WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07078-OR

September 14, 2017

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
I	Chain of Custody	0004
II	Sample Acknowledgement	0010
III	Case Narrative	0013
IV	Analytical Results Summary	0017
V	Analytical Standard	0033
VI	Quality Control Sample Results Summary	0050
VII	Laboratory Technician's Notes & Run Logs	0057
VIII	Analytical Data (Isotopic Uranium)	0075
IX	Analytical Data (Isotopic Thorium)	0195
X	Analytical Data (Gamma Spectroscopy)	0315
	Last Page Number	1179

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 17-07078

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
		8-16-17	NJL	Data Compilation
		8/18/17	[illegible]	First Technical Data Review
		8/18/17	[illegible]	Second Technical Data Review
		9/6/17		Data Entry/Electronic Deliverable
		9/6/17	[illegible]	Case Narrative
		9/12/17	[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] 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

17-07078
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-A01-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:36	1	16 oz Poly Jar	N	1031.2 g
	HTC-A01-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:33	1	16 oz Poly Jar	N	909.5 g
	HTC-A01-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:30	1	16 oz Poly Jar	N	925.5 g
	HTC-A01-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:27	1	16 oz Poly Jar	N	994.1 g
	HTC-A01-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:24	1	16 oz Poly Jar	N	838.8 g
	HTC-A01-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:21	1	16 oz Poly Jar	N	740.9 g
	HTC-A01-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:18	1	16 oz Poly Jar	N	967.2 g
	HTC-A01-S001-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	13:15	1	16 oz Poly Jar	N	949.5 g
	HTC-A01-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:26	1	16 oz Poly Jar	N	971.9 g
	HTC-A01-S002-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:23	1	16 oz Poly Jar	N	1051.7 g
	HTC-A01-S002-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:20	1	16 oz Poly Jar	N	1039.9 g
	HTC-A01-S002-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:17	1	16 oz Poly Jar	N	1049.4 g
	HTC-A01-S002-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:14	1	16 oz Poly Jar	N	830.7 g
	HTC-A01-S002-2430-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:14	1	16 oz Poly Jar	N	830.7 g
	HTC-A01-S002-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:11	1	16 oz Poly Jar	N	945.0 g
	HTC-A01-S002-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:08	1	16 oz Poly Jar	N	1021.0 g
	HTC-A01-S002-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	11:05	1	16 oz Poly Jar	N	960.8 g
4	HTC-A01-S003-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:44	1	16 oz Poly Jar	N	1009.8 g
5	HTC-A01-S003-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:41	1	16 oz Poly Jar	N	1024.0 g
6	HTC-A01-S003-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:40	1	16 oz Poly Jar	N	1089.6 g
7	HTC-A01-S003-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:38	1	16 oz Poly Jar	N	1043.5 g
8	HTC-A01-S003-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:35	1	16 oz Poly Jar	N	964.0 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

0005

USEPA
DateShipped: 7/17/2017
CarrierName: FedEx
AirbillNo:

CHAIN OF CUSTODY RECORD
Case #: 445
Contact Name: Patrick Buster
Contact Phone: 903-348-3917

17-07078
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
9	HTC-A01-S003-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:32	1	16 oz Poly Jar	N	1017.2 g
10	HTC-A01-S003-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:29	1	16 oz Poly Jar	N	935.7 g
11	HTC-A01-S003-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:26	1	16 oz Poly Jar	N	860.7 g
12	HTC-A01-S004-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:21	1	16 oz Poly Jar	N	805.0 g
13	HTC-A01-S004-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:18	1	16 oz Poly Jar	N	998.4 g
14	HTC-A01-S004-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:15	1	16 oz Poly Jar	N	985.4 g
15	HTC-A01-S004-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:12	1	16 oz Poly Jar	N	818.4 g
16	HTC-A01-S004-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:09	1	16 oz Poly Jar	N	957.7 g
17	HTC-A01-S004-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:06	1	16 oz Poly Jar	N	793.1 g
18	HTC-A01-S004-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:03	1	16 oz Poly Jar	N	920.7 g
19	HTC-A01-S004-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	14:00	1	16 oz Poly Jar	N	883.0 g
20	HTC-A01-S005-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	10:01	1	16 oz Poly Jar	N	867.9 g
	HTC-A01-S005-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:58	1	16 oz Poly Jar	Y	833.8 g
	HTC-A01-S005-0612-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:58	1	16 oz Poly Jar	N	811.8 g
	HTC-A01-S005-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:55	1	16 oz Poly Jar	N	950.0 g
	HTC-A01-S005-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:52	1	16 oz Poly Jar	N	985.3 g
	HTC-A01-S005-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:49	1	16 oz Poly Jar	N	808.8 g
	HTC-A01-S005-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:46	1	16 oz Poly Jar	N	1024.4 g
	HTC-A01-S005-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:43	1	16 oz Poly Jar	N	1080.9 g
	HTC-A01-S005-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:40	1	16 oz Poly Jar	N	973.2 g
	HTC-A01-S006-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	17:06	1	16 oz Poly Jar	N	891.6 g
	HTC-A01-S006-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	17:03	1	16 oz Poly Jar	N	940.2 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
all Samples all Analysis	Chad Conway - Weston	7-17-17/1600	James E Bailey	0950 7-18-17	

9000

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07078
		Lab Deadline	8/9/2017
		Analysis	UUISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	33	L1.4
	05	48	L1.4
	06	30	L1.4
	07	58	L1.4
	08	38	L1.4
	09	44	L1.4
	10	30	L1.4
	11	36	L1.4
	12	247	L1.4
	13	367	L1.4
	14	388	L1.4
	15	44	L1.4
	16	37	L1.4
	17	47	L1.4
	18	40	L1.4
	19	69	L1.4
	20	40	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	Key Sej	7-21-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1210	Key Sej	7-24-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	7/24/17 1210
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/1/17 0950
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-1-17 0500
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-14-17 1022
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	1000
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/14/17	1800
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 #	17-07078
		Lab Deadline	8/9/2017
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	33	L1.4
	05	48	L1.4
	06	30	L1.4
	07	58	L1.4
	08	38	L1.4
	09	44	L1.4
	10	30	L1.4
	11	36	L1.4
	12	247	L1.4
	13	367	L1.4
	14	388	L1.4
	15	44	L1.4
	16	37	L1.4
	17	47	L1.4
	18	40	L1.4
	19	69	L1.4
	20	40	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	[illegible]	7-21-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1210	[illegible]	7.24.17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	7/24/17 1210
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/1/17 0500
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-1-17 0500
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-14-17 0759
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	0759
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB	8/14/17 1511
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 ANALYTICAL Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07078
		Lab Deadline	See Comments
		Analysis	Gamma - Level 4
		Sample Matrix	SO

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Re-Analysis: 221 day ingrowth: Report Ac228, Bi212, Cs137, K40, Pa234m, Pb212, Ra224, Ra226 from Bi214/Pb214, Ra228 from Ac228, Tl208, Th234 & positives. Report on dry weight basis.	04	33	L1.4
	05	48	L1.4
	06	30	L1.4
	07	58	L1.4
	08	38	L1.4
	09	44	L1.4
	10	30	L1.4
	11	36	L1.4
	12	247	L1.4
~~Original Lab Deadline: 08/15/17~~ EJT 07/18/17 ~~Rerun Lab Deadline: 08/15/17 Quick Count: Report Ac228, Bi212/214, Cs137, K40, Pa234m, Pb212/214, Ra224, Ra226 from 186 keV peak, Ra228 from Ac228, Tl208, Th234 & positives. Report on "AS IS" basis~~	13	367	L1.4
	14	388	L1.4
	15	44	L1.4
	16	37	L1.4
	17	47	L1.4
	18	40	L1.4
	19	69	L1.4
	20	40	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1200	Kay Sanj	7-21-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room ~~1210~~ KS 1530	Kay Sanj	7-24-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 7/24/17	1530
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	01/15	0703
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

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SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Weston Solutions, Inc.	0094759	Environmental	07/18/2017	28	17-07078
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/09/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																					Ttl
01	LCS	07/18/17	SO	L1.4	X	X	X																					3
02	BLANK	07/18/17	SO	L1.4	X	X	X																					3
03	DUP	07/18/17	SO	L1.4	X	X	X																					3
04	HTC-A01-S003-0006-01	05/13/17 10:44	SO	L1.4	X	X	X																					3
05	HTC-A01-S003-0612-01	05/13/17 10:41	SO	L1.4	X	X	X																					3
06	HTC-A01-S003-1218-01	05/13/17 10:40	SO	L1.4	X	X	X																					3
07	HTC-A01-S003-1824-01	05/13/17 10:38	SO	L1.4	X	X	X																					3
08	HTC-A01-S003-2430-01	05/13/17 10:35	SO	L1.4	X	X	X																					3
09	HTC-A01-S003-3036-01	05/13/17 10:32	SO	L1.4	X	X	X																					3
10	HTC-A01-S003-3642-01	05/13/17 10:29	SO	L1.4	X	X	X																					3
11	HTC-A01-S003-4248-01	05/13/17 10:26	SO	L1.4	X	X	X																					3
12	HTC-A01-S004-0006-01	05/13/17 14:21	SO	L1.4	X	X	X																					3
13	HTC-A01-S004-0612-01	05/13/17 14:18	SO	L1.4	X	X	X																					3
14	HTC-A01-S004-1218-01	05/13/17 14:15	SO	L1.4	X	X	X																					3
15	HTC-A01-S004-1824-01	05/13/17 14:12	SO	L1.4	X	X	X																					3
16	HTC-A01-S004-2430-01	05/13/17 14:09	SO	L1.4	X	X	X																					3
17	HTC-A01-S004-3036-01	05/13/17 14:06	SO	L1.4	X	X	X																					3
18	HTC-A01-S004-3642-01	05/13/17 14:03	SO	L1.4	X	X	X																					3
19	HTC-A01-S004-4248-01	05/13/17 14:00	SO	L1.4	X	X	X																					3
20	HTC-A01-S005-0006-01	05/13/17 10:01	SO	L1.4	X	X	X																					3
		Totals Per Analysis (non QA samples)			17	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

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

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

Invoice
Accounts Payable
Weston Solutions, Inc.
1090 King Georges Post Road Suite 201
Edison, NJ 08837
Voice 732-585-4425
Fax

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

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

0011

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Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07078

SAMPLE MATRIX/MATRICES:

(CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

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

WERE CHAIN OF CUSTODY SEALS:

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

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

REMARKS: _____

SIGNATURE: James E Bailey DATE: 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-42654

September 14, 2017

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

CASE NARRATIVE
Work Order # 17-07078-OR

SAMPLE RECEIPT

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

CLIENT ID	LAB ID	CLIENT ID	LAB ID
HTC-A01-S003-0006-01	17-07078-04	HTC-A01-S004-0612-01	17-07078-13
HTC-A01-S003-0612-01	17-07078-05	HTC-A01-S004-1218-01	17-07078-14
HTC-A01-S003-1218-01	17-07078-06	HTC-A01-S004-1824-01	17-07078-15
HTC-A01-S003-1824-01	17-07078-07	HTC-A01-S004-2430-01	17-07078-16
HTC-A01-S003-2430-01	17-07078-08	HTC-A01-S004-3036-01	17-07078-17
HTC-A01-S003-3036-01	17-07078-09	HTC-A01-S004-3642-01	17-07078-18
HTC-A01-S003-3642-01	17-07078-10	HTC-A01-S004-4248-01	17-07078-19
HTC-A01-S003-4248-01	17-07078-11	HTC-A01-S005-0006-01	17-07078-20
HTC-A01-S004-0006-01	17-07078-12		

ANALYTICAL METHODS

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

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

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

SPECIAL CIRCUMSTANCES

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

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM

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

Samples demonstrated acceptable results for all Uranium determinations. The Uranium-233/234, Uranium-235/236 and Uranium-238 method blank demonstrated acceptable results. Chemical recovery was acceptable for all samples. Results for the Uranium-233/234 and Uranium-235/236 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-238 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

ISOTOPIC THORIUM

Samples were prepared by removing representative aliquots followed by mixed acid digestions as appropriate. Thorium was selectively extracted by ion exchange. Thorium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Thorium-228, Thorium-230 and Thorium-232. Chemical recovery was determined by the use of a Thorium-229 tracer. Activity of the Thorium-229 tracer was determined by alpha spectroscopy using an energy specific region of interest.

Samples demonstrated acceptable results for all Thorium determinations. The Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Chemical recovery was acceptable for all samples. Results for the Thorium-228 and Thorium-230 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Thorium-232 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

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

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY CONTINUED

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

CERTIFICATION OF ACCURACY

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

M.R. McDougall
Laboratory Manager

Date: 9/14/2017

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

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07078**
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											
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Cobalt-60	EPA 901.1 Modified	1.23E+02	7.37E+00	9.72E+00	9.97E-01	pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	7.82E+01	7.11E+00	8.17E+00	1.39E+00	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	3.35E-02	1.32E-01	1.32E-01	2.09E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	-8.21E-02	2.97E-01	2.98E-01	4.10E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	-4.16E-03	3.79E-02	3.79E-02	5.44E-02	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	4.78E-01	2.97E-01	2.98E-01	7.58E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	-6.26E-01	3.22E+00	3.22E+00	4.70E+00	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	2.02E-03	3.60E-02	3.60E-02	5.58E-02	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	9.91E-02	4.06E-01	4.06E-01	6.47E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	-3.24E-03	6.24E-02	6.24E-02	9.82E-02	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	3.35E-02	1.32E-01	1.32E-01	2.09E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	2.22E-01	4.16E-01	4.16E-01	6.55E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	7.18E-02	6.09E-02	6.10E-02	1.29E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	7.44E-01	1.58E-01	1.63E-01	2.92E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	5.78E-01	3.51E-01	3.52E-01	5.51E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	5.70E-02	3.87E-02	3.89E-02	6.67E-02	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.02E+01	1.33E+00	1.43E+00	9.29E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	1.62E+00	3.47E+00	3.47E+00	5.63E+00	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	7.11E-01	9.18E-02	9.88E-02	1.70E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	1.62E+00	8.56E-01	8.60E-01	1.92E+00	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	6.84E-01	1.18E-01	1.23E-01	1.63E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	7.44E-01	1.58E-01	1.63E-01	2.92E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	9.75E-01	9.27E-01	9.29E-01	1.54E+00	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	6.46E-01	1.22E-01	1.26E-01	1.16E-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:	**17-07078**
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
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	7.05E-01	1.31E-01	1.36E-01	2.80E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	6.65E-01	3.83E-01	3.84E-01	6.00E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	8.35E-02	4.06E-02	4.08E-02	6.06E-02	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.09E+01	1.30E+00	1.42E+00	1.05E+00	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	2.82E+00	3.24E+00	3.24E+00	5.68E+00	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	8.17E-01	9.82E-02	1.07E-01	1.50E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	1.83E+00	8.56E-01	8.62E-01	1.68E+00	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	6.44E-01	9.14E-02	9.72E-02	1.20E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	7.05E-01	1.31E-01	1.36E-01	2.80E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.18E+00	8.53E-01	8.55E-01	1.16E+00	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	5.71E-01	1.01E-01	1.05E-01	1.20E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	5.32E-01	1.71E-01	1.73E-01	3.73E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	4.94E-01	3.57E-01	3.58E-01	5.68E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	3.26E-02	4.60E-02	4.60E-02	7.45E-02	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.02E+01	1.39E+00	1.49E+00	6.93E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	2.51E+00	4.25E+00	4.25E+00	7.30E+00	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	6.18E-01	9.48E-02	1.00E-01	1.39E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	1.91E+00	9.93E-01	9.97E-01	1.59E+00	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	5.06E-01	1.25E-01	1.28E-01	2.30E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	5.32E-01	1.71E-01	1.73E-01	3.73E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.57E+00	8.63E-01	8.67E-01	1.89E+00	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	5.97E-01	1.16E-01	1.20E-01	1.37E-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:	**17-07078**
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
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	6.70E-01	1.94E-01	1.97E-01	4.25E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	7.13E-01	3.92E-01	3.93E-01	5.79E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	-4.70E-03	7.10E-02	7.10E-02	9.68E-02	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	8.73E+00	1.50E+00	1.56E+00	1.28E+00	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	8.09E-01	6.54E+00	6.54E+00	9.39E+00	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	5.45E-01	9.76E-02	1.02E-01	1.77E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	6.86E+00	1.20E+00	1.26E+00	1.99E+00	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	7.53E-01	1.55E-01	1.60E-01	1.90E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	6.70E-01	1.94E-01	1.97E-01	4.25E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.88E+00	1.20E+00	1.20E+00	1.97E+00	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	6.56E-01	2.10E-01	2.13E-01	2.83E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	9.05E-01	2.60E-01	2.64E-01	6.18E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	6.02E-01	5.79E-01	5.80E-01	9.58E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	1.01E-01	6.73E-02	6.75E-02	1.64E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.52E+01	1.90E+00	2.05E+00	1.55E+00	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	7.80E+00	9.61E+00	9.62E+00	1.61E+01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	9.27E-01	1.51E-01	1.58E-01	3.34E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	2.03E+01	2.44E+00	2.65E+00	3.37E+00	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	4.62E+00	4.09E-01	4.72E-01	3.41E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	9.05E-01	2.60E-01	2.64E-01	6.18E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	3.66E+00	1.75E+00	1.76E+00	2.86E+00	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	6.81E-01	1.46E-01	1.50E-01	3.49E-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:	**17-07078**
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
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.13E+00	2.16E-01	2.24E-01	3.77E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	8.92E-01	4.10E-01	4.13E-01	6.77E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	6.23E-02	5.61E-02	5.62E-02	9.21E-02	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	2.15E+01	2.34E+00	2.59E+00	1.08E+00	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	5.22E+00	6.47E+00	6.47E+00	1.08E+01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.39E+00	1.52E-01	1.68E-01	2.58E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	6.23E+00	1.47E+00	1.50E+00	2.94E+00	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	2.34E+00	2.37E-01	2.66E-01	2.59E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.13E+00	2.16E-01	2.24E-01	3.77E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	3.25E+00	1.46E+00	1.47E+00	2.35E+00	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.08E+00	1.71E-01	1.80E-01	2.04E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.11E+00	2.63E-01	2.69E-01	4.87E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	6.18E-01	4.54E-01	4.55E-01	7.75E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	8.55E-03	5.75E-02	5.75E-02	8.88E-02	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.85E+01	2.23E+00	2.42E+00	1.09E+00	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	3.81E+00	5.74E+00	5.75E+00	9.61E+00	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.05E+00	1.40E-01	1.51E-01	2.30E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	3.71E+00	1.34E+00	1.35E+00	2.61E+00	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	1.01E+00	1.78E-01	1.85E-01	2.73E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.11E+00	2.63E-01	2.69E-01	4.87E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	6.70E-01	1.22E+00	1.22E+00	1.61E+00	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	9.15E-01	1.76E-01	1.82E-01	3.70E-02	pCi/g

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

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EBERLINE SERVICES

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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:	**17-07078**
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
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.11E+00	2.69E-01	2.75E-01	7.35E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	8.68E-01	6.10E-01	6.11E-01	1.11E+00	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	4.00E-02	9.01E-02	9.01E-02	1.32E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	2.09E+01	2.73E+00	2.93E+00	1.42E+00	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	6.25E+00	8.64E+00	8.65E+00	1.37E+01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.03E+00	1.58E-01	1.67E-01	2.71E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	3.96E+00	1.78E+00	1.79E+00	3.13E+00	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	1.29E+00	2.45E-01	2.54E-01	3.02E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.11E+00	2.69E-01	2.75E-01	7.35E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	2.77E+00	2.09E+00	2.09E+00	3.46E+00	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.33E+00	2.58E-01	2.66E-01	2.54E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.45E+00	1.94E-01	2.07E-01	6.43E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	7.53E-01	4.69E-01	4.70E-01	7.43E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	1.74E-02	5.30E-02	5.30E-02	8.12E-02	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	3.07E+01	3.15E+00	3.52E+00	1.09E+00	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	4.12E+00	4.92E+00	4.92E+00	8.22E+00	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.53E+00	1.64E-01	1.81E-01	2.01E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	3.47E+00	1.32E+00	1.33E+00	2.27E+00	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	9.79E-01	1.32E-01	1.42E-01	1.73E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.45E+00	1.94E-01	2.07E-01	6.43E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.15E+00	1.29E+00	1.29E+00	2.16E+00	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.35E+00	2.01E-01	2.12E-01	2.35E-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:	**17-07078**
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
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.23E+02	5.94E+00	8.67E+00	4.27E+00	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	7.35E+01	6.61E+00	7.61E+00	9.70E+00	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	6.52E-02	2.22E-01	2.22E-01	6.17E-01	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.31E+01	3.80E+00	3.86E+00	5.39E+00	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	1.11E+02	3.82E+01	3.87E+01	6.07E+01	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.29E+02	8.48E+00	1.07E+01	2.44E+00	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	3.47E+02	3.13E+01	3.60E+01	2.79E+01	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	9.62E+01	4.82E+00	6.90E+00	1.83E+00	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.23E+02	5.94E+00	8.67E+00	4.27E+00	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	7.70E+01	1.08E+01	1.15E+01	1.52E+01	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.13E+02	6.67E+00	8.83E+00	1.60E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.13E+02	5.71E+00	8.14E+00	4.64E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	6.85E+01	7.69E+00	8.46E+00	7.58E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	2.32E-01	5.58E-01	5.58E-01	7.43E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.30E+01	3.67E+00	3.73E+00	5.86E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	1.12E+02	4.67E+01	4.71E+01	7.53E+01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.10E+02	7.51E+00	9.38E+00	1.94E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	2.09E+02	2.15E+01	2.40E+01	2.22E+01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	5.58E+01	3.44E+00	4.48E+00	1.75E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.13E+02	5.71E+00	8.14E+00	4.64E+00	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	5.74E+01	9.68E+00	1.01E+01	1.43E+01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.15E+02	8.09E+00	1.00E+01	2.00E+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:

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

Work Order Details:

SDG:	**17-07078**
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
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.13E+02	5.51E+00	8.01E+00	3.08E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	7.05E+01	6.02E+00	7.02E+00	4.65E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	7.65E-02	1.51E-01	1.51E-01	4.23E-01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.77E+01	3.63E+00	3.75E+00	5.27E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	1.03E+02	2.27E+01	2.33E+01	5.55E+01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	1.14E+02	6.98E+00	9.10E+00	1.78E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	2.93E+02	2.57E+01	2.98E+01	2.04E+01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	6.67E+01	3.32E+00	4.77E+00	1.49E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	1.13E+02	5.51E+00	8.01E+00	3.08E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	3.56E+01	7.35E+00	7.57E+00	1.12E+01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.09E+02	6.46E+00	8.54E+00	1.02E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	4.29E+00	4.50E-01	5.01E-01	1.12E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	2.59E+00	1.00E+00	1.01E+00	1.62E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	1.76E-01	1.20E-01	1.20E-01	2.79E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.82E+01	2.65E+00	2.81E+00	2.46E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	9.53E+00	1.13E+01	1.13E+01	3.05E+01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	4.70E+00	4.55E-01	5.15E-01	5.06E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	6.76E+01	6.34E+00	7.22E+00	6.39E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	5.16E+00	4.89E-01	5.56E-01	4.91E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	4.29E+00	4.50E-01	5.01E-01	1.12E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	5.07E+00	2.47E+00	2.48E+00	4.04E+00	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	4.13E+00	4.31E-01	4.80E-01	2.12E-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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SDG:	**17-07078**
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
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	2.05E+00	4.06E-01	4.19E-01	9.21E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	1.40E+00	7.79E-01	7.83E-01	1.20E+00	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	4.01E-03	1.01E-01	1.01E-01	1.40E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	2.36E+01	3.10E+00	3.33E+00	1.92E+00	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	1.78E+00	1.11E+01	1.11E+01	1.56E+01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	2.31E+00	2.96E-01	3.19E-01	3.31E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	2.45E+01	2.85E+00	3.11E+00	3.98E+00	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	1.18E+00	2.28E-01	2.36E-01	3.16E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	2.05E+00	4.06E-01	4.19E-01	9.21E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.52E+00	1.58E+00	1.59E+00	2.35E+00	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	2.19E+00	3.20E-01	3.39E-01	6.92E-02	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	2.05E+00	3.60E-01	3.75E-01	8.90E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	1.45E+00	8.00E-01	8.03E-01	1.26E+00	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	-9.10E-03	7.94E-02	7.94E-02	1.18E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	2.86E+01	3.28E+00	3.59E+00	1.59E+00	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	-2.93E+00	8.20E+00	8.20E+00	1.20E+01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	2.23E+00	2.42E-01	2.68E-01	3.91E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	2.92E+01	3.14E+00	3.48E+00	4.19E+00	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	1.45E+00	2.35E-01	2.47E-01	3.59E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	2.05E+00	3.60E-01	3.75E-01	8.90E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.52E+00	1.67E+00	1.67E+00	2.20E+00	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.80E+00	2.80E-01	2.95E-01	2.99E-01	pCi/g

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Work Order Details:

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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
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Actinium-228	EPA 901.1 Modified	3.45E+00	3.98E-01	4.35E-01	1.35E+00	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Bismuth-212	EPA 901.1 Modified	2.79E+00	1.18E+00	1.18E+00	1.92E+00	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Cesium-137	EPA 901.1 Modified	-6.46E-02	1.34E-01	1.34E-01	1.75E-01	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Potassium-40	EPA 901.1 Modified	2.59E+01	3.28E+00	3.54E+00	1.90E+00	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	-8.61E+00	1.26E+01	1.26E+01	1.60E+01	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Lead-212	EPA 901.1 Modified	4.43E+00	4.55E-01	5.08E-01	3.72E-01	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Radium-224	EPA 901.1 Modified	4.65E+01	4.65E+00	5.23E+00	5.31E+00	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Radium-226	EPA 901.1 Modified	1.52E+00	2.66E-01	2.77E-01	3.57E-01	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Radium-228	EPA 901.1 Modified	3.45E+00	3.98E-01	4.35E-01	1.35E+00	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Thorium-234	EPA 901.1 Modified	3.46E+00	2.69E+00	2.70E+00	4.48E+00	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Thallium-208	EPA 901.1 Modified	3.72E+00	4.94E-01	5.30E-01	3.56E-01	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Actinium-228	EPA 901.1 Modified	3.16E+00	2.73E-01	3.17E-01	3.22E-01	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Bismuth-212	EPA 901.1 Modified	2.08E+00	6.92E-01	7.00E-01	1.01E+00	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Cesium-137	EPA 901.1 Modified	3.36E-02	6.27E-02	6.27E-02	9.72E-02	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Potassium-40	EPA 901.1 Modified	2.56E+01	2.65E+00	2.96E+00	1.06E+00	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	1.25E+00	5.69E+00	5.69E+00	8.81E+00	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Lead-212	EPA 901.1 Modified	3.44E+00	3.06E-01	3.54E-01	3.12E-01	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Radium-224	EPA 901.1 Modified	7.66E+00	2.11E+00	2.15E+00	3.58E+00	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Radium-226	EPA 901.1 Modified	1.48E+00	2.25E-01	2.37E-01	3.04E-01	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Radium-228	EPA 901.1 Modified	3.16E+00	2.73E-01	3.17E-01	3.22E-01	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Thorium-234	EPA 901.1 Modified	1.81E+00	1.58E+00	1.58E+00	2.63E+00	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/15/2017	17-07078	Thallium-208	EPA 901.1 Modified	2.81E+00	4.09E-01	4.33E-01	4.14E-01	pCi/g

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Purchase Order:	0094759
Analysis Category:	ENVIRONMENTAL
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Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Actinium-228	EPA 901.1 Modified	1.54E+00	3.17E-01	3.27E-01	5.87E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Bismuth-212	EPA 901.1 Modified	1.06E+00	7.11E-01	7.13E-01	1.14E+00	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Cesium-137	EPA 901.1 Modified	2.11E-01	9.44E-02	9.50E-02	2.29E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Potassium-40	EPA 901.1 Modified	1.95E+01	2.46E+00	2.66E+00	1.59E+00	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Protactinium-234m	EPA 901.1 Modified	4.10E+00	8.44E+00	8.44E+00	1.35E+01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Lead-212	EPA 901.1 Modified	1.37E+00	2.03E-01	2.14E-01	3.94E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Radium-224	EPA 901.1 Modified	2.34E+01	2.81E+00	3.05E+00	3.89E+00	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Radium-226	EPA 901.1 Modified	4.62E+00	3.98E-01	4.63E-01	3.63E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Radium-228	EPA 901.1 Modified	1.54E+00	3.17E-01	3.27E-01	5.87E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Thorium-234	EPA 901.1 Modified	3.36E+00	1.89E+00	1.89E+00	3.10E+00	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/15/2017	17-07078	Thallium-208	EPA 901.1 Modified	1.02E+00	2.15E-01	2.21E-01	2.49E-01	pCi/g
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	4.99E+00	1.80E-01			pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	6.10E+00	1.21E+00	1.34E+00	1.67E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	5.65E-02	8.20E-02	8.22E-02	1.37E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	6.25E-01	2.62E-01	2.69E-01	1.24E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	4.65E-01	1.87E-01	1.92E-01	8.28E-02	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	7.36E-01	2.47E-01	2.57E-01	1.18E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	4.85E-01	2.10E-01	2.15E-01	1.30E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	1.13E+00	3.65E-01	3.81E-01	8.48E-02	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	1.11E+00	3.65E-01	3.79E-01	1.09E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	1.55E+00	3.66E-01	3.94E-01	1.11E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	9.64E-01	2.89E-01	3.03E-01	1.17E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	1.28E+00	3.07E-01	3.30E-01	8.76E-02	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	7.39E+01	1.29E+01	1.46E+01	7.76E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	6.02E+01	1.03E+01	1.18E+01	1.05E+00	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	8.27E+01	1.42E+01	1.62E+01	9.02E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	2.84E+00	6.75E-01	7.26E-01	1.64E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	2.09E+00	5.12E-01	5.49E-01	1.15E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	1.69E+00	4.44E-01	4.71E-01	1.08E-01	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	3.38E+00	7.40E-01	8.05E-01	1.14E-01	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	2.44E+00	6.08E-01	6.50E-01	8.86E-02	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/14/2017	17-07078	Thorium-228	EPA 907.0 Modified	9.10E-01	2.74E-01	2.87E-01	9.25E-02	pCi/g

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

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EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:

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

Work Order Details:

SDG:	**17-07078**
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
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	5.41E+00	1.46E-01			pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	6.64E+00	1.29E+00	1.53E+00	1.38E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	9.21E-02	9.45E-02	9.52E-02	1.34E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	5.97E-01	2.49E-01	2.59E-01	1.38E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	7.99E-01	2.50E-01	2.69E-01	7.56E-02	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	7.77E-01	2.44E-01	2.62E-01	7.48E-02	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	5.57E-01	2.17E-01	2.27E-01	9.43E-02	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	4.74E+00	1.06E+00	1.21E+00	8.86E-02	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	1.61E+00	4.56E-01	4.98E-01	7.91E-02	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	1.85E+00	3.89E-01	4.52E-01	7.04E-02	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	1.10E+00	3.05E-01	3.34E-01	1.04E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	8.75E-01	2.33E-01	2.57E-01	9.13E-02	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	3.76E+01	7.01E+00	8.41E+00	6.35E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	2.61E+01	4.95E+00	5.91E+00	6.41E-01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	5.25E+01	9.32E+00	1.14E+01	7.87E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	3.09E+00	7.05E-01	8.02E-01	9.68E-02	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	1.41E+00	3.75E-01	4.13E-01	9.77E-02	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	1.54E+00	4.03E-01	4.46E-01	6.51E-02	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	2.00E+00	4.83E-01	5.42E-01	7.98E-02	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	1.57E+00	4.30E-01	4.72E-01	1.01E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/14/2017	17-07078	Thorium-230	EPA 907.0 Modified	3.50E+00	7.21E-01	8.41E-01	8.83E-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:	**17-07078**
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
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	4.99E+00	1.80E-01			pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	5.97E+00	1.18E+00	1.30E+00	1.28E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	3.80E-02	5.70E-02	5.71E-02	9.23E-02	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	5.29E-01	2.29E-01	2.34E-01	1.13E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	6.73E-01	2.24E-01	2.31E-01	6.00E-02	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	4.79E-01	1.81E-01	1.86E-01	6.81E-02	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	4.14E-01	1.84E-01	1.87E-01	1.10E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	1.11E+00	3.51E-01	3.64E-01	1.11E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	9.86E-01	3.30E-01	3.41E-01	1.43E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	1.25E+00	3.10E-01	3.28E-01	1.01E-01	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	9.61E-01	2.77E-01	2.90E-01	8.65E-02	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	9.46E-01	2.43E-01	2.57E-01	6.50E-02	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	5.68E+01	1.01E+01	1.12E+01	6.06E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	4.21E+01	7.44E+00	8.31E+00	7.25E-01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	6.26E+01	1.09E+01	1.22E+01	5.03E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	2.04E+00	5.11E-01	5.42E-01	1.11E-01	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	1.59E+00	4.08E-01	4.31E-01	8.86E-02	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	1.57E+00	4.10E-01	4.33E-01	9.34E-02	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	2.76E+00	6.17E-01	6.64E-01	6.34E-02	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	2.19E+00	5.48E-01	5.81E-01	7.05E-02	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/14/2017	17-07078	Thorium-232	EPA 907.0 Modified	1.06E+00	2.94E-01	3.09E-01	7.02E-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:	17-07078
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
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	8.09E+00	2.91E-01			pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	9.40E+00	1.55E+00	1.69E+00	1.20E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	4.43E-01	1.88E-01	1.91E-01	1.10E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	2.86E+00	9.10E-01	9.33E-01	2.52E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.44E+00	4.96E-01	5.06E-01	1.92E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	2.23E+00	5.92E-01	6.13E-01	1.34E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	2.64E+00	7.51E-01	7.75E-01	1.74E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	4.83E+00	9.86E-01	1.04E+00	1.65E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.95E+00	4.60E-01	4.80E-01	1.39E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.53E+00	3.49E-01	3.66E-01	9.21E-02	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.37E+00	3.09E-01	3.24E-01	8.57E-02	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.47E+00	3.36E-01	3.52E-01	7.78E-02	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.33E+02	1.75E+01	2.00E+01	4.47E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	2.81E+01	4.12E+00	4.59E+00	2.99E-01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	2.85E+01	4.07E+00	4.55E+00	2.75E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	3.45E+00	5.76E-01	6.26E-01	8.30E-02	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.80E+00	4.03E-01	4.23E-01	1.18E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.07E+00	2.50E-01	2.62E-01	8.99E-02	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.72E+00	3.38E-01	3.60E-01	7.73E-02	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	1.93E+00	3.72E-01	3.96E-01	1.14E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/14/2017	17-07078	Uranium-233/234	EPA 908.0 Modified	2.87E+00	5.24E-01	5.63E-01	1.11E-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:	17-07078
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
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.35E+00	4.29E-01	4.39E-01	1.78E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.73E-01	1.28E-01	1.28E-01	1.08E-01	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	3.46E-01	2.93E-01	2.94E-01	2.48E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	5.10E-01	3.09E-01	3.11E-01	2.51E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.55E-01	1.54E-01	1.55E-01	1.81E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	4.41E-01	2.88E-01	2.90E-01	1.87E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	4.48E-01	2.46E-01	2.48E-01	1.35E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	2.33E-01	1.62E-01	1.63E-01	1.66E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.42E-01	1.07E-01	1.08E-01	9.96E-02	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.17E-01	9.39E-02	9.42E-02	1.01E-01	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	3.26E-01	1.57E-01	1.58E-01	7.63E-02	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.36E+01	2.73E+00	2.89E+00	4.19E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	3.70E+00	1.14E+00	1.17E+00	4.62E-01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	2.68E+00	9.09E-01	9.29E-01	2.96E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	5.26E-01	1.95E-01	1.99E-01	7.13E-02	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.94E-01	1.30E-01	1.30E-01	1.08E-01	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	1.80E-01	1.06E-01	1.06E-01	8.26E-02	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	2.95E-01	1.37E-01	1.38E-01	7.95E-02	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	3.08E-01	1.49E-01	1.51E-01	1.29E-01	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/14/2017	17-07078	Uranium-235/236	EPA 908.0 Modified	4.39E-01	1.91E-01	1.93E-01	1.33E-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:	**17-07078**
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
17-07078-01	LCS	KNOWN	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	7.84E+00	2.82E-01			pCi/g
17-07078-01	LCS	SPIKE	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	8.47E+00	1.43E+00	1.55E+00	1.09E-01	pCi/g
17-07078-02	MBL	BLANK	07/18/17 00:00	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	2.52E-01	1.37E-01	1.39E-01	7.62E-02	pCi/g
17-07078-03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	9.98E-01	4.70E-01	4.76E-01	2.00E-01	pCi/g
17-07078-04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	1.12E+00	4.28E-01	4.36E-01	2.03E-01	pCi/g
17-07078-05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	6.97E-01	2.97E-01	3.01E-01	1.67E-01	pCi/g
17-07078-06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	9.59E-01	4.02E-01	4.08E-01	1.90E-01	pCi/g
17-07078-07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	3.81E+00	8.28E-01	8.72E-01	1.72E-01	pCi/g
17-07078-08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	1.30E+00	3.57E-01	3.69E-01	1.44E-01	pCi/g
17-07078-09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	7.79E-01	2.32E-01	2.39E-01	6.39E-02	pCi/g
17-07078-10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	9.97E-01	2.53E-01	2.63E-01	6.47E-02	pCi/g
17-07078-11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	1.13E+00	2.85E-01	2.96E-01	6.16E-02	pCi/g
17-07078-12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	1.40E+02	1.84E+01	2.09E+01	4.45E-01	pCi/g
17-07078-13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	2.72E+01	4.01E+00	4.46E+00	3.73E-01	pCi/g
17-07078-14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	2.95E+01	4.19E+00	4.69E+00	3.93E-01	pCi/g
17-07078-15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	3.55E+00	5.87E-01	6.40E-01	5.75E-02	pCi/g
17-07078-16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	1.70E+00	3.85E-01	4.04E-01	7.91E-02	pCi/g
17-07078-17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	9.39E-01	2.30E-01	2.39E-01	6.20E-02	pCi/g
17-07078-18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	9.55E-01	2.36E-01	2.45E-01	7.32E-02	pCi/g
17-07078-19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	1.98E+00	3.75E-01	4.01E-01	9.86E-02	pCi/g
17-07078-20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	7/18/2017	8/14/2017	17-07078	Uranium-238	EPA 908.0 Modified	2.74E+00	5.05E-01	5.42E-01	9.04E-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

0032

EBERLINE SERVICES

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

SECTION V

ANALYTICAL STANDARD

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

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

U-8

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

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

NOTES:

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: 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.

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 #: 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

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

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

Description of Solution

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

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 µCi/gram.

Method of Calibration

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

Uncertainty of Measurement

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

NIST Traceability

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

Notes

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

QUALITY CONTROL

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 2/28/2017 0:00

SOLUTION REFERENCE #: iPL 388-116 SOLUTION #: Th-1

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

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

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

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

Dilution Instructions:

Dilution Solvent Used: 0.1N HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: February 1, 2018

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

QC Approval _____ Date: 3/1/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009

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

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

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

Reference Date 11/1/1991 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1N HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2999E+01 dpm/ml

NOTES:

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

Expiration Date: February 1, 2018

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

QC Approval _____ Date: 3/1/17

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

Uncertainty of Measurement:

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

Notes:

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

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
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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

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	5.500E+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	2.210E+03	1.917E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.659E+01	6.005E+03	4.947E+03	0.3	1.7	3.5	HPGe
Sn-113	391.7	1.151E+02	4.528E+03	2.942E+03	0.4	1.9	3.9	HPGe
Cs-137	661.7	1.099E+04	2.249E+03	1.914E+03	0.7	1.9	4.1	HPGe
Y-88	898.0	1.066E+02	7.415E+03	6.948E+03	0.7	1.7	3.7	HPGe
Y-88	1836.1			7.356E+03	0.7	1.7	3.7	
Co-60	1173.2	1.925E+03	3.562E+03	3.557E+03	0.7	1.8	3.9	HPGe
Co-60	1332.5			3.561E+03	0.7	1.8	3.9	

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

(Certificate continued on reverse side)

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07078	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		116.09%	18.02%	100.00%	3.60%	8.09E+00	2.91E-01	9.40E+00	1.69E+00	U-8a	3.20E+01	3.60E+00	5.62E-01
U-238		108.03%	18.29%	100.00%	3.60%	7.84E+00	2.82E-01	8.47E+00	1.55E+00	U-8a	3.10E+01	3.60E+00	5.62E-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 / QC Summary

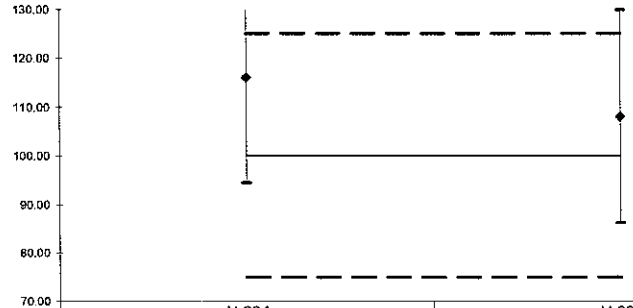
Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	2.63	66.15	1.44E+00	5.06E-01	2.86E+00	9.33E-01	1.16	OK				INV	OK
U-238	0.38	11.78	1.12E+00	4.36E-01	9.98E-01	4.76E-01	1.08	OK				OK	OK
U-235	0.75	38.28	5.10E-01	3.11E-01	3.46E-01	2.94E-01		OK				NA	OK

0051

Version

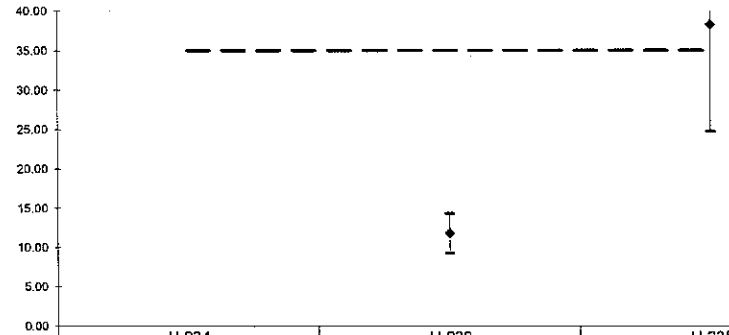
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07078	UUISO	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



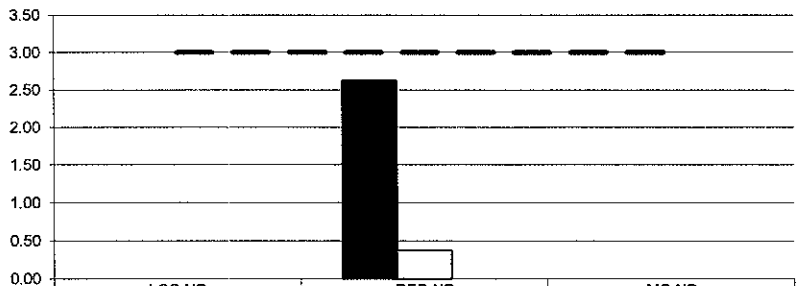
	U-234	U-238
Lower Error	94.47	86.14
Upper Error	137.71	129.92
%R	116.09	108.03
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	U-234	U-238	U-235
Lower Error	77.21	14.31	51.82
Upper Error	55.08	9.25	24.73
RPD	66.15	11.78	38.28
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	2.63	0.00
U-238	0.00	0.38	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07078	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		122.41%	21.89%	100.00%	3.60%	4.99E+00	1.80E-01	6.10E+00	1.34E+00	Th-8b	1.04E+02	3.60E+00	1.07E-01
TH-230		122.74%	23.03%	100.00%	2.70%	5.41E+00	1.46E-01	6.64E+00	1.53E+00	Th-1b	2.35E+01	2.70E+00	5.11E-01
TH-232		119.81%	21.70%	100.00%	3.60%	4.99E+00	1.80E-01	5.97E+00	1.30E+00	Th-8b	1.04E+02	3.60E+00	1.07E-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	0.95	29.25	4.65E-01	1.92E-01	6.25E-01	2.69E-01
TH-230	1.06	28.99	7.99E-01	2.69E-01	5.97E-01	2.59E-01
TH-232	0.86	23.99	6.73E-01	2.31E-01	5.29E-01	2.34E-01

QC Summary

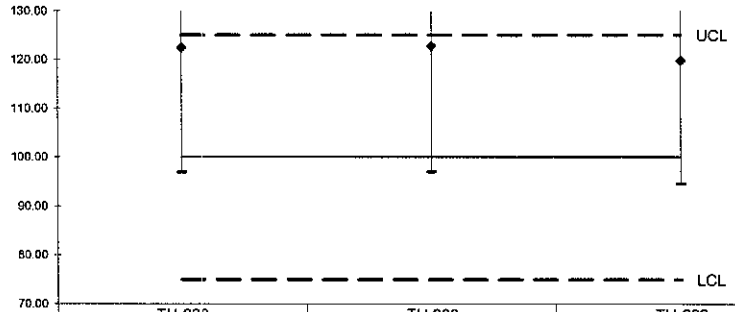
LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
1.22	OK				INV	OK
1.23	OK				INV	OK
1.20	OK				OK	OK

0053

Version

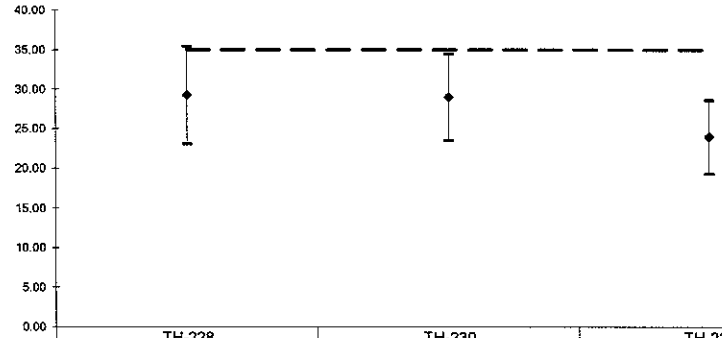
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07078	ThISO	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



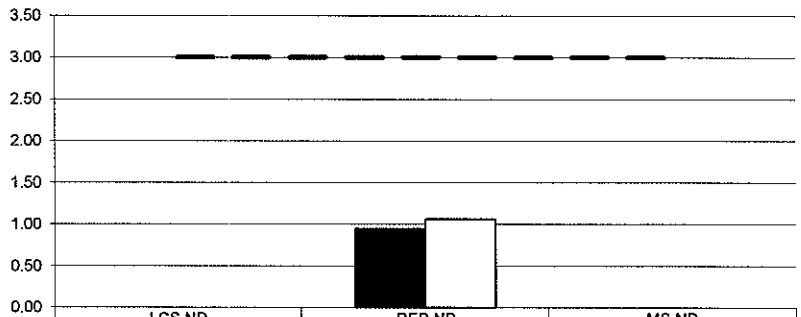
	TH-228	TH-230	TH-232
Lower Error	96.92	97.01	94.52
Upper Error	147.90	148.47	145.11
%R	122.41	122.74	119.81
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	35.43	34.48	28.63
Upper Error	23.07	23.51	19.35
RPD	29.25	28.99	23.99
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.95	0.00
TH-230	0.00	1.06	0.00
UCL	3	3	3

No Matrix Spike

0054

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07078	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		91.13%	7.88%	100.00%	3.89%	1.35E+02	5.27E+00	1.23E+02	9.72E+00	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		92.67%	10.44%	100.00%	4.01%	8.44E+01	3.38E+00	7.82E+01	8.17E+00	GAS-1402	8.44E+01	3.38E+00	7.36E+02

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
AC-228	0.37	5.47	7.05E-01	1.36E-01	7.44E-01	1.63E-01
K-40	0.67	6.47	1.09E+01	1.42E+00	1.02E+01	1.43E+00
PB-212	1.43	13.85	8.17E-01	1.07E-01	7.11E-01	9.88E-02

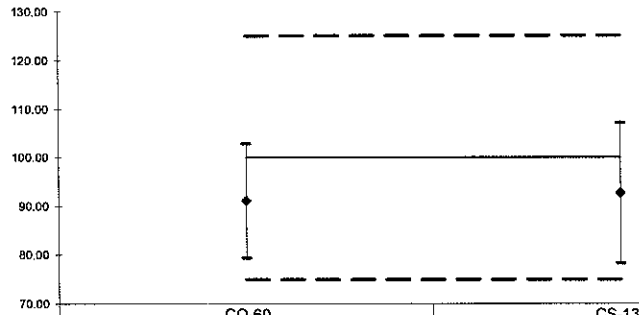
QC Summary

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

0055

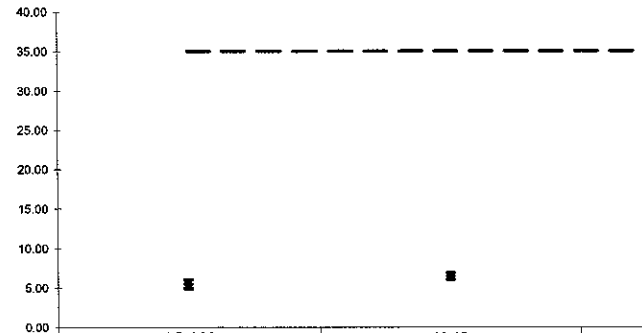
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07078	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



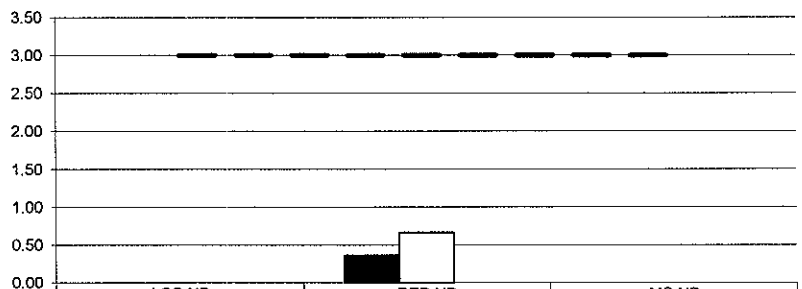
	CO-60	CS-137
Lower Error	79.36	78.22
Upper Error	102.91	107.12
%R	91.13	92.67
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	K-40	PB-212
Lower Error	6.03	6.91	14.78
Upper Error	4.91	6.03	12.92
RPD	5.47	6.47	13.85
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.37	0.00
CS-137	0.00	0.67	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

0056

SECTION VII

LABORATORY TECHNICIAN'S NOTES
&
RUN LOGS

ISO-U NOTES

EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	17-07078
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/11/17 16:45	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.

8/11/17

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	17-07078
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/11/17 16:45	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.
2	08/14/17 05:11	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

8-14-17
JMR

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07078	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
018798P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/11/2017
019164S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/11/2017
019067D01	Hydrochloric Acid	0.5N	JDEMELAS	8/11/2017
019124S	Hydrochloric Acid	6.5N	JDEMELAS	8/11/2017
019158S	Hydrochloric Acid	8N	JDEMELAS	8/11/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/11/2017
019171S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/11/2017
019165S	Hydrochloric Acid	8N	JDEMELAS	8/11/2017
019063P	Ethyl Alcohol	1	TSMITH	8/14/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/14/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/14/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/14/2017
019145S	Carbon substrate	Solution	TSMITH	8/14/2017

Alpha #1

Date	Sample #	Client	Travel Time	CT Time	Analyzed	Tech
8/8/17	1707096A (3,5)	UCOR	1209	2hr50	Am243	KB
8/8/17	1707096A (1-3,5)	UCOR	1210	2hr50	ND	KB
8/9/17	Daily Pulser	Lab	0522	10min	NA	AG
8/9/17	1708018A (1-5)	Smoky Mt. Soluts	0900	2hr50	PU	KB
8/9/17	1708018A (1)	Smoky Mt. Soluts	0900	2hr50	UU	KB
8/9/17	1707097A (3-4)	UCOR	1201	2hr50	Am241	KB
8/9/17	1707097A (1-4)	UCOR	1201	2hr50	Am243	KB
8/10/17	Daily Pulser	Lab	0517	10min	NA	AG
8/10/17	1707108A (1-4,6)	Unitech	0857	2hr50	PU	KB
8/10/17	1707122A (1)	Omega	0900	2hr50	PU	KB
8/10/17	1707109A (1-6)	Grace	1202	2hr50	UU	KB
8/11/17	Daily Pulser	Lab	0440	10min	NA	KB
8/11/17	Cal Check	Lab	1112	2½hr	"	KB
8/11/17	1708027A (1-5)	Smoky Mt. Soluts	0813	2hr50	PU	KB
8/11/17	1708027A (1)	Smoky Mt. Soluts	0813	2hr50	Am241	KB
8/11/17	1707121A (3-5)	Omega	1345	2hr50	Pu242	KB
8/11/17	1707121A (1-3)	Omega	1346	2hr50	Am241	KB
8/11/17	System Bkgd	Lab	1705	16.40 hr	"	KB
8/14	Daily Pulser	LAB	0512	10	NA	C
8/14	1707148A (1-6)	MPA	0525	2½hr	Rab	C
8/14	1707077A (1-6)	Weston	0742	2½hr	Th/Sr	C
8/14/17	1707078A (11-16)	Weston	1141	2hr50	Th	KB
8/14/17	1707078A (17-20)	Weston	1444	2hr50	UU	KB
8/14/17	1707132A (1-2)	ERA	1445	2hr50	Rab	KB

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyst	Test
8/14/17	1707078A(17-20)	Weston	1141	2h-50m	TH	KB
8/14/17	1707125A(1-4)	UCOR	1142	2h-50m	UU	KB
8/14/17	1707078A(1-16)	Weston	1144	2h-50m	UU	KB

ISO-TH NOTES

EBERLINE SERVICES Work Order Analysis Notes	Oak Ridge Laboratory 601 Scarboro Rd. Oak Ridge, TN 37830 Voice: 865.481.0683 www.eberlineservices.com	Internal Work Order	17-07078
		Analysis Code	ThISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/11/17 11:16	CHEM	TSMITH	Followed steps 12.2.1 to 12.2.5 in AP-005 . (Column separation for Thorium by Eichrom Anion resin)
2	08/14/17 05:11	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

6-14-17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07078	
Analysis Code	Run
ThISO	1

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

Alpha #1

Date	Sample	Client	Count Time	CT Time	Analyst	Tech
8/8/17	1707096A(3,5)	UCOR	1209	2hr50 –	Am^{243}	KB
8/8/17	1707096A(1-3,5)	UCOR	1210	2hr50 –	Np	KB
8/9/17	Daily Pulse	Lab	0522	10min	NA	AG
8/9/17	1708018A(1-5)	Smoky Mt. Solutes	0900	2hr50 –	PU	KB
8/9/17	1708018A(1)	Smoky Mt. Solutes	0900	2hr50 –	UU	KB
8/9/17	1707097A(3-4)	UCOR	1201	2hr50 –	Am^{241}	KB
8/9/17	1707097A(1-4)	UCOR	1201	2hr50 –	Am^{243}	KB
8/10/17	Daily Pulse	Lab	0517	10min	NA	AG
8/10/17	1707108A(1-4,6)	Unitech	0857	2hr50 –	PU	KB
8/10/17	1707122A(1)	Omega	0900	2hr50 –	PU	KB
8/10/17	1707109A(1-6)	GRACE	1202	2hr50 –	UU	KB
8/11/17	Daily Pulse	Lab	0740	10min	NA	KB
8/11/17	Cal Check	Lab	1112	24hr	α	KB
8/11/17	1708027A(1-5)	Smoky Mt. Solutes	0813	2hr50 –	PU	KB
8/11/17	1708027A(1)	Smoky Mt. Solutes	0813	2hr50 –	Am^{241}	KB
8/11/17	1707121A(3-5)	Omega	1345	2hr50 –	Pu^{238}	KB
8/11/17	1707121A(1-3)	Omega	1346	2hr50 –	Am^{241}	KB
8/11/17	System Blksd	Lab	1705	16.40 hr	α	KB
8/14	Daily Pulse	KB	0512	10	NA	C
8/14	1707148A(1-6)	MAA	0725	24hr	Pu6	C
8/14	1707077A(1-6)	Weston	0742	24hr	Th232	C
8/14/17	1707078A(1-6)	Weston	1141	2hr50 –	Th	KB

Alpha #3

Date	Sample #	Client	Location	CT Time	Analyte	Tech
8/10/17	1707097A(1-4)	UWOR	1205	2hr50 –	Th	KB
8/10/17	1707096A(1-3,5)	UWOR	1206	2hr50 –	Th^{229}	KB
8/10/17	1707097A(1-3)	UWOR	1206	2hr50 –	Th^{229}	KB
8/10/17	1707097A(4)	UWOR	1501	2hr50 –	Th^{229}	KB
8/10/17	1707096A(2)	UWOR	1501	2hr50 –	UU	KB
8/10/17	1707097A(1-4)	UWOR	1502	2hr50 –	UU	KB
8/10/17	1707097A(4)	UWOR	1502	2hr50 –	UUNT	KB
8/10/17	1708031A(1-7)	USA	1504	2hr50 –	Ra	KB
8/11/17	Daily Pulser	Lab	0440	10min	NA	KB
8/11/17	CAL Check(33-48)	Lab	0503	2½hr	–	KB
8/11/17	CAL Check(49-60)	Lab	0741	2½hr	–	KB
8/11/17	1708027A(2-4)	Smoky Mt. Solutns	0813	2hr50 –	Am^{241}	KB
8/11/17	1708027A(1-4)	Smoky Mt. Solutns	0814	2hr50 –	Pu^{242}	KB
8/11/17	1708027A(1-4)	Smoky Mt. Solutns	0815	2hr50 –	UU	KB
8/11/17	1707106A(1-3)	PCC	0818	2hr50 –	UU	KB
8/11/17	1707106A(10)	PCC	1015	2hr50 –	UU	KB
8/11/17	1707121A(1-6)	Omega	1016	2hr50 –	PU	KB
8/11/17	Regenbestk100A(1)	Lab	1016	1hr	UUNT	KB
8/11/17	1707106A(1-2)	PCC	1017	2hr50 –	Th	KB
8/11/17	1707106A(3-10)	PCC	1112	2hr50 –	Th	KB
8/11/17	1707072A(1-6)	North Wind	1113	2hr50 –	UU	KB
8/11/17	1707072A(7)	North Wind	1310	2hr50 –	UU	KB
8/11/17	1707063A(1-7)	Accutest	1311	2hr50 –	Ra	KB
8/11/17	1707121A(1-2)	Omega	1312	2hr50 –	Pu^{242}	KB
8/11/17	1707121A(4-5)	Omega	1407	2hr50 –	Am^{241}	KB
8/11/17	1707077A(1-12)	Weston	1409	2hr50 –	UU	KB
8/11/17	System Blkgd	Lab	1705	16.40 hrs	–	KB
8/12/17	Daily Pulser	Lab	1003	10 min	–	KB
8/12/17	1707077A(13-20)	Weston	1022	2hr50 –	UU	KB
8/12/17	1707121A(1-5)	Omega	1023	2hr50 –	Am^{241}	KB
8/14	Daily Pulser	KB	0[illegible]	10	NA	—
8/14	1707148AC(7-15)	MPA	0929	2hr50	Ra	—
8/14	1707077A(7-20)	Weston	0892	2hr50	Th230	—
8/14	1707078AC(1-10)	Weston	0844	2hr50	Th230	—

Alpha #3

Date	Sample #	Client	Load Time	CT Time	Analyst	Test
8/14/17	1707078A(17-20)	Weston	1141	2h-50m	TH	KB
8/14/17	1707125A(1-4)	UCOR	1142	2h-50m	UU	KB
8/14/17	1707078A(1-16)	Weston	1144	2h-50m	UU	KB

GAMMA NOTES

GE 1

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/9/17	Daily Bkgd	Lab	0517	15 MIN	γ	AG
8/9/17	GAF-16	Lab	0539	15 Mo	γ	AG
8/9/17	1708026-03	UCOR	0801	4 hr	γ	AG
8/9/17	1708003-06	Weston	1215	1 hr	γ	KB
8/9/17	1708003-07	Weston	1317	1 hr	γ	KB
8/9/17	1708026-05	UCOR	1418	4 hrs	γ	KB
8/9/17	1708026-02	UCOR	1818	4 hrs	γ	KB
8/10/17	Daily Bkgd	Lab	0508	15 MIN	γ	AG
8/10/17	GAF-16	Lab	0531	15 MIN	γ	AG
8/10/17	1708035-~~01~~ AG 03	TWPC	0742	2 hr	γ	AG
8/10/17	1708035-04	TWPC	0943	2 hr	γ	KB
8/10/17	1708045-03	Smoky Mt. Solutns	1144	2 hr	γ	KB
8/10/17	1708045-04	Smoky Mt. Solutns	1344	2 hr	γ	KB
8/10/17	1708045-02	Smoky Mt. Solutns	1545	2 hrs	γ	KB
8/11/17	Daily Bkgd	Lab	0439	15 mins	γ	KB
8/11/17	GAF-16	Lab	0505	15 min	γ	KB
8/11/17	1708040-03	ESLLC	0803	1 hr	γ	KB
8/11/17	1708040-04	ESLLC	0903	1 hr	γ	KB
8/11/17	1707063-04	Accutest	1004	15 —	Ba	KB
8/11/17	1708044-05	CALEnergy	1021	4 hrs	γ	KB
8/11/17	1708044-06	CALEnergy	1422	4 hrs	γ	KB
8/11/17	1708038-03	UCOR	1822	4 hrs	γ	KB
8/12/17	System Bkgd	Lab	0939	24 hr	γ	KB
8/14	GAF-16	LAB	0509	15	γ	C
8/14	Daily B	LAB	0531	15	γ	C
8/14	1707077-03	Weston	0553	[illegible]	γ	[illegible]
8/14	1707077-04	Weston	0619	[illegible]	γ	
8/14	1707077-09	Weston	0801	[illegible]	γ	[illegible]
8/14	1707077-12	Weston	0900	[illegible]	γ	
8/14	1707077-15	Weston	1006	[illegible]	γ	—
8/14/17	1708055 test(4)	Lab	~~[illegible]~~ 1106	15 min	γ	KB
8/14	1707077-20	Weston	1125	[illegible]	γ	—
8/14/17	1707078-03	Weston	1224	1 hr	γ	KB

GE 1

DATE	SAmple #	Client	Load Time	C.T. Time	Analysis	Tech
8/14/17	1707078-04	Weston	1326	1 hr	✓	KB
8/14/17	1707078-08	Weston	1427	1 hr	✓	KB
8/14/17	1707078-11	Weston	1529	1 hr	✓	KB
8/14/17	1707078-14	Weston	1630	1 hr	✓	KB
8/14/17	1708038-04	UCOR	1753	4 hr	✓	KB
8/15	CAT-16	CAS	0552	15	✓	—
8/15	DW14R	CAS	0552	15	✓	—
8/15	1707078-19	Weston	0552	[illegible]	✓	—

GE 3

DATE	SAmple #	Client	Load Time	CT. Time	Analysis	Tech
8/11/17	1707148-08	MPA	1725	15 min	Ba	KB
8/11/17	1707148-10	MPA	1734	15 min	Ba	KB
8/11/17	1707148-12	MPA	1608	15 min	Ba	KB
8/12/17	System Blksd	Lab	0939	24 hrs	✓	KB
8/14	GA81602	LAB	0505	15	✓	[illegible]
8/14	Daily R	LAB	0531	15	✓	
8/14	1707077-05	Weston	0554	[illegible]	✓	—
8/14	1707077-07	Weston	0653	[illegible]	✓	—
8/14	1707077-10	Weston	0801	[illegible]	✓	[illegible]
8/14	1707077-13	Weston	0903	[illegible]	✓	
8/14	1707077-16	Weston	1006	[illegible]	✓	—
8/14	1707077-18	Weston	1108	[illegible]	✓	✓
8/14/17	1707077-01	Weston	1209	30 min	✓	KB
8/14/17	1707078-01	Weston	1240	30 min	✓	KB
8/14	1707078-05	Weston	1311	[illegible]	✓	—
8/14/17	1707078-07	Weston	1411	1 hr	✓	KB
8/14/17	1707078-09	Weston	1512	1 hr	✓	KB
8/14/17	1707078-12	Weston	1613	1 hr	✓	KB
8/14/17	1707078-15	Weston	1714	1 hr	✓	KB
8/14/17	1707078-17	Weston	1818	1 hr	✓	KB
8/15	GA81602	LAB	0512	15	✓	[illegible]
8/15	Daily R.	LAB	0532	15	✓	
8/15	1707078-20	Weston	0552	[illegible]	✓	—

GE4

DATE	SAmple #	Client	Load Time	CT Time	Analysis	Tech
8/14	1707077-06	Weston	0554	2h	✓	—
8/14	1707077-08	Weston	0652	2h	✓	—
8/14	1707077-11	Weston	0801	2h	✓	—
8/14	1707077-14	Weston	0903	2h	✓	—
8/14	1707077-17	Weston	1006	2h	✓	—
8/14	1707077-19	Weston	1108	2h	✓	—
8/14/17	1707077-02	Weston	1209	1h	✓	KB
8/14/17	1707078-02	Weston	1309	1h	✓	KB
8/14/17	1707078-06	Weston	1410	1h	✓	KB
8/14/17	1707078-10	Weston	1512	1h	✓	KB
8/14/17	1707078-13	Weston	1613	1h	✓	KB
8/14/17	1707078-16	Weston	1714	1h	✓	KB
8/14/17	1707078-18	Weston	1818	1h	✓	KB

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

17-07078
UUISO
Run 1

Work Order	17-07078
Analysis Code	UUISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 908.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.33
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S003-0006-01	33	05/13/17 10:44	1.0066E+00
04	DO	HTC-A01-S003-0006-01	33	05/13/17 10:44	1.0168E+00
05	TRG	HTC-A01-S003-0612-01	48	05/13/17 10:41	1.0175E+00
06	TRG	HTC-A01-S003-1218-01	30	05/13/17 10:40	1.0068E+00
07	TRG	HTC-A01-S003-1824-01	58	05/13/17 10:38	1.0174E+00
08	TRG	HTC-A01-S003-2430-01	38	05/13/17 10:35	1.0267E+00
09	TRG	HTC-A01-S003-3036-01	44	05/13/17 10:32	1.0407E+00
10	TRG	HTC-A01-S003-3642-01	30	05/13/17 10:29	1.0609E+00
11	TRG	HTC-A01-S003-4248-01	36	05/13/17 10:26	1.0722E+00
12	TRG	HTC-A01-S004-0006-01	247	05/13/17 14:21	2.6810E-01
13	TRG	HTC-A01-S004-0612-01	367	05/13/17 14:18	2.5160E-01
14	TRG	HTC-A01-S004-1218-01	388	05/13/17 14:15	2.6610E-01
15	TRG	HTC-A01-S004-1824-01	44	05/13/17 14:12	1.0808E+00
16	TRG	HTC-A01-S004-2430-01	37	05/13/17 14:09	1.0268E+00
17	TRG	HTC-A01-S004-3036-01	47	05/13/17 14:06	1.0922E+00
18	TRG	HTC-A01-S004-3642-01	40	05/13/17 14:03	1.0586E+00
19	TRG	HTC-A01-S004-4248-01	69	05/13/17 14:00	1.0178E+00
20	TRG	HTC-A01-S005-0006-01	40	05/13/17 10:01	1.0172E+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.

17-07078
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	0.6763	12.4		0.00								
02	MBL	0.6764	12.4		0.00								
03	DUP	0.6735	12.3		0.00								
04	DO	0.6748	12.4		0.00								
05	TRG	0.6747	12.4		0.00								
06	TRG	0.6735	12.3		0.00								
07	TRG	0.6748	12.4		0.00								
08	TRG	0.6751	12.4		0.00								
09	TRG	0.6745	12.4		0.00								
10	TRG	0.6746	12.4		0.00								
11	TRG	0.6754	12.4		0.00								
12	TRG	0.6750	12.4		0.00								
13	TRG	0.6756	12.4		0.00								
14	TRG	0.6749	12.4		0.00								
15	TRG	0.6761	12.4		0.00								
16	TRG	0.6760	12.4		0.00								
17	TRG	0.6751	12.4		0.00								
18	TRG	0.6758	12.4		0.00								
19	TRG	0.6750	12.4		0.00								
20	TRG	0.6748	12.4		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.

17-07078
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			07/31/17 13:05	JPACHELLA				
02	MBL			07/31/17 13:05	JPACHELLA				
03	DUP			07/31/17 13:05	JPACHELLA				
04	DO	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
05	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
06	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
07	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
08	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
09	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
10	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
11	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
12	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
13	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
14	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
15	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
16	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
17	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
18	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
19	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	JPACHELLA				
20	TRG	07/24/17 09:32	KSALLINGS	07/31/17 13:05	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: 17-07078-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	9.40E+00	1.55E+00	1.20E-01	8.09E+00	116.09	OK		OK	
02	U-234	MBL	BLANK	pCi/g	4.43E-01	1.88E-01	1.10E-01					OK	OK
03	U-234	DUP	HTC-A01-S003-0006-01	pCi/g	2.86E+00	9.10E-01	2.52E-01				INV	OK	
04	U-234	DO	HTC-A01-S003-0006-01	pCi/g	1.44E+00	4.96E-01	1.92E-01					OK	
05	U-234	TRG	HTC-A01-S003-0612-01	pCi/g	2.23E+00	5.92E-01	1.34E-01					OK	
06	U-234	TRG	HTC-A01-S003-1218-01	pCi/g	2.64E+00	7.51E-01	1.74E-01					OK	
07	U-234	TRG	HTC-A01-S003-1824-01	pCi/g	4.83E+00	9.86E-01	1.65E-01					OK	
08	U-234	TRG	HTC-A01-S003-2430-01	pCi/g	1.95E+00	4.60E-01	1.39E-01					OK	
09	U-234	TRG	HTC-A01-S003-3036-01	pCi/g	1.53E+00	3.49E-01	9.21E-02					OK	
10	U-234	TRG	HTC-A01-S003-3642-01	pCi/g	1.37E+00	3.09E-01	8.57E-02					OK	
11	U-234	TRG	HTC-A01-S003-4248-01	pCi/g	1.47E+00	3.36E-01	7.78E-02					OK	
12	U-234	TRG	HTC-A01-S004-0006-01	pCi/g	1.33E+02	1.75E+01	4.47E-01					OK	
13	U-234	TRG	HTC-A01-S004-0612-01	pCi/g	2.81E+01	4.12E+00	2.99E-01					OK	
14	U-234	TRG	HTC-A01-S004-1218-01	pCi/g	2.85E+01	4.07E+00	2.75E-01					OK	
15	U-234	TRG	HTC-A01-S004-1824-01	pCi/g	3.45E+00	5.76E-01	8.30E-02					OK	
16	U-234	TRG	HTC-A01-S004-2430-01	pCi/g	1.80E+00	4.03E-01	1.18E-01					OK	
17	U-234	TRG	HTC-A01-S004-3036-01	pCi/g	1.07E+00	2.50E-01	8.99E-02					OK	
18	U-234	TRG	HTC-A01-S004-3642-01	pCi/g	1.72E+00	3.38E-01	7.73E-02					OK	
19	U-234	TRG	HTC-A01-S004-4248-01	pCi/g	1.93E+00	3.72E-01	1.14E-01					OK	
20	U-234	TRG	HTC-A01-S005-0006-01	pCi/g	2.87E+00	5.24E-01	1.11E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	07/18/17 00:00	1.00E+00	61.88	0.00	0.00			
02	U-234	MBL	07/18/17 00:00	1.00E+00	80.80	0.00	0.00			
03	U-234	DUP	05/13/17 10:44	1.01E+00	32.49	0.00	0.00			
04	U-234	DO	05/13/17 10:44	1.02E+00	44.81	0.00	0.00			
05	U-234	TRG	05/13/17 10:41	1.02E+00	57.42	0.00	0.00			
06	U-234	TRG	05/13/17 10:40	1.01E+00	44.40	0.00	0.00			
07	U-234	TRG	05/13/17 10:38	1.02E+00	66.83	0.00	0.00			
08	U-234	TRG	05/13/17 10:35	1.03E+00	91.99	0.00	0.00			
09	U-234	TRG	05/13/17 10:32	1.04E+00	95.43	0.00	0.00			
10	U-234	TRG	05/13/17 10:29	1.06E+00	121.54	0.00	0.00			
11	U-234	TRG	05/13/17 10:26	1.07E+00	122.57	0.00	0.00			
12	U-234	TRG	05/13/17 14:21	2.68E-01	87.51	0.00	0.00			
13	U-234	TRG	05/13/17 14:18	2.52E-01	102.64	0.00	0.00			
14	U-234	TRG	05/13/17 14:15	2.66E-01	104.24	0.00	0.00			
15	U-234	TRG	05/13/17 14:12	1.08E+00	99.90	0.00	0.00			
16	U-234	TRG	05/13/17 14:09	1.03E+00	105.43	0.00	0.00			
17	U-234	TRG	05/13/17 14:06	1.09E+00	131.12	0.00	0.00			
18	U-234	TRG	05/13/17 14:03	1.06E+00	108.48	0.00	0.00			
19	U-234	TRG	05/13/17 14:00	1.02E+00	109.55	0.00	0.00			
20	U-234	TRG	05/13/17 10:01	1.02E+00	86.42	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07078
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	08/14/17 11:42		A_Spec	Alpha_043	170	4.10 E+02	3.00 E-03	18.7
02	U-234	MBL	08/14/17 11:42		A_Spec	Alpha_044	170	2.41 E+01	5.00 E-03	17.9
03	U-234	DUP	08/14/17 11:42		A_Spec	Alpha_045	170	5.95 E+01	3.00 E-03	16.9
04	U-234	DO	08/14/17 11:42		A_Spec	Alpha_046	170	4.23 E+01	4.00 E-03	17.1
05	U-234	TRG	08/14/17 11:42		A_Spec	Alpha_047	170	7.97 E+01	2.00 E-03	16.2
06	U-234	TRG	08/14/17 11:42		A_Spec	Alpha_048	170	7.27 E+01	2.00 E-03	16.3
07	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_049	170	1.84 E+02	6.00 E-03	14.9
08	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_050	170	9.95 E+01	9.00 E-03	14.3
09	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_052	170	9.92 E+01	5.00 E-03	17.4
10	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_053	170	1.01 E+02	6.00 E-03	15.1
11	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_054	170	9.95 E+01	3.00 E-03	13.6
12	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_056	170	1.88 E+03	6.00 E-03	15.9
13	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_057	170	4.51 E+02	2.00 E-03	16.5
14	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_058	170	4.96 E+02	2.00 E-03	16.6
15	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_059	170	2.49 E+02	0.00 E+00	17.8
16	U-234	TRG	08/14/17 11:43		A_Spec	Alpha_060	170	1.08 E+02	9.00 E-03	14.8
17	U-234	TRG	08/14/17 14:44		A_Spec	Alpha_003	170.02	9.01 E+01	1.10 E-02	15.6
18	U-234	TRG	08/14/17 14:44		A_Spec	Alpha_004	170.02	1.40 E+02	6.00 E-03	18.8
19	U-234	TRG	08/14/17 14:44		A_Spec	Alpha_010	170.02	1.52 E+02	1.80 E-02	18.7
20	U-234	TRG	08/14/17 14:44		A_Spec	Alpha_011	170	1.89 E+02	1.00 E-02	19.9

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07078
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	8.47E+00	1.43E+00	1.09E-01	7.84E+00	108.03	OK		OK	
02	U-238	MBL	BLANK	pCi/g	2.52E-01	1.37E-01	7.62E-02					OK	OK
03	U-238	DUP	HTC-A01-S003-0006-01	pCi/g	9.98E-01	4.70E-01	2.00E-01				OK	OK	
04	U-238	DO	HTC-A01-S003-0006-01	pCi/g	1.12E+00	4.28E-01	2.03E-01					OK	
05	U-238	TRG	HTC-A01-S003-0612-01	pCi/g	6.97E-01	2.97E-01	1.67E-01					OK	
06	U-238	TRG	HTC-A01-S003-1218-01	pCi/g	9.59E-01	4.02E-01	1.90E-01					OK	
07	U-238	TRG	HTC-A01-S003-1824-01	pCi/g	3.81E+00	8.28E-01	1.72E-01					OK	
08	U-238	TRG	HTC-A01-S003-2430-01	pCi/g	1.30E+00	3.57E-01	1.44E-01					OK	
09	U-238	TRG	HTC-A01-S003-3036-01	pCi/g	7.79E-01	2.32E-01	6.39E-02					OK	
10	U-238	TRG	HTC-A01-S003-3642-01	pCi/g	9.97E-01	2.53E-01	6.47E-02					OK	
11	U-238	TRG	HTC-A01-S003-4248-01	pCi/g	1.13E+00	2.85E-01	6.16E-02					OK	
12	U-238	TRG	HTC-A01-S004-0006-01	pCi/g	1.40E+02	1.84E+01	4.45E-01					OK	
13	U-238	TRG	HTC-A01-S004-0612-01	pCi/g	2.72E+01	4.01E+00	3.73E-01					OK	
14	U-238	TRG	HTC-A01-S004-1218-01	pCi/g	2.95E+01	4.19E+00	3.93E-01					OK	
15	U-238	TRG	HTC-A01-S004-1824-01	pCi/g	3.55E+00	5.87E-01	5.75E-02					OK	
16	U-238	TRG	HTC-A01-S004-2430-01	pCi/g	1.70E+00	3.85E-01	7.91E-02					OK	
17	U-238	TRG	HTC-A01-S004-3036-01	pCi/g	9.39E-01	2.30E-01	6.20E-02					OK	
18	U-238	TRG	HTC-A01-S004-3642-01	pCi/g	9.55E-01	2.36E-01	7.32E-02					OK	
19	U-238	TRG	HTC-A01-S004-4248-01	pCi/g	1.98E+00	3.75E-01	9.86E-02					OK	
20	U-238	TRG	HTC-A01-S005-0006-01	pCi/g	2.74E+00	5.05E-01	9.04E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07078
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	07/18/17 00:00	1.00E+00	61.88	0.00	0.00			
02	U-238	MBL	07/18/17 00:00	1.00E+00	80.80	0.00	0.00			
03	U-238	DUP	05/13/17 10:44	1.01E+00	32.49	0.00	0.00			
04	U-238	DO	05/13/17 10:44	1.02E+00	44.81	0.00	0.00			
05	U-238	TRG	05/13/17 10:41	1.02E+00	57.42	0.00	0.00			
06	U-238	TRG	05/13/17 10:40	1.01E+00	44.40	0.00	0.00			
07	U-238	TRG	05/13/17 10:38	1.02E+00	66.83	0.00	0.00			
08	U-238	TRG	05/13/17 10:35	1.03E+00	91.99	0.00	0.00			
09	U-238	TRG	05/13/17 10:32	1.04E+00	95.43	0.00	0.00			
10	U-238	TRG	05/13/17 10:29	1.06E+00	121.54	0.00	0.00			
11	U-238	TRG	05/13/17 10:26	1.07E+00	122.57	0.00	0.00			
12	U-238	TRG	05/13/17 14:21	2.68E-01	87.51	0.00	0.00			
13	U-238	TRG	05/13/17 14:18	2.52E-01	102.64	0.00	0.00			
14	U-238	TRG	05/13/17 14:15	2.66E-01	104.24	0.00	0.00			
15	U-238	TRG	05/13/17 14:12	1.08E+00	99.90	0.00	0.00			
16	U-238	TRG	05/13/17 14:09	1.03E+00	105.43	0.00	0.00			
17	U-238	TRG	05/13/17 14:06	1.09E+00	131.12	0.00	0.00			
18	U-238	TRG	05/13/17 14:03	1.06E+00	108.48	0.00	0.00			
19	U-238	TRG	05/13/17 14:00	1.02E+00	109.55	0.00	0.00			
20	U-238	TRG	05/13/17 10:01	1.02E+00	86.42	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
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-238	LCS	08/14/17 11:42		A_Spec	Alpha_043	170	3.72 E+02	2.00 E-03	18.7
02	U-238	MBL	08/14/17 11:42		A_Spec	Alpha_044	170	1.38 E+01	1.00 E-03	17.9
03	U-238	DUP	08/14/17 11:42		A_Spec	Alpha_045	170	2.08 E+01	1.00 E-03	16.9
04	U-238	DO	08/14/17 11:42		A_Spec	Alpha_046	170	3.32 E+01	5.00 E-03	17.1
05	U-238	TRG	08/14/17 11:42		A_Spec	Alpha_047	170	2.50 E+01	0.00 E+00	16.2
06	U-238	TRG	08/14/17 11:42		A_Spec	Alpha_048	170	2.65 E+01	3.00 E-03	16.3
07	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_049	170	1.46 E+02	7.00 E-03	14.9
08	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_050	170	6.63 E+01	1.00 E-02	14.3
09	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_052	170	5.08 E+01	1.00 E-03	17.4
10	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_053	170	7.37 E+01	2.00 E-03	15.1
11	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_054	170	7.68 E+01	1.00 E-03	13.6
12	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_056	170	1.98 E+03	6.00 E-03	15.9
13	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_057	170	4.38 E+02	0.00 E+00	16.5
14	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_058	170	5.16 E+02	8.00 E-03	16.6
15	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_059	170	2.58 E+02	1.00 E-03	17.8
16	U-238	TRG	08/14/17 11:43		A_Spec	Alpha_060	170	1.03 E+02	2.00 E-03	14.8
17	U-238	TRG	08/14/17 14:44		A_Spec	Alpha_003	170.02	7.95 E+01	3.00 E-03	15.6
18	U-238	TRG	08/14/17 14:44		A_Spec	Alpha_004	170.02	7.81 E+01	5.00 E-03	18.8
19	U-238	TRG	08/14/17 14:44		A_Spec	Alpha_010	170.02	1.56 E+02	1.20 E-02	18.7
20	U-238	TRG	08/14/17 14:44		A_Spec	Alpha_011	170	1.81 E+02	5.00 E-03	19.9

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	1.35E+00	4.29E-01	1.78E-01					OK	
02	U-235	MBL	BLANK	pCi/g	1.73E-01	1.28E-01	1.08E-01					OK	OK
03	U-235	DUP	HTC-A01-S003-0006-01	pCi/g	3.46E-01	2.93E-01	2.48E-01				NA	OK	
04	U-235	DO	HTC-A01-S003-0006-01	pCi/g	5.10E-01	3.09E-01	2.51E-01					OK	
05	U-235	TRG	HTC-A01-S003-0612-01	pCi/g	1.55E-01	1.54E-01	1.81E-01					OK	
06	U-235	TRG	HTC-A01-S003-1218-01	pCi/g	4.41E-01	2.88E-01	1.87E-01					OK	
07	U-235	TRG	HTC-A01-S003-1824-01	pCi/g	4.48E-01	2.46E-01	1.35E-01					OK	
08	U-235	TRG	HTC-A01-S003-2430-01	pCi/g	2.33E-01	1.62E-01	1.66E-01					OK	
09	U-235	TRG	HTC-A01-S003-3036-01	pCi/g	1.42E-01	1.07E-01	9.96E-02					OK	
10	U-235	TRG	HTC-A01-S003-3642-01	pCi/g	1.17E-01	9.39E-02	1.01E-01					OK	
11	U-235	TRG	HTC-A01-S003-4248-01	pCi/g	3.26E-01	1.57E-01	7.63E-02					OK	
12	U-235	TRG	HTC-A01-S004-0006-01	pCi/g	1.36E+01	2.73E+00	4.19E-01					OK	
13	U-235	TRG	HTC-A01-S004-0612-01	pCi/g	3.70E+00	1.14E+00	4.62E-01					OK	
14	U-235	TRG	HTC-A01-S004-1218-01	pCi/g	2.68E+00	9.09E-01	2.96E-01					OK	
15	U-235	TRG	HTC-A01-S004-1824-01	pCi/g	5.26E-01	1.95E-01	7.13E-02					OK	
16	U-235	TRG	HTC-A01-S004-2430-01	pCi/g	1.94E-01	1.30E-01	1.08E-01					OK	
17	U-235	TRG	HTC-A01-S004-3036-01	pCi/g	1.80E-01	1.06E-01	8.26E-02					OK	
18	U-235	TRG	HTC-A01-S004-3642-01	pCi/g	2.95E-01	1.37E-01	7.95E-02					OK	
19	U-235	TRG	HTC-A01-S004-4248-01	pCi/g	3.08E-01	1.49E-01	1.29E-01					OK	
20	U-235	TRG	HTC-A01-S005-0006-01	pCi/g	4.39E-01	1.91E-01	1.33E-01					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07078
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	07/18/17 00:00	1.00E+00	61.88	0.00	0.00			
02	U-235	MBL	07/18/17 00:00	1.00E+00	80.80	0.00	0.00			
03	U-235	DUP	05/13/17 10:44	1.01E+00	32.49	0.00	0.00			
04	U-235	DO	05/13/17 10:44	1.02E+00	44.81	0.00	0.00			
05	U-235	TRG	05/13/17 10:41	1.02E+00	57.42	0.00	0.00			
06	U-235	TRG	05/13/17 10:40	1.01E+00	44.40	0.00	0.00			
07	U-235	TRG	05/13/17 10:38	1.02E+00	66.83	0.00	0.00			
08	U-235	TRG	05/13/17 10:35	1.03E+00	91.99	0.00	0.00			
09	U-235	TRG	05/13/17 10:32	1.04E+00	95.43	0.00	0.00			
10	U-235	TRG	05/13/17 10:29	1.06E+00	121.54	0.00	0.00			
11	U-235	TRG	05/13/17 10:26	1.07E+00	122.57	0.00	0.00			
12	U-235	TRG	05/13/17 14:21	2.68E-01	87.51	0.00	0.00			
13	U-235	TRG	05/13/17 14:18	2.52E-01	102.64	0.00	0.00			
14	U-235	TRG	05/13/17 14:15	2.66E-01	104.24	0.00	0.00			
15	U-235	TRG	05/13/17 14:12	1.08E+00	99.90	0.00	0.00			
16	U-235	TRG	05/13/17 14:09	1.03E+00	105.43	0.00	0.00			
17	U-235	TRG	05/13/17 14:06	1.09E+00	131.12	0.00	0.00			
18	U-235	TRG	05/13/17 14:03	1.06E+00	108.48	0.00	0.00			
19	U-235	TRG	05/13/17 14:00	1.02E+00	109.55	0.00	0.00			
20	U-235	TRG	05/13/17 10:01	1.02E+00	86.42	0.00	0.00			

0800

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
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	08/14/17 11:42		A_Spec	Alpha_043	170	4.80 E+01	6.00 E-03	18.7
02	U-235	MBL	08/14/17 11:42		A_Spec	Alpha_044	170	7.66 E+00	2.00 E-03	17.9
03	U-235	DUP	08/14/17 11:42		A_Spec	Alpha_045	170	5.83 E+00	1.00 E-03	16.9
04	U-235	DO	08/14/17 11:42		A_Spec	Alpha_046	170	1.21 E+01	5.00 E-03	17.1
05	U-235	TRG	08/14/17 11:42		A_Spec	Alpha_047	170	4.49 E+00	3.00 E-03	16.2
06	U-235	TRG	08/14/17 11:42		A_Spec	Alpha_048	170	9.83 E+00	1.00 E-03	16.3
07	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_049	170	1.38 E+01	1.00 E-03	14.9
08	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_050	170	9.64 E+00	8.00 E-03	14.3
09	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_052	170	7.49 E+00	3.00 E-03	17.4
10	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_053	170	7.00 E+00	0.00 E+00	15.1
11	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_054	170	1.78 E+01	1.00 E-03	13.6
12	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_056	170	1.56 E+02	2.00 E-03	15.9
13	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_057	170	4.80 E+01	0.00 E+00	16.5
14	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_058	170	3.78 E+01	1.00 E-03	16.6
15	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_059	170	3.08 E+01	1.00 E-03	17.8
16	U-235	TRG	08/14/17 11:43		A_Spec	Alpha_060	170	9.49 E+00	3.00 E-03	14.8
17	U-235	TRG	08/14/17 14:44		A_Spec	Alpha_003	170.02	1.23 E+01	4.00 E-03	15.6
18	U-235	TRG	08/14/17 14:44		A_Spec	Alpha_004	170.02	1.95 E+01	3.00 E-03	18.8
19	U-235	TRG	08/14/17 14:44		A_Spec	Alpha_010	170.02	1.96 E+01	1.40 E-02	18.7
20	U-235	TRG	08/14/17 14:44		A_Spec	Alpha_011	170	2.35 E+01	9.00 E-03	19.9

Count Room Report
Client: Weston Solutions, Inc.

17-07078-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

#37-66

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/18/17 00:00	1.0000	0.6763	12.3966		0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000	0.6764	12.3984		0.00		
03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	1.0066	0.6735	12.3453		0.00		
04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	1.0168	0.6748	12.3691		0.00		
05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	1.0175	0.6747	12.3673		0.00		
06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	1.0068	0.6735	12.3453		0.00		
07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	1.0174	0.6748	12.3691		0.00		
08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	1.0267	0.6751	12.3746		0.00		
09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	1.0407	0.6745	12.3636		0.00		
10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	1.0609	0.6746	12.3654		0.00		
11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	1.0722	0.6754	12.3801		0.00		
12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	0.2681	0.6750	12.3728		0.00		
13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	0.2516	0.6756	12.3837		0.00		
14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	0.2661	0.6749	12.3709		0.00		
15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	1.0808	0.6761	12.3929		0.00		
16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	1.0268	0.6760	12.3911		0.00		
17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	1.0922	0.6751	12.3746		0.00		
18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	1.0586	0.6758	12.3874		0.00		
19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	1.0178	0.6750	12.3728		0.00		
20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	1.0172	0.6748	12.3691		0.00		

#3-11
0088

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 7/31/2017 1:05 PM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07078	1	UUISO	7/31/2017 11:56	JPACHELLA	JMP	

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	7/31/2017	0.550	0.5615				8.09	0.291	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	31.000	7/31/2017	0.550	0.5615				7.84	0.282	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.330	7/31/2017	0.6763	0.6600
02	U-232	U-10a	18.330	7/31/2017	0.6764	0.6600
03	U-232	U-10a	18.330	7/31/2017	0.6735	0.6600
04	U-232	U-10a	18.330	7/31/2017	0.6748	0.6600
05	U-232	U-10a	18.330	7/31/2017	0.6747	0.6600
06	U-232	U-10a	18.330	7/31/2017	0.6735	0.6600
07	U-232	U-10a	18.330	7/31/2017	0.6748	0.6600
08	U-232	U-10a	18.330	7/31/2017	0.6751	0.6600
09	U-232	U-10a	18.330	7/31/2017	0.6745	0.6600
10	U-232	U-10a	18.330	7/31/2017	0.6746	0.6600
11	U-232	U-10a	18.330	7/31/2017	0.6754	0.6600
12	U-232	U-10a	18.330	7/31/2017	0.6750	0.6600
13	U-232	U-10a	18.330	7/31/2017	0.6756	0.6600
14	U-232	U-10a	18.330	7/31/2017	0.6749	0.6600
15	U-232	U-10a	18.330	7/31/2017	0.6761	0.6600
16	U-232	U-10a	18.330	7/31/2017	0.6760	0.6600
17	U-232	U-10a	18.330	7/31/2017	0.6751	0.6600
18	U-232	U-10a	18.330	7/31/2017	0.6758	0.6600
19	U-232	U-10a	18.330	7/31/2017	0.6750	0.6600
20	U-232	U-10a	18.330	7/31/2017	0.6748	0.6600

Balance Printer Tapes

Tracer

0.6763 g
0.6764 g
0.6735 g
0.6748 g
0.6747 g
0.6735 g
0.6748 g
0.6751 g
0.6745 g
0.6746 g
0.6754 g
0.6750 g
0.6756 g
0.6749 g
0.6761 g
0.6760 g
0.6751 g
0.6758 g
0.6750 g
0.6748 g

LCS

0.5615 g

Matrix Spike

0089

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07078	1	UUISO	grams	8/9/2017	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-A01-S003-0006-01	DUP					1.0066E+00	1.0066E+00				
04	HTC-A01-S003-0006-01	DO					1.0168E+00	1.0168E+00				
05	HTC-A01-S003-0612-01	TRG					1.0175E+00	1.0175E+00				
06	HTC-A01-S003-1218-01	TRG					1.0068E+00	1.0068E+00				
07	HTC-A01-S003-1824-01	TRG					1.0174E+00	1.0174E+00				
08	HTC-A01-S003-2430-01	TRG					1.0267E+00	1.0267E+00				
09	HTC-A01-S003-3036-01	TRG					1.0407E+00	1.0407E+00				
10	HTC-A01-S003-3642-01	TRG					1.0609E+00	1.0609E+00				
11	HTC-A01-S003-4248-01	TRG					1.0722E+00	1.0722E+00				
12	HTC-A01-S004-0006-01	TRG					2.6810E-01	2.6810E-01				
13	HTC-A01-S004-0612-01	TRG					2.5160E-01	2.5160E-01				
14	HTC-A01-S004-1218-01	TRG					2.6610E-01	2.6610E-01				
15	HTC-A01-S004-1824-01	TRG					1.0808E+00	1.0808E+00				
16	HTC-A01-S004-2430-01	TRG					1.0268E+00	1.0268E+00				
17	HTC-A01-S004-3036-01	TRG					1.0922E+00	1.0922E+00				
18	HTC-A01-S004-3642-01	TRG					1.0586E+00	1.0586E+00				
19	HTC-A01-S004-4248-01	TRG					1.0178E+00	1.0178E+00				
20	HTC-A01-S005-0006-01	TRG					1.0172E+00	1.0172E+00				

Comments	

0600

Technician: JPachella 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
17-07078	8/9/2017	7/23/2017	7/24/2017	7/25/2017	KSALLINGS

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

Eberline Fraction	Weston Solutions, Inc. Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	HTC-A01-S003-0006-01	14.6300	1012.0200	871.0400	997.3900	856.4100	14.13%	85.87%	0.0000	0.0000	
05	HTC-A01-S003-0612-01	14.6300	1026.3000	908.5000	1011.6700	893.8700	11.64%	88.36%	0.0000	0.0000	
06	HTC-A01-S003-1218-01	14.5700	1081.7400	967.2200	1067.1700	952.6500	10.73%	89.27%	0.0000	0.0000	
07	HTC-A01-S003-1824-01	14.5000	1028.3200	859.6400	1013.8200	845.1400	16.64%	83.36%	0.0000	0.0000	
08	HTC-A01-S003-2430-01	14.6400	967.9200	784.9400	953.2800	770.3000	19.19%	80.81%	0.0000	0.0000	
09	HTC-A01-S003-3036-01	14.6900	1013.7400	825.2200	999.0500	810.5300	18.87%	81.13%	0.0000	0.0000	
10	HTC-A01-S003-3642-01	14.6600	939.5600	779.3900	924.9000	764.7300	17.32%	82.68%	0.0000	0.0000	
11	HTC-A01-S003-4248-01	14.7200	868.2000	722.6000	853.4800	707.8800	17.06%	82.94%	0.0000	0.0000	
12	HTC-A01-S004-0006-01	14.7200	810.2400	742.8500	795.5200	728.1300	8.47%	91.53%	0.0000	0.0000	
13	HTC-A01-S004-0612-01	14.6400	1006.2000	908.0600	991.5600	893.4200	9.90%	90.10%	0.0000	0.0000	
14	HTC-A01-S004-1218-01	14.6000	992.1000	905.8940	977.5000	891.2940	8.82%	91.18%	0.0000	0.0000	
15	HTC-A01-S004-1824-01	14.5700	829.4800	691.0900	814.9100	676.5200	16.98%	83.02%	0.0000	0.0000	
16	HTC-A01-S004-2430-01	14.6300	908.6200	752.8800	893.9900	738.2500	17.42%	82.58%	0.0000	0.0000	
17	HTC-A01-S004-3036-01	14.5300	800.3600	663.3700	785.8300	648.8400	17.43%	82.57%	0.0000	0.0000	
18	HTC-A01-S004-3642-01	14.5600	878.0600	728.1300	863.5000	713.5700	17.36%	82.64%	0.0000	0.0000	
19	HTC-A01-S004-4248-01	14.5400	881.5800	738.2900	867.0400	723.7500	16.53%	83.47%	0.0000	0.0000	
20	HTC-A01-S005-0006-01	14.5800	866.1400	694.2600	851.5600	679.6800	20.18%	79.82%	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)

0091

Technician: Kerry Sallings

Date: Analysis: Rough Prep Logbook

Analysis: UUISO Page No. 10137

KG 8/14/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-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 193361
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:42:28 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.676 mL
Effective Efficiency: 0.1160 +/- 0.0079
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 0.6188 +/- 0.0436

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.950391 +/- 0.086471
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	5.262	242.47	12.63	1.53	0.00E+000	17.6
U-234		4.714	410.49	9.68	0.51	0.00E+000	10.4
U-235		4.399	47.98	28.65	1.02	0.00E+000	3.5
U-238		4.133	371.66	10.17	0.34	0.00E+000	16.7

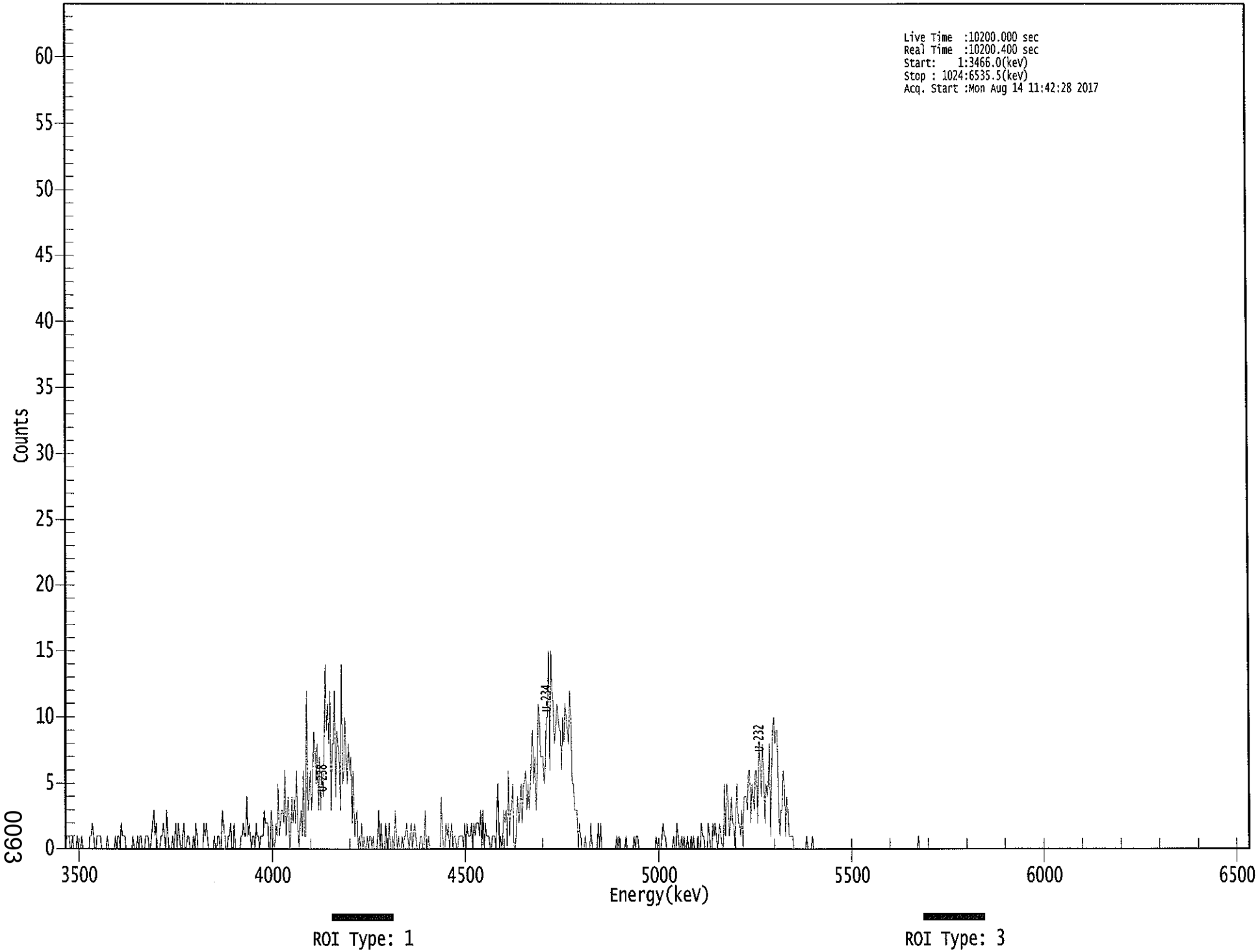
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.988	5302.50*	5.55E+000 +/- 7.45E-001	1.63E-001 +/- 2.18E-002
U-234	0.984	4761.50*	9.40E+000 +/- 1.55E+000	1.20E-001 +/- 1.61E-002
U-235	0.999	4385.50*	1.35E+000 +/- 4.29E-001	1.78E-001 +/- 2.39E-002
U-238	0.981	4184.40*	8.47E+000 +/- 1.43E+000	1.09E-001 +/- 1.46E-002

AG 8/15/17

0000191263.CNF



0093

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

369:	1	1	1	0	3	5	0	1

Sample Title: 01

Channel								
377:	0	1	3	2	3	0	6	1
385:	3	3	5	0	0	2	4	2
393:	3	5	2	5	5	6	3	5
401:	3	5	7	9	5	7	3	6
409:	11	10	7	7	7	5	6	10
417:	10	15	6	15	12	11	8	9
425:	11	10	9	9	6	10	8	11
433:	10	9	8	12	10	5	5	3
441:	3	3	0	2	1	0	0	0
449:	1	0	0	0	0	2	0	0
457:	0	0	0	2	0	2	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	1	0	1	0	0
481:	0	0	0	1	0	0	0	0
489:	0	0	1	0	1	1	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	1	0	0
513:	0	0	1	2	1	1	0	0
521:	0	0	0	0	1	0	0	2
529:	1	0	0	1	0	1	0	0
537:	1	0	0	1	0	1	0	0
545:	0	1	0	0	2	1	1	0
553:	0	0	2	1	0	0	2	1
561:	2	1	0	1	2	1	0	0
569:	5	1	5	4	1	2	4	2
577:	2	0	3	5	2	2	1	3
585:	0	4	4	4	3	6	6	2
593:	5	4	3	6	6	2	8	7
601:	4	8	6	2	5	4	5	8
609:	1	6	9	10	8	9	9	3
617:	1	3	3	6	5	1	4	3
625:	1	1	1	1	0	0	0	0
633:	0	0	0	0	0	0	0	1
641:	0	0	0	0	1	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	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: 01

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

Apex-Alpha™

KB 9/14/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-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 193362
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:42:29 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.676 mL
Effective Efficiency: 0.1448 +/- 0.0090
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 0.8080 +/- 0.0519

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	302.83	11.27	0.17	0.00E+000	9.0
U-234		4.723	24.15	40.70	0.85	0.00E+000	4.5
U-235		4.417	7.66	72.63	0.34	0.00E+000	3.0
U-238		4.158	13.83	53.08	0.17	0.00E+000	3.0

