 -	1067	1.79E+02	113.47	2.43E+03	9.06E+01
	79	1070.53	1068 -	1073	1.21E+02	111.62	2.39E+03	9.00E+01
	80	1079.13	1074 -	1082	4.28E+02	153.74	3.36E+03	1.22E+02
	81	1094.77	1089 -	1099	4.56E+02	176.75	3.92E+03	1.41E+02
	82	1111.00	1106 -	1113	2.51E+02	135.09	2.87E+03	1.08E+02
	83	1120.72	1115 -	1125	7.45E+03	244.27	3.99E+03	1.42E+02
	84	1155.24	1148 -	1159	1.03E+03	187.58	3.88E+03	1.45E+02
	85	1208.23	1204 -	1211	1.89E+02	126.13	2.53E+03	1.01E+02
	86	1238.58	1231 -	1241	2.68E+03	190.05	3.37E+03	1.31E+02
	87	1247.27	1243 -	1250	2.58E+02	132.88	2.77E+03	1.06E+02
	88	1254.51	1251 -	1257	1.32E+02	114.63	2.28E+03	9.23E+01
	89	1281.48	1277 -	1283	5.90E+02	120.32	2.21E+03	9.05E+01
	90	1289.68	1286 -	1292	1.11E+02	110.37	2.12E+03	8.91E+01
	91	1316.72	1313 -	1319	8.99E+01	107.42	2.01E+03	8.69E+01
M	92	1378.26	1370 -	1389	1.86E+03	136.03	1.98E+03	7.32E+01

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	93	1385.97	1370 -	1389	3.87E+02	122.43	2.23E+03	7.76E+01
M	94	1402.46	1395 -	1412	6.53E+02	134.02	2.29E+03	7.86E+01
m	95	1408.52	1395 -	1412	1.14E+03	131.21	2.09E+03	7.52E+01
	96	1460.28	1455 -	1464	5.31E+02	146.59	2.77E+03	1.14E+02
M	97	1496.55	1491 -	1515	5.19E+02	118.39	1.94E+03	7.24E+01
m	98	1502.16	1491 -	1515	3.13E+02	115.76	1.98E+03	7.31E+01
m	99	1509.96	1491 -	1515	9.55E+02	127.01	2.04E+03	7.43E+01
	100	1544.44	1541 -	1547	9.44E+01	99.16	1.70E+03	7.99E+01
M	101	1581.12	1576 -	1598	3.42E+02	111.86	1.61E+03	6.59E+01
m	102	1584.27	1576 -	1598	3.03E+02	117.34	1.65E+03	6.68E+01
m	103	1588.98	1576 -	1598	1.66E+03	138.92	1.78E+03	6.93E+01
m	104	1593.22	1576 -	1598	1.09E+03	140.01	1.90E+03	7.17E+01
M	105	1621.47	1615 -	1642	8.32E+02	107.00	1.42E+03	6.19E+01
m	106	1625.98	1615 -	1642	1.90E+02	115.26	1.54E+03	6.46E+01
m	107	1631.45	1615 -	1642	9.06E+02	108.31	1.32E+03	5.97E+01
m	108	1638.46	1615 -	1642	2.50E+02	95.62	1.26E+03	5.83E+01
	109	1662.15	1657 -	1665	2.65E+02	109.27	1.68E+03	8.57E+01
M	110	1679.87	1675 -	1687	1.03E+02	74.46	9.15E+02	4.97E+01
m	111	1685.45	1675 -	1687	9.61E+01	67.41	8.48E+02	4.79E+01
	112	1694.05	1688 -	1697	1.42E+02	99.39	1.32E+03	7.93E+01
	113	1730.29	1723 -	1735	1.31E+03	145.22	1.86E+03	1.03E+02
	114	1765.20	1757 -	1770	5.90E+03	207.24	2.14E+03	1.14E+02
	115	1839.39	1835 -	1841	1.13E+02	76.88	9.96E+02	6.07E+01
	116	1848.11	1842 -	1853	8.45E+02	128.42	1.62E+03	9.41E+01
	117	1897.07	1893 -	1898	5.62E+01	67.64	8.66E+02	5.42E+01
	118	1936.36	1931 -	1939	1.04E+02	92.27	1.24E+03	7.40E+01
	119	2104.00	2096 -	2111	1.63E+03	172.72	2.32E+03	1.26E+02
	120	2119.76	2111 -	2124	4.28E+02	135.87	1.86E+03	1.06E+02
	121	2176.92	2173 -	2179	6.31E+01	71.15	8.80E+02	5.70E+01
	122	2204.80	2195 -	2211	1.70E+03	177.29	2.34E+03	1.29E+02
	123	2295.41	2289 -	2298	1.53E+02	108.31	1.58E+03	8.67E+01
	124	2448.57	2442 -	2451	3.60E+02	100.48	1.23E+03	7.65E+01
	125	2615.21	2605 -	2620	1.11E+04	227.63	7.64E+02	7.14E+01
	126	2688.75	2682 -	2692	4.93E+01	43.76	2.23E+02	3.41E+01
	127	3010.17	3003 -	3017	2.46E+01	28.68	8.08E+01	2.21E+01
	128	3125.24	3116 -	3128	7.60E+01	21.70	1.99E+01	1.06E+01
	129	3180.13	3174 -	3181	9.18E+00	7.75	3.64E+00	3.97E+00
	130	3198.33	3190 -	3200	1.72E+02	32.62	5.21E+01	1.60E+01
	131	3206.09	3201 -	3206	9.00E+00	6.00	0.00E+00	0.00E+00
	132	3223.02	3218 -	3223	6.69E+00	6.40	2.63E+00	3.10E+00
	133	3475.14	3468 -	3478	2.60E+01	10.20	0.00E+00	0.00E+00

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

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 3:21:15PM

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	39.85	39 -	42	40.20	7.74E+02	361.56	3.19E+04	RA-225
									I-129
	2	46.58	46 -	49	46.93	2.26E+03	395.49	3.71E+04	PB-210
	3	57.26	56 -	60	57.59	1.09E+04	589.90	6.84E+04	CE-143
	4	63.85	61 -	67	64.17	8.04E+03	790.87	1.09E+05	TH-234
									TH-230
M	5	76.28	72 -	82	76.59	7.15E+04	1041.89	1.21E+05	.....
m	6	79.69	72 -	82	80.00	5.77E+02	397.00	4.24E+04	.....
	7	87.20	86 -	89	87.50	1.46E+03	590.17	9.13E+04	SN-126
									NP-237
									EU-155
									CD-109
	8	93.23	92 -	97	93.52	1.59E+04	700.22	8.16E+04	GA-67
	9	99.35	98 -	102	99.64	3.80E+03	512.26	5.47E+04	.....
	10	105.30	103 -	108	105.58	2.48E+03	593.60	6.89E+04	EU-155
									NP-239
	11	115.27	114 -	117	115.54	1.19E+03	423.85	4.36E+04	.....
	12	129.30	127 -	133	129.56	6.01E+03	678.74	7.92E+04	.....
	13	144.20	143 -	146	144.44	1.59E+03	425.50	4.37E+04	U-235
	14	154.08	152 -	157	154.31	2.62E+03	568.62	6.23E+04	CS-136
	15	186.02	184 -	190	186.21	1.30E+04	634.78	6.37E+04	RA-226
	16	199.32	198 -	201	199.50	5.42E+02	369.37	3.35E+04	.....
	17	209.36	207 -	213	209.53	8.77E+03	579.03	5.44E+04	CM-243
									GA-67
	18	216.13	215 -	219	216.29	6.61E+02	410.27	3.68E+04	.....
M	19	235.86	234 -	248	236.00	8.68E+02	329.56	2.69E+04	TH-227
									NB-95M
m	20	238.77	234 -	248	238.91	8.79E+04	690.86	2.41E+04	PB-212
m	21	241.61	234 -	248	241.75	1.49E+04	452.83	2.11E+04	RA-224
	22	252.23	250 -	254	252.36	3.73E+02	337.96	2.50E+04	.....
	23	258.86	257 -	261	258.98	5.87E+02	339.59	2.49E+04	.....
M	24	270.25	266 -	281	270.35	7.88E+03	365.72	2.27E+04	.....
m	25	276.91	266 -	281	277.00	3.22E+03	532.33	4.05E+04	CM-243
									NP-239
M	26	295.29	285 -	304	295.37	2.65E+04	412.78	1.64E+04	PB-214
m	27	300.20	285 -	304	300.27	5.57E+03	293.93	1.59E+04	GA-67
									PB-212
									BI-210M
	28	313.27	311 -	316	313.33	3.47E+02	330.46	2.15E+04	.....
M	29	323.02	319 -	342	323.07	9.79E+02	456.83	3.14E+04	RA-223
m	30	328.07	319 -	342	328.12	5.15E+03	314.97	1.74E+04	LA-140

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	31	331.95	319 -	342	331.98	1.17E+03	516.84	3.46E+04	.....
m	32	338.39	319 -	342	338.43	1.91E+04	391.06	1.71E+04	AC-228
	33	351.99	348 -	355	352.01	4.64E+04	578.15	2.48E+04	PB-214
	34	388.26	385 -	392	388.24	8.79E+02	373.87	2.27E+04	.....
	35	409.65	406 -	413	409.61	2.41E+03	374.88	2.16E+04	.....
	36	439.46	437 -	442	439.39	2.47E+02	254.78	1.27E+04	.....
	37	453.44	450 -	456	453.36	5.77E+02	288.58	1.47E+04	PM-146
	38	463.11	459 -	467	463.01	5.55E+03	367.82	1.74E+04	SB-125
	39	479.73	477 -	482	479.62	4.76E+02	240.77	1.12E+04	.....
	40	487.53	485 -	490	487.40	4.51E+02	232.92	1.05E+04	LA-140
	41	503.90	501 -	506	503.77	2.21E+02	229.62	1.04E+04	.....
	42	510.80	506 -	515	510.66	1.04E+04	403.94	1.74E+04	.....
	43	523.68	521 -	526	523.52	1.84E+02	223.92	9.84E+03	.....
	44	562.80	559 -	565	562.61	9.50E+02	249.54	1.06E+04	CS-134
	45	571.54	568 -	574	571.33	3.80E+02	245.66	1.07E+04	.....
	46	583.36	578 -	587	583.14	3.02E+04	480.36	1.57E+04	TL-208
	47	609.50	604 -	614	609.26	3.50E+04	500.01	1.46E+04	BI-214
	48	616.82	615 -	619	616.57	2.34E+02	170.79	6.26E+03	.....
	49	622.21	620 -	625	621.95	1.67E+02	195.21	7.50E+03	RU-106
	50	665.63	662 -	669	665.33	8.92E+02	255.45	1.02E+04	SB-126
	51	687.80	685 -	691	687.48	2.45E+02	219.57	8.60E+03	.....
	52	702.87	700 -	706	702.53	3.75E+02	229.87	9.32E+03	NB-94
	53	727.58	721 -	731	727.22	6.41E+03	345.81	1.25E+04	BI-212
	54	742.51	740 -	745	742.13	2.60E+02	180.14	6.27E+03	.....
	55	755.44	751 -	759	755.05	9.86E+02	247.37	8.80E+03	.....
M	56	764.00	760 -	777	763.61	6.48E+02	198.14	6.63E+03	AG-110M
m	57	768.65	760 -	777	768.25	3.14E+03	202.78	5.46E+03	.....
m	58	772.35	760 -	777	771.95	1.27E+03	223.96	6.13E+03	.....
M	59	782.44	779 -	790	782.03	5.56E+02	190.03	5.74E+03	.....
m	60	786.08	779 -	790	785.66	1.81E+03	198.13	5.55E+03	.....
	61	795.22	791 -	799	794.79	3.35E+03	241.36	6.91E+03	CS-134
M	62	803.79	802 -	809	803.36	1.08E+02	88.32	2.16E+03	.....
m	63	806.51	802 -	809	806.07	7.09E+02	139.29	3.60E+03	.....
M	64	830.86	827 -	844	830.40	4.45E+02	152.03	4.42E+03	.....
m	65	836.20	827 -	844	835.73	1.44E+03	181.33	4.88E+03	.....
m	66	840.35	827 -	844	839.88	1.00E+03	183.40	4.63E+03	.....
	67	860.87	855 -	865	860.39	3.69E+03	257.54	6.87E+03	TL-208
	68	893.92	890 -	897	893.40	3.19E+02	173.95	4.83E+03	.....
M	69	904.65	899 -	916	904.12	5.41E+02	141.40	3.58E+03	.....
m	70	911.58	899 -	916	911.05	2.04E+04	314.96	3.43E+03	TL-204 AC-228
	71	934.48	930 -	937	933.92	1.71E+03	178.55	4.16E+03	.....
M	72	960.00	955 -	974	959.42	2.31E+02	141.19	3.44E+03	.....
m	73	965.28	955 -	974	964.69	4.30E+03	195.16	3.41E+03	.....
m	74	969.39	955 -	974	968.80	1.18E+04	253.32	2.85E+03	AC-228
	75	1001.70	996 -	1006	1001.08	6.95E+02	193.17	4.61E+03	PA-234M
	76	1033.75	1030 -	1036	1033.10	2.10E+02	126.21	2.74E+03	.....
	77	1053.44	1049 -	1056	1052.77	2.24E+02	136.50	2.95E+03	.....
	78	1065.43	1062 -	1067	1064.75	1.79E+02	113.47	2.43E+03	.....
	79	1070.53	1068 -	1073	1069.85	1.21E+02	111.62	2.39E+03	.....
	80	1079.13	1074 -	1082	1078.43	4.28E+02	153.74	3.36E+03	.....
	81	1094.77	1089 -	1099	1094.06	4.56E+02	176.75	3.92E+03	.....
	82	1111.00	1106 -	1113	1110.28	2.51E+02	135.09	2.87E+03	.....
	83	1120.72	1115 -	1125	1119.99	7.45E+03	244.27	3.99E+03	SC-46

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									BI-214 TA-182
	84	1155.24	1148 -	1159	1154.48	1.03E+03	187.58	3.88E+03	.....
	85	1208.23	1204 -	1211	1207.42	1.89E+02	126.13	2.53E+03	.....
	86	1238.58	1231 -	1241	1237.75	2.68E+03	190.05	3.37E+03	CO-56
	87	1247.27	1243 -	1250	1246.42	2.58E+02	132.88	2.77E+03	.....
	88	1254.51	1251 -	1257	1253.66	1.32E+02	114.63	2.28E+03	.....
	89	1281.48	1277 -	1283	1280.61	5.90E+02	120.32	2.21E+03	.....
	90	1289.68	1286 -	1292	1288.80	1.11E+02	110.37	2.12E+03	.....
	91	1316.72	1313 -	1319	1315.81	8.99E+01	107.42	2.01E+03	.....
M	92	1378.26	1370 -	1389	1377.30	1.86E+03	136.03	1.98E+03	.....
m	93	1385.97	1370 -	1389	1385.01	3.87E+02	122.43	2.23E+03	.....
M	94	1402.46	1395 -	1412	1401.49	6.53E+02	134.02	2.29E+03	.....
m	95	1408.52	1395 -	1412	1407.54	1.14E+03	131.21	2.09E+03	EU-152
	96	1460.28	1455 -	1464	1459.26	5.31E+02	146.59	2.77E+03	K-40
M	97	1496.55	1491 -	1515	1495.50	5.19E+02	118.39	1.94E+03	.....
m	98	1502.16	1491 -	1515	1501.10	3.13E+02	115.76	1.98E+03	.....
m	99	1509.96	1491 -	1515	1508.90	9.55E+02	127.01	2.04E+03	.....
	100	1544.44	1541 -	1547	1543.34	9.44E+01	99.16	1.70E+03	.....
M	101	1581.12	1576 -	1598	1580.00	3.42E+02	111.86	1.61E+03	.....
m	102	1584.27	1576 -	1598	1583.14	3.03E+02	117.34	1.65E+03	.....
m	103	1588.98	1576 -	1598	1587.85	1.66E+03	138.92	1.78E+03	.....
m	104	1593.22	1576 -	1598	1592.09	1.09E+03	140.01	1.90E+03	.....
M	105	1621.47	1615 -	1642	1620.31	8.32E+02	107.00	1.42E+03	BI-212
m	106	1625.98	1615 -	1642	1624.82	1.90E+02	115.26	1.54E+03	.....
m	107	1631.45	1615 -	1642	1630.29	9.06E+02	108.31	1.32E+03	.....
m	108	1638.46	1615 -	1642	1637.29	2.50E+02	95.62	1.26E+03	.....
	109	1662.15	1657 -	1665	1660.96	2.65E+02	109.27	1.68E+03	.....
M	110	1679.87	1675 -	1687	1678.67	1.03E+02	74.46	9.15E+02	.....
m	111	1685.45	1675 -	1687	1684.24	9.61E+01	67.41	8.48E+02	.....
	112	1694.05	1688 -	1697	1692.84	1.42E+02	99.39	1.32E+03	.....
	113	1730.29	1723 -	1735	1729.05	1.31E+03	145.22	1.86E+03	.....
	114	1765.20	1757 -	1770	1763.93	5.90E+03	207.24	2.14E+03	BI-214
	115	1839.39	1835 -	1841	1838.06	1.13E+02	76.88	9.96E+02	.....
	116	1848.11	1842 -	1853	1846.77	8.45E+02	128.42	1.62E+03	.....
	117	1897.07	1893 -	1898	1895.70	5.62E+01	67.64	8.66E+02	.....
	118	1936.36	1931 -	1939	1934.96	1.04E+02	92.27	1.24E+03	.....
	119	2104.00	2096 -	2111	2102.47	1.63E+03	172.72	2.32E+03	.....
	120	2119.76	2111 -	2124	2118.22	4.28E+02	135.87	1.86E+03	.....
	121	2176.92	2173 -	2179	2175.34	6.31E+01	71.15	8.80E+02	.....
	122	2204.80	2195 -	2211	2203.20	1.70E+03	177.29	2.34E+03	BI-214
	123	2295.41	2289 -	2298	2293.75	1.53E+02	108.31	1.58E+03	.....
	124	2448.57	2442 -	2451	2446.81	3.60E+02	100.48	1.23E+03	.....
	125	2615.21	2605 -	2620	2613.35	1.11E+04	227.63	7.64E+02	TL-208
	126	2688.75	2682 -	2692	2686.84	4.93E+01	43.76	2.23E+02	.....
	127	3010.17	3003 -	3017	3008.08	2.46E+01	28.68	8.08E+01	.....
	128	3125.24	3116 -	3128	3123.08	7.60E+01	21.70	1.99E+01	.....
	129	3180.13	3174 -	3181	3177.94	9.18E+00	7.75	3.64E+00	.....
	130	3198.33	3190 -	3200	3196.13	1.72E+02	32.62	5.21E+01	.....
	131	3206.09	3201 -	3206	3203.89	9.00E+00	6.00	0.00E+00	.....
	132	3223.02	3218 -	3223	3220.81	6.69E+00	6.40	2.63E+00	.....
	133	3475.14	3468 -	3478	3472.81	2.60E+01	10.20	0.00E+00	.....

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

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 : 8/21/2017 3:21:15PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	39.85	7.74E+02	361.56	1.11E-02	1.67E-03
	2	46.58	2.26E+03	395.49	1.59E-02	1.67E-03
	3	57.26	1.09E+04	589.90	2.16E-02	1.67E-03
	4	63.85	8.04E+03	790.87	2.40E-02	1.79E-03
M	5	76.28	7.15E+04	1041.89	2.63E-02	2.12E-03
m	6	79.69	5.77E+02	397.00	2.66E-02	2.20E-03
	7	87.20	1.46E+03	590.17	2.70E-02	2.40E-03
	8	93.23	1.59E+04	700.22	2.70E-02	2.33E-03
	9	99.35	3.80E+03	512.26	2.68E-02	2.21E-03
	10	105.30	2.48E+03	593.60	2.65E-02	2.09E-03
	11	115.27	1.19E+03	423.85	2.58E-02	1.90E-03
	12	129.30	6.01E+03	678.74	2.47E-02	1.75E-03
	13	144.20	1.59E+03	425.50	2.35E-02	1.70E-03
	14	154.08	2.62E+03	568.62	2.27E-02	1.66E-03
	15	186.02	1.30E+04	634.78	2.03E-02	1.53E-03
	16	199.32	5.42E+02	369.37	1.94E-02	1.47E-03
	17	209.36	8.77E+03	579.03	1.88E-02	1.43E-03
	18	216.13	6.61E+02	410.27	1.84E-02	1.40E-03
M	19	235.86	8.68E+02	329.56	1.74E-02	1.31E-03
m	20	238.77	8.79E+04	690.86	1.72E-02	1.30E-03
m	21	241.61	1.49E+04	452.83	1.71E-02	1.28E-03
	22	252.23	3.73E+02	337.96	1.66E-02	1.24E-03
	23	258.86	5.87E+02	339.59	1.63E-02	1.21E-03
M	24	270.25	7.88E+03	365.72	1.58E-02	1.16E-03
m	25	276.91	3.22E+03	532.33	1.55E-02	1.13E-03
M	26	295.29	2.65E+04	412.78	1.48E-02	1.10E-03
m	27	300.20	5.57E+03	293.93	1.47E-02	1.09E-03
	28	313.27	3.47E+02	330.46	1.42E-02	1.07E-03
M	29	323.02	9.79E+02	456.83	1.39E-02	1.06E-03
m	30	328.07	5.15E+03	314.97	1.38E-02	1.05E-03
m	31	331.95	1.17E+03	516.84	1.36E-02	1.05E-03
m	32	338.39	1.91E+04	391.06	1.34E-02	1.04E-03
	33	351.99	4.64E+04	578.15	1.31E-02	1.02E-03
	34	388.26	8.79E+02	373.87	1.22E-02	9.73E-04

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	409.65	2.41E+03	374.88	1.17E-02	9.53E-04
	36	439.46	2.47E+02	254.78	1.11E-02	9.27E-04
	37	453.44	5.77E+02	288.58	1.08E-02	9.15E-04
	38	463.11	5.55E+03	367.82	1.06E-02	9.07E-04
	39	479.73	4.76E+02	240.77	1.04E-02	8.92E-04
	40	487.53	4.51E+02	232.92	1.02E-02	8.85E-04
	41	503.90	2.21E+02	229.62	9.98E-03	8.71E-04
	42	510.80	1.04E+04	403.94	9.87E-03	8.65E-04
	43	523.68	1.84E+02	223.92	9.69E-03	8.54E-04
	44	562.80	9.50E+02	249.54	9.16E-03	8.20E-04
	45	571.54	3.80E+02	245.66	9.05E-03	8.12E-04
	46	583.36	3.02E+04	480.36	8.90E-03	8.02E-04
	47	609.50	3.50E+04	500.01	8.60E-03	7.79E-04
	48	616.82	2.34E+02	170.79	8.52E-03	7.73E-04
	49	622.21	1.67E+02	195.21	8.46E-03	7.68E-04
	50	665.63	8.92E+02	255.45	8.02E-03	7.30E-04
	51	687.80	2.45E+02	219.57	7.81E-03	7.09E-04
	52	702.87	3.75E+02	229.87	7.67E-03	6.94E-04
	53	727.58	6.41E+03	345.81	7.46E-03	6.71E-04
	54	742.51	2.60E+02	180.14	7.34E-03	6.56E-04
	55	755.44	9.86E+02	247.37	7.24E-03	6.44E-04
M	56	764.00	6.48E+02	198.14	7.17E-03	6.35E-04
m	57	768.65	3.14E+03	202.78	7.14E-03	6.31E-04
m	58	772.35	1.27E+03	223.96	7.11E-03	6.27E-04
M	59	782.44	5.56E+02	190.03	7.04E-03	6.18E-04
m	60	786.08	1.81E+03	198.13	7.01E-03	6.14E-04
	61	795.22	3.35E+03	241.36	6.94E-03	6.05E-04
M	62	803.79	1.08E+02	88.32	6.88E-03	5.97E-04
m	63	806.51	7.09E+02	139.29	6.86E-03	5.94E-04
M	64	830.86	4.45E+02	152.03	6.70E-03	5.71E-04
m	65	836.20	1.44E+03	181.33	6.66E-03	5.66E-04
m	66	840.35	1.00E+03	183.40	6.64E-03	5.62E-04
	67	860.87	3.69E+03	257.54	6.51E-03	5.42E-04
	68	893.92	3.19E+02	173.95	6.31E-03	5.10E-04
M	69	904.65	5.41E+02	141.40	6.25E-03	5.04E-04
m	70	911.58	2.04E+04	314.96	6.21E-03	5.01E-04
	71	934.48	1.71E+03	178.55	6.08E-03	4.93E-04
M	72	960.00	2.31E+02	141.19	5.95E-03	4.85E-04
m	73	965.28	4.30E+03	195.16	5.92E-03	4.83E-04
m	74	969.39	1.18E+04	253.32	5.90E-03	4.81E-04
	75	1001.70	6.95E+02	193.17	5.75E-03	4.70E-04
	76	1033.75	2.10E+02	126.21	5.60E-03	4.59E-04
	77	1053.44	2.24E+02	136.50	5.51E-03	4.52E-04
	78	1065.43	1.79E+02	113.47	5.46E-03	4.48E-04
	79	1070.53	1.21E+02	111.62	5.44E-03	4.46E-04
	80	1079.13	4.28E+02	153.74	5.41E-03	4.43E-04
	81	1094.77	4.56E+02	176.75	5.34E-03	4.38E-04
	82	1111.00	2.51E+02	135.09	5.28E-03	4.32E-04
	83	1120.72	7.45E+03	244.27	5.24E-03	4.28E-04
	84	1155.24	1.03E+03	187.58	5.12E-03	4.16E-04
	85	1208.23	1.89E+02	126.13	4.93E-03	4.13E-04
	86	1238.58	2.68E+03	190.05	4.84E-03	4.16E-04
	87	1247.27	2.58E+02	132.88	4.81E-03	4.17E-04

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	88	1254.51	1.32E+02	114.63	4.79E-03	4.18E-04
	89	1281.48	5.90E+02	120.32	4.71E-03	4.20E-04
	90	1289.68	1.11E+02	110.37	4.69E-03	4.21E-04
	91	1316.72	8.99E+01	107.42	4.61E-03	4.23E-04
M	92	1378.26	1.86E+03	136.03	4.45E-03	4.11E-04
m	93	1385.97	3.87E+02	122.43	4.43E-03	4.09E-04
M	94	1402.46	6.53E+02	134.02	4.39E-03	4.04E-04
m	95	1408.52	1.14E+03	131.21	4.38E-03	4.03E-04
	96	1460.28	5.31E+02	146.59	4.26E-03	3.88E-04
M	97	1496.55	5.19E+02	118.39	4.19E-03	3.77E-04
m	98	1502.16	3.13E+02	115.76	4.18E-03	3.76E-04
m	99	1509.96	9.55E+02	127.01	4.16E-03	3.73E-04
	100	1544.44	9.44E+01	99.16	4.09E-03	3.63E-04
M	101	1581.12	3.42E+02	111.86	4.03E-03	3.53E-04
m	102	1584.27	3.03E+02	117.34	4.02E-03	3.52E-04
m	103	1588.98	1.66E+03	138.92	4.01E-03	3.51E-04
m	104	1593.22	1.09E+03	140.01	4.01E-03	3.49E-04
M	105	1621.47	8.32E+02	107.00	3.96E-03	3.41E-04
m	106	1625.98	1.90E+02	115.26	3.95E-03	3.40E-04
m	107	1631.45	9.06E+02	108.31	3.94E-03	3.38E-04
m	108	1638.46	2.50E+02	95.62	3.93E-03	3.36E-04
	109	1662.15	2.65E+02	109.27	3.89E-03	3.29E-04
M	110	1679.87	1.03E+02	74.46	3.87E-03	3.24E-04
m	111	1685.45	9.61E+01	67.41	3.86E-03	3.23E-04
	112	1694.05	1.42E+02	99.39	3.84E-03	3.20E-04
	113	1730.29	1.31E+03	145.22	3.79E-03	3.10E-04
	114	1765.20	5.90E+03	207.24	3.75E-03	3.00E-04
	115	1839.39	1.13E+02	76.88	3.65E-03	2.79E-04
	116	1848.11	8.45E+02	128.42	3.64E-03	2.79E-04
	117	1897.07	5.62E+01	67.64	3.59E-03	2.79E-04
	118	1936.36	1.04E+02	92.27	3.55E-03	2.79E-04
	119	2104.00	1.63E+03	172.72	3.41E-03	2.79E-04
	120	2119.76	4.28E+02	135.87	3.40E-03	2.79E-04
	121	2176.92	6.31E+01	71.15	3.36E-03	2.79E-04
	122	2204.80	1.70E+03	177.29	3.34E-03	2.79E-04
	123	2295.41	1.53E+02	108.31	3.29E-03	2.79E-04
	124	2448.57	3.60E+02	100.48	3.23E-03	2.79E-04
	125	2615.21	1.11E+04	227.63	3.20E-03	2.79E-04
	126	2688.75	4.93E+01	43.76	3.19E-03	2.79E-04
	127	3010.17	2.46E+01	28.68	3.21E-03	2.79E-04
	128	3125.24	7.60E+01	21.70	3.24E-03	2.79E-04
	129	3180.13	9.18E+00	7.75	3.25E-03	2.79E-04
	130	3198.33	1.72E+02	32.62	3.26E-03	2.79E-04
	131	3206.09	9.00E+00	6.00	3.26E-03	2.79E-04
	132	3223.02	6.69E+00	6.40	3.27E-03	2.79E-04
	133	3475.14	2.60E+01	10.20	3.38E-03	2.79E-04

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

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 : 8/21/2017 3:21:15PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	39.85	7.74E+02	361.56	6.74E+01	9.19E+00	7.07E+02	3.62E+02
	2	46.58	2.26E+03	395.49	3.74E+01	5.77E+00	2.22E+03	3.96E+02
	3	57.26	1.09E+04	589.90			1.09E+04	5.90E+02
	4	63.85	8.04E+03	790.87	6.29E+01	1.34E+01	7.97E+03	7.91E+02
M	5	76.28	7.15E+04	1041.89			7.15E+04	1.04E+03
m	6	79.69	5.77E+02	397.00			5.77E+02	3.97E+02
	7	87.20	1.46E+03	590.17			1.46E+03	5.90E+02
	8	93.23	1.59E+04	700.22	4.88E+01	1.30E+00	1.58E+04	7.00E+02
	9	99.35	3.80E+03	512.26			3.80E+03	5.12E+02
	10	105.30	2.48E+03	593.60			2.48E+03	5.94E+02
	11	115.27	1.19E+03	423.85			1.19E+03	4.24E+02
	12	129.30	6.01E+03	678.74			6.01E+03	6.79E+02
	13	144.20	1.59E+03	425.50	1.06E+01	1.02E+01	1.58E+03	4.26E+02
	14	154.08	2.62E+03	568.62			2.62E+03	5.69E+02
	15	186.02	1.30E+04	634.78	3.48E+01	7.32E+00	1.29E+04	6.35E+02
	16	199.32	5.42E+02	369.37	7.18E+00	5.90E+00	5.35E+02	3.69E+02
	17	209.36	8.77E+03	579.03			8.77E+03	5.79E+02
	18	216.13	6.61E+02	410.27			6.61E+02	4.10E+02
M	19	235.86	8.68E+02	329.56			8.68E+02	3.30E+02
m	20	238.77	8.79E+04	690.86	7.09E+00	6.85E+00	8.79E+04	6.91E+02
m	21	241.61	1.49E+04	452.83			1.49E+04	4.53E+02
	22	252.23	3.73E+02	337.96			3.73E+02	3.38E+02
	23	258.86	5.87E+02	339.59			5.87E+02	3.40E+02
M	24	270.25	7.88E+03	365.72			7.88E+03	3.66E+02
m	25	276.91	3.22E+03	532.33			3.22E+03	5.32E+02
M	26	295.29	2.65E+04	412.78			2.65E+04	4.13E+02
m	27	300.20	5.57E+03	293.93			5.57E+03	2.94E+02
	28	313.27	3.47E+02	330.46			3.47E+02	3.30E+02
M	29	323.02	9.79E+02	456.83			9.79E+02	4.57E+02
m	30	328.07	5.15E+03	314.97			5.15E+03	3.15E+02
m	31	331.95	1.17E+03	516.84			1.17E+03	5.17E+02
m	32	338.39	1.91E+04	391.06			1.91E+04	3.91E+02
	33	351.99	4.64E+04	578.15	1.04E+01	5.08E+00	4.64E+04	5.78E+02
	34	388.26	8.79E+02	373.87			8.79E+02	3.74E+02
	35	409.65	2.41E+03	374.88			2.41E+03	3.75E+02

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	439.46	2.47E+02	254.78			2.47E+02	2.55E+02
	37	453.44	5.77E+02	288.58			5.77E+02	2.89E+02
	38	463.11	5.55E+03	367.82			5.55E+03	3.68E+02
	39	479.73	4.76E+02	240.77			4.76E+02	2.41E+02
	40	487.53	4.51E+02	232.92			4.51E+02	2.33E+02
	41	503.90	2.21E+02	229.62			2.21E+02	2.30E+02
	42	510.80	1.04E+04	403.94	7.08E+01	4.94E+00	1.03E+04	4.04E+02
	43	523.68	1.84E+02	223.92			1.84E+02	2.24E+02
	44	562.80	9.50E+02	249.54			9.50E+02	2.50E+02
	45	571.54	3.80E+02	245.66			3.80E+02	2.46E+02
	46	583.36	3.02E+04	480.36	5.65E+00	3.57E+00	3.02E+04	4.80E+02
	47	609.50	3.50E+04	500.01	1.07E+01	3.96E+00	3.50E+04	5.00E+02
	48	616.82	2.34E+02	170.79			2.34E+02	1.71E+02
	49	622.21	1.67E+02	195.21			1.67E+02	1.95E+02
	50	665.63	8.92E+02	255.45			8.92E+02	2.55E+02
	51	687.80	2.45E+02	219.57			2.45E+02	2.20E+02
	52	702.87	3.75E+02	229.87			3.75E+02	2.30E+02
	53	727.58	6.41E+03	345.81			6.41E+03	3.46E+02
	54	742.51	2.60E+02	180.14			2.60E+02	1.80E+02
	55	755.44	9.86E+02	247.37			9.86E+02	2.47E+02
M	56	764.00	6.48E+02	198.14			6.48E+02	1.98E+02
m	57	768.65	3.14E+03	202.78			3.14E+03	2.03E+02
m	58	772.35	1.27E+03	223.96			1.27E+03	2.24E+02
M	59	782.44	5.56E+02	190.03			5.56E+02	1.90E+02
m	60	786.08	1.81E+03	198.13			1.81E+03	1.98E+02
	61	795.22	3.35E+03	241.36			3.35E+03	2.41E+02
M	62	803.79	1.08E+02	88.32			1.08E+02	8.83E+01
m	63	806.51	7.09E+02	139.29			7.09E+02	1.39E+02
M	64	830.86	4.45E+02	152.03			4.45E+02	1.52E+02
m	65	836.20	1.44E+03	181.33			1.44E+03	1.81E+02
m	66	840.35	1.00E+03	183.40			1.00E+03	1.83E+02
	67	860.87	3.69E+03	257.54			3.69E+03	2.58E+02
	68	893.92	3.19E+02	173.95			3.19E+02	1.74E+02
M	69	904.65	5.41E+02	141.40			5.41E+02	1.41E+02
m	70	911.58	2.04E+04	314.96	2.63E+00	2.49E+00	2.04E+04	3.15E+02
	71	934.48	1.71E+03	178.55			1.71E+03	1.79E+02
M	72	960.00	2.31E+02	141.19			2.31E+02	1.41E+02
m	73	965.28	4.30E+03	195.16			4.30E+03	1.95E+02
m	74	969.39	1.18E+04	253.32			1.18E+04	2.53E+02
	75	1001.70	6.95E+02	193.17	4.07E+00	2.59E+00	6.91E+02	1.93E+02
	76	1033.75	2.10E+02	126.21			2.10E+02	1.26E+02
	77	1053.44	2.24E+02	136.50			2.24E+02	1.36E+02
	78	1065.43	1.79E+02	113.47			1.79E+02	1.13E+02
	79	1070.53	1.21E+02	111.62			1.21E+02	1.12E+02
	80	1079.13	4.28E+02	153.74			4.28E+02	1.54E+02
	81	1094.77	4.56E+02	176.75			4.56E+02	1.77E+02
	82	1111.00	2.51E+02	135.09			2.51E+02	1.35E+02
	83	1120.72	7.45E+03	244.27	2.45E+00	2.38E+00	7.45E+03	2.44E+02
	84	1155.24	1.03E+03	187.58			1.03E+03	1.88E+02
	85	1208.23	1.89E+02	126.13			1.89E+02	1.26E+02
	86	1238.58	2.68E+03	190.05			2.68E+03	1.90E+02
	87	1247.27	2.58E+02	132.88			2.58E+02	1.33E+02
	88	1254.51	1.32E+02	114.63			1.32E+02	1.15E+02
	89	1281.48	5.90E+02	120.32			5.90E+02	1.20E+02

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	90	1289.68	1.11E+02	110.37			1.11E+02	1.10E+02
	91	1316.72	8.99E+01	107.42			8.99E+01	1.07E+02
M	92	1378.26	1.86E+03	136.03			1.86E+03	1.36E+02
m	93	1385.97	3.87E+02	122.43			3.87E+02	1.22E+02
M	94	1402.46	6.53E+02	134.02			6.53E+02	1.34E+02
m	95	1408.52	1.14E+03	131.21			1.14E+03	1.31E+02
	96	1460.28	5.31E+02	146.59			5.31E+02	1.47E+02
M	97	1496.55	5.19E+02	118.39			5.19E+02	1.18E+02
m	98	1502.16	3.13E+02	115.76			3.13E+02	1.16E+02
m	99	1509.96	9.55E+02	127.01			9.55E+02	1.27E+02
	100	1544.44	9.44E+01	99.16			9.44E+01	9.92E+01
M	101	1581.12	3.42E+02	111.86			3.42E+02	1.12E+02
m	102	1584.27	3.03E+02	117.34			3.03E+02	1.17E+02
m	103	1588.98	1.66E+03	138.92			1.66E+03	1.39E+02
m	104	1593.22	1.09E+03	140.01			1.09E+03	1.40E+02
M	105	1621.47	8.32E+02	107.00			8.32E+02	1.07E+02
m	106	1625.98	1.90E+02	115.26			1.90E+02	1.15E+02
m	107	1631.45	9.06E+02	108.31			9.06E+02	1.08E+02
m	108	1638.46	2.50E+02	95.62			2.50E+02	9.56E+01
	109	1662.15	2.65E+02	109.27			2.65E+02	1.09E+02
M	110	1679.87	1.03E+02	74.46			1.03E+02	7.45E+01
m	111	1685.45	9.61E+01	67.41			9.61E+01	6.74E+01
	112	1694.05	1.42E+02	99.39			1.42E+02	9.94E+01
	113	1730.29	1.31E+03	145.22			1.31E+03	1.45E+02
	114	1765.20	5.90E+03	207.24	3.33E+00	1.73E+00	5.90E+03	2.07E+02
	115	1839.39	1.13E+02	76.88			1.13E+02	7.69E+01
	116	1848.11	8.45E+02	128.42			8.45E+02	1.28E+02
	117	1897.07	5.62E+01	67.64			5.62E+01	6.76E+01
	118	1936.36	1.04E+02	92.27			1.04E+02	9.23E+01
	119	2104.00	1.63E+03	172.72			1.63E+03	1.73E+02
	120	2119.76	4.28E+02	135.87			4.28E+02	1.36E+02
	121	2176.92	6.31E+01	71.15			6.31E+01	7.11E+01
	122	2204.80	1.70E+03	177.29			1.70E+03	1.77E+02
	123	2295.41	1.53E+02	108.31			1.53E+02	1.08E+02
	124	2448.57	3.60E+02	100.48			3.60E+02	1.00E+02
	125	2615.21	1.11E+04	227.63	4.77E+00	1.52E+00	1.11E+04	2.28E+02
	126	2688.75	4.93E+01	43.76			4.93E+01	4.38E+01
	127	3010.17	2.46E+01	28.68			2.46E+01	2.87E+01
	128	3125.24	7.60E+01	21.70			7.60E+01	2.17E+01
	129	3180.13	9.18E+00	7.75			9.18E+00	7.75E+00
	130	3198.33	1.72E+02	32.62			1.72E+02	3.26E+01
	131	3206.09	9.00E+00	6.00			9.00E+00	6.00E+00
	132	3223.02	6.69E+00	6.40			6.69E+00	6.40E+00
	133	3475.14	2.60E+01	10.20			2.60E+01	1.02E+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 1707086-03

HTC-A02-S004-1218-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 3:21:15PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.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	39.85	7.74E+02	361.56	6.74E+01	9.19E+00	7.07E+02	3.62E+02
	2	46.58	2.26E+03	395.49	3.74E+01	5.77E+00	2.22E+03	3.96E+02
	3	57.26	1.09E+04	589.90			1.09E+04	5.90E+02
	4	63.85	8.04E+03	790.87	6.29E+01	1.34E+01	7.97E+03	7.91E+02
M	5	76.28	7.15E+04	1041.89			7.15E+04	1.04E+03
m	6	79.69	5.77E+02	397.00			5.77E+02	3.97E+02
	7	87.20	1.46E+03	590.17			1.46E+03	5.90E+02
	8	93.23	1.59E+04	700.22	4.88E+01	1.30E+00	1.58E+04	7.00E+02
	9	99.35	3.80E+03	512.26			3.80E+03	5.12E+02
	10	105.30	2.48E+03	593.60			2.48E+03	5.94E+02
	11	115.27	1.19E+03	423.85			1.19E+03	4.24E+02
	12	129.30	6.01E+03	678.74			6.01E+03	6.79E+02
	13	144.20	1.59E+03	425.50	1.06E+01	1.02E+01	1.58E+03	4.26E+02
	14	154.08	2.62E+03	568.62			2.62E+03	5.69E+02
	15	186.02	1.30E+04	634.78	3.48E+01	7.32E+00	1.29E+04	6.35E+02
	16	199.32	5.42E+02	369.37	7.18E+00	5.90E+00	5.35E+02	3.69E+02
	17	209.36	8.77E+03	579.03			8.77E+03	5.79E+02
	18	216.13	6.61E+02	410.27			6.61E+02	4.10E+02
M	19	235.86	8.68E+02	329.56			8.68E+02	3.30E+02
m	20	238.77	8.79E+04	690.86	7.09E+00	6.85E+00	8.79E+04	6.91E+02
m	21	241.61	1.49E+04	452.83			1.49E+04	4.53E+02
	22	252.23	3.73E+02	337.96			3.73E+02	3.38E+02
	23	258.86	5.87E+02	339.59			5.87E+02	3.40E+02
M	24	270.25	7.88E+03	365.72			7.88E+03	3.66E+02
m	25	276.91	3.22E+03	532.33			3.22E+03	5.32E+02
M	26	295.29	2.65E+04	412.78			2.65E+04	4.13E+02
m	27	300.20	5.57E+03	293.93			5.57E+03	2.94E+02
	28	313.27	3.47E+02	330.46			3.47E+02	3.30E+02
M	29	323.02	9.79E+02	456.83			9.79E+02	4.57E+02
m	30	328.07	5.15E+03	314.97			5.15E+03	3.15E+02
m	31	331.95	1.17E+03	516.84			1.17E+03	5.17E+02
m	32	338.39	1.91E+04	391.06			1.91E+04	3.91E+02
	33	351.99	4.64E+04	578.15	1.04E+01	5.08E+00	4.64E+04	5.78E+02
	34	388.26	8.79E+02	373.87			8.79E+02	3.74E+02
	35	409.65	2.41E+03	374.88			2.41E+03	3.75E+02
	36	439.46	2.47E+02	254.78			2.47E+02	2.55E+02
	37	453.44	5.77E+02	288.58			5.77E+02	2.89E+02
	38	463.11	5.55E+03	367.82			5.55E+03	3.68E+02
	39	479.73	4.76E+02	240.77			4.76E+02	2.41E+02
	40	487.53	4.51E+02	232.92			4.51E+02	2.33E+02
	41	503.90	2.21E+02	229.62			2.21E+02	2.30E+02

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	510.80	1.04E+04	403.94	7.08E+01	4.94E+00	1.03E+04	4.04E+02
	43	523.68	1.84E+02	223.92			1.84E+02	2.24E+02
	44	562.80	9.50E+02	249.54			9.50E+02	2.50E+02
	45	571.54	3.80E+02	245.66			3.80E+02	2.46E+02
	46	583.36	3.02E+04	480.36	5.65E+00	3.57E+00	3.02E+04	4.80E+02
	47	609.50	3.50E+04	500.01	1.07E+01	3.96E+00	3.50E+04	5.00E+02
	48	616.82	2.34E+02	170.79			2.34E+02	1.71E+02
	49	622.21	1.67E+02	195.21			1.67E+02	1.95E+02
	50	665.63	8.92E+02	255.45			8.92E+02	2.55E+02
	51	687.80	2.45E+02	219.57			2.45E+02	2.20E+02
	52	702.87	3.75E+02	229.87			3.75E+02	2.30E+02
	53	727.58	6.41E+03	345.81			6.41E+03	3.46E+02
	54	742.51	2.60E+02	180.14			2.60E+02	1.80E+02
	55	755.44	9.86E+02	247.37			9.86E+02	2.47E+02
M	56	764.00	6.48E+02	198.14			6.48E+02	1.98E+02
m	57	768.65	3.14E+03	202.78			3.14E+03	2.03E+02
m	58	772.35	1.27E+03	223.96			1.27E+03	2.24E+02
M	59	782.44	5.56E+02	190.03			5.56E+02	1.90E+02
m	60	786.08	1.81E+03	198.13			1.81E+03	1.98E+02
	61	795.22	3.35E+03	241.36			3.35E+03	2.41E+02
M	62	803.79	1.08E+02	88.32			1.08E+02	8.83E+01
m	63	806.51	7.09E+02	139.29			7.09E+02	1.39E+02
M	64	830.86	4.45E+02	152.03			4.45E+02	1.52E+02
m	65	836.20	1.44E+03	181.33			1.44E+03	1.81E+02
m	66	840.35	1.00E+03	183.40			1.00E+03	1.83E+02
	67	860.87	3.69E+03	257.54			3.69E+03	2.58E+02
	68	893.92	3.19E+02	173.95			3.19E+02	1.74E+02
M	69	904.65	5.41E+02	141.40			5.41E+02	1.41E+02
m	70	911.58	2.04E+04	314.96	2.63E+00	2.49E+00	2.04E+04	3.15E+02
	71	934.48	1.71E+03	178.55			1.71E+03	1.79E+02
M	72	960.00	2.31E+02	141.19			2.31E+02	1.41E+02
m	73	965.28	4.30E+03	195.16			4.30E+03	1.95E+02
m	74	969.39	1.18E+04	253.32			1.18E+04	2.53E+02
	75	1001.70	6.95E+02	193.17	4.07E+00	2.59E+00	6.91E+02	1.93E+02
	76	1033.75	2.10E+02	126.21			2.10E+02	1.26E+02
	77	1053.44	2.24E+02	136.50			2.24E+02	1.36E+02
	78	1065.43	1.79E+02	113.47			1.79E+02	1.13E+02
	79	1070.53	1.21E+02	111.62			1.21E+02	1.12E+02
	80	1079.13	4.28E+02	153.74			4.28E+02	1.54E+02
	81	1094.77	4.56E+02	176.75			4.56E+02	1.77E+02
	82	1111.00	2.51E+02	135.09			2.51E+02	1.35E+02
	83	1120.72	7.45E+03	244.27	2.45E+00	2.38E+00	7.45E+03	2.44E+02
	84	1155.24	1.03E+03	187.58			1.03E+03	1.88E+02
	85	1208.23	1.89E+02	126.13			1.89E+02	1.26E+02
	86	1238.58	2.68E+03	190.05			2.68E+03	1.90E+02
	87	1247.27	2.58E+02	132.88			2.58E+02	1.33E+02
	88	1254.51	1.32E+02	114.63			1.32E+02	1.15E+02
	89	1281.48	5.90E+02	120.32			5.90E+02	1.20E+02
	90	1289.68	1.11E+02	110.37			1.11E+02	1.10E+02
	91	1316.72	8.99E+01	107.42			8.99E+01	1.07E+02
M	92	1378.26	1.86E+03	136.03			1.86E+03	1.36E+02
m	93	1385.97	3.87E+02	122.43			3.87E+02	1.22E+02
M	94	1402.46	6.53E+02	134.02			6.53E+02	1.34E+02
m	95	1408.52	1.14E+03	131.21			1.14E+03	1.31E+02

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	96	1460.28	5.31E+02	146.59			5.31E+02	1.47E+02
M	97	1496.55	5.19E+02	118.39			5.19E+02	1.18E+02
m	98	1502.16	3.13E+02	115.76			3.13E+02	1.16E+02
m	99	1509.96	9.55E+02	127.01			9.55E+02	1.27E+02
	100	1544.44	9.44E+01	99.16			9.44E+01	9.92E+01
M	101	1581.12	3.42E+02	111.86			3.42E+02	1.12E+02
m	102	1584.27	3.03E+02	117.34			3.03E+02	1.17E+02
m	103	1588.98	1.66E+03	138.92			1.66E+03	1.39E+02
m	104	1593.22	1.09E+03	140.01			1.09E+03	1.40E+02
M	105	1621.47	8.32E+02	107.00			8.32E+02	1.07E+02
m	106	1625.98	1.90E+02	115.26			1.90E+02	1.15E+02
m	107	1631.45	9.06E+02	108.31			9.06E+02	1.08E+02
m	108	1638.46	2.50E+02	95.62			2.50E+02	9.56E+01
	109	1662.15	2.65E+02	109.27			2.65E+02	1.09E+02
M	110	1679.87	1.03E+02	74.46			1.03E+02	7.45E+01
m	111	1685.45	9.61E+01	67.41			9.61E+01	6.74E+01
	112	1694.05	1.42E+02	99.39			1.42E+02	9.94E+01
	113	1730.29	1.31E+03	145.22			1.31E+03	1.45E+02
	114	1765.20	5.90E+03	207.24	3.33E+00	1.73E+00	5.90E+03	2.07E+02
	115	1839.39	1.13E+02	76.88			1.13E+02	7.69E+01
	116	1848.11	8.45E+02	128.42			8.45E+02	1.28E+02
	117	1897.07	5.62E+01	67.64			5.62E+01	6.76E+01
	118	1936.36	1.04E+02	92.27			1.04E+02	9.23E+01
	119	2104.00	1.63E+03	172.72			1.63E+03	1.73E+02
	120	2119.76	4.28E+02	135.87			4.28E+02	1.36E+02
	121	2176.92	6.31E+01	71.15			6.31E+01	7.11E+01
	122	2204.80	1.70E+03	177.29			1.70E+03	1.77E+02
	123	2295.41	1.53E+02	108.31			1.53E+02	1.08E+02
	124	2448.57	3.60E+02	100.48			3.60E+02	1.00E+02
	125	2615.21	1.11E+04	227.63	4.77E+00	1.52E+00	1.11E+04	2.28E+02
	126	2688.75	4.93E+01	43.76			4.93E+01	4.38E+01
	127	3010.17	2.46E+01	28.68			2.46E+01	2.87E+01
	128	3125.24	7.60E+01	21.70			7.60E+01	2.17E+01
	129	3180.13	9.18E+00	7.75			9.18E+00	7.75E+00
	130	3198.33	1.72E+02	32.62			1.72E+02	3.26E+01
	131	3206.09	9.00E+00	6.00			9.00E+00	6.00E+00
	132	3223.02	6.69E+00	6.40			6.69E+00	6.40E+00
	133	3475.14	2.60E+01	10.20			2.60E+01	1.02E+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

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.956	1460.81	*	10.67	1.24E+01	3.62E+00
RU-106	0.978	621.84	*	9.80	2.59E+00	3.04E+00
PM-146	0.406	453.90	*	39.94	1.47E+00	7.47E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.954	86.50	*	30.90	1.94E+00	8.03E-01
		105.30	*	20.70	5.00E+00	1.26E+00
TL-208	0.970	583.14	*	30.22	1.19E+02	1.09E+01
		860.37	*	4.48	1.35E+02	1.47E+01
		2614.66	*	35.85	1.03E+02	9.24E+00
PB-210	0.999	46.50	*	4.25	3.54E+01	7.32E+00
BI-212	0.957	727.17	*	11.80	7.75E+01	8.13E+00
		1620.62	*	2.75	8.15E+01	1.26E+01
PB-212	0.997	238.63	*	44.60	1.22E+02	9.23E+00
		300.09	*	3.41	1.19E+02	1.08E+01
BI-214	0.973	609.31	*	46.30	9.38E+01	8.60E+00
		1120.29	*	15.10	1.00E+02	8.83E+00
		1764.49	*	15.80	1.06E+02	9.29E+00
		2204.22	*	4.98	1.09E+02	1.46E+01
PB-214	0.999	295.21	*	19.19	9.93E+01	7.49E+00
		351.92	*	37.19	1.02E+02	8.05E+00
RA-223	0.890	323.87	*	3.88	1.93E+01	9.14E+00
RA-224	0.938	240.98	*	3.95	2.35E+02	1.91E+01
RA-225	0.799	40.00	*	31.00	2.18E+02	1.16E+02
RA-226	0.994	186.21	*	3.28	2.07E+02	3.79E+02
AC-228	0.975	338.32	*	11.40	1.33E+02	1.06E+01
		911.07	*	27.70	1.26E+02	1.04E+01
		969.11	*	16.60	1.28E+02	1.08E+01
PA-234M	0.931	1001.03	*	0.92	1.39E+02	4.06E+01
TH-234	0.952	63.29	*	3.80	9.33E+01	1.16E+01
CM-243	0.333	209.75	*	3.29	1.52E+02	1.53E+01
		228.14		10.60		
		277.60	*	14.00	1.59E+01	2.87E+00

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

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 3:21:15PM
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	57.26	3.02045E+00	2.71	Tol.	CE-143
M	5	76.28	1.98566E+01	0.73		
m	6	79.69	1.60352E-01	34.39	Sum	
	8	93.23	4.39436E+00	2.21	Sum	
	9	99.35	1.05500E+00	6.74	D-Esc	
	11	115.27	3.31294E-01	17.77		
	12	129.30	1.66846E+00	5.65		
	13	144.20	4.38131E-01	13.49	Sum	
	14	154.08	7.26576E-01	10.87	Tol.	CS-136
	16	199.32	1.48522E-01	34.55		
	18	216.13	1.83568E-01	31.04		
M	19	235.86	2.40995E-01	18.99	Tol.	TH-227
	22	252.23	1.03637E-01	45.29		
	23	258.86	1.62942E-01	28.95		
M	24	270.25	2.18831E+00	2.32		
	28	313.27	9.63184E-02	47.65		
m	30	328.07	1.42992E+00	3.06	Sum	
m	31	331.95	3.25241E-01	22.07		
	34	388.26	2.44228E-01	21.26	Sum	
	35	409.65	6.69279E-01	7.78	Sum	
	36	439.46	6.85069E-02	51.65	Sum	
	38	463.11	1.54259E+00	3.31	Sum	
	39	479.73	1.32164E-01	25.30	Sum	
	40	487.53	1.25189E-01	25.84	Tol.	LA-140
	41	503.90	6.14574E-02	51.89	Sum	
	42	510.80	2.86790E+00	1.96		
	43	523.68	5.10793E-02	60.89	Sum	
	44	562.80	2.63884E-01	13.13	Tol.	CS-134
	45	571.54	1.05494E-01	32.34	Sum	
	48	616.82	6.50014E-02	36.49		
	50	665.63	2.47762E-01	14.32	Tol.	SB-126
	51	687.80	6.79969E-02	44.85	Sum	
	52	702.87	1.04195E-01	30.64		
	54	742.51	7.22880E-02	34.61	D-Esc	
	55	755.44	2.73916E-01	12.54		
M	56	764.00	1.80002E-01	15.29	Tol.	AG-110M
m	57	768.65	8.73109E-01	3.23	Sum	
m	58	772.35	3.52446E-01	8.83		
M	59	782.44	1.54354E-01	17.10		
m	60	786.08	5.01409E-01	5.49		
	61	795.22	9.31789E-01	3.60	Sum	
M	62	803.79	3.00086E-02	40.88		
m	63	806.51	1.96931E-01	9.82		
M	64	830.86	1.23731E-01	17.07	Sum	

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	65	836.20	4.00277E-01	6.29		
m	66	840.35	2.77728E-01	9.17		
	68	893.92	8.84922E-02	27.30		
M	69	904.65	1.50407E-01	13.06	Sum	
	71	934.48	4.73622E-01	5.24	Sum	
M	72	960.00	6.42361E-02	30.53	Sum	
m	73	965.28	1.19382E+00	2.27	Sum	
	76	1033.75	5.83383E-02	30.05	Sum	
	77	1053.44	6.21869E-02	30.49		
	78	1065.43	4.96508E-02	31.74	Sum	
	79	1070.53	3.34733E-02	46.31	Sum	
	80	1079.13	1.18804E-01	17.97	Sum	
	81	1094.77	1.26666E-01	19.38		
	82	1111.00	6.96289E-02	26.95	S-Esc	
	84	1155.24	2.87178E-01	9.07	Sum	
	85	1208.23	5.25684E-02	33.32	Sum	
	86	1238.58	7.45602E-01	3.54	Tol.	CO-56
	87	1247.27	7.16233E-02	25.77	Sum	
	88	1254.51	3.66455E-02	43.45	S-Esc	
	89	1281.48	1.63973E-01	10.19		
	90	1289.68	3.07817E-02	49.80		
	91	1316.72	2.49706E-02	59.75		
M	92	1378.26	5.15339E-01	3.67		
m	93	1385.97	1.07621E-01	15.80		
M	94	1402.46	1.81422E-01	10.26		
m	95	1408.52	3.17212E-01	5.74	Tol.	EU-152
M	97	1496.55	1.44209E-01	11.40		
m	98	1502.16	8.69371E-02	18.49		
m	99	1509.96	2.65224E-01	6.65		
	100	1544.44	2.62148E-02	52.53		
M	101	1581.12	9.50474E-02	16.35		
m	102	1584.27	8.41341E-02	19.37	Sum	
m	103	1588.98	4.59798E-01	4.20	Sum	
m	104	1593.22	3.03417E-01	6.41	D-Esc	
m	106	1625.98	5.27979E-02	30.32		
m	107	1631.45	2.51610E-01	5.98		
m	108	1638.46	6.95060E-02	19.11	Sum	
	109	1662.15	7.35306E-02	20.64	Sum	
M	110	1679.87	2.86605E-02	36.08		
m	111	1685.45	2.66895E-02	35.08	Sum	
	112	1694.05	3.94869E-02	34.96	S-Esc	
	113	1730.29	3.64380E-01	5.54	Sum	
	115	1839.39	3.13814E-02	34.03		
	116	1848.11	2.34674E-01	7.60	Sum	
	117	1897.07	1.56058E-02	60.20		
	118	1936.36	2.87643E-02	44.55		
	119	2104.00	4.52031E-01	5.31	S-Esc	
	120	2119.76	1.18902E-01	15.87		
	121	2176.92	1.75353E-02	56.35		
	123	2295.41	4.25115E-02	35.38		
	124	2448.57	9.99384E-02	13.96		
	126	2688.75	1.36913E-02	44.39		
	127	3010.17	6.83761E-03	58.25		
	128	3125.24	2.11240E-02	14.27		

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
129	3180.13	2.55051E-03	42.18		
130	3198.33	4.77588E-02	9.49	Sum	
131	3206.09	2.50000E-03	33.33	Sum	
132	3223.02	1.85764E-03	47.87		
133	3475.14	7.22222E-03	19.61	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.95	1460.81	*	10.67	1.24E+01	3.62E+00
RU-106	0.97	621.84	*	9.80	2.59E+00	3.04E+00
PM-146	0.40	453.90	*	39.94	1.47E+00	7.47E-01
		735.90		14.01		
		747.13		13.10		
EU-155	0.95	86.50	*	30.90	1.94E+00	8.03E-01
		105.30	*	20.70	5.00E+00	1.26E+00
TL-208	0.97	583.14	*	30.22	1.19E+02	1.09E+01
		860.37	*	4.48	1.35E+02	1.47E+01
		2614.66	*	35.85	1.03E+02	9.24E+00
PB-210	0.99	46.50	*	4.25	3.54E+01	7.32E+00
BI-212	0.95	727.17	*	11.80	7.75E+01	8.13E+00
		1620.62	*	2.75	8.15E+01	1.26E+01
PB-212	0.99	238.63	*	44.60	1.22E+02	9.23E+00
		300.09	*	3.41	1.19E+02	1.08E+01
BI-214	0.97	609.31	*	46.30	9.38E+01	8.60E+00
		1120.29	*	15.10	1.00E+02	8.83E+00
		1764.49	*	15.80	1.06E+02	9.29E+00
		2204.22	*	4.98	1.09E+02	1.46E+01
PB-214	0.99	295.21	*	19.19	9.93E+01	7.49E+00
		351.92	*	37.19	1.02E+02	8.05E+00
RA-223	0.89	323.87	*	3.88	1.93E+01	9.14E+00
RA-224	0.93	240.98	*	3.95	2.35E+02	1.91E+01

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
RA-225	0.79	40.00	*	31.00	2.18E+02	1.16E+02
RA-226	0.99	186.21	*	3.28	2.07E+02	3.79E+02
AC-228	0.97	338.32	*	11.40	1.33E+02	1.06E+01
		911.07	*	27.70	1.26E+02	1.04E+01
		969.11	*	16.60	1.28E+02	1.08E+01
PA-234M	0.93	1001.03	*	0.92	1.39E+02	4.06E+01
TH-234	0.95	63.29	*	3.80	9.33E+01	1.16E+01
CM-243	0.33	209.75	*	3.29	1.52E+02	1.53E+01
		228.14		10.60		
		277.60	*	14.00	1.59E+01	2.87E+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	0.956	1.24E+01	3.62E+00	
	RU-106	0.978	2.59E+00	3.04E+00	
X	CD-109	0.894			
X	SN-126	0.978			
	PM-146	0.406	1.47E+00	7.47E-01	
	EU-155	0.954	2.82E+00	6.77E-01	
	TL-208	0.970	1.15E+02	6.36E+00	
	PB-210	0.999	3.54E+01	7.32E+00	
	BI-212	0.957	7.87E+01	6.83E+00	
	PB-212	0.997	1.21E+02	7.02E+00	
	BI-214	0.973	1.01E+02	4.84E+00	
	PB-214	0.999	1.00E+02	5.49E+00	
	RA-223	0.890	1.93E+01	9.14E+00	
	RA-224	0.938	2.35E+02	1.91E+01	
	RA-225	0.799	2.18E+02	1.16E+02	
	RA-226	0.994	2.07E+02	3.79E+02	
	AC-228	0.975	1.29E+02	6.13E+00	

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	PA-234M	0.931	1.39E+02	4.06E+01	
	TH-234	0.952	9.33E+01	1.16E+01	
X	NP-237	0.926			
	CM-243	0.333	2.05E+01	2.82E+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 1707086-03

HTC-A02-S004-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 3:21:15PM
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	57.26	3.02045E+00	2.71	Tol.	CE-143
M	5	76.28	1.98566E+01	0.73		
m	6	79.69	1.60352E-01	34.39	Sum	
	8	93.23	4.39436E+00	2.21	Sum	
	9	99.35	1.05500E+00	6.74	D-Esc	
	11	115.27	3.31294E-01	17.77		
	12	129.30	1.66846E+00	5.65		
	13	144.20	4.38131E-01	13.49	Sum	
	14	154.08	7.26576E-01	10.87	Tol.	CS-136
	16	199.32	1.48522E-01	34.55		
	18	216.13	1.83568E-01	31.04		
M	19	235.86	2.40995E-01	18.99	Tol.	TH-227
	22	252.23	1.03637E-01	45.29		
	23	258.86	1.62942E-01	28.95		
M	24	270.25	2.18831E+00	2.32		
	28	313.27	9.63184E-02	47.65		
m	30	328.07	1.42992E+00	3.06	Sum	
m	31	331.95	3.25241E-01	22.07		
	34	388.26	2.44228E-01	21.26	Sum	
	35	409.65	6.69279E-01	7.78	Sum	
	36	439.46	6.85069E-02	51.65	Sum	
	38	463.11	1.54259E+00	3.31	Sum	
	39	479.73	1.32164E-01	25.30	Sum	
	40	487.53	1.25189E-01	25.84	Tol.	LA-140
	41	503.90	6.14574E-02	51.89	Sum	
	42	510.80	2.86790E+00	1.96		
	43	523.68	5.10793E-02	60.89	Sum	
	44	562.80	2.63884E-01	13.13	Tol.	CS-134
	45	571.54	1.05494E-01	32.34	Sum	
	48	616.82	6.50014E-02	36.49		
	50	665.63	2.47762E-01	14.32	Tol.	SB-126
	51	687.80	6.79969E-02	44.85	Sum	
	52	702.87	1.04195E-01	30.64		
	54	742.51	7.22880E-02	34.61	D-Esc	

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	55	755.44	2.73916E-01	12.54		
M	56	764.00	1.80002E-01	15.29	Tol.	AG-110M
m	57	768.65	8.73109E-01	3.23	Sum	
m	58	772.35	3.52446E-01	8.83		
M	59	782.44	1.54354E-01	17.10		
m	60	786.08	5.01409E-01	5.49		
	61	795.22	9.31789E-01	3.60	Sum	
M	62	803.79	3.00086E-02	40.88		
m	63	806.51	1.96931E-01	9.82		
M	64	830.86	1.23731E-01	17.07	Sum	
m	65	836.20	4.00277E-01	6.29		
m	66	840.35	2.77728E-01	9.17		
	68	893.92	8.84922E-02	27.30		
M	69	904.65	1.50407E-01	13.06	Sum	
	71	934.48	4.73622E-01	5.24	Sum	
M	72	960.00	6.42361E-02	30.53	Sum	
m	73	965.28	1.19382E+00	2.27	Sum	
	76	1033.75	5.83383E-02	30.05	Sum	
	77	1053.44	6.21869E-02	30.49		
	78	1065.43	4.96508E-02	31.74	Sum	
	79	1070.53	3.34733E-02	46.31	Sum	
	80	1079.13	1.18804E-01	17.97	Sum	
	81	1094.77	1.26666E-01	19.38		
	82	1111.00	6.96289E-02	26.95	S-Esc	
	84	1155.24	2.87178E-01	9.07	Sum	
	85	1208.23	5.25684E-02	33.32	Sum	
	86	1238.58	7.45602E-01	3.54	Tol.	CO-56
	87	1247.27	7.16233E-02	25.77	Sum	
	88	1254.51	3.66455E-02	43.45	S-Esc	
	89	1281.48	1.63973E-01	10.19		
	90	1289.68	3.07817E-02	49.80		
	91	1316.72	2.49706E-02	59.75		
M	92	1378.26	5.15339E-01	3.67		
m	93	1385.97	1.07621E-01	15.80		
M	94	1402.46	1.81422E-01	10.26		
m	95	1408.52	3.17212E-01	5.74	Tol.	EU-152
M	97	1496.55	1.44209E-01	11.40		
m	98	1502.16	8.69371E-02	18.49		
m	99	1509.96	2.65224E-01	6.65		
	100	1544.44	2.62148E-02	52.53		
M	101	1581.12	9.50474E-02	16.35		
m	102	1584.27	8.41341E-02	19.37	Sum	
m	103	1588.98	4.59798E-01	4.20	Sum	
m	104	1593.22	3.03417E-01	6.41	D-Esc	
m	106	1625.98	5.27979E-02	30.32		

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	107	1631.45	2.51610E-01	5.98		
m	108	1638.46	6.95060E-02	19.11	Sum	
	109	1662.15	7.35306E-02	20.64	Sum	
M	110	1679.87	2.86605E-02	36.08		
m	111	1685.45	2.66895E-02	35.08	Sum	
	112	1694.05	3.94869E-02	34.96	S-Esc	
	113	1730.29	3.64380E-01	5.54	Sum	
	115	1839.39	3.13814E-02	34.03		
	116	1848.11	2.34674E-01	7.60	Sum	
	117	1897.07	1.56058E-02	60.20		
	118	1936.36	2.87643E-02	44.55		
	119	2104.00	4.52031E-01	5.31	S-Esc	
	120	2119.76	1.18902E-01	15.87		
	121	2176.92	1.75353E-02	56.35		
	123	2295.41	4.25115E-02	35.38		
	124	2448.57	9.99384E-02	13.96		
	126	2688.75	1.36913E-02	44.39		
	127	3010.17	6.83761E-03	58.25		
	128	3125.24	2.11240E-02	14.27		
	129	3180.13	2.55051E-03	42.18		
	130	3198.33	4.77588E-02	9.49	Sum	
	131	3206.09	2.50000E-03	33.33	Sum	
	132	3223.02	1.85764E-03	47.87		
	133	3475.14	7.22222E-03	19.61	Sum	

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59	10.42	-5.93E-01	1.16E+01	1.16E+01
+	NA-22	1274.54	99.94	1.56E-02	3.82E-01	3.82E-01
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
@	NA-24	2754.09		99.86	1.00E+26	1.00E+26	1.00E+26
+	AL-26	1808.65		99.76	8.25E-02	3.43E-01	3.43E-01
+	K-40	1460.81	*	10.67	1.24E+01	5.43E+00	5.43E+00
+ @	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	2.21E-01	3.33E-01	3.33E-01
		78.34		96.00	4.72E+00		4.22E-01
+	SC-46	889.25		99.98	-1.51E-02	8.36E-01	8.36E-01
		1120.51		99.99	3.39E+01		2.00E+00
+	V-48	983.52		99.98	-1.81E+01	2.49E+01	2.49E+01
		1312.10		97.50	-8.31E+00		2.60E+01
+	CR-51	320.08		9.83	6.86E+00	4.04E+01	4.04E+01
+	MN-54	834.83		99.97	7.07E-01	5.90E-01	5.90E-01
+	CO-56	846.75		99.96	1.42E-01	8.67E-01	8.67E-01
		1037.75		14.03	4.28E-01		5.84E+00
		1238.25		67.00	2.01E+01		2.24E+00
		1771.40		15.51	1.39E+00		6.75E+00
		2598.48		16.90	-5.12E+00		3.02E+00
+	CO-57	122.06		85.51	3.26E-02	3.77E-01	3.77E-01
		136.48		10.60	-5.94E-01		4.15E+00
+	CO-58	810.76		99.40	2.11E-02	1.01E+00	1.01E+00
+	FE-59	1099.22		56.50	6.09E-02	2.82E+00	2.82E+00
		1291.56		43.20	6.46E-03		3.88E+00
+	CO-60	1173.22		100.00	1.13E-01	3.63E-01	3.63E-01
		1332.49		100.00	1.10E-01		3.71E-01
+	ZN-65	1115.52		50.75	-3.91E+01	1.05E+00	1.05E+00
+	GA-67	93.31		35.70	2.35E+10	1.17E+09	1.17E+09
		208.95		2.24	2.32E+11		2.31E+10
		300.22		16.00	2.53E+10		3.08E+09
+	SE-75	121.11		16.70	-1.80E+00	9.84E-01	2.62E+00
		136.00		59.20	1.02E+00		1.02E+00
		264.65		59.80	1.84E-01		9.84E-01
		279.53		25.20	-1.50E+00		2.62E+00
		400.65		11.40	6.46E+00		5.62E+00
+	RB-82	776.52		13.00	-1.49E+02	4.55E+01	4.55E+01
+	RB-83	520.41		46.00	-1.27E-01	1.60E+00	1.60E+00
		529.64		30.30	-5.94E-01		2.40E+00
		552.65		16.40	-1.87E+00		4.57E+00
+	KR-85	513.99		0.43	-1.16E+03	9.04E+01	9.04E+01
+	SR-85	513.99		99.27	-1.43E+01	1.11E+00	1.11E+00
+	Y-88	898.02		93.40	-7.59E-01	7.29E-01	7.67E-01
		1836.01		99.38	-6.68E-02		7.29E-01
+	MO-93	263.06		56.72	2.53E-01	4.14E-01	6.02E-01
		684.67		99.68	-3.44E-03		4.35E-01
		1477.11		99.08	-2.53E-01		4.14E-01
+	NB-93M	16.57		9.43	0.00E+00	6.23E+00	6.23E+00
+	NB-94	702.63		100.00	5.61E-01	3.76E-01	4.63E-01
		871.10		100.00	3.88E-01		3.76E-01

Analysis Report for 1707086-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95	765.79		99.81	8.66E+00	3.82E+00	3.82E+00
+	NB-95M	235.69		25.00	-3.37E+10	3.67E+08	3.67E+08
+	ZR-95	724.18		43.70	1.21E+01	2.40E+00	4.03E+00
		756.72		55.30	6.64E+00		2.40E+00
+	MO-99	181.06		6.20	-5.59E+10	1.87E+11	3.32E+11
		739.58		12.80	-3.86E+10		1.87E+11
		778.00		4.50	-2.51E+12		4.89E+11
+	RU-103	497.08		89.00	-1.40E-02	2.07E+00	2.07E+00
+	RU-106	621.84	*	9.80	2.59E+00	4.96E+00	4.96E+00
+	AG-108M	433.93		89.90	-1.57E-01	3.68E-01	3.68E-01
		614.37		90.40	-4.98E+01		4.88E-01
		722.95		90.50	-1.22E+01		5.32E-01
+	CD-109	88.03	*	3.72	1.80E+01	1.69E+01	1.69E+01
+	AG-110M	657.75		93.14	-2.24E-01	5.88E-01	5.88E-01
		677.61		10.53	2.26E+00		5.28E+00
		706.67		16.46	1.51E+00		3.64E+00
		763.93		21.98	-2.83E+01		2.86E+00
		884.67		71.63	3.09E-01		6.80E-01
		1384.27		23.94	-1.36E+01		2.28E+00
+	CD-113M	263.70		0.02	6.22E+02	1.48E+03	1.48E+03
+	SN-113	255.12		1.93	-6.36E+00	9.80E-01	3.22E+01
		391.69		64.90	2.04E-01		9.80E-01
+	TE123M	159.00		84.10	4.65E-01	7.43E-01	7.43E-01
+	SB-124	602.71		97.87	-3.67E-02	1.28E+00	1.28E+00
		645.85		7.26	2.63E+00		1.77E+01
		722.78		11.10	4.41E+00		1.21E+01
		1691.02		49.00	-6.34E-01		2.25E+00
+	I-125	35.49		6.49	-2.19E+01	3.42E+01	3.42E+01
+	SB-125	176.33		6.89	1.99E-01	1.25E+00	5.59E+00
		427.89		29.33	5.79E-01		1.25E+00
		463.38		10.35	5.72E+01		4.94E+00
		600.56		17.80	-3.91E-01		2.43E+00
		635.90		11.32	-1.54E-01		3.85E+00
+	SB-126	414.70		83.30	1.75E+01	9.97E+01	9.97E+01
		666.33		99.60	2.82E+02		1.11E+02
		695.00		99.60	-2.57E+01		1.05E+02
		720.50		53.80	6.58E+01		1.92E+02
+	SN-126	87.57	*	37.00	1.56E+00	1.47E+00	1.47E+00
+	SB-127	473.00		25.00	3.67E+07	5.78E+07	6.41E+07
		685.20		35.70	-5.78E+06		5.78E+07
		783.80		14.70	7.91E+08		1.62E+08
+	I-129	29.78		57.00	6.08E+00	2.16E+00	2.16E+00
		33.60		13.20	1.71E+01		6.85E+00
		39.58		7.52	1.31E+01		6.90E+00
+	I-131	284.30		6.05	7.58E+03	1.96E+03	2.68E+04
		364.48		81.20	5.17E+01		1.96E+03
		636.97		7.26	3.63E+03		2.69E+04
		722.89		1.80	-2.91E+06		1.27E+05

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TE-132	49.72	13.10	4.54E+08	4.99E+08	3.07E+09
		228.16	88.00	-7.86E+07		4.99E+08
+	BA-133	81.00	33.00	1.22E+00	5.68E-01	8.52E-01
		302.84	17.80	-1.66E+01		2.10E+00
		356.01	60.00	-1.09E-01		5.68E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	4.54E+05	3.18E+05	3.18E+05
+	CS-134	563.23	8.38	1.38E+01	4.74E-01	4.92E+00
		569.32	15.43	-4.45E-01		2.48E+00
		604.70	97.60	-2.92E-02		4.74E-01
		795.84	85.40	6.68E+00		7.20E-01
		801.93	8.73	6.86E-01		4.72E+00
+	CS-135	268.24	16.00	-1.14E+01	2.48E+00	2.48E+00
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	3.40E+03	6.67E+01	8.82E+02
		163.89	4.61	1.33E+02		1.36E+03
		176.55	13.56	1.67E+01		4.69E+02
		273.65	12.66	-9.28E+03		4.90E+02
		340.57	48.50	-1.82E+02		1.78E+02
		818.50	99.70	4.19E+01		6.67E+01
		1048.07	79.60	-3.89E+00		7.32E+01
		1235.34	19.70	2.34E+03		5.15E+02
+	CS-137	661.65	85.12	1.25E-01	5.05E-01	5.05E-01
+	LA-138	788.74	34.00	3.66E+00	6.23E-01	1.38E+00
		1435.80	66.00	-7.79E-02		6.23E-01
+	CE-139	165.85	80.35	6.19E-02	7.23E-01	7.23E-01
+	BA-140	162.64	6.70	2.72E+02	2.74E+02	1.08E+03
		304.84	4.50	1.09E+03		1.54E+03
		423.70	3.20	3.60E+02		2.22E+03
		437.55	2.00	-2.58E+02		3.42E+03
		537.32	25.00	-3.07E+02		2.74E+02
+	LA-140	328.77	20.50	3.18E+03	1.23E+02	4.31E+02
		487.03	45.50	1.83E+02		1.53E+02
		815.85	23.50	-6.84E+00		3.25E+02
		1596.49	95.49	1.97E+02		1.23E+02
+	CE-141	145.44	48.40	-8.40E-01	6.06E+00	6.06E+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	-1.76E-01	3.10E+00	3.10E+00
+	PM-144	476.78	42.00	-4.95E-02	4.92E-01	9.72E-01
		618.01	98.60	1.76E-01		4.92E-01
		696.49	99.49	-3.03E-01		5.27E-01
+	PM-145	36.85	21.70	-1.98E+00	1.52E+00	2.90E+00
		37.36	39.70	8.49E-01		1.52E+00
		42.30	15.10	5.57E-01		2.82E+00
		72.40	2.31	-6.94E+02		1.44E+01

Analysis Report for 1707086-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PM-146	453.90	*	39.94	1.47E+00	1.20E+00	1.20E+00
		735.90		14.01	-5.47E-01		3.05E+00
		747.13		13.10	2.20E-01		3.24E+00
+	ND-147	91.11		28.90	5.98E+03	5.69E+02	5.69E+02
		531.02		13.10	-4.84E+02		1.26E+03
+	PM-149	285.90		3.10	-1.14E+14	2.62E+14	2.62E+14
+	EU-152	121.78		20.50	1.07E-01	1.24E+00	1.24E+00
		244.69		5.40	-1.45E+02		6.97E+00
		344.27		19.13	-9.39E-01		1.80E+00
		778.89		9.20	-2.22E+01		4.31E+00
		964.01		10.40	-4.27E+01		6.24E+00
		1085.78		7.22	-1.27E+00		4.62E+00
		1112.02		9.60	4.24E+00		3.92E+00
		1407.95		14.94	6.42E+00		3.80E+00
+	GD-153	97.43		31.30	-4.51E+00	1.06E+00	1.06E+00
		103.18		22.20	-7.39E+00		1.43E+00
+	EU-154	123.07		40.50	-4.53E-01	6.38E-01	6.38E-01
		723.30		19.70	-5.70E+01		2.49E+00
		873.19		11.50	1.71E+00		3.31E+00
		996.32		10.30	-1.93E-01		3.40E+00
		1004.76		17.90	2.11E+00		2.21E+00
		1274.45		35.50	4.17E-02		1.02E+00
+	EU-155	86.50	*	30.90	1.94E+00	1.82E+00	1.82E+00
		105.30	*	20.70	5.00E+00		1.95E+00
+	EU-156	811.77		10.40	-8.22E+00	3.14E+02	3.14E+02
		1153.47		7.20	2.20E+03		5.54E+02
		1230.71		8.90	1.74E+01		3.44E+02
+	HO-166M	184.41		72.60	8.95E+00	6.36E-01	6.36E-01
		280.45		29.60	-1.06E-02		1.17E+00
		410.94		11.10	2.07E+01		3.64E+00
		711.69		54.10	2.70E-01		8.05E-01
+	TM-171	66.72		0.14	5.82E+02	2.58E+02	2.58E+02
+	HF-172	67.35		5.31	4.35E+00	2.57E+00	6.55E+00
		125.81		11.30	1.79E+00		2.57E+00
+	LU-172	181.53		20.60	3.41E+03	1.61E+04	4.62E+04
		900.72		29.81	-9.55E+04		3.32E+04
		1093.66		62.50	3.55E+04		1.61E+04
+	LU-173	100.72		5.24	1.16E+01	2.33E+00	5.55E+00
		272.11		21.20	1.80E+01		2.33E+00
+	HF-175	343.40		84.00	3.14E-02	1.10E+00	1.10E+00
+	LU-176	88.34		13.30	1.30E+01	3.55E-01	2.75E+00
		201.83		86.00	-2.23E-01		4.36E-01
		306.78		94.00	1.35E-01		3.55E-01
+	HF-181	133.02		41.70	3.30E-01	2.05E+00	3.18E+00
		345.85		17.20	-3.63E+00		9.77E+00
		482.03		82.80	-2.10E-01		2.05E+00
+	TA-182	67.75		41.20	9.16E-01	1.38E+00	1.38E+00
		1121.30		34.90	7.54E+01		4.58E+00
		1189.05		16.23	-8.32E-01		3.88E+00

Analysis Report for 1707086-03

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1221.41		26.98	1.08E+00	1.38E+00	2.38E+00
		1231.02		11.44	2.78E-01		5.49E+00
+	IR-192	308.46		29.68	-2.01E+00	1.73E+00	2.79E+00
		468.07		48.10	-1.40E-02		1.73E+00
+	HG-203	279.19		77.30	1.50E+01	2.21E+00	2.21E+00
+	TL-204	374.74		94.11	1.90E-01	3.84E-01	3.84E-01
		899.15		99.16	-1.54E+00		3.94E-01
		911.74		91.10	4.04E+01		1.39E+00
+	BI-207	569.67		97.72	-6.46E-02	3.60E-01	3.60E-01
		1063.62		74.90	-2.66E-02		4.95E-01
+	TL-208	583.14	*	30.22	1.19E+02	1.36E+00	2.17E+00
		860.37	*	4.48	1.35E+02		1.38E+01
		2614.66	*	35.85	1.03E+02		1.36E+00
+	BI-210M	262.00		45.00	9.99E-02	7.50E-01	7.50E-01
		300.00		23.00	1.50E+01		1.83E+00
+	PB-210	46.50	*	4.25	3.54E+01	1.15E+01	1.15E+01
+	PB-211	404.84		2.90	-7.46E+00	1.24E+01	1.24E+01
		831.96		2.90	-9.29E+01		1.43E+01
+	BI-212	727.17	*	11.80	7.75E+01	6.14E+00	6.14E+00
		1620.62	*	2.75	8.15E+01		4.25E+01
+	PB-212	238.63	*	44.60	1.22E+02	1.93E+00	1.93E+00
		300.09	*	3.41	1.19E+02		3.24E+01
+	BI-214	609.31	*	46.30	9.38E+01	1.47E+00	1.47E+00
		1120.29	*	15.10	1.00E+02		3.87E+00
		1764.49	*	15.80	1.06E+02		4.17E+00
		2204.22	*	4.98	1.09E+02		1.67E+01
+	PB-214	295.21	*	19.19	9.93E+01	1.40E+00	5.69E+00
		351.92	*	37.19	1.02E+02		1.40E+00
+	RN-219	401.80		6.50	-6.91E+00	5.53E+00	5.53E+00
+	RA-223	323.87	*	3.88	1.93E+01	3.34E+01	3.34E+01
+	RA-224	240.98	*	3.95	2.35E+02	2.19E+01	2.19E+01
+	RA-225	40.00	*	31.00	2.18E+02	1.83E+02	1.83E+02
+	RA-226	186.21	*	3.28	2.07E+02	1.56E+01	1.56E+01
+	TH-227	50.10		8.40	5.87E-01	3.97E+00	3.97E+00
		236.00		11.50	-4.71E+02		5.14E+00
		256.20		6.30	-1.08E+00		5.46E+00
+	AC-228	338.32	*	11.40	1.33E+02	3.24E+00	1.16E+01
		911.07	*	27.70	1.26E+02		3.24E+00
		969.11	*	16.60	1.28E+02		5.73E+00
+	TH-230	48.44		16.90	-9.83E+00	2.07E+00	2.07E+00
		62.85		4.60	3.04E+01		7.70E+00
		67.67		0.37	5.63E+01		8.49E+01
+	PA-231	283.67		1.60	6.00E+00	1.60E+01	2.12E+01
		302.67		2.30	-1.26E+02		1.60E+01
+	TH-231	25.64		14.70	0.00E+00	1.11E-01	1.11E-01
		84.21		6.40	3.43E+01		4.79E+00
+	PA-233	311.98		38.60	7.57E+00	1.09E+01	1.09E+01
+	PA-234	131.20		20.40	-5.54E-01	1.38E+00	1.38E+00

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	733.99		8.80	-1.89E+00	1.38E+00	4.63E+00
		946.00		12.00	9.56E-01		3.00E+00
+	PA-234M	1001.03	*	0.92	1.39E+02	6.22E+01	6.22E+01
+	TH-234	63.29	*	3.80	9.33E+01	1.49E+01	1.49E+01
+	U-235	143.76		10.50	8.45E+00	3.42E+00	3.42E+00
		163.35		4.70	7.35E-01		7.52E+00
		205.31		4.70	6.82E+00		7.98E+00
+	NP-237	86.50	*	12.60	4.59E+00	4.31E+00	4.31E+00
+	NP-239	106.10		22.70	2.23E+13	4.27E+12	4.27E+12
		228.18		10.70	-1.96E+12		1.24E+13
		277.60		14.10	5.48E+13		1.01E+13
+	AM-241	59.54		35.90	-8.87E+00	8.91E-01	8.91E-01
+	AM-243	74.67		66.00	-1.13E+01	6.98E-01	6.98E-01
+	CM-243	209.75	*	3.29	1.52E+02	3.50E+00	1.57E+01
		228.14		10.60	-5.51E-01		3.50E+00
		277.60	*	14.00	1.59E+01		6.61E+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	1.16E+01	1.16E+01	-5.93E-01	5.77E+00
	NA-22	1274.54		99.94	3.82E-01	3.82E-01	1.56E-02	1.88E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	3.43E-01	3.43E-01	8.25E-02	1.68E-01
+	K-40	1460.81	*	10.67	5.43E+00	5.43E+00	1.24E+01	2.68E+00

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.33E-01	3.33E-01	2.21E-01	1.66E-01
		78.34		96.00	4.22E-01		4.72E+00	2.10E-01
	SC-46	889.25		99.98	8.36E-01	8.36E-01	-1.51E-02	4.13E-01
		1120.51		99.99	2.00E+00		3.39E+01	9.94E-01
	V-48	983.52		99.98	2.49E+01	2.49E+01	-1.81E+01	1.23E+01
		1312.10		97.50	2.60E+01		-8.31E+00	1.28E+01
	CR-51	320.08		9.83	4.04E+01	4.04E+01	6.86E+00	2.01E+01
	MN-54	834.83		99.97	5.90E-01	5.90E-01	7.07E-01	2.92E-01
	CO-56	846.75		99.96	8.67E-01	8.67E-01	1.42E-01	4.28E-01
		1037.75		14.03	5.84E+00		4.28E-01	2.88E+00
		1238.25		67.00	2.24E+00		2.01E+01	1.11E+00
		1771.40		15.51	6.75E+00		1.39E+00	3.32E+00
		2598.48		16.90	3.02E+00		-5.12E+00	1.44E+00
	CO-57	122.06		85.51	3.77E-01	3.77E-01	3.26E-02	1.88E-01
		136.48		10.60	4.15E+00		-5.94E-01	2.07E+00
	CO-58	810.76		99.40	1.01E+00	1.01E+00	2.11E-02	4.97E-01
	FE-59	1099.22		56.50	2.82E+00	2.82E+00	6.09E-02	1.39E+00
		1291.56		43.20	3.88E+00		6.46E-03	1.91E+00
	CO-60	1173.22		100.00	3.63E-01	3.63E-01	1.13E-01	1.78E-01
		1332.49		100.00	3.71E-01		1.10E-01	1.82E-01
	ZN-65	1115.52		50.75	1.05E+00	1.05E+00	-3.91E+01	5.16E-01
	GA-67	93.31		35.70	1.17E+09	1.17E+09	2.35E+10	5.83E+08
		208.95		2.24	2.31E+10		2.32E+11	1.15E+10
		300.22		16.00	3.08E+09		2.53E+10	1.53E+09
	SE-75	121.11		16.70	2.62E+00	9.84E-01	-1.80E+00	1.30E+00
		136.00		59.20	1.02E+00		1.02E+00	5.10E-01
		264.65		59.80	9.84E-01		1.84E-01	4.89E-01
		279.53		25.20	2.62E+00		-1.50E+00	1.31E+00
		400.65		11.40	5.62E+00		6.46E+00	2.79E+00
	RB-82	776.52		13.00	4.55E+01	4.55E+01	-1.49E+02	2.25E+01
	RB-83	520.41		46.00	1.60E+00	1.60E+00	-1.27E-01	7.95E-01
		529.64		30.30	2.40E+00		-5.94E-01	1.19E+00
		552.65		16.40	4.57E+00		-1.87E+00	2.26E+00
	KR-85	513.99		0.43	9.04E+01	9.04E+01	-1.16E+03	4.48E+01
	SR-85	513.99		99.27	1.11E+00	1.11E+00	-1.43E+01	5.51E-01
	Y-88	898.02		93.40	7.67E-01	7.29E-01	-7.59E-01	3.79E-01
		1836.01		99.38	7.29E-01		-6.68E-02	3.57E-01
	MO-93	263.06		56.72	6.02E-01	4.14E-01	2.53E-01	2.99E-01
		684.67		99.68	4.35E-01		-3.44E-03	2.16E-01
		1477.11		99.08	4.14E-01		-2.53E-01	2.04E-01
	NB-93M	16.57		9.43	6.23E+00	6.23E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	4.63E-01	3.76E-01	5.61E-01	2.30E-01
		871.10		100.00	3.76E-01		3.88E-01	1.86E-01
	NB-95	765.79		99.81	3.82E+00	3.82E+00	8.66E+00	1.89E+00
	NB-95M	235.69		25.00	3.67E+08	3.67E+08	-3.37E+10	1.83E+08
	ZR-95	724.18		43.70	4.03E+00	2.40E+00	1.21E+01	2.00E+00
		756.72		55.30	2.40E+00		6.64E+00	1.19E+00
	MO-99	181.06		6.20	3.32E+11	1.87E+11	-5.59E+10	1.66E+11
		739.58		12.80	1.87E+11		-3.86E+10	9.25E+10
		778.00		4.50	4.89E+11		-2.51E+12	2.42E+11
	RU-103	497.08		89.00	2.07E+00	2.07E+00	-1.40E-02	1.03E+00
+	RU-106	621.84	*	9.80	4.96E+00	4.96E+00	2.59E+00	2.46E+00

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-108M	433.93		89.90	3.68E-01	3.68E-01	-1.57E-01	1.82E-01
	614.37		90.40	4.88E-01		-4.98E+01	2.42E-01
	722.95		90.50	5.32E-01		-1.22E+01	2.64E-01
CD-109	88.03	*	3.72	1.69E+01	1.69E+01	1.80E+01	8.43E+00
AG-110M	657.75		93.14	5.88E-01	5.88E-01	-2.24E-01	2.92E-01
	677.61		10.53	5.28E+00		2.26E+00	2.62E+00
	706.67		16.46	3.64E+00		1.51E+00	1.80E+00
	763.93		21.98	2.86E+00		-2.83E+01	1.42E+00
	884.67		71.63	6.80E-01		3.09E-01	3.36E-01
	1384.27		23.94	2.28E+00		-1.36E+01	1.12E+00
CD-113M	263.70		0.02	1.48E+03	1.48E+03	6.22E+02	7.34E+02
SN-113	255.12		1.93	3.22E+01	9.80E-01	-6.36E+00	1.60E+01
	391.69		64.90	9.80E-01		2.04E-01	4.87E-01
TE123M	159.00		84.10	7.43E-01	7.43E-01	4.65E-01	3.70E-01
SB-124	602.71		97.87	1.28E+00	1.28E+00	-3.67E-02	6.35E-01
	645.85		7.26	1.77E+01		2.63E+00	8.76E+00
	722.78		11.10	1.21E+01		4.41E+00	5.99E+00
	1691.02		49.00	2.25E+00		-6.34E-01	1.10E+00
I-125	35.49		6.49	3.42E+01	3.42E+01	-2.19E+01	1.70E+01
SB-125	176.33		6.89	5.59E+00	1.25E+00	1.99E-01	2.78E+00
	427.89		29.33	1.25E+00		5.79E-01	6.22E-01
	463.38		10.35	4.94E+00		5.72E+01	2.46E+00
	600.56		17.80	2.43E+00		-3.91E-01	1.20E+00
	635.90		11.32	3.85E+00		-1.54E-01	1.91E+00
SB-126	414.70		83.30	9.97E+01	9.97E+01	1.75E+01	4.95E+01
	666.33		99.60	1.11E+02		2.82E+02	5.52E+01
	695.00		99.60	1.05E+02		-2.57E+01	5.21E+01
	720.50		53.80	1.92E+02		6.58E+01	9.51E+01
SN-126	87.57	*	37.00	1.47E+00	1.47E+00	1.56E+00	7.32E-01
SB-127	473.00		25.00	6.41E+07	5.78E+07	3.67E+07	3.18E+07
	685.20		35.70	5.78E+07		-5.78E+06	2.86E+07
	783.80		14.70	1.62E+08		7.91E+08	8.02E+07
I-129	29.78		57.00	2.16E+00	2.16E+00	6.08E+00	1.07E+00
	33.60		13.20	6.85E+00		1.71E+01	3.41E+00
	39.58		7.52	6.90E+00		1.31E+01	3.43E+00
I-131	284.30		6.05	2.68E+04	1.96E+03	7.58E+03	1.33E+04
	364.48		81.20	1.96E+03		5.17E+01	9.74E+02
	636.97		7.26	2.69E+04		3.63E+03	1.33E+04
	722.89		1.80	1.27E+05		-2.91E+06	6.31E+04
TE-132	49.72		13.10	3.07E+09	4.99E+08	4.54E+08	1.53E+09
	228.16		88.00	4.99E+08		-7.86E+07	2.48E+08
BA-133	81.00		33.00	8.52E-01	5.68E-01	1.22E+00	4.24E-01
	302.84		17.80	2.10E+00		-1.66E+01	1.04E+00
	356.01		60.00	5.68E-01		-1.09E-01	2.82E-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	3.18E+05	3.18E+05	4.54E+05	1.58E+05
CS-134	563.23		8.38	4.92E+00	4.74E-01	1.38E+01	2.44E+00
	569.32		15.43	2.48E+00		-4.45E-01	1.23E+00
	604.70		97.60	4.74E-01		-2.92E-02	2.35E-01
	795.84		85.40	7.20E-01		6.68E+00	3.57E-01
	801.93		8.73	4.72E+00		6.86E-01	2.33E+00
CS-135	268.24		16.00	2.48E+00	2.48E+00	-1.14E+01	1.23E+00
@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	I-135	1260.41		28.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	8.82E+02	6.67E+01	3.40E+03	4.39E+02
		163.89		4.61	1.36E+03		1.33E+02	6.76E+02
		176.55		13.56	4.69E+02		1.67E+01	2.34E+02
		273.65		12.66	4.90E+02		-9.28E+03	2.44E+02
		340.57		48.50	1.78E+02		-1.82E+02	8.88E+01
		818.50		99.70	6.67E+01		4.19E+01	3.30E+01
		1048.07		79.60	7.32E+01		-3.89E+00	3.60E+01
		1235.34		19.70	5.15E+02		2.34E+03	2.55E+02
	CS-137	661.65		85.12	5.05E-01	5.05E-01	1.25E-01	2.50E-01
	LA-138	788.74		34.00	1.38E+00	6.23E-01	3.66E+00	6.85E-01
		1435.80		66.00	6.23E-01		-7.79E-02	3.06E-01
	CE-139	165.85		80.35	7.23E-01	7.23E-01	6.19E-02	3.60E-01
	BA-140	162.64		6.70	1.08E+03	2.74E+02	2.72E+02	5.40E+02
		304.84		4.50	1.54E+03		1.09E+03	7.67E+02
		423.70		3.20	2.22E+03		3.60E+02	1.10E+03
		437.55		2.00	3.42E+03		-2.58E+02	1.70E+03
		537.32		25.00	2.74E+02		-3.07E+02	1.36E+02
	LA-140	328.77		20.50	4.31E+02	1.23E+02	3.18E+03	2.15E+02
		487.03		45.50	1.53E+02		1.83E+02	7.57E+01
		815.85		23.50	3.25E+02		-6.84E+00	1.61E+02
		1596.49		95.49	1.23E+02		1.97E+02	6.09E+01
	CE-141	145.44		48.40	6.06E+00	6.06E+00	-8.40E-01	3.02E+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	3.10E+00	3.10E+00	-1.76E-01	1.54E+00
	PM-144	476.78		42.00	9.72E-01	4.92E-01	-4.95E-02	4.82E-01
		618.01		98.60	4.92E-01		1.76E-01	2.44E-01
		696.49		99.49	5.27E-01		-3.03E-01	2.61E-01
	PM-145	36.85		21.70	2.90E+00	1.52E+00	-1.98E+00	1.44E+00
		37.36		39.70	1.52E+00		8.49E-01	7.55E-01
		42.30		15.10	2.82E+00		5.57E-01	1.40E+00
		72.40		2.31	1.44E+01		-6.94E+02	7.15E+00
+	PM-146	453.90	*	39.94	1.20E+00	1.20E+00	1.47E+00	5.97E-01
		735.90		14.01	3.05E+00		-5.47E-01	1.51E+00
		747.13		13.10	3.24E+00		2.20E-01	1.61E+00
	ND-147	91.11		28.90	5.69E+02	5.69E+02	5.98E+03	2.84E+02
		531.02		13.10	1.26E+03		-4.84E+02	6.22E+02
	PM-149	285.90		3.10	2.62E+14	2.62E+14	-1.14E+14	1.30E+14
	EU-152	121.78		20.50	1.24E+00	1.24E+00	1.07E-01	6.17E-01
		244.69		5.40	6.97E+00		-1.45E+02	3.47E+00
		344.27		19.13	1.80E+00		-9.39E-01	8.93E-01
		778.89		9.20	4.31E+00		-2.22E+01	2.13E+00
		964.01		10.40	6.24E+00		-4.27E+01	3.10E+00
		1085.78		7.22	4.62E+00		-1.27E+00	2.27E+00
		1112.02		9.60	3.92E+00		4.24E+00	1.93E+00
		1407.95		14.94	3.80E+00		6.42E+00	1.88E+00
	GD-153	97.43		31.30	1.06E+00	1.06E+00	-4.51E+00	5.26E-01
		103.18		22.20	1.43E+00		-7.39E+00	7.11E-01
	EU-154	123.07		40.50	6.38E-01	6.38E-01	-4.53E-01	3.17E-01
		723.30		19.70	2.49E+00		-5.70E+01	1.24E+00

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	873.19		11.50	3.31E+00	6.38E-01	1.71E+00	1.64E+00
		996.32		10.30	3.40E+00		-1.93E-01	1.67E+00
		1004.76		17.90	2.21E+00		2.11E+00	1.09E+00
		1274.45		35.50	1.02E+00		4.17E-02	5.02E-01
+	EU-155	86.50	*	30.90	1.82E+00	1.82E+00	1.94E+00	9.10E-01
		105.30	*	20.70	1.95E+00		5.00E+00	9.71E-01
	EU-156	811.77		10.40	3.14E+02	3.14E+02	-8.22E+00	1.55E+02
		1153.47		7.20	5.54E+02		2.20E+03	2.73E+02
		1230.71		8.90	3.44E+02		1.74E+01	1.69E+02
	HO-166M	184.41		72.60	6.36E-01	6.36E-01	8.95E+00	3.17E-01
		280.45		29.60	1.17E+00		-1.06E-02	5.83E-01
		410.94		11.10	3.64E+00		2.07E+01	1.81E+00
		711.69		54.10	8.05E-01		2.70E-01	3.99E-01
	TM-171	66.72		0.14	2.58E+02	2.58E+02	5.82E+02	1.28E+02
	HF-172	67.35		5.31	6.55E+00	2.57E+00	4.35E+00	3.26E+00
		125.81		11.30	2.57E+00		1.79E+00	1.28E+00
	LU-172	181.53		20.60	4.62E+04	1.61E+04	3.41E+03	2.30E+04
		900.72		29.81	3.32E+04		-9.55E+04	1.64E+04
		1093.66		62.50	1.61E+04		3.55E+04	7.93E+03
	LU-173	100.72		5.24	5.55E+00	2.33E+00	1.16E+01	2.76E+00
		272.11		21.20	2.33E+00		1.80E+01	1.16E+00
	HF-175	343.40		84.00	1.10E+00	1.10E+00	3.14E-02	5.46E-01
	LU-176	88.34		13.30	2.75E+00	3.55E-01	1.30E+01	1.37E+00
		201.83		86.00	4.36E-01		-2.23E-01	2.17E-01
		306.78		94.00	3.55E-01		1.35E-01	1.77E-01
	HF-181	133.02		41.70	3.18E+00	2.05E+00	3.30E-01	1.58E+00
		345.85		17.20	9.77E+00		-3.63E+00	4.85E+00
		482.03		82.80	2.05E+00		-2.10E-01	1.02E+00
	TA-182	67.75		41.20	1.38E+00	1.38E+00	9.16E-01	6.88E-01
		1121.30		34.90	4.58E+00		7.54E+01	2.28E+00
		1189.05		16.23	3.88E+00		-8.32E-01	1.91E+00
		1221.41		26.98	2.38E+00		1.08E+00	1.17E+00
		1231.02		11.44	5.49E+00		2.78E-01	2.70E+00
	IR-192	308.46		29.68	2.79E+00	1.73E+00	-2.01E+00	1.39E+00
		468.07		48.10	1.73E+00		-1.40E-02	8.57E-01
	HG-203	279.19		77.30	2.21E+00	2.21E+00	1.50E+01	1.10E+00
	TL-204	374.74		94.11	3.84E-01	3.84E-01	1.90E-01	1.90E-01
		899.15		99.16	3.94E-01		-1.54E+00	1.95E-01
		911.74		91.10	1.39E+00		4.04E+01	6.91E-01
	BI-207	569.67		97.72	3.60E-01	3.60E-01	-6.46E-02	1.78E-01
		1063.62		74.90	4.95E-01		-2.66E-02	2.44E-01
+	TL-208	583.14	*	30.22	2.17E+00	1.36E+00	1.19E+02	1.08E+00
		860.37	*	4.48	1.38E+01		1.35E+02	6.83E+00
		2614.66	*	35.85	1.36E+00		1.03E+02	6.66E-01
	BI-210M	262.00		45.00	7.50E-01	7.50E-01	9.99E-02	3.73E-01
		300.00		23.00	1.83E+00		1.50E+01	9.09E-01
+	PB-210	46.50	*	4.25	1.15E+01	1.15E+01	3.54E+01	5.74E+00
	PB-211	404.84		2.90	1.24E+01	1.24E+01	-7.46E+00	6.17E+00
		831.96		2.90	1.43E+01		-9.29E+01	7.06E+00
+	BI-212	727.17	*	11.80	6.14E+00	6.14E+00	7.75E+01	3.05E+00
		1620.62	*	2.75	4.25E+01		8.15E+01	2.11E+01
+	PB-212	238.63	*	44.60	1.93E+00	1.93E+00	1.22E+02	9.64E-01
		300.09	*	3.41	3.24E+01		1.19E+02	1.62E+01

Analysis Report for 1707086-03

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	BI-214	609.31	*	46.30	1.47E+00	1.47E+00	9.38E+01	7.30E-01
		1120.29	*	15.10	3.87E+00		1.00E+02	1.91E+00
		1764.49	*	15.80	4.17E+00		1.06E+02	2.06E+00
		2204.22	*	4.98	1.67E+01		1.09E+02	8.27E+00
+	PB-214	295.21	*	19.19	5.69E+00	1.40E+00	9.93E+01	2.84E+00
		351.92	*	37.19	1.40E+00		1.02E+02	6.96E-01
	RN-219	401.80		6.50	5.53E+00	5.53E+00	-6.91E+00	2.75E+00
+	RA-223	323.87	*	3.88	3.34E+01	3.34E+01	1.93E+01	1.67E+01
+	RA-224	240.98	*	3.95	2.19E+01	2.19E+01	2.35E+02	1.09E+01
+	RA-225	40.00	*	31.00	1.83E+02	1.83E+02	2.18E+02	9.09E+01
+	RA-226	186.21	*	3.28	1.56E+01	1.56E+01	2.07E+02	7.80E+00
	TH-227	50.10		8.40	3.97E+00	3.97E+00	5.87E-01	1.98E+00
		236.00		11.50	5.14E+00		-4.71E+02	2.56E+00
		256.20		6.30	5.46E+00		-1.08E+00	2.72E+00
+	AC-228	338.32	*	11.40	1.16E+01	3.24E+00	1.33E+02	5.80E+00
		911.07	*	27.70	3.24E+00		1.26E+02	1.61E+00
		969.11	*	16.60	5.73E+00		1.28E+02	2.85E+00
	TH-230	48.44		16.90	2.07E+00	2.07E+00	-9.83E+00	1.03E+00
		62.85		4.60	7.70E+00		3.04E+01	3.84E+00
		67.67		0.37	8.49E+01		5.63E+01	4.23E+01
	PA-231	283.67		1.60	2.12E+01	1.60E+01	6.00E+00	1.06E+01
		302.67		2.30	1.60E+01		-1.26E+02	7.94E+00
	TH-231	25.64		14.70	1.11E-01	1.11E-01	0.00E+00	0.00E+00
		84.21		6.40	4.79E+00		3.43E+01	2.39E+00
	PA-233	311.98		38.60	1.09E+01	1.09E+01	7.57E+00	5.40E+00
	PA-234	131.20		20.40	1.38E+00	1.38E+00	-5.54E-01	6.89E-01
		733.99		8.80	4.63E+00		-1.89E+00	2.29E+00
		946.00		12.00	3.00E+00		9.56E-01	1.48E+00
+	PA-234M	1001.03	*	0.92	6.22E+01	6.22E+01	1.39E+02	3.08E+01
+	TH-234	63.29	*	3.80	1.49E+01	1.49E+01	9.33E+01	7.42E+00
	U-235	143.76		10.50	3.42E+00	3.42E+00	8.45E+00	1.71E+00
		163.35		4.70	7.52E+00		7.35E-01	3.75E+00
		205.31		4.70	7.98E+00		6.82E+00	3.97E+00
	NP-237	86.50	*	12.60	4.31E+00	4.31E+00	4.59E+00	2.15E+00
	NP-239	106.10		22.70	4.27E+12	4.27E+12	2.23E+13	2.13E+12
		228.18		10.70	1.24E+13		-1.96E+12	6.19E+12
		277.60		14.10	1.01E+13		5.48E+13	5.04E+12
	AM-241	59.54		35.90	8.91E-01	8.91E-01	-8.87E+00	4.44E-01
	AM-243	74.67		66.00	6.98E-01	6.98E-01	-1.13E+01	3.48E-01
+	CM-243	209.75	*	3.29	1.57E+01	3.50E+00	1.52E+02	7.81E+00
		228.14		10.60	3.50E+00		-5.51E-01	1.74E+00
		277.60	*	14.00	6.61E+00		1.59E+01	3.30E+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 1707086-03

HTC-A02-S004-1218-01

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-A02-S004-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3669

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	1	1928	3614	3584	4325
33:	4343	4652	4551	3928	4051	4117	3944	4743
41:	4160	3861	4051	4024	4029	4756	6728	4786
49:	4526	4996	5108	5174	5823	6427	5772	7428
57:	10169	13397	7349	6740	6884	7222	9361	11765
65:	9381	9321	8433	8637	7670	7749	8117	8375
73:	9574	11026	30674	16987	34969	31425	7440	7615
81:	7236	7140	6787	10028	9989	7393	15158	16692
89:	7857	14735	9999	7956	16426	13730	7180	5898
97:	5484	5851	6766	7500	5654	5396	5307	5622
105:	6889	7763	5703	5626	6418	5856	5691	5623
113:	5716	5543	6043	6060	5332	5344	5235	5212
121:	5349	5364	5549	5501	5747	5982	5701	5937
129:	9014	7714	5764	5955	5499	5541	5586	5608
137:	5497	5563	5340	5541	5609	5520	5443	6555
145:	5783	5634	5250	5538	5385	5293	5439	5387
153:	5445	6727	6025	5120	5077	5009	5062	5036
161:	4938	4787	4993	5153	4659	4759	4802	4649
169:	4662	4615	4564	4609	4491	4679	4539	4570
177:	4722	4648	4576	4557	4467	4814	4650	4629
185:	5909	12327	8430	4590	4467	4468	4511	4429
193:	4336	4406	4240	4226	4208	4261	4406	4520
201:	4121	4211	4079	4136	4325	4148	3918	4223
209:	8266	7828	3859	3980	3882	3681	3780	4139
217:	3823	3619	3682	3601	3611	3508	3491	3686
225:	3504	3396	3523	3530	3424	3409	3457	3489
233:	3401	3443	3527	4043	4308	27279	64558	11347
241:	9740	12616	5729	2719	2485	2527	2471	2421
249:	2566	2558	2517	2700	2628	2466	2449	2681
257:	2671	2559	2926	2534	2357	2392	2327	2356
265:	2325	2261	2223	2369	2977	6182	5209	2558
273:	2270	2376	2641	2337	3847	4169	2562	2262
281:	2271	2194	2198	2174	2079	2178	2085	2529
289:	2290	2110	2048	2046	2095	3576	16434	12307
297:	2337	1925	2344	5409	3736	1909	1953	1930
305:	2002	1908	1877	1767	1790	1774	1867	1853
313:	1850	1941	1797	1807	1746	1769	1734	1764
321:	1815	2029	1850	1947	1885	1816	2391	4889
329:	2968	1953	1900	2098	2014	1791	1770	1869
337:	2561	11157	9781	2079	2056	1729	1670	1594
345:	1599	1562	1622	1611	1667	2006	9405	30723
353:	10228	1626	1505	1460	1492	1471	1498	1451
361:	1426	1466	1446	1503	1412	1443	1469	1530

369:	1410	1446	1442	1423	1394	1483	1452	1492

Sample Title: HTC-A02-S004-1218-01

Channel								
377:	1552	1443	1387	1405	1369	1378	1419	1417
385:	1404	1531	1613	1560	1744	1506	1478	1404
393:	1451	1410	1384	1404	1344	1431	1543	1437
401:	1425	1596	1447	1374	1564	1513	1327	1454
409:	2470	2576	1340	1288	1217	1193	1329	1291
417:	1252	1270	1284	1295	1238	1244	1211	1281
425:	1248	1242	1230	1277	1145	1152	1129	1091
433:	1105	1074	1103	1079	1114	1146	1036	1198
441:	1080	1047	1030	1008	1090	1048	1042	1017
449:	1078	1062	1063	1145	1349	1147	1142	1019
457:	1051	963	940	935	1088	1941	4235	2144
465:	983	1009	986	975	934	984	905	993
473:	967	1016	1006	945	908	1055	1051	1040
481:	1107	926	957	899	898	946	1072	1002
489:	887	876	830	856	881	847	902	868
497:	839	872	849	862	874	850	950	989
505:	907	833	888	1088	1653	3824	5894	2140
513:	960	912	887	847	804	840	817	863
521:	846	873	888	851	843	805	788	790
529:	826	817	800	792	839	935	806	811
537:	808	805	785	865	851	755	849	849
545:	831	871	912	820	825	827	769	804
553:	833	752	823	818	812	760	765	750
561:	776	1184	1208	841	740	773	776	715
569:	753	842	939	888	830	771	791	795
577:	775	836	811	924	1202	4974	16839	9705
585:	1213	741	778	757	722	696	719	732
593:	672	728	729	730	719	705	731	695
601:	679	706	714	670	737	798	1044	4680
609:	18070	12767	1638	676	652	623	657	736
617:	687	665	619	615	699	667	658	645
625:	631	629	661	622	646	628	626	649
633:	681	644	647	655	664	637	670	702
641:	647	643	587	653	633	649	708	691
649:	698	673	646	687	654	606	664	632
657:	647	675	663	674	681	654	669	723
665:	1106	1028	637	591	606	634	614	605
673:	614	637	652	650	636	636	608	652
681:	641	613	635	621	589	665	698	709
689:	656	602	625	617	597	601	668	639
697:	667	674	667	685	734	774	809	741
705:	640	653	664	703	644	587	642	616
713:	602	575	597	552	561	585	611	655
721:	609	549	523	590	675	1602	3783	2529
729:	762	542	513	500	500	561	511	518
737:	539	577	524	537	595	611	630	527
745:	497	538	496	526	526	481	509	507
753:	546	621	940	761	524	499	479	489
761:	505	585	753	685	578	671	951	1905
769:	1501	597	679	1014	776	518	428	414
777:	408	436	411	461	482	663	551	545
785:	1009	1129	592	419	408	396	359	396
793:	559	1282	2094	982	390	377	369	408

801:	381	336	420	383	523	730	541	361

Sample Title: HTC-A02-S004-1218-01

Channel								
809:	358	367	363	400	322	356	370	360
817:	374	364	357	371	397	380	333	374
825:	383	391	366	369	425	537	504	454
833:	349	416	843	954	478	475	638	708
841:	573	332	327	310	321	331	323	329
849:	361	329	332	324	335	341	306	320
857:	349	399	727	1766	1743	580	305	315
865:	311	293	311	305	326	330	330	361
873:	347	326	306	286	314	298	283	288
881:	310	334	305	302	337	292	327	337
889:	288	319	296	332	450	389	339	317
897:	291	310	291	307	330	321	423	545
905:	439	353	331	455	1099	4446	9846	5572
913:	794	306	272	285	264	274	286	269
921:	241	283	292	248	268	261	281	292
929:	279	275	265	364	680	1035	625	296
937:	246	246	263	210	255	236	261	296
945:	279	245	269	280	282	271	281	293
953:	287	225	269	265	261	314	345	259
961:	277	326	608	1541	1965	802	1066	3634
969:	5723	2265	395	283	245	216	249	220
977:	239	223	241	234	237	253	223	252
985:	235	216	261	285	243	190	231	233
993:	220	213	207	206	213	241	245	360
1001:	467	333	253	251	231	199	225	209
1009:	238	206	204	216	205	229	202	241
1017:	221	207	196	243	209	208	202	233
1025:	221	196	203	205	195	199	205	239
1033:	299	232	221	186	204	216	193	213
1041:	206	200	184	170	201	188	194	186
1049:	196	180	232	241	240	210	209	190
1057:	168	196	202	209	194	214	204	256
1065:	294	239	187	216	222	257	223	203
1073:	196	200	219	199	225	334	333	225
1081:	211	161	194	183	174	164	175	182
1089:	172	201	178	197	289	350	242	243
1097:	207	164	175	184	182	190	185	198
1105:	190	176	185	192	215	272	289	193
1113:	164	189	169	217	292	547	1593	3430
1121:	2174	475	183	176	186	180	171	155
1129:	193	177	163	176	216	231	172	187
1137:	191	178	203	171	173	161	190	193
1145:	161	185	170	158	185	185	201	194
1153:	263	353	549	367	193	180	146	173
1161:	182	191	177	176	167	165	169	190
1169:	171	179	169	169	184	164	195	170
1177:	150	131	184	179	190	197	184	197
1185:	183	191	159	181	167	153	153	164
1193:	163	164	166	174	180	158	178	178
1201:	168	161	158	154	143	198	233	232
1209:	189	155	149	170	151	166	146	174
1217:	168	171	183	161	151	166	175	174
1225:	157	140	171	153	154	147	149	166

1233:	175	158	212	321	816	1237	729	259

Sample Title: HTC-A02-S004-1218-01

Channel								
1241:	149	171	179	178	230	247	248	209
1249:	170	181	162	192	216	191	209	157
1257:	146	168	188	154	176	143	160	148
1265:	145	155	167	167	170	165	170	160
1273:	158	166	149	157	150	156	221	349
1281:	405	251	161	161	177	148	181	185
1289:	182	179	157	139	148	152	141	160
1297:	174	144	139	167	134	154	164	149
1305:	176	160	157	138	141	158	150	159
1313:	159	160	164	179	162	139	133	133
1321:	141	146	139	158	166	140	142	124
1329:	161	167	155	138	132	149	148	153
1337:	149	160	148	124	155	173	152	134
1345:	177	137	137	148	140	145	154	152
1353:	140	152	163	169	150	147	140	141
1361:	156	157	132	121	132	153	139	142
1369:	151	137	151	153	179	210	226	448
1377:	811	773	289	139	137	147	171	217
1385:	276	250	159	130	142	135	138	139
1393:	123	125	123	137	137	162	159	226
1401:	327	325	183	158	201	267	457	527
1409:	280	167	147	131	137	141	165	127
1417:	115	137	154	159	133	132	144	140
1425:	144	148	120	142	152	153	136	135
1433:	144	144	156	140	131	131	123	124
1441:	137	124	129	132	103	127	141	123
1449:	133	126	133	141	137	144	128	143
1457:	182	235	303	284	242	136	132	131
1465:	150	120	120	152	138	141	138	123
1473:	136	123	121	113	132	123	130	142
1481:	130	143	122	116	123	123	116	152
1489:	107	126	112	131	146	194	274	310
1497:	179	139	131	190	234	203	142	132
1505:	129	152	198	364	482	331	189	188
1513:	179	160	111	151	139	114	128	121
1521:	152	112	127	122	121	135	121	131
1529:	121	140	132	131	126	112	128	135
1537:	169	186	168	144	130	142	180	152
1545:	116	119	103	118	109	107	93	128
1553:	126	101	104	153	131	118	111	107
1561:	99	107	98	110	100	103	96	98
1569:	90	97	109	108	92	107	105	90
1577:	103	127	174	226	213	188	223	176
1585:	159	299	535	709	476	309	378	487
1593:	408	198	152	112	106	101	150	128
1601:	92	102	99	122	91	107	121	92
1609:	115	94	91	95	97	87	96	83
1617:	95	136	225	370	357	165	87	138
1625:	136	123	119	125	229	370	365	155
1633:	103	82	95	110	172	150	128	102
1641:	71	76	77	81	76	85	75	81
1649:	93	97	78	72	78	74	102	81
1657:	89	89	93	159	232	171	101	82

1665:	91	110	103	62	80	99	64	73

Sample Title: HTC-A02-S004-1218-01

Channel								
1673:	72	63	61	59	81	95	99	83
1681:	75	71	96	103	109	70	72	76
1689:	73	74	88	100	95	85	84	65
1697:	61	58	54	65	64	70	78	75
1705:	74	79	82	70	66	67	77	64
1713:	56	62	53	82	79	72	65	66
1721:	78	71	79	92	74	92	145	322
1729:	545	424	197	73	67	66	65	72
1737:	67	83	72	64	64	73	65	61
1745:	72	62	75	83	75	68	48	70
1753:	66	68	73	88	80	101	105	129
1761:	253	510	1247	2135	1631	473	113	64
1769:	71	64	75	77	57	73	48	64
1777:	69	60	64	63	71	77	67	70
1785:	61	75	64	69	75	75	45	72
1793:	58	64	75	66	70	55	73	65
1801:	63	65	56	62	79	79	65	70
1809:	73	68	67	68	62	70	77	66
1817:	70	71	66	67	75	75	77	77
1825:	71	70	72	74	77	77	72	76
1833:	82	67	69	86	79	128	105	82
1841:	62	85	85	99	139	264	365	253
1849:	106	63	68	73	57	70	71	74
1857:	67	80	79	51	75	74	74	67
1865:	71	87	73	72	70	82	89	85
1873:	74	85	75	67	60	72	65	69
1881:	79	66	70	74	88	83	91	74
1889:	88	78	79	72	81	62	99	88
1897:	92	67	71	71	81	66	79	74
1905:	75	66	75	66	58	68	82	69
1913:	62	60	73	65	86	94	70	64
1921:	67	70	49	86	71	60	80	79
1929:	80	68	72	73	84	90	90	98
1937:	81	72	66	71	66	70	73	76
1945:	75	67	53	92	65	63	80	98
1953:	67	70	78	57	63	63	73	76
1961:	56	75	69	86	75	75	70	69
1969:	87	53	76	61	51	67	74	53
1977:	66	70	59	75	64	66	83	67
1985:	63	63	67	82	79	50	65	65
1993:	69	59	59	61	50	66	56	68
2001:	59	75	64	66	68	59	64	58
2009:	70	65	74	68	73	68	63	73
2017:	64	63	54	57	60	63	53	67
2025:	57	62	70	60	63	73	58	52
2033:	55	60	72	58	50	61	65	51
2041:	76	52	61	59	69	61	58	65
2049:	67	78	62	75	68	54	53	67
2057:	66	52	61	56	59	71	66	51
2065:	59	68	56	50	71	50	77	56
2073:	73	58	79	48	54	59	52	59
2081:	65	52	75	54	70	74	64	51
2089:	76	58	68	61	59	77	84	70

2097:	93	103	130	174	292	441	479	346

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Channel								
2105:	194	111	74	70	70	72	67	71
2113:	69	72	85	101	150	200	140	100
2121:	86	70	82	64	63	50	67	59
2129:	58	71	65	61	74	68	75	65
2137:	78	60	66	69	71	76	69	66
2145:	76	57	66	72	63	55	64	60
2153:	67	58	80	74	62	58	86	57
2161:	65	61	92	77	62	70	60	71
2169:	56	76	64	59	58	71	90	91
2177:	66	66	61	71	69	74	63	67
2185:	72	69	66	78	74	70	85	78
2193:	66	69	74	82	91	84	88	114
2201:	182	348	487	526	306	122	70	77
2209:	86	73	63	70	75	83	68	80
2217:	84	68	73	68	63	82	71	64
2225:	64	75	70	70	70	74	51	62
2233:	79	51	73	74	64	80	71	66
2241:	80	81	68	100	66	88	74	73
2249:	78	70	73	78	83	72	81	83
2257:	90	78	85	74	85	73	73	88
2265:	73	80	83	88	100	94	77	80
2273:	85	82	75	85	85	85	93	81
2281:	79	102	87	88	77	90	103	80
2289:	85	78	99	93	118	121	91	87
2297:	98	75	78	76	78	90	78	89
2305:	96	87	87	77	73	86	77	82
2313:	99	80	95	79	90	78	83	83
2321:	93	89	101	87	96	84	97	83
2329:	108	99	76	91	73	101	110	96
2337:	90	93	94	88	96	103	109	80
2345:	107	104	103	108	107	98	95	100
2353:	91	105	112	105	105	92	109	90
2361:	111	83	98	99	83	98	96	93
2369:	92	100	98	73	116	98	96	96
2377:	104	92	92	90	75	72	85	74
2385:	69	87	76	62	57	71	71	63
2393:	70	79	62	57	73	75	64	62
2401:	67	67	53	73	53	49	57	57
2409:	68	69	66	46	58	63	65	51
2417:	60	68	68	62	51	56	64	60
2425:	59	64	66	51	54	56	69	68
2433:	53	60	52	47	56	45	65	53
2441:	72	64	55	83	105	146	183	151
2449:	83	57	47	65	59	49	55	57
2457:	53	50	43	52	49	40	48	52
2465:	33	53	43	45	44	39	36	31
2473:	44	44	33	42	40	43	43	28
2481:	39	37	36	39	47	40	32	32
2489:	31	37	38	25	32	24	28	23
2497:	21	33	31	35	28	27	33	19
2505:	28	32	32	23	26	24	17	20
2513:	23	22	19	24	20	15	17	19
2521:	15	15	13	16	19	21	20	23

2529:	9	14	20	17	24	17	13	15

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Channel								
2537:	18	13	13	17	21	16	14	22
2545:	11	14	16	10	18	18	12	18
2553:	7	16	10	9	12	15	19	14
2561:	13	16	9	21	10	14	15	14
2569:	7	16	12	12	14	20	17	16
2577:	9	18	11	10	12	20	16	13
2585:	16	12	16	12	17	19	12	14
2593:	9	17	20	10	21	8	23	18
2601:	20	16	35	34	37	63	61	109
2609:	199	375	771	1418	2641	3067	1990	586
2617:	92	19	15	7	16	12	11	11
2625:	9	11	8	16	9	11	10	5
2633:	13	9	7	11	14	13	5	11
2641:	13	13	12	14	13	10	13	17
2649:	7	10	7	8	12	10	13	15
2657:	14	10	10	11	13	7	11	10
2665:	6	7	7	18	12	10	19	5
2673:	8	13	7	13	9	10	8	14
2681:	14	11	13	15	20	27	16	21
2689:	8	14	12	4	13	8	12	9
2697:	7	12	11	8	13	12	10	7
2705:	13	7	6	4	7	14	13	3
2713:	5	7	14	4	7	8	8	7
2721:	14	9	10	6	11	11	8	3
2729:	12	8	5	9	9	6	6	8
2737:	7	14	11	8	8	14	7	3
2745:	4	7	10	7	6	9	10	9
2753:	7	7	4	11	6	8	11	12
2761:	5	5	9	8	13	8	14	11
2769:	10	8	9	7	9	8	8	13
2777:	7	12	7	1	10	7	8	12
2785:	12	12	8	7	9	8	8	13
2793:	9	6	7	5	2	8	4	7
2801:	13	8	11	11	10	5	3	5
2809:	5	7	10	10	7	5	12	4
2817:	7	5	8	7	8	8	6	7
2825:	9	8	6	14	7	8	8	9
2833:	7	5	4	3	9	7	5	10
2841:	8	5	13	9	8	10	5	9
2849:	2	3	10	6	6	6	4	6
2857:	5	6	5	4	7	10	7	9
2865:	9	8	6	4	7	5	3	5
2873:	7	10	8	4	2	10	4	7
2881:	5	7	8	10	3	6	7	5
2889:	7	16	9	8	10	3	4	10
2897:	4	2	6	5	5	6	3	8
2905:	3	8	9	3	2	7	6	4
2913:	5	6	6	4	3	6	6	4
2921:	6	5	2	7	5	6	2	6
2929:	5	4	5	3	14	3	4	7
2937:	3	4	6	4	3	5	5	6
2945:	3	5	7	4	3	6	6	8
2953:	7	4	3	4	3	6	7	8

2961:	7	5	5	9	6	3	6	3

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Channel								
2969:	7	3	2	2	2	7	4	3
2977:	2	3	8	4	6	5	8	0
2985:	3	4	3	3	4	3	5	7
2993:	4	7	4	4	6	6	6	3
3001:	3	2	0	3	6	7	6	8
3009:	5	3	5	5	8	3	3	2
3017:	1	7	3	1	5	2	3	2
3025:	1	5	6	3	3	5	2	1
3033:	6	6	3	2	1	2	3	4
3041:	3	4	5	3	1	3	5	3
3049:	1	2	4	5	2	4	3	5
3057:	0	7	2	4	4	2	1	4
3065:	4	2	2	3	4	3	2	1
3073:	3	0	1	2	4	0	1	1
3081:	3	1	4	1	0	0	4	0
3089:	1	0	1	1	3	1	2	1
3097:	1	0	0	1	1	3	0	0
3105:	5	1	3	1	3	4	1	0
3113:	2	1	2	0	5	1	5	3
3121:	7	8	17	15	16	5	4	0
3129:	1	3	2	2	1	0	1	1
3137:	1	3	0	3	1	0	1	0
3145:	4	1	2	2	1	2	2	0
3153:	4	1	1	1	1	2	4	0
3161:	5	3	1	4	0	2	2	0
3169:	3	1	2	0	0	1	1	0
3177:	1	4	4	0	0	0	1	0
3185:	1	0	2	2	7	2	3	7
3193:	15	14	29	53	44	21	10	0
3201:	0	1	2	3	3	0	0	1
3209:	1	2	0	3	3	0	2	2
3217:	0	1	0	2	3	2	0	0
3225:	1	1	0	2	2	0	0	1
3233:	0	0	1	0	0	1	3	4
3241:	0	1	3	0	2	0	0	1
3249:	1	0	2	2	0	0	1	0
3257:	0	1	1	0	0	2	0	0
3265:	0	1	0	0	1	0	2	0
3273:	0	0	2	1	0	1	0	3
3281:	0	3	2	0	0	0	0	1
3289:	1	2	2	0	1	0	0	0
3297:	2	0	0	1	0	2	0	1
3305:	0	1	0	0	3	2	0	1
3313:	2	0	0	0	1	0	1	1
3321:	0	0	0	0	0	0	0	0
3329:	1	0	2	0	0	1	1	0
3337:	0	0	0	0	0	1	1	2
3345:	0	2	2	0	1	1	0	1
3353:	0	0	0	1	0	1	0	0
3361:	0	0	1	2	0	0	0	0
3369:	2	0	1	0	1	1	2	3
3377:	0	1	0	0	0	1	0	1
3385:	0	1	1	1	0	0	1	1

3393:	1	2	2	1	0	0	0	1

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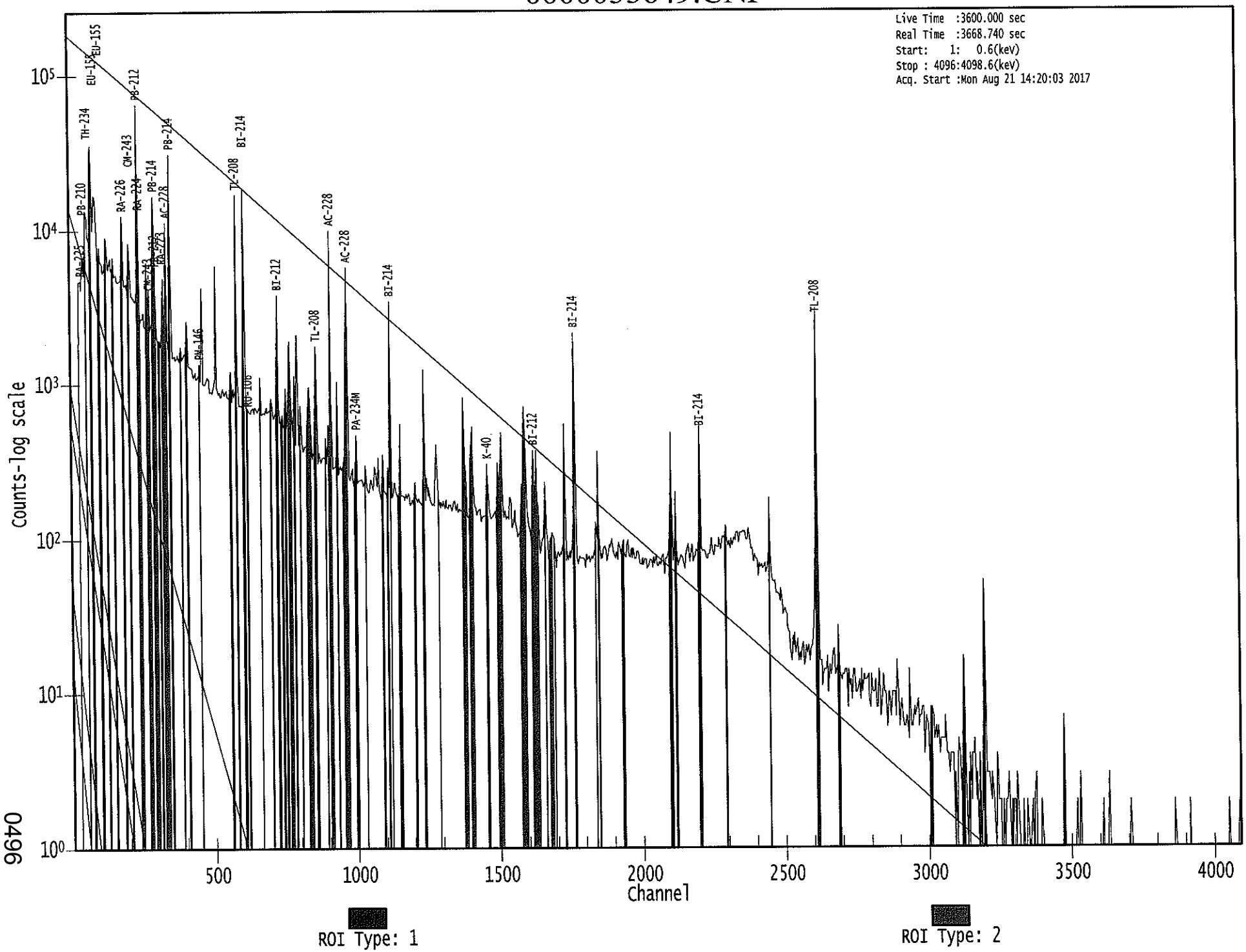
Channel								
3401:	0	0	0	1	0	1	0	0
3409:	0	0	1	0	0	1	1	1
3417:	1	1	0	1	0	0	1	0
3425:	1	0	1	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	1	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	0	1	3	4	2
3473:	5	7	2	1	1	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	0	1	0	0	1	0	0
3497:	0	0	1	0	0	0	0	0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

Sample Title: HTC-A02-S004-1218-01

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

0000055649.CNF



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Apex-Gamma

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Analysis Report for 1707086-04

HTC-A02-S004-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-04
Sample Description	: HTC-A02-S004-1218-01
Sample Type	: SOIL
Sample Size	: 7.044E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:07:29AM
Acquisition Started	: 8/21/2017 3:21:32PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3668.7 seconds
Dead Time	: 1.87 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 27 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55695

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/22/2017 7:56:55AM
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	39.90	40.25	0.0000	0.00
2	46.57	46.92	0.0000	0.00
3	57.20	57.54	0.0000	0.00
4	63.90	64.22	0.0000	0.00
5	76.23	76.55	0.0000	0.00
6	88.13	88.43	0.0000	0.00
7	92.95	93.24	0.0000	0.00
8	99.35	99.64	0.0000	0.00
9	105.23	105.51	0.0000	0.00
10	115.17	115.44	0.0000	0.00
11	129.28	129.53	0.0000	0.00
12	144.04	144.28	0.0000	0.00
13	153.98	154.21	0.0000	0.00
14	163.16	163.37	0.0000	0.00
15	186.00	186.19	0.0000	0.00
16	191.82	192.01	0.0000	0.00
17	199.81	199.99	0.0000	0.00
18	209.37	209.54	0.0000	0.00
19	215.97	216.13	0.0000	0.00
20	238.67	238.81	0.0000	0.00
21	241.62	241.75	0.0000	0.00
22	256.14	256.26	0.0000	0.00
23	258.63	258.74	0.0000	0.00
24	270.26	270.36	0.0000	0.00
25	274.90	275.00	0.0000	0.00
26	287.79	287.87	0.0000	0.00
27	295.30	295.38	0.0000	0.00
28	300.16	300.23	0.0000	0.00
29	328.07	328.11	0.0000	0.00
30	338.41	338.44	0.0000	0.00
31	340.97	341.00	0.0000	0.00
32	351.97	351.99	0.0000	0.00
33	388.37	388.35	0.0000	0.00
34	409.53	409.49	0.0000	0.00
35	440.63	440.55	0.0000	0.00
36	453.67	453.58	0.0000	0.00
37	463.11	463.01	0.0000	0.00
38	470.19	470.08	0.0000	0.00
39	479.75	479.64	0.0000	0.00
40	487.38	487.26	0.0000	0.00
41	510.88	510.73	0.0000	0.00
42	534.27	534.10	0.0000	0.00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	562.65	562.45	0.0000	0.00
44	583.35	583.13	0.0000	0.00
45	609.50	609.26	0.0000	0.00
46	665.67	665.37	0.0000	0.00
47	702.79	702.46	0.0000	0.00
48	708.12	707.78	0.0000	0.00
49	721.15	720.79	0.0000	0.00
50	727.56	727.20	0.0000	0.00
51	741.95	741.57	0.0000	0.00
52	755.29	754.90	0.0000	0.00
53	764.00	763.61	0.0000	0.00
54	768.63	768.23	0.0000	0.00
55	772.56	772.16	0.0000	0.00
56	782.33	781.92	0.0000	0.00
57	786.14	785.73	0.0000	0.00
58	795.26	794.83	0.0000	0.00
59	806.61	806.18	0.0000	0.00
60	830.85	830.39	0.0000	0.00
61	836.20	835.73	0.0000	0.00
62	840.41	839.94	0.0000	0.00
63	860.85	860.36	0.0000	0.00
64	893.84	893.32	0.0000	0.00
65	904.69	904.16	0.0000	0.00
66	911.59	911.05	0.0000	0.00
67	934.49	933.94	0.0000	0.00
68	959.78	959.20	0.0000	0.00
69	965.39	964.80	0.0000	0.00
70	969.41	968.82	0.0000	0.00
71	989.13	988.52	0.0000	0.00
72	1002.29	1001.67	0.0000	0.00
73	1033.06	1032.41	0.0000	0.00
74	1065.47	1064.79	0.0000	0.00
75	1070.81	1070.13	0.0000	0.00
76	1078.49	1077.80	0.0000	0.00
77	1095.20	1094.50	0.0000	0.00
78	1111.41	1110.69	0.0000	0.00
79	1120.81	1120.08	0.0000	0.00
80	1155.50	1154.74	0.0000	0.00
81	1182.72	1181.94	0.0000	0.00
82	1208.19	1207.38	0.0000	0.00
83	1238.68	1237.84	0.0000	0.00
84	1247.56	1246.72	0.0000	0.00
85	1253.88	1253.04	0.0000	0.00
86	1281.56	1280.69	0.0000	0.00
87	1378.29	1377.34	0.0000	0.00
88	1385.83	1384.86	0.0000	0.00
89	1401.89	1400.91	0.0000	0.00
90	1408.59	1407.61	0.0000	0.00
91	1425.35	1424.36	0.0000	0.00
92	1432.42	1431.41	0.0000	0.00
93	1460.26	1459.23	0.0000	0.00
94	1474.18	1473.15	0.0000	0.00
95	1496.83	1495.77	0.0000	0.00
96	1502.39	1501.34	0.0000	0.00
97	1510.00	1508.94	0.0000	0.00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1514.17	1513.10	0.0000	0.00
99	1530.23	1529.15	0.0000	0.00
100	1539.85	1538.76	0.0000	0.00
101	1543.96	1542.87	0.0000	0.00
102	1575.93	1574.81	0.0000	0.00
103	1582.13	1581.00	0.0000	0.00
104	1588.99	1587.86	0.0000	0.00
105	1593.21	1592.08	0.0000	0.00
106	1621.56	1620.40	0.0000	0.00
107	1631.34	1630.18	0.0000	0.00
108	1639.20	1638.03	0.0000	0.00
109	1661.90	1660.71	0.0000	0.00
110	1693.59	1692.37	0.0000	0.00
111	1730.52	1729.28	0.0000	0.00
112	1765.30	1764.02	0.0000	0.00
113	1806.75	1805.45	0.0000	0.00
114	1839.86	1838.53	0.0000	0.00
115	1848.33	1846.99	0.0000	0.00
116	1888.60	1887.24	0.0000	0.00
117	1896.16	1894.79	0.0000	0.00
118	2104.06	2102.54	0.0000	0.00
119	2119.73	2118.19	0.0000	0.00
120	2204.81	2203.21	0.0000	0.00
121	2294.71	2293.05	0.0000	0.00
122	2448.47	2446.71	0.0000	0.00
123	2615.31	2613.44	0.0000	0.00
124	2687.48	2685.56	0.0000	0.00
125	2780.16	2778.20	0.0000	0.00
126	2785.63	2783.66	0.0000	0.00
127	2928.45	2926.40	0.0000	0.00
128	2950.27	2948.20	0.0000	0.00
129	2985.13	2983.05	0.0000	0.00
130	3126.04	3123.88	0.0000	0.00
131	3198.07	3195.87	0.0000	0.00
132	3475.73	3473.40	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 7:56:55AM

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)
	1	39.90	39 -	42	40.25	7.21E+02	360.58	3.17E+04	1.16
	2	46.57	46 -	49	46.92	2.50E+03	395.58	3.68E+04	1.06
	3	57.20	56 -	61	57.54	1.06E+04	677.43	8.38E+04	1.59
	4	63.90	61 -	67	64.22	8.26E+03	790.17	1.08E+05	1.85
	5	76.23	72 -	82	76.55	9.09E+04	1263.83	1.63E+05	3.85
M	6	88.13	83 -	97	88.43	2.86E+04	873.08	1.01E+05	2.60
m	7	92.95	83 -	97	93.24	2.60E+04	712.28	7.09E+04	2.12
	8	99.35	98 -	102	99.64	3.80E+03	508.18	5.38E+04	1.90
	9	105.23	103 -	108	105.51	2.85E+03	589.86	6.73E+04	1.71
	10	115.17	114 -	117	115.44	1.45E+03	424.18	4.33E+04	1.87
	11	129.28	127 -	133	129.53	5.98E+03	679.07	7.93E+04	1.62
	12	144.04	143 -	146	144.28	1.67E+03	424.41	4.34E+04	1.33
	13	153.98	152 -	157	154.21	2.40E+03	567.45	6.23E+04	1.69
	14	163.16	162 -	166	163.37	4.33E+02	469.46	4.86E+04	1.80
	15	186.00	183 -	190	186.19	1.32E+04	696.34	7.18E+04	1.57
	16	191.82	191 -	194	192.01	4.68E+02	373.46	3.43E+04	3.04
	17	199.81	198 -	202	199.99	4.85E+02	438.78	4.23E+04	1.76
	18	209.37	207 -	213	209.54	8.40E+03	574.09	5.35E+04	1.89
	19	215.97	215 -	218	216.13	6.36E+02	346.36	2.93E+04	1.30
M	20	238.67	234 -	246	238.81	9.60E+04	692.05	2.41E+04	1.45
m	21	241.62	234 -	246	241.75	2.15E+04	729.79	3.14E+04	1.96
M	22	256.14	255 -	261	256.26	5.96E+02	174.22	9.69E+03	1.22
m	23	258.63	255 -	261	258.74	8.88E+02	283.75	1.89E+04	1.49
M	24	270.26	267 -	281	270.36	8.27E+03	364.97	2.22E+04	1.75
m	25	274.90	267 -	281	275.00	3.95E+02	271.62	1.77E+04	1.26
M	26	287.79	285 -	304	287.87	6.69E+02	309.21	2.13E+04	1.81
m	27	295.30	285 -	304	295.38	2.68E+04	414.00	1.63E+04	1.44
m	28	300.16	285 -	304	300.23	6.15E+03	336.80	1.95E+04	1.54
	29	328.07	325 -	331	328.11	4.12E+03	402.41	2.65E+04	1.35
M	30	338.41	336 -	343	338.44	1.86E+04	386.49	1.66E+04	1.51
m	31	340.97	336 -	343	341.00	7.30E+02	298.52	1.27E+04	1.36
	32	351.97	347 -	356	351.99	4.70E+04	629.73	2.98E+04	1.41
	33	388.37	386 -	391	388.35	6.76E+02	297.66	1.72E+04	3.59
	34	409.53	406 -	413	409.49	2.12E+03	379.65	2.24E+04	1.88
	35	440.63	439 -	443	440.55	2.68E+02	218.74	1.04E+04	2.09
	36	453.67	450 -	457	453.58	7.47E+02	317.00	1.62E+04	2.92
	37	463.11	459 -	467	463.01	5.66E+03	369.91	1.76E+04	1.61
	38	470.19	468 -	472	470.08	2.60E+02	208.57	9.41E+03	1.14
	39	479.75	477 -	482	479.64	5.24E+02	238.53	1.10E+04	3.64
	40	487.38	486 -	490	487.26	2.49E+02	204.39	9.05E+03	1.92

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	510.88	507 -	516	510.73	1.04E+04	401.56	1.70E+04	1.81
	42	534.27	532 -	537	534.10	2.86E+02	224.43	9.85E+03	1.42
	43	562.65	559 -	566	562.45	8.10E+02	279.09	1.25E+04	1.89
	44	583.35	578 -	587	583.13	3.05E+04	474.38	1.47E+04	1.75
	45	609.50	604 -	614	609.26	3.48E+04	504.13	1.53E+04	1.93
	46	665.67	662 -	668	665.37	1.08E+03	231.87	8.95E+03	2.16
	47	702.79	700 -	706	702.46	2.29E+02	228.12	9.31E+03	2.10
	48	708.12	706 -	711	707.78	1.91E+02	194.54	7.39E+03	1.70
M	49	721.15	717 -	730	720.79	2.77E+02	232.94	8.98E+03	2.62
m	50	727.56	717 -	730	727.20	6.63E+03	243.53	6.48E+03	1.84
	51	741.95	739 -	745	741.57	2.37E+02	205.58	7.51E+03	3.80
	52	755.29	751 -	759	754.90	9.57E+02	250.39	9.05E+03	2.11
M	53	764.00	760 -	779	763.61	5.85E+02	199.89	6.84E+03	2.44
m	54	768.63	760 -	779	768.23	3.18E+03	205.23	5.62E+03	1.95
m	55	772.56	760 -	779	772.16	1.25E+03	224.75	6.30E+03	2.45
M	56	782.33	779 -	790	781.92	4.73E+02	165.16	5.04E+03	2.15
m	57	786.14	779 -	790	785.73	1.70E+03	178.23	4.92E+03	2.08
	58	795.26	790 -	799	794.83	3.47E+03	261.67	7.79E+03	1.87
	59	806.61	803 -	810	806.18	5.98E+02	197.58	6.11E+03	1.77
M	60	830.85	827 -	844	830.39	3.92E+02	152.87	4.61E+03	2.13
m	61	836.20	827 -	844	835.73	1.49E+03	183.87	5.04E+03	2.28
m	62	840.41	827 -	844	839.94	1.06E+03	185.82	4.75E+03	2.30
	63	860.85	855 -	865	860.36	3.46E+03	257.32	6.99E+03	2.14
	64	893.84	891 -	897	893.32	2.41E+02	156.27	4.27E+03	1.81
M	65	904.69	901 -	914	904.16	5.66E+02	141.67	3.68E+03	2.01
m	66	911.59	901 -	914	911.05	2.06E+04	316.53	3.48E+03	2.04
	67	934.49	929 -	938	933.94	1.70E+03	211.09	5.38E+03	2.04
M	68	959.78	953 -	973	959.20	1.76E+02	141.86	3.81E+03	2.21
m	69	965.39	953 -	973	964.80	3.94E+03	196.54	3.68E+03	2.21
m	70	969.41	953 -	973	968.82	1.19E+04	255.24	2.86E+03	2.00
	71	989.13	986 -	992	988.52	1.14E+02	131.16	3.04E+03	1.72
	72	1002.29	996 -	1007	1001.67	8.27E+02	206.30	4.88E+03	1.99
	73	1033.06	1029 -	1035	1032.41	2.30E+02	123.75	2.61E+03	2.00
	74	1065.47	1062 -	1068	1064.79	1.91E+02	125.84	2.75E+03	1.82
	75	1070.81	1068 -	1073	1070.13	1.75E+02	106.34	2.11E+03	2.71
	76	1078.49	1074 -	1082	1077.80	4.11E+02	150.60	3.25E+03	2.77
	77	1095.20	1091 -	1099	1094.50	3.26E+02	149.96	3.25E+03	3.04
M	78	1111.41	1107 -	1125	1110.69	2.19E+02	122.45	2.66E+03	2.30
m	79	1120.81	1107 -	1125	1120.08	7.54E+03	209.68	2.50E+03	2.29
	80	1155.50	1149 -	1159	1154.74	8.92E+02	181.37	3.89E+03	2.84
	81	1182.72	1179 -	1185	1181.94	1.99E+02	111.66	2.11E+03	3.58
	82	1208.19	1204 -	1211	1207.38	2.42E+02	126.98	2.53E+03	2.50
	83	1238.68	1233 -	1242	1237.84	2.71E+03	183.43	3.26E+03	2.27
M	84	1247.56	1243 -	1257	1246.72	3.56E+02	116.21	2.24E+03	2.90
m	85	1253.88	1243 -	1257	1253.04	2.23E+02	151.66	3.10E+03	3.45
	86	1281.56	1277 -	1285	1280.69	6.70E+02	143.28	2.75E+03	2.26
M	87	1378.29	1371 -	1389	1377.34	2.04E+03	146.31	2.15E+03	2.73
m	88	1385.83	1371 -	1389	1384.86	4.10E+02	131.35	2.36E+03	3.10
	89	1401.89	1396 -	1404	1400.91	5.69E+02	136.82	2.53E+03	2.46
	90	1408.59	1405 -	1411	1407.61	9.29E+02	121.59	2.01E+03	2.39
	91	1425.35	1422 -	1427	1424.36	7.58E+01	87.56	1.47E+03	3.00
	92	1432.42	1428 -	1435	1431.41	1.14E+02	113.42	2.08E+03	1.98
	93	1460.26	1454 -	1464	1459.23	7.27E+02	154.91	2.82E+03	3.37

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	94	1474.18	1470 -	1475	1473.15	7.73E+01	88.02	1.49E+03	1.65
M	95	1496.83	1492 -	1516	1495.77	5.40E+02	104.89	1.58E+03	2.91
m	96	1502.39	1492 -	1516	1501.34	3.51E+02	102.39	1.60E+03	2.36
m	97	1510.00	1492 -	1516	1508.94	9.66E+02	134.62	2.09E+03	2.93
m	98	1514.17	1492 -	1516	1513.10	2.54E+02	120.75	1.87E+03	2.51
	99	1530.23	1526 -	1532	1529.15	9.18E+01	98.46	1.69E+03	3.51
M	100	1539.85	1533 -	1546	1538.76	2.38E+02	108.77	1.76E+03	2.68
m	101	1543.96	1533 -	1546	1542.87	2.20E+02	108.02	1.71E+03	2.52
M	102	1575.93	1573 -	1602	1574.81	1.25E+02	56.53	7.12E+02	3.28
m	103	1582.13	1573 -	1602	1581.00	3.54E+02	98.69	1.27E+03	2.47
m	104	1588.99	1573 -	1602	1587.86	1.78E+03	137.11	1.53E+03	2.69
m	105	1593.21	1573 -	1602	1592.08	1.26E+03	164.72	2.18E+03	3.62
M	106	1621.56	1615 -	1634	1620.40	9.79E+02	127.40	1.81E+03	3.32
m	107	1631.34	1615 -	1634	1630.18	8.67E+02	116.86	1.52E+03	2.90
	108	1639.20	1635 -	1642	1638.03	2.23E+02	93.34	1.30E+03	2.85
	109	1661.90	1656 -	1665	1660.71	2.62E+02	119.16	1.89E+03	2.49
	110	1693.59	1689 -	1698	1692.37	1.47E+02	101.62	1.38E+03	2.67
	111	1730.52	1723 -	1735	1729.28	1.22E+03	141.79	1.77E+03	2.63
	112	1765.30	1758 -	1769	1764.02	5.85E+03	195.25	1.83E+03	2.69
	113	1806.75	1801 -	1808	1805.45	8.53E+01	81.71	1.06E+03	3.34
M	114	1839.86	1834 -	1850	1838.53	1.55E+02	101.62	1.36E+03	3.85
m	115	1848.33	1834 -	1850	1846.99	7.41E+02	97.63	1.08E+03	2.68
	116	1888.60	1883 -	1891	1887.24	1.20E+02	89.67	1.17E+03	5.68
	117	1896.16	1892 -	1897	1894.79	9.01E+01	64.29	7.48E+02	1.76
	118	2104.06	2096 -	2109	2102.54	1.52E+03	154.24	1.98E+03	3.96
	119	2119.73	2114 -	2122	2118.19	3.55E+02	95.13	1.16E+03	2.79
	120	2204.81	2197 -	2209	2203.21	1.62E+03	145.53	1.73E+03	3.40
	121	2294.71	2289 -	2296	2293.05	8.55E+01	92.02	1.35E+03	2.37
	122	2448.47	2441 -	2453	2446.71	4.58E+02	115.39	1.35E+03	3.44
	123	2615.31	2605 -	2619	2613.44	1.08E+04	225.51	8.54E+02	3.14
	124	2687.48	2677 -	2691	2685.56	8.95E+01	55.37	2.85E+02	6.57
M	125	2780.16	2776 -	2790	2778.20	1.57E+01	14.00	4.13E+01	2.64
m	126	2785.63	2776 -	2790	2783.66	2.49E+01	29.33	9.62E+01	3.80
	127	2928.45	2920 -	2931	2926.40	2.57E+01	26.91	7.66E+01	9.05
	128	2950.27	2945 -	2951	2948.20	1.69E+01	19.70	5.62E+01	3.18
	129	2985.13	2980 -	2987	2983.05	2.53E+01	15.75	2.55E+01	3.75
	130	3126.04	3119 -	3128	3123.88	5.36E+01	19.72	2.48E+01	2.15
	131	3198.07	3189 -	3202	3195.87	1.95E+02	29.00	6.82E+00	3.55
	132	3475.73	3468 -	3477	3473.40	1.08E+01	8.77	4.46E+00	2.74

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

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 7:56:55AM

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
	1	39.90	39 -	42	7.21E+02	360.58	3.17E+04	2.93E+02
	2	46.57	46 -	49	2.50E+03	395.58	3.68E+04	3.59E+02
	3	57.20	56 -	61	1.06E+04	677.43	8.38E+04	5.31E+02
	4	63.90	61 -	67	8.26E+03	790.17	1.08E+05	6.32E+02
	5	76.23	72 -	82	9.09E+04	1263.83	1.63E+05	9.13E+02
M	6	88.13	83 -	97	2.86E+04	873.08	1.01E+05	5.23E+02
m	7	92.95	83 -	97	2.60E+04	712.28	7.09E+04	4.38E+02
	8	99.35	98 -	102	3.80E+03	508.18	5.38E+04	4.05E+02
	9	105.23	103 -	108	2.85E+03	589.86	6.73E+04	5.29E+02
	10	115.17	114 -	117	1.45E+03	424.18	4.33E+04	3.43E+02
	11	129.28	127 -	133	5.98E+03	679.07	7.93E+04	5.44E+02
	12	144.04	143 -	146	1.67E+03	424.41	4.34E+04	3.42E+02
	13	153.98	152 -	157	2.40E+03	567.45	6.23E+04	4.59E+02
	14	163.16	162 -	166	4.33E+02	469.46	4.86E+04	3.84E+02
	15	186.00	183 -	190	1.32E+04	696.34	7.18E+04	5.40E+02
	16	191.82	191 -	194	4.68E+02	373.46	3.43E+04	3.05E+02
	17	199.81	198 -	202	4.85E+02	438.78	4.23E+04	3.59E+02
	18	209.37	207 -	213	8.40E+03	574.09	5.35E+04	4.47E+02
	19	215.97	215 -	218	6.36E+02	346.36	2.93E+04	2.82E+02
M	20	238.67	234 -	246	9.60E+04	692.05	2.41E+04	2.55E+02
m	21	241.62	234 -	246	2.15E+04	729.79	3.14E+04	2.91E+02
M	22	256.14	255 -	261	5.96E+02	174.22	9.69E+03	1.62E+02
m	23	258.63	255 -	261	8.88E+02	283.75	1.89E+04	2.26E+02
M	24	270.26	267 -	281	8.27E+03	364.97	2.22E+04	2.45E+02
m	25	274.90	267 -	281	3.95E+02	271.62	1.77E+04	2.19E+02
M	26	287.79	285 -	304	6.69E+02	309.21	2.13E+04	2.40E+02
m	27	295.30	285 -	304	2.68E+04	414.00	1.63E+04	2.10E+02
m	28	300.16	285 -	304	6.15E+03	336.80	1.95E+04	2.29E+02
	29	328.07	325 -	331	4.12E+03	402.41	2.65E+04	3.13E+02
M	30	338.41	336 -	343	1.86E+04	386.49	1.66E+04	2.12E+02
m	31	340.97	336 -	343	7.30E+02	298.52	1.27E+04	1.85E+02
	32	351.97	347 -	356	4.70E+04	629.73	2.98E+04	3.75E+02
	33	388.37	386 -	391	6.76E+02	297.66	1.72E+04	2.41E+02
	34	409.53	406 -	413	2.12E+03	379.65	2.24E+04	3.03E+02
	35	440.63	439 -	443	2.68E+02	218.74	1.04E+04	1.78E+02
	36	453.67	450 -	457	7.47E+02	317.00	1.62E+04	2.57E+02
	37	463.11	459 -	467	5.66E+03	369.91	1.76E+04	2.78E+02
	38	470.19	468 -	472	2.60E+02	208.57	9.41E+03	1.69E+02
	39	479.75	477 -	482	5.24E+02	238.53	1.10E+04	1.92E+02
	40	487.38	486 -	490	2.49E+02	204.39	9.05E+03	1.66E+02
	41	510.88	507 -	516	1.04E+04	401.56	1.70E+04	2.84E+02

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	42	534.27	532 -	537	2.86E+02	224.43	9.85E+03	1.82E+02
	43	562.65	559 -	566	8.10E+02	279.09	1.25E+04	2.25E+02
	44	583.35	578 -	587	3.05E+04	474.38	1.47E+04	2.64E+02
	45	609.50	604 -	614	3.48E+04	504.13	1.53E+04	2.79E+02
	46	665.67	662 -	668	1.08E+03	231.87	8.95E+03	1.83E+02
	47	702.79	700 -	706	2.29E+02	228.12	9.31E+03	1.86E+02
	48	708.12	706 -	711	1.91E+02	194.54	7.39E+03	1.58E+02
M	49	721.15	717 -	730	2.77E+02	232.94	8.98E+03	1.56E+02
m	50	727.56	717 -	730	6.63E+03	243.53	6.48E+03	1.32E+02
	51	741.95	739 -	745	2.37E+02	205.58	7.51E+03	1.67E+02
	52	755.29	751 -	759	9.57E+02	250.39	9.05E+03	1.99E+02
M	53	764.00	760 -	779	5.85E+02	199.89	6.84E+03	1.36E+02
m	54	768.63	760 -	779	3.18E+03	205.23	5.62E+03	1.23E+02
m	55	772.56	760 -	779	1.25E+03	224.75	6.30E+03	1.30E+02
M	56	782.33	779 -	790	4.73E+02	165.16	5.04E+03	1.17E+02
m	57	786.14	779 -	790	1.70E+03	178.23	4.92E+03	1.15E+02
	58	795.26	790 -	799	3.47E+03	261.67	7.79E+03	1.92E+02
	59	806.61	803 -	810	5.98E+02	197.58	6.11E+03	1.57E+02
M	60	830.85	827 -	844	3.92E+02	152.87	4.61E+03	1.12E+02
m	61	836.20	827 -	844	1.49E+03	183.87	5.04E+03	1.17E+02
m	62	840.41	827 -	844	1.06E+03	185.82	4.75E+03	1.13E+02
	63	860.85	855 -	865	3.46E+03	257.32	6.99E+03	1.88E+02
	64	893.84	891 -	897	2.41E+02	156.27	4.27E+03	1.26E+02
M	65	904.69	901 -	914	5.66E+02	141.67	3.68E+03	9.97E+01
m	66	911.59	901 -	914	2.06E+04	316.53	3.48E+03	9.70E+01
	67	934.49	929 -	938	1.70E+03	211.09	5.38E+03	1.60E+02
M	68	959.78	953 -	973	1.76E+02	141.86	3.81E+03	1.01E+02
m	69	965.39	953 -	973	3.94E+03	196.54	3.68E+03	9.98E+01
m	70	969.41	953 -	973	1.19E+04	255.24	2.86E+03	8.78E+01
	71	989.13	986 -	992	1.14E+02	131.16	3.04E+03	1.06E+02
	72	1002.29	996 -	1007	8.27E+02	206.30	4.88E+03	1.63E+02
	73	1033.06	1029 -	1035	2.30E+02	123.75	2.61E+03	9.86E+01
	74	1065.47	1062 -	1068	1.91E+02	125.84	2.75E+03	1.01E+02
	75	1070.81	1068 -	1073	1.75E+02	106.34	2.11E+03	8.47E+01
	76	1078.49	1074 -	1082	4.11E+02	150.60	3.25E+03	1.19E+02
	77	1095.20	1091 -	1099	3.26E+02	149.96	3.25E+03	1.20E+02
M	78	1111.41	1107 -	1125	2.19E+02	122.45	2.66E+03	8.49E+01
m	79	1120.81	1107 -	1125	7.54E+03	209.68	2.50E+03	8.22E+01
	80	1155.50	1149 -	1159	8.92E+02	181.37	3.89E+03	1.41E+02
	81	1182.72	1179 -	1185	1.99E+02	111.66	2.11E+03	8.88E+01
	82	1208.19	1204 -	1211	2.42E+02	126.98	2.53E+03	1.01E+02
	83	1238.68	1233 -	1242	2.71E+03	183.43	3.26E+03	1.24E+02
M	84	1247.56	1243 -	1257	3.56E+02	116.21	2.24E+03	7.77E+01
m	85	1253.88	1243 -	1257	2.23E+02	151.66	3.10E+03	9.16E+01
	86	1281.56	1277 -	1285	6.70E+02	143.28	2.75E+03	1.10E+02
M	87	1378.29	1371 -	1389	2.04E+03	146.31	2.15E+03	7.62E+01
m	88	1385.83	1371 -	1389	4.10E+02	131.35	2.36E+03	7.99E+01
	89	1401.89	1396 -	1404	5.69E+02	136.82	2.53E+03	1.05E+02
	90	1408.59	1405 -	1411	9.29E+02	121.59	2.01E+03	8.65E+01
	91	1425.35	1422 -	1427	7.58E+01	87.56	1.47E+03	7.05E+01
	92	1432.42	1428 -	1435	1.14E+02	113.42	2.08E+03	9.16E+01

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	93	1460.26	1454 -	1464	7.27E+02	154.91	2.82E+03	1.19E+02
	94	1474.18	1470 -	1475	7.73E+01	88.02	1.49E+03	7.09E+01
M	95	1496.83	1492 -	1516	5.40E+02	104.89	1.58E+03	6.53E+01
m	96	1502.39	1492 -	1516	3.51E+02	102.39	1.60E+03	6.57E+01
m	97	1510.00	1492 -	1516	9.66E+02	134.62	2.09E+03	7.51E+01
m	98	1514.17	1492 -	1516	2.54E+02	120.75	1.87E+03	7.11E+01
	99	1530.23	1526 -	1532	9.18E+01	98.46	1.69E+03	7.94E+01
M	100	1539.85	1533 -	1546	2.38E+02	108.77	1.76E+03	6.90E+01
m	101	1543.96	1533 -	1546	2.20E+02	108.02	1.71E+03	6.80E+01
M	102	1575.93	1573 -	1602	1.25E+02	56.53	7.12E+02	4.39E+01
m	103	1582.13	1573 -	1602	3.54E+02	98.69	1.27E+03	5.86E+01
m	104	1588.99	1573 -	1602	1.78E+03	137.11	1.53E+03	6.43E+01
m	105	1593.21	1573 -	1602	1.26E+03	164.72	2.18E+03	7.68E+01
M	106	1621.56	1615 -	1634	9.79E+02	127.40	1.81E+03	6.99E+01
m	107	1631.34	1615 -	1634	8.67E+02	116.86	1.52E+03	6.40E+01
	108	1639.20	1635 -	1642	2.23E+02	93.34	1.30E+03	7.27E+01
	109	1661.90	1656 -	1665	2.62E+02	119.16	1.89E+03	9.43E+01
	110	1693.59	1689 -	1698	1.47E+02	101.62	1.38E+03	8.11E+01
	111	1730.52	1723 -	1735	1.22E+03	141.79	1.77E+03	1.01E+02
	112	1765.30	1758 -	1769	5.85E+03	195.25	1.83E+03	9.97E+01
	113	1806.75	1801 -	1808	8.53E+01	81.71	1.06E+03	6.54E+01
M	114	1839.86	1834 -	1850	1.55E+02	101.62	1.36E+03	6.07E+01
m	115	1848.33	1834 -	1850	7.41E+02	97.63	1.08E+03	5.40E+01
	116	1888.60	1883 -	1891	1.20E+02	89.67	1.17E+03	7.15E+01
	117	1896.16	1892 -	1897	9.01E+01	64.29	7.48E+02	5.05E+01
	118	2104.06	2096 -	2109	1.52E+03	154.24	1.98E+03	1.09E+02
	119	2119.73	2114 -	2122	3.55E+02	95.13	1.16E+03	7.18E+01
	120	2204.81	2197 -	2209	1.62E+03	145.53	1.73E+03	9.97E+01
	121	2294.71	2289 -	2296	8.55E+01	92.02	1.35E+03	7.41E+01
	122	2448.47	2441 -	2453	4.58E+02	115.39	1.35E+03	8.81E+01
	123	2615.31	2605 -	2619	1.08E+04	225.51	8.54E+02	7.25E+01
	124	2687.48	2677 -	2691	8.95E+01	55.37	2.85E+02	4.28E+01
M	125	2780.16	2776 -	2790	1.57E+01	14.00	4.13E+01	1.06E+01
m	126	2785.63	2776 -	2790	2.49E+01	29.33	9.62E+01	1.61E+01
	127	2928.45	2920 -	2931	2.57E+01	26.91	7.66E+01	2.05E+01
	128	2950.27	2945 -	2951	1.69E+01	19.70	5.62E+01	1.47E+01
	129	2985.13	2980 -	2987	2.53E+01	15.75	2.55E+01	9.96E+00
	130	3126.04	3119 -	3128	5.36E+01	19.72	2.48E+01	1.09E+01
	131	3198.07	3189 -	3202	1.95E+02	29.00	6.82E+00	6.51E+00
	132	3475.73	3468 -	3477	1.08E+01	8.77	4.46E+00	4.79E+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 1707086-04

HTC-A02-S004-1218-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/22/2017 7:56:55AM

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
	1	39.90	39 -	42	40.25	7.21E+02	360.58	3.17E+04	RA-225
									I-129
	2	46.57	46 -	49	46.92	2.50E+03	395.58	3.68E+04	PB-210
	3	57.20	56 -	61	57.54	1.06E+04	677.43	8.38E+04	CE-143
	4	63.90	61 -	67	64.22	8.26E+03	790.17	1.08E+05	TH-234
	5	76.23	72 -	82	76.55	9.09E+04	1263.83	1.63E+05	.....
M	6	88.13	83 -	97	88.43	2.86E+04	873.08	1.01E+05	CD-109
									LU-176
									SN-126
m	7	92.95	83 -	97	93.24	2.60E+04	712.28	7.09E+04	GA-67
	8	99.35	98 -	102	99.64	3.80E+03	508.18	5.38E+04	.....
	9	105.23	103 -	108	105.51	2.85E+03	589.86	6.73E+04	EU-155
									NP-239
	10	115.17	114 -	117	115.44	1.45E+03	424.18	4.33E+04	.....
	11	129.28	127 -	133	129.53	5.98E+03	679.07	7.93E+04	.....
	12	144.04	143 -	146	144.28	1.67E+03	424.41	4.34E+04	U-235
	13	153.98	152 -	157	154.21	2.40E+03	567.45	6.23E+04	CS-136
	14	163.16	162 -	166	163.37	4.33E+02	469.46	4.86E+04	U-235
									BA-140
									CS-136
	15	186.00	183 -	190	186.19	1.32E+04	696.34	7.18E+04	RA-226
	16	191.82	191 -	194	192.01	4.68E+02	373.46	3.43E+04	.....
	17	199.81	198 -	202	199.99	4.85E+02	438.78	4.23E+04	.....
	18	209.37	207 -	213	209.54	8.40E+03	574.09	5.35E+04	CM-243
									GA-67
	19	215.97	215 -	218	216.13	6.36E+02	346.36	2.93E+04	.....
M	20	238.67	234 -	246	238.81	9.60E+04	692.05	2.41E+04	PB-212
m	21	241.62	234 -	246	241.75	2.15E+04	729.79	3.14E+04	RA-224
M	22	256.14	255 -	261	256.26	5.96E+02	174.22	9.69E+03	TH-227
m	23	258.63	255 -	261	258.74	8.88E+02	283.75	1.89E+04	.....
M	24	270.26	267 -	281	270.36	8.27E+03	364.97	2.22E+04	.....
m	25	274.90	267 -	281	275.00	3.95E+02	271.62	1.77E+04	.....
M	26	287.79	285 -	304	287.87	6.69E+02	309.21	2.13E+04	.....
m	27	295.30	285 -	304	295.38	2.68E+04	414.00	1.63E+04	PB-214
m	28	300.16	285 -	304	300.23	6.15E+03	336.80	1.95E+04	GA-67
									PB-212
									BI-210M
	29	328.07	325 -	331	328.11	4.12E+03	402.41	2.65E+04	LA-140
M	30	338.41	336 -	343	338.44	1.86E+04	386.49	1.66E+04	AC-228
m	31	340.97	336 -	343	341.00	7.30E+02	298.52	1.27E+04	CS-136
	32	351.97	347 -	356	351.99	4.70E+04	629.73	2.98E+04	PB-214

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	33	388.37	386 -	391	388.35	6.76E+02	297.66	1.72E+04	.....
	34	409.53	406 -	413	409.49	2.12E+03	379.65	2.24E+04	.....
	35	440.63	439 -	443	440.55	2.68E+02	218.74	1.04E+04	.....
	36	453.67	450 -	457	453.58	7.47E+02	317.00	1.62E+04	PM-146
	37	463.11	459 -	467	463.01	5.66E+03	369.91	1.76E+04	SB-125
	38	470.19	468 -	472	470.08	2.60E+02	208.57	9.41E+03	.....
	39	479.75	477 -	482	479.64	5.24E+02	238.53	1.10E+04	.....
	40	487.38	486 -	490	487.26	2.49E+02	204.39	9.05E+03	LA-140
	41	510.88	507 -	516	510.73	1.04E+04	401.56	1.70E+04	.....
	42	534.27	532 -	537	534.10	2.86E+02	224.43	9.85E+03	.....
	43	562.65	559 -	566	562.45	8.10E+02	279.09	1.25E+04	CS-134
	44	583.35	578 -	587	583.13	3.05E+04	474.38	1.47E+04	TL-208
	45	609.50	604 -	614	609.26	3.48E+04	504.13	1.53E+04	BI-214
	46	665.67	662 -	668	665.37	1.08E+03	231.87	8.95E+03	SB-126
	47	702.79	700 -	706	702.46	2.29E+02	228.12	9.31E+03	NB-94
	48	708.12	706 -	711	707.78	1.91E+02	194.54	7.39E+03	.....
M	49	721.15	717 -	730	720.79	2.77E+02	232.94	8.98E+03	SB-126
m	50	727.56	717 -	730	727.20	6.63E+03	243.53	6.48E+03	BI-212
	51	741.95	739 -	745	741.57	2.37E+02	205.58	7.51E+03	.....
	52	755.29	751 -	759	754.90	9.57E+02	250.39	9.05E+03	.....
M	53	764.00	760 -	779	763.61	5.85E+02	199.89	6.84E+03	AG-110M
m	54	768.63	760 -	779	768.23	3.18E+03	205.23	5.62E+03	.....
m	55	772.56	760 -	779	772.16	1.25E+03	224.75	6.30E+03	.....
M	56	782.33	779 -	790	781.92	4.73E+02	165.16	5.04E+03	.....
m	57	786.14	779 -	790	785.73	1.70E+03	178.23	4.92E+03	.....
	58	795.26	790 -	799	794.83	3.47E+03	261.67	7.79E+03	CS-134
	59	806.61	803 -	810	806.18	5.98E+02	197.58	6.11E+03	.....
M	60	830.85	827 -	844	830.39	3.92E+02	152.87	4.61E+03	.....
m	61	836.20	827 -	844	835.73	1.49E+03	183.87	5.04E+03	.....
m	62	840.41	827 -	844	839.94	1.06E+03	185.82	4.75E+03	.....
	63	860.85	855 -	865	860.36	3.46E+03	257.32	6.99E+03	TL-208
	64	893.84	891 -	897	893.32	2.41E+02	156.27	4.27E+03	.....
M	65	904.69	901 -	914	904.16	5.66E+02	141.67	3.68E+03	.....
m	66	911.59	901 -	914	911.05	2.06E+04	316.53	3.48E+03	TL-204 AC-228
	67	934.49	929 -	938	933.94	1.70E+03	211.09	5.38E+03	.....
M	68	959.78	953 -	973	959.20	1.76E+02	141.86	3.81E+03	.....
m	69	965.39	953 -	973	964.80	3.94E+03	196.54	3.68E+03	.....
m	70	969.41	953 -	973	968.82	1.19E+04	255.24	2.86E+03	AC-228
	71	989.13	986 -	992	988.52	1.14E+02	131.16	3.04E+03	.....
	72	1002.29	996 -	1007	1001.67	8.27E+02	206.30	4.88E+03	.....
	73	1033.06	1029 -	1035	1032.41	2.30E+02	123.75	2.61E+03	.....
	74	1065.47	1062 -	1068	1064.79	1.91E+02	125.84	2.75E+03	.....
	75	1070.81	1068 -	1073	1070.13	1.75E+02	106.34	2.11E+03	.....
	76	1078.49	1074 -	1082	1077.80	4.11E+02	150.60	3.25E+03	.....
	77	1095.20	1091 -	1099	1094.50	3.26E+02	149.96	3.25E+03	.....
M	78	1111.41	1107 -	1125	1110.69	2.19E+02	122.45	2.66E+03	EU-152
m	79	1120.81	1107 -	1125	1120.08	7.54E+03	209.68	2.50E+03	SC-46 TA-182 BI-214
	80	1155.50	1149 -	1159	1154.74	8.92E+02	181.37	3.89E+03	.....
	81	1182.72	1179 -	1185	1181.94	1.99E+02	111.66	2.11E+03	.....
	82	1208.19	1204 -	1211	1207.38	2.42E+02	126.98	2.53E+03	.....
	83	1238.68	1233 -	1242	1237.84	2.71E+03	183.43	3.26E+03	CO-56

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	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	84	1247.56	1243 -	1257	1246.72	3.56E+02	116.21	2.24E+03	.....
m	85	1253.88	1243 -	1257	1253.04	2.23E+02	151.66	3.10E+03	.....
	86	1281.56	1277 -	1285	1280.69	6.70E+02	143.28	2.75E+03	.....
M	87	1378.29	1371 -	1389	1377.34	2.04E+03	146.31	2.15E+03	.....
m	88	1385.83	1371 -	1389	1384.86	4.10E+02	131.35	2.36E+03	.....
	89	1401.89	1396 -	1404	1400.91	5.69E+02	136.82	2.53E+03	.....
	90	1408.59	1405 -	1411	1407.61	9.29E+02	121.59	2.01E+03	EU-152
	91	1425.35	1422 -	1427	1424.36	7.58E+01	87.56	1.47E+03	.....
	92	1432.42	1428 -	1435	1431.41	1.14E+02	113.42	2.08E+03	.....
	93	1460.26	1454 -	1464	1459.23	7.27E+02	154.91	2.82E+03	K-40
	94	1474.18	1470 -	1475	1473.15	7.73E+01	88.02	1.49E+03	.....
M	95	1496.83	1492 -	1516	1495.77	5.40E+02	104.89	1.58E+03	.....
m	96	1502.39	1492 -	1516	1501.34	3.51E+02	102.39	1.60E+03	.....
m	97	1510.00	1492 -	1516	1508.94	9.66E+02	134.62	2.09E+03	.....
m	98	1514.17	1492 -	1516	1513.10	2.54E+02	120.75	1.87E+03	.....
	99	1530.23	1526 -	1532	1529.15	9.18E+01	98.46	1.69E+03	.....
M	100	1539.85	1533 -	1546	1538.76	2.38E+02	108.77	1.76E+03	.....
m	101	1543.96	1533 -	1546	1542.87	2.20E+02	108.02	1.71E+03	.....
M	102	1575.93	1573 -	1602	1574.81	1.25E+02	56.53	7.12E+02	.....
m	103	1582.13	1573 -	1602	1581.00	3.54E+02	98.69	1.27E+03	.....
m	104	1588.99	1573 -	1602	1587.86	1.78E+03	137.11	1.53E+03	.....
m	105	1593.21	1573 -	1602	1592.08	1.26E+03	164.72	2.18E+03	.....
M	106	1621.56	1615 -	1634	1620.40	9.79E+02	127.40	1.81E+03	BI-212
m	107	1631.34	1615 -	1634	1630.18	8.67E+02	116.86	1.52E+03	.....
	108	1639.20	1635 -	1642	1638.03	2.23E+02	93.34	1.30E+03	.....
	109	1661.90	1656 -	1665	1660.71	2.62E+02	119.16	1.89E+03	.....
	110	1693.59	1689 -	1698	1692.37	1.47E+02	101.62	1.38E+03	.....
	111	1730.52	1723 -	1735	1729.28	1.22E+03	141.79	1.77E+03	.....
	112	1765.30	1758 -	1769	1764.02	5.85E+03	195.25	1.83E+03	BI-214
	113	1806.75	1801 -	1808	1805.45	8.53E+01	81.71	1.06E+03	.....
M	114	1839.86	1834 -	1850	1838.53	1.55E+02	101.62	1.36E+03	.....
m	115	1848.33	1834 -	1850	1846.99	7.41E+02	97.63	1.08E+03	.....
	116	1888.60	1883 -	1891	1887.24	1.20E+02	89.67	1.17E+03	.....
	117	1896.16	1892 -	1897	1894.79	9.01E+01	64.29	7.48E+02	.....
	118	2104.06	2096 -	2109	2102.54	1.52E+03	154.24	1.98E+03	.....
	119	2119.73	2114 -	2122	2118.19	3.55E+02	95.13	1.16E+03	.....
	120	2204.81	2197 -	2209	2203.21	1.62E+03	145.53	1.73E+03	BI-214
	121	2294.71	2289 -	2296	2293.05	8.55E+01	92.02	1.35E+03	.....
	122	2448.47	2441 -	2453	2446.71	4.58E+02	115.39	1.35E+03	.....
	123	2615.31	2605 -	2619	2613.44	1.08E+04	225.51	8.54E+02	TL-208
	124	2687.48	2677 -	2691	2685.56	8.95E+01	55.37	2.85E+02	.....
M	125	2780.16	2776 -	2790	2778.20	1.57E+01	14.00	4.13E+01	.....
m	126	2785.63	2776 -	2790	2783.66	2.49E+01	29.33	9.62E+01	.....
	127	2928.45	2920 -	2931	2926.40	2.57E+01	26.91	7.66E+01	.....
	128	2950.27	2945 -	2951	2948.20	1.69E+01	19.70	5.62E+01	.....
	129	2985.13	2980 -	2987	2983.05	2.53E+01	15.75	2.55E+01	.....
	130	3126.04	3119 -	3128	3123.88	5.36E+01	19.72	2.48E+01	.....
	131	3198.07	3189 -	3202	3195.87	1.95E+02	29.00	6.82E+00	.....
	132	3475.73	3468 -	3477	3473.40	1.08E+01	8.77	4.46E+00	.....

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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 : 8/22/2017 7:56:55AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	39.90	7.21E+02	360.58	1.11E-02	1.67E-03
	2	46.57	2.50E+03	395.58	1.59E-02	1.67E-03
	3	57.20	1.06E+04	677.43	2.16E-02	1.67E-03
	4	63.90	8.26E+03	790.17	2.40E-02	1.79E-03
	5	76.23	9.09E+04	1263.83	2.63E-02	2.11E-03
M	6	88.13	2.86E+04	873.08	2.70E-02	2.42E-03
m	7	92.95	2.60E+04	712.28	2.70E-02	2.33E-03
	8	99.35	3.80E+03	508.18	2.68E-02	2.21E-03
	9	105.23	2.85E+03	589.86	2.65E-02	2.10E-03
	10	115.17	1.45E+03	424.18	2.59E-02	1.91E-03
	11	129.28	5.98E+03	679.07	2.47E-02	1.75E-03
	12	144.04	1.67E+03	424.41	2.35E-02	1.70E-03
	13	153.98	2.40E+03	567.45	2.27E-02	1.66E-03
	14	163.16	4.33E+02	469.46	2.20E-02	1.63E-03
	15	186.00	1.32E+04	696.34	2.03E-02	1.53E-03
	16	191.82	4.68E+02	373.46	1.99E-02	1.51E-03
	17	199.81	4.85E+02	438.78	1.94E-02	1.47E-03
	18	209.37	8.40E+03	574.09	1.88E-02	1.43E-03
	19	215.97	6.36E+02	346.36	1.84E-02	1.40E-03
M	20	238.67	9.60E+04	692.05	1.72E-02	1.30E-03
m	21	241.62	2.15E+04	729.79	1.71E-02	1.28E-03
M	22	256.14	5.96E+02	174.22	1.64E-02	1.22E-03
m	23	258.63	8.88E+02	283.75	1.63E-02	1.21E-03
M	24	270.26	8.27E+03	364.97	1.58E-02	1.16E-03
m	25	274.90	3.95E+02	271.62	1.56E-02	1.14E-03
M	26	287.79	6.69E+02	309.21	1.51E-02	1.11E-03
m	27	295.30	2.68E+04	414.00	1.48E-02	1.10E-03
m	28	300.16	6.15E+03	336.80	1.47E-02	1.09E-03
	29	328.07	4.12E+03	402.41	1.38E-02	1.05E-03
M	30	338.41	1.86E+04	386.49	1.34E-02	1.04E-03
m	31	340.97	7.30E+02	298.52	1.34E-02	1.04E-03
	32	351.97	4.70E+04	629.73	1.31E-02	1.02E-03
	33	388.37	6.76E+02	297.66	1.22E-02	9.73E-04
	34	409.53	2.12E+03	379.65	1.17E-02	9.53E-04

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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	440.63	2.68E+02	218.74	1.11E-02	9.26E-04
	36	453.67	7.47E+02	317.00	1.08E-02	9.15E-04
	37	463.11	5.66E+03	369.91	1.06E-02	9.07E-04
	38	470.19	2.60E+02	208.57	1.05E-02	9.00E-04
	39	479.75	5.24E+02	238.53	1.04E-02	8.92E-04
	40	487.38	2.49E+02	204.39	1.02E-02	8.86E-04
	41	510.88	1.04E+04	401.56	9.87E-03	8.65E-04
	42	534.27	2.86E+02	224.43	9.54E-03	8.45E-04
	43	562.65	8.10E+02	279.09	9.16E-03	8.20E-04
	44	583.35	3.05E+04	474.38	8.90E-03	8.02E-04
	45	609.50	3.48E+04	504.13	8.60E-03	7.79E-04
	46	665.67	1.08E+03	231.87	8.02E-03	7.30E-04
	47	702.79	2.29E+02	228.12	7.68E-03	6.94E-04
	48	708.12	1.91E+02	194.54	7.63E-03	6.89E-04
M	49	721.15	2.77E+02	232.94	7.52E-03	6.77E-04
m	50	727.56	6.63E+03	243.53	7.46E-03	6.71E-04
	51	741.95	2.37E+02	205.58	7.35E-03	6.57E-04
	52	755.29	9.57E+02	250.39	7.24E-03	6.44E-04
M	53	764.00	5.85E+02	199.89	7.17E-03	6.35E-04
m	54	768.63	3.18E+03	205.23	7.14E-03	6.31E-04
m	55	772.56	1.25E+03	224.75	7.11E-03	6.27E-04
M	56	782.33	4.73E+02	165.16	7.04E-03	6.18E-04
m	57	786.14	1.70E+03	178.23	7.01E-03	6.14E-04
	58	795.26	3.47E+03	261.67	6.94E-03	6.05E-04
	59	806.61	5.98E+02	197.58	6.86E-03	5.94E-04
M	60	830.85	3.92E+02	152.87	6.70E-03	5.71E-04
m	61	836.20	1.49E+03	183.87	6.66E-03	5.66E-04
m	62	840.41	1.06E+03	185.82	6.64E-03	5.62E-04
	63	860.85	3.46E+03	257.32	6.51E-03	5.42E-04
	64	893.84	2.41E+02	156.27	6.31E-03	5.10E-04
M	65	904.69	5.66E+02	141.67	6.25E-03	5.04E-04
m	66	911.59	2.06E+04	316.53	6.21E-03	5.01E-04
	67	934.49	1.70E+03	211.09	6.08E-03	4.93E-04
M	68	959.78	1.76E+02	141.86	5.95E-03	4.85E-04
m	69	965.39	3.94E+03	196.54	5.92E-03	4.83E-04
m	70	969.41	1.19E+04	255.24	5.90E-03	4.81E-04
	71	989.13	1.14E+02	131.16	5.81E-03	4.74E-04
	72	1002.29	8.27E+02	206.30	5.74E-03	4.70E-04
	73	1033.06	2.30E+02	123.75	5.60E-03	4.59E-04
	74	1065.47	1.91E+02	125.84	5.46E-03	4.48E-04
	75	1070.81	1.75E+02	106.34	5.44E-03	4.46E-04
	76	1078.49	4.11E+02	150.60	5.41E-03	4.43E-04
	77	1095.20	3.26E+02	149.96	5.34E-03	4.37E-04
M	78	1111.41	2.19E+02	122.45	5.28E-03	4.32E-04
m	79	1120.81	7.54E+03	209.68	5.24E-03	4.28E-04
	80	1155.50	8.92E+02	181.37	5.11E-03	4.16E-04
	81	1182.72	1.99E+02	111.66	5.02E-03	4.11E-04
	82	1208.19	2.42E+02	126.98	4.94E-03	4.13E-04
	83	1238.68	2.71E+03	183.43	4.84E-03	4.16E-04
M	84	1247.56	3.56E+02	116.21	4.81E-03	4.17E-04
m	85	1253.88	2.23E+02	151.66	4.79E-03	4.18E-04
	86	1281.56	6.70E+02	143.28	4.71E-03	4.20E-04
M	87	1378.29	2.04E+03	146.31	4.45E-03	4.11E-04

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	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	88	1385.83	4.10E+02	131.35	4.43E-03	4.09E-04
	89	1401.89	5.69E+02	136.82	4.40E-03	4.05E-04
	90	1408.59	9.29E+02	121.59	4.38E-03	4.03E-04
	91	1425.35	7.58E+01	87.56	4.34E-03	3.98E-04
	92	1432.42	1.14E+02	113.42	4.33E-03	3.96E-04
	93	1460.26	7.27E+02	154.91	4.26E-03	3.88E-04
	94	1474.18	7.73E+01	88.02	4.23E-03	3.84E-04
M	95	1496.83	5.40E+02	104.89	4.19E-03	3.77E-04
m	96	1502.39	3.51E+02	102.39	4.18E-03	3.76E-04
m	97	1510.00	9.66E+02	134.62	4.16E-03	3.73E-04
m	98	1514.17	2.54E+02	120.75	4.15E-03	3.72E-04
	99	1530.23	9.18E+01	98.46	4.12E-03	3.68E-04
M	100	1539.85	2.38E+02	108.77	4.10E-03	3.65E-04
m	101	1543.96	2.20E+02	108.02	4.10E-03	3.64E-04
M	102	1575.93	1.25E+02	56.53	4.04E-03	3.54E-04
m	103	1582.13	3.54E+02	98.69	4.03E-03	3.53E-04
m	104	1588.99	1.78E+03	137.11	4.01E-03	3.51E-04
m	105	1593.21	1.26E+03	164.72	4.01E-03	3.49E-04
M	106	1621.56	9.79E+02	127.40	3.96E-03	3.41E-04
m	107	1631.34	8.67E+02	116.86	3.94E-03	3.38E-04
	108	1639.20	2.23E+02	93.34	3.93E-03	3.36E-04
	109	1661.90	2.62E+02	119.16	3.89E-03	3.30E-04
	110	1693.59	1.47E+02	101.62	3.85E-03	3.20E-04
	111	1730.52	1.22E+03	141.79	3.79E-03	3.10E-04
	112	1765.30	5.85E+03	195.25	3.75E-03	3.00E-04
	113	1806.75	8.53E+01	81.71	3.69E-03	2.88E-04
M	114	1839.86	1.55E+02	101.62	3.65E-03	2.79E-04
m	115	1848.33	7.41E+02	97.63	3.64E-03	2.79E-04
	116	1888.60	1.20E+02	89.67	3.60E-03	2.79E-04
	117	1896.16	9.01E+01	64.29	3.59E-03	2.79E-04
	118	2104.06	1.52E+03	154.24	3.41E-03	2.79E-04
	119	2119.73	3.55E+02	95.13	3.40E-03	2.79E-04
	120	2204.81	1.62E+03	145.53	3.34E-03	2.79E-04
	121	2294.71	8.55E+01	92.02	3.29E-03	2.79E-04
	122	2448.47	4.58E+02	115.39	3.23E-03	2.79E-04
	123	2615.31	1.08E+04	225.51	3.20E-03	2.79E-04
	124	2687.48	8.95E+01	55.37	3.19E-03	2.79E-04
M	125	2780.16	1.57E+01	14.00	3.18E-03	2.79E-04
m	126	2785.63	2.49E+01	29.33	3.18E-03	2.79E-04
	127	2928.45	2.57E+01	26.91	3.19E-03	2.79E-04
	128	2950.27	1.69E+01	19.70	3.20E-03	2.79E-04
	129	2985.13	2.53E+01	15.75	3.20E-03	2.79E-04
	130	3126.04	5.36E+01	19.72	3.24E-03	2.79E-04
	131	3198.07	1.95E+02	29.00	3.26E-03	2.79E-04
	132	3475.73	1.08E+01	8.77	3.38E-03	2.79E-04

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

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 : 8/22/2017 7:56:55AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	39.90	7.21E+02	360.58	6.74E+01	9.19E+00	6.54E+02	3.61E+02
	2	46.57	2.50E+03	395.58	3.74E+01	5.77E+00	2.46E+03	3.96E+02
	3	57.20	1.06E+04	677.43			1.06E+04	6.77E+02
	4	63.90	8.26E+03	790.17	6.29E+01	1.34E+01	8.20E+03	7.90E+02
	5	76.23	9.09E+04	1263.83			9.09E+04	1.26E+03
M	6	88.13	2.86E+04	873.08			2.86E+04	8.73E+02
m	7	92.95	2.60E+04	712.28	4.88E+01	1.30E+00	2.59E+04	7.12E+02
	8	99.35	3.80E+03	508.18			3.80E+03	5.08E+02
	9	105.23	2.85E+03	589.86			2.85E+03	5.90E+02
	10	115.17	1.45E+03	424.18			1.45E+03	4.24E+02
	11	129.28	5.98E+03	679.07			5.98E+03	6.79E+02
	12	144.04	1.67E+03	424.41	1.06E+01	1.02E+01	1.66E+03	4.25E+02
	13	153.98	2.40E+03	567.45			2.40E+03	5.67E+02
	14	163.16	4.33E+02	469.46			4.33E+02	4.69E+02
	15	186.00	1.32E+04	696.34	3.48E+01	7.32E+00	1.32E+04	6.96E+02
	16	191.82	4.68E+02	373.46			4.68E+02	3.73E+02
	17	199.81	4.85E+02	438.78			4.85E+02	4.39E+02
	18	209.37	8.40E+03	574.09			8.40E+03	5.74E+02
	19	215.97	6.36E+02	346.36			6.36E+02	3.46E+02
M	20	238.67	9.60E+04	692.05	7.09E+00	6.85E+00	9.60E+04	6.92E+02
m	21	241.62	2.15E+04	729.79			2.15E+04	7.30E+02
M	22	256.14	5.96E+02	174.22			5.96E+02	1.74E+02
m	23	258.63	8.88E+02	283.75			8.88E+02	2.84E+02
M	24	270.26	8.27E+03	364.97			8.27E+03	3.65E+02
m	25	274.90	3.95E+02	271.62			3.95E+02	2.72E+02
M	26	287.79	6.69E+02	309.21			6.69E+02	3.09E+02
m	27	295.30	2.68E+04	414.00			2.68E+04	4.14E+02
m	28	300.16	6.15E+03	336.80			6.15E+03	3.37E+02
	29	328.07	4.12E+03	402.41			4.12E+03	4.02E+02
M	30	338.41	1.86E+04	386.49			1.86E+04	3.86E+02
m	31	340.97	7.30E+02	298.52			7.30E+02	2.99E+02
	32	351.97	4.70E+04	629.73	1.04E+01	5.08E+00	4.70E+04	6.30E+02
	33	388.37	6.76E+02	297.66			6.76E+02	2.98E+02
	34	409.53	2.12E+03	379.65			2.12E+03	3.80E+02
	35	440.63	2.68E+02	218.74			2.68E+02	2.19E+02

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	453.67	7.47E+02	317.00			7.47E+02	3.17E+02
	37	463.11	5.66E+03	369.91			5.66E+03	3.70E+02
	38	470.19	2.60E+02	208.57			2.60E+02	2.09E+02
	39	479.75	5.24E+02	238.53			5.24E+02	2.39E+02
	40	487.38	2.49E+02	204.39			2.49E+02	2.04E+02
	41	510.88	1.04E+04	401.56	7.08E+01	4.94E+00	1.04E+04	4.02E+02
	42	534.27	2.86E+02	224.43			2.86E+02	2.24E+02
	43	562.65	8.10E+02	279.09			8.10E+02	2.79E+02
	44	583.35	3.05E+04	474.38	5.65E+00	3.57E+00	3.05E+04	4.74E+02
	45	609.50	3.48E+04	504.13	1.07E+01	3.96E+00	3.48E+04	5.04E+02
	46	665.67	1.08E+03	231.87			1.08E+03	2.32E+02
	47	702.79	2.29E+02	228.12			2.29E+02	2.28E+02
	48	708.12	1.91E+02	194.54			1.91E+02	1.95E+02
M	49	721.15	2.77E+02	232.94			2.77E+02	2.33E+02
m	50	727.56	6.63E+03	243.53			6.63E+03	2.44E+02
	51	741.95	2.37E+02	205.58			2.37E+02	2.06E+02
	52	755.29	9.57E+02	250.39			9.57E+02	2.50E+02
M	53	764.00	5.85E+02	199.89			5.85E+02	2.00E+02
m	54	768.63	3.18E+03	205.23			3.18E+03	2.05E+02
m	55	772.56	1.25E+03	224.75			1.25E+03	2.25E+02
M	56	782.33	4.73E+02	165.16			4.73E+02	1.65E+02
m	57	786.14	1.70E+03	178.23			1.70E+03	1.78E+02
	58	795.26	3.47E+03	261.67			3.47E+03	2.62E+02
	59	806.61	5.98E+02	197.58			5.98E+02	1.98E+02
M	60	830.85	3.92E+02	152.87			3.92E+02	1.53E+02
m	61	836.20	1.49E+03	183.87			1.49E+03	1.84E+02
m	62	840.41	1.06E+03	185.82			1.06E+03	1.86E+02
	63	860.85	3.46E+03	257.32			3.46E+03	2.57E+02
	64	893.84	2.41E+02	156.27			2.41E+02	1.56E+02
M	65	904.69	5.66E+02	141.67			5.66E+02	1.42E+02
m	66	911.59	2.06E+04	316.53	2.63E+00	2.49E+00	2.06E+04	3.17E+02
	67	934.49	1.70E+03	211.09			1.70E+03	2.11E+02
M	68	959.78	1.76E+02	141.86			1.76E+02	1.42E+02
m	69	965.39	3.94E+03	196.54			3.94E+03	1.97E+02
m	70	969.41	1.19E+04	255.24			1.19E+04	2.55E+02
	71	989.13	1.14E+02	131.16			1.14E+02	1.31E+02
	72	1002.29	8.27E+02	206.30	4.07E+00	2.59E+00	8.23E+02	2.06E+02
	73	1033.06	2.30E+02	123.75			2.30E+02	1.24E+02
	74	1065.47	1.91E+02	125.84			1.91E+02	1.26E+02
	75	1070.81	1.75E+02	106.34			1.75E+02	1.06E+02
	76	1078.49	4.11E+02	150.60			4.11E+02	1.51E+02
	77	1095.20	3.26E+02	149.96			3.26E+02	1.50E+02
M	78	1111.41	2.19E+02	122.45			2.19E+02	1.22E+02
m	79	1120.81	7.54E+03	209.68	2.45E+00	2.38E+00	7.53E+03	2.10E+02
	80	1155.50	8.92E+02	181.37			8.92E+02	1.81E+02
	81	1182.72	1.99E+02	111.66			1.99E+02	1.12E+02
	82	1208.19	2.42E+02	126.98			2.42E+02	1.27E+02
	83	1238.68	2.71E+03	183.43			2.71E+03	1.83E+02
M	84	1247.56	3.56E+02	116.21			3.56E+02	1.16E+02
m	85	1253.88	2.23E+02	151.66			2.23E+02	1.52E+02
	86	1281.56	6.70E+02	143.28			6.70E+02	1.43E+02
M	87	1378.29	2.04E+03	146.31			2.04E+03	1.46E+02
m	88	1385.83	4.10E+02	131.35			4.10E+02	1.31E+02
	89	1401.89	5.69E+02	136.82			5.69E+02	1.37E+02

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	90	1408.59	9.29E+02	121.59			9.29E+02	1.22E+02
	91	1425.35	7.58E+01	87.56			7.58E+01	8.76E+01
	92	1432.42	1.14E+02	113.42			1.14E+02	1.13E+02
	93	1460.26	7.27E+02	154.91			7.27E+02	1.55E+02
	94	1474.18	7.73E+01	88.02			7.73E+01	8.80E+01
M	95	1496.83	5.40E+02	104.89			5.40E+02	1.05E+02
m	96	1502.39	3.51E+02	102.39			3.51E+02	1.02E+02
m	97	1510.00	9.66E+02	134.62			9.66E+02	1.35E+02
m	98	1514.17	2.54E+02	120.75			2.54E+02	1.21E+02
	99	1530.23	9.18E+01	98.46			9.18E+01	9.85E+01
M	100	1539.85	2.38E+02	108.77			2.38E+02	1.09E+02
m	101	1543.96	2.20E+02	108.02			2.20E+02	1.08E+02
M	102	1575.93	1.25E+02	56.53			1.25E+02	5.65E+01
m	103	1582.13	3.54E+02	98.69			3.54E+02	9.87E+01
m	104	1588.99	1.78E+03	137.11			1.78E+03	1.37E+02
m	105	1593.21	1.26E+03	164.72			1.26E+03	1.65E+02
M	106	1621.56	9.79E+02	127.40			9.79E+02	1.27E+02
m	107	1631.34	8.67E+02	116.86			8.67E+02	1.17E+02
	108	1639.20	2.23E+02	93.34			2.23E+02	9.33E+01
	109	1661.90	2.62E+02	119.16			2.62E+02	1.19E+02
	110	1693.59	1.47E+02	101.62			1.47E+02	1.02E+02
	111	1730.52	1.22E+03	141.79			1.22E+03	1.42E+02
	112	1765.30	5.85E+03	195.25	3.33E+00	1.73E+00	5.85E+03	1.95E+02
	113	1806.75	8.53E+01	81.71			8.53E+01	8.17E+01
M	114	1839.86	1.55E+02	101.62			1.55E+02	1.02E+02
m	115	1848.33	7.41E+02	97.63			7.41E+02	9.76E+01
	116	1888.60	1.20E+02	89.67			1.20E+02	8.97E+01
	117	1896.16	9.01E+01	64.29			9.01E+01	6.43E+01
	118	2104.06	1.52E+03	154.24			1.52E+03	1.54E+02
	119	2119.73	3.55E+02	95.13			3.55E+02	9.51E+01
	120	2204.81	1.62E+03	145.53			1.62E+03	1.46E+02
	121	2294.71	8.55E+01	92.02			8.55E+01	9.20E+01
	122	2448.47	4.58E+02	115.39			4.58E+02	1.15E+02
	123	2615.31	1.08E+04	225.51	4.77E+00	1.52E+00	1.08E+04	2.26E+02
	124	2687.48	8.95E+01	55.37			8.95E+01	5.54E+01
M	125	2780.16	1.57E+01	14.00			1.57E+01	1.40E+01
m	126	2785.63	2.49E+01	29.33			2.49E+01	2.93E+01
	127	2928.45	2.57E+01	26.91			2.57E+01	2.69E+01
	128	2950.27	1.69E+01	19.70			1.69E+01	1.97E+01
	129	2985.13	2.53E+01	15.75			2.53E+01	1.57E+01
	130	3126.04	5.36E+01	19.72			5.36E+01	1.97E+01
	131	3198.07	1.95E+02	29.00			1.95E+02	2.90E+01
	132	3475.73	1.08E+01	8.77			1.08E+01	8.77E+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 1707086-04

HTC-A02-S004-1218-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/22/2017 7:56:55AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.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	39.90	7.21E+02	360.58	6.74E+01	9.19E+00	6.54E+02	3.61E+02
	2	46.57	2.50E+03	395.58	3.74E+01	5.77E+00	2.46E+03	3.96E+02
	3	57.20	1.06E+04	677.43			1.06E+04	6.77E+02
	4	63.90	8.26E+03	790.17	6.29E+01	1.34E+01	8.20E+03	7.90E+02
	5	76.23	9.09E+04	1263.83			9.09E+04	1.26E+03
M	6	88.13	2.86E+04	873.08			2.86E+04	8.73E+02
m	7	92.95	2.60E+04	712.28	4.88E+01	1.30E+00	2.59E+04	7.12E+02
	8	99.35	3.80E+03	508.18			3.80E+03	5.08E+02
	9	105.23	2.85E+03	589.86			2.85E+03	5.90E+02
	10	115.17	1.45E+03	424.18			1.45E+03	4.24E+02
	11	129.28	5.98E+03	679.07			5.98E+03	6.79E+02
	12	144.04	1.67E+03	424.41	1.06E+01	1.02E+01	1.66E+03	4.25E+02
	13	153.98	2.40E+03	567.45			2.40E+03	5.67E+02
	14	163.16	4.33E+02	469.46			4.33E+02	4.69E+02
	15	186.00	1.32E+04	696.34	3.48E+01	7.32E+00	1.32E+04	6.96E+02
	16	191.82	4.68E+02	373.46			4.68E+02	3.73E+02
	17	199.81	4.85E+02	438.78			4.85E+02	4.39E+02
	18	209.37	8.40E+03	574.09			8.40E+03	5.74E+02
	19	215.97	6.36E+02	346.36			6.36E+02	3.46E+02
M	20	238.67	9.60E+04	692.05	7.09E+00	6.85E+00	9.60E+04	6.92E+02
m	21	241.62	2.15E+04	729.79			2.15E+04	7.30E+02
M	22	256.14	5.96E+02	174.22			5.96E+02	1.74E+02
m	23	258.63	8.88E+02	283.75			8.88E+02	2.84E+02
M	24	270.26	8.27E+03	364.97			8.27E+03	3.65E+02
m	25	274.90	3.95E+02	271.62			3.95E+02	2.72E+02
M	26	287.79	6.69E+02	309.21			6.69E+02	3.09E+02
m	27	295.30	2.68E+04	414.00			2.68E+04	4.14E+02
m	28	300.16	6.15E+03	336.80			6.15E+03	3.37E+02
	29	328.07	4.12E+03	402.41			4.12E+03	4.02E+02
M	30	338.41	1.86E+04	386.49			1.86E+04	3.86E+02
m	31	340.97	7.30E+02	298.52			7.30E+02	2.99E+02
	32	351.97	4.70E+04	629.73	1.04E+01	5.08E+00	4.70E+04	6.30E+02
	33	388.37	6.76E+02	297.66			6.76E+02	2.98E+02
	34	409.53	2.12E+03	379.65			2.12E+03	3.80E+02
	35	440.63	2.68E+02	218.74			2.68E+02	2.19E+02
	36	453.67	7.47E+02	317.00			7.47E+02	3.17E+02
	37	463.11	5.66E+03	369.91			5.66E+03	3.70E+02
	38	470.19	2.60E+02	208.57			2.60E+02	2.09E+02
	39	479.75	5.24E+02	238.53			5.24E+02	2.39E+02
	40	487.38	2.49E+02	204.39			2.49E+02	2.04E+02
	41	510.88	1.04E+04	401.56	7.08E+01	4.94E+00	1.04E+04	4.02E+02

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	534.27	2.86E+02	224.43			2.86E+02	2.24E+02
	43	562.65	8.10E+02	279.09			8.10E+02	2.79E+02
	44	583.35	3.05E+04	474.38	5.65E+00	3.57E+00	3.05E+04	4.74E+02
	45	609.50	3.48E+04	504.13	1.07E+01	3.96E+00	3.48E+04	5.04E+02
	46	665.67	1.08E+03	231.87			1.08E+03	2.32E+02
	47	702.79	2.29E+02	228.12			2.29E+02	2.28E+02
	48	708.12	1.91E+02	194.54			1.91E+02	1.95E+02
M	49	721.15	2.77E+02	232.94			2.77E+02	2.33E+02
m	50	727.56	6.63E+03	243.53			6.63E+03	2.44E+02
	51	741.95	2.37E+02	205.58			2.37E+02	2.06E+02
	52	755.29	9.57E+02	250.39			9.57E+02	2.50E+02
M	53	764.00	5.85E+02	199.89			5.85E+02	2.00E+02
m	54	768.63	3.18E+03	205.23			3.18E+03	2.05E+02
m	55	772.56	1.25E+03	224.75			1.25E+03	2.25E+02
M	56	782.33	4.73E+02	165.16			4.73E+02	1.65E+02
m	57	786.14	1.70E+03	178.23			1.70E+03	1.78E+02
	58	795.26	3.47E+03	261.67			3.47E+03	2.62E+02
	59	806.61	5.98E+02	197.58			5.98E+02	1.98E+02
M	60	830.85	3.92E+02	152.87			3.92E+02	1.53E+02
m	61	836.20	1.49E+03	183.87			1.49E+03	1.84E+02
m	62	840.41	1.06E+03	185.82			1.06E+03	1.86E+02
	63	860.85	3.46E+03	257.32			3.46E+03	2.57E+02
	64	893.84	2.41E+02	156.27			2.41E+02	1.56E+02
M	65	904.69	5.66E+02	141.67			5.66E+02	1.42E+02
m	66	911.59	2.06E+04	316.53	2.63E+00	2.49E+00	2.06E+04	3.17E+02
	67	934.49	1.70E+03	211.09			1.70E+03	2.11E+02
M	68	959.78	1.76E+02	141.86			1.76E+02	1.42E+02
m	69	965.39	3.94E+03	196.54			3.94E+03	1.97E+02
m	70	969.41	1.19E+04	255.24			1.19E+04	2.55E+02
	71	989.13	1.14E+02	131.16			1.14E+02	1.31E+02
	72	1002.29	8.27E+02	206.30	4.07E+00	2.59E+00	8.23E+02	2.06E+02
	73	1033.06	2.30E+02	123.75			2.30E+02	1.24E+02
	74	1065.47	1.91E+02	125.84			1.91E+02	1.26E+02
	75	1070.81	1.75E+02	106.34			1.75E+02	1.06E+02
	76	1078.49	4.11E+02	150.60			4.11E+02	1.51E+02
	77	1095.20	3.26E+02	149.96			3.26E+02	1.50E+02
M	78	1111.41	2.19E+02	122.45			2.19E+02	1.22E+02
m	79	1120.81	7.54E+03	209.68	2.45E+00	2.38E+00	7.53E+03	2.10E+02
	80	1155.50	8.92E+02	181.37			8.92E+02	1.81E+02
	81	1182.72	1.99E+02	111.66			1.99E+02	1.12E+02
	82	1208.19	2.42E+02	126.98			2.42E+02	1.27E+02
	83	1238.68	2.71E+03	183.43			2.71E+03	1.83E+02
M	84	1247.56	3.56E+02	116.21			3.56E+02	1.16E+02
m	85	1253.88	2.23E+02	151.66			2.23E+02	1.52E+02
	86	1281.56	6.70E+02	143.28			6.70E+02	1.43E+02
M	87	1378.29	2.04E+03	146.31			2.04E+03	1.46E+02
m	88	1385.83	4.10E+02	131.35			4.10E+02	1.31E+02
	89	1401.89	5.69E+02	136.82			5.69E+02	1.37E+02
	90	1408.59	9.29E+02	121.59			9.29E+02	1.22E+02
	91	1425.35	7.58E+01	87.56			7.58E+01	8.76E+01
	92	1432.42	1.14E+02	113.42			1.14E+02	1.13E+02
	93	1460.26	7.27E+02	154.91			7.27E+02	1.55E+02
	94	1474.18	7.73E+01	88.02			7.73E+01	8.80E+01
M	95	1496.83	5.40E+02	104.89			5.40E+02	1.05E+02

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	96	1502.39	3.51E+02	102.39			3.51E+02	1.02E+02
m	97	1510.00	9.66E+02	134.62			9.66E+02	1.35E+02
m	98	1514.17	2.54E+02	120.75			2.54E+02	1.21E+02
	99	1530.23	9.18E+01	98.46			9.18E+01	9.85E+01
M	100	1539.85	2.38E+02	108.77			2.38E+02	1.09E+02
m	101	1543.96	2.20E+02	108.02			2.20E+02	1.08E+02
M	102	1575.93	1.25E+02	56.53			1.25E+02	5.65E+01
m	103	1582.13	3.54E+02	98.69			3.54E+02	9.87E+01
m	104	1588.99	1.78E+03	137.11			1.78E+03	1.37E+02
m	105	1593.21	1.26E+03	164.72			1.26E+03	1.65E+02
M	106	1621.56	9.79E+02	127.40			9.79E+02	1.27E+02
m	107	1631.34	8.67E+02	116.86			8.67E+02	1.17E+02
	108	1639.20	2.23E+02	93.34			2.23E+02	9.33E+01
	109	1661.90	2.62E+02	119.16			2.62E+02	1.19E+02
	110	1693.59	1.47E+02	101.62			1.47E+02	1.02E+02
	111	1730.52	1.22E+03	141.79			1.22E+03	1.42E+02
	112	1765.30	5.85E+03	195.25	3.33E+00	1.73E+00	5.85E+03	1.95E+02
	113	1806.75	8.53E+01	81.71			8.53E+01	8.17E+01
M	114	1839.86	1.55E+02	101.62			1.55E+02	1.02E+02
m	115	1848.33	7.41E+02	97.63			7.41E+02	9.76E+01
	116	1888.60	1.20E+02	89.67			1.20E+02	8.97E+01
	117	1896.16	9.01E+01	64.29			9.01E+01	6.43E+01
	118	2104.06	1.52E+03	154.24			1.52E+03	1.54E+02
	119	2119.73	3.55E+02	95.13			3.55E+02	9.51E+01
	120	2204.81	1.62E+03	145.53			1.62E+03	1.46E+02
	121	2294.71	8.55E+01	92.02			8.55E+01	9.20E+01
	122	2448.47	4.58E+02	115.39			4.58E+02	1.15E+02
	123	2615.31	1.08E+04	225.51	4.77E+00	1.52E+00	1.08E+04	2.26E+02
	124	2687.48	8.95E+01	55.37			8.95E+01	5.54E+01
M	125	2780.16	1.57E+01	14.00			1.57E+01	1.40E+01
m	126	2785.63	2.49E+01	29.33			2.49E+01	2.93E+01
	127	2928.45	2.57E+01	26.91			2.57E+01	2.69E+01
	128	2950.27	1.69E+01	19.70			1.69E+01	1.97E+01
	129	2985.13	2.53E+01	15.75			2.53E+01	1.57E+01
	130	3126.04	5.36E+01	19.72			5.36E+01	1.97E+01
	131	3198.07	1.95E+02	29.00			1.95E+02	2.90E+01
	132	3475.73	1.08E+01	8.77			1.08E+01	8.77E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.952	1460.81	*	10.67	1.70E+01	3.96E+00
CD-109	0.998	88.03	*	3.72	3.52E+02	3.93E+01
SN-126	0.951	87.57	*	37.00	3.06E+01	2.90E+00
PM-146	0.421	453.90	*	39.94	1.91E+00	8.25E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.961	583.14	*	30.22	1.21E+02	1.10E+01
		860.37	*	4.48	1.27E+02	1.41E+01
		2614.66	*	35.85	1.00E+02	9.00E+00
PB-210	0.999	46.50	*	4.25	3.92E+01	7.53E+00
BI-212	0.954	727.17	*	11.80	8.02E+01	7.78E+00
		1620.62	*	2.75	9.58E+01	1.50E+01
PB-212	1.000	238.63	*	44.60	1.33E+02	1.01E+01
		300.09	*	3.41	1.31E+02	1.21E+01
BI-214	0.966	609.31	*	46.30	9.32E+01	8.55E+00
		1120.29	*	15.10	1.01E+02	8.76E+00
		1764.49	*	15.80	1.05E+02	9.13E+00
		2204.22	*	4.98	1.04E+02	1.27E+01
PB-214	0.999	295.21	*	19.19	1.00E+02	7.58E+00
		351.92	*	37.19	1.03E+02	8.18E+00
RA-224	0.937	240.98	*	3.95	3.40E+02	2.80E+01
RA-225	0.801	40.00	*	31.00	2.02E+02	1.15E+02
RA-226	0.993	186.21	*	3.28	2.11E+02	3.86E+02
AC-228	0.974	338.32	*	11.40	1.30E+02	1.04E+01
		911.07	*	27.70	1.28E+02	1.05E+01
		969.11	*	16.60	1.30E+02	1.10E+01
TH-234	0.943	63.29	*	3.80	9.59E+01	1.17E+01
U-235	0.641	143.76	*	10.50	7.14E+00	2.19E+00
		163.35	*	4.70	4.46E+00	4.91E+00
		205.31		4.70		

* = 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 : 8/22/2017 7:56:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	57.20	2.94048E+00	3.20	Tol.	CE-143
	5	76.23	2.52376E+01	0.70		
m	7	92.95	7.20492E+00	1.37	Sum	
	8	99.35	1.05598E+00	6.68	D-Esc	
	9	105.23	7.90975E-01	10.36	Tol.	EU-155 NP-239
	10	115.17	4.02896E-01	14.62		
	11	129.28	1.66123E+00	5.68		
	13	153.98	6.67439E-01	11.81	Tol.	CS-136
	16	191.82	1.30096E-01	39.87		
	17	199.81	1.34652E-01	45.26		
	18	209.37	2.33384E+00	3.42	Sum	
	19	215.97	1.76639E-01	27.23		
M	22	256.14	1.65524E-01	14.62	Tol.	TH-227
m	23	258.63	2.46707E-01	15.97		
M	24	270.26	2.29642E+00	2.21		
m	25	274.90	1.09601E-01	34.42	Sum	
M	26	287.79	1.85846E-01	23.11	Sum	
	29	328.07	1.14570E+00	4.88	Tol.	LA-140
m	31	340.97	2.02811E-01	20.44	Sum	
	33	388.37	1.87746E-01	22.02	Sum	
	34	409.53	5.88177E-01	8.96		
	35	440.63	7.43889E-02	40.84	Sum	
	37	463.11	1.57322E+00	3.27	Sum	
	38	470.19	7.22337E-02	40.10		
	39	479.75	1.45630E-01	22.75	Sum	
	40	487.38	6.91244E-02	41.07	Tol.	LA-140
	41	510.88	2.88204E+00	1.94		
	42	534.27	7.93965E-02	39.26	Sum	
	43	562.65	2.24890E-01	17.24	Tol.	CS-134
	46	665.67	2.99618E-01	10.75	Tol.	SB-126
	47	702.79	6.35406E-02	49.86		
	48	708.12	5.29205E-02	51.06		
M	49	721.15	7.69532E-02	42.04	Tol.	SB-126
	51	741.95	6.57442E-02	43.43		
	52	755.29	2.65845E-01	13.08		
M	53	764.00	1.62423E-01	17.09		
m	54	768.63	8.82262E-01	3.23	Sum	
m	55	772.56	3.48370E-01	8.96	Sum	
M	56	782.33	1.31421E-01	17.45		
m	57	786.14	4.71993E-01	5.24		
	58	795.26	9.63321E-01	3.77	Sum	
	59	806.61	1.66246E-01	16.51	Sum	
M	60	830.85	1.08878E-01	19.50		
m	61	836.20	4.14694E-01	6.16		
m	62	840.41	2.94156E-01	8.77		
	64	893.84	6.69319E-02	32.43		
M	65	904.69	1.57101E-01	12.52	Sum	
	67	934.49	4.72850E-01	6.20	Sum	
M	68	959.78	4.89596E-02	40.24		
m	69	965.39	1.09552E+00	2.49	Sum	
	71	989.13	3.16845E-02	57.49		
	72	1002.29	2.28579E-01	12.54		

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	73	1033.06	6.38015E-02	26.94	Sum	
	74	1065.47	5.30964E-02	32.92	Sum	
	75	1070.81	4.87139E-02	30.32		
	76	1078.49	1.14175E-01	18.32		
	77	1095.20	9.04967E-02	23.02		
M	78	1111.41	6.09698E-02	27.89	S-Esc	
	80	1155.50	2.47759E-01	10.17	Sum	
	81	1182.72	5.53779E-02	28.00	D-Esc	
	82	1208.19	6.71402E-02	26.27	Sum	
	83	1238.68	7.52020E-01	3.39		
M	84	1247.56	9.88580E-02	16.33		
m	85	1253.88	6.18981E-02	34.03	S-Esc	
	86	1281.56	1.86201E-01	10.69		
M	87	1378.29	5.67321E-01	3.58		
m	88	1385.83	1.14016E-01	16.00		
	89	1401.89	1.58047E-01	12.02		
	90	1408.59	2.58085E-01	6.54	Tol.	EU-152
	91	1425.35	2.10453E-02	57.79		
	92	1432.42	3.17159E-02	49.67		
	94	1474.18	2.14726E-02	56.93		
M	95	1496.83	1.49932E-01	9.72		
m	96	1502.39	9.74917E-02	14.59		
m	97	1510.00	2.68231E-01	6.97		
m	98	1514.17	7.04187E-02	23.82		
	99	1530.23	2.55040E-02	53.62		
M	100	1539.85	6.62330E-02	22.81		
m	101	1543.96	6.12111E-02	24.51		
M	102	1575.93	3.47153E-02	22.62		
m	103	1582.13	9.84386E-02	13.92		
m	104	1588.99	4.95002E-01	3.85	Sum	
m	105	1593.21	3.51039E-01	6.52	D-Esc	
m	107	1631.34	2.40849E-01	6.74		
	108	1639.20	6.18405E-02	20.96	Sum	
	109	1661.90	7.27463E-02	22.75	Sum	
	110	1693.59	4.08761E-02	34.53	S-Esc	
	111	1730.52	3.39989E-01	5.79	Sum	
	113	1806.75	2.36895E-02	47.90	Sum	
M	114	1839.86	4.31532E-02	32.71		
m	115	1848.33	2.05782E-01	6.59	Sum	
	116	1888.60	3.34691E-02	37.21		
	117	1896.16	2.50248E-02	35.68		
	118	2104.06	4.20885E-01	5.09	S-Esc	
	119	2119.73	9.86812E-02	13.39		
	121	2294.71	2.37562E-02	53.80		
	122	2448.47	1.27239E-01	12.60		
	124	2687.48	2.48611E-02	30.93		
M	125	2780.16	4.35663E-03	44.63		
m	126	2785.63	6.92699E-03	58.82		
	127	2928.45	7.13325E-03	52.39		
	128	2950.27	4.69136E-03	58.33		
	129	2985.13	7.01754E-03	31.17		
	130	3126.04	1.48885E-02	18.40		
	131	3198.07	5.40523E-02	7.45	Sum	
	132	3475.73	2.99145E-03	40.74	Sum	