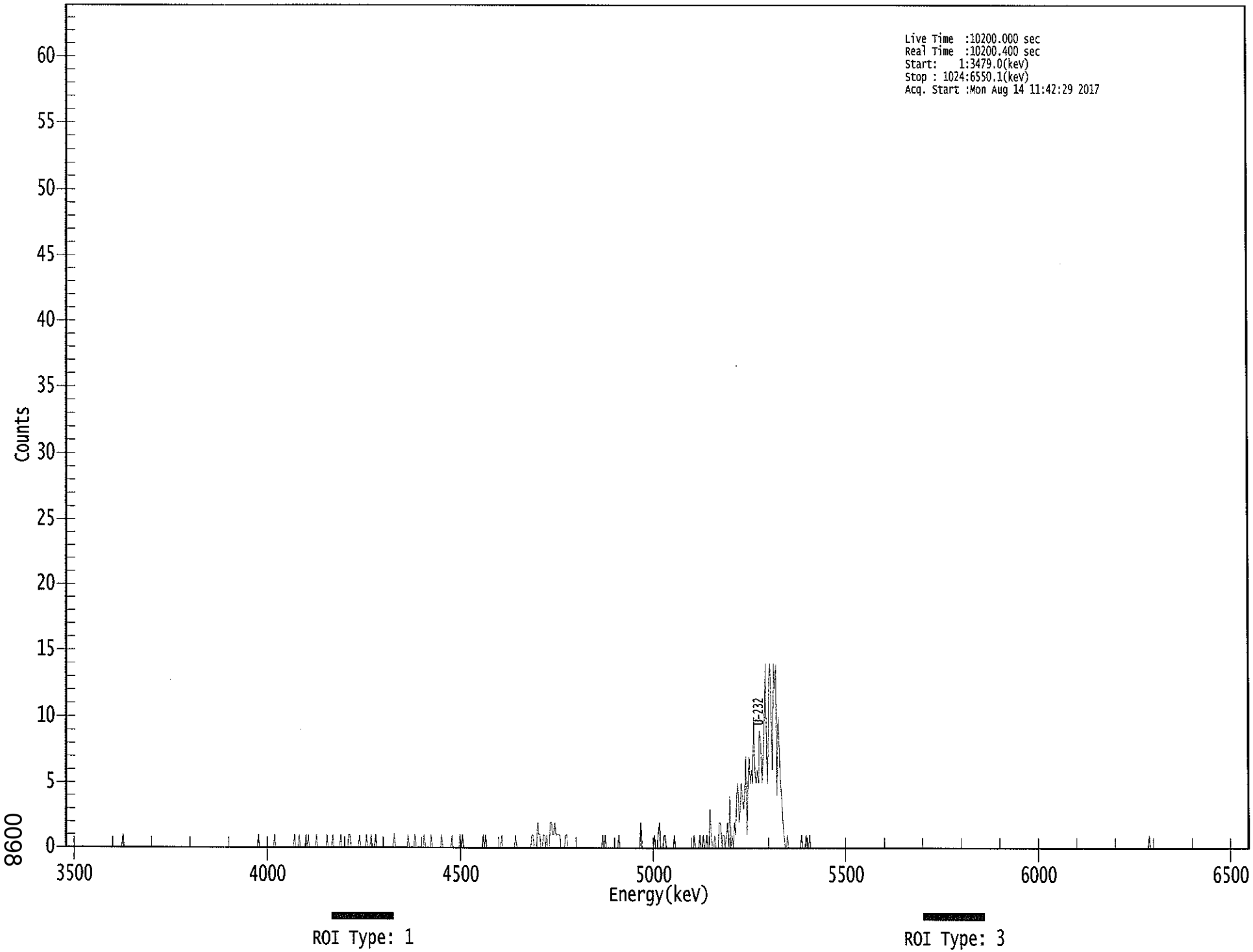
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.55E+000 +/- 6.74E-001	7.65E-002 +/- 9.28E-003
U-234	0.990	4761.50*	4.43E-001 +/- 1.88E-001	1.10E-001 +/- 1.33E-002
U-235	0.993	4385.50*	1.73E-001 +/- 1.28E-001	1.08E-001 +/- 1.31E-002
U-238	0.995	4184.40*	2.52E-001 +/- 1.37E-001	7.62E-002 +/- 9.24E-003

AG
8/15/17

0000191264.CNF



8600

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

Sample Title: 02

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	0	0	0

Sample Title: 02

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

801:	0	0	0	0	0	0	0	0

Sample Title: 02

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

Apex-Alpha™

KO
8/14/17

Sample Description: HTC-A01-S003-0006-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-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 193363
Reagent Blank: <not performed>

Sample Size: 1.007E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:42:31 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: 0.0548 +/- 0.0053
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 0.3249 +/- 0.0319

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.274	114.15	18.42	0.85	0.00E+000	4.0
U-234		4.718	59.49	25.54	0.51	0.00E+000	3.4
U-235		4.387	5.83	82.55	0.17	0.00E+000	3.0
U-238		4.141	20.83	43.15	0.17	0.00E+000	3.0

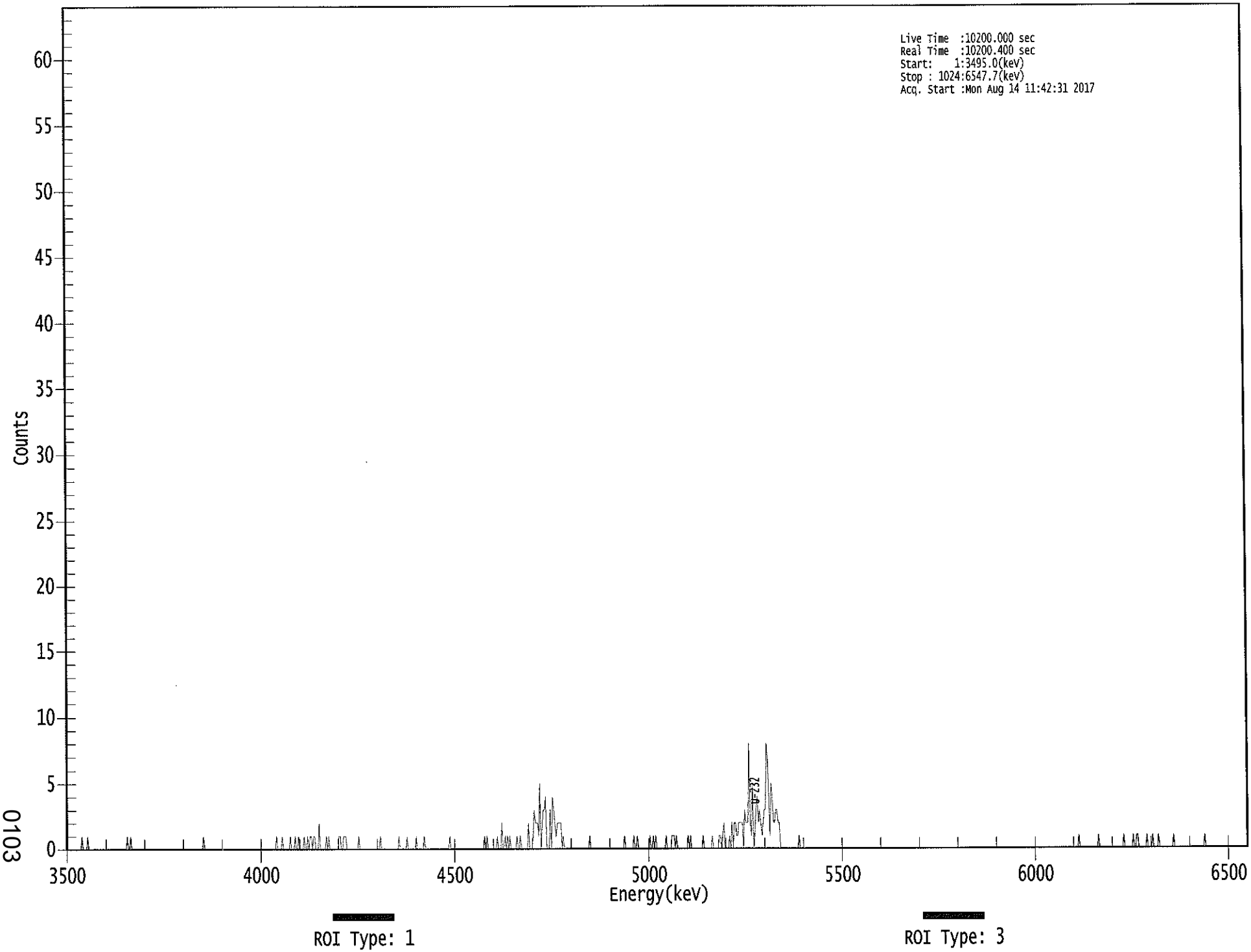
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.50E+000 +/- 1.04E+000	2.89E-001 +/- 5.48E-002
U-234	0.987	4761.50*	2.86E+000 +/- 9.10E-001	2.52E-001 +/- 4.79E-002
U-235	1.000	4385.50*	3.46E-001 +/- 2.93E-001	2.48E-001 +/- 4.70E-002
U-238	0.987	4184.40*	9.98E-001 +/- 4.70E-001	2.00E-001 +/- 3.79E-002

AG
8/15/17

0000191271.CNF



0103

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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	0	0
17:	0	0	1	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	1	0	0	1
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	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	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	1	0	0
185:	0	0	1	0	0	0	0	0
193:	0	1	0	0	0	1	0	0
201:	1	0	0	0	0	1	0	0
209:	1	0	1	1	0	1	1	0
217:	0	0	2	0	0	0	0	0
225:	1	0	1	0	0	0	0	0
233:	0	0	0	1	1	0	0	1
241:	1	1	0	0	0	0	0	0
249:	0	0	0	0	1	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	1
289:	0	0	0	0	0	0	1	0
297:	0	0	0	0	0	0	1	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	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	0	0	0
361:	0	1	0	1	0	0	0	0

369:	0	0	0	0	1	0	0	0

Sample Title: 03

Channel								
377:	2	0	0	1	0	1	0	1
385:	0	0	0	0	0	1	0	0
393:	1	0	0	0	0	0	0	2
401:	0	0	0	1	3	2	2	2
409:	1	5	0	2	3	3	4	0
417:	0	0	3	0	4	3	2	1
425:	2	2	2	2	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:	0	0	0	0	0	0	0	0
481:	0	0	1	0	0	0	0	0
489:	0	0	1	0	0	1	0	0
497:	0	0	0	0	0	0	0	0
505:	1	0	0	1	0	1	0	0
513:	0	0	0	0	0	0	1	0
521:	0	0	0	1	1	1	0	1
529:	0	0	0	0	0	0	0	0
537:	0	1	0	1	0	0	0	0
545:	0	0	0	0	0	0	1	0
553:	0	0	0	0	0	0	1	0
561:	0	0	0	0	1	1	0	1
569:	2	0	0	0	0	1	0	2
577:	0	2	2	1	1	2	2	2
585:	2	0	3	2	2	2	8	2
593:	1	5	0	1	3	4	2	3
601:	2	1	2	3	3	8	7	4
609:	1	5	4	2	2	3	3	2
617:	2	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	1	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	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: 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	1	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	1	0	0	0	0
921:	0	0	0	1	0	0	1	1
929:	0	0	0	0	0	0	0	1
937:	0	0	0	0	1	0	0	0
945:	0	1	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	1	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/17/17

Sample Description: HTC-A01-S003-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.017E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:42:33 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: 0.0768 +/- 0.0063
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 0.4481 +/- 0.0378

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	160.15	15.54	0.85	0.00E+000	4.1
U-234		4.727	42.32	30.41	0.68	0.00E+000	4.5
U-235		4.421	12.15	58.49	0.85	0.00E+000	3.0
U-238		4.145	33.15	34.55	0.85	0.00E+000	3.0

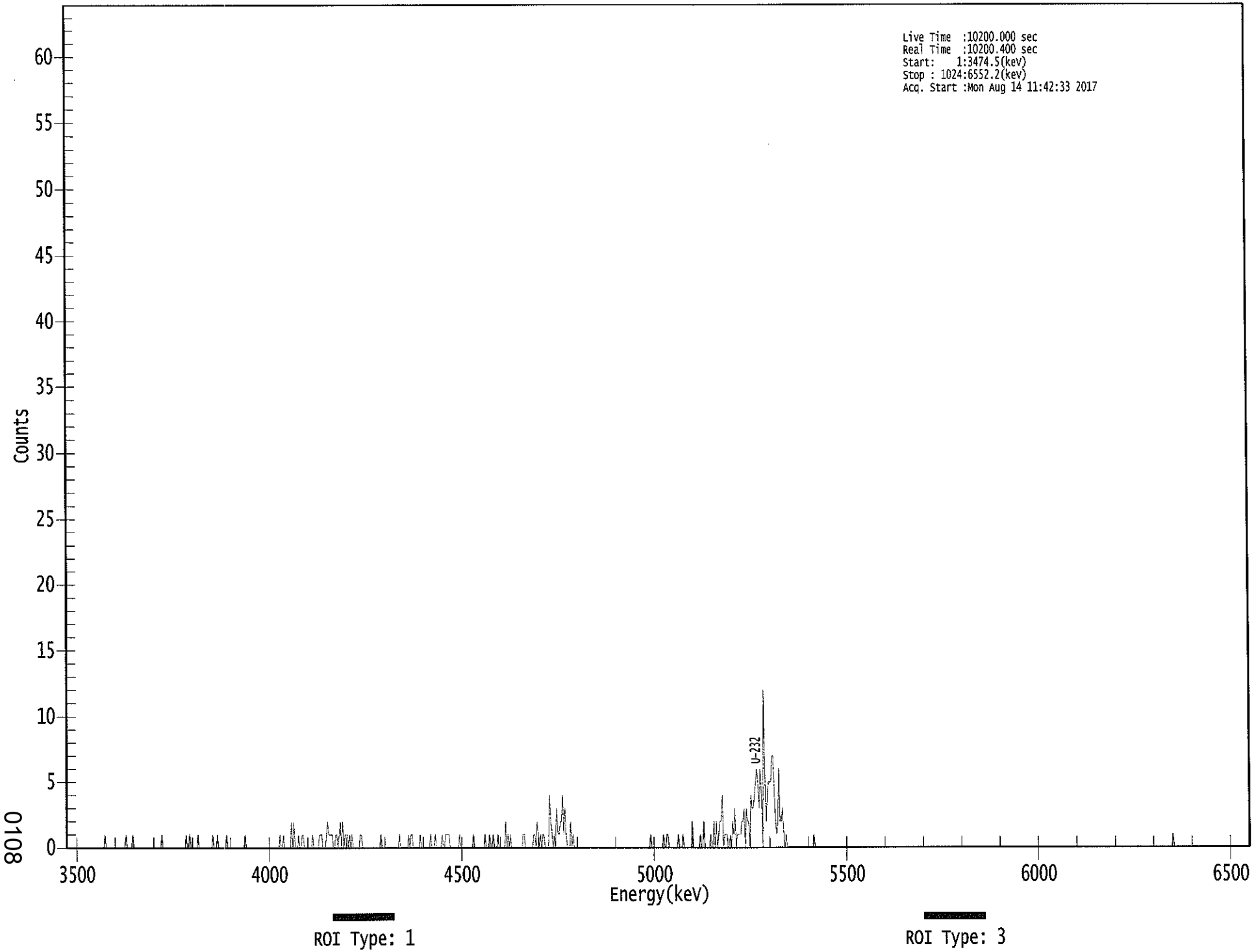
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	5.46E+000 +/- 8.83E-001	2.04E-001 +/- 3.30E-002
U-234	0.992	4761.50*	1.44E+000 +/- 4.96E-001	1.92E-001 +/- 3.10E-002
U-235	0.991	4385.50*	5.10E-001 +/- 3.09E-001	2.51E-001 +/- 4.06E-002
U-238	0.989	4184.40*	1.12E+000 +/- 4.28E-001	2.03E-001 +/- 3.28E-002

AG 8/15/17

0000191249.CNF



0108

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	1	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	1	0	0	0	0
57:	0	1	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	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	1	0	0	0	0	0
113:	0	1	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	1	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	1	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	1	0	0	1	0	0	0	0
193:	0	0	2	0	2	0	0	0
201:	1	0	0	1	1	0	0	0
209:	0	0	0	0	1	0	0	0
217:	0	0	1	1	1	0	0	0
225:	1	2	1	1	1	1	0	0
233:	1	1	0	1	2	0	2	0
241:	1	1	1	0	1	0	1	0
249:	0	0	0	0	0	1	1	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	1
289:	0	0	0	0	0	0	0	1
297:	0	1	1	0	0	0	0	0
305:	0	1	0	0	0	0	0	0
313:	0	0	1	0	0	0	1	0
321:	0	0	0	0	1	0	0	1
329:	1	1	1	0	0	0	0	0
337:	0	0	0	1	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	1	0	0

369:	1	0	0	0	1	0	0	0

Sample Title: 04

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

801:	0	0	0	0	0	0	0	0

Sample Title: 04

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

WB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.018E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:42:35 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: 0.0932 +/- 0.0070
Counting Efficiency: 0.1623 +/- 0.0028 on 11/18/2016 10:08:37 AM
Chem. Recovery Factor: 0.5742 +/- 0.0444

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	194.32	14.09	0.68	0.00E+000	4.5
U-234		4.714	79.66	22.01	0.34	0.00E+000	4.0
U-235		4.417	4.49	98.45	0.51	0.00E+000	3.0
U-238		4.132	25.00	39.98	0.00	0.00E+000	5.9

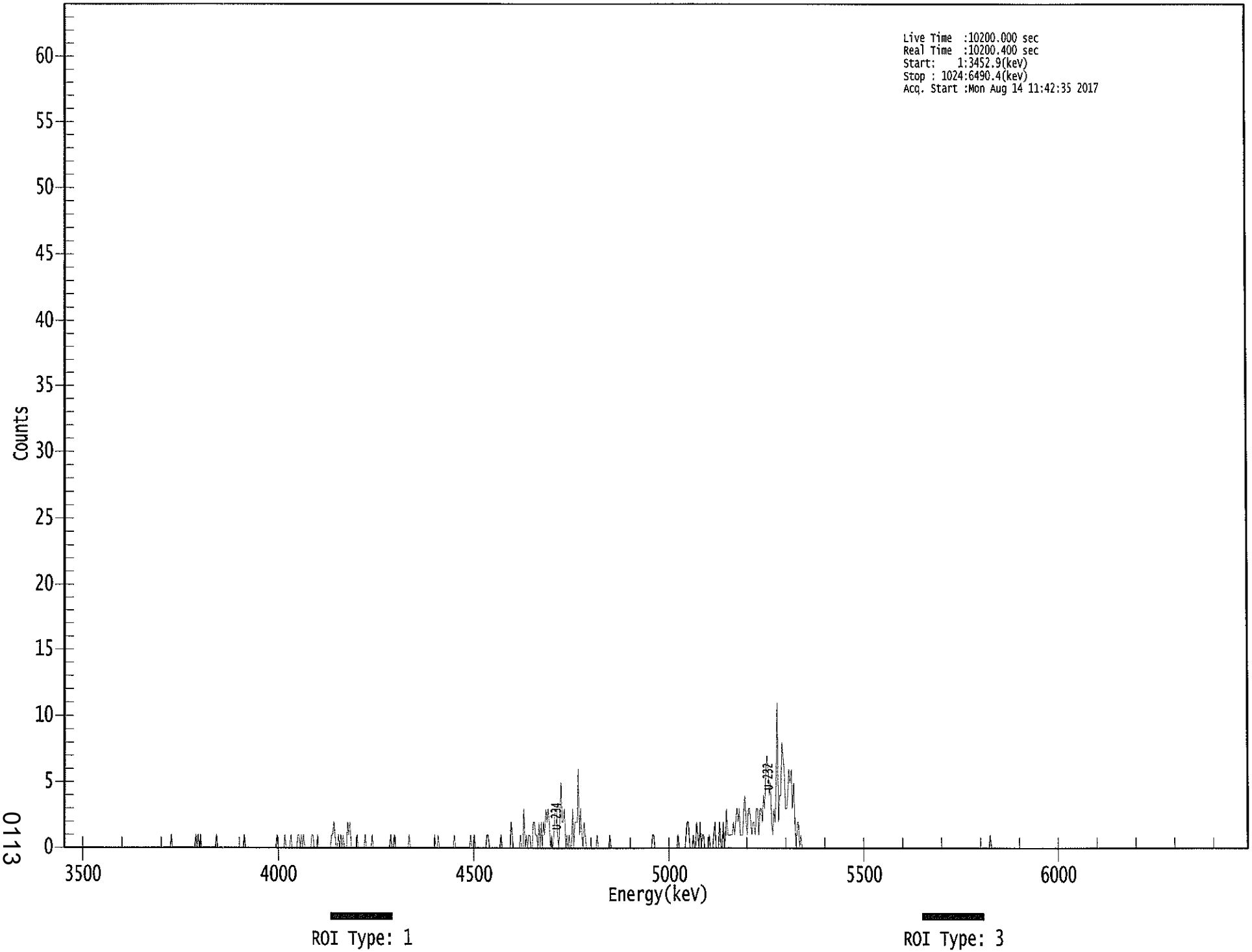
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.985	5302.50*	5.46E+000 +/- 8.07E-001	1.58E-001 +/- 2.34E-002
U-234	0.984	4761.50*	2.23E+000 +/- 5.92E-001	1.34E-001 +/- 1.98E-002
U-235	0.993	4385.50*	1.55E-001 +/- 1.54E-001	1.81E-001 +/- 2.68E-002
U-238	0.980	4184.40*	6.97E-001 +/- 2.97E-001	1.67E-001 +/- 2.47E-002

AG
8/15/17

0000191272.CNF



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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	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	1	0	1	0	1	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	1	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	1	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	1
185:	0	0	0	0	0	0	1	0
193:	0	0	0	1	0	0	0	0
201:	0	1	1	0	1	0	1	0
209:	0	0	0	0	0	1	1	0
217:	0	0	1	0	0	0	0	0
225:	0	0	0	0	0	0	1	1
233:	2	1	0	0	1	0	1	0
241:	1	0	0	0	2	1	2	0
249:	0	0	0	0	1	0	0	0
257:	0	0	0	1	0	0	0	0
265:	0	1	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	1	0	0	1	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	1	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	1	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	1	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	1	0
353:	0	1	0	0	0	0	0	0
361:	0	0	0	0	1	1	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 05

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

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:	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™

YB 8/24/17

Sample Description: HTC-A01-S003-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.007E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:42:37 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: 0.0725 +/- 0.0062
Counting Efficiency: 0.1633 +/- 0.0028 on 11/18/2016 10:08:35 AM
Chem. Recovery Factor: 0.4440 +/- 0.0385

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.285	150.98	16.01	1.02	0.00E+000	4.9
U-234		4.736	72.66	23.06	0.34	0.00E+000	3.7
U-235		4.378	9.83	63.14	0.17	0.00E+000	5.9
U-238		4.139	26.49	38.51	0.51	0.00E+000	3.0

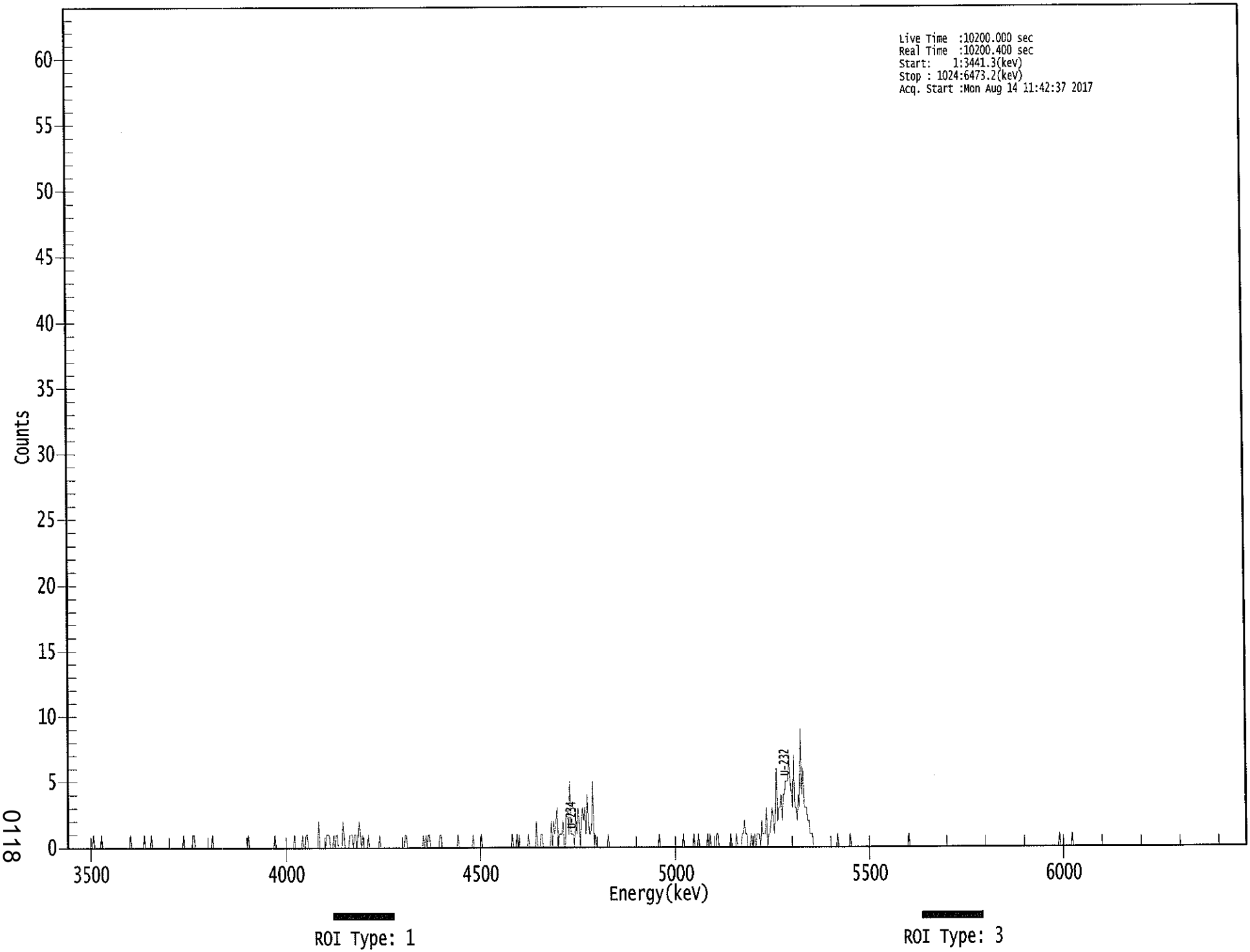
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	5.50E+000 +/- 9.16E-001	2.30E-001 +/- 3.82E-002
U-234	0.996	4761.50*	2.64E+000 +/- 7.51E-001	1.74E-001 +/- 2.89E-002
U-235	1.000	4385.50*	4.41E-001 +/- 2.88E-001	1.87E-001 +/- 3.11E-002
U-238	0.985	4184.40*	9.59E-001 +/- 4.02E-001	1.90E-001 +/- 3.16E-002

AG 8/15/17

0000191259.CNF



0118

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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	1	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	1	0
25:	0	0	0	0	0	1	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	1	0
57:	0	0	0	0	0	0	0	0
65:	0	0	1	0	0	0	0	0
73:	1	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	1	0	0	0
105:	0	0	0	0	1	1	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	1	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	0	0	1	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	1	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	1	0	0	0
201:	0	0	0	1	0	0	1	1
209:	0	0	0	0	0	0	0	0
217:	0	2	0	0	0	0	0	0
225:	1	1	1	0	0	0	1	0
233:	1	1	0	0	0	0	2	1
241:	0	0	0	0	1	1	1	0
249:	1	1	0	1	2	1	0	1
257:	0	0	0	0	1	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	0	0	0	0
289:	0	0	0	0	1	1	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	1	0	1	0
313:	1	1	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	1	0	0	0	0	0
345:	0	0	0	0	0	0	0	1
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: 06

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	1	0	0	0	1	0	1
393:	0	0	0	0	0	0	0	1
401:	0	0	0	0	0	0	2	0
409:	0	0	1	1	0	0	0	0
417:	0	0	0	2	0	2	1	2
425:	3	0	1	1	1	2	0	0
433:	3	3	1	5	1	1	1	0
441:	3	1	3	2	0	2	3	2
449:	3	1	4	2	1	1	2	5
457:	0	1	0	0	0	0	0	0
465:	0	0	0	0	1	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	1	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	1	0	0
537:	0	0	0	0	0	0	1	0
545:	0	0	1	0	0	0	0	0
553:	0	0	1	0	1	0	0	0
561:	0	0	1	1	0	0	0	0
569:	0	0	0	0	0	0	1	0
577:	0	0	0	1	0	0	0	0
585:	1	1	2	1	1	0	0	0
593:	1	0	0	1	0	1	1	1
601:	0	2	1	1	1	3	0	1
609:	1	2	3	2	1	3	6	2
617:	3	3	4	2	4	4	5	5
625:	5	7	5	4	3	7	3	3
633:	2	4	3	9	4	6	3	3
641:	3	2	2	1	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	1	0	0	0	0
673:	0	0	0	0	0	0	1	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	1	0	0	0	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: 06

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

KB
8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 193367
Reagent Blank: <not performed>

Sample Size: 1.017E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:08 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: 0.0995 +/- 0.0073
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 0.6683 +/- 0.0504

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.270	207.47	13.67	1.53	0.00E+000	6.7
U-234		4.726	183.98	14.50	1.02	0.00E+000	4.8
U-235		4.377	13.83	53.08	0.17	0.00E+000	5.9
U-238		4.141	145.81	16.31	1.19	0.00E+000	4.1

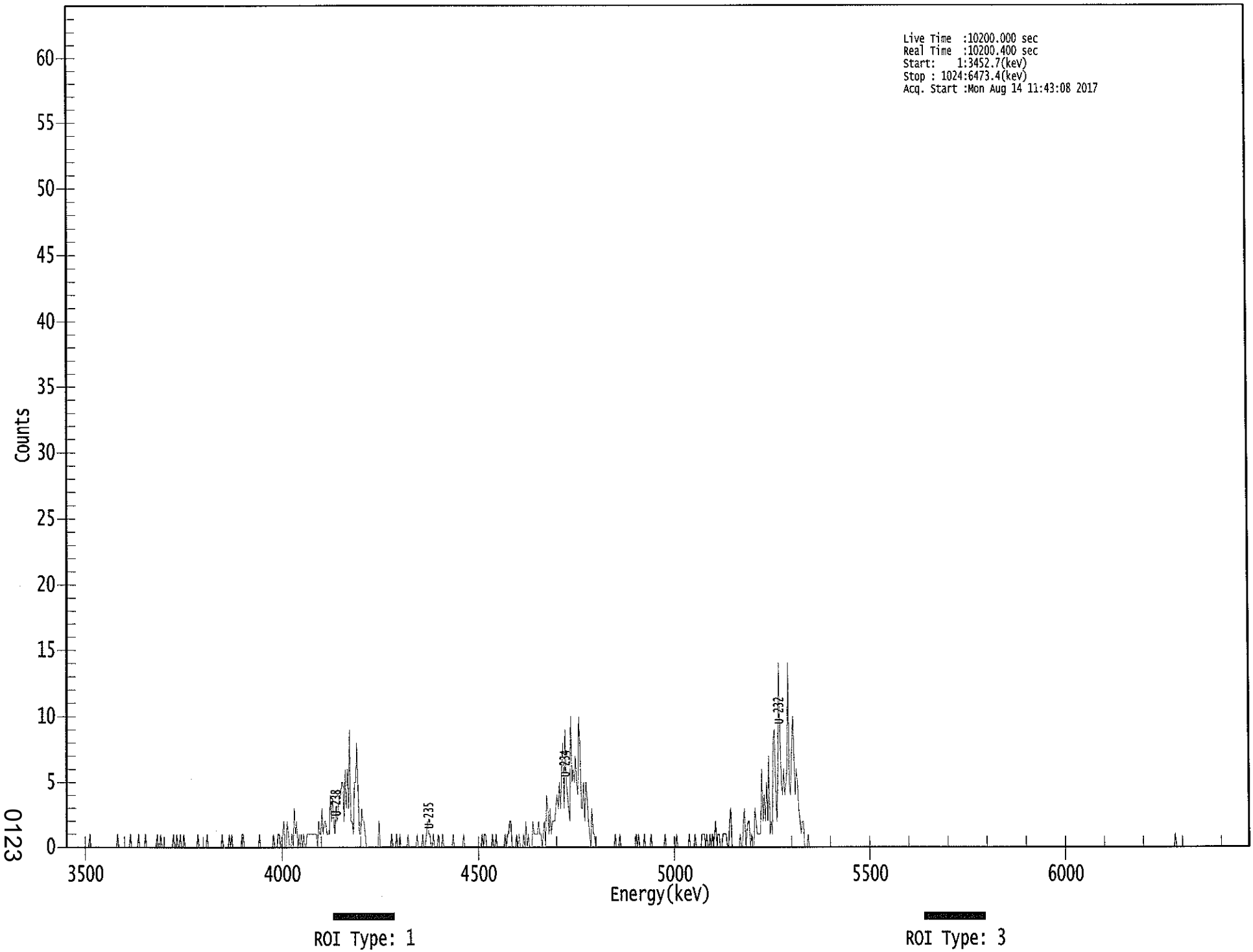
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	5.46E+000 +/- 7.85E-001	1.87E-001 +/- 2.69E-002
U-234	0.991	4761.50*	4.83E+000 +/- 9.86E-001	1.65E-001 +/- 2.38E-002
U-235	0.999	4385.50*	4.48E-001 +/- 2.46E-001	1.35E-001 +/- 1.94E-002
U-238	0.986	4184.40*	3.81E+000 +/- 8.28E-001	1.72E-001 +/- 2.48E-002

AG
8/15/17

0000191256.CNF



0123

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	1	0	0	0	0	0

Sample Title: 07

Channel								
377:	0	0	1	0	1	1	2	2
385:	0	0	0	0	1	0	1	0
393:	0	0	1	0	2	0	1	0
401:	0	0	2	1	1	1	1	2
409:	1	1	0	1	2	0	4	3
417:	1	3	1	2	2	2	3	4
425:	3	5	3	6	8	3	9	5
433:	4	3	2	10	5	6	5	7
441:	5	4	10	8	3	3	5	2
449:	5	4	2	1	0	3	1	1
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	1	0	0	0	1	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	1	0	1	0	0
497:	0	0	1	0	0	0	0	0
505:	1	0	0	0	0	0	0	0
513:	0	0	0	0	1	0	0	0
521:	0	0	0	0	0	0	1	0
529:	0	0	0	0	0	0	0	0
537:	0	1	0	0	0	0	1	0
545:	0	0	0	0	1	1	1	0
553:	1	0	0	1	0	1	0	1
561:	2	0	1	1	0	0	1	1
569:	1	1	0	0	2	3	0	0
577:	0	0	0	0	0	1	0	0
585:	2	3	0	1	2	2	0	1
593:	0	0	3	2	1	1	1	1
601:	6	2	4	2	5	2	7	1
609:	2	1	8	9	5	2	5	14
617:	9	5	4	6	4	5	6	14
625:	5	4	7	10	8	4	6	5
633:	3	2	1	2	2	0	0	0
641:	1	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	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: 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	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

VB 8/14/17

Sample Description: HTC-A01-S003-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_050
Chamber Serial Number: 10006121B
Detector Serial Number: 50
Env. Background: System Bkgd 193368
Reagent Blank: <not performed>

Sample Size: 1.027E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:11 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: 0.1318 +/- 0.0085
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 0.9199 +/- 0.0617

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	274.96	11.87	2.04	0.00E+000	20.7
U-234		4.735	99.47	19.83	1.53	0.00E+000	4.9
U-235		4.401	9.64	68.14	1.36	0.00E+000	3.0
U-238		4.163	66.30	24.43	1.70	0.00E+000	3.3

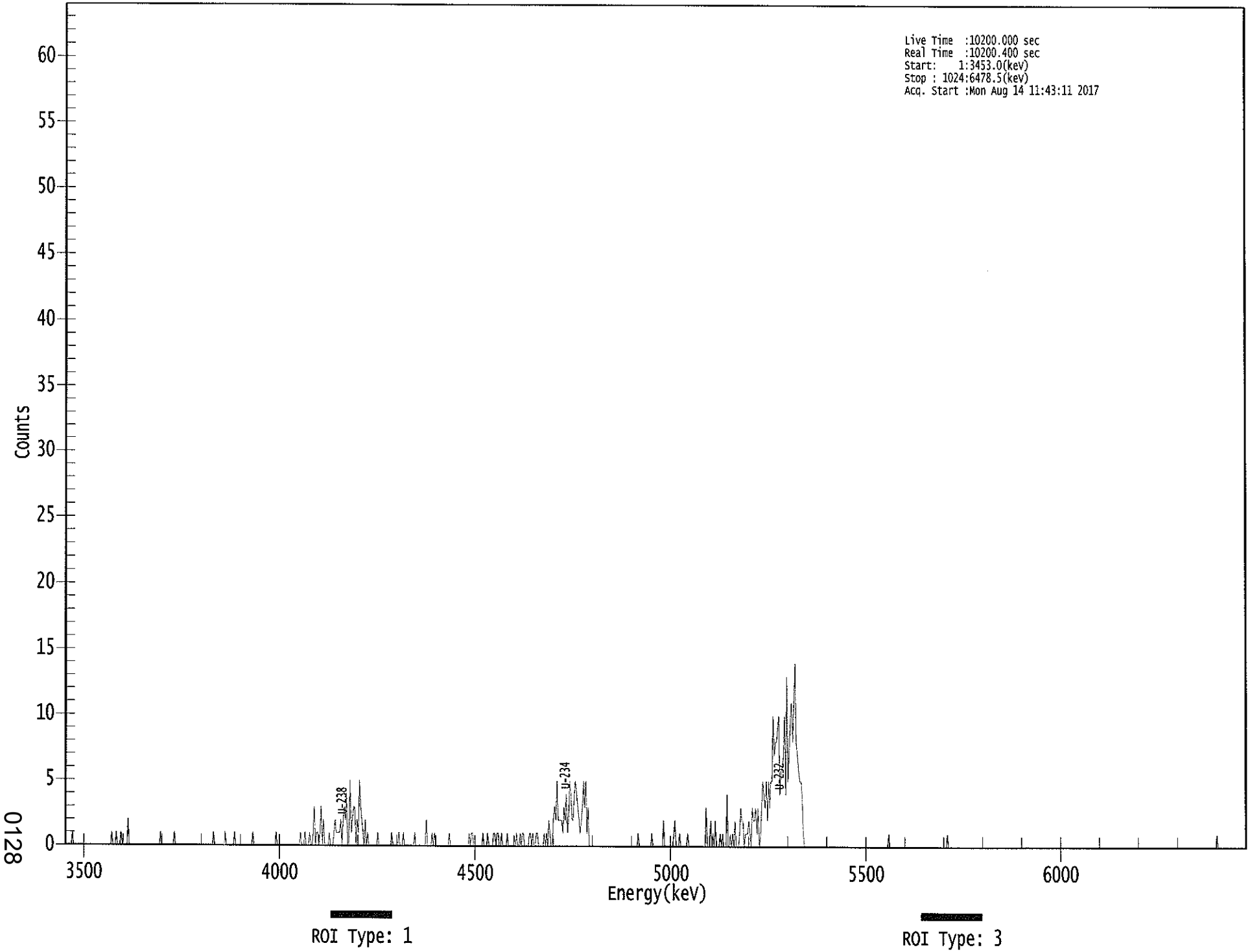
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.41E+000 +/- 6.87E-001	1.53E-001 +/- 1.95E-002
U-234	0.995	4761.50*	1.95E+000 +/- 4.60E-001	1.39E-001 +/- 1.77E-002
U-235	0.998	4385.50*	2.33E-001 +/- 1.62E-001	1.66E-001 +/- 2.11E-002
U-238	0.997	4184.40*	1.30E+000 +/- 3.57E-001	1.44E-001 +/- 1.82E-002

AG 8/15/17

0000191265.CNF



0128

****
***** 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	1	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	1	0	0	0	1	0	0	0
49:	1	0	0	0	0	0	2	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	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:	0	0	0	0	0	0	0	0
129:	1	0	0	0	0	0	0	0
137:	0	0	1	0	0	0	0	0
145:	0	0	1	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	1	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	0	1	0	0	0	1
209:	0	0	0	1	0	0	1	3
217:	0	1	1	0	1	3	0	2
225:	0	0	0	0	1	0	0	0
233:	1	2	1	1	1	1	2	0
241:	2	3	2	4	0	0	5	1
249:	2	3	3	0	2	1	5	3
257:	2	1	0	2	0	1	0	0
265:	0	0	0	0	0	0	1	0
273:	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0
289:	1	0	0	0	1	0	0	0
297:	0	0	0	0	0	0	1	0
305:	0	0	0	0	0	0	0	0
313:	2	0	0	0	0	1	0	1
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:	0	0	0	0	0	1	0	1
353:	1	0	0	0	0	0	0	0
361:	0	1	0	0	0	1	0	0

369:	0	0	1	1	0	1	1	0

Sample Title: 08

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

801:	0	0	0	0	0	0	0	0

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	1	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

RB 8/14/17

Sample Description: HTC-A01-S003-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_052
Chamber Serial Number: 10006123B
Detector Serial Number: 52
Env. Background: System Bkgd 193369
Reagent Blank: <not performed>

Sample Size: 1.041E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:19 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: 0.1658 +/- 0.0097
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.9543 +/- 0.0582

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.263	345.66	10.55	0.34	0.00E+000	5.0
U-234		4.721	99.15	19.78	0.85	0.00E+000	7.0
U-235		4.417	7.49	74.41	0.51	0.00E+000	3.0
U-238		4.145	50.83	27.55	0.17	0.00E+000	12.6

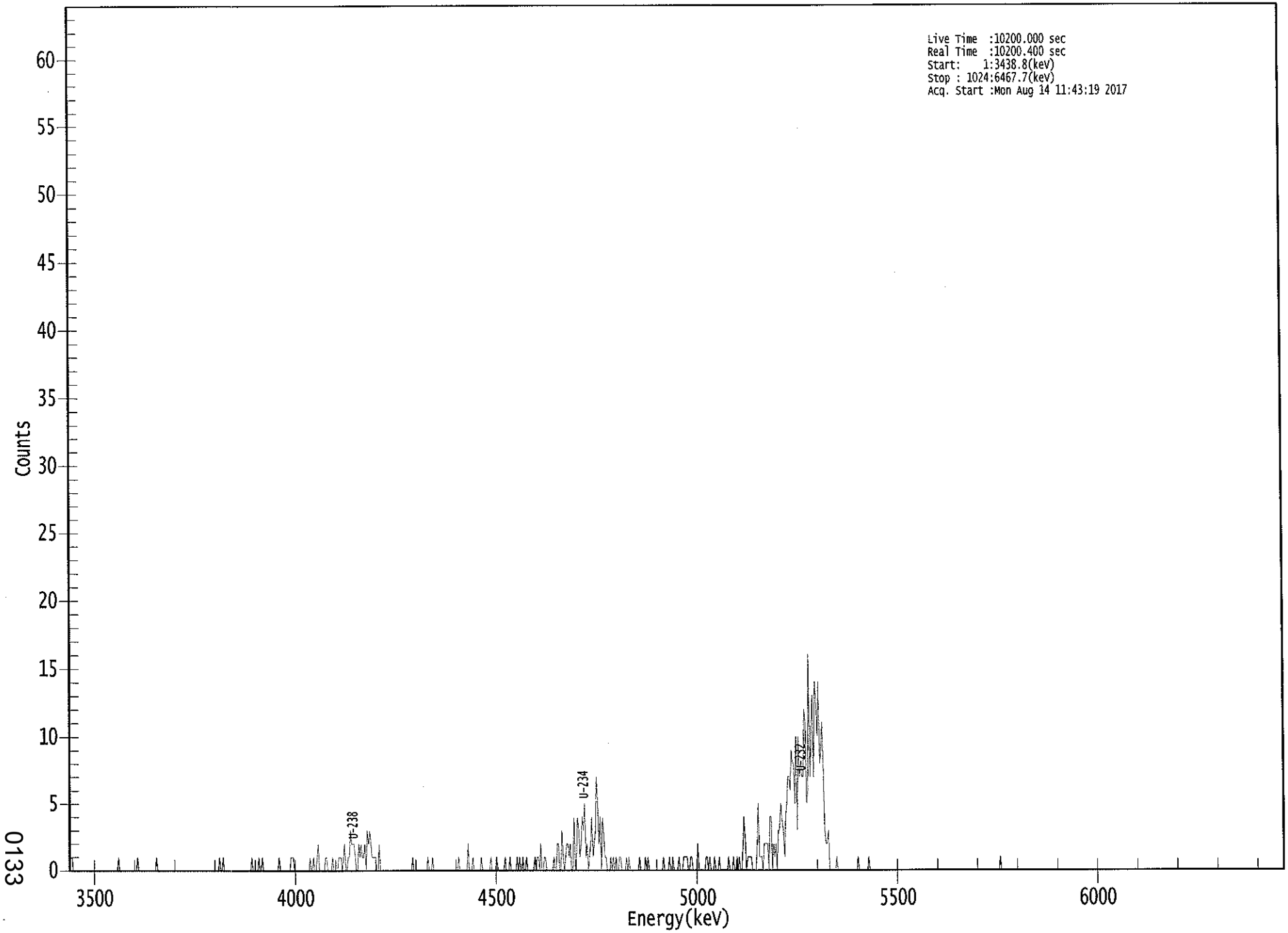
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.989	5302.50*	5.33E+000 +/- 6.12E-001	7.38E-002 +/- 8.46E-003
U-234	0.989	4761.50*	1.53E+000 +/- 3.49E-001	9.21E-002 +/- 1.06E-002
U-235	0.993	4385.50*	1.42E-001 +/- 1.07E-001	9.96E-002 +/- 1.14E-002
U-238	0.989	4184.40*	7.79E-001 +/- 2.32E-001	6.39E-002 +/- 7.34E-003

AG 8/15/17

0000191253.CNF



0133

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

369:	0	0	1	0	0	0	0	0

Sample Title: 09

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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

NB 9/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_053
Chamber Serial Number: 10006122A
Detector Serial Number: 53
Env. Background: System Bkgd 193370
Reagent Blank: <not performed>

Sample Size: 1.061E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:14 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: 0.1841 +/- 0.0103
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 1.2154 +/- 0.0712

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.285	383.83	10.01	0.17	0.00E+000	9.6
U-234		4.746	100.98	19.62	1.02	0.00E+000	6.4
U-235		4.377	7.00	79.20	0.00	0.00E+000	3.0
U-238		4.177	73.66	22.90	0.34	0.00E+000	4.0

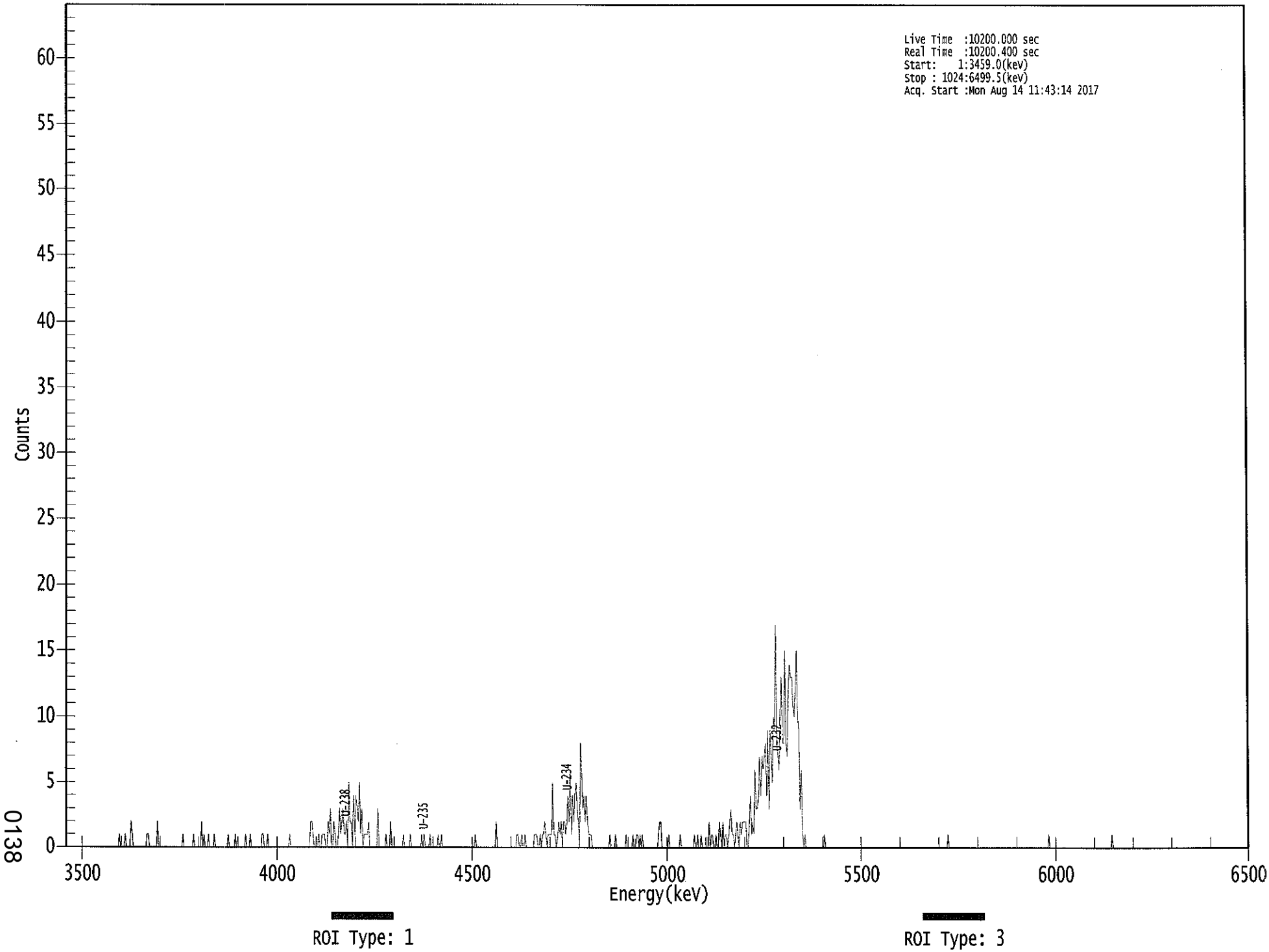
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.998	5302.50*	5.23E+000 +/- 5.74E-001	5.69E-002 +/- 6.24E-003
U-234	0.998	4761.50*	1.37E+000 +/- 3.09E-001	8.57E-002 +/- 9.40E-003
U-235	1.000	4385.50*	1.17E-001 +/- 9.39E-002	1.01E-001 +/- 1.10E-002
U-238	1.000	4184.40*	9.97E-001 +/- 2.53E-001	6.47E-002 +/- 7.10E-003

AG
8/15/17

0000191266.CNF



0138

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

Sample Title: 10

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	2	0	0	0	0

Sample Title: 10

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

801:	0	0	0	0	0	0	0	0

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

VB 8/14/18

Sample Description: HTC-A01-S003-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_054
Chamber Serial Number: 10006122B
Detector Serial Number: 54
Env. Background: System Bkgd 193371
Reagent Blank: <not performed>

Sample Size: 1.072E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:16 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: 0.1671 +/- 0.0098
Counting Efficiency: 0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor: 1.2257 +/- 0.0747

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	348.81	10.52	1.19	0.00E+000	37.6
U-234		4.729	99.49	19.71	0.51	0.00E+000	7.7
U-235		4.383	17.83	46.68	0.17	0.00E+000	4.4
U-238		4.154	76.83	22.39	0.17	0.00E+000	11.8

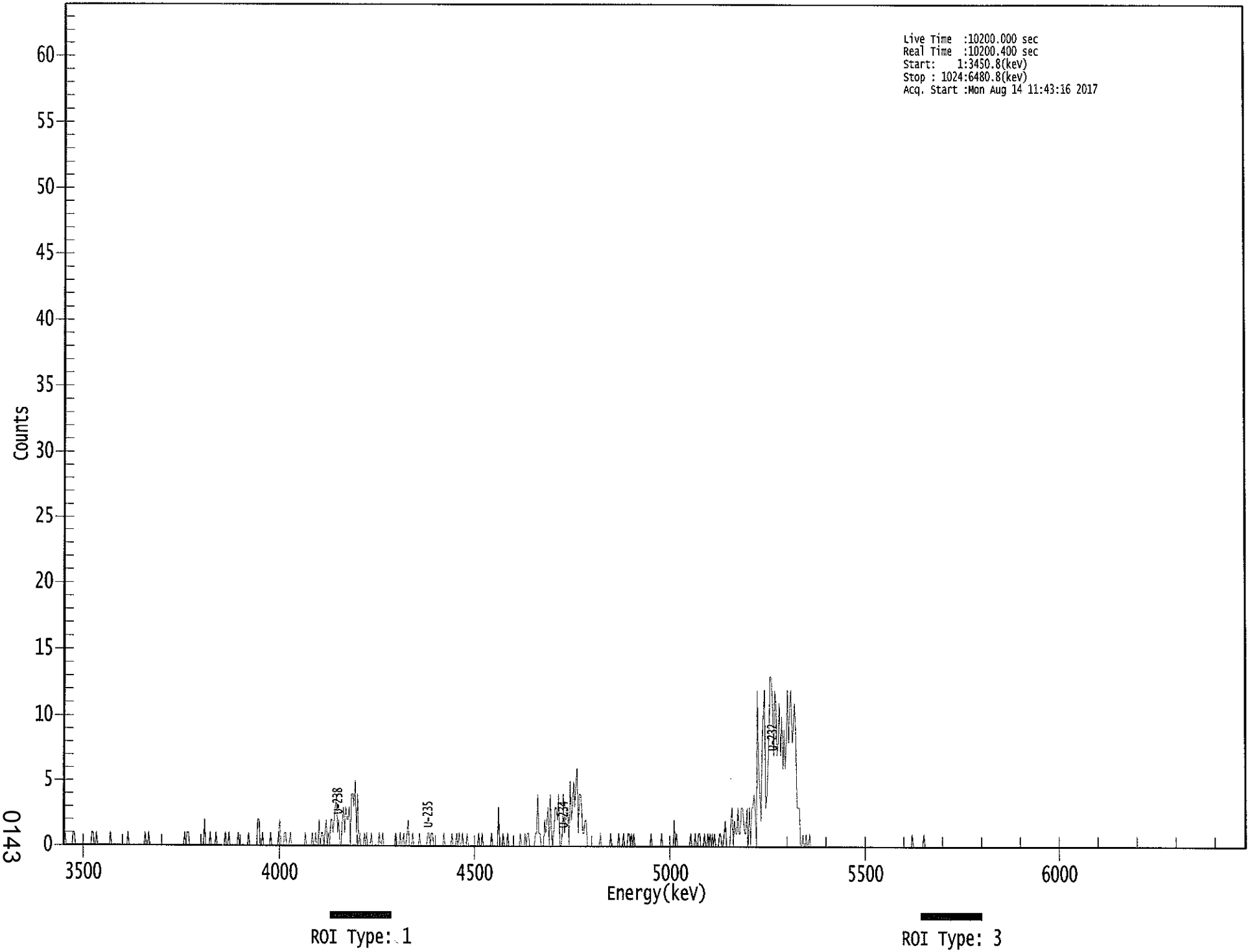
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	5.18E+000 +/- 5.93E-001	9.79E-002 +/- 1.12E-002
U-234	0.993	4761.50*	1.47E+000 +/- 3.36E-001	7.78E-002 +/- 8.90E-003
U-235	1.000	4385.50*	3.26E-001 +/- 1.57E-001	7.63E-002 +/- 8.73E-003
U-238	0.993	4184.40*	1.13E+000 +/- 2.85E-001	6.16E-002 +/- 7.05E-003

AG
8/15/17

0000191260.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	1	0	0	0	0	0	0
9:	1	1	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	1	1	0	0	1	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	1
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	1	0
73:	0	1	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	1	1	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	2	0	0	0	0	1	0
129:	0	0	0	1	0	0	0	0
137:	0	0	0	1	0	0	1	0
145:	0	0	0	0	0	0	1	0
153:	0	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	2
169:	2	0	0	1	0	0	0	0
177:	0	0	1	0	0	0	0	0
185:	0	1	2	0	0	0	1	1
193:	0	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	1	0	0	0	0	0	1	0
217:	0	1	0	0	2	0	1	1
225:	0	1	2	0	1	0	2	2
233:	1	2	3	4	1	2	0	0
241:	2	3	1	3	2	2	3	0
249:	4	4	3	5	1	4	0	1
257:	0	0	0	1	0	1	0	0
265:	0	1	0	0	0	0	0	0
273:	1	0	0	1	0	0	0	0
281:	0	0	0	0	0	0	1	0
289:	0	0	1	0	0	1	0	0
297:	1	2	0	0	0	1	0	0
305:	0	0	0	1	0	0	0	0
313:	0	0	1	1	0	1	1	0
321:	0	0	0	0	0	0	0	0
329:	1	0	0	0	0	0	0	1
337:	0	0	0	1	0	1	0	0
345:	1	0	0	0	1	0	0	0
353:	0	0	0	0	0	0	1	0
361:	0	1	0	0	0	0	0	0

369:	0	1	0	0	0	0	0	3

Sample Title: 11

Channel								
377:	0	0	0	1	0	0	0	1
385:	0	0	0	0	0	0	0	0
393:	0	0	1	0	0	0	1	0
401:	1	1	0	0	0	0	0	1
409:	1	4	1	1	0	0	0	2
417:	1	2	3	0	4	1	0	1
425:	3	3	2	4	0	0	1	4
433:	1	2	3	3	0	5	2	3
441:	5	3	5	6	1	4	4	3
449:	1	1	2	2	0	0	0	0
457:	0	0	0	0	0	0	0	1
465:	0	0	0	0	0	0	0	0
473:	1	0	0	0	0	0	0	1
481:	0	0	0	1	0	0	0	1
489:	1	0	1	0	1	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	1	0	0	0
521:	0	0	0	0	0	0	0	2
529:	0	1	0	0	0	0	0	0
537:	0	0	0	0	0	1	0	0
545:	0	1	0	0	1	1	0	0
553:	0	1	0	0	1	0	1	0
561:	1	0	1	0	0	0	1	1
569:	0	0	1	2	0	0	0	0
577:	2	3	0	2	1	1	3	1
585:	1	3	3	2	1	1	3	0
593:	3	0	3	3	4	3	0	12
601:	6	4	2	8	10	12	3	4
609:	6	9	13	13	11	7	12	11
617:	7	8	11	7	10	6	9	6
625:	8	12	8	11	12	8	9	11
633:	9	3	3	3	0	0	1	0
641:	0	1	0	0	1	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	1	0	0
737:	0	0	0	0	0	0	0	1
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	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	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S004-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_056
Chamber Serial Number: 10006124B
Detector Serial Number: 56
Env. Background: System Bkgd 193373
Reagent Blank: <not performed>

Sample Size: 2.681E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:22 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: 0.1396 +/- 0.0088
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 0.8751 +/- 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	5.267	291.15	11.51	0.85	0.00E+000	26.0
U-234		4.720	1877.98	4.52	1.02	0.00E+000	73.8
U-235		4.395	155.66	15.73	0.34	0.00E+000	4.3
U-238		4.139	1979.98	4.41	1.02	0.00E+000	73.9

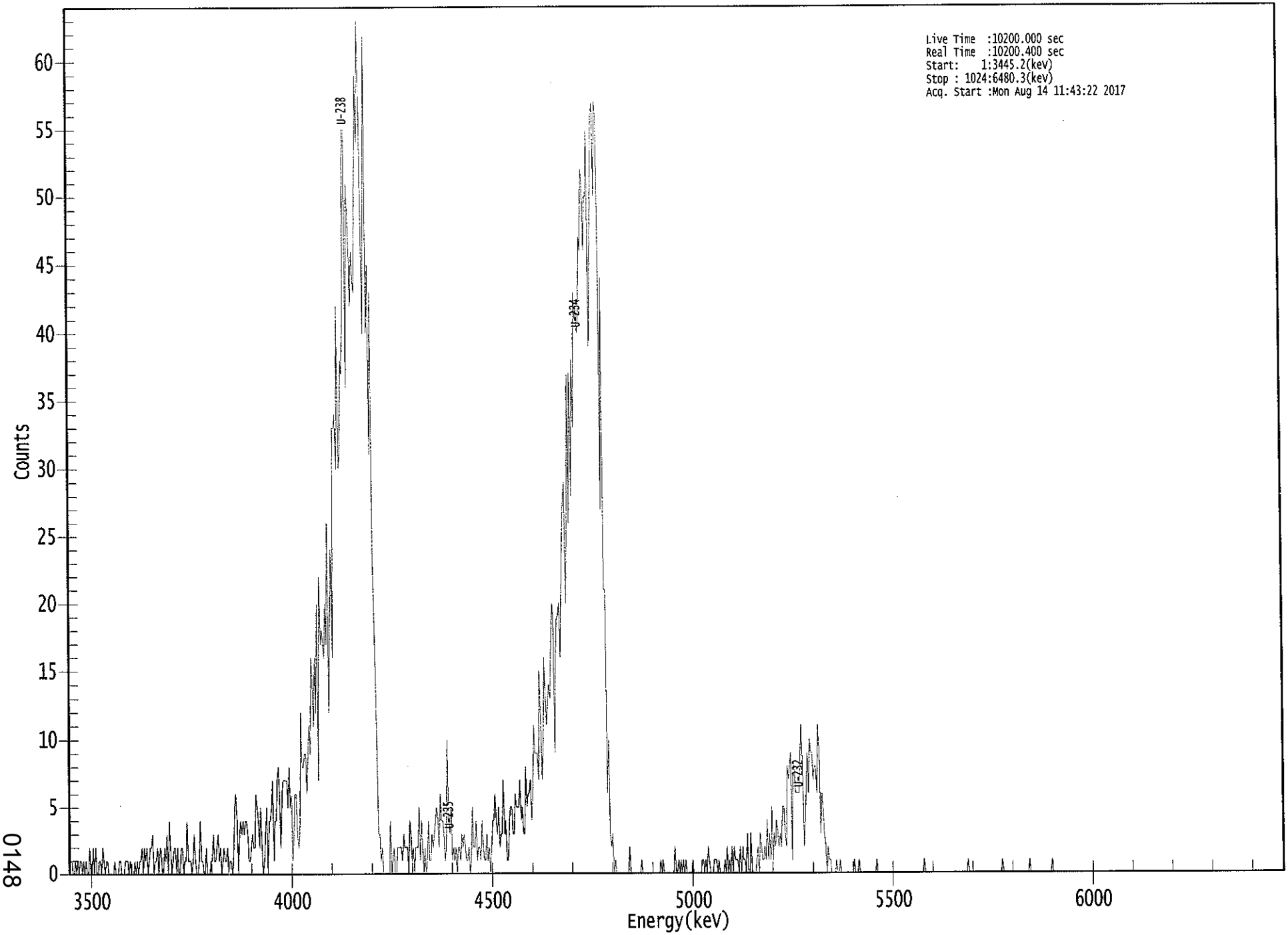
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	2.07E+001 +/- 2.56E+000	4.26E-001 +/- 5.26E-002
U-234	0.988	4761.50*	1.33E+002 +/- 1.75E+001	4.47E-001 +/- 5.53E-002
U-235	0.999	4385.50*	1.36E+001 +/- 2.73E+000	4.19E-001 +/- 5.17E-002
U-238	0.986	4184.40*	1.40E+002 +/- 1.84E+001	4.45E-001 +/- 5.50E-002

AG
8/15/17

0000191257.CNF



[redacted]
ROI Type: 1

[redacted]
ROI Type: 3

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

Sample Title: 12

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	1	1	0	0	1	0	1
9:	0	1	1	0	1	0	1	0
17:	0	2	0	0	2	0	2	0
25:	0	1	1	0	2	1	0	1
33:	1	0	0	0	0	0	1	0
41:	0	0	1	1	0	0	0	1
49:	1	1	0	1	0	0	0	1
57:	0	1	0	1	1	2	0	2
65:	1	2	0	1	2	2	3	0
73:	1	1	2	0	2	2	0	0
81:	2	1	3	0	4	2	0	1
89:	2	2	0	2	0	0	2	2
97:	0	1	1	4	1	1	1	0
105:	1	3	1	0	0	1	4	1
113:	1	0	0	2	0	0	0	1
121:	1	3	1	1	2	3	1	2
129:	0	1	2	1	1	2	0	1
137:	1	0	1	5	6	4	0	3
145:	4	3	4	3	4	4	3	1
153:	1	2	3	2	2	6	5	4
161:	2	5	2	0	1	3	5	0
169:	4	4	5	7	1	4	4	7
177:	8	5	2	6	7	7	7	7
185:	5	8	5	6	1	3	6	6
193:	3	2	3	12	8	8	9	9
201:	6	9	11	9	16	14	11	16
209:	12	20	7	22	17	18	17	16
217:	20	17	26	12	19	24	16	33
225:	33	34	30	42	30	31	38	37
233:	41	55	55	36	51	49	46	42
241:	46	44	43	50	59	54	63	57
249:	50	40	48	62	40	45	31	43
257:	24	19	15	9	3	3	1	2
265:	0	0	0	0	0	0	4	0
273:	1	2	0	0	2	2	2	2
281:	1	3	2	2	2	0	4	3
289:	1	2	0	2	2	2	5	1
297:	4	2	0	2	0	1	4	1
305:	1	3	2	3	4	5	4	2
313:	6	4	4	3	1	2	10	4
321:	3	5	1	2	1	2	0	2
329:	2	1	3	2	3	2	1	1
337:	2	0	1	5	2	2	4	1
345:	2	2	1	4	2	1	1	3
353:	1	2	0	2	4	4	6	4
361:	3	5	2	3	3	7	3	4

369:	1	1	4	5	5	3	3	6

Sample Title: 12

Channel								
377:	5	5	5	7	4	5	3	3
385:	8	5	6	6	7	4	6	11
393:	9	9	9	7	15	11	7	10
401:	16	13	11	13	14	13	17	20
409:	19	9	16	19	19	20	16	21
417:	25	28	29	20	26	37	26	37
425:	28	38	33	43	41	42	40	41
433:	47	46	52	51	46	50	50	55
441:	39	43	51	56	57	50	57	56
449:	47	27	44	21	21	6	10	3
457:	2	3	0	1	0	0	0	0
465:	0	0	0	0	0	0	0	2
473:	0	0	0	0	0	0	0	0
481:	0	1	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	1	0	1	0	0	0	0
505:	0	0	0	0	0	2	0	0
513:	1	0	1	0	1	0	1	0
521:	0	0	0	0	1	0	0	0
529:	0	0	0	0	1	1	0	1
537:	0	2	1	0	0	0	1	1
545:	1	0	1	0	0	0	0	1
553:	0	2	0	1	0	2	0	2
561:	1	1	1	0	2	0	2	1
569:	1	0	3	0	0	3	0	0
577:	0	0	1	2	0	3	2	1
585:	1	2	1	4	1	3	1	5
593:	1	3	2	4	3	2	3	2
601:	5	5	3	2	8	7	8	9
609:	1	8	8	6	6	6	6	9
617:	11	8	2	4	6	9	6	10
625:	9	9	7	8	8	6	11	9
633:	3	6	5	3	2	0	2	1
641:	1	0	0	0	0	1	0	0
649:	1	0	0	0	0	0	0	0
657:	0	0	0	0	1	0	0	0
665:	1	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	1
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	1
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	1	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	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: 12

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

KB
9/14/17

Apex-Alpha™

Sample Description: HTC-A01-S004-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_057
Chamber Serial Number: 01017326A
Detector Serial Number: 57
Env. Background: System Bkgd 193374
Reagent Blank: <not performed>

Sample Size: 2.516E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:02 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.676 mL
Effective Efficiency: 0.1690 +/- 0.0098
Counting Efficiency: 0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor: 1.0264 +/- 0.0621

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.267	352.83	10.44	0.17	0.00E+000	10.4
U-234		4.724	450.66	9.24	0.34	0.00E+000	39.1
U-235		4.407	48.00	28.58	0.00	0.00E+000	3.5
U-238		4.144	438.00	9.38	0.00	0.00E+000	39.3

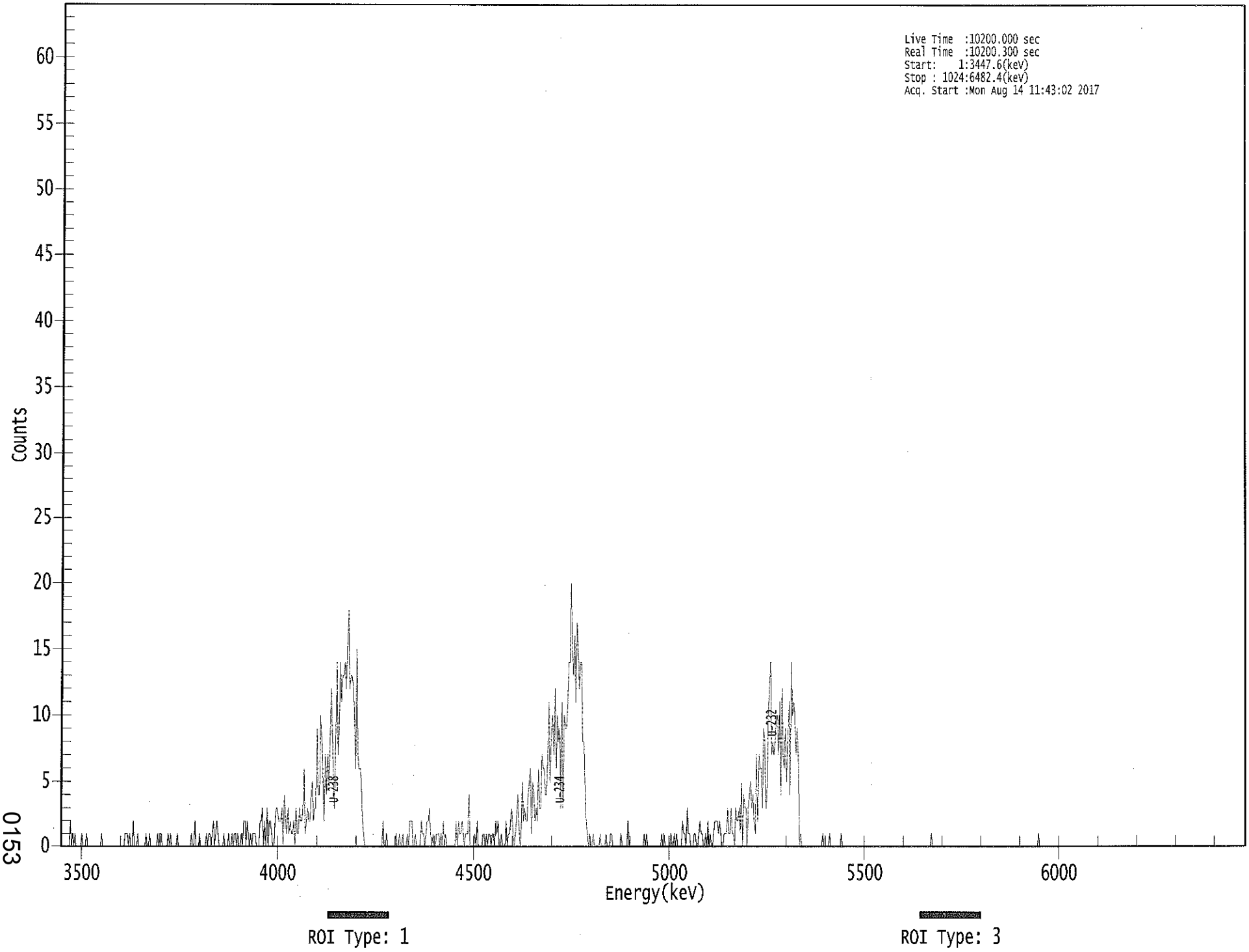
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	2.21E+001 +/- 2.51E+000	2.61E-001 +/- 2.97E-002
U-234	0.990	4761.50*	2.81E+001 +/- 4.12E+000	2.99E-001 +/- 3.40E-002
U-235	0.997	4385.50*	3.70E+000 +/- 1.14E+000	4.62E-001 +/- 5.25E-002
U-238	0.988	4184.40*	2.72E+001 +/- 4.01E+000	3.73E-001 +/- 4.24E-002

AG
8/15/17

0000191254.CNF



0153

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

369:	1	1	0	1	1	0	2	1

Sample Title: 13

Channel								
377:	2	0	0	1	0	0	0	2
385:	0	1	1	2	3	1	0	1
393:	2	4	2	0	1	5	2	3
401:	2	2	4	5	6	1	5	4
409:	2	3	2	6	3	3	7	6
417:	6	4	4	7	11	5	8	10
425:	7	12	6	10	8	9	3	11
433:	3	10	9	9	11	14	14	20
441:	15	13	16	11	17	15	12	14
449:	14	8	8	5	2	1	0	1
457:	0	0	1	0	0	0	0	0
465:	1	0	0	0	0	1	0	0
473:	0	1	1	0	0	0	0	0
481:	0	0	1	0	0	0	0	0
489:	2	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	1	0
505:	1	0	0	0	0	0	0	0
513:	0	0	0	0	0	1	0	1
521:	0	0	0	0	0	1	0	0
529:	1	0	1	0	0	0	0	2
537:	1	1	0	3	1	1	0	0
545:	0	1	1	0	0	1	2	1
553:	1	0	0	1	0	2	0	1
561:	0	0	1	2	2	2	1	2
569:	1	0	0	1	1	1	3	1
577:	1	3	1	1	0	3	2	2
585:	3	1	5	0	4	3	3	0
593:	3	4	5	3	4	2	1	7
601:	2	7	6	6	3	9	8	3
609:	4	10	12	14	7	8	7	8
617:	10	10	7	11	4	12	7	6
625:	9	5	8	11	4	14	10	11
633:	10	7	9	7	0	1	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	1	0	0	0	0	0	1	0
665:	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	1	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	1	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S004-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_058
Chamber Serial Number: 01017326B
Detector Serial Number: 58
Env. Background: System Bkgd 193375
Reagent Blank: <not performed>

Sample Size: 2.661E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:05 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: 0.1735 +/- 0.0100
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 1.0424 +/- 0.0625

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.274	362.00	10.32	0.00	0.00E+000	13.4
U-234		4.722	495.66	8.81	0.34	0.00E+000	8.7
U-235		4.378	37.83	31.95	0.17	0.00E+000	3.0
U-238		4.146	515.64	8.64	1.36	0.00E+000	58.6

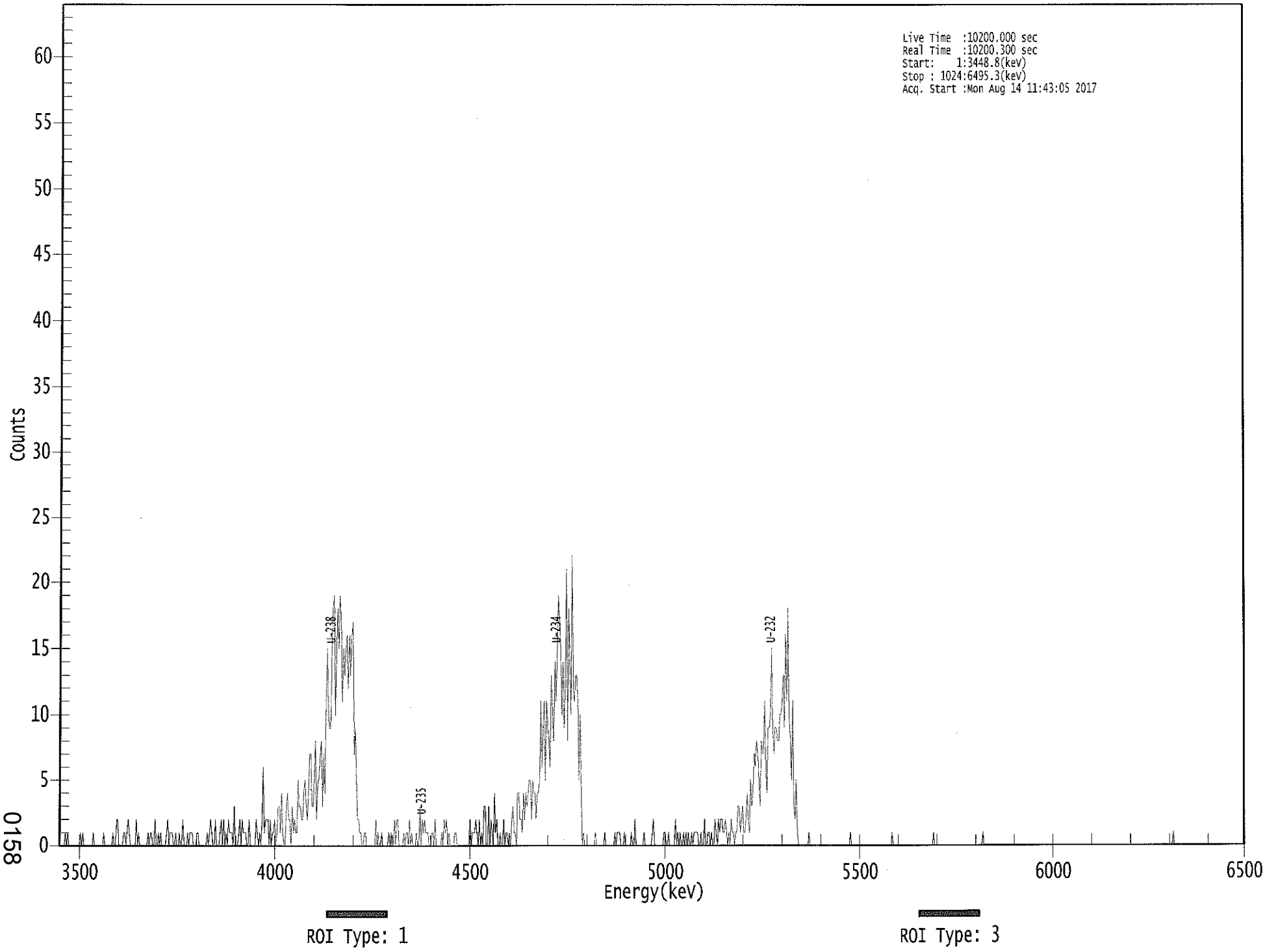
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	2.09E+001 +/- 2.35E+000	3.46E-001 +/- 3.89E-002
U-234	0.989	4761.50*	2.85E+001 +/- 4.07E+000	2.75E-001 +/- 3.10E-002
U-235	1.000	4385.50*	2.68E+000 +/- 9.09E-001	2.96E-001 +/- 3.33E-002
U-238	0.989	4184.40*	2.95E+001 +/- 4.19E+000	3.93E-001 +/- 4.42E-002

AG 8/15/17

0000191255.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	1	0	1
9:	0	0	0	0	0	0	0	0
17:	0	0	1	0	1	0	0	0
25:	0	0	0	0	0	1	0	0
33:	0	0	0	0	0	0	1	0
41:	0	0	0	0	0	0	1	0
49:	0	2	2	0	0	0	0	1
57:	1	0	1	2	1	0	0	0
65:	0	0	2	0	1	0	0	0
73:	0	0	0	0	1	0	1	1
81:	0	0	2	0	0	1	0	1
89:	0	0	0	0	1	2	0	1
97:	1	1	0	0	1	0	0	1
105:	0	0	2	0	0	0	1	0
113:	1	1	1	0	0	0	1	1
121:	0	0	0	0	0	0	0	1
129:	0	1	2	1	0	0	2	0
137:	0	0	1	2	0	2	0	1
145:	0	2	1	1	1	0	3	0
153:	0	0	1	2	0	2	1	1
161:	1	0	0	2	0	0	0	0
169:	0	2	1	0	1	0	2	6
177:	1	2	2	2	0	2	0	1
185:	1	2	0	1	3	3	1	4
193:	1	0	0	3	4	2	2	0
201:	3	1	2	1	1	5	3	3
209:	2	2	4	5	3	2	4	7
217:	7	3	3	5	8	2	5	5
225:	7	8	3	7	4	11	15	10
233:	9	9	15	18	19	10	15	18
241:	15	19	17	11	15	13	15	16
249:	12	16	13	16	17	7	9	5
257:	2	2	1	1	0	0	1	1
265:	0	0	0	0	0	0	0	0
273:	2	0	1	0	0	1	0	0
281:	0	0	0	1	0	1	0	0
289:	2	0	2	2	0	0	0	0
297:	1	0	1	1	0	2	0	1
305:	0	0	0	1	0	0	3	0
313:	2	1	2	1	1	1	0	0
321:	1	1	0	2	0	0	0	0
329:	0	1	0	2	1	2	0	1
337:	0	0	0	0	1	1	0	0
345:	0	0	0	0	0	0	0	0
353:	0	2	0	1	1	1	2	1
361:	0	2	0	1	0	3	3	0

369:	0	3	0	2	1	0	4	1

Sample Title: 14

Channel								
377:	2	0	0	1	0	0	2	0
385:	1	1	0	1	0	2	3	1
393:	1	0	4	4	2	2	1	4
401:	2	4	3	4	5	5	2	5
409:	4	4	2	4	4	5	11	6
417:	9	11	5	11	9	8	6	13
425:	10	8	14	11	15	19	17	15
433:	10	14	9	12	21	8	18	14
441:	10	22	12	11	13	13	11	5
449:	10	5	0	1	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	1	0
481:	1	1	1	0	0	0	1	0
489:	0	0	0	0	1	0	0	2
497:	0	0	0	0	0	0	0	1
505:	0	0	0	0	0	0	1	2
513:	0	0	0	0	0	0	0	0
521:	1	1	0	0	1	0	0	0
529:	0	0	2	0	1	0	1	0
537:	0	1	0	1	0	1	0	0
545:	1	0	1	1	1	1	0	0
553:	1	0	0	2	0	0	1	1
561:	0	1	0	0	2	1	0	2
569:	1	2	2	1	1	2	1	0
577:	1	0	2	1	1	0	1	1
585:	3	3	1	2	3	1	1	2
593:	4	2	1	5	3	4	7	6
601:	8	7	5	3	8	7	7	11
609:	6	4	9	9	10	15	9	7
617:	9	9	8	8	10	10	11	13
625:	9	16	11	18	10	8	5	11
633:	3	2	5	1	0	0	0	0
641:	0	0	0	0	0	1	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	1	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	1	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	1	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	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	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	1	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB
8/14/17

Sample Description: HTC-A01-S004-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_059
Chamber Serial Number: 10006125A
Detector Serial Number: 59
Env. Background: System Bkgd 193376
Reagent Blank: <not performed>

Sample Size: 1.081E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:25 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.676 mL
Effective Efficiency: 0.1775 +/- 0.0101
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 0.9990 +/- 0.0592

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	370.83	10.18	0.17	0.00E+000	19.8
U-234		4.733	249.00	12.45	0.00	0.00E+000	6.0
U-235		4.389	30.83	35.41	0.17	0.00E+000	4.4
U-238		4.153	257.83	12.21	0.17	0.00E+000	31.3

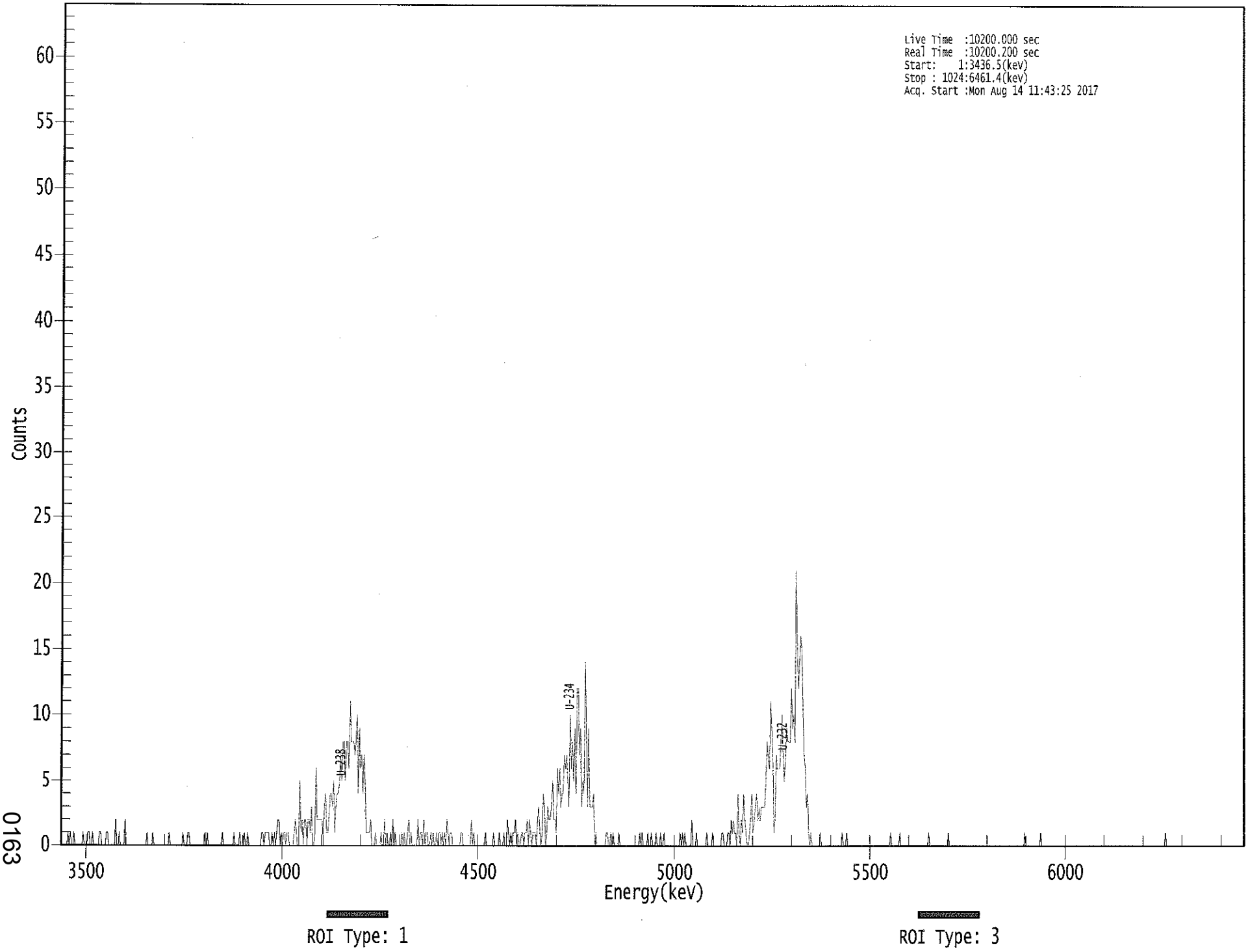
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	5.15E+000 +/- 5.73E-001	5.79E-002 +/- 6.45E-003
U-234	0.994	4761.50*	3.45E+000 +/- 5.76E-001	8.30E-002 +/- 9.24E-003
U-235	1.000	4385.50*	5.26E-001 +/- 1.95E-001	7.13E-002 +/- 7.94E-003
U-238	0.993	4184.40*	3.55E+000 +/- 5.87E-001	5.75E-002 +/- 6.41E-003

AG
8/15/17

0000191267.CNF



0163

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

369:	0	0	0	0	0	1	0	0

Sample Title: 15

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

801:	0	0	0	0	0	0	0	0

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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S004-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_060
Chamber Serial Number: 10006125B
Detector Serial Number: 60
Env. Background: System Bkgd 193377
Reagent Blank: <not performed>

Sample Size: 1.027E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 11:43:28 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.676 mL
Effective Efficiency: 0.1557 +/- 0.0094
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 1.0543 +/- 0.0660

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.277	325.30	10.90	1.70	0.00E+000	10.2
U-234		4.737	108.47	18.97	1.53	0.00E+000	12.4
U-235		4.396	9.49	65.59	0.51	0.00E+000	3.0
U-238		4.154	102.66	19.38	0.34	0.00E+000	4.0

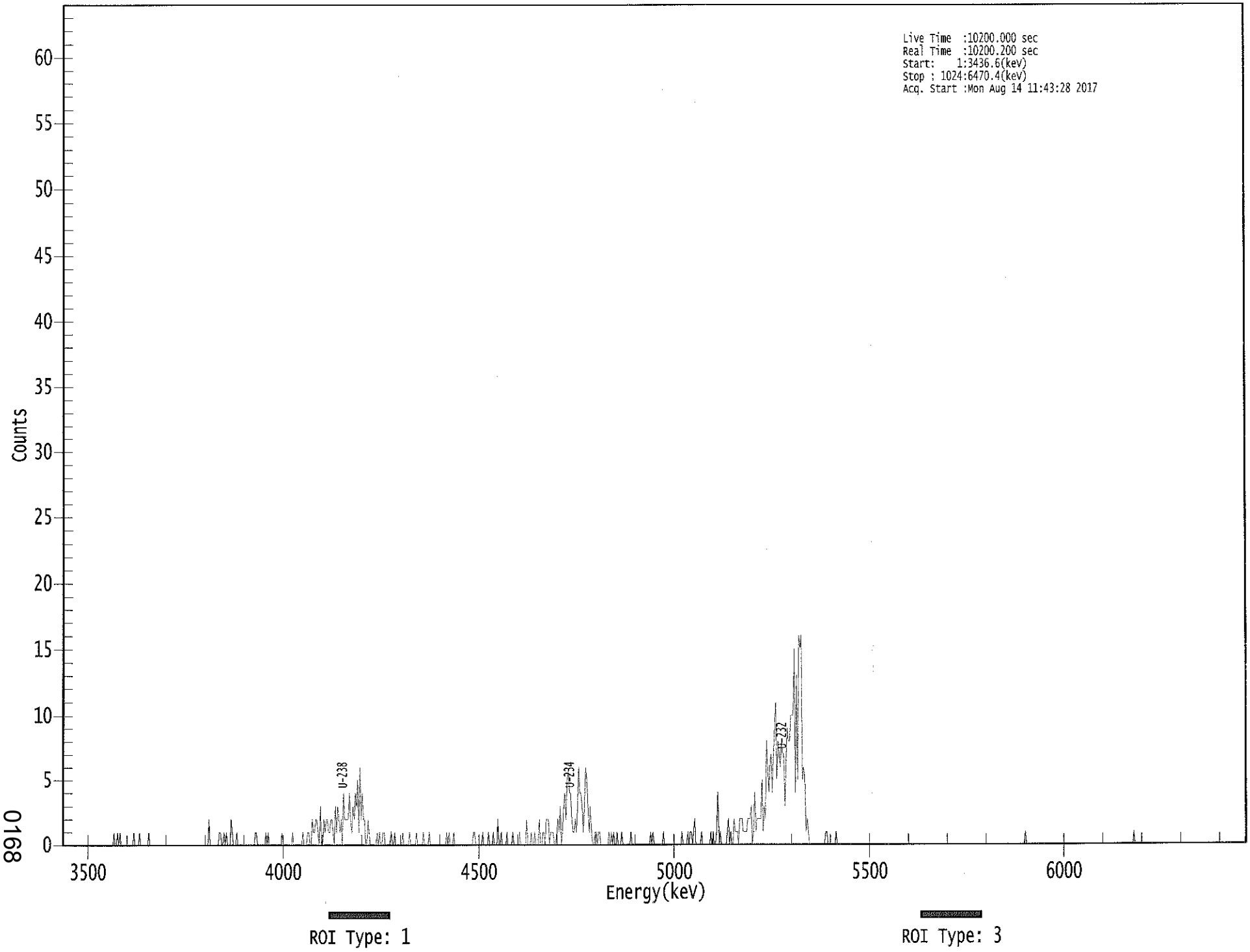
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	5.42E+000 +/- 6.39E-001	1.22E-001 +/- 1.44E-002
U-234	0.996	4761.50*	1.80E+000 +/- 4.03E-001	1.18E-001 +/- 1.39E-002
U-235	0.999	4385.50*	1.94E-001 +/- 1.30E-001	1.08E-001 +/- 1.27E-002
U-238	0.993	4184.40*	1.70E+000 +/- 3.85E-001	7.91E-002 +/- 9.33E-003

AG
8/15/17

0000191268.CNF



0168

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

369:	0	0	0	1	0	0	0	2

Sample Title: 16

Channel								
377:	0	0	1	0	0	0	0	1
385:	0	0	0	0	1	0	0	0
393:	0	0	1	0	0	0	0	0
401:	2	0	0	0	1	0	0	1
409:	0	0	0	2	0	0	1	1
417:	0	2	2	2	0	1	1	1
425:	0	0	1	2	1	3	0	1
433:	3	4	2	5	6	4	4	2
441:	1	1	2	1	3	6	4	4
449:	3	1	3	6	5	3	1	3
457:	1	0	0	1	1	0	1	1
465:	0	0	0	0	0	0	0	1
473:	0	1	0	1	0	0	1	0
481:	0	0	1	0	0	0	0	0
489:	0	0	1	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	1	0	0
513:	0	0	0	0	0	0	1	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	1	0
537:	0	0	0	1	0	1	1	0
545:	1	2	0	0	0	0	0	1
553:	0	0	0	0	0	0	0	1
561:	0	1	0	0	1	4	0	1
569:	0	0	0	0	0	1	2	0
577:	1	0	0	2	1	1	1	0
585:	2	2	2	1	1	1	1	2
593:	2	2	3	0	1	4	1	2
601:	2	2	2	5	1	3	2	8
609:	6	4	6	7	4	7	9	11
617:	5	8	7	6	8	7	7	3
625:	6	9	8	8	10	10	10	15
633:	4	13	5	16	15	16	5	6
641:	5	1	2	1	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	1	1	0	0	0	0
665:	0	0	0	1	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	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: 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	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	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	1	0	0
929:	0	0	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	1	0

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S004-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.092E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 2:44:21 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: 0.2048 +/- 0.0110
Counting Efficiency: 0.1562 +/- 0.0027 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.3112 +/- 0.0739

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	5.271	427.49	9.49	0.51	0.00E+000	60.7
U-234		4.721	90.13	20.89	1.87	0.00E+000	11.9
U-235		4.394	12.32	57.62	0.68	0.00E+000	3.0
U-238		4.142	79.49	22.07	0.51	0.00E+000	6.3

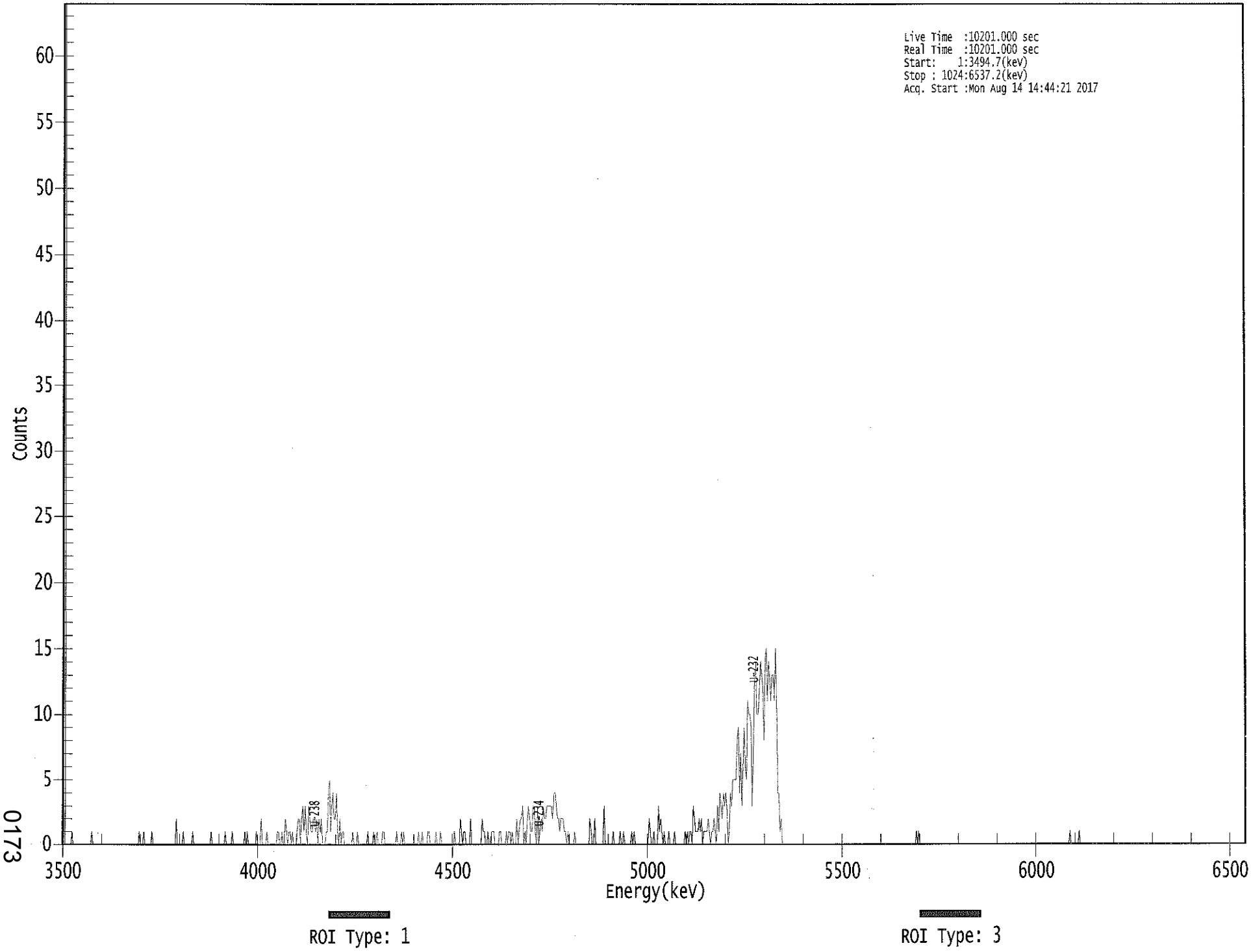
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	5.09E+000 +/- 5.34E-001	6.24E-002 +/- 6.56E-003
U-234	0.989	4761.50*	1.07E+000 +/- 2.50E-001	8.99E-002 +/- 9.44E-003
U-235	0.999	4385.50*	1.80E-001 +/- 1.06E-001	8.26E-002 +/- 8.67E-003
U-238	0.988	4184.40*	9.39E-001 +/- 2.30E-001	6.20E-002 +/- 6.51E-003

AG
8/15/17

0000191280.CNF



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

Sample Title: 17

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	1	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	1	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	1	0
73:	0	0	0	0	0	1	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	2	0	0	0	0	0
105:	1	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	1	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	1	0	1
161:	0	0	0	0	0	0	0	1
169:	0	0	0	2	0	0	0	0
177:	1	0	0	0	0	0	0	0
185:	0	1	1	0	0	1	0	0
193:	2	1	0	1	1	0	1	0
201:	0	0	1	2	2	0	2	3
209:	1	3	1	0	3	2	1	1
217:	2	2	1	2	0	2	1	2
225:	0	0	0	1	1	4	5	1
233:	3	4	2	2	4	1	0	2
241:	0	1	1	0	0	0	0	0
249:	0	0	1	0	0	0	1	0
257:	0	0	0	0	0	0	0	1
265:	0	0	0	0	1	0	0	1
273:	0	0	0	0	1	1	0	0
281:	0	0	0	0	0	0	0	0
289:	1	0	0	0	1	0	1	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	1	0	0	1	0
313:	0	0	0	1	1	0	0	0
321:	0	0	1	0	0	0	1	0
329:	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	0	2
345:	1	0	1	1	0	0	0	0
353:	2	0	0	0	0	0	0	0
361:	0	0	2	1	1	0	0	1

369:	0	0	1	1	1	0	0	0

Sample Title: 17

Channel								
377:	0	1	1	0	0	0	0	1
385:	0	1	1	0	1	0	0	0
393:	2	0	1	2	2	3	0	1
401:	0	2	3	2	1	1	3	3
409:	1	0	3	0	1	2	1	3
417:	2	2	3	3	3	3	3	2
425:	4	4	3	2	2	1	2	2
433:	2	1	1	0	1	0	0	0
441:	0	0	1	0	0	0	0	0
449:	0	0	0	0	0	0	0	2
457:	1	0	0	2	0	0	0	0
465:	0	0	0	3	0	0	0	0
473:	0	0	0	1	0	0	0	0
481:	0	1	0	0	1	0	0	0
489:	0	0	0	1	0	1	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	2	1	0	0	1	0
513:	0	0	3	1	2	1	0	1
521:	0	0	0	1	0	0	0	0
529:	1	0	0	0	0	0	0	0
537:	0	1	0	1	0	1	1	0
545:	3	2	1	1	1	2	1	2
553:	0	1	1	1	1	2	1	0
561:	1	1	2	1	0	3	1	4
569:	3	2	4	3	4	3	0	1
577:	4	3	5	5	5	5	8	9
585:	4	7	3	6	9	6	5	11
593:	10	10	9	3	7	12	14	10
601:	10	12	14	13	12	8	14	15
609:	11	14	13	11	13	13	11	15
617:	11	4	4	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	1	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: 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	1	0
873:	0	0	0	0	0	0	1	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KD
8/17/17

Sample Description: HTC-A01-S004-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: U iso

Detector Name: Alpha_004
Chamber Serial Number:
Detector Serial Number: 4
Env. Background: System Bkgd 193347
Reagent Blank: <not performed>

Sample Size: 1.059E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 2:44:22 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.676 mL
Effective Efficiency: 0.2043 +/- 0.0110
Counting Efficiency: 0.1883 +/- 0.0032 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.0848 +/- 0.0611

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.273	426.81	9.50	1.19	0.00E+000	10.9
U-234		4.726	139.98	16.64	1.02	0.00E+000	7.5
U-235		4.388	19.49	45.07	0.51	0.00E+000	2.9
U-238		4.140	78.15	22.31	0.85	0.00E+000	4.9

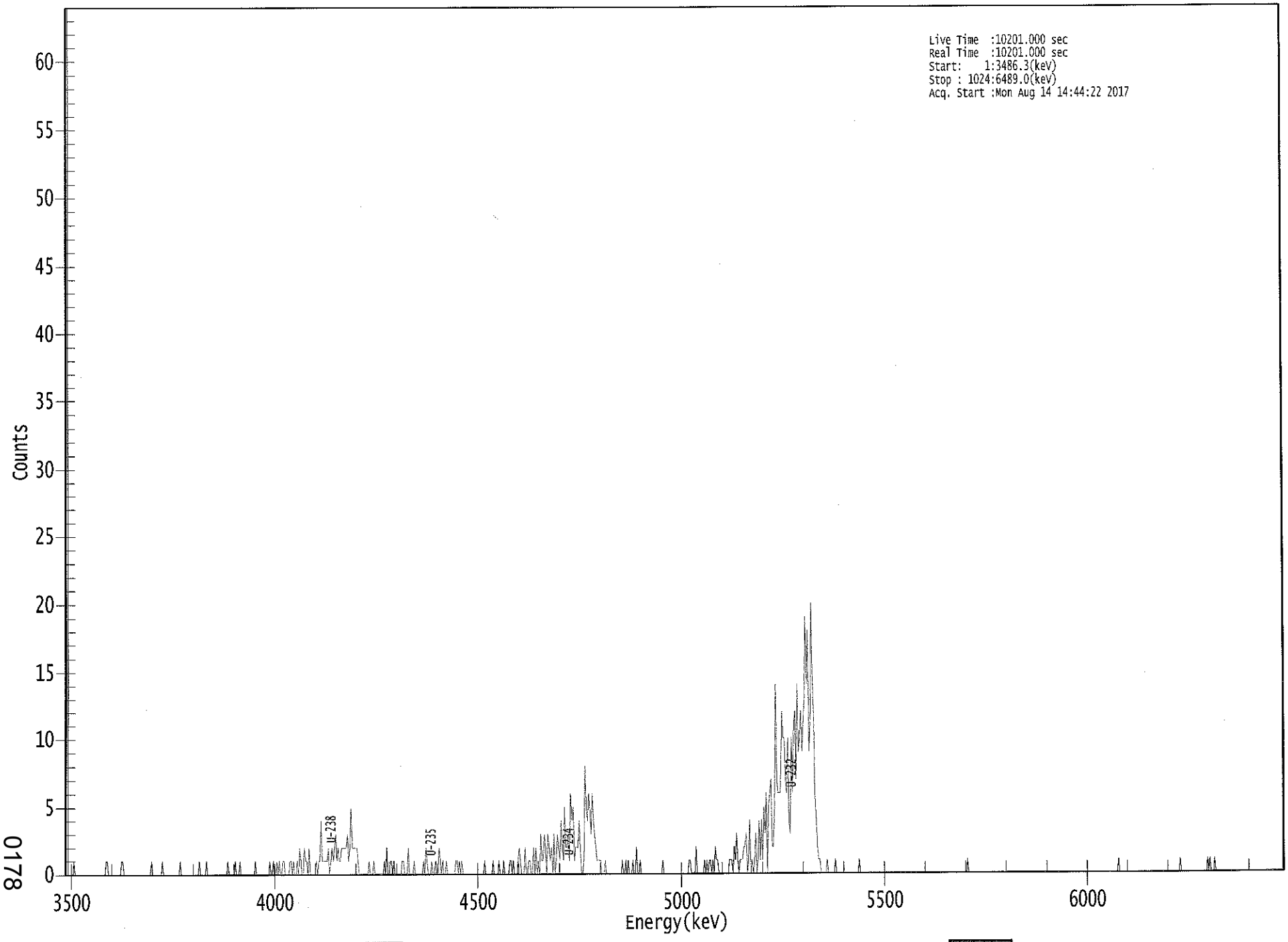
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	5.25E+000 +/- 5.53E-001	8.11E-002 +/- 8.53E-003
U-234	0.991	4761.50*	1.72E+000 +/- 3.38E-001	7.73E-002 +/- 8.14E-003
U-235	1.000	4385.50*	2.95E-001 +/- 1.37E-001	7.95E-002 +/- 8.36E-003
U-238	0.986	4184.40*	9.55E-001 +/- 2.36E-001	7.32E-002 +/- 7.70E-003

AG
8/15/17

0000191281.CNF



ROI Type: 1

ROI Type: 3

0178

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

Sample Title: 18

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	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	1	1	0	0	0	0
41:	0	0	0	0	0	0	0	1
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	0	0	0
81:	0	1	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	1	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	1	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	1	0
145:	0	0	1	0	0	0	0	0
153:	0	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	1	0
177:	0	1	0	1	0	0	1	1
185:	0	0	0	0	1	1	0	1
193:	0	0	1	0	2	1	0	0
201:	2	1	1	0	2	0	0	0
209:	0	0	1	0	1	1	4	1
217:	1	1	1	1	2	0	1	2
225:	1	2	3	1	2	1	1	2
233:	2	2	2	2	3	1	2	5
241:	2	2	2	2	2	1	0	0
249:	0	0	0	0	0	0	1	0
257:	0	0	1	0	0	0	0	0
265:	0	0	0	1	0	2	0	0
273:	1	1	0	1	0	0	0	0
281:	0	0	1	1	0	0	0	2
289:	0	0	0	0	1	0	0	0
297:	0	0	0	0	1	0	2	1
305:	0	0	0	1	0	0	1	0
313:	0	2	1	0	1	0	0	1
321:	0	0	0	0	0	0	0	1
329:	1	0	1	0	1	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	1	0
361:	0	0	0	1	0	0	0	1

369:	0	0	0	0	1	1	0	1

Sample Title: 18

Channel								
377:	0	0	0	1	2	1	0	0
385:	0	2	0	0	1	1	0	0
393:	2	0	2	0	1	0	3	1
401:	1	3	2	0	3	2	1	2
409:	0	3	0	1	3	2	1	4
417:	2	1	5	2	2	3	1	6
425:	4	5	1	2	2	2	4	2
433:	0	0	1	8	5	4	6	5
441:	3	6	4	3	2	1	1	1
449:	1	0	0	0	1	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	1	0	0	1	0	1
473:	0	0	0	1	0	0	2	0
481:	0	1	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	1	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	1	0	0	0	0
529:	2	0	0	0	0	0	0	1
537:	0	1	0	1	1	0	1	0
545:	2	1	1	0	0	0	0	0
553:	0	0	0	0	1	1	1	0
561:	2	1	3	1	0	1	1	1
569:	2	2	3	0	1	4	0	1
577:	0	1	3	0	1	4	1	4
585:	1	5	3	6	0	5	6	7
593:	2	2	5	14	7	6	6	6
601:	12	10	10	7	6	10	4	3
609:	10	6	11	12	7	14	9	10
617:	12	9	11	13	19	14	18	9
625:	11	20	15	11	6	4	2	1
633:	1	0	0	0	0	0	1	0
641:	0	0	0	0	0	1	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	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	0	0	0	0	0
753:	0	0	0	0	1	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

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

KB
8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S004-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.018E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 2:44:19 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: 0.2051 +/- 0.0110
Counting Efficiency: 0.1872 +/- 0.0032 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.0955 +/- 0.0618

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	427.92	9.53	4.08	0.00E+000	10.4
U-234		4.727	151.94	16.09	3.06	0.00E+000	5.8
U-235		4.411	19.62	47.29	2.38	0.00E+000	2.9
U-238		4.159	155.96	15.81	2.04	0.00E+000	8.4

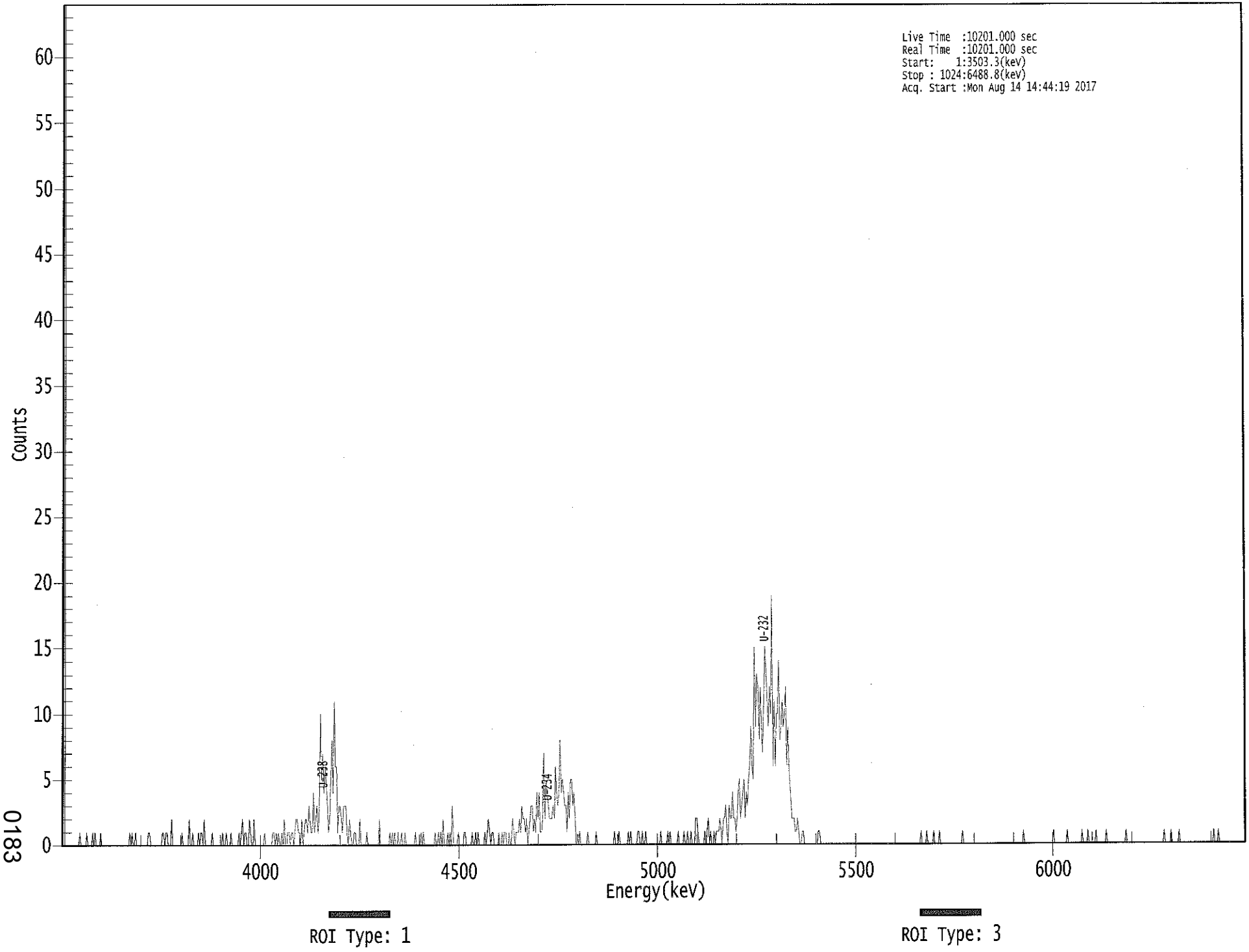
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	5.46E+000 +/- 5.75E-001	1.26E-001 +/- 1.33E-002
U-234	0.992	4761.50*	1.93E+000 +/- 3.72E-001	1.14E-001 +/- 1.20E-002
U-235	0.996	4385.50*	3.08E-001 +/- 1.49E-001	1.29E-001 +/- 1.36E-002
U-238	0.996	4184.40*	1.98E+000 +/- 3.75E-001	9.86E-002 +/- 1.04E-002

AG
8/15/17

0000191279.CNF



0183

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

Sample Title: 19

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1
17:	0	0	0	0	0	1	0	0
25:	0	0	1	0	1	0	0	0
33:	0	1	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	1	0	1	0	0	1
65:	0	0	0	0	0	0	0	0
73:	0	0	1	1	0	0	0	0
81:	0	0	0	0	0	0	1	1
89:	0	1	1	0	0	0	2	0
97:	0	0	0	0	0	0	0	1
105:	0	0	0	0	0	2	0	0
113:	1	0	0	0	0	1	0	1
121:	1	0	2	0	0	0	0	0
129:	0	1	0	0	0	0	0	0
137:	0	0	1	0	0	1	0	0
145:	0	1	0	0	0	0	0	0
153:	1	0	1	2	0	1	1	0
161:	0	2	1	0	0	2	0	0
169:	0	0	0	0	0	0	1	0
177:	0	0	0	0	0	1	1	0
185:	1	0	1	0	0	1	0	2
193:	0	0	1	1	0	1	1	0
201:	1	2	2	1	1	0	2	0
209:	1	2	2	1	3	2	1	1
217:	4	1	2	3	1	2	10	5
225:	7	4	6	5	3	1	2	5
233:	8	4	11	6	6	1	3	3
241:	2	1	3	3	3	1	0	2
249:	1	0	0	1	1	0	0	0
257:	2	0	0	0	0	0	1	0
265:	0	0	0	0	0	0	0	0
273:	0	2	0	0	0	0	0	0
281:	0	0	1	0	1	0	1	0
289:	0	1	0	0	1	0	0	1
297:	0	0	0	0	0	0	0	0
305:	1	0	0	0	0	1	0	1
313:	0	0	0	0	0	0	0	0
321:	0	1	0	0	1	0	1	0
329:	2	0	0	0	1	0	1	0
337:	3	0	0	0	0	1	0	0
345:	0	0	1	1	0	0	0	0
353:	0	1	0	0	1	0	1	0
361:	0	0	0	0	1	0	1	2

369:	1	0	1	1	0	0	0	0

Sample Title: 19

Channel								
377:	1	0	0	1	0	1	1	0
385:	0	1	0	0	2	1	0	1
393:	1	1	2	1	3	2	2	1
401:	2	0	1	2	3	3	1	2
409:	1	4	2	4	1	1	2	7
417:	2	5	4	3	2	2	2	3
425:	2	6	4	3	4	8	4	5
433:	4	3	3	1	4	2	5	5
441:	3	4	2	0	0	0	1	0
449:	0	0	0	0	0	1	0	0
457:	0	0	0	0	1	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	1	0	0	0
481:	1	0	0	0	0	0	0	0
489:	1	0	1	0	0	0	0	0
497:	1	1	0	0	1	0	0	1
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	1	0	0	0
521:	0	0	1	0	1	0	0	0
529:	0	0	0	1	0	0	0	0
537:	1	0	0	1	0	0	1	0
545:	0	0	2	2	1	0	0	0
553:	0	0	1	0	1	2	0	1
561:	0	0	1	0	1	1	1	2
569:	1	0	2	2	3	1	0	3
577:	2	2	4	2	2	1	2	4
585:	5	2	3	4	5	2	4	3
593:	5	6	9	6	5	15	9	13
601:	12	8	12	9	7	11	15	13
609:	11	9	12	10	19	6	11	6
617:	10	10	14	8	9	11	9	10
625:	12	6	9	5	4	2	2	2
633:	1	1	2	1	0	0	1	1
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	1	1	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	1	0	0
745:	0	0	1	0	0	0	0	0
753:	1	0	0	0	0	1	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	1	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	1	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	1	0	0	0	0	0	0	0
865:	0	0	0	0	1	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	1	0	0	0	0	1	0
889:	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	0	1	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	1
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:	1	0	0	0	0	0	1	0
961:	0	0	0	0	0	1	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	1	0	0	0	1
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 8/14/17

Sample Description: HTC-A01-S005-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-UU
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.017E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:29:51 AM
Acquisition Date/Time: 8/14/2017 2:44:20 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: 0.1721 +/- 0.0099
Counting Efficiency: 0.1991 +/- 0.0034 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 0.8642 +/- 0.0520

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.282	358.96	10.38	2.04	0.00E+000	17.0
U-234		4.737	189.30	14.32	1.70	0.00E+000	6.4
U-235		4.373	23.47	41.97	1.53	0.00E+000	2.6
U-238		4.165	181.15	14.60	0.85	0.00E+000	3.7

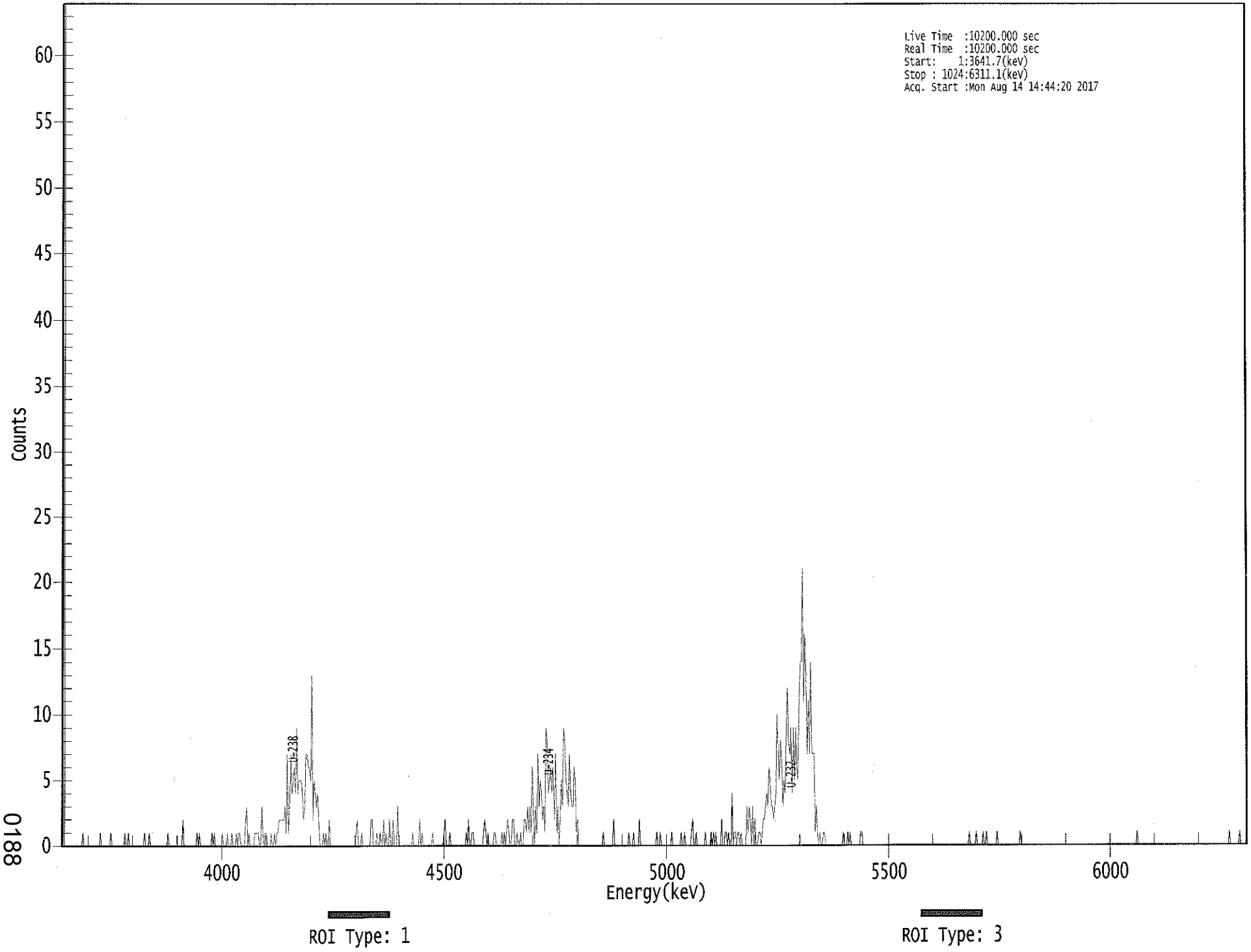
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	5.46E+000 +/- 6.18E-001	1.18E-001 +/- 1.34E-002
U-234	0.996	4761.50*	2.87E+000 +/- 5.24E-001	1.11E-001 +/- 1.26E-002
U-235	0.999	4385.50*	4.39E-001 +/- 1.91E-001	1.33E-001 +/- 1.51E-002
U-238	0.997	4184.40*	2.74E+000 +/- 5.05E-001	9.04E-002 +/- 1.02E-002

AG 8/15/17

0000191278.CNF



0188

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

369:	0	0	0	0	1	1	0	0

Sample Title: 20

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

801:	0	0	0	0	0	0	1	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	1	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	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	1
1009:	0	0	0	0	0	0	0	0
1017:	1	0	0	0	0	0	1	0

8/14/2017 6:46:52 AM

Apex-Alpha™

QA SUMMARY REPORT
Review Of QA Results - Pulser Check

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

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/14/2017 5:13:15 AM
Alpha_004	21f	ALL	Passed	8/14/2017 5:13:16 AM
Alpha_005	21f	ALL	Not Done	
Alpha_006	21f	ALL	Not Done	
Alpha_007	21f	ALL	Not Done	
Alpha_008	21f	ALL	Not Done	
Alpha_009	21f	ALL	Not Done	
Alpha_010	21f	ALL	Passed	8/14/2017 5:13:16 AM
Alpha_011	21f	ALL	Passed	8/14/2017 5:13:17 AM
Alpha_012	21f	ALL	Passed	8/14/2017 5:13:18 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/14/2017 5:13:19 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:20 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:22 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:23 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:25 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:26 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/14/2017 5:13:28 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:29 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/14/2017 5:13:31 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:24 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:26 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:33 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:34 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:36 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:37 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:39 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:41 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:42 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:44 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:46 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:48 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:51 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:53 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:55 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:58 AM

8/14/2017 6:46:52 AM

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

APPROVED BY: _____

APPROVAL DATE: 8/14/17

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

Nuclide Library Title: Uranium

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

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

* = key line

TOTALS: 4 Nuclides 4 Energy Lines

SECTION IX

ANALYTICAL DATA (ISOTOPIC THORIUM)

17-07078
ThISO
Run 1

Work Order	17-07078
Analysis Code	ThISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 907.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S003-0006-01	33	05/13/17 10:44	1.0013E+00
04	DO	HTC-A01-S003-0006-01	33	05/13/17 10:44	1.0233E+00
05	TRG	HTC-A01-S003-0612-01	48	05/13/17 10:41	1.0023E+00
06	TRG	HTC-A01-S003-1218-01	30	05/13/17 10:40	1.0600E+00
07	TRG	HTC-A01-S003-1824-01	58	05/13/17 10:38	1.0256E+00
08	TRG	HTC-A01-S003-2430-01	38	05/13/17 10:35	1.0117E+00
09	TRG	HTC-A01-S003-3036-01	44	05/13/17 10:32	1.0575E+00
10	TRG	HTC-A01-S003-3642-01	30	05/13/17 10:29	1.0484E+00
11	TRG	HTC-A01-S003-4248-01	36	05/13/17 10:26	1.0531E+00
12	TRG	HTC-A01-S004-0006-01	247	05/13/17 14:21	1.3590E-01
13	TRG	HTC-A01-S004-0612-01	367	05/13/17 14:18	1.3830E-01
14	TRG	HTC-A01-S004-1218-01	388	05/13/17 14:15	1.3140E-01
15	TRG	HTC-A01-S004-1824-01	44	05/13/17 14:12	1.0557E+00
16	TRG	HTC-A01-S004-2430-01	37	05/13/17 14:09	1.0707E+00
17	TRG	HTC-A01-S004-3036-01	47	05/13/17 14:06	1.0095E+00
18	TRG	HTC-A01-S004-3642-01	40	05/13/17 14:03	1.0097E+00
19	TRG	HTC-A01-S004-4248-01	69	05/13/17 14:00	1.0532E+00
20	TRG	HTC-A01-S005-0006-01	40	05/13/17 10:01	1.0902E+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.

17-07078
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	0.4667	10.5		0.00								
02	MBL	0.2329	5.2		0.00								
03	DUP	0.2318	5.2		0.00								
04	DO	0.2327	5.2		0.00								
05	TRG	0.2318	5.2		0.00								
06	TRG	0.2313	5.2		0.00								
07	TRG	0.2320	5.2		0.00								
08	TRG	0.2317	5.2		0.00								
09	TRG	1.0208	22.9		0.00								
10	TRG	0.2320	5.2		0.00								
11	TRG	0.2491	5.6		0.00								
12	TRG	0.2359	5.3		0.00								
13	TRG	0.2326	5.2		0.00								
14	TRG	0.2324	5.2		0.00								
15	TRG	0.2324	5.2		0.00								
16	TRG	0.2323	5.2		0.00								
17	TRG	0.2320	5.2		0.00								
18	TRG	0.2327	5.2		0.00								
19	TRG	0.2317	5.2		0.00								
20	TRG	0.2321	5.2		0.00								

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

17-07078
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			08/15/17 08:58	MMCDOUGALL				
02	MBL			08/15/17 08:58	MMCDOUGALL				
03	DUP			08/15/17 08:58	MMCDOUGALL				
04	DO	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
05	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
06	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
07	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
08	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
09	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
10	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
11	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
12	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
13	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
14	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
15	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
16	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
17	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
18	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
19	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				
20	TRG	07/24/17 09:32	KSALLINGS	08/15/17 08:58	MMCDOUGALL				

* 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: 17-07078-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07078
Client: Weston Solutions, Inc.
0199

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	6.10E+00	1.21E+00	1.67E-01	4.99E+00	122.41	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	5.65E-02	8.20E-02	1.37E-01					OK	OK
03	TH-228	DUP	HTC-A01-S003-0006-01	pCi/g	6.25E-01	2.62E-01	1.24E-01				INV	OK	
04	TH-228	DO	HTC-A01-S003-0006-01	pCi/g	4.65E-01	1.87E-01	8.28E-02					OK	
05	TH-228	TRG	HTC-A01-S003-0612-01	pCi/g	7.36E-01	2.47E-01	1.18E-01					OK	
06	TH-228	TRG	HTC-A01-S003-1218-01	pCi/g	4.85E-01	2.10E-01	1.30E-01					OK	
07	TH-228	TRG	HTC-A01-S003-1824-01	pCi/g	1.13E+00	3.65E-01	8.48E-02					OK	
08	TH-228	TRG	HTC-A01-S003-2430-01	pCi/g	1.11E+00	3.65E-01	1.09E-01					OK	
09	TH-228	TRG	HTC-A01-S003-3036-01	pCi/g	1.55E+00	3.66E-01	1.11E-01					OK	
10	TH-228	TRG	HTC-A01-S003-3642-01	pCi/g	9.64E-01	2.89E-01	1.17E-01					OK	
11	TH-228	TRG	HTC-A01-S003-4248-01	pCi/g	1.28E+00	3.07E-01	8.76E-02					OK	
12	TH-228	TRG	HTC-A01-S004-0006-01	pCi/g	7.39E+01	1.29E+01	7.76E-01					OK	
13	TH-228	TRG	HTC-A01-S004-0612-01	pCi/g	6.02E+01	1.03E+01	1.05E+00					INV	
14	TH-228	TRG	HTC-A01-S004-1218-01	pCi/g	8.27E+01	1.42E+01	9.02E-01					OK	
15	TH-228	TRG	HTC-A01-S004-1824-01	pCi/g	2.84E+00	6.75E-01	1.64E-01					OK	
16	TH-228	TRG	HTC-A01-S004-2430-01	pCi/g	2.09E+00	5.12E-01	1.15E-01					OK	
17	TH-228	TRG	HTC-A01-S004-3036-01	pCi/g	1.69E+00	4.44E-01	1.08E-01					OK	
18	TH-228	TRG	HTC-A01-S004-3642-01	pCi/g	3.38E+00	7.40E-01	1.14E-01					OK	
19	TH-228	TRG	HTC-A01-S004-4248-01	pCi/g	2.44E+00	6.08E-01	8.86E-02					OK	
20	TH-228	TRG	HTC-A01-S005-0006-01	pCi/g	9.10E-01	2.74E-01	9.25E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
Analysis Code: ThISO
Run: 1
0200

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-228	LCS	07/18/17 00:00	1.00E+00	73.14	0.00	0.00			
02	TH-228	MBL	07/18/17 00:00	1.00E+00	113.04	0.00	0.00			
03	TH-228	DUP	05/13/17 10:44	1.00E+00	75.76	0.00	0.00			
04	TH-228	DO	05/13/17 10:44	1.02E+00	118.90	0.00	0.00			
05	TH-228	TRG	05/13/17 10:41	1.00E+00	136.21	0.00	0.00			
06	TH-228	TRG	05/13/17 10:40	1.06E+00	93.95	0.00	0.00			
07	TH-228	TRG	05/13/17 10:38	1.03E+00	84.81	0.00	0.00			
08	TH-228	TRG	05/13/17 10:35	1.01E+00	83.18	0.00	0.00			
09	TH-228	TRG	05/13/17 10:32	1.06E+00	83.79	0.00	0.00			
10	TH-228	TRG	05/13/17 10:29	1.05E+00	124.60	0.00	0.00			
11	TH-228	TRG	05/13/17 10:26	1.05E+00	148.28	0.00	0.00			
12	TH-228	TRG	05/13/17 14:21	1.36E-01	107.57	0.00	0.00			
13	TH-228	TRG	05/13/17 14:18	1.38E-01	121.03	0.00	0.00			
14	TH-228	TRG	05/13/17 14:15	1.31E-01	105.62	0.00	0.00			
15	TH-228	TRG	05/13/17 14:12	1.06E+00	82.68	0.00	0.00			
16	TH-228	TRG	05/13/17 14:09	1.07E+00	90.53	0.00	0.00			
17	TH-228	TRG	05/13/17 14:06	1.01E+00	100.27	0.00	0.00			
18	TH-228	TRG	05/13/17 14:03	1.01E+00	99.96	0.00	0.00			
19	TH-228	TRG	05/13/17 14:00	1.05E+00	94.34	0.00	0.00			
20	TH-228	TRG	05/13/17 10:01	1.09E+00	99.62	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07078
Client: Weston Solutions, Inc.
0201

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	08/14/17 08:43		A_Spec	Alpha_049	170	2.51 E+02	8.00 E-03	14.9	
02	TH-228	MBL	08/14/17 08:43		A_Spec	Alpha_050	170	3.45 E+00	1.50 E-02	14.3	
03	TH-228	DUP	08/14/17 08:43		A_Spec	Alpha_052	170	2.83 E+01	4.00 E-03	17.4	
04	TH-228	DO	08/14/17 08:43		A_Spec	Alpha_053	170	2.95 E+01	3.00 E-03	15.1	
05	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_054	170	4.71 E+01	1.10 E-02	13.6	
06	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_056	170	2.65 E+01	9.00 E-03	15.9	
07	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_057	170	5.58 E+01	1.00 E-03	16.5	
08	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_058	170	5.35 E+01	3.00 E-03	16.6	
09	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_059	170	8.42 E+01	5.00 E-03	17.8	
10	TH-228	TRG	08/14/17 08:43		A_Spec	Alpha_060	170	6.40 E+01	1.20 E-02	14.8	
11	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_003	170.02	1.07 E+02	1.00 E-02	15.6	
12	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_004	170.02	6.99 E+02	1.00 E-02	18.8	
13	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_010	170.02	6.48 E+02	3.40 E-02	18.7	
14	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_011	170.02	7.86 E+02	1.60 E-02	19.9	
15	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_012	170	1.61 E+02	2.00 E-02	18.8	
16	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_014	170	1.28 E+02	9.00 E-03	18.5	
17	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_033	170	9.90 E+01	6.00 E-03	16.8	
18	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_034	170	2.03 E+02	8.00 E-03	17.3	
19	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_035	170	1.32 E+02	2.00 E-03	15.8	
20	TH-228	TRG	08/14/17 11:41		A_Spec	Alpha_036	170	6.20 E+01	6.00 E-03	18.2	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
Analysis Code: ThISO
Run: 1
0202

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	6.64E+00	1.29E+00	1.38E-01	5.41E+00	122.74	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	9.21E-02	9.45E-02	1.34E-01					OK	OK
03	TH-230	DUP	HTC-A01-S003-0006-01	pCi/g	5.97E-01	2.49E-01	1.38E-01				INV	OK	
04	TH-230	DO	HTC-A01-S003-0006-01	pCi/g	7.99E-01	2.50E-01	7.56E-02					OK	
05	TH-230	TRG	HTC-A01-S003-0612-01	pCi/g	7.77E-01	2.44E-01	7.48E-02					OK	
06	TH-230	TRG	HTC-A01-S003-1218-01	pCi/g	5.57E-01	2.17E-01	9.43E-02					OK	
07	TH-230	TRG	HTC-A01-S003-1824-01	pCi/g	4.74E+00	1.06E+00	8.86E-02					OK	
08	TH-230	TRG	HTC-A01-S003-2430-01	pCi/g	1.61E+00	4.56E-01	7.91E-02					OK	
09	TH-230	TRG	HTC-A01-S003-3036-01	pCi/g	1.85E+00	3.89E-01	7.04E-02					OK	
10	TH-230	TRG	HTC-A01-S003-3642-01	pCi/g	1.10E+00	3.05E-01	1.04E-01					OK	
11	TH-230	TRG	HTC-A01-S003-4248-01	pCi/g	8.75E-01	2.33E-01	9.13E-02					OK	
12	TH-230	TRG	HTC-A01-S004-0006-01	pCi/g	3.76E+01	7.01E+00	6.35E-01					OK	
13	TH-230	TRG	HTC-A01-S004-0612-01	pCi/g	2.61E+01	4.95E+00	6.41E-01					OK	
14	TH-230	TRG	HTC-A01-S004-1218-01	pCi/g	5.25E+01	9.32E+00	7.87E-01					OK	
15	TH-230	TRG	HTC-A01-S004-1824-01	pCi/g	3.09E+00	7.05E-01	9.68E-02					OK	
16	TH-230	TRG	HTC-A01-S004-2430-01	pCi/g	1.41E+00	3.75E-01	9.77E-02					OK	
17	TH-230	TRG	HTC-A01-S004-3036-01	pCi/g	1.54E+00	4.03E-01	6.51E-02					OK	
18	TH-230	TRG	HTC-A01-S004-3642-01	pCi/g	2.00E+00	4.83E-01	7.98E-02					OK	
19	TH-230	TRG	HTC-A01-S004-4248-01	pCi/g	1.57E+00	4.30E-01	1.01E-01					OK	
20	TH-230	TRG	HTC-A01-S005-0006-01	pCi/g	3.50E+00	7.21E-01	8.83E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07078
Client: Weston Solutions, Inc.
0203

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	07/18/17 00:00	1.00E+00	73.14	0.00	0.00			
02	TH-230	MBL	07/18/17 00:00	1.00E+00	113.04	0.00	0.00			
03	TH-230	DUP	05/13/17 10:44	1.00E+00	75.76	0.00	0.00			
04	TH-230	DO	05/13/17 10:44	1.02E+00	118.90	0.00	0.00			
05	TH-230	TRG	05/13/17 10:41	1.00E+00	136.21	0.00	0.00			
06	TH-230	TRG	05/13/17 10:40	1.06E+00	93.95	0.00	0.00			
07	TH-230	TRG	05/13/17 10:38	1.03E+00	84.81	0.00	0.00			
08	TH-230	TRG	05/13/17 10:35	1.01E+00	83.18	0.00	0.00			
09	TH-230	TRG	05/13/17 10:32	1.06E+00	83.79	0.00	0.00			
10	TH-230	TRG	05/13/17 10:29	1.05E+00	124.60	0.00	0.00			
11	TH-230	TRG	05/13/17 10:26	1.05E+00	148.28	0.00	0.00			
12	TH-230	TRG	05/13/17 14:21	1.36E-01	107.57	0.00	0.00			
13	TH-230	TRG	05/13/17 14:18	1.38E-01	121.03	0.00	0.00			
14	TH-230	TRG	05/13/17 14:15	1.31E-01	105.62	0.00	0.00			
15	TH-230	TRG	05/13/17 14:12	1.06E+00	82.68	0.00	0.00			
16	TH-230	TRG	05/13/17 14:09	1.07E+00	90.53	0.00	0.00			
17	TH-230	TRG	05/13/17 14:06	1.01E+00	100.27	0.00	0.00			
18	TH-230	TRG	05/13/17 14:03	1.01E+00	99.96	0.00	0.00			
19	TH-230	TRG	05/13/17 14:00	1.05E+00	94.34	0.00	0.00			
20	TH-230	TRG	05/13/17 10:01	1.09E+00	99.62	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07078
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	08/14/17 08:43		A_Spec	Alpha_049	170	2.72 E+02	4.00 E-03	14.9	
02	TH-230	MBL	08/14/17 08:43		A_Spec	Alpha_050	170	5.62 E+00	1.40 E-02	14.3	
03	TH-230	DUP	08/14/17 08:43		A_Spec	Alpha_052	170	2.96 E+01	8.00 E-03	17.4	
04	TH-230	DO	08/14/17 08:43		A_Spec	Alpha_053	170	5.55 E+01	3.00 E-03	15.1	
05	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_054	170	5.45 E+01	3.00 E-03	13.6	
06	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_056	170	3.33 E+01	4.00 E-03	15.9	
07	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_057	170	2.56 E+02	2.00 E-03	16.5	
08	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_058	170	8.48 E+01	1.00 E-03	16.6	
09	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_059	170	1.10 E+02	1.00 E-03	17.8	
10	TH-230	TRG	08/14/17 08:43		A_Spec	Alpha_060	170	8.01 E+01	1.10 E-02	14.8	
11	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_003	170.02	8.04 E+01	1.50 E-02	15.6	
12	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_004	170.02	3.90 E+02	7.00 E-03	18.8	
13	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_010	170.02	3.08 E+02	1.10 E-02	18.7	
14	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_011	170.02	5.47 E+02	1.40 E-02	19.9	
15	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_012	170	1.91 E+02	5.00 E-03	18.8	
16	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_014	170	9.48 E+01	7.00 E-03	18.5	
17	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_033	170	9.88 E+01	1.00 E-03	16.8	
18	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_034	170	1.31 E+02	3.00 E-03	17.3	
19	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_035	170	9.30 E+01	0.00 E+00	15.8	
20	TH-230	TRG	08/14/17 11:41		A_Spec	Alpha_036	170	2.61 E+02	7.00 E-03	18.2	

0204

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07078
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	5.97E+00	1.18E+00	1.28E-01	4.99E+00	119.81	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	3.80E-02	5.70E-02	9.23E-02					OK	OK
03	TH-232	DUP	HTC-A01-S003-0006-01	pCi/g	5.29E-01	2.29E-01	1.13E-01				OK	OK	
04	TH-232	DO	HTC-A01-S003-0006-01	pCi/g	6.73E-01	2.24E-01	6.00E-02					OK	
05	TH-232	TRG	HTC-A01-S003-0612-01	pCi/g	4.79E-01	1.81E-01	6.81E-02					OK	
06	TH-232	TRG	HTC-A01-S003-1218-01	pCi/g	4.14E-01	1.84E-01	1.10E-01					OK	
07	TH-232	TRG	HTC-A01-S003-1824-01	pCi/g	1.11E+00	3.51E-01	1.11E-01					OK	
08	TH-232	TRG	HTC-A01-S003-2430-01	pCi/g	9.86E-01	3.30E-01	1.43E-01					OK	
09	TH-232	TRG	HTC-A01-S003-3036-01	pCi/g	1.25E+00	3.10E-01	1.01E-01					OK	
10	TH-232	TRG	HTC-A01-S003-3642-01	pCi/g	9.61E-01	2.77E-01	8.65E-02					OK	
11	TH-232	TRG	HTC-A01-S003-4248-01	pCi/g	9.46E-01	2.43E-01	6.50E-02					OK	
12	TH-232	TRG	HTC-A01-S004-0006-01	pCi/g	5.68E+01	1.01E+01	6.06E-01					OK	
13	TH-232	TRG	HTC-A01-S004-0612-01	pCi/g	4.21E+01	7.44E+00	7.25E-01					OK	
14	TH-232	TRG	HTC-A01-S004-1218-01	pCi/g	6.26E+01	1.09E+01	5.03E-01					OK	
15	TH-232	TRG	HTC-A01-S004-1824-01	pCi/g	2.04E+00	5.11E-01	1.11E-01					OK	
16	TH-232	TRG	HTC-A01-S004-2430-01	pCi/g	1.59E+00	4.08E-01	8.86E-02					OK	
17	TH-232	TRG	HTC-A01-S004-3036-01	pCi/g	1.57E+00	4.10E-01	9.34E-02					OK	
18	TH-232	TRG	HTC-A01-S004-3642-01	pCi/g	2.76E+00	6.17E-01	6.34E-02					OK	
19	TH-232	TRG	HTC-A01-S004-4248-01	pCi/g	2.19E+00	5.48E-01	7.05E-02					OK	
20	TH-232	TRG	HTC-A01-S005-0006-01	pCi/g	1.06E+00	2.94E-01	7.02E-02					OK	

0205

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07078
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	07/18/17 00:00	1.00E+00	73.14	0.00	0.00			
02	TH-232	MBL	07/18/17 00:00	1.00E+00	113.04	0.00	0.00			
03	TH-232	DUP	05/13/17 10:44	1.00E+00	75.76	0.00	0.00			
04	TH-232	DO	05/13/17 10:44	1.02E+00	118.90	0.00	0.00			
05	TH-232	TRG	05/13/17 10:41	1.00E+00	136.21	0.00	0.00			
06	TH-232	TRG	05/13/17 10:40	1.06E+00	93.95	0.00	0.00			
07	TH-232	TRG	05/13/17 10:38	1.03E+00	84.81	0.00	0.00			
08	TH-232	TRG	05/13/17 10:35	1.01E+00	83.18	0.00	0.00			
09	TH-232	TRG	05/13/17 10:32	1.06E+00	83.79	0.00	0.00			
10	TH-232	TRG	05/13/17 10:29	1.05E+00	124.60	0.00	0.00			
11	TH-232	TRG	05/13/17 10:26	1.05E+00	148.28	0.00	0.00			
12	TH-232	TRG	05/13/17 14:21	1.36E-01	107.57	0.00	0.00			
13	TH-232	TRG	05/13/17 14:18	1.38E-01	121.03	0.00	0.00			
14	TH-232	TRG	05/13/17 14:15	1.31E-01	105.62	0.00	0.00			
15	TH-232	TRG	05/13/17 14:12	1.06E+00	82.68	0.00	0.00			
16	TH-232	TRG	05/13/17 14:09	1.07E+00	90.53	0.00	0.00			
17	TH-232	TRG	05/13/17 14:06	1.01E+00	100.27	0.00	0.00			
18	TH-232	TRG	05/13/17 14:03	1.01E+00	99.96	0.00	0.00			
19	TH-232	TRG	05/13/17 14:00	1.05E+00	94.34	0.00	0.00			
20	TH-232	TRG	05/13/17 10:01	1.09E+00	99.62	0.00	0.00			

0206

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07078
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	08/14/17 08:43		A_Spec	Alpha_049	170	2.45 E+02	3.00 E-03	14.9	
02	TH-232	MBL	08/14/17 08:43		A_Spec	Alpha_050	170	2.32 E+00	4.00 E-03	14.3	
03	TH-232	DUP	08/14/17 08:43		A_Spec	Alpha_052	170	2.63 E+01	4.00 E-03	17.4	
04	TH-232	DO	08/14/17 08:43		A_Spec	Alpha_053	170	4.68 E+01	1.00 E-03	15.1	
05	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_054	170	3.37 E+01	2.00 E-03	13.6	
06	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_056	170	2.48 E+01	7.00 E-03	15.9	
07	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_057	170	6.00 E+01	0.00 E+00	16.5	
08	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_058	170	5.21 E+01	1.10 E-02	16.6	
09	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_059	170	7.40 E+01	0.00 E+00	17.8	
10	TH-232	TRG	08/14/17 08:43		A_Spec	Alpha_060	170	7.00 E+01	6.00 E-03	14.8	
11	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_003	170.02	8.71 E+01	5.00 E-03	15.6	
12	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_004	170.02	5.90 E+02	6.00 E-03	18.8	
13	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_010	170.02	4.98 E+02	1.60 E-02	18.7	
14	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_011	170.02	6.53 E+02	3.00 E-03	19.9	
15	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_012	170	1.27 E+02	8.00 E-03	18.8	
16	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_014	170	1.07 E+02	5.00 E-03	18.5	
17	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_033	170	1.01 E+02	0.00 E+00	16.8	
18	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_034	170	1.82 E+02	1.00 E-03	17.3	
19	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_035	170	1.30 E+02	1.00 E-03	15.8	
20	TH-232	TRG	08/14/17 11:41		A_Spec	Alpha_036	170	7.95 E+01	3.00 E-03	18.2	

0207

Count Room Report
Client: Weston Solutions, Inc.

17-07078-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/18/17 00:00	1.0000	0.4667	10.4821		0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000	0.2329	5.2309		0.00		
03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	1.0013	0.2318	5.2062		0.00		
04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	1.0233	0.2327	5.2264		0.00		
05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	1.0023	0.2318	5.2062		0.00		
06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	1.0600	0.2313	5.1950		0.00		
07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	1.0256	0.2320	5.2107		0.00		
08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	1.0117	0.2317	5.2040		0.00		
09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	1.0575	1.0208	22.9272		0.00		
10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	1.0484	0.2320	5.2107		0.00		
11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	1.0531	0.2491	5.5948		0.00		
12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	0.1359	0.2359	5.2983		0.00		
13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	0.1383	0.2326	5.2242		0.00		
14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	0.1314	0.2324	5.2197		0.00		
15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	1.0557	0.2324	5.2197		0.00		
16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	1.0707	0.2323	5.2175		0.00		
17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	1.0095	0.2320	5.2107		0.00		
18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	1.0097	0.2327	5.2264		0.00		
19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	1.0532	0.2317	5.2040		0.00		
20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	1.0902	0.2321	5.2130		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 7/31/2017 11:53 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07078	1	ThISO	7/31/2017 11:41	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	7/31/2017	0.100	0.1069				4.99	0.180	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.520	7/31/2017	0.500	0.5106				5.41	0.146	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	7/31/2017	0.100	0.1069				4.99	0.180	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	Th-229	Th-18a	22.460	7/31/2017	0.4667	0.2200
02	Th-229	Th-18a	22.460	7/31/2017	0.2329	0.2200
03	Th-229	Th-18a	22.460	7/31/2017	0.2318	0.2200
04	Th-229	Th-18a	22.460	7/31/2017	0.2327	0.2200
05	Th-229	Th-18a	22.460	7/31/2017	0.2318	0.2200
06	Th-229	Th-18a	22.460	7/31/2017	0.2313	0.2200
07	Th-229	Th-18a	22.460	7/31/2017	0.2320	0.2200
08	Th-229	Th-18a	22.460	7/31/2017	0.2317	0.2200
09	Th-229	Th-18a	22.460	7/31/2017	~~0.2320~~ 1.2000	0.2200
10	Th-229	Th-18a	22.460	7/31/2017	0.2320	0.2200
11	Th-229	Th-18a	22.460	7/31/2017	0.2491	0.2200
12	Th-229	Th-18a	22.460	7/31/2017	0.2359	0.2200
13	Th-229	Th-18a	22.460	7/31/2017	0.2326	0.2200
14	Th-229	Th-18a	22.460	7/31/2017	0.2324	0.2200
15	Th-229	Th-18a	22.460	7/31/2017	0.2324	0.2200
16	Th-229	Th-18a	22.460	7/31/2017	0.2323	0.2200
17	Th-229	Th-18a	22.460	7/31/2017	0.2320	0.2200
18	Th-229	Th-18a	22.460	7/31/2017	0.2327	0.2200
19	Th-229	Th-18a	22.460	7/31/2017	0.2317	0.2200
20	Th-229	Th-18a	22.460	7/31/2017	0.2321	0.2200

Balance Printer Tapes

Tracer	LCS
0.4667 g	0.1069 g
0.2329 g	
0.2318 g	
0.2327 g	
0.2318 g	
0.2313 g	
0.2320 g	
0.2317 g	0.5106 g
0.2320 g	
~~0.2320~~ g 71.00	
0.2491 g	
0.2359 g	
0.2326 g	
0.2324 g	
0.2324 g	
0.2323 g	
0.2320 g	
0.2327 g	
0.2317 g	
0.2321 g	

#9 (1.2320)
7/31/17
8/10/17

0209

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07078	1	ThISO	grams	8/9/2017	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-A01-S003-0006-01	DUP					1.0013E+00	1.0013E+00				
04	HTC-A01-S003-0006-01	DO					1.0233E+00	1.0233E+00				
05	HTC-A01-S003-0612-01	TRG					1.0023E+00	1.0023E+00				
06	HTC-A01-S003-1218-01	TRG					1.0600E+00	1.0600E+00				
07	HTC-A01-S003-1824-01	TRG					1.0256E+00	1.0256E+00				
08	HTC-A01-S003-2430-01	TRG					1.0117E+00	1.0117E+00				
09	HTC-A01-S003-3036-01	TRG					1.0575E+00	1.0575E+00				
10	HTC-A01-S003-3642-01	TRG					1.0484E+00	1.0484E+00				
11	HTC-A01-S003-4248-01	TRG					1.0531E+00	1.0531E+00				
12	HTC-A01-S004-0006-01	TRG					1.3590E-01	1.3590E-01				
13	HTC-A01-S004-0612-01	TRG					1.3830E-01	1.3830E-01				
14	HTC-A01-S004-1218-01	TRG					1.3140E-01	1.3140E-01				
15	HTC-A01-S004-1824-01	TRG					1.0557E+00	1.0557E+00				
16	HTC-A01-S004-2430-01	TRG					1.0707E+00	1.0707E+00				
17	HTC-A01-S004-3036-01	TRG					1.0095E+00	1.0095E+00				
18	HTC-A01-S004-3642-01	TRG					1.0097E+00	1.0097E+00				
19	HTC-A01-S004-4248-01	TRG					1.0532E+00	1.0532E+00				
20	HTC-A01-S005-0006-01	TRG					1.0902E+00	1.0902E+00				

Comments	

0210

Technician: JPachella Date: 7/31/17

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

Rough Sample Preparation
Log Book

Printed: 7/24/2017 9:32 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
17-07078	8/9/2017	7/23/2017	7/24/2017	7/25/2017	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-A01-S003-0006-01	14.6300	1012.0200	871.0400	997.3900	856.4100	14.13%	85.87%	0.0000	0.0000	
05	HTC-A01-S003-0612-01	14.6300	1026.3000	908.5000	1011.6700	893.8700	11.64%	88.36%	0.0000	0.0000	
06	HTC-A01-S003-1218-01	14.5700	1081.7400	967.2200	1067.1700	952.6500	10.73%	89.27%	0.0000	0.0000	
07	HTC-A01-S003-1824-01	14.5000	1028.3200	859.6400	1013.8200	845.1400	16.64%	83.36%	0.0000	0.0000	
08	HTC-A01-S003-2430-01	14.6400	967.9200	784.9400	953.2800	770.3000	19.19%	80.81%	0.0000	0.0000	
09	HTC-A01-S003-3036-01	14.6900	1013.7400	825.2200	999.0500	810.5300	18.87%	81.13%	0.0000	0.0000	
10	HTC-A01-S003-3642-01	14.6600	939.5600	779.3900	924.9000	764.7300	17.32%	82.68%	0.0000	0.0000	
11	HTC-A01-S003-4248-01	14.7200	868.2000	722.6000	853.4800	707.8800	17.06%	82.94%	0.0000	0.0000	
12	HTC-A01-S004-0006-01	14.7200	810.2400	742.8500	795.5200	728.1300	8.47%	91.53%	0.0000	0.0000	
13	HTC-A01-S004-0612-01	14.6400	1006.2000	908.0600	991.5600	893.4200	9.90%	90.10%	0.0000	0.0000	
14	HTC-A01-S004-1218-01	14.6000	992.1000	905.8940	977.5000	891.2940	8.82%	91.18%	0.0000	0.0000	
15	HTC-A01-S004-1824-01	14.5700	829.4800	691.0900	814.9100	676.5200	16.98%	83.02%	0.0000	0.0000	
16	HTC-A01-S004-2430-01	14.6300	908.6200	752.8800	893.9900	738.2500	17.42%	82.58%	0.0000	0.0000	
17	HTC-A01-S004-3036-01	14.5300	800.3600	663.3700	785.8300	648.8400	17.43%	82.57%	0.0000	0.0000	
18	HTC-A01-S004-3642-01	14.5600	878.0600	728.1300	863.5000	713.5700	17.36%	82.64%	0.0000	0.0000	
19	HTC-A01-S004-4248-01	14.5400	881.5800	738.2900	867.0400	723.7500	16.53%	83.47%	0.0000	0.0000	
20	HTC-A01-S005-0006-01	14.5800	866.1400	694.2600	851.5600	679.6800	20.18%	79.82%	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)

0211

Technician: Kerry Say Date: Analysis: Rough Prep Logbook Analysis: ThISO Page No. 10137

KB
8/14/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_049
Chamber Serial Number: 10006121A
Detector Serial Number: 49
Env. Background: System Bkgd 193367
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:04 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.467 mL
Effective Efficiency: 0.1089 +/- 0.0085
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 0.7314 +/- 0.0587

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.198121 +/- 0.126408
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		5.899	15.32	51.36	0.68	0.00E+000	4.4
TH-228		5.389	250.64	12.42	1.36	0.00E+000	7.9
TH-229	T	4.858	193.98	14.12	1.02	0.00E+000	15.7
TH-230		4.634	272.32	11.89	0.68	0.00E+000	12.6
TH-232		3.967	245.49	12.52	0.51	0.00E+000	7.0

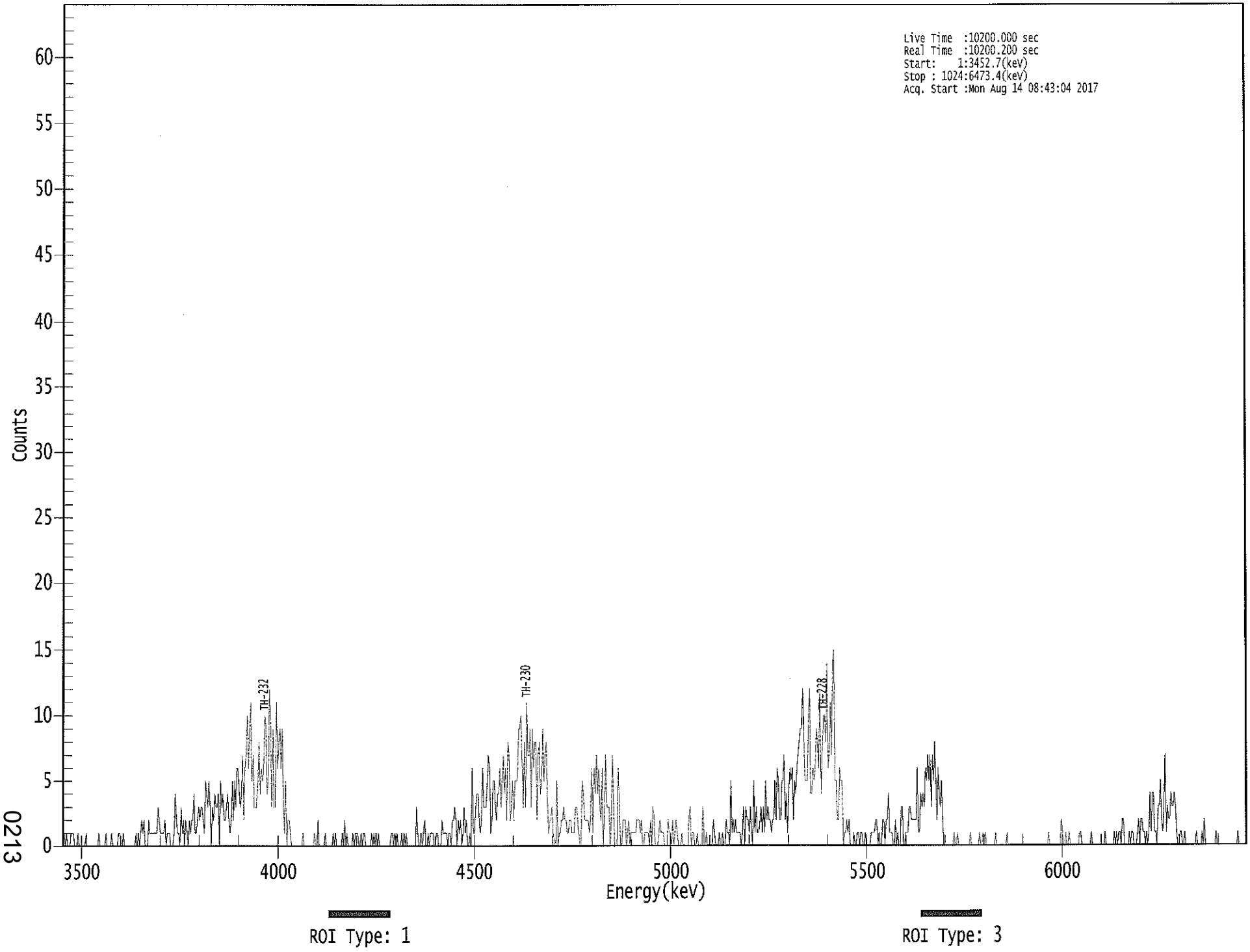
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	3.82E-001 +/- 2.05E-001	1.41E-001 +/- 2.16E-002
TH-228	0.999	5400.00*	6.10E+000 +/- 1.21E+000	1.67E-001 +/- 2.57E-002
TH-229	0.999	4872.00*	4.74E+000 +/- 7.29E-001	1.54E-001 +/- 2.37E-002
TH-230	0.992	4672.00*	6.64E+000 +/- 1.29E+000	1.38E-001 +/- 2.11E-002
TH-232	0.995	3997.00*	5.97E+000 +/- 1.18E+000	1.28E-001 +/- 1.96E-002

AG
8/15/17

0000191277.CNF



0213

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

369:	6	1	2	5	5	3	2	4

Sample Title: 01

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

801:	0	0	0	0	0	1	0	0

Sample Title: 01

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

KB 8/17/17

Apex-Alpha™

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_050
Chamber Serial Number: 10006121B
Detector Serial Number: 50
Env. Background: System Bkgd 193368
Reagent Blank: <not performed>

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/14/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:06 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1619 +/- 0.0145
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 1.1304 +/- 0.1028

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.852	2.81	142.99	1.19	0.00E+000	3.0
TH-228		5.368	3.45	144.10	2.55	0.00E+000	3.0
TH-229	T	4.866	143.98	16.40	1.02	0.00E+000	9.4
TH-230		4.646	5.62	101.11	2.38	0.00E+000	4.4
TH-232		4.016	2.32	149.12	0.68	0.00E+000	3.0

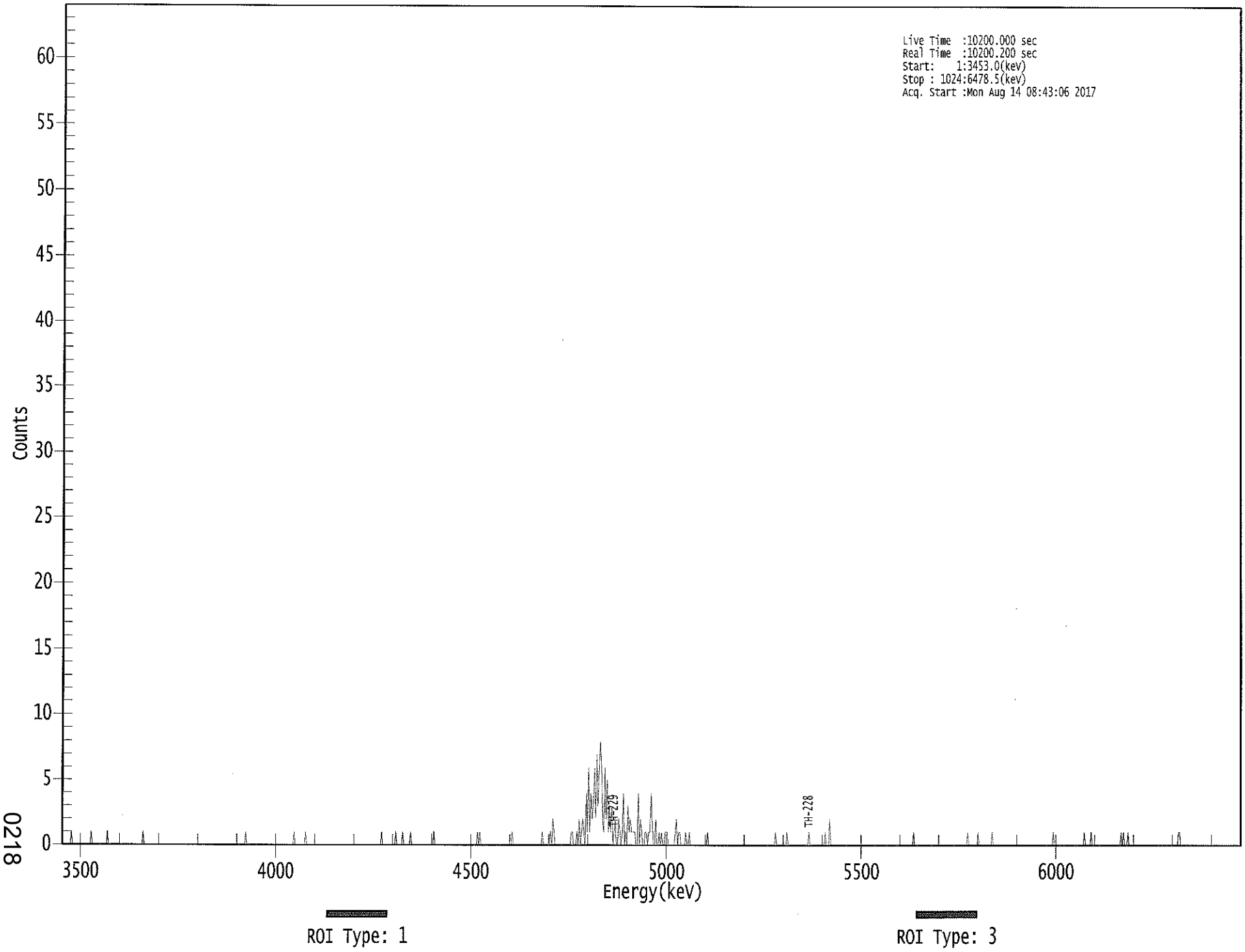
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	4.72E-002 +/- 6.79E-002	1.11E-001 +/- 1.93E-002
TH-228	0.995	5400.00*	5.65E-002 +/- 8.20E-002	1.37E-001 +/- 2.40E-002
TH-229	1.000	4872.00*	2.37E+000 +/- 4.14E-001	1.04E-001 +/- 1.81E-002
TH-230	0.996	4672.00*	9.21E-002 +/- 9.45E-002	1.34E-001 +/- 2.35E-002
TH-232	0.998	3997.00*	3.80E-002 +/- 5.70E-002	9.23E-002 +/- 1.61E-002

AG 8/15/17

0000191217.CNF



0218

****
***** 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:	1	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	1	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	1	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	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	1
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	1	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	1	0	0
281:	0	0	0	0	0	0	0	0
289:	0	1	0	0	0	0	0	1
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	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	0
353:	0	0	0	0	0	0	0	0
361:	1	0	1	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	1	0
393:	0	0	0	0	0	0	0	0
401:	0	0	0	0	0	0	0	0
409:	0	0	0	0	0	0	0	0
417:	1	0	0	0	0	0	0	1
425:	0	2	1	0	0	0	0	0
433:	0	0	0	0	0	0	0	0
441:	0	1	1	0	0	0	1	0
449:	2	0	1	2	1	0	4	1
457:	6	1	4	2	3	6	2	7
465:	3	6	8	6	2	1	6	2
473:	5	1	3	1	3	0	1	2
481:	0	0	2	1	0	1	4	0
489:	1	0	3	1	2	1	1	1
497:	1	0	0	4	0	2	1	0
505:	0	1	1	0	1	1	4	2
513:	0	0	2	0	0	1	0	1
521:	0	0	1	1	1	0	0	0
529:	0	0	0	1	2	0	1	1
537:	0	0	0	0	1	0	0	1
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	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	1	0	0	0	0	0
625:	0	0	0	0	1	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	1
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	1	0	0
665:	0	2	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	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:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	1	0	0	0	0	0	0
793:	0	0	1	0	0	0	0	0

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

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S003-0006-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_052
Chamber Serial Number: 10006123B
Detector Serial Number: 52
Env. Background: System Bkgd 193369
Reagent Blank: <not performed>

Sample Size: 1.001E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:08 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1316 +/- 0.0129
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.7576 +/- 0.0753

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.762	1.66	169.38	0.34	0.00E+000	3.0
TH-228		5.385	28.32	37.34	0.68	0.00E+000	3.6
TH-229	T	4.874	116.49	18.21	0.51	0.00E+000	4.9
TH-230		4.633	29.64	36.95	1.36	0.00E+000	8.1
TH-232		3.961	26.32	38.78	0.68	0.00E+000	4.9

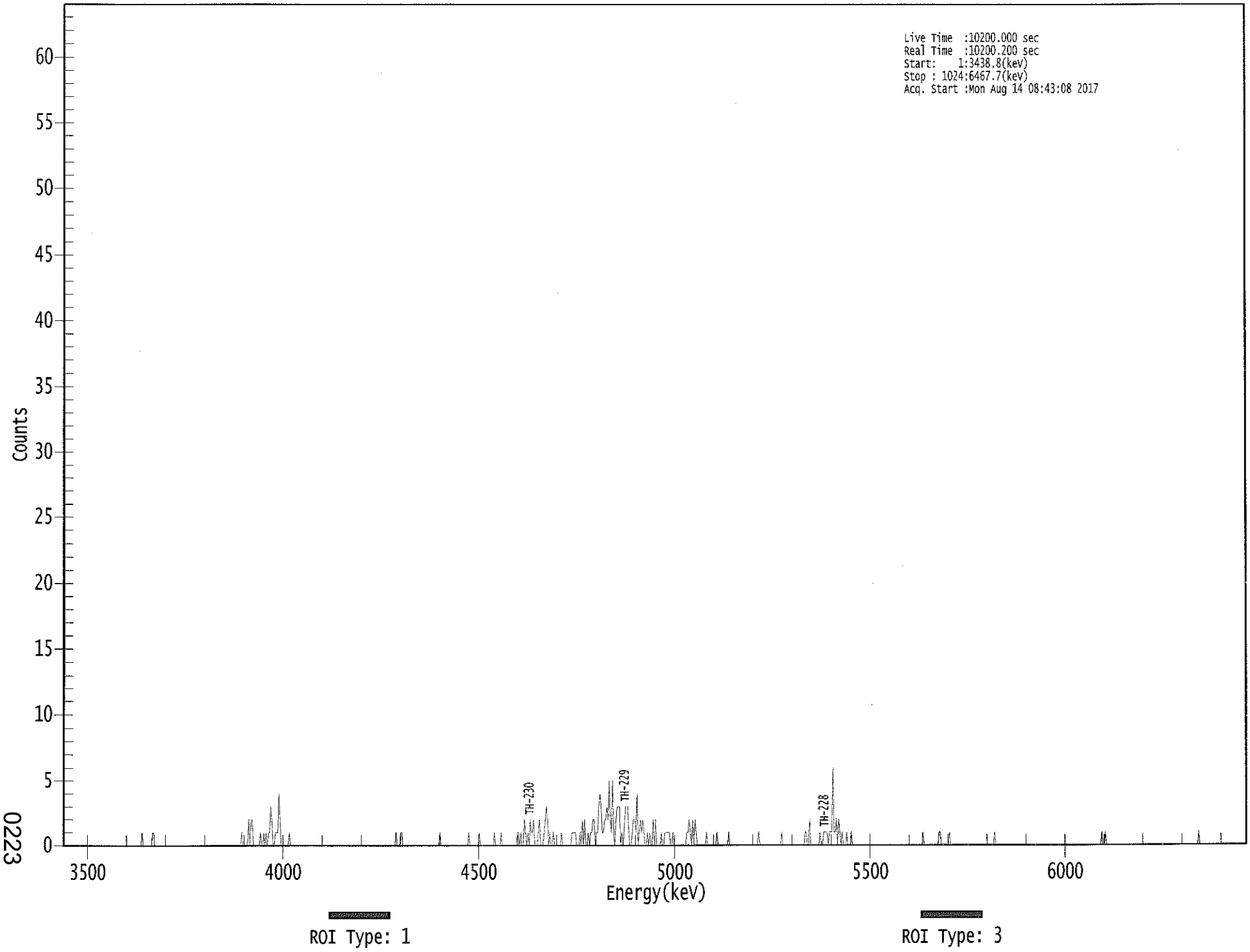
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.960	5850.00*	3.45E-002 +/- 5.88E-002	9.94E-002 +/- 1.91E-002
TH-228	0.999	5400.00*	6.25E-001 +/- 2.62E-001	1.24E-001 +/- 2.39E-002
TH-229	1.000	4872.00*	2.35E+000 +/- 4.52E-001	1.06E-001 +/- 2.03E-002
TH-230	0.992	4672.00*	5.97E-001 +/- 2.49E-001	1.38E-001 +/- 2.65E-002
TH-232	0.993	3997.00*	5.29E-001 +/- 2.29E-001	1.13E-001 +/- 2.18E-002

AG 8/15/17

0000191219.CNF



0223

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

Sample Title: 03

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	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	1	0	0	0
73:	0	0	0	0	0	1	1	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	1	0	0	0	0	0
161:	2	0	2	2	0	0	0	0
169:	0	0	1	0	0	1	0	1
177:	0	1	1	3	2	0	0	1
185:	1	1	4	2	0	0	0	0
193:	0	0	0	1	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	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	1	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:	0	0	0	0	0	1	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	1	0
353:	0	0	0	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: 03

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

801:	0	0	0	0	1	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	1	0	0	1	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_053
Chamber Serial Number: 10006122A
Detector Serial Number: 53
Env. Background: System Bkgd 193370
Reagent Blank: <not performed>

Sample Size: 1.023E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:11 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1801 +/- 0.0153
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 1.1890 +/- 0.1034

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		5.803	4.32	102.62	0.68	0.00E+000	3.0
TH-228		5.386	29.49	36.46	0.51	0.00E+000	4.0
TH-229	T	4.896	159.98	15.55	1.02	0.00E+000	12.9
TH-230		4.654	55.49	26.45	0.51	0.00E+000	4.0
TH-232		3.968	46.83	28.70	0.17	0.00E+000	5.0

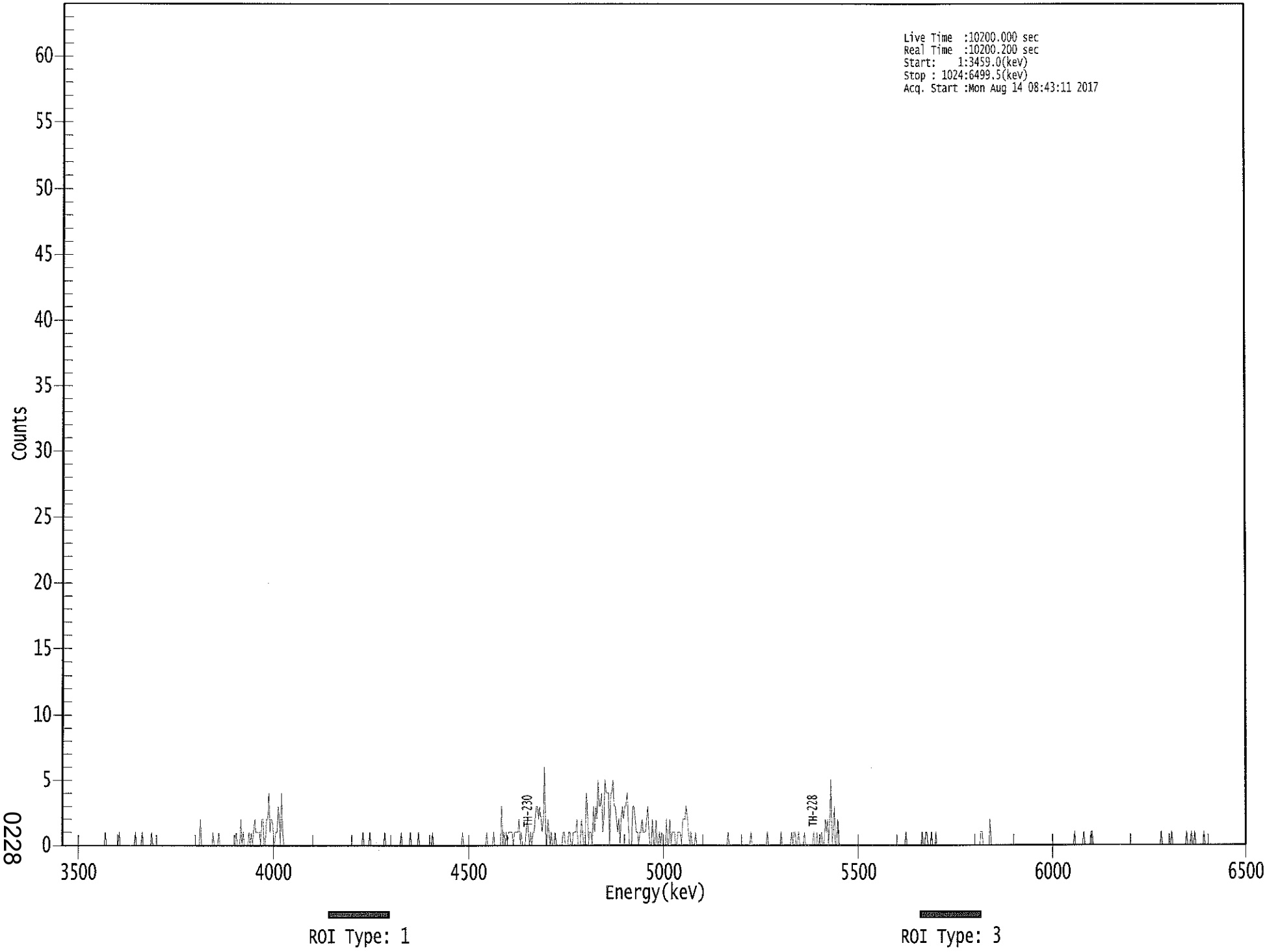
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	6.42E-002 +/- 6.68E-002	8.39E-002 +/- 1.40E-002
TH-228	0.999	5400.00*	4.65E-001 +/- 1.87E-001	8.28E-002 +/- 1.38E-002
TH-229	0.997	4872.00*	2.31E+000 +/- 3.86E-001	9.10E-002 +/- 1.52E-002
TH-230	0.998	4672.00*	7.99E-001 +/- 2.50E-001	7.56E-002 +/- 1.26E-002
TH-232	0.996	3997.00*	6.73E-001 +/- 2.24E-001	6.00E-002 +/- 1.00E-002

AG 8/15/17

0000191220.CNF



0228

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

Sample Title: 04

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	1	0	0	0

Sample Title: 04

Channel								
377:	0	0	0	3	0	1	0	1
385:	0	1	1	1	1	0	1	1
393:	1	1	2	0	1	0	0	0
401:	1	2	1	0	1	0	1	1
409:	2	3	3	2	3	2	1	2
417:	6	1	0	2	1	0	1	0
425:	0	1	0	0	0	0	0	0
433:	1	1	0	0	0	1	1	0
441:	0	1	1	1	2	0	0	0
449:	2	1	0	0	4	3	0	1
457:	1	0	3	1	3	2	5	3
465:	3	4	1	2	5	4	4	4
473:	0	4	4	5	3	3	2	1
481:	2	0	2	3	2	3	3	4
489:	2	0	0	0	3	3	2	1
497:	1	0	1	1	2	1	1	1
505:	2	3	1	0	0	2	0	0
513:	2	0	0	1	0	1	0	0
521:	0	2	0	0	2	0	1	1
529:	1	0	0	1	1	1	0	2
537:	2	2	3	2	1	0	1	0
545:	0	0	1	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	1	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:	1	0	0	0	0	0	0	0
617:	0	0	0	0	1	0	0	0
625:	0	0	0	0	0	1	0	1
633:	1	0	0	1	0	0	0	0
641:	1	0	0	0	0	0	0	0
649:	1	0	0	1	0	0	0	1
657:	0	0	2	1	2	0	2	5
665:	0	1	3	0	0	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	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	1	0
745:	0	1	1	0	0	0	1	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	1	1	0	0	0	0	0

801:	0	2	0	0	0	0	0	0

Sample Title: 04

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

Apex-Alpha™

Sample Description: HTC-A01-S003-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_054
Chamber Serial Number: 10006122B
Detector Serial Number: 54
Env. Background: System Bkgd 193371
Reagent Blank: <not performed>

Sample Size: 1.002E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:14 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1857 +/- 0.0156
Counting Efficiency: 0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor: 1.3621 +/- 0.1170

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		5.829	5.66	85.23	0.34	0.00E+000	3.0
TH-228		5.377	47.13	29.21	1.87	0.00E+000	3.0
TH-229	T	4.884	164.32	15.33	0.68	0.00E+000	3.3
TH-230		4.622	54.49	26.70	0.51	0.00E+000	5.9
TH-232		3.975	33.66	33.98	0.34	0.00E+000	4.3

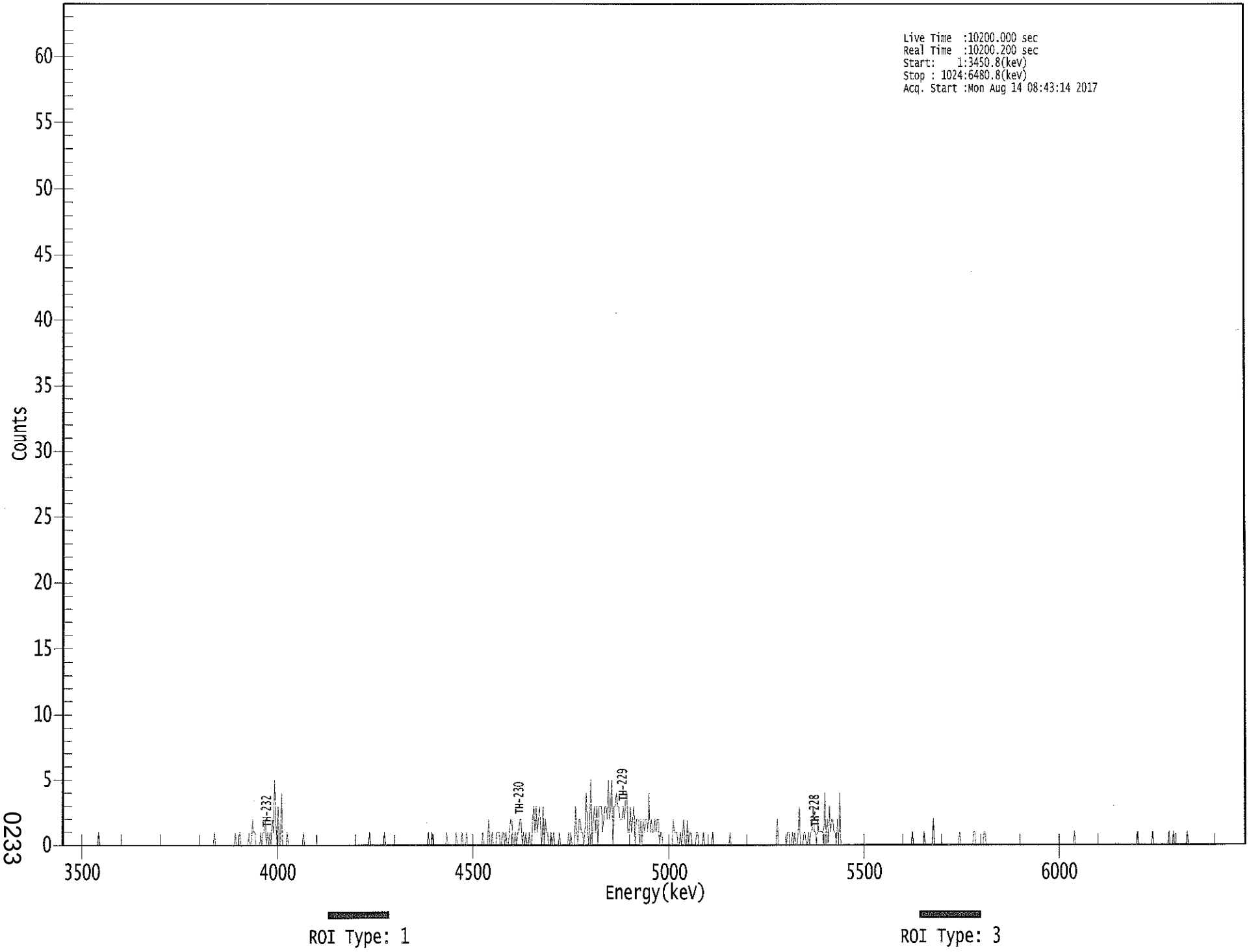
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	8.33E-002 +/- 7.23E-002	7.04E-002 +/- 1.16E-002
TH-228	0.997	5400.00*	7.36E-001 +/- 2.47E-001	1.18E-001 +/- 1.95E-002
TH-229	0.999	4872.00*	2.35E+000 +/- 3.88E-001	8.07E-002 +/- 1.33E-002
TH-230	0.987	4672.00*	7.77E-001 +/- 2.44E-001	7.48E-002 +/- 1.23E-002
TH-232	0.998	3997.00*	4.79E-001 +/- 1.81E-001	6.81E-002 +/- 1.12E-002

AG
8/15/17

0000191221.CNF



0233

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

Sample Title: 05

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	2	0	0	1	0	0	0	1

Sample Title: 05

Channel								
377:	1	1	0	0	1	1	0	1
385:	0	0	1	2	2	0	0	1
393:	0	1	1	2	2	0	1	0
401:	1	0	0	1	0	0	2	3
409:	1	3	1	2	3	1	0	3
417:	0	2	1	1	0	0	1	0
425:	1	0	0	0	0	1	0	0
433:	0	0	0	0	0	1	0	1
441:	0	0	0	3	1	0	2	2
449:	1	1	0	1	4	2	0	1
457:	5	0	2	3	1	3	0	3
465:	3	3	1	2	3	3	2	5
473:	2	3	5	0	3	3	4	3
481:	3	2	2	2	3	2	4	4
489:	1	1	3	1	2	3	0	2
497:	2	2	0	2	0	2	1	2
505:	2	1	4	1	2	1	1	2
513:	1	2	2	0	1	1	0	0
521:	0	0	0	0	0	0	0	2
529:	1	1	1	0	0	1	0	1
537:	2	0	0	2	0	1	1	0
545:	0	0	0	1	1	0	0	0
553:	0	1	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:	1	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	2	0	0	0	0	0	0
625:	0	0	1	1	0	0	1	0
633:	1	0	0	1	3	0	0	0
641:	1	1	0	0	1	0	1	1
649:	3	1	1	0	2	1	1	1
657:	1	0	4	0	2	0	3	1
665:	2	2	1	1	0	2	0	4
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	1	0
737:	0	0	0	0	0	0	0	0
745:	1	0	0	0	0	0	0	0
753:	2	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	1
777:	0	0	0	0	0	0	0	0
785:	0	0	0	1	1	0	0	0
793:	0	0	0	0	1	1	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	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	1	0	0	0	0	0	0
937:	0	0	0	0	0	0	1	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	1	0	0	0
961:	1	0	0	0	0	0	0	0
969:	0	0	0	0	1	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

XB 8/14/17

Sample Description: HTC-A01-S003-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_056
Chamber Serial Number: 10006124B
Detector Serial Number: 56
Env. Background: System Bkgd 193373
Reagent Blank: <not performed>

Sample Size: 1.060E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:17 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.231 mL
Effective Efficiency: 0.1498 +/- 0.0139
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 0.9395 +/- 0.0888

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		5.868	1.64	214.83	1.36	0.00E+000	3.0
TH-228		5.356	26.47	39.36	1.53	0.00E+000	3.0
TH-229	T	4.874	132.30	17.17	1.70	0.00E+000	6.9
TH-230		4.622	33.32	34.36	0.68	0.00E+000	3.0
TH-232		3.963	24.81	40.44	1.19	0.00E+000	4.5

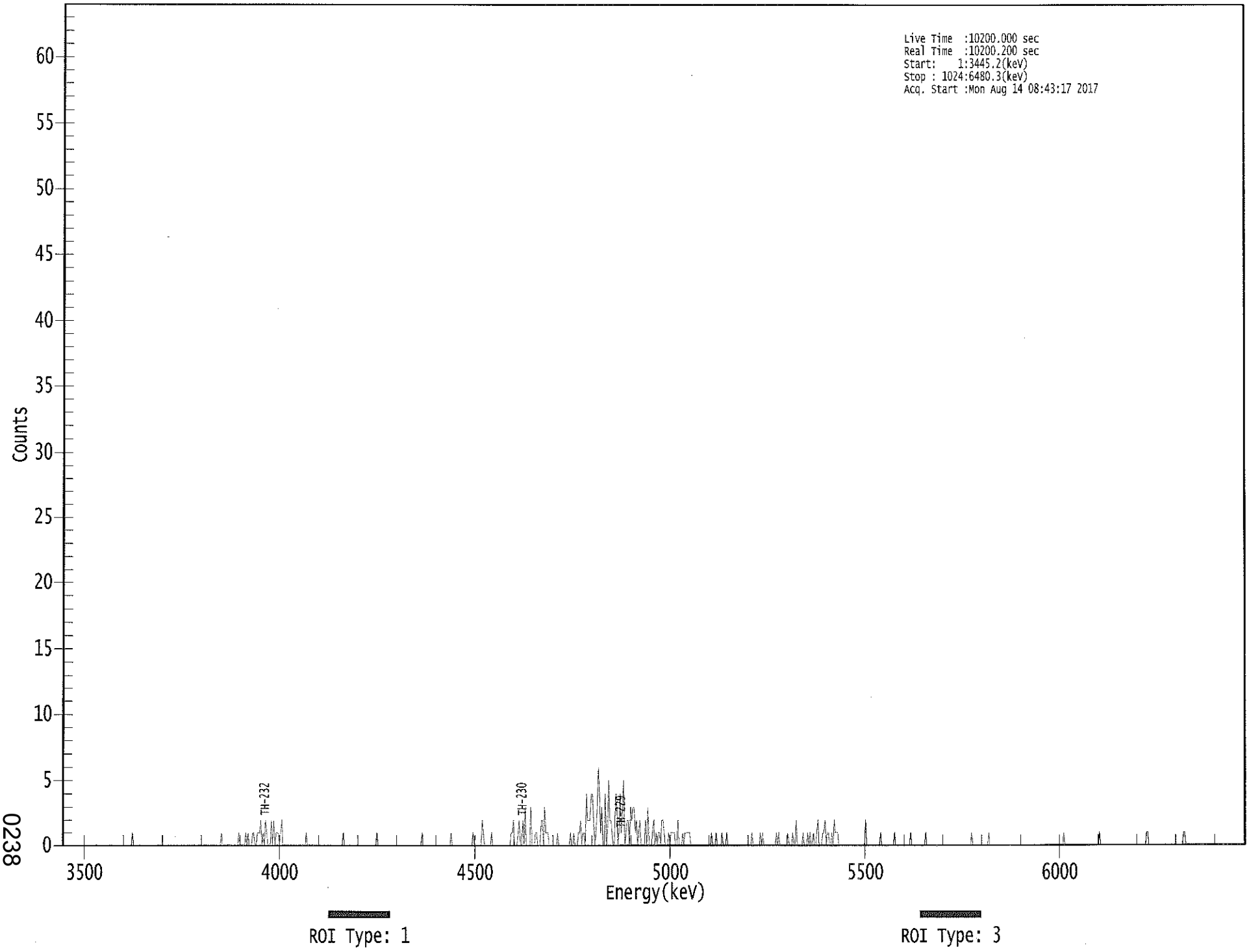
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	2.83E-002 +/- 6.10E-002	1.18E-001 +/- 2.15E-002
TH-228	0.990	5400.00*	4.85E-001 +/- 2.10E-001	1.30E-001 +/- 2.37E-002
TH-229	1.000	4872.00*	2.22E+000 +/- 4.04E-001	1.23E-001 +/- 2.24E-002
TH-230	0.987	4672.00*	5.57E-001 +/- 2.17E-001	9.43E-002 +/- 1.72E-002
TH-232	0.994	3997.00*	4.14E-001 +/- 1.84E-001	1.10E-001 +/- 2.00E-002

AG
8/15/17

0000191223.CNF



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

Sample Title: 06

Elapsed Live time: 10200
Elapsed Real Time: 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	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	1	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	1	0	0	0	0	0	1	0
161:	1	0	0	0	1	1	0	0
169:	1	1	1	2	0	1	0	2
177:	1	0	0	0	2	0	2	0
185:	1	1	1	0	1	2	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	1	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	1	0	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	1
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	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	1
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	1	0	0	0	0	0
361:	0	0	2	1	0	0	0	0

369:	0	0	1	0	0	0	0	0

Sample Title: 06

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

801:	1	0	0	0	0	0	0	0

Sample Title: 06

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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_057
Chamber Serial Number: 01017326A
Detector Serial Number: 57
Env. Background: System Bkgd 193374
Reagent Blank: <not performed>

Sample Size: 1.026E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:20 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1396 +/- 0.0133
Counting Efficiency: 0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor: 0.8481 +/- 0.0821

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		5.898	9.00	68.87	0.00	0.00E+000	3.0
TH-228		5.363	55.83	26.28	0.17	0.00E+000	4.7
TH-229	T	4.843	123.66	17.65	0.34	0.00E+000	4.0
TH-230		4.613	255.66	12.27	0.34	0.00E+000	16.8
TH-232		3.938	60.00	25.51	0.00	0.00E+000	3.3

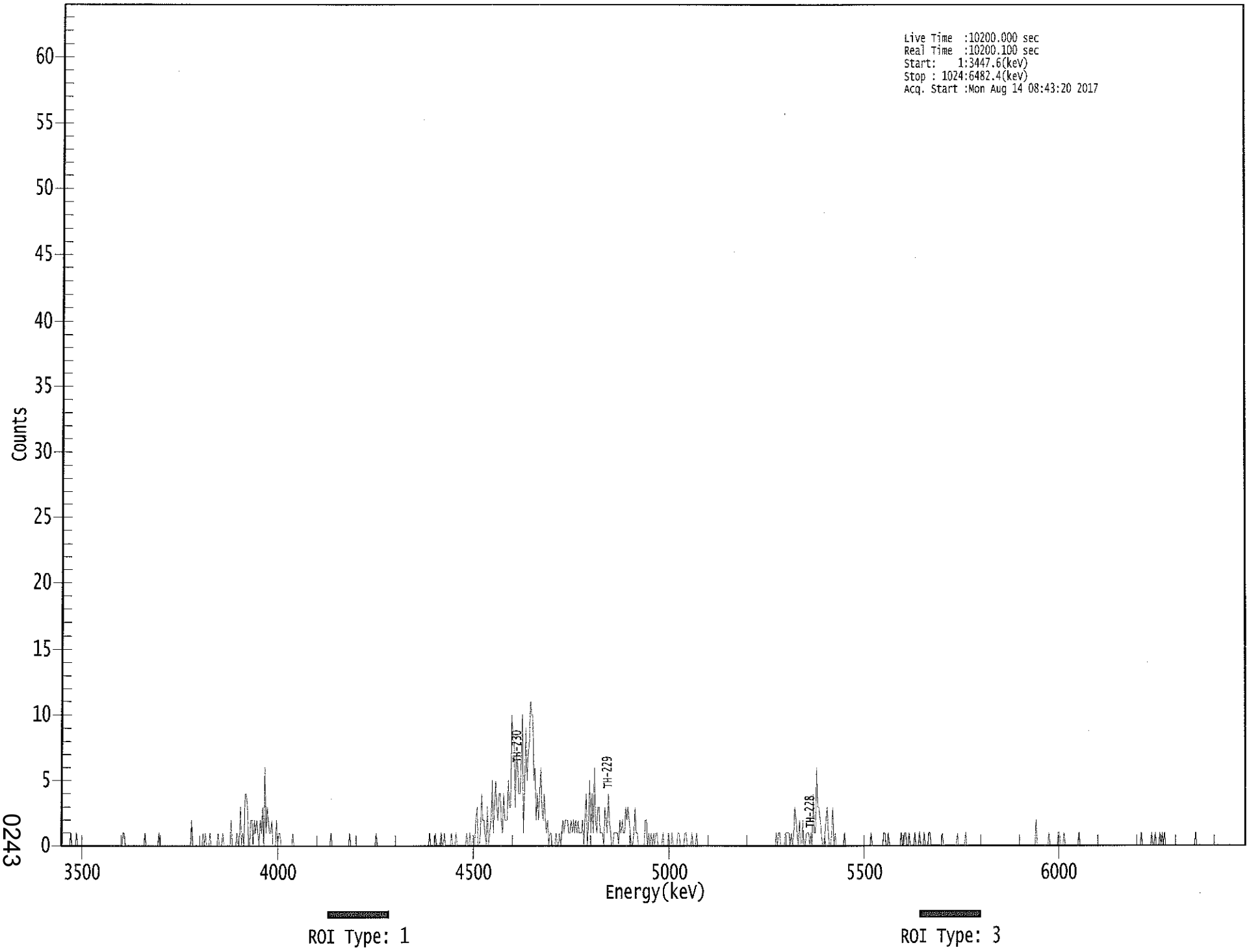
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	1.72E-001 +/- 1.23E-001	1.15E-001 +/- 2.14E-002
TH-228	0.993	5400.00*	1.13E+000 +/- 3.65E-001	8.48E-002 +/- 1.58E-002
TH-229	0.996	4872.00*	2.30E+000 +/- 4.29E-001	8.89E-002 +/- 1.66E-002
TH-230	0.982	4672.00*	4.74E+000 +/- 1.06E+000	8.86E-002 +/- 1.65E-002
TH-232	0.982	3997.00*	1.11E+000 +/- 3.51E-001	1.11E-001 +/- 2.07E-002

AG
8/15/17

0000191214.CNF



0243

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	1	2	5	1	3	5	3

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

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

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S003-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 08
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_058
Chamber Serial Number: 01017326B
Detector Serial Number: 58
Env. Background: System Bkgd 193375
Reagent Blank: <not performed>

Sample Size: 1.012E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:23 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1385 +/- 0.0133
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 0.8318 +/- 0.0809

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.793	4.66	94.59	0.34	0.00E+000	3.0
TH-228		5.347	53.49	26.95	0.51	0.00E+000	6.3
TH-229	T	4.865	122.49	17.75	0.51	0.00E+000	4.0
TH-230		4.609	84.83	21.31	0.17	0.00E+000	6.3
TH-232		3.945	52.13	27.71	1.87	0.00E+000	3.7

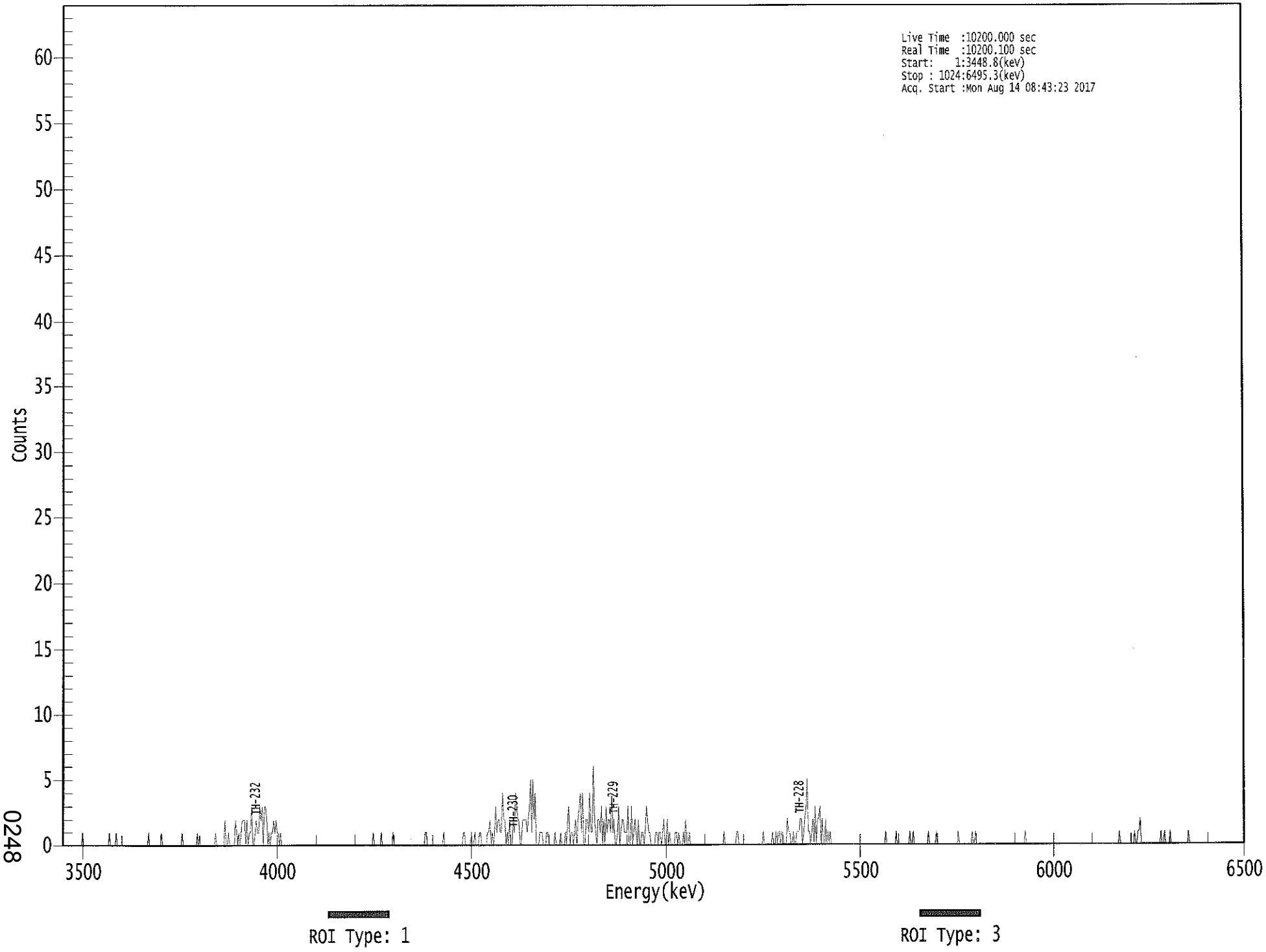
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.983	5850.00*	9.11E-002 +/- 8.79E-002	9.35E-002 +/- 1.75E-002
TH-228	0.985	5400.00*	1.11E+000 +/- 3.65E-001	1.09E-001 +/- 2.04E-002
TH-229	1.000	4872.00*	2.33E+000 +/- 4.37E-001	9.97E-002 +/- 1.87E-002
TH-230	0.980	4672.00*	1.61E+000 +/- 4.56E-001	7.91E-002 +/- 1.48E-002
TH-232	0.986	3997.00*	9.86E-001 +/- 3.30E-001	1.43E-001 +/- 2.69E-002

AG 8/15/17

0000191215.CNF



****
***** 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:	0	1	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	1	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	1	0	0	0	0	0
81:	0	0	0	0	0	1	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	1	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	2	0	0	1
145:	0	0	0	0	0	2	1	0
153:	1	0	1	2	2	2	0	2
161:	0	1	1	3	0	0	1	2
169:	1	1	3	2	3	0	3	3
177:	2	0	1	0	1	1	2	1
185:	2	1	1	0	1	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	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	1	0	0	0
273:	0	0	0	1	0	0	0	0
281:	0	0	0	0	0	1	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	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	1	1	0	0	0	0
353:	0	1	0	0	1	0	0	0
361:	1	1	0	0	0	0	0	1

369:	1	2	0	1	0	1	3	1

Sample Title: 08

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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:	1	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	1	0	0	0	0	0
921:	0	0	0	0	0	0	0	1
929:	0	0	1	1	2	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	1	0
953:	0	1	0	0	0	0	1	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	1	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

Sample Description: HTC-A01-S003-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001913
Batch Identification: 1707078A-TH
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_059
Chamber Serial Number: 10006125A
Detector Serial Number: 59
Env. Background: System Bkgd 193376
Reagent Blank: <not performed>

Sample Size: 1.058E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:25 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 1.232 mL
Effective Efficiency: 0.1488 +/- 0.0073
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 0.8379 +/- 0.0434

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.839	19.32	45.50	0.68	0.00E+000	3.0
TH-228		5.372	84.15	21.49	0.85	0.00E+000	4.7
TH-229	T	4.875	700.00	7.41	0.00	0.00E+000	7.8
TH-230		4.635	109.83	18.72	0.17	0.00E+000	16.3
TH-232		3.965	74.00	22.94	0.00	0.00E+000	5.2

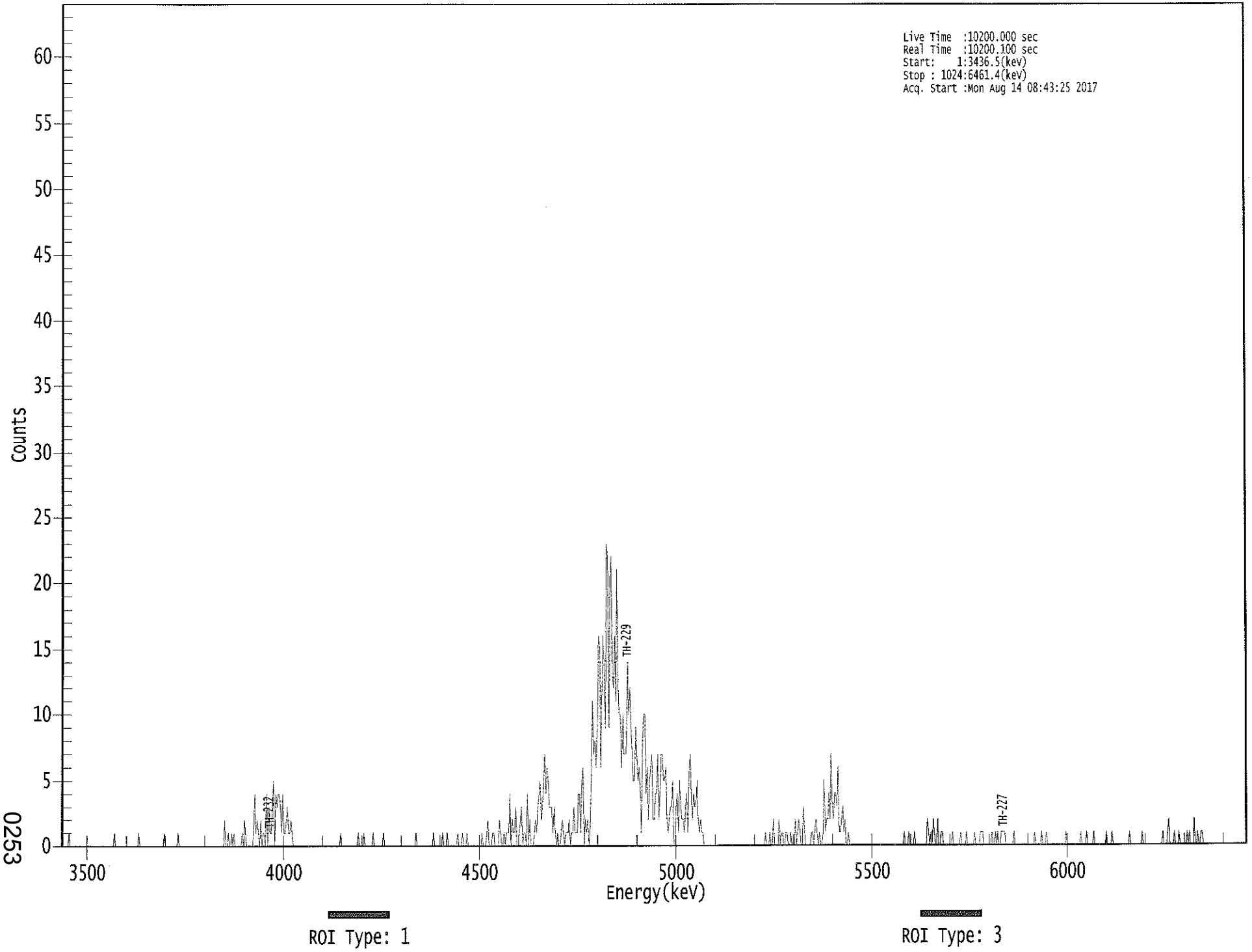
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	3.36E-001 +/- 1.56E-001	9.81E-002 +/- 9.41E-003
TH-228	0.996	5400.00*	1.55E+000 +/- 3.66E-001	1.11E-001 +/- 1.06E-002
TH-229	1.000	4872.00*	1.18E+001 +/- 1.13E+000	1.01E-001 +/- 9.72E-003
TH-230	0.993	4672.00*	1.85E+000 +/- 3.89E-001	7.04E-002 +/- 6.74E-003
TH-232	0.994	3997.00*	1.25E+000 +/- 3.10E-001	1.01E-001 +/- 9.67E-003

AG
8/15/17

0000191233.CNF



0253

****
***** 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	1	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	1	0	0
49:	0	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:	1	0	0	0	0	0	0	0
97:	0	0	0	0	1	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	2	0	0	1
145:	0	0	1	0	1	0	0	0
153:	0	0	0	1	0	2	1	0
161:	0	0	0	0	0	1	4	1
169:	2	1	0	2	0	1	1	0
177:	4	0	3	1	1	3	5	0
185:	4	3	4	4	3	1	4	1
193:	1	2	3	1	1	2	1	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:	1	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	1
257:	0	0	0	0	1	0	0	0
265:	0	0	0	0	1	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	0	0	0	0	0	0
305:	0	1	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:	1	0	0	0	1	0	0	0
337:	0	0	0	0	0	1	0	0
345:	0	1	0	0	0	1	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	1	0	0	0	1	2

369:	0	0	0	1	1	0	0	0

Sample Title: 09

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

801:	0	0	1	0	0	1	0	1

Sample Title: 09

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

KD
8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_060
Chamber Serial Number: 10006125B
Detector Serial Number: 60
Env. Background: System Bkgd 193377
Reagent Blank: <not performed>

Sample Size: 1.048E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 8:43:29 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1840 +/- 0.0156
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 1.2460 +/- 0.1075

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.911	3.79	130.58	2.21	0.00E+000	3.0
TH-228		5.376	63.96	24.96	2.04	0.00E+000	11.9
TH-229	T	4.884	162.98	15.41	1.02	0.00E+000	11.1
TH-230		4.643	80.13	22.19	1.87	0.00E+000	12.6
TH-232		3.966	69.98	23.63	1.02	0.00E+000	4.4