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

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	0.95	1460.81	*	10.67	1.70E+01	3.96E+00
CD-109	0.99	88.03	*	3.72	3.52E+02	3.93E+01
SN-126	0.95	87.57	*	37.00	3.06E+01	2.90E+00
PM-146	0.42	453.90	*	39.94	1.91E+00	8.25E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.96	583.14	*	30.22	1.21E+02	1.10E+01
		860.37	*	4.48	1.27E+02	1.41E+01
		2614.66	*	35.85	1.00E+02	9.00E+00
PB-210	0.99	46.50	*	4.25	3.92E+01	7.53E+00
BI-212	0.95	727.17	*	11.80	8.02E+01	7.78E+00
		1620.62	*	2.75	9.58E+01	1.50E+01
PB-212	1.00	238.63	*	44.60	1.33E+02	1.01E+01
		300.09	*	3.41	1.31E+02	1.21E+01
BI-214	0.96	609.31	*	46.30	9.32E+01	8.55E+00
		1120.29	*	15.10	1.01E+02	8.76E+00
		1764.49	*	15.80	1.05E+02	9.13E+00
		2204.22	*	4.98	1.04E+02	1.27E+01
PB-214	0.99	295.21	*	19.19	1.00E+02	7.58E+00
		351.92	*	37.19	1.03E+02	8.18E+00
RA-224	0.93	240.98	*	3.95	3.40E+02	2.80E+01
RA-225	0.80	40.00	*	31.00	2.02E+02	1.15E+02
RA-226	0.99	186.21	*	3.28	2.11E+02	3.86E+02
AC-228	0.97	338.32	*	11.40	1.30E+02	1.04E+01
		911.07	*	27.70	1.28E+02	1.05E+01
		969.11	*	16.60	1.30E+02	1.10E+01
TH-234	0.94	63.29	*	3.80	9.59E+01	1.17E+01
U-235	0.64	143.76	*	10.50	7.14E+00	2.19E+00
		163.35	*	4.70	4.46E+00	4.91E+00
		205.31		4.70		

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

* = 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	0.952	1.70E+01	3.96E+00	
?	CD-109	0.998	3.52E+02	3.93E+01	
?	SN-126	0.951	3.06E+01	2.90E+00	
	PM-146	0.421	1.91E+00	8.25E-01	
	TL-208	0.961	1.12E+02	6.25E+00	
	PB-210	0.999	3.92E+01	7.53E+00	
	BI-212	0.954	8.35E+01	6.91E+00	
	PB-212	1.000	1.32E+02	7.74E+00	
	BI-214	0.966	1.00E+02	4.72E+00	
	PB-214	0.999	1.02E+02	5.56E+00	
	RA-224	0.937	3.40E+02	2.80E+01	
	RA-225	0.801	2.02E+02	1.15E+02	
	RA-226	0.993	2.11E+02	3.86E+02	
	AC-228	0.974	1.29E+02	6.12E+00	
	TH-234	0.943	9.59E+01	1.17E+01	
	U-235	0.641	6.70E+00	2.00E+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 1707086-04

HTC-A02-S004-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 7:56:55AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	57.20	2.94048E+00	3.20	Tol.	CE-143
	5	76.23	2.52376E+01	0.70		
m	7	92.95	7.20492E+00	1.37	Sum	
	8	99.35	1.05598E+00	6.68	D-Esc	
	9	105.23	7.90975E-01	10.36	Tol.	EU-155 NP-239
	10	115.17	4.02896E-01	14.62		
	11	129.28	1.66123E+00	5.68		
	13	153.98	6.67439E-01	11.81	Tol.	CS-136
	16	191.82	1.30096E-01	39.87		
	17	199.81	1.34652E-01	45.26		
	18	209.37	2.33384E+00	3.42	Sum	
	19	215.97	1.76639E-01	27.23		
M	22	256.14	1.65524E-01	14.62	Tol.	TH-227
m	23	258.63	2.46707E-01	15.97		
M	24	270.26	2.29642E+00	2.21		
m	25	274.90	1.09601E-01	34.42	Sum	
M	26	287.79	1.85846E-01	23.11	Sum	
	29	328.07	1.14570E+00	4.88	Tol.	LA-140
m	31	340.97	2.02811E-01	20.44	Sum	
	33	388.37	1.87746E-01	22.02	Sum	
	34	409.53	5.88177E-01	8.96		
	35	440.63	7.43889E-02	40.84	Sum	
	37	463.11	1.57322E+00	3.27	Sum	
	38	470.19	7.22337E-02	40.10		
	39	479.75	1.45630E-01	22.75	Sum	
	40	487.38	6.91244E-02	41.07	Tol.	LA-140
	41	510.88	2.88204E+00	1.94		
	42	534.27	7.93965E-02	39.26	Sum	
	43	562.65	2.24890E-01	17.24	Tol.	CS-134
	46	665.67	2.99618E-01	10.75	Tol.	SB-126
	47	702.79	6.35406E-02	49.86		
	48	708.12	5.29205E-02	51.06		
M	49	721.15	7.69532E-02	42.04	Tol.	SB-126

Analysis Report for 1707086-04

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	51	741.95	6.57442E-02	43.43		
	52	755.29	2.65845E-01	13.08		
M	53	764.00	1.62423E-01	17.09		
m	54	768.63	8.82262E-01	3.23	Sum	
m	55	772.56	3.48370E-01	8.96	Sum	
M	56	782.33	1.31421E-01	17.45		
m	57	786.14	4.71993E-01	5.24		
	58	795.26	9.63321E-01	3.77	Sum	
	59	806.61	1.66246E-01	16.51	Sum	
M	60	830.85	1.08878E-01	19.50		
m	61	836.20	4.14694E-01	6.16		
m	62	840.41	2.94156E-01	8.77		
	64	893.84	6.69319E-02	32.43		
M	65	904.69	1.57101E-01	12.52	Sum	
	67	934.49	4.72850E-01	6.20	Sum	
M	68	959.78	4.89596E-02	40.24		
m	69	965.39	1.09552E+00	2.49	Sum	
	71	989.13	3.16845E-02	57.49		
	72	1002.29	2.28579E-01	12.54		
	73	1033.06	6.38015E-02	26.94	Sum	
	74	1065.47	5.30964E-02	32.92	Sum	
	75	1070.81	4.87139E-02	30.32		
	76	1078.49	1.14175E-01	18.32		
	77	1095.20	9.04967E-02	23.02		
M	78	1111.41	6.09698E-02	27.89	S-Esc	
	80	1155.50	2.47759E-01	10.17	Sum	
	81	1182.72	5.53779E-02	28.00	D-Esc	
	82	1208.19	6.71402E-02	26.27	Sum	
	83	1238.68	7.52020E-01	3.39		
M	84	1247.56	9.88580E-02	16.33		
m	85	1253.88	6.18981E-02	34.03	S-Esc	
	86	1281.56	1.86201E-01	10.69		
M	87	1378.29	5.67321E-01	3.58		
m	88	1385.83	1.14016E-01	16.00		
	89	1401.89	1.58047E-01	12.02		
	90	1408.59	2.58085E-01	6.54	Tol.	EU-152
	91	1425.35	2.10453E-02	57.79		
	92	1432.42	3.17159E-02	49.67		
	94	1474.18	2.14726E-02	56.93		
M	95	1496.83	1.49932E-01	9.72		
m	96	1502.39	9.74917E-02	14.59		
m	97	1510.00	2.68231E-01	6.97		
m	98	1514.17	7.04187E-02	23.82		
	99	1530.23	2.55040E-02	53.62		
M	100	1539.85	6.62330E-02	22.81		

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	101	1543.96	6.12111E-02	24.51		
M	102	1575.93	3.47153E-02	22.62		
m	103	1582.13	9.84386E-02	13.92		
m	104	1588.99	4.95002E-01	3.85	Sum	
m	105	1593.21	3.51039E-01	6.52	D-Esc	
m	107	1631.34	2.40849E-01	6.74		
	108	1639.20	6.18405E-02	20.96	Sum	
	109	1661.90	7.27463E-02	22.75	Sum	
	110	1693.59	4.08761E-02	34.53	S-Esc	
	111	1730.52	3.39989E-01	5.79	Sum	
	113	1806.75	2.36895E-02	47.90	Sum	
M	114	1839.86	4.31532E-02	32.71		
m	115	1848.33	2.05782E-01	6.59	Sum	
	116	1888.60	3.34691E-02	37.21		
	117	1896.16	2.50248E-02	35.68		
	118	2104.06	4.20885E-01	5.09	S-Esc	
	119	2119.73	9.86812E-02	13.39		
	121	2294.71	2.37562E-02	53.80		
	122	2448.47	1.27239E-01	12.60		
	124	2687.48	2.48611E-02	30.93		
M	125	2780.16	4.35663E-03	44.63		
m	126	2785.63	6.92699E-03	58.82		
	127	2928.45	7.13325E-03	52.39		
	128	2950.27	4.69136E-03	58.33		
	129	2985.13	7.01754E-03	31.17		
	130	3126.04	1.48885E-02	18.40		
	131	3198.07	5.40523E-02	7.45	Sum	
	132	3475.73	2.99145E-03	40.74	Sum	

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

NUCLIDE MDA REPORT

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

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

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

+		BE-7	477.59		10.42	-3.45E+00	1.14E+01	1.14E+01
+		NA-22	1274.54		99.94	-7.55E-02	3.80E-01	3.80E-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	-3.24E-03	3.63E-01	3.63E-01
+		K-40	1460.81	*	10.67	1.70E+01	5.66E+00	5.66E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	9.89E-02	3.29E-01	3.29E-01
			78.34		96.00	4.66E+00		4.22E-01
+		SC-46	889.25		99.98	2.75E-01	8.39E-01	8.39E-01
			1120.51		99.99	3.44E+01		2.01E+00
+		V-48	983.52		99.98	4.53E-01	2.47E+01	2.47E+01
			1312.10		97.50	2.07E+01		2.69E+01
+		CR-51	320.08		9.83	-3.14E+00	4.05E+01	4.05E+01
+		MN-54	834.83		99.97	1.24E+00	6.00E-01	6.00E-01
+		CO-56	846.75		99.96	1.22E-01	8.54E-01	8.54E-01
			1037.75		14.03	-5.33E-01		5.72E+00
			1238.25		67.00	2.10E+01		2.27E+00
			1771.40		15.51	-2.21E-01		6.77E+00
			2598.48		16.90	-4.01E+00		3.08E+00
+		CO-57	122.06		85.51	-1.64E-01	3.75E-01	3.75E-01
			136.48		10.60	-1.15E+00		4.15E+00
+		CO-58	810.76		99.40	1.22E-01	1.02E+00	1.02E+00
+		FE-59	1099.22		56.50	-9.35E-01	2.80E+00	2.80E+00
			1291.56		43.20	-2.33E+00		3.75E+00
+		CO-60	1173.22		100.00	2.63E-02	3.62E-01	3.62E-01
			1332.49		100.00	-1.45E-02		3.72E-01
+		ZN-65	1115.52		50.75	-4.08E+01	1.03E+00	1.03E+00
+		GA-67	93.31		35.70	2.45E+10	1.19E+09	1.19E+09
			208.95		2.24	2.33E+11		2.32E+10
			300.22		16.00	2.77E+10		3.14E+09
+		SE-75	121.11		16.70	-1.37E+00	9.77E-01	2.61E+00
			136.00		59.20	4.19E-01		1.02E+00
			264.65		59.80	3.93E-01		9.77E-01
			279.53		25.20	-2.78E+00		2.59E+00
			400.65		11.40	1.25E+00		5.61E+00
+		RB-82	776.52		13.00	-6.40E+01	4.58E+01	4.58E+01
+		RB-83	520.41		46.00	-2.73E-01	1.59E+00	1.59E+00
			529.64		30.30	-1.48E-01		2.43E+00
			552.65		16.40	-1.05E+00		4.57E+00
+		KR-85	513.99		0.43	-1.19E+03	8.99E+01	8.99E+01
+		SR-85	513.99		99.27	-1.46E+01	1.10E+00	1.10E+00
+		Y-88	898.02		93.40	1.39E-01	7.22E-01	7.76E-01
			1836.01		99.38	-4.17E-02		7.22E-01
+		MO-93	263.06		56.72	3.06E-02	4.30E-01	5.95E-01
			684.67		99.68	2.24E-02		4.34E-01
			1477.11		99.08	-1.20E-01		4.30E-01
+		NB-93M	16.57		9.43	0.00E+00	6.23E+00	6.23E+00
+		NB-94	702.63		100.00	4.00E-01	3.70E-01	4.58E-01
			871.10		100.00	-2.79E-02		3.70E-01
+		NB-95	765.79		99.81	8.25E+00	3.84E+00	3.84E+00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95M	235.69		25.00	-3.36E+10	3.72E+08	3.72E+08
+	ZR-95	724.18		43.70	1.27E+01	2.42E+00	4.06E+00
		756.72		55.30	6.67E+00		2.42E+00
+	MO-99	181.06		6.20	1.98E+11	1.89E+11	3.35E+11
		739.58		12.80	-3.46E+10		1.89E+11
		778.00		4.50	-2.02E+12		5.03E+11
+	RU-103	497.08		89.00	-1.12E-01	2.08E+00	2.08E+00
+	RU-106	621.84		9.80	1.47E+00	4.87E+00	4.87E+00
+	AG-108M	433.93		89.90	8.22E-02	3.72E-01	3.72E-01
		614.37		90.40	1.62E-01		4.88E-01
		722.95		90.50	-1.25E+01		5.37E-01
+	CD-109	88.03	*	3.72	3.52E+02	2.57E+01	2.57E+01
+	AG-110M	657.75		93.14	-2.12E-01	5.84E-01	5.84E-01
		677.61		10.53	3.20E-01		5.29E+00
		706.67		16.46	1.08E+00		3.61E+00
		763.93		21.98	-2.77E+01		2.89E+00
		884.67		71.63	6.10E-02		6.82E-01
		1384.27		23.94	-1.49E+01		2.27E+00
+	CD-113M	263.70		0.02	1.16E+03	1.46E+03	1.46E+03
+	SN-113	255.12		1.93	1.89E+01	9.81E-01	3.24E+01
		391.69		64.90	-4.69E-03		9.81E-01
+	TE123M	159.00		84.10	-2.03E-02	7.40E-01	7.40E-01
+	SB-124	602.71		97.87	-6.41E-01	1.30E+00	1.30E+00
		645.85		7.26	-1.13E+01		1.74E+01
		722.78		11.10	-3.23E+02		1.23E+01
		1691.02		49.00	-7.82E-01		2.33E+00
+	I-125	35.49		6.49	3.34E+00	3.48E+01	3.48E+01
+	SB-125	176.33		6.89	-2.40E+00	1.25E+00	5.54E+00
		427.89		29.33	-2.90E-01		1.25E+00
		463.38		10.35	5.89E+01		4.98E+00
		600.56		17.80	-1.98E+00		2.44E+00
		635.90		11.32	-2.62E+00		3.72E+00
+	SB-126	414.70		83.30	1.19E+01	1.02E+02	1.02E+02
		666.33		99.60	3.43E+02		1.13E+02
		695.00		99.60	-8.78E+00		1.06E+02
		720.50		53.80	-8.90E+00		1.96E+02
+	SN-126	87.57	*	37.00	3.06E+01	2.23E+00	2.23E+00
+	SB-127	473.00		25.00	1.92E+07	5.79E+07	6.39E+07
		685.20		35.70	2.79E+07		5.79E+07
		783.80		14.70	7.60E+08		1.62E+08
+	I-129	29.78		57.00	7.46E+00	2.20E+00	2.20E+00
		33.60		13.20	1.50E+01		6.84E+00
		39.58		7.52	1.32E+01		6.88E+00
+	I-131	284.30		6.05	1.21E+04	1.94E+03	2.70E+04
		364.48		81.20	-3.52E+02		1.94E+03
		636.97		7.26	-1.73E+04		2.60E+04
		722.89		1.80	-2.99E+06		1.29E+05
+	TE-132	49.72		13.10	3.46E+08	5.01E+08	3.09E+09

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TE-132	228.16		88.00	-2.58E+08	5.01E+08	5.01E+08
+	BA-133	81.00		33.00	1.36E+00	5.64E-01	8.52E-01
		302.84		17.80	-1.75E+01		2.11E+00
		356.01		60.00	-4.60E-02		5.64E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	5.08E+05	3.19E+05	3.19E+05
+	CS-134	563.23		8.38	1.27E+01	4.79E-01	4.91E+00
		569.32		15.43	-3.74E-01		2.50E+00
		604.70		97.60	-2.04E-01		4.79E-01
		795.84		85.40	6.81E+00		7.25E-01
		801.93		8.73	-6.12E-01		4.74E+00
+	CS-135	268.24		16.00	-1.00E+01	2.48E+00	2.48E+00
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	2.86E+03	6.71E+01	8.79E+02
		163.89		4.61	6.80E+02		1.37E+03
		176.55		13.56	-2.02E+02		4.66E+02
		273.65		12.66	-9.45E+03		4.93E+02
		340.57		48.50	-4.82E+01		1.79E+02
		818.50		99.70	6.24E-01		6.71E+01
		1048.07		79.60	-1.03E+02		7.48E+01
		1235.34		19.70	2.32E+03		5.25E+02
+	CS-137	661.65		85.12	-1.22E-02	5.07E-01	5.07E-01
+	LA-138	788.74		34.00	3.80E+00	6.30E-01	1.39E+00
		1435.80		66.00	-4.10E-02		6.30E-01
+	CE-139	165.85		80.35	5.85E-02	7.26E-01	7.26E-01
+	BA-140	162.64		6.70	8.54E+02	2.78E+02	1.09E+03
		304.84		4.50	4.63E+02		1.54E+03
		423.70		3.20	-3.16E+02		2.23E+03
		437.55		2.00	-1.96E+03		3.37E+03
		537.32		25.00	-9.09E+01		2.78E+02
+	LA-140	328.77		20.50	3.26E+03	1.23E+02	4.27E+02
		487.03		45.50	9.57E+01		1.52E+02
		815.85		23.50	-4.11E+01		3.27E+02
		1596.49		95.49	8.49E+01		1.23E+02
+	CE-141	145.44		48.40	9.27E-02	6.05E+00	6.05E+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	6.84E-01	3.09E+00	3.09E+00
+	PM-144	476.78		42.00	-2.88E-01	4.87E-01	9.54E-01
		618.01		98.60	7.87E-02		4.87E-01
		696.49		99.49	7.02E-02		5.29E-01
+	PM-145	36.85		21.70	3.55E-02	1.53E+00	2.94E+00
		37.36		39.70	1.86E+00		1.53E+00
		42.30		15.10	-3.23E-01		2.80E+00
		72.40		2.31	-7.05E+02		1.42E+01
+	PM-146	453.90	*	39.94	1.91E+00	1.32E+00	1.32E+00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-146	735.90	14.01	-1.11E+00	1.32E+00	3.06E+00
		747.13	13.10	-1.74E-01		3.28E+00
+	ND-147	91.11	28.90	-6.81E+03	5.73E+02	5.73E+02
		531.02	13.10	-3.19E+02		1.27E+03
+	PM-149	285.90	3.10	-2.61E+13	2.66E+14	2.66E+14
+	EU-152	121.78	20.50	-5.38E-01	1.23E+00	1.23E+00
		244.69	5.40	-1.51E+02		6.96E+00
		344.27	19.13	4.47E-01		1.79E+00
		778.89	9.20	-1.76E+01		4.39E+00
		964.01	10.40	-3.97E+01		6.27E+00
		1085.78	7.22	2.08E-01		4.69E+00
		1112.02	9.60	3.75E+00		3.90E+00
		1407.95	14.94	2.73E+00		3.69E+00
+	GD-153	97.43	31.30	-3.91E+00	1.05E+00	1.05E+00
		103.18	22.20	-7.84E+00		1.42E+00
+	EU-154	123.07	40.50	-7.37E-01	6.34E-01	6.34E-01
		723.30	19.70	-5.84E+01		2.52E+00
		873.19	11.50	2.91E+00		3.33E+00
		996.32	10.30	1.83E-01		3.39E+00
		1004.76	17.90	2.97E+00		2.24E+00
		1274.45	35.50	-2.02E-01		1.02E+00
+	EU-155	86.50	30.90	1.81E+01	1.24E+00	1.24E+00
		105.30	20.70	7.05E+00		1.34E+00
+	EU-156	811.77	10.40	-6.80E+00	3.17E+02	3.17E+02
		1153.47	7.20	2.15E+03		5.58E+02
		1230.71	8.90	1.04E+02		3.57E+02
+	HO-166M	184.41	72.60	9.41E+00	6.37E-01	6.37E-01
		280.45	29.60	-3.22E-02		1.16E+00
		410.94	11.10	1.78E+01		3.66E+00
		711.69	54.10	-1.37E-01		7.98E-01
+	TM-171	66.72	0.14	5.86E+02	2.56E+02	2.56E+02
+	HF-172	67.35	5.31	1.95E+00	2.57E+00	6.47E+00
		125.81	11.30	9.01E-01		2.57E+00
+	LU-172	181.53	20.60	1.90E+04	1.57E+04	4.65E+04
		900.72	29.81	6.02E+03		3.35E+04
		1093.66	62.50	2.71E+04		1.57E+04
+	LU-173	100.72	5.24	6.47E+00	2.35E+00	5.49E+00
		272.11	21.20	2.09E+01		2.35E+00
+	HF-175	343.40	84.00	-2.14E-01	1.09E+00	1.09E+00
+	LU-176	88.34	13.30	1.25E+01	3.57E-01	2.75E+00
		201.83	86.00	-1.80E-01		4.40E-01
		306.78	94.00	1.74E-01		3.57E-01
+	HF-181	133.02	41.70	8.19E-01	2.05E+00	3.18E+00
		345.85	17.20	2.46E+00		9.67E+00
		482.03	82.80	-2.76E-03		2.05E+00
+	TA-182	67.75	41.20	4.10E-01	1.36E+00	1.36E+00
		1121.30	34.90	7.74E+01		4.61E+00
		1189.05	16.23	-4.18E-01		3.77E+00
		1221.41	26.98	-1.03E+00		2.35E+00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02		11.44	1.65E+00	1.36E+00	5.69E+00
+	IR-192	308.46		29.68	-7.72E-01	1.75E+00	2.81E+00
		468.07		48.10	-6.07E+00		1.75E+00
+	HG-203	279.19		77.30	1.30E+01	2.19E+00	2.19E+00
+	TL-204	374.74		94.11	-1.69E-01	3.79E-01	3.79E-01
		899.15		99.16	7.28E-02		3.99E-01
		911.74		91.10	4.05E+01		1.39E+00
+	BI-207	569.67		97.72	-5.42E-02	3.63E-01	3.63E-01
		1063.62		74.90	-3.16E-02		4.92E-01
+	TL-208	583.14	*	30.22	1.21E+02	1.38E+00	2.10E+00
		860.37	*	4.48	1.27E+02		1.39E+01
		2614.66	*	35.85	1.00E+02		1.38E+00
+	BI-210M	262.00		45.00	4.09E-01	7.45E-01	7.45E-01
		300.00		23.00	1.63E+01		1.85E+00
+	PB-210	46.50	*	4.25	3.92E+01	1.15E+01	1.15E+01
+	PB-211	404.84		2.90	-5.05E+00	1.25E+01	1.25E+01
		831.96		2.90	-8.97E+01		1.44E+01
+	BI-212	727.17	*	11.80	8.02E+01	6.93E+00	6.93E+00
		1620.62	*	2.75	9.58E+01		3.20E+01
+	PB-212	238.63	*	44.60	1.33E+02	1.70E+00	1.70E+00
		300.09	*	3.41	1.31E+02		3.24E+01
+	BI-214	609.31	*	46.30	9.32E+01	1.50E+00	1.50E+00
		1120.29	*	15.10	1.01E+02		5.92E+00
		1764.49	*	15.80	1.05E+02		3.64E+00
		2204.22	*	4.98	1.04E+02		1.30E+01
+	PB-214	295.21	*	19.19	1.00E+02	1.65E+00	5.67E+00
		351.92	*	37.19	1.03E+02		1.65E+00
+	RN-219	401.80		6.50	-2.83E+00	5.56E+00	5.56E+00
+	RA-223	323.87		3.88	6.74E+00	8.95E+00	8.95E+00
+	RA-224	240.98	*	3.95	3.40E+02	1.96E+01	1.96E+01
+	RA-225	40.00	*	31.00	2.02E+02	1.82E+02	1.82E+02
+	RA-226	186.21	*	3.28	2.11E+02	1.73E+01	1.73E+01
+	TH-227	50.10		8.40	4.44E-01	3.96E+00	3.96E+00
		236.00		11.50	-4.67E+02		5.16E+00
		256.20		6.30	-1.25E+01		5.47E+00
+	AC-228	338.32	*	11.40	1.30E+02	2.60E+00	4.28E+00
		911.07	*	27.70	1.28E+02		2.60E+00
		969.11	*	16.60	1.30E+02		6.11E+00
+	TH-230	48.44		16.90	-1.12E+01	2.05E+00	2.05E+00
		62.85		4.60	2.82E+01		7.69E+00
		67.67		0.37	2.52E+01		8.38E+01
+	PA-231	283.67		1.60	9.53E+00	1.60E+01	2.13E+01
		302.67		2.30	-1.33E+02		1.60E+01
+	TH-231	25.64		14.70	4.10E-02	3.80E-01	3.80E-01
		84.21		6.40	-6.79E+01		4.80E+00
+	PA-233	311.98		38.60	-3.89E+00	1.08E+01	1.08E+01
+	PA-234	131.20		20.40	-9.04E-01	1.38E+00	1.38E+00
		733.99		8.80	-4.50E+00		4.69E+00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	946.00		12.00	-4.50E-01	1.38E+00	2.97E+00
+	PA-234M	1001.03		0.92	1.04E+02	4.40E+01	4.40E+01
+	TH-234	63.29	*	3.80	9.59E+01	1.48E+01	1.48E+01
+	U-235	143.76	*	10.50	7.14E+00	2.97E+00	2.97E+00
		163.35	*	4.70	4.46E+00		7.96E+00
		205.31		4.70	1.24E+01		8.04E+00
+	NP-237	86.50		12.60	4.27E+01	2.92E+00	2.92E+00
+	NP-239	106.10		22.70	2.27E+13	4.29E+12	4.29E+12
		228.18		10.70	-6.44E+12		1.25E+13
		277.60		14.10	6.49E+13		1.02E+13
+	AM-241	59.54		35.90	-4.16E+00	8.98E-01	8.98E-01
+	AM-243	74.67		66.00	-1.11E+01	6.99E-01	6.99E-01
+	CM-243	209.75		3.29	1.57E+02	2.84E+00	1.35E+01
		228.14		10.60	-1.79E+00		3.48E+00
		277.60		14.00	1.80E+01		2.84E+00

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.14E+01	1.14E+01	-3.45E+00	5.66E+00
	NA-22	1274.54		99.94	3.80E-01	3.80E-01	-7.55E-02	1.87E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	3.63E-01	3.63E-01	-3.24E-03	1.78E-01
+	K-40	1460.81	*	10.67	5.66E+00	5.66E+00	1.70E+01	2.80E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TI-44	67.88	94.40	3.29E-01	3.29E-01	9.89E-02	1.64E-01
	78.34	96.00	4.22E-01		4.66E+00	2.11E-01
SC-46	889.25	99.98	8.39E-01	8.39E-01	2.75E-01	4.15E-01
	1120.51	99.99	2.01E+00		3.44E+01	9.98E-01
V-48	983.52	99.98	2.47E+01	2.47E+01	4.53E-01	1.22E+01
	1312.10	97.50	2.69E+01		2.07E+01	1.32E+01
CR-51	320.08	9.83	4.05E+01	4.05E+01	-3.14E+00	2.01E+01
MN-54	834.83	99.97	6.00E-01	6.00E-01	1.24E+00	2.97E-01
CO-56	846.75	99.96	8.54E-01	8.54E-01	1.22E-01	4.22E-01
	1037.75	14.03	5.72E+00		-5.33E-01	2.82E+00
	1238.25	67.00	2.27E+00		2.10E+01	1.13E+00
	1771.40	15.51	6.77E+00		-2.21E-01	3.32E+00
	2598.48	16.90	3.08E+00		-4.01E+00	1.48E+00
CO-57	122.06	85.51	3.75E-01	3.75E-01	-1.64E-01	1.87E-01
	136.48	10.60	4.15E+00		-1.15E+00	2.07E+00
CO-58	810.76	99.40	1.02E+00	1.02E+00	1.22E-01	5.05E-01
FE-59	1099.22	56.50	2.80E+00	2.80E+00	-9.35E-01	1.38E+00
	1291.56	43.20	3.75E+00		-2.33E+00	1.84E+00
CO-60	1173.22	100.00	3.62E-01	3.62E-01	2.63E-02	1.78E-01
	1332.49	100.00	3.72E-01		-1.45E-02	1.83E-01
ZN-65	1115.52	50.75	1.03E+00	1.03E+00	-4.08E+01	5.09E-01
GA-67	93.31	35.70	1.19E+09	1.19E+09	2.45E+10	5.91E+08
	208.95	2.24	2.32E+10		2.33E+11	1.16E+10
	300.22	16.00	3.14E+09		2.77E+10	1.56E+09
SE-75	121.11	16.70	2.61E+00	9.77E-01	-1.37E+00	1.30E+00
	136.00	59.20	1.02E+00		4.19E-01	5.09E-01
	264.65	59.80	9.77E-01		3.93E-01	4.86E-01
	279.53	25.20	2.59E+00		-2.78E+00	1.29E+00
	400.65	11.40	5.61E+00		1.25E+00	2.79E+00
RB-82	776.52	13.00	4.58E+01	4.58E+01	-6.40E+01	2.27E+01
RB-83	520.41	46.00	1.59E+00	1.59E+00	-2.73E-01	7.87E-01
	529.64	30.30	2.43E+00		-1.48E-01	1.21E+00
	552.65	16.40	4.57E+00		-1.05E+00	2.27E+00
KR-85	513.99	0.43	8.99E+01	8.99E+01	-1.19E+03	4.46E+01
SR-85	513.99	99.27	1.10E+00	1.10E+00	-1.46E+01	5.48E-01
Y-88	898.02	93.40	7.76E-01	7.22E-01	1.39E-01	3.83E-01
	1836.01	99.38	7.22E-01		-4.17E-02	3.54E-01
MO-93	263.06	56.72	5.95E-01	4.30E-01	3.06E-02	2.96E-01
	684.67	99.68	4.34E-01		2.24E-02	2.15E-01
	1477.11	99.08	4.30E-01		-1.20E-01	2.11E-01
NB-93M	16.57	9.43	6.23E+00	6.23E+00	0.00E+00	0.00E+00
NB-94	702.63	100.00	4.58E-01	3.70E-01	4.00E-01	2.27E-01
	871.10	100.00	3.70E-01		-2.79E-02	1.83E-01
NB-95	765.79	99.81	3.84E+00	3.84E+00	8.25E+00	1.91E+00
NB-95M	235.69	25.00	3.72E+08	3.72E+08	-3.36E+10	1.86E+08
ZR-95	724.18	43.70	4.06E+00	2.42E+00	1.27E+01	2.02E+00
	756.72	55.30	2.42E+00		6.67E+00	1.20E+00
MO-99	181.06	6.20	3.35E+11	1.89E+11	1.98E+11	1.67E+11
	739.58	12.80	1.89E+11		-3.46E+10	9.39E+10
	778.00	4.50	5.03E+11		-2.02E+12	2.49E+11
RU-103	497.08	89.00	2.08E+00	2.08E+00	-1.12E-01	1.03E+00
RU-106	621.84	9.80	4.87E+00	4.87E+00	1.47E+00	2.41E+00
AG-108M	433.93	89.90	3.72E-01	3.72E-01	8.22E-02	1.85E-01

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-108M	614.37		90.40	4.88E-01	3.72E-01	1.62E-01	2.42E-01
		722.95		90.50	5.37E-01		-1.25E+01	2.66E-01
+	CD-109	88.03	*	3.72	2.57E+01	2.57E+01	3.52E+02	1.28E+01
	AG-110M	657.75		93.14	5.84E-01	5.84E-01	-2.12E-01	2.89E-01
		677.61		10.53	5.29E+00		3.20E-01	2.62E+00
		706.67		16.46	3.61E+00		1.08E+00	1.79E+00
		763.93		21.98	2.89E+00		-2.77E+01	1.43E+00
		884.67		71.63	6.82E-01		6.10E-02	3.37E-01
		1384.27		23.94	2.27E+00		-1.49E+01	1.12E+00
	CD-113M	263.70		0.02	1.46E+03	1.46E+03	1.16E+03	7.28E+02
	SN-113	255.12		1.93	3.24E+01	9.81E-01	1.89E+01	1.61E+01
		391.69		64.90	9.81E-01		-4.69E-03	4.87E-01
	TE123M	159.00		84.10	7.40E-01	7.40E-01	-2.03E-02	3.69E-01
	SB-124	602.71		97.87	1.30E+00	1.30E+00	-6.41E-01	6.46E-01
		645.85		7.26	1.74E+01		-1.13E+01	8.63E+00
		722.78		11.10	1.23E+01		-3.23E+02	6.09E+00
		1691.02		49.00	2.33E+00		-7.82E-01	1.14E+00
	I-125	35.49		6.49	3.48E+01	3.48E+01	3.34E+00	1.73E+01
	SB-125	176.33		6.89	5.54E+00	1.25E+00	-2.40E+00	2.76E+00
		427.89		29.33	1.25E+00		-2.90E-01	6.20E-01
		463.38		10.35	4.98E+00		5.89E+01	2.47E+00
		600.56		17.80	2.44E+00		-1.98E+00	1.21E+00
		635.90		11.32	3.72E+00		-2.62E+00	1.84E+00
	SB-126	414.70		83.30	1.02E+02	1.02E+02	1.19E+01	5.06E+01
		666.33		99.60	1.13E+02		3.43E+02	5.60E+01
		695.00		99.60	1.06E+02		-8.78E+00	5.24E+01
		720.50		53.80	1.96E+02		-8.90E+00	9.71E+01
+	SN-126	87.57	*	37.00	2.23E+00	2.23E+00	3.06E+01	1.11E+00
	SB-127	473.00		25.00	6.39E+07	5.79E+07	1.92E+07	3.17E+07
		685.20		35.70	5.79E+07		2.79E+07	2.87E+07
		783.80		14.70	1.62E+08		7.60E+08	8.05E+07
	I-129	29.78		57.00	2.20E+00	2.20E+00	7.46E+00	1.10E+00
		33.60		13.20	6.84E+00		1.50E+01	3.40E+00
		39.58		7.52	6.88E+00		1.32E+01	3.42E+00
	I-131	284.30		6.05	2.70E+04	1.94E+03	1.21E+04	1.34E+04
		364.48		81.20	1.94E+03		-3.52E+02	9.63E+02
		636.97		7.26	2.60E+04		-1.73E+04	1.29E+04
		722.89		1.80	1.29E+05		-2.99E+06	6.39E+04
	TE-132	49.72		13.10	3.09E+09	5.01E+08	3.46E+08	1.54E+09
		228.16		88.00	5.01E+08		-2.58E+08	2.49E+08
	BA-133	81.00		33.00	8.52E-01	5.64E-01	1.36E+00	4.24E-01
		302.84		17.80	2.11E+00		-1.75E+01	1.05E+00
		356.01		60.00	5.64E-01		-4.60E-02	2.80E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.19E+05	3.19E+05	5.08E+05	1.59E+05
	CS-134	563.23		8.38	4.91E+00	4.79E-01	1.27E+01	2.44E+00
		569.32		15.43	2.50E+00		-3.74E-01	1.24E+00
		604.70		97.60	4.79E-01		-2.04E-01	2.38E-01
		795.84		85.40	7.25E-01		6.81E+00	3.60E-01
		801.93		8.73	4.74E+00		-6.12E-01	2.34E+00
	CS-135	268.24		16.00	2.48E+00	2.48E+00	-1.00E+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

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	I-135	1678.03		9.54	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-136	153.22		7.46	8.79E+02	6.71E+01	2.86E+03	4.38E+02
		163.89		4.61	1.37E+03		6.80E+02	6.83E+02
		176.55		13.56	4.66E+02		-2.02E+02	2.32E+02
		273.65		12.66	4.93E+02		-9.45E+03	2.45E+02
		340.57		48.50	1.79E+02		-4.82E+01	8.89E+01
		818.50		99.70	6.71E+01		6.24E-01	3.32E+01
		1048.07		79.60	7.48E+01		-1.03E+02	3.68E+01
		1235.34		19.70	5.25E+02		2.32E+03	2.60E+02
	CS-137	661.65		85.12	5.07E-01	5.07E-01	-1.22E-02	2.51E-01
	LA-138	788.74		34.00	1.39E+00	6.30E-01	3.80E+00	6.89E-01
		1435.80		66.00	6.30E-01		-4.10E-02	3.10E-01
	CE-139	165.85		80.35	7.26E-01	7.26E-01	5.85E-02	3.62E-01
	BA-140	162.64		6.70	1.09E+03	2.78E+02	8.54E+02	5.44E+02
		304.84		4.50	1.54E+03		4.63E+02	7.66E+02
		423.70		3.20	2.23E+03		-3.16E+02	1.11E+03
		437.55		2.00	3.37E+03		-1.96E+03	1.67E+03
		537.32		25.00	2.78E+02		-9.09E+01	1.38E+02
	LA-140	328.77		20.50	4.27E+02	1.23E+02	3.26E+03	2.13E+02
		487.03		45.50	1.52E+02		9.57E+01	7.55E+01
		815.85		23.50	3.27E+02		-4.11E+01	1.61E+02
		1596.49		95.49	1.23E+02		8.49E+01	6.05E+01
	CE-141	145.44		48.40	6.05E+00	6.05E+00	9.27E-02	3.01E+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	3.09E+00	3.09E+00	6.84E-01	1.54E+00
	PM-144	476.78		42.00	9.54E-01	4.87E-01	-2.88E-01	4.73E-01
		618.01		98.60	4.87E-01		7.87E-02	2.42E-01
		696.49		99.49	5.29E-01		7.02E-02	2.62E-01
	PM-145	36.85		21.70	2.94E+00	1.53E+00	3.55E-02	1.46E+00
		37.36		39.70	1.53E+00		1.86E+00	7.63E-01
		42.30		15.10	2.80E+00		-3.23E-01	1.39E+00
		72.40		2.31	1.42E+01		-7.05E+02	7.10E+00
+	PM-146	453.90	*	39.94	1.32E+00	1.32E+00	1.91E+00	6.56E-01
		735.90		14.01	3.06E+00		-1.11E+00	1.52E+00
		747.13		13.10	3.28E+00		-1.74E-01	1.63E+00
	ND-147	91.11		28.90	5.73E+02	5.73E+02	-6.81E+03	2.86E+02
		531.02		13.10	1.27E+03		-3.19E+02	6.29E+02
	PM-149	285.90		3.10	2.66E+14	2.66E+14	-2.61E+13	1.32E+14
	EU-152	121.78		20.50	1.23E+00	1.23E+00	-5.38E-01	6.13E-01
		244.69		5.40	6.96E+00		-1.51E+02	3.46E+00
		344.27		19.13	1.79E+00		4.47E-01	8.88E-01
		778.89		9.20	4.39E+00		-1.76E+01	2.17E+00
		964.01		10.40	6.27E+00		-3.97E+01	3.11E+00
		1085.78		7.22	4.69E+00		2.08E-01	2.31E+00
		1112.02		9.60	3.90E+00		3.75E+00	1.92E+00
		1407.95		14.94	3.69E+00		2.73E+00	1.82E+00
	GD-153	97.43		31.30	1.05E+00	1.05E+00	-3.91E+00	5.25E-01
		103.18		22.20	1.42E+00		-7.84E+00	7.05E-01
	EU-154	123.07		40.50	6.34E-01	6.34E-01	-7.37E-01	3.16E-01
		723.30		19.70	2.52E+00		-5.84E+01	1.25E+00
		873.19		11.50	3.33E+00		2.91E+00	1.64E+00

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	996.32		10.30	3.39E+00	6.34E-01	1.83E-01	1.67E+00
		1004.76		17.90	2.24E+00		2.97E+00	1.11E+00
		1274.45		35.50	1.02E+00		-2.02E-01	5.00E-01
	EU-155	86.50		30.90	1.24E+00	1.24E+00	1.81E+01	6.17E-01
		105.30		20.70	1.34E+00		7.05E+00	6.65E-01
	EU-156	811.77		10.40	3.17E+02	3.17E+02	-6.80E+00	1.57E+02
		1153.47		7.20	5.58E+02		2.15E+03	2.76E+02
		1230.71		8.90	3.57E+02		1.04E+02	1.76E+02
	HO-166M	184.41		72.60	6.37E-01	6.37E-01	9.41E+00	3.17E-01
		280.45		29.60	1.16E+00		-3.22E-02	5.76E-01
		410.94		11.10	3.66E+00		1.78E+01	1.82E+00
		711.69		54.10	7.98E-01		-1.37E-01	3.95E-01
	TM-171	66.72		0.14	2.56E+02	2.56E+02	5.86E+02	1.27E+02
	HF-172	67.35		5.31	6.47E+00	2.57E+00	1.95E+00	3.22E+00
		125.81		11.30	2.57E+00		9.01E-01	1.28E+00
	LU-172	181.53		20.60	4.65E+04	1.57E+04	1.90E+04	2.31E+04
		900.72		29.81	3.35E+04		6.02E+03	1.65E+04
		1093.66		62.50	1.57E+04		2.71E+04	7.74E+03
	LU-173	100.72		5.24	5.49E+00	2.35E+00	6.47E+00	2.73E+00
		272.11		21.20	2.35E+00		2.09E+01	1.17E+00
	HF-175	343.40		84.00	1.09E+00	1.09E+00	-2.14E-01	5.43E-01
	LU-176	88.34		13.30	2.75E+00	3.57E-01	1.25E+01	1.37E+00
		201.83		86.00	4.40E-01		-1.80E-01	2.19E-01
		306.78		94.00	3.57E-01		1.74E-01	1.78E-01
	HF-181	133.02		41.70	3.18E+00	2.05E+00	8.19E-01	1.58E+00
		345.85		17.20	9.67E+00		2.46E+00	4.81E+00
		482.03		82.80	2.05E+00		-2.76E-03	1.02E+00
	TA-182	67.75		41.20	1.36E+00	1.36E+00	4.10E-01	6.79E-01
		1121.30		34.90	4.61E+00		7.74E+01	2.29E+00
		1189.05		16.23	3.77E+00		-4.18E-01	1.85E+00
		1221.41		26.98	2.35E+00		-1.03E+00	1.15E+00
		1231.02		11.44	5.69E+00		1.65E+00	2.80E+00
	IR-192	308.46		29.68	2.81E+00	1.75E+00	-7.72E-01	1.40E+00
		468.07		48.10	1.75E+00		-6.07E+00	8.66E-01
	HG-203	279.19		77.30	2.19E+00	2.19E+00	1.30E+01	1.09E+00
	TL-204	374.74		94.11	3.79E-01	3.79E-01	-1.69E-01	1.88E-01
		899.15		99.16	3.99E-01		7.28E-02	1.97E-01
		911.74		91.10	1.39E+00		4.05E+01	6.94E-01
	BI-207	569.67		97.72	3.63E-01	3.63E-01	-5.42E-02	1.80E-01
		1063.62		74.90	4.92E-01		-3.16E-02	2.42E-01
+	TL-208	583.14	*	30.22	2.10E+00	1.38E+00	1.21E+02	1.05E+00
		860.37	*	4.48	1.39E+01		1.27E+02	6.88E+00
		2614.66	*	35.85	1.38E+00		1.00E+02	6.76E-01
	BI-210M	262.00		45.00	7.45E-01	7.45E-01	4.09E-01	3.70E-01
		300.00		23.00	1.85E+00		1.63E+01	9.20E-01
+	PB-210	46.50	*	4.25	1.15E+01	1.15E+01	3.92E+01	5.72E+00
	PB-211	404.84		2.90	1.25E+01	1.25E+01	-5.05E+00	6.20E+00
		831.96		2.90	1.44E+01		-8.97E+01	7.13E+00
+	BI-212	727.17	*	11.80	6.93E+00	6.93E+00	8.02E+01	3.45E+00
		1620.62	*	2.75	3.20E+01		9.58E+01	1.58E+01
+	PB-212	238.63	*	44.60	1.70E+00	1.70E+00	1.33E+02	8.47E-01
		300.09	*	3.41	3.24E+01		1.31E+02	1.62E+01
+	BI-214	609.31	*	46.30	1.50E+00	1.50E+00	9.32E+01	7.47E-01

Analysis Report for 1707086-04

HTC-A02-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BI-214	1120.29	*	15.10	5.92E+00	1.50E+00	1.01E+02	2.94E+00
		1764.49	*	15.80	3.64E+00		1.05E+02	1.80E+00
		2204.22	*	4.98	1.30E+01		1.04E+02	6.39E+00
+	PB-214	295.21	*	19.19	5.67E+00	1.65E+00	1.00E+02	2.83E+00
		351.92	*	37.19	1.65E+00		1.03E+02	8.24E-01
	RN-219	401.80		6.50	5.56E+00	5.56E+00	-2.83E+00	2.76E+00
	RA-223	323.87		3.88	8.95E+00	8.95E+00	6.74E+00	4.45E+00
+	RA-224	240.98	*	3.95	1.96E+01	1.96E+01	3.40E+02	9.77E+00
+	RA-225	40.00	*	31.00	1.82E+02	1.82E+02	2.02E+02	9.05E+01
+	RA-226	186.21	*	3.28	1.73E+01	1.73E+01	2.11E+02	8.65E+00
	TH-227	50.10		8.40	3.96E+00	3.96E+00	4.44E-01	1.97E+00
		236.00		11.50	5.16E+00		-4.67E+02	2.57E+00
		256.20		6.30	5.47E+00		-1.25E+01	2.72E+00
+	AC-228	338.32	*	11.40	4.28E+00	2.60E+00	1.30E+02	2.13E+00
		911.07	*	27.70	2.60E+00		1.28E+02	1.29E+00
		969.11	*	16.60	6.11E+00		1.30E+02	3.04E+00
	TH-230	48.44		16.90	2.05E+00	2.05E+00	-1.12E+01	1.02E+00
		62.85		4.60	7.69E+00		2.82E+01	3.83E+00
		67.67		0.37	8.38E+01		2.52E+01	4.17E+01
	PA-231	283.67		1.60	2.13E+01	1.60E+01	9.53E+00	1.06E+01
		302.67		2.30	1.60E+01		-1.33E+02	7.96E+00
	TH-231	25.64		14.70	3.80E-01	3.80E-01	4.10E-02	1.35E-01
		84.21		6.40	4.80E+00		-6.79E+01	2.39E+00
	PA-233	311.98		38.60	1.08E+01	1.08E+01	-3.89E+00	5.36E+00
	PA-234	131.20		20.40	1.38E+00	1.38E+00	-9.04E-01	6.88E-01
		733.99		8.80	4.69E+00		-4.50E+00	2.32E+00
		946.00		12.00	2.97E+00		-4.50E-01	1.46E+00
	PA-234M	1001.03		0.92	4.40E+01	4.40E+01	1.04E+02	2.17E+01
+	TH-234	63.29	*	3.80	1.48E+01	1.48E+01	9.59E+01	7.40E+00
+	U-235	143.76	*	10.50	2.97E+00	2.97E+00	7.14E+00	1.48E+00
		163.35	*	4.70	7.96E+00		4.46E+00	3.97E+00
		205.31		4.70	8.04E+00		1.24E+01	4.01E+00
	NP-237	86.50		12.60	2.92E+00	2.92E+00	4.27E+01	1.46E+00
	NP-239	106.10		22.70	4.29E+12	4.29E+12	2.27E+13	2.14E+12
		228.18		10.70	1.25E+13		-6.44E+12	6.23E+12
		277.60		14.10	1.02E+13		6.49E+13	5.09E+12
	AM-241	59.54		35.90	8.98E-01	8.98E-01	-4.16E+00	4.47E-01
	AM-243	74.67		66.00	6.99E-01	6.99E-01	-1.11E+01	3.49E-01
	CM-243	209.75		3.29	1.35E+01	2.84E+00	1.57E+02	6.71E+00
		228.14		10.60	3.48E+00		-1.79E+00	1.73E+00
		277.60		14.00	2.84E+00		1.80E+01	1.41E+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 1707086-04

HTC-A02-S004-1218-01

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-A02-S004-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3669

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	2	1	2200	3674	3658	4323
33:	4341	4519	4655	3998	4294	4193	3906	4699
41:	4185	3787	4041	3906	4073	4687	6965	4662
49:	4563	4921	5090	5114	5951	6191	5678	7604
57:	10286	13307	7247	6881	7142	7247	9540	11530
65:	9312	9395	8167	8425	7508	7762	8124	8118
73:	9472	10952	30869	17022	34968	31338	7640	7547
81:	7299	7138	6630	9960	10019	7596	15572	16732
89:	7891	14858	9982	8149	16691	13887	7150	5740
97:	5448	5726	6827	7356	5667	5122	5377	5540
105:	6841	7553	5674	5517	6420	5910	5561	5445
113:	5732	5612	6216	6001	5280	5249	5161	5244
121:	5366	5212	5485	5540	5786	5868	5779	5874
129:	9137	7609	5862	5880	5483	5616	5483	5483
137:	5636	5474	5469	5509	5449	5341	5528	6510
145:	5812	5492	5328	5486	5370	5363	5306	5387
153:	5410	6598	5989	5122	5050	5121	5017	4922
161:	4832	4936	5109	5136	4752	4782	4895	4661
169:	4738	4673	4616	4689	4643	4626	4488	4624
177:	4615	4413	4511	4568	4688	4653	4554	4706
185:	5805	12489	8433	4510	4314	4329	4485	4561
193:	4395	4177	4259	4308	4342	4214	4415	4491
201:	4263	4256	4143	4305	4401	4242	3864	4044
209:	8135	7635	4038	3788	3642	3680	3807	4081
217:	3732	3659	3566	3593	3540	3561	3558	3588
225:	3550	3494	3408	3395	3403	3389	3435	3444
233:	3428	3523	3505	3963	4308	27677	64422	11428
241:	9594	12630	5679	2625	2641	2455	2492	2528
249:	2534	2469	2526	2602	2728	2493	2409	2795
257:	2624	2571	2885	2510	2290	2346	2395	2249
265:	2211	2296	2174	2300	2949	6276	5198	2719
273:	2241	2444	2509	2380	3955	4044	2450	2242
281:	2151	2249	2115	2201	2098	2209	2136	2455
289:	2309	2085	2123	2083	2161	3478	16561	12524
297:	2271	1964	2371	5541	3773	2015	1978	1913
305:	1913	1955	1856	1837	1891	1802	1792	1798
313:	1892	1837	1833	1727	1772	1807	1761	1799
321:	1831	1924	1872	1968	1796	1783	2386	4823
329:	2877	1882	1803	1987	2051	1793	1740	1730
337:	2697	10815	9611	2188	2088	1797	1579	1545
345:	1549	1593	1501	1636	1735	2051	9558	30617
353:	10202	1637	1516	1442	1423	1416	1434	1449
361:	1459	1414	1402	1365	1459	1410	1401	1444

369:	1467	1435	1433	1555	1394	1490	1435	1463

Sample Title: HTC-A02-S004-1218-01

Channel								
377:	1433	1427	1416	1442	1462	1388	1399	1445
385:	1462	1435	1662	1567	1624	1555	1413	1421
393:	1437	1435	1441	1424	1463	1502	1486	1452
401:	1467	1554	1452	1439	1532	1515	1367	1490
409:	2482	2506	1363	1294	1325	1301	1308	1273
417:	1330	1272	1343	1294	1240	1268	1255	1225
425:	1269	1215	1268	1215	1166	1138	1184	1162
433:	1107	1163	1062	1094	1049	1027	1075	1143
441:	1167	1063	1011	1049	1109	1061	1027	1046
449:	1009	1075	1026	1114	1294	1135	1157	1068
457:	985	998	974	980	1084	2084	4131	2237
465:	1013	980	957	976	966	1117	960	947
473:	902	998	976	890	934	1050	935	1107
481:	1080	899	930	940	881	953	1055	1024
489:	853	889	906	880	942	868	878	924
497:	854	816	879	829	877	861	874	940
505:	841	909	853	1016	1538	3846	6011	2067
513:	1021	899	852	841	816	791	817	829
521:	860	860	849	853	793	813	856	816
529:	821	812	814	814	873	993	869	826
537:	837	815	764	824	858	849	830	854
545:	801	860	873	763	866	849	794	759
553:	813	776	823	797	746	776	760	777
561:	812	1166	1219	783	756	764	809	780
569:	811	824	870	876	873	830	758	852
577:	751	759	800	909	1214	4989	16962	9529
585:	1221	704	748	690	700	725	717	735
593:	736	711	737	714	694	725	702	744
601:	714	712	683	766	767	759	1063	4748
609:	17925	12769	1678	654	665	667	671	718
617:	619	598	628	678	679	619	652	628
625:	622	645	647	616	694	677	629	654
633:	645	626	621	594	594	632	574	637
641:	652	615	655	599	637	616	652	650
649:	669	713	679	654	601	606	622	669
657:	634	673	656	627	697	663	684	774
665:	1084	1061	682	604	612	632	577	638
673:	653	655	697	608	621	681	633	600
681:	631	639	655	635	604	654	616	677
689:	607	634	628	615	641	650	629	641
697:	639	673	678	633	690	805	789	694
705:	653	618	725	687	626	628	604	602
713:	569	578	601	585	556	591	610	662
721:	608	652	571	575	668	1561	3819	2559
729:	728	502	542	516	517	571	499	520
737:	564	531	548	586	598	587	600	532
745:	540	528	515	517	516	535	478	558
753:	581	656	897	788	506	507	512	488
761:	528	585	760	643	608	693	1002	1906
769:	1496	649	618	1003	827	445	430	449
777:	422	442	410	446	554	618	530	542
785:	948	1171	641	390	416	390	411	458
793:	517	1316	2073	984	425	394	393	362

801:	400	378	388	390	453	733	598	358

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Channel								
809:	358	373	388	356	364	359	354	385
817:	387	353	344	379	406	376	385	374
825:	380	427	364	350	397	526	532	447
833:	394	466	824	977	498	454	623	752
841:	581	356	320	302	341	372	289	317
849:	291	334	303	329	307	321	298	318
857:	318	390	681	1751	1729	530	316	308
865:	317	333	329	277	312	347	325	337
873:	339	316	336	302	319	291	310	328
881:	314	325	319	301	307	320	335	305
889:	317	320	275	336	447	392	307	322
897:	299	323	331	320	297	326	393	578
905:	458	340	385	460	1093	4468	9970	5658
913:	773	269	281	290	291	271	314	274
921:	272	254	263	270	265	265	285	294
929:	277	277	300	352	651	1061	692	277
937:	246	257	252	245	272	235	253	311
945:	271	244	237	268	302	235	279	299
953:	255	261	243	228	274	338	352	233
961:	228	331	597	1677	1918	839	1020	3616
969:	5877	2331	365	226	204	237	219	222
977:	234	239	249	232	243	257	229	211
985:	228	217	233	277	248	228	221	209
993:	217	226	214	221	211	218	230	376
1001:	522	347	239	240	252	240	173	211
1009:	227	209	220	207	198	228	207	233
1017:	260	225	230	251	216	208	200	202
1025:	192	202	195	183	203	205	216	226
1033:	273	232	180	183	189	202	215	204
1041:	208	190	209	194	197	196	185	204
1049:	213	176	232	271	213	180	187	190
1057:	203	180	192	206	180	194	212	238
1065:	305	252	187	179	228	248	235	179
1073:	163	180	226	189	257	297	316	219
1081:	185	166	209	193	170	175	179	181
1089:	170	207	164	190	259	298	255	233
1097:	206	172	175	179	179	181	215	208
1105:	193	193	191	186	217	265	279	207
1113:	183	164	171	204	279	512	1650	3428
1121:	2195	470	237	184	164	177	172	174
1129:	188	207	191	181	214	234	176	195
1137:	178	178	179	165	185	189	184	176
1145:	185	172	176	205	181	197	184	216
1153:	274	384	481	403	191	164	164	162
1161:	180	184	166	187	157	185	155	173
1169:	160	174	193	175	185	183	158	179
1177:	183	163	156	180	211	200	193	171
1185:	144	145	180	152	158	168	171	155
1193:	187	168	135	153	158	154	176	191
1201:	155	164	154	155	160	205	239	249
1209:	169	174	156	166	155	166	174	152
1217:	192	168	174	190	149	145	140	182
1225:	183	168	171	159	176	171	194	178

1233:	149	172	201	343	861	1296	736	241

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Channel								
1241:	168	170	155	174	205	254	279	193
1249:	187	173	184	193	192	198	204	142
1257:	147	158	152	140	166	154	179	146
1265:	150	156	154	168	172	176	132	175
1273:	161	165	164	159	144	171	206	363
1281:	422	256	169	163	150	157	175	189
1289:	166	142	148	141	130	148	167	164
1297:	136	157	153	156	147	157	186	161
1305:	162	135	151	164	174	156	153	173
1313:	163	161	161	135	135	154	137	167
1321:	162	156	145	172	159	156	142	133
1329:	132	162	146	147	164	153	153	170
1337:	156	135	138	169	159	142	169	157
1345:	143	149	163	143	164	140	155	134
1353:	128	125	159	145	172	138	127	172
1361:	163	138	163	151	162	156	157	139
1369:	153	144	130	153	188	222	221	423
1377:	816	865	308	173	144	153	165	202
1385:	271	226	141	135	128	132	152	147
1393:	152	154	133	141	163	161	159	235
1401:	345	314	191	126	162	252	433	503
1409:	286	167	132	155	140	147	143	152
1417:	158	123	130	114	130	116	144	152
1425:	152	135	113	132	137	140	150	168
1433:	143	136	146	125	128	149	125	136
1441:	125	121	160	136	150	137	118	152
1449:	131	127	143	137	117	130	123	150
1457:	192	239	326	303	241	166	136	129
1465:	135	139	125	119	120	120	132	133
1473:	151	168	119	136	145	116	121	144
1481:	142	139	146	133	115	129	114	130
1489:	119	117	114	110	131	205	252	302
1497:	197	148	155	168	252	222	150	120
1505:	135	159	181	338	455	325	206	205
1513:	203	144	154	117	118	118	133	113
1521:	129	118	126	107	139	118	130	150
1529:	153	138	133	113	116	118	130	130
1537:	156	168	202	134	120	166	193	133
1545:	124	93	116	91	124	94	96	115
1553:	99	109	107	126	134	116	106	106
1561:	92	100	93	92	103	75	99	112
1569:	88	91	101	94	83	124	95	114
1577:	121	125	176	221	227	182	210	193
1585:	197	272	541	738	525	301	401	414
1593:	385	206	143	122	111	125	146	135
1601:	109	81	125	102	92	117	119	107
1609:	106	88	96	99	86	98	89	101
1617:	95	169	261	376	356	159	133	125
1625:	123	114	113	152	223	369	330	162
1633:	92	82	82	96	140	159	137	95
1641:	82	83	79	85	97	85	76	80
1649:	73	84	75	75	95	90	90	78
1657:	100	85	110	166	213	177	84	95

1665:	98	109	92	67	75	72	78	80

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Channel								
1673:	65	79	72	81	82	84	86	85
1681:	81	81	93	91	116	96	69	64
1689:	84	81	98	113	97	79	74	72
1697:	73	67	64	77	76	85	73	81
1705:	66	65	65	78	62	69	61	60
1713:	73	62	74	58	72	68	79	59
1721:	63	82	76	69	83	98	148	274
1729:	469	433	187	78	72	72	52	66
1737:	80	70	64	65	65	75	80	68
1745:	74	80	62	61	81	61	74	59
1753:	79	58	76	82	92	103	95	118
1761:	229	519	1242	2093	1628	522	103	70
1769:	46	66	61	70	71	62	69	70
1777:	50	76	88	66	66	65	72	76
1785:	65	60	76	67	56	60	68	64
1793:	62	68	59	71	67	67	70	63
1801:	70	47	65	84	101	91	94	61
1809:	70	68	62	59	58	63	82	71
1817:	64	77	80	70	56	58	66	75
1825:	77	73	73	64	70	66	60	69
1833:	80	57	93	76	112	101	100	92
1841:	80	88	89	88	117	239	328	252
1849:	124	62	72	76	70	66	73	89
1857:	74	60	71	64	67	64	65	61
1865:	74	82	70	74	81	75	85	103
1873:	102	81	88	59	58	82	57	65
1881:	69	62	59	59	92	83	89	97
1889:	69	92	64	73	71	77	106	83
1897:	54	62	81	69	80	65	86	91
1905:	82	74	81	71	77	81	79	65
1913:	72	64	78	70	79	73	62	55
1921:	65	83	61	87	68	53	75	60
1929:	65	73	90	79	77	67	91	89
1937:	69	81	68	75	66	64	80	81
1945:	70	60	59	65	68	85	61	99
1953:	78	77	75	65	73	65	74	66
1961:	80	70	75	68	73	64	71	61
1969:	95	77	64	75	75	64	76	70
1977:	66	77	69	67	64	64	82	59
1985:	65	54	52	51	56	56	66	70
1993:	65	67	66	61	73	75	62	71
2001:	58	75	57	64	63	58	68	65
2009:	69	70	68	51	85	60	65	60
2017:	70	60	70	67	63	52	72	49
2025:	66	60	66	53	70	67	67	67
2033:	62	65	59	66	69	83	51	63
2041:	72	62	46	56	59	63	70	64
2049:	79	63	76	72	76	67	62	58
2057:	76	62	67	48	68	58	65	65
2065:	74	68	53	61	55	57	73	58
2073:	58	63	67	58	64	68	53	37
2081:	56	61	62	81	63	53	67	62
2089:	69	60	62	82	75	71	62	61

2097:	67	80	107	177	273	405	427	379

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Channel								
2105:	190	100	94	70	75	83	70	71
2113:	80	67	67	96	140	189	166	93
2121:	67	51	64	60	62	66	64	56
2129:	60	63	69	63	65	72	59	52
2137:	63	64	63	65	59	59	61	72
2145:	68	73	79	57	74	68	60	58
2153:	62	69	66	70	77	80	72	72
2161:	71	60	67	70	60	81	60	67
2169:	65	64	58	80	88	75	65	65
2177:	71	54	63	61	73	73	64	70
2185:	80	60	64	61	69	83	66	82
2193:	77	60	74	70	59	84	87	105
2201:	180	343	462	521	324	106	82	73
2209:	59	78	83	82	71	83	71	64
2217:	67	67	68	71	56	81	84	66
2225:	82	60	84	77	69	68	81	71
2233:	84	84	66	70	67	76	87	78
2241:	77	84	77	60	83	78	65	90
2249:	81	68	68	72	79	67	83	89
2257:	67	71	64	75	72	93	74	67
2265:	83	85	86	67	87	98	76	83
2273:	89	78	83	69	87	81	63	78
2281:	76	69	90	75	87	85	77	91
2289:	84	88	77	118	120	102	95	77
2297:	87	85	70	87	84	86	95	93
2305:	94	84	93	82	87	80	96	84
2313:	87	72	98	95	75	79	97	92
2321:	92	93	89	96	87	86	85	90
2329:	99	105	100	106	88	96	102	94
2337:	85	87	99	83	79	108	88	105
2345:	108	101	110	86	100	95	105	105
2353:	91	88	93	113	104	98	113	94
2361:	108	91	120	86	111	112	107	103
2369:	98	100	88	113	95	86	106	89
2377:	93	90	98	97	94	87	71	74
2385:	62	72	65	67	84	61	75	85
2393:	63	54	80	75	67	79	84	64
2401:	74	68	70	67	50	65	57	56
2409:	60	56	61	56	57	60	53	51
2417:	68	57	73	62	58	53	55	60
2425:	62	60	63	45	54	53	65	74
2433:	60	64	62	73	59	69	65	49
2441:	58	67	63	74	100	137	173	149
2449:	102	55	57	45	52	49	56	46
2457:	56	60	39	40	64	49	47	62
2465:	51	47	38	40	48	35	46	46
2473:	44	51	45	39	42	41	36	26
2481:	42	39	34	39	36	26	44	29
2489:	38	27	28	34	39	25	33	25
2497:	36	31	29	30	23	28	20	30
2505:	28	25	21	25	22	23	26	17
2513:	20	25	20	21	20	24	30	26
2521:	29	21	13	16	26	16	15	16

2529:	16	20	13	17	12	7	19	12

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Channel								
2537:	19	14	16	16	14	17	21	18
2545:	12	13	13	8	20	16	15	16
2553:	18	13	20	19	17	11	12	13
2561:	18	19	12	17	17	18	11	15
2569:	8	10	9	12	11	16	12	13
2577:	13	13	11	4	19	9	14	19
2585:	15	17	12	12	20	9	19	9
2593:	11	20	14	14	15	14	17	20
2601:	21	29	21	36	45	47	64	102
2609:	195	358	622	1374	2488	3104	2010	630
2617:	121	26	9	18	13	8	12	11
2625:	9	13	12	13	7	9	12	11
2633:	4	11	6	11	4	14	4	13
2641:	13	9	11	11	10	9	9	13
2649:	15	9	19	9	12	8	9	12
2657:	9	9	13	8	4	16	13	17
2665:	10	12	10	9	10	12	8	11
2673:	11	10	14	8	11	12	13	2
2681:	7	17	16	22	18	28	20	21
2689:	18	19	8	11	14	10	10	14
2697:	4	11	12	12	15	12	11	6
2705:	7	8	8	5	8	10	5	5
2713:	9	9	13	5	10	9	6	9
2721:	9	4	2	12	9	5	6	7
2729:	9	8	7	10	7	12	9	7
2737:	9	7	5	9	15	11	13	10
2745:	9	9	10	15	13	10	12	9
2753:	11	6	14	6	6	6	5	12
2761:	8	10	9	6	6	8	9	15
2769:	11	11	9	7	11	4	5	6
2777:	4	12	9	5	5	6	12	12
2785:	4	3	6	5	11	2	5	7
2793:	11	9	9	8	5	8	6	6
2801:	13	7	6	6	5	8	6	11
2809:	4	7	5	12	8	8	2	9
2817:	6	6	6	13	11	7	9	8
2825:	10	5	9	10	11	3	12	5
2833:	7	11	8	11	1	8	7	9
2841:	6	7	4	2	6	4	7	7
2849:	9	7	7	3	4	3	5	5
2857:	7	9	7	4	7	8	6	3
2865:	3	9	11	7	9	6	8	7
2873:	4	3	2	5	8	7	5	10
2881:	2	5	5	4	8	6	12	6
2889:	12	8	10	12	8	5	4	6
2897:	5	2	6	5	2	5	6	12
2905:	7	2	3	7	7	5	5	10
2913:	4	4	2	8	7	4	4	4
2921:	6	9	2	5	4	4	6	8
2929:	6	9	1	4	4	4	7	4
2937:	8	7	6	2	1	3	6	6
2945:	5	5	11	6	10	5	3	3
2953:	7	3	8	9	5	5	9	3

2961:	10	5	5	5	8	6	2	4

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Channel								
2969:	7	6	9	4	2	6	7	5
2977:	7	4	1	1	5	7	9	7
2985:	5	3	1	3	5	1	5	4
2993:	4	3	5	6	4	2	4	6
3001:	2	3	7	5	4	4	7	5
3009:	4	7	2	0	2	4	7	2
3017:	6	2	1	3	4	4	4	4
3025:	6	4	3	6	5	8	1	2
3033:	3	1	4	4	2	3	5	2
3041:	3	2	5	2	4	7	2	1
3049:	2	8	4	5	2	3	1	1
3057:	3	3	1	2	3	0	2	2
3065:	3	0	2	3	6	2	3	2
3073:	0	2	2	2	1	3	3	2
3081:	3	2	2	0	1	1	4	0
3089:	2	0	1	0	1	2	1	2
3097:	1	1	1	1	1	0	1	1
3105:	2	0	2	2	1	3	4	0
3113:	2	1	2	0	1	3	0	1
3121:	4	4	23	14	11	4	5	0
3129:	2	0	2	1	1	1	2	0
3137:	4	1	0	1	0	0	1	0
3145:	1	1	0	0	0	1	2	0
3153:	0	2	3	1	2	3	1	3
3161:	1	2	1	1	2	0	0	0
3169:	2	2	2	0	0	4	1	0
3177:	0	1	1	2	1	1	2	0
3185:	2	3	2	1	0	1	5	5
3193:	9	18	40	49	39	22	6	2
3201:	2	0	0	2	1	0	2	0
3209:	1	2	4	0	1	0	1	0
3217:	0	2	2	1	4	1	0	2
3225:	1	4	1	0	1	1	0	0
3233:	2	1	0	2	0	1	1	4
3241:	1	0	0	1	0	1	0	1
3249:	1	1	1	1	0	0	0	2
3257:	0	0	1	1	1	0	3	1
3265:	1	0	1	1	0	0	0	1
3273:	2	0	2	1	1	1	1	1
3281:	2	1	0	2	0	0	1	1
3289:	1	0	1	0	0	2	0	0
3297:	0	2	1	0	0	2	0	1
3305:	2	0	1	0	2	0	2	0
3313:	0	1	2	0	0	0	1	1
3321:	1	0	0	1	0	0	0	0
3329:	0	1	0	1	0	0	0	1
3337:	0	0	1	0	0	1	0	1
3345:	0	0	0	0	0	1	0	0
3353:	0	1	1	0	0	0	0	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	0	2	2
3377:	0	2	1	0	1	1	1	0
3385:	0	0	1	0	0	0	2	2

3393:	0	0	0	0	0	0	1	0

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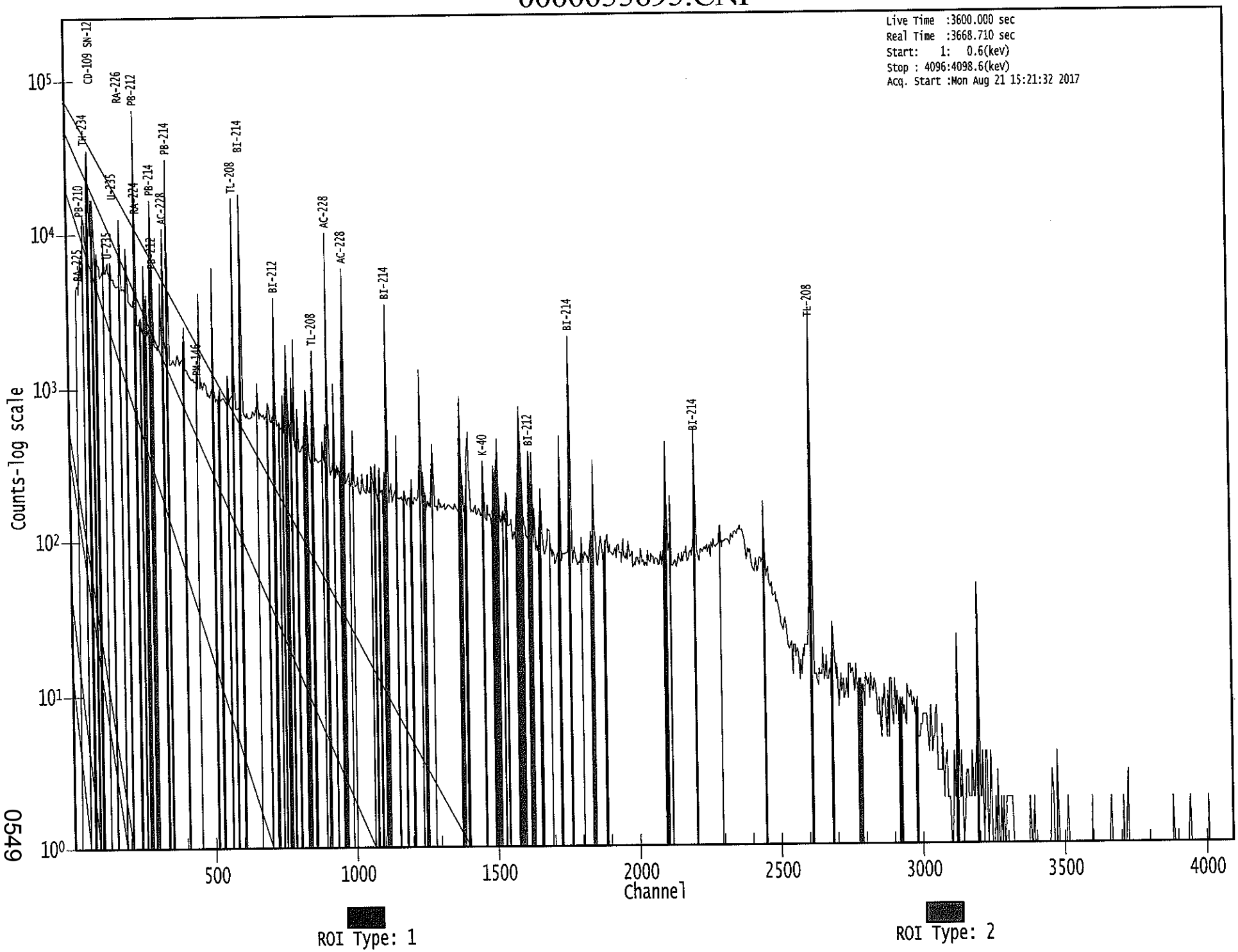
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	1	1	1	0	0	0	0
3425:	0	0	0	0	0	1	0	0
3433:	1	0	0	0	1	0	0	0
3441:	1	0	0	0	0	0	1	1
3449:	1	1	0	0	0	0	3	1
3457:	1	0	2	2	1	1	0	0
3465:	0	1	0	0	0	1	1	0
3473:	4	3	3	1	0	1	0	1
3481:	1	1	0	1	0	0	0	0
3489:	0	1	1	0	1	0	0	0
3497:	1	0	0	1	0	0	0	0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

3825:	1	0	0	0	1	0	0	0

Sample Title: HTC-A02-S004-1218-01

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

0000055695.CNF



0549

KB 8/22/17

Apex-Gamma

Analysis Report for 1707086-05
HTC-A02-S004-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-05
Sample Description	: HTC-A02-S004-1824-01
Sample Type	: SOIL
Sample Size	: 6.943E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:07:55AM
Acquisition Started	: 8/21/2017 2:23:59PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3611.0 seconds
Dead Time	: 0.30 %
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	: 55650

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 3:24:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.35	46.98	0.0000	0.00
2	63.33	63.94	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.12	77.71	0.0000	0.00
5	84.57	85.15	0.0000	0.00
6	87.57	88.15	0.0000	0.00
7	93.27	93.85	0.0000	0.00
8	99.47	100.04	0.0000	0.00
9	105.28	105.85	0.0000	0.00
10	108.29	108.85	0.0000	0.00
11	115.09	115.64	0.0000	0.00
12	129.13	129.67	0.0000	0.00
13	144.17	144.70	0.0000	0.00
14	153.89	154.40	0.0000	0.00
15	185.88	186.36	0.0000	0.00
16	199.53	200.00	0.0000	0.00
17	209.30	209.76	0.0000	0.00
18	238.61	239.04	0.0000	0.00
19	241.44	241.86	0.0000	0.00
20	270.28	270.67	0.0000	0.00
21	277.46	277.85	0.0000	0.00
22	295.29	295.66	0.0000	0.00
23	299.99	300.36	0.0000	0.00
24	327.96	328.30	0.0000	0.00
25	338.35	338.68	0.0000	0.00
26	351.91	352.22	0.0000	0.00
27	409.66	409.91	0.0000	0.00
28	463.12	463.31	0.0000	0.00
29	510.78	510.93	0.0000	0.00
30	562.59	562.69	0.0000	0.00
31	571.68	571.77	0.0000	0.00
32	580.23	580.31	0.0000	0.00
33	583.31	583.39	0.0000	0.00
34	587.95	588.02	0.0000	0.00
35	609.29	609.34	0.0000	0.00
36	662.31	662.30	0.0000	0.00
37	727.49	727.42	0.0000	0.00
38	755.30	755.20	0.0000	0.00
39	768.56	768.45	0.0000	0.00
40	772.59	772.48	0.0000	0.00
41	782.32	782.19	0.0000	0.00
42	786.05	785.92	0.0000	0.00

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	791.33	791.19	0.0000	0.00
44	795.14	795.01	0.0000	0.00
45	830.77	830.60	0.0000	0.00
46	835.90	835.73	0.0000	0.00
47	840.47	840.28	0.0000	0.00
48	860.59	860.39	0.0000	0.00
49	893.96	893.73	0.0000	0.00
50	904.21	903.96	0.0000	0.00
51	911.45	911.20	0.0000	0.00
52	915.87	915.62	0.0000	0.00
53	934.11	933.83	0.0000	0.00
54	965.10	964.80	0.0000	0.00
55	969.20	968.89	0.0000	0.00
56	973.47	973.16	0.0000	0.00
57	988.90	988.57	0.0000	0.00
58	1002.19	1001.85	0.0000	0.00
59	1034.45	1034.07	0.0000	0.00
60	1066.39	1065.99	0.0000	0.00
61	1079.57	1079.15	0.0000	0.00
62	1093.95	1093.51	0.0000	0.00
63	1110.86	1110.41	0.0000	0.00
64	1120.49	1120.03	0.0000	0.00
65	1155.42	1154.92	0.0000	0.00
66	1238.13	1237.56	0.0000	0.00
67	1247.35	1246.77	0.0000	0.00
68	1374.26	1373.55	0.0000	0.00
69	1378.00	1377.28	0.0000	0.00
70	1385.94	1385.22	0.0000	0.00
71	1401.76	1401.02	0.0000	0.00
72	1408.19	1407.45	0.0000	0.00
73	1461.10	1460.31	0.0000	0.00
74	1496.20	1495.37	0.0000	0.00
75	1509.63	1508.79	0.0000	0.00
76	1559.14	1558.25	0.0000	0.00
77	1578.55	1577.64	0.0000	0.00
78	1581.05	1580.14	0.0000	0.00
79	1588.43	1587.51	0.0000	0.00
80	1592.98	1592.06	0.0000	0.00
81	1621.63	1620.67	0.0000	0.00
82	1631.00	1630.04	0.0000	0.00
83	1638.54	1637.57	0.0000	0.00
84	1661.01	1660.02	0.0000	0.00
85	1668.14	1667.14	0.0000	0.00
86	1680.57	1679.56	0.0000	0.00
87	1730.18	1729.12	0.0000	0.00
88	1764.98	1763.88	0.0000	0.00
89	1817.63	1816.48	0.0000	0.00
90	1848.14	1846.96	0.0000	0.00
91	1962.93	1961.65	0.0000	0.00
92	2103.93	2102.51	0.0000	0.00
93	2118.82	2117.39	0.0000	0.00
94	2203.79	2202.27	0.0000	0.00
95	2244.64	2243.08	0.0000	0.00
96	2330.60	2328.97	0.0000	0.00
97	2423.76	2422.03	0.0000	0.00

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	2448.58	2446.83	0.0000	0.00
99	2615.08	2613.17	0.0000	0.00
100	2688.75	2686.77	0.0000	0.00
101	2715.96	2713.96	0.0000	0.00
102	2721.27	2719.26	0.0000	0.00
103	2749.35	2747.32	0.0000	0.00
104	2870.32	2868.17	0.0000	0.00
105	2891.50	2889.33	0.0000	0.00
106	2986.16	2983.90	0.0000	0.00
107	3125.45	3123.06	0.0000	0.00
108	3198.14	3195.69	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 3:24:13PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.35	45 -	49	46.98	3.30E+02	175.37	6.60E+03	1.64
	2	63.33	62 -	67	63.94	7.56E+02	291.00	1.65E+04	1.29
M	3	74.72	71 -	82	75.31	6.04E+03	321.80	1.42E+04	1.81
m	4	77.12	71 -	82	77.71	1.00E+04	349.46	1.36E+04	1.77
M	5	84.57	83 -	97	85.15	1.05E+03	243.41	1.20E+04	1.66
m	6	87.57	83 -	97	88.15	3.08E+03	260.39	1.11E+04	1.67
m	7	93.27	83 -	97	93.85	2.66E+03	253.72	9.68E+03	1.67
	8	99.47	99 -	103	100.04	3.84E+02	203.76	8.81E+03	1.43
M	9	105.28	103 -	111	105.85	7.57E+02	202.64	8.46E+03	1.69
m	10	108.29	103 -	111	108.85	2.15E+02	203.11	8.55E+03	1.68
	11	115.09	114 -	118	115.64	2.52E+02	195.73	8.27E+03	1.96
	12	129.13	126 -	133	129.67	9.51E+02	297.83	1.41E+04	1.78
	13	144.17	143 -	147	144.70	2.37E+02	189.68	7.77E+03	2.20
	14	153.89	151 -	157	154.40	4.45E+02	242.39	1.03E+04	2.00
	15	185.88	183 -	189	186.36	1.30E+03	236.67	9.20E+03	1.87
	16	199.53	198 -	203	200.00	1.64E+02	192.15	7.25E+03	1.44
m	17	209.30	205 -	213	209.76	1.39E+03	178.96	5.90E+03	1.55
M	18	238.61	233 -	250	239.04	1.68E+04	299.96	4.33E+03	1.68
m	19	241.44	233 -	250	241.86	3.12E+03	344.30	6.21E+03	2.67
M	20	270.28	266 -	281	270.67	1.32E+03	154.22	3.77E+03	1.95
m	21	277.46	266 -	281	277.85	6.48E+02	145.96	3.61E+03	2.04
M	22	295.29	291 -	308	295.66	2.33E+03	145.53	2.69E+03	1.69
m	23	299.99	291 -	308	300.36	1.09E+03	142.04	3.01E+03	2.06
	24	327.96	325 -	331	328.30	7.82E+02	152.10	3.65E+03	1.85
	25	338.35	335 -	342	338.68	3.08E+03	194.59	4.26E+03	1.82
	26	351.91	347 -	355	352.22	3.81E+03	204.00	4.05E+03	1.74
	27	409.66	406 -	413	409.91	4.01E+02	139.15	2.95E+03	1.86
	28	463.12	460 -	467	463.31	8.67E+02	133.99	2.40E+03	1.94
	29	510.78	506 -	515	510.93	1.71E+03	163.21	2.83E+03	1.78
	30	562.59	560 -	566	562.69	8.89E+01	98.23	1.69E+03	1.37
	31	571.68	569 -	574	571.77	8.11E+01	83.79	1.33E+03	2.19
M	32	580.23	577 -	590	580.31	9.43E+01	85.99	1.16E+03	1.81
m	33	583.31	577 -	590	583.39	5.33E+03	162.58	1.09E+03	1.76
m	34	587.95	577 -	590	588.02	2.24E+02	75.09	1.01E+03	2.25
	35	609.29	604 -	612	609.34	2.71E+03	157.10	2.50E+03	2.02
	36	662.31	659 -	666	662.30	9.75E+01	106.30	1.83E+03	1.14
	37	727.49	724 -	730	727.42	1.12E+03	106.15	1.23E+03	2.09
	38	755.30	751 -	759	755.20	1.27E+02	98.11	1.41E+03	1.90
M	39	768.56	765 -	776	768.45	2.23E+02	69.02	9.02E+02	1.83
m	40	772.59	765 -	776	772.48	2.04E+02	66.90	7.93E+02	1.74

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	782.32	780 -	790	782.19	6.25E+01	47.67	5.30E+02	2.05
m	42	786.05	780 -	790	785.92	1.88E+02	68.31	7.65E+02	2.14
M	43	791.33	790 -	800	791.19	4.88E+01	26.44	1.94E+02	2.03
m	44	795.14	790 -	800	795.01	6.51E+02	75.20	6.21E+02	2.01
M	45	830.77	828 -	845	830.60	8.43E+01	44.45	4.53E+02	2.17
m	46	835.90	828 -	845	835.73	2.46E+02	70.60	7.39E+02	2.38
m	47	840.47	828 -	845	840.28	1.69E+02	69.34	6.83E+02	2.38
	48	860.59	856 -	865	860.39	5.97E+02	92.90	8.96E+02	2.18
	49	893.96	891 -	897	893.73	5.34E+01	55.55	5.23E+02	2.12
M	50	904.21	899 -	920	903.96	1.14E+02	55.75	5.49E+02	2.42
m	51	911.45	899 -	920	911.20	3.53E+03	127.54	3.91E+02	1.96
m	52	915.87	899 -	920	915.62	1.57E+02	88.73	3.62E+02	2.42
	53	934.11	929 -	937	933.83	1.40E+02	67.75	6.18E+02	1.95
M	54	965.10	960 -	979	964.80	6.78E+02	75.31	4.83E+02	2.22
m	55	969.20	960 -	979	968.89	2.06E+03	103.58	3.76E+02	1.94
m	56	973.47	960 -	979	973.16	5.95E+01	66.90	4.05E+02	2.22
	57	988.90	985 -	992	988.57	5.31E+01	51.65	4.12E+02	4.70
	58	1002.19	997 -	1006	1001.85	9.18E+01	65.64	5.58E+02	5.51
	59	1034.45	1029 -	1038	1034.07	6.87E+01	60.20	4.75E+02	5.95
	60	1066.39	1061 -	1071	1065.99	7.41E+01	66.46	5.48E+02	4.63
	61	1079.57	1074 -	1083	1079.15	1.17E+02	62.04	4.79E+02	2.33
	62	1093.95	1090 -	1097	1093.51	4.97E+01	51.22	4.05E+02	1.91
	63	1110.86	1106 -	1114	1110.41	9.49E+01	56.10	4.22E+02	1.78
	64	1120.49	1115 -	1125	1120.03	6.95E+02	84.41	5.84E+02	1.93
	65	1155.42	1150 -	1160	1154.92	1.20E+02	65.97	5.13E+02	2.47
	66	1238.13	1231 -	1242	1237.56	2.61E+02	74.19	5.57E+02	2.20
	67	1247.35	1243 -	1251	1246.77	8.55E+01	56.32	4.33E+02	2.02
M	68	1374.26	1370 -	1381	1373.55	5.11E+01	46.43	2.54E+02	2.61
m	69	1378.00	1370 -	1381	1377.28	1.84E+02	49.40	2.51E+02	2.61
	70	1385.94	1382 -	1389	1385.22	6.30E+01	41.71	2.48E+02	2.21
M	71	1401.76	1398 -	1411	1401.02	3.50E+01	39.53	2.76E+02	2.94
m	72	1408.19	1398 -	1411	1407.45	1.30E+02	50.70	3.09E+02	3.08
	73	1461.10	1454 -	1466	1460.31	7.53E+02	80.92	4.15E+02	2.38
	74	1496.20	1491 -	1499	1495.37	8.51E+01	47.07	2.90E+02	3.01
	75	1509.63	1500 -	1518	1508.79	1.30E+02	87.10	6.00E+02	5.32
	76	1559.14	1553 -	1562	1558.25	3.80E+01	40.17	2.06E+02	5.34
M	77	1578.55	1574 -	1601	1577.64	2.48E+01	33.40	1.67E+02	2.96
m	78	1581.05	1574 -	1601	1580.14	6.09E+01	42.42	2.14E+02	2.96
m	79	1588.43	1574 -	1601	1587.51	3.03E+02	46.98	1.62E+02	2.28
m	80	1592.98	1574 -	1601	1592.06	2.40E+02	52.46	1.80E+02	2.69
	81	1621.63	1615 -	1627	1620.67	1.40E+02	59.15	3.50E+02	2.47
	82	1631.00	1627 -	1634	1630.04	1.38E+02	43.17	2.16E+02	2.13
	83	1638.54	1635 -	1642	1637.57	4.06E+01	35.83	1.85E+02	1.86
	84	1661.01	1657 -	1663	1660.02	5.30E+01	30.48	1.32E+02	2.84
	85	1668.14	1664 -	1672	1667.14	6.29E+01	34.59	1.38E+02	2.99
	86	1680.57	1673 -	1686	1679.56	5.96E+01	46.85	2.19E+02	9.81
	87	1730.18	1725 -	1733	1729.12	1.14E+02	41.75	1.98E+02	2.08
	88	1764.98	1759 -	1769	1763.88	5.27E+02	64.92	2.81E+02	2.12
	89	1817.63	1814 -	1820	1816.48	2.28E+01	22.93	7.64E+01	3.40
	90	1848.14	1842 -	1851	1846.96	5.74E+01	42.87	2.29E+02	1.64
	91	1962.93	1959 -	1965	1961.65	2.95E+01	23.70	8.11E+01	3.84
	92	2103.93	2096 -	2109	2102.51	3.39E+02	62.29	2.82E+02	3.17
	93	2118.82	2113 -	2123	2117.39	3.90E+01	42.50	2.20E+02	3.52

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
94	2203.79	2195 -	2207	2202.27	1.68E+02	50.48	2.20E+02	2.32
95	2244.64	2239 -	2246	2243.08	2.86E+01	34.93	1.85E+02	2.68
96	2330.60	2324 -	2333	2328.97	4.46E+01	42.70	2.35E+02	2.15
97	2423.76	2419 -	2426	2422.03	2.15E+01	27.20	1.11E+02	2.17
98	2448.58	2443 -	2452	2446.83	7.10E+01	36.52	1.50E+02	2.89
99	2615.08	2606 -	2620	2613.17	2.10E+03	96.49	9.85E+01	2.85
100	2688.75	2683 -	2691	2686.77	1.44E+01	15.80	2.51E+01	1.87
101	2715.96	2712 -	2717	2713.96	7.06E+00	6.71	3.89E+00	1.41
102	2721.27	2717 -	2721	2719.26	4.92E+00	5.50	2.17E+00	1.88
103	2749.35	2743 -	2752	2747.32	8.00E+00	10.10	1.00E+01	1.50
104	2870.32	2866 -	2871	2868.17	5.00E+00	7.07	6.00E+00	3.04
105	2891.50	2885 -	2895	2889.33	1.29E+01	13.37	1.81E+01	6.46
106	2986.16	2982 -	2986	2983.90	6.07E+00	5.85	1.86E+00	1.53
107	3125.45	3118 -	3127	3123.06	1.70E+01	8.25	0.00E+00	1.58
108	3198.14	3191 -	3201	3195.69	4.37E+01	14.64	4.65E+00	2.51

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 : 8/21/2017 3:24:13PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.35	45 -	49	3.30E+02	175.37	6.60E+03	1.41E+02
	2	63.33	62 -	67	7.56E+02	291.00	1.65E+04	2.35E+02
M	3	74.72	71 -	82	6.04E+03	321.80	1.42E+04	1.96E+02
m	4	77.12	71 -	82	1.00E+04	349.46	1.36E+04	1.92E+02
M	5	84.57	83 -	97	1.05E+03	243.41	1.20E+04	1.80E+02
m	6	87.57	83 -	97	3.08E+03	260.39	1.11E+04	1.73E+02
m	7	93.27	83 -	97	2.66E+03	253.72	9.68E+03	1.62E+02
	8	99.47	99 -	103	3.84E+02	203.76	8.81E+03	1.64E+02
M	9	105.28	103 -	111	7.57E+02	202.64	8.46E+03	1.51E+02
m	10	108.29	103 -	111	2.15E+02	203.11	8.55E+03	1.52E+02
	11	115.09	114 -	118	2.52E+02	195.73	8.27E+03	1.59E+02
	12	129.13	126 -	133	9.51E+02	297.83	1.41E+04	2.40E+02
	13	144.17	143 -	147	2.37E+02	189.68	7.77E+03	1.54E+02

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	153.89	151 -	157	4.45E+02	242.39	1.03E+04	1.96E+02
	15	185.88	183 -	189	1.30E+03	236.67	9.20E+03	1.85E+02
	16	199.53	198 -	203	1.64E+02	192.15	7.25E+03	1.57E+02
m	17	209.30	205 -	213	1.39E+03	178.96	5.90E+03	1.26E+02
M	18	238.61	233 -	250	1.68E+04	299.96	4.33E+03	1.08E+02
m	19	241.44	233 -	250	3.12E+03	344.30	6.21E+03	1.30E+02
M	20	270.28	266 -	281	1.32E+03	154.22	3.77E+03	1.01E+02
m	21	277.46	266 -	281	6.48E+02	145.96	3.61E+03	9.87E+01
M	22	295.29	291 -	308	2.33E+03	145.53	2.69E+03	8.53E+01
m	23	299.99	291 -	308	1.09E+03	142.04	3.01E+03	9.01E+01
	24	327.96	325 -	331	7.82E+02	152.10	3.65E+03	1.16E+02
	25	338.35	335 -	342	3.08E+03	194.59	4.26E+03	1.31E+02
	26	351.91	347 -	355	3.81E+03	204.00	4.05E+03	1.33E+02
	27	409.66	406 -	413	4.01E+02	139.15	2.95E+03	1.10E+02
	28	463.12	460 -	467	8.67E+02	133.99	2.40E+03	9.89E+01
	29	510.78	506 -	515	1.71E+03	163.21	2.83E+03	1.16E+02
	30	562.59	560 -	566	8.89E+01	98.23	1.69E+03	7.92E+01
	31	571.68	569 -	574	8.11E+01	83.79	1.33E+03	6.73E+01
M	32	580.23	577 -	590	9.43E+01	85.99	1.16E+03	5.59E+01
m	33	583.31	577 -	590	5.33E+03	162.58	1.09E+03	5.42E+01
m	34	587.95	577 -	590	2.24E+02	75.09	1.01E+03	5.23E+01
	35	609.29	604 -	612	2.71E+03	157.10	2.50E+03	1.14E+02
	36	662.31	659 -	666	9.75E+01	106.30	1.83E+03	8.59E+01
	37	727.49	724 -	730	1.12E+03	106.15	1.23E+03	6.77E+01
	38	755.30	751 -	759	1.27E+02	98.11	1.41E+03	7.85E+01
M	39	768.56	765 -	776	2.23E+02	69.02	9.02E+02	4.94E+01
m	40	772.59	765 -	776	2.04E+02	66.90	7.93E+02	4.63E+01
M	41	782.32	780 -	790	6.25E+01	47.67	5.30E+02	3.79E+01
m	42	786.05	780 -	790	1.88E+02	68.31	7.65E+02	4.55E+01
M	43	791.33	790 -	800	4.88E+01	26.44	1.94E+02	2.29E+01
m	44	795.14	790 -	800	6.51E+02	75.20	6.21E+02	4.10E+01
M	45	830.77	828 -	845	8.43E+01	44.45	4.53E+02	3.50E+01
m	46	835.90	828 -	845	2.46E+02	70.60	7.39E+02	4.47E+01
m	47	840.47	828 -	845	1.69E+02	69.34	6.83E+02	4.30E+01
	48	860.59	856 -	865	5.97E+02	92.90	8.96E+02	6.49E+01
	49	893.96	891 -	897	5.34E+01	55.55	5.23E+02	4.41E+01
M	50	904.21	899 -	920	1.14E+02	55.75	5.49E+02	3.85E+01
m	51	911.45	899 -	920	3.53E+03	127.54	3.91E+02	3.25E+01
m	52	915.87	899 -	920	1.57E+02	88.73	3.62E+02	3.13E+01
	53	934.11	929 -	937	1.40E+02	67.75	6.18E+02	2.79E+01
M	54	965.10	960 -	979	6.78E+02	75.31	4.83E+02	3.61E+01
m	55	969.20	960 -	979	2.06E+03	103.58	3.76E+02	3.19E+01
m	56	973.47	960 -	979	5.95E+01	66.90	4.05E+02	3.31E+01
	57	988.90	985 -	992	5.31E+01	51.65	4.12E+02	4.07E+01
	58	1002.19	997 -	1006	9.18E+01	65.64	5.58E+02	5.16E+01
	59	1034.45	1029 -	1038	6.87E+01	60.20	4.75E+02	4.76E+01
	60	1066.39	1061 -	1071	7.41E+01	66.46	5.48E+02	5.28E+01
	61	1079.57	1074 -	1083	1.17E+02	62.04	4.79E+02	4.78E+01
	62	1093.95	1090 -	1097	4.97E+01	51.22	4.05E+02	4.05E+01
	63	1110.86	1106 -	1114	9.49E+01	56.10	4.22E+02	4.32E+01
	64	1120.49	1115 -	1125	6.95E+02	84.41	5.84E+02	5.42E+01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	65	1155.42	1150 -	1160	1.20E+02	65.97	5.13E+02	5.11E+01
	66	1238.13	1231 -	1242	2.61E+02	74.19	5.57E+02	5.49E+01
	67	1247.35	1243 -	1251	8.55E+01	56.32	4.33E+02	4.37E+01
M	68	1374.26	1370 -	1381	5.11E+01	46.43	2.54E+02	2.62E+01
m	69	1378.00	1370 -	1381	1.84E+02	49.40	2.51E+02	2.61E+01
	70	1385.94	1382 -	1389	6.30E+01	41.71	2.48E+02	3.17E+01
M	71	1401.76	1398 -	1411	3.50E+01	39.53	2.76E+02	2.73E+01
m	72	1408.19	1398 -	1411	1.30E+02	50.70	3.09E+02	2.89E+01
	73	1461.10	1454 -	1466	7.53E+02	80.92	4.15E+02	4.89E+01
	74	1496.20	1491 -	1499	8.51E+01	47.07	2.90E+02	3.56E+01
	75	1509.63	1500 -	1518	1.30E+02	87.10	6.00E+02	6.91E+01
	76	1559.14	1553 -	1562	3.80E+01	40.17	2.06E+02	3.14E+01
M	77	1578.55	1574 -	1601	2.48E+01	33.40	1.67E+02	2.13E+01
m	78	1581.05	1574 -	1601	6.09E+01	42.42	2.14E+02	2.40E+01
m	79	1588.43	1574 -	1601	3.03E+02	46.98	1.62E+02	2.09E+01
m	80	1592.98	1574 -	1601	2.40E+02	52.46	1.80E+02	2.21E+01
	81	1621.63	1615 -	1627	1.40E+02	59.15	3.50E+02	4.46E+01
	82	1631.00	1627 -	1634	1.38E+02	43.17	2.16E+02	2.98E+01
	83	1638.54	1635 -	1642	4.06E+01	35.83	1.85E+02	2.75E+01
	84	1661.01	1657 -	1663	5.30E+01	30.48	1.32E+02	2.20E+01
	85	1668.14	1664 -	1672	6.29E+01	34.59	1.38E+02	2.53E+01
	86	1680.57	1673 -	1686	5.96E+01	46.85	2.19E+02	3.64E+01
	87	1730.18	1725 -	1733	1.14E+02	41.75	1.98E+02	2.95E+01
	88	1764.98	1759 -	1769	5.27E+02	64.92	2.81E+02	3.77E+01
	89	1817.63	1814 -	1820	2.28E+01	22.93	7.64E+01	1.71E+01
	90	1848.14	1842 -	1851	5.74E+01	42.87	2.29E+02	3.30E+01
	91	1962.93	1959 -	1965	2.95E+01	23.70	8.11E+01	1.73E+01
	92	2103.93	2096 -	2109	3.39E+02	62.29	2.82E+02	4.13E+01
	93	2118.82	2113 -	2123	3.90E+01	42.50	2.20E+02	3.34E+01
	94	2203.79	2195 -	2207	1.68E+02	50.48	2.20E+02	3.56E+01
	95	2244.64	2239 -	2246	2.86E+01	34.93	1.85E+02	2.73E+01
	96	2330.60	2324 -	2333	4.46E+01	42.70	2.35E+02	3.33E+01
	97	2423.76	2419 -	2426	2.15E+01	27.20	1.11E+02	2.10E+01
	98	2448.58	2443 -	2452	7.10E+01	36.52	1.50E+02	2.66E+01
	99	2615.08	2606 -	2620	2.10E+03	96.49	9.85E+01	2.50E+01
	100	2688.75	2683 -	2691	1.44E+01	15.80	2.51E+01	1.14E+01
	101	2715.96	2712 -	2717	7.06E+00	6.71	3.89E+00	3.37E+00
	102	2721.27	2717 -	2721	4.92E+00	5.50	2.17E+00	2.67E+00
	103	2749.35	2743 -	2752	8.00E+00	10.10	1.00E+01	6.88E+00
	104	2870.32	2866 -	2871	5.00E+00	7.07	6.00E+00	4.50E+00
	105	2891.50	2885 -	2895	1.29E+01	13.37	1.81E+01	9.26E+00
	106	2986.16	2982 -	2986	6.07E+00	5.85	1.86E+00	2.59E+00
	107	3125.45	3118 -	3127	1.70E+01	8.25	0.00E+00	0.00E+00
	108	3198.14	3191 -	3201	4.37E+01	14.64	4.65E+00	5.17E+00

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

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 : 8/21/2017 3:24:13PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.35	45 -	49	46.98	3.30E+02	175.37	6.60E+03	PB-210
	2	63.33	62 -	67	63.94	7.56E+02	291.00	1.65E+04	TH-234
									TH-230
M	3	74.72	71 -	82	75.31	6.04E+03	321.80	1.42E+04	AM-243
m	4	77.12	71 -	82	77.71	1.00E+04	349.46	1.36E+04	.....
M	5	84.57	83 -	97	85.15	1.05E+03	243.41	1.20E+04	TH-231
m	6	87.57	83 -	97	88.15	3.08E+03	260.39	1.11E+04	SN-126
									CD-109
									LU-176
m	7	93.27	83 -	97	93.85	2.66E+03	253.72	9.68E+03	GA-67
	8	99.47	99 -	103	100.04	3.84E+02	203.76	8.81E+03	.....
M	9	105.28	103 -	111	105.85	7.57E+02	202.64	8.46E+03	EU-155
									NP-239
m	10	108.29	103 -	111	108.85	2.15E+02	203.11	8.55E+03	.....
	11	115.09	114 -	118	115.64	2.52E+02	195.73	8.27E+03	.....
	12	129.13	126 -	133	129.67	9.51E+02	297.83	1.41E+04	.....
	13	144.17	143 -	147	144.70	2.37E+02	189.68	7.77E+03	U-235
	14	153.89	151 -	157	154.40	4.45E+02	242.39	1.03E+04	CS-136
	15	185.88	183 -	189	186.36	1.30E+03	236.67	9.20E+03	RA-226
	16	199.53	198 -	203	200.00	1.64E+02	192.15	7.25E+03	.....
m	17	209.30	205 -	213	209.76	1.39E+03	178.96	5.90E+03	GA-67
									CM-243
M	18	238.61	233 -	250	239.04	1.68E+04	299.96	4.33E+03	PB-212
m	19	241.44	233 -	250	241.86	3.12E+03	344.30	6.21E+03	RA-224
M	20	270.28	266 -	281	270.67	1.32E+03	154.22	3.77E+03	.....
m	21	277.46	266 -	281	277.85	6.48E+02	145.96	3.61E+03	CM-243
									NP-239
M	22	295.29	291 -	308	295.66	2.33E+03	145.53	2.69E+03	PB-214
m	23	299.99	291 -	308	300.36	1.09E+03	142.04	3.01E+03	BI-210M
									PB-212

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									GA-67
	24	327.96	325 -	331	328.30	7.82E+02	152.10	3.65E+03	LA-140
	25	338.35	335 -	342	338.68	3.08E+03	194.59	4.26E+03	AC-228
	26	351.91	347 -	355	352.22	3.81E+03	204.00	4.05E+03	PB-214
	27	409.66	406 -	413	409.91	4.01E+02	139.15	2.95E+03	.....
	28	463.12	460 -	467	463.31	8.67E+02	133.99	2.40E+03	SB-125
	29	510.78	506 -	515	510.93	1.71E+03	163.21	2.83E+03	.....
	30	562.59	560 -	566	562.69	8.89E+01	98.23	1.69E+03	CS-134
	31	571.68	569 -	574	571.77	8.11E+01	83.79	1.33E+03	.....
M	32	580.23	577 -	590	580.31	9.43E+01	85.99	1.16E+03	.....
m	33	583.31	577 -	590	583.39	5.33E+03	162.58	1.09E+03	TL-208
m	34	587.95	577 -	590	588.02	2.24E+02	75.09	1.01E+03	.....
	35	609.29	604 -	612	609.34	2.71E+03	157.10	2.50E+03	BI-214
	36	662.31	659 -	666	662.30	9.75E+01	106.30	1.83E+03	CS-137
	37	727.49	724 -	730	727.42	1.12E+03	106.15	1.23E+03	BI-212
	38	755.30	751 -	759	755.20	1.27E+02	98.11	1.41E+03	.....
M	39	768.56	765 -	776	768.45	2.23E+02	69.02	9.02E+02	.....
m	40	772.59	765 -	776	772.48	2.04E+02	66.90	7.93E+02	.....
M	41	782.32	780 -	790	782.19	6.25E+01	47.67	5.30E+02	.....
m	42	786.05	780 -	790	785.92	1.88E+02	68.31	7.65E+02	.....
M	43	791.33	790 -	800	791.19	4.88E+01	26.44	1.94E+02	.....
m	44	795.14	790 -	800	795.01	6.51E+02	75.20	6.21E+02	CS-134
M	45	830.77	828 -	845	830.60	8.43E+01	44.45	4.53E+02	.....
m	46	835.90	828 -	845	835.73	2.46E+02	70.60	7.39E+02	.....
m	47	840.47	828 -	845	840.28	1.69E+02	69.34	6.83E+02	.....
	48	860.59	856 -	865	860.39	5.97E+02	92.90	8.96E+02	TL-208
	49	893.96	891 -	897	893.73	5.34E+01	55.55	5.23E+02	.....
M	50	904.21	899 -	920	903.96	1.14E+02	55.75	5.49E+02	.....
m	51	911.45	899 -	920	911.20	3.53E+03	127.54	3.91E+02	TL-204
									AC-228
m	52	915.87	899 -	920	915.62	1.57E+02	88.73	3.62E+02	.....
	53	934.11	929 -	937	933.83	1.40E+02	67.75	6.18E+02	.....
M	54	965.10	960 -	979	964.80	6.78E+02	75.31	4.83E+02	.....
m	55	969.20	960 -	979	968.89	2.06E+03	103.58	3.76E+02	AC-228
m	56	973.47	960 -	979	973.16	5.95E+01	66.90	4.05E+02	.....
	57	988.90	985 -	992	988.57	5.31E+01	51.65	4.12E+02	.....
	58	1002.19	997 -	1006	1001.85	9.18E+01	65.64	5.58E+02	.....
	59	1034.45	1029 -	1038	1034.07	6.87E+01	60.20	4.75E+02	.....
	60	1066.39	1061 -	1071	1065.99	7.41E+01	66.46	5.48E+02	.....
	61	1079.57	1074 -	1083	1079.15	1.17E+02	62.04	4.79E+02	.....
	62	1093.95	1090 -	1097	1093.51	4.97E+01	51.22	4.05E+02	LU-172
	63	1110.86	1106 -	1114	1110.41	9.49E+01	56.10	4.22E+02	.....
	64	1120.49	1115 -	1125	1120.03	6.95E+02	84.41	5.84E+02	SC-46
									BI-214
									TA-182
	65	1155.42	1150 -	1160	1154.92	1.20E+02	65.97	5.13E+02	.....
	66	1238.13	1231 -	1242	1237.56	2.61E+02	74.19	5.57E+02	CO-56
	67	1247.35	1243 -	1251	1246.77	8.55E+01	56.32	4.33E+02	.....
M	68	1374.26	1370 -	1381	1373.55	5.11E+01	46.43	2.54E+02	.....
m	69	1378.00	1370 -	1381	1377.28	1.84E+02	49.40	2.51E+02	.....
	70	1385.94	1382 -	1389	1385.22	6.30E+01	41.71	2.48E+02	.....
M	71	1401.76	1398 -	1411	1401.02	3.50E+01	39.53	2.76E+02	.....
m	72	1408.19	1398 -	1411	1407.45	1.30E+02	50.70	3.09E+02	EU-152
	73	1461.10	1454 -	1466	1460.31	7.53E+02	80.92	4.15E+02	K-40

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	74	1496.20	1491 -	1499	1495.37	8.51E+01	47.07	2.90E+02	.....
	75	1509.63	1500 -	1518	1508.79	1.30E+02	87.10	6.00E+02	.....
	76	1559.14	1553 -	1562	1558.25	3.80E+01	40.17	2.06E+02	.....
M	77	1578.55	1574 -	1601	1577.64	2.48E+01	33.40	1.67E+02	.....
m	78	1581.05	1574 -	1601	1580.14	6.09E+01	42.42	2.14E+02	.....
m	79	1588.43	1574 -	1601	1587.51	3.03E+02	46.98	1.62E+02	.....
m	80	1592.98	1574 -	1601	1592.06	2.40E+02	52.46	1.80E+02	.....
	81	1621.63	1615 -	1627	1620.67	1.40E+02	59.15	3.50E+02	.....
	82	1631.00	1627 -	1634	1630.04	1.38E+02	43.17	2.16E+02	.....
	83	1638.54	1635 -	1642	1637.57	4.06E+01	35.83	1.85E+02	.....
	84	1661.01	1657 -	1663	1660.02	5.30E+01	30.48	1.32E+02	.....
	85	1668.14	1664 -	1672	1667.14	6.29E+01	34.59	1.38E+02	.....
	86	1680.57	1673 -	1686	1679.56	5.96E+01	46.85	2.19E+02	.....
	87	1730.18	1725 -	1733	1729.12	1.14E+02	41.75	1.98E+02	.....
	88	1764.98	1759 -	1769	1763.88	5.27E+02	64.92	2.81E+02	BI-214
	89	1817.63	1814 -	1820	1816.48	2.28E+01	22.93	7.64E+01	.....
	90	1848.14	1842 -	1851	1846.96	5.74E+01	42.87	2.29E+02	.....
	91	1962.93	1959 -	1965	1961.65	2.95E+01	23.70	8.11E+01	.....
	92	2103.93	2096 -	2109	2102.51	3.39E+02	62.29	2.82E+02	.....
	93	2118.82	2113 -	2123	2117.39	3.90E+01	42.50	2.20E+02	.....
	94	2203.79	2195 -	2207	2202.27	1.68E+02	50.48	2.20E+02	BI-214
	95	2244.64	2239 -	2246	2243.08	2.86E+01	34.93	1.85E+02	.....
	96	2330.60	2324 -	2333	2328.97	4.46E+01	42.70	2.35E+02	.....
	97	2423.76	2419 -	2426	2422.03	2.15E+01	27.20	1.11E+02	.....
	98	2448.58	2443 -	2452	2446.83	7.10E+01	36.52	1.50E+02	.....
	99	2615.08	2606 -	2620	2613.17	2.10E+03	96.49	9.85E+01	TL-208
	100	2688.75	2683 -	2691	2686.77	1.44E+01	15.80	2.51E+01	.....
	101	2715.96	2712 -	2717	2713.96	7.06E+00	6.71	3.89E+00	.....
	102	2721.27	2717 -	2721	2719.26	4.92E+00	5.50	2.17E+00	.....
	103	2749.35	2743 -	2752	2747.32	8.00E+00	10.10	1.00E+01	.....
	104	2870.32	2866 -	2871	2868.17	5.00E+00	7.07	6.00E+00	.....
	105	2891.50	2885 -	2895	2889.33	1.29E+01	13.37	1.81E+01	.....
	106	2986.16	2982 -	2986	2983.90	6.07E+00	5.85	1.86E+00	.....
	107	3125.45	3118 -	3127	3123.06	1.70E+01	8.25	0.00E+00	.....
	108	3198.14	3191 -	3201	3195.69	4.37E+01	14.64	4.65E+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 : 8/21/2017 3:24:13PM

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.35	3.30E+02	175.37	2.46E-02	2.22E-03
	2	63.33	7.56E+02	291.00	2.70E-02	2.26E-03
M	3	74.72	6.04E+03	321.80	2.75E-02	2.38E-03
m	4	77.12	1.00E+04	349.46	2.75E-02	2.40E-03
M	5	84.57	1.05E+03	243.41	2.75E-02	2.48E-03
m	6	87.57	3.08E+03	260.39	2.74E-02	2.52E-03
m	7	93.27	2.66E+03	253.72	2.73E-02	2.44E-03
	8	99.47	3.84E+02	203.76	2.70E-02	2.34E-03
M	9	105.28	7.57E+02	202.64	2.67E-02	2.24E-03
m	10	108.29	2.15E+02	203.11	2.66E-02	2.19E-03
	11	115.09	2.52E+02	195.73	2.62E-02	2.09E-03
	12	129.13	9.51E+02	297.83	2.53E-02	1.94E-03
	13	144.17	2.37E+02	189.68	2.44E-02	1.85E-03
	14	153.89	4.45E+02	242.39	2.37E-02	1.80E-03
	15	185.88	1.30E+03	236.67	2.17E-02	1.68E-03
	16	199.53	1.64E+02	192.15	2.09E-02	1.64E-03
m	17	209.30	1.39E+03	178.96	2.04E-02	1.61E-03
M	18	238.61	1.68E+04	299.96	1.89E-02	1.53E-03
m	19	241.44	3.12E+03	344.30	1.87E-02	1.52E-03
M	20	270.28	1.32E+03	154.22	1.74E-02	1.43E-03
m	21	277.46	6.48E+02	145.96	1.71E-02	1.41E-03
M	22	295.29	2.33E+03	145.53	1.64E-02	1.37E-03
m	23	299.99	1.09E+03	142.04	1.63E-02	1.36E-03
	24	327.96	7.82E+02	152.10	1.53E-02	1.29E-03
	25	338.35	3.08E+03	194.59	1.50E-02	1.27E-03
	26	351.91	3.81E+03	204.00	1.45E-02	1.24E-03
	27	409.66	4.01E+02	139.15	1.30E-02	1.13E-03
	28	463.12	8.67E+02	133.99	1.19E-02	1.10E-03
	29	510.78	1.71E+03	163.21	1.10E-02	1.07E-03
	30	562.59	8.89E+01	98.23	1.02E-02	1.04E-03
	31	571.68	8.11E+01	83.79	1.01E-02	1.03E-03
M	32	580.23	9.43E+01	85.99	1.00E-02	1.02E-03
m	33	583.31	5.33E+03	162.58	9.96E-03	1.02E-03
m	34	587.95	2.24E+02	75.09	9.90E-03	1.02E-03
	35	609.29	2.71E+03	157.10	9.63E-03	1.01E-03
	36	662.31	9.75E+01	106.30	9.04E-03	9.71E-04
	37	727.49	1.12E+03	106.15	8.41E-03	8.67E-04
	38	755.30	1.27E+02	98.11	8.17E-03	8.23E-04
M	39	768.56	2.23E+02	69.02	8.06E-03	8.02E-04
m	40	772.59	2.04E+02	66.90	8.03E-03	7.96E-04
M	41	782.32	6.25E+01	47.67	7.95E-03	7.80E-04
m	42	786.05	1.88E+02	68.31	7.93E-03	7.74E-04
M	43	791.33	4.88E+01	26.44	7.89E-03	7.66E-04
m	44	795.14	6.51E+02	75.20	7.86E-03	7.60E-04
M	45	830.77	8.43E+01	44.45	7.60E-03	7.03E-04
m	46	835.90	2.46E+02	70.60	7.56E-03	6.95E-04
m	47	840.47	1.69E+02	69.34	7.53E-03	6.88E-04
	48	860.59	5.97E+02	92.90	7.40E-03	6.56E-04
	49	893.96	5.34E+01	55.55	7.19E-03	6.03E-04
M	50	904.21	1.14E+02	55.75	7.13E-03	5.94E-04
m	51	911.45	3.53E+03	127.54	7.08E-03	5.91E-04
m	52	915.87	1.57E+02	88.73	7.06E-03	5.90E-04
	53	934.11	1.40E+02	67.75	6.95E-03	5.83E-04

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	54	965.10	6.78E+02	75.31	6.79E-03	5.71E-04
m	55	969.20	2.06E+03	103.58	6.76E-03	5.69E-04
m	56	973.47	5.95E+01	66.90	6.74E-03	5.68E-04
	57	988.90	5.31E+01	51.65	6.66E-03	5.62E-04
	58	1002.19	9.18E+01	65.64	6.60E-03	5.57E-04
	59	1034.45	6.87E+01	60.20	6.44E-03	5.44E-04
	60	1066.39	7.41E+01	66.46	6.30E-03	5.32E-04
	61	1079.57	1.17E+02	62.04	6.24E-03	5.27E-04
	62	1093.95	4.97E+01	51.22	6.18E-03	5.21E-04
	63	1110.86	9.49E+01	56.10	6.11E-03	5.15E-04
	64	1120.49	6.95E+02	84.41	6.07E-03	5.11E-04
	65	1155.42	1.20E+02	65.97	5.94E-03	4.98E-04
	66	1238.13	2.61E+02	74.19	5.64E-03	4.76E-04
	67	1247.35	8.55E+01	56.32	5.61E-03	4.74E-04
M	68	1374.26	5.11E+01	46.43	5.23E-03	4.45E-04
m	69	1378.00	1.84E+02	49.40	5.22E-03	4.44E-04
	70	1385.94	6.30E+01	41.71	5.20E-03	4.42E-04
M	71	1401.76	3.50E+01	39.53	5.16E-03	4.38E-04
m	72	1408.19	1.30E+02	50.70	5.14E-03	4.37E-04
	73	1461.10	7.53E+02	80.92	5.01E-03	4.25E-04
	74	1496.20	8.51E+01	47.07	4.92E-03	4.17E-04
	75	1509.63	1.30E+02	87.10	4.89E-03	4.13E-04
	76	1559.14	3.80E+01	40.17	4.78E-03	4.02E-04
M	77	1578.55	2.48E+01	33.40	4.74E-03	3.97E-04
m	78	1581.05	6.09E+01	42.42	4.73E-03	3.97E-04
m	79	1588.43	3.03E+02	46.98	4.71E-03	3.95E-04
m	80	1592.98	2.40E+02	52.46	4.71E-03	3.94E-04
	81	1621.63	1.40E+02	59.15	4.65E-03	3.88E-04
	82	1631.00	1.38E+02	43.17	4.63E-03	3.85E-04
	83	1638.54	4.06E+01	35.83	4.61E-03	3.84E-04
	84	1661.01	5.30E+01	30.48	4.57E-03	3.78E-04
	85	1668.14	6.29E+01	34.59	4.55E-03	3.77E-04
	86	1680.57	5.96E+01	46.85	4.53E-03	3.74E-04
	87	1730.18	1.14E+02	41.75	4.44E-03	3.62E-04
	88	1764.98	5.27E+02	64.92	4.37E-03	3.54E-04
	89	1817.63	2.28E+01	22.93	4.28E-03	3.42E-04
	90	1848.14	5.74E+01	42.87	4.23E-03	3.38E-04
	91	1962.93	2.95E+01	23.70	4.06E-03	3.38E-04
	92	2103.93	3.39E+02	62.29	3.86E-03	3.38E-04
	93	2118.82	3.90E+01	42.50	3.84E-03	3.38E-04
	94	2203.79	1.68E+02	50.48	3.74E-03	3.38E-04
	95	2244.64	2.86E+01	34.93	3.69E-03	3.38E-04
	96	2330.60	4.46E+01	42.70	3.59E-03	3.38E-04
	97	2423.76	2.15E+01	27.20	3.49E-03	3.38E-04
	98	2448.58	7.10E+01	36.52	3.47E-03	3.38E-04
	99	2615.08	2.10E+03	96.49	3.31E-03	3.38E-04
	100	2688.75	1.44E+01	15.80	3.24E-03	3.38E-04
	101	2715.96	7.06E+00	6.71	3.22E-03	3.38E-04
	102	2721.27	4.92E+00	5.50	3.21E-03	3.38E-04
	103	2749.35	8.00E+00	10.10	3.19E-03	3.38E-04
	104	2870.32	5.00E+00	7.07	3.09E-03	3.38E-04
	105	2891.50	1.29E+01	13.37	3.07E-03	3.38E-04
	106	2986.16	6.07E+00	5.85	3.00E-03	3.38E-04

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
107	3125.45	1.70E+01	8.25	2.90E-03	3.38E-04
108	3198.14	4.37E+01	14.64	2.85E-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 : 8/21/2017 3:24:13PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.35	3.30E+02	175.37	3.67E+01	8.40E+00	2.93E+02	1.76E+02
	2	63.33	7.56E+02	291.00	8.94E+01	1.41E+01	6.67E+02	2.91E+02
M	3	74.72	6.04E+03	321.80			6.04E+03	3.22E+02
m	4	77.12	1.00E+04	349.46	7.20E+00	1.47E+00	9.99E+03	3.49E+02
M	5	84.57	1.05E+03	243.41	7.20E+00	1.33E+00	1.04E+03	2.43E+02
m	6	87.57	3.08E+03	260.39			3.08E+03	2.60E+02
m	7	93.27	2.66E+03	253.72	1.38E+02	1.72E+01	2.52E+03	2.54E+02
	8	99.47	3.84E+02	203.76			3.84E+02	2.04E+02
M	9	105.28	7.57E+02	202.64			7.57E+02	2.03E+02
m	10	108.29	2.15E+02	203.11			2.15E+02	2.03E+02
	11	115.09	2.52E+02	195.73			2.52E+02	1.96E+02
	12	129.13	9.51E+02	297.83			9.51E+02	2.98E+02
	13	144.17	2.37E+02	189.68	1.21E+01	4.29E+01	2.25E+02	1.94E+02
	14	153.89	4.45E+02	242.39			4.45E+02	2.42E+02
	15	185.88	1.30E+03	236.67	5.22E+01	7.59E+00	1.25E+03	2.37E+02
	16	199.53	1.64E+02	192.15			1.64E+02	1.92E+02
m	17	209.30	1.39E+03	178.96			1.39E+03	1.79E+02
M	18	238.61	1.68E+04	299.96	2.13E+01	6.33E+00	1.68E+04	3.00E+02
m	19	241.44	3.12E+03	344.30			3.12E+03	3.44E+02
M	20	270.28	1.32E+03	154.22	1.23E+00	4.98E+00	1.31E+03	1.54E+02
m	21	277.46	6.48E+02	145.96			6.48E+02	1.46E+02
M	22	295.29	2.33E+03	145.53			2.33E+03	1.46E+02
m	23	299.99	1.09E+03	142.04			1.09E+03	1.42E+02
	24	327.96	7.82E+02	152.10			7.82E+02	1.52E+02
	25	338.35	3.08E+03	194.59			3.08E+03	1.95E+02
	26	351.91	3.81E+03	204.00	5.79E+00	4.49E+00	3.81E+03	2.04E+02
	27	409.66	4.01E+02	139.15			4.01E+02	1.39E+02
	28	463.12	8.67E+02	133.99			8.67E+02	1.34E+02

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	29	510.78	1.71E+03	163.21	7.28E+01	5.30E+00	1.63E+03	1.63E+02
	30	562.59	8.89E+01	98.23			8.89E+01	9.82E+01
	31	571.68	8.11E+01	83.79			8.11E+01	8.38E+01
M	32	580.23	9.43E+01	85.99			9.43E+01	8.60E+01
m	33	583.31	5.33E+03	162.58	2.72E+00	3.05E+00	5.33E+03	1.63E+02
m	34	587.95	2.24E+02	75.09			2.24E+02	7.51E+01
	35	609.29	2.71E+03	157.10	6.35E+00	4.02E+00	2.70E+03	1.57E+02
	36	662.31	9.75E+01	106.30			9.75E+01	1.06E+02
	37	727.49	1.12E+03	106.15			1.12E+03	1.06E+02
	38	755.30	1.27E+02	98.11			1.27E+02	9.81E+01
M	39	768.56	2.23E+02	69.02			2.23E+02	6.90E+01
m	40	772.59	2.04E+02	66.90			2.04E+02	6.69E+01
M	41	782.32	6.25E+01	47.67			6.25E+01	4.77E+01
m	42	786.05	1.88E+02	68.31			1.88E+02	6.83E+01
M	43	791.33	4.88E+01	26.44			4.88E+01	2.64E+01
m	44	795.14	6.51E+02	75.20			6.51E+02	7.52E+01
M	45	830.77	8.43E+01	44.45			8.43E+01	4.45E+01
m	46	835.90	2.46E+02	70.60			2.46E+02	7.06E+01
m	47	840.47	1.69E+02	69.34			1.69E+02	6.93E+01
	48	860.59	5.97E+02	92.90			5.97E+02	9.29E+01
	49	893.96	5.34E+01	55.55			5.34E+01	5.55E+01
M	50	904.21	1.14E+02	55.75			1.14E+02	5.58E+01
m	51	911.45	3.53E+03	127.54	5.31E+00	3.00E+00	3.52E+03	1.28E+02
m	52	915.87	1.57E+02	88.73			1.57E+02	8.87E+01
	53	934.11	1.40E+02	67.75			1.40E+02	6.78E+01
M	54	965.10	6.78E+02	75.31			6.78E+02	7.53E+01
m	55	969.20	2.06E+03	103.58			2.06E+03	1.04E+02
m	56	973.47	5.95E+01	66.90			5.95E+01	6.69E+01
	57	988.90	5.31E+01	51.65			5.31E+01	5.17E+01
	58	1002.19	9.18E+01	65.64	4.92E+00	2.75E+00	8.69E+01	6.57E+01
	59	1034.45	6.87E+01	60.20			6.87E+01	6.02E+01
	60	1066.39	7.41E+01	66.46			7.41E+01	6.65E+01
	61	1079.57	1.17E+02	62.04			1.17E+02	6.20E+01
	62	1093.95	4.97E+01	51.22			4.97E+01	5.12E+01
	63	1110.86	9.49E+01	56.10			9.49E+01	5.61E+01
	64	1120.49	6.95E+02	84.41			6.95E+02	8.44E+01
	65	1155.42	1.20E+02	65.97			1.20E+02	6.60E+01
	66	1238.13	2.61E+02	74.19			2.61E+02	7.42E+01
	67	1247.35	8.55E+01	56.32			8.55E+01	5.63E+01
M	68	1374.26	5.11E+01	46.43			5.11E+01	4.64E+01
m	69	1378.00	1.84E+02	49.40			1.84E+02	4.94E+01
	70	1385.94	6.30E+01	41.71			6.30E+01	4.17E+01
M	71	1401.76	3.50E+01	39.53			3.50E+01	3.95E+01
m	72	1408.19	1.30E+02	50.70			1.30E+02	5.07E+01
	73	1461.10	7.53E+02	80.92	8.09E+00	2.23E+00	7.45E+02	8.10E+01
	74	1496.20	8.51E+01	47.07			8.51E+01	4.71E+01
	75	1509.63	1.30E+02	87.10			1.30E+02	8.71E+01
	76	1559.14	3.80E+01	40.17			3.80E+01	4.02E+01
M	77	1578.55	2.48E+01	33.40			2.48E+01	3.34E+01
m	78	1581.05	6.09E+01	42.42			6.09E+01	4.24E+01
m	79	1588.43	3.03E+02	46.98			3.03E+02	4.70E+01
m	80	1592.98	2.40E+02	52.46			2.40E+02	5.25E+01
	81	1621.63	1.40E+02	59.15			1.40E+02	5.92E+01
	82	1631.00	1.38E+02	43.17			1.38E+02	4.32E+01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
83	1638.54	4.06E+01	35.83			4.06E+01	3.58E+01
84	1661.01	5.30E+01	30.48			5.30E+01	3.05E+01
85	1668.14	6.29E+01	34.59			6.29E+01	3.46E+01
86	1680.57	5.96E+01	46.85			5.96E+01	4.69E+01
87	1730.18	1.14E+02	41.75			1.14E+02	4.17E+01
88	1764.98	5.27E+02	64.92			5.27E+02	6.49E+01
89	1817.63	2.28E+01	22.93			2.28E+01	2.29E+01
90	1848.14	5.74E+01	42.87			5.74E+01	4.29E+01
91	1962.93	2.95E+01	23.70			2.95E+01	2.37E+01
92	2103.93	3.39E+02	62.29			3.39E+02	6.23E+01
93	2118.82	3.90E+01	42.50			3.90E+01	4.25E+01
94	2203.79	1.68E+02	50.48			1.68E+02	5.05E+01
95	2244.64	2.86E+01	34.93			2.86E+01	3.49E+01
96	2330.60	4.46E+01	42.70			4.46E+01	4.27E+01
97	2423.76	2.15E+01	27.20			2.15E+01	2.72E+01
98	2448.58	7.10E+01	36.52			7.10E+01	3.65E+01
99	2615.08	2.10E+03	96.49	5.63E+00	1.38E+00	2.09E+03	9.65E+01
100	2688.75	1.44E+01	15.80			1.44E+01	1.58E+01
101	2715.96	7.06E+00	6.71			7.06E+00	6.71E+00
102	2721.27	4.92E+00	5.50			4.92E+00	5.50E+00
103	2749.35	8.00E+00	10.10			8.00E+00	1.01E+01
104	2870.32	5.00E+00	7.07			5.00E+00	7.07E+00
105	2891.50	1.29E+01	13.37			1.29E+01	1.34E+01
106	2986.16	6.07E+00	5.85			6.07E+00	5.85E+00
107	3125.45	1.70E+01	8.25			1.70E+01	8.25E+00
108	3198.14	4.37E+01	14.64			4.37E+01	1.46E+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 : 8/21/2017 3:24:13PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.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	46.35	3.30E+02	175.37	3.67E+01	8.40E+00	2.93E+02	1.76E+02
2	63.33	7.56E+02	291.00	8.94E+01	1.41E+01	6.67E+02	2.91E+02

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	3	74.72	6.04E+03	321.80			6.04E+03	3.22E+02
m	4	77.12	1.00E+04	349.46	7.20E+00	1.47E+00	9.99E+03	3.49E+02
M	5	84.57	1.05E+03	243.41	7.20E+00	1.33E+00	1.04E+03	2.43E+02
m	6	87.57	3.08E+03	260.39			3.08E+03	2.60E+02
m	7	93.27	2.66E+03	253.72	1.38E+02	1.72E+01	2.52E+03	2.54E+02
	8	99.47	3.84E+02	203.76			3.84E+02	2.04E+02
M	9	105.28	7.57E+02	202.64			7.57E+02	2.03E+02
m	10	108.29	2.15E+02	203.11			2.15E+02	2.03E+02
	11	115.09	2.52E+02	195.73			2.52E+02	1.96E+02
	12	129.13	9.51E+02	297.83			9.51E+02	2.98E+02
	13	144.17	2.37E+02	189.68	1.21E+01	4.29E+01	2.25E+02	1.94E+02
	14	153.89	4.45E+02	242.39			4.45E+02	2.42E+02
	15	185.88	1.30E+03	236.67	5.22E+01	7.59E+00	1.25E+03	2.37E+02
	16	199.53	1.64E+02	192.15			1.64E+02	1.92E+02
m	17	209.30	1.39E+03	178.96			1.39E+03	1.79E+02
M	18	238.61	1.68E+04	299.96	2.13E+01	6.33E+00	1.68E+04	3.00E+02
m	19	241.44	3.12E+03	344.30			3.12E+03	3.44E+02
M	20	270.28	1.32E+03	154.22	1.23E+00	4.98E+00	1.31E+03	1.54E+02
m	21	277.46	6.48E+02	145.96			6.48E+02	1.46E+02
M	22	295.29	2.33E+03	145.53			2.33E+03	1.46E+02
m	23	299.99	1.09E+03	142.04			1.09E+03	1.42E+02
	24	327.96	7.82E+02	152.10			7.82E+02	1.52E+02
	25	338.35	3.08E+03	194.59			3.08E+03	1.95E+02
	26	351.91	3.81E+03	204.00	5.79E+00	4.49E+00	3.81E+03	2.04E+02
	27	409.66	4.01E+02	139.15			4.01E+02	1.39E+02
	28	463.12	8.67E+02	133.99			8.67E+02	1.34E+02
	29	510.78	1.71E+03	163.21	7.28E+01	5.30E+00	1.63E+03	1.63E+02
	30	562.59	8.89E+01	98.23			8.89E+01	9.82E+01
	31	571.68	8.11E+01	83.79			8.11E+01	8.38E+01
M	32	580.23	9.43E+01	85.99			9.43E+01	8.60E+01
m	33	583.31	5.33E+03	162.58	2.72E+00	3.05E+00	5.33E+03	1.63E+02
m	34	587.95	2.24E+02	75.09			2.24E+02	7.51E+01
	35	609.29	2.71E+03	157.10	6.35E+00	4.02E+00	2.70E+03	1.57E+02
	36	662.31	9.75E+01	106.30			9.75E+01	1.06E+02
	37	727.49	1.12E+03	106.15			1.12E+03	1.06E+02
	38	755.30	1.27E+02	98.11			1.27E+02	9.81E+01
M	39	768.56	2.23E+02	69.02			2.23E+02	6.90E+01
m	40	772.59	2.04E+02	66.90			2.04E+02	6.69E+01
M	41	782.32	6.25E+01	47.67			6.25E+01	4.77E+01
m	42	786.05	1.88E+02	68.31			1.88E+02	6.83E+01
M	43	791.33	4.88E+01	26.44			4.88E+01	2.64E+01
m	44	795.14	6.51E+02	75.20			6.51E+02	7.52E+01
M	45	830.77	8.43E+01	44.45			8.43E+01	4.45E+01
m	46	835.90	2.46E+02	70.60			2.46E+02	7.06E+01
m	47	840.47	1.69E+02	69.34			1.69E+02	6.93E+01
	48	860.59	5.97E+02	92.90			5.97E+02	9.29E+01
	49	893.96	5.34E+01	55.55			5.34E+01	5.55E+01
M	50	904.21	1.14E+02	55.75			1.14E+02	5.58E+01
m	51	911.45	3.53E+03	127.54	5.31E+00	3.00E+00	3.52E+03	1.28E+02
m	52	915.87	1.57E+02	88.73			1.57E+02	8.87E+01
	53	934.11	1.40E+02	67.75			1.40E+02	6.78E+01
M	54	965.10	6.78E+02	75.31			6.78E+02	7.53E+01
m	55	969.20	2.06E+03	103.58			2.06E+03	1.04E+02
m	56	973.47	5.95E+01	66.90			5.95E+01	6.69E+01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	57	988.90	5.31E+01	51.65			5.31E+01	5.17E+01
	58	1002.19	9.18E+01	65.64	4.92E+00	2.75E+00	8.69E+01	6.57E+01
	59	1034.45	6.87E+01	60.20			6.87E+01	6.02E+01
	60	1066.39	7.41E+01	66.46			7.41E+01	6.65E+01
	61	1079.57	1.17E+02	62.04			1.17E+02	6.20E+01
	62	1093.95	4.97E+01	51.22			4.97E+01	5.12E+01
	63	1110.86	9.49E+01	56.10			9.49E+01	5.61E+01
	64	1120.49	6.95E+02	84.41			6.95E+02	8.44E+01
	65	1155.42	1.20E+02	65.97			1.20E+02	6.60E+01
	66	1238.13	2.61E+02	74.19			2.61E+02	7.42E+01
	67	1247.35	8.55E+01	56.32			8.55E+01	5.63E+01
M	68	1374.26	5.11E+01	46.43			5.11E+01	4.64E+01
m	69	1378.00	1.84E+02	49.40			1.84E+02	4.94E+01
	70	1385.94	6.30E+01	41.71			6.30E+01	4.17E+01
M	71	1401.76	3.50E+01	39.53			3.50E+01	3.95E+01
m	72	1408.19	1.30E+02	50.70			1.30E+02	5.07E+01
	73	1461.10	7.53E+02	80.92	8.09E+00	2.23E+00	7.45E+02	8.10E+01
	74	1496.20	8.51E+01	47.07			8.51E+01	4.71E+01
	75	1509.63	1.30E+02	87.10			1.30E+02	8.71E+01
	76	1559.14	3.80E+01	40.17			3.80E+01	4.02E+01
M	77	1578.55	2.48E+01	33.40			2.48E+01	3.34E+01
m	78	1581.05	6.09E+01	42.42			6.09E+01	4.24E+01
m	79	1588.43	3.03E+02	46.98			3.03E+02	4.70E+01
m	80	1592.98	2.40E+02	52.46			2.40E+02	5.25E+01
	81	1621.63	1.40E+02	59.15			1.40E+02	5.92E+01
	82	1631.00	1.38E+02	43.17			1.38E+02	4.32E+01
	83	1638.54	4.06E+01	35.83			4.06E+01	3.58E+01
	84	1661.01	5.30E+01	30.48			5.30E+01	3.05E+01
	85	1668.14	6.29E+01	34.59			6.29E+01	3.46E+01
	86	1680.57	5.96E+01	46.85			5.96E+01	4.69E+01
	87	1730.18	1.14E+02	41.75			1.14E+02	4.17E+01
	88	1764.98	5.27E+02	64.92			5.27E+02	6.49E+01
	89	1817.63	2.28E+01	22.93			2.28E+01	2.29E+01
	90	1848.14	5.74E+01	42.87			5.74E+01	4.29E+01
	91	1962.93	2.95E+01	23.70			2.95E+01	2.37E+01
	92	2103.93	3.39E+02	62.29			3.39E+02	6.23E+01
	93	2118.82	3.90E+01	42.50			3.90E+01	4.25E+01
	94	2203.79	1.68E+02	50.48			1.68E+02	5.05E+01
	95	2244.64	2.86E+01	34.93			2.86E+01	3.49E+01
	96	2330.60	4.46E+01	42.70			4.46E+01	4.27E+01
	97	2423.76	2.15E+01	27.20			2.15E+01	2.72E+01
	98	2448.58	7.10E+01	36.52			7.10E+01	3.65E+01
	99	2615.08	2.10E+03	96.49	5.63E+00	1.38E+00	2.09E+03	9.65E+01
	100	2688.75	1.44E+01	15.80			1.44E+01	1.58E+01
	101	2715.96	7.06E+00	6.71			7.06E+00	6.71E+00
	102	2721.27	4.92E+00	5.50			4.92E+00	5.50E+00
	103	2749.35	8.00E+00	10.10			8.00E+00	1.01E+01
	104	2870.32	5.00E+00	7.07			5.00E+00	7.07E+00
	105	2891.50	1.29E+01	13.37			1.29E+01	1.34E+01
	106	2986.16	6.07E+00	5.85			6.07E+00	5.85E+00
	107	3125.45	1.70E+01	8.25			1.70E+01	8.25E+00
	108	3198.14	4.37E+01	14.64			4.37E+01	1.46E+01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

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

NUCLIDE 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	0.986	1460.81	*	10.67	1.51E+01	2.10E+00
CD-109	0.966	88.03	*	3.72	3.79E+01	5.23E+00
SN-126	1.000	87.57	*	37.00	3.29E+00	4.10E-01
CS-137	0.933	661.65	*	85.12	1.38E-01	1.51E-01
TL-208	0.984	583.14	*	30.22	1.91E+01	2.05E+00
		860.37	*	4.48	1.95E+01	3.49E+00
		2614.66	*	35.85	1.91E+01	2.14E+00
PB-210	0.997	46.50	*	4.25	3.05E+00	1.85E+00
BI-212	0.751	727.17	*	11.80	1.22E+01	1.71E+00
		1620.62		2.75		
PB-212	1.000	238.63	*	44.60	2.15E+01	1.79E+00
		300.09	*	3.41	2.12E+01	3.29E+00
BI-214	0.990	609.31	*	46.30	6.56E+00	7.83E-01
		1120.29	*	15.10	8.20E+00	1.21E+00
		1764.49	*	15.80	8.25E+00	1.22E+00
		2204.22	*	4.98	9.75E+00	3.06E+00
PB-214	1.000	295.21	*	19.19	7.98E+00	8.32E-01
		351.92	*	37.19	7.61E+00	7.66E-01
RA-224	0.967	240.98	*	3.95	4.56E+01	6.25E+00
RA-226	0.982	186.21	*	3.28	1.89E+01	3.48E+01
AC-228	0.988	338.32	*	11.40	1.95E+01	2.07E+00
		911.07	*	27.70	1.94E+01	1.77E+00
		969.11	*	16.60	1.98E+01	1.94E+00
TH-234	1.000	63.29	*	3.80	7.03E+00	3.13E+00
AM-243	1.000	74.67	*	66.00	3.60E+00	3.66E-01
CM-243	0.370	209.75	*	3.29	2.26E+01	3.41E+00
		228.14		10.60		
		277.60	*	14.00	2.94E+00	7.05E-01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

* = 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 : 8/21/2017 3:24:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.12	2.77517E+00	1.75		
M	5	84.57	2.89957E-01	11.66	Tol.	TH-231
m	7	93.27	7.00843E-01	5.04	Sum	
	8	99.47	1.06536E-01	26.56	D-Esc	
M	9	105.28	2.10182E-01	13.39	Tol.	EU-155 NP-239
m	10	108.29	5.98129E-02	47.16		
	11	115.09	6.99931E-02	38.84		
	12	129.13	2.64204E-01	15.66		
	13	144.17	6.23867E-02	43.29	Tol.	U-235
	14	153.89	1.23680E-01	27.22		
	16	199.53	4.54253E-02	58.75		
M	20	270.28	3.65117E-01	5.87		
	24	327.96	2.17344E-01	9.72	Tol.	LA-140
	27	409.66	1.11335E-01	17.36		
	28	463.12	2.40731E-01	7.73	Sum	
	29	510.78	4.53683E-01	5.00		
	30	562.59	2.46848E-02	55.27	Tol.	CS-134
	31	571.68	2.25188E-02	51.68		
M	32	580.23	2.61921E-02	45.60	Sum	
m	34	587.95	6.22128E-02	16.76		
	38	755.30	3.53881E-02	38.51		
M	39	768.56	6.18967E-02	15.49	Sum	
m	40	772.59	5.67083E-02	16.39		
M	41	782.32	1.73613E-02	38.13		
m	42	786.05	5.23121E-02	18.14		
M	43	791.33	1.35688E-02	27.06	Sum	
m	44	795.14	1.80904E-01	5.77	Sum	
M	45	830.77	2.34265E-02	26.35		
m	46	835.90	6.84211E-02	14.33		
m	47	840.47	4.69552E-02	20.51		
	49	893.96	1.48228E-02	52.05		
M	50	904.21	3.16015E-02	24.50	Sum	
m	52	915.87	4.36395E-02	28.24		

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	53	934.11	3.88883E-02	24.20		
M	54	965.10	1.88420E-01	5.55	Sum	
m	56	973.47	1.65201E-02	56.25		
	57	988.90	1.47469E-02	48.65		
	58	1002.19	2.41464E-02	37.79		
	59	1034.45	1.90822E-02	43.82		
	60	1066.39	2.05907E-02	44.83	Sum	
	61	1079.57	3.23997E-02	26.60	Sum	
	62	1093.95	1.38150E-02	51.50	Tol.	LU-172
	63	1110.86	2.63639E-02	29.56		
	65	1155.42	3.34041E-02	27.43	Sum	
	66	1238.13	7.24124E-02	14.23	Tol.	CO-56
	67	1247.35	2.37445E-02	32.94	Sum	
M	68	1374.26	1.41986E-02	45.42		
m	69	1378.00	5.10707E-02	13.43		
	70	1385.94	1.75000E-02	33.11		
M	71	1401.76	9.72236E-03	56.46		
m	72	1408.19	3.61898E-02	19.46	Tol.	EU-152
	74	1496.20	2.36377E-02	27.66		
	75	1509.63	3.61176E-02	33.49		
	76	1559.14	1.05674E-02	52.80		
M	77	1578.55	6.90180E-03	67.21	Sum	
m	78	1581.05	1.69286E-02	34.80		
m	79	1588.43	8.42494E-02	7.75	Sum	
m	80	1592.98	6.66142E-02	10.94	D-Esc	
	81	1621.63	3.89563E-02	21.09		
	82	1631.00	3.83508E-02	15.64	Sum	
	83	1638.54	1.12845E-02	44.10	Sum	
	84	1661.01	1.47222E-02	28.76		
	85	1668.14	1.74621E-02	27.51		
	86	1680.57	1.65524E-02	39.31		
	87	1730.18	3.16667E-02	18.31	Sum	
	89	1817.63	6.33880E-03	50.24		
	90	1848.14	1.59383E-02	37.36	Sum	
	91	1962.93	8.18651E-03	40.21		
	92	2103.93	9.42280E-02	9.18	S-Esc	
	93	2118.82	1.08333E-02	54.48		
	95	2244.64	7.94077E-03	61.09		
	96	2330.60	1.23997E-02	47.82		
	97	2423.76	5.98485E-03	63.13		
	98	2448.58	1.97222E-02	25.72		
	100	2688.75	4.01235E-03	54.70		
	101	2715.96	1.95988E-03	47.54		
	102	2721.27	1.36574E-03	55.93		
	103	2749.35	2.22222E-03	63.12		
	104	2870.32	1.38889E-03	70.71		
	105	2891.50	3.59217E-03	51.69		
	106	2986.16	1.68651E-03	48.20		
	107	3125.45	4.72222E-03	24.25		
	108	3198.14	1.21316E-02	16.76	Sum	

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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
K-40	0.98	1460.81	*	10.67	1.51E+01	2.10E+00
CD-109	0.96	88.03	*	3.72	3.79E+01	5.23E+00
SN-126	1.00	87.57	*	37.00	3.29E+00	4.10E-01
CS-137	0.93	661.65	*	85.12	1.38E-01	1.51E-01
TL-208	0.98	583.14	*	30.22	1.91E+01	2.05E+00
		860.37	*	4.48	1.95E+01	3.49E+00
		2614.66	*	35.85	1.91E+01	2.14E+00
PB-210	0.99	46.50	*	4.25	3.05E+00	1.85E+00
BI-212	0.75	727.17	*	11.80	1.22E+01	1.71E+00
		1620.62		2.75		
PB-212	1.00	238.63	*	44.60	2.15E+01	1.79E+00
		300.09	*	3.41	2.12E+01	3.29E+00
BI-214	0.99	609.31	*	46.30	6.56E+00	7.83E-01
		1120.29	*	15.10	8.20E+00	1.21E+00
		1764.49	*	15.80	8.25E+00	1.22E+00
		2204.22	*	4.98	9.75E+00	3.06E+00
PB-214	1.00	295.21	*	19.19	7.98E+00	8.32E-01
		351.92	*	37.19	7.61E+00	7.66E-01
RA-224	0.96	240.98	*	3.95	4.56E+01	6.25E+00
RA-226	0.98	186.21	*	3.28	1.89E+01	3.48E+01
AC-228	0.98	338.32	*	11.40	1.95E+01	2.07E+00
		911.07	*	27.70	1.94E+01	1.77E+00
		969.11	*	16.60	1.98E+01	1.94E+00
TH-234	1.00	63.29	*	3.80	7.03E+00	3.13E+00
AM-243	1.00	74.67	*	66.00	3.60E+00	3.66E-01
CM-243	0.37	209.75	*	3.29	2.26E+01	3.41E+00
		228.14		10.60		
		277.60	*	14.00	2.94E+00	7.05E-01

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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	0.986	1.51E+01	2.10E+00	
?	CD-109	0.966	3.79E+01	5.23E+00	
?	SN-126	1.000	3.29E+00	4.10E-01	
	CS-137	0.933	1.38E-01	1.51E-01	
	TL-208	0.984	1.92E+01	1.36E+00	
	PB-210	0.997	3.05E+00	1.85E+00	
	BI-212	0.751	1.22E+01	1.71E+00	
	PB-212	1.000	2.15E+01	1.57E+00	
	BI-214	0.990	7.40E+00	5.69E-01	
	PB-214	1.000	7.78E+00	5.63E-01	
	RA-224	0.967	4.56E+01	6.25E+00	
	RA-226	0.982	1.89E+01	3.48E+01	
	AC-228	0.988	1.96E+01	1.10E+00	
	TH-234	1.000	7.03E+00	3.13E+00	
	AM-243	1.000	3.60E+00	3.66E-01	
	CM-243	0.370	3.75E+00	6.91E-01	

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

Errors quoted at 2.000sigma

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 3:24:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.12	2.77517E+00	1.75		
M	5	84.57	2.89957E-01	11.66	Tol.	TH-231
m	7	93.27	7.00843E-01	5.04	Sum	
	8	99.47	1.06536E-01	26.56	D-Esc	
M	9	105.28	2.10182E-01	13.39	Tol.	EU-155 NP-239
m	10	108.29	5.98129E-02	47.16		
	11	115.09	6.99931E-02	38.84		
	12	129.13	2.64204E-01	15.66		
	13	144.17	6.23867E-02	43.29	Tol.	U-235
	14	153.89	1.23680E-01	27.22		
	16	199.53	4.54253E-02	58.75		
M	20	270.28	3.65117E-01	5.87		
	24	327.96	2.17344E-01	9.72	Tol.	LA-140
	27	409.66	1.11335E-01	17.36		
	28	463.12	2.40731E-01	7.73	Sum	
	29	510.78	4.53683E-01	5.00		
	30	562.59	2.46848E-02	55.27	Tol.	CS-134
	31	571.68	2.25188E-02	51.68		
M	32	580.23	2.61921E-02	45.60	Sum	
m	34	587.95	6.22128E-02	16.76		
	38	755.30	3.53881E-02	38.51		
M	39	768.56	6.18967E-02	15.49	Sum	
m	40	772.59	5.67083E-02	16.39		
M	41	782.32	1.73613E-02	38.13		
m	42	786.05	5.23121E-02	18.14		
M	43	791.33	1.35688E-02	27.06	Sum	
m	44	795.14	1.80904E-01	5.77	Sum	
M	45	830.77	2.34265E-02	26.35		
m	46	835.90	6.84211E-02	14.33		
m	47	840.47	4.69552E-02	20.51		
	49	893.96	1.48228E-02	52.05		
M	50	904.21	3.16015E-02	24.50	Sum	
m	52	915.87	4.36395E-02	28.24		
	53	934.11	3.88883E-02	24.20		

Analysis Report for 1707086-05

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	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	54	965.10	1.88420E-01	5.55	Sum	
m	56	973.47	1.65201E-02	56.25		
	57	988.90	1.47469E-02	48.65		
	58	1002.19	2.41464E-02	37.79		
	59	1034.45	1.90822E-02	43.82		
	60	1066.39	2.05907E-02	44.83	Sum	
	61	1079.57	3.23997E-02	26.60	Sum	
	62	1093.95	1.38150E-02	51.50	Tol.	LU-172
	63	1110.86	2.63639E-02	29.56		
	65	1155.42	3.34041E-02	27.43	Sum	
	66	1238.13	7.24124E-02	14.23	Tol.	CO-56
	67	1247.35	2.37445E-02	32.94	Sum	
M	68	1374.26	1.41986E-02	45.42		
m	69	1378.00	5.10707E-02	13.43		
	70	1385.94	1.75000E-02	33.11		
M	71	1401.76	9.72236E-03	56.46		
m	72	1408.19	3.61898E-02	19.46	Tol.	EU-152
	74	1496.20	2.36377E-02	27.66		
	75	1509.63	3.61176E-02	33.49		
	76	1559.14	1.05674E-02	52.80		
M	77	1578.55	6.90180E-03	67.21	Sum	
m	78	1581.05	1.69286E-02	34.80		
m	79	1588.43	8.42494E-02	7.75	Sum	
m	80	1592.98	6.66142E-02	10.94	D-Esc	
	81	1621.63	3.89563E-02	21.09		
	82	1631.00	3.83508E-02	15.64	Sum	
	83	1638.54	1.12845E-02	44.10	Sum	
	84	1661.01	1.47222E-02	28.76		
	85	1668.14	1.74621E-02	27.51		
	86	1680.57	1.65524E-02	39.31		
	87	1730.18	3.16667E-02	18.31	Sum	
	89	1817.63	6.33880E-03	50.24		
	90	1848.14	1.59383E-02	37.36	Sum	
	91	1962.93	8.18651E-03	40.21		
	92	2103.93	9.42280E-02	9.18	S-Esc	
	93	2118.82	1.08333E-02	54.48		
	95	2244.64	7.94077E-03	61.09		
	96	2330.60	1.23997E-02	47.82		
	97	2423.76	5.98485E-03	63.13		
	98	2448.58	1.97222E-02	25.72		
	100	2688.75	4.01235E-03	54.70		
	101	2715.96	1.95988E-03	47.54		
	102	2721.27	1.36574E-03	55.93		
	103	2749.35	2.22222E-03	63.12		
	104	2870.32	1.38889E-03	70.71		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
105	2891.50	3.59217E-03	51.69		
106	2986.16	1.68651E-03	48.20		
107	3125.45	4.72222E-03	24.25		
108	3198.14	1.21316E-02	16.76	Sum	

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	9.73E-01	4.78E+00	4.78E+00
+	NA-22	1274.54		99.94	-8.06E-03	1.35E-01	1.35E-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	1.68E-02	1.08E-01	1.08E-01
+	K-40	1460.81	*	10.67	1.51E+01	2.05E+00	2.05E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.28E-03	1.68E-01	1.68E-01
		78.34		96.00	2.40E+00		2.43E-01
+	SC-46	889.25		99.98	8.36E-02	2.83E-01	2.83E-01
		1120.51		99.99	2.70E+00		5.63E-01
+	V-48	983.52		99.98	1.53E+00	7.78E+00	7.78E+00
		1312.10		97.50	1.79E+00		8.81E+00
+	CR-51	320.08		9.83	6.08E+00	1.66E+01	1.66E+01
+	MN-54	834.83		99.97	-8.04E-02	2.09E-01	2.09E-01
+	CO-56	846.75		99.96	2.56E-02	2.95E-01	2.95E-01
		1037.75		14.03	3.08E-02		1.94E+00
		1238.25		67.00	1.50E+00		6.62E-01
		1771.40		15.51	3.96E-01		1.75E+00
		2598.48		16.90	7.32E-01		1.36E+00
+	CO-57	122.06		85.51	-3.29E-02	1.90E-01	1.90E-01
		136.48		10.60	-1.11E+00		1.56E+00
+	CO-58	810.76		99.40	-1.82E-01	3.42E-01	3.42E-01
+	FE-59	1099.22		56.50	1.36E-01	9.55E-01	9.55E-01
		1291.56		43.20	2.20E-01		1.36E+00

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-60	1173.22		100.00	3.61E-02	1.27E-01	1.27E-01
		1332.49		100.00	-2.45E-02		1.29E-01
+	ZN-65	1115.52		50.75	-3.96E+00	3.20E-01	3.20E-01
+	GA-67	93.31		35.70	2.57E+09	5.60E+08	5.60E+08
		208.95		2.24	3.45E+10		8.54E+09
		300.22		16.00	-4.49E+09		1.22E+09
+	SE-75	121.11		16.70	-1.44E+00	3.83E-01	1.32E+00
		136.00		59.20	-2.73E-01		3.83E-01
		264.65		59.80	-1.36E-01		4.05E-01
		279.53		25.20	5.32E-02		1.10E+00
		400.65		11.40	9.11E-01		2.25E+00
+	RB-82	776.52		13.00	2.63E+00	1.70E+01	1.70E+01
+	RB-83	520.41		46.00	6.81E-02	6.72E-01	6.72E-01
		529.64		30.30	-5.38E-02		1.01E+00
		552.65		16.40	3.85E-01		1.95E+00
+	KR-85	513.99		0.43	4.32E+00	5.13E+01	5.13E+01
+	SR-85	513.99		99.27	5.31E-02	6.31E-01	6.31E-01
+	Y-88	898.02		93.40	-2.98E-01	2.25E-01	2.46E-01
		1836.01		99.38	1.22E-01		2.25E-01
+	MO-93	263.06		56.72	4.01E-02	1.05E-01	2.48E-01
		684.67		99.68	9.92E-02		1.55E-01
		1477.11		99.08	-3.79E-02		1.05E-01
+	NB-93M	16.57		9.43	-5.31E-01	1.19E+00	1.19E+00
+	NB-94	702.63		100.00	-1.04E-02	1.25E-01	1.60E-01
		871.10		100.00	8.26E-03		1.25E-01
+	NB-95	765.79		99.81	4.02E-01	1.31E+00	1.31E+00
+	NB-95M	235.69		25.00	-3.64E+09	1.25E+08	1.25E+08
+	ZR-95	724.18		43.70	-9.82E-02	8.65E-01	1.42E+00
		756.72		55.30	8.09E-01		8.65E-01
+	MO-99	181.06		6.20	-5.85E+09	6.39E+10	1.22E+11
		739.58		12.80	9.47E+09		6.39E+10
		778.00		4.50	2.98E+10		1.76E+11
+	RU-103	497.08		89.00	-3.22E-03	8.38E-01	8.38E-01
+	RU-106	621.84		9.80	-8.94E-02	1.73E+00	1.73E+00
+	AG-108M	433.93		89.90	1.25E-01	1.55E-01	1.55E-01
		614.37		90.40	-1.10E-01		1.90E-01
		722.95		90.50	1.81E-02		1.86E-01
+	CD-109	88.03	*	3.72	3.79E+01	1.04E+01	1.04E+01
+	AG-110M	657.75		93.14	-4.08E-03	2.15E-01	2.15E-01
		677.61		10.53	6.04E-01		1.90E+00
		706.67		16.46	4.52E-01		1.27E+00
		763.93		21.98	2.14E-01		9.83E-01
		884.67		71.63	-5.58E-02		2.30E-01
		1384.27		23.94	-5.34E-02		7.08E-01
+	CD-113M	263.70		0.02	-2.56E+02	6.04E+02	6.04E+02
+	SN-113	255.12		1.93	-1.13E+01	4.03E-01	1.07E+01
		391.69		64.90	1.73E-01		4.03E-01
+	TE123M	159.00		84.10	-1.27E-01	2.71E-01	2.71E-01

Analysis Report for 1707086-05

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-124	602.71		97.87	-1.64E-01	4.64E-01	4.64E-01
		645.85		7.26	-8.89E-01		6.16E+00
		722.78		11.10	4.58E-01		4.70E+00
		1691.02		49.00	4.14E-01		7.50E-01
+	I-125	35.49		6.49	3.11E-01	5.94E+00	5.94E+00
+	SB-125	176.33		6.89	-5.78E-01	4.96E-01	2.01E+00
		427.89		29.33	5.19E-02		4.96E-01
		463.38		10.35	8.11E+00		1.94E+00
		600.56		17.80	-5.86E-01		8.44E-01
		635.90		11.32	-4.11E-01		1.33E+00
+	SB-126	414.70		83.30	-4.97E+00	3.83E+01	4.13E+01
		666.33		99.60	-4.56E+00		3.94E+01
		695.00		99.60	2.59E+00		3.83E+01
		720.50		53.80	7.97E+00		6.99E+01
+	SN-126	87.57	*	37.00	3.29E+00	9.05E-01	9.05E-01
+	SB-127	473.00		25.00	1.84E+06	2.04E+07	2.65E+07
		685.20		35.70	1.31E+07		2.04E+07
		783.80		14.70	1.08E+08		5.51E+07
+	I-129	29.78		57.00	-1.47E-01	2.39E-01	2.39E-01
		33.60		13.20	-2.22E-01		9.69E-01
		39.58		7.52	3.07E-03		1.60E+00
+	I-131	284.30		6.05	-1.50E+02	7.91E+02	1.11E+04
		364.48		81.20	1.98E+02		7.91E+02
		636.97		7.26	-3.90E+03		9.30E+03
		722.89		1.80	4.34E+03		4.46E+04
+	TE-132	49.72		13.10	-2.78E+08	1.77E+08	1.13E+09
		228.16		88.00	-7.27E+07		1.77E+08
+	BA-133	81.00		33.00	-7.86E+00	3.21E-01	4.69E-01
		302.84		17.80	2.96E+00		9.40E-01
		356.01		60.00	7.37E-02		3.21E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.93E+06	1.75E+05	1.75E+05
+	CS-134	563.23		8.38	8.41E-01	1.91E-01	2.00E+00
		569.32		15.43	1.00E-01		1.08E+00
		604.70		97.60	-5.39E-02		1.91E-01
		795.84		85.40	1.08E+00		2.67E-01
		801.93		8.73	-1.28E+00		1.67E+00
+	CS-135	268.24		16.00	4.38E+00	1.07E+00	1.07E+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	4.47E+02	2.36E+01	3.23E+02
		163.89		4.61	3.53E+01		5.00E+02
		176.55		13.56	-4.85E+01		1.69E+02
		273.65		12.66	-4.62E+02		2.32E+02
		340.57		48.50	2.92E+01		8.71E+01
		818.50		99.70	1.72E+01		2.36E+01
		1048.07		79.60	-8.38E+00		2.51E+01
		1235.34		19.70	1.89E+02		1.55E+02

Analysis Report for 1707086-05

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		CS-137	661.65	*	85.12	1.38E-01	2.47E-01	2.47E-01
+		LA-138	788.74		34.00	-1.17E+00	1.82E-01	4.44E-01
			1435.80		66.00	7.09E-02		1.82E-01
+		CE-139	165.85		80.35	1.48E-01	2.66E-01	2.66E-01
+		BA-140	162.64		6.70	1.20E+02	1.16E+02	4.00E+02
			304.84		4.50	-3.21E+03		6.28E+02
			423.70		3.20	-1.47E+02		8.77E+02
			437.55		2.00	3.60E+02		1.41E+03
			537.32		25.00	2.67E+00		1.16E+02
+		LA-140	328.77		20.50	4.75E+02	3.32E+01	1.71E+02
			487.03		45.50	4.86E+00		6.10E+01
			815.85		23.50	-1.10E+02		1.10E+02
			1596.49		95.49	-1.38E+01		3.32E+01
+		CE-141	145.44		48.40	1.80E+00	2.25E+00	2.25E+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	-9.84E-02	1.55E+00	1.55E+00
+		PM-144	476.78		42.00	3.59E-02	1.77E-01	3.99E-01
			618.01		98.60	-9.48E-02		1.77E-01
			696.49		99.49	3.74E-02		1.93E-01
+		PM-145	36.85		21.70	-5.26E-01	3.10E-01	5.64E-01
			37.36		39.70	-2.54E-01		3.10E-01
			42.30		15.10	-4.38E-02		7.85E-01
			72.40		2.31	-3.83E+01		8.65E+00
+		PM-146	453.90		39.94	-8.15E-03	3.66E-01	3.66E-01
			735.90		14.01	2.52E-01		1.09E+00
			747.13		13.10	-2.55E-01		1.12E+00
+		ND-147	91.11		28.90	1.17E+03	3.17E+02	3.17E+02
			531.02		13.10	3.56E+01		5.28E+02
+		PM-149	285.90		3.10	8.55E+13	1.08E+14	1.08E+14
+		EU-152	121.78		20.50	-6.72E-01	6.18E-01	6.18E-01
			244.69		5.40	-6.10E+00		2.75E+00
			344.27		19.13	1.56E-01		7.54E-01
			778.89		9.20	2.63E-01		1.60E+00
			964.01		10.40	-2.77E+01		2.35E+00
			1085.78		7.22	1.16E-01		1.65E+00
			1112.02		9.60	2.62E-01		1.37E+00
			1407.95		14.94	1.38E+00		1.07E+00
+		GD-153	97.43		31.30	-3.01E+00	5.57E-01	5.57E-01
			103.18		22.20	-8.06E-02		7.87E-01
+		EU-154	123.07		40.50	6.06E-02	3.27E-01	3.27E-01
			723.30		19.70	8.51E-02		8.74E-01
			873.19		11.50	5.39E-01		1.13E+00
			996.32		10.30	1.47E-01		1.13E+00
			1004.76		17.90	9.82E-02		7.22E-01
			1274.45		35.50	-2.16E-02		3.61E-01
+		EU-155	86.50		30.90	1.67E+00	6.18E-01	6.18E-01
			105.30		20.70	1.04E+00		6.74E-01

Analysis Report for 1707086-05

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-156	811.77		10.40	-2.11E+01	1.11E+02	1.11E+02
		1153.47		7.20	2.11E+02		1.79E+02
		1230.71		8.90	6.32E+01		1.27E+02
+	HO-166M	184.41		72.60	8.55E-01	2.17E-01	2.17E-01
		280.45		29.60	8.76E-02		5.13E-01
		410.94		11.10	3.01E+00		1.46E+00
		711.69		54.10	-9.80E-02		2.80E-01
+	TM-171	66.72		0.14	4.93E+01	1.25E+02	1.25E+02
+	HF-172	67.35		5.31	-6.43E-02	1.29E+00	3.29E+00
		125.81		11.30	-7.84E-02		1.29E+00
+	LU-172	181.53		20.60	-8.11E+02	5.28E+03	1.70E+04
		900.72		29.81	-1.76E+04		1.08E+04
		1093.66		62.50	3.63E+03		5.28E+03
+	LU-173	100.72		5.24	4.89E+00	9.33E-01	2.85E+00
		272.11		21.20	1.79E-01		9.33E-01
+	HF-175	343.40		84.00	9.28E-02	4.56E-01	4.56E-01
+	LU-176	88.34		13.30	6.77E+00	1.44E-01	1.44E+00
		201.83		86.00	-5.17E-02		1.60E-01
		306.78		94.00	-4.67E-02		1.44E-01
+	HF-181	133.02		41.70	-9.99E-02	8.23E-01	1.57E+00
		345.85		17.20	8.58E-01		4.13E+00
		482.03		82.80	1.38E-01		8.23E-01
+	TA-182	67.75		41.20	-1.36E-02	6.96E-01	6.96E-01
		1121.30		34.90	6.09E+00		1.30E+00
		1189.05		16.23	4.17E-02		1.37E+00
		1221.41		26.98	2.10E-01		8.54E-01
		1231.02		11.44	1.01E+00		2.03E+00
+	IR-192	308.46		29.68	-2.00E-01	7.27E-01	1.14E+00
		468.07		48.10	1.08E-01		7.27E-01
+	HG-203	279.19		77.30	4.23E-02	8.75E-01	8.75E-01
+	TL-204	374.74		94.11	4.41E-02	1.28E-01	1.57E-01
		899.15		99.16	-2.64E-01		1.28E-01
		911.74		91.10	5.97E+00		5.12E-01
+	BI-207	569.67		97.72	1.46E-02	1.57E-01	1.57E-01
		1063.62		74.90	-4.66E-02		1.65E-01
+	TL-208	583.14	*	30.22	1.91E+01	4.88E-01	9.16E-01
		860.37	*	4.48	1.95E+01		4.33E+00
		2614.66	*	35.85	1.91E+01		4.88E-01
+	BI-210M	262.00		45.00	3.83E-02	3.08E-01	3.08E-01
		300.00		23.00	-5.42E+00		7.43E-01
+	PB-210	46.50	*	4.25	3.05E+00	2.98E+00	2.98E+00
+	PB-211	404.84		2.90	8.52E-01	4.93E+00	4.93E+00
		831.96		2.90	-3.75E+00		5.47E+00
+	BI-212	727.17	*	11.80	1.22E+01	1.51E+00	1.51E+00
		1620.62		2.75	7.86E+00		6.01E+00
+	PB-212	238.63	*	44.60	2.15E+01	8.19E-01	8.19E-01
		300.09	*	3.41	2.12E+01		9.67E+00
+	BI-214	609.31	*	46.30	6.56E+00	5.62E-01	5.62E-01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	1120.29	*	15.10	8.20E+00	5.62E-01	1.31E+00
		1764.49	*	15.80	8.25E+00		1.22E+00
		2204.22	*	4.98	9.75E+00		4.30E+00
+	PB-214	295.21	*	19.19	7.98E+00	5.40E-01	1.69E+00
		351.92	*	37.19	7.61E+00		5.40E-01
+	RN-219	401.80		6.50	1.09E+00	2.24E+00	2.24E+00
+	RA-223	323.87		3.88	1.01E-01	3.68E+00	3.68E+00
+	RA-224	240.98	*	3.95	4.56E+01	9.43E+00	9.43E+00
+	RA-225	40.00		31.00	1.06E+01	3.87E+01	3.87E+01
+	RA-226	186.21	*	3.28	1.89E+01	5.68E+00	5.68E+00
+	TH-227	50.10		8.40	-4.02E-01	1.50E+00	1.50E+00
		236.00		11.50	-5.09E+01		1.75E+00
		256.20		6.30	-7.07E-01		2.18E+00
+	AC-228	338.32	*	11.40	1.95E+01	1.18E+00	1.69E+00
		911.07	*	27.70	1.94E+01		1.18E+00
		969.11	*	16.60	1.98E+01		1.87E+00
+	TH-230	48.44		16.90	-9.50E-02	7.46E-01	7.46E-01
		62.85		4.60	8.41E+00		3.53E+00
		67.67		0.37	-8.35E-01		4.27E+01
+	PA-231	283.67		1.60	-5.37E+00	7.14E+00	8.67E+00
		302.67		2.30	2.25E+01		7.14E+00
+	TH-231	25.64		14.70	-2.91E+00	1.09E+00	1.09E+00
		84.21		6.40	-7.78E+00		2.59E+00
+	PA-233	311.98		38.60	-1.97E+00	4.31E+00	4.31E+00
+	PA-234	131.20		20.40	8.99E-01	6.93E-01	6.93E-01
		733.99		8.80	-1.47E+00		1.69E+00
		946.00		12.00	-3.10E-01		9.96E-01
+	PA-234M	1001.03		0.92	9.88E+00	1.43E+01	1.43E+01
+	TH-234	63.29	*	3.80	7.03E+00	5.00E+00	5.00E+00
+	U-235	143.76		10.50	9.20E-01	1.28E+00	1.28E+00
		163.35		4.70	1.95E-01		2.77E+00
		205.31		4.70	-1.86E+01		2.95E+00
+	NP-237	86.50		12.60	3.95E+00	1.46E+00	1.46E+00
+	NP-239	106.10		22.70	5.19E+12	2.16E+12	2.16E+12
		228.18		10.70	-1.81E+12		4.42E+12
		277.60		14.10	8.71E+12		4.04E+12
+	AM-241	59.54		35.90	-2.05E-01	4.08E-01	4.08E-01
+	AM-243	74.67	*	66.00	3.60E+00	4.70E-01	4.70E-01
+	CM-243	209.75	*	3.29	2.26E+01	1.24E+00	6.58E+00
		228.14		10.60	-5.10E-01		1.24E+00
		277.60	*	14.00	2.94E+00		2.21E+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 1707086-05

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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	4.78E+00	4.78E+00	9.73E-01	2.34E+00
	NA-22	1274.54		99.94	1.35E-01	1.35E-01	-8.06E-03	6.46E-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	1.08E-01	1.08E-01	1.68E-02	5.08E-02
+	K-40	1460.81	*	10.67	2.05E+00	2.05E+00	1.51E+01	9.95E-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	1.68E-01	1.68E-01	-3.28E-03	8.34E-02
		78.34		96.00	2.43E-01		2.40E+00	1.21E-01
	SC-46	889.25		99.98	2.83E-01	2.83E-01	8.36E-02	1.37E-01
		1120.51		99.99	5.63E-01		2.70E+00	2.76E-01
	V-48	983.52		99.98	7.78E+00	7.78E+00	1.53E+00	3.73E+00
		1312.10		97.50	8.81E+00		1.79E+00	4.21E+00
	CR-51	320.08		9.83	1.66E+01	1.66E+01	6.08E+00	8.19E+00
	MN-54	834.83		99.97	2.09E-01	2.09E-01	-8.04E-02	1.02E-01
	CO-56	846.75		99.96	2.95E-01	2.95E-01	2.56E-02	1.43E-01
		1037.75		14.03	1.94E+00		3.08E-02	9.32E-01
		1238.25		67.00	6.62E-01		1.50E+00	3.22E-01
		1771.40		15.51	1.75E+00		3.96E-01	8.23E-01
		2598.48		16.90	1.36E+00		7.32E-01	6.21E-01
	CO-57	122.06		85.51	1.90E-01	1.90E-01	-3.29E-02	9.43E-02
		136.48		10.60	1.56E+00		-1.11E+00	7.73E-01
	CO-58	810.76		99.40	3.42E-01	3.42E-01	-1.82E-01	1.66E-01
	FE-59	1099.22		56.50	9.55E-01	9.55E-01	1.36E-01	4.58E-01
		1291.56		43.20	1.36E+00		2.20E-01	6.51E-01
	CO-60	1173.22		100.00	1.27E-01	1.27E-01	3.61E-02	6.09E-02
		1332.49		100.00	1.29E-01		-2.45E-02	6.18E-02
	ZN-65	1115.52		50.75	3.20E-01	3.20E-01	-3.96E+00	1.54E-01
	GA-67	93.31		35.70	5.60E+08	5.60E+08	2.57E+09	2.78E+08
		208.95		2.24	8.54E+09		3.45E+10	4.23E+09
		300.22		16.00	1.22E+09		-4.49E+09	6.04E+08
	SE-75	121.11		16.70	1.32E+00	3.83E-01	-1.44E+00	6.54E-01
		136.00		59.20	3.83E-01		-2.73E-01	1.90E-01
		264.65		59.80	4.05E-01		-1.36E-01	2.00E-01
		279.53		25.20	1.10E+00		5.32E-02	5.44E-01
		400.65		11.40	2.25E+00		9.11E-01	1.11E+00

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-82	776.52		13.00	1.70E+01	1.70E+01	2.63E+00	8.30E+00
	RB-83	520.41		46.00	6.72E-01	6.72E-01	6.81E-02	3.30E-01
		529.64		30.30	1.01E+00		-5.38E-02	4.95E-01
		552.65		16.40	1.95E+00		3.85E-01	9.55E-01
	KR-85	513.99		0.43	5.13E+01	5.13E+01	4.32E+00	2.54E+01
	SR-85	513.99		99.27	6.31E-01	6.31E-01	5.31E-02	3.11E-01
	Y-88	898.02		93.40	2.46E-01	2.25E-01	-2.98E-01	1.19E-01
		1836.01		99.38	2.25E-01		1.22E-01	1.06E-01
	MO-93	263.06		56.72	2.48E-01	1.05E-01	4.01E-02	1.23E-01
		684.67		99.68	1.55E-01		9.92E-02	7.57E-02
		1477.11		99.08	1.05E-01		-3.79E-02	4.96E-02
	NB-93M	16.57		9.43	1.19E+00	1.19E+00	-5.31E-01	5.80E-01
	NB-94	702.63		100.00	1.60E-01	1.25E-01	-1.04E-02	7.83E-02
		871.10		100.00	1.25E-01		8.26E-03	6.05E-02
	NB-95	765.79		99.81	1.31E+00	1.31E+00	4.02E-01	6.43E-01
	NB-95M	235.69		25.00	1.25E+08	1.25E+08	-3.64E+09	6.21E+07
	ZR-95	724.18		43.70	1.42E+00	8.65E-01	-9.82E-02	6.98E-01
		756.72		55.30	8.65E-01		8.09E-01	4.23E-01
	MO-99	181.06		6.20	1.22E+11	6.39E+10	-5.85E+09	6.06E+10
		739.58		12.80	6.39E+10		9.47E+09	3.12E+10
		778.00		4.50	1.76E+11		2.98E+10	8.55E+10
	RU-103	497.08		89.00	8.38E-01	8.38E-01	-3.22E-03	4.11E-01
	RU-106	621.84		9.80	1.73E+00	1.73E+00	-8.94E-02	8.45E-01
	AG-108M	433.93		89.90	1.55E-01	1.55E-01	1.25E-01	7.60E-02
		614.37		90.40	1.90E-01		-1.10E-01	9.35E-02
		722.95		90.50	1.86E-01		1.81E-02	9.13E-02
+	CD-109	88.03	*	3.72	1.04E+01	1.04E+01	3.79E+01	5.19E+00
	AG-110M	657.75		93.14	2.15E-01	2.15E-01	-4.08E-03	1.05E-01
		677.61		10.53	1.90E+00		6.04E-01	9.30E-01
		706.67		16.46	1.27E+00		4.52E-01	6.21E-01
		763.93		21.98	9.83E-01		2.14E-01	4.81E-01
		884.67		71.63	2.30E-01		-5.58E-02	1.11E-01
		1384.27		23.94	7.08E-01		-5.34E-02	3.39E-01
	CD-113M	263.70		0.02	6.04E+02	6.04E+02	-2.56E+02	2.98E+02
	SN-113	255.12		1.93	1.07E+01	4.03E-01	-1.13E+01	5.27E+00
		391.69		64.90	4.03E-01		1.73E-01	1.99E-01
	TE123M	159.00		84.10	2.71E-01	2.71E-01	-1.27E-01	1.34E-01
	SB-124	602.71		97.87	4.64E-01	4.64E-01	-1.64E-01	2.27E-01
		645.85		7.26	6.16E+00		-8.89E-01	3.01E+00
		722.78		11.10	4.70E+00		4.58E-01	2.30E+00
		1691.02		49.00	7.50E-01		4.14E-01	3.55E-01
	I-125	35.49		6.49	5.94E+00	5.94E+00	3.11E-01	2.94E+00
	SB-125	176.33		6.89	2.01E+00	4.96E-01	-5.78E-01	9.94E-01
		427.89		29.33	4.96E-01		5.19E-02	2.44E-01
		463.38		10.35	1.94E+00		8.11E+00	9.59E-01
		600.56		17.80	8.44E-01		-5.86E-01	4.13E-01
		635.90		11.32	1.33E+00		-4.11E-01	6.50E-01
	SB-126	414.70		83.30	4.13E+01	3.83E+01	-4.97E+00	2.03E+01
		666.33		99.60	3.94E+01		-4.56E+00	1.93E+01
		695.00		99.60	3.83E+01		2.59E+00	1.88E+01
		720.50		53.80	6.99E+01		7.97E+00	3.42E+01
+	SN-126	87.57	*	37.00	9.05E-01	9.05E-01	3.29E+00	4.51E-01
	SB-127	473.00		25.00	2.65E+07	2.04E+07	1.84E+06	1.30E+07

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-127	685.20		35.70	2.04E+07	2.04E+07	1.31E+07	9.98E+06
		783.80		14.70	5.51E+07		1.08E+08	2.69E+07
	I-129	29.78		57.00	2.39E-01	2.39E-01	-1.47E-01	1.18E-01
		33.60		13.20	9.69E-01		-2.22E-01	4.79E-01
		39.58		7.52	1.60E+00		3.07E-03	7.90E-01
	I-131	284.30		6.05	1.11E+04	7.91E+02	-1.50E+02	5.49E+03
		364.48		81.20	7.91E+02		1.98E+02	3.89E+02
		636.97		7.26	9.30E+03		-3.90E+03	4.55E+03
		722.89		1.80	4.46E+04		4.34E+03	2.19E+04
	TE-132	49.72		13.10	1.13E+09	1.77E+08	-2.78E+08	5.59E+08
		228.16		88.00	1.77E+08		-7.27E+07	8.77E+07
	BA-133	81.00		33.00	4.69E-01	3.21E-01	-7.86E+00	2.33E-01
		302.84		17.80	9.40E-01		2.96E+00	4.65E-01
		356.01		60.00	3.21E-01		7.37E-02	1.59E-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	1.75E+05	1.75E+05	-2.93E+06	8.68E+04
	CS-134	563.23		8.38	2.00E+00	1.91E-01	8.41E-01	9.82E-01
		569.32		15.43	1.08E+00		1.00E-01	5.28E-01
		604.70		97.60	1.91E-01		-5.39E-02	9.36E-02
		795.84		85.40	2.67E-01		1.08E+00	1.31E-01
		801.93		8.73	1.67E+00		-1.28E+00	8.12E-01
	CS-135	268.24		16.00	1.07E+00	1.07E+00	4.38E+00	5.28E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	3.23E+02	2.36E+01	4.47E+02	1.60E+02
		163.89		4.61	5.00E+02		3.53E+01	2.47E+02
		176.55		13.56	1.69E+02		-4.85E+01	8.35E+01
		273.65		12.66	2.32E+02		-4.62E+02	1.15E+02
		340.57		48.50	8.71E+01		2.92E+01	4.32E+01
		818.50		99.70	2.36E+01		1.72E+01	1.15E+01
		1048.07		79.60	2.51E+01		-8.38E+00	1.21E+01
		1235.34		19.70	1.55E+02		1.89E+02	7.54E+01
+	CS-137	661.65	*	85.12	2.47E-01	2.47E-01	1.38E-01	1.22E-01
	LA-138	788.74		34.00	4.44E-01	1.82E-01	-1.17E+00	2.17E-01
		1435.80		66.00	1.82E-01		7.09E-02	8.67E-02
	CE-139	165.85		80.35	2.66E-01	2.66E-01	1.48E-01	1.32E-01
	BA-140	162.64		6.70	4.00E+02	1.16E+02	1.20E+02	1.98E+02
		304.84		4.50	6.28E+02		-3.21E+03	3.10E+02
		423.70		3.20	8.77E+02		-1.47E+02	4.31E+02
		437.55		2.00	1.41E+03		3.60E+02	6.91E+02
		537.32		25.00	1.16E+02		2.67E+00	5.68E+01
	LA-140	328.77		20.50	1.71E+02	3.32E+01	4.75E+02	8.45E+01
		487.03		45.50	6.10E+01		4.86E+00	2.99E+01
		815.85		23.50	1.10E+02		-1.10E+02	5.36E+01
		1596.49		95.49	3.32E+01		-1.38E+01	1.59E+01
	CE-141	145.44		48.40	2.25E+00	2.25E+00	1.80E+00	1.11E+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	1.55E+00	1.55E+00	-9.84E-02	7.68E-01
	PM-144	476.78		42.00	3.99E-01	1.77E-01	3.59E-02	1.96E-01
		618.01		98.60	1.77E-01		-9.48E-02	8.64E-02

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-144	696.49	99.49	1.93E-01	1.77E-01	3.74E-02	9.44E-02
PM-145	36.85	21.70	5.64E-01	3.10E-01	-5.26E-01	2.79E-01
	37.36	39.70	3.10E-01		-2.54E-01	1.53E-01
	42.30	15.10	7.85E-01		-4.38E-02	3.89E-01
	72.40	2.31	8.65E+00		-3.83E+01	4.30E+00
PM-146	453.90	39.94	3.66E-01	3.66E-01	-8.15E-03	1.80E-01
	735.90	14.01	1.09E+00		2.52E-01	5.32E-01
	747.13	13.10	1.12E+00		-2.55E-01	5.47E-01
ND-147	91.11	28.90	3.17E+02	3.17E+02	1.17E+03	1.58E+02
	531.02	13.10	5.28E+02		3.56E+01	2.59E+02
PM-149	285.90	3.10	1.08E+14	1.08E+14	8.55E+13	5.33E+13
EU-152	121.78	20.50	6.18E-01	6.18E-01	-6.72E-01	3.06E-01
	244.69	5.40	2.75E+00		-6.10E+00	1.36E+00
	344.27	19.13	7.54E-01		1.56E-01	3.72E-01
	778.89	9.20	1.60E+00		2.63E-01	7.78E-01
	964.01	10.40	2.35E+00		-2.77E+01	1.16E+00
	1085.78	7.22	1.65E+00		1.16E-01	7.92E-01
	1112.02	9.60	1.37E+00		2.62E-01	6.61E-01
	1407.95	14.94	1.07E+00		1.38E+00	5.18E-01
GD-153	97.43	31.30	5.57E-01	5.57E-01	-3.01E+00	2.76E-01
	103.18	22.20	7.87E-01		-8.06E-02	3.90E-01
EU-154	123.07	40.50	3.27E-01	3.27E-01	6.06E-02	1.62E-01
	723.30	19.70	8.74E-01		8.51E-02	4.28E-01
	873.19	11.50	1.13E+00		5.39E-01	5.47E-01
	996.32	10.30	1.13E+00		1.47E-01	5.46E-01
	1004.76	17.90	7.22E-01		9.82E-02	3.48E-01
	1274.45	35.50	3.61E-01		-2.16E-02	1.73E-01
EU-155	86.50	30.90	6.18E-01	6.18E-01	1.67E+00	3.07E-01
	105.30	20.70	6.74E-01		1.04E+00	3.34E-01
EU-156	811.77	10.40	1.11E+02	1.11E+02	-2.11E+01	5.38E+01
	1153.47	7.20	1.79E+02		2.11E+02	8.67E+01
	1230.71	8.90	1.27E+02		6.32E+01	6.10E+01
HO-166M	184.41	72.60	2.17E-01	2.17E-01	8.55E-01	1.08E-01
	280.45	29.60	5.13E-01		8.76E-02	2.54E-01
	410.94	11.10	1.46E+00		3.01E+00	7.18E-01
	711.69	54.10	2.80E-01		-9.80E-02	1.37E-01
TM-171	66.72	0.14	1.25E+02	1.25E+02	4.93E+01	6.22E+01
HF-172	67.35	5.31	3.29E+00	1.29E+00	-6.43E-02	1.63E+00
	125.81	11.30	1.29E+00		-7.84E-02	6.37E-01
LU-172	181.53	20.60	1.70E+04	5.28E+03	-8.11E+02	8.41E+03
	900.72	29.81	1.08E+04		-1.76E+04	5.21E+03
	1093.66	62.50	5.28E+03		3.63E+03	2.54E+03
LU-173	100.72	5.24	2.85E+00	9.33E-01	4.89E+00	1.41E+00
	272.11	21.20	9.33E-01		1.79E-01	4.62E-01
HF-175	343.40	84.00	4.56E-01	4.56E-01	9.28E-02	2.25E-01
LU-176	88.34	13.30	1.44E+00	1.44E-01	6.77E+00	7.16E-01
	201.83	86.00	1.60E-01		-5.17E-02	7.90E-02
	306.78	94.00	1.44E-01		-4.67E-02	7.10E-02
HF-181	133.02	41.70	1.57E+00	8.23E-01	-9.99E-02	7.79E-01
	345.85	17.20	4.13E+00		8.58E-01	2.04E+00
	482.03	82.80	8.23E-01		1.38E-01	4.04E-01
TA-182	67.75	41.20	6.96E-01	6.96E-01	-1.36E-02	3.46E-01
	1121.30	34.90	1.30E+00		6.09E+00	6.38E-01

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1189.05		16.23	1.37E+00	6.96E-01	4.17E-02	6.59E-01
		1221.41		26.98	8.54E-01		2.10E-01	4.10E-01
		1231.02		11.44	2.03E+00		1.01E+00	9.72E-01
	IR-192	308.46		29.68	1.14E+00	7.27E-01	-2.00E-01	5.60E-01
		468.07		48.10	7.27E-01		1.08E-01	3.57E-01
	HG-203	279.19		77.30	8.75E-01	8.75E-01	4.23E-02	4.33E-01
	TL-204	374.74		94.11	1.57E-01	1.28E-01	4.41E-02	7.73E-02
		899.15		99.16	1.28E-01		-2.64E-01	6.21E-02
		911.74		91.10	5.12E-01		5.97E+00	2.54E-01
	BI-207	569.67		97.72	1.57E-01	1.57E-01	1.46E-02	7.69E-02
		1063.62		74.90	1.65E-01		-4.66E-02	7.96E-02
+	TL-208	583.14	*	30.22	9.16E-01	4.88E-01	1.91E+01	4.53E-01
		860.37	*	4.48	4.33E+00		1.95E+01	2.12E+00
		2614.66	*	35.85	4.88E-01		1.91E+01	2.32E-01
	BI-210M	262.00		45.00	3.08E-01	3.08E-01	3.83E-02	1.52E-01
		300.00		23.00	7.43E-01		-5.42E+00	3.67E-01
+	PB-210	46.50	*	4.25	2.98E+00	2.98E+00	3.05E+00	1.48E+00
	PB-211	404.84		2.90	4.93E+00	4.93E+00	8.52E-01	2.43E+00
		831.96		2.90	5.47E+00		-3.75E+00	2.67E+00
+	BI-212	727.17	*	11.80	1.51E+00	1.51E+00	1.22E+01	7.38E-01
		1620.62		2.75	6.01E+00		7.86E+00	2.89E+00
+	PB-212	238.63	*	44.60	8.19E-01	8.19E-01	2.15E+01	4.08E-01
		300.09	*	3.41	9.67E+00		2.12E+01	4.81E+00
+	BI-214	609.31	*	46.30	5.62E-01	5.62E-01	6.56E+00	2.78E-01
		1120.29	*	15.10	1.31E+00		8.20E+00	6.39E-01
		1764.49	*	15.80	1.22E+00		8.25E+00	5.90E-01
		2204.22	*	4.98	4.30E+00		9.75E+00	2.07E+00
+	PB-214	295.21	*	19.19	1.69E+00	5.40E-01	7.98E+00	8.43E-01
		351.92	*	37.19	5.40E-01		7.61E+00	2.67E-01
	RN-219	401.80		6.50	2.24E+00	2.24E+00	1.09E+00	1.10E+00
	RA-223	323.87		3.88	3.68E+00	3.68E+00	1.01E-01	1.82E+00
+	RA-224	240.98	*	3.95	9.43E+00	9.43E+00	4.56E+01	4.70E+00
	RA-225	40.00		31.00	3.87E+01	3.87E+01	1.06E+01	1.91E+01
+	RA-226	186.21	*	3.28	5.68E+00	5.68E+00	1.89E+01	2.82E+00
	TH-227	50.10		8.40	1.50E+00	1.50E+00	-4.02E-01	7.42E-01
		236.00		11.50	1.75E+00		-5.09E+01	8.68E-01
		256.20		6.30	2.18E+00		-7.07E-01	1.08E+00
+	AC-228	338.32	*	11.40	1.69E+00	1.18E+00	1.95E+01	8.34E-01
		911.07	*	27.70	1.18E+00		1.94E+01	5.83E-01
		969.11	*	16.60	1.87E+00		1.98E+01	9.22E-01
	TH-230	48.44		16.90	7.46E-01	7.46E-01	-9.50E-02	3.69E-01
		62.85		4.60	3.53E+00		8.41E+00	1.75E+00
		67.67		0.37	4.27E+01		-8.35E-01	2.12E+01
	PA-231	283.67		1.60	8.67E+00	7.14E+00	-5.37E+00	4.28E+00
		302.67		2.30	7.14E+00		2.25E+01	3.53E+00
	TH-231	25.64		14.70	1.09E+00	1.09E+00	-2.91E+00	5.38E-01
		84.21		6.40	2.59E+00		-7.78E+00	1.29E+00
	PA-233	311.98		38.60	4.31E+00	4.31E+00	-1.97E+00	2.13E+00
	PA-234	131.20		20.40	6.93E-01	6.93E-01	8.99E-01	3.44E-01
		733.99		8.80	1.69E+00		-1.47E+00	8.27E-01
		946.00		12.00	9.96E-01		-3.10E-01	4.80E-01
	PA-234M	1001.03		0.92	1.43E+01	1.43E+01	9.88E+00	6.93E+00
+	TH-234	63.29	*	3.80	5.00E+00	5.00E+00	7.03E+00	2.49E+00

Analysis Report for 1707086-05

HTC-A02-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	143.76		10.50	1.28E+00	1.28E+00	9.20E-01	6.33E-01
		163.35		4.70	2.77E+00		1.95E-01	1.37E+00
		205.31		4.70	2.95E+00		-1.86E+01	1.46E+00
	NP-237	86.50		12.60	1.46E+00	1.46E+00	3.95E+00	7.26E-01
	NP-239	106.10		22.70	2.16E+12	2.16E+12	5.19E+12	1.07E+12
		228.18		10.70	4.42E+12		-1.81E+12	2.19E+12
		277.60		14.10	4.04E+12		8.71E+12	2.00E+12
	AM-241	59.54		35.90	4.08E-01	4.08E-01	-2.05E-01	2.03E-01
+	AM-243	74.67	*	66.00	4.70E-01	4.70E-01	3.60E+00	2.34E-01
+	CM-243	209.75	*	3.29	6.58E+00	1.24E+00	2.26E+01	3.27E+00
		228.14		10.60	1.24E+00		-5.10E-01	6.15E-01
		277.60	*	14.00	2.21E+00		2.94E+00	1.10E+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-A02-S004-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3611

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	2	532	581	597	601	1009	627
25:	533	548	528	537	484	481	541	522
33:	552	546	542	535	557	551	538	620
41:	642	553	597	593	588	722	879	766
49:	674	743	806	835	895	947	914	949
57:	1062	1097	1131	1208	1210	1298	1463	1962
65:	1516	1365	1380	1528	1507	1458	1559	1575
73:	1764	2069	4522	4087	4767	6500	1975	1417
81:	1319	1315	1223	1538	1768	1407	2148	3047
89:	1570	2050	1946	1299	2222	2535	1363	1012
97:	881	887	1006	1157	951	873	802	883
105:	1030	1272	965	873	989	900	857	869
113:	840	860	933	937	825	830	793	781
121:	750	782	893	827	881	946	799	928
129:	1227	1396	927	898	887	828	809	803
137:	761	807	787	832	810	791	800	874
145:	882	808	756	773	744	766	786	773
153:	775	887	910	746	725	690	689	755
161:	718	674	720	737	698	681	665	680
169:	609	668	664	658	624	649	642	622
177:	656	640	662	676	675	671	724	660
185:	737	1329	1129	716	602	650	611	699
193:	640	642	635	643	612	605	644	714
201:	631	607	587	615	625	700	592	613
209:	1031	1377	687	578	563	569	574	654
217:	594	495	507	546	465	558	518	547
225:	510	510	525	498	477	475	515	520
233:	524	528	545	608	721	3271	10390	3984
241:	1425	1545	1022	630	448	368	391	349
249:	352	342	344	363	390	314	297	363
257:	369	297	348	378	335	318	328	315
265:	321	330	328	325	370	779	909	423
273:	350	346	340	329	507	606	413	341
281:	281	308	311	320	282	305	306	346
289:	333	291	281	310	288	393	1106	1444
297:	445	284	356	705	656	267	270	297
305:	262	268	296	223	241	216	253	270
313:	267	233	239	250	265	265	258	236
321:	261	259	271	238	266	256	314	677
329:	558	286	248	286	316	280	251	261
337:	343	1389	1924	500	288	250	284	284
345:	215	216	224	225	242	224	633	2335
353:	1437	303	215	247	277	208	197	189
361:	203	208	205	206	187	186	218	188

369:	193	190	197	212	203	197	210	218

Sample Title: HTC-A02-S004-1824-01

Channel								
377:	217	206	206	210	190	211	202	179
385:	201	179	200	202	192	191	221	202
393:	228	200	223	185	203	197	197	214
401:	205	203	200	206	191	193	172	185
409:	316	395	240	201	175	182	176	196
417:	180	169	192	173	165	173	169	154
425:	154	176	159	163	152	155	164	151
433:	160	153	178	155	182	138	138	135
441:	175	141	155	133	170	149	147	154
449:	153	146	144	170	202	149	144	133
457:	164	165	165	151	169	240	585	470
465:	181	143	129	160	133	143	137	125
473:	152	155	144	132	128	141	157	134
481:	157	124	126	123	122	119	139	147
489:	135	125	136	126	119	111	138	118
497:	107	125	118	124	108	129	142	134
505:	144	135	130	160	224	506	986	516
513:	191	134	140	147	112	126	105	142
521:	126	139	129	118	125	116	102	119
529:	124	133	118	124	124	113	132	127
537:	136	108	116	119	119	119	117	113
545:	113	123	138	115	124	140	123	117
553:	106	107	137	130	111	126	120	114
561:	121	152	190	117	125	117	131	122
569:	119	120	140	151	125	90	118	125
577:	109	100	112	169	174	614	2636	2120
585:	384	136	139	196	168	91	110	105
593:	119	101	106	103	113	96	101	105
601:	105	93	92	117	117	139	145	331
609:	1406	1288	322	98	129	141	124	116
617:	102	107	89	81	97	94	100	116
625:	96	93	89	90	111	93	89	96
633:	103	85	85	92	103	88	94	110
641:	95	110	86	84	116	97	102	89
649:	94	105	84	109	92	95	107	86
657:	95	106	95	110	128	190	113	109
665:	136	132	120	102	90	110	87	107
673:	96	100	114	109	108	88	117	68
681:	88	84	96	81	105	93	102	114
689:	97	85	98	89	108	107	109	103
697:	95	100	102	112	97	111	100	93
705:	122	88	106	108	86	104	78	95
713:	87	89	92	94	82	99	91	110
721:	77	89	103	89	90	210	591	512
729:	164	80	81	92	92	75	80	83
737:	81	86	74	67	76	77	86	72
745:	71	80	72	67	77	75	68	79
753:	90	75	141	131	94	78	76	92
761:	84	75	114	104	96	84	114	183
769:	181	93	79	185	145	81	68	65
777:	78	63	70	65	62	98	85	75
785:	117	152	89	68	47	49	74	57
793:	63	196	377	189	66	60	72	56

801:	55	55	54	58	54	84	64	52

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Channel								
809:	51	58	62	64	43	47	53	50
817:	61	57	42	61	66	52	41	54
825:	65	58	66	50	63	79	94	64
833:	56	55	135	156	75	68	86	113
841:	103	62	58	43	50	42	43	54
849:	49	40	48	37	41	35	48	35
857:	53	44	108	294	281	99	42	47
865:	42	53	42	31	40	53	49	51
873:	46	41	38	43	44	42	45	40
881:	43	43	43	50	36	44	46	52
889:	47	37	36	41	61	60	43	43
897:	31	45	35	36	45	43	54	91
905:	60	50	35	63	112	625	1721	1068
913:	185	63	74	87	54	39	32	22
921:	28	34	33	37	36	37	32	42
929:	32	35	53	40	54	96	71	41
937:	27	37	30	37	53	33	31	42
945:	38	33	39	34	32	38	34	44
953:	45	27	28	29	24	45	41	30
961:	36	55	84	244	333	154	120	589
969:	1028	427	76	47	57	41	41	38
977:	36	26	31	26	35	33	27	24
985:	22	28	36	39	37	36	35	26
993:	30	32	26	37	26	30	29	58
1001:	52	47	32	32	42	23	27	36
1009:	24	23	32	23	28	31	32	29
1017:	35	27	27	35	26	25	31	28
1025:	14	26	27	27	26	24	34	34
1033:	38	40	22	35	35	18	25	23
1041:	18	27	28	20	29	32	17	30
1049:	29	25	28	39	31	30	33	20
1057:	25	42	28	25	27	27	33	35
1065:	45	29	29	39	32	28	24	24
1073:	29	27	22	29	35	64	52	39
1081:	31	34	23	18	32	33	30	24
1089:	26	24	28	31	40	51	33	20
1097:	25	26	23	30	39	27	37	24
1105:	28	25	25	37	35	61	43	24
1113:	26	30	12	30	32	50	144	352
1121:	215	52	30	34	36	27	30	24
1129:	30	25	27	24	18	35	24	21
1137:	33	30	31	24	22	38	23	29
1145:	19	25	26	23	28	22	24	26
1153:	38	56	68	44	23	31	24	21
1161:	23	25	32	25	20	31	29	28
1169:	22	29	22	26	28	29	24	30
1177:	22	25	32	31	33	35	18	29
1185:	23	33	27	19	19	30	29	29
1193:	24	29	40	30	22	21	21	27
1201:	25	29	29	26	30	27	35	30
1209:	27	34	30	22	24	30	20	33
1217:	22	26	29	23	34	24	29	26
1225:	21	25	26	35	33	25	17	24

1233:	31	30	29	40	78	125	79	33

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Channel								
1241:	31	22	29	23	34	47	60	34
1249:	34	24	17	29	29	26	25	17
1257:	13	18	18	19	28	14	35	30
1265:	21	14	25	26	28	25	23	14
1273:	25	35	27	26	24	23	26	37
1281:	51	29	22	30	25	23	24	25
1289:	26	24	30	28	17	27	23	25
1297:	17	20	20	23	22	23	19	27
1305:	18	26	18	24	26	22	23	11
1313:	23	25	17	21	20	19	23	23
1321:	23	20	22	22	23	24	27	27
1329:	24	24	21	30	18	22	22	27
1337:	19	22	25	20	19	30	10	21
1345:	24	17	21	26	24	19	27	15
1353:	21	33	23	20	24	23	17	22
1361:	18	18	20	27	12	20	25	19
1369:	18	14	22	22	26	39	25	53
1377:	86	71	32	26	15	16	24	28
1385:	36	21	23	23	16	15	24	15
1393:	22	23	25	11	24	18	12	33
1401:	31	36	19	18	29	31	55	53
1409:	39	18	11	20	20	22	17	23
1417:	22	14	20	15	22	21	21	11
1425:	22	16	15	12	17	14	23	23
1433:	18	19	19	15	21	18	16	12
1441:	16	14	22	16	9	22	27	13
1449:	14	24	19	18	15	18	15	20
1457:	19	62	124	283	259	79	24	22
1465:	24	12	19	14	22	15	9	15
1473:	7	15	21	13	8	16	11	16
1481:	20	15	19	18	15	18	18	17
1489:	13	17	7	16	22	24	46	42
1497:	43	15	15	25	25	22	27	21
1505:	13	16	26	34	41	31	21	31
1513:	25	19	18	13	14	8	17	17
1521:	14	20	16	17	13	13	14	19
1529:	15	18	16	18	12	10	12	16
1537:	15	20	13	25	12	18	22	18
1545:	7	13	13	18	9	9	12	14
1553:	11	12	12	17	17	20	19	9
1561:	15	9	8	16	11	11	11	17
1569:	11	14	8	15	15	9	11	12
1577:	23	19	26	38	28	24	23	24
1585:	12	52	114	125	56	28	69	96
1593:	72	34	24	14	16	17	15	14
1601:	11	11	15	9	12	14	11	6
1609:	6	8	18	15	12	11	11	16
1617:	14	20	32	55	53	23	19	24
1625:	18	22	8	23	47	78	48	23
1633:	10	9	16	21	17	31	24	9
1641:	6	9	13	6	8	12	13	8
1649:	6	11	11	8	16	9	11	7
1657:	9	9	26	27	31	11	6	15

1665:	19	20	24	12	12	11	13	6

Sample Title: HTC-A02-S004-1824-01

Channel								
1673:	6	11	16	17	10	9	12	10
1681:	8	9	23	19	13	6	13	7
1689:	15	16	13	17	20	13	10	8
1697:	11	15	10	10	9	8	13	8
1705:	10	7	11	8	8	13	9	11
1713:	8	8	9	13	8	13	8	15
1721:	10	11	11	13	9	9	19	34
1729:	61	39	19	14	9	13	12	11
1737:	12	12	9	11	8	8	11	9
1745:	8	18	10	14	18	10	14	14
1753:	7	5	8	9	14	15	10	10
1761:	18	49	153	237	107	42	18	12
1769:	12	14	13	8	10	10	4	7
1777:	7	15	6	13	5	11	13	15
1785:	8	10	12	9	13	12	16	10
1793:	10	7	7	10	8	9	7	10
1801:	9	4	6	11	16	14	13	6
1809:	6	8	12	12	9	5	14	10
1817:	13	9	6	4	5	4	13	14
1825:	10	13	8	13	8	10	10	11
1833:	11	11	14	6	13	22	9	7
1841:	17	7	12	15	16	23	41	23
1849:	19	7	9	13	10	12	5	9
1857:	9	9	5	11	5	6	10	7
1865:	10	13	10	7	12	18	11	14
1873:	20	10	7	14	15	9	12	11
1881:	10	13	8	13	12	17	8	5
1889:	7	16	13	11	15	8	14	17
1897:	15	9	14	12	6	15	11	7
1905:	6	24	10	7	10	7	9	11
1913:	9	12	9	11	8	9	9	9
1921:	9	11	10	18	15	8	9	19
1929:	12	12	8	19	15	11	14	11
1937:	10	9	10	7	12	12	14	8
1945:	8	9	11	7	15	10	12	8
1953:	8	12	10	7	12	7	4	12
1961:	14	13	14	7	6	6	13	11
1969:	8	12	10	11	9	13	14	7
1977:	11	13	10	11	7	7	13	9
1985:	10	10	9	14	16	6	9	9
1993:	7	15	11	8	7	10	12	5
2001:	10	8	10	9	12	12	12	10
2009:	11	7	10	10	9	11	8	8
2017:	6	14	9	10	6	11	5	4
2025:	10	8	14	15	6	12	7	9
2033:	6	11	11	11	12	14	11	8
2041:	11	9	10	8	14	12	9	8
2049:	10	14	2	15	9	13	15	8
2057:	14	7	15	10	15	6	4	6
2065:	14	17	9	6	22	6	9	8
2073:	16	12	7	9	10	5	18	9
2081:	11	8	9	8	10	6	8	14
2089:	15	18	16	14	4	13	12	6

2097:	9	14	21	23	67	99	95	52

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Channel								
2105:	37	22	11	15	9	13	11	12
2113:	8	15	11	16	21	19	19	11
2121:	9	12	8	12	4	10	13	7
2129:	10	7	5	10	13	10	9	12
2137:	11	13	6	12	14	14	15	13
2145:	14	16	17	7	13	18	15	12
2153:	11	8	15	7	12	8	15	14
2161:	11	22	17	10	11	13	7	10
2169:	14	11	11	13	14	13	11	9
2177:	12	11	9	11	15	11	16	11
2185:	7	8	10	10	12	16	17	12
2193:	5	6	10	13	17	14	10	9
2201:	27	29	59	45	23	12	10	8
2209:	9	8	12	13	14	20	12	10
2217:	11	15	8	17	12	12	17	11
2225:	8	8	10	12	17	11	8	13
2233:	13	9	12	18	11	9	13	15
2241:	13	13	19	18	22	8	16	12
2249:	17	17	9	9	21	11	8	12
2257:	12	15	11	19	13	19	10	9
2265:	12	18	19	6	16	10	17	11
2273:	12	16	14	18	14	17	17	20
2281:	11	13	9	15	16	17	7	14
2289:	15	10	14	18	16	20	21	19
2297:	12	7	17	13	17	9	13	12
2305:	21	16	7	17	19	20	8	13
2313:	19	15	18	15	18	11	12	18
2321:	14	14	16	8	14	15	18	21
2329:	26	13	15	18	14	9	15	12
2337:	15	10	17	15	15	16	10	20
2345:	25	18	22	24	16	10	23	14
2353:	15	15	12	16	15	15	20	19
2361:	12	14	19	11	12	20	23	20
2369:	14	22	13	17	19	21	18	18
2377:	23	12	13	14	12	13	15	16
2385:	17	5	10	13	16	10	11	10
2393:	12	13	13	15	15	9	12	13
2401:	9	16	11	11	14	16	13	16
2409:	14	7	10	16	11	12	10	6
2417:	9	5	5	7	11	17	14	7
2425:	7	9	8	15	4	7	11	13
2433:	5	10	8	10	6	5	12	7
2441:	13	11	4	11	21	23	31	15
2449:	13	10	11	7	8	13	12	13
2457:	8	11	8	10	9	8	8	5
2465:	8	6	12	9	10	8	7	12
2473:	9	7	5	5	9	6	9	6
2481:	10	2	10	11	6	3	5	6
2489:	5	3	5	5	7	5	3	4
2497:	2	6	7	6	8	7	10	1
2505:	10	2	4	6	5	5	5	6
2513:	3	7	2	2	3	3	3	6
2521:	4	1	2	2	3	3	1	2

2529:	5	5	6	4	4	5	4	0

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Channel								
2537:	0	2	4	3	4	5	4	4
2545:	0	3	3	5	2	1	3	4
2553:	6	5	4	4	2	2	2	4
2561:	1	3	4	0	1	6	2	1
2569:	3	4	2	1	2	1	4	0
2577:	4	2	4	5	6	3	4	1
2585:	3	4	5	3	3	5	0	4
2593:	3	4	3	6	7	3	4	3
2601:	1	2	2	4	2	3	4	4
2609:	6	45	168	422	676	516	183	46
2617:	30	25	12	5	3	4	3	3
2625:	3	6	5	4	1	3	2	2
2633:	3	0	0	1	1	1	4	1
2641:	2	1	1	0	4	3	3	0
2649:	2	0	3	2	0	1	2	0
2657:	1	2	2	1	1	2	3	1
2665:	4	0	2	1	5	2	2	1
2673:	3	3	2	2	2	0	1	2
2681:	2	4	2	3	4	8	5	1
2689:	1	3	0	1	1	0	3	4
2697:	3	3	2	1	4	2	3	1
2705:	0	1	0	1	3	1	0	0
2713:	2	5	1	1	0	1	3	2
2721:	0	0	0	3	1	2	1	2
2729:	1	0	2	4	0	3	0	3
2737:	1	0	0	1	1	1	0	1
2745:	0	2	5	2	1	1	1	0
2753:	1	4	1	2	4	1	2	2
2761:	0	4	1	1	3	3	2	1
2769:	0	0	4	0	1	0	3	2
2777:	0	2	4	0	0	2	2	1
2785:	1	2	3	3	3	1	0	3
2793:	0	1	2	2	3	1	0	2
2801:	0	0	2	2	1	3	0	2
2809:	1	1	0	1	1	3	0	2
2817:	2	2	2	0	3	2	0	3
2825:	0	3	1	1	2	3	1	2
2833:	1	1	1	3	1	1	3	0
2841:	2	3	1	1	3	1	1	1
2849:	1	1	0	1	2	1	3	4
2857:	2	0	3	2	0	2	2	0
2865:	1	0	3	1	3	1	0	1
2873:	1	4	1	2	2	3	1	0
2881:	1	1	0	0	0	3	1	2
2889:	2	4	4	3	2	1	0	3
2897:	0	0	0	3	1	0	0	1
2905:	1	0	2	2	0	0	2	1
2913:	2	1	1	3	1	1	0	0
2921:	1	0	2	2	1	1	1	0
2929:	0	2	1	0	1	2	0	1
2937:	2	0	0	2	1	1	2	3
2945:	1	2	1	2	2	2	2	2
2953:	0	2	1	1	0	0	0	0

2961:	1	2	0	0	2	1	0	1

Sample Title: HTC-A02-S004-1824-01

Channel								
2969:	0	0	1	1	2	2	2	0
2977:	1	5	4	0	1	0	2	4
2985:	1	0	0	2	1	1	0	0
2993:	1	0	0	0	0	0	1	2
3001:	1	0	0	2	2	3	0	3
3009:	1	2	0	0	0	1	2	0
3017:	1	2	0	2	2	1	1	0
3025:	0	0	1	0	1	0	2	0
3033:	1	1	2	0	1	0	1	1
3041:	3	1	0	0	0	1	2	0
3049:	2	1	1	2	0	0	0	0
3057:	1	0	0	0	0	0	1	0
3065:	0	0	0	0	0	0	1	0
3073:	0	1	0	1	0	0	4	1
3081:	0	0	0	1	2	1	0	0
3089:	0	0	1	0	1	1	0	1
3097:	0	0	0	1	1	0	0	0
3105:	0	2	0	1	1	1	1	1
3113:	0	0	0	0	0	0	1	0
3121:	1	6	3	1	3	2	0	0
3129:	0	0	2	2	0	1	0	0
3137:	0	0	1	1	2	0	0	0
3145:	0	0	0	0	0	0	0	1
3153:	0	1	0	0	0	0	0	0
3161:	1	0	1	0	0	0	0	0
3169:	0	0	1	1	0	0	1	0
3177:	0	0	0	0	0	1	1	0
3185:	0	1	0	1	0	1	0	0
3193:	5	7	13	10	2	5	2	2
3201:	0	0	0	1	0	0	2	0
3209:	0	2	0	2	0	0	1	0
3217:	0	1	0	0	0	0	0	1
3225:	0	1	0	1	0	0	0	0
3233:	0	1	0	1	1	0	3	0
3241:	0	0	0	0	1	0	0	0
3249:	0	0	0	2	0	0	0	0
3257:	1	0	1	0	0	0	0	0
3265:	0	1	0	0	0	2	0	0
3273:	0	1	0	2	1	1	0	1
3281:	0	1	1	0	0	0	1	1
3289:	0	0	0	1	1	0	1	1
3297:	1	0	0	1	0	1	0	0
3305:	0	0	0	0	2	0	0	0
3313:	0	0	0	0	0	0	0	1
3321:	0	0	0	0	1	0	0	0
3329:	0	0	0	0	0	0	0	1
3337:	1	0	0	0	0	0	0	1
3345:	0	0	0	0	0	0	0	0
3353:	1	0	1	0	0	1	0	1
3361:	0	0	0	1	0	0	0	0
3369:	1	0	0	0	0	0	0	0
3377:	0	0	0	1	1	0	0	0
3385:	0	0	0	1	0	0	0	0

3393:	1	1	0	0	0	1	0	0

Sample Title: HTC-A02-S004-1824-01

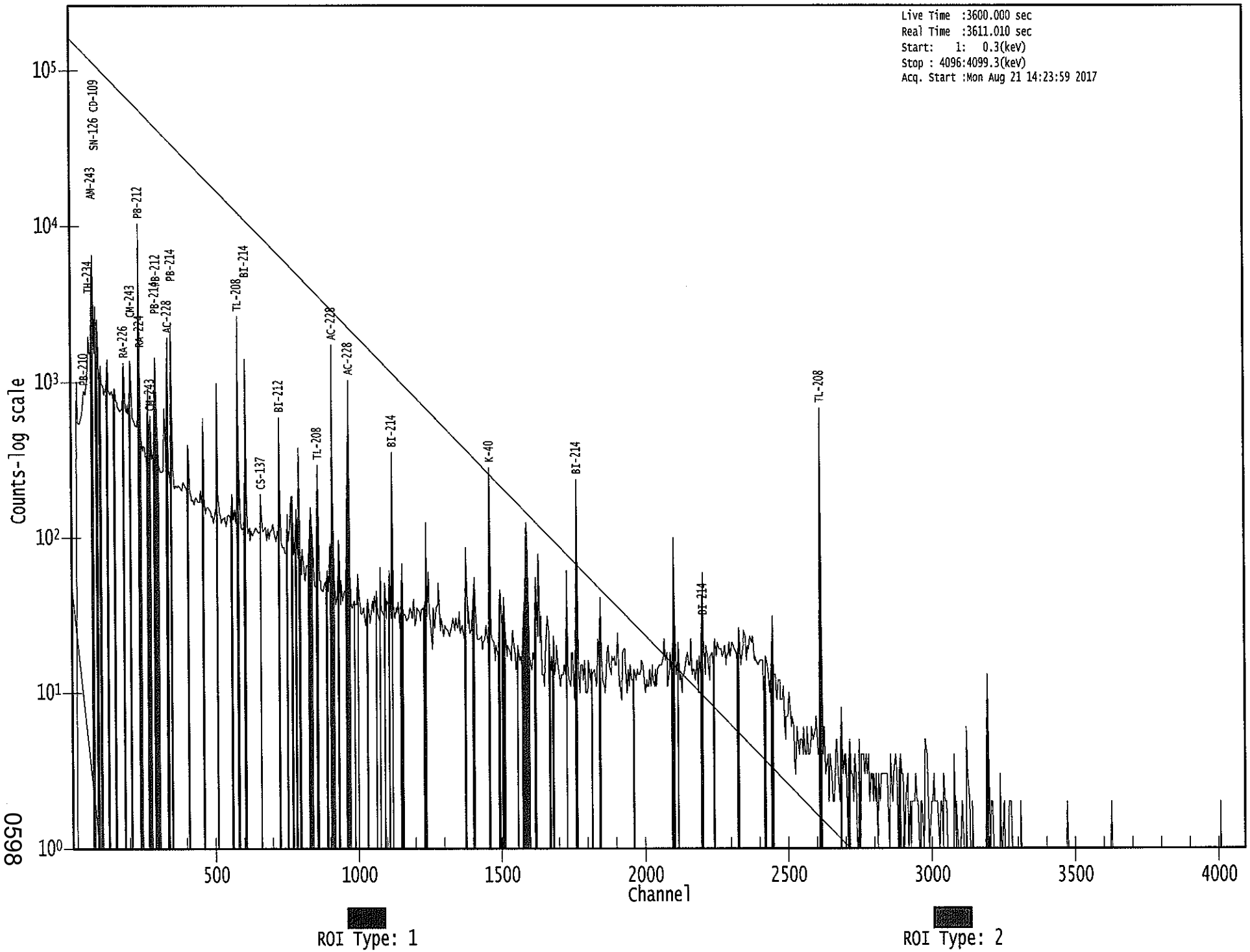
Channel								
3401:	0	1	1	1	0	0	0	1
3409:	0	0	0	0	0	0	1	0
3417:	0	1	0	0	0	0	0	0
3425:	1	0	0	0	1	0	0	0
3433:	0	0	1	0	0	1	0	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	1	0	0	0	0
3465:	0	0	0	0	1	2	0	2
3473:	2	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	1	1	1	1	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S004-1824-01

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

0000055650.CNF



0598

KB 8/21/17

Apex-Gamma

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-06
Sample Description	: HTC-A02-S004-2430-01
Sample Type	: SOIL
Sample Size	: 6.115E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:08:22AM
Acquisition Started	: 8/21/2017 2:24:06PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3609.2 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	: 55651

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 3:24:57PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.55	63.86	0.0000	0.00
2	75.17	75.47	0.0000	0.00
3	77.57	77.88	0.0000	0.00
4	85.54	85.84	0.0000	0.00
5	88.19	88.49	0.0000	0.00
6	92.02	92.32	0.0000	0.00
7	129.19	129.48	0.0000	0.00
8	154.16	154.44	0.0000	0.00
9	185.89	186.15	0.0000	0.00
10	209.78	210.03	0.0000	0.00
11	239.11	239.36	0.0000	0.00
12	242.19	242.44	0.0000	0.00
13	270.68	270.92	0.0000	0.00
14	277.88	278.11	0.0000	0.00
15	295.69	295.92	0.0000	0.00
16	300.14	300.37	0.0000	0.00
17	328.18	328.39	0.0000	0.00
18	338.77	338.99	0.0000	0.00
19	352.46	352.67	0.0000	0.00
20	454.39	454.56	0.0000	0.00
21	463.39	463.56	0.0000	0.00
22	488.82	488.99	0.0000	0.00
23	511.53	511.69	0.0000	0.00
24	583.37	583.50	0.0000	0.00
25	609.35	609.48	0.0000	0.00
26	628.71	628.83	0.0000	0.00
27	649.94	650.04	0.0000	0.00
28	726.92	727.00	0.0000	0.00
29	755.99	756.07	0.0000	0.00
30	769.73	769.80	0.0000	0.00
31	794.86	794.92	0.0000	0.00
32	820.99	821.05	0.0000	0.00
33	828.79	828.83	0.0000	0.00
34	860.20	860.24	0.0000	0.00
35	905.42	905.44	0.0000	0.00
36	911.19	911.21	0.0000	0.00
37	969.27	969.27	0.0000	0.00
38	1120.37	1120.32	0.0000	0.00
39	1140.06	1140.00	0.0000	0.00
40	1179.93	1179.85	0.0000	0.00
41	1237.32	1237.23	0.0000	0.00
42	1343.61	1343.48	0.0000	0.00

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1378.49	1378.35	0.0000	0.00
44	1460.44	1460.28	0.0000	0.00
45	1530.16	1529.97	0.0000	0.00
46	1542.92	1542.73	0.0000	0.00
47	1551.77	1551.58	0.0000	0.00
48	1562.44	1562.24	0.0000	0.00
49	1565.44	1565.24	0.0000	0.00
50	1570.33	1570.13	0.0000	0.00
51	1589.71	1589.50	0.0000	0.00
52	1620.30	1620.08	0.0000	0.00
53	1629.79	1629.57	0.0000	0.00
54	1651.65	1651.42	0.0000	0.00
55	1660.94	1660.70	0.0000	0.00
56	1672.60	1672.36	0.0000	0.00
57	1729.04	1728.78	0.0000	0.00
58	1758.05	1757.78	0.0000	0.00
59	1764.19	1763.92	0.0000	0.00
60	1887.68	1887.38	0.0000	0.00
61	1928.70	1928.38	0.0000	0.00
62	2084.47	2084.10	0.0000	0.00
63	2102.23	2101.84	0.0000	0.00
64	2142.50	2142.10	0.0000	0.00
65	2149.22	2148.82	0.0000	0.00
66	2157.64	2157.24	0.0000	0.00
67	2169.67	2169.27	0.0000	0.00
68	2278.19	2277.75	0.0000	0.00
69	2329.11	2328.65	0.0000	0.00
70	2613.51	2612.96	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 3:24:57PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	63.55	61 -	66	63.86	1.71E+02	118.19	2.67E+03	1.23
M	2	75.17	71 -	82	75.47	8.12E+02	150.94	2.78E+03	2.21
m	3	77.57	71 -	82	77.88	1.37E+03	151.56	2.59E+03	2.18
M	4	85.54	83 -	97	85.84	2.36E+02	105.44	1.96E+03	2.61
m	5	88.19	83 -	97	88.49	5.30E+02	145.94	2.79E+03	2.98
m	6	92.02	83 -	97	92.32	6.32E+02	147.82	2.53E+03	2.97
	7	129.19	126 -	133	129.48	9.73E+01	106.85	1.84E+03	2.85
	8	154.16	151 -	158	154.44	9.20E+01	99.52	1.58E+03	3.59
	9	185.89	181 -	190	186.15	2.70E+02	110.65	1.59E+03	2.12
	10	209.78	207 -	213	210.03	1.54E+02	78.54	9.99E+02	3.22
M	11	239.11	235 -	246	239.36	1.64E+03	100.83	7.19E+02	2.05
m	12	242.19	235 -	246	242.44	3.00E+02	105.90	7.80E+02	2.27
	13	270.68	267 -	274	270.92	8.42E+01	69.25	7.42E+02	1.59
	14	277.88	275 -	281	278.11	7.50E+01	61.52	6.34E+02	1.89
M	15	295.69	290 -	304	295.92	3.21E+02	60.78	4.74E+02	1.92
m	16	300.14	290 -	304	300.37	9.59E+01	55.08	4.74E+02	2.12
	17	328.18	325 -	333	328.39	7.75E+01	68.03	6.71E+02	2.17
	18	338.77	334 -	343	338.99	2.76E+02	80.94	7.73E+02	1.79
	19	352.46	347 -	359	352.67	6.45E+02	93.84	7.26E+02	2.28
	20	454.39	451 -	458	454.56	4.74E+01	41.76	2.57E+02	4.55
	21	463.39	459 -	468	463.56	1.22E+02	49.81	2.84E+02	2.51
	22	488.82	487 -	491	488.99	2.86E+01	27.58	1.39E+02	2.85
	23	511.53	505 -	517	511.69	2.46E+02	74.42	5.25E+02	2.41
	24	583.37	579 -	590	583.50	4.48E+02	70.68	3.96E+02	2.27
	25	609.35	605 -	614	609.48	4.13E+02	61.29	3.03E+02	2.33
	26	628.71	625 -	632	628.83	3.67E+01	34.29	1.71E+02	3.34
	27	649.94	648 -	652	650.04	1.98E+01	23.85	1.10E+02	1.75
	28	726.92	722 -	731	727.00	1.10E+02	44.45	2.19E+02	2.35
	29	755.99	753 -	759	756.07	3.86E+01	30.57	1.39E+02	3.58
	30	769.73	763 -	777	769.80	6.27E+01	60.46	3.53E+02	3.43
	31	794.86	792 -	799	794.92	3.76E+01	32.74	1.57E+02	1.90
	32	820.99	817 -	824	821.05	2.85E+01	28.50	1.17E+02	2.26
	33	828.79	825 -	832	828.83	2.32E+01	29.73	1.32E+02	2.18
	34	860.20	856 -	865	860.24	5.30E+01	36.50	1.60E+02	2.46
M	35	905.42	902 -	915	905.44	2.57E+01	28.14	1.16E+02	2.55
m	36	911.19	902 -	915	911.21	2.58E+02	41.42	1.02E+02	2.56
	37	969.27	965 -	974	969.27	1.51E+02	47.60	2.06E+02	2.29
	38	1120.37	1114 -	1125	1120.32	7.10E+01	41.52	1.80E+02	2.03
	39	1140.06	1135 -	1144	1140.00	3.51E+01	24.19	5.97E+01	1.41
	40	1179.93	1175 -	1185	1179.85	5.55E+01	29.01	8.31E+01	6.79

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1237.32	1232 -	1241	1237.23	7.43E+01	34.61	1.25E+02	2.20
	42	1343.61	1337 -	1351	1343.48	2.79E+01	27.46	6.81E+01	10.59
	43	1378.49	1374 -	1383	1378.35	3.78E+01	20.59	3.65E+01	2.98
	44	1460.44	1454 -	1466	1460.28	6.06E+02	55.56	7.74E+01	2.41
	45	1530.16	1525 -	1535	1529.97	1.48E+01	16.10	2.44E+01	1.99
	46	1542.92	1537 -	1547	1542.73	1.55E+01	12.02	1.10E+01	1.25
	47	1551.77	1549 -	1554	1551.58	8.31E+00	8.89	9.38E+00	1.38
M	48	1562.44	1561 -	1568	1562.24	1.26E+01	1.12	0.00E+00	2.49
m	49	1565.44	1561 -	1568	1565.24	9.93E+00	13.11	2.39E+01	2.62
	50	1570.33	1568 -	1573	1570.13	8.88E+00	10.44	1.43E+01	2.23
	51	1589.71	1582 -	1597	1589.50	7.78E+01	26.68	4.04E+01	5.72
	52	1620.30	1614 -	1625	1620.08	3.21E+01	13.27	5.83E+00	6.59
	53	1629.79	1627 -	1632	1629.57	8.47E+00	9.80	1.31E+01	3.02
	54	1651.65	1647 -	1654	1651.42	7.36E+00	8.72	7.27E+00	1.03
	55	1660.94	1655 -	1667	1660.70	2.04E+01	13.87	1.32E+01	2.88
	56	1672.60	1669 -	1675	1672.36	7.00E+00	9.21	1.00E+01	2.06
	57	1729.04	1724 -	1733	1728.78	2.10E+01	14.97	2.00E+01	1.54
M	58	1758.05	1757 -	1768	1757.78	1.27E+01	0.00	0.00E+00	2.96
m	59	1764.19	1757 -	1768	1763.92	7.37E+01	17.55	0.00E+00	2.96
	60	1887.68	1882 -	1893	1887.38	1.43E+01	14.14	1.73E+01	5.64
	61	1928.70	1923 -	1933	1928.38	2.54E+01	11.93	5.21E+00	6.16
	62	2084.47	2079 -	2088	2084.10	9.71E+00	10.30	8.57E+00	1.42
	63	2102.23	2096 -	2107	2101.84	2.61E+01	17.20	2.38E+01	2.59
	64	2142.50	2137 -	2145	2142.10	8.90E+00	10.99	1.22E+01	2.27
	65	2149.22	2146 -	2151	2148.82	6.90E+00	7.62	6.20E+00	2.97
	66	2157.64	2154 -	2160	2157.24	6.50E+00	8.03	7.00E+00	2.87
	67	2169.67	2166 -	2171	2169.27	7.50E+00	6.71	3.00E+00	1.25
	68	2278.19	2275 -	2280	2277.75	1.15E+01	10.00	9.00E+00	2.79
	69	2329.11	2326 -	2331	2328.65	1.13E+01	7.81	3.31E+00	2.63
	70	2613.51	2608 -	2617	2612.96	1.43E+02	23.92	0.00E+00	2.23

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 : 8/21/2017 3:24:57PM

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

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	63.55	61 -	66	1.71E+02	118.19	2.67E+03	9.47E+01
M	2	75.17	71 -	82	8.12E+02	150.94	2.78E+03	8.67E+01
m	3	77.57	71 -	82	1.37E+03	151.56	2.59E+03	8.37E+01
M	4	85.54	83 -	97	2.36E+02	105.44	1.96E+03	7.28E+01
m	5	88.19	83 -	97	5.30E+02	145.94	2.79E+03	8.68E+01
m	6	92.02	83 -	97	6.32E+02	147.82	2.53E+03	8.27E+01
	7	129.19	126 -	133	9.73E+01	106.85	1.84E+03	8.63E+01
	8	154.16	151 -	158	9.20E+01	99.52	1.58E+03	8.03E+01
	9	185.89	181 -	190	2.70E+02	110.65	1.59E+03	8.68E+01
	10	209.78	207 -	213	1.54E+02	78.54	9.99E+02	6.12E+01
M	11	239.11	235 -	246	1.64E+03	100.83	7.19E+02	4.41E+01
m	12	242.19	235 -	246	3.00E+02	105.90	7.80E+02	4.59E+01
	13	270.68	267 -	274	8.42E+01	69.25	7.42E+02	5.49E+01
	14	277.88	275 -	281	7.50E+01	61.52	6.34E+02	4.85E+01
M	15	295.69	290 -	304	3.21E+02	60.78	4.74E+02	3.58E+01
m	16	300.14	290 -	304	9.59E+01	55.08	4.74E+02	3.58E+01
	17	328.18	325 -	333	7.75E+01	68.03	6.71E+02	5.40E+01
	18	338.77	334 -	343	2.76E+02	80.94	7.73E+02	6.07E+01
	19	352.46	347 -	359	6.45E+02	93.84	7.26E+02	6.49E+01
	20	454.39	451 -	458	4.74E+01	41.76	2.57E+02	3.24E+01
	21	463.39	459 -	468	1.22E+02	49.81	2.84E+02	3.67E+01
	22	488.82	487 -	491	2.86E+01	27.58	1.39E+02	2.09E+01
	23	511.53	505 -	517	2.46E+02	74.42	5.25E+02	5.55E+01
	24	583.37	579 -	590	4.48E+02	70.68	3.96E+02	4.65E+01
	25	609.35	605 -	614	4.13E+02	61.29	3.03E+02	3.77E+01
	26	628.71	625 -	632	3.67E+01	34.29	1.71E+02	2.64E+01
	27	649.94	648 -	652	1.98E+01	23.85	1.10E+02	1.82E+01
	28	726.92	722 -	731	1.10E+02	44.45	2.19E+02	3.22E+01
	29	755.99	753 -	759	3.86E+01	30.57	1.39E+02	2.30E+01
	30	769.73	763 -	777	6.27E+01	60.46	3.53E+02	4.80E+01
	31	794.86	792 -	799	3.76E+01	32.74	1.57E+02	2.50E+01
	32	820.99	817 -	824	2.85E+01	28.50	1.17E+02	2.17E+01
	33	828.79	825 -	832	2.32E+01	29.73	1.32E+02	2.31E+01
	34	860.20	856 -	865	5.30E+01	36.50	1.60E+02	2.75E+01
M	35	905.42	902 -	915	2.57E+01	28.14	1.16E+02	1.77E+01
m	36	911.19	902 -	915	2.58E+02	41.42	1.02E+02	1.66E+01
	37	969.27	965 -	974	1.51E+02	47.60	2.06E+02	3.35E+01
	38	1120.37	1114 -	1125	7.10E+01	41.52	1.80E+02	3.12E+01
	39	1140.06	1135 -	1144	3.51E+01	24.19	5.97E+01	1.73E+01
	40	1179.93	1175 -	1185	5.55E+01	29.01	8.31E+01	2.05E+01
	41	1237.32	1232 -	1241	7.43E+01	34.61	1.25E+02	2.47E+01
	42	1343.61	1337 -	1351	2.79E+01	27.46	6.81E+01	2.08E+01
	43	1378.49	1374 -	1383	3.78E+01	20.59	3.65E+01	1.36E+01
	44	1460.44	1454 -	1466	6.06E+02	55.56	7.74E+01	2.11E+01
	45	1530.16	1525 -	1535	1.48E+01	16.10	2.44E+01	1.16E+01
	46	1542.92	1537 -	1547	1.55E+01	12.02	1.10E+01	7.47E+00
	47	1551.77	1549 -	1554	8.31E+00	8.89	9.38E+00	5.56E+00
M	48	1562.44	1561 -	1568	1.26E+01	1.12	0.00E+00	0.00E+00
m	49	1565.44	1561 -	1568	9.93E+00	13.11	2.39E+01	8.04E+00
	50	1570.33	1568 -	1573	8.88E+00	10.44	1.43E+01	7.05E+00
	51	1589.71	1582 -	1597	7.78E+01	26.68	4.04E+01	1.65E+01

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	1620.30	1614 -	1625	3.21E+01	13.27	5.83E+00	5.67E+00
	53	1629.79	1627 -	1632	8.47E+00	9.80	1.31E+01	6.48E+00
	54	1651.65	1647 -	1654	7.36E+00	8.72	7.27E+00	5.61E+00
	55	1660.94	1655 -	1667	2.04E+01	13.87	1.32E+01	8.66E+00
	56	1672.60	1669 -	1675	7.00E+00	9.21	1.00E+01	6.19E+00
	57	1729.04	1724 -	1733	2.10E+01	14.97	2.00E+01	9.73E+00
M	58	1758.05	1757 -	1768	1.27E+01	0.00	0.00E+00	0.00E+00
m	59	1764.19	1757 -	1768	7.37E+01	17.55	0.00E+00	0.00E+00
	60	1887.68	1882 -	1893	1.43E+01	14.14	1.73E+01	9.82E+00
	61	1928.70	1923 -	1933	2.54E+01	11.93	5.21E+00	5.24E+00
	62	2084.47	2079 -	2088	9.71E+00	10.30	8.57E+00	6.74E+00
	63	2102.23	2096 -	2107	2.61E+01	17.20	2.38E+01	1.14E+01
	64	2142.50	2137 -	2145	8.90E+00	10.99	1.22E+01	7.59E+00
	65	2149.22	2146 -	2151	6.90E+00	7.62	6.20E+00	4.53E+00
	66	2157.64	2154 -	2160	6.50E+00	8.03	7.00E+00	5.10E+00
	67	2169.67	2166 -	2171	7.50E+00	6.71	3.00E+00	3.18E+00
	68	2278.19	2275 -	2280	1.15E+01	10.00	9.00E+00	6.04E+00
	69	2329.11	2326 -	2331	1.13E+01	7.81	3.31E+00	3.25E+00
	70	2613.51	2608 -	2617	1.43E+02	23.92	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 : 8/21/2017 3:24:57PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.55	61 -	66	63.86	1.71E+02	118.19	2.67E+03	TH-234 TH-230
M	2	75.17	71 -	82	75.47	8.12E+02	150.94	2.78E+03	AM-243
m	3	77.57	71 -	82	77.88	1.37E+03	151.56	2.59E+03	TI-44
M	4	85.54	83 -	97	85.84	2.36E+02	105.44	1.96E+03	EU-155 NP-237

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	5	88.19	83 -	97	88.49	5.30E+02	145.94	2.79E+03	LU-176
									CD-109
									SN-126
m	6	92.02	83 -	97	92.32	6.32E+02	147.82	2.53E+03	ND-147
	7	129.19	126 -	133	129.48	9.73E+01	106.85	1.84E+03	.....
	8	154.16	151 -	158	154.44	9.20E+01	99.52	1.58E+03	CS-136
	9	185.89	181 -	190	186.15	2.70E+02	110.65	1.59E+03	RA-226
	10	209.78	207 -	213	210.03	1.54E+02	78.54	9.99E+02	CM-243
									GA-67
M	11	239.11	235 -	246	239.36	1.64E+03	100.83	7.19E+02	PB-212
m	12	242.19	235 -	246	242.44	3.00E+02	105.90	7.80E+02	.....
	13	270.68	267 -	274	270.92	8.42E+01	69.25	7.42E+02	.....
	14	277.88	275 -	281	278.11	7.50E+01	61.52	6.34E+02	CM-243
									NP-239
M	15	295.69	290 -	304	295.92	3.21E+02	60.78	4.74E+02	PB-214
m	16	300.14	290 -	304	300.37	9.59E+01	55.08	4.74E+02	PB-212
									GA-67
									BI-210M
	17	328.18	325 -	333	328.39	7.75E+01	68.03	6.71E+02	LA-140
	18	338.77	334 -	343	338.99	2.76E+02	80.94	7.73E+02	AC-228
	19	352.46	347 -	359	352.67	6.45E+02	93.84	7.26E+02	PB-214
	20	454.39	451 -	458	454.56	4.74E+01	41.76	2.57E+02	PM-146
	21	463.39	459 -	468	463.56	1.22E+02	49.81	2.84E+02	SB-125
	22	488.82	487 -	491	488.99	2.86E+01	27.58	1.39E+02	.....
	23	511.53	505 -	517	511.69	2.46E+02	74.42	5.25E+02	.....
	24	583.37	579 -	590	583.50	4.48E+02	70.68	3.96E+02	TL-208
	25	609.35	605 -	614	609.48	4.13E+02	61.29	3.03E+02	BI-214
	26	628.71	625 -	632	628.83	3.67E+01	34.29	1.71E+02	.....
	27	649.94	648 -	652	650.04	1.98E+01	23.85	1.10E+02	.....
	28	726.92	722 -	731	727.00	1.10E+02	44.45	2.19E+02	BI-212
	29	755.99	753 -	759	756.07	3.86E+01	30.57	1.39E+02	ZR-95
	30	769.73	763 -	777	769.80	6.27E+01	60.46	3.53E+02	.....
	31	794.86	792 -	799	794.92	3.76E+01	32.74	1.57E+02	CS-134
	32	820.99	817 -	824	821.05	2.85E+01	28.50	1.17E+02	.....
	33	828.79	825 -	832	828.83	2.32E+01	29.73	1.32E+02	.....
	34	860.20	856 -	865	860.24	5.30E+01	36.50	1.60E+02	TL-208
M	35	905.42	902 -	915	905.44	2.57E+01	28.14	1.16E+02	.....
m	36	911.19	902 -	915	911.21	2.58E+02	41.42	1.02E+02	AC-228
									TL-204
	37	969.27	965 -	974	969.27	1.51E+02	47.60	2.06E+02	AC-228
	38	1120.37	1114 -	1125	1120.32	7.10E+01	41.52	1.80E+02	BI-214
									SC-46
									TA-182
	39	1140.06	1135 -	1144	1140.00	3.51E+01	24.19	5.97E+01	.....
	40	1179.93	1175 -	1185	1179.85	5.55E+01	29.01	8.31E+01	.....
	41	1237.32	1232 -	1241	1237.23	7.43E+01	34.61	1.25E+02	CO-56
	42	1343.61	1337 -	1351	1343.48	2.79E+01	27.46	6.81E+01	.....
	43	1378.49	1374 -	1383	1378.35	3.78E+01	20.59	3.65E+01	.....
	44	1460.44	1454 -	1466	1460.28	6.06E+02	55.56	7.74E+01	K-40
	45	1530.16	1525 -	1535	1529.97	1.48E+01	16.10	2.44E+01	.....
	46	1542.92	1537 -	1547	1542.73	1.55E+01	12.02	1.10E+01	.....
	47	1551.77	1549 -	1554	1551.58	8.31E+00	8.89	9.38E+00	.....
M	48	1562.44	1561 -	1568	1562.24	1.26E+01	1.12	0.00E+00	.....
m	49	1565.44	1561 -	1568	1565.24	9.93E+00	13.11	2.39E+01	.....