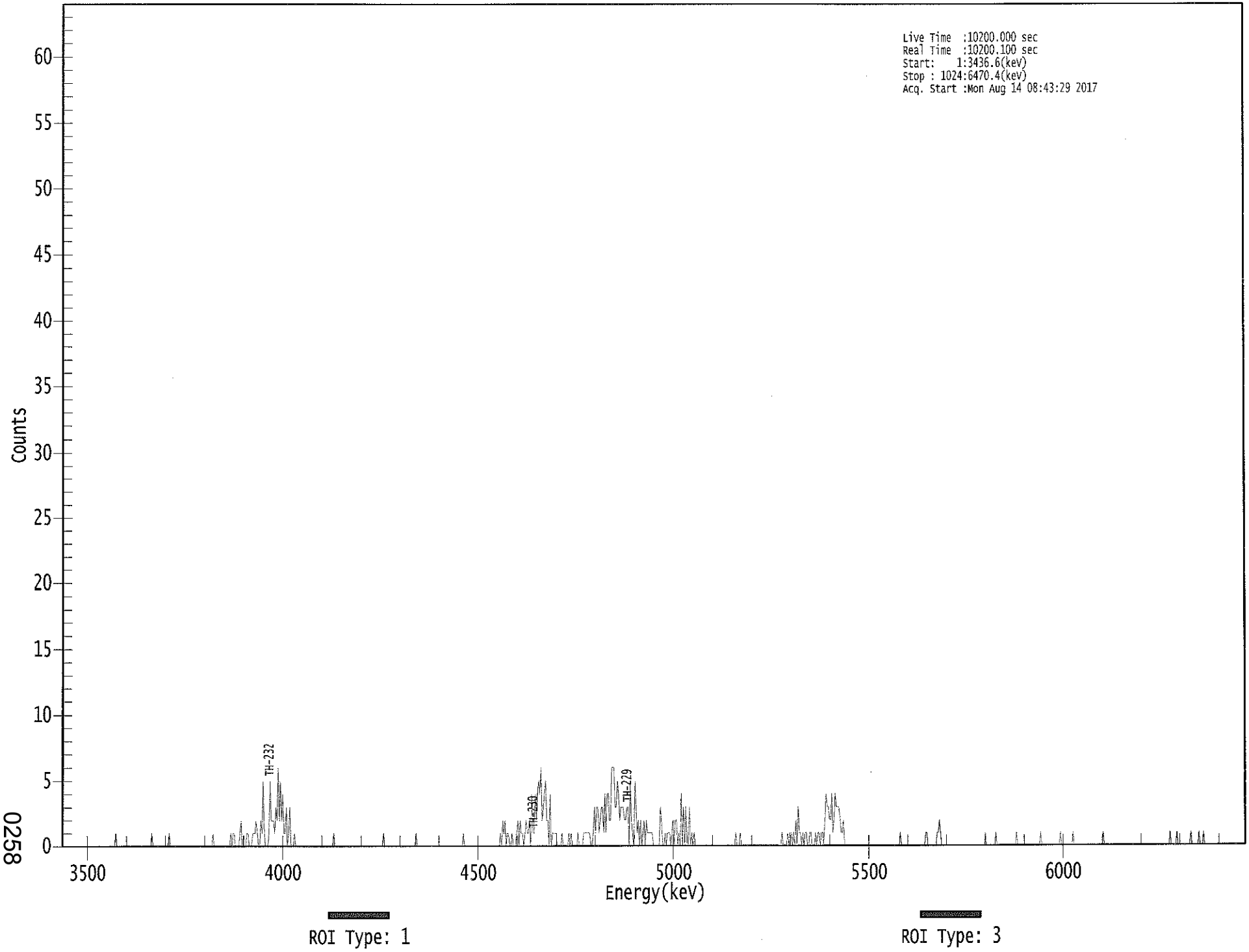
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.981	5850.00*	5.38E-002 +/- 7.08E-002	1.14E-001 +/- 1.88E-002
TH-228	0.997	5400.00*	9.64E-001 +/- 2.89E-001	1.17E-001 +/- 1.94E-002
TH-229	0.999	4872.00*	2.25E+000 +/- 3.73E-001	8.70E-002 +/- 1.44E-002
TH-230	0.996	4672.00*	1.10E+000 +/- 3.05E-001	1.04E-001 +/- 1.73E-002
TH-232	0.995	3997.00*	9.61E-001 +/- 2.77E-001	8.65E-002 +/- 1.43E-002

AG
8/15/17

0000191234.CNF



0258

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

Sample Title: 10

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	1	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	1	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	1	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	1	0	1	1	0	0	0
153:	0	1	2	0	0	0	0	1
161:	1	0	0	0	1	1	1	2
169:	1	0	0	2	1	5	1	0
177:	0	0	1	5	2	2	2	1
185:	3	2	6	2	5	2	4	1
193:	1	3	0	1	3	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	1	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	1	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	1	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	1	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 10

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

801:	0	0	0	0	0	0	1	0

Sample Title: 10

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	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	1	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	1	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	1	0	0	0	0
969:	0	0	0	0	0	0	0	1
977:	0	0	0	0	0	0	1	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

KB 9/14/17

Apex-Alpha™

Sample Description: HTC-A01-S003-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.053E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:30 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.249 mL
Effective Efficiency: 0.2317 +/- 0.0172
Counting Efficiency: 0.1562 +/- 0.0027 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.4828 +/- 0.1132

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	9.81	66.87	1.19	0.00E+000	3.0
TH-228		5.390	107.30	19.10	1.70	0.00E+000	4.4
TH-229	T	4.882	220.32	13.23	0.68	0.00E+000	4.0
TH-230		4.649	80.45	22.25	2.55	0.00E+000	4.7
TH-232		3.973	87.15	21.11	0.85	0.00E+000	5.4

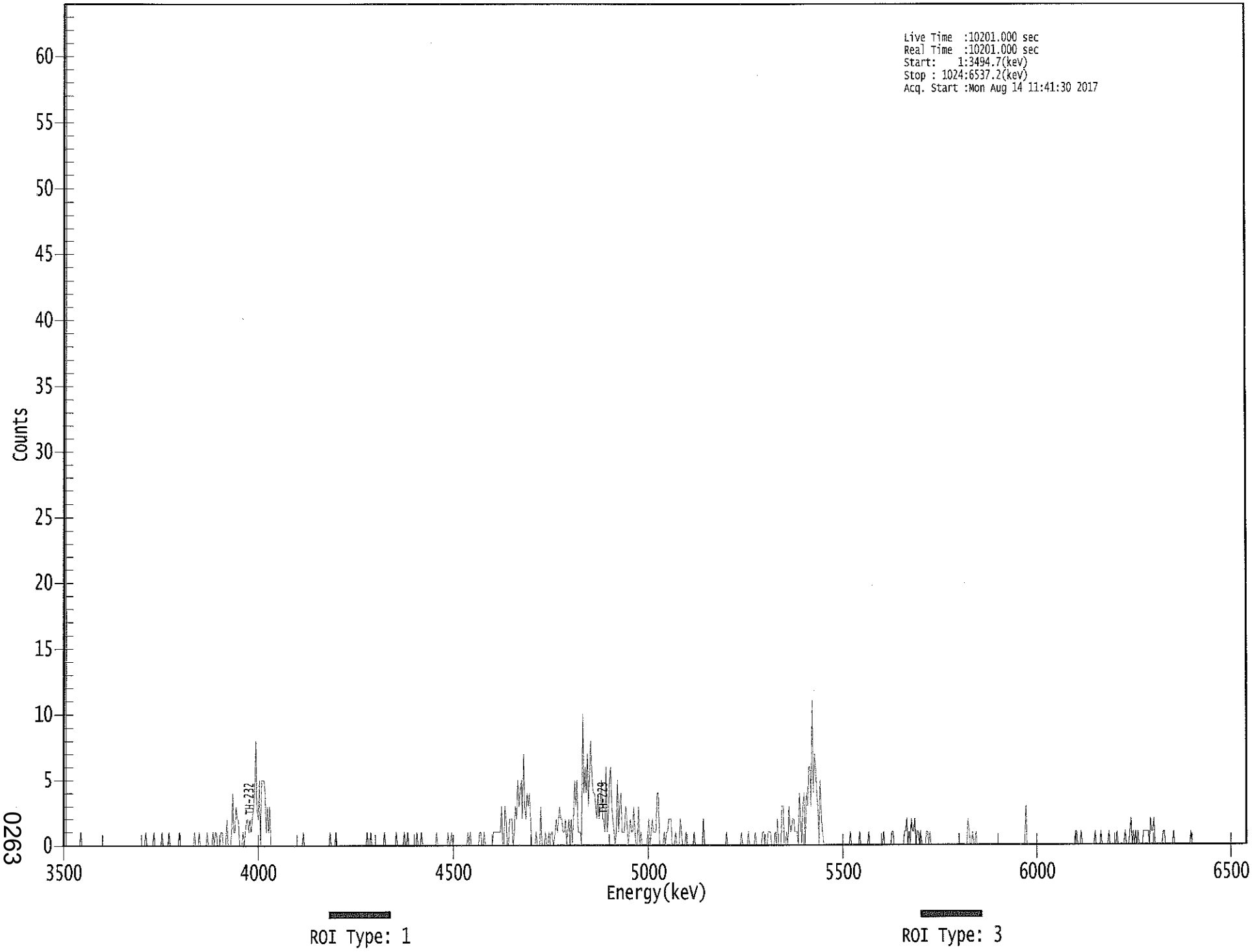
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.10E-001 +/- 7.54E-002	7.40E-002 +/- 1.08E-002
TH-228	0.999	5400.00*	1.28E+000 +/- 3.07E-001	8.76E-002 +/- 1.27E-002
TH-229	0.999	4872.00*	2.40E+000 +/- 3.50E-001	6.16E-002 +/- 8.96E-003
TH-230	0.997	4672.00*	8.75E-001 +/- 2.33E-001	9.13E-002 +/- 1.33E-002
TH-232	0.997	3997.00*	9.46E-001 +/- 2.43E-001	6.50E-002 +/- 9.47E-003

AG
8/15/17

0000191244.CNF



0263

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

Sample Title: 11

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1
17:	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	1
73:	0	0	0	0	0	0	1	0
81:	0	0	0	0	0	1	0	0
89:	0	0	0	1	0	0	0	0
97:	0	0	0	0	1	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	1	0	0	0	1	0	0
121:	0	0	0	0	1	0	0	0
129:	0	1	0	1	1	0	0	0
137:	1	1	0	0	0	2	0	0
145:	0	1	4	1	1	3	2	2
153:	0	0	0	1	0	1	2	2
161:	1	2	1	2	3	4	8	3
169:	2	5	0	5	5	5	4	1
177:	3	1	3	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	1
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	1	0
233:	0	0	0	1	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	1	0
265:	0	1	0	0	0	0	0	0
273:	0	0	0	0	0	1	0	0
281:	0	0	0	0	0	0	0	1
289:	0	0	0	0	0	0	1	0
297:	0	1	0	0	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	0	0	0	0	0
329:	0	0	0	0	1	0	0	1
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	1
361:	1	0	0	1	0	0	0	0

369:	0	0	0	1	1	1	1	1

Sample Title: 11

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	3
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	1
881:	0	0	0	0	0	0	0	0
889:	0	0	0	1	0	0	0	0
897:	1	0	0	0	0	0	0	1
905:	0	0	0	0	0	0	1	0
913:	0	0	0	0	0	1	0	0
921:	0	1	2	0	1	0	1	0
929:	1	0	0	0	0	1	1	1
937:	1	1	0	2	1	1	2	0
945:	0	0	0	0	0	0	1	1
953:	0	0	0	0	0	0	0	1
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	1	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™

HB 8/14/17

Sample Description: HTC-A01-S004-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: Th iso

Detector Name: Alpha_004
Chamber Serial Number:
Detector Serial Number: 4
Env. Background: System Bkgd 193347
Reagent Blank: <not performed>

Sample Size: 1.359E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:31 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.236 mL
Effective Efficiency: 0.2026 +/- 0.0163
Counting Efficiency: 0.1883 +/- 0.0032 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.0757 +/- 0.0886

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		5.892	47.49	28.62	0.51	0.00E+000	2.9
TH-228		5.340	699.30	7.42	1.70	0.00E+000	12.9
TH-229	T	4.886	182.47	14.58	1.53	0.00E+000	3.4
TH-230		4.601	389.81	9.94	1.19	0.00E+000	5.5
TH-232		3.935	589.98	8.08	1.02	0.00E+000	11.0

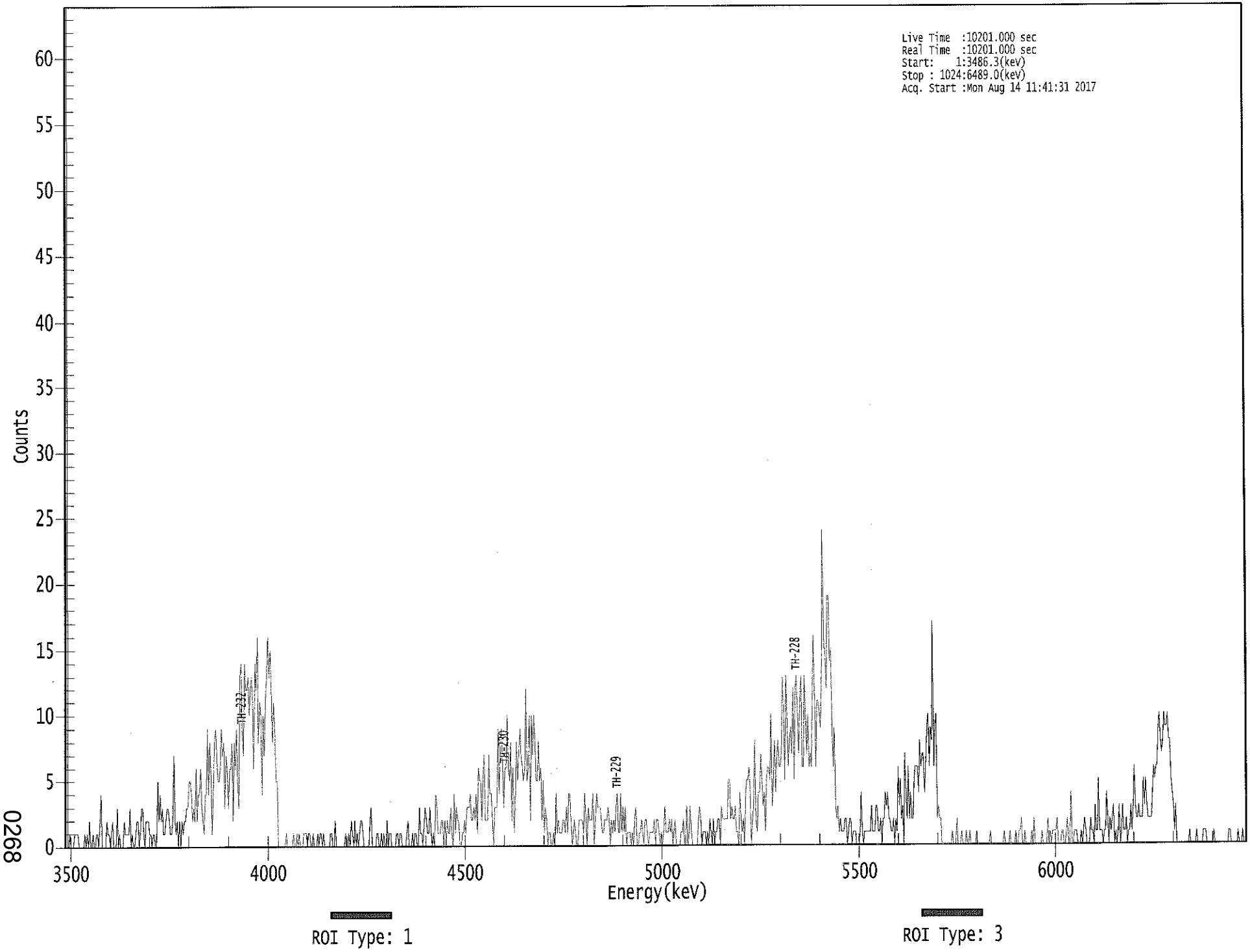
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.991	5850.00*	4.73E+000 +/- 1.54E+000	5.22E-001 +/- 8.25E-002
TH-228	0.981	5400.00*	7.39E+001 +/- 1.29E+001	7.76E-001 +/- 1.23E-001
TH-229	0.999	4872.00*	1.76E+001 +/- 2.79E+000	6.87E-001 +/- 1.09E-001
TH-230	0.974	4672.00*	3.76E+001 +/- 7.01E+000	6.35E-001 +/- 1.00E-001
TH-232	0.980	3997.00*	5.68E+001 +/- 1.01E+001	6.06E-001 +/- 9.58E-002

AG
8/15/17

0000191243.CNF



0268

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

Sample Title: 12

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	4	2	0	3	3	3	9	4

Sample Title: 12

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

801:	1	0	0	0	0	0	0	0

Sample Title: 12

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

NB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S004-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.383E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:32 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.2266 +/- 0.0177
Counting Efficiency: 0.1872 +/- 0.0032 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.2103 +/- 0.0967

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.876	63.62	25.11	2.38	0.00E+000	2.9
TH-228		5.332	648.22	7.74	5.78	0.00E+000	13.9
TH-229	T	4.901	201.22	14.05	5.78	0.00E+000	6.7
TH-230		4.589	308.13	11.21	1.87	0.00E+000	3.9
TH-232		3.929	498.28	8.81	2.72	0.00E+000	7.1

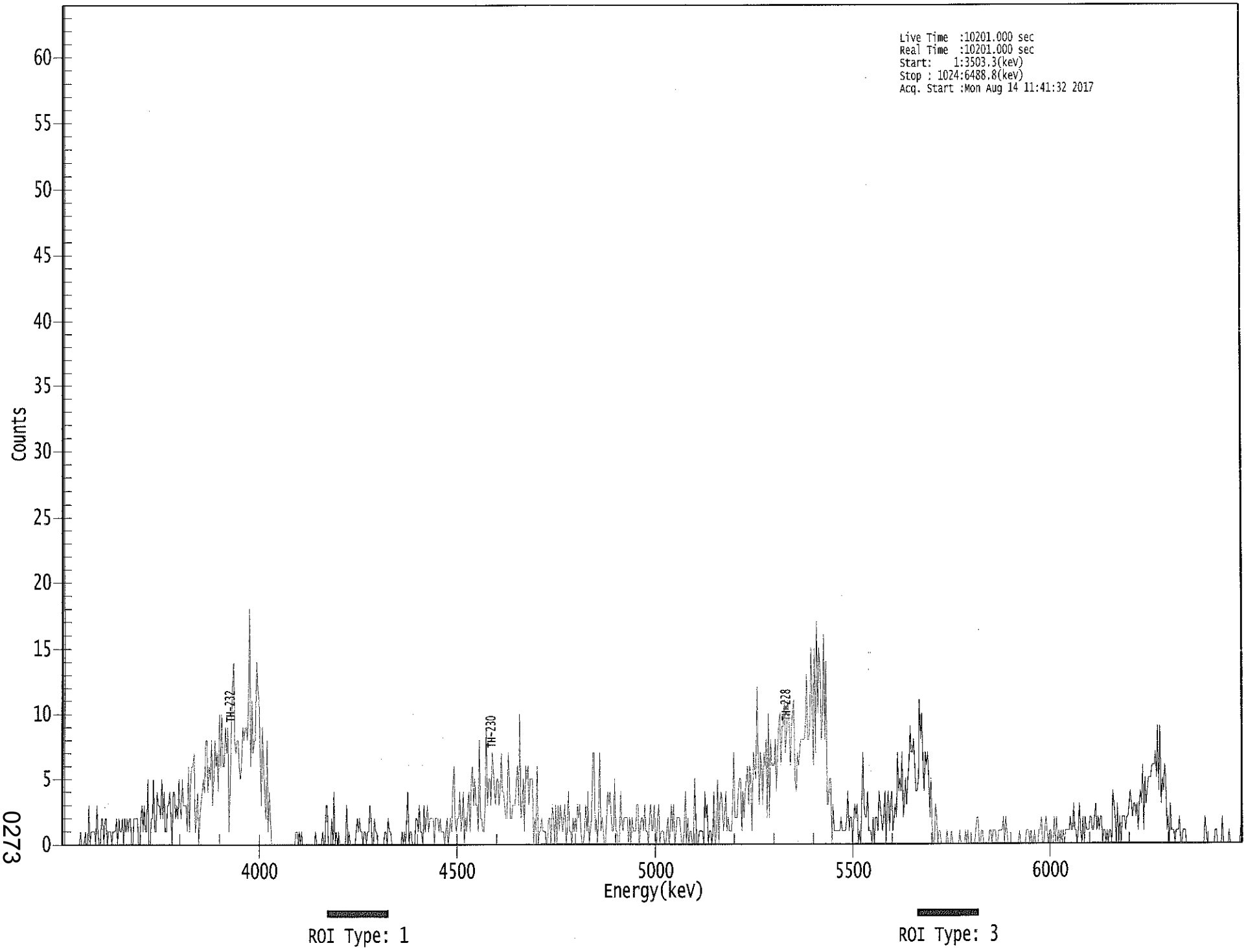
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	5.56E+000 +/- 1.64E+000	7.17E-001 +/- 1.10E-001
TH-228	0.976	5400.00*	6.02E+001 +/- 1.03E+001	1.05E+000 +/- 1.60E-001
TH-229	0.996	4872.00*	1.71E+001 +/- 2.62E+000	9.57E-001 +/- 1.46E-001
TH-230	0.965	4672.00*	2.61E+001 +/- 4.95E+000	6.41E-001 +/- 9.82E-002
TH-232	0.976	3997.00*	4.21E+001 +/- 7.44E+000	7.25E-001 +/- 1.11E-001

AG
8/15/17

0000191248.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: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	1	0	0	0	1	0	0	3
25:	0	1	1	1	1	0	3	1
33:	0	0	2	2	0	2	2	0
41:	1	1	1	0	1	1	1	2
49:	0	2	1	1	2	0	2	1
57:	2	1	2	2	0	0	2	2
65:	2	2	0	0	2	3	1	3
73:	1	1	5	0	0	2	2	5
81:	1	1	4	3	3	2	5	2
89:	4	1	1	3	3	4	2	0
97:	4	4	2	3	2	5	3	2
105:	5	3	3	3	1	6	1	5
113:	6	6	7	1	2	4	0	2
121:	3	4	5	4	8	8	4	6
129:	5	8	3	5	8	6	7	4
137:	10	6	10	6	6	9	7	9
145:	1	4	9	12	14	8	7	8
153:	8	6	5	6	9	8	9	9
161:	8	11	18	6	11	7	8	8
169:	14	12	11	7	3	9	6	4
177:	2	8	1	4	2	0	0	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	1	0	1
209:	0	0	0	0	0	0	0	0
217:	0	0	0	1	0	0	0	0
225:	0	1	0	0	3	3	0	0
233:	0	2	0	4	0	1	0	1
241:	0	0	0	0	0	0	3	0
249:	1	0	0	0	0	0	1	2
257:	1	2	1	1	0	1	1	0
265:	1	1	3	2	0	0	2	1
273:	1	0	0	0	0	0	0	1
281:	1	0	2	1	1	0	0	0
289:	0	0	0	0	0	0	1	0
297:	1	0	2	4	0	1	1	0
305:	0	0	2	2	1	3	1	1
313:	0	3	1	2	3	1	2	2
321:	2	2	0	2	2	2	1	2
329:	1	1	1	0	1	2	0	1
337:	2	1	4	6	2	1	2	2
345:	4	1	2	4	0	2	1	3
353:	4	1	5	6	3	5	3	3
361:	1	8	2	2	1	1	3	9

369:	3	5	5	3	7	6	4	3

Sample Title: 13

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

801:	0	0	0	1	1	0	1	1

Sample Title: 13

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

Apex-Alpha™

WB 8/17/17

Sample Description: HTC-A01-S004-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.314E-001 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:33 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.2103 +/- 0.0168
Counting Efficiency: 0.1991 +/- 0.0034 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 1.0562 +/- 0.0862

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		5.883	56.96	26.51	2.04	0.00E+000	3.3
TH-228		5.328	786.28	7.00	2.72	0.00E+000	3.8
TH-229	T	4.890	186.64	14.41	1.36	0.00E+000	4.7
TH-230		4.595	546.62	8.40	2.38	0.00E+000	4.1
TH-232		3.931	653.49	7.67	0.51	0.00E+000	17.2

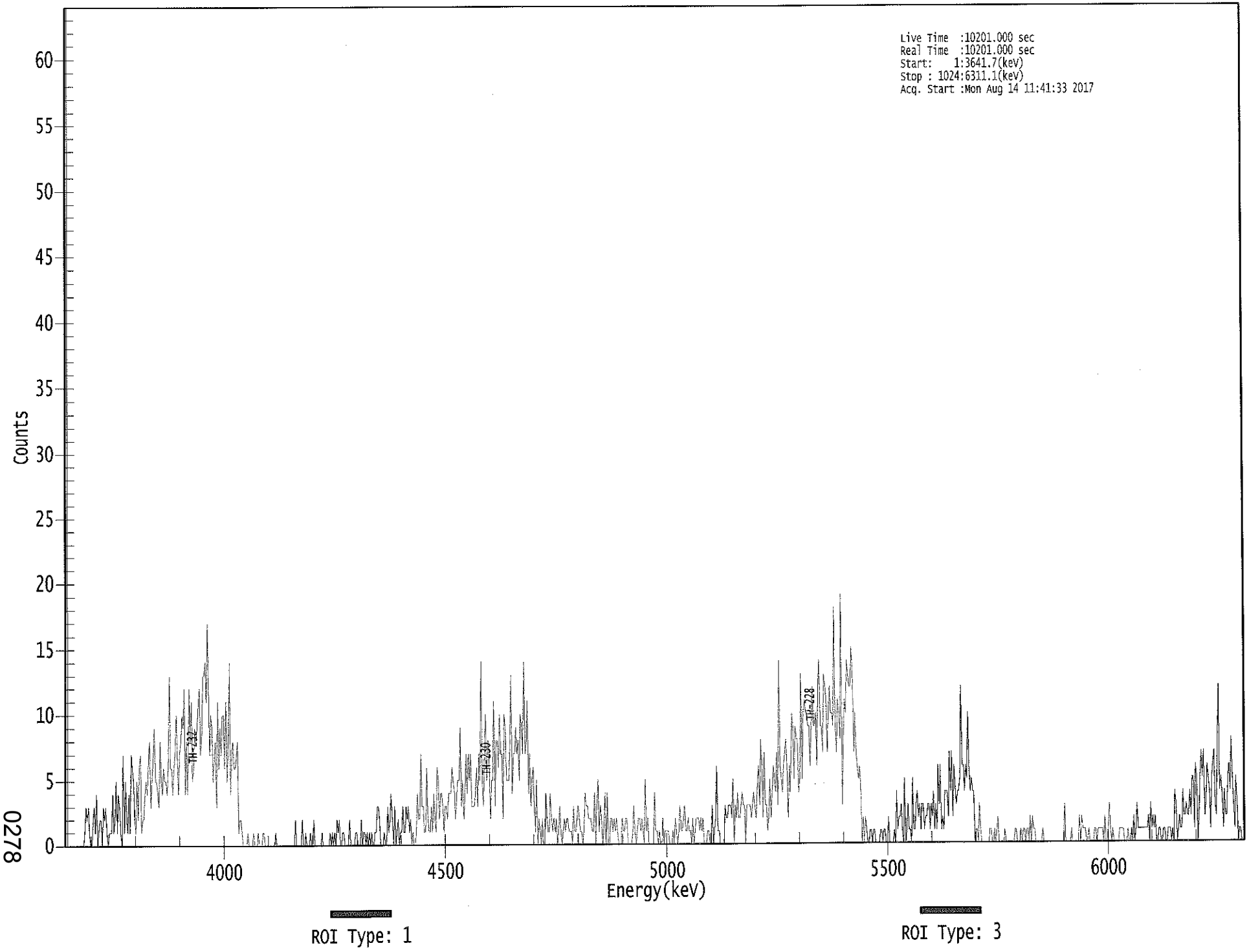
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	5.65E+000 +/- 1.74E+000	7.72E-001 +/- 1.21E-001
TH-228	0.973	5400.00*	8.27E+001 +/- 1.42E+001	9.02E-001 +/- 1.41E-001
TH-229	0.998	4872.00*	1.80E+001 +/- 2.81E+000	6.60E-001 +/- 1.03E-001
TH-230	0.969	4672.00*	5.25E+001 +/- 9.32E+000	7.87E-001 +/- 1.23E-001
TH-232	0.978	3997.00*	6.26E+001 +/- 1.09E+001	5.03E-001 +/- 7.87E-002

AG
8/15/17

0000191247.CNF



0278

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

Sample Title: 14

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	1	3	2	3	1	0	0
25:	2	3	1	4	0	1	2	2
33:	0	3	2	3	1	0	1	1
41:	1	4	1	2	5	1	4	3
49:	1	0	7	1	5	2	1	4
57:	1	7	6	5	2	1	5	2
65:	6	7	1	2	2	4	5	4
73:	7	8	3	5	7	9	5	5
81:	4	3	8	5	4	6	5	5
89:	4	6	13	6	6	4	6	7
97:	10	7	4	7	8	10	9	12
105:	4	8	4	12	8	11	5	6
113:	9	8	9	11	12	7	8	13
121:	13	14	11	17	12	7	10	9
129:	5	7	8	3	11	6	9	7
137:	10	10	6	11	5	8	14	4
145:	7	8	6	6	7	8	1	2
153:	2	1	0	0	0	0	1	0
161:	0	0	0	1	0	0	0	1
169:	0	0	0	1	1	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	2
201:	0	0	0	0	0	2	0	0
209:	1	0	0	0	1	0	0	2
217:	0	0	0	0	0	0	1	0
225:	0	0	0	0	0	1	0	1
233:	0	1	0	2	1	2	0	0
241:	1	1	0	0	0	0	2	0
249:	0	0	0	1	1	0	0	0
257:	2	0	1	1	0	1	0	1
265:	0	1	0	0	1	1	3	3
273:	2	0	0	0	1	0	0	3
281:	1	2	4	2	0	3	0	1
289:	2	0	1	1	3	1	1	3
297:	2	3	1	2	0	1	0	0
305:	1	4	2	2	7	3	3	1
313:	1	6	2	1	1	3	1	4
321:	2	1	6	5	2	4	4	3
329:	1	3	3	2	4	4	4	6
337:	5	4	2	4	5	5	9	3
345:	5	2	4	7	4	7	5	7
353:	3	3	3	4	6	3	7	5
361:	14	5	3	7	10	5	8	7

369:	2	5	5	11	3	8	8	6

Sample Title: 14

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

801:	0	1	1	0	0	1	0	1

Sample Title: 14

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

Apex-Alpha™

KB 8/22/17

Sample Description: HTC-A01-S004-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.056E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:34 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1555 +/- 0.0141
Counting Efficiency: 0.1881 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 0.8268 +/- 0.0765

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		5.884	19.98	45.14	1.02	0.00E+000	4.4
TH-228		5.345	160.60	15.66	3.40	0.00E+000	15.0
TH-229	T	4.882	137.98	16.76	1.02	0.00E+000	4.3
TH-230		4.609	191.15	14.21	0.85	0.00E+000	11.8
TH-232		3.941	126.64	17.53	1.36	0.00E+000	5.2

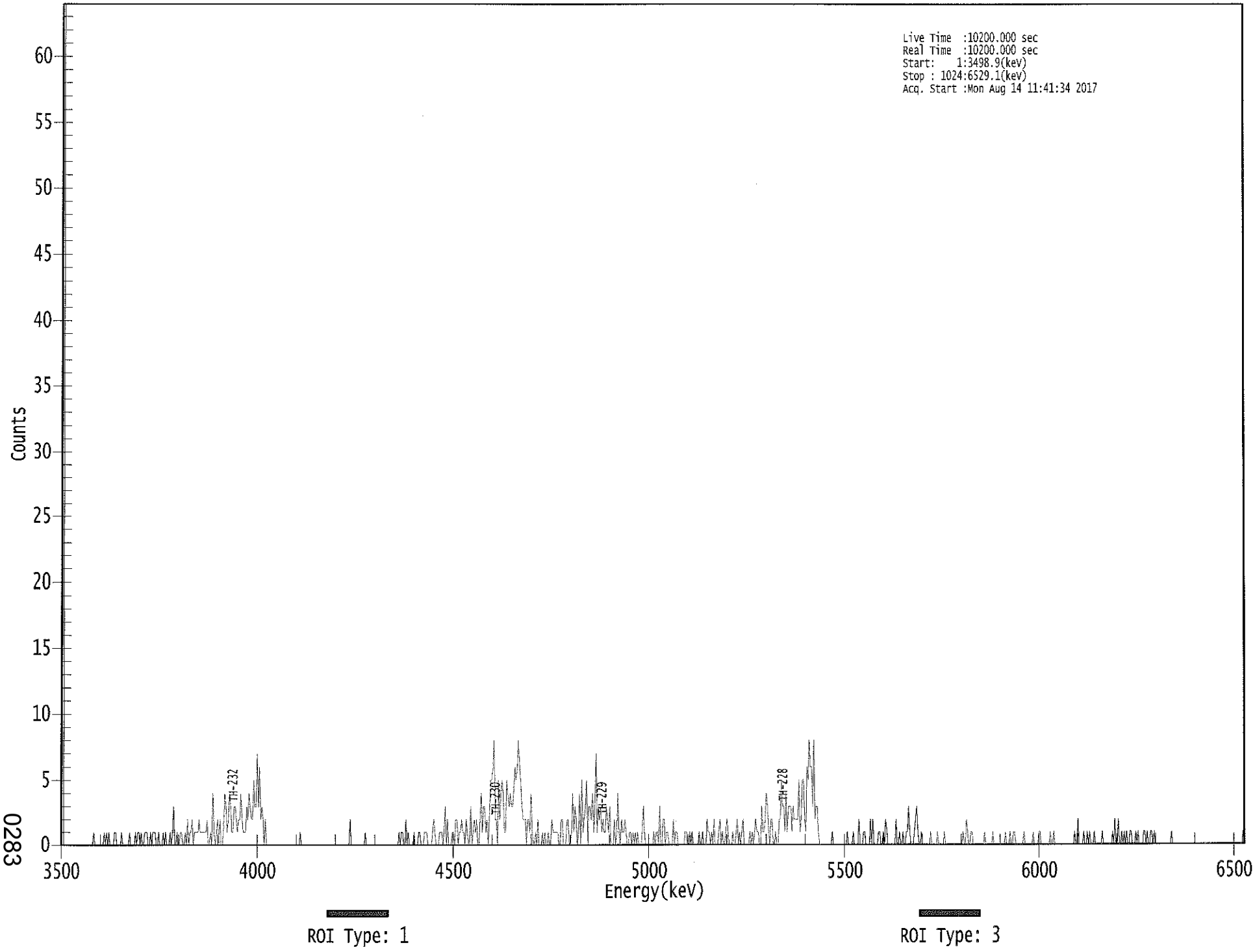
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	3.33E-001 +/- 1.62E-001	1.05E-001 +/- 1.87E-002
TH-228	0.985	5400.00*	2.84E+000 +/- 6.75E-001	1.64E-001 +/- 2.93E-002
TH-229	0.999	4872.00*	2.24E+000 +/- 3.99E-001	1.02E-001 +/- 1.82E-002
TH-230	0.979	4672.00*	3.09E+000 +/- 7.05E-001	9.68E-002 +/- 1.73E-002
TH-232	0.984	3997.00*	2.04E+000 +/- 5.11E-001	1.11E-001 +/- 1.97E-002

AG 8/15/17

0000191246.CNF



0283

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

369:	0	2	5	5	6	8	2	2

Sample Title: 15

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

801:	0	0	0	0	1	0	0	0

Sample Title: 15

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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S004-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.071E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:35 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1672 +/- 0.0148
Counting Efficiency: 0.1847 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 0.9053 +/- 0.0814

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	7.98	74.39	1.02	0.00E+000	2.9
TH-228		5.367	128.47	17.41	1.53	0.00E+000	5.9
TH-229	T	4.885	148.30	16.20	1.70	0.00E+000	3.9
TH-230		4.624	94.81	20.28	1.19	0.00E+000	4.4
TH-232		3.956	107.15	19.02	0.85	0.00E+000	20.0

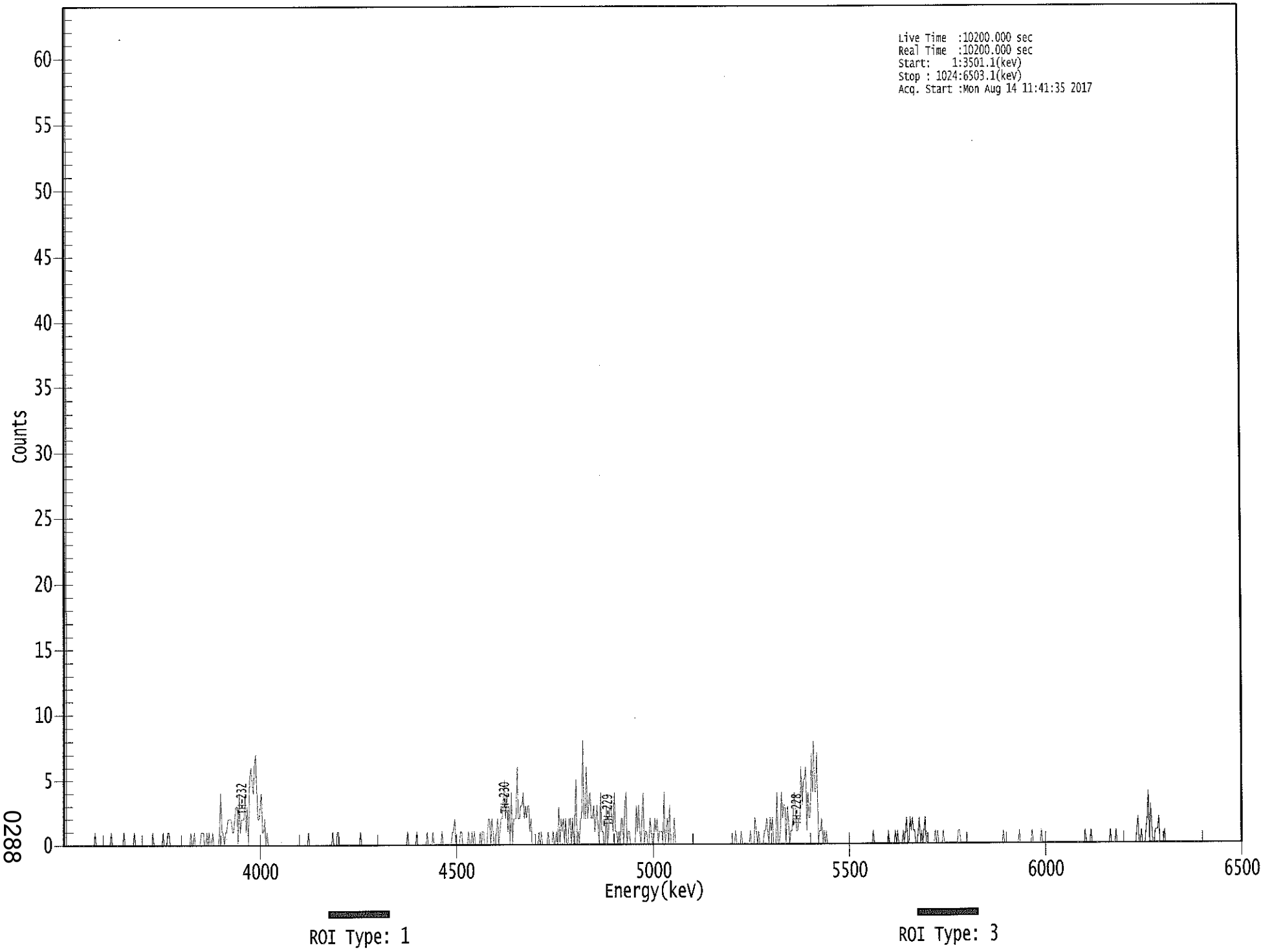
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	1.22E-001 +/- 9.33E-002	9.64E-002 +/- 1.67E-002
TH-228	0.994	5400.00*	2.09E+000 +/- 5.12E-001	1.15E-001 +/- 2.00E-002
TH-229	0.999	4872.00*	2.21E+000 +/- 3.82E-001	1.09E-001 +/- 1.89E-002
TH-230	0.988	4672.00*	1.41E+000 +/- 3.75E-001	9.77E-002 +/- 1.69E-002
TH-232	0.991	3997.00*	1.59E+000 +/- 4.08E-001	8.86E-002 +/- 1.53E-002

AG 8/15/17

0000191245.CNF



0288

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

369:	2	2	0	2	1	0	0	1

Sample Title: 16

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

801:	0	0	0	0	0	0	0	0

Sample Title: 16

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

KB 8/14/17

Apex-Alpha™

Sample Description: HTC-A01-S004-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 17
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:50 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1686 +/- 0.0148
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 1.0027 +/- 0.0896

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		5.899	4.83	91.00	0.17	0.00E+000	3.0
TH-228		5.366	98.98	19.82	1.02	0.00E+000	5.2
TH-229	T	4.861	149.32	16.08	0.68	0.00E+000	4.5
TH-230		4.629	98.83	19.74	0.17	0.00E+000	23.9
TH-232		3.954	101.00	19.60	0.00	0.00E+000	7.8

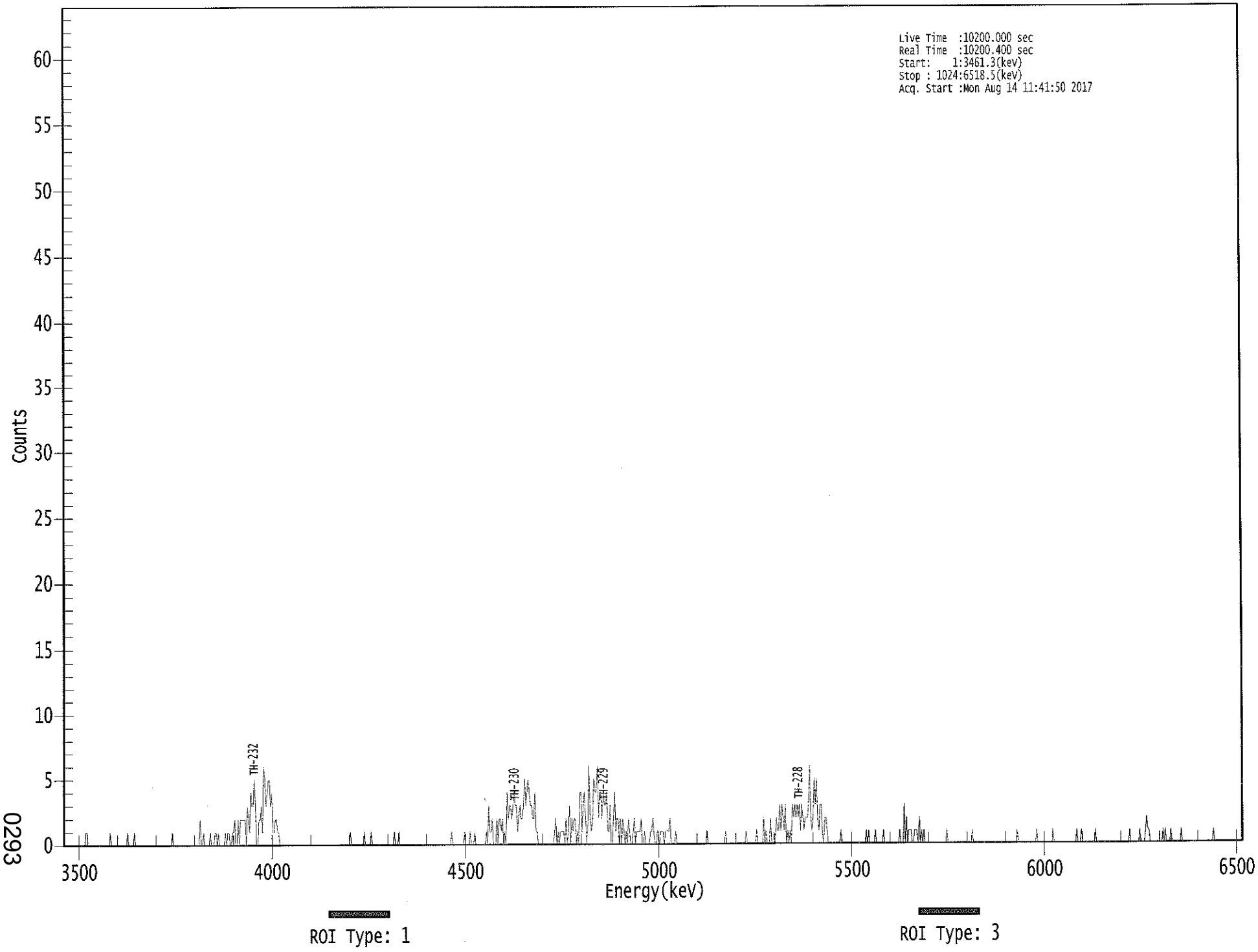
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	7.78E-002 +/- 7.20E-002	6.72E-002 +/- 1.16E-002
TH-228	0.994	5400.00*	1.69E+000 +/- 4.44E-001	1.08E-001 +/- 1.85E-002
TH-229	0.999	4872.00*	2.34E+000 +/- 4.02E-001	8.82E-002 +/- 1.52E-002
TH-230	0.990	4672.00*	1.54E+000 +/- 4.03E-001	6.51E-002 +/- 1.12E-002
TH-232	0.990	3997.00*	1.57E+000 +/- 4.10E-001	9.34E-002 +/- 1.60E-002

AG
8/15/17

0000191261.CNF



0293

****
***** 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	0	0	0	0
17:	0	0	0	1	1	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	1
57:	0	0	0	0	0	1	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	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	2	0
121:	0	1	0	0	0	0	0	1
129:	0	0	0	1	1	0	1	0
137:	0	0	0	0	1	0	1	1
145:	0	0	1	1	2	0	0	2
153:	0	2	2	2	2	2	0	3
161:	2	1	4	3	3	5	3	0
169:	0	2	2	3	1	6	5	3
177:	4	5	5	3	4	1	1	2
185:	2	1	1	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	1	0	0	0	0	0	0	0
257:	0	0	0	0	1	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	1	0
289:	0	0	1	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	1	0	0	0	0	0	0	0
345:	0	0	0	1	0	0	0	0
353:	1	0	0	0	1	0	0	0
361:	0	0	0	0	0	0	1	0

369:	3	1	1	2	0	0	0	2

Sample Title: 17

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

801:	0	0	0	0	0	0	0	0

Sample Title: 17

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

Apex-Alpha™

KB 8/14/17

Sample Description: HTC-A01-S004-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 18
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.010E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:52 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.233 mL
Effective Efficiency: 0.1728 +/- 0.0150
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 0.9996 +/- 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		5.853	7.64	77.95	1.36	0.00E+000	3.0
TH-228		5.336	202.64	13.82	1.36	0.00E+000	6.0
TH-229	T	4.864	153.49	15.85	0.51	0.00E+000	9.7
TH-230		4.601	131.49	17.13	0.51	0.00E+000	3.6
TH-232		3.944	181.83	14.54	0.17	0.00E+000	5.4

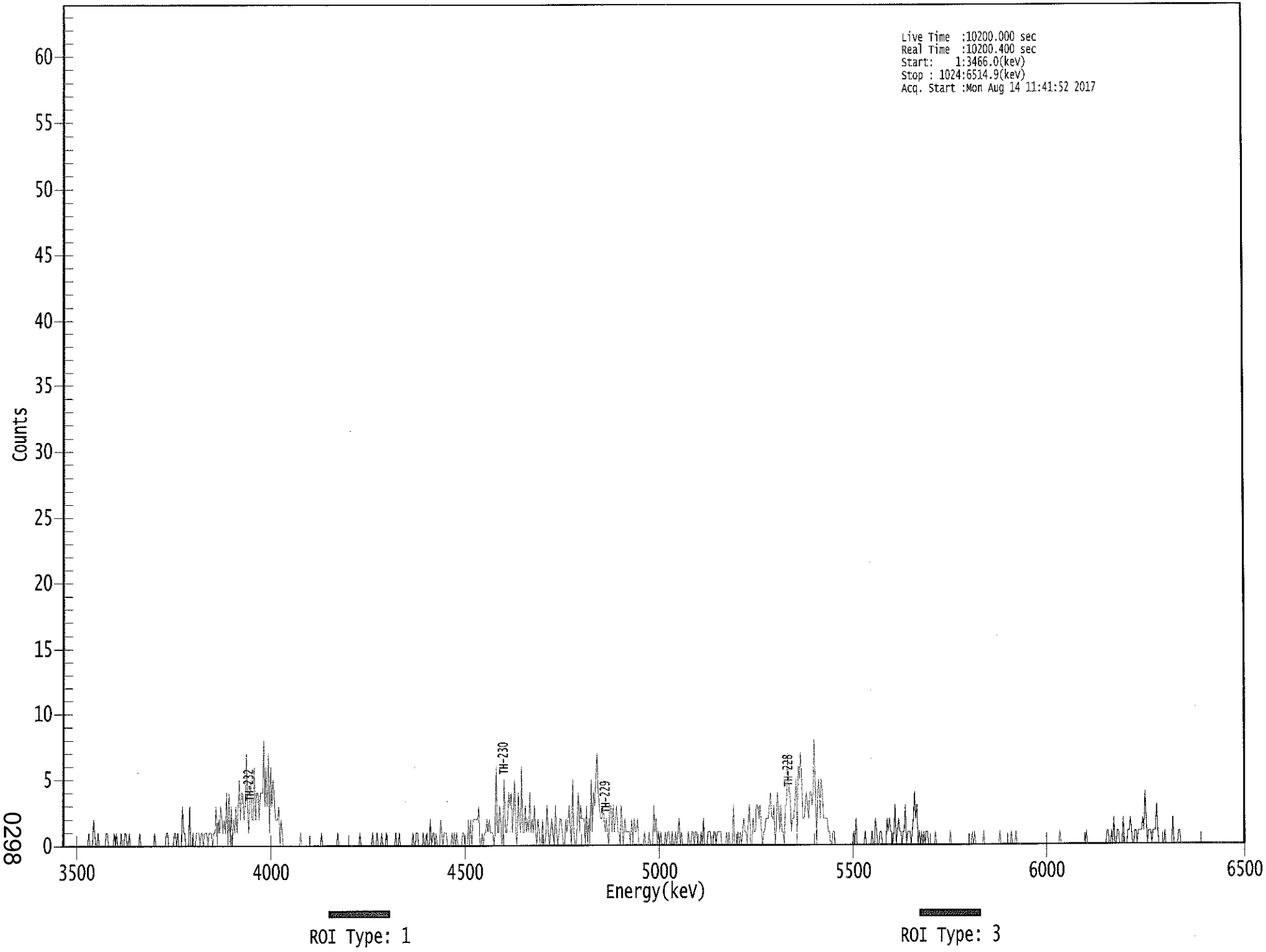
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	1.20E-001 +/- 9.57E-002	1.08E-001 +/- 1.83E-002
TH-228	0.979	5400.00*	3.38E+000 +/- 7.40E-001	1.14E-001 +/- 1.94E-002
TH-229	1.000	4872.00*	2.34E+000 +/- 3.98E-001	8.01E-002 +/- 1.36E-002
TH-230	0.974	4672.00*	2.00E+000 +/- 4.83E-001	7.98E-002 +/- 1.36E-002
TH-232	0.986	3997.00*	2.76E+000 +/- 6.17E-001	6.34E-002 +/- 1.08E-002

AG 8/15/17

0000191262.CNF



0298

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

369:	2	1	1	1	0	1	6	1

Sample Title: 18

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

801:	0	0	0	0	0	0	0	0

Sample Title: 18

Channel								
809:	0	0	1	0	0	0	0	0
817:	0	0	0	0	1	0	0	0
825:	1	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	1	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	1	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	1
905:	1	0	0	1	0	2	0	0
913:	1	1	0	0	0	2	0	0
921:	0	1	1	2	1	0	0	1
929:	1	0	1	1	1	1	2	1
937:	4	2	0	1	1	1	0	1
945:	1	1	3	1	0	0	0	0
953:	0	1	0	0	0	0	0	0
961:	2	0	0	0	0	1	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

WP 8/21/17

Apex-Alpha™

Sample Description: HTC-A01-S004-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 19
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.053E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:47 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1490 +/- 0.0138
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 0.9434 +/- 0.0888

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		5.892	2.32	149.12	0.68	0.00E+000	3.0
TH-228		5.363	131.66	17.11	0.34	0.00E+000	7.3
TH-229	T	4.885	131.83	17.08	0.17	0.00E+000	3.3
TH-230		4.609	93.00	20.43	0.00	0.00E+000	3.5
TH-232		3.948	129.83	17.21	0.17	0.00E+000	6.4

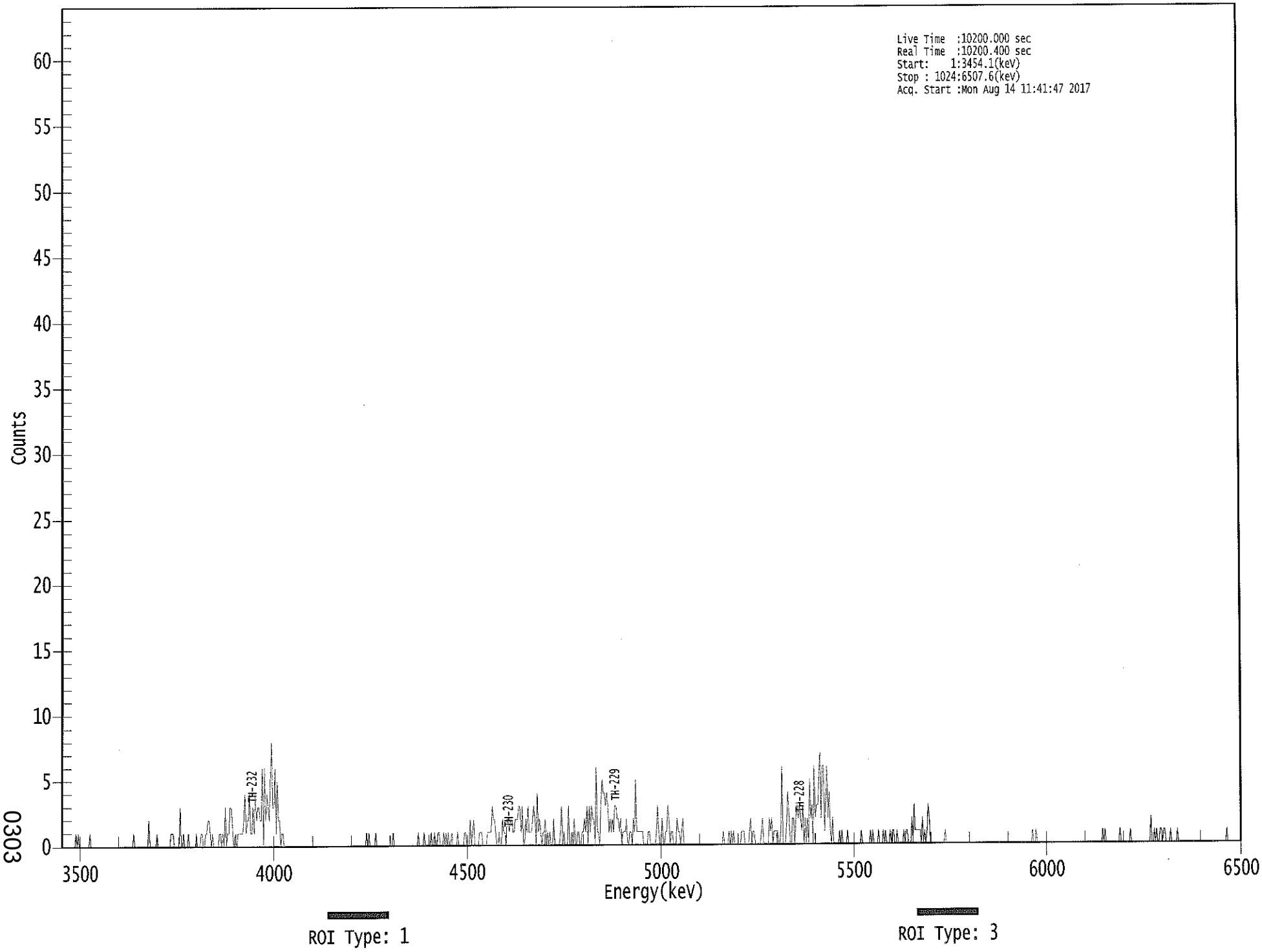
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.991	5850.00*	4.05E-002 +/- 6.08E-002	9.85E-002 +/- 1.79E-002
TH-228	0.993	5400.00*	2.44E+000 +/- 6.08E-001	8.86E-002 +/- 1.61E-002
TH-229	0.999	4872.00*	2.24E+000 +/- 4.05E-001	7.08E-002 +/- 1.28E-002
TH-230	0.979	4672.00*	1.57E+000 +/- 4.30E-001	1.01E-001 +/- 1.84E-002
TH-232	0.987	3997.00*	2.19E+000 +/- 5.48E-001	7.05E-002 +/- 1.28E-002