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	50	1570.33	1568 -	1573	1570.13	8.88E+00	10.44	1.43E+01	.....
	51	1589.71	1582 -	1597	1589.50	7.78E+01	26.68	4.04E+01	.....
	52	1620.30	1614 -	1625	1620.08	3.21E+01	13.27	5.83E+00	BI-212
	53	1629.79	1627 -	1632	1629.57	8.47E+00	9.80	1.31E+01	.....
	54	1651.65	1647 -	1654	1651.42	7.36E+00	8.72	7.27E+00	.....
	55	1660.94	1655 -	1667	1660.70	2.04E+01	13.87	1.32E+01	.....
	56	1672.60	1669 -	1675	1672.36	7.00E+00	9.21	1.00E+01	.....
	57	1729.04	1724 -	1733	1728.78	2.10E+01	14.97	2.00E+01	.....
M	58	1758.05	1757 -	1768	1757.78	1.27E+01	0.00	0.00E+00	.....
m	59	1764.19	1757 -	1768	1763.92	7.37E+01	17.55	0.00E+00	BI-214
	60	1887.68	1882 -	1893	1887.38	1.43E+01	14.14	1.73E+01	.....
	61	1928.70	1923 -	1933	1928.38	2.54E+01	11.93	5.21E+00	.....
	62	2084.47	2079 -	2088	2084.10	9.71E+00	10.30	8.57E+00	.....
	63	2102.23	2096 -	2107	2101.84	2.61E+01	17.20	2.38E+01	.....
	64	2142.50	2137 -	2145	2142.10	8.90E+00	10.99	1.22E+01	.....
	65	2149.22	2146 -	2151	2148.82	6.90E+00	7.62	6.20E+00	.....
	66	2157.64	2154 -	2160	2157.24	6.50E+00	8.03	7.00E+00	.....
	67	2169.67	2166 -	2171	2169.27	7.50E+00	6.71	3.00E+00	.....
	68	2278.19	2275 -	2280	2277.75	1.15E+01	10.00	9.00E+00	.....
	69	2329.11	2326 -	2331	2328.65	1.13E+01	7.81	3.31E+00	.....
	70	2613.51	2608 -	2617	2612.96	1.43E+02	23.92	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 : 8/21/2017 3:24:57PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.55	1.71E+02	118.19	2.45E-02	1.80E-03
M	2	75.17	8.12E+02	150.94	2.65E-02	2.02E-03
m	3	77.57	1.37E+03	151.56	2.68E-02	2.06E-03
M	4	85.54	2.36E+02	105.44	2.71E-02	2.21E-03
m	5	88.19	5.30E+02	145.94	2.72E-02	2.26E-03
m	6	92.02	6.32E+02	147.82	2.71E-02	2.24E-03
	7	129.19	9.73E+01	106.85	2.46E-02	2.04E-03
	8	154.16	9.20E+01	99.52	2.23E-02	1.76E-03
	9	185.89	2.70E+02	110.65	1.96E-02	1.55E-03

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	10	209.78	1.54E+02	78.54	1.79E-02	1.45E-03
M	11	239.11	1.64E+03	100.83	1.61E-02	1.34E-03
m	12	242.19	3.00E+02	105.90	1.59E-02	1.33E-03
	13	270.68	8.42E+01	69.25	1.45E-02	1.21E-03
	14	277.88	7.50E+01	61.52	1.42E-02	1.18E-03
M	15	295.69	3.21E+02	60.78	1.35E-02	1.15E-03
m	16	300.14	9.59E+01	55.08	1.33E-02	1.14E-03
	17	328.18	7.75E+01	68.03	1.23E-02	1.08E-03
	18	338.77	2.76E+02	80.94	1.19E-02	1.06E-03
	19	352.46	6.45E+02	93.84	1.15E-02	1.03E-03
	20	454.39	4.74E+01	41.76	9.18E-03	8.69E-04
	21	463.39	1.22E+02	49.81	9.02E-03	8.57E-04
	22	488.82	2.86E+01	27.58	8.59E-03	8.24E-04
	23	511.53	2.46E+02	74.42	8.25E-03	7.94E-04
	24	583.37	4.48E+02	70.68	7.32E-03	6.98E-04
	25	609.35	4.13E+02	61.29	7.04E-03	6.64E-04
	26	628.71	3.67E+01	34.29	6.85E-03	6.38E-04
	27	649.94	1.98E+01	23.85	6.64E-03	6.10E-04
	28	726.92	1.10E+02	44.45	6.01E-03	5.37E-04
	29	755.99	3.86E+01	30.57	5.80E-03	5.11E-04
	30	769.73	6.27E+01	60.46	5.71E-03	4.99E-04
	31	794.86	3.76E+01	32.74	5.55E-03	4.77E-04
	32	820.99	2.85E+01	28.50	5.39E-03	4.54E-04
	33	828.79	2.32E+01	29.73	5.35E-03	4.47E-04
	34	860.20	5.30E+01	36.50	5.18E-03	4.19E-04
M	35	905.42	2.57E+01	28.14	4.95E-03	3.85E-04
m	36	911.19	2.58E+02	41.42	4.92E-03	3.84E-04
	37	969.27	1.51E+02	47.60	4.66E-03	3.74E-04
	38	1120.37	7.10E+01	41.52	4.12E-03	3.50E-04
	39	1140.06	3.51E+01	24.19	4.06E-03	3.46E-04
	40	1179.93	5.55E+01	29.01	3.94E-03	3.39E-04
	41	1237.32	7.43E+01	34.61	3.79E-03	3.23E-04
	42	1343.61	2.79E+01	27.46	3.54E-03	2.94E-04
	43	1378.49	3.78E+01	20.59	3.47E-03	2.88E-04
	44	1460.44	6.06E+02	55.56	3.31E-03	2.75E-04
	45	1530.16	1.48E+01	16.10	3.19E-03	2.64E-04
	46	1542.92	1.55E+01	12.02	3.17E-03	2.62E-04
	47	1551.77	8.31E+00	8.89	3.16E-03	2.61E-04
M	48	1562.44	1.26E+01	1.12	3.14E-03	2.59E-04
m	49	1565.44	9.93E+00	13.11	3.13E-03	2.58E-04
	50	1570.33	8.88E+00	10.44	3.13E-03	2.58E-04
	51	1589.71	7.78E+01	26.68	3.10E-03	2.54E-04
	52	1620.30	3.21E+01	13.27	3.05E-03	2.50E-04
	53	1629.79	8.47E+00	9.80	3.04E-03	2.48E-04
	54	1651.65	7.36E+00	8.72	3.01E-03	2.45E-04
	55	1660.94	2.04E+01	13.87	3.00E-03	2.43E-04
	56	1672.60	7.00E+00	9.21	2.98E-03	2.41E-04
	57	1729.04	2.10E+01	14.97	2.91E-03	2.32E-04
M	58	1758.05	1.27E+01	0.00	2.87E-03	2.27E-04
m	59	1764.19	7.37E+01	17.55	2.87E-03	2.27E-04
	60	1887.68	1.43E+01	14.14	2.73E-03	2.15E-04
	61	1928.70	2.54E+01	11.93	2.69E-03	2.15E-04
	62	2084.47	9.71E+00	10.30	2.55E-03	2.15E-04

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
63	2102.23	2.61E+01	17.20	2.54E-03	2.15E-04
64	2142.50	8.90E+00	10.99	2.51E-03	2.15E-04
65	2149.22	6.90E+00	7.62	2.50E-03	2.15E-04
66	2157.64	6.50E+00	8.03	2.50E-03	2.15E-04
67	2169.67	7.50E+00	6.71	2.49E-03	2.15E-04
68	2278.19	1.15E+01	10.00	2.42E-03	2.15E-04
69	2329.11	1.13E+01	7.81	2.38E-03	2.15E-04
70	2613.51	1.43E+02	23.92	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 : 8/21/2017 3:24:57PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.55	1.71E+02	118.19	4.12E+01	5.67E+00	1.30E+02	1.18E+02
M	2	75.17	8.12E+02	150.94			8.12E+02	1.51E+02
m	3	77.57	1.37E+03	151.56			1.37E+03	1.52E+02
M	4	85.54	2.36E+02	105.44	5.71E+00	6.69E+00	2.30E+02	1.06E+02
m	5	88.19	5.30E+02	145.94			5.30E+02	1.46E+02
m	6	92.02	6.32E+02	147.82	7.98E+01	7.31E+00	5.52E+02	1.48E+02
	7	129.19	9.73E+01	106.85			9.73E+01	1.07E+02
	8	154.16	9.20E+01	99.52			9.20E+01	9.95E+01
	9	185.89	2.70E+02	110.65	3.06E+01	5.82E+00	2.40E+02	1.11E+02
	10	209.78	1.54E+02	78.54			1.54E+02	7.85E+01
M	11	239.11	1.64E+03	100.83	1.40E+01	2.71E+00	1.63E+03	1.01E+02
m	12	242.19	3.00E+02	105.90			3.00E+02	1.06E+02
	13	270.68	8.42E+01	69.25			8.42E+01	6.93E+01
	14	277.88	7.50E+01	61.52			7.50E+01	6.15E+01
M	15	295.69	3.21E+02	60.78			3.21E+02	6.08E+01
m	16	300.14	9.59E+01	55.08			9.59E+01	5.51E+01
	17	328.18	7.75E+01	68.03			7.75E+01	6.80E+01
	18	338.77	2.76E+02	80.94			2.76E+02	8.09E+01
	19	352.46	6.45E+02	93.84	6.53E+00	4.43E+00	6.39E+02	9.39E+01
	20	454.39	4.74E+01	41.76			4.74E+01	4.18E+01
	21	463.39	1.22E+02	49.81			1.22E+02	4.98E+01
	22	488.82	2.86E+01	27.58			2.86E+01	2.76E+01

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	23	511.53	2.46E+02	74.42	5.21E+01	4.74E+00	1.94E+02	7.46E+01
	24	583.37	4.48E+02	70.68			4.48E+02	7.07E+01
	25	609.35	4.13E+02	61.29	3.25E+00	2.97E+00	4.09E+02	6.14E+01
	26	628.71	3.67E+01	34.29			3.67E+01	3.43E+01
	27	649.94	1.98E+01	23.85			1.98E+01	2.38E+01
	28	726.92	1.10E+02	44.45			1.10E+02	4.45E+01
	29	755.99	3.86E+01	30.57			3.86E+01	3.06E+01
	30	769.73	6.27E+01	60.46			6.27E+01	6.05E+01
	31	794.86	3.76E+01	32.74	0.00E+00	0.00E+00	3.76E+01	3.27E+01
	32	820.99	2.85E+01	28.50			2.85E+01	2.85E+01
	33	828.79	2.32E+01	29.73			2.32E+01	2.97E+01
	34	860.20	5.30E+01	36.50			5.30E+01	3.65E+01
M	35	905.42	2.57E+01	28.14			2.57E+01	2.81E+01
m	36	911.19	2.58E+02	41.42	2.85E+00	2.76E+00	2.55E+02	4.15E+01
	37	969.27	1.51E+02	47.60			1.51E+02	4.76E+01
	38	1120.37	7.10E+01	41.52			7.10E+01	4.15E+01
	39	1140.06	3.51E+01	24.19			3.51E+01	2.42E+01
	40	1179.93	5.55E+01	29.01			5.55E+01	2.90E+01
	41	1237.32	7.43E+01	34.61			7.43E+01	3.46E+01
	42	1343.61	2.79E+01	27.46			2.79E+01	2.75E+01
	43	1378.49	3.78E+01	20.59			3.78E+01	2.06E+01
	44	1460.44	6.06E+02	55.56	1.00E+00	1.77E+00	6.05E+02	5.56E+01
	45	1530.16	1.48E+01	16.10			1.48E+01	1.61E+01
	46	1542.92	1.55E+01	12.02			1.55E+01	1.20E+01
	47	1551.77	8.31E+00	8.89			8.31E+00	8.89E+00
M	48	1562.44	1.26E+01	1.12			1.26E+01	1.12E+00
m	49	1565.44	9.93E+00	13.11			9.93E+00	1.31E+01
	50	1570.33	8.88E+00	10.44			8.88E+00	1.04E+01
	51	1589.71	7.78E+01	26.68			7.78E+01	2.67E+01
	52	1620.30	3.21E+01	13.27			3.21E+01	1.33E+01
	53	1629.79	8.47E+00	9.80			8.47E+00	9.80E+00
	54	1651.65	7.36E+00	8.72			7.36E+00	8.72E+00
	55	1660.94	2.04E+01	13.87			2.04E+01	1.39E+01
	56	1672.60	7.00E+00	9.21			7.00E+00	9.21E+00
	57	1729.04	2.10E+01	14.97			2.10E+01	1.50E+01
M	58	1758.05	1.27E+01	0.00			1.27E+01	0.00E+00
m	59	1764.19	7.37E+01	17.55			7.37E+01	1.75E+01
	60	1887.68	1.43E+01	14.14			1.43E+01	1.41E+01
	61	1928.70	2.54E+01	11.93			2.54E+01	1.19E+01
	62	2084.47	9.71E+00	10.30			9.71E+00	1.03E+01
	63	2102.23	2.61E+01	17.20			2.61E+01	1.72E+01
	64	2142.50	8.90E+00	10.99			8.90E+00	1.10E+01
	65	2149.22	6.90E+00	7.62			6.90E+00	7.62E+00
	66	2157.64	6.50E+00	8.03			6.50E+00	8.03E+00
	67	2169.67	7.50E+00	6.71			7.50E+00	6.71E+00
	68	2278.19	1.15E+01	10.00			1.15E+01	1.00E+01
	69	2329.11	1.13E+01	7.81			1.13E+01	7.81E+00
	70	2613.51	1.43E+02	23.92			1.43E+02	2.39E+01

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

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 : 8/21/2017 3:24:57PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.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	63.55	1.71E+02	118.19	4.12E+01	5.67E+00	1.30E+02	1.18E+02
M	2	75.17	8.12E+02	150.94			8.12E+02	1.51E+02
m	3	77.57	1.37E+03	151.56			1.37E+03	1.52E+02
M	4	85.54	2.36E+02	105.44	5.71E+00	6.69E+00	2.30E+02	1.06E+02
m	5	88.19	5.30E+02	145.94			5.30E+02	1.46E+02
m	6	92.02	6.32E+02	147.82	7.98E+01	7.31E+00	5.52E+02	1.48E+02
	7	129.19	9.73E+01	106.85			9.73E+01	1.07E+02
	8	154.16	9.20E+01	99.52			9.20E+01	9.95E+01
	9	185.89	2.70E+02	110.65	3.06E+01	5.82E+00	2.40E+02	1.11E+02
	10	209.78	1.54E+02	78.54			1.54E+02	7.85E+01
M	11	239.11	1.64E+03	100.83	1.40E+01	2.71E+00	1.63E+03	1.01E+02
m	12	242.19	3.00E+02	105.90			3.00E+02	1.06E+02
	13	270.68	8.42E+01	69.25			8.42E+01	6.93E+01
	14	277.88	7.50E+01	61.52			7.50E+01	6.15E+01
M	15	295.69	3.21E+02	60.78			3.21E+02	6.08E+01
m	16	300.14	9.59E+01	55.08			9.59E+01	5.51E+01
	17	328.18	7.75E+01	68.03			7.75E+01	6.80E+01
	18	338.77	2.76E+02	80.94			2.76E+02	8.09E+01
	19	352.46	6.45E+02	93.84	6.53E+00	4.43E+00	6.39E+02	9.39E+01
	20	454.39	4.74E+01	41.76			4.74E+01	4.18E+01
	21	463.39	1.22E+02	49.81			1.22E+02	4.98E+01
	22	488.82	2.86E+01	27.58			2.86E+01	2.76E+01
	23	511.53	2.46E+02	74.42	5.21E+01	4.74E+00	1.94E+02	7.46E+01
	24	583.37	4.48E+02	70.68			4.48E+02	7.07E+01
	25	609.35	4.13E+02	61.29	3.25E+00	2.97E+00	4.09E+02	6.14E+01
	26	628.71	3.67E+01	34.29			3.67E+01	3.43E+01
	27	649.94	1.98E+01	23.85			1.98E+01	2.38E+01
	28	726.92	1.10E+02	44.45			1.10E+02	4.45E+01
	29	755.99	3.86E+01	30.57			3.86E+01	3.06E+01
	30	769.73	6.27E+01	60.46			6.27E+01	6.05E+01
	31	794.86	3.76E+01	32.74	0.00E+00	0.00E+00	3.76E+01	3.27E+01
	32	820.99	2.85E+01	28.50			2.85E+01	2.85E+01

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	828.79	2.32E+01	29.73			2.32E+01	2.97E+01
	34	860.20	5.30E+01	36.50			5.30E+01	3.65E+01
M	35	905.42	2.57E+01	28.14			2.57E+01	2.81E+01
m	36	911.19	2.58E+02	41.42	2.85E+00	2.76E+00	2.55E+02	4.15E+01
	37	969.27	1.51E+02	47.60			1.51E+02	4.76E+01
	38	1120.37	7.10E+01	41.52			7.10E+01	4.15E+01
	39	1140.06	3.51E+01	24.19			3.51E+01	2.42E+01
	40	1179.93	5.55E+01	29.01			5.55E+01	2.90E+01
	41	1237.32	7.43E+01	34.61			7.43E+01	3.46E+01
	42	1343.61	2.79E+01	27.46			2.79E+01	2.75E+01
	43	1378.49	3.78E+01	20.59			3.78E+01	2.06E+01
	44	1460.44	6.06E+02	55.56	1.00E+00	1.77E+00	6.05E+02	5.56E+01
	45	1530.16	1.48E+01	16.10			1.48E+01	1.61E+01
	46	1542.92	1.55E+01	12.02			1.55E+01	1.20E+01
	47	1551.77	8.31E+00	8.89			8.31E+00	8.89E+00
M	48	1562.44	1.26E+01	1.12			1.26E+01	1.12E+00
m	49	1565.44	9.93E+00	13.11			9.93E+00	1.31E+01
	50	1570.33	8.88E+00	10.44			8.88E+00	1.04E+01
	51	1589.71	7.78E+01	26.68			7.78E+01	2.67E+01
	52	1620.30	3.21E+01	13.27			3.21E+01	1.33E+01
	53	1629.79	8.47E+00	9.80			8.47E+00	9.80E+00
	54	1651.65	7.36E+00	8.72			7.36E+00	8.72E+00
	55	1660.94	2.04E+01	13.87			2.04E+01	1.39E+01
	56	1672.60	7.00E+00	9.21			7.00E+00	9.21E+00
	57	1729.04	2.10E+01	14.97			2.10E+01	1.50E+01
M	58	1758.05	1.27E+01	0.00			1.27E+01	0.00E+00
m	59	1764.19	7.37E+01	17.55			7.37E+01	1.75E+01
	60	1887.68	1.43E+01	14.14			1.43E+01	1.41E+01
	61	1928.70	2.54E+01	11.93			2.54E+01	1.19E+01
	62	2084.47	9.71E+00	10.30			9.71E+00	1.03E+01
	63	2102.23	2.61E+01	17.20			2.61E+01	1.72E+01
	64	2142.50	8.90E+00	10.99			8.90E+00	1.10E+01
	65	2149.22	6.90E+00	7.62			6.90E+00	7.62E+00
	66	2157.64	6.50E+00	8.03			6.50E+00	8.03E+00
	67	2169.67	7.50E+00	6.71			7.50E+00	6.71E+00
	68	2278.19	1.15E+01	10.00			1.15E+01	1.00E+01
	69	2329.11	1.13E+01	7.81			1.13E+01	7.81E+00
	70	2613.51	1.43E+02	23.92			1.43E+02	2.39E+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 1707086-06

HTC-A02-S004-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.979	1460.81	*	10.67	2.10E+01	2.64E+00
CD-109	0.996	88.03	*	3.72	7.47E+00	2.19E+00
SN-126	0.940	87.57	*	37.00	6.48E-01	1.86E-01
PM-146	0.414	453.90	*	39.94	1.64E-01	1.46E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.400	91.11	*	28.90	4.27E+02	1.20E+02
		531.02		13.10		
TL-208	0.407	583.14	*	30.22	2.49E+00	4.58E-01
		860.37	*	4.48	2.81E+00	1.95E+00
		2614.66		35.85		
BI-212	0.989	727.17	*	11.80	1.90E+00	7.88E-01
		1620.62	*	2.75	4.69E+00	1.98E+00
PB-212	0.966	238.63	*	44.60	2.79E+00	2.89E-01
		300.09	*	3.41	2.60E+00	1.51E+00
BI-214	0.930	609.31	*	46.30	1.54E+00	2.73E-01
		1120.29	*	15.10	1.40E+00	8.29E-01
		1764.49	*	15.80	2.00E+00	5.01E-01
		2204.22		4.98		
PB-214	0.958	295.21	*	19.19	1.53E+00	3.17E-01
		351.92	*	37.19	1.83E+00	3.15E-01
RA-226	0.983	186.21	*	3.28	4.58E+00	8.65E+00
AC-228	0.991	338.32	*	11.40	2.49E+00	7.63E-01
		911.07	*	27.70	2.30E+00	4.15E-01
		969.11	*	16.60	2.40E+00	7.79E-01
TH-234	0.989	63.29	*	3.80	1.72E+00	1.57E+00
NP-237	0.862	86.50	*	12.60	8.26E-01	3.85E-01
AM-243	0.961	74.67	*	66.00	5.69E-01	1.14E-01
CM-243	0.363	209.75	*	3.29	3.24E+00	1.67E+00
		228.14		10.60		
		277.60	*	14.00	4.67E-01	3.85E-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 : 8/21/2017 3:24:57PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.57	3.81131E-01	5.52	Tol.	TI-44
	7	129.19	2.70349E-02	54.89		
	8	154.16	2.55486E-02	54.10	Tol.	CS-136
m	12	242.19	8.34479E-02	17.63		
	13	270.68	2.33962E-02	41.11	Sum	
	17	328.18	2.15362E-02	43.88	Sum	
	21	463.39	3.39552E-02	20.37	Sum	
	22	488.82	7.95210E-03	48.17		
	23	511.53	5.37588E-02	19.27		
	26	628.71	1.01947E-02	46.72		
	27	649.94	5.50741E-03	60.14		
	29	755.99	1.07356E-02	39.54	Tol.	ZR-95
	30	769.73	1.74093E-02	48.24	Sum	
	31	794.86	1.04526E-02	43.51	Sum	
	32	820.99	7.91188E-03	50.02		
	33	828.79	6.45443E-03	63.98		
M	35	905.42	7.14491E-03	54.71	Sum	
	39	1140.06	9.76068E-03	34.42		
	40	1179.93	1.54095E-02	26.15	Sum	
	41	1237.32	2.06285E-02	23.30	Tol.	CO-56
	42	1343.61	7.75986E-03	49.16		
	43	1378.49	1.04861E-02	27.27		
	45	1530.16	4.10494E-03	54.48		
	46	1542.92	4.30556E-03	38.78		
	47	1551.77	2.30769E-03	53.49	Sum	
M	48	1562.44	3.50149E-03	4.43		
m	49	1565.44	2.75704E-03	66.07		
	50	1570.33	2.46528E-03	58.82		
	51	1589.71	2.16071E-02	17.15		
	53	1629.79	2.35185E-03	57.86		
	54	1651.65	2.04545E-03	59.19		
	55	1660.94	5.66872E-03	33.99		
	56	1672.60	1.94444E-03	65.76		
	57	1729.04	5.83333E-03	35.63	Sum	
M	58	1758.05	3.52532E-03	0.00		
	60	1887.68	3.98551E-03	49.28		
	61	1928.70	7.05357E-03	23.48		
	62	2084.47	2.69841E-03	52.99		
	63	2102.23	7.24415E-03	32.99	Sum	
	64	2142.50	2.47222E-03	61.73		
	65	2149.22	1.91667E-03	55.19		
	66	2157.64	1.80556E-03	61.78		
	67	2169.67	2.08333E-03	44.72		
	68	2278.19	3.19444E-03	43.48		
	69	2329.11	3.15171E-03	34.42		
	70	2613.51	3.97222E-02	8.36		

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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
K-40	0.97	1460.81	*	10.67	2.10E+01	2.64E+00
CD-109	0.99	88.03	*	3.72	7.47E+00	2.19E+00
SN-126	0.94	87.57	*	37.00	6.48E-01	1.86E-01
PM-146	0.41	453.90	*	39.94	1.64E-01	1.46E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.40	91.11	*	28.90	4.27E+02	1.20E+02
		531.02		13.10		
TL-208	0.40	583.14	*	30.22	2.49E+00	4.58E-01
		860.37	*	4.48	2.81E+00	1.95E+00
		2614.66		35.85		
BI-212	0.98	727.17	*	11.80	1.90E+00	7.88E-01
		1620.62	*	2.75	4.69E+00	1.98E+00
PB-212	0.96	238.63	*	44.60	2.79E+00	2.89E-01
		300.09	*	3.41	2.60E+00	1.51E+00
BI-214	0.93	609.31	*	46.30	1.54E+00	2.73E-01
		1120.29	*	15.10	1.40E+00	8.29E-01
		1764.49	*	15.80	2.00E+00	5.01E-01
		2204.22		4.98		
PB-214	0.95	295.21	*	19.19	1.53E+00	3.17E-01
		351.92	*	37.19	1.83E+00	3.15E-01
RA-226	0.98	186.21	*	3.28	4.58E+00	8.65E+00
AC-228	0.99	338.32	*	11.40	2.49E+00	7.63E-01
		911.07	*	27.70	2.30E+00	4.15E-01
		969.11	*	16.60	2.40E+00	7.79E-01
TH-234	0.98	63.29	*	3.80	1.72E+00	1.57E+00
NP-237	0.86	86.50	*	12.60	8.26E-01	3.85E-01
AM-243	0.96	74.67	*	66.00	5.69E-01	1.14E-01
CM-243	0.36	209.75	*	3.29	3.24E+00	1.67E+00
		228.14		10.60		
		277.60	*	14.00	4.67E-01	3.85E-01

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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	0.979	2.10E+01	2.64E+00	
?	CD-109	0.996	7.47E+00	2.19E+00	
?	SN-126	0.940	6.48E-01	1.86E-01	
	PM-146	0.414	1.64E-01	1.46E-01	
	ND-147	0.400	4.27E+02	1.20E+02	
	TL-208	0.407	2.50E+00	4.46E-01	
	BI-212	0.989	2.28E+00	7.32E-01	
	PB-212	0.966	2.78E+00	2.84E-01	
	BI-214	0.930	1.63E+00	2.30E-01	
	PB-214	0.958	1.68E+00	2.23E-01	
	RA-226	0.983	4.58E+00	8.65E+00	
	AC-228	0.991	2.35E+00	3.30E-01	
	TH-234	0.989	1.72E+00	1.57E+00	
	NP-237	0.862	8.26E-01	3.85E-01	
	AM-243	0.961	5.69E-01	1.14E-01	
	CM-243	0.363	6.07E-01	3.75E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707086-06

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 3:24:57PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.57	3.81131E-01	5.52	Tol.	TI-44
	7	129.19	2.70349E-02	54.89		
	8	154.16	2.55486E-02	54.10	Tol.	CS-136
m	12	242.19	8.34479E-02	17.63		
	13	270.68	2.33962E-02	41.11	Sum	
	17	328.18	2.15362E-02	43.88	Sum	
	21	463.39	3.39552E-02	20.37	Sum	
	22	488.82	7.95210E-03	48.17		
	23	511.53	5.37588E-02	19.27		
	26	628.71	1.01947E-02	46.72		
	27	649.94	5.50741E-03	60.14		
	29	755.99	1.07356E-02	39.54	Tol.	ZR-95
	30	769.73	1.74093E-02	48.24	Sum	
	31	794.86	1.04526E-02	43.51	Sum	
	32	820.99	7.91188E-03	50.02		
	33	828.79	6.45443E-03	63.98		
M	35	905.42	7.14491E-03	54.71	Sum	
	39	1140.06	9.76068E-03	34.42		
	40	1179.93	1.54095E-02	26.15	Sum	
	41	1237.32	2.06285E-02	23.30	Tol.	CO-56
	42	1343.61	7.75986E-03	49.16		
	43	1378.49	1.04861E-02	27.27		
	45	1530.16	4.10494E-03	54.48		
	46	1542.92	4.30556E-03	38.78		
	47	1551.77	2.30769E-03	53.49	Sum	
M	48	1562.44	3.50149E-03	4.43		
m	49	1565.44	2.75704E-03	66.07		
	50	1570.33	2.46528E-03	58.82		
	51	1589.71	2.16071E-02	17.15		
	53	1629.79	2.35185E-03	57.86		
	54	1651.65	2.04545E-03	59.19		
	55	1660.94	5.66872E-03	33.99		
	56	1672.60	1.94444E-03	65.76		
	57	1729.04	5.83333E-03	35.63	Sum	
M	58	1758.05	3.52532E-03	0.00		

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Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
60	1887.68	3.98551E-03	49.28		
61	1928.70	7.05357E-03	23.48		
62	2084.47	2.69841E-03	52.99		
63	2102.23	7.24415E-03	32.99	Sum	
64	2142.50	2.47222E-03	61.73		
65	2149.22	1.91667E-03	55.19		
66	2157.64	1.80556E-03	61.78		
67	2169.67	2.08333E-03	44.72		
68	2278.19	3.19444E-03	43.48		
69	2329.11	3.15171E-03	34.42		
70	2613.51	3.97222E-02	8.36		

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	-1.67E+00	2.73E+00	2.73E+00
+	NA-22	1274.54	99.94	-4.71E-02	1.09E-01	1.09E-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	1.51E-02	7.62E-02	7.62E-02
+	K-40	1460.81 *	10.67	2.10E+01	1.57E+00	1.57E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	4.65E-02	8.29E-02	8.29E-02
		78.34	96.00	4.29E-01		1.07E-01
+	SC-46	889.25	99.98	-6.05E-02	1.87E-01	1.87E-01
		1120.51	99.99	4.51E-01		3.64E-01
+	V-48	983.52	99.98	4.84E-01	7.23E+00	7.23E+00
		1312.10	97.50	-1.11E+00		7.40E+00
+	CR-51	320.08	9.83	8.29E-01	8.97E+00	8.97E+00
+	MN-54	834.83	99.97	7.25E-02	1.32E-01	1.32E-01
+	CO-56	846.75	99.96	5.14E-02	2.46E-01	2.46E-01
		1037.75	14.03	-6.90E-01		1.68E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	1238.25		67.00	4.33E-01	2.46E-01	5.82E-01
		1771.40		15.51	5.18E-01		1.36E+00
		2598.48		16.90	6.83E-02		1.08E+00
+	CO-57	122.06		85.51	1.88E-05	8.16E-02	8.16E-02
		136.48		10.60	-1.25E-01		7.14E-01
+	CO-58	810.76		99.40	6.19E-02	2.42E-01	2.42E-01
+	FE-59	1099.22		56.50	1.31E-01	9.12E-01	9.18E-01
		1291.56		43.20	-8.27E-01		9.12E-01
+	CO-60	1173.22		100.00	-2.10E-02	1.07E-01	1.16E-01
		1332.49		100.00	4.83E-02		1.07E-01
+	ZN-65	1115.52		50.75	-4.25E-02	2.75E-01	2.75E-01
+	GA-67	93.31		35.70	5.48E+08	2.50E+08	2.50E+08
		208.95		2.24	6.03E+09		4.44E+09
		300.22		16.00	-1.02E+09		6.76E+08
+	SE-75	121.11		16.70	-1.14E-01	1.77E-01	5.74E-01
		136.00		59.20	-5.21E-03		1.77E-01
		264.65		59.80	-5.61E-02		2.14E-01
		279.53		25.20	1.50E-01		5.88E-01
		400.65		11.40	-5.00E-02		1.28E+00
+	RB-82	776.52		13.00	-2.52E+00	1.02E+01	1.02E+01
+	RB-83	520.41		46.00	-2.42E-01	3.87E-01	3.87E-01
		529.64		30.30	-5.88E-01		5.97E-01
		552.65		16.40	2.47E-01		1.13E+00
+	KR-85	513.99		0.43	5.97E+01	3.05E+01	3.05E+01
+	SR-85	513.99		99.27	7.33E-01	3.74E-01	3.74E-01
+	Y-88	898.02		93.40	1.73E-02	1.46E-01	1.80E-01
		1836.01		99.38	-1.05E-02		1.46E-01
+	MO-93	263.06		56.72	6.54E-02	9.86E-02	1.37E-01
		684.67		99.68	1.56E-02		9.86E-02
		1477.11		99.08	3.50E-02		1.15E-01
+	NB-93M	16.57		9.43	2.64E+01	7.73E+01	7.73E+01
+	NB-94	702.63		100.00	-3.65E-02	9.85E-02	9.85E-02
		871.10		100.00	1.48E-02		1.03E-01
+	NB-95	765.79		99.81	-4.04E-02	8.18E-01	8.18E-01
+	NB-95M	235.69		25.00	4.85E+06	8.20E+07	8.20E+07
+	ZR-95	724.18		43.70	-3.10E-01	5.59E-01	7.87E-01
		756.72		55.30	-9.51E-03		5.59E-01
+	MO-99	181.06		6.20	5.07E+09	4.21E+10	5.63E+10
		739.58		12.80	9.39E+09		4.21E+10
		778.00		4.50	-2.52E+09		1.18E+11
+	RU-103	497.08		89.00	2.10E-01	5.09E-01	5.09E-01
+	RU-106	621.84		9.80	5.98E-01	1.15E+00	1.15E+00
+	AG-108M	433.93		89.90	-1.32E-02	9.01E-02	9.01E-02
		614.37		90.40	2.75E-03		1.23E-01
		722.95		90.50	-1.20E-02		1.16E-01
+	CD-109	88.03	*	3.72	7.47E+00	4.62E+00	4.62E+00
+	AG-110M	657.75		93.14	-2.87E-02	1.33E-01	1.33E-01
		677.61		10.53	-3.86E-01		1.15E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	706.67		16.46	-9.72E-02	1.33E-01	8.15E-01
		763.93		21.98	1.26E-01		6.51E-01
		884.67		71.63	1.80E-02		1.60E-01
		1384.27		23.94	5.59E-02		5.06E-01
+	CD-113M	263.70		0.02	2.16E+01	3.27E+02	3.27E+02
+	SN-113	255.12		1.93	3.27E-01	2.29E-01	6.83E+00
		391.69		64.90	5.59E-02		2.29E-01
+	TE123M	159.00		84.10	5.68E-03	1.22E-01	1.22E-01
+	SB-124	602.71		97.87	-2.22E-02	2.80E-01	2.80E-01
		645.85		7.26	3.52E-01		3.71E+00
		722.78		11.10	-3.03E-01		2.94E+00
		1691.02		49.00	-1.31E-01		4.94E-01
+	I-125	35.49		6.49	-2.86E+00	7.12E+00	7.12E+00
+	SB-125	176.33		6.89	1.30E-01	3.05E-01	9.58E-01
		427.89		29.33	8.30E-02		3.05E-01
		463.38		10.35	1.56E+00		9.98E-01
		600.56		17.80	-1.02E-01		5.42E-01
		635.90		11.32	4.73E-02		8.35E-01
+	SB-126	414.70		83.30	-2.83E+00	2.32E+01	2.37E+01
		666.33		99.60	1.56E+01		2.60E+01
		695.00		99.60	1.80E+00		2.32E+01
		720.50		53.80	8.82E+00		4.54E+01
+	SN-126	87.57	*	37.00	6.48E-01	4.01E-01	4.01E-01
+	SB-127	473.00		25.00	8.38E+06	1.30E+07	1.53E+07
		685.20		35.70	2.06E+06		1.30E+07
		783.80		14.70	2.08E+07		3.48E+07
+	I-129	29.78		57.00	-3.62E-01	4.42E-01	4.42E-01
		33.60		13.20	-6.89E-02		1.31E+00
		39.58		7.52	3.49E-01		1.59E+00
+	I-131	284.30		6.05	-2.65E+02	4.43E+02	5.84E+03
		364.48		81.20	-9.35E+01		4.43E+02
		636.97		7.26	1.39E+03		5.98E+03
		722.89		1.80	-2.88E+03		2.78E+04
+	TE-132	49.72		13.10	-3.51E+08	1.04E+08	7.75E+08
		228.16		88.00	-6.74E+07		1.04E+08
+	BA-133	81.00		33.00	-9.75E-01	2.00E-01	2.27E-01
		302.84		17.80	1.38E-02		4.74E-01
		356.01		60.00	2.15E-01		2.00E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-3.64E+05	8.46E+04	8.46E+04
+	CS-134	563.23		8.38	5.97E-01	1.17E-01	1.26E+00
		569.32		15.43	9.05E-02		6.51E-01
		604.70		97.60	-9.96E-03		1.17E-01
		795.84		85.40	1.22E-01		1.46E-01
		801.93		8.73	-9.58E-02		1.20E+00
+	CS-135	268.24		16.00	6.11E-02	5.04E-01	5.04E-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

Analysis Report for 1707086-06

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		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		CS-136	153.22		7.46	4.31E+01	1.72E+01	1.49E+02
			163.89		4.61	-1.57E+01		2.25E+02
			176.55		13.56	1.09E+01		8.04E+01
			273.65		12.66	-4.76E+01		1.15E+02
			340.57		48.50	1.02E+02		4.10E+01
			818.50		99.70	6.05E+00		1.72E+01
			1048.07		79.60	4.86E+00		2.38E+01
			1235.34		19.70	1.10E+02		1.51E+02
+		CS-137	661.65		85.12	-1.44E-03	1.17E-01	1.17E-01
+		LA-138	788.74		34.00	2.83E-02	1.56E-01	2.76E-01
			1435.80		66.00	8.87E-02		1.56E-01
+		CE-139	165.85		80.35	1.51E-02	1.21E-01	1.21E-01
+		BA-140	162.64		6.70	-2.41E+01	6.89E+01	1.79E+02
			304.84		4.50	6.76E+01		3.38E+02
			423.70		3.20	2.98E+02		5.47E+02
			437.55		2.00	7.34E+01		8.51E+02
			537.32		25.00	1.92E+01		6.89E+01
+		LA-140	328.77		20.50	8.36E+01	2.84E+01	8.96E+01
			487.03		45.50	-6.42E+00		3.80E+01
			815.85		23.50	5.27E+00		6.97E+01
			1596.49		95.49	9.26E-01		2.84E+01
+		CE-141	145.44		48.40	1.52E-01	1.01E+00	1.01E+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	2.52E-01	6.94E-01	6.94E-01
+		PM-144	476.78		42.00	3.72E-02	1.18E-01	2.32E-01
			618.01		98.60	3.15E-02		1.18E-01
			696.49		99.49	2.76E-02		1.18E-01
+		PM-145	36.85		21.70	-3.19E-01	3.46E-01	6.34E-01
			37.36		39.70	5.05E-02		3.46E-01
			42.30		15.10	-7.62E-01		6.95E-01
			72.40		2.31	-1.18E+01		3.77E+00
+		PM-146	453.90	*	39.94	1.64E-01	2.34E-01	2.34E-01
			735.90		14.01	-2.69E-01		6.56E-01
			747.13		13.10	3.51E-02		7.78E-01
+		ND-147	91.11	*	28.90	4.27E+02	2.54E+02	2.54E+02
			531.02		13.10	-7.19E+01		3.20E+02
+		PM-149	285.90		3.10	-3.42E+12	5.61E+13	5.61E+13
+		EU-152	121.78		20.50	6.17E-05	2.68E-01	2.68E-01
			244.69		5.40	-8.83E-02		1.75E+00
			344.27		19.13	7.71E-02		4.16E-01
			778.89		9.20	-7.95E-02		1.00E+00
			964.01		10.40	-6.66E-02		1.35E+00
			1085.78		7.22	-1.22E-01		1.60E+00
			1112.02		9.60	-8.10E-02		1.17E+00
			1407.95		14.94	4.00E-01		7.10E-01
+		GD-153	97.43		31.30	1.01E-01	2.47E-01	2.47E-01
			103.18		22.20	-4.00E-01		3.22E-01

Analysis Report for 1707086-06

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-154	123.07		40.50	1.81E-02	1.39E-01	1.39E-01
		723.30		19.70	-5.64E-02		5.45E-01
		873.19		11.50	-3.68E-02		9.06E-01
		996.32		10.30	4.98E-01		1.11E+00
		1004.76		17.90	1.06E-01		5.72E-01
		1274.45		35.50	-1.26E-01		2.93E-01
+	EU-155	86.50		30.90	2.61E-01	2.63E-01	2.63E-01
		105.30		20.70	-4.04E-02		2.84E-01
+	EU-156	811.77		10.40	9.49E+00	7.43E+01	7.43E+01
		1153.47		7.20	2.98E+01		1.54E+02
		1230.71		8.90	4.40E+01		1.44E+02
+	HO-166M	184.41		72.60	1.60E-01	1.03E-01	1.03E-01
		280.45		29.60	5.14E-02		2.73E-01
		410.94		11.10	4.36E-01		7.97E-01
		711.69		54.10	4.60E-02		1.90E-01
+	TM-171	66.72		0.14	2.45E+01	6.31E+01	6.31E+01
+	HF-172	67.35		5.31	9.14E-01	5.54E-01	1.63E+00
		125.81		11.30	5.45E-03		5.54E-01
+	LU-172	181.53		20.60	-1.17E+04	4.88E+03	7.74E+03
		900.72		29.81	-3.52E+02		7.65E+03
		1093.66		62.50	1.87E+03		4.88E+03
+	LU-173	100.72		5.24	1.07E+00	4.45E-01	1.25E+00
		272.11		21.20	2.17E-01		4.45E-01
+	HF-175	343.40		84.00	4.57E-02	2.47E-01	2.47E-01
+	LU-176	88.34		13.30	5.88E-01	7.37E-02	6.07E-01
		201.83		86.00	-2.68E-02		7.37E-02
		306.78		94.00	-5.35E-03		7.51E-02
+	HF-181	133.02		41.70	2.35E-01	5.21E-01	7.18E-01
		345.85		17.20	4.24E-01		2.22E+00
		482.03		82.80	3.18E-01		5.21E-01
+	TA-182	67.75		41.20	1.93E-01	3.44E-01	3.44E-01
		1121.30		34.90	1.11E+00		8.39E-01
		1189.05		16.23	-1.89E-01		1.25E+00
		1221.41		26.98	1.76E-01		8.79E-01
		1231.02		11.44	7.01E-01		2.29E+00
+	IR-192	308.46		29.68	-1.83E-01	4.10E-01	5.92E-01
		468.07		48.10	-4.25E-02		4.10E-01
+	HG-203	279.19		77.30	2.92E-01	4.58E-01	4.58E-01
+	TL-204	374.74		94.11	4.32E-03	8.87E-02	8.87E-02
		899.15		99.16	-9.34E-03		9.04E-02
		911.74		91.10	6.95E-01		2.43E-01
+	BI-207	569.67		97.72	4.48E-03	9.38E-02	9.38E-02
		1063.62		74.90	1.74E-02		1.45E-01
+	TL-208	583.14	*	30.22	2.49E+00	5.32E-01	5.32E-01
		860.37	*	4.48	2.81E+00		3.06E+00
		2614.66		35.85	2.07E+00		8.84E-01
+	BI-210M	262.00		45.00	5.55E-02	1.69E-01	1.69E-01
		300.00		23.00	-6.03E-01		4.01E-01
+	PB-210	46.50		4.25	1.90E+00	2.28E+00	2.28E+00

Analysis Report for 1707086-06

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-211	404.84		2.90	-1.20E+00	2.94E+00	2.94E+00
		831.96		2.90	6.24E-01		3.82E+00
+	BI-212	727.17	*	11.80	1.90E+00	1.16E+00	1.16E+00
		1620.62	*	2.75	4.69E+00		2.06E+00
+	PB-212	238.63	*	44.60	2.79E+00	2.85E-01	2.85E-01
		300.09	*	3.41	2.60E+00		4.50E+00
+	BI-214	609.31	*	46.30	1.54E+00	7.34E-02	2.96E-01
		1120.29	*	15.10	1.40E+00		1.29E+00
		1764.49	*	15.80	2.00E+00		7.34E-02
		2204.22		4.98	1.41E+00		2.55E+00
+	PB-214	295.21	*	19.19	1.53E+00	3.81E-01	7.89E-01
		351.92	*	37.19	1.83E+00		3.81E-01
+	RN-219	401.80		6.50	-4.11E-01	1.26E+00	1.26E+00
+	RA-223	323.87		3.88	3.20E-01	1.97E+00	1.97E+00
+	RA-224	240.98		3.95	3.57E+01	4.37E+00	4.37E+00
+	RA-225	40.00		31.00	8.22E+00	3.76E+01	3.76E+01
+	RA-226	186.21	*	3.28	4.58E+00	3.39E+00	3.39E+00
+	TH-227	50.10		8.40	-4.55E-01	1.00E+00	1.00E+00
		236.00		11.50	6.78E-02		1.15E+00
		256.20		6.30	-4.35E-01		1.16E+00
+	AC-228	338.32	*	11.40	2.49E+00	5.98E-01	1.12E+00
		911.07	*	27.70	2.30E+00		5.98E-01
		969.11	*	16.60	2.40E+00		1.11E+00
+	TH-230	48.44		16.90	3.36E-02	5.31E-01	5.31E-01
		62.85		4.60	2.61E+00		1.86E+00
		67.67		0.37	1.18E+01		2.11E+01
+	PA-231	283.67		1.60	-1.03E+00	3.60E+00	4.63E+00
		302.67		2.30	1.05E-01		3.60E+00
+	TH-231	25.64		14.70	1.41E+00	1.10E+00	3.33E+00
		84.21		6.40	-1.44E+00		1.10E+00
+	PA-233	311.98		38.60	-6.53E-01	2.30E+00	2.30E+00
+	PA-234	131.20		20.40	4.10E-02	3.03E-01	3.03E-01
		733.99		8.80	-2.97E-02		1.01E+00
		946.00		12.00	-4.30E-02		7.93E-01
+	PA-234M	1001.03		0.92	1.53E+00	1.18E+01	1.18E+01
+	TH-234	63.29	*	3.80	1.72E+00	2.56E+00	2.56E+00
+	U-235	143.76		10.50	-1.45E-01	5.64E-01	5.64E-01
		163.35		4.70	-8.69E-02		1.25E+00
		205.31		4.70	-1.43E-01		1.66E+00
+	NP-237	86.50	*	12.60	8.26E-01	1.16E+00	1.16E+00
+	NP-239	106.10		22.70	-1.28E+11	9.01E+11	9.01E+11
		228.18		10.70	-1.68E+12		2.60E+12
		277.60		14.10	9.35E+11		2.10E+12
+	AM-241	59.54		35.90	-2.31E-02	2.18E-01	2.18E-01
+	AM-243	74.67	*	66.00	5.69E-01	2.13E-01	2.13E-01
+	CM-243	209.75	*	3.29	3.24E+00	6.21E-01	2.63E+00
		228.14		10.60	-4.73E-01		7.31E-01

Analysis Report for 1707086-06

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Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
CM-243	277.60	*	14.00	4.67E-01	6.21E-01	6.21E-01

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

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	2.73E+00	2.73E+00	-1.67E+00	1.30E+00
	NA-22	1274.54		99.94	1.09E-01	1.09E-01	-4.71E-02	4.98E-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	7.62E-02	7.62E-02	1.51E-02	3.22E-02
+	K-40	1460.81	*	10.67	1.57E+00	1.57E+00	2.10E+01	7.40E-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	8.29E-02	8.29E-02	4.65E-02	4.08E-02
		78.34		96.00	1.07E-01		4.29E-01	5.30E-02
	SC-46	889.25		99.98	1.87E-01	1.87E-01	-6.05E-02	8.59E-02
		1120.51		99.99	3.64E-01		4.51E-01	1.73E-01
	V-48	983.52		99.98	7.23E+00	7.23E+00	4.84E-01	3.36E+00
		1312.10		97.50	7.40E+00		-1.11E+00	3.37E+00
	CR-51	320.08		9.83	8.97E+00	8.97E+00	8.29E-01	4.33E+00
	MN-54	834.83		99.97	1.32E-01	1.32E-01	7.25E-02	6.23E-02
	CO-56	846.75		99.96	2.46E-01	2.46E-01	5.14E-02	1.16E-01
		1037.75		14.03	1.68E+00		-6.90E-01	7.77E-01
		1238.25		67.00	5.82E-01		4.33E-01	2.75E-01
		1771.40		15.51	1.36E+00		5.18E-01	5.93E-01
		2598.48		16.90	1.08E+00		6.83E-02	4.38E-01
	CO-57	122.06		85.51	8.16E-02	8.16E-02	1.88E-05	3.98E-02
		136.48		10.60	7.14E-01		-1.25E-01	3.49E-01
	CO-58	810.76		99.40	2.42E-01	2.42E-01	6.19E-02	1.13E-01

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	FE-59	1099.22		56.50	9.18E-01	9.12E-01	1.31E-01	4.27E-01
		1291.56		43.20	9.12E-01		-8.27E-01	4.07E-01
	CO-60	1173.22		100.00	1.16E-01	1.07E-01	-2.10E-02	5.39E-02
		1332.49		100.00	1.07E-01		4.83E-02	4.84E-02
	ZN-65	1115.52		50.75	2.75E-01	2.75E-01	-4.25E-02	1.27E-01
	GA-67	93.31		35.70	2.50E+08	2.50E+08	5.48E+08	1.23E+08
		208.95		2.24	4.44E+09		6.03E+09	2.17E+09
		300.22		16.00	6.76E+08		-1.02E+09	3.29E+08
	SE-75	121.11		16.70	5.74E-01	1.77E-01	-1.14E-01	2.80E-01
		136.00		59.20	1.77E-01		-5.21E-03	8.64E-02
		264.65		59.80	2.14E-01		-5.61E-02	1.04E-01
		279.53		25.20	5.88E-01		1.50E-01	2.86E-01
		400.65		11.40	1.28E+00		-5.00E-02	6.16E-01
	RB-82	776.52		13.00	1.02E+01	1.02E+01	-2.52E+00	4.76E+00
	RB-83	520.41		46.00	3.87E-01	3.87E-01	-2.42E-01	1.84E-01
		529.64		30.30	5.97E-01		-5.88E-01	2.84E-01
		552.65		16.40	1.13E+00		2.47E-01	5.35E-01
	KR-85	513.99		0.43	3.05E+01	3.05E+01	5.97E+01	1.48E+01
	SR-85	513.99		99.27	3.74E-01	3.74E-01	7.33E-01	1.81E-01
	Y-88	898.02		93.40	1.80E-01	1.46E-01	1.73E-02	8.30E-02
		1836.01		99.38	1.46E-01		-1.05E-02	6.18E-02
	MO-93	263.06		56.72	1.37E-01	9.86E-02	6.54E-02	6.66E-02
		684.67		99.68	9.86E-02		1.56E-02	4.66E-02
		1477.11		99.08	1.15E-01		3.50E-02	5.21E-02
	NB-93M	16.57		9.43	7.73E+01	7.73E+01	2.64E+01	3.78E+01
	NB-94	702.63		100.00	9.85E-02	9.85E-02	-3.65E-02	4.66E-02
		871.10		100.00	1.03E-01		1.48E-02	4.83E-02
	NB-95	765.79		99.81	8.18E-01	8.18E-01	-4.04E-02	3.89E-01
	NB-95M	235.69		25.00	8.20E+07	8.20E+07	4.85E+06	4.04E+07
	ZR-95	724.18		43.70	7.87E-01	5.59E-01	-3.10E-01	3.75E-01
		756.72		55.30	5.59E-01		-9.51E-03	2.64E-01
	MO-99	181.06		6.20	5.63E+10	4.21E+10	5.07E+09	2.74E+10
		739.58		12.80	4.21E+10		9.39E+09	1.98E+10
		778.00		4.50	1.18E+11		-2.52E+09	5.51E+10
	RU-103	497.08		89.00	5.09E-01	5.09E-01	2.10E-01	2.42E-01
	RU-106	621.84		9.80	1.15E+00	1.15E+00	5.98E-01	5.44E-01
	AG-108M	433.93		89.90	9.01E-02	9.01E-02	-1.32E-02	4.31E-02
		614.37		90.40	1.23E-01		2.75E-03	5.90E-02
		722.95		90.50	1.16E-01		-1.20E-02	5.51E-02
+	CD-109	88.03	*	3.72	4.62E+00	4.62E+00	7.47E+00	2.29E+00
	AG-110M	657.75		93.14	1.33E-01	1.33E-01	-2.87E-02	6.28E-02
		677.61		10.53	1.15E+00		-3.86E-01	5.42E-01
		706.67		16.46	8.15E-01		-9.72E-02	3.86E-01
		763.93		21.98	6.51E-01		1.26E-01	3.08E-01
		884.67		71.63	1.60E-01		1.80E-02	7.41E-02
		1384.27		23.94	5.06E-01		5.59E-02	2.27E-01
	CD-113M	263.70		0.02	3.27E+02	3.27E+02	2.16E+01	1.59E+02
	SN-113	255.12		1.93	6.83E+00	2.29E-01	3.27E-01	3.31E+00
		391.69		64.90	2.29E-01		5.59E-02	1.10E-01
	TE123M	159.00		84.10	1.22E-01	1.22E-01	5.68E-03	5.95E-02
	SB-124	602.71		97.87	2.80E-01	2.80E-01	-2.22E-02	1.33E-01
		645.85		7.26	3.71E+00		3.52E-01	1.75E+00
		722.78		11.10	2.94E+00		-3.03E-01	1.39E+00

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-124	1691.02		49.00	4.94E-01	2.80E-01	-1.31E-01	2.12E-01
	I-125	35.49		6.49	7.12E+00	7.12E+00	-2.86E+00	3.48E+00
	SB-125	176.33		6.89	9.58E-01	3.05E-01	1.30E-01	4.66E-01
		427.89		29.33	3.05E-01		8.30E-02	1.46E-01
		463.38		10.35	9.98E-01		1.56E+00	4.80E-01
		600.56		17.80	5.42E-01		-1.02E-01	2.57E-01
		635.90		11.32	8.35E-01		4.73E-02	3.94E-01
	SB-126	414.70		83.30	2.37E+01	2.32E+01	-2.83E+00	1.14E+01
		666.33		99.60	2.60E+01		1.56E+01	1.24E+01
		695.00		99.60	2.32E+01		1.80E+00	1.10E+01
		720.50		53.80	4.54E+01		8.82E+00	2.15E+01
+	SN-126	87.57	*	37.00	4.01E-01	4.01E-01	6.48E-01	1.99E-01
	SB-127	473.00		25.00	1.53E+07	1.30E+07	8.38E+06	7.28E+06
		685.20		35.70	1.30E+07		2.06E+06	6.15E+06
		783.80		14.70	3.48E+07		2.08E+07	1.64E+07
	I-129	29.78		57.00	4.42E-01	4.42E-01	-3.62E-01	2.16E-01
		33.60		13.20	1.31E+00		-6.89E-02	6.39E-01
		39.58		7.52	1.59E+00		3.49E-01	7.79E-01
	I-131	284.30		6.05	5.84E+03	4.43E+02	-2.65E+02	2.82E+03
		364.48		81.20	4.43E+02		-9.35E+01	2.13E+02
		636.97		7.26	5.98E+03		1.39E+03	2.83E+03
		722.89		1.80	2.78E+04		-2.88E+03	1.32E+04
	TE-132	49.72		13.10	7.75E+08	1.04E+08	-3.51E+08	3.79E+08
		228.16		88.00	1.04E+08		-6.74E+07	5.08E+07
	BA-133	81.00		33.00	2.27E-01	2.00E-01	-9.75E-01	1.12E-01
		302.84		17.80	4.74E-01		1.38E-02	2.30E-01
		356.01		60.00	2.00E-01		2.15E-01	9.76E-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	8.46E+04	8.46E+04	-3.64E+05	4.16E+04
	CS-134	563.23		8.38	1.26E+00	1.17E-01	5.97E-01	6.00E-01
		569.32		15.43	6.51E-01		9.05E-02	3.10E-01
		604.70		97.60	1.17E-01		-9.96E-03	5.57E-02
		795.84		85.40	1.46E-01		1.22E-01	6.89E-02
		801.93		8.73	1.20E+00		-9.58E-02	5.63E-01
	CS-135	268.24		16.00	5.04E-01	5.04E-01	6.11E-02	2.45E-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	1.49E+02	1.72E+01	4.31E+01	7.30E+01
		163.89		4.61	2.25E+02		-1.57E+01	1.10E+02
		176.55		13.56	8.04E+01		1.09E+01	3.92E+01
		273.65		12.66	1.15E+02		-4.76E+01	5.59E+01
		340.57		48.50	4.10E+01		1.02E+02	2.00E+01
		818.50		99.70	1.72E+01		6.05E+00	8.05E+00
		1048.07		79.60	2.38E+01		4.86E+00	1.11E+01
		1235.34		19.70	1.51E+02		1.10E+02	7.18E+01
	CS-137	661.65		85.12	1.17E-01	1.17E-01	-1.44E-03	5.56E-02
	LA-138	788.74		34.00	2.76E-01	1.56E-01	2.83E-02	1.29E-01
		1435.80		66.00	1.56E-01		8.87E-02	7.07E-02
	CE-139	165.85		80.35	1.21E-01	1.21E-01	1.51E-02	5.88E-02
	BA-140	162.64		6.70	1.79E+02	6.89E+01	-2.41E+01	8.71E+01
		304.84		4.50	3.38E+02		6.76E+01	1.63E+02
		423.70		3.20	5.47E+02		2.98E+02	2.63E+02

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BA-140	437.55		2.00	8.51E+02	6.89E+01	7.34E+01	4.07E+02
		537.32		25.00	6.89E+01		1.92E+01	3.27E+01
	LA-140	328.77		20.50	8.96E+01	2.84E+01	8.36E+01	4.35E+01
		487.03		45.50	3.80E+01		-6.42E+00	1.81E+01
		815.85		23.50	6.97E+01		5.27E+00	3.22E+01
		1596.49		95.49	2.84E+01		9.26E-01	1.30E+01
	CE-141	145.44		48.40	1.01E+00	1.01E+00	1.52E-01	4.94E-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	6.94E-01	6.94E-01	2.52E-01	3.39E-01
	PM-144	476.78		42.00	2.32E-01	1.18E-01	3.72E-02	1.10E-01
		618.01		98.60	1.18E-01		3.15E-02	5.62E-02
		696.49		99.49	1.18E-01		2.76E-02	5.57E-02
	PM-145	36.85		21.70	6.34E-01	3.46E-01	-3.19E-01	3.10E-01
		37.36		39.70	3.46E-01		5.05E-02	1.69E-01
		42.30		15.10	6.95E-01		-7.62E-01	3.40E-01
		72.40		2.31	3.77E+00		-1.18E+01	1.86E+00
+	PM-146	453.90	*	39.94	2.34E-01	2.34E-01	1.64E-01	1.12E-01
		735.90		14.01	6.56E-01		-2.69E-01	3.07E-01
		747.13		13.10	7.78E-01		3.51E-02	3.67E-01
+	ND-147	91.11	*	28.90	2.54E+02	2.54E+02	4.27E+02	1.26E+02
		531.02		13.10	3.20E+02		-7.19E+01	1.52E+02
	PM-149	285.90		3.10	5.61E+13	5.61E+13	-3.42E+12	2.72E+13
	EU-152	121.78		20.50	2.68E-01	2.68E-01	6.17E-05	1.31E-01
		244.69		5.40	1.75E+00		-8.83E-02	8.57E-01
		344.27		19.13	4.16E-01		7.71E-02	2.01E-01
		778.89		9.20	1.00E+00		-7.95E-02	4.69E-01
		964.01		10.40	1.35E+00		-6.66E-02	6.43E-01
		1085.78		7.22	1.60E+00		-1.22E-01	7.47E-01
		1112.02		9.60	1.17E+00		-8.10E-02	5.45E-01
		1407.95		14.94	7.10E-01		4.00E-01	3.22E-01
	GD-153	97.43		31.30	2.47E-01	2.47E-01	1.01E-01	1.21E-01
		103.18		22.20	3.22E-01		-4.00E-01	1.57E-01
	EU-154	123.07		40.50	1.39E-01	1.39E-01	1.81E-02	6.79E-02
		723.30		19.70	5.45E-01		-5.64E-02	2.58E-01
		873.19		11.50	9.06E-01		-3.68E-02	4.24E-01
		996.32		10.30	1.11E+00		4.98E-01	5.20E-01
		1004.76		17.90	5.72E-01		1.06E-01	2.65E-01
		1274.45		35.50	2.93E-01		-1.26E-01	1.33E-01
	EU-155	86.50		30.90	2.63E-01	2.63E-01	2.61E-01	1.29E-01
		105.30		20.70	2.84E-01		-4.04E-02	1.39E-01
	EU-156	811.77		10.40	7.43E+01	7.43E+01	9.49E+00	3.46E+01
		1153.47		7.20	1.54E+02		2.98E+01	7.21E+01
		1230.71		8.90	1.44E+02		4.40E+01	6.76E+01
	HO-166M	184.41		72.60	1.03E-01	1.03E-01	1.60E-01	5.03E-02
		280.45		29.60	2.73E-01		5.14E-02	1.33E-01
		410.94		11.10	7.97E-01		4.36E-01	3.83E-01
		711.69		54.10	1.90E-01		4.60E-02	9.00E-02
	TM-171	66.72		0.14	6.31E+01	6.31E+01	2.45E+01	3.10E+01
	HF-172	67.35		5.31	1.63E+00	5.54E-01	9.14E-01	8.01E-01
		125.81		11.30	5.54E-01		5.45E-03	2.71E-01
	LU-172	181.53		20.60	7.74E+03	4.88E+03	-1.17E+04	3.77E+03

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-172	900.72		29.81	7.65E+03	4.88E+03	-3.52E+02	3.53E+03
		1093.66		62.50	4.88E+03		1.87E+03	2.27E+03
	LU-173	100.72		5.24	1.25E+00	4.45E-01	1.07E+00	6.14E-01
		272.11		21.20	4.45E-01		2.17E-01	2.16E-01
	HF-175	343.40		84.00	2.47E-01	2.47E-01	4.57E-02	1.19E-01
	LU-176	88.34		13.30	6.07E-01	7.37E-02	5.88E-01	2.99E-01
		201.83		86.00	7.37E-02		-2.68E-02	3.58E-02
		306.78		94.00	7.51E-02		-5.35E-03	3.62E-02
	HF-181	133.02		41.70	7.18E-01	5.21E-01	2.35E-01	3.51E-01
		345.85		17.20	2.22E+00		4.24E-01	1.07E+00
		482.03		82.80	5.21E-01		3.18E-01	2.49E-01
	TA-182	67.75		41.20	3.44E-01	3.44E-01	1.93E-01	1.69E-01
		1121.30		34.90	8.39E-01		1.11E+00	3.98E-01
		1189.05		16.23	1.25E+00		-1.89E-01	5.76E-01
		1221.41		26.98	8.79E-01		1.76E-01	4.10E-01
		1231.02		11.44	2.29E+00		7.01E-01	1.08E+00
	IR-192	308.46		29.68	5.92E-01	4.10E-01	-1.83E-01	2.85E-01
		468.07		48.10	4.10E-01		-4.25E-02	1.95E-01
	HG-203	279.19		77.30	4.58E-01	4.58E-01	2.92E-01	2.23E-01
	TL-204	374.74		94.11	8.87E-02	8.87E-02	4.32E-03	4.26E-02
		899.15		99.16	9.04E-02		-9.34E-03	4.17E-02
		911.74		91.10	2.43E-01		6.95E-01	1.18E-01
	BI-207	569.67		97.72	9.38E-02	9.38E-02	4.48E-03	4.46E-02
		1063.62		74.90	1.45E-01		1.74E-02	6.73E-02
+	TL-208	583.14	*	30.22	5.32E-01	5.32E-01	2.49E+00	2.58E-01
		860.37	*	4.48	3.06E+00		2.81E+00	1.46E+00
		2614.66		35.85	8.84E-01		2.07E+00	4.21E-01
	BI-210M	262.00		45.00	1.69E-01	1.69E-01	5.55E-02	8.20E-02
		300.00		23.00	4.01E-01		-6.03E-01	1.95E-01
	PB-210	46.50		4.25	2.28E+00	2.28E+00	1.90E+00	1.12E+00
	PB-211	404.84		2.90	2.94E+00	2.94E+00	-1.20E+00	1.42E+00
		831.96		2.90	3.82E+00		6.24E-01	1.80E+00
+	BI-212	727.17	*	11.80	1.16E+00	1.16E+00	1.90E+00	5.58E-01
		1620.62	*	2.75	2.06E+00		4.69E+00	8.30E-01
+	PB-212	238.63	*	44.60	2.85E-01	2.85E-01	2.79E+00	1.40E-01
		300.09	*	3.41	4.50E+00		2.60E+00	2.21E+00
+	BI-214	609.31	*	46.30	2.96E-01	7.34E-02	1.54E+00	1.43E-01
		1120.29	*	15.10	1.29E+00		1.40E+00	6.16E-01
		1764.49	*	15.80	7.34E-02		2.00E+00	0.00E+00
		2204.22		4.98	2.55E+00		1.41E+00	1.14E+00
+	PB-214	295.21	*	19.19	7.89E-01	3.81E-01	1.53E+00	3.88E-01
		351.92	*	37.19	3.81E-01		1.83E+00	1.87E-01
	RN-219	401.80		6.50	1.26E+00	1.26E+00	-4.11E-01	6.05E-01
	RA-223	323.87		3.88	1.97E+00	1.97E+00	3.20E-01	9.50E-01
	RA-224	240.98		3.95	4.37E+00	4.37E+00	3.57E+01	2.16E+00
	RA-225	40.00		31.00	3.76E+01	3.76E+01	8.22E+00	1.84E+01
+	RA-226	186.21	*	3.28	3.39E+00	3.39E+00	4.58E+00	1.67E+00
	TH-227	50.10		8.40	1.00E+00	1.00E+00	-4.55E-01	4.91E-01
		236.00		11.50	1.15E+00		6.78E-02	5.65E-01
		256.20		6.30	1.16E+00		-4.35E-01	5.64E-01
+	AC-228	338.32	*	11.40	1.12E+00	5.98E-01	2.49E+00	5.48E-01
		911.07	*	27.70	5.98E-01		2.30E+00	2.87E-01
		969.11	*	16.60	1.11E+00		2.40E+00	5.32E-01

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-230	48.44		16.90	5.31E-01	5.31E-01	3.36E-02	2.60E-01
		62.85		4.60	1.86E+00		2.61E+00	9.16E-01
		67.67		0.37	2.11E+01		1.18E+01	1.04E+01
	PA-231	283.67		1.60	4.63E+00	3.60E+00	-1.03E+00	2.24E+00
		302.67		2.30	3.60E+00		1.05E-01	1.75E+00
	TH-231	25.64		14.70	3.33E+00	1.10E+00	1.41E+00	1.63E+00
		84.21		6.40	1.10E+00		-1.44E+00	5.40E-01
	PA-233	311.98		38.60	2.30E+00	2.30E+00	-6.53E-01	1.11E+00
	PA-234	131.20		20.40	3.03E-01	3.03E-01	4.10E-02	1.48E-01
		733.99		8.80	1.01E+00		-2.97E-02	4.72E-01
		946.00		12.00	7.93E-01		-4.30E-02	3.67E-01
	PA-234M	1001.03		0.92	1.18E+01	1.18E+01	1.53E+00	5.52E+00
+	TH-234	63.29	*	3.80	2.56E+00	2.56E+00	1.72E+00	1.26E+00
	U-235	143.76		10.50	5.64E-01	5.64E-01	-1.45E-01	2.75E-01
		163.35		4.70	1.25E+00		-8.69E-02	6.07E-01
		205.31		4.70	1.66E+00		-1.43E-01	8.11E-01
+	NP-237	86.50	*	12.60	1.16E+00	1.16E+00	8.26E-01	5.73E-01
	NP-239	106.10		22.70	9.01E+11	9.01E+11	-1.28E+11	4.41E+11
		228.18		10.70	2.60E+12		-1.68E+12	1.27E+12
		277.60		14.10	2.10E+12		9.35E+11	1.02E+12
	AM-241	59.54		35.90	2.18E-01	2.18E-01	-2.31E-02	1.07E-01
+	AM-243	74.67	*	66.00	2.13E-01	2.13E-01	5.69E-01	1.05E-01
+	CM-243	209.75	*	3.29	2.63E+00	6.21E-01	3.24E+00	1.29E+00
		228.14		10.60	7.31E-01		-4.73E-01	3.56E-01
		277.60	*	14.00	6.21E-01		4.67E-01	3.02E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

Analysis Report for 1707086-06

HTC-A02-S004-2430-01

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-A02-S004-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	2	196	242	177	181	126	129	118
17:	143	111	104	105	100	103	117	124
25:	127	129	116	121	111	109	109	108
33:	139	110	108	122	125	134	122	151
41:	141	122	131	135	139	167	177	185
49:	140	142	156	153	161	163	168	145
57:	132	158	193	192	216	226	231	348
65:	264	223	251	239	237	220	209	232
73:	230	313	533	571	641	802	443	195
81:	184	187	159	203	241	213	261	357
89:	266	245	300	211	323	356	220	157
97:	126	126	141	173	129	115	135	113
105:	111	148	142	145	140	146	139	109
113:	128	120	126	128	128	105	105	110
121:	100	115	120	101	125	99	122	134
129:	146	158	137	122	100	135	125	111
137:	110	108	124	122	120	118	95	114
145:	100	124	123	102	112	110	96	106
153:	127	117	135	121	96	86	106	87
161:	94	98	93	88	85	95	91	99
169:	88	81	109	83	113	88	85	101
177:	93	85	94	87	75	95	94	85
185:	103	170	183	100	88	74	83	81
193:	98	90	66	81	94	88	82	87
201:	79	87	60	82	84	89	70	90
209:	115	122	115	81	61	70	69	75
217:	72	62	83	72	75	69	78	84
225:	64	71	78	74	69	60	67	88
233:	66	68	59	54	93	266	763	638
241:	199	190	157	70	67	53	55	45
249:	60	42	36	51	43	54	60	49
257:	50	50	52	66	65	42	57	41
265:	49	54	42	47	54	63	93	64
273:	46	46	44	47	66	79	55	52
281:	49	42	64	33	40	32	46	48
289:	38	41	44	50	50	46	126	193
297:	108	45	47	81	65	57	33	35
305:	44	29	41	30	31	31	32	40
313:	32	37	36	47	30	42	34	41
321:	39	32	38	36	26	35	51	71
329:	56	53	37	44	40	45	42	40
337:	55	98	172	97	56	28	30	41
345:	26	36	26	34	37	32	88	262
353:	265	103	40	30	31	33	27	24
361:	37	25	38	26	23	33	27	29

369:	31	31	23	32	30	30	32	36

Sample Title: HTC-A02-S004-2430-01

Channel								
377:	33	20	34	30	30	31	33	30
385:	27	37	31	32	30	37	34	21
393:	31	28	30	26	24	37	21	34
401:	27	30	29	27	31	35	30	32
409:	36	40	32	17	33	34	23	21
417:	30	27	24	18	31	25	28	25
425:	31	29	27	15	33	24	26	23
433:	21	26	27	25	20	25	21	33
441:	23	19	30	28	23	22	30	23
449:	21	17	18	20	26	29	25	19
457:	22	17	13	21	26	28	42	49
465:	28	19	23	15	12	20	20	18
473:	21	22	17	20	14	19	22	26
481:	17	19	34	24	17	18	18	25
489:	21	24	10	13	14	26	17	17
497:	19	17	18	14	17	15	23	25
505:	31	21	22	18	22	66	96	111
513:	35	29	27	19	11	16	16	20
521:	15	18	14	20	24	30	18	18
529:	26	14	22	11	10	26	20	14
537:	15	14	18	14	17	19	18	14
545:	13	24	20	12	17	15	17	14
553:	20	17	13	19	15	15	17	13
561:	24	24	23	25	21	18	17	19
569:	21	23	12	21	16	11	23	26
577:	17	16	20	20	22	68	195	171
585:	69	15	15	17	14	20	11	15
593:	15	17	19	18	24	16	20	14
601:	21	19	13	11	16	15	24	54
609:	162	174	73	15	16	15	18	18
617:	15	14	20	21	19	16	16	11
625:	12	11	18	18	22	17	11	13
633:	7	11	15	21	18	13	13	13
641:	17	14	17	13	19	10	10	8
649:	15	24	18	10	15	17	19	15
657:	7	14	12	20	18	16	18	11
665:	21	18	25	19	22	11	13	15
673:	20	14	17	15	11	7	12	13
681:	20	15	15	21	10	15	8	19
689:	9	14	10	10	15	10	16	11
697:	16	19	19	10	12	14	16	12
705:	17	21	15	16	14	14	20	15
713:	15	15	16	13	12	14	24	14
721:	9	15	11	15	21	26	46	44
729:	16	15	10	10	12	11	7	17
737:	8	12	8	16	15	12	16	8
745:	12	11	17	13	12	18	13	10
753:	14	13	20	23	14	18	6	11
761:	20	14	14	12	14	15	19	27
769:	24	23	16	13	15	13	16	10
777:	8	12	5	9	16	11	13	13
785:	17	16	12	11	13	8	7	7
793:	9	19	30	19	8	12	12	12

801:	10	13	11	10	7	14	7	14

Sample Title: HTC-A02-S004-2430-01

Channel								
809:	7	10	11	8	9	8	7	6
817:	6	5	8	19	17	13	14	5
825:	12	8	12	5	17	17	12	6
833:	10	7	26	18	10	10	5	14
841:	15	7	4	14	12	12	12	14
849:	8	8	14	12	9	8	11	5
857:	12	15	12	25	24	16	6	11
865:	7	9	9	12	11	7	9	13
873:	8	15	15	6	9	11	17	8
881:	9	8	9	8	8	3	7	8
889:	5	6	10	6	9	7	11	8
897:	7	2	10	5	8	7	5	13
905:	19	9	6	14	21	58	106	78
913:	28	14	4	7	12	10	9	9
921:	1	13	7	5	9	10	4	9
929:	6	7	6	10	8	22	9	7
937:	6	9	3	9	7	9	4	7
945:	10	3	9	12	9	7	9	13
953:	11	9	10	9	5	5	4	11
961:	7	14	19	17	25	17	18	42
969:	69	48	14	10	9	2	6	9
977:	11	8	9	8	8	10	12	4
985:	6	7	11	9	6	9	8	5
993:	10	10	9	11	9	8	13	6
1001:	10	12	9	7	6	9	3	8
1009:	6	6	9	10	6	6	6	9
1017:	3	8	15	6	7	6	6	6
1025:	5	4	3	7	5	5	4	9
1033:	14	5	5	8	5	10	8	5
1041:	9	7	11	5	3	11	5	14
1049:	11	8	6	9	4	5	6	11
1057:	5	7	10	11	3	6	9	11
1065:	8	10	10	7	2	7	10	15
1073:	4	6	7	9	8	6	10	6
1081:	6	14	5	5	9	7	11	11
1089:	14	6	11	10	7	10	7	12
1097:	8	5	5	9	11	9	7	7
1105:	6	5	8	8	8	9	10	6
1113:	6	8	9	4	8	9	14	39
1121:	27	19	6	8	10	6	9	5
1129:	9	12	9	6	6	5	5	6
1137:	7	9	7	7	7	13	3	1
1145:	2	5	7	9	6	8	10	11
1153:	6	7	15	11	10	9	10	12
1161:	16	5	7	12	8	5	8	15
1169:	10	9	8	9	8	4	3	11
1177:	9	7	9	16	10	15	7	7
1185:	3	5	9	7	11	7	4	7
1193:	13	7	12	8	8	7	11	9
1201:	8	6	8	5	6	4	15	13
1209:	8	7	8	9	8	7	9	7
1217:	6	16	6	13	9	11	4	8
1225:	7	12	8	17	13	10	11	7

1233:	11	13	10	17	23	32	13	9

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Channel								
1241:	2	6	11	9	8	12	3	10
1249:	9	10	5	9	6	2	8	6
1257:	6	7	4	5	7	7	7	9
1265:	3	9	7	9	2	8	8	1
1273:	4	9	6	2	6	8	9	10
1281:	6	4	7	6	7	11	6	3
1289:	2	5	6	4	1	3	3	8
1297:	4	6	6	8	3	2	1	5
1305:	5	8	3	3	7	2	3	5
1313:	6	7	4	9	6	9	10	5
1321:	7	2	9	4	6	5	7	2
1329:	3	5	3	6	6	6	5	2
1337:	1	4	3	7	5	8	2	2
1345:	3	3	6	4	5	6	3	3
1353:	3	4	5	5	1	5	3	5
1361:	2	3	5	2	4	5	4	3
1369:	2	1	5	0	4	2	5	5
1377:	12	10	8	4	5	4	1	1
1385:	3	8	3	4	3	5	2	3
1393:	2	4	3	2	3	5	0	4
1401:	2	7	1	4	2	6	4	5
1409:	4	5	6	2	2	4	4	6
1417:	0	3	9	4	3	2	1	5
1425:	3	3	5	5	2	1	1	3
1433:	6	4	2	4	4	3	7	3
1441:	1	3	2	0	3	2	2	2
1449:	3	2	2	8	4	3	7	4
1457:	5	28	98	230	188	67	10	2
1465:	1	2	3	3	1	6	2	3
1473:	3	4	2	2	6	7	2	5
1481:	3	3	3	5	4	3	1	2
1489:	4	1	0	3	3	3	4	3
1497:	0	5	1	6	7	2	1	1
1505:	2	2	2	3	6	3	3	1
1513:	3	4	2	1	6	2	1	2
1521:	0	2	1	2	2	1	2	6
1529:	5	2	3	1	3	1	1	0
1537:	1	1	0	2	1	2	8	2
1545:	3	1	0	1	0	1	6	3
1553:	3	0	2	1	2	4	3	0
1561:	0	6	3	3	6	2	2	1
1569:	4	5	3	2	1	1	2	3
1577:	3	3	4	0	1	1	4	1
1585:	4	7	11	12	10	5	6	21
1593:	7	4	1	3	1	2	3	1
1601:	1	2	4	4	2	4	1	1
1609:	1	2	2	3	0	1	1	2
1617:	3	4	7	4	2	3	3	5
1625:	0	0	0	3	2	6	4	0
1633:	4	2	1	3	5	3	2	2
1641:	4	3	3	0	2	1	1	1
1649:	1	0	5	1	2	0	0	1
1657:	1	2	3	5	4	1	3	2

1665:	2	2	1	1	1	2	0	4

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Channel								
1673:	3	2	0	1	0	3	1	4
1681:	0	2	2	1	1	6	2	1
1689:	1	1	1	1	1	3	1	0
1697:	1	3	1	1	5	1	1	3
1705:	1	3	1	0	2	3	1	2
1713:	0	0	1	1	2	0	1	2
1721:	1	0	2	0	3	0	4	3
1729:	10	5	3	2	1	1	1	0
1737:	2	2	1	1	1	3	0	1
1745:	2	0	0	1	2	1	4	0
1753:	0	1	1	0	0	5	1	1
1761:	1	8	21	29	7	6	3	0
1769:	0	4	1	2	4	1	0	0
1777:	0	1	1	1	1	1	2	0
1785:	1	1	1	0	0	1	4	2
1793:	1	1	4	0	2	2	1	1
1801:	1	1	1	1	2	0	1	2
1809:	0	2	0	2	1	0	1	0
1817:	0	2	3	0	2	2	1	3
1825:	2	0	0	3	3	0	3	1
1833:	1	0	2	2	0	0	2	2
1841:	1	1	1	0	6	7	4	4
1849:	1	0	3	0	1	2	2	2
1857:	1	1	0	1	1	1	0	2
1865:	3	1	1	1	1	2	1	2
1873:	1	0	2	1	0	1	1	3
1881:	0	2	0	1	3	3	4	3
1889:	1	3	1	1	1	0	1	2
1897:	2	1	0	3	2	1	1	1
1905:	4	2	0	1	0	2	2	1
1913:	0	2	2	2	1	2	2	1
1921:	2	1	0	2	2	4	2	4
1929:	5	4	3	2	0	0	1	0
1937:	2	1	2	2	0	1	1	2
1945:	2	2	0	1	3	2	1	2
1953:	3	0	0	1	0	0	2	0
1961:	1	1	0	2	2	1	2	0
1969:	1	2	2	1	3	2	1	1
1977:	1	1	0	1	2	2	0	1
1985:	1	3	1	1	0	0	1	1
1993:	2	2	2	1	2	2	3	1
2001:	1	1	1	2	4	0	1	0
2009:	1	1	4	1	4	1	4	2
2017:	1	0	0	0	1	0	3	1
2025:	2	1	2	3	1	2	1	2
2033:	1	0	0	2	2	0	1	2
2041:	2	1	0	1	0	0	0	3
2049:	0	1	1	1	1	1	2	0
2057:	2	1	1	2	0	1	0	3
2065:	2	0	0	1	1	1	2	2
2073:	2	2	0	4	0	0	2	1
2081:	1	1	2	0	4	2	1	0
2089:	0	1	2	2	2	1	0	1

2097:	2	0	1	3	5	9	9	3

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

2529:	0	1	0	0	0	1	0	0

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Channel								
2537:	0	0	0	1	0	0	0	1
2545:	0	1	1	2	0	0	0	0
2553:	0	3	0	0	0	0	0	0
2561:	0	1	1	0	1	1	0	0
2569:	1	1	1	1	0	0	0	0
2577:	1	1	1	1	1	0	0	0
2585:	0	1	1	0	0	0	1	0
2593:	0	1	2	0	1	0	1	1
2601:	0	0	0	0	2	0	0	0
2609:	3	1	13	26	54	33	11	2
2617:	0	0	1	0	0	2	0	0
2625:	0	0	0	1	0	0	0	0
2633:	0	0	0	0	1	0	0	0
2641:	0	0	0	0	1	0	1	0
2649:	0	1	0	1	0	0	0	1
2657:	0	0	0	0	0	0	1	0
2665:	1	0	1	1	1	0	0	0
2673:	0	2	0	0	0	0	0	0
2681:	0	0	0	1	0	1	1	1
2689:	0	0	0	0	0	1	0	0
2697:	0	1	0	1	0	0	1	0
2705:	0	0	1	0	0	1	0	0
2713:	0	1	0	0	0	1	0	0
2721:	0	0	0	0	1	1	1	1
2729:	1	1	0	1	2	0	1	0
2737:	0	0	0	0	0	0	2	1
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	1	1	2	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	1	0	0	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	1	1	0	0	0	0
2793:	1	0	0	0	0	1	0	1
2801:	0	0	0	0	0	0	0	0
2809:	0	0	1	0	0	1	0	1
2817:	0	0	0	0	0	0	1	0
2825:	0	0	0	0	0	0	1	0
2833:	1	0	1	0	1	1	1	0
2841:	0	0	1	0	0	0	0	0
2849:	0	0	1	0	1	0	1	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	1	1	0	0	1	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	1	0	0	0	2	0
2889:	1	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	0	0	0	1	0
2921:	0	0	0	0	0	0	0	0
2929:	1	0	0	1	0	0	0	0
2937:	0	0	0	0	0	1	0	0
2945:	0	1	1	0	0	0	0	0
2953:	0	1	0	0	1	1	1	0

2961:	0	0	0	0	1	0	0	0

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

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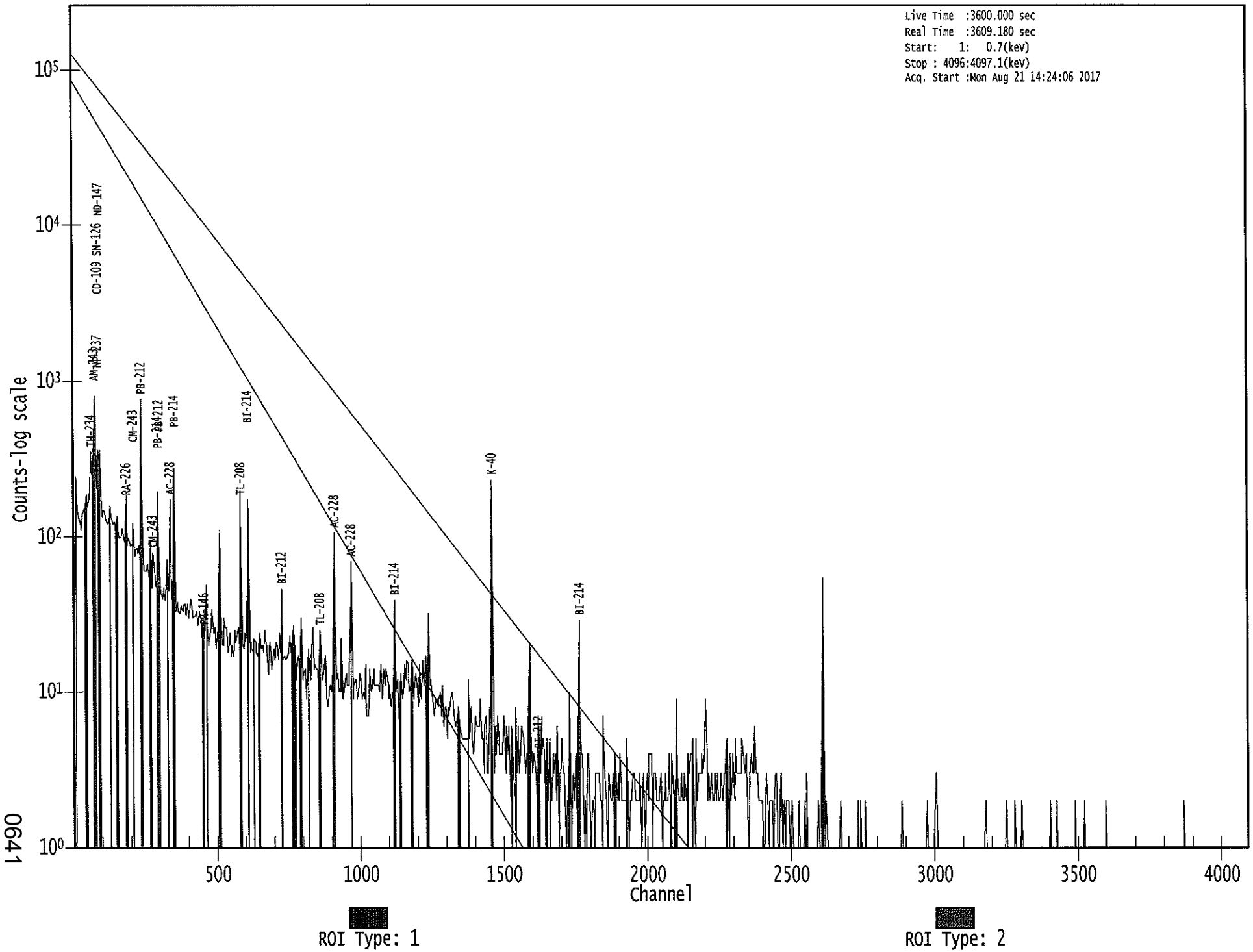
Channel								
3401:	1	0	0	2	1	0	0	0
3409:	0	0	0	0	1	1	0	0
3417:	0	0	0	1	0	0	0	0
3425:	0	2	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	1	1	1	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	0	1	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	2	0	1	0	0	0	0
3497:	0	0	0	0	0	1	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	1	0	0	1	0
3521:	0	0	2	0	1	0	0	0
3529:	0	0	0	0	1	1	0	0
3537:	0	0	0	0	0	0	0	1
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	1	0	0	0
3561:	0	0	1	0	0	0	0	0
3569:	0	0	0	0	0	1	0	0
3577:	1	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	0
3593:	0	0	1	0	2	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0
3649:	0	1	0	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	1	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	1	0	0
3753:	0	1	0	0	0	0	0	0
3761:	1	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	1	0	1	0	0	0	0
3793:	0	0	1	0	0	0	0	0
3801:	0	0	0	0	0	0	1	1
3809:	0	0	0	1	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-A02-S004-2430-01

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	1	0	0
3865:	0	0	0	0	2	1	0	0
3873:	0	0	0	0	1	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	1	0	0	0	0	0	0	1
3913:	0	0	0	0	0	0	1	1
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	1	0	0	0
3937:	0	0	0	0	0	0	1	0
3945:	0	0	0	0	0	1	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	1	0	0	1	0	1
3977:	0	0	0	0	0	0	0	0
3985:	0	1	0	0	0	0	0	0
3993:	1	0	0	1	0	1	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	1	0	0	0	0	0
4033:	0	1	0	0	0	0	0	0
4041:	0	0	0	0	0	0	1	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	1	0	0	0	0	0	0
4073:	0	1	0	1	0	0	1	0
4081:	0	0	0	0	1	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055651.CNF



0641

VCB 8/21/17

Apex-Gamma

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-07
Sample Description	: HTC-A02-S004-3036-01
Sample Type	: SOIL
Sample Size	: 6.658E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:12:47AM
Acquisition Started	: 8/21/2017 3:24:49PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
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)	: 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	: 55655

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 4:24:54PM
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	46.27	46.89	0.0000	0.00
2	63.18	63.79	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.10	77.69	0.0000	0.00
5	84.73	85.32	0.0000	0.00
6	87.74	88.32	0.0000	0.00
7	93.11	93.68	0.0000	0.00
8	99.45	100.01	0.0000	0.00
9	129.51	130.05	0.0000	0.00
10	154.05	154.56	0.0000	0.00
11	179.49	179.98	0.0000	0.00
12	185.84	186.32	0.0000	0.00
13	209.31	209.77	0.0000	0.00
14	238.61	239.04	0.0000	0.00
15	241.68	242.10	0.0000	0.00
16	270.25	270.65	0.0000	0.00
17	277.77	278.15	0.0000	0.00
18	295.19	295.56	0.0000	0.00
19	300.07	300.43	0.0000	0.00
20	310.03	310.38	0.0000	0.00
21	328.21	328.54	0.0000	0.00
22	338.42	338.74	0.0000	0.00
23	352.02	352.33	0.0000	0.00
24	409.36	409.61	0.0000	0.00
25	439.40	439.62	0.0000	0.00
26	462.90	463.10	0.0000	0.00
27	510.91	511.06	0.0000	0.00
28	563.03	563.12	0.0000	0.00
29	583.24	583.32	0.0000	0.00
30	605.95	606.00	0.0000	0.00
31	609.49	609.54	0.0000	0.00
32	613.95	614.00	0.0000	0.00
33	665.69	665.68	0.0000	0.00
34	682.60	682.58	0.0000	0.00
35	727.16	727.09	0.0000	0.00
36	771.22	771.11	0.0000	0.00
37	782.53	782.41	0.0000	0.00
38	785.95	785.82	0.0000	0.00
39	795.11	794.97	0.0000	0.00
40	837.39	837.21	0.0000	0.00
41	860.23	860.03	0.0000	0.00
42	911.52	911.27	0.0000	0.00

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	934.10	933.83	0.0000	0.00
44	958.53	958.23	0.0000	0.00
45	965.16	964.85	0.0000	0.00
46	969.29	968.98	0.0000	0.00
47	1002.42	1002.08	0.0000	0.00
48	1081.99	1081.57	0.0000	0.00
49	1095.17	1094.74	0.0000	0.00
50	1120.67	1120.21	0.0000	0.00
51	1123.67	1123.21	0.0000	0.00
52	1155.40	1154.91	0.0000	0.00
53	1239.12	1238.55	0.0000	0.00
54	1340.37	1339.70	0.0000	0.00
55	1378.27	1377.56	0.0000	0.00
56	1408.46	1407.71	0.0000	0.00
57	1414.99	1414.24	0.0000	0.00
58	1461.28	1460.48	0.0000	0.00
59	1466.39	1465.59	0.0000	0.00
60	1540.10	1539.23	0.0000	0.00
61	1551.19	1550.31	0.0000	0.00
62	1574.97	1574.06	0.0000	0.00
63	1585.94	1585.02	0.0000	0.00
64	1588.94	1588.02	0.0000	0.00
65	1593.39	1592.47	0.0000	0.00
66	1621.47	1620.52	0.0000	0.00
67	1631.86	1630.90	0.0000	0.00
68	1658.76	1657.78	0.0000	0.00
69	1661.99	1661.00	0.0000	0.00
70	1681.55	1680.54	0.0000	0.00
71	1751.18	1750.10	0.0000	0.00
72	1765.19	1764.10	0.0000	0.00
73	1844.14	1842.97	0.0000	0.00
74	1848.41	1847.24	0.0000	0.00
75	1856.30	1855.12	0.0000	0.00
76	1954.14	1952.87	0.0000	0.00
77	2099.70	2098.29	0.0000	0.00
78	2104.20	2102.78	0.0000	0.00
79	2119.77	2118.34	0.0000	0.00
80	2178.98	2177.49	0.0000	0.00
81	2188.72	2187.22	0.0000	0.00
82	2204.97	2203.46	0.0000	0.00
83	2209.76	2208.24	0.0000	0.00
84	2379.45	2377.77	0.0000	0.00
85	2397.58	2395.88	0.0000	0.00
86	2408.69	2406.98	0.0000	0.00
87	2413.14	2411.43	0.0000	0.00
88	2448.16	2446.41	0.0000	0.00
89	2494.22	2492.43	0.0000	0.00
90	2509.18	2507.38	0.0000	0.00
91	2615.12	2613.21	0.0000	0.00
92	2674.70	2672.73	0.0000	0.00
93	2792.88	2790.80	0.0000	0.00
94	3197.46	3195.00	0.0000	0.00

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 4:24:54PM

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	46.27	45 -	49	46.89	1.18E+02	90.03	1.71E+03	1.77
	2	63.18	61 -	66	63.79	4.17E+02	144.56	3.86E+03	1.44
M	3	74.72	71 -	81	75.31	1.33E+03	155.10	3.39E+03	1.81
m	4	77.10	71 -	81	77.69	2.20E+03	168.42	3.30E+03	1.82
M	5	84.73	83 -	97	85.32	3.02E+02	119.62	3.05E+03	1.83
m	6	87.74	83 -	97	88.32	6.56E+02	126.90	2.83E+03	1.83
m	7	93.11	83 -	97	93.68	6.96E+02	141.65	2.89E+03	1.84
	8	99.45	98 -	103	100.01	1.12E+02	115.13	2.55E+03	1.68
	9	129.51	127 -	133	130.05	1.71E+02	129.54	2.91E+03	1.24
	10	154.05	152 -	158	154.56	1.51E+02	115.51	2.31E+03	2.48
M	11	179.49	177 -	189	179.98	1.03E+02	96.86	1.81E+03	2.59
m	12	185.84	177 -	189	186.32	4.55E+02	104.45	1.82E+03	1.97
m	13	209.31	205 -	212	209.77	3.01E+02	85.60	1.35E+03	1.62
M	14	238.61	233 -	250	239.04	3.38E+03	143.02	1.33E+03	1.86
m	15	241.68	233 -	250	242.10	7.05E+02	146.09	1.26E+03	2.35
	16	270.25	267 -	274	270.65	1.91E+02	95.54	1.40E+03	1.82
	17	277.77	275 -	284	278.15	1.26E+02	108.69	1.59E+03	2.40
M	18	295.19	291 -	308	295.56	7.10E+02	76.41	6.90E+02	1.82
m	19	300.07	291 -	308	300.43	2.55E+02	79.40	9.26E+02	2.28
	20	310.03	308 -	313	310.38	5.78E+01	59.32	6.58E+02	3.09
	21	328.21	323 -	333	328.54	2.01E+02	104.40	1.34E+03	1.93
	22	338.42	334 -	344	338.74	6.83E+02	112.05	1.31E+03	1.84
	23	352.02	347 -	357	352.33	1.19E+03	120.20	1.30E+03	1.86
	24	409.36	406 -	413	409.61	1.04E+02	68.64	7.16E+02	1.66
	25	439.40	436 -	443	439.62	8.23E+01	58.96	5.25E+02	4.29
	26	462.90	459 -	467	463.10	1.41E+02	70.61	6.82E+02	1.72
	27	510.91	506 -	514	511.06	4.68E+02	75.34	5.86E+02	1.77
	28	563.03	558 -	567	563.12	7.79E+01	65.12	5.52E+02	2.50
	29	583.24	577 -	588	583.32	1.02E+03	101.94	7.87E+02	2.06
M	30	605.95	605 -	619	606.00	2.28E+01	17.78	8.99E+01	1.87
m	31	609.49	605 -	619	609.54	8.42E+02	68.12	2.64E+02	1.96
m	32	613.95	605 -	619	614.00	6.54E+01	67.54	3.89E+02	2.87
	33	665.69	664 -	668	665.68	3.50E+01	34.28	2.30E+02	1.80
	34	682.60	680 -	685	682.58	4.25E+01	36.17	2.27E+02	1.31
	35	727.16	723 -	730	727.09	2.57E+02	55.39	3.39E+02	2.13
	36	771.22	765 -	778	771.11	1.37E+02	75.81	5.66E+02	4.87
M	37	782.53	780 -	790	782.41	3.54E+01	28.97	1.55E+02	2.36
m	38	785.95	780 -	790	785.82	6.20E+01	40.09	2.17E+02	2.36
	39	795.11	791 -	799	794.97	1.55E+02	49.02	2.74E+02	1.62
	40	837.39	831 -	842	837.21	7.29E+01	60.70	4.18E+02	2.02

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	860.23	856 -	863	860.03	1.39E+02	43.31	2.21E+02	2.10
	42	911.52	908 -	916	911.27	6.87E+02	67.44	2.72E+02	1.89
	43	934.10	930 -	938	933.83	3.56E+01	42.21	2.53E+02	1.48
M	44	958.53	955 -	975	958.23	2.93E+01	26.68	1.04E+02	3.25
m	45	965.16	955 -	975	964.85	1.50E+02	37.92	1.30E+02	2.49
m	46	969.29	955 -	975	968.98	3.94E+02	48.29	1.26E+02	2.04
	47	1002.42	998 -	1006	1002.08	4.93E+01	38.19	1.95E+02	2.76
M	48	1081.99	1074 -	1098	1081.57	2.66E+01	28.42	1.05E+02	2.49
m	49	1095.17	1074 -	1098	1094.74	3.41E+01	30.85	1.33E+02	3.33
M	50	1120.67	1115 -	1127	1120.21	1.61E+02	38.80	1.29E+02	2.28
m	51	1123.67	1115 -	1127	1123.21	2.90E+01	36.68	1.32E+02	2.28
	52	1155.40	1149 -	1159	1154.91	4.03E+01	42.85	2.17E+02	6.11
	53	1239.12	1233 -	1244	1238.55	6.57E+01	56.00	3.57E+02	2.08
	54	1340.37	1334 -	1343	1339.70	2.19E+01	28.00	9.82E+01	1.91
	55	1378.27	1373 -	1383	1377.56	4.96E+01	34.99	1.35E+02	1.99
M	56	1408.46	1396 -	1417	1407.71	3.60E+01	21.91	4.80E+01	2.63
m	57	1414.99	1396 -	1417	1414.24	2.70E+01	19.08	4.80E+01	2.63
M	58	1461.28	1455 -	1472	1460.48	1.22E+03	72.81	7.34E+01	2.29
m	59	1466.39	1455 -	1472	1465.59	3.18E+01	55.94	9.86E+01	2.91
	60	1540.10	1533 -	1546	1539.23	2.90E+01	23.56	4.80E+01	5.34
	61	1551.19	1547 -	1553	1550.31	2.04E+01	13.31	1.71E+01	2.89
	62	1574.97	1572 -	1576	1574.06	1.70E+01	10.63	1.00E+01	2.77
M	63	1585.94	1584 -	1599	1585.02	7.97E+00	8.19	1.77E+01	2.69
m	64	1588.94	1584 -	1599	1588.02	5.66E+01	23.66	5.56E+01	2.20
m	65	1593.39	1584 -	1599	1592.47	4.03E+01	22.27	4.79E+01	2.25
	66	1621.47	1615 -	1625	1620.52	2.65E+01	27.64	8.70E+01	2.32
	67	1631.86	1627 -	1636	1630.90	3.51E+01	22.96	5.57E+01	1.28
M	68	1658.76	1655 -	1669	1657.78	7.36E+00	8.80	1.90E+01	2.47
m	69	1661.99	1655 -	1669	1661.00	2.03E+01	13.32	2.17E+01	2.24
	70	1681.55	1675 -	1686	1680.54	2.30E+01	16.85	2.40E+01	6.08
	71	1751.18	1748 -	1753	1750.10	1.09E+01	10.82	1.42E+01	2.97
	72	1765.19	1759 -	1771	1764.10	1.51E+02	33.05	5.43E+01	2.60
M	73	1844.14	1832 -	1857	1842.97	1.81E+01	15.52	2.34E+01	3.06
m	74	1848.41	1832 -	1857	1847.24	2.61E+01	17.44	1.59E+01	3.36
m	75	1856.30	1832 -	1857	1855.12	1.46E+01	8.54	9.23E-01	3.70
	76	1954.14	1949 -	1958	1952.87	1.74E+01	15.78	2.72E+01	7.30
M	77	2099.70	2097 -	2112	2098.29	6.49E+00	6.32	1.16E+01	3.38
m	78	2104.20	2097 -	2112	2102.78	5.48E+01	25.38	4.86E+01	3.91
	79	2119.77	2114 -	2123	2118.34	2.39E+01	15.23	1.81E+01	3.46
	80	2178.98	2170 -	2184	2177.49	3.13E+01	21.94	3.74E+01	11.22
	81	2188.72	2185 -	2190	2187.22	8.68E+00	11.96	2.26E+01	1.83
M	82	2204.97	2197 -	2210	2203.46	6.68E+01	24.33	3.35E+01	3.85
m	83	2209.76	2197 -	2210	2208.24	9.66E+00	9.87	5.71E+00	2.27
	84	2379.45	2374 -	2382	2377.77	2.39E+01	14.46	1.62E+01	1.47
M	85	2397.58	2392 -	2416	2395.88	1.21E+01	11.36	1.40E+01	4.31
m	86	2408.69	2392 -	2416	2406.98	1.01E+01	12.85	1.80E+01	2.95
m	87	2413.14	2392 -	2416	2411.43	1.22E+01	15.13	2.20E+01	4.32
	88	2448.16	2442 -	2450	2446.41	2.25E+01	16.29	2.70E+01	1.91
	89	2494.22	2488 -	2496	2492.43	1.40E+01	7.48	0.00E+00	3.49
	90	2509.18	2504 -	2510	2507.38	1.03E+01	7.76	3.33E+00	3.43
	91	2615.12	2607 -	2621	2613.21	4.09E+02	43.00	2.12E+01	3.06
	92	2674.70	2667 -	2678	2672.73	1.50E+01	7.75	0.00E+00	1.45
	93	2792.88	2787 -	2793	2790.80	5.00E+00	4.47	0.00E+00	2.75

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
94	3197.46	3191 -	3197	3195.00	6.00E+00	4.90	0.00E+00	2.88

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 : 8/21/2017 4:24:54PM

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	46.27	45 -	49	1.18E+02	90.03	1.71E+03	7.18E+01
	2	63.18	61 -	66	4.17E+02	144.56	3.86E+03	1.14E+02
M	3	74.72	71 -	81	1.33E+03	155.10	3.39E+03	9.57E+01
m	4	77.10	71 -	81	2.20E+03	168.42	3.30E+03	9.44E+01
M	5	84.73	83 -	97	3.02E+02	119.62	3.05E+03	9.09E+01
m	6	87.74	83 -	97	6.56E+02	126.90	2.83E+03	8.74E+01
m	7	93.11	83 -	97	6.96E+02	141.65	2.89E+03	8.83E+01
	8	99.45	98 -	103	1.12E+02	115.13	2.55E+03	9.30E+01
	9	129.51	127 -	133	1.71E+02	129.54	2.91E+03	1.04E+02
	10	154.05	152 -	158	1.51E+02	115.51	2.31E+03	9.28E+01
M	11	179.49	177 -	189	1.03E+02	96.86	1.81E+03	6.99E+01
m	12	185.84	177 -	189	4.55E+02	104.45	1.82E+03	7.02E+01
m	13	209.31	205 -	212	3.01E+02	85.60	1.35E+03	6.04E+01
M	14	238.61	233 -	250	3.38E+03	143.02	1.33E+03	6.01E+01
m	15	241.68	233 -	250	7.05E+02	146.09	1.26E+03	5.83E+01
	16	270.25	267 -	274	1.91E+02	95.54	1.40E+03	7.52E+01
	17	277.77	275 -	284	1.26E+02	108.69	1.59E+03	8.74E+01
M	18	295.19	291 -	308	7.10E+02	76.41	6.90E+02	4.32E+01
m	19	300.07	291 -	308	2.55E+02	79.40	9.26E+02	5.00E+01
	20	310.03	308 -	313	5.78E+01	59.32	6.58E+02	4.71E+01
	21	328.21	323 -	333	2.01E+02	104.40	1.34E+03	8.26E+01
	22	338.42	334 -	344	6.83E+02	112.05	1.31E+03	8.15E+01
	23	352.02	347 -	357	1.19E+03	120.20	1.30E+03	8.10E+01
	24	409.36	406 -	413	1.04E+02	68.64	7.16E+02	5.39E+01
	25	439.40	436 -	443	8.23E+01	58.96	5.25E+02	4.61E+01
	26	462.90	459 -	467	1.41E+02	70.61	6.82E+02	5.47E+01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	27	510.91	506 -	514	4.68E+02	75.34	5.86E+02	5.07E+01
	28	563.03	558 -	567	7.79E+01	65.12	5.52E+02	5.15E+01
	29	583.24	577 -	588	1.02E+03	101.94	7.87E+02	6.54E+01
M	30	605.95	605 -	619	2.28E+01	17.78	8.99E+01	1.56E+01
m	31	609.49	605 -	619	8.42E+02	68.12	2.64E+02	2.67E+01
m	32	613.95	605 -	619	6.54E+01	67.54	3.89E+02	3.24E+01
	33	665.69	664 -	668	3.50E+01	34.28	2.30E+02	2.64E+01
	34	682.60	680 -	685	4.25E+01	36.17	2.27E+02	2.77E+01
	35	727.16	723 -	730	2.57E+02	55.39	3.39E+02	3.71E+01
	36	771.22	765 -	778	1.37E+02	75.81	5.66E+02	5.93E+01
M	37	782.53	780 -	790	3.54E+01	28.97	1.55E+02	2.05E+01
m	38	785.95	780 -	790	6.20E+01	40.09	2.17E+02	2.42E+01
	39	795.11	791 -	799	1.55E+02	49.02	2.74E+02	3.47E+01
	40	837.39	831 -	842	7.29E+01	60.70	4.18E+02	4.79E+01
	41	860.23	856 -	863	1.39E+02	43.31	2.21E+02	2.99E+01
	42	911.52	908 -	916	6.87E+02	67.44	2.72E+02	3.49E+01
	43	934.10	930 -	938	3.56E+01	42.21	2.53E+02	3.33E+01
M	44	958.53	955 -	975	2.93E+01	26.68	1.04E+02	1.68E+01
m	45	965.16	955 -	975	1.50E+02	37.92	1.30E+02	1.87E+01
m	46	969.29	955 -	975	3.94E+02	48.29	1.26E+02	1.84E+01
	47	1002.42	998 -	1006	4.93E+01	38.19	1.95E+02	2.92E+01
M	48	1081.99	1074 -	1098	2.66E+01	28.42	1.05E+02	1.68E+01
m	49	1095.17	1074 -	1098	3.41E+01	30.85	1.33E+02	1.90E+01
M	50	1120.67	1115 -	1127	1.61E+02	38.80	1.29E+02	1.87E+01
m	51	1123.67	1115 -	1127	2.90E+01	36.68	1.32E+02	1.89E+01
	52	1155.40	1149 -	1159	4.03E+01	42.85	2.17E+02	3.36E+01
	53	1239.12	1233 -	1244	6.57E+01	56.00	3.57E+02	4.41E+01
	54	1340.37	1334 -	1343	2.19E+01	28.00	9.82E+01	2.17E+01
	55	1378.27	1373 -	1383	4.96E+01	34.99	1.35E+02	2.63E+01
M	56	1408.46	1396 -	1417	3.60E+01	21.91	4.80E+01	1.14E+01
m	57	1414.99	1396 -	1417	2.70E+01	19.08	4.80E+01	1.14E+01
M	58	1461.28	1455 -	1472	1.22E+03	72.81	7.34E+01	1.41E+01
m	59	1466.39	1455 -	1472	3.18E+01	55.94	9.86E+01	1.63E+01
	60	1540.10	1533 -	1546	2.90E+01	23.56	4.80E+01	1.72E+01
	61	1551.19	1547 -	1553	2.04E+01	13.31	1.71E+01	8.03E+00
	62	1574.97	1572 -	1576	1.70E+01	10.63	1.00E+01	5.51E+00
M	63	1585.94	1584 -	1599	7.97E+00	8.19	1.77E+01	6.91E+00
m	64	1588.94	1584 -	1599	5.66E+01	23.66	5.56E+01	1.23E+01
m	65	1593.39	1584 -	1599	4.03E+01	22.27	4.79E+01	1.14E+01
	66	1621.47	1615 -	1625	2.65E+01	27.64	8.70E+01	2.11E+01
	67	1631.86	1627 -	1636	3.51E+01	22.96	5.57E+01	1.62E+01
M	68	1658.76	1655 -	1669	7.36E+00	8.80	1.90E+01	7.16E+00
m	69	1661.99	1655 -	1669	2.03E+01	13.32	2.17E+01	7.66E+00
	70	1681.55	1675 -	1686	2.30E+01	16.85	2.40E+01	1.14E+01
	71	1751.18	1748 -	1753	1.09E+01	10.82	1.42E+01	7.04E+00
	72	1765.19	1759 -	1771	1.51E+02	33.05	5.43E+01	1.82E+01
M	73	1844.14	1832 -	1857	1.81E+01	15.52	2.34E+01	7.95E+00
m	74	1848.41	1832 -	1857	2.61E+01	17.44	1.59E+01	6.55E+00
m	75	1856.30	1832 -	1857	1.46E+01	8.54	9.23E-01	1.58E+00
	76	1954.14	1949 -	1958	1.74E+01	15.78	2.72E+01	1.10E+01
M	77	2099.70	2097 -	2112	6.49E+00	6.32	1.16E+01	5.59E+00

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	78	2104.20	2097 -	2112	5.48E+01	25.38	4.86E+01	1.15E+01
	79	2119.77	2114 -	2123	2.39E+01	15.23	1.81E+01	9.59E+00
	80	2178.98	2170 -	2184	3.13E+01	21.94	3.74E+01	1.55E+01
	81	2188.72	2185 -	2190	8.68E+00	11.96	2.26E+01	8.55E+00
M	82	2204.97	2197 -	2210	6.68E+01	24.33	3.35E+01	9.52E+00
m	83	2209.76	2197 -	2210	9.66E+00	9.87	5.71E+00	3.93E+00
	84	2379.45	2374 -	2382	2.39E+01	14.46	1.62E+01	8.75E+00
M	85	2397.58	2392 -	2416	1.21E+01	11.36	1.40E+01	6.15E+00
m	86	2408.69	2392 -	2416	1.01E+01	12.85	1.80E+01	6.97E+00
m	87	2413.14	2392 -	2416	1.22E+01	15.13	2.20E+01	7.71E+00
	88	2448.16	2442 -	2450	2.25E+01	16.29	2.70E+01	1.09E+01
	89	2494.22	2488 -	2496	1.40E+01	7.48	0.00E+00	0.00E+00
	90	2509.18	2504 -	2510	1.03E+01	7.76	3.33E+00	3.58E+00
	91	2615.12	2607 -	2621	4.09E+02	43.00	2.12E+01	1.19E+01
	92	2674.70	2667 -	2678	1.50E+01	7.75	0.00E+00	0.00E+00
	93	2792.88	2787 -	2793	5.00E+00	4.47	0.00E+00	0.00E+00
	94	3197.46	3191 -	3197	6.00E+00	4.90	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 : 8/21/2017 4:24:54PM

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	46.27	45 -	49	46.89	1.18E+02	90.03	1.71E+03	PB-210
	2	63.18	61 -	66	63.79	4.17E+02	144.56	3.86E+03	TH-234
									TH-230
M	3	74.72	71 -	81	75.31	1.33E+03	155.10	3.39E+03	AM-243
m	4	77.10	71 -	81	77.69	2.20E+03	168.42	3.30E+03	.....
M	5	84.73	83 -	97	85.32	3.02E+02	119.62	3.05E+03	TH-231
m	6	87.74	83 -	97	88.32	6.56E+02	126.90	2.83E+03	SN-126
									CD-109

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									LU-176
m	7	93.11	83 -	97	93.68	6.96E+02	141.65	2.89E+03	GA-67
	8	99.45	98 -	103	100.01	1.12E+02	115.13	2.55E+03	.....
	9	129.51	127 -	133	130.05	1.71E+02	129.54	2.91E+03	.....
	10	154.05	152 -	158	154.56	1.51E+02	115.51	2.31E+03	CS-136
M	11	179.49	177 -	189	179.98	1.03E+02	96.86	1.81E+03	.....
m	12	185.84	177 -	189	186.32	4.55E+02	104.45	1.82E+03	RA-226
m	13	209.31	205 -	212	209.77	3.01E+02	85.60	1.35E+03	GA-67
									CM-243
M	14	238.61	233 -	250	239.04	3.38E+03	143.02	1.33E+03	PB-212
m	15	241.68	233 -	250	242.10	7.05E+02	146.09	1.26E+03	RA-224
	16	270.25	267 -	274	270.65	1.91E+02	95.54	1.40E+03	.....
	17	277.77	275 -	284	278.15	1.26E+02	108.69	1.59E+03	CM-243
									NP-239
M	18	295.19	291 -	308	295.56	7.10E+02	76.41	6.90E+02	PB-214
m	19	300.07	291 -	308	300.43	2.55E+02	79.40	9.26E+02	PB-212
									BI-210M
									GA-67
	20	310.03	308 -	313	310.38	5.78E+01	59.32	6.58E+02	.....
	21	328.21	323 -	333	328.54	2.01E+02	104.40	1.34E+03	LA-140
	22	338.42	334 -	344	338.74	6.83E+02	112.05	1.31E+03	AC-228
	23	352.02	347 -	357	352.33	1.19E+03	120.20	1.30E+03	PB-214
	24	409.36	406 -	413	409.61	1.04E+02	68.64	7.16E+02	.....
	25	439.40	436 -	443	439.62	8.23E+01	58.96	5.25E+02	.....
	26	462.90	459 -	467	463.10	1.41E+02	70.61	6.82E+02	SB-125
	27	510.91	506 -	514	511.06	4.68E+02	75.34	5.86E+02	.....
	28	563.03	558 -	567	563.12	7.79E+01	65.12	5.52E+02	CS-134
	29	583.24	577 -	588	583.32	1.02E+03	101.94	7.87E+02	TL-208
M	30	605.95	605 -	619	606.00	2.28E+01	17.78	8.99E+01	.....
m	31	609.49	605 -	619	609.54	8.42E+02	68.12	2.64E+02	BI-214
m	32	613.95	605 -	619	614.00	6.54E+01	67.54	3.89E+02	AG-108M
	33	665.69	664 -	668	665.68	3.50E+01	34.28	2.30E+02	SB-126
	34	682.60	680 -	685	682.58	4.25E+01	36.17	2.27E+02	.....
	35	727.16	723 -	730	727.09	2.57E+02	55.39	3.39E+02	BI-212
	36	771.22	765 -	778	771.11	1.37E+02	75.81	5.66E+02	.....
M	37	782.53	780 -	790	782.41	3.54E+01	28.97	1.55E+02	.....
m	38	785.95	780 -	790	785.82	6.20E+01	40.09	2.17E+02	.....
	39	795.11	791 -	799	794.97	1.55E+02	49.02	2.74E+02	CS-134
	40	837.39	831 -	842	837.21	7.29E+01	60.70	4.18E+02	.....
	41	860.23	856 -	863	860.03	1.39E+02	43.31	2.21E+02	TL-208
	42	911.52	908 -	916	911.27	6.87E+02	67.44	2.72E+02	TL-204
									AC-228
	43	934.10	930 -	938	933.83	3.56E+01	42.21	2.53E+02	.....
M	44	958.53	955 -	975	958.23	2.93E+01	26.68	1.04E+02	.....
m	45	965.16	955 -	975	964.85	1.50E+02	37.92	1.30E+02	.....
m	46	969.29	955 -	975	968.98	3.94E+02	48.29	1.26E+02	AC-228
	47	1002.42	998 -	1006	1002.08	4.93E+01	38.19	1.95E+02	.....
M	48	1081.99	1074 -	1098	1081.57	2.66E+01	28.42	1.05E+02	.....
m	49	1095.17	1074 -	1098	1094.74	3.41E+01	30.85	1.33E+02	.....
M	50	1120.67	1115 -	1127	1120.21	1.61E+02	38.80	1.29E+02	SC-46
									BI-214
									TA-182
m	51	1123.67	1115 -	1127	1123.21	2.90E+01	36.68	1.32E+02	.....
	52	1155.40	1149 -	1159	1154.91	4.03E+01	42.85	2.17E+02	.....

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	53	1239.12	1233 -	1244	1238.55	6.57E+01	56.00	3.57E+02	CO-56
	54	1340.37	1334 -	1343	1339.70	2.19E+01	28.00	9.82E+01	.....
	55	1378.27	1373 -	1383	1377.56	4.96E+01	34.99	1.35E+02	.....
M	56	1408.46	1396 -	1417	1407.71	3.60E+01	21.91	4.80E+01	EU-152
m	57	1414.99	1396 -	1417	1414.24	2.70E+01	19.08	4.80E+01	.....
M	58	1461.28	1455 -	1472	1460.48	1.22E+03	72.81	7.34E+01	K-40
m	59	1466.39	1455 -	1472	1465.59	3.18E+01	55.94	9.86E+01	.....
	60	1540.10	1533 -	1546	1539.23	2.90E+01	23.56	4.80E+01	.....
	61	1551.19	1547 -	1553	1550.31	2.04E+01	13.31	1.71E+01	.....
	62	1574.97	1572 -	1576	1574.06	1.70E+01	10.63	1.00E+01	.....
M	63	1585.94	1584 -	1599	1585.02	7.97E+00	8.19	1.77E+01	.....
m	64	1588.94	1584 -	1599	1588.02	5.66E+01	23.66	5.56E+01	.....
m	65	1593.39	1584 -	1599	1592.47	4.03E+01	22.27	4.79E+01	.....
	66	1621.47	1615 -	1625	1620.52	2.65E+01	27.64	8.70E+01	BI-212
	67	1631.86	1627 -	1636	1630.90	3.51E+01	22.96	5.57E+01	.....
M	68	1658.76	1655 -	1669	1657.78	7.36E+00	8.80	1.90E+01	.....
m	69	1661.99	1655 -	1669	1661.00	2.03E+01	13.32	2.17E+01	.....
	70	1681.55	1675 -	1686	1680.54	2.30E+01	16.85	2.40E+01	.....
	71	1751.18	1748 -	1753	1750.10	1.09E+01	10.82	1.42E+01	.....
	72	1765.19	1759 -	1771	1764.10	1.51E+02	33.05	5.43E+01	BI-214
M	73	1844.14	1832 -	1857	1842.97	1.81E+01	15.52	2.34E+01	.....
m	74	1848.41	1832 -	1857	1847.24	2.61E+01	17.44	1.59E+01	.....
m	75	1856.30	1832 -	1857	1855.12	1.46E+01	8.54	9.23E-01	.....
	76	1954.14	1949 -	1958	1952.87	1.74E+01	15.78	2.72E+01	.....
M	77	2099.70	2097 -	2112	2098.29	6.49E+00	6.32	1.16E+01	.....
m	78	2104.20	2097 -	2112	2102.78	5.48E+01	25.38	4.86E+01	.....
	79	2119.77	2114 -	2123	2118.34	2.39E+01	15.23	1.81E+01	.....
	80	2178.98	2170 -	2184	2177.49	3.13E+01	21.94	3.74E+01	.....
	81	2188.72	2185 -	2190	2187.22	8.68E+00	11.96	2.26E+01	.....
M	82	2204.97	2197 -	2210	2203.46	6.68E+01	24.33	3.35E+01	BI-214
m	83	2209.76	2197 -	2210	2208.24	9.66E+00	9.87	5.71E+00	.....
	84	2379.45	2374 -	2382	2377.77	2.39E+01	14.46	1.62E+01	.....
M	85	2397.58	2392 -	2416	2395.88	1.21E+01	11.36	1.40E+01	.....
m	86	2408.69	2392 -	2416	2406.98	1.01E+01	12.85	1.80E+01	.....
m	87	2413.14	2392 -	2416	2411.43	1.22E+01	15.13	2.20E+01	.....
	88	2448.16	2442 -	2450	2446.41	2.25E+01	16.29	2.70E+01	.....
	89	2494.22	2488 -	2496	2492.43	1.40E+01	7.48	0.00E+00	.....
	90	2509.18	2504 -	2510	2507.38	1.03E+01	7.76	3.33E+00	.....
	91	2615.12	2607 -	2621	2613.21	4.09E+02	43.00	2.12E+01	TL-208
	92	2674.70	2667 -	2678	2672.73	1.50E+01	7.75	0.00E+00	.....
	93	2792.88	2787 -	2793	2790.80	5.00E+00	4.47	0.00E+00	.....
	94	3197.46	3191 -	3197	3195.00	6.00E+00	4.90	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 1707086-07

HTC-A02-S004-3036-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 4:24:54PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.27	1.18E+02	90.03	2.46E-02	2.22E-03
	2	63.18	4.17E+02	144.56	2.70E-02	2.26E-03
M	3	74.72	1.33E+03	155.10	2.75E-02	2.38E-03
m	4	77.10	2.20E+03	168.42	2.75E-02	2.40E-03
M	5	84.73	3.02E+02	119.62	2.75E-02	2.49E-03
m	6	87.74	6.56E+02	126.90	2.74E-02	2.52E-03
m	7	93.11	6.96E+02	141.65	2.73E-02	2.44E-03
	8	99.45	1.12E+02	115.13	2.70E-02	2.34E-03
	9	129.51	1.71E+02	129.54	2.53E-02	1.93E-03
	10	154.05	1.51E+02	115.51	2.37E-02	1.80E-03
M	11	179.49	1.03E+02	96.86	2.21E-02	1.70E-03
m	12	185.84	4.55E+02	104.45	2.17E-02	1.68E-03
m	13	209.31	3.01E+02	85.60	2.04E-02	1.61E-03
M	14	238.61	3.38E+03	143.02	1.89E-02	1.53E-03
m	15	241.68	7.05E+02	146.09	1.87E-02	1.52E-03
	16	270.25	1.91E+02	95.54	1.74E-02	1.43E-03
	17	277.77	1.26E+02	108.69	1.71E-02	1.41E-03
M	18	295.19	7.10E+02	76.41	1.64E-02	1.37E-03
m	19	300.07	2.55E+02	79.40	1.63E-02	1.36E-03
	20	310.03	5.78E+01	59.32	1.59E-02	1.34E-03
	21	328.21	2.01E+02	104.40	1.53E-02	1.29E-03
	22	338.42	6.83E+02	112.05	1.50E-02	1.27E-03
	23	352.02	1.19E+03	120.20	1.45E-02	1.24E-03
	24	409.36	1.04E+02	68.64	1.30E-02	1.13E-03
	25	439.40	8.23E+01	58.96	1.24E-02	1.11E-03
	26	462.90	1.41E+02	70.61	1.19E-02	1.10E-03
	27	510.91	4.68E+02	75.34	1.10E-02	1.07E-03
	28	563.03	7.79E+01	65.12	1.02E-02	1.04E-03
	29	583.24	1.02E+03	101.94	9.96E-03	1.02E-03
M	30	605.95	2.28E+01	17.78	9.67E-03	1.01E-03
m	31	609.49	8.42E+02	68.12	9.63E-03	1.01E-03
m	32	613.95	6.54E+01	67.54	9.58E-03	1.00E-03
	33	665.69	3.50E+01	34.28	9.00E-03	9.66E-04
	34	682.60	4.25E+01	36.17	8.83E-03	9.39E-04
	35	727.16	2.57E+02	55.39	8.41E-03	8.68E-04
	36	771.22	1.37E+02	75.81	8.04E-03	7.98E-04
M	37	782.53	3.54E+01	28.97	7.95E-03	7.80E-04
m	38	785.95	6.20E+01	40.09	7.93E-03	7.75E-04
	39	795.11	1.55E+02	49.02	7.86E-03	7.60E-04
	40	837.39	7.29E+01	60.70	7.55E-03	6.93E-04
	41	860.23	1.39E+02	43.31	7.40E-03	6.56E-04
	42	911.52	6.87E+02	67.44	7.08E-03	5.91E-04
	43	934.10	3.56E+01	42.21	6.95E-03	5.83E-04
M	44	958.53	2.93E+01	26.68	6.82E-03	5.73E-04
m	45	965.16	1.50E+02	37.92	6.79E-03	5.71E-04

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	46	969.29	3.94E+02	48.29	6.76E-03	5.69E-04
	47	1002.42	4.93E+01	38.19	6.60E-03	5.56E-04
M	48	1081.99	2.66E+01	28.42	6.23E-03	5.26E-04
m	49	1095.17	3.41E+01	30.85	6.18E-03	5.21E-04
M	50	1120.67	1.61E+02	38.80	6.07E-03	5.11E-04
m	51	1123.67	2.90E+01	36.68	6.06E-03	5.10E-04
	52	1155.40	4.03E+01	42.85	5.94E-03	4.98E-04
	53	1239.12	6.57E+01	56.00	5.64E-03	4.76E-04
	54	1340.37	2.19E+01	28.00	5.33E-03	4.53E-04
	55	1378.27	4.96E+01	34.99	5.22E-03	4.44E-04
M	56	1408.46	3.60E+01	21.91	5.14E-03	4.37E-04
m	57	1414.99	2.70E+01	19.08	5.12E-03	4.35E-04
M	58	1461.28	1.22E+03	72.81	5.00E-03	4.25E-04
m	59	1466.39	3.18E+01	55.94	4.99E-03	4.23E-04
	60	1540.10	2.90E+01	23.56	4.82E-03	4.06E-04
	61	1551.19	2.04E+01	13.31	4.80E-03	4.04E-04
	62	1574.97	1.70E+01	10.63	4.74E-03	3.98E-04
M	63	1585.94	7.97E+00	8.19	4.72E-03	3.96E-04
m	64	1588.94	5.66E+01	23.66	4.71E-03	3.95E-04
m	65	1593.39	4.03E+01	22.27	4.70E-03	3.94E-04
	66	1621.47	2.65E+01	27.64	4.65E-03	3.88E-04
	67	1631.86	3.51E+01	22.96	4.62E-03	3.85E-04
M	68	1658.76	7.36E+00	8.80	4.57E-03	3.79E-04
m	69	1661.99	2.03E+01	13.32	4.56E-03	3.78E-04
	70	1681.55	2.30E+01	16.85	4.53E-03	3.74E-04
	71	1751.18	1.09E+01	10.82	4.40E-03	3.57E-04
	72	1765.19	1.51E+02	33.05	4.37E-03	3.54E-04
M	73	1844.14	1.81E+01	15.52	4.24E-03	3.38E-04
m	74	1848.41	2.61E+01	17.44	4.23E-03	3.38E-04
m	75	1856.30	1.46E+01	8.54	4.22E-03	3.38E-04
	76	1954.14	1.74E+01	15.78	4.07E-03	3.38E-04
M	77	2099.70	6.49E+00	6.32	3.87E-03	3.38E-04
m	78	2104.20	5.48E+01	25.38	3.86E-03	3.38E-04
	79	2119.77	2.39E+01	15.23	3.84E-03	3.38E-04
	80	2178.98	3.13E+01	21.94	3.77E-03	3.38E-04
	81	2188.72	8.68E+00	11.96	3.76E-03	3.38E-04
M	82	2204.97	6.68E+01	24.33	3.74E-03	3.38E-04
m	83	2209.76	9.66E+00	9.87	3.73E-03	3.38E-04
	84	2379.45	2.39E+01	14.46	3.54E-03	3.38E-04
M	85	2397.58	1.21E+01	11.36	3.52E-03	3.38E-04
m	86	2408.69	1.01E+01	12.85	3.51E-03	3.38E-04
m	87	2413.14	1.22E+01	15.13	3.50E-03	3.38E-04
	88	2448.16	2.25E+01	16.29	3.47E-03	3.38E-04
	89	2494.22	1.40E+01	7.48	3.42E-03	3.38E-04
	90	2509.18	1.03E+01	7.76	3.41E-03	3.38E-04
	91	2615.12	4.09E+02	43.00	3.31E-03	3.38E-04
	92	2674.70	1.50E+01	7.75	3.25E-03	3.38E-04
	93	2792.88	5.00E+00	4.47	3.15E-03	3.38E-04
	94	3197.46	6.00E+00	4.90	2.85E-03	3.38E-04

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

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 : 8/21/2017 4:24:54PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.27	1.18E+02	90.03	3.67E+01	8.40E+00	8.11E+01	9.04E+01
	2	63.18	4.17E+02	144.56	8.94E+01	1.41E+01	3.27E+02	1.45E+02
M	3	74.72	1.33E+03	155.10			1.33E+03	1.55E+02
m	4	77.10	2.20E+03	168.42	7.20E+00	1.47E+00	2.19E+03	1.68E+02
M	5	84.73	3.02E+02	119.62	7.20E+00	1.33E+00	2.95E+02	1.20E+02
m	6	87.74	6.56E+02	126.90			6.56E+02	1.27E+02
m	7	93.11	6.96E+02	141.65	1.38E+02	1.72E+01	5.58E+02	1.43E+02
	8	99.45	1.12E+02	115.13			1.12E+02	1.15E+02
	9	129.51	1.71E+02	129.54			1.71E+02	1.30E+02
	10	154.05	1.51E+02	115.51			1.51E+02	1.16E+02
M	11	179.49	1.03E+02	96.86			1.03E+02	9.69E+01
m	12	185.84	4.55E+02	104.45	5.22E+01	7.59E+00	4.03E+02	1.05E+02
m	13	209.31	3.01E+02	85.60			3.01E+02	8.56E+01
M	14	238.61	3.38E+03	143.02	2.13E+01	6.33E+00	3.36E+03	1.43E+02
m	15	241.68	7.05E+02	146.09			7.05E+02	1.46E+02
	16	270.25	1.91E+02	95.54	1.23E+00	4.98E+00	1.90E+02	9.57E+01
	17	277.77	1.26E+02	108.69			1.26E+02	1.09E+02
M	18	295.19	7.10E+02	76.41			7.10E+02	7.64E+01
m	19	300.07	2.55E+02	79.40			2.55E+02	7.94E+01
	20	310.03	5.78E+01	59.32			5.78E+01	5.93E+01
	21	328.21	2.01E+02	104.40			2.01E+02	1.04E+02
	22	338.42	6.83E+02	112.05			6.83E+02	1.12E+02
	23	352.02	1.19E+03	120.20	5.79E+00	4.49E+00	1.18E+03	1.20E+02
	24	409.36	1.04E+02	68.64			1.04E+02	6.86E+01
	25	439.40	8.23E+01	58.96			8.23E+01	5.90E+01
	26	462.90	1.41E+02	70.61			1.41E+02	7.06E+01
	27	510.91	4.68E+02	75.34	7.28E+01	5.30E+00	3.95E+02	7.55E+01
	28	563.03	7.79E+01	65.12			7.79E+01	6.51E+01
	29	583.24	1.02E+03	101.94	2.72E+00	3.05E+00	1.01E+03	1.02E+02
M	30	605.95	2.28E+01	17.78			2.28E+01	1.78E+01
m	31	609.49	8.42E+02	68.12	6.35E+00	4.02E+00	8.36E+02	6.82E+01
m	32	613.95	6.54E+01	67.54			6.54E+01	6.75E+01
	33	665.69	3.50E+01	34.28			3.50E+01	3.43E+01
	34	682.60	4.25E+01	36.17			4.25E+01	3.62E+01
	35	727.16	2.57E+02	55.39			2.57E+02	5.54E+01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	36	771.22	1.37E+02	75.81			1.37E+02	7.58E+01
M	37	782.53	3.54E+01	28.97			3.54E+01	2.90E+01
m	38	785.95	6.20E+01	40.09			6.20E+01	4.01E+01
	39	795.11	1.55E+02	49.02			1.55E+02	4.90E+01
	40	837.39	7.29E+01	60.70			7.29E+01	6.07E+01
	41	860.23	1.39E+02	43.31			1.39E+02	4.33E+01
	42	911.52	6.87E+02	67.44	5.31E+00	3.00E+00	6.82E+02	6.75E+01
	43	934.10	3.56E+01	42.21			3.56E+01	4.22E+01
M	44	958.53	2.93E+01	26.68			2.93E+01	2.67E+01
m	45	965.16	1.50E+02	37.92			1.50E+02	3.79E+01
m	46	969.29	3.94E+02	48.29			3.94E+02	4.83E+01
	47	1002.42	4.93E+01	38.19	4.92E+00	2.75E+00	4.44E+01	3.83E+01
M	48	1081.99	2.66E+01	28.42			2.66E+01	2.84E+01
m	49	1095.17	3.41E+01	30.85			3.41E+01	3.09E+01
M	50	1120.67	1.61E+02	38.80			1.61E+02	3.88E+01
m	51	1123.67	2.90E+01	36.68			2.90E+01	3.67E+01
	52	1155.40	4.03E+01	42.85			4.03E+01	4.29E+01
	53	1239.12	6.57E+01	56.00			6.57E+01	5.60E+01
	54	1340.37	2.19E+01	28.00			2.19E+01	2.80E+01
	55	1378.27	4.96E+01	34.99			4.96E+01	3.50E+01
M	56	1408.46	3.60E+01	21.91			3.60E+01	2.19E+01
m	57	1414.99	2.70E+01	19.08			2.70E+01	1.91E+01
M	58	1461.28	1.22E+03	72.81	8.09E+00	2.23E+00	1.21E+03	7.28E+01
m	59	1466.39	3.18E+01	55.94			3.18E+01	5.59E+01
	60	1540.10	2.90E+01	23.56			2.90E+01	2.36E+01
	61	1551.19	2.04E+01	13.31			2.04E+01	1.33E+01
	62	1574.97	1.70E+01	10.63			1.70E+01	1.06E+01
M	63	1585.94	7.97E+00	8.19			7.97E+00	8.19E+00
m	64	1588.94	5.66E+01	23.66			5.66E+01	2.37E+01
m	65	1593.39	4.03E+01	22.27			4.03E+01	2.23E+01
	66	1621.47	2.65E+01	27.64			2.65E+01	2.76E+01
	67	1631.86	3.51E+01	22.96			3.51E+01	2.30E+01
M	68	1658.76	7.36E+00	8.80			7.36E+00	8.80E+00
m	69	1661.99	2.03E+01	13.32			2.03E+01	1.33E+01
	70	1681.55	2.30E+01	16.85			2.30E+01	1.69E+01
	71	1751.18	1.09E+01	10.82			1.09E+01	1.08E+01
	72	1765.19	1.51E+02	33.05			1.51E+02	3.30E+01
M	73	1844.14	1.81E+01	15.52			1.81E+01	1.55E+01
m	74	1848.41	2.61E+01	17.44			2.61E+01	1.74E+01
m	75	1856.30	1.46E+01	8.54			1.46E+01	8.54E+00
	76	1954.14	1.74E+01	15.78			1.74E+01	1.58E+01
M	77	2099.70	6.49E+00	6.32			6.49E+00	6.32E+00
m	78	2104.20	5.48E+01	25.38			5.48E+01	2.54E+01
	79	2119.77	2.39E+01	15.23			2.39E+01	1.52E+01
	80	2178.98	3.13E+01	21.94			3.13E+01	2.19E+01
	81	2188.72	8.68E+00	11.96			8.68E+00	1.20E+01
M	82	2204.97	6.68E+01	24.33			6.68E+01	2.43E+01
m	83	2209.76	9.66E+00	9.87			9.66E+00	9.87E+00
	84	2379.45	2.39E+01	14.46			2.39E+01	1.45E+01
M	85	2397.58	1.21E+01	11.36			1.21E+01	1.14E+01
m	86	2408.69	1.01E+01	12.85			1.01E+01	1.28E+01
m	87	2413.14	1.22E+01	15.13			1.22E+01	1.51E+01
	88	2448.16	2.25E+01	16.29			2.25E+01	1.63E+01
	89	2494.22	1.40E+01	7.48			1.40E+01	7.48E+00

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
90	2509.18	1.03E+01	7.76			1.03E+01	7.76E+00
91	2615.12	4.09E+02	43.00	5.63E+00	1.38E+00	4.04E+02	4.30E+01
92	2674.70	1.50E+01	7.75			1.50E+01	7.75E+00
93	2792.88	5.00E+00	4.47			5.00E+00	4.47E+00
94	3197.46	6.00E+00	4.90			6.00E+00	4.90E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 4:24:54PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.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	46.27	1.18E+02	90.03	3.67E+01	8.40E+00	8.11E+01	9.04E+01
	2	63.18	4.17E+02	144.56	8.94E+01	1.41E+01	3.27E+02	1.45E+02
M	3	74.72	1.33E+03	155.10			1.33E+03	1.55E+02
m	4	77.10	2.20E+03	168.42	7.20E+00	1.47E+00	2.19E+03	1.68E+02
M	5	84.73	3.02E+02	119.62	7.20E+00	1.33E+00	2.95E+02	1.20E+02
m	6	87.74	6.56E+02	126.90			6.56E+02	1.27E+02
m	7	93.11	6.96E+02	141.65	1.38E+02	1.72E+01	5.58E+02	1.43E+02
	8	99.45	1.12E+02	115.13			1.12E+02	1.15E+02
	9	129.51	1.71E+02	129.54			1.71E+02	1.30E+02
	10	154.05	1.51E+02	115.51			1.51E+02	1.16E+02
M	11	179.49	1.03E+02	96.86			1.03E+02	9.69E+01
m	12	185.84	4.55E+02	104.45	5.22E+01	7.59E+00	4.03E+02	1.05E+02
m	13	209.31	3.01E+02	85.60			3.01E+02	8.56E+01
M	14	238.61	3.38E+03	143.02	2.13E+01	6.33E+00	3.36E+03	1.43E+02
m	15	241.68	7.05E+02	146.09			7.05E+02	1.46E+02
	16	270.25	1.91E+02	95.54	1.23E+00	4.98E+00	1.90E+02	9.57E+01
	17	277.77	1.26E+02	108.69			1.26E+02	1.09E+02
M	18	295.19	7.10E+02	76.41			7.10E+02	7.64E+01
m	19	300.07	2.55E+02	79.40			2.55E+02	7.94E+01
	20	310.03	5.78E+01	59.32			5.78E+01	5.93E+01
	21	328.21	2.01E+02	104.40			2.01E+02	1.04E+02
	22	338.42	6.83E+02	112.05			6.83E+02	1.12E+02
	23	352.02	1.19E+03	120.20	5.79E+00	4.49E+00	1.18E+03	1.20E+02

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	24	409.36	1.04E+02	68.64			1.04E+02	6.86E+01
	25	439.40	8.23E+01	58.96			8.23E+01	5.90E+01
	26	462.90	1.41E+02	70.61			1.41E+02	7.06E+01
	27	510.91	4.68E+02	75.34	7.28E+01	5.30E+00	3.95E+02	7.55E+01
	28	563.03	7.79E+01	65.12			7.79E+01	6.51E+01
	29	583.24	1.02E+03	101.94	2.72E+00	3.05E+00	1.01E+03	1.02E+02
M	30	605.95	2.28E+01	17.78			2.28E+01	1.78E+01
m	31	609.49	8.42E+02	68.12	6.35E+00	4.02E+00	8.36E+02	6.82E+01
m	32	613.95	6.54E+01	67.54			6.54E+01	6.75E+01
	33	665.69	3.50E+01	34.28			3.50E+01	3.43E+01
	34	682.60	4.25E+01	36.17			4.25E+01	3.62E+01
	35	727.16	2.57E+02	55.39			2.57E+02	5.54E+01
	36	771.22	1.37E+02	75.81			1.37E+02	7.58E+01
M	37	782.53	3.54E+01	28.97			3.54E+01	2.90E+01
m	38	785.95	6.20E+01	40.09			6.20E+01	4.01E+01
	39	795.11	1.55E+02	49.02			1.55E+02	4.90E+01
	40	837.39	7.29E+01	60.70			7.29E+01	6.07E+01
	41	860.23	1.39E+02	43.31			1.39E+02	4.33E+01
	42	911.52	6.87E+02	67.44	5.31E+00	3.00E+00	6.82E+02	6.75E+01
	43	934.10	3.56E+01	42.21			3.56E+01	4.22E+01
M	44	958.53	2.93E+01	26.68			2.93E+01	2.67E+01
m	45	965.16	1.50E+02	37.92			1.50E+02	3.79E+01
m	46	969.29	3.94E+02	48.29			3.94E+02	4.83E+01
	47	1002.42	4.93E+01	38.19	4.92E+00	2.75E+00	4.44E+01	3.83E+01
M	48	1081.99	2.66E+01	28.42			2.66E+01	2.84E+01
m	49	1095.17	3.41E+01	30.85			3.41E+01	3.09E+01
M	50	1120.67	1.61E+02	38.80			1.61E+02	3.88E+01
m	51	1123.67	2.90E+01	36.68			2.90E+01	3.67E+01
	52	1155.40	4.03E+01	42.85			4.03E+01	4.29E+01
	53	1239.12	6.57E+01	56.00			6.57E+01	5.60E+01
	54	1340.37	2.19E+01	28.00			2.19E+01	2.80E+01
	55	1378.27	4.96E+01	34.99			4.96E+01	3.50E+01
M	56	1408.46	3.60E+01	21.91			3.60E+01	2.19E+01
m	57	1414.99	2.70E+01	19.08			2.70E+01	1.91E+01
M	58	1461.28	1.22E+03	72.81	8.09E+00	2.23E+00	1.21E+03	7.28E+01
m	59	1466.39	3.18E+01	55.94			3.18E+01	5.59E+01
	60	1540.10	2.90E+01	23.56			2.90E+01	2.36E+01
	61	1551.19	2.04E+01	13.31			2.04E+01	1.33E+01
	62	1574.97	1.70E+01	10.63			1.70E+01	1.06E+01
M	63	1585.94	7.97E+00	8.19			7.97E+00	8.19E+00
m	64	1588.94	5.66E+01	23.66			5.66E+01	2.37E+01
m	65	1593.39	4.03E+01	22.27			4.03E+01	2.23E+01
	66	1621.47	2.65E+01	27.64			2.65E+01	2.76E+01
	67	1631.86	3.51E+01	22.96			3.51E+01	2.30E+01
M	68	1658.76	7.36E+00	8.80			7.36E+00	8.80E+00
m	69	1661.99	2.03E+01	13.32			2.03E+01	1.33E+01
	70	1681.55	2.30E+01	16.85			2.30E+01	1.69E+01
	71	1751.18	1.09E+01	10.82			1.09E+01	1.08E+01
	72	1765.19	1.51E+02	33.05			1.51E+02	3.30E+01
M	73	1844.14	1.81E+01	15.52			1.81E+01	1.55E+01
m	74	1848.41	2.61E+01	17.44			2.61E+01	1.74E+01
m	75	1856.30	1.46E+01	8.54			1.46E+01	8.54E+00
	76	1954.14	1.74E+01	15.78			1.74E+01	1.58E+01
M	77	2099.70	6.49E+00	6.32			6.49E+00	6.32E+00

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	78	2104.20	5.48E+01	25.38			5.48E+01	2.54E+01
	79	2119.77	2.39E+01	15.23			2.39E+01	1.52E+01
	80	2178.98	3.13E+01	21.94			3.13E+01	2.19E+01
	81	2188.72	8.68E+00	11.96			8.68E+00	1.20E+01
M	82	2204.97	6.68E+01	24.33			6.68E+01	2.43E+01
m	83	2209.76	9.66E+00	9.87			9.66E+00	9.87E+00
	84	2379.45	2.39E+01	14.46			2.39E+01	1.45E+01
M	85	2397.58	1.21E+01	11.36			1.21E+01	1.14E+01
m	86	2408.69	1.01E+01	12.85			1.01E+01	1.28E+01
m	87	2413.14	1.22E+01	15.13			1.22E+01	1.51E+01
	88	2448.16	2.25E+01	16.29			2.25E+01	1.63E+01
	89	2494.22	1.40E+01	7.48			1.40E+01	7.48E+00
	90	2509.18	1.03E+01	7.76			1.03E+01	7.76E+00
	91	2615.12	4.09E+02	43.00	5.63E+00	1.38E+00	4.04E+02	4.30E+01
	92	2674.70	1.50E+01	7.75			1.50E+01	7.75E+00
	93	2792.88	5.00E+00	4.47			5.00E+00	4.47E+00
	94	3197.46	6.00E+00	4.90			6.00E+00	4.90E+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	0.966	1460.81	*	10.67	2.56E+01	2.71E+00
CD-109	0.986	88.03	*	3.72	8.41E+00	1.87E+00
SN-126	0.995	87.57	*	37.00	7.30E-01	1.56E-01
TL-208	0.982	583.14	*	30.22	3.80E+00	5.46E-01
		860.37	*	4.48	4.71E+00	1.53E+00
		2614.66	*	35.85	3.84E+00	5.67E-01
PB-210	0.992	46.50	*	4.25	8.81E-01	9.86E-01
BI-212	0.978	727.17	*	11.80	2.92E+00	6.98E-01
		1620.62	*	2.75	2.34E+00	2.45E+00
PB-212	1.000	238.63	*	44.60	4.50E+00	4.12E-01
		300.09	*	3.41	5.19E+00	1.67E+00
BI-214	0.973	609.31	*	46.30	2.11E+00	2.80E-01
		1120.29	*	15.10	1.98E+00	5.06E-01
		1764.49	*	15.80	2.46E+00	5.75E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.973	2204.22	*	4.98	4.05E+00	1.52E+00
PB-214	0.999	295.21	*	19.19	2.54E+00	3.46E-01
		351.92	*	37.19	2.46E+00	3.27E-01
RA-224	0.925	240.98	*	3.95	1.08E+01	2.39E+00
RA-226	0.979	186.21	*	3.28	6.38E+00	1.18E+01
AC-228	0.982	338.32	*	11.40	4.52E+00	8.35E-01
		911.07	*	27.70	3.92E+00	5.07E-01
		969.11	*	16.60	3.96E+00	5.88E-01
TH-234	0.998	63.29	*	3.80	3.60E+00	1.63E+00
AM-243	1.000	74.67	*	66.00	8.24E-01	1.20E-01
CM-243	0.369	209.75	*	3.29	5.10E+00	1.50E+00
		228.14		10.60		
		277.60	*	14.00	5.96E-01	5.17E-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 : 8/21/2017 4:24:54PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.10	6.07753E-01	3.85		
M	5	84.73	8.18251E-02	20.30	Tol.	TH-231
m	7	93.11	1.55040E-01	12.78	Sum	
	8	99.45	3.11191E-02	51.39	D-Esc	
	9	129.51	4.74005E-02	37.96		
	10	154.05	4.19954E-02	38.20	Tol.	CS-136
M	11	179.49	2.85245E-02	47.16		
	16	270.25	5.28034E-02	25.16		
	20	310.03	1.60551E-02	51.32		
	21	328.21	5.57212E-02	26.02	Tol.	LA-140
	24	409.36	2.89502E-02	32.93		
	25	439.40	2.28635E-02	35.81	D-Esc	
	26	462.90	3.91185E-02	25.07	Sum	
	27	510.91	1.09854E-01	9.55		
	28	563.03	2.16490E-02	41.78	Tol.	CS-134
M	30	605.95	6.34705E-03	38.90		

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	32	613.95	1.81550E-02	51.67	Tol.	AG-108M
	33	665.69	9.72222E-03	48.97	Tol.	SB-126
	34	682.60	1.18073E-02	42.54		
	36	771.22	3.80704E-02	27.66		
M	37	782.53	9.82265E-03	40.97		
m	38	785.95	1.72292E-02	32.32		
	39	795.11	4.30632E-02	15.81	Sum	
	40	837.39	2.02527E-02	41.62		
	43	934.10	9.89883E-03	59.23	Sum	
M	44	958.53	8.14873E-03	45.48	Sum	
m	45	965.16	4.17982E-02	12.60	Sum	
	47	1002.42	1.23306E-02	43.13		
M	48	1081.99	7.39338E-03	53.39		
m	49	1095.17	9.47834E-03	45.21		
m	51	1123.67	8.06853E-03	63.14		
	52	1155.40	1.11810E-02	53.23	Sum	
	53	1239.12	1.82491E-02	42.62		
	54	1340.37	6.07981E-03	63.96		
	55	1378.27	1.37678E-02	35.30		
M	56	1408.46	1.00074E-02	30.41	Tol.	EU-152
m	57	1414.99	7.51200E-03	35.27	Sum	
m	59	1466.39	8.82759E-03	88.01		
	60	1540.10	8.05818E-03	40.60		
	61	1551.19	5.67529E-03	32.58		
	62	1574.97	4.72222E-03	31.27		
M	63	1585.94	2.21261E-03	51.38		
m	64	1588.94	1.57245E-02	20.90		
m	65	1593.39	1.12022E-02	27.61	D-Esc	
	67	1631.86	9.75970E-03	32.67		
M	68	1658.76	2.04581E-03	59.77		
m	69	1661.99	5.62949E-03	32.87		
	70	1681.55	6.38889E-03	36.64		
	71	1751.18	3.02469E-03	49.67		
M	73	1844.14	5.04138E-03	42.77		
m	74	1848.41	7.24041E-03	33.45	Sum	
m	75	1856.30	4.05606E-03	29.26		
	76	1954.14	4.82975E-03	45.38		
M	77	2099.70	1.80247E-03	48.73		
m	78	2104.20	1.52179E-02	23.16	S-Esc	
	79	2119.77	6.64983E-03	31.81		
	80	2178.98	8.69722E-03	35.03		
	81	2188.72	2.40972E-03	68.92	Sum	
m	83	2209.76	2.68235E-03	51.13		
	84	2379.45	6.64063E-03	30.24		
M	85	2397.58	3.37173E-03	46.79		
m	86	2408.69	2.80960E-03	63.50		
m	87	2413.14	3.37579E-03	62.26		
	88	2448.16	6.25000E-03	36.21		
	89	2494.22	3.88889E-03	26.73		
	90	2509.18	2.87037E-03	37.56		
	92	2674.70	4.16667E-03	25.82		
	93	2792.88	1.38889E-03	44.72		
	94	3197.46	1.66667E-03	40.82	Sum	

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81	*	10.67	2.56E+01	2.71E+00
CD-109	0.98	88.03	*	3.72	8.41E+00	1.87E+00
SN-126	0.99	87.57	*	37.00	7.30E-01	1.56E-01
TL-208	0.98	583.14	*	30.22	3.80E+00	5.46E-01
		860.37	*	4.48	4.71E+00	1.53E+00
		2614.66	*	35.85	3.84E+00	5.67E-01
PB-210	0.99	46.50	*	4.25	8.81E-01	9.86E-01
BI-212	0.97	727.17	*	11.80	2.92E+00	6.98E-01
		1620.62	*	2.75	2.34E+00	2.45E+00
PB-212	1.00	238.63	*	44.60	4.50E+00	4.12E-01
		300.09	*	3.41	5.19E+00	1.67E+00
BI-214	0.97	609.31	*	46.30	2.11E+00	2.80E-01
		1120.29	*	15.10	1.98E+00	5.06E-01
		1764.49	*	15.80	2.46E+00	5.75E-01
		2204.22	*	4.98	4.05E+00	1.52E+00
PB-214	0.99	295.21	*	19.19	2.54E+00	3.46E-01
		351.92	*	37.19	2.46E+00	3.27E-01
RA-224	0.92	240.98	*	3.95	1.08E+01	2.39E+00
RA-226	0.97	186.21	*	3.28	6.38E+00	1.18E+01
AC-228	0.98	338.32	*	11.40	4.52E+00	8.35E-01
		911.07	*	27.70	3.92E+00	5.07E-01
		969.11	*	16.60	3.96E+00	5.88E-01
TH-234	0.99	63.29	*	3.80	3.60E+00	1.63E+00
AM-243	1.00	74.67	*	66.00	8.24E-01	1.20E-01
CM-243	0.36	209.75	*	3.29	5.10E+00	1.50E+00
		228.14		10.60		
		277.60	*	14.00	5.96E-01	5.17E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

* = 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	0.966	2.56E+01	2.71E+00	
?	CD-109	0.986	8.41E+00	1.87E+00	
?	SN-126	0.995	7.30E-01	1.56E-01	
	TL-208	0.982	3.87E+00	3.81E-01	
	PB-210	0.992	8.81E-01	9.86E-01	
	BI-212	0.978	2.88E+00	6.71E-01	
	PB-212	1.000	4.54E+00	4.00E-01	
	BI-214	0.973	2.18E+00	2.23E-01	
	PB-214	0.999	2.50E+00	2.38E-01	
	RA-224	0.925	1.08E+01	2.39E+00	
	RA-226	0.979	6.38E+00	1.18E+01	
	AC-228	0.982	4.04E+00	3.49E-01	
	TH-234	0.998	3.60E+00	1.63E+00	
	AM-243	1.000	8.24E-01	1.20E-01	
	CM-243	0.369	1.07E+00	4.89E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 4:24:54PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.10	6.07753E-01	3.85		
M	5	84.73	8.18251E-02	20.30	Tol.	TH-231
m	7	93.11	1.55040E-01	12.78	Sum	
	8	99.45	3.11191E-02	51.39	D-Esc	
	9	129.51	4.74005E-02	37.96		
	10	154.05	4.19954E-02	38.20	Tol.	CS-136
M	11	179.49	2.85245E-02	47.16		
	16	270.25	5.28034E-02	25.16		
	20	310.03	1.60551E-02	51.32		
	21	328.21	5.57212E-02	26.02	Tol.	LA-140
	24	409.36	2.89502E-02	32.93		
	25	439.40	2.28635E-02	35.81	D-Esc	
	26	462.90	3.91185E-02	25.07	Sum	
	27	510.91	1.09854E-01	9.55		
	28	563.03	2.16490E-02	41.78	Tol.	CS-134
M	30	605.95	6.34705E-03	38.90		
m	32	613.95	1.81550E-02	51.67	Tol.	AG-108M
	33	665.69	9.72222E-03	48.97	Tol.	SB-126
	34	682.60	1.18073E-02	42.54		
	36	771.22	3.80704E-02	27.66		
M	37	782.53	9.82265E-03	40.97		
m	38	785.95	1.72292E-02	32.32		
	39	795.11	4.30632E-02	15.81	Sum	
	40	837.39	2.02527E-02	41.62		
	43	934.10	9.89883E-03	59.23	Sum	
M	44	958.53	8.14873E-03	45.48	Sum	
m	45	965.16	4.17982E-02	12.60	Sum	
	47	1002.42	1.23306E-02	43.13		
M	48	1081.99	7.39338E-03	53.39		
m	49	1095.17	9.47834E-03	45.21		
m	51	1123.67	8.06853E-03	63.14		
	52	1155.40	1.11810E-02	53.23	Sum	
	53	1239.12	1.82491E-02	42.62		
	54	1340.37	6.07981E-03	63.96		
	55	1378.27	1.37678E-02	35.30		

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	56	1408.46	1.00074E-02	30.41	Tol.	EU-152
m	57	1414.99	7.51200E-03	35.27	Sum	
m	59	1466.39	8.82759E-03	88.01		
	60	1540.10	8.05818E-03	40.60		
	61	1551.19	5.67529E-03	32.58		
	62	1574.97	4.72222E-03	31.27		
M	63	1585.94	2.21261E-03	51.38		
m	64	1588.94	1.57245E-02	20.90		
m	65	1593.39	1.12022E-02	27.61	D-Esc	
	67	1631.86	9.75970E-03	32.67		
M	68	1658.76	2.04581E-03	59.77		
m	69	1661.99	5.62949E-03	32.87		
	70	1681.55	6.38889E-03	36.64		
	71	1751.18	3.02469E-03	49.67		
M	73	1844.14	5.04138E-03	42.77		
m	74	1848.41	7.24041E-03	33.45	Sum	
m	75	1856.30	4.05606E-03	29.26		
	76	1954.14	4.82975E-03	45.38		
M	77	2099.70	1.80247E-03	48.73		
m	78	2104.20	1.52179E-02	23.16	S-Esc	
	79	2119.77	6.64983E-03	31.81		
	80	2178.98	8.69722E-03	35.03		
	81	2188.72	2.40972E-03	68.92	Sum	
m	83	2209.76	2.68235E-03	51.13		
	84	2379.45	6.64063E-03	30.24		
M	85	2397.58	3.37173E-03	46.79		
m	86	2408.69	2.80960E-03	63.50		
m	87	2413.14	3.37579E-03	62.26		
	88	2448.16	6.25000E-03	36.21		
	89	2494.22	3.88889E-03	26.73		
	90	2509.18	2.87037E-03	37.56		
	92	2674.70	4.16667E-03	25.82		
	93	2792.88	1.38889E-03	44.72		
	94	3197.46	1.66667E-03	40.82	Sum	

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

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

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	2.80E-01	2.54E+00	2.54E+00
+	NA-22	1274.54		99.94	1.74E-02	9.37E-02	9.37E-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	1.31E-02	6.04E-02	6.04E-02
+	K-40	1460.81	*	10.67	2.56E+01	1.57E+00	1.57E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-8.07E-03	8.64E-02	8.64E-02
		78.34		96.00	5.24E-01		1.22E-01
+	SC-46	889.25		99.98	-5.61E-02	1.67E-01	1.67E-01
		1120.51		99.99	7.97E-01		3.27E-01
+	V-48	983.52		99.98	-4.12E+00	5.19E+00	5.19E+00
		1312.10		97.50	-5.48E-01		6.34E+00
+	CR-51	320.08		9.83	1.60E+00	8.79E+00	8.79E+00
+	MN-54	834.83		99.97	2.88E-02	1.17E-01	1.17E-01
+	CO-56	846.75		99.96	6.10E-02	1.96E-01	1.96E-01
		1037.75		14.03	-4.67E-01		1.35E+00
		1238.25		67.00	7.35E-01		4.64E-01
		1771.40		15.51	-3.96E-02		8.44E-01
		2598.48		16.90	7.95E-03		7.95E-01
+	CO-57	122.06		85.51	-7.75E-02	9.70E-02	9.70E-02
		136.48		10.60	-2.47E-01		8.19E-01
+	CO-58	810.76		99.40	-1.22E-01	1.96E-01	1.96E-01
+	FE-59	1099.22		56.50	1.58E-02	6.53E-01	6.53E-01
		1291.56		43.20	-3.31E-01		8.76E-01
+	CO-60	1173.22		100.00	-4.18E-02	7.10E-02	8.72E-02
		1332.49		100.00	-2.96E-02		7.10E-02
+	ZN-65	1115.52		50.75	-1.93E-02	2.01E-01	2.01E-01
+	GA-67	93.31		35.70	7.02E+08	2.95E+08	2.95E+08
		208.95		2.24	8.08E+09		4.34E+09
		300.22		16.00	-1.33E+09		6.46E+08
+	SE-75	121.11		16.70	-1.37E-01	2.01E-01	6.88E-01
		136.00		59.20	-6.07E-02		2.01E-01
		264.65		59.80	8.81E-02		2.18E-01
		279.53		25.20	7.41E-01		5.80E-01
		400.65		11.40	3.19E-02		1.17E+00
+	RB-82	776.52		13.00	1.53E+00	9.80E+00	9.80E+00
+	RB-83	520.41		46.00	-9.20E-02	3.75E-01	3.75E-01
		529.64		30.30	-9.59E-02		5.74E-01
		552.65		16.40	2.77E-01		1.12E+00
+	KR-85	513.99		0.43	-5.96E+00	2.76E+01	2.76E+01
+	SR-85	513.99		99.27	-7.32E-02	3.39E-01	3.39E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	1.83E-02	1.11E-01	1.64E-01
		1836.01		99.38	7.88E-03		1.11E-01
+	MO-93	263.06		56.72	3.23E-02	7.74E-02	1.33E-01
		684.67		99.68	2.58E-03		8.48E-02
		1477.11		99.08	3.67E-02		7.74E-02
+	NB-93M	16.57		9.43	-2.04E-01	6.89E-01	6.89E-01
+	NB-94	702.63		100.00	7.39E-02	7.68E-02	9.41E-02
		871.10		100.00	-3.11E-02		7.68E-02
+	NB-95	765.79		99.81	7.69E-02	7.12E-01	7.12E-01
+	NB-95M	235.69		25.00	-7.95E+08	6.20E+07	6.20E+07
+	ZR-95	724.18		43.70	-4.85E-02	4.80E-01	7.59E-01
		756.72		55.30	3.03E-01		4.80E-01
+	MO-99	181.06		6.20	-1.46E+11	3.89E+10	6.47E+10
		739.58		12.80	1.22E+10		3.89E+10
		778.00		4.50	-1.55E+11		9.91E+10
+	RU-103	497.08		89.00	-6.99E-03	4.61E-01	4.61E-01
+	RU-106	621.84		9.80	-3.05E-01	9.63E-01	9.63E-01
+	AG-108M	433.93		89.90	2.75E-02	8.16E-02	8.16E-02
		614.37		90.40	-9.41E-01		1.06E-01
		722.95		90.50	8.74E-03		1.06E-01
+	CD-109	88.03	*	3.72	8.41E+00	5.48E+00	5.48E+00
+	AG-110M	657.75		93.14	-1.17E-01	1.10E-01	1.10E-01
		677.61		10.53	1.71E-01		1.03E+00
		706.67		16.46	1.98E-01		7.13E-01
		763.93		21.98	-2.34E-02		5.17E-01
		884.67		71.63	-4.40E-02		1.30E-01
		1384.27		23.94	-9.81E-02		3.50E-01
+	CD-113M	263.70		0.02	1.37E+02	3.26E+02	3.26E+02
+	SN-113	255.12		1.93	3.58E+00	2.10E-01	6.22E+00
		391.69		64.90	-3.71E-02		2.10E-01
+	TE123M	159.00		84.10	-1.56E-02	1.37E-01	1.37E-01
+	SB-124	602.71		97.87	3.99E-03	2.49E-01	2.49E-01
		645.85		7.26	-9.01E-01		3.45E+00
		722.78		11.10	2.21E-01		2.67E+00
		1691.02		49.00	1.07E-01		3.64E-01
+	I-125	35.49		6.49	-1.35E-01	3.38E+00	3.38E+00
+	SB-125	176.33		6.89	8.40E-02	2.65E-01	1.04E+00
		427.89		29.33	-3.41E-03		2.65E-01
		463.38		10.35	1.51E+00		9.55E-01
		600.56		17.80	1.25E-02		4.66E-01
		635.90		11.32	1.45E-01		7.79E-01
+	SB-126	414.70		83.30	2.43E+00	2.12E+01	2.20E+01
		666.33		99.60	1.92E+00		2.12E+01
		695.00		99.60	3.68E+00		2.17E+01
		720.50		53.80	3.03E+00		3.81E+01
+	SN-126	87.57	*	37.00	7.30E-01	4.76E-01	4.76E-01
+	SB-127	473.00		25.00	2.83E+06	1.13E+07	1.43E+07
		685.20		35.70	3.43E+05		1.13E+07

Analysis Report for 1707086-07

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	3.63E+07	1.13E+07	3.25E+07
+	I-129	29.78	57.00	-4.81E-02	1.32E-01	1.32E-01
		33.60	13.20	-9.72E-02		5.44E-01
		39.58	7.52	7.10E-01		9.11E-01
+	I-131	284.30	6.05	1.66E+03	4.38E+02	5.91E+03
		364.48	81.20	-5.14E+01		4.38E+02
		636.97	7.26	3.79E+02		5.37E+03
		722.89	1.80	2.10E+03		2.54E+04
+	TE-132	49.72	13.10	-2.33E+07	9.49E+07	6.14E+08
		228.16	88.00	7.80E+06		9.49E+07
+	BA-133	81.00	33.00	-1.85E+00	1.85E-01	2.41E-01
		302.84	17.80	9.16E-01		4.90E-01
		356.01	60.00	-1.06E-02		1.85E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-6.94E+05	9.03E+04	9.03E+04
+	CS-134	563.23	8.38	1.01E+00	9.86E-02	1.12E+00
		569.32	15.43	9.15E-02		5.57E-01
		604.70	97.60	-1.03E-02		9.86E-02
		795.84	85.40	2.39E-01		1.41E-01
		801.93	8.73	-1.16E-01		1.01E+00
+	CS-135	268.24	16.00	7.73E-01	5.43E-01	5.43E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.72E+02	1.36E+01	1.67E+02
		163.89	4.61	-5.26E+00		2.56E+02
		176.55	13.56	7.07E+00		8.73E+01
		273.65	12.66	-9.16E+01		1.21E+02
		340.57	48.50	1.75E+02		4.26E+01
		818.50	99.70	-2.40E-01		1.36E+01
		1048.07	79.60	-6.74E+00		1.68E+01
		1235.34	19.70	3.88E+01		1.08E+02
+	CS-137	661.65	85.12	-1.15E-02	1.01E-01	1.01E-01
+	LA-138	788.74	34.00	-2.89E-01	1.02E-01	2.54E-01
		1435.80	66.00	-2.08E-02		1.02E-01
+	CE-139	165.85	80.35	8.58E-03	1.37E-01	1.37E-01
+	BA-140	162.64	6.70	-3.77E+00	6.34E+01	2.03E+02
		304.84	4.50	-6.42E+02		3.27E+02
		423.70	3.20	2.58E+02		4.75E+02
		437.55	2.00	-3.67E+00		7.75E+02
		537.32	25.00	-6.92E-01		6.34E+01
+	LA-140	328.77	20.50	1.28E+02	1.70E+01	8.78E+01
		487.03	45.50	5.58E+00		3.32E+01
		815.85	23.50	6.69E+00		6.76E+01
		1596.49	95.49	-4.65E+00		1.70E+01
+	CE-141	145.44	48.40	6.53E-01	1.17E+00	1.17E+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 1707086-07

HTC-A02-S004-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	2.98E-01	8.05E-01	8.05E-01
+	PM-144	476.78	42.00	2.79E-02	9.85E-02	2.09E-01
		618.01	98.60	2.21E-03		9.85E-02
		696.49	99.49	2.26E-03		1.07E-01
+	PM-145	36.85	21.70	8.52E-02	1.77E-01	3.26E-01
		37.36	39.70	-1.67E-02		1.77E-01
		42.30	15.10	9.33E-02		4.27E-01
		72.40	2.31	-1.05E+01		4.33E+00
+	PM-146	453.90	39.94	8.96E-02	2.04E-01	2.04E-01
		735.90	14.01	-4.97E-02		6.29E-01
		747.13	13.10	-4.20E-01		6.20E-01
+	ND-147	91.11	28.90	3.89E+02	1.66E+02	1.66E+02
		531.02	13.10	1.27E+02		3.05E+02
+	PM-149	285.90	3.10	3.43E+13	5.83E+13	5.83E+13
+	EU-152	121.78	20.50	-6.42E-02	3.22E-01	3.22E-01
		244.69	5.40	-1.97E+00		1.41E+00
		344.27	19.13	-3.14E-02		4.01E-01
		778.89	9.20	-4.57E-01		9.15E-01
		964.01	10.40	-5.34E+00		1.20E+00
		1085.78	7.22	3.21E-01		1.24E+00
		1112.02	9.60	1.21E-01		8.44E-01
		1407.95	14.94	3.68E-01		6.07E-01
+	GD-153	97.43	31.30	-7.36E-01	2.89E-01	2.89E-01
		103.18	22.20	1.98E-01		3.99E-01
+	EU-154	123.07	40.50	-6.58E-03	1.67E-01	1.67E-01
		723.30	19.70	4.10E-02		4.95E-01
		873.19	11.50	2.91E-02		6.86E-01
		996.32	10.30	2.32E-01		7.35E-01
		1004.76	17.90	4.03E-01		5.47E-01
		1274.45	35.50	4.65E-02		2.51E-01
+	EU-155	86.50	30.90	2.66E-01	3.10E-01	3.10E-01
		105.30	20.70	1.95E-02		3.37E-01
+	EU-156	811.77	10.40	-1.89E+01	6.32E+01	6.32E+01
		1153.47	7.20	8.90E+00		1.15E+02
		1230.71	8.90	1.77E+01		9.76E+01
+	HO-166M	184.41	72.60	2.72E-01	1.16E-01	1.16E-01
		280.45	29.60	3.37E-02		2.67E-01
		410.94	11.10	5.25E-01		7.56E-01
		711.69	54.10	-2.04E-02		1.51E-01
+	TM-171	66.72	0.14	3.85E+01	6.53E+01	6.53E+01
+	HF-172	67.35	5.31	-1.58E-01	6.65E-01	1.69E+00
		125.81	11.30	1.28E-01		6.65E-01
+	LU-172	181.53	20.60	-2.01E+04	4.01E+03	8.93E+03
		900.72	29.81	-2.84E+03		6.97E+03
		1093.66	62.50	3.24E+03		4.01E+03
+	LU-173	100.72	5.24	5.62E-01	4.74E-01	1.48E+00
		272.11	21.20	-6.57E-02		4.74E-01
+	HF-175	343.40	84.00	-1.86E-02	2.43E-01	2.43E-01
+	LU-176	88.34	13.30	1.08E+00	7.52E-02	7.25E-01

Analysis Report for 1707086-07

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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	-2.93E-03	7.52E-02	8.29E-02
		306.78		94.00	-5.25E-02		7.52E-02
+	HF-181	133.02		41.70	3.03E-01	4.36E-01	8.17E-01
		345.85		17.20	-1.72E-01		2.18E+00
		482.03		82.80	-1.05E-01		4.36E-01
+	TA-182	67.75		41.20	-3.35E-02	3.58E-01	3.58E-01
		1121.30		34.90	1.76E+00		7.53E-01
		1189.05		16.23	2.60E-01		1.08E+00
		1221.41		26.98	-1.85E-01		6.29E-01
		1231.02		11.44	2.81E-01		1.55E+00
+	IR-192	308.46		29.68	2.75E-01	3.90E-01	6.10E-01
		468.07		48.10	5.50E-02		3.90E-01
+	HG-203	279.19		77.30	5.90E-01	4.61E-01	4.61E-01
+	TL-204	374.74		94.11	-2.83E-02	8.03E-02	8.03E-02
		899.15		99.16	-1.27E-02		8.37E-02
		911.74		91.10	1.22E+00		2.45E-01
+	BI-207	569.67		97.72	2.64E-02	8.24E-02	8.24E-02
		1063.62		74.90	-6.44E-02		1.11E-01
+	TL-208	583.14	*	30.22	3.80E+00	2.66E-01	5.01E-01
		860.37	*	4.48	4.71E+00		2.13E+00
		2614.66	*	35.85	3.84E+00		2.66E-01
+	BI-210M	262.00		45.00	-6.99E-02	1.63E-01	1.63E-01
		300.00		23.00	-1.80E+00		3.91E-01
+	PB-210	46.50	*	4.25	8.81E-01	1.61E+00	1.61E+00
+	PB-211	404.84		2.90	-1.07E-01	2.59E+00	2.59E+00
		831.96		2.90	2.12E-01		3.09E+00
+	BI-212	727.17	*	11.80	2.92E+00	8.74E-01	8.74E-01
		1620.62	*	2.75	2.34E+00		3.96E+00
+	PB-212	238.63	*	44.60	4.50E+00	4.30E-01	4.30E-01
		300.09	*	3.41	5.19E+00		5.22E+00
+	BI-214	609.31	*	46.30	2.11E+00	3.16E-01	3.16E-01
		1120.29	*	15.10	1.98E+00		8.97E-01
		1764.49	*	15.80	2.46E+00		6.38E-01
		2204.22	*	4.98	4.05E+00		2.06E+00
+	PB-214	295.21	*	19.19	2.54E+00	3.44E-01	9.08E-01
		351.92	*	37.19	2.46E+00		3.44E-01
+	RN-219	401.80		6.50	-2.79E-01	1.17E+00	1.17E+00
+	RA-223	323.87		3.88	5.12E-02	1.93E+00	1.93E+00
+	RA-224	240.98	*	3.95	1.08E+01	4.88E+00	4.88E+00
+	RA-225	40.00		31.00	2.86E-01	2.15E+01	2.15E+01
+	RA-226	186.21	*	3.28	6.38E+00	4.51E+00	4.51E+00
+	TH-227	50.10		8.40	-1.49E-01	8.05E-01	8.05E-01
		236.00		11.50	-1.10E+01		8.61E-01
		256.20		6.30	5.06E-01		1.21E+00
+	AC-228	338.32	*	11.40	4.52E+00	4.20E-01	1.10E+00
		911.07	*	27.70	3.92E+00		4.20E-01
		969.11	*	16.60	3.96E+00		1.15E+00
+	TH-230	48.44		16.90	8.88E-02	4.09E-01	4.09E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	4.06E+00	4.09E-01	1.93E+00
		67.67		0.37	-2.05E+00		2.20E+01
+	PA-231	283.67		1.60	-5.18E-01	3.73E+00	4.60E+00
		302.67		2.30	6.96E+00		3.73E+00
+	TH-231	25.64		14.70	-2.56E+00	6.34E-01	6.34E-01
		84.21		6.40	-2.00E+00		1.31E+00
+	PA-233	311.98		38.60	2.30E-02	2.37E+00	2.37E+00
+	PA-234	131.20		20.40	2.05E-01	3.54E-01	3.54E-01
		733.99		8.80	2.82E-01		9.86E-01
		946.00		12.00	-2.25E-01		6.29E-01
+	PA-234M	1001.03		0.92	5.74E+00	9.84E+00	9.84E+00
+	TH-234	63.29	*	3.80	3.60E+00	2.57E+00	2.57E+00
+	U-235	143.76		10.50	-2.31E-01	6.51E-01	6.51E-01
		163.35		4.70	-2.91E-02		1.42E+00
		205.31		4.70	-3.94E+00		1.51E+00
+	NP-237	86.50		12.60	6.27E-01	7.33E-01	7.33E-01
+	NP-239	106.10		22.70	5.15E+11	1.09E+12	1.09E+12
		228.18		10.70	1.95E+11		2.37E+12
		277.60		14.10	2.11E+12		2.15E+12
+	AM-241	59.54		35.90	9.82E-03	2.17E-01	2.17E-01
+	AM-243	74.67	*	66.00	8.24E-01	2.24E-01	2.24E-01
+	CM-243	209.75	*	3.29	5.10E+00	6.60E-01	3.02E+00
		228.14		10.60	5.42E-02		6.60E-01
		277.60	*	14.00	5.96E-01		8.41E-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 1707086-07

HTC-A02-S004-3036-01

	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	2.54E+00	2.54E+00	2.80E-01	1.22E+00
	NA-22	1274.54		99.94	9.37E-02	9.37E-02	1.74E-02	4.39E-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	6.04E-02	6.04E-02	1.31E-02	2.67E-02
+	K-40	1460.81	*	10.67	1.57E+00	1.57E+00	2.56E+01	7.54E-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	8.64E-02	8.64E-02	-8.07E-03	4.26E-02
		78.34		96.00	1.22E-01		5.24E-01	6.04E-02
	SC-46	889.25		99.98	1.67E-01	1.67E-01	-5.61E-02	7.86E-02
		1120.51		99.99	3.27E-01		7.97E-01	1.58E-01
	V-48	983.52		99.98	5.19E+00	5.19E+00	-4.12E+00	2.43E+00
		1312.10		97.50	6.34E+00		-5.48E-01	2.96E+00
	CR-51	320.08		9.83	8.79E+00	8.79E+00	1.60E+00	4.28E+00
	MN-54	834.83		99.97	1.17E-01	1.17E-01	2.88E-02	5.59E-02
	CO-56	846.75		99.96	1.96E-01	1.96E-01	6.10E-02	9.34E-02
		1037.75		14.03	1.35E+00		-4.67E-01	6.37E-01
		1238.25		67.00	4.64E-01		7.35E-01	2.22E-01
		1771.40		15.51	8.44E-01		-3.96E-02	3.68E-01
		2598.48		16.90	7.95E-01		7.95E-03	3.33E-01
	CO-57	122.06		85.51	9.70E-02	9.70E-02	-7.75E-02	4.76E-02
		136.48		10.60	8.19E-01		-2.47E-01	4.02E-01
	CO-58	810.76		99.40	1.96E-01	1.96E-01	-1.22E-01	9.27E-02
	FE-59	1099.22		56.50	6.53E-01	6.53E-01	1.58E-02	3.06E-01
		1291.56		43.20	8.76E-01		-3.31E-01	4.08E-01
	CO-60	1173.22		100.00	8.72E-02	7.10E-02	-4.18E-02	4.09E-02
		1332.49		100.00	7.10E-02		-2.96E-02	3.25E-02
	ZN-65	1115.52		50.75	2.01E-01	2.01E-01	-1.93E-02	9.38E-02
	GA-67	93.31		35.70	2.95E+08	2.95E+08	7.02E+08	1.45E+08
		208.95		2.24	4.34E+09		8.08E+09	2.13E+09
		300.22		16.00	6.46E+08		-1.33E+09	3.16E+08
	SE-75	121.11		16.70	6.88E-01	2.01E-01	-1.37E-01	3.38E-01
		136.00		59.20	2.01E-01		-6.07E-02	9.88E-02
		264.65		59.80	2.18E-01		8.81E-02	1.06E-01
		279.53		25.20	5.80E-01		7.41E-01	2.84E-01
		400.65		11.40	1.17E+00		3.19E-02	5.70E-01
	RB-82	776.52		13.00	9.80E+00	9.80E+00	1.53E+00	4.69E+00
	RB-83	520.41		46.00	3.75E-01	3.75E-01	-9.20E-02	1.81E-01
		529.64		30.30	5.74E-01		-9.59E-02	2.77E-01
		552.65		16.40	1.12E+00		2.77E-01	5.39E-01
	KR-85	513.99		0.43	2.76E+01	2.76E+01	-5.96E+00	1.35E+01
	SR-85	513.99		99.27	3.39E-01	3.39E-01	-7.32E-02	1.65E-01
	Y-88	898.02		93.40	1.64E-01	1.11E-01	1.83E-02	7.75E-02
		1836.01		99.38	1.11E-01		7.88E-03	4.85E-02
	MO-93	263.06		56.72	1.33E-01	7.74E-02	3.23E-02	6.49E-02
		684.67		99.68	8.48E-02		2.58E-03	4.07E-02
		1477.11		99.08	7.74E-02		3.67E-02	3.56E-02
	NB-93M	16.57		9.43	6.89E-01	6.89E-01	-2.04E-01	3.29E-01
	NB-94	702.63		100.00	9.41E-02	7.68E-02	7.39E-02	4.53E-02
		871.10		100.00	7.68E-02		-3.11E-02	3.63E-02
	NB-95	765.79		99.81	7.12E-01	7.12E-01	7.69E-02	3.43E-01
	NB-95M	235.69		25.00	6.20E+07	6.20E+07	-7.95E+08	3.05E+07
	ZR-95	724.18		43.70	7.59E-01	4.80E-01	-4.85E-02	3.68E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	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	4.80E-01	4.80E-01	3.03E-01	2.30E-01
	MO-99	181.06		6.20	6.47E+10	3.89E+10	-1.46E+11	3.17E+10
		739.58		12.80	3.89E+10		1.22E+10	1.86E+10
		778.00		4.50	9.91E+10		-1.55E+11	4.71E+10
	RU-103	497.08		89.00	4.61E-01	4.61E-01	-6.99E-03	2.22E-01
	RU-106	621.84		9.80	9.63E-01	9.63E-01	-3.05E-01	4.62E-01
	AG-108M	433.93		89.90	8.16E-02	8.16E-02	2.75E-02	3.94E-02
		614.37		90.40	1.06E-01		-9.41E-01	5.13E-02
		722.95		90.50	1.06E-01		8.74E-03	5.08E-02
+	CD-109	88.03	*	3.72	5.48E+00	5.48E+00	8.41E+00	2.72E+00
	AG-110M	657.75		93.14	1.10E-01	1.10E-01	-1.17E-01	5.25E-02
		677.61		10.53	1.03E+00		1.71E-01	4.92E-01
		706.67		16.46	7.13E-01		1.98E-01	3.43E-01
		763.93		21.98	5.17E-01		-2.34E-02	2.47E-01
		884.67		71.63	1.30E-01		-4.40E-02	6.12E-02
		1384.27		23.94	3.50E-01		-9.81E-02	1.59E-01
	CD-113M	263.70		0.02	3.26E+02	3.26E+02	1.37E+02	1.59E+02
	SN-113	255.12		1.93	6.22E+00	2.10E-01	3.58E+00	3.03E+00
		391.69		64.90	2.10E-01		-3.71E-02	1.02E-01
	TE123M	159.00		84.10	1.37E-01	1.37E-01	-1.56E-02	6.71E-02
	SB-124	602.71		97.87	2.49E-01	2.49E-01	3.99E-03	1.20E-01
		645.85		7.26	3.45E+00		-9.01E-01	1.65E+00
		722.78		11.10	2.67E+00		2.21E-01	1.28E+00
		1691.02		49.00	3.64E-01		1.07E-01	1.60E-01
	I-125	35.49		6.49	3.38E+00	3.38E+00	-1.35E-01	1.66E+00
	SB-125	176.33		6.89	1.04E+00	2.65E-01	8.40E-02	5.08E-01
		427.89		29.33	2.65E-01		-3.41E-03	1.28E-01
		463.38		10.35	9.55E-01		1.51E+00	4.64E-01
		600.56		17.80	4.66E-01		1.25E-02	2.24E-01
		635.90		11.32	7.79E-01		1.45E-01	3.74E-01
	SB-126	414.70		83.30	2.20E+01	2.12E+01	2.43E+00	1.07E+01
		666.33		99.60	2.12E+01		1.92E+00	1.02E+01
		695.00		99.60	2.17E+01		3.68E+00	1.04E+01
		720.50		53.80	3.81E+01		3.03E+00	1.82E+01
+	SN-126	87.57	*	37.00	4.76E-01	4.76E-01	7.30E-01	2.36E-01
	SB-127	473.00		25.00	1.43E+07	1.13E+07	2.83E+06	6.90E+06
		685.20		35.70	1.13E+07		3.43E+05	5.40E+06
		783.80		14.70	3.25E+07		3.63E+07	1.56E+07
	I-129	29.78		57.00	1.32E-01	1.32E-01	-4.81E-02	6.46E-02
		33.60		13.20	5.44E-01		-9.72E-02	2.66E-01
		39.58		7.52	9.11E-01		7.10E-01	4.47E-01
	I-131	284.30		6.05	5.91E+03	4.38E+02	1.66E+03	2.88E+03
		364.48		81.20	4.38E+02		-5.14E+01	2.12E+02
		636.97		7.26	5.37E+03		3.79E+02	2.58E+03
		722.89		1.80	2.54E+04		2.10E+03	1.22E+04
	TE-132	49.72		13.10	6.14E+08	9.49E+07	-2.33E+07	3.01E+08
		228.16		88.00	9.49E+07		7.80E+06	4.64E+07
	BA-133	81.00		33.00	2.41E-01	1.85E-01	-1.85E+00	1.19E-01
		302.84		17.80	4.90E-01		9.16E-01	2.40E-01
		356.01		60.00	1.85E-01		-1.06E-02	9.09E-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	9.03E+04	9.03E+04	-6.94E+05	4.45E+04
	CS-134	563.23		8.38	1.12E+00	9.86E-02	1.01E+00	5.42E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

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	5.57E-01	9.86E-02	9.15E-02	2.68E-01
	604.70	97.60	9.86E-02		-1.03E-02	4.75E-02
	795.84	85.40	1.41E-01		2.39E-01	6.83E-02
	801.93	8.73	1.01E+00		-1.16E-01	4.80E-01
CS-135	268.24	16.00	5.43E-01	5.43E-01	7.73E-01	2.66E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.67E+02	1.36E+01	1.72E+02	8.20E+01
	163.89	4.61	2.56E+02		-5.26E+00	1.25E+02
	176.55	13.56	8.73E+01		7.07E+00	4.28E+01
	273.65	12.66	1.21E+02		-9.16E+01	5.92E+01
	340.57	48.50	4.26E+01		1.75E+02	2.09E+01
	818.50	99.70	1.36E+01		-2.40E-01	6.47E+00
	1048.07	79.60	1.68E+01		-6.74E+00	7.87E+00
	1235.34	19.70	1.08E+02		3.88E+01	5.18E+01
CS-137	661.65	85.12	1.01E-01	1.01E-01	-1.15E-02	4.84E-02
LA-138	788.74	34.00	2.54E-01	1.02E-01	-2.89E-01	1.21E-01
	1435.80	66.00	1.02E-01		-2.08E-02	4.64E-02
CE-139	165.85	80.35	1.37E-01	1.37E-01	8.58E-03	6.71E-02
BA-140	162.64	6.70	2.03E+02	6.34E+01	-3.77E+00	9.97E+01
	304.84	4.50	3.27E+02		-6.42E+02	1.59E+02
	423.70	3.20	4.75E+02		2.58E+02	2.30E+02
	437.55	2.00	7.75E+02		-3.67E+00	3.75E+02
	537.32	25.00	6.34E+01		-6.92E-01	3.05E+01
LA-140	328.77	20.50	8.78E+01	1.70E+01	1.28E+02	4.29E+01
	487.03	45.50	3.32E+01		5.58E+00	1.60E+01
	815.85	23.50	6.76E+01		6.69E+00	3.21E+01
	1596.49	95.49	1.70E+01		-4.65E+00	7.79E+00
CE-141	145.44	48.40	1.17E+00	1.17E+00	6.53E-01	5.74E-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	8.05E-01	8.05E-01	2.98E-01	3.95E-01
PM-144	476.78	42.00	2.09E-01	9.85E-02	2.79E-02	1.01E-01
	618.01	98.60	9.85E-02		2.21E-03	4.73E-02
	696.49	99.49	1.07E-01		2.26E-03	5.15E-02
PM-145	36.85	21.70	3.26E-01	1.77E-01	8.52E-02	1.60E-01
	37.36	39.70	1.77E-01		-1.67E-02	8.68E-02
	42.30	15.10	4.27E-01		9.33E-02	2.09E-01
	72.40	2.31	4.33E+00		-1.05E+01	2.14E+00
PM-146	453.90	39.94	2.04E-01	2.04E-01	8.96E-02	9.87E-02
	735.90	14.01	6.29E-01		-4.97E-02	3.01E-01
	747.13	13.10	6.20E-01		-4.20E-01	2.95E-01
ND-147	91.11	28.90	1.66E+02	1.66E+02	3.89E+02	8.20E+01
	531.02	13.10	3.05E+02		1.27E+02	1.47E+02
PM-149	285.90	3.10	5.83E+13	5.83E+13	3.43E+13	2.85E+13
EU-152	121.78	20.50	3.22E-01	3.22E-01	-6.42E-02	1.58E-01
	244.69	5.40	1.41E+00		-1.97E+00	6.89E-01
	344.27	19.13	4.01E-01		-3.14E-02	1.95E-01
	778.89	9.20	9.15E-01		-4.57E-01	4.36E-01
	964.01	10.40	1.20E+00		-5.34E+00	5.80E-01
	1085.78	7.22	1.24E+00		3.21E-01	5.87E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

	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	8.44E-01	3.22E-01	1.21E-01	3.95E-01
		1407.95		14.94	6.07E-01		3.68E-01	2.83E-01
	GD-153	97.43		31.30	2.89E-01	2.89E-01	-7.36E-01	1.42E-01
		103.18		22.20	3.99E-01		1.98E-01	1.96E-01
	EU-154	123.07		40.50	1.67E-01	1.67E-01	-6.58E-03	8.19E-02
		723.30		19.70	4.95E-01		4.10E-02	2.38E-01
		873.19		11.50	6.86E-01		2.91E-02	3.25E-01
		996.32		10.30	7.35E-01		2.32E-01	3.44E-01
		1004.76		17.90	5.47E-01		4.03E-01	2.60E-01
		1274.45		35.50	2.51E-01		4.65E-02	1.18E-01
	EU-155	86.50		30.90	3.10E-01	3.10E-01	2.66E-01	1.53E-01
		105.30		20.70	3.37E-01		1.95E-02	1.66E-01
	EU-156	811.77		10.40	6.32E+01	6.32E+01	-1.89E+01	2.99E+01
		1153.47		7.20	1.15E+02		8.90E+00	5.43E+01
		1230.71		8.90	9.76E+01		1.77E+01	4.61E+01
	HO-166M	184.41		72.60	1.16E-01	1.16E-01	2.72E-01	5.73E-02
		280.45		29.60	2.67E-01		3.37E-02	1.30E-01
		410.94		11.10	7.56E-01		5.25E-01	3.68E-01
		711.69		54.10	1.51E-01		-2.04E-02	7.24E-02
	TM-171	66.72		0.14	6.53E+01	6.53E+01	3.85E+01	3.22E+01
	HF-172	67.35		5.31	1.69E+00	6.65E-01	-1.58E-01	8.35E-01
		125.81		11.30	6.65E-01		1.28E-01	3.26E-01
	LU-172	181.53		20.60	8.93E+03	4.01E+03	-2.01E+04	4.38E+03
		900.72		29.81	6.97E+03		-2.84E+03	3.30E+03
		1093.66		62.50	4.01E+03		3.24E+03	1.90E+03
	LU-173	100.72		5.24	1.48E+00	4.74E-01	5.62E-01	7.27E-01
		272.11		21.20	4.74E-01		-6.57E-02	2.32E-01
	HF-175	343.40		84.00	2.43E-01	2.43E-01	-1.86E-02	1.18E-01
	LU-176	88.34		13.30	7.25E-01	7.52E-02	1.08E+00	3.58E-01
		201.83		86.00	8.29E-02		-2.93E-03	4.06E-02
		306.78		94.00	7.52E-02		-5.25E-02	3.66E-02
	HF-181	133.02		41.70	8.17E-01	4.36E-01	3.03E-01	4.01E-01
		345.85		17.20	2.18E+00		-1.72E-01	1.06E+00
		482.03		82.80	4.36E-01		-1.05E-01	2.10E-01
	TA-182	67.75		41.20	3.58E-01	3.58E-01	-3.35E-02	1.77E-01
		1121.30		34.90	7.53E-01		1.76E+00	3.64E-01
		1189.05		16.23	1.08E+00		2.60E-01	5.12E-01
		1221.41		26.98	6.29E-01		-1.85E-01	2.97E-01
		1231.02		11.44	1.55E+00		2.81E-01	7.34E-01
	IR-192	308.46		29.68	6.10E-01	3.90E-01	2.75E-01	2.97E-01
		468.07		48.10	3.90E-01		5.50E-02	1.88E-01
	HG-203	279.19		77.30	4.61E-01	4.61E-01	5.90E-01	2.26E-01
	TL-204	374.74		94.11	8.03E-02	8.03E-02	-2.83E-02	3.89E-02
		899.15		99.16	8.37E-02		-1.27E-02	3.96E-02
		911.74		91.10	2.45E-01		1.22E+00	1.20E-01
	BI-207	569.67		97.72	8.24E-02	8.24E-02	2.64E-02	3.97E-02
		1063.62		74.90	1.11E-01		-6.44E-02	5.20E-02
+	TL-208	583.14	*	30.22	5.01E-01	2.66E-01	3.80E+00	2.45E-01
		860.37	*	4.48	2.13E+00		4.71E+00	1.02E+00
		2614.66	*	35.85	2.66E-01		3.84E+00	1.20E-01
	BI-210M	262.00		45.00	1.63E-01	1.63E-01	-6.99E-02	7.96E-02
		300.00		23.00	3.91E-01		-1.80E+00	1.92E-01
+	PB-210	46.50	*	4.25	1.61E+00	1.61E+00	8.81E-01	7.92E-01

Analysis Report for 1707086-07

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.59E+00	2.59E+00	-1.07E-01	1.26E+00
		831.96		2.90	3.09E+00		2.12E-01	1.47E+00
+	BI-212	727.17	*	11.80	8.74E-01	8.74E-01	2.92E+00	4.22E-01
		1620.62	*	2.75	3.96E+00		2.34E+00	1.86E+00
+	PB-212	238.63	*	44.60	4.30E-01	4.30E-01	4.50E+00	2.13E-01
		300.09	*	3.41	5.22E+00		5.19E+00	2.58E+00
+	BI-214	609.31	*	46.30	3.16E-01	3.16E-01	2.11E+00	1.55E-01
		1120.29	*	15.10	8.97E-01		1.98E+00	4.32E-01
		1764.49	*	15.80	6.38E-01		2.46E+00	2.97E-01
		2204.22	*	4.98	2.06E+00		4.05E+00	9.47E-01
+	PB-214	295.21	*	19.19	9.08E-01	3.44E-01	2.54E+00	4.49E-01
		351.92	*	37.19	3.44E-01		2.46E+00	1.69E-01
	RN-219	401.80		6.50	1.17E+00	1.17E+00	-2.79E-01	5.67E-01
	RA-223	323.87		3.88	1.93E+00	1.93E+00	5.12E-02	9.40E-01
+	RA-224	240.98	*	3.95	4.88E+00	4.88E+00	1.08E+01	2.42E+00
	RA-225	40.00		31.00	2.15E+01	2.15E+01	2.86E-01	1.05E+01
+	RA-226	186.21	*	3.28	4.51E+00	4.51E+00	6.38E+00	2.23E+00
	TH-227	50.10		8.40	8.05E-01	8.05E-01	-1.49E-01	3.95E-01
		236.00		11.50	8.61E-01		-1.10E+01	4.23E-01
		256.20		6.30	1.21E+00		5.06E-01	5.93E-01
+	AC-228	338.32	*	11.40	1.10E+00	4.20E-01	4.52E+00	5.39E-01
		911.07	*	27.70	4.20E-01		3.92E+00	2.02E-01
		969.11	*	16.60	1.15E+00		3.96E+00	5.64E-01
	TH-230	48.44		16.90	4.09E-01	4.09E-01	8.88E-02	2.01E-01
		62.85		4.60	1.93E+00		4.06E+00	9.52E-01
		67.67		0.37	2.20E+01		-2.05E+00	1.08E+01
	PA-231	283.67		1.60	4.60E+00	3.73E+00	-5.18E-01	2.24E+00
		302.67		2.30	3.73E+00		6.96E+00	1.82E+00
	TH-231	25.64		14.70	6.34E-01	6.34E-01	-2.56E+00	3.11E-01
		84.21		6.40	1.31E+00		-2.00E+00	6.46E-01
	PA-233	311.98		38.60	2.37E+00	2.37E+00	2.30E-02	1.15E+00
	PA-234	131.20		20.40	3.54E-01	3.54E-01	2.05E-01	1.74E-01
		733.99		8.80	9.86E-01		2.82E-01	4.72E-01
		946.00		12.00	6.29E-01		-2.25E-01	2.96E-01
	PA-234M	1001.03		0.92	9.84E+00	9.84E+00	5.74E+00	4.67E+00
+	TH-234	63.29	*	3.80	2.57E+00	2.57E+00	3.60E+00	1.27E+00
	U-235	143.76		10.50	6.51E-01	6.51E-01	-2.31E-01	3.19E-01
		163.35		4.70	1.42E+00		-2.91E-02	6.94E-01
		205.31		4.70	1.51E+00		-3.94E+00	7.39E-01
	NP-237	86.50		12.60	7.33E-01	7.33E-01	6.27E-01	3.62E-01
	NP-239	106.10		22.70	1.09E+12	1.09E+12	5.15E+11	5.37E+11
		228.18		10.70	2.37E+12		1.95E+11	1.16E+12
		277.60		14.10	2.15E+12		2.11E+12	1.05E+12
	AM-241	59.54		35.90	2.17E-01	2.17E-01	9.82E-03	1.07E-01
+	AM-243	74.67	*	66.00	2.24E-01	2.24E-01	8.24E-01	1.11E-01
+	CM-243	209.75	*	3.29	3.02E+00	6.60E-01	5.10E+00	1.49E+00
		228.14		10.60	6.60E-01		5.42E-02	3.22E-01
		277.60	*	14.00	8.41E-01		5.96E-01	4.14E-01

Analysis Report for 1707086-07

HTC-A02-S004-3036-01

+ = 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-A02-S004-3036-01

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	0	0
17:	0	1	157	175	166	243	583	274
25:	150	149	143	134	132	132	164	145
33:	156	141	165	160	154	178	164	168
41:	169	175	146	155	146	204	250	205
49:	170	202	223	205	233	256	204	226
57:	249	284	282	304	307	343	409	575
65:	389	324	344	379	367	324	378	368
73:	410	448	1008	958	1099	1445	491	337
81:	302	334	312	343	434	331	457	666
89:	390	482	483	346	560	615	320	244
97:	222	220	244	273	231	215	205	209
105:	234	268	205	217	231	238	205	217
113:	220	230	214	206	214	184	208	214
121:	178	190	187	220	193	225	218	202
129:	243	337	222	212	192	204	228	193
137:	184	183	200	192	232	186	187	231
145:	183	186	200	201	199	164	171	163
153:	192	211	227	187	167	161	167	167
161:	171	147	177	160	167	175	152	175
169:	175	156	151	174	152	148	148	153
177:	147	140	186	173	173	165	166	165
185:	196	353	315	171	142	163	138	155
193:	157	132	155	149	161	158	156	178
201:	150	130	162	145	130	174	147	148
209:	226	303	161	125	142	141	157	152
217:	141	149	117	141	131	133	138	114
225:	114	101	132	113	138	131	115	135
233:	134	124	125	169	168	656	1988	847
241:	325	377	263	143	85	81	103	99
249:	94	79	79	100	92	97	100	98
257:	109	94	83	80	82	80	87	94
265:	84	92	75	77	97	158	201	108
273:	87	87	94	72	130	138	111	83
281:	72	81	77	64	80	79	81	87
289:	95	57	86	86	74	113	348	390
297:	111	77	84	163	157	85	69	69
305:	56	68	60	48	80	60	75	65
313:	59	52	73	59	65	70	62	72
321:	58	70	58	64	78	59	73	149
329:	122	78	60	78	53	64	66	70
337:	81	279	386	112	76	65	75	65
345:	56	56	55	58	57	68	179	661
353:	458	89	68	73	69	55	55	54
361:	56	53	62	50	56	45	49	65

369:	56	57	39	53	51	43	46	49

Sample Title: HTC-A02-S004-3036-01

Channel								
377:	53	46	58	56	36	47	44	50
385:	46	46	43	57	60	50	56	50
393:	54	39	42	47	61	48	48	52
401:	47	67	37	45	48	42	59	35
409:	73	102	60	49	42	47	43	52
417:	43	46	35	52	44	52	34	40
425:	45	42	42	34	28	48	45	45
433:	42	51	28	36	36	47	46	56
441:	47	45	32	35	40	46	37	37
449:	42	42	38	38	61	39	47	48
457:	36	40	32	37	32	65	124	81
465:	36	40	35	44	33	41	34	28
473:	40	33	35	42	26	35	38	33
481:	39	26	39	32	28	44	36	38
489:	29	31	30	34	39	36	37	35
497:	27	38	22	30	26	33	45	38
505:	33	34	33	46	59	114	234	125
513:	79	37	26	46	29	40	27	31
521:	37	32	41	36	43	32	32	38
529:	36	24	41	41	30	42	29	33
537:	26	31	35	29	25	35	27	27
545:	27	34	40	30	36	41	32	29
553:	41	31	47	31	35	32	35	37
561:	31	38	52	41	36	27	25	21
569:	32	35	35	38	36	30	33	28
577:	26	34	36	32	33	139	482	420
585:	81	48	36	43	35	29	27	31
593:	31	28	26	29	21	23	29	35
601:	25	29	28	22	23	34	20	89
609:	356	379	84	34	29	45	36	27
617:	30	31	22	21	30	25	23	32
625:	32	33	35	22	29	29	29	34
633:	21	29	30	32	31	28	27	16
641:	29	24	22	18	25	26	39	25
649:	30	29	33	27	41	30	23	23
657:	27	21	24	22	26	36	27	19
665:	45	37	31	18	28	30	23	29
673:	30	23	29	32	30	22	19	20
681:	26	26	43	23	18	19	20	30
689:	27	20	20	28	25	35	25	34
697:	30	23	26	38	24	33	28	45
705:	31	23	23	23	21	32	25	20
713:	23	20	22	22	29	22	19	32
721:	23	21	24	25	33	61	131	106
729:	27	20	20	30	24	25	20	31
737:	25	20	23	23	26	29	30	17
745:	22	22	18	15	24	20	25	19
753:	26	19	34	37	26	23	25	23
761:	20	19	28	25	24	23	24	49
769:	55	25	36	38	36	30	17	25
777:	25	13	21	10	18	33	26	26
785:	39	42	23	23	19	9	22	16
793:	17	46	93	44	19	22	13	17

801:	17	20	19	23	21	27	19	20

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Channel								
809:	13	12	9	16	15	23	19	16
817:	15	16	12	18	18	17	12	19
825:	22	20	19	11	24	18	25	15
833:	24	16	31	42	29	11	17	27
841:	25	20	8	27	17	22	15	14
849:	17	14	13	20	14	17	12	11
857:	18	24	29	70	58	25	14	18
865:	18	17	20	16	17	18	13	13
873:	11	15	13	21	17	9	14	13
881:	10	13	12	12	13	15	10	16
889:	14	12	14	11	19	16	17	11
897:	14	14	20	15	18	12	13	18
905:	24	22	18	16	34	101	351	227
913:	42	20	18	14	14	14	12	10
921:	10	13	15	22	13	15	13	10
929:	19	8	18	17	17	34	23	14
937:	16	15	14	11	10	9	13	7
945:	12	11	11	19	14	21	18	14
953:	14	9	8	12	23	15	17	13
961:	13	17	21	49	69	39	29	103
969:	198	100	24	15	13	11	15	8
977:	15	12	16	7	6	12	10	14
985:	13	14	18	17	17	15	11	10
993:	9	21	11	7	12	6	11	14
1001:	29	22	22	13	20	10	15	11
1009:	15	11	7	14	7	8	13	10
1017:	13	20	11	8	18	15	10	13
1025:	15	15	12	17	13	10	7	15
1033:	19	12	9	20	13	6	12	13
1041:	10	15	6	15	12	4	13	12
1049:	13	10	10	16	14	7	11	10
1057:	8	16	16	13	8	10	9	12
1065:	22	13	12	21	11	21	15	11
1073:	8	6	12	15	18	20	19	11
1081:	10	20	10	17	7	7	18	19
1089:	9	18	17	18	17	16	12	18
1097:	9	7	10	9	15	10	9	16
1105:	7	15	12	13	14	11	15	8
1113:	10	8	10	7	10	17	48	81
1121:	64	20	23	9	15	11	5	14
1129:	10	10	6	10	17	17	13	16
1137:	13	9	13	9	10	15	8	11
1145:	10	10	14	13	15	10	6	15
1153:	22	14	18	15	11	16	7	6
1161:	13	9	11	14	14	13	17	13
1169:	17	10	9	11	20	9	8	11
1177:	17	10	18	12	14	14	10	14
1185:	12	15	15	9	15	12	18	19
1193:	16	10	14	20	13	7	13	8
1201:	17	8	14	15	16	17	16	13
1209:	15	7	18	18	13	17	6	15
1217:	17	11	13	16	16	11	17	8
1225:	11	18	23	10	12	10	12	20

1233:	13	11	15	14	31	50	34	23

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Channel								
1241:	15	13	8	17	10	15	12	6
1249:	18	21	12	16	10	16	12	7
1257:	12	10	13	17	16	15	19	16
1265:	7	12	12	11	8	7	9	12
1273:	9	13	4	16	11	11	11	13
1281:	26	15	13	9	9	13	9	11
1289:	7	9	13	11	5	8	9	14
1297:	9	9	6	6	8	8	10	12
1305:	5	18	11	12	10	9	8	7
1313:	13	11	7	8	10	5	4	3
1321:	10	10	9	10	10	8	14	6
1329:	10	1	4	7	5	8	6	2
1337:	8	7	8	9	12	5	6	1
1345:	9	3	9	6	5	9	8	6
1353:	12	5	9	6	11	8	8	8
1361:	6	9	8	5	5	7	8	3
1369:	6	8	6	7	7	9	5	13
1377:	23	29	8	6	3	8	6	5
1385:	3	3	5	2	9	7	8	5
1393:	7	5	1	5	3	4	7	12
1401:	10	8	9	9	6	6	10	19
1409:	13	4	5	3	4	15	3	7
1417:	2	4	4	3	6	6	3	7
1425:	4	5	4	3	5	6	3	10
1433:	4	4	9	5	1	2	9	4
1441:	5	5	5	6	5	4	6	8
1449:	6	3	5	3	7	7	3	7
1457:	12	31	146	457	447	150	18	14
1465:	16	18	4	6	3	5	7	2
1473:	9	8	3	3	9	6	5	5
1481:	2	5	11	1	2	1	6	2
1489:	5	3	3	5	5	10	9	14
1497:	4	5	5	7	7	9	7	2
1505:	6	3	4	2	11	3	2	3
1513:	5	8	4	7	5	5	5	2
1521:	5	4	6	5	2	9	2	3
1529:	2	2	6	1	3	2	4	2
1537:	5	8	6	6	4	6	2	3
1545:	2	0	3	3	2	9	4	7
1553:	1	1	5	7	1	5	3	3
1561:	5	2	5	4	3	6	3	3
1569:	7	2	1	1	6	7	7	1
1577:	1	5	3	6	5	9	5	4
1585:	9	5	17	34	13	9	7	24
1593:	16	7	2	4	7	3	3	3
1601:	5	3	2	3	3	1	1	2
1609:	3	5	1	3	2	5	5	0
1617:	3	4	11	16	16	2	5	5
1625:	3	3	2	4	6	20	7	4
1633:	7	4	6	3	3	9	2	3
1641:	3	1	3	1	3	3	3	2
1649:	1	4	1	0	3	4	0	1
1657:	2	5	2	3	10	1	1	4

1665:	4	3	3	3	0	2	4	0

Sample Title: HTC-A02-S004-3036-01

Channel								
1673:	0	2	0	2	2	6	4	4
1681:	3	3	4	3	3	1	1	3
1689:	3	3	1	4	4	3	0	3
1697:	1	3	1	2	1	3	3	4
1705:	1	5	4	5	3	1	0	6
1713:	0	3	1	1	0	5	1	2
1721:	2	6	1	5	3	4	2	12
1729:	8	12	3	3	2	3	1	4
1737:	2	4	1	2	2	2	4	3
1745:	3	3	2	1	6	3	5	2
1753:	1	1	3	2	1	4	2	3
1761:	2	9	47	59	36	6	3	4
1769:	4	2	1	2	0	1	2	2
1777:	2	4	3	2	2	3	1	1
1785:	3	5	4	1	4	1	3	2
1793:	4	5	1	1	2	2	2	3
1801:	1	4	2	2	2	3	5	3
1809:	2	2	2	1	3	1	2	2
1817:	2	1	0	1	2	2	5	2
1825:	2	2	0	0	3	1	2	2
1833:	3	1	1	0	5	5	3	3
1841:	2	4	7	4	5	7	9	5
1849:	5	2	3	3	1	3	6	2
1857:	0	0	1	0	4	3	3	3
1865:	2	2	1	5	2	1	2	3
1873:	1	3	4	4	1	4	2	0
1881:	1	4	4	2	5	0	3	4
1889:	1	3	0	2	2	3	2	3
1897:	3	1	1	3	4	0	3	2
1905:	3	3	3	1	2	5	1	2
1913:	6	3	1	3	1	2	4	1
1921:	2	2	2	1	4	5	6	4
1929:	3	2	1	1	4	4	4	1
1937:	1	3	0	2	1	3	8	3
1945:	3	1	3	1	0	4	5	6
1953:	2	3	5	1	5	0	4	3
1961:	3	3	3	3	1	5	2	0
1969:	0	3	3	2	7	2	0	6
1977:	4	3	6	2	4	1	0	0
1985:	2	2	2	3	4	3	1	5
1993:	3	2	0	2	1	1	0	3
2001:	1	2	1	6	1	3	4	4
2009:	3	3	3	2	0	2	4	3
2017:	1	1	1	2	2	2	0	3
2025:	3	2	4	1	0	2	0	1
2033:	1	4	1	1	0	2	3	1
2041:	3	1	3	0	0	1	3	4
2049:	1	2	2	0	3	1	2	1
2057:	1	1	4	5	5	1	0	3
2065:	2	2	2	0	4	3	2	2
2073:	3	1	0	1	2	0	1	2
2081:	3	6	2	4	1	1	0	5
2089:	2	2	4	0	2	2	3	4

2097:	2	6	3	3	10	11	19	18

Sample Title: HTC-A02-S004-3036-01

Channel								
2105:	6	4	4	3	3	1	2	0
2113:	2	1	2	2	8	9	3	5
2121:	1	2	0	1	1	3	1	2
2129:	1	1	3	4	2	3	5	2
2137:	1	0	0	0	1	1	2	3
2145:	0	3	2	2	4	4	0	1
2153:	0	3	4	2	1	4	3	1
2161:	1	2	2	2	3	2	2	0
2169:	3	0	1	5	3	3	3	8
2177:	3	6	3	3	3	3	5	1
2185:	1	3	7	5	3	1	4	3
2193:	1	4	1	3	2	3	2	4
2201:	4	18	15	21	12	7	1	5
2209:	2	0	1	3	3	0	1	2
2217:	5	5	3	4	3	2	2	4
2225:	5	1	3	1	2	1	3	3
2233:	9	2	3	3	3	3	4	2
2241:	4	5	2	1	1	4	5	2
2249:	4	0	2	2	2	2	1	4
2257:	2	3	1	1	2	2	1	6
2265:	1	3	4	5	1	4	6	5
2273:	2	3	6	5	2	5	6	4
2281:	4	2	1	4	5	2	3	4
2289:	1	1	4	1	4	3	2	3
2297:	4	4	2	4	3	2	5	1
2305:	5	2	4	3	3	1	5	2
2313:	1	2	4	2	3	2	3	7
2321:	1	5	8	2	4	5	3	5
2329:	3	3	2	3	1	3	2	3
2337:	0	6	5	2	2	5	1	6
2345:	4	4	4	5	3	4	6	3
2353:	3	4	3	3	8	6	5	3
2361:	5	7	1	3	4	3	6	3
2369:	5	4	5	1	1	2	4	3
2377:	9	4	3	3	3	1	0	1
2385:	4	2	4	6	3	3	2	0
2393:	2	6	3	4	3	2	3	3
2401:	1	1	1	1	2	2	5	1
2409:	2	1	6	1	2	4	3	0
2417:	2	5	2	0	0	2	2	5
2425:	1	3	4	1	2	6	2	3
2433:	4	1	1	3	2	3	3	1
2441:	2	1	2	4	4	7	11	4
2449:	3	0	3	1	3	1	2	4
2457:	1	1	3	1	1	1	4	2
2465:	1	0	3	1	2	1	0	1
2473:	0	2	2	1	0	3	0	0
2481:	2	0	0	1	1	1	0	0
2489:	2	1	1	3	1	4	2	0
2497:	0	0	2	1	2	0	1	0
2505:	0	4	2	4	2	0	0	1
2513:	1	2	0	0	3	1	1	0
2521:	1	4	1	3	2	0	0	0

2529:	0	1	0	0	1	1	0	0

Sample Title: HTC-A02-S004-3036-01

Channel								
2537:	1	2	0	0	0	0	0	1
2545:	0	0	1	1	0	0	1	1
2553:	1	1	0	1	1	3	2	0
2561:	0	2	1	1	1	0	0	0
2569:	0	1	4	0	1	1	1	0
2577:	2	0	0	1	1	2	1	1
2585:	0	2	0	0	0	0	1	0
2593:	0	1	2	0	0	2	2	1
2601:	1	3	0	1	0	2	0	1
2609:	3	8	26	93	125	102	38	11
2617:	7	3	1	1	1	0	0	1
2625:	2	0	0	1	1	0	0	1
2633:	0	0	0	0	0	1	0	1
2641:	0	1	1	1	2	0	1	0
2649:	0	1	0	0	0	1	2	1
2657:	0	1	0	1	0	2	0	0
2665:	0	0	0	0	0	2	5	1
2673:	1	2	2	1	1	0	0	0
2681:	0	1	0	0	2	2	1	0
2689:	0	0	0	1	0	0	1	0
2697:	1	2	1	0	1	0	3	0
2705:	0	0	0	0	1	0	0	0
2713:	0	1	1	1	0	0	2	0
2721:	0	1	0	0	1	1	0	0
2729:	0	0	0	0	1	0	0	0
2737:	2	0	1	1	0	0	0	0
2745:	0	0	1	0	1	2	1	0
2753:	0	0	1	1	0	0	0	1
2761:	0	0	0	1	1	0	0	1
2769:	0	0	1	0	1	0	0	0
2777:	2	1	0	2	1	1	0	0
2785:	0	0	0	0	0	3	0	2
2793:	0	0	0	0	1	0	0	1
2801:	1	1	1	0	0	0	0	0
2809:	1	0	0	0	1	1	0	1
2817:	0	0	0	1	0	0	0	0
2825:	0	1	0	0	1	0	1	1
2833:	0	0	0	0	0	0	1	0
2841:	0	0	0	0	1	1	0	0
2849:	0	0	0	1	0	1	1	0
2857:	0	0	1	1	0	0	0	0
2865:	0	0	0	0	0	0	0	1
2873:	0	0	1	0	1	3	1	1
2881:	1	1	1	0	0	1	0	0
2889:	0	0	1	1	2	0	1	0
2897:	0	0	0	0	0	1	0	1
2905:	1	0	0	0	1	0	0	0
2913:	0	0	1	0	1	0	0	1
2921:	0	0	1	1	3	0	0	0
2929:	0	1	0	0	0	0	0	2
2937:	0	1	1	0	0	0	0	1
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	0	1	1	1	0

2961:	1	0	0	0	1	0	1	1

Sample Title: HTC-A02-S004-3036-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S004-3036-01

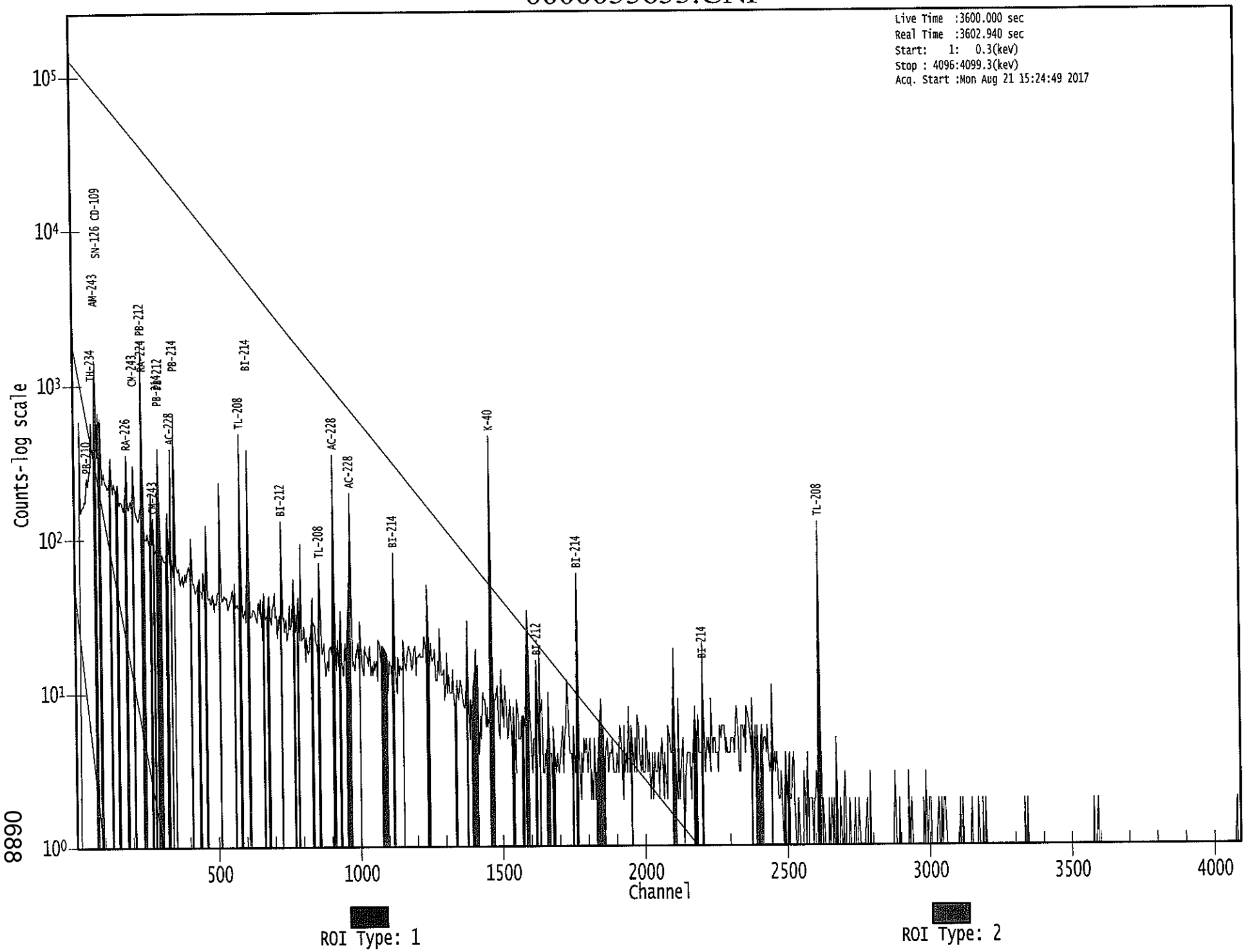
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	1	0	0	0	0	0	0
3417:	1	0	0	1	0	1	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	1	0	0	1	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	0	0	0	0	0	0
3457:	0	0	0	1	0	0	0	0
3465:	1	0	1	0	0	0	0	0
3473:	0	0	1	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S004-3036-01

Channel								
3833:	0	0	0	0	0	0	0	1
3841:	0	0	0	1	0	0	1	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	1	0	0
3873:	0	1	0	0	0	0	1	1
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	1	0	1	0	0
3913:	0	1	0	0	0	0	1	0
3921:	0	0	0	0	1	0	0	1
3929:	0	1	0	1	0	1	0	0
3937:	0	0	1	1	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	1
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	1	0	0	1
3993:	0	0	0	0	0	1	0	0
4001:	0	0	0	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:	1	0	0	0	0	0	0	1
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	1	0
4065:	0	0	0	1	0	0	0	0
4073:	0	1	0	0	0	0	0	2
4081:	1	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055655.CNF



8890

KB 8/21/17

Apex-Gamma

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-08
Sample Description	: HTC-A02-S004-3642-01
Sample Type	: SOIL
Sample Size	: 5.679E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:13:14AM
Acquisition Started	: 8/21/2017 3:24:56PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.0 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	: 55656

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 4:25:36PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	62.76	63.06	0.0000	0.00
2	75.36	75.66	0.0000	0.00
3	77.63	77.93	0.0000	0.00
4	87.71	88.01	0.0000	0.00
5	93.60	93.90	0.0000	0.00
6	129.60	129.89	0.0000	0.00
7	186.22	186.48	0.0000	0.00
8	210.42	210.68	0.0000	0.00
9	239.62	239.87	0.0000	0.00
10	270.52	270.76	0.0000	0.00
11	295.58	295.81	0.0000	0.00
12	327.59	327.80	0.0000	0.00
13	339.60	339.81	0.0000	0.00
14	352.26	352.47	0.0000	0.00
15	463.42	463.59	0.0000	0.00
16	511.26	511.42	0.0000	0.00
17	537.93	538.07	0.0000	0.00
18	563.71	563.85	0.0000	0.00
19	583.78	583.91	0.0000	0.00
20	609.56	609.68	0.0000	0.00
21	638.96	639.07	0.0000	0.00
22	728.64	728.72	0.0000	0.00
23	770.28	770.35	0.0000	0.00
24	787.04	787.10	0.0000	0.00
25	795.14	795.20	0.0000	0.00
26	802.80	802.86	0.0000	0.00
27	860.40	860.44	0.0000	0.00
28	907.98	908.00	0.0000	0.00
29	914.98	915.00	0.0000	0.00
30	965.21	965.21	0.0000	0.00
31	968.98	968.98	0.0000	0.00
32	1059.83	1059.80	0.0000	0.00
33	1115.82	1115.77	0.0000	0.00
34	1120.37	1120.32	0.0000	0.00
35	1237.99	1237.90	0.0000	0.00
36	1362.72	1362.58	0.0000	0.00
37	1460.70	1460.53	0.0000	0.00
38	1503.28	1503.10	0.0000	0.00
39	1594.24	1594.03	0.0000	0.00
40	1605.91	1605.69	0.0000	0.00
41	1619.39	1619.17	0.0000	0.00
42	1640.12	1639.89	0.0000	0.00

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1679.86	1679.62	0.0000	0.00
44	1701.62	1701.37	0.0000	0.00
45	1727.72	1727.47	0.0000	0.00
46	1764.25	1763.98	0.0000	0.00
47	1780.42	1780.14	0.0000	0.00
48	1846.34	1846.05	0.0000	0.00
49	1855.08	1854.78	0.0000	0.00
50	1947.58	1947.25	0.0000	0.00
51	2103.54	2103.16	0.0000	0.00
52	2204.07	2203.65	0.0000	0.00
53	2387.42	2386.94	0.0000	0.00
54	2520.24	2519.71	0.0000	0.00
55	2614.13	2613.57	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 4:25:36PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	62.76	58 -	67	63.06	3.13E+02	139.95	2.63E+03	1.97
M	2	75.36	72 -	80	75.66	5.30E+02	122.85	1.98E+03	2.24
m	3	77.63	72 -	80	77.93	7.44E+02	113.47	1.54E+03	1.92
	4	87.71	86 -	91	88.01	1.25E+02	95.24	1.72E+03	1.86
	5	93.60	91 -	97	93.90	2.44E+02	100.30	1.60E+03	2.23
	6	129.60	126 -	133	129.89	1.14E+02	89.53	1.25E+03	2.64
	7	186.22	183 -	189	186.48	1.74E+02	71.28	7.97E+02	1.94
	8	210.42	207 -	214	210.68	7.66E+01	74.24	8.59E+02	4.03
	9	239.62	234 -	246	239.87	9.76E+02	118.78	1.19E+03	2.41
	10	270.52	268 -	274	270.76	7.70E+01	53.11	4.60E+02	2.69
	11	295.58	292 -	301	295.81	1.83E+02	78.03	7.77E+02	1.90
	12	327.59	322 -	332	327.80	7.82E+01	66.90	5.54E+02	2.40
	13	339.60	333 -	346	339.81	1.60E+02	78.59	6.12E+02	2.61
	14	352.26	348 -	358	352.47	4.19E+02	72.02	4.70E+02	2.22
	15	463.42	459 -	467	463.59	8.72E+01	42.10	2.16E+02	3.38
	16	511.26	506 -	519	511.42	1.31E+02	65.08	4.10E+02	3.18
	17	537.93	534 -	542	538.07	3.54E+01	34.60	1.53E+02	1.48
	18	563.71	560 -	568	563.85	3.31E+01	37.99	2.00E+02	3.35
	19	583.78	579 -	590	583.91	2.69E+02	55.86	2.49E+02	2.32
	20	609.56	604 -	615	609.68	2.84E+02	59.06	2.94E+02	2.11
	21	638.96	636 -	643	639.07	2.93E+01	31.18	1.39E+02	4.12
	22	728.64	722 -	737	728.72	8.86E+01	52.19	2.25E+02	5.89
	23	770.28	766 -	777	770.35	3.92E+01	43.45	2.18E+02	6.20
M	24	787.04	784 -	801	787.10	2.75E+01	26.83	1.16E+02	2.26
m	25	795.14	784 -	801	795.20	5.02E+01	28.28	1.09E+02	2.26
	26	802.80	801 -	805	802.86	1.39E+01	17.54	5.43E+01	1.54
	27	860.40	857 -	864	860.44	2.81E+01	29.33	1.26E+02	1.44
M	28	907.98	907 -	918	908.00	1.56E+01	9.64	2.41E+01	2.11
m	29	914.98	907 -	918	915.00	1.92E+01	26.63	7.73E+01	2.12
M	30	965.21	962 -	973	965.21	4.15E+01	28.84	1.05E+02	2.35
m	31	968.98	962 -	973	968.98	1.14E+02	32.24	1.05E+02	2.32
	32	1059.83	1056 -	1063	1059.80	2.75E+01	23.66	7.30E+01	3.36
M	33	1115.82	1114 -	1125	1115.77	1.14E+01	11.70	3.69E+01	3.61
m	34	1120.37	1114 -	1125	1120.32	5.57E+01	29.21	8.53E+01	2.94
	35	1237.99	1233 -	1242	1237.90	4.69E+01	32.95	1.24E+02	2.84
	36	1362.72	1358 -	1367	1362.58	2.18E+01	19.08	3.84E+01	4.23
	37	1460.70	1454 -	1467	1460.53	7.39E+02	58.79	5.39E+01	2.51
	38	1503.28	1502 -	1505	1503.10	5.81E+00	7.21	4.38E+00	3.40
	39	1594.24	1590 -	1600	1594.03	2.14E+01	15.65	1.92E+01	2.71
	40	1605.91	1602 -	1608	1605.69	6.50E+00	8.99	9.00E+00	2.82

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1619.39	1617 -	1622	1619.17	5.00E+00	7.07	6.00E+00	3.04
42	1640.12	1637 -	1642	1639.89	6.33E+00	7.35	5.33E+00	1.58
43	1679.86	1676 -	1682	1679.62	6.70E+00	8.03	6.60E+00	0.96
44	1701.62	1699 -	1704	1701.37	5.75E+00	7.07	4.50E+00	3.04
45	1727.72	1723 -	1732	1727.47	1.40E+01	14.00	2.00E+01	4.13
46	1764.25	1759 -	1770	1763.98	4.76E+01	22.80	3.89E+01	3.31
47	1780.42	1777 -	1782	1780.14	7.00E+00	5.29	0.00E+00	1.88
48	1846.34	1841 -	1850	1846.05	1.36E+01	9.43	4.81E+00	3.28
49	1855.08	1852 -	1857	1854.78	6.63E+00	6.40	2.75E+00	1.87
50	1947.58	1944 -	1950	1947.25	6.19E+00	6.65	3.63E+00	1.94
51	2103.54	2099 -	2106	2103.16	1.71E+01	10.77	7.81E+00	2.17
52	2204.07	2199 -	2206	2203.65	1.18E+01	10.95	1.24E+01	1.83
53	2387.42	2384 -	2390	2386.94	6.63E+00	6.65	2.75E+00	1.85
54	2520.24	2516 -	2522	2519.71	7.00E+00	5.29	0.00E+00	2.74
55	2614.13	2608 -	2618	2613.57	6.80E+01	16.49	0.00E+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 : 8/21/2017 4:25:36PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	62.76	58 -	67	3.13E+02	139.95	2.63E+03	1.11E+02
M	2	75.36	72 -	80	5.30E+02	122.85	1.98E+03	7.32E+01
m	3	77.63	72 -	80	7.44E+02	113.47	1.54E+03	6.45E+01
	4	87.71	86 -	91	1.25E+02	95.24	1.72E+03	7.61E+01
	5	93.60	91 -	97	2.44E+02	100.30	1.60E+03	7.84E+01
	6	129.60	126 -	133	1.14E+02	89.53	1.25E+03	7.15E+01
	7	186.22	183 -	189	1.74E+02	71.28	7.97E+02	5.44E+01
	8	210.42	207 -	214	7.66E+01	74.24	8.59E+02	5.93E+01
	9	239.62	234 -	246	9.76E+02	118.78	1.19E+03	8.30E+01
	10	270.52	268 -	274	7.70E+01	53.11	4.60E+02	4.12E+01
	11	295.58	292 -	301	1.83E+02	78.03	7.77E+02	6.02E+01
	12	327.59	322 -	332	7.82E+01	66.90	5.54E+02	5.30E+01
	13	339.60	333 -	346	1.60E+02	78.59	6.12E+02	6.12E+01

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	352.26	348 -	358	4.19E+02	72.02	4.70E+02	4.87E+01
	15	463.42	459 -	467	8.72E+01	42.10	2.16E+02	3.10E+01
	16	511.26	506 -	519	1.31E+02	65.08	4.10E+02	5.01E+01
	17	537.93	534 -	542	3.54E+01	34.60	1.53E+02	2.67E+01
	18	563.71	560 -	568	3.31E+01	37.99	2.00E+02	2.98E+01
	19	583.78	579 -	590	2.69E+02	55.86	2.49E+02	3.72E+01
	20	609.56	604 -	615	2.84E+02	59.06	2.94E+02	3.99E+01
	21	638.96	636 -	643	2.93E+01	31.18	1.39E+02	2.40E+01
	22	728.64	722 -	737	8.86E+01	52.19	2.25E+02	4.00E+01
	23	770.28	766 -	777	3.92E+01	43.45	2.18E+02	3.42E+01
M	24	787.04	784 -	801	2.75E+01	26.83	1.16E+02	1.77E+01
m	25	795.14	784 -	801	5.02E+01	28.28	1.09E+02	1.72E+01
	26	802.80	801 -	805	1.39E+01	17.54	5.43E+01	1.31E+01
	27	860.40	857 -	864	2.81E+01	29.33	1.26E+02	2.25E+01
M	28	907.98	907 -	918	1.56E+01	9.64	2.41E+01	8.07E+00
m	29	914.98	907 -	918	1.92E+01	26.63	7.73E+01	1.45E+01
M	30	965.21	962 -	973	4.15E+01	28.84	1.05E+02	1.68E+01
m	31	968.98	962 -	973	1.14E+02	32.24	1.05E+02	1.68E+01
	32	1059.83	1056 -	1063	2.75E+01	23.66	7.30E+01	1.74E+01
M	33	1115.82	1114 -	1125	1.14E+01	11.70	3.69E+01	9.99E+00
m	34	1120.37	1114 -	1125	5.57E+01	29.21	8.53E+01	1.52E+01
	35	1237.99	1233 -	1242	4.69E+01	32.95	1.24E+02	2.46E+01
	36	1362.72	1358 -	1367	2.18E+01	19.08	3.84E+01	1.37E+01
	37	1460.70	1454 -	1467	7.39E+02	58.79	5.39E+01	1.84E+01
	38	1503.28	1502 -	1505	5.81E+00	7.21	4.38E+00	4.41E+00
	39	1594.24	1590 -	1600	2.14E+01	15.65	1.92E+01	1.04E+01
	40	1605.91	1602 -	1608	6.50E+00	8.99	9.00E+00	6.08E+00
	41	1619.39	1617 -	1622	5.00E+00	7.07	6.00E+00	4.50E+00
	42	1640.12	1637 -	1642	6.33E+00	7.35	5.33E+00	4.40E+00
	43	1679.86	1676 -	1682	6.70E+00	8.03	6.60E+00	5.05E+00
	44	1701.62	1699 -	1704	5.75E+00	7.07	4.50E+00	4.27E+00
	45	1727.72	1723 -	1732	1.40E+01	14.00	2.00E+01	9.73E+00
	46	1764.25	1759 -	1770	4.76E+01	22.80	3.89E+01	1.49E+01
	47	1780.42	1777 -	1782	7.00E+00	5.29	0.00E+00	0.00E+00
	48	1846.34	1841 -	1850	1.36E+01	9.43	4.81E+00	4.84E+00
	49	1855.08	1852 -	1857	6.63E+00	6.40	2.75E+00	3.13E+00
	50	1947.58	1944 -	1950	6.19E+00	6.65	3.63E+00	3.63E+00
	51	2103.54	2099 -	2106	1.71E+01	10.77	7.81E+00	5.67E+00
	52	2204.07	2199 -	2206	1.18E+01	10.95	1.24E+01	7.02E+00
	53	2387.42	2384 -	2390	6.63E+00	6.65	2.75E+00	3.46E+00
	54	2520.24	2516 -	2522	7.00E+00	5.29	0.00E+00	0.00E+00
	55	2614.13	2608 -	2618	6.80E+01	16.49	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

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 4:25:36PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	62.76	58 -	67	63.06	3.13E+02	139.95	2.63E+03	TH-230 TH-234
M	2	75.36	72 -	80	75.66	5.30E+02	122.85	1.98E+03	AM-243
m	3	77.63	72 -	80	77.93	7.44E+02	113.47	1.54E+03	TI-44
	4	87.71	86 -	91	88.01	1.25E+02	95.24	1.72E+03	SN-126 CD-109 LU-176
	5	93.60	91 -	97	93.90	2.44E+02	100.30	1.60E+03	GA-67
	6	129.60	126 -	133	129.89	1.14E+02	89.53	1.25E+03	.....
	7	186.22	183 -	189	186.48	1.74E+02	71.28	7.97E+02	RA-226
	8	210.42	207 -	214	210.68	7.66E+01	74.24	8.59E+02	CM-243
	9	239.62	234 -	246	239.87	9.76E+02	118.78	1.19E+03	PB-212
	10	270.52	268 -	274	270.76	7.70E+01	53.11	4.60E+02	.....
	11	295.58	292 -	301	295.81	1.83E+02	78.03	7.77E+02	PB-214
	12	327.59	322 -	332	327.80	7.82E+01	66.90	5.54E+02	.....
	13	339.60	333 -	346	339.81	1.60E+02	78.59	6.12E+02	CS-136
	14	352.26	348 -	358	352.47	4.19E+02	72.02	4.70E+02	PB-214
	15	463.42	459 -	467	463.59	8.72E+01	42.10	2.16E+02	SB-125
	16	511.26	506 -	519	511.42	1.31E+02	65.08	4.10E+02	.....
	17	537.93	534 -	542	538.07	3.54E+01	34.60	1.53E+02	BA-140
	18	563.71	560 -	568	563.85	3.31E+01	37.99	2.00E+02	CS-134
	19	583.78	579 -	590	583.91	2.69E+02	55.86	2.49E+02	TL-208
	20	609.56	604 -	615	609.68	2.84E+02	59.06	2.94E+02	BI-214
	21	638.96	636 -	643	639.07	2.93E+01	31.18	1.39E+02	.....
	22	728.64	722 -	737	728.72	8.86E+01	52.19	2.25E+02	.....
	23	770.28	766 -	777	770.35	3.92E+01	43.45	2.18E+02	.....
M	24	787.04	784 -	801	787.10	2.75E+01	26.83	1.16E+02	.....
m	25	795.14	784 -	801	795.20	5.02E+01	28.28	1.09E+02	CS-134
	26	802.80	801 -	805	802.86	1.39E+01	17.54	5.43E+01	CS-134
	27	860.40	857 -	864	860.44	2.81E+01	29.33	1.26E+02	TL-208
M	28	907.98	907 -	918	908.00	1.56E+01	9.64	2.41E+01	.....
m	29	914.98	907 -	918	915.00	1.92E+01	26.63	7.73E+01	.....
M	30	965.21	962 -	973	965.21	4.15E+01	28.84	1.05E+02	.....
m	31	968.98	962 -	973	968.98	1.14E+02	32.24	1.05E+02	AC-228
	32	1059.83	1056 -	1063	1059.80	2.75E+01	23.66	7.30E+01	.....
M	33	1115.82	1114 -	1125	1115.77	1.14E+01	11.70	3.69E+01	ZN-65
m	34	1120.37	1114 -	1125	1120.32	5.57E+01	29.21	8.53E+01	BI-214 SC-46

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
								TA-182
35	1237.99	1233 -	1242	1237.90	4.69E+01	32.95	1.24E+02	CO-56
36	1362.72	1358 -	1367	1362.58	2.18E+01	19.08	3.84E+01	.....
37	1460.70	1454 -	1467	1460.53	7.39E+02	58.79	5.39E+01	K-40
38	1503.28	1502 -	1505	1503.10	5.81E+00	7.21	4.38E+00	.....
39	1594.24	1590 -	1600	1594.03	2.14E+01	15.65	1.92E+01	.....
40	1605.91	1602 -	1608	1605.69	6.50E+00	8.99	9.00E+00	.....
41	1619.39	1617 -	1622	1619.17	5.00E+00	7.07	6.00E+00	.....
42	1640.12	1637 -	1642	1639.89	6.33E+00	7.35	5.33E+00	.....
43	1679.86	1676 -	1682	1679.62	6.70E+00	8.03	6.60E+00	.....
44	1701.62	1699 -	1704	1701.37	5.75E+00	7.07	4.50E+00	.....
45	1727.72	1723 -	1732	1727.47	1.40E+01	14.00	2.00E+01	.....
46	1764.25	1759 -	1770	1763.98	4.76E+01	22.80	3.89E+01	BI-214
47	1780.42	1777 -	1782	1780.14	7.00E+00	5.29	0.00E+00	.....
48	1846.34	1841 -	1850	1846.05	1.36E+01	9.43	4.81E+00	.....
49	1855.08	1852 -	1857	1854.78	6.63E+00	6.40	2.75E+00	.....
50	1947.58	1944 -	1950	1947.25	6.19E+00	6.65	3.63E+00	.....
51	2103.54	2099 -	2106	2103.16	1.71E+01	10.77	7.81E+00	.....
52	2204.07	2199 -	2206	2203.65	1.18E+01	10.95	1.24E+01	BI-214
53	2387.42	2384 -	2390	2386.94	6.63E+00	6.65	2.75E+00	.....
54	2520.24	2516 -	2522	2519.71	7.00E+00	5.29	0.00E+00	.....
55	2614.13	2608 -	2618	2613.57	6.80E+01	16.49	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 4:25:36PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.76	3.13E+02	139.95	2.43E-02	1.79E-03
M	2	75.36	5.30E+02	122.85	2.66E-02	2.02E-03
m	3	77.63	7.44E+02	113.47	2.68E-02	2.06E-03
	4	87.71	1.25E+02	95.24	2.72E-02	2.25E-03
	5	93.60	2.44E+02	100.30	2.71E-02	2.24E-03
	6	129.60	1.14E+02	89.53	2.45E-02	2.04E-03
	7	186.22	1.74E+02	71.28	1.96E-02	1.55E-03
	8	210.42	7.66E+01	74.24	1.78E-02	1.45E-03

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	9	239.62	9.76E+02	118.78	1.61E-02	1.34E-03
	10	270.52	7.70E+01	53.11	1.45E-02	1.21E-03
	11	295.58	1.83E+02	78.03	1.35E-02	1.15E-03
	12	327.59	7.82E+01	66.90	1.23E-02	1.08E-03
	13	339.60	1.60E+02	78.59	1.19E-02	1.06E-03
	14	352.26	4.19E+02	72.02	1.15E-02	1.03E-03
	15	463.42	8.72E+01	42.10	9.02E-03	8.57E-04
	16	511.26	1.31E+02	65.08	8.25E-03	7.94E-04
	17	537.93	3.54E+01	34.60	7.88E-03	7.59E-04
	18	563.71	3.31E+01	37.99	7.55E-03	7.24E-04
	19	583.78	2.69E+02	55.86	7.32E-03	6.98E-04
	20	609.56	2.84E+02	59.06	7.04E-03	6.64E-04
	21	638.96	2.93E+01	31.18	6.75E-03	6.25E-04
	22	728.64	8.86E+01	52.19	6.00E-03	5.35E-04
	23	770.28	3.92E+01	43.45	5.71E-03	4.99E-04
M	24	787.04	2.75E+01	26.83	5.60E-03	4.84E-04
m	25	795.14	5.02E+01	28.28	5.55E-03	4.77E-04
	26	802.80	1.39E+01	17.54	5.50E-03	4.70E-04
	27	860.40	2.81E+01	29.33	5.18E-03	4.19E-04
M	28	907.98	1.56E+01	9.64	4.94E-03	3.84E-04
m	29	914.98	1.92E+01	26.63	4.90E-03	3.83E-04
M	30	965.21	4.15E+01	28.84	4.68E-03	3.75E-04
m	31	968.98	1.14E+02	32.24	4.66E-03	3.74E-04
	32	1059.83	2.75E+01	23.66	4.32E-03	3.60E-04
M	33	1115.82	1.14E+01	11.70	4.13E-03	3.50E-04
m	34	1120.37	5.57E+01	29.21	4.12E-03	3.50E-04
	35	1237.99	4.69E+01	32.95	3.79E-03	3.22E-04
	36	1362.72	2.18E+01	19.08	3.50E-03	2.91E-04
	37	1460.70	7.39E+02	58.79	3.31E-03	2.75E-04
	38	1503.28	5.81E+00	7.21	3.24E-03	2.68E-04
	39	1594.24	2.14E+01	15.65	3.09E-03	2.54E-04
	40	1605.91	6.50E+00	8.99	3.07E-03	2.52E-04
	41	1619.39	5.00E+00	7.07	3.05E-03	2.50E-04
	42	1640.12	6.33E+00	7.35	3.03E-03	2.46E-04
	43	1679.86	6.70E+00	8.03	2.97E-03	2.40E-04
	44	1701.62	5.75E+00	7.07	2.94E-03	2.37E-04
	45	1727.72	1.40E+01	14.00	2.91E-03	2.32E-04
	46	1764.25	4.76E+01	22.80	2.87E-03	2.26E-04
	47	1780.42	7.00E+00	5.29	2.85E-03	2.24E-04
	48	1846.34	1.36E+01	9.43	2.77E-03	2.15E-04
	49	1855.08	6.63E+00	6.40	2.76E-03	2.15E-04
	50	1947.58	6.19E+00	6.65	2.67E-03	2.15E-04
	51	2103.54	1.71E+01	10.77	2.54E-03	2.15E-04
	52	2204.07	1.18E+01	10.95	2.46E-03	2.15E-04
	53	2387.42	6.63E+00	6.65	2.35E-03	2.15E-04
	54	2520.24	7.00E+00	5.29	2.28E-03	2.15E-04
	55	2614.13	6.80E+01	16.49	2.24E-03	2.15E-04

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

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 : 8/21/2017 4:25:36PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.76	3.13E+02	139.95	4.12E+01	5.67E+00	2.72E+02	1.40E+02
M	2	75.36	5.30E+02	122.85			5.30E+02	1.23E+02
m	3	77.63	7.44E+02	113.47			7.44E+02	1.13E+02
	4	87.71	1.25E+02	95.24			1.25E+02	9.52E+01
	5	93.60	2.44E+02	100.30	7.98E+01	7.31E+00	1.64E+02	1.01E+02
	6	129.60	1.14E+02	89.53			1.14E+02	8.95E+01
	7	186.22	1.74E+02	71.28	3.06E+01	5.82E+00	1.43E+02	7.15E+01
	8	210.42	7.66E+01	74.24			7.66E+01	7.42E+01
	9	239.62	9.76E+02	118.78	1.40E+01	2.71E+00	9.62E+02	1.19E+02
	10	270.52	7.70E+01	53.11			7.70E+01	5.31E+01
	11	295.58	1.83E+02	78.03			1.83E+02	7.80E+01
	12	327.59	7.82E+01	66.90			7.82E+01	6.69E+01
	13	339.60	1.60E+02	78.59			1.60E+02	7.86E+01
	14	352.26	4.19E+02	72.02	6.53E+00	4.43E+00	4.12E+02	7.22E+01
	15	463.42	8.72E+01	42.10			8.72E+01	4.21E+01
	16	511.26	1.31E+02	65.08	5.21E+01	4.74E+00	7.90E+01	6.52E+01
	17	537.93	3.54E+01	34.60			3.54E+01	3.46E+01
	18	563.71	3.31E+01	37.99			3.31E+01	3.80E+01
	19	583.78	2.69E+02	55.86			2.69E+02	5.59E+01
	20	609.56	2.84E+02	59.06	3.25E+00	2.97E+00	2.81E+02	5.91E+01
	21	638.96	2.93E+01	31.18			2.93E+01	3.12E+01
	22	728.64	8.86E+01	52.19			8.86E+01	5.22E+01
	23	770.28	3.92E+01	43.45			3.92E+01	4.35E+01
M	24	787.04	2.75E+01	26.83			2.75E+01	2.68E+01
m	25	795.14	5.02E+01	28.28	0.00E+00	0.00E+00	5.02E+01	2.83E+01
	26	802.80	1.39E+01	17.54			1.39E+01	1.75E+01
	27	860.40	2.81E+01	29.33			2.81E+01	2.93E+01
M	28	907.98	1.56E+01	9.64			1.56E+01	9.64E+00
m	29	914.98	1.92E+01	26.63			1.92E+01	2.66E+01
M	30	965.21	4.15E+01	28.84			4.15E+01	2.88E+01
m	31	968.98	1.14E+02	32.24			1.14E+02	3.22E+01
	32	1059.83	2.75E+01	23.66			2.75E+01	2.37E+01
M	33	1115.82	1.14E+01	11.70			1.14E+01	1.17E+01
m	34	1120.37	5.57E+01	29.21			5.57E+01	2.92E+01
	35	1237.99	4.69E+01	32.95			4.69E+01	3.30E+01

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1362.72	2.18E+01	19.08			2.18E+01	1.91E+01
37	1460.70	7.39E+02	58.79	1.00E+00	1.77E+00	7.38E+02	5.88E+01
38	1503.28	5.81E+00	7.21			5.81E+00	7.21E+00
39	1594.24	2.14E+01	15.65			2.14E+01	1.57E+01
40	1605.91	6.50E+00	8.99			6.50E+00	8.99E+00
41	1619.39	5.00E+00	7.07			5.00E+00	7.07E+00
42	1640.12	6.33E+00	7.35			6.33E+00	7.35E+00
43	1679.86	6.70E+00	8.03			6.70E+00	8.03E+00
44	1701.62	5.75E+00	7.07			5.75E+00	7.07E+00
45	1727.72	1.40E+01	14.00			1.40E+01	1.40E+01
46	1764.25	4.76E+01	22.80			4.76E+01	2.28E+01
47	1780.42	7.00E+00	5.29			7.00E+00	5.29E+00
48	1846.34	1.36E+01	9.43			1.36E+01	9.43E+00
49	1855.08	6.63E+00	6.40			6.63E+00	6.40E+00
50	1947.58	6.19E+00	6.65			6.19E+00	6.65E+00
51	2103.54	1.71E+01	10.77			1.71E+01	1.08E+01
52	2204.07	1.18E+01	10.95			1.18E+01	1.10E+01
53	2387.42	6.63E+00	6.65			6.63E+00	6.65E+00
54	2520.24	7.00E+00	5.29			7.00E+00	5.29E+00
55	2614.13	6.80E+01	16.49	1.86E+00	1.12E+00	6.61E+01	1.65E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 4:25:36PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	62.76	3.13E+02	139.95	4.12E+01	5.67E+00	2.72E+02	1.40E+02
M	2	75.36	5.30E+02	122.85			5.30E+02	1.23E+02
m	3	77.63	7.44E+02	113.47			7.44E+02	1.13E+02
	4	87.71	1.25E+02	95.24			1.25E+02	9.52E+01
	5	93.60	2.44E+02	100.30	7.98E+01	7.31E+00	1.64E+02	1.01E+02
	6	129.60	1.14E+02	89.53			1.14E+02	8.95E+01
	7	186.22	1.74E+02	71.28	3.06E+01	5.82E+00	1.43E+02	7.15E+01
	8	210.42	7.66E+01	74.24			7.66E+01	7.42E+01

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	9	239.62	9.76E+02	118.78	1.40E+01	2.71E+00	9.62E+02	1.19E+02
	10	270.52	7.70E+01	53.11			7.70E+01	5.31E+01
	11	295.58	1.83E+02	78.03			1.83E+02	7.80E+01
	12	327.59	7.82E+01	66.90			7.82E+01	6.69E+01
	13	339.60	1.60E+02	78.59			1.60E+02	7.86E+01
	14	352.26	4.19E+02	72.02	6.53E+00	4.43E+00	4.12E+02	7.22E+01
	15	463.42	8.72E+01	42.10			8.72E+01	4.21E+01
	16	511.26	1.31E+02	65.08	5.21E+01	4.74E+00	7.90E+01	6.52E+01
	17	537.93	3.54E+01	34.60			3.54E+01	3.46E+01
	18	563.71	3.31E+01	37.99			3.31E+01	3.80E+01
	19	583.78	2.69E+02	55.86			2.69E+02	5.59E+01
	20	609.56	2.84E+02	59.06	3.25E+00	2.97E+00	2.81E+02	5.91E+01
	21	638.96	2.93E+01	31.18			2.93E+01	3.12E+01
	22	728.64	8.86E+01	52.19			8.86E+01	5.22E+01
	23	770.28	3.92E+01	43.45			3.92E+01	4.35E+01
M	24	787.04	2.75E+01	26.83			2.75E+01	2.68E+01
m	25	795.14	5.02E+01	28.28	0.00E+00	0.00E+00	5.02E+01	2.83E+01
	26	802.80	1.39E+01	17.54			1.39E+01	1.75E+01
	27	860.40	2.81E+01	29.33			2.81E+01	2.93E+01
M	28	907.98	1.56E+01	9.64			1.56E+01	9.64E+00
m	29	914.98	1.92E+01	26.63			1.92E+01	2.66E+01
M	30	965.21	4.15E+01	28.84			4.15E+01	2.88E+01
m	31	968.98	1.14E+02	32.24			1.14E+02	3.22E+01
	32	1059.83	2.75E+01	23.66			2.75E+01	2.37E+01
M	33	1115.82	1.14E+01	11.70			1.14E+01	1.17E+01
m	34	1120.37	5.57E+01	29.21			5.57E+01	2.92E+01
	35	1237.99	4.69E+01	32.95			4.69E+01	3.30E+01
	36	1362.72	2.18E+01	19.08			2.18E+01	1.91E+01
	37	1460.70	7.39E+02	58.79	1.00E+00	1.77E+00	7.38E+02	5.88E+01
	38	1503.28	5.81E+00	7.21			5.81E+00	7.21E+00
	39	1594.24	2.14E+01	15.65			2.14E+01	1.57E+01
	40	1605.91	6.50E+00	8.99			6.50E+00	8.99E+00
	41	1619.39	5.00E+00	7.07			5.00E+00	7.07E+00
	42	1640.12	6.33E+00	7.35			6.33E+00	7.35E+00
	43	1679.86	6.70E+00	8.03			6.70E+00	8.03E+00
	44	1701.62	5.75E+00	7.07			5.75E+00	7.07E+00
	45	1727.72	1.40E+01	14.00			1.40E+01	1.40E+01
	46	1764.25	4.76E+01	22.80			4.76E+01	2.28E+01
	47	1780.42	7.00E+00	5.29			7.00E+00	5.29E+00
	48	1846.34	1.36E+01	9.43			1.36E+01	9.43E+00
	49	1855.08	6.63E+00	6.40			6.63E+00	6.40E+00
	50	1947.58	6.19E+00	6.65			6.19E+00	6.65E+00
	51	2103.54	1.71E+01	10.77			1.71E+01	1.08E+01
	52	2204.07	1.18E+01	10.95			1.18E+01	1.10E+01
	53	2387.42	6.63E+00	6.65			6.63E+00	6.65E+00
	54	2520.24	7.00E+00	5.29			7.00E+00	5.29E+00
	55	2614.13	6.80E+01	16.49	1.86E+00	1.12E+00	6.61E+01	1.65E+01

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

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

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	2.76E+01	3.23E+00
ZN-65	0.985	1115.52	*	50.75	9.48E-02	9.78E-02
CD-109	0.983	88.03	*	3.72	1.90E+00	1.46E+00
SN-126	0.997	87.57	*	37.00	1.65E-01	1.26E-01
TL-208	0.950	583.14	*	30.22	1.61E+00	3.67E-01
		860.37	*	4.48	1.60E+00	1.68E+00
		2614.66	*	35.85	1.09E+00	2.92E-01
PB-212	0.761	238.63	*	44.60	1.77E+00	2.64E-01
		300.09		3.41		
BI-214	0.992	609.31	*	46.30	1.14E+00	2.63E-01
		1120.29	*	15.10	1.18E+00	6.29E-01
		1764.49	*	15.80	1.39E+00	6.75E-01
		2204.22	*	4.98	1.27E+00	1.19E+00
PB-214	0.981	295.21	*	19.19	9.39E-01	4.07E-01
		351.92	*	37.19	1.27E+00	2.50E-01
RA-226	1.000	186.21	*	3.28	2.95E+00	5.59E+00
TH-234	0.955	63.29	*	3.80	3.89E+00	2.03E+00
AM-243	0.927	74.67	*	66.00	4.00E-01	9.75E-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 : 8/21/2017 4:25:36PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.63	2.06768E-01	7.62		
	5	93.60	4.54981E-02	30.70	D-Esc	
	6	129.60	3.15567E-02	39.41		
	8	210.42	2.12681E-02	48.48	Tol.	CM-243
	10	270.52	2.14025E-02	34.46		
	12	327.59	2.17234E-02	42.77	Sum	
	13	339.60	4.44468E-02	24.56		
	15	463.42	2.42194E-02	24.14	Tol.	SB-125
	16	511.26	2.19515E-02	41.28		
	17	537.93	9.82763E-03	48.90	Sum	
	18	563.71	9.18233E-03	57.46		
	21	638.96	8.14815E-03	53.14		
	22	728.64	2.46006E-02	29.47		
	23	770.28	1.08840E-02	55.45	Sum	
M	24	787.04	7.63048E-03	48.84		
m	25	795.14	1.39390E-02	28.18	Sum	
	26	802.80	3.85163E-03	63.26		
M	28	907.98	4.33154E-03	30.92		
m	29	914.98	5.32077E-03	69.51		
M	30	965.21	1.15287E-02	34.74		
m	31	968.98	3.16770E-02	14.14	Tol.	AC-228
	32	1059.83	7.63455E-03	43.05		
	35	1237.99	1.30275E-02	35.13	Tol.	CO-56
	36	1362.72	6.05691E-03	43.75		
	38	1503.28	1.61458E-03	62.03		
	39	1594.24	5.94534E-03	36.57		
	40	1605.91	1.80556E-03	69.12		
	41	1619.39	1.38889E-03	70.71		
	42	1640.12	1.75926E-03	58.01		
	43	1679.86	1.86111E-03	59.93		
	44	1701.62	1.59722E-03	61.49		
	45	1727.72	3.88889E-03	50.00		
	47	1780.42	1.94444E-03	37.80		
	48	1846.34	3.77604E-03	34.70		
	49	1855.08	1.84028E-03	48.33		
	50	1947.58	1.71875E-03	53.75		
	51	2103.54	4.74868E-03	31.50	S-Esc	
	53	2387.42	1.84028E-03	50.20		
	54	2520.24	1.94444E-03	37.80		

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 1707086-08

HTC-A02-S004-3642-01

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	2.76E+01	3.23E+00
ZN-65	0.98	1115.52	*	50.75	9.48E-02	9.78E-02
CD-109	0.98	88.03	*	3.72	1.90E+00	1.46E+00
SN-126	0.99	87.57	*	37.00	1.65E-01	1.26E-01
TL-208	0.95	583.14	*	30.22	1.61E+00	3.67E-01
		860.37	*	4.48	1.60E+00	1.68E+00
		2614.66	*	35.85	1.09E+00	2.92E-01
PB-212	0.76	238.63	*	44.60	1.77E+00	2.64E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	1.14E+00	2.63E-01
		1120.29	*	15.10	1.18E+00	6.29E-01
		1764.49	*	15.80	1.39E+00	6.75E-01
		2204.22	*	4.98	1.27E+00	1.19E+00
PB-214	0.98	295.21	*	19.19	9.39E-01	4.07E-01
		351.92	*	37.19	1.27E+00	2.50E-01
RA-226	1.00	186.21	*	3.28	2.95E+00	5.59E+00
TH-234	0.95	63.29	*	3.80	3.89E+00	2.03E+00
AM-243	0.92	74.67	*	66.00	4.00E-01	9.75E-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

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.998	2.76E+01	3.23E+00	
	ZN-65	0.985	9.48E-02	9.78E-02	
?	CD-109	0.983	1.90E+00	1.46E+00	
?	SN-126	0.997	1.65E-01	1.26E-01	
	TL-208	0.950	1.29E+00	2.26E-01	
	PB-212	0.761	1.77E+00	2.64E-01	
	BI-214	0.992	1.18E+00	2.24E-01	
	PB-214	0.981	1.18E+00	2.13E-01	
	RA-226	1.000	2.95E+00	5.59E+00	
	TH-234	0.955	3.89E+00	2.03E+00	
	AM-243	0.927	4.00E-01	9.75E-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 1707086-08

HTC-A02-S004-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 4:25:36PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	3	77.63	2.06768E-01	7.62		
	5	93.60	4.54981E-02	30.70	D-Esc	
	6	129.60	3.15567E-02	39.41		
	8	210.42	2.12681E-02	48.48	Tol.	CM-243
	10	270.52	2.14025E-02	34.46		
	12	327.59	2.17234E-02	42.77	Sum	
	13	339.60	4.44468E-02	24.56		
	15	463.42	2.42194E-02	24.14	Tol.	SB-125
	16	511.26	2.19515E-02	41.28		
	17	537.93	9.82763E-03	48.90	Sum	
	18	563.71	9.18233E-03	57.46		
	21	638.96	8.14815E-03	53.14		
	22	728.64	2.46006E-02	29.47		
	23	770.28	1.08840E-02	55.45	Sum	
M	24	787.04	7.63048E-03	48.84		
m	25	795.14	1.39390E-02	28.18	Sum	
	26	802.80	3.85163E-03	63.26		
M	28	907.98	4.33154E-03	30.92		
m	29	914.98	5.32077E-03	69.51		
M	30	965.21	1.15287E-02	34.74		
m	31	968.98	3.16770E-02	14.14	Tol.	AC-228
	32	1059.83	7.63455E-03	43.05		
	35	1237.99	1.30275E-02	35.13	Tol.	CO-56
	36	1362.72	6.05691E-03	43.75		
	38	1503.28	1.61458E-03	62.03		
	39	1594.24	5.94534E-03	36.57		
	40	1605.91	1.80556E-03	69.12		
	41	1619.39	1.38889E-03	70.71		
	42	1640.12	1.75926E-03	58.01		
	43	1679.86	1.86111E-03	59.93		
	44	1701.62	1.59722E-03	61.49		
	45	1727.72	3.88889E-03	50.00		
	47	1780.42	1.94444E-03	37.80		
	48	1846.34	3.77604E-03	34.70		
	49	1855.08	1.84028E-03	48.33		

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
50	1947.58	1.71875E-03	53.75		
51	2103.54	4.74868E-03	31.50	S-Esc	
53	2387.42	1.84028E-03	50.20		
54	2520.24	1.94444E-03	37.80		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-7.09E-01	2.54E+00	2.54E+00
+	NA-22	1274.54		99.94	-5.61E-02	1.07E-01	1.07E-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	7.06E-03	6.64E-02	6.64E-02
+	K-40	1460.81	*	10.67	2.76E+01	1.49E+00	1.49E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	3.68E-02	7.46E-02	7.46E-02
		78.34		96.00	2.39E-01		9.12E-02
+	SC-46	889.25		99.98	1.10E-02	2.21E-01	2.21E-01
		1120.51		99.99	4.08E-01		3.60E-01
+	V-48	983.52		99.98	3.27E+00	7.28E+00	7.28E+00
		1312.10		97.50	4.14E+00		9.07E+00
+	CR-51	320.08		9.83	9.63E-01	8.52E+00	8.52E+00
+	MN-54	834.83		99.97	-4.94E-02	1.23E-01	1.23E-01
+	CO-56	846.75		99.96	-7.89E-02	2.23E-01	2.23E-01
		1037.75		14.03	5.01E-02		1.99E+00
		1238.25		67.00	5.39E-01		5.74E-01
		1771.40		15.51	1.56E-01		1.18E+00
		2598.48		16.90	-1.65E-01		6.09E-01
+	CO-57	122.06		85.51	-1.96E-02	7.36E-02	7.36E-02
		136.48		10.60	5.51E-01		6.48E-01
+	CO-58	810.76		99.40	8.25E-02	2.49E-01	2.49E-01
+	FE-59	1099.22		56.50	-3.20E-02	9.08E-01	9.08E-01
		1291.56		43.20	-2.50E-01		1.22E+00

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-60	1173.22		100.00	-2.05E-03	1.10E-01	1.33E-01
		1332.49		100.00	2.67E-02		1.10E-01
+	ZN-65	1115.52	*	50.75	9.48E-02	4.09E-01	4.09E-01
+	GA-67	93.31		35.70	3.75E+08	2.16E+08	2.16E+08
		208.95		2.24	1.61E+09		3.95E+09
		300.22		16.00	1.18E+08		6.36E+08
+	SE-75	121.11		16.70	4.35E-02	1.57E-01	5.22E-01
		136.00		59.20	7.42E-02		1.57E-01
		264.65		59.80	2.09E-02		1.94E-01
		279.53		25.20	3.24E-01		5.29E-01
		400.65		11.40	-2.51E-01		1.24E+00
+	RB-82	776.52		13.00	7.58E-01	1.10E+01	1.10E+01
+	RB-83	520.41		46.00	2.95E-03	3.80E-01	3.80E-01
		529.64		30.30	1.50E-02		5.70E-01
		552.65		16.40	1.37E-01		1.09E+00
+	KR-85	513.99		0.43	2.74E+01	2.58E+01	2.58E+01
+	SR-85	513.99		99.27	3.37E-01	3.17E-01	3.17E-01
+	Y-88	898.02		93.40	-4.00E-02	1.51E-01	2.00E-01
		1836.01		99.38	5.73E-02		1.51E-01
+	MO-93	263.06		56.72	-6.93E-03	9.86E-02	1.18E-01
		684.67		99.68	6.95E-02		9.86E-02
		1477.11		99.08	-1.45E-02		9.94E-02
+	NB-93M	16.57		9.43	-5.04E+01	7.22E+01	7.22E+01
+	NB-94	702.63		100.00	1.55E-02	9.02E-02	9.68E-02
		871.10		100.00	-1.33E-02		9.02E-02
+	NB-95	765.79		99.81	4.94E-02	7.74E-01	7.74E-01
+	NB-95M	235.69		25.00	9.64E+06	6.83E+07	6.83E+07
+	ZR-95	724.18		43.70	-2.51E-01	5.07E-01	7.05E-01
		756.72		55.30	-1.05E-01		5.07E-01
+	MO-99	181.06		6.20	-1.35E+10	4.16E+10	4.91E+10
		739.58		12.80	1.99E+10		4.16E+10
		778.00		4.50	7.38E+07		1.22E+11
+	RU-103	497.08		89.00	-1.19E-01	4.79E-01	4.79E-01
+	RU-106	621.84		9.80	4.54E-01	1.12E+00	1.12E+00
+	AG-108M	433.93		89.90	-9.80E-03	8.68E-02	8.68E-02
		614.37		90.40	-9.28E-03		1.18E-01
		722.95		90.50	1.51E-02		1.09E-01
+	CD-109	88.03	*	3.72	1.90E+00	2.35E+00	2.35E+00
+	AG-110M	657.75		93.14	4.03E-02	1.22E-01	1.22E-01
		677.61		10.53	-5.00E-01		1.07E+00
		706.67		16.46	1.06E-01		7.54E-01
		763.93		21.98	1.83E-01		6.26E-01
		884.67		71.63	-1.31E-02		1.82E-01
		1384.27		23.94	4.15E-02		5.04E-01
+	CD-113M	263.70		0.02	7.22E+01	2.96E+02	2.96E+02
+	SN-113	255.12		1.93	2.13E+00	1.99E-01	6.38E+00
		391.69		64.90	-1.14E-01		1.99E-01
+	TE123M	159.00		84.10	-1.72E-02	1.14E-01	1.14E-01

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-124	602.71		97.87	-2.09E-02	2.66E-01	2.66E-01
		645.85		7.26	1.05E-01		3.47E+00
		722.78		11.10	3.82E-01		2.76E+00
		1691.02		49.00	1.19E-01		4.71E-01
+	I-125	35.49		6.49	-4.53E+00	6.67E+00	6.67E+00
+	SB-125	176.33		6.89	5.09E-02	2.75E-01	8.49E-01
		427.89		29.33	-1.21E-01		2.75E-01
		463.38		10.35	1.08E+00		9.52E-01
		600.56		17.80	6.12E-02		5.13E-01
		635.90		11.32	-4.96E-02		8.59E-01
+	SB-126	414.70		83.30	-1.44E+01	2.12E+01	2.12E+01
		666.33		99.60	7.20E+00		2.33E+01
		695.00		99.60	5.58E+00		2.29E+01
		720.50		53.80	-4.35E+00		4.13E+01
+	SN-126	87.57	*	37.00	1.65E-01	2.04E-01	2.04E-01
+	SB-127	473.00		25.00	1.27E+06	1.31E+07	1.43E+07
		685.20		35.70	9.24E+06		1.31E+07
		783.80		14.70	1.51E+06		3.45E+07
+	I-129	29.78		57.00	-2.87E-01	4.24E-01	4.24E-01
		33.60		13.20	-5.29E-02		1.26E+00
		39.58		7.52	8.44E-01		1.47E+00
+	I-131	284.30		6.05	5.56E+02	4.03E+02	5.54E+03
		364.48		81.20	1.78E+02		4.03E+02
		636.97		7.26	-1.03E+01		6.22E+03
		722.89		1.80	3.63E+03		2.62E+04
+	TE-132	49.72		13.10	-3.57E+08	8.93E+07	7.20E+08
		228.16		88.00	-3.47E+07		8.93E+07
+	BA-133	81.00		33.00	-1.82E-01	1.80E-01	2.00E-01
		302.84		17.80	-2.34E-02		4.50E-01
		356.01		60.00	2.15E-01		1.80E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-6.84E+04	7.51E+04	7.51E+04
+	CS-134	563.23		8.38	6.90E-01	1.06E-01	1.19E+00
		569.32		15.43	1.25E-02		5.62E-01
		604.70		97.60	-7.17E-03		1.06E-01
		795.84		85.40	1.45E-01		1.50E-01
		801.93		8.73	-1.03E-01		1.14E+00
+	CS-135	268.24		16.00	3.12E-02	4.66E-01	4.66E-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	5.61E+01	1.59E+01	1.35E+02
		163.89		4.61	-7.29E+01		2.08E+02
		176.55		13.56	4.29E+00		7.15E+01
		273.65		12.66	-2.14E+01		1.07E+02
		340.57		48.50	5.29E+01		3.38E+01
		818.50		99.70	4.35E+00		1.59E+01
		1048.07		79.60	-8.29E+00		2.31E+01
		1235.34		19.70	6.15E+01		1.42E+02

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CS-137	661.65	85.12	-5.18E-02	1.03E-01	1.03E-01
+	LA-138	788.74	34.00	-8.89E-03	1.37E-01	3.10E-01
		1435.80	66.00	-1.19E-02		1.37E-01
+	CE-139	165.85	80.35	3.65E-02	1.14E-01	1.14E-01
+	BA-140	162.64	6.70	-2.83E+01	6.63E+01	1.67E+02
		304.84	4.50	-1.42E+02		3.28E+02
		423.70	3.20	-1.19E+02		5.04E+02
		437.55	2.00	-8.40E+01		7.72E+02
		537.32	25.00	3.88E+01		6.63E+01
+	LA-140	328.77	20.50	5.05E+01	2.35E+01	8.09E+01
		487.03	45.50	-2.56E+01		3.35E+01
		815.85	23.50	3.67E+01		7.94E+01
		1596.49	95.49	4.15E+00		2.35E+01
+	CE-141	145.44	48.40	8.64E-02	8.94E-01	8.94E-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	2.61E-02	6.10E-01	6.10E-01
+	PM-144	476.78	42.00	-1.15E-01	1.08E-01	2.05E-01
		618.01	98.60	-1.02E-02		1.08E-01
		696.49	99.49	-5.03E-02		1.11E-01
+	PM-145	36.85	21.70	-4.40E-01	3.21E-01	5.90E-01
		37.36	39.70	1.35E-01		3.21E-01
		42.30	15.10	-5.12E-01		6.19E-01
		72.40	2.31	-1.00E+01		3.28E+00
+	PM-146	453.90	39.94	2.93E-02	1.99E-01	1.99E-01
		735.90	14.01	-1.97E-02		5.90E-01
		747.13	13.10	2.19E-01		8.11E-01
+	ND-147	91.11	28.90	-1.05E+02	1.12E+02	1.12E+02
		531.02	13.10	-2.13E+00		2.96E+02
+	PM-149	285.90	3.10	5.27E+11	5.36E+13	5.36E+13
+	EU-152	121.78	20.50	-6.43E-02	2.42E-01	2.42E-01
		244.69	5.40	5.06E-02		1.58E+00
		344.27	19.13	-7.07E-01		3.84E-01
		778.89	9.20	2.20E-01		1.07E+00
		964.01	10.40	-2.66E+00		1.30E+00
		1085.78	7.22	-1.65E-01		1.49E+00
		1112.02	9.60	-4.17E-01		1.27E+00
		1407.95	14.94	2.41E-01		7.31E-01
+	GD-153	97.43	31.30	-1.04E-01	2.13E-01	2.13E-01
		103.18	22.20	6.75E-02		3.04E-01
+	EU-154	123.07	40.50	-3.76E-02	1.25E-01	1.25E-01
		723.30	19.70	7.10E-02		5.12E-01
		873.19	11.50	5.68E-02		8.11E-01
		996.32	10.30	-4.74E-02		1.01E+00
		1004.76	17.90	8.05E-02		6.00E-01
		1274.45	35.50	-1.50E-01		2.86E-01
+	EU-155	86.50	30.90	1.98E-01	2.25E-01	2.25E-01
		105.30	20.70	2.02E-02		2.51E-01

Analysis Report for 1707086-08

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-156	811.77		10.40	-3.59E+00	7.82E+01	7.82E+01
		1153.47		7.20	7.38E+01		1.74E+02
		1230.71		8.90	-2.42E+01		1.36E+02
+	HO-166M	184.41		72.60	1.29E-01	9.41E-02	9.41E-02
		280.45		29.60	1.02E-01		2.53E-01
		410.94		11.10	4.25E-03		7.03E-01
		711.69		54.10	-7.25E-03		1.74E-01
+	TM-171	66.72		0.14	-4.98E-01	5.64E+01	5.64E+01
+	HF-172	67.35		5.31	7.24E-01	5.00E-01	1.47E+00
		125.81		11.30	-2.96E-02		5.00E-01
+	LU-172	181.53		20.60	9.58E+01	4.96E+03	6.97E+03
		900.72		29.81	-1.40E+03		8.72E+03
		1093.66		62.50	2.52E+03		4.96E+03
+	LU-173	100.72		5.24	2.46E-01	4.25E-01	1.11E+00
		272.11		21.20	3.65E-01		4.25E-01
+	HF-175	343.40		84.00	-4.19E-01	2.27E-01	2.27E-01
+	LU-176	88.34		13.30	5.08E-01	6.58E-02	5.10E-01
		201.83		86.00	-1.18E-02		6.58E-02
		306.78		94.00	-6.18E-02		7.16E-02
+	HF-181	133.02		41.70	2.74E-02	4.67E-01	6.40E-01
		345.85		17.20	-2.20E+00		2.10E+00
		482.03		82.80	8.47E-04		4.67E-01
+	TA-182	67.75		41.20	1.53E-01	3.10E-01	3.10E-01
		1121.30		34.90	1.07E+00		8.14E-01
		1189.05		16.23	-8.49E-02		1.46E+00
		1221.41		26.98	-2.68E-01		9.47E-01
		1231.02		11.44	-3.86E-01		2.17E+00
+	IR-192	308.46		29.68	-2.42E-01	4.09E-01	5.78E-01
		468.07		48.10	1.33E-01		4.09E-01
+	HG-203	279.19		77.30	1.88E-01	4.21E-01	4.21E-01
+	TL-204	374.74		94.11	-3.51E-03	8.25E-02	8.25E-02
		899.15		99.16	-5.10E-02		1.03E-01
		911.74		91.10	4.71E-01		2.16E-01
+	BI-207	569.67		97.72	1.99E-02	8.20E-02	8.20E-02
		1063.62		74.90	-1.71E-02		1.35E-01
+	TL-208	583.14	*	30.22	1.61E+00	1.24E-01	4.61E-01
		860.37	*	4.48	1.60E+00		2.72E+00
		2614.66	*	35.85	1.09E+00		1.24E-01
+	BI-210M	262.00		45.00	-8.08E-02	1.44E-01	1.44E-01
		300.00		23.00	6.96E-02		3.74E-01
+	PB-210	46.50		4.25	1.39E+00	2.09E+00	2.09E+00
+	PB-211	404.84		2.90	5.01E-02	2.91E+00	2.91E+00
		831.96		2.90	4.74E-01		3.46E+00
+	BI-212	727.17		11.80	7.87E-01	1.02E+00	1.02E+00
		1620.62		2.75	1.57E-01		2.74E+00
+	PB-212	238.63	*	44.60	1.77E+00	3.12E-01	3.12E-01
		300.09		3.41	4.70E-01		2.52E+00
+	BI-214	609.31	*	46.30	1.14E+00	3.36E-01	3.36E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	1120.29	*	15.10	1.18E+00	3.36E-01	1.10E+00
		1764.49	*	15.80	1.39E+00		9.51E-01
		2204.22	*	4.98	1.27E+00		1.80E+00
+	PB-214	295.21	*	19.19	9.39E-01	3.11E-01	6.30E-01
		351.92	*	37.19	1.27E+00		3.11E-01
+	RN-219	401.80		6.50	3.44E-01	1.28E+00	1.28E+00
+	RA-223	323.87		3.88	-1.98E+00	1.89E+00	1.89E+00
+	RA-224	240.98		3.95	1.97E+01	3.54E+00	3.54E+00
+	RA-225	40.00		31.00	1.99E+01	3.47E+01	3.47E+01
+	RA-226	186.21	*	3.28	2.95E+00	2.34E+00	2.34E+00
+	TH-227	50.10		8.40	-4.59E-01	9.25E-01	9.25E-01
		236.00		11.50	1.34E-01		9.48E-01
		256.20		6.30	4.86E-01		1.09E+00
+	AC-228	338.32		11.40	1.04E+00	6.72E-01	7.91E-01
		911.07		27.70	1.39E+00		6.72E-01
		969.11		16.60	1.35E+00		1.08E+00
+	TH-230	48.44		16.90	3.60E-01	4.96E-01	4.96E-01
		62.85		4.60	1.72E+00		1.70E+00
		67.67		0.37	9.38E+00		1.90E+01
+	PA-231	283.67		1.60	-6.86E-01	3.42E+00	4.41E+00
		302.67		2.30	-1.78E-01		3.42E+00
+	TH-231	25.64		14.70	1.12E+00	9.77E-01	3.18E+00
		84.21		6.40	1.80E-02		9.77E-01
+	PA-233	311.98		38.60	-9.23E-02	2.34E+00	2.34E+00
+	PA-234	131.20		20.40	2.37E-01	2.82E-01	2.82E-01
		733.99		8.80	-6.11E-01		9.61E-01
		946.00		12.00	1.85E-01		9.03E-01
+	PA-234M	1001.03		0.92	-6.39E+00	1.07E+01	1.07E+01
+	TH-234	63.29	*	3.80	3.89E+00	3.25E+00	3.25E+00
+	U-235	143.76		10.50	6.46E-02	4.96E-01	4.96E-01
		163.35		4.70	-4.03E-01		1.15E+00
		205.31		4.70	2.13E-01		1.51E+00
+	NP-237	86.50		12.60	4.67E-01	5.31E-01	5.31E-01
+	NP-239	106.10		22.70	6.50E+10	8.08E+11	8.08E+11
		228.18		10.70	-8.67E+11		2.23E+12
		277.60		14.10	7.46E+11		1.95E+12
+	AM-241	59.54		35.90	-4.72E-02	2.01E-01	2.01E-01
+	AM-243	74.67	*	66.00	4.00E-01	1.54E-01	1.54E-01
+	CM-243	209.75		3.29	1.82E+00	5.41E-01	2.32E+00
		228.14		10.60	-2.41E-01		6.21E-01
		277.60		14.00	2.07E-01		5.41E-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

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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	2.54E+00	2.54E+00	-7.09E-01	1.20E+00
	NA-22	1274.54		99.94	1.07E-01	1.07E-01	-5.61E-02	4.82E-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	6.64E-02	6.64E-02	7.06E-03	2.68E-02
+	K-40	1460.81	*	10.67	1.49E+00	1.49E+00	2.76E+01	6.93E-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	7.46E-02	7.46E-02	3.68E-02	3.66E-02
		78.34		96.00	9.12E-02		2.39E-01	4.49E-02
	SC-46	889.25		99.98	2.21E-01	2.21E-01	1.10E-02	1.02E-01
		1120.51		99.99	3.60E-01		4.08E-01	1.70E-01
	V-48	983.52		99.98	7.28E+00	7.28E+00	3.27E+00	3.36E+00
		1312.10		97.50	9.07E+00		4.14E+00	4.18E+00
	CR-51	320.08		9.83	8.52E+00	8.52E+00	9.63E-01	4.09E+00
	MN-54	834.83		99.97	1.23E-01	1.23E-01	-4.94E-02	5.71E-02
	CO-56	846.75		99.96	2.23E-01	2.23E-01	-7.89E-02	1.03E-01
		1037.75		14.03	1.99E+00		5.01E-02	9.25E-01
		1238.25		67.00	5.74E-01		5.39E-01	2.70E-01
		1771.40		15.51	1.18E+00		1.56E-01	4.94E-01
		2598.48		16.90	6.09E-01		-1.65E-01	1.92E-01
	CO-57	122.06		85.51	7.36E-02	7.36E-02	-1.96E-02	3.57E-02
		136.48		10.60	6.48E-01		5.51E-01	3.15E-01
	CO-58	810.76		99.40	2.49E-01	2.49E-01	8.25E-02	1.16E-01
	FE-59	1099.22		56.50	9.08E-01	9.08E-01	-3.20E-02	4.19E-01
		1291.56		43.20	1.22E+00		-2.50E-01	5.60E-01
	CO-60	1173.22		100.00	1.33E-01	1.10E-01	-2.05E-03	6.18E-02
		1332.49		100.00	1.10E-01		2.67E-02	4.98E-02
+	ZN-65	1115.52	*	50.75	4.09E-01	4.09E-01	9.48E-02	1.93E-01
	GA-67	93.31		35.70	2.16E+08	2.16E+08	3.75E+08	1.06E+08
		208.95		2.24	3.95E+09		1.61E+09	1.92E+09
		300.22		16.00	6.36E+08		1.18E+08	3.08E+08
	SE-75	121.11		16.70	5.22E-01	1.57E-01	4.35E-02	2.53E-01
		136.00		59.20	1.57E-01		7.42E-02	7.65E-02
		264.65		59.80	1.94E-01		2.09E-02	9.35E-02
		279.53		25.20	5.29E-01		3.24E-01	2.56E-01
		400.65		11.40	1.24E+00		-2.51E-01	5.92E-01

Analysis Report for 1707086-08

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-82	776.52		13.00	1.10E+01	1.10E+01	7.58E-01	5.13E+00
	RB-83	520.41		46.00	3.80E-01	3.80E-01	2.95E-03	1.80E-01
		529.64		30.30	5.70E-01		1.50E-02	2.69E-01
		552.65		16.40	1.09E+00		1.37E-01	5.16E-01
	KR-85	513.99		0.43	2.58E+01	2.58E+01	2.74E+01	1.24E+01
	SR-85	513.99		99.27	3.17E-01	3.17E-01	3.37E-01	1.52E-01
	Y-88	898.02		93.40	2.00E-01	1.51E-01	-4.00E-02	9.28E-02
		1836.01		99.38	1.51E-01		5.73E-02	6.32E-02
	MO-93	263.06		56.72	1.18E-01	9.86E-02	-6.93E-03	5.67E-02
		684.67		99.68	9.86E-02		6.95E-02	4.64E-02
		1477.11		99.08	9.94E-02		-1.45E-02	4.41E-02
	NB-93M	16.57		9.43	7.22E+01	7.22E+01	-5.04E+01	3.51E+01
	NB-94	702.63		100.00	9.68E-02	9.02E-02	1.55E-02	4.55E-02
		871.10		100.00	9.02E-02		-1.33E-02	4.16E-02
	NB-95	765.79		99.81	7.74E-01	7.74E-01	4.94E-02	3.65E-01
	NB-95M	235.69		25.00	6.83E+07	6.83E+07	9.64E+06	3.35E+07
	ZR-95	724.18		43.70	7.05E-01	5.07E-01	-2.51E-01	3.33E-01
		756.72		55.30	5.07E-01		-1.05E-01	2.37E-01
	MO-99	181.06		6.20	4.91E+10	4.16E+10	-1.35E+10	2.37E+10
		739.58		12.80	4.16E+10		1.99E+10	1.95E+10
		778.00		4.50	1.22E+11		7.38E+07	5.71E+10
	RU-103	497.08		89.00	4.79E-01	4.79E-01	-1.19E-01	2.26E-01
	RU-106	621.84		9.80	1.12E+00	1.12E+00	4.54E-01	5.27E-01
	AG-108M	433.93		89.90	8.68E-02	8.68E-02	-9.80E-03	4.13E-02
		614.37		90.40	1.18E-01		-9.28E-03	5.62E-02
		722.95		90.50	1.09E-01		1.51E-02	5.13E-02
+	CD-109	88.03	*	3.72	2.35E+00	2.35E+00	1.90E+00	1.15E+00
	AG-110M	657.75		93.14	1.22E-01	1.22E-01	4.03E-02	5.71E-02
		677.61		10.53	1.07E+00		-5.00E-01	4.98E-01
		706.67		16.46	7.54E-01		1.06E-01	3.54E-01
		763.93		21.98	6.26E-01		1.83E-01	2.95E-01
		884.67		71.63	1.82E-01		-1.31E-02	8.43E-02
		1384.27		23.94	5.04E-01		4.15E-02	2.24E-01
	CD-113M	263.70		0.02	2.96E+02	2.96E+02	7.22E+01	1.43E+02
	SN-113	255.12		1.93	6.38E+00	1.99E-01	2.13E+00	3.08E+00
		391.69		64.90	1.99E-01		-1.14E-01	9.45E-02
	TE123M	159.00		84.10	1.14E-01	1.14E-01	-1.72E-02	5.52E-02
	SB-124	602.71		97.87	2.66E-01	2.66E-01	-2.09E-02	1.25E-01
		645.85		7.26	3.47E+00		1.05E-01	1.62E+00
		722.78		11.10	2.76E+00		3.82E-01	1.30E+00
		1691.02		49.00	4.71E-01		1.19E-01	1.97E-01
	I-125	35.49		6.49	6.67E+00	6.67E+00	-4.53E+00	3.25E+00
	SB-125	176.33		6.89	8.49E-01	2.75E-01	5.09E-02	4.11E-01
		427.89		29.33	2.75E-01		-1.21E-01	1.31E-01
		463.38		10.35	9.52E-01		1.08E+00	4.56E-01
		600.56		17.80	5.13E-01		6.12E-02	2.42E-01
		635.90		11.32	8.59E-01		-4.96E-02	4.05E-01
	SB-126	414.70		83.30	2.12E+01	2.12E+01	-1.44E+01	1.01E+01
		666.33		99.60	2.33E+01		7.20E+00	1.10E+01
		695.00		99.60	2.29E+01		5.58E+00	1.07E+01
		720.50		53.80	4.13E+01		-4.35E+00	1.93E+01
+	SN-126	87.57	*	37.00	2.04E-01	2.04E-01	1.65E-01	1.00E-01
	SB-127	473.00		25.00	1.43E+07	1.31E+07	1.27E+06	6.75E+06

Analysis Report for 1707086-08

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
SB-127	685.20	35.70	1.31E+07	1.31E+07	9.24E+06	6.17E+06
	783.80	14.70	3.45E+07		1.51E+06	1.62E+07
I-129	29.78	57.00	4.24E-01	4.24E-01	-2.87E-01	2.06E-01
	33.60	13.20	1.26E+00		-5.29E-02	6.13E-01
	39.58	7.52	1.47E+00		8.44E-01	7.15E-01
I-131	284.30	6.05	5.54E+03	4.03E+02	5.56E+02	2.67E+03
	364.48	81.20	4.03E+02		1.78E+02	1.92E+02
	636.97	7.26	6.22E+03		-1.03E+01	2.93E+03
	722.89	1.80	2.62E+04		3.63E+03	1.23E+04
TE-132	49.72	13.10	7.20E+08	8.93E+07	-3.57E+08	3.52E+08
	228.16	88.00	8.93E+07		-3.47E+07	4.32E+07
BA-133	81.00	33.00	2.00E-01	1.80E-01	-1.82E-01	9.81E-02
	302.84	17.80	4.50E-01		-2.34E-02	2.17E-01
	356.01	60.00	1.80E-01		2.15E-01	8.71E-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	7.51E+04	7.51E+04	-6.84E+04	3.68E+04
CS-134	563.23	8.38	1.19E+00	1.06E-01	6.90E-01	5.62E-01
	569.32	15.43	5.62E-01		1.25E-02	2.64E-01
	604.70	97.60	1.06E-01		-7.17E-03	5.01E-02
	795.84	85.40	1.50E-01		1.45E-01	7.07E-02
	801.93	8.73	1.14E+00		-1.03E-01	5.29E-01
CS-135	268.24	16.00	4.66E-01	4.66E-01	3.12E-02	2.25E-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	1.35E+02	1.59E+01	5.61E+01	6.56E+01
	163.89	4.61	2.08E+02		-7.29E+01	1.01E+02
	176.55	13.56	7.15E+01		4.29E+00	3.46E+01
	273.65	12.66	1.07E+02		-2.14E+01	5.18E+01
	340.57	48.50	3.38E+01		5.29E+01	1.64E+01
	818.50	99.70	1.59E+01		4.35E+00	7.35E+00
	1048.07	79.60	2.31E+01		-8.29E+00	1.06E+01
	1235.34	19.70	1.42E+02		6.15E+01	6.68E+01
CS-137	661.65	85.12	1.03E-01	1.03E-01	-5.18E-02	4.81E-02
LA-138	788.74	34.00	3.10E-01	1.37E-01	-8.89E-03	1.46E-01
	1435.80	66.00	1.37E-01		-1.19E-02	6.05E-02
CE-139	165.85	80.35	1.14E-01	1.14E-01	3.65E-02	5.52E-02
BA-140	162.64	6.70	1.67E+02	6.63E+01	-2.83E+01	8.09E+01
	304.84	4.50	3.28E+02		-1.42E+02	1.58E+02
	423.70	3.20	5.04E+02		-1.19E+02	2.40E+02
	437.55	2.00	7.72E+02		-8.40E+01	3.67E+02
	537.32	25.00	6.63E+01		3.88E+01	3.13E+01
LA-140	328.77	20.50	8.09E+01	2.35E+01	5.05E+01	3.90E+01
	487.03	45.50	3.35E+01		-2.56E+01	1.58E+01
	815.85	23.50	7.94E+01		3.67E+01	3.68E+01
	1596.49	95.49	2.35E+01		4.15E+00	1.05E+01
CE-141	145.44	48.40	8.94E-01	8.94E-01	8.64E-02	4.34E-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	6.10E-01	6.10E-01	2.61E-02	2.96E-01
PM-144	476.78	42.00	2.05E-01	1.08E-01	-1.15E-01	9.64E-02
	618.01	98.60	1.08E-01		-1.02E-02	5.08E-02

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-144	696.49	99.49	1.11E-01	1.08E-01	-5.03E-02	5.21E-02
PM-145	36.85	21.70	5.90E-01	3.21E-01	-4.40E-01	2.87E-01
	37.36	39.70	3.21E-01		1.35E-01	1.56E-01
	42.30	15.10	6.19E-01		-5.12E-01	3.01E-01
	72.40	2.31	3.28E+00		-1.00E+01	1.61E+00
PM-146	453.90	39.94	1.99E-01	1.99E-01	2.93E-02	9.46E-02
	735.90	14.01	5.90E-01		-1.97E-02	2.73E-01
	747.13	13.10	8.11E-01		2.19E-01	3.82E-01
ND-147	91.11	28.90	1.12E+02	1.12E+02	-1.05E+02	5.50E+01
	531.02	13.10	2.96E+02		-2.13E+00	1.40E+02
PM-149	285.90	3.10	5.36E+13	5.36E+13	5.27E+11	2.58E+13
EU-152	121.78	20.50	2.42E-01	2.42E-01	-6.43E-02	1.17E-01
	244.69	5.40	1.58E+00		5.06E-02	7.67E-01
	344.27	19.13	3.84E-01		-7.07E-01	1.84E-01
	778.89	9.20	1.07E+00		2.20E-01	5.02E-01
	964.01	10.40	1.30E+00		-2.66E+00	6.14E-01
	1085.78	7.22	1.49E+00		-1.65E-01	6.85E-01
	1112.02	9.60	1.27E+00		-4.17E-01	5.92E-01
	1407.95	14.94	7.31E-01		2.41E-01	3.30E-01
GD-153	97.43	31.30	2.13E-01	2.13E-01	-1.04E-01	1.04E-01
	103.18	22.20	3.04E-01		6.75E-02	1.48E-01
EU-154	123.07	40.50	1.25E-01	1.25E-01	-3.76E-02	6.05E-02
	723.30	19.70	5.12E-01		7.10E-02	2.41E-01
	873.19	11.50	8.11E-01		5.68E-02	3.74E-01
	996.32	10.30	1.01E+00		-4.74E-02	4.64E-01
	1004.76	17.90	6.00E-01		8.05E-02	2.77E-01
	1274.45	35.50	2.86E-01		-1.50E-01	1.29E-01
EU-155	86.50	30.90	2.25E-01	2.25E-01	1.98E-01	1.10E-01
	105.30	20.70	2.51E-01		2.02E-02	1.22E-01
EU-156	811.77	10.40	7.82E+01	7.82E+01	-3.59E+00	3.63E+01
	1153.47	7.20	1.74E+02		7.38E+01	8.16E+01
	1230.71	8.90	1.36E+02		-2.42E+01	6.34E+01
HO-166M	184.41	72.60	9.41E-02	9.41E-02	1.29E-01	4.58E-02
	280.45	29.60	2.53E-01		1.02E-01	1.22E-01
	410.94	11.10	7.03E-01		4.25E-03	3.36E-01
	711.69	54.10	1.74E-01		-7.25E-03	8.14E-02
TM-171	66.72	0.14	5.64E+01	5.64E+01	-4.98E-01	2.76E+01
HF-172	67.35	5.31	1.47E+00	5.00E-01	7.24E-01	7.19E-01
	125.81	11.30	5.00E-01		-2.96E-02	2.43E-01
LU-172	181.53	20.60	6.97E+03	4.96E+03	9.58E+01	3.37E+03
	900.72	29.81	8.72E+03		-1.40E+03	4.04E+03
	1093.66	62.50	4.96E+03		2.52E+03	2.30E+03
LU-173	100.72	5.24	1.11E+00	4.25E-01	2.46E-01	5.40E-01
	272.11	21.20	4.25E-01		3.65E-01	2.06E-01
HF-175	343.40	84.00	2.27E-01	2.27E-01	-4.19E-01	1.09E-01
LU-176	88.34	13.30	5.10E-01	6.58E-02	5.08E-01	2.50E-01
	201.83	86.00	6.58E-02		-1.18E-02	3.18E-02
	306.78	94.00	7.16E-02		-6.18E-02	3.43E-02
HF-181	133.02	41.70	6.40E-01	4.67E-01	2.74E-02	3.11E-01
	345.85	17.20	2.10E+00		-2.20E+00	1.01E+00
	482.03	82.80	4.67E-01		8.47E-04	2.21E-01
TA-182	67.75	41.20	3.10E-01	3.10E-01	1.53E-01	1.52E-01
	1121.30	34.90	8.14E-01		1.07E+00	3.85E-01

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1189.05		16.23	1.46E+00	3.10E-01	-8.49E-02	6.80E-01
		1221.41		26.98	9.47E-01		-2.68E-01	4.42E-01
		1231.02		11.44	2.17E+00		-3.86E-01	1.01E+00
	IR-192	308.46		29.68	5.78E-01	4.09E-01	-2.42E-01	2.77E-01
		468.07		48.10	4.09E-01		1.33E-01	1.94E-01
	HG-203	279.19		77.30	4.21E-01	4.21E-01	1.88E-01	2.04E-01
	TL-204	374.74		94.11	8.25E-02	8.25E-02	-3.51E-03	3.94E-02
		899.15		99.16	1.03E-01		-5.10E-02	4.76E-02
		911.74		91.10	2.16E-01		4.71E-01	1.04E-01
	BI-207	569.67		97.72	8.20E-02	8.20E-02	1.99E-02	3.85E-02
		1063.62		74.90	1.35E-01		-1.71E-02	6.22E-02
+	TL-208	583.14	*	30.22	4.61E-01	1.24E-01	1.61E+00	2.22E-01
		860.37	*	4.48	2.72E+00		1.60E+00	1.28E+00
		2614.66	*	35.85	1.24E-01		1.09E+00	3.99E-02
	BI-210M	262.00		45.00	1.44E-01	1.44E-01	-8.08E-02	6.95E-02
		300.00		23.00	3.74E-01		6.96E-02	1.81E-01
	PB-210	46.50		4.25	2.09E+00	2.09E+00	1.39E+00	1.02E+00
	PB-211	404.84		2.90	2.91E+00	2.91E+00	5.01E-02	1.39E+00
		831.96		2.90	3.46E+00		4.74E-01	1.62E+00
	BI-212	727.17		11.80	1.02E+00	1.02E+00	7.87E-01	4.83E-01
		1620.62		2.75	2.74E+00		1.57E-01	1.16E+00
+	PB-212	238.63	*	44.60	3.12E-01	3.12E-01	1.77E+00	1.54E-01
		300.09		3.41	2.52E+00		4.70E-01	1.22E+00
+	BI-214	609.31	*	46.30	3.36E-01	3.36E-01	1.14E+00	1.63E-01
		1120.29	*	15.10	1.10E+00		1.18E+00	5.22E-01
		1764.49	*	15.80	9.51E-01		1.39E+00	4.36E-01
		2204.22	*	4.98	1.80E+00		1.27E+00	7.56E-01
+	PB-214	295.21	*	19.19	6.30E-01	3.11E-01	9.39E-01	3.08E-01
		351.92	*	37.19	3.11E-01		1.27E+00	1.51E-01
	RN-219	401.80		6.50	1.28E+00	1.28E+00	3.44E-01	6.12E-01
	RA-223	323.87		3.88	1.89E+00	1.89E+00	-1.98E+00	9.09E-01
	RA-224	240.98		3.95	3.54E+00	3.54E+00	1.97E+01	1.74E+00
	RA-225	40.00		31.00	3.47E+01	3.47E+01	1.99E+01	1.69E+01
+	RA-226	186.21	*	3.28	2.34E+00	2.34E+00	2.95E+00	1.14E+00
	TH-227	50.10		8.40	9.25E-01	9.25E-01	-4.59E-01	4.51E-01
		236.00		11.50	9.48E-01		1.34E-01	4.64E-01
		256.20		6.30	1.09E+00		4.86E-01	5.25E-01
	AC-228	338.32		11.40	7.91E-01	6.72E-01	1.04E+00	3.82E-01
		911.07		27.70	6.72E-01		1.39E+00	3.23E-01
		969.11		16.60	1.08E+00		1.35E+00	5.15E-01
	TH-230	48.44		16.90	4.96E-01	4.96E-01	3.60E-01	2.42E-01
		62.85		4.60	1.70E+00		1.72E+00	8.34E-01
		67.67		0.37	1.90E+01		9.38E+00	9.32E+00
	PA-231	283.67		1.60	4.41E+00	3.42E+00	-6.86E-01	2.13E+00
		302.67		2.30	3.42E+00		-1.78E-01	1.65E+00
	TH-231	25.64		14.70	3.18E+00	9.77E-01	1.12E+00	1.55E+00
		84.21		6.40	9.77E-01		1.80E-02	4.78E-01
	PA-233	311.98		38.60	2.34E+00	2.34E+00	-9.23E-02	1.12E+00
	PA-234	131.20		20.40	2.82E-01	2.82E-01	2.37E-01	1.38E-01
		733.99		8.80	9.61E-01		-6.11E-01	4.47E-01
		946.00		12.00	9.03E-01		1.85E-01	4.20E-01
	PA-234M	1001.03		0.92	1.07E+01	1.07E+01	-6.39E+00	4.94E+00
+	TH-234	63.29	*	3.80	3.25E+00	3.25E+00	3.89E+00	1.60E+00

Analysis Report for 1707086-08

HTC-A02-S004-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	143.76		10.50	4.96E-01	4.96E-01	6.46E-02	2.41E-01
		163.35		4.70	1.15E+00		-4.03E-01	5.58E-01
		205.31		4.70	1.51E+00		2.13E-01	7.34E-01
	NP-237	86.50		12.60	5.31E-01	5.31E-01	4.67E-01	2.60E-01
	NP-239	106.10		22.70	8.08E+11	8.08E+11	6.50E+10	3.93E+11
		228.18		10.70	2.23E+12		-8.67E+11	1.08E+12
		277.60		14.10	1.95E+12		7.46E+11	9.42E+11
	AM-241	59.54		35.90	2.01E-01	2.01E-01	-4.72E-02	9.85E-02
+	AM-243	74.67	*	66.00	1.54E-01	1.54E-01	4.00E-01	7.61E-02
	CM-243	209.75		3.29	2.32E+00	5.41E-01	1.82E+00	1.13E+00
		228.14		10.60	6.21E-01		-2.41E-01	3.00E-01
		277.60		14.00	5.41E-01		2.07E-01	2.61E-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

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-A02-S004-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	168	185	163	132	128	94	87
17:	89	90	92	89	85	78	102	91
25:	89	105	97	100	80	79	86	96
33:	105	99	83	83	99	86	103	111
41:	91	96	76	94	96	105	133	139
49:	108	106	111	101	119	130	115	116
57:	114	116	148	142	150	162	176	238
65:	194	165	137	156	177	178	154	161
73:	161	191	319	380	394	492	288	115
81:	117	127	132	141	152	124	178	213
89:	172	151	147	147	186	209	149	105
97:	99	84	102	71	119	86	84	87
105:	84	95	81	95	89	87	96	73
113:	94	94	91	77	73	70	80	82
121:	71	75	80	71	87	82	85	78
129:	121	117	105	78	74	73	89	77
137:	83	76	82	52	67	74	70	72
145:	90	58	83	72	80	68	82	78
153:	71	90	83	73	71	66	72	70
161:	69	62	75	77	57	64	78	73
169:	59	63	60	69	54	68	68	54
177:	58	80	47	49	71	62	54	63
185:	67	127	143	67	51	61	57	56
193:	52	63	47	51	60	56	44	48
201:	54	55	51	60	57	65	55	55
209:	74	93	69	42	72	46	52	39
217:	59	66	45	48	43	45	42	48
225:	30	42	41	39	45	56	43	43
233:	54	45	45	55	54	172	374	322
241:	152	108	93	61	49	43	43	44
249:	37	44	37	35	40	41	43	25
257:	40	42	36	23	39	34	35	30
265:	33	40	34	26	43	54	64	50
273:	39	31	39	35	42	49	49	35
281:	33	38	35	35	26	38	33	28
289:	34	28	33	21	36	29	101	143
297:	72	35	35	50	50	48	34	29
305:	28	26	23	28	31	22	35	26
313:	35	32	30	30	39	23	32	26
321:	25	28	24	31	32	27	36	48
329:	48	29	29	23	25	25	23	18
337:	23	61	76	58	27	24	27	27
345:	31	21	19	22	28	25	57	180
353:	187	70	25	18	20	22	22	14
361:	19	31	20	23	14	17	15	21

369:	13	20	25	26	27	15	28	24

Sample Title: HTC-A02-S004-3642-01

Channel								
377:	17	20	21	25	16	31	20	30
385:	15	22	30	17	20	17	18	17
393:	25	20	17	25	23	18	27	15
401:	26	28	18	31	31	21	28	22
409:	29	29	21	14	10	23	15	23
417:	18	22	20	23	20	22	22	27
425:	16	14	20	16	29	12	21	27
433:	12	22	11	20	20	18	21	13
441:	18	23	15	23	28	14	15	13
449:	17	17	11	18	23	15	19	18
457:	15	15	15	13	15	29	40	31
465:	27	16	9	10	17	18	20	10
473:	13	12	11	17	15	13	11	13
481:	19	23	15	14	13	19	14	19
489:	10	7	20	18	14	16	13	11
497:	15	10	19	12	15	15	15	10
505:	16	15	13	18	23	44	48	57
513:	32	22	11	13	16	14	10	18
521:	22	15	10	9	13	19	14	14
529:	22	7	13	10	12	14	8	18
537:	10	24	15	6	12	5	6	17
545:	12	13	5	14	13	16	10	15
553:	16	13	16	6	15	8	18	7
561:	14	17	22	15	24	13	11	10
569:	10	16	10	12	14	11	9	16
577:	15	15	11	16	19	28	99	101
585:	45	25	14	12	11	12	5	8
593:	15	9	12	13	13	20	10	8
601:	19	6	15	9	14	12	19	31
609:	99	135	55	15	15	14	13	12
617:	9	7	18	15	14	16	10	11
625:	9	13	11	14	7	10	10	10
633:	9	13	12	9	18	10	18	16
641:	12	9	7	8	11	9	11	11
649:	11	9	14	10	5	7	13	10
657:	10	12	11	12	7	10	11	14
665:	10	20	12	10	13	10	15	13
673:	11	10	11	9	10	15	10	9
681:	5	14	14	13	16	11	6	14
689:	8	9	9	18	7	11	8	12
697:	15	9	14	7	15	14	8	10
705:	16	14	8	13	5	13	9	11
713:	11	10	18	15	9	7	7	12
721:	12	8	11	14	10	16	26	27
729:	20	11	10	17	8	8	5	8
737:	2	8	12	16	10	13	10	12
745:	9	11	17	11	13	12	8	11
753:	7	11	14	8	12	9	10	9
761:	13	14	16	12	9	8	13	18
769:	19	9	14	9	17	12	11	11
777:	7	12	10	10	8	12	9	8
785:	9	14	21	12	8	10	7	9
793:	7	20	31	16	14	5	6	10

801:	4	11	16	7	3	6	10	8

Sample Title: HTC-A02-S004-3642-01

Channel								
809:	11	10	4	8	10	10	4	8
817:	8	11	4	6	4	12	5	6
825:	5	8	7	12	8	11	11	7
833:	11	10	8	10	6	11	12	11
841:	10	12	8	5	7	4	11	10
849:	11	7	10	9	7	6	14	4
857:	9	5	9	16	26	9	7	10
865:	8	8	6	5	10	5	12	4
873:	7	5	9	7	6	6	13	10
881:	12	1	13	8	6	5	9	15
889:	7	5	7	7	9	7	6	10
897:	11	10	6	9	3	4	15	9
905:	7	8	4	13	9	35	57	64
913:	21	6	15	7	8	6	7	6
921:	8	6	9	5	7	6	10	12
929:	4	8	13	10	8	14	6	2
937:	9	3	9	10	5	6	7	9
945:	12	10	9	9	5	8	10	5
953:	7	9	5	6	4	7	12	5
961:	9	6	7	15	26	16	13	33
969:	59	30	10	7	5	10	9	8
977:	7	8	2	4	10	8	6	9
985:	5	6	6	4	8	2	5	8
993:	6	9	7	6	9	6	5	8
1001:	7	14	3	2	10	11	5	6
1009:	8	4	9	5	5	9	5	7
1017:	2	8	3	8	10	7	4	4
1025:	8	10	5	7	12	5	5	11
1033:	11	5	12	7	10	4	11	3
1041:	14	10	8	5	2	11	5	5
1049:	5	10	8	7	13	10	6	6
1057:	9	7	11	8	12	7	4	3
1065:	5	6	5	6	6	6	10	1
1073:	10	8	7	5	18	8	4	9
1081:	13	5	4	10	5	7	7	9
1089:	3	6	5	13	9	8	11	3
1097:	8	8	4	7	12	7	3	7
1105:	4	6	14	10	6	8	8	9
1113:	8	5	13	5	9	7	16	25
1121:	27	9	9	5	4	3	7	10
1129:	9	9	8	5	8	10	8	6
1137:	4	2	11	9	11	6	9	14
1145:	7	8	9	2	7	11	13	10
1153:	13	12	7	9	12	9	8	7
1161:	9	11	6	9	7	8	12	9
1169:	15	8	12	6	7	9	10	7
1177:	5	7	11	12	11	13	7	13
1185:	11	15	10	6	6	6	7	10
1193:	10	4	12	13	6	9	7	6
1201:	10	7	8	7	13	9	10	8
1209:	4	12	5	16	10	8	5	9
1217:	8	9	9	10	9	5	12	13
1225:	11	16	8	7	13	5	11	8

1233:	9	9	8	15	14	21	11	10

Sample Title: HTC-A02-S004-3642-01

Channel								
1241:	9	3	6	11	9	7	11	9
1249:	8	10	2	8	6	7	3	3
1257:	8	9	10	8	9	13	5	3
1265:	9	7	3	6	5	3	7	4
1273:	0	4	2	6	6	7	9	2
1281:	8	8	4	7	7	6	7	7
1289:	4	1	8	6	3	10	7	6
1297:	7	2	5	6	6	5	5	6
1305:	4	4	4	5	7	5	10	6
1313:	1	7	9	5	3	3	9	4
1321:	1	4	6	3	3	1	5	3
1329:	5	3	2	9	4	3	5	2
1337:	4	4	3	3	7	4	5	6
1345:	3	2	5	3	3	3	3	3
1353:	4	1	3	1	3	2	4	4
1361:	5	7	8	2	7	2	0	3
1369:	3	2	2	1	1	7	1	7
1377:	4	12	1	5	1	3	6	3
1385:	2	4	2	3	2	4	0	1
1393:	1	2	2	3	4	2	2	2
1401:	5	3	3	5	3	3	6	8
1409:	2	4	3	2	2	4	2	4
1417:	2	2	2	5	3	1	2	3
1425:	2	1	3	4	2	2	4	2
1433:	5	2	1	0	6	3	2	2
1441:	4	4	1	4	4	1	2	1
1449:	2	3	2	3	2	4	5	5
1457:	3	18	91	255	248	109	21	3
1465:	2	1	1	1	2	0	3	4
1473:	4	1	1	1	1	5	2	4
1481:	2	2	2	1	2	3	3	1
1489:	0	0	1	3	0	6	2	3
1497:	3	1	1	1	2	3	3	2
1505:	0	0	0	2	4	3	2	3
1513:	3	1	1	0	1	2	1	1
1521:	1	3	3	0	3	0	3	1
1529:	3	0	0	2	1	2	3	3
1537:	2	0	3	0	0	3	1	1
1545:	0	3	3	0	2	1	0	2
1553:	2	1	4	2	1	0	1	1
1561:	1	1	1	2	0	1	1	0
1569:	0	1	1	2	2	2	3	2
1577:	3	3	3	3	4	0	2	2
1585:	2	1	2	7	3	0	7	5
1593:	5	2	1	3	3	2	3	0
1601:	1	2	1	0	4	0	4	0
1609:	0	0	0	1	1	1	1	1
1617:	0	3	1	3	1	0	1	0
1625:	0	2	0	1	1	1	6	1
1633:	2	2	1	2	0	2	1	4
1641:	2	0	0	0	0	1	1	0
1649:	1	1	0	0	1	2	2	0
1657:	1	1	1	3	2	1	2	1

1665:	1	1	0	1	2	0	2	0

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Channel								
1673:	2	2	0	0	2	0	2	1
1681:	5	0	2	0	0	0	0	0
1689:	3	2	0	1	1	1	1	1
1697:	1	2	0	3	1	3	1	0
1705:	0	2	2	0	0	1	2	1
1713:	0	0	1	2	0	0	0	0
1721:	2	1	1	2	1	5	3	4
1729:	5	2	1	0	2	1	0	2
1737:	3	1	1	1	2	2	1	1
1745:	1	1	1	0	0	2	3	0
1753:	2	2	1	1	2	3	2	1
1761:	1	7	16	15	16	5	1	1
1769:	1	1	1	0	0	2	2	0
1777:	0	1	0	3	3	0	0	1
1785:	0	1	0	1	1	0	2	0
1793:	3	0	0	0	0	0	1	1
1801:	1	1	0	1	1	2	1	0
1809:	0	0	0	1	0	1	0	2
1817:	0	1	0	2	0	1	3	2
1825:	1	0	4	0	2	0	0	0
1833:	2	1	0	2	3	1	0	0
1841:	0	1	0	1	4	3	3	2
1849:	2	0	1	0	0	3	4	1
1857:	0	0	1	0	0	3	1	0
1865:	1	0	0	0	0	0	1	1
1873:	2	1	1	0	0	1	0	1
1881:	1	3	2	0	1	0	1	1
1889:	0	1	2	1	1	1	0	3
1897:	0	0	1	2	0	1	2	0
1905:	2	1	1	0	0	1	3	2
1913:	0	1	2	0	1	2	2	1
1921:	1	0	1	2	1	0	0	2
1929:	1	0	0	0	2	1	1	2
1937:	0	2	2	0	1	1	0	0
1945:	1	0	3	3	1	0	1	1
1953:	1	1	0	2	1	1	1	0
1961:	2	0	3	1	0	0	0	0
1969:	1	1	0	0	2	1	1	1
1977:	1	1	2	2	0	1	0	0
1985:	0	0	0	0	0	2	0	0
1993:	0	1	1	0	1	0	0	0
2001:	1	0	1	2	0	2	0	0
2009:	3	0	0	1	0	0	1	2
2017:	0	0	1	0	0	0	2	1
2025:	0	1	1	1	2	1	0	1
2033:	1	0	0	1	1	0	0	0
2041:	3	2	1	1	3	1	2	1
2049:	0	0	2	1	1	1	1	2
2057:	1	2	0	0	1	1	0	0
2065:	1	0	0	1	0	1	0	1
2073:	0	2	2	2	1	2	0	2
2081:	1	0	0	1	0	0	0	0
2089:	0	1	1	0	0	0	1	1

2097:	0	2	0	2	2	3	5	7

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

2529:	0	0	0	0	0	1	1	0

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Channel								
2537:	1	0	0	0	1	0	0	1
2545:	0	1	0	0	0	0	1	0
2553:	0	0	0	0	0	0	1	0
2561:	0	1	0	0	0	1	1	1
2569:	0	1	0	0	0	0	0	0
2577:	0	2	0	1	0	0	0	1
2585:	0	0	0	0	0	0	0	1
2593:	0	0	0	0	0	0	0	1
2601:	0	0	1	0	0	1	0	0
2609:	1	2	3	7	16	19	18	1
2617:	1	0	0	1	1	0	0	0
2625:	0	0	0	0	0	0	1	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	1	0	1	0
2649:	0	0	0	0	1	0	0	0
2657:	0	1	0	1	1	0	0	1
2665:	0	0	0	1	0	0	0	0
2673:	1	1	1	0	0	0	0	1
2681:	2	0	1	1	0	0	0	0
2689:	1	1	0	0	0	1	0	2
2697:	0	1	0	1	1	0	1	1
2705:	1	0	0	0	0	0	0	0
2713:	0	0	1	0	0	0	1	0
2721:	0	0	0	0	0	1	1	1
2729:	1	1	0	0	0	0	0	0
2737:	0	0	0	0	0	0	1	0
2745:	0	0	1	1	1	0	0	0
2753:	0	0	0	0	1	1	1	0
2761:	0	0	0	0	0	0	2	0
2769:	0	0	2	0	0	1	0	2
2777:	1	0	0	0	0	0	0	0
2785:	1	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	1	1	0	0	0	0	0
2809:	0	0	0	0	1	0	0	0
2817:	0	2	0	0	1	0	0	1
2825:	0	0	0	1	0	1	0	0
2833:	0	0	0	0	0	1	0	1
2841:	0	0	0	0	0	0	2	0
2849:	0	0	1	0	0	0	1	0
2857:	0	1	0	0	0	0	0	0
2865:	1	1	0	0	1	0	0	0
2873:	1	0	0	1	0	0	1	0
2881:	2	0	0	0	0	0	0	1
2889:	0	0	0	0	0	0	1	0
2897:	0	1	0	0	0	0	0	0
2905:	0	0	0	0	0	1	0	0
2913:	0	0	0	0	0	0	1	0
2921:	0	0	1	0	0	0	0	0
2929:	0	1	0	0	0	0	2	0
2937:	0	1	0	0	1	0	0	0
2945:	0	1	0	0	0	0	0	0
2953:	0	0	0	0	1	1	0	1

2961:	0	1	0	1	1	0	0	0

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

3393:	1	0	1	0	0	1	0	0

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Channel								
3401:	0	0	0	0	0	0	1	0
3409:	0	0	1	0	0	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	1	1	0	0	0	0	0
3457:	0	0	0	0	0	0	1	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	1	0	0
3481:	0	1	0	0	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	1	0	0	0	0	0	0	0
3505:	0	0	0	1	1	0	1	0
3513:	0	0	0	0	0	0	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	0	0	1	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	1	0	0	0	1	0	0
3553:	0	0	0	0	0	0	0	1
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	0	0	0	0	0	0	1
3593:	0	1	0	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	0	0	0	0	0	1	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	1	0	0	0
3641:	0	0	0	0	1	0	0	0
3649:	0	0	0	0	0	1	0	0
3657:	1	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	1	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	1	0
3689:	0	0	0	0	0	1	0	0
3697:	0	0	0	1	0	0	0	0
3705:	0	0	0	1	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	1	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	2	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	1	0	0	0	0
3777:	0	0	0	0	1	0	0	0
3785:	0	0	0	0	0	0	0	1
3793:	0	0	0	0	0	0	0	1
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	0	1	0	1
3817:	0	0	1	0	0	0	0	0

3825:	0	0	0	0	0	0	0	0

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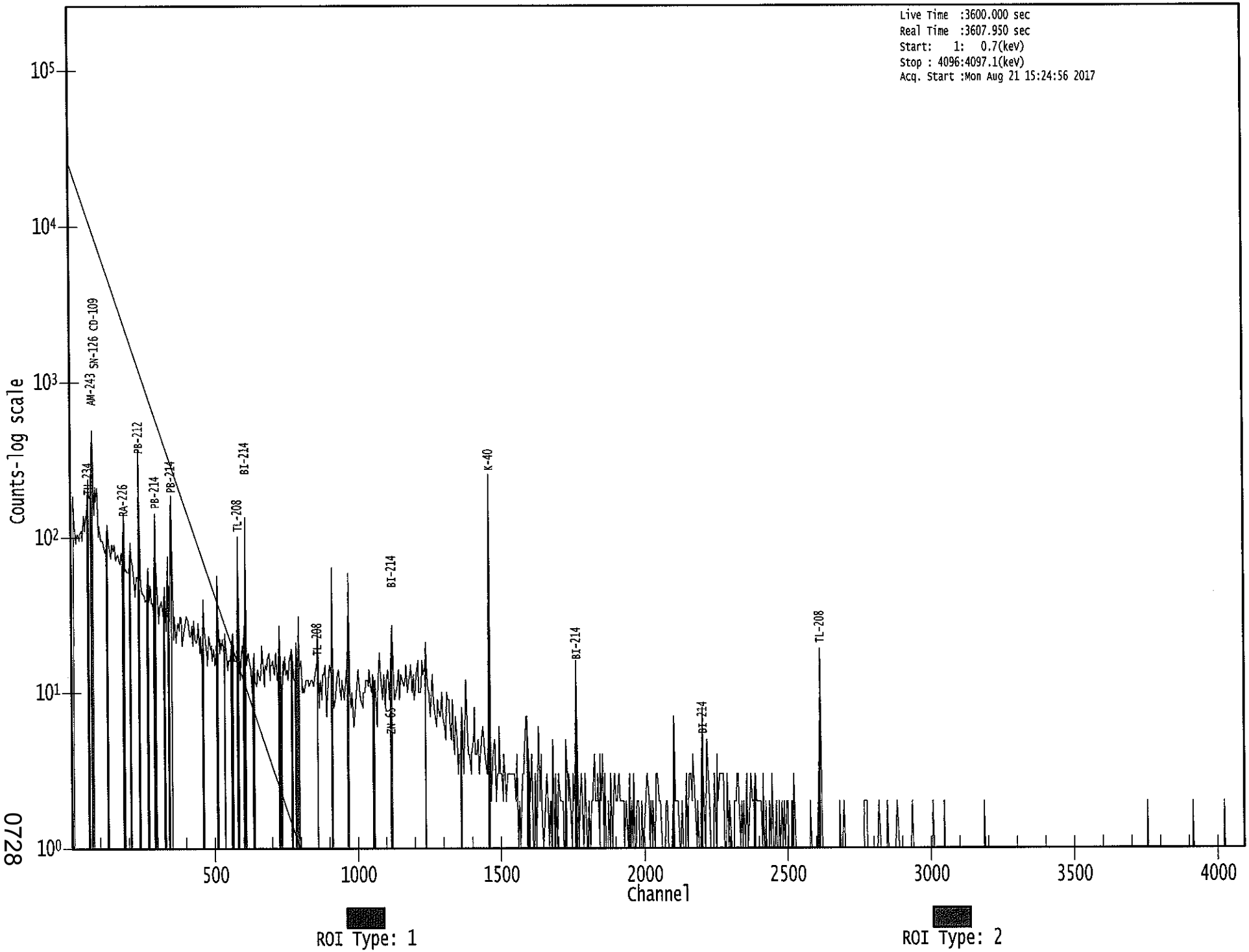
Channel								
3833:	0	0	0	0	0	0	0	1
3841:	0	0	1	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	1	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	1	0	0	0	0	0	1
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	2	0	0	0	0	0	0	0
3921:	0	1	0	0	1	0	0	0
3929:	0	0	1	1	0	0	0	1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

0000055656.CNF



0728

RB 8/21/17

Apex-Gamma

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-09
Sample Description	: HTC-A02-S004-4248-01
Sample Type	: SOIL
Sample Size	: 6.723E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:13:42AM
Acquisition Started	: 8/21/2017 4:21:02PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3605.1 seconds
Dead Time	: 0.14 %
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	: 55657

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 5:21:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.13	45.17	0.0000	0.00
2	63.30	62.36	0.0000	0.00
3	76.18	75.23	0.0000	0.00
4	84.53	83.59	0.0000	0.00
5	87.27	86.33	0.0000	0.00
6	89.94	89.01	0.0000	0.00
7	93.24	92.31	0.0000	0.00
8	105.27	104.34	0.0000	0.00
9	129.39	128.47	0.0000	0.00
10	154.64	153.72	0.0000	0.00
11	185.77	184.86	0.0000	0.00
12	209.02	208.11	0.0000	0.00
13	239.20	238.30	0.0000	0.00
14	270.18	269.30	0.0000	0.00
15	277.48	276.60	0.0000	0.00
16	295.39	294.51	0.0000	0.00
17	300.35	299.48	0.0000	0.00
18	327.67	326.81	0.0000	0.00
19	338.53	337.67	0.0000	0.00
20	352.00	351.15	0.0000	0.00
21	408.15	407.31	0.0000	0.00
22	462.90	462.08	0.0000	0.00
23	510.66	509.86	0.0000	0.00
24	583.01	582.24	0.0000	0.00
25	609.10	608.34	0.0000	0.00
26	641.44	640.70	0.0000	0.00
27	727.18	726.47	0.0000	0.00
28	768.17	767.47	0.0000	0.00
29	790.69	790.00	0.0000	0.00
30	795.22	794.54	0.0000	0.00
31	860.05	859.39	0.0000	0.00
32	911.20	910.57	0.0000	0.00
33	964.69	964.08	0.0000	0.00
34	969.01	968.40	0.0000	0.00
35	1001.03	1000.44	0.0000	0.00
36	1120.35	1119.81	0.0000	0.00
37	1145.68	1145.15	0.0000	0.00
38	1155.39	1154.87	0.0000	0.00
39	1238.64	1238.15	0.0000	0.00
40	1281.82	1281.35	0.0000	0.00
41	1376.46	1376.04	0.0000	0.00
42	1407.78	1407.37	0.0000	0.00

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1460.53	1460.16	0.0000	0.00
44	1494.63	1494.27	0.0000	0.00
45	1579.72	1579.40	0.0000	0.00
46	1587.58	1587.26	0.0000	0.00
47	1592.04	1591.74	0.0000	0.00
48	1630.16	1629.88	0.0000	0.00
49	1638.61	1638.32	0.0000	0.00
50	1676.56	1676.30	0.0000	0.00
51	1716.36	1716.12	0.0000	0.00
52	1764.18	1763.97	0.0000	0.00
53	1848.17	1848.00	0.0000	0.00
54	1872.23	1872.08	0.0000	0.00
55	2051.50	2051.46	0.0000	0.00
56	2079.54	2079.51	0.0000	0.00
57	2103.51	2103.49	0.0000	0.00
58	2131.64	2131.65	0.0000	0.00
59	2195.88	2195.92	0.0000	0.00
60	2203.79	2203.83	0.0000	0.00
61	2339.54	2339.67	0.0000	0.00
62	2447.12	2447.32	0.0000	0.00
63	2555.55	2555.83	0.0000	0.00
64	2613.97	2614.28	0.0000	0.00
65	2709.02	2709.40	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 5:21:09PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.13	43 -	47	45.17	1.60E+02	110.38	2.58E+03	2.47
	2	63.30	60 -	65	62.36	2.99E+02	173.58	5.83E+03	1.91
	3	76.18	69 -	80	75.23	5.81E+03	332.17	1.08E+04	4.20
M	4	84.53	81 -	96	83.59	5.54E+02	137.07	3.77E+03	2.23
m	5	87.27	81 -	96	86.33	1.02E+03	168.02	4.31E+03	1.97
m	6	89.94	81 -	96	89.01	9.97E+02	228.89	5.99E+03	2.93
m	7	93.24	81 -	96	92.31	1.27E+03	182.14	4.36E+03	2.49
	8	105.27	101 -	108	104.34	2.38E+02	173.02	4.84E+03	3.99
	9	129.39	125 -	132	128.47	3.48E+02	170.66	4.63E+03	2.11
	10	154.64	150 -	157	153.72	1.65E+02	156.29	3.95E+03	2.37
	11	185.77	179 -	188	184.86	6.01E+02	179.29	4.25E+03	2.21
	12	209.02	204 -	212	208.11	3.21E+02	153.61	3.42E+03	2.69
	13	239.20	232 -	244	238.30	5.00E+03	222.23	3.44E+03	2.45
	14	270.18	265 -	273	269.30	2.86E+02	117.06	1.94E+03	2.15
	15	277.48	274 -	281	276.60	1.55E+02	102.92	1.65E+03	1.59
M	16	295.39	290 -	304	294.51	8.19E+02	96.52	1.12E+03	2.43
m	17	300.35	290 -	304	299.48	3.99E+02	109.40	1.24E+03	3.16
	18	327.67	321 -	332	326.81	2.19E+02	127.45	1.92E+03	2.14
	19	338.53	333 -	342	337.67	7.58E+02	115.89	1.47E+03	2.52
	20	352.00	348 -	356	351.15	1.23E+03	113.63	1.24E+03	2.32
	21	408.15	401 -	413	407.31	1.56E+02	112.01	1.40E+03	4.06
	22	462.90	458 -	466	462.08	1.59E+02	78.25	8.49E+02	2.21
	23	510.66	505 -	514	509.86	3.79E+02	87.64	8.82E+02	2.71
	24	583.01	576 -	587	582.24	1.11E+03	99.22	6.76E+02	2.43
	25	609.10	601 -	614	608.34	8.21E+02	105.63	8.74E+02	2.39
	26	641.44	636 -	645	640.70	5.76E+01	59.59	4.73E+02	1.04
	27	727.18	721 -	731	726.47	2.76E+02	68.69	4.75E+02	2.65
	28	768.17	764 -	770	767.47	9.08E+01	45.63	3.14E+02	2.11
M	29	790.69	779 -	800	790.00	3.67E+01	38.48	2.31E+02	2.39
m	30	795.22	779 -	800	794.54	1.28E+02	50.44	2.97E+02	2.89
	31	860.05	853 -	864	859.39	1.27E+02	55.68	3.24E+02	2.45
	32	911.20	905 -	918	910.57	6.68E+02	77.26	3.49E+02	2.70
M	33	964.69	961 -	973	964.08	1.15E+02	34.26	1.26E+02	2.63
m	34	969.01	961 -	973	968.40	3.38E+02	52.76	1.87E+02	2.65
	35	1001.03	998 -	1003	1000.44	2.44E+01	27.18	1.27E+02	2.12
	36	1120.35	1115 -	1127	1119.81	1.94E+02	55.56	2.68E+02	2.82
	37	1145.68	1140 -	1151	1145.15	5.12E+01	41.18	1.88E+02	9.54
	38	1155.39	1152 -	1159	1154.87	3.00E+01	32.92	1.62E+02	1.51
	39	1238.64	1234 -	1243	1238.15	7.49E+01	41.44	1.96E+02	3.04
	40	1281.82	1277 -	1287	1281.35	3.98E+01	35.14	1.44E+02	2.73

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1376.46	1372 -	1382	1376.04	4.96E+01	33.94	1.29E+02	4.99
	42	1407.78	1402 -	1411	1407.37	2.68E+01	31.84	1.28E+02	1.98
	43	1460.53	1454 -	1466	1460.16	4.61E+02	56.82	1.64E+02	2.74
	44	1494.63	1490 -	1499	1494.27	3.49E+01	22.96	5.62E+01	3.87
	45	1579.72	1576 -	1583	1579.40	1.56E+01	20.00	5.68E+01	3.61
M	46	1587.58	1584 -	1596	1587.26	3.53E+01	21.73	5.98E+01	2.90
m	47	1592.04	1584 -	1596	1591.74	6.83E+01	29.39	6.99E+01	2.91
	48	1630.16	1627 -	1634	1629.88	2.69E+01	17.78	3.22E+01	3.39
	49	1638.61	1635 -	1643	1638.32	2.43E+01	15.53	2.14E+01	4.99
	50	1676.56	1674 -	1679	1676.30	1.14E+01	12.96	2.53E+01	1.15
	51	1716.36	1711 -	1720	1716.12	1.15E+01	14.87	2.50E+01	2.92
	52	1764.18	1758 -	1769	1763.97	9.56E+01	33.88	9.49E+01	2.25
	53	1848.17	1842 -	1856	1848.00	3.46E+01	26.50	5.69E+01	5.46
	54	1872.23	1868 -	1875	1872.08	1.32E+01	16.37	3.56E+01	3.11
	55	2051.50	2047 -	2056	2051.46	1.60E+01	16.55	3.00E+01	4.83
	56	2079.54	2076 -	2085	2079.51	1.59E+01	18.22	3.42E+01	1.14
	57	2103.51	2099 -	2109	2103.49	3.73E+01	26.90	7.54E+01	3.13
	58	2131.64	2128 -	2136	2131.65	1.29E+01	16.05	3.22E+01	1.52
M	59	2195.88	2189 -	2207	2195.92	2.19E+01	17.15	4.77E+01	3.07
m	60	2203.79	2189 -	2207	2203.83	2.23E+01	19.55	3.51E+01	3.07
	61	2339.54	2334 -	2344	2339.67	2.56E+01	22.59	5.28E+01	4.65
	62	2447.12	2442 -	2455	2447.32	2.35E+01	21.59	3.89E+01	8.65
	63	2555.55	2551 -	2561	2555.83	1.16E+01	9.29	4.71E+00	6.22
	64	2613.97	2609 -	2618	2614.28	3.18E+02	36.63	1.00E+01	2.73
	65	2709.02	2706 -	2711	2709.40	5.00E+00	4.47	0.00E+00	1.70

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 : 8/21/2017 5:21:09PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.13	43 -	47	1.60E+02	110.38	2.58E+03	8.83E+01
2	63.30	60 -	65	2.99E+02	173.58	5.83E+03	1.40E+02
3	76.18	69 -	80	5.81E+03	332.17	1.08E+04	2.43E+02

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	4	84.53	81 -	96	5.54E+02	137.07	3.77E+03	1.01E+02
m	5	87.27	81 -	96	1.02E+03	168.02	4.31E+03	1.08E+02
m	6	89.94	81 -	96	9.97E+02	228.89	5.99E+03	1.27E+02
m	7	93.24	81 -	96	1.27E+03	182.14	4.36E+03	1.09E+02
	8	105.27	101 -	108	2.38E+02	173.02	4.84E+03	1.40E+02
	9	129.39	125 -	132	3.48E+02	170.66	4.63E+03	1.37E+02
	10	154.64	150 -	157	1.65E+02	156.29	3.95E+03	1.27E+02
	11	185.77	179 -	188	6.01E+02	179.29	4.25E+03	1.42E+02
	12	209.02	204 -	212	3.21E+02	153.61	3.42E+03	1.23E+02
	13	239.20	232 -	244	5.00E+03	222.23	3.44E+03	1.41E+02
	14	270.18	265 -	273	2.86E+02	117.06	1.94E+03	9.21E+01
	15	277.48	274 -	281	1.55E+02	102.92	1.65E+03	8.21E+01
M	16	295.39	290 -	304	8.19E+02	96.52	1.12E+03	5.51E+01
m	17	300.35	290 -	304	3.99E+02	109.40	1.24E+03	5.78E+01
	18	327.67	321 -	332	2.19E+02	127.45	1.92E+03	1.02E+02
	19	338.53	333 -	342	7.58E+02	115.89	1.47E+03	8.38E+01
	20	352.00	348 -	356	1.23E+03	113.63	1.24E+03	7.34E+01
	21	408.15	401 -	413	1.56E+02	112.01	1.40E+03	8.97E+01
	22	462.90	458 -	466	1.59E+02	78.25	8.49E+02	6.09E+01
	23	510.66	505 -	514	3.79E+02	87.64	8.82E+02	6.45E+01
	24	583.01	576 -	587	1.11E+03	99.22	6.76E+02	6.05E+01
	25	609.10	601 -	614	8.21E+02	105.63	8.74E+02	7.29E+01
	26	641.44	636 -	645	5.76E+01	59.59	4.73E+02	4.74E+01
	27	727.18	721 -	731	2.76E+02	68.69	4.75E+02	4.94E+01
	28	768.17	764 -	770	9.08E+01	45.63	3.14E+02	3.41E+01
M	29	790.69	779 -	800	3.67E+01	38.48	2.31E+02	2.50E+01
m	30	795.22	779 -	800	1.28E+02	50.44	2.97E+02	2.83E+01
	31	860.05	853 -	864	1.27E+02	55.68	3.24E+02	4.18E+01
	32	911.20	905 -	918	6.68E+02	77.26	3.49E+02	4.72E+01
M	33	964.69	961 -	973	1.15E+02	34.26	1.26E+02	1.84E+01
m	34	969.01	961 -	973	3.38E+02	52.76	1.87E+02	2.25E+01
	35	1001.03	998 -	1003	2.44E+01	27.18	1.27E+02	2.08E+01
	36	1120.35	1115 -	1127	1.94E+02	55.56	2.68E+02	3.95E+01
	37	1145.68	1140 -	1151	5.12E+01	41.18	1.88E+02	3.17E+01
	38	1155.39	1152 -	1159	3.00E+01	32.92	1.62E+02	2.55E+01
	39	1238.64	1234 -	1243	7.49E+01	41.44	1.96E+02	3.09E+01
	40	1281.82	1277 -	1287	3.98E+01	35.14	1.44E+02	2.70E+01
	41	1376.46	1372 -	1382	4.96E+01	33.94	1.29E+02	2.54E+01
	42	1407.78	1402 -	1411	2.68E+01	31.84	1.28E+02	2.48E+01
	43	1460.53	1454 -	1466	4.61E+02	56.82	1.64E+02	3.06E+01
	44	1494.63	1490 -	1499	3.49E+01	22.96	5.62E+01	1.62E+01
	45	1579.72	1576 -	1583	1.56E+01	20.00	5.68E+01	1.51E+01
M	46	1587.58	1584 -	1596	3.53E+01	21.73	5.98E+01	1.27E+01
m	47	1592.04	1584 -	1596	6.83E+01	29.39	6.99E+01	1.37E+01
	48	1630.16	1627 -	1634	2.69E+01	17.78	3.22E+01	1.19E+01
	49	1638.61	1635 -	1643	2.43E+01	15.53	2.14E+01	9.87E+00
	50	1676.56	1674 -	1679	1.14E+01	12.96	2.53E+01	9.10E+00
	51	1716.36	1711 -	1720	1.15E+01	14.87	2.50E+01	1.09E+01
	52	1764.18	1758 -	1769	9.56E+01	33.88	9.49E+01	2.27E+01
	53	1848.17	1842 -	1856	3.46E+01	26.50	5.69E+01	1.95E+01
	54	1872.23	1868 -	1875	1.32E+01	16.37	3.56E+01	1.21E+01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	55	2051.50	2047 -	2056	1.60E+01	16.55	3.00E+01	1.19E+01
	56	2079.54	2076 -	2085	1.59E+01	18.22	3.42E+01	1.35E+01
	57	2103.51	2099 -	2109	3.73E+01	26.90	7.54E+01	1.97E+01
	58	2131.64	2128 -	2136	1.29E+01	16.05	3.22E+01	1.18E+01
M	59	2195.88	2189 -	2207	2.19E+01	17.15	4.77E+01	1.14E+01
m	60	2203.79	2189 -	2207	2.23E+01	19.55	3.51E+01	9.73E+00
	61	2339.54	2334 -	2344	2.56E+01	22.59	5.28E+01	1.66E+01
	62	2447.12	2442 -	2455	2.35E+01	21.59	3.89E+01	1.59E+01
	63	2555.55	2551 -	2561	1.16E+01	9.29	4.71E+00	5.18E+00
	64	2613.97	2609 -	2618	3.18E+02	36.63	1.00E+01	6.88E+00
	65	2709.02	2706 -	2711	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 : 8/21/2017 5:21:09PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.13	43 -	47	45.17	1.60E+02	110.38	2.58E+03	PB-210
	2	63.30	60 -	65	62.36	2.99E+02	173.58	5.83E+03	TH-234
									TH-230
	3	76.18	69 -	80	75.23	5.81E+03	332.17	1.08E+04	.....
M	4	84.53	81 -	96	83.59	5.54E+02	137.07	3.77E+03	TH-231
m	5	87.27	81 -	96	86.33	1.02E+03	168.02	4.31E+03	SN-126
									CD-109
									NP-237
									EU-155
m	6	89.94	81 -	96	89.01	9.97E+02	228.89	5.99E+03	.....
m	7	93.24	81 -	96	92.31	1.27E+03	182.14	4.36E+03	GA-67
	8	105.27	101 -	108	104.34	2.38E+02	173.02	4.84E+03	EU-155
									NP-239
	9	129.39	125 -	132	128.47	3.48E+02	170.66	4.63E+03	.....
	10	154.64	150 -	157	153.72	1.65E+02	156.29	3.95E+03	.....

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	11	185.77	179 -	188	184.86	6.01E+02	179.29	4.25E+03	RA-226
	12	209.02	204 -	212	208.11	3.21E+02	153.61	3.42E+03	GA-67
									CM-243
	13	239.20	232 -	244	238.30	5.00E+03	222.23	3.44E+03	PB-212
	14	270.18	265 -	273	269.30	2.86E+02	117.06	1.94E+03	.....
	15	277.48	274 -	281	276.60	1.55E+02	102.92	1.65E+03	CM-243
									NP-239
M	16	295.39	290 -	304	294.51	8.19E+02	96.52	1.12E+03	PB-214
m	17	300.35	290 -	304	299.48	3.99E+02	109.40	1.24E+03	GA-67
									PB-212
									BI-210M
	18	327.67	321 -	332	326.81	2.19E+02	127.45	1.92E+03	.....
	19	338.53	333 -	342	337.67	7.58E+02	115.89	1.47E+03	AC-228
	20	352.00	348 -	356	351.15	1.23E+03	113.63	1.24E+03	PB-214
	21	408.15	401 -	413	407.31	1.56E+02	112.01	1.40E+03	.....
	22	462.90	458 -	466	462.08	1.59E+02	78.25	8.49E+02	SB-125
	23	510.66	505 -	514	509.86	3.79E+02	87.64	8.82E+02	.....
	24	583.01	576 -	587	582.24	1.11E+03	99.22	6.76E+02	TL-208
	25	609.10	601 -	614	608.34	8.21E+02	105.63	8.74E+02	BI-214
	26	641.44	636 -	645	640.70	5.76E+01	59.59	4.73E+02	.....
	27	727.18	721 -	731	726.47	2.76E+02	68.69	4.75E+02	BI-212
	28	768.17	764 -	770	767.47	9.08E+01	45.63	3.14E+02	.....
M	29	790.69	779 -	800	790.00	3.67E+01	38.48	2.31E+02	.....
m	30	795.22	779 -	800	794.54	1.28E+02	50.44	2.97E+02	CS-134
	31	860.05	853 -	864	859.39	1.27E+02	55.68	3.24E+02	TL-208
	32	911.20	905 -	918	910.57	6.68E+02	77.26	3.49E+02	AC-228
									TL-204
M	33	964.69	961 -	973	964.08	1.15E+02	34.26	1.26E+02	EU-152
m	34	969.01	961 -	973	968.40	3.38E+02	52.76	1.87E+02	AC-228
	35	1001.03	998 -	1003	1000.44	2.44E+01	27.18	1.27E+02	PA-234M
	36	1120.35	1115 -	1127	1119.81	1.94E+02	55.56	2.68E+02	BI-214
									SC-46
									TA-182
	37	1145.68	1140 -	1151	1145.15	5.12E+01	41.18	1.88E+02	.....
	38	1155.39	1152 -	1159	1154.87	3.00E+01	32.92	1.62E+02	.....
	39	1238.64	1234 -	1243	1238.15	7.49E+01	41.44	1.96E+02	CO-56
	40	1281.82	1277 -	1287	1281.35	3.98E+01	35.14	1.44E+02	.....
	41	1376.46	1372 -	1382	1376.04	4.96E+01	33.94	1.29E+02	.....
	42	1407.78	1402 -	1411	1407.37	2.68E+01	31.84	1.28E+02	EU-152
	43	1460.53	1454 -	1466	1460.16	4.61E+02	56.82	1.64E+02	K-40
	44	1494.63	1490 -	1499	1494.27	3.49E+01	22.96	5.62E+01	.....
	45	1579.72	1576 -	1583	1579.40	1.56E+01	20.00	5.68E+01	.....
M	46	1587.58	1584 -	1596	1587.26	3.53E+01	21.73	5.98E+01	.....
m	47	1592.04	1584 -	1596	1591.74	6.83E+01	29.39	6.99E+01	.....
	48	1630.16	1627 -	1634	1629.88	2.69E+01	17.78	3.22E+01	.....
	49	1638.61	1635 -	1643	1638.32	2.43E+01	15.53	2.14E+01	.....
	50	1676.56	1674 -	1679	1676.30	1.14E+01	12.96	2.53E+01	.....
	51	1716.36	1711 -	1720	1716.12	1.15E+01	14.87	2.50E+01	.....
	52	1764.18	1758 -	1769	1763.97	9.56E+01	33.88	9.49E+01	BI-214
	53	1848.17	1842 -	1856	1848.00	3.46E+01	26.50	5.69E+01	.....
	54	1872.23	1868 -	1875	1872.08	1.32E+01	16.37	3.56E+01	.....
	55	2051.50	2047 -	2056	2051.46	1.60E+01	16.55	3.00E+01	.....
	56	2079.54	2076 -	2085	2079.51	1.59E+01	18.22	3.42E+01	.....
	57	2103.51	2099 -	2109	2103.49	3.73E+01	26.90	7.54E+01	.....

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	58	2131.64	2128 -	2136	2131.65	1.29E+01	16.05	3.22E+01	.....
M	59	2195.88	2189 -	2207	2195.92	2.19E+01	17.15	4.77E+01	.....
m	60	2203.79	2189 -	2207	2203.83	2.23E+01	19.55	3.51E+01	BI-214
	61	2339.54	2334 -	2344	2339.67	2.56E+01	22.59	5.28E+01	.....
	62	2447.12	2442 -	2455	2447.32	2.35E+01	21.59	3.89E+01	.....
	63	2555.55	2551 -	2561	2555.83	1.16E+01	9.29	4.71E+00	.....
	64	2613.97	2609 -	2618	2614.28	3.18E+02	36.63	1.00E+01	TL-208
	65	2709.02	2706 -	2711	2709.40	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 5:21:09PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.13	1.60E+02	110.38	1.63E-02	1.56E-03
	2	63.30	2.99E+02	173.58	2.15E-02	1.64E-03
	3	76.18	5.81E+03	332.17	2.32E-02	1.91E-03
M	4	84.53	5.54E+02	137.07	2.36E-02	2.09E-03
m	5	87.27	1.02E+03	168.02	2.37E-02	2.15E-03
m	6	89.94	9.97E+02	228.89	2.37E-02	2.14E-03
m	7	93.24	1.27E+03	182.14	2.36E-02	2.09E-03
	8	105.27	2.38E+02	173.02	2.32E-02	1.91E-03
	9	129.39	3.48E+02	170.66	2.15E-02	1.62E-03
	10	154.64	1.65E+02	156.29	1.94E-02	1.53E-03
	11	185.77	6.01E+02	179.29	1.69E-02	1.40E-03
	12	209.02	3.21E+02	153.61	1.53E-02	1.29E-03
	13	239.20	5.00E+03	222.23	1.36E-02	1.14E-03
	14	270.18	2.86E+02	117.06	1.21E-02	9.90E-04
	15	277.48	1.55E+02	102.92	1.17E-02	9.55E-04
M	16	295.39	8.19E+02	96.52	1.10E-02	9.13E-04
m	17	300.35	3.99E+02	109.40	1.08E-02	9.02E-04
	18	327.67	2.19E+02	127.45	9.92E-03	8.45E-04
	19	338.53	7.58E+02	115.89	9.59E-03	8.22E-04
	20	352.00	1.23E+03	113.63	9.21E-03	7.94E-04
	21	408.15	1.56E+02	112.01	7.91E-03	7.04E-04
	22	462.90	1.59E+02	78.25	6.95E-03	6.81E-04

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	23	510.66	3.79E+02	87.64	6.29E-03	6.61E-04
	24	583.01	1.11E+03	99.22	5.51E-03	6.31E-04
	25	609.10	8.21E+02	105.63	5.28E-03	6.21E-04
	26	641.44	5.76E+01	59.59	5.02E-03	6.07E-04
	27	727.18	2.76E+02	68.69	4.45E-03	5.16E-04
	28	768.17	9.08E+01	45.63	4.23E-03	4.65E-04
M	29	790.69	3.67E+01	38.48	4.12E-03	4.37E-04
m	30	795.22	1.28E+02	50.44	4.10E-03	4.31E-04
	31	860.05	1.27E+02	55.68	3.81E-03	3.50E-04
	32	911.20	6.68E+02	77.26	3.62E-03	2.99E-04
M	33	964.69	1.15E+02	34.26	3.44E-03	2.86E-04
m	34	969.01	3.38E+02	52.76	3.43E-03	2.85E-04
	35	1001.03	2.44E+01	27.18	3.33E-03	2.78E-04
	36	1120.35	1.94E+02	55.56	3.01E-03	2.50E-04
	37	1145.68	5.12E+01	41.18	2.96E-03	2.44E-04
	38	1155.39	3.00E+01	32.92	2.93E-03	2.42E-04
	39	1238.64	7.49E+01	41.44	2.76E-03	2.33E-04
	40	1281.82	3.98E+01	35.14	2.68E-03	2.30E-04
	41	1376.46	4.96E+01	33.94	2.52E-03	2.21E-04
	42	1407.78	2.68E+01	31.84	2.47E-03	2.16E-04
	43	1460.53	4.61E+02	56.82	2.39E-03	2.08E-04
	44	1494.63	3.49E+01	22.96	2.34E-03	2.03E-04
	45	1579.72	1.56E+01	20.00	2.22E-03	1.90E-04
M	46	1587.58	3.53E+01	21.73	2.21E-03	1.89E-04
m	47	1592.04	6.83E+01	29.39	2.20E-03	1.88E-04
	48	1630.16	2.69E+01	17.78	2.16E-03	1.82E-04
	49	1638.61	2.43E+01	15.53	2.15E-03	1.81E-04
	50	1676.56	1.14E+01	12.96	2.10E-03	1.75E-04
	51	1716.36	1.15E+01	14.87	2.05E-03	1.69E-04
	52	1764.18	9.56E+01	33.88	2.00E-03	1.62E-04
	53	1848.17	3.46E+01	26.50	1.91E-03	1.51E-04
	54	1872.23	1.32E+01	16.37	1.88E-03	1.51E-04
	55	2051.50	1.60E+01	16.55	1.71E-03	1.51E-04
	56	2079.54	1.59E+01	18.22	1.69E-03	1.51E-04
	57	2103.51	3.73E+01	26.90	1.67E-03	1.51E-04
	58	2131.64	1.29E+01	16.05	1.64E-03	1.51E-04
M	59	2195.88	2.19E+01	17.15	1.59E-03	1.51E-04
m	60	2203.79	2.23E+01	19.55	1.58E-03	1.51E-04
	61	2339.54	2.56E+01	22.59	1.47E-03	1.51E-04
	62	2447.12	2.35E+01	21.59	1.39E-03	1.51E-04
	63	2555.55	1.16E+01	9.29	1.32E-03	1.51E-04
	64	2613.97	3.18E+02	36.63	1.28E-03	1.51E-04
	65	2709.02	5.00E+00	4.47	1.22E-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

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/21/2017 5:21:09PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.13	1.60E+02	110.38	2.81E+01	8.29E+00	1.32E+02	1.11E+02
	2	63.30	2.99E+02	173.58	5.67E+01	8.57E+00	2.42E+02	1.74E+02
	3	76.18	5.81E+03	332.17			5.81E+03	3.32E+02
M	4	84.53	5.54E+02	137.07			5.54E+02	1.37E+02
m	5	87.27	1.02E+03	168.02			1.02E+03	1.68E+02
m	6	89.94	9.97E+02	228.89			9.97E+02	2.29E+02
m	7	93.24	1.27E+03	182.14	5.99E+01	8.61E+00	1.21E+03	1.82E+02
	8	105.27	2.38E+02	173.02			2.38E+02	1.73E+02
	9	129.39	3.48E+02	170.66			3.48E+02	1.71E+02
	10	154.64	1.65E+02	156.29			1.65E+02	1.56E+02
	11	185.77	6.01E+02	179.29	2.43E+01	7.50E+00	5.77E+02	1.79E+02
	12	209.02	3.21E+02	153.61			3.21E+02	1.54E+02
	13	239.20	5.00E+03	222.23	1.06E+01	6.01E+00	4.99E+03	2.22E+02
	14	270.18	2.86E+02	117.06			2.86E+02	1.17E+02
	15	277.48	1.55E+02	102.92			1.55E+02	1.03E+02
M	16	295.39	8.19E+02	96.52			8.19E+02	9.65E+01
m	17	300.35	3.99E+02	109.40			3.99E+02	1.09E+02
	18	327.67	2.19E+02	127.45			2.19E+02	1.27E+02
	19	338.53	7.58E+02	115.89			7.58E+02	1.16E+02
	20	352.00	1.23E+03	113.63			1.23E+03	1.14E+02
	21	408.15	1.56E+02	112.01			1.56E+02	1.12E+02
	22	462.90	1.59E+02	78.25			1.59E+02	7.82E+01
	23	510.66	3.79E+02	87.64	4.55E+01	4.99E+00	3.34E+02	8.78E+01
	24	583.01	1.11E+03	99.22			1.11E+03	9.92E+01
	25	609.10	8.21E+02	105.63			8.21E+02	1.06E+02
	26	641.44	5.76E+01	59.59			5.76E+01	5.96E+01
	27	727.18	2.76E+02	68.69			2.76E+02	6.87E+01
	28	768.17	9.08E+01	45.63			9.08E+01	4.56E+01
M	29	790.69	3.67E+01	38.48			3.67E+01	3.85E+01
m	30	795.22	1.28E+02	50.44			1.28E+02	5.04E+01
	31	860.05	1.27E+02	55.68			1.27E+02	5.57E+01
	32	911.20	6.68E+02	77.26			6.68E+02	7.73E+01
M	33	964.69	1.15E+02	34.26			1.15E+02	3.43E+01
m	34	969.01	3.38E+02	52.76			3.38E+02	5.28E+01
	35	1001.03	2.44E+01	27.18			2.44E+01	2.72E+01
	36	1120.35	1.94E+02	55.56			1.94E+02	5.56E+01
	37	1145.68	5.12E+01	41.18			5.12E+01	4.12E+01
	38	1155.39	3.00E+01	32.92			3.00E+01	3.29E+01
	39	1238.64	7.49E+01	41.44			7.49E+01	4.14E+01
	40	1281.82	3.98E+01	35.14			3.98E+01	3.51E+01
	41	1376.46	4.96E+01	33.94			4.96E+01	3.39E+01
	42	1407.78	2.68E+01	31.84			2.68E+01	3.18E+01
	43	1460.53	4.61E+02	56.82			4.61E+02	5.68E+01
	44	1494.63	3.49E+01	22.96			3.49E+01	2.30E+01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	45	1579.72	1.56E+01	20.00			1.56E+01	2.00E+01
M	46	1587.58	3.53E+01	21.73			3.53E+01	2.17E+01
m	47	1592.04	6.83E+01	29.39			6.83E+01	2.94E+01
	48	1630.16	2.69E+01	17.78			2.69E+01	1.78E+01
	49	1638.61	2.43E+01	15.53			2.43E+01	1.55E+01
	50	1676.56	1.14E+01	12.96			1.14E+01	1.30E+01
	51	1716.36	1.15E+01	14.87			1.15E+01	1.49E+01
	52	1764.18	9.56E+01	33.88			9.56E+01	3.39E+01
	53	1848.17	3.46E+01	26.50			3.46E+01	2.65E+01
	54	1872.23	1.32E+01	16.37			1.32E+01	1.64E+01
	55	2051.50	1.60E+01	16.55			1.60E+01	1.66E+01
	56	2079.54	1.59E+01	18.22			1.59E+01	1.82E+01
	57	2103.51	3.73E+01	26.90			3.73E+01	2.69E+01
	58	2131.64	1.29E+01	16.05			1.29E+01	1.61E+01
M	59	2195.88	2.19E+01	17.15			2.19E+01	1.72E+01
m	60	2203.79	2.23E+01	19.55			2.23E+01	1.96E+01
	61	2339.54	2.56E+01	22.59			2.56E+01	2.26E+01
	62	2447.12	2.35E+01	21.59			2.35E+01	2.16E+01
	63	2555.55	1.16E+01	9.29			1.16E+01	9.29E+00
	64	2613.97	3.18E+02	36.63			3.18E+02	3.66E+01
	65	2709.02	5.00E+00	4.47			5.00E+00	4.47E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 5:21:09PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.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	46.13	1.60E+02	110.38	2.81E+01	8.29E+00	1.32E+02	1.11E+02
	2	63.30	2.99E+02	173.58	5.67E+01	8.57E+00	2.42E+02	1.74E+02
	3	76.18	5.81E+03	332.17			5.81E+03	3.32E+02
M	4	84.53	5.54E+02	137.07			5.54E+02	1.37E+02
m	5	87.27	1.02E+03	168.02			1.02E+03	1.68E+02
m	6	89.94	9.97E+02	228.89			9.97E+02	2.29E+02
m	7	93.24	1.27E+03	182.14	5.99E+01	8.61E+00	1.21E+03	1.82E+02

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	8	105.27	2.38E+02	173.02			2.38E+02	1.73E+02
	9	129.39	3.48E+02	170.66			3.48E+02	1.71E+02
	10	154.64	1.65E+02	156.29			1.65E+02	1.56E+02
	11	185.77	6.01E+02	179.29	2.43E+01	7.50E+00	5.77E+02	1.79E+02
	12	209.02	3.21E+02	153.61			3.21E+02	1.54E+02
	13	239.20	5.00E+03	222.23	1.06E+01	6.01E+00	4.99E+03	2.22E+02
	14	270.18	2.86E+02	117.06			2.86E+02	1.17E+02
	15	277.48	1.55E+02	102.92			1.55E+02	1.03E+02
M	16	295.39	8.19E+02	96.52			8.19E+02	9.65E+01
m	17	300.35	3.99E+02	109.40			3.99E+02	1.09E+02
	18	327.67	2.19E+02	127.45			2.19E+02	1.27E+02
	19	338.53	7.58E+02	115.89			7.58E+02	1.16E+02
	20	352.00	1.23E+03	113.63			1.23E+03	1.14E+02
	21	408.15	1.56E+02	112.01			1.56E+02	1.12E+02
	22	462.90	1.59E+02	78.25			1.59E+02	7.82E+01
	23	510.66	3.79E+02	87.64	4.55E+01	4.99E+00	3.34E+02	8.78E+01
	24	583.01	1.11E+03	99.22			1.11E+03	9.92E+01
	25	609.10	8.21E+02	105.63			8.21E+02	1.06E+02
	26	641.44	5.76E+01	59.59			5.76E+01	5.96E+01
	27	727.18	2.76E+02	68.69			2.76E+02	6.87E+01
	28	768.17	9.08E+01	45.63			9.08E+01	4.56E+01
M	29	790.69	3.67E+01	38.48			3.67E+01	3.85E+01
m	30	795.22	1.28E+02	50.44			1.28E+02	5.04E+01
	31	860.05	1.27E+02	55.68			1.27E+02	5.57E+01
	32	911.20	6.68E+02	77.26			6.68E+02	7.73E+01
M	33	964.69	1.15E+02	34.26			1.15E+02	3.43E+01
m	34	969.01	3.38E+02	52.76			3.38E+02	5.28E+01
	35	1001.03	2.44E+01	27.18			2.44E+01	2.72E+01
	36	1120.35	1.94E+02	55.56			1.94E+02	5.56E+01
	37	1145.68	5.12E+01	41.18			5.12E+01	4.12E+01
	38	1155.39	3.00E+01	32.92			3.00E+01	3.29E+01
	39	1238.64	7.49E+01	41.44			7.49E+01	4.14E+01
	40	1281.82	3.98E+01	35.14			3.98E+01	3.51E+01
	41	1376.46	4.96E+01	33.94			4.96E+01	3.39E+01
	42	1407.78	2.68E+01	31.84			2.68E+01	3.18E+01
	43	1460.53	4.61E+02	56.82			4.61E+02	5.68E+01
	44	1494.63	3.49E+01	22.96			3.49E+01	2.30E+01
	45	1579.72	1.56E+01	20.00			1.56E+01	2.00E+01
M	46	1587.58	3.53E+01	21.73			3.53E+01	2.17E+01
m	47	1592.04	6.83E+01	29.39			6.83E+01	2.94E+01
	48	1630.16	2.69E+01	17.78			2.69E+01	1.78E+01
	49	1638.61	2.43E+01	15.53			2.43E+01	1.55E+01
	50	1676.56	1.14E+01	12.96			1.14E+01	1.30E+01
	51	1716.36	1.15E+01	14.87			1.15E+01	1.49E+01
	52	1764.18	9.56E+01	33.88			9.56E+01	3.39E+01
	53	1848.17	3.46E+01	26.50			3.46E+01	2.65E+01
	54	1872.23	1.32E+01	16.37			1.32E+01	1.64E+01
	55	2051.50	1.60E+01	16.55			1.60E+01	1.66E+01
	56	2079.54	1.59E+01	18.22			1.59E+01	1.82E+01
	57	2103.51	3.73E+01	26.90			3.73E+01	2.69E+01
	58	2131.64	1.29E+01	16.05			1.29E+01	1.61E+01
M	59	2195.88	2.19E+01	17.15			2.19E+01	1.72E+01
m	60	2203.79	2.23E+01	19.55			2.23E+01	1.96E+01
	61	2339.54	2.56E+01	22.59			2.56E+01	2.26E+01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
62	2447.12	2.35E+01	21.59			2.35E+01	2.16E+01
63	2555.55	1.16E+01	9.29			1.16E+01	9.29E+00
64	2613.97	3.18E+02	36.63			3.18E+02	3.66E+01
65	2709.02	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	0.988	1460.81	*	10.67	2.02E+01	3.08E+00
CD-109	0.911	88.03	*	3.72	1.50E+01	2.96E+00
EU-155	0.944	86.50	*	30.90	1.62E+00	3.04E-01
		105.30	*	20.70	5.75E-01	4.20E-01
TL-208	0.959	583.14	*	30.22	7.42E+00	1.08E+00
		860.37	*	4.48	8.31E+00	3.72E+00
		2614.66	*	35.85	7.74E+00	1.28E+00
PB-210	0.978	46.50	*	4.25	2.14E+00	1.81E+00
BI-212	0.776	727.17	*	11.80	5.87E+00	1.61E+00
		1620.62		2.75		
PB-212	0.953	238.63	*	44.60	9.21E+00	8.77E-01
		300.09	*	3.41	1.21E+01	3.45E+00
BI-214	0.991	609.31	*	46.30	3.75E+00	6.54E-01
		1120.29	*	15.10	4.76E+00	1.42E+00
		1764.49	*	15.80	3.38E+00	1.23E+00
		2204.22	*	4.98	3.17E+00	2.79E+00
PB-214	0.998	295.21	*	19.19	4.32E+00	6.23E-01
		351.92	*	37.19	4.02E+00	5.07E-01
RA-226	0.969	186.21	*	3.28	1.16E+01	2.15E+01
AC-228	0.997	338.32	*	11.40	7.74E+00	1.36E+00
		911.07	*	27.70	7.45E+00	1.06E+00
		969.11	*	16.60	6.65E+00	1.17E+00
PA-234M	1.000	1001.03	*	0.92	8.88E+00	9.94E+00
TH-234	1.000	63.29	*	3.80	3.31E+00	2.38E+00
CM-243	0.355	209.75	*	3.29	7.14E+00	3.47E+00
		228.14		10.60		
		277.60	*	14.00	1.06E+00	7.09E-01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

* = 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 : 8/21/2017 5:21:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.18	1.61520E+00	2.86		
M	4	84.53	1.53800E-01	12.38	Tol.	TH-231
m	6	89.94	2.76993E-01	11.48		
m	7	93.24	3.36023E-01	7.54	Sum	
	9	129.39	9.67680E-02	24.49		
	10	154.64	4.57648E-02	47.43		
	14	270.18	7.95287E-02	20.44		
	18	327.67	6.07637E-02	29.13		
	21	408.15	4.34347E-02	35.82		
	22	462.90	4.42637E-02	24.55	Sum	
	23	510.66	9.26880E-02	13.15		
	26	641.44	1.59968E-02	51.74		
	28	768.17	2.52123E-02	25.14	Sum	
M	29	790.69	1.02006E-02	52.39	Sum	
m	30	795.22	3.56783E-02	19.64	Sum	
M	33	964.69	3.19924E-02	14.87	Sum	
	37	1145.68	1.42241E-02	40.21		
	38	1155.39	8.32583E-03	54.92	Sum	
	39	1238.64	2.08109E-02	27.65		
	40	1281.82	1.10466E-02	44.18		
	41	1376.46	1.37902E-02	34.18		
	42	1407.78	7.43590E-03	59.48	Tol.	EU-152
	44	1494.63	9.69577E-03	32.88	Sum	
	45	1579.72	4.33081E-03	64.14		
M	46	1587.58	9.79612E-03	30.80	Sum	
m	47	1592.04	1.89678E-02	21.52	D-Esc	
	48	1630.16	7.47739E-03	33.02		
	49	1638.61	6.74603E-03	31.98	Sum	
	50	1676.56	3.15972E-03	56.97		
	51	1716.36	3.18866E-03	64.75		
	53	1848.17	9.60097E-03	38.33	Sum	
	54	1872.23	3.66935E-03	61.96		
	55	2051.50	4.44444E-03	51.73		
	56	2079.54	4.41919E-03	57.27		

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	57	2103.51	1.03593E-02	36.06	S-Esc	
	58	2131.64	3.58716E-03	62.16		
M	59	2195.88	6.09337E-03	39.10		
	61	2339.54	7.11539E-03	44.10		
	62	2447.12	6.53747E-03	45.86		
	63	2555.55	3.23413E-03	39.88	Sum	
	65	2709.02	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	0.98	1460.81	*	10.67	2.02E+01	3.08E+00
CD-109	0.91	88.03	*	3.72	1.50E+01	2.96E+00
EU-155	0.94	86.50	*	30.90	1.62E+00	3.04E-01
		105.30	*	20.70	5.75E-01	4.20E-01
TL-208	0.95	583.14	*	30.22	7.42E+00	1.08E+00
		860.37	*	4.48	8.31E+00	3.72E+00
		2614.66	*	35.85	7.74E+00	1.28E+00
PB-210	0.97	46.50	*	4.25	2.14E+00	1.81E+00
BI-212	0.77	727.17	*	11.80	5.87E+00	1.61E+00
		1620.62		2.75		
PB-212	0.95	238.63	*	44.60	9.21E+00	8.77E-01
		300.09	*	3.41	1.21E+01	3.45E+00
BI-214	0.99	609.31	*	46.30	3.75E+00	6.54E-01
		1120.29	*	15.10	4.76E+00	1.42E+00
		1764.49	*	15.80	3.38E+00	1.23E+00
		2204.22	*	4.98	3.17E+00	2.79E+00
PB-214	0.99	295.21	*	19.19	4.32E+00	6.23E-01
		351.92	*	37.19	4.02E+00	5.07E-01
RA-226	0.96	186.21	*	3.28	1.16E+01	2.15E+01
AC-228	0.99	338.32	*	11.40	7.74E+00	1.36E+00
		911.07	*	27.70	7.45E+00	1.06E+00

Analysis Report for 1707086-09

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AC-228	0.99	969.11	*	16.60	6.65E+00	1.17E+00
PA-234M	1.00	1001.03	*	0.92	8.88E+00	9.94E+00
TH-234	1.00	63.29	*	3.80	3.31E+00	2.38E+00
CM-243	0.35	209.75	*	3.29	7.14E+00	3.47E+00
		228.14		10.60		
		277.60	*	14.00	1.06E+00	7.09E-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	2.02E+01	3.08E+00	
	CD-109	0.911	9.69E+00	4.81E+00	
X	SN-126	0.986			
	EU-155	0.944	5.75E-01	4.20E-01	
	TL-208	0.959	7.59E+00	8.05E-01	
	PB-210	0.978	2.14E+00	1.81E+00	
	BI-212	0.776	5.87E+00	1.61E+00	
	PB-212	0.953	9.38E+00	8.50E-01	
	BI-214	0.991	3.80E+00	5.25E-01	
	PB-214	0.998	4.14E+00	3.93E-01	
	RA-226	0.969	1.16E+01	2.15E+01	
	AC-228	0.997	7.25E+00	6.80E-01	
	PA-234M	1.000	8.88E+00	9.94E+00	
	TH-234	1.000	3.31E+00	2.38E+00	
X	NP-237	0.910			
	CM-243	0.355	1.30E+00	6.95E-01	

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

? = 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 1707086-09

HTC-A02-S004-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 5:21:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.18	1.61520E+00	2.86		
M	4	84.53	1.53800E-01	12.38	Tol.	TH-231
m	6	89.94	2.76993E-01	11.48		
m	7	93.24	3.36023E-01	7.54	Sum	
	9	129.39	9.67680E-02	24.49		
	10	154.64	4.57648E-02	47.43		
	14	270.18	7.95287E-02	20.44		
	18	327.67	6.07637E-02	29.13		
	21	408.15	4.34347E-02	35.82		
	22	462.90	4.42637E-02	24.55	Sum	
	23	510.66	9.26880E-02	13.15		
	26	641.44	1.59968E-02	51.74		
	28	768.17	2.52123E-02	25.14	Sum	
M	29	790.69	1.02006E-02	52.39	Sum	
m	30	795.22	3.56783E-02	19.64	Sum	
M	33	964.69	3.19924E-02	14.87	Sum	
	37	1145.68	1.42241E-02	40.21		
	38	1155.39	8.32583E-03	54.92	Sum	
	39	1238.64	2.08109E-02	27.65		
	40	1281.82	1.10466E-02	44.18		
	41	1376.46	1.37902E-02	34.18		
	42	1407.78	7.43590E-03	59.48	Tol.	EU-152
	44	1494.63	9.69577E-03	32.88	Sum	
	45	1579.72	4.33081E-03	64.14		
M	46	1587.58	9.79612E-03	30.80	Sum	
m	47	1592.04	1.89678E-02	21.52	D-Esc	
	48	1630.16	7.47739E-03	33.02		
	49	1638.61	6.74603E-03	31.98	Sum	
	50	1676.56	3.15972E-03	56.97		
	51	1716.36	3.18866E-03	64.75		
	53	1848.17	9.60097E-03	38.33	Sum	
	54	1872.23	3.66935E-03	61.96		
	55	2051.50	4.44444E-03	51.73		
	56	2079.54	4.41919E-03	57.27		
	57	2103.51	1.03593E-02	36.06	S-Esc	

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	58	2131.64	3.58716E-03	62.16		
M	59	2195.88	6.09337E-03	39.10		
	61	2339.54	7.11539E-03	44.10		
	62	2447.12	6.53747E-03	45.86		
	63	2555.55	3.23413E-03	39.88	Sum	
	65	2709.02	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	2.09E+00	4.92E+00	4.92E+00
+	NA-22	1274.54		99.94	3.84E-02	2.08E-01	2.08E-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	6.35E-02	1.69E-01	1.69E-01
+	K-40	1460.81	*	10.67	2.02E+01	2.80E+00	2.80E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	8.16E-03	1.51E-01	1.51E-01
		78.34		96.00	1.92E+00		2.07E-01
+	SC-46	889.25		99.98	-5.46E-04	3.81E-01	3.81E-01
		1120.51		99.99	1.54E+00		6.85E-01
+	V-48	983.52		99.98	-2.00E+00	1.16E+01	1.16E+01
		1312.10		97.50	-6.08E+00		1.26E+01
+	CR-51	320.08		9.83	-1.64E+00	1.49E+01	1.49E+01
+	MN-54	834.83		99.97	-2.09E-02	2.47E-01	2.47E-01
+	CO-56	846.75		99.96	-1.00E-01	4.03E-01	4.03E-01
		1037.75		14.03	-1.17E+00		2.99E+00
		1238.25		67.00	9.87E-01		8.96E-01
		1771.40		15.51	-5.41E-02		2.27E+00
		2598.48		16.90	-2.64E-01		1.46E+00
+	CO-57	122.06		85.51	-7.25E-02	1.60E-01	1.60E-01
		136.48		10.60	-8.15E-01		1.32E+00
+	CO-58	810.76		99.40	-1.88E-01	4.62E-01	4.62E-01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	FE-59	1099.22		56.50	-5.21E-01	1.44E+00	1.44E+00
		1291.56		43.20	2.37E-01		1.86E+00
+	CO-60	1173.22		100.00	1.35E-02	1.90E-01	2.11E-01
		1332.49		100.00	9.49E-03		1.90E-01
+	ZN-65	1115.52		50.75	1.23E-01	6.54E-01	6.54E-01
+	GA-67	93.31		35.70	1.50E+09	4.74E+08	4.74E+08
		208.95		2.24	1.26E+10		7.43E+09
		300.22		16.00	-2.19E+09		1.15E+09
+	SE-75	121.11		16.70	-1.76E-01	3.30E-01	1.12E+00
		136.00		59.20	-5.90E-02		3.30E-01
		264.65		59.80	6.14E-02		3.54E-01
		279.53		25.20	4.76E-01		9.21E-01
		400.65		11.40	1.90E-01		2.14E+00
+	RB-82	776.52		13.00	5.14E+00	2.06E+01	2.06E+01
+	RB-83	520.41		46.00	-3.32E-01	6.58E-01	6.58E-01
		529.64		30.30	-3.27E-01		1.03E+00
		552.65		16.40	-8.15E-01		1.96E+00
+	KR-85	513.99		0.43	3.93E+00	4.76E+01	4.76E+01
+	SR-85	513.99		99.27	4.83E-02	5.85E-01	5.85E-01
+	Y-88	898.02		93.40	-7.68E-02	3.17E-01	3.34E-01
		1836.01		99.38	2.30E-02		3.17E-01
+	MO-93	263.06		56.72	4.67E-02	1.76E-01	2.16E-01
		684.67		99.68	7.73E-02		1.92E-01
		1477.11		99.08	7.24E-02		1.76E-01
+	NB-93M	16.57		9.43	4.07E+01	1.28E+01	1.28E+01
+	NB-94	702.63		100.00	4.06E-02	1.67E-01	2.06E-01
		871.10		100.00	-5.40E-02		1.67E-01
+	NB-95	765.79		99.81	3.31E-01	1.57E+00	1.57E+00
+	NB-95M	235.69		25.00	8.60E+08	1.56E+08	1.56E+08
+	ZR-95	724.18		43.70	1.57E-01	1.03E+00	1.69E+00
		756.72		55.30	-3.25E-01		1.03E+00
+	MO-99	181.06		6.20	-1.29E+10	7.78E+10	1.12E+11
		739.58		12.80	-2.04E+10		7.78E+10
		778.00		4.50	-4.03E+10		2.31E+11
+	RU-103	497.08		89.00	1.65E-01	9.14E-01	9.14E-01
+	RU-106	621.84		9.80	-4.03E-01	1.87E+00	1.87E+00
+	AG-108M	433.93		89.90	-1.27E-01	1.48E-01	1.48E-01
		614.37		90.40	4.57E-02		1.77E-01
		722.95		90.50	2.60E-02		2.51E-01
+	CD-109	88.03	*	3.72	1.50E+01	7.53E+00	7.53E+00
+	AG-110M	657.75		93.14	-3.84E-02	2.53E-01	2.53E-01
		677.61		10.53	-2.05E-01		2.43E+00
		706.67		16.46	2.48E-01		1.62E+00
		763.93		21.98	1.46E-01		1.21E+00
		884.67		71.63	-5.77E-02		3.23E-01
		1384.27		23.94	3.77E-01		9.99E-01
+	CD-113M	263.70		0.02	-5.19E+01	5.19E+02	5.19E+02
+	SN-113	255.12		1.93	-5.59E+00	3.90E-01	1.14E+01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SN-113	391.69		64.90	-3.34E-02	3.90E-01	3.90E-01
+	TE123M	159.00		84.10	3.20E-02	2.41E-01	2.41E-01
+	SB-124	602.71		97.87	-1.15E-04	4.95E-01	4.95E-01
		645.85		7.26	-1.94E+00		6.40E+00
		722.78		11.10	6.56E-01		6.34E+00
		1691.02		49.00	4.87E-01		1.04E+00
+	I-125	35.49		6.49	-6.09E+00	9.17E+00	9.17E+00
+	SB-125	176.33		6.89	4.21E-02	5.15E-01	1.82E+00
		427.89		29.33	3.73E-01		5.15E-01
		463.38		10.35	1.91E+00		1.75E+00
		600.56		17.80	7.03E-02		9.06E-01
		635.90		11.32	3.88E-01		1.42E+00
+	SB-126	414.70		83.30	-2.91E+00	4.05E+01	4.05E+01
		666.33		99.60	2.79E+01		4.81E+01
		695.00		99.60	1.09E+01		4.67E+01
		720.50		53.80	9.92E+00		8.74E+01
+	SN-126	87.57	*	37.00	1.30E+00	6.54E-01	6.54E-01
+	SB-127	473.00		25.00	-4.85E+06	2.57E+07	2.78E+07
		685.20		35.70	1.03E+07		2.57E+07
		783.80		14.70	7.09E+07		6.62E+07
+	I-129	29.78		57.00	-1.29E-01	4.85E-01	4.85E-01
		33.60		13.20	9.73E-01		1.64E+00
		39.58		7.52	-1.67E+00		2.13E+00
+	I-131	284.30		6.05	-1.79E+03	7.68E+02	9.66E+03
		364.48		81.20	-1.38E+02		7.68E+02
		636.97		7.26	1.88E+03		1.01E+04
		722.89		1.80	6.26E+03		6.04E+04
+	TE-132	49.72		13.10	-9.92E+08	1.74E+08	1.27E+09
		228.16		88.00	2.38E+07		1.74E+08
+	BA-133	81.00		33.00	-2.93E+00	3.03E-01	4.59E-01
		302.84		17.80	1.06E+00		7.89E-01
		356.01		60.00	1.38E-02		3.03E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.10E+06	1.73E+05	1.73E+05
+	CS-134	563.23		8.38	1.24E+00	2.13E-01	2.07E+00
		569.32		15.43	1.88E-02		1.10E+00
		604.70		97.60	-1.68E+00		2.13E-01
		795.84		85.40	3.81E-01		2.83E-01
		801.93		8.73	1.18E+00		2.30E+00
+	CS-135	268.24		16.00	1.40E+00	8.73E-01	8.73E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	1.85E+02	3.06E+01	2.82E+02
		163.89		4.61	-1.15E+02		4.40E+02
		176.55		13.56	2.67E+01		1.54E+02
		273.65		12.66	-2.59E+02		1.92E+02
		340.57		48.50	2.46E+02		6.89E+01
		818.50		99.70	8.66E+00		3.06E+01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	1048.07	79.60	5.68E+00	3.06E+01	3.96E+01
		1235.34	19.70	8.83E+00		2.28E+02
+	CS-137	661.65	85.12	1.23E-02	2.23E-01	2.23E-01
+	LA-138	788.74	34.00	-1.00E+00	2.51E-01	5.80E-01
		1435.80	66.00	-1.13E-01		2.51E-01
+	CE-139	165.85	80.35	1.43E-01	2.36E-01	2.36E-01
+	BA-140	162.64	6.70	-1.22E+02	1.23E+02	3.49E+02
		304.84	4.50	-5.31E+01		5.35E+02
		423.70	3.20	-8.89E+01		8.95E+02
		437.55	2.00	-3.22E+02		1.42E+03
		537.32	25.00	-7.53E+00		1.23E+02
+	LA-140	328.77	20.50	1.80E+02	4.97E+01	1.49E+02
		487.03	45.50	2.63E+01		6.45E+01
		815.85	23.50	-3.68E+01		1.48E+02
		1596.49	95.49	2.80E+00		4.97E+01
+	CE-141	145.44	48.40	7.98E-01	1.92E+00	1.92E+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	1.04E-01	1.33E+00	1.33E+00
+	PM-144	476.78	42.00	-1.13E-01	1.89E-01	4.03E-01
		618.01	98.60	5.28E-02		1.89E-01
		696.49	99.49	-8.03E-02		2.33E-01
+	PM-145	36.85	21.70	-6.32E-02	4.50E-01	8.43E-01
		37.36	39.70	-3.38E-02		4.50E-01
		42.30	15.10	5.62E-02		1.01E+00
		72.40	2.31	-4.16E+01		7.35E+00
+	PM-146	453.90	39.94	1.15E-01	3.56E-01	3.56E-01
		735.90	14.01	6.78E-01		1.26E+00
		747.13	13.10	-1.46E-02		1.43E+00
+	ND-147	91.11	28.90	9.45E+02	2.62E+02	2.62E+02
		531.02	13.10	-1.54E+02		5.52E+02
+	PM-149	285.90	3.10	3.05E+13	9.59E+13	9.59E+13
+	EU-152	121.78	20.50	-2.38E-01	5.25E-01	5.25E-01
		244.69	5.40	1.75E-01		2.65E+00
		344.27	19.13	1.14E-01		6.89E-01
		778.89	9.20	-6.98E-01		1.96E+00
		964.01	10.40	-1.12E-01		2.57E+00
		1085.78	7.22	3.44E-01		2.75E+00
		1112.02	9.60	6.30E-01		2.09E+00
		1407.95	14.94	5.32E-01		1.38E+00
+	GD-153	97.43	31.30	2.75E-01	4.95E-01	4.95E-01
		103.18	22.20	5.91E-02		6.50E-01
+	EU-154	123.07	40.50	-5.18E-02	2.69E-01	2.69E-01
		723.30	19.70	1.23E-01		1.32E+00
		873.19	11.50	8.41E-01		1.57E+00
		996.32	10.30	-1.48E-01		1.76E+00
		1004.76	17.90	-3.08E-01		1.06E+00
		1274.45	35.50	1.03E-01		5.56E-01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-155	86.50	*	30.90	1.62E+00	6.82E-01	8.12E-01
		105.30	*	20.70	5.75E-01		6.82E-01
+	EU-156	811.77		10.40	-4.82E+01	1.49E+02	1.49E+02
		1153.47		7.20	1.01E+02		2.57E+02
		1230.71		8.90	-4.80E+01		2.02E+02
+	HO-166M	184.41		72.60	5.18E-01	1.94E-01	1.94E-01
		280.45		29.60	-3.90E-02		4.34E-01
		410.94		11.10	4.16E-01		1.32E+00
		711.69		54.10	-4.48E-02		3.52E-01
+	TM-171	66.72		0.14	6.09E+00	1.14E+02	1.14E+02
+	HF-172	67.35		5.31	1.60E-01	1.11E+00	2.99E+00
		125.81		11.30	8.76E-02		1.11E+00
+	LU-172	181.53		20.60	-4.93E+04	8.08E+03	1.58E+04
		900.72		29.81	-4.42E+03		1.49E+04
		1093.66		62.50	5.50E+02		8.08E+03
+	LU-173	100.72		5.24	8.91E-01	7.75E-01	2.33E+00
		272.11		21.20	8.77E-01		7.75E-01
+	HF-175	343.40		84.00	6.76E-02	4.09E-01	4.09E-01
+	LU-176	88.34		13.30	1.09E+00	1.20E-01	1.14E+00
		201.83		86.00	2.51E-02		1.47E-01
		306.78		94.00	-6.83E-02		1.20E-01
+	HF-181	133.02		41.70	2.23E-01	8.26E-01	1.39E+00
		345.85		17.20	-2.60E+00		3.62E+00
		482.03		82.80	-5.14E-01		8.26E-01
+	TA-182	67.75		41.20	3.38E-02	6.25E-01	6.25E-01
		1121.30		34.90	3.38E+00		1.56E+00
		1189.05		16.23	-1.60E-01		2.18E+00
		1221.41		26.98	8.32E-01		1.44E+00
		1231.02		11.44	-1.37E-01		3.23E+00
+	IR-192	308.46		29.68	1.84E-01	7.50E-01	1.01E+00
		468.07		48.10	2.28E-02		7.50E-01
+	HG-203	279.19		77.30	8.03E-01	7.45E-01	7.45E-01
+	TL-204	374.74		94.11	2.90E-02	1.50E-01	1.50E-01
		899.15		99.16	-3.73E-02		1.79E-01
		911.74		91.10	2.27E+00		4.70E-01
+	BI-207	569.67		97.72	2.73E-03	1.60E-01	1.60E-01
		1063.62		74.90	7.00E-02		2.39E-01
+	TL-208	583.14	*	30.22	7.42E+00	4.01E-01	8.31E-01
		860.37	*	4.48	8.31E+00		5.65E+00
		2614.66	*	35.85	7.74E+00		4.01E-01
+	BI-210M	262.00		45.00	1.50E-01	2.74E-01	2.74E-01
		300.00		23.00	-1.28E+00		6.71E-01
+	PB-210	46.50	*	4.25	2.14E+00	2.94E+00	2.94E+00
+	PB-211	404.84		2.90	-1.52E+00	4.93E+00	4.93E+00
		831.96		2.90	2.40E+00		6.89E+00
+	BI-212	727.17	*	11.80	5.87E+00	2.16E+00	2.16E+00
		1620.62		2.75	2.62E+00		7.53E+00
+	PB-212	238.63	*	44.60	9.21E+00	5.26E-01	5.26E-01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-212	300.09	*	3.41	1.21E+01	5.26E-01	7.04E+00
+	BI-214	609.31	*	46.30	3.75E+00	6.80E-01	6.80E-01
		1120.29	*	15.10	4.76E+00		2.01E+00
		1764.49	*	15.80	3.38E+00		1.71E+00
		2204.22	*	4.98	3.17E+00		7.31E+00
+	PB-214	295.21	*	19.19	4.32E+00	4.88E-01	1.22E+00
		351.92	*	37.19	4.02E+00		4.88E-01
+	RN-219	401.80		6.50	-2.98E-01	2.10E+00	2.10E+00
+	RA-223	323.87		3.88	-7.68E+00	3.34E+00	3.34E+00
+	RA-224	240.98		3.95	9.53E+01	7.36E+00	7.36E+00
+	RA-225	40.00		31.00	-3.98E+01	5.08E+01	5.08E+01
+	RA-226	186.21	*	3.28	1.16E+01	5.77E+00	5.77E+00
+	TH-227	50.10		8.40	-1.27E+00	1.62E+00	1.62E+00
		236.00		11.50	1.19E+01		2.15E+00
		256.20		6.30	2.45E-01		1.97E+00
+	AC-228	338.32	*	11.40	7.74E+00	1.08E+00	1.74E+00
		911.07	*	27.70	7.45E+00		1.08E+00
		969.11	*	16.60	6.65E+00		1.61E+00
+	TH-230	48.44		16.90	-4.02E-01	8.23E-01	8.23E-01
		62.85		4.60	3.34E+00		3.21E+00
		67.67		0.37	2.08E+00		3.84E+01
+	PA-231	283.67		1.60	-1.40E+00	6.00E+00	7.59E+00
		302.67		2.30	8.08E+00		6.00E+00
+	TH-231	25.64		14.70	1.17E-01	2.14E+00	2.67E+00
		84.21		6.40	-4.71E+00		2.14E+00
+	PA-233	311.98		38.60	1.44E+00	4.05E+00	4.05E+00
+	PA-234	131.20		20.40	7.26E-01	5.84E-01	5.84E-01
		733.99		8.80	2.55E-01		1.90E+00
		946.00		12.00	-7.05E-01		1.45E+00
+	PA-234M	1001.03	*	0.92	8.88E+00	1.62E+01	1.62E+01
+	TH-234	63.29	*	3.80	3.31E+00	3.87E+00	3.87E+00
+	U-235	143.76		10.50	2.50E-01	1.08E+00	1.08E+00
		163.35		4.70	-8.49E-01		2.42E+00
		205.31		4.70	-5.58E-01		2.76E+00
+	NP-237	86.50	*	12.60	3.83E+00	1.92E+00	1.92E+00
+	NP-239	106.10		22.70	2.04E+12	1.80E+12	1.80E+12
		228.18		10.70	5.98E+11		4.36E+12
		277.60		14.10	4.43E+12		3.51E+12
+	AM-241	59.54		35.90	-7.33E-02	4.01E-01	4.01E-01
+	AM-243	74.67		66.00	3.57E+00	3.19E-01	3.19E-01
+	CM-243	209.75	*	3.29	7.14E+00	1.14E+00	5.53E+00
		228.14		10.60	1.64E-01		1.20E+00
		277.60	*	14.00	1.06E+00		1.14E+00

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

+ = 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	4.92E+00	4.92E+00	2.09E+00	2.38E+00
	NA-22	1274.54		99.94	2.08E-01	2.08E-01	3.84E-02	9.79E-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	1.69E-01	1.69E-01	6.35E-02	7.67E-02
+	K-40	1460.81	*	10.67	2.80E+00	2.80E+00	2.02E+01	1.34E+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	1.51E-01	1.51E-01	8.16E-03	7.46E-02
		78.34		96.00	2.07E-01		1.92E+00	1.03E-01
	SC-46	889.25		99.98	3.81E-01	3.81E-01	-5.46E-04	1.81E-01
		1120.51		99.99	6.85E-01		1.54E+00	3.31E-01
	V-48	983.52		99.98	1.16E+01	1.16E+01	-2.00E+00	5.48E+00
		1312.10		97.50	1.26E+01		-6.08E+00	5.88E+00
	CR-51	320.08		9.83	1.49E+01	1.49E+01	-1.64E+00	7.25E+00
	MN-54	834.83		99.97	2.47E-01	2.47E-01	-2.09E-02	1.19E-01
	CO-56	846.75		99.96	4.03E-01	4.03E-01	-1.00E-01	1.92E-01
		1037.75		14.03	2.99E+00		-1.17E+00	1.42E+00
		1238.25		67.00	8.96E-01		9.87E-01	4.28E-01
		1771.40		15.51	2.27E+00		-5.41E-02	1.02E+00
		2598.48		16.90	1.46E+00		-2.64E-01	5.66E-01
	CO-57	122.06		85.51	1.60E-01	1.60E-01	-7.25E-02	7.88E-02
		136.48		10.60	1.32E+00		-8.15E-01	6.52E-01
	CO-58	810.76		99.40	4.62E-01	4.62E-01	-1.88E-01	2.21E-01
	FE-59	1099.22		56.50	1.44E+00	1.44E+00	-5.21E-01	6.80E-01
		1291.56		43.20	1.86E+00		2.37E-01	8.71E-01
	CO-60	1173.22		100.00	2.11E-01	1.90E-01	1.35E-02	1.00E-01
		1332.49		100.00	1.90E-01		9.49E-03	8.88E-02
	ZN-65	1115.52		50.75	6.54E-01	6.54E-01	1.23E-01	3.14E-01
	GA-67	93.31		35.70	4.74E+08	4.74E+08	1.50E+09	2.35E+08

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	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	7.43E+09	4.74E+08	1.26E+10	3.66E+09
		300.22		16.00	1.15E+09		-2.19E+09	5.64E+08
	SE-75	121.11		16.70	1.12E+00	3.30E-01	-1.76E-01	5.53E-01
		136.00		59.20	3.30E-01		-5.90E-02	1.63E-01
		264.65		59.80	3.54E-01		6.14E-02	1.73E-01
		279.53		25.20	9.21E-01		4.76E-01	4.52E-01
		400.65		11.40	2.14E+00		1.90E-01	1.04E+00
	RB-82	776.52		13.00	2.06E+01	2.06E+01	5.14E+00	9.89E+00
	RB-83	520.41		46.00	6.58E-01	6.58E-01	-3.32E-01	3.17E-01
		529.64		30.30	1.03E+00		-3.27E-01	4.98E-01
		552.65		16.40	1.96E+00		-8.15E-01	9.47E-01
	KR-85	513.99		0.43	4.76E+01	4.76E+01	3.93E+00	2.32E+01
	SR-85	513.99		99.27	5.85E-01	5.85E-01	4.83E-02	2.86E-01
	Y-88	898.02		93.40	3.34E-01	3.17E-01	-7.68E-02	1.59E-01
		1836.01		99.38	3.17E-01		2.30E-02	1.44E-01
	MO-93	263.06		56.72	2.16E-01	1.76E-01	4.67E-02	1.06E-01
		684.67		99.68	1.92E-01		7.73E-02	9.28E-02
		1477.11		99.08	1.76E-01		7.24E-02	8.15E-02
	NB-93M	16.57		9.43	1.28E+01	1.28E+01	4.07E+01	6.29E+00
	NB-94	702.63		100.00	2.06E-01	1.67E-01	4.06E-02	9.95E-02
		871.10		100.00	1.67E-01		-5.40E-02	7.95E-02
	NB-95	765.79		99.81	1.57E+00	1.57E+00	3.31E-01	7.60E-01
	NB-95M	235.69		25.00	1.56E+08	1.56E+08	8.60E+08	7.73E+07
	ZR-95	724.18		43.70	1.69E+00	1.03E+00	1.57E-01	8.20E-01
		756.72		55.30	1.03E+00		-3.25E-01	4.94E-01
	MO-99	181.06		6.20	1.12E+11	7.78E+10	-1.29E+10	5.51E+10
		739.58		12.80	7.78E+10		-2.04E+10	3.73E+10
		778.00		4.50	2.31E+11		-4.03E+10	1.11E+11
	RU-103	497.08		89.00	9.14E-01	9.14E-01	1.65E-01	4.42E-01
	RU-106	621.84		9.80	1.87E+00	1.87E+00	-4.03E-01	8.98E-01
	AG-108M	433.93		89.90	1.48E-01	1.48E-01	-1.27E-01	7.17E-02
		614.37		90.40	1.77E-01		4.57E-02	8.51E-02
		722.95		90.50	2.51E-01		2.60E-02	1.22E-01
+	CD-109	88.03	*	3.72	7.53E+00	7.53E+00	1.50E+01	3.74E+00
	AG-110M	657.75		93.14	2.53E-01	2.53E-01	-3.84E-02	1.22E-01
		677.61		10.53	2.43E+00		-2.05E-01	1.18E+00
		706.67		16.46	1.62E+00		2.48E-01	7.84E-01
		763.93		21.98	1.21E+00		1.46E-01	5.84E-01
		884.67		71.63	3.23E-01		-5.77E-02	1.54E-01
		1384.27		23.94	9.99E-01		3.77E-01	4.66E-01
	CD-113M	263.70		0.02	5.19E+02	5.19E+02	-5.19E+01	2.54E+02
	SN-113	255.12		1.93	1.14E+01	3.90E-01	-5.59E+00	5.60E+00
		391.69		64.90	3.90E-01		-3.34E-02	1.90E-01
	TE123M	159.00		84.10	2.41E-01	2.41E-01	3.20E-02	1.19E-01
	SB-124	602.71		97.87	4.95E-01	4.95E-01	-1.15E-04	2.38E-01
		645.85		7.26	6.40E+00		-1.94E+00	3.07E+00
		722.78		11.10	6.34E+00		6.56E-01	3.07E+00
		1691.02		49.00	1.04E+00		4.87E-01	4.74E-01
	I-125	35.49		6.49	9.17E+00	9.17E+00	-6.09E+00	4.52E+00
	SB-125	176.33		6.89	1.82E+00	5.15E-01	4.21E-02	8.96E-01
		427.89		29.33	5.15E-01		3.73E-01	2.50E-01
		463.38		10.35	1.75E+00		1.91E+00	8.50E-01
		600.56		17.80	9.06E-01		7.03E-02	4.36E-01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

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	1.42E+00	5.15E-01	3.88E-01	6.81E-01
SB-126	414.70		83.30	4.05E+01	4.05E+01	-2.91E+00	1.97E+01
	666.33		99.60	4.81E+01		2.79E+01	2.33E+01
	695.00		99.60	4.67E+01		1.09E+01	2.26E+01
	720.50		53.80	8.74E+01		9.92E+00	4.22E+01
SN-126	87.57	*	37.00	6.54E-01	6.54E-01	1.30E+00	3.25E-01
SB-127	473.00		25.00	2.78E+07	2.57E+07	-4.85E+06	1.35E+07
	685.20		35.70	2.57E+07		1.03E+07	1.24E+07
	783.80		14.70	6.62E+07		7.09E+07	3.19E+07
I-129	29.78		57.00	4.85E-01	4.85E-01	-1.29E-01	2.39E-01
	33.60		13.20	1.64E+00		9.73E-01	8.06E-01
	39.58		7.52	2.13E+00		-1.67E+00	1.05E+00
I-131	284.30		6.05	9.66E+03	7.68E+02	-1.79E+03	4.72E+03
	364.48		81.20	7.68E+02		-1.38E+02	3.74E+02
	636.97		7.26	1.01E+04		1.88E+03	4.87E+03
	722.89		1.80	6.04E+04		6.26E+03	2.93E+04
TE-132	49.72		13.10	1.27E+09	1.74E+08	-9.92E+08	6.25E+08
	228.16		88.00	1.74E+08		2.38E+07	8.55E+07
BA-133	81.00		33.00	4.59E-01	3.03E-01	-2.93E+00	2.28E-01
	302.84		17.80	7.89E-01		1.06E+00	3.86E-01
	356.01		60.00	3.03E-01		1.38E-02	1.49E-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	1.73E+05	1.73E+05	-1.10E+06	8.57E+04
CS-134	563.23		8.38	2.07E+00	2.13E-01	1.24E+00	9.98E-01
	569.32		15.43	1.10E+00		1.88E-02	5.32E-01
	604.70		97.60	2.13E-01		-1.68E+00	1.03E-01
	795.84		85.40	2.83E-01		3.81E-01	1.37E-01
	801.93		8.73	2.30E+00		1.18E+00	1.11E+00
CS-135	268.24		16.00	8.73E-01	8.73E-01	1.40E+00	4.28E-01
@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22		7.46	2.82E+02	3.06E+01	1.85E+02	1.39E+02
	163.89		4.61	4.40E+02		-1.15E+02	2.17E+02
	176.55		13.56	1.54E+02		2.67E+01	7.61E+01
	273.65		12.66	1.92E+02		-2.59E+02	9.40E+01
	340.57		48.50	6.89E+01		2.46E+02	3.39E+01
	818.50		99.70	3.06E+01		8.66E+00	1.46E+01
	1048.07		79.60	3.96E+01		5.68E+00	1.87E+01
	1235.34		19.70	2.28E+02		8.83E+00	1.09E+02
CS-137	661.65		85.12	2.23E-01	2.23E-01	1.23E-02	1.08E-01
LA-138	788.74		34.00	5.80E-01	2.51E-01	-1.00E+00	2.79E-01
	1435.80		66.00	2.51E-01		-1.13E-01	1.16E-01
CE-139	165.85		80.35	2.36E-01	2.36E-01	1.43E-01	1.16E-01
BA-140	162.64		6.70	3.49E+02	1.23E+02	-1.22E+02	1.72E+02
	304.84		4.50	5.35E+02		-5.31E+01	2.61E+02
	423.70		3.20	8.95E+02		-8.89E+01	4.35E+02
	437.55		2.00	1.42E+03		-3.22E+02	6.90E+02
	537.32		25.00	1.23E+02		-7.53E+00	5.93E+01
LA-140	328.77		20.50	1.49E+02	4.97E+01	1.80E+02	7.29E+01
	487.03		45.50	6.45E+01		2.63E+01	3.12E+01
	815.85		23.50	1.48E+02		-3.68E+01	7.07E+01
	1596.49		95.49	4.97E+01		2.80E+00	2.34E+01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	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	1.92E+00	1.92E+00	7.98E-01	9.48E-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	1.33E+00	1.33E+00	1.04E-01	6.55E-01
	PM-144	476.78		42.00	4.03E-01	1.89E-01	-1.13E-01	1.95E-01
		618.01		98.60	1.89E-01		5.28E-02	9.09E-02
		696.49		99.49	2.33E-01		-8.03E-02	1.12E-01
	PM-145	36.85		21.70	8.43E-01	4.50E-01	-6.32E-02	4.15E-01
		37.36		39.70	4.50E-01		-3.38E-02	2.22E-01
		42.30		15.10	1.01E+00		5.62E-02	4.96E-01
		72.40		2.31	7.35E+00		-4.16E+01	3.65E+00
	PM-146	453.90		39.94	3.56E-01	3.56E-01	1.15E-01	1.72E-01
		735.90		14.01	1.26E+00		6.78E-01	6.04E-01
		747.13		13.10	1.43E+00		-1.46E-02	6.85E-01
	ND-147	91.11		28.90	2.62E+02	2.62E+02	9.45E+02	1.30E+02
		531.02		13.10	5.52E+02		-1.54E+02	2.66E+02
	PM-149	285.90		3.10	9.59E+13	9.59E+13	3.05E+13	4.69E+13
	EU-152	121.78		20.50	5.25E-01	5.25E-01	-2.38E-01	2.59E-01
		244.69		5.40	2.65E+00		1.75E-01	1.30E+00
		344.27		19.13	6.89E-01		1.14E-01	3.36E-01
		778.89		9.20	1.96E+00		-6.98E-01	9.38E-01
		964.01		10.40	2.57E+00		-1.12E-01	1.24E+00
		1085.78		7.22	2.75E+00		3.44E-01	1.31E+00
		1112.02		9.60	2.09E+00		6.30E-01	9.90E-01
		1407.95		14.94	1.38E+00		5.32E-01	6.48E-01
	GD-153	97.43		31.30	4.95E-01	4.95E-01	2.75E-01	2.45E-01
		103.18		22.20	6.50E-01		5.91E-02	3.21E-01
	EU-154	123.07		40.50	2.69E-01	2.69E-01	-5.18E-02	1.33E-01
		723.30		19.70	1.32E+00		1.23E-01	6.40E-01
		873.19		11.50	1.57E+00		8.41E-01	7.52E-01
		996.32		10.30	1.76E+00		-1.48E-01	8.37E-01
		1004.76		17.90	1.06E+00		-3.08E-01	5.04E-01
		1274.45		35.50	5.56E-01		1.03E-01	2.62E-01
+	EU-155	86.50	*	30.90	8.12E-01	6.82E-01	1.62E+00	4.04E-01
		105.30	*	20.70	6.82E-01		5.75E-01	3.38E-01
	EU-156	811.77		10.40	1.49E+02	1.49E+02	-4.82E+01	7.11E+01
		1153.47		7.20	2.57E+02		1.01E+02	1.22E+02
		1230.71		8.90	2.02E+02		-4.80E+01	9.57E+01
	HO-166M	184.41		72.60	1.94E-01	1.94E-01	5.18E-01	9.58E-02
		280.45		29.60	4.34E-01		-3.90E-02	2.13E-01
		410.94		11.10	1.32E+00		4.16E-01	6.45E-01
		711.69		54.10	3.52E-01		-4.48E-02	1.70E-01
	TM-171	66.72		0.14	1.14E+02	1.14E+02	6.09E+00	5.62E+01
	HF-172	67.35		5.31	2.99E+00	1.11E+00	1.60E-01	1.48E+00
		125.81		11.30	1.11E+00		8.76E-02	5.49E-01
	LU-172	181.53		20.60	1.58E+04	8.08E+03	-4.93E+04	7.79E+03
		900.72		29.81	1.49E+04		-4.42E+03	7.10E+03
		1093.66		62.50	8.08E+03		5.50E+02	3.83E+03
	LU-173	100.72		5.24	2.33E+00	7.75E-01	8.91E-01	1.15E+00
		272.11		21.20	7.75E-01		8.77E-01	3.81E-01
	HF-175	343.40		84.00	4.09E-01	4.09E-01	6.76E-02	1.99E-01
	LU-176	88.34		13.30	1.14E+00	1.20E-01	1.09E+00	5.64E-01

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	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	1.47E-01	1.20E-01	2.51E-02	7.26E-02
		306.78		94.00	1.20E-01		-6.83E-02	5.82E-02
	HF-181	133.02		41.70	1.39E+00	8.26E-01	2.23E-01	6.86E-01
		345.85		17.20	3.62E+00		-2.60E+00	1.77E+00
		482.03		82.80	8.26E-01		-5.14E-01	3.99E-01
	TA-182	67.75		41.20	6.25E-01	6.25E-01	3.38E-02	3.09E-01
		1121.30		34.90	1.56E+00		3.38E+00	7.51E-01
		1189.05		16.23	2.18E+00		-1.60E-01	1.03E+00
		1221.41		26.98	1.44E+00		8.32E-01	6.85E-01
		1231.02		11.44	3.23E+00		-1.37E-01	1.53E+00
	IR-192	308.46		29.68	1.01E+00	7.50E-01	1.84E-01	4.91E-01
		468.07		48.10	7.50E-01		2.28E-02	3.64E-01
	HG-203	279.19		77.30	7.45E-01	7.45E-01	8.03E-01	3.66E-01
	TL-204	374.74		94.11	1.50E-01	1.50E-01	2.90E-02	7.33E-02
		899.15		99.16	1.79E-01		-3.73E-02	8.54E-02
		911.74		91.10	4.70E-01		2.27E+00	2.30E-01
	BI-207	569.67		97.72	1.60E-01	1.60E-01	2.73E-03	7.72E-02
		1063.62		74.90	2.39E-01		7.00E-02	1.13E-01
+	TL-208	583.14	*	30.22	8.31E-01	4.01E-01	7.42E+00	4.06E-01
		860.37	*	4.48	5.65E+00		8.31E+00	2.74E+00
		2614.66	*	35.85	4.01E-01		7.74E+00	1.67E-01
	BI-210M	262.00		45.00	2.74E-01	2.74E-01	1.50E-01	1.34E-01
		300.00		23.00	6.71E-01		-1.28E+00	3.29E-01
+	PB-210	46.50	*	4.25	2.94E+00	2.94E+00	2.14E+00	1.45E+00
	PB-211	404.84		2.90	4.93E+00	4.93E+00	-1.52E+00	2.40E+00
		831.96		2.90	6.89E+00		2.40E+00	3.31E+00
+	BI-212	727.17	*	11.80	2.16E+00	2.16E+00	5.87E+00	1.05E+00
		1620.62		2.75	7.53E+00		2.62E+00	3.51E+00
+	PB-212	238.63	*	44.60	5.26E-01	5.26E-01	9.21E+00	2.61E-01
		300.09	*	3.41	7.04E+00		1.21E+01	3.48E+00
+	BI-214	609.31	*	46.30	6.80E-01	6.80E-01	3.75E+00	3.34E-01
		1120.29	*	15.10	2.01E+00		4.76E+00	9.70E-01
		1764.49	*	15.80	1.71E+00		3.38E+00	8.05E-01
		2204.22	*	4.98	7.31E+00		3.17E+00	3.46E+00
+	PB-214	295.21	*	19.19	1.22E+00	4.88E-01	4.32E+00	6.05E-01
		351.92	*	37.19	4.88E-01		4.02E+00	2.39E-01
	RN-219	401.80		6.50	2.10E+00	2.10E+00	-2.98E-01	1.02E+00
	RA-223	323.87		3.88	3.34E+00	3.34E+00	-7.68E+00	1.63E+00
	RA-224	240.98		3.95	7.36E+00	7.36E+00	9.53E+01	3.65E+00
	RA-225	40.00		31.00	5.08E+01	5.08E+01	-3.98E+01	2.50E+01
+	RA-226	186.21	*	3.28	5.77E+00	5.77E+00	1.16E+01	2.86E+00
	TH-227	50.10		8.40	1.62E+00	1.62E+00	-1.27E+00	7.98E-01
		236.00		11.50	2.15E+00		1.19E+01	1.07E+00
		256.20		6.30	1.97E+00		2.45E-01	9.66E-01
+	AC-228	338.32	*	11.40	1.74E+00	1.08E+00	7.74E+00	8.56E-01
		911.07	*	27.70	1.08E+00		7.45E+00	5.26E-01
		969.11	*	16.60	1.61E+00		6.65E+00	7.78E-01
	TH-230	48.44		16.90	8.23E-01	8.23E-01	-4.02E-01	4.06E-01
		62.85		4.60	3.21E+00		3.34E+00	1.59E+00
		67.67		0.37	3.84E+01		2.08E+00	1.90E+01
	PA-231	283.67		1.60	7.59E+00	6.00E+00	-1.40E+00	3.71E+00
		302.67		2.30	6.00E+00		8.08E+00	2.94E+00
	TH-231	25.64		14.70	2.67E+00	2.14E+00	1.17E-01	1.32E+00

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

	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	2.14E+00	2.14E+00	-4.71E+00	1.06E+00
	PA-233	311.98		38.60	4.05E+00	4.05E+00	1.44E+00	1.98E+00
	PA-234	131.20		20.40	5.84E-01	5.84E-01	7.26E-01	2.89E-01
		733.99		8.80	1.90E+00		2.55E-01	9.13E-01
		946.00		12.00	1.45E+00		-7.05E-01	6.89E-01
+	PA-234M	1001.03	*	0.92	1.62E+01	1.62E+01	8.88E+00	7.60E+00
+	TH-234	63.29	*	3.80	3.87E+00	3.87E+00	3.31E+00	1.92E+00
	U-235	143.76		10.50	1.08E+00	1.08E+00	2.50E-01	5.31E-01
		163.35		4.70	2.42E+00		-8.49E-01	1.19E+00
		205.31		4.70	2.76E+00		-5.58E-01	1.36E+00
	NP-237	86.50	*	12.60	1.92E+00	1.92E+00	3.83E+00	9.54E-01
	NP-239	106.10		22.70	1.80E+12	1.80E+12	2.04E+12	8.89E+11
		228.18		10.70	4.36E+12		5.98E+11	2.14E+12
		277.60		14.10	3.51E+12		4.43E+12	1.72E+12
	AM-241	59.54		35.90	4.01E-01	4.01E-01	-7.33E-02	1.99E-01
	AM-243	74.67		66.00	3.19E-01	3.19E-01	3.57E+00	1.58E-01
+	CM-243	209.75	*	3.29	5.53E+00	1.14E+00	7.14E+00	2.74E+00
		228.14		10.60	1.20E+00		1.64E-01	5.90E-01
		277.60	*	14.00	1.14E+00		1.06E+00	5.62E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707086-09

HTC-A02-S004-4248-01

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

Sample Title: HTC-A02-S004-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3605

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	34	283
17:	274	296	248	231	250	235	214	256
25:	272	228	244	235	221	256	244	252
33:	231	238	240	213	194	244	275	219
41:	233	233	235	287	320	335	275	277
49:	294	286	309	348	370	350	346	360
57:	406	439	437	440	503	646	599	537
65:	490	552	499	519	512	529	595	713
73:	1073	1451	1480	1832	1508	679	444	416
81:	370	461	584	577	569	835	790	627
89:	664	607	602	797	686	436	315	282
97:	299	361	358	294	288	335	321	377
105:	354	345	327	313	311	308	290	341
113:	309	309	294	292	299	270	296	286
121:	251	296	292	296	276	322	325	414
129:	392	306	325	301	282	307	276	260
137:	257	256	239	274	261	284	265	301
145:	258	256	288	266	283	232	255	273
153:	318	310	267	260	224	253	248	222
161:	238	243	215	249	214	253	237	229
169:	207	210	217	201	245	223	223	222
177:	214	211	222	225	227	248	220	308
185:	448	374	258	194	223	201	232	185
193:	207	203	206	192	196	209	206	233
201:	198	201	204	194	226	205	235	296
209:	281	236	176	182	184	183	172	177
217:	170	171	171	173	186	164	181	163
225:	186	149	162	160	157	170	151	153
233:	143	178	176	360	1274	1913	1137	478
241:	372	265	156	112	117	122	116	96
249:	114	138	109	126	120	123	136	112
257:	135	132	144	104	127	98	112	115
265:	93	102	123	139	235	219	135	103
273:	105	116	126	140	176	119	104	100
281:	99	97	96	108	99	91	96	114
289:	86	95	89	95	200	353	366	186
297:	106	132	195	181	108	94	80	57
305:	67	65	78	74	79	99	94	85
313:	82	90	90	84	85	78	86	74
321:	80	80	88	93	66	118	173	145
329:	87	84	88	79	87	69	77	172
337:	327	338	182	103	73	67	65	77
345:	61	83	66	64	128	292	568	453
353:	147	66	68	65	77	71	69	75
361:	79	68	62	65	68	61	66	70

369:	66	58	65	70	66	73	65	69

Sample Title: HTC-A02-S004-4248-01

Channel								
377:	68	68	67	55	68	60	60	72
385:	63	71	73	70	62	77	60	67
393:	66	67	66	65	78	66	48	59
401:	55	61	67	66	70	68	70	87
409:	79	62	71	52	47	55	61	68
417:	51	61	73	58	47	43	54	67
425:	67	54	49	49	60	50	38	53
433:	58	44	51	44	68	57	49	47
441:	59	48	46	53	39	63	48	42
449:	46	43	60	54	51	39	45	38
457:	46	39	62	45	74	99	121	63
465:	41	40	62	46	41	46	58	46
473:	37	56	43	42	48	47	37	50
481:	39	42	40	34	50	52	39	49
489:	42	34	41	46	42	45	39	45
497:	36	34	59	36	41	40	36	46
505:	39	30	50	75	146	193	147	59
513:	41	40	51	37	45	33	32	39
521:	30	37	31	26	51	29	38	38
529:	41	37	37	35	42	40	45	52
537:	29	35	41	31	34	47	33	47
545:	43	39	40	41	28	39	37	35
553:	43	34	32	44	35	35	43	32
561:	53	45	36	36	36	33	31	48
569:	37	37	35	44	36	42	22	28
577:	37	39	31	68	185	398	407	139
585:	51	30	31	32	37	37	24	31
593:	27	30	36	29	34	31	23	35
601:	24	31	45	39	41	44	132	296
609:	333	138	44	38	29	24	42	28
617:	34	27	31	35	33	30	35	21
625:	35	32	29	29	28	19	28	26
633:	27	31	31	19	30	33	34	21
641:	46	27	31	26	27	18	27	34
649:	30	45	33	26	23	32	25	28
657:	39	35	36	26	22	27	37	25
665:	46	40	33	31	39	36	36	32
673:	39	42	34	28	33	32	26	29
681:	36	38	30	32	24	30	30	23
689:	17	33	34	36	20	30	31	21
697:	32	35	30	39	27	40	36	37
705:	33	33	42	33	24	21	33	29
713:	19	36	21	28	27	27	30	32
721:	21	31	31	32	63	92	120	69
729:	27	17	11	24	25	16	16	23
737:	27	26	24	24	19	13	25	24
745:	29	27	24	28	19	21	30	20
753:	30	37	38	21	22	30	22	22
761:	31	34	20	19	26	30	52	65
769:	37	19	31	34	33	18	23	24
777:	19	17	16	23	23	24	32	27
785:	32	36	24	18	16	31	20	23
793:	41	53	59	27	31	17	12	11

801:	22	26	16	23	32	22	20	18

Sample Title: HTC-A02-S004-4248-01

Channel								
809:	14	23	14	17	19	22	19	15
817:	16	18	14	20	18	17	16	12
825:	19	16	19	23	26	26	24	14
833:	26	22	31	26	21	17	26	20
841:	22	16	11	18	23	7	18	20
849:	15	17	12	18	10	11	20	22
857:	21	18	53	52	34	27	9	12
865:	14	16	10	13	20	10	18	13
873:	21	12	17	23	16	18	11	19
881:	15	22	17	16	16	11	15	13
889:	16	22	8	15	15	13	13	21
897:	11	9	15	12	13	13	22	14
905:	20	18	12	34	115	216	234	109
913:	30	9	14	16	9	7	12	16
921:	13	21	13	8	17	15	13	15
929:	15	13	12	14	16	35	18	11
937:	12	17	18	16	10	21	11	10
945:	19	9	12	21	11	14	19	14
953:	12	16	12	19	17	14	16	9
961:	11	17	35	53	40	34	70	119
969:	124	53	19	11	14	12	10	14
977:	9	11	8	7	12	10	14	11
985:	15	8	15	17	11	17	12	15
993:	11	8	14	10	14	9	14	23
1001:	22	12	8	12	18	10	9	13
1009:	23	15	11	10	13	11	10	12
1017:	12	13	7	4	10	8	15	12
1025:	13	14	10	11	13	14	13	16
1033:	10	13	11	12	16	16	8	12
1041:	10	8	20	4	16	17	10	7
1049:	12	11	10	12	13	17	11	10
1057:	10	9	6	12	10	15	14	13
1065:	9	15	11	9	12	12	8	12
1073:	14	11	9	15	14	22	14	14
1081:	16	14	12	4	20	15	11	15
1089:	16	10	14	16	19	12	8	11
1097:	12	8	17	9	14	11	7	14
1105:	7	11	16	12	10	12	15	14
1113:	18	16	7	18	15	29	65	74
1121:	49	18	9	13	9	13	9	10
1129:	13	12	10	12	14	13	14	19
1137:	6	8	9	4	14	13	17	10
1145:	14	10	16	9	12	15	11	7
1153:	12	25	17	12	14	12	12	10
1161:	6	14	13	13	13	17	10	18
1169:	13	13	10	10	11	16	14	15
1177:	14	10	8	13	12	14	14	12
1185:	16	9	5	12	9	16	17	13
1193:	6	12	7	13	9	10	11	10
1201:	13	13	13	19	12	7	12	11
1209:	14	7	12	14	17	7	9	11
1217:	7	17	14	9	23	9	12	12
1225:	17	8	11	13	9	14	14	10

1233:	17	9	9	22	35	28	23	14

Sample Title: HTC-A02-S004-4248-01

Channel								
1241:	15	10	8	7	10	14	16	11
1249:	19	8	15	11	10	5	8	10
1257:	8	12	8	13	15	8	10	16
1265:	6	6	14	8	7	10	12	16
1273:	6	11	12	5	7	10	9	12
1281:	13	18	11	12	7	8	5	9
1289:	10	7	11	5	10	8	5	7
1297:	6	11	10	5	13	6	10	9
1305:	8	11	11	4	5	8	9	5
1313:	7	11	5	12	8	11	8	10
1321:	11	7	9	13	9	6	6	9
1329:	7	5	6	8	8	11	13	6
1337:	8	7	11	10	12	5	7	5
1345:	6	5	8	13	7	3	4	10
1353:	11	8	8	5	7	6	8	6
1361:	8	6	8	4	7	11	5	7
1369:	4	6	7	3	15	12	8	13
1377:	20	11	13	6	7	6	7	7
1385:	7	7	9	11	3	6	5	6
1393:	4	8	8	5	8	6	9	18
1401:	5	10	6	8	5	6	17	17
1409:	8	10	4	7	5	8	9	6
1417:	8	0	5	3	6	6	3	8
1425:	9	5	7	5	8	12	4	5
1433:	3	9	6	7	4	7	6	7
1441:	7	6	4	2	6	12	8	8
1449:	5	7	5	7	6	5	6	7
1457:	9	32	98	165	145	45	14	6
1465:	5	6	8	7	4	6	4	3
1473:	8	6	7	9	7	2	6	6
1481:	1	5	4	3	5	10	7	3
1489:	3	1	5	7	7	16	2	8
1497:	11	3	3	4	8	8	3	9
1505:	8	5	6	11	10	9	9	8
1513:	11	7	3	6	3	7	2	6
1521:	7	8	2	7	1	4	7	6
1529:	9	3	4	1	2	3	3	6
1537:	6	6	6	1	3	4	4	3
1545:	4	2	2	1	3	4	6	4
1553:	5	6	4	6	4	8	3	2
1561:	2	2	1	7	4	2	5	4
1569:	2	5	1	3	5	4	1	4
1577:	1	6	8	8	8	5	4	5
1585:	5	8	17	16	10	8	22	28
1593:	21	5	8	2	5	5	6	4
1601:	6	2	4	4	12	2	4	4
1609:	3	5	3	6	6	7	4	2
1617:	3	5	11	11	15	6	7	5
1625:	11	2	4	7	8	8	11	4
1633:	1	0	3	4	7	5	6	2
1641:	4	3	1	1	3	3	2	4
1649:	3	4	3	7	6	4	8	4
1657:	3	0	1	5	9	4	0	2

1665:	3	5	2	2	0	3	4	5

Sample Title: HTC-A02-S004-4248-01

Channel								
1673:	0	3	5	2	9	4	1	4
1681:	1	4	3	5	2	2	3	3
1689:	5	8	3	8	0	5	1	1
1697:	3	2	3	4	5	1	3	2
1705:	1	4	2	1	4	1	1	0
1713:	1	4	2	7	4	2	3	0
1721:	3	0	4	2	3	2	6	6
1729:	7	2	6	6	1	1	2	6
1737:	5	2	6	1	6	3	2	4
1745:	1	0	4	4	3	2	4	3
1753:	4	2	4	5	4	6	3	3
1761:	1	7	35	46	23	11	4	3
1769:	1	5	4	1	2	5	1	2
1777:	4	4	5	3	4	2	2	2
1785:	5	2	3	3	1	2	2	1
1793:	2	0	3	5	7	3	5	2
1801:	3	4	2	4	1	6	4	1
1809:	8	4	3	2	3	2	1	5
1817:	1	1	5	2	5	4	5	4
1825:	3	3	6	3	7	3	4	2
1833:	1	6	4	3	5	6	3	1
1841:	3	2	1	4	8	5	12	7
1849:	4	9	1	5	1	3	1	0
1857:	3	2	1	1	3	0	3	6
1865:	2	3	2	3	4	2	4	6
1873:	6	5	1	3	4	2	2	4
1881:	3	3	4	4	1	2	3	2
1889:	2	3	5	1	1	2	2	1
1897:	3	0	0	0	4	1	1	6
1905:	1	2	2	1	7	0	5	3
1913:	3	5	3	0	5	4	4	4
1921:	2	3	2	4	2	0	3	2
1929:	2	3	3	5	7	1	3	7
1937:	5	1	1	4	1	2	3	4
1945:	1	2	3	2	8	1	4	4
1953:	3	5	4	5	2	2	4	1
1961:	2	1	2	3	2	5	6	2
1969:	3	1	2	3	3	4	3	6
1977:	2	3	3	3	6	3	3	3
1985:	2	5	1	0	3	2	3	8
1993:	4	2	2	1	2	3	1	3
2001:	2	4	3	3	1	7	3	1
2009:	6	2	2	4	1	1	3	3
2017:	0	2	5	1	4	1	2	0
2025:	4	3	2	1	2	2	1	0
2033:	0	10	3	4	2	2	5	3
2041:	5	3	4	3	2	1	2	0
2049:	5	6	3	2	5	3	2	3
2057:	0	4	4	4	0	1	2	2
2065:	3	2	1	3	3	6	4	2
2073:	4	5	4	2	5	5	4	9
2081:	1	3	2	1	1	1	0	3
2089:	3	2	4	1	2	4	6	3

2097:	3	6	2	4	7	10	15	13

Sample Title: HTC-A02-S004-4248-01

Channel								
2105:	9	4	4	4	3	3	4	4
2113:	3	6	4	4	4	1	4	3
2121:	3	4	0	5	4	0	1	2
2129:	2	2	8	5	3	4	2	1
2137:	3	1	2	3	4	4	4	3
2145:	4	1	2	5	1	4	0	1
2153:	6	3	4	3	5	1	3	2
2161:	6	3	6	0	4	1	4	3
2169:	4	2	5	0	3	2	5	4
2177:	3	5	6	3	4	6	1	3
2185:	4	1	5	5	1	2	2	2
2193:	4	2	3	10	3	1	1	4
2201:	1	8	14	8	9	5	0	3
2209:	5	5	2	3	2	7	4	3
2217:	8	3	4	6	5	8	3	2
2225:	3	3	4	3	1	3	2	2
2233:	7	3	3	3	5	1	4	4
2241:	5	1	2	3	3	2	5	3
2249:	4	1	3	2	7	1	5	3
2257:	3	4	3	1	5	5	5	2
2265:	0	4	3	4	4	3	4	2
2273:	3	2	2	2	4	2	5	1
2281:	3	5	3	4	4	4	6	4
2289:	2	3	4	4	5	6	3	3
2297:	1	3	7	2	3	5	5	3
2305:	3	2	3	4	9	2	4	3
2313:	7	4	4	2	5	2	3	3
2321:	6	3	3	3	3	8	2	3
2329:	4	2	7	5	4	3	6	5
2337:	5	2	8	3	9	3	7	1
2345:	2	4	3	5	1	3	1	3
2353:	5	5	7	3	3	2	3	4
2361:	2	3	5	7	6	2	4	0
2369:	3	3	8	6	1	9	2	5
2377:	8	5	3	2	6	5	3	2
2385:	4	0	4	1	4	3	5	3
2393:	4	2	1	3	4	6	3	1
2401:	0	3	5	2	2	0	0	5
2409:	2	3	3	1	3	2	5	2
2417:	2	3	3	2	1	4	6	0
2425:	2	4	4	3	2	4	4	3
2433:	2	2	6	1	3	1	4	1
2441:	4	0	4	5	4	5	5	7
2449:	3	1	1	5	2	1	0	2
2457:	2	3	1	2	3	0	2	3
2465:	3	3	0	3	0	4	1	0
2473:	0	5	4	1	5	2	0	3
2481:	1	1	2	2	2	4	2	1
2489:	1	2	1	0	1	2	4	2
2497:	2	1	2	3	1	1	0	2
2505:	1	2	1	1	2	3	1	0
2513:	1	2	2	0	1	1	0	0
2521:	1	0	1	0	0	2	0	0

2529:	1	3	1	2	1	0	2	1

Sample Title: HTC-A02-S004-4248-01

Channel								
2537:	1	1	1	2	3	1	1	1
2545:	1	0	0	2	1	1	0	3
2553:	0	2	0	4	1	2	1	1
2561:	0	0	0	1	1	1	0	0
2569:	1	2	1	0	1	0	0	1
2577:	0	0	0	0	0	0	1	2
2585:	0	3	0	1	0	2	1	1
2593:	0	2	0	0	0	1	1	0
2601:	2	0	0	1	0	0	0	1
2609:	0	3	10	24	46	93	89	39
2617:	19	0	1	0	1	1	0	1
2625:	0	0	0	1	2	0	2	0
2633:	1	0	0	0	1	1	1	1
2641:	0	0	0	0	0	0	1	0
2649:	0	0	0	0	0	0	0	1
2657:	0	0	0	0	0	1	0	1
2665:	1	0	0	0	0	0	0	0
2673:	0	0	1	0	1	1	1	1
2681:	0	1	3	1	1	0	1	0
2689:	0	0	0	0	0	0	0	0
2697:	1	0	0	1	0	0	0	0
2705:	0	0	0	0	3	2	0	0
2713:	0	2	0	0	0	1	0	0
2721:	0	0	0	0	0	0	0	1
2729:	1	0	0	0	0	0	0	0
2737:	0	0	0	1	1	0	0	1
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	1	1	0	1
2761:	0	0	0	0	0	0	0	1
2769:	1	1	0	1	0	0	0	1
2777:	0	0	0	0	0	0	1	0
2785:	1	0	1	1	0	1	0	0
2793:	0	0	0	0	0	0	1	0
2801:	1	1	1	0	1	0	0	1
2809:	0	1	1	1	1	1	0	1
2817:	0	0	0	0	0	0	0	0
2825:	1	0	0	1	2	0	0	0
2833:	0	1	1	0	4	0	0	0
2841:	0	0	0	0	0	0	0	2
2849:	0	0	0	1	0	0	0	0
2857:	0	0	0	1	0	0	1	0
2865:	0	1	0	1	0	2	0	2
2873:	0	0	0	0	0	1	0	0
2881:	0	0	0	1	0	1	0	0
2889:	0	0	0	0	0	1	0	0
2897:	1	0	1	0	1	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	1	0	1	0	0	0	0	0
2921:	0	1	0	0	0	0	1	0
2929:	0	0	0	0	0	1	0	0
2937:	1	0	0	0	0	1	2	0
2945:	0	1	0	1	0	0	1	1
2953:	0	0	0	1	1	0	0	0

2961:	1	0	0	0	0	1	0	0

Sample Title: HTC-A02-S004-4248-01

Channel								
2969:	1	1	0	0	1	0	0	1
2977:	0	0	0	0	1	0	0	0
2985:	1	0	0	0	0	0	0	0
2993:	2	0	0	0	0	1	0	0
3001:	0	0	0	0	0	0	0	1
3009:	1	1	0	0	0	0	1	0
3017:	0	0	0	1	0	0	0	0
3025:	0	0	0	0	0	0	0	1
3033:	0	0	1	0	0	0	0	0
3041:	1	0	0	0	0	0	1	1
3049:	1	0	1	0	2	0	0	1
3057:	0	0	0	0	1	0	1	0
3065:	0	0	0	0	1	0	0	0
3073:	0	0	2	0	0	0	0	1
3081:	0	0	0	1	1	1	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	1	0	1	0	0	1	0
3121:	0	0	0	0	0	1	0	1
3129:	0	0	0	0	0	0	0	1
3137:	0	0	1	0	0	0	0	0
3145:	0	0	0	0	0	0	0	0
3153:	0	1	0	0	0	1	1	0
3161:	0	0	0	0	0	0	1	0
3169:	0	0	0	0	1	0	0	2
3177:	0	0	0	0	0	0	1	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	0	0	1	4	0	1
3201:	0	0	1	0	0	0	1	0
3209:	0	1	0	1	0	0	0	0
3217:	0	0	0	0	1	0	0	0
3225:	0	0	0	1	1	0	1	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	1	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	1	1
3273:	0	0	0	0	0	1	0	0
3281:	0	1	0	0	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	1	0	0	0	0	0	0
3305:	1	0	0	0	1	2	0	0
3313:	1	0	0	0	0	1	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	1	0	0	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	1	0	0	0	0	0	0	0
3361:	0	1	0	0	0	0	0	0
3369:	0	0	0	0	0	0	1	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	1	0

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S004-4248-01

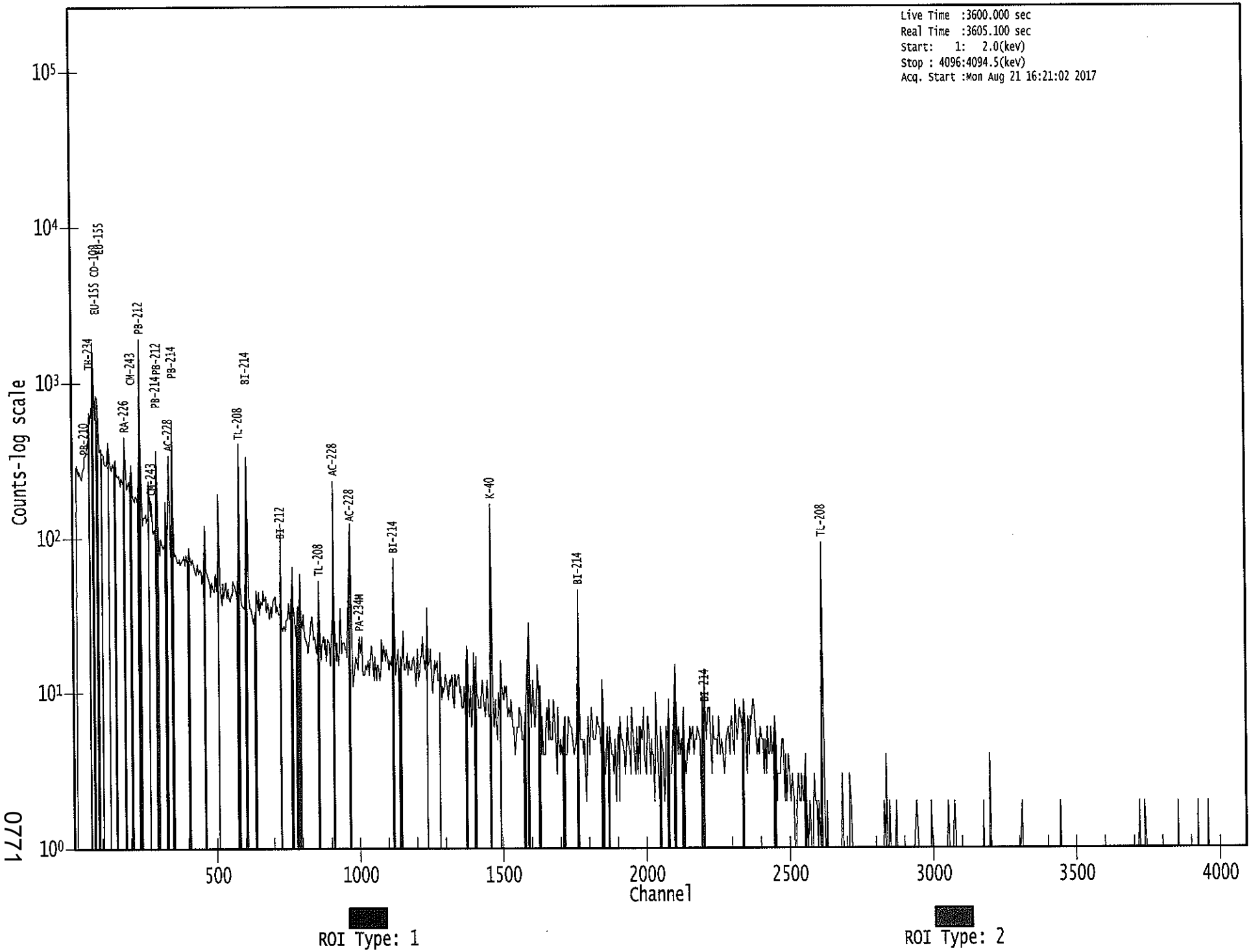
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	1	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	2	0	0	1	0
3449:	0	1	0	0	0	1	0	0
3457:	0	0	0	1	1	0	0	0
3465:	0	0	0	0	1	0	0	1
3473:	1	1	0	0	0	0	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	1	0	0	0	1

Sample Title: HTC-A02-S004-4248-01

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

0000055657.CNF



0771

Apex-Gamma

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-10
Sample Description	: HTC-A03-S001-0006-01
Sample Type	: SOIL
Sample Size	: 5.104E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:14:12AM
Acquisition Started	: 8/21/2017 4:25:30PM
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	: 55659

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 5:25:34PM
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	46.23	46.85	0.0000	0.00
2	49.38	50.00	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.25	77.84	0.0000	0.00
5	87.57	88.15	0.0000	0.00
6	92.27	92.85	0.0000	0.00
7	128.78	129.32	0.0000	0.00
8	144.79	145.31	0.0000	0.00
9	186.14	186.62	0.0000	0.00
10	199.66	200.13	0.0000	0.00
11	209.58	210.04	0.0000	0.00
12	238.64	239.06	0.0000	0.00
13	241.72	242.14	0.0000	0.00
14	270.40	270.79	0.0000	0.00
15	278.99	279.37	0.0000	0.00
16	295.25	295.62	0.0000	0.00
17	300.19	300.55	0.0000	0.00
18	328.13	328.47	0.0000	0.00
19	338.65	338.98	0.0000	0.00
20	352.14	352.45	0.0000	0.00
21	462.84	463.04	0.0000	0.00
22	511.02	511.17	0.0000	0.00
23	531.39	531.51	0.0000	0.00
24	583.29	583.37	0.0000	0.00
25	609.63	609.68	0.0000	0.00
26	660.97	660.97	0.0000	0.00
27	727.63	727.56	0.0000	0.00
28	795.07	794.94	0.0000	0.00
29	816.68	816.52	0.0000	0.00
30	840.55	840.37	0.0000	0.00
31	855.23	855.03	0.0000	0.00
32	861.14	860.94	0.0000	0.00
33	911.59	911.34	0.0000	0.00
34	933.86	933.59	0.0000	0.00
35	968.34	968.03	0.0000	0.00
36	1121.13	1120.67	0.0000	0.00
37	1209.20	1208.66	0.0000	0.00
38	1234.57	1234.00	0.0000	0.00
39	1239.58	1239.00	0.0000	0.00
40	1321.93	1321.27	0.0000	0.00
41	1354.97	1354.28	0.0000	0.00
42	1417.75	1416.99	0.0000	0.00

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1431.67	1430.90	0.0000	0.00
44	1461.44	1460.64	0.0000	0.00
45	1509.00	1508.16	0.0000	0.00
46	1621.35	1620.40	0.0000	0.00
47	1731.09	1730.03	0.0000	0.00
48	1764.96	1763.87	0.0000	0.00
49	1846.91	1845.74	0.0000	0.00
50	1956.78	1955.50	0.0000	0.00
51	1965.39	1964.11	0.0000	0.00
52	2001.49	2000.17	0.0000	0.00
53	2102.99	2101.57	0.0000	0.00
54	2204.94	2203.43	0.0000	0.00
55	2448.04	2446.29	0.0000	0.00
56	2489.15	2487.36	0.0000	0.00
57	2505.14	2503.33	0.0000	0.00
58	2615.19	2613.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 5:25:34PM

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	46.23	44 -	55	46.85	1.46E+02	63.28	7.43E+02	1.60
m	2	49.38	44 -	55	50.00	4.43E+01	53.40	6.37E+02	1.46
M	3	74.72	73 -	83	75.31	4.64E+02	100.16	1.68E+03	1.81
m	4	77.25	73 -	83	77.84	7.22E+02	107.91	1.58E+03	1.82
m	5	87.57	83 -	97	88.15	2.43E+02	80.44	1.17E+03	1.67
m	6	92.27	83 -	97	92.85	2.83E+02	83.92	1.05E+03	1.67
	7	128.78	126 -	132	129.32	9.43E+01	80.75	1.11E+03	2.23
	8	144.79	143 -	148	145.31	7.34E+01	68.03	8.71E+02	3.10
	9	186.14	183 -	191	186.62	2.55E+02	89.33	1.06E+03	2.08
	10	199.66	197 -	203	200.13	5.60E+01	67.59	7.82E+02	1.44
	11	209.58	207 -	213	210.04	1.11E+02	69.38	7.75E+02	1.41
M	12	238.64	234 -	246	239.06	1.08E+03	79.93	5.00E+02	1.73
m	13	241.72	234 -	246	242.14	2.88E+02	87.18	5.66E+02	2.12
	14	270.40	268 -	275	270.79	9.50E+01	58.51	5.14E+02	2.03
	15	278.99	275 -	284	279.37	8.40E+01	72.36	7.00E+02	3.37
M	16	295.25	291 -	304	295.62	3.43E+02	53.07	3.27E+02	1.66
m	17	300.19	291 -	304	300.55	8.44E+01	48.15	3.83E+02	2.07
	18	328.13	326 -	332	328.47	5.82E+01	47.95	3.78E+02	2.30
	19	338.65	335 -	343	338.98	2.51E+02	59.99	3.95E+02	1.82
	20	352.14	348 -	360	352.45	5.55E+02	86.47	6.22E+02	1.92
	21	462.84	459 -	467	463.04	6.90E+01	49.46	3.36E+02	1.65
	22	511.02	506 -	516	511.17	1.90E+02	56.88	3.31E+02	1.80
	23	531.39	528 -	535	531.51	3.66E+01	35.10	1.75E+02	1.07
	24	583.29	579 -	586	583.37	3.70E+02	51.54	1.96E+02	2.11
	25	609.63	605 -	615	609.68	4.30E+02	62.81	2.97E+02	1.99
	26	660.97	657 -	663	660.97	5.33E+01	32.54	1.53E+02	1.81
	27	727.63	722 -	732	727.56	8.19E+01	46.21	2.38E+02	2.03
	28	795.07	792 -	799	794.94	4.72E+01	28.84	1.06E+02	1.97
	29	816.68	814 -	820	816.52	2.14E+01	23.02	8.12E+01	3.28
	30	840.55	830 -	851	840.37	1.20E+02	57.72	2.16E+02	13.07
M	31	855.23	852 -	865	855.03	2.75E+01	18.20	4.41E+01	2.39
m	32	861.14	852 -	865	860.94	7.20E+01	25.56	7.74E+01	2.39
	33	911.59	906 -	916	911.34	2.42E+02	47.39	1.70E+02	1.90
	34	933.86	928 -	938	933.59	5.39E+01	32.85	1.14E+02	4.84
	35	968.34	963 -	973	968.03	1.57E+02	45.55	1.94E+02	1.86
	36	1121.13	1114 -	1126	1120.67	1.14E+02	42.80	1.61E+02	2.51
	37	1209.20	1205 -	1212	1208.66	2.55E+01	26.91	1.03E+02	3.87
M	38	1234.57	1233 -	1254	1234.00	1.24E+01	9.43	2.19E+01	2.11
m	39	1239.58	1233 -	1254	1239.00	4.42E+01	23.52	6.37E+01	2.12
	40	1321.93	1317 -	1328	1321.27	2.57E+01	20.88	4.07E+01	8.65

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1354.97	1351 -	1358	1354.28	1.80E+01	14.70	2.40E+01	4.84
42	1417.75	1412 -	1422	1416.99	1.83E+01	17.82	3.15E+01	1.15
43	1431.67	1426 -	1436	1430.90	1.85E+01	17.93	3.30E+01	5.50
44	1461.44	1454 -	1467	1460.64	9.00E+02	66.49	9.13E+01	2.41
45	1509.00	1504 -	1511	1508.16	1.09E+01	13.71	2.43E+01	1.28
46	1621.35	1615 -	1626	1620.40	2.69E+01	17.32	2.43E+01	1.20
47	1731.09	1726 -	1734	1730.03	2.30E+01	15.40	2.20E+01	1.67
48	1764.96	1760 -	1770	1763.87	6.60E+01	20.71	2.20E+01	3.36
49	1846.91	1840 -	1850	1845.74	1.65E+01	12.19	1.10E+01	1.92
50	1956.78	1951 -	1957	1955.50	6.00E+00	4.90	0.00E+00	1.16
51	1965.39	1959 -	1968	1964.11	8.00E+00	10.10	1.00E+01	7.66
52	2001.49	1998 -	2002	2000.17	6.00E+00	4.90	0.00E+00	2.74
53	2102.99	2098 -	2105	2101.57	2.28E+01	12.81	1.24E+01	1.86
54	2204.94	2199 -	2207	2203.43	1.84E+01	16.67	3.12E+01	2.39
55	2448.04	2442 -	2449	2446.29	9.00E+00	9.17	8.00E+00	1.83
56	2489.15	2484 -	2490	2487.36	6.38E+00	6.65	3.25E+00	4.70
57	2505.14	2501 -	2505	2503.33	6.00E+00	4.90	0.00E+00	1.00
58	2615.19	2609 -	2618	2613.29	1.19E+02	21.82	0.00E+00	2.51

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 : 8/21/2017 5:25:34PM

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	46.23	44 -	55	1.46E+02	63.28	7.43E+02	4.48E+01
m	2	49.38	44 -	55	4.43E+01	53.40	6.37E+02	4.15E+01
M	3	74.72	73 -	83	4.64E+02	100.16	1.68E+03	6.75E+01
m	4	77.25	73 -	83	7.22E+02	107.91	1.58E+03	6.53E+01
m	5	87.57	83 -	97	2.43E+02	80.44	1.17E+03	5.63E+01
m	6	92.27	83 -	97	2.83E+02	83.92	1.05E+03	5.34E+01
	7	128.78	126 -	132	9.43E+01	80.75	1.11E+03	6.44E+01
	8	144.79	143 -	148	7.34E+01	68.03	8.71E+02	5.41E+01
	9	186.14	183 -	191	2.55E+02	89.33	1.06E+03	6.86E+01
	10	199.66	197 -	203	5.60E+01	67.59	7.82E+02	5.42E+01

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	11	209.58	207 -	213	1.11E+02	69.38	7.75E+02	5.43E+01
M	12	238.64	234 -	246	1.08E+03	79.93	5.00E+02	3.68E+01
m	13	241.72	234 -	246	2.88E+02	87.18	5.66E+02	3.91E+01
	14	270.40	268 -	275	9.50E+01	58.51	5.14E+02	4.54E+01
	15	278.99	275 -	284	8.40E+01	72.36	7.00E+02	5.75E+01
M	16	295.25	291 -	304	3.43E+02	53.07	3.27E+02	2.97E+01
m	17	300.19	291 -	304	8.44E+01	48.15	3.83E+02	3.22E+01
	18	328.13	326 -	332	5.82E+01	47.95	3.78E+02	3.74E+01
	19	338.65	335 -	343	2.51E+02	59.99	3.95E+02	4.19E+01
	20	352.14	348 -	360	5.55E+02	86.47	6.22E+02	2.53E+01
	21	462.84	459 -	467	6.90E+01	49.46	3.36E+02	3.83E+01
	22	511.02	506 -	516	1.90E+02	56.88	3.31E+02	4.09E+01
	23	531.39	528 -	535	3.66E+01	35.10	1.75E+02	2.71E+01
	24	583.29	579 -	586	3.70E+02	51.54	1.96E+02	2.82E+01
	25	609.63	605 -	615	4.30E+02	62.81	2.97E+02	3.88E+01
	26	660.97	657 -	663	5.33E+01	32.54	1.53E+02	2.39E+01
	27	727.63	722 -	732	8.19E+01	46.21	2.38E+02	3.49E+01
	28	795.07	792 -	799	4.72E+01	28.84	1.06E+02	2.08E+01
	29	816.68	814 -	820	2.14E+01	23.02	8.12E+01	1.73E+01
	30	840.55	830 -	851	1.20E+02	57.72	2.16E+02	4.39E+01
M	31	855.23	852 -	865	2.75E+01	18.20	4.41E+01	1.09E+01
m	32	861.14	852 -	865	7.20E+01	25.56	7.74E+01	1.45E+01
	33	911.59	906 -	916	2.42E+02	47.39	1.70E+02	2.94E+01
	34	933.86	928 -	938	5.39E+01	32.85	1.14E+02	2.42E+01
	35	968.34	963 -	973	1.57E+02	45.55	1.94E+02	3.13E+01
	36	1121.13	1114 -	1126	1.14E+02	42.80	1.61E+02	3.05E+01
	37	1209.20	1205 -	1212	2.55E+01	26.91	1.03E+02	2.05E+01
M	38	1234.57	1233 -	1254	1.24E+01	9.43	2.19E+01	7.69E+00
m	39	1239.58	1233 -	1254	4.42E+01	23.52	6.37E+01	1.31E+01
	40	1321.93	1317 -	1328	2.57E+01	20.88	4.07E+01	1.50E+01
	41	1354.97	1351 -	1358	1.80E+01	14.70	2.40E+01	9.86E+00
	42	1417.75	1412 -	1422	1.83E+01	17.82	3.15E+01	1.29E+01
	43	1431.67	1426 -	1436	1.85E+01	17.93	3.30E+01	1.29E+01
	44	1461.44	1454 -	1467	9.00E+02	66.49	9.13E+01	2.35E+01
	45	1509.00	1504 -	1511	1.09E+01	13.71	2.43E+01	9.88E+00
	46	1621.35	1615 -	1626	2.69E+01	17.32	2.43E+01	1.14E+01
	47	1731.09	1726 -	1734	2.30E+01	15.40	2.20E+01	9.91E+00
	48	1764.96	1760 -	1770	6.60E+01	20.71	2.20E+01	1.06E+01
	49	1846.91	1840 -	1850	1.65E+01	12.19	1.10E+01	7.47E+00
	50	1956.78	1951 -	1957	6.00E+00	4.90	0.00E+00	0.00E+00
	51	1965.39	1959 -	1968	8.00E+00	10.10	1.00E+01	6.88E+00
	52	2001.49	1998 -	2002	6.00E+00	4.90	0.00E+00	0.00E+00
	53	2102.99	2098 -	2105	2.28E+01	12.81	1.24E+01	7.01E+00
	54	2204.94	2199 -	2207	1.84E+01	16.67	3.12E+01	1.17E+01
	55	2448.04	2442 -	2449	9.00E+00	9.17	8.00E+00	5.70E+00
	56	2489.15	2484 -	2490	6.38E+00	6.65	3.25E+00	3.56E+00
	57	2505.14	2501 -	2505	6.00E+00	4.90	0.00E+00	0.00E+00
	58	2615.19	2609 -	2618	1.19E+02	21.82	0.00E+00	0.00E+00

Analysis Report for 1707086-10

HTC-A03-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 WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 5:25:34PM

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	46.23	44 -	55	46.85	1.46E+02	63.28	7.43E+02	PB-210
m	2	49.38	44 -	55	50.00	4.43E+01	53.40	6.37E+02	TE-132
									TH-227
									TH-230
M	3	74.72	73 -	83	75.31	4.64E+02	100.16	1.68E+03	AM-243
m	4	77.25	73 -	83	77.84	7.22E+02	107.91	1.58E+03	.....
m	5	87.57	83 -	97	88.15	2.43E+02	80.44	1.17E+03	SN-126
									CD-109
									LU-176
m	6	92.27	83 -	97	92.85	2.83E+02	83.92	1.05E+03	.....
	7	128.78	126 -	132	129.32	9.43E+01	80.75	1.11E+03	.....
	8	144.79	143 -	148	145.31	7.34E+01	68.03	8.71E+02	CE-141
	9	186.14	183 -	191	186.62	2.55E+02	89.33	1.06E+03	RA-226
	10	199.66	197 -	203	200.13	5.60E+01	67.59	7.82E+02	.....
	11	209.58	207 -	213	210.04	1.11E+02	69.38	7.75E+02	CM-243
									GA-67
M	12	238.64	234 -	246	239.06	1.08E+03	79.93	5.00E+02	PB-212
m	13	241.72	234 -	246	242.14	2.88E+02	87.18	5.66E+02	RA-224
	14	270.40	268 -	275	270.79	9.50E+01	58.51	5.14E+02	.....
	15	278.99	275 -	284	279.37	8.40E+01	72.36	7.00E+02	HG-203
									SE-75
M	16	295.25	291 -	304	295.62	3.43E+02	53.07	3.27E+02	PB-214
m	17	300.19	291 -	304	300.55	8.44E+01	48.15	3.83E+02	GA-67
									PB-212
									BI-210M
	18	328.13	326 -	332	328.47	5.82E+01	47.95	3.78E+02	LA-140
	19	338.65	335 -	343	338.98	2.51E+02	59.99	3.95E+02	AC-228
	20	352.14	348 -	360	352.45	5.55E+02	86.47	6.22E+02	PB-214
	21	462.84	459 -	467	463.04	6.90E+01	49.46	3.36E+02	SB-125
	22	511.02	506 -	516	511.17	1.90E+02	56.88	3.31E+02	.....