AG
8/15/17

0000191269.CNF



0303

```
*****************************************************
*****   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	1	0	1	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	1	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	2	0	0	0	0
81:	0	0	1	0	0	0	0	0
89:	0	0	0	0	0	0	1	1
97:	1	0	0	0	0	0	3	0
105:	0	1	0	0	0	1	0	0
113:	0	0	0	0	1	0	0	0
121:	1	1	0	0	1	1	2	2
129:	1	0	1	0	0	0	0	0
137:	1	1	0	1	0	3	0	1
145:	1	3	3	2	0	0	1	0
153:	1	1	1	1	1	2	4	1
161:	2	2	4	1	1	3	1	4
169:	2	3	3	2	2	6	0	6
177:	2	4	3	2	5	8	3	3
185:	6	1	5	2	2	0	1	1
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	1
265:	0	1	0	0	0	0	0	1
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	1	0	0	0
313:	0	1	0	0	0	0	0	1
321:	0	0	1	0	0	1	1	0
329:	0	0	1	0	1	0	1	0
337:	0	1	0	0	0	0	1	0
345:	0	0	0	0	1	1	0	0
353:	0	2	0	1	2	0	0	0
361:	0	1	1	1	0	0	0	0

369:	1	1	1	1	3	2	2	1

Sample Title: 19

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

801:	0	0	0	0	0	0	0	0

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

Apex-Alpha™

VCB 8/14/17

Sample Description: HTC-A01-S005-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001912
Batch Identification: 1707078A-TH
Sample Identification: 20
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.090E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:18:43 AM
Acquisition Date/Time: 8/14/2017 11:41:49 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.232 mL
Effective Efficiency: 0.1817 +/- 0.0154
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 0.9962 +/- 0.0863

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.879	14.66	51.88	0.34	0.00E+000	3.0
TH-228		5.371	61.98	25.13	1.02	0.00E+000	6.7
TH-229	T	4.879	160.98	15.51	1.02	0.00E+000	3.6
TH-230		4.636	260.81	12.17	1.19	0.00E+000	7.9
TH-232		3.956	79.49	22.07	0.51	0.00E+000	7.7

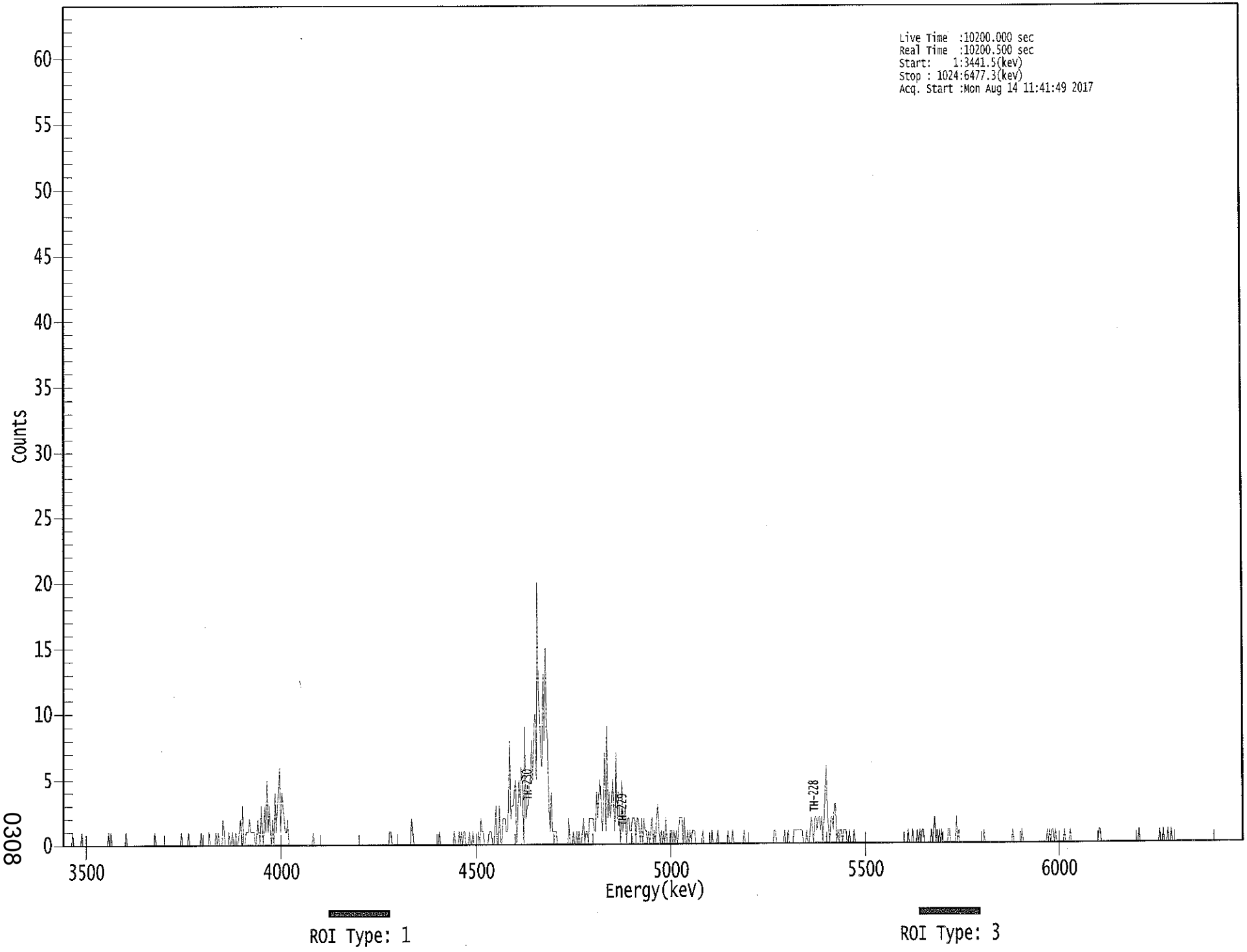
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.996	5850.00*	2.03E-001 +/- 1.10E-001	6.61E-002 +/- 1.10E-002
TH-228	0.996	5400.00*	9.10E-001 +/- 2.74E-001	9.25E-002 +/- 1.54E-002
TH-229	1.000	4872.00*	2.16E+000 +/- 3.60E-001	8.47E-002 +/- 1.41E-002
TH-230	0.993	4672.00*	3.50E+000 +/- 7.21E-001	8.83E-002 +/- 1.47E-002
TH-232	0.991	3997.00*	1.06E+000 +/- 2.94E-001	7.02E-002 +/- 1.17E-002

AG 8/15/17

0000191252.CNF



0308

****
***** 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: 10201

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

369:	1	1	1	0	0	1	3	0

Sample Title: 20

Channel								
377:	0	3	0	0	2	2	2	1
385:	1	3	8	2	3	3	4	5
393:	0	3	5	3	6	4	0	9
401:	2	3	3	5	5	8	5	9
409:	10	5	20	11	10	7	6	13
417:	8	15	9	8	3	1	4	1
425:	1	1	1	0	0	0	0	0
433:	0	0	0	0	0	2	0	0
441:	0	1	0	0	1	0	1	0
449:	0	1	2	0	1	1	0	2
457:	2	2	2	1	1	4	2	4
465:	5	3	1	3	7	1	9	2
473:	4	2	3	5	3	1	7	2
481:	4	2	0	5	1	2	3	0
489:	2	2	1	1	2	2	2	0
497:	2	2	1	0	2	0	2	1
505:	1	0	1	0	1	2	0	1
513:	0	2	3	1	0	1	0	1
521:	0	2	0	0	0	1	1	0
529:	1	0	1	0	1	2	2	2
537:	0	2	0	0	1	0	1	0
545:	1	1	1	0	0	0	0	0
553:	0	1	0	0	0	0	0	0
561:	0	1	0	0	0	0	1	0
569:	0	0	0	0	0	0	0	1
577:	0	0	0	1	0	0	0	0
585:	0	0	0	0	0	1	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	1
617:	1	0	0	0	0	0	0	0
625:	1	0	0	1	0	0	0	0
633:	1	1	1	1	1	1	1	1
641:	0	0	0	1	0	0	1	2
649:	1	0	2	2	1	2	2	1
657:	2	0	2	4	6	2	1	0
665:	2	2	1	3	3	0	1	0
673:	1	1	0	1	1	1	0	0
681:	1	0	0	0	1	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	1	0	0	0	1
737:	0	0	0	1	0	1	0	1
745:	1	0	0	0	0	0	0	1
753:	0	1	2	0	1	0	1	0
761:	1	0	0	0	0	0	1	1
769:	0	0	0	0	0	2	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	1	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	1	0
825:	0	0	0	0	0	0	1	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	1	0	1	0
857:	1	1	0	1	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:	0	0	0	0	0	0	0	0
897:	0	1	1	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	1	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	1	0
953:	0	1	0	0	0	1	0	0
961:	1	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

8/14/2017 6:46:52 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

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

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/14/2017 5:13:15 AM
Alpha_004	21f	ALL	Passed	8/14/2017 5:13:16 AM
Alpha_005	21f	ALL	Not Done	
Alpha_006	21f	ALL	Not Done	
Alpha_007	21f	ALL	Not Done	
Alpha_008	21f	ALL	Not Done	
Alpha_009	21f	ALL	Not Done	
Alpha_010	21f	ALL	Passed	8/14/2017 5:13:16 AM
Alpha_011	21f	ALL	Passed	8/14/2017 5:13:17 AM
Alpha_012	21f	ALL	Passed	8/14/2017 5:13:18 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/14/2017 5:13:19 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:20 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:22 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:23 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:25 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:26 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/14/2017 5:13:28 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:29 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/14/2017 5:13:31 AM
Alpha_041	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:24 AM
Alpha_042	Alpha Analyst100DC	ALL	Passed	8/10/2017 5:44:26 AM
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:33 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:34 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:36 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:37 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:39 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:41 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:42 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:44 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:46 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:48 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:51 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:53 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:55 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/14/2017 5:13:58 AM

8/14/2017 6:46:52 AM

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

APPROVED BY: _____

APPROVAL DATE: 8/14/17

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

Nuclide Library Title: Thorium

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

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

* = key line

TOTALS: 5 Nuclides 5 Energy Lines

SECTION X

ANALYTICAL DATA (GAMMA SPECTROSCOPY)

17-07078
Gamma
Run 2

Work Order	17-07078
Analysis Code	Gamma
Run	2
Date Received	7/18/2017
Lab Deadline	8/9/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 901.1 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/18/17 00:00	1.0000E+00
02	MBL	BLANK		07/18/17 00:00	1.0000E+00
03	DUP	HTC-A01-S003-0006-01	33	05/13/17 10:44	7.6756E+02
04	DO	HTC-A01-S003-0006-01	33	05/13/17 10:44	7.6752E+02
05	TRG	HTC-A01-S003-0612-01	48	05/13/17 10:41	7.8291E+02
06	TRG	HTC-A01-S003-1218-01	30	05/13/17 10:40	8.5832E+02
07	TRG	HTC-A01-S003-1824-01	58	05/13/17 10:38	7.2597E+02
08	TRG	HTC-A01-S003-2430-01	38	05/13/17 10:35	6.6549E+02
09	TRG	HTC-A01-S003-3036-01	44	05/13/17 10:32	6.8492E+02
10	TRG	HTC-A01-S003-3642-01	30	05/13/17 10:29	6.8428E+02
11	TRG	HTC-A01-S003-4248-01	36	05/13/17 10:26	6.3003E+02
12	TRG	HTC-A01-S004-0006-01	247	05/13/17 14:21	7.1885E+02
13	TRG	HTC-A01-S004-0612-01	367	05/13/17 14:18	7.9308E+02
14	TRG	HTC-A01-S004-1218-01	388	05/13/17 14:15	7.8237E+02
15	TRG	HTC-A01-S004-1824-01	44	05/13/17 14:12	5.4158E+02
16	TRG	HTC-A01-S004-2430-01	37	05/13/17 14:09	6.4008E+02
17	TRG	HTC-A01-S004-3036-01	47	05/13/17 14:06	5.5309E+02
18	TRG	HTC-A01-S004-3642-01	40	05/13/17 14:03	6.5348E+02
19	TRG	HTC-A01-S004-4248-01	69	05/13/17 14:00	6.6071E+02
20	TRG	HTC-A01-S005-0006-01	40	05/13/17 10:01	6.1906E+02

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

17-07078
Gamma
Run 2

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

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

17-07078
Gamma
Run 2

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS								
02	MBL								
03	DUP								
04	DO	07/24/17 09:32	KSALLINGS						
05	TRG	07/24/17 09:32	KSALLINGS						
06	TRG	07/24/17 09:32	KSALLINGS						
07	TRG	07/24/17 09:32	KSALLINGS						
08	TRG	07/24/17 09:32	KSALLINGS						
09	TRG	07/24/17 09:32	KSALLINGS						
10	TRG	07/24/17 09:32	KSALLINGS						
11	TRG	07/24/17 09:32	KSALLINGS						
12	TRG	07/24/17 09:32	KSALLINGS						
13	TRG	07/24/17 09:32	KSALLINGS						
14	TRG	07/24/17 09:32	KSALLINGS						
15	TRG	07/24/17 09:32	KSALLINGS						
16	TRG	07/24/17 09:32	KSALLINGS						
17	TRG	07/24/17 09:32	KSALLINGS						
18	TRG	07/24/17 09:32	KSALLINGS						
19	TRG	07/24/17 09:32	KSALLINGS						
20	TRG	07/24/17 09:32	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: 17-07078-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	1.23E+02	7.37E+00	9.97E-01	1.35E+02	91.13	OK		07/18/17 00:00	1.00E+00	08/14/17 12:40	YES
01	CS-137	LCS	LCS	pCi/g	7.82E+01	7.11E+00	1.39E+00	8.44E+01	92.67	OK		07/18/17 00:00	1.00E+00	08/14/17 12:40	YES
02	AC-228	MBL	BLANK	pCi/g	3.35E-02	1.32E-01	2.09E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	BI-212	MBL	BLANK	pCi/g	-8.21E-02	2.97E-01	4.10E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	RA-226	MBL	BLANK	pCi/g	-3.24E-03	6.24E-02	9.82E-02					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	CS-137	MBL	BLANK	pCi/g	-4.16E-03	3.79E-02	5.44E-02					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	K-40	MBL	BLANK	pCi/g	4.78E-01	2.97E-01	7.58E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	PA-234M	MBL	BLANK	pCi/g	-6.26E-01	3.22E+00	4.70E+00					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	PB-212	MBL	BLANK	pCi/g	2.02E-03	3.60E-02	5.58E-02					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	RA-224	MBL	BLANK	pCi/g	9.91E-02	4.06E-01	6.47E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	RA-228	MBL	BLANK	pCi/g	3.35E-02	1.32E-01	2.09E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	TH-234	MBL	BLANK	pCi/g	2.22E-01	4.16E-01	6.55E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
02	TL-208	MBL	BLANK	pCi/g	7.18E-02	6.09E-02	1.29E-01					07/18/17 00:00	1.00E+00	08/14/17 13:09	NO
03	AC-228	DUP	HTC-A01-S003-0006-01	pCi/g	7.44E-01	1.58E-01	2.92E-01				NA	05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	BI-212	DUP	HTC-A01-S003-0006-01	pCi/g	5.78E-01	3.51E-01	5.51E-01					05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	RA-226	DUP	HTC-A01-S003-0006-01	pCi/g	6.84E-01	1.18E-01	1.63E-01					05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	CS-137	DUP	HTC-A01-S003-0006-01	pCi/g	5.70E-02	3.87E-02	6.67E-02					05/13/17 10:44	7.68E+02	08/14/17 12:26	NO
03	K-40	DUP	HTC-A01-S003-0006-01	pCi/g	1.02E+01	1.33E+00	9.29E-01				NA	05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	PA-234M	DUP	HTC-A01-S003-0006-01	pCi/g	1.62E+00	3.47E+00	5.63E+00					05/13/17 10:44	7.68E+02	08/14/17 12:26	NO
03	PB-212	DUP	HTC-A01-S003-0006-01	pCi/g	7.11E-01	9.18E-02	1.70E-01				NA	05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	RA-224	DUP	HTC-A01-S003-0006-01	pCi/g	1.62E+00	8.56E-01	1.92E+00					05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	RA-228	DUP	HTC-A01-S003-0006-01	pCi/g	7.44E-01	1.58E-01	2.92E-01					05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	TH-234	DUP	HTC-A01-S003-0006-01	pCi/g	9.75E-01	9.27E-01	1.54E+00					05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
03	TL-208	DUP	HTC-A01-S003-0006-01	pCi/g	6.46E-01	1.22E-01	1.16E-01					05/13/17 10:44	7.68E+02	08/14/17 12:26	YES
04	AC-228	DO	HTC-A01-S003-0006-01	pCi/g	7.05E-01	1.31E-01	2.80E-01					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	BI-212	DO	HTC-A01-S003-0006-01	pCi/g	6.65E-01	3.83E-01	6.00E-01					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	RA-226	DO	HTC-A01-S003-0006-01	pCi/g	6.44E-01	9.14E-02	1.20E-01					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	CS-137	DO	HTC-A01-S003-0006-01	pCi/g	8.35E-02	4.06E-02	6.06E-02					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	K-40	DO	HTC-A01-S003-0006-01	pCi/g	1.09E+01	1.30E+00	1.05E+00					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	PA-234M	DO	HTC-A01-S003-0006-01	pCi/g	2.82E+00	3.24E+00	5.68E+00					05/13/17 10:44	7.68E+02	08/14/17 13:26	NO
04	PB-212	DO	HTC-A01-S003-0006-01	pCi/g	8.17E-01	9.82E-02	1.50E-01					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	RA-224	DO	HTC-A01-S003-0006-01	pCi/g	1.83E+00	8.56E-01	1.68E+00					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	RA-228	DO	HTC-A01-S003-0006-01	pCi/g	7.05E-01	1.31E-01	2.80E-01					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
04	TH-234	DO	HTC-A01-S003-0006-01	pCi/g	1.18E+00	8.53E-01	1.16E+00					05/13/17 10:44	7.68E+02	08/14/17 13:26	NO
04	TL-208	DO	HTC-A01-S003-0006-01	pCi/g	5.71E-01	1.01E-01	1.20E-01					05/13/17 10:44	7.68E+02	08/14/17 13:26	YES
05	AC-228	TRG	HTC-A01-S003-0612-01	pCi/g	5.32E-01	1.71E-01	3.73E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	BI-212	TRG	HTC-A01-S003-0612-01	pCi/g	4.94E-01	3.57E-01	5.68E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	RA-226	TRG	HTC-A01-S003-0612-01	pCi/g	5.06E-01	1.25E-01	2.30E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES

0319

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
05	CS-137	TRG	HTC-A01-S003-0612-01	pCi/g	3.26E-02	4.60E-02	7.45E-02					05/13/17 10:41	7.83E+02	08/14/17 13:11	NO
05	K-40	TRG	HTC-A01-S003-0612-01	pCi/g	1.02E+01	1.39E+00	6.93E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	PA-234M	TRG	HTC-A01-S003-0612-01	pCi/g	2.51E+00	4.25E+00	7.30E+00					05/13/17 10:41	7.83E+02	08/14/17 13:11	NO
05	PB-212	TRG	HTC-A01-S003-0612-01	pCi/g	6.18E-01	9.48E-02	1.39E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	RA-224	TRG	HTC-A01-S003-0612-01	pCi/g	1.91E+00	9.93E-01	1.59E+00					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	RA-228	TRG	HTC-A01-S003-0612-01	pCi/g	5.32E-01	1.71E-01	3.73E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	TH-234	TRG	HTC-A01-S003-0612-01	pCi/g	1.57E+00	8.63E-01	1.89E+00					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
05	TL-208	TRG	HTC-A01-S003-0612-01	pCi/g	5.97E-01	1.16E-01	1.37E-01					05/13/17 10:41	7.83E+02	08/14/17 13:11	YES
06	AC-228	TRG	HTC-A01-S003-1218-01	pCi/g	6.70E-01	1.94E-01	4.25E-01					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	BI-212	TRG	HTC-A01-S003-1218-01	pCi/g	7.13E-01	3.92E-01	5.79E-01					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	RA-226	TRG	HTC-A01-S003-1218-01	pCi/g	7.53E-01	1.55E-01	1.90E-01					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	CS-137	TRG	HTC-A01-S003-1218-01	pCi/g	-4.70E-03	7.10E-02	9.68E-02					05/13/17 10:40	8.58E+02	08/14/17 14:10	NO
06	K-40	TRG	HTC-A01-S003-1218-01	pCi/g	8.73E+00	1.50E+00	1.28E+00					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	PA-234M	TRG	HTC-A01-S003-1218-01	pCi/g	8.09E-01	6.54E+00	9.39E+00					05/13/17 10:40	8.58E+02	08/14/17 14:10	NO
06	PB-212	TRG	HTC-A01-S003-1218-01	pCi/g	5.45E-01	9.76E-02	1.77E-01					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	RA-224	TRG	HTC-A01-S003-1218-01	pCi/g	6.86E+00	1.20E+00	1.99E+00					05/13/17 10:40	8.58E+02	08/14/17 14:10	NO
06	RA-228	TRG	HTC-A01-S003-1218-01	pCi/g	6.70E-01	1.94E-01	4.25E-01					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	TH-234	TRG	HTC-A01-S003-1218-01	pCi/g	1.88E+00	1.20E+00	1.97E+00					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
06	TL-208	TRG	HTC-A01-S003-1218-01	pCi/g	6.56E-01	2.10E-01	2.83E-01					05/13/17 10:40	8.58E+02	08/14/17 14:10	YES
07	AC-228	TRG	HTC-A01-S003-1824-01	pCi/g	9.05E-01	2.60E-01	6.18E-01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	BI-212	TRG	HTC-A01-S003-1824-01	pCi/g	6.02E-01	5.79E-01	9.58E-01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	RA-226	TRG	HTC-A01-S003-1824-01	pCi/g	4.62E+00	4.09E-01	3.41E-01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	CS-137	TRG	HTC-A01-S003-1824-01	pCi/g	1.01E-01	6.73E-02	1.64E-01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	K-40	TRG	HTC-A01-S003-1824-01	pCi/g	1.52E+01	1.90E+00	1.55E+00					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	PA-234M	TRG	HTC-A01-S003-1824-01	pCi/g	7.80E+00	9.61E+00	1.61E+01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	PB-212	TRG	HTC-A01-S003-1824-01	pCi/g	9.27E-01	1.51E-01	3.34E-01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	RA-224	TRG	HTC-A01-S003-1824-01	pCi/g	2.03E+01	2.44E+00	3.37E+00					05/13/17 10:38	7.26E+02	08/14/17 14:11	NO
07	RA-228	TRG	HTC-A01-S003-1824-01	pCi/g	9.05E-01	2.60E-01	6.18E-01					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	TH-234	TRG	HTC-A01-S003-1824-01	pCi/g	3.66E+00	1.75E+00	2.86E+00					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
07	TL-208	TRG	HTC-A01-S003-1824-01	pCi/g	6.81E-01	1.46E-01	3.49E-02					05/13/17 10:38	7.26E+02	08/14/17 14:11	YES
08	AC-228	TRG	HTC-A01-S003-2430-01	pCi/g	1.13E+00	2.16E-01	3.77E-01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	BI-212	TRG	HTC-A01-S003-2430-01	pCi/g	8.92E-01	4.10E-01	6.77E-01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	RA-226	TRG	HTC-A01-S003-2430-01	pCi/g	2.34E+00	2.37E-01	2.59E-01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	CS-137	TRG	HTC-A01-S003-2430-01	pCi/g	6.23E-02	5.61E-02	9.21E-02					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	K-40	TRG	HTC-A01-S003-2430-01	pCi/g	2.15E+01	2.34E+00	1.08E+00					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	PA-234M	TRG	HTC-A01-S003-2430-01	pCi/g	5.22E+00	6.47E+00	1.08E+01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	PB-212	TRG	HTC-A01-S003-2430-01	pCi/g	1.39E+00	1.52E-01	2.58E-01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	RA-224	TRG	HTC-A01-S003-2430-01	pCi/g	6.23E+00	1.47E+00	2.94E+00					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES

Preliminary Data Report & Analytical Calculations

Work Order: 17-07078-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
08	RA-228	TRG	HTC-A01-S003-2430-01	pCi/g	1.13E+00	2.16E-01	3.77E-01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	TH-234	TRG	HTC-A01-S003-2430-01	pCi/g	3.25E+00	1.46E+00	2.35E+00					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
08	TL-208	TRG	HTC-A01-S003-2430-01	pCi/g	1.08E+00	1.71E-01	2.04E-01					05/13/17 10:35	6.65E+02	08/14/17 14:27	YES
09	AC-228	TRG	HTC-A01-S003-3036-01	pCi/g	1.11E+00	2.63E-01	4.87E-01					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
09	BI-212	TRG	HTC-A01-S003-3036-01	pCi/g	6.18E-01	4.54E-01	7.75E-01					05/13/17 10:32	6.85E+02	08/14/17 15:12	NO
09	RA-226	TRG	HTC-A01-S003-3036-01	pCi/g	1.01E+00	1.78E-01	2.73E-01					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
09	CS-137	TRG	HTC-A01-S003-3036-01	pCi/g	8.55E-03	5.75E-02	8.88E-02					05/13/17 10:32	6.85E+02	08/14/17 15:12	NO
09	K-40	TRG	HTC-A01-S003-3036-01	pCi/g	1.85E+01	2.23E+00	1.09E+00					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
09	PA-234M	TRG	HTC-A01-S003-3036-01	pCi/g	3.81E+00	5.74E+00	9.61E+00					05/13/17 10:32	6.85E+02	08/14/17 15:12	NO
09	PB-212	TRG	HTC-A01-S003-3036-01	pCi/g	1.05E+00	1.40E-01	2.30E-01					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
09	RA-224	TRG	HTC-A01-S003-3036-01	pCi/g	3.71E+00	1.34E+00	2.61E+00					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
09	RA-228	TRG	HTC-A01-S003-3036-01	pCi/g	1.11E+00	2.63E-01	4.87E-01					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
09	TH-234	TRG	HTC-A01-S003-3036-01	pCi/g	6.70E-01	1.22E+00	1.61E+00					05/13/17 10:32	6.85E+02	08/14/17 15:12	NO
09	TL-208	TRG	HTC-A01-S003-3036-01	pCi/g	9.15E-01	1.76E-01	3.70E-02					05/13/17 10:32	6.85E+02	08/14/17 15:12	YES
10	AC-228	TRG	HTC-A01-S003-3642-01	pCi/g	1.11E+00	2.69E-01	7.35E-01					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	BI-212	TRG	HTC-A01-S003-3642-01	pCi/g	8.68E-01	6.10E-01	1.11E+00					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	RA-226	TRG	HTC-A01-S003-3642-01	pCi/g	1.29E+00	2.45E-01	3.02E-01					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	CS-137	TRG	HTC-A01-S003-3642-01	pCi/g	4.00E-02	9.01E-02	1.32E-01					05/13/17 10:29	6.84E+02	08/14/17 15:12	NO
10	K-40	TRG	HTC-A01-S003-3642-01	pCi/g	2.09E+01	2.73E+00	1.42E+00					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	PA-234M	TRG	HTC-A01-S003-3642-01	pCi/g	6.25E+00	8.64E+00	1.37E+01					05/13/17 10:29	6.84E+02	08/14/17 15:12	NO
10	PB-212	TRG	HTC-A01-S003-3642-01	pCi/g	1.03E+00	1.58E-01	2.71E-01					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	RA-224	TRG	HTC-A01-S003-3642-01	pCi/g	3.96E+00	1.78E+00	3.13E+00					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	RA-228	TRG	HTC-A01-S003-3642-01	pCi/g	1.11E+00	2.69E-01	7.35E-01					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	TH-234	TRG	HTC-A01-S003-3642-01	pCi/g	2.77E+00	2.09E+00	3.46E+00					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
10	TL-208	TRG	HTC-A01-S003-3642-01	pCi/g	1.33E+00	2.58E-01	2.54E-01					05/13/17 10:29	6.84E+02	08/14/17 15:12	YES
11	AC-228	TRG	HTC-A01-S003-4248-01	pCi/g	1.45E+00	1.94E-01	6.43E-01					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	BI-212	TRG	HTC-A01-S003-4248-01	pCi/g	7.53E-01	4.69E-01	7.43E-01					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	RA-226	TRG	HTC-A01-S003-4248-01	pCi/g	9.79E-01	1.32E-01	1.73E-01					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	CS-137	TRG	HTC-A01-S003-4248-01	pCi/g	1.74E-02	5.30E-02	8.12E-02					05/13/17 10:26	6.30E+02	08/14/17 15:29	NO
11	K-40	TRG	HTC-A01-S003-4248-01	pCi/g	3.07E+01	3.15E+00	1.09E+00					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	PA-234M	TRG	HTC-A01-S003-4248-01	pCi/g	4.12E+00	4.92E+00	8.22E+00					05/13/17 10:26	6.30E+02	08/14/17 15:29	NO
11	PB-212	TRG	HTC-A01-S003-4248-01	pCi/g	1.53E+00	1.64E-01	2.01E-01					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	RA-224	TRG	HTC-A01-S003-4248-01	pCi/g	3.47E+00	1.32E+00	2.27E+00					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	RA-228	TRG	HTC-A01-S003-4248-01	pCi/g	1.45E+00	1.94E-01	6.43E-01					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	TH-234	TRG	HTC-A01-S003-4248-01	pCi/g	1.15E+00	1.29E+00	2.16E+00					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
11	TL-208	TRG	HTC-A01-S003-4248-01	pCi/g	1.35E+00	2.01E-01	2.35E-01					05/13/17 10:26	6.30E+02	08/14/17 15:29	YES
12	AC-228	TRG	HTC-A01-S004-0006-01	pCi/g	1.23E+02	5.94E+00	4.27E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	BI-212	TRG	HTC-A01-S004-0006-01	pCi/g	7.35E+01	6.61E+00	9.70E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES

0321

Work Order: 17-07078-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
12	RA-226	TRG	HTC-A01-S004-0006-01	pCi/g	9.62E+01	4.82E+00	1.83E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	CS-137	TRG	HTC-A01-S004-0006-01	pCi/g	6.52E-02	2.22E-01	6.17E-01					05/13/17 14:21	7.19E+02	08/14/17 16:13	NO
12	K-40	TRG	HTC-A01-S004-0006-01	pCi/g	1.31E+01	3.80E+00	5.39E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	NO
12	PA-234M	TRG	HTC-A01-S004-0006-01	pCi/g	1.11E+02	3.82E+01	6.07E+01					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	PB-212	TRG	HTC-A01-S004-0006-01	pCi/g	1.29E+02	8.48E+00	2.44E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	RA-224	TRG	HTC-A01-S004-0006-01	pCi/g	3.47E+02	3.13E+01	2.79E+01					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	RA-228	TRG	HTC-A01-S004-0006-01	pCi/g	1.23E+02	5.94E+00	4.27E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	TH-234	TRG	HTC-A01-S004-0006-01	pCi/g	7.70E+01	1.08E+01	1.52E+01					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
12	TL-208	TRG	HTC-A01-S004-0006-01	pCi/g	1.13E+02	6.67E+00	1.60E+00					05/13/17 14:21	7.19E+02	08/14/17 16:13	YES
13	AC-228	TRG	HTC-A01-S004-0612-01	pCi/g	1.13E+02	5.71E+00	4.64E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	BI-212	TRG	HTC-A01-S004-0612-01	pCi/g	6.85E+01	7.69E+00	7.58E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	RA-226	TRG	HTC-A01-S004-0612-01	pCi/g	5.58E+01	3.44E+00	1.75E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	CS-137	TRG	HTC-A01-S004-0612-01	pCi/g	2.32E-01	5.58E-01	7.43E-01					05/13/17 14:18	7.93E+02	08/14/17 16:13	NO
13	K-40	TRG	HTC-A01-S004-0612-01	pCi/g	1.30E+01	3.67E+00	5.86E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	NO
13	PA-234M	TRG	HTC-A01-S004-0612-01	pCi/g	1.12E+02	4.67E+01	7.53E+01					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	PB-212	TRG	HTC-A01-S004-0612-01	pCi/g	1.10E+02	7.51E+00	1.94E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	RA-224	TRG	HTC-A01-S004-0612-01	pCi/g	2.09E+02	2.15E+01	2.22E+01					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	RA-228	TRG	HTC-A01-S004-0612-01	pCi/g	1.13E+02	5.71E+00	4.64E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	TH-234	TRG	HTC-A01-S004-0612-01	pCi/g	5.74E+01	9.68E+00	1.43E+01					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
13	TL-208	TRG	HTC-A01-S004-0612-01	pCi/g	1.15E+02	8.09E+00	2.00E+00					05/13/17 14:18	7.93E+02	08/14/17 16:13	YES
14	AC-228	TRG	HTC-A01-S004-1218-01	pCi/g	1.13E+02	5.51E+00	3.08E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	BI-212	TRG	HTC-A01-S004-1218-01	pCi/g	7.05E+01	6.02E+00	4.65E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	RA-226	TRG	HTC-A01-S004-1218-01	pCi/g	6.67E+01	3.32E+00	1.49E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	CS-137	TRG	HTC-A01-S004-1218-01	pCi/g	7.65E-02	1.51E-01	4.23E-01					05/13/17 14:15	7.82E+02	08/14/17 16:30	NO
14	K-40	TRG	HTC-A01-S004-1218-01	pCi/g	1.77E+01	3.63E+00	5.27E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	PA-234M	TRG	HTC-A01-S004-1218-01	pCi/g	1.03E+02	2.27E+01	5.55E+01					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	PB-212	TRG	HTC-A01-S004-1218-01	pCi/g	1.14E+02	6.98E+00	1.78E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	RA-224	TRG	HTC-A01-S004-1218-01	pCi/g	2.93E+02	2.57E+01	2.04E+01					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	RA-228	TRG	HTC-A01-S004-1218-01	pCi/g	1.13E+02	5.51E+00	3.08E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	TH-234	TRG	HTC-A01-S004-1218-01	pCi/g	3.56E+01	7.35E+00	1.12E+01					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
14	TL-208	TRG	HTC-A01-S004-1218-01	pCi/g	1.09E+02	6.46E+00	1.02E+00					05/13/17 14:15	7.82E+02	08/14/17 16:30	YES
15	AC-228	TRG	HTC-A01-S004-1824-01	pCi/g	4.29E+00	4.50E-01	1.12E+00					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	BI-212	TRG	HTC-A01-S004-1824-01	pCi/g	2.59E+00	1.00E+00	1.62E+00					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	RA-226	TRG	HTC-A01-S004-1824-01	pCi/g	5.16E+00	4.89E-01	4.91E-01					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	CS-137	TRG	HTC-A01-S004-1824-01	pCi/g	1.76E-01	1.20E-01	2.79E-01					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	K-40	TRG	HTC-A01-S004-1824-01	pCi/g	1.82E+01	2.65E+00	2.46E+00					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	PA-234M	TRG	HTC-A01-S004-1824-01	pCi/g	9.53E+00	1.13E+01	3.05E+01					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	PB-212	TRG	HTC-A01-S004-1824-01	pCi/g	4.70E+00	4.55E-01	5.06E-01					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES

Work Order: 17-07078-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
15	RA-224	TRG	HTC-A01-S004-1824-01	pCi/g	6.76E+01	6.34E+00	6.39E+00					05/13/17 14:12	5.42E+02	08/14/17 17:16	NO
15	RA-228	TRG	HTC-A01-S004-1824-01	pCi/g	4.29E+00	4.50E-01	1.12E+00					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	TH-234	TRG	HTC-A01-S004-1824-01	pCi/g	5.07E+00	2.47E+00	4.04E+00					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
15	TL-208	TRG	HTC-A01-S004-1824-01	pCi/g	4.13E+00	4.31E-01	2.12E-01					05/13/17 14:12	5.42E+02	08/14/17 17:16	YES
16	AC-228	TRG	HTC-A01-S004-2430-01	pCi/g	2.05E+00	4.06E-01	9.21E-01					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
16	BI-212	TRG	HTC-A01-S004-2430-01	pCi/g	1.40E+00	7.79E-01	1.20E+00					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
16	RA-226	TRG	HTC-A01-S004-2430-01	pCi/g	1.18E+00	2.28E-01	3.16E-01					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
16	CS-137	TRG	HTC-A01-S004-2430-01	pCi/g	4.01E-03	1.01E-01	1.40E-01					05/13/17 14:09	6.40E+02	08/14/17 17:16	NO
16	K-40	TRG	HTC-A01-S004-2430-01	pCi/g	2.36E+01	3.10E+00	1.92E+00					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
16	PA-234M	TRG	HTC-A01-S004-2430-01	pCi/g	1.78E+00	1.11E+01	1.56E+01					05/13/17 14:09	6.40E+02	08/14/17 17:16	NO
16	PB-212	TRG	HTC-A01-S004-2430-01	pCi/g	2.31E+00	2.96E-01	3.31E-01					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
16	RA-224	TRG	HTC-A01-S004-2430-01	pCi/g	2.45E+01	2.85E+00	3.98E+00					05/13/17 14:09	6.40E+02	08/14/17 17:16	NO
16	RA-228	TRG	HTC-A01-S004-2430-01	pCi/g	2.05E+00	4.06E-01	9.21E-01					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
16	TH-234	TRG	HTC-A01-S004-2430-01	pCi/g	1.52E+00	1.58E+00	2.35E+00					05/13/17 14:09	6.40E+02	08/14/17 17:16	NO
16	TL-208	TRG	HTC-A01-S004-2430-01	pCi/g	2.19E+00	3.20E-01	6.92E-02					05/13/17 14:09	6.40E+02	08/14/17 17:16	YES
17	AC-228	TRG	HTC-A01-S004-3036-01	pCi/g	2.05E+00	3.60E-01	8.90E-01					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
17	BI-212	TRG	HTC-A01-S004-3036-01	pCi/g	1.45E+00	8.00E-01	1.26E+00					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
17	RA-226	TRG	HTC-A01-S004-3036-01	pCi/g	1.45E+00	2.35E-01	3.59E-01					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
17	CS-137	TRG	HTC-A01-S004-3036-01	pCi/g	-9.10E-03	7.94E-02	1.18E-01					05/13/17 14:06	5.53E+02	08/14/17 18:18	NO
17	K-40	TRG	HTC-A01-S004-3036-01	pCi/g	2.86E+01	3.28E+00	1.59E+00					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
17	PA-234M	TRG	HTC-A01-S004-3036-01	pCi/g	-2.93E+00	8.20E+00	1.20E+01					05/13/17 14:06	5.53E+02	08/14/17 18:18	NO
17	PB-212	TRG	HTC-A01-S004-3036-01	pCi/g	2.23E+00	2.42E-01	3.91E-01					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
17	RA-224	TRG	HTC-A01-S004-3036-01	pCi/g	2.92E+01	3.14E+00	4.19E+00					05/13/17 14:06	5.53E+02	08/14/17 18:18	NO
17	RA-228	TRG	HTC-A01-S004-3036-01	pCi/g	2.05E+00	3.60E-01	8.90E-01					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
17	TH-234	TRG	HTC-A01-S004-3036-01	pCi/g	1.52E+00	1.67E+00	2.20E+00					05/13/17 14:06	5.53E+02	08/14/17 18:18	NO
17	TL-208	TRG	HTC-A01-S004-3036-01	pCi/g	1.80E+00	2.80E-01	2.99E-01					05/13/17 14:06	5.53E+02	08/14/17 18:18	YES
18	AC-228	TRG	HTC-A01-S004-3642-01	pCi/g	3.45E+00	3.98E-01	1.35E+00					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	BI-212	TRG	HTC-A01-S004-3642-01	pCi/g	2.79E+00	1.18E+00	1.92E+00					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	RA-226	TRG	HTC-A01-S004-3642-01	pCi/g	1.52E+00	2.66E-01	3.57E-01					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	CS-137	TRG	HTC-A01-S004-3642-01	pCi/g	-6.46E-02	1.34E-01	1.75E-01					05/13/17 14:03	6.53E+02	08/14/17 18:18	NO
18	K-40	TRG	HTC-A01-S004-3642-01	pCi/g	2.59E+01	3.28E+00	1.90E+00					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	PA-234M	TRG	HTC-A01-S004-3642-01	pCi/g	-8.61E+00	1.26E+01	1.60E+01					05/13/17 14:03	6.53E+02	08/14/17 18:18	NO
18	PB-212	TRG	HTC-A01-S004-3642-01	pCi/g	4.43E+00	4.55E-01	3.72E-01					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	RA-224	TRG	HTC-A01-S004-3642-01	pCi/g	4.65E+01	4.65E+00	5.31E+00					05/13/17 14:03	6.53E+02	08/14/17 18:18	NO
18	RA-228	TRG	HTC-A01-S004-3642-01	pCi/g	3.45E+00	3.98E-01	1.35E+00					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	TH-234	TRG	HTC-A01-S004-3642-01	pCi/g	3.46E+00	2.69E+00	4.48E+00					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
18	TL-208	TRG	HTC-A01-S004-3642-01	pCi/g	3.72E+00	4.94E-01	3.56E-01					05/13/17 14:03	6.53E+02	08/14/17 18:18	YES
19	AC-228	TRG	HTC-A01-S004-4248-01	pCi/g	3.16E+00	2.73E-01	3.22E-01					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES

0323

Preliminary Data Report & Analytical Calculations
Work Order: 17-07078-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
19	BI-212	TRG	HTC-A01-S004-4248-01	pCi/g	2.08E+00	6.92E-01	1.01E+00					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	RA-226	TRG	HTC-A01-S004-4248-01	pCi/g	1.48E+00	2.25E-01	3.04E-01					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	CS-137	TRG	HTC-A01-S004-4248-01	pCi/g	3.36E-02	6.27E-02	9.72E-02					05/13/17 14:00	6.61E+02	08/15/17 05:52	NO
19	K-40	TRG	HTC-A01-S004-4248-01	pCi/g	2.56E+01	2.65E+00	1.06E+00					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	PA-234M	TRG	HTC-A01-S004-4248-01	pCi/g	1.25E+00	5.69E+00	8.81E+00					05/13/17 14:00	6.61E+02	08/15/17 05:52	NO
19	PB-212	TRG	HTC-A01-S004-4248-01	pCi/g	3.44E+00	3.06E-01	3.12E-01					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	RA-224	TRG	HTC-A01-S004-4248-01	pCi/g	7.66E+00	2.11E+00	3.58E+00					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	RA-228	TRG	HTC-A01-S004-4248-01	pCi/g	3.16E+00	2.73E-01	3.22E-01					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	TH-234	TRG	HTC-A01-S004-4248-01	pCi/g	1.81E+00	1.58E+00	2.63E+00					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
19	TL-208	TRG	HTC-A01-S004-4248-01	pCi/g	2.81E+00	4.09E-01	4.14E-01					05/13/17 14:00	6.61E+02	08/15/17 05:52	YES
20	AC-228	TRG	HTC-A01-S005-0006-01	pCi/g	1.54E+00	3.17E-01	5.87E-01					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	BI-212	TRG	HTC-A01-S005-0006-01	pCi/g	1.06E+00	7.11E-01	1.14E+00					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	RA-226	TRG	HTC-A01-S005-0006-01	pCi/g	4.62E+00	3.98E-01	3.63E-01					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	CS-137	TRG	HTC-A01-S005-0006-01	pCi/g	2.11E-01	9.44E-02	2.29E-01					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	K-40	TRG	HTC-A01-S005-0006-01	pCi/g	1.95E+01	2.46E+00	1.59E+00					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	PA-234M	TRG	HTC-A01-S005-0006-01	pCi/g	4.10E+00	8.44E+00	1.35E+01					05/13/17 10:01	6.19E+02	08/15/17 05:52	NO
20	PB-212	TRG	HTC-A01-S005-0006-01	pCi/g	1.37E+00	2.03E-01	3.94E-01					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	RA-224	TRG	HTC-A01-S005-0006-01	pCi/g	2.34E+01	2.81E+00	3.89E+00					05/13/17 10:01	6.19E+02	08/15/17 05:52	NO
20	RA-228	TRG	HTC-A01-S005-0006-01	pCi/g	1.54E+00	3.17E-01	5.87E-01					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	TH-234	TRG	HTC-A01-S005-0006-01	pCi/g	3.36E+00	1.89E+00	3.10E+00					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES
20	TL-208	TRG	HTC-A01-S005-0006-01	pCi/g	1.02E+00	2.15E-01	2.49E-01					05/13/17 10:01	6.19E+02	08/15/17 05:52	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07078-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	07/18/17 00:00	1.0000				0.00		
02	MBL	BLANK	07/18/17 00:00	1.0000				0.00		
03	DUP	HTC-A01-S003-0006-01	05/13/17 10:44	767.5600				0.00		
04	DO	HTC-A01-S003-0006-01	05/13/17 10:44	767.5200				0.00		
05	TRG	HTC-A01-S003-0612-01	05/13/17 10:41	782.9100				0.00		
06	TRG	HTC-A01-S003-1218-01	05/13/17 10:40	858.3200				0.00		
07	TRG	HTC-A01-S003-1824-01	05/13/17 10:38	725.9700				0.00		
08	TRG	HTC-A01-S003-2430-01	05/13/17 10:35	665.4900				0.00		
09	TRG	HTC-A01-S003-3036-01	05/13/17 10:32	684.9200				0.00		
10	TRG	HTC-A01-S003-3642-01	05/13/17 10:29	684.2800				0.00		
11	TRG	HTC-A01-S003-4248-01	05/13/17 10:26	630.0300				0.00		
12	TRG	HTC-A01-S004-0006-01	05/13/17 14:21	718.8500				0.00		
13	TRG	HTC-A01-S004-0612-01	05/13/17 14:18	793.0800				0.00		
14	TRG	HTC-A01-S004-1218-01	05/13/17 14:15	782.3700				0.00		
15	TRG	HTC-A01-S004-1824-01	05/13/17 14:12	541.5800				0.00		
16	TRG	HTC-A01-S004-2430-01	05/13/17 14:09	640.0800				0.00		
17	TRG	HTC-A01-S004-3036-01	05/13/17 14:06	553.0900				0.00		
18	TRG	HTC-A01-S004-3642-01	05/13/17 14:03	653.4800				0.00		
19	TRG	HTC-A01-S004-4248-01	05/13/17 14:00	660.7100				0.00		
20	TRG	HTC-A01-S005-0006-01	05/13/17 10:01	619.0600				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07078	2	Gamma	grams	8/9/2017	KSALLINGS

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	HTC-A01-S003-0006-01	DUP					7.6756E+02	7.6756E+02				
04	HTC-A01-S003-0006-01	DO					7.6752E+02	7.6752E+02				
05	HTC-A01-S003-0612-01	TRG					7.8291E+02	7.8291E+02				
06	HTC-A01-S003-1218-01	TRG					8.5832E+02	8.5832E+02				
07	HTC-A01-S003-1824-01	TRG					7.2597E+02	7.2597E+02				
08	HTC-A01-S003-2430-01	TRG					6.6549E+02	6.6549E+02				
09	HTC-A01-S003-3036-01	TRG					6.8492E+02	6.8492E+02				
10	HTC-A01-S003-3642-01	TRG					6.8428E+02	6.8428E+02				
11	HTC-A01-S003-4248-01	TRG					6.3003E+02	6.3003E+02				
12	HTC-A01-S004-0006-01	TRG					7.1885E+02	7.1885E+02				
13	HTC-A01-S004-0612-01	TRG					7.9308E+02	7.9308E+02				
14	HTC-A01-S004-1218-01	TRG					7.8237E+02	7.8237E+02				
15	HTC-A01-S004-1824-01	TRG					5.4158E+02	5.4158E+02				
16	HTC-A01-S004-2430-01	TRG					6.4008E+02	6.4008E+02				
17	HTC-A01-S004-3036-01	TRG					5.5309E+02	5.5309E+02				
18	HTC-A01-S004-3642-01	TRG					6.5348E+02	6.5348E+02				
19	HTC-A01-S004-4248-01	TRG					6.6071E+02	6.6071E+02				
20	HTC-A01-S005-0006-01	TRG					6.1906E+02	6.1906E+02				

Comments	

0326

Technician: Kenny sales Date: 7/24/17

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
17-07078	8/9/2017	7/23/2017	7/24/2017	7/25/2017	KSALLINGS

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

Eberline Fraction	Weston Solutions, Inc. Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	HTC-A01-S003-0006-01	14.6300	1012.0200	871.0400	997.3900	856.4100	14.13%	85.87%	0.0000	0.0000	
05	HTC-A01-S003-0612-01	14.6300	1026.3000	908.5000	1011.6700	893.8700	11.64%	88.36%	0.0000	0.0000	
06	HTC-A01-S003-1218-01	14.5700	1081.7400	967.2200	1067.1700	952.6500	10.73%	89.27%	0.0000	0.0000	
07	HTC-A01-S003-1824-01	14.5000	1028.3200	859.6400	1013.8200	845.1400	16.64%	83.36%	0.0000	0.0000	
08	HTC-A01-S003-2430-01	14.6400	967.9200	784.9400	953.2800	770.3000	19.19%	80.81%	0.0000	0.0000	
09	HTC-A01-S003-3036-01	14.6900	1013.7400	825.2200	999.0500	810.5300	18.87%	81.13%	0.0000	0.0000	
10	HTC-A01-S003-3642-01	14.6600	939.5600	779.3900	924.9000	764.7300	17.32%	82.68%	0.0000	0.0000	
11	HTC-A01-S003-4248-01	14.7200	868.2000	722.6000	853.4800	707.8800	17.06%	82.94%	0.0000	0.0000	
12	HTC-A01-S004-0006-01	14.7200	810.2400	742.8500	795.5200	728.1300	8.47%	91.53%	0.0000	0.0000	
13	HTC-A01-S004-0612-01	14.6400	1006.2000	908.0600	991.5600	893.4200	9.90%	90.10%	0.0000	0.0000	
14	HTC-A01-S004-1218-01	14.6000	992.1000	905.8940	977.5000	891.2940	8.82%	91.18%	0.0000	0.0000	
15	HTC-A01-S004-1824-01	14.5700	829.4800	691.0900	814.9100	676.5200	16.98%	83.02%	0.0000	0.0000	
16	HTC-A01-S004-2430-01	14.6300	908.6200	752.8800	893.9900	738.2500	17.42%	82.58%	0.0000	0.0000	
17	HTC-A01-S004-3036-01	14.5300	800.3600	663.3700	785.8300	648.8400	17.43%	82.57%	0.0000	0.0000	
18	HTC-A01-S004-3642-01	14.5600	878.0600	728.1300	863.5000	713.5700	17.36%	82.64%	0.0000	0.0000	
19	HTC-A01-S004-4248-01	14.5400	881.5800	738.2900	867.0400	723.7500	16.53%	83.47%	0.0000	0.0000	
20	HTC-A01-S005-0006-01	14.5800	866.1400	694.2600	851.5600	679.6800	20.18%	79.82%	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)**

0327

Technician: Kerry Sallings

Date: **Analysis: Rough Prep Logbook**

Analysis: Gamma Page No. 10137

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

8/14

Apex-Gamma

Analysis Report for 1707078-01
GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 9:27:04AM
Acquisition Started	: 8/14/2017 12:40:02PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1835.2 seconds
Dead Time	: 1.92 %
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	: 55175

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 1:10:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	17.68	18.00	0.0000	0.00
2	22.34	22.67	0.0000	0.00
3	25.21	25.53	0.0000	0.00
4	32.34	32.66	0.0000	0.00
5	50.37	50.68	0.0000	0.00
6	59.67	59.98	0.0000	0.00
7	68.04	68.35	0.0000	0.00
8	76.77	77.08	0.0000	0.00
9	88.22	88.52	0.0000	0.00
10	122.25	122.54	0.0000	0.00
11	136.59	136.87	0.0000	0.00
12	166.17	166.44	0.0000	0.00
13	239.01	239.26	0.0000	0.00
14	273.94	274.18	0.0000	0.00
15	302.19	302.42	0.0000	0.00
16	545.50	545.64	0.0000	0.00
17	560.62	560.76	0.0000	0.00
18	582.86	583.00	0.0000	0.00
19	592.20	592.33	0.0000	0.00
20	661.57	661.68	0.0000	0.00
21	898.00	898.03	0.0000	0.00
22	1172.81	1172.74	0.0000	0.00
23	1309.93	1309.82	0.0000	0.00
24	1331.98	1331.86	0.0000	0.00
25	1437.54	1437.38	0.0000	0.00
26	1461.63	1461.46	0.0000	0.00
27	1737.78	1737.52	0.0000	0.00
28	1751.35	1751.08	0.0000	0.00
29	1835.26	1834.97	0.0000	0.00
30	1901.14	1900.82	0.0000	0.00
31	1912.32	1912.00	0.0000	0.00
32	1988.62	1988.27	0.0000	0.00
33	2162.95	2162.55	0.0000	0.00
34	2374.81	2374.34	0.0000	0.00
35	2504.55	2504.03	0.0000	0.00
36	2613.15	2612.60	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 1:10:41PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	17.68	17 -	30	18.00	7.37E+02	152.23	7.86E+03	1.38
m	2	22.34	17 -	30	22.67	8.14E+04	711.96	1.76E+04	1.86
m	3	25.21	17 -	30	25.53	2.52E+04	629.15	1.23E+04	1.88
	4	32.34	31 -	35	32.66	1.68E+03	218.20	9.12E+03	1.96
M	5	50.37	45 -	65	50.68	6.69E+03	383.13	2.11E+04	2.14
m	6	59.67	45 -	65	59.98	9.00E+04	680.51	1.80E+04	2.10
	7	68.04	66 -	72	68.35	6.75E+02	338.94	2.05E+04	3.65
	8	76.77	75 -	80	77.08	2.78E+02	301.45	1.80E+04	2.82
	9	88.22	83 -	94	88.52	3.04E+04	586.94	2.69E+04	2.13
	10	122.25	118 -	127	122.54	5.09E+03	353.69	1.49E+04	2.15
	11	136.59	134 -	139	136.87	4.84E+02	210.79	8.51E+03	1.88
	12	166.17	163 -	169	166.44	3.90E+02	230.15	9.33E+03	2.11
	13	239.01	236 -	242	239.26	3.41E+02	219.83	8.52E+03	1.96
	14	273.94	272 -	276	274.18	1.30E+02	150.74	4.94E+03	1.59
	15	302.19	300 -	305	302.42	1.49E+02	165.48	5.35E+03	3.23
	16	545.50	543 -	548	545.64	1.13E+02	120.14	2.79E+03	3.03
	17	560.62	559 -	564	560.76	9.91E+01	118.76	2.75E+03	2.99
	18	582.86	581 -	585	583.00	8.76E+01	101.14	2.19E+03	2.71
	19	592.20	590 -	595	592.33	1.12E+02	114.00	2.50E+03	3.04
	20	661.57	655 -	667	661.68	2.00E+04	355.09	5.43E+03	2.26
	21	898.00	895 -	901	898.03	1.34E+02	133.42	3.14E+03	1.88
	22	1172.81	1166 -	1178	1172.74	1.63E+04	294.54	2.55E+03	2.42
	23	1309.93	1306 -	1314	1309.82	6.70E+01	51.07	3.60E+02	4.68
	24	1331.98	1325 -	1338	1331.86	1.49E+04	254.13	5.57E+02	2.54
	25	1437.54	1435 -	1439	1437.38	1.55E+01	18.17	5.91E+01	1.85
	26	1461.63	1457 -	1465	1461.46	2.47E+01	30.18	1.23E+02	4.84
	27	1737.78	1734 -	1742	1737.52	2.15E+01	19.35	4.30E+01	2.75
	28	1751.35	1748 -	1755	1751.08	2.29E+01	19.29	4.42E+01	5.40
	29	1835.26	1828 -	1840	1834.97	5.96E+01	31.80	9.08E+01	2.38
M	30	1901.14	1899 -	1915	1900.82	1.47E+01	10.58	1.04E+01	3.32
m	31	1912.32	1899 -	1915	1912.00	1.55E+01	16.80	4.04E+01	2.49
	32	1988.62	1986 -	1992	1988.27	1.35E+01	15.44	3.09E+01	1.91
	33	2162.95	2159 -	2168	2162.55	1.90E+01	14.70	2.00E+01	5.17
	34	2374.81	2372 -	2377	2374.34	7.22E+00	6.71	3.56E+00	1.97
	35	2504.55	2498 -	2509	2504.03	1.66E+02	25.77	0.00E+00	2.84
	36	2613.15	2608 -	2616	2612.60	2.50E+01	10.00	0.00E+00	2.97

Analysis Report for 1707078-01

GAS-1402

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 1:10:41PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	17.68	17 -	30	7.37E+02	152.23	7.86E+03	1.46E+02
m	2	22.34	17 -	30	8.14E+04	711.96	1.76E+04	2.18E+02
m	3	25.21	17 -	30	2.52E+04	629.15	1.23E+04	1.83E+02
	4	32.34	31 -	35	1.68E+03	218.20	9.12E+03	1.66E+02
M	5	50.37	45 -	65	6.69E+03	383.13	2.11E+04	2.39E+02
m	6	59.67	45 -	65	9.00E+04	680.51	1.80E+04	2.21E+02
	7	68.04	66 -	72	6.75E+02	338.94	2.05E+04	2.75E+02
	8	76.77	75 -	80	2.78E+02	301.45	1.80E+04	2.46E+02
	9	88.22	83 -	94	3.04E+04	586.94	2.69E+04	3.88E+02
	10	122.25	118 -	127	5.09E+03	353.69	1.49E+04	2.66E+02
	11	136.59	134 -	139	4.84E+02	210.79	8.51E+03	1.69E+02
	12	166.17	163 -	169	3.90E+02	230.15	9.33E+03	1.86E+02
	13	239.01	236 -	242	3.41E+02	219.83	8.52E+03	1.78E+02
	14	273.94	272 -	276	1.30E+02	150.74	4.94E+03	1.22E+02
	15	302.19	300 -	305	1.49E+02	165.48	5.35E+03	1.35E+02
	16	545.50	543 -	548	1.13E+02	120.14	2.79E+03	9.72E+01
	17	560.62	559 -	564	9.91E+01	118.76	2.75E+03	9.62E+01
	18	582.86	581 -	585	8.76E+01	101.14	2.19E+03	8.17E+01
	19	592.20	590 -	595	1.12E+02	114.00	2.50E+03	9.21E+01
	20	661.57	655 -	667	2.00E+04	355.09	5.43E+03	1.77E+02
	21	898.00	895 -	901	1.34E+02	133.42	3.14E+03	1.08E+02
	22	1172.81	1166 -	1178	1.63E+04	294.54	2.55E+03	1.21E+02
	23	1309.93	1306 -	1314	6.70E+01	51.07	3.60E+02	3.98E+01
	24	1331.98	1325 -	1338	1.49E+04	254.13	5.57E+02	5.83E+01
	25	1437.54	1435 -	1439	1.55E+01	18.17	5.91E+01	1.35E+01
	26	1461.63	1457 -	1465	2.47E+01	30.18	1.23E+02	2.34E+01
	27	1737.78	1734 -	1742	2.15E+01	19.35	4.30E+01	1.40E+01
	28	1751.35	1748 -	1755	2.29E+01	19.29	4.42E+01	1.38E+01
	29	1835.26	1828 -	1840	5.96E+01	31.80	9.08E+01	2.29E+01
M	30	1901.14	1899 -	1915	1.47E+01	10.58	1.04E+01	5.30E+00
m	31	1912.32	1899 -	1915	1.55E+01	16.80	4.04E+01	1.05E+01

Analysis Report for 1707078-01

GAS-1402

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	1988.62	1986 -	1992	1.35E+01	15.44	3.09E+01	1.12E+01
33	2162.95	2159 -	2168	1.90E+01	14.70	2.00E+01	9.73E+00
34	2374.81	2372 -	2377	7.22E+00	6.71	3.56E+00	3.30E+00
35	2504.55	2498 -	2509	1.66E+02	25.77	0.00E+00	0.00E+00
36	2613.15	2608 -	2616	2.50E+01	10.00	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 1:10:41PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	17.68	17 -	30	18.00	7.37E+02	152.23	7.86E+03	.....
m	2	22.34	17 -	30	22.67	8.14E+04	711.96	1.76E+04	.....
m	3	25.21	17 -	30	25.53	2.52E+04	629.15	1.23E+04	TH-231
	4	32.34	31 -	35	32.66	1.68E+03	218.20	9.12E+03	.....
M	5	50.37	45 -	65	50.68	6.69E+03	383.13	2.11E+04	TH-227
									TE-132
m	6	59.67	45 -	65	59.98	9.00E+04	680.51	1.80E+04	AM-241
	7	68.04	66 -	72	68.35	6.75E+02	338.94	2.05E+04	TI-44
									TA-182
									TH-230
									HF-172
	8	76.77	75 -	80	77.08	2.78E+02	301.45	1.80E+04	.....
	9	88.22	83 -	94	88.52	3.04E+04	586.94	2.69E+04	LU-176
									CD-109
									SN-126
	10	122.25	118 -	127	122.54	5.09E+03	353.69	1.49E+04	CO-57
									EU-152
									EU-154
	11	136.59	134 -	139	136.87	4.84E+02	210.79	8.51E+03	CO-57
									SE-75
	12	166.17	163 -	169	166.44	3.90E+02	230.15	9.33E+03	CE-139

Analysis Report for 1707078-01

GAS-1402

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	13	239.01	236 -	242	239.26	3.41E+02	219.83	8.52E+03	PB-212
	14	273.94	272 -	276	274.18	1.30E+02	150.74	4.94E+03	CS-136
	15	302.19	300 -	305	302.42	1.49E+02	165.48	5.35E+03	PA-231 BA-133
	16	545.50	543 -	548	545.64	1.13E+02	120.14	2.79E+03	.....
	17	560.62	559 -	564	560.76	9.91E+01	118.76	2.75E+03	.....
	18	582.86	581 -	585	583.00	8.76E+01	101.14	2.19E+03	TL-208
	19	592.20	590 -	595	592.33	1.12E+02	114.00	2.50E+03	.....
	20	661.57	655 -	667	661.68	2.00E+04	355.09	5.43E+03	CS-137
	21	898.00	895 -	901	898.03	1.34E+02	133.42	3.14E+03	Y-88
	22	1172.81	1166 -	1178	1172.74	1.63E+04	294.54	2.55E+03	CO-60
	23	1309.93	1306 -	1314	1309.82	6.70E+01	51.07	3.60E+02	.....
	24	1331.98	1325 -	1338	1331.86	1.49E+04	254.13	5.57E+02	CO-60
	25	1437.54	1435 -	1439	1437.38	1.55E+01	18.17	5.91E+01	.....
	26	1461.63	1457 -	1465	1461.46	2.47E+01	30.18	1.23E+02	K-40
	27	1737.78	1734 -	1742	1737.52	2.15E+01	19.35	4.30E+01	.....
	28	1751.35	1748 -	1755	1751.08	2.29E+01	19.29	4.42E+01	.....
	29	1835.26	1828 -	1840	1834.97	5.96E+01	31.80	9.08E+01	Y-88
M	30	1901.14	1899 -	1915	1900.82	1.47E+01	10.58	1.04E+01	.....
m	31	1912.32	1899 -	1915	1912.00	1.55E+01	16.80	4.04E+01	.....
	32	1988.62	1986 -	1992	1988.27	1.35E+01	15.44	3.09E+01	.....
	33	2162.95	2159 -	2168	2162.55	1.90E+01	14.70	2.00E+01	.....
	34	2374.81	2372 -	2377	2374.34	7.22E+00	6.71	3.56E+00	.....
	35	2504.55	2498 -	2509	2504.03	1.66E+02	25.77	0.00E+00	.....
	36	2613.15	2608 -	2616	2612.60	2.50E+01	10.00	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 EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 1:10:41PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	17.68	7.37E+02	152.23	3.29E-04	1.73E-03
m	2	22.34	8.14E+04	711.96	1.49E-03	1.73E-03
m	3	25.21	2.52E+04	629.15	2.75E-03	1.73E-03
	4	32.34	1.68E+03	218.20	7.29E-03	1.73E-03
M	5	50.37	6.69E+03	383.13	1.94E-02	1.73E-03

Analysis Report for 1707078-01

GAS-1402

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	6	59.67	9.00E+04	680.51	2.33E-02	1.73E-03
	7	68.04	6.75E+02	338.94	2.55E-02	1.89E-03
	8	76.77	2.78E+02	301.45	2.67E-02	2.05E-03
	9	88.22	3.04E+04	586.94	2.72E-02	2.26E-03
	10	122.25	5.09E+03	353.69	2.52E-02	2.12E-03
	11	136.59	4.84E+02	210.79	2.39E-02	1.96E-03
	12	166.17	3.90E+02	230.15	2.12E-02	1.63E-03
	13	239.01	3.41E+02	219.83	1.61E-02	1.34E-03
	14	273.94	1.30E+02	150.74	1.44E-02	1.20E-03
	15	302.19	1.49E+02	165.48	1.32E-02	1.13E-03
	16	545.50	1.13E+02	120.14	7.78E-03	7.49E-04
	17	560.62	9.91E+01	118.76	7.59E-03	7.29E-04
	18	582.86	8.76E+01	101.14	7.33E-03	6.99E-04
	19	592.20	1.12E+02	114.00	7.22E-03	6.87E-04
	20	661.57	2.00E+04	355.09	6.54E-03	5.95E-04
	21	898.00	1.34E+02	133.42	4.98E-03	3.86E-04
	22	1172.81	1.63E+04	294.54	3.96E-03	3.41E-04
	23	1309.93	6.70E+01	51.07	3.61E-03	3.02E-04
	24	1331.98	1.49E+04	254.13	3.56E-03	2.96E-04
	25	1437.54	1.55E+01	18.17	3.35E-03	2.79E-04
	26	1461.63	2.47E+01	30.18	3.31E-03	2.75E-04
	27	1737.78	2.15E+01	19.35	2.90E-03	2.31E-04
	28	1751.35	2.29E+01	19.29	2.88E-03	2.29E-04
	29	1835.26	5.96E+01	31.80	2.79E-03	2.15E-04
M	30	1901.14	1.47E+01	10.58	2.72E-03	2.15E-04
m	31	1912.32	1.55E+01	16.80	2.71E-03	2.15E-04
	32	1988.62	1.35E+01	15.44	2.63E-03	2.15E-04
	33	2162.95	1.90E+01	14.70	2.49E-03	2.15E-04
	34	2374.81	7.22E+00	6.71	2.36E-03	2.15E-04
	35	2504.55	1.66E+02	25.77	2.29E-03	2.15E-04
	36	2613.15	2.50E+01	10.00	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 1:10:41PM

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

Analysis Report for 1707078-01

GAS-1402

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	17.68	7.37E+02	152.23			7.37E+02	1.52E+02
m	2	22.34	8.14E+04	711.96	5.15E+00	6.42E+00	8.14E+04	7.12E+02
m	3	25.21	2.52E+04	629.15			2.52E+04	6.29E+02
	4	32.34	1.68E+03	218.20			1.68E+03	2.18E+02
M	5	50.37	6.69E+03	383.13			6.69E+03	3.83E+02
m	6	59.67	9.00E+04	680.51	5.48E+00	2.08E+00	8.99E+04	6.81E+02
	7	68.04	6.75E+02	338.94			6.75E+02	3.39E+02
	8	76.77	2.78E+02	301.45	8.33E+00	4.42E+00	2.69E+02	3.01E+02
	9	88.22	3.04E+04	586.94			3.04E+04	5.87E+02
	10	122.25	5.09E+03	353.69			5.09E+03	3.54E+02
	11	136.59	4.84E+02	210.79			4.84E+02	2.11E+02
	12	166.17	3.90E+02	230.15			3.90E+02	2.30E+02
	13	239.01	3.41E+02	219.83	4.75E+00	2.81E+00	3.36E+02	2.20E+02
	14	273.94	1.30E+02	150.74			1.30E+02	1.51E+02
	15	302.19	1.49E+02	165.48			1.49E+02	1.65E+02
	16	545.50	1.13E+02	120.14			1.13E+02	1.20E+02
	17	560.62	9.91E+01	118.76			9.91E+01	1.19E+02
	18	582.86	8.76E+01	101.14			8.76E+01	1.01E+02
	19	592.20	1.12E+02	114.00			1.12E+02	1.14E+02
	20	661.57	2.00E+04	355.09			2.00E+04	3.55E+02
	21	898.00	1.34E+02	133.42			1.34E+02	1.33E+02
	22	1172.81	1.63E+04	294.54			1.63E+04	2.95E+02
	23	1309.93	6.70E+01	51.07			6.70E+01	5.11E+01
	24	1331.98	1.49E+04	254.13			1.49E+04	2.54E+02
	25	1437.54	1.55E+01	18.17			1.55E+01	1.82E+01
	26	1461.63	2.47E+01	30.18	4.45E-01	7.93E-01	2.43E+01	3.02E+01
	27	1737.78	2.15E+01	19.35			2.15E+01	1.94E+01
	28	1751.35	2.29E+01	19.29			2.29E+01	1.93E+01
	29	1835.26	5.96E+01	31.80			5.96E+01	3.18E+01
M	30	1901.14	1.47E+01	10.58			1.47E+01	1.06E+01
m	31	1912.32	1.55E+01	16.80			1.55E+01	1.68E+01
	32	1988.62	1.35E+01	15.44			1.35E+01	1.54E+01
	33	2162.95	1.90E+01	14.70			1.90E+01	1.47E+01
	34	2374.81	7.22E+00	6.71			7.22E+00	6.71E+00
	35	2504.55	1.66E+02	25.77			1.66E+02	2.58E+01
	36	2613.15	2.50E+01	10.00			2.50E+01	1.00E+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 1707078-01

GAS-1402

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 1:10:41PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	17.68	7.37E+02	152.23			7.37E+02	1.52E+02
m	2	22.34	8.14E+04	711.96	5.15E+00	6.42E+00	8.14E+04	7.12E+02
m	3	25.21	2.52E+04	629.15			2.52E+04	6.29E+02
	4	32.34	1.68E+03	218.20			1.68E+03	2.18E+02
M	5	50.37	6.69E+03	383.13			6.69E+03	3.83E+02
m	6	59.67	9.00E+04	680.51	5.48E+00	2.08E+00	8.99E+04	6.81E+02
	7	68.04	6.75E+02	338.94			6.75E+02	3.39E+02
	8	76.77	2.78E+02	301.45	8.33E+00	4.42E+00	2.69E+02	3.01E+02
	9	88.22	3.04E+04	586.94			3.04E+04	5.87E+02
	10	122.25	5.09E+03	353.69			5.09E+03	3.54E+02
	11	136.59	4.84E+02	210.79			4.84E+02	2.11E+02
	12	166.17	3.90E+02	230.15			3.90E+02	2.30E+02
	13	239.01	3.41E+02	219.83	4.75E+00	2.81E+00	3.36E+02	2.20E+02
	14	273.94	1.30E+02	150.74			1.30E+02	1.51E+02
	15	302.19	1.49E+02	165.48			1.49E+02	1.65E+02
	16	545.50	1.13E+02	120.14			1.13E+02	1.20E+02
	17	560.62	9.91E+01	118.76			9.91E+01	1.19E+02
	18	582.86	8.76E+01	101.14			8.76E+01	1.01E+02
	19	592.20	1.12E+02	114.00			1.12E+02	1.14E+02
	20	661.57	2.00E+04	355.09			2.00E+04	3.55E+02
	21	898.00	1.34E+02	133.42			1.34E+02	1.33E+02
	22	1172.81	1.63E+04	294.54			1.63E+04	2.95E+02
	23	1309.93	6.70E+01	51.07			6.70E+01	5.11E+01
	24	1331.98	1.49E+04	254.13			1.49E+04	2.54E+02
	25	1437.54	1.55E+01	18.17			1.55E+01	1.82E+01
	26	1461.63	2.47E+01	30.18	4.45E-01	7.93E-01	2.43E+01	3.02E+01
	27	1737.78	2.15E+01	19.35			2.15E+01	1.94E+01
	28	1751.35	2.29E+01	19.29			2.29E+01	1.93E+01
	29	1835.26	5.96E+01	31.80			5.96E+01	3.18E+01
M	30	1901.14	1.47E+01	10.58			1.47E+01	1.06E+01
m	31	1912.32	1.55E+01	16.80			1.55E+01	1.68E+01
	32	1988.62	1.35E+01	15.44			1.35E+01	1.54E+01
	33	2162.95	1.90E+01	14.70			1.90E+01	1.47E+01
	34	2374.81	7.22E+00	6.71			7.22E+00	6.71E+00
	35	2504.55	1.66E+02	25.77			1.66E+02	2.58E+01
	36	2613.15	2.50E+01	10.00			2.50E+01	1.00E+01

Analysis Report for 1707078-01

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
K-40	0.899	1460.81	*	10.67	1.40E+00	1.75E+00
CO-57	0.923	122.06	*	85.51	7.05E+01	7.74E+00
		136.48	*	10.60	5.70E+01	2.53E+01
CO-60	0.966	1173.22	*	100.00	1.22E+02	1.08E+01
		1332.49	*	100.00	1.24E+02	1.05E+01
Y-88	0.589	898.02	*	93.40	5.35E+02	5.35E+02
		1836.01	*	99.38	4.01E+02	2.16E+02
CD-109	0.969	88.03	*	3.72	2.94E+03	3.06E+02
SN-126	0.934	87.57	*	37.00	6.18E+01	5.27E+00
CS-137	0.999	661.65	*	85.12	7.82E+01	7.26E+00
CE-139	0.737	165.85	*	80.35	9.14E+01	5.44E+01
PB-212	0.875	238.63	*	44.60	9.54E-01	6.29E-01
		300.09		3.41		
PA-231	0.311	283.67		1.60		
		302.67	*	2.30	1.00E+01	1.12E+01
AM-241	0.997	59.54	*	35.90	2.20E+02	1.64E+01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 1:10:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707078-01

GAS-1402

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	17.68	4.09174E-01	10.33		
m	2	22.34	4.52400E+01	0.44		
m	3	25.21	1.39941E+01	1.25	Tol.	TH-231
	4	32.34	9.33550E-01	6.49		
M	5	50.37	3.71740E+00	2.86	Tol.	TE-132
						TH-227
	7	68.04	3.75270E-01	25.09	Tol.	TI-44
						HF-172
						TA-182
						TH-230
	8	76.77	1.49703E-01	55.94		
	14	273.94	7.22563E-02	57.95	Sum	
	16	545.50	6.25031E-02	53.39		
	17	560.62	5.50475E-02	59.93		
	18	582.86	4.86471E-02	57.75	Tol.	TL-208
	19	592.20	6.19824E-02	51.09		
	23	1309.93	3.72222E-02	38.11	Sum	
	25	1437.54	8.58642E-03	58.77		
	27	1737.78	1.19509E-02	44.98		
	28	1751.35	1.27284E-02	42.09		
M	30	1901.14	8.19317E-03	35.88		
m	31	1912.32	8.60743E-03	54.22		
	32	1988.62	7.51916E-03	57.05		
	33	2162.95	1.05556E-02	38.68		
	34	2374.81	4.01235E-03	46.44		
	35	2504.55	9.22222E-02	7.76	Sum	
	36	2613.15	1.38889E-02	20.00		

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 1707078-01

GAS-1402

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.89	1460.81	*	10.67	1.40E+00	1.75E+00
CO-57	0.92	122.06	*	85.51	7.05E+01	7.74E+00
		136.48	*	10.60	5.70E+01	2.53E+01
CO-60	0.96	1173.22	*	100.00	1.22E+02	1.08E+01
		1332.49	*	100.00	1.24E+02	1.05E+01
Y-88	0.58	898.02	*	93.40	5.35E+02	5.35E+02
		1836.01	*	99.38	4.01E+02	2.16E+02
CD-109	0.96	88.03	*	3.72	2.94E+03	3.06E+02
SN-126	0.93	87.57	*	37.00	6.18E+01	5.27E+00
CS-137	0.99	661.65	*	85.12	7.82E+01	7.26E+00
CE-139	0.73	165.85	*	80.35	9.14E+01	5.44E+01
PB-212	0.87	238.63	*	44.60	9.54E-01	6.29E-01
		300.09		3.41		
PA-231	0.31	283.67		1.60		
		302.67	*	2.30	1.00E+01	1.12E+01
AM-241	0.99	59.54	*	35.90	2.20E+02	1.64E+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	0.899	1.40E+00	1.75E+00	
	CO-57	0.923	6.93E+01	7.41E+00	
	CO-60	0.966	1.23E+02	7.52E+00	
	Y-88	0.589	4.19E+02	2.00E+02	
?	CD-109	0.969	2.94E+03	3.06E+02	
?	SN-126	0.934	6.18E+01	5.27E+00	
	CS-137	0.999	7.82E+01	7.26E+00	
	CE-139	0.737	9.14E+01	5.44E+01	
	PB-212	0.875	9.54E-01	6.29E-01	
	PA-231	0.311	1.00E+01	1.12E+01	
	AM-241	0.997	2.20E+02	1.64E+01	

Analysis Report for 1707078-01

GAS-1402

? = 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 1707078-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 1:10:41PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	17.68	4.09174E-01	10.33		
m	2	22.34	4.52400E+01	0.44		
m	3	25.21	1.39941E+01	1.25	Tol.	TH-231
	4	32.34	9.33550E-01	6.49		
M	5	50.37	3.71740E+00	2.86	Tol.	TE-132
						TH-227
	7	68.04	3.75270E-01	25.09	Tol.	TI-44
						HF-172
						TA-182
						TH-230
	8	76.77	1.49703E-01	55.94		
	14	273.94	7.22563E-02	57.95	Sum	
	16	545.50	6.25031E-02	53.39		
	17	560.62	5.50475E-02	59.93		
	18	582.86	4.86471E-02	57.75	Tol.	TL-208
	19	592.20	6.19824E-02	51.09		
	23	1309.93	3.72222E-02	38.11	Sum	
	25	1437.54	8.58642E-03	58.77		
	27	1737.78	1.19509E-02	44.98		
	28	1751.35	1.27284E-02	42.09		
M	30	1901.14	8.19317E-03	35.88		
m	31	1912.32	8.60743E-03	54.22		
	32	1988.62	7.51916E-03	57.05		
	33	2162.95	1.05556E-02	38.68		
	34	2374.81	4.01235E-03	46.44		
	35	2504.55	9.22222E-02	7.76	Sum	
	36	2613.15	1.38889E-02	20.00		

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 1707078-01

GAS-1402

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	-7.48E+05	4.25E+06	4.25E+06
+		NA-22	1274.54		99.94	6.81E-01	8.20E-01	8.20E-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	-1.82E-02	2.39E-01	2.39E-01
+		K-40	1460.81	*	10.67	1.40E+00	2.87E+00	2.87E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	5.61E-01	3.36E-01	3.64E-01
			78.34		96.00	-6.77E-02		3.36E-01
+		SC-46	889.25		99.98	-1.45E+03	4.43E+03	4.46E+03
			1120.51		99.99	5.77E+02		4.43E+03
+		V-48	983.52		99.98	1.75E+18	2.21E+19	4.60E+19
			1312.10		97.50	-3.09E+18		2.21E+19
+		CR-51	320.08		9.83	4.46E+10	1.06E+12	1.06E+12
+		MN-54	834.83		99.97	2.13E+00	7.18E+00	7.18E+00
+		CO-56	846.75		99.96	1.62E+03	4.01E+03	7.32E+03
			1037.75		14.03	6.14E+03		5.84E+04
			1238.25		67.00	1.04E+03		6.22E+03
			1771.40		15.51	-5.84E+03		1.60E+04
			2598.48		16.90	5.45E+02		4.01E+03
+		CO-57	122.06	*	85.51	7.05E+01	7.41E+00	7.41E+00
			136.48	*	10.60	5.70E+01		4.03E+01
+		CO-58	810.76		99.40	3.67E+03	1.94E+04	1.94E+04
+		FE-59	1099.22		56.50	-4.71E+06	1.04E+07	1.72E+07
			1291.56		43.20	-4.32E+06		1.04E+07
+		CO-60	1173.22	*	100.00	1.22E+02	9.97E-01	1.84E+00
			1332.49	*	100.00	1.24E+02		9.97E-01
+		ZN-65	1115.52		50.75	1.89E+01	3.18E+01	3.18E+01
+	@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26
	@		208.95		2.24	1.00E+26		1.00E+26
	@		300.22		16.00	1.00E+26		1.00E+26
+		SE-75	121.11		16.70	7.88E+03	1.85E+02	8.86E+02
			136.00		59.20	2.69E+02		1.85E+02
			264.65		59.80	1.90E+01		2.81E+02
			279.53		25.20	-3.40E+01		6.83E+02
			400.65		11.40	-2.37E+02		1.88E+03
+		RB-82	776.52		13.00	3.03E+12	1.07E+13	1.07E+13
+		RB-83	520.41		46.00	6.25E+02	5.20E+03	5.20E+03
			529.64		30.30	3.62E+02		7.75E+03
			552.65		16.40	4.31E+03		1.40E+04

Analysis Report for 1707078-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	KR-85	513.99		0.43	1.21E+02	1.48E+02	1.48E+02
+	SR-85	513.99		99.27	3.23E+04	3.94E+04	3.94E+04
+	Y-88	898.02	*	93.40	5.35E+02	3.26E+02	8.74E+02
		1836.01	*	99.38	4.01E+02		3.26E+02
+	MO-93	263.06		56.72	-6.89E-02	3.01E-01	8.25E-01
		684.67		99.68	-1.31E-02		6.58E-01
		1477.11		99.08	4.18E-02		3.01E-01
+	NB-93M	16.57		9.43	2.83E+02	6.01E+02	6.01E+02
+	NB-94	702.63		100.00	-2.82E-01	5.49E-01	5.49E-01
		871.10		100.00	2.44E-01		7.55E-01
+	NB-95	765.79		99.81	-1.90E+08	6.12E+08	6.12E+08
+	@ NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26
+	ZR-95	724.18		43.70	1.48E+04	9.14E+04	1.14E+05
		756.72		55.30	-2.30E+04		9.14E+04
+	@ MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26
	@	739.58		12.80	1.00E+26		1.00E+26
	@	778.00		4.50	1.00E+26		1.00E+26
+	RU-103	497.08		89.00	-3.67E+07	6.07E+07	6.07E+07
+	RU-106	621.84		9.80	-7.54E+00	3.97E+01	3.97E+01
+	AG-108M	433.93		89.90	-9.67E-02	6.09E-01	6.09E-01
		614.37		90.40	-4.50E-03		6.09E-01
		722.95		90.50	-1.90E-03		6.53E-01
+	CD-109	88.03	*	3.72	2.94E+03	7.53E+01	7.53E+01
+	AG-110M	657.75		93.14	-4.29E+01	1.93E+01	2.84E+01
		677.61		10.53	2.36E+01		9.59E+01
		706.67		16.46	5.23E+01		6.33E+01
		763.93		21.98	1.40E+01		5.10E+01
		884.67		71.63	9.08E+00		1.98E+01
		1384.27		23.94	2.74E+00		1.93E+01
+	CD-113M	263.70		0.02	-2.76E+02	1.95E+03	1.95E+03
+	SN-113	255.12		1.93	5.72E+02	4.10E+02	1.12E+04
		391.69		64.90	-9.58E+01		4.10E+02
+	TE123M	159.00		84.10	-6.14E+01	1.29E+02	1.29E+02
+	SB-124	602.71		97.87	2.84E+04	8.06E+04	9.28E+04
		645.85		7.26	6.03E+05		1.33E+06
		722.78		11.10	-2.65E+03		9.13E+05
		1691.02		49.00	-1.43E+04		8.06E+04
+	I-125	35.49		6.49	1.72E+06	1.94E+06	1.94E+06
+	SB-125	176.33		6.89	-3.85E+00	3.68E+00	7.87E+00
		427.89		29.33	9.41E-01		3.68E+00
		463.38		10.35	6.04E-01		1.16E+01
		600.56		17.80	-2.07E+00		5.93E+00
		635.90		11.32	-1.85E+00		9.77E+00
+	@ SB-126	414.70		83.30	1.00E+26	1.00E+26	1.00E+26
	@	666.33		99.60	1.00E+26		1.00E+26
	@	695.00		99.60	1.00E+26		1.00E+26
	@	720.50		53.80	1.00E+26		1.00E+26
+	SN-126	87.57	*	37.00	6.18E+01	1.58E+00	1.58E+00

Analysis Report for 1707078-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26
	@		685.20		35.70	1.00E+26		1.00E+26
	@		783.80		14.70	1.00E+26		1.00E+26
+		I-129	29.78		57.00	-5.56E+01	2.26E+00	2.26E+00
			33.60		13.20	2.09E+01		7.01E+00
			39.58		7.52	-1.27E+01		7.70E+00
+	@	I-131	284.30		6.05	1.00E+26	1.00E+26	1.00E+26
	@		364.48		81.20	1.00E+26		1.00E+26
	@		636.97		7.26	1.00E+26		1.00E+26
	@		722.89		1.80	1.00E+26		1.00E+26
+	@	TE-132	49.72		13.10	1.00E+26	1.00E+26	1.00E+26
	@		228.16		88.00	1.00E+26		1.00E+26
+		BA-133	81.00		33.00	-1.78E-01	9.20E-01	1.14E+00
			302.84		17.80	1.89E+00		2.82E+00
			356.01		60.00	-1.86E-02		9.20E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	-4.57E+00	1.41E+00	1.63E+01
			569.32		15.43	-5.83E-01		8.85E+00
			604.70		97.60	-9.03E-01		1.41E+00
			795.84		85.40	-4.73E-01		1.97E+00
			801.93		8.73	6.63E+00		1.98E+01
+		CS-135	268.24		16.00	-2.46E-03	2.45E+00	2.45E+00
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+	@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26
	@		163.89		4.61	1.00E+26		1.00E+26
	@		176.55		13.56	1.00E+26		1.00E+26
	@		273.65		12.66	1.00E+26		1.00E+26
	@		340.57		48.50	1.00E+26		1.00E+26
	@		818.50		99.70	1.00E+26		1.00E+26
	@		1048.07		79.60	1.00E+26		1.00E+26
	@		1235.34		19.70	1.00E+26		1.00E+26
+		CS-137	661.65	*	85.12	7.82E+01	1.39E+00	1.39E+00
+		LA-138	788.74		34.00	-1.34E-01	3.65E-01	1.84E+00
			1435.80		66.00	4.22E-02		3.65E-01
+		CE-139	165.85	*	80.35	9.14E+01	8.81E+01	8.81E+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	-5.52E+08	2.57E+09	2.57E+09

Analysis Report for 1707078-01

GAS-1402

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	5.24E+00	2.88E+01	2.88E+01
+		PM-144	476.78	42.00	4.56E+00	3.97E+00	9.93E+00
			618.01	98.60	-3.23E+00		3.97E+00
			696.49	99.49	-5.09E-01		4.03E+00
+		PM-145	36.85	21.70	-1.65E-01	1.80E+00	3.31E+00
			37.36	39.70	1.04E+00		1.80E+00
			42.30	15.10	-7.18E+00		4.24E+00
			72.40	2.31	-7.39E-02		1.54E+01
+		PM-146	453.90	39.94	-7.77E-01	2.06E+00	2.06E+00
			735.90	14.01	2.69E+00		5.98E+00
			747.13	13.10	2.19E-01		6.49E+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	2.28E+01	1.93E+00	2.00E+00
			244.69	5.40	-2.58E+00		8.29E+00
			344.27	19.13	9.95E-01		2.66E+00
			778.89	9.20	3.29E+00		7.99E+00
			964.01	10.40	9.45E-01		9.78E+00
			1085.78	7.22	-5.17E+00		1.31E+01
			1112.02	9.60	3.91E+00		1.02E+01
			1407.95	14.94	1.12E+00		1.93E+00
+		GD-153	97.43	31.30	6.83E+00	1.45E+01	1.45E+01
			103.18	22.20	2.60E+00		2.05E+01
+		EU-154	123.07	40.50	1.24E+01	1.10E+00	1.10E+00
			723.30	19.70	-1.08E-02		3.70E+00
			873.19	11.50	-3.48E+00		8.22E+00
			996.32	10.30	2.84E+00		9.99E+00
			1004.76	17.90	8.89E-01		5.75E+00
			1274.45	35.50	1.12E+00		1.35E+00
+		EU-155	86.50	30.90	8.47E+01	1.61E+00	3.09E+00
			105.30	20.70	-6.44E-01		1.61E+00
+	@	EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26
	@		1153.47	7.20	1.00E+26		1.00E+26
	@		1230.71	8.90	1.00E+26		1.00E+26
+		HO-166M	184.41	72.60	1.59E-02	3.95E-01	3.95E-01
			280.45	29.60	-2.38E-01		1.34E+00
			410.94	11.10	-1.57E-01		4.52E+00
			711.69	54.10	-5.76E-01		1.03E+00
+		TM-171	66.72	0.14	3.14E+02	6.62E+02	6.62E+02
+		HF-172	67.35	5.31	2.81E+01	6.43E+00	1.82E+01
			125.81	11.30	-6.14E+01		6.43E+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	2.54E+00	8.02E+00	1.84E+01

Analysis Report for 1707078-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-173	272.11		21.20	-1.32E+00	8.02E+00	8.02E+00
+	HF-175	343.40		84.00	6.28E+03	1.68E+04	1.68E+04
+	LU-176	88.34		13.30	1.65E+02	3.51E-01	4.91E+00
		201.83		86.00	-1.36E-01		3.51E-01
		306.78		94.00	-1.42E-01		4.38E-01
+	HF-181	133.02		41.70	3.30E+06	1.57E+07	1.57E+07
		345.85		17.20	-2.01E+07		7.08E+07
		482.03		82.80	-3.83E+06		1.79E+07
+	TA-182	67.75		41.20	7.13E+02	4.62E+02	4.62E+02
		1121.30		34.90	-1.15E+02		1.23E+03
		1189.05		16.23	-2.57E+02		2.02E+03
		1221.41		26.98	1.71E+01		9.95E+02
		1231.02		11.44	-2.24E+02		2.13E+03
+	IR-192	308.46		29.68	1.66E+03	2.24E+04	2.56E+04
		468.07		48.10	1.29E+03		2.24E+04
+	HG-203	279.19		77.30	-3.84E+05	3.04E+06	3.04E+06
+	TL-204	374.74		94.11	1.40E-01	8.41E-01	8.41E-01
		899.15		99.16	-2.44E-01		1.36E+00
		911.74		91.10	1.94E-01		1.55E+00
+	BI-207	569.67		97.72	3.26E-01	5.70E-01	5.70E-01
		1063.62		74.90	-7.00E-01		1.14E+00
+	TL-208	583.14		30.22	1.12E+00	6.60E-01	1.76E+00
		860.37		4.48	-5.30E+00		1.63E+01
		2614.66		35.85	0.00E+00		6.60E-01
+	BI-210M	262.00		45.00	-5.89E-01	8.61E-01	8.61E-01
		300.00		23.00	-1.88E-01		1.80E+00
+	PB-210	46.50		4.25	-9.56E+01	1.62E+01	1.62E+01
+	PB-211	404.84		2.90	5.21E+00	1.74E+01	1.74E+01
		831.96		2.90	-7.52E+00		2.40E+01
+	BI-212	727.17		11.80	1.75E+00	4.98E+00	4.98E+00
		1620.62		2.75	-6.49E+00		8.24E+00
+	PB-212	238.63	*	44.60	9.54E-01	1.02E+00	1.02E+00
		300.09		3.41	-1.27E+00		1.21E+01
+	BI-214	609.31		46.30	1.80E-01	1.17E+00	1.17E+00
		1120.29		15.10	6.59E-01		5.06E+00
		1764.49		15.80	6.36E-01		1.71E+00
		2204.22		4.98	-9.12E-01		4.47E+00
+	PB-214	295.21		19.19	-3.36E-01	1.23E+00	2.10E+00
		351.92		37.19	3.24E-01		1.23E+00
+	RN-219	401.80		6.50	1.46E+00	7.72E+00	7.72E+00
+	RA-223	323.87		3.88	-6.17E-01	1.10E+01	1.10E+01
+	RA-224	240.98		3.95	-1.92E-01	1.02E+01	1.02E+01
+	@ RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21		3.28	-1.09E+00	8.83E+00	8.83E+00
+	TH-227	50.10		8.40	3.97E+01	3.46E+00	8.37E+00
		236.00		11.50	3.26E-01		3.46E+00
		256.20		6.30	-1.21E+00		6.21E+00
+	AC-228	338.32		11.40	-1.34E+00	3.02E+00	3.83E+00

Analysis Report for 1707078-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AC-228	911.07		27.70	1.51E-01	3.02E+00	3.02E+00
		969.11		16.60	1.52E-01		5.07E+00
+	TH-230	48.44		16.90	1.07E+01	4.13E+00	4.13E+00
		62.85		4.60	3.05E+01		1.47E+01
		67.67		0.37	1.39E+02		9.01E+01
+	PA-231	283.67		1.60	-9.81E-01	1.83E+01	2.50E+01
		302.67	*	2.30	1.00E+01		1.83E+01
+	TH-231	25.64		14.70	-4.56E+02	5.58E+00	4.61E+01
		84.21		6.40	-3.23E+02		5.58E+00
+	PA-233	311.98		38.60	2.67E+11	5.28E+11	5.28E+11
+	PA-234	131.20		20.40	6.86E-01	1.17E+00	1.17E+00
		733.99		8.80	3.40E+00		6.72E+00
		946.00		12.00	-2.14E+00		7.51E+00
+	PA-234M	1001.03		0.92	-3.56E+01	8.84E+01	8.84E+01
+	TH-234	63.29		3.80	-6.77E+02	9.64E+00	9.64E+00
+	U-235	143.76		10.50	-2.82E-01	2.32E+00	2.32E+00
		163.35		4.70	1.77E+00		5.71E+00
		205.31		4.70	1.97E+00		7.77E+00
+	NP-237	86.50		12.60	1.39E+02	5.07E+00	5.07E+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	2.20E+02	3.45E+00	3.45E+00
+	AM-243	74.67		66.00	-2.29E-03	4.81E-01	4.81E-01
+	CM-243	209.75		3.29	-5.67E+00	3.06E+00	1.20E+01
		228.14		10.60	7.46E-01		3.98E+00
		277.60		14.00	-8.68E-01		3.06E+00

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

NUCLIDE MDA REPORT

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

Analysis Report for 1707078-01

GAS-1402

	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	4.25E+06	4.25E+06	-7.48E+05	2.10E+06
	NA-22	1274.54		99.94	8.20E-01	8.20E-01	6.81E-01	3.94E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	2.39E-01	2.39E-01	-1.82E-02	1.10E-01
+	K-40	1460.81	*	10.67	2.87E+00	2.87E+00	1.40E+00	1.36E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.64E-01	3.36E-01	5.61E-01	1.81E-01
		78.34		96.00	3.36E-01		-6.77E-02	1.67E-01
	SC-46	889.25		99.98	4.46E+03	4.43E+03	-1.45E+03	2.20E+03
		1120.51		99.99	4.43E+03		5.77E+02	2.18E+03
	V-48	983.52		99.98	4.60E+19	2.21E+19	1.75E+18	2.27E+19
		1312.10		97.50	2.21E+19		-3.09E+18	1.06E+19
	CR-51	320.08		9.83	1.06E+12	1.06E+12	4.46E+10	5.22E+11
	MN-54	834.83		99.97	7.18E+00	7.18E+00	2.13E+00	3.54E+00
	CO-56	846.75		99.96	7.32E+03	4.01E+03	1.62E+03	3.61E+03
		1037.75		14.03	5.84E+04		6.14E+03	2.87E+04
		1238.25		67.00	6.22E+03		1.04E+03	3.00E+03
		1771.40		15.51	1.60E+04		-5.84E+03	7.37E+03
		2598.48		16.90	4.01E+03		5.45E+02	1.27E+03
+	CO-57	122.06	*	85.51	7.41E+00	7.41E+00	7.05E+01	3.68E+00
		136.48	*	10.60	4.03E+01		5.70E+01	2.00E+01
	CO-58	810.76		99.40	1.94E+04	1.94E+04	3.67E+03	9.53E+03
	FE-59	1099.22		56.50	1.72E+07	1.04E+07	-4.71E+06	8.45E+06
		1291.56		43.20	1.04E+07		-4.32E+06	4.98E+06
+	CO-60	1173.22	*	100.00	1.84E+00	9.97E-01	1.22E+02	9.08E-01
		1332.49	*	100.00	9.97E-01		1.24E+02	4.87E-01
	ZN-65	1115.52		50.75	3.18E+01	3.18E+01	1.89E+01	1.57E+01
@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		208.95		2.24	1.00E+26		1.00E+26	1.00E+20
@		300.22		16.00	1.00E+26		1.00E+26	1.00E+20
	SE-75	121.11		16.70	8.86E+02	1.85E+02	7.88E+03	4.40E+02
		136.00		59.20	1.85E+02		2.69E+02	9.18E+01
		264.65		59.80	2.81E+02		1.90E+01	1.39E+02
		279.53		25.20	6.83E+02		-3.40E+01	3.38E+02
		400.65		11.40	1.88E+03		-2.37E+02	9.30E+02
	RB-82	776.52		13.00	1.07E+13	1.07E+13	3.03E+12	5.29E+12
	RB-83	520.41		46.00	5.20E+03	5.20E+03	6.25E+02	2.57E+03
		529.64		30.30	7.75E+03		3.62E+02	3.82E+03
		552.65		16.40	1.40E+04		4.31E+03	6.92E+03
	KR-85	513.99		0.43	1.48E+02	1.48E+02	1.21E+02	7.29E+01
	SR-85	513.99		99.27	3.94E+04	3.94E+04	3.23E+04	1.94E+04
+	Y-88	898.02	*	93.40	8.74E+02	3.26E+02	5.35E+02	4.32E+02
		1836.01	*	99.38	3.26E+02		4.01E+02	1.54E+02
	MO-93	263.06		56.72	8.25E-01	3.01E-01	-6.89E-02	4.09E-01
		684.67		99.68	6.58E-01		-1.31E-02	3.24E-01
		1477.11		99.08	3.01E-01		4.18E-02	1.40E-01
	NB-93M	16.57		9.43	6.01E+02	6.01E+02	2.83E+02	2.99E+02
	NB-94	702.63		100.00	5.49E-01	5.49E-01	-2.82E-01	2.70E-01
		871.10		100.00	7.55E-01		2.44E-01	3.72E-01
	NB-95	765.79		99.81	6.12E+08	6.12E+08	-1.90E+08	3.01E+08

Analysis Report for 1707078-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	ZR-95	724.18		43.70	1.14E+05	9.14E+04	1.48E+04	5.60E+04
		756.72		55.30	9.14E+04		-2.30E+04	4.50E+04
@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		739.58		12.80	1.00E+26		1.00E+26	1.00E+20
@		778.00		4.50	1.00E+26		1.00E+26	1.00E+20
	RU-103	497.08		89.00	6.07E+07	6.07E+07	-3.67E+07	3.00E+07
	RU-106	621.84		9.80	3.97E+01	3.97E+01	-7.54E+00	1.96E+01
	AG-108M	433.93		89.90	6.09E-01	6.09E-01	-9.67E-02	3.01E-01
		614.37		90.40	6.09E-01		-4.50E-03	3.00E-01
		722.95		90.50	6.53E-01		-1.90E-03	3.21E-01
+	CD-109	88.03	*	3.72	7.53E+01	7.53E+01	2.94E+03	3.75E+01
	AG-110M	657.75		93.14	2.84E+01	1.93E+01	-4.29E+01	1.41E+01
		677.61		10.53	9.59E+01		2.36E+01	4.72E+01
		706.67		16.46	6.33E+01		5.23E+01	3.12E+01
		763.93		21.98	5.10E+01		1.40E+01	2.51E+01
		884.67		71.63	1.98E+01		9.08E+00	9.78E+00
		1384.27		23.94	1.93E+01		2.74E+00	9.04E+00
	CD-113M	263.70		0.02	1.95E+03	1.95E+03	-2.76E+02	9.66E+02
	SN-113	255.12		1.93	1.12E+04	4.10E+02	5.72E+02	5.57E+03
		391.69		64.90	4.10E+02		-9.58E+01	2.03E+02
	TE123M	159.00		84.10	1.29E+02	1.29E+02	-6.14E+01	6.38E+01
	SB-124	602.71		97.87	9.28E+04	8.06E+04	2.84E+04	4.57E+04
		645.85		7.26	1.33E+06		6.03E+05	6.54E+05
		722.78		11.10	9.13E+05		-2.65E+03	4.49E+05
		1691.02		49.00	8.06E+04		-1.43E+04	3.70E+04
	I-125	35.49		6.49	1.94E+06	1.94E+06	1.72E+06	9.62E+05
	SB-125	176.33		6.89	7.87E+00	3.68E+00	-3.85E+00	3.89E+00
		427.89		29.33	3.68E+00		9.41E-01	1.82E+00
		463.38		10.35	1.16E+01		6.04E-01	5.73E+00
		600.56		17.80	5.93E+00		-2.07E+00	2.92E+00
		635.90		11.32	9.77E+00		-1.85E+00	4.81E+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	1.58E+00	1.58E+00	6.18E+01	7.88E-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	2.26E+00	2.26E+00	-5.56E+01	1.12E+00
		33.60		13.20	7.01E+00		2.09E+01	3.48E+00
		39.58		7.52	7.70E+00		-1.27E+01	3.82E+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	1.14E+00	9.20E-01	-1.78E-01	5.64E-01
		302.84		17.80	2.82E+00		1.89E+00	1.40E+00
		356.01		60.00	9.20E-01		-1.86E-02	4.55E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707078-01

GAS-1402

	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	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-134	563.23		8.38	1.63E+01	1.41E+00	-4.57E+00	8.06E+00
		569.32		15.43	8.85E+00		-5.83E-01	4.36E+00
		604.70		97.60	1.41E+00		-9.03E-01	6.93E-01
		795.84		85.40	1.97E+00		-4.73E-01	9.69E-01
		801.93		8.73	1.98E+01		6.63E+00	9.76E+00
	CS-135	268.24		16.00	2.45E+00	2.45E+00	-2.46E-03	1.21E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
@	CS-136	153.22		7.46	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		163.89		4.61	1.00E+26		1.00E+26	1.00E+20
@		176.55		13.56	1.00E+26		1.00E+26	1.00E+20
@		273.65		12.66	1.00E+26		1.00E+26	1.00E+20
@		340.57		48.50	1.00E+26		1.00E+26	1.00E+20
@		818.50		99.70	1.00E+26		1.00E+26	1.00E+20
@		1048.07		79.60	1.00E+26		1.00E+26	1.00E+20
@		1235.34		19.70	1.00E+26		1.00E+26	1.00E+20
+	CS-137	661.65	*	85.12	1.39E+00	1.39E+00	7.82E+01	6.92E-01
	LA-138	788.74		34.00	1.84E+00	3.65E-01	-1.34E-01	9.07E-01
		1435.80		66.00	3.65E-01		4.22E-02	1.70E-01
+	CE-139	165.85	*	80.35	8.81E+01	8.81E+01	9.14E+01	4.37E+01
@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		304.84		4.50	1.00E+26		1.00E+26	1.00E+20
@		423.70		3.20	1.00E+26		1.00E+26	1.00E+20
@		437.55		2.00	1.00E+26		1.00E+26	1.00E+20
@		537.32		25.00	1.00E+26		1.00E+26	1.00E+20
@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		487.03		45.50	1.00E+26		1.00E+26	1.00E+20
@		815.85		23.50	1.00E+26		1.00E+26	1.00E+20
@		1596.49		95.49	1.00E+26		1.00E+26	1.00E+20
	CE-141	145.44		48.40	2.57E+09	2.57E+09	-5.52E+08	1.27E+09
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	2.88E+01	2.88E+01	5.24E+00	1.43E+01
	PM-144	476.78		42.00	9.93E+00	3.97E+00	4.56E+00	4.91E+00
		618.01		98.60	3.97E+00		-3.23E+00	1.95E+00
		696.49		99.49	4.03E+00		-5.09E-01	1.98E+00
	PM-145	36.85		21.70	3.31E+00	1.80E+00	-1.65E-01	1.64E+00
		37.36		39.70	1.80E+00		1.04E+00	8.92E-01
		42.30		15.10	4.24E+00		-7.18E+00	2.11E+00
		72.40		2.31	1.54E+01		-7.39E-02	7.67E+00
	PM-146	453.90		39.94	2.06E+00	2.06E+00	-7.77E-01	1.02E+00
		735.90		14.01	5.98E+00		2.69E+00	2.94E+00
		747.13		13.10	6.49E+00		2.19E-01	3.19E+00
@	ND-147	91.11		28.90	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		531.02		13.10	1.00E+26		1.00E+26	1.00E+20
@	PM-149	285.90		3.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	EU-152	121.78		20.50	2.00E+00	1.93E+00	2.28E+01	9.96E-01
		244.69		5.40	8.29E+00		-2.58E+00	4.11E+00
		344.27		19.13	2.66E+00		9.95E-01	1.32E+00
		778.89		9.20	7.99E+00		3.29E+00	3.93E+00

Analysis Report for 1707078-01

GAS-1402

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-152	964.01	10.40	9.78E+00	1.93E+00	9.45E-01	4.82E+00
	1085.78	7.22	1.31E+01		-5.17E+00	6.42E+00
	1112.02	9.60	1.02E+01		3.91E+00	5.00E+00
	1407.95	14.94	1.93E+00		1.12E+00	9.03E-01
GD-153	97.43	31.30	1.45E+01	1.45E+01	6.83E+00	7.16E+00
	103.18	22.20	2.05E+01		2.60E+00	1.02E+01
EU-154	123.07	40.50	1.10E+00	1.10E+00	1.24E+01	5.45E-01
	723.30	19.70	3.70E+00		-1.08E-02	1.82E+00
	873.19	11.50	8.22E+00		-3.48E+00	4.05E+00
	996.32	10.30	9.99E+00		2.84E+00	4.92E+00
	1004.76	17.90	5.75E+00		8.89E-01	2.83E+00
	1274.45	35.50	1.35E+00		1.12E+00	6.48E-01
EU-155	86.50	30.90	3.09E+00	1.61E+00	8.47E+01	1.54E+00
	105.30	20.70	1.61E+00		-6.44E-01	7.98E-01
@ EU-156	811.77	10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1153.47	7.20	1.00E+26		1.00E+26	1.00E+20
@	1230.71	8.90	1.00E+26		1.00E+26	1.00E+20
HO-166M	184.41	72.60	3.95E-01	3.95E-01	1.59E-02	1.95E-01
	280.45	29.60	1.34E+00		-2.38E-01	6.66E-01
	410.94	11.10	4.52E+00		-1.57E-01	2.23E+00
	711.69	54.10	1.03E+00		-5.76E-01	5.07E-01
TM-171	66.72	0.14	6.62E+02	6.62E+02	3.14E+02	3.29E+02
HF-172	67.35	5.31	1.82E+01	6.43E+00	2.81E+01	9.05E+00
	125.81	11.30	6.43E+00		-6.14E+01	3.19E+00
@ LU-172	181.53	20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	900.72	29.81	1.00E+26		1.00E+26	1.00E+20
@	1093.66	62.50	1.00E+26		1.00E+26	1.00E+20
LU-173	100.72	5.24	1.84E+01	8.02E+00	2.54E+00	9.09E+00
	272.11	21.20	8.02E+00		-1.32E+00	3.97E+00
HF-175	343.40	84.00	1.68E+04	1.68E+04	6.28E+03	8.32E+03
LU-176	88.34	13.30	4.91E+00	3.51E-01	1.65E+02	2.45E+00
	201.83	86.00	3.51E-01		-1.36E-01	1.74E-01
	306.78	94.00	4.38E-01		-1.42E-01	2.17E-01
HF-181	133.02	41.70	1.57E+07	1.57E+07	3.30E+06	7.79E+06
	345.85	17.20	7.08E+07		-2.01E+07	3.50E+07
	482.03	82.80	1.79E+07		-3.83E+06	8.87E+06
TA-182	67.75	41.20	4.62E+02	4.62E+02	7.13E+02	2.30E+02
	1121.30	34.90	1.23E+03		-1.15E+02	6.05E+02
	1189.05	16.23	2.02E+03		-2.57E+02	9.87E+02
	1221.41	26.98	9.95E+02		1.71E+01	4.82E+02
	1231.02	11.44	2.13E+03		-2.24E+02	1.03E+03
IR-192	308.46	29.68	2.56E+04	2.24E+04	1.66E+03	1.27E+04
	468.07	48.10	2.24E+04		1.29E+03	1.11E+04
HG-203	279.19	77.30	3.04E+06	3.04E+06	-3.84E+05	1.50E+06
TL-204	374.74	94.11	8.41E-01	8.41E-01	1.40E-01	4.16E-01
	899.15	99.16	1.36E+00		-2.44E-01	6.73E-01
	911.74	91.10	1.55E+00		1.94E-01	7.67E-01
BI-207	569.67	97.72	5.70E-01	5.70E-01	3.26E-01	2.81E-01
	1063.62	74.90	1.14E+00		-7.00E-01	5.61E-01
TL-208	583.14	30.22	1.76E+00	6.60E-01	1.12E+00	8.65E-01
	860.37	4.48	1.63E+01		-5.30E+00	8.04E+00
	2614.66	35.85	6.60E-01		0.00E+00	2.96E-01
BI-210M	262.00	45.00	8.61E-01	8.61E-01	-5.89E-01	4.27E-01

Analysis Report for 1707078-01

GAS-1402

	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	1.80E+00	8.61E-01	-1.88E-01	8.89E-01
	PB-210	46.50		4.25	1.62E+01	1.62E+01	-9.56E+01	8.07E+00
	PB-211	404.84		2.90	1.74E+01	1.74E+01	5.21E+00	8.62E+00
		831.96		2.90	2.40E+01		-7.52E+00	1.18E+01
	BI-212	727.17		11.80	4.98E+00	4.98E+00	1.75E+00	2.45E+00
		1620.62		2.75	8.24E+00		-6.49E+00	3.79E+00
+	PB-212	238.63	*	44.60	1.02E+00	1.02E+00	9.54E-01	5.06E-01
		300.09		3.41	1.21E+01		-1.27E+00	6.00E+00
	BI-214	609.31		46.30	1.17E+00	1.17E+00	1.80E-01	5.78E-01
		1120.29		15.10	5.06E+00		6.59E-01	2.49E+00
		1764.49		15.80	1.71E+00		6.36E-01	7.92E-01
		2204.22		4.98	4.47E+00		-9.12E-01	2.01E+00
	PB-214	295.21		19.19	2.10E+00	1.23E+00	-3.36E-01	1.04E+00
		351.92		37.19	1.23E+00		3.24E-01	6.07E-01
	RN-219	401.80		6.50	7.72E+00	7.72E+00	1.46E+00	3.82E+00
	RA-223	323.87		3.88	1.10E+01	1.10E+01	-6.17E-01	5.45E+00
	RA-224	240.98		3.95	1.02E+01	1.02E+01	-1.92E-01	5.07E+00
@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	RA-226	186.21		3.28	8.83E+00	8.83E+00	-1.09E+00	4.37E+00
	TH-227	50.10		8.40	8.37E+00	3.46E+00	3.97E+01	4.17E+00
		236.00		11.50	3.46E+00		3.26E-01	1.72E+00
		256.20		6.30	6.21E+00		-1.21E+00	3.08E+00
	AC-228	338.32		11.40	3.83E+00	3.02E+00	-1.34E+00	1.90E+00
		911.07		27.70	3.02E+00		1.51E-01	1.49E+00
		969.11		16.60	5.07E+00		1.52E-01	2.50E+00
	TH-230	48.44		16.90	4.13E+00	4.13E+00	1.07E+01	2.06E+00
		62.85		4.60	1.47E+01		3.05E+01	7.34E+00
		67.67		0.37	9.01E+01		1.39E+02	4.47E+01
+	PA-231	283.67		1.60	2.50E+01	1.83E+01	-9.81E-01	1.24E+01
		302.67	*	2.30	1.83E+01		1.00E+01	9.05E+00
	TH-231	25.64		14.70	4.61E+01	5.58E+00	-4.56E+02	2.30E+01
		84.21		6.40	5.58E+00		-3.23E+02	2.77E+00
	PA-233	311.98		38.60	5.28E+11	5.28E+11	2.67E+11	2.62E+11
	PA-234	131.20		20.40	1.17E+00	1.17E+00	6.86E-01	5.79E-01
		733.99		8.80	6.72E+00		3.40E+00	3.31E+00
		946.00		12.00	7.51E+00		-2.14E+00	3.71E+00
	PA-234M	1001.03		0.92	8.84E+01	8.84E+01	-3.56E+01	4.35E+01
	TH-234	63.29		3.80	9.64E+00	9.64E+00	-6.77E+02	4.79E+00
	U-235	143.76		10.50	2.32E+00	2.32E+00	-2.82E-01	1.15E+00
		163.35		4.70	5.71E+00		1.77E+00	2.83E+00
		205.31		4.70	7.77E+00		1.97E+00	3.85E+00
	NP-237	86.50		12.60	5.07E+00	5.07E+00	1.39E+02	2.53E+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	3.45E+00	3.45E+00	2.20E+02	1.72E+00
	AM-243	74.67		66.00	4.81E-01	4.81E-01	-2.29E-03	2.39E-01
	CM-243	209.75		3.29	1.20E+01	3.06E+00	-5.67E+00	5.96E+00
		228.14		10.60	3.98E+00		7.46E-01	1.97E+00
		277.60		14.00	3.06E+00		-8.68E-01	1.52E+00

Analysis Report for 1707078-01

GAS-1402

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: GAS-1402

Elapsed Live time: 1800
Elapsed Real Time: 1835

Channel								
1:	0	0	0	0	0	0	0	0
9:	125	1516	2352	4291	4707	2593	2280	2079
17:	1900	2457	2010	2212	8628	35017	41277	14029
25:	12631	12675	4181	1235	892	838	929	1588
33:	1771	1088	863	995	1094	1103	1018	1174
41:	1158	1387	1428	1723	1894	2051	2302	2945
49:	3803	4575	4501	4393	4272	4202	4260	4574
57:	4847	6412	20731	43563	22500	3544	1280	1260
65:	1299	1385	1605	1606	1646	1624	1548	1525
73:	1597	1471	1504	1565	1601	1583	1520	1486
81:	1521	1584	1565	1660	1749	1731	3574	12465
89:	13655	4013	1038	843	812	774	771	786
97:	782	767	774	850	765	751	823	833
105:	749	772	734	734	781	795	784	806
113:	790	832	790	835	764	793	810	826
121:	1123	2601	2899	1344	724	730	699	740
129:	749	743	730	760	695	694	687	869
137:	990	811	690	751	732	749	642	677
145:	716	691	684	667	673	729	721	682
153:	682	686	705	624	666	657	653	626
161:	656	716	655	708	697	831	791	706
169:	665	638	641	664	622	664	632	662
177:	639	606	612	676	653	639	667	660
185:	698	697	743	691	753	727	732	724
193:	727	735	701	740	684	692	698	650
201:	667	678	681	695	735	656	667	674
209:	712	660	700	678	665	726	685	770
217:	707	768	689	696	716	708	730	702
225:	662	686	675	680	675	674	679	643
233:	618	668	622	632	585	695	761	673
241:	645	609	580	588	595	552	549	592
249:	556	577	586	612	544	590	597	477
257:	561	552	539	549	512	510	514	518
265:	501	563	521	506	517	494	467	504
273:	507	541	572	477	523	530	470	471
281:	473	496	503	462	492	485	474	499
289:	493	470	477	465	449	448	449	457
297:	458	456	450	452	487	480	494	464
305:	448	437	426	436	461	457	476	451
313:	448	431	441	421	448	429	445	442
321:	430	418	462	436	449	430	439	462
329:	412	429	374	424	437	452	445	423
337:	436	438	426	423	406	411	432	422
345:	398	415	431	380	393	422	436	469
353:	452	430	402	398	462	430	386	410
361:	395	379	420	411	391	407	400	399

369:	387	391	394	406	429	366	434	370

Sample Title: GAS-1402

Channel								
377:	400	424	405	400	414	367	383	394
385:	397	351	404	410	392	365	423	418
393:	405	393	391	400	412	393	404	382
401:	417	410	430	408	424	405	405	394
409:	404	397	383	394	399	377	387	384
417:	401	410	368	374	411	422	380	410
425:	377	406	383	424	405	408	418	417
433:	369	440	404	419	422	443	412	414
441:	427	420	380	429	388	422	428	412
449:	421	441	448	422	403	459	403	460
457:	438	469	450	411	436	437	423	437
465:	402	424	460	423	434	414	444	442
473:	406	464	403	393	369	363	368	304
481:	346	305	344	357	327	351	300	297
489:	340	308	289	336	300	311	288	294
497:	293	315	256	319	304	322	283	276
505:	289	300	295	294	259	285	318	310
513:	305	299	265	293	275	275	262	295
521:	288	267	309	253	274	262	267	259
529:	279	243	246	267	258	275	228	267
537:	307	248	239	256	237	238	241	251
545:	275	266	265	209	246	242	246	249
553:	225	207	221	226	233	205	238	260
561:	257	252	227	240	229	215	274	234
569:	229	241	215	229	242	231	213	219
577:	206	214	205	228	227	250	251	248
585:	205	221	232	208	216	220	248	233
593:	232	215	213	190	210	229	197	205
601:	186	222	219	192	233	223	188	204
609:	264	240	213	239	235	218	246	195
617:	203	201	198	207	203	208	252	224
625:	218	250	221	202	207	243	206	207
633:	181	209	185	219	224	225	196	219
641:	208	211	201	200	225	216	219	200
649:	210	190	190	220	194	218	205	197
657:	221	227	341	1781	6903	8350	3257	577
665:	221	202	210	203	175	163	208	168
673:	176	197	183	203	182	194	201	191
681:	186	183	186	195	186	179	179	184
689:	181	184	188	190	166	165	176	172
697:	181	156	200	179	176	182	154	185
705:	188	180	188	210	206	167	173	166
713:	181	167	187	174	198	181	198	191
721:	204	171	191	215	186	168	207	172
729:	196	196	180	188	182	201	204	188
737:	194	163	167	154	182	175	182	183
745:	196	168	183	190	203	180	200	181
753:	184	170	196	176	189	199	190	163
761:	203	186	178	183	199	193	191	209
769:	169	202	194	169	189	183	166	200
777:	202	209	197	194	191	192	214	180
785:	199	178	179	214	187	190	183	187
793:	188	193	186	215	199	188	190	223

801:	200	193	188	201	225	213	177	192

Sample Title: GAS-1402

Channel								
809:	207	215	190	187	222	235	203	212
817:	215	212	205	209	218	227	226	219
825:	232	211	212	246	199	217	213	205
833:	195	229	229	218	210	220	195	208
841:	197	217	213	206	212	215	246	213
849:	233	221	219	211	221	233	238	226
857:	216	205	223	229	211	243	217	216
865:	238	221	198	228	246	217	235	215
873:	255	216	222	239	242	242	242	207
881:	222	242	239	248	241	225	224	239
889:	214	249	239	216	239	228	211	241
897:	258	281	229	244	242	215	268	273
905:	266	270	242	245	260	273	276	260
913:	256	262	242	285	251	281	250	295
921:	277	273	247	270	276	266	260	261
929:	282	279	275	268	287	284	260	278
937:	276	294	309	287	306	260	259	297
945:	303	294	266	288	284	313	288	266
953:	314	278	286	290	265	281	299	274
961:	267	278	253	261	261	260	251	243
969:	234	223	242	209	205	234	233	184
977:	224	234	223	224	220	200	208	204
985:	214	205	227	191	209	217	193	216
993:	235	223	217	193	216	217	205	198
1001:	222	212	202	209	241	221	210	187
1009:	224	188	213	201	201	205	184	193
1017:	213	192	222	207	181	193	214	202
1025:	190	213	209	178	205	196	231	193
1033:	206	190	189	189	204	218	193	168
1041:	195	182	190	212	172	171	198	190
1049:	201	187	213	182	209	187	205	181
1057:	206	187	193	209	167	177	179	212
1065:	177	195	184	191	205	176	172	183
1073:	209	181	182	176	196	181	181	182
1081:	182	184	197	146	185	208	170	189
1089:	179	196	200	176	192	186	183	175
1097:	186	151	184	195	195	198	201	188
1105:	188	189	202	175	210	173	190	203
1113:	173	198	165	166	175	173	152	154
1121:	133	133	139	140	134	132	126	131
1129:	125	131	123	124	125	131	110	142
1137:	118	128	114	103	125	111	95	120
1145:	103	108	106	111	122	122	131	110
1153:	107	100	113	106	111	110	119	101
1161:	113	105	115	99	118	99	109	115
1169:	113	282	1581	4896	6382	3076	620	121
1177:	90	75	99	85	72	96	88	67
1185:	93	84	76	71	65	77	84	77
1193:	74	80	66	61	63	64	57	60
1201:	59	55	55	58	71	64	51	55
1209:	55	48	48	51	46	55	46	42
1217:	51	41	57	49	41	47	65	37
1225:	53	45	43	32	45	39	36	40

1233:	41	39	32	42	37	37	36	34

Sample Title: GAS-1402

Channel								
1241:	32	27	32	39	36	40	27	33
1249:	31	32	25	26	27	30	26	26
1257:	38	31	20	31	31	23	18	26
1265:	26	26	26	25	22	21	28	28
1273:	29	28	30	29	32	17	24	24
1281:	35	29	27	27	28	27	38	26
1289:	33	34	21	29	31	25	30	35
1297:	27	26	28	22	28	26	25	27
1305:	24	16	31	30	27	37	34	24
1313:	27	21	19	34	20	25	31	20
1321:	25	20	19	25	25	31	33	42
1329:	196	1195	4001	5621	3117	746	92	25
1337:	23	19	11	13	14	19	11	11
1345:	13	13	9	15	6	10	11	11
1353:	5	5	17	10	9	6	8	10
1361:	12	9	10	17	7	11	9	7
1369:	8	4	17	4	5	12	9	8
1377:	16	14	8	12	12	13	12	6
1385:	9	12	10	11	8	7	9	9
1393:	3	9	9	6	7	11	7	11
1401:	17	13	6	9	17	11	9	7
1409:	4	14	8	5	7	12	8	9
1417:	9	9	3	7	7	6	6	6
1425:	11	9	7	10	5	13	5	6
1433:	11	7	6	8	13	14	4	7
1441:	7	12	9	9	10	10	6	15
1449:	3	7	7	9	18	9	9	10
1457:	7	7	10	14	15	10	7	12
1465:	4	7	10	7	6	5	9	7
1473:	8	0	5	13	8	5	6	7
1481:	12	7	3	7	8	10	9	11
1489:	6	9	6	4	11	7	4	10
1497:	9	13	8	3	4	7	7	1
1505:	7	13	8	4	10	6	5	7
1513:	9	5	7	4	6	2	3	7
1521:	7	7	8	6	9	4	9	3
1529:	5	11	6	5	13	6	6	5
1537:	11	7	6	10	8	5	10	6
1545:	6	9	3	8	4	6	9	9
1553:	5	6	6	8	4	8	7	10
1561:	7	5	4	10	14	6	10	5
1569:	11	10	6	9	6	6	0	10
1577:	7	8	8	8	10	7	7	8
1585:	9	7	14	11	6	7	11	12
1593:	5	5	5	4	5	7	10	3
1601:	7	10	8	2	10	2	5	6
1609:	6	2	6	6	8	10	7	4
1617:	3	4	10	4	4	4	7	5
1625:	7	8	5	7	3	6	3	3
1633:	8	9	8	8	6	7	10	7
1641:	9	11	5	2	7	6	8	4
1649:	2	7	10	7	8	9	10	8
1657:	4	7	6	5	5	6	7	2

1665:	8	4	4	8	8	4	3	4

Sample Title: GAS-1402

Channel								
1673:	5	8	3	4	4	7	6	8
1681:	3	3	5	5	7	2	4	5
1689:	3	8	2	4	6	6	4	2
1697:	10	7	5	8	5	4	8	4
1705:	7	7	6	2	3	9	5	6
1713:	4	11	4	3	6	6	9	2
1721:	2	9	5	8	4	7	2	5
1729:	6	8	3	11	0	6	3	6
1737:	5	10	3	6	3	1	3	7
1745:	8	6	4	4	9	6	11	3
1753:	3	7	2	2	8	3	6	3
1761:	7	7	4	9	10	3	9	5
1769:	3	7	5	5	2	5	5	8
1777:	5	5	5	8	5	5	6	7
1785:	4	4	5	6	4	3	3	6
1793:	5	7	4	8	3	2	5	4
1801:	2	7	4	3	4	7	5	5
1809:	5	5	4	4	4	5	2	7
1817:	9	4	7	7	4	3	7	3
1825:	6	2	5	3	4	3	4	8
1833:	9	15	25	18	4	6	5	1
1841:	5	6	2	6	9	3	3	3
1849:	5	4	7	3	5	2	4	8
1857:	5	1	5	5	6	3	1	8
1865:	2	3	3	6	6	5	6	6
1873:	4	8	8	3	4	4	7	9
1881:	5	8	4	1	6	6	8	2
1889:	8	8	2	2	6	5	5	6
1897:	5	1	1	7	4	7	2	2
1905:	6	4	5	4	8	7	5	9
1913:	5	5	2	5	3	3	6	3
1921:	3	3	3	10	5	5	7	4
1929:	4	8	0	5	5	7	5	4
1937:	5	2	7	7	6	2	4	5
1945:	5	4	1	5	0	4	1	5
1953:	2	4	3	4	5	5	4	3
1961:	3	5	10	6	5	9	4	4
1969:	5	5	4	3	3	6	4	4
1977:	5	5	1	4	2	2	7	3
1985:	6	1	8	9	4	2	4	1
1993:	2	4	0	6	5	5	1	5
2001:	6	3	3	3	3	3	3	1
2009:	3	4	4	8	8	5	5	6
2017:	3	3	6	4	6	2	3	4
2025:	3	4	4	3	2	7	5	2
2033:	4	3	2	8	3	5	2	1
2041:	2	2	4	2	3	4	4	2
2049:	5	5	3	4	7	6	2	4
2057:	6	4	4	11	3	2	2	2
2065:	2	3	4	1	5	1	4	2
2073:	2	4	8	4	6	1	6	4
2081:	1	3	3	8	6	3	2	1
2089:	1	2	4	2	2	0	2	4

2097:	5	6	1	4	3	4	6	5

Sample Title: GAS-1402

Channel								
2105:	3	4	3	7	4	4	3	3
2113:	8	2	4	6	4	0	1	4
2121:	3	4	6	5	3	2	2	3
2129:	2	4	4	2	2	4	5	4
2137:	5	3	0	3	4	2	1	3
2145:	4	5	3	5	3	4	0	3
2153:	2	6	9	3	4	2	0	3
2161:	6	6	4	1	4	3	1	1
2169:	1	2	2	5	5	2	4	6
2177:	5	3	2	2	9	1	3	2
2185:	2	6	1	2	6	6	2	5
2193:	2	3	1	2	3	5	5	2
2201:	5	2	3	3	2	3	3	4
2209:	2	4	3	3	4	5	1	3
2217:	2	3	4	2	2	2	6	3
2225:	7	4	2	4	2	5	3	6
2233:	4	3	2	1	5	2	7	2
2241:	7	2	4	4	1	4	6	3
2249:	3	5	4	3	3	8	2	4
2257:	2	2	4	10	0	4	2	5
2265:	3	2	5	1	2	7	2	3
2273:	4	6	2	3	4	2	4	3
2281:	8	2	2	3	2	3	1	4
2289:	3	1	3	3	2	1	4	3
2297:	2	2	6	2	3	2	2	1
2305:	2	1	0	2	1	2	0	1
2313:	3	2	3	1	3	1	1	1
2321:	5	2	1	0	1	2	1	3
2329:	1	1	2	2	0	3	2	1
2337:	2	2	2	1	1	1	1	3
2345:	2	3	1	0	2	0	2	2
2353:	1	2	1	4	0	1	1	1
2361:	1	2	0	2	3	3	1	3
2369:	1	3	0	0	1	4	3	1
2377:	0	1	2	0	1	1	0	1
2385:	1	3	0	0	0	1	1	0
2393:	0	2	2	1	0	0	1	0
2401:	0	1	0	0	0	1	0	3
2409:	1	0	0	1	3	1	0	1
2417:	0	0	0	0	2	1	1	1
2425:	1	0	0	1	1	0	1	1
2433:	0	1	0	1	0	1	1	1
2441:	1	0	0	0	0	1	1	0
2449:	0	0	0	0	1	0	1	3
2457:	0	0	1	0	0	0	1	0
2465:	0	0	1	1	3	1	1	0
2473:	0	1	0	0	1	0	1	2
2481:	0	0	2	0	1	0	1	0
2489:	1	1	0	0	0	0	0	0
2497:	0	0	3	1	3	12	32	53
2505:	41	16	4	1	0	0	0	0
2513:	0	0	1	0	2	0	0	0
2521:	0	1	0	0	0	0	0	1

2529:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

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

2961:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

Channel								
2969:	0	0	0	0	0	1	0	0
2977:	0	0	0	0	0	0	0	0
2985:	0	0	1	0	0	0	0	0
2993:	0	0	0	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	0	0	0	0	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	0	0	1	0	0
3041:	0	0	0	0	0	0	0	1
3049:	0	0	0	0	0	0	0	0
3057:	0	1	0	0	0	0	0	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	0	0	0	0	1	0	0	0
3089:	0	0	0	0	0	0	1	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	1	0	1	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	1	0
3137:	0	1	0	0	0	1	0	0
3145:	1	0	0	0	0	0	0	0
3153:	0	0	1	0	0	0	0	0
3161:	1	0	0	1	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	0	0	0	0	0	0	0	1
3185:	0	0	0	0	0	0	0	0
3193:	0	1	0	1	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	0	0	0	0	0	0	0	0
3217:	0	0	1	0	0	0	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	1
3241:	0	0	0	0	0	0	0	1
3249:	0	1	0	0	0	0	0	1
3257:	0	0	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	1	0	0	0	0	0	0
3281:	0	0	0	1	0	0	0	0
3289:	0	0	0	0	0	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	1	0	0	0	0	0
3337:	0	0	1	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	0	0	0	0	0
3377:	0	1	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: GAS-1402

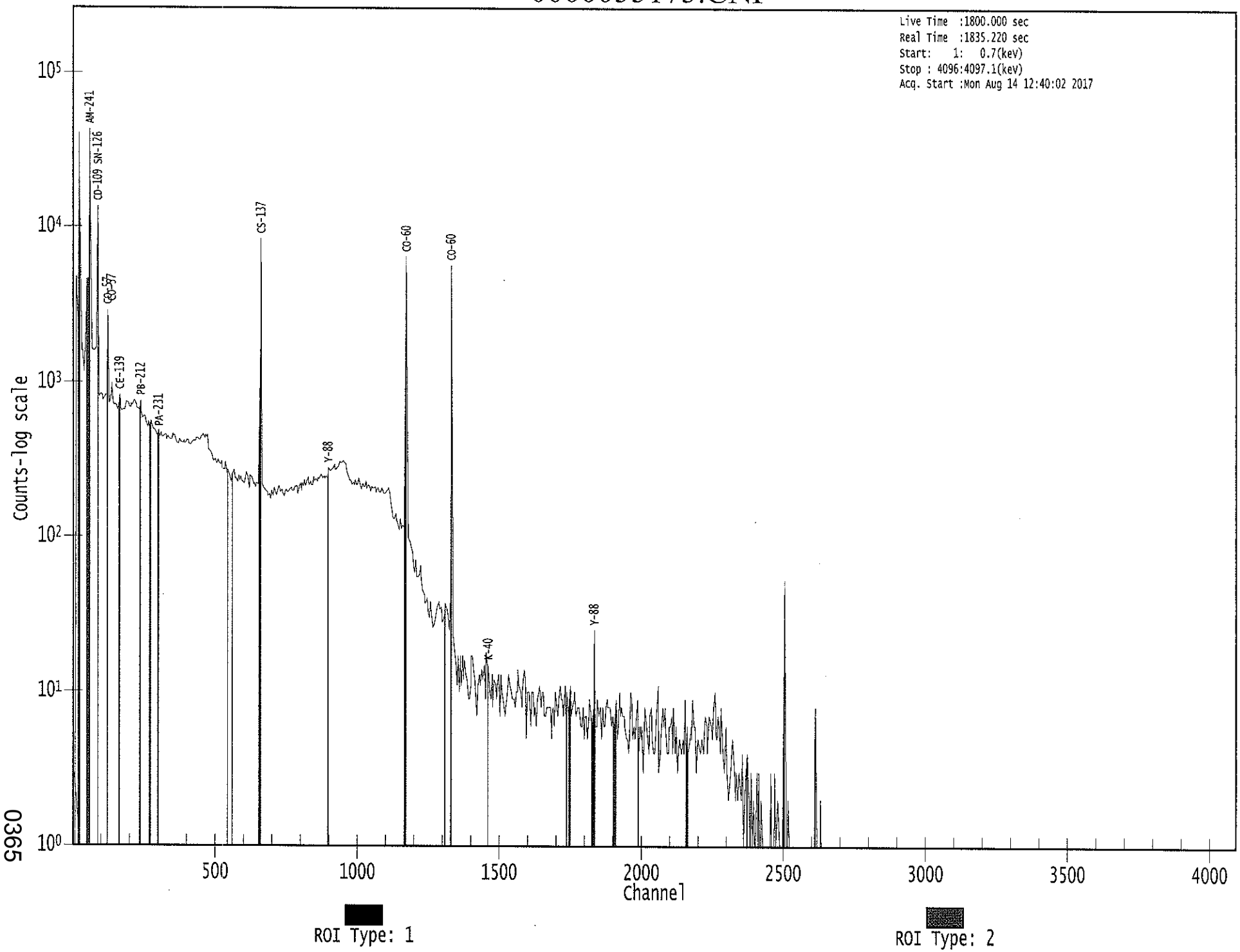
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	1	0	1	1
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	1	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	1	0	1	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	1	0	0	0	1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

3825:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	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	1	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	0	0
3929:	0	0	0	0	0	1	0	0
3937:	0	0	0	0	0	0	0	0
3945:	0	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	1	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	1	0	0
3993:	0	0	0	1	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	1	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	1	0	0	1	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055175.CNF



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KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-02
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GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/14/2017 9:27:28AM
Acquisition Started	: 8/14/2017 1:09:58PM
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	: 55179

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

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8/15/17

Analysis Report for 1707078-02

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PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 2:10:01PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	34.65	33.70	0.0000	0.00
2	75.84	74.89	0.0000	0.00
3	145.19	144.27	0.0000	0.00
4	338.60	337.74	0.0000	0.00
5	403.76	402.92	0.0000	0.00
6	498.80	498.00	0.0000	0.00
7	512.14	511.35	0.0000	0.00
8	817.90	817.22	0.0000	0.00
9	851.06	850.40	0.0000	0.00
10	906.10	905.46	0.0000	0.00
11	915.30	914.66	0.0000	0.00
12	1033.44	1032.86	0.0000	0.00
13	1039.38	1038.80	0.0000	0.00
14	1049.61	1049.03	0.0000	0.00
15	1102.90	1102.35	0.0000	0.00
16	1441.61	1441.23	0.0000	0.00
17	1563.99	1563.67	0.0000	0.00
18	1591.81	1591.50	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-02

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PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:10:01PM

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	34.65	31 -	37	33.70	2.80E+01	31.16	1.54E+02	2.91
2	75.84	71 -	78	74.89	4.79E+01	34.58	1.66E+02	3.12
3	145.19	141 -	147	144.27	2.18E+01	26.76	1.12E+02	3.43
4	338.60	334 -	341	337.74	1.55E+01	18.55	4.51E+01	2.12
5	403.76	397 -	408	402.92	2.43E+01	26.61	7.15E+01	5.56
6	498.80	494 -	501	498.00	9.00E+00	11.49	1.60E+01	1.96
7	512.14	505 -	517	511.35	4.28E+01	30.59	8.63E+01	3.09
8	817.90	813 -	821	817.22	7.58E+00	10.62	1.08E+01	7.62
9	851.06	846 -	855	850.40	1.13E+01	9.00	5.36E+00	3.81
10	906.10	901 -	909	905.46	9.28E+00	11.17	1.34E+01	3.00
11	915.30	910 -	919	914.66	1.19E+01	10.68	8.25E+00	7.65
12	1033.44	1030 -	1035	1032.86	7.44E+00	6.71	3.11E+00	3.47
13	1039.38	1036 -	1041	1038.80	6.32E+00	8.43	9.36E+00	2.00
14	1049.61	1046 -	1053	1049.03	7.75E+00	8.94	8.50E+00	1.16
15	1102.90	1098 -	1106	1102.35	9.75E+00	8.26	4.50E+00	2.95
16	1441.61	1438 -	1444	1441.23	6.50E+00	6.65	3.00E+00	2.86
17	1563.99	1560 -	1566	1563.67	9.00E+00	6.00	0.00E+00	3.00
18	1591.81	1588 -	1594	1591.50	8.00E+00	5.66	0.00E+00	1.98

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:10:01PM

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

Analysis Report for 1707078-02

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Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	34.65	31 -	37	2.80E+01	31.16	1.54E+02	2.41E+01
2	75.84	71 -	78	4.79E+01	34.58	1.66E+02	2.61E+01
3	145.19	141 -	147	2.18E+01	26.76	1.12E+02	2.06E+01
4	338.60	334 -	341	1.55E+01	18.55	4.51E+01	1.38E+01
5	403.76	397 -	408	2.43E+01	26.61	7.15E+01	2.03E+01
6	498.80	494 -	501	9.00E+00	11.49	1.60E+01	8.05E+00
7	512.14	505 -	517	4.28E+01	30.59	8.63E+01	2.27E+01
8	817.90	813 -	821	7.58E+00	10.62	1.08E+01	7.46E+00
9	851.06	846 -	855	1.13E+01	9.00	5.36E+00	4.91E+00
10	906.10	901 -	909	9.28E+00	11.17	1.34E+01	7.69E+00
11	915.30	910 -	919	1.19E+01	10.68	8.25E+00	6.70E+00
12	1033.44	1030 -	1035	7.44E+00	6.71	3.11E+00	3.21E+00
13	1039.38	1036 -	1041	6.32E+00	8.43	9.36E+00	5.56E+00
14	1049.61	1046 -	1053	7.75E+00	8.94	8.50E+00	5.75E+00
15	1102.90	1098 -	1106	9.75E+00	8.26	4.50E+00	4.45E+00
16	1441.61	1438 -	1444	6.50E+00	6.65	3.00E+00	3.51E+00
17	1563.99	1560 -	1566	9.00E+00	6.00	0.00E+00	0.00E+00
18	1591.81	1588 -	1594	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 : 8/14/2017 2:10:01PM

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	34.65	31 -	37	33.70	2.80E+01	31.16	1.54E+02	I-125
2	75.84	71 -	78	74.89	4.79E+01	34.58	1.66E+02	.....
3	145.19	141 -	147	144.27	2.18E+01	26.76	1.12E+02	CE-141
4	338.60	334 -	341	337.74	1.55E+01	18.55	4.51E+01	AC-228
5	403.76	397 -	408	402.92	2.43E+01	26.61	7.15E+01	.....
6	498.80	494 -	501	498.00	9.00E+00	11.49	1.60E+01	.....
7	512.14	505 -	517	511.35	4.28E+01	30.59	8.63E+01	.....

Analysis Report for 1707078-02

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Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
8	817.90	813 -	821	817.22	7.58E+00	10.62	1.08E+01	CS-136
9	851.06	846 -	855	850.40	1.13E+01	9.00	5.36E+00	.....
10	906.10	901 -	909	905.46	9.28E+00	11.17	1.34E+01	.....
11	915.30	910 -	919	914.66	1.19E+01	10.68	8.25E+00	.....
12	1033.44	1030 -	1035	1032.86	7.44E+00	6.71	3.11E+00	.....
13	1039.38	1036 -	1041	1038.80	6.32E+00	8.43	9.36E+00	.....
14	1049.61	1046 -	1053	1049.03	7.75E+00	8.94	8.50E+00	.....
15	1102.90	1098 -	1106	1102.35	9.75E+00	8.26	4.50E+00	.....
16	1441.61	1438 -	1444	1441.23	6.50E+00	6.65	3.00E+00	.....
17	1563.99	1560 -	1566	1563.67	9.00E+00	6.00	0.00E+00	.....
18	1591.81	1588 -	1594	1591.50	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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 2:10:01PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	34.65	2.80E+01	31.16	1.06E-02	1.56E-03
2	75.84	4.79E+01	34.58	2.32E-02	1.91E-03
3	145.19	2.18E+01	26.76	2.02E-02	1.57E-03
4	338.60	1.55E+01	18.55	9.59E-03	8.22E-04
5	403.76	2.43E+01	26.61	8.00E-03	7.06E-04
6	498.80	9.00E+00	11.49	6.44E-03	6.66E-04
7	512.14	4.28E+01	30.59	6.27E-03	6.61E-04
8	817.90	7.58E+00	10.62	3.99E-03	4.03E-04
9	851.06	1.13E+01	9.00	3.85E-03	3.61E-04
10	906.10	9.28E+00	11.17	3.64E-03	3.00E-04
11	915.30	1.19E+01	10.68	3.60E-03	2.98E-04
12	1033.44	7.44E+00	6.71	3.24E-03	2.70E-04
13	1039.38	6.32E+00	8.43	3.22E-03	2.69E-04
14	1049.61	7.75E+00	8.94	3.19E-03	2.66E-04
15	1102.90	9.75E+00	8.26	3.06E-03	2.54E-04
16	1441.61	6.50E+00	6.65	2.41E-03	2.11E-04
17	1563.99	9.00E+00	6.00	2.24E-03	1.92E-04
18	1591.81	8.00E+00	5.66	2.20E-03	1.88E-04

Analysis Report for 1707078-02

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 2:10:01PM

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

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	34.65	2.80E+01	31.16			2.80E+01	3.12E+01
2	75.84	4.79E+01	34.58			4.79E+01	3.46E+01
3	145.19	2.18E+01	26.76			2.18E+01	2.68E+01
4	338.60	1.55E+01	18.55			1.55E+01	1.85E+01
5	403.76	2.43E+01	26.61			2.43E+01	2.66E+01
6	498.80	9.00E+00	11.49			9.00E+00	1.15E+01
7	512.14	4.28E+01	30.59			4.28E+01	3.06E+01
8	817.90	7.58E+00	10.62			7.58E+00	1.06E+01
9	851.06	1.13E+01	9.00			1.13E+01	9.00E+00
10	906.10	9.28E+00	11.17			9.28E+00	1.12E+01
11	915.30	1.19E+01	10.68			1.19E+01	1.07E+01
12	1033.44	7.44E+00	6.71			7.44E+00	6.71E+00
13	1039.38	6.32E+00	8.43			6.32E+00	8.43E+00
14	1049.61	7.75E+00	8.94			7.75E+00	8.94E+00
15	1102.90	9.75E+00	8.26			9.75E+00	8.26E+00
16	1441.61	6.50E+00	6.65			6.50E+00	6.65E+00
17	1563.99	9.00E+00	6.00			9.00E+00	6.00E+00
18	1591.81	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

Analysis Report for 1707078-02

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AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 2:10:01PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	34.65	2.80E+01	31.16			2.80E+01	3.12E+01
2	75.84	4.79E+01	34.58			4.79E+01	3.46E+01
3	145.19	2.18E+01	26.76			2.18E+01	2.68E+01
4	338.60	1.55E+01	18.55			1.55E+01	1.85E+01
5	403.76	2.43E+01	26.61			2.43E+01	2.66E+01
6	498.80	9.00E+00	11.49			9.00E+00	1.15E+01
7	512.14	4.28E+01	30.59			4.28E+01	3.06E+01
8	817.90	7.58E+00	10.62			7.58E+00	1.06E+01
9	851.06	1.13E+01	9.00			1.13E+01	9.00E+00
10	906.10	9.28E+00	11.17			9.28E+00	1.12E+01
11	915.30	1.19E+01	10.68			1.19E+01	1.07E+01
12	1033.44	7.44E+00	6.71			7.44E+00	6.71E+00
13	1039.38	6.32E+00	8.43			6.32E+00	8.43E+00
14	1049.61	7.75E+00	8.94			7.75E+00	8.94E+00
15	1102.90	9.75E+00	8.26			9.75E+00	8.26E+00
16	1441.61	6.50E+00	6.65			6.50E+00	6.65E+00
17	1563.99	9.00E+00	6.00			9.00E+00	6.00E+00
18	1591.81	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 1707078-02

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Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
I-125	0.893	35.49	*	6.49	3.92E-01	4.40E-01
CE-141	0.990	145.44	*	48.40	2.14E-02	2.66E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:10:01PM
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	75.84	1.33015E-02	36.11		
4	338.60	4.29825E-03	59.93	Tol.	AC-228
5	403.76	6.74074E-03	54.82		
6	498.80	2.50000E-03	63.83		
7	512.14	1.18992E-02	35.70		
8	817.90	2.10470E-03	70.07	Tol.	CS-136
9	851.06	3.14484E-03	39.75		
10	906.10	2.57813E-03	60.17		
11	915.30	3.29861E-03	44.96		
12	1033.44	2.06790E-03	45.06		
13	1039.38	1.75505E-03	66.68		
14	1049.61	2.15278E-03	57.70		
15	1102.90	2.70833E-03	42.37		
16	1441.61	1.80556E-03	51.17		
17	1563.99	2.50000E-03	33.33		
18	1591.81	2.22222E-03	35.36		

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

Analysis Report for 1707078-02

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NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
I-125	0.89	35.49	*	6.49	3.92E-01	4.40E-01
CE-141	0.99	145.44	*	48.40	2.14E-02	2.66E-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
I-125	0.893	3.92E-01	4.40E-01	
CE-141	0.990	2.14E-02	2.66E-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 1707078-02

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UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:10:01PM
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	75.84	1.33015E-02	36.11		
4	338.60	4.29825E-03	59.93	Tol.	AC-228
5	403.76	6.74074E-03	54.82		
6	498.80	2.50000E-03	63.83		
7	512.14	1.18992E-02	35.70		
8	817.90	2.10470E-03	70.07	Tol.	CS-136
9	851.06	3.14484E-03	39.75		
10	906.10	2.57813E-03	60.17		
11	915.30	3.29861E-03	44.96		
12	1033.44	2.06790E-03	45.06		
13	1039.38	1.75505E-03	66.68		
14	1049.61	2.15278E-03	57.70		
15	1102.90	2.70833E-03	42.37		
16	1441.61	1.80556E-03	51.17		
17	1563.99	2.50000E-03	33.33		
18	1591.81	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	-4.80E-02	2.76E-01	2.76E-01

Analysis Report for 1707078-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NA-22	1274.54	99.94	2.49E-02	6.20E-02	6.20E-02
+	NA-24	1368.53	99.99	-2.13E-02	7.67E-02	7.67E-02
		2754.09	99.86	1.74E-02		1.05E-01
+	AL-26	1808.65	99.76	-4.92E-03	5.92E-02	5.92E-02
+	K-40	1460.81	10.67	4.78E-01	7.58E-01	7.58E-01
+	AR-41	1293.64	99.16	-4.96E-02	2.52E-01	2.52E-01
+	TI-44	67.88	94.40	-4.45E-03	2.25E-02	2.36E-02
		78.34	96.00	-2.45E-03		2.25E-02
+	SC-46	889.25	99.98	-1.18E-04	4.71E-02	4.71E-02
		1120.51	99.99	-3.98E-03		5.05E-02
+	V-48	983.52	99.98	-1.25E-02	5.18E-02	5.18E-02
		1312.10	97.50	3.77E-03		5.67E-02
+	CR-51	320.08	9.83	2.79E-02	3.27E-01	3.27E-01
+	MN-54	834.83	99.97	1.22E-03	4.92E-02	4.92E-02
+	CO-56	846.75	99.96	8.28E-04	4.14E-02	4.14E-02
		1037.75	14.03	2.00E-02		4.64E-01
		1238.25	67.00	-2.82E-02		7.79E-02
		1771.40	15.51	-9.32E-02		3.35E-01
		2598.48	16.90	8.80E-02		5.29E-01
+	CO-57	122.06	85.51	1.51E-03	2.33E-02	2.33E-02
		136.48	10.60	-1.01E-01		1.57E-01
+	CO-58	810.76	99.40	-7.20E-03	4.52E-02	4.52E-02
+	FE-59	1099.22	56.50	-5.55E-03	9.66E-02	9.66E-02
		1291.56	43.20	-4.37E-02		1.18E-01
+	CO-60	1173.22	100.00	-5.93E-03	3.99E-02	5.25E-02
		1332.49	100.00	0.00E+00		3.99E-02
+	ZN-65	1115.52	50.75	6.32E-02	1.22E-01	1.22E-01
+	GA-67	93.31	35.70	9.08E-02	7.03E-02	7.03E-02
		208.95	2.24	4.15E-01		1.12E+00
		300.22	16.00	-7.31E-04		2.06E-01
+	SE-75	121.11	16.70	6.35E-02	2.99E-02	1.23E-01
		136.00	59.20	-6.31E-03		2.99E-02
		264.65	59.80	-2.23E-02		4.42E-02
		279.53	25.20	-3.05E-02		9.88E-02
		400.65	11.40	9.92E-02		3.39E-01
+	RB-82	776.52	13.00	2.97E-02	3.56E-01	3.56E-01
+	RB-83	520.41	46.00	-2.00E-02	6.80E-02	6.80E-02
		529.64	30.30	4.93E-02		1.38E-01
		552.65	16.40	-6.91E-02		2.03E-01
+	KR-85	513.99	0.43	1.19E+01	1.36E+01	1.36E+01
+	SR-85	513.99	99.27	5.21E-02	5.95E-02	5.95E-02
+	Y-88	898.02	93.40	5.60E-03	5.08E-02	5.08E-02
		1836.01	99.38	0.00E+00		5.41E-02
+	MO-93	263.06	56.72	1.30E-02	3.98E-02	4.77E-02
		684.67	99.68	-1.84E-02		3.98E-02
		1477.11	99.08	-7.74E-03		4.41E-02
+	NB-93M	16.57	9.43	5.13E+00	3.96E+00	3.96E+00

Analysis Report for 1707078-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-94	702.63		100.00	1.25E-02	4.79E-02	5.32E-02
		871.10		100.00	1.52E-02		4.79E-02
+	NB-95	765.79		99.81	-1.36E-02	3.96E-02	3.96E-02
+	NB-95M	235.69		25.00	-2.48E-02	9.37E-02	9.37E-02
+	ZR-95	724.18		43.70	-4.43E-02	9.31E-02	1.10E-01
		756.72		55.30	4.94E-02		9.31E-02
+	MO-99	181.06		6.20	-4.18E-01	3.11E-01	3.67E-01
		739.58		12.80	-1.94E-01		3.11E-01
		778.00		4.50	3.20E-01		1.10E+00
+	RU-103	497.08		89.00	-2.34E-03	3.47E-02	3.47E-02
+	RU-106	621.84		9.80	-2.65E-02	4.45E-01	4.45E-01
+	AG-108M	433.93		89.90	7.18E-05	3.38E-02	3.38E-02
		614.37		90.40	-7.36E-03		4.20E-02
		722.95		90.50	-5.17E-03		5.44E-02
+	CD-109	88.03		3.72	-6.07E-01	5.53E-01	5.53E-01
+	AG-110M	657.75		93.14	1.16E-03	4.83E-02	4.83E-02
		677.61		10.53	9.87E-02		4.40E-01
		706.67		16.46	1.91E-02		3.25E-01
		763.93		21.98	-3.83E-02		2.00E-01
		884.67		71.63	2.70E-02		6.78E-02
		1384.27		23.94	-2.67E-02		1.72E-01
+	CD-113M	263.70		0.02	-1.48E+01	1.16E+02	1.16E+02
+	SN-113	255.12		1.93	-1.17E-02	4.82E-02	1.25E+00
		391.69		64.90	-8.06E-03		4.82E-02
+	TE123M	159.00		84.10	-5.74E-03	2.48E-02	2.48E-02
+	SB-124	602.71		97.87	-5.11E-03	4.33E-02	4.33E-02
		645.85		7.26	3.98E-02		5.00E-01
		722.78		11.10	-4.22E-02		4.44E-01
		1691.02		49.00	-2.26E-02		1.23E-01
+	I-125	35.49	*	6.49	3.92E-01	7.12E-01	7.12E-01
+	SB-125	176.33		6.89	6.43E-02	1.13E-01	3.21E-01
		427.89		29.33	-2.72E-02		1.13E-01
		463.38		10.35	-6.56E-02		3.00E-01
		600.56		17.80	-6.20E-02		2.31E-01
		635.90		11.32	1.42E-01		3.85E-01
+	SB-126	414.70		83.30	1.11E-02	3.88E-02	3.88E-02
		666.33		99.60	1.97E-02		4.83E-02
		695.00		99.60	-6.46E-03		5.23E-02
		720.50		53.80	-6.01E-03		9.63E-02
+	SN-126	87.57		37.00	-6.10E-02	5.56E-02	5.56E-02
+	SB-127	473.00		25.00	-1.69E-02	1.15E-01	1.21E-01
		685.20		35.70	-5.32E-02		1.15E-01
		783.80		14.70	-9.91E-02		2.70E-01
+	I-129	29.78		57.00	1.19E-02	1.11E-01	1.11E-01
		33.60		13.20	8.56E-02		3.68E-01
		39.58		7.52	-5.84E-02		4.09E-01
+	I-131	284.30		6.05	-7.88E-02	3.91E-02	4.02E-01
		364.48		81.20	2.39E-02		3.91E-02

Analysis Report for 1707078-02

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	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	I-131	636.97		7.26	2.79E-01	3.91E-02	5.96E-01
		722.89		1.80	-2.64E-01		2.78E+00
+	TE-132	49.72		13.10	-5.01E-02	2.56E-02	2.06E-01
		228.16		88.00	1.20E-03		2.56E-02
+	BA-133	81.00		33.00	2.56E-03	4.94E-02	6.08E-02
		302.84		17.80	4.97E-02		1.72E-01
		356.01		60.00	-4.68E-03		4.94E-02
+	I-133	529.87		86.30	1.99E-02	5.58E-02	5.58E-02
+	XE-133	81.00		38.00	2.28E-03	5.40E-02	5.40E-02
+	CS-134	563.23		8.38	-1.10E-01	4.44E-02	4.61E-01
		569.32		15.43	4.41E-02		2.47E-01
		604.70		97.60	-7.26E-03		4.44E-02
		795.84		85.40	-2.20E-02		5.34E-02
		801.93		8.73	3.26E-01		6.76E-01
+	CS-135	268.24		16.00	7.82E-02	1.76E-01	1.76E-01
+	I-135	1131.51		22.50	-1.50E-01	2.51E-01	2.66E-01
		1260.41		28.60	-2.04E-02		2.51E-01
		1678.03		9.54	-3.35E-01		8.94E-01
+	CS-136	153.22		7.46	1.05E-01	4.24E-02	2.86E-01
		163.89		4.61	1.46E-01		4.72E-01
		176.55		13.56	-3.56E-02		1.61E-01
		273.65		12.66	-8.28E-02		2.06E-01
		340.57		48.50	5.12E-03		6.41E-02
		818.50		99.70	-1.50E-02		4.24E-02
		1048.07		79.60	5.07E-03		7.41E-02
		1235.34		19.70	-3.84E-02		2.81E-01
+	CS-137	661.65		85.12	-4.16E-03	5.44E-02	5.44E-02
+	LA-138	788.74		34.00	6.40E-03	7.86E-02	1.08E-01
		1435.80		66.00	-6.99E-03		7.86E-02
+	CE-139	165.85		80.35	4.60E-03	2.58E-02	2.58E-02
+	BA-140	162.64		6.70	7.52E-02	1.38E-01	3.23E-01
		304.84		4.50	-2.93E-01		6.47E-01
		423.70		3.20	3.18E-01		1.10E+00
		437.55		2.00	-3.71E-01		1.32E+00
		537.32		25.00	-2.59E-02		1.38E-01
+	LA-140	328.77		20.50	1.19E-03	6.92E-02	1.35E-01
		487.03		45.50	6.52E-03		8.07E-02
		815.85		23.50	0.00E+00		2.13E-01
		1596.49		95.49	-1.77E-02		6.92E-02
+	CE-141	145.44	*	48.40	2.14E-02	4.33E-02	4.33E-02
+	CE-143	57.36		11.80	-5.87E-02	7.92E-02	2.01E-01
		293.26		42.00	1.62E-02		7.92E-02
		664.55		5.20	-5.24E-01		8.85E-01
+	CE-144	133.54		10.80	5.36E-02	1.73E-01	1.73E-01
+	PM-144	476.78		42.00	-4.52E-03	3.64E-02	7.02E-02
		618.01		98.60	-2.05E-02		3.64E-02
		696.49		99.49	2.21E-02		5.49E-02
+	PM-145	36.85		21.70	-6.96E-03	9.76E-02	1.83E-01
		37.36		39.70	-3.72E-03		9.76E-02

Analysis Report for 1707078-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-145	42.30	15.10	-1.36E-01	9.76E-02	1.92E-01
		72.40	2.31	-5.21E-02		9.13E-01
+	PM-146	453.90	39.94	-1.32E-02	7.78E-02	7.78E-02
		735.90	14.01	-5.98E-04		3.03E-01
		747.13	13.10	1.62E-02		3.28E-01
+	ND-147	91.11	28.90	7.75E-02	8.48E-02	8.48E-02
		531.02	13.10	4.33E-02		3.12E-01
+	PM-149	285.90	3.10	-3.76E-02	8.32E-01	8.32E-01
+	EU-152	121.78	20.50	6.30E-03	9.69E-02	9.69E-02
		244.69	5.40	-5.19E-02		4.44E-01
		344.27	19.13	3.86E-02		1.48E-01
		778.89	9.20	1.64E-01		5.17E-01
		964.01	10.40	-2.10E-01		3.78E-01
		1085.78	7.22	5.71E-02		6.04E-01
		1112.02	9.60	-6.14E-02		5.73E-01
		1407.95	14.94	-2.60E-02		3.41E-01
+	GD-153	97.43	31.30	-3.72E-02	6.03E-02	6.03E-02
		103.18	22.20	2.21E-02		7.87E-02
+	EU-154	123.07	40.50	1.22E-02	4.90E-02	4.90E-02
		723.30	19.70	-9.79E-02		2.44E-01
		873.19	11.50	-2.77E-03		3.52E-01
		996.32	10.30	-1.20E-01		4.42E-01
		1004.76	17.90	9.83E-02		2.93E-01
		1274.45	35.50	7.02E-02		1.75E-01
+	EU-155	86.50	30.90	-4.86E-02	6.66E-02	6.66E-02
		105.30	20.70	1.31E-02		8.36E-02
+	EU-156	811.77	10.40	4.33E-03	4.35E-01	4.35E-01
		1153.47	7.20	-1.24E-01		6.86E-01
		1230.71	8.90	1.04E-01		5.87E-01
+	HO-166M	184.41	72.60	1.96E-02	3.67E-02	3.67E-02
		280.45	29.60	-2.60E-02		8.43E-02
		410.94	11.10	-7.60E-02		2.28E-01
		711.69	54.10	-2.93E-02		9.57E-02
+	TM-171	66.72	0.14	1.49E+01	1.75E+01	1.75E+01
+	HF-172	67.35	5.31	3.92E-01	1.68E-01	4.61E-01
		125.81	11.30	-2.12E-02		1.68E-01
+	LU-172	181.53	20.60	-4.44E-02	7.15E-02	1.17E-01
		900.72	29.81	8.95E-03		1.56E-01
		1093.66	62.50	1.56E-02		7.15E-02
+	LU-173	100.72	5.24	-9.98E-02	1.28E-01	3.23E-01
		272.11	21.20	-1.04E-02		1.28E-01
+	HF-175	343.40	84.00	8.79E-03	3.36E-02	3.36E-02
+	LU-176	88.34	13.30	-1.70E-01	2.85E-02	1.55E-01
		201.83	86.00	-4.46E-03		2.85E-02
		306.78	94.00	-6.41E-04		3.05E-02
+	HF-181	133.02	41.70	2.53E-02	4.10E-02	4.55E-02
		345.85	17.20	9.25E-03		1.85E-01
		482.03	82.80	-6.53E-03		4.10E-02
+	TA-182	67.75	41.20	-1.02E-02	5.42E-02	5.42E-02

Analysis Report for 1707078-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1121.30	34.90	1.48E-02	5.42E-02	1.45E-01
		1189.05	16.23	-2.30E-03		3.44E-01
		1221.41	26.98	-8.48E-04		1.67E-01
		1231.02	11.44	1.51E-01		4.79E-01
+	IR-192	308.46	29.68	-3.71E-02	6.36E-02	9.62E-02
		468.07	48.10	-3.07E-02		6.36E-02
+	HG-203	279.19	77.30	5.33E-04	3.38E-02	3.38E-02
+	TL-204	374.74	94.11	-2.17E-03	3.06E-02	3.06E-02
		899.15	99.16	-9.42E-04		4.79E-02
		911.74	91.10	-1.89E-02		6.20E-02
+	BI-207	569.67	97.72	6.96E-03	3.91E-02	3.91E-02
		1063.62	74.90	-1.30E-02		7.06E-02
+	TL-208	583.14	30.22	7.18E-02	1.29E-01	1.29E-01
		860.37	4.48	-7.02E-03		1.06E+00
		2614.66	35.85	1.25E-01		2.95E-01
+	BI-210M	262.00	45.00	1.88E-02	6.05E-02	6.05E-02
		300.00	23.00	-4.89E-04		1.38E-01
+	PB-210	46.50	4.25	6.08E-01	7.18E-01	7.18E-01
+	PB-211	404.84	2.90	1.02E+00	1.33E+00	1.33E+00
		831.96	2.90	1.51E-01		1.74E+00
+	BI-212	727.17	11.80	-8.21E-02	4.10E-01	4.10E-01
		1620.62	2.75	-3.11E-01		2.11E+00
+	PB-212	238.63	44.60	2.02E-03	5.58E-02	5.58E-02
		300.09	3.41	-3.30E-03		9.31E-01
+	BI-214	609.31	46.30	-3.24E-03	9.82E-02	9.82E-02
		1120.29	15.10	-2.63E-02		3.34E-01
		1764.49	15.80	2.02E-02		4.28E-01
		2204.22	4.98	1.22E-01		1.31E+00
+	PB-214	295.21	19.19	6.18E-02	8.78E-02	1.67E-01
		351.92	37.19	-4.75E-03		8.78E-02
+	RN-219	401.80	6.50	3.95E-02	5.83E-01	5.83E-01
+	RA-223	323.87	3.88	1.53E-01	8.43E-01	8.43E-01
+	RA-224	240.98	3.95	9.91E-02	6.47E-01	6.47E-01
+	RA-225	40.00	31.00	-1.41E-02	9.85E-02	9.85E-02
+	RA-226	186.21	3.28	3.39E-01	8.01E-01	8.01E-01
+	TH-227	50.10	8.40	-7.47E-02	1.97E-01	3.07E-01
		236.00	11.50	-5.22E-02		1.97E-01
		256.20	6.30	-5.23E-02		3.76E-01
+	AC-228	338.32	11.40	1.74E-01	2.09E-01	2.72E-01
		911.07	27.70	3.35E-02		2.09E-01
		969.11	16.60	-5.54E-02		2.53E-01
+	TH-230	48.44	16.90	1.04E-01	1.67E-01	1.67E-01
		62.85	4.60	1.85E-01		5.44E-01
		67.67	0.37	-1.14E+00		6.04E+00
+	PA-231	283.67	1.60	-2.93E-01	1.33E+00	1.49E+00
		302.67	2.30	3.84E-01		1.33E+00
+	TH-231	25.64	14.70	6.15E-02	3.26E-01	6.71E-01
		84.21	6.40	1.55E-01		3.26E-01

Analysis Report for 1707078-02

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	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PA-233	311.98	38.60	1.91E-02	8.19E-02	8.19E-02
+	PA-234	131.20	20.40	1.18E-02	9.21E-02	9.21E-02
		733.99	8.80	2.32E-01		5.40E-01
		946.00	12.00	-4.69E-02		3.80E-01
+	PA-234M	1001.03	0.92	-6.26E-01	4.70E+00	4.70E+00
+	TH-234	63.29	3.80	2.22E-01	6.55E-01	6.55E-01
+	U-235	143.76	10.50	1.51E-01	2.06E-01	2.06E-01
		163.35	4.70	1.07E-01		4.57E-01
		205.31	4.70	-2.00E-01		4.95E-01
+	NP-237	86.50	12.60	-1.19E-01	1.63E-01	1.63E-01
+	NP-239	106.10	22.70	-1.76E-02	7.77E-02	7.77E-02
		228.18	10.70	9.98E-03		2.14E-01
		277.60	14.10	9.48E-02		2.03E-01
+	AM-241	59.54	35.90	-5.11E-02	6.28E-02	6.28E-02
+	AM-243	74.67	66.00	2.34E-02	3.35E-02	3.35E-02
+	CM-243	209.75	3.29	1.55E-01	1.94E-01	7.21E-01
		228.14	10.60	9.57E-03		2.05E-01
		277.60	14.00	9.07E-02		1.94E-01

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

NUCLIDE MDA REPORT

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

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
BE-7	477.59	10.42	2.76E-01	2.76E-01	-4.80E-02	1.19E-01
NA-22	1274.54	99.94	6.20E-02	6.20E-02	2.49E-02	2.62E-02
NA-24	1368.53	99.99	7.67E-02	7.67E-02	-2.13E-02	3.21E-02
	2754.09	99.86	1.05E-01		1.74E-02	3.94E-02

Analysis Report for 1707078-02

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Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AL-26	1808.65	99.76	5.92E-02	5.92E-02	-4.92E-03	2.29E-02
K-40	1460.81	10.67	7.58E-01	7.58E-01	4.78E-01	3.28E-01
AR-41	1293.64	99.16	2.52E-01	2.52E-01	-4.96E-02	1.02E-01
TI-44	67.88	94.40	2.36E-02	2.25E-02	-4.45E-03	1.12E-02
	78.34	96.00	2.25E-02		-2.45E-03	1.07E-02
SC-46	889.25	99.98	4.71E-02	4.71E-02	-1.18E-04	2.00E-02
	1120.51	99.99	5.05E-02		-3.98E-03	2.10E-02
V-48	983.52	99.98	5.18E-02	5.18E-02	-1.25E-02	2.20E-02
	1312.10	97.50	5.67E-02		3.77E-03	2.32E-02
CR-51	320.08	9.83	3.27E-01	3.27E-01	2.79E-02	1.50E-01
MN-54	834.83	99.97	4.92E-02	4.92E-02	1.22E-03	2.13E-02
CO-56	846.75	99.96	4.14E-02	4.14E-02	8.28E-04	1.73E-02
	1037.75	14.03	4.64E-01		2.00E-02	2.04E-01
	1238.25	67.00	7.79E-02		-2.82E-02	3.19E-02
	1771.40	15.51	3.35E-01		-9.32E-02	1.25E-01
	2598.48	16.90	5.29E-01		8.80E-02	2.05E-01
CO-57	122.06	85.51	2.33E-02	2.33E-02	1.51E-03	1.09E-02
	136.48	10.60	1.57E-01		-1.01E-01	7.25E-02
CO-58	810.76	99.40	4.52E-02	4.52E-02	-7.20E-03	1.93E-02
FE-59	1099.22	56.50	9.66E-02	9.66E-02	-5.55E-03	4.08E-02
	1291.56	43.20	1.18E-01		-4.37E-02	4.76E-02
CO-60	1173.22	100.00	5.25E-02	3.99E-02	-5.93E-03	2.18E-02
	1332.49	100.00	3.99E-02		0.00E+00	1.49E-02
ZN-65	1115.52	50.75	1.22E-01	1.22E-01	6.32E-02	5.24E-02
GA-67	93.31	35.70	7.03E-02	7.03E-02	9.08E-02	3.36E-02
	208.95	2.24	1.12E+00		4.15E-01	5.22E-01
	300.22	16.00	2.06E-01		-7.31E-04	9.52E-02
SE-75	121.11	16.70	1.23E-01	2.99E-02	6.35E-02	5.78E-02
	136.00	59.20	2.99E-02		-6.31E-03	1.39E-02
	264.65	59.80	4.42E-02		-2.23E-02	2.04E-02
	279.53	25.20	9.88E-02		-3.05E-02	4.50E-02
	400.65	11.40	3.39E-01		9.92E-02	1.56E-01
RB-82	776.52	13.00	3.56E-01	3.56E-01	2.97E-02	1.54E-01
RB-83	520.41	46.00	6.80E-02	6.80E-02	-2.00E-02	2.94E-02
	529.64	30.30	1.38E-01		4.93E-02	6.20E-02
	552.65	16.40	2.03E-01		-6.91E-02	8.77E-02
KR-85	513.99	0.43	1.36E+01	1.36E+01	1.19E+01	6.32E+00
SR-85	513.99	99.27	5.95E-02	5.95E-02	5.21E-02	2.77E-02
Y-88	898.02	93.40	5.08E-02	5.08E-02	5.60E-03	2.16E-02
	1836.01	99.38	5.41E-02		0.00E+00	2.02E-02
MO-93	263.06	56.72	4.77E-02	3.98E-02	1.30E-02	2.20E-02
	684.67	99.68	3.98E-02		-1.84E-02	1.71E-02
	1477.11	99.08	4.41E-02		-7.74E-03	1.65E-02
NB-93M	16.57	9.43	3.96E+00	3.96E+00	5.13E+00	1.89E+00
NB-94	702.63	100.00	5.32E-02	4.79E-02	1.25E-02	2.38E-02
	871.10	100.00	4.79E-02		1.52E-02	2.05E-02
NB-95	765.79	99.81	3.96E-02	3.96E-02	-1.36E-02	1.67E-02
NB-95M	235.69	25.00	9.37E-02	9.37E-02	-2.48E-02	4.30E-02
ZR-95	724.18	43.70	1.10E-01	9.31E-02	-4.43E-02	4.85E-02
	756.72	55.30	9.31E-02		4.94E-02	4.11E-02
MO-99	181.06	6.20	3.67E-01	3.11E-01	-4.18E-01	1.71E-01
	739.58	12.80	3.11E-01		-1.94E-01	1.31E-01
	778.00	4.50	1.10E+00		3.20E-01	4.80E-01

Analysis Report for 1707078-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RU-103	497.08		89.00	3.47E-02	3.47E-02	-2.34E-03	1.51E-02
	RU-106	621.84		9.80	4.45E-01	4.45E-01	-2.65E-02	1.97E-01
	AG-108M	433.93		89.90	3.38E-02	3.38E-02	7.18E-05	1.49E-02
		614.37		90.40	4.20E-02		-7.36E-03	1.83E-02
		722.95		90.50	5.44E-02		-5.17E-03	2.40E-02
	CD-109	88.03		3.72	5.53E-01	5.53E-01	-6.07E-01	2.62E-01
	AG-110M	657.75		93.14	4.83E-02	4.83E-02	1.16E-03	2.13E-02
		677.61		10.53	4.40E-01		9.87E-02	1.94E-01
		706.67		16.46	3.25E-01		1.91E-02	1.45E-01
		763.93		21.98	2.00E-01		-3.83E-02	8.61E-02
		884.67		71.63	6.78E-02		2.70E-02	2.90E-02
		1384.27		23.94	1.72E-01		-2.67E-02	6.45E-02
	CD-113M	263.70		0.02	1.16E+02	1.16E+02	-1.48E+01	5.33E+01
	SN-113	255.12		1.93	1.25E+00	4.82E-02	-1.17E-02	5.74E-01
		391.69		64.90	4.82E-02		-8.06E-03	2.17E-02
	TE123M	159.00		84.10	2.48E-02	2.48E-02	-5.74E-03	1.16E-02
	SB-124	602.71		97.87	4.33E-02	4.33E-02	-5.11E-03	1.92E-02
		645.85		7.26	5.00E-01		3.98E-02	2.14E-01
		722.78		11.10	4.44E-01		-4.22E-02	1.96E-01
		1691.02		49.00	1.23E-01		-2.26E-02	4.90E-02
+	I-125	35.49	*	6.49	7.12E-01	7.12E-01	3.92E-01	3.37E-01
	SB-125	176.33		6.89	3.21E-01	1.13E-01	6.43E-02	1.50E-01
		427.89		29.33	1.13E-01		-2.72E-02	5.05E-02
		463.38		10.35	3.00E-01		-6.56E-02	1.32E-01
		600.56		17.80	2.31E-01		-6.20E-02	1.02E-01
		635.90		11.32	3.85E-01		1.42E-01	1.70E-01
	SB-126	414.70		83.30	3.88E-02	3.88E-02	1.11E-02	1.74E-02
		666.33		99.60	4.83E-02		1.97E-02	2.14E-02
		695.00		99.60	5.23E-02		-6.46E-03	2.33E-02
		720.50		53.80	9.63E-02		-6.01E-03	4.27E-02
	SN-126	87.57		37.00	5.56E-02	5.56E-02	-6.10E-02	2.63E-02
	SB-127	473.00		25.00	1.21E-01	1.15E-01	-1.69E-02	5.25E-02
		685.20		35.70	1.15E-01		-5.32E-02	4.94E-02
		783.80		14.70	2.70E-01		-9.91E-02	1.13E-01
	I-129	29.78		57.00	1.11E-01	1.11E-01	1.19E-02	5.25E-02
		33.60		13.20	3.68E-01		8.56E-02	1.74E-01
		39.58		7.52	4.09E-01		-5.84E-02	1.92E-01
	I-131	284.30		6.05	4.02E-01	3.91E-02	-7.88E-02	1.82E-01
		364.48		81.20	3.91E-02		2.39E-02	1.77E-02
		636.97		7.26	5.96E-01		2.79E-01	2.62E-01
		722.89		1.80	2.78E+00		-2.64E-01	1.22E+00
	TE-132	49.72		13.10	2.06E-01	2.56E-02	-5.01E-02	9.72E-02
		228.16		88.00	2.56E-02		1.20E-03	1.17E-02
	BA-133	81.00		33.00	6.08E-02	4.94E-02	2.56E-03	2.87E-02
		302.84		17.80	1.72E-01		4.97E-02	7.90E-02
		356.01		60.00	4.94E-02		-4.68E-03	2.23E-02
	I-133	529.87		86.30	5.58E-02	5.58E-02	1.99E-02	2.50E-02
	XE-133	81.00		38.00	5.40E-02	5.40E-02	2.28E-03	2.55E-02
	CS-134	563.23		8.38	4.61E-01	4.44E-02	-1.10E-01	2.04E-01
		569.32		15.43	2.47E-01		4.41E-02	1.09E-01
		604.70		97.60	4.44E-02		-7.26E-03	1.97E-02
		795.84		85.40	5.34E-02		-2.20E-02	2.30E-02
		801.93		8.73	6.76E-01		3.26E-01	3.01E-01

Analysis Report for 1707078-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-135	268.24		16.00	1.76E-01	1.76E-01	7.82E-02	8.12E-02
	I-135	1131.51		22.50	2.66E-01	2.51E-01	-1.50E-01	1.03E-01
		1260.41		28.60	2.51E-01		-2.04E-02	9.96E-02
		1678.03		9.54	8.94E-01		-3.35E-01	3.46E-01
	CS-136	153.22		7.46	2.86E-01	4.24E-02	1.05E-01	1.34E-01
		163.89		4.61	4.72E-01		1.46E-01	2.21E-01
		176.55		13.56	1.61E-01		-3.56E-02	7.53E-02
		273.65		12.66	2.06E-01		-8.28E-02	9.45E-02
		340.57		48.50	6.41E-02		5.12E-03	2.92E-02
		818.50		99.70	4.24E-02		-1.50E-02	1.79E-02
		1048.07		79.60	7.41E-02		5.07E-03	3.19E-02
		1235.34		19.70	2.81E-01		-3.84E-02	1.17E-01
	CS-137	661.65		85.12	5.44E-02	5.44E-02	-4.16E-03	2.41E-02
	LA-138	788.74		34.00	1.08E-01	7.86E-02	6.40E-03	4.49E-02
		1435.80		66.00	7.86E-02		-6.99E-03	3.12E-02
	CE-139	165.85		80.35	2.58E-02	2.58E-02	4.60E-03	1.20E-02
	BA-140	162.64		6.70	3.23E-01	1.38E-01	7.52E-02	1.51E-01
		304.84		4.50	6.47E-01		-2.93E-01	2.96E-01
		423.70		3.20	1.10E+00		3.18E-01	4.98E-01
		437.55		2.00	1.32E+00		-3.71E-01	5.72E-01
		537.32		25.00	1.38E-01		-2.59E-02	6.03E-02
	LA-140	328.77		20.50	1.35E-01	6.92E-02	1.19E-03	6.08E-02
		487.03		45.50	8.07E-02		6.52E-03	3.60E-02
		815.85		23.50	2.13E-01		0.00E+00	9.27E-02
		1596.49		95.49	6.92E-02		-1.77E-02	2.84E-02
+	CE-141	145.44	*	48.40	4.33E-02	4.33E-02	2.14E-02	2.03E-02
	CE-143	57.36		11.80	2.01E-01	7.92E-02	-5.87E-02	9.44E-02
		293.26		42.00	7.92E-02		1.62E-02	3.65E-02
		664.55		5.20	8.85E-01		-5.24E-01	3.86E-01
	CE-144	133.54		10.80	1.73E-01	1.73E-01	5.36E-02	8.10E-02
	PM-144	476.78		42.00	7.02E-02	3.64E-02	-4.52E-03	3.05E-02
		618.01		98.60	3.64E-02		-2.05E-02	1.57E-02
		696.49		99.49	5.49E-02		2.21E-02	2.47E-02
	PM-145	36.85		21.70	1.83E-01	9.76E-02	-6.96E-03	8.63E-02
		37.36		39.70	9.76E-02		-3.72E-03	4.61E-02
		42.30		15.10	1.92E-01		-1.36E-01	9.01E-02
		72.40		2.31	9.13E-01		-5.21E-02	4.32E-01
	PM-146	453.90		39.94	7.78E-02	7.78E-02	-1.32E-02	3.43E-02
		735.90		14.01	3.03E-01		-5.98E-04	1.30E-01
		747.13		13.10	3.28E-01		1.62E-02	1.41E-01
	ND-147	91.11		28.90	8.48E-02	8.48E-02	7.75E-02	4.05E-02
		531.02		13.10	3.12E-01		4.33E-02	1.39E-01
	PM-149	285.90		3.10	8.32E-01	8.32E-01	-3.76E-02	3.77E-01
	EU-152	121.78		20.50	9.69E-02	9.69E-02	6.30E-03	4.56E-02
		244.69		5.40	4.44E-01		-5.19E-02	2.04E-01
		344.27		19.13	1.48E-01		3.86E-02	6.66E-02
		778.89		9.20	5.17E-01		1.64E-01	2.25E-01
		964.01		10.40	3.78E-01		-2.10E-01	1.53E-01
		1085.78		7.22	6.04E-01		5.71E-02	2.44E-01
		1112.02		9.60	5.73E-01		-6.14E-02	2.42E-01
		1407.95		14.94	3.41E-01		-2.60E-02	1.35E-01
	GD-153	97.43		31.30	6.03E-02	6.03E-02	-3.72E-02	2.84E-02
		103.18		22.20	7.87E-02		2.21E-02	3.68E-02

Analysis Report for 1707078-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
EU-154	123.07	40.50	4.90E-02	4.90E-02	1.22E-02	2.31E-02
	723.30	19.70	2.44E-01		-9.79E-02	1.07E-01
	873.19	11.50	3.52E-01		-2.77E-03	1.46E-01
	996.32	10.30	4.42E-01		-1.20E-01	1.83E-01
	1004.76	17.90	2.93E-01		9.83E-02	1.25E-01
	1274.45	35.50	1.75E-01		7.02E-02	7.38E-02
EU-155	86.50	30.90	6.66E-02	6.66E-02	-4.86E-02	3.15E-02
	105.30	20.70	8.36E-02		1.31E-02	3.91E-02
EU-156	811.77	10.40	4.35E-01	4.35E-01	4.33E-03	1.86E-01
	1153.47	7.20	6.86E-01		-1.24E-01	2.81E-01
	1230.71	8.90	5.87E-01		1.04E-01	2.41E-01
HO-166M	184.41	72.60	3.67E-02	3.67E-02	1.96E-02	1.73E-02
	280.45	29.60	8.43E-02		-2.60E-02	3.84E-02
	410.94	11.10	2.28E-01		-7.60E-02	9.91E-02
	711.69	54.10	9.57E-02		-2.93E-02	4.26E-02
TM-171	66.72	0.14	1.75E+01	1.75E+01	1.49E+01	8.36E+00
HF-172	67.35	5.31	4.61E-01	1.68E-01	3.92E-01	2.19E-01
	125.81	11.30	1.68E-01		-2.12E-02	7.89E-02
LU-172	181.53	20.60	1.17E-01	7.15E-02	-4.44E-02	5.45E-02
	900.72	29.81	1.56E-01		8.95E-03	6.59E-02
	1093.66	62.50	7.15E-02		1.56E-02	2.89E-02
LU-173	100.72	5.24	3.23E-01	1.28E-01	-9.98E-02	1.51E-01
	272.11	21.20	1.28E-01		-1.04E-02	5.90E-02
HF-175	343.40	84.00	3.36E-02	3.36E-02	8.79E-03	1.51E-02
LU-176	88.34	13.30	1.55E-01	2.85E-02	-1.70E-01	7.32E-02
	201.83	86.00	2.85E-02		-4.46E-03	1.33E-02
	306.78	94.00	3.05E-02		-6.41E-04	1.40E-02
HF-181	133.02	41.70	4.55E-02	4.10E-02	2.53E-02	2.13E-02
	345.85	17.20	1.85E-01		9.25E-03	8.43E-02
	482.03	82.80	4.10E-02		-6.53E-03	1.81E-02
TA-182	67.75	41.20	5.42E-02	5.42E-02	-1.02E-02	2.57E-02
	1121.30	34.90	1.45E-01		1.48E-02	6.00E-02
	1189.05	16.23	3.44E-01		-2.30E-03	1.44E-01
	1221.41	26.98	1.67E-01		-8.48E-04	6.62E-02
	1231.02	11.44	4.79E-01		1.51E-01	1.99E-01
IR-192	308.46	29.68	9.62E-02	6.36E-02	-3.71E-02	4.40E-02
	468.07	48.10	6.36E-02		-3.07E-02	2.79E-02
HG-203	279.19	77.30	3.38E-02	3.38E-02	5.33E-04	1.55E-02
TL-204	374.74	94.11	3.06E-02	3.06E-02	-2.17E-03	1.37E-02
	899.15	99.16	4.79E-02		-9.42E-04	2.04E-02
	911.74	91.10	6.20E-02		-1.89E-02	2.71E-02
BI-207	569.67	97.72	3.91E-02	3.91E-02	6.96E-03	1.72E-02
	1063.62	74.90	7.06E-02		-1.30E-02	2.98E-02
TL-208	583.14	30.22	1.29E-01	1.29E-01	7.18E-02	5.69E-02
	860.37	4.48	1.06E+00		-7.02E-03	4.52E-01
	2614.66	35.85	2.95E-01		1.25E-01	1.19E-01
BI-210M	262.00	45.00	6.05E-02	6.05E-02	1.88E-02	2.79E-02
	300.00	23.00	1.38E-01		-4.89E-04	6.38E-02
PB-210	46.50	4.25	7.18E-01	7.18E-01	6.08E-01	3.41E-01
PB-211	404.84	2.90	1.33E+00	1.33E+00	1.02E+00	6.10E-01
	831.96	2.90	1.74E+00		1.51E-01	7.58E-01
BI-212	727.17	11.80	4.10E-01	4.10E-01	-8.21E-02	1.80E-01
	1620.62	2.75	2.11E+00		-3.11E-01	8.36E-01

Analysis Report for 1707078-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PB-212	238.63	44.60	5.58E-02	5.58E-02	2.02E-03	2.57E-02
	300.09	3.41	9.31E-01		-3.30E-03	4.30E-01
BI-214	609.31	46.30	9.82E-02	9.82E-02	-3.24E-03	4.38E-02
	1120.29	15.10	3.34E-01		-2.63E-02	1.39E-01
	1764.49	15.80	4.28E-01		2.02E-02	1.73E-01
	2204.22	4.98	1.31E+00		1.22E-01	4.90E-01
PB-214	295.21	19.19	1.67E-01	8.78E-02	6.18E-02	7.74E-02
	351.92	37.19	8.78E-02		-4.75E-03	4.01E-02
RN-219	401.80	6.50	5.83E-01	5.83E-01	3.95E-02	2.67E-01
RA-223	323.87	3.88	8.43E-01	8.43E-01	1.53E-01	3.88E-01
RA-224	240.98	3.95	6.47E-01	6.47E-01	9.91E-02	2.99E-01
RA-225	40.00	31.00	9.85E-02	9.85E-02	-1.41E-02	4.61E-02
RA-226	186.21	3.28	8.01E-01	8.01E-01	3.39E-01	3.77E-01
TH-227	50.10	8.40	3.07E-01	1.97E-01	-7.47E-02	1.45E-01
	236.00	11.50	1.97E-01		-5.22E-02	9.04E-02
	256.20	6.30	3.76E-01		-5.23E-02	1.72E-01
AC-228	338.32	11.40	2.72E-01	2.09E-01	1.74E-01	1.24E-01
	911.07	27.70	2.09E-01		3.35E-02	9.17E-02
	969.11	16.60	2.53E-01		-5.54E-02	1.04E-01
TH-230	48.44	16.90	1.67E-01	1.67E-01	1.04E-01	7.92E-02
	62.85	4.60	5.44E-01		1.85E-01	2.59E-01
	67.67	0.37	6.04E+00		-1.14E+00	2.86E+00
PA-231	283.67	1.60	1.49E+00	1.33E+00	-2.93E-01	6.76E-01
	302.67	2.30	1.33E+00		3.84E-01	6.11E-01
TH-231	25.64	14.70	6.71E-01	3.26E-01	6.15E-02	3.20E-01
	84.21	6.40	3.26E-01		1.55E-01	1.55E-01
PA-233	311.98	38.60	8.19E-02	8.19E-02	1.91E-02	3.77E-02
PA-234	131.20	20.40	9.21E-02	9.21E-02	1.18E-02	4.31E-02
	733.99	8.80	5.40E-01		2.32E-01	2.37E-01
	946.00	12.00	3.80E-01		-4.69E-02	1.59E-01
PA-234M	1001.03	0.92	4.70E+00	4.70E+00	-6.26E-01	1.93E+00
TH-234	63.29	3.80	6.55E-01	6.55E-01	2.22E-01	3.12E-01
U-235	143.76	10.50	2.06E-01	2.06E-01	1.51E-01	9.69E-02
	163.35	4.70	4.57E-01		1.07E-01	2.14E-01
	205.31	4.70	4.95E-01		-2.00E-01	2.30E-01
NP-237	86.50	12.60	1.63E-01	1.63E-01	-1.19E-01	7.73E-02
NP-239	106.10	22.70	7.77E-02	7.77E-02	-1.76E-02	3.63E-02
	228.18	10.70	2.14E-01		9.98E-03	9.79E-02
	277.60	14.10	2.03E-01		9.48E-02	9.30E-02
AM-241	59.54	35.90	6.28E-02	6.28E-02	-5.11E-02	2.97E-02
AM-243	74.67	66.00	3.35E-02	3.35E-02	2.34E-02	1.59E-02
CM-243	209.75	3.29	7.21E-01	1.94E-01	1.55E-01	3.35E-01
	228.14	10.60	2.05E-01		9.57E-03	9.39E-02
	277.60	14.00	1.94E-01		9.07E-02	8.90E-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

Analysis Report for 1707078-02

BLANK

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: BLANK

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	6	41
17:	38	29	28	29	19	23	25	15
25:	20	21	13	18	18	12	13	15
33:	21	19	17	9	11	9	12	11
41:	13	8	11	15	20	21	14	16
49:	17	4	15	8	19	9	6	8
57:	13	19	11	19	13	15	33	27
65:	13	16	16	12	18	10	13	14
73:	13	25	18	22	13	13	6	18
81:	21	11	18	14	17	11	15	13
89:	19	18	30	31	25	10	17	8
97:	8	10	10	9	10	9	13	11
105:	11	7	10	5	13	10	15	17
113:	12	12	13	9	13	11	15	6
121:	16	15	16	7	10	15	4	9
129:	12	12	10	15	9	7	6	10
137:	4	9	7	11	8	7	18	16
145:	13	13	3	11	13	11	11	8
153:	7	16	9	10	9	6	14	10
161:	11	10	12	7	7	14	5	9
169:	6	7	8	9	14	7	13	9
177:	7	8	6	12	11	5	13	18
185:	20	15	10	7	13	4	9	12
193:	12	12	3	11	14	15	13	6
201:	7	6	8	11	8	10	7	12
209:	10	8	5	5	4	7	11	8
217:	2	12	6	8	7	8	3	4
225:	5	8	4	9	5	5	7	4
233:	6	6	5	8	6	6	10	6
241:	8	10	5	8	5	1	6	5
249:	7	4	6	2	4	6	9	6
257:	7	4	8	6	9	6	7	9
265:	3	6	5	11	9	7	4	3
273:	6	5	10	5	3	8	6	6
281:	1	6	5	6	5	2	5	3
289:	7	4	5	6	5	10	12	11
297:	5	2	10	8	7	8	6	3
305:	4	6	6	7	7	6	2	12
313:	6	6	5	5	4	6	6	8
321:	9	7	5	8	7	2	6	5
329:	5	4	1	1	5	3	4	5
337:	7	10	6	2	1	3	7	4
345:	6	6	6	5	11	5	7	4
353:	3	3	4	7	5	4	4	3
361:	7	2	8	1	3	6	5	2

369:	0	7	9	1	3	4	3	3

Sample Title: BLANK

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

801:	3	2	3	3	1	1	1	2

Sample Title: BLANK

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

1233:	2	0	1	0	1	0	1	2

Sample Title: BLANK

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

1665:	0	1	1	1	2	1	1	1

Sample Title: BLANK

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

2097:	0	0	0	1	0	0	0	1

Sample Title: BLANK

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

2529:	0	0	0	0	0	0	1	0

Sample Title: BLANK

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

2961:	0	0	0	1	0	0	0	0

Sample Title: BLANK

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

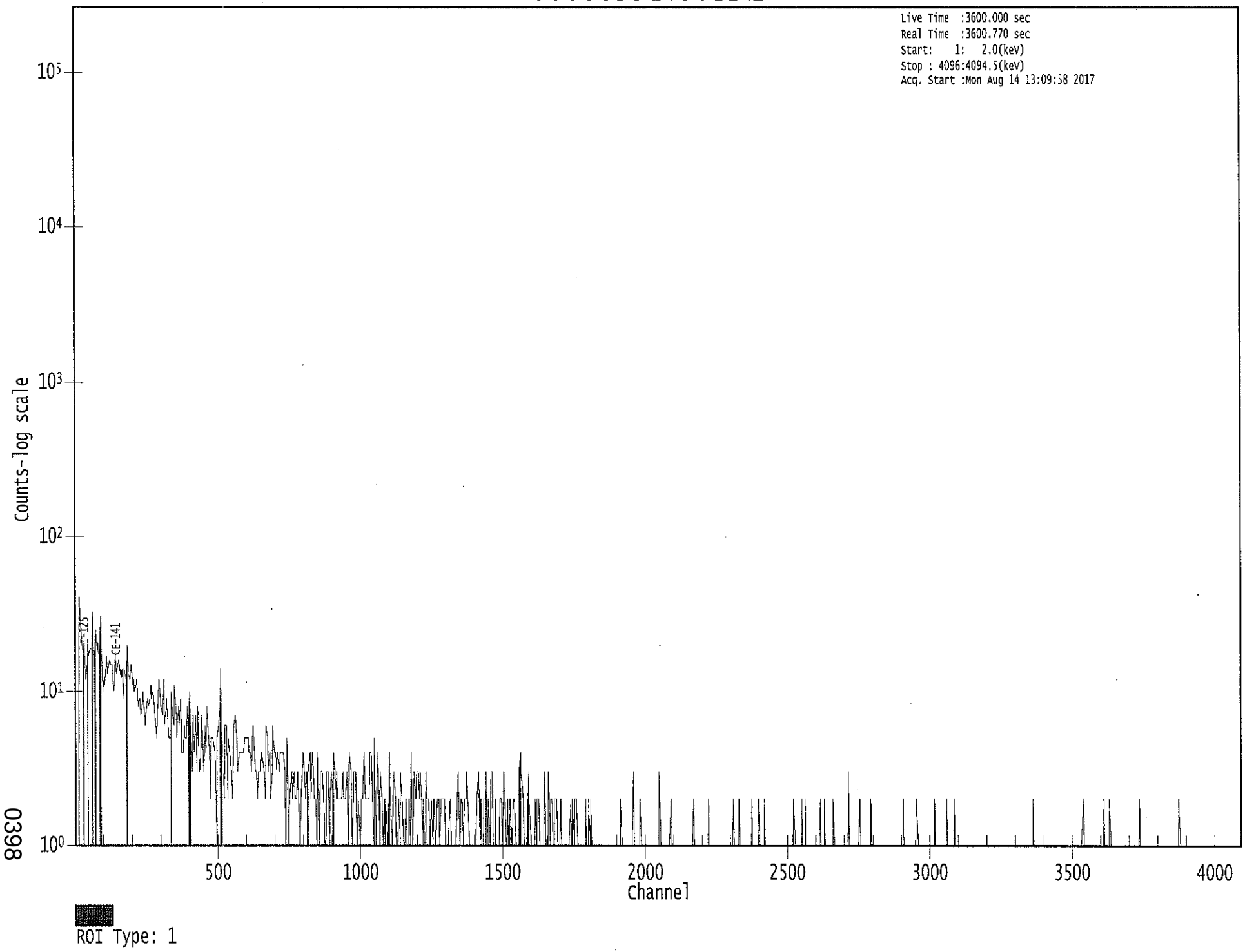
Channel								
3401:	0	0	1	0	0	0	1	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	1	1	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	1

Sample Title: BLANK

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

0000055179.CNF



0398

Apex-Gamma

8/14

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-03
Sample Description	: HTC-A01-S003-0006-01
Sample Type	: SOIL
Sample Size	: 7.676E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:27:53AM
Acquisition Started	: 8/14/2017 12:26:34PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.1 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 18 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55173

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 1:26:38PM
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	63.08	63.68	0.0000	0.00
2	74.72	75.31	0.0000	0.00
3	77.18	77.77	0.0000	0.00
4	87.75	88.33	0.0000	0.00
5	92.62	93.20	0.0000	0.00
6	153.71	154.22	0.0000	0.00
7	185.94	186.42	0.0000	0.00
8	208.68	209.13	0.0000	0.00
9	238.56	238.98	0.0000	0.00
10	241.74	242.17	0.0000	0.00
11	270.79	271.18	0.0000	0.00
12	295.28	295.65	0.0000	0.00
13	299.94	300.31	0.0000	0.00
14	338.59	338.91	0.0000	0.00
15	348.05	348.36	0.0000	0.00
16	352.00	352.31	0.0000	0.00
17	402.43	402.69	0.0000	0.00
18	463.07	463.26	0.0000	0.00
19	510.80	510.95	0.0000	0.00
20	583.29	583.36	0.0000	0.00
21	597.92	597.98	0.0000	0.00
22	609.49	609.54	0.0000	0.00
23	662.77	662.77	0.0000	0.00
24	701.47	701.42	0.0000	0.00
25	707.22	707.18	0.0000	0.00
26	727.18	727.12	0.0000	0.00
27	860.84	860.64	0.0000	0.00
28	911.44	911.19	0.0000	0.00
29	969.06	968.75	0.0000	0.00
30	1035.03	1034.66	0.0000	0.00
31	1043.08	1042.70	0.0000	0.00
32	1051.19	1050.80	0.0000	0.00
33	1120.27	1119.81	0.0000	0.00
34	1205.64	1205.10	0.0000	0.00
35	1235.57	1235.00	0.0000	0.00
36	1240.58	1240.00	0.0000	0.00
37	1343.85	1343.17	0.0000	0.00
38	1351.91	1351.22	0.0000	0.00
39	1461.26	1460.47	0.0000	0.00
40	1628.75	1627.79	0.0000	0.00
41	1639.41	1638.44	0.0000	0.00
42	1730.88	1729.82	0.0000	0.00

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1764.99	1763.90	0.0000	0.00
44	1847.21	1846.04	0.0000	0.00
45	1870.65	1869.45	0.0000	0.00
46	2104.64	2103.21	0.0000	0.00
47	2119.94	2118.50	0.0000	0.00
48	2255.73	2254.17	0.0000	0.00
49	2375.14	2373.46	0.0000	0.00
50	2615.40	2613.49	0.0000	0.00
51	2778.68	2776.62	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 1:26:38PM

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	63.08	60 -	67	63.68	1.69E+02	98.29	1.51E+03	1.44
M	2	74.72	72 -	81	75.31	2.86E+02	81.28	1.02E+03	1.81
m	3	77.18	72 -	81	77.77	4.92E+02	87.17	1.03E+03	1.82
M	4	87.75	83 -	97	88.33	2.99E+02	116.37	1.81E+03	3.25
m	5	92.62	83 -	97	93.20	3.09E+02	80.68	9.85E+02	1.97
	6	153.71	152 -	157	154.22	5.22E+01	57.66	6.18E+02	2.26
	7	185.94	182 -	191	186.42	2.18E+02	88.36	9.80E+02	1.86
	8	208.68	206 -	212	209.13	6.26E+01	62.28	6.57E+02	1.46
M	9	238.56	235 -	247	238.98	6.26E+02	64.33	4.11E+02	1.76
m	10	241.74	235 -	247	242.17	1.22E+02	65.22	3.80E+02	1.82
	11	270.79	268 -	275	271.18	5.47E+01	55.57	4.75E+02	2.04
M	12	295.28	292 -	308	295.65	2.42E+02	48.24	2.68E+02	1.92
m	13	299.94	292 -	308	300.31	4.50E+01	40.53	2.77E+02	2.06
	14	338.59	334 -	344	338.91	1.57E+02	62.34	4.34E+02	2.11
M	15	348.05	346 -	357	348.36	2.34E+01	24.17	1.57E+02	2.09
m	16	352.00	346 -	357	352.31	4.10E+02	51.32	2.11E+02	1.95
	17	402.43	398 -	407	402.69	5.65E+01	43.63	2.39E+02	6.99
	18	463.07	459 -	469	463.26	6.42E+01	49.51	2.96E+02	1.87
	19	510.80	507 -	515	510.95	1.56E+02	43.39	1.94E+02	1.91
	20	583.29	577 -	588	583.36	2.09E+02	54.74	2.70E+02	2.07
	21	597.92	595 -	601	597.98	2.21E+01	25.12	9.39E+01	6.16
	22	609.49	605 -	615	609.54	3.07E+02	55.47	2.45E+02	1.91
	23	662.77	659 -	668	662.77	5.95E+01	37.38	1.67E+02	1.69
	24	701.47	699 -	704	701.42	2.50E+01	22.34	7.80E+01	3.66
	25	707.22	705 -	711	707.18	2.02E+01	23.37	8.55E+01	2.08
	26	727.18	722 -	731	727.12	5.87E+01	35.81	1.49E+02	1.61
	27	860.84	855 -	866	860.64	5.27E+01	33.41	1.11E+02	3.89
	28	911.44	906 -	916	911.19	1.42E+02	41.51	1.55E+02	2.09
	29	969.06	964 -	973	968.75	8.22E+01	37.07	1.48E+02	1.70
	30	1035.03	1032 -	1037	1034.66	1.67E+01	17.92	5.05E+01	2.84
	31	1043.08	1040 -	1045	1042.70	1.45E+01	16.31	4.10E+01	2.05
	32	1051.19	1047 -	1055	1050.80	3.06E+01	21.04	4.88E+01	3.69
	33	1120.27	1114 -	1124	1119.81	7.14E+01	36.28	1.37E+02	1.97
	34	1205.64	1202 -	1208	1205.10	2.00E+01	21.56	7.00E+01	3.02
M	35	1235.57	1232 -	1246	1235.00	1.38E+01	19.00	5.71E+01	2.11
m	36	1240.58	1232 -	1246	1240.00	1.67E+01	21.93	6.53E+01	2.12
M	37	1343.85	1339 -	1363	1343.17	1.55E+01	15.40	2.49E+01	4.19
m	38	1351.91	1339 -	1363	1351.22	1.06E+01	14.47	2.21E+01	2.86
	39	1461.26	1455 -	1466	1460.47	5.65E+02	55.46	1.02E+02	2.26
	40	1628.75	1624 -	1630	1627.79	9.83E+00	9.84	1.03E+01	3.54

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1639.41	1634 -	1642	1638.44	1.54E+01	13.15	1.51E+01	3.31
42	1730.88	1726 -	1734	1729.82	1.56E+01	12.20	1.28E+01	1.48
43	1764.99	1759 -	1772	1763.90	5.27E+01	20.07	2.27E+01	3.24
44	1847.21	1842 -	1848	1846.04	6.50E+00	9.21	1.10E+01	1.13
45	1870.65	1866 -	1872	1869.45	6.60E+00	8.03	6.80E+00	2.56
46	2104.64	2098 -	2109	2103.21	2.80E+01	10.58	0.00E+00	5.80
47	2119.94	2115 -	2121	2118.50	1.40E+01	7.48	0.00E+00	2.54
48	2255.73	2250 -	2256	2254.17	6.00E+00	4.90	0.00E+00	2.74
49	2375.14	2370 -	2375	2373.46	6.31E+00	6.40	3.38E+00	1.08
50	2615.40	2610 -	2617	2613.49	7.98E+01	18.55	4.49E+00	2.53
51	2778.68	2773 -	2778	2776.62	5.29E+00	6.08	3.43E+00	1.07

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 1:26:38PM

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	63.08	60 -	67	1.69E+02	98.29	1.51E+03	7.79E+01
M	2	74.72	72 -	81	2.86E+02	81.28	1.02E+03	5.24E+01
m	3	77.18	72 -	81	4.92E+02	87.17	1.03E+03	5.28E+01
M	4	87.75	83 -	97	2.99E+02	116.37	1.81E+03	7.00E+01
m	5	92.62	83 -	97	3.09E+02	80.68	9.85E+02	5.16E+01
	6	153.71	152 -	157	5.22E+01	57.66	6.18E+02	4.59E+01
	7	185.94	182 -	191	2.18E+02	88.36	9.80E+02	6.85E+01
	8	208.68	206 -	212	6.26E+01	62.28	6.57E+02	4.95E+01
M	9	238.56	235 -	247	6.26E+02	64.33	4.11E+02	3.33E+01
m	10	241.74	235 -	247	1.22E+02	65.22	3.80E+02	3.20E+01
	11	270.79	268 -	275	5.47E+01	55.57	4.75E+02	4.40E+01
M	12	295.28	292 -	308	2.42E+02	48.24	2.68E+02	2.69E+01
m	13	299.94	292 -	308	4.50E+01	40.53	2.77E+02	2.74E+01
	14	338.59	334 -	344	1.57E+02	62.34	4.34E+02	4.69E+01
M	15	348.05	346 -	357	2.34E+01	24.17	1.57E+02	2.06E+01
m	16	352.00	346 -	357	4.10E+02	51.32	2.11E+02	2.39E+01
	17	402.43	398 -	407	5.65E+01	43.63	2.39E+02	3.37E+01

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	18	463.07	459 -	469	6.42E+01	49.51	2.96E+02	2.05E+01
	19	510.80	507 -	515	1.56E+02	43.39	1.94E+02	2.92E+01
	20	583.29	577 -	588	2.09E+02	54.74	2.70E+02	3.82E+01
	21	597.92	595 -	601	2.21E+01	25.12	9.39E+01	1.92E+01
	22	609.49	605 -	615	3.07E+02	55.47	2.45E+02	3.54E+01
	23	662.77	659 -	668	5.95E+01	37.38	1.67E+02	2.80E+01
	24	701.47	699 -	704	2.50E+01	22.34	7.80E+01	1.64E+01
	25	707.22	705 -	711	2.02E+01	23.37	8.55E+01	1.77E+01
	26	727.18	722 -	731	5.87E+01	35.81	1.49E+02	2.66E+01
	27	860.84	855 -	866	5.27E+01	33.41	1.11E+02	2.47E+01
	28	911.44	906 -	916	1.42E+02	41.51	1.55E+02	2.80E+01
	29	969.06	964 -	973	8.22E+01	37.07	1.48E+02	2.66E+01
	30	1035.03	1032 -	1037	1.67E+01	17.92	5.05E+01	1.31E+01
	31	1043.08	1040 -	1045	1.45E+01	16.31	4.10E+01	1.19E+01
	32	1051.19	1047 -	1055	3.06E+01	21.04	4.88E+01	1.47E+01
	33	1120.27	1114 -	1124	7.14E+01	36.28	1.37E+02	2.64E+01
	34	1205.64	1202 -	1208	2.00E+01	21.56	7.00E+01	1.61E+01
M	35	1235.57	1232 -	1246	1.38E+01	19.00	5.71E+01	1.24E+01
m	36	1240.58	1232 -	1246	1.67E+01	21.93	6.53E+01	1.33E+01
M	37	1343.85	1339 -	1363	1.55E+01	15.40	2.49E+01	8.21E+00
m	38	1351.91	1339 -	1363	1.06E+01	14.47	2.21E+01	7.72E+00
	39	1461.26	1455 -	1466	5.65E+02	55.46	1.02E+02	2.35E+01
	40	1628.75	1624 -	1630	9.83E+00	9.84	1.03E+01	6.23E+00
	41	1639.41	1634 -	1642	1.54E+01	13.15	1.51E+01	8.67E+00
	42	1730.88	1726 -	1734	1.56E+01	12.20	1.28E+01	7.64E+00
	43	1764.99	1759 -	1772	5.27E+01	20.07	2.27E+01	1.14E+01
	44	1847.21	1842 -	1848	6.50E+00	9.21	1.10E+01	6.30E+00
	45	1870.65	1866 -	1872	6.60E+00	8.03	6.80E+00	5.07E+00
	46	2104.64	2098 -	2109	2.80E+01	10.58	0.00E+00	0.00E+00
	47	2119.94	2115 -	2121	1.40E+01	7.48	0.00E+00	0.00E+00
	48	2255.73	2250 -	2256	6.00E+00	4.90	0.00E+00	0.00E+00
	49	2375.14	2370 -	2375	6.31E+00	6.40	3.38E+00	3.26E+00
	50	2615.40	2610 -	2617	7.98E+01	18.55	4.49E+00	4.11E+00
	51	2778.68	2773 -	2778	5.29E+00	6.08	3.43E+00	3.27E+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 1707078-03

HTC-A01-S003-0006-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 1:26:38PM

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	63.08	60 -	67	63.68	1.69E+02	98.29	1.51E+03	TH-234
									TH-230
M	2	74.72	72 -	81	75.31	2.86E+02	81.28	1.02E+03	AM-243
m	3	77.18	72 -	81	77.77	4.92E+02	87.17	1.03E+03	.....
M	4	87.75	83 -	97	88.33	2.99E+02	116.37	1.81E+03	SN-126
									CD-109
									LU-176
m	5	92.62	83 -	97	93.20	3.09E+02	80.68	9.85E+02	GA-67
	6	153.71	152 -	157	154.22	5.22E+01	57.66	6.18E+02	CS-136
	7	185.94	182 -	191	186.42	2.18E+02	88.36	9.80E+02	RA-226
	8	208.68	206 -	212	209.13	6.26E+01	62.28	6.57E+02	GA-67
M	9	238.56	235 -	247	238.98	6.26E+02	64.33	4.11E+02	PB-212
m	10	241.74	235 -	247	242.17	1.22E+02	65.22	3.80E+02	RA-224
	11	270.79	268 -	275	271.18	5.47E+01	55.57	4.75E+02	.....
M	12	295.28	292 -	308	295.65	2.42E+02	48.24	2.68E+02	PB-214
m	13	299.94	292 -	308	300.31	4.50E+01	40.53	2.77E+02	BI-210M
									PB-212
									GA-67
	14	338.59	334 -	344	338.91	1.57E+02	62.34	4.34E+02	AC-228
M	15	348.05	346 -	357	348.36	2.34E+01	24.17	1.57E+02	.....
m	16	352.00	346 -	357	352.31	4.10E+02	51.32	2.11E+02	PB-214
	17	402.43	398 -	407	402.69	5.65E+01	43.63	2.39E+02	RN-219
	18	463.07	459 -	469	463.26	6.42E+01	49.51	2.96E+02	SB-125
	19	510.80	507 -	515	510.95	1.56E+02	43.39	1.94E+02	.....
	20	583.29	577 -	588	583.36	2.09E+02	54.74	2.70E+02	TL-208
	21	597.92	595 -	601	597.98	2.21E+01	25.12	9.39E+01	.....
	22	609.49	605 -	615	609.54	3.07E+02	55.47	2.45E+02	BI-214
	23	662.77	659 -	668	662.77	5.95E+01	37.38	1.67E+02	.....
	24	701.47	699 -	704	701.42	2.50E+01	22.34	7.80E+01	.....
	25	707.22	705 -	711	707.18	2.02E+01	23.37	8.55E+01	AG-110M
	26	727.18	722 -	731	727.12	5.87E+01	35.81	1.49E+02	BI-212
	27	860.84	855 -	866	860.64	5.27E+01	33.41	1.11E+02	TL-208
	28	911.44	906 -	916	911.19	1.42E+02	41.51	1.55E+02	TL-204
									AC-228
	29	969.06	964 -	973	968.75	8.22E+01	37.07	1.48E+02	AC-228
	30	1035.03	1032 -	1037	1034.66	1.67E+01	17.92	5.05E+01	.....
	31	1043.08	1040 -	1045	1042.70	1.45E+01	16.31	4.10E+01	.....
	32	1051.19	1047 -	1055	1050.80	3.06E+01	21.04	4.88E+01	.....
	33	1120.27	1114 -	1124	1119.81	7.14E+01	36.28	1.37E+02	BI-214
									SC-46
	34	1205.64	1202 -	1208	1205.10	2.00E+01	21.56	7.00E+01	.....

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	35	1235.57	1232 -	1246	1235.00	1.38E+01	19.00	5.71E+01	CS-136
m	36	1240.58	1232 -	1246	1240.00	1.67E+01	21.93	6.53E+01	.....
M	37	1343.85	1339 -	1363	1343.17	1.55E+01	15.40	2.49E+01	.....
m	38	1351.91	1339 -	1363	1351.22	1.06E+01	14.47	2.21E+01	.....
	39	1461.26	1455 -	1466	1460.47	5.65E+02	55.46	1.02E+02	K-40
	40	1628.75	1624 -	1630	1627.79	9.83E+00	9.84	1.03E+01	.....
	41	1639.41	1634 -	1642	1638.44	1.54E+01	13.15	1.51E+01	.....
	42	1730.88	1726 -	1734	1729.82	1.56E+01	12.20	1.28E+01	.....
	43	1764.99	1759 -	1772	1763.90	5.27E+01	20.07	2.27E+01	BI-214
	44	1847.21	1842 -	1848	1846.04	6.50E+00	9.21	1.10E+01	.....
	45	1870.65	1866 -	1872	1869.45	6.60E+00	8.03	6.80E+00	.....
	46	2104.64	2098 -	2109	2103.21	2.80E+01	10.58	0.00E+00	.....
	47	2119.94	2115 -	2121	2118.50	1.40E+01	7.48	0.00E+00	.....
	48	2255.73	2250 -	2256	2254.17	6.00E+00	4.90	0.00E+00	.....
	49	2375.14	2370 -	2375	2373.46	6.31E+00	6.40	3.38E+00	.....
	50	2615.40	2610 -	2617	2613.49	7.98E+01	18.55	4.49E+00	TL-208
	51	2778.68	2773 -	2778	2776.62	5.29E+00	6.08	3.43E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 1:26:38PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.08	1.69E+02	98.29	2.70E-02	2.25E-03
M	2	74.72	2.86E+02	81.28	2.75E-02	2.38E-03
m	3	77.18	4.92E+02	87.17	2.75E-02	2.40E-03
M	4	87.75	2.99E+02	116.37	2.74E-02	2.52E-03
m	5	92.62	3.09E+02	80.68	2.73E-02	2.45E-03
	6	153.71	5.22E+01	57.66	2.37E-02	1.80E-03
	7	185.94	2.18E+02	88.36	2.17E-02	1.68E-03
	8	208.68	6.26E+01	62.28	2.04E-02	1.61E-03
M	9	238.56	6.26E+02	64.33	1.89E-02	1.53E-03
m	10	241.74	1.22E+02	65.22	1.87E-02	1.52E-03
	11	270.79	5.47E+01	55.57	1.74E-02	1.43E-03
M	12	295.28	2.42E+02	48.24	1.64E-02	1.37E-03
m	13	299.94	4.50E+01	40.53	1.63E-02	1.36E-03

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	14	338.59	1.57E+02	62.34	1.49E-02	1.27E-03
M	15	348.05	2.34E+01	24.17	1.47E-02	1.25E-03
m	16	352.00	4.10E+02	51.32	1.45E-02	1.24E-03
	17	402.43	5.65E+01	43.63	1.32E-02	1.14E-03
	18	463.07	6.42E+01	49.51	1.19E-02	1.10E-03
	19	510.80	1.56E+02	43.39	1.10E-02	1.07E-03
	20	583.29	2.09E+02	54.74	9.96E-03	1.02E-03
	21	597.92	2.21E+01	25.12	9.77E-03	1.01E-03
	22	609.49	3.07E+02	55.47	9.63E-03	1.01E-03
	23	662.77	5.95E+01	37.38	9.03E-03	9.70E-04
	24	701.47	2.50E+01	22.34	8.65E-03	9.09E-04
	25	707.22	2.02E+01	23.37	8.59E-03	9.00E-04
	26	727.18	5.87E+01	35.81	8.41E-03	8.68E-04
	27	860.84	5.27E+01	33.41	7.40E-03	6.56E-04
	28	911.44	1.42E+02	41.51	7.08E-03	5.91E-04
	29	969.06	8.22E+01	37.07	6.77E-03	5.69E-04
	30	1035.03	1.67E+01	17.92	6.44E-03	5.44E-04
	31	1043.08	1.45E+01	16.31	6.40E-03	5.41E-04
	32	1051.19	3.06E+01	21.04	6.37E-03	5.38E-04
	33	1120.27	7.14E+01	36.28	6.07E-03	5.11E-04
	34	1205.64	2.00E+01	21.56	5.75E-03	4.84E-04
M	35	1235.57	1.38E+01	19.00	5.65E-03	4.77E-04
m	36	1240.58	1.67E+01	21.93	5.64E-03	4.76E-04
M	37	1343.85	1.55E+01	15.40	5.32E-03	4.52E-04
m	38	1351.91	1.06E+01	14.47	5.29E-03	4.50E-04
	39	1461.26	5.65E+02	55.46	5.01E-03	4.25E-04
	40	1628.75	9.83E+00	9.84	4.63E-03	3.86E-04
	41	1639.41	1.54E+01	13.15	4.61E-03	3.83E-04
	42	1730.88	1.56E+01	12.20	4.44E-03	3.62E-04
	43	1764.99	5.27E+01	20.07	4.37E-03	3.54E-04
	44	1847.21	6.50E+00	9.21	4.24E-03	3.38E-04
	45	1870.65	6.60E+00	8.03	4.20E-03	3.38E-04
	46	2104.64	2.80E+01	10.58	3.86E-03	3.38E-04
	47	2119.94	1.40E+01	7.48	3.84E-03	3.38E-04
	48	2255.73	6.00E+00	4.90	3.68E-03	3.38E-04
	49	2375.14	6.31E+00	6.40	3.54E-03	3.38E-04
	50	2615.40	7.98E+01	18.55	3.31E-03	3.38E-04
	51	2778.68	5.29E+00	6.08	3.16E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 1:26:38PM

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.08	1.69E+02	98.29	6.71E+01	1.02E+01	1.02E+02	9.88E+01
M	2	74.72	2.86E+02	81.28			2.86E+02	8.13E+01
m	3	77.18	4.92E+02	87.17	7.83E+00	3.45E+00	4.84E+02	8.72E+01
M	4	87.75	2.99E+02	116.37			2.99E+02	1.16E+02
m	5	92.62	3.09E+02	80.68	1.35E+02	7.64E+00	1.74E+02	8.10E+01
	6	153.71	5.22E+01	57.66			5.22E+01	5.77E+01
	7	185.94	2.18E+02	88.36	5.47E+01	6.99E+00	1.63E+02	8.86E+01
	8	208.68	6.26E+01	62.28			6.26E+01	6.23E+01
M	9	238.56	6.26E+02	64.33	1.58E+01	5.72E+00	6.11E+02	6.46E+01
m	10	241.74	1.22E+02	65.22			1.22E+02	6.52E+01
	11	270.79	5.47E+01	55.57			5.47E+01	5.56E+01
M	12	295.28	2.42E+02	48.24			2.42E+02	4.82E+01
m	13	299.94	4.50E+01	40.53			4.50E+01	4.05E+01
	14	338.59	1.57E+02	62.34	1.94E+00	4.45E+00	1.55E+02	6.25E+01
M	15	348.05	2.34E+01	24.17			2.34E+01	2.42E+01
m	16	352.00	4.10E+02	51.32	8.23E+00	4.77E+00	4.02E+02	5.15E+01
	17	402.43	5.65E+01	43.63			5.65E+01	4.36E+01
	18	463.07	6.42E+01	49.51			6.42E+01	4.95E+01
	19	510.80	1.56E+02	43.39	7.54E+01	5.68E+00	8.06E+01	4.38E+01
	20	583.29	2.09E+02	54.74	7.97E+00	3.93E+00	2.01E+02	5.49E+01
	21	597.92	2.21E+01	25.12			2.21E+01	2.51E+01
	22	609.49	3.07E+02	55.47	5.86E+00	3.50E+00	3.01E+02	5.56E+01
	23	662.77	5.95E+01	37.38			5.95E+01	3.74E+01
	24	701.47	2.50E+01	22.34			2.50E+01	2.23E+01
	25	707.22	2.02E+01	23.37			2.02E+01	2.34E+01
	26	727.18	5.87E+01	35.81			5.87E+01	3.58E+01
	27	860.84	5.27E+01	33.41			5.27E+01	3.34E+01
	28	911.44	1.42E+02	41.51			1.42E+02	4.15E+01
	29	969.06	8.22E+01	37.07			8.22E+01	3.71E+01
	30	1035.03	1.67E+01	17.92			1.67E+01	1.79E+01
	31	1043.08	1.45E+01	16.31			1.45E+01	1.63E+01
	32	1051.19	3.06E+01	21.04			3.06E+01	2.10E+01
	33	1120.27	7.14E+01	36.28			7.14E+01	3.63E+01
	34	1205.64	2.00E+01	21.56			2.00E+01	2.16E+01
M	35	1235.57	1.38E+01	19.00			1.38E+01	1.90E+01
m	36	1240.58	1.67E+01	21.93			1.67E+01	2.19E+01
M	37	1343.85	1.55E+01	15.40			1.55E+01	1.54E+01
m	38	1351.91	1.06E+01	14.47			1.06E+01	1.45E+01
	39	1461.26	5.65E+02	55.46	7.31E+00	2.50E+00	5.57E+02	5.55E+01
	40	1628.75	9.83E+00	9.84			9.83E+00	9.84E+00
	41	1639.41	1.54E+01	13.15			1.54E+01	1.32E+01
	42	1730.88	1.56E+01	12.20			1.56E+01	1.22E+01
	43	1764.99	5.27E+01	20.07			5.27E+01	2.01E+01
	44	1847.21	6.50E+00	9.21			6.50E+00	9.21E+00
	45	1870.65	6.60E+00	8.03			6.60E+00	8.03E+00
	46	2104.64	2.80E+01	10.58			2.80E+01	1.06E+01
	47	2119.94	1.40E+01	7.48			1.40E+01	7.48E+00
	48	2255.73	6.00E+00	4.90			6.00E+00	4.90E+00
	49	2375.14	6.31E+00	6.40			6.31E+00	6.40E+00

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
50	2615.40	7.98E+01	18.55	5.15E+00	1.56E+00	7.46E+01	1.86E+01
51	2778.68	5.29E+00	6.08			5.29E+00	6.08E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 1:26:38PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.08	1.69E+02	98.29	6.71E+01	1.02E+01	1.02E+02	9.88E+01
M	2	74.72	2.86E+02	81.28			2.86E+02	8.13E+01
m	3	77.18	4.92E+02	87.17	7.83E+00	3.45E+00	4.84E+02	8.72E+01
M	4	87.75	2.99E+02	116.37			2.99E+02	1.16E+02
m	5	92.62	3.09E+02	80.68	1.35E+02	7.64E+00	1.74E+02	8.10E+01
	6	153.71	5.22E+01	57.66			5.22E+01	5.77E+01
	7	185.94	2.18E+02	88.36	5.47E+01	6.99E+00	1.63E+02	8.86E+01
	8	208.68	6.26E+01	62.28			6.26E+01	6.23E+01
M	9	238.56	6.26E+02	64.33	1.58E+01	5.72E+00	6.11E+02	6.46E+01
m	10	241.74	1.22E+02	65.22			1.22E+02	6.52E+01
	11	270.79	5.47E+01	55.57			5.47E+01	5.56E+01
M	12	295.28	2.42E+02	48.24			2.42E+02	4.82E+01
m	13	299.94	4.50E+01	40.53			4.50E+01	4.05E+01
	14	338.59	1.57E+02	62.34	1.94E+00	4.45E+00	1.55E+02	6.25E+01
M	15	348.05	2.34E+01	24.17			2.34E+01	2.42E+01
m	16	352.00	4.10E+02	51.32	8.23E+00	4.77E+00	4.02E+02	5.15E+01
	17	402.43	5.65E+01	43.63			5.65E+01	4.36E+01
	18	463.07	6.42E+01	49.51			6.42E+01	4.95E+01
	19	510.80	1.56E+02	43.39	7.54E+01	5.68E+00	8.06E+01	4.38E+01
	20	583.29	2.09E+02	54.74	7.97E+00	3.93E+00	2.01E+02	5.49E+01
	21	597.92	2.21E+01	25.12			2.21E+01	2.51E+01
	22	609.49	3.07E+02	55.47	5.86E+00	3.50E+00	3.01E+02	5.56E+01
	23	662.77	5.95E+01	37.38			5.95E+01	3.74E+01