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	531.39	528 -	535	531.51	3.66E+01	35.10	1.75E+02	ND-147
	24	583.29	579 -	586	583.37	3.70E+02	51.54	1.96E+02	TL-208
	25	609.63	605 -	615	609.68	4.30E+02	62.81	2.97E+02	BI-214
	26	660.97	657 -	663	660.97	5.33E+01	32.54	1.53E+02	CS-137
	27	727.63	722 -	732	727.56	8.19E+01	46.21	2.38E+02	BI-212
	28	795.07	792 -	799	794.94	4.72E+01	28.84	1.06E+02	CS-134
	29	816.68	814 -	820	816.52	2.14E+01	23.02	8.12E+01	LA-140
	30	840.55	830 -	851	840.37	1.20E+02	57.72	2.16E+02	.....
M	31	855.23	852 -	865	855.03	2.75E+01	18.20	4.41E+01	.....
m	32	861.14	852 -	865	860.94	7.20E+01	25.56	7.74E+01	TL-208
	33	911.59	906 -	916	911.34	2.42E+02	47.39	1.70E+02	TL-204 AC-228
	34	933.86	928 -	938	933.59	5.39E+01	32.85	1.14E+02	.....
	35	968.34	963 -	973	968.03	1.57E+02	45.55	1.94E+02	AC-228
	36	1121.13	1114 -	1126	1120.67	1.14E+02	42.80	1.61E+02	TA-182 SC-46 BI-214
	37	1209.20	1205 -	1212	1208.66	2.55E+01	26.91	1.03E+02	.....
M	38	1234.57	1233 -	1254	1234.00	1.24E+01	9.43	2.19E+01	CS-136
m	39	1239.58	1233 -	1254	1239.00	4.42E+01	23.52	6.37E+01	.....
	40	1321.93	1317 -	1328	1321.27	2.57E+01	20.88	4.07E+01	.....
	41	1354.97	1351 -	1358	1354.28	1.80E+01	14.70	2.40E+01	.....
	42	1417.75	1412 -	1422	1416.99	1.83E+01	17.82	3.15E+01	.....
	43	1431.67	1426 -	1436	1430.90	1.85E+01	17.93	3.30E+01	.....
	44	1461.44	1454 -	1467	1460.64	9.00E+02	66.49	9.13E+01	K-40
	45	1509.00	1504 -	1511	1508.16	1.09E+01	13.71	2.43E+01	.....
	46	1621.35	1615 -	1626	1620.40	2.69E+01	17.32	2.43E+01	BI-212
	47	1731.09	1726 -	1734	1730.03	2.30E+01	15.40	2.20E+01	.....
	48	1764.96	1760 -	1770	1763.87	6.60E+01	20.71	2.20E+01	BI-214
	49	1846.91	1840 -	1850	1845.74	1.65E+01	12.19	1.10E+01	.....
	50	1956.78	1951 -	1957	1955.50	6.00E+00	4.90	0.00E+00	.....
	51	1965.39	1959 -	1968	1964.11	8.00E+00	10.10	1.00E+01	.....
	52	2001.49	1998 -	2002	2000.17	6.00E+00	4.90	0.00E+00	.....
	53	2102.99	2098 -	2105	2101.57	2.28E+01	12.81	1.24E+01	.....
	54	2204.94	2199 -	2207	2203.43	1.84E+01	16.67	3.12E+01	BI-214
	55	2448.04	2442 -	2449	2446.29	9.00E+00	9.17	8.00E+00	.....
	56	2489.15	2484 -	2490	2487.36	6.38E+00	6.65	3.25E+00	.....
	57	2505.14	2501 -	2505	2503.33	6.00E+00	4.90	0.00E+00	.....
	58	2615.19	2609 -	2618	2613.29	1.19E+02	21.82	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 1707086-10

HTC-A03-S001-0006-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/21/2017 5:25:34PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	46.23	1.46E+02	63.28	2.46E-02	2.22E-03
m	2	49.38	4.43E+01	53.40	2.52E-02	2.22E-03
M	3	74.72	4.64E+02	100.16	2.75E-02	2.38E-03
m	4	77.25	7.22E+02	107.91	2.75E-02	2.41E-03
m	5	87.57	2.43E+02	80.44	2.74E-02	2.52E-03
m	6	92.27	2.83E+02	83.92	2.73E-02	2.45E-03
	7	128.78	9.43E+01	80.75	2.54E-02	1.94E-03
	8	144.79	7.34E+01	68.03	2.43E-02	1.85E-03
	9	186.14	2.55E+02	89.33	2.17E-02	1.68E-03
	10	199.66	5.60E+01	67.59	2.09E-02	1.64E-03
	11	209.58	1.11E+02	69.38	2.04E-02	1.61E-03
M	12	238.64	1.08E+03	79.93	1.89E-02	1.53E-03
m	13	241.72	2.88E+02	87.18	1.87E-02	1.52E-03
	14	270.40	9.50E+01	58.51	1.74E-02	1.43E-03
	15	278.99	8.40E+01	72.36	1.71E-02	1.41E-03
M	16	295.25	3.43E+02	53.07	1.64E-02	1.37E-03
m	17	300.19	8.44E+01	48.15	1.63E-02	1.36E-03
	18	328.13	5.82E+01	47.95	1.53E-02	1.29E-03
	19	338.65	2.51E+02	59.99	1.49E-02	1.27E-03
	20	352.14	5.55E+02	86.47	1.45E-02	1.24E-03
	21	462.84	6.90E+01	49.46	1.19E-02	1.10E-03
	22	511.02	1.90E+02	56.88	1.10E-02	1.07E-03
	23	531.39	3.66E+01	35.10	1.07E-02	1.06E-03
	24	583.29	3.70E+02	51.54	9.96E-03	1.02E-03
	25	609.63	4.30E+02	62.81	9.63E-03	1.01E-03
	26	660.97	5.33E+01	32.54	9.05E-03	9.72E-04
	27	727.63	8.19E+01	46.21	8.41E-03	8.67E-04
	28	795.07	4.72E+01	28.84	7.86E-03	7.60E-04
	29	816.68	2.14E+01	23.02	7.70E-03	7.26E-04
	30	840.55	1.20E+02	57.72	7.53E-03	6.88E-04
M	31	855.23	2.75E+01	18.20	7.43E-03	6.64E-04
m	32	861.14	7.20E+01	25.56	7.39E-03	6.55E-04
	33	911.59	2.42E+02	47.39	7.08E-03	5.91E-04
	34	933.86	5.39E+01	32.85	6.96E-03	5.83E-04
	35	968.34	1.57E+02	45.55	6.77E-03	5.70E-04
	36	1121.13	1.14E+02	42.80	6.07E-03	5.11E-04
	37	1209.20	2.55E+01	26.91	5.74E-03	4.83E-04
M	38	1234.57	1.24E+01	9.43	5.66E-03	4.77E-04
m	39	1239.58	4.42E+01	23.52	5.64E-03	4.76E-04
	40	1321.93	2.57E+01	20.88	5.38E-03	4.57E-04
	41	1354.97	1.80E+01	14.70	5.29E-03	4.49E-04
	42	1417.75	1.83E+01	17.82	5.12E-03	4.35E-04
	43	1431.67	1.85E+01	17.93	5.08E-03	4.31E-04
	44	1461.44	9.00E+02	66.49	5.00E-03	4.25E-04
	45	1509.00	1.09E+01	13.71	4.89E-03	4.14E-04

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1621.35	2.69E+01	17.32	4.65E-03	3.88E-04
47	1731.09	2.30E+01	15.40	4.43E-03	3.62E-04
48	1764.96	6.60E+01	20.71	4.37E-03	3.54E-04
49	1846.91	1.65E+01	12.19	4.24E-03	3.38E-04
50	1956.78	6.00E+00	4.90	4.07E-03	3.38E-04
51	1965.39	8.00E+00	10.10	4.05E-03	3.38E-04
52	2001.49	6.00E+00	4.90	4.00E-03	3.38E-04
53	2102.99	2.28E+01	12.81	3.86E-03	3.38E-04
54	2204.94	1.84E+01	16.67	3.74E-03	3.38E-04
55	2448.04	9.00E+00	9.17	3.47E-03	3.38E-04
56	2489.15	6.38E+00	6.65	3.43E-03	3.38E-04
57	2505.14	6.00E+00	4.90	3.41E-03	3.38E-04
58	2615.19	1.19E+02	21.82	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 : 8/21/2017 5:25:34PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	46.23	1.46E+02	63.28	3.67E+01	8.40E+00	1.10E+02	6.38E+01
m	2	49.38	4.43E+01	53.40			4.43E+01	5.34E+01
M	3	74.72	4.64E+02	100.16			4.64E+02	1.00E+02
m	4	77.25	7.22E+02	107.91	7.20E+00	1.47E+00	7.15E+02	1.08E+02
m	5	87.57	2.43E+02	80.44			2.43E+02	8.04E+01
m	6	92.27	2.83E+02	83.92	1.38E+02	1.72E+01	1.45E+02	8.57E+01
	7	128.78	9.43E+01	80.75			9.43E+01	8.07E+01
	8	144.79	7.34E+01	68.03			7.34E+01	6.80E+01
	9	186.14	2.55E+02	89.33	5.22E+01	7.59E+00	2.03E+02	8.97E+01
	10	199.66	5.60E+01	67.59			5.60E+01	6.76E+01
	11	209.58	1.11E+02	69.38			1.11E+02	6.94E+01
M	12	238.64	1.08E+03	79.93	2.13E+01	6.33E+00	1.06E+03	8.02E+01
m	13	241.72	2.88E+02	87.18			2.88E+02	8.72E+01
	14	270.40	9.50E+01	58.51	1.23E+00	4.98E+00	9.38E+01	5.87E+01
	15	278.99	8.40E+01	72.36			8.40E+01	7.24E+01
M	16	295.25	3.43E+02	53.07			3.43E+02	5.31E+01
m	17	300.19	8.44E+01	48.15			8.44E+01	4.81E+01

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	328.13	5.82E+01	47.95			5.82E+01	4.79E+01
	19	338.65	2.51E+02	59.99			2.51E+02	6.00E+01
	20	352.14	5.55E+02	86.47	5.79E+00	4.49E+00	5.49E+02	8.66E+01
	21	462.84	6.90E+01	49.46			6.90E+01	4.95E+01
	22	511.02	1.90E+02	56.88	7.28E+01	5.30E+00	1.17E+02	5.71E+01
	23	531.39	3.66E+01	35.10			3.66E+01	3.51E+01
	24	583.29	3.70E+02	51.54	2.72E+00	3.05E+00	3.67E+02	5.16E+01
	25	609.63	4.30E+02	62.81	6.35E+00	4.02E+00	4.23E+02	6.29E+01
	26	660.97	5.33E+01	32.54			5.33E+01	3.25E+01
	27	727.63	8.19E+01	46.21			8.19E+01	4.62E+01
	28	795.07	4.72E+01	28.84			4.72E+01	2.88E+01
	29	816.68	2.14E+01	23.02			2.14E+01	2.30E+01
	30	840.55	1.20E+02	57.72			1.20E+02	5.77E+01
M	31	855.23	2.75E+01	18.20			2.75E+01	1.82E+01
m	32	861.14	7.20E+01	25.56			7.20E+01	2.56E+01
	33	911.59	2.42E+02	47.39	5.31E+00	3.00E+00	2.37E+02	4.75E+01
	34	933.86	5.39E+01	32.85			5.39E+01	3.29E+01
	35	968.34	1.57E+02	45.55			1.57E+02	4.55E+01
	36	1121.13	1.14E+02	42.80			1.14E+02	4.28E+01
	37	1209.20	2.55E+01	26.91			2.55E+01	2.69E+01
M	38	1234.57	1.24E+01	9.43			1.24E+01	9.43E+00
m	39	1239.58	4.42E+01	23.52			4.42E+01	2.35E+01
	40	1321.93	2.57E+01	20.88			2.57E+01	2.09E+01
	41	1354.97	1.80E+01	14.70			1.80E+01	1.47E+01
	42	1417.75	1.83E+01	17.82			1.83E+01	1.78E+01
	43	1431.67	1.85E+01	17.93			1.85E+01	1.79E+01
	44	1461.44	9.00E+02	66.49	8.09E+00	2.23E+00	8.92E+02	6.65E+01
	45	1509.00	1.09E+01	13.71			1.09E+01	1.37E+01
	46	1621.35	2.69E+01	17.32			2.69E+01	1.73E+01
	47	1731.09	2.30E+01	15.40			2.30E+01	1.54E+01
	48	1764.96	6.60E+01	20.71			6.60E+01	2.07E+01
	49	1846.91	1.65E+01	12.19	1.22E+00	1.50E+00	1.53E+01	1.23E+01
	50	1956.78	6.00E+00	4.90			6.00E+00	4.90E+00
	51	1965.39	8.00E+00	10.10			8.00E+00	1.01E+01
	52	2001.49	6.00E+00	4.90			6.00E+00	4.90E+00
	53	2102.99	2.28E+01	12.81			2.28E+01	1.28E+01
	54	2204.94	1.84E+01	16.67			1.84E+01	1.67E+01
	55	2448.04	9.00E+00	9.17			9.00E+00	9.17E+00
	56	2489.15	6.38E+00	6.65			6.38E+00	6.65E+00
	57	2505.14	6.00E+00	4.90			6.00E+00	4.90E+00
	58	2615.19	1.19E+02	21.82	5.63E+00	1.38E+00	1.13E+02	2.19E+01

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

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 5:25:34PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.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	46.23	1.46E+02	63.28	3.67E+01	8.40E+00	1.10E+02	6.38E+01
m	2	49.38	4.43E+01	53.40			4.43E+01	5.34E+01
M	3	74.72	4.64E+02	100.16			4.64E+02	1.00E+02
m	4	77.25	7.22E+02	107.91	7.20E+00	1.47E+00	7.15E+02	1.08E+02
m	5	87.57	2.43E+02	80.44			2.43E+02	8.04E+01
m	6	92.27	2.83E+02	83.92	1.38E+02	1.72E+01	1.45E+02	8.57E+01
	7	128.78	9.43E+01	80.75			9.43E+01	8.07E+01
	8	144.79	7.34E+01	68.03			7.34E+01	6.80E+01
	9	186.14	2.55E+02	89.33	5.22E+01	7.59E+00	2.03E+02	8.97E+01
	10	199.66	5.60E+01	67.59			5.60E+01	6.76E+01
	11	209.58	1.11E+02	69.38			1.11E+02	6.94E+01
M	12	238.64	1.08E+03	79.93	2.13E+01	6.33E+00	1.06E+03	8.02E+01
m	13	241.72	2.88E+02	87.18			2.88E+02	8.72E+01
	14	270.40	9.50E+01	58.51	1.23E+00	4.98E+00	9.38E+01	5.87E+01
	15	278.99	8.40E+01	72.36			8.40E+01	7.24E+01
M	16	295.25	3.43E+02	53.07			3.43E+02	5.31E+01
m	17	300.19	8.44E+01	48.15			8.44E+01	4.81E+01
	18	328.13	5.82E+01	47.95			5.82E+01	4.79E+01
	19	338.65	2.51E+02	59.99			2.51E+02	6.00E+01
	20	352.14	5.55E+02	86.47	5.79E+00	4.49E+00	5.49E+02	8.66E+01
	21	462.84	6.90E+01	49.46			6.90E+01	4.95E+01
	22	511.02	1.90E+02	56.88	7.28E+01	5.30E+00	1.17E+02	5.71E+01
	23	531.39	3.66E+01	35.10			3.66E+01	3.51E+01
	24	583.29	3.70E+02	51.54	2.72E+00	3.05E+00	3.67E+02	5.16E+01
	25	609.63	4.30E+02	62.81	6.35E+00	4.02E+00	4.23E+02	6.29E+01
	26	660.97	5.33E+01	32.54			5.33E+01	3.25E+01
	27	727.63	8.19E+01	46.21			8.19E+01	4.62E+01
	28	795.07	4.72E+01	28.84			4.72E+01	2.88E+01
	29	816.68	2.14E+01	23.02			2.14E+01	2.30E+01
	30	840.55	1.20E+02	57.72			1.20E+02	5.77E+01
M	31	855.23	2.75E+01	18.20			2.75E+01	1.82E+01
m	32	861.14	7.20E+01	25.56			7.20E+01	2.56E+01
	33	911.59	2.42E+02	47.39	5.31E+00	3.00E+00	2.37E+02	4.75E+01
	34	933.86	5.39E+01	32.85			5.39E+01	3.29E+01
	35	968.34	1.57E+02	45.55			1.57E+02	4.55E+01
	36	1121.13	1.14E+02	42.80			1.14E+02	4.28E+01
	37	1209.20	2.55E+01	26.91			2.55E+01	2.69E+01
M	38	1234.57	1.24E+01	9.43			1.24E+01	9.43E+00
m	39	1239.58	4.42E+01	23.52			4.42E+01	2.35E+01
	40	1321.93	2.57E+01	20.88			2.57E+01	2.09E+01
	41	1354.97	1.80E+01	14.70			1.80E+01	1.47E+01

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	1417.75	1.83E+01	17.82			1.83E+01	1.78E+01
43	1431.67	1.85E+01	17.93			1.85E+01	1.79E+01
44	1461.44	9.00E+02	66.49	8.09E+00	2.23E+00	8.92E+02	6.65E+01
45	1509.00	1.09E+01	13.71			1.09E+01	1.37E+01
46	1621.35	2.69E+01	17.32			2.69E+01	1.73E+01
47	1731.09	2.30E+01	15.40			2.30E+01	1.54E+01
48	1764.96	6.60E+01	20.71			6.60E+01	2.07E+01
49	1846.91	1.65E+01	12.19	1.22E+00	1.50E+00	1.53E+01	1.23E+01
50	1956.78	6.00E+00	4.90			6.00E+00	4.90E+00
51	1965.39	8.00E+00	10.10			8.00E+00	1.01E+01
52	2001.49	6.00E+00	4.90			6.00E+00	4.90E+00
53	2102.99	2.28E+01	12.81			2.28E+01	1.28E+01
54	2204.94	1.84E+01	16.67			1.84E+01	1.67E+01
55	2448.04	9.00E+00	9.17			9.00E+00	9.17E+00
56	2489.15	6.38E+00	6.65			6.38E+00	6.65E+00
57	2505.14	6.00E+00	4.90			6.00E+00	4.90E+00
58	2615.19	1.19E+02	21.82	5.63E+00	1.38E+00	1.13E+02	2.19E+01

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

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	0.939	1460.81	*	10.67	2.46E+01	2.82E+00
CD-109	0.966	88.03	*	3.72	4.06E+00	1.42E+00
SN-126	1.000	87.57	*	37.00	3.52E-01	1.21E-01
CS-137	0.929	661.65	*	85.12	1.02E-01	6.35E-02
CE-141	0.893	145.44	*	48.40	7.46E-01	8.04E-01
HG-203	0.972	279.19	*	77.30	4.04E-01	3.50E-01
TL-208	0.970	583.14	*	30.22	1.80E+00	3.12E-01
		860.37	*	4.48	3.20E+00	1.17E+00
		2614.66	*	35.85	1.41E+00	3.07E-01
PB-210	0.989	46.50	*	4.25	1.56E+00	9.17E-01
BI-212	0.957	727.17	*	11.80	1.21E+00	6.96E-01
		1620.62	*	2.75	3.09E+00	2.01E+00
PB-212	1.000	238.63	*	44.60	1.86E+00	2.06E-01
		300.09	*	3.41	2.24E+00	1.29E+00

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.959	609.31	*	46.30	1.40E+00	2.54E-01
		1120.29	*	15.10	1.82E+00	7.04E-01
		1764.49	*	15.80	1.41E+00	4.55E-01
		2204.22	*	4.98	1.46E+00	1.32E+00
PB-214	0.995	295.21	*	19.19	1.60E+00	2.81E-01
		351.92	*	37.19	1.49E+00	2.68E-01
RA-224	0.917	240.98	*	3.95	5.72E+00	1.80E+00
RA-226	0.999	186.21	*	3.28	4.18E+00	7.88E+00
AC-228	0.948	338.32	*	11.40	2.17E+00	5.50E-01
		911.07	*	27.70	1.78E+00	3.86E-01
		969.11	*	16.60	2.05E+00	6.21E-01
TH-230	0.521	48.44	*	16.90	1.53E-01	1.85E-01
		62.85		4.60		
		67.67		0.37		
AM-243	1.000	74.67	*	66.00	3.77E-01	8.76E-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 : 8/21/2017 5:25:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.25	1.98648E-01	7.55		
m	6	92.27	4.04140E-02	29.44	Sum	
	7	128.78	2.61966E-02	42.81		
	10	199.66	1.55649E-02	60.31		
	11	209.58	3.09633E-02	31.12	Tol.	GA-67 CM-243
	14	270.40	2.60430E-02	31.32		
	18	328.13	1.61600E-02	41.21	Sum	
	21	462.84	1.91684E-02	35.84	Tol.	SB-125
	22	511.02	3.24950E-02	24.42		
	23	531.39	1.01792E-02	47.89	Tol.	ND-147
	28	795.07	1.31069E-02	30.57	Sum	
	29	816.68	5.93862E-03	53.83	Tol.	LA-140
	30	840.55	3.32846E-02	24.09		

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	31	855.23	7.63067E-03	33.13		
	34	933.86	1.49700E-02	30.48		
	37	1209.20	7.07792E-03	52.80	Sum	
M	38	1234.57	3.44486E-03	38.04	Tol.	CS-136
m	39	1239.58	1.22835E-02	26.59		
	40	1321.93	7.12560E-03	40.70	Sum	
	41	1354.97	5.00000E-03	40.82		
	42	1417.75	5.07353E-03	48.78		
	43	1431.67	5.13889E-03	48.46		
	45	1509.00	3.01932E-03	63.07		
	47	1731.09	6.38889E-03	33.48	Sum	
	49	1846.91	4.24322E-03	40.19		
	50	1956.78	1.66667E-03	40.82		
	51	1965.39	2.22222E-03	63.12		
	52	2001.49	1.66667E-03	40.82		
	53	2102.99	6.33621E-03	28.07	Sum	
	55	2448.04	2.50000E-03	50.92		
	56	2489.15	1.77083E-03	52.17		
	57	2505.14	1.66667E-03	40.82	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.93	1460.81	*	10.67	2.46E+01	2.82E+00
CD-109	0.96	88.03	*	3.72	4.06E+00	1.42E+00
SN-126	1.00	87.57	*	37.00	3.52E-01	1.21E-01
CS-137	0.92	661.65	*	85.12	1.02E-01	6.35E-02
CE-141	0.89	145.44	*	48.40	7.46E-01	8.04E-01
HG-203	0.97	279.19	*	77.30	4.04E-01	3.50E-01
TL-208	0.97	583.14	*	30.22	1.80E+00	3.12E-01
		860.37	*	4.48	3.20E+00	1.17E+00
		2614.66	*	35.85	1.41E+00	3.07E-01

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-210	0.98	46.50	*	4.25	1.56E+00	9.17E-01
BI-212	0.95	727.17	*	11.80	1.21E+00	6.96E-01
		1620.62	*	2.75	3.09E+00	2.01E+00
PB-212	1.00	238.63	*	44.60	1.86E+00	2.06E-01
		300.09	*	3.41	2.24E+00	1.29E+00
BI-214	0.95	609.31	*	46.30	1.40E+00	2.54E-01
		1120.29	*	15.10	1.82E+00	7.04E-01
		1764.49	*	15.80	1.41E+00	4.55E-01
		2204.22	*	4.98	1.46E+00	1.32E+00
PB-214	0.99	295.21	*	19.19	1.60E+00	2.81E-01
		351.92	*	37.19	1.49E+00	2.68E-01
RA-224	0.91	240.98	*	3.95	5.72E+00	1.80E+00
RA-226	0.99	186.21	*	3.28	4.18E+00	7.88E+00
AC-228	0.94	338.32	*	11.40	2.17E+00	5.50E-01
		911.07	*	27.70	1.78E+00	3.86E-01
		969.11	*	16.60	2.05E+00	6.21E-01
TH-230	0.52	48.44	*	16.90	1.53E-01	1.85E-01
		62.85		4.60		
		67.67		0.37		
AM-243	1.00	74.67	*	66.00	3.77E-01	8.76E-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	0.939	2.46E+01	2.82E+00	
?	CD-109	0.966	4.06E+00	1.42E+00	
?	SN-126	1.000	3.52E-01	1.21E-01	
	CS-137	0.929	1.02E-01	6.35E-02	
	CE-141	0.893	7.46E-01	8.04E-01	
	HG-203	0.972	4.04E-01	3.50E-01	
	TL-208	0.970	1.65E+00	2.15E-01	

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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-210	0.989	1.56E+00	9.17E-01	
BI-212	0.957	1.42E+00	6.58E-01	
PB-212	1.000	1.87E+00	2.03E-01	
BI-214	0.959	1.44E+00	2.09E-01	
PB-214	0.995	1.54E+00	1.94E-01	
RA-224	0.917	5.72E+00	1.80E+00	
RA-226	0.999	4.18E+00	7.88E+00	
AC-228	0.948	1.94E+00	2.81E-01	
TH-230	0.521	1.53E-01	1.85E-01	
AM-243	1.000	3.77E-01	8.76E-02	

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

Errors quoted at 2.000sigma

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 5:25:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.25	1.98648E-01	7.55		
m	6	92.27	4.04140E-02	29.44	Sum	
	7	128.78	2.61966E-02	42.81		
	10	199.66	1.55649E-02	60.31		
	11	209.58	3.09633E-02	31.12	Tol.	GA-67 CM-243
	14	270.40	2.60430E-02	31.32		
	18	328.13	1.61600E-02	41.21	Sum	
	21	462.84	1.91684E-02	35.84	Tol.	SB-125
	22	511.02	3.24950E-02	24.42		
	23	531.39	1.01792E-02	47.89	Tol.	ND-147
	28	795.07	1.31069E-02	30.57	Sum	
	29	816.68	5.93862E-03	53.83	Tol.	LA-140
	30	840.55	3.32846E-02	24.09		
M	31	855.23	7.63067E-03	33.13		
	34	933.86	1.49700E-02	30.48		
	37	1209.20	7.07792E-03	52.80	Sum	
M	38	1234.57	3.44486E-03	38.04	Tol.	CS-136
m	39	1239.58	1.22835E-02	26.59		
	40	1321.93	7.12560E-03	40.70	Sum	
	41	1354.97	5.00000E-03	40.82		
	42	1417.75	5.07353E-03	48.78		
	43	1431.67	5.13889E-03	48.46		
	45	1509.00	3.01932E-03	63.07		
	47	1731.09	6.38889E-03	33.48	Sum	
	49	1846.91	4.24322E-03	40.19		
	50	1956.78	1.66667E-03	40.82		
	51	1965.39	2.22222E-03	63.12		
	52	2001.49	1.66667E-03	40.82		
	53	2102.99	6.33621E-03	28.07	Sum	
	55	2448.04	2.50000E-03	50.92		
	56	2489.15	1.77083E-03	52.17		
	57	2505.14	1.66667E-03	40.82	Sum	

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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	9.22E-01	2.50E+00	2.50E+00
+		NA-22	1274.54		99.94	-2.32E-03	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	2.14E-02	5.44E-02	5.44E-02
+		K-40	1460.81	*	10.67	2.46E+01	1.40E+00	1.40E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-7.98E-02	7.13E-02	7.13E-02
			78.34		96.00	2.72E-01		1.01E-01
+		SC-46	889.25		99.98	8.87E-03	1.84E-01	1.84E-01
			1120.51		99.99	2.86E-01		3.10E-01
+		V-48	983.52		99.98	1.21E+00	5.43E+00	5.43E+00
			1312.10		97.50	4.68E+00		6.47E+00
+		CR-51	320.08		9.83	-7.12E-01	8.06E+00	8.06E+00
+		MN-54	834.83		99.97	9.50E-02	1.17E-01	1.17E-01
+		CO-56	846.75		99.96	1.68E-01	2.01E-01	2.01E-01
			1037.75		14.03	-1.39E-01		1.41E+00
			1238.25		67.00	3.10E-01		4.44E-01
			1771.40		15.51	8.78E-02		9.00E-01
			2598.48		16.90	0.00E+00		5.78E-01
+		CO-57	122.06		85.51	1.06E-02	8.37E-02	8.37E-02
			136.48		10.60	-8.50E-02		6.85E-01
+		CO-58	810.76		99.40	-5.66E-02	1.86E-01	1.86E-01
+		FE-59	1099.22		56.50	-4.78E-02	6.80E-01	6.80E-01
			1291.56		43.20	-1.59E-01		7.31E-01
+		CO-60	1173.22		100.00	-4.23E-02	8.27E-02	9.41E-02
			1332.49		100.00	9.62E-03		8.27E-02
+		ZN-65	1115.52		50.75	1.55E-02	2.55E-01	2.55E-01
+		GA-67	93.31		35.70	5.26E+08	2.60E+08	2.60E+08
			208.95		2.24	4.06E+09		3.68E+09
			300.22		16.00	-1.36E+09		5.54E+08
+		SE-75	121.11		16.70	1.08E-01	1.68E-01	5.86E-01

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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	-2.09E-02	1.68E-01	1.68E-01
		264.65		59.80	7.75E-02		1.84E-01
		279.53		25.20	4.61E-01		5.23E-01
		400.65		11.40	-3.45E-02		1.10E+00
+	RB-82	776.52		13.00	-5.11E+00	8.92E+00	8.92E+00
+	RB-83	520.41		46.00	-1.45E-01	3.31E-01	3.31E-01
		529.64		30.30	5.24E-02		5.23E-01
		552.65		16.40	3.93E-01		9.98E-01
+	KR-85	513.99		0.43	3.34E+01	2.41E+01	2.41E+01
+	SR-85	513.99		99.27	4.11E-01	2.96E-01	2.96E-01
+	Y-88	898.02		93.40	-7.43E-02	1.24E-01	1.52E-01
		1836.01		99.38	6.49E-02		1.24E-01
+	MO-93	263.06		56.72	7.29E-02	5.72E-02	1.15E-01
		684.67		99.68	-1.40E-02		7.05E-02
		1477.11		99.08	-1.10E-02		5.72E-02
+	NB-93M	16.57		9.43	-4.41E-02	6.39E-01	6.39E-01
+	NB-94	702.63		100.00	3.89E-03	6.59E-02	7.85E-02
		871.10		100.00	-2.32E-02		6.59E-02
+	NB-95	765.79		99.81	2.69E-01	6.67E-01	6.67E-01
+	NB-95M	235.69		25.00	-4.10E+08	4.80E+07	4.80E+07
+	ZR-95	724.18		43.70	-3.68E-03	4.12E-01	6.50E-01
		756.72		55.30	-3.92E-02		4.12E-01
+	MO-99	181.06		6.20	2.18E+09	3.42E+10	5.57E+10
		739.58		12.80	-2.00E+09		3.42E+10
		778.00		4.50	-8.19E+10		9.86E+10
+	RU-103	497.08		89.00	-7.08E-02	4.26E-01	4.26E-01
+	RU-106	621.84		9.80	-4.66E-01	8.03E-01	8.03E-01
+	AG-108M	433.93		89.90	-3.29E-02	7.67E-02	7.67E-02
		614.37		90.40	-6.99E-03		9.70E-02
		722.95		90.50	2.17E-02		9.49E-02
+	CD-109	88.03	*	3.72	4.06E+00	4.62E+00	4.62E+00
+	AG-110M	657.75		93.14	7.25E-03	1.20E-01	1.20E-01
		677.61		10.53	-2.56E-01		9.27E-01
		706.67		16.46	7.46E-02		6.30E-01
		763.93		21.98	-3.81E-02		5.24E-01
		884.67		71.63	-1.03E-01		1.31E-01
		1384.27		23.94	2.48E-01		4.63E-01
+	CD-113M	263.70		0.02	1.27E+02	2.77E+02	2.77E+02
+	SN-113	255.12		1.93	2.22E+00	1.82E-01	5.41E+00
		391.69		64.90	-5.54E-02		1.82E-01
+	TE123M	159.00		84.10	-2.38E-03	1.22E-01	1.22E-01
+	SB-124	602.71		97.87	8.23E-02	2.35E-01	2.35E-01
		645.85		7.26	2.11E-02		3.09E+00
		722.78		11.10	5.47E-01		2.40E+00
		1691.02		49.00	1.03E-01		3.60E-01
+	I-125	35.49		6.49	3.36E-01	2.97E+00	2.97E+00
+	SB-125	176.33		6.89	-1.53E-01	2.43E-01	8.91E-01
		427.89		29.33	1.55E-02		2.43E-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	6.55E-01	2.43E-01	8.73E-01
		600.56		17.80	1.32E-02		4.40E-01
		635.90		11.32	2.95E-01		6.76E-01
+	SB-126	414.70		83.30	-3.41E+00	1.83E+01	2.13E+01
		666.33		99.60	-6.10E+00		1.83E+01
		695.00		99.60	-1.55E+00		2.03E+01
		720.50		53.80	1.06E+01		3.63E+01
+	SN-126	87.57	*	37.00	3.52E-01	4.01E-01	4.01E-01
+	SB-127	473.00		25.00	-6.65E+06	9.43E+06	1.38E+07
		685.20		35.70	-1.88E+06		9.43E+06
		783.80		14.70	6.34E+06		2.98E+07
+	I-129	29.78		57.00	-1.96E-02	1.20E-01	1.20E-01
		33.60		13.20	1.98E-01		4.79E-01
		39.58		7.52	4.88E-01		8.16E-01
+	I-131	284.30		6.05	-1.87E+01	3.78E+02	5.49E+03
		364.48		81.20	-1.53E+02		3.78E+02
		636.97		7.26	-1.31E+03		4.52E+03
		722.89		1.80	5.22E+03		2.29E+04
+	TE-132	49.72		13.10	-1.05E+09	8.02E+07	5.63E+08
		228.16		88.00	1.90E+06		8.02E+07
+	BA-133	81.00		33.00	-7.89E-01	1.65E-01	2.12E-01
		302.84		17.80	-1.84E-02		4.27E-01
		356.01		60.00	-5.96E-02		1.65E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.97E+05	7.99E+04	7.99E+04
+	CS-134	563.23		8.38	-7.40E-02	9.32E-02	9.20E-01
		569.32		15.43	4.52E-03		5.06E-01
		604.70		97.60	1.53E-02		9.32E-02
		795.84		85.40	1.16E-01		1.16E-01
		801.93		8.73	-1.15E-01		8.94E-01
+	CS-135	268.24		16.00	9.33E-02	4.51E-01	4.51E-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	3.61E+01	1.36E+01	1.47E+02
		163.89		4.61	2.68E+01		2.23E+02
		176.55		13.56	-1.29E+01		7.51E+01
		273.65		12.66	-6.16E+01		1.01E+02
		340.57		48.50	7.16E+01		3.41E+01
		818.50		99.70	1.86E+00		1.36E+01
		1048.07		79.60	2.58E+00		1.94E+01
		1235.34		19.70	8.68E-01		1.04E+02
+	CS-137	661.65	*	85.12	1.02E-01	9.71E-02	9.71E-02
+	LA-138	788.74		34.00	8.18E-02	9.87E-02	2.44E-01
		1435.80		66.00	-8.79E-03		9.87E-02
+	CE-139	165.85		80.35	3.33E-02	1.19E-01	1.19E-01
+	BA-140	162.64		6.70	-8.02E+01	4.98E+01	1.75E+02
		304.84		4.50	-2.67E+01		3.02E+02
		423.70		3.20	-1.01E+02		4.09E+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	1.30E+02	4.98E+01	7.37E+02
			537.32		25.00	0.00E+00		4.98E+01
+		LA-140	328.77		20.50	1.98E+01	1.79E+01	7.35E+01
			487.03		45.50	9.35E+00		3.12E+01
			815.85		23.50	2.97E+01		6.64E+01
			1596.49		95.49	4.17E+00		1.79E+01
+		CE-141	145.44	*	48.40	7.46E-01	1.13E+00	1.13E+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	2.19E-01	6.73E-01	6.73E-01
+		PM-144	476.78		42.00	-1.34E-02	8.47E-02	2.04E-01
			618.01		98.60	-3.04E-02		8.47E-02
			696.49		99.49	8.40E-03		1.00E-01
+		PM-145	36.85		21.70	-5.38E-02	1.57E-01	2.85E-01
			37.36		39.70	-5.47E-02		1.57E-01
			42.30		15.10	7.77E-02		3.88E-01
			72.40		2.31	3.84E-01		3.65E+00
+		PM-146	453.90		39.94	6.92E-02	1.82E-01	1.82E-01
			735.90		14.01	1.76E-01		5.77E-01
			747.13		13.10	-4.49E-01		5.16E-01
+		ND-147	91.11		28.90	2.41E+02	1.42E+02	1.42E+02
			531.02		13.10	1.47E+02		2.75E+02
+		PM-149	285.90		3.10	4.17E+12	5.35E+13	5.35E+13
+		EU-152	121.78		20.50	5.04E-02	2.74E-01	2.74E-01
			244.69		5.40	-5.15E-01		1.28E+00
			344.27		19.13	2.98E-03		3.29E-01
			778.89		9.20	-3.76E-01		8.79E-01
			964.01		10.40	-9.04E-02		9.99E-01
			1085.78		7.22	-3.32E-02		1.18E+00
			1112.02		9.60	3.82E-02		9.39E-01
			1407.95		14.94	2.96E-01		5.79E-01
+		GD-153	97.43		31.30	1.00E-01	2.47E-01	2.47E-01
			103.18		22.20	-1.57E-01		3.28E-01
+		EU-154	123.07		40.50	-6.19E-03	1.41E-01	1.41E-01
			723.30		19.70	1.02E-01		4.45E-01
			873.19		11.50	-9.39E-02		6.12E-01
			996.32		10.30	-2.11E-01		7.77E-01
			1004.76		17.90	2.36E-01		4.66E-01
			1274.45		35.50	-6.21E-03		2.80E-01
+		EU-155	86.50		30.90	7.13E-02	2.54E-01	2.54E-01
			105.30		20.70	3.95E-02		2.86E-01
+		EU-156	811.77		10.40	-2.14E+01	6.15E+01	6.15E+01
			1153.47		7.20	-2.21E+01		1.13E+02
			1230.71		8.90	-2.00E+01		9.56E+01
+		HO-166M	184.41		72.60	1.34E-01	1.01E-01	1.01E-01
			280.45		29.60	1.31E-01		2.48E-01
			410.94		11.10	1.12E-01		6.91E-01
			711.69		54.10	1.72E-02		1.48E-01

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-9.76E+01	5.37E+01	5.37E+01
+	HF-172	67.35		5.31	-1.56E+00	5.59E-01	1.40E+00
		125.81		11.30	1.99E-03		5.59E-01
+	LU-172	181.53		20.60	2.99E+02	3.64E+03	7.65E+03
		900.72		29.81	-1.87E+03		6.83E+03
		1093.66		62.50	-8.55E+02		3.64E+03
+	LU-173	100.72		5.24	2.78E-01	4.04E-01	1.23E+00
		272.11		21.20	1.86E-01		4.04E-01
+	HF-175	343.40		84.00	1.77E-03	2.00E-01	2.00E-01
+	LU-176	88.34		13.30	1.25E-01	6.91E-02	5.96E-01
		201.83		86.00	-4.00E-02		6.91E-02
		306.78		94.00	-2.21E-04		6.99E-02
+	HF-181	133.02		41.70	2.23E-01	4.08E-01	6.84E-01
		345.85		17.20	1.64E-02		1.80E+00
		482.03		82.80	-1.96E-01		4.08E-01
+	TA-182	67.75		41.20	-3.31E-01	2.96E-01	2.96E-01
		1121.30		34.90	8.69E-01		7.23E-01
		1189.05		16.23	7.35E-01		1.19E+00
		1221.41		26.98	-7.18E-02		6.98E-01
		1231.02		11.44	-3.17E-01		1.52E+00
+	IR-192	308.46		29.68	5.82E-02	3.87E-01	5.60E-01
		468.07		48.10	-9.18E-02		3.87E-01
+	HG-203	279.19	*	77.30	4.04E-01	5.67E-01	5.67E-01
+	TL-204	374.74		94.11	-1.06E-02	7.40E-02	7.40E-02
		899.15		99.16	-3.76E-02		8.17E-02
		911.74		91.10	5.86E-01		1.99E-01
+	BI-207	569.67		97.72	3.13E-02	7.52E-02	7.52E-02
		1063.62		74.90	1.72E-02		1.12E-01
+	TL-208	583.14	*	30.22	1.80E+00	1.35E-01	2.91E-01
		860.37	*	4.48	3.20E+00		2.63E+00
		2614.66	*	35.85	1.41E+00		1.35E-01
+	BI-210M	262.00		45.00	-7.83E-02	1.38E-01	1.38E-01
		300.00		23.00	-1.36E+00		3.37E-01
+	PB-210	46.50	*	4.25	1.56E+00	2.70E+00	2.70E+00
+	PB-211	404.84		2.90	-1.18E+00	2.43E+00	2.43E+00
		831.96		2.90	-4.17E-01		2.86E+00
+	BI-212	727.17	*	11.80	1.21E+00	1.08E+00	1.08E+00
		1620.62	*	2.75	3.09E+00		2.94E+00
+	PB-212	238.63	*	44.60	1.86E+00	2.84E-01	2.84E-01
		300.09	*	3.41	2.24E+00		3.76E+00
+	BI-214	609.31	*	46.30	1.40E+00	2.67E-01	2.67E-01
		1120.29	*	15.10	1.82E+00		1.02E+00
		1764.49	*	15.80	1.41E+00		5.07E-01
		2204.22	*	4.98	1.46E+00		2.07E+00
+	PB-214	295.21	*	19.19	1.60E+00	3.33E-01	6.56E-01
		351.92	*	37.19	1.49E+00		3.33E-01
+	RN-219	401.80		6.50	-1.68E-01	1.07E+00	1.07E+00
+	RA-223	323.87		3.88	5.13E-01	1.78E+00	1.78E+00

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	5.72E+00	3.23E+00	3.23E+00
+	RA-225	40.00		31.00	4.56E+00	1.94E+01	1.94E+01
+	RA-226	186.21	*	3.28	4.18E+00	2.95E+00	2.95E+00
+	TH-227	50.10		8.40	-5.84E-01	6.61E-01	7.26E-01
		236.00		11.50	-5.65E+00		6.61E-01
		256.20		6.30	2.56E-01		1.05E+00
+	AC-228	338.32	*	11.40	2.17E+00	4.66E-01	7.47E-01
		911.07	*	27.70	1.78E+00		4.66E-01
		969.11	*	16.60	2.05E+00		8.55E-01
+	TH-230	48.44	*	16.90	1.53E-01	6.46E-01	6.46E-01
		62.85		4.60	2.00E+00		1.65E+00
		67.67		0.37	-2.03E+01		1.81E+01
+	PA-231	283.67		1.60	-2.00E-01	3.25E+00	4.36E+00
		302.67		2.30	-1.40E-01		3.25E+00
+	TH-231	25.64		14.70	-3.06E+00	6.51E-01	6.51E-01
		84.21		6.40	-1.20E+00		1.10E+00
+	PA-233	311.98		38.60	3.36E-01	2.13E+00	2.13E+00
+	PA-234	131.20		20.40	2.48E-02	2.89E-01	2.89E-01
		733.99		8.80	2.70E-01		8.87E-01
		946.00		12.00	-2.18E-01		5.85E-01
+	PA-234M	1001.03		0.92	1.71E+00	9.01E+00	9.01E+00
+	TH-234	63.29		3.80	2.64E+00	2.00E+00	2.00E+00
+	U-235	143.76		10.50	4.53E-02	5.60E-01	5.60E-01
		163.35		4.70	1.48E-01		1.23E+00
		205.31		4.70	3.42E-01		1.31E+00
+	NP-237	86.50		12.60	1.68E-01	6.01E-01	6.01E-01
+	NP-239	106.10		22.70	2.91E+11	9.42E+11	9.42E+11
		228.18		10.70	4.77E+10		2.01E+12
		277.60		14.10	7.27E+11		1.91E+12
+	AM-241	59.54		35.90	-1.00E-01	1.86E-01	1.86E-01
+	AM-243	74.67	*	66.00	3.77E-01	2.03E-01	2.03E-01
+	CM-243	209.75		3.29	2.82E+00	5.23E-01	2.12E+00
		228.14		10.60	1.31E-02		5.53E-01
		277.60		14.00	1.99E-01		5.23E-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 1707086-10

HTC-A03-S001-0006-01

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	2.50E+00	2.50E+00	9.22E-01	1.19E+00
	NA-22	1274.54		99.94	1.05E-01	1.05E-01	-2.32E-03	4.85E-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	5.44E-02	5.44E-02	2.14E-02	2.26E-02
+	K-40	1460.81	*	10.67	1.40E+00	1.40E+00	2.46E+01	6.63E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.13E-02	7.13E-02	-7.98E-02	3.49E-02
		78.34		96.00	1.01E-01		2.72E-01	5.00E-02
	SC-46	889.25		99.98	1.84E-01	1.84E-01	8.87E-03	8.55E-02
		1120.51		99.99	3.10E-01		2.86E-01	1.48E-01
	V-48	983.52		99.98	5.43E+00	5.43E+00	1.21E+00	2.50E+00
		1312.10		97.50	6.47E+00		4.68E+00	2.96E+00
	CR-51	320.08		9.83	8.06E+00	8.06E+00	-7.12E-01	3.88E+00
	MN-54	834.83		99.97	1.17E-01	1.17E-01	9.50E-02	5.54E-02
	CO-56	846.75		99.96	2.01E-01	2.01E-01	1.68E-01	9.40E-02
		1037.75		14.03	1.41E+00		-1.39E-01	6.50E-01
		1238.25		67.00	4.44E-01		3.10E-01	2.10E-01
		1771.40		15.51	9.00E-01		8.78E-02	3.80E-01
		2598.48		16.90	5.78E-01		0.00E+00	2.05E-01
	CO-57	122.06		85.51	8.37E-02	8.37E-02	1.06E-02	4.07E-02
		136.48		10.60	6.85E-01		-8.50E-02	3.33E-01
	CO-58	810.76		99.40	1.86E-01	1.86E-01	-5.66E-02	8.64E-02
	FE-59	1099.22		56.50	6.80E-01	6.80E-01	-4.78E-02	3.14E-01
		1291.56		43.20	7.31E-01		-1.59E-01	3.27E-01
	CO-60	1173.22		100.00	9.41E-02	8.27E-02	-4.23E-02	4.36E-02
		1332.49		100.00	8.27E-02		9.62E-03	3.75E-02
	ZN-65	1115.52		50.75	2.55E-01	2.55E-01	1.55E-02	1.19E-01
	GA-67	93.31		35.70	2.60E+08	2.60E+08	5.26E+08	1.28E+08
		208.95		2.24	3.68E+09		4.06E+09	1.79E+09
		300.22		16.00	5.54E+08		-1.36E+09	2.68E+08
	SE-75	121.11		16.70	5.86E-01	1.68E-01	1.08E-01	2.85E-01
		136.00		59.20	1.68E-01		-2.09E-02	8.17E-02
		264.65		59.80	1.84E-01		7.75E-02	8.86E-02
		279.53		25.20	5.23E-01		4.61E-01	2.53E-01
		400.65		11.40	1.10E+00		-3.45E-02	5.27E-01
	RB-82	776.52		13.00	8.92E+00	8.92E+00	-5.11E+00	4.19E+00
	RB-83	520.41		46.00	3.31E-01	3.31E-01	-1.45E-01	1.57E-01
		529.64		30.30	5.23E-01		5.24E-02	2.48E-01
		552.65		16.40	9.98E-01		3.93E-01	4.73E-01
	KR-85	513.99		0.43	2.41E+01	2.41E+01	3.34E+01	1.16E+01
	SR-85	513.99		99.27	2.96E-01	2.96E-01	4.11E-01	1.43E-01

Analysis Report for 1707086-10

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.52E-01	1.24E-01	-7.43E-02	7.06E-02
		1836.01		99.38	1.24E-01		6.49E-02	5.32E-02
	MO-93	263.06		56.72	1.15E-01	5.72E-02	7.29E-02	5.56E-02
		684.67		99.68	7.05E-02		-1.40E-02	3.29E-02
		1477.11		99.08	5.72E-02		-1.10E-02	2.45E-02
	NB-93M	16.57		9.43	6.39E-01	6.39E-01	-4.41E-02	3.00E-01
	NB-94	702.63		100.00	7.85E-02	6.59E-02	3.89E-03	3.70E-02
		871.10		100.00	6.59E-02		-2.32E-02	3.03E-02
	NB-95	765.79		99.81	6.67E-01	6.67E-01	2.69E-01	3.16E-01
	NB-95M	235.69		25.00	4.80E+07	4.80E+07	-4.10E+08	2.33E+07
	ZR-95	724.18		43.70	6.50E-01	4.12E-01	-3.68E-03	3.09E-01
		756.72		55.30	4.12E-01		-3.92E-02	1.93E-01
	MO-99	181.06		6.20	5.57E+10	3.42E+10	2.18E+09	2.70E+10
		739.58		12.80	3.42E+10		-2.00E+09	1.60E+10
		778.00		4.50	9.86E+10		-8.19E+10	4.61E+10
	RU-103	497.08		89.00	4.26E-01	4.26E-01	-7.08E-02	2.02E-01
	RU-106	621.84		9.80	8.03E-01	8.03E-01	-4.66E-01	3.76E-01
	AG-108M	433.93		89.90	7.67E-02	7.67E-02	-3.29E-02	3.66E-02
		614.37		90.40	9.70E-02		-6.99E-03	4.62E-02
		722.95		90.50	9.49E-02		2.17E-02	4.48E-02
+	CD-109	88.03	*	3.72	4.62E+00	4.62E+00	4.06E+00	2.29E+00
	AG-110M	657.75		93.14	1.20E-01	1.20E-01	7.25E-03	5.70E-02
		677.61		10.53	9.27E-01		-2.56E-01	4.35E-01
		706.67		16.46	6.30E-01		7.46E-02	2.96E-01
		763.93		21.98	5.24E-01		-3.81E-02	2.47E-01
		884.67		71.63	1.31E-01		-1.03E-01	6.06E-02
		1384.27		23.94	4.63E-01		2.48E-01	2.10E-01
	CD-113M	263.70		0.02	2.77E+02	2.77E+02	1.27E+02	1.34E+02
	SN-113	255.12		1.93	5.41E+00	1.82E-01	2.22E+00	2.60E+00
		391.69		64.90	1.82E-01		-5.54E-02	8.68E-02
	TE123M	159.00		84.10	1.22E-01	1.22E-01	-2.38E-03	5.90E-02
	SB-124	602.71		97.87	2.35E-01	2.35E-01	8.23E-02	1.11E-01
		645.85		7.26	3.09E+00		2.11E-02	1.45E+00
		722.78		11.10	2.40E+00		5.47E-01	1.13E+00
		1691.02		49.00	3.60E-01		1.03E-01	1.52E-01
	I-125	35.49		6.49	2.97E+00	2.97E+00	3.36E-01	1.44E+00
	SB-125	176.33		6.89	8.91E-01	2.43E-01	-1.53E-01	4.31E-01
		427.89		29.33	2.43E-01		1.55E-02	1.16E-01
		463.38		10.35	8.73E-01		6.55E-01	4.19E-01
		600.56		17.80	4.40E-01		1.32E-02	2.08E-01
		635.90		11.32	6.76E-01		2.95E-01	3.18E-01
	SB-126	414.70		83.30	2.13E+01	1.83E+01	-3.41E+00	1.02E+01
		666.33		99.60	1.83E+01		-6.10E+00	8.58E+00
		695.00		99.60	2.03E+01		-1.55E+00	9.57E+00
		720.50		53.80	3.63E+01		1.06E+01	1.71E+01
+	SN-126	87.57	*	37.00	4.01E-01	4.01E-01	3.52E-01	1.99E-01
	SB-127	473.00		25.00	1.38E+07	9.43E+06	-6.65E+06	6.58E+06
		685.20		35.70	9.43E+06		-1.88E+06	4.41E+06
		783.80		14.70	2.98E+07		6.34E+06	1.41E+07
	I-129	29.78		57.00	1.20E-01	1.20E-01	-1.96E-02	5.81E-02
		33.60		13.20	4.79E-01		1.98E-01	2.32E-01
		39.58		7.52	8.16E-01		4.88E-01	3.96E-01
	I-131	284.30		6.05	5.49E+03	3.78E+02	-1.87E+01	2.65E+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	3.78E+02	3.78E+02	-1.53E+02	1.80E+02
		636.97		7.26	4.52E+03		-1.31E+03	2.12E+03
		722.89		1.80	2.29E+04		5.22E+03	1.08E+04
	TE-132	49.72		13.10	5.63E+08	8.02E+07	-1.05E+09	2.74E+08
		228.16		88.00	8.02E+07		1.90E+06	3.87E+07
	BA-133	81.00		33.00	2.12E-01	1.65E-01	-7.89E-01	1.04E-01
		302.84		17.80	4.27E-01		-1.84E-02	2.07E-01
		356.01		60.00	1.65E-01		-5.96E-02	7.99E-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	7.99E+04	7.99E+04	-2.97E+05	3.91E+04
	CS-134	563.23		8.38	9.20E-01	9.32E-02	-7.40E-02	4.35E-01
		569.32		15.43	5.06E-01		4.52E-03	2.39E-01
		604.70		97.60	9.32E-02		1.53E-02	4.43E-02
		795.84		85.40	1.16E-01		1.16E-01	5.47E-02
		801.93		8.73	8.94E-01		-1.15E-01	4.15E-01
	CS-135	268.24		16.00	4.51E-01	4.51E-01	9.33E-02	2.18E-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	1.47E+02	1.36E+01	3.61E+01	7.14E+01
		163.89		4.61	2.23E+02		2.68E+01	1.08E+02
		176.55		13.56	7.51E+01		-1.29E+01	3.64E+01
		273.65		12.66	1.01E+02		-6.16E+01	4.89E+01
		340.57		48.50	3.41E+01		7.16E+01	1.66E+01
		818.50		99.70	1.36E+01		1.86E+00	6.34E+00
		1048.07		79.60	1.94E+01		2.58E+00	9.03E+00
		1235.34		19.70	1.04E+02		8.68E-01	4.91E+01
+	CS-137	661.65	*	85.12	9.71E-02	9.71E-02	1.02E-01	4.60E-02
	LA-138	788.74		34.00	2.44E-01	9.87E-02	8.18E-02	1.15E-01
		1435.80		66.00	9.87E-02		-8.79E-03	4.34E-02
	CE-139	165.85		80.35	1.19E-01	1.19E-01	3.33E-02	5.79E-02
	BA-140	162.64		6.70	1.75E+02	4.98E+01	-8.02E+01	8.47E+01
		304.84		4.50	3.02E+02		-2.67E+01	1.45E+02
		423.70		3.20	4.09E+02		-1.01E+02	1.94E+02
		437.55		2.00	7.37E+02		1.30E+02	3.52E+02
		537.32		25.00	4.98E+01		0.00E+00	2.33E+01
	LA-140	328.77		20.50	7.35E+01	1.79E+01	1.98E+01	3.54E+01
		487.03		45.50	3.12E+01		9.35E+00	1.48E+01
		815.85		23.50	6.64E+01		2.97E+01	3.09E+01
		1596.49		95.49	1.79E+01		4.17E+00	8.02E+00
+	CE-141	145.44	*	48.40	1.13E+00	1.13E+00	7.46E-01	5.51E-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	6.73E-01	6.73E-01	2.19E-01	3.27E-01
	PM-144	476.78		42.00	2.04E-01	8.47E-02	-1.34E-02	9.72E-02
		618.01		98.60	8.47E-02		-3.04E-02	3.98E-02
		696.49		99.49	1.00E-01		8.40E-03	4.73E-02
	PM-145	36.85		21.70	2.85E-01	1.57E-01	-5.38E-02	1.38E-01
		37.36		39.70	1.57E-01		-5.47E-02	7.60E-02
		42.30		15.10	3.88E-01		7.77E-02	1.88E-01
		72.40		2.31	3.65E+00		3.84E-01	1.79E+00
	PM-146	453.90		39.94	1.82E-01	1.82E-01	6.92E-02	8.67E-02

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

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	5.77E-01	1.82E-01	1.76E-01	2.71E-01
	747.13	13.10	5.16E-01		-4.49E-01	2.39E-01
ND-147	91.11	28.90	1.42E+02	1.42E+02	2.41E+02	6.99E+01
	531.02	13.10	2.75E+02		1.47E+02	1.30E+02
PM-149	285.90	3.10	5.35E+13	5.35E+13	4.17E+12	2.58E+13
EU-152	121.78	20.50	2.74E-01	2.74E-01	5.04E-02	1.33E-01
	244.69	5.40	1.28E+00		-5.15E-01	6.20E-01
	344.27	19.13	3.29E-01		2.98E-03	1.57E-01
	778.89	9.20	8.79E-01		-3.76E-01	4.12E-01
	964.01	10.40	9.99E-01		-9.04E-02	4.71E-01
	1085.78	7.22	1.18E+00		-3.32E-02	5.47E-01
	1112.02	9.60	9.39E-01		3.82E-02	4.35E-01
	1407.95	14.94	5.79E-01		2.96E-01	2.63E-01
GD-153	97.43	31.30	2.47E-01	2.47E-01	1.00E-01	1.20E-01
	103.18	22.20	3.28E-01		-1.57E-01	1.60E-01
EU-154	123.07	40.50	1.41E-01	1.41E-01	-6.19E-03	6.88E-02
	723.30	19.70	4.45E-01		1.02E-01	2.10E-01
	873.19	11.50	6.12E-01		-9.39E-02	2.82E-01
	996.32	10.30	7.77E-01		-2.11E-01	3.59E-01
	1004.76	17.90	4.66E-01		2.36E-01	2.16E-01
	1274.45	35.50	2.80E-01		-6.21E-03	1.30E-01
EU-155	86.50	30.90	2.54E-01	2.54E-01	7.13E-02	1.25E-01
	105.30	20.70	2.86E-01		3.95E-02	1.39E-01
EU-156	811.77	10.40	6.15E+01	6.15E+01	-2.14E+01	2.85E+01
	1153.47	7.20	1.13E+02		-2.21E+01	5.22E+01
	1230.71	8.90	9.56E+01		-2.00E+01	4.43E+01
HO-166M	184.41	72.60	1.01E-01	1.01E-01	1.34E-01	4.92E-02
	280.45	29.60	2.48E-01		1.31E-01	1.20E-01
	410.94	11.10	6.91E-01		1.12E-01	3.32E-01
	711.69	54.10	1.48E-01		1.72E-02	6.98E-02
TM-171	66.72	0.14	5.37E+01	5.37E+01	-9.76E+01	2.63E+01
HF-172	67.35	5.31	1.40E+00	5.59E-01	-1.56E+00	6.84E-01
	125.81	11.30	5.59E-01		1.99E-03	2.72E-01
LU-172	181.53	20.60	7.65E+03	3.64E+03	2.99E+02	3.71E+03
	900.72	29.81	6.83E+03		-1.87E+03	3.17E+03
	1093.66	62.50	3.64E+03		-8.55E+02	1.69E+03
LU-173	100.72	5.24	1.23E+00	4.04E-01	2.78E-01	5.97E-01
	272.11	21.20	4.04E-01		1.86E-01	1.96E-01
HF-175	343.40	84.00	2.00E-01	2.00E-01	1.77E-03	9.59E-02
LU-176	88.34	13.30	5.96E-01	6.91E-02	1.25E-01	2.92E-01
	201.83	86.00	6.91E-02		-4.00E-02	3.34E-02
	306.78	94.00	6.99E-02		-2.21E-04	3.36E-02
HF-181	133.02	41.70	6.84E-01	4.08E-01	2.23E-01	3.33E-01
	345.85	17.20	1.80E+00		1.64E-02	8.59E-01
	482.03	82.80	4.08E-01		-1.96E-01	1.94E-01
TA-182	67.75	41.20	2.96E-01	2.96E-01	-3.31E-01	1.45E-01
	1121.30	34.90	7.23E-01		8.69E-01	3.44E-01
	1189.05	16.23	1.19E+00		7.35E-01	5.54E-01
	1221.41	26.98	6.98E-01		-7.18E-02	3.25E-01
	1231.02	11.44	1.52E+00		-3.17E-01	7.04E-01
IR-192	308.46	29.68	5.60E-01	3.87E-01	5.82E-02	2.69E-01
	468.07	48.10	3.87E-01		-9.18E-02	1.84E-01
+ HG-203	279.19 *	77.30	5.67E-01	5.67E-01	4.04E-01	2.77E-01

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	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	7.40E-02	7.40E-02	-1.06E-02	3.54E-02
		899.15		99.16	8.17E-02		-3.76E-02	3.79E-02
		911.74		91.10	1.99E-01		5.86E-01	9.60E-02
	BI-207	569.67		97.72	7.52E-02	7.52E-02	3.13E-02	3.56E-02
		1063.62		74.90	1.12E-01		1.72E-02	5.20E-02
+	TL-208	583.14	*	30.22	2.91E-01	1.35E-01	1.80E+00	1.39E-01
		860.37	*	4.48	2.63E+00		3.20E+00	1.26E+00
		2614.66	*	35.85	1.35E-01		1.41E+00	5.05E-02
	BI-210M	262.00		45.00	1.38E-01	1.38E-01	-7.83E-02	6.65E-02
		300.00		23.00	3.37E-01		-1.36E+00	1.63E-01
+	PB-210	46.50	*	4.25	2.70E+00	2.70E+00	1.56E+00	1.33E+00
	PB-211	404.84		2.90	2.43E+00	2.43E+00	-1.18E+00	1.16E+00
		831.96		2.90	2.86E+00		-4.17E-01	1.34E+00
+	BI-212	727.17	*	11.80	1.08E+00	1.08E+00	1.21E+00	5.18E-01
		1620.62	*	2.75	2.94E+00		3.09E+00	1.31E+00
+	PB-212	238.63	*	44.60	2.84E-01	2.84E-01	1.86E+00	1.40E-01
		300.09	*	3.41	3.76E+00		2.24E+00	1.84E+00
+	BI-214	609.31	*	46.30	2.67E-01	2.67E-01	1.40E+00	1.29E-01
		1120.29	*	15.10	1.02E+00		1.82E+00	4.90E-01
		1764.49	*	15.80	5.07E-01		1.41E+00	2.25E-01
		2204.22	*	4.98	2.07E+00		1.46E+00	9.29E-01
+	PB-214	295.21	*	19.19	6.56E-01	3.33E-01	1.60E+00	3.22E-01
		351.92	*	37.19	3.33E-01		1.49E+00	1.63E-01
	RN-219	401.80		6.50	1.07E+00	1.07E+00	-1.68E-01	5.14E-01
	RA-223	323.87		3.88	1.78E+00	1.78E+00	5.13E-01	8.56E-01
+	RA-224	240.98	*	3.95	3.23E+00	3.23E+00	5.72E+00	1.59E+00
	RA-225	40.00		31.00	1.94E+01	1.94E+01	4.56E+00	9.44E+00
+	RA-226	186.21	*	3.28	2.95E+00	2.95E+00	4.18E+00	1.45E+00
	TH-227	50.10		8.40	7.26E-01	6.61E-01	-5.84E-01	3.54E-01
		236.00		11.50	6.61E-01		-5.65E+00	3.21E-01
		256.20		6.30	1.05E+00		2.56E-01	5.09E-01
+	AC-228	338.32	*	11.40	7.47E-01	4.66E-01	2.17E+00	3.62E-01
		911.07	*	27.70	4.66E-01		1.78E+00	2.23E-01
		969.11	*	16.60	8.55E-01		2.05E+00	4.10E-01
+	TH-230	48.44	*	16.90	6.46E-01	6.46E-01	1.53E-01	3.18E-01
		62.85		4.60	1.65E+00		2.00E+00	8.09E-01
		67.67		0.37	1.81E+01		-2.03E+01	8.88E+00
	PA-231	283.67		1.60	4.36E+00	3.25E+00	-2.00E-01	2.11E+00
		302.67		2.30	3.25E+00		-1.40E-01	1.57E+00
	TH-231	25.64		14.70	6.51E-01	6.51E-01	-3.06E+00	3.18E-01
		84.21		6.40	1.10E+00		-1.20E+00	5.38E-01
	PA-233	311.98		38.60	2.13E+00	2.13E+00	3.36E-01	1.02E+00
	PA-234	131.20		20.40	2.89E-01	2.89E-01	2.48E-02	1.41E-01
		733.99		8.80	8.87E-01		2.70E-01	4.16E-01
		946.00		12.00	5.85E-01		-2.18E-01	2.68E-01
	PA-234M	1001.03		0.92	9.01E+00	9.01E+00	1.71E+00	4.18E+00
	TH-234	63.29		3.80	2.00E+00	2.00E+00	2.64E+00	9.80E-01
	U-235	143.76		10.50	5.60E-01	5.60E-01	4.53E-02	2.72E-01
		163.35		4.70	1.23E+00		1.48E-01	5.96E-01
		205.31		4.70	1.31E+00		3.42E-01	6.34E-01
	NP-237	86.50		12.60	6.01E-01	6.01E-01	1.68E-01	2.95E-01
	NP-239	106.10		22.70	9.42E+11	9.42E+11	2.91E+11	4.59E+11
		228.18		10.70	2.01E+12		4.77E+10	9.71E+11

Analysis Report for 1707086-10

HTC-A03-S001-0006-01

	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	1.91E+12	9.42E+11	7.27E+11	9.24E+11
	AM-241	59.54		35.90	1.86E-01	1.86E-01	-1.00E-01	9.08E-02
+	AM-243	74.67	*	66.00	2.03E-01	2.03E-01	3.77E-01	1.00E-01
	CM-243	209.75		3.29	2.12E+00	5.23E-01	2.82E+00	1.03E+00
		228.14		10.60	5.53E-01		1.31E-02	2.67E-01
		277.60		14.00	5.23E-01		1.99E-01	2.53E-01

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

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-A03-S001-0006-01

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	0	77	80	76	169	535	209
25:	87	78	75	73	72	59	72	60
33:	67	62	76	77	53	86	70	85
41:	84	70	77	64	82	86	167	110
49:	92	109	87	82	116	117	76	98
57:	99	126	114	138	135	132	172	253
65:	167	138	136	120	144	146	163	185
73:	173	191	369	371	407	557	210	140
81:	165	147	118	162	164	132	188	261
89:	140	192	188	148	277	251	144	109
97:	85	101	102	110	90	82	79	93
105:	77	108	111	80	107	89	97	96
113:	83	98	98	95	80	77	68	78
121:	84	70	92	90	80	88	84	89
129:	118	114	89	68	84	92	87	84
137:	82	76	68	68	88	74	62	90
145:	107	82	93	75	77	83	94	75
153:	86	80	114	80	80	75	84	73
161:	67	70	64	77	69	78	76	62
169:	72	63	60	69	67	63	59	66
177:	70	79	54	68	74	69	61	80
185:	73	156	147	81	74	58	55	54
193:	55	60	68	65	59	69	64	72
201:	84	46	53	50	67	79	58	68
209:	82	125	69	58	39	54	57	45
217:	61	58	51	59	49	52	51	65
225:	51	55	57	48	47	58	43	40
233:	57	47	59	53	79	182	685	292
241:	122	175	127	58	44	38	54	35
249:	42	39	45	39	43	48	39	38
257:	54	37	30	40	32	40	30	35
265:	35	46	28	26	27	76	68	49
273:	36	37	33	39	49	53	51	43
281:	43	44	41	38	32	37	42	37
289:	38	33	34	37	32	46	166	201
297:	56	30	30	70	62	39	30	31
305:	32	27	39	24	34	32	37	27
313:	29	30	26	27	28	33	33	30
321:	35	28	32	42	31	20	36	53
329:	56	35	23	24	32	27	22	26
337:	29	95	144	53	32	24	24	16
345:	26	28	23	23	22	33	84	290
353:	213	30	29	38	27	29	28	20
361:	29	21	19	24	21	22	29	24

369:	30	26	29	15	31	22	27	23

Sample Title: HTC-A03-S001-0006-01

Channel								
377:	20	28	27	19	21	27	17	21
385:	25	28	26	19	26	22	19	26
393:	30	12	15	25	25	31	25	24
401:	24	25	20	24	24	26	20	28
409:	32	31	32	23	28	21	27	30
417:	18	25	26	18	16	20	12	20
425:	18	19	20	14	22	26	18	17
433:	26	17	22	17	26	24	24	25
441:	15	20	19	18	22	18	16	28
449:	19	15	18	11	19	27	23	20
457:	21	13	20	19	17	33	51	29
465:	19	29	20	21	23	20	16	26
473:	20	11	23	17	24	23	15	19
481:	17	16	19	12	19	15	21	19
489:	18	15	12	13	16	13	12	19
497:	19	21	15	10	18	19	17	16
505:	20	9	12	20	25	51	97	52
513:	32	21	20	16	15	15	16	10
521:	18	20	16	13	18	24	12	17
529:	14	14	28	11	18	14	8	9
537:	13	13	9	11	14	8	14	16
545:	15	11	18	7	16	15	12	9
553:	20	18	23	17	16	14	16	16
561:	9	21	15	14	11	13	17	12
569:	15	15	16	12	18	13	11	10
577:	7	12	12	17	11	52	174	155
585:	37	10	15	19	15	16	10	19
593:	13	16	10	16	15	13	9	9
601:	19	15	16	16	11	13	16	38
609:	174	213	49	13	16	18	17	10
617:	13	14	10	10	8	13	9	10
625:	12	9	19	9	9	18	11	8
633:	16	16	11	16	12	6	7	8
641:	10	16	8	11	14	7	17	9
649:	18	9	13	9	12	13	19	10
657:	14	12	19	10	31	34	10	10
665:	14	14	14	10	13	7	13	20
673:	14	19	15	9	14	13	12	10
681:	9	11	12	14	5	10	10	7
689:	10	14	17	11	15	13	13	15
697:	19	13	10	18	8	15	10	14
705:	14	8	10	15	13	13	11	11
713:	11	18	12	9	14	11	9	16
721:	16	10	11	12	15	20	48	41
729:	13	12	14	5	13	10	13	14
737:	11	10	9	6	13	12	14	10
745:	8	7	5	6	10	7	10	13
753:	12	7	14	19	10	10	11	6
761:	9	13	13	10	8	21	22	21
769:	19	17	14	20	15	19	11	9
777:	8	5	11	16	11	16	11	13
785:	17	20	9	14	9	14	11	4
793:	11	22	29	12	9	5	8	4

801:	9	9	8	14	5	10	12	11

Sample Title: HTC-A03-S001-0006-01

Channel								
809:	7	12	4	10	5	6	13	8
817:	14	9	8	4	8	11	9	16
825:	7	10	13	5	7	5	4	13
833:	13	10	22	16	13	10	9	13
841:	8	9	6	7	9	13	15	9
849:	11	11	2	6	9	7	18	10
857:	7	8	8	15	41	11	9	10
865:	5	8	9	4	6	6	11	4
873:	5	6	7	7	7	11	11	12
881:	8	5	3	12	4	10	7	10
889:	11	9	9	8	9	10	8	9
897:	13	3	10	3	7	11	10	13
905:	8	9	6	10	10	31	128	92
913:	15	11	8	7	7	10	10	5
921:	7	5	7	8	6	10	6	6
929:	9	10	8	9	17	15	15	7
937:	12	3	6	10	5	10	4	6
945:	5	3	7	7	10	8	8	5
953:	8	7	11	8	6	8	7	10
961:	5	11	4	18	26	14	14	43
969:	72	31	14	8	10	10	6	7
977:	8	10	5	6	12	6	9	5
985:	3	6	6	3	10	10	7	4
993:	8	5	7	9	7	6	7	8
1001:	13	10	5	6	8	4	7	4
1009:	3	9	7	7	8	7	5	4
1017:	7	14	6	7	1	4	10	10
1025:	6	6	8	7	9	6	5	4
1033:	9	7	7	8	11	3	10	6
1041:	11	7	11	5	7	11	7	8
1049:	9	5	10	10	4	12	8	10
1057:	7	3	10	7	9	8	4	11
1065:	7	5	8	5	7	12	8	7
1073:	9	8	6	6	4	12	10	10
1081:	4	7	12	5	3	7	5	11
1089:	9	6	12	7	8	7	8	5
1097:	8	8	9	7	5	6	8	6
1105:	12	8	9	6	9	9	4	9
1113:	8	7	8	14	11	9	17	36
1121:	33	18	11	14	11	5	5	13
1129:	8	11	8	11	8	10	8	3
1137:	10	2	6	10	8	8	1	8
1145:	9	7	5	6	11	5	4	7
1153:	10	9	7	12	11	7	7	5
1161:	8	8	9	4	5	9	7	11
1169:	8	7	0	8	11	9	8	9
1177:	9	11	10	12	8	7	6	7
1185:	3	11	9	14	8	5	12	12
1193:	10	5	4	11	4	10	9	13
1201:	9	12	8	8	6	8	12	11
1209:	14	12	8	6	6	6	11	6
1217:	12	10	8	10	13	8	6	10
1225:	10	11	8	9	8	9	9	5

1233:	6	11	4	11	19	25	25	5

Sample Title: HTC-A03-S001-0006-01

Channel								
1241:	6	11	7	7	10	8	7	8
1249:	6	3	9	10	9	3	7	7
1257:	7	8	12	6	8	4	6	5
1265:	3	8	6	5	8	8	10	10
1273:	5	10	6	7	5	7	8	9
1281:	5	12	3	5	9	4	3	3
1289:	3	3	1	1	7	6	6	4
1297:	3	7	6	6	9	4	10	9
1305:	8	4	1	5	7	3	7	4
1313:	11	4	2	3	1	6	7	7
1321:	5	4	2	3	2	5	3	1
1329:	2	2	4	3	8	9	4	4
1337:	9	2	8	9	3	5	5	4
1345:	2	0	2	8	3	1	2	5
1353:	3	5	6	5	2	2	1	3
1361:	3	3	1	4	3	6	2	2
1369:	3	6	0	6	4	2	4	6
1377:	14	9	4	3	7	7	3	5
1385:	3	3	6	3	1	6	2	3
1393:	2	1	2	1	4	3	5	6
1401:	3	2	5	3	1	7	9	5
1409:	8	1	0	4	2	1	2	9
1417:	3	3	4	1	4	1	1	2
1425:	2	1	1	3	6	6	4	2
1433:	6	3	2	1	2	2	2	5
1441:	1	2	4	2	3	3	1	2
1449:	3	3	1	4	4	2	5	3
1457:	6	13	97	320	321	127	19	8
1465:	10	9	6	1	1	3	2	3
1473:	0	3	2	1	3	1	2	1
1481:	3	1	0	1	4	1	1	6
1489:	2	0	2	2	0	0	3	8
1497:	0	4	3	1	4	3	1	1
1505:	3	1	4	2	8	4	0	4
1513:	3	1	0	4	3	0	0	2
1521:	0	2	1	1	1	2	4	0
1529:	3	2	1	2	3	2	2	1
1537:	3	0	3	2	4	4	1	4
1545:	6	2	1	2	1	0	1	1
1553:	3	0	3	0	4	2	0	3
1561:	4	3	3	5	2	1	0	0
1569:	2	1	1	1	3	0	0	0
1577:	1	1	3	4	3	3	3	2
1585:	3	1	6	7	4	2	1	4
1593:	10	2	3	1	4	2	4	3
1601:	3	3	1	2	2	1	2	1
1609:	4	1	1	1	0	1	0	2
1617:	3	2	3	11	2	6	3	2
1625:	3	2	1	6	1	5	7	1
1633:	2	3	2	1	6	3	2	0
1641:	1	1	1	5	0	2	1	3
1649:	3	0	2	0	1	1	1	1
1657:	1	1	0	1	1	5	1	3

1665:	1	1	1	0	2	1	1	1

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Channel								
1673:	0	1	1	1	1	3	1	0
1681:	3	1	2	2	0	1	0	1
1689:	1	2	2	1	3	2	0	1
1697:	4	0	1	1	1	0	1	0
1705:	0	1	2	1	2	1	2	1
1713:	1	1	0	1	0	1	2	0
1721:	2	3	2	3	2	1	1	4
1729:	11	6	3	3	3	2	0	2
1737:	1	1	1	1	1	2	0	1
1745:	1	0	0	1	1	2	3	0
1753:	0	4	1	0	0	4	2	0
1761:	5	7	18	19	17	6	3	1
1769:	1	0	2	0	3	0	3	2
1777:	0	1	3	0	1	1	3	0
1785:	0	0	2	1	1	0	1	0
1793:	1	2	0	0	1	2	1	1
1801:	1	1	0	0	1	1	2	0
1809:	0	1	3	1	0	1	0	1
1817:	1	0	1	1	1	3	4	2
1825:	2	1	3	1	0	0	0	3
1833:	1	1	4	0	1	2	1	0
1841:	2	1	1	2	2	6	4	1
1849:	2	1	0	0	4	0	0	2
1857:	0	4	1	1	2	0	0	0
1865:	1	0	0	1	1	0	2	2
1873:	1	1	0	0	2	0	1	0
1881:	0	0	1	1	3	0	3	2
1889:	1	0	1	2	2	2	3	2
1897:	1	2	0	1	2	2	1	2
1905:	0	3	2	1	0	1	2	1
1913:	1	0	0	2	2	1	0	1
1921:	1	4	2	0	3	0	2	1
1929:	2	1	2	2	0	0	3	1
1937:	0	1	1	0	0	2	3	1
1945:	0	1	2	0	3	0	0	0
1953:	0	1	1	4	0	0	1	2
1961:	1	0	0	2	3	1	3	0
1969:	1	1	4	2	1	1	1	1
1977:	0	2	0	0	1	3	0	1
1985:	0	2	1	0	1	0	0	0
1993:	2	0	2	1	0	0	2	1
2001:	3	0	0	1	2	1	3	2
2009:	2	0	0	2	2	1	0	1
2017:	1	0	1	1	2	1	0	2
2025:	1	1	1	2	2	2	1	0
2033:	0	0	2	1	0	2	1	0
2041:	1	1	0	1	0	0	0	0
2049:	0	0	1	2	1	2	1	3
2057:	1	1	1	0	3	0	1	1
2065:	1	0	0	2	1	3	0	1
2073:	1	3	2	1	2	1	1	0
2081:	1	2	1	0	0	3	2	1
2089:	3	1	4	0	2	2	4	0

2097:	1	0	1	5	10	5	4	4

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

2529:	0	1	0	0	1	0	0	0

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Channel								
2537:	0	0	2	2	1	2	0	0
2545:	0	1	0	0	0	0	0	0
2553:	0	0	0	0	1	0	0	0
2561:	0	0	1	0	1	0	0	0
2569:	0	0	1	0	1	1	0	1
2577:	0	0	1	0	0	0	0	0
2585:	0	0	0	0	0	0	0	1
2593:	1	0	0	0	0	0	0	0
2601:	1	0	0	0	0	1	0	0
2609:	0	1	8	18	40	37	12	2
2617:	1	0	0	1	0	0	0	0
2625:	0	0	0	0	0	1	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	1	0	0	1	0	1
2649:	0	0	0	0	0	1	0	0
2657:	0	0	0	0	0	0	0	0
2665:	0	1	0	0	0	1	0	0
2673:	0	1	0	0	1	0	0	0
2681:	0	0	0	1	0	0	0	0
2689:	0	1	1	1	0	0	1	0
2697:	0	0	0	0	0	0	1	0
2705:	0	2	0	0	0	0	0	0
2713:	0	0	1	0	0	1	0	0
2721:	0	0	0	0	0	1	0	0
2729:	1	0	0	0	0	0	1	0
2737:	0	0	0	0	0	0	0	0
2745:	1	0	0	1	0	1	1	0
2753:	1	0	0	1	0	1	0	0
2761:	0	0	0	1	0	1	0	0
2769:	0	0	0	0	0	1	1	0
2777:	1	0	0	1	1	0	0	0
2785:	0	0	1	1	0	0	0	0
2793:	1	0	0	0	1	0	0	0
2801:	0	0	0	0	0	0	1	1
2809:	0	0	1	0	0	1	0	0
2817:	0	0	1	0	0	0	0	0
2825:	0	1	1	0	0	0	0	0
2833:	0	0	1	0	0	1	0	0
2841:	1	1	1	0	0	0	0	0
2849:	0	0	0	0	1	0	0	0
2857:	0	0	0	0	0	0	0	1
2865:	0	0	1	0	0	0	0	1
2873:	0	0	0	0	0	1	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	1	0	0	1	1
2897:	0	0	1	0	0	0	0	0
2905:	0	0	0	0	1	1	0	0
2913:	1	0	0	0	0	2	0	0
2921:	0	0	0	1	0	0	0	0
2929:	0	0	0	0	0	2	0	0
2937:	0	0	1	0	0	1	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	1	0	0	1	0

2961:	0	0	0	0	0	0	0	1

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

3393:	1	0	0	0	1	0	0	0

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Channel								
3401:	0	0	0	1	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	1	0	0	1	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	1	0	1	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	1	0
3465:	0	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	1	0	0	0	0	0
3497:	1	1	0	0	0	0	0	0
3505:	1	0	1	0	0	0	0	0
3513:	0	0	0	0	0	1	0	0
3521:	0	0	0	0	0	0	0	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	0	0
3553:	0	1	0	1	1	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	1	0	0	0	0	1
3577:	0	0	0	0	1	0	0	0
3585:	0	0	1	1	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	0	0	1	1
3617:	0	0	0	1	0	1	0	0
3625:	0	0	0	0	0	0	1	0
3633:	0	0	0	0	0	1	0	0
3641:	0	0	0	0	0	1	0	0
3649:	0	0	0	0	0	0	0	0
3657:	1	0	0	0	1	0	1	0
3665:	0	0	1	0	1	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	1	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	0	1	0	1
3705:	0	0	1	0	0	0	0	0
3713:	0	0	0	0	0	0	0	1
3721:	0	0	0	0	1	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	1	0	0	0	0	0	0
3753:	0	1	0	0	0	0	0	0
3761:	0	0	0	1	0	0	0	0
3769:	0	0	1	0	0	0	0	0
3777:	1	0	0	1	0	0	1	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	1	0	0
3809:	0	0	0	0	1	0	0	1
3817:	0	0	0	1	0	0	1	0

3825:	0	0	0	0	0	0	1	0

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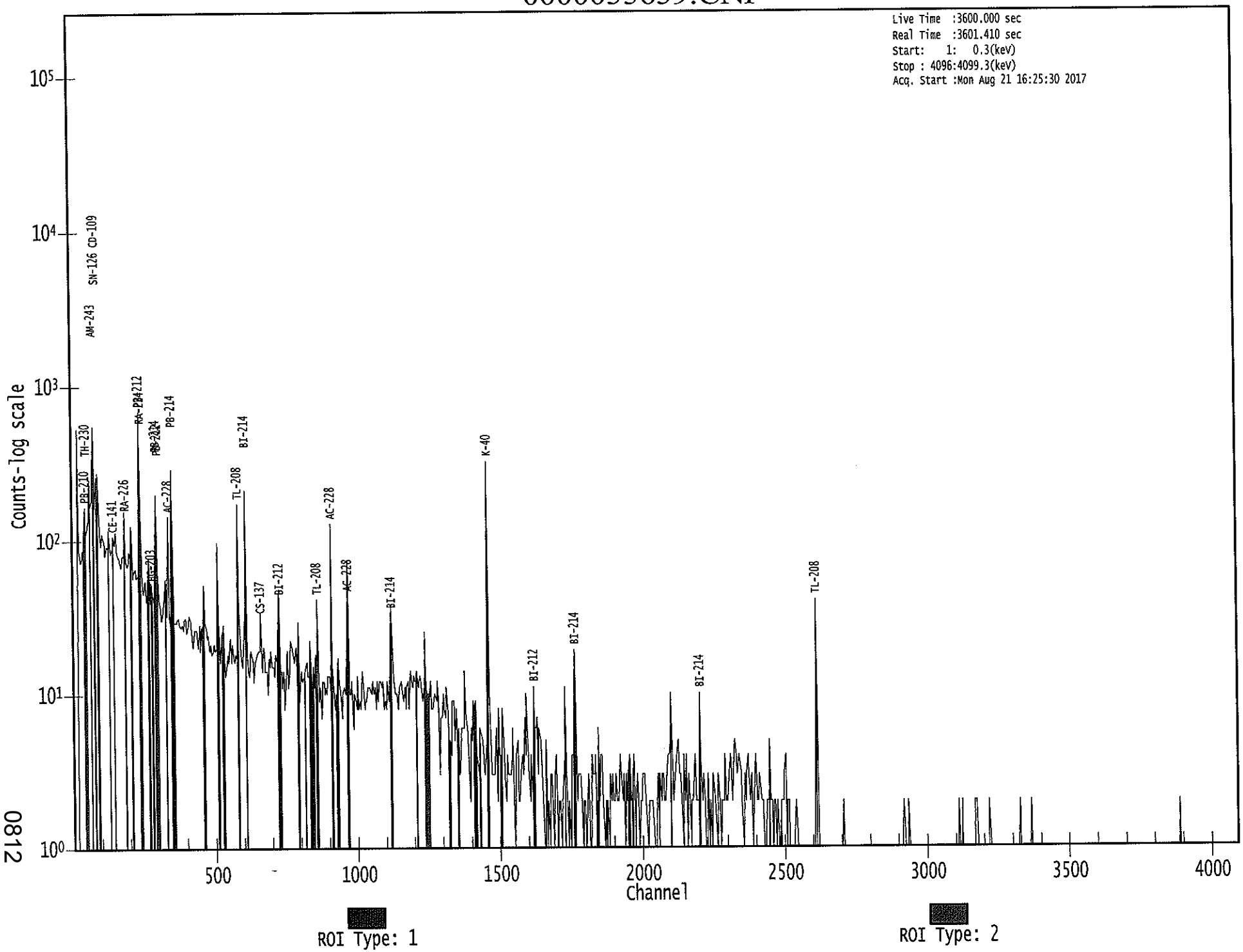
Channel								
3833:	0	0	0	1	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	1	0	0	0	0	0
3865:	0	0	1	0	0	0	0	0
3873:	0	0	0	1	0	0	0	0
3881:	0	0	0	0	1	0	0	2
3889:	0	0	0	0	1	0	1	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	1	0	0	0	0
3929:	0	0	0	0	0	1	0	0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

0000055659.CNF



0812

Apex-Gamma

Analysis Report for 1707086-13
HTC-A03-S001-0006-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-13
Sample Description	: HTC-A03-S001-0006-02
Sample Type	: SOIL
Sample Size	: 5.717E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:14:41AM
Acquisition Started	: 8/21/2017 4:25:37PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3607.6 seconds
Dead Time	: 0.21 %
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	: 55660

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 5:26:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	45.43	45.75	0.0000	0.00
2	63.74	64.04	0.0000	0.00
3	76.63	76.94	0.0000	0.00
4	87.83	88.13	0.0000	0.00
5	93.50	93.79	0.0000	0.00
6	130.31	130.59	0.0000	0.00
7	185.62	185.89	0.0000	0.00
8	209.60	209.86	0.0000	0.00
9	236.31	236.56	0.0000	0.00
10	239.28	239.53	0.0000	0.00
11	242.58	242.83	0.0000	0.00
12	274.41	274.64	0.0000	0.00
13	295.59	295.82	0.0000	0.00
14	338.52	338.73	0.0000	0.00
15	352.34	352.55	0.0000	0.00
16	463.18	463.35	0.0000	0.00
17	478.90	479.07	0.0000	0.00
18	511.17	511.33	0.0000	0.00
19	583.44	583.57	0.0000	0.00
20	609.62	609.74	0.0000	0.00
21	662.08	662.19	0.0000	0.00
22	769.91	769.98	0.0000	0.00
23	795.50	795.56	0.0000	0.00
24	911.58	911.60	0.0000	0.00
25	969.51	969.51	0.0000	0.00
26	986.75	986.75	0.0000	0.00
27	1003.24	1003.23	0.0000	0.00
28	1120.07	1120.02	0.0000	0.00
29	1197.69	1197.61	0.0000	0.00
30	1376.74	1376.61	0.0000	0.00
31	1402.85	1402.70	0.0000	0.00
32	1409.70	1409.55	0.0000	0.00
33	1460.85	1460.68	0.0000	0.00
34	1480.22	1480.04	0.0000	0.00
35	1573.74	1573.53	0.0000	0.00
36	1592.78	1592.56	0.0000	0.00
37	1638.93	1638.71	0.0000	0.00
38	1652.63	1652.40	0.0000	0.00
39	1729.36	1729.10	0.0000	0.00
40	1764.11	1763.84	0.0000	0.00
41	1788.54	1788.26	0.0000	0.00
42	1956.15	1955.82	0.0000	0.00

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2203.46	2203.04	0.0000	0.00
44	2275.21	2274.77	0.0000	0.00
45	2329.72	2329.26	0.0000	0.00
46	2614.33	2613.77	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 5:26:09PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	45.43	40 -	51	45.75	2.46E+02	124.06	1.80E+03	2.06
	2	63.74	61 -	67	64.04	1.24E+02	94.17	1.53E+03	1.57
	3	76.63	73 -	83	76.94	8.39E+02	150.20	2.54E+03	3.60
	4	87.83	86 -	90	88.13	6.90E+01	76.70	1.24E+03	1.51
	5	93.50	91 -	98	93.79	2.27E+02	98.29	1.38E+03	2.72
	6	130.31	127 -	134	130.59	1.17E+02	76.60	8.92E+02	1.97
	7	185.62	181 -	190	185.89	1.95E+02	82.89	8.71E+02	3.06
	8	209.60	207 -	213	209.86	5.45E+01	57.87	5.67E+02	1.30
M	9	236.31	235 -	247	236.56	5.40E+01	26.75	1.60E+02	2.26
m	10	239.28	235 -	247	239.53	7.06E+02	72.80	3.83E+02	2.26
m	11	242.58	235 -	247	242.83	9.34E+01	59.38	3.38E+02	1.87
	12	274.41	268 -	282	274.64	1.28E+02	83.99	6.85E+02	9.21
	13	295.59	292 -	298	295.82	1.75E+02	51.23	3.50E+02	2.16
	14	338.52	335 -	343	338.73	9.51E+01	54.61	4.00E+02	1.53
	15	352.34	348 -	357	352.55	2.66E+02	58.09	3.29E+02	2.34
	16	463.18	460 -	466	463.35	4.05E+01	33.77	1.77E+02	2.40
	17	478.90	476 -	483	479.07	3.17E+01	29.53	1.25E+02	5.01
	18	511.17	505 -	517	511.33	1.54E+02	55.16	2.84E+02	2.38
	19	583.44	578 -	590	583.57	2.02E+02	52.41	2.31E+02	2.41
	20	609.62	605 -	615	609.74	1.86E+02	51.45	2.55E+02	2.01
	21	662.08	657 -	666	662.19	5.20E+01	34.47	1.40E+02	3.19
	22	769.91	764 -	775	769.98	4.54E+01	40.79	1.83E+02	6.30
	23	795.50	790 -	800	795.56	3.13E+01	30.11	1.03E+02	4.38
	24	911.58	905 -	915	911.60	1.13E+02	38.03	1.34E+02	2.21
	25	969.51	966 -	972	969.51	3.29E+01	29.29	1.24E+02	1.75
	26	986.75	980 -	992	986.75	4.18E+01	28.76	7.64E+01	5.84
	27	1003.24	998 -	1010	1003.23	2.48E+01	30.43	9.64E+01	6.80
	28	1120.07	1115 -	1124	1120.02	3.74E+01	29.12	9.92E+01	2.76
	29	1197.69	1191 -	1207	1197.61	4.55E+01	44.42	1.73E+02	7.37
	30	1376.74	1374 -	1379	1376.61	1.57E+01	12.25	1.67E+01	2.18
	31	1402.85	1398 -	1405	1402.70	1.22E+01	15.36	2.96E+01	1.26
	32	1409.70	1407 -	1412	1409.55	1.07E+01	9.11	6.64E+00	2.88
	33	1460.85	1455 -	1465	1460.68	5.56E+02	50.95	5.00E+01	2.42
	34	1480.22	1475 -	1485	1480.04	1.47E+01	13.52	1.67E+01	2.94
	35	1573.74	1570 -	1576	1573.53	6.31E+00	6.65	3.38E+00	1.59
	36	1592.78	1589 -	1597	1592.56	1.94E+01	14.74	1.92E+01	2.59
	37	1638.93	1637 -	1641	1638.71	7.33E+00	6.96	3.33E+00	1.95
	38	1652.63	1650 -	1654	1652.40	5.00E+00	4.47	0.00E+00	1.24
	39	1729.36	1724 -	1734	1729.10	9.60E+00	10.98	1.08E+01	2.01
	40	1764.11	1760 -	1768	1763.84	3.80E+01	12.33	0.00E+00	3.85

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1788.54	1784 -	1792	1788.26	1.08E+01	8.50	4.46E+00	1.18
42	1956.15	1953 -	1957	1955.82	4.71E+00	6.36	4.57E+00	0.94
43	2203.46	2197 -	2206	2203.04	1.12E+01	12.29	1.56E+01	2.57
44	2275.21	2272 -	2277	2274.77	7.67E+00	6.71	2.67E+00	2.96
45	2329.72	2324 -	2334	2329.26	7.50E+00	10.61	1.10E+01	6.21
46	2614.33	2609 -	2619	2613.77	4.80E+01	13.86	0.00E+00	2.38

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 : 8/21/2017 5:26:09PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	45.43	40 -	51	2.46E+02	124.06	1.80E+03	9.87E+01
	2	63.74	61 -	67	1.24E+02	94.17	1.53E+03	7.52E+01
	3	76.63	73 -	83	8.39E+02	150.20	2.54E+03	1.14E+02
	4	87.83	86 -	90	6.90E+01	76.70	1.24E+03	6.16E+01
	5	93.50	91 -	98	2.27E+02	98.29	1.38E+03	7.69E+01
	6	130.31	127 -	134	1.17E+02	76.60	8.92E+02	6.04E+01
	7	185.62	181 -	190	1.95E+02	82.89	8.71E+02	6.42E+01
	8	209.60	207 -	213	5.45E+01	57.87	5.67E+02	4.60E+01
M	9	236.31	235 -	247	5.40E+01	26.75	1.60E+02	2.08E+01
m	10	239.28	235 -	247	7.06E+02	72.80	3.83E+02	3.22E+01
m	11	242.58	235 -	247	9.34E+01	59.38	3.38E+02	3.02E+01
	12	274.41	268 -	282	1.28E+02	83.99	6.85E+02	6.65E+01
	13	295.59	292 -	298	1.75E+02	51.23	3.50E+02	3.61E+01
	14	338.52	335 -	343	9.51E+01	54.61	4.00E+02	4.19E+01
	15	352.34	348 -	357	2.66E+02	58.09	3.29E+02	3.95E+01
	16	463.18	460 -	466	4.05E+01	33.77	1.77E+02	2.57E+01
	17	478.90	476 -	483	3.17E+01	29.53	1.25E+02	2.24E+01
	18	511.17	505 -	517	1.54E+02	55.16	2.84E+02	4.05E+01
	19	583.44	578 -	590	2.02E+02	52.41	2.31E+02	1.81E+01
	20	609.62	605 -	615	1.86E+02	51.45	2.55E+02	3.58E+01
	21	662.08	657 -	666	5.20E+01	34.47	1.40E+02	2.57E+01

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
22	769.91	764 -	775	4.54E+01	40.79	1.83E+02	3.16E+01
23	795.50	790 -	800	3.13E+01	30.11	1.03E+02	2.30E+01
24	911.58	905 -	915	1.13E+02	38.03	1.34E+02	2.59E+01
25	969.51	966 -	972	3.29E+01	29.29	1.24E+02	2.22E+01
26	986.75	980 -	992	4.18E+01	28.76	7.64E+01	2.11E+01
27	1003.24	998 -	1010	2.48E+01	30.43	9.64E+01	2.36E+01
28	1120.07	1115 -	1124	3.74E+01	29.12	9.92E+01	2.17E+01
29	1197.69	1191 -	1207	4.55E+01	44.42	1.73E+02	3.48E+01
30	1376.74	1374 -	1379	1.57E+01	12.25	1.67E+01	7.68E+00
31	1402.85	1398 -	1405	1.22E+01	15.36	2.96E+01	1.12E+01
32	1409.70	1407 -	1412	1.07E+01	9.11	6.64E+00	5.22E+00
33	1460.85	1455 -	1465	5.56E+02	50.95	5.00E+01	1.59E+01
34	1480.22	1475 -	1485	1.47E+01	13.52	1.67E+01	9.16E+00
35	1573.74	1570 -	1576	6.31E+00	6.65	3.38E+00	3.58E+00
36	1592.78	1589 -	1597	1.94E+01	14.74	1.92E+01	9.72E+00
37	1638.93	1637 -	1641	7.33E+00	6.96	3.33E+00	3.60E+00
38	1652.63	1650 -	1654	5.00E+00	4.47	0.00E+00	0.00E+00
39	1729.36	1724 -	1734	9.60E+00	10.98	1.08E+01	7.45E+00
40	1764.11	1760 -	1768	3.80E+01	12.33	0.00E+00	0.00E+00
41	1788.54	1784 -	1792	1.08E+01	8.50	4.46E+00	4.44E+00
42	1956.15	1953 -	1957	4.71E+00	6.36	4.57E+00	3.82E+00
43	2203.46	2197 -	2206	1.12E+01	12.29	1.56E+01	8.47E+00
44	2275.21	2272 -	2277	7.67E+00	6.71	2.67E+00	3.11E+00
45	2329.72	2324 -	2334	7.50E+00	10.61	1.10E+01	7.47E+00
46	2614.33	2609 -	2619	4.80E+01	13.86	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 : 8/21/2017 5:26:09PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	45.43	40 -	51	45.75	2.46E+02	124.06	1.80E+03	.....
	2	63.74	61 -	67	64.04	1.24E+02	94.17	1.53E+03	TH-234
									TH-230
	3	76.63	73 -	83	76.94	8.39E+02	150.20	2.54E+03	.....
	4	87.83	86 -	90	88.13	6.90E+01	76.70	1.24E+03	CD-109
									SN-126
									LU-176
	5	93.50	91 -	98	93.79	2.27E+02	98.29	1.38E+03	GA-67
	6	130.31	127 -	134	130.59	1.17E+02	76.60	8.92E+02	PA-234
	7	185.62	181 -	190	185.89	1.95E+02	82.89	8.71E+02	RA-226
	8	209.60	207 -	213	209.86	5.45E+01	57.87	5.67E+02	CM-243
									GA-67
M	9	236.31	235 -	247	236.56	5.40E+01	26.75	1.60E+02	TH-227
									NB-95M
m	10	239.28	235 -	247	239.53	7.06E+02	72.80	3.83E+02	PB-212
m	11	242.58	235 -	247	242.83	9.34E+01	59.38	3.38E+02	.....
	12	274.41	268 -	282	274.64	1.28E+02	83.99	6.85E+02	CS-136
	13	295.59	292 -	298	295.82	1.75E+02	51.23	3.50E+02	PB-214
	14	338.52	335 -	343	338.73	9.51E+01	54.61	4.00E+02	AC-228
	15	352.34	348 -	357	352.55	2.66E+02	58.09	3.29E+02	PB-214
	16	463.18	460 -	466	463.35	4.05E+01	33.77	1.77E+02	SB-125
	17	478.90	476 -	483	479.07	3.17E+01	29.53	1.25E+02	.....
	18	511.17	505 -	517	511.33	1.54E+02	55.16	2.84E+02	.....
	19	583.44	578 -	590	583.57	2.02E+02	52.41	2.31E+02	TL-208
	20	609.62	605 -	615	609.74	1.86E+02	51.45	2.55E+02	BI-214
	21	662.08	657 -	666	662.19	5.20E+01	34.47	1.40E+02	CS-137
	22	769.91	764 -	775	769.98	4.54E+01	40.79	1.83E+02	.....
	23	795.50	790 -	800	795.56	3.13E+01	30.11	1.03E+02	CS-134
	24	911.58	905 -	915	911.60	1.13E+02	38.03	1.34E+02	TL-204
									AC-228
	25	969.51	966 -	972	969.51	3.29E+01	29.29	1.24E+02	AC-228
	26	986.75	980 -	992	986.75	4.18E+01	28.76	7.64E+01	.....
	27	1003.24	998 -	1010	1003.23	2.48E+01	30.43	9.64E+01	.....
	28	1120.07	1115 -	1124	1120.02	3.74E+01	29.12	9.92E+01	BI-214
									SC-46
	29	1197.69	1191 -	1207	1197.61	4.55E+01	44.42	1.73E+02	.....
	30	1376.74	1374 -	1379	1376.61	1.57E+01	12.25	1.67E+01	.....
	31	1402.85	1398 -	1405	1402.70	1.22E+01	15.36	2.96E+01	.....
	32	1409.70	1407 -	1412	1409.55	1.07E+01	9.11	6.64E+00	.....
	33	1460.85	1455 -	1465	1460.68	5.56E+02	50.95	5.00E+01	K-40
	34	1480.22	1475 -	1485	1480.04	1.47E+01	13.52	1.67E+01	.....
	35	1573.74	1570 -	1576	1573.53	6.31E+00	6.65	3.38E+00	.....
	36	1592.78	1589 -	1597	1592.56	1.94E+01	14.74	1.92E+01	.....
	37	1638.93	1637 -	1641	1638.71	7.33E+00	6.96	3.33E+00	.....
	38	1652.63	1650 -	1654	1652.40	5.00E+00	4.47	0.00E+00	.....
	39	1729.36	1724 -	1734	1729.10	9.60E+00	10.98	1.08E+01	.....
	40	1764.11	1760 -	1768	1763.84	3.80E+01	12.33	0.00E+00	BI-214
	41	1788.54	1784 -	1792	1788.26	1.08E+01	8.50	4.46E+00	.....
	42	1956.15	1953 -	1957	1955.82	4.71E+00	6.36	4.57E+00	.....
	43	2203.46	2197 -	2206	2203.04	1.12E+01	12.29	1.56E+01	BI-214
	44	2275.21	2272 -	2277	2274.77	7.67E+00	6.71	2.67E+00	.....
	45	2329.72	2324 -	2334	2329.26	7.50E+00	10.61	1.10E+01	.....
	46	2614.33	2609 -	2619	2613.77	4.80E+01	13.86	0.00E+00	TL-208

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

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 : 8/21/2017 5:26:09PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	45.43	2.46E+02	124.06	1.66E-02	1.73E-03
	2	63.74	1.24E+02	94.17	2.45E-02	1.80E-03
	3	76.63	8.39E+02	150.20	2.67E-02	2.05E-03
	4	87.83	6.90E+01	76.70	2.72E-02	2.26E-03
	5	93.50	2.27E+02	98.29	2.71E-02	2.24E-03
	6	130.31	1.17E+02	76.60	2.45E-02	2.03E-03
	7	185.62	1.95E+02	82.89	1.96E-02	1.55E-03
	8	209.60	5.45E+01	57.87	1.79E-02	1.45E-03
M	9	236.31	5.40E+01	26.75	1.63E-02	1.35E-03
m	10	239.28	7.06E+02	72.80	1.61E-02	1.34E-03
m	11	242.58	9.34E+01	59.38	1.59E-02	1.32E-03
	12	274.41	1.28E+02	83.99	1.43E-02	1.20E-03
	13	295.59	1.75E+02	51.23	1.35E-02	1.15E-03
	14	338.52	9.51E+01	54.61	1.19E-02	1.06E-03
	15	352.34	2.66E+02	58.09	1.15E-02	1.03E-03
	16	463.18	4.05E+01	33.77	9.02E-03	8.58E-04
	17	478.90	3.17E+01	29.53	8.75E-03	8.37E-04
	18	511.17	1.54E+02	55.16	8.25E-03	7.94E-04
	19	583.44	2.02E+02	52.41	7.32E-03	6.98E-04
	20	609.62	1.86E+02	51.45	7.04E-03	6.64E-04
	21	662.08	5.20E+01	34.47	6.54E-03	5.94E-04
	22	769.91	4.54E+01	40.79	5.71E-03	4.99E-04
	23	795.50	3.13E+01	30.11	5.55E-03	4.76E-04
	24	911.58	1.13E+02	38.03	4.92E-03	3.84E-04
	25	969.51	3.29E+01	29.29	4.66E-03	3.74E-04
	26	986.75	4.18E+01	28.76	4.59E-03	3.72E-04
	27	1003.24	2.48E+01	30.43	4.53E-03	3.69E-04
	28	1120.07	3.74E+01	29.12	4.12E-03	3.50E-04
	29	1197.69	4.55E+01	44.42	3.89E-03	3.34E-04
	30	1376.74	1.57E+01	12.25	3.47E-03	2.89E-04
	31	1402.85	1.22E+01	15.36	3.42E-03	2.84E-04
	32	1409.70	1.07E+01	9.11	3.40E-03	2.83E-04
	33	1460.85	5.56E+02	50.95	3.31E-03	2.75E-04
	34	1480.22	1.47E+01	13.52	3.27E-03	2.72E-04

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1573.74	6.31E+00	6.65	3.12E-03	2.57E-04
36	1592.78	1.94E+01	14.74	3.09E-03	2.54E-04
37	1638.93	7.33E+00	6.96	3.03E-03	2.47E-04
38	1652.63	5.00E+00	4.47	3.01E-03	2.44E-04
39	1729.36	9.60E+00	10.98	2.91E-03	2.32E-04
40	1764.11	3.80E+01	12.33	2.87E-03	2.27E-04
41	1788.54	1.08E+01	8.50	2.84E-03	2.23E-04
42	1956.15	4.71E+00	6.36	2.66E-03	2.15E-04
43	2203.46	1.12E+01	12.29	2.46E-03	2.15E-04
44	2275.21	7.67E+00	6.71	2.42E-03	2.15E-04
45	2329.72	7.50E+00	10.61	2.38E-03	2.15E-04
46	2614.33	4.80E+01	13.86	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 : 8/21/2017 5:26:09PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	45.43	2.46E+02	124.06			2.46E+02	1.24E+02
	2	63.74	1.24E+02	94.17	4.12E+01	5.67E+00	8.26E+01	9.43E+01
	3	76.63	8.39E+02	150.20			8.39E+02	1.50E+02
	4	87.83	6.90E+01	76.70			6.90E+01	7.67E+01
	5	93.50	2.27E+02	98.29	7.98E+01	7.31E+00	1.47E+02	9.86E+01
	6	130.31	1.17E+02	76.60			1.17E+02	7.66E+01
	7	185.62	1.95E+02	82.89	3.06E+01	5.82E+00	1.64E+02	8.31E+01
	8	209.60	5.45E+01	57.87			5.45E+01	5.79E+01
M	9	236.31	5.40E+01	26.75			5.40E+01	2.67E+01
m	10	239.28	7.06E+02	72.80	1.40E+01	2.71E+00	6.92E+02	7.28E+01
m	11	242.58	9.34E+01	59.38			9.34E+01	5.94E+01
	12	274.41	1.28E+02	83.99			1.28E+02	8.40E+01
	13	295.59	1.75E+02	51.23			1.75E+02	5.12E+01
	14	338.52	9.51E+01	54.61			9.51E+01	5.46E+01
	15	352.34	2.66E+02	58.09	6.53E+00	4.43E+00	2.60E+02	5.83E+01
	16	463.18	4.05E+01	33.77			4.05E+01	3.38E+01
	17	478.90	3.17E+01	29.53			3.17E+01	2.95E+01
	18	511.17	1.54E+02	55.16	5.21E+01	4.74E+00	1.02E+02	5.54E+01

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
19	583.44	2.02E+02	52.41			2.02E+02	5.24E+01
20	609.62	1.86E+02	51.45	3.25E+00	2.97E+00	1.83E+02	5.15E+01
21	662.08	5.20E+01	34.47			5.20E+01	3.45E+01
22	769.91	4.54E+01	40.79			4.54E+01	4.08E+01
23	795.50	3.13E+01	30.11	0.00E+00	0.00E+00	3.13E+01	3.01E+01
24	911.58	1.13E+02	38.03	2.85E+00	2.76E+00	1.10E+02	3.81E+01
25	969.51	3.29E+01	29.29			3.29E+01	2.93E+01
26	986.75	4.18E+01	28.76			4.18E+01	2.88E+01
27	1003.24	2.48E+01	30.43			2.48E+01	3.04E+01
28	1120.07	3.74E+01	29.12			3.74E+01	2.91E+01
29	1197.69	4.55E+01	44.42			4.55E+01	4.44E+01
30	1376.74	1.57E+01	12.25			1.57E+01	1.22E+01
31	1402.85	1.22E+01	15.36			1.22E+01	1.54E+01
32	1409.70	1.07E+01	9.11			1.07E+01	9.11E+00
33	1460.85	5.56E+02	50.95	1.00E+00	1.77E+00	5.55E+02	5.10E+01
34	1480.22	1.47E+01	13.52			1.47E+01	1.35E+01
35	1573.74	6.31E+00	6.65			6.31E+00	6.65E+00
36	1592.78	1.94E+01	14.74			1.94E+01	1.47E+01
37	1638.93	7.33E+00	6.96			7.33E+00	6.96E+00
38	1652.63	5.00E+00	4.47			5.00E+00	4.47E+00
39	1729.36	9.60E+00	10.98			9.60E+00	1.10E+01
40	1764.11	3.80E+01	12.33			3.80E+01	1.23E+01
41	1788.54	1.08E+01	8.50			1.08E+01	8.50E+00
42	1956.15	4.71E+00	6.36			4.71E+00	6.36E+00
43	2203.46	1.12E+01	12.29			1.12E+01	1.23E+01
44	2275.21	7.67E+00	6.71			7.67E+00	6.71E+00
45	2329.72	7.50E+00	10.61			7.50E+00	1.06E+01
46	2614.33	4.80E+01	13.86	1.86E+00	1.12E+00	4.61E+01	1.39E+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 : 8/21/2017 5:26:09PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.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.

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	45.43	2.46E+02	124.06			2.46E+02	1.24E+02
	2	63.74	1.24E+02	94.17	4.12E+01	5.67E+00	8.26E+01	9.43E+01
	3	76.63	8.39E+02	150.20			8.39E+02	1.50E+02
	4	87.83	6.90E+01	76.70			6.90E+01	7.67E+01
	5	93.50	2.27E+02	98.29	7.98E+01	7.31E+00	1.47E+02	9.86E+01
	6	130.31	1.17E+02	76.60			1.17E+02	7.66E+01
	7	185.62	1.95E+02	82.89	3.06E+01	5.82E+00	1.64E+02	8.31E+01
	8	209.60	5.45E+01	57.87			5.45E+01	5.79E+01
M	9	236.31	5.40E+01	26.75			5.40E+01	2.67E+01
m	10	239.28	7.06E+02	72.80	1.40E+01	2.71E+00	6.92E+02	7.28E+01
m	11	242.58	9.34E+01	59.38			9.34E+01	5.94E+01
	12	274.41	1.28E+02	83.99			1.28E+02	8.40E+01
	13	295.59	1.75E+02	51.23			1.75E+02	5.12E+01
	14	338.52	9.51E+01	54.61			9.51E+01	5.46E+01
	15	352.34	2.66E+02	58.09	6.53E+00	4.43E+00	2.60E+02	5.83E+01
	16	463.18	4.05E+01	33.77			4.05E+01	3.38E+01
	17	478.90	3.17E+01	29.53			3.17E+01	2.95E+01
	18	511.17	1.54E+02	55.16	5.21E+01	4.74E+00	1.02E+02	5.54E+01
	19	583.44	2.02E+02	52.41			2.02E+02	5.24E+01
	20	609.62	1.86E+02	51.45	3.25E+00	2.97E+00	1.83E+02	5.15E+01
	21	662.08	5.20E+01	34.47			5.20E+01	3.45E+01
	22	769.91	4.54E+01	40.79			4.54E+01	4.08E+01
	23	795.50	3.13E+01	30.11	0.00E+00	0.00E+00	3.13E+01	3.01E+01
	24	911.58	1.13E+02	38.03	2.85E+00	2.76E+00	1.10E+02	3.81E+01
	25	969.51	3.29E+01	29.29			3.29E+01	2.93E+01
	26	986.75	4.18E+01	28.76			4.18E+01	2.88E+01
	27	1003.24	2.48E+01	30.43			2.48E+01	3.04E+01
	28	1120.07	3.74E+01	29.12			3.74E+01	2.91E+01
	29	1197.69	4.55E+01	44.42			4.55E+01	4.44E+01
	30	1376.74	1.57E+01	12.25			1.57E+01	1.22E+01
	31	1402.85	1.22E+01	15.36			1.22E+01	1.54E+01
	32	1409.70	1.07E+01	9.11			1.07E+01	9.11E+00
	33	1460.85	5.56E+02	50.95	1.00E+00	1.77E+00	5.55E+02	5.10E+01
	34	1480.22	1.47E+01	13.52			1.47E+01	1.35E+01
	35	1573.74	6.31E+00	6.65			6.31E+00	6.65E+00
	36	1592.78	1.94E+01	14.74			1.94E+01	1.47E+01
	37	1638.93	7.33E+00	6.96			7.33E+00	6.96E+00
	38	1652.63	5.00E+00	4.47			5.00E+00	4.47E+00
	39	1729.36	9.60E+00	10.98			9.60E+00	1.10E+01
	40	1764.11	3.80E+01	12.33			3.80E+01	1.23E+01
	41	1788.54	1.08E+01	8.50			1.08E+01	8.50E+00
	42	1956.15	4.71E+00	6.36			4.71E+00	6.36E+00
	43	2203.46	1.12E+01	12.29			1.12E+01	1.23E+01
	44	2275.21	7.67E+00	6.71			7.67E+00	6.71E+00
	45	2329.72	7.50E+00	10.61			7.50E+00	1.06E+01
	46	2614.33	4.80E+01	13.86	1.86E+00	1.12E+00	4.61E+01	1.39E+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 1707086-13

HTC-A03-S001-0006-02

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
K-40	1.000	1460.81	*	10.67	2.06E+01	2.59E+00
CD-109	0.993	88.03	*	3.72	1.04E+00	1.16E+00
SN-126	0.989	87.57	*	37.00	9.02E-02	1.01E-01
CS-137	0.970	661.65	*	85.12	1.24E-01	8.26E-02
TL-208	0.873	583.14	*	30.22	1.20E+00	3.31E-01
		860.37		4.48		
		2614.66	*	35.85	7.55E-01	2.39E-01
PB-212	0.835	238.63	*	44.60	1.27E+00	1.70E-01
		300.09		3.41		
BI-214	0.980	609.31	*	46.30	7.38E-01	2.19E-01
		1120.29	*	15.10	7.90E-01	6.19E-01
		1764.49	*	15.80	1.10E+00	3.68E-01
		2204.22	*	4.98	1.20E+00	1.32E+00
PB-214	0.974	295.21	*	19.19	8.90E-01	2.71E-01
		351.92	*	37.19	7.96E-01	1.92E-01
RA-226	0.946	186.21	*	3.28	3.35E+00	6.36E+00
AC-228	0.971	338.32	*	11.40	9.17E-01	5.33E-01
		911.07	*	27.70	1.06E+00	3.77E-01
		969.11	*	16.60	5.58E-01	4.99E-01
PA-234	0.425	131.20	*	20.40	3.08E-01	2.03E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.969	63.29	*	3.80	1.16E+00	1.33E+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 : 8/21/2017 5:26:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	45.43	6.82961E-02	25.23		
	3	76.63	2.32973E-01	8.95		
	5	93.50	4.08140E-02	33.54	Tol.	GA-67
	8	209.60	1.51504E-02	53.05	Tol.	GA-67 CM-243
M	9	236.31	1.50074E-02	24.76	Tol.	NB-95M TH-227
m	11	242.58	2.59307E-02	31.80		
	12	274.41	3.54267E-02	32.93	Sum	
	16	463.18	1.12500E-02	41.70	Tol.	SB-125
	17	478.90	8.81501E-03	46.53	Sum	
	18	511.17	2.82457E-02	27.22		
	22	769.91	1.26075E-02	44.94	Sum	
	23	795.50	8.69478E-03	48.10	Sum	
	26	986.75	1.16111E-02	34.40		
	27	1003.24	6.88546E-03	61.37		
	29	1197.69	1.26515E-02	48.76		
	30	1376.74	4.35185E-03	39.09		
	31	1402.85	3.38477E-03	63.04		
	32	1409.70	2.96627E-03	42.66		
	34	1480.22	4.07609E-03	46.06		
	35	1573.74	1.75347E-03	52.69	Sum	
	36	1592.78	5.38314E-03	38.03	D-Esc	
	37	1638.93	2.03704E-03	47.48		
	38	1652.63	1.38889E-03	44.72		
	39	1729.36	2.66667E-03	57.17	Sum	
	41	1788.54	2.99145E-03	39.46		
	42	1956.15	1.30952E-03	67.50		
	44	2275.21	2.12963E-03	43.75		
	45	2329.72	2.08333E-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

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.00	1460.81	*	10.67	2.06E+01	2.59E+00
CD-109	0.99	88.03	*	3.72	1.04E+00	1.16E+00
SN-126	0.98	87.57	*	37.00	9.02E-02	1.01E-01
CS-137	0.97	661.65	*	85.12	1.24E-01	8.26E-02
TL-208	0.87	583.14	*	30.22	1.20E+00	3.31E-01
		860.37		4.48		
		2614.66	*	35.85	7.55E-01	2.39E-01
PB-212	0.83	238.63	*	44.60	1.27E+00	1.70E-01
		300.09		3.41		
BI-214	0.98	609.31	*	46.30	7.38E-01	2.19E-01
		1120.29	*	15.10	7.90E-01	6.19E-01
		1764.49	*	15.80	1.10E+00	3.68E-01
		2204.22	*	4.98	1.20E+00	1.32E+00
PB-214	0.97	295.21	*	19.19	8.90E-01	2.71E-01
		351.92	*	37.19	7.96E-01	1.92E-01
RA-226	0.94	186.21	*	3.28	3.35E+00	6.36E+00
AC-228	0.97	338.32	*	11.40	9.17E-01	5.33E-01
		911.07	*	27.70	1.06E+00	3.77E-01
		969.11	*	16.60	5.58E-01	4.99E-01
PA-234	0.42	131.20	*	20.40	3.08E-01	2.03E-01
		733.99		8.80		
		946.00		12.00		
TH-234	0.96	63.29	*	3.80	1.16E+00	1.33E+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	1.000	2.06E+01	2.59E+00	
?	CD-109	0.993	1.04E+00	1.16E+00	
?	SN-126	0.989	9.02E-02	1.01E-01	
	CS-137	0.970	1.24E-01	8.26E-02	

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TL-208	0.873	9.06E-01	1.94E-01	
PB-212	0.835	1.27E+00	1.70E-01	
BI-214	0.980	8.37E-01	1.78E-01	
PB-214	0.974	8.27E-01	1.57E-01	
RA-226	0.946	3.35E+00	6.36E+00	
AC-228	0.971	8.88E-01	2.62E-01	
PA-234	0.425	3.08E-01	2.03E-01	
TH-234	0.969	1.16E+00	1.33E+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 1707086-13

HTC-A03-S001-0006-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 5:26:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	45.43	6.82961E-02	25.23		
	3	76.63	2.32973E-01	8.95		
	5	93.50	4.08140E-02	33.54	Tol.	GA-67
	8	209.60	1.51504E-02	53.05	Tol.	GA-67
						CM-243
M	9	236.31	1.50074E-02	24.76	Tol.	NB-95M
						TH-227
m	11	242.58	2.59307E-02	31.80		
	12	274.41	3.54267E-02	32.93	Sum	
	16	463.18	1.12500E-02	41.70	Tol.	SB-125
	17	478.90	8.81501E-03	46.53	Sum	
	18	511.17	2.82457E-02	27.22		
	22	769.91	1.26075E-02	44.94	Sum	
	23	795.50	8.69478E-03	48.10	Sum	
	26	986.75	1.16111E-02	34.40		
	27	1003.24	6.88546E-03	61.37		
	29	1197.69	1.26515E-02	48.76		
	30	1376.74	4.35185E-03	39.09		
	31	1402.85	3.38477E-03	63.04		
	32	1409.70	2.96627E-03	42.66		
	34	1480.22	4.07609E-03	46.06		
	35	1573.74	1.75347E-03	52.69	Sum	
	36	1592.78	5.38314E-03	38.03	D-Esc	
	37	1638.93	2.03704E-03	47.48		
	38	1652.63	1.38889E-03	44.72		
	39	1729.36	2.66667E-03	57.17	Sum	
	41	1788.54	2.99145E-03	39.46		
	42	1956.15	1.30952E-03	67.50		
	44	2275.21	2.12963E-03	43.75		
	45	2329.72	2.08333E-03	70.71		

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.76E-01	2.31E+00	2.31E+00
+		NA-22	1274.54		99.94	6.76E-02	1.27E-01	1.27E-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	-9.35E-03	7.02E-02	7.02E-02
+		K-40	1460.81	*	10.67	2.06E+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	5.78E-03	6.25E-02	6.25E-02
			78.34		96.00	2.00E-01		8.05E-02
+		SC-46	889.25		99.98	-1.40E-01	1.89E-01	1.89E-01
			1120.51		99.99	1.92E-01		2.95E-01
+		V-48	983.52		99.98	1.42E+00	6.90E+00	6.90E+00
			1312.10		97.50	1.84E-01		7.94E+00
+		CR-51	320.08		9.83	1.79E-01	7.41E+00	7.41E+00
+		MN-54	834.83		99.97	-1.54E-03	1.19E-01	1.19E-01
+		CO-56	846.75		99.96	-1.82E-01	1.87E-01	1.87E-01
			1037.75		14.03	-1.58E-02		1.77E+00
			1238.25		67.00	1.23E-01		4.95E-01
			1771.40		15.51	5.28E-02		1.12E+00
			2598.48		16.90	8.22E-02		6.05E-01
+		CO-57	122.06		85.51	1.61E-02	6.85E-02	6.85E-02
			136.48		10.60	-1.76E-01		5.50E-01
+		CO-58	810.76		99.40	-7.69E-02	2.06E-01	2.06E-01
+		FE-59	1099.22		56.50	1.21E-01	8.49E-01	8.49E-01
			1291.56		43.20	9.97E-02		1.06E+00
+		CO-60	1173.22		100.00	3.66E-02	1.11E-01	1.22E-01
			1332.49		100.00	2.31E-02		1.11E-01
+		ZN-65	1115.52		50.75	-1.20E-02	2.86E-01	2.86E-01
+		GA-67	93.31		35.70	3.54E+08	1.97E+08	1.97E+08
			208.95		2.24	2.56E+09		3.48E+09
			300.22		16.00	-5.30E+06		5.44E+08
+		SE-75	121.11		16.70	-3.53E-02	1.33E-01	4.65E-01

Analysis Report for 1707086-13

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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	-2.04E-02	1.33E-01	1.33E-01
		264.65		59.80	8.56E-02		1.69E-01
		279.53		25.20	1.26E-01		4.55E-01
		400.65		11.40	4.59E-01		1.15E+00
+	RB-82	776.52		13.00	-2.26E+00	8.97E+00	8.97E+00
+	RB-83	520.41		46.00	1.18E-01	3.67E-01	3.67E-01
		529.64		30.30	6.33E-02		5.33E-01
		552.65		16.40	5.07E-01		1.02E+00
+	KR-85	513.99		0.43	2.99E+01	2.51E+01	2.51E+01
+	SR-85	513.99		99.27	3.67E-01	3.09E-01	3.09E-01
+	Y-88	898.02		93.40	-1.31E-03	1.35E-01	1.89E-01
		1836.01		99.38	-1.80E-02		1.35E-01
+	MO-93	263.06		56.72	-2.38E-02	7.24E-02	1.01E-01
		684.67		99.68	-4.31E-02		7.24E-02
		1477.11		99.08	4.11E-03		9.45E-02
+	NB-93M	16.57		9.43	-1.91E+01	7.05E+01	7.05E+01
+	NB-94	702.63		100.00	1.43E-03	8.70E-02	8.70E-02
		871.10		100.00	-2.79E-03		8.79E-02
+	NB-95	765.79		99.81	7.61E-02	7.10E-01	7.10E-01
+	NB-95M	235.69		25.00	-1.25E+07	5.87E+07	5.87E+07
+	ZR-95	724.18		43.70	-2.01E-01	4.34E-01	6.13E-01
		756.72		55.30	-2.14E-02		4.34E-01
+	MO-99	181.06		6.20	-2.42E+09	3.58E+10	4.54E+10
		739.58		12.80	-1.18E+10		3.58E+10
		778.00		4.50	-4.19E+10		1.01E+11
+	RU-103	497.08		89.00	1.18E-01	4.29E-01	4.29E-01
+	RU-106	621.84		9.80	2.13E-01	9.84E-01	9.84E-01
+	AG-108M	433.93		89.90	-1.19E-02	7.53E-02	7.53E-02
		614.37		90.40	8.60E-03		1.09E-01
		722.95		90.50	-1.29E-01		8.95E-02
+	CD-109	88.03	*	3.72	1.04E+00	1.90E+00	1.90E+00
+	AG-110M	657.75		93.14	-1.15E-02	1.12E-01	1.12E-01
		677.61		10.53	6.33E-01		1.08E+00
		706.67		16.46	-2.74E-01		6.74E-01
		763.93		21.98	2.85E-02		5.53E-01
		884.67		71.63	4.10E-02		1.70E-01
		1384.27		23.94	4.97E-02		4.06E-01
+	CD-113M	263.70		0.02	5.57E+01	2.53E+02	2.53E+02
+	SN-113	255.12		1.93	1.21E+00	1.90E-01	5.60E+00
		391.69		64.90	-1.17E-02		1.90E-01
+	TE123M	159.00		84.10	8.23E-03	9.88E-02	9.88E-02
+	SB-124	602.71		97.87	-5.51E-02	2.42E-01	2.42E-01
		645.85		7.26	-7.90E-01		3.45E+00
		722.78		11.10	-3.27E+00		2.26E+00
		1691.02		49.00	1.27E-01		4.69E-01
+	I-125	35.49		6.49	1.28E+00	5.79E+00	5.79E+00
+	SB-125	176.33		6.89	1.71E-01	2.35E-01	7.56E-01
		427.89		29.33	-8.66E-02		2.35E-01

Analysis Report for 1707086-13

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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	4.71E-01	2.35E-01	8.39E-01
		600.56		17.80	3.15E-02		4.82E-01
		635.90		11.32	-5.44E-01		6.64E-01
+	SB-126	414.70		83.30	-1.18E+01	1.86E+01	2.03E+01
		666.33		99.60	2.75E+00		2.22E+01
		695.00		99.60	-8.54E+00		1.86E+01
		720.50		53.80	-1.69E+01		3.50E+01
+	SN-126	87.57	*	37.00	9.02E-02	1.65E-01	1.65E-01
+	SB-127	473.00		25.00	1.47E+06	9.69E+06	1.26E+07
		685.20		35.70	-5.77E+06		9.69E+06
		783.80		14.70	1.38E+07		2.93E+07
+	I-129	29.78		57.00	3.22E-01	4.07E-01	4.07E-01
		33.60		13.20	3.55E-01		1.08E+00
		39.58		7.52	5.43E-02		1.36E+00
+	I-131	284.30		6.05	1.71E+03	3.84E+02	4.93E+03
		364.48		81.20	-7.04E+01		3.84E+02
		636.97		7.26	-1.89E+03		4.85E+03
		722.89		1.80	-3.12E+04		2.16E+04
+	TE-132	49.72		13.10	-6.45E+08	8.68E+07	6.57E+08
		228.16		88.00	8.62E+06		8.68E+07
+	BA-133	81.00		33.00	-5.77E-01	1.50E-01	1.76E-01
		302.84		17.80	7.80E-02		3.81E-01
		356.01		60.00	-6.76E-03		1.50E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.17E+05	6.65E+04	6.65E+04
+	CS-134	563.23		8.38	5.33E-01	9.04E-02	1.04E+00
		569.32		15.43	-7.59E-02		5.32E-01
		604.70		97.60	-2.08E-03		9.04E-02
		795.84		85.40	7.07E-02		1.18E-01
		801.93		8.73	1.66E-03		1.01E+00
+	CS-135	268.24		16.00	3.13E-02	3.97E-01	3.97E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	1.51E+01	1.37E+01	1.15E+02
		163.89		4.61	6.34E+01		1.85E+02
		176.55		13.56	1.44E+01		6.38E+01
		273.65		12.66	-4.40E+01		9.34E+01
		340.57		48.50	2.50E+01		3.02E+01
		818.50		99.70	-4.71E+00		1.37E+01
		1048.07		79.60	1.97E+00		2.23E+01
		1235.34		19.70	-1.43E+01		1.26E+02
+	CS-137	661.65	*	85.12	1.24E-01	1.29E-01	1.29E-01
+	LA-138	788.74		34.00	2.13E-03	1.19E-01	2.32E-01
		1435.80		66.00	-4.53E-02		1.19E-01
+	CE-139	165.85		80.35	2.89E-02	9.94E-02	9.94E-02
+	BA-140	162.64		6.70	-1.76E+01	5.87E+01	1.44E+02
		304.84		4.50	-2.29E+02		2.89E+02
		423.70		3.20	-7.82E+01		4.38E+02

Analysis Report for 1707086-13

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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	5.91E+02	5.87E+01	7.59E+02
		537.32	25.00	-2.97E+00		5.87E+01
+	LA-140	328.77	20.50	2.64E+01	2.30E+01	6.98E+01
		487.03	45.50	9.59E+00		3.18E+01
		815.85	23.50	1.85E+01		6.66E+01
		1596.49	95.49	-1.22E+00		2.30E+01
+	CE-141	145.44	48.40	1.54E-02	7.99E-01	7.99E-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	-1.24E-01	5.27E-01	5.27E-01
+	PM-144	476.78	42.00	1.23E-02	9.33E-02	1.94E-01
		618.01	98.60	-1.62E-02		9.75E-02
		696.49	99.49	-3.59E-02		9.33E-02
+	PM-145	36.85	21.70	-3.00E-01	2.71E-01	5.04E-01
		37.36	39.70	-4.53E-02		2.71E-01
		42.30	15.10	3.30E-01		6.23E-01
		72.40	2.31	-9.78E-02		2.89E+00
+	PM-146	453.90	39.94	3.64E-02	1.79E-01	1.79E-01
		735.90	14.01	-1.33E-02		5.91E-01
		747.13	13.10	1.30E-01		6.58E-01
+	ND-147	91.11	28.90	-4.73E+01	1.03E+02	1.03E+02
		531.02	13.10	-3.95E+00		2.75E+02
+	PM-149	285.90	3.10	3.69E+12	4.80E+13	4.80E+13
+	EU-152	121.78	20.50	5.29E-02	2.25E-01	2.25E-01
		244.69	5.40	-4.86E+00		1.33E+00
		344.27	19.13	5.91E-02		3.53E-01
		778.89	9.20	6.76E-03		9.37E-01
		964.01	10.40	-5.94E-02		1.13E+00
		1085.78	7.22	2.59E-01		1.49E+00
		1112.02	9.60	4.72E-01		1.30E+00
		1407.95	14.94	-2.95E-01		5.26E-01
+	GD-153	97.43	31.30	-2.25E-02	1.89E-01	1.89E-01
		103.18	22.20	-1.53E-01		2.73E-01
+	EU-154	123.07	40.50	9.23E-03	1.13E-01	1.13E-01
		723.30	19.70	-6.07E-01		4.20E-01
		873.19	11.50	-7.26E-02		7.90E-01
		996.32	10.30	-4.08E-02		7.94E-01
		1004.76	17.90	1.62E-01		5.51E-01
		1274.45	35.50	1.81E-01		3.40E-01
+	EU-155	86.50	30.90	1.96E-01	2.06E-01	2.06E-01
		105.30	20.70	1.01E-01		2.34E-01
+	EU-156	811.77	10.40	-1.51E+01	6.76E+01	6.76E+01
		1153.47	7.20	4.50E+01		1.53E+02
		1230.71	8.90	2.94E+01		1.43E+02
+	HO-166M	184.41	72.60	1.11E-01	8.59E-02	8.59E-02
		280.45	29.60	-5.05E-02		2.18E-01
		410.94	11.10	3.09E-01		6.76E-01
		711.69	54.10	2.33E-02		1.55E-01

Analysis Report for 1707086-13

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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	1.93E+01	4.83E+01	4.83E+01
+	HF-172	67.35		5.31	1.14E-01	4.40E-01	1.23E+00
		125.81		11.30	1.19E-01		4.40E-01
+	LU-172	181.53		20.60	-9.69E+03	4.20E+03	6.33E+03
		900.72		29.81	8.67E+02		8.25E+03
		1093.66		62.50	-1.04E+03		4.20E+03
+	LU-173	100.72		5.24	4.28E-01	3.65E-01	1.00E+00
		272.11		21.20	2.52E-01		3.65E-01
+	HF-175	343.40		84.00	3.51E-02	2.09E-01	2.09E-01
+	LU-176	88.34		13.30	6.31E-02	5.97E-02	4.58E-01
		201.83		86.00	-3.64E-04		5.97E-02
		306.78		94.00	2.41E-02		6.83E-02
+	HF-181	133.02		41.70	-3.76E-01	4.08E-01	5.44E-01
		345.85		17.20	3.25E-01		1.94E+00
		482.03		82.80	2.13E-02		4.08E-01
+	TA-182	67.75		41.20	2.40E-02	2.59E-01	2.59E-01
		1121.30		34.90	4.63E-01		6.77E-01
		1189.05		16.23	4.31E-01		1.25E+00
		1221.41		26.98	2.66E-01		8.44E-01
		1231.02		11.44	4.68E-01		2.28E+00
+	IR-192	308.46		29.68	2.65E-02	3.74E-01	5.31E-01
		468.07		48.10	7.25E-02		3.74E-01
+	HG-203	279.19		77.30	2.94E-01	3.68E-01	3.68E-01
+	TL-204	374.74		94.11	4.29E-02	7.76E-02	7.76E-02
		899.15		99.16	-3.78E-03		9.67E-02
		911.74		91.10	3.24E-01		1.86E-01
+	BI-207	569.67		97.72	-5.69E-03	7.62E-02	7.62E-02
		1063.62		74.90	1.84E-02		1.36E-01
+	TL-208	583.14	*	30.22	1.20E+00	1.24E-01	4.46E-01
		860.37		4.48	2.48E-01		2.11E+00
		2614.66	*	35.85	7.55E-01		1.24E-01
+	BI-210M	262.00		45.00	-5.73E-02	1.26E-01	1.26E-01
		300.00		23.00	-3.09E-03		3.18E-01
+	PB-210	46.50		4.25	1.56E+00	2.00E+00	2.00E+00
+	PB-211	404.84		2.90	-7.95E-01	2.42E+00	2.42E+00
		831.96		2.90	3.23E-01		3.08E+00
+	BI-212	727.17		11.80	1.03E+00	9.16E-01	9.16E-01
		1620.62		2.75	2.71E-01		3.05E+00
+	PB-212	238.63	*	44.60	1.27E+00	2.28E-01	2.28E-01
		300.09		3.41	-2.09E-02		2.14E+00
+	BI-214	609.31	*	46.30	7.38E-01	7.85E-02	3.02E-01
		1120.29	*	15.10	7.90E-01		9.75E-01
		1764.49	*	15.80	1.10E+00		7.85E-02
		2204.22	*	4.98	1.20E+00		2.10E+00
+	PB-214	295.21	*	19.19	8.90E-01	2.53E-01	3.81E-01
		351.92	*	37.19	7.96E-01		2.53E-01
+	RN-219	401.80		6.50	3.54E-01	1.11E+00	1.11E+00
+	RA-223	323.87		3.88	-8.17E-01	1.56E+00	1.56E+00

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.55E+01	3.12E+00	3.12E+00
+	RA-225	40.00		31.00	1.29E+00	3.21E+01	3.21E+01
+	RA-226	186.21	*	3.28	3.35E+00	2.71E+00	2.71E+00
+	TH-227	50.10		8.40	-8.22E-01	8.09E-01	8.37E-01
		236.00		11.50	-1.72E-01		8.09E-01
		256.20		6.30	6.25E-01		9.59E-01
+	AC-228	338.32	*	11.40	9.17E-01	5.30E-01	8.35E-01
		911.07	*	27.70	1.06E+00		5.30E-01
		969.11	*	16.60	5.58E-01		7.98E-01
+	TH-230	48.44		16.90	3.99E-01	4.61E-01	4.61E-01
		62.85		4.60	1.52E+00		1.45E+00
		67.67		0.37	1.47E+00		1.59E+01
+	PA-231	283.67		1.60	1.01E+00	2.90E+00	3.88E+00
		302.67		2.30	5.93E-01		2.90E+00
+	TH-231	25.64		14.70	-1.63E+00	8.90E-01	2.97E+00
		84.21		6.40	2.19E-01		8.90E-01
+	PA-233	311.98		38.60	2.09E-02	2.04E+00	2.04E+00
+	PA-234	131.20	*	20.40	3.08E-01	3.25E-01	3.25E-01
		733.99		8.80	-2.47E-01		9.08E-01
		946.00		12.00	3.33E-02		7.47E-01
+	PA-234M	1001.03		0.92	2.00E-01	1.06E+01	1.06E+01
+	TH-234	63.29	*	3.80	1.16E+00	2.18E+00	2.18E+00
+	U-235	143.76		10.50	1.29E-01	4.58E-01	4.58E-01
		163.35		4.70	3.50E-01		1.02E+00
		205.31		4.70	3.99E-02		1.30E+00
+	NP-237	86.50		12.60	4.62E-01	4.86E-01	4.86E-01
+	NP-239	106.10		22.70	3.29E+11	7.61E+11	7.61E+11
		228.18		10.70	2.16E+11		2.18E+12
		277.60		14.10	1.03E+12		1.71E+12
+	AM-241	59.54		35.90	3.32E-02	1.71E-01	1.71E-01
+	AM-243	74.67		66.00	8.30E-02	1.20E-01	1.20E-01
+	CM-243	209.75		3.29	9.68E-01	4.69E-01	1.98E+00
		228.14		10.60	5.95E-02		5.98E-01
		277.60		14.00	2.81E-01		4.69E-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 1707086-13

HTC-A03-S001-0006-02

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	2.31E+00	2.31E+00	1.76E-01	1.08E+00
	NA-22	1274.54		99.94	1.27E-01	1.27E-01	6.76E-02	5.83E-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	7.02E-02	7.02E-02	-9.35E-03	2.88E-02
+	K-40	1460.81	*	10.67	1.29E+00	1.29E+00	2.06E+01	5.96E-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	6.25E-02	6.25E-02	5.78E-03	3.05E-02
		78.34		96.00	8.05E-02		2.00E-01	3.95E-02
	SC-46	889.25		99.98	1.89E-01	1.89E-01	-1.40E-01	8.67E-02
		1120.51		99.99	2.95E-01		1.92E-01	1.38E-01
	V-48	983.52		99.98	6.90E+00	6.90E+00	1.42E+00	3.18E+00
		1312.10		97.50	7.94E+00		1.84E-01	3.61E+00
	CR-51	320.08		9.83	7.41E+00	7.41E+00	1.79E-01	3.54E+00
	MN-54	834.83		99.97	1.19E-01	1.19E-01	-1.54E-03	5.54E-02
	CO-56	846.75		99.96	1.87E-01	1.87E-01	-1.82E-01	8.53E-02
		1037.75		14.03	1.77E+00		-1.58E-02	8.15E-01
		1238.25		67.00	4.95E-01		1.23E-01	2.31E-01
		1771.40		15.51	1.12E+00		5.28E-02	4.63E-01
		2598.48		16.90	6.05E-01		8.22E-02	1.91E-01
	CO-57	122.06		85.51	6.85E-02	6.85E-02	1.61E-02	3.32E-02
		136.48		10.60	5.50E-01		-1.76E-01	2.66E-01
	CO-58	810.76		99.40	2.06E-01	2.06E-01	-7.69E-02	9.45E-02
	FE-59	1099.22		56.50	8.49E-01	8.49E-01	1.21E-01	3.90E-01
		1291.56		43.20	1.06E+00		9.97E-02	4.80E-01
	CO-60	1173.22		100.00	1.22E-01	1.11E-01	3.66E-02	5.65E-02
		1332.49		100.00	1.11E-01		2.31E-02	5.02E-02
	ZN-65	1115.52		50.75	2.86E-01	2.86E-01	-1.20E-02	1.32E-01
	GA-67	93.31		35.70	1.97E+08	1.97E+08	3.54E+08	9.62E+07
		208.95		2.24	3.48E+09		2.56E+09	1.69E+09
		300.22		16.00	5.44E+08		-5.30E+06	2.62E+08
	SE-75	121.11		16.70	4.65E-01	1.33E-01	-3.53E-02	2.25E-01
		136.00		59.20	1.33E-01		-2.04E-02	6.44E-02
		264.65		59.80	1.69E-01		8.56E-02	8.11E-02
		279.53		25.20	4.55E-01		1.26E-01	2.19E-01
		400.65		11.40	1.15E+00		4.59E-01	5.47E-01
	RB-82	776.52		13.00	8.97E+00	8.97E+00	-2.26E+00	4.14E+00
	RB-83	520.41		46.00	3.67E-01	3.67E-01	1.18E-01	1.73E-01
		529.64		30.30	5.33E-01		6.33E-02	2.50E-01
		552.65		16.40	1.02E+00		5.07E-01	4.78E-01
	KR-85	513.99		0.43	2.51E+01	2.51E+01	2.99E+01	1.21E+01
	SR-85	513.99		99.27	3.09E-01	3.09E-01	3.67E-01	1.48E-01

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	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	1.89E-01	1.35E-01	-1.31E-03	8.71E-02
		1836.01		99.38	1.35E-01		-1.80E-02	5.54E-02
	MO-93	263.06		56.72	1.01E-01	7.24E-02	-2.38E-02	4.83E-02
		684.67		99.68	7.24E-02		-4.31E-02	3.33E-02
		1477.11		99.08	9.45E-02		4.11E-03	4.17E-02
	NB-93M	16.57		9.43	7.05E+01	7.05E+01	-1.91E+01	3.43E+01
	NB-94	702.63		100.00	8.70E-02	8.70E-02	1.43E-03	4.07E-02
		871.10		100.00	8.79E-02		-2.79E-03	4.05E-02
	NB-95	765.79		99.81	7.10E-01	7.10E-01	7.61E-02	3.33E-01
	NB-95M	235.69		25.00	5.87E+07	5.87E+07	-1.25E+07	2.87E+07
	ZR-95	724.18		43.70	6.13E-01	4.34E-01	-2.01E-01	2.87E-01
		756.72		55.30	4.34E-01		-2.14E-02	2.01E-01
	MO-99	181.06		6.20	4.54E+10	3.58E+10	-2.42E+09	2.19E+10
		739.58		12.80	3.58E+10		-1.18E+10	1.65E+10
		778.00		4.50	1.01E+11		-4.19E+10	4.63E+10
	RU-103	497.08		89.00	4.29E-01	4.29E-01	1.18E-01	2.01E-01
	RU-106	621.84		9.80	9.84E-01	9.84E-01	2.13E-01	4.60E-01
	AG-108M	433.93		89.90	7.53E-02	7.53E-02	-1.19E-02	3.56E-02
		614.37		90.40	1.09E-01		8.60E-03	5.19E-02
		722.95		90.50	8.95E-02		-1.29E-01	4.15E-02
+	CD-109	88.03	*	3.72	1.90E+00	1.90E+00	1.04E+00	9.27E-01
	AG-110M	657.75		93.14	1.12E-01	1.12E-01	-1.15E-02	5.20E-02
		677.61		10.53	1.08E+00		6.33E-01	5.05E-01
		706.67		16.46	6.74E-01		-2.74E-01	3.14E-01
		763.93		21.98	5.53E-01		2.85E-02	2.58E-01
		884.67		71.63	1.70E-01		4.10E-02	7.84E-02
		1384.27		23.94	4.06E-01		4.97E-02	1.75E-01
	CD-113M	263.70		0.02	2.53E+02	2.53E+02	5.57E+01	1.21E+02
	SN-113	255.12		1.93	5.60E+00	1.90E-01	1.21E+00	2.69E+00
		391.69		64.90	1.90E-01		-1.17E-02	9.03E-02
	TE123M	159.00		84.10	9.88E-02	9.88E-02	8.23E-03	4.77E-02
	SB-124	602.71		97.87	2.42E-01	2.42E-01	-5.51E-02	1.13E-01
		645.85		7.26	3.45E+00		-7.90E-01	1.61E+00
		722.78		11.10	2.26E+00		-3.27E+00	1.05E+00
		1691.02		49.00	4.69E-01		1.27E-01	1.96E-01
	I-125	35.49		6.49	5.79E+00	5.79E+00	1.28E+00	2.81E+00
	SB-125	176.33		6.89	7.56E-01	2.35E-01	1.71E-01	3.65E-01
		427.89		29.33	2.35E-01		-8.66E-02	1.11E-01
		463.38		10.35	8.39E-01		4.71E-01	3.99E-01
		600.56		17.80	4.82E-01		3.15E-02	2.26E-01
		635.90		11.32	6.64E-01		-5.44E-01	3.07E-01
	SB-126	414.70		83.30	2.03E+01	1.86E+01	-1.18E+01	9.62E+00
		666.33		99.60	2.22E+01		2.75E+00	1.04E+01
		695.00		99.60	1.86E+01		-8.54E+00	8.62E+00
		720.50		53.80	3.50E+01		-1.69E+01	1.62E+01
+	SN-126	87.57	*	37.00	1.65E-01	1.65E-01	9.02E-02	8.05E-02
	SB-127	473.00		25.00	1.26E+07	9.69E+06	1.47E+06	5.90E+06
		685.20		35.70	9.69E+06		-5.77E+06	4.46E+06
		783.80		14.70	2.93E+07		1.38E+07	1.36E+07
	I-129	29.78		57.00	4.07E-01	4.07E-01	3.22E-01	1.98E-01
		33.60		13.20	1.08E+00		3.55E-01	5.25E-01
		39.58		7.52	1.36E+00		5.43E-02	6.59E-01
	I-131	284.30		6.05	4.93E+03	3.84E+02	1.71E+03	2.36E+03

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	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	3.84E+02	3.84E+02	-7.04E+01	1.83E+02
		636.97		7.26	4.85E+03		-1.89E+03	2.25E+03
		722.89		1.80	2.16E+04		-3.12E+04	1.00E+04
	TE-132	49.72		13.10	6.57E+08	8.68E+07	-6.45E+08	3.20E+08
		228.16		88.00	8.68E+07		8.62E+06	4.19E+07
	BA-133	81.00		33.00	1.76E-01	1.50E-01	-5.77E-01	8.62E-02
		302.84		17.80	3.81E-01		7.80E-02	1.83E-01
		356.01		60.00	1.50E-01		-6.76E-03	7.22E-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	6.65E+04	6.65E+04	-2.17E+05	3.25E+04
	CS-134	563.23		8.38	1.04E+00	9.04E-02	5.33E-01	4.90E-01
		569.32		15.43	5.32E-01		-7.59E-02	2.49E-01
		604.70		97.60	9.04E-02		-2.08E-03	4.24E-02
		795.84		85.40	1.18E-01		7.07E-02	5.47E-02
		801.93		8.73	1.01E+00		1.66E-03	4.67E-01
	CS-135	268.24		16.00	3.97E-01	3.97E-01	3.13E-02	1.91E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.15E+02	1.37E+01	1.51E+01	5.58E+01
		163.89		4.61	1.85E+02		6.34E+01	8.94E+01
		176.55		13.56	6.38E+01		1.44E+01	3.08E+01
		273.65		12.66	9.34E+01		-4.40E+01	4.50E+01
		340.57		48.50	3.02E+01		2.50E+01	1.46E+01
		818.50		99.70	1.37E+01		-4.71E+00	6.28E+00
		1048.07		79.60	2.23E+01		1.97E+00	1.02E+01
		1235.34		19.70	1.26E+02		-1.43E+01	5.89E+01
+	CS-137	661.65	*	85.12	1.29E-01	1.29E-01	1.24E-01	6.12E-02
	LA-138	788.74		34.00	2.32E-01	1.19E-01	2.13E-03	1.07E-01
		1435.80		66.00	1.19E-01		-4.53E-02	5.16E-02
	CE-139	165.85		80.35	9.94E-02	9.94E-02	2.89E-02	4.80E-02
	BA-140	162.64		6.70	1.44E+02	5.87E+01	-1.76E+01	6.97E+01
		304.84		4.50	2.89E+02		-2.29E+02	1.39E+02
		423.70		3.20	4.38E+02		-7.82E+01	2.07E+02
		437.55		2.00	7.59E+02		5.91E+02	3.60E+02
		537.32		25.00	5.87E+01		-2.97E+00	2.75E+01
	LA-140	328.77		20.50	6.98E+01	2.30E+01	2.64E+01	3.34E+01
		487.03		45.50	3.18E+01		9.59E+00	1.50E+01
		815.85		23.50	6.66E+01		1.85E+01	3.04E+01
		1596.49		95.49	2.30E+01		-1.22E+00	1.02E+01
	CE-141	145.44		48.40	7.99E-01	7.99E-01	1.54E-02	3.87E-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	5.27E-01	5.27E-01	-1.24E-01	2.55E-01
	PM-144	476.78		42.00	1.94E-01	9.33E-02	1.23E-02	9.10E-02
		618.01		98.60	9.75E-02		-1.62E-02	4.56E-02
		696.49		99.49	9.33E-02		-3.59E-02	4.32E-02
	PM-145	36.85		21.70	5.04E-01	2.71E-01	-3.00E-01	2.44E-01
		37.36		39.70	2.71E-01		-4.53E-02	1.31E-01
		42.30		15.10	6.23E-01		3.30E-01	3.03E-01
		72.40		2.31	2.89E+00		-9.78E-02	1.41E+00
	PM-146	453.90		39.94	1.79E-01	1.79E-01	3.64E-02	8.44E-02

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

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	5.91E-01	1.79E-01	-1.33E-02	2.74E-01
	747.13	13.10	6.58E-01		1.30E-01	3.05E-01
ND-147	91.11	28.90	1.03E+02	1.03E+02	-4.73E+01	5.03E+01
	531.02	13.10	2.75E+02		-3.95E+00	1.29E+02
PM-149	285.90	3.10	4.80E+13	4.80E+13	3.69E+12	2.30E+13
EU-152	121.78	20.50	2.25E-01	2.25E-01	5.29E-02	1.09E-01
	244.69	5.40	1.33E+00		-4.86E+00	6.42E-01
	344.27	19.13	3.53E-01		5.91E-02	1.68E-01
	778.89	9.20	9.37E-01		6.76E-03	4.34E-01
	964.01	10.40	1.13E+00		-5.94E-02	5.28E-01
	1085.78	7.22	1.49E+00		2.59E-01	6.88E-01
	1112.02	9.60	1.30E+00		4.72E-01	6.03E-01
	1407.95	14.94	5.26E-01		-2.95E-01	2.28E-01
GD-153	97.43	31.30	1.89E-01	1.89E-01	-2.25E-02	9.18E-02
	103.18	22.20	2.73E-01		-1.53E-01	1.32E-01
EU-154	123.07	40.50	1.13E-01	1.13E-01	9.23E-03	5.46E-02
	723.30	19.70	4.20E-01		-6.07E-01	1.95E-01
	873.19	11.50	7.90E-01		-7.26E-02	3.64E-01
	996.32	10.30	7.94E-01		-4.08E-02	3.58E-01
	1004.76	17.90	5.51E-01		1.62E-01	2.53E-01
	1274.45	35.50	3.40E-01		1.81E-01	1.56E-01
EU-155	86.50	30.90	2.06E-01	2.06E-01	1.96E-01	1.01E-01
	105.30	20.70	2.34E-01		1.01E-01	1.14E-01
EU-156	811.77	10.40	6.76E+01	6.76E+01	-1.51E+01	3.10E+01
	1153.47	7.20	1.53E+02		4.50E+01	7.08E+01
	1230.71	8.90	1.43E+02		2.94E+01	6.70E+01
HO-166M	184.41	72.60	8.59E-02	8.59E-02	1.11E-01	4.17E-02
	280.45	29.60	2.18E-01		-5.05E-02	1.05E-01
	410.94	11.10	6.76E-01		3.09E-01	3.22E-01
	711.69	54.10	1.55E-01		2.33E-02	7.20E-02
TM-171	66.72	0.14	4.83E+01	4.83E+01	1.93E+01	2.36E+01
HF-172	67.35	5.31	1.23E+00	4.40E-01	1.14E-01	6.00E-01
	125.81	11.30	4.40E-01		1.19E-01	2.13E-01
LU-172	181.53	20.60	6.33E+03	4.20E+03	-9.69E+03	3.05E+03
	900.72	29.81	8.25E+03		8.67E+02	3.81E+03
	1093.66	62.50	4.20E+03		-1.04E+03	1.92E+03
LU-173	100.72	5.24	1.00E+00	3.65E-01	4.28E-01	4.87E-01
	272.11	21.20	3.65E-01		2.52E-01	1.76E-01
HF-175	343.40	84.00	2.09E-01	2.09E-01	3.51E-02	1.00E-01
LU-176	88.34	13.30	4.58E-01	5.97E-02	6.31E-02	2.24E-01
	201.83	86.00	5.97E-02		-3.64E-04	2.87E-02
	306.78	94.00	6.83E-02		2.41E-02	3.27E-02
HF-181	133.02	41.70	5.44E-01	4.08E-01	-3.76E-01	2.63E-01
	345.85	17.20	1.94E+00		3.25E-01	9.26E-01
	482.03	82.80	4.08E-01		2.13E-02	1.92E-01
TA-182	67.75	41.20	2.59E-01	2.59E-01	2.40E-02	1.27E-01
	1121.30	34.90	6.77E-01		4.63E-01	3.16E-01
	1189.05	16.23	1.25E+00		4.31E-01	5.72E-01
	1221.41	26.98	8.44E-01		2.66E-01	3.91E-01
	1231.02	11.44	2.28E+00		4.68E-01	1.07E+00
IR-192	308.46	29.68	5.31E-01	3.74E-01	2.65E-02	2.54E-01
	468.07	48.10	3.74E-01		7.25E-02	1.77E-01
HG-203	279.19	77.30	3.68E-01	3.68E-01	2.94E-01	1.77E-01

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

	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	7.76E-02	7.76E-02	4.29E-02	3.70E-02
		899.15		99.16	9.67E-02		-3.78E-03	4.46E-02
		911.74		91.10	1.86E-01		3.24E-01	8.86E-02
	BI-207	569.67		97.72	7.62E-02	7.62E-02	-5.69E-03	3.57E-02
		1063.62		74.90	1.36E-01		1.84E-02	6.25E-02
+	TL-208	583.14	*	30.22	4.46E-01	1.24E-01	1.20E+00	2.15E-01
		860.37		4.48	2.11E+00		2.48E-01	9.77E-01
		2614.66	*	35.85	1.24E-01		7.55E-01	3.97E-02
	BI-210M	262.00		45.00	1.26E-01	1.26E-01	-5.73E-02	6.05E-02
		300.00		23.00	3.18E-01		-3.09E-03	1.53E-01
	PB-210	46.50		4.25	2.00E+00	2.00E+00	1.56E+00	9.74E-01
	PB-211	404.84		2.90	2.42E+00	2.42E+00	-7.95E-01	1.15E+00
		831.96		2.90	3.08E+00		3.23E-01	1.42E+00
	BI-212	727.17		11.80	9.16E-01	9.16E-01	1.03E+00	4.33E-01
		1620.62		2.75	3.05E+00		2.71E-01	1.31E+00
+	PB-212	238.63	*	44.60	2.28E-01	2.28E-01	1.27E+00	1.11E-01
		300.09		3.41	2.14E+00		-2.09E-02	1.03E+00
+	BI-214	609.31	*	46.30	3.02E-01	7.85E-02	7.38E-01	1.45E-01
		1120.29	*	15.10	9.75E-01		7.90E-01	4.59E-01
		1764.49	*	15.80	7.85E-02		1.10E+00	0.00E+00
		2204.22	*	4.98	2.10E+00		1.20E+00	9.07E-01
+	PB-214	295.21	*	19.19	3.81E-01	2.53E-01	8.90E-01	1.84E-01
		351.92	*	37.19	2.53E-01		7.96E-01	1.22E-01
	RN-219	401.80		6.50	1.11E+00	1.11E+00	3.54E-01	5.31E-01
	RA-223	323.87		3.88	1.56E+00	1.56E+00	-8.17E-01	7.45E-01
	RA-224	240.98		3.95	3.12E+00	3.12E+00	1.55E+01	1.53E+00
	RA-225	40.00		31.00	3.21E+01	3.21E+01	1.29E+00	1.56E+01
+	RA-226	186.21	*	3.28	2.71E+00	2.71E+00	3.35E+00	1.33E+00
	TH-227	50.10		8.40	8.37E-01	8.09E-01	-8.22E-01	4.07E-01
		236.00		11.50	8.09E-01		-1.72E-01	3.95E-01
		256.20		6.30	9.59E-01		6.25E-01	4.61E-01
+	AC-228	338.32	*	11.40	8.35E-01	5.30E-01	9.17E-01	4.05E-01
		911.07	*	27.70	5.30E-01		1.06E+00	2.52E-01
		969.11	*	16.60	7.98E-01		5.58E-01	3.76E-01
	TH-230	48.44		16.90	4.61E-01	4.61E-01	3.99E-01	2.25E-01
		62.85		4.60	1.45E+00		1.52E+00	7.11E-01
		67.67		0.37	1.59E+01		1.47E+00	7.78E+00
	PA-231	283.67		1.60	3.88E+00	2.90E+00	1.01E+00	1.86E+00
		302.67		2.30	2.90E+00		5.93E-01	1.39E+00
	TH-231	25.64		14.70	2.97E+00	8.90E-01	-1.63E+00	1.44E+00
		84.21		6.40	8.90E-01		2.19E-01	4.35E-01
	PA-233	311.98		38.60	2.04E+00	2.04E+00	2.09E-02	9.76E-01
+	PA-234	131.20	*	20.40	3.25E-01	3.25E-01	3.08E-01	1.59E-01
		733.99		8.80	9.08E-01		-2.47E-01	4.20E-01
		946.00		12.00	7.47E-01		3.33E-02	3.42E-01
	PA-234M	1001.03		0.92	1.06E+01	1.06E+01	2.00E-01	4.86E+00
+	TH-234	63.29	*	3.80	2.18E+00	2.18E+00	1.16E+00	1.07E+00
	U-235	143.76		10.50	4.58E-01	4.58E-01	1.29E-01	2.22E-01
		163.35		4.70	1.02E+00		3.50E-01	4.93E-01
		205.31		4.70	1.30E+00		3.99E-02	6.30E-01
	NP-237	86.50		12.60	4.86E-01	4.86E-01	4.62E-01	2.38E-01
	NP-239	106.10		22.70	7.61E+11	7.61E+11	3.29E+11	3.69E+11
		228.18		10.70	2.18E+12		2.16E+11	1.05E+12

Analysis Report for 1707086-13

HTC-A03-S001-0006-02

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	1.71E+12	7.61E+11	1.03E+12	8.23E+11
AM-241	59.54	35.90	1.71E-01	1.71E-01	3.32E-02	8.34E-02
AM-243	74.67	66.00	1.20E-01	1.20E-01	8.30E-02	5.89E-02
CM-243	209.75	3.29	1.98E+00	4.69E-01	9.68E-01	9.60E-01
	228.14	10.60	5.98E-01		5.95E-02	2.89E-01
	277.60	14.00	4.69E-01		2.81E-01	2.26E-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-A03-S001-0006-02

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	150	165	150	112	125	97	81
17:	89	87	82	72	81	71	85	99
25:	80	82	82	83	103	66	77	81
33:	57	78	63	68	55	77	69	76
41:	96	102	87	89	91	86	140	130
49:	90	91	70	85	99	100	101	103
57:	92	100	109	106	101	105	134	192
65:	144	112	100	127	129	106	125	133
73:	114	158	240	308	315	364	196	133
81:	96	98	86	134	133	120	136	174
89:	145	116	130	119	167	160	122	85
97:	76	56	73	75	90	78	66	62
105:	78	86	98	62	52	82	63	64
113:	61	59	60	73	54	66	49	75
121:	62	71	53	70	61	69	55	60
129:	88	102	70	65	67	56	46	59
137:	60	65	64	56	76	57	59	65
145:	68	64	49	55	58	64	63	54
153:	49	70	59	60	48	56	62	52
161:	45	48	44	66	51	56	43	51
169:	43	58	54	36	46	53	52	45
177:	51	49	48	45	41	55	49	56
185:	79	101	97	67	45	40	48	49
193:	59	34	38	49	44	39	42	51
201:	38	47	47	39	45	49	36	55
209:	40	73	53	42	39	39	38	29
217:	41	33	32	37	43	33	39	37
225:	38	44	44	34	39	36	43	47
233:	31	26	27	52	38	112	300	281
241:	126	79	71	38	39	29	30	27
249:	42	31	23	26	28	36	29	24
257:	34	29	29	26	19	25	28	30
265:	20	24	32	18	22	42	56	39
273:	31	26	21	26	29	42	39	29
281:	27	23	19	25	33	31	27	26
289:	19	24	26	23	25	29	82	107
297:	60	24	27	35	37	31	20	18
305:	28	21	24	26	37	18	18	18
313:	29	16	25	22	21	29	24	19
321:	17	24	15	20	19	18	25	19
329:	33	34	19	30	23	25	20	25
337:	34	39	75	42	20	20	20	24
345:	22	25	19	15	25	19	43	106
353:	115	52	24	14	18	14	16	15
361:	19	15	19	10	26	18	23	17

369:	22	22	15	15	21	23	20	16

Sample Title: HTC-A03-S001-0006-02

Channel								
377:	26	19	11	15	15	20	9	19
385:	18	13	18	19	26	16	17	14
393:	20	19	12	20	16	23	22	17
401:	20	19	21	19	16	16	13	20
409:	19	24	24	13	19	19	16	18
417:	19	11	19	18	15	15	17	17
425:	18	12	12	14	16	11	10	18
433:	12	11	16	16	17	16	18	16
441:	19	8	13	17	10	7	14	12
449:	16	7	17	7	7	18	16	15
457:	16	13	13	14	13	20	30	25
465:	18	9	15	9	20	13	14	12
473:	11	12	10	5	13	19	16	8
481:	11	14	8	8	17	10	13	12
489:	16	11	12	8	10	9	13	10
497:	11	17	10	7	9	10	6	14
505:	10	8	18	12	25	32	53	64
513:	27	15	13	13	6	14	10	17
521:	13	13	18	7	10	14	10	18
529:	14	7	8	12	12	8	12	10
537:	11	10	15	8	12	8	9	13
545:	10	10	7	8	13	14	10	8
553:	9	13	13	13	7	6	13	9
561:	17	9	16	13	7	15	11	6
569:	9	8	13	12	13	12	9	15
577:	8	7	12	11	12	31	72	79
585:	35	9	13	18	10	8	12	9
593:	11	13	9	8	15	16	12	9
601:	11	9	6	14	7	13	5	23
609:	70	104	43	11	15	13	10	15
617:	8	7	11	10	11	14	9	7
625:	10	8	12	6	10	5	8	8
633:	8	6	11	12	4	5	6	13
641:	15	9	15	11	8	10	8	8
649:	8	10	11	8	7	13	6	7
657:	7	9	10	9	15	22	18	15
665:	11	6	8	12	12	9	9	8
673:	8	11	9	8	10	13	12	8
681:	12	5	4	7	5	9	9	7
689:	8	10	15	7	8	10	9	6
697:	5	7	10	6	9	13	12	11
705:	7	10	10	11	8	6	16	5
713:	10	11	5	6	6	10	9	4
721:	6	7	7	7	7	17	22	23
729:	17	8	6	6	8	8	12	7
737:	5	6	6	5	12	10	7	7
745:	10	5	9	8	7	9	5	6
753:	5	7	7	10	9	6	7	7
761:	8	11	9	9	10	7	12	16
769:	17	16	8	13	15	8	6	7
777:	8	9	2	8	5	14	6	10
785:	8	8	6	5	7	4	6	8
793:	4	10	14	11	6	11	4	5

801:	3	6	7	8	12	6	14	5

Sample Title: HTC-A03-S001-0006-02

Channel								
809:	7	10	4	6	3	6	6	6
817:	5	7	5	4	3	9	10	6
825:	4	9	5	5	6	5	9	8
833:	8	7	9	10	7	11	14	6
841:	13	13	9	6	8	4	7	3
849:	4	6	7	11	2	1	9	6
857:	7	7	2	12	10	10	7	9
865:	5	8	7	7	4	6	5	8
873:	3	13	8	4	12	5	3	5
881:	8	5	7	11	9	7	5	6
889:	4	7	7	4	12	5	7	6
897:	6	13	6	5	6	5	7	8
905:	7	7	7	6	12	16	49	43
913:	18	13	2	7	7	8	8	6
921:	7	9	2	4	7	2	1	4
929:	8	7	1	5	6	12	4	10
937:	6	12	6	3	5	4	6	1
945:	3	8	3	8	12	7	7	8
953:	3	4	5	6	8	2	12	9
961:	6	9	11	8	15	13	7	11
969:	32	22	9	1	10	6	9	9
977:	3	10	2	6	4	2	5	6
985:	12	9	7	9	5	7	5	3
993:	1	6	6	3	4	4	5	9
1001:	7	6	4	9	6	11	3	4
1009:	3	2	5	11	9	7	9	6
1017:	6	9	7	7	8	6	8	7
1025:	10	6	4	7	11	6	4	7
1033:	8	7	5	8	6	13	9	2
1041:	5	6	7	7	10	7	6	3
1049:	9	3	5	4	6	6	6	8
1057:	5	3	5	5	5	4	2	8
1065:	8	10	6	4	8	7	6	9
1073:	3	9	8	8	4	11	1	5
1081:	3	5	5	7	7	6	12	4
1089:	5	7	7	6	1	6	9	7
1097:	4	9	6	6	4	7	2	6
1105:	5	8	3	6	13	8	10	12
1113:	6	4	7	8	5	5	12	14
1121:	17	8	7	4	5	5	7	7
1129:	4	2	4	6	5	7	10	4
1137:	8	5	11	3	7	5	6	8
1145:	2	6	9	7	3	4	7	13
1153:	5	7	9	12	8	8	5	3
1161:	1	2	5	5	6	4	7	7
1169:	6	8	6	6	12	5	7	6
1177:	7	3	7	3	7	13	8	4
1185:	5	7	10	6	8	3	3	6
1193:	9	13	10	6	8	3	9	10
1201:	6	10	8	8	10	8	5	9
1209:	8	6	12	8	10	11	8	9
1217:	10	11	8	9	1	7	9	8
1225:	4	3	14	8	12	6	13	12

1233:	9	10	6	12	4	13	13	8

Sample Title: HTC-A03-S001-0006-02

Channel								
1241:	9	6	7	7	6	5	12	4
1249:	4	4	5	4	5	2	5	5
1257:	4	5	8	5	5	7	3	3
1265:	8	4	7	3	3	6	9	4
1273:	6	5	8	6	5	3	3	3
1281:	2	2	4	3	5	3	2	6
1289:	5	6	3	1	4	4	5	4
1297:	3	4	4	7	8	6	2	5
1305:	4	2	5	5	3	3	3	7
1313:	5	5	8	3	6	2	2	2
1321:	2	4	8	4	6	2	6	4
1329:	4	10	4	5	2	4	3	1
1337:	5	5	2	7	3	1	0	6
1345:	2	0	2	3	3	2	1	3
1353:	2	3	3	1	4	0	2	5
1361:	0	1	2	2	4	1	2	3
1369:	2	5	3	6	0	4	3	4
1377:	7	6	0	2	2	1	1	3
1385:	0	4	2	1	3	3	1	3
1393:	2	3	3	1	3	5	1	1
1401:	3	5	4	8	0	0	3	1
1409:	4	2	4	0	0	0	5	1
1417:	3	0	2	3	3	2	3	3
1425:	4	4	2	3	4	2	4	1
1433:	2	2	2	2	2	4	0	0
1441:	7	1	0	1	2	3	3	3
1449:	3	3	0	2	4	4	4	3
1457:	3	17	66	156	213	97	20	2
1465:	0	1	1	1	1	1	0	1
1473:	3	0	1	1	2	0	2	5
1481:	5	4	1	1	1	1	2	0
1489:	2	1	2	0	2	3	1	5
1497:	1	1	2	3	1	4	1	1
1505:	0	1	6	2	2	1	2	1
1513:	1	2	1	2	1	0	1	2
1521:	1	3	1	1	0	0	2	2
1529:	1	2	0	0	0	4	2	1
1537:	1	1	2	1	4	2	1	1
1545:	0	3	2	3	0	3	0	1
1553:	0	2	0	0	2	1	1	1
1561:	0	0	1	1	1	0	1	1
1569:	0	0	0	1	2	4	1	0
1577:	1	2	1	3	1	1	1	2
1585:	2	2	4	3	1	3	5	6
1593:	8	3	1	1	1	0	1	2
1601:	3	1	3	0	1	2	1	0
1609:	1	0	2	2	3	1	2	0
1617:	2	0	0	3	4	3	1	0
1625:	1	1	0	2	4	1	3	0
1633:	2	4	1	2	0	4	4	1
1641:	0	0	0	1	0	1	4	0
1649:	0	0	1	1	3	0	0	0
1657:	0	1	1	2	0	2	0	1

1665:	1	1	0	3	0	1	1	0

Sample Title: HTC-A03-S001-0006-02

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

2097:	1	1	0	2	1	2	0	2

Sample Title: HTC-A03-S001-0006-02

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

2529:	0	0	0	0	0	0	1	1

Sample Title: HTC-A03-S001-0006-02

Channel								
2537:	0	0	0	0	0	0	0	1
2545:	0	0	0	0	0	1	0	0
2553:	0	0	0	0	0	0	0	0
2561:	1	1	1	1	0	0	0	0
2569:	0	1	0	0	0	1	0	0
2577:	1	0	0	0	0	1	0	0
2585:	1	1	0	0	0	0	0	0
2593:	0	0	0	0	0	0	1	0
2601:	0	0	0	0	0	0	0	0
2609:	0	0	2	5	16	13	6	4
2617:	1	1	0	0	0	0	1	0
2625:	0	0	1	1	1	0	0	0
2633:	0	1	0	1	1	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	1	0	0	0	0	0	0	0
2657:	1	0	0	1	1	0	0	0
2665:	0	0	0	0	1	0	0	0
2673:	0	0	0	0	0	1	0	1
2681:	0	0	0	0	0	0	0	0
2689:	0	0	1	0	0	0	0	0
2697:	0	1	0	0	0	0	0	0
2705:	1	0	0	0	0	0	0	0
2713:	0	0	0	0	0	0	0	2
2721:	0	0	0	0	0	1	0	0
2729:	0	0	0	0	0	1	1	1
2737:	0	0	0	0	1	0	0	0
2745:	2	1	1	0	1	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	1	0
2777:	0	1	0	0	1	0	1	1
2785:	0	0	0	0	0	0	0	1
2793:	0	0	0	0	1	0	0	1
2801:	1	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	1	0	0	0
2825:	0	1	0	0	1	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	1	0	1	0	0	0
2849:	0	0	1	0	0	0	0	0
2857:	0	0	0	1	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	1	0
2889:	0	0	0	2	0	0	0	1
2897:	0	0	0	0	1	0	0	0
2905:	0	0	1	0	0	0	0	0
2913:	0	0	0	0	0	0	2	0
2921:	0	0	0	0	0	1	0	0
2929:	0	0	0	1	1	0	2	0
2937:	0	0	0	0	0	0	0	0
2945:	0	1	0	0	0	0	0	2
2953:	0	0	0	0	0	0	0	0

2961:	0	1	0	0	0	0	1	0

Sample Title: HTC-A03-S001-0006-02

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A03-S001-0006-02

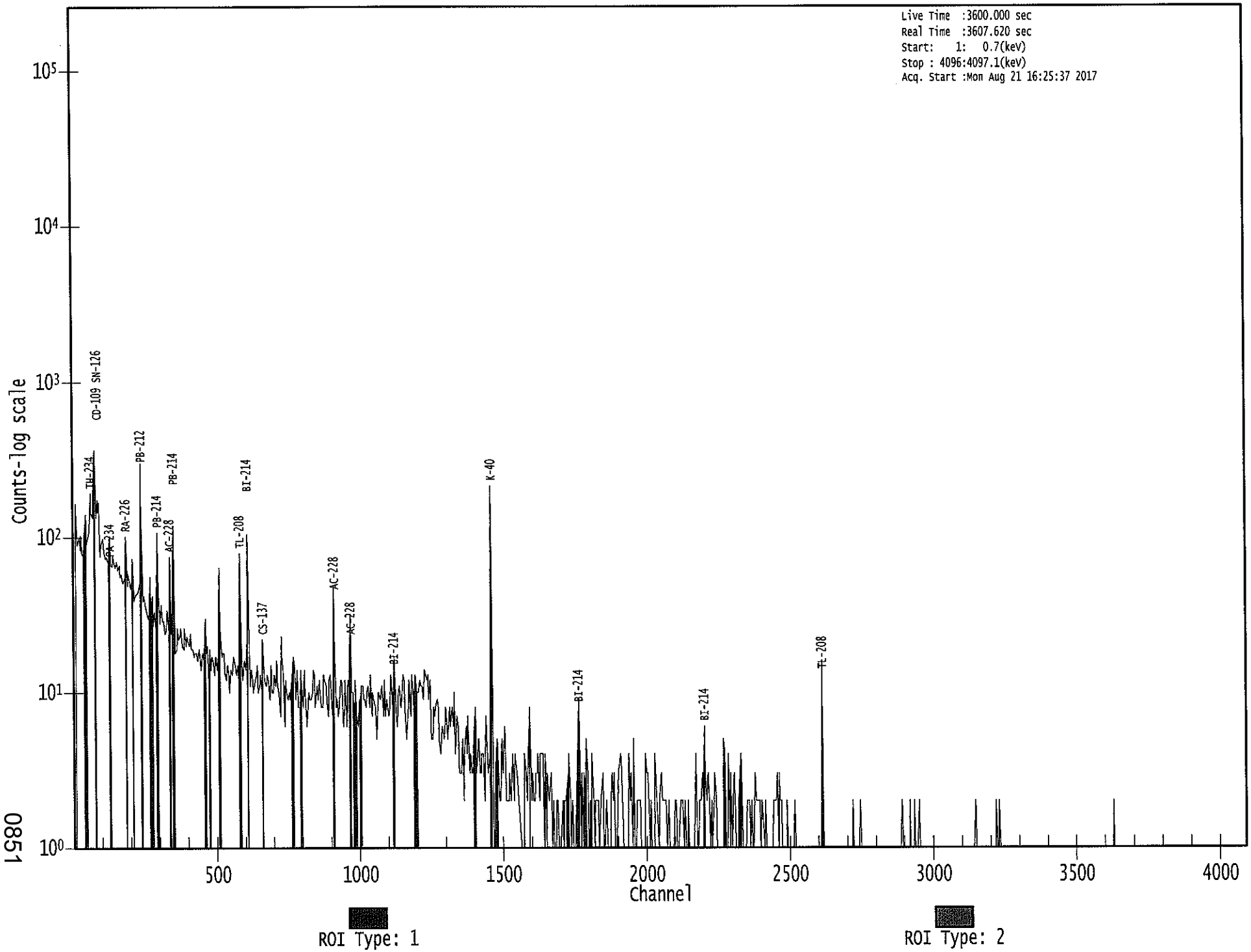
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	1	0	0	0	0	0	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	1
3465:	0	1	0	0	0	0	0	1
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	1	0	0	0	0	0	1
3497:	0	1	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A03-S001-0006-02

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	1	0	0	0	0	0
3849:	0	0	1	0	0	1	0	0
3857:	0	0	0	0	1	0	0	0
3865:	0	0	0	0	0	0	1	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	1	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	1	0	0	1
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	1
3961:	1	0	0	0	0	1	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	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	0	0	0
4025:	1	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	1	0	0
4049:	1	0	0	0	1	0	1	1
4057:	0	1	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	0	0

0000055660.CNF



0851

NR 8/21/17

Apex-Gamma

Analysis Report for 1707086-14
HTC-A03-S001-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-14
Sample Description	: HTC-A03-S001-0612-01
Sample Type	: SOIL
Sample Size	: 5.651E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:15:12AM
Acquisition Started	: 8/21/2017 5:26:19PM
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	: 55662

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 6:26:24PM
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	46.01	46.64	0.0000	0.00
2	62.57	63.17	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.14	77.73	0.0000	0.00
5	92.27	92.84	0.0000	0.00
6	142.45	142.97	0.0000	0.00
7	183.05	183.53	0.0000	0.00
8	186.25	186.73	0.0000	0.00
9	209.38	209.84	0.0000	0.00
10	238.66	239.09	0.0000	0.00
11	241.93	242.35	0.0000	0.00
12	270.26	270.65	0.0000	0.00
13	295.28	295.64	0.0000	0.00
14	300.99	301.36	0.0000	0.00
15	338.24	338.56	0.0000	0.00
16	351.92	352.23	0.0000	0.00
17	356.99	357.29	0.0000	0.00
18	372.17	372.46	0.0000	0.00
19	462.86	463.06	0.0000	0.00
20	510.92	511.07	0.0000	0.00
21	529.33	529.46	0.0000	0.00
22	583.33	583.41	0.0000	0.00
23	609.47	609.52	0.0000	0.00
24	727.36	727.29	0.0000	0.00
25	731.07	731.00	0.0000	0.00
26	861.21	861.01	0.0000	0.00
27	911.43	911.18	0.0000	0.00
28	964.52	964.22	0.0000	0.00
29	969.50	969.19	0.0000	0.00
30	1120.71	1120.25	0.0000	0.00
31	1155.92	1155.42	0.0000	0.00
32	1239.08	1238.50	0.0000	0.00
33	1287.05	1286.42	0.0000	0.00
34	1345.18	1344.50	0.0000	0.00
35	1370.38	1369.68	0.0000	0.00
36	1378.30	1377.58	0.0000	0.00
37	1457.07	1456.27	0.0000	0.00
38	1461.34	1460.54	0.0000	0.00
39	1465.98	1465.18	0.0000	0.00
40	1509.52	1508.67	0.0000	0.00
41	1582.55	1581.64	0.0000	0.00
42	1590.05	1589.12	0.0000	0.00

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1680.93	1679.92	0.0000	0.00
44	1729.21	1728.15	0.0000	0.00
45	1765.23	1764.14	0.0000	0.00
46	1801.93	1800.80	0.0000	0.00
47	1837.42	1836.25	0.0000	0.00
48	1847.51	1846.33	0.0000	0.00
49	1856.77	1855.59	0.0000	0.00
50	1935.54	1934.29	0.0000	0.00
51	2104.46	2103.04	0.0000	0.00
52	2191.67	2190.17	0.0000	0.00
53	2203.61	2202.09	0.0000	0.00
54	2304.61	2303.00	0.0000	0.00
55	2390.92	2389.22	0.0000	0.00
56	2615.29	2613.38	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 6:26:24PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.01	43 -	51	46.64	1.23E+02	95.51	1.34E+03	1.43
	2	62.57	58 -	67	63.17	2.46E+02	128.08	2.21E+03	1.78
M	3	74.72	73 -	81	75.31	3.75E+02	92.28	1.40E+03	1.81
m	4	77.14	73 -	81	77.73	6.36E+02	99.19	1.36E+03	1.82
m	5	92.27	83 -	97	92.84	2.88E+02	87.50	1.16E+03	2.02
	6	142.45	139 -	146	142.97	9.70E+01	80.87	1.01E+03	3.27
M	7	183.05	182 -	192	183.53	3.85E+01	26.91	2.32E+02	2.14
m	8	186.25	182 -	192	186.73	1.78E+02	63.40	6.30E+02	2.15
	9	209.38	207 -	213	209.84	8.07E+01	66.74	7.49E+02	1.29
M	10	238.66	235 -	245	239.09	8.23E+02	71.10	4.37E+02	1.79
m	11	241.93	235 -	245	242.35	2.26E+02	77.41	4.42E+02	2.00
	12	270.26	267 -	274	270.65	9.58E+01	56.89	4.74E+02	2.54
M	13	295.28	290 -	306	295.64	3.01E+02	54.14	3.33E+02	2.05
m	14	300.99	290 -	306	301.36	7.36E+01	44.26	3.31E+02	2.06
	15	338.24	334 -	343	338.56	1.72E+02	63.30	4.72E+02	1.90
	16	351.92	348 -	355	352.23	4.47E+02	64.16	3.88E+02	1.72
	17	356.99	356 -	361	357.29	3.36E+01	37.34	2.43E+02	2.19
	18	372.17	370 -	375	372.46	3.45E+01	35.79	2.25E+02	3.36
	19	462.86	459 -	467	463.06	4.60E+01	45.34	2.88E+02	1.60
	20	510.92	507 -	515	511.07	1.86E+02	47.25	2.28E+02	1.73
	21	529.33	527 -	535	529.46	3.30E+01	35.75	1.78E+02	3.23
	22	583.33	578 -	588	583.41	2.36E+02	60.92	3.69E+02	2.01
	23	609.47	605 -	615	609.52	3.57E+02	58.41	2.66E+02	2.05
M	24	727.36	722 -	735	727.29	8.01E+01	31.62	1.08E+02	2.56
m	25	731.07	722 -	735	731.00	1.82E+01	23.87	6.30E+01	1.93
	26	861.21	856 -	865	861.01	4.97E+01	34.77	1.43E+02	1.61
	27	911.43	907 -	915	911.18	1.75E+02	38.97	1.26E+02	2.19
M	28	964.52	960 -	980	964.22	3.68E+01	29.01	1.47E+02	2.44
m	29	969.50	960 -	980	969.19	1.13E+02	31.35	1.05E+02	2.15
	30	1120.71	1116 -	1123	1120.25	7.93E+01	33.29	1.31E+02	2.09
	31	1155.92	1152 -	1160	1155.42	2.98E+01	27.96	9.83E+01	2.87
	32	1239.08	1235 -	1243	1238.50	4.04E+01	33.83	1.47E+02	1.91
	33	1287.05	1283 -	1290	1286.42	2.05E+01	22.54	6.89E+01	2.22
	34	1345.18	1341 -	1348	1344.50	1.42E+01	17.78	4.17E+01	2.81
M	35	1370.38	1367 -	1381	1369.68	9.57E+00	9.22	1.71E+01	2.87
m	36	1378.30	1367 -	1381	1377.58	2.75E+01	15.52	1.20E+01	2.87
M	37	1457.07	1454 -	1471	1456.27	1.36E+01	15.18	2.98E+01	2.88
m	38	1461.34	1454 -	1471	1460.54	9.92E+02	64.73	3.52E+01	2.25
m	39	1465.98	1454 -	1471	1465.18	3.84E+01	63.13	4.17E+01	3.20
	40	1509.52	1505 -	1511	1508.67	9.65E+00	12.39	2.07E+01	2.90

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1582.55	1578 -	1584	1581.64	8.93E+00	9.63	1.01E+01	3.03
42	1590.05	1585 -	1595	1589.12	2.11E+01	15.91	2.37E+01	1.21
43	1680.93	1675 -	1683	1679.92	8.68E+00	8.02	4.64E+00	1.57
44	1729.21	1724 -	1731	1728.15	1.41E+01	11.31	1.19E+01	2.09
45	1765.23	1760 -	1767	1764.14	5.60E+01	17.89	1.60E+01	1.44
46	1801.93	1797 -	1803	1800.80	5.00E+00	4.47	0.00E+00	2.75
47	1837.42	1832 -	1839	1836.25	1.13E+01	9.59	7.33E+00	2.17
48	1847.51	1841 -	1849	1846.33	1.20E+01	12.85	1.80E+01	2.20
49	1856.77	1852 -	1860	1855.59	1.25E+01	8.96	5.07E+00	2.71
50	1935.54	1932 -	1936	1934.29	7.00E+00	5.29	0.00E+00	2.10
51	2104.46	2098 -	2106	2103.04	1.55E+01	13.30	1.71E+01	3.02
52	2191.67	2186 -	2194	2190.17	1.20E+01	6.93	0.00E+00	5.66
53	2203.61	2197 -	2205	2202.09	2.21E+01	10.78	3.88E+00	4.22
54	2304.61	2300 -	2305	2303.00	5.00E+00	4.47	0.00E+00	1.00
55	2390.92	2385 -	2392	2389.22	1.00E+01	8.00	4.00E+00	4.55
56	2615.29	2610 -	2618	2613.38	9.92E+01	20.69	5.58E+00	2.61

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 : 8/21/2017 6:26:24PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.01	43 -	51	1.23E+02	95.51	1.34E+03	7.64E+01
	2	62.57	58 -	67	2.46E+02	128.08	2.21E+03	1.02E+02
M	3	74.72	73 -	81	3.75E+02	92.28	1.40E+03	6.16E+01
m	4	77.14	73 -	81	6.36E+02	99.19	1.36E+03	6.06E+01
m	5	92.27	83 -	97	2.88E+02	87.50	1.16E+03	5.59E+01
	6	142.45	139 -	146	9.70E+01	80.87	1.01E+03	6.45E+01
M	7	183.05	182 -	192	3.85E+01	26.91	2.32E+02	2.50E+01
m	8	186.25	182 -	192	1.78E+02	63.40	6.30E+02	4.13E+01
	9	209.38	207 -	213	8.07E+01	66.74	7.49E+02	5.28E+01
M	10	238.66	235 -	245	8.23E+02	71.10	4.37E+02	3.44E+01
m	11	241.93	235 -	245	2.26E+02	77.41	4.42E+02	3.46E+01
	12	270.26	267 -	274	9.58E+01	56.89	4.74E+02	4.39E+01

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	13	295.28	290 -	306	3.01E+02	54.14	3.33E+02	3.00E+01
m	14	300.99	290 -	306	7.36E+01	44.26	3.31E+02	2.99E+01
	15	338.24	334 -	343	1.72E+02	63.30	4.72E+02	4.74E+01
	16	351.92	348 -	355	4.47E+02	64.16	3.88E+02	3.97E+01
	17	356.99	356 -	361	3.36E+01	37.34	2.43E+02	2.92E+01
	18	372.17	370 -	375	3.45E+01	35.79	2.25E+02	2.78E+01
	19	462.86	459 -	467	4.60E+01	45.34	2.88E+02	3.56E+01
	20	510.92	507 -	515	1.86E+02	47.25	2.28E+02	3.17E+01
	21	529.33	527 -	535	3.30E+01	35.75	1.78E+02	2.78E+01
	22	583.33	578 -	588	2.36E+02	60.92	3.69E+02	4.32E+01
	23	609.47	605 -	615	3.57E+02	58.41	2.66E+02	3.66E+01
M	24	727.36	722 -	735	8.01E+01	31.62	1.08E+02	1.71E+01
m	25	731.07	722 -	735	1.82E+01	23.87	6.30E+01	1.30E+01
	26	861.21	856 -	865	4.97E+01	34.77	1.43E+02	2.61E+01
	27	911.43	907 -	915	1.75E+02	38.97	1.26E+02	2.35E+01
M	28	964.52	960 -	980	3.68E+01	29.01	1.47E+02	1.99E+01
m	29	969.50	960 -	980	1.13E+02	31.35	1.05E+02	1.68E+01
	30	1120.71	1116 -	1123	7.93E+01	33.29	1.31E+02	2.31E+01
	31	1155.92	1152 -	1160	2.98E+01	27.96	9.83E+01	2.12E+01
	32	1239.08	1235 -	1243	4.04E+01	33.83	1.47E+02	2.58E+01
	33	1287.05	1283 -	1290	2.05E+01	22.54	6.89E+01	1.70E+01
	34	1345.18	1341 -	1348	1.42E+01	17.78	4.17E+01	1.32E+01
M	35	1370.38	1367 -	1381	9.57E+00	9.22	1.71E+01	6.79E+00
m	36	1378.30	1367 -	1381	2.75E+01	15.52	1.20E+01	5.70E+00
M	37	1457.07	1454 -	1471	1.36E+01	15.18	2.98E+01	8.98E+00
m	38	1461.34	1454 -	1471	9.92E+02	64.73	3.52E+01	9.75E+00
m	39	1465.98	1454 -	1471	3.84E+01	63.13	4.17E+01	1.06E+01
	40	1509.52	1505 -	1511	9.65E+00	12.39	2.07E+01	8.81E+00
	41	1582.55	1578 -	1584	8.93E+00	9.63	1.01E+01	6.21E+00
	42	1590.05	1585 -	1595	2.11E+01	15.91	2.37E+01	1.07E+01
	43	1680.93	1675 -	1683	8.68E+00	8.02	4.64E+00	4.47E+00
	44	1729.21	1724 -	1731	1.41E+01	11.31	1.19E+01	6.97E+00
	45	1765.23	1760 -	1767	5.60E+01	17.89	1.60E+01	8.05E+00
	46	1801.93	1797 -	1803	5.00E+00	4.47	0.00E+00	0.00E+00
	47	1837.42	1832 -	1839	1.13E+01	9.59	7.33E+00	5.62E+00
	48	1847.51	1841 -	1849	1.20E+01	12.85	1.80E+01	8.89E+00
	49	1856.77	1852 -	1860	1.25E+01	8.96	5.07E+00	4.53E+00
	50	1935.54	1932 -	1936	7.00E+00	5.29	0.00E+00	0.00E+00
	51	2104.46	2098 -	2106	1.55E+01	13.30	1.71E+01	8.82E+00
	52	2191.67	2186 -	2194	1.20E+01	6.93	0.00E+00	0.00E+00
	53	2203.61	2197 -	2205	2.21E+01	10.78	3.88E+00	4.35E+00
	54	2304.61	2300 -	2305	5.00E+00	4.47	0.00E+00	0.00E+00
	55	2390.92	2385 -	2392	1.00E+01	8.00	4.00E+00	4.03E+00
	56	2615.29	2610 -	2618	9.92E+01	20.69	5.58E+00	4.61E+00

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/21/2017 6:26:24PM

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	46.01	43 -	51	46.64	1.23E+02	95.51	1.34E+03	PB-210
	2	62.57	58 -	67	63.17	2.46E+02	128.08	2.21E+03	TH-230
									TH-234
M	3	74.72	73 -	81	75.31	3.75E+02	92.28	1.40E+03	AM-243
m	4	77.14	73 -	81	77.73	6.36E+02	99.19	1.36E+03	.....
m	5	92.27	83 -	97	92.84	2.88E+02	87.50	1.16E+03	.....
	6	142.45	139 -	146	142.97	9.70E+01	80.87	1.01E+03	.....
M	7	183.05	182 -	192	183.53	3.85E+01	26.91	2.32E+02	.....
m	8	186.25	182 -	192	186.73	1.78E+02	63.40	6.30E+02	RA-226
	9	209.38	207 -	213	209.84	8.07E+01	66.74	7.49E+02	CM-243
									GA-67
M	10	238.66	235 -	245	239.09	8.23E+02	71.10	4.37E+02	PB-212
m	11	241.93	235 -	245	242.35	2.26E+02	77.41	4.42E+02	RA-224
	12	270.26	267 -	274	270.65	9.58E+01	56.89	4.74E+02	.....
M	13	295.28	290 -	306	295.64	3.01E+02	54.14	3.33E+02	PB-214
m	14	300.99	290 -	306	301.36	7.36E+01	44.26	3.31E+02	GA-67
									PB-212
									BI-210M
	15	338.24	334 -	343	338.56	1.72E+02	63.30	4.72E+02	AC-228
	16	351.92	348 -	355	352.23	4.47E+02	64.16	3.88E+02	PB-214
	17	356.99	356 -	361	357.29	3.36E+01	37.34	2.43E+02	BA-133
	18	372.17	370 -	375	372.46	3.45E+01	35.79	2.25E+02	.....
	19	462.86	459 -	467	463.06	4.60E+01	45.34	2.88E+02	SB-125
	20	510.92	507 -	515	511.07	1.86E+02	47.25	2.28E+02	.....
	21	529.33	527 -	535	529.46	3.30E+01	35.75	1.78E+02	RB-83
									I-133
	22	583.33	578 -	588	583.41	2.36E+02	60.92	3.69E+02	TL-208
	23	609.47	605 -	615	609.52	3.57E+02	58.41	2.66E+02	BI-214
M	24	727.36	722 -	735	727.29	8.01E+01	31.62	1.08E+02	BI-212
m	25	731.07	722 -	735	731.00	1.82E+01	23.87	6.30E+01	.....