	24	701.47	2.50E+01	22.34			2.50E+01	2.23E+01
	25	707.22	2.02E+01	23.37			2.02E+01	2.34E+01
	26	727.18	5.87E+01	35.81			5.87E+01	3.58E+01

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	27	860.84	5.27E+01	33.41			5.27E+01	3.34E+01
	28	911.44	1.42E+02	41.51			1.42E+02	4.15E+01
	29	969.06	8.22E+01	37.07			8.22E+01	3.71E+01
	30	1035.03	1.67E+01	17.92			1.67E+01	1.79E+01
	31	1043.08	1.45E+01	16.31			1.45E+01	1.63E+01
	32	1051.19	3.06E+01	21.04			3.06E+01	2.10E+01
	33	1120.27	7.14E+01	36.28			7.14E+01	3.63E+01
	34	1205.64	2.00E+01	21.56			2.00E+01	2.16E+01
M	35	1235.57	1.38E+01	19.00			1.38E+01	1.90E+01
m	36	1240.58	1.67E+01	21.93			1.67E+01	2.19E+01
M	37	1343.85	1.55E+01	15.40			1.55E+01	1.54E+01
m	38	1351.91	1.06E+01	14.47			1.06E+01	1.45E+01
	39	1461.26	5.65E+02	55.46	7.31E+00	2.50E+00	5.57E+02	5.55E+01
	40	1628.75	9.83E+00	9.84			9.83E+00	9.84E+00
	41	1639.41	1.54E+01	13.15			1.54E+01	1.32E+01
	42	1730.88	1.56E+01	12.20			1.56E+01	1.22E+01
	43	1764.99	5.27E+01	20.07			5.27E+01	2.01E+01
	44	1847.21	6.50E+00	9.21			6.50E+00	9.21E+00
	45	1870.65	6.60E+00	8.03			6.60E+00	8.03E+00
	46	2104.64	2.80E+01	10.58			2.80E+01	1.06E+01
	47	2119.94	1.40E+01	7.48			1.40E+01	7.48E+00
	48	2255.73	6.00E+00	4.90			6.00E+00	4.90E+00
	49	2375.14	6.31E+00	6.40			6.31E+00	6.40E+00
	50	2615.40	7.98E+01	18.55	5.15E+00	1.56E+00	7.46E+01	1.86E+01
	51	2778.68	5.29E+00	6.08			5.29E+00	6.08E+00

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

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	0.967	1460.81	*	10.67	1.02E+01	1.35E+00
CD-109	0.987	88.03	*	3.72	3.30E+00	1.33E+00
SN-126	0.995	87.57	*	37.00	2.89E-01	1.15E-01
TL-208	0.953	583.14	*	30.22	6.53E-01	1.90E-01
		860.37	*	4.48	1.56E+00	9.96E-01
		2614.66	*	35.85	6.16E-01	1.66E-01

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-212	0.764	727.17	*	11.80	5.78E-01	3.58E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	7.10E-01	9.45E-02
		300.09	*	3.41	7.94E-01	7.18E-01
BI-214	0.921	609.31	*	46.30	6.60E-01	1.40E-01
		1120.29	*	15.10	7.62E-01	3.92E-01
		1764.49	*	15.80	7.46E-01	2.90E-01
		2204.22		4.98		
PB-214	0.999	295.21	*	19.19	7.51E-01	1.62E-01
		351.92	*	37.19	7.27E-01	1.12E-01
RN-219	0.939	401.80	*	6.50	6.44E-01	5.01E-01
RA-224	0.911	240.98	*	3.95	1.62E+00	8.73E-01
RA-226	0.988	186.21	*	3.28	2.24E+00	4.29E+00
AC-228	0.987	338.32	*	11.40	8.90E-01	3.67E-01
		911.07	*	27.70	7.06E-01	2.15E-01
		969.11	*	16.60	7.16E-01	3.28E-01
TH-234	0.993	63.29	*	3.80	9.75E-01	9.46E-01
AM-243	1.000	74.67	*	66.00	1.54E-01	4.58E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 1:26:38PM
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	77.18	1.34362E-01	9.02		
m	5	92.62	4.83489E-02	23.28	Tol.	GA-67
	6	153.71	1.44872E-02	55.28	Tol.	CS-136
	8	208.68	1.73835E-02	49.76	Tol.	GA-67
	11	270.79	1.51826E-02	50.83		
M	15	348.05	6.49715E-03	51.66		
	18	463.07	1.78433E-02	38.54	Tol.	SB-125
	19	510.80	2.23910E-02	27.14		
	21	597.92	6.12923E-03	56.93		
	23	662.77	1.65287E-02	31.41		
	24	701.47	6.95095E-03	44.63	Sum	

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	25	707.22	5.62390E-03	57.71	Tol.	AG-110M
	30	1035.03	4.64947E-03	53.52		
	31	1043.08	4.03175E-03	56.18	Sum	
	32	1051.19	8.50253E-03	34.37		
	34	1205.64	5.55556E-03	53.91		
M	35	1235.57	3.83644E-03	68.78	Tol.	CS-136
m	36	1240.58	4.62840E-03	65.81		
M	37	1343.85	4.29730E-03	49.78		
m	38	1351.91	2.93575E-03	68.44		
	40	1628.75	2.73148E-03	50.01		
	41	1639.41	4.28744E-03	42.61	Sum	
	42	1730.88	4.33081E-03	39.11		
	44	1847.21	1.80556E-03	70.82	Sum	
	45	1870.65	1.83333E-03	60.84		
	46	2104.64	7.77778E-03	18.90	S-Esc	
	47	2119.94	3.88889E-03	26.73		
	48	2255.73	1.66667E-03	40.82		
	49	2375.14	1.75347E-03	50.72	Sum	
	51	2778.68	1.46825E-03	57.54		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.96	1460.81	*	10.67	1.02E+01	1.35E+00
CD-109	0.98	88.03	*	3.72	3.30E+00	1.33E+00
SN-126	0.99	87.57	*	37.00	2.89E-01	1.15E-01
TL-208	0.95	583.14	*	30.22	6.53E-01	1.90E-01
		860.37	*	4.48	1.56E+00	9.96E-01
		2614.66	*	35.85	6.16E-01	1.66E-01
BI-212	0.76	727.17	*	11.80	5.78E-01	3.58E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	7.10E-01	9.45E-02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.99	300.09	*	3.41	7.94E-01	7.18E-01
BI-214	0.92	609.31	*	46.30	6.60E-01	1.40E-01
		1120.29	*	15.10	7.62E-01	3.92E-01
		1764.49	*	15.80	7.46E-01	2.90E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	7.51E-01	1.62E-01
		351.92	*	37.19	7.27E-01	1.12E-01
RN-219	0.93	401.80	*	6.50	6.44E-01	5.01E-01
RA-224	0.91	240.98	*	3.95	1.62E+00	8.73E-01
RA-226	0.98	186.21	*	3.28	2.24E+00	4.29E+00
AC-228	0.98	338.32	*	11.40	8.90E-01	3.67E-01
		911.07	*	27.70	7.06E-01	2.15E-01
		969.11	*	16.60	7.16E-01	3.28E-01
TH-234	0.99	63.29	*	3.80	9.75E-01	9.46E-01
AM-243	1.00	74.67	*	66.00	1.54E-01	4.58E-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	0.967	1.02E+01	1.35E+00	
?	CD-109	0.987	3.30E+00	1.33E+00	
?	SN-126	0.995	2.89E-01	1.15E-01	
	TL-208	0.953	6.46E-01	1.24E-01	
	BI-212	0.764	5.78E-01	3.58E-01	
	PB-212	0.999	7.11E-01	9.37E-02	
	BI-214	0.921	6.84E-01	1.20E-01	
	PB-214	0.999	7.35E-01	9.21E-02	
	RN-219	0.939	6.44E-01	5.01E-01	
	RA-224	0.911	1.62E+00	8.73E-01	
	RA-226	0.988	2.24E+00	4.29E+00	
	AC-228	0.987	7.44E-01	1.62E-01	

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TH-234	0.993	9.75E-01	9.46E-01	
AM-243	1.000	1.54E-01	4.58E-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 1707078-03

HTC-A01-S003-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 1:26:38PM
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	77.18	1.34362E-01	9.02		
m	5	92.62	4.83489E-02	23.28	Tol.	GA-67
	6	153.71	1.44872E-02	55.28	Tol.	CS-136
	8	208.68	1.73835E-02	49.76	Tol.	GA-67
	11	270.79	1.51826E-02	50.83		
M	15	348.05	6.49715E-03	51.66		
	18	463.07	1.78433E-02	38.54	Tol.	SB-125
	19	510.80	2.23910E-02	27.14		
	21	597.92	6.12923E-03	56.93		
	23	662.77	1.65287E-02	31.41		
	24	701.47	6.95095E-03	44.63	Sum	
	25	707.22	5.62390E-03	57.71	Tol.	AG-110M
	30	1035.03	4.64947E-03	53.52		
	31	1043.08	4.03175E-03	56.18	Sum	
	32	1051.19	8.50253E-03	34.37		
	34	1205.64	5.55556E-03	53.91		
M	35	1235.57	3.83644E-03	68.78	Tol.	CS-136
m	36	1240.58	4.62840E-03	65.81		
M	37	1343.85	4.29730E-03	49.78		
m	38	1351.91	2.93575E-03	68.44		
	40	1628.75	2.73148E-03	50.01		
	41	1639.41	4.28744E-03	42.61	Sum	
	42	1730.88	4.33081E-03	39.11		
	44	1847.21	1.80556E-03	70.82	Sum	
	45	1870.65	1.83333E-03	60.84		
	46	2104.64	7.77778E-03	18.90	S-Esc	
	47	2119.94	3.88889E-03	26.73		
	48	2255.73	1.66667E-03	40.82		
	49	2375.14	1.75347E-03	50.72	Sum	
	51	2778.68	1.46825E-03	57.54		

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

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

NUCLIDE 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	-4.54E-02	1.31E+00	1.31E+00
+	NA-22	1274.54		99.94	-1.37E-02	5.50E-02	5.50E-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	2.28E-03	2.74E-02	2.74E-02
+	K-40	1460.81	*	10.67	1.02E+01	9.29E-01	9.29E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.39E-02	4.26E-02	4.26E-02
		78.34		96.00	1.01E-01		5.45E-02
+	SC-46	889.25		99.98	-2.75E-02	1.00E-01	1.00E-01
		1120.51		99.99	2.18E-01		1.79E-01
+	V-48	983.52		99.98	-5.50E-01	2.59E+00	2.62E+00
		1312.10		97.50	-6.34E-01		2.59E+00
+	CR-51	320.08		9.83	1.60E-01	4.09E+00	4.09E+00
+	MN-54	834.83		99.97	1.93E-02	6.20E-02	6.20E-02
+	CO-56	846.75		99.96	1.42E-02	9.64E-02	9.64E-02
		1037.75		14.03	-2.46E-02		8.18E-01
		1238.25		67.00	2.14E-01		2.60E-01
		1771.40		15.51	-5.01E-01		5.47E-01
		2598.48		16.90	-9.89E-02		2.91E-01
+	CO-57	122.06		85.51	2.77E-04	4.85E-02	4.85E-02
		136.48		10.60	-5.66E-02		4.07E-01
+	CO-58	810.76		99.40	-2.41E-02	1.13E-01	1.13E-01
+	FE-59	1099.22		56.50	-4.10E-02	4.01E-01	4.01E-01
		1291.56		43.20	-1.47E-01		4.73E-01
+	CO-60	1173.22		100.00	-1.74E-03	4.03E-02	5.72E-02
		1332.49		100.00	-2.93E-02		4.03E-02
+	ZN-65	1115.52		50.75	-4.04E-02	1.35E-01	1.35E-01
+	GA-67	93.31		35.70	7.67E+07	4.87E+07	4.87E+07
		208.95		2.24	4.39E+08		6.91E+08
		300.22		16.00	-2.26E+08		1.07E+08
+	SE-75	121.11		16.70	1.62E-01	9.83E-02	3.47E-01

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-1.37E-02	9.83E-02	9.83E-02
		264.65		59.80	3.64E-03		1.16E-01
		279.53		25.20	1.38E-01		2.71E-01
		400.65		11.40	3.31E-02		6.04E-01
+	RB-82	776.52		13.00	-1.62E+00	4.03E+00	4.03E+00
+	RB-83	520.41		46.00	3.10E-02	2.01E-01	2.01E-01
		529.64		30.30	4.09E-02		2.77E-01
		552.65		16.40	1.35E-01		5.16E-01
+	KR-85	513.99		0.43	-1.67E-02	1.38E+01	1.38E+01
+	SR-85	513.99		99.27	-1.94E-04	1.61E-01	1.61E-01
+	Y-88	898.02		93.40	-2.66E-02	4.56E-02	8.90E-02
		1836.01		99.38	3.53E-03		4.56E-02
+	MO-93	263.06		56.72	-3.20E-03	4.19E-02	7.15E-02
		684.67		99.68	-2.22E-02		4.35E-02
		1477.11		99.08	9.09E-03		4.19E-02
+	NB-93M	16.57		9.43	-2.21E-01	3.78E-01	3.78E-01
+	NB-94	702.63		100.00	1.15E-02	4.62E-02	4.99E-02
		871.10		100.00	2.21E-02		4.62E-02
+	NB-95	765.79		99.81	6.50E-02	3.56E-01	3.56E-01
+	NB-95M	235.69		25.00	-5.23E+07	1.04E+07	1.04E+07
+	ZR-95	724.18		43.70	8.55E-02	2.39E-01	3.48E-01
		756.72		55.30	-1.62E-02		2.39E-01
+	MO-99	181.06		6.20	1.03E+09	5.11E+09	8.66E+09
		739.58		12.80	1.52E+08		5.11E+09
		778.00		4.50	-8.31E+09		1.47E+10
+	RU-103	497.08		89.00	-1.71E-01	2.18E-01	2.18E-01
+	RU-106	621.84		9.80	-9.23E-02	5.29E-01	5.29E-01
+	AG-108M	433.93		89.90	1.56E-02	4.32E-02	4.32E-02
		614.37		90.40	-8.37E-04		5.36E-02
		722.95		90.50	-4.11E-03		5.33E-02
+	CD-109	88.03	*	3.72	3.30E+00	2.80E+00	2.80E+00
+	AG-110M	657.75		93.14	1.35E-02	6.19E-02	6.19E-02
		677.61		10.53	-4.06E-03		5.25E-01
		706.67		16.46	-4.98E-02		3.44E-01
		763.93		21.98	-1.59E-01		3.06E-01
		884.67		71.63	2.46E-02		9.00E-02
		1384.27		23.94	6.17E-02		2.44E-01
+	CD-113M	263.70		0.02	-3.24E+01	1.76E+02	1.76E+02
+	SN-113	255.12		1.93	-1.74E+00	1.15E-01	2.76E+00
		391.69		64.90	5.85E-02		1.15E-01
+	TE123M	159.00		84.10	2.07E-02	7.28E-02	7.28E-02
+	SB-124	602.71		97.87	2.56E-02	1.20E-01	1.20E-01
		645.85		7.26	-2.39E-01		1.81E+00
		722.78		11.10	-9.77E-02		1.27E+00
		1691.02		49.00	2.13E-02		1.94E-01
+	I-125	35.49		6.49	-1.49E-01	1.59E+00	1.59E+00
+	SB-125	176.33		6.89	-1.15E-01	1.47E-01	5.25E-01
		427.89		29.33	4.69E-02		1.47E-01

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	4.86E-01	1.47E-01	5.16E-01
		600.56		17.80	5.13E-02		2.52E-01
		635.90		11.32	1.26E-01		3.97E-01
+	SB-126	414.70		83.30	-2.47E+00	8.63E+00	8.85E+00
		666.33		99.60	2.18E+00		9.29E+00
		695.00		99.60	-5.94E-01		8.63E+00
		720.50		53.80	5.30E-02		1.62E+01
+	SN-126	87.57	*	37.00	2.89E-01	2.45E-01	2.45E-01
+	SB-127	473.00		25.00	4.11E+04	2.30E+06	3.10E+06
		685.20		35.70	-1.17E+06		2.30E+06
		783.80		14.70	3.63E+06		6.60E+06
+	I-129	29.78		57.00	-1.58E-02	7.09E-02	7.09E-02
		33.60		13.20	4.11E-02		2.84E-01
		39.58		7.52	1.01E-01		4.71E-01
+	I-131	284.30		6.05	-6.82E+02	1.53E+02	1.97E+03
		364.48		81.20	4.51E+01		1.53E+02
		636.97		7.26	4.45E+02		1.86E+03
		722.89		1.80	-6.33E+02		8.23E+03
+	TE-132	49.72		13.10	-2.02E+08	1.56E+07	1.05E+08
		228.16		88.00	-3.31E+06		1.56E+07
+	BA-133	81.00		33.00	-3.86E-01	9.31E-02	1.15E-01
		302.84		17.80	1.49E-01		2.52E-01
		356.01		60.00	5.24E-03		9.31E-02
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-7.35E+04	2.19E+04	2.19E+04
+	CS-134	563.23		8.38	3.95E-02	5.33E-02	6.00E-01
		569.32		15.43	-5.95E-03		3.27E-01
		604.70		97.60	9.61E-03		5.33E-02
		795.84		85.40	2.61E-02		6.01E-02
		801.93		8.73	1.12E-01		6.15E-01
+	CS-135	268.24		16.00	1.96E-02	2.80E-01	2.80E-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	5.10E+01	6.08E+00	6.35E+01
		163.89		4.61	-7.12E+00		1.03E+02
		176.55		13.56	-7.44E+00		3.39E+01
		273.65		12.66	-4.68E+00		4.51E+01
		340.57		48.50	2.60E+01		1.50E+01
		818.50		99.70	-2.37E+00		6.08E+00
		1048.07		79.60	-4.21E+00		8.17E+00
		1235.34		19.70	1.26E+01		4.84E+01
+	CS-137	661.65		85.12	5.70E-02	6.67E-02	6.67E-02
+	LA-138	788.74		34.00	-7.16E-02	7.03E-02	1.28E-01
		1435.80		66.00	2.99E-02		7.03E-02
+	CE-139	165.85		80.35	2.49E-02	7.04E-02	7.04E-02
+	BA-140	162.64		6.70	-1.65E+01	2.31E+01	8.19E+01
		304.84		4.50	-6.09E+01		1.42E+02
		423.70		3.20	7.68E+01		2.02E+02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	437.55	2.00	-8.39E+01	2.31E+01	2.89E+02
		537.32	25.00	-7.61E+00		2.31E+01
+	LA-140	328.77	20.50	7.66E+00	5.91E+00	3.02E+01
		487.03	45.50	-1.32E+01		1.20E+01
		815.85	23.50	2.44E+01		3.31E+01
		1596.49	95.49	-7.64E-01		5.91E+00
+	CE-141	145.44	48.40	3.15E-01	5.53E-01	5.53E-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	-7.35E-02	4.02E-01	4.02E-01
+	PM-144	476.78	42.00	-4.54E-02	5.54E-02	1.13E-01
		618.01	98.60	-1.10E-02		5.54E-02
		696.49	99.49	2.72E-03		5.59E-02
+	PM-145	36.85	21.70	-1.09E-01	8.79E-02	1.58E-01
		37.36	39.70	-7.19E-02		8.79E-02
		42.30	15.10	-6.66E-02		2.37E-01
		72.40	2.31	-3.46E+00		1.97E+00
+	PM-146	453.90	39.94	5.82E-02	1.13E-01	1.13E-01
		735.90	14.01	-7.97E-02		2.93E-01
		747.13	13.10	-4.83E-02		3.45E-01
+	ND-147	91.11	28.90	9.72E+01	5.78E+01	5.78E+01
		531.02	13.10	5.69E+01		1.11E+02
+	PM-149	285.90	3.10	-4.83E+11	6.01E+12	6.01E+12
+	EU-152	121.78	20.50	7.79E-02	1.67E-01	1.67E-01
		244.69	5.40	-4.18E-01		7.12E-01
		344.27	19.13	-1.83E-02		2.17E-01
		778.89	9.20	-3.39E-02		4.89E-01
		964.01	10.40	-8.94E-02		5.52E-01
		1085.78	7.22	-1.73E-01		7.26E-01
		1112.02	9.60	-4.35E-02		6.18E-01
		1407.95	14.94	-9.12E-02		3.23E-01
+	GD-153	97.43	31.30	2.03E-02	1.41E-01	1.41E-01
		103.18	22.20	-1.31E-02		2.04E-01
+	EU-154	123.07	40.50	6.19E-03	8.38E-02	8.38E-02
		723.30	19.70	-1.92E-02		2.50E-01
		873.19	11.50	1.28E-02		4.06E-01
		996.32	10.30	-1.17E-01		4.53E-01
		1004.76	17.90	1.78E-01		2.81E-01
		1274.45	35.50	-3.69E-02		1.48E-01
+	EU-155	86.50	30.90	9.48E-02	1.45E-01	1.45E-01
		105.30	20.70	6.58E-02		1.79E-01
+	EU-156	811.77	10.40	-3.36E+00	3.04E+01	3.04E+01
		1153.47	7.20	2.23E+01		6.06E+01
		1230.71	8.90	-4.08E-01		4.16E+01
+	HO-166M	184.41	72.60	1.14E-01	6.29E-02	6.29E-02
		280.45	29.60	7.13E-03		1.33E-01
		410.94	11.10	1.00E-01		3.73E-01
		711.69	54.10	-1.00E-03		8.06E-02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-7.57E+00	3.10E+01	3.10E+01
+	HF-172	67.35		5.31	2.72E-01	3.25E-01	8.31E-01
		125.81		11.30	-8.00E-02		3.25E-01
+	LU-172	181.53		20.60	3.06E+02	1.35E+03	2.56E+03
		900.72		29.81	-5.80E+02		2.33E+03
		1093.66		62.50	4.84E+00		1.35E+03
+	LU-173	100.72		5.24	-1.31E-01	2.31E-01	7.39E-01
		272.11		21.20	9.48E-02		2.31E-01
+	HF-175	343.40		84.00	-1.78E-01	1.19E-01	1.19E-01
+	LU-176	88.34		13.30	-9.36E-02	4.20E-02	3.36E-01
		201.83		86.00	3.56E-03		4.20E-02
		306.78		94.00	2.12E-04		4.32E-02
+	HF-181	133.02		41.70	-6.95E-02	2.12E-01	3.80E-01
		345.85		17.20	-2.32E+00		1.03E+00
		482.03		82.80	2.56E-02		2.12E-01
+	TA-182	67.75		41.20	5.60E-02	1.71E-01	1.71E-01
		1121.30		34.90	5.73E-01		4.22E-01
		1189.05		16.23	-2.17E-01		5.14E-01
		1221.41		26.98	8.39E-02		3.55E-01
		1231.02		11.44	-7.96E-03		8.12E-01
+	IR-192	308.46		29.68	-4.38E-02	2.14E-01	3.22E-01
		468.07		48.10	2.70E-02		2.14E-01
+	HG-203	279.19		77.30	1.05E-01	2.05E-01	2.05E-01
+	TL-204	374.74		94.11	3.94E-02	4.51E-02	4.51E-02
		899.15		99.16	-2.19E-02		4.64E-02
		911.74		91.10	2.24E-01		1.06E-01
+	BI-207	569.67		97.72	-7.49E-03	4.74E-02	4.74E-02
		1063.62		74.90	3.32E-02		7.34E-02
+	TL-208	583.14	*	30.22	6.53E-01	1.16E-01	2.60E-01
		860.37	*	4.48	1.56E+00		1.54E+00
		2614.66	*	35.85	6.16E-01		1.16E-01
+	BI-210M	262.00		45.00	-2.47E-02	8.73E-02	8.73E-02
		300.00		23.00	-6.19E-01		1.92E-01
+	PB-210	46.50		4.25	7.17E-01	9.01E-01	9.01E-01
+	PB-211	404.84		2.90	-1.13E+00	1.33E+00	1.33E+00
		831.96		2.90	-3.23E-01		1.65E+00
+	BI-212	727.17	*	11.80	5.78E-01	5.51E-01	5.51E-01
		1620.62		2.75	3.30E-01		1.39E+00
+	PB-212	238.63	*	44.60	7.10E-01	1.70E-01	1.70E-01
		300.09	*	3.41	7.94E-01		2.50E+00
+	BI-214	609.31	*	46.30	6.60E-01	1.63E-01	1.63E-01
		1120.29	*	15.10	7.62E-01		5.92E-01
		1764.49	*	15.80	7.46E-01		3.61E-01
		2204.22		4.98	2.63E-01		1.06E+00
+	PB-214	295.21	*	19.19	7.51E-01	1.68E-01	4.39E-01
		351.92	*	37.19	7.27E-01		1.68E-01
+	RN-219	401.80	*	6.50	6.44E-01	8.00E-01	8.00E-01
+	RA-223	323.87		3.88	-5.41E-01	9.97E-01	9.97E-01

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	1.62E+00	1.92E+00	1.92E+00
+	RA-225	40.00		31.00	2.61E+00	9.04E+00	9.04E+00
+	RA-226	186.21	*	3.28	2.24E+00	1.95E+00	1.95E+00
+	TH-227	50.10		8.40	-5.56E-01	3.86E-01	4.08E-01
		236.00		11.50	-1.95E+00		3.86E-01
		256.20		6.30	-1.64E-01		5.88E-01
+	AC-228	338.32	*	11.40	8.90E-01	2.92E-01	5.57E-01
		911.07	*	27.70	7.06E-01		2.92E-01
		969.11	*	16.60	7.16E-01		4.87E-01
+	TH-230	48.44		16.90	1.98E-01	2.22E-01	2.22E-01
		62.85		4.60	1.21E+00		9.45E-01
		67.67		0.37	3.54E+00		1.08E+01
+	PA-231	283.67		1.60	-1.87E+00	1.92E+00	2.35E+00
		302.67		2.30	1.13E+00		1.92E+00
+	TH-231	25.64		14.70	-2.29E+00	3.74E-01	3.74E-01
		84.21		6.40	-3.28E-01		6.31E-01
+	PA-233	311.98		38.60	2.52E-01	1.13E+00	1.13E+00
+	PA-234	131.20		20.40	5.19E-02	1.73E-01	1.73E-01
		733.99		8.80	-6.28E-02		4.56E-01
		946.00		12.00	1.23E-01		3.48E-01
+	PA-234M	1001.03		0.92	1.62E+00	5.63E+00	5.63E+00
+	TH-234	63.29	*	3.80	9.75E-01	1.54E+00	1.54E+00
+	U-235	143.76		10.50	2.71E-02	3.40E-01	3.40E-01
		163.35		4.70	-5.16E-02		7.46E-01
		205.31		4.70	-1.80E-01		7.65E-01
+	NP-237	86.50		12.60	2.24E-01	3.44E-01	3.44E-01
+	NP-239	106.10		22.70	6.47E+10	1.26E+11	1.26E+11
		228.18		10.70	-5.45E+10		2.56E+11
		277.60		14.10	-2.07E+10		2.25E+11
+	AM-241	59.54		35.90	-1.52E-02	9.92E-02	9.92E-02
+	AM-243	74.67	*	66.00	1.54E-01	9.98E-02	9.98E-02
+	CM-243	209.75		3.29	2.00E-01	2.83E-01	1.19E+00
		228.14		10.60	-6.86E-02		3.23E-01
		277.60		14.00	-2.61E-02		2.83E-01

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

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

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	1.31E+00	1.31E+00	-4.54E-02	6.17E-01
	NA-22	1274.54		99.94	5.50E-02	5.50E-02	-1.37E-02	2.49E-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	2.74E-02	2.74E-02	2.28E-03	1.06E-02
+	K-40	1460.81	*	10.67	9.29E-01	9.29E-01	1.02E+01	4.40E-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	4.26E-02	4.26E-02	1.39E-02	2.08E-02
		78.34		96.00	5.45E-02		1.01E-01	2.67E-02
	SC-46	889.25		99.98	1.00E-01	1.00E-01	-2.75E-02	4.62E-02
		1120.51		99.99	1.79E-01		2.18E-01	8.49E-02
	V-48	983.52		99.98	2.62E+00	2.59E+00	-5.50E-01	1.19E+00
		1312.10		97.50	2.59E+00		-6.34E-01	1.15E+00
	CR-51	320.08		9.83	4.09E+00	4.09E+00	1.60E-01	1.95E+00
	MN-54	834.83		99.97	6.20E-02	6.20E-02	1.93E-02	2.89E-02
	CO-56	846.75		99.96	9.64E-02	9.64E-02	1.42E-02	4.42E-02
		1037.75		14.03	8.18E-01		-2.46E-02	3.76E-01
		1238.25		67.00	2.60E-01		2.14E-01	1.22E-01
		1771.40		15.51	5.47E-01		-5.01E-01	2.29E-01
		2598.48		16.90	2.91E-01		-9.89E-02	9.20E-02
	CO-57	122.06		85.51	4.85E-02	4.85E-02	2.77E-04	2.35E-02
		136.48		10.60	4.07E-01		-5.66E-02	1.97E-01
	CO-58	810.76		99.40	1.13E-01	1.13E-01	-2.41E-02	5.20E-02
	FE-59	1099.22		56.50	4.01E-01	4.01E-01	-4.10E-02	1.84E-01
		1291.56		43.20	4.73E-01		-1.47E-01	2.13E-01
	CO-60	1173.22		100.00	5.72E-02	4.03E-02	-1.74E-03	2.63E-02
		1332.49		100.00	4.03E-02		-2.93E-02	1.76E-02
	ZN-65	1115.52		50.75	1.35E-01	1.35E-01	-4.04E-02	6.21E-02
	GA-67	93.31		35.70	4.87E+07	4.87E+07	7.67E+07	2.38E+07
		208.95		2.24	6.91E+08		4.39E+08	3.34E+08
		300.22		16.00	1.07E+08		-2.26E+08	5.16E+07
	SE-75	121.11		16.70	3.47E-01	9.83E-02	1.62E-01	1.68E-01
		136.00		59.20	9.83E-02		-1.37E-02	4.76E-02
		264.65		59.80	1.16E-01		3.64E-03	5.59E-02
		279.53		25.20	2.71E-01		1.38E-01	1.30E-01
		400.65		11.40	6.04E-01		3.31E-02	2.87E-01
	RB-82	776.52		13.00	4.03E+00	4.03E+00	-1.62E+00	1.86E+00
	RB-83	520.41		46.00	2.01E-01	2.01E-01	3.10E-02	9.48E-02
		529.64		30.30	2.77E-01		4.09E-02	1.30E-01
		552.65		16.40	5.16E-01		1.35E-01	2.41E-01
	KR-85	513.99		0.43	1.38E+01	1.38E+01	-1.67E-02	6.64E+00
	SR-85	513.99		99.27	1.61E-01	1.61E-01	-1.94E-04	7.73E-02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	8.90E-02	4.56E-02	-2.66E-02	4.09E-02
		1836.01		99.38	4.56E-02		3.53E-03	1.71E-02
	MO-93	263.06		56.72	7.15E-02	4.19E-02	-3.20E-03	3.44E-02
		684.67		99.68	4.35E-02		-2.22E-02	2.02E-02
		1477.11		99.08	4.19E-02		9.09E-03	1.82E-02
	NB-93M	16.57		9.43	3.78E-01	3.78E-01	-2.21E-01	1.76E-01
	NB-94	702.63		100.00	4.99E-02	4.62E-02	1.15E-02	2.34E-02
		871.10		100.00	4.62E-02		2.21E-02	2.13E-02
	NB-95	765.79		99.81	3.56E-01	3.56E-01	6.50E-02	1.68E-01
	NB-95M	235.69		25.00	1.04E+07	1.04E+07	-5.23E+07	5.02E+06
	ZR-95	724.18		43.70	3.48E-01	2.39E-01	8.55E-02	1.64E-01
		756.72		55.30	2.39E-01		-1.62E-02	1.11E-01
	MO-99	181.06		6.20	8.66E+09	5.11E+09	1.03E+09	4.18E+09
		739.58		12.80	5.11E+09		1.52E+08	2.36E+09
		778.00		4.50	1.47E+10		-8.31E+09	6.77E+09
	RU-103	497.08		89.00	2.18E-01	2.18E-01	-1.71E-01	1.02E-01
	RU-106	621.84		9.80	5.29E-01	5.29E-01	-9.23E-02	2.48E-01
	AG-108M	433.93		89.90	4.32E-02	4.32E-02	1.56E-02	2.04E-02
		614.37		90.40	5.36E-02		-8.37E-04	2.53E-02
		722.95		90.50	5.33E-02		-4.11E-03	2.49E-02
+	CD-109	88.03	*	3.72	2.80E+00	2.80E+00	3.30E+00	1.38E+00
	AG-110M	657.75		93.14	6.19E-02	6.19E-02	1.35E-02	2.89E-02
		677.61		10.53	5.25E-01		-4.06E-03	2.44E-01
		706.67		16.46	3.44E-01		-4.98E-02	1.60E-01
		763.93		21.98	3.06E-01		-1.59E-01	1.43E-01
		884.67		71.63	9.00E-02		2.46E-02	4.17E-02
		1384.27		23.94	2.44E-01		6.17E-02	1.08E-01
	CD-113M	263.70		0.02	1.76E+02	1.76E+02	-3.24E+01	8.48E+01
	SN-113	255.12		1.93	2.76E+00	1.15E-01	-1.74E+00	1.31E+00
		391.69		64.90	1.15E-01		5.85E-02	5.46E-02
	TE123M	159.00		84.10	7.28E-02	7.28E-02	2.07E-02	3.52E-02
	SB-124	602.71		97.87	1.20E-01	1.20E-01	2.56E-02	5.60E-02
		645.85		7.26	1.81E+00		-2.39E-01	8.50E-01
		722.78		11.10	1.27E+00		-9.77E-02	5.93E-01
		1691.02		49.00	1.94E-01		2.13E-02	7.96E-02
	I-125	35.49		6.49	1.59E+00	1.59E+00	-1.49E-01	7.68E-01
	SB-125	176.33		6.89	5.25E-01	1.47E-01	-1.15E-01	2.54E-01
		427.89		29.33	1.47E-01		4.69E-02	6.98E-02
		463.38		10.35	5.16E-01		4.86E-01	2.47E-01
		600.56		17.80	2.52E-01		5.13E-02	1.18E-01
		635.90		11.32	3.97E-01		1.26E-01	1.85E-01
	SB-126	414.70		83.30	8.85E+00	8.63E+00	-2.47E+00	4.20E+00
		666.33		99.60	9.29E+00		2.18E+00	4.37E+00
		695.00		99.60	8.63E+00		-5.94E-01	4.03E+00
		720.50		53.80	1.62E+01		5.30E-02	7.57E+00
+	SN-126	87.57	*	37.00	2.45E-01	2.45E-01	2.89E-01	1.21E-01
	SB-127	473.00		25.00	3.10E+06	2.30E+06	4.11E+04	1.46E+06
		685.20		35.70	2.30E+06		-1.17E+06	1.07E+06
		783.80		14.70	6.60E+06		3.63E+06	3.08E+06
	I-129	29.78		57.00	7.09E-02	7.09E-02	-1.58E-02	3.42E-02
		33.60		13.20	2.84E-01		4.11E-02	1.37E-01
		39.58		7.52	4.71E-01		1.01E-01	2.28E-01
	I-131	284.30		6.05	1.97E+03	1.53E+02	-6.82E+02	9.45E+02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	1.53E+02	1.53E+02	4.51E+01	7.29E+01
	636.97	7.26	1.86E+03		4.45E+02	8.71E+02
	722.89	1.80	8.23E+03		-6.33E+02	3.85E+03
TE-132	49.72	13.10	1.05E+08	1.56E+07	-2.02E+08	5.10E+07
	228.16	88.00	1.56E+07		-3.31E+06	7.47E+06
BA-133	81.00	33.00	1.15E-01	9.31E-02	-3.86E-01	5.61E-02
	302.84	17.80	2.52E-01		1.49E-01	1.21E-01
	356.01	60.00	9.31E-02		5.24E-03	4.50E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	2.19E+04	2.19E+04	-7.35E+04	1.07E+04
CS-134	563.23	8.38	6.00E-01	5.33E-02	3.95E-02	2.83E-01
	569.32	15.43	3.27E-01		-5.95E-03	1.54E-01
	604.70	97.60	5.33E-02		9.61E-03	2.51E-02
	795.84	85.40	6.01E-02		2.61E-02	2.79E-02
	801.93	8.73	6.15E-01		1.12E-01	2.86E-01
CS-135	268.24	16.00	2.80E-01	2.80E-01	1.96E-02	1.35E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	6.35E+01	6.08E+00	5.10E+01	3.08E+01
	163.89	4.61	1.03E+02		-7.12E+00	4.98E+01
	176.55	13.56	3.39E+01		-7.44E+00	1.63E+01
	273.65	12.66	4.51E+01		-4.68E+00	2.17E+01
	340.57	48.50	1.50E+01		2.60E+01	7.24E+00
	818.50	99.70	6.08E+00		-2.37E+00	2.81E+00
	1048.07	79.60	8.17E+00		-4.21E+00	3.73E+00
	1235.34	19.70	4.84E+01		1.26E+01	2.26E+01
CS-137	661.65	85.12	6.67E-02	6.67E-02	5.70E-02	3.16E-02
LA-138	788.74	34.00	1.28E-01	7.03E-02	-7.16E-02	5.93E-02
	1435.80	66.00	7.03E-02		2.99E-02	3.12E-02
CE-139	165.85	80.35	7.04E-02	7.04E-02	2.49E-02	3.40E-02
BA-140	162.64	6.70	8.19E+01	2.31E+01	-1.65E+01	3.96E+01
	304.84	4.50	1.42E+02		-6.09E+01	6.82E+01
	423.70	3.20	2.02E+02		7.68E+01	9.60E+01
	437.55	2.00	2.89E+02		-8.39E+01	1.36E+02
	537.32	25.00	2.31E+01		-7.61E+00	1.08E+01
LA-140	328.77	20.50	3.02E+01	5.91E+00	7.66E+00	1.45E+01
	487.03	45.50	1.20E+01		-1.32E+01	5.62E+00
	815.85	23.50	3.31E+01		2.44E+01	1.54E+01
	1596.49	95.49	5.91E+00		-7.64E-01	2.50E+00
CE-141	145.44	48.40	5.53E-01	5.53E-01	3.15E-01	2.69E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	4.02E-01	4.02E-01	-7.35E-02	1.95E-01
PM-144	476.78	42.00	1.13E-01	5.54E-02	-4.54E-02	5.31E-02
	618.01	98.60	5.54E-02		-1.10E-02	2.60E-02
	696.49	99.49	5.59E-02		2.72E-03	2.61E-02
PM-145	36.85	21.70	1.58E-01	8.79E-02	-1.09E-01	7.60E-02
	37.36	39.70	8.79E-02		-7.19E-02	4.24E-02
	42.30	15.10	2.37E-01		-6.66E-02	1.15E-01
	72.40	2.31	1.97E+00		-3.46E+00	9.63E-01
PM-146	453.90	39.94	1.13E-01	1.13E-01	5.82E-02	5.34E-02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

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	2.93E-01	1.13E-01	-7.97E-02	1.35E-01
	747.13	13.10	3.45E-01		-4.83E-02	1.60E-01
ND-147	91.11	28.90	5.78E+01	5.78E+01	9.72E+01	2.83E+01
	531.02	13.10	1.11E+02		5.69E+01	5.23E+01
PM-149	285.90	3.10	6.01E+12	6.01E+12	-4.83E+11	2.88E+12
EU-152	121.78	20.50	1.67E-01	1.67E-01	7.79E-02	8.12E-02
	244.69	5.40	7.12E-01		-4.18E-01	3.43E-01
	344.27	19.13	2.17E-01		-1.83E-02	1.04E-01
	778.89	9.20	4.89E-01		-3.39E-02	2.26E-01
	964.01	10.40	5.52E-01		-8.94E-02	2.57E-01
	1085.78	7.22	7.26E-01		-1.73E-01	3.33E-01
	1112.02	9.60	6.18E-01		-4.35E-02	2.86E-01
	1407.95	14.94	3.23E-01		-9.12E-02	1.44E-01
GD-153	97.43	31.30	1.41E-01	1.41E-01	2.03E-02	6.82E-02
	103.18	22.20	2.04E-01		-1.31E-02	9.93E-02
EU-154	123.07	40.50	8.38E-02	8.38E-02	6.19E-03	4.06E-02
	723.30	19.70	2.50E-01		-1.92E-02	1.17E-01
	873.19	11.50	4.06E-01		1.28E-02	1.87E-01
	996.32	10.30	4.53E-01		-1.17E-01	2.07E-01
	1004.76	17.90	2.81E-01		1.78E-01	1.29E-01
	1274.45	35.50	1.48E-01		-3.69E-02	6.70E-02
EU-155	86.50	30.90	1.45E-01	1.45E-01	9.48E-02	7.11E-02
	105.30	20.70	1.79E-01		6.58E-02	8.68E-02
EU-156	811.77	10.40	3.04E+01	3.04E+01	-3.36E+00	1.40E+01
	1153.47	7.20	6.06E+01		2.23E+01	2.82E+01
	1230.71	8.90	4.16E+01		-4.08E-01	1.90E+01
HO-166M	184.41	72.60	6.29E-02	6.29E-02	1.14E-01	3.06E-02
	280.45	29.60	1.33E-01		7.13E-03	6.38E-02
	410.94	11.10	3.73E-01		1.00E-01	1.77E-01
	711.69	54.10	8.06E-02		-1.00E-03	3.75E-02
TM-171	66.72	0.14	3.10E+01	3.10E+01	-7.57E+00	1.51E+01
HF-172	67.35	5.31	8.31E-01	3.25E-01	2.72E-01	4.06E-01
	125.81	11.30	3.25E-01		-8.00E-02	1.57E-01
LU-172	181.53	20.60	2.56E+03	1.35E+03	3.06E+02	1.24E+03
	900.72	29.81	2.33E+03		-5.80E+02	1.07E+03
	1093.66	62.50	1.35E+03		4.84E+00	6.25E+02
LU-173	100.72	5.24	7.39E-01	2.31E-01	-1.31E-01	3.59E-01
	272.11	21.20	2.31E-01		9.48E-02	1.11E-01
HF-175	343.40	84.00	1.19E-01	1.19E-01	-1.78E-01	5.69E-02
LU-176	88.34	13.30	3.36E-01	4.20E-02	-9.36E-02	1.65E-01
	201.83	86.00	4.20E-02		3.56E-03	2.02E-02
	306.78	94.00	4.32E-02		2.12E-04	2.07E-02
HF-181	133.02	41.70	3.80E-01	2.12E-01	-6.95E-02	1.84E-01
	345.85	17.20	1.03E+00		-2.32E+00	4.91E-01
	482.03	82.80	2.12E-01		2.56E-02	9.97E-02
TA-182	67.75	41.20	1.71E-01	1.71E-01	5.60E-02	8.35E-02
	1121.30	34.90	4.22E-01		5.73E-01	2.00E-01
	1189.05	16.23	5.14E-01		-2.17E-01	2.32E-01
	1221.41	26.98	3.55E-01		8.39E-02	1.62E-01
	1231.02	11.44	8.12E-01		-7.96E-03	3.70E-01
IR-192	308.46	29.68	3.22E-01	2.14E-01	-4.38E-02	1.54E-01
	468.07	48.10	2.14E-01		2.70E-02	1.02E-01
HG-203	279.19	77.30	2.05E-01	2.05E-01	1.05E-01	9.87E-02

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	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	4.51E-02	4.51E-02	3.94E-02	2.15E-02
		899.15		99.16	4.64E-02		-2.19E-02	2.12E-02
		911.74		91.10	1.06E-01		2.24E-01	5.11E-02
	BI-207	569.67		97.72	4.74E-02	4.74E-02	-7.49E-03	2.24E-02
		1063.62		74.90	7.34E-02		3.32E-02	3.39E-02
+	TL-208	583.14	*	30.22	2.60E-01	1.16E-01	6.53E-01	1.26E-01
		860.37	*	4.48	1.54E+00		1.56E+00	7.30E-01
		2614.66	*	35.85	1.16E-01		6.16E-01	4.70E-02
	BI-210M	262.00		45.00	8.73E-02	8.73E-02	-2.47E-02	4.20E-02
		300.00		23.00	1.92E-01		-6.19E-01	9.25E-02
	PB-210	46.50		4.25	9.01E-01	9.01E-01	7.17E-01	4.38E-01
	PB-211	404.84		2.90	1.33E+00	1.33E+00	-1.13E+00	6.32E-01
		831.96		2.90	1.65E+00		-3.23E-01	7.67E-01
+	BI-212	727.17	*	11.80	5.51E-01	5.51E-01	5.78E-01	2.62E-01
		1620.62		2.75	1.39E+00		3.30E-01	5.90E-01
+	PB-212	238.63	*	44.60	1.70E-01	1.70E-01	7.10E-01	8.36E-02
		300.09	*	3.41	2.50E+00		7.94E-01	1.23E+00
+	BI-214	609.31	*	46.30	1.63E-01	1.63E-01	6.60E-01	7.84E-02
		1120.29	*	15.10	5.92E-01		7.62E-01	2.82E-01
		1764.49	*	15.80	3.61E-01		7.46E-01	1.61E-01
		2204.22		4.98	1.06E+00		2.63E-01	4.58E-01
+	PB-214	295.21	*	19.19	4.39E-01	1.68E-01	7.51E-01	2.15E-01
		351.92	*	37.19	1.68E-01		7.27E-01	8.15E-02
+	RN-219	401.80	*	6.50	8.00E-01	8.00E-01	6.44E-01	3.84E-01
	RA-223	323.87		3.88	9.97E-01	9.97E-01	-5.41E-01	4.76E-01
+	RA-224	240.98	*	3.95	1.92E+00	1.92E+00	1.62E+00	9.41E-01
	RA-225	40.00		31.00	9.04E+00	9.04E+00	2.61E+00	4.37E+00
+	RA-226	186.21	*	3.28	1.95E+00	1.95E+00	2.24E+00	9.59E-01
	TH-227	50.10		8.40	4.08E-01	3.86E-01	-5.56E-01	1.98E-01
		236.00		11.50	3.86E-01		-1.95E+00	1.87E-01
		256.20		6.30	5.88E-01		-1.64E-01	2.82E-01
+	AC-228	338.32	*	11.40	5.57E-01	2.92E-01	8.90E-01	2.71E-01
		911.07	*	27.70	2.92E-01		7.06E-01	1.39E-01
		969.11	*	16.60	4.87E-01		7.16E-01	2.32E-01
	TH-230	48.44		16.90	2.22E-01	2.22E-01	1.98E-01	1.08E-01
		62.85		4.60	9.45E-01		1.21E+00	4.62E-01
		67.67		0.37	1.08E+01		3.54E+00	5.29E+00
	PA-231	283.67		1.60	2.35E+00	1.92E+00	-1.87E+00	1.12E+00
		302.67		2.30	1.92E+00		1.13E+00	9.22E-01
	TH-231	25.64		14.70	3.74E-01	3.74E-01	-2.29E+00	1.82E-01
		84.21		6.40	6.31E-01		-3.28E-01	3.08E-01
	PA-233	311.98		38.60	1.13E+00	1.13E+00	2.52E-01	5.41E-01
	PA-234	131.20		20.40	1.73E-01	1.73E-01	5.19E-02	8.39E-02
		733.99		8.80	4.56E-01		-6.28E-02	2.10E-01
		946.00		12.00	3.48E-01		1.23E-01	1.58E-01
	PA-234M	1001.03		0.92	5.63E+00	5.63E+00	1.62E+00	2.60E+00
+	TH-234	63.29	*	3.80	1.54E+00	1.54E+00	9.75E-01	7.59E-01
	U-235	143.76		10.50	3.40E-01	3.40E-01	2.71E-02	1.65E-01
		163.35		4.70	7.46E-01		-5.16E-02	3.61E-01
		205.31		4.70	7.65E-01		-1.80E-01	3.69E-01
	NP-237	86.50		12.60	3.44E-01	3.44E-01	2.24E-01	1.68E-01
	NP-239	106.10		22.70	1.26E+11	1.26E+11	6.47E+10	6.14E+10
		228.18		10.70	2.56E+11		-5.45E+10	1.23E+11

Analysis Report for 1707078-03

HTC-A01-S003-0006-01

	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	2.25E+11	1.26E+11	-2.07E+10	1.08E+11
	AM-241	59.54		35.90	9.92E-02	9.92E-02	-1.52E-02	4.82E-02
+	AM-243	74.67	*	66.00	9.98E-02	9.98E-02	1.54E-01	4.92E-02
	CM-243	209.75		3.29	1.19E+00	2.83E-01	2.00E-01	5.73E-01
		228.14		10.60	3.23E-01		-6.86E-02	1.55E-01
		277.60		14.00	2.83E-01		-2.61E-02	1.36E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S003-0006-01

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	2	58	80	74	145	521	151
25:	77	61	42	55	63	51	45	50
33:	65	55	48	52	56	46	45	63
41:	77	64	55	63	57	71	124	85
49:	63	66	66	60	89	99	75	71
57:	72	81	74	89	79	88	142	212
65:	113	102	98	112	107	131	108	92
73:	128	129	247	237	270	368	137	79
81:	103	107	90	105	119	94	158	182
89:	100	144	110	102	234	163	89	70
97:	75	77	86	71	72	76	78	79
105:	86	77	86	87	76	74	63	69
113:	88	70	78	76	67	64	51	77
121:	65	60	64	81	52	75	54	68
129:	82	69	72	84	67	68	57	65
137:	64	80	58	62	72	59	60	82
145:	79	65	78	58	75	52	49	63
153:	61	63	70	58	46	51	84	66
161:	52	63	59	66	61	48	63	60
169:	47	51	53	48	63	44	50	56
177:	50	50	52	57	55	56	47	43
185:	90	163	111	53	52	57	36	52
193:	40	42	41	57	47	56	42	61
201:	33	53	56	50	42	57	53	44
209:	64	80	45	48	42	63	45	41
217:	50	49	39	39	40	50	50	38
225:	50	41	40	41	42	39	31	37
233:	41	45	42	36	60	138	408	144
241:	81	102	80	40	43	32	27	45
249:	28	33	37	35	32	13	27	32
257:	31	29	37	30	29	29	27	31
265:	35	43	31	33	36	41	52	42
273:	24	36	28	28	29	30	35	30
281:	23	29	29	23	20	35	19	35
289:	31	36	24	19	33	36	109	134
297:	37	28	27	47	37	30	25	27
305:	29	32	30	21	27	22	28	20
313:	30	24	26	21	22	20	24	28
321:	20	26	23	25	20	21	22	33
329:	23	23	21	20	26	14	24	24
337:	23	79	79	36	22	29	27	17
345:	22	18	18	30	10	30	66	216
353:	146	33	22	24	13	17	28	21
361:	21	21	21	21	24	17	19	21

369:	19	13	20	23	18	19	23	21

Sample Title: HTC-A01-S003-0006-01

Channel								
377:	19	16	12	8	25	16	18	23
385:	23	13	19	20	23	16	18	23
393:	16	21	26	14	13	12	15	23
401:	24	18	13	18	19	21	13	10
409:	17	26	20	16	22	15	15	15
417:	15	20	16	16	17	15	12	22
425:	19	13	23	13	13	16	16	10
433:	13	21	16	18	7	13	7	15
441:	15	10	17	16	14	21	14	19
449:	20	11	19	12	16	20	24	21
457:	8	11	12	15	15	23	39	27
465:	14	24	14	15	14	16	15	10
473:	13	16	15	11	13	13	12	11
481:	21	16	11	8	4	12	8	19
489:	8	9	21	16	16	11	15	6
497:	11	12	10	11	16	15	10	19
505:	11	11	10	12	25	44	77	40
513:	26	10	9	13	12	16	11	12
521:	14	18	15	11	13	13	7	11
529:	11	8	16	12	12	11	4	10
537:	11	9	7	13	10	11	13	6
545:	12	18	10	7	7	9	9	7
553:	14	8	10	16	11	10	11	8
561:	18	15	11	12	20	12	16	15
569:	13	11	15	13	11	13	14	10
577:	12	9	13	18	12	24	101	90
585:	32	9	11	13	10	14	7	13
593:	11	6	13	6	12	13	13	10
601:	2	8	12	13	11	8	12	28
609:	165	136	21	13	8	13	14	7
617:	16	14	8	7	15	13	11	8
625:	10	12	5	6	10	10	7	4
633:	6	11	12	9	6	12	9	12
641:	6	17	7	13	9	8	12	13
649:	11	10	12	8	3	9	8	12
657:	9	9	6	10	15	32	20	14
665:	16	11	10	9	9	4	5	9
673:	10	4	9	6	8	9	5	13
681:	10	9	11	6	4	6	11	12
689:	12	10	10	8	10	10	10	14
697:	9	10	6	16	11	14	12	5
705:	6	15	12	10	5	6	9	4
713:	15	12	7	9	13	7	11	8
721:	9	8	13	7	10	15	32	18
729:	11	12	7	6	7	10	8	5
737:	3	6	6	7	10	9	9	10
745:	5	7	6	4	14	8	10	6
753:	7	10	16	10	9	5	7	8
761:	10	13	12	9	9	13	9	24
769:	13	12	11	8	12	3	8	7
777:	7	6	3	7	9	13	9	11
785:	11	6	9	7	8	8	6	5
793:	10	8	10	9	6	4	10	8

801:	4	12	10	12	6	12	8	4

Sample Title: HTC-A01-S003-0006-01

Channel								
809:	12	2	3	7	12	10	4	9
817:	9	9	9	1	8	6	9	8
825:	8	6	8	4	10	9	6	4
833:	11	5	10	11	11	9	6	7
841:	10	4	4	8	7	4	4	6
849:	4	8	7	5	3	8	4	9
857:	7	10	10	15	16	12	10	6
865:	6	3	4	9	2	7	7	10
873:	6	6	4	6	9	5	5	7
881:	8	8	7	3	8	13	7	7
889:	6	6	5	2	11	7	7	6
897:	3	8	8	6	5	4	9	8
905:	8	5	6	6	12	32	73	52
913:	12	4	8	9	6	3	7	5
921:	5	0	7	9	4	7	2	7
929:	12	7	3	6	8	12	9	5
937:	3	5	4	4	4	2	2	5
945:	1	5	4	8	8	2	5	7
953:	4	4	3	9	7	7	10	4
961:	10	6	8	9	14	11	4	20
969:	54	31	6	4	3	10	7	7
977:	6	5	4	8	6	5	6	3
985:	6	4	9	6	10	6	3	6
993:	5	2	5	3	6	7	9	4
1001:	13	6	4	5	8	4	3	1
1009:	2	2	7	7	7	6	9	6
1017:	7	7	4	5	4	5	6	6
1025:	3	6	5	4	8	5	4	5
1033:	6	9	10	8	4	4	4	4
1041:	4	9	10	5	3	3	3	7
1049:	7	9	6	11	5	5	2	3
1057:	5	8	3	6	4	3	13	7
1065:	8	8	2	6	4	4	3	3
1073:	6	0	4	4	3	6	7	6
1081:	6	2	7	7	9	8	5	4
1089:	12	4	6	9	12	8	5	4
1097:	5	7	11	6	4	7	6	8
1105:	3	5	3	5	10	9	8	5
1113:	3	8	10	3	7	6	14	38
1121:	30	8	7	9	5	8	4	8
1129:	2	8	6	8	10	4	5	9
1137:	5	6	5	7	5	7	10	8
1145:	2	3	7	4	2	10	7	7
1153:	8	6	13	6	8	9	9	5
1161:	4	7	4	6	6	10	5	6
1169:	6	6	5	6	9	7	4	6
1177:	8	5	7	9	9	1	5	8
1185:	8	6	1	7	4	4	2	6
1193:	4	5	6	6	3	7	7	8
1201:	5	5	7	11	10	9	6	7
1209:	3	9	13	3	4	5	9	3
1217:	6	9	6	5	6	4	2	7
1225:	2	7	0	11	3	6	5	4

1233:	7	6	11	2	13	24	10	13

Sample Title: HTC-A01-S003-0006-01

Channel								
1241:	7	6	6	8	6	4	8	6
1249:	6	6	5	6	6	3	4	6
1257:	5	4	3	2	5	3	2	7
1265:	5	3	4	4	9	8	7	7
1273:	3	2	6	5	2	2	6	4
1281:	5	7	5	5	7	5	6	4
1289:	0	2	3	4	8	6	5	4
1297:	3	5	3	8	0	5	6	2
1305:	4	6	2	4	1	3	3	3
1313:	5	3	3	5	4	2	3	3
1321:	2	2	3	2	2	4	4	5
1329:	2	4	1	5	1	3	0	7
1337:	2	1	2	3	4	5	5	7
1345:	2	4	2	2	3	1	6	1
1353:	4	2	6	5	3	1	4	2
1361:	5	3	0	2	2	2	2	5
1369:	2	4	4	4	5	3	4	5
1377:	7	5	2	4	5	1	3	2
1385:	3	5	2	2	1	2	1	1
1393:	1	1	5	4	2	1	4	5
1401:	2	5	3	2	3	5	3	7
1409:	2	1	7	2	2	2	4	3
1417:	0	2	0	2	2	1	1	4
1425:	3	2	3	1	2	0	2	3
1433:	1	4	4	1	5	3	3	1
1441:	2	2	3	1	1	1	4	0
1449:	2	3	1	2	2	6	2	2
1457:	4	20	73	198	228	65	8	5
1465:	6	5	4	4	1	0	2	1
1473:	3	2	2	1	3	2	2	1
1481:	2	5	1	1	1	3	0	0
1489:	1	5	1	0	1	1	2	2
1497:	3	0	4	4	1	4	2	3
1505:	4	3	2	3	3	3	1	1
1513:	2	3	1	1	4	1	1	0
1521:	2	0	4	2	2	3	0	1
1529:	2	0	1	0	2	5	2	1
1537:	3	3	0	1	3	0	2	3
1545:	1	1	1	1	2	5	5	0
1553:	3	1	1	4	1	4	2	2
1561:	1	0	0	0	2	3	1	2
1569:	2	0	2	1	1	1	2	1
1577:	3	3	1	1	4	2	1	5
1585:	3	4	1	3	4	0	6	3
1593:	5	1	0	3	0	1	0	2
1601:	0	1	1	0	0	0	2	1
1609:	4	0	2	1	2	3	2	1
1617:	1	2	0	1	6	0	1	0
1625:	1	4	1	2	7	0	2	0
1633:	3	1	3	3	2	5	4	3
1641:	2	0	0	2	1	0	1	2
1649:	2	1	4	2	1	3	3	1
1657:	2	1	0	1	2	1	0	2

1665:	3	0	0	1	1	1	1	1

Sample Title: HTC-A01-S003-0006-01

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

2097:	0	0	1	3	4	3	4	4

Sample Title: HTC-A01-S003-0006-01

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

2529:	0	0	1	0	1	0	0	3

Sample Title: HTC-A01-S003-0006-01

Channel								
2537:	0	1	0	0	0	1	1	1
2545:	0	0	0	0	0	0	0	0
2553:	0	0	2	0	0	0	0	0
2561:	0	2	0	0	0	1	1	1
2569:	0	0	0	0	0	1	2	1
2577:	0	0	0	0	0	0	0	0
2585:	0	1	1	0	0	1	1	0
2593:	0	0	0	0	0	0	0	1
2601:	0	0	0	0	0	1	0	0
2609:	0	0	5	9	28	23	13	4
2617:	0	1	0	0	0	1	1	0
2625:	1	0	1	0	0	0	0	1
2633:	0	0	1	0	0	0	0	0
2641:	0	0	1	0	1	0	0	0
2649:	0	0	1	0	0	0	0	0
2657:	0	0	1	0	0	0	1	1
2665:	0	1	0	0	2	0	0	0
2673:	1	0	0	1	0	0	0	0
2681:	0	1	0	2	0	0	0	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	2	0	0	0	0	1	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	1	0	1	1	1
2729:	0	0	1	0	0	0	0	1
2737:	0	0	1	0	0	0	0	0
2745:	0	0	0	0	0	0	0	1
2753:	0	0	1	1	0	0	0	0
2761:	1	0	1	0	0	1	0	0
2769:	0	1	0	1	0	1	0	1
2777:	5	0	0	0	0	0	0	0
2785:	0	1	1	0	1	0	1	0
2793:	0	2	0	0	0	0	0	0
2801:	0	0	0	2	1	0	0	1
2809:	0	1	1	0	0	1	2	1
2817:	1	2	0	0	2	0	0	1
2825:	0	1	0	0	1	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	1	0	1	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	1	0	0	1	0	0
2865:	0	0	1	0	0	0	1	1
2873:	0	0	2	0	0	0	1	0
2881:	2	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	1	0	0	1	0	0	0	0
2905:	0	0	0	1	0	1	1	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	1	0	1	0
2929:	0	0	0	0	0	0	0	2
2937:	0	0	1	0	0	1	0	0
2945:	0	0	0	0	1	0	0	1
2953:	1	0	1	1	0	1	1	1

2961:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S003-0006-01

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

3393:	0	0	0	2	0	0	0	0

Sample Title: HTC-A01-S003-0006-01

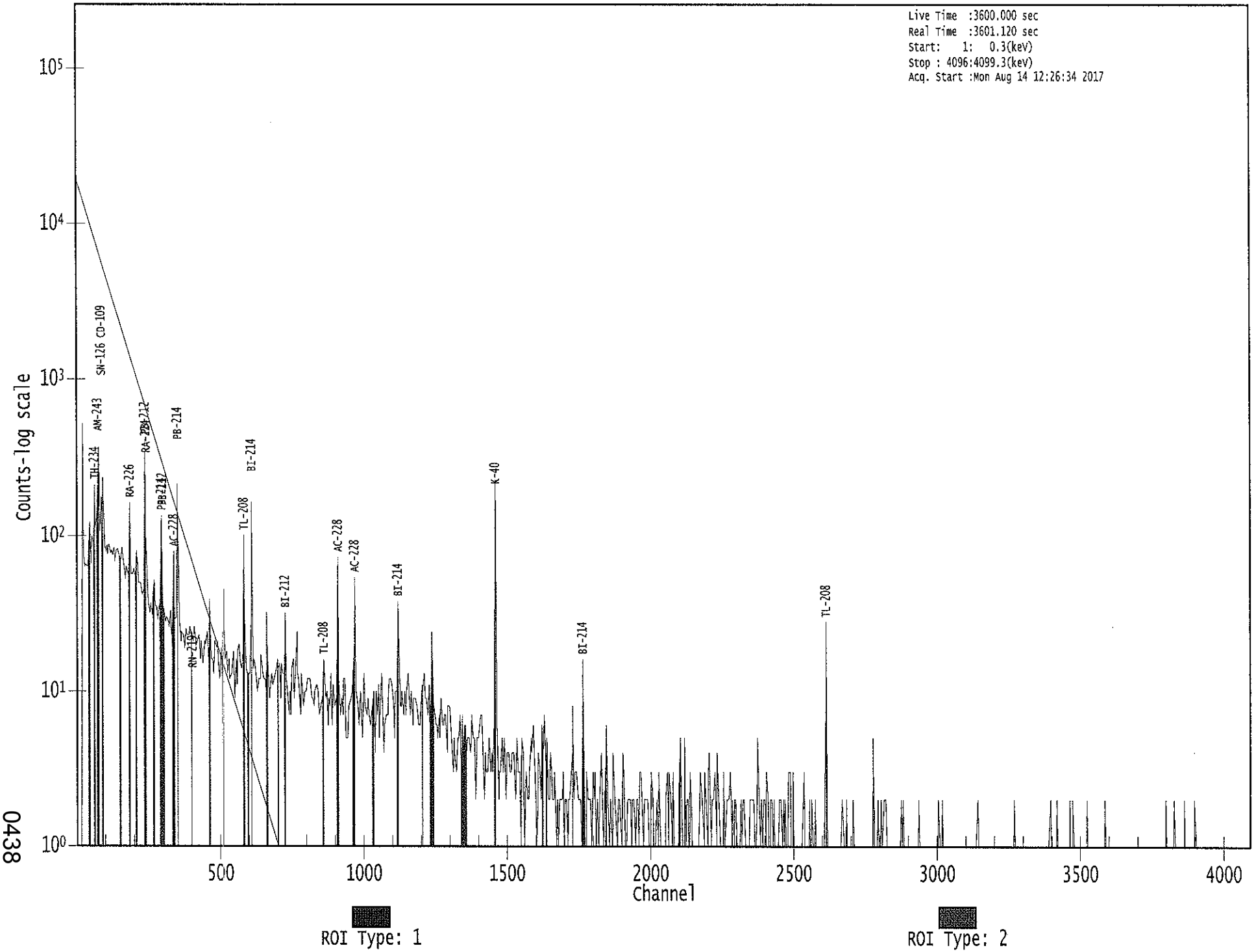
Channel								
3401:	1	0	0	0	0	1	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	2	0	0	0	0	0	0
3425:	0	0	0	1	0	0	0	0
3433:	0	1	0	0	0	0	0	0
3441:	0	1	0	0	0	0	0	0
3449:	0	0	1	0	0	0	0	0
3457:	0	0	0	0	0	0	2	0
3465:	1	0	0	0	0	0	0	0
3473:	2	0	0	1	0	1	0	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	0	0	2	1	0	0	1	0

Sample Title: HTC-A01-S003-0006-01

Channel								
3833:	0	0	0	1	0	0	0	1
3841:	0	1	0	0	1	0	0	1
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	2	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	1	0	0
3889:	0	0	0	0	0	0	0	0
3897:	2	1	0	1	0	0	0	1
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	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	1	0	0	0	0
3977:	0	0	0	0	1	0	0	1
3985:	0	0	0	0	0	0	0	1
3993:	0	0	1	0	0	0	0	0
4001:	0	0	0	0	0	1	0	1
4009:	1	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	1	0
4041:	0	0	0	0	1	0	0	0
4049:	0	0	0	0	0	0	1	0
4057:	0	1	0	0	0	0	0	0
4065:	0	0	0	0	0	1	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	1	0	0	1	1	0
4089:	0	0	0	0	0	0	0	0

0000055173.CNF



KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-04
Sample Description	: HTC-A01-S003-0006-01
Sample Type	: SOIL
Sample Size	: 7.675E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:28:21AM
Acquisition Started	: 8/14/2017 1:26:49PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.1 seconds
Dead Time	: 0.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55181

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 2:26:53PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	74.67	75.26	0.0000	0.00
2	77.19	77.78	0.0000	0.00
3	87.57	88.15	0.0000	0.00
4	92.48	93.05	0.0000	0.00
5	185.68	186.16	0.0000	0.00
6	208.53	208.99	0.0000	0.00
7	238.54	238.96	0.0000	0.00
8	241.74	242.17	0.0000	0.00
9	269.52	269.92	0.0000	0.00
10	295.22	295.59	0.0000	0.00
11	338.31	338.64	0.0000	0.00
12	342.04	342.36	0.0000	0.00
13	351.86	352.17	0.0000	0.00
14	356.33	356.64	0.0000	0.00
15	453.89	454.10	0.0000	0.00
16	463.11	463.30	0.0000	0.00
17	511.19	511.34	0.0000	0.00
18	583.22	583.30	0.0000	0.00
19	587.54	587.61	0.0000	0.00
20	605.95	606.00	0.0000	0.00
21	609.56	609.61	0.0000	0.00
22	662.63	662.62	0.0000	0.00
23	726.80	726.73	0.0000	0.00
24	757.36	757.26	0.0000	0.00
25	838.76	838.58	0.0000	0.00
26	861.40	861.20	0.0000	0.00
27	911.19	910.94	0.0000	0.00
28	935.01	934.73	0.0000	0.00
29	965.10	964.80	0.0000	0.00
30	969.14	968.84	0.0000	0.00
31	1070.55	1070.14	0.0000	0.00
32	1120.70	1120.24	0.0000	0.00
33	1156.05	1155.56	0.0000	0.00
34	1314.69	1314.04	0.0000	0.00
35	1341.78	1341.10	0.0000	0.00
36	1377.96	1377.24	0.0000	0.00
37	1419.48	1418.72	0.0000	0.00
38	1461.24	1460.45	0.0000	0.00
39	1472.33	1471.53	0.0000	0.00
40	1528.50	1527.64	0.0000	0.00
41	1566.90	1566.00	0.0000	0.00
42	1580.25	1579.33	0.0000	0.00

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1589.72	1588.80	0.0000	0.00
44	1623.35	1622.40	0.0000	0.00
45	1631.36	1630.40	0.0000	0.00
46	1635.97	1635.01	0.0000	0.00
47	1639.96	1638.99	0.0000	0.00
48	1710.73	1709.69	0.0000	0.00
49	1765.19	1764.10	0.0000	0.00
50	1776.25	1775.14	0.0000	0.00
51	1828.25	1827.10	0.0000	0.00
52	1847.00	1845.83	0.0000	0.00
53	1913.74	1912.50	0.0000	0.00
54	1919.46	1918.22	0.0000	0.00
55	2204.37	2202.86	0.0000	0.00
56	2213.86	2212.33	0.0000	0.00
57	2615.02	2613.11	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:26:53PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	74.67	72 -	81	75.26	2.89E+02	79.44	1.00E+03	1.81
m	2	77.19	72 -	81	77.78	4.46E+02	85.66	1.00E+03	1.82
M	3	87.57	83 -	97	88.15	1.95E+02	70.32	8.96E+02	1.67
m	4	92.48	83 -	97	93.05	2.64E+02	71.45	8.21E+02	1.67
	5	185.68	181 -	190	186.16	1.68E+02	87.48	9.90E+02	1.82
	6	208.53	204 -	213	208.99	1.04E+02	79.84	8.42E+02	2.34
M	7	238.54	234 -	246	238.96	7.19E+02	64.55	3.14E+02	1.82
m	8	241.74	234 -	246	242.17	1.38E+02	65.07	2.89E+02	1.82
	9	269.52	266 -	275	269.92	6.09E+01	64.56	5.62E+02	1.89
	10	295.22	292 -	298	295.59	2.31E+02	54.73	3.74E+02	1.93
M	11	338.31	335 -	362	338.64	1.33E+02	40.57	2.51E+02	2.00
m	12	342.04	335 -	362	342.36	2.68E+01	38.76	2.42E+02	2.09
m	13	351.86	335 -	362	352.17	3.85E+02	50.93	2.12E+02	1.86
m	14	356.33	335 -	362	356.64	3.28E+01	40.87	1.90E+02	2.10
	15	453.89	450 -	457	454.10	3.69E+01	37.52	2.06E+02	2.95
	16	463.11	459 -	467	463.30	6.45E+01	39.99	2.05E+02	2.03
	17	511.19	505 -	519	511.34	1.50E+02	61.64	3.35E+02	2.42
M	18	583.22	577 -	590	583.30	1.83E+02	36.62	1.24E+02	2.02
m	19	587.54	577 -	590	587.61	2.01E+01	33.74	1.35E+02	2.25
M	20	605.95	605 -	614	606.00	1.42E+01	11.09	3.56E+01	1.87
m	21	609.56	605 -	614	609.61	2.96E+02	39.53	9.05E+01	2.01
	22	662.63	658 -	667	662.62	6.53E+01	31.58	1.05E+02	1.88
	23	726.80	722 -	733	726.73	6.75E+01	39.04	1.59E+02	2.53
	24	757.36	752 -	761	757.26	3.58E+01	27.75	8.84E+01	5.53
	25	838.76	830 -	844	838.58	4.82E+01	45.11	1.90E+02	9.56
	26	861.40	855 -	868	861.20	3.62E+01	34.89	1.20E+02	9.38
	27	911.19	905 -	916	910.94	1.37E+02	40.05	1.32E+02	1.84
	28	935.01	931 -	938	934.73	4.08E+01	21.82	5.23E+01	2.59
M	29	965.10	960 -	977	964.80	3.35E+01	24.29	1.08E+02	2.22
m	30	969.14	960 -	977	968.84	7.89E+01	27.82	7.20E+01	2.22
	31	1070.55	1068 -	1072	1070.14	1.82E+01	13.66	2.57E+01	2.19
	32	1120.70	1114 -	1125	1120.24	6.49E+01	35.61	1.26E+02	2.58
	33	1156.05	1152 -	1159	1155.56	2.10E+01	20.98	5.81E+01	3.53
	34	1314.69	1309 -	1320	1314.04	2.54E+01	18.44	2.93E+01	2.60
	35	1341.78	1338 -	1344	1341.10	1.39E+01	15.17	3.22E+01	3.66
	36	1377.96	1375 -	1379	1377.24	1.66E+01	11.10	1.28E+01	2.14
	37	1419.48	1414 -	1425	1418.72	2.27E+01	11.66	4.60E+00	2.55
M	38	1461.24	1455 -	1475	1460.45	6.02E+02	50.66	3.20E+01	2.31
m	39	1472.33	1455 -	1475	1471.53	9.73E+00	14.56	8.64E+00	3.88
	40	1528.50	1523 -	1531	1527.64	1.28E+01	8.96	4.47E+00	4.86

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1566.90	1562 -	1569	1566.00	1.20E+01	6.93	0.00E+00	3.00
	42	1580.25	1575 -	1583	1579.33	1.35E+01	10.61	9.00E+00	5.34
	43	1589.72	1584 -	1594	1588.80	3.57E+01	13.50	4.66E+00	1.99
	44	1623.35	1618 -	1627	1622.40	8.88E+00	11.79	1.43E+01	3.58
M	45	1631.36	1627 -	1641	1630.40	1.47E+01	9.11	7.28E+00	2.71
m	46	1635.97	1627 -	1641	1635.01	7.33E+00	10.39	1.29E+01	2.71
m	47	1639.96	1627 -	1641	1638.99	7.01E+00	7.94	1.13E+01	2.71
	48	1710.73	1705 -	1714	1709.69	1.18E+01	9.00	4.50E+00	4.51
	49	1765.19	1760 -	1767	1764.10	4.00E+01	15.23	1.20E+01	2.00
	50	1776.25	1772 -	1779	1775.14	6.00E+00	8.49	8.00E+00	2.38
	51	1828.25	1824 -	1830	1827.10	1.00E+01	6.32	0.00E+00	4.48
	52	1847.00	1840 -	1850	1845.83	1.95E+01	12.67	1.10E+01	2.21
	53	1913.74	1910 -	1914	1912.50	6.00E+00	4.90	0.00E+00	1.16
	54	1919.46	1916 -	1921	1918.22	9.00E+00	6.00	0.00E+00	3.24
	55	2204.37	2198 -	2207	2202.86	2.10E+01	9.17	0.00E+00	2.84
	56	2213.86	2209 -	2215	2212.33	9.00E+00	6.00	0.00E+00	4.50
	57	2615.02	2609 -	2617	2613.11	7.50E+01	18.12	4.08E+00	2.46

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:26:53PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	74.67	72 -	81	2.89E+02	79.44	1.00E+03	5.21E+01
m	2	77.19	72 -	81	4.46E+02	85.66	1.00E+03	5.20E+01
M	3	87.57	83 -	97	1.95E+02	70.32	8.96E+02	4.92E+01
m	4	92.48	83 -	97	2.64E+02	71.45	8.21E+02	4.71E+01
	5	185.68	181 -	190	1.68E+02	87.48	9.90E+02	6.87E+01
	6	208.53	204 -	213	1.04E+02	79.84	8.42E+02	6.35E+01
M	7	238.54	234 -	246	7.19E+02	64.55	3.14E+02	2.91E+01
m	8	241.74	234 -	246	1.38E+02	65.07	2.89E+02	2.79E+01
	9	269.52	266 -	275	6.09E+01	64.56	5.62E+02	5.15E+01
	10	295.22	292 -	298	2.31E+02	54.73	3.74E+02	3.74E+01
M	11	338.31	335 -	362	1.33E+02	40.57	2.51E+02	2.61E+01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	12	342.04	335 -	362	2.68E+01	38.76	2.42E+02	2.56E+01
m	13	351.86	335 -	362	3.85E+02	50.93	2.12E+02	2.39E+01
m	14	356.33	335 -	362	3.28E+01	40.87	1.90E+02	2.27E+01
	15	453.89	450 -	457	3.69E+01	37.52	2.06E+02	2.92E+01
	16	463.11	459 -	467	6.45E+01	39.99	2.05E+02	3.01E+01
	17	511.19	505 -	519	1.50E+02	61.64	3.35E+02	2.08E+01
M	18	583.22	577 -	590	1.83E+02	36.62	1.24E+02	1.83E+01
m	19	587.54	577 -	590	2.01E+01	33.74	1.35E+02	1.91E+01
M	20	605.95	605 -	614	1.42E+01	11.09	3.56E+01	9.81E+00
m	21	609.56	605 -	614	2.96E+02	39.53	9.05E+01	1.56E+01
	22	662.63	658 -	667	6.53E+01	31.58	1.05E+02	2.23E+01
	23	726.80	722 -	733	6.75E+01	39.04	1.59E+02	2.91E+01
	24	757.36	752 -	761	3.58E+01	27.75	8.84E+01	2.06E+01
	25	838.76	830 -	844	4.82E+01	45.11	1.90E+02	3.53E+01
	26	861.40	855 -	868	3.62E+01	34.89	1.20E+02	2.69E+01
	27	911.19	905 -	916	1.37E+02	40.05	1.32E+02	2.67E+01
	28	935.01	931 -	938	4.08E+01	21.82	5.23E+01	1.45E+01
M	29	965.10	960 -	977	3.35E+01	24.29	1.08E+02	1.71E+01
m	30	969.14	960 -	977	7.89E+01	27.82	7.20E+01	1.39E+01
	31	1070.55	1068 -	1072	1.82E+01	13.66	2.57E+01	8.77E+00
	32	1120.70	1114 -	1125	6.49E+01	35.61	1.26E+02	2.61E+01
	33	1156.05	1152 -	1159	2.10E+01	20.98	5.81E+01	1.55E+01
	34	1314.69	1309 -	1320	2.54E+01	18.44	2.93E+01	1.27E+01
	35	1341.78	1338 -	1344	1.39E+01	15.17	3.22E+01	1.09E+01
	36	1377.96	1375 -	1379	1.66E+01	11.10	1.28E+01	6.20E+00
	37	1419.48	1414 -	1425	2.27E+01	11.66	4.60E+00	5.53E+00
M	38	1461.24	1455 -	1475	6.02E+02	50.66	3.20E+01	9.31E+00
m	39	1472.33	1455 -	1475	9.73E+00	14.56	8.64E+00	4.83E+00
	40	1528.50	1523 -	1531	1.28E+01	8.96	4.47E+00	4.44E+00
	41	1566.90	1562 -	1569	1.20E+01	6.93	0.00E+00	0.00E+00
	42	1580.25	1575 -	1583	1.35E+01	10.61	9.00E+00	6.29E+00
	43	1589.72	1584 -	1594	3.57E+01	13.50	4.66E+00	5.17E+00
	44	1623.35	1618 -	1627	8.88E+00	11.79	1.43E+01	8.36E+00
M	45	1631.36	1627 -	1641	1.47E+01	9.11	7.28E+00	4.43E+00
m	46	1635.97	1627 -	1641	7.33E+00	10.39	1.29E+01	5.91E+00
m	47	1639.96	1627 -	1641	7.01E+00	7.94	1.13E+01	5.52E+00
	48	1710.73	1705 -	1714	1.18E+01	9.00	4.50E+00	4.79E+00
	49	1765.19	1760 -	1767	4.00E+01	15.23	1.20E+01	6.97E+00
	50	1776.25	1772 -	1779	6.00E+00	8.49	8.00E+00	5.70E+00
	51	1828.25	1824 -	1830	1.00E+01	6.32	0.00E+00	0.00E+00
	52	1847.00	1840 -	1850	1.95E+01	12.67	1.10E+01	7.47E+00
	53	1913.74	1910 -	1914	6.00E+00	4.90	0.00E+00	0.00E+00
	54	1919.46	1916 -	1921	9.00E+00	6.00	0.00E+00	0.00E+00
	55	2204.37	2198 -	2207	2.10E+01	9.17	0.00E+00	0.00E+00
	56	2213.86	2209 -	2215	9.00E+00	6.00	0.00E+00	0.00E+00
	57	2615.02	2609 -	2617	7.50E+01	18.12	4.08E+00	4.38E+00

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

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 : 8/14/2017 2:26:53PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	74.67	72 -	81	75.26	2.89E+02	79.44	1.00E+03	AM-243
m	2	77.19	72 -	81	77.78	4.46E+02	85.66	1.00E+03	.....
M	3	87.57	83 -	97	88.15	1.95E+02	70.32	8.96E+02	SN-126
									CD-109
									LU-176
m	4	92.48	83 -	97	93.05	2.64E+02	71.45	8.21E+02	GA-67
	5	185.68	181 -	190	186.16	1.68E+02	87.48	9.90E+02	RA-226
	6	208.53	204 -	213	208.99	1.04E+02	79.84	8.42E+02	GA-67
M	7	238.54	234 -	246	238.96	7.19E+02	64.55	3.14E+02	PB-212
m	8	241.74	234 -	246	242.17	1.38E+02	65.07	2.89E+02	RA-224
	9	269.52	266 -	275	269.92	6.09E+01	64.56	5.62E+02	.....
	10	295.22	292 -	298	295.59	2.31E+02	54.73	3.74E+02	PB-214
M	11	338.31	335 -	362	338.64	1.33E+02	40.57	2.51E+02	AC-228
m	12	342.04	335 -	362	342.36	2.68E+01	38.76	2.42E+02	.....
m	13	351.86	335 -	362	352.17	3.85E+02	50.93	2.12E+02	PB-214
m	14	356.33	335 -	362	356.64	3.28E+01	40.87	1.90E+02	BA-133
	15	453.89	450 -	457	454.10	3.69E+01	37.52	2.06E+02	PM-146
	16	463.11	459 -	467	463.30	6.45E+01	39.99	2.05E+02	SB-125
	17	511.19	505 -	519	511.34	1.50E+02	61.64	3.35E+02	.....
M	18	583.22	577 -	590	583.30	1.83E+02	36.62	1.24E+02	TL-208
m	19	587.54	577 -	590	587.61	2.01E+01	33.74	1.35E+02	.....
M	20	605.95	605 -	614	606.00	1.42E+01	11.09	3.56E+01	.....
m	21	609.56	605 -	614	609.61	2.96E+02	39.53	9.05E+01	BI-214
	22	662.63	658 -	667	662.62	6.53E+01	31.58	1.05E+02	CS-137
	23	726.80	722 -	733	726.73	6.75E+01	39.04	1.59E+02	BI-212
	24	757.36	752 -	761	757.26	3.58E+01	27.75	8.84E+01	ZR-95
	25	838.76	830 -	844	838.58	4.82E+01	45.11	1.90E+02	.....
	26	861.40	855 -	868	861.20	3.62E+01	34.89	1.20E+02	.....
	27	911.19	905 -	916	910.94	1.37E+02	40.05	1.32E+02	AC-228
									TL-204

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	28	935.01	931 -	938	934.73	4.08E+01	21.82	5.23E+01	.....
M	29	965.10	960 -	977	964.80	3.35E+01	24.29	1.08E+02	.....
m	30	969.14	960 -	977	968.84	7.89E+01	27.82	7.20E+01	AC-228
	31	1070.55	1068 -	1072	1070.14	1.82E+01	13.66	2.57E+01	.....
	32	1120.70	1114 -	1125	1120.24	6.49E+01	35.61	1.26E+02	SC-46 BI-214 TA-182
	33	1156.05	1152 -	1159	1155.56	2.10E+01	20.98	5.81E+01	.....
	34	1314.69	1309 -	1320	1314.04	2.54E+01	18.44	2.93E+01	.....
	35	1341.78	1338 -	1344	1341.10	1.39E+01	15.17	3.22E+01	.....
	36	1377.96	1375 -	1379	1377.24	1.66E+01	11.10	1.28E+01	.....
	37	1419.48	1414 -	1425	1418.72	2.27E+01	11.66	4.60E+00	.....
M	38	1461.24	1455 -	1475	1460.45	6.02E+02	50.66	3.20E+01	K-40
m	39	1472.33	1455 -	1475	1471.53	9.73E+00	14.56	8.64E+00	.....
	40	1528.50	1523 -	1531	1527.64	1.28E+01	8.96	4.47E+00	.....
	41	1566.90	1562 -	1569	1566.00	1.20E+01	6.93	0.00E+00	.....
	42	1580.25	1575 -	1583	1579.33	1.35E+01	10.61	9.00E+00	.....
	43	1589.72	1584 -	1594	1588.80	3.57E+01	13.50	4.66E+00	.....
	44	1623.35	1618 -	1627	1622.40	8.88E+00	11.79	1.43E+01	.....
M	45	1631.36	1627 -	1641	1630.40	1.47E+01	9.11	7.28E+00	.....
m	46	1635.97	1627 -	1641	1635.01	7.33E+00	10.39	1.29E+01	.....
m	47	1639.96	1627 -	1641	1638.99	7.01E+00	7.94	1.13E+01	.....
	48	1710.73	1705 -	1714	1709.69	1.18E+01	9.00	4.50E+00	.....
	49	1765.19	1760 -	1767	1764.10	4.00E+01	15.23	1.20E+01	BI-214
	50	1776.25	1772 -	1779	1775.14	6.00E+00	8.49	8.00E+00	.....
	51	1828.25	1824 -	1830	1827.10	1.00E+01	6.32	0.00E+00	.....
	52	1847.00	1840 -	1850	1845.83	1.95E+01	12.67	1.10E+01	.....
	53	1913.74	1910 -	1914	1912.50	6.00E+00	4.90	0.00E+00	.....
	54	1919.46	1916 -	1921	1918.22	9.00E+00	6.00	0.00E+00	.....
	55	2204.37	2198 -	2207	2202.86	2.10E+01	9.17	0.00E+00	BI-214
	56	2213.86	2209 -	2215	2212.33	9.00E+00	6.00	0.00E+00	.....
	57	2615.02	2609 -	2617	2613.11	7.50E+01	18.12	4.08E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 2:26:53PM

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	74.67	2.89E+02	79.44	2.75E-02	2.38E-03
m	2	77.19	4.46E+02	85.66	2.75E-02	2.41E-03
M	3	87.57	1.95E+02	70.32	2.74E-02	2.52E-03
m	4	92.48	2.64E+02	71.45	2.73E-02	2.45E-03
	5	185.68	1.68E+02	87.48	2.17E-02	1.68E-03
	6	208.53	1.04E+02	79.84	2.04E-02	1.61E-03
M	7	238.54	7.19E+02	64.55	1.89E-02	1.53E-03
m	8	241.74	1.38E+02	65.07	1.87E-02	1.52E-03
	9	269.52	6.09E+01	64.56	1.75E-02	1.44E-03
	10	295.22	2.31E+02	54.73	1.64E-02	1.37E-03
M	11	338.31	1.33E+02	40.57	1.50E-02	1.27E-03
m	12	342.04	2.68E+01	38.76	1.48E-02	1.26E-03
m	13	351.86	3.85E+02	50.93	1.45E-02	1.24E-03
m	14	356.33	3.28E+01	40.87	1.44E-02	1.23E-03
	15	453.89	3.69E+01	37.52	1.21E-02	1.10E-03
	16	463.11	6.45E+01	39.99	1.19E-02	1.10E-03
	17	511.19	1.50E+02	61.64	1.10E-02	1.07E-03
M	18	583.22	1.83E+02	36.62	9.96E-03	1.02E-03
m	19	587.54	2.01E+01	33.74	9.91E-03	1.02E-03
M	20	605.95	1.42E+01	11.09	9.67E-03	1.01E-03
m	21	609.56	2.96E+02	39.53	9.63E-03	1.01E-03
	22	662.63	6.53E+01	31.58	9.03E-03	9.70E-04
	23	726.80	6.75E+01	39.04	8.41E-03	8.68E-04
	24	757.36	3.58E+01	27.75	8.15E-03	8.20E-04
	25	838.76	4.82E+01	45.11	7.54E-03	6.91E-04
	26	861.40	3.62E+01	34.89	7.39E-03	6.55E-04
	27	911.19	1.37E+02	40.05	7.09E-03	5.91E-04
	28	935.01	4.08E+01	21.82	6.95E-03	5.82E-04
M	29	965.10	3.35E+01	24.29	6.79E-03	5.71E-04
m	30	969.14	7.89E+01	27.82	6.76E-03	5.69E-04
	31	1070.55	1.82E+01	13.66	6.28E-03	5.30E-04
	32	1120.70	6.49E+01	35.61	6.07E-03	5.11E-04
	33	1156.05	2.10E+01	20.98	5.93E-03	4.98E-04
	34	1314.69	2.54E+01	18.44	5.40E-03	4.59E-04
	35	1341.78	1.39E+01	15.17	5.32E-03	4.52E-04
	36	1377.96	1.66E+01	11.10	5.22E-03	4.44E-04
	37	1419.48	2.27E+01	11.66	5.11E-03	4.34E-04
M	38	1461.24	6.02E+02	50.66	5.01E-03	4.25E-04
m	39	1472.33	9.73E+00	14.56	4.98E-03	4.22E-04
	40	1528.50	1.28E+01	8.96	4.85E-03	4.09E-04
	41	1566.90	1.20E+01	6.93	4.76E-03	4.00E-04
	42	1580.25	1.35E+01	10.61	4.73E-03	3.97E-04
	43	1589.72	3.57E+01	13.50	4.71E-03	3.95E-04
	44	1623.35	8.88E+00	11.79	4.64E-03	3.87E-04
M	45	1631.36	1.47E+01	9.11	4.63E-03	3.85E-04
m	46	1635.97	7.33E+00	10.39	4.62E-03	3.84E-04
m	47	1639.96	7.01E+00	7.94	4.61E-03	3.83E-04
	48	1710.73	1.18E+01	9.00	4.47E-03	3.67E-04
	49	1765.19	4.00E+01	15.23	4.37E-03	3.54E-04
	50	1776.25	6.00E+00	8.49	4.35E-03	3.52E-04
	51	1828.25	1.00E+01	6.32	4.27E-03	3.40E-04
	52	1847.00	1.95E+01	12.67	4.24E-03	3.38E-04
	53	1913.74	6.00E+00	4.90	4.13E-03	3.38E-04

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	1919.46	9.00E+00	6.00	4.12E-03	3.38E-04
55	2204.37	2.10E+01	9.17	3.74E-03	3.38E-04
56	2213.86	9.00E+00	6.00	3.72E-03	3.38E-04
57	2615.02	7.50E+01	18.12	3.31E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 2:26:53PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	74.67	2.89E+02	79.44			2.89E+02	7.94E+01
m	2	77.19	4.46E+02	85.66	7.83E+00	3.45E+00	4.38E+02	8.57E+01
M	3	87.57	1.95E+02	70.32			1.95E+02	7.03E+01
m	4	92.48	2.64E+02	71.45	1.35E+02	7.64E+00	1.29E+02	7.19E+01
	5	185.68	1.68E+02	87.48	5.47E+01	6.99E+00	1.13E+02	8.78E+01
	6	208.53	1.04E+02	79.84			1.04E+02	7.98E+01
M	7	238.54	7.19E+02	64.55	1.58E+01	5.72E+00	7.03E+02	6.48E+01
m	8	241.74	1.38E+02	65.07			1.38E+02	6.51E+01
	9	269.52	6.09E+01	64.56			6.09E+01	6.46E+01
	10	295.22	2.31E+02	54.73			2.31E+02	5.47E+01
M	11	338.31	1.33E+02	40.57	1.94E+00	4.45E+00	1.31E+02	4.08E+01
m	12	342.04	2.68E+01	38.76			2.68E+01	3.88E+01
m	13	351.86	3.85E+02	50.93	8.23E+00	4.77E+00	3.77E+02	5.12E+01
m	14	356.33	3.28E+01	40.87			3.28E+01	4.09E+01
	15	453.89	3.69E+01	37.52			3.69E+01	3.75E+01
	16	463.11	6.45E+01	39.99			6.45E+01	4.00E+01
	17	511.19	1.50E+02	61.64	7.54E+01	5.68E+00	7.43E+01	6.19E+01
M	18	583.22	1.83E+02	36.62	7.97E+00	3.93E+00	1.75E+02	3.68E+01
m	19	587.54	2.01E+01	33.74			2.01E+01	3.37E+01
M	20	605.95	1.42E+01	11.09			1.42E+01	1.11E+01
m	21	609.56	2.96E+02	39.53	5.86E+00	3.50E+00	2.90E+02	3.97E+01
	22	662.63	6.53E+01	31.58			6.53E+01	3.16E+01
	23	726.80	6.75E+01	39.04			6.75E+01	3.90E+01
	24	757.36	3.58E+01	27.75			3.58E+01	2.77E+01
	25	838.76	4.82E+01	45.11			4.82E+01	4.51E+01
	26	861.40	3.62E+01	34.89			3.62E+01	3.49E+01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	27	911.19	1.37E+02	40.05			1.37E+02	4.00E+01
	28	935.01	4.08E+01	21.82			4.08E+01	2.18E+01
M	29	965.10	3.35E+01	24.29			3.35E+01	2.43E+01
m	30	969.14	7.89E+01	27.82			7.89E+01	2.78E+01
	31	1070.55	1.82E+01	13.66			1.82E+01	1.37E+01
	32	1120.70	6.49E+01	35.61			6.49E+01	3.56E+01
	33	1156.05	2.10E+01	20.98			2.10E+01	2.10E+01
	34	1314.69	2.54E+01	18.44			2.54E+01	1.84E+01
	35	1341.78	1.39E+01	15.17			1.39E+01	1.52E+01
	36	1377.96	1.66E+01	11.10			1.66E+01	1.11E+01
	37	1419.48	2.27E+01	11.66			2.27E+01	1.17E+01
M	38	1461.24	6.02E+02	50.66	7.31E+00	2.50E+00	5.95E+02	5.07E+01
m	39	1472.33	9.73E+00	14.56			9.73E+00	1.46E+01
	40	1528.50	1.28E+01	8.96			1.28E+01	8.96E+00
	41	1566.90	1.20E+01	6.93			1.20E+01	6.93E+00
	42	1580.25	1.35E+01	10.61			1.35E+01	1.06E+01
	43	1589.72	3.57E+01	13.50			3.57E+01	1.35E+01
	44	1623.35	8.88E+00	11.79			8.88E+00	1.18E+01
M	45	1631.36	1.47E+01	9.11			1.47E+01	9.11E+00
m	46	1635.97	7.33E+00	10.39			7.33E+00	1.04E+01
m	47	1639.96	7.01E+00	7.94			7.01E+00	7.94E+00
	48	1710.73	1.18E+01	9.00			1.18E+01	9.00E+00
	49	1765.19	4.00E+01	15.23			4.00E+01	1.52E+01
	50	1776.25	6.00E+00	8.49			6.00E+00	8.49E+00
	51	1828.25	1.00E+01	6.32			1.00E+01	6.32E+00
	52	1847.00	1.95E+01	12.67			1.95E+01	1.27E+01
	53	1913.74	6.00E+00	4.90			6.00E+00	4.90E+00
	54	1919.46	9.00E+00	6.00			9.00E+00	6.00E+00
	55	2204.37	2.10E+01	9.17			2.10E+01	9.17E+00
	56	2213.86	9.00E+00	6.00			9.00E+00	6.00E+00
	57	2615.02	7.50E+01	18.12	5.15E+00	1.56E+00	6.98E+01	1.82E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 2:26:53PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	74.67	2.89E+02	79.44			2.89E+02	7.94E+01
m	2	77.19	4.46E+02	85.66	7.83E+00	3.45E+00	4.38E+02	8.57E+01
M	3	87.57	1.95E+02	70.32			1.95E+02	7.03E+01
m	4	92.48	2.64E+02	71.45	1.35E+02	7.64E+00	1.29E+02	7.19E+01
	5	185.68	1.68E+02	87.48	5.47E+01	6.99E+00	1.13E+02	8.78E+01
	6	208.53	1.04E+02	79.84			1.04E+02	7.98E+01
M	7	238.54	7.19E+02	64.55	1.58E+01	5.72E+00	7.03E+02	6.48E+01
m	8	241.74	1.38E+02	65.07			1.38E+02	6.51E+01
	9	269.52	6.09E+01	64.56			6.09E+01	6.46E+01
	10	295.22	2.31E+02	54.73			2.31E+02	5.47E+01
M	11	338.31	1.33E+02	40.57	1.94E+00	4.45E+00	1.31E+02	4.08E+01
m	12	342.04	2.68E+01	38.76			2.68E+01	3.88E+01
m	13	351.86	3.85E+02	50.93	8.23E+00	4.77E+00	3.77E+02	5.12E+01
m	14	356.33	3.28E+01	40.87			3.28E+01	4.09E+01
	15	453.89	3.69E+01	37.52			3.69E+01	3.75E+01
	16	463.11	6.45E+01	39.99			6.45E+01	4.00E+01
	17	511.19	1.50E+02	61.64	7.54E+01	5.68E+00	7.43E+01	6.19E+01
M	18	583.22	1.83E+02	36.62	7.97E+00	3.93E+00	1.75E+02	3.68E+01
m	19	587.54	2.01E+01	33.74			2.01E+01	3.37E+01
M	20	605.95	1.42E+01	11.09			1.42E+01	1.11E+01
m	21	609.56	2.96E+02	39.53	5.86E+00	3.50E+00	2.90E+02	3.97E+01
	22	662.63	6.53E+01	31.58			6.53E+01	3.16E+01
	23	726.80	6.75E+01	39.04			6.75E+01	3.90E+01
	24	757.36	3.58E+01	27.75			3.58E+01	2.77E+01
	25	838.76	4.82E+01	45.11			4.82E+01	4.51E+01
	26	861.40	3.62E+01	34.89			3.62E+01	3.49E+01
	27	911.19	1.37E+02	40.05			1.37E+02	4.00E+01
	28	935.01	4.08E+01	21.82			4.08E+01	2.18E+01
M	29	965.10	3.35E+01	24.29			3.35E+01	2.43E+01
m	30	969.14	7.89E+01	27.82			7.89E+01	2.78E+01
	31	1070.55	1.82E+01	13.66			1.82E+01	1.37E+01
	32	1120.70	6.49E+01	35.61			6.49E+01	3.56E+01
	33	1156.05	2.10E+01	20.98			2.10E+01	2.10E+01
	34	1314.69	2.54E+01	18.44			2.54E+01	1.84E+01
	35	1341.78	1.39E+01	15.17			1.39E+01	1.52E+01
	36	1377.96	1.66E+01	11.10			1.66E+01	1.11E+01
	37	1419.48	2.27E+01	11.66			2.27E+01	1.17E+01
M	38	1461.24	6.02E+02	50.66	7.31E+00	2.50E+00	5.95E+02	5.07E+01
m	39	1472.33	9.73E+00	14.56			9.73E+00	1.46E+01
	40	1528.50	1.28E+01	8.96			1.28E+01	8.96E+00
	41	1566.90	1.20E+01	6.93			1.20E+01	6.93E+00
	42	1580.25	1.35E+01	10.61			1.35E+01	1.06E+01
	43	1589.72	3.57E+01	13.50			3.57E+01	1.35E+01
	44	1623.35	8.88E+00	11.79			8.88E+00	1.18E+01
M	45	1631.36	1.47E+01	9.11			1.47E+01	9.11E+00
m	46	1635.97	7.33E+00	10.39			7.33E+00	1.04E+01
m	47	1639.96	7.01E+00	7.94			7.01E+00	7.94E+00
	48	1710.73	1.18E+01	9.00			1.18E+01	9.00E+00
	49	1765.19	4.00E+01	15.23			4.00E+01	1.52E+01
	50	1776.25	6.00E+00	8.49			6.00E+00	8.49E+00
	51	1828.25	1.00E+01	6.32			1.00E+01	6.32E+00
	52	1847.00	1.95E+01	12.67			1.95E+01	1.27E+01
	53	1913.74	6.00E+00	4.90			6.00E+00	4.90E+00
	54	1919.46	9.00E+00	6.00			9.00E+00	6.00E+00

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2204.37	2.10E+01	9.17			2.10E+01	9.17E+00
56	2213.86	9.00E+00	6.00			9.00E+00	6.00E+00
57	2615.02	7.50E+01	18.12	5.15E+00	1.56E+00	6.98E+01	1.82E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.971	1460.81	*	10.67	1.09E+01	1.33E+00
CD-109	0.966	88.03	*	3.72	2.15E+00	8.10E-01
SN-126	1.000	87.57	*	37.00	1.88E-01	7.00E-02
CS-137	0.858	661.65	*	85.12	8.35E-02	4.14E-02
PM-146	0.424	453.90	*	39.94	7.73E-02	7.90E-02
		735.90		14.01		
		747.13		13.10		
TL-208	0.876	583.14	*	30.22	5.67E-01	1.33E-01
		860.37		4.48		
		2614.66	*	35.85	5.76E-01	1.61E-01
BI-212	0.746	727.17	*	11.80	6.65E-01	3.91E-01
		1620.62		2.75		
PB-212	0.893	238.63	*	44.60	8.17E-01	1.00E-01
		300.09		3.41		
BI-214	0.974	609.31	*	46.30	6.36E-01	1.09E-01
		1120.29	*	15.10	6.93E-01	3.84E-01
		1764.49	*	15.80	5.66E-01	2.20E-01
		2204.22	*	4.98	1.10E+00	4.92E-01
PB-214	1.000	295.21	*	19.19	7.17E-01	1.80E-01
		351.92	*	37.19	6.81E-01	1.09E-01
RA-224	0.911	240.98	*	3.95	1.83E+00	8.74E-01
RA-226	0.956	186.21	*	3.28	1.55E+00	3.09E+00
AC-228	0.999	338.32	*	11.40	7.52E-01	2.43E-01
		911.07	*	27.70	6.82E-01	2.08E-01
		969.11	*	16.60	6.88E-01	2.49E-01
AM-243	1.000	74.67	*	66.00	1.56E-01	4.49E-02

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:26:53PM
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	77.19	1.21690E-01	9.79		
m	4	92.48	3.58295E-02	27.86		
	6	208.53	2.89087E-02	38.36		
	9	269.52	1.69087E-02	53.03		
m	12	342.04	7.44783E-03	72.27		
m	14	356.33	9.11464E-03	62.27		
	16	463.11	1.79200E-02	31.00	Tol.	SB-125
	17	511.19	2.06450E-02	41.64		
m	19	587.54	5.58524E-03	83.90		
M	20	605.95	3.93551E-03	39.14		
	24	757.36	9.95139E-03	38.73		
	25	838.76	1.34023E-02	46.74		
	26	861.40	1.00579E-02	48.17		
	28	935.01	1.13454E-02	26.71	Sum	
M	29	965.10	9.30004E-03	36.28	Sum	
	31	1070.55	5.04480E-03	37.60		
	33	1156.05	5.82222E-03	50.04		
	34	1314.69	7.04514E-03	36.35		
	35	1341.78	3.86111E-03	54.58		
	36	1377.96	4.61353E-03	33.42		
	37	1419.48	6.30556E-03	25.69		
m	39	1472.33	2.70182E-03	74.85	Sum	
	40	1528.50	3.54630E-03	35.08		
	41	1566.90	3.33333E-03	28.87		
	42	1580.25	3.75000E-03	39.28		
	43	1589.72	9.90862E-03	18.92		
	44	1623.35	2.46528E-03	66.42		
M	45	1631.36	4.08982E-03	30.94	Sum	
m	46	1635.97	2.03483E-03	70.93		
m	47	1639.96	1.94686E-03	56.62		
	48	1710.73	3.26389E-03	38.30		
	50	1776.25	1.66667E-03	70.71		
	51	1828.25	2.77778E-03	31.62		
	52	1847.00	5.41667E-03	32.48	Sum	

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	1913.74	1.66667E-03	40.82		
54	1919.46	2.50000E-03	33.33		
56	2213.86	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	0.97	1460.81	*	10.67	1.09E+01	1.33E+00
CD-109	0.96	88.03	*	3.72	2.15E+00	8.10E-01
SN-126	1.00	87.57	*	37.00	1.88E-01	7.00E-02
CS-137	0.85	661.65	*	85.12	8.35E-02	4.14E-02
PM-146	0.42	453.90	*	39.94	7.73E-02	7.90E-02
		735.90		14.01		
		747.13		13.10		
TL-208	0.87	583.14	*	30.22	5.67E-01	1.33E-01
		860.37		4.48		
		2614.66	*	35.85	5.76E-01	1.61E-01
BI-212	0.74	727.17	*	11.80	6.65E-01	3.91E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	8.17E-01	1.00E-01
		300.09		3.41		
BI-214	0.97	609.31	*	46.30	6.36E-01	1.09E-01
		1120.29	*	15.10	6.93E-01	3.84E-01
		1764.49	*	15.80	5.66E-01	2.20E-01
		2204.22	*	4.98	1.10E+00	4.92E-01
PB-214	1.00	295.21	*	19.19	7.17E-01	1.80E-01
		351.92	*	37.19	6.81E-01	1.09E-01
RA-224	0.91	240.98	*	3.95	1.83E+00	8.74E-01
RA-226	0.95	186.21	*	3.28	1.55E+00	3.09E+00
AC-228	0.99	338.32	*	11.40	7.52E-01	2.43E-01
		911.07	*	27.70	6.82E-01	2.08E-01
		969.11	*	16.60	6.88E-01	2.49E-01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
AM-243	1.00	74.67	*	66.00	1.56E-01	4.49E-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	0.971	1.09E+01	1.33E+00	
?	CD-109	0.966	2.15E+00	8.10E-01	
?	SN-126	1.000	1.88E-01	7.00E-02	
	CS-137	0.858	8.35E-02	4.14E-02	
	PM-146	0.424	7.73E-02	7.90E-02	
	TL-208	0.876	5.71E-01	1.03E-01	
	BI-212	0.746	6.65E-01	3.91E-01	
	PB-212	0.893	8.17E-01	1.00E-01	
	BI-214	0.974	6.44E-01	9.33E-02	
	PB-214	1.000	6.91E-01	9.33E-02	
	RA-224	0.911	1.83E+00	8.74E-01	
	RA-226	0.956	1.55E+00	3.09E+00	
	AC-228	0.999	7.05E-01	1.33E-01	
	AM-243	1.000	1.56E-01	4.49E-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 1707078-04

HTC-A01-S003-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:26:53PM
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	77.19	1.21690E-01	9.79		
m	4	92.48	3.58295E-02	27.86		
	6	208.53	2.89087E-02	38.36		
	9	269.52	1.69087E-02	53.03		
m	12	342.04	7.44783E-03	72.27		
m	14	356.33	9.11464E-03	62.27		
	16	463.11	1.79200E-02	31.00	Tol.	SB-125
	17	511.19	2.06450E-02	41.64		
m	19	587.54	5.58524E-03	83.90		
M	20	605.95	3.93551E-03	39.14		
	24	757.36	9.95139E-03	38.73		
	25	838.76	1.34023E-02	46.74		
	26	861.40	1.00579E-02	48.17		
	28	935.01	1.13454E-02	26.71	Sum	
M	29	965.10	9.30004E-03	36.28	Sum	
	31	1070.55	5.04480E-03	37.60		
	33	1156.05	5.82222E-03	50.04		
	34	1314.69	7.04514E-03	36.35		
	35	1341.78	3.86111E-03	54.58		
	36	1377.96	4.61353E-03	33.42		
	37	1419.48	6.30556E-03	25.69		
m	39	1472.33	2.70182E-03	74.85	Sum	
	40	1528.50	3.54630E-03	35.08		
	41	1566.90	3.33333E-03	28.87		
	42	1580.25	3.75000E-03	39.28		
	43	1589.72	9.90862E-03	18.92		
	44	1623.35	2.46528E-03	66.42		
M	45	1631.36	4.08982E-03	30.94	Sum	
m	46	1635.97	2.03483E-03	70.93		
m	47	1639.96	1.94686E-03	56.62		
	48	1710.73	3.26389E-03	38.30		
	50	1776.25	1.66667E-03	70.71		
	51	1828.25	2.77778E-03	31.62		
	52	1847.00	5.41667E-03	32.48	Sum	
	53	1913.74	1.66667E-03	40.82		

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	1919.46	2.50000E-03	33.33		
56	2213.86	2.50000E-03	33.33		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	6.43E-01	1.34E+00	1.34E+00
+	NA-22	1274.54		99.94	4.03E-03	5.50E-02	5.50E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-7.10E-03	3.80E-02	3.80E-02
+	K-40	1460.81	*	10.67	1.09E+01	1.05E+00	1.05E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.85E-02	4.30E-02	4.30E-02
		78.34		96.00	8.60E-02		5.32E-02
+	SC-46	889.25		99.98	4.32E-02	1.01E-01	1.01E-01
		1120.51		99.99	1.87E-01		1.70E-01
+	V-48	983.52		99.98	7.39E-01	2.77E+00	2.77E+00
		1312.10		97.50	1.47E-01		2.80E+00
+	CR-51	320.08		9.83	-1.35E-01	4.13E+00	4.13E+00
+	MN-54	834.83		99.97	-1.52E-03	6.66E-02	6.66E-02
+	CO-56	846.75		99.96	-4.53E-03	9.85E-02	9.85E-02
		1037.75		14.03	2.19E-01		8.00E-01
		1238.25		67.00	1.42E-01		2.68E-01
		1771.40		15.51	9.85E-02		4.63E-01
		2598.48		16.90	1.32E-02		4.26E-01
+	CO-57	122.06		85.51	-1.76E-02	4.93E-02	4.93E-02
		136.48		10.60	3.02E-02		4.06E-01
+	CO-58	810.76		99.40	-3.99E-02	1.19E-01	1.19E-01
+	FE-59	1099.22		56.50	-7.30E-02	3.66E-01	3.66E-01
		1291.56		43.20	1.86E-01		5.52E-01
+	CO-60	1173.22		100.00	-7.29E-03	4.64E-02	5.47E-02
		1332.49		100.00	-5.93E-03		4.64E-02

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	-1.88E-02	1.31E-01	1.31E-01
+	GA-67	93.31		35.70	8.87E+07	5.03E+07	5.03E+07
		208.95		2.24	6.36E+08		7.10E+08
		300.22		16.00	1.05E+07		1.07E+08
+	SE-75	121.11		16.70	-1.11E-01	9.81E-02	3.38E-01
		136.00		59.20	7.28E-03		9.81E-02
		264.65		59.80	1.20E-03		1.11E-01
		279.53		25.20	1.14E-01		2.75E-01
		400.65		11.40	2.97E-01		6.11E-01
+	RB-82	776.52		13.00	-5.34E-01	4.04E+00	4.04E+00
+	RB-83	520.41		46.00	-7.47E-02	1.71E-01	1.71E-01
		529.64		30.30	-2.55E-01		2.67E-01
		552.65		16.40	-5.62E-02		5.19E-01
+	KR-85	513.99		0.43	1.44E+01	1.36E+01	1.36E+01
+	SR-85	513.99		99.27	1.68E-01	1.59E-01	1.59E-01
+	Y-88	898.02		93.40	4.69E-02	4.57E-02	9.89E-02
		1836.01		99.38	6.36E-03		4.57E-02
+	MO-93	263.06		56.72	-1.39E-03	3.94E-02	6.88E-02
		684.67		99.68	7.69E-03		4.62E-02
		1477.11		99.08	8.66E-04		3.94E-02
+	NB-93M	16.57		9.43	-4.88E-02	3.75E-01	3.75E-01
+	NB-94	702.63		100.00	-2.71E-03	4.19E-02	4.56E-02
		871.10		100.00	-1.33E-03		4.19E-02
+	NB-95	765.79		99.81	4.01E-01	3.56E-01	3.56E-01
+	NB-95M	235.69		25.00	-5.77E+07	1.05E+07	1.05E+07
+	ZR-95	724.18		43.70	-1.30E-01	2.48E-01	3.24E-01
		756.72		55.30	2.52E-01		2.48E-01
+	MO-99	181.06		6.20	-1.87E+10	5.49E+09	8.78E+09
		739.58		12.80	1.37E+09		5.49E+09
		778.00		4.50	-4.67E+09		1.39E+10
+	RU-103	497.08		89.00	-1.90E-02	2.14E-01	2.14E-01
+	RU-106	621.84		9.80	3.57E-01	5.81E-01	5.81E-01
+	AG-108M	433.93		89.90	-9.66E-03	4.16E-02	4.16E-02
		614.37		90.40	-2.26E-03		4.84E-02
		722.95		90.50	-3.20E-03		5.30E-02
+	CD-109	88.03	*	3.72	2.15E+00	2.68E+00	2.68E+00
+	AG-110M	657.75		93.14	1.60E-02	6.11E-02	6.11E-02
		677.61		10.53	6.77E-02		5.56E-01
		706.67		16.46	-4.12E-01		3.04E-01
		763.93		21.98	-1.24E-01		2.71E-01
		884.67		71.63	-1.10E-02		8.53E-02
		1384.27		23.94	8.55E-02		2.54E-01
+	CD-113M	263.70		0.02	-2.08E+01	1.70E+02	1.70E+02
+	SN-113	255.12		1.93	2.08E-01	1.09E-01	3.09E+00
		391.69		64.90	2.60E-02		1.09E-01
+	TE123M	159.00		84.10	-1.54E-02	6.99E-02	6.99E-02
+	SB-124	602.71		97.87	1.87E-03	1.20E-01	1.36E-01
		645.85		7.26	1.65E-01		1.71E+00

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78		11.10	-7.62E-02	1.20E-01	1.26E+00
		1691.02		49.00	-7.77E-02		1.20E-01
+	I-125	35.49		6.49	2.47E-01	1.65E+00	1.65E+00
+	SB-125	176.33		6.89	4.15E-02	1.40E-01	5.38E-01
		427.89		29.33	2.01E-02		1.40E-01
		463.38		10.35	3.69E-01		4.92E-01
		600.56		17.80	2.12E-02		2.77E-01
		635.90		11.32	-3.14E-02		4.00E-01
+	SB-126	414.70		83.30	-9.18E-01	7.93E+00	8.54E+00
		666.33		99.60	-3.44E-01		8.26E+00
		695.00		99.60	-7.32E+00		7.93E+00
		720.50		53.80	-2.03E+00		1.45E+01
+	SN-126	87.57	*	37.00	1.88E-01	2.35E-01	2.35E-01
+	SB-127	473.00		25.00	8.66E+05	2.45E+06	3.17E+06
		685.20		35.70	4.09E+05		2.45E+06
		783.80		14.70	-4.58E+04		5.55E+06
+	I-129	29.78		57.00	-5.32E-03	7.08E-02	7.08E-02
		33.60		13.20	-2.27E-01		2.79E-01
		39.58		7.52	6.83E-02		4.50E-01
+	I-131	284.30		6.05	-1.95E+02	1.39E+02	2.00E+03
		364.48		81.20	1.37E+01		1.39E+02
		636.97		7.26	-2.97E+02		1.81E+03
		722.89		1.80	-4.96E+02		8.20E+03
+	TE-132	49.72		13.10	-1.01E+08	1.60E+07	1.08E+08
		228.16		88.00	-2.45E+06		1.60E+07
+	BA-133	81.00		33.00	-3.46E-01	9.12E-02	1.14E-01
		302.84		17.80	2.50E-01		2.54E-01
		356.01		60.00	-7.87E-02		9.12E-02
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-6.63E+04	2.19E+04	2.19E+04
+	CS-134	563.23		8.38	5.47E-02	5.39E-02	5.64E-01
		569.32		15.43	-5.08E-02		3.14E-01
		604.70		97.60	-1.08E-03		5.39E-02
		795.84		85.40	4.29E-02		7.00E-02
		801.93		8.73	-2.77E-01		6.06E-01
+	CS-135	268.24		16.00	1.85E-01	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	3.81E+01	6.70E+00	6.72E+01
		163.89		4.61	2.12E+01		9.99E+01
		176.55		13.56	2.68E+00		3.47E+01
		273.65		12.66	8.24E+00		4.41E+01
		340.57		48.50	2.75E+01		1.47E+01
		818.50		99.70	3.37E+00		6.70E+00
		1048.07		79.60	-6.06E-01		8.66E+00
		1235.34		19.70	8.10E+00		5.05E+01
+	CS-137	661.65	*	85.12	8.35E-02	6.06E-02	6.06E-02
+	LA-138	788.74		34.00	5.09E-02	5.50E-02	1.39E-01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-138	1435.80		66.00	-1.22E-04	5.50E-02	5.50E-02
+	CE-139	165.85		80.35	-4.06E-02	6.49E-02	6.49E-02
+	BA-140	162.64		6.70	2.02E+01	2.64E+01	7.98E+01
		304.84		4.50	-1.16E+02		1.40E+02
		423.70		3.20	2.59E+01		1.84E+02
		437.55		2.00	6.59E+01		3.16E+02
		537.32		25.00	9.98E+00		2.64E+01
+	LA-140	328.77		20.50	7.02E+00	5.93E+00	3.24E+01
		487.03		45.50	6.63E+00		1.52E+01
		815.85		23.50	1.41E+01		3.32E+01
		1596.49		95.49	-1.87E+00		5.93E+00
+	CE-141	145.44		48.40	3.32E-01	5.35E-01	5.35E-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	3.15E-02	3.84E-01	3.84E-01
+	PM-144	476.78		42.00	3.11E-02	5.31E-02	1.15E-01
		618.01		98.60	-3.19E-03		5.31E-02
		696.49		99.49	-1.42E-02		5.47E-02
+	PM-145	36.85		21.70	-5.56E-02	9.29E-02	1.66E-01
		37.36		39.70	3.43E-02		9.29E-02
		42.30		15.10	-2.54E-01		2.12E-01
		72.40		2.31	-2.71E+00		1.93E+00
+	PM-146	453.90	*	39.94	7.73E-02	1.28E-01	1.28E-01
		735.90		14.01	8.65E-03		3.14E-01
		747.13		13.10	6.85E-02		3.54E-01
+	ND-147	91.11		28.90	9.87E+01	5.90E+01	5.90E+01
		531.02		13.10	-2.81E+01		1.09E+02
+	PM-149	285.90		3.10	-2.11E+12	5.98E+12	5.98E+12
+	EU-152	121.78		20.50	-5.34E-02	1.63E-01	1.63E-01
		244.69		5.40	-4.55E-01		6.91E-01
		344.27		19.13	-1.38E-01		2.12E-01
		778.89		9.20	-3.42E-02		4.39E-01
		964.01		10.40	-1.02E+00		5.99E-01
		1085.78		7.22	-3.10E-02		7.64E-01
		1112.02		9.60	-8.45E-03		5.31E-01
		1407.95		14.94	9.47E-02		2.97E-01
+	GD-153	97.43		31.30	4.37E-02	1.44E-01	1.44E-01
		103.18		22.20	-4.04E-02		2.00E-01
+	EU-154	123.07		40.50	-8.80E-03	8.50E-02	8.50E-02
		723.30		19.70	-1.50E-02		2.48E-01
		873.19		11.50	6.73E-02		3.85E-01
		996.32		10.30	1.66E-01		4.75E-01
		1004.76		17.90	1.39E-01		2.96E-01
		1274.45		35.50	1.08E-02		1.48E-01
+	EU-155	86.50		30.90	1.13E-01	1.46E-01	1.46E-01
		105.30		20.70	-1.33E-02		1.72E-01
+	EU-156	811.77		10.40	-5.51E+00	3.18E+01	3.18E+01
		1153.47		7.20	2.04E+00		5.50E+01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	-2.27E+01	3.18E+01	4.94E+01
+	HO-166M	184.41		72.60	7.82E-02	5.95E-02	5.95E-02
		280.45		29.60	-1.44E-02		1.33E-01
		410.94		11.10	1.53E-01		3.73E-01
		711.69		54.10	2.25E-02		8.50E-02
+	TM-171	66.72		0.14	-4.37E+01	3.16E+01	3.16E+01
+	HF-172	67.35		5.31	3.61E-01	3.39E-01	8.39E-01
		125.81		11.30	4.24E-02		3.39E-01
+	LU-172	181.53		20.60	-5.49E+03	1.29E+03	2.58E+03
		900.72		29.81	7.38E+02		2.58E+03
		1093.66		62.50	5.05E+02		1.29E+03
+	LU-173	100.72		5.24	2.53E-01	2.31E-01	7.42E-01
		272.11		21.20	8.92E-02		2.31E-01
+	HF-175	343.40		84.00	-1.90E-01	1.20E-01	1.20E-01
+	LU-176	88.34		13.30	-1.07E-01	4.17E-02	3.39E-01
		201.83		86.00	8.36E-03		4.17E-02
		306.78		94.00	5.30E-03		4.31E-02
+	HF-181	133.02		41.70	2.98E-02	2.27E-01	3.63E-01
		345.85		17.20	-2.10E+00		1.03E+00
		482.03		82.80	1.54E-03		2.27E-01
+	TA-182	67.75		41.20	7.45E-02	1.73E-01	1.73E-01
		1121.30		34.90	5.34E-01		4.05E-01
		1189.05		16.23	-1.22E-01		6.43E-01
		1221.41		26.98	-2.06E-01		3.87E-01