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	26	861.21	856 -	865	861.01	4.97E+01	34.77	1.43E+02	TL-208
	27	911.43	907 -	915	911.18	1.75E+02	38.97	1.26E+02	TL-204
									AC-228
M	28	964.52	960 -	980	964.22	3.68E+01	29.01	1.47E+02	EU-152
m	29	969.50	960 -	980	969.19	1.13E+02	31.35	1.05E+02	AC-228
	30	1120.71	1116 -	1123	1120.25	7.93E+01	33.29	1.31E+02	SC-46
									BI-214
									TA-182
	31	1155.92	1152 -	1160	1155.42	2.98E+01	27.96	9.83E+01	.....
	32	1239.08	1235 -	1243	1238.50	4.04E+01	33.83	1.47E+02	CO-56
	33	1287.05	1283 -	1290	1286.42	2.05E+01	22.54	6.89E+01	.....
	34	1345.18	1341 -	1348	1344.50	1.42E+01	17.78	4.17E+01	.....
M	35	1370.38	1367 -	1381	1369.68	9.57E+00	9.22	1.71E+01	.....
m	36	1378.30	1367 -	1381	1377.58	2.75E+01	15.52	1.20E+01	.....
M	37	1457.07	1454 -	1471	1456.27	1.36E+01	15.18	2.98E+01	.....
m	38	1461.34	1454 -	1471	1460.54	9.92E+02	64.73	3.52E+01	K-40
m	39	1465.98	1454 -	1471	1465.18	3.84E+01	63.13	4.17E+01	.....
	40	1509.52	1505 -	1511	1508.67	9.65E+00	12.39	2.07E+01	.....
	41	1582.55	1578 -	1584	1581.64	8.93E+00	9.63	1.01E+01	.....
	42	1590.05	1585 -	1595	1589.12	2.11E+01	15.91	2.37E+01	.....
	43	1680.93	1675 -	1683	1679.92	8.68E+00	8.02	4.64E+00	.....
	44	1729.21	1724 -	1731	1728.15	1.41E+01	11.31	1.19E+01	.....
	45	1765.23	1760 -	1767	1764.14	5.60E+01	17.89	1.60E+01	BI-214
	46	1801.93	1797 -	1803	1800.80	5.00E+00	4.47	0.00E+00	.....
	47	1837.42	1832 -	1839	1836.25	1.13E+01	9.59	7.33E+00	.....
	48	1847.51	1841 -	1849	1846.33	1.20E+01	12.85	1.80E+01	.....
	49	1856.77	1852 -	1860	1855.59	1.25E+01	8.96	5.07E+00	.....
	50	1935.54	1932 -	1936	1934.29	7.00E+00	5.29	0.00E+00	.....
	51	2104.46	2098 -	2106	2103.04	1.55E+01	13.30	1.71E+01	.....
	52	2191.67	2186 -	2194	2190.17	1.20E+01	6.93	0.00E+00	.....
	53	2203.61	2197 -	2205	2202.09	2.21E+01	10.78	3.88E+00	BI-214
	54	2304.61	2300 -	2305	2303.00	5.00E+00	4.47	0.00E+00	.....
	55	2390.92	2385 -	2392	2389.22	1.00E+01	8.00	4.00E+00	.....
	56	2615.29	2610 -	2618	2613.38	9.92E+01	20.69	5.58E+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 : 8/21/2017 6:26:24PM

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.01	1.23E+02	95.51	2.46E-02	2.22E-03
	2	62.57	2.46E+02	128.08	2.69E-02	2.25E-03
M	3	74.72	3.75E+02	92.28	2.75E-02	2.38E-03
m	4	77.14	6.36E+02	99.19	2.75E-02	2.40E-03
m	5	92.27	2.88E+02	87.50	2.73E-02	2.45E-03
	6	142.45	9.70E+01	80.87	2.45E-02	1.86E-03
M	7	183.05	3.85E+01	26.91	2.19E-02	1.69E-03
m	8	186.25	1.78E+02	63.40	2.17E-02	1.68E-03
	9	209.38	8.07E+01	66.74	2.04E-02	1.61E-03
M	10	238.66	8.23E+02	71.10	1.89E-02	1.53E-03
m	11	241.93	2.26E+02	77.41	1.87E-02	1.52E-03
	12	270.26	9.58E+01	56.89	1.74E-02	1.43E-03
M	13	295.28	3.01E+02	54.14	1.64E-02	1.37E-03
m	14	300.99	7.36E+01	44.26	1.62E-02	1.36E-03
	15	338.24	1.72E+02	63.30	1.50E-02	1.27E-03
	16	351.92	4.47E+02	64.16	1.45E-02	1.24E-03
	17	356.99	3.36E+01	37.34	1.44E-02	1.23E-03
	18	372.17	3.45E+01	35.79	1.40E-02	1.19E-03
	19	462.86	4.60E+01	45.34	1.19E-02	1.10E-03
	20	510.92	1.86E+02	47.25	1.10E-02	1.07E-03
	21	529.33	3.30E+01	35.75	1.07E-02	1.06E-03
	22	583.33	2.36E+02	60.92	9.96E-03	1.02E-03
	23	609.47	3.57E+02	58.41	9.63E-03	1.01E-03
M	24	727.36	8.01E+01	31.62	8.41E-03	8.68E-04
m	25	731.07	1.82E+01	23.87	8.38E-03	8.62E-04
	26	861.21	4.97E+01	34.77	7.39E-03	6.55E-04
	27	911.43	1.75E+02	38.97	7.08E-03	5.91E-04
M	28	964.52	3.68E+01	29.01	6.79E-03	5.71E-04
m	29	969.50	1.13E+02	31.35	6.76E-03	5.69E-04
	30	1120.71	7.93E+01	33.29	6.07E-03	5.11E-04
	31	1155.92	2.98E+01	27.96	5.93E-03	4.98E-04
	32	1239.08	4.04E+01	33.83	5.64E-03	4.76E-04
	33	1287.05	2.05E+01	22.54	5.49E-03	4.65E-04
	34	1345.18	1.42E+01	17.78	5.31E-03	4.52E-04
M	35	1370.38	9.57E+00	9.22	5.24E-03	4.46E-04
m	36	1378.30	2.75E+01	15.52	5.22E-03	4.44E-04
M	37	1457.07	1.36E+01	15.18	5.02E-03	4.26E-04
m	38	1461.34	9.92E+02	64.73	5.00E-03	4.25E-04
m	39	1465.98	3.84E+01	63.13	4.99E-03	4.24E-04
	40	1509.52	9.65E+00	12.39	4.89E-03	4.13E-04
	41	1582.55	8.93E+00	9.63	4.73E-03	3.97E-04
	42	1590.05	2.11E+01	15.91	4.71E-03	3.95E-04
	43	1680.93	8.68E+00	8.02	4.53E-03	3.74E-04
	44	1729.21	1.41E+01	11.31	4.44E-03	3.63E-04
	45	1765.23	5.60E+01	17.89	4.37E-03	3.54E-04
	46	1801.93	5.00E+00	4.47	4.31E-03	3.46E-04
	47	1837.42	1.13E+01	9.59	4.25E-03	3.38E-04
	48	1847.51	1.20E+01	12.85	4.23E-03	3.38E-04
	49	1856.77	1.25E+01	8.96	4.22E-03	3.38E-04
	50	1935.54	7.00E+00	5.29	4.10E-03	3.38E-04
	51	2104.46	1.55E+01	13.30	3.86E-03	3.38E-04
	52	2191.67	1.20E+01	6.93	3.75E-03	3.38E-04
	53	2203.61	2.21E+01	10.78	3.74E-03	3.38E-04

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2304.61	5.00E+00	4.47	3.62E-03	3.38E-04
55	2390.92	1.00E+01	8.00	3.53E-03	3.38E-04
56	2615.29	9.92E+01	20.69	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 : 8/21/2017 6:26:24PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.01	1.23E+02	95.51	3.67E+01	8.40E+00	8.59E+01	9.59E+01
	2	62.57	2.46E+02	128.08	8.94E+01	1.41E+01	1.57E+02	1.29E+02
M	3	74.72	3.75E+02	92.28			3.75E+02	9.23E+01
m	4	77.14	6.36E+02	99.19	7.20E+00	1.47E+00	6.29E+02	9.92E+01
m	5	92.27	2.88E+02	87.50	1.38E+02	1.72E+01	1.51E+02	8.92E+01
	6	142.45	9.70E+01	80.87			9.70E+01	8.09E+01
M	7	183.05	3.85E+01	26.91			3.85E+01	2.69E+01
m	8	186.25	1.78E+02	63.40	5.22E+01	7.59E+00	1.26E+02	6.39E+01
	9	209.38	8.07E+01	66.74			8.07E+01	6.67E+01
M	10	238.66	8.23E+02	71.10	2.13E+01	6.33E+00	8.01E+02	7.14E+01
m	11	241.93	2.26E+02	77.41			2.26E+02	7.74E+01
	12	270.26	9.58E+01	56.89	1.23E+00	4.98E+00	9.46E+01	5.71E+01
M	13	295.28	3.01E+02	54.14			3.01E+02	5.41E+01
m	14	300.99	7.36E+01	44.26			7.36E+01	4.43E+01
	15	338.24	1.72E+02	63.30			1.72E+02	6.33E+01
	16	351.92	4.47E+02	64.16	5.79E+00	4.49E+00	4.41E+02	6.43E+01
	17	356.99	3.36E+01	37.34			3.36E+01	3.73E+01
	18	372.17	3.45E+01	35.79			3.45E+01	3.58E+01
	19	462.86	4.60E+01	45.34			4.60E+01	4.53E+01
	20	510.92	1.86E+02	47.25	7.28E+01	5.30E+00	1.13E+02	4.75E+01
	21	529.33	3.30E+01	35.75			3.30E+01	3.57E+01
	22	583.33	2.36E+02	60.92	2.72E+00	3.05E+00	2.34E+02	6.10E+01
	23	609.47	3.57E+02	58.41	6.35E+00	4.02E+00	3.51E+02	5.86E+01
M	24	727.36	8.01E+01	31.62			8.01E+01	3.16E+01
m	25	731.07	1.82E+01	23.87			1.82E+01	2.39E+01
	26	861.21	4.97E+01	34.77			4.97E+01	3.48E+01
	27	911.43	1.75E+02	38.97	5.31E+00	3.00E+00	1.70E+02	3.91E+01

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	28	964.52	3.68E+01	29.01			3.68E+01	2.90E+01
m	29	969.50	1.13E+02	31.35			1.13E+02	3.14E+01
	30	1120.71	7.93E+01	33.29			7.93E+01	3.33E+01
	31	1155.92	2.98E+01	27.96			2.98E+01	2.80E+01
	32	1239.08	4.04E+01	33.83			4.04E+01	3.38E+01
	33	1287.05	2.05E+01	22.54			2.05E+01	2.25E+01
	34	1345.18	1.42E+01	17.78			1.42E+01	1.78E+01
M	35	1370.38	9.57E+00	9.22			9.57E+00	9.22E+00
m	36	1378.30	2.75E+01	15.52			2.75E+01	1.55E+01
M	37	1457.07	1.36E+01	15.18			1.36E+01	1.52E+01
m	38	1461.34	9.92E+02	64.73	8.09E+00	2.23E+00	9.84E+02	6.48E+01
m	39	1465.98	3.84E+01	63.13			3.84E+01	6.31E+01
	40	1509.52	9.65E+00	12.39			9.65E+00	1.24E+01
	41	1582.55	8.93E+00	9.63			8.93E+00	9.63E+00
	42	1590.05	2.11E+01	15.91			2.11E+01	1.59E+01
	43	1680.93	8.68E+00	8.02			8.68E+00	8.02E+00
	44	1729.21	1.41E+01	11.31			1.41E+01	1.13E+01
	45	1765.23	5.60E+01	17.89			5.60E+01	1.79E+01
	46	1801.93	5.00E+00	4.47			5.00E+00	4.47E+00
	47	1837.42	1.13E+01	9.59			1.13E+01	9.59E+00
	48	1847.51	1.20E+01	12.85	1.22E+00	1.50E+00	1.08E+01	1.29E+01
	49	1856.77	1.25E+01	8.96			1.25E+01	8.96E+00
	50	1935.54	7.00E+00	5.29			7.00E+00	5.29E+00
	51	2104.46	1.55E+01	13.30			1.55E+01	1.33E+01
	52	2191.67	1.20E+01	6.93			1.20E+01	6.93E+00
	53	2203.61	2.21E+01	10.78			2.21E+01	1.08E+01
	54	2304.61	5.00E+00	4.47			5.00E+00	4.47E+00
	55	2390.92	1.00E+01	8.00			1.00E+01	8.00E+00
	56	2615.29	9.92E+01	20.69	5.63E+00	1.38E+00	9.36E+01	2.07E+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 : 8/21/2017 6:26:24PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.01	1.23E+02	95.51	3.67E+01	8.40E+00	8.59E+01	9.59E+01
	2	62.57	2.46E+02	128.08	8.94E+01	1.41E+01	1.57E+02	1.29E+02
M	3	74.72	3.75E+02	92.28			3.75E+02	9.23E+01
m	4	77.14	6.36E+02	99.19	7.20E+00	1.47E+00	6.29E+02	9.92E+01
m	5	92.27	2.88E+02	87.50	1.38E+02	1.72E+01	1.51E+02	8.92E+01
	6	142.45	9.70E+01	80.87			9.70E+01	8.09E+01
M	7	183.05	3.85E+01	26.91			3.85E+01	2.69E+01
m	8	186.25	1.78E+02	63.40	5.22E+01	7.59E+00	1.26E+02	6.39E+01
	9	209.38	8.07E+01	66.74			8.07E+01	6.67E+01
M	10	238.66	8.23E+02	71.10	2.13E+01	6.33E+00	8.01E+02	7.14E+01
m	11	241.93	2.26E+02	77.41			2.26E+02	7.74E+01
	12	270.26	9.58E+01	56.89	1.23E+00	4.98E+00	9.46E+01	5.71E+01
M	13	295.28	3.01E+02	54.14			3.01E+02	5.41E+01
m	14	300.99	7.36E+01	44.26			7.36E+01	4.43E+01
	15	338.24	1.72E+02	63.30			1.72E+02	6.33E+01
	16	351.92	4.47E+02	64.16	5.79E+00	4.49E+00	4.41E+02	6.43E+01
	17	356.99	3.36E+01	37.34			3.36E+01	3.73E+01
	18	372.17	3.45E+01	35.79			3.45E+01	3.58E+01
	19	462.86	4.60E+01	45.34			4.60E+01	4.53E+01
	20	510.92	1.86E+02	47.25	7.28E+01	5.30E+00	1.13E+02	4.75E+01
	21	529.33	3.30E+01	35.75			3.30E+01	3.57E+01
	22	583.33	2.36E+02	60.92	2.72E+00	3.05E+00	2.34E+02	6.10E+01
	23	609.47	3.57E+02	58.41	6.35E+00	4.02E+00	3.51E+02	5.86E+01
M	24	727.36	8.01E+01	31.62			8.01E+01	3.16E+01
m	25	731.07	1.82E+01	23.87			1.82E+01	2.39E+01
	26	861.21	4.97E+01	34.77			4.97E+01	3.48E+01
	27	911.43	1.75E+02	38.97	5.31E+00	3.00E+00	1.70E+02	3.91E+01
M	28	964.52	3.68E+01	29.01			3.68E+01	2.90E+01
m	29	969.50	1.13E+02	31.35			1.13E+02	3.14E+01
	30	1120.71	7.93E+01	33.29			7.93E+01	3.33E+01
	31	1155.92	2.98E+01	27.96			2.98E+01	2.80E+01
	32	1239.08	4.04E+01	33.83			4.04E+01	3.38E+01
	33	1287.05	2.05E+01	22.54			2.05E+01	2.25E+01
	34	1345.18	1.42E+01	17.78			1.42E+01	1.78E+01
M	35	1370.38	9.57E+00	9.22			9.57E+00	9.22E+00
m	36	1378.30	2.75E+01	15.52			2.75E+01	1.55E+01
M	37	1457.07	1.36E+01	15.18			1.36E+01	1.52E+01
m	38	1461.34	9.92E+02	64.73	8.09E+00	2.23E+00	9.84E+02	6.48E+01
m	39	1465.98	3.84E+01	63.13			3.84E+01	6.31E+01
	40	1509.52	9.65E+00	12.39			9.65E+00	1.24E+01
	41	1582.55	8.93E+00	9.63			8.93E+00	9.63E+00
	42	1590.05	2.11E+01	15.91			2.11E+01	1.59E+01
	43	1680.93	8.68E+00	8.02			8.68E+00	8.02E+00
	44	1729.21	1.41E+01	11.31			1.41E+01	1.13E+01
	45	1765.23	5.60E+01	17.89			5.60E+01	1.79E+01
	46	1801.93	5.00E+00	4.47			5.00E+00	4.47E+00
	47	1837.42	1.13E+01	9.59			1.13E+01	9.59E+00
	48	1847.51	1.20E+01	12.85	1.22E+00	1.50E+00	1.08E+01	1.29E+01
	49	1856.77	1.25E+01	8.96			1.25E+01	8.96E+00
	50	1935.54	7.00E+00	5.29			7.00E+00	5.29E+00
	51	2104.46	1.55E+01	13.30			1.55E+01	1.33E+01
	52	2191.67	1.20E+01	6.93			1.20E+01	6.93E+00
	53	2203.61	2.21E+01	10.78			2.21E+01	1.08E+01
	54	2304.61	5.00E+00	4.47			5.00E+00	4.47E+00

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2390.92	1.00E+01	8.00			1.00E+01	8.00E+00
56	2615.29	9.92E+01	20.69	5.63E+00	1.38E+00	9.36E+01	2.07E+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	0.956	1460.81	*	10.67	2.45E+01	2.68E+00
TL-208	0.959	583.14	*	30.22	1.03E+00	2.89E-01
		860.37	*	4.48	1.99E+00	1.41E+00
		2614.66	*	35.85	1.05E+00	2.56E-01
PB-210	0.963	46.50	*	4.25	1.10E+00	1.23E+00
BI-212	0.759	727.17	*	11.80	1.07E+00	4.38E-01
		1620.62		2.75		
PB-212	0.991	238.63	*	44.60	1.27E+00	1.52E-01
		300.09	*	3.41	1.77E+00	1.07E+00
BI-214	0.973	609.31	*	46.30	1.05E+00	2.06E-01
		1120.29	*	15.10	1.15E+00	4.92E-01
		1764.49	*	15.80	1.08E+00	3.55E-01
		2204.22	*	4.98	1.58E+00	7.83E-01
PB-214	1.000	295.21	*	19.19	1.27E+00	2.51E-01
		351.92	*	37.19	1.08E+00	1.83E-01
RA-224	0.867	240.98	*	3.95	4.07E+00	1.43E+00
RA-226	1.000	186.21	*	3.28	2.35E+00	4.46E+00
AC-228	0.982	338.32	*	11.40	1.34E+00	5.06E-01
		911.07	*	27.70	1.15E+00	2.81E-01
		969.11	*	16.60	1.34E+00	3.88E-01
TH-234	0.920	63.29	*	3.80	2.03E+00	1.68E+00
AM-243	1.000	74.67	*	66.00	2.74E-01	7.17E-02

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

* = 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 : 8/21/2017 6:26:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.14	1.74793E-01	7.88		
m	5	92.27	4.18549E-02	29.59	Sum	
	6	142.45	2.69389E-02	41.69		
M	7	183.05	1.06848E-02	34.98		
	9	209.38	2.24167E-02	41.35	Tol.	GA-67 CM-243
	12	270.26	2.62702E-02	30.19		
	17	356.99	9.32975E-03	55.58	Sum	
	18	372.17	9.59184E-03	51.83	Sum	
	19	462.86	1.27778E-02	49.29	Tol.	SB-125
	20	510.92	3.14535E-02	21.00		
	21	529.33	9.16211E-03	54.19	Tol.	RB-83 I-133
m	25	731.07	5.04541E-03	65.72		
M	28	964.52	1.02222E-02	39.42	Tol.	EU-152
	31	1155.92	8.28587E-03	46.87	Sum	
	32	1239.08	1.12208E-02	41.87	Tol.	CO-56
	33	1287.05	5.70202E-03	54.90		
	34	1345.18	3.93254E-03	62.78		
M	35	1370.38	2.65737E-03	48.19		
m	36	1378.30	7.64614E-03	28.20		
M	37	1457.07	3.78458E-03	55.72		
m	39	1465.98	1.06642E-02	82.23		
	40	1509.52	2.68056E-03	64.19		
	41	1582.55	2.48016E-03	53.93		
	42	1590.05	5.87121E-03	37.63		
	43	1680.93	2.41162E-03	46.16		
	44	1729.21	3.90278E-03	40.26	Sum	
	46	1801.93	1.38889E-03	44.72		
	47	1837.42	3.14815E-03	42.32		
	48	1847.51	2.99322E-03	60.01	Sum	
	49	1856.77	3.46296E-03	35.93		
	50	1935.54	1.94444E-03	37.80		
	51	2104.46	4.29398E-03	43.03	S-Esc	

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	2191.67	3.33333E-03	28.87		
54	2304.61	1.38889E-03	44.72		
55	2390.92	2.77778E-03	40.00		

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	0.95	1460.81	*	10.67	2.45E+01	2.68E+00
TL-208	0.95	583.14	*	30.22	1.03E+00	2.89E-01
		860.37	*	4.48	1.99E+00	1.41E+00
		2614.66	*	35.85	1.05E+00	2.56E-01
PB-210	0.96	46.50	*	4.25	1.10E+00	1.23E+00
BI-212	0.75	727.17	*	11.80	1.07E+00	4.38E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.27E+00	1.52E-01
		300.09	*	3.41	1.77E+00	1.07E+00
BI-214	0.97	609.31	*	46.30	1.05E+00	2.06E-01
		1120.29	*	15.10	1.15E+00	4.92E-01
		1764.49	*	15.80	1.08E+00	3.55E-01
		2204.22	*	4.98	1.58E+00	7.83E-01
PB-214	1.00	295.21	*	19.19	1.27E+00	2.51E-01
		351.92	*	37.19	1.08E+00	1.83E-01
RA-224	0.86	240.98	*	3.95	4.07E+00	1.43E+00
RA-226	1.00	186.21	*	3.28	2.35E+00	4.46E+00
AC-228	0.98	338.32	*	11.40	1.34E+00	5.06E-01
		911.07	*	27.70	1.15E+00	2.81E-01
		969.11	*	16.60	1.34E+00	3.88E-01
TH-234	0.92	63.29	*	3.80	2.03E+00	1.68E+00
AM-243	1.00	74.67	*	66.00	2.74E-01	7.17E-02

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.956	2.45E+01	2.68E+00	
TL-208	0.959	1.06E+00	1.90E-01	
PB-210	0.963	1.10E+00	1.23E+00	
BI-212	0.759	1.07E+00	4.38E-01	
PB-212	0.991	1.28E+00	1.51E-01	
BI-214	0.973	1.09E+00	1.64E-01	
PB-214	1.000	1.15E+00	1.48E-01	
RA-224	0.867	4.07E+00	1.43E+00	
RA-226	1.000	2.35E+00	4.46E+00	
AC-228	0.982	1.24E+00	2.08E-01	
TH-234	0.920	2.03E+00	1.68E+00	
AM-243	1.000	2.74E-01	7.17E-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 1707086-14

HTC-A03-S001-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 6:26:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.14	1.74793E-01	7.88		
m	5	92.27	4.18549E-02	29.59	Sum	
	6	142.45	2.69389E-02	41.69		
M	7	183.05	1.06848E-02	34.98		
	9	209.38	2.24167E-02	41.35	Tol.	GA-67 CM-243
	12	270.26	2.62702E-02	30.19		
	17	356.99	9.32975E-03	55.58	Sum	
	18	372.17	9.59184E-03	51.83	Sum	
	19	462.86	1.27778E-02	49.29	Tol.	SB-125
	20	510.92	3.14535E-02	21.00		
	21	529.33	9.16211E-03	54.19	Tol.	RB-83 I-133
m	25	731.07	5.04541E-03	65.72		
M	28	964.52	1.02222E-02	39.42	Tol.	EU-152
	31	1155.92	8.28587E-03	46.87	Sum	
	32	1239.08	1.12208E-02	41.87	Tol.	CO-56
	33	1287.05	5.70202E-03	54.90		
	34	1345.18	3.93254E-03	62.78		
M	35	1370.38	2.65737E-03	48.19		
m	36	1378.30	7.64614E-03	28.20		
M	37	1457.07	3.78458E-03	55.72		
m	39	1465.98	1.06642E-02	82.23		
	40	1509.52	2.68056E-03	64.19		
	41	1582.55	2.48016E-03	53.93		
	42	1590.05	5.87121E-03	37.63		
	43	1680.93	2.41162E-03	46.16		
	44	1729.21	3.90278E-03	40.26	Sum	
	46	1801.93	1.38889E-03	44.72		
	47	1837.42	3.14815E-03	42.32		
	48	1847.51	2.99322E-03	60.01	Sum	
	49	1856.77	3.46296E-03	35.93		
	50	1935.54	1.94444E-03	37.80		
	51	2104.46	4.29398E-03	43.03	S-Esc	
	52	2191.67	3.33333E-03	28.87		

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2304.61	1.38889E-03	44.72		
55	2390.92	2.77778E-03	40.00		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	4.49E-01	2.07E+00	2.07E+00
+	NA-22	1274.54		99.94	-2.95E-03	8.49E-02	8.49E-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	6.71E-03	4.37E-02	4.37E-02
+	K-40	1460.81	*	10.67	2.45E+01	1.31E+00	1.31E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	6.04E-03	6.45E-02	6.45E-02
		78.34		96.00	1.99E-01		8.38E-02
+	SC-46	889.25		99.98	-2.49E-02	1.66E-01	1.66E-01
		1120.51		99.99	3.75E-01		2.82E-01
+	V-48	983.52		99.98	1.38E+00	4.92E+00	4.96E+00
		1312.10		97.50	-3.53E+00		4.92E+00
+	CR-51	320.08		9.83	-2.08E+00	7.04E+00	7.04E+00
+	MN-54	834.83		99.97	5.80E-03	9.27E-02	9.27E-02
+	CO-56	846.75		99.96	-5.03E-03	1.76E-01	1.76E-01
		1037.75		14.03	-3.16E-01		1.04E+00
		1238.25		67.00	2.75E-01		4.11E-01
		1771.40		15.51	3.67E-02		7.01E-01
		2598.48		16.90	9.14E-02		6.76E-01
+	CO-57	122.06		85.51	3.87E-03	7.21E-02	7.21E-02
		136.48		10.60	9.21E-02		6.16E-01
+	CO-58	810.76		99.40	-1.12E-01	1.64E-01	1.64E-01
+	FE-59	1099.22		56.50	2.73E-01	6.71E-01	6.71E-01
		1291.56		43.20	2.07E-01		8.13E-01
+	CO-60	1173.22		100.00	8.48E-03	7.14E-02	9.63E-02
		1332.49		100.00	-1.01E-02		7.14E-02

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52	50.75	-2.15E-02	2.23E-01	2.23E-01
+	GA-67	93.31	35.70	2.92E+08	2.15E+08	2.15E+08
		208.95	2.24	2.23E+09		3.12E+09
		300.22	16.00	-1.05E+09		4.90E+08
+	SE-75	121.11	16.70	-2.75E-01	1.51E-01	4.91E-01
		136.00	59.20	2.26E-02		1.51E-01
		264.65	59.80	-2.63E-02		1.60E-01
		279.53	25.20	1.76E-01		4.07E-01
		400.65	11.40	5.69E-01		1.00E+00
+	RB-82	776.52	13.00	-4.51E+00	7.25E+00	7.25E+00
+	RB-83	520.41	46.00	-1.31E-02	2.70E-01	2.70E-01
		529.64	30.30	1.83E-01		4.46E-01
		552.65	16.40	-1.13E-01		7.89E-01
+	KR-85	513.99	0.43	1.25E-01	2.06E+01	2.06E+01
+	SR-85	513.99	99.27	1.54E-03	2.53E-01	2.53E-01
+	Y-88	898.02	93.40	-2.33E-02	1.23E-01	1.41E-01
		1836.01	99.38	6.75E-02		1.23E-01
+	MO-93	263.06	56.72	1.48E-02	4.78E-02	1.03E-01
		684.67	99.68	1.67E-02		6.66E-02
		1477.11	99.08	-1.59E-02		4.78E-02
+	NB-93M	16.57	9.43	-3.85E-01	4.89E-01	4.89E-01
+	NB-94	702.63	100.00	-3.20E-02	6.27E-02	6.27E-02
		871.10	100.00	-9.61E-03		6.51E-02
+	NB-95	765.79	99.81	4.39E-01	5.85E-01	5.85E-01
+	NB-95M	235.69	25.00	-2.79E+08	4.09E+07	4.09E+07
+	ZR-95	724.18	43.70	-8.57E-02	3.31E-01	5.31E-01
		756.72	55.30	-9.39E-02		3.31E-01
+	MO-99	181.06	6.20	-1.27E+09	3.02E+10	4.79E+10
		739.58	12.80	7.04E+09		3.02E+10
		778.00	4.50	4.28E+10		8.99E+10
+	RU-103	497.08	89.00	1.20E-01	3.90E-01	3.90E-01
+	RU-106	621.84	9.80	-5.07E-01	7.16E-01	7.16E-01
+	AG-108M	433.93	89.90	-3.23E-02	6.42E-02	6.42E-02
		614.37	90.40	-6.45E-03		8.28E-02
		722.95	90.50	-2.23E-02		7.71E-02
+	CD-109	88.03	3.72	1.56E+00	2.14E+00	2.14E+00
+	AG-110M	657.75	93.14	-2.61E-02	8.92E-02	8.92E-02
		677.61	10.53	-3.46E-01		7.98E-01
		706.67	16.46	2.49E-01		5.72E-01
		763.93	21.98	-2.23E-01		4.32E-01
		884.67	71.63	-7.10E-02		1.21E-01
		1384.27	23.94	-7.22E-02		2.73E-01
+	CD-113M	263.70	0.02	8.88E+00	2.47E+02	2.47E+02
+	SN-113	255.12	1.93	-1.11E+00	1.59E-01	4.69E+00
		391.69	64.90	-4.87E-02		1.59E-01
+	TE123M	159.00	84.10	-5.46E-02	1.04E-01	1.04E-01
+	SB-124	602.71	97.87	-7.87E-03	2.11E-01	2.11E-01
		645.85	7.26	1.06E+00		2.86E+00

Analysis Report for 1707086-14

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78	11.10	-5.64E-01	2.11E-01	1.95E+00
		1691.02	49.00	-1.87E-02		2.96E-01
+	I-125	35.49	6.49	5.69E-01	2.54E+00	2.54E+00
+	SB-125	176.33	6.89	-1.77E-01	2.20E-01	7.64E-01
		427.89	29.33	-1.99E-02		2.20E-01
		463.38	10.35	4.08E-01		6.95E-01
		600.56	17.80	3.99E-02		4.03E-01
		635.90	11.32	1.63E-01		5.61E-01
+	SB-126	414.70	83.30	-1.35E+01	1.72E+01	1.73E+01
		666.33	99.60	6.26E-01		1.78E+01
		695.00	99.60	8.37E-01		1.72E+01
		720.50	53.80	-4.35E+00		2.98E+01
+	SN-126	87.57	37.00	1.71E-01	1.80E-01	1.80E-01
+	SB-127	473.00	25.00	5.11E+06	8.98E+06	1.21E+07
		685.20	35.70	2.25E+06		8.98E+06
		783.80	14.70	8.71E+06		2.40E+07
+	I-129	29.78	57.00	5.05E-02	1.07E-01	1.07E-01
		33.60	13.20	-4.78E-02		4.14E-01
		39.58	7.52	5.32E-02		6.76E-01
+	I-131	284.30	6.05	0.00E+00	3.31E+02	4.35E+03
		364.48	81.20	6.39E+01		3.31E+02
		636.97	7.26	2.65E+02		3.89E+03
		722.89	1.80	-5.40E+03		1.86E+04
+	TE-132	49.72	13.10	-3.62E+08	7.02E+07	4.86E+08
		228.16	88.00	3.64E+05		7.02E+07
+	BA-133	81.00	33.00	-5.98E-01	1.40E-01	1.76E-01
		302.84	17.80	2.58E-01		3.73E-01
		356.01	60.00	-4.50E-02		1.40E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.27E+05	6.66E+04	6.66E+04
+	CS-134	563.23	8.38	4.15E-01	8.25E-02	8.58E-01
		569.32	15.43	-1.51E-01		4.21E-01
		604.70	97.60	0.00E+00		8.25E-02
		795.84	85.40	4.22E-02		1.02E-01
		801.93	8.73	-4.47E-01		8.64E-01
+	CS-135	268.24	16.00	4.14E-01	4.02E-01	4.02E-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	-3.23E+01	1.19E+01	1.18E+02
		163.89	4.61	-2.89E+01		1.94E+02
		176.55	13.56	-1.50E+01		6.46E+01
		273.65	12.66	-2.23E+01		8.44E+01
		340.57	48.50	4.60E+01		2.82E+01
		818.50	99.70	3.72E+00		1.19E+01
		1048.07	79.60	4.11E-01		1.69E+01
		1235.34	19.70	1.25E+00		1.02E+02
+	CS-137	661.65	85.12	1.66E-02	8.47E-02	8.47E-02
+	LA-138	788.74	34.00	-2.10E-02	9.34E-02	2.09E-01

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-138	1435.80	66.00	-1.13E-02	9.34E-02	9.34E-02
+	CE-139	165.85	80.35	3.31E-02	1.06E-01	1.06E-01
+	BA-140	162.64	6.70	-3.22E+01	4.56E+01	1.54E+02
		304.84	4.50	1.49E+01		2.77E+02
		423.70	3.20	-8.84E+01		3.88E+02
		437.55	2.00	-2.16E+02		5.92E+02
		537.32	25.00	-5.80E+00		4.56E+01
+	LA-140	328.77	20.50	3.12E+01	1.11E+01	6.40E+01
		487.03	45.50	5.01E+00		2.68E+01
		815.85	23.50	3.61E+00		5.78E+01
		1596.49	95.49	5.61E-01		1.11E+01
+	CE-141	145.44	48.40	1.67E-01	8.37E-01	8.37E-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	-1.01E-01	6.01E-01	6.01E-01
+	PM-144	476.78	42.00	1.38E-02	8.28E-02	1.71E-01
		618.01	98.60	2.75E-02		8.28E-02
		696.49	99.49	2.30E-02		8.68E-02
+	PM-145	36.85	21.70	-2.03E-02	1.30E-01	2.39E-01
		37.36	39.70	-6.63E-02		1.30E-01
		42.30	15.10	6.02E-02		3.43E-01
		72.40	2.31	1.95E-01		3.02E+00
+	PM-146	453.90	39.94	3.95E-02	1.55E-01	1.55E-01
		735.90	14.01	5.67E-02		4.59E-01
		747.13	13.10	2.45E-02		5.26E-01
+	ND-147	91.11	28.90	1.48E+02	1.18E+02	1.18E+02
		531.02	13.10	1.80E+02		2.41E+02
+	PM-149	285.90	3.10	-4.84E+12	4.33E+13	4.33E+13
+	EU-152	121.78	20.50	-1.29E-01	2.30E-01	2.30E-01
		244.69	5.40	-3.62E-02		1.08E+00
		344.27	19.13	-1.99E-04		2.94E-01
		778.89	9.20	-9.32E-02		7.22E-01
		964.01	10.40	-2.36E+00		8.98E-01
		1085.78	7.22	3.62E-01		1.17E+00
		1112.02	9.60	4.53E-01		9.56E-01
		1407.95	14.94	2.37E-01		5.02E-01
+	GD-153	97.43	31.30	2.61E-02	2.16E-01	2.16E-01
		103.18	22.20	4.16E-03		2.97E-01
+	EU-154	123.07	40.50	4.16E-02	1.23E-01	1.23E-01
		723.30	19.70	-1.05E-01		3.61E-01
		873.19	11.50	1.56E-01		5.90E-01
		996.32	10.30	-3.85E-01		6.60E-01
		1004.76	17.90	2.52E-01		4.63E-01
		1274.45	35.50	-7.91E-03		2.27E-01
+	EU-155	86.50	30.90	1.30E-01	2.20E-01	2.20E-01
		105.30	20.70	4.55E-02		2.46E-01
+	EU-156	811.77	10.40	1.61E+00	5.61E+01	5.61E+01
		1153.47	7.20	-1.20E+01		1.13E+02

Analysis Report for 1707086-14

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	1.33E+01	5.61E+01	9.82E+01
+	HO-166M	184.41		72.60	1.24E-01	8.66E-02	8.66E-02
		280.45		29.60	1.10E-01		1.96E-01
		410.94		11.10	1.85E-01		5.71E-01
		711.69		54.10	1.92E-02		1.23E-01
+	TM-171	66.72		0.14	-9.27E+00	4.78E+01	4.78E+01
+	HF-172	67.35		5.31	1.18E-01	4.80E-01	1.26E+00
		125.81		11.30	-2.69E-01		4.80E-01
+	LU-172	181.53		20.60	-1.73E+02	3.12E+03	6.53E+03
		900.72		29.81	1.55E+03		6.30E+03
		1093.66		62.50	-7.24E+02		3.12E+03
+	LU-173	100.72		5.24	4.45E-01	3.40E-01	1.11E+00
		272.11		21.20	-3.30E-02		3.40E-01
+	HF-175	343.40		84.00	-1.18E-04	1.78E-01	1.78E-01
+	LU-176	88.34		13.30	3.78E-01	5.94E-02	5.16E-01
		201.83		86.00	-3.43E-02		5.94E-02
		306.78		94.00	2.86E-03		6.20E-02
+	HF-181	133.02		41.70	-1.03E-01	3.60E-01	6.11E-01
		345.85		17.20	-1.09E-03		1.66E+00
		482.03		82.80	8.76E-02		3.60E-01
+	TA-182	67.75		41.20	2.51E-02	2.67E-01	2.67E-01
		1121.30		34.90	8.80E-01		6.57E-01
		1189.05		16.23	4.98E-01		1.10E+00
		1221.41		26.98	3.80E-01		6.74E-01
		1231.02		11.44	2.12E-01		1.56E+00
+	IR-192	308.46		29.68	-3.14E-02	3.11E-01	4.82E-01
		468.07		48.10	-3.35E-03		3.11E-01
+	HG-203	279.19		77.30	1.40E-01	3.24E-01	3.24E-01
+	TL-204	374.74		94.11	1.94E-02	6.78E-02	6.78E-02
		899.15		99.16	-1.35E-02		7.13E-02
		911.74		91.10	3.81E-01		1.57E-01
+	BI-207	569.67		97.72	-1.55E-02	6.35E-02	6.35E-02
		1063.62		74.90	7.06E-03		1.11E-01
+	TL-208	583.14	*	30.22	1.03E+00	1.68E-01	3.95E-01
		860.37	*	4.48	1.99E+00		2.20E+00
		2614.66	*	35.85	1.05E+00		1.68E-01
+	BI-210M	262.00		45.00	2.82E-02	1.29E-01	1.29E-01
		300.00		23.00	-9.63E-01		2.95E-01
+	PB-210	46.50	*	4.25	1.10E+00	2.02E+00	2.02E+00
+	PB-211	404.84		2.90	-1.48E+00	2.06E+00	2.06E+00
		831.96		2.90	-1.16E+00		2.34E+00
+	BI-212	727.17	*	11.80	1.07E+00	8.86E-01	8.86E-01
		1620.62		2.75	7.76E-01		2.22E+00
+	PB-212	238.63	*	44.60	1.27E+00	2.05E-01	2.05E-01
		300.09	*	3.41	1.77E+00		3.75E+00
+	BI-214	609.31	*	46.30	1.05E+00	2.29E-01	2.29E-01
		1120.29	*	15.10	1.15E+00		7.10E-01
		1764.49	*	15.80	1.08E+00		3.62E-01

Analysis Report for 1707086-14

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22	*	4.98	1.58E+00	2.29E-01	8.15E-01
+	PB-214	295.21	*	19.19	1.27E+00	2.03E-01	6.57E-01
		351.92	*	37.19	1.08E+00		2.03E-01
+	RN-219	401.80		6.50	3.18E-01	9.70E-01	9.70E-01
+	RA-223	323.87		3.88	-3.10E-01	1.60E+00	1.60E+00
+	RA-224	240.98	*	3.95	4.07E+00	2.32E+00	2.32E+00
+	RA-225	40.00		31.00	1.08E+00	1.62E+01	1.62E+01
+	RA-226	186.21	*	3.28	2.35E+00	2.79E+00	2.79E+00
+	TH-227	50.10		8.40	-2.74E-01	5.58E-01	6.02E-01
		236.00		11.50	-3.81E+00		5.58E-01
		256.20		6.30	1.75E-01		9.45E-01
+	AC-228	338.32	*	11.40	1.34E+00	3.43E-01	7.59E-01
		911.07	*	27.70	1.15E+00		3.43E-01
		969.11	*	16.60	1.34E+00		1.44E+00
+	TH-230	48.44		16.90	1.84E-01	3.29E-01	3.29E-01
		62.85		4.60	1.82E+00		1.42E+00
		67.67		0.37	1.54E+00		1.64E+01
+	PA-231	283.67		1.60	-2.00E+00	2.83E+00	3.39E+00
		302.67		2.30	1.96E+00		2.83E+00
+	TH-231	25.64		14.70	-3.33E+00	5.20E-01	5.20E-01
		84.21		6.40	-1.03E+00		9.33E-01
+	PA-233	311.98		38.60	-3.64E-01	1.88E+00	1.88E+00
+	PA-234	131.20		20.40	4.48E-02	2.55E-01	2.55E-01
		733.99		8.80	-1.14E-01		6.95E-01
		946.00		12.00	6.05E-02		6.60E-01
+	PA-234M	1001.03		0.92	-1.06E+00	8.14E+00	8.14E+00
+	TH-234	63.29	*	3.80	2.03E+00	2.73E+00	2.73E+00
+	U-235	143.76		10.50	9.18E-02	4.84E-01	4.84E-01
		163.35		4.70	-1.59E-01		1.07E+00
		205.31		4.70	1.37E-01		1.13E+00
+	NP-237	86.50		12.60	3.06E-01	5.19E-01	5.19E-01
+	NP-239	106.10		22.70	7.25E+10	8.07E+11	8.07E+11
		228.18		10.70	9.16E+09		1.77E+12
		277.60		14.10	8.60E+11		1.53E+12
+	AM-241	59.54		35.90	-1.27E-01	1.58E-01	1.58E-01
+	AM-243	74.67	*	66.00	2.74E-01	1.44E-01	1.44E-01
+	CM-243	209.75		3.29	1.76E+00	4.15E-01	1.80E+00
		228.14		10.60	2.49E-03		4.80E-01
		277.60		14.00	2.33E-01		4.15E-01

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

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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	2.07E+00	2.07E+00	4.49E-01	9.82E-01
	NA-22	1274.54		99.94	8.49E-02	8.49E-02	-2.95E-03	3.90E-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	4.37E-02	4.37E-02	6.71E-03	1.77E-02
+	K-40	1460.81	*	10.67	1.31E+00	1.31E+00	2.45E+01	6.20E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.45E-02	6.45E-02	6.04E-03	3.15E-02
		78.34		96.00	8.38E-02		1.99E-01	4.12E-02
	SC-46	889.25		99.98	1.66E-01	1.66E-01	-2.49E-02	7.73E-02
		1120.51		99.99	2.82E-01		3.75E-01	1.34E-01
	V-48	983.52		99.98	4.96E+00	4.92E+00	1.38E+00	2.29E+00
		1312.10		97.50	4.92E+00		-3.53E+00	2.22E+00
	CR-51	320.08		9.83	7.04E+00	7.04E+00	-2.08E+00	3.38E+00
	MN-54	834.83		99.97	9.27E-02	9.27E-02	5.80E-03	4.34E-02
	CO-56	846.75		99.96	1.76E-01	1.76E-01	-5.03E-03	8.21E-02
		1037.75		14.03	1.04E+00		-3.16E-01	4.75E-01
		1238.25		67.00	4.11E-01		2.75E-01	1.94E-01
		1771.40		15.51	7.01E-01		3.67E-02	2.87E-01
		2598.48		16.90	6.76E-01		9.14E-02	2.62E-01
	CO-57	122.06		85.51	7.21E-02	7.21E-02	3.87E-03	3.50E-02
		136.48		10.60	6.16E-01		9.21E-02	2.99E-01
	CO-58	810.76		99.40	1.64E-01	1.64E-01	-1.12E-01	7.59E-02
	FE-59	1099.22		56.50	6.71E-01	6.71E-01	2.73E-01	3.12E-01
		1291.56		43.20	8.13E-01		2.07E-01	3.71E-01
	CO-60	1173.22		100.00	9.63E-02	7.14E-02	8.48E-03	4.50E-02
		1332.49		100.00	7.14E-02		-1.01E-02	3.22E-02
	ZN-65	1115.52		50.75	2.23E-01	2.23E-01	-2.15E-02	1.04E-01
	GA-67	93.31		35.70	2.15E+08	2.15E+08	2.92E+08	1.05E+08
		208.95		2.24	3.12E+09		2.23E+09	1.51E+09
		300.22		16.00	4.90E+08		-1.05E+09	2.37E+08
	SE-75	121.11		16.70	4.91E-01	1.51E-01	-2.75E-01	2.38E-01
		136.00		59.20	1.51E-01		2.26E-02	7.35E-02
		264.65		59.80	1.60E-01		-2.63E-02	7.70E-02
		279.53		25.20	4.07E-01		1.76E-01	1.96E-01
		400.65		11.40	1.00E+00		5.69E-01	4.79E-01
	RB-82	776.52		13.00	7.25E+00	7.25E+00	-4.51E+00	3.37E+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)
RB-83	520.41	46.00	2.70E-01	2.70E-01	-1.31E-02	1.27E-01
	529.64	30.30	4.46E-01		1.83E-01	2.11E-01
	552.65	16.40	7.89E-01		-1.13E-01	3.71E-01
KR-85	513.99	0.43	2.06E+01	2.06E+01	1.25E-01	9.90E+00
SR-85	513.99	99.27	2.53E-01	2.53E-01	1.54E-03	1.22E-01
Y-88	898.02	93.40	1.41E-01	1.23E-01	-2.33E-02	6.55E-02
	1836.01	99.38	1.23E-01		6.75E-02	5.37E-02
MO-93	263.06	56.72	1.03E-01	4.78E-02	1.48E-02	4.96E-02
	684.67	99.68	6.66E-02		1.67E-02	3.12E-02
	1477.11	99.08	4.78E-02		-1.59E-02	2.02E-02
NB-93M	16.57	9.43	4.89E-01	4.89E-01	-3.85E-01	2.27E-01
NB-94	702.63	100.00	6.27E-02	6.27E-02	-3.20E-02	2.93E-02
	871.10	100.00	6.51E-02		-9.61E-03	3.01E-02
NB-95	765.79	99.81	5.85E-01	5.85E-01	4.39E-01	2.77E-01
NB-95M	235.69	25.00	4.09E+07	4.09E+07	-2.79E+08	1.98E+07
ZR-95	724.18	43.70	5.31E-01	3.31E-01	-8.57E-02	2.51E-01
	756.72	55.30	3.31E-01		-9.39E-02	1.54E-01
MO-99	181.06	6.20	4.79E+10	3.02E+10	-1.27E+09	2.32E+10
	739.58	12.80	3.02E+10		7.04E+09	1.41E+10
	778.00	4.50	8.99E+10		4.28E+10	4.21E+10
RU-103	497.08	89.00	3.90E-01	3.90E-01	1.20E-01	1.85E-01
RU-106	621.84	9.80	7.16E-01	7.16E-01	-5.07E-01	3.35E-01
AG-108M	433.93	89.90	6.42E-02	6.42E-02	-3.23E-02	3.05E-02
	614.37	90.40	8.28E-02		-6.45E-03	3.93E-02
	722.95	90.50	7.71E-02		-2.23E-02	3.62E-02
CD-109	88.03	3.72	2.14E+00	2.14E+00	1.56E+00	1.05E+00
AG-110M	657.75	93.14	8.92E-02	8.92E-02	-2.61E-02	4.18E-02
	677.61	10.53	7.98E-01		-3.46E-01	3.74E-01
	706.67	16.46	5.72E-01		2.49E-01	2.69E-01
	763.93	21.98	4.32E-01		-2.23E-01	2.03E-01
	884.67	71.63	1.21E-01		-7.10E-02	5.59E-02
	1384.27	23.94	2.73E-01		-7.22E-02	1.18E-01
CD-113M	263.70	0.02	2.47E+02	2.47E+02	8.88E+00	1.19E+02
SN-113	255.12	1.93	4.69E+00	1.59E-01	-1.11E+00	2.25E+00
	391.69	64.90	1.59E-01		-4.87E-02	7.60E-02
TE123M	159.00	84.10	1.04E-01	1.04E-01	-5.46E-02	5.06E-02
SB-124	602.71	97.87	2.11E-01	2.11E-01	-7.87E-03	9.99E-02
	645.85	7.26	2.86E+00		1.06E+00	1.35E+00
	722.78	11.10	1.95E+00		-5.64E-01	9.15E-01
	1691.02	49.00	2.96E-01		-1.87E-02	1.23E-01
I-125	35.49	6.49	2.54E+00	2.54E+00	5.69E-01	1.23E+00
SB-125	176.33	6.89	7.64E-01	2.20E-01	-1.77E-01	3.69E-01
	427.89	29.33	2.20E-01		-1.99E-02	1.05E-01
	463.38	10.35	6.95E-01		4.08E-01	3.32E-01
	600.56	17.80	4.03E-01		3.99E-02	1.91E-01
	635.90	11.32	5.61E-01		1.63E-01	2.62E-01
SB-126	414.70	83.30	1.73E+01	1.72E+01	-1.35E+01	8.25E+00
	666.33	99.60	1.78E+01		6.26E-01	8.39E+00
	695.00	99.60	1.72E+01		8.37E-01	8.07E+00
	720.50	53.80	2.98E+01		-4.35E+00	1.40E+01
SN-126	87.57	37.00	1.80E-01	1.80E-01	1.71E-01	8.81E-02
SB-127	473.00	25.00	1.21E+07	8.98E+06	5.11E+06	5.73E+06
	685.20	35.70	8.98E+06		2.25E+06	4.21E+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)
SB-127	783.80	14.70	2.40E+07	8.98E+06	8.71E+06	1.12E+07
I-129	29.78	57.00	1.07E-01	1.07E-01	5.05E-02	5.17E-02
	33.60	13.20	4.14E-01		-4.78E-02	2.01E-01
	39.58	7.52	6.76E-01		5.32E-02	3.28E-01
I-131	284.30	6.05	4.35E+03	3.31E+02	0.00E+00	2.09E+03
	364.48	81.20	3.31E+02		6.39E+01	1.58E+02
	636.97	7.26	3.89E+03		2.65E+02	1.82E+03
	722.89	1.80	1.86E+04		-5.40E+03	8.76E+03
TE-132	49.72	13.10	4.86E+08	7.02E+07	-3.62E+08	2.36E+08
	228.16	88.00	7.02E+07		3.64E+05	3.38E+07
BA-133	81.00	33.00	1.76E-01	1.40E-01	-5.98E-01	8.59E-02
	302.84	17.80	3.73E-01		2.58E-01	1.80E-01
	356.01	60.00	1.40E-01		-4.50E-02	6.78E-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	6.66E+04	6.66E+04	-2.27E+05	3.25E+04
CS-134	563.23	8.38	8.58E-01	8.25E-02	4.15E-01	4.06E-01
	569.32	15.43	4.21E-01		-1.51E-01	1.98E-01
	604.70	97.60	8.25E-02		0.00E+00	3.92E-02
	795.84	85.40	1.02E-01		4.22E-02	4.81E-02
	801.93	8.73	8.64E-01		-4.47E-01	4.03E-01
CS-135	268.24	16.00	4.02E-01	4.02E-01	4.14E-01	1.95E-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	1.18E+02	1.19E+01	-3.23E+01	5.72E+01
	163.89	4.61	1.94E+02		-2.89E+01	9.41E+01
	176.55	13.56	6.46E+01		-1.50E+01	3.12E+01
	273.65	12.66	8.44E+01		-2.23E+01	4.07E+01
	340.57	48.50	2.82E+01		4.60E+01	1.37E+01
	818.50	99.70	1.19E+01		3.72E+00	5.51E+00
	1048.07	79.60	1.69E+01		4.11E-01	7.80E+00
	1235.34	19.70	1.02E+02		1.25E+00	4.81E+01
CS-137	661.65	85.12	8.47E-02	8.47E-02	1.66E-02	4.00E-02
LA-138	788.74	34.00	2.09E-01	9.34E-02	-2.10E-02	9.76E-02
	1435.80	66.00	9.34E-02		-1.13E-02	4.13E-02
CE-139	165.85	80.35	1.06E-01	1.06E-01	3.31E-02	5.12E-02
BA-140	162.64	6.70	1.54E+02	4.56E+01	-3.22E+01	7.45E+01
	304.84	4.50	2.77E+02		1.49E+01	1.33E+02
	423.70	3.20	3.88E+02		-8.84E+01	1.85E+02
	437.55	2.00	5.92E+02		-2.16E+02	2.81E+02
	537.32	25.00	4.56E+01		-5.80E+00	2.14E+01
LA-140	328.77	20.50	6.40E+01	1.11E+01	3.12E+01	3.08E+01
	487.03	45.50	2.68E+01		5.01E+00	1.27E+01
	815.85	23.50	5.78E+01		3.61E+00	2.69E+01
	1596.49	95.49	1.11E+01		5.61E-01	4.72E+00
CE-141	145.44	48.40	8.37E-01	8.37E-01	1.67E-01	4.06E-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	6.01E-01	6.01E-01	-1.01E-01	2.92E-01
PM-144	476.78	42.00	1.71E-01	8.28E-02	1.38E-02	8.09E-02
	618.01	98.60	8.28E-02		2.75E-02	3.91E-02
	696.49	99.49	8.68E-02		2.30E-02	4.09E-02

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-145	36.85	21.70	2.39E-01	1.30E-01	-2.03E-02	1.16E-01
	37.36	39.70	1.30E-01		-6.63E-02	6.28E-02
	42.30	15.10	3.43E-01		6.02E-02	1.66E-01
	72.40	2.31	3.02E+00		1.95E-01	1.48E+00
PM-146	453.90	39.94	1.55E-01	1.55E-01	3.95E-02	7.36E-02
	735.90	14.01	4.59E-01		5.67E-02	2.14E-01
	747.13	13.10	5.26E-01		2.45E-02	2.46E-01
ND-147	91.11	28.90	1.18E+02	1.18E+02	1.48E+02	5.77E+01
	531.02	13.10	2.41E+02		1.80E+02	1.14E+02
PM-149	285.90	3.10	4.33E+13	4.33E+13	-4.84E+12	2.08E+13
EU-152	121.78	20.50	2.30E-01	2.30E-01	-1.29E-01	1.11E-01
	244.69	5.40	1.08E+00		-3.62E-02	5.21E-01
	344.27	19.13	2.94E-01		-1.99E-04	1.41E-01
	778.89	9.20	7.22E-01		-9.32E-02	3.36E-01
	964.01	10.40	8.98E-01		-2.36E+00	4.23E-01
	1085.78	7.22	1.17E+00		3.62E-01	5.45E-01
	1112.02	9.60	9.56E-01		4.53E-01	4.47E-01
	1407.95	14.94	5.02E-01		2.37E-01	2.27E-01
GD-153	97.43	31.30	2.16E-01	2.16E-01	2.61E-02	1.05E-01
	103.18	22.20	2.97E-01		4.16E-03	1.45E-01
EU-154	123.07	40.50	1.23E-01	1.23E-01	4.16E-02	5.97E-02
	723.30	19.70	3.61E-01		-1.05E-01	1.70E-01
	873.19	11.50	5.90E-01		1.56E-01	2.73E-01
	996.32	10.30	6.60E-01		-3.85E-01	3.03E-01
	1004.76	17.90	4.63E-01		2.52E-01	2.16E-01
	1274.45	35.50	2.27E-01		-7.91E-03	1.04E-01
EU-155	86.50	30.90	2.20E-01	2.20E-01	1.30E-01	1.08E-01
	105.30	20.70	2.46E-01		4.55E-02	1.20E-01
EU-156	811.77	10.40	5.61E+01	5.61E+01	1.61E+00	2.60E+01
	1153.47	7.20	1.13E+02		-1.20E+01	5.30E+01
	1230.71	8.90	9.82E+01		1.33E+01	4.59E+01
HO-166M	184.41	72.60	8.66E-02	8.66E-02	1.24E-01	4.21E-02
	280.45	29.60	1.96E-01		1.10E-01	9.45E-02
	410.94	11.10	5.71E-01		1.85E-01	2.73E-01
	711.69	54.10	1.23E-01		1.92E-02	5.79E-02
TM-171	66.72	0.14	4.78E+01	4.78E+01	-9.27E+00	2.34E+01
HF-172	67.35	5.31	1.26E+00	4.80E-01	1.18E-01	6.18E-01
	125.81	11.30	4.80E-01		-2.69E-01	2.33E-01
LU-172	181.53	20.60	6.53E+03	3.12E+03	-1.73E+02	3.16E+03
	900.72	29.81	6.30E+03		1.55E+03	2.93E+03
	1093.66	62.50	3.12E+03		-7.24E+02	1.44E+03
LU-173	100.72	5.24	1.11E+00	3.40E-01	4.45E-01	5.41E-01
	272.11	21.20	3.40E-01		-3.30E-02	1.64E-01
HF-175	343.40	84.00	1.78E-01	1.78E-01	-1.18E-04	8.51E-02
LU-176	88.34	13.30	5.16E-01	5.94E-02	3.78E-01	2.53E-01
	201.83	86.00	5.94E-02		-3.43E-02	2.87E-02
	306.78	94.00	6.20E-02		2.86E-03	2.98E-02
HF-181	133.02	41.70	6.11E-01	3.60E-01	-1.03E-01	2.97E-01
	345.85	17.20	1.66E+00		-1.09E-03	7.92E-01
	482.03	82.80	3.60E-01		8.76E-02	1.70E-01
TA-182	67.75	41.20	2.67E-01	2.67E-01	2.51E-02	1.31E-01
	1121.30	34.90	6.57E-01		8.80E-01	3.13E-01
	1189.05	16.23	1.10E+00		4.98E-01	5.15E-01

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	6.74E-01	2.67E-01	3.80E-01	3.16E-01
		1231.02		11.44	1.56E+00		2.12E-01	7.29E-01
	IR-192	308.46		29.68	4.82E-01	3.11E-01	-3.14E-02	2.31E-01
		468.07		48.10	3.11E-01		-3.35E-03	1.48E-01
	HG-203	279.19		77.30	3.24E-01	3.24E-01	1.40E-01	1.56E-01
	TL-204	374.74		94.11	6.78E-02	6.78E-02	1.94E-02	3.25E-02
		899.15		99.16	7.13E-02		-1.35E-02	3.30E-02
		911.74		91.10	1.57E-01		3.81E-01	7.55E-02
	BI-207	569.67		97.72	6.35E-02	6.35E-02	-1.55E-02	2.99E-02
		1063.62		74.90	1.11E-01		7.06E-03	5.18E-02
+	TL-208	583.14	*	30.22	3.95E-01	1.68E-01	1.03E+00	1.92E-01
		860.37	*	4.48	2.20E+00		1.99E+00	1.05E+00
		2614.66	*	35.85	1.68E-01		1.05E+00	6.89E-02
	BI-210M	262.00		45.00	1.29E-01	1.29E-01	2.82E-02	6.25E-02
		300.00		23.00	2.95E-01		-9.63E-01	1.43E-01
+	PB-210	46.50	*	4.25	2.02E+00	2.02E+00	1.10E+00	9.93E-01
	PB-211	404.84		2.90	2.06E+00	2.06E+00	-1.48E+00	9.81E-01
		831.96		2.90	2.34E+00		-1.16E+00	1.09E+00
+	BI-212	727.17	*	11.80	8.86E-01	8.86E-01	1.07E+00	4.25E-01
		1620.62		2.75	2.22E+00		7.76E-01	9.67E-01
+	PB-212	238.63	*	44.60	2.05E-01	2.05E-01	1.27E+00	1.01E-01
		300.09	*	3.41	3.75E+00		1.77E+00	1.84E+00
+	BI-214	609.31	*	46.30	2.29E-01	2.29E-01	1.05E+00	1.10E-01
		1120.29	*	15.10	7.10E-01		1.15E+00	3.35E-01
		1764.49	*	15.80	3.62E-01		1.08E+00	1.55E-01
		2204.22	*	4.98	8.15E-01		1.58E+00	3.11E-01
+	PB-214	295.21	*	19.19	6.57E-01	2.03E-01	1.27E+00	3.23E-01
		351.92	*	37.19	2.03E-01		1.08E+00	9.84E-02
	RN-219	401.80		6.50	9.70E-01	9.70E-01	3.18E-01	4.64E-01
	RA-223	323.87		3.88	1.60E+00	1.60E+00	-3.10E-01	7.71E-01
+	RA-224	240.98	*	3.95	2.32E+00	2.32E+00	4.07E+00	1.13E+00
	RA-225	40.00		31.00	1.62E+01	1.62E+01	1.08E+00	7.84E+00
+	RA-226	186.21	*	3.28	2.79E+00	2.79E+00	2.35E+00	1.37E+00
	TH-227	50.10		8.40	6.02E-01	5.58E-01	-2.74E-01	2.93E-01
		236.00		11.50	5.58E-01		-3.81E+00	2.71E-01
		256.20		6.30	9.45E-01		1.75E-01	4.57E-01
+	AC-228	338.32	*	11.40	7.59E-01	3.43E-01	1.34E+00	3.69E-01
		911.07	*	27.70	3.43E-01		1.15E+00	1.62E-01
		969.11	*	16.60	1.44E+00		1.34E+00	7.05E-01
	TH-230	48.44		16.90	3.29E-01	3.29E-01	1.84E-01	1.61E-01
		62.85		4.60	1.42E+00		1.82E+00	6.95E-01
		67.67		0.37	1.64E+01		1.54E+00	8.03E+00
	PA-231	283.67		1.60	3.39E+00	2.83E+00	-2.00E+00	1.63E+00
		302.67		2.30	2.83E+00		1.96E+00	1.37E+00
	TH-231	25.64		14.70	5.20E-01	5.20E-01	-3.33E+00	2.53E-01
		84.21		6.40	9.33E-01		-1.03E+00	4.56E-01
	PA-233	311.98		38.60	1.88E+00	1.88E+00	-3.64E-01	9.03E-01
	PA-234	131.20		20.40	2.55E-01	2.55E-01	4.48E-02	1.24E-01
		733.99		8.80	6.95E-01		-1.14E-01	3.23E-01
		946.00		12.00	6.60E-01		6.05E-02	3.08E-01
	PA-234M	1001.03		0.92	8.14E+00	8.14E+00	-1.06E+00	3.77E+00
+	TH-234	63.29	*	3.80	2.73E+00	2.73E+00	2.03E+00	1.35E+00
	U-235	143.76		10.50	4.84E-01	4.84E-01	9.18E-02	2.35E-01

Analysis Report for 1707086-14

HTC-A03-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	163.35		4.70	1.07E+00	4.84E-01	-1.59E-01	5.18E-01
		205.31		4.70	1.13E+00		1.37E-01	5.47E-01
	NP-237	86.50		12.60	5.19E-01	5.19E-01	3.06E-01	2.54E-01
	NP-239	106.10		22.70	8.07E+11	8.07E+11	7.25E+10	3.93E+11
		228.18		10.70	1.77E+12		9.16E+09	8.52E+11
		277.60		14.10	1.53E+12		8.60E+11	7.39E+11
	AM-241	59.54		35.90	1.58E-01	1.58E-01	-1.27E-01	7.70E-02
+	AM-243	74.67	*	66.00	1.44E-01	1.44E-01	2.74E-01	7.11E-02
	CM-243	209.75		3.29	1.80E+00	4.15E-01	1.76E+00	8.75E-01
		228.14		10.60	4.80E-01		2.49E-03	2.31E-01
		277.60		14.00	4.15E-01		2.33E-01	2.00E-01

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

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-A03-S001-0612-01

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	54	83	78	151	529	147
25:	67	66	57	69	53	70	57	77
33:	57	66	62	51	69	68	61	62
41:	77	63	62	81	78	87	138	99
49:	77	85	85	84	77	108	91	99
57:	95	92	104	120	132	121	160	212
65:	153	123	134	119	155	155	142	152
73:	138	168	302	309	354	470	167	114
81:	127	132	102	139	141	106	186	223
89:	152	169	161	123	233	192	109	101
97:	89	89	88	109	92	86	90	83
105:	81	102	81	78	81	73	88	83
113:	84	96	79	88	78	87	76	60
121:	67	73	79	75	83	78	80	73
129:	89	104	83	77	82	81	88	77
137:	83	73	73	75	75	84	79	91
145:	72	54	58	84	62	61	81	63
153:	64	69	73	72	73	76	61	62
161:	70	63	64	91	40	74	74	68
169:	76	52	62	70	72	61	64	59
177:	62	51	59	57	64	55	73	62
185:	76	125	130	68	67	53	56	43
193:	50	42	52	47	65	72	72	57
201:	43	57	57	62	58	60	51	62
209:	72	105	56	60	49	55	55	63
217:	47	49	51	45	49	44	58	51
225:	53	37	51	39	57	42	44	44
233:	51	49	48	53	48	168	499	238
241:	87	135	112	56	32	36	42	41
249:	37	28	38	54	34	39	36	40
257:	38	45	40	44	44	23	34	48
265:	29	30	31	27	44	59	71	50
273:	30	21	37	23	31	41	44	28
281:	34	31	29	30	28	29	22	36
289:	32	24	34	36	29	55	143	157
297:	59	40	23	44	60	35	38	34
305:	33	27	28	33	25	31	28	27
313:	35	23	35	33	30	30	28	17
321:	33	30	36	24	37	25	38	50
329:	35	28	30	22	33	18	33	32
337:	25	80	106	43	28	21	22	22
345:	29	21	24	22	29	27	58	277
353:	177	31	20	31	38	32	19	16
361:	19	16	22	22	17	21	23	28

369:	22	21	28	32	27	26	13	21

Sample Title: HTC-A03-S001-0612-01

Channel								
377:	18	34	19	16	24	23	20	13
385:	21	19	20	21	16	20	20	22
393:	15	23	25	23	26	27	24	25
401:	27	34	17	21	18	15	19	22
409:	24	31	28	15	23	19	15	30
417:	21	15	28	19	18	11	26	20
425:	22	20	21	21	19	19	15	21
433:	16	20	18	17	15	22	24	10
441:	13	27	15	13	17	16	20	15
449:	21	9	20	21	17	17	12	22
457:	14	14	18	20	13	17	41	30
465:	17	16	18	14	16	19	16	13
473:	19	19	18	18	17	10	10	20
481:	22	8	15	21	15	17	12	13
489:	17	12	22	9	13	15	8	20
497:	16	20	17	16	15	17	13	10
505:	15	14	13	22	23	42	91	49
513:	34	13	13	11	14	10	14	6
521:	10	6	19	22	13	13	5	20
529:	22	19	16	9	10	12	9	12
537:	6	13	11	16	11	18	8	15
545:	15	15	19	14	13	12	10	10
553:	14	15	9	16	14	12	10	18
561:	21	21	12	15	12	7	15	9
569:	12	18	13	10	14	16	21	18
577:	9	18	11	12	16	28	127	121
585:	35	13	21	19	21	17	9	9
593:	12	11	16	11	15	10	20	21
601:	7	19	10	13	10	18	13	37
609:	153	164	35	19	13	15	13	12
617:	14	19	12	20	7	8	11	4
625:	8	12	14	11	9	16	11	8
633:	10	11	14	14	7	5	9	8
641:	7	12	15	17	14	9	13	11
649:	9	14	7	9	11	10	9	12
657:	8	12	9	12	14	19	10	16
665:	18	19	11	11	14	12	12	10
673:	10	12	8	12	5	16	15	7
681:	11	13	17	9	7	9	12	9
689:	9	10	19	10	4	19	17	17
697:	12	7	14	6	11	5	8	13
705:	12	12	12	17	13	9	11	13
713:	10	10	9	7	6	17	12	8
721:	4	13	11	6	16	22	35	33
729:	18	5	14	8	6	12	4	5
737:	10	11	13	7	11	8	10	11
745:	12	10	5	9	13	9	6	14
753:	16	10	7	11	3	11	10	8
761:	4	9	13	13	8	11	21	27
769:	14	13	13	14	7	7	15	8
777:	8	10	7	12	11	6	9	8
785:	10	15	16	4	11	8	11	7
793:	10	14	21	17	12	8	9	13

801:	9	9	11	10	5	14	14	6

Sample Title: HTC-A03-S001-0612-01

Channel								
809:	4	11	8	9	7	7	12	5
817:	8	11	8	6	9	8	5	8
825:	9	10	12	6	11	10	3	8
833:	12	8	8	16	10	11	13	13
841:	7	11	11	10	8	8	13	11
849:	8	12	7	12	13	4	10	7
857:	11	8	12	19	28	7	12	13
865:	4	8	7	7	8	4	4	13
873:	7	8	9	8	6	4	10	14
881:	4	10	5	10	10	7	5	13
889:	5	15	10	9	10	10	8	5
897:	10	10	7	6	10	4	12	4
905:	11	4	10	3	11	36	84	65
913:	19	7	3	11	13	6	2	7
921:	11	10	7	10	8	3	7	6
929:	10	8	8	9	10	18	15	7
937:	10	4	8	8	6	8	8	7
945:	14	5	13	11	10	8	14	12
953:	11	6	6	7	7	7	14	9
961:	7	10	9	28	20	11	6	32
969:	60	37	12	6	7	6	11	13
977:	12	5	3	2	14	8	2	10
985:	4	8	5	11	5	8	7	9
993:	4	11	4	6	9	8	1	7
1001:	12	10	10	7	13	6	7	11
1009:	4	9	9	6	8	10	5	6
1017:	12	13	9	13	11	8	7	3
1025:	6	11	4	7	9	11	11	6
1033:	10	3	7	7	7	4	3	3
1041:	3	7	5	4	7	6	8	7
1049:	10	7	7	10	9	6	7	2
1057:	9	10	7	8	8	8	14	9
1065:	10	5	13	4	12	6	12	6
1073:	9	5	6	6	9	10	9	9
1081:	8	12	7	8	12	7	8	7
1089:	5	7	11	7	7	5	1	9
1097:	8	10	11	8	8	4	8	8
1105:	5	12	3	9	7	13	14	11
1113:	9	6	10	8	8	10	20	46
1121:	40	9	4	11	6	13	8	6
1129:	9	7	7	10	3	10	12	8
1137:	6	6	9	8	14	9	7	10
1145:	4	10	9	10	10	9	5	9
1153:	9	8	14	14	11	5	6	3
1161:	6	11	3	11	6	11	9	13
1169:	6	11	12	9	11	7	11	7
1177:	9	9	3	6	10	8	5	9
1185:	8	11	11	7	9	15	17	5
1193:	4	11	6	18	9	8	13	8
1201:	4	8	5	6	2	16	5	8
1209:	10	7	6	9	9	13	9	4
1217:	7	14	5	17	10	9	7	13
1225:	7	10	12	9	6	13	8	8

1233:	15	11	9	14	13	25	17	14

Sample Title: HTC-A03-S001-0612-01

Channel								
1241:	8	10	4	10	10	6	8	7
1249:	5	6	9	11	9	9	6	5
1257:	6	8	12	3	7	7	7	8
1265:	9	5	11	7	5	9	4	8
1273:	4	8	5	8	5	7	4	7
1281:	9	4	7	6	6	11	11	6
1289:	3	5	2	8	3	11	3	5
1297:	8	6	4	8	10	6	11	5
1305:	6	6	3	7	4	6	0	7
1313:	1	3	6	10	6	3	4	5
1321:	6	8	2	4	6	4	8	3
1329:	2	4	7	3	4	2	7	2
1337:	6	7	0	2	5	2	3	9
1345:	6	7	2	1	3	4	3	3
1353:	3	2	3	2	7	9	2	2
1361:	1	4	3	3	4	2	2	1
1369:	6	4	2	2	1	1	4	4
1377:	13	9	3	5	0	0	3	2
1385:	4	2	2	0	7	2	2	3
1393:	0	2	3	2	2	2	3	7
1401:	3	2	3	5	5	5	5	3
1409:	5	3	3	2	6	2	4	5
1417:	4	2	4	7	3	3	2	2
1425:	4	2	5	6	3	3	3	1
1433:	2	4	4	4	2	3	5	2
1441:	1	2	5	2	1	2	0	1
1449:	2	3	4	3	2	4	7	3
1457:	8	20	97	390	362	117	23	13
1465:	9	13	4	2	1	1	1	3
1473:	0	2	1	3	1	1	2	5
1481:	0	4	1	3	4	2	1	2
1489:	1	2	0	1	2	1	5	3
1497:	2	0	3	1	6	6	1	2
1505:	0	2	2	5	4	6	1	3
1513:	0	3	1	0	4	0	1	5
1521:	1	1	2	1	0	1	2	1
1529:	2	3	1	1	3	1	0	1
1537:	1	5	3	1	1	0	3	3
1545:	2	3	1	1	1	0	5	1
1553:	2	2	4	3	4	2	2	4
1561:	1	2	0	0	1	1	1	1
1569:	2	2	1	0	2	2	1	2
1577:	1	1	1	2	4	3	3	0
1585:	1	1	3	11	2	2	4	4
1593:	3	1	1	2	0	1	3	1
1601:	2	3	1	1	1	3	1	2
1609:	0	1	2	2	2	0	2	1
1617:	2	0	3	5	3	2	1	1
1625:	1	2	0	1	0	3	0	3
1633:	0	2	0	1	1	1	0	0
1641:	2	0	2	3	1	1	1	3
1649:	1	1	1	2	2	2	5	1
1657:	0	2	3	1	2	1	2	0

1665:	3	0	2	2	0	4	1	2

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Channel								
1673:	0	0	1	0	0	2	1	2
1681:	4	1	0	0	2	2	2	1
1689:	3	1	0	0	1	0	2	1
1697:	1	2	2	1	1	0	2	1
1705:	4	1	0	1	0	1	1	1
1713:	1	1	1	1	0	0	0	0
1721:	3	2	1	0	1	2	2	6
1729:	7	2	0	2	2	0	1	1
1737:	2	1	0	4	1	2	3	2
1745:	1	0	0	2	0	0	1	0
1753:	1	2	1	1	0	0	2	0
1761:	0	3	8	35	14	4	0	2
1769:	0	2	2	0	1	0	1	0
1777:	1	0	0	2	0	2	1	0
1785:	1	0	0	1	1	0	1	0
1793:	2	0	2	0	0	0	0	3
1801:	0	2	0	0	0	2	0	1
1809:	1	2	0	0	2	1	0	1
1817:	1	0	1	0	1	2	4	0
1825:	2	0	0	2	2	1	1	1
1833:	2	2	1	2	4	3	0	0
1841:	2	2	1	0	0	4	7	5
1849:	0	2	0	0	0	5	2	3
1857:	2	1	1	1	0	1	1	0
1865:	0	0	1	1	3	1	0	2
1873:	3	0	1	3	2	0	1	1
1881:	2	0	0	1	1	4	1	0
1889:	3	1	0	1	1	0	2	1
1897:	1	0	0	2	0	2	1	2
1905:	1	1	1	4	1	0	1	3
1913:	1	0	1	0	0	2	0	1
1921:	1	1	1	1	0	2	1	1
1929:	0	2	0	0	1	3	3	0
1937:	0	2	1	0	2	0	3	2
1945:	1	0	2	2	1	1	3	1
1953:	0	0	1	0	1	1	1	0
1961:	2	1	1	1	1	0	2	1
1969:	1	2	2	1	2	2	0	2
1977:	0	0	2	0	1	0	1	1
1985:	0	0	2	0	2	0	0	1
1993:	1	2	1	0	1	0	1	0
2001:	2	0	0	1	0	1	2	1
2009:	1	1	0	1	0	1	1	2
2017:	2	1	2	2	0	0	2	0
2025:	0	4	0	0	2	0	0	1
2033:	1	2	0	0	5	0	1	0
2041:	0	0	1	1	1	0	3	2
2049:	1	2	4	1	0	0	2	2
2057:	0	2	1	0	0	0	2	1
2065:	0	1	1	0	0	1	1	2
2073:	1	0	2	0	0	5	1	0
2081:	1	1	0	3	0	3	1	1
2089:	2	0	3	2	1	0	0	0

2097:	1	0	1	1	1	6	4	8

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

2529:	0	0	0	0	0	0	1	0

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Channel								
2537:	0	2	1	1	0	0	0	0
2545:	0	0	0	1	0	1	0	1
2553:	0	0	2	0	0	1	0	0
2561:	0	0	1	0	1	0	0	0
2569:	1	1	0	0	0	0	0	1
2577:	1	1	1	0	0	0	0	0
2585:	0	0	1	1	0	0	0	1
2593:	0	0	1	0	0	2	0	1
2601:	0	0	0	0	1	0	0	1
2609:	0	0	6	16	33	31	11	2
2617:	3	0	1	0	0	0	0	1
2625:	1	0	0	0	1	0	0	0
2633:	0	0	0	0	1	0	0	0
2641:	0	0	0	0	1	0	0	0
2649:	0	0	1	0	0	1	0	0
2657:	0	0	0	0	0	0	1	1
2665:	0	0	1	0	1	0	1	1
2673:	0	0	0	1	1	0	0	1
2681:	0	0	0	0	0	0	1	0
2689:	0	0	0	0	0	0	2	2
2697:	0	0	1	1	0	1	0	0
2705:	0	1	0	0	1	1	0	2
2713:	0	0	1	0	0	0	0	0
2721:	0	0	0	1	1	1	1	1
2729:	1	0	0	0	0	0	0	0
2737:	0	0	0	0	1	0	0	0
2745:	0	0	1	0	2	0	0	0
2753:	0	1	1	2	2	1	0	0
2761:	0	0	0	0	2	0	0	0
2769:	0	0	0	0	1	1	1	1
2777:	0	0	1	1	0	2	0	0
2785:	0	0	0	0	0	2	0	1
2793:	2	0	0	0	0	1	0	1
2801:	0	1	0	0	0	0	0	0
2809:	1	0	0	1	0	2	0	0
2817:	0	0	0	1	0	0	0	0
2825:	0	0	0	0	2	1	0	0
2833:	0	0	0	1	0	0	1	1
2841:	0	0	0	1	0	0	1	0
2849:	2	0	0	1	2	0	0	0
2857:	0	1	2	0	0	0	0	0
2865:	0	0	1	0	0	0	0	0
2873:	0	1	0	1	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	1	1	0	0	0
2897:	0	0	2	1	1	0	0	0
2905:	1	0	0	0	0	0	0	0
2913:	0	0	1	1	0	0	1	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	1
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	0

2961:	1	1	0	0	0	0	0	1

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

3393:	1	0	0	0	0	1	0	0

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

3825:	0	1	0	0	0	0	0	1

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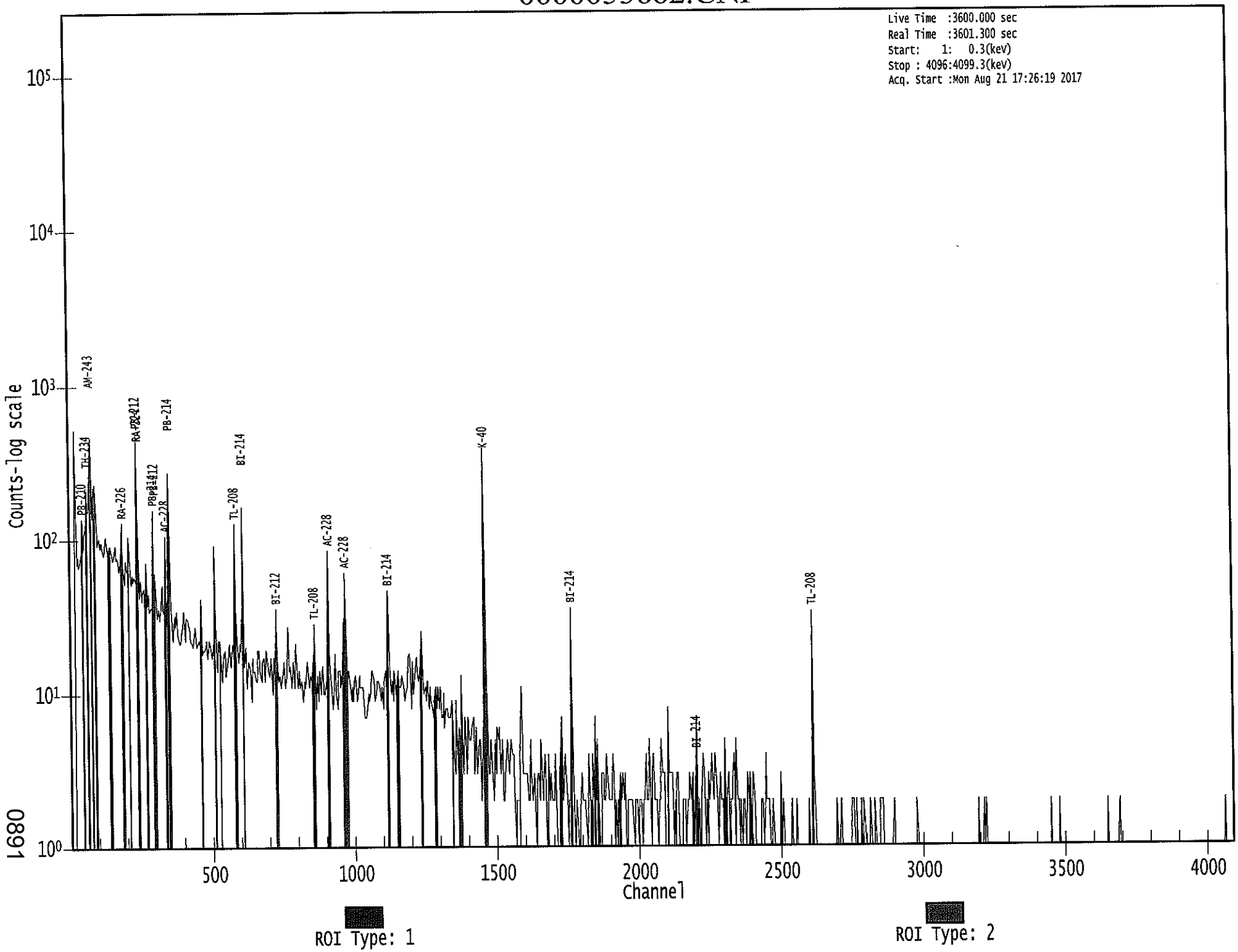
Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	1
3857:	0	0	0	0	1	0	0	0
3865:	0	1	0	0	0	0	0	0
3873:	0	1	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	1	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	1	0	0
3921:	1	0	1	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0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

0000055662.CNF



0891

WB 8/21/17

Apex-Gamma

Analysis Report for 1707086-15
HTC-A03-S001-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-15
Sample Description	: HTC-A03-S001-1218-01
Sample Type	: SOIL
Sample Size	: 7.285E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:15:42AM
Acquisition Started	: 8/21/2017 5:26:28PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3607.9 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	: 55663

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/21/2017 6:26:58PM
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	75.04	75.35	0.0000	0.00
2	77.64	77.94	0.0000	0.00
3	87.77	88.07	0.0000	0.00
4	92.85	93.15	0.0000	0.00
5	186.36	186.62	0.0000	0.00
6	209.52	209.78	0.0000	0.00
7	239.11	239.35	0.0000	0.00
8	241.69	241.94	0.0000	0.00
9	270.43	270.67	0.0000	0.00
10	277.61	277.84	0.0000	0.00
11	295.39	295.62	0.0000	0.00
12	338.54	338.76	0.0000	0.00
13	352.21	352.42	0.0000	0.00
14	463.50	463.67	0.0000	0.00
15	510.89	511.05	0.0000	0.00
16	571.14	571.28	0.0000	0.00
17	577.69	577.83	0.0000	0.00
18	583.66	583.79	0.0000	0.00
19	609.55	609.68	0.0000	0.00
20	727.06	727.14	0.0000	0.00
21	907.19	907.21	0.0000	0.00
22	911.54	911.56	0.0000	0.00
23	933.82	933.83	0.0000	0.00
24	969.57	969.57	0.0000	0.00
25	1040.41	1040.39	0.0000	0.00
26	1052.47	1052.44	0.0000	0.00
27	1058.36	1058.33	0.0000	0.00
28	1062.81	1062.78	0.0000	0.00
29	1120.27	1120.22	0.0000	0.00
30	1124.05	1124.00	0.0000	0.00
31	1403.89	1403.74	0.0000	0.00
32	1460.96	1460.79	0.0000	0.00
33	1543.47	1543.27	0.0000	0.00
34	1700.01	1699.77	0.0000	0.00
35	1728.36	1728.10	0.0000	0.00
36	1742.43	1742.17	0.0000	0.00
37	1764.34	1764.07	0.0000	0.00
38	1797.79	1797.51	0.0000	0.00
39	2203.80	2203.38	0.0000	0.00
40	2614.21	2613.66	0.0000	0.00

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 6:26:58PM

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	75.04	71 -	81	75.35	3.70E+02	99.63	1.54E+03	2.01
m	2	77.64	71 -	81	77.94	5.51E+02	105.97	1.50E+03	2.02
M	3	87.77	83 -	97	88.07	2.70E+02	123.38	2.05E+03	3.97
m	4	92.85	83 -	97	93.15	2.56E+02	93.15	1.23E+03	2.20
	5	186.36	183 -	189	186.62	1.38E+02	70.44	8.01E+02	2.23
	6	209.52	206 -	213	209.78	1.11E+02	68.53	7.02E+02	2.34
M	7	239.11	235 -	246	239.35	6.48E+02	69.41	4.35E+02	2.11
m	8	241.69	235 -	246	241.94	1.73E+02	80.70	5.48E+02	2.74
	9	270.43	267 -	274	270.67	4.53E+01	56.75	5.03E+02	1.76
	10	277.61	275 -	281	277.84	4.27E+01	47.96	3.85E+02	2.74
	11	295.39	292 -	299	295.62	2.03E+02	58.38	4.35E+02	1.96
	12	338.54	335 -	343	338.76	1.11E+02	56.24	4.18E+02	2.08
	13	352.21	347 -	357	352.42	3.92E+02	67.33	3.95E+02	2.14
	14	463.50	458 -	469	463.67	6.28E+01	50.08	2.82E+02	2.14
	15	510.89	505 -	516	511.05	1.50E+02	53.85	2.86E+02	2.65
M	16	571.14	568 -	589	571.28	2.87E+01	27.50	1.13E+02	2.49
m	17	577.69	568 -	589	577.83	1.96E+01	29.39	1.30E+02	2.58
m	18	583.66	568 -	589	583.79	1.79E+02	36.83	1.16E+02	2.46
	19	609.55	604 -	616	609.68	2.50E+02	55.66	2.46E+02	2.69
	20	727.06	723 -	732	727.14	4.85E+01	37.23	1.71E+02	3.52
M	21	907.19	906 -	919	907.21	1.34E+01	10.42	2.43E+01	2.32
m	22	911.54	906 -	919	911.56	1.05E+02	30.40	7.26E+01	2.56
	23	933.82	931 -	937	933.83	2.70E+01	18.52	4.41E+01	3.27
	24	969.57	966 -	972	969.57	4.27E+01	27.42	1.01E+02	2.18
	25	1040.41	1038 -	1044	1040.39	1.59E+01	17.76	4.62E+01	1.14
	26	1052.47	1050 -	1055	1052.44	1.56E+01	17.32	4.67E+01	1.38
M	27	1058.36	1056 -	1068	1058.33	2.11E+01	15.60	3.50E+01	3.51
m	28	1062.81	1056 -	1068	1062.78	2.40E+01	20.48	4.90E+01	2.40
M	29	1120.27	1116 -	1133	1120.22	4.52E+01	25.09	8.42E+01	2.43
m	30	1124.05	1116 -	1133	1124.00	1.51E+01	24.20	7.80E+01	2.21
	31	1403.89	1397 -	1410	1403.74	2.10E+01	26.72	7.00E+01	1.23
	32	1460.96	1453 -	1467	1460.79	6.10E+02	52.89	3.83E+01	2.89
	33	1543.47	1541 -	1546	1543.27	7.89E+00	6.71	2.22E+00	3.13
	34	1700.01	1697 -	1702	1699.77	5.71E+00	6.08	2.57E+00	2.74
	35	1728.36	1723 -	1734	1728.10	1.47E+01	10.39	6.56E+00	3.76
	36	1742.43	1738 -	1746	1742.17	9.67E+00	8.26	4.67E+00	1.36
	37	1764.34	1759 -	1768	1764.07	3.56E+01	13.30	4.87E+00	1.74
	38	1797.79	1792 -	1801	1797.51	8.56E+00	11.79	1.49E+01	7.61
	39	2203.80	2198 -	2206	2203.38	1.20E+01	12.85	1.80E+01	1.73
	40	2614.21	2608 -	2617	2613.66	6.98E+01	17.69	4.32E+00	2.46

Analysis Report for 1707086-15

HTC-A03-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 ANALYSIS REPORT

Peak Analysis Performed on : 8/21/2017 6:26:58PM

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	75.04	71 -	81	3.70E+02	99.63	1.54E+03	6.44E+01
m	2	77.64	71 -	81	5.51E+02	105.97	1.50E+03	6.36E+01
M	3	87.77	83 -	97	2.70E+02	123.38	2.05E+03	7.45E+01
m	4	92.85	83 -	97	2.56E+02	93.15	1.23E+03	5.76E+01
	5	186.36	183 -	189	1.38E+02	70.44	8.01E+02	5.46E+01
	6	209.52	206 -	213	1.11E+02	68.53	7.02E+02	5.36E+01
M	7	239.11	235 -	246	6.48E+02	69.41	4.35E+02	3.43E+01
m	8	241.69	235 -	246	1.73E+02	80.70	5.48E+02	3.85E+01
	9	270.43	267 -	274	4.53E+01	56.75	5.03E+02	4.53E+01
	10	277.61	275 -	281	4.27E+01	47.96	3.85E+02	3.79E+01
	11	295.39	292 -	299	2.03E+02	58.38	4.35E+02	4.19E+01
	12	338.54	335 -	343	1.11E+02	56.24	4.18E+02	4.29E+01
	13	352.21	347 -	357	3.92E+02	67.33	3.95E+02	4.48E+01
	14	463.50	458 -	469	6.28E+01	50.08	2.82E+02	3.91E+01
	15	510.89	505 -	516	1.50E+02	53.85	2.86E+02	3.94E+01
M	16	571.14	568 -	589	2.87E+01	27.50	1.13E+02	1.75E+01
m	17	577.69	568 -	589	1.96E+01	29.39	1.30E+02	1.88E+01
m	18	583.66	568 -	589	1.79E+02	36.83	1.16E+02	1.77E+01
	19	609.55	604 -	616	2.50E+02	55.66	2.46E+02	3.76E+01
	20	727.06	723 -	732	4.85E+01	37.23	1.71E+02	2.84E+01
M	21	907.19	906 -	919	1.34E+01	10.42	2.43E+01	8.11E+00
m	22	911.54	906 -	919	1.05E+02	30.40	7.26E+01	1.40E+01
	23	933.82	931 -	937	2.70E+01	18.52	4.41E+01	1.26E+01
	24	969.57	966 -	972	4.27E+01	27.42	1.01E+02	1.98E+01
	25	1040.41	1038 -	1044	1.59E+01	17.76	4.62E+01	1.30E+01
	26	1052.47	1050 -	1055	1.56E+01	17.32	4.67E+01	1.27E+01
M	27	1058.36	1056 -	1068	2.11E+01	15.60	3.50E+01	9.73E+00
m	28	1062.81	1056 -	1068	2.40E+01	20.48	4.90E+01	1.15E+01
M	29	1120.27	1116 -	1133	4.52E+01	25.09	8.42E+01	1.51E+01
m	30	1124.05	1116 -	1133	1.51E+01	24.20	7.80E+01	1.45E+01
	31	1403.89	1397 -	1410	2.10E+01	26.72	7.00E+01	2.06E+01

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1460.96	1453 -	1467	6.10E+02	52.89	3.83E+01	1.56E+01
33	1543.47	1541 -	1546	7.89E+00	6.71	2.22E+00	3.01E+00
34	1700.01	1697 -	1702	5.71E+00	6.08	2.57E+00	3.09E+00
35	1728.36	1723 -	1734	1.47E+01	10.39	6.56E+00	5.76E+00
36	1742.43	1738 -	1746	9.67E+00	8.26	4.67E+00	4.47E+00
37	1764.34	1759 -	1768	3.56E+01	13.30	4.87E+00	4.84E+00
38	1797.79	1792 -	1801	8.56E+00	11.79	1.49E+01	8.41E+00
39	2203.80	2198 -	2206	1.20E+01	12.85	1.80E+01	8.89E+00
40	2614.21	2608 -	2617	6.98E+01	17.69	4.32E+00	4.77E+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 : 8/21/2017 6:26:58PM

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	75.04	71 -	81	75.35	3.70E+02	99.63	1.54E+03	AM-243
m	2	77.64	71 -	81	77.94	5.51E+02	105.97	1.50E+03	TI-44
M	3	87.77	83 -	97	88.07	2.70E+02	123.38	2.05E+03	SN-126
									CD-109
									LU-176
m	4	92.85	83 -	97	93.15	2.56E+02	93.15	1.23E+03	GA-67
	5	186.36	183 -	189	186.62	1.38E+02	70.44	8.01E+02	RA-226
	6	209.52	206 -	213	209.78	1.11E+02	68.53	7.02E+02	CM-243
									GA-67
M	7	239.11	235 -	246	239.35	6.48E+02	69.41	4.35E+02	PB-212
m	8	241.69	235 -	246	241.94	1.73E+02	80.70	5.48E+02	RA-224
	9	270.43	267 -	274	270.67	4.53E+01	56.75	5.03E+02	.....
	10	277.61	275 -	281	277.84	4.27E+01	47.96	3.85E+02	CM-243
									NP-239
	11	295.39	292 -	299	295.62	2.03E+02	58.38	4.35E+02	PB-214
	12	338.54	335 -	343	338.76	1.11E+02	56.24	4.18E+02	AC-228
	13	352.21	347 -	357	352.42	3.92E+02	67.33	3.95E+02	PB-214

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	14	463.50	458 -	469	463.67	6.28E+01	50.08	2.82E+02	SB-125
	15	510.89	505 -	516	511.05	1.50E+02	53.85	2.86E+02	.....
M	16	571.14	568 -	589	571.28	2.87E+01	27.50	1.13E+02	.....
m	17	577.69	568 -	589	577.83	1.96E+01	29.39	1.30E+02	.....
m	18	583.66	568 -	589	583.79	1.79E+02	36.83	1.16E+02	TL-208
	19	609.55	604 -	616	609.68	2.50E+02	55.66	2.46E+02	BI-214
	20	727.06	723 -	732	727.14	4.85E+01	37.23	1.71E+02	BI-212
M	21	907.19	906 -	919	907.21	1.34E+01	10.42	2.43E+01	.....
m	22	911.54	906 -	919	911.56	1.05E+02	30.40	7.26E+01	TL-204 AC-228
	23	933.82	931 -	937	933.83	2.70E+01	18.52	4.41E+01	.....
	24	969.57	966 -	972	969.57	4.27E+01	27.42	1.01E+02	AC-228
	25	1040.41	1038 -	1044	1040.39	1.59E+01	17.76	4.62E+01	.....
	26	1052.47	1050 -	1055	1052.44	1.56E+01	17.32	4.67E+01	.....
M	27	1058.36	1056 -	1068	1058.33	2.11E+01	15.60	3.50E+01	.....
m	28	1062.81	1056 -	1068	1062.78	2.40E+01	20.48	4.90E+01	BI-207
M	29	1120.27	1116 -	1133	1120.22	4.52E+01	25.09	8.42E+01	BI-214 SC-46
m	30	1124.05	1116 -	1133	1124.00	1.51E+01	24.20	7.80E+01	.....
	31	1403.89	1397 -	1410	1403.74	2.10E+01	26.72	7.00E+01	.....
	32	1460.96	1453 -	1467	1460.79	6.10E+02	52.89	3.83E+01	K-40
	33	1543.47	1541 -	1546	1543.27	7.89E+00	6.71	2.22E+00	.....
	34	1700.01	1697 -	1702	1699.77	5.71E+00	6.08	2.57E+00	.....
	35	1728.36	1723 -	1734	1728.10	1.47E+01	10.39	6.56E+00	.....
	36	1742.43	1738 -	1746	1742.17	9.67E+00	8.26	4.67E+00	.....
	37	1764.34	1759 -	1768	1764.07	3.56E+01	13.30	4.87E+00	BI-214
	38	1797.79	1792 -	1801	1797.51	8.56E+00	11.79	1.49E+01	.....
	39	2203.80	2198 -	2206	2203.38	1.20E+01	12.85	1.80E+01	BI-214
	40	2614.21	2608 -	2617	2613.66	6.98E+01	17.69	4.32E+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 : 8/21/2017 6:26:58PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	75.04	3.70E+02	99.63	2.65E-02	2.02E-03

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	2	77.64	5.51E+02	105.97	2.68E-02	2.06E-03
M	3	87.77	2.70E+02	123.38	2.72E-02	2.25E-03
m	4	92.85	2.56E+02	93.15	2.71E-02	2.24E-03
	5	186.36	1.38E+02	70.44	1.96E-02	1.55E-03
	6	209.52	1.11E+02	68.53	1.79E-02	1.45E-03
M	7	239.11	6.48E+02	69.41	1.61E-02	1.34E-03
m	8	241.69	1.73E+02	80.70	1.60E-02	1.33E-03
	9	270.43	4.53E+01	56.75	1.45E-02	1.21E-03
	10	277.61	4.27E+01	47.96	1.42E-02	1.19E-03
	11	295.39	2.03E+02	58.38	1.35E-02	1.15E-03
	12	338.54	1.11E+02	56.24	1.19E-02	1.06E-03
	13	352.21	3.92E+02	67.33	1.15E-02	1.03E-03
	14	463.50	6.28E+01	50.08	9.01E-03	8.57E-04
	15	510.89	1.50E+02	53.85	8.26E-03	7.94E-04
M	16	571.14	2.87E+01	27.50	7.46E-03	7.15E-04
m	17	577.69	1.96E+01	29.39	7.39E-03	7.06E-04
m	18	583.66	1.79E+02	36.83	7.32E-03	6.98E-04
	19	609.55	2.50E+02	55.66	7.04E-03	6.64E-04
	20	727.06	4.85E+01	37.23	6.01E-03	5.37E-04
M	21	907.19	1.34E+01	10.42	4.94E-03	3.85E-04
m	22	911.54	1.05E+02	30.40	4.92E-03	3.84E-04
	23	933.82	2.70E+01	18.52	4.82E-03	3.80E-04
	24	969.57	4.27E+01	27.42	4.66E-03	3.74E-04
	25	1040.41	1.59E+01	17.76	4.39E-03	3.63E-04
	26	1052.47	1.56E+01	17.32	4.34E-03	3.61E-04
M	27	1058.36	2.11E+01	15.60	4.32E-03	3.60E-04
m	28	1062.81	2.40E+01	20.48	4.31E-03	3.59E-04
M	29	1120.27	4.52E+01	25.09	4.12E-03	3.50E-04
m	30	1124.05	1.51E+01	24.20	4.11E-03	3.49E-04
	31	1403.89	2.10E+01	26.72	3.42E-03	2.84E-04
	32	1460.96	6.10E+02	52.89	3.31E-03	2.75E-04
	33	1543.47	7.89E+00	6.71	3.17E-03	2.62E-04
	34	1700.01	5.71E+00	6.08	2.94E-03	2.37E-04
	35	1728.36	1.47E+01	10.39	2.91E-03	2.32E-04
	36	1742.43	9.67E+00	8.26	2.89E-03	2.30E-04
	37	1764.34	3.56E+01	13.30	2.87E-03	2.26E-04
	38	1797.79	8.56E+00	11.79	2.83E-03	2.21E-04
	39	2203.80	1.20E+01	12.85	2.46E-03	2.15E-04
	40	2614.21	6.98E+01	17.69	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 : 8/21/2017 6:26:58PM

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	75.04	3.70E+02	99.63			3.70E+02	9.96E+01
m	2	77.64	5.51E+02	105.97			5.51E+02	1.06E+02
M	3	87.77	2.70E+02	123.38			2.70E+02	1.23E+02
m	4	92.85	2.56E+02	93.15	7.98E+01	7.31E+00	1.76E+02	9.34E+01
	5	186.36	1.38E+02	70.44	3.06E+01	5.82E+00	1.08E+02	7.07E+01
	6	209.52	1.11E+02	68.53			1.11E+02	6.85E+01
M	7	239.11	6.48E+02	69.41	1.40E+01	2.71E+00	6.34E+02	6.95E+01
m	8	241.69	1.73E+02	80.70			1.73E+02	8.07E+01
	9	270.43	4.53E+01	56.75			4.53E+01	5.67E+01
	10	277.61	4.27E+01	47.96			4.27E+01	4.80E+01
	11	295.39	2.03E+02	58.38			2.03E+02	5.84E+01
	12	338.54	1.11E+02	56.24			1.11E+02	5.62E+01
	13	352.21	3.92E+02	67.33	6.53E+00	4.43E+00	3.85E+02	6.75E+01
	14	463.50	6.28E+01	50.08			6.28E+01	5.01E+01
	15	510.89	1.50E+02	53.85	5.21E+01	4.74E+00	9.76E+01	5.41E+01
M	16	571.14	2.87E+01	27.50			2.87E+01	2.75E+01
m	17	577.69	1.96E+01	29.39			1.96E+01	2.94E+01
m	18	583.66	1.79E+02	36.83			1.79E+02	3.68E+01
	19	609.55	2.50E+02	55.66	3.25E+00	2.97E+00	2.47E+02	5.57E+01
	20	727.06	4.85E+01	37.23			4.85E+01	3.72E+01
M	21	907.19	1.34E+01	10.42			1.34E+01	1.04E+01
m	22	911.54	1.05E+02	30.40	2.85E+00	2.76E+00	1.02E+02	3.05E+01
	23	933.82	2.70E+01	18.52			2.70E+01	1.85E+01
	24	969.57	4.27E+01	27.42			4.27E+01	2.74E+01
	25	1040.41	1.59E+01	17.76			1.59E+01	1.78E+01
	26	1052.47	1.56E+01	17.32			1.56E+01	1.73E+01
M	27	1058.36	2.11E+01	15.60			2.11E+01	1.56E+01
m	28	1062.81	2.40E+01	20.48			2.40E+01	2.05E+01
M	29	1120.27	4.52E+01	25.09			4.52E+01	2.51E+01
m	30	1124.05	1.51E+01	24.20			1.51E+01	2.42E+01
	31	1403.89	2.10E+01	26.72			2.10E+01	2.67E+01
	32	1460.96	6.10E+02	52.89	1.00E+00	1.77E+00	6.09E+02	5.29E+01
	33	1543.47	7.89E+00	6.71			7.89E+00	6.71E+00
	34	1700.01	5.71E+00	6.08			5.71E+00	6.08E+00
	35	1728.36	1.47E+01	10.39			1.47E+01	1.04E+01
	36	1742.43	9.67E+00	8.26			9.67E+00	8.26E+00
	37	1764.34	3.56E+01	13.30			3.56E+01	1.33E+01
	38	1797.79	8.56E+00	11.79			8.56E+00	1.18E+01
	39	2203.80	1.20E+01	12.85			1.20E+01	1.28E+01
	40	2614.21	6.98E+01	17.69	1.86E+00	1.12E+00	6.80E+01	1.77E+01

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

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/21/2017 6:26:58PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.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	75.04	3.70E+02	99.63			3.70E+02	9.96E+01
m	2	77.64	5.51E+02	105.97			5.51E+02	1.06E+02
M	3	87.77	2.70E+02	123.38			2.70E+02	1.23E+02
m	4	92.85	2.56E+02	93.15	7.98E+01	7.31E+00	1.76E+02	9.34E+01
	5	186.36	1.38E+02	70.44	3.06E+01	5.82E+00	1.08E+02	7.07E+01
	6	209.52	1.11E+02	68.53			1.11E+02	6.85E+01
M	7	239.11	6.48E+02	69.41	1.40E+01	2.71E+00	6.34E+02	6.95E+01
m	8	241.69	1.73E+02	80.70			1.73E+02	8.07E+01
	9	270.43	4.53E+01	56.75			4.53E+01	5.67E+01
	10	277.61	4.27E+01	47.96			4.27E+01	4.80E+01
	11	295.39	2.03E+02	58.38			2.03E+02	5.84E+01
	12	338.54	1.11E+02	56.24			1.11E+02	5.62E+01
	13	352.21	3.92E+02	67.33	6.53E+00	4.43E+00	3.85E+02	6.75E+01
	14	463.50	6.28E+01	50.08			6.28E+01	5.01E+01
	15	510.89	1.50E+02	53.85	5.21E+01	4.74E+00	9.76E+01	5.41E+01
M	16	571.14	2.87E+01	27.50			2.87E+01	2.75E+01
m	17	577.69	1.96E+01	29.39			1.96E+01	2.94E+01
m	18	583.66	1.79E+02	36.83			1.79E+02	3.68E+01
	19	609.55	2.50E+02	55.66	3.25E+00	2.97E+00	2.47E+02	5.57E+01
	20	727.06	4.85E+01	37.23			4.85E+01	3.72E+01
M	21	907.19	1.34E+01	10.42			1.34E+01	1.04E+01
m	22	911.54	1.05E+02	30.40	2.85E+00	2.76E+00	1.02E+02	3.05E+01
	23	933.82	2.70E+01	18.52			2.70E+01	1.85E+01
	24	969.57	4.27E+01	27.42			4.27E+01	2.74E+01
	25	1040.41	1.59E+01	17.76			1.59E+01	1.78E+01
	26	1052.47	1.56E+01	17.32			1.56E+01	1.73E+01
M	27	1058.36	2.11E+01	15.60			2.11E+01	1.56E+01
m	28	1062.81	2.40E+01	20.48			2.40E+01	2.05E+01
M	29	1120.27	4.52E+01	25.09			4.52E+01	2.51E+01
m	30	1124.05	1.51E+01	24.20			1.51E+01	2.42E+01
	31	1403.89	2.10E+01	26.72			2.10E+01	2.67E+01
	32	1460.96	6.10E+02	52.89	1.00E+00	1.77E+00	6.09E+02	5.29E+01
	33	1543.47	7.89E+00	6.71			7.89E+00	6.71E+00
	34	1700.01	5.71E+00	6.08			5.71E+00	6.08E+00
	35	1728.36	1.47E+01	10.39			1.47E+01	1.04E+01
	36	1742.43	9.67E+00	8.26			9.67E+00	8.26E+00
	37	1764.34	3.56E+01	13.30			3.56E+01	1.33E+01
	38	1797.79	8.56E+00	11.79			8.56E+00	1.18E+01
	39	2203.80	1.20E+01	12.85			1.20E+01	1.28E+01
	40	2614.21	6.98E+01	17.69	1.86E+00	1.12E+00	6.80E+01	1.77E+01

Analysis Report for 1707086-15

HTC-A03-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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.997	1460.81	*	10.67	1.78E+01	2.17E+00
CD-109	0.989	88.03	*	3.72	3.19E+00	1.49E+00
SN-126	0.993	87.57	*	37.00	2.77E-01	1.29E-01
TL-208	0.854	583.14	*	30.22	8.32E-01	1.89E-01
		860.37		4.48		
		2614.66	*	35.85	8.73E-01	2.43E-01
BI-212	0.770	727.17	*	11.80	7.05E-01	5.45E-01
		1620.62		2.75		
PB-212	0.863	238.63	*	44.60	9.10E-01	1.25E-01
		300.09		3.41		
BI-214	0.992	609.31	*	46.30	7.81E-01	1.91E-01
		1120.29	*	15.10	7.49E-01	4.21E-01
		1764.49	*	15.80	8.10E-01	3.10E-01
		2204.22	*	4.98	1.01E+00	1.08E+00
PB-214	0.989	295.21	*	19.19	8.08E-01	2.43E-01
		351.92	*	37.19	9.25E-01	1.82E-01
RA-224	0.922	240.98	*	3.95	2.82E+00	1.34E+00
RA-226	0.997	186.21	*	3.28	1.73E+00	3.37E+00
AC-228	0.971	338.32	*	11.40	8.41E-01	4.32E-01
		911.07	*	27.70	7.74E-01	2.39E-01
		969.11	*	16.60	5.69E-01	3.68E-01
AM-243	0.978	74.67	*	66.00	2.18E-01	6.09E-02
CM-243	0.369	209.75	*	3.29	1.95E+00	1.22E+00
		228.14		10.60		
		277.60	*	14.00	2.23E-01	2.51E-01

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

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 6:26:58PM
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	77.64	1.53163E-01	9.61		
m	4	92.85	4.89091E-02	26.53		
	9	270.43	1.25884E-02	62.61		
	14	463.50	1.74408E-02	39.88	Sum	
	15	510.89	2.71199E-02	27.69		
M	16	571.14	7.98515E-03	47.83		
m	17	577.69	5.45746E-03	74.81	Sum	
M	21	907.19	3.71840E-03	38.91		
	23	933.82	7.48866E-03	34.35		
	25	1040.41	4.41595E-03	55.84		
	26	1052.47	4.34473E-03	55.37		
M	27	1058.36	5.85825E-03	37.00		
m	28	1062.81	6.67669E-03	42.61	Tol.	BI-207
m	30	1124.05	4.19433E-03	80.14		
	31	1403.89	5.83333E-03	63.62		
	33	1543.47	2.19136E-03	42.52		
	34	1700.01	1.58730E-03	53.22	Sum	
	35	1728.36	4.08951E-03	35.29		
	36	1742.43	2.68519E-03	42.73		
	38	1797.79	2.37847E-03	68.85		

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 1707086-15

HTC-A03-S001-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.78E+01	2.17E+00
CD-109	0.98	88.03	*	3.72	3.19E+00	1.49E+00
SN-126	0.99	87.57	*	37.00	2.77E-01	1.29E-01
TL-208	0.85	583.14	*	30.22	8.32E-01	1.89E-01
		860.37		4.48		
		2614.66	*	35.85	8.73E-01	2.43E-01
BI-212	0.77	727.17	*	11.80	7.05E-01	5.45E-01
		1620.62		2.75		
PB-212	0.86	238.63	*	44.60	9.10E-01	1.25E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	7.81E-01	1.91E-01
		1120.29	*	15.10	7.49E-01	4.21E-01
		1764.49	*	15.80	8.10E-01	3.10E-01
		2204.22	*	4.98	1.01E+00	1.08E+00
PB-214	0.98	295.21	*	19.19	8.08E-01	2.43E-01
		351.92	*	37.19	9.25E-01	1.82E-01
RA-224	0.92	240.98	*	3.95	2.82E+00	1.34E+00
RA-226	0.99	186.21	*	3.28	1.73E+00	3.37E+00
AC-228	0.97	338.32	*	11.40	8.41E-01	4.32E-01
		911.07	*	27.70	7.74E-01	2.39E-01
		969.11	*	16.60	5.69E-01	3.68E-01
AM-243	0.97	74.67	*	66.00	2.18E-01	6.09E-02
CM-243	0.36	209.75	*	3.29	1.95E+00	1.22E+00
		228.14		10.60		
		277.60	*	14.00	2.23E-01	2.51E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.997	1.78E+01	2.17E+00	
?	CD-109	0.989	3.19E+00	1.49E+00	

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	SN-126	0.993	2.77E-01	1.29E-01	
	TL-208	0.854	8.47E-01	1.49E-01	
	BI-212	0.770	7.05E-01	5.45E-01	
	PB-212	0.863	9.10E-01	1.25E-01	
	BI-214	0.992	7.88E-01	1.50E-01	
	PB-214	0.989	8.83E-01	1.46E-01	
	RA-224	0.922	2.82E+00	1.34E+00	
	RA-226	0.997	1.73E+00	3.37E+00	
	AC-228	0.971	7.36E-01	1.82E-01	
	AM-243	0.978	2.18E-01	6.09E-02	
	CM-243	0.369	2.94E-01	2.46E-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 1707086-15

HTC-A03-S001-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/21/2017 6:26:58PM
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	77.64	1.53163E-01	9.61		
m	4	92.85	4.89091E-02	26.53		
	9	270.43	1.25884E-02	62.61		
	14	463.50	1.74408E-02	39.88	Sum	
	15	510.89	2.71199E-02	27.69		
M	16	571.14	7.98515E-03	47.83		
m	17	577.69	5.45746E-03	74.81	Sum	
M	21	907.19	3.71840E-03	38.91		
	23	933.82	7.48866E-03	34.35		
	25	1040.41	4.41595E-03	55.84		
	26	1052.47	4.34473E-03	55.37		
M	27	1058.36	5.85825E-03	37.00		
m	28	1062.81	6.67669E-03	42.61	Tol.	BI-207
m	30	1124.05	4.19433E-03	80.14		
	31	1403.89	5.83333E-03	63.62		
	33	1543.47	2.19136E-03	42.52		
	34	1700.01	1.58730E-03	53.22	Sum	
	35	1728.36	4.08951E-03	35.29		
	36	1742.43	2.68519E-03	42.73		
	38	1797.79	2.37847E-03	68.85		

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

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	1.52E-01	1.93E+00	1.93E+00
+		NA-22	1274.54		99.94	-1.54E-02	9.06E-02	9.06E-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	1.84E-03	4.81E-02	4.81E-02
+		K-40	1460.81	*	10.67	1.78E+01	9.96E-01	9.96E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-3.90E-02	5.20E-02	5.20E-02
			78.34		96.00	1.40E-01		6.56E-02
+		SC-46	889.25		99.98	4.41E-02	1.72E-01	1.72E-01
			1120.51		99.99	1.92E-01		2.60E-01
+		V-48	983.52		99.98	1.52E+00	5.20E+00	5.20E+00
			1312.10		97.50	4.25E-01		6.08E+00
+		CR-51	320.08		9.83	9.38E-01	6.57E+00	6.57E+00
+		MN-54	834.83		99.97	1.21E-03	9.70E-02	9.70E-02
+		CO-56	846.75		99.96	-6.76E-02	1.62E-01	1.62E-01
			1037.75		14.03	-1.09E-01		1.29E+00
			1238.25		67.00	1.42E-01		4.02E-01
			1771.40		15.51	-3.09E-01		1.08E+00
			2598.48		16.90	1.72E-01		7.75E-01
+		CO-57	122.06		85.51	-3.36E-02	5.39E-02	5.39E-02
			136.48		10.60	-4.02E-03		4.72E-01
+		CO-58	810.76		99.40	3.24E-02	1.88E-01	1.88E-01
+		FE-59	1099.22		56.50	2.99E-01	6.88E-01	6.88E-01
			1291.56		43.20	-2.22E-01		9.21E-01
+		CO-60	1173.22		100.00	1.68E-02	9.18E-02	9.42E-02
			1332.49		100.00	4.52E-02		9.18E-02
+		ZN-65	1115.52		50.75	2.02E-03	2.33E-01	2.33E-01
+		GA-67	93.31		35.70	2.24E+08	1.60E+08	1.60E+08
			208.95		2.24	3.13E+09		3.01E+09
			300.22		16.00	1.09E+08		4.36E+08
+		SE-75	121.11		16.70	-3.39E-01	1.17E-01	3.67E-01
			136.00		59.20	4.97E-03		1.17E-01
			264.65		59.80	-3.42E-02		1.52E-01
			279.53		25.20	-5.83E-02		3.77E-01
			400.65		11.40	3.98E-01		9.07E-01
+		RB-82	776.52		13.00	-5.11E+00	7.18E+00	7.18E+00
+		RB-83	520.41		46.00	6.09E-03	2.67E-01	2.67E-01
			529.64		30.30	9.88E-03		4.06E-01
			552.65		16.40	-8.23E-02		7.75E-01
+		KR-85	513.99		0.43	2.01E+01	1.95E+01	1.95E+01
+		SR-85	513.99		99.27	2.48E-01	2.39E-01	2.39E-01
+		Y-88	898.02		93.40	1.15E-02	1.28E-01	1.45E-01
			1836.01		99.38	-3.21E-04		1.28E-01
+		MO-93	263.06		56.72	7.14E-03	5.12E-02	9.26E-02
			684.67		99.68	-1.86E-02		5.90E-02
			1477.11		99.08	-3.71E-02		5.12E-02

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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	2.27E+01	5.67E+01	5.67E+01
+	NB-94	702.63		100.00	-9.53E-03	6.16E-02	6.74E-02
		871.10		100.00	-1.57E-02		6.16E-02
+	NB-95	765.79		99.81	4.61E-01	5.70E-01	5.70E-01
+	NB-95M	235.69		25.00	1.10E+07	4.85E+07	4.85E+07
+	ZR-95	724.18		43.70	-1.49E-02	3.53E-01	5.29E-01
		756.72		55.30	1.12E-01		3.53E-01
+	MO-99	181.06		6.20	-6.78E+09	3.33E+10	3.88E+10
		739.58		12.80	-1.35E+10		3.33E+10
		778.00		4.50	-1.31E+10		8.67E+10
+	RU-103	497.08		89.00	8.60E-03	3.79E-01	3.79E-01
+	RU-106	621.84		9.80	1.43E-01	7.72E-01	7.72E-01
+	AG-108M	433.93		89.90	1.49E-03	6.42E-02	6.42E-02
		614.37		90.40	-1.15E-01		8.94E-02
		722.95		90.50	5.90E-04		8.32E-02
+	CD-109	88.03	*	3.72	3.19E+00	3.17E+00	3.17E+00
+	AG-110M	657.75		93.14	-1.87E-02	8.83E-02	8.83E-02
		677.61		10.53	5.13E-01		8.90E-01
		706.67		16.46	3.03E-01		5.70E-01
		763.93		21.98	-4.80E-01		3.85E-01
		884.67		71.63	-6.31E-02		1.20E-01
		1384.27		23.94	2.29E-01		4.47E-01
+	CD-113M	263.70		0.02	-3.21E+01	2.26E+02	2.26E+02
+	SN-113	255.12		1.93	-8.02E-01	1.54E-01	4.76E+00
		391.69		64.90	9.01E-02		1.54E-01
+	TE123M	159.00		84.10	-3.56E-02	8.29E-02	8.29E-02
+	SB-124	602.71		97.87	-2.88E-02	1.90E-01	1.90E-01
		645.85		7.26	4.64E-01		2.41E+00
		722.78		11.10	1.49E-02		2.10E+00
		1691.02		49.00	7.40E-02		3.85E-01
+	I-125	35.49		6.49	3.52E+00	5.12E+00	5.12E+00
+	SB-125	176.33		6.89	-7.26E-02	1.99E-01	6.25E-01
		427.89		29.33	-7.80E-02		1.99E-01
		463.38		10.35	2.83E-01		6.61E-01
		600.56		17.80	-1.68E-01		3.15E-01
		635.90		11.32	-1.52E-01		5.30E-01
+	SB-126	414.70		83.30	-1.64E+01	1.58E+01	1.58E+01
		666.33		99.60	3.75E+00		1.73E+01
		695.00		99.60	-2.96E+00		1.60E+01
		720.50		53.80	1.23E+01		3.38E+01
+	SN-126	87.57	*	37.00	2.77E-01	2.75E-01	2.75E-01
+	SB-127	473.00		25.00	-1.76E+06	7.96E+06	1.09E+07
		685.20		35.70	-2.51E+06		7.96E+06
		783.80		14.70	2.08E+07		2.60E+07
+	I-129	29.78		57.00	-8.98E-02	3.13E-01	3.13E-01
		33.60		13.20	1.15E-01		9.33E-01
		39.58		7.52	-6.73E-01		1.05E+00
+	I-131	284.30		6.05	2.35E+03	3.26E+02	4.27E+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	3.55E+01	3.26E+02	3.26E+02
		636.97	7.26	4.41E+02		3.76E+03
		722.89	1.80	1.43E+02		2.01E+04
+	TE-132	49.72	13.10	-5.10E+08	6.86E+07	5.48E+08
		228.16	88.00	-4.75E+07		6.86E+07
+	BA-133	81.00	33.00	-2.60E-01	1.31E-01	1.53E-01
		302.84	17.80	2.33E-01		3.15E-01
		356.01	60.00	-3.95E-03		1.31E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-9.86E+04	5.78E+04	5.78E+04
+	CS-134	563.23	8.38	5.70E-01	7.87E-02	8.73E-01
		569.32	15.43	2.15E-02		4.53E-01
		604.70	97.60	1.81E-03		7.87E-02
		795.84	85.40	5.79E-02		9.37E-02
		801.93	8.73	-3.71E-02		8.20E-01
+	CS-135	268.24	16.00	-3.44E-02	3.45E-01	3.45E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	8.72E+00	1.19E+01	9.89E+01
		163.89	4.61	8.56E+01		1.60E+02
		176.55	13.56	-6.14E+00		5.29E+01
		273.65	12.66	-5.86E+00		7.74E+01
		340.57	48.50	3.25E+01		2.51E+01
		818.50	99.70	-1.60E+00		1.19E+01
		1048.07	79.60	-1.95E+00		1.51E+01
		1235.34	19.70	2.39E+01		9.93E+01
+	CS-137	661.65	85.12	-3.42E-03	8.01E-02	8.01E-02
+	LA-138	788.74	34.00	-9.26E-03	1.09E-01	2.10E-01
		1435.80	66.00	4.89E-03		1.09E-01
+	CE-139	165.85	80.35	-1.51E-02	8.20E-02	8.20E-02
+	BA-140	162.64	6.70	4.70E+01	4.67E+01	1.27E+02
		304.84	4.50	-5.74E+01		2.37E+02
		423.70	3.20	-1.38E+02		3.58E+02
		437.55	2.00	2.02E+02		6.09E+02
		537.32	25.00	5.97E-01		4.67E+01
+	LA-140	328.77	20.50	2.50E+01	1.54E+01	5.93E+01
		487.03	45.50	4.82E+00		2.73E+01
		815.85	23.50	-3.68E+01		5.78E+01
		1596.49	95.49	-7.06E+00		1.54E+01
+	CE-141	145.44	48.40	2.80E-01	7.21E-01	7.21E-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	1.12E-02	4.69E-01	4.69E-01
+	PM-144	476.78	42.00	3.36E-02	7.50E-02	1.63E-01
		618.01	98.60	7.13E-03		7.50E-02
		696.49	99.49	6.14E-03		8.22E-02
+	PM-145	36.85	21.70	9.84E-02	2.33E-01	4.46E-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	1.85E-02	2.33E-01	2.33E-01
		42.30	15.10	-7.24E-02		4.87E-01
		72.40	2.31	-3.19E+00		2.43E+00
+	PM-146	453.90	39.94	7.41E-03	1.44E-01	1.44E-01
		735.90	14.01	1.87E-01		5.57E-01
		747.13	13.10	3.94E-02		5.54E-01
+	ND-147	91.11	28.90	-1.77E+01	8.45E+01	8.45E+01
		531.02	13.10	-7.17E+00		2.11E+02
+	PM-149	285.90	3.10	2.52E+13	4.25E+13	4.25E+13
+	EU-152	121.78	20.50	-1.10E-01	1.77E-01	1.77E-01
		244.69	5.40	-1.44E-01		1.12E+00
		344.27	19.13	2.80E-02		2.80E-01
		778.89	9.20	2.41E-01		7.41E-01
		964.01	10.40	8.83E-02		8.24E-01
		1085.78	7.22	-5.99E-01		1.03E+00
		1112.02	9.60	1.13E-01		9.44E-01
		1407.95	14.94	2.88E-01		5.70E-01
+	GD-153	97.43	31.30	-1.43E-02	1.57E-01	1.57E-01
		103.18	22.20	1.87E-02		2.32E-01
+	EU-154	123.07	40.50	1.22E-03	9.21E-02	9.21E-02
		723.30	19.70	2.77E-03		3.90E-01
		873.19	11.50	3.58E-03		5.76E-01
		996.32	10.30	-1.82E-01		7.61E-01
		1004.76	17.90	-7.06E-02		4.50E-01
		1274.45	35.50	-4.11E-02		2.43E-01
+	EU-155	86.50	30.90	1.09E-01	1.64E-01	1.64E-01
		105.30	20.70	7.47E-02		1.96E-01
+	EU-156	811.77	10.40	1.14E+01	6.12E+01	6.12E+01
		1153.47	7.20	1.11E+01		1.12E+02
		1230.71	8.90	3.51E+01		1.06E+02
+	HO-166M	184.41	72.60	5.73E-02	6.91E-02	6.91E-02
		280.45	29.60	3.50E-03		1.80E-01
		410.94	11.10	1.78E-01		5.30E-01
		711.69	54.10	-5.64E-03		1.27E-01
+	TM-171	66.72	0.14	-1.26E+01	4.00E+01	4.00E+01
+	HF-172	67.35	5.31	-7.67E-01	3.73E-01	1.02E+00
		125.81	11.30	-2.07E-01		3.73E-01
+	LU-172	181.53	20.60	6.44E+02	3.23E+03	5.51E+03
		900.72	29.81	3.19E+03		6.50E+03
		1093.66	62.50	-3.61E+02		3.23E+03
+	LU-173	100.72	5.24	-1.20E-01	2.95E-01	8.28E-01
		272.11	21.20	-4.34E-02		2.95E-01
+	HF-175	343.40	84.00	1.66E-02	1.66E-01	1.66E-01
+	LU-176	88.34	13.30	7.30E-02	5.24E-02	3.72E-01
		201.83	86.00	7.60E-03		5.24E-02
		306.78	94.00	-2.30E-02		5.38E-02
+	HF-181	133.02	41.70	-1.27E-01	3.29E-01	4.78E-01
		345.85	17.20	1.54E-01		1.58E+00
		482.03	82.80	-8.32E-02		3.29E-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	-1.62E-01	2.16E-01	2.16E-01
		1121.30		34.90	5.40E-01		6.16E-01
		1189.05		16.23	8.51E-02		1.10E+00
		1221.41		26.98	1.45E-01		6.79E-01
		1231.02		11.44	5.57E-01		1.68E+00
+	IR-192	308.46		29.68	-1.63E-01	2.95E-01	4.31E-01
		468.07		48.10	-2.94E-02		2.95E-01
+	HG-203	279.19		77.30	3.30E-02	3.02E-01	3.02E-01
+	TL-204	374.74		94.11	-1.53E-02	6.33E-02	6.33E-02
		899.15		99.16	-2.74E-02		7.44E-02
		911.74		91.10	2.76E-01		1.46E-01
+	BI-207	569.67		97.72	3.06E-02	6.50E-02	6.50E-02
		1063.62		74.90	6.72E-02		1.23E-01
+	TL-208	583.14	*	30.22	8.32E-01	1.72E-01	5.11E-01
		860.37		4.48	1.79E-01		1.74E+00
		2614.66	*	35.85	8.73E-01		1.72E-01
+	BI-210M	262.00		45.00	9.84E-03	1.13E-01	1.13E-01
		300.00		23.00	6.31E-02		2.52E-01
+	PB-210	46.50		4.25	1.80E+00	1.61E+00	1.61E+00
+	PB-211	404.84		2.90	-1.95E-01	2.08E+00	2.08E+00
		831.96		2.90	-1.21E+00		2.56E+00
+	BI-212	727.17	*	11.80	7.05E-01	8.65E-01	8.65E-01
		1620.62		2.75	-6.94E-01		2.14E+00
+	PB-212	238.63	*	44.60	9.10E-01	1.87E-01	1.87E-01
		300.09		3.41	4.26E-01		1.70E+00
+	BI-214	609.31	*	46.30	7.81E-01	2.48E-01	2.48E-01
		1120.29	*	15.10	7.49E-01		1.27E+00
		1764.49	*	15.80	8.10E-01		2.82E-01
		2204.22	*	4.98	1.01E+00		1.72E+00
+	PB-214	295.21	*	19.19	8.08E-01	2.24E-01	3.45E-01
		351.92	*	37.19	9.25E-01		2.24E-01
+	RN-219	401.80		6.50	-1.65E-01	8.93E-01	8.93E-01
+	RA-223	323.87		3.88	-1.43E+00	1.41E+00	1.41E+00
+	RA-224	240.98	*	3.95	2.82E+00	2.16E+00	2.16E+00
+	RA-225	40.00		31.00	-1.60E+01	2.49E+01	2.49E+01
+	RA-226	186.21	*	3.28	1.73E+00	1.83E+00	1.83E+00
+	TH-227	50.10		8.40	-6.43E-01	6.62E-01	6.91E-01
		236.00		11.50	1.50E-01		6.62E-01
		256.20		6.30	-2.97E-01		8.00E-01
+	AC-228	338.32	*	11.40	8.41E-01	4.23E-01	6.70E-01
		911.07	*	27.70	7.74E-01		4.23E-01
		969.11	*	16.60	5.69E-01		5.64E-01
+	TH-230	48.44		16.90	1.87E-01	3.73E-01	3.73E-01
		62.85		4.60	1.18E+00		1.18E+00
		67.67		0.37	-9.94E+00		1.32E+01
+	PA-231	283.67		1.60	5.43E-01	2.39E+00	3.28E+00
		302.67		2.30	1.77E+00		2.39E+00
+	TH-231	25.64		14.70	-2.61E-01	7.12E-01	2.27E+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	-4.78E-01	7.12E-01	7.12E-01
+	PA-233	311.98		38.60	8.75E-01	1.74E+00	1.74E+00
+	PA-234	131.20		20.40	1.00E-01	2.03E-01	2.03E-01
		733.99		8.80	9.12E-02		8.50E-01
		946.00		12.00	1.22E-01		6.60E-01
+	PA-234M	1001.03		0.92	-6.61E-01	8.88E+00	8.88E+00
+	TH-234	63.29		3.80	1.15E+00	1.41E+00	1.41E+00
+	U-235	143.76		10.50	-3.84E-02	3.92E-01	3.92E-01
		163.35		4.70	4.71E-01		8.78E-01
		205.31		4.70	3.72E-01		1.15E+00
+	NP-237	86.50		12.60	2.57E-01	3.88E-01	3.88E-01
+	NP-239	106.10		22.70	2.46E+11	6.45E+11	6.45E+11
		228.18		10.70	-1.20E+12		1.73E+12
		277.60		14.10	3.79E+11		1.43E+12
+	AM-241	59.54		35.90	8.62E-03	1.42E-01	1.42E-01
+	AM-243	74.67	*	66.00	2.18E-01	1.33E-01	1.33E-01
+	CM-243	209.75	*	3.29	1.95E+00	4.10E-01	1.94E+00
		228.14		10.60	-3.25E-01		4.69E-01
		277.60	*	14.00	2.23E-01		4.10E-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	1.93E+00	1.93E+00	1.52E-01	9.11E-01
	NA-22	1274.54	99.94	9.06E-02	9.06E-02	-1.54E-02	4.13E-02
@	NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	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	4.81E-02	4.81E-02	1.84E-03	1.91E-02
+	K-40	1460.81	*	10.67	9.96E-01	9.96E-01	1.78E+01	4.59E-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	5.20E-02	5.20E-02	-3.90E-02	2.54E-02
		78.34		96.00	6.56E-02		1.40E-01	3.23E-02
	SC-46	889.25		99.98	1.72E-01	1.72E-01	4.41E-02	7.98E-02
		1120.51		99.99	2.60E-01		1.92E-01	1.23E-01
	V-48	983.52		99.98	5.20E+00	5.20E+00	1.52E+00	2.38E+00
		1312.10		97.50	6.08E+00		4.25E-01	2.75E+00
	CR-51	320.08		9.83	6.57E+00	6.57E+00	9.38E-01	3.15E+00
	MN-54	834.83		99.97	9.70E-02	9.70E-02	1.21E-03	4.52E-02
	CO-56	846.75		99.96	1.62E-01	1.62E-01	-6.76E-02	7.44E-02
		1037.75		14.03	1.29E+00		-1.09E-01	5.92E-01
		1238.25		67.00	4.02E-01		1.42E-01	1.88E-01
		1771.40		15.51	1.08E+00		-3.09E-01	4.64E-01
		2598.48		16.90	7.75E-01		1.72E-01	3.00E-01
	CO-57	122.06		85.51	5.39E-02	5.39E-02	-3.36E-02	2.61E-02
		136.48		10.60	4.72E-01		-4.02E-03	2.29E-01
	CO-58	810.76		99.40	1.88E-01	1.88E-01	3.24E-02	8.74E-02
	FE-59	1099.22		56.50	6.88E-01	6.88E-01	2.99E-01	3.17E-01
		1291.56		43.20	9.21E-01		-2.22E-01	4.20E-01
	CO-60	1173.22		100.00	9.42E-02	9.18E-02	1.68E-02	4.35E-02
		1332.49		100.00	9.18E-02		4.52E-02	4.18E-02
	ZN-65	1115.52		50.75	2.33E-01	2.33E-01	2.02E-03	1.08E-01
	GA-67	93.31		35.70	1.60E+08	1.60E+08	2.24E+08	7.81E+07
		208.95		2.24	3.01E+09		3.13E+09	1.46E+09
		300.22		16.00	4.36E+08		1.09E+08	2.10E+08
	SE-75	121.11		16.70	3.67E-01	1.17E-01	-3.39E-01	1.77E-01
		136.00		59.20	1.17E-01		4.97E-03	5.70E-02
		264.65		59.80	1.52E-01		-3.42E-02	7.34E-02
		279.53		25.20	3.77E-01		-5.83E-02	1.82E-01
		400.65		11.40	9.07E-01		3.98E-01	4.32E-01
	RB-82	776.52		13.00	7.18E+00	7.18E+00	-5.11E+00	3.32E+00
	RB-83	520.41		46.00	2.67E-01	2.67E-01	6.09E-03	1.25E-01
		529.64		30.30	4.06E-01		9.88E-03	1.90E-01
		552.65		16.40	7.75E-01		-8.23E-02	3.63E-01
	KR-85	513.99		0.43	1.95E+01	1.95E+01	2.01E+01	9.34E+00
	SR-85	513.99		99.27	2.39E-01	2.39E-01	2.48E-01	1.15E-01
	Y-88	898.02		93.40	1.45E-01	1.28E-01	1.15E-02	6.69E-02
		1836.01		99.38	1.28E-01		-3.21E-04	5.45E-02
	MO-93	263.06		56.72	9.26E-02	5.12E-02	7.14E-03	4.46E-02
		684.67		99.68	5.90E-02		-1.86E-02	2.73E-02
		1477.11		99.08	5.12E-02		-3.71E-02	2.12E-02
	NB-93M	16.57		9.43	5.67E+01	5.67E+01	2.27E+01	2.76E+01
	NB-94	702.63		100.00	6.74E-02	6.16E-02	-9.53E-03	3.14E-02
		871.10		100.00	6.16E-02		-1.57E-02	2.81E-02
	NB-95	765.79		99.81	5.70E-01	5.70E-01	4.61E-01	2.68E-01
	NB-95M	235.69		25.00	4.85E+07	4.85E+07	1.10E+07	2.37E+07
	ZR-95	724.18		43.70	5.29E-01	3.53E-01	-1.49E-02	2.49E-01
		756.72		55.30	3.53E-01		1.12E-01	1.64E-01
	MO-99	181.06		6.20	3.88E+10	3.33E+10	-6.78E+09	1.87E+10
		739.58		12.80	3.33E+10		-1.35E+10	1.56E+10

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	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	8.67E+10	3.33E+10	-1.31E+10	4.02E+10
	RU-103	497.08		89.00	3.79E-01	3.79E-01	8.60E-03	1.79E-01
	RU-106	621.84		9.80	7.72E-01	7.72E-01	1.43E-01	3.61E-01
	AG-108M	433.93		89.90	6.42E-02	6.42E-02	1.49E-03	3.05E-02
		614.37		90.40	8.94E-02		-1.15E-01	4.25E-02
		722.95		90.50	8.32E-02		5.90E-04	3.90E-02
+	CD-109	88.03	*	3.72	3.17E+00	3.17E+00	3.19E+00	1.57E+00
	AG-110M	657.75		93.14	8.83E-02	8.83E-02	-1.87E-02	4.12E-02
		677.61		10.53	8.90E-01		5.13E-01	4.18E-01
		706.67		16.46	5.70E-01		3.03E-01	2.67E-01
		763.93		21.98	3.85E-01		-4.80E-01	1.78E-01
		884.67		71.63	1.20E-01		-6.31E-02	5.51E-02
		1384.27		23.94	4.47E-01		2.29E-01	2.02E-01
	CD-113M	263.70		0.02	2.26E+02	2.26E+02	-3.21E+01	1.09E+02
	SN-113	255.12		1.93	4.76E+00	1.54E-01	-8.02E-01	2.29E+00
		391.69		64.90	1.54E-01		9.01E-02	7.34E-02
	TE123M	159.00		84.10	8.29E-02	8.29E-02	-3.56E-02	4.01E-02
	SB-124	602.71		97.87	1.90E-01	1.90E-01	-2.88E-02	8.88E-02
		645.85		7.26	2.41E+00		4.64E-01	1.12E+00
		722.78		11.10	2.10E+00		1.49E-02	9.86E-01
		1691.02		49.00	3.85E-01		7.40E-02	1.62E-01
	I-125	35.49		6.49	5.12E+00	5.12E+00	3.52E+00	2.49E+00
	SB-125	176.33		6.89	6.25E-01	1.99E-01	-7.26E-02	3.02E-01
		427.89		29.33	1.99E-01		-7.80E-02	9.42E-02
		463.38		10.35	6.61E-01		2.83E-01	3.15E-01
		600.56		17.80	3.15E-01		-1.68E-01	1.46E-01
		635.90		11.32	5.30E-01		-1.52E-01	2.46E-01
	SB-126	414.70		83.30	1.58E+01	1.58E+01	-1.64E+01	7.47E+00
		666.33		99.60	1.73E+01		3.75E+00	8.14E+00
		695.00		99.60	1.60E+01		-2.96E+00	7.46E+00
		720.50		53.80	3.38E+01		1.23E+01	1.59E+01
+	SN-126	87.57	*	37.00	2.75E-01	2.75E-01	2.77E-01	1.36E-01
	SB-127	473.00		25.00	1.09E+07	7.96E+06	-1.76E+06	5.13E+06
		685.20		35.70	7.96E+06		-2.51E+06	3.68E+06
		783.80		14.70	2.60E+07		2.08E+07	1.22E+07
	I-129	29.78		57.00	3.13E-01	3.13E-01	-8.98E-02	1.52E-01
		33.60		13.20	9.33E-01		1.15E-01	4.53E-01
		39.58		7.52	1.05E+00		-6.73E-01	5.11E-01
	I-131	284.30		6.05	4.27E+03	3.26E+02	2.35E+03	2.06E+03
		364.48		81.20	3.26E+02		3.55E+01	1.56E+02
		636.97		7.26	3.76E+03		4.41E+02	1.74E+03
		722.89		1.80	2.01E+04		1.43E+02	9.44E+03
	TE-132	49.72		13.10	5.48E+08	6.86E+07	-5.10E+08	2.67E+08
		228.16		88.00	6.86E+07		-4.75E+07	3.31E+07
	BA-133	81.00		33.00	1.53E-01	1.31E-01	-2.60E-01	7.47E-02
		302.84		17.80	3.15E-01		2.33E-01	1.52E-01
		356.01		60.00	1.31E-01		-3.95E-03	6.36E-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	5.78E+04	5.78E+04	-9.86E+04	2.83E+04
	CS-134	563.23		8.38	8.73E-01	7.87E-02	5.70E-01	4.12E-01
		569.32		15.43	4.53E-01		2.15E-02	2.13E-01
		604.70		97.60	7.87E-02		1.81E-03	3.72E-02
		795.84		85.40	9.37E-02		5.79E-02	4.36E-02

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

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	8.20E-01	7.87E-02	-3.71E-02	3.78E-01
CS-135	268.24	16.00	3.45E-01	3.45E-01	-3.44E-02	1.66E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	9.89E+01	1.19E+01	8.72E+00	4.80E+01
	163.89	4.61	1.60E+02		8.56E+01	7.73E+01
	176.55	13.56	5.29E+01		-6.14E+00	2.55E+01
	273.65	12.66	7.74E+01		-5.86E+00	3.73E+01
	340.57	48.50	2.51E+01		3.25E+01	1.21E+01
	818.50	99.70	1.19E+01		-1.60E+00	5.48E+00
	1048.07	79.60	1.51E+01		-1.95E+00	6.84E+00
	1235.34	19.70	9.93E+01		2.39E+01	4.64E+01
CS-137	661.65	85.12	8.01E-02	8.01E-02	-3.42E-03	3.75E-02
LA-138	788.74	34.00	2.10E-01	1.09E-01	-9.26E-03	9.77E-02
	1435.80	66.00	1.09E-01		4.89E-03	4.84E-02
CE-139	165.85	80.35	8.20E-02	8.20E-02	-1.51E-02	3.97E-02
BA-140	162.64	6.70	1.27E+02	4.67E+01	4.70E+01	6.16E+01
	304.84	4.50	2.37E+02		-5.74E+01	1.14E+02
	423.70	3.20	3.58E+02		-1.38E+02	1.70E+02
	437.55	2.00	6.09E+02		2.02E+02	2.89E+02
	537.32	25.00	4.67E+01		5.97E-01	2.19E+01
LA-140	328.77	20.50	5.93E+01	1.54E+01	2.50E+01	2.85E+01
	487.03	45.50	2.73E+01		4.82E+00	1.29E+01
	815.85	23.50	5.78E+01		-3.68E+01	2.66E+01
	1596.49	95.49	1.54E+01		-7.06E+00	6.72E+00
CE-141	145.44	48.40	7.21E-01	7.21E-01	2.80E-01	3.51E-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	4.69E-01	4.69E-01	1.12E-02	2.28E-01
PM-144	476.78	42.00	1.63E-01	7.50E-02	3.36E-02	7.68E-02
	618.01	98.60	7.50E-02		7.13E-03	3.51E-02
	696.49	99.49	8.22E-02		6.14E-03	3.84E-02
PM-145	36.85	21.70	4.46E-01	2.33E-01	9.84E-02	2.17E-01
	37.36	39.70	2.33E-01		1.85E-02	1.13E-01
	42.30	15.10	4.87E-01		-7.24E-02	2.37E-01
	72.40	2.31	2.43E+00		-3.19E+00	1.19E+00
PM-146	453.90	39.94	1.44E-01	1.44E-01	7.41E-03	6.79E-02
	735.90	14.01	5.57E-01		1.87E-01	2.61E-01
	747.13	13.10	5.54E-01		3.94E-02	2.58E-01
ND-147	91.11	28.90	8.45E+01	8.45E+01	-1.77E+01	4.13E+01
	531.02	13.10	2.11E+02		-7.17E+00	9.89E+01
PM-149	285.90	3.10	4.25E+13	4.25E+13	2.52E+13	2.05E+13
EU-152	121.78	20.50	1.77E-01	1.77E-01	-1.10E-01	8.57E-02
	244.69	5.40	1.12E+00		-1.44E-01	5.41E-01
	344.27	19.13	2.80E-01		2.80E-02	1.34E-01
	778.89	9.20	7.41E-01		2.41E-01	3.44E-01
	964.01	10.40	8.24E-01		8.83E-02	3.83E-01
	1085.78	7.22	1.03E+00		-5.99E-01	4.71E-01
	1112.02	9.60	9.44E-01		1.13E-01	4.36E-01
	1407.95	14.94	5.70E-01		2.88E-01	2.57E-01
GD-153	97.43	31.30	1.57E-01	1.57E-01	-1.43E-02	7.61E-02

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	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	2.32E-01	1.57E-01	1.87E-02	1.13E-01
	EU-154	123.07		40.50	9.21E-02	9.21E-02	1.22E-03	4.47E-02
		723.30		19.70	3.90E-01		2.77E-03	1.83E-01
		873.19		11.50	5.76E-01		3.58E-03	2.64E-01
		996.32		10.30	7.61E-01		-1.82E-01	3.50E-01
		1004.76		17.90	4.50E-01		-7.06E-02	2.07E-01
		1274.45		35.50	2.43E-01		-4.11E-02	1.10E-01
	EU-155	86.50		30.90	1.64E-01	1.64E-01	1.09E-01	8.04E-02
		105.30		20.70	1.96E-01		7.47E-02	9.53E-02
	EU-156	811.77		10.40	6.12E+01	6.12E+01	1.14E+01	2.84E+01
		1153.47		7.20	1.12E+02		1.11E+01	5.16E+01
		1230.71		8.90	1.06E+02		3.51E+01	4.92E+01
	HO-166M	184.41		72.60	6.91E-02	6.91E-02	5.73E-02	3.36E-02
		280.45		29.60	1.80E-01		3.50E-03	8.67E-02
		410.94		11.10	5.30E-01		1.78E-01	2.53E-01
		711.69		54.10	1.27E-01		-5.64E-03	5.92E-02
	TM-171	66.72		0.14	4.00E+01	4.00E+01	-1.26E+01	1.96E+01
	HF-172	67.35		5.31	1.02E+00	3.73E-01	-7.67E-01	5.00E-01
		125.81		11.30	3.73E-01		-2.07E-01	1.81E-01
	LU-172	181.53		20.60	5.51E+03	3.23E+03	6.44E+02	2.67E+03
		900.72		29.81	6.50E+03		3.19E+03	3.00E+03
		1093.66		62.50	3.23E+03		-3.61E+02	1.48E+03
	LU-173	100.72		5.24	8.28E-01	2.95E-01	-1.20E-01	4.03E-01
		272.11		21.20	2.95E-01		-4.34E-02	1.42E-01
	HF-175	343.40		84.00	1.66E-01	1.66E-01	1.66E-02	7.93E-02
	LU-176	88.34		13.30	3.72E-01	5.24E-02	7.30E-02	1.82E-01
		201.83		86.00	5.24E-02		7.60E-03	2.53E-02
		306.78		94.00	5.38E-02		-2.30E-02	2.58E-02
	HF-181	133.02		41.70	4.78E-01	3.29E-01	-1.27E-01	2.32E-01
		345.85		17.20	1.58E+00		1.54E-01	7.54E-01
		482.03		82.80	3.29E-01		-8.32E-02	1.55E-01
	TA-182	67.75		41.20	2.16E-01	2.16E-01	-1.62E-01	1.05E-01
		1121.30		34.90	6.16E-01		5.40E-01	2.91E-01
		1189.05		16.23	1.10E+00		8.51E-02	5.12E-01
		1221.41		26.98	6.79E-01		1.45E-01	3.15E-01
		1231.02		11.44	1.68E+00		5.57E-01	7.81E-01
	IR-192	308.46		29.68	4.31E-01	2.95E-01	-1.63E-01	2.06E-01
		468.07		48.10	2.95E-01		-2.94E-02	1.39E-01
	HG-203	279.19		77.30	3.02E-01	3.02E-01	3.30E-02	1.46E-01
	TL-204	374.74		94.11	6.33E-02	6.33E-02	-1.53E-02	3.02E-02
		899.15		99.16	7.44E-02		-2.74E-02	3.42E-02
		911.74		91.10	1.46E-01		2.76E-01	6.95E-02
	BI-207	569.67		97.72	6.50E-02	6.50E-02	3.06E-02	3.06E-02
		1063.62		74.90	1.23E-01		6.72E-02	5.70E-02
+	TL-208	583.14	*	30.22	5.11E-01	1.72E-01	8.32E-01	2.49E-01
		860.37		4.48	1.74E+00		1.79E-01	8.07E-01
		2614.66	*	35.85	1.72E-01		8.73E-01	6.87E-02
	BI-210M	262.00		45.00	1.13E-01	1.13E-01	9.84E-03	5.46E-02
		300.00		23.00	2.52E-01		6.31E-02	1.22E-01
	PB-210	46.50		4.25	1.61E+00	1.61E+00	1.80E+00	7.86E-01
	PB-211	404.84		2.90	2.08E+00	2.08E+00	-1.95E-01	9.94E-01
		831.96		2.90	2.56E+00		-1.21E+00	1.19E+00
+	BI-212	727.17	*	11.80	8.65E-01	8.65E-01	7.05E-01	4.13E-01

Analysis Report for 1707086-15

HTC-A03-S001-1218-01

	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	2.14E+00	8.65E-01	-6.94E-01	9.03E-01
+	PB-212	238.63	*	44.60	1.87E-01	1.87E-01	9.10E-01	9.18E-02
		300.09		3.41	1.70E+00		4.26E-01	8.20E-01
+	BI-214	609.31	*	46.30	2.48E-01	2.48E-01	7.81E-01	1.20E-01
		1120.29	*	15.10	1.27E+00		7.49E-01	6.15E-01
		1764.49	*	15.80	2.82E-01		8.10E-01	1.10E-01
		2204.22	*	4.98	1.72E+00		1.01E+00	7.47E-01
+	PB-214	295.21	*	19.19	3.45E-01	2.24E-01	8.08E-01	1.67E-01
		351.92	*	37.19	2.24E-01		9.25E-01	1.09E-01
	RN-219	401.80		6.50	8.93E-01	8.93E-01	-1.65E-01	4.26E-01
	RA-223	323.87		3.88	1.41E+00	1.41E+00	-1.43E+00	6.78E-01
+	RA-224	240.98	*	3.95	2.16E+00	2.16E+00	2.82E+00	1.06E+00
	RA-225	40.00		31.00	2.49E+01	2.49E+01	-1.60E+01	1.21E+01
+	RA-226	186.21	*	3.28	1.83E+00	1.83E+00	1.73E+00	8.92E-01
	TH-227	50.10		8.40	6.91E-01	6.62E-01	-6.43E-01	3.37E-01
		236.00		11.50	6.62E-01		1.50E-01	3.24E-01
		256.20		6.30	8.00E-01		-2.97E-01	3.85E-01
+	AC-228	338.32	*	11.40	6.70E-01	4.23E-01	8.41E-01	3.25E-01
		911.07	*	27.70	4.23E-01		7.74E-01	2.01E-01
		969.11	*	16.60	5.64E-01		5.69E-01	2.64E-01
	TH-230	48.44		16.90	3.73E-01	3.73E-01	1.87E-01	1.82E-01
		62.85		4.60	1.18E+00		1.18E+00	5.75E-01
		67.67		0.37	1.32E+01		-9.94E+00	6.48E+00
	PA-231	283.67		1.60	3.28E+00	2.39E+00	5.43E-01	1.58E+00
		302.67		2.30	2.39E+00		1.77E+00	1.15E+00
	TH-231	25.64		14.70	2.27E+00	7.12E-01	-2.61E-01	1.10E+00
		84.21		6.40	7.12E-01		-4.78E-01	3.48E-01
	PA-233	311.98		38.60	1.74E+00	1.74E+00	8.75E-01	8.35E-01
	PA-234	131.20		20.40	2.03E-01	2.03E-01	1.00E-01	9.87E-02
		733.99		8.80	8.50E-01		9.12E-02	3.99E-01
		946.00		12.00	6.60E-01		1.22E-01	3.05E-01
	PA-234M	1001.03		0.92	8.88E+00	8.88E+00	-6.61E-01	4.10E+00
	TH-234	63.29		3.80	1.41E+00	1.41E+00	1.15E+00	6.91E-01
	U-235	143.76		10.50	3.92E-01	3.92E-01	-3.84E-02	1.90E-01
		163.35		4.70	8.78E-01		4.71E-01	4.25E-01
		205.31		4.70	1.15E+00		3.72E-01	5.61E-01
	NP-237	86.50		12.60	3.88E-01	3.88E-01	2.57E-01	1.90E-01
	NP-239	106.10		22.70	6.45E+11	6.45E+11	2.46E+11	3.14E+11
		228.18		10.70	1.73E+12		-1.20E+12	8.34E+11
		277.60		14.10	1.43E+12		3.79E+11	6.87E+11
	AM-241	59.54		35.90	1.42E-01	1.42E-01	8.62E-03	6.91E-02
+	AM-243	74.67	*	66.00	1.33E-01	1.33E-01	2.18E-01	6.56E-02
+	CM-243	209.75	*	3.29	1.94E+00	4.10E-01	1.95E+00	9.44E-01
		228.14		10.60	4.69E-01		-3.25E-01	2.26E-01
		277.60	*	14.00	4.10E-01		2.23E-01	1.98E-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 1707086-15

HTC-A03-S001-1218-01

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-A03-S001-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	1	160	163	137	125	106	111	99
17:	87	95	67	71	78	95	93	74
25:	84	71	93	82	76	77	69	89
33:	78	79	90	84	90	92	70	82
41:	77	88	97	101	98	105	135	135
49:	94	79	113	97	117	106	97	92
57:	98	102	115	110	129	125	127	172
65:	167	125	118	148	127	128	134	137
73:	145	166	304	287	304	379	264	131
81:	116	128	104	113	137	133	146	171
89:	146	134	155	129	175	185	114	83
97:	79	79	82	85	97	77	82	94
105:	92	91	87	78	87	76	77	97
113:	91	72	71	71	79	94	54	60
121:	68	68	63	74	71	89	64	71
129:	90	102	79	80	68	76	80	76
137:	68	63	66	75	65	64	72	70
145:	90	78	86	77	81	71	67	73
153:	73	69	70	70	58	64	68	53
161:	59	61	71	69	61	58	54	54
169:	63	57	60	59	54	42	67	61
177:	59	45	41	58	64	56	59	66
185:	62	98	117	85	52	62	69	62
193:	53	62	52	50	59	58	62	63
201:	47	49	74	47	57	42	57	56
209:	67	85	69	41	45	34	46	40
217:	48	56	51	41	43	47	49	46
225:	49	35	50	36	40	38	29	44
233:	51	47	30	40	49	107	315	273
241:	101	105	73	40	46	34	31	32
249:	35	38	41	37	32	41	47	25
257:	32	29	31	38	36	26	36	38
265:	29	35	33	38	26	50	53	32
273:	32	33	26	35	43	39	34	33
281:	25	27	32	37	38	28	29	34
289:	27	22	30	20	38	29	94	127
297:	58	29	25	33	36	31	28	28
305:	27	29	20	20	20	29	23	33
313:	31	27	28	23	26	21	35	26
321:	27	27	30	33	20	27	22	42
329:	38	24	29	27	24	26	21	30
337:	26	57	77	46	26	17	20	26
345:	26	18	20	25	26	25	40	171
353:	166	60	20	18	18	16	21	23
361:	18	26	24	18	13	20	26	23

369:	15	26	21	19	17	27	18	31

Sample Title: HTC-A03-S001-1218-01

Channel								
377:	23	17	29	19	21	19	16	20
385:	16	13	20	13	23	12	14	20
393:	21	23	20	11	14	21	20	23
401:	14	24	19	22	18	22	27	18
409:	23	27	21	17	17	15	8	16
417:	19	20	20	27	21	13	18	20
425:	14	14	15	18	15	17	16	18
433:	18	12	11	22	22	22	13	14
441:	19	14	16	14	18	13	10	9
449:	13	19	7	18	14	17	17	17
457:	11	12	13	17	17	17	24	29
465:	16	11	17	17	14	10	14	11
473:	17	15	15	11	11	16	13	15
481:	13	9	12	17	8	15	14	16
489:	15	20	15	18	16	13	16	13
497:	11	13	12	21	16	7	12	13
505:	13	16	16	22	21	34	54	52
513:	24	20	14	7	15	12	14	10
521:	7	17	8	10	11	11	12	13
529:	9	12	9	9	12	11	10	11
537:	7	14	11	12	15	7	20	9
545:	16	9	11	12	7	8	9	11
553:	11	13	9	14	15	11	13	15
561:	15	17	17	14	10	11	9	7
569:	9	13	23	16	9	11	5	12
577:	8	18	9	11	10	22	63	72
585:	45	15	11	18	6	11	9	9
593:	8	11	11	14	10	9	7	6
601:	6	4	14	6	14	19	9	30
609:	78	99	64	17	9	9	8	11
617:	7	7	15	14	7	10	8	6
625:	12	12	9	10	10	7	11	9
633:	8	4	8	8	4	10	12	9
641:	8	4	6	11	6	9	4	7
649:	10	8	6	7	7	5	8	9
657:	11	12	9	5	10	15	12	12
665:	12	11	10	13	11	9	8	8
673:	8	7	14	6	10	16	11	12
681:	11	10	6	7	7	9	7	4
689:	9	5	11	9	9	10	11	7
697:	9	8	9	14	9	10	3	8
705:	9	13	9	14	13	8	6	10
713:	5	12	13	10	7	15	13	13
721:	8	11	5	13	8	21	23	18
729:	17	9	11	9	9	9	10	13
737:	15	8	13	6	10	16	4	13
745:	14	3	10	12	5	7	7	9
753:	9	9	12	12	8	4	5	7
761:	3	7	4	13	7	4	13	20
769:	23	11	7	9	19	6	6	8
777:	7	9	2	12	10	6	4	8
785:	13	15	17	3	5	8	5	7
793:	6	10	18	9	8	4	7	9

801:	1	6	9	7	9	6	10	7

Sample Title: HTC-A03-S001-1218-01

Channel								
809:	5	6	8	13	11	7	7	6
817:	6	3	7	12	7	7	6	10
825:	5	4	13	8	4	5	14	9
833:	8	9	10	12	11	6	7	11
841:	9	14	6	8	8	7	7	4
849:	8	5	10	6	8	5	8	10
857:	7	5	11	16	8	9	5	7
865:	8	8	6	1	6	5	3	9
873:	6	6	2	9	9	6	7	6
881:	8	5	8	7	2	2	9	7
889:	8	10	8	11	6	11	6	6
897:	5	7	8	9	6	4	5	11
905:	6	2	9	6	12	21	44	49
913:	18	4	5	4	5	7	6	4
921:	5	5	12	7	9	8	4	8
929:	5	2	2	7	13	4	16	5
937:	2	6	5	8	9	3	6	14
945:	6	9	4	6	8	9	5	5
953:	6	4	6	5	5	1	5	8
961:	8	3	11	8	12	11	6	12
969:	27	23	11	3	5	6	5	4
977:	5	9	6	3	6	5	12	2
985:	6	3	7	5	4	13	3	7
993:	4	10	3	11	6	5	6	11
1001:	8	7	5	9	6	8	5	7
1009:	5	7	4	10	6	6	8	5
1017:	8	6	11	7	6	3	6	6
1025:	5	7	8	14	6	2	8	7
1033:	8	6	9	2	5	1	11	6
1041:	7	7	5	2	5	2	7	2
1049:	4	5	6	8	13	4	3	4
1057:	11	7	8	9	11	9	14	6
1065:	5	7	6	2	5	6	13	6
1073:	5	9	8	7	3	5	7	3
1081:	7	8	6	4	7	5	6	2
1089:	5	8	7	2	7	6	4	8
1097:	4	5	6	8	11	4	7	1
1105:	7	4	6	5	9	3	10	6
1113:	13	5	5	8	7	7	10	22
1121:	20	13	8	12	5	9	9	7
1129:	8	3	9	6	5	5	1	11
1137:	7	8	9	11	5	6	6	7
1145:	9	9	8	6	7	5	8	8
1153:	6	6	7	9	2	11	6	5
1161:	5	10	5	4	8	9	5	5
1169:	4	8	6	9	6	5	7	7
1177:	9	5	7	8	12	7	12	2
1185:	7	9	8	10	11	6	7	5
1193:	10	9	8	7	2	5	8	8
1201:	8	5	5	4	12	6	5	11
1209:	9	7	8	14	7	9	8	11
1217:	4	12	10	10	6	7	4	7
1225:	8	5	7	8	14	4	9	7

1233:	10	9	4	11	9	16	9	10

Sample Title: HTC-A03-S001-1218-01

Channel								
1241:	11	7	6	7	7	12	4	4
1249:	6	7	4	5	7	5	3	7
1257:	9	5	4	3	8	5	7	2
1265:	8	4	3	3	1	4	5	6
1273:	5	4	6	5	4	8	8	8
1281:	8	7	6	3	4	3	4	6
1289:	5	2	4	6	7	6	8	9
1297:	5	6	2	3	3	8	2	6
1305:	6	5	5	3	7	4	3	2
1313:	4	6	6	8	1	4	3	2
1321:	4	4	5	0	8	6	2	1
1329:	8	4	3	6	7	2	6	4
1337:	4	2	6	5	4	4	6	3
1345:	5	2	2	3	2	3	2	1
1353:	5	3	4	3	1	3	3	1
1361:	5	1	2	2	2	5	3	2
1369:	2	0	3	4	1	0	3	2
1377:	5	6	3	1	3	5	5	2
1385:	6	4	3	2	2	1	3	3
1393:	2	7	4	1	4	1	2	3
1401:	11	5	2	1	4	5	6	6
1409:	3	3	2	1	4	1	3	2
1417:	1	1	2	0	1	7	2	1
1425:	2	3	3	3	0	4	6	1
1433:	2	4	2	2	3	2	5	1
1441:	3	3	3	1	2	3	4	1
1449:	5	4	6	3	2	3	2	4
1457:	3	15	61	173	201	128	29	6
1465:	1	1	0	0	4	2	3	5
1473:	2	1	0	1	1	0	2	0
1481:	1	2	0	1	5	0	2	0
1489:	4	5	1	2	2	0	3	3
1497:	1	3	1	2	1	3	2	2
1505:	0	1	4	1	2	2	2	1
1513:	3	4	2	0	3	1	4	2
1521:	2	0	3	2	2	1	1	1
1529:	1	2	0	2	2	1	1	1
1537:	4	1	2	1	0	3	2	3
1545:	1	0	0	1	1	0	0	1
1553:	1	2	0	1	0	0	3	1
1561:	2	1	4	4	1	2	2	2
1569:	0	1	1	0	0	1	0	0
1577:	1	5	1	2	2	2	2	1
1585:	1	1	1	6	6	1	4	3
1593:	4	3	2	0	2	1	1	0
1601:	5	1	0	1	3	2	0	2
1609:	1	0	0	1	1	0	4	1
1617:	0	1	1	1	4	0	2	0
1625:	1	2	2	2	1	4	0	5
1633:	1	3	1	1	1	1	3	0
1641:	1	2	2	1	1	1	0	0
1649:	1	1	1	1	0	1	1	0
1657:	1	3	0	2	2	3	2	0

1665:	0	0	1	2	0	0	0	2

Sample Title: HTC-A03-S001-1218-01

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

2097:	1	1	0	0	2	1	1	1

Sample Title: HTC-A03-S001-1218-01

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

2529:	0	0	0	0	0	1	0	0

Sample Title: HTC-A03-S001-1218-01

Channel								
2537:	0	0	0	2	0	0	1	0
2545:	1	0	0	0	0	0	0	0
2553:	1	0	0	0	1	0	0	0
2561:	1	0	1	0	0	0	0	0
2569:	1	0	0	0	0	0	0	0
2577:	0	1	1	2	1	0	0	0
2585:	1	1	1	0	0	0	0	0
2593:	2	0	2	0	2	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	2	0	2	9	16	24	11	8
2617:	0	1	0	0	1	0	0	0
2625:	0	0	0	0	0	0	1	1
2633:	0	0	0	0	0	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	1	0	0	1	0	0	0	0
2657:	0	0	0	0	1	0	0	0
2665:	0	0	1	0	0	0	0	0
2673:	0	0	0	0	0	0	0	1
2681:	1	0	2	0	0	0	0	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	1	0	0	0	0	0	0
2713:	1	0	0	0	0	0	1	0
2721:	0	1	0	0	0	0	0	0
2729:	0	0	1	0	0	0	0	0
2737:	1	0	0	0	0	0	1	0
2745:	0	0	0	0	0	1	2	0
2753:	0	1	0	0	0	1	0	0
2761:	1	0	0	0	0	1	0	2
2769:	0	0	0	1	0	0	0	0
2777:	1	0	0	0	0	0	0	1
2785:	0	0	0	0	0	0	0	2
2793:	1	0	0	0	0	0	0	1
2801:	0	1	1	0	0	0	1	0
2809:	1	0	0	1	0	0	0	0
2817:	0	0	0	0	0	0	0	1
2825:	0	0	0	2	0	0	0	0
2833:	1	1	0	0	1	1	0	0
2841:	0	0	0	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	1	1	0	0	1
2873:	0	0	1	0	1	0	0	0
2881:	1	0	0	1	0	0	1	0
2889:	0	0	0	0	0	0	0	0
2897:	1	0	0	0	2	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	1	0	1	0	0	0	2	1
2921:	0	0	1	1	1	1	0	0
2929:	0	0	0	0	0	0	0	1
2937:	0	1	0	0	0	0	0	0
2945:	0	0	0	0	0	1	0	0
2953:	0	0	0	0	1	0	0	0

2961:	0	1	0	0	0	1	0	0

Sample Title: HTC-A03-S001-1218-01

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

3393:	0	1	0	0	0	0	0	0

Sample Title: HTC-A03-S001-1218-01

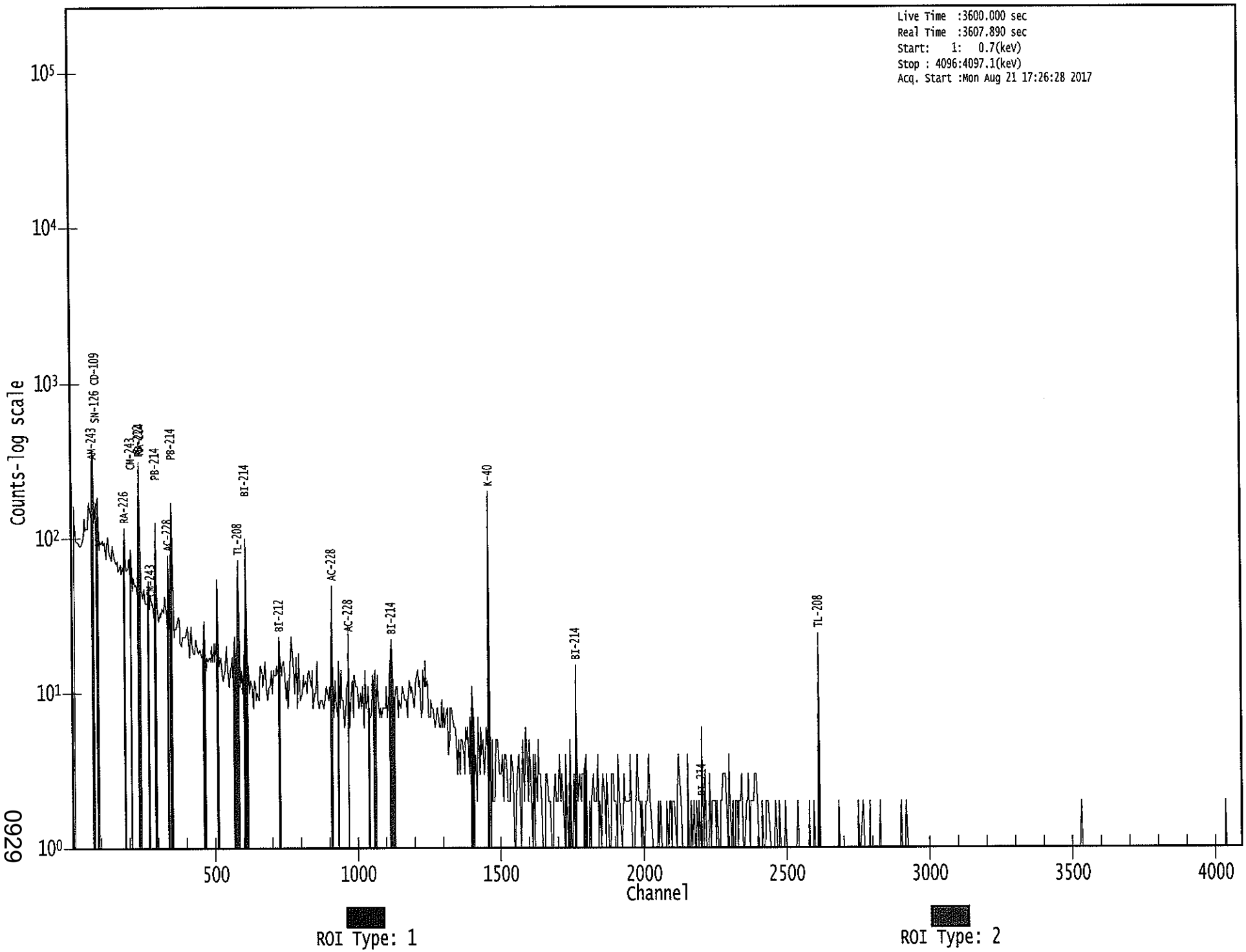
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	1	0	0	0	0
3417:	0	1	0	0	0	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	1	0	1	0	0	0	0	1
3457:	0	0	0	0	0	0	0	1
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	1	0	0	0	1	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	1	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A03-S001-1218-01

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	1	1	1
3857:	0	0	0	0	0	0	0	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	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	1	0	0	0	0	0	0
3929:	0	0	0	0	0	0	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	1	1	0	0
3985:	0	0	1	1	0	0	0	0
3993:	0	1	0	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	2	0	0	1	0
4041:	0	1	0	0	0	0	0	0
4049:	0	0	0	0	0	1	0	1
4057:	0	0	0	0	0	0	0	1
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	1	1	0	0	0	0	0
4089:	0	0	1	0	0	0	0	0

0000055663.CNF



0929

Apex-Gamma

8/22

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-16
Sample Description	: HTC-A03-S001-1824-01
Sample Type	: SOIL
Sample Size	: 7.677E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:16:10AM
Acquisition Started	: 8/22/2017 5:50:12AM
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	: 55679

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/22/2017 6:50:16AM
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	46.52	47.14	0.0000	0.00
2	74.72	75.31	0.0000	0.00
3	77.11	77.70	0.0000	0.00
4	87.57	88.15	0.0000	0.00
5	185.67	186.15	0.0000	0.00
6	209.38	209.83	0.0000	0.00
7	238.55	238.98	0.0000	0.00
8	241.74	242.17	0.0000	0.00
9	270.17	270.57	0.0000	0.00
10	277.27	277.66	0.0000	0.00
11	295.20	295.57	0.0000	0.00
12	300.12	300.48	0.0000	0.00
13	328.63	328.97	0.0000	0.00
14	338.83	339.15	0.0000	0.00
15	351.92	352.23	0.0000	0.00
16	462.97	463.17	0.0000	0.00
17	485.22	485.40	0.0000	0.00
18	510.94	511.09	0.0000	0.00
19	583.25	583.33	0.0000	0.00
20	609.47	609.52	0.0000	0.00
21	727.66	727.60	0.0000	0.00
22	734.70	734.62	0.0000	0.00
23	770.84	770.73	0.0000	0.00
24	794.93	794.79	0.0000	0.00
25	860.54	860.34	0.0000	0.00
26	911.54	911.29	0.0000	0.00
27	959.50	959.20	0.0000	0.00
28	965.31	965.00	0.0000	0.00
29	969.42	969.11	0.0000	0.00
30	990.38	990.05	0.0000	0.00
31	1001.67	1001.33	0.0000	0.00
32	1121.25	1120.79	0.0000	0.00
33	1238.85	1238.28	0.0000	0.00
34	1302.66	1302.02	0.0000	0.00
35	1318.69	1318.03	0.0000	0.00
36	1338.43	1337.75	0.0000	0.00
37	1350.88	1350.19	0.0000	0.00
38	1378.43	1377.72	0.0000	0.00
39	1408.80	1408.05	0.0000	0.00
40	1461.51	1460.71	0.0000	0.00
41	1465.61	1464.81	0.0000	0.00
42	1495.10	1494.27	0.0000	0.00

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1518.31	1517.45	0.0000	0.00
44	1544.68	1543.80	0.0000	0.00
45	1589.09	1588.17	0.0000	0.00
46	1594.70	1593.78	0.0000	0.00
47	1620.77	1619.82	0.0000	0.00
48	1632.37	1631.41	0.0000	0.00
49	1729.91	1728.86	0.0000	0.00
50	1765.32	1764.23	0.0000	0.00
51	1770.32	1769.23	0.0000	0.00
52	1848.65	1847.48	0.0000	0.00
53	1898.51	1897.29	0.0000	0.00
54	2021.86	2020.52	0.0000	0.00
55	2038.65	2037.29	0.0000	0.00
56	2105.11	2103.69	0.0000	0.00
57	2205.19	2203.67	0.0000	0.00
58	2388.18	2386.48	0.0000	0.00
59	2615.77	2613.86	0.0000	0.00
60	2920.20	2918.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 6:50:16AM

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	46.52	44 -	50	47.14	1.13E+02	80.41	1.10E+03	1.60
M	2	74.72	72 -	83	75.31	3.57E+02	95.03	1.49E+03	1.81
m	3	77.11	72 -	83	77.70	5.69E+02	99.65	1.39E+03	1.82
M	4	87.57	83 -	98	88.15	2.00E+02	77.74	1.13E+03	1.67
	5	185.67	182 -	189	186.15	2.09E+02	82.63	9.96E+02	2.18
	6	209.38	207 -	212	209.83	5.50E+01	62.61	7.34E+02	2.07
M	7	238.55	233 -	247	238.98	8.16E+02	72.06	4.40E+02	1.82
m	8	241.74	233 -	247	242.17	2.06E+02	73.57	4.20E+02	1.82
	9	270.17	267 -	274	270.57	9.92E+01	59.90	5.32E+02	2.20
	10	277.27	275 -	282	277.66	6.07E+01	57.31	5.05E+02	2.62
M	11	295.20	292 -	303	295.57	2.96E+02	50.46	3.13E+02	1.72
m	12	300.12	292 -	303	300.48	9.23E+01	52.10	3.99E+02	2.26
	13	328.63	326 -	333	328.97	4.67E+01	52.54	4.31E+02	2.03
	14	338.83	335 -	344	339.15	2.07E+02	64.82	4.73E+02	1.86
	15	351.92	348 -	356	352.23	5.16E+02	70.06	4.39E+02	1.70
	16	462.97	459 -	467	463.17	4.53E+01	51.43	3.81E+02	2.86
	17	485.22	480 -	491	485.40	4.42E+01	52.15	3.18E+02	7.89
	18	510.94	507 -	515	511.09	1.60E+02	54.33	3.55E+02	2.04
	19	583.25	578 -	588	583.33	2.46E+02	58.12	3.20E+02	2.07
	20	609.47	603 -	614	609.52	3.95E+02	62.71	2.95E+02	2.19
M	21	727.66	724 -	737	727.60	6.44E+01	30.34	1.21E+02	2.28
m	22	734.70	724 -	737	734.62	2.01E+01	27.14	1.25E+02	2.33
	23	770.84	763 -	779	770.73	6.12E+01	57.24	2.88E+02	8.55
	24	794.93	792 -	797	794.79	2.45E+01	25.81	1.13E+02	1.74
	25	860.54	856 -	863	860.34	5.81E+01	29.60	1.06E+02	2.01
	26	911.54	905 -	915	911.29	1.70E+02	51.24	2.62E+02	2.04
M	27	959.50	957 -	983	959.20	2.37E+01	18.72	4.77E+01	2.22
m	28	965.31	957 -	983	965.00	3.70E+01	24.04	6.65E+01	2.02
m	29	969.42	957 -	983	969.11	1.03E+02	30.96	9.38E+01	2.22
	30	990.38	984 -	996	990.05	4.09E+01	38.29	1.44E+02	10.31
	31	1001.67	997 -	1006	1001.33	4.55E+01	27.28	8.10E+01	3.86
	32	1121.25	1116 -	1126	1120.79	8.33E+01	40.60	1.73E+02	1.91
	33	1238.85	1235 -	1242	1238.28	4.42E+01	30.40	1.26E+02	3.12
	34	1302.66	1299 -	1304	1302.02	1.51E+01	16.94	4.57E+01	2.01
	35	1318.69	1315 -	1324	1318.03	1.92E+01	23.96	7.36E+01	2.80
	36	1338.43	1330 -	1344	1337.75	2.49E+01	28.47	7.43E+01	7.26
	37	1350.88	1347 -	1353	1350.19	1.15E+01	14.64	2.90E+01	1.97
	38	1378.43	1372 -	1385	1377.72	3.20E+01	28.62	7.60E+01	3.14
	39	1408.80	1405 -	1410	1408.05	1.29E+01	14.14	3.83E+01	1.43
M	40	1461.51	1454 -	1468	1460.71	9.82E+02	64.10	1.85E+01	2.21

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1465.61	1454 -	1468	1464.81	4.68E+01	51.50	9.28E+00	2.65
	42	1495.10	1490 -	1499	1494.27	1.54E+01	18.44	3.91E+01	1.92
	43	1518.31	1515 -	1521	1517.45	9.00E+00	10.63	1.40E+01	2.61
	44	1544.68	1540 -	1547	1543.80	1.74E+01	10.77	7.24E+00	5.37
M	45	1589.09	1575 -	1596	1588.17	2.96E+01	13.77	1.94E+01	2.45
m	46	1594.70	1575 -	1596	1593.78	9.30E+00	11.55	1.53E+01	2.45
	47	1620.77	1616 -	1622	1619.82	1.19E+01	9.19	6.27E+00	3.25
	48	1632.37	1627 -	1636	1631.41	1.89E+01	10.44	4.29E+00	6.87
	49	1729.91	1725 -	1734	1728.86	1.36E+01	15.26	2.69E+01	2.47
M	50	1765.32	1760 -	1773	1764.23	5.50E+01	17.46	1.83E+01	2.50
m	51	1770.32	1760 -	1773	1769.23	1.16E+01	14.42	3.43E+00	2.50
	52	1848.65	1842 -	1852	1847.48	9.12E+00	12.60	1.58E+01	2.77
	53	1898.51	1895 -	1900	1897.29	5.21E+00	6.08	3.57E+00	1.95
	54	2021.86	2017 -	2023	2020.52	7.38E+00	9.21	9.25E+00	3.50
	55	2038.65	2033 -	2041	2037.29	1.27E+01	8.96	4.60E+00	5.92
	56	2105.11	2099 -	2108	2103.69	1.70E+01	11.75	1.00E+01	1.56
	57	2205.19	2200 -	2206	2203.67	1.62E+01	9.18	3.56E+00	3.09
	58	2388.18	2383 -	2389	2386.48	1.14E+01	8.02	3.23E+00	1.32
	59	2615.77	2609 -	2623	2613.86	1.07E+02	23.84	1.50E+01	3.50
	60	2920.20	2914 -	2920	2918.00	6.00E+00	4.90	0.00E+00	1.33

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 6:50:16AM

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	46.52	44 -	50	1.13E+02	80.41	1.10E+03	6.37E+01
M	2	74.72	72 -	83	3.57E+02	95.03	1.49E+03	6.34E+01
m	3	77.11	72 -	83	5.69E+02	99.65	1.39E+03	6.14E+01
M	4	87.57	83 -	98	2.00E+02	77.74	1.13E+03	5.53E+01
	5	185.67	182 -	189	2.09E+02	82.63	9.96E+02	3.22E+01
	6	209.38	207 -	212	5.50E+01	62.61	7.34E+02	5.00E+01
M	7	238.55	233 -	247	8.16E+02	72.06	4.40E+02	3.45E+01
m	8	241.74	233 -	247	2.06E+02	73.57	4.20E+02	3.37E+01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	9	270.17	267 -	274	9.92E+01	59.90	5.32E+02	4.64E+01
	10	277.27	275 -	282	6.07E+01	57.31	5.05E+02	4.53E+01
M	11	295.20	292 -	303	2.96E+02	50.46	3.13E+02	2.91E+01
m	12	300.12	292 -	303	9.23E+01	52.10	3.99E+02	3.28E+01
	13	328.63	326 -	333	4.67E+01	52.54	4.31E+02	4.17E+01
	14	338.83	335 -	344	2.07E+02	64.82	4.73E+02	4.77E+01
	15	351.92	348 -	356	5.16E+02	70.06	4.39E+02	4.38E+01
	16	462.97	459 -	467	4.53E+01	51.43	3.81E+02	4.08E+01
	17	485.22	480 -	491	4.42E+01	52.15	3.18E+02	4.15E+01
	18	510.94	507 -	515	1.60E+02	54.33	3.55E+02	3.95E+01
	19	583.25	578 -	588	2.46E+02	58.12	3.20E+02	4.02E+01
	20	609.47	603 -	614	3.95E+02	62.71	2.95E+02	1.87E+01
M	21	727.66	724 -	737	6.44E+01	30.34	1.21E+02	1.81E+01
m	22	734.70	724 -	737	2.01E+01	27.14	1.25E+02	1.84E+01
	23	770.84	763 -	779	6.12E+01	57.24	2.88E+02	2.36E+01
	24	794.93	792 -	797	2.45E+01	25.81	1.13E+02	1.96E+01
	25	860.54	856 -	863	5.81E+01	29.60	1.06E+02	2.09E+01
	26	911.54	905 -	915	1.70E+02	51.24	2.62E+02	3.63E+01
M	27	959.50	957 -	983	2.37E+01	18.72	4.77E+01	1.14E+01
m	28	965.31	957 -	983	3.70E+01	24.04	6.65E+01	1.34E+01
m	29	969.42	957 -	983	1.03E+02	30.96	9.38E+01	1.59E+01
	30	990.38	984 -	996	4.09E+01	38.29	1.44E+02	2.97E+01
	31	1001.67	997 -	1006	4.55E+01	27.28	8.10E+01	1.95E+01
	32	1121.25	1116 -	1126	8.33E+01	40.60	1.73E+02	2.98E+01
	33	1238.85	1235 -	1242	4.42E+01	30.40	1.26E+02	2.25E+01
	34	1302.66	1299 -	1304	1.51E+01	16.94	4.57E+01	1.24E+01
	35	1318.69	1315 -	1324	1.92E+01	23.96	7.36E+01	1.83E+01
	36	1338.43	1330 -	1344	2.49E+01	28.47	7.43E+01	2.19E+01
	37	1350.88	1347 -	1353	1.15E+01	14.64	2.90E+01	1.07E+01
	38	1378.43	1372 -	1385	3.20E+01	28.62	7.60E+01	2.16E+01
	39	1408.80	1405 -	1410	1.29E+01	14.14	3.83E+01	1.26E+01
M	40	1461.51	1454 -	1468	9.82E+02	64.10	1.85E+01	7.08E+00
m	41	1465.61	1454 -	1468	4.68E+01	51.50	9.28E+00	5.01E+00
	42	1495.10	1490 -	1499	1.54E+01	18.44	3.91E+01	1.37E+01
	43	1518.31	1515 -	1521	9.00E+00	10.63	1.40E+01	7.21E+00
	44	1544.68	1540 -	1547	1.74E+01	10.77	7.24E+00	5.60E+00
M	45	1589.09	1575 -	1596	2.96E+01	13.77	1.94E+01	7.24E+00
m	46	1594.70	1575 -	1596	9.30E+00	11.55	1.53E+01	6.44E+00
	47	1620.77	1616 -	1622	1.19E+01	9.19	6.27E+00	5.00E+00
	48	1632.37	1627 -	1636	1.89E+01	10.44	4.29E+00	4.76E+00
	49	1729.91	1725 -	1734	1.36E+01	15.26	2.69E+01	1.10E+01
M	50	1765.32	1760 -	1773	5.50E+01	17.46	1.83E+01	7.03E+00
m	51	1770.32	1760 -	1773	1.16E+01	14.42	3.43E+00	3.04E+00
	52	1848.65	1842 -	1852	9.12E+00	12.60	1.58E+01	9.09E+00
	53	1898.51	1895 -	1900	5.21E+00	6.08	3.57E+00	3.30E+00
	54	2021.86	2017 -	2023	7.38E+00	9.21	9.25E+00	6.11E+00
	55	2038.65	2033 -	2041	1.27E+01	8.96	4.60E+00	4.46E+00
	56	2105.11	2099 -	2108	1.70E+01	11.75	1.00E+01	6.88E+00
	57	2205.19	2200 -	2206	1.62E+01	9.18	3.56E+00	3.62E+00
	58	2388.18	2383 -	2389	1.14E+01	8.02	3.23E+00	3.56E+00
	59	2615.77	2609 -	2623	1.07E+02	23.84	1.50E+01	9.81E+00

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2920.20	2914 -	2920	6.00E+00	4.90	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 : 8/22/2017 6:50:16AM

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	46.52	44 -	50	47.14	1.13E+02	80.41	1.10E+03	PB-210
M	2	74.72	72 -	83	75.31	3.57E+02	95.03	1.49E+03	AM-243
m	3	77.11	72 -	83	77.70	5.69E+02	99.65	1.39E+03	.....
M	4	87.57	83 -	98	88.15	2.00E+02	77.74	1.13E+03	SN-126
									CD-109
									LU-176
	5	185.67	182 -	189	186.15	2.09E+02	82.63	9.96E+02	RA-226
	6	209.38	207 -	212	209.83	5.50E+01	62.61	7.34E+02	CM-243
									GA-67
M	7	238.55	233 -	247	238.98	8.16E+02	72.06	4.40E+02	PB-212
m	8	241.74	233 -	247	242.17	2.06E+02	73.57	4.20E+02	RA-224
	9	270.17	267 -	274	270.57	9.92E+01	59.90	5.32E+02	.....
	10	277.27	275 -	282	277.66	6.07E+01	57.31	5.05E+02	CM-243
									NP-239
M	11	295.20	292 -	303	295.57	2.96E+02	50.46	3.13E+02	PB-214
m	12	300.12	292 -	303	300.48	9.23E+01	52.10	3.99E+02	PB-212
									GA-67
									BI-210M
	13	328.63	326 -	333	328.97	4.67E+01	52.54	4.31E+02	LA-140
	14	338.83	335 -	344	339.15	2.07E+02	64.82	4.73E+02	AC-228
	15	351.92	348 -	356	352.23	5.16E+02	70.06	4.39E+02	PB-214
	16	462.97	459 -	467	463.17	4.53E+01	51.43	3.81E+02	SB-125
	17	485.22	480 -	491	485.40	4.42E+01	52.15	3.18E+02	.....
	18	510.94	507 -	515	511.09	1.60E+02	54.33	3.55E+02	.....
	19	583.25	578 -	588	583.33	2.46E+02	58.12	3.20E+02	TL-208

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	20	609.47	603 -	614	609.52	3.95E+02	62.71	2.95E+02	BI-214
M	21	727.66	724 -	737	727.60	6.44E+01	30.34	1.21E+02	BI-212
m	22	734.70	724 -	737	734.62	2.01E+01	27.14	1.25E+02	PA-234
	23	770.84	763 -	779	770.73	6.12E+01	57.24	2.88E+02	.....
	24	794.93	792 -	797	794.79	2.45E+01	25.81	1.13E+02	CS-134
	25	860.54	856 -	863	860.34	5.81E+01	29.60	1.06E+02	TL-208
	26	911.54	905 -	915	911.29	1.70E+02	51.24	2.62E+02	TL-204 AC-228
M	27	959.50	957 -	983	959.20	2.37E+01	18.72	4.77E+01	.....
m	28	965.31	957 -	983	965.00	3.70E+01	24.04	6.65E+01	.....
m	29	969.42	957 -	983	969.11	1.03E+02	30.96	9.38E+01	AC-228
	30	990.38	984 -	996	990.05	4.09E+01	38.29	1.44E+02	.....
	31	1001.67	997 -	1006	1001.33	4.55E+01	27.28	8.10E+01	PA-234M
	32	1121.25	1116 -	1126	1120.79	8.33E+01	40.60	1.73E+02	TA-182 SC-46 BI-214
	33	1238.85	1235 -	1242	1238.28	4.42E+01	30.40	1.26E+02	CO-56
	34	1302.66	1299 -	1304	1302.02	1.51E+01	16.94	4.57E+01	.....
	35	1318.69	1315 -	1324	1318.03	1.92E+01	23.96	7.36E+01	.....
	36	1338.43	1330 -	1344	1337.75	2.49E+01	28.47	7.43E+01	.....
	37	1350.88	1347 -	1353	1350.19	1.15E+01	14.64	2.90E+01	.....
	38	1378.43	1372 -	1385	1377.72	3.20E+01	28.62	7.60E+01	.....
	39	1408.80	1405 -	1410	1408.05	1.29E+01	14.14	3.83E+01	EU-152
M	40	1461.51	1454 -	1468	1460.71	9.82E+02	64.10	1.85E+01	K-40
m	41	1465.61	1454 -	1468	1464.81	4.68E+01	51.50	9.28E+00	.....
	42	1495.10	1490 -	1499	1494.27	1.54E+01	18.44	3.91E+01	.....
	43	1518.31	1515 -	1521	1517.45	9.00E+00	10.63	1.40E+01	.....
	44	1544.68	1540 -	1547	1543.80	1.74E+01	10.77	7.24E+00	.....
M	45	1589.09	1575 -	1596	1588.17	2.96E+01	13.77	1.94E+01	.....
m	46	1594.70	1575 -	1596	1593.78	9.30E+00	11.55	1.53E+01	.....
	47	1620.77	1616 -	1622	1619.82	1.19E+01	9.19	6.27E+00	BI-212
	48	1632.37	1627 -	1636	1631.41	1.89E+01	10.44	4.29E+00	.....
	49	1729.91	1725 -	1734	1728.86	1.36E+01	15.26	2.69E+01	.....
M	50	1765.32	1760 -	1773	1764.23	5.50E+01	17.46	1.83E+01	BI-214
m	51	1770.32	1760 -	1773	1769.23	1.16E+01	14.42	3.43E+00	.....
	52	1848.65	1842 -	1852	1847.48	9.12E+00	12.60	1.58E+01	.....
	53	1898.51	1895 -	1900	1897.29	5.21E+00	6.08	3.57E+00	.....
	54	2021.86	2017 -	2023	2020.52	7.38E+00	9.21	9.25E+00	.....
	55	2038.65	2033 -	2041	2037.29	1.27E+01	8.96	4.60E+00	.....
	56	2105.11	2099 -	2108	2103.69	1.70E+01	11.75	1.00E+01	.....
	57	2205.19	2200 -	2206	2203.67	1.62E+01	9.18	3.56E+00	BI-214
	58	2388.18	2383 -	2389	2386.48	1.14E+01	8.02	3.23E+00	.....
	59	2615.77	2609 -	2623	2613.86	1.07E+02	23.84	1.50E+01	.....
	60	2920.20	2914 -	2920	2918.00	6.00E+00	4.90	0.00E+00	.....

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

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 : 8/22/2017 6:50:16AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.52	1.13E+02	80.41	2.47E-02	2.22E-03
M	2	74.72	3.57E+02	95.03	2.75E-02	2.38E-03
m	3	77.11	5.69E+02	99.65	2.75E-02	2.40E-03
M	4	87.57	2.00E+02	77.74	2.74E-02	2.52E-03
	5	185.67	2.09E+02	82.63	2.17E-02	1.68E-03
	6	209.38	5.50E+01	62.61	2.04E-02	1.61E-03
M	7	238.55	8.16E+02	72.06	1.89E-02	1.53E-03
m	8	241.74	2.06E+02	73.57	1.87E-02	1.52E-03
	9	270.17	9.92E+01	59.90	1.74E-02	1.43E-03
	10	277.27	6.07E+01	57.31	1.71E-02	1.41E-03
M	11	295.20	2.96E+02	50.46	1.64E-02	1.37E-03
m	12	300.12	9.23E+01	52.10	1.63E-02	1.36E-03
	13	328.63	4.67E+01	52.54	1.53E-02	1.29E-03
	14	338.83	2.07E+02	64.82	1.49E-02	1.27E-03
	15	351.92	5.16E+02	70.06	1.45E-02	1.24E-03
	16	462.97	4.53E+01	51.43	1.19E-02	1.10E-03
	17	485.22	4.42E+01	52.15	1.15E-02	1.08E-03
	18	510.94	1.60E+02	54.33	1.10E-02	1.07E-03
	19	583.25	2.46E+02	58.12	9.96E-03	1.02E-03
	20	609.47	3.95E+02	62.71	9.63E-03	1.01E-03
M	21	727.66	6.44E+01	30.34	8.41E-03	8.67E-04
m	22	734.70	2.01E+01	27.14	8.35E-03	8.56E-04
	23	770.84	6.12E+01	57.24	8.04E-03	7.99E-04
	24	794.93	2.45E+01	25.81	7.86E-03	7.60E-04
	25	860.54	5.81E+01	29.60	7.40E-03	6.56E-04
	26	911.54	1.70E+02	51.24	7.08E-03	5.91E-04
M	27	959.50	2.37E+01	18.72	6.82E-03	5.73E-04
m	28	965.31	3.70E+01	24.04	6.79E-03	5.71E-04
m	29	969.42	1.03E+02	30.96	6.76E-03	5.69E-04
	30	990.38	4.09E+01	38.29	6.66E-03	5.61E-04
	31	1001.67	4.55E+01	27.28	6.60E-03	5.57E-04
	32	1121.25	8.33E+01	40.60	6.07E-03	5.11E-04
	33	1238.85	4.42E+01	30.40	5.64E-03	4.76E-04
	34	1302.66	1.51E+01	16.94	5.44E-03	4.61E-04

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	1318.69	1.92E+01	23.96	5.39E-03	4.58E-04
	36	1338.43	2.49E+01	28.47	5.33E-03	4.53E-04
	37	1350.88	1.15E+01	14.64	5.30E-03	4.50E-04
	38	1378.43	3.20E+01	28.62	5.22E-03	4.44E-04
	39	1408.80	1.29E+01	14.14	5.14E-03	4.37E-04
M	40	1461.51	9.82E+02	64.10	5.00E-03	4.25E-04
m	41	1465.61	4.68E+01	51.50	4.99E-03	4.24E-04
	42	1495.10	1.54E+01	18.44	4.92E-03	4.17E-04
	43	1518.31	9.00E+00	10.63	4.87E-03	4.11E-04
	44	1544.68	1.74E+01	10.77	4.81E-03	4.05E-04
M	45	1589.09	2.96E+01	13.77	4.71E-03	3.95E-04
m	46	1594.70	9.30E+00	11.55	4.70E-03	3.94E-04
	47	1620.77	1.19E+01	9.19	4.65E-03	3.88E-04
	48	1632.37	1.89E+01	10.44	4.62E-03	3.85E-04
	49	1729.91	1.36E+01	15.26	4.44E-03	3.62E-04
M	50	1765.32	5.50E+01	17.46	4.37E-03	3.54E-04
m	51	1770.32	1.16E+01	14.42	4.36E-03	3.53E-04
	52	1848.65	9.12E+00	12.60	4.23E-03	3.38E-04
	53	1898.51	5.21E+00	6.08	4.15E-03	3.38E-04
	54	2021.86	7.38E+00	9.21	3.97E-03	3.38E-04
	55	2038.65	1.27E+01	8.96	3.95E-03	3.38E-04
	56	2105.11	1.70E+01	11.75	3.86E-03	3.38E-04
	57	2205.19	1.62E+01	9.18	3.74E-03	3.38E-04
	58	2388.18	1.14E+01	8.02	3.53E-03	3.38E-04
	59	2615.77	1.07E+02	23.84	3.30E-03	3.38E-04
	60	2920.20	6.00E+00	4.90	3.05E-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 : 8/22/2017 6:50:16AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.52	1.13E+02	80.41	3.67E+01	8.40E+00	7.64E+01	8.08E+01
M	2	74.72	3.57E+02	95.03			3.57E+02	9.50E+01
m	3	77.11	5.69E+02	99.65	7.20E+00	1.47E+00	5.62E+02	9.97E+01
M	4	87.57	2.00E+02	77.74			2.00E+02	7.77E+01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	5	185.67	2.09E+02	82.63	5.22E+01	7.59E+00	1.57E+02	8.30E+01
	6	209.38	5.50E+01	62.61			5.50E+01	6.26E+01
M	7	238.55	8.16E+02	72.06	2.13E+01	6.33E+00	7.95E+02	7.23E+01
m	8	241.74	2.06E+02	73.57			2.06E+02	7.36E+01
	9	270.17	9.92E+01	59.90	1.23E+00	4.98E+00	9.80E+01	6.01E+01
	10	277.27	6.07E+01	57.31			6.07E+01	5.73E+01
M	11	295.20	2.96E+02	50.46			2.96E+02	5.05E+01
m	12	300.12	9.23E+01	52.10			9.23E+01	5.21E+01
	13	328.63	4.67E+01	52.54			4.67E+01	5.25E+01
	14	338.83	2.07E+02	64.82			2.07E+02	6.48E+01
	15	351.92	5.16E+02	70.06	5.79E+00	4.49E+00	5.11E+02	7.02E+01
	16	462.97	4.53E+01	51.43			4.53E+01	5.14E+01
	17	485.22	4.42E+01	52.15			4.42E+01	5.22E+01
	18	510.94	1.60E+02	54.33	7.28E+01	5.30E+00	8.77E+01	5.46E+01
	19	583.25	2.46E+02	58.12	2.72E+00	3.05E+00	2.43E+02	5.82E+01
	20	609.47	3.95E+02	62.71	6.35E+00	4.02E+00	3.88E+02	6.28E+01
M	21	727.66	6.44E+01	30.34			6.44E+01	3.03E+01
m	22	734.70	2.01E+01	27.14			2.01E+01	2.71E+01
	23	770.84	6.12E+01	57.24			6.12E+01	5.72E+01
	24	794.93	2.45E+01	25.81			2.45E+01	2.58E+01
	25	860.54	5.81E+01	29.60			5.81E+01	2.96E+01
	26	911.54	1.70E+02	51.24	5.31E+00	3.00E+00	1.65E+02	5.13E+01
M	27	959.50	2.37E+01	18.72			2.37E+01	1.87E+01
m	28	965.31	3.70E+01	24.04			3.70E+01	2.40E+01
m	29	969.42	1.03E+02	30.96			1.03E+02	3.10E+01
	30	990.38	4.09E+01	38.29			4.09E+01	3.83E+01
	31	1001.67	4.55E+01	27.28	4.92E+00	2.75E+00	4.06E+01	2.74E+01
	32	1121.25	8.33E+01	40.60			8.33E+01	4.06E+01
	33	1238.85	4.42E+01	30.40			4.42E+01	3.04E+01
	34	1302.66	1.51E+01	16.94			1.51E+01	1.69E+01
	35	1318.69	1.92E+01	23.96			1.92E+01	2.40E+01
	36	1338.43	2.49E+01	28.47			2.49E+01	2.85E+01
	37	1350.88	1.15E+01	14.64			1.15E+01	1.46E+01
	38	1378.43	3.20E+01	28.62			3.20E+01	2.86E+01
	39	1408.80	1.29E+01	14.14			1.29E+01	1.41E+01
M	40	1461.51	9.82E+02	64.10	8.09E+00	2.23E+00	9.74E+02	6.41E+01
m	41	1465.61	4.68E+01	51.50			4.68E+01	5.15E+01
	42	1495.10	1.54E+01	18.44			1.54E+01	1.84E+01
	43	1518.31	9.00E+00	10.63			9.00E+00	1.06E+01
	44	1544.68	1.74E+01	10.77			1.74E+01	1.08E+01
M	45	1589.09	2.96E+01	13.77			2.96E+01	1.38E+01
m	46	1594.70	9.30E+00	11.55			9.30E+00	1.16E+01
	47	1620.77	1.19E+01	9.19			1.19E+01	9.19E+00
	48	1632.37	1.89E+01	10.44			1.89E+01	1.04E+01
	49	1729.91	1.36E+01	15.26			1.36E+01	1.53E+01
M	50	1765.32	5.50E+01	17.46			5.50E+01	1.75E+01
m	51	1770.32	1.16E+01	14.42			1.16E+01	1.44E+01
	52	1848.65	9.12E+00	12.60			9.12E+00	1.26E+01
	53	1898.51	5.21E+00	6.08			5.21E+00	6.08E+00
	54	2021.86	7.38E+00	9.21			7.38E+00	9.21E+00
	55	2038.65	1.27E+01	8.96			1.27E+01	8.96E+00
	56	2105.11	1.70E+01	11.75			1.70E+01	1.17E+01
	57	2205.19	1.62E+01	9.18			1.62E+01	9.18E+00
	58	2388.18	1.14E+01	8.02			1.14E+01	8.02E+00

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
59	2615.77	1.07E+02	23.84	5.63E+00	1.38E+00	1.01E+02	2.39E+01
60	2920.20	6.00E+00	4.90			6.00E+00	4.90E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/22/2017 6:50:16AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.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	46.52	1.13E+02	80.41	3.67E+01	8.40E+00	7.64E+01	8.08E+01
M	2	74.72	3.57E+02	95.03			3.57E+02	9.50E+01
m	3	77.11	5.69E+02	99.65	7.20E+00	1.47E+00	5.62E+02	9.97E+01
M	4	87.57	2.00E+02	77.74			2.00E+02	7.77E+01
	5	185.67	2.09E+02	82.63	5.22E+01	7.59E+00	1.57E+02	8.30E+01
	6	209.38	5.50E+01	62.61			5.50E+01	6.26E+01
M	7	238.55	8.16E+02	72.06	2.13E+01	6.33E+00	7.95E+02	7.23E+01
m	8	241.74	2.06E+02	73.57			2.06E+02	7.36E+01
	9	270.17	9.92E+01	59.90	1.23E+00	4.98E+00	9.80E+01	6.01E+01
	10	277.27	6.07E+01	57.31			6.07E+01	5.73E+01
M	11	295.20	2.96E+02	50.46			2.96E+02	5.05E+01
m	12	300.12	9.23E+01	52.10			9.23E+01	5.21E+01
	13	328.63	4.67E+01	52.54			4.67E+01	5.25E+01
	14	338.83	2.07E+02	64.82			2.07E+02	6.48E+01
	15	351.92	5.16E+02	70.06	5.79E+00	4.49E+00	5.11E+02	7.02E+01
	16	462.97	4.53E+01	51.43			4.53E+01	5.14E+01
	17	485.22	4.42E+01	52.15			4.42E+01	5.22E+01
	18	510.94	1.60E+02	54.33	7.28E+01	5.30E+00	8.77E+01	5.46E+01
	19	583.25	2.46E+02	58.12	2.72E+00	3.05E+00	2.43E+02	5.82E+01
	20	609.47	3.95E+02	62.71	6.35E+00	4.02E+00	3.88E+02	6.28E+01
M	21	727.66	6.44E+01	30.34			6.44E+01	3.03E+01
m	22	734.70	2.01E+01	27.14			2.01E+01	2.71E+01
	23	770.84	6.12E+01	57.24			6.12E+01	5.72E+01
	24	794.93	2.45E+01	25.81			2.45E+01	2.58E+01
	25	860.54	5.81E+01	29.60			5.81E+01	2.96E+01
	26	911.54	1.70E+02	51.24	5.31E+00	3.00E+00	1.65E+02	5.13E+01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	27	959.50	2.37E+01	18.72			2.37E+01	1.87E+01
m	28	965.31	3.70E+01	24.04			3.70E+01	2.40E+01
m	29	969.42	1.03E+02	30.96			1.03E+02	3.10E+01
	30	990.38	4.09E+01	38.29			4.09E+01	3.83E+01
	31	1001.67	4.55E+01	27.28	4.92E+00	2.75E+00	4.06E+01	2.74E+01
	32	1121.25	8.33E+01	40.60			8.33E+01	4.06E+01
	33	1238.85	4.42E+01	30.40			4.42E+01	3.04E+01
	34	1302.66	1.51E+01	16.94			1.51E+01	1.69E+01
	35	1318.69	1.92E+01	23.96			1.92E+01	2.40E+01
	36	1338.43	2.49E+01	28.47			2.49E+01	2.85E+01
	37	1350.88	1.15E+01	14.64			1.15E+01	1.46E+01
	38	1378.43	3.20E+01	28.62			3.20E+01	2.86E+01
	39	1408.80	1.29E+01	14.14			1.29E+01	1.41E+01
M	40	1461.51	9.82E+02	64.10	8.09E+00	2.23E+00	9.74E+02	6.41E+01
m	41	1465.61	4.68E+01	51.50			4.68E+01	5.15E+01
	42	1495.10	1.54E+01	18.44			1.54E+01	1.84E+01
	43	1518.31	9.00E+00	10.63			9.00E+00	1.06E+01
	44	1544.68	1.74E+01	10.77			1.74E+01	1.08E+01
M	45	1589.09	2.96E+01	13.77			2.96E+01	1.38E+01
m	46	1594.70	9.30E+00	11.55			9.30E+00	1.16E+01
	47	1620.77	1.19E+01	9.19			1.19E+01	9.19E+00
	48	1632.37	1.89E+01	10.44			1.89E+01	1.04E+01
	49	1729.91	1.36E+01	15.26			1.36E+01	1.53E+01
M	50	1765.32	5.50E+01	17.46			5.50E+01	1.75E+01
m	51	1770.32	1.16E+01	14.42			1.16E+01	1.44E+01
	52	1848.65	9.12E+00	12.60			9.12E+00	1.26E+01
	53	1898.51	5.21E+00	6.08			5.21E+00	6.08E+00
	54	2021.86	7.38E+00	9.21			7.38E+00	9.21E+00
	55	2038.65	1.27E+01	8.96			1.27E+01	8.96E+00
	56	2105.11	1.70E+01	11.75			1.70E+01	1.17E+01
	57	2205.19	1.62E+01	9.18			1.62E+01	9.18E+00
	58	2388.18	1.14E+01	8.02			1.14E+01	8.02E+00
	59	2615.77	1.07E+02	23.84	5.63E+00	1.38E+00	1.01E+02	2.39E+01
	60	2920.20	6.00E+00	4.90			6.00E+00	4.90E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.925	1460.81	*	10.67	1.78E+01	1.95E+00
CD-109	0.966	88.03	*	3.72	2.22E+00	8.98E-01
SN-126	1.000	87.57	*	37.00	1.93E-01	7.70E-02
TL-208	0.395	583.14	*	30.22	7.90E-01	2.06E-01
		860.37	*	4.48	1.71E+00	8.86E-01
		2614.66		35.85		
PB-210	1.000	46.50	*	4.25	7.19E-01	7.63E-01
BI-212	0.968	727.17	*	11.80	6.35E-01	3.06E-01
		1620.62	*	2.75	9.08E-01	7.07E-01
PB-212	0.999	238.63	*	44.60	9.24E-01	1.12E-01
		300.09	*	3.41	1.63E+00	9.29E-01
BI-214	0.942	609.31	*	46.30	8.52E-01	1.64E-01
		1120.29	*	15.10	8.89E-01	4.40E-01
		1764.49	*	15.80	7.78E-01	2.55E-01
		2204.22	*	4.98	8.53E-01	4.89E-01
PB-214	1.000	295.21	*	19.19	9.18E-01	1.74E-01
		351.92	*	37.19	9.23E-01	1.49E-01
RA-224	0.911	240.98	*	3.95	2.73E+00	9.98E-01
RA-226	0.954	186.21	*	3.28	2.15E+00	4.10E+00
AC-228	0.969	338.32	*	11.40	1.19E+00	3.86E-01
		911.07	*	27.70	8.22E-01	2.65E-01
		969.11	*	16.60	8.93E-01	2.80E-01
PA-234M	0.937	1001.03	*	0.92	6.53E+00	4.45E+00
AM-243	1.000	74.67	*	66.00	1.92E-01	5.39E-02
CM-243	0.364	209.75	*	3.29	8.08E-01	9.22E-01
		228.14		10.60		
		277.60	*	14.00	2.49E-01	2.36E-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 : 8/22/2017 6:50:16AM
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	77.11	1.56187E-01	8.86		
	9	270.17	2.72193E-02	30.67		

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	13	328.63	1.29676E-02	56.27	Sum	
	16	462.97	1.25895E-02	56.74	Sum	
	17	485.22	1.22906E-02	58.94	Sum	
	18	510.94	2.43635E-02	31.12		
m	22	734.70	5.57378E-03	67.64	Tol.	PA-234
	23	770.84	1.70068E-02	46.75		
	24	794.93	6.79698E-03	52.73	Sum	
M	27	959.50	6.58747E-03	39.47		
m	28	965.31	1.02797E-02	32.48	Sum	
	30	990.38	1.13631E-02	46.80		
	33	1238.85	1.22664E-02	34.42		
	34	1302.66	4.20687E-03	55.93	Sum	
	35	1318.69	5.32738E-03	62.46		
	36	1338.43	6.90860E-03	57.23		
	37	1350.88	3.19979E-03	63.53		
	38	1378.43	8.88690E-03	44.73		
	39	1408.80	3.57060E-03	55.01	Tol.	EU-152
m	41	1465.61	1.29899E-02	55.06		
	42	1495.10	4.28571E-03	59.76	Sum	
	43	1518.31	2.50000E-03	59.06		
	44	1544.68	4.82804E-03	30.98		
M	45	1589.09	8.20899E-03	23.29	Sum	
m	46	1594.70	2.58228E-03	62.14		
	48	1632.37	5.23810E-03	27.68		
	49	1729.91	3.76543E-03	56.30	Sum	
m	51	1770.32	3.22660E-03	62.08		
	52	1848.65	2.53268E-03	69.09	Sum	
	53	1898.51	1.44841E-03	58.33	Sum	
	54	2021.86	2.04861E-03	62.41		
	55	2038.65	3.52778E-03	35.27		
	56	2105.11	4.72222E-03	34.55	Sum	
	58	2388.18	3.16239E-03	35.20		
	59	2615.77	2.80208E-02	11.84		
	60	2920.20	1.66667E-03	40.82		

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

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.92	1460.81	*	10.67	1.78E+01	1.95E+00
CD-109	0.96	88.03	*	3.72	2.22E+00	8.98E-01
SN-126	1.00	87.57	*	37.00	1.93E-01	7.70E-02
TL-208	0.39	583.14	*	30.22	7.90E-01	2.06E-01
		860.37	*	4.48	1.71E+00	8.86E-01
		2614.66		35.85		
PB-210	1.00	46.50	*	4.25	7.19E-01	7.63E-01
BI-212	0.96	727.17	*	11.80	6.35E-01	3.06E-01
		1620.62	*	2.75	9.08E-01	7.07E-01
PB-212	0.99	238.63	*	44.60	9.24E-01	1.12E-01
		300.09	*	3.41	1.63E+00	9.29E-01
BI-214	0.94	609.31	*	46.30	8.52E-01	1.64E-01
		1120.29	*	15.10	8.89E-01	4.40E-01
		1764.49	*	15.80	7.78E-01	2.55E-01
		2204.22	*	4.98	8.53E-01	4.89E-01
PB-214	1.00	295.21	*	19.19	9.18E-01	1.74E-01
		351.92	*	37.19	9.23E-01	1.49E-01
RA-224	0.91	240.98	*	3.95	2.73E+00	9.98E-01
RA-226	0.95	186.21	*	3.28	2.15E+00	4.10E+00
AC-228	0.96	338.32	*	11.40	1.19E+00	3.86E-01
		911.07	*	27.70	8.22E-01	2.65E-01
		969.11	*	16.60	8.93E-01	2.80E-01
PA-234M	0.93	1001.03	*	0.92	6.53E+00	4.45E+00
AM-243	1.00	74.67	*	66.00	1.92E-01	5.39E-02
CM-243	0.36	209.75	*	3.29	8.08E-01	9.22E-01
		228.14		10.60		
		277.60	*	14.00	2.49E-01	2.36E-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 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.925	1.78E+01	1.95E+00	
?	CD-109	0.966	2.22E+00	8.98E-01	
?	SN-126	1.000	1.93E-01	7.70E-02	
	TL-208	0.395	8.38E-01	2.00E-01	
	PB-210	1.000	7.19E-01	7.63E-01	
	BI-212	0.968	6.78E-01	2.81E-01	
	PB-212	0.999	9.34E-01	1.12E-01	
	BI-214	0.942	8.37E-01	1.27E-01	
	PB-214	1.000	9.21E-01	1.13E-01	
	RA-224	0.911	2.73E+00	9.98E-01	
	RA-226	0.954	2.15E+00	4.10E+00	
	AC-228	0.969	9.22E-01	1.72E-01	
	PA-234M	0.937	6.53E+00	4.45E+00	
	AM-243	1.000	1.92E-01	5.39E-02	
	CM-243	0.364	2.84E-01	2.29E-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 1707086-16

HTC-A03-S001-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 6:50:16AM
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	77.11	1.56187E-01	8.86		
	9	270.17	2.72193E-02	30.67		
	13	328.63	1.29676E-02	56.27	Sum	
	16	462.97	1.25895E-02	56.74	Sum	
	17	485.22	1.22906E-02	58.94	Sum	
	18	510.94	2.43635E-02	31.12		
m	22	734.70	5.57378E-03	67.64	Tol.	PA-234
	23	770.84	1.70068E-02	46.75		
	24	794.93	6.79698E-03	52.73	Sum	
M	27	959.50	6.58747E-03	39.47		
m	28	965.31	1.02797E-02	32.48	Sum	
	30	990.38	1.13631E-02	46.80		
	33	1238.85	1.22664E-02	34.42		
	34	1302.66	4.20687E-03	55.93	Sum	
	35	1318.69	5.32738E-03	62.46		
	36	1338.43	6.90860E-03	57.23		
	37	1350.88	3.19979E-03	63.53		
	38	1378.43	8.88690E-03	44.73		
	39	1408.80	3.57060E-03	55.01	Tol.	EU-152
m	41	1465.61	1.29899E-02	55.06		
	42	1495.10	4.28571E-03	59.76	Sum	
	43	1518.31	2.50000E-03	59.06		
	44	1544.68	4.82804E-03	30.98		
M	45	1589.09	8.20899E-03	23.29	Sum	
m	46	1594.70	2.58228E-03	62.14		
	48	1632.37	5.23810E-03	27.68		
	49	1729.91	3.76543E-03	56.30	Sum	
m	51	1770.32	3.22660E-03	62.08		
	52	1848.65	2.53268E-03	69.09	Sum	
	53	1898.51	1.44841E-03	58.33	Sum	
	54	2021.86	2.04861E-03	62.41		
	55	2038.65	3.52778E-03	35.27		
	56	2105.11	4.72222E-03	34.55	Sum	
	58	2388.18	3.16239E-03	35.20		
	59	2615.77	2.80208E-02	11.84		

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
60	2920.20	1.66667E-03	40.82		

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	3.67E-01	1.50E+00	1.50E+00
+	NA-22	1274.54		99.94	-9.07E-03	5.97E-02	5.97E-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	-1.03E-02	3.22E-02	3.22E-02
+	K-40	1460.81	*	10.67	1.78E+01	6.18E-01	6.18E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.92E-02	4.77E-02	4.77E-02
		78.34		96.00	1.19E-01		6.09E-02
+	SC-46	889.25		99.98	6.97E-02	1.21E-01	1.21E-01
		1120.51		99.99	2.24E-01		2.03E-01
+	V-48	983.52		99.98	-3.35E+00	3.93E+00	4.14E+00
		1312.10		97.50	-1.55E-01		3.93E+00
+	CR-51	320.08		9.83	7.84E-01	5.31E+00	5.31E+00
+	MN-54	834.83		99.97	4.35E-02	7.34E-02	7.34E-02
+	CO-56	846.75		99.96	-2.14E-02	1.17E-01	1.17E-01
		1037.75		14.03	-1.58E-01		9.13E-01
		1238.25		67.00	2.96E-01		3.05E-01
		1771.40		15.51	-5.59E-01		6.72E-01
		2598.48		16.90	-4.16E-02		3.86E-01
+	CO-57	122.06		85.51	-8.96E-03	5.56E-02	5.56E-02
		136.48		10.60	-2.63E-01		4.51E-01
+	CO-58	810.76		99.40	2.59E-03	1.36E-01	1.36E-01
+	FE-59	1099.22		56.50	2.32E-01	5.36E-01	5.36E-01
		1291.56		43.20	-1.60E-01		5.96E-01
+	CO-60	1173.22		100.00	-6.28E-03	5.09E-02	7.14E-02
		1332.49		100.00	-1.50E-02		5.09E-02
+	ZN-65	1115.52		50.75	1.51E-02	1.50E-01	1.50E-01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GA-67	93.31		35.70	3.02E+08	1.80E+08	1.80E+08
		208.95		2.24	1.77E+09		2.66E+09
		300.22		16.00	-5.98E+08		4.13E+08
+	SE-75	121.11		16.70	-2.30E-01	1.11E-01	3.83E-01
		136.00		59.20	-6.47E-02		1.11E-01
		264.65		59.80	3.29E-02		1.26E-01
		279.53		25.20	-2.62E-02		3.15E-01
		400.65		11.40	-3.11E-01		6.45E-01
+	RB-82	776.52		13.00	1.48E+00	6.16E+00	6.16E+00
+	RB-83	520.41		46.00	-1.45E-01	2.18E-01	2.18E-01
		529.64		30.30	-1.05E-01		3.49E-01
		552.65		16.40	-1.11E-01		5.44E-01
+	KR-85	513.99		0.43	8.52E-01	1.64E+01	1.64E+01
+	SR-85	513.99		99.27	1.05E-02	2.03E-01	2.03E-01
+	Y-88	898.02		93.40	-7.10E-03	5.29E-02	1.11E-01
		1836.01		99.38	-1.10E-03		5.29E-02
+	MO-93	263.06		56.72	-1.67E-02	3.67E-02	7.58E-02
		684.67		99.68	2.25E-04		5.25E-02
		1477.11		99.08	-1.96E-02		3.67E-02
+	NB-93M	16.57		9.43	-3.91E-02	4.06E-01	4.06E-01
+	NB-94	702.63		100.00	1.53E-02	5.09E-02	5.68E-02
		871.10		100.00	1.75E-02		5.09E-02
+	NB-95	765.79		99.81	2.05E-01	4.05E-01	4.05E-01
+	NB-95M	235.69		25.00	-2.04E+08	3.57E+07	3.57E+07
+	ZR-95	724.18		43.70	5.95E-02	2.75E-01	3.68E-01
		756.72		55.30	2.94E-02		2.75E-01
+	MO-99	181.06		6.20	4.14E+09	2.71E+10	4.36E+10
		739.58		12.80	1.06E+10		2.71E+10
		778.00		4.50	-8.05E+09		7.34E+10
+	RU-103	497.08		89.00	-2.01E-01	2.54E-01	2.54E-01
+	RU-106	621.84		9.80	-1.61E-01	5.81E-01	5.81E-01
+	AG-108M	433.93		89.90	-1.30E-02	4.83E-02	4.83E-02
		614.37		90.40	-1.27E-02		6.54E-02
		722.95		90.50	1.14E-02		5.47E-02
+	CD-109	88.03	*	3.72	2.22E+00	3.22E+00	3.22E+00
+	AG-110M	657.75		93.14	1.14E-02	7.01E-02	7.01E-02
		677.61		10.53	9.77E-02		6.03E-01
		706.67		16.46	-1.22E-02		4.45E-01
		763.93		21.98	-4.44E-02		2.97E-01
		884.67		71.63	-8.68E-03		9.07E-02
		1384.27		23.94	1.29E-02		2.53E-01
+	CD-113M	263.70		0.02	-5.34E+01	1.83E+02	1.83E+02
+	SN-113	255.12		1.93	-1.82E+00	1.23E-01	3.39E+00
		391.69		64.90	-2.39E-02		1.23E-01
+	TE123M	159.00		84.10	-2.33E-02	7.92E-02	7.92E-02
+	SB-124	602.71		97.87	2.14E-02	1.64E-01	1.64E-01
		645.85		7.26	-4.56E-01		2.00E+00
		722.78		11.10	2.91E-01		1.39E+00

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02		49.00	-2.07E-02	1.64E-01	2.30E-01
+	I-125	35.49		6.49	-5.68E-01	1.84E+00	1.84E+00
+	SB-125	176.33		6.89	-3.58E-01	1.71E-01	5.76E-01
		427.89		29.33	4.66E-02		1.71E-01
		463.38		10.35	4.55E-01		5.83E-01
		600.56		17.80	-1.73E-02		2.89E-01
		635.90		11.32	1.26E-01		4.74E-01
+	SB-126	414.70		83.30	1.46E+00	1.30E+01	1.37E+01
		666.33		99.60	-5.80E+00		1.30E+01
		695.00		99.60	4.10E+00		1.39E+01
		720.50		53.80	1.46E+01		2.32E+01
+	SN-126	87.57	*	37.00	1.93E-01	2.80E-01	2.80E-01
+	SB-127	473.00		25.00	-3.77E+06	7.77E+06	9.28E+06
		685.20		35.70	3.33E+04		7.77E+06
		783.80		14.70	1.10E+07		2.05E+07
+	I-129	29.78		57.00	-2.66E-02	7.62E-02	7.62E-02
		33.60		13.20	-5.06E-02		2.99E-01
		39.58		7.52	-1.04E-01		5.03E-01
+	I-131	284.30		6.05	-5.60E+02	2.69E+02	3.59E+03
		364.48		81.20	-3.54E+01		2.69E+02
		636.97		7.26	-3.64E+01		3.40E+03
		722.89		1.80	2.89E+03		1.38E+04
+	TE-132	49.72		13.10	-1.53E+07	6.16E+07	4.11E+08
		228.16		88.00	1.63E+07		6.16E+07
+	BA-133	81.00		33.00	-4.21E-01	1.05E-01	1.31E-01
		302.84		17.80	-3.88E-02		2.72E-01
		356.01		60.00	4.85E-03		1.05E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.71E+05	5.31E+04	5.31E+04
+	CS-134	563.23		8.38	-1.34E-01	6.41E-02	6.06E-01
		569.32		15.43	2.13E-01		3.60E-01
		604.70		97.60	-5.22E-01		6.41E-02
		795.84		85.40	-1.60E-03		7.64E-02
		801.93		8.73	-1.84E-01		6.50E-01
+	CS-135	268.24		16.00	2.89E-01	3.04E-01	3.04E-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	3.62E+01	9.10E+00	9.75E+01
		163.89		4.61	1.68E+00		1.52E+02
		176.55		13.56	-3.11E+01		5.00E+01
		273.65		12.66	-2.48E+01		6.93E+01
		340.57		48.50	3.81E+01		2.24E+01
		818.50		99.70	3.38E-01		9.10E+00
		1048.07		79.60	-1.52E+00		1.23E+01
		1235.34		19.70	4.81E+00		7.36E+01
+	CS-137	661.65		85.12	-2.89E-02	5.89E-02	5.89E-02
+	LA-138	788.74		34.00	7.28E-03	6.56E-02	1.57E-01
		1435.80		66.00	7.47E-03		6.56E-02

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-139	165.85	80.35	1.64E-02	7.88E-02	7.88E-02
+	BA-140	162.64	6.70	1.07E+01	4.04E+01	1.23E+02
		304.84	4.50	-2.84E+01		2.01E+02
		423.70	3.20	6.96E+01		2.99E+02
		437.55	2.00	2.19E+02		4.88E+02
		537.32	25.00	-1.99E+00		4.04E+01
+	LA-140	328.77	20.50	2.58E+01	9.32E+00	4.95E+01
		487.03	45.50	2.00E-01		2.14E+01
		815.85	23.50	-3.67E+01		4.12E+01
		1596.49	95.49	7.87E-01		9.32E+00
+	CE-141	145.44	48.40	-1.45E-02	6.56E-01	6.56E-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
+	CE-144	133.54	10.80	1.08E-01	4.50E-01	4.50E-01
+	PM-144	476.78	42.00	4.06E-03	6.19E-02	1.21E-01
		618.01	98.60	2.41E-02		6.19E-02
		696.49	99.49	-1.89E-02		6.33E-02
+	PM-145	36.85	21.70	-1.20E-01	9.64E-02	1.74E-01
		37.36	39.70	-3.30E-02		9.64E-02
		42.30	15.10	-3.88E-02		2.53E-01
		72.40	2.31	-2.15E+00		2.35E+00
+	PM-146	453.90	39.94	6.05E-03	1.19E-01	1.19E-01
		735.90	14.01	2.56E-02		3.75E-01
		747.13	13.10	-1.23E-01		4.20E-01
+	ND-147	91.11	28.90	1.40E+02	8.99E+01	8.99E+01
		531.02	13.10	-9.97E+00		1.89E+02
+	PM-149	285.90	3.10	-9.09E+12	4.01E+13	4.01E+13
+	EU-152	121.78	20.50	-1.07E-01	1.79E-01	1.79E-01
		244.69	5.40	-2.36E-01		8.35E-01
		344.27	19.13	-3.56E-03		2.29E-01
		778.89	9.20	1.14E-01		5.77E-01
		964.01	10.40	-1.38E+00		6.84E-01
		1085.78	7.22	6.59E-02		8.22E-01
		1112.02	9.60	-3.02E-02		5.56E-01
		1407.95	14.94	9.35E-02		3.90E-01
+	GD-153	97.43	31.30	2.30E-02	1.60E-01	1.60E-01
		103.18	22.20	-3.60E-02		2.25E-01
+	EU-154	123.07	40.50	2.73E-02	9.44E-02	9.44E-02
		723.30	19.70	5.36E-02		2.57E-01
		873.19	11.50	-3.39E-02		4.27E-01
		996.32	10.30	-1.26E-01		5.31E-01
		1004.76	17.90	1.34E-02		3.26E-01
		1274.45	35.50	-2.43E-02		1.60E-01
+	EU-155	86.50	30.90	1.15E-01	1.61E-01	1.61E-01
		105.30	20.70	1.18E-01		1.96E-01
+	EU-156	811.77	10.40	-6.88E+00	4.29E+01	4.29E+01
		1153.47	7.20	2.15E+01		9.06E+01
		1230.71	8.90	2.65E+01		7.05E+01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HO-166M	184.41		72.60	9.47E-02	6.57E-02	6.57E-02
		280.45		29.60	6.41E-03		1.49E-01
		410.94		11.10	1.69E-01		4.26E-01
		711.69		54.10	3.41E-02		9.75E-02
+	TM-171	66.72		0.14	-3.69E+01	3.57E+01	3.57E+01
+	HF-172	67.35		5.31	-7.68E-01	3.63E-01	9.36E-01
		125.81		11.30	-2.11E-01		3.63E-01
+	LU-172	181.53		20.60	5.23E+02	2.59E+03	5.50E+03
		900.72		29.81	-1.85E+03		5.33E+03
		1093.66		62.50	-5.32E+01		2.59E+03
+	LU-173	100.72		5.24	-5.64E-02	2.67E-01	8.10E-01
		272.11		21.20	-9.06E-03		2.67E-01
+	HF-175	343.40		84.00	-2.12E-03	1.39E-01	1.39E-01
+	LU-176	88.34		13.30	-1.25E-01	4.50E-02	3.65E-01
		201.83		86.00	-1.18E-02		4.62E-02
		306.78		94.00	-1.20E-02		4.50E-02
+	HF-181	133.02		41.70	1.11E-01	2.75E-01	4.61E-01
		345.85		17.20	-1.97E-02		1.26E+00
		482.03		82.80	5.93E-02		2.75E-01
+	TA-182	67.75		41.20	-1.63E-01	1.99E-01	1.99E-01
		1121.30		34.90	6.68E-01		4.82E-01
		1189.05		16.23	3.77E-02		7.59E-01
		1221.41		26.98	1.28E-01		4.75E-01
		1231.02		11.44	4.12E-01		1.10E+00
+	IR-192	308.46		29.68	9.26E-02	2.56E-01	3.60E-01
		468.07		48.10	1.01E-02		2.56E-01
+	HG-203	279.19		77.30	-2.10E-02	2.52E-01	2.52E-01
+	TL-204	374.74		94.11	2.26E-02	5.21E-02	5.21E-02
		899.15		99.16	-1.29E-02		6.03E-02
		911.74		91.10	3.38E-01		1.25E-01
+	BI-207	569.67		97.72	3.09E-02	5.13E-02	5.13E-02
		1063.62		74.90	-3.93E-02		7.27E-02
+	TL-208	583.14	*	30.22	7.90E-01	2.71E-01	2.71E-01
		860.37	*	4.48	1.71E+00		1.31E+00
		2614.66		35.85	7.83E-01		4.18E-01
+	BI-210M	262.00		45.00	2.32E-02	9.67E-02	9.67E-02
		300.00		23.00	-7.42E-01		2.20E-01
+	PB-210	46.50	*	4.25	7.19E-01	1.25E+00	1.25E+00
+	PB-211	404.84		2.90	-6.14E-01	1.53E+00	1.53E+00
		831.96		2.90	-2.61E-01		1.79E+00
+	BI-212	727.17	*	11.80	6.35E-01	7.44E-01	7.44E-01
		1620.62	*	2.75	9.08E-01		9.73E-01
+	PB-212	238.63	*	44.60	9.24E-01	2.01E-01	2.01E-01
		300.09	*	3.41	1.63E+00		2.14E+00
+	BI-214	609.31	*	46.30	8.52E-01	1.82E-01	1.82E-01
		1120.29	*	15.10	8.89E-01		6.65E-01
		1764.49	*	15.80	7.78E-01		3.93E-01
		2204.22	*	4.98	8.53E-01		5.23E-01

Analysis Report for 1707086-16

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-214	295.21	*	19.19	9.18E-01	1.65E-01	3.70E-01
		351.92	*	37.19	9.23E-01		1.65E-01
+	RN-219	401.80		6.50	4.57E-02	6.54E-01	6.54E-01
+	RA-223	323.87		3.88	-1.29E-01	1.08E+00	1.08E+00
+	RA-224	240.98	*	3.95	2.73E+00	2.27E+00	2.27E+00
+	RA-225	40.00		31.00	1.49E+00	1.28E+01	1.28E+01
+	RA-226	186.21	*	3.28	2.15E+00	1.82E+00	1.82E+00
+	TH-227	50.10		8.40	-3.26E-02	4.42E-01	4.73E-01
		236.00		11.50	-2.53E+00		4.42E-01
		256.20		6.30	1.88E-01		6.98E-01
+	AC-228	338.32	*	11.40	1.19E+00	3.78E-01	5.64E-01
		911.07	*	27.70	8.22E-01		3.78E-01
		969.11	*	16.60	8.93E-01		1.03E+00
+	TH-230	48.44		16.90	-9.00E-02	2.44E-01	2.44E-01
		62.85		4.60	9.60E-01		1.05E+00
		67.67		0.37	-9.97E+00		1.21E+01
+	PA-231	283.67		1.60	2.92E-01	2.07E+00	2.68E+00
		302.67		2.30	-2.95E-01		2.07E+00
+	TH-231	25.64		14.70	-2.60E+00	3.76E-01	3.76E-01
		84.21		6.40	-4.58E-01		6.98E-01
+	PA-233	311.98		38.60	-4.00E-01	1.36E+00	1.36E+00
+	PA-234	131.20		20.40	-2.42E-02	1.88E-01	1.88E-01
		733.99		8.80	-8.35E-02		5.79E-01
		946.00		12.00	2.58E-01		5.15E-01
+	PA-234M	1001.03	*	0.92	6.53E+00	6.87E+00	6.87E+00
+	TH-234	63.29		3.80	1.57E+00	1.28E+00	1.28E+00
+	U-235	143.76		10.50	1.10E-01	3.78E-01	3.78E-01
		163.35		4.70	9.00E-03		8.14E-01
		205.31		4.70	8.44E-02		8.50E-01
+	NP-237	86.50		12.60	2.72E-01	3.79E-01	3.79E-01
+	NP-239	106.10		22.70	1.34E+11	7.42E+11	7.42E+11
		228.18		10.70	4.28E+11		1.62E+12
		277.60		14.10	8.54E+11		1.42E+12
+	AM-241	59.54		35.90	-5.38E-02	1.21E-01	1.21E-01
+	AM-243	74.67	*	66.00	1.92E-01	1.37E-01	1.37E-01
+	CM-243	209.75	*	3.29	8.08E-01	3.77E-01	1.51E+00
		228.14		10.60	9.99E-02		3.77E-01
		277.60	*	14.00	2.49E-01		3.83E-01

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

Analysis Report for 1707086-16

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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	1.50E+00	1.50E+00	3.67E-01	7.08E-01
	NA-22	1274.54		99.94	5.97E-02	5.97E-02	-9.07E-03	2.73E-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	3.22E-02	3.22E-02	-1.03E-02	1.30E-02
+	K-40	1460.81	*	10.67	6.18E-01	6.18E-01	1.78E+01	2.84E-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	4.77E-02	4.77E-02	-3.92E-02	2.34E-02
		78.34		96.00	6.09E-02		1.19E-01	2.99E-02
	SC-46	889.25		99.98	1.21E-01	1.21E-01	6.97E-02	5.62E-02
		1120.51		99.99	2.03E-01		2.24E-01	9.68E-02
	V-48	983.52		99.98	4.14E+00	3.93E+00	-3.35E+00	1.93E+00
		1312.10		97.50	3.93E+00		-1.55E-01	1.78E+00
	CR-51	320.08		9.83	5.31E+00	5.31E+00	7.84E-01	2.55E+00
	MN-54	834.83		99.97	7.34E-02	7.34E-02	4.35E-02	3.45E-02
	CO-56	846.75		99.96	1.17E-01	1.17E-01	-2.14E-02	5.43E-02
		1037.75		14.03	9.13E-01		-1.58E-01	4.22E-01
		1238.25		67.00	3.05E-01		2.96E-01	1.44E-01
		1771.40		15.51	6.72E-01		-5.59E-01	2.89E-01
		2598.48		16.90	3.86E-01		-4.16E-02	1.37E-01
	CO-57	122.06		85.51	5.56E-02	5.56E-02	-8.96E-03	2.70E-02
		136.48		10.60	4.51E-01		-2.63E-01	2.19E-01
	CO-58	810.76		99.40	1.36E-01	1.36E-01	2.59E-03	6.32E-02
	FE-59	1099.22		56.50	5.36E-01	5.36E-01	2.32E-01	2.50E-01
		1291.56		43.20	5.96E-01		-1.60E-01	2.72E-01
	CO-60	1173.22		100.00	7.14E-02	5.09E-02	-6.28E-03	3.34E-02
		1332.49		100.00	5.09E-02		-1.50E-02	2.29E-02
	ZN-65	1115.52		50.75	1.50E-01	1.50E-01	1.51E-02	6.96E-02
	GA-67	93.31		35.70	1.80E+08	1.80E+08	3.02E+08	8.80E+07
		208.95		2.24	2.66E+09		1.77E+09	1.29E+09
		300.22		16.00	4.13E+08		-5.98E+08	2.00E+08
	SE-75	121.11		16.70	3.83E-01	1.11E-01	-2.30E-01	1.86E-01
		136.00		59.20	1.11E-01		-6.47E-02	5.39E-02
		264.65		59.80	1.26E-01		3.29E-02	6.06E-02
		279.53		25.20	3.15E-01		-2.62E-02	1.52E-01
		400.65		11.40	6.45E-01		-3.11E-01	3.07E-01
	RB-82	776.52		13.00	6.16E+00	6.16E+00	1.48E+00	2.90E+00

Analysis Report for 1707086-16

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	2.18E-01	2.18E-01	-1.45E-01	1.03E-01
		529.64		30.30	3.49E-01		-1.05E-01	1.66E-01
		552.65		16.40	5.44E-01		-1.11E-01	2.55E-01
	KR-85	513.99		0.43	1.64E+01	1.64E+01	8.52E-01	7.93E+00
	SR-85	513.99		99.27	2.03E-01	2.03E-01	1.05E-02	9.80E-02
	Y-88	898.02		93.40	1.11E-01	5.29E-02	-7.10E-03	5.17E-02
		1836.01		99.38	5.29E-02		-1.10E-03	2.05E-02
	MO-93	263.06		56.72	7.58E-02	3.67E-02	-1.67E-02	3.66E-02
		684.67		99.68	5.25E-02		2.25E-04	2.47E-02
		1477.11		99.08	3.67E-02		-1.96E-02	1.56E-02
	NB-93M	16.57		9.43	4.06E-01	4.06E-01	-3.91E-02	1.90E-01
	NB-94	702.63		100.00	5.68E-02	5.09E-02	1.53E-02	2.69E-02
		871.10		100.00	5.09E-02		1.75E-02	2.36E-02
	NB-95	765.79		99.81	4.05E-01	4.05E-01	2.05E-01	1.91E-01
	NB-95M	235.69		25.00	3.57E+07	3.57E+07	-2.04E+08	1.74E+07
	ZR-95	724.18		43.70	3.68E-01	2.75E-01	5.95E-02	1.74E-01
		756.72		55.30	2.75E-01		2.94E-02	1.29E-01
	MO-99	181.06		6.20	4.36E+10	2.71E+10	4.14E+09	2.11E+10
		739.58		12.80	2.71E+10		1.06E+10	1.27E+10
		778.00		4.50	7.34E+10		-8.05E+09	3.43E+10
	RU-103	497.08		89.00	2.54E-01	2.54E-01	-2.01E-01	1.19E-01
	RU-106	621.84		9.80	5.81E-01	5.81E-01	-1.61E-01	2.73E-01
	AG-108M	433.93		89.90	4.83E-02	4.83E-02	-1.30E-02	2.30E-02
		614.37		90.40	6.54E-02		-1.27E-02	3.12E-02
		722.95		90.50	5.47E-02		1.14E-02	2.56E-02
+	CD-109	88.03	*	3.72	3.22E+00	3.22E+00	2.22E+00	1.60E+00
	AG-110M	657.75		93.14	7.01E-02	7.01E-02	1.14E-02	3.30E-02
		677.61		10.53	6.03E-01		9.77E-02	2.83E-01
		706.67		16.46	4.45E-01		-1.22E-02	2.10E-01
		763.93		21.98	2.97E-01		-4.44E-02	1.39E-01
		884.67		71.63	9.07E-02		-8.68E-03	4.20E-02
		1384.27		23.94	2.53E-01		1.29E-02	1.13E-01
	CD-113M	263.70		0.02	1.83E+02	1.83E+02	-5.34E+01	8.80E+01
	SN-113	255.12		1.93	3.39E+00	1.23E-01	-1.82E+00	1.62E+00
		391.69		64.90	1.23E-01		-2.39E-02	5.88E-02
	TE123M	159.00		84.10	7.92E-02	7.92E-02	-2.33E-02	3.84E-02
	SB-124	602.71		97.87	1.64E-01	1.64E-01	2.14E-02	7.76E-02
		645.85		7.26	2.00E+00		-4.56E-01	9.38E-01
		722.78		11.10	1.39E+00		2.91E-01	6.51E-01
		1691.02		49.00	2.30E-01		-2.07E-02	9.64E-02
	I-125	35.49		6.49	1.84E+00	1.84E+00	-5.68E-01	8.92E-01
	SB-125	176.33		6.89	5.76E-01	1.71E-01	-3.58E-01	2.79E-01
		427.89		29.33	1.71E-01		4.66E-02	8.17E-02
		463.38		10.35	5.83E-01		4.55E-01	2.80E-01
		600.56		17.80	2.89E-01		-1.73E-02	1.36E-01
		635.90		11.32	4.74E-01		1.26E-01	2.24E-01
	SB-126	414.70		83.30	1.37E+01	1.30E+01	1.46E+00	6.54E+00
		666.33		99.60	1.30E+01		-5.80E+00	6.12E+00
		695.00		99.60	1.39E+01		4.10E+00	6.56E+00
		720.50		53.80	2.32E+01		1.46E+01	1.09E+01
+	SN-126	87.57	*	37.00	2.80E-01	2.80E-01	1.93E-01	1.38E-01
	SB-127	473.00		25.00	9.28E+06	7.77E+06	-3.77E+06	4.40E+06
		685.20		35.70	7.77E+06		3.33E+04	3.66E+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)
SB-127	783.80	14.70	2.05E+07	7.77E+06	1.10E+07	9.62E+06
I-129	29.78	57.00	7.62E-02	7.62E-02	-2.66E-02	3.69E-02
	33.60	13.20	2.99E-01		-5.06E-02	1.45E-01
	39.58	7.52	5.03E-01		-1.04E-01	2.44E-01
I-131	284.30	6.05	3.59E+03	2.69E+02	-5.60E+02	1.73E+03
	364.48	81.20	2.69E+02		-3.54E+01	1.29E+02
	636.97	7.26	3.40E+03		-3.64E+01	1.60E+03
	722.89	1.80	1.38E+04		2.89E+03	6.48E+03
TE-132	49.72	13.10	4.11E+08	6.16E+07	-1.53E+07	2.00E+08
	228.16	88.00	6.16E+07		1.63E+07	2.98E+07
BA-133	81.00	33.00	1.31E-01	1.05E-01	-4.21E-01	6.39E-02
	302.84	17.80	2.72E-01		-3.88E-02	1.31E-01
	356.01	60.00	1.05E-01		4.85E-03	5.08E-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	5.31E+04	5.31E+04	-1.71E+05	2.59E+04
CS-134	563.23	8.38	6.06E-01	6.41E-02	-1.34E-01	2.86E-01
	569.32	15.43	3.60E-01		2.13E-01	1.71E-01
	604.70	97.60	6.41E-02		-5.22E-01	3.05E-02
	795.84	85.40	7.64E-02		-1.60E-03	3.60E-02
	801.93	8.73	6.50E-01		-1.84E-01	3.04E-01
CS-135	268.24	16.00	3.04E-01	3.04E-01	2.89E-01	1.47E-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	9.75E+01	9.10E+00	3.62E+01	4.74E+01
	163.89	4.61	1.52E+02		1.68E+00	7.37E+01
	176.55	13.56	5.00E+01		-3.11E+01	2.42E+01
	273.65	12.66	6.93E+01		-2.48E+01	3.35E+01
	340.57	48.50	2.24E+01		3.81E+01	1.09E+01
	818.50	99.70	9.10E+00		3.38E-01	4.24E+00
	1048.07	79.60	1.23E+01		-1.52E+00	5.67E+00
	1235.34	19.70	7.36E+01		4.81E+00	3.46E+01
CS-137	661.65	85.12	5.89E-02	5.89E-02	-2.89E-02	2.77E-02
LA-138	788.74	34.00	1.57E-01	6.56E-02	7.28E-03	7.38E-02
	1435.80	66.00	6.56E-02		7.47E-03	2.89E-02
CE-139	165.85	80.35	7.88E-02	7.88E-02	1.64E-02	3.82E-02
BA-140	162.64	6.70	1.23E+02	4.04E+01	1.07E+01	5.95E+01
	304.84	4.50	2.01E+02		-2.84E+01	9.68E+01
	423.70	3.20	2.99E+02		6.96E+01	1.43E+02
	437.55	2.00	4.88E+02		2.19E+02	2.32E+02
	537.32	25.00	4.04E+01		-1.99E+00	1.91E+01
LA-140	328.77	20.50	4.95E+01	9.32E+00	2.58E+01	2.38E+01
	487.03	45.50	2.14E+01		2.00E-01	1.02E+01
	815.85	23.50	4.12E+01		-3.67E+01	1.91E+01
	1596.49	95.49	9.32E+00		7.87E-01	4.03E+00
CE-141	145.44	48.40	6.56E-01	6.56E-01	-1.45E-02	3.19E-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	4.50E-01	4.50E-01	1.08E-01	2.19E-01
PM-144	476.78	42.00	1.21E-01	6.19E-02	4.06E-03	5.71E-02
	618.01	98.60	6.19E-02		2.41E-02	2.92E-02
	696.49	99.49	6.33E-02		-1.89E-02	2.98E-02

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-145	36.85	21.70	1.74E-01	9.64E-02	-1.20E-01	8.42E-02
	37.36	39.70	9.64E-02		-3.30E-02	4.67E-02
	42.30	15.10	2.53E-01		-3.88E-02	1.23E-01
	72.40	2.31	2.35E+00		-2.15E+00	1.15E+00
PM-146	453.90	39.94	1.19E-01	1.19E-01	6.05E-03	5.68E-02
	735.90	14.01	3.75E-01		2.56E-02	1.76E-01
	747.13	13.10	4.20E-01		-1.23E-01	1.97E-01
ND-147	91.11	28.90	8.99E+01	8.99E+01	1.40E+02	4.41E+01
	531.02	13.10	1.89E+02		-9.97E+00	8.94E+01
PM-149	285.90	3.10	4.01E+13	4.01E+13	-9.09E+12	1.93E+13
EU-152	121.78	20.50	1.79E-01	1.79E-01	-1.07E-01	8.69E-02
	244.69	5.40	8.35E-01		-2.36E-01	4.04E-01
	344.27	19.13	2.29E-01		-3.56E-03	1.10E-01
	778.89	9.20	5.77E-01		1.14E-01	2.70E-01
	964.01	10.40	6.84E-01		-1.38E+00	3.23E-01
	1085.78	7.22	8.22E-01		6.59E-02	3.81E-01
	1112.02	9.60	5.56E-01		-3.02E-02	2.55E-01
	1407.95	14.94	3.90E-01		9.35E-02	1.78E-01
GD-153	97.43	31.30	1.60E-01	1.60E-01	2.30E-02	7.77E-02
	103.18	22.20	2.25E-01		-3.60E-02	1.10E-01
EU-154	123.07	40.50	9.44E-02	9.44E-02	2.73E-02	4.59E-02
	723.30	19.70	2.57E-01		5.36E-02	1.20E-01
	873.19	11.50	4.27E-01		-3.39E-02	1.97E-01
	996.32	10.30	5.31E-01		-1.26E-01	2.46E-01
	1004.76	17.90	3.26E-01		1.34E-02	1.51E-01
	1274.45	35.50	1.60E-01		-2.43E-02	7.30E-02
EU-155	86.50	30.90	1.61E-01	1.61E-01	1.15E-01	7.86E-02
	105.30	20.70	1.96E-01		1.18E-01	9.54E-02
EU-156	811.77	10.40	4.29E+01	4.29E+01	-6.88E+00	2.00E+01
	1153.47	7.20	9.06E+01		2.15E+01	4.25E+01
	1230.71	8.90	7.05E+01		2.65E+01	3.29E+01
HO-166M	184.41	72.60	6.57E-02	6.57E-02	9.47E-02	3.20E-02
	280.45	29.60	1.49E-01		6.41E-03	7.20E-02
	410.94	11.10	4.26E-01		1.69E-01	2.04E-01
	711.69	54.10	9.75E-02		3.41E-02	4.59E-02
TM-171	66.72	0.14	3.57E+01	3.57E+01	-3.69E+01	1.75E+01
HF-172	67.35	5.31	9.36E-01	3.63E-01	-7.68E-01	4.58E-01
	125.81	11.30	3.63E-01		-2.11E-01	1.77E-01
LU-172	181.53	20.60	5.50E+03	2.59E+03	5.23E+02	2.67E+03
	900.72	29.81	5.33E+03		-1.85E+03	2.49E+03
	1093.66	62.50	2.59E+03		-5.32E+01	1.20E+03
LU-173	100.72	5.24	8.10E-01	2.67E-01	-5.64E-02	3.94E-01
	272.11	21.20	2.67E-01		-9.06E-03	1.29E-01
HF-175	343.40	84.00	1.39E-01	1.39E-01	-2.12E-03	6.68E-02
LU-176	88.34	13.30	3.65E-01	4.50E-02	-1.25E-01	1.79E-01
	201.83	86.00	4.62E-02		-1.18E-02	2.24E-02
	306.78	94.00	4.50E-02		-1.20E-02	2.16E-02
HF-181	133.02	41.70	4.61E-01	2.75E-01	1.11E-01	2.24E-01
	345.85	17.20	1.26E+00		-1.97E-02	6.02E-01
	482.03	82.80	2.75E-01		5.93E-02	1.30E-01
TA-182	67.75	41.20	1.99E-01	1.99E-01	-1.63E-01	9.71E-02
	1121.30	34.90	4.82E-01		6.68E-01	2.30E-01
	1189.05	16.23	7.59E-01		3.77E-02	3.54E-01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	4.75E-01	1.99E-01	1.28E-01	2.22E-01
		1231.02		11.44	1.10E+00		4.12E-01	5.11E-01
	IR-192	308.46		29.68	3.60E-01	2.56E-01	9.26E-02	1.73E-01
		468.07		48.10	2.56E-01		1.01E-02	1.22E-01
	HG-203	279.19		77.30	2.52E-01	2.52E-01	-2.10E-02	1.22E-01
	TL-204	374.74		94.11	5.21E-02	5.21E-02	2.26E-02	2.50E-02
		899.15		99.16	6.03E-02		-1.29E-02	2.82E-02
		911.74		91.10	1.25E-01		3.38E-01	6.03E-02
	BI-207	569.67		97.72	5.13E-02	5.13E-02	3.09E-02	2.43E-02
		1063.62		74.90	7.27E-02		-3.93E-02	3.35E-02
+	TL-208	583.14	*	30.22	2.71E-01	2.71E-01	7.90E-01	1.31E-01
		860.37	*	4.48	1.31E+00		1.71E+00	6.16E-01
		2614.66		35.85	4.18E-01		7.83E-01	1.98E-01
	BI-210M	262.00		45.00	9.67E-02	9.67E-02	2.32E-02	4.67E-02
		300.00		23.00	2.20E-01		-7.42E-01	1.06E-01
+	PB-210	46.50	*	4.25	1.25E+00	1.25E+00	7.19E-01	6.11E-01
	PB-211	404.84		2.90	1.53E+00	1.53E+00	-6.14E-01	7.29E-01
		831.96		2.90	1.79E+00		-2.61E-01	8.33E-01
+	BI-212	727.17	*	11.80	7.44E-01	7.44E-01	6.35E-01	3.59E-01
		1620.62	*	2.75	9.73E-01		9.08E-01	3.83E-01
+	PB-212	238.63	*	44.60	2.01E-01	2.01E-01	9.24E-01	9.91E-02
		300.09	*	3.41	2.14E+00		1.63E+00	1.05E+00
+	BI-214	609.31	*	46.30	1.82E-01	1.82E-01	8.52E-01	8.83E-02
		1120.29	*	15.10	6.65E-01		8.89E-01	3.18E-01
		1764.49	*	15.80	3.93E-01		7.78E-01	1.78E-01
		2204.22	*	4.98	5.23E-01		8.53E-01	1.90E-01
+	PB-214	295.21	*	19.19	3.70E-01	1.65E-01	9.18E-01	1.81E-01
		351.92	*	37.19	1.65E-01		9.23E-01	7.99E-02
	RN-219	401.80		6.50	6.54E-01	6.54E-01	4.57E-02	3.11E-01
	RA-223	323.87		3.88	1.08E+00	1.08E+00	-1.29E-01	5.17E-01
+	RA-224	240.98	*	3.95	2.27E+00	2.27E+00	2.73E+00	1.12E+00
	RA-225	40.00		31.00	1.28E+01	1.28E+01	1.49E+00	6.19E+00
+	RA-226	186.21	*	3.28	1.82E+00	1.82E+00	2.15E+00	8.93E-01
	TH-227	50.10		8.40	4.73E-01	4.42E-01	-3.26E-02	2.30E-01
		236.00		11.50	4.42E-01		-2.53E+00	2.15E-01
		256.20		6.30	6.98E-01		1.88E-01	3.37E-01
+	AC-228	338.32	*	11.40	5.64E-01	3.78E-01	1.19E+00	2.74E-01
		911.07	*	27.70	3.78E-01		8.22E-01	1.82E-01
		969.11	*	16.60	1.03E+00		8.93E-01	5.03E-01
	TH-230	48.44		16.90	2.44E-01	2.44E-01	-9.00E-02	1.19E-01
		62.85		4.60	1.05E+00		9.60E-01	5.14E-01
		67.67		0.37	1.21E+01		-9.97E+00	5.94E+00
	PA-231	283.67		1.60	2.68E+00	2.07E+00	2.92E-01	1.29E+00
		302.67		2.30	2.07E+00		-2.95E-01	9.98E-01
	TH-231	25.64		14.70	3.76E-01	3.76E-01	-2.60E+00	1.83E-01
		84.21		6.40	6.98E-01		-4.58E-01	3.41E-01
	PA-233	311.98		38.60	1.36E+00	1.36E+00	-4.00E-01	6.55E-01
	PA-234	131.20		20.40	1.88E-01	1.88E-01	-2.42E-02	9.15E-02
		733.99		8.80	5.79E-01		-8.35E-02	2.72E-01
		946.00		12.00	5.15E-01		2.58E-01	2.41E-01
+	PA-234M	1001.03	*	0.92	6.87E+00	6.87E+00	6.53E+00	3.22E+00
	TH-234	63.29		3.80	1.28E+00	1.28E+00	1.57E+00	6.29E-01
	U-235	143.76		10.50	3.78E-01	3.78E-01	1.10E-01	1.84E-01

Analysis Report for 1707086-16

HTC-A03-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	163.35		4.70	8.14E-01	3.78E-01	9.00E-03	3.95E-01
		205.31		4.70	8.50E-01		8.44E-02	4.11E-01
	NP-237	86.50		12.60	3.79E-01	3.79E-01	2.72E-01	1.86E-01
	NP-239	106.10		22.70	7.42E+11	7.42E+11	1.34E+11	3.61E+11
		228.18		10.70	1.62E+12		4.28E+11	7.81E+11
		277.60		14.10	1.42E+12		8.54E+11	6.85E+11
	AM-241	59.54		35.90	1.21E-01	1.21E-01	-5.38E-02	5.90E-02
+	AM-243	74.67	*	66.00	1.37E-01	1.37E-01	1.92E-01	6.80E-02
+	CM-243	209.75	*	3.29	1.51E+00	3.77E-01	8.08E-01	7.35E-01
		228.14		10.60	3.77E-01		9.99E-02	1.82E-01
		277.60	*	14.00	3.83E-01		2.49E-01	1.86E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

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-A03-S001-1824-01

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	0	70	74	93	161	520	133
25:	61	66	64	67	53	74	60	52
33:	69	65	63	52	65	59	64	77
41:	74	65	76	76	73	106	141	96
49:	94	75	85	106	106	116	81	116
57:	103	111	111	126	121	148	157	218
65:	142	138	132	143	149	132	171	152
73:	171	192	323	315	366	429	159	116
81:	130	135	111	136	139	140	170	233
89:	114	165	138	137	249	197	107	96
97:	90	94	101	95	92	88	80	81
105:	105	114	96	103	70	108	95	87
113:	108	81	93	102	102	76	88	71
121:	96	78	85	67	88	105	75	76
129:	104	99	85	77	91	76	94	80
137:	71	69	75	78	106	86	87	93
145:	84	78	73	71	71	82	77	81
153:	86	85	87	70	78	65	78	66
161:	76	66	77	76	70	67	75	67
169:	62	67	72	66	64	68	67	64
177:	64	63	52	89	64	66	86	63
185:	78	143	127	87	57	63	59	58
193:	61	69	49	68	76	52	69	60
201:	73	69	57	50	62	77	57	60
209:	89	96	72	48	66	57	76	57
217:	47	43	58	56	60	46	51	51
225:	59	49	55	59	36	60	57	51
233:	41	57	65	59	53	191	513	212
241:	99	155	104	63	51	45	46	35
249:	43	35	40	51	32	34	28	48
257:	42	37	55	40	27	41	39	38
265:	30	38	29	37	44	70	71	41
273:	38	35	31	46	50	54	33	35
281:	30	34	27	41	36	29	38	32
289:	34	43	36	31	32	45	153	166
297:	50	29	43	65	53	44	21	34
305:	31	18	31	31	36	24	34	29
313:	23	20	27	28	32	30	31	38
321:	23	25	30	26	32	19	30	49
329:	44	32	30	34	24	32	24	29
337:	34	83	116	45	32	29	29	23
345:	18	38	19	25	25	32	76	299
353:	175	48	33	23	30	26	25	27
361:	22	15	28	21	25	26	23	29

369:	28	23	20	26	22	22	29	32

Sample Title: HTC-A03-S001-1824-01

Channel								
377:	27	29	20	27	20	31	30	29
385:	19	18	25	25	25	22	22	26
393:	19	21	20	24	22	14	14	27
401:	15	26	20	16	20	25	15	27
409:	24	31	22	17	27	19	22	19
417:	20	27	17	15	13	16	22	22
425:	26	22	23	19	23	19	22	18
433:	18	14	26	10	20	22	18	22
441:	24	18	16	22	14	17	20	22
449:	22	18	19	17	19	20	23	16
457:	21	21	15	21	17	33	40	41
465:	28	19	22	26	20	17	13	17
473:	18	11	20	14	17	14	17	10
481:	17	23	21	18	12	11	19	25
489:	21	14	12	14	20	19	12	8
497:	12	12	9	13	16	19	18	20
505:	23	19	21	14	26	50	96	67
513:	26	20	18	21	18	20	14	15
521:	10	16	16	14	17	23	18	16
529:	17	21	7	19	16	19	16	12
537:	16	11	16	20	7	23	14	13
545:	14	14	16	7	14	9	9	10
553:	8	11	14	13	9	17	7	16
561:	10	15	12	17	11	16	19	17
569:	16	15	14	18	12	9	11	11
577:	15	8	16	11	21	32	121	109
585:	37	18	17	16	19	15	12	13
593:	14	9	14	16	11	8	13	14
601:	15	16	10	18	14	21	14	41
609:	160	163	53	18	22	8	15	13
617:	11	19	16	15	11	7	11	17
625:	9	17	10	19	8	19	13	12
633:	17	15	12	10	11	15	14	12
641:	10	13	9	10	8	15	8	17
649:	11	16	11	19	10	10	11	8
657:	17	12	8	17	14	15	10	12
665:	11	21	12	14	12	19	16	11
673:	5	10	10	9	9	11	11	13
681:	15	12	13	15	12	15	8	13
689:	9	14	13	20	13	12	10	8
697:	17	19	9	13	13	10	21	10
705:	21	16	11	13	17	11	15	12
713:	15	11	6	6	12	10	10	10
721:	7	15	11	6	9	16	29	38
729:	16	9	11	13	8	13	19	8
737:	5	13	10	10	12	12	19	12
745:	13	5	13	13	9	17	9	15
753:	11	14	10	8	14	13	8	10
761:	8	9	9	16	4	10	12	18
769:	23	6	16	9	20	13	8	17
777:	12	7	5	11	7	15	10	9
785:	13	16	14	10	8	8	12	8
793:	14	14	23	16	6	12	9	14

801:	8	9	6	8	15	16	11	11

Sample Title: HTC-A03-S001-1824-01

Channel								
809:	9	9	11	11	8	7	5	8
817:	9	8	6	12	13	11	8	7
825:	7	6	7	7	10	7	3	13
833:	9	8	15	14	12	14	15	7
841:	13	6	8	7	9	8	11	5
849:	4	12	8	13	7	10	13	5
857:	11	10	18	20	31	14	2	7
865:	8	7	7	8	11	7	11	4
873:	10	7	7	5	7	6	7	12
881:	11	9	6	4	2	8	13	8
889:	6	10	7	10	4	11	5	10
897:	10	16	9	7	7	11	11	16
905:	15	7	7	12	10	44	101	71
913:	14	13	7	9	8	6	7	9
921:	8	10	6	4	7	3	12	8
929:	5	9	11	14	11	17	14	10
937:	8	5	13	8	5	8	10	14
945:	10	5	12	12	14	7	11	11
953:	10	11	9	4	5	5	16	9
961:	12	7	14	18	23	13	11	28
969:	54	36	7	11	9	6	8	7
977:	10	14	11	8	9	6	9	8
985:	12	8	13	14	11	5	6	6
993:	10	9	9	2	5	6	11	10
1001:	11	15	5	9	10	4	5	7
1009:	7	6	10	8	4	6	6	5
1017:	8	9	10	5	5	6	6	2
1025:	7	7	12	8	8	7	6	11
1033:	11	7	7	4	7	11	10	3
1041:	7	4	3	8	5	4	6	7
1049:	6	11	9	10	9	12	14	6
1057:	6	4	10	3	6	11	12	5
1065:	5	6	2	21	4	8	8	9
1073:	12	4	8	7	6	2	8	7
1081:	9	6	9	9	8	8	7	8
1089:	5	9	6	6	7	5	7	14
1097:	7	11	8	7	11	10	10	6
1105:	6	8	4	8	5	4	6	4
1113:	8	6	9	9	4	11	21	43
1121:	27	14	10	12	9	10	4	10
1129:	9	9	7	9	5	9	10	10
1137:	6	7	13	9	7	14	8	7
1145:	6	9	13	13	5	7	10	11
1153:	9	13	17	10	8	12	4	9
1161:	5	8	8	12	11	8	12	12
1169:	6	10	10	6	10	9	15	9
1177:	8	15	7	11	10	9	4	10
1185:	8	7	5	13	9	11	9	11
1193:	7	11	14	5	10	8	10	8
1201:	14	13	10	6	16	10	13	6
1209:	13	15	6	18	10	7	13	6
1217:	13	7	14	5	9	10	12	11
1225:	7	7	8	5	11	7	11	17

1233:	5	8	6	12	16	22	20	14

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Channel								
1241:	11	6	11	14	6	13	3	9
1249:	7	5	10	9	9	10	7	8
1257:	3	11	6	3	3	5	7	8
1265:	11	9	8	6	7	7	7	7
1273:	5	1	8	4	6	6	5	9
1281:	13	8	5	5	4	11	5	6
1289:	5	8	4	6	4	4	5	6
1297:	3	2	4	4	6	10	11	3
1305:	6	6	8	7	4	6	6	3
1313:	3	3	1	6	8	10	6	6
1321:	6	5	3	5	5	8	5	4
1329:	3	3	2	6	2	3	8	7
1337:	4	2	2	4	9	5	3	2
1345:	2	3	3	4	3	7	7	2
1353:	0	3	3	6	4	1	8	4
1361:	5	3	4	6	6	5	6	6
1369:	2	4	4	2	5	6	5	5
1377:	11	7	10	3	2	3	4	5
1385:	2	3	3	2	2	4	3	5
1393:	3	3	3	5	5	3	3	1
1401:	7	4	5	3	3	5	3	13
1409:	8	0	2	5	2	3	1	2
1417:	2	8	4	3	1	1	3	4
1425:	2	1	2	2	2	0	2	5
1433:	2	3	0	1	4	3	4	2
1441:	2	3	2	5	2	2	4	6
1449:	2	1	4	1	3	1	2	1
1457:	8	8	77	328	389	168	34	14
1465:	19	12	7	0	1	2	3	4
1473:	2	1	1	0	4	2	1	1
1481:	4	3	3	3	1	5	0	4
1489:	0	1	3	3	2	2	7	7
1497:	3	4	3	4	3	4	0	0
1505:	0	3	1	5	5	3	3	2
1513:	3	2	0	4	3	6	1	2
1521:	0	2	2	4	0	3	0	3
1529:	3	2	1	1	1	2	0	0
1537:	1	2	2	0	4	2	3	4
1545:	5	3	0	0	0	0	1	0
1553:	2	1	3	1	4	5	0	3
1561:	1	0	1	2	2	3	0	1
1569:	0	2	0	2	4	1	3	3
1577:	1	0	2	2	5	4	1	2
1585:	2	2	3	14	6	1	1	4
1593:	3	5	1	0	2	0	3	0
1601:	3	0	2	4	2	2	0	2
1609:	2	2	0	3	1	1	0	0
1617:	0	3	1	6	5	0	2	1
1625:	1	1	0	1	4	4	3	4
1633:	1	1	3	0	0	2	3	2
1641:	2	2	0	1	1	2	0	1
1649:	1	1	0	2	3	0	1	1
1657:	1	1	2	5	4	1	3	0

1665:	3	1	3	4	0	3	1	2

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Channel								
1673:	0	0	2	3	0	2	0	0
1681:	0	1	2	0	1	2	0	1
1689:	2	1	2	1	2	3	0	1
1697:	0	1	2	1	1	1	0	1
1705:	1	0	1	2	0	1	1	1
1713:	0	2	2	1	0	1	1	0
1721:	0	2	0	0	1	1	1	5
1729:	8	7	0	1	1	2	2	2
1737:	1	3	2	1	0	1	3	0
1745:	1	5	1	1	0	0	3	0
1753:	1	2	1	2	0	2	3	1
1761:	2	1	13	24	16	7	1	2
1769:	5	1	2	2	0	0	0	0
1777:	1	1	1	1	2	2	1	1
1785:	0	1	4	2	0	2	1	0
1793:	1	2	1	0	2	0	2	1
1801:	3	1	1	2	2	1	1	1
1809:	1	0	0	0	3	1	1	1
1817:	0	1	1	0	0	1	1	0
1825:	1	2	1	2	2	0	0	0
1833:	0	2	1	1	0	0	2	0
1841:	1	1	1	1	1	3	3	4
1849:	1	1	1	0	1	1	0	1
1857:	1	2	2	2	2	2	1	2
1865:	1	2	2	2	1	1	0	2
1873:	1	1	1	1	0	2	2	0
1881:	1	0	0	2	2	2	1	1
1889:	1	1	3	1	1	0	0	1
1897:	3	2	1	0	1	0	0	0
1905:	4	0	1	1	3	1	0	0
1913:	0	0	0	0	1	2	0	1
1921:	1	1	1	0	0	4	0	1
1929:	2	1	0	1	1	1	2	1
1937:	0	3	2	2	2	0	0	0
1945:	1	0	0	0	0	2	1	2
1953:	2	1	1	2	1	1	1	1
1961:	1	1	1	3	1	1	0	0
1969:	0	0	0	0	1	2	2	0
1977:	0	2	3	0	4	2	2	1
1985:	1	1	1	1	0	0	2	2
1993:	2	0	2	1	0	1	1	2
2001:	2	1	0	0	2	1	1	1
2009:	2	0	0	0	1	0	1	2
2017:	1	0	3	3	3	2	0	0
2025:	0	1	3	0	0	1	1	0
2033:	0	2	1	3	0	3	4	2
2041:	0	1	0	1	1	0	1	0
2049:	0	1	1	2	0	0	1	1
2057:	0	0	1	1	0	3	1	2
2065:	2	1	0	1	0	2	1	0
2073:	1	1	1	2	0	1	2	1
2081:	0	0	0	0	2	1	1	0
2089:	1	2	0	1	2	2	0	0

2097:	2	0	1	0	1	1	9	5

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

2529:	0	1	2	0	1	1	0	1

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Channel								
2537:	0	2	0	1	1	2	1	0
2545:	0	0	0	0	0	1	0	0
2553:	0	0	0	0	0	1	0	0
2561:	1	0	0	1	0	0	0	0
2569:	0	0	0	1	0	0	0	1
2577:	2	1	0	0	1	0	0	0
2585:	0	0	1	0	1	1	0	0
2593:	0	0	1	0	1	0	0	0
2601:	0	0	1	0	0	1	0	1
2609:	0	3	4	16	28	27	20	7
2617:	1	2	2	2	1	1	0	1
2625:	0	0	1	0	0	0	1	0
2633:	0	0	0	0	0	1	0	1
2641:	1	1	1	0	0	0	0	1
2649:	0	0	1	0	0	0	0	1
2657:	0	1	0	0	0	0	0	0
2665:	0	0	0	0	1	1	0	0
2673:	1	1	1	0	0	0	0	0
2681:	0	1	0	1	1	2	0	0
2689:	0	0	0	0	0	3	0	1
2697:	0	0	0	0	0	0	1	0
2705:	1	0	0	0	0	2	0	0
2713:	1	0	0	0	0	2	1	0
2721:	0	0	2	1	0	0	0	0
2729:	0	0	0	1	0	1	0	0
2737:	0	0	1	0	0	2	1	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	1	0	1	1	0	1
2761:	1	0	0	1	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	1	0	0	0	0	0
2785:	0	0	2	0	0	2	1	0
2793:	0	0	0	0	0	0	1	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:	1	1	0	0	0	1	0	0
2833:	1	0	0	1	1	0	2	1
2841:	0	0	1	1	0	1	0	0
2849:	0	0	0	1	0	0	0	1
2857:	0	0	0	1	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	1
2889:	0	1	1	0	1	1	0	0
2897:	0	0	0	0	0	1	0	0
2905:	0	0	0	0	1	0	0	0
2913:	0	0	0	0	1	4	1	0
2921:	0	0	1	0	0	0	1	0
2929:	0	0	0	0	0	0	0	1
2937:	0	2	0	1	0	0	0	1
2945:	0	0	0	0	0	0	1	0
2953:	0	0	1	0	0	0	0	1

2961:	0	0	0	0	0	1	0	0

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

3393:	0	0	2	0	1	0	2	0

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

3825:	0	1	0	0	0	0	0	0

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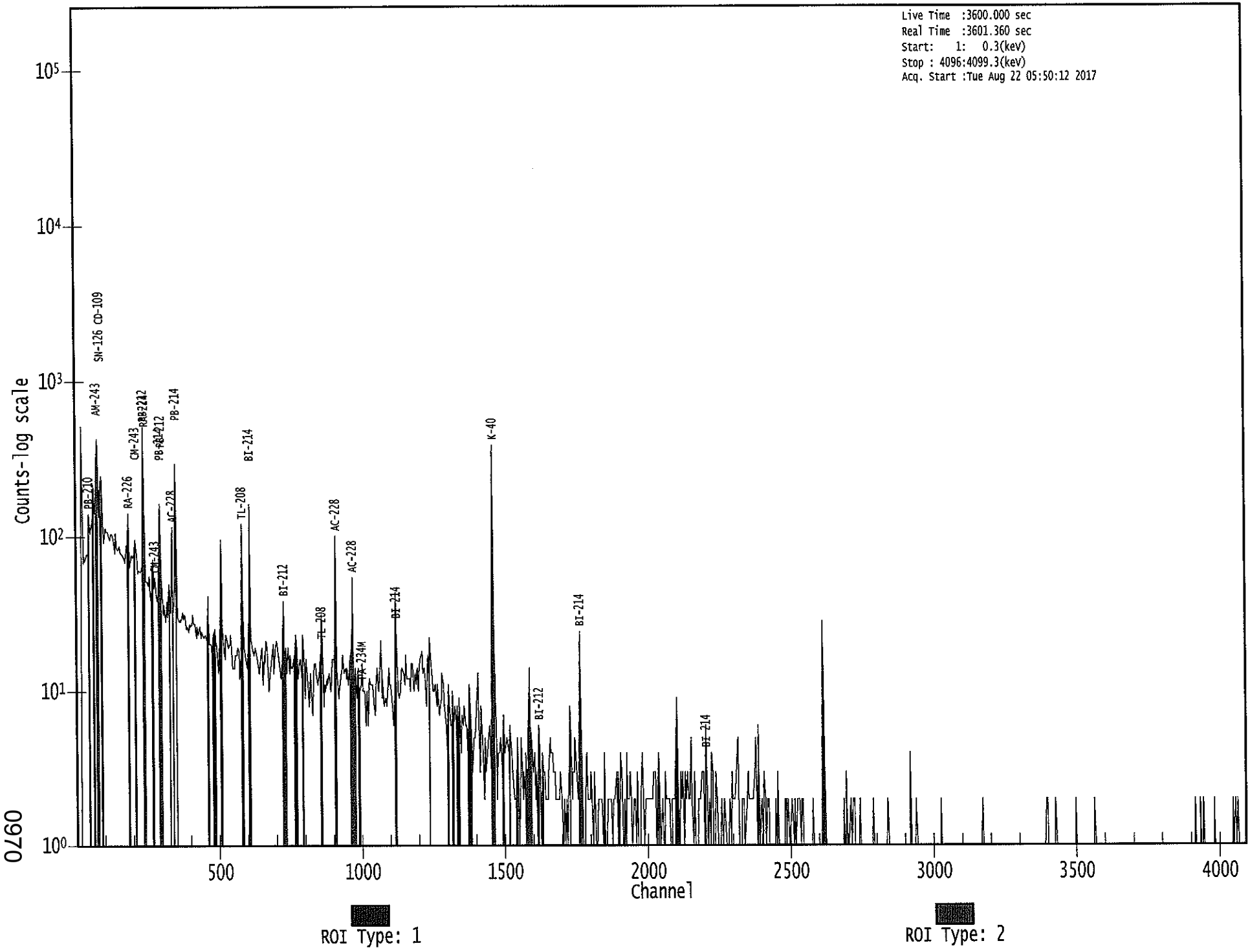
Channel								
3833:	0	1	0	0	0	0	0	0
3841:	1	0	0	1	0	0	0	0
3849:	0	0	0	0	1	0	0	0
3857:	0	1	0	1	0	0	0	0
3865:	0	0	1	0	0	0	0	0
3873:	0	1	0	0	0	0	0	0
3881:	0	0	1	0	1	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	0	0	0	0	0	1
3905:	0	0	0	0	0	0	0	0
3913:	0	0	2	0	0	0	0	0
3921:	0	0	0	1	0	0	0	0
3929:	0	0	0	0	2	0	0	0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

0000055679.CNF



0970

Apex-Gamma

8/22

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-17
Sample Description	: HTC-A03-S001-2430-01
Sample Type	: SOIL
Sample Size	: 7.130E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:16:43AM
Acquisition Started	: 8/22/2017 5:50:17AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE2
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)	: 28 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 8/19/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55680

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/22/2017 6:50:51AM
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	46.15	46.50	0.0000	0.00
2	76.00	76.31	0.0000	0.00
3	87.12	87.43	0.0000	0.00
4	93.25	93.54	0.0000	0.00
5	99.00	99.29	0.0000	0.00
6	183.31	183.51	0.0000	0.00
7	185.94	186.13	0.0000	0.00
8	209.15	209.32	0.0000	0.00
9	238.77	238.91	0.0000	0.00
10	241.84	241.98	0.0000	0.00
11	269.65	269.75	0.0000	0.00
12	278.28	278.37	0.0000	0.00
13	295.05	295.13	0.0000	0.00
14	300.06	300.13	0.0000	0.00
15	338.23	338.27	0.0000	0.00
16	351.86	351.87	0.0000	0.00
17	463.03	462.93	0.0000	0.00
18	510.79	510.64	0.0000	0.00
19	517.42	517.27	0.0000	0.00
20	524.51	524.35	0.0000	0.00
21	583.12	582.90	0.0000	0.00
22	598.08	597.85	0.0000	0.00
23	609.40	609.16	0.0000	0.00
24	669.41	669.10	0.0000	0.00
25	727.56	727.20	0.0000	0.00
26	795.46	795.03	0.0000	0.00
27	805.14	804.70	0.0000	0.00
28	830.23	829.77	0.0000	0.00
29	911.31	910.77	0.0000	0.00
30	933.66	933.11	0.0000	0.00
31	968.28	967.69	0.0000	0.00
32	976.22	975.62	0.0000	0.00
33	1056.87	1056.20	0.0000	0.00
34	1078.41	1077.72	0.0000	0.00
35	1116.51	1115.79	0.0000	0.00
36	1120.52	1119.79	0.0000	0.00
37	1188.53	1187.74	0.0000	0.00
38	1237.72	1236.88	0.0000	0.00
39	1329.31	1328.40	0.0000	0.00
40	1355.87	1354.93	0.0000	0.00
41	1365.50	1364.55	0.0000	0.00
42	1378.16	1377.20	0.0000	0.00

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1387.33	1386.37	0.0000	0.00
44	1400.30	1399.33	0.0000	0.00
45	1406.76	1405.78	0.0000	0.00
46	1461.06	1460.04	0.0000	0.00
47	1723.11	1721.88	0.0000	0.00
48	1729.41	1728.17	0.0000	0.00
49	1746.98	1745.72	0.0000	0.00
50	1764.79	1763.52	0.0000	0.00
51	1836.39	1835.07	0.0000	0.00
52	1846.82	1845.48	0.0000	0.00
53	1922.56	1921.17	0.0000	0.00
54	1981.65	1980.21	0.0000	0.00
55	2013.15	2011.69	0.0000	0.00
56	2088.75	2087.24	0.0000	0.00
57	2136.12	2134.57	0.0000	0.00
58	2615.05	2613.19	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 6:50:51AM

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	46.15	44 -	48	46.50	9.06E+01	58.32	6.73E+02	1.01
	2	76.00	72 -	83	76.31	7.16E+02	156.41	2.68E+03	3.62
	3	87.12	86 -	89	87.43	6.03E+01	60.96	8.71E+02	1.50
	4	93.25	92 -	96	93.54	1.94E+02	64.16	7.14E+02	1.49
	5	99.00	98 -	101	99.29	4.34E+01	47.33	5.15E+02	2.02
M	6	183.31	182 -	190	183.51	5.02E+01	31.72	2.64E+02	1.61
m	7	185.94	182 -	190	186.13	1.47E+02	51.01	4.14E+02	1.62
	8	209.15	206 -	213	209.32	6.85E+01	68.53	7.23E+02	1.72
M	9	238.77	235 -	246	238.91	5.47E+02	61.02	3.43E+02	1.45
m	10	241.84	235 -	246	241.98	9.55E+01	44.00	3.11E+02	1.46
	11	269.65	266 -	273	269.75	7.62E+01	52.76	4.16E+02	3.51
	12	278.28	275 -	281	278.37	5.12E+01	46.45	3.52E+02	3.38
M	13	295.05	291 -	304	295.13	1.97E+02	40.30	1.99E+02	1.42
m	14	300.06	291 -	304	300.13	4.27E+01	30.79	1.97E+02	1.43
	15	338.23	335 -	342	338.27	1.35E+02	50.12	3.30E+02	1.91
	16	351.86	347 -	354	351.87	4.06E+02	60.03	3.34E+02	1.40
	17	463.03	458 -	467	462.93	5.16E+01	47.61	2.93E+02	1.60
	18	510.79	507 -	515	510.64	1.46E+02	42.69	1.93E+02	2.44
	19	517.42	515 -	520	517.27	2.70E+01	24.86	1.02E+02	2.68
	20	524.51	521 -	528	524.35	2.57E+01	30.72	1.41E+02	4.56
	21	583.12	578 -	587	582.90	2.42E+02	48.28	1.94E+02	1.71
	22	598.08	593 -	601	597.85	2.70E+01	31.81	1.38E+02	1.50
	23	609.40	605 -	613	609.16	2.68E+02	50.16	2.15E+02	1.58
	24	669.41	664 -	675	669.10	3.45E+01	37.68	1.55E+02	8.75
	25	727.56	724 -	731	727.20	5.37E+01	29.46	1.11E+02	1.51
	26	795.46	792 -	798	795.03	2.21E+01	25.36	9.98E+01	1.49
	27	805.14	801 -	809	804.70	2.07E+01	26.02	8.46E+01	5.33
	28	830.23	826 -	833	829.77	1.86E+01	23.58	8.09E+01	2.28
	29	911.31	907 -	916	910.77	1.08E+02	42.51	2.01E+02	2.04
	30	933.66	930 -	936	933.11	2.23E+01	19.28	4.95E+01	2.41
	31	968.28	961 -	971	967.69	9.73E+01	38.79	1.49E+02	2.15
	32	976.22	973 -	979	975.62	1.75E+01	21.75	7.29E+01	2.76
M	33	1056.87	1052 -	1081	1056.20	2.03E+01	22.18	6.96E+01	3.36
m	34	1078.41	1052 -	1081	1077.72	1.90E+01	22.18	5.79E+01	3.39
M	35	1116.51	1113 -	1129	1115.79	1.75E+01	14.54	4.30E+01	2.35
m	36	1120.52	1113 -	1129	1119.79	6.86E+01	24.24	5.16E+01	2.35
	37	1188.53	1181 -	1192	1187.74	3.40E+01	34.41	1.28E+02	5.84
	38	1237.72	1232 -	1240	1236.88	3.92E+01	27.74	9.35E+01	2.35
	39	1329.31	1325 -	1332	1328.40	1.43E+01	16.49	3.54E+01	2.64
	40	1355.87	1352 -	1357	1354.93	1.40E+01	11.18	1.20E+01	2.86

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1365.50	1359 -	1372	1364.55	2.14E+01	21.59	4.31E+01	2.80
	42	1378.16	1373 -	1380	1377.20	2.63E+01	14.97	1.94E+01	2.13
	43	1387.33	1382 -	1391	1386.37	2.29E+01	13.96	1.42E+01	6.88
M	44	1400.30	1395 -	1415	1399.33	1.74E+01	12.33	1.43E+01	4.15
m	45	1406.76	1395 -	1415	1405.78	1.28E+01	12.99	1.24E+01	3.12
	46	1461.06	1454 -	1465	1460.04	7.49E+02	57.31	3.60E+01	2.14
	47	1723.11	1718 -	1724	1721.88	8.00E+00	5.66	0.00E+00	2.92
	48	1729.41	1725 -	1732	1728.17	1.80E+01	8.49	0.00E+00	4.42
	49	1746.98	1741 -	1749	1745.72	9.93E+00	9.82	8.14E+00	1.60
	50	1764.79	1758 -	1768	1763.52	5.63E+01	16.32	5.41E+00	1.85
	51	1836.39	1831 -	1839	1835.07	1.50E+01	7.75	0.00E+00	3.08
	52	1846.82	1841 -	1849	1845.48	1.78E+01	10.01	4.45E+00	4.27
	53	1922.56	1918 -	1924	1921.17	8.33E+00	8.51	7.33E+00	2.85
	54	1981.65	1975 -	1984	1980.21	8.54E+00	10.10	8.92E+00	1.32
	55	2013.15	2007 -	2016	2011.69	1.30E+01	7.21	0.00E+00	1.12
	56	2088.75	2081 -	2091	2087.24	7.10E+00	8.38	5.80E+00	7.58
	57	2136.12	2132 -	2137	2134.57	7.00E+00	5.29	0.00E+00	1.77
	58	2615.05	2608 -	2617	2613.19	5.90E+01	15.36	0.00E+00	2.40

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 : 8/22/2017 6:50:51AM

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	46.15	44 -	48	9.06E+01	58.32	6.73E+02	4.53E+01
	2	76.00	72 -	83	7.16E+02	156.41	2.68E+03	1.21E+02
	3	87.12	86 -	89	6.03E+01	60.96	8.71E+02	4.85E+01
	4	93.25	92 -	96	1.94E+02	64.16	7.14E+02	4.75E+01
	5	99.00	98 -	101	4.34E+01	47.33	5.15E+02	3.74E+01
M	6	183.31	182 -	190	5.02E+01	31.72	2.64E+02	2.67E+01
m	7	185.94	182 -	190	1.47E+02	51.01	4.14E+02	3.35E+01
	8	209.15	206 -	213	6.85E+01	68.53	7.23E+02	5.47E+01
M	9	238.77	235 -	246	5.47E+02	61.02	3.43E+02	3.04E+01
m	10	241.84	235 -	246	9.55E+01	44.00	3.11E+02	2.90E+01

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	11	269.65	266 -	273	7.62E+01	52.76	4.16E+02	4.09E+01
	12	278.28	275 -	281	5.12E+01	46.45	3.52E+02	3.63E+01
M	13	295.05	291 -	304	1.97E+02	40.30	1.99E+02	2.32E+01
m	14	300.06	291 -	304	4.27E+01	30.79	1.97E+02	2.31E+01
	15	338.23	335 -	342	1.35E+02	50.12	3.30E+02	3.65E+01
	16	351.86	347 -	354	4.06E+02	60.03	3.34E+02	3.66E+01
	17	463.03	458 -	467	5.16E+01	47.61	2.93E+02	3.73E+01
	18	510.79	507 -	515	1.46E+02	42.69	1.93E+02	2.89E+01
	19	517.42	515 -	520	2.70E+01	24.86	1.02E+02	1.86E+01
	20	524.51	521 -	528	2.57E+01	30.72	1.41E+02	2.38E+01
	21	583.12	578 -	587	2.42E+02	48.28	1.94E+02	3.04E+01
	22	598.08	593 -	601	2.70E+01	31.81	1.38E+02	2.47E+01
	23	609.40	605 -	613	2.68E+02	50.16	2.15E+02	3.12E+01
	24	669.41	664 -	675	3.45E+01	37.68	1.55E+02	2.94E+01
	25	727.56	724 -	731	5.37E+01	29.46	1.11E+02	2.10E+01
	26	795.46	792 -	798	2.21E+01	25.36	9.98E+01	1.94E+01
	27	805.14	801 -	809	2.07E+01	26.02	8.46E+01	2.00E+01
	28	830.23	826 -	833	1.86E+01	23.58	8.09E+01	1.80E+01
	29	911.31	907 -	916	1.08E+02	42.51	2.01E+02	3.05E+01
	30	933.66	930 -	936	2.23E+01	19.28	4.95E+01	1.38E+01
	31	968.28	961 -	971	9.73E+01	38.79	1.49E+02	1.83E+01
	32	976.22	973 -	979	1.75E+01	21.75	7.29E+01	1.65E+01
M	33	1056.87	1052 -	1081	2.03E+01	22.18	6.96E+01	1.37E+01
m	34	1078.41	1052 -	1081	1.90E+01	22.18	5.79E+01	1.25E+01
M	35	1116.51	1113 -	1129	1.75E+01	14.54	4.30E+01	1.08E+01
m	36	1120.52	1113 -	1129	6.86E+01	24.24	5.16E+01	1.18E+01
	37	1188.53	1181 -	1192	3.40E+01	34.41	1.28E+02	2.66E+01
	38	1237.72	1232 -	1240	3.92E+01	27.74	9.35E+01	2.03E+01
	39	1329.31	1325 -	1332	1.43E+01	16.49	3.54E+01	1.20E+01
	40	1355.87	1352 -	1357	1.40E+01	11.18	1.20E+01	6.83E+00
	41	1365.50	1359 -	1372	2.14E+01	21.59	4.31E+01	1.60E+01
	42	1378.16	1373 -	1380	2.63E+01	14.97	1.94E+01	8.96E+00
	43	1387.33	1382 -	1391	2.29E+01	13.96	1.42E+01	8.36E+00
M	44	1400.30	1395 -	1415	1.74E+01	12.33	1.43E+01	6.21E+00
m	45	1406.76	1395 -	1415	1.28E+01	12.99	1.24E+01	5.79E+00
	46	1461.06	1454 -	1465	7.49E+02	57.31	3.60E+01	1.40E+01
	47	1723.11	1718 -	1724	8.00E+00	5.66	0.00E+00	0.00E+00
	48	1729.41	1725 -	1732	1.80E+01	8.49	0.00E+00	0.00E+00
	49	1746.98	1741 -	1749	9.93E+00	9.82	8.14E+00	6.19E+00
	50	1764.79	1758 -	1768	5.63E+01	16.32	5.41E+00	5.27E+00
	51	1836.39	1831 -	1839	1.50E+01	7.75	0.00E+00	0.00E+00
	52	1846.82	1841 -	1849	1.78E+01	10.01	4.45E+00	4.44E+00
	53	1922.56	1918 -	1924	8.33E+00	8.51	7.33E+00	5.14E+00
	54	1981.65	1975 -	1984	8.54E+00	10.10	8.92E+00	6.77E+00
	55	2013.15	2007 -	2016	1.30E+01	7.21	0.00E+00	0.00E+00
	56	2088.75	2081 -	2091	7.10E+00	8.38	5.80E+00	5.32E+00
	57	2136.12	2132 -	2137	7.00E+00	5.29	0.00E+00	0.00E+00
	58	2615.05	2608 -	2617	5.90E+01	15.36	0.00E+00	0.00E+00

Analysis Report for 1707086-17

HTC-A03-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 WITH NID REPORT

Peak Analysis Performed on : 8/22/2017 6:50:51AM

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	46.15	44 -	48	46.50	9.06E+01	58.32	6.73E+02	PB-210
	2	76.00	72 -	83	76.31	7.16E+02	156.41	2.68E+03	.....
	3	87.12	86 -	89	87.43	6.03E+01	60.96	8.71E+02	SN-126
									NP-237
									EU-155
									CD-109
	4	93.25	92 -	96	93.54	1.94E+02	64.16	7.14E+02	GA-67
	5	99.00	98 -	101	99.29	4.34E+01	47.33	5.15E+02	.....
M	6	183.31	182 -	190	183.51	5.02E+01	31.72	2.64E+02	.....
m	7	185.94	182 -	190	186.13	1.47E+02	51.01	4.14E+02	RA-226
	8	209.15	206 -	213	209.32	6.85E+01	68.53	7.23E+02	GA-67
									CM-243
M	9	238.77	235 -	246	238.91	5.47E+02	61.02	3.43E+02	PB-212
m	10	241.84	235 -	246	241.98	9.55E+01	44.00	3.11E+02	RA-224
	11	269.65	266 -	273	269.75	7.62E+01	52.76	4.16E+02	.....
	12	278.28	275 -	281	278.37	5.12E+01	46.45	3.52E+02	CM-243
									NP-239
									HG-203
M	13	295.05	291 -	304	295.13	1.97E+02	40.30	1.99E+02	PB-214
m	14	300.06	291 -	304	300.13	4.27E+01	30.79	1.97E+02	PB-212
									BI-210M
									GA-67
	15	338.23	335 -	342	338.27	1.35E+02	50.12	3.30E+02	AC-228
	16	351.86	347 -	354	351.87	4.06E+02	60.03	3.34E+02	PB-214
	17	463.03	458 -	467	462.93	5.16E+01	47.61	2.93E+02	SB-125
	18	510.79	507 -	515	510.64	1.46E+02	42.69	1.93E+02	.....
	19	517.42	515 -	520	517.27	2.70E+01	24.86	1.02E+02	.....
	20	524.51	521 -	528	524.35	2.57E+01	30.72	1.41E+02	.....
	21	583.12	578 -	587	582.90	2.42E+02	48.28	1.94E+02	TL-208
	22	598.08	593 -	601	597.85	2.70E+01	31.81	1.38E+02	.....

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	609.40	605 -	613	609.16	2.68E+02	50.16	2.15E+02	BI-214
	24	669.41	664 -	675	669.10	3.45E+01	37.68	1.55E+02	.....
	25	727.56	724 -	731	727.20	5.37E+01	29.46	1.11E+02	BI-212
	26	795.46	792 -	798	795.03	2.21E+01	25.36	9.98E+01	CS-134
	27	805.14	801 -	809	804.70	2.07E+01	26.02	8.46E+01	.....
	28	830.23	826 -	833	829.77	1.86E+01	23.58	8.09E+01	.....
	29	911.31	907 -	916	910.77	1.08E+02	42.51	2.01E+02	AC-228
									TL-204
	30	933.66	930 -	936	933.11	2.23E+01	19.28	4.95E+01	.....
	31	968.28	961 -	971	967.69	9.73E+01	38.79	1.49E+02	AC-228
	32	976.22	973 -	979	975.62	1.75E+01	21.75	7.29E+01	.....
M	33	1056.87	1052 -	1081	1056.20	2.03E+01	22.18	6.96E+01	.....
m	34	1078.41	1052 -	1081	1077.72	1.90E+01	22.18	5.79E+01	.....
M	35	1116.51	1113 -	1129	1115.79	1.75E+01	14.54	4.30E+01	ZN-65
m	36	1120.52	1113 -	1129	1119.79	6.86E+01	24.24	5.16E+01	SC-46
									BI-214
									TA-182
	37	1188.53	1181 -	1192	1187.74	3.40E+01	34.41	1.28E+02	TA-182
	38	1237.72	1232 -	1240	1236.88	3.92E+01	27.74	9.35E+01	CO-56
	39	1329.31	1325 -	1332	1328.40	1.43E+01	16.49	3.54E+01	.....
	40	1355.87	1352 -	1357	1354.93	1.40E+01	11.18	1.20E+01	.....
	41	1365.50	1359 -	1372	1364.55	2.14E+01	21.59	4.31E+01	.....
	42	1378.16	1373 -	1380	1377.20	2.63E+01	14.97	1.94E+01	.....
	43	1387.33	1382 -	1391	1386.37	2.29E+01	13.96	1.42E+01	.....
M	44	1400.30	1395 -	1415	1399.33	1.74E+01	12.33	1.43E+01	.....
m	45	1406.76	1395 -	1415	1405.78	1.28E+01	12.99	1.24E+01	.....
	46	1461.06	1454 -	1465	1460.04	7.49E+02	57.31	3.60E+01	K-40
	47	1723.11	1718 -	1724	1721.88	8.00E+00	5.66	0.00E+00	.....
	48	1729.41	1725 -	1732	1728.17	1.80E+01	8.49	0.00E+00	.....
	49	1746.98	1741 -	1749	1745.72	9.93E+00	9.82	8.14E+00	.....
	50	1764.79	1758 -	1768	1763.52	5.63E+01	16.32	5.41E+00	BI-214
	51	1836.39	1831 -	1839	1835.07	1.50E+01	7.75	0.00E+00	Y-88
	52	1846.82	1841 -	1849	1845.48	1.78E+01	10.01	4.45E+00	.....
	53	1922.56	1918 -	1924	1921.17	8.33E+00	8.51	7.33E+00	.....
	54	1981.65	1975 -	1984	1980.21	8.54E+00	10.10	8.92E+00	.....
	55	2013.15	2007 -	2016	2011.69	1.30E+01	7.21	0.00E+00	.....
	56	2088.75	2081 -	2091	2087.24	7.10E+00	8.38	5.80E+00	.....
	57	2136.12	2132 -	2137	2134.57	7.00E+00	5.29	0.00E+00	.....
	58	2615.05	2608 -	2617	2613.19	5.90E+01	15.36	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 1707086-17

HTC-A03-S001-2430-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/22/2017 6:50:51AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.15	9.06E+01	58.32	1.56E-02	1.67E-03
	2	76.00	7.16E+02	156.41	2.63E-02	2.11E-03
	3	87.12	6.03E+01	60.96	2.70E-02	2.40E-03
	4	93.25	1.94E+02	64.16	2.70E-02	2.32E-03
	5	99.00	4.34E+01	47.33	2.68E-02	2.21E-03
M	6	183.31	5.02E+01	31.72	2.05E-02	1.54E-03
m	7	185.94	1.47E+02	51.01	2.03E-02	1.53E-03
	8	209.15	6.85E+01	68.53	1.88E-02	1.43E-03
M	9	238.77	5.47E+02	61.02	1.72E-02	1.30E-03
m	10	241.84	9.55E+01	44.00	1.71E-02	1.28E-03
	11	269.65	7.62E+01	52.76	1.58E-02	1.16E-03
	12	278.28	5.12E+01	46.45	1.55E-02	1.12E-03
M	13	295.05	1.97E+02	40.30	1.48E-02	1.10E-03
m	14	300.06	4.27E+01	30.79	1.47E-02	1.09E-03
	15	338.23	1.35E+02	50.12	1.35E-02	1.04E-03
	16	351.86	4.06E+02	60.03	1.31E-02	1.02E-03
	17	463.03	5.16E+01	47.61	1.06E-02	9.07E-04
	18	510.79	1.46E+02	42.69	9.87E-03	8.65E-04
	19	517.42	2.70E+01	24.86	9.78E-03	8.59E-04
	20	524.51	2.57E+01	30.72	9.67E-03	8.53E-04
	21	583.12	2.42E+02	48.28	8.91E-03	8.02E-04
	22	598.08	2.70E+01	31.81	8.73E-03	7.89E-04
	23	609.40	2.68E+02	50.16	8.60E-03	7.79E-04
	24	669.41	3.45E+01	37.68	7.98E-03	7.27E-04
	25	727.56	5.37E+01	29.46	7.46E-03	6.71E-04
	26	795.46	2.21E+01	25.36	6.94E-03	6.05E-04
	27	805.14	2.07E+01	26.02	6.87E-03	5.96E-04
	28	830.23	1.86E+01	23.58	6.70E-03	5.72E-04
	29	911.31	1.08E+02	42.51	6.21E-03	5.02E-04
	30	933.66	2.23E+01	19.28	6.09E-03	4.94E-04
	31	968.28	9.73E+01	38.79	5.91E-03	4.82E-04
	32	976.22	1.75E+01	21.75	5.87E-03	4.79E-04
M	33	1056.87	2.03E+01	22.18	5.50E-03	4.51E-04
m	34	1078.41	1.90E+01	22.18	5.41E-03	4.43E-04
M	35	1116.51	1.75E+01	14.54	5.26E-03	4.30E-04
m	36	1120.52	6.86E+01	24.24	5.24E-03	4.29E-04
	37	1188.53	3.40E+01	34.41	5.00E-03	4.12E-04
	38	1237.72	3.92E+01	27.74	4.84E-03	4.16E-04
	39	1329.31	1.43E+01	16.49	4.58E-03	4.24E-04
	40	1355.87	1.40E+01	11.18	4.51E-03	4.18E-04
	41	1365.50	2.14E+01	21.59	4.48E-03	4.15E-04
	42	1378.16	2.63E+01	14.97	4.45E-03	4.12E-04
	43	1387.33	2.29E+01	13.96	4.43E-03	4.09E-04
M	44	1400.30	1.74E+01	12.33	4.40E-03	4.05E-04
m	45	1406.76	1.28E+01	12.99	4.38E-03	4.03E-04

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
46	1461.06	7.49E+02	57.31	4.26E-03	3.88E-04
47	1723.11	8.00E+00	5.66	3.80E-03	3.12E-04
48	1729.41	1.80E+01	8.49	3.79E-03	3.10E-04
49	1746.98	9.93E+00	9.82	3.77E-03	3.05E-04
50	1764.79	5.63E+01	16.32	3.75E-03	3.00E-04
51	1836.39	1.50E+01	7.75	3.66E-03	2.79E-04
52	1846.82	1.78E+01	10.01	3.64E-03	2.79E-04
53	1922.56	8.33E+00	8.51	3.56E-03	2.79E-04
54	1981.65	8.54E+00	10.10	3.51E-03	2.79E-04
55	2013.15	1.30E+01	7.21	3.48E-03	2.79E-04
56	2088.75	7.10E+00	8.38	3.42E-03	2.79E-04
57	2136.12	7.00E+00	5.29	3.38E-03	2.79E-04
58	2615.05	5.90E+01	15.36	3.20E-03	2.79E-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 : 8/22/2017 6:50:51AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.15	9.06E+01	58.32	3.74E+01	5.77E+00	5.31E+01	5.86E+01
	2	76.00	7.16E+02	156.41			7.16E+02	1.56E+02
	3	87.12	6.03E+01	60.96			6.03E+01	6.10E+01
	4	93.25	1.94E+02	64.16	4.88E+01	1.30E+00	1.45E+02	6.42E+01
	5	99.00	4.34E+01	47.33			4.34E+01	4.73E+01
M	6	183.31	5.02E+01	31.72			5.02E+01	3.17E+01
m	7	185.94	1.47E+02	51.01	3.48E+01	7.32E+00	1.13E+02	5.15E+01
	8	209.15	6.85E+01	68.53			6.85E+01	6.85E+01
M	9	238.77	5.47E+02	61.02	7.09E+00	6.85E+00	5.40E+02	6.14E+01
m	10	241.84	9.55E+01	44.00			9.55E+01	4.40E+01
	11	269.65	7.62E+01	52.76			7.62E+01	5.28E+01
	12	278.28	5.12E+01	46.45			5.12E+01	4.64E+01
M	13	295.05	1.97E+02	40.30			1.97E+02	4.03E+01
m	14	300.06	4.27E+01	30.79			4.27E+01	3.08E+01
	15	338.23	1.35E+02	50.12			1.35E+02	5.01E+01
	16	351.86	4.06E+02	60.03	1.04E+01	5.08E+00	3.96E+02	6.02E+01
	17	463.03	5.16E+01	47.61			5.16E+01	4.76E+01

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	510.79	1.46E+02	42.69	7.08E+01	4.94E+00	7.56E+01	4.30E+01
	19	517.42	2.70E+01	24.86			2.70E+01	2.49E+01
	20	524.51	2.57E+01	30.72			2.57E+01	3.07E+01
	21	583.12	2.42E+02	48.28	5.65E+00	3.57E+00	2.36E+02	4.84E+01
	22	598.08	2.70E+01	31.81			2.70E+01	3.18E+01
	23	609.40	2.68E+02	50.16	1.07E+01	3.96E+00	2.58E+02	5.03E+01
	24	669.41	3.45E+01	37.68			3.45E+01	3.77E+01
	25	727.56	5.37E+01	29.46			5.37E+01	2.95E+01
	26	795.46	2.21E+01	25.36			2.21E+01	2.54E+01
	27	805.14	2.07E+01	26.02			2.07E+01	2.60E+01
	28	830.23	1.86E+01	23.58			1.86E+01	2.36E+01
	29	911.31	1.08E+02	42.51	2.63E+00	2.49E+00	1.05E+02	4.26E+01
	30	933.66	2.23E+01	19.28			2.23E+01	1.93E+01
	31	968.28	9.73E+01	38.79			9.73E+01	3.88E+01
	32	976.22	1.75E+01	21.75			1.75E+01	2.18E+01
M	33	1056.87	2.03E+01	22.18			2.03E+01	2.22E+01
m	34	1078.41	1.90E+01	22.18			1.90E+01	2.22E+01
M	35	1116.51	1.75E+01	14.54			1.75E+01	1.45E+01
m	36	1120.52	6.86E+01	24.24	2.45E+00	2.38E+00	6.61E+01	2.44E+01
	37	1188.53	3.40E+01	34.41			3.40E+01	3.44E+01
	38	1237.72	3.92E+01	27.74			3.92E+01	2.77E+01
	39	1329.31	1.43E+01	16.49			1.43E+01	1.65E+01
	40	1355.87	1.40E+01	11.18			1.40E+01	1.12E+01
	41	1365.50	2.14E+01	21.59			2.14E+01	2.16E+01
	42	1378.16	2.63E+01	14.97			2.63E+01	1.50E+01
	43	1387.33	2.29E+01	13.96			2.29E+01	1.40E+01
M	44	1400.30	1.74E+01	12.33			1.74E+01	1.23E+01
m	45	1406.76	1.28E+01	12.99			1.28E+01	1.30E+01
	46	1461.06	7.49E+02	57.31	5.90E+00	2.63E+00	7.43E+02	5.74E+01
	47	1723.11	8.00E+00	5.66			8.00E+00	5.66E+00
	48	1729.41	1.80E+01	8.49			1.80E+01	8.49E+00
	49	1746.98	9.93E+00	9.82			9.93E+00	9.82E+00
	50	1764.79	5.63E+01	16.32	3.33E+00	1.73E+00	5.30E+01	1.64E+01
	51	1836.39	1.50E+01	7.75			1.50E+01	7.75E+00
	52	1846.82	1.78E+01	10.01			1.78E+01	1.00E+01
	53	1922.56	8.33E+00	8.51			8.33E+00	8.51E+00
	54	1981.65	8.54E+00	10.10			8.54E+00	1.01E+01
	55	2013.15	1.30E+01	7.21			1.30E+01	7.21E+00
	56	2088.75	7.10E+00	8.38			7.10E+00	8.38E+00
	57	2136.12	7.00E+00	5.29			7.00E+00	5.29E+00
	58	2615.05	5.90E+01	15.36	4.77E+00	1.52E+00	5.42E+01	1.54E+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 1707086-17

HTC-A03-S001-2430-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/22/2017 6:50:51AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055574.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	46.15	9.06E+01	58.32	3.74E+01	5.77E+00	5.31E+01	5.86E+01
	2	76.00	7.16E+02	156.41			7.16E+02	1.56E+02
	3	87.12	6.03E+01	60.96			6.03E+01	6.10E+01
	4	93.25	1.94E+02	64.16	4.88E+01	1.30E+00	1.45E+02	6.42E+01
	5	99.00	4.34E+01	47.33			4.34E+01	4.73E+01
M	6	183.31	5.02E+01	31.72			5.02E+01	3.17E+01
m	7	185.94	1.47E+02	51.01	3.48E+01	7.32E+00	1.13E+02	5.15E+01
	8	209.15	6.85E+01	68.53			6.85E+01	6.85E+01
M	9	238.77	5.47E+02	61.02	7.09E+00	6.85E+00	5.40E+02	6.14E+01
m	10	241.84	9.55E+01	44.00			9.55E+01	4.40E+01
	11	269.65	7.62E+01	52.76			7.62E+01	5.28E+01
	12	278.28	5.12E+01	46.45			5.12E+01	4.64E+01
M	13	295.05	1.97E+02	40.30			1.97E+02	4.03E+01
m	14	300.06	4.27E+01	30.79			4.27E+01	3.08E+01
	15	338.23	1.35E+02	50.12			1.35E+02	5.01E+01
	16	351.86	4.06E+02	60.03	1.04E+01	5.08E+00	3.96E+02	6.02E+01
	17	463.03	5.16E+01	47.61			5.16E+01	4.76E+01
	18	510.79	1.46E+02	42.69	7.08E+01	4.94E+00	7.56E+01	4.30E+01
	19	517.42	2.70E+01	24.86			2.70E+01	2.49E+01
	20	524.51	2.57E+01	30.72			2.57E+01	3.07E+01
	21	583.12	2.42E+02	48.28	5.65E+00	3.57E+00	2.36E+02	4.84E+01
	22	598.08	2.70E+01	31.81			2.70E+01	3.18E+01
	23	609.40	2.68E+02	50.16	1.07E+01	3.96E+00	2.58E+02	5.03E+01
	24	669.41	3.45E+01	37.68			3.45E+01	3.77E+01
	25	727.56	5.37E+01	29.46			5.37E+01	2.95E+01
	26	795.46	2.21E+01	25.36			2.21E+01	2.54E+01
	27	805.14	2.07E+01	26.02			2.07E+01	2.60E+01
	28	830.23	1.86E+01	23.58			1.86E+01	2.36E+01
	29	911.31	1.08E+02	42.51	2.63E+00	2.49E+00	1.05E+02	4.26E+01
	30	933.66	2.23E+01	19.28			2.23E+01	1.93E+01
	31	968.28	9.73E+01	38.79			9.73E+01	3.88E+01
	32	976.22	1.75E+01	21.75			1.75E+01	2.18E+01
M	33	1056.87	2.03E+01	22.18			2.03E+01	2.22E+01
m	34	1078.41	1.90E+01	22.18			1.90E+01	2.22E+01
M	35	1116.51	1.75E+01	14.54			1.75E+01	1.45E+01
m	36	1120.52	6.86E+01	24.24	2.45E+00	2.38E+00	6.61E+01	2.44E+01
	37	1188.53	3.40E+01	34.41			3.40E+01	3.44E+01
	38	1237.72	3.92E+01	27.74			3.92E+01	2.77E+01
	39	1329.31	1.43E+01	16.49			1.43E+01	1.65E+01
	40	1355.87	1.40E+01	11.18			1.40E+01	1.12E+01
	41	1365.50	2.14E+01	21.59			2.14E+01	2.16E+01

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1378.16	2.63E+01	14.97			2.63E+01	1.50E+01
	43	1387.33	2.29E+01	13.96			2.29E+01	1.40E+01
M	44	1400.30	1.74E+01	12.33			1.74E+01	1.23E+01
m	45	1406.76	1.28E+01	12.99			1.28E+01	1.30E+01
	46	1461.06	7.49E+02	57.31	5.90E+00	2.63E+00	7.43E+02	5.74E+01
	47	1723.11	8.00E+00	5.66			8.00E+00	5.66E+00
	48	1729.41	1.80E+01	8.49			1.80E+01	8.49E+00
	49	1746.98	9.93E+00	9.82			9.93E+00	9.82E+00
	50	1764.79	5.63E+01	16.32	3.33E+00	1.73E+00	5.30E+01	1.64E+01
	51	1836.39	1.50E+01	7.75			1.50E+01	7.75E+00
	52	1846.82	1.78E+01	10.01			1.78E+01	1.00E+01
	53	1922.56	8.33E+00	8.51			8.33E+00	8.51E+00
	54	1981.65	8.54E+00	10.10			8.54E+00	1.01E+01
	55	2013.15	1.30E+01	7.21			1.30E+01	7.21E+00
	56	2088.75	7.10E+00	8.38			7.10E+00	8.38E+00
	57	2136.12	7.00E+00	5.29			7.00E+00	5.29E+00
	58	2615.05	5.90E+01	15.36	4.77E+00	1.52E+00	5.42E+01	1.54E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.990	1460.81	*	10.67	1.72E+01	2.08E+00
ZN-65	0.854	1115.52	*	50.75	9.13E-02	7.63E-02
CD-109	0.876	88.03	*	3.72	7.34E-01	7.46E-01
SN-126	0.969	87.57	*	37.00	6.37E-02	6.46E-02
EU-155	0.325	86.50	*	30.90	7.92E-02	8.03E-02
		105.30		20.70		
TL-208	0.877	583.14	*	30.22	9.24E-01	2.07E-01
		860.37		4.48		
		2614.66	*	35.85	4.98E-01	1.48E-01
PB-210	0.981	46.50	*	4.25	8.51E-01	9.43E-01
BI-212	0.748	727.17	*	11.80	6.43E-01	3.57E-01
		1620.62		2.75		
PB-212	0.997	238.63	*	44.60	7.40E-01	1.01E-01
		300.09	*	3.41	8.99E-01	6.52E-01

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.926	609.31	*	46.30	6.82E-01	1.47E-01
		1120.29	*	15.10	8.80E-01	3.32E-01
		1764.49	*	15.80	9.42E-01	3.02E-01
		2204.22		4.98		
PB-214	0.998	295.21	*	19.19	7.29E-01	1.58E-01
		351.92	*	37.19	8.58E-01	1.47E-01
RA-224	0.888	240.98	*	3.95	1.49E+00	6.96E-01
RA-226	0.988	186.21	*	3.28	1.78E+00	3.36E+00
AC-228	0.963	338.32	*	11.40	9.26E-01	3.51E-01
		911.07	*	27.70	6.42E-01	2.66E-01
		969.11	*	16.60	1.05E+00	4.25E-01
NP-237	0.940	86.50	*	12.60	1.87E-01	1.90E-01
CM-243	0.331	209.75	*	3.29	1.17E+00	1.18E+00
		228.14		10.60		
		277.60	*	14.00	2.50E-01	2.28E-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 : 8/22/2017 6:50:51AM
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	76.00	1.98946E-01	10.92		
	4	93.25	4.03713E-02	22.08	Sum	
	5	99.00	1.20520E-02	54.54	D-Esc	
M	6	183.31	1.39408E-02	31.60		
	11	269.65	2.11561E-02	34.64		
	17	463.03	1.43259E-02	46.16	Tol.	SB-125
	18	510.79	2.10079E-02	28.41		
	19	517.42	7.50000E-03	46.04	Sum	
	20	524.51	7.15133E-03	59.67	Sum	
	22	598.08	7.50000E-03	58.90		
	24	669.41	9.59201E-03	54.56	Sum	
	26	795.46	6.14005E-03	57.37	Sum	
	27	805.14	5.75397E-03	62.82		
	28	830.23	5.15537E-03	63.53		

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	30	933.66	6.18499E-03	43.30		
	32	976.22	4.87397E-03	61.99		
M	33	1056.87	5.62793E-03	54.74		
m	34	1078.41	5.26899E-03	58.47		
	37	1188.53	9.45578E-03	50.54	Tol.	TA-182
	38	1237.72	1.08995E-02	35.34		
	39	1329.31	3.97135E-03	57.68	Sum	
	40	1355.87	3.88889E-03	39.93	Sum	
	41	1365.50	5.95607E-03	50.34		
	42	1378.16	7.30324E-03	28.46		
	43	1387.33	6.36574E-03	30.47		
M	44	1400.30	4.83416E-03	35.42		
m	45	1406.76	3.56376E-03	50.63		
	47	1723.11	2.22222E-03	35.36		
	48	1729.41	5.00000E-03	23.57	Sum	
	49	1746.98	2.75794E-03	49.47		
	51	1836.39	4.16667E-03	25.82	Tol.	Y-88
	52	1846.82	4.93750E-03	28.16		
	53	1922.56	2.31482E-03	51.09		
	54	1981.65	2.37179E-03	59.14		
	55	2013.15	3.61111E-03	27.74		
	56	2088.75	1.97222E-03	59.02	Sum	
	57	2136.12	1.94444E-03	37.80		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.72E+01	2.08E+00
ZN-65	0.85	1115.52	*	50.75	9.13E-02	7.63E-02
CD-109	0.87	88.03	*	3.72	7.34E-01	7.46E-01
SN-126	0.96	87.57	*	37.00	6.37E-02	6.46E-02
EU-155	0.32	86.50	*	30.90	7.92E-02	8.03E-02

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.32	105.30		20.70		
TL-208	0.87	583.14	*	30.22	9.24E-01	2.07E-01
		860.37		4.48		
		2614.66	*	35.85	4.98E-01	1.48E-01
PB-210	0.98	46.50	*	4.25	8.51E-01	9.43E-01
BI-212	0.74	727.17	*	11.80	6.43E-01	3.57E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	7.40E-01	1.01E-01
		300.09	*	3.41	8.99E-01	6.52E-01
BI-214	0.92	609.31	*	46.30	6.82E-01	1.47E-01
		1120.29	*	15.10	8.80E-01	3.32E-01
		1764.49	*	15.80	9.42E-01	3.02E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	7.29E-01	1.58E-01
		351.92	*	37.19	8.58E-01	1.47E-01
RA-224	0.88	240.98	*	3.95	1.49E+00	6.96E-01
RA-226	0.98	186.21	*	3.28	1.78E+00	3.36E+00
AC-228	0.96	338.32	*	11.40	9.26E-01	3.51E-01
		911.07	*	27.70	6.42E-01	2.66E-01
		969.11	*	16.60	1.05E+00	4.25E-01
NP-237	0.94	86.50	*	12.60	1.87E-01	1.90E-01
CM-243	0.33	209.75	*	3.29	1.17E+00	1.18E+00
		228.14		10.60		
		277.60	*	14.00	2.50E-01	2.28E-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	0.990	1.72E+01	2.08E+00	
	ZN-65	0.854	9.13E-02	7.63E-02	
?	CD-109	0.876	7.34E-01	7.46E-01	

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	SN-126	0.969	6.37E-02	6.46E-02	
?	EU-155	0.325	7.92E-02	8.03E-02	
X	HG-203	0.856			
	TL-208	0.877	6.43E-01	1.21E-01	
	PB-210	0.981	8.51E-01	9.43E-01	
	BI-212	0.748	6.43E-01	3.57E-01	
	PB-212	0.997	7.44E-01	9.97E-02	
	BI-214	0.926	7.52E-01	1.23E-01	
	PB-214	0.998	7.98E-01	1.08E-01	
	RA-224	0.888	1.49E+00	6.96E-01	
	RA-226	0.988	1.78E+00	3.36E+00	
	AC-228	0.963	8.05E-01	1.90E-01	
?	NP-237	0.940	1.87E-01	1.90E-01	
	CM-243	0.331	2.84E-01	2.24E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 6:50:51AM
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	76.00	1.98946E-01	10.92		
	4	93.25	4.03713E-02	22.08	Sum	
	5	99.00	1.20520E-02	54.54	D-Esc	
M	6	183.31	1.39408E-02	31.60		
	11	269.65	2.11561E-02	34.64		
	17	463.03	1.43259E-02	46.16	Tol.	SB-125
	18	510.79	2.10079E-02	28.41		
	19	517.42	7.50000E-03	46.04	Sum	
	20	524.51	7.15133E-03	59.67	Sum	
	22	598.08	7.50000E-03	58.90		
	24	669.41	9.59201E-03	54.56	Sum	
	26	795.46	6.14005E-03	57.37	Sum	
	27	805.14	5.75397E-03	62.82		
	28	830.23	5.15537E-03	63.53		
	30	933.66	6.18499E-03	43.30		
	32	976.22	4.87397E-03	61.99		
M	33	1056.87	5.62793E-03	54.74		
m	34	1078.41	5.26899E-03	58.47		
	37	1188.53	9.45578E-03	50.54	Tol.	TA-182
	38	1237.72	1.08995E-02	35.34		
	39	1329.31	3.97135E-03	57.68	Sum	
	40	1355.87	3.88889E-03	39.93	Sum	
	41	1365.50	5.95607E-03	50.34		
	42	1378.16	7.30324E-03	28.46		
	43	1387.33	6.36574E-03	30.47		
M	44	1400.30	4.83416E-03	35.42		
m	45	1406.76	3.56376E-03	50.63		
	47	1723.11	2.22222E-03	35.36		
	48	1729.41	5.00000E-03	23.57	Sum	
	49	1746.98	2.75794E-03	49.47		
	51	1836.39	4.16667E-03	25.82	Tol.	Y-88
	52	1846.82	4.93750E-03	28.16		
	53	1922.56	2.31482E-03	51.09		
	54	1981.65	2.37179E-03	59.14		
	55	2013.15	3.61111E-03	27.74		

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
56	2088.75	1.97222E-03	59.02	Sum	
57	2136.12	1.94444E-03	37.80		

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	2.15E-01	1.48E+00	1.48E+00
+	NA-22	1274.54		99.94	-2.35E-02	7.51E-02	7.51E-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	1.42E-02	5.19E-02	5.19E-02
+	K-40	1460.81	*	10.67	1.72E+01	7.42E-01	7.42E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.57E-02	3.77E-02	3.77E-02
		78.34		96.00	5.82E-03		4.39E-02
+	SC-46	889.25		99.98	2.98E-02	1.35E-01	1.35E-01
		1120.51		99.99	1.55E-01		2.23E-01
+	V-48	983.52		99.98	-1.13E+00	3.92E+00	4.04E+00
		1312.10		97.50	-2.25E+00		3.92E+00
+	CR-51	320.08		9.83	-2.84E-01	4.85E+00	4.85E+00
+	MN-54	834.83		99.97	1.29E-02	7.62E-02	7.62E-02
+	CO-56	846.75		99.96	3.57E-02	1.49E-01	1.49E-01
		1037.75		14.03	-6.47E-01		9.71E-01
		1238.25		67.00	2.64E-01		3.31E-01
		1771.40		15.51	1.01E-01		8.45E-01
		2598.48		16.90	-7.75E-02		5.59E-01
+	CO-57	122.06		85.51	-3.64E-03	4.34E-02	4.34E-02
		136.48		10.60	7.38E-02		4.41E-01
+	CO-58	810.76		99.40	3.46E-02	1.23E-01	1.23E-01
+	FE-59	1099.22		56.50	7.75E-03	5.40E-01	5.40E-01
		1291.56		43.20	3.01E-01		7.95E-01
+	CO-60	1173.22		100.00	-9.15E-03	5.86E-02	8.30E-02
		1332.49		100.00	-4.78E-03		5.86E-02

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52	*	50.75	9.13E-02	2.99E-01	2.99E-01
+	GA-67	93.31		35.70	3.00E+08	1.41E+08	1.41E+08
		208.95		2.24	3.95E+09		2.84E+09
		300.22		16.00	2.26E+08		3.78E+08
+	SE-75	121.11		16.70	1.51E-01	1.09E-01	3.06E-01
		136.00		59.20	1.70E-03		1.09E-01
		264.65		59.80	-2.30E-02		1.09E-01
		279.53		25.20	1.68E-02		2.94E-01
		400.65		11.40	4.27E-01		6.98E-01
+	RB-82	776.52		13.00	-7.49E-01	6.82E+00	6.82E+00
+	RB-83	520.41		46.00	-7.78E-02	1.99E-01	1.99E-01
		529.64		30.30	-2.29E-03		2.72E-01
		552.65		16.40	7.65E-03		5.60E-01
+	KR-85	513.99		0.43	-1.49E+01	1.17E+01	1.17E+01
+	SR-85	513.99		99.27	-1.84E-01	1.45E-01	1.45E-01
+	Y-88	898.02		93.40	1.14E-02	1.14E-01	1.17E-01
		1836.01		99.38	6.45E-02		1.14E-01
+	MO-93	263.06		56.72	1.58E-02	5.23E-02	7.15E-02
		684.67		99.68	-4.74E-03		5.23E-02
		1477.11		99.08	-1.70E-02		5.30E-02
+	NB-93M	16.57		9.43	0.00E+00	6.16E+00	6.16E+00
+	NB-94	702.63		100.00	4.14E-02	5.60E-02	6.36E-02
		871.10		100.00	1.50E-02		5.60E-02
+	NB-95	765.79		99.81	8.75E-03	4.30E-01	4.30E-01
+	NB-95M	235.69		25.00	-2.47E+08	4.15E+07	4.15E+07
+	ZR-95	724.18		43.70	0.00E+00	2.91E-01	4.25E-01
		756.72		55.30	-3.21E-02		2.91E-01
+	MO-99	181.06		6.20	1.91E+10	3.05E+10	4.24E+10
		739.58		12.80	4.64E+09		3.05E+10
		778.00		4.50	4.54E+10		9.12E+10
+	RU-103	497.08		89.00	-9.62E-02	2.59E-01	2.59E-01
+	RU-106	621.84		9.80	-1.81E-01	6.28E-01	6.28E-01
+	AG-108M	433.93		89.90	-2.51E-02	4.48E-02	4.48E-02
		614.37		90.40	4.82E-03		6.16E-02
		722.95		90.50	-2.14E-03		5.92E-02
+	CD-109	88.03	*	3.72	7.34E-01	1.21E+00	1.21E+00
+	AG-110M	657.75		93.14	-7.78E-03	6.90E-02	6.90E-02
		677.61		10.53	1.09E-01		6.65E-01
		706.67		16.46	3.59E-02		5.00E-01
		763.93		21.98	-3.00E-01		3.32E-01
		884.67		71.63	-3.65E-02		1.02E-01
		1384.27		23.94	-2.76E-01		3.00E-01
+	CD-113M	263.70		0.02	-1.39E+01	1.68E+02	1.68E+02
+	SN-113	255.12		1.93	4.21E-01	1.07E-01	3.84E+00
		391.69		64.90	-7.03E-02		1.07E-01
+	TE123M	159.00		84.10	1.59E-02	8.24E-02	8.24E-02
+	SB-124	602.71		97.87	2.07E-02	1.72E-01	1.72E-01
		645.85		7.26	-1.46E+00		2.03E+00

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78		11.10	-7.50E-02	1.72E-01	1.48E+00
		1691.02		49.00	-1.74E-01		2.62E-01
+	I-125	35.49		6.49	-3.17E+01	4.81E+00	4.81E+00
+	SB-125	176.33		6.89	-6.78E-02	1.61E-01	5.99E-01
		427.89		29.33	-6.12E-02		1.61E-01
		463.38		10.35	5.57E-01		5.62E-01
		600.56		17.80	-6.91E-02		3.21E-01
		635.90		11.32	1.85E-01		4.98E-01
+	SB-126	414.70		83.30	-6.08E+00	1.18E+01	1.18E+01
		666.33		99.60	7.86E+00		1.44E+01
		695.00		99.60	-3.65E+00		1.37E+01
		720.50		53.80	6.93E+00		2.50E+01
+	SN-126	87.57	*	37.00	6.37E-02	1.05E-01	1.05E-01
+	SB-127	473.00		25.00	1.20E+06	7.61E+06	8.90E+06
		685.20		35.70	-2.84E+06		7.61E+06
		783.80		14.70	1.37E+07		2.35E+07
+	I-129	29.78		57.00	1.38E-01	3.72E-01	3.72E-01
		33.60		13.20	8.17E+00		1.78E+00
		39.58		7.52	5.87E-01		1.03E+00
+	I-131	284.30		6.05	-9.79E+02	2.34E+02	3.26E+03
		364.48		81.20	1.43E+02		2.34E+02
		636.97		7.26	-9.46E+02		3.51E+03
		722.89		1.80	-5.40E+02		1.50E+04
+	TE-132	49.72		13.10	-1.01E+07	6.06E+07	4.30E+08
		228.16		88.00	-2.38E+07		6.06E+07
+	BA-133	81.00		33.00	9.89E-03	6.79E-02	9.89E-02
		302.84		17.80	-1.14E-01		2.37E-01
		356.01		60.00	4.02E-03		6.79E-02
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	4.01E+03	4.01E+04	4.01E+04
+	CS-134	563.23		8.38	3.76E-02	6.43E-02	6.26E-01
		569.32		15.43	-6.59E-02		3.12E-01
		604.70		97.60	7.32E-03		6.43E-02
		795.84		85.40	2.26E-02		8.21E-02
		801.93		8.73	-2.22E-02		7.13E-01
+	CS-135	268.24		16.00	-2.39E-02	2.69E-01	2.69E-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	3.05E+01	8.82E+00	9.60E+01
		163.89		4.61	-3.19E+01		1.41E+02
		176.55		13.56	-5.89E+00		5.20E+01
		273.65		12.66	-8.46E+01		5.55E+01
		340.57		48.50	-1.77E+01		1.82E+01
		818.50		99.70	-2.94E+00		8.82E+00
		1048.07		79.60	4.65E+00		1.42E+01
		1235.34		19.70	7.35E+01		8.66E+01
+	CS-137	661.65		85.12	0.00E+00	5.75E-02	5.75E-02
+	LA-138	788.74		34.00	1.00E-01	8.49E-02	1.92E-01

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		LA-138	1435.80		66.00	-3.75E-02	8.49E-02	8.49E-02
+		CE-139	165.85		80.35	3.26E-02	7.32E-02	7.32E-02
+		BA-140	162.64		6.70	-4.13E+01	3.74E+01	1.14E+02
			304.84		4.50	-3.85E+01		1.86E+02
			423.70		3.20	5.53E+01		2.94E+02
			437.55		2.00	7.42E+01		4.49E+02
			537.32		25.00	-9.05E-01		3.74E+01
+		LA-140	328.77		20.50	1.58E+01	1.25E+01	4.70E+01
			487.03		45.50	5.91E+00		2.09E+01
			815.85		23.50	8.91E-01		4.12E+01
			1596.49		95.49	-9.51E-01		1.25E+01
+		CE-141	145.44		48.40	-2.18E-01	6.23E-01	6.23E-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	-2.28E-02	3.34E-01	3.34E-01
+		PM-144	476.78		42.00	1.78E-02	6.79E-02	1.23E-01
			618.01		98.60	3.43E-02		6.99E-02
			696.49		99.49	3.74E-03		6.79E-02
+		PM-145	36.85		21.70	-2.70E-02	2.35E-01	4.29E-01
			37.36		39.70	1.43E-01		2.35E-01
			42.30		15.10	-2.32E-01		3.82E-01
			72.40		2.31	-6.45E+00		1.72E+00
+		PM-146	453.90		39.94	7.71E-03	1.12E-01	1.12E-01
			735.90		14.01	6.39E-02		4.20E-01
			747.13		13.10	-1.55E-01		4.09E-01
+		ND-147	91.11		28.90	4.12E+01	5.93E+01	5.93E+01
			531.02		13.10	-1.35E+01		1.51E+02
+		PM-149	285.90		3.10	5.70E+12	3.85E+13	3.85E+13
+		EU-152	121.78		20.50	-1.20E-02	1.42E-01	1.42E-01
			244.69		5.40	-1.26E+00		8.01E-01
			344.27		19.13	-4.49E-03		2.16E-01
			778.89		9.20	3.41E-01		6.84E-01
			964.01		10.40	-1.15E+00		7.49E-01
			1085.78		7.22	1.89E-01		9.23E-01
			1112.02		9.60	6.96E-02		6.70E-01
			1407.95		14.94	5.22E-02		4.24E-01
+		GD-153	97.43		31.30	-2.40E-02	1.18E-01	1.18E-01
			103.18		22.20	-1.09E-01		1.60E-01
+		EU-154	123.07		40.50	-1.79E-02	7.28E-02	7.28E-02
			723.30		19.70	-1.00E-02		2.78E-01
			873.19		11.50	1.27E-01		5.23E-01
			996.32		10.30	-5.98E-02		6.20E-01
			1004.76		17.90	-7.12E-02		3.66E-01
			1274.45		35.50	-6.28E-02		2.01E-01
+		EU-155	86.50	*	30.90	7.92E-02	1.31E-01	1.31E-01
			105.30		20.70	4.50E-02		1.49E-01
+		EU-156	811.77		10.40	1.56E+01	3.92E+01	3.92E+01
			1153.47		7.20	9.35E+00		9.09E+01

Analysis Report for 1707086-17

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	2.68E+01	3.92E+01	7.82E+01
+	HO-166M	184.41		72.60	1.35E-01	6.85E-02	6.85E-02
		280.45		29.60	-3.91E-02		1.33E-01
		410.94		11.10	1.18E-01		4.03E-01
		711.69		54.10	6.53E-02		1.07E-01
+	TM-171	66.72		0.14	1.86E+00	2.86E+01	2.86E+01
+	HF-172	67.35		5.31	3.10E-01	2.81E-01	7.42E-01
		125.81		11.30	1.20E-02		2.81E-01
+	LU-172	181.53		20.60	1.40E+03	2.93E+03	5.37E+03
		900.72		29.81	-2.88E+02		5.35E+03
		1093.66		62.50	-6.22E+02		2.93E+03
+	LU-173	100.72		5.24	4.92E-02	2.44E-01	6.07E-01
		272.11		21.20	2.29E-01		2.44E-01
+	HF-175	343.40		84.00	-2.15E-02	1.28E-01	1.28E-01
+	LU-176	88.34		13.30	3.03E-02	4.20E-02	2.73E-01
		201.83		86.00	-3.54E-02		4.72E-02
		306.78		94.00	-9.36E-03		4.20E-02
+	HF-181	133.02		41.70	5.72E-02	2.67E-01	3.41E-01
		345.85		17.20	-4.77E-02		1.21E+00
		482.03		82.80	7.72E-02		2.67E-01
+	TA-182	67.75		41.20	6.55E-02	1.57E-01	1.57E-01
		1121.30		34.90	5.24E-01		5.30E-01
		1189.05		16.23	7.75E-01		9.64E-01
		1221.41		26.98	9.29E-02		4.82E-01
		1231.02		11.44	4.17E-01		1.22E+00
+	IR-192	308.46		29.68	2.18E-01	2.11E-01	3.51E-01
		468.07		48.10	-2.94E-02		2.11E-01
+	HG-203	279.19	*	77.30	1.96E-01	2.89E-01	2.89E-01
+	TL-204	374.74		94.11	4.10E-02	4.73E-02	4.73E-02
		899.15		99.16	-1.18E-02		5.90E-02
		911.74		91.10	2.54E-01		1.29E-01
+	BI-207	569.67		97.72	-9.56E-03	4.52E-02	4.52E-02
		1063.62		74.90	2.00E-02		9.03E-02
+	TL-208	583.14	*	30.22	9.24E-01	9.48E-02	2.51E-01
		860.37		4.48	6.62E-01		1.35E+00
		2614.66	*	35.85	4.98E-01		9.48E-02
+	BI-210M	262.00		45.00	5.35E-02	9.18E-02	9.18E-02
		300.00		23.00	1.17E-01		1.96E-01
+	PB-210	46.50	*	4.25	8.51E-01	1.54E+00	1.54E+00
+	PB-211	404.84		2.90	-1.10E+00	1.37E+00	1.37E+00
		831.96		2.90	-3.39E-01		1.98E+00
+	BI-212	727.17	*	11.80	6.43E-01	5.35E-01	5.35E-01
		1620.62		2.75	-8.97E-01		1.75E+00
+	PB-212	238.63	*	44.60	7.40E-01	1.90E-01	1.90E-01
		300.09	*	3.41	8.99E-01		2.56E+00
+	BI-214	609.31	*	46.30	6.82E-01	1.76E-01	1.76E-01
		1120.29	*	15.10	8.80E-01		7.72E-01
		1764.49	*	15.80	9.42E-01		2.70E-01

Analysis Report for 1707086-17

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22		4.98	-7.03E-02	1.76E-01	1.05E+00
+	PB-214	295.21	*	19.19	7.29E-01	1.67E-01	4.50E-01
		351.92	*	37.19	8.58E-01		1.67E-01
+	RN-219	401.80		6.50	-1.40E-01	6.57E-01	6.57E-01
+	RA-223	323.87		3.88	-1.15E+00	1.02E+00	1.02E+00
+	RA-224	240.98	*	3.95	1.49E+00	2.15E+00	2.15E+00
+	RA-225	40.00		31.00	1.42E+01	2.49E+01	2.49E+01
+	RA-226	186.21	*	3.28	1.78E+00	1.77E+00	1.77E+00
+	TH-227	50.10		8.40	-1.14E-02	4.86E-01	4.86E-01
		236.00		11.50	-3.05E+00		5.13E-01
		256.20		6.30	-1.01E-02		6.55E-01
+	AC-228	338.32	*	11.40	9.26E-01	3.93E-01	5.20E-01
		911.07	*	27.70	6.42E-01		3.93E-01
		969.11	*	16.60	1.05E+00		6.19E-01
+	TH-230	48.44		16.90	-7.04E-02	2.49E-01	2.49E-01
		62.85		4.60	4.02E-01		8.93E-01
		67.67		0.37	4.01E+00		9.60E+00
+	PA-231	283.67		1.60	-7.34E-01	1.80E+00	2.45E+00
		302.67		2.30	-8.64E-01		1.80E+00
+	TH-231	25.64		14.70	0.00E+00	1.09E-01	1.09E-01
		84.21		6.40	6.15E-01		5.45E-01
+	PA-233	311.98		38.60	3.35E-01	1.31E+00	1.31E+00
+	PA-234	131.20		20.40	-1.18E-01	1.35E-01	1.35E-01
		733.99		8.80	6.59E-02		6.35E-01
		946.00		12.00	7.62E-03		4.89E-01
+	PA-234M	1001.03		0.92	1.90E+00	7.22E+00	7.22E+00
+	TH-234	63.29		3.80	6.62E-01	1.09E+00	1.09E+00
+	U-235	143.76		10.50	4.86E-02	3.59E-01	3.59E-01
		163.35		4.70	-1.71E-01		7.57E-01
		205.31		4.70	-1.36E-02		8.96E-01
+	NP-237	86.50	*	12.60	1.87E-01	3.09E-01	3.09E-01
+	NP-239	106.10		22.70	1.72E+11	5.70E+11	5.70E+11
		228.18		10.70	-6.25E+11		1.59E+12
		277.60		14.10	1.30E+12		1.37E+12
+	AM-241	59.54		35.90	1.10E-02	1.09E-01	1.09E-01
+	AM-243	74.67		66.00	-1.27E-01	7.47E-02	7.47E-02
+	CM-243	209.75	*	3.29	1.17E+00	3.69E-01	1.92E+00
		228.14		10.60	-1.46E-01		3.71E-01
		277.60	*	14.00	2.50E-01		3.69E-01

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

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HTC-A03-S001-2430-01

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	1.48E+00	1.48E+00	2.15E-01	6.92E-01
	NA-22	1274.54		99.94	7.51E-02	7.51E-02	-2.35E-02	3.43E-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	5.19E-02	5.19E-02	1.42E-02	2.21E-02
+	K-40	1460.81	*	10.67	7.42E-01	7.42E-01	1.72E+01	3.40E-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	3.77E-02	3.77E-02	1.57E-02	1.82E-02
		78.34		96.00	4.39E-02		5.82E-03	2.14E-02
	SC-46	889.25		99.98	1.35E-01	1.35E-01	2.98E-02	6.26E-02
		1120.51		99.99	2.23E-01		1.55E-01	1.05E-01
	V-48	983.52		99.98	4.04E+00	3.92E+00	-1.13E+00	1.84E+00
		1312.10		97.50	3.92E+00		-2.25E+00	1.73E+00
	CR-51	320.08		9.83	4.85E+00	4.85E+00	-2.84E-01	2.30E+00
	MN-54	834.83		99.97	7.62E-02	7.62E-02	1.29E-02	3.54E-02
	CO-56	846.75		99.96	1.49E-01	1.49E-01	3.57E-02	6.93E-02
		1037.75		14.03	9.71E-01		-6.47E-01	4.42E-01
		1238.25		67.00	3.31E-01		2.64E-01	1.55E-01
		1771.40		15.51	8.45E-01		1.01E-01	3.64E-01
		2598.48		16.90	5.59E-01		-7.75E-02	2.16E-01
	CO-57	122.06		85.51	4.34E-02	4.34E-02	-3.64E-03	2.09E-02
		136.48		10.60	4.41E-01		7.38E-02	2.14E-01
	CO-58	810.76		99.40	1.23E-01	1.23E-01	3.46E-02	5.62E-02
	FE-59	1099.22		56.50	5.40E-01	5.40E-01	7.75E-03	2.48E-01
		1291.56		43.20	7.95E-01		3.01E-01	3.65E-01
	CO-60	1173.22		100.00	8.30E-02	5.86E-02	-9.15E-03	3.86E-02
		1332.49		100.00	5.86E-02		-4.78E-03	2.61E-02
+	ZN-65	1115.52	*	50.75	2.99E-01	2.99E-01	9.13E-02	1.42E-01
	GA-67	93.31		35.70	1.41E+08	1.41E+08	3.00E+08	6.87E+07
		208.95		2.24	2.84E+09		3.95E+09	1.37E+09
		300.22		16.00	3.78E+08		2.26E+08	1.81E+08
	SE-75	121.11		16.70	3.06E-01	1.09E-01	1.51E-01	1.47E-01
		136.00		59.20	1.09E-01		1.70E-03	5.27E-02
		264.65		59.80	1.09E-01		-2.30E-02	5.18E-02
		279.53		25.20	2.94E-01		1.68E-02	1.40E-01
		400.65		11.40	6.98E-01		4.27E-01	3.30E-01
	RB-82	776.52		13.00	6.82E+00	6.82E+00	-7.49E-01	3.19E+00

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HTC-A03-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	1.99E-01	1.99E-01	-7.78E-02	9.23E-02
		529.64		30.30	2.72E-01		-2.29E-03	1.25E-01
		552.65		16.40	5.60E-01		7.65E-03	2.59E-01
	KR-85	513.99		0.43	1.17E+01	1.17E+01	-1.49E+01	5.52E+00
	SR-85	513.99		99.27	1.45E-01	1.45E-01	-1.84E-01	6.82E-02
	Y-88	898.02		93.40	1.17E-01	1.14E-01	1.14E-02	5.38E-02
		1836.01		99.38	1.14E-01		6.45E-02	4.97E-02
	MO-93	263.06		56.72	7.15E-02	5.23E-02	1.58E-02	3.42E-02
		684.67		99.68	5.23E-02		-4.74E-03	2.43E-02
		1477.11		99.08	5.30E-02		-1.70E-02	2.30E-02
	NB-93M	16.57		9.43	6.16E+00	6.16E+00	0.00E+00	0.00E+00
	NB-94	702.63		100.00	6.36E-02	5.60E-02	4.14E-02	2.99E-02
		871.10		100.00	5.60E-02		1.50E-02	2.58E-02
	NB-95	765.79		99.81	4.30E-01	4.30E-01	8.75E-03	2.01E-01
	NB-95M	235.69		25.00	4.15E+07	4.15E+07	-2.47E+08	2.02E+07
	ZR-95	724.18		43.70	4.25E-01	2.91E-01	0.00E+00	2.00E-01
		756.72		55.30	2.91E-01		-3.21E-02	1.35E-01
	MO-99	181.06		6.20	4.24E+10	3.05E+10	1.91E+10	2.05E+10
		739.58		12.80	3.05E+10		4.64E+09	1.43E+10
		778.00		4.50	9.12E+10		4.54E+10	4.26E+10
	RU-103	497.08		89.00	2.59E-01	2.59E-01	-9.62E-02	1.21E-01
	RU-106	621.84		9.80	6.28E-01	6.28E-01	-1.81E-01	2.93E-01
	AG-108M	433.93		89.90	4.48E-02	4.48E-02	-2.51E-02	2.10E-02
		614.37		90.40	6.16E-02		4.82E-03	2.89E-02
		722.95		90.50	5.92E-02		-2.14E-03	2.75E-02
+	CD-109	88.03	*	3.72	1.21E+00	1.21E+00	7.34E-01	5.90E-01
	AG-110M	657.75		93.14	6.90E-02	6.90E-02	-7.78E-03	3.20E-02
		677.61		10.53	6.65E-01		1.09E-01	3.10E-01
		706.67		16.46	5.00E-01		3.59E-02	2.35E-01
		763.93		21.98	3.32E-01		-3.00E-01	1.54E-01
		884.67		71.63	1.02E-01		-3.65E-02	4.69E-02
		1384.27		23.94	3.00E-01		-2.76E-01	1.32E-01
	CD-113M	263.70		0.02	1.68E+02	1.68E+02	-1.39E+01	8.03E+01
	SN-113	255.12		1.93	3.84E+00	1.07E-01	4.21E-01	1.84E+00
		391.69		64.90	1.07E-01		-7.03E-02	5.04E-02
	TE123M	159.00		84.10	8.24E-02	8.24E-02	1.59E-02	3.98E-02
	SB-124	602.71		97.87	1.72E-01	1.72E-01	2.07E-02	8.06E-02
		645.85		7.26	2.03E+00		-1.46E+00	9.43E-01
		722.78		11.10	1.48E+00		-7.50E-02	6.87E-01
		1691.02		49.00	2.62E-01		-1.74E-01	1.07E-01
	I-125	35.49		6.49	4.81E+00	4.81E+00	-3.17E+01	2.32E+00
	SB-125	176.33		6.89	5.99E-01	1.61E-01	-6.78E-02	2.89E-01
		427.89		29.33	1.61E-01		-6.12E-02	7.59E-02
		463.38		10.35	5.62E-01		5.57E-01	2.67E-01
		600.56		17.80	3.21E-01		-6.91E-02	1.50E-01
		635.90		11.32	4.98E-01		1.85E-01	2.33E-01
	SB-126	414.70		83.30	1.18E+01	1.18E+01	-6.08E+00	5.53E+00
		666.33		99.60	1.44E+01		7.86E+00	6.77E+00
		695.00		99.60	1.37E+01		-3.65E+00	6.39E+00
		720.50		53.80	2.50E+01		6.93E+00	1.16E+01
+	SN-126	87.57	*	37.00	1.05E-01	1.05E-01	6.37E-02	5.12E-02
	SB-127	473.00		25.00	8.90E+06	7.61E+06	1.20E+06	4.15E+06
		685.20		35.70	7.61E+06		-2.84E+06	3.53E+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)
SB-127	783.80	14.70	2.35E+07	7.61E+06	1.37E+07	1.10E+07
I-129	29.78	57.00	3.72E-01	3.72E-01	1.38E-01	1.80E-01
	33.60	13.20	1.78E+00		8.17E+00	8.72E-01
	39.58	7.52	1.03E+00		5.87E-01	4.97E-01
I-131	284.30	6.05	3.26E+03	2.34E+02	-9.79E+02	1.55E+03
	364.48	81.20	2.34E+02		1.43E+02	1.10E+02
	636.97	7.26	3.51E+03		-9.46E+02	1.64E+03
	722.89	1.80	1.50E+04		-5.40E+02	6.96E+03
TE-132	49.72	13.10	4.30E+08	6.06E+07	-1.01E+07	2.07E+08
	228.16	88.00	6.06E+07		-2.38E+07	2.91E+07
BA-133	81.00	33.00	9.89E-02	6.79E-02	9.89E-03	4.78E-02
	302.84	17.80	2.37E-01		-1.14E-01	1.13E-01
	356.01	60.00	6.79E-02		4.02E-03	3.21E-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	4.01E+04	4.01E+04	4.01E+03	1.94E+04
CS-134	563.23	8.38	6.26E-01	6.43E-02	3.76E-02	2.93E-01
	569.32	15.43	3.12E-01		-6.59E-02	1.45E-01
	604.70	97.60	6.43E-02		7.32E-03	3.03E-02
	795.84	85.40	8.21E-02		2.26E-02	3.84E-02
	801.93	8.73	7.13E-01		-2.22E-02	3.31E-01
CS-135	268.24	16.00	2.69E-01	2.69E-01	-2.39E-02	1.29E-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	9.60E+01	8.82E+00	3.05E+01	4.65E+01
	163.89	4.61	1.41E+02		-3.19E+01	6.80E+01
	176.55	13.56	5.20E+01		-5.89E+00	2.51E+01
	273.65	12.66	5.55E+01		-8.46E+01	2.64E+01
	340.57	48.50	1.82E+01		-1.77E+01	8.72E+00
	818.50	99.70	8.82E+00		-2.94E+00	4.03E+00
	1048.07	79.60	1.42E+01		4.65E+00	6.50E+00
	1235.34	19.70	8.66E+01		7.35E+01	4.06E+01
CS-137	661.65	85.12	5.75E-02	5.75E-02	0.00E+00	2.67E-02
LA-138	788.74	34.00	1.92E-01	8.49E-02	1.00E-01	8.99E-02
	1435.80	66.00	8.49E-02		-3.75E-02	3.75E-02
CE-139	165.85	80.35	7.32E-02	7.32E-02	3.26E-02	3.52E-02
BA-140	162.64	6.70	1.14E+02	3.74E+01	-4.13E+01	5.48E+01
	304.84	4.50	1.86E+02		-3.85E+01	8.85E+01
	423.70	3.20	2.94E+02		5.53E+01	1.39E+02
	437.55	2.00	4.49E+02		7.42E+01	2.11E+02
	537.32	25.00	3.74E+01		-9.05E-01	1.74E+01
LA-140	328.77	20.50	4.70E+01	1.25E+01	1.58E+01	2.24E+01
	487.03	45.50	2.09E+01		5.91E+00	9.80E+00
	815.85	23.50	4.12E+01		8.91E-01	1.87E+01
	1596.49	95.49	1.25E+01		-9.51E-01	5.45E+00
CE-141	145.44	48.40	6.23E-01	6.23E-01	-2.18E-01	3.01E-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	3.34E-01	3.34E-01	-2.28E-02	1.60E-01
PM-144	476.78	42.00	1.23E-01	6.79E-02	1.78E-02	5.74E-02
	618.01	98.60	6.99E-02		3.43E-02	3.29E-02
	696.49	99.49	6.79E-02		3.74E-03	3.17E-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-145	36.85		21.70	4.29E-01	2.35E-01	-2.70E-02	2.07E-01
		37.36		39.70	2.35E-01		1.43E-01	1.14E-01
		42.30		15.10	3.82E-01		-2.32E-01	1.84E-01
		72.40		2.31	1.72E+00		-6.45E+00	8.34E-01
	PM-146	453.90		39.94	1.12E-01	1.12E-01	7.71E-03	5.25E-02
		735.90		14.01	4.20E-01		6.39E-02	1.96E-01
		747.13		13.10	4.09E-01		-1.55E-01	1.89E-01
	ND-147	91.11		28.90	5.93E+01	5.93E+01	4.12E+01	2.87E+01
		531.02		13.10	1.51E+02		-1.35E+01	6.95E+01
	PM-149	285.90		3.10	3.85E+13	3.85E+13	5.70E+12	1.84E+13
	EU-152	121.78		20.50	1.42E-01	1.42E-01	-1.20E-02	6.84E-02
		244.69		5.40	8.01E-01		-1.26E+00	3.85E-01
		344.27		19.13	2.16E-01		-4.49E-03	1.02E-01
		778.89		9.20	6.84E-01		3.41E-01	3.20E-01
		964.01		10.40	7.49E-01		-1.15E+00	3.51E-01
		1085.78		7.22	9.23E-01		1.89E-01	4.24E-01
		1112.02		9.60	6.70E-01		6.96E-02	3.06E-01
		1407.95		14.94	4.24E-01		5.22E-02	1.90E-01
	GD-153	97.43		31.30	1.18E-01	1.18E-01	-2.40E-02	5.66E-02
		103.18		22.20	1.60E-01		-1.09E-01	7.69E-02
	EU-154	123.07		40.50	7.28E-02	7.28E-02	-1.79E-02	3.50E-02
		723.30		19.70	2.78E-01		-1.00E-02	1.29E-01
		873.19		11.50	5.23E-01		1.27E-01	2.42E-01
		996.32		10.30	6.20E-01		-5.98E-02	2.86E-01
		1004.76		17.90	3.66E-01		-7.12E-02	1.69E-01
		1274.45		35.50	2.01E-01		-6.28E-02	9.19E-02
+	EU-155	86.50	*	30.90	1.31E-01	1.31E-01	7.92E-02	6.36E-02
		105.30		20.70	1.49E-01		4.50E-02	7.17E-02
	EU-156	811.77		10.40	3.92E+01	3.92E+01	1.56E+01	1.78E+01
		1153.47		7.20	9.09E+01		9.35E+00	4.19E+01
		1230.71		8.90	7.82E+01		2.68E+01	3.61E+01
	HO-166M	184.41		72.60	6.85E-02	6.85E-02	1.35E-01	3.33E-02
		280.45		29.60	1.33E-01		-3.91E-02	6.32E-02
		410.94		11.10	4.03E-01		1.18E-01	1.90E-01
		711.69		54.10	1.07E-01		6.53E-02	4.99E-02
	TM-171	66.72		0.14	2.86E+01	2.86E+01	1.86E+00	1.39E+01
	HF-172	67.35		5.31	7.42E-01	2.81E-01	3.10E-01	3.59E-01
		125.81		11.30	2.81E-01		1.20E-02	1.35E-01
	LU-172	181.53		20.60	5.37E+03	2.93E+03	1.40E+03	2.59E+03
		900.72		29.81	5.35E+03		-2.88E+02	2.46E+03
		1093.66		62.50	2.93E+03		-6.22E+02	1.35E+03
	LU-173	100.72		5.24	6.07E-01	2.44E-01	4.92E-02	2.92E-01
		272.11		21.20	2.44E-01		2.29E-01	1.17E-01
	HF-175	343.40		84.00	1.28E-01	1.28E-01	-2.15E-02	6.04E-02
	LU-176	88.34		13.30	2.73E-01	4.20E-02	3.03E-02	1.33E-01
		201.83		86.00	4.72E-02		-3.54E-02	2.27E-02
		306.78		94.00	4.20E-02		-9.36E-03	1.99E-02
	HF-181	133.02		41.70	3.41E-01	2.67E-01	5.72E-02	1.63E-01
		345.85		17.20	1.21E+00		-4.77E-02	5.71E-01
		482.03		82.80	2.67E-01		7.72E-02	1.25E-01
	TA-182	67.75		41.20	1.57E-01	1.57E-01	6.55E-02	7.59E-02
		1121.30		34.90	5.30E-01		5.24E-01	2.51E-01
		1189.05		16.23	9.64E-01		7.75E-01	4.50E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	4.82E-01	1.57E-01	9.29E-02	2.22E-01
		1231.02		11.44	1.22E+00		4.17E-01	5.61E-01
	IR-192	308.46		29.68	3.51E-01	2.11E-01	2.18E-01	1.67E-01
		468.07		48.10	2.11E-01		-2.94E-02	9.82E-02
	HG-203	279.19	*	77.30	2.89E-01	2.89E-01	1.96E-01	1.39E-01
	TL-204	374.74		94.11	4.73E-02	4.73E-02	4.10E-02	2.24E-02
		899.15		99.16	5.90E-02		-1.18E-02	2.71E-02
		911.74		91.10	1.29E-01		2.54E-01	6.21E-02
	BI-207	569.67		97.72	4.52E-02	4.52E-02	-9.56E-03	2.10E-02
		1063.62		74.90	9.03E-02		2.00E-02	4.17E-02
+	TL-208	583.14	*	30.22	2.51E-01	9.48E-02	9.24E-01	1.20E-01
		860.37		4.48	1.35E+00		6.62E-01	6.29E-01
		2614.66	*	35.85	9.48E-02		4.98E-01	3.50E-02
	BI-210M	262.00		45.00	9.18E-02	9.18E-02	5.35E-02	4.39E-02
		300.00		23.00	1.96E-01		1.17E-01	9.38E-02
+	PB-210	46.50	*	4.25	1.54E+00	1.54E+00	8.51E-01	7.48E-01
	PB-211	404.84		2.90	1.37E+00	1.37E+00	-1.10E+00	6.41E-01
		831.96		2.90	1.98E+00		-3.39E-01	9.19E-01
+	BI-212	727.17	*	11.80	5.35E-01	5.35E-01	6.43E-01	2.51E-01
		1620.62		2.75	1.75E+00		-8.97E-01	7.46E-01
+	PB-212	238.63	*	44.60	1.90E-01	1.90E-01	7.40E-01	9.33E-02
		300.09	*	3.41	2.56E+00		8.99E-01	1.25E+00
+	BI-214	609.31	*	46.30	1.76E-01	1.76E-01	6.82E-01	8.43E-02
		1120.29	*	15.10	7.72E-01		8.80E-01	3.68E-01
		1764.49	*	15.80	2.70E-01		9.42E-01	1.11E-01
		2204.22		4.98	1.05E+00		-7.03E-02	4.42E-01
+	PB-214	295.21	*	19.19	4.50E-01	1.67E-01	7.29E-01	2.20E-01
		351.92	*	37.19	1.67E-01		8.58E-01	8.06E-02
	RN-219	401.80		6.50	6.57E-01	6.57E-01	-1.40E-01	3.10E-01
	RA-223	323.87		3.88	1.02E+00	1.02E+00	-1.15E+00	4.81E-01
+	RA-224	240.98	*	3.95	2.15E+00	2.15E+00	1.49E+00	1.05E+00
	RA-225	40.00		31.00	2.49E+01	2.49E+01	1.42E+01	1.20E+01
+	RA-226	186.21	*	3.28	1.77E+00	1.77E+00	1.78E+00	8.65E-01
	TH-227	50.10		8.40	4.86E-01	4.86E-01	-1.14E-02	2.33E-01
		236.00		11.50	5.13E-01		-3.05E+00	2.50E-01
		256.20		6.30	6.55E-01		-1.01E-02	3.14E-01
+	AC-228	338.32	*	11.40	5.20E-01	3.93E-01	9.26E-01	2.51E-01
		911.07	*	27.70	3.93E-01		6.42E-01	1.88E-01
		969.11	*	16.60	6.19E-01		1.05E+00	2.95E-01
	TH-230	48.44		16.90	2.49E-01	2.49E-01	-7.04E-02	1.20E-01
		62.85		4.60	8.93E-01		4.02E-01	4.34E-01
		67.67		0.37	9.60E+00		4.01E+00	4.65E+00
	PA-231	283.67		1.60	2.45E+00	1.80E+00	-7.34E-01	1.16E+00
		302.67		2.30	1.80E+00		-8.64E-01	8.58E-01
	TH-231	25.64		14.70	1.09E-01	1.09E-01	0.00E+00	0.00E+00
		84.21		6.40	5.45E-01		6.15E-01	2.64E-01
	PA-233	311.98		38.60	1.31E+00	1.31E+00	3.35E-01	6.22E-01
	PA-234	131.20		20.40	1.35E-01	1.35E-01	-1.18E-01	6.44E-02
		733.99		8.80	6.35E-01		6.59E-02	2.96E-01
		946.00		12.00	4.89E-01		7.62E-03	2.25E-01
	PA-234M	1001.03		0.92	7.22E+00	7.22E+00	1.90E+00	3.34E+00
	TH-234	63.29		3.80	1.09E+00	1.09E+00	6.62E-01	5.27E-01
	U-235	143.76		10.50	3.59E-01	3.59E-01	4.86E-02	1.74E-01

Analysis Report for 1707086-17

HTC-A03-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	163.35		4.70	7.57E-01	3.59E-01	-1.71E-01	3.65E-01
		205.31		4.70	8.96E-01		-1.36E-02	4.32E-01
+	NP-237	86.50	*	12.60	3.09E-01	3.09E-01	1.87E-01	1.50E-01
	NP-239	106.10		22.70	5.70E+11	5.70E+11	1.72E+11	2.75E+11
		228.18		10.70	1.59E+12		-6.25E+11	7.63E+11
		277.60		14.10	1.37E+12		1.30E+12	6.55E+11
	AM-241	59.54		35.90	1.09E-01	1.09E-01	1.10E-02	5.25E-02
	AM-243	74.67		66.00	7.47E-02	7.47E-02	-1.27E-01	3.65E-02
+	CM-243	209.75	*	3.29	1.92E+00	3.69E-01	1.17E+00	9.36E-01
		228.14		10.60	3.71E-01		-1.46E-01	1.78E-01
		277.60	*	14.00	3.69E-01		2.50E-01	1.78E-01

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

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-A03-S001-2430-01

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	0	0	0	0	0	0
25:	0	0	0	2	61	77	124	131
33:	335	500	73	69	93	94	95	82
41:	99	68	60	81	75	67	137	67
49:	63	68	78	72	77	95	70	69
57:	80	84	85	110	106	105	130	136
65:	112	108	112	95	99	82	107	129
73:	133	142	333	187	377	272	116	103
81:	98	85	82	133	130	81	169	155
89:	91	131	101	85	191	128	86	61
97:	59	73	82	85	61	66	63	66
105:	90	71	78	75	63	69	73	63
113:	81	66	76	66	73	72	50	62
121:	75	69	61	74	73	66	59	61
129:	93	62	55	57	69	56	58	65
137:	62	61	54	58	65	67	66	67
145:	64	44	56	55	61	58	59	56
153:	69	67	60	56	56	65	59	63
161:	53	56	42	47	43	48	49	47
169:	39	48	44	43	44	47	54	59
177:	46	43	52	56	50	40	64	53
185:	72	137	80	46	41	36	42	42
193:	50	43	38	43	67	52	44	40
201:	50	65	42	40	68	41	59	46
209:	89	74	43	37	41	36	37	34
217:	47	46	59	37	47	52	49	43
225:	44	37	38	40	34	36	41	43
233:	32	44	51	53	42	224	419	77
241:	82	103	53	37	37	38	36	38
249:	28	30	36	29	34	36	35	32
257:	36	36	36	34	40	39	28	29
265:	21	26	27	40	32	54	51	32
273:	22	34	23	26	41	46	32	35
281:	24	21	26	35	26	27	35	28
289:	30	25	25	24	28	39	154	86
297:	20	27	25	56	30	29	30	22
305:	27	19	25	30	21	30	27	20
313:	25	20	22	22	25	22	20	22
321:	31	24	24	24	24	16	36	46
329:	23	20	22	30	27	19	20	25
337:	31	86	71	23	23	21	22	28
345:	13	25	23	22	29	31	102	270
353:	80	16	18	24	19	23	23	11
361:	12	16	22	10	18	19	11	26

369:	13	20	25	14	31	18	16	16

Sample Title: HTC-A03-S001-2430-01

Channel								
377:	23	11	21	11	17	20	23	13
385:	20	25	16	15	21	11	19	12
393:	20	17	22	19	13	15	26	16
401:	23	25	16	15	18	23	8	22
409:	32	17	22	14	16	15	14	14
417:	16	23	17	12	17	12	23	15
425:	22	22	17	18	26	9	22	11
433:	21	13	16	13	18	13	21	16
441:	21	13	17	16	18	16	11	8
449:	11	14	15	14	19	14	16	17
457:	18	14	21	10	17	20	44	29
465:	16	16	11	16	9	13	14	16
473:	10	11	17	13	14	7	21	14
481:	16	18	8	19	12	11	22	14
489:	18	10	15	12	7	13	9	14
497:	11	12	14	23	14	16	7	15
505:	13	11	7	15	27	51	70	40
513:	16	9	8	16	17	19	8	10
521:	7	14	12	15	15	16	7	10
529:	8	8	12	10	10	15	8	15
537:	15	14	11	15	11	13	8	14
545:	6	15	12	7	14	13	9	16
553:	6	9	9	12	8	11	18	9
561:	11	16	21	11	11	15	12	13
569:	16	8	8	11	15	8	10	8
577:	11	10	16	15	11	62	132	59
585:	14	10	10	8	7	14	7	8
593:	9	8	10	10	12	21	12	11
601:	3	11	9	22	12	20	14	53
609:	164	79	16	11	7	9	13	14
617:	13	14	12	11	10	8	12	2
625:	13	10	10	16	13	8	7	13
633:	11	8	19	10	10	7	5	5
641:	8	12	9	7	10	8	7	5
649:	8	13	12	7	9	9	11	4
657:	12	5	10	5	11	7	10	7
665:	9	18	12	12	9	8	5	6
673:	10	12	4	6	14	11	5	12
681:	8	9	6	6	13	8	8	6
689:	12	8	11	4	11	17	9	7
697:	8	8	8	15	6	14	18	10
705:	17	7	10	10	12	17	8	6
713:	6	11	7	3	8	10	8	8
721:	10	8	6	5	11	10	34	20
729:	14	7	8	8	10	7	5	12
737:	12	7	11	7	10	10	9	13
745:	4	4	4	6	7	13	11	7
753:	3	10	8	9	8	7	12	12
761:	5	7	9	7	8	10	11	17
769:	11	11	9	12	10	7	14	9
777:	10	6	11	8	12	7	5	9
785:	16	17	5	6	13	10	9	7
793:	9	12	19	10	9	6	7	9

801:	6	12	3	12	8	10	7	4

Sample Title: HTC-A03-S001-2430-01

Channel								
809:	1	5	6	2	10	4	5	2
817:	5	5	3	5	12	6	7	4
825:	3	5	6	6	8	9	12	6
833:	7	5	14	7	9	6	9	8
841:	11	9	9	6	11	10	12	6
849:	7	3	8	6	3	5	10	2
857:	10	6	8	15	7	6	4	5
865:	5	4	4	3	5	7	5	11
873:	8	7	8	5	9	6	6	10
881:	8	7	8	4	5	6	6	7
889:	9	9	7	7	8	7	6	4
897:	8	8	7	6	7	3	7	8
905:	8	10	6	7	9	54	69	29
913:	10	8	5	11	12	4	4	4
921:	9	3	5	14	6	4	9	7
929:	8	2	9	8	9	12	6	1
937:	4	5	7	7	6	7	4	7
945:	6	10	6	4	6	6	8	6
953:	6	6	6	4	5	9	5	11
961:	8	10	11	12	17	7	19	43
969:	33	11	1	7	4	8	13	9
977:	9	6	5	5	4	8	4	4
985:	7	4	6	8	3	3	5	5
993:	10	4	8	3	9	3	9	9
1001:	8	6	8	5	8	8	5	7
1009:	7	8	4	4	5	5	2	7
1017:	9	8	4	11	3	4	5	9
1025:	5	7	9	10	3	12	4	8
1033:	12	6	3	4	2	7	8	5
1041:	9	3	5	7	10	7	6	4
1049:	6	1	8	1	8	6	14	8
1057:	7	8	7	6	9	7	7	6
1065:	6	7	5	4	6	6	3	5
1073:	7	10	5	8	9	7	11	6
1081:	3	4	10	5	3	6	6	10
1089:	4	8	6	8	5	7	4	6
1097:	7	8	3	8	2	9	8	5
1105:	10	3	10	4	6	8	7	5
1113:	4	5	6	12	4	11	19	34
1121:	16	8	7	11	8	8	8	9
1129:	1	4	5	4	3	10	5	3
1137:	9	5	7	3	3	3	8	10
1145:	4	6	4	8	3	6	10	4
1153:	7	6	6	9	3	11	6	7
1161:	3	8	8	5	5	8	9	13
1169:	8	9	10	5	7	11	9	10
1177:	5	10	6	8	7	6	8	6
1185:	9	15	7	13	6	8	9	4
1193:	3	8	6	4	8	4	8	1
1201:	10	6	7	5	11	7	8	8
1209:	8	3	6	13	8	12	5	8
1217:	9	9	4	6	3	11	7	3
1225:	3	3	9	9	8	6	5	7

1233:	5	9	8	11	20	15	10	1

Sample Title: HTC-A03-S001-2430-01

Channel								
1241:	8	3	5	4	8	5	8	3
1249:	4	8	4	5	6	12	4	4
1257:	5	4	3	5	1	5	8	5
1265:	6	6	9	3	5	7	4	7
1273:	7	2	5	6	7	7	8	6
1281:	9	4	3	3	5	3	6	7
1289:	6	6	6	2	5	10	2	6
1297:	0	2	7	8	4	3	5	3
1305:	5	1	7	3	3	3	4	1
1313:	2	3	4	6	5	1	5	6
1321:	6	6	4	3	2	3	4	10
1329:	3	6	2	2	2	5	2	4
1337:	5	3	5	2	3	3	4	1
1345:	2	2	1	4	5	2	3	2
1353:	3	5	5	5	0	0	2	3
1361:	1	5	3	7	2	4	2	3
1369:	2	4	2	3	1	2	6	4
1377:	8	11	4	0	1	1	2	7
1385:	4	4	2	4	1	5	0	1
1393:	1	2	0	1	4	4	4	7
1401:	3	3	1	3	6	2	4	2
1409:	3	2	2	3	1	1	0	1
1417:	1	1	1	1	0	0	1	3
1425:	4	2	3	2	3	7	0	1
1433:	4	2	3	4	0	2	3	3
1441:	0	1	0	0	4	1	3	2
1449:	2	1	1	1	2	2	3	3
1457:	16	47	135	311	200	39	7	2
1465:	2	0	1	0	1	5	2	2
1473:	2	1	3	1	0	1	2	3
1481:	3	0	3	3	0	1	1	0
1489:	4	1	4	2	1	1	2	3
1497:	1	2	1	1	2	4	1	2
1505:	3	4	5	4	8	4	2	2
1513:	0	4	2	1	2	2	2	3
1521:	2	1	3	0	0	1	2	0
1529:	1	4	1	1	1	2	2	1
1537:	1	2	3	1	2	3	1	2
1545:	1	2	2	0	0	0	0	2
1553:	1	2	2	3	0	0	1	0
1561:	2	4	1	1	0	3	1	2
1569:	2	0	1	3	1	2	0	2
1577:	1	3	2	1	1	2	6	3
1585:	1	2	8	4	5	2	1	0
1593:	5	1	1	2	1	3	2	0
1601:	1	3	3	2	2	1	1	3
1609:	1	1	2	1	1	4	1	0
1617:	0	2	2	1	4	1	0	4
1625:	0	2	2	1	3	3	2	2
1633:	1	2	1	1	5	0	1	0
1641:	0	0	2	1	0	0	1	2
1649:	1	4	2	2	2	1	2	3
1657:	2	0	2	1	1	1	2	0

1665:	2	1	2	0	0	2	0	1

Sample Title: HTC-A03-S001-2430-01

Channel								
1673:	0	0	2	2	2	2	2	1
1681:	1	2	1	2	2	1	1	2
1689:	0	1	0	2	0	0	2	4
1697:	0	0	1	1	1	1	3	1
1705:	1	2	0	0	1	0	1	2
1713:	2	0	0	0	0	0	0	1
1721:	2	2	3	0	0	3	3	5
1729:	3	3	1	0	0	1	0	1
1737:	0	2	1	1	1	2	2	0
1745:	2	1	4	2	0	0	0	0
1753:	1	1	0	2	0	1	1	0
1761:	7	9	7	19	10	3	2	0
1769:	0	2	1	3	1	1	0	0
1777:	1	1	2	0	0	2	1	0
1785:	0	0	2	0	1	2	1	1
1793:	0	0	0	0	1	0	2	1
1801:	1	1	2	0	2	0	0	2
1809:	2	0	3	0	1	0	2	1
1817:	0	0	1	0	0	1	2	0
1825:	0	2	1	0	0	0	0	1
1833:	2	2	5	1	3	1	0	0
1841:	0	2	1	4	2	2	6	3
1849:	0	1	0	0	2	0	1	2
1857:	0	1	2	1	3	0	1	1
1865:	0	3	1	0	0	2	0	1
1873:	0	2	1	2	1	2	1	1
1881:	0	0	2	1	0	1	2	1
1889:	0	1	1	0	0	1	1	2
1897:	0	0	3	0	2	1	1	4
1905:	0	1	1	1	0	0	0	1
1913:	2	0	1	1	0	0	1	2
1921:	3	4	2	0	2	2	0	1
1929:	1	1	0	2	1	1	0	3
1937:	1	2	2	1	0	1	1	2
1945:	1	1	1	0	0	0	2	3
1953:	0	1	1	0	3	2	0	3
1961:	0	1	1	0	0	0	1	1
1969:	0	1	0	1	0	0	0	1
1977:	0	0	2	2	5	1	2	0
1985:	2	0	2	1	1	0	0	1
1993:	1	2	1	0	2	3	0	1
2001:	0	1	0	1	2	0	0	1
2009:	2	1	0	5	1	2	1	0
2017:	0	1	0	1	0	0	0	0
2025:	0	2	0	1	0	0	0	1
2033:	1	0	1	1	0	0	3	2
2041:	1	1	0	0	1	0	0	0
2049:	0	1	1	1	0	0	0	0
2057:	0	0	1	1	1	0	0	1
2065:	0	2	2	1	2	1	0	0
2073:	0	1	2	0	1	1	0	1
2081:	0	1	2	1	0	0	0	1
2089:	2	3	0	0	2	1	0	0

2097:	2	1	1	2	2	1	3	1

Sample Title: HTC-A03-S001-2430-01

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

2529:	0	1	0	0	1	0	0	0

Sample Title: HTC-A03-S001-2430-01

Channel								
2537:	0	0	1	0	1	0	0	1
2545:	0	0	0	0	0	0	0	0
2553:	0	0	0	0	0	0	0	1
2561:	0	0	0	0	0	0	0	0
2569:	1	1	1	1	0	0	0	0
2577:	0	1	0	0	0	0	0	0
2585:	1	1	0	0	0	1	0	0
2593:	1	0	0	0	1	1	0	1
2601:	0	0	0	0	2	0	0	0
2609:	2	1	4	7	18	19	6	2
2617:	0	0	1	0	1	0	0	0
2625:	0	1	0	0	2	0	0	0
2633:	0	0	0	0	0	1	0	0
2641:	1	1	0	0	0	0	0	0
2649:	0	0	0	0	0	0	1	1
2657:	0	1	1	0	0	1	0	1
2665:	0	0	0	0	1	1	1	0
2673:	1	0	0	0	0	1	0	0
2681:	1	1	0	1	0	0	0	0
2689:	0	1	0	0	0	0	0	0
2697:	0	0	0	1	1	0	1	0
2705:	0	0	0	1	0	0	0	0
2713:	0	0	0	0	1	1	1	0
2721:	0	1	0	0	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	1	0	0	1	0	0
2753:	0	0	0	0	1	0	0	0
2761:	0	0	0	1	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	1	0	0	0	0	2	0
2793:	0	0	0	0	0	0	1	2
2801:	0	0	0	0	0	0	0	2
2809:	0	0	0	0	0	0	0	0
2817:	0	0	1	1	0	0	1	0
2825:	0	0	0	0	0	0	1	0
2833:	1	0	0	0	0	1	1	0
2841:	0	0	0	0	0	0	0	1
2849:	0	0	1	0	1	0	1	0
2857:	0	0	0	0	0	1	0	0
2865:	0	2	0	0	0	1	0	0
2873:	0	0	0	0	1	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	1	0	0	0	0	0	0
2897:	2	0	1	0	0	0	0	0
2905:	0	1	1	0	0	1	0	0
2913:	0	0	3	0	0	0	0	0
2921:	1	0	2	0	0	0	1	1
2929:	1	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	1	0	0	0	0	0	0
2953:	0	0	0	0	0	1	0	1

2961:	0	0	0	1	0	0	0	1

Sample Title: HTC-A03-S001-2430-01

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

3393:	1	0	0	0	0	0	0	0

Sample Title: HTC-A03-S001-2430-01

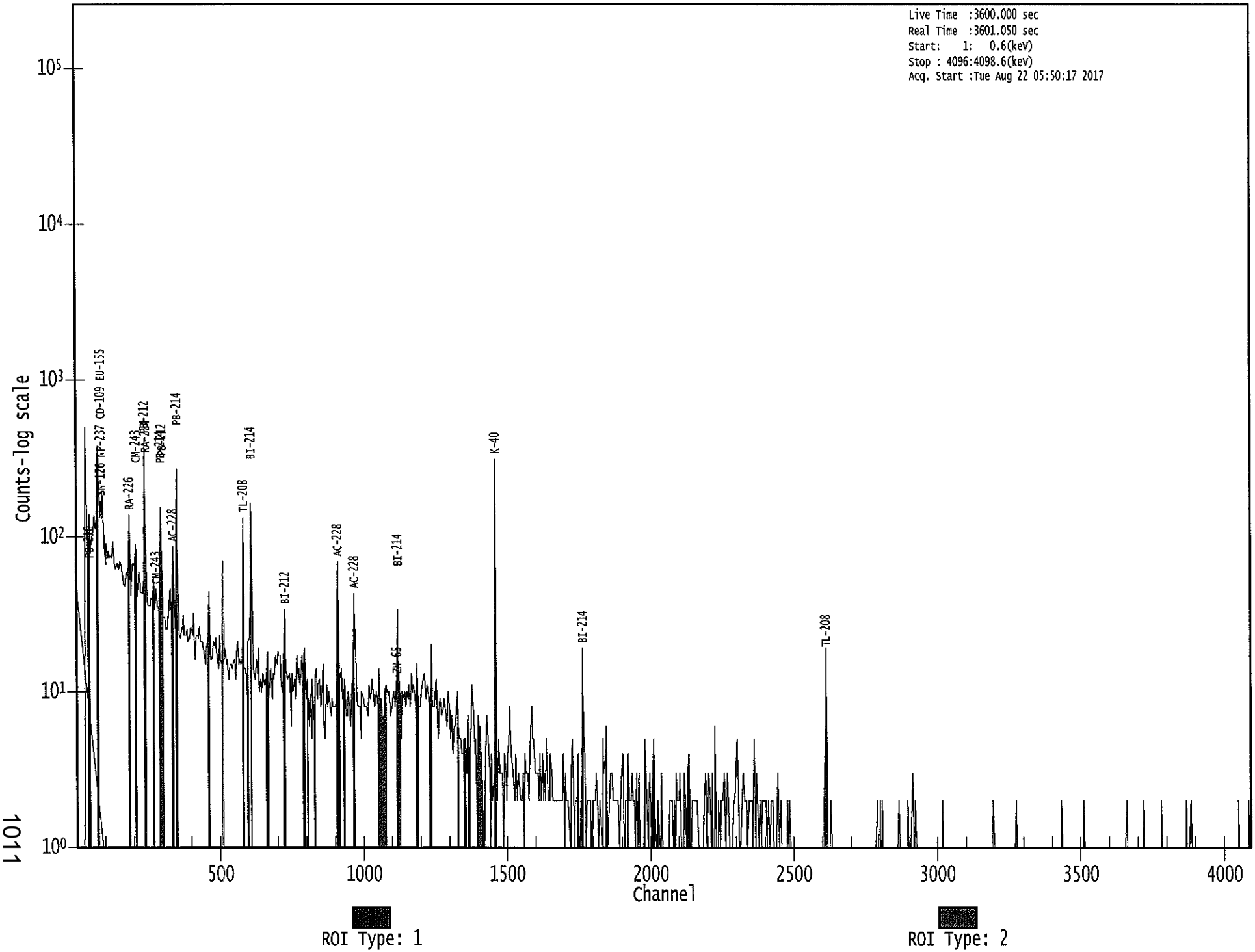
Channel								
3401:	0	0	0	1	0	0	1	0
3409:	1	0	0	0	0	1	0	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	2	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	0	0	1	0
3457:	1	0	0	0	0	0	0	0
3465:	0	1	0	1	1	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	1	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	0	1	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A03-S001-2430-01

Channel								
3833:	0	0	0	1	0	0	0	0
3841:	0	0	0	0	0	1	0	0
3849:	0	0	0	0	0	0	1	0
3857:	1	0	0	1	0	0	0	0
3865:	0	0	1	2	0	0	0	0
3873:	0	0	0	0	0	1	0	0
3881:	0	0	0	2	1	0	1	0
3889:	0	1	0	0	1	0	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	1	0	0	1	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	1	0	0	0	1	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	1	0	1	0
3961:	1	0	0	0	1	0	1	0
3969:	0	0	0	0	0	0	0	0
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	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:	0	0	0	0	0	0	0	0
4049:	2	1	0	0	0	0	0	0
4057:	0	0	0	1	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	2	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055680.CNF



1011

Apex-Gamma

8/22

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-18
Sample Description	: HTC-A03-S001-3036-01
Sample Type	: SOIL
Sample Size	: 7.854E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:17:14AM
Acquisition Started	: 8/22/2017 5:50:23AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.0 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	: 55681

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/22/2017 6:51:27AM
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	61.74	62.05	0.0000	0.00
2	75.01	75.32	0.0000	0.00
3	77.48	77.78	0.0000	0.00
4	88.19	88.49	0.0000	0.00
5	93.31	93.61	0.0000	0.00
6	185.68	185.94	0.0000	0.00
7	210.10	210.36	0.0000	0.00
8	238.97	239.22	0.0000	0.00
9	242.40	242.64	0.0000	0.00
10	271.02	271.26	0.0000	0.00
11	295.58	295.81	0.0000	0.00
12	300.89	301.12	0.0000	0.00
13	328.48	328.69	0.0000	0.00
14	339.13	339.35	0.0000	0.00
15	352.37	352.58	0.0000	0.00
16	511.13	511.28	0.0000	0.00
17	531.01	531.16	0.0000	0.00
18	583.42	583.55	0.0000	0.00
19	609.71	609.84	0.0000	0.00
20	616.88	617.00	0.0000	0.00
21	727.38	727.46	0.0000	0.00
22	769.38	769.45	0.0000	0.00
23	861.35	861.38	0.0000	0.00
24	911.54	911.56	0.0000	0.00
25	965.21	965.21	0.0000	0.00
26	969.21	969.21	0.0000	0.00
27	1116.63	1116.58	0.0000	0.00
28	1121.03	1120.98	0.0000	0.00
29	1159.56	1159.49	0.0000	0.00
30	1241.97	1241.88	0.0000	0.00
31	1376.74	1376.60	0.0000	0.00
32	1401.56	1401.42	0.0000	0.00
33	1461.03	1460.87	0.0000	0.00
34	1578.98	1578.77	0.0000	0.00
35	1582.46	1582.26	0.0000	0.00
36	1589.10	1588.89	0.0000	0.00
37	1594.03	1593.81	0.0000	0.00
38	1730.53	1730.28	0.0000	0.00
39	1764.27	1764.00	0.0000	0.00
40	1847.44	1847.14	0.0000	0.00
41	1879.47	1879.17	0.0000	0.00
42	2105.68	2105.30	0.0000	0.00

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2204.08	2203.67	0.0000	0.00
44	2388.89	2388.42	0.0000	0.00
45	2414.71	2414.22	0.0000	0.00
46	2614.66	2614.10	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 6:51:27AM

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	61.74	57 -	66	62.05	2.27E+02	125.26	2.12E+03	2.00
M	2	75.01	71 -	82	75.32	3.83E+02	90.22	1.28E+03	1.83
m	3	77.48	71 -	82	77.78	4.61E+02	94.66	1.21E+03	1.83
	4	88.19	86 -	91	88.49	1.35E+02	92.88	1.62E+03	1.20
	5	93.31	91 -	97	93.61	2.09E+02	97.03	1.48E+03	2.01
	6	185.68	182 -	190	185.94	1.16E+02	85.19	1.05E+03	1.90
	7	210.10	206 -	213	210.36	7.16E+01	69.14	7.43E+02	1.58
M	8	238.97	234 -	246	239.22	7.33E+02	72.24	4.23E+02	2.06
m	9	242.40	234 -	246	242.64	1.52E+02	61.34	3.93E+02	2.06
	10	271.02	267 -	275	271.26	8.89E+01	62.85	5.52E+02	3.04
M	11	295.58	292 -	304	295.81	2.51E+02	52.23	3.27E+02	2.96
m	12	300.89	292 -	304	301.12	7.88E+01	52.46	3.81E+02	2.79
	13	328.48	326 -	331	328.69	4.88E+01	38.38	2.56E+02	2.36
	14	339.13	333 -	343	339.35	1.22E+02	65.09	4.97E+02	2.33
	15	352.37	347 -	358	352.58	3.59E+02	71.30	4.55E+02	2.19
	16	511.13	506 -	516	511.28	1.45E+02	44.55	1.88E+02	3.46
	17	531.01	529 -	533	531.16	2.44E+01	20.68	7.12E+01	1.12
	18	583.42	579 -	587	583.55	1.75E+02	45.87	2.16E+02	2.49
M	19	609.71	604 -	619	609.84	2.48E+02	41.32	1.39E+02	2.11
m	20	616.88	604 -	619	617.00	1.61E+01	25.67	8.95E+01	1.96
	21	727.38	722 -	731	727.46	3.97E+01	34.73	1.49E+02	2.93
	22	769.38	765 -	774	769.45	3.35E+01	37.54	1.75E+02	4.35
	23	861.35	856 -	866	861.38	4.35E+01	30.96	1.05E+02	4.02
	24	911.54	907 -	917	911.56	1.28E+02	38.76	1.32E+02	2.15
M	25	965.21	962 -	981	965.21	3.01E+01	25.26	9.84E+01	2.35
m	26	969.21	962 -	981	969.21	6.66E+01	27.83	8.71E+01	2.35
M	27	1116.63	1114 -	1123	1116.58	2.07E+01	15.10	3.67E+01	2.83
m	28	1121.03	1114 -	1123	1120.98	4.67E+01	21.98	5.82E+01	1.87
	29	1159.56	1157 -	1162	1159.49	2.32E+01	20.15	5.75E+01	3.44
	30	1241.97	1236 -	1251	1241.88	6.54E+01	42.28	1.55E+02	3.75
	31	1376.74	1374 -	1380	1376.60	1.51E+01	11.87	1.58E+01	2.71
	32	1401.56	1399 -	1404	1401.42	1.16E+01	11.75	1.88E+01	3.56
	33	1461.03	1454 -	1467	1460.87	6.13E+02	52.62	3.51E+01	2.53
M	34	1578.98	1577 -	1584	1578.77	6.80E+00	5.66	4.00E+00	2.68
m	35	1582.46	1577 -	1584	1582.26	7.61E+00	7.52	5.00E+00	2.29
M	36	1589.10	1585 -	1596	1588.89	1.75E+01	13.74	1.21E+01	4.23
m	37	1594.03	1585 -	1596	1593.81	1.54E+01	10.91	1.07E+01	2.59
	38	1730.53	1726 -	1733	1730.28	6.20E+00	8.49	7.60E+00	1.03
	39	1764.27	1760 -	1767	1764.00	3.70E+01	12.17	0.00E+00	3.94
	40	1847.44	1843 -	1850	1847.14	1.21E+01	8.49	3.79E+00	1.66

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1879.47	1876 -	1881	1879.17	6.00E+00	4.90	0.00E+00	1.98
42	2105.68	2101 -	2111	2105.30	1.58E+01	10.31	6.42E+00	3.70
43	2204.08	2201 -	2205	2203.67	1.20E+01	6.93	0.00E+00	1.47
44	2388.89	2385 -	2392	2388.42	7.80E+00	7.48	4.40E+00	2.89
45	2414.71	2411 -	2416	2414.22	9.00E+00	6.00	0.00E+00	2.36
46	2614.66	2609 -	2620	2614.10	4.86E+01	15.62	6.77E+00	2.98

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 6:51:27AM

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	61.74	57 -	66	2.27E+02	125.26	2.12E+03	9.99E+01
M	2	75.01	71 -	82	3.83E+02	90.22	1.28E+03	5.87E+01
m	3	77.48	71 -	82	4.61E+02	94.66	1.21E+03	5.72E+01
	4	88.19	86 -	91	1.35E+02	92.88	1.62E+03	7.39E+01
	5	93.31	91 -	97	2.09E+02	97.03	1.48E+03	7.61E+01
	6	185.68	182 -	190	1.16E+02	85.19	1.05E+03	6.78E+01
	7	210.10	206 -	213	7.16E+01	69.14	7.43E+02	5.51E+01
M	8	238.97	234 -	246	7.33E+02	72.24	4.23E+02	3.38E+01
m	9	242.40	234 -	246	1.52E+02	61.34	3.93E+02	3.26E+01
	10	271.02	267 -	275	8.89E+01	62.85	5.52E+02	4.93E+01
M	11	295.58	292 -	304	2.51E+02	52.23	3.27E+02	2.97E+01
m	12	300.89	292 -	304	7.88E+01	52.46	3.81E+02	3.21E+01
	13	328.48	326 -	331	4.88E+01	38.38	2.56E+02	2.94E+01
	14	339.13	333 -	343	1.22E+02	65.09	4.97E+02	5.03E+01
	15	352.37	347 -	358	3.59E+02	71.30	4.55E+02	4.96E+01
	16	511.13	506 -	516	1.45E+02	44.55	1.88E+02	3.08E+01
	17	531.01	529 -	533	2.44E+01	20.68	7.12E+01	1.49E+01
	18	583.42	579 -	587	1.75E+02	45.87	2.16E+02	3.08E+01
M	19	609.71	604 -	619	2.48E+02	41.32	1.39E+02	1.94E+01
m	20	616.88	604 -	619	1.61E+01	25.67	8.95E+01	1.56E+01
	21	727.38	722 -	731	3.97E+01	34.73	1.49E+02	2.66E+01

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	22	769.38	765 -	774	3.35E+01	37.54	1.75E+02	2.94E+01
	23	861.35	856 -	866	4.35E+01	30.96	1.05E+02	2.30E+01
	24	911.54	907 -	917	1.28E+02	38.76	1.32E+02	2.59E+01
M	25	965.21	962 -	981	3.01E+01	25.26	9.84E+01	1.63E+01
m	26	969.21	962 -	981	6.66E+01	27.83	8.71E+01	1.53E+01
M	27	1116.63	1114 -	1123	2.07E+01	15.10	3.67E+01	9.96E+00
m	28	1121.03	1114 -	1123	4.67E+01	21.98	5.82E+01	1.25E+01
	29	1159.56	1157 -	1162	2.32E+01	20.15	5.75E+01	1.45E+01
	30	1241.97	1236 -	1251	6.54E+01	42.28	1.55E+02	3.21E+01
	31	1376.74	1374 -	1380	1.51E+01	11.87	1.58E+01	7.38E+00
	32	1401.56	1399 -	1404	1.16E+01	11.75	1.88E+01	7.86E+00
	33	1461.03	1454 -	1467	6.13E+02	52.62	3.51E+01	1.46E+01
M	34	1578.98	1577 -	1584	6.80E+00	5.66	4.00E+00	3.29E+00
m	35	1582.46	1577 -	1584	7.61E+00	7.52	5.00E+00	3.68E+00
M	36	1589.10	1585 -	1596	1.75E+01	13.74	1.21E+01	5.71E+00
m	37	1594.03	1585 -	1596	1.54E+01	10.91	1.07E+01	5.37E+00
	38	1730.53	1726 -	1733	6.20E+00	8.49	7.60E+00	5.65E+00
	39	1764.27	1760 -	1767	3.70E+01	12.17	0.00E+00	0.00E+00
	40	1847.44	1843 -	1850	1.21E+01	8.49	3.79E+00	3.99E+00
	41	1879.47	1876 -	1881	6.00E+00	4.90	0.00E+00	0.00E+00
	42	2105.68	2101 -	2111	1.58E+01	10.31	6.42E+00	5.40E+00
	43	2204.08	2201 -	2205	1.20E+01	6.93	0.00E+00	0.00E+00
	44	2388.89	2385 -	2392	7.80E+00	7.48	4.40E+00	4.09E+00
	45	2414.71	2411 -	2416	9.00E+00	6.00	0.00E+00	0.00E+00
	46	2614.66	2609 -	2620	4.86E+01	15.62	6.77E+00	5.79E+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 : 8/22/2017 6:51:27AM

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

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	61.74	57 -	66	62.05	2.27E+02	125.26	2.12E+03	.....
M	2	75.01	71 -	82	75.32	3.83E+02	90.22	1.28E+03	AM-243
m	3	77.48	71 -	82	77.78	4.61E+02	94.66	1.21E+03	TI-44
	4	88.19	86 -	91	88.49	1.35E+02	92.88	1.62E+03	LU-176
									CD-109
									SN-126
	5	93.31	91 -	97	93.61	2.09E+02	97.03	1.48E+03	GA-67
	6	185.68	182 -	190	185.94	1.16E+02	85.19	1.05E+03	RA-226
	7	210.10	206 -	213	210.36	7.16E+01	69.14	7.43E+02	CM-243
M	8	238.97	234 -	246	239.22	7.33E+02	72.24	4.23E+02	PB-212
m	9	242.40	234 -	246	242.64	1.52E+02	61.34	3.93E+02	.....
	10	271.02	267 -	275	271.26	8.89E+01	62.85	5.52E+02	.....
M	11	295.58	292 -	304	295.81	2.51E+02	52.23	3.27E+02	PB-214
m	12	300.89	292 -	304	301.12	7.88E+01	52.46	3.81E+02	GA-67
									PB-212
									BI-210M
	13	328.48	326 -	331	328.69	4.88E+01	38.38	2.56E+02	LA-140
	14	339.13	333 -	343	339.35	1.22E+02	65.09	4.97E+02	AC-228
	15	352.37	347 -	358	352.58	3.59E+02	71.30	4.55E+02	PB-214
	16	511.13	506 -	516	511.28	1.45E+02	44.55	1.88E+02	.....
	17	531.01	529 -	533	531.16	2.44E+01	20.68	7.12E+01	ND-147
	18	583.42	579 -	587	583.55	1.75E+02	45.87	2.16E+02	TL-208
M	19	609.71	604 -	619	609.84	2.48E+02	41.32	1.39E+02	BI-214
m	20	616.88	604 -	619	617.00	1.61E+01	25.67	8.95E+01	.....
	21	727.38	722 -	731	727.46	3.97E+01	34.73	1.49E+02	BI-212
	22	769.38	765 -	774	769.45	3.35E+01	37.54	1.75E+02	.....
	23	861.35	856 -	866	861.38	4.35E+01	30.96	1.05E+02	TL-208
	24	911.54	907 -	917	911.56	1.28E+02	38.76	1.32E+02	TL-204
									AC-228
M	25	965.21	962 -	981	965.21	3.01E+01	25.26	9.84E+01	.....
m	26	969.21	962 -	981	969.21	6.66E+01	27.83	8.71E+01	AC-228
M	27	1116.63	1114 -	1123	1116.58	2.07E+01	15.10	3.67E+01	.....
m	28	1121.03	1114 -	1123	1120.98	4.67E+01	21.98	5.82E+01	TA-182
									SC-46
									BI-214
	29	1159.56	1157 -	1162	1159.49	2.32E+01	20.15	5.75E+01	.....
	30	1241.97	1236 -	1251	1241.88	6.54E+01	42.28	1.55E+02	.....
	31	1376.74	1374 -	1380	1376.60	1.51E+01	11.87	1.58E+01	.....
	32	1401.56	1399 -	1404	1401.42	1.16E+01	11.75	1.88E+01	.....
	33	1461.03	1454 -	1467	1460.87	6.13E+02	52.62	3.51E+01	K-40
M	34	1578.98	1577 -	1584	1578.77	6.80E+00	5.66	4.00E+00	.....
m	35	1582.46	1577 -	1584	1582.26	7.61E+00	7.52	5.00E+00	.....
M	36	1589.10	1585 -	1596	1588.89	1.75E+01	13.74	1.21E+01	.....
m	37	1594.03	1585 -	1596	1593.81	1.54E+01	10.91	1.07E+01	.....
	38	1730.53	1726 -	1733	1730.28	6.20E+00	8.49	7.60E+00	.....
	39	1764.27	1760 -	1767	1764.00	3.70E+01	12.17	0.00E+00	BI-214
	40	1847.44	1843 -	1850	1847.14	1.21E+01	8.49	3.79E+00	.....
	41	1879.47	1876 -	1881	1879.17	6.00E+00	4.90	0.00E+00	.....
	42	2105.68	2101 -	2111	2105.30	1.58E+01	10.31	6.42E+00	.....
	43	2204.08	2201 -	2205	2203.67	1.20E+01	6.93	0.00E+00	BI-214
	44	2388.89	2385 -	2392	2388.42	7.80E+00	7.48	4.40E+00	.....
	45	2414.71	2411 -	2416	2414.22	9.00E+00	6.00	0.00E+00	.....
	46	2614.66	2609 -	2620	2614.10	4.86E+01	15.62	6.77E+00	TL-208

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

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 : 8/22/2017 6:51:27AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	61.74	2.27E+02	125.26	2.40E-02	1.77E-03
M	2	75.01	3.83E+02	90.22	2.65E-02	2.02E-03
m	3	77.48	4.61E+02	94.66	2.68E-02	2.06E-03
	4	88.19	1.35E+02	92.88	2.72E-02	2.26E-03
	5	93.31	2.09E+02	97.03	2.71E-02	2.24E-03
	6	185.68	1.16E+02	85.19	1.96E-02	1.55E-03
	7	210.10	7.16E+01	69.14	1.79E-02	1.45E-03
M	8	238.97	7.33E+02	72.24	1.61E-02	1.34E-03
m	9	242.40	1.52E+02	61.34	1.59E-02	1.32E-03
	10	271.02	8.89E+01	62.85	1.45E-02	1.21E-03
M	11	295.58	2.51E+02	52.23	1.35E-02	1.15E-03
m	12	300.89	7.88E+01	52.46	1.32E-02	1.14E-03
	13	328.48	4.88E+01	38.38	1.23E-02	1.08E-03
	14	339.13	1.22E+02	65.09	1.19E-02	1.06E-03
	15	352.37	3.59E+02	71.30	1.15E-02	1.03E-03
	16	511.13	1.45E+02	44.55	8.25E-03	7.94E-04
	17	531.01	2.44E+01	20.68	7.97E-03	7.68E-04
	18	583.42	1.75E+02	45.87	7.32E-03	6.98E-04
M	19	609.71	2.48E+02	41.32	7.04E-03	6.63E-04
m	20	616.88	1.61E+01	25.67	6.96E-03	6.54E-04
	21	727.38	3.97E+01	34.73	6.01E-03	5.37E-04
	22	769.38	3.35E+01	37.54	5.71E-03	5.00E-04
	23	861.35	4.35E+01	30.96	5.17E-03	4.18E-04
	24	911.54	1.28E+02	38.76	4.92E-03	3.84E-04
M	25	965.21	3.01E+01	25.26	4.68E-03	3.75E-04
m	26	969.21	6.66E+01	27.83	4.66E-03	3.74E-04
M	27	1116.63	2.07E+01	15.10	4.13E-03	3.50E-04
m	28	1121.03	4.67E+01	21.98	4.12E-03	3.49E-04
	29	1159.56	2.32E+01	20.15	4.00E-03	3.43E-04
	30	1241.97	6.54E+01	42.28	3.78E-03	3.21E-04
	31	1376.74	1.51E+01	11.87	3.47E-03	2.89E-04
	32	1401.56	1.16E+01	11.75	3.42E-03	2.85E-04
	33	1461.03	6.13E+02	52.62	3.31E-03	2.75E-04
M	34	1578.98	6.80E+00	5.66	3.11E-03	2.56E-04

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	35	1582.46	7.61E+00	7.52	3.11E-03	2.56E-04
M	36	1589.10	1.75E+01	13.74	3.10E-03	2.55E-04
m	37	1594.03	1.54E+01	10.91	3.09E-03	2.54E-04
	38	1730.53	6.20E+00	8.49	2.91E-03	2.32E-04
	39	1764.27	3.70E+01	12.17	2.87E-03	2.26E-04
	40	1847.44	1.21E+01	8.49	2.77E-03	2.15E-04
	41	1879.47	6.00E+00	4.90	2.74E-03	2.15E-04
	42	2105.68	1.58E+01	10.31	2.54E-03	2.15E-04
	43	2204.08	1.20E+01	6.93	2.46E-03	2.15E-04
	44	2388.89	7.80E+00	7.48	2.35E-03	2.15E-04
	45	2414.71	9.00E+00	6.00	2.33E-03	2.15E-04
	46	2614.66	4.86E+01	15.62	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 : 8/22/2017 6:51:27AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	61.74	2.27E+02	125.26			2.27E+02	1.25E+02
M	2	75.01	3.83E+02	90.22			3.83E+02	9.02E+01
m	3	77.48	4.61E+02	94.66			4.61E+02	9.47E+01
	4	88.19	1.35E+02	92.88			1.35E+02	9.29E+01
	5	93.31	2.09E+02	97.03	7.98E+01	7.31E+00	1.29E+02	9.73E+01
	6	185.68	1.16E+02	85.19	3.06E+01	5.82E+00	8.51E+01	8.54E+01
	7	210.10	7.16E+01	69.14			7.16E+01	6.91E+01
M	8	238.97	7.33E+02	72.24	1.40E+01	2.71E+00	7.19E+02	7.23E+01
m	9	242.40	1.52E+02	61.34			1.52E+02	6.13E+01
	10	271.02	8.89E+01	62.85			8.89E+01	6.29E+01
M	11	295.58	2.51E+02	52.23			2.51E+02	5.22E+01
m	12	300.89	7.88E+01	52.46			7.88E+01	5.25E+01
	13	328.48	4.88E+01	38.38			4.88E+01	3.84E+01
	14	339.13	1.22E+02	65.09			1.22E+02	6.51E+01
	15	352.37	3.59E+02	71.30	6.53E+00	4.43E+00	3.53E+02	7.14E+01
	16	511.13	1.45E+02	44.55	5.21E+01	4.74E+00	9.30E+01	4.48E+01
	17	531.01	2.44E+01	20.68			2.44E+01	2.07E+01
	18	583.42	1.75E+02	45.87			1.75E+02	4.59E+01

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	19	609.71	2.48E+02	41.32	3.25E+00	2.97E+00	2.44E+02	4.14E+01
m	20	616.88	1.61E+01	25.67			1.61E+01	2.57E+01
	21	727.38	3.97E+01	34.73			3.97E+01	3.47E+01
	22	769.38	3.35E+01	37.54			3.35E+01	3.75E+01
	23	861.35	4.35E+01	30.96			4.35E+01	3.10E+01
	24	911.54	1.28E+02	38.76	2.85E+00	2.76E+00	1.25E+02	3.89E+01
M	25	965.21	3.01E+01	25.26			3.01E+01	2.53E+01
m	26	969.21	6.66E+01	27.83			6.66E+01	2.78E+01
M	27	1116.63	2.07E+01	15.10			2.07E+01	1.51E+01
m	28	1121.03	4.67E+01	21.98			4.67E+01	2.20E+01
	29	1159.56	2.32E+01	20.15			2.32E+01	2.01E+01
	30	1241.97	6.54E+01	42.28			6.54E+01	4.23E+01
	31	1376.74	1.51E+01	11.87			1.51E+01	1.19E+01
	32	1401.56	1.16E+01	11.75			1.16E+01	1.17E+01
	33	1461.03	6.13E+02	52.62	1.00E+00	1.77E+00	6.12E+02	5.27E+01
M	34	1578.98	6.80E+00	5.66			6.80E+00	5.66E+00
m	35	1582.46	7.61E+00	7.52			7.61E+00	7.52E+00
M	36	1589.10	1.75E+01	13.74			1.75E+01	1.37E+01
m	37	1594.03	1.54E+01	10.91			1.54E+01	1.09E+01
	38	1730.53	6.20E+00	8.49			6.20E+00	8.49E+00
	39	1764.27	3.70E+01	12.17			3.70E+01	1.22E+01
	40	1847.44	1.21E+01	8.49			1.21E+01	8.49E+00
	41	1879.47	6.00E+00	4.90			6.00E+00	4.90E+00
	42	2105.68	1.58E+01	10.31			1.58E+01	1.03E+01
	43	2204.08	1.20E+01	6.93			1.20E+01	6.93E+00
	44	2388.89	7.80E+00	7.48			7.80E+00	7.48E+00
	45	2414.71	9.00E+00	6.00			9.00E+00	6.00E+00
	46	2614.66	4.86E+01	15.62	1.86E+00	1.12E+00	4.68E+01	1.57E+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 : 8/22/2017 6:51:27AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055575.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.

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	61.74	2.27E+02	125.26			2.27E+02	1.25E+02
M	2	75.01	3.83E+02	90.22			3.83E+02	9.02E+01
m	3	77.48	4.61E+02	94.66			4.61E+02	9.47E+01
	4	88.19	1.35E+02	92.88			1.35E+02	9.29E+01
	5	93.31	2.09E+02	97.03	7.98E+01	7.31E+00	1.29E+02	9.73E+01
	6	185.68	1.16E+02	85.19	3.06E+01	5.82E+00	8.51E+01	8.54E+01
	7	210.10	7.16E+01	69.14			7.16E+01	6.91E+01
M	8	238.97	7.33E+02	72.24	1.40E+01	2.71E+00	7.19E+02	7.23E+01
m	9	242.40	1.52E+02	61.34			1.52E+02	6.13E+01
	10	271.02	8.89E+01	62.85			8.89E+01	6.29E+01
M	11	295.58	2.51E+02	52.23			2.51E+02	5.22E+01
m	12	300.89	7.88E+01	52.46			7.88E+01	5.25E+01
	13	328.48	4.88E+01	38.38			4.88E+01	3.84E+01
	14	339.13	1.22E+02	65.09			1.22E+02	6.51E+01
	15	352.37	3.59E+02	71.30	6.53E+00	4.43E+00	3.53E+02	7.14E+01
	16	511.13	1.45E+02	44.55	5.21E+01	4.74E+00	9.30E+01	4.48E+01
	17	531.01	2.44E+01	20.68			2.44E+01	2.07E+01
	18	583.42	1.75E+02	45.87			1.75E+02	4.59E+01
M	19	609.71	2.48E+02	41.32	3.25E+00	2.97E+00	2.44E+02	4.14E+01
m	20	616.88	1.61E+01	25.67			1.61E+01	2.57E+01
	21	727.38	3.97E+01	34.73			3.97E+01	3.47E+01
	22	769.38	3.35E+01	37.54			3.35E+01	3.75E+01
	23	861.35	4.35E+01	30.96			4.35E+01	3.10E+01
	24	911.54	1.28E+02	38.76	2.85E+00	2.76E+00	1.25E+02	3.89E+01
M	25	965.21	3.01E+01	25.26			3.01E+01	2.53E+01
m	26	969.21	6.66E+01	27.83			6.66E+01	2.78E+01
M	27	1116.63	2.07E+01	15.10			2.07E+01	1.51E+01
m	28	1121.03	4.67E+01	21.98			4.67E+01	2.20E+01
	29	1159.56	2.32E+01	20.15			2.32E+01	2.01E+01
	30	1241.97	6.54E+01	42.28			6.54E+01	4.23E+01
	31	1376.74	1.51E+01	11.87			1.51E+01	1.19E+01
	32	1401.56	1.16E+01	11.75			1.16E+01	1.17E+01
	33	1461.03	6.13E+02	52.62	1.00E+00	1.77E+00	6.12E+02	5.27E+01
M	34	1578.98	6.80E+00	5.66			6.80E+00	5.66E+00
m	35	1582.46	7.61E+00	7.52			7.61E+00	7.52E+00
M	36	1589.10	1.75E+01	13.74			1.75E+01	1.37E+01
m	37	1594.03	1.54E+01	10.91			1.54E+01	1.09E+01
	38	1730.53	6.20E+00	8.49			6.20E+00	8.49E+00
	39	1764.27	3.70E+01	12.17			3.70E+01	1.22E+01
	40	1847.44	1.21E+01	8.49			1.21E+01	8.49E+00
	41	1879.47	6.00E+00	4.90			6.00E+00	4.90E+00
	42	2105.68	1.58E+01	10.31			1.58E+01	1.03E+01
	43	2204.08	1.20E+01	6.93			1.20E+01	6.93E+00
	44	2388.89	7.80E+00	7.48			7.80E+00	7.48E+00
	45	2414.71	9.00E+00	6.00			9.00E+00	6.00E+00
	46	2614.66	4.86E+01	15.62	1.86E+00	1.12E+00	4.68E+01	1.57E+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 1707086-18

HTC-A03-S001-3036-01

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
K-40	0.992	1460.81	*	10.67	1.66E+01	2.01E+00
CD-109	0.996	88.03	*	3.72	1.48E+00	1.03E+00
SN-126	0.940	87.57	*	37.00	1.28E-01	8.90E-02
TL-208	0.985	583.14	*	30.22	7.56E-01	2.11E-01
		860.37	*	4.48	1.80E+00	1.29E+00
		2614.66	*	35.85	5.57E-01	1.94E-01
BI-212	0.766	727.17	*	11.80	5.35E-01	4.71E-01
		1620.62		2.75		
PB-212	0.976	238.63	*	44.60	9.57E-01	1.25E-01
		300.09	*	3.41	1.67E+00	1.12E+00
BI-214	0.968	609.31	*	46.30	7.17E-01	1.39E-01
		1120.29	*	15.10	7.18E-01	3.44E-01
		1764.49	*	15.80	7.81E-01	2.64E-01
		2204.22	*	4.98	9.35E-01	5.46E-01
PB-214	0.972	295.21	*	19.19	9.28E-01	2.09E-01
		351.92	*	37.19	7.87E-01	1.74E-01
RA-226	0.955	186.21	*	3.28	1.26E+00	2.64E+00
AC-228	0.961	338.32	*	11.40	8.60E-01	4.64E-01
		911.07	*	27.70	8.78E-01	2.81E-01
		969.11	*	16.60	8.22E-01	3.50E-01
AM-243	0.981	74.67	*	66.00	2.09E-01	5.18E-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 : 8/22/2017 6:51:27AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	61.74	6.31505E-02	27.55		
m	3	77.48	1.27977E-01	10.27	Tol.	TI-44
	5	93.31	3.59251E-02	37.62		
	7	210.10	1.98978E-02	48.26	Tol.	CM-243
m	9	242.40	4.21451E-02	20.22		
	10	271.02	2.47040E-02	35.34		
	13	328.48	1.35428E-02	39.36	Tol.	LA-140
	16	511.13	2.58364E-02	24.08		
	17	531.01	6.77778E-03	42.37	Tol.	ND-147
m	20	616.88	4.46263E-03	79.90		
	22	769.38	9.30556E-03	56.02	Sum	
M	25	965.21	8.36612E-03	41.94		
M	27	1116.63	5.73687E-03	36.56		
	29	1159.56	6.45299E-03	43.37		
	30	1241.97	1.81595E-02	32.34		
	31	1376.74	4.19082E-03	39.35		
	32	1401.56	3.22751E-03	50.55		
M	34	1578.98	1.88952E-03	41.58	Sum	
m	35	1582.46	2.11319E-03	49.40		
M	36	1589.10	4.86150E-03	39.25	Sum	
m	37	1594.03	4.26737E-03	35.50		
	38	1730.53	1.72222E-03	68.43	Sum	
	40	1847.44	3.36310E-03	35.04	Sum	
	41	1879.47	1.66667E-03	40.82		
	42	2105.68	4.38596E-03	32.64		
	44	2388.89	2.16667E-03	47.97	Sum	
	45	2414.71	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	1.66E+01	2.01E+00

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CD-109	0.99	88.03	*	3.72	1.48E+00	1.03E+00
SN-126	0.94	87.57	*	37.00	1.28E-01	8.90E-02
TL-208	0.98	583.14	*	30.22	7.56E-01	2.11E-01
		860.37	*	4.48	1.80E+00	1.29E+00
		2614.66	*	35.85	5.57E-01	1.94E-01
BI-212	0.76	727.17	*	11.80	5.35E-01	4.71E-01
		1620.62		2.75		
PB-212	0.97	238.63	*	44.60	9.57E-01	1.25E-01
		300.09	*	3.41	1.67E+00	1.12E+00
BI-214	0.96	609.31	*	46.30	7.17E-01	1.39E-01
		1120.29	*	15.10	7.18E-01	3.44E-01
		1764.49	*	15.80	7.81E-01	2.64E-01
		2204.22	*	4.98	9.35E-01	5.46E-01
PB-214	0.97	295.21	*	19.19	9.28E-01	2.09E-01
		351.92	*	37.19	7.87E-01	1.74E-01
RA-226	0.95	186.21	*	3.28	1.26E+00	2.64E+00
AC-228	0.96	338.32	*	11.40	8.60E-01	4.64E-01
		911.07	*	27.70	8.78E-01	2.81E-01
		969.11	*	16.60	8.22E-01	3.50E-01
AM-243	0.98	74.67	*	66.00	2.09E-01	5.18E-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	0.992	1.66E+01	2.01E+00	
?	CD-109	0.996	1.48E+00	1.03E+00	
?	SN-126	0.940	1.28E-01	8.90E-02	
	TL-208	0.985	6.62E-01	1.42E-01	
	BI-212	0.766	5.35E-01	4.71E-01	
	PB-212	0.976	9.66E-01	1.24E-01	
	BI-214	0.968	7.38E-01	1.13E-01	

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-214	0.972	8.45E-01	1.34E-01	
RA-226	0.955	1.26E+00	2.64E+00	
AC-228	0.961	8.57E-01	1.98E-01	
AM-243	0.981	2.09E-01	5.18E-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 1707086-18

HTC-A03-S001-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 6:51:27AM
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	61.74	6.31505E-02	27.55		
m	3	77.48	1.27977E-01	10.27	Tol.	TI-44
	5	93.31	3.59251E-02	37.62		
	7	210.10	1.98978E-02	48.26	Tol.	CM-243
m	9	242.40	4.21451E-02	20.22		
	10	271.02	2.47040E-02	35.34		
	13	328.48	1.35428E-02	39.36	Tol.	LA-140
	16	511.13	2.58364E-02	24.08		
	17	531.01	6.77778E-03	42.37	Tol.	ND-147
m	20	616.88	4.46263E-03	79.90		
	22	769.38	9.30556E-03	56.02	Sum	
M	25	965.21	8.36612E-03	41.94		
M	27	1116.63	5.73687E-03	36.56		
	29	1159.56	6.45299E-03	43.37		
	30	1241.97	1.81595E-02	32.34		
	31	1376.74	4.19082E-03	39.35		
	32	1401.56	3.22751E-03	50.55		
M	34	1578.98	1.88952E-03	41.58	Sum	
m	35	1582.46	2.11319E-03	49.40		
M	36	1589.10	4.86150E-03	39.25	Sum	
m	37	1594.03	4.26737E-03	35.50		
	38	1730.53	1.72222E-03	68.43	Sum	
	40	1847.44	3.36310E-03	35.04	Sum	
	41	1879.47	1.66667E-03	40.82		
	42	2105.68	4.38596E-03	32.64		
	44	2388.89	2.16667E-03	47.97	Sum	
	45	2414.71	2.50000E-03	33.33		

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

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

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	1.88E-01	1.87E+00	1.87E+00
+		NA-22	1274.54		99.94	1.36E-02	9.34E-02	9.34E-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	1.56E-02	6.18E-02	6.18E-02
+		K-40	1460.81	*	10.67	1.66E+01	8.73E-01	8.73E-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	4.68E-02	4.68E-02
			78.34		96.00	1.06E-01		5.90E-02
+		SC-46	889.25		99.98	-9.28E-02	1.43E-01	1.43E-01
			1120.51		99.99	1.49E-01		2.44E-01
+		V-48	983.52		99.98	-8.67E-03	4.93E+00	4.93E+00
			1312.10		97.50	9.96E-01		6.00E+00
+		CR-51	320.08		9.83	4.10E-01	5.71E+00	5.71E+00
+		MN-54	834.83		99.97	-1.76E-02	8.05E-02	8.05E-02
+		CO-56	846.75		99.96	2.90E-04	1.48E-01	1.48E-01
			1037.75		14.03	2.31E-02		1.24E+00
			1238.25		67.00	2.28E-01		3.94E-01
			1771.40		15.51	-8.63E-01		6.19E-01
			2598.48		16.90	-8.02E-02		4.43E-01
+		CO-57	122.06		85.51	-5.81E-03	5.25E-02	5.25E-02
			136.48		10.60	2.41E-03		4.55E-01
+		CO-58	810.76		99.40	-2.60E-02	1.64E-01	1.64E-01
+		FE-59	1099.22		56.50	3.83E-01	6.93E-01	6.93E-01
			1291.56		43.20	5.04E-01		9.44E-01
+		CO-60	1173.22		100.00	8.09E-03	8.07E-02	9.54E-02
			1332.49		100.00	-2.35E-03		8.07E-02
+		ZN-65	1115.52		50.75	-3.43E-02	2.21E-01	2.21E-01
+		GA-67	93.31		35.70	2.59E+08	1.69E+08	1.69E+08
			208.95		2.24	1.74E+09		3.05E+09
			300.22		16.00	-4.22E+08		4.96E+08
+		SE-75	121.11		16.70	-6.61E-02	1.14E-01	3.68E-01
			136.00		59.20	3.28E-02		1.14E-01
			264.65		59.80	3.83E-03		1.38E-01
			279.53		25.20	7.89E-02		3.55E-01
			400.65		11.40	-3.05E-02		8.18E-01
+		RB-82	776.52		13.00	2.13E-02	6.94E+00	6.94E+00
+		RB-83	520.41		46.00	7.35E-02	2.70E-01	2.70E-01
			529.64		30.30	-6.53E-02		3.78E-01
			552.65		16.40	7.78E-02		7.22E-01

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99		0.43	9.60E+00	1.73E+01	1.73E+01
+	SR-85	513.99		99.27	1.19E-01	2.13E-01	2.13E-01
+	Y-88	898.02		93.40	4.46E-03	1.04E-01	1.47E-01
		1836.01		99.38	1.89E-02		1.04E-01
+	MO-93	263.06		56.72	-2.85E-02	6.55E-02	8.36E-02
		684.67		99.68	5.74E-03		6.78E-02
		1477.11		99.08	4.49E-02		6.55E-02
+	NB-93M	16.57		9.43	2.81E+00	5.26E+01	5.26E+01
+	NB-94	702.63		100.00	4.17E-02	6.52E-02	6.96E-02
		871.10		100.00	2.15E-02		6.52E-02
+	NB-95	765.79		99.81	-2.85E-02	5.46E-01	5.46E-01
+	NB-95M	235.69		25.00	6.29E+07	5.37E+07	5.37E+07
+	ZR-95	724.18		43.70	-2.42E-01	3.37E-01	4.49E-01
		756.72		55.30	-8.69E-02		3.37E-01
+	MO-99	181.06		6.20	1.59E+10	3.43E+10	4.16E+10
		739.58		12.80	-1.01E+10		3.43E+10
		778.00		4.50	3.52E+08		9.62E+10
+	RU-103	497.08		89.00	-2.27E-01	3.43E-01	3.43E-01
+	RU-106	621.84		9.80	2.49E-01	7.08E-01	7.08E-01
+	AG-108M	433.93		89.90	1.45E-02	5.68E-02	5.68E-02
		614.37		90.40	-1.56E-01		8.32E-02
		722.95		90.50	-5.25E-03		6.84E-02
+	CD-109	88.03	*	3.72	1.48E+00	1.65E+00	1.65E+00
+	AG-110M	657.75		93.14	2.63E-02	8.94E-02	8.94E-02
		677.61		10.53	-1.87E-02		7.72E-01
		706.67		16.46	-2.59E-01		5.09E-01
		763.93		21.98	-1.96E-02		4.11E-01
		884.67		71.63	1.04E-02		1.18E-01
		1384.27		23.94	3.06E-01		4.09E-01
+	CD-113M	263.70		0.02	-6.75E+01	2.04E+02	2.04E+02
+	SN-113	255.12		1.93	-2.59E+00	1.46E-01	4.30E+00
		391.69		64.90	-7.64E-03		1.46E-01
+	TE123M	159.00		84.10	-4.85E-03	8.03E-02	8.03E-02
+	SB-124	602.71		97.87	2.71E-02	2.22E-01	2.22E-01
		645.85		7.26	-1.28E+00		2.31E+00
		722.78		11.10	-1.34E-01		1.74E+00
		1691.02		49.00	8.24E-02		4.01E-01
+	I-125	35.49		6.49	-3.64E+00	4.52E+00	4.52E+00
+	SB-125	176.33		6.89	-6.96E-02	1.79E-01	6.06E-01
		427.89		29.33	-1.08E-02		1.79E-01
		463.38		10.35	1.55E-01		6.04E-01
		600.56		17.80	-2.01E-02		3.97E-01
		635.90		11.32	2.60E-01		6.25E-01
+	SB-126	414.70		83.30	-1.16E+00	1.60E+01	1.61E+01
		666.33		99.60	-1.02E+00		1.60E+01
		695.00		99.60	-5.81E+00		1.62E+01
		720.50		53.80	-1.67E+00		3.01E+01
+	SN-126	87.57	*	37.00	1.28E-01	1.43E-01	1.43E-01

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-127	473.00	25.00	-4.80E+05	1.00E+07	1.11E+07
		685.20	35.70	8.50E+05		1.00E+07
		783.80	14.70	2.60E+06		2.59E+07
+	I-129	29.78	57.00	-2.17E-01	2.85E-01	2.85E-01
		33.60	13.20	1.74E-01		8.49E-01
		39.58	7.52	4.23E-01		1.01E+00
+	I-131	284.30	6.05	-6.78E+02	2.97E+02	3.98E+03
		364.48	81.20	2.65E+01		2.97E+02
		636.97	7.26	2.61E+03		4.78E+03
		722.89	1.80	-1.33E+03		1.73E+04
+	TE-132	49.72	13.10	-5.11E+08	7.61E+07	5.46E+08
		228.16	88.00	-8.71E+06		7.61E+07
+	BA-133	81.00	33.00	-4.03E-01	1.22E-01	1.34E-01
		302.84	17.80	3.01E-02		3.11E-01
		356.01	60.00	9.66E-02		1.22E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.63E+05	5.42E+04	5.42E+04
+	CS-134	563.23	8.38	2.24E-01	8.53E-02	7.70E-01
		569.32	15.43	7.03E-02		4.13E-01
		604.70	97.60	5.74E-03		8.53E-02
		795.84	85.40	7.41E-02		1.01E-01
		801.93	8.73	-3.42E-01		8.30E-01
+	CS-135	268.24	16.00	-1.77E-02	3.23E-01	3.23E-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	4.24E-01	1.06E+01	9.21E+01
		163.89	4.61	1.09E+01		1.50E+02
		176.55	13.56	-6.04E+00		5.27E+01
		273.65	12.66	-2.08E+01		7.53E+01
		340.57	48.50	3.21E+01		2.38E+01
		818.50	99.70	1.83E+00		1.06E+01
		1048.07	79.60	8.89E+00		1.67E+01
		1235.34	19.70	1.79E+01		9.40E+01
+	CS-137	661.65	85.12	-2.09E-02	7.43E-02	7.43E-02
+	LA-138	788.74	34.00	-1.96E-01	7.52E-02	1.90E-01
		1435.80	66.00	-2.63E-02		7.52E-02
+	CE-139	165.85	80.35	1.38E-02	7.66E-02	7.66E-02
+	BA-140	162.64	6.70	-1.00E+01	4.62E+01	1.19E+02
		304.84	4.50	3.67E+01		2.36E+02
		423.70	3.20	1.02E+00		3.42E+02
		437.55	2.00	2.08E+02		5.79E+02
		537.32	25.00	-3.54E+00		4.62E+01
+	LA-140	328.77	20.50	3.44E+01	1.88E+01	5.60E+01
		487.03	45.50	-4.87E+00		2.61E+01
		815.85	23.50	-3.49E+00		5.35E+01
		1596.49	95.49	1.72E-01		1.88E+01
+	CE-141	145.44	48.40	4.20E-02	6.39E-01	6.39E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707086-18

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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	-1.62E-01	4.39E-01	4.39E-01
+	PM-144	476.78	42.00	-5.44E-02	6.87E-02	1.50E-01
		618.01	98.60	2.66E-03		6.87E-02
		696.49	99.49	2.11E-03		7.94E-02
+	PM-145	36.85	21.70	-2.23E-01	2.18E-01	4.02E-01
		37.36	39.70	8.25E-02		2.18E-01
		42.30	15.10	-8.26E-01		4.24E-01
		72.40	2.31	-2.27E+00		2.31E+00
+	PM-146	453.90	39.94	-4.92E-03	1.42E-01	1.42E-01
		735.90	14.01	3.22E-03		4.56E-01
		747.13	13.10	1.95E-02		5.14E-01
+	ND-147	91.11	28.90	-4.93E+01	8.25E+01	8.25E+01
		531.02	13.10	-9.76E+01		2.01E+02
+	PM-149	285.90	3.10	1.39E+13	4.56E+13	4.56E+13
+	EU-152	121.78	20.50	-1.90E-02	1.72E-01	1.72E-01
		244.69	5.40	8.54E-02		1.05E+00
		344.27	19.13	-2.67E-02		2.57E-01
		778.89	9.20	-5.13E-02		7.22E-01
		964.01	10.40	-9.82E-01		8.39E-01
		1085.78	7.22	-1.70E-02		1.05E+00
		1112.02	9.60	4.12E-01		8.68E-01
		1407.95	14.94	7.99E-02		4.76E-01
+	GD-153	97.43	31.30	7.90E-03	1.49E-01	1.49E-01
		103.18	22.20	5.95E-02		2.15E-01
+	EU-154	123.07	40.50	2.62E-02	8.96E-02	8.96E-02
		723.30	19.70	-2.46E-02		3.21E-01
		873.19	11.50	-2.26E-01		5.52E-01
		996.32	10.30	-4.45E-01		6.99E-01
		1004.76	17.90	-2.64E-01		4.01E-01
		1274.45	35.50	3.64E-02		2.50E-01
+	EU-155	86.50	30.90	1.09E-01	1.57E-01	1.57E-01
		105.30	20.70	7.26E-02		1.78E-01
+	EU-156	811.77	10.40	-9.79E+00	5.32E+01	5.32E+01
		1153.47	7.20	-1.95E+01		1.10E+02
		1230.71	8.90	1.46E+01		1.01E+02
+	HO-166M	184.41	72.60	8.96E-02	6.53E-02	6.53E-02
		280.45	29.60	7.97E-02		1.72E-01
		410.94	11.10	-6.10E-02		4.88E-01
		711.69	54.10	5.79E-02		1.29E-01
+	TM-171	66.72	0.14	-2.15E+00	3.44E+01	3.44E+01
+	HF-172	67.35	5.31	9.99E-02	3.42E-01	9.21E-01
		125.81	11.30	-2.98E-01		3.42E-01
+	LU-172	181.53	20.60	9.38E+02	3.52E+03	5.39E+03
		900.72	29.81	-3.12E+03		5.87E+03
		1093.66	62.50	-1.39E+02		3.52E+03
+	LU-173	100.72	5.24	-2.60E-01	3.00E-01	7.70E-01
		272.11	21.20	3.61E-01		3.00E-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	-1.59E-02	1.53E-01	1.53E-01
+	LU-176	88.34		13.30	3.36E-01	4.67E-02	3.61E-01
		201.83		86.00	-7.24E-03		4.67E-02
		306.78		94.00	-8.82E-03		5.02E-02
+	HF-181	133.02		41.70	-1.42E-01	3.34E-01	4.53E-01
		345.85		17.20	-1.48E-01		1.39E+00
		482.03		82.80	-2.54E-02		3.34E-01
+	TA-182	67.75		41.20	2.11E-02	1.95E-01	1.95E-01
		1121.30		34.90	1.51E-01		5.46E-01
		1189.05		16.23	-1.64E-01		9.09E-01
		1221.41		26.98	-1.31E-01		6.63E-01
		1231.02		11.44	2.28E-01		1.57E+00
+	IR-192	308.46		29.68	1.33E-01	2.76E-01	4.07E-01
		468.07		48.10	-1.38E-01		2.76E-01
+	HG-203	279.19		77.30	-4.87E-02	2.76E-01	2.76E-01
+	TL-204	374.74		94.11	-2.34E-02	5.51E-02	5.51E-02
		899.15		99.16	2.87E-02		7.51E-02
		911.74		91.10	2.80E-01		1.42E-01
+	BI-207	569.67		97.72	-9.25E-03	5.79E-02	5.79E-02
		1063.62		74.90	4.23E-02		1.00E-01
+	TL-208	583.14	*	30.22	7.56E-01	1.82E-01	2.78E-01
		860.37	*	4.48	1.80E+00		2.01E+00
		2614.66	*	35.85	5.57E-01		1.82E-01
+	BI-210M	262.00		45.00	1.61E-02	1.07E-01	1.07E-01
		300.00		23.00	-2.19E-01		2.57E-01
+	PB-210	46.50		4.25	1.33E+00	1.47E+00	1.47E+00
+	PB-211	404.84		2.90	1.15E-01	1.90E+00	1.90E+00
		831.96		2.90	1.05E+00		2.38E+00
+	BI-212	727.17	*	11.80	5.35E-01	7.54E-01	7.54E-01
		1620.62		2.75	2.51E-01		2.36E+00
+	PB-212	238.63	*	44.60	9.57E-01	1.84E-01	1.84E-01
		300.09	*	3.41	1.67E+00		2.45E+00
+	BI-214	609.31	*	46.30	7.17E-01	5.71E-02	2.86E-01
		1120.29	*	15.10	7.18E-01		6.57E-01
		1764.49	*	15.80	7.81E-01		5.71E-02
		2204.22	*	4.98	9.35E-01		2.11E-01
+	PB-214	295.21	*	19.19	9.28E-01	2.29E-01	4.24E-01
		351.92	*	37.19	7.87E-01		2.29E-01
+	RN-219	401.80		6.50	1.86E-01	8.26E-01	8.26E-01
+	RA-223	323.87		3.88	-1.22E-01	1.22E+00	1.22E+00
+	RA-224	240.98		3.95	1.32E+01	2.41E+00	2.41E+00
+	RA-225	40.00		31.00	1.03E+01	2.46E+01	2.46E+01
+	RA-226	186.21	*	3.28	1.26E+00	2.08E+00	2.08E+00
+	TH-227	50.10		8.40	-5.78E-01	6.17E-01	6.17E-01
		236.00		11.50	7.78E-01		6.64E-01
		256.20		6.30	1.50E-01		7.60E-01
+	AC-228	338.32	*	11.40	8.60E-01	3.86E-01	7.27E-01
		911.07	*	27.70	8.78E-01		3.86E-01

Analysis Report for 1707086-18

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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	8.22E-01	3.86E-01	1.08E+00
+	TH-230	48.44		16.90	-1.23E-01	3.35E-01	3.35E-01
		62.85		4.60	1.15E+00		1.08E+00
		67.67		0.37	1.29E+00		1.19E+01
+	PA-231	283.67		1.60	-7.81E-02	2.36E+00	3.02E+00
		302.67		2.30	2.29E-01		2.36E+00
+	TH-231	25.64		14.70	9.31E-01	6.68E-01	2.15E+00
		84.21		6.40	3.68E-02		6.68E-01
+	PA-233	311.98		38.60	-3.66E-01	1.49E+00	1.49E+00
+	PA-234	131.20		20.40	7.92E-02	1.91E-01	1.91E-01
		733.99		8.80	5.00E-02		6.78E-01
		946.00		12.00	1.02E-01		5.67E-01
+	PA-234M	1001.03		0.92	1.89E+00	8.38E+00	8.38E+00
+	TH-234	63.29		3.80	8.90E-01	1.28E+00	1.28E+00
+	U-235	143.76		10.50	2.05E-01	3.68E-01	3.68E-01
		163.35		4.70	5.86E-02		8.02E-01
		205.31		4.70	1.01E-01		1.00E+00
+	NP-237	86.50		12.60	2.58E-01	3.71E-01	3.71E-01
+	NP-239	106.10		22.70	2.78E+11	6.81E+11	6.81E+11
		228.18		10.70	-2.29E+11		2.00E+12
		277.60		14.10	5.31E+11		1.56E+12
+	AM-241	59.54		35.90	-1.43E-01	1.36E-01	1.36E-01
+	AM-243	74.67	*	66.00	2.09E-01	1.30E-01	1.30E-01
+	CM-243	209.75		3.29	1.09E+00	3.63E-01	1.55E+00
		228.14		10.60	-5.33E-02		4.66E-01
		277.60		14.00	1.24E-01		3.63E-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 1707086-18

HTC-A03-S001-3036-01

	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	1.87E+00	1.87E+00	1.88E-01	8.81E-01
	NA-22	1274.54		99.94	9.34E-02	9.34E-02	1.36E-02	4.29E-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	6.18E-02	6.18E-02	1.56E-02	2.63E-02
+	K-40	1460.81	*	10.67	8.73E-01	8.73E-01	1.66E+01	4.00E-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	4.68E-02	4.68E-02	5.07E-03	2.29E-02
		78.34		96.00	5.90E-02		1.06E-01	2.90E-02
	SC-46	889.25		99.98	1.43E-01	1.43E-01	-9.28E-02	6.57E-02
		1120.51		99.99	2.44E-01		1.49E-01	1.15E-01
	V-48	983.52		99.98	4.93E+00	4.93E+00	-8.67E-03	2.26E+00
		1312.10		97.50	6.00E+00		9.96E-01	2.73E+00
	CR-51	320.08		9.83	5.71E+00	5.71E+00	4.10E-01	2.73E+00
	MN-54	834.83		99.97	8.05E-02	8.05E-02	-1.76E-02	3.72E-02
	CO-56	846.75		99.96	1.48E-01	1.48E-01	2.90E-04	6.79E-02
		1037.75		14.03	1.24E+00		2.31E-02	5.71E-01
		1238.25		67.00	3.94E-01		2.28E-01	1.85E-01
		1771.40		15.51	6.19E-01		-8.63E-01	2.40E-01
		2598.48		16.90	4.43E-01		-8.02E-02	1.40E-01
	CO-57	122.06		85.51	5.25E-02	5.25E-02	-5.81E-03	2.55E-02
		136.48		10.60	4.55E-01		2.41E-03	2.21E-01
	CO-58	810.76		99.40	1.64E-01	1.64E-01	-2.60E-02	7.56E-02
	FE-59	1099.22		56.50	6.93E-01	6.93E-01	3.83E-01	3.21E-01
		1291.56		43.20	9.44E-01		5.04E-01	4.34E-01
	CO-60	1173.22		100.00	9.54E-02	8.07E-02	8.09E-03	4.43E-02
		1332.49		100.00	8.07E-02		-2.35E-03	3.66E-02
	ZN-65	1115.52		50.75	2.21E-01	2.21E-01	-3.43E-02	1.02E-01
	GA-67	93.31		35.70	1.69E+08	1.69E+08	2.59E+08	8.27E+07
		208.95		2.24	3.05E+09		1.74E+09	1.48E+09
		300.22		16.00	4.96E+08		-4.22E+08	2.40E+08
	SE-75	121.11		16.70	3.68E-01	1.14E-01	-6.61E-02	1.79E-01
		136.00		59.20	1.14E-01		3.28E-02	5.53E-02
		264.65		59.80	1.38E-01		3.83E-03	6.64E-02
		279.53		25.20	3.55E-01		7.89E-02	1.71E-01
		400.65		11.40	8.18E-01		-3.05E-02	3.89E-01
	RB-82	776.52		13.00	6.94E+00	6.94E+00	2.13E-02	3.21E+00
	RB-83	520.41		46.00	2.70E-01	2.70E-01	7.35E-02	1.27E-01
		529.64		30.30	3.78E-01		-6.53E-02	1.77E-01
		552.65		16.40	7.22E-01		7.78E-02	3.38E-01
	KR-85	513.99		0.43	1.73E+01	1.73E+01	9.60E+00	8.26E+00
	SR-85	513.99		99.27	2.13E-01	2.13E-01	1.19E-01	1.02E-01
	Y-88	898.02		93.40	1.47E-01	1.04E-01	4.46E-03	6.80E-02
		1836.01		99.38	1.04E-01		1.89E-02	4.32E-02
	MO-93	263.06		56.72	8.36E-02	6.55E-02	-2.85E-02	4.02E-02
		684.67		99.68	6.78E-02		5.74E-03	3.18E-02
		1477.11		99.08	6.55E-02		4.49E-02	2.87E-02
	NB-93M	16.57		9.43	5.26E+01	5.26E+01	2.81E+00	2.56E+01
	NB-94	702.63		100.00	6.96E-02	6.52E-02	4.17E-02	3.27E-02
		871.10		100.00	6.52E-02		2.15E-02	3.01E-02
	NB-95	765.79		99.81	5.46E-01	5.46E-01	-2.85E-02	2.57E-01

Analysis Report for 1707086-18

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NB-95M	235.69		25.00	5.37E+07	5.37E+07	6.29E+07	2.63E+07
	ZR-95	724.18		43.70	4.49E-01	3.37E-01	-2.42E-01	2.10E-01
		756.72		55.30	3.37E-01		-8.69E-02	1.57E-01
	MO-99	181.06		6.20	4.16E+10	3.43E+10	1.59E+10	2.01E+10
		739.58		12.80	3.43E+10		-1.01E+10	1.60E+10
		778.00		4.50	9.62E+10		3.52E+08	4.47E+10
	RU-103	497.08		89.00	3.43E-01	3.43E-01	-2.27E-01	1.62E-01
	RU-106	621.84		9.80	7.08E-01	7.08E-01	2.49E-01	3.31E-01
	AG-108M	433.93		89.90	5.68E-02	5.68E-02	1.45E-02	2.69E-02
		614.37		90.40	8.32E-02		-1.56E-01	3.96E-02
		722.95		90.50	6.84E-02		-5.25E-03	3.18E-02
+	CD-109	88.03	*	3.72	1.65E+00	1.65E+00	1.48E+00	8.11E-01
	AG-110M	657.75		93.14	8.94E-02	8.94E-02	2.63E-02	4.19E-02
		677.61		10.53	7.72E-01		-1.87E-02	3.61E-01
		706.67		16.46	5.09E-01		-2.59E-01	2.38E-01
		763.93		21.98	4.11E-01		-1.96E-02	1.92E-01
		884.67		71.63	1.18E-01		1.04E-02	5.43E-02
		1384.27		23.94	4.09E-01		3.06E-01	1.84E-01
	CD-113M	263.70		0.02	2.04E+02	2.04E+02	-6.75E+01	9.84E+01
	SN-113	255.12		1.93	4.30E+00	1.46E-01	-2.59E+00	2.07E+00
		391.69		64.90	1.46E-01		-7.64E-03	6.94E-02
	TE123M	159.00		84.10	8.03E-02	8.03E-02	-4.85E-03	3.89E-02
	SB-124	602.71		97.87	2.22E-01	2.22E-01	2.71E-02	1.05E-01
		645.85		7.26	2.31E+00		-1.28E+00	1.07E+00
		722.78		11.10	1.74E+00		-1.34E-01	8.09E-01
		1691.02		49.00	4.01E-01		8.24E-02	1.73E-01
	I-125	35.49		6.49	4.52E+00	4.52E+00	-3.64E+00	2.19E+00
	SB-125	176.33		6.89	6.06E-01	1.79E-01	-6.96E-02	2.93E-01
		427.89		29.33	1.79E-01		-1.08E-02	8.46E-02
		463.38		10.35	6.04E-01		1.55E-01	2.87E-01
		600.56		17.80	3.97E-01		-2.01E-02	1.87E-01
		635.90		11.32	6.25E-01		2.60E-01	2.94E-01
	SB-126	414.70		83.30	1.61E+01	1.60E+01	-1.16E+00	7.65E+00
		666.33		99.60	1.60E+01		-1.02E+00	7.48E+00
		695.00		99.60	1.62E+01		-5.81E+00	7.56E+00
		720.50		53.80	3.01E+01		-1.67E+00	1.40E+01
+	SN-126	87.57	*	37.00	1.43E-01	1.43E-01	1.28E-01	7.04E-02
	SB-127	473.00		25.00	1.11E+07	1.00E+07	-4.80E+05	5.22E+06
		685.20		35.70	1.00E+07		8.50E+05	4.70E+06
		783.80		14.70	2.59E+07		2.60E+06	1.21E+07
	I-129	29.78		57.00	2.85E-01	2.85E-01	-2.17E-01	1.39E-01
		33.60		13.20	8.49E-01		1.74E-01	4.13E-01
		39.58		7.52	1.01E+00		4.23E-01	4.92E-01
	I-131	284.30		6.05	3.98E+03	2.97E+02	-6.78E+02	1.91E+03
		364.48		81.20	2.97E+02		2.65E+01	1.41E+02
		636.97		7.26	4.78E+03		2.61E+03	2.26E+03
		722.89		1.80	1.73E+04		-1.33E+03	8.05E+03
	TE-132	49.72		13.10	5.46E+08	7.61E+07	-5.11E+08	2.66E+08
		228.16		88.00	7.61E+07		-8.71E+06	3.69E+07
	BA-133	81.00		33.00	1.34E-01	1.22E-01	-4.03E-01	6.53E-02
		302.84		17.80	3.11E-01		3.01E-02	1.50E-01
		356.01		60.00	1.22E-01		9.66E-02	5.89E-02
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

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	5.42E+04	5.42E+04	-1.63E+05	2.65E+04
CS-134	563.23	8.38	7.70E-01	8.53E-02	2.24E-01	3.63E-01
	569.32	15.43	4.13E-01		7.03E-02	1.94E-01
	604.70	97.60	8.53E-02		5.74E-03	4.06E-02
	795.84	85.40	1.01E-01		7.41E-02	4.77E-02
	801.93	8.73	8.30E-01		-3.42E-01	3.86E-01
CS-135	268.24	16.00	3.23E-01	3.23E-01	-1.77E-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	9.21E+01	1.06E+01	4.24E-01	4.46E+01
	163.89	4.61	1.50E+02		1.09E+01	7.25E+01
	176.55	13.56	5.27E+01		-6.04E+00	2.55E+01
	273.65	12.66	7.53E+01		-2.08E+01	3.63E+01
	340.57	48.50	2.38E+01		3.21E+01	1.15E+01
	818.50	99.70	1.06E+01		1.83E+00	4.88E+00
	1048.07	79.60	1.67E+01		8.89E+00	7.68E+00
	1235.34	19.70	9.40E+01		1.79E+01	4.38E+01
CS-137	661.65	85.12	7.43E-02	7.43E-02	-2.09E-02	3.48E-02
LA-138	788.74	34.00	1.90E-01	7.52E-02	-1.96E-01	8.83E-02
	1435.80	66.00	7.52E-02		-2.63E-02	3.18E-02
CE-139	165.85	80.35	7.66E-02	7.66E-02	1.38E-02	3.71E-02
BA-140	162.64	6.70	1.19E+02	4.62E+01	-1.00E+01	5.75E+01
	304.84	4.50	2.36E+02		3.67E+01	1.13E+02
	423.70	3.20	3.42E+02		1.02E+00	1.62E+02
	437.55	2.00	5.79E+02		2.08E+02	2.75E+02
	537.32	25.00	4.62E+01		-3.54E+00	2.17E+01
LA-140	328.77	20.50	5.60E+01	1.88E+01	3.44E+01	2.69E+01
	487.03	45.50	2.61E+01		-4.87E+00	1.23E+01
	815.85	23.50	5.35E+01		-3.49E+00	2.46E+01
	1596.49	95.49	1.88E+01		1.72E-01	8.48E+00
CE-141	145.44	48.40	6.39E-01	6.39E-01	4.20E-02	3.10E-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	4.39E-01	4.39E-01	-1.62E-01	2.13E-01
PM-144	476.78	42.00	1.50E-01	6.87E-02	-5.44E-02	7.09E-02
	618.01	98.60	6.87E-02		2.66E-03	3.21E-02
	696.49	99.49	7.94E-02		2.11E-03	3.72E-02
PM-145	36.85	21.70	4.02E-01	2.18E-01	-2.23E-01	1.95E-01
	37.36	39.70	2.18E-01		8.25E-02	1.06E-01
	42.30	15.10	4.24E-01		-8.26E-01	2.06E-01
	72.40	2.31	2.31E+00		-2.27E+00	1.14E+00
PM-146	453.90	39.94	1.42E-01	1.42E-01	-4.92E-03	6.72E-02
	735.90	14.01	4.56E-01		3.22E-03	2.12E-01
	747.13	13.10	5.14E-01		1.95E-02	2.40E-01
ND-147	91.11	28.90	8.25E+01	8.25E+01	-4.93E+01	4.04E+01
	531.02	13.10	2.01E+02		-9.76E+01	9.41E+01
PM-149	285.90	3.10	4.56E+13	4.56E+13	1.39E+13	2.19E+13
EU-152	121.78	20.50	1.72E-01	1.72E-01	-1.90E-02	8.35E-02
	244.69	5.40	1.05E+00		8.54E-02	5.12E-01
	344.27	19.13	2.57E-01		-2.67E-02	1.23E-01
	778.89	9.20	7.22E-01		-5.13E-02	3.36E-01

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	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	8.39E-01	1.72E-01	-9.82E-01	3.93E-01
		1085.78		7.22	1.05E+00		-1.70E-02	4.84E-01
		1112.02		9.60	8.68E-01		4.12E-01	4.01E-01
		1407.95		14.94	4.76E-01		7.99E-02	2.12E-01
	GD-153	97.43		31.30	1.49E-01	1.49E-01	7.90E-03	7.25E-02
		103.18		22.20	2.15E-01		5.95E-02	1.05E-01
	EU-154	123.07		40.50	8.96E-02	8.96E-02	2.62E-02	4.35E-02
		723.30		19.70	3.21E-01		-2.46E-02	1.49E-01
		873.19		11.50	5.52E-01		-2.26E-01	2.54E-01
		996.32		10.30	6.99E-01		-4.45E-01	3.21E-01
		1004.76		17.90	4.01E-01		-2.64E-01	1.84E-01
		1274.45		35.50	2.50E-01		3.64E-02	1.15E-01
	EU-155	86.50		30.90	1.57E-01	1.57E-01	1.09E-01	7.71E-02
		105.30		20.70	1.78E-01		7.26E-02	8.64E-02
	EU-156	811.77		10.40	5.32E+01	5.32E+01	-9.79E+00	2.45E+01
		1153.47		7.20	1.10E+02		-1.95E+01	5.10E+01
		1230.71		8.90	1.01E+02		1.46E+01	4.71E+01
	HO-166M	184.41		72.60	6.53E-02	6.53E-02	8.96E-02	3.17E-02
		280.45		29.60	1.72E-01		7.97E-02	8.27E-02
		410.94		11.10	4.88E-01		-6.10E-02	2.33E-01
		711.69		54.10	1.29E-01		5.79E-02	6.08E-02
	TM-171	66.72		0.14	3.44E+01	3.44E+01	-2.15E+00	1.68E+01
	HF-172	67.35		5.31	9.21E-01	3.42E-01	9.99E-02	4.50E-01
		125.81		11.30	3.42E-01		-2.98E-01	1.66E-01
	LU-172	181.53		20.60	5.39E+03	3.52E+03	9.38E+02	2.61E+03
		900.72		29.81	5.87E+03		-3.12E+03	2.69E+03
		1093.66		62.50	3.52E+03		-1.39E+02	1.63E+03
	LU-173	100.72		5.24	7.70E-01	3.00E-01	-2.60E-01	3.75E-01
		272.11		21.20	3.00E-01		3.61E-01	1.45E-01
	HF-175	343.40		84.00	1.53E-01	1.53E-01	-1.59E-02	7.32E-02
	LU-176	88.34		13.30	3.61E-01	4.67E-02	3.36E-01	1.77E-01
		201.83		86.00	4.67E-02		-7.24E-03	2.25E-02
		306.78		94.00	5.02E-02		-8.82E-03	2.40E-02
	HF-181	133.02		41.70	4.53E-01	3.34E-01	-1.42E-01	2.20E-01
		345.85		17.20	1.39E+00		-1.48E-01	6.64E-01
		482.03		82.80	3.34E-01		-2.54E-02	1.58E-01
	TA-182	67.75		41.20	1.95E-01	1.95E-01	2.11E-02	9.52E-02
		1121.30		34.90	5.46E-01		1.51E-01	2.57E-01
		1189.05		16.23	9.09E-01		-1.64E-01	4.18E-01
		1221.41		26.98	6.63E-01		-1.31E-01	3.09E-01
		1231.02		11.44	1.57E+00		2.28E-01	7.32E-01
	IR-192	308.46		29.68	4.07E-01	2.76E-01	1.33E-01	1.95E-01
		468.07		48.10	2.76E-01		-1.38E-01	1.31E-01
	HG-203	279.19		77.30	2.76E-01	2.76E-01	-4.87E-02	1.33E-01
	TL-204	374.74		94.11	5.51E-02	5.51E-02	-2.34E-02	2.62E-02
		899.15		99.16	7.51E-02		2.87E-02	3.48E-02
		911.74		91.10	1.42E-01		2.80E-01	6.78E-02
	BI-207	569.67		97.72	5.79E-02	5.79E-02	-9.25E-03	2.72E-02
		1063.62		74.90	1.00E-01		4.23E-02	4.60E-02
+	TL-208	583.14	*	30.22	2.78E-01	1.82E-01	7.56E-01	1.33E-01
		860.37	*	4.48	2.01E+00		1.80E+00	9.51E-01
		2614.66	*	35.85	1.82E-01		5.57E-01	7.48E-02
	BI-210M	262.00		45.00	1.07E-01	1.07E-01	1.61E-02	5.16E-02

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

	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	2.57E-01	1.07E-01	-2.19E-01	1.24E-01
	PB-210	46.50		4.25	1.47E+00	1.47E+00	1.33E+00	7.18E-01
	PB-211	404.84		2.90	1.90E+00	1.90E+00	1.15E-01	9.07E-01
		831.96		2.90	2.38E+00		1.05E+00	1.10E+00
+	BI-212	727.17	*	11.80	7.54E-01	7.54E-01	5.35E-01	3.59E-01
		1620.62		2.75	2.36E+00		2.51E-01	1.03E+00
+	PB-212	238.63	*	44.60	1.84E-01	1.84E-01	9.57E-01	9.01E-02
		300.09	*	3.41	2.45E+00		1.67E+00	1.20E+00
+	BI-214	609.31	*	46.30	2.86E-01	5.71E-02	7.17E-01	1.39E-01
		1120.29	*	15.10	6.57E-01		7.18E-01	3.08E-01
		1764.49	*	15.80	5.71E-02		7.81E-01	0.00E+00
		2204.22	*	4.98	2.11E-01		9.35E-01	0.00E+00
+	PB-214	295.21	*	19.19	4.24E-01	2.29E-01	9.28E-01	2.07E-01
		351.92	*	37.19	2.29E-01		7.87E-01	1.11E-01
	RN-219	401.80		6.50	8.26E-01	8.26E-01	1.86E-01	3.93E-01
	RA-223	323.87		3.88	1.22E+00	1.22E+00	-1.22E-01	5.84E-01
	RA-224	240.98		3.95	2.41E+00	2.41E+00	1.32E+01	1.18E+00
	RA-225	40.00		31.00	2.46E+01	2.46E+01	1.03E+01	1.20E+01
+	RA-226	186.21	*	3.28	2.08E+00	2.08E+00	1.26E+00	1.02E+00
	TH-227	50.10		8.40	6.17E-01	6.17E-01	-5.78E-01	3.01E-01
		236.00		11.50	6.64E-01		7.78E-01	3.25E-01
		256.20		6.30	7.60E-01		1.50E-01	3.66E-01
+	AC-228	338.32	*	11.40	7.27E-01	3.86E-01	8.60E-01	3.54E-01
		911.07	*	27.70	3.86E-01		8.78E-01	1.83E-01
		969.11	*	16.60	1.08E+00		8.22E-01	5.25E-01
	TH-230	48.44		16.90	3.35E-01	3.35E-01	-1.23E-01	1.63E-01
		62.85		4.60	1.08E+00		1.15E+00	5.30E-01
		67.67		0.37	1.19E+01		1.29E+00	5.83E+00
	PA-231	283.67		1.60	3.02E+00	2.36E+00	-7.81E-02	1.45E+00
		302.67		2.30	2.36E+00		2.29E-01	1.14E+00
	TH-231	25.64		14.70	2.15E+00	6.68E-01	9.31E-01	1.05E+00
		84.21		6.40	6.68E-01		3.68E-02	3.26E-01
	PA-233	311.98		38.60	1.49E+00	1.49E+00	-3.66E-01	7.14E-01
	PA-234	131.20		20.40	1.91E-01	1.91E-01	7.92E-02	9.27E-02
		733.99		8.80	6.78E-01		5.00E-02	3.15E-01
		946.00		12.00	5.67E-01		1.02E-01	2.61E-01
	PA-234M	1001.03		0.92	8.38E+00	8.38E+00	1.89E+00	3.88E+00
	TH-234	63.29		3.80	1.28E+00	1.28E+00	8.90E-01	6.28E-01
	U-235	143.76		10.50	3.68E-01	3.68E-01	2.05E-01	1.79E-01
		163.35		4.70	8.02E-01		5.86E-02	3.88E-01
		205.31		4.70	1.00E+00		1.01E-01	4.86E-01
	NP-237	86.50		12.60	3.71E-01	3.71E-01	2.58E-01	1.82E-01
	NP-239	106.10		22.70	6.81E+11	6.81E+11	2.78E+11	3.31E+11
		228.18		10.70	2.00E+12		-2.29E+11	9.68E+11
		277.60		14.10	1.56E+12		5.31E+11	7.52E+11
	AM-241	59.54		35.90	1.36E-01	1.36E-01	-1.43E-01	6.64E-02
+	AM-243	74.67	*	66.00	1.30E-01	1.30E-01	2.09E-01	6.43E-02
	CM-243	209.75		3.29	1.55E+00	3.63E-01	1.09E+00	7.52E-01
		228.14		10.60	4.66E-01		-5.33E-02	2.26E-01
		277.60		14.00	3.63E-01		1.24E-01	1.75E-01

Analysis Report for 1707086-18

HTC-A03-S001-3036-01

+ = 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-A03-S001-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	2	189	154	167	127	102	98	105
17:	97	80	79	84	75	80	86	83
25:	84	91	89	74	69	79	75	83
33:	91	81	76	73	78	80	94	98
41:	78	91	81	71	84	132	142	106
49:	86	102	84	101	98	100	118	101
57:	103	121	114	136	125	128	182	161
65:	114	101	117	127	125	138	138	133
73:	158	175	331	277	316	365	173	148
81:	117	104	118	126	138	122	144	225
89:	154	147	154	124	190	197	121	87
97:	75	83	94	90	94	87	60	101
105:	97	78	73	73	75	81	87	70
113:	87	73	78	78	77	97	57	68
121:	91	88	62	58	80	69	81	72
129:	99	95	83	81	72	83	74	76
137:	77	85	70	73	78	85	64	93
145:	67	75	63	58	66	69	61	62
153:	71	66	75	68	65	68	65	72
161:	58	60	67	65	57	61	57	59
169:	56	49	70	61	70	57	58	68
177:	50	58	65	61	60	51	50	81
185:	68	117	101	64	51	57	64	41
193:	56	48	56	61	55	58	53	55
201:	48	59	33	63	54	52	34	49
209:	64	87	58	54	45	37	45	47
217:	53	43	53	39	61	38	53	61
225:	59	35	45	48	41	47	45	40
233:	40	35	33	44	59	152	387	256
241:	94	103	95	45	35	28	36	33
249:	32	29	41	28	34	31	27	37
257:	36	35	49	35	30	29	33	38
265:	29	31	32	30	34	59	54	51
273:	40	30	35	25	30	52	29	35
281:	36	18	39	31	35	26	27	31
289:	28	28	29	17	35	48	71	118
297:	64	41	26	44	48	29	39	21
305:	27	33	27	23	18	26	24	28
313:	19	24	19	24	25	20	30	21
321:	23	13	31	27	20	21	25	39
329:	44	32	16	28	25	21	25	29
337:	24	49	70	54	19	35	20	18
345:	19	23	16	22	25	15	58	149
353:	160	49	29	19	24	21	16	18
361:	18	10	23	14	26	23	16	19

369:	13	23	13	16	23	24	17	19

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Channel								
377:	19	15	29	22	13	25	16	20
385:	19	21	18	22	22	22	22	17
393:	23	19	12	18	22	14	21	21
401:	13	25	25	15	19	19	17	25
409:	25	20	18	11	15	22	17	27
417:	23	14	17	21	19	17	14	16
425:	12	22	15	19	10	12	12	12
433:	18	9	16	18	23	15	17	15
441:	18	21	10	17	22	10	15	12
449:	22	12	16	21	22	13	21	15
457:	7	17	16	18	14	22	17	26
465:	18	17	13	15	16	10	11	19
473:	12	11	15	15	8	16	16	14
481:	17	16	15	12	13	17	18	17
489:	15	13	14	20	13	14	11	15
497:	11	14	8	19	21	16	7	12
505:	9	7	8	16	22	31	45	47
513:	31	15	13	4	14	19	14	15
521:	10	11	7	17	15	11	11	5
529:	13	10	12	22	3	9	16	15
537:	9	14	8	11	11	13	12	12
545:	13	15	11	13	10	12	12	9
553:	11	7	14	10	11	7	14	12
561:	10	14	14	15	12	12	6	16
569:	13	13	10	15	6	12	13	16
577:	10	13	11	11	20	26	75	75
585:	42	14	9	15	9	14	14	15
593:	13	7	14	14	13	11	12	16
601:	12	16	18	15	16	18	19	31
609:	79	123	55	14	11	11	14	6
617:	15	8	5	9	10	9	10	14
625:	13	10	10	10	10	15	8	10
633:	7	13	12	18	13	14	13	15
641:	7	16	8	4	6	10	8	13
649:	7	11	10	7	7	5	11	14
657:	8	13	8	11	12	12	11	7
665:	14	17	11	8	7	10	11	10
673:	6	14	5	11	12	13	16	8
681:	4	10	10	12	7	10	14	16
689:	14	16	13	7	11	10	10	13
697:	10	10	6	15	9	14	12	9
705:	16	8	8	8	12	7	14	11
713:	17	12	9	10	9	9	11	8
721:	9	8	12	10	9	5	20	18
729:	17	11	4	9	6	7	6	13
737:	10	10	7	8	12	10	11	13
745:	13	7	9	6	8	8	6	10
753:	10	8	11	5	5	13	9	9
761:	10	10	8	11	13	9	8	20
769:	19	17	11	13	7	4	9	9
777:	7	4	14	6	11	9	13	9
785:	12	8	8	9	9	8	8	7
793:	14	18	8	19	12	8	7	7

801:	8	4	12	11	9	11	11	7

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Channel								
809:	6	5	7	8	5	11	5	5
817:	8	5	5	6	6	7	5	1
825:	9	4	6	6	9	6	13	5
833:	4	11	11	5	7	8	9	6
841:	8	6	10	6	7	2	4	11
849:	8	7	7	3	11	7	4	4
857:	8	5	8	10	14	12	11	9
865:	9	6	5	9	6	4	6	10
873:	6	7	7	3	6	11	12	3
881:	9	7	6	10	4	7	6	5
889:	4	8	4	9	16	6	8	10
897:	12	8	8	6	4	6	6	4
905:	9	5	7	5	5	17	63	55
913:	22	3	4	8	5	7	4	6
921:	7	10	6	5	4	4	6	5
929:	10	6	2	6	2	12	12	8
937:	13	13	8	7	5	4	6	8
945:	3	4	7	7	10	5	8	10
953:	7	6	7	7	6	6	9	6
961:	9	6	8	10	18	14	7	20
969:	32	29	11	4	4	6	6	10
977:	10	5	7	4	6	4	4	9
985:	7	6	5	10	3	9	6	7
993:	8	4	5	9	5	6	7	12
1001:	11	7	6	4	5	7	8	6
1009:	10	5	2	7	7	9	12	3
1017:	7	5	7	4	9	7	7	6
1025:	6	6	4	7	9	5	6	4
1033:	9	4	12	8	3	2	4	5
1041:	10	4	8	2	4	4	11	8
1049:	1	9	6	2	3	7	4	5
1057:	10	3	8	5	10	8	5	6
1065:	5	5	5	4	2	9	5	8
1073:	4	3	7	9	5	10	10	8
1081:	8	5	4	8	8	5	4	7
1089:	7	10	2	10	6	4	5	6
1097:	15	6	5	9	6	7	5	5
1105:	10	2	5	6	9	11	13	3
1113:	5	4	5	19	10	7	6	17
1121:	29	14	5	5	6	8	5	9
1129:	5	11	12	7	8	4	6	8
1137:	10	8	7	12	8	9	8	6
1145:	17	9	6	5	10	4	5	8
1153:	7	8	14	7	9	10	11	10
1161:	10	2	4	4	3	14	10	8
1169:	6	6	12	5	9	7	8	11
1177:	9	8	4	7	7	4	7	9
1185:	5	6	3	4	8	12	6	4
1193:	9	5	8	8	8	15	11	6
1201:	4	7	5	9	8	12	12	9
1209:	5	9	7	6	13	7	7	8
1217:	8	9	9	8	8	8	11	9
1225:	9	14	12	6	11	5	12	9

1233:	12	7	7	1	11	18	16	14

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Channel								
1241:	11	6	5	7	5	4	10	12
1249:	8	12	3	8	13	10	5	9
1257:	4	4	4	6	6	3	6	7
1265:	4	8	4	4	4	6	5	9
1273:	4	7	9	7	3	4	8	6
1281:	7	6	8	1	4	4	4	4
1289:	9	2	10	6	7	6	2	5
1297:	3	4	6	2	2	2	8	2
1305:	3	4	4	4	3	3	12	4
1313:	2	7	4	4	5	7	8	4
1321:	7	4	5	3	7	2	7	6
1329:	5	5	4	6	6	2	4	6
1337:	1	2	5	6	2	2	3	5
1345:	4	4	7	1	4	1	2	3
1353:	3	3	1	3	2	3	5	2
1361:	0	5	2	5	4	2	2	3
1369:	6	0	4	2	0	0	2	7
1377:	6	5	2	1	3	4	2	4
1385:	6	1	7	0	1	3	1	2
1393:	1	3	2	1	1	2	0	6
1401:	3	6	5	1	3	5	2	7
1409:	1	4	1	2	3	1	4	0
1417:	4	1	1	0	1	1	1	3
1425:	2	4	2	7	4	3	2	4
1433:	3	1	2	1	2	1	0	3
1441:	1	0	2	0	2	1	1	3
1449:	4	1	3	2	0	2	2	4
1457:	2	8	56	153	225	124	39	10
1465:	2	3	1	2	0	0	0	1
1473:	1	1	1	6	2	1	2	2
1481:	1	0	0	1	1	1	4	0
1489:	5	2	0	2	0	2	2	1
1497:	2	3	1	3	4	3	3	3
1505:	4	4	2	1	5	2	0	6
1513:	4	1	0	1	0	0	1	1
1521:	2	0	2	1	2	0	3	2
1529:	1	2	3	1	4	1	1	0
1537:	2	3	1	2	1	2	4	0
1545:	0	1	0	0	3	0	1	1
1553:	3	1	1	1	0	1	2	3
1561:	2	1	4	1	0	0	1	1
1569:	1	4	1	2	3	1	1	1
1577:	0	0	4	2	2	6	1	0
1585:	1	1	2	8	2	4	3	1
1593:	10	4	4	1	1	2	3	2
1601:	1	2	0	0	1	3	1	2
1609:	0	1	2	2	2	0	2	1
1617:	0	0	1	3	4	2	1	3
1625:	2	2	2	1	1	3	0	2
1633:	1	0	1	1	1	2	0	1
1641:	0	0	0	0	1	0	1	1
1649:	0	2	2	1	1	1	0	0
1657:	2	1	1	2	0	2	0	2

1665:	0	1	2	1	1	0	0	2

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

2097:	1	1	2	0	0	2	1	5

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

2529:	0	0	0	0	0	1	2	0

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Channel								
2537:	0	1	1	0	0	0	0	0
2545:	1	0	0	0	1	0	0	0
2553:	1	0	0	1	0	2	1	0
2561:	0	0	0	0	0	0	0	0
2569:	1	0	0	1	1	0	1	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	0	0
2593:	0	0	0	1	0	0	0	0
2601:	0	0	0	1	0	0	1	0
2609:	0	1	0	3	12	16	12	5
2617:	1	1	1	0	1	1	0	0
2625:	0	0	1	0	2	0	0	0
2633:	0	0	0	0	0	0	1	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	2	1	0	0
2657:	0	0	0	0	0	0	0	1
2665:	1	0	1	0	1	0	0	1
2673:	0	0	0	0	0	0	0	0
2681:	1	0	0	0	0	1	0	0
2689:	0	1	0	0	0	0	0	0
2697:	0	0	1	0	0	0	0	1
2705:	0	1	0	0	0	1	0	0
2713:	0	0	0	0	0	0	1	0
2721:	0	2	0	0	0	0	1	0
2729:	0	0	1	0	0	0	0	0
2737:	1	0	0	0	0	0	1	0
2745:	0	0	1	0	1	0	0	0
2753:	1	0	0	1	0	0	0	0
2761:	2	0	0	0	0	0	0	0
2769:	1	1	0	0	0	0	0	1
2777:	0	1	0	1	1	2	0	0
2785:	0	0	0	0	1	0	1	0
2793:	0	0	0	0	0	1	0	1
2801:	1	0	0	0	0	0	1	0
2809:	0	0	0	1	2	1	0	0
2817:	0	0	1	0	0	0	0	0
2825:	0	0	1	0	1	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	1	0	0	0
2849:	1	0	0	0	0	0	1	0
2857:	0	0	0	0	0	1	0	1
2865:	1	0	0	0	0	0	0	2
2873:	0	2	0	0	0	0	0	0
2881:	0	0	1	0	0	0	0	0
2889:	0	0	0	0	2	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	1	0	0	0	0	0	1
2921:	0	0	1	0	0	0	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:	1	1	1	0	0	0	0	0

2961:	0	1	0	0	0	0	0	0

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Channel								
2969:	0	0	0	1	0	0	0	0
2977:	1	0	0	1	2	0	1	0
2985:	0	1	1	0	0	0	1	0
2993:	0	0	0	0	0	1	0	0
3001:	0	1	0	1	0	0	0	0
3009:	0	0	0	0	0	0	0	1
3017:	0	0	1	0	0	0	1	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	1	0	0
3041:	0	0	0	0	0	0	0	0
3049:	0	0	0	0	0	0	1	0
3057:	1	0	0	1	0	0	0	0
3065:	0	0	0	0	0	1	0	0
3073:	0	0	0	0	0	1	0	1
3081:	0	0	0	1	0	0	0	0
3089:	0	0	1	0	0	1	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	1	0
3121:	0	0	1	1	0	1	0	0
3129:	1	0	0	0	1	0	0	0
3137:	1	0	0	1	1	0	0	0
3145:	0	0	0	1	0	0	1	1
3153:	0	0	0	0	1	0	0	1
3161:	0	0	0	0	0	0	0	0
3169:	0	1	0	0	0	0	0	1
3177:	1	0	2	0	0	0	0	0
3185:	0	0	0	1	0	0	0	0
3193:	0	0	0	1	0	0	0	0
3201:	0	0	0	0	1	0	1	0
3209:	0	0	0	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	2	0	0	0	0	1
3233:	0	1	0	0	1	0	0	0
3241:	0	0	1	0	0	1	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	1	0	0	0	0
3273:	1	0	0	0	0	1	0	0
3281:	1	0	1	0	0	0	1	0
3289:	0	0	0	1	0	0	0	0
3297:	1	0	0	0	0	0	0	1
3305:	0	0	0	0	0	0	0	1
3313:	0	0	0	0	0	1	0	0
3321:	0	0	0	1	0	0	1	0
3329:	0	0	1	0	0	0	0	1
3337:	1	0	0	0	0	0	1	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	1	1	0	0	0
3369:	0	0	0	1	0	0	1	0
3377:	0	0	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: HTC-A03-S001-3036-01

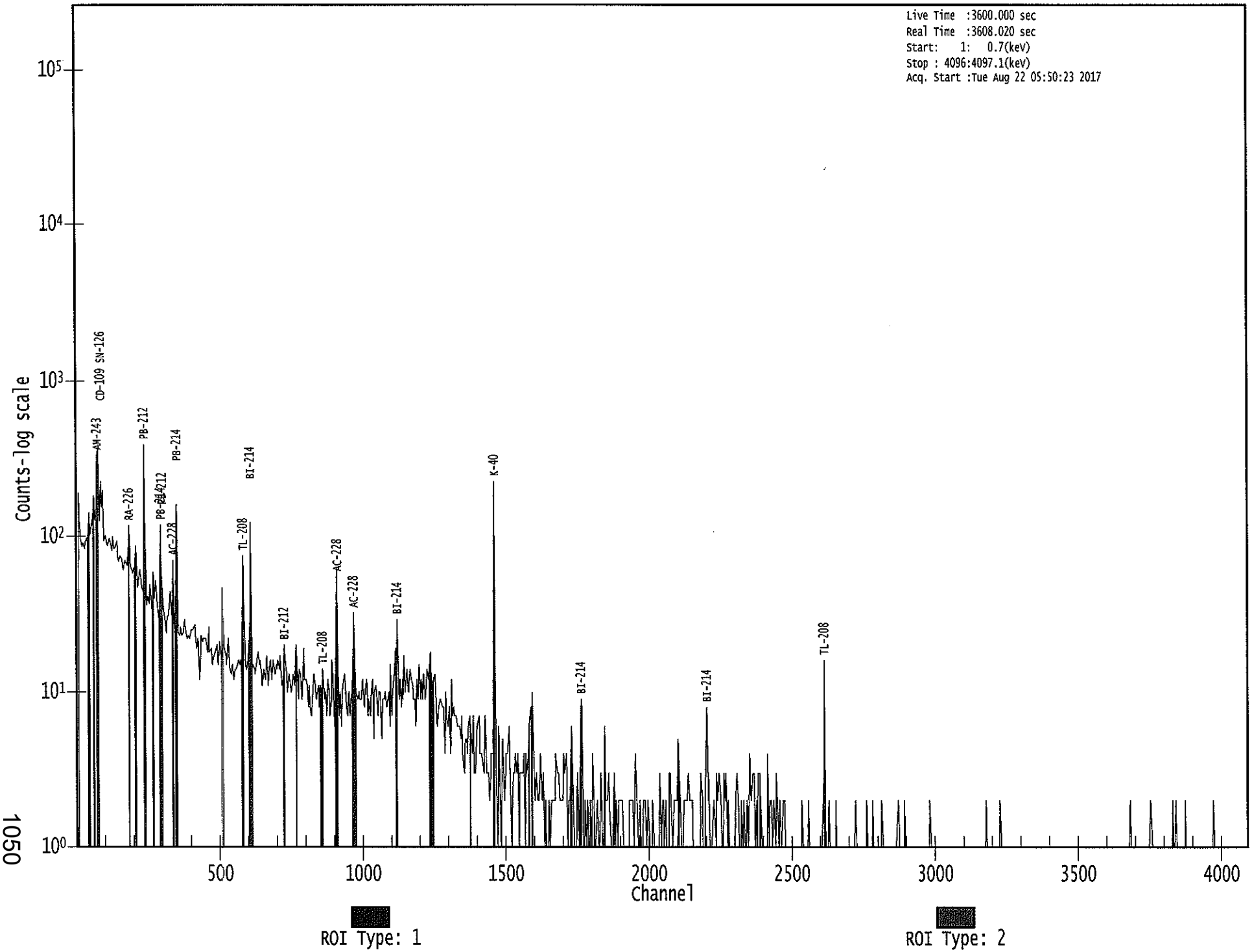
Channel								
3401:	0	1	1	1	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	0	0	0	0	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	1	0	0	0	1
3465:	0	0	0	0	1	0	0	0
3473:	0	1	0	0	1	0	0	1
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	0	0	0	0	0	0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

3825:	1	0	1	1	0	2	0	0

Sample Title: HTC-A03-S001-3036-01

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

0000055681.CNF



8/22

Apex-Gamma

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-19
Sample Description	: HTC-A03-S001-3642-01
Sample Type	: SOIL
Sample Size	: 6.248E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:17:41AM
Acquisition Started	: 8/22/2017 6:11:19AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.8 seconds
Dead Time	: 0.08 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 14 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55683

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/22/17

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/22/2017 7:11:23AM
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	46.59	45.64	0.0000	0.00
2	62.90	61.95	0.0000	0.00
3	76.15	75.20	0.0000	0.00
4	87.09	86.15	0.0000	0.00
5	89.94	89.00	0.0000	0.00
6	186.37	185.46	0.0000	0.00
7	209.34	208.44	0.0000	0.00
8	239.00	238.11	0.0000	0.00
9	269.83	268.95	0.0000	0.00
10	294.84	293.97	0.0000	0.00
11	339.12	338.26	0.0000	0.00
12	352.22	351.37	0.0000	0.00
13	389.61	388.77	0.0000	0.00
14	450.96	450.14	0.0000	0.00
15	463.63	462.82	0.0000	0.00
16	510.18	509.39	0.0000	0.00
17	512.74	511.95	0.0000	0.00
18	583.21	582.44	0.0000	0.00
19	609.23	608.47	0.0000	0.00
20	726.11	725.39	0.0000	0.00
21	828.58	827.91	0.0000	0.00
22	882.78	882.13	0.0000	0.00
23	908.60	907.96	0.0000	0.00
24	911.49	910.86	0.0000	0.00
25	965.42	964.81	0.0000	0.00
26	969.61	969.00	0.0000	0.00
27	1120.94	1120.40	0.0000	0.00
28	1166.19	1165.67	0.0000	0.00
29	1199.66	1199.16	0.0000	0.00
30	1223.78	1223.28	0.0000	0.00
31	1236.83	1236.34	0.0000	0.00
32	1407.18	1406.77	0.0000	0.00
33	1422.55	1422.15	0.0000	0.00
34	1460.73	1460.35	0.0000	0.00
35	1513.50	1513.15	0.0000	0.00
36	1544.02	1543.69	0.0000	0.00
37	1599.50	1599.20	0.0000	0.00
38	1695.05	1694.80	0.0000	0.00
39	1728.69	1728.45	0.0000	0.00
40	1764.45	1764.24	0.0000	0.00
41	2141.10	2141.10	0.0000	0.00
42	2266.02	2266.10	0.0000	0.00

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2614.17	2614.48	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 7:11:23AM

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	46.59	43 -	50	45.64	1.08E+02	80.02	1.01E+03	2.74
	2	62.90	58 -	65	61.95	1.75E+02	93.08	1.33E+03	3.40
	3	76.15	70 -	80	75.20	8.15E+02	138.97	2.13E+03	3.79
M	4	87.09	82 -	96	86.15	1.29E+02	85.31	1.22E+03	2.18
m	5	89.94	82 -	96	89.00	1.09E+02	77.43	9.76E+02	1.99
	6	186.37	181 -	189	185.46	1.00E+02	75.29	8.01E+02	2.31
	7	209.34	206 -	212	208.44	4.45E+01	55.73	5.39E+02	1.90
	8	239.00	231 -	244	238.11	6.67E+02	106.57	9.63E+02	2.33
	9	269.83	264 -	273	268.95	8.04E+01	56.08	3.99E+02	1.87
	10	294.84	289 -	299	293.97	1.63E+02	67.38	5.22E+02	2.08
	11	339.12	332 -	344	338.26	1.47E+02	60.23	3.57E+02	3.53
	12	352.22	347 -	358	351.37	2.57E+02	65.18	3.87E+02	2.65
	13	389.61	386 -	391	388.77	2.63E+01	27.95	1.35E+02	1.45
	14	450.96	444 -	454	450.14	3.52E+01	41.20	2.04E+02	5.33
	15	463.63	460 -	467	462.82	2.72E+01	33.65	1.68E+02	1.49
M	16	510.18	504 -	519	509.39	1.27E+02	41.82	1.48E+02	3.65
m	17	512.74	504 -	519	511.95	3.73E+01	39.33	1.36E+02	3.33
	18	583.21	577 -	587	582.44	1.49E+02	42.25	1.56E+02	2.18
	19	609.23	603 -	614	608.47	1.67E+02	49.44	2.22E+02	2.38
	20	726.11	720 -	730	725.39	5.06E+01	33.76	1.21E+02	1.90
	21	828.58	822 -	835	827.91	3.64E+01	30.07	8.51E+01	8.08
	22	882.78	880 -	885	882.13	1.23E+01	14.80	3.55E+01	2.66
M	23	908.60	906 -	924	907.96	1.92E+01	11.00	2.45E+01	2.41
m	24	911.49	906 -	924	910.86	8.48E+01	28.84	7.62E+01	2.75
M	25	965.42	963 -	974	964.81	2.37E+01	16.12	5.21E+01	3.26
m	26	969.61	963 -	974	969.00	7.29E+01	25.80	7.73E+01	2.45
	27	1120.94	1116 -	1125	1120.40	4.95E+01	27.95	7.90E+01	1.98
	28	1166.19	1163 -	1168	1165.67	1.63E+01	17.92	5.14E+01	1.70
	29	1199.66	1194 -	1205	1199.16	3.28E+01	32.31	1.14E+02	5.86
	30	1223.78	1220 -	1226	1223.28	2.70E+01	21.65	6.39E+01	4.26
	31	1236.83	1227 -	1256	1236.34	7.23E+01	69.99	2.79E+02	11.44
	32	1407.18	1403 -	1409	1406.77	8.82E+00	9.63	1.04E+01	1.06
	33	1422.55	1418 -	1426	1422.15	1.40E+01	9.18	3.94E+00	2.86
	34	1460.73	1456 -	1465	1460.35	4.19E+02	42.18	1.43E+01	2.54
	35	1513.50	1510 -	1518	1513.15	1.06E+01	10.22	1.08E+01	3.76
	36	1544.02	1539 -	1546	1543.69	7.27E+00	8.72	7.45E+00	2.40
	37	1599.50	1597 -	1602	1599.20	9.00E+00	8.12	6.00E+00	3.05
	38	1695.05	1692 -	1697	1694.80	5.00E+00	4.47	0.00E+00	2.41
	39	1728.69	1723 -	1733	1728.45	1.24E+01	14.59	2.13E+01	2.07
	40	1764.45	1759 -	1769	1764.24	2.72E+01	12.26	5.63E+00	2.51

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2141.10	2138 -	2144	2141.10	6.13E+00	6.65	3.75E+00	2.48
42	2266.02	2263 -	2268	2266.10	5.57E+00	6.08	2.86E+00	1.77
43	2614.17	2610 -	2618	2614.48	4.28E+01	14.15	4.44E+00	2.57

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 : 8/22/2017 7:11:23AM

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	46.59	43 -	50	1.08E+02	80.02	1.01E+03	6.35E+01
	2	62.90	58 -	65	1.75E+02	93.08	1.33E+03	7.34E+01
	3	76.15	70 -	80	8.15E+02	138.97	2.13E+03	1.04E+02
M	4	87.09	82 -	96	1.29E+02	85.31	1.22E+03	5.74E+01
m	5	89.94	82 -	96	1.09E+02	77.43	9.76E+02	5.14E+01
	6	186.37	181 -	189	1.00E+02	75.29	8.01E+02	5.97E+01
	7	209.34	206 -	212	4.45E+01	55.73	5.39E+02	4.45E+01
	8	239.00	231 -	244	6.67E+02	106.57	9.63E+02	7.66E+01
	9	269.83	264 -	273	8.04E+01	56.08	3.99E+02	4.37E+01
	10	294.84	289 -	299	1.63E+02	67.38	5.22E+02	5.13E+01
	11	339.12	332 -	344	1.47E+02	60.23	3.57E+02	4.53E+01
	12	352.22	347 -	358	2.57E+02	65.18	3.87E+02	4.67E+01
	13	389.61	386 -	391	2.63E+01	27.95	1.35E+02	2.14E+01
	14	450.96	444 -	454	3.52E+01	41.20	2.04E+02	3.24E+01
	15	463.63	460 -	467	2.72E+01	33.65	1.68E+02	2.63E+01
M	16	510.18	504 -	519	1.27E+02	41.82	1.48E+02	2.00E+01
m	17	512.74	504 -	519	3.73E+01	39.33	1.36E+02	1.92E+01
	18	583.21	577 -	587	1.49E+02	42.25	1.56E+02	2.84E+01
	19	609.23	603 -	614	1.67E+02	49.44	2.22E+02	3.46E+01
	20	726.11	720 -	730	5.06E+01	33.76	1.21E+02	2.52E+01
	21	828.58	822 -	835	3.64E+01	30.07	8.51E+01	2.26E+01
	22	882.78	880 -	885	1.23E+01	14.80	3.55E+01	1.07E+01
M	23	908.60	906 -	924	1.92E+01	11.00	2.45E+01	8.14E+00
m	24	911.49	906 -	924	8.48E+01	28.84	7.62E+01	1.44E+01

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	25	965.42	963 -	974	2.37E+01	16.12	5.21E+01	1.19E+01
m	26	969.61	963 -	974	7.29E+01	25.80	7.73E+01	1.45E+01
	27	1120.94	1116 -	1125	4.95E+01	27.95	7.90E+01	1.98E+01
	28	1166.19	1163 -	1168	1.63E+01	17.92	5.14E+01	1.31E+01
	29	1199.66	1194 -	1205	3.28E+01	32.31	1.14E+02	2.48E+01
	30	1223.78	1220 -	1226	2.70E+01	21.65	6.39E+01	1.56E+01
	31	1236.83	1227 -	1256	7.23E+01	69.99	2.79E+02	5.58E+01
	32	1407.18	1403 -	1409	8.82E+00	9.63	1.04E+01	6.23E+00
	33	1422.55	1418 -	1426	1.40E+01	9.18	3.94E+00	4.36E+00
	34	1460.73	1456 -	1465	4.19E+02	- 42.18	1.43E+01	8.37E+00
	35	1513.50	1510 -	1518	1.06E+01	10.22	1.08E+01	6.47E+00
	36	1544.02	1539 -	1546	7.27E+00	8.72	7.45E+00	5.63E+00
	37	1599.50	1597 -	1602	9.00E+00	8.12	6.00E+00	4.50E+00
	38	1695.05	1692 -	1697	5.00E+00	4.47	0.00E+00	0.00E+00
	39	1728.69	1723 -	1733	1.24E+01	14.59	2.13E+01	1.05E+01
	40	1764.45	1759 -	1769	2.72E+01	12.26	5.63E+00	5.30E+00
	41	2141.10	2138 -	2144	6.13E+00	6.65	3.75E+00	3.65E+00
	42	2266.02	2263 -	2268	5.57E+00	6.08	2.86E+00	3.15E+00
	43	2614.17	2610 -	2618	4.28E+01	14.15	4.44E+00	4.44E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/22/2017 7:11:23AM

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	46.59	43 -	50	45.64	1.08E+02	80.02	1.01E+03	PB-210
	2	62.90	58 -	65	61.95	1.75E+02	93.08	1.33E+03	TH-230
									TH-234
	3	76.15	70 -	80	75.20	8.15E+02	138.97	2.13E+03	.....
M	4	87.09	82 -	96	86.15	1.29E+02	85.31	1.22E+03	SN-126
									NP-237

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									EU-155
									CD-109
m	5	89.94	82 -	96	89.00	1.09E+02	77.43	9.76E+02	.....
	6	186.37	181 -	189	185.46	1.00E+02	75.29	8.01E+02	RA-226
	7	209.34	206 -	212	208.44	4.45E+01	55.73	5.39E+02	GA-67
									CM-243
	8	239.00	231 -	244	238.11	6.67E+02	106.57	9.63E+02	PB-212
	9	269.83	264 -	273	268.95	8.04E+01	56.08	3.99E+02	.....
	10	294.84	289 -	299	293.97	1.63E+02	67.38	5.22E+02	PB-214
	11	339.12	332 -	344	338.26	1.47E+02	60.23	3.57E+02	AC-228
	12	352.22	347 -	358	351.37	2.57E+02	65.18	3.87E+02	PB-214
	13	389.61	386 -	391	388.77	2.63E+01	27.95	1.35E+02	.....
	14	450.96	444 -	454	450.14	3.52E+01	41.20	2.04E+02	.....
	15	463.63	460 -	467	462.82	2.72E+01	33.65	1.68E+02	SB-125
M	16	510.18	504 -	519	509.39	1.27E+02	41.82	1.48E+02	.....
m	17	512.74	504 -	519	511.95	3.73E+01	39.33	1.36E+02	.....
	18	583.21	577 -	587	582.44	1.49E+02	42.25	1.56E+02	TL-208
	19	609.23	603 -	614	608.47	1.67E+02	49.44	2.22E+02	BI-214
	20	726.11	720 -	730	725.39	5.06E+01	33.76	1.21E+02	.....
	21	828.58	822 -	835	827.91	3.64E+01	30.07	8.51E+01	.....
	22	882.78	880 -	885	882.13	1.23E+01	14.80	3.55E+01	.....
M	23	908.60	906 -	924	907.96	1.92E+01	11.00	2.45E+01	.....
m	24	911.49	906 -	924	910.86	8.48E+01	28.84	7.62E+01	TL-204
									AC-228
M	25	965.42	963 -	974	964.81	2.37E+01	16.12	5.21E+01	.....
m	26	969.61	963 -	974	969.00	7.29E+01	25.80	7.73E+01	AC-228
	27	1120.94	1116 -	1125	1120.40	4.95E+01	27.95	7.90E+01	TA-182
									SC-46
									BI-214
	28	1166.19	1163 -	1168	1165.67	1.63E+01	17.92	5.14E+01	.....
	29	1199.66	1194 -	1205	1199.16	3.28E+01	32.31	1.14E+02	.....
	30	1223.78	1220 -	1226	1223.28	2.70E+01	21.65	6.39E+01	.....
	31	1236.83	1227 -	1256	1236.34	7.23E+01	69.99	2.79E+02	.....
	32	1407.18	1403 -	1409	1406.77	8.82E+00	9.63	1.04E+01	EU-152
	33	1422.55	1418 -	1426	1422.15	1.40E+01	9.18	3.94E+00	.....
	34	1460.73	1456 -	1465	1460.35	4.19E+02	42.18	1.43E+01	K-40
	35	1513.50	1510 -	1518	1513.15	1.06E+01	10.22	1.08E+01	.....
	36	1544.02	1539 -	1546	1543.69	7.27E+00	8.72	7.45E+00	.....
	37	1599.50	1597 -	1602	1599.20	9.00E+00	8.12	6.00E+00	.....
	38	1695.05	1692 -	1697	1694.80	5.00E+00	4.47	0.00E+00	.....
	39	1728.69	1723 -	1733	1728.45	1.24E+01	14.59	2.13E+01	.....
	40	1764.45	1759 -	1769	1764.24	2.72E+01	12.26	5.63E+00	BI-214
	41	2141.10	2138 -	2144	2141.10	6.13E+00	6.65	3.75E+00	.....
	42	2266.02	2263 -	2268	2266.10	5.57E+00	6.08	2.86E+00	.....
	43	2614.17	2610 -	2618	2614.48	4.28E+01	14.15	4.44E+00	TL-208

Analysis Report for 1707086-19

HTC-A03-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 EFFICIENCY REPORT

Peak Analysis Performed on : 8/22/2017 7:11:23AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.59	1.08E+02	80.02	1.65E-02	1.56E-03
	2	62.90	1.75E+02	93.08	2.15E-02	1.63E-03
	3	76.15	8.15E+02	138.97	2.32E-02	1.91E-03
M	4	87.09	1.29E+02	85.31	2.37E-02	2.15E-03
m	5	89.94	1.09E+02	77.43	2.37E-02	2.14E-03
	6	186.37	1.00E+02	75.29	1.69E-02	1.40E-03
	7	209.34	4.45E+01	55.73	1.53E-02	1.28E-03
	8	239.00	6.67E+02	106.57	1.36E-02	1.14E-03
	9	269.83	8.04E+01	56.08	1.21E-02	9.92E-04
	10	294.84	1.63E+02	67.38	1.10E-02	9.14E-04
	11	339.12	1.47E+02	60.23	9.58E-03	8.21E-04
	12	352.22	2.57E+02	65.18	9.21E-03	7.93E-04
	13	389.61	2.63E+01	27.95	8.30E-03	7.15E-04
	14	450.96	3.52E+01	41.20	7.13E-03	6.86E-04
	15	463.63	2.72E+01	33.65	6.94E-03	6.81E-04
M	16	510.18	1.27E+02	41.82	6.29E-03	6.61E-04
m	17	512.74	3.73E+01	39.33	6.26E-03	6.60E-04
	18	583.21	1.49E+02	42.25	5.50E-03	6.31E-04
	19	609.23	1.67E+02	49.44	5.27E-03	6.20E-04
	20	726.11	5.06E+01	33.76	4.46E-03	5.18E-04
	21	828.58	3.64E+01	30.07	3.94E-03	3.89E-04
	22	882.78	1.23E+01	14.80	3.72E-03	3.21E-04
M	23	908.60	1.92E+01	11.00	3.63E-03	2.99E-04
m	24	911.49	8.48E+01	28.84	3.62E-03	2.99E-04
M	25	965.42	2.37E+01	16.12	3.44E-03	2.86E-04
m	26	969.61	7.29E+01	25.80	3.42E-03	2.85E-04
	27	1120.94	4.95E+01	27.95	3.01E-03	2.50E-04
	28	1166.19	1.63E+01	17.92	2.91E-03	2.39E-04
	29	1199.66	3.28E+01	32.31	2.84E-03	2.36E-04
	30	1223.78	2.70E+01	21.65	2.79E-03	2.34E-04
	31	1236.83	7.23E+01	69.99	2.76E-03	2.33E-04
	32	1407.18	8.82E+00	9.63	2.47E-03	2.16E-04
	33	1422.55	1.40E+01	9.18	2.44E-03	2.14E-04
	34	1460.73	4.19E+02	42.18	2.38E-03	2.08E-04

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1513.50	1.06E+01	10.22	2.31E-03	2.00E-04
36	1544.02	7.27E+00	8.72	2.27E-03	1.95E-04
37	1599.50	9.00E+00	8.12	2.19E-03	1.87E-04
38	1695.05	5.00E+00	4.47	2.08E-03	1.72E-04
39	1728.69	1.24E+01	14.59	2.04E-03	1.67E-04
40	1764.45	2.72E+01	12.26	2.00E-03	1.62E-04
41	2141.10	6.13E+00	6.65	1.63E-03	1.51E-04
42	2266.02	5.57E+00	6.08	1.53E-03	1.51E-04
43	2614.17	4.28E+01	14.15	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 : 8/22/2017 7:11:23AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.59	1.08E+02	80.02	2.81E+01	8.29E+00	7.96E+01	8.05E+01
	2	62.90	1.75E+02	93.08	5.67E+01	8.57E+00	1.18E+02	9.35E+01
	3	76.15	8.15E+02	138.97			8.15E+02	1.39E+02
M	4	87.09	1.29E+02	85.31			1.29E+02	8.53E+01
m	5	89.94	1.09E+02	77.43			1.09E+02	7.74E+01
	6	186.37	1.00E+02	75.29	2.43E+01	7.50E+00	7.60E+01	7.57E+01
	7	209.34	4.45E+01	55.73			4.45E+01	5.57E+01
	8	239.00	6.67E+02	106.57	1.06E+01	6.01E+00	6.57E+02	1.07E+02
	9	269.83	8.04E+01	56.08			8.04E+01	5.61E+01
	10	294.84	1.63E+02	67.38			1.63E+02	6.74E+01
	11	339.12	1.47E+02	60.23			1.47E+02	6.02E+01
	12	352.22	2.57E+02	65.18			2.57E+02	6.52E+01
	13	389.61	2.63E+01	27.95			2.63E+01	2.79E+01
	14	450.96	3.52E+01	41.20			3.52E+01	4.12E+01
	15	463.63	2.72E+01	33.65			2.72E+01	3.36E+01
M	16	510.18	1.27E+02	41.82	4.55E+01	4.99E+00	8.16E+01	4.21E+01
m	17	512.74	3.73E+01	39.33			3.73E+01	3.93E+01
	18	583.21	1.49E+02	42.25			1.49E+02	4.23E+01
	19	609.23	1.67E+02	49.44			1.67E+02	4.94E+01
	20	726.11	5.06E+01	33.76			5.06E+01	3.38E+01
	21	828.58	3.64E+01	30.07			3.64E+01	3.01E+01

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	22	882.78	1.23E+01	14.80			1.23E+01	1.48E+01
M	23	908.60	1.92E+01	11.00			1.92E+01	1.10E+01
m	24	911.49	8.48E+01	28.84			8.48E+01	2.88E+01
M	25	965.42	2.37E+01	16.12			2.37E+01	1.61E+01
m	26	969.61	7.29E+01	25.80			7.29E+01	2.58E+01
	27	1120.94	4.95E+01	27.95			4.95E+01	2.79E+01
	28	1166.19	1.63E+01	17.92			1.63E+01	1.79E+01
	29	1199.66	3.28E+01	32.31			3.28E+01	3.23E+01
	30	1223.78	2.70E+01	21.65			2.70E+01	2.17E+01
	31	1236.83	7.23E+01	69.99			7.23E+01	7.00E+01
	32	1407.18	8.82E+00	9.63			8.82E+00	9.63E+00
	33	1422.55	1.40E+01	9.18			1.40E+01	9.18E+00
	34	1460.73	4.19E+02	42.18			4.19E+02	4.22E+01
	35	1513.50	1.06E+01	10.22			1.06E+01	1.02E+01
	36	1544.02	7.27E+00	8.72			7.27E+00	8.72E+00
	37	1599.50	9.00E+00	8.12			9.00E+00	8.12E+00
	38	1695.05	5.00E+00	4.47			5.00E+00	4.47E+00
	39	1728.69	1.24E+01	14.59			1.24E+01	1.46E+01
	40	1764.45	2.72E+01	12.26			2.72E+01	1.23E+01
	41	2141.10	6.13E+00	6.65			6.13E+00	6.65E+00
	42	2266.02	5.57E+00	6.08			5.57E+00	6.08E+00
	43	2614.17	4.28E+01	14.15			4.28E+01	1.42E+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 : 8/22/2017 7:11:23AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055576.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.59	1.08E+02	80.02	2.81E+01	8.29E+00	7.96E+01	8.05E+01
	2	62.90	1.75E+02	93.08	5.67E+01	8.57E+00	1.18E+02	9.35E+01
	3	76.15	8.15E+02	138.97			8.15E+02	1.39E+02
M	4	87.09	1.29E+02	85.31			1.29E+02	8.53E+01
m	5	89.94	1.09E+02	77.43			1.09E+02	7.74E+01
	6	186.37	1.00E+02	75.29	2.43E+01	7.50E+00	7.60E+01	7.57E+01

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	7	209.34	4.45E+01	55.73			4.45E+01	5.57E+01
	8	239.00	6.67E+02	106.57	1.06E+01	6.01E+00	6.57E+02	1.07E+02
	9	269.83	8.04E+01	56.08			8.04E+01	5.61E+01
	10	294.84	1.63E+02	67.38			1.63E+02	6.74E+01
	11	339.12	1.47E+02	60.23			1.47E+02	6.02E+01
	12	352.22	2.57E+02	65.18			2.57E+02	6.52E+01
	13	389.61	2.63E+01	27.95			2.63E+01	2.79E+01
	14	450.96	3.52E+01	41.20			3.52E+01	4.12E+01
	15	463.63	2.72E+01	33.65			2.72E+01	3.36E+01
M	16	510.18	1.27E+02	41.82	4.55E+01	4.99E+00	8.16E+01	4.21E+01
m	17	512.74	3.73E+01	39.33			3.73E+01	3.93E+01
	18	583.21	1.49E+02	42.25			1.49E+02	4.23E+01
	19	609.23	1.67E+02	49.44			1.67E+02	4.94E+01
	20	726.11	5.06E+01	33.76			5.06E+01	3.38E+01
	21	828.58	3.64E+01	30.07			3.64E+01	3.01E+01
	22	882.78	1.23E+01	14.80			1.23E+01	1.48E+01
M	23	908.60	1.92E+01	11.00			1.92E+01	1.10E+01
m	24	911.49	8.48E+01	28.84			8.48E+01	2.88E+01
M	25	965.42	2.37E+01	16.12			2.37E+01	1.61E+01
m	26	969.61	7.29E+01	25.80			7.29E+01	2.58E+01
	27	1120.94	4.95E+01	27.95			4.95E+01	2.79E+01
	28	1166.19	1.63E+01	17.92			1.63E+01	1.79E+01
	29	1199.66	3.28E+01	32.31			3.28E+01	3.23E+01
	30	1223.78	2.70E+01	21.65			2.70E+01	2.17E+01
	31	1236.83	7.23E+01	69.99			7.23E+01	7.00E+01
	32	1407.18	8.82E+00	9.63			8.82E+00	9.63E+00
	33	1422.55	1.40E+01	9.18			1.40E+01	9.18E+00
	34	1460.73	4.19E+02	42.18			4.19E+02	4.22E+01
	35	1513.50	1.06E+01	10.22			1.06E+01	1.02E+01
	36	1544.02	7.27E+00	8.72			7.27E+00	8.72E+00
	37	1599.50	9.00E+00	8.12			9.00E+00	8.12E+00
	38	1695.05	5.00E+00	4.47			5.00E+00	4.47E+00
	39	1728.69	1.24E+01	14.59			1.24E+01	1.46E+01
	40	1764.45	2.72E+01	12.26			2.72E+01	1.23E+01
	41	2141.10	6.13E+00	6.65			6.13E+00	6.65E+00
	42	2266.02	5.57E+00	6.08			5.57E+00	6.08E+00
	43	2614.17	4.28E+01	14.15			4.28E+01	1.42E+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 1707086-19

HTC-A03-S001-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.999	1460.81	*	10.67	1.98E+01	2.67E+00
CD-109	0.868	88.03	*	3.72	2.05E+00	1.37E+00
SN-126	0.964	87.57	*	37.00	1.78E-01	1.18E-01
EU-155	0.329	86.50	*	30.90	2.21E-01	1.47E-01
		105.30		20.70		
TL-208	0.864	583.14	*	30.22	1.08E+00	3.29E-01
		860.37		4.48		
		2614.66	*	35.85	1.12E+00	3.94E-01
PB-210	0.999	46.50	*	4.25	1.38E+00	1.40E+00
PB-212	0.877	238.63	*	44.60	1.30E+00	2.39E-01
		300.09		3.41		
BI-214	0.925	609.31	*	46.30	8.23E-01	2.62E-01
		1120.29	*	15.10	1.31E+00	7.46E-01
		1764.49	*	15.80	1.03E+00	4.74E-01
		2204.22		4.98		
PB-214	0.983	295.21	*	19.19	9.24E-01	3.90E-01
		351.92	*	37.19	9.00E-01	2.42E-01
RA-226	0.996	186.21	*	3.28	1.65E+00	3.43E+00
AC-228	0.954	338.32	*	11.40	1.62E+00	6.77E-01
		911.07	*	27.70	1.02E+00	3.56E-01
		969.11	*	16.60	1.54E+00	5.60E-01
TH-234	0.976	63.29	*	3.80	1.74E+00	1.38E+00
NP-237	0.946	86.50	*	12.60	5.21E-01	3.47E-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 : 8/22/2017 7:11:23AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.15	2.26416E-01	8.52		
m	5	89.94	3.03880E-02	35.39		
	7	209.34	1.23708E-02	62.57	Tol.	CM-243

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	9	269.83	2.23462E-02	34.86		
	13	389.61	7.29610E-03	53.20		
	14	450.96	9.77595E-03	58.53		
	15	463.63	7.56381E-03	61.78	Tol.	SB-125
M	16	510.18	2.26619E-02	25.81		
m	17	512.74	1.03490E-02	52.79		
	20	726.11	1.40428E-02	33.39		
	21	828.58	1.01231E-02	41.25		
	22	882.78	3.40278E-03	60.40		
M	23	908.60	5.32178E-03	28.71		
M	25	965.42	6.59074E-03	33.98		
	28	1166.19	4.52381E-03	55.01	Sum	
	29	1199.66	9.10340E-03	49.30		
	30	1223.78	7.51177E-03	40.03		
	31	1236.83	2.00970E-02	48.37		
	32	1407.18	2.45040E-03	54.59	Tol.	EU-152
	33	1422.55	3.89757E-03	32.71		
	35	1513.50	2.95139E-03	48.11		
	36	1544.02	2.02020E-03	59.93		
	37	1599.50	2.50000E-03	45.13		
	38	1695.05	1.38889E-03	44.72		
	39	1728.69	3.43599E-03	58.99		
	41	2141.10	1.70139E-03	54.30		
	42	2266.02	1.54762E-03	54.59		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.98E+01	2.67E+00
CD-109	0.86	88.03	*	3.72	2.05E+00	1.37E+00
SN-126	0.96	87.57	*	37.00	1.78E-01	1.18E-01

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.32	86.50	*	30.90	2.21E-01	1.47E-01
		105.30		20.70		
TL-208	0.86	583.14	*	30.22	1.08E+00	3.29E-01
		860.37		4.48		
		2614.66	*	35.85	1.12E+00	3.94E-01
PB-210	0.99	46.50	*	4.25	1.38E+00	1.40E+00
PB-212	0.87	238.63	*	44.60	1.30E+00	2.39E-01
		300.09		3.41		
BI-214	0.92	609.31	*	46.30	8.23E-01	2.62E-01
		1120.29	*	15.10	1.31E+00	7.46E-01
		1764.49	*	15.80	1.03E+00	4.74E-01
		2204.22		4.98		
PB-214	0.98	295.21	*	19.19	9.24E-01	3.90E-01
		351.92	*	37.19	9.00E-01	2.42E-01
RA-226	0.99	186.21	*	3.28	1.65E+00	3.43E+00
AC-228	0.95	338.32	*	11.40	1.62E+00	6.77E-01
		911.07	*	27.70	1.02E+00	3.56E-01
		969.11	*	16.60	1.54E+00	5.60E-01
TH-234	0.97	63.29	*	3.80	1.74E+00	1.38E+00
NP-237	0.94	86.50	*	12.60	5.21E-01	3.47E-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	0.999	1.98E+01	2.67E+00	
?	CD-109	0.868	2.05E+00	1.37E+00	
?	SN-126	0.964	1.78E-01	1.18E-01	
?	EU-155	0.329	2.21E-01	1.47E-01	
	TL-208	0.864	1.09E+00	2.52E-01	
	PB-210	0.999	1.38E+00	1.40E+00	
	PB-212	0.877	1.30E+00	2.39E-01	

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	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	BI-214	0.925	9.10E-01	2.19E-01	
	PB-214	0.983	9.07E-01	2.05E-01	
	RA-226	0.996	1.65E+00	3.43E+00	
	AC-228	0.954	1.24E+00	2.75E-01	
	TH-234	0.976	1.74E+00	1.38E+00	
?	NP-237	0.946	5.21E-01	3.47E-01	

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

Errors quoted at 2.000sigma

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 7:11:23AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.15	2.26416E-01	8.52		
m	5	89.94	3.03880E-02	35.39		
	7	209.34	1.23708E-02	62.57	Tol.	CM-243
	9	269.83	2.23462E-02	34.86		
	13	389.61	7.29610E-03	53.20		
	14	450.96	9.77595E-03	58.53		
	15	463.63	7.56381E-03	61.78	Tol.	SB-125
M	16	510.18	2.26619E-02	25.81		
m	17	512.74	1.03490E-02	52.79		
	20	726.11	1.40428E-02	33.39		
	21	828.58	1.01231E-02	41.25		
	22	882.78	3.40278E-03	60.40		
M	23	908.60	5.32178E-03	28.71		
M	25	965.42	6.59074E-03	33.98		
	28	1166.19	4.52381E-03	55.01	Sum	
	29	1199.66	9.10340E-03	49.30		
	30	1223.78	7.51177E-03	40.03		
	31	1236.83	2.00970E-02	48.37		
	32	1407.18	2.45040E-03	54.59	Tol.	EU-152
	33	1422.55	3.89757E-03	32.71		
	35	1513.50	2.95139E-03	48.11		
	36	1544.02	2.02020E-03	59.93		
	37	1599.50	2.50000E-03	45.13		
	38	1695.05	1.38889E-03	44.72		
	39	1728.69	3.43599E-03	58.99		
	41	2141.10	1.70139E-03	54.30		
	42	2266.02	1.54762E-03	54.59		

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

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NUCLIDE MDA REPORT

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	2.92E-01	2.76E+00	2.76E+00
+	NA-22	1274.54		99.94	-9.66E-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	1.85E-02	1.03E-01	1.03E-01
+	K-40	1460.81	*	10.67	1.98E+01	9.19E-01	9.19E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.53E-03	7.15E-02	7.15E-02
		78.34		96.00	2.95E-01		9.34E-02
+	SC-46	889.25		99.98	-4.71E-02	2.28E-01	2.28E-01
		1120.51		99.99	4.31E-01		4.14E-01
+	V-48	983.52		99.98	-3.88E+00	9.26E+00	9.26E+00
		1312.10		97.50	8.01E-01		9.38E+00
+	CR-51	320.08		9.83	-3.60E-01	8.36E+00	8.36E+00
+	MN-54	834.83		99.97	7.75E-03	1.35E-01	1.35E-01
+	CO-56	846.75		99.96	2.34E-02	2.59E-01	2.59E-01
		1037.75		14.03	6.67E-01		2.32E+00
		1238.25		67.00	3.46E-01		6.71E-01
		1771.40		15.51	-5.57E-01		1.12E+00
		2598.48		16.90	-2.19E-01		9.68E-01
+	CO-57	122.06		85.51	-1.79E-02	8.39E-02	8.39E-02
		136.48		10.60	-2.26E-01		6.73E-01
+	CO-58	810.76		99.40	1.11E-01	3.04E-01	3.04E-01
+	FE-59	1099.22		56.50	4.70E-02	1.12E+00	1.12E+00
		1291.56		43.20	6.18E-01		1.66E+00
+	CO-60	1173.22		100.00	1.72E-02	1.23E-01	1.75E-01
		1332.49		100.00	-6.01E-03		1.23E-01
+	ZN-65	1115.52		50.75	-2.19E-02	4.08E-01	4.08E-01
+	GA-67	93.31		35.70	2.85E+08	2.51E+08	2.51E+08
		208.95		2.24	9.09E+08		4.02E+09
		300.22		16.00	7.72E+07		6.43E+08
+	SE-75	121.11		16.70	-1.18E-01	1.66E-01	5.93E-01
		136.00		59.20	-9.49E-02		1.66E-01
		264.65		59.80	-6.93E-03		1.90E-01
		279.53		25.20	1.60E-01		4.80E-01
		400.65		11.40	-9.86E-02		1.19E+00
+	RB-82	776.52		13.00	-6.86E+00	1.37E+01	1.37E+01
+	RB-83	520.41		46.00	-7.57E-02	3.75E-01	3.75E-01
		529.64		30.30	-3.19E-01		6.16E-01
		552.65		16.40	-5.37E-01		1.08E+00

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99		0.43	1.91E+01	2.68E+01	2.68E+01
+	SR-85	513.99		99.27	2.36E-01	3.32E-01	3.32E-01
+	Y-88	898.02		93.40	-6.24E-02	1.99E-01	2.17E-01
		1836.01		99.38	3.59E-02		1.99E-01
+	MO-93	263.06		56.72	2.60E-02	7.37E-02	1.15E-01
		684.67		99.68	-1.72E-02		1.06E-01
		1477.11		99.08	-3.14E-02		7.37E-02
+	NB-93M	16.57		9.43	1.58E+01	7.77E+00	7.77E+00
+	NB-94	702.63		100.00	-7.31E-02	1.17E-01	1.17E-01
		871.10		100.00	8.45E-02		1.25E-01
+	NB-95	765.79		99.81	-1.00E-01	8.18E-01	8.18E-01
+	NB-95M	235.69		25.00	1.39E+08	7.72E+07	7.72E+07
+	ZR-95	724.18		43.70	-1.19E-01	5.90E-01	8.00E-01
		756.72		55.30	-2.77E-03		5.90E-01
+	MO-99	181.06		6.20	1.01E+10	5.84E+10	6.49E+10
		739.58		12.80	-6.94E+09		5.84E+10
		778.00		4.50	6.02E+10		1.88E+11
+	RU-103	497.08		89.00	-2.27E-01	4.69E-01	4.69E-01
+	RU-106	621.84		9.80	-2.00E-01	1.02E+00	1.02E+00
+	AG-108M	433.93		89.90	-3.62E-02	8.45E-02	8.45E-02
		614.37		90.40	1.74E-03		1.07E-01
		722.95		90.50	5.35E-03		1.26E-01
+	CD-109	88.03	*	3.72	2.05E+00	3.80E+00	3.80E+00
+	AG-110M	657.75		93.14	1.97E-02	1.52E-01	1.52E-01
		677.61		10.53	3.47E-01		1.45E+00
		706.67		16.46	1.60E-01		9.63E-01
		763.93		21.98	1.46E-02		6.85E-01
		884.67		71.63	3.53E-02		2.03E-01
		1384.27		23.94	-2.05E-01		5.47E-01
+	CD-113M	263.70		0.02	3.76E+01	2.85E+02	2.85E+02
+	SN-113	255.12		1.93	-4.31E-01	2.11E-01	6.03E+00
		391.69		64.90	6.33E-03		2.11E-01
+	TE123M	159.00		84.10	3.92E-02	1.25E-01	1.25E-01
+	SB-124	602.71		97.87	9.45E-03	2.85E-01	2.85E-01
		645.85		7.26	-6.55E-01		3.62E+00
		722.78		11.10	1.36E-01		3.21E+00
		1691.02		49.00	-1.35E-01		4.82E-01
+	I-125	35.49		6.49	-9.35E-01	5.06E+00	5.06E+00
+	SB-125	176.33		6.89	2.89E-01	2.87E-01	9.41E-01
		427.89		29.33	2.98E-02		2.87E-01
		463.38		10.35	3.40E-01		8.98E-01
		600.56		17.80	1.02E-01		5.19E-01
		635.90		11.32	-2.05E-01		7.54E-01
+	SB-126	414.70		83.30	2.07E+00	2.23E+01	2.23E+01
		666.33		99.60	-4.26E+00		2.85E+01
		695.00		99.60	1.64E+01		3.06E+01
		720.50		53.80	-3.44E+00		4.50E+01
+	SN-126	87.57	*	37.00	1.78E-01	3.30E-01	3.30E-01

Analysis Report for 1707086-19

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SB-127	473.00	25.00	-2.87E+06	1.57E+07	1.63E+07
		685.20	35.70	-2.54E+06		1.57E+07
		783.80	14.70	1.28E+07		4.37E+07
+	I-129	29.78	57.00	9.44E-03	2.60E-01	2.60E-01
		33.60	13.20	1.82E-01		8.80E-01
		39.58	7.52	-8.00E-02		1.18E+00
+	I-131	284.30	6.05	2.25E+03	4.43E+02	5.48E+03
		364.48	81.20	3.26E+01		4.43E+02
		636.97	7.26	9.92E+02		5.77E+03
		722.89	1.80	1.35E+03		3.19E+04
+	TE-132	49.72	13.10	3.63E+06	1.04E+08	8.01E+08
		228.16	88.00	3.23E+07		1.04E+08
+	BA-133	81.00	33.00	-5.39E-01	1.53E-01	2.13E-01
		302.84	17.80	8.22E-02		4.11E-01
		356.01	60.00	-9.50E-02		1.53E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.19E+05	8.65E+04	8.65E+04
+	CS-134	563.23	8.38	9.80E-01	1.22E-01	1.20E+00
		569.32	15.43	-2.73E-01		5.82E-01
		604.70	97.60	1.43E-02		1.22E-01
		795.84	85.40	7.72E-02		1.57E-01
		801.93	8.73	-3.60E-01		1.30E+00
+	CS-135	268.24	16.00	2.53E-01	4.38E-01	4.38E-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	5.07E+01	1.93E+01	1.46E+02
		163.89	4.61	-1.14E+02		2.22E+02
		176.55	13.56	3.43E+01		8.31E+01
		273.65	12.66	6.00E+00		9.77E+01
		340.57	48.50	4.28E+01		3.37E+01
		818.50	99.70	-8.76E+00		1.93E+01
		1048.07	79.60	1.81E+00		3.19E+01
		1235.34	19.70	1.79E+01		1.81E+02
+	CS-137	661.65	85.12	-4.24E-03	1.35E-01	1.35E-01
+	LA-138	788.74	34.00	-1.38E-01	1.95E-01	3.34E-01
		1435.80	66.00	1.10E-01		1.95E-01
+	CE-139	165.85	80.35	-6.08E-04	1.15E-01	1.15E-01
+	BA-140	162.64	6.70	5.42E+01	7.22E+01	1.82E+02
		304.84	4.50	-1.17E+02		3.18E+02
		423.70	3.20	3.88E+02		5.24E+02
		437.55	2.00	1.75E+02		8.59E+02
		537.32	25.00	-1.07E+00		7.22E+01
+	LA-140	328.77	20.50	3.66E+01	3.10E+01	7.26E+01
		487.03	45.50	1.88E-02		3.50E+01
		815.85	23.50	3.37E+01		1.03E+02
		1596.49	95.49	2.84E+00		3.10E+01
+	CE-141	145.44	48.40	2.34E-01	9.93E-01	9.93E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26

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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	-2.46E-01	6.63E-01	6.63E-01
+		PM-144	476.78		42.00	-8.23E-04	1.06E-01	2.29E-01
			618.01		98.60	-1.82E-02		1.06E-01
			696.49		99.49	-7.80E-02		1.43E-01
+		PM-145	36.85		21.70	-1.37E-01	2.47E-01	4.62E-01
			37.36		39.70	-7.30E-02		2.47E-01
			42.30		15.10	-2.05E-02		5.40E-01
			72.40		2.31	-2.62E-01		3.40E+00
+		PM-146	453.90		39.94	-7.04E-02	1.90E-01	1.90E-01
			735.90		14.01	-5.04E-01		8.11E-01
			747.13		13.10	9.93E-02		9.34E-01
+		ND-147	91.11		28.90	2.04E+02	1.27E+02	1.27E+02
			531.02		13.10	-6.47E+01		3.36E+02
+		PM-149	285.90		3.10	5.89E+12	5.95E+13	5.95E+13
+		EU-152	121.78		20.50	-5.87E-02	2.75E-01	2.75E-01
			244.69		5.40	-1.02E-01		1.35E+00
			344.27		19.13	1.52E-02		3.79E-01
			778.89		9.20	3.77E-01		1.38E+00
			964.01		10.40	-1.43E-01		1.57E+00
			1085.78		7.22	7.81E-01		1.99E+00
			1112.02		9.60	5.36E-01		1.58E+00
			1407.95		14.94	-4.41E-02		7.78E-01
+		GD-153	97.43		31.30	5.85E-02	2.39E-01	2.39E-01
			103.18		22.20	-1.57E-01		3.18E-01
+		EU-154	123.07		40.50	-1.62E-02	1.43E-01	1.43E-01
			723.30		19.70	-9.21E-02		6.21E-01
			873.19		11.50	1.37E-01		1.05E+00
			996.32		10.30	5.39E-01		1.34E+00
			1004.76		17.90	7.31E-02		7.50E-01
			1274.45		35.50	-2.59E-01		3.34E-01
+		EU-155	86.50	*	30.90	2.21E-01	2.71E-01	4.10E-01
			105.30		20.70	-2.58E-02		2.71E-01
+		EU-156	811.77		10.40	3.60E+01	1.02E+02	1.02E+02
			1153.47		7.20	6.64E+01		1.91E+02
			1230.71		8.90	-5.52E+01		1.92E+02
+		HO-166M	184.41		72.60	8.89E-02	9.49E-02	9.49E-02
			280.45		29.60	-6.66E-02		2.25E-01
			410.94		11.10	1.01E-01		7.22E-01
			711.69		54.10	1.05E-01		2.16E-01
+		TM-171	66.72		0.14	-2.64E+00	5.47E+01	5.47E+01
+		HF-172	67.35		5.31	-6.95E-02	5.72E-01	1.44E+00
			125.81		11.30	8.01E-02		5.72E-01
+		LU-172	181.53		20.60	1.58E+03	6.61E+03	8.42E+03
			900.72		29.81	-3.77E+02		1.06E+04
			1093.66		62.50	1.19E+03		6.61E+03
+		LU-173	100.72		5.24	5.06E-01	3.63E-01	1.19E+00
			272.11		21.20	-1.33E-01		3.63E-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	9.09E-03	2.26E-01	2.26E-01
+	LU-176	88.34		13.30	-3.47E-02	7.01E-02	5.20E-01
		201.83		86.00	4.31E-02		7.42E-02
		306.78		94.00	-3.18E-02		7.01E-02
+	HF-181	133.02		41.70	-1.71E-01	4.69E-01	6.95E-01
		345.85		17.20	8.47E-02		2.04E+00
		482.03		82.80	-6.82E-02		4.69E-01
+	TA-182	67.75		41.20	-1.47E-02	2.98E-01	2.98E-01
		1121.30		34.90	8.57E-01		9.49E-01
		1189.05		16.23	1.54E-01		1.66E+00
		1221.41		26.98	2.42E-02		1.27E+00
		1231.02		11.44	1.78E-01		3.07E+00
+	IR-192	308.46		29.68	-1.04E-01	3.87E-01	5.65E-01
		468.07		48.10	-2.38E-03		3.87E-01
+	HG-203	279.19		77.30	2.26E-01	3.87E-01	3.87E-01
+	TL-204	374.74		94.11	2.32E-02	8.44E-02	8.44E-02
		899.15		99.16	-5.09E-02		1.17E-01
		911.74		91.10	2.95E-01		2.18E-01
+	BI-207	569.67		97.72	-3.97E-02	8.44E-02	8.44E-02
		1063.62		74.90	-8.42E-02		1.64E-01
+	TL-208	583.14	*	30.22	1.08E+00	3.03E-01	4.29E-01
		860.37		4.48	7.44E-03		2.55E+00
		2614.66	*	35.85	1.12E+00		3.03E-01
+	BI-210M	262.00		45.00	3.86E-02	1.43E-01	1.43E-01
		300.00		23.00	3.99E-02		3.32E-01
+	PB-210	46.50	*	4.25	1.38E+00	2.28E+00	2.28E+00
+	PB-211	404.84		2.90	-1.28E+00	2.68E+00	2.68E+00
		831.96		2.90	2.66E+00		3.89E+00
+	BI-212	727.17		11.80	1.05E+00	1.14E+00	1.14E+00
		1620.62		2.75	1.14E+00		3.36E+00
+	PB-212	238.63	*	44.60	1.30E+00	3.11E-01	3.11E-01
		300.09		3.41	2.69E-01		2.24E+00
+	BI-214	609.31	*	46.30	8.23E-01	3.54E-01	3.54E-01
		1120.29	*	15.10	1.31E+00		1.12E+00
		1764.49	*	15.80	1.03E+00		5.06E-01
		2204.22		4.98	4.58E-01		2.54E+00
+	PB-214	295.21	*	19.19	9.24E-01	3.37E-01	5.97E-01
		351.92	*	37.19	9.00E-01		3.37E-01
+	RN-219	401.80		6.50	-6.00E-02	1.18E+00	1.18E+00
+	RA-223	323.87		3.88	-8.98E-01	1.78E+00	1.78E+00
+	RA-224	240.98		3.95	1.27E+01	3.10E+00	3.10E+00
+	RA-225	40.00		31.00	-1.96E+00	2.89E+01	2.89E+01
+	RA-226	186.21	*	3.28	1.65E+00	2.68E+00	2.68E+00
+	TH-227	50.10		8.40	4.10E-03	9.06E-01	9.06E-01
		236.00		11.50	1.72E+00		9.53E-01
		256.20		6.30	-2.09E-01		1.02E+00
+	AC-228	338.32	*	11.40	1.62E+00	9.05E-01	1.03E+00
		911.07	*	27.70	1.02E+00		9.05E-01

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	969.11	*	16.60	1.54E+00	9.05E-01	1.15E+00
+	TH-230	48.44		16.90	3.66E-01	4.64E-01	4.64E-01
		62.85		4.60	1.53E+00		1.60E+00
		67.67		0.37	-9.00E-01		1.82E+01
+	PA-231	283.67		1.60	1.68E+00	3.12E+00	4.10E+00
		302.67		2.30	6.25E-01		3.12E+00
+	TH-231	25.64		14.70	3.76E-02	1.01E+00	1.46E+00
		84.21		6.40	-5.84E-01		1.01E+00
+	PA-233	311.98		38.60	5.56E-01	2.28E+00	2.28E+00
+	PA-234	131.20		20.40	2.07E-01	2.93E-01	2.93E-01
		733.99		8.80	3.99E-01		1.35E+00
		946.00		12.00	-2.86E-01		9.61E-01
+	PA-234M	1001.03		0.92	2.37E+00	1.46E+01	1.46E+01
+	TH-234	63.29	*	3.80	1.74E+00	2.24E+00	2.24E+00
+	U-235	143.76		10.50	-5.83E-02	5.44E-01	5.44E-01
		163.35		4.70	3.64E-01		1.22E+00
		205.31		4.70	3.28E-02		1.31E+00
+	NP-237	86.50	*	12.60	5.21E-01	9.69E-01	9.69E-01
+	NP-239	106.10		22.70	-2.07E+10	1.04E+12	1.04E+12
		228.18		10.70	8.49E+11		2.73E+12
		277.60		14.10	8.10E+11		2.09E+12
+	AM-241	59.54		35.90	-2.44E-03	2.01E-01	2.01E-01
+	AM-243	74.67		66.00	6.19E-01	1.44E-01	1.44E-01
+	CM-243	209.75		3.29	3.84E-01	4.83E-01	2.05E+00
		228.14		10.60	1.97E-01		6.35E-01
		277.60		14.00	1.88E-01		4.83E-01

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	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	2.76E+00	2.76E+00	2.92E-01	1.29E+00
	NA-22	1274.54		99.94	1.25E-01	1.25E-01	-9.66E-02	5.58E-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	1.03E-01	1.03E-01	1.85E-02	4.31E-02
+	K-40	1460.81	*	10.67	9.19E-01	9.19E-01	1.98E+01	3.96E-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	7.15E-02	7.15E-02	-3.53E-03	3.50E-02
		78.34		96.00	9.34E-02		2.95E-01	4.60E-02
	SC-46	889.25		99.98	2.28E-01	2.28E-01	-4.71E-02	1.04E-01
		1120.51		99.99	4.14E-01		4.31E-01	1.95E-01
	V-48	983.52		99.98	9.26E+00	9.26E+00	-3.88E+00	4.28E+00
		1312.10		97.50	9.38E+00		8.01E-01	4.23E+00
	CR-51	320.08		9.83	8.36E+00	8.36E+00	-3.60E-01	3.99E+00
	MN-54	834.83		99.97	1.35E-01	1.35E-01	7.75E-03	6.22E-02
	CO-56	846.75		99.96	2.59E-01	2.59E-01	2.34E-02	1.20E-01
		1037.75		14.03	2.32E+00		6.67E-01	1.07E+00
		1238.25		67.00	6.71E-01		3.46E-01	3.14E-01
		1771.40		15.51	1.12E+00		-5.57E-01	4.32E-01
		2598.48		16.90	9.68E-01		-2.19E-01	3.06E-01
	CO-57	122.06		85.51	8.39E-02	8.39E-02	-1.79E-02	4.08E-02
		136.48		10.60	6.73E-01		-2.26E-01	3.27E-01
	CO-58	810.76		99.40	3.04E-01	3.04E-01	1.11E-01	1.41E-01
	FE-59	1099.22		56.50	1.12E+00	1.12E+00	4.70E-02	5.14E-01
		1291.56		43.20	1.66E+00		6.18E-01	7.66E-01
	CO-60	1173.22		100.00	1.75E-01	1.23E-01	1.72E-02	8.19E-02
		1332.49		100.00	1.23E-01		-6.01E-03	5.48E-02
	ZN-65	1115.52		50.75	4.08E-01	4.08E-01	-2.19E-02	1.90E-01
	GA-67	93.31		35.70	2.51E+08	2.51E+08	2.85E+08	1.23E+08
		208.95		2.24	4.02E+09		9.09E+08	1.95E+09
		300.22		16.00	6.43E+08		7.72E+07	3.09E+08
	SE-75	121.11		16.70	5.93E-01	1.66E-01	-1.18E-01	2.89E-01
		136.00		59.20	1.66E-01		-9.49E-02	8.07E-02
		264.65		59.80	1.90E-01		-6.93E-03	9.11E-02
		279.53		25.20	4.80E-01		1.60E-01	2.30E-01
		400.65		11.40	1.19E+00		-9.86E-02	5.66E-01
	RB-82	776.52		13.00	1.37E+01	1.37E+01	-6.86E+00	6.42E+00
	RB-83	520.41		46.00	3.75E-01	3.75E-01	-7.57E-02	1.75E-01
		529.64		30.30	6.16E-01		-3.19E-01	2.88E-01
		552.65		16.40	1.08E+00		-5.37E-01	5.04E-01
	KR-85	513.99		0.43	2.68E+01	2.68E+01	1.91E+01	1.28E+01
	SR-85	513.99		99.27	3.32E-01	3.32E-01	2.36E-01	1.58E-01
	Y-88	898.02		93.40	2.17E-01	1.99E-01	-6.24E-02	9.94E-02
		1836.01		99.38	1.99E-01		3.59E-02	8.35E-02
	MO-93	263.06		56.72	1.15E-01	7.37E-02	2.60E-02	5.53E-02
		684.67		99.68	1.06E-01		-1.72E-02	4.96E-02
		1477.11		99.08	7.37E-02		-3.14E-02	2.98E-02
	NB-93M	16.57		9.43	7.77E+00	7.77E+00	1.58E+01	3.77E+00
	NB-94	702.63		100.00	1.17E-01	1.17E-01	-7.31E-02	5.51E-02
		871.10		100.00	1.25E-01		8.45E-02	5.84E-02
	NB-95	765.79		99.81	8.18E-01	8.18E-01	-1.00E-01	3.82E-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)
	NB-95M	235.69		25.00	7.72E+07	7.72E+07	1.39E+08	3.78E+07
	ZR-95	724.18		43.70	8.00E-01	5.90E-01	-1.19E-01	3.76E-01
		756.72		55.30	5.90E-01		-2.77E-03	2.75E-01
	MO-99	181.06		6.20	6.49E+10	5.84E+10	1.01E+10	3.14E+10
		739.58		12.80	5.84E+10		-6.94E+09	2.73E+10
		778.00		4.50	1.88E+11		6.02E+10	8.82E+10
	RU-103	497.08		89.00	4.69E-01	4.69E-01	-2.27E-01	2.19E-01
	RU-106	621.84		9.80	1.02E+00	1.02E+00	-2.00E-01	4.70E-01
	AG-108M	433.93		89.90	8.45E-02	8.45E-02	-3.62E-02	3.98E-02
		614.37		90.40	1.07E-01		1.74E-03	4.99E-02
		722.95		90.50	1.26E-01		5.35E-03	5.91E-02
+	CD-109	88.03	*	3.72	3.80E+00	3.80E+00	2.05E+00	1.88E+00
	AG-110M	657.75		93.14	1.52E-01	1.52E-01	1.97E-02	7.12E-02
		677.61		10.53	1.45E+00		3.47E-01	6.85E-01
		706.67		16.46	9.63E-01		1.60E-01	4.53E-01
		763.93		21.98	6.85E-01		1.46E-02	3.20E-01
		884.67		71.63	2.03E-01		3.53E-02	9.37E-02
		1384.27		23.94	5.47E-01		-2.05E-01	2.38E-01
	CD-113M	263.70		0.02	2.85E+02	2.85E+02	3.76E+01	1.37E+02
	SN-113	255.12		1.93	6.03E+00	2.11E-01	-4.31E-01	2.89E+00
		391.69		64.90	2.11E-01		6.33E-03	1.00E-01
	TE123M	159.00		84.10	1.25E-01	1.25E-01	3.92E-02	6.09E-02
	SB-124	602.71		97.87	2.85E-01	2.85E-01	9.45E-03	1.33E-01
		645.85		7.26	3.62E+00		-6.55E-01	1.67E+00
		722.78		11.10	3.21E+00		1.36E-01	1.50E+00
		1691.02		49.00	4.82E-01		-1.35E-01	1.91E-01
	I-125	35.49		6.49	5.06E+00	5.06E+00	-9.35E-01	2.46E+00
	SB-125	176.33		6.89	9.41E-01	2.87E-01	2.89E-01	4.56E-01
		427.89		29.33	2.87E-01		2.98E-02	1.35E-01
		463.38		10.35	8.98E-01		3.40E-01	4.25E-01
		600.56		17.80	5.19E-01		1.02E-01	2.41E-01
		635.90		11.32	7.54E-01		-2.05E-01	3.47E-01
	SB-126	414.70		83.30	2.23E+01	2.23E+01	2.07E+00	1.05E+01
		666.33		99.60	2.85E+01		-4.26E+00	1.34E+01
		695.00		99.60	3.06E+01		1.64E+01	1.44E+01
		720.50		53.80	4.50E+01		-3.44E+00	2.08E+01
+	SN-126	87.57	*	37.00	3.30E-01	3.30E-01	1.78E-01	1.63E-01
	SB-127	473.00		25.00	1.63E+07	1.57E+07	-2.87E+06	7.64E+06
		685.20		35.70	1.57E+07		-2.54E+06	7.35E+06
		783.80		14.70	4.37E+07		1.28E+07	2.04E+07
	I-129	29.78		57.00	2.60E-01	2.60E-01	9.44E-03	1.26E-01
		33.60		13.20	8.80E-01		1.82E-01	4.28E-01
		39.58		7.52	1.18E+00		-8.00E-02	5.72E-01
	I-131	284.30		6.05	5.48E+03	4.43E+02	2.25E+03	2.62E+03
		364.48		81.20	4.43E+02		3.26E+01	2.10E+02
		636.97		7.26	5.77E+03		9.92E+02	2.66E+03
		722.89		1.80	3.19E+04		1.35E+03	1.50E+04
	TE-132	49.72		13.10	8.01E+08	1.04E+08	3.63E+06	3.91E+08
		228.16		88.00	1.04E+08		3.23E+07	5.02E+07
	BA-133	81.00		33.00	2.13E-01	1.53E-01	-5.39E-01	1.04E-01
		302.84		17.80	4.11E-01		8.22E-02	1.97E-01
		356.01		60.00	1.53E-01		-9.50E-02	7.37E-02
	@ I-133	529.87		86.30	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)
XE-133	81.00	38.00	8.65E+04	8.65E+04	-2.19E+05	4.24E+04
CS-134	563.23	8.38	1.20E+00	1.22E-01	9.80E-01	5.63E-01
	569.32	15.43	5.82E-01		-2.73E-01	2.70E-01
	604.70	97.60	1.22E-01		1.43E-02	5.76E-02
	795.84	85.40	1.57E-01		7.72E-02	7.33E-02
	801.93	8.73	1.30E+00		-3.60E-01	5.98E-01
CS-135	268.24	16.00	4.38E-01	4.38E-01	2.53E-01	2.11E-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	1.46E+02	1.93E+01	5.07E+01	7.11E+01
	163.89	4.61	2.22E+02		-1.14E+02	1.08E+02
	176.55	13.56	8.31E+01		3.43E+01	4.03E+01
	273.65	12.66	9.77E+01		6.00E+00	4.69E+01
	340.57	48.50	3.37E+01		4.28E+01	1.62E+01
	818.50	99.70	1.93E+01		-8.76E+00	8.91E+00
	1048.07	79.60	3.19E+01		1.81E+00	1.48E+01
	1235.34	19.70	1.81E+02		1.79E+01	8.49E+01
CS-137	661.65	85.12	1.35E-01	1.35E-01	-4.24E-03	6.33E-02
LA-138	788.74	34.00	3.34E-01	1.95E-01	-1.38E-01	1.56E-01
	1435.80	66.00	1.95E-01		1.10E-01	8.74E-02
CE-139	165.85	80.35	1.15E-01	1.15E-01	-6.08E-04	5.56E-02
BA-140	162.64	6.70	1.82E+02	7.22E+01	5.42E+01	8.81E+01
	304.84	4.50	3.18E+02		-1.17E+02	1.52E+02
	423.70	3.20	5.24E+02		3.88E+02	2.48E+02
	437.55	2.00	8.59E+02		1.75E+02	4.06E+02
	537.32	25.00	7.22E+01		-1.07E+00	3.38E+01
LA-140	328.77	20.50	7.26E+01	3.10E+01	3.66E+01	3.46E+01
	487.03	45.50	3.50E+01		1.88E-02	1.63E+01
	815.85	23.50	1.03E+02		3.37E+01	4.77E+01
	1596.49	95.49	3.10E+01		2.84E+00	1.39E+01
CE-141	145.44	48.40	9.93E-01	9.93E-01	2.34E-01	4.83E-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	6.63E-01	6.63E-01	-2.46E-01	3.23E-01
PM-144	476.78	42.00	2.29E-01	1.06E-01	-8.23E-04	1.07E-01
	618.01	98.60	1.06E-01		-1.82E-02	4.93E-02
	696.49	99.49	1.43E-01		-7.80E-02	6.71E-02
PM-145	36.85	21.70	4.62E-01	2.47E-01	-1.37E-01	2.25E-01
	37.36	39.70	2.47E-01		-7.30E-02	1.20E-01
	42.30	15.10	5.40E-01		-2.05E-02	2.62E-01
	72.40	2.31	3.40E+00		-2.62E-01	1.67E+00
PM-146	453.90	39.94	1.90E-01	1.90E-01	-7.04E-02	8.91E-02
	735.90	14.01	8.11E-01		-5.04E-01	3.78E-01
	747.13	13.10	9.34E-01		9.93E-02	4.38E-01
ND-147	91.11	28.90	1.27E+02	1.27E+02	2.04E+02	6.21E+01
	531.02	13.10	3.36E+02		-6.47E+01	1.57E+02
PM-149	285.90	3.10	5.95E+13	5.95E+13	5.89E+12	2.84E+13
EU-152	121.78	20.50	2.75E-01	2.75E-01	-5.87E-02	1.34E-01
	244.69	5.40	1.35E+00		-1.02E-01	6.54E-01
	344.27	19.13	3.79E-01		1.52E-02	1.81E-01
	778.89	9.20	1.38E+00		3.77E-01	6.48E-01

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	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	1.57E+00	2.75E-01	-1.43E-01	7.39E-01
		1085.78		7.22	1.99E+00		7.81E-01	9.22E-01
		1112.02		9.60	1.58E+00		5.36E-01	7.35E-01
		1407.95		14.94	7.78E-01		-4.41E-02	3.44E-01
	GD-153	97.43		31.30	2.39E-01	2.39E-01	5.85E-02	1.17E-01
		103.18		22.20	3.18E-01		-1.57E-01	1.55E-01
	EU-154	123.07		40.50	1.43E-01	1.43E-01	-1.62E-02	6.95E-02
		723.30		19.70	6.21E-01		-9.21E-02	2.92E-01
		873.19		11.50	1.05E+00		1.37E-01	4.85E-01
		996.32		10.30	1.34E+00		5.39E-01	6.21E-01
		1004.76		17.90	7.50E-01		7.31E-02	3.47E-01
		1274.45		35.50	3.34E-01		-2.59E-01	1.49E-01
+	EU-155	86.50	*	30.90	4.10E-01	2.71E-01	2.21E-01	2.03E-01
		105.30		20.70	2.71E-01		-2.58E-02	1.32E-01
	EU-156	811.77		10.40	1.02E+02	1.02E+02	3.60E+01	4.72E+01
		1153.47		7.20	1.91E+02		6.64E+01	8.85E+01
		1230.71		8.90	1.92E+02		-5.52E+01	8.99E+01
	HO-166M	184.41		72.60	9.49E-02	9.49E-02	8.89E-02	4.61E-02
		280.45		29.60	2.25E-01		-6.66E-02	1.08E-01
		410.94		11.10	7.22E-01		1.01E-01	3.43E-01
		711.69		54.10	2.16E-01		1.05E-01	1.01E-01
	TM-171	66.72		0.14	5.47E+01	5.47E+01	-2.64E+00	2.68E+01
	HF-172	67.35		5.31	1.44E+00	5.72E-01	-6.95E-02	7.05E-01
		125.81		11.30	5.72E-01		8.01E-02	2.79E-01
	LU-172	181.53		20.60	8.42E+03	6.61E+03	1.58E+03	4.08E+03
		900.72		29.81	1.06E+04		-3.77E+02	4.88E+03
		1093.66		62.50	6.61E+03		1.19E+03	3.07E+03
	LU-173	100.72		5.24	1.19E+00	3.63E-01	5.06E-01	5.78E-01
		272.11		21.20	3.63E-01		-1.33E-01	1.74E-01
	HF-175	343.40		84.00	2.26E-01	2.26E-01	9.09E-03	1.08E-01
	LU-176	88.34		13.30	5.20E-01	7.01E-02	-3.47E-02	2.55E-01
		201.83		86.00	7.42E-02		4.31E-02	3.59E-02
		306.78		94.00	7.01E-02		-3.18E-02	3.34E-02
	HF-181	133.02		41.70	6.95E-01	4.69E-01	-1.71E-01	3.38E-01
		345.85		17.20	2.04E+00		8.47E-02	9.68E-01
		482.03		82.80	4.69E-01		-6.82E-02	2.20E-01
	TA-182	67.75		41.20	2.98E-01	2.98E-01	-1.47E-02	1.46E-01
		1121.30		34.90	9.49E-01		8.57E-01	4.46E-01
		1189.05		16.23	1.66E+00		1.54E-01	7.67E-01
		1221.41		26.98	1.27E+00		2.42E-02	5.96E-01
		1231.02		11.44	3.07E+00		1.78E-01	1.44E+00
	IR-192	308.46		29.68	5.65E-01	3.87E-01	-1.04E-01	2.69E-01
		468.07		48.10	3.87E-01		-2.38E-03	1.81E-01
	HG-203	279.19		77.30	3.87E-01	3.87E-01	2.26E-01	1.86E-01
	TL-204	374.74		94.11	8.44E-02	8.44E-02	2.32E-02	4.01E-02
		899.15		99.16	1.17E-01		-5.09E-02	5.37E-02
		911.74		91.10	2.18E-01		2.95E-01	1.04E-01
	BI-207	569.67		97.72	8.44E-02	8.44E-02	-3.97E-02	3.92E-02
		1063.62		74.90	1.64E-01		-8.42E-02	7.52E-02
+	TL-208	583.14	*	30.22	4.29E-01	3.03E-01	1.08E+00	2.05E-01
		860.37		4.48	2.55E+00		7.44E-03	1.18E+00
		2614.66	*	35.85	3.03E-01		1.12E+00	1.16E-01
	BI-210M	262.00		45.00	1.43E-01	1.43E-01	3.86E-02	6.84E-02

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

	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	3.32E-01	1.43E-01	3.99E-02	1.60E-01
+	PB-210	46.50	*	4.25	2.28E+00	2.28E+00	1.38E+00	1.12E+00
	PB-211	404.84		2.90	2.68E+00	2.68E+00	-1.28E+00	1.27E+00
		831.96		2.90	3.89E+00		2.66E+00	1.80E+00
	BI-212	727.17		11.80	1.14E+00	1.14E+00	1.05E+00	5.40E-01
		1620.62		2.75	3.36E+00		1.14E+00	1.41E+00
+	PB-212	238.63	*	44.60	3.11E-01	3.11E-01	1.30E+00	1.53E-01
		300.09		3.41	2.24E+00		2.69E-01	1.08E+00
+	BI-214	609.31	*	46.30	3.54E-01	3.54E-01	8.23E-01	1.71E-01
		1120.29	*	15.10	1.12E+00		1.31E+00	5.25E-01
		1764.49	*	15.80	5.06E-01		1.03E+00	2.02E-01
		2204.22		4.98	2.54E+00		4.58E-01	1.07E+00
+	PB-214	295.21	*	19.19	5.97E-01	3.37E-01	9.24E-01	2.91E-01
		351.92	*	37.19	3.37E-01		9.00E-01	1.64E-01
	RN-219	401.80		6.50	1.18E+00	1.18E+00	-6.00E-02	5.61E-01
	RA-223	323.87		3.88	1.78E+00	1.78E+00	-8.98E-01	8.46E-01
	RA-224	240.98		3.95	3.10E+00	3.10E+00	1.27E+01	1.52E+00
	RA-225	40.00		31.00	2.89E+01	2.89E+01	-1.96E+00	1.40E+01
+	RA-226	186.21	*	3.28	2.68E+00	2.68E+00	1.65E+00	1.31E+00
	TH-227	50.10		8.40	9.06E-01	9.06E-01	4.10E-03	4.42E-01
		236.00		11.50	9.53E-01		1.72E+00	4.66E-01
		256.20		6.30	1.02E+00		-2.09E-01	4.88E-01
+	AC-228	338.32	*	11.40	1.03E+00	9.05E-01	1.62E+00	4.99E-01
		911.07	*	27.70	9.05E-01		1.02E+00	4.36E-01
		969.11	*	16.60	1.15E+00		1.54E+00	5.45E-01
	TH-230	48.44		16.90	4.64E-01	4.64E-01	3.66E-01	2.26E-01
		62.85		4.60	1.60E+00		1.53E+00	7.82E-01
		67.67		0.37	1.82E+01		-9.00E-01	8.91E+00
	PA-231	283.67		1.60	4.10E+00	3.12E+00	1.68E+00	1.96E+00
		302.67		2.30	3.12E+00		6.25E-01	1.49E+00
	TH-231	25.64		14.70	1.46E+00	1.01E+00	3.76E-02	7.09E-01
		84.21		6.40	1.01E+00		-5.84E-01	4.92E-01
	PA-233	311.98		38.60	2.28E+00	2.28E+00	5.56E-01	1.09E+00
	PA-234	131.20		20.40	2.93E-01	2.93E-01	2.07E-01	1.43E-01
		733.99		8.80	1.35E+00		3.99E-01	6.32E-01
		946.00		12.00	9.61E-01		-2.86E-01	4.42E-01
	PA-234M	1001.03		0.92	1.46E+01	1.46E+01	2.37E+00	6.77E+00
+	TH-234	63.29	*	3.80	2.24E+00	2.24E+00	1.74E+00	1.10E+00
	U-235	143.76		10.50	5.44E-01	5.44E-01	-5.83E-02	2.64E-01
		163.35		4.70	1.22E+00		3.64E-01	5.92E-01
		205.31		4.70	1.31E+00		3.28E-02	6.31E-01
+	NP-237	86.50	*	12.60	9.69E-01	9.69E-01	5.21E-01	4.79E-01
	NP-239	106.10		22.70	1.04E+12	1.04E+12	-2.07E+10	5.08E+11
		228.18		10.70	2.73E+12		8.49E+11	1.32E+12
		277.60		14.10	2.09E+12		8.10E+11	1.00E+12
	AM-241	59.54		35.90	2.01E-01	2.01E-01	-2.44E-03	9.85E-02
	AM-243	74.67		66.00	1.44E-01	1.44E-01	6.19E-01	7.11E-02
	CM-243	209.75		3.29	2.05E+00	4.83E-01	3.84E-01	9.91E-01
		228.14		10.60	6.35E-01		1.97E-01	3.07E-01
		277.60		14.00	4.83E-01		1.88E-01	2.32E-01

Analysis Report for 1707086-19

HTC-A03-S001-3642-01

+ = 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-A03-S001-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3603

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	23	75
17:	73	103	76	61	67	66	71	69
25:	50	72	48	47	68	47	60	64
33:	48	64	55	69	49	58	70	62
41:	66	40	57	64	89	99	87	73
49:	70	74	76	84	82	83	71	93
57:	72	81	89	101	113	137	134	117
65:	70	108	95	90	111	100	116	127
73:	181	249	258	325	248	111	88	76
81:	103	91	93	96	101	148	127	118
89:	132	102	134	146	114	69	67	61
97:	73	75	76	62	71	57	75	55
105:	71	74	74	71	69	71	66	63
113:	53	71	71	66	78	56	64	59
121:	74	64	70	72	68	64	77	79
129:	82	58	77	72	50	57	55	61
137:	62	52	69	62	44	79	53	65
145:	64	40	51	67	63	55	51	58
153:	66	52	66	50	50	63	54	61
161:	43	48	43	47	50	35	41	58
169:	43	40	34	39	57	51	50	52
177:	46	49	51	52	52	34	46	66
185:	85	87	47	41	43	34	45	40
193:	52	49	46	39	49	44	49	48
201:	50	33	41	40	39	24	46	62
209:	51	47	47	37	51	39	43	35
217:	35	37	40	44	28	34	35	35
225:	39	42	47	33	33	39	36	34
233:	42	51	52	68	173	273	168	67
241:	67	52	35	31	32	24	32	28
249:	33	27	28	30	28	32	27	24
257:	28	26	30	33	25	27	24	22
265:	25	32	28	25	36	46	25	23
273:	18	17	28	34	34	22	26	22
281:	23	25	23	25	26	22	17	17
289:	16	25	21	31	45	92	71	40
297:	29	22	32	29	27	24	23	22
305:	18	17	20	20	22	21	25	17
313:	26	23	20	22	23	16	23	17
321:	15	28	22	19	17	21	28	27
329:	14	15	17	11	14	17	24	29
337:	44	46	44	20	19	20	22	16
345:	11	24	18	12	25	80	115	87
353:	35	13	17	20	14	14	12	16
361:	18	19	16	11	16	20	16	17

369:	18	14	13	21	12	27	16	13

Sample Title: HTC-A03-S001-3642-01

Channel								
377:	21	12	18	20	13	18	18	18
385:	7	15	13	15	18	24	9	14
393:	19	13	12	16	15	14	20	19
401:	9	22	11	15	21	12	20	20
409:	18	20	13	13	10	12	17	8
417:	21	8	7	14	12	15	15	14
425:	18	15	11	11	16	15	8	17
433:	6	13	18	13	17	18	12	10
441:	13	15	11	14	12	6	8	15
449:	19	16	11	15	14	7	6	7
457:	14	18	14	10	18	16	24	14
465:	14	8	7	12	3	14	13	9
473:	15	7	13	14	13	11	8	15
481:	9	11	13	7	9	11	7	11
489:	10	10	9	13	13	10	4	8
497:	5	10	12	11	13	10	5	8
505:	9	14	13	27	29	46	32	18
513:	23	14	7	9	10	11	6	8
521:	9	12	8	11	15	11	8	12
529:	10	14	6	12	13	15	7	12
537:	12	6	13	7	9	9	13	3
545:	9	11	7	15	10	12	11	9
553:	3	10	5	13	10	7	10	6
561:	18	15	7	11	10	6	2	6
569:	18	11	6	10	10	13	9	11
577:	7	9	14	17	18	55	65	25
585:	10	6	1	10	12	8	8	7
593:	5	6	6	8	10	8	10	4
601:	8	13	6	10	12	15	31	71
609:	58	31	14	9	12	9	9	11
617:	7	7	9	4	8	8	7	7
625:	8	7	10	9	4	6	7	5
633:	6	6	6	7	8	6	9	8
641:	4	5	10	7	5	8	10	3
649:	10	8	6	9	7	8	7	10
657:	10	10	7	9	10	7	10	11
665:	13	15	7	9	4	8	7	14
673:	7	15	11	11	10	7	11	8
681:	7	5	9	7	11	4	7	9
689:	6	9	11	10	11	10	11	10
697:	10	8	9	5	13	14	7	9
705:	10	7	15	13	4	7	8	9
713:	6	8	9	2	8	8	2	2
721:	6	6	11	6	10	22	16	12
729:	13	7	12	5	11	10	5	8
737:	6	4	4	10	10	8	13	5
745:	6	12	5	11	6	8	4	8
753:	6	11	6	6	4	7	10	6
761:	7	9	7	7	7	6	7	11
769:	6	7	9	9	11	12	5	9
777:	9	8	8	2	16	8	4	6
785:	13	7	4	4	5	6	9	7
793:	13	8	8	6	9	4	6	5

801:	6	2	6	3	7	5	7	10

Sample Title: HTC-A03-S001-3642-01

Channel								
809:	7	5	1	9	11	4	6	4
817:	5	8	9	7	1	4	7	7
825:	3	4	5	8	9	8	5	5
833:	5	4	5	2	4	11	2	9
841:	11	10	4	4	11	10	1	3
849:	5	0	2	3	3	4	7	1
857:	4	5	11	8	8	8	4	3
865:	6	6	6	8	9	6	9	4
873:	6	8	2	5	5	7	2	1
881:	6	8	9	4	2	6	6	4
889:	4	3	7	2	3	7	6	2
897:	4	3	4	9	3	6	7	9
905:	7	1	4	14	10	24	41	21
913:	9	5	8	10	7	8	5	4
921:	4	4	4	3	9	4	4	8
929:	5	3	4	4	5	3	4	7
937:	7	9	8	4	5	7	2	9
945:	2	4	7	4	4	8	4	6
953:	5	6	7	9	8	4	5	7
961:	9	9	5	16	11	10	15	14
969:	33	6	7	4	6	2	7	4
977:	7	8	5	3	3	10	12	4
985:	7	5	1	9	5	5	2	4
993:	7	6	6	5	7	6	7	8
1001:	6	5	2	9	1	9	6	6
1009:	4	5	4	3	3	5	3	4
1017:	3	3	6	4	5	5	9	5
1025:	6	8	7	6	4	3	5	2
1033:	5	4	3	6	3	11	5	9
1041:	7	4	8	0	11	6	3	4
1049:	6	10	6	6	6	7	6	7
1057:	7	7	3	2	1	6	7	6
1065:	5	4	6	3	8	1	5	4
1073:	9	4	6	7	9	8	4	2
1081:	3	6	6	5	7	6	8	5
1089:	7	6	5	5	7	8	8	6
1097:	6	4	6	4	4	5	4	3
1105:	4	5	5	5	11	6	5	5
1113:	5	7	8	4	7	6	15	24
1121:	13	7	5	5	3	2	2	8
1129:	3	7	6	2	4	5	7	5
1137:	6	5	6	8	5	9	7	7
1145:	7	4	3	5	8	9	5	1
1153:	6	8	6	3	8	5	5	5
1161:	8	4	4	3	14	10	8	3
1169:	6	5	8	7	9	7	9	9
1177:	7	4	13	4	6	6	3	4
1185:	2	11	5	4	7	4	5	5
1193:	6	3	3	11	12	10	4	9
1201:	13	6	9	6	4	6	5	9
1209:	5	3	2	8	4	8	6	7
1217:	11	6	7	5	9	10	11	11
1225:	8	5	2	14	8	13	7	10

1233:	7	10	10	10	9	9	10	6

Sample Title: HTC-A03-S001-3642-01

Channel								
1241:	8	4	4	8	2	4	7	6
1249:	2	9	5	4	9	6	7	2
1257:	9	1	3	6	5	1	1	5
1265:	7	8	2	4	5	3	5	2
1273:	1	3	3	3	2	3	7	4
1281:	7	6	4	5	2	1	7	9
1289:	3	6	3	6	5	3	4	3
1297:	7	3	6	3	5	4	1	3
1305:	1	6	1	2	4	2	2	6
1313:	3	6	1	2	3	2	4	0
1321:	4	2	4	4	4	2	4	1
1329:	5	2	2	2	2	4	3	3
1337:	3	4	0	2	0	3	1	4
1345:	4	4	1	0	3	2	5	2
1353:	4	2	4	4	2	6	4	3
1361:	4	0	3	1	2	2	1	4
1369:	3	3	1	2	3	1	5	8
1377:	6	0	1	2	2	2	1	1
1385:	4	1	0	2	4	2	2	1
1393:	1	1	4	0	2	2	3	2
1401:	1	1	0	2	1	3	2	6
1409:	0	2	2	2	2	4	1	1
1417:	0	1	2	0	3	3	4	1
1425:	2	0	0	1	1	2	2	3
1433:	4	2	2	2	2	4	4	0
1441:	2	1	3	3	4	0	4	1
1449:	1	0	2	2	2	2	2	0
1457:	5	16	70	147	130	43	13	2
1465:	0	1	2	2	1	2	0	3
1473:	1	0	1	0	1	1	0	0
1481:	2	1	1	1	2	0	2	1
1489:	0	0	1	2	2	0	2	3
1497:	6	2	3	2	2	0	5	2
1505:	0	1	4	1	0	0	3	2
1513:	2	5	1	1	2	0	2	0
1521:	0	0	2	1	1	3	1	2
1529:	2	1	2	2	1	0	0	2
1537:	0	1	1	1	1	1	2	3
1545:	2	0	0	1	5	0	0	0
1553:	1	0	2	1	2	1	0	1
1561:	0	1	1	1	3	0	1	1
1569:	0	2	2	1	1	0	0	0
1577:	2	0	0	1	3	0	3	2
1585:	0	0	6	6	1	1	5	3
1593:	7	1	2	1	0	4	3	3
1601:	2	0	1	2	2	2	1	1
1609:	0	4	0	0	0	1	2	1
1617:	2	0	2	1	1	1	1	0
1625:	0	0	0	0	2	4	1	0
1633:	3	3	0	3	2	2	1	2
1641:	0	0	0	1	0	1	0	1
1649:	0	2	1	0	0	0	1	0
1657:	0	2	0	1	1	1	0	0

1665:	1	0	3	1	0	0	0	1

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

2097:	0	0	2	2	0	2	2	1

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

2529:	1	0	0	0	1	0	0	1

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Channel								
2537:	1	0	0	0	1	0	0	0
2545:	0	1	0	0	0	0	0	0
2553:	1	0	1	0	0	0	0	0
2561:	0	0	0	1	0	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	0	0	2	0	0	0	0	0
2585:	1	0	0	1	0	0	1	0
2593:	0	1	0	0	0	0	0	0
2601:	0	0	1	0	0	0	0	1
2609:	1	0	0	2	8	14	14	3
2617:	4	0	0	0	0	0	0	0
2625:	0	1	0	0	1	0	1	0
2633:	1	0	0	0	0	0	0	0
2641:	0	1	0	0	1	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	0	0	0	0	1	0	0
2665:	2	0	0	0	0	0	0	0
2673:	0	0	0	1	0	0	0	0
2681:	0	0	0	1	1	0	1	1
2689:	0	0	1	0	0	0	0	1
2697:	0	0	0	1	1	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	1	0	2	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	1	1	0	0	0	0	0
2737:	0	0	2	0	0	0	0	0
2745:	0	1	0	1	0	0	0	0
2753:	0	1	0	0	0	0	0	0
2761:	1	0	0	0	0	0	0	0
2769:	1	0	0	0	0	0	0	0
2777:	0	0	1	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	1	0	1	1	0	0	0
2801:	0	0	0	1	0	0	0	0
2809:	2	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	1	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	1	0
2857:	0	2	0	0	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	1	0	0	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	1	0	1	1	0
2905:	0	0	1	0	0	0	0	0
2913:	0	0	0	0	1	0	0	0
2921:	0	0	0	0	2	0	2	0
2929:	0	0	0	0	0	1	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	1	1
2953:	0	0	0	0	0	0	1	1

2961:	1	0	0	0	1	0	0	0

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

3393:	1	0	0	0	0	0	0	0

Sample Title: HTC-A03-S001-3642-01

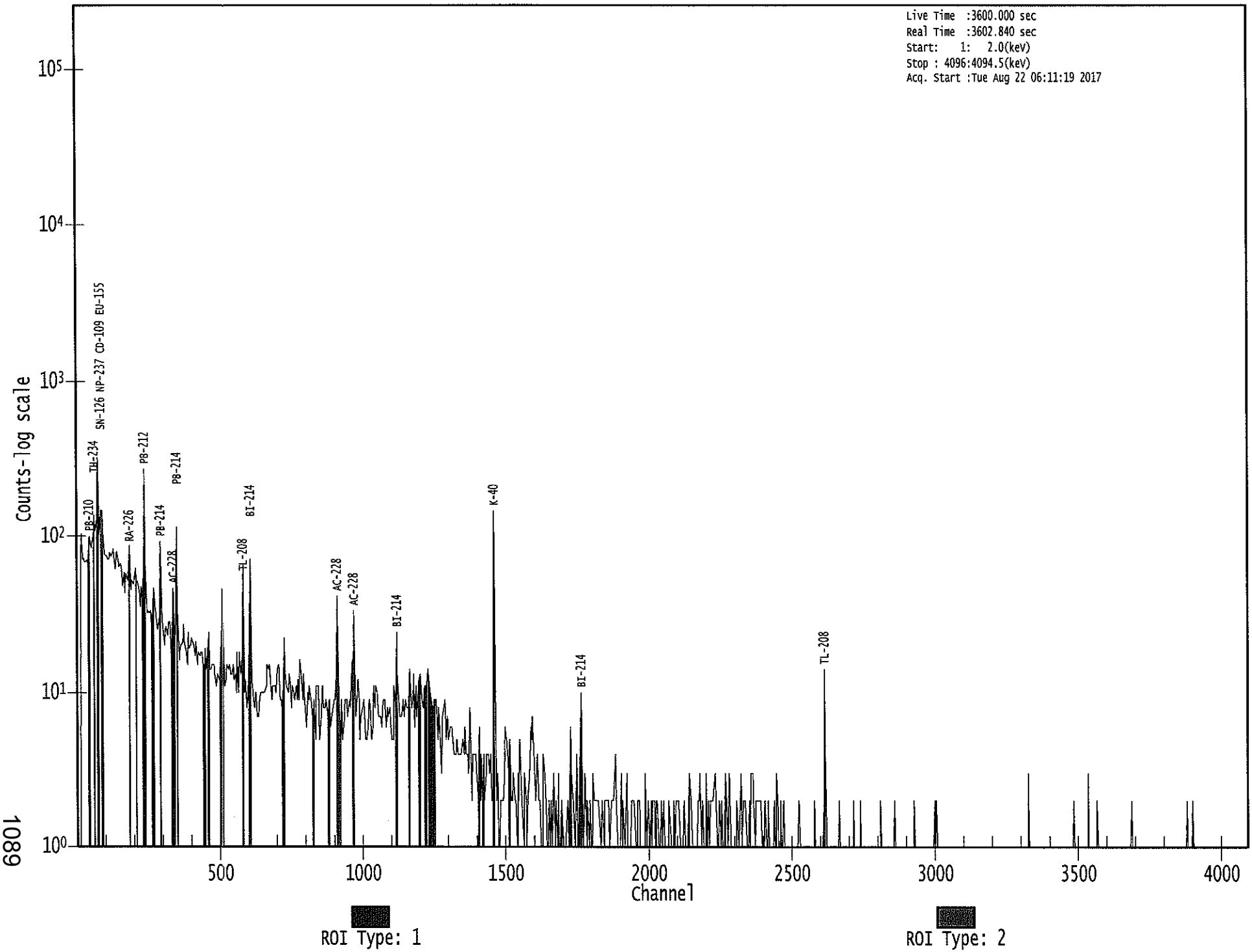
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	0	0	0	0	1	0
3441:	0	0	0	0	0	0	1	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	1	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	2	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	1	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	0	0
3521:	0	0	1	0	0	0	0	0
3529:	0	0	0	0	0	0	3	0
3537:	1	0	0	0	0	0	0	0
3545:	0	0	0	0	0	0	1	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	2	0	0	0
3569:	0	1	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	1
3601:	1	0	0	0	0	0	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	1	0	1	0	0	0
3625:	0	0	0	0	0	1	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	1	0	0	0	0	0	0
3657:	1	1	0	0	0	0	0	0
3665:	1	0	0	0	0	0	0	0
3673:	0	0	1	1	0	0	1	0
3681:	0	0	1	0	0	0	2	1
3689:	0	0	0	0	1	0	0	0
3697:	0	0	0	1	0	0	0	0
3705:	0	0	1	1	0	0	0	0
3713:	0	0	0	0	1	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:	1	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:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	1	0	0
3793:	0	0	0	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	0	0	0	0

3825:	0	0	0	0	0	0	1	1

Sample Title: HTC-A03-S001-3642-01

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

0000055683.CNF



1089

Apex-Gamma

✓ 8/22

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707086-20
Sample Description	: HTC-A03-S001-4248-01
Sample Type	: SOIL
Sample Size	: 7.367E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:18:09AM
Acquisition Started	: 8/22/2017 6:54:31AM
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	: 55686

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/22/17

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/22/2017 7:54:35AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	63.10	63.71	0.0000	0.00
2	74.72	75.31	0.0000	0.00
3	77.09	77.69	0.0000	0.00
4	86.61	87.19	0.0000	0.00
5	92.74	93.32	0.0000	0.00
6	185.62	186.10	0.0000	0.00
7	197.43	197.89	0.0000	0.00
8	209.25	209.71	0.0000	0.00
9	235.27	235.70	0.0000	0.00
10	238.63	239.06	0.0000	0.00
11	241.63	242.05	0.0000	0.00
12	254.82	255.23	0.0000	0.00
13	294.78	295.14	0.0000	0.00
14	300.49	300.85	0.0000	0.00
15	328.20	328.53	0.0000	0.00
16	338.50	338.82	0.0000	0.00
17	351.84	352.15	0.0000	0.00
18	462.66	462.86	0.0000	0.00
19	511.14	511.29	0.0000	0.00
20	583.32	583.40	0.0000	0.00
21	609.60	609.65	0.0000	0.00
22	661.16	661.16	0.0000	0.00
23	727.97	727.90	0.0000	0.00
24	754.78	754.68	0.0000	0.00
25	795.03	794.90	0.0000	0.00
26	812.38	812.23	0.0000	0.00
27	860.77	860.57	0.0000	0.00
28	880.84	880.62	0.0000	0.00
29	911.67	911.41	0.0000	0.00
30	958.72	958.42	0.0000	0.00
31	965.31	965.00	0.0000	0.00
32	969.24	968.93	0.0000	0.00
33	1121.07	1120.61	0.0000	0.00
34	1207.01	1206.46	0.0000	0.00
35	1238.17	1237.59	0.0000	0.00
36	1249.19	1248.60	0.0000	0.00
37	1256.98	1256.38	0.0000	0.00
38	1271.17	1270.56	0.0000	0.00
39	1281.69	1281.07	0.0000	0.00
40	1461.57	1460.77	0.0000	0.00
41	1587.57	1586.65	0.0000	0.00
42	1599.39	1598.45	0.0000	0.00

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1630.40	1629.44	0.0000	0.00
44	1731.98	1730.92	0.0000	0.00
45	1765.57	1764.48	0.0000	0.00
46	1801.76	1800.63	0.0000	0.00
47	1849.11	1847.94	0.0000	0.00
48	1871.50	1870.31	0.0000	0.00
49	1892.88	1891.67	0.0000	0.00
50	2105.36	2103.93	0.0000	0.00
51	2205.18	2203.67	0.0000	0.00
52	2269.37	2267.79	0.0000	0.00
53	2296.63	2295.03	0.0000	0.00
54	2389.26	2387.57	0.0000	0.00
55	2615.63	2613.72	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 7:54:35AM

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	63.10	60 -	67	63.71	2.52E+02	112.32	1.95E+03	1.50
M	2	74.72	72 -	80	75.31	3.95E+02	96.88	1.56E+03	1.81
m	3	77.09	72 -	80	77.69	5.74E+02	102.52	1.51E+03	1.59
M	4	86.61	83 -	97	87.19	3.82E+02	111.64	1.92E+03	3.93
m	5	92.74	83 -	97	93.32	4.28E+02	112.55	1.68E+03	2.60
	6	185.62	182 -	190	186.10	1.44E+02	92.32	1.23E+03	1.57
	7	197.43	194 -	201	197.89	7.74E+01	76.66	9.19E+02	3.52
	8	209.25	206 -	213	209.71	6.42E+01	77.64	9.58E+02	1.88
M	9	235.27	233 -	248	235.70	4.51E+01	39.60	3.97E+02	2.82
m	10	238.63	233 -	248	239.06	9.51E+02	77.43	4.16E+02	1.66
m	11	241.63	233 -	248	242.05	2.89E+02	93.87	5.89E+02	2.60
	12	254.82	249 -	265	255.23	1.40E+02	111.95	1.15E+03	11.33
	13	294.78	291 -	299	295.14	2.21E+02	71.89	6.65E+02	1.89
	14	300.49	299 -	303	300.85	3.31E+01	39.93	3.22E+02	2.56
	15	328.20	325 -	331	328.53	8.05E+01	50.29	3.99E+02	2.09
	16	338.50	334 -	343	338.82	1.92E+02	70.01	5.91E+02	1.63
	17	351.84	347 -	357	352.15	4.21E+02	81.78	6.71E+02	1.85
	18	462.66	459 -	468	462.86	4.66E+01	52.39	3.67E+02	1.89
	19	511.14	506 -	516	511.29	2.00E+02	61.99	4.02E+02	2.02
	20	583.32	579 -	587	583.40	2.75E+02	51.78	2.44E+02	2.09
	21	609.60	603 -	617	609.65	3.33E+02	74.40	4.42E+02	2.05
	22	661.16	656 -	665	661.16	1.09E+02	42.85	2.00E+02	2.24
	23	727.97	723 -	733	727.90	9.42E+01	44.40	2.08E+02	1.98
	24	754.78	750 -	760	754.68	4.54E+01	41.87	2.11E+02	4.00
	25	795.03	792 -	798	794.90	2.72E+01	28.94	1.32E+02	1.13
	26	812.38	810 -	814	812.23	1.91E+01	19.31	6.39E+01	2.14
	27	860.77	855 -	866	860.57	4.34E+01	40.20	1.81E+02	2.03
	28	880.84	876 -	884	880.62	4.22E+01	27.95	9.35E+01	4.54
	29	911.67	909 -	916	911.41	1.86E+02	39.70	1.43E+02	1.97
M	30	958.72	957 -	971	958.42	1.75E+01	14.81	5.17E+01	2.44
m	31	965.31	957 -	971	965.00	4.67E+01	26.70	1.09E+02	2.02
m	32	969.24	957 -	971	968.93	1.07E+02	30.35	1.15E+02	2.11
	33	1121.07	1117 -	1125	1120.61	7.41E+01	33.81	1.30E+02	2.02
	34	1207.01	1204 -	1209	1206.46	1.86E+01	23.66	9.87E+01	2.53
	35	1238.17	1232 -	1243	1237.59	7.00E+01	39.04	1.54E+02	2.65
	36	1249.19	1246 -	1251	1248.60	1.78E+01	20.27	6.64E+01	1.52
	37	1256.98	1252 -	1265	1256.38	4.38E+01	37.95	1.42E+02	6.41
	38	1271.17	1266 -	1275	1270.56	2.12E+01	27.33	9.36E+01	4.41
	39	1281.69	1276 -	1285	1281.07	2.64E+01	26.48	8.53E+01	6.79
	40	1461.57	1454 -	1467	1460.77	1.03E+03	73.84	1.48E+02	2.35

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1587.57	1572 -	1595	1586.65	3.35E+01	31.30	6.30E+01	16.70
42	1599.39	1596 -	1603	1598.45	1.04E+01	10.77	1.32E+01	2.17
43	1630.40	1624 -	1633	1629.44	1.55E+01	14.14	1.90E+01	4.06
44	1731.98	1726 -	1737	1730.92	2.40E+01	9.80	0.00E+00	2.67
45	1765.57	1760 -	1770	1764.48	7.55E+01	19.61	1.10E+01	2.52
46	1801.76	1796 -	1804	1800.63	7.80E+00	7.76	4.40E+00	2.26
47	1849.11	1843 -	1854	1847.94	1.66E+01	10.77	6.75E+00	5.93
48	1871.50	1867 -	1873	1870.31	5.21E+00	6.34	3.57E+00	2.56
49	1892.88	1889 -	1894	1891.67	6.00E+00	4.90	0.00E+00	1.92
50	2105.36	2100 -	2107	2103.93	2.53E+01	12.17	7.31E+00	3.66
51	2205.18	2200 -	2207	2203.67	1.80E+01	8.49	0.00E+00	2.97
52	2269.37	2265 -	2271	2267.79	8.50E+00	8.51	7.00E+00	3.63
53	2296.63	2289 -	2300	2295.03	1.47E+01	15.62	2.06E+01	7.24
54	2389.26	2382 -	2391	2387.57	7.33E+00	9.90	9.33E+00	7.59
55	2615.63	2609 -	2619	2613.72	1.34E+02	24.05	6.24E+00	2.11

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/22/2017 7:54:35AM

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	63.10	60 -	67	2.52E+02	112.32	1.95E+03	8.86E+01
M	2	74.72	72 -	80	3.95E+02	96.88	1.56E+03	6.49E+01
m	3	77.09	72 -	80	5.74E+02	102.52	1.51E+03	6.40E+01
M	4	86.61	83 -	97	3.82E+02	111.64	1.92E+03	7.20E+01
m	5	92.74	83 -	97	4.28E+02	112.55	1.68E+03	6.74E+01
	6	185.62	182 -	190	1.44E+02	92.32	1.23E+03	7.33E+01
	7	197.43	194 -	201	7.74E+01	76.66	9.19E+02	6.13E+01
	8	209.25	206 -	213	6.42E+01	77.64	9.58E+02	6.24E+01
M	9	235.27	233 -	248	4.51E+01	39.60	3.97E+02	3.28E+01
m	10	238.63	233 -	248	9.51E+02	77.43	4.16E+02	3.35E+01
m	11	241.63	233 -	248	2.89E+02	93.87	5.89E+02	3.99E+01
	12	254.82	249 -	265	1.40E+02	111.95	1.15E+03	8.99E+01
	13	294.78	291 -	299	2.21E+02	71.89	6.65E+02	5.38E+01

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	14	300.49	299 -	303	3.31E+01	39.93	3.22E+02	3.14E+01
	15	328.20	325 -	331	8.05E+01	50.29	3.99E+02	3.86E+01
	16	338.50	334 -	343	1.92E+02	70.01	5.91E+02	5.28E+01
	17	351.84	347 -	357	4.21E+02	81.78	6.71E+02	5.81E+01
	18	462.66	459 -	468	4.66E+01	52.39	3.67E+02	4.16E+01
	19	511.14	506 -	516	2.00E+02	61.99	4.02E+02	4.53E+01
	20	583.32	579 -	587	2.75E+02	51.78	2.44E+02	3.27E+01
	21	609.60	603 -	617	3.33E+02	74.40	4.42E+02	2.01E+01
	22	661.16	656 -	665	1.09E+02	42.85	2.00E+02	3.08E+01
	23	727.97	723 -	733	9.42E+01	44.40	2.08E+02	3.28E+01
	24	754.78	750 -	760	4.54E+01	41.87	2.11E+02	3.26E+01
	25	795.03	792 -	798	2.72E+01	28.94	1.32E+02	2.22E+01
	26	812.38	810 -	814	1.91E+01	19.31	6.39E+01	1.42E+01
	27	860.77	855 -	866	4.34E+01	40.20	1.81E+02	3.12E+01
	28	880.84	876 -	884	4.22E+01	27.95	9.35E+01	2.03E+01
	29	911.67	909 -	916	1.86E+02	39.70	1.43E+02	2.37E+01
M	30	958.72	957 -	971	1.75E+01	14.81	5.17E+01	1.18E+01
m	31	965.31	957 -	971	4.67E+01	26.70	1.09E+02	1.71E+01
m	32	969.24	957 -	971	1.07E+02	30.35	1.15E+02	1.77E+01
	33	1121.07	1117 -	1125	7.41E+01	33.81	1.30E+02	2.39E+01
	34	1207.01	1204 -	1209	1.86E+01	23.66	9.87E+01	1.81E+01
	35	1238.17	1232 -	1243	7.00E+01	39.04	1.54E+02	2.90E+01
	36	1249.19	1246 -	1251	1.78E+01	20.27	6.64E+01	1.52E+01
	37	1256.98	1252 -	1265	4.38E+01	37.95	1.42E+02	2.92E+01
	38	1271.17	1266 -	1275	2.12E+01	27.33	9.36E+01	2.12E+01
	39	1281.69	1276 -	1285	2.64E+01	26.48	8.53E+01	2.01E+01
	40	1461.57	1454 -	1467	1.03E+03	73.84	1.48E+02	2.99E+01
	41	1587.57	1572 -	1595	3.35E+01	31.30	6.30E+01	9.30E+00
	42	1599.39	1596 -	1603	1.04E+01	10.77	1.32E+01	7.09E+00
	43	1630.40	1624 -	1633	1.55E+01	14.14	1.90E+01	9.65E+00
	44	1731.98	1726 -	1737	2.40E+01	9.80	0.00E+00	0.00E+00
	45	1765.57	1760 -	1770	7.55E+01	19.61	1.10E+01	7.47E+00
	46	1801.76	1796 -	1804	7.80E+00	7.76	4.40E+00	4.43E+00
	47	1849.11	1843 -	1854	1.66E+01	10.77	6.75E+00	5.78E+00
	48	1871.50	1867 -	1873	5.21E+00	6.34	3.57E+00	3.62E+00
	49	1892.88	1889 -	1894	6.00E+00	4.90	0.00E+00	0.00E+00
	50	2105.36	2100 -	2107	2.53E+01	12.17	7.31E+00	5.61E+00
	51	2205.18	2200 -	2207	1.80E+01	8.49	0.00E+00	0.00E+00
	52	2269.37	2265 -	2271	8.50E+00	8.51	7.00E+00	5.10E+00
	53	2296.63	2289 -	2300	1.47E+01	15.62	2.06E+01	1.12E+01
	54	2389.26	2382 -	2391	7.33E+00	9.90	9.33E+00	6.81E+00
	55	2615.63	2609 -	2619	1.34E+02	24.05	6.24E+00	5.37E+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 1707086-20

HTC-A03-S001-4248-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/22/2017 7:54:35AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	63.10	60 -	67	63.71	2.52E+02	112.32	1.95E+03	TH-234
									TH-230
M	2	74.72	72 -	80	75.31	3.95E+02	96.88	1.56E+03	AM-243
m	3	77.09	72 -	80	77.69	5.74E+02	102.52	1.51E+03	.....
M	4	86.61	83 -	97	87.19	3.82E+02	111.64	1.92E+03	NP-237
									EU-155
									SN-126
m	5	92.74	83 -	97	93.32	4.28E+02	112.55	1.68E+03	GA-67
	6	185.62	182 -	190	186.10	1.44E+02	92.32	1.23E+03	RA-226
	7	197.43	194 -	201	197.89	7.74E+01	76.66	9.19E+02	.....
	8	209.25	206 -	213	209.71	6.42E+01	77.64	9.58E+02	GA-67
									CM-243
M	9	235.27	233 -	248	235.70	4.51E+01	39.60	3.97E+02	NB-95M
									TH-227
m	10	238.63	233 -	248	239.06	9.51E+02	77.43	4.16E+02	PB-212
m	11	241.63	233 -	248	242.05	2.89E+02	93.87	5.89E+02	RA-224
	12	254.82	249 -	265	255.23	1.40E+02	111.95	1.15E+03	SN-113
	13	294.78	291 -	299	295.14	2.21E+02	71.89	6.65E+02	PB-214
	14	300.49	299 -	303	300.85	3.31E+01	39.93	3.22E+02	GA-67
									PB-212
									BI-210M
	15	328.20	325 -	331	328.53	8.05E+01	50.29	3.99E+02	LA-140
	16	338.50	334 -	343	338.82	1.92E+02	70.01	5.91E+02	AC-228
	17	351.84	347 -	357	352.15	4.21E+02	81.78	6.71E+02	PB-214
	18	462.66	459 -	468	462.86	4.66E+01	52.39	3.67E+02	SB-125
	19	511.14	506 -	516	511.29	2.00E+02	61.99	4.02E+02	.....
	20	583.32	579 -	587	583.40	2.75E+02	51.78	2.44E+02	TL-208
	21	609.60	603 -	617	609.65	3.33E+02	74.40	4.42E+02	BI-214
	22	661.16	656 -	665	661.16	1.09E+02	42.85	2.00E+02	CS-137
	23	727.97	723 -	733	727.90	9.42E+01	44.40	2.08E+02	BI-212
	24	754.78	750 -	760	754.68	4.54E+01	41.87	2.11E+02	.....
	25	795.03	792 -	798	794.90	2.72E+01	28.94	1.32E+02	CS-134
	26	812.38	810 -	814	812.23	1.91E+01	19.31	6.39E+01	EU-156
	27	860.77	855 -	866	860.57	4.34E+01	40.20	1.81E+02	TL-208
	28	880.84	876 -	884	880.62	4.22E+01	27.95	9.35E+01	.....
	29	911.67	909 -	916	911.41	1.86E+02	39.70	1.43E+02	TL-204
									AC-228
M	30	958.72	957 -	971	958.42	1.75E+01	14.81	5.17E+01	.....

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	31	965.31	957 -	971	965.00	4.67E+01	26.70	1.09E+02	.....
m	32	969.24	957 -	971	968.93	1.07E+02	30.35	1.15E+02	AC-228
	33	1121.07	1117 -	1125	1120.61	7.41E+01	33.81	1.30E+02	TA-182 SC-46 BI-214
	34	1207.01	1204 -	1209	1206.46	1.86E+01	23.66	9.87E+01	.....
	35	1238.17	1232 -	1243	1237.59	7.00E+01	39.04	1.54E+02	CO-56
	36	1249.19	1246 -	1251	1248.60	1.78E+01	20.27	6.64E+01	.....
	37	1256.98	1252 -	1265	1256.38	4.38E+01	37.95	1.42E+02	.....
	38	1271.17	1266 -	1275	1270.56	2.12E+01	27.33	9.36E+01	.....
	39	1281.69	1276 -	1285	1281.07	2.64E+01	26.48	8.53E+01	.....
	40	1461.57	1454 -	1467	1460.77	1.03E+03	73.84	1.48E+02	K-40
	41	1587.57	1572 -	1595	1586.65	3.35E+01	31.30	6.30E+01	.....
	42	1599.39	1596 -	1603	1598.45	1.04E+01	10.77	1.32E+01	.....
	43	1630.40	1624 -	1633	1629.44	1.55E+01	14.14	1.90E+01	.....
	44	1731.98	1726 -	1737	1730.92	2.40E+01	9.80	0.00E+00	.....
	45	1765.57	1760 -	1770	1764.48	7.55E+01	19.61	1.10E+01	.....
	46	1801.76	1796 -	1804	1800.63	7.80E+00	7.76	4.40E+00	.....
	47	1849.11	1843 -	1854	1847.94	1.66E+01	10.77	6.75E+00	.....
	48	1871.50	1867 -	1873	1870.31	5.21E+00	6.34	3.57E+00	.....
	49	1892.88	1889 -	1894	1891.67	6.00E+00	4.90	0.00E+00	.....
	50	2105.36	2100 -	2107	2103.93	2.53E+01	12.17	7.31E+00	.....
	51	2205.18	2200 -	2207	2203.67	1.80E+01	8.49	0.00E+00	BI-214
	52	2269.37	2265 -	2271	2267.79	8.50E+00	8.51	7.00E+00	.....
	53	2296.63	2289 -	2300	2295.03	1.47E+01	15.62	2.06E+01	.....
	54	2389.26	2382 -	2391	2387.57	7.33E+00	9.90	9.33E+00	.....
	55	2615.63	2609 -	2619	2613.72	1.34E+02	24.05	6.24E+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 : 8/22/2017 7:54:35AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.10	2.52E+02	112.32	2.70E-02	2.26E-03
M	2	74.72	3.95E+02	96.88	2.75E-02	2.38E-03
m	3	77.09	5.74E+02	102.52	2.75E-02	2.40E-03

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	4	86.61	3.82E+02	111.64	2.74E-02	2.51E-03
m	5	92.74	4.28E+02	112.55	2.73E-02	2.44E-03
	6	185.62	1.44E+02	92.32	2.17E-02	1.68E-03
	7	197.43	7.74E+01	76.66	2.10E-02	1.65E-03
	8	209.25	6.42E+01	77.64	2.04E-02	1.61E-03
M	9	235.27	4.51E+01	39.60	1.90E-02	1.54E-03
m	10	238.63	9.51E+02	77.43	1.89E-02	1.53E-03
m	11	241.63	2.89E+02	93.87	1.87E-02	1.52E-03
	12	254.82	1.40E+02	111.95	1.81E-02	1.48E-03
	13	294.78	2.21E+02	71.89	1.65E-02	1.37E-03
	14	300.49	3.31E+01	39.93	1.62E-02	1.36E-03
	15	328.20	8.05E+01	50.29	1.53E-02	1.29E-03
	16	338.50	1.92E+02	70.01	1.49E-02	1.27E-03
	17	351.84	4.21E+02	81.78	1.45E-02	1.24E-03
	18	462.66	4.66E+01	52.39	1.19E-02	1.10E-03
	19	511.14	2.00E+02	61.99	1.10E-02	1.07E-03
	20	583.32	2.75E+02	51.78	9.96E-03	1.02E-03
	21	609.60	3.33E+02	74.40	9.63E-03	1.01E-03
	22	661.16	1.09E+02	42.85	9.05E-03	9.72E-04
	23	727.97	9.42E+01	44.40	8.40E-03	8.67E-04
	24	754.78	4.54E+01	41.87	8.18E-03	8.24E-04
	25	795.03	2.72E+01	28.94	7.86E-03	7.60E-04
	26	812.38	1.91E+01	19.31	7.73E-03	7.33E-04
	27	860.77	4.34E+01	40.20	7.40E-03	6.56E-04
	28	880.84	4.22E+01	27.95	7.27E-03	6.24E-04
	29	911.67	1.86E+02	39.70	7.08E-03	5.91E-04
M	30	958.72	1.75E+01	14.81	6.82E-03	5.73E-04
m	31	965.31	4.67E+01	26.70	6.79E-03	5.71E-04
m	32	969.24	1.07E+02	30.35	6.76E-03	5.69E-04
	33	1121.07	7.41E+01	33.81	6.07E-03	5.11E-04
	34	1207.01	1.86E+01	23.66	5.75E-03	4.83E-04
	35	1238.17	7.00E+01	39.04	5.64E-03	4.76E-04
	36	1249.19	1.78E+01	20.27	5.61E-03	4.74E-04
	37	1256.98	4.38E+01	37.95	5.58E-03	4.72E-04
	38	1271.17	2.12E+01	27.33	5.54E-03	4.69E-04
	39	1281.69	2.64E+01	26.48	5.50E-03	4.66E-04
	40	1461.57	1.03E+03	73.84	5.00E-03	4.25E-04
	41	1587.57	3.35E+01	31.30	4.72E-03	3.95E-04
	42	1599.39	1.04E+01	10.77	4.69E-03	3.93E-04
	43	1630.40	1.55E+01	14.14	4.63E-03	3.85E-04
	44	1731.98	2.40E+01	9.80	4.43E-03	3.62E-04
	45	1765.57	7.55E+01	19.61	4.37E-03	3.54E-04
	46	1801.76	7.80E+00	7.76	4.31E-03	3.46E-04
	47	1849.11	1.66E+01	10.77	4.23E-03	3.38E-04
	48	1871.50	5.21E+00	6.34	4.20E-03	3.38E-04
	49	1892.88	6.00E+00	4.90	4.16E-03	3.38E-04
	50	2105.36	2.53E+01	12.17	3.86E-03	3.38E-04
	51	2205.18	1.80E+01	8.49	3.74E-03	3.38E-04
	52	2269.37	8.50E+00	8.51	3.66E-03	3.38E-04
	53	2296.63	1.47E+01	15.62	3.63E-03	3.38E-04
	54	2389.26	7.33E+00	9.90	3.53E-03	3.38E-04
	55	2615.63	1.34E+02	24.05	3.30E-03	3.38E-04

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

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 : 8/22/2017 7:54:35AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.10	2.52E+02	112.32	8.94E+01	1.41E+01	1.63E+02	1.13E+02
M	2	74.72	3.95E+02	96.88			3.95E+02	9.69E+01
m	3	77.09	5.74E+02	102.52	7.20E+00	1.47E+00	5.67E+02	1.03E+02
M	4	86.61	3.82E+02	111.64			3.82E+02	1.12E+02
m	5	92.74	4.28E+02	112.55	1.38E+02	1.72E+01	2.91E+02	1.14E+02
	6	185.62	1.44E+02	92.32	5.22E+01	7.59E+00	9.16E+01	9.26E+01
	7	197.43	7.74E+01	76.66	8.08E+00	8.45E+00	6.93E+01	7.71E+01
	8	209.25	6.42E+01	77.64			6.42E+01	7.76E+01
M	9	235.27	4.51E+01	39.60			4.51E+01	3.96E+01
m	10	238.63	9.51E+02	77.43	2.13E+01	6.33E+00	9.29E+02	7.77E+01
m	11	241.63	2.89E+02	93.87			2.89E+02	9.39E+01
	12	254.82	1.40E+02	111.95			1.40E+02	1.12E+02
	13	294.78	2.21E+02	71.89			2.21E+02	7.19E+01
	14	300.49	3.31E+01	39.93			3.31E+01	3.99E+01
	15	328.20	8.05E+01	50.29			8.05E+01	5.03E+01
	16	338.50	1.92E+02	70.01			1.92E+02	7.00E+01
	17	351.84	4.21E+02	81.78	5.79E+00	4.49E+00	4.16E+02	8.19E+01
	18	462.66	4.66E+01	52.39			4.66E+01	5.24E+01
	19	511.14	2.00E+02	61.99	7.28E+01	5.30E+00	1.27E+02	6.22E+01
	20	583.32	2.75E+02	51.78	2.72E+00	3.05E+00	2.72E+02	5.19E+01
	21	609.60	3.33E+02	74.40	6.35E+00	4.02E+00	3.27E+02	7.45E+01
	22	661.16	1.09E+02	42.85			1.09E+02	4.28E+01
	23	727.97	9.42E+01	44.40			9.42E+01	4.44E+01
	24	754.78	4.54E+01	41.87			4.54E+01	4.19E+01
	25	795.03	2.72E+01	28.94			2.72E+01	2.89E+01
	26	812.38	1.91E+01	19.31			1.91E+01	1.93E+01
	27	860.77	4.34E+01	40.20			4.34E+01	4.02E+01
	28	880.84	4.22E+01	27.95			4.22E+01	2.80E+01
	29	911.67	1.86E+02	39.70	5.31E+00	3.00E+00	1.81E+02	3.98E+01
M	30	958.72	1.75E+01	14.81			1.75E+01	1.48E+01
m	31	965.31	4.67E+01	26.70			4.67E+01	2.67E+01
m	32	969.24	1.07E+02	30.35			1.07E+02	3.03E+01
	33	1121.07	7.41E+01	33.81			7.41E+01	3.38E+01
	34	1207.01	1.86E+01	23.66			1.86E+01	2.37E+01
	35	1238.17	7.00E+01	39.04			7.00E+01	3.90E+01

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
36	1249.19	1.78E+01	20.27			1.78E+01	2.03E+01
37	1256.98	4.38E+01	37.95			4.38E+01	3.79E+01
38	1271.17	2.12E+01	27.33			2.12E+01	2.73E+01
39	1281.69	2.64E+01	26.48			2.64E+01	2.65E+01
40	1461.57	1.03E+03	73.84	8.09E+00	2.23E+00	1.02E+03	7.39E+01
41	1587.57	3.35E+01	31.30			3.35E+01	3.13E+01
42	1599.39	1.04E+01	10.77			1.04E+01	1.08E+01
43	1630.40	1.55E+01	14.14			1.55E+01	1.41E+01
44	1731.98	2.40E+01	9.80			2.40E+01	9.80E+00
45	1765.57	7.55E+01	19.61			7.55E+01	1.96E+01
46	1801.76	7.80E+00	7.76			7.80E+00	7.76E+00
47	1849.11	1.66E+01	10.77			1.66E+01	1.08E+01
48	1871.50	5.21E+00	6.34			5.21E+00	6.34E+00
49	1892.88	6.00E+00	4.90			6.00E+00	4.90E+00
50	2105.36	2.53E+01	12.17			2.53E+01	1.22E+01
51	2205.18	1.80E+01	8.49			1.80E+01	8.49E+00
52	2269.37	8.50E+00	8.51			8.50E+00	8.51E+00
53	2296.63	1.47E+01	15.62			1.47E+01	1.56E+01
54	2389.26	7.33E+00	9.90			7.33E+00	9.90E+00
55	2615.63	1.34E+02	24.05	5.63E+00	1.38E+00	1.28E+02	2.41E+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 : 8/22/2017 7:54:35AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055573.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.10	2.52E+02	112.32	8.94E+01	1.41E+01	1.63E+02	1.13E+02
M	2	74.72	3.95E+02	96.88			3.95E+02	9.69E+01
m	3	77.09	5.74E+02	102.52	7.20E+00	1.47E+00	5.67E+02	1.03E+02
M	4	86.61	3.82E+02	111.64			3.82E+02	1.12E+02
m	5	92.74	4.28E+02	112.55	1.38E+02	1.72E+01	2.91E+02	1.14E+02
	6	185.62	1.44E+02	92.32	5.22E+01	7.59E+00	9.16E+01	9.26E+01
	7	197.43	7.74E+01	76.66	8.08E+00	8.45E+00	6.93E+01	7.71E+01
	8	209.25	6.42E+01	77.64			6.42E+01	7.76E+01

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	9	235.27	4.51E+01	39.60			4.51E+01	3.96E+01
m	10	238.63	9.51E+02	77.43	2.13E+01	6.33E+00	9.29E+02	7.77E+01
m	11	241.63	2.89E+02	93.87			2.89E+02	9.39E+01
	12	254.82	1.40E+02	111.95			1.40E+02	1.12E+02
	13	294.78	2.21E+02	71.89			2.21E+02	7.19E+01
	14	300.49	3.31E+01	39.93			3.31E+01	3.99E+01
	15	328.20	8.05E+01	50.29			8.05E+01	5.03E+01
	16	338.50	1.92E+02	70.01			1.92E+02	7.00E+01
	17	351.84	4.21E+02	81.78	5.79E+00	4.49E+00	4.16E+02	8.19E+01
	18	462.66	4.66E+01	52.39			4.66E+01	5.24E+01
	19	511.14	2.00E+02	61.99	7.28E+01	5.30E+00	1.27E+02	6.22E+01
	20	583.32	2.75E+02	51.78	2.72E+00	3.05E+00	2.72E+02	5.19E+01
	21	609.60	3.33E+02	74.40	6.35E+00	4.02E+00	3.27E+02	7.45E+01
	22	661.16	1.09E+02	42.85			1.09E+02	4.28E+01
	23	727.97	9.42E+01	44.40			9.42E+01	4.44E+01
	24	754.78	4.54E+01	41.87			4.54E+01	4.19E+01
	25	795.03	2.72E+01	28.94			2.72E+01	2.89E+01
	26	812.38	1.91E+01	19.31			1.91E+01	1.93E+01
	27	860.77	4.34E+01	40.20			4.34E+01	4.02E+01
	28	880.84	4.22E+01	27.95			4.22E+01	2.80E+01
	29	911.67	1.86E+02	39.70	5.31E+00	3.00E+00	1.81E+02	3.98E+01
M	30	958.72	1.75E+01	14.81			1.75E+01	1.48E+01
m	31	965.31	4.67E+01	26.70			4.67E+01	2.67E+01
m	32	969.24	1.07E+02	30.35			1.07E+02	3.03E+01
	33	1121.07	7.41E+01	33.81			7.41E+01	3.38E+01
	34	1207.01	1.86E+01	23.66			1.86E+01	2.37E+01
	35	1238.17	7.00E+01	39.04			7.00E+01	3.90E+01
	36	1249.19	1.78E+01	20.27			1.78E+01	2.03E+01
	37	1256.98	4.38E+01	37.95			4.38E+01	3.79E+01
	38	1271.17	2.12E+01	27.33			2.12E+01	2.73E+01
	39	1281.69	2.64E+01	26.48			2.64E+01	2.65E+01
	40	1461.57	1.03E+03	73.84	8.09E+00	2.23E+00	1.02E+03	7.39E+01
	41	1587.57	3.35E+01	31.30			3.35E+01	3.13E+01
	42	1599.39	1.04E+01	10.77			1.04E+01	1.08E+01
	43	1630.40	1.55E+01	14.14			1.55E+01	1.41E+01
	44	1731.98	2.40E+01	9.80			2.40E+01	9.80E+00
	45	1765.57	7.55E+01	19.61			7.55E+01	1.96E+01
	46	1801.76	7.80E+00	7.76			7.80E+00	7.76E+00
	47	1849.11	1.66E+01	10.77			1.66E+01	1.08E+01
	48	1871.50	5.21E+00	6.34			5.21E+00	6.34E+00
	49	1892.88	6.00E+00	4.90			6.00E+00	4.90E+00
	50	2105.36	2.53E+01	12.17			2.53E+01	1.22E+01
	51	2205.18	1.80E+01	8.49			1.80E+01	8.49E+00
	52	2269.37	8.50E+00	8.51			8.50E+00	8.51E+00
	53	2296.63	1.47E+01	15.62			1.47E+01	1.56E+01
	54	2389.26	7.33E+00	9.90			7.33E+00	9.90E+00
	55	2615.63	1.34E+02	24.05	5.63E+00	1.38E+00	1.28E+02	2.41E+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 1707086-20

HTC-A03-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	0.912	1460.81	*	10.67	1.95E+01	2.21E+00
SN-126	0.863	87.57	*	37.00	3.84E-01	1.17E-01
CS-137	0.962	661.65	*	85.12	1.45E-01	5.92E-02
EU-155	0.362	86.50	*	30.90	4.77E-01	1.46E-01
		105.30		20.70		
TL-208	0.923	583.14	*	30.22	9.22E-01	1.99E-01
		860.37	*	4.48	1.34E+00	1.24E+00
		2614.66	*	35.85	1.10E+00	2.36E-01
BI-212	0.684	727.17	*	11.80	9.68E-01	4.67E-01
		1620.62		2.75		
PB-212	0.998	238.63	*	44.60	1.13E+00	1.31E-01
		300.09	*	3.41	6.08E-01	7.37E-01
BI-214	0.729	609.31	*	46.30	7.47E-01	1.87E-01
		1120.29	*	15.10	8.24E-01	3.82E-01
		1764.49		15.80		
		2204.22	*	4.98	9.86E-01	4.73E-01
PB-214	0.989	295.21	*	19.19	7.12E-01	2.40E-01
		351.92	*	37.19	7.83E-01	1.68E-01
RA-224	0.935	240.98	*	3.95	3.99E+00	1.33E+00
RA-226	0.946	186.21	*	3.28	1.31E+00	2.74E+00
AC-228	0.970	338.32	*	11.40	1.15E+00	4.30E-01
		911.07	*	27.70	9.40E-01	2.21E-01
		969.11	*	16.60	9.68E-01	2.87E-01
TH-234	0.994	63.29	*	3.80	1.62E+00	1.13E+00
NP-237	0.998	86.50	*	12.60	1.13E+00	3.45E-01
AM-243	1.000	74.67	*	66.00	2.22E-01	5.78E-02

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

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 7:54:35AM
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	77.09	1.57539E-01	9.04		
m	5	92.74	8.07034E-02	19.59	Tol.	GA-67
	7	197.43	1.92507E-02	55.64		
	8	209.25	1.78251E-02	60.50	Tol.	GA-67 CM-243
M	9	235.27	1.25375E-02	43.87	Tol.	TH-227
	12	254.82	3.89908E-02	39.88	Tol.	SN-113
	15	328.20	2.23527E-02	31.25	Sum	
	18	462.66	1.29481E-02	56.20	Tol.	SB-125
	19	511.14	3.52967E-02	24.48		
	24	754.78	1.25993E-02	46.16		
	25	795.03	7.54182E-03	53.29	Sum	
	26	812.38	5.29684E-03	50.62	Tol.	EU-156
	28	880.84	1.17353E-02	33.08		
M	30	958.72	4.86554E-03	42.27		
m	31	965.31	1.29680E-02	28.60		
	34	1207.01	5.17565E-03	63.50	Sum	
	35	1238.17	1.94501E-02	27.88	Tol.	CO-56
	36	1249.19	4.95098E-03	56.87	Sum	
	37	1256.98	1.21763E-02	43.28		
	38	1271.17	5.89052E-03	64.44	Sum	
	39	1281.69	7.32287E-03	50.22		
	41	1587.57	9.30556E-03	46.72		
	42	1599.39	2.88399E-03	51.87		
	43	1630.40	4.31111E-03	45.56	Sum	
	44	1731.98	6.66667E-03	20.41		
	45	1765.57	2.09722E-02	12.99		
	46	1801.76	2.16667E-03	49.76		
	47	1849.11	4.61806E-03	32.39	Sum	
	48	1871.50	1.44841E-03	60.84		
	49	1892.88	1.66667E-03	40.82		
	50	2105.36	7.04023E-03	24.00	S-Esc	
	52	2269.37	2.36111E-03	50.09		
	53	2296.63	4.07778E-03	53.20		
	54	2389.26	2.03704E-03	67.50		

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 1707086-20

HTC-A03-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	0.91	1460.81	*	10.67	1.95E+01	2.21E+00
SN-126	0.86	87.57	*	37.00	3.84E-01	1.17E-01
CS-137	0.96	661.65	*	85.12	1.45E-01	5.92E-02
EU-155	0.36	86.50	*	30.90	4.77E-01	1.46E-01
		105.30		20.70		
TL-208	0.92	583.14	*	30.22	9.22E-01	1.99E-01
		860.37	*	4.48	1.34E+00	1.24E+00
		2614.66	*	35.85	1.10E+00	2.36E-01
BI-212	0.68	727.17	*	11.80	9.68E-01	4.67E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.13E+00	1.31E-01
		300.09	*	3.41	6.08E-01	7.37E-01
BI-214	0.72	609.31	*	46.30	7.47E-01	1.87E-01
		1120.29	*	15.10	8.24E-01	3.82E-01
		1764.49		15.80		
		2204.22	*	4.98	9.86E-01	4.73E-01
PB-214	0.98	295.21	*	19.19	7.12E-01	2.40E-01
		351.92	*	37.19	7.83E-01	1.68E-01
RA-224	0.93	240.98	*	3.95	3.99E+00	1.33E+00
RA-226	0.94	186.21	*	3.28	1.31E+00	2.74E+00
AC-228	0.97	338.32	*	11.40	1.15E+00	4.30E-01
		911.07	*	27.70	9.40E-01	2.21E-01
		969.11	*	16.60	9.68E-01	2.87E-01
TH-234	0.99	63.29	*	3.80	1.62E+00	1.13E+00
NP-237	0.99	86.50	*	12.60	1.13E+00	3.45E-01
AM-243	1.00	74.67	*	66.00	2.22E-01	5.78E-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

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.912	1.95E+01	2.21E+00	
?	SN-126	0.863	3.84E-01	1.17E-01	
	CS-137	0.962	1.45E-01	5.92E-02	
?	EU-155	0.362	4.77E-01	1.46E-01	
	TL-208	0.923	1.00E+00	1.51E-01	
	BI-212	0.684	9.68E-01	4.67E-01	
	PB-212	0.998	1.11E+00	1.29E-01	
	BI-214	0.729	7.87E-01	1.59E-01	
	PB-214	0.989	7.60E-01	1.38E-01	
	RA-224	0.935	3.99E+00	1.33E+00	
	RA-226	0.946	1.31E+00	2.74E+00	
	AC-228	0.970	9.79E-01	1.62E-01	
	TH-234	0.994	1.62E+00	1.13E+00	
?	NP-237	0.998	1.13E+00	3.45E-01	
	AM-243	1.000	2.22E-01	5.78E-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 1707086-20

HTC-A03-S001-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/22/2017 7:54:35AM
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	77.09	1.57539E-01	9.04		
m	5	92.74	8.07034E-02	19.59	Tol.	GA-67
	7	197.43	1.92507E-02	55.64		
	8	209.25	1.78251E-02	60.50	Tol.	GA-67
						CM-243
M	9	235.27	1.25375E-02	43.87	Tol.	TH-227
	12	254.82	3.89908E-02	39.88	Tol.	SN-113
	15	328.20	2.23527E-02	31.25	Sum	
	18	462.66	1.29481E-02	56.20	Tol.	SB-125
	19	511.14	3.52967E-02	24.48		
	24	754.78	1.25993E-02	46.16		
	25	795.03	7.54182E-03	53.29	Sum	
	26	812.38	5.29684E-03	50.62	Tol.	EU-156
	28	880.84	1.17353E-02	33.08		
M	30	958.72	4.86554E-03	42.27		
m	31	965.31	1.29680E-02	28.60		
	34	1207.01	5.17565E-03	63.50	Sum	
	35	1238.17	1.94501E-02	27.88	Tol.	CO-56
	36	1249.19	4.95098E-03	56.87	Sum	
	37	1256.98	1.21763E-02	43.28		
	38	1271.17	5.89052E-03	64.44	Sum	
	39	1281.69	7.32287E-03	50.22		
	41	1587.57	9.30556E-03	46.72		
	42	1599.39	2.88399E-03	51.87		
	43	1630.40	4.31111E-03	45.56	Sum	
	44	1731.98	6.66667E-03	20.41		
	45	1765.57	2.09722E-02	12.99		
	46	1801.76	2.16667E-03	49.76		
	47	1849.11	4.61806E-03	32.39	Sum	
	48	1871.50	1.44841E-03	60.84		
	49	1892.88	1.66667E-03	40.82		
	50	2105.36	7.04023E-03	24.00	S-Esc	
	52	2269.37	2.36111E-03	50.09		
	53	2296.63	4.07778E-03	53.20		

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2389.26	2.03704E-03	67.50		

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	-1.12E-01	1.61E+00	1.61E+00
+		NA-22	1274.54		99.94	2.05E-03	6.86E-02	6.86E-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	-2.11E-02	2.85E-02	2.85E-02
+		K-40	1460.81	*	10.67	1.95E+01	1.21E+00	1.21E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-6.12E-03	5.05E-02	5.05E-02
			78.34		96.00	1.33E-01		6.56E-02
+		SC-46	889.25		99.98	1.10E-01	1.33E-01	1.33E-01
			1120.51		99.99	2.52E-01		2.10E-01
+		V-48	983.52		99.98	-4.57E-01	3.97E+00	3.97E+00
			1312.10		97.50	8.49E-01		4.60E+00
+		CR-51	320.08		9.83	-1.46E+00	5.35E+00	5.35E+00
+		MN-54	834.83		99.97	-8.66E-03	7.89E-02	7.89E-02
+		CO-56	846.75		99.96	1.93E-02	1.34E-01	1.34E-01
			1037.75		14.03	-6.92E-02		1.08E+00
			1238.25		67.00	2.64E-01		3.24E-01
			1771.40		15.51	-3.60E-02		5.99E-01
			2598.48		16.90	1.73E-01		5.21E-01
+		CO-57	122.06		85.51	1.64E-02	5.92E-02	5.92E-02
			136.48		10.60	-1.76E-03		5.02E-01
+		CO-58	810.76		99.40	-3.97E-03	1.44E-01	1.44E-01
+		FE-59	1099.22		56.50	-9.22E-02	5.11E-01	5.11E-01
			1291.56		43.20	3.29E-01		7.33E-01
+		CO-60	1173.22		100.00	7.06E-03	4.84E-02	7.39E-02
			1332.49		100.00	-3.26E-02		4.84E-02
+		ZN-65	1115.52		50.75	9.40E-02	1.79E-01	1.79E-01

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GA-67	93.31	35.70	3.90E+08	2.00E+08	2.00E+08
		208.95	2.24	2.07E+09		2.77E+09
		300.22	16.00	-6.76E+08		4.18E+08
+	SE-75	121.11	16.70	-6.26E-02	1.24E-01	4.08E-01
		136.00	59.20	-4.32E-04		1.24E-01
		264.65	59.80	-6.63E-02		1.28E-01
		279.53	25.20	1.42E-01		3.38E-01
		400.65	11.40	-1.55E-01		7.44E-01
+	RB-82	776.52	13.00	-2.80E+00	5.60E+00	5.60E+00
+	RB-83	520.41	46.00	5.41E-02	2.37E-01	2.37E-01
		529.64	30.30	-2.97E-01		3.29E-01
		552.65	16.40	-2.21E-02		7.12E-01
+	KR-85	513.99	0.43	2.28E+01	1.73E+01	1.73E+01
+	SR-85	513.99	99.27	2.82E-01	2.14E-01	2.14E-01
+	Y-88	898.02	93.40	1.58E-02	8.32E-02	1.07E-01
		1836.01	99.38	-8.55E-03		8.32E-02
+	MO-93	263.06	56.72	1.62E-02	4.37E-02	8.20E-02
		684.67	99.68	6.13E-03		5.32E-02
		1477.11	99.08	1.03E-02		4.37E-02
+	NB-93M	16.57	9.43	-1.22E-01	4.61E-01	4.61E-01
+	NB-94	702.63	100.00	2.05E-02	5.43E-02	5.78E-02
		871.10	100.00	1.42E-02		5.43E-02
+	NB-95	765.79	99.81	2.46E-01	4.50E-01	4.50E-01
+	NB-95M	235.69	25.00	-2.56E+08	3.91E+07	3.91E+07
+	ZR-95	724.18	43.70	1.82E-02	3.26E-01	4.17E-01
		756.72	55.30	9.85E-02		3.26E-01
+	MO-99	181.06	6.20	6.49E+09	3.03E+10	4.22E+10
		739.58	12.80	2.08E+10		3.03E+10
		778.00	4.50	-3.74E+10		7.51E+10
+	RU-103	497.08	89.00	-8.67E-03	3.08E-01	3.08E-01
+	RU-106	621.84	9.80	-4.16E-01	5.50E-01	5.50E-01
+	AG-108M	433.93	89.90	-1.25E-02	5.75E-02	5.75E-02
		614.37	90.40	-2.81E-01		6.86E-02
		722.95	90.50	9.27E-03		6.15E-02
+	CD-109	88.03	3.72	-8.49E-01	1.64E+00	1.64E+00
+	AG-110M	657.75	93.14	-4.00E-02	8.71E-02	8.71E-02
		677.61	10.53	6.32E-02		6.47E-01
		706.67	16.46	7.13E-02		4.67E-01
		763.93	21.98	-1.57E-01		3.51E-01
		884.67	71.63	-9.04E-03		1.06E-01
		1384.27	23.94	9.15E-02		3.17E-01
+	CD-113M	263.70	0.02	-1.71E+01	1.94E+02	1.94E+02
+	SN-113	255.12	1.93	-2.18E+00	1.33E-01	3.71E+00
		391.69	64.90	-6.05E-04		1.33E-01
+	TE123M	159.00	84.10	2.10E-02	8.78E-02	8.78E-02
+	SB-124	602.71	97.87	3.20E-02	1.77E-01	1.77E-01
		645.85	7.26	1.09E+00		2.19E+00
		722.78	11.10	2.36E-01		1.56E+00

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02		49.00	5.76E-02	1.77E-01	2.71E-01
+	I-125	35.49		6.49	-1.31E+00	2.05E+00	2.05E+00
+	SB-125	176.33		6.89	-7.88E-02	1.79E-01	6.09E-01
		427.89		29.33	1.37E-02		1.79E-01
		463.38		10.35	3.25E-01		5.64E-01
		600.56		17.80	1.01E-01		3.21E-01
		635.90		11.32	1.50E-01		4.82E-01
+	SB-126	414.70		83.30	-9.28E+00	1.27E+01	1.38E+01
		666.33		99.60	3.36E+00		1.41E+01
		695.00		99.60	-5.96E+00		1.27E+01
		720.50		53.80	9.61E+00		2.45E+01
+	SN-126	87.57	*	37.00	3.84E-01	2.85E-01	2.85E-01
+	SB-127	473.00		25.00	2.26E+06	7.94E+06	1.05E+07
		685.20		35.70	9.14E+05		7.94E+06
		783.80		14.70	7.12E+06		2.24E+07
+	I-129	29.78		57.00	-3.26E-02	8.30E-02	8.30E-02
		33.60		13.20	-4.47E-02		3.36E-01
		39.58		7.52	1.06E-01		5.64E-01
+	I-131	284.30		6.05	-1.07E+02	2.78E+02	3.85E+03
		364.48		81.20	-1.00E+00		2.78E+02
		636.97		7.26	1.22E+03		3.57E+03
		722.89		1.80	2.35E+03		1.56E+04
+	TE-132	49.72		13.10	-8.38E+08	6.43E+07	4.22E+08
		228.16		88.00	-4.41E+06		6.43E+07
+	BA-133	81.00		33.00	3.55E-02	1.10E-01	1.46E-01
		302.84		17.80	-6.53E-04		2.78E-01
		356.01		60.00	2.14E-02		1.10E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	1.45E+04	5.97E+04	5.97E+04
+	CS-134	563.23		8.38	-9.04E-02	6.43E-02	6.70E-01
		569.32		15.43	7.48E-02		3.78E-01
		604.70		97.60	-5.87E-01		6.43E-02
		795.84		85.40	3.24E-02		8.04E-02
		801.93		8.73	1.23E-02		7.04E-01
+	CS-135	268.24		16.00	2.31E-01	3.16E-01	3.16E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-2.03E+01	9.58E+00	9.70E+01
		163.89		4.61	-4.20E+01		1.57E+02
		176.55		13.56	-6.86E+00		5.30E+01
		273.65		12.66	-4.30E+00		7.32E+01
		340.57		48.50	4.88E+01		2.44E+01
		818.50		99.70	2.33E+00		9.58E+00
		1048.07		79.60	-6.35E+00		1.47E+01
		1235.34		19.70	2.11E+01		8.01E+01
+	CS-137	661.65	*	85.12	1.45E-01	8.56E-02	8.56E-02
+	LA-138	788.74		34.00	-1.49E-03	7.62E-02	1.71E-01
		1435.80		66.00	3.29E-02		7.62E-02

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		CE-139	165.85		80.35	3.89E-03	8.02E-02	8.02E-02
+		BA-140	162.64		6.70	1.71E+01	4.43E+01	1.29E+02
			304.84		4.50	-1.43E+01		2.16E+02
			423.70		3.20	-1.28E+02		3.18E+02
			437.55		2.00	1.14E+02		5.50E+02
			537.32		25.00	2.14E+01		4.43E+01
+		LA-140	328.77		20.50	5.45E+01	1.14E+01	5.64E+01
			487.03		45.50	1.70E-01		2.32E+01
			815.85		23.50	-1.53E+01		4.53E+01
			1596.49		95.49	1.69E+00		1.14E+01
+		CE-141	145.44		48.40	6.14E-02	6.81E-01	6.81E-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	-1.63E-01	4.68E-01	4.68E-01
+		PM-144	476.78		42.00	-1.13E-01	5.91E-02	1.29E-01
			618.01		98.60	8.54E-03		5.91E-02
			696.49		99.49	-3.63E-02		6.00E-02
+		PM-145	36.85		21.70	-1.10E-02	1.09E-01	1.99E-01
			37.36		39.70	-7.14E-02		1.09E-01
			42.30		15.10	-3.64E-01		2.68E-01
			72.40		2.31	-2.30E+00		2.46E+00
+		PM-146	453.90		39.94	1.77E-05	1.19E-01	1.19E-01
			735.90		14.01	-1.51E-01		3.55E-01
			747.13		13.10	-1.64E-01		3.93E-01
+		ND-147	91.11		28.90	1.56E+02	9.84E+01	9.84E+01
			531.02		13.10	-1.05E+02		1.84E+02
+		PM-149	285.90		3.10	7.54E+11	4.31E+13	4.31E+13
+		EU-152	121.78		20.50	-2.92E-02	1.90E-01	1.90E-01
			244.69		5.40	-1.23E-01		8.57E-01
			344.27		19.13	-1.30E-02		2.52E-01
			778.89		9.20	1.81E-01		5.82E-01
			964.01		10.40	-1.33E+00		7.20E-01
			1085.78		7.22	-1.20E-01		7.97E-01
			1112.02		9.60	2.73E-01		7.24E-01
			1407.95		14.94	-9.87E-02		3.23E-01
+		GD-153	97.43		31.30	7.22E-02	1.76E-01	1.76E-01
			103.18		22.20	-2.41E-02		2.40E-01
+		EU-154	123.07		40.50	-3.39E-02	9.67E-02	9.67E-02
			723.30		19.70	4.35E-02		2.88E-01
			873.19		11.50	3.46E-02		4.64E-01
			996.32		10.30	-2.43E-01		5.33E-01
			1004.76		17.90	9.17E-02		3.55E-01
			1274.45		35.50	5.48E-03		1.84E-01
+		EU-155	86.50	*	30.90	4.77E-01	2.05E-01	3.54E-01
			105.30		20.70	6.07E-02		2.05E-01
+		EU-156	811.77		10.40	1.07E+01	4.75E+01	4.75E+01
			1153.47		7.20	5.94E+01		9.86E+01
			1230.71		8.90	7.26E+00		7.31E+01

Analysis Report for 1707086-20

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HO-166M	184.41		72.60	1.33E-01	6.96E-02	6.96E-02
		280.45		29.60	6.99E-02		1.62E-01
		410.94		11.10	-1.25E-01		4.11E-01
		711.69		54.10	4.52E-02		9.99E-02
+	TM-171	66.72		0.14	1.72E+00	3.76E+01	3.76E+01
+	HF-172	67.35		5.31	-1.20E-01	3.86E-01	9.90E-01
		125.81		11.30	-1.95E-01		3.86E-01
+	LU-172	181.53		20.60	8.14E+02	2.73E+03	5.29E+03
		900.72		29.81	-2.05E+03		4.95E+03
		1093.66		62.50	1.73E+02		2.73E+03
+	LU-173	100.72		5.24	1.19E-02	2.81E-01	8.85E-01
		272.11		21.20	7.22E-02		2.81E-01
+	HF-175	343.40		84.00	-7.78E-03	1.53E-01	1.53E-01
+	LU-176	88.34		13.30	-2.05E-01	4.61E-02	3.96E-01
		201.83		86.00	-1.04E-02		4.61E-02
		306.78		94.00	4.63E-03		4.82E-02
+	HF-181	133.02		41.70	-1.67E-01	2.86E-01	4.80E-01
		345.85		17.20	-7.22E-02		1.37E+00
		482.03		82.80	-1.58E-01		2.86E-01
+	TA-182	67.75		41.20	-2.55E-02	2.10E-01	2.10E-01
		1121.30		34.90	6.80E-01		4.85E-01
		1189.05		16.23	-1.42E-01		8.46E-01
		1221.41		26.98	2.22E-01		5.22E-01
		1231.02		11.44	1.13E-01		1.13E+00
+	IR-192	308.46		29.68	-4.42E-02	2.47E-01	3.76E-01
		468.07		48.10	-5.68E-02		2.47E-01
+	HG-203	279.19		77.30	1.14E-01	2.70E-01	2.70E-01
+	TL-204	374.74		94.11	-4.63E-03	5.16E-02	5.16E-02
		899.15		99.16	-1.19E-02		5.47E-02
		911.74		91.10	2.89E-01		1.25E-01
+	BI-207	569.67		97.72	1.39E-02	5.55E-02	5.55E-02
		1063.62		74.90	1.79E-02		8.14E-02
+	TL-208	583.14	*	30.22	9.22E-01	1.39E-01	2.32E-01
		860.37	*	4.48	1.34E+00		2.00E+00
		2614.66	*	35.85	1.10E+00		1.39E-01
+	BI-210M	262.00		45.00	6.58E-03	1.02E-01	1.02E-01
		300.00		23.00	-7.18E-01		2.17E-01
+	PB-210	46.50		4.25	1.18E+00	1.05E+00	1.05E+00
+	PB-211	404.84		2.90	1.08E-01	1.68E+00	1.68E+00
		831.96		2.90	-2.87E-01		2.12E+00
+	BI-212	727.17	*	11.80	9.68E-01	7.03E-01	7.03E-01
		1620.62		2.75	2.39E-01		1.50E+00
+	PB-212	238.63	*	44.60	1.13E+00	2.17E-01	2.17E-01
		300.09	*	3.41	6.08E-01		1.21E+00
+	BI-214	609.31	*	46.30	7.47E-01	1.48E-01	2.51E-01
		1120.29	*	15.10	8.24E-01		5.62E-01
		1764.49		15.80	9.97E-01		6.38E-01
		2204.22	*	4.98	9.86E-01		1.48E-01

Analysis Report for 1707086-20

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-214	295.21	*	19.19	7.12E-01	2.25E-01	3.56E-01
		351.92	*	37.19	7.83E-01		2.25E-01
+	RN-219	401.80		6.50	5.24E-02	7.48E-01	7.48E-01
+	RA-223	323.87		3.88	1.74E-01	1.20E+00	1.20E+00
+	RA-224	240.98	*	3.95	3.99E+00	2.49E+00	2.49E+00
+	RA-225	40.00		31.00	6.05E+00	1.41E+01	1.41E+01
+	RA-226	186.21	*	3.28	1.31E+00	2.17E+00	2.17E+00
+	TH-227	50.10		8.40	1.88E-01	4.80E-01	4.93E-01
		236.00		11.50	-3.14E+00		4.80E-01
		256.20		6.30	3.30E-02		7.56E-01
+	AC-228	338.32	*	11.40	1.15E+00	2.65E-01	6.49E-01
		911.07	*	27.70	9.40E-01		2.65E-01
		969.11	*	16.60	9.68E-01		7.42E-01
+	TH-230	48.44		16.90	-4.16E-02	2.54E-01	2.54E-01
		62.85		4.60	1.75E+00		1.14E+00
		67.67		0.37	-1.56E+00		1.28E+01
+	PA-231	283.67		1.60	-1.31E+00	2.11E+00	2.83E+00
		302.67		2.30	-4.96E-03		2.11E+00
+	TH-231	25.64		14.70	-2.86E+00	4.04E-01	4.04E-01
		84.21		6.40	-3.93E-01		7.73E-01
+	PA-233	311.98		38.60	-2.20E-01	1.44E+00	1.44E+00
+	PA-234	131.20		20.40	-9.55E-02	1.95E-01	1.95E-01
		733.99		8.80	6.46E-02		5.54E-01
		946.00		12.00	-1.60E-01		4.43E-01
+	PA-234M	1001.03		0.92	-3.36E-01	6.55E+00	6.55E+00
+	TH-234	63.29	*	3.80	1.62E+00	1.83E+00	1.83E+00
+	U-235	143.76		10.50	-7.00E-02	3.82E-01	3.82E-01
		163.35		4.70	-2.25E-01		8.38E-01
		205.31		4.70	-1.68E-01		8.73E-01
+	NP-237	86.50	*	12.60	1.13E+00	8.37E-01	8.37E-01
+	NP-239	106.10		22.70	2.68E+11	8.04E+11	8.04E+11
		228.18		10.70	-1.16E+11		1.70E+12
		277.60		14.10	5.75E+11		1.54E+12
+	AM-241	59.54		35.90	2.33E-02	1.23E-01	1.23E-01
+	AM-243	74.67	*	66.00	2.22E-01	1.17E-01	1.17E-01
+	CM-243	209.75		3.29	1.02E+00	3.53E-01	1.41E+00
		228.14		10.60	-2.68E-02		3.90E-01
		277.60		14.00	1.32E-01		3.53E-01

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

Analysis Report for 1707086-20

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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	1.61E+00	1.61E+00	-1.12E-01	7.65E-01
	NA-22	1274.54		99.94	6.86E-02	6.86E-02	2.05E-03	3.16E-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	2.85E-02	2.85E-02	-2.11E-02	1.11E-02
+	K-40	1460.81	*	10.67	1.21E+00	1.21E+00	1.95E+01	5.79E-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	-6.12E-03	2.47E-02
		78.34		96.00	6.56E-02		1.33E-01	3.23E-02
	SC-46	889.25		99.98	1.33E-01	1.33E-01	1.10E-01	6.23E-02
		1120.51		99.99	2.10E-01		2.52E-01	9.97E-02
	V-48	983.52		99.98	3.97E+00	3.97E+00	-4.57E-01	1.84E+00
		1312.10		97.50	4.60E+00		8.49E-01	2.11E+00
	CR-51	320.08		9.83	5.35E+00	5.35E+00	-1.46E+00	2.57E+00
	MN-54	834.83		99.97	7.89E-02	7.89E-02	-8.66E-03	3.72E-02
	CO-56	846.75		99.96	1.34E-01	1.34E-01	1.93E-02	6.24E-02
		1037.75		14.03	1.08E+00		-6.92E-02	5.02E-01
		1238.25		67.00	3.24E-01		2.64E-01	1.53E-01
		1771.40		15.51	5.99E-01		-3.60E-02	2.51E-01
		2598.48		16.90	5.21E-01		1.73E-01	2.02E-01
	CO-57	122.06		85.51	5.92E-02	5.92E-02	1.64E-02	2.88E-02
		136.48		10.60	5.02E-01		-1.76E-03	2.44E-01
	CO-58	810.76		99.40	1.44E-01	1.44E-01	-3.97E-03	6.74E-02
	FE-59	1099.22		56.50	5.11E-01	5.11E-01	-9.22E-02	2.37E-01
		1291.56		43.20	7.33E-01		3.29E-01	3.39E-01
	CO-60	1173.22		100.00	7.39E-02	4.84E-02	7.06E-03	3.45E-02
		1332.49		100.00	4.84E-02		-3.26E-02	2.15E-02
	ZN-65	1115.52		50.75	1.79E-01	1.79E-01	9.40E-02	8.37E-02
	GA-67	93.31		35.70	2.00E+08	2.00E+08	3.90E+08	9.79E+07
		208.95		2.24	2.77E+09		2.07E+09	1.34E+09
		300.22		16.00	4.18E+08		-6.76E+08	2.02E+08
	SE-75	121.11		16.70	4.08E-01	1.24E-01	-6.26E-02	1.98E-01
		136.00		59.20	1.24E-01		-4.32E-04	6.01E-02
		264.65		59.80	1.28E-01		-6.63E-02	6.15E-02
		279.53		25.20	3.38E-01		1.42E-01	1.63E-01
		400.65		11.40	7.44E-01		-1.55E-01	3.56E-01
	RB-82	776.52		13.00	5.60E+00	5.60E+00	-2.80E+00	2.61E+00

Analysis Report for 1707086-20

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	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RB-83	520.41		46.00	2.37E-01	2.37E-01	5.41E-02	1.12E-01
		529.64		30.30	3.29E-01		-2.97E-01	1.55E-01
		552.65		16.40	7.12E-01		-2.21E-02	3.38E-01
	KR-85	513.99		0.43	1.73E+01	1.73E+01	2.28E+01	8.36E+00
	SR-85	513.99		99.27	2.14E-01	2.14E-01	2.82E-01	1.03E-01
	Y-88	898.02		93.40	1.07E-01	8.32E-02	1.58E-02	4.95E-02
		1836.01		99.38	8.32E-02		-8.55E-03	3.54E-02
	MO-93	263.06		56.72	8.20E-02	4.37E-02	1.62E-02	3.96E-02
		684.67		99.68	5.32E-02		6.13E-03	2.50E-02
		1477.11		99.08	4.37E-02		1.03E-02	1.90E-02
	NB-93M	16.57		9.43	4.61E-01	4.61E-01	-1.22E-01	2.17E-01
	NB-94	702.63		100.00	5.78E-02	5.43E-02	2.05E-02	2.73E-02
		871.10		100.00	5.43E-02		1.42E-02	2.53E-02
	NB-95	765.79		99.81	4.50E-01	4.50E-01	2.46E-01	2.13E-01
	NB-95M	235.69		25.00	3.91E+07	3.91E+07	-2.56E+08	1.90E+07
	ZR-95	724.18		43.70	4.17E-01	3.26E-01	1.82E-02	1.98E-01
		756.72		55.30	3.26E-01		9.85E-02	1.54E-01
	MO-99	181.06		6.20	4.22E+10	3.03E+10	6.49E+09	2.04E+10
		739.58		12.80	3.03E+10		2.08E+10	1.43E+10
		778.00		4.50	7.51E+10		-3.74E+10	3.50E+10
	RU-103	497.08		89.00	3.08E-01	3.08E-01	-8.67E-03	1.46E-01
	RU-106	621.84		9.80	5.50E-01	5.50E-01	-4.16E-01	2.57E-01
	AG-108M	433.93		89.90	5.75E-02	5.75E-02	-1.25E-02	2.75E-02
		614.37		90.40	6.86E-02		-2.81E-01	3.27E-02
		722.95		90.50	6.15E-02		9.27E-03	2.90E-02
	CD-109	88.03		3.72	1.64E+00	1.64E+00	-8.49E-01	8.05E-01
	AG-110M	657.75		93.14	8.71E-02	8.71E-02	-4.00E-02	4.14E-02
		677.61		10.53	6.47E-01		6.32E-02	3.04E-01
		706.67		16.46	4.67E-01		7.13E-02	2.20E-01
		763.93		21.98	3.51E-01		-1.57E-01	1.65E-01
		884.67		71.63	1.06E-01		-9.04E-03	4.96E-02
		1384.27		23.94	3.17E-01		9.15E-02	1.44E-01
	CD-113M	263.70		0.02	1.94E+02	1.94E+02	-1.71E+01	9.36E+01
	SN-113	255.12		1.93	3.71E+00	1.33E-01	-2.18E+00	1.79E+00
		391.69		64.90	1.33E-01		-6.05E-04	6.39E-02
	TE123M	159.00		84.10	8.78E-02	8.78E-02	2.10E-02	4.27E-02
	SB-124	602.71		97.87	1.77E-01	1.77E-01	3.20E-02	8.39E-02
		645.85		7.26	2.19E+00		1.09E+00	1.03E+00
		722.78		11.10	1.56E+00		2.36E-01	7.36E-01
		1691.02		49.00	2.71E-01		5.76E-02	1.16E-01
	I-125	35.49		6.49	2.05E+00	2.05E+00	-1.31E+00	9.95E-01
	SB-125	176.33		6.89	6.09E-01	1.79E-01	-7.88E-02	2.95E-01
		427.89		29.33	1.79E-01		1.37E-02	8.55E-02
		463.38		10.35	5.64E-01		3.25E-01	2.70E-01
		600.56		17.80	3.21E-01		1.01E-01	1.52E-01
		635.90		11.32	4.82E-01		1.50E-01	2.27E-01
	SB-126	414.70		83.30	1.38E+01	1.27E+01	-9.28E+00	6.56E+00
		666.33		99.60	1.41E+01		3.36E+00	6.67E+00
		695.00		99.60	1.27E+01		-5.96E+00	5.97E+00
		720.50		53.80	2.45E+01		9.61E+00	1.15E+01
+	SN-126	87.57	*	37.00	2.85E-01	2.85E-01	3.84E-01	1.41E-01
	SB-127	473.00		25.00	1.05E+07	7.94E+06	2.26E+06	4.98E+06
		685.20		35.70	7.94E+06		9.14E+05	3.73E+06

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SB-127	783.80		14.70	2.24E+07	7.94E+06	7.12E+06	1.06E+07
	I-129	29.78		57.00	8.30E-02	8.30E-02	-3.26E-02	4.02E-02
		33.60		13.20	3.36E-01		-4.47E-02	1.63E-01
		39.58		7.52	5.64E-01		1.06E-01	2.74E-01
	I-131	284.30		6.05	3.85E+03	2.78E+02	-1.07E+02	1.86E+03
		364.48		81.20	2.78E+02		-1.00E+00	1.33E+02
		636.97		7.26	3.57E+03		1.22E+03	1.68E+03
		722.89		1.80	1.56E+04		2.35E+03	7.35E+03
	TE-132	49.72		13.10	4.22E+08	6.43E+07	-8.38E+08	2.05E+08
		228.16		88.00	6.43E+07		-4.41E+06	3.11E+07
	BA-133	81.00		33.00	1.46E-01	1.10E-01	3.55E-02	7.16E-02
		302.84		17.80	2.78E-01		-6.53E-04	1.34E-01
		356.01		60.00	1.10E-01		2.14E-02	5.34E-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	5.97E+04	5.97E+04	1.45E+04	2.92E+04
	CS-134	563.23		8.38	6.70E-01	6.43E-02	-9.04E-02	3.18E-01
		569.32		15.43	3.78E-01		7.48E-02	1.79E-01
		604.70		97.60	6.43E-02		-5.87E-01	3.06E-02
		795.84		85.40	8.04E-02		3.24E-02	3.79E-02
		801.93		8.73	7.04E-01		1.23E-02	3.30E-01
	CS-135	268.24		16.00	3.16E-01	3.16E-01	2.31E-01	1.53E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	9.70E+01	9.58E+00	-2.03E+01	4.71E+01
		163.89		4.61	1.57E+02		-4.20E+01	7.60E+01
		176.55		13.56	5.30E+01		-6.86E+00	2.57E+01
		273.65		12.66	7.32E+01		-4.30E+00	3.54E+01
		340.57		48.50	2.44E+01		4.88E+01	1.19E+01
		818.50		99.70	9.58E+00		2.33E+00	4.46E+00
		1048.07		79.60	1.47E+01		-6.35E+00	6.84E+00
		1235.34		19.70	8.01E+01		2.11E+01	3.78E+01
+	CS-137	661.65	*	85.12	8.56E-02	8.56E-02	1.45E-01	4.10E-02
	LA-138	788.74		34.00	1.71E-01	7.62E-02	-1.49E-03	8.04E-02
		1435.80		66.00	7.62E-02		3.29E-02	3.40E-02
	CE-139	165.85		80.35	8.02E-02	8.02E-02	3.89E-03	3.89E-02
	BA-140	162.64		6.70	1.29E+02	4.43E+01	1.71E+01	6.26E+01
		304.84		4.50	2.16E+02		-1.43E+01	1.04E+02
		423.70		3.20	3.18E+02		-1.28E+02	1.52E+02
		437.55		2.00	5.50E+02		1.14E+02	2.63E+02
		537.32		25.00	4.43E+01		2.14E+01	2.10E+01
	LA-140	328.77		20.50	5.64E+01	1.14E+01	5.45E+01	2.72E+01
		487.03		45.50	2.32E+01		1.70E-01	1.10E+01
		815.85		23.50	4.53E+01		-1.53E+01	2.11E+01
		1596.49		95.49	1.14E+01		1.69E+00	5.03E+00
	CE-141	145.44		48.40	6.81E-01	6.81E-01	6.14E-02	3.31E-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	4.68E-01	4.68E-01	-1.63E-01	2.28E-01
	PM-144	476.78		42.00	1.29E-01	5.91E-02	-1.13E-01	6.10E-02
		618.01		98.60	5.91E-02		8.54E-03	2.78E-02
		696.49		99.49	6.00E-02		-3.63E-02	2.81E-02

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-145	36.85		21.70	1.99E-01	1.09E-01	-1.10E-02	9.66E-02
		37.36		39.70	1.09E-01		-7.14E-02	5.28E-02
		42.30		15.10	2.68E-01		-3.64E-01	1.30E-01
		72.40		2.31	2.46E+00		-2.30E+00	1.21E+00
	PM-146	453.90		39.94	1.19E-01	1.19E-01	1.77E-05	5.67E-02
		735.90		14.01	3.55E-01		-1.51E-01	1.65E-01
		747.13		13.10	3.93E-01		-1.64E-01	1.83E-01
	ND-147	91.11		28.90	9.84E+01	9.84E+01	1.56E+02	4.83E+01
		531.02		13.10	1.84E+02		-1.05E+02	8.71E+01
	PM-149	285.90		3.10	4.31E+13	4.31E+13	7.54E+11	2.08E+13
	EU-152	121.78		20.50	1.90E-01	1.90E-01	-2.92E-02	9.26E-02
		244.69		5.40	8.57E-01		-1.23E-01	4.15E-01
		344.27		19.13	2.52E-01		-1.30E-02	1.21E-01
		778.89		9.20	5.82E-01		1.81E-01	2.72E-01
		964.01		10.40	7.20E-01		-1.33E+00	3.40E-01
		1085.78		7.22	7.97E-01		-1.20E-01	3.67E-01
		1112.02		9.60	7.24E-01		2.73E-01	3.38E-01
		1407.95		14.94	3.23E-01		-9.87E-02	1.43E-01
	GD-153	97.43		31.30	1.76E-01	1.76E-01	7.22E-02	8.59E-02
		103.18		22.20	2.40E-01		-2.41E-02	1.17E-01
	EU-154	123.07		40.50	9.67E-02	9.67E-02	-3.39E-02	4.70E-02
		723.30		19.70	2.88E-01		4.35E-02	1.36E-01
		873.19		11.50	4.64E-01		3.46E-02	2.15E-01
		996.32		10.30	5.33E-01		-2.43E-01	2.46E-01
		1004.76		17.90	3.55E-01		9.17E-02	1.66E-01
		1274.45		35.50	1.84E-01		5.48E-03	8.46E-02
+	EU-155	86.50	*	30.90	3.54E-01	2.05E-01	4.77E-01	1.76E-01
		105.30		20.70	2.05E-01		6.07E-02	1.00E-01
	EU-156	811.77		10.40	4.75E+01	4.75E+01	1.07E+01	2.22E+01
		1153.47		7.20	9.86E+01		5.94E+01	4.63E+01
		1230.71		8.90	7.31E+01		7.26E+00	3.41E+01
	HO-166M	184.41		72.60	6.96E-02	6.96E-02	1.33E-01	3.40E-02
		280.45		29.60	1.62E-01		6.99E-02	7.81E-02
		410.94		11.10	4.11E-01		-1.25E-01	1.96E-01
		711.69		54.10	9.99E-02		4.52E-02	4.70E-02
	TM-171	66.72		0.14	3.76E+01	3.76E+01	1.72E+00	1.84E+01
	HF-172	67.35		5.31	9.90E-01	3.86E-01	-1.20E-01	4.84E-01
		125.81		11.30	3.86E-01		-1.95E-01	1.88E-01
	LU-172	181.53		20.60	5.29E+03	2.73E+03	8.14E+02	2.56E+03
		900.72		29.81	4.95E+03		-2.05E+03	2.30E+03
		1093.66		62.50	2.73E+03		1.73E+02	1.27E+03
	LU-173	100.72		5.24	8.85E-01	2.81E-01	1.19E-02	4.31E-01
		272.11		21.20	2.81E-01		7.22E-02	1.36E-01
	HF-175	343.40		84.00	1.53E-01	1.53E-01	-7.78E-03	7.34E-02
	LU-176	88.34		13.30	3.96E-01	4.61E-02	-2.05E-01	1.94E-01
		201.83		86.00	4.61E-02		-1.04E-02	2.23E-02
		306.78		94.00	4.82E-02		4.63E-03	2.32E-02
	HF-181	133.02		41.70	4.80E-01	2.86E-01	-1.67E-01	2.33E-01
		345.85		17.20	1.37E+00		-7.22E-02	6.56E-01
		482.03		82.80	2.86E-01		-1.58E-01	1.35E-01
	TA-182	67.75		41.20	2.10E-01	2.10E-01	-2.55E-02	1.03E-01
		1121.30		34.90	4.85E-01		6.80E-01	2.31E-01
		1189.05		16.23	8.46E-01		-1.42E-01	3.96E-01

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TA-182	1221.41		26.98	5.22E-01	2.10E-01	2.22E-01	2.45E-01
		1231.02		11.44	1.13E+00		1.13E-01	5.28E-01
	IR-192	308.46		29.68	3.76E-01	2.47E-01	-4.42E-02	1.81E-01
		468.07		48.10	2.47E-01		-5.68E-02	1.17E-01
	HG-203	279.19		77.30	2.70E-01	2.70E-01	1.14E-01	1.31E-01
	TL-204	374.74		94.11	5.16E-02	5.16E-02	-4.63E-03	2.47E-02
		899.15		99.16	5.47E-02		-1.19E-02	2.53E-02
		911.74		91.10	1.25E-01		2.89E-01	6.03E-02
	BI-207	569.67		97.72	5.55E-02	5.55E-02	1.39E-02	2.63E-02
		1063.62		74.90	8.14E-02		1.79E-02	3.77E-02
+	TL-208	583.14	*	30.22	2.32E-01	1.39E-01	9.22E-01	1.11E-01
		860.37	*	4.48	2.00E+00		1.34E+00	9.61E-01
		2614.66	*	35.85	1.39E-01		1.10E+00	5.80E-02
	BI-210M	262.00		45.00	1.02E-01	1.02E-01	6.58E-03	4.93E-02
		300.00		23.00	2.17E-01		-7.18E-01	1.05E-01
	PB-210	46.50		4.25	1.05E+00	1.05E+00	1.18E+00	5.11E-01
	PB-211	404.84		2.90	1.68E+00	1.68E+00	1.08E-01	8.05E-01
		831.96		2.90	2.12E+00		-2.87E-01	9.99E-01
+	BI-212	727.17	*	11.80	7.03E-01	7.03E-01	9.68E-01	3.38E-01
		1620.62		2.75	1.50E+00		2.39E-01	6.43E-01
+	PB-212	238.63	*	44.60	2.17E-01	2.17E-01	1.13E+00	1.07E-01
		300.09	*	3.41	1.21E+00		6.08E-01	5.79E-01
+	BI-214	609.31	*	46.30	2.51E-01	1.48E-01	7.47E-01	1.22E-01
		1120.29	*	15.10	5.62E-01		8.24E-01	2.66E-01
		1764.49		15.80	6.38E-01		9.97E-01	2.99E-01
		2204.22	*	4.98	1.48E-01		9.86E-01	0.00E+00
+	PB-214	295.21	*	19.19	3.56E-01	2.25E-01	7.12E-01	1.74E-01
		351.92	*	37.19	2.25E-01		7.83E-01	1.10E-01
	RN-219	401.80		6.50	7.48E-01	7.48E-01	5.24E-02	3.58E-01
	RA-223	323.87		3.88	1.20E+00	1.20E+00	1.74E-01	5.76E-01
+	RA-224	240.98	*	3.95	2.49E+00	2.49E+00	3.99E+00	1.23E+00
	RA-225	40.00		31.00	1.41E+01	1.41E+01	6.05E+00	6.83E+00
+	RA-226	186.21	*	3.28	2.17E+00	2.17E+00	1.31E+00	1.07E+00
	TH-227	50.10		8.40	4.93E-01	4.80E-01	1.88E-01	2.40E-01
		236.00		11.50	4.80E-01		-3.14E+00	2.34E-01
		256.20		6.30	7.56E-01		3.30E-02	3.66E-01
+	AC-228	338.32	*	11.40	6.49E-01	2.65E-01	1.15E+00	3.16E-01
		911.07	*	27.70	2.65E-01		9.40E-01	1.25E-01
		969.11	*	16.60	7.42E-01		9.68E-01	3.59E-01
	TH-230	48.44		16.90	2.54E-01	2.54E-01	-4.16E-02	1.24E-01
		62.85		4.60	1.14E+00		1.75E+00	5.57E-01
		67.67		0.37	1.28E+01		-1.56E+00	6.28E+00
	PA-231	283.67		1.60	2.83E+00	2.11E+00	-1.31E+00	1.37E+00
		302.67		2.30	2.11E+00		-4.96E-03	1.02E+00
	TH-231	25.64		14.70	4.04E-01	4.04E-01	-2.86E+00	1.97E-01
		84.21		6.40	7.73E-01		-3.93E-01	3.79E-01
	PA-233	311.98		38.60	1.44E+00	1.44E+00	-2.20E-01	6.94E-01
	PA-234	131.20		20.40	1.95E-01	1.95E-01	-9.55E-02	9.49E-02
		733.99		8.80	5.54E-01		6.46E-02	2.58E-01
		946.00		12.00	4.43E-01		-1.60E-01	2.05E-01
	PA-234M	1001.03		0.92	6.55E+00	6.55E+00	-3.36E-01	3.05E+00
+	TH-234	63.29	*	3.80	1.83E+00	1.83E+00	1.62E+00	9.02E-01
	U-235	143.76		10.50	3.82E-01	3.82E-01	-7.00E-02	1.86E-01

Analysis Report for 1707086-20

HTC-A03-S001-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	U-235	163.35		4.70	8.38E-01	3.82E-01	-2.25E-01	4.06E-01
		205.31		4.70	8.73E-01		-1.68E-01	4.22E-01
+	NP-237	86.50	*	12.60	8.37E-01	8.37E-01	1.13E+00	4.14E-01
	NP-239	106.10		22.70	8.04E+11	8.04E+11	2.68E+11	3.92E+11
		228.18		10.70	1.70E+12		-1.16E+11	8.18E+11
		277.60		14.10	1.54E+12		5.75E+11	7.43E+11
	AM-241	59.54		35.90	1.23E-01	1.23E-01	2.33E-02	6.00E-02
+	AM-243	74.67	*	66.00	1.17E-01	1.17E-01	2.22E-01	5.77E-02
	CM-243	209.75		3.29	1.41E+00	3.53E-01	1.02E+00	6.82E-01
		228.14		10.60	3.90E-01		-2.68E-02	1.88E-01
		277.60		14.00	3.53E-01		1.32E-01	1.71E-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.

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

Sample Title: HTC-A03-S001-4248-01

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	84	96	81	150	509	124
25:	78	78	63	74	70	50	74	67
33:	81	62	76	66	72	72	81	83
41:	95	62	77	71	71	111	150	79
49:	91	80	89	96	110	90	112	125
57:	104	127	106	106	128	120	182	266
65:	152	144	128	142	151	149	165	158
73:	167	165	365	309	378	451	162	135
81:	158	155	104	173	180	140	191	217
89:	148	159	176	153	273	213	127	114
97:	87	105	112	117	99	89	85	89
105:	116	112	94	95	99	101	102	102
113:	90	104	97	98	77	95	99	73
121:	90	91	76	85	90	67	88	98
129:	119	89	89	82	85	79	86	85
137:	85	97	92	105	83	83	80	84
145:	64	92	83	72	76	73	81	65
153:	68	81	74	82	84	73	84	87
161:	77	78	70	70	75	54	71	68
169:	59	65	58	64	63	72	63	58
177:	73	52	73	59	71	49	65	65
185:	87	175	122	62	64	70	81	61
193:	68	60	71	65	75	72	78	66
201:	50	55	65	46	63	63	64	61
209:	87	92	62	64	50	65	58	62
217:	50	56	52	56	67	64	67	73
225:	54	62	61	51	48	57	46	62
233:	40	65	50	72	61	215	602	257
241:	106	151	100	57	55	42	45	36
249:	27	50	45	53	51	38	46	41
257:	43	42	43	55	45	28	37	37
265:	32	39	34	32	51	57	72	42
273:	38	43	48	39	37	58	25	50
281:	37	41	30	34	24	40	36	45
289:	37	23	40	42	34	53	124	149
297:	41	37	33	50	44	42	25	36
305:	32	26	33	28	28	34	23	32
313:	32	23	27	32	27	32	26	26
321:	23	29	31	37	25	32	34	68
329:	59	39	23	30	26	31	34	27
337:	33	83	130	44	34	37	35	26
345:	26	30	21	28	27	34	86	262
353:	180	29	30	27	33	37	30	18
361:	28	35	28	19	28	15	22	16

369:	24	23	19	33	21	18	23	25

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Channel								
377:	27	21	26	29	20	25	27	21
385:	18	22	20	23	34	21	19	12
393:	27	21	34	26	26	23	24	23
401:	20	32	21	20	28	21	24	21
409:	20	29	19	21	16	16	25	21
417:	19	21	28	25	27	22	15	24
425:	28	16	17	23	24	26	21	27
433:	19	25	23	26	28	27	27	17
441:	19	17	27	19	23	14	9	19
449:	19	17	16	16	24	17	16	19
457:	16	21	14	25	17	26	44	35
465:	15	16	18	20	18	24	12	27
473:	20	15	12	18	15	15	11	22
481:	24	17	17	10	16	26	24	16
489:	18	19	20	19	16	15	19	16
497:	15	21	16	15	13	20	13	23
505:	21	21	19	17	33	53	102	65
513:	33	16	24	18	14	15	21	15
521:	12	15	20	16	10	17	9	12
529:	15	16	12	15	13	17	31	14
537:	12	18	15	15	18	9	20	16
545:	16	24	13	11	19	25	13	18
553:	15	14	20	15	15	23	11	20
561:	12	17	21	9	14	17	16	17
569:	16	19	15	17	20	16	14	17
577:	13	15	9	12	19	42	127	128
585:	26	21	13	17	16	19	17	23
593:	17	14	15	14	13	18	13	18
601:	16	17	13	13	23	16	16	26
609:	143	162	49	16	16	24	14	10
617:	13	16	6	14	10	13	5	13
625:	9	18	11	15	13	11	14	11
633:	12	23	9	16	8	10	11	13
641:	6	14	10	14	10	17	13	9
649:	14	7	10	15	10	8	12	8
657:	15	16	15	21	39	50	24	13
665:	8	12	19	11	13	11	11	16
673:	17	14	13	7	11	16	16	11
681:	9	10	6	16	18	10	13	10
689:	10	14	16	14	10	7	11	7
697:	12	14	11	14	12	17	10	16
705:	14	16	11	11	20	12	9	17
713:	9	9	8	7	9	8	14	13
721:	9	14	10	8	14	19	37	50
729:	19	15	13	8	5	10	8	9
737:	11	10	9	16	17	13	16	9
745:	8	9	13	10	5	11	9	12
753:	18	10	20	23	13	11	11	13
761:	9	12	23	8	11	13	13	17
769:	20	15	8	15	16	5	8	8
777:	9	6	9	9	14	14	12	7
785:	19	14	12	13	12	12	11	9
793:	15	10	29	13	11	6	12	13

801:	10	11	10	11	8	13	11	7

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Channel								
809:	11	6	11	16	14	4	6	6
817:	10	5	12	11	12	6	6	7
825:	7	11	7	15	10	13	11	11
833:	14	11	16	20	10	9	11	19
841:	7	9	11	11	8	13	4	11
849:	10	11	7	9	9	5	7	7
857:	10	10	7	20	21	11	8	13
865:	10	10	8	7	10	10	10	8
873:	10	6	6	6	9	7	12	12
881:	15	12	11	5	4	12	9	12
889:	9	8	12	8	7	4	11	4
897:	7	8	9	7	8	9	7	12
905:	12	8	11	7	7	30	96	68
913:	23	13	11	10	10	9	8	9
921:	7	11	6	5	8	6	7	11
929:	5	5	6	7	11	16	8	12
937:	5	12	7	9	9	6	7	5
945:	8	6	11	5	9	8	13	8
953:	6	8	10	11	6	17	11	5
961:	5	9	12	21	31	11	11	25
969:	66	25	9	11	15	9	9	16
977:	12	6	10	6	7	8	4	7
985:	11	7	7	8	6	9	2	8
993:	2	7	8	14	4	8	5	10
1001:	15	8	7	8	11	7	9	8
1009:	8	5	11	11	7	9	9	6
1017:	8	7	8	9	10	8	10	11
1025:	9	6	6	8	9	4	7	9
1033:	15	10	7	11	6	10	7	13
1041:	9	6	10	8	12	5	11	9
1049:	10	8	9	16	11	13	10	9
1057:	1	9	10	5	1	8	15	7
1065:	9	11	3	5	8	5	6	11
1073:	10	4	7	7	5	6	6	11
1081:	7	9	6	8	8	6	4	6
1089:	6	7	10	13	6	4	9	6
1097:	9	8	7	10	5	11	13	9
1105:	9	8	7	8	8	10	4	10
1113:	17	5	14	9	6	7	14	41
1121:	34	12	13	7	5	9	5	14
1129:	8	14	7	12	7	11	9	9
1137:	15	15	9	6	9	12	6	5
1145:	14	12	5	6	8	12	11	8
1153:	10	15	20	8	9	9	16	17
1161:	6	7	12	6	8	11	16	6
1169:	11	12	14	12	10	7	9	4
1177:	9	10	10	13	7	8	7	7
1185:	11	10	8	12	11	13	6	15
1193:	16	12	9	13	11	5	12	8
1201:	17	9	4	9	7	19	11	15
1209:	7	12	13	9	14	9	12	6
1217:	7	9	15	11	13	6	7	15
1225:	9	10	11	7	9	9	11	4

1233:	12	11	14	8	26	19	17	10

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Channel								
1241:	11	8	7	4	9	5	10	14
1249:	7	8	7	2	11	12	12	9
1257:	16	4	12	8	8	6	5	5
1265:	5	6	1	8	11	6	14	4
1273:	9	4	5	3	8	9	2	8
1281:	9	8	8	13	1	8	3	9
1289:	6	6	3	11	12	6	3	7
1297:	6	5	6	7	2	7	9	3
1305:	6	3	7	6	4	6	8	6
1313:	8	3	6	4	2	4	1	4
1321:	6	3	4	4	7	3	8	3
1329:	2	3	5	3	3	3	3	4
1337:	7	5	7	11	7	6	3	7
1345:	4	6	4	2	5	2	4	3
1353:	1	6	7	0	6	4	4	2
1361:	2	5	1	5	5	3	4	1
1369:	1	3	2	1	4	2	4	7
1377:	14	11	4	3	6	4	6	2
1385:	8	4	3	5	2	0	4	3
1393:	6	2	3	5	5	7	5	2
1401:	3	6	6	2	3	4	2	4
1409:	4	2	2	3	2	2	2	2
1417:	3	5	5	3	3	4	3	1
1425:	3	2	4	4	0	2	2	2
1433:	2	4	4	4	2	5	3	0
1441:	6	3	4	1	4	1	1	2
1449:	3	4	2	0	6	3	4	2
1457:	7	24	94	310	401	177	43	9
1465:	14	12	6	6	2	2	1	0
1473:	4	0	1	5	3	2	0	2
1481:	2	5	3	1	2	4	2	1
1489:	3	3	3	2	2	2	4	5
1497:	0	3	1	4	3	1	1	3
1505:	4	5	4	3	3	4	0	6
1513:	2	4	4	0	4	1	0	1
1521:	2	0	2	1	2	1	2	2
1529:	0	2	1	1	1	2	2	0
1537:	3	2	3	2	0	3	3	1
1545:	2	2	1	2	2	1	1	4
1553:	2	0	0	0	3	3	1	1
1561:	3	3	1	1	2	1	0	1
1569:	0	0	3	1	1	1	1	0
1577:	5	3	3	1	5	1	6	2
1585:	3	1	4	6	4	2	1	6
1593:	6	2	0	1	3	5	3	2
1601:	1	2	0	2	0	2	1	2
1609:	0	1	1	1	2	1	2	2
1617:	0	0	2	4	2	4	0	1
1625:	0	1	1	6	1	6	5	3
1633:	1	2	1	1	0	3	2	0
1641:	2	0	2	4	1	1	4	2
1649:	1	2	0	3	0	0	2	2
1657:	0	3	1	0	4	3	1	0

1665:	3	3	2	1	0	2	2	1

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Channel								
1673:	1	1	3	1	1	1	3	2
1681:	1	0	3	3	2	2	0	4
1689:	0	4	1	2	1	1	0	1
1697:	0	4	2	0	0	0	1	0
1705:	2	0	1	0	1	4	0	0
1713:	0	0	0	2	0	2	0	1
1721:	2	2	2	1	0	0	0	3
1729:	5	6	2	2	2	1	1	2
1737:	0	0	0	2	2	2	2	1
1745:	1	2	2	2	1	0	0	1
1753:	0	4	1	0	2	1	1	0
1761:	1	4	12	28	19	12	1	2
1769:	2	0	1	2	1	3	1	0
1777:	2	2	1	3	0	0	2	0
1785:	3	3	0	0	0	1	2	1
1793:	0	1	1	0	1	0	1	3
1801:	3	1	1	0	0	1	0	2
1809:	0	0	1	3	3	0	2	1
1817:	1	1	1	0	1	1	0	0
1825:	0	1	3	2	0	0	3	2
1833:	2	3	2	0	1	1	2	2
1841:	0	0	0	1	1	4	3	3
1849:	1	2	3	1	1	0	1	0
1857:	2	0	1	1	0	1	0	0
1865:	0	0	0	1	0	3	1	2
1873:	0	1	0	1	2	3	1	1
1881:	2	2	1	0	1	3	0	0
1889:	0	0	3	2	1	0	0	1
1897:	1	1	1	0	2	1	1	2
1905:	0	2	1	2	2	0	1	1
1913:	1	3	1	0	0	1	1	1
1921:	1	3	0	1	0	3	1	2
1929:	0	1	1	1	1	2	2	1
1937:	0	2	2	1	2	1	1	0
1945:	2	0	1	1	0	3	0	0
1953:	0	2	2	0	1	1	4	1
1961:	0	0	1	2	1	2	0	0
1969:	0	0	0	0	2	0	1	0
1977:	2	0	0	0	2	3	0	1
1985:	0	3	0	0	1	1	0	0
1993:	1	3	0	0	1	1	1	2
2001:	0	0	0	1	0	1	2	1
2009:	0	0	1	1	1	1	2	0
2017:	1	3	3	1	1	2	0	2
2025:	2	1	1	1	1	0	0	0
2033:	2	3	1	2	1	0	2	0
2041:	1	0	0	0	1	0	1	2
2049:	0	1	0	0	0	1	1	1
2057:	1	0	1	0	2	0	1	1
2065:	0	0	1	1	1	0	1	0
2073:	3	2	0	3	0	0	1	1
2081:	0	2	0	0	0	1	0	0
2089:	0	2	1	2	3	2	1	0

2097:	4	2	0	2	2	2	6	7

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

2529:	0	0	1	1	0	0	0	1

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Channel								
2537:	2	0	0	0	0	0	0	1
2545:	0	0	0	1	0	0	2	0
2553:	0	0	0	0	0	0	0	1
2561:	0	0	0	0	0	0	0	0
2569:	1	0	1	2	0	0	1	0
2577:	0	0	0	0	1	1	0	0
2585:	0	0	0	0	0	1	0	0
2593:	0	1	0	0	0	0	1	2
2601:	0	0	0	0	1	0	0	0
2609:	0	1	5	16	31	53	21	5
2617:	2	3	0	1	0	1	0	0
2625:	0	1	2	0	0	0	1	0
2633:	0	0	0	0	1	0	2	0
2641:	0	1	0	0	1	1	0	0
2649:	0	0	0	0	0	1	0	0
2657:	2	0	0	1	1	0	0	1
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	1	1
2681:	0	0	0	0	0	0	1	1
2689:	0	0	0	0	0	0	1	0
2697:	0	0	0	1	0	0	0	0
2705:	2	1	0	0	0	0	1	0
2713:	0	0	0	1	1	1	0	0
2721:	1	0	0	0	0	1	1	0
2729:	0	1	0	0	1	0	1	0
2737:	1	0	0	0	1	0	1	0
2745:	3	0	0	0	1	0	1	1
2753:	1	0	0	0	1	0	0	0
2761:	0	1	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	1
2777:	0	0	0	0	0	0	1	0
2785:	0	1	1	1	0	1	2	0
2793:	0	1	1	1	0	1	0	0
2801:	0	1	0	0	0	0	0	0
2809:	0	1	0	1	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	1	0	0	0	0	0	1
2833:	0	0	1	0	0	0	0	0
2841:	3	0	0	1	0	0	0	0
2849:	0	0	1	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	1	0	0	0	0	0	0	0
2873:	0	0	0	1	1	0	0	0
2881:	0	1	0	0	1	0	0	1
2889:	0	1	0	0	0	0	1	1
2897:	0	1	2	2	0	1	0	0
2905:	0	0	0	0	1	0	0	0
2913:	0	1	0	0	0	0	1	0
2921:	0	0	0	1	0	1	0	0
2929:	0	0	0	0	0	1	0	0
2937:	2	1	0	0	0	0	0	0
2945:	1	0	1	0	0	1	0	0
2953:	0	0	1	0	0	0	0	0

2961:	0	0	1	0	1	0	0	0

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

3393:	0	0	0	0	1	0	0	0

Sample Title: HTC-A03-S001-4248-01

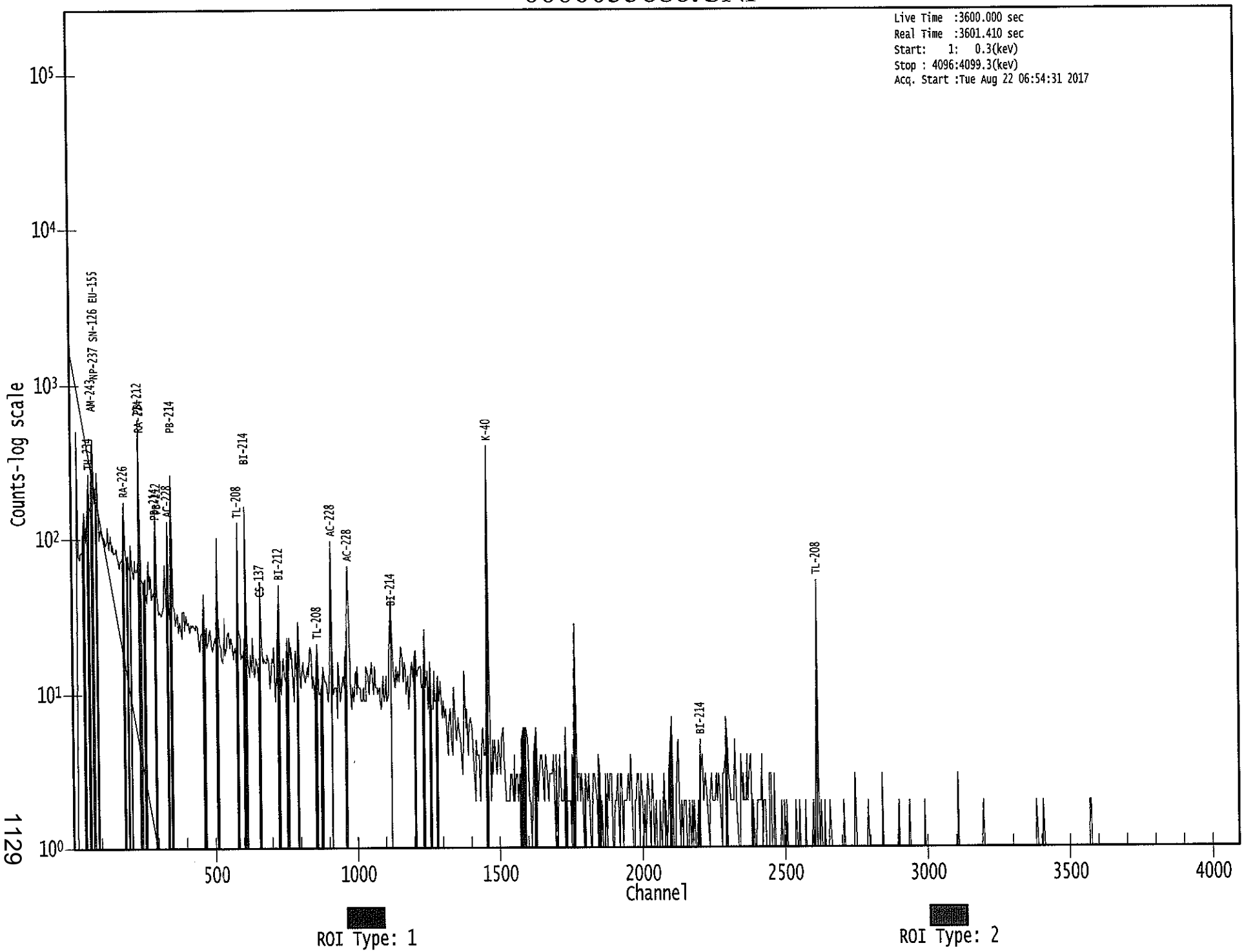
Channel								
3401:	0	0	0	1	0	2	0	0
3409:	1	0	1	0	0	1	1	0
3417:	0	0	0	0	0	0	0	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	1
3457:	0	0	0	0	1	0	0	0
3465:	0	1	0	0	0	1	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A03-S001-4248-01

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

0000055686.CNF



1129

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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          *****
*************************************************************************
```

Last Results Report
8/21/17 6:01:12 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: 8/21/17 5:45:57 AM
Measurement Date: 8/21/17 5:45:58 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: 2.2764E+000+/- 1.246]	2.3589E+000	6.6252E-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 *****
****

Last Results Report
8/21/17 9:08:25 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: 8/21/17 8:53:11 AM
Measurement Date: 8/21/17 8:53:12 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE2 [SD:-1.7117E+035+/-******]	2.3078E+000	3.1718E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
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Last Results Report
8/21/17 6:01:30 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: 8/21/17 5:46:13 AM
Measurement Date: 8/21/17 5:46:15 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.1804E+003+/-1175.4]	1.7780E+003	-3.4234E-001 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          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
8/21/17 6:01:40 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: 8/21/17 5:46:21 AM
Measurement Date: 8/21/17 5:46:23 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: 7.1421E+000+/-131.25]	1.5444E+000	-4.2647E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*********************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E      *****
*********************************************************************
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Last Results Report
8/21/17 5:32:23 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: 8/21/17 5:16:40 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 927.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0008E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6181E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3324E+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	1.4439E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8526E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.2604E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.4866E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.4718E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.4888E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Decay corrected activity 1.0680E+004
Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8499E+004	
Boundary Limits: [1.690E-002, 2.534E-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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C
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Last Results Report
8/21/17 8:51:32 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-1601C.QC

Detector: GE2
Geometry: <None>
Certificate: GAS-1601
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: 8/21/17 8:35:53 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 924.6 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0000E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6135E+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, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8350E+003	
Boundary Limits: [1.833E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.3131E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.0044E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.1212E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-88	2.7474E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	1.4584E+005	
Boundary Limits: [1.190E-001, 1.785E-001]		< : : : >
Decay corrected activity	7.2575E+004	

Boundary Limits: [5.718E-002, 8.577E-002] < : : : >

Decay corrected activity 1.0471E+005
Boundary Limits: [7.706E-002, 1.156E-001] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	2.0454E+005	
Boundary Limits: [1.602E-001, 2.403E-001]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*****          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
8/21/17 5:32:45 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: 8/21/17 5:16:55 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 932.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9863E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6189E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3326E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8360E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	2.0408E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.2727E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.7236E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7299E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5262E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	5.9615E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 9.1372E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.9098E+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)

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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
8/21/17 5:33:24 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: 8/21/17 5:17:03 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 967.4 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8253E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6064E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3317E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.6698E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.5307E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6906E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0951E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		<Ab : : >
Decay corrected activity	1.3620E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.1126E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >

Decay corrected activity 8.9431E+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	1.9106E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*************************************************************************
*****          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
8/22/17 5:48:43 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: 8/22/17 5:33:25 AM
Measurement Date: 8/22/17 5:33:27 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 7.1365E+000+/-131.19]	1.5622E+000	-4.2490E-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)

c 8/22

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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
8/22/17 5:48:34 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: 8/22/17 5:33:19 AM
Measurement Date: 8/22/17 5:33:20 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 [SD: 2.1800E+003+/-1174.9]	1.6740E+003	-4.3066E-001 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*********************************************************************
*****          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
8/22/17 5:48:25 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: 8/22/17 5:33:09 AM
Measurement Date: 8/22/17 5:33:10 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE2 [SD:-1.7100E+035+/-******]	2.2422E+000	3.1702E-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)

8/22

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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
8/22/17 5:48:15 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: 8/22/17 5:33:01 AM
Measurement Date: 8/22/17 5:33:03 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: 2.2765E+000+/- 1.245]	2.2833E+000	5.5276E-003 < : : : >

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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C 8/22

Last Results Report
8/22/17 6:06:51 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: 8/22/17 5:50:29 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 968.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8350E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6065E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3317E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.0721E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.5338E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6425E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0089E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		<Ab OK : : : >
Decay corrected activity	1.2611E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.0979E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >

Decay corrected activity 9.0711E+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	1.9318E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
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UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Last Results Report
8/22/17 5:25:57 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: 8/22/17 5:10:06 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 933.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9859E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6179E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3325E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8360E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.9962E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.2259E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.7094E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.8712E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5621E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	5.9948E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 9.3867E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.9049E+005
Boundary Limits: [1.600E-001, 2.400E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

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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
8/22/17 5:25:46 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000002GAS-1601C.QC

Detector: GE2
Geometry: <None>
Certificate: GAS-1601
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: 8/22/17 5:09:59 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 924.6 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	6.0000E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6137E+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, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8351E+003	
Boundary Limits: [1.833E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.2800E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.0264E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Co-60	2.1169E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Y-88	2.5299E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	1.4598E+005	
Boundary Limits: [1.190E-001, 1.785E-001]		< : : : >

Decay corrected activity 7.2867E+004
Boundary Limits: [5.718E-002, 8.577E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity Boundary Limits: [7.706E-002, 1.156E-001]	1.0455E+005	< : : : >
Decay corrected activity Boundary Limits: [1.602E-001, 2.403E-001] Trend Test: The last 9 samples exhibit a bias trend.	2.0776E+005	< : : : >

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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
8/22/17 5:25:35 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: 8/22/17 5:09:52 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 928.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9992E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6180E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3325E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8357E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4334E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.7953E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.1260E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.3962E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.4983E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.5758E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Decay corrected activity 1.0565E+004
Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8655E+004	
Boundary Limits: [1.690E-002, 2.534E-002]		< : : : >

Flags Key:
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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)