		1231.02		11.44	-4.41E-01		9.62E-01
+	IR-192	308.46		29.68	-8.41E-02	2.04E-01	3.13E-01
		468.07		48.10	7.80E-02		2.04E-01
+	HG-203	279.19		77.30	8.68E-02	2.09E-01	2.09E-01
+	TL-204	374.74		94.11	-7.77E-03	4.31E-02	4.31E-02
		899.15		99.16	2.61E-02		5.33E-02
		911.74		91.10	1.83E-01		1.00E-01
+	BI-207	569.67		97.72	1.47E-02	4.70E-02	4.70E-02
		1063.62		74.90	1.80E-02		6.37E-02
+	TL-208	583.14	*	30.22	5.67E-01	1.20E-01	2.65E-01
		860.37		4.48	9.13E-01		1.16E+00
		2614.66	*	35.85	5.76E-01		1.20E-01
+	BI-210M	262.00		45.00	-9.96E-03	8.77E-02	8.77E-02
		300.00		23.00	2.24E-02		1.94E-01
+	PB-210	46.50		4.25	3.54E-01	8.70E-01	8.70E-01
+	PB-211	404.84		2.90	-9.24E-01	1.34E+00	1.34E+00
		831.96		2.90	7.90E-01		1.81E+00
+	BI-212	727.17	*	11.80	6.65E-01	6.00E-01	6.00E-01
		1620.62		2.75	4.13E-01		1.54E+00
+	PB-212	238.63	*	44.60	8.17E-01	1.50E-01	1.50E-01
		300.09		3.41	1.51E-01		1.31E+00
+	BI-214	609.31	*	46.30	6.36E-01	1.20E-01	1.20E-01
		1120.29	*	15.10	6.93E-01		5.86E-01
		1764.49	*	15.80	5.66E-01		2.36E-01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22	*	4.98	1.10E+00	1.20E-01	1.42E-01
+	PB-214	295.21	*	19.19	7.17E-01	2.41E-01	2.41E-01
		351.92	*	37.19	6.81E-01		3.69E-01
+	RN-219	401.80		6.50	7.98E-02	6.14E-01	6.14E-01
+	RA-223	323.87		3.88	-5.17E-01	1.08E+00	1.08E+00
+	RA-224	240.98	*	3.95	1.83E+00	1.68E+00	1.68E+00
+	RA-225	40.00		31.00	-5.34E+00	8.41E+00	8.41E+00
+	RA-226	186.21	*	3.28	1.55E+00	1.96E+00	1.96E+00
+	TH-227	50.10		8.40	-4.70E-01	3.89E-01	4.04E-01
		236.00		11.50	-2.13E+00		3.89E-01
		256.20		6.30	3.05E-01		6.41E-01
+	AC-228	338.32	*	11.40	7.52E-01	2.80E-01	1.17E+00
		911.07	*	27.70	6.82E-01		2.80E-01
		969.11	*	16.60	6.88E-01		6.78E-01
+	TH-230	48.44		16.90	1.01E-01	2.20E-01	2.20E-01
		62.85		4.60	9.62E-01		9.49E-01
		67.67		0.37	4.72E+00		1.09E+01
+	PA-231	283.67		1.60	-4.92E-01	1.93E+00	2.40E+00
		302.67		2.30	1.90E+00		1.93E+00
+	TH-231	25.64		14.70	-2.38E+00	3.74E-01	3.74E-01
		84.21		6.40	-5.00E-01		6.19E-01
+	PA-233	311.98		38.60	3.29E-01	1.08E+00	1.08E+00
+	PA-234	131.20		20.40	-8.24E-02	1.59E-01	1.59E-01
		733.99		8.80	7.14E-02		4.99E-01
		946.00		12.00	-3.34E-02		3.89E-01
+	PA-234M	1001.03		0.92	2.82E+00	5.68E+00	5.68E+00
+	TH-234	63.29		3.80	1.18E+00	1.16E+00	1.16E+00
+	U-235	143.76		10.50	6.13E-02	3.35E-01	3.35E-01
		163.35		4.70	1.53E-01		7.23E-01
		205.31		4.70	-7.39E-01		7.72E-01
+	NP-237	86.50		12.60	2.68E-01	3.45E-01	3.45E-01
+	NP-239	106.10		22.70	3.54E+10	1.26E+11	1.26E+11
		228.18		10.70	-4.05E+10		2.64E+11
		277.60		14.10	1.88E+10		2.32E+11
+	AM-241	59.54		35.90	-1.20E-01	1.07E-01	1.07E-01
+	AM-243	74.67	*	66.00	1.56E-01	9.88E-02	9.88E-02
+	CM-243	209.75		3.29	1.12E+00	2.88E-01	1.20E+00
		228.14		10.60	-5.04E-02		3.28E-01
		277.60		14.00	2.33E-02		2.88E-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 1707078-04

HTC-A01-S003-0006-01

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	1.34E+00	1.34E+00	6.43E-01	6.33E-01
	NA-22	1274.54		99.94	5.50E-02	5.50E-02	4.03E-03	2.50E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	3.80E-02	3.80E-02	-7.10E-03	1.59E-02
+	K-40	1460.81	*	10.67	1.05E+00	1.05E+00	1.09E+01	4.98E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.30E-02	4.30E-02	1.85E-02	2.10E-02
		78.34		96.00	5.32E-02		8.60E-02	2.61E-02
	SC-46	889.25		99.98	1.01E-01	1.01E-01	4.32E-02	4.67E-02
		1120.51		99.99	1.70E-01		1.87E-01	8.02E-02
	V-48	983.52		99.98	2.77E+00	2.77E+00	7.39E-01	1.27E+00
		1312.10		97.50	2.80E+00		1.47E-01	1.26E+00
	CR-51	320.08		9.83	4.13E+00	4.13E+00	-1.35E-01	1.97E+00
	MN-54	834.83		99.97	6.66E-02	6.66E-02	-1.52E-03	3.11E-02
	CO-56	846.75		99.96	9.85E-02	9.85E-02	-4.53E-03	4.53E-02
		1037.75		14.03	8.00E-01		2.19E-01	3.67E-01
		1238.25		67.00	2.68E-01		1.42E-01	1.26E-01
		1771.40		15.51	4.63E-01		9.85E-02	1.87E-01
		2598.48		16.90	4.26E-01		1.32E-02	1.59E-01
	CO-57	122.06		85.51	4.93E-02	4.93E-02	-1.76E-02	2.39E-02
		136.48		10.60	4.06E-01		3.02E-02	1.97E-01
	CO-58	810.76		99.40	1.19E-01	1.19E-01	-3.99E-02	5.51E-02
	FE-59	1099.22		56.50	3.66E-01	3.66E-01	-7.30E-02	1.67E-01
		1291.56		43.20	5.52E-01		1.86E-01	2.52E-01
	CO-60	1173.22		100.00	5.47E-02	4.64E-02	-7.29E-03	2.50E-02
		1332.49		100.00	4.64E-02		-5.93E-03	2.06E-02
	ZN-65	1115.52		50.75	1.31E-01	1.31E-01	-1.88E-02	5.99E-02
	GA-67	93.31		35.70	5.03E+07	5.03E+07	8.87E+07	2.46E+07
		208.95		2.24	7.10E+08		6.36E+08	3.44E+08
		300.22		16.00	1.07E+08		1.05E+07	5.16E+07
	SE-75	121.11		16.70	3.38E-01	9.81E-02	-1.11E-01	1.64E-01
		136.00		59.20	9.81E-02		7.28E-03	4.75E-02
		264.65		59.80	1.11E-01		1.20E-03	5.33E-02
		279.53		25.20	2.75E-01		1.14E-01	1.32E-01
		400.65		11.40	6.11E-01		2.97E-01	2.90E-01
	RB-82	776.52		13.00	4.04E+00	4.04E+00	-5.34E-01	1.86E+00

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	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	1.71E-01	1.71E-01	-7.47E-02	8.00E-02
		529.64		30.30	2.67E-01		-2.55E-01	1.25E-01
		552.65		16.40	5.19E-01		-5.62E-02	2.43E-01
	KR-85	513.99		0.43	1.36E+01	1.36E+01	1.44E+01	6.54E+00
	SR-85	513.99		99.27	1.59E-01	1.59E-01	1.68E-01	7.61E-02
	Y-88	898.02		93.40	9.89E-02	4.57E-02	4.69E-02	4.58E-02
		1836.01		99.38	4.57E-02		6.36E-03	1.71E-02
	MO-93	263.06		56.72	6.88E-02	3.94E-02	-1.39E-03	3.31E-02
		684.67		99.68	4.62E-02		7.69E-03	2.16E-02
		1477.11		99.08	3.94E-02		8.66E-04	1.69E-02
	NB-93M	16.57		9.43	3.75E-01	3.75E-01	-4.88E-02	1.74E-01
	NB-94	702.63		100.00	4.56E-02	4.19E-02	-2.71E-03	2.12E-02
		871.10		100.00	4.19E-02		-1.33E-03	1.91E-02
	NB-95	765.79		99.81	3.56E-01	3.56E-01	4.01E-01	1.68E-01
	NB-95M	235.69		25.00	1.05E+07	1.05E+07	-5.77E+07	5.11E+06
	ZR-95	724.18		43.70	3.24E-01	2.48E-01	-1.30E-01	1.52E-01
		756.72		55.30	2.48E-01		2.52E-01	1.16E-01
	MO-99	181.06		6.20	8.78E+09	5.49E+09	-1.87E+10	4.24E+09
		739.58		12.80	5.49E+09		1.37E+09	2.55E+09
		778.00		4.50	1.39E+10		-4.67E+09	6.39E+09
	RU-103	497.08		89.00	2.14E-01	2.14E-01	-1.90E-02	1.00E-01
	RU-106	621.84		9.80	5.81E-01	5.81E-01	3.57E-01	2.74E-01
	AG-108M	433.93		89.90	4.16E-02	4.16E-02	-9.66E-03	1.96E-02
		614.37		90.40	4.84E-02		-2.26E-03	2.27E-02
		722.95		90.50	5.30E-02		-3.20E-03	2.48E-02
+	CD-109	88.03	*	3.72	2.68E+00	2.68E+00	2.15E+00	1.33E+00
	AG-110M	657.75		93.14	6.11E-02	6.11E-02	1.60E-02	2.85E-02
		677.61		10.53	5.56E-01		6.77E-02	2.60E-01
		706.67		16.46	3.04E-01		-4.12E-01	1.40E-01
		763.93		21.98	2.71E-01		-1.24E-01	1.26E-01
		884.67		71.63	8.53E-02		-1.10E-02	3.93E-02
		1384.27		23.94	2.54E-01		8.55E-02	1.13E-01
	CD-113M	263.70		0.02	1.70E+02	1.70E+02	-2.08E+01	8.18E+01
	SN-113	255.12		1.93	3.09E+00	1.09E-01	2.08E-01	1.48E+00
		391.69		64.90	1.09E-01		2.60E-02	5.19E-02
	TE123M	159.00		84.10	6.99E-02	6.99E-02	-1.54E-02	3.38E-02
	SB-124	602.71		97.87	1.36E-01	1.20E-01	1.87E-03	6.41E-02
		645.85		7.26	1.71E+00		1.65E-01	7.96E-01
		722.78		11.10	1.26E+00		-7.62E-02	5.89E-01
		1691.02		49.00	1.20E-01		-7.77E-02	4.26E-02
	I-125	35.49		6.49	1.65E+00	1.65E+00	2.47E-01	7.98E-01
	SB-125	176.33		6.89	5.38E-01	1.40E-01	4.15E-02	2.60E-01
		427.89		29.33	1.40E-01		2.01E-02	6.63E-02
		463.38		10.35	4.92E-01		3.69E-01	2.34E-01
		600.56		17.80	2.77E-01		2.12E-02	1.30E-01
		635.90		11.32	4.00E-01		-3.14E-02	1.87E-01
	SB-126	414.70		83.30	8.54E+00	7.93E+00	-9.18E-01	4.04E+00
		666.33		99.60	8.26E+00		-3.44E-01	3.86E+00
		695.00		99.60	7.93E+00		-7.32E+00	3.69E+00
		720.50		53.80	1.45E+01		-2.03E+00	6.71E+00
+	SN-126	87.57	*	37.00	2.35E-01	2.35E-01	1.88E-01	1.16E-01
	SB-127	473.00		25.00	3.17E+06	2.45E+06	8.66E+05	1.50E+06
		685.20		35.70	2.45E+06		4.09E+05	1.15E+06

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	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	5.55E+06	2.45E+06	-4.58E+04	2.55E+06
	I-129	29.78		57.00	7.08E-02	7.08E-02	-5.32E-03	3.42E-02
		33.60		13.20	2.79E-01		-2.27E-01	1.35E-01
		39.58		7.52	4.50E-01		6.83E-02	2.17E-01
	I-131	284.30		6.05	2.00E+03	1.39E+02	-1.95E+02	9.58E+02
		364.48		81.20	1.39E+02		1.37E+01	6.62E+01
		636.97		7.26	1.81E+03		-2.97E+02	8.43E+02
		722.89		1.80	8.20E+03		-4.96E+02	3.83E+03
	TE-132	49.72		13.10	1.08E+08	1.60E+07	-1.01E+08	5.25E+07
		228.16		88.00	1.60E+07		-2.45E+06	7.67E+06
	BA-133	81.00		33.00	1.14E-01	9.12E-02	-3.46E-01	5.56E-02
		302.84		17.80	2.54E-01		2.50E-01	1.22E-01
		356.01		60.00	9.12E-02		-7.87E-02	4.40E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	2.19E+04	2.19E+04	-6.63E+04	1.06E+04
	CS-134	563.23		8.38	5.64E-01	5.39E-02	5.47E-02	2.65E-01
		569.32		15.43	3.14E-01		-5.08E-02	1.48E-01
		604.70		97.60	5.39E-02		-1.08E-03	2.54E-02
		795.84		85.40	7.00E-02		4.29E-02	3.29E-02
		801.93		8.73	6.06E-01		-2.77E-01	2.82E-01
	CS-135	268.24		16.00	2.69E-01	2.69E-01	1.85E-01	1.30E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	6.72E+01	6.70E+00	3.81E+01	3.26E+01
		163.89		4.61	9.99E+01		2.12E+01	4.83E+01
		176.55		13.56	3.47E+01		2.68E+00	1.68E+01
		273.65		12.66	4.41E+01		8.24E+00	2.13E+01
		340.57		48.50	1.47E+01		2.75E+01	7.12E+00
		818.50		99.70	6.70E+00		3.37E+00	3.11E+00
		1048.07		79.60	8.66E+00		-6.06E-01	3.98E+00
		1235.34		19.70	5.05E+01		8.10E+00	2.36E+01
+	CS-137	661.65	*	85.12	6.06E-02	6.06E-02	8.35E-02	2.86E-02
	LA-138	788.74		34.00	1.39E-01	5.50E-02	5.09E-02	6.45E-02
		1435.80		66.00	5.50E-02		-1.22E-04	2.36E-02
	CE-139	165.85		80.35	6.49E-02	6.49E-02	-4.06E-02	3.13E-02
	BA-140	162.64		6.70	7.98E+01	2.64E+01	2.02E+01	3.86E+01
		304.84		4.50	1.40E+02		-1.16E+02	6.73E+01
		423.70		3.20	1.84E+02		2.59E+01	8.70E+01
		437.55		2.00	3.16E+02		6.59E+01	1.50E+02
		537.32		25.00	2.64E+01		9.98E+00	1.24E+01
	LA-140	328.77		20.50	3.24E+01	5.93E+00	7.02E+00	1.55E+01
		487.03		45.50	1.52E+01		6.63E+00	7.22E+00
		815.85		23.50	3.32E+01		1.41E+01	1.54E+01
		1596.49		95.49	5.93E+00		-1.87E+00	2.50E+00
	CE-141	145.44		48.40	5.35E-01	5.35E-01	3.32E-01	2.59E-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	3.84E-01	3.84E-01	3.15E-02	1.86E-01
	PM-144	476.78		42.00	1.15E-01	5.31E-02	3.11E-02	5.43E-02
		618.01		98.60	5.31E-02		-3.19E-03	2.49E-02
		696.49		99.49	5.47E-02		-1.42E-02	2.55E-02

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	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	1.66E-01	9.29E-02	-5.56E-02	8.00E-02
		37.36		39.70	9.29E-02		3.43E-02	4.49E-02
		42.30		15.10	2.12E-01		-2.54E-01	1.02E-01
		72.40		2.31	1.93E+00		-2.71E+00	9.43E-01
+	PM-146	453.90	*	39.94	1.28E-01	1.28E-01	7.73E-02	6.12E-02
		735.90		14.01	3.14E-01		8.65E-03	1.45E-01
		747.13		13.10	3.54E-01		6.85E-02	1.64E-01
	ND-147	91.11		28.90	5.90E+01	5.90E+01	9.87E+01	2.89E+01
		531.02		13.10	1.09E+02		-2.81E+01	5.11E+01
	PM-149	285.90		3.10	5.98E+12	5.98E+12	-2.11E+12	2.87E+12
	EU-152	121.78		20.50	1.63E-01	1.63E-01	-5.34E-02	7.90E-02
		244.69		5.40	6.91E-01		-4.55E-01	3.32E-01
		344.27		19.13	2.12E-01		-1.38E-01	1.01E-01
		778.89		9.20	4.39E-01		-3.42E-02	2.01E-01
		964.01		10.40	5.99E-01		-1.02E+00	2.81E-01
		1085.78		7.22	7.64E-01		-3.10E-02	3.52E-01
		1112.02		9.60	5.31E-01		-8.45E-03	2.42E-01
		1407.95		14.94	2.97E-01		9.47E-02	1.31E-01
	GD-153	97.43		31.30	1.44E-01	1.44E-01	4.37E-02	6.98E-02
		103.18		22.20	2.00E-01		-4.04E-02	9.69E-02
	EU-154	123.07		40.50	8.50E-02	8.50E-02	-8.80E-03	4.12E-02
		723.30		19.70	2.48E-01		-1.50E-02	1.16E-01
		873.19		11.50	3.85E-01		6.73E-02	1.77E-01
		996.32		10.30	4.75E-01		1.66E-01	2.18E-01
		1004.76		17.90	2.96E-01		1.39E-01	1.36E-01
		1274.45		35.50	1.48E-01		1.08E-02	6.70E-02
	EU-155	86.50		30.90	1.46E-01	1.46E-01	1.13E-01	7.13E-02
		105.30		20.70	1.72E-01		-1.33E-02	8.37E-02
	EU-156	811.77		10.40	3.18E+01	3.18E+01	-5.51E+00	1.47E+01
		1153.47		7.20	5.50E+01		2.04E+00	2.53E+01
		1230.71		8.90	4.94E+01		-2.27E+01	2.29E+01
	HO-166M	184.41		72.60	5.95E-02	5.95E-02	7.82E-02	2.89E-02
		280.45		29.60	1.33E-01		-1.44E-02	6.38E-02
		410.94		11.10	3.73E-01		1.53E-01	1.77E-01
		711.69		54.10	8.50E-02		2.25E-02	3.97E-02
	TM-171	66.72		0.14	3.16E+01	3.16E+01	-4.37E+01	1.54E+01
	HF-172	67.35		5.31	8.39E-01	3.39E-01	3.61E-01	4.09E-01
		125.81		11.30	3.39E-01		4.24E-02	1.64E-01
	LU-172	181.53		20.60	2.58E+03	1.29E+03	-5.49E+03	1.25E+03
		900.72		29.81	2.58E+03		7.38E+02	1.20E+03
		1093.66		62.50	1.29E+03		5.05E+02	5.94E+02
	LU-173	100.72		5.24	7.42E-01	2.31E-01	2.53E-01	3.60E-01
		272.11		21.20	2.31E-01		8.92E-02	1.11E-01
	HF-175	343.40		84.00	1.20E-01	1.20E-01	-1.90E-01	5.72E-02
	LU-176	88.34		13.30	3.39E-01	4.17E-02	-1.07E-01	1.66E-01
		201.83		86.00	4.17E-02		8.36E-03	2.01E-02
		306.78		94.00	4.31E-02		5.30E-03	2.07E-02
	HF-181	133.02		41.70	3.63E-01	2.27E-01	2.98E-02	1.76E-01
		345.85		17.20	1.03E+00		-2.10E+00	4.93E-01
		482.03		82.80	2.27E-01		1.54E-03	1.07E-01
	TA-182	67.75		41.20	1.73E-01	1.73E-01	7.45E-02	8.43E-02
		1121.30		34.90	4.05E-01		5.34E-01	1.92E-01
		1189.05		16.23	6.43E-01		-1.22E-01	2.97E-01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	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	3.87E-01	1.73E-01	-2.06E-01	1.78E-01
		1231.02		11.44	9.62E-01		-4.41E-01	4.45E-01
	IR-192	308.46		29.68	3.13E-01	2.04E-01	-8.41E-02	1.50E-01
		468.07		48.10	2.04E-01		7.80E-02	9.66E-02
	HG-203	279.19		77.30	2.09E-01	2.09E-01	8.68E-02	1.00E-01
	TL-204	374.74		94.11	4.31E-02	4.31E-02	-7.77E-03	2.05E-02
		899.15		99.16	5.33E-02		2.61E-02	2.47E-02
		911.74		91.10	1.00E-01		1.83E-01	4.79E-02
	BI-207	569.67		97.72	4.70E-02	4.70E-02	1.47E-02	2.21E-02
		1063.62		74.90	6.37E-02		1.80E-02	2.90E-02
+	TL-208	583.14	*	30.22	2.65E-01	1.20E-01	5.67E-01	1.28E-01
		860.37		4.48	1.16E+00		9.13E-01	5.40E-01
		2614.66	*	35.85	1.20E-01		5.76E-01	4.87E-02
	BI-210M	262.00		45.00	8.77E-02	8.77E-02	-9.96E-03	4.22E-02
		300.00		23.00	1.94E-01		2.24E-02	9.33E-02
	PB-210	46.50		4.25	8.70E-01	8.70E-01	3.54E-01	4.22E-01
	PB-211	404.84		2.90	1.34E+00	1.34E+00	-9.24E-01	6.35E-01
		831.96		2.90	1.81E+00		7.90E-01	8.46E-01
+	BI-212	727.17	*	11.80	6.00E-01	6.00E-01	6.65E-01	2.87E-01
		1620.62		2.75	1.54E+00		4.13E-01	6.66E-01
+	PB-212	238.63	*	44.60	1.50E-01	1.50E-01	8.17E-01	7.33E-02
		300.09		3.41	1.31E+00		1.51E-01	6.29E-01
+	BI-214	609.31	*	46.30	1.20E-01	1.20E-01	6.36E-01	5.68E-02
		1120.29	*	15.10	5.86E-01		6.93E-01	2.79E-01
		1764.49	*	15.80	2.36E-01		5.66E-01	9.88E-02
		2204.22	*	4.98	1.42E-01		1.10E+00	0.00E+00
+	PB-214	295.21	*	19.19	2.41E-01	2.41E-01	7.17E-01	1.16E-01
		351.92	*	37.19	3.69E-01		6.81E-01	1.82E-01
	RN-219	401.80		6.50	6.14E-01	6.14E-01	7.98E-02	2.92E-01
	RA-223	323.87		3.88	1.08E+00	1.08E+00	-5.17E-01	5.19E-01
+	RA-224	240.98	*	3.95	1.68E+00	1.68E+00	1.83E+00	8.24E-01
	RA-225	40.00		31.00	8.41E+00	8.41E+00	-5.34E+00	4.06E+00
+	RA-226	186.21	*	3.28	1.96E+00	1.96E+00	1.55E+00	9.61E-01
	TH-227	50.10		8.40	4.04E-01	3.89E-01	-4.70E-01	1.96E-01
		236.00		11.50	3.89E-01		-2.13E+00	1.88E-01
		256.20		6.30	6.41E-01		3.05E-01	3.09E-01
+	AC-228	338.32	*	11.40	1.17E+00	2.80E-01	7.52E-01	5.79E-01
		911.07	*	27.70	2.80E-01		6.82E-01	1.33E-01
		969.11	*	16.60	6.78E-01		6.88E-01	3.27E-01
	TH-230	48.44		16.90	2.20E-01	2.20E-01	1.01E-01	1.07E-01
		62.85		4.60	9.49E-01		9.62E-01	4.64E-01
		67.67		0.37	1.09E+01		4.72E+00	5.34E+00
	PA-231	283.67		1.60	2.40E+00	1.93E+00	-4.92E-01	1.15E+00
		302.67		2.30	1.93E+00		1.90E+00	9.30E-01
	TH-231	25.64		14.70	3.74E-01	3.74E-01	-2.38E+00	1.82E-01
		84.21		6.40	6.19E-01		-5.00E-01	3.02E-01
	PA-233	311.98		38.60	1.08E+00	1.08E+00	3.29E-01	5.17E-01
	PA-234	131.20		20.40	1.59E-01	1.59E-01	-8.24E-02	7.69E-02
		733.99		8.80	4.99E-01		7.14E-02	2.32E-01
		946.00		12.00	3.89E-01		-3.34E-02	1.78E-01
	PA-234M	1001.03		0.92	5.68E+00	5.68E+00	2.82E+00	2.62E+00
	TH-234	63.29		3.80	1.16E+00	1.16E+00	1.18E+00	5.66E-01
	U-235	143.76		10.50	3.35E-01	3.35E-01	6.13E-02	1.62E-01

Analysis Report for 1707078-04

HTC-A01-S003-0006-01

	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	7.23E-01	3.35E-01	1.53E-01	3.49E-01
		205.31		4.70	7.72E-01		-7.39E-01	3.72E-01
	NP-237	86.50		12.60	3.45E-01	3.45E-01	2.68E-01	1.69E-01
	NP-239	106.10		22.70	1.26E+11	1.26E+11	3.54E+10	6.10E+10
		228.18		10.70	2.64E+11		-4.05E+10	1.27E+11
		277.60		14.10	2.32E+11		1.88E+10	1.11E+11
	AM-241	59.54		35.90	1.07E-01	1.07E-01	-1.20E-01	5.20E-02
+	AM-243	74.67	*	66.00	9.88E-02	9.88E-02	1.56E-01	4.87E-02
	CM-243	209.75		3.29	1.20E+00	2.88E-01	1.12E+00	5.80E-01
		228.14		10.60	3.28E-01		-5.04E-02	1.58E-01
		277.60		14.00	2.88E-01		2.33E-02	1.38E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S003-0006-01

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	59	64	89	157	538	156
25:	53	60	55	63	48	40	67	45
33:	53	56	43	63	63	52	53	63
41:	59	42	44	68	38	72	113	90
49:	59	66	69	70	72	86	65	73
57:	93	84	89	96	97	113	139	180
65:	110	109	111	110	114	116	97	104
73:	110	110	255	223	253	340	137	90
81:	91	109	85	101	105	102	152	196
89:	102	139	115	113	236	179	88	75
97:	71	84	81	85	65	83	72	63
105:	70	89	85	79	73	86	70	61
113:	85	70	69	88	78	76	67	58
121:	72	63	67	69	62	81	78	70
129:	73	73	54	53	58	64	71	64
137:	60	57	70	69	60	68	55	88
145:	67	56	57	69	55	52	69	67
153:	73	71	65	76	65	55	52	54
161:	58	71	55	55	45	52	53	47
169:	56	60	44	41	60	39	41	55
177:	71	43	61	56	55	65	39	45
185:	64	145	112	51	51	36	53	60
193:	39	48	42	58	57	48	45	52
201:	47	54	52	45	51	55	48	52
209:	75	71	51	39	38	36	38	46
217:	34	38	48	44	38	42	40	46
225:	44	44	42	49	43	31	35	47
233:	35	32	49	46	53	147	444	161
241:	85	107	71	43	40	27	28	38
249:	25	30	34	29	30	32	31	31
257:	46	28	37	33	29	28	35	28
265:	30	24	35	28	35	59	52	23
273:	29	29	28	30	37	26	26	36
281:	27	29	31	24	24	29	23	34
289:	20	33	29	33	31	36	114	138
297:	43	23	23	48	40	30	28	25
305:	38	22	20	25	28	29	26	20
313:	20	26	12	29	9	24	21	23
321:	28	33	28	26	29	22	20	37
329:	37	20	26	25	23	22	22	14
337:	29	69	79	32	22	35	26	15
345:	13	21	22	22	24	32	57	218
353:	127	24	25	23	33	19	20	21
361:	14	11	19	9	20	22	16	21

369:	22	19	22	11	18	22	23	11

Sample Title: HTC-A01-S003-0006-01

Channel								
377:	17	24	20	17	19	21	15	23
385:	11	16	17	21	28	21	12	22
393:	12	16	18	12	18	19	12	15
401:	24	16	17	23	14	13	16	14
409:	19	26	14	23	10	20	12	18
417:	14	12	15	13	15	9	12	18
425:	22	9	14	14	11	14	18	11
433:	14	12	13	11	14	13	20	21
441:	17	18	12	17	19	18	14	17
449:	17	15	16	12	25	25	21	15
457:	11	10	15	11	13	21	39	29
465:	15	16	8	13	16	18	15	12
473:	8	10	19	17	6	15	15	13
481:	16	10	15	12	15	13	19	22
489:	14	17	13	13	10	8	7	8
497:	16	13	10	11	10	11	13	13
505:	11	14	9	15	17	50	66	40
513:	23	14	12	8	18	12	8	13
521:	14	8	8	6	19	11	11	12
529:	7	12	10	7	12	17	16	12
537:	9	10	11	11	11	9	13	11
545:	10	8	8	14	9	9	12	8
553:	9	7	17	12	15	7	6	14
561:	9	12	14	10	14	11	10	20
569:	16	10	13	7	16	13	7	11
577:	11	10	12	16	17	29	92	73
585:	16	15	15	20	11	9	10	14
593:	13	14	9	10	15	6	20	13
601:	13	12	12	11	7	16	10	26
609:	126	128	17	14	12	6	7	7
617:	11	6	12	14	17	10	16	6
625:	13	6	11	11	13	2	8	15
633:	8	11	7	9	6	13	12	8
641:	9	10	9	12	10	9	9	8
649:	7	8	8	10	8	7	10	14
657:	6	4	8	5	20	30	13	13
665:	6	16	3	8	10	6	14	10
673:	4	10	10	10	10	6	13	10
681:	9	14	7	7	12	12	7	8
689:	5	11	16	9	12	7	3	11
697:	7	10	16	11	8	11	15	6
705:	7	7	6	9	3	7	11	15
713:	10	13	6	8	8	5	8	12
721:	3	8	10	10	11	15	24	26
729:	13	7	8	9	6	9	5	8
737:	11	6	7	7	8	13	5	6
745:	8	8	11	6	7	11	7	4
753:	5	6	13	9	14	9	10	9
761:	1	6	7	13	10	7	14	21
769:	17	9	5	15	10	6	9	4
777:	4	7	6	5	6	9	5	5
785:	3	11	7	7	8	8	5	12
793:	4	12	12	15	13	13	10	6

801:	7	5	9	17	6	13	6	11

Sample Title: HTC-A01-S003-0006-01

Channel								
809:	6	11	4	10	8	6	10	10
817:	8	6	14	7	5	4	6	7
825:	9	5	8	5	10	9	4	7
833:	13	15	9	9	6	12	9	17
841:	12	7	10	4	3	7	6	4
849:	7	12	7	6	3	5	3	3
857:	6	10	9	9	13	12	3	8
865:	3	5	9	3	6	3	8	6
873:	8	4	2	10	8	3	8	7
881:	9	8	8	6	7	4	6	10
889:	5	8	6	8	5	1	7	8
897:	8	8	6	5	12	7	7	5
905:	5	6	8	9	8	33	68	35
913:	8	7	10	6	6	7	5	4
921:	8	6	7	9	6	7	9	9
929:	7	2	4	4	10	13	16	5
937:	10	5	2	6	10	5	4	1
945:	6	4	7	8	12	7	3	8
953:	5	6	5	5	2	7	10	8
961:	3	7	12	10	23	8	11	24
969:	42	21	8	6	9	4	3	8
977:	1	5	2	7	4	3	7	10
985:	8	4	6	6	6	6	5	5
993:	3	8	5	4	5	6	10	2
1001:	5	10	10	6	4	5	8	3
1009:	4	9	5	5	6	7	8	9
1017:	2	7	2	3	7	5	6	3
1025:	4	8	8	5	3	2	5	5
1033:	3	7	7	4	5	8	4	6
1041:	6	4	6	10	6	5	3	5
1049:	6	10	8	6	4	11	3	6
1057:	8	8	6	3	13	3	3	5
1065:	6	3	1	3	6	8	11	3
1073:	3	9	6	3	7	10	9	11
1081:	8	10	5	3	7	7	10	5
1089:	3	7	5	6	6	7	9	3
1097:	5	4	4	5	8	7	6	2
1105:	7	3	3	8	3	6	10	3
1113:	5	5	6	5	5	10	18	28
1121:	22	9	6	10	4	7	6	8
1129:	4	5	9	7	6	6	8	2
1137:	7	10	11	6	5	9	8	2
1145:	8	8	9	5	8	7	4	5
1153:	4	8	10	8	7	5	3	3
1161:	4	7	7	4	4	3	5	6
1169:	8	8	4	5	2	6	5	9
1177:	8	3	7	1	7	3	8	10
1185:	3	7	7	8	9	5	5	8
1193:	8	10	6	8	8	5	9	7
1201:	5	10	2	4	8	7	5	7
1209:	4	9	5	7	10	6	7	10
1217:	13	11	8	5	4	5	7	7
1225:	6	10	9	5	12	6	8	6

1233:	6	7	15	14	11	14	16	8

Sample Title: HTC-A01-S003-0006-01

Channel								
1241:	7	11	9	7	7	8	8	3
1249:	3	2	4	1	2	7	9	4
1257:	7	5	10	5	8	6	7	4
1265:	5	0	4	2	3	5	4	3
1273:	5	6	3	5	6	5	4	6
1281:	3	2	2	4	2	0	9	7
1289:	7	2	5	4	8	5	3	4
1297:	4	7	5	2	3	5	9	7
1305:	2	7	1	3	0	1	6	8
1313:	6	2	3	3	4	2	4	1
1321:	1	3	0	6	2	3	3	2
1329:	3	2	3	3	5	3	3	6
1337:	3	0	3	8	5	7	6	1
1345:	5	5	3	1	4	3	3	2
1353:	1	4	2	2	1	1	4	3
1361:	1	2	4	2	1	2	2	3
1369:	1	8	2	4	4	2	0	5
1377:	8	10	0	3	4	3	4	1
1385:	5	3	3	1	4	1	3	5
1393:	3	1	2	2	4	1	2	0
1401:	4	1	5	2	2	3	2	5
1409:	2	3	1	0	1	0	3	2
1417:	2	5	6	3	1	1	1	1
1425:	0	0	1	1	1	1	3	2
1433:	3	0	2	0	2	3	0	3
1441:	4	2	1	1	3	4	2	1
1449:	2	3	2	2	1	6	2	3
1457:	2	17	77	241	191	80	6	7
1465:	7	2	2	1	1	2	5	2
1473:	4	2	0	1	0	2	4	3
1481:	2	2	1	1	1	1	1	1
1489:	1	1	1	2	1	1	3	0
1497:	2	3	0	2	0	1	0	4
1505:	2	2	4	3	4	2	6	3
1513:	0	1	2	1	4	1	0	2
1521:	0	0	1	0	0	5	2	2
1529:	1	4	0	0	1	2	0	2
1537:	0	2	2	2	1	1	3	4
1545:	1	1	0	1	4	3	1	2
1553:	1	1	1	0	2	2	2	1
1561:	0	0	2	1	1	3	1	4
1569:	0	0	0	0	2	1	0	3
1577:	0	2	3	5	3	2	0	1
1585:	3	1	10	9	2	2	1	4
1593:	5	0	0	1	1	0	3	1
1601:	2	1	0	1	2	1	1	1
1609:	1	1	0	1	0	3	2	0
1617:	2	0	1	2	4	1	4	2
1625:	1	1	0	1	1	7	2	3
1633:	1	1	4	1	1	2	4	1
1641:	0	2	0	1	1	0	3	1
1649:	0	1	3	2	1	2	1	0
1657:	1	1	3	3	3	0	2	0

1665:	1	0	1	1	0	0	2	1

Sample Title: HTC-A01-S003-0006-01

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

2097:	2	2	1	1	2	4	3	5

Sample Title: HTC-A01-S003-0006-01

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

2529:	0	0	2	0	0	0	0	1

Sample Title: HTC-A01-S003-0006-01

Channel								
2537:	0	0	1	0	0	0	0	0
2545:	0	1	0	0	1	2	0	0
2553:	0	2	0	1	0	0	0	0
2561:	1	0	0	1	0	0	0	0
2569:	0	1	1	0	0	0	0	0
2577:	0	1	2	1	0	0	0	0
2585:	0	1	0	1	0	0	0	1
2593:	0	0	0	1	0	0	1	1
2601:	0	0	0	0	2	0	0	1
2609:	0	3	9	12	18	26	8	1
2617:	0	0	0	0	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	1	0	0	1	0	1	0	0
2641:	1	0	0	1	0	1	1	2
2649:	0	1	0	0	0	1	1	0
2657:	1	0	0	0	0	0	2	0
2665:	0	1	2	1	0	0	0	1
2673:	0	0	0	0	0	0	0	1
2681:	0	0	1	0	1	0	0	0
2689:	1	2	0	0	1	1	0	0
2697:	1	0	0	0	0	0	0	0
2705:	0	0	0	1	0	0	0	1
2713:	0	1	0	0	0	1	0	0
2721:	1	0	0	0	0	1	0	0
2729:	1	1	0	0	0	2	0	0
2737:	2	1	0	0	0	0	2	0
2745:	0	1	0	1	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	1	0	1	0	0	1	0
2769:	0	1	1	1	0	0	0	1
2777:	0	0	0	1	1	0	1	0
2785:	0	0	0	0	1	0	0	0
2793:	0	0	0	0	0	0	0	2
2801:	1	1	1	0	0	2	1	0
2809:	0	0	0	0	0	0	0	0
2817:	0	1	0	0	0	0	0	1
2825:	0	0	0	0	0	0	1	0
2833:	1	0	0	0	0	0	0	0
2841:	0	0	0	1	0	0	0	0
2849:	1	0	1	0	0	0	0	0
2857:	0	0	0	0	0	0	0	1
2865:	0	0	2	0	0	0	0	0
2873:	0	1	0	0	1	0	1	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	1	2	1	0	0
2897:	2	0	0	0	0	0	0	0
2905:	0	0	1	0	0	0	0	0
2913:	0	1	0	0	0	0	0	1
2921:	0	0	0	1	2	0	1	0
2929:	1	0	1	0	0	1	0	0
2937:	0	2	0	0	0	2	0	0
2945:	0	0	0	0	1	0	0	0
2953:	0	0	0	1	0	0	0	0

2961:	0	0	0	2	0	0	0	0

Sample Title: HTC-A01-S003-0006-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S003-0006-01

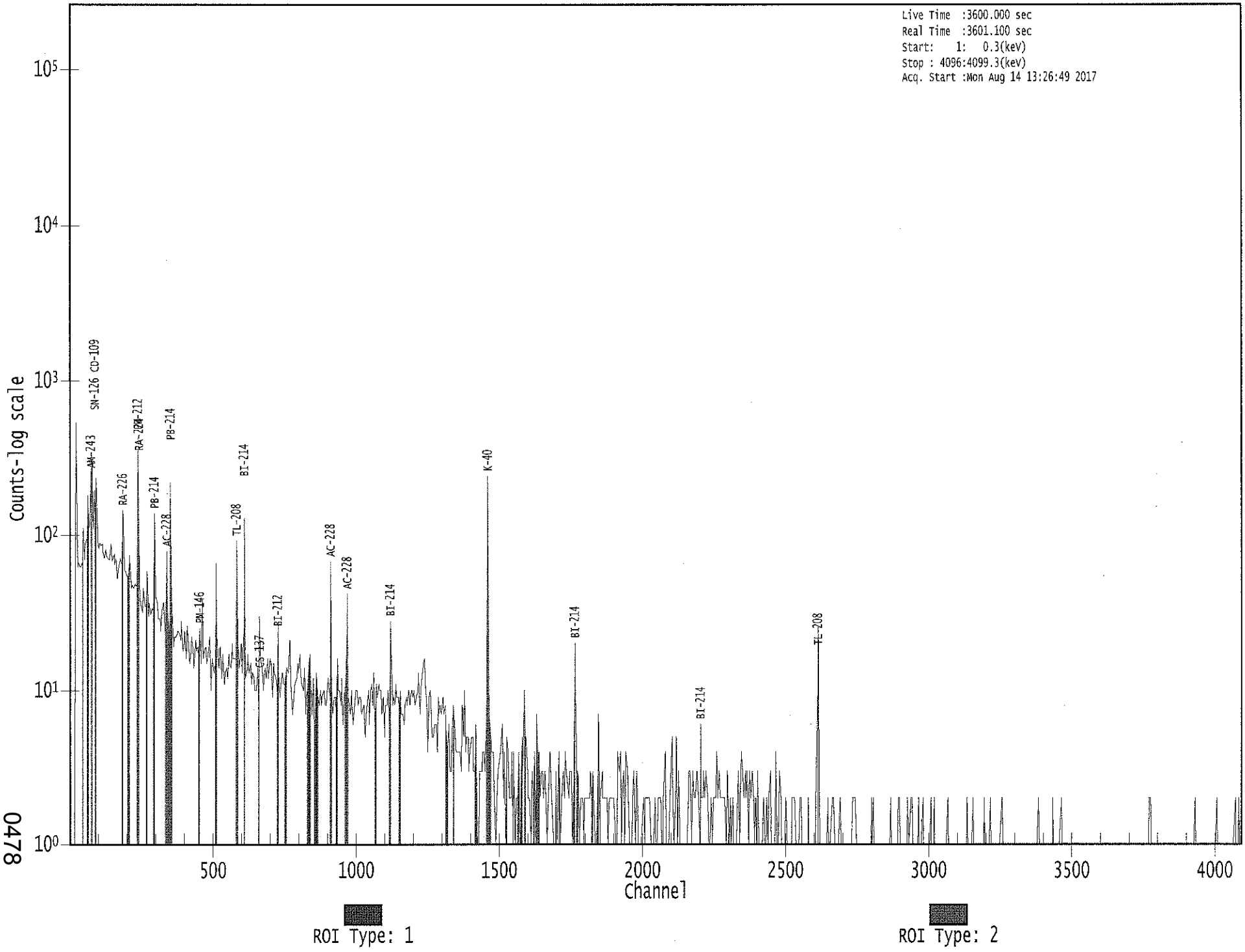
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	0	1
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	2	1	0	0	0	0	0	0
3441:	0	0	0	0	1	0	0	1
3449:	0	0	0	1	0	0	0	1
3457:	0	1	0	0	0	1	0	2
3465:	0	0	0	0	1	0	0	0
3473:	0	0	0	0	1	0	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	1	0	0	1	0	0	0	0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

3825:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-0006-01

Channel								
3833:	0	0	0	0	1	1	0	0
3841:	0	0	0	0	1	0	0	0
3849:	0	0	0	0	0	0	1	0
3857:	0	0	0	0	0	1	0	0
3865:	0	0	0	0	0	0	1	0
3873:	0	0	0	0	0	0	1	0
3881:	0	0	1	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	1	0	0
3913:	0	0	1	0	0	0	0	0
3921:	0	1	0	0	0	1	0	0
3929:	0	2	0	0	0	0	0	0
3937:	0	1	0	0	0	1	0	0
3945:	0	1	0	1	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	1	0	0	0	0	0	0	0
3969:	1	0	1	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	1	1	0	0	0	0	0
4001:	0	0	1	0	0	0	2	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:	1	0	0	0	0	1	1	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	1	0	0	0	0	0	0	1
4065:	0	1	0	0	0	0	0	2
4073:	0	0	0	0	0	0	0	0
4081:	0	0	2	0	0	0	1	0
4089:	0	0	0	0	0	0	1	0

0000055181.CNF



0478

KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-05
Sample Description	: HTC-A01-S003-0612-01
Sample Type	: SOIL
Sample Size	: 7.829E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:28:50AM
Acquisition Started	: 8/14/2017 1:11:22PM
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	: 55180

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 2:11:31PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	24.11	24.43	0.0000	0.00
2	58.38	58.69	0.0000	0.00
3	63.70	64.01	0.0000	0.00
4	76.63	76.93	0.0000	0.00
5	90.87	91.16	0.0000	0.00
6	186.11	186.37	0.0000	0.00
7	239.00	239.24	0.0000	0.00
8	241.87	242.12	0.0000	0.00
9	269.94	270.17	0.0000	0.00
10	295.55	295.78	0.0000	0.00
11	304.73	304.96	0.0000	0.00
12	338.87	339.08	0.0000	0.00
13	352.39	352.60	0.0000	0.00
14	407.20	407.39	0.0000	0.00
15	462.98	463.15	0.0000	0.00
16	486.71	486.88	0.0000	0.00
17	511.00	511.16	0.0000	0.00
18	515.04	515.19	0.0000	0.00
19	583.39	583.52	0.0000	0.00
20	590.37	590.50	0.0000	0.00
21	609.40	609.53	0.0000	0.00
22	624.17	624.29	0.0000	0.00
23	727.56	727.64	0.0000	0.00
24	809.26	809.31	0.0000	0.00
25	878.82	878.85	0.0000	0.00
26	893.90	893.93	0.0000	0.00
27	911.30	911.32	0.0000	0.00
28	969.57	969.57	0.0000	0.00
29	1080.72	1080.69	0.0000	0.00
30	1120.29	1120.24	0.0000	0.00
31	1154.32	1154.26	0.0000	0.00
32	1224.09	1224.00	0.0000	0.00
33	1237.62	1237.53	0.0000	0.00
34	1257.06	1256.97	0.0000	0.00
35	1288.33	1288.22	0.0000	0.00
36	1334.05	1333.92	0.0000	0.00
37	1445.25	1445.09	0.0000	0.00
38	1460.35	1460.18	0.0000	0.00
39	1495.62	1495.44	0.0000	0.00
40	1501.74	1501.56	0.0000	0.00
41	1508.84	1508.66	0.0000	0.00
42	1587.54	1587.33	0.0000	0.00

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1593.01	1592.80	0.0000	0.00
44	1718.78	1718.52	0.0000	0.00
45	1729.74	1729.48	0.0000	0.00
46	1765.28	1765.01	0.0000	0.00
47	1835.65	1835.36	0.0000	0.00
48	1977.66	1977.32	0.0000	0.00
49	2292.11	2291.67	0.0000	0.00
50	2613.79	2613.23	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:11:31PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	24.11	22 -	27	24.43	6.80E+01	63.32	7.44E+02	2.68
M	2	58.38	57 -	67	58.69	1.22E+02	32.02	2.83E+02	2.17
m	3	63.70	57 -	67	64.01	1.96E+02	84.66	1.17E+03	2.18
	4	76.63	72 -	80	76.93	6.11E+02	119.52	1.81E+03	4.18
	5	90.87	84 -	98	91.16	3.96E+02	153.78	2.29E+03	7.03
	6	186.11	181 -	190	186.37	1.44E+02	81.22	8.61E+02	2.38
M	7	239.00	236 -	245	239.24	4.73E+02	61.19	3.63E+02	2.09
m	8	241.87	236 -	245	242.12	1.25E+02	65.74	4.11E+02	2.32
	9	269.94	268 -	273	270.17	3.75E+01	38.08	2.63E+02	3.53
	10	295.55	293 -	299	295.78	1.34E+02	45.78	2.84E+02	1.60
	11	304.73	300 -	311	304.96	6.79E+01	59.63	4.00E+02	9.14
	12	338.87	335 -	342	339.08	7.48E+01	46.82	3.14E+02	1.33
	13	352.39	348 -	357	352.60	3.58E+02	60.46	3.13E+02	2.32
	14	407.20	405 -	411	407.39	3.02E+01	29.69	1.42E+02	3.35
	15	462.98	459 -	467	463.15	5.01E+01	33.53	1.38E+02	1.79
	16	486.71	484 -	489	486.88	2.40E+01	26.15	1.14E+02	1.21
M	17	511.00	506 -	521	511.16	1.02E+02	38.68	1.57E+02	3.06
m	18	515.04	506 -	521	515.19	2.34E+01	27.17	8.95E+01	2.09
M	19	583.39	577 -	594	583.52	1.48E+02	33.57	1.00E+02	2.31
m	20	590.37	577 -	594	590.50	2.11E+01	33.82	1.26E+02	3.45
	21	609.40	604 -	614	609.53	1.81E+02	45.92	1.78E+02	2.24
	22	624.17	622 -	627	624.29	1.47E+01	18.06	5.26E+01	3.19
	23	727.56	724 -	731	727.64	3.65E+01	26.76	9.30E+01	2.06
	24	809.26	806 -	814	809.31	2.23E+01	24.25	7.73E+01	1.43
	25	878.82	874 -	883	878.85	1.70E+01	21.91	5.60E+01	3.69
	26	893.90	890 -	897	893.93	1.49E+01	19.18	5.03E+01	1.34
	27	911.30	907 -	917	911.32	8.54E+01	35.77	1.21E+02	2.27
	28	969.57	966 -	973	969.57	3.65E+01	27.06	9.30E+01	1.92
	29	1080.72	1075 -	1087	1080.69	2.60E+01	29.66	9.21E+01	5.00
	30	1120.29	1115 -	1123	1120.24	2.81E+01	27.96	1.02E+02	2.63
	31	1154.32	1149 -	1159	1154.26	2.68E+01	26.14	7.63E+01	2.67
M	32	1224.09	1219 -	1244	1224.00	1.71E+01	17.15	2.51E+01	2.25
m	33	1237.62	1219 -	1244	1237.53	3.57E+01	21.35	4.11E+01	2.73
	34	1257.06	1247 -	1264	1256.97	3.31E+01	37.64	1.16E+02	11.26
	35	1288.33	1275 -	1301	1288.22	6.80E+01	36.21	6.40E+01	18.88
	36	1334.05	1330 -	1338	1333.92	1.71E+01	14.60	2.18E+01	5.57
	37	1445.25	1442 -	1448	1445.09	1.01E+01	11.37	1.38E+01	3.66
	38	1460.35	1454 -	1465	1460.18	3.77E+02	41.23	2.43E+01	2.89
	39	1495.62	1492 -	1497	1495.44	7.00E+00	7.62	6.00E+00	1.87
	40	1501.74	1499 -	1504	1501.56	9.00E+00	6.00	0.00E+00	1.66

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1508.84	1505 -	1512	1508.66	1.40E+01	10.20	8.00E+00	1.22
42	1587.54	1584 -	1590	1587.33	1.54E+01	10.81	9.15E+00	3.24
43	1593.01	1591 -	1596	1592.80	1.00E+01	6.32	0.00E+00	1.69
44	1718.78	1715 -	1721	1718.52	8.35E+00	7.23	3.30E+00	1.62
45	1729.74	1726 -	1733	1729.48	1.20E+01	9.80	8.00E+00	2.71
46	1765.28	1758 -	1771	1765.01	2.28E+01	16.58	1.85E+01	2.23
47	1835.65	1832 -	1838	1835.36	6.50E+00	8.03	7.00E+00	2.98
48	1977.66	1974 -	1980	1977.32	6.11E+00	7.78	5.78E+00	2.61
49	2292.11	2288 -	2294	2291.67	9.00E+00	6.00	0.00E+00	3.70
50	2613.79	2609 -	2617	2613.23	4.49E+01	14.43	4.17E+00	2.56

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 2:11:31PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	24.11	22 -	27	6.80E+01	63.32	7.44E+02	5.03E+01
M	2	58.38	57 -	67	1.22E+02	32.02	2.83E+02	2.76E+01
m	3	63.70	57 -	67	1.96E+02	84.66	1.17E+03	5.63E+01
	4	76.63	72 -	80	6.11E+02	119.52	1.81E+03	8.95E+01
	5	90.87	84 -	98	3.96E+02	153.78	2.29E+03	1.22E+02
	6	186.11	181 -	190	1.44E+02	81.22	8.61E+02	6.38E+01
M	7	239.00	236 -	245	4.73E+02	61.19	3.63E+02	3.13E+01
m	8	241.87	236 -	245	1.25E+02	65.74	4.11E+02	3.33E+01
	9	269.94	268 -	273	3.75E+01	38.08	2.63E+02	2.96E+01
	10	295.55	293 -	299	1.34E+02	45.78	2.84E+02	3.25E+01
	11	304.73	300 -	311	6.79E+01	59.63	4.00E+02	4.71E+01
	12	338.87	335 -	342	7.48E+01	46.82	3.14E+02	3.58E+01
	13	352.39	348 -	357	3.58E+02	60.46	3.13E+02	3.88E+01
	14	407.20	405 -	411	3.02E+01	29.69	1.42E+02	2.27E+01
	15	462.98	459 -	467	5.01E+01	33.53	1.38E+02	2.50E+01
	16	486.71	484 -	489	2.40E+01	26.15	1.14E+02	1.99E+01
M	17	511.00	506 -	521	1.02E+02	38.68	1.57E+02	2.06E+01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	18	515.04	506 -	521	2.34E+01	27.17	8.95E+01	1.56E+01
M	19	583.39	577 -	594	1.48E+02	33.57	1.00E+02	1.64E+01
m	20	590.37	577 -	594	2.11E+01	33.82	1.26E+02	1.84E+01
	21	609.40	604 -	614	1.81E+02	45.92	1.78E+02	3.76E+01
	22	624.17	622 -	627	1.47E+01	18.06	5.26E+01	1.34E+01
	23	727.56	724 -	731	3.65E+01	26.76	9.30E+01	1.96E+01
	24	809.26	806 -	814	2.23E+01	24.25	7.73E+01	1.84E+01
	25	878.82	874 -	883	1.70E+01	21.91	5.60E+01	1.67E+01
	26	893.90	890 -	897	1.49E+01	19.18	5.03E+01	1.44E+01
	27	911.30	907 -	917	8.54E+01	35.77	1.21E+02	2.52E+01
	28	969.57	966 -	973	3.65E+01	27.06	9.30E+01	1.99E+01
	29	1080.72	1075 -	1087	2.60E+01	29.66	9.21E+01	1.11E+01
	30	1120.29	1115 -	1123	2.81E+01	27.96	1.02E+02	2.13E+01
	31	1154.32	1149 -	1159	2.68E+01	26.14	7.63E+01	1.97E+01
M	32	1224.09	1219 -	1244	1.71E+01	17.15	2.51E+01	8.24E+00
m	33	1237.62	1219 -	1244	3.57E+01	21.35	4.11E+01	1.05E+01
	34	1257.06	1247 -	1264	3.31E+01	37.64	1.16E+02	2.95E+01
	35	1288.33	1275 -	1301	6.80E+01	36.21	6.40E+01	2.65E+01
	36	1334.05	1330 -	1338	1.71E+01	14.60	2.18E+01	9.89E+00
	37	1445.25	1442 -	1448	1.01E+01	11.37	1.38E+01	7.75E+00
	38	1460.35	1454 -	1465	3.77E+02	41.23	2.43E+01	1.14E+01
	39	1495.62	1492 -	1497	7.00E+00	7.62	6.00E+00	4.50E+00
	40	1501.74	1499 -	1504	9.00E+00	6.00	0.00E+00	0.00E+00
	41	1508.84	1505 -	1512	1.40E+01	10.20	8.00E+00	5.70E+00
	42	1587.54	1584 -	1590	1.54E+01	10.81	9.15E+00	6.10E+00
	43	1593.01	1591 -	1596	1.00E+01	6.32	0.00E+00	0.00E+00
	44	1718.78	1715 -	1721	8.35E+00	7.23	3.30E+00	3.57E+00
	45	1729.74	1726 -	1733	1.20E+01	9.80	8.00E+00	5.70E+00
	46	1765.28	1758 -	1771	2.28E+01	16.58	1.85E+01	1.11E+01
	47	1835.65	1832 -	1838	6.50E+00	8.03	7.00E+00	5.10E+00
	48	1977.66	1974 -	1980	6.11E+00	7.78	5.78E+00	4.94E+00
	49	2292.11	2288 -	2294	9.00E+00	6.00	0.00E+00	0.00E+00
	50	2613.79	2609 -	2617	4.49E+01	14.43	4.17E+00	4.40E+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 1707078-05

HTC-A01-S003-0612-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 2:11:31PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	24.11	22 -	27	24.43	6.80E+01	63.32	7.44E+02	.....
M	2	58.38	57 -	67	58.69	1.22E+02	32.02	2.83E+02	.....
m	3	63.70	57 -	67	64.01	1.96E+02	84.66	1.17E+03	TH-234
									TH-230
	4	76.63	72 -	80	76.93	6.11E+02	119.52	1.81E+03	.....
	5	90.87	84 -	98	91.16	3.96E+02	153.78	2.29E+03	ND-147
	6	186.11	181 -	190	186.37	1.44E+02	81.22	8.61E+02	RA-226
M	7	239.00	236 -	245	239.24	4.73E+02	61.19	3.63E+02	PB-212
m	8	241.87	236 -	245	242.12	1.25E+02	65.74	4.11E+02	RA-224
	9	269.94	268 -	273	270.17	3.75E+01	38.08	2.63E+02	.....
	10	295.55	293 -	299	295.78	1.34E+02	45.78	2.84E+02	PB-214
	11	304.73	300 -	311	304.96	6.79E+01	59.63	4.00E+02	BA-140
	12	338.87	335 -	342	339.08	7.48E+01	46.82	3.14E+02	AC-228
	13	352.39	348 -	357	352.60	3.58E+02	60.46	3.13E+02	PB-214
	14	407.20	405 -	411	407.39	3.02E+01	29.69	1.42E+02	.....
	15	462.98	459 -	467	463.15	5.01E+01	33.53	1.38E+02	SB-125
	16	486.71	484 -	489	486.88	2.40E+01	26.15	1.14E+02	LA-140
M	17	511.00	506 -	521	511.16	1.02E+02	38.68	1.57E+02	.....
m	18	515.04	506 -	521	515.19	2.34E+01	27.17	8.95E+01	.....
M	19	583.39	577 -	594	583.52	1.48E+02	33.57	1.00E+02	TL-208
m	20	590.37	577 -	594	590.50	2.11E+01	33.82	1.26E+02	.....
	21	609.40	604 -	614	609.53	1.81E+02	45.92	1.78E+02	BI-214
	22	624.17	622 -	627	624.29	1.47E+01	18.06	5.26E+01	.....
	23	727.56	724 -	731	727.64	3.65E+01	26.76	9.30E+01	BI-212
	24	809.26	806 -	814	809.31	2.23E+01	24.25	7.73E+01	.....
	25	878.82	874 -	883	878.85	1.70E+01	21.91	5.60E+01	.....
	26	893.90	890 -	897	893.93	1.49E+01	19.18	5.03E+01	.....
	27	911.30	907 -	917	911.32	8.54E+01	35.77	1.21E+02	AC-228
									TL-204
	28	969.57	966 -	973	969.57	3.65E+01	27.06	9.30E+01	AC-228
	29	1080.72	1075 -	1087	1080.69	2.60E+01	29.66	9.21E+01	.....
	30	1120.29	1115 -	1123	1120.24	2.81E+01	27.96	1.02E+02	BI-214
									SC-46
	31	1154.32	1149 -	1159	1154.26	2.68E+01	26.14	7.63E+01	EU-156
M	32	1224.09	1219 -	1244	1224.00	1.71E+01	17.15	2.51E+01	.....
m	33	1237.62	1219 -	1244	1237.53	3.57E+01	21.35	4.11E+01	CO-56
	34	1257.06	1247 -	1264	1256.97	3.31E+01	37.64	1.16E+02	.....
	35	1288.33	1275 -	1301	1288.22	6.80E+01	36.21	6.40E+01	.....
	36	1334.05	1330 -	1338	1333.92	1.71E+01	14.60	2.18E+01	.....
	37	1445.25	1442 -	1448	1445.09	1.01E+01	11.37	1.38E+01	.....
	38	1460.35	1454 -	1465	1460.18	3.77E+02	41.23	2.43E+01	K-40

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
39	1495.62	1492 -	1497	1495.44	7.00E+00	7.62	6.00E+00	.....
40	1501.74	1499 -	1504	1501.56	9.00E+00	6.00	0.00E+00	.....
41	1508.84	1505 -	1512	1508.66	1.40E+01	10.20	8.00E+00	.....
42	1587.54	1584 -	1590	1587.33	1.54E+01	10.81	9.15E+00	.....
43	1593.01	1591 -	1596	1592.80	1.00E+01	6.32	0.00E+00	.....
44	1718.78	1715 -	1721	1718.52	8.35E+00	7.23	3.30E+00	.....
45	1729.74	1726 -	1733	1729.48	1.20E+01	9.80	8.00E+00	.....
46	1765.28	1758 -	1771	1765.01	2.28E+01	16.58	1.85E+01	BI-214
47	1835.65	1832 -	1838	1835.36	6.50E+00	8.03	7.00E+00	Y-88
48	1977.66	1974 -	1980	1977.32	6.11E+00	7.78	5.78E+00	.....
49	2292.11	2288 -	2294	2291.67	9.00E+00	6.00	0.00E+00	.....
50	2613.79	2609 -	2617	2613.23	4.49E+01	14.43	4.17E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 2:11:31PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	24.11	6.80E+01	63.32	2.21E-03	1.73E-03
M	2	58.38	1.22E+02	32.02	2.29E-02	1.73E-03
m	3	63.70	1.96E+02	84.66	2.45E-02	1.80E-03
	4	76.63	6.11E+02	119.52	2.67E-02	2.05E-03
	5	90.87	3.96E+02	153.78	2.71E-02	2.25E-03
	6	186.11	1.44E+02	81.22	1.96E-02	1.55E-03
M	7	239.00	4.73E+02	61.19	1.61E-02	1.34E-03
m	8	241.87	1.25E+02	65.74	1.60E-02	1.33E-03
	9	269.94	3.75E+01	38.08	1.45E-02	1.22E-03
	10	295.55	1.34E+02	45.78	1.35E-02	1.15E-03
	11	304.73	6.79E+01	59.63	1.31E-02	1.13E-03
	12	338.87	7.48E+01	46.82	1.19E-02	1.06E-03
	13	352.39	3.58E+02	60.46	1.15E-02	1.03E-03
	14	407.20	3.02E+01	29.69	1.01E-02	9.32E-04
	15	462.98	5.01E+01	33.53	9.02E-03	8.58E-04
	16	486.71	2.40E+01	26.15	8.62E-03	8.27E-04
M	17	511.00	1.02E+02	38.68	8.25E-03	7.94E-04
m	18	515.04	2.34E+01	27.17	8.20E-03	7.89E-04

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	19	583.39	1.48E+02	33.57	7.32E-03	6.98E-04
m	20	590.37	2.11E+01	33.82	7.25E-03	6.89E-04
	21	609.40	1.81E+02	45.92	7.04E-03	6.64E-04
	22	624.17	1.47E+01	18.06	6.89E-03	6.44E-04
	23	727.56	3.65E+01	26.76	6.01E-03	5.36E-04
	24	809.26	2.23E+01	24.25	5.46E-03	4.64E-04
	25	878.82	1.70E+01	21.91	5.08E-03	4.03E-04
	26	893.90	1.49E+01	19.18	5.00E-03	3.90E-04
	27	911.30	8.54E+01	35.77	4.92E-03	3.84E-04
	28	969.57	3.65E+01	27.06	4.66E-03	3.74E-04
	29	1080.72	2.60E+01	29.66	4.25E-03	3.56E-04
	30	1120.29	2.81E+01	27.96	4.12E-03	3.50E-04
	31	1154.32	2.68E+01	26.14	4.01E-03	3.44E-04
M	32	1224.09	1.71E+01	17.15	3.82E-03	3.26E-04
m	33	1237.62	3.57E+01	21.35	3.79E-03	3.23E-04
	34	1257.06	3.31E+01	37.64	3.74E-03	3.17E-04
	35	1288.33	6.80E+01	36.21	3.66E-03	3.08E-04
	36	1334.05	1.71E+01	14.60	3.56E-03	2.95E-04
	37	1445.25	1.01E+01	11.37	3.34E-03	2.78E-04
	38	1460.35	3.77E+02	41.23	3.31E-03	2.75E-04
	39	1495.62	7.00E+00	7.62	3.25E-03	2.69E-04
	40	1501.74	9.00E+00	6.00	3.24E-03	2.69E-04
	41	1508.84	1.40E+01	10.20	3.23E-03	2.67E-04
	42	1587.54	1.54E+01	10.81	3.10E-03	2.55E-04
	43	1593.01	1.00E+01	6.32	3.09E-03	2.54E-04
	44	1718.78	8.35E+00	7.23	2.92E-03	2.34E-04
	45	1729.74	1.20E+01	9.80	2.91E-03	2.32E-04
	46	1765.28	2.28E+01	16.58	2.86E-03	2.26E-04
	47	1835.65	6.50E+00	8.03	2.78E-03	2.15E-04
	48	1977.66	6.11E+00	7.78	2.64E-03	2.15E-04
	49	2292.11	9.00E+00	6.00	2.41E-03	2.15E-04
	50	2613.79	4.49E+01	14.43	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 2:11:31PM

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

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	24.11	6.80E+01	63.32			6.80E+01	6.33E+01
M	2	58.38	1.22E+02	32.02			1.22E+02	3.20E+01
m	3	63.70	1.96E+02	84.66	4.29E+01	6.03E+00	1.53E+02	8.49E+01
	4	76.63	6.11E+02	119.52	1.67E+01	8.84E+00	5.94E+02	1.20E+02
	5	90.87	3.96E+02	153.78			3.96E+02	1.54E+02
	6	186.11	1.44E+02	81.22	2.99E+01	5.81E+00	1.14E+02	8.14E+01
M	7	239.00	4.73E+02	61.19	9.49E+00	5.63E+00	4.63E+02	6.14E+01
m	8	241.87	1.25E+02	65.74			1.25E+02	6.57E+01
	9	269.94	3.75E+01	38.08			3.75E+01	3.81E+01
	10	295.55	1.34E+02	45.78			1.34E+02	4.58E+01
	11	304.73	6.79E+01	59.63			6.79E+01	5.96E+01
	12	338.87	7.48E+01	46.82	4.73E+00	4.47E+00	7.00E+01	4.70E+01
	13	352.39	3.58E+02	60.46			3.58E+02	6.05E+01
	14	407.20	3.02E+01	29.69			3.02E+01	2.97E+01
	15	462.98	5.01E+01	33.53			5.01E+01	3.35E+01
	16	486.71	2.40E+01	26.15			2.40E+01	2.62E+01
M	17	511.00	1.02E+02	38.68	5.37E+01	4.54E+00	4.83E+01	3.89E+01
m	18	515.04	2.34E+01	27.17			2.34E+01	2.72E+01
M	19	583.39	1.48E+02	33.57			1.48E+02	3.36E+01
m	20	590.37	2.11E+01	33.82			2.11E+01	3.38E+01
	21	609.40	1.81E+02	45.92	4.09E+00	3.07E+00	1.77E+02	4.60E+01
	22	624.17	1.47E+01	18.06			1.47E+01	1.81E+01
	23	727.56	3.65E+01	26.76			3.65E+01	2.68E+01
	24	809.26	2.23E+01	24.25			2.23E+01	2.43E+01
	25	878.82	1.70E+01	21.91			1.70E+01	2.19E+01
	26	893.90	1.49E+01	19.18			1.49E+01	1.92E+01
	27	911.30	8.54E+01	35.77			8.54E+01	3.58E+01
	28	969.57	3.65E+01	27.06			3.65E+01	2.71E+01
	29	1080.72	2.60E+01	29.66			2.60E+01	2.97E+01
	30	1120.29	2.81E+01	27.96			2.81E+01	2.80E+01
	31	1154.32	2.68E+01	26.14			2.68E+01	2.61E+01
M	32	1224.09	1.71E+01	17.15			1.71E+01	1.72E+01
m	33	1237.62	3.57E+01	21.35			3.57E+01	2.14E+01
	34	1257.06	3.31E+01	37.64			3.31E+01	3.76E+01
	35	1288.33	6.80E+01	36.21			6.80E+01	3.62E+01
	36	1334.05	1.71E+01	14.60	3.65E+00	2.18E+00	1.34E+01	1.48E+01
	37	1445.25	1.01E+01	11.37			1.01E+01	1.14E+01
	38	1460.35	3.77E+02	41.23			3.77E+02	4.12E+01
	39	1495.62	7.00E+00	7.62			7.00E+00	7.62E+00
	40	1501.74	9.00E+00	6.00			9.00E+00	6.00E+00
	41	1508.84	1.40E+01	10.20			1.40E+01	1.02E+01
	42	1587.54	1.54E+01	10.81			1.54E+01	1.08E+01
	43	1593.01	1.00E+01	6.32			1.00E+01	6.32E+00
	44	1718.78	8.35E+00	7.23			8.35E+00	7.23E+00
	45	1729.74	1.20E+01	9.80			1.20E+01	9.80E+00
	46	1765.28	2.28E+01	16.58	7.03E-01	1.32E+00	2.21E+01	1.66E+01
	47	1835.65	6.50E+00	8.03			6.50E+00	8.03E+00
	48	1977.66	6.11E+00	7.78			6.11E+00	7.78E+00
	49	2292.11	9.00E+00	6.00			9.00E+00	6.00E+00
	50	2613.79	4.49E+01	14.43			4.49E+01	1.44E+01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 2:11:31PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	24.11	6.80E+01	63.32			6.80E+01	6.33E+01
M	2	58.38	1.22E+02	32.02			1.22E+02	3.20E+01
m	3	63.70	1.96E+02	84.66	4.29E+01	6.03E+00	1.53E+02	8.49E+01
	4	76.63	6.11E+02	119.52	1.67E+01	8.84E+00	5.94E+02	1.20E+02
	5	90.87	3.96E+02	153.78			3.96E+02	1.54E+02
	6	186.11	1.44E+02	81.22	2.99E+01	5.81E+00	1.14E+02	8.14E+01
M	7	239.00	4.73E+02	61.19	9.49E+00	5.63E+00	4.63E+02	6.14E+01
m	8	241.87	1.25E+02	65.74			1.25E+02	6.57E+01
	9	269.94	3.75E+01	38.08			3.75E+01	3.81E+01
	10	295.55	1.34E+02	45.78			1.34E+02	4.58E+01
	11	304.73	6.79E+01	59.63			6.79E+01	5.96E+01
	12	338.87	7.48E+01	46.82	4.73E+00	4.47E+00	7.00E+01	4.70E+01
	13	352.39	3.58E+02	60.46			3.58E+02	6.05E+01
	14	407.20	3.02E+01	29.69			3.02E+01	2.97E+01
	15	462.98	5.01E+01	33.53			5.01E+01	3.35E+01
	16	486.71	2.40E+01	26.15			2.40E+01	2.62E+01
M	17	511.00	1.02E+02	38.68	5.37E+01	4.54E+00	4.83E+01	3.89E+01
m	18	515.04	2.34E+01	27.17			2.34E+01	2.72E+01
M	19	583.39	1.48E+02	33.57			1.48E+02	3.36E+01
m	20	590.37	2.11E+01	33.82			2.11E+01	3.38E+01
	21	609.40	1.81E+02	45.92	4.09E+00	3.07E+00	1.77E+02	4.60E+01
	22	624.17	1.47E+01	18.06			1.47E+01	1.81E+01
	23	727.56	3.65E+01	26.76			3.65E+01	2.68E+01
	24	809.26	2.23E+01	24.25			2.23E+01	2.43E+01
	25	878.82	1.70E+01	21.91			1.70E+01	2.19E+01
	26	893.90	1.49E+01	19.18			1.49E+01	1.92E+01
	27	911.30	8.54E+01	35.77			8.54E+01	3.58E+01
	28	969.57	3.65E+01	27.06			3.65E+01	2.71E+01
	29	1080.72	2.60E+01	29.66			2.60E+01	2.97E+01
	30	1120.29	2.81E+01	27.96			2.81E+01	2.80E+01
	31	1154.32	2.68E+01	26.14			2.68E+01	2.61E+01
M	32	1224.09	1.71E+01	17.15			1.71E+01	1.72E+01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	33	1237.62	3.57E+01	21.35			3.57E+01	2.14E+01
	34	1257.06	3.31E+01	37.64			3.31E+01	3.76E+01
	35	1288.33	6.80E+01	36.21			6.80E+01	3.62E+01
	36	1334.05	1.71E+01	14.60	3.65E+00	2.18E+00	1.34E+01	1.48E+01
	37	1445.25	1.01E+01	11.37			1.01E+01	1.14E+01
	38	1460.35	3.77E+02	41.23			3.77E+02	4.12E+01
	39	1495.62	7.00E+00	7.62			7.00E+00	7.62E+00
	40	1501.74	9.00E+00	6.00			9.00E+00	6.00E+00
	41	1508.84	1.40E+01	10.20			1.40E+01	1.02E+01
	42	1587.54	1.54E+01	10.81			1.54E+01	1.08E+01
	43	1593.01	1.00E+01	6.32			1.00E+01	6.32E+00
	44	1718.78	8.35E+00	7.23			8.35E+00	7.23E+00
	45	1729.74	1.20E+01	9.80			1.20E+01	9.80E+00
	46	1765.28	2.28E+01	16.58	7.03E-01	1.32E+00	2.21E+01	1.66E+01
	47	1835.65	6.50E+00	8.03			6.50E+00	8.03E+00
	48	1977.66	6.11E+00	7.78			6.11E+00	7.78E+00
	49	2292.11	9.00E+00	6.00			9.00E+00	6.00E+00
	50	2613.79	4.49E+01	14.43			4.49E+01	1.44E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.966	1460.81	*	10.67	1.02E+01	1.42E+00
ND-147	0.473	91.11	*	28.90	1.74E+02	6.89E+01
		531.02		13.10		
TL-208	0.824	583.14	*	30.22	6.43E-01	1.58E-01
		860.37		4.48		
		2614.66	*	35.85	5.37E-01	1.80E-01
BI-212	0.753	727.17	*	11.80	4.94E-01	3.65E-01
		1620.62		2.75		
PB-212	0.877	238.63	*	44.60	6.18E-01	9.67E-02
		300.09		3.41		
BI-214	0.914	609.31	*	46.30	5.20E-01	1.44E-01
		1120.29	*	15.10	4.34E-01	4.33E-01
		1764.49	*	15.80	4.68E-01	3.54E-01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.914	2204.22		4.98		
PB-214	0.971	295.21	*	19.19	4.97E-01	1.75E-01
		351.92	*	37.19	8.00E-01	1.53E-01
RA-224	0.881	240.98	*	3.95	1.91E+00	1.01E+00
RA-226	0.998	186.21	*	3.28	1.70E+00	3.34E+00
AC-228	0.976	338.32	*	11.40	4.94E-01	3.34E-01
		911.07	*	27.70	6.01E-01	2.56E-01
		969.11	*	16.60	4.53E-01	3.37E-01
TH-234	0.973	63.29	*	3.80	1.57E+00	8.81E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:11:31PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	24.11	1.88763E-02	46.59		
M	2	58.38	3.40211E-02	13.07		
	4	76.63	1.65001E-01	10.09		
	9	269.94	1.04208E-02	50.75		
	11	304.73	1.88713E-02	43.89	Sum	
	14	407.20	8.39384E-03	49.13		
	15	462.98	1.39251E-02	33.44	Tol.	SB-125
	16	486.71	6.65638E-03	54.57	Tol.	LA-140
M	17	511.00	1.34032E-02	40.36		
m	18	515.04	6.49745E-03	58.07		
m	20	590.37	5.85770E-03	80.20	Sum	
	22	624.17	4.07859E-03	61.48		
	24	809.26	6.20674E-03	54.27		
	25	878.82	4.72222E-03	64.44	Sum	
	26	893.90	4.12847E-03	64.54		
	29	1080.72	7.21065E-03	57.12	Sum	
	31	1154.32	7.45299E-03	48.72	Tol.	EU-156
M	32	1224.09	4.75645E-03	50.09		
m	33	1237.62	9.92897E-03	29.87		
	34	1257.06	9.20177E-03	56.82		

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
35	1288.33	1.88903E-02	26.62		
36	1334.05	3.73315E-03	54.93		
37	1445.25	2.80229E-03	56.35		
39	1495.62	1.94444E-03	54.40	Sum	
40	1501.74	2.50000E-03	33.33		
41	1508.84	3.88889E-03	36.42		
42	1587.54	4.28472E-03	35.02		
43	1593.01	2.77778E-03	31.62		
44	1718.78	2.31944E-03	43.28		
45	1729.74	3.33333E-03	40.82	Sum	
47	1835.65	1.80556E-03	61.78	Tol.	Y-88
48	1977.66	1.69753E-03	63.64		
49	2292.11	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	0.96	1460.81	*	10.67	1.02E+01	1.42E+00
ND-147	0.47	91.11	*	28.90	1.74E+02	6.89E+01
		531.02		13.10		
TL-208	0.82	583.14	*	30.22	6.43E-01	1.58E-01
		860.37		4.48		
		2614.66	*	35.85	5.37E-01	1.80E-01
BI-212	0.75	727.17	*	11.80	4.94E-01	3.65E-01
		1620.62		2.75		
PB-212	0.87	238.63	*	44.60	6.18E-01	9.67E-02
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	5.20E-01	1.44E-01
		1120.29	*	15.10	4.34E-01	4.33E-01
		1764.49	*	15.80	4.68E-01	3.54E-01
		2204.22		4.98		
PB-214	0.97	295.21	*	19.19	4.97E-01	1.75E-01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.97	351.92	*	37.19	8.00E-01	1.53E-01
RA-224	0.88	240.98	*	3.95	1.91E+00	1.01E+00
RA-226	0.99	186.21	*	3.28	1.70E+00	3.34E+00
AC-228	0.97	338.32	*	11.40	4.94E-01	3.34E-01
		911.07	*	27.70	6.01E-01	2.56E-01
		969.11	*	16.60	4.53E-01	3.37E-01
TH-234	0.97	63.29	*	3.80	1.57E+00	8.81E-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	1.02E+01	1.42E+00	
ND-147	0.473	1.74E+02	6.89E+01	
TL-208	0.824	5.97E-01	1.19E-01	
BI-212	0.753	4.94E-01	3.65E-01	
PB-212	0.877	6.18E-01	9.67E-02	
BI-214	0.914	5.06E-01	1.27E-01	
PB-214	0.971	6.69E-01	1.15E-01	
RA-224	0.881	1.91E+00	1.01E+00	
RA-226	0.998	1.70E+00	3.34E+00	
AC-228	0.976	5.32E-01	1.74E-01	
TH-234	0.973	1.57E+00	8.81E-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 1707078-05

HTC-A01-S003-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 2:11:31PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	24.11	1.88763E-02	46.59		
M	2	58.38	3.40211E-02	13.07		
	4	76.63	1.65001E-01	10.09		
	9	269.94	1.04208E-02	50.75		
	11	304.73	1.88713E-02	43.89	Sum	
	14	407.20	8.39384E-03	49.13		
	15	462.98	1.39251E-02	33.44	Tol.	SB-125
	16	486.71	6.65638E-03	54.57	Tol.	LA-140
M	17	511.00	1.34032E-02	40.36		
m	18	515.04	6.49745E-03	58.07		
m	20	590.37	5.85770E-03	80.20	Sum	
	22	624.17	4.07859E-03	61.48		
	24	809.26	6.20674E-03	54.27		
	25	878.82	4.72222E-03	64.44	Sum	
	26	893.90	4.12847E-03	64.54		
	29	1080.72	7.21065E-03	57.12	Sum	
	31	1154.32	7.45299E-03	48.72	Tol.	EU-156
M	32	1224.09	4.75645E-03	50.09		
m	33	1237.62	9.92897E-03	29.87		
	34	1257.06	9.20177E-03	56.82		
	35	1288.33	1.88903E-02	26.62		
	36	1334.05	3.73315E-03	54.93		
	37	1445.25	2.80229E-03	56.35		
	39	1495.62	1.94444E-03	54.40	Sum	
	40	1501.74	2.50000E-03	33.33		
	41	1508.84	3.88889E-03	36.42		
	42	1587.54	4.28472E-03	35.02		
	43	1593.01	2.77778E-03	31.62		
	44	1718.78	2.31944E-03	43.28		
	45	1729.74	3.33333E-03	40.82	Sum	
	47	1835.65	1.80556E-03	61.78	Tol.	Y-88
	48	1977.66	1.69753E-03	63.64		
	49	2292.11	2.50000E-03	33.33		

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	7.15E-01	1.72E+00	1.72E+00
+		NA-22	1274.54		99.94	1.46E-02	6.53E-02	6.53E-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	2.73E-02	5.42E-02	5.42E-02
+		K-40	1460.81	*	10.67	1.02E+01	6.93E-01	6.93E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-6.91E-04	4.34E-02	4.34E-02
			78.34		96.00	6.93E-02		5.11E-02
+		SC-46	889.25		99.98	2.82E-02	1.18E-01	1.18E-01
			1120.51		99.99	1.53E-01		2.04E-01
+		V-48	983.52		99.98	-1.72E+00	2.86E+00	2.86E+00
			1312.10		97.50	7.92E-01		3.74E+00
+		CR-51	320.08		9.83	1.56E+00	4.48E+00	4.48E+00
+		MN-54	834.83		99.97	-2.83E-03	7.52E-02	7.52E-02
+		CO-56	846.75		99.96	-2.94E-02	1.35E-01	1.35E-01
			1037.75		14.03	4.44E-01		1.17E+00
			1238.25		67.00	1.96E-01		3.48E-01
			1771.40		15.51	4.91E-02		7.80E-01
			2598.48		16.90	1.15E-01		5.33E-01
+		CO-57	122.06		85.51	5.30E-03	4.70E-02	4.70E-02
			136.48		10.60	-1.23E-01		3.84E-01
+		CO-58	810.76		99.40	6.03E-02	1.54E-01	1.54E-01
+		FE-59	1099.22		56.50	2.71E-01	5.14E-01	5.14E-01
			1291.56		43.20	1.32E-01		6.58E-01
+		CO-60	1173.22		100.00	7.51E-03	6.83E-02	8.32E-02
			1332.49		100.00	3.29E-03		6.83E-02
+		ZN-65	1115.52		50.75	9.28E-03	1.87E-01	1.87E-01
+		GA-67	93.31		35.70	7.54E+07	4.48E+07	4.48E+07
			208.95		2.24	1.08E+08		8.08E+08
			300.22		16.00	-3.47E+08		1.15E+08
+		SE-75	121.11		16.70	-7.56E-02	9.30E-02	3.20E-01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00	59.20	-8.54E-03	9.30E-02	9.30E-02
		264.65	59.80	-5.59E-02		1.13E-01
		279.53	25.20	6.41E-03		3.07E-01
		400.65	11.40	2.08E-01		6.94E-01
+	RB-82	776.52	13.00	-1.19E+00	5.47E+00	5.47E+00
+	RB-83	520.41	46.00	-2.85E-02	2.09E-01	2.09E-01
		529.64	30.30	1.04E-01		3.90E-01
		552.65	16.40	5.04E-02		6.38E-01
+	KR-85	513.99	0.43	8.07E+00	1.61E+01	1.61E+01
+	SR-85	513.99	99.27	9.39E-02	1.87E-01	1.87E-01
+	Y-88	898.02	93.40	3.68E-03	1.08E-01	1.08E-01
		1836.01	99.38	1.06E-02		1.24E-01
+	MO-93	263.06	56.72	9.95E-03	5.00E-02	7.46E-02
		684.67	99.68	-1.43E-02		5.59E-02
		1477.11	99.08	-2.13E-02		5.00E-02
+	NB-93M	16.57	9.43	-2.44E+01	5.07E+01	5.07E+01
+	NB-94	702.63	100.00	4.35E-03	5.88E-02	6.13E-02
		871.10	100.00	2.40E-02		5.88E-02
+	NB-95	765.79	99.81	1.09E-01	4.34E-01	4.34E-01
+	NB-95M	235.69	25.00	2.88E+06	1.50E+07	1.50E+07
+	ZR-95	724.18	43.70	-1.06E-02	3.30E-01	3.98E-01
		756.72	55.30	1.53E-01		3.30E-01
+	MO-99	181.06	6.20	-8.71E+08	6.68E+09	8.55E+09
		739.58	12.80	2.89E+09		6.68E+09
		778.00	4.50	-2.25E+09		2.01E+10
+	RU-103	497.08	89.00	-7.00E-02	2.66E-01	2.66E-01
+	RU-106	621.84	9.80	-1.43E-01	6.06E-01	6.06E-01
+	AG-108M	433.93	89.90	1.31E-02	5.37E-02	5.37E-02
		614.37	90.40	1.04E-02		6.53E-02
		722.95	90.50	2.41E-02		6.86E-02
+	CD-109	88.03	3.72	2.31E-01	1.23E+00	1.23E+00
+	AG-110M	657.75	93.14	-5.25E-02	7.15E-02	7.15E-02
		677.61	10.53	1.62E-01		6.97E-01
		706.67	16.46	-5.75E-02		4.74E-01
		763.93	21.98	-2.12E-01		3.59E-01
		884.67	71.63	1.07E-04		8.25E-02
		1384.27	23.94	6.60E-02		3.45E-01
+	CD-113M	263.70	0.02	-1.13E+02	1.77E+02	1.77E+02
+	SN-113	255.12	1.93	-1.38E+00	1.29E-01	3.82E+00
		391.69	64.90	5.20E-02		1.29E-01
+	TE123M	159.00	84.10	2.13E-02	7.18E-02	7.18E-02
+	SB-124	602.71	97.87	2.42E-02	1.55E-01	1.55E-01
		645.85	7.26	3.41E-01		2.19E+00
		722.78	11.10	5.74E-01		1.63E+00
		1691.02	49.00	3.48E-02		3.37E-01
+	I-125	35.49	6.49	-1.82E-01	3.94E+00	3.94E+00
+	SB-125	176.33	6.89	4.62E-02	1.80E-01	5.30E-01
		427.89	29.33	1.80E-02		1.80E-01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38	10.35	3.90E-01	1.80E-01	5.34E-01
		600.56	17.80	4.83E-02		3.05E-01
		635.90	11.32	1.19E-01		4.96E-01
+	SB-126	414.70	83.30	3.41E+00	1.01E+01	1.10E+01
		666.33	99.60	-5.03E+00		1.07E+01
		695.00	99.60	-3.97E+00		1.01E+01
		720.50	53.80	8.72E+00		1.93E+01
+	SN-126	87.57	37.00	2.02E-02	1.07E-01	1.07E-01
+	SB-127	473.00	25.00	4.78E+04	2.96E+06	3.64E+06
		685.20	35.70	-7.61E+05		2.96E+06
		783.80	14.70	1.17E+05		7.28E+06
+	I-129	29.78	57.00	9.92E-02	2.71E-01	2.71E-01
		33.60	13.20	4.33E-03		7.73E-01
		39.58	7.52	-2.05E-01		9.04E-01
+	I-131	284.30	6.05	-5.13E+02	1.69E+02	2.13E+03
		364.48	81.20	3.32E+01		1.69E+02
		636.97	7.26	-1.20E+02		2.22E+03
		722.89	1.80	3.73E+03		1.06E+04
+	TE-132	49.72	13.10	-1.91E+08	1.95E+07	1.45E+08
		228.16	88.00	-1.10E+07		1.95E+07
+	BA-133	81.00	33.00	-3.58E-02	1.14E-01	1.22E-01
		302.84	17.80	2.14E-01		2.71E-01
		356.01	60.00	-1.09E-02		1.14E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-6.83E+03	2.33E+04	2.33E+04
+	CS-134	563.23	8.38	2.93E-01	6.65E-02	7.09E-01
		569.32	15.43	-1.73E-01		3.53E-01
		604.70	97.60	1.10E-02		6.65E-02
		795.84	85.40	-1.03E-02		7.25E-02
		801.93	8.73	-6.98E-02		6.57E-01
+	CS-135	268.24	16.00	7.88E-03	2.75E-01	2.75E-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	2.57E+01	6.58E+00	6.18E+01
		163.89	4.61	-1.24E+01		9.89E+01
		176.55	13.56	2.98E+00		3.42E+01
		273.65	12.66	-7.02E+00		4.76E+01
		340.57	48.50	5.77E-01		1.60E+01
		818.50	99.70	-1.73E+00		6.58E+00
		1048.07	79.60	-5.40E+00		1.04E+01
		1235.34	19.70	4.14E+01		7.28E+01
+	CS-137	661.65	85.12	3.26E-02	7.45E-02	7.45E-02
+	LA-138	788.74	34.00	-1.54E-02	6.50E-02	1.66E-01
		1435.80	66.00	-5.78E-02		6.50E-02
+	CE-139	165.85	80.35	-4.46E-03	6.68E-02	6.68E-02
+	BA-140	162.64	6.70	-1.00E+01	3.24E+01	7.99E+01
		304.84	4.50	4.25E+01		1.60E+02
		423.70	3.20	-7.69E+01		2.32E+02

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-2.47E+01	3.24E+01	3.73E+02
			537.32		25.00	-2.42E+00		3.24E+01
+		LA-140	328.77		20.50	5.62E+00	9.88E+00	3.40E+01
			487.03		45.50	8.65E+00		1.78E+01
			815.85		23.50	-4.22E+00		3.41E+01
			1596.49		95.49	1.69E-01		9.88E+00
+		CE-141	145.44		48.40	4.07E-01	5.37E-01	5.37E-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	-1.84E-01	3.65E-01	3.65E-01
+		PM-144	476.78		42.00	7.10E-02	6.62E-02	1.51E-01
			618.01		98.60	3.08E-02		6.62E-02
			696.49		99.49	-1.69E-02		6.86E-02
+		PM-145	36.85		21.70	4.20E-03	1.95E-01	3.71E-01
			37.36		39.70	8.76E-03		1.95E-01
			42.30		15.10	-1.91E-01		3.93E-01
			72.40		2.31	-2.67E+00		1.98E+00
+		PM-146	453.90		39.94	3.11E-04	1.18E-01	1.18E-01
			735.90		14.01	1.99E-02		3.95E-01
			747.13		13.10	8.23E-02		4.37E-01
+		ND-147	91.11	*	28.90	1.74E+02	1.08E+02	1.08E+02
			531.02		13.10	-1.63E+01		1.48E+02
+		PM-149	285.90		3.10	-5.60E+12	6.41E+12	6.41E+12
+		EU-152	121.78		20.50	1.76E-02	1.56E-01	1.56E-01
			244.69		5.40	-1.09E-03		9.51E-01
			344.27		19.13	2.00E-02		2.50E-01
			778.89		9.20	1.24E-01		6.27E-01
			964.01		10.40	2.12E-01		7.36E-01
			1085.78		7.22	1.19E-02		9.62E-01
			1112.02		9.60	9.26E-03		7.38E-01
			1407.95		14.94	1.99E-01		4.39E-01
+		GD-153	97.43		31.30	4.65E-02	1.27E-01	1.27E-01
			103.18		22.20	-9.96E-02		1.83E-01
+		EU-154	123.07		40.50	1.11E-02	8.12E-02	8.12E-02
			723.30		19.70	1.13E-01		3.21E-01
			873.19		11.50	1.49E-02		4.55E-01
			996.32		10.30	6.95E-03		5.88E-01
			1004.76		17.90	-5.39E-02		3.56E-01
			1274.45		35.50	3.93E-02		1.75E-01
+		EU-155	86.50		30.90	3.05E-02	1.32E-01	1.32E-01
			105.30		20.70	5.21E-02		1.60E-01
+		EU-156	811.77		10.40	-3.62E-01	3.86E+01	3.86E+01
			1153.47		7.20	4.93E+01		8.37E+01
			1230.71		8.90	4.69E+00		7.08E+01
+		HO-166M	184.41		72.60	6.39E-02	5.91E-02	5.91E-02
			280.45		29.60	7.85E-02		1.53E-01
			410.94		11.10	-3.32E-02		4.25E-01
			711.69		54.10	5.40E-02		1.16E-01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	2.85E+00	3.31E+01	3.31E+01
+	HF-172	67.35		5.31	-1.35E-02	3.19E-01	8.50E-01
		125.81		11.30	-1.42E-02		3.19E-01
+	LU-172	181.53		20.60	-3.71E+03	1.56E+03	2.54E+03
		900.72		29.81	7.85E+01		3.12E+03
		1093.66		62.50	3.37E+02		1.56E+03
+	LU-173	100.72		5.24	3.36E-01	2.45E-01	6.93E-01
		272.11		21.20	-1.24E-02		2.45E-01
+	HF-175	343.40		84.00	1.13E-02	1.41E-01	1.41E-01
+	LU-176	88.34		13.30	5.66E-02	4.34E-02	3.07E-01
		201.83		86.00	-9.96E-03		4.34E-02
		306.78		94.00	1.61E-02		4.75E-02
+	HF-181	133.02		41.70	-9.71E-02	2.94E-01	3.53E-01
		345.85		17.20	1.01E-01		1.21E+00
		482.03		82.80	1.88E-02		2.94E-01
+	TA-182	67.75		41.20	-2.78E-03	1.75E-01	1.75E-01
		1121.30		34.90	3.23E-01		4.76E-01
		1189.05		16.23	4.58E-01		8.62E-01
		1221.41		26.98	1.92E-02		5.25E-01
		1231.02		11.44	9.14E-02		1.38E+00
+	IR-192	308.46		29.68	-2.71E-01	2.12E-01	3.31E-01
		468.07		48.10	1.76E-02		2.12E-01
+	HG-203	279.19		77.30	5.99E-02	2.38E-01	2.38E-01
+	TL-204	374.74		94.11	2.64E-03	4.66E-02	4.66E-02
		899.15		99.16	1.45E-02		5.82E-02
		911.74		91.10	2.19E-01		1.24E-01
+	BI-207	569.67		97.72	-4.93E-03	5.23E-02	5.23E-02
		1063.62		74.90	-7.48E-03		9.16E-02
+	TL-208	583.14	*	30.22	6.43E-01	1.37E-01	3.66E-01
		860.37		4.48	-1.16E-01		1.45E+00
		2614.66	*	35.85	5.37E-01		1.37E-01
+	BI-210M	262.00		45.00	4.79E-02	9.52E-02	9.52E-02
		300.00		23.00	-6.04E-01		1.99E-01
+	PB-210	46.50		4.25	7.47E-01	1.31E+00	1.31E+00
+	PB-211	404.84		2.90	1.94E-01	1.60E+00	1.60E+00
		831.96		2.90	-1.72E-01		2.02E+00
+	BI-212	727.17	*	11.80	4.94E-01	5.68E-01	5.68E-01
		1620.62		2.75	8.64E-01		2.37E+00
+	PB-212	238.63	*	44.60	6.18E-01	1.39E-01	1.39E-01
		300.09		3.41	-4.08E+00		1.35E+00
+	BI-214	609.31	*	46.30	5.20E-01	2.30E-01	2.30E-01
		1120.29	*	15.10	4.34E-01		6.98E-01
		1764.49	*	15.80	4.68E-01		5.36E-01
		2204.22		4.98	7.46E-01		1.57E+00
+	PB-214	295.21	*	19.19	4.97E-01	1.80E-01	2.51E-01
		351.92	*	37.19	8.00E-01		1.80E-01
+	RN-219	401.80		6.50	1.76E-01	6.92E-01	6.92E-01
+	RA-223	323.87		3.88	-1.07E+00	1.03E+00	1.03E+00

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	1.91E+00	1.59E+00	1.59E+00
+	RA-225	40.00		31.00	-3.82E+00	1.68E+01	1.68E+01
+	RA-226	186.21	*	3.28	1.70E+00	1.97E+00	1.97E+00
+	TH-227	50.10		8.40	-7.25E-01	5.52E-01	5.52E-01
		236.00		11.50	1.06E-01		5.56E-01
		256.20		6.30	-1.11E-01		6.77E-01
+	AC-228	338.32	*	11.40	4.94E-01	3.73E-01	5.29E-01
		911.07	*	27.70	6.01E-01		3.73E-01
		969.11	*	16.60	4.53E-01		5.27E-01
+	TH-230	48.44		16.90	1.21E-01	3.05E-01	3.05E-01
		62.85		4.60	3.74E-01		1.02E+00
		67.67		0.37	-1.76E-01		1.11E+01
+	PA-231	283.67		1.60	-1.72E-01	2.06E+00	2.66E+00
		302.67		2.30	1.63E+00		2.06E+00
+	TH-231	25.64		14.70	3.10E-01	5.81E-01	2.02E+00
		84.21		6.40	-4.30E-01		5.81E-01
+	PA-233	311.98		38.60	3.11E-01	1.21E+00	1.21E+00
+	PA-234	131.20		20.40	5.54E-02	1.65E-01	1.65E-01
		733.99		8.80	-1.98E-01		5.67E-01
		946.00		12.00	2.04E-01		5.63E-01
+	PA-234M	1001.03		0.92	2.51E+00	7.30E+00	7.30E+00
+	TH-234	63.29	*	3.80	1.57E+00	1.89E+00	1.89E+00
+	U-235	143.76		10.50	-9.87E-02	3.26E-01	3.26E-01
		163.35		4.70	-8.96E-02		7.16E-01
		205.31		4.70	-2.50E-01		9.45E-01
+	NP-237	86.50		12.60	7.21E-02	3.14E-01	3.14E-01
+	NP-239	106.10		22.70	3.73E+10	1.15E+11	1.15E+11
		228.18		10.70	-1.82E+11		3.22E+11
		277.60		14.10	1.28E+11		2.65E+11
+	AM-241	59.54		35.90	6.38E-02	1.25E-01	1.25E-01
+	AM-243	74.67		66.00	5.46E-03	7.72E-02	7.72E-02
+	CM-243	209.75		3.29	4.13E-01	3.30E-01	1.39E+00
		228.14		10.60	-2.27E-01		4.02E-01
		277.60		14.00	1.60E-01		3.30E-01

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

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

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	1.72E+00	1.72E+00	7.15E-01	8.13E-01
	NA-22	1274.54		99.94	6.53E-02	6.53E-02	1.46E-02	2.89E-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	5.42E-02	5.42E-02	2.73E-02	2.25E-02
+	K-40	1460.81	*	10.67	6.93E-01	6.93E-01	1.02E+01	3.10E-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	4.34E-02	4.34E-02	-6.91E-04	2.12E-02
		78.34		96.00	5.11E-02		6.93E-02	2.51E-02
	SC-46	889.25		99.98	1.18E-01	1.18E-01	2.82E-02	5.34E-02
		1120.51		99.99	2.04E-01		1.53E-01	9.51E-02
	V-48	983.52		99.98	2.86E+00	2.86E+00	-1.72E+00	1.27E+00
		1312.10		97.50	3.74E+00		7.92E-01	1.66E+00
	CR-51	320.08		9.83	4.48E+00	4.48E+00	1.56E+00	2.13E+00
	MN-54	834.83		99.97	7.52E-02	7.52E-02	-2.83E-03	3.46E-02
	CO-56	846.75		99.96	1.35E-01	1.35E-01	-2.94E-02	6.18E-02
		1037.75		14.03	1.17E+00		4.44E-01	5.39E-01
		1238.25		67.00	3.48E-01		1.96E-01	1.62E-01
		1771.40		15.51	7.80E-01		4.91E-02	3.23E-01
		2598.48		16.90	5.33E-01		1.15E-01	1.89E-01
	CO-57	122.06		85.51	4.70E-02	4.70E-02	5.30E-03	2.28E-02
		136.48		10.60	3.84E-01		-1.23E-01	1.85E-01
	CO-58	810.76		99.40	1.54E-01	1.54E-01	6.03E-02	7.10E-02
	FE-59	1099.22		56.50	5.14E-01	5.14E-01	2.71E-01	2.34E-01
		1291.56		43.20	6.58E-01		1.32E-01	2.94E-01
	CO-60	1173.22		100.00	8.32E-02	6.83E-02	7.51E-03	3.82E-02
		1332.49		100.00	6.83E-02		3.29E-03	3.04E-02
	ZN-65	1115.52		50.75	1.87E-01	1.87E-01	9.28E-03	8.54E-02
	GA-67	93.31		35.70	4.48E+07	4.48E+07	7.54E+07	2.19E+07
		208.95		2.24	8.08E+08		1.08E+08	3.91E+08
		300.22		16.00	1.15E+08		-3.47E+08	5.48E+07
	SE-75	121.11		16.70	3.20E-01	9.30E-02	-7.56E-02	1.55E-01
		136.00		59.20	9.30E-02		-8.54E-03	4.49E-02
		264.65		59.80	1.13E-01		-5.59E-02	5.42E-02
		279.53		25.20	3.07E-01		6.41E-03	1.47E-01
		400.65		11.40	6.94E-01		2.08E-01	3.28E-01
	RB-82	776.52		13.00	5.47E+00	5.47E+00	-1.19E+00	2.52E+00
	RB-83	520.41		46.00	2.09E-01	2.09E-01	-2.85E-02	9.71E-02
		529.64		30.30	3.90E-01		1.04E-01	1.84E-01
		552.65		16.40	6.38E-01		5.04E-02	2.97E-01
	KR-85	513.99		0.43	1.61E+01	1.61E+01	8.07E+00	7.66E+00
	SR-85	513.99		99.27	1.87E-01	1.87E-01	9.39E-02	8.92E-02

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
Y-88	898.02	93.40	1.08E-01	1.08E-01	3.68E-03	4.89E-02
	1836.01	99.38	1.24E-01		1.06E-02	5.33E-02
MO-93	263.06	56.72	7.46E-02	5.00E-02	9.95E-03	3.58E-02
	684.67	99.68	5.59E-02		-1.43E-02	2.59E-02
	1477.11	99.08	5.00E-02		-2.13E-02	2.09E-02
NB-93M	16.57	9.43	5.07E+01	5.07E+01	-2.44E+01	2.46E+01
NB-94	702.63	100.00	6.13E-02	5.88E-02	4.35E-03	2.86E-02
	871.10	100.00	5.88E-02		2.40E-02	2.69E-02
NB-95	765.79	99.81	4.34E-01	4.34E-01	1.09E-01	2.03E-01
NB-95M	235.69	25.00	1.50E+07	1.50E+07	2.88E+06	7.33E+06
ZR-95	724.18	43.70	3.98E-01	3.30E-01	-1.06E-02	1.86E-01
	756.72	55.30	3.30E-01		1.53E-01	1.54E-01
MO-99	181.06	6.20	8.55E+09	6.68E+09	-8.71E+08	4.11E+09
	739.58	12.80	6.68E+09		2.89E+09	3.07E+09
	778.00	4.50	2.01E+10		-2.25E+09	9.24E+09
RU-103	497.08	89.00	2.66E-01	2.66E-01	-7.00E-02	1.24E-01
RU-106	621.84	9.80	6.06E-01	6.06E-01	-1.43E-01	2.80E-01
AG-108M	433.93	89.90	5.37E-02	5.37E-02	1.31E-02	2.53E-02
	614.37	90.40	6.53E-02		1.04E-02	3.06E-02
	722.95	90.50	6.86E-02		2.41E-02	3.19E-02
CD-109	88.03	3.72	1.23E+00	1.23E+00	2.31E-01	6.00E-01
AG-110M	657.75	93.14	7.15E-02	7.15E-02	-5.25E-02	3.30E-02
	677.61	10.53	6.97E-01		1.62E-01	3.24E-01
	706.67	16.46	4.74E-01		-5.75E-02	2.21E-01
	763.93	21.98	3.59E-01		-2.12E-01	1.66E-01
	884.67	71.63	8.25E-02		1.07E-04	3.66E-02
	1384.27	23.94	3.45E-01		6.60E-02	1.52E-01
CD-113M	263.70	0.02	1.77E+02	1.77E+02	-1.13E+02	8.48E+01
SN-113	255.12	1.93	3.82E+00	1.29E-01	-1.38E+00	1.83E+00
	391.69	64.90	1.29E-01		5.20E-02	6.13E-02
TE123M	159.00	84.10	7.18E-02	7.18E-02	2.13E-02	3.47E-02
SB-124	602.71	97.87	1.55E-01	1.55E-01	2.42E-02	7.20E-02
	645.85	7.26	2.19E+00		3.41E-01	1.01E+00
	722.78	11.10	1.63E+00		5.74E-01	7.60E-01
	1691.02	49.00	3.37E-01		3.48E-02	1.42E-01
I-125	35.49	6.49	3.94E+00	3.94E+00	-1.82E-01	1.91E+00
SB-125	176.33	6.89	5.30E-01	1.80E-01	4.62E-02	2.55E-01
	427.89	29.33	1.80E-01		1.80E-02	8.49E-02
	463.38	10.35	5.34E-01		3.90E-01	2.52E-01
	600.56	17.80	3.05E-01		4.83E-02	1.41E-01
	635.90	11.32	4.96E-01		1.19E-01	2.30E-01
SB-126	414.70	83.30	1.10E+01	1.01E+01	3.41E+00	5.20E+00
	666.33	99.60	1.07E+01		-5.03E+00	5.00E+00
	695.00	99.60	1.01E+01		-3.97E+00	4.67E+00
	720.50	53.80	1.93E+01		8.72E+00	8.93E+00
SN-126	87.57	37.00	1.07E-01	1.07E-01	2.02E-02	5.25E-02
SB-127	473.00	25.00	3.64E+06	2.96E+06	4.78E+04	1.71E+06
	685.20	35.70	2.96E+06		-7.61E+05	1.37E+06
	783.80	14.70	7.28E+06		1.17E+05	3.34E+06
I-129	29.78	57.00	2.71E-01	2.71E-01	9.92E-02	1.31E-01
	33.60	13.20	7.73E-01		4.33E-03	3.75E-01
	39.58	7.52	9.04E-01		-2.05E-01	4.38E-01
I-131	284.30	6.05	2.13E+03	1.69E+02	-5.13E+02	1.02E+03

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	1.69E+02	1.69E+02	3.32E+01	8.01E+01
	636.97	7.26	2.22E+03		-1.20E+02	1.03E+03
	722.89	1.80	1.06E+04		3.73E+03	4.94E+03
TE-132	49.72	13.10	1.45E+08	1.95E+07	-1.91E+08	7.05E+07
	228.16	88.00	1.95E+07		-1.10E+07	9.40E+06
BA-133	81.00	33.00	1.22E-01	1.14E-01	-3.58E-02	5.95E-02
	302.84	17.80	2.71E-01		2.14E-01	1.30E-01
	356.01	60.00	1.14E-01		-1.09E-02	5.51E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	2.33E+04	2.33E+04	-6.83E+03	1.14E+04
CS-134	563.23	8.38	7.09E-01	6.65E-02	2.93E-01	3.32E-01
	569.32	15.43	3.53E-01		-1.73E-01	1.64E-01
	604.70	97.60	6.65E-02		1.10E-02	3.12E-02
	795.84	85.40	7.25E-02		-1.03E-02	3.33E-02
	801.93	8.73	6.57E-01		-6.98E-02	2.99E-01
CS-135	268.24	16.00	2.75E-01	2.75E-01	7.88E-03	1.32E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	6.18E+01	6.58E+00	2.57E+01	2.99E+01
	163.89	4.61	9.89E+01		-1.24E+01	4.77E+01
	176.55	13.56	3.42E+01		2.98E+00	1.65E+01
	273.65	12.66	4.76E+01		-7.02E+00	2.29E+01
	340.57	48.50	1.60E+01		5.77E-01	7.68E+00
	818.50	99.70	6.58E+00		-1.73E+00	2.96E+00
	1048.07	79.60	1.04E+01		-5.40E+00	4.69E+00
	1235.34	19.70	7.28E+01		4.14E+01	3.40E+01
CS-137	661.65	85.12	7.45E-02	7.45E-02	3.26E-02	3.49E-02
LA-138	788.74	34.00	1.66E-01	6.50E-02	-1.54E-02	7.61E-02
	1435.80	66.00	6.50E-02		-5.78E-02	2.67E-02
CE-139	165.85	80.35	6.68E-02	6.68E-02	-4.46E-03	3.22E-02
BA-140	162.64	6.70	7.99E+01	3.24E+01	-1.00E+01	3.86E+01
	304.84	4.50	1.60E+02		4.25E+01	7.68E+01
	423.70	3.20	2.32E+02		-7.69E+01	1.10E+02
	437.55	2.00	3.73E+02		-2.47E+01	1.76E+02
	537.32	25.00	3.24E+01		-2.42E+00	1.52E+01
LA-140	328.77	20.50	3.40E+01	9.88E+00	5.62E+00	1.62E+01
	487.03	45.50	1.78E+01		8.65E+00	8.37E+00
	815.85	23.50	3.41E+01		-4.22E+00	1.54E+01
	1596.49	95.49	9.88E+00		1.69E-01	4.25E+00
CE-141	145.44	48.40	5.37E-01	5.37E-01	4.07E-01	2.60E-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	3.65E-01	3.65E-01	-1.84E-01	1.76E-01
PM-144	476.78	42.00	1.51E-01	6.62E-02	7.10E-02	7.15E-02
	618.01	98.60	6.62E-02		3.08E-02	3.09E-02
	696.49	99.49	6.86E-02		-1.69E-02	3.18E-02
PM-145	36.85	21.70	3.71E-01	1.95E-01	4.20E-03	1.80E-01
	37.36	39.70	1.95E-01		8.76E-03	9.43E-02
	42.30	15.10	3.93E-01		-1.91E-01	1.90E-01
	72.40	2.31	1.98E+00		-2.67E+00	9.69E-01
PM-146	453.90	39.94	1.18E-01	1.18E-01	3.11E-04	5.54E-02

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	3.95E-01	1.18E-01	1.99E-02	1.81E-01
		747.13		13.10	4.37E-01		8.23E-02	2.01E-01
+	ND-147	91.11	*	28.90	1.08E+02	1.08E+02	1.74E+02	5.36E+01
		531.02		13.10	1.48E+02		-1.63E+01	6.98E+01
	PM-149	285.90		3.10	6.41E+12	6.41E+12	-5.60E+12	3.06E+12
	EU-152	121.78		20.50	1.56E-01	1.56E-01	1.76E-02	7.57E-02
		244.69		5.40	9.51E-01		-1.09E-03	4.60E-01
		344.27		19.13	2.50E-01		2.00E-02	1.19E-01
		778.89		9.20	6.27E-01		1.24E-01	2.88E-01
		964.01		10.40	7.36E-01		2.12E-01	3.41E-01
		1085.78		7.22	9.62E-01		1.19E-02	4.38E-01
		1112.02		9.60	7.38E-01		9.26E-03	3.36E-01
		1407.95		14.94	4.39E-01		1.99E-01	1.93E-01
	GD-153	97.43		31.30	1.27E-01	1.27E-01	4.65E-02	6.17E-02
		103.18		22.20	1.83E-01		-9.96E-02	8.87E-02
	EU-154	123.07		40.50	8.12E-02	8.12E-02	1.11E-02	3.93E-02
		723.30		19.70	3.21E-01		1.13E-01	1.49E-01
		873.19		11.50	4.55E-01		1.49E-02	2.05E-01
		996.32		10.30	5.88E-01		6.95E-03	2.66E-01
		1004.76		17.90	3.56E-01		-5.39E-02	1.62E-01
		1274.45		35.50	1.75E-01		3.93E-02	7.76E-02
	EU-155	86.50		30.90	1.32E-01	1.32E-01	3.05E-02	6.46E-02
		105.30		20.70	1.60E-01		5.21E-02	7.75E-02
	EU-156	811.77		10.40	3.86E+01	3.86E+01	-3.62E-01	1.77E+01
		1153.47		7.20	8.37E+01		4.93E+01	3.87E+01
		1230.71		8.90	7.08E+01		4.69E+00	3.27E+01
	HO-166M	184.41		72.60	5.91E-02	5.91E-02	6.39E-02	2.87E-02
		280.45		29.60	1.53E-01		7.85E-02	7.36E-02
		410.94		11.10	4.25E-01		-3.32E-02	2.01E-01
		711.69		54.10	1.16E-01		5.40E-02	5.39E-02
	TM-171	66.72		0.14	3.31E+01	3.31E+01	2.85E+00	1.61E+01
	HF-172	67.35		5.31	8.50E-01	3.19E-01	-1.35E-02	4.14E-01
		125.81		11.30	3.19E-01		-1.42E-02	1.54E-01
	LU-172	181.53		20.60	2.54E+03	1.56E+03	-3.71E+03	1.22E+03
		900.72		29.81	3.12E+03		7.85E+01	1.43E+03
		1093.66		62.50	1.56E+03		3.37E+02	7.02E+02
	LU-173	100.72		5.24	6.93E-01	2.45E-01	3.36E-01	3.36E-01
		272.11		21.20	2.45E-01		-1.24E-02	1.17E-01
	HF-175	343.40		84.00	1.41E-01	1.41E-01	1.13E-02	6.73E-02
	LU-176	88.34		13.30	3.07E-01	4.34E-02	5.66E-02	1.50E-01
		201.83		86.00	4.34E-02		-9.96E-03	2.09E-02
		306.78		94.00	4.75E-02		1.61E-02	2.27E-02
	HF-181	133.02		41.70	3.53E-01	2.94E-01	-9.71E-02	1.71E-01
		345.85		17.20	1.21E+00		1.01E-01	5.77E-01
		482.03		82.80	2.94E-01		1.88E-02	1.38E-01
	TA-182	67.75		41.20	1.75E-01	1.75E-01	-2.78E-03	8.52E-02
		1121.30		34.90	4.76E-01		3.23E-01	2.22E-01
		1189.05		16.23	8.62E-01		4.58E-01	3.95E-01
		1221.41		26.98	5.25E-01		1.92E-02	2.40E-01
		1231.02		11.44	1.38E+00		9.14E-02	6.37E-01
	IR-192	308.46		29.68	3.31E-01	2.12E-01	-2.71E-01	1.58E-01
		468.07		48.10	2.12E-01		1.76E-02	9.86E-02
	HG-203	279.19		77.30	2.38E-01	2.38E-01	5.99E-02	1.14E-01

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	4.66E-02	4.66E-02	2.64E-03	2.20E-02
		899.15		99.16	5.82E-02		1.45E-02	2.64E-02
		911.74		91.10	1.24E-01		2.19E-01	5.90E-02
	BI-207	569.67		97.72	5.23E-02	5.23E-02	-4.93E-03	2.43E-02
		1063.62		74.90	9.16E-02		-7.48E-03	4.17E-02
+	TL-208	583.14	*	30.22	3.66E-01	1.37E-01	6.43E-01	1.77E-01
		860.37		4.48	1.45E+00		-1.16E-01	6.67E-01
		2614.66	*	35.85	1.37E-01		5.37E-01	5.25E-02
	BI-210M	262.00		45.00	9.52E-02	9.52E-02	4.79E-02	4.57E-02
		300.00		23.00	1.99E-01		-6.04E-01	9.55E-02
	PB-210	46.50		4.25	1.31E+00	1.31E+00	7.47E-01	6.39E-01
	PB-211	404.84		2.90	1.60E+00	1.60E+00	1.94E-01	7.55E-01
		831.96		2.90	2.02E+00		-1.72E-01	9.24E-01
+	BI-212	727.17	*	11.80	5.68E-01	5.68E-01	4.94E-01	2.66E-01
		1620.62		2.75	2.37E+00		8.64E-01	1.03E+00
+	PB-212	238.63	*	44.60	1.39E-01	1.39E-01	6.18E-01	6.76E-02
		300.09		3.41	1.35E+00		-4.08E+00	6.44E-01
+	BI-214	609.31	*	46.30	2.30E-01	2.30E-01	5.20E-01	1.11E-01
		1120.29	*	15.10	6.98E-01		4.34E-01	3.28E-01
		1764.49	*	15.80	5.36E-01		4.68E-01	2.39E-01
		2204.22		4.98	1.57E+00		7.46E-01	6.80E-01
+	PB-214	295.21	*	19.19	2.51E-01	1.80E-01	4.97E-01	1.21E-01
		351.92	*	37.19	1.80E-01		8.00E-01	8.68E-02
	RN-219	401.80		6.50	6.92E-01	6.92E-01	1.76E-01	3.26E-01
	RA-223	323.87		3.88	1.03E+00	1.03E+00	-1.07E+00	4.90E-01
+	RA-224	240.98	*	3.95	1.59E+00	1.59E+00	1.91E+00	7.74E-01
	RA-225	40.00		31.00	1.68E+01	1.68E+01	-3.82E+00	8.16E+00
+	RA-226	186.21	*	3.28	1.97E+00	1.97E+00	1.70E+00	9.65E-01
	TH-227	50.10		8.40	5.52E-01	5.52E-01	-7.25E-01	2.68E-01
		236.00		11.50	5.56E-01		1.06E-01	2.71E-01
		256.20		6.30	6.77E-01		-1.11E-01	3.25E-01
+	AC-228	338.32	*	11.40	5.29E-01	3.73E-01	4.94E-01	2.55E-01
		911.07	*	27.70	3.73E-01		6.01E-01	1.77E-01
		969.11	*	16.60	5.27E-01		4.53E-01	2.47E-01
	TH-230	48.44		16.90	3.05E-01	3.05E-01	1.21E-01	1.48E-01
		62.85		4.60	1.02E+00		3.74E-01	4.98E-01
		67.67		0.37	1.11E+01		-1.76E-01	5.40E+00
	PA-231	283.67		1.60	2.66E+00	2.06E+00	-1.72E-01	1.27E+00
		302.67		2.30	2.06E+00		1.63E+00	9.87E-01
	TH-231	25.64		14.70	2.02E+00	5.81E-01	3.10E-01	9.79E-01
		84.21		6.40	5.81E-01		-4.30E-01	2.83E-01
	PA-233	311.98		38.60	1.21E+00	1.21E+00	3.11E-01	5.76E-01
	PA-234	131.20		20.40	1.65E-01	1.65E-01	5.54E-02	7.98E-02
		733.99		8.80	5.67E-01		-1.98E-01	2.59E-01
		946.00		12.00	5.63E-01		2.04E-01	2.59E-01
	PA-234M	1001.03		0.92	7.30E+00	7.30E+00	2.51E+00	3.34E+00
+	TH-234	63.29	*	3.80	1.89E+00	1.89E+00	1.57E+00	9.32E-01
	U-235	143.76		10.50	3.26E-01	3.26E-01	-9.87E-02	1.58E-01
		163.35		4.70	7.16E-01		-8.96E-02	3.45E-01
		205.31		4.70	9.45E-01		-2.50E-01	4.57E-01
	NP-237	86.50		12.60	3.14E-01	3.14E-01	7.21E-02	1.53E-01
	NP-239	106.10		22.70	1.15E+11	1.15E+11	3.73E+10	5.56E+10
		228.18		10.70	3.22E+11		-1.82E+11	1.55E+11

Analysis Report for 1707078-05

HTC-A01-S003-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	2.65E+11	1.15E+11	1.28E+11	1.27E+11
AM-241	59.54	35.90	1.25E-01	1.25E-01	6.38E-02	6.09E-02
AM-243	74.67	66.00	7.72E-02	7.72E-02	5.46E-03	3.78E-02
CM-243	209.75	3.29	1.39E+00	3.30E-01	4.13E-01	6.75E-01
	228.14	10.60	4.02E-01		-2.27E-01	1.94E-01
	277.60	14.00	3.30E-01		1.60E-01	1.58E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S003-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	6	170	195	150	139	106	100	83
17:	92	70	78	87	66	64	77	92
25:	81	74	52	68	67	61	77	67
33:	68	61	77	58	59	78	67	72
41:	58	73	83	80	50	81	124	102
49:	77	72	52	76	87	71	85	69
57:	68	109	92	117	102	102	110	176
65:	133	115	83	97	115	108	120	113
73:	104	143	198	223	211	265	183	76
81:	97	99	90	91	99	95	110	128
89:	118	107	124	108	140	151	101	63
97:	53	51	79	73	61	65	67	70
105:	61	83	63	62	59	60	65	64
113:	60	78	72	65	55	57	55	60
121:	68	58	50	64	68	51	70	60
129:	71	68	68	53	56	59	47	55
137:	57	59	57	60	64	56	55	77
145:	57	52	72	60	49	46	51	52
153:	51	59	59	56	40	60	52	70
161:	55	45	46	60	49	43	52	33
169:	56	44	50	41	44	51	44	45
177:	56	45	37	46	38	48	42	41
185:	62	95	98	61	47	42	46	39
193:	45	33	43	45	40	52	42	39
201:	46	44	40	51	52	43	40	37
209:	44	57	40	51	44	28	44	29
217:	39	40	42	32	38	40	40	32
225:	28	35	32	40	30	40	29	38
233:	46	31	37	25	35	101	243	185
241:	77	86	58	36	28	30	25	39
249:	35	27	31	29	30	23	32	25
257:	23	29	33	31	27	22	17	21
265:	38	21	18	20	34	33	28	31
273:	23	25	27	29	27	30	32	21
281:	31	25	21	29	22	14	20	24
289:	20	26	33	21	19	20	64	105
297:	33	18	17	24	25	29	25	31
305:	23	23	15	23	12	28	10	18
313:	27	20	22	15	20	17	13	26
321:	21	17	17	8	20	15	14	19
329:	34	25	15	15	22	21	21	14
337:	21	36	69	27	27	17	20	19
345:	17	17	24	15	17	25	59	148
353:	140	53	23	19	15	10	17	26
361:	9	11	16	17	12	20	20	16

369:	12	12	12	12	14	17	19	12

Sample Title: HTC-A01-S003-0612-01

Channel								
377:	7	12	11	16	20	13	16	9
385:	14	11	19	7	15	15	18	9
393:	21	22	14	13	14	14	14	20
401:	10	18	19	6	8	15	22	12
409:	20	12	12	13	18	14	14	23
417:	19	11	15	15	12	16	19	9
425:	10	20	11	22	12	13	15	13
433:	15	11	22	11	8	12	11	12
441:	16	11	17	7	15	6	7	6
449:	12	12	8	16	14	8	11	10
457:	11	16	5	16	11	16	28	17
465:	8	14	4	7	9	9	12	8
473:	8	15	9	16	11	16	13	18
481:	16	10	12	13	13	10	25	13
489:	7	8	10	7	12	12	7	11
497:	9	8	8	11	8	16	6	9
505:	11	10	10	7	18	39	37	39
513:	28	5	19	11	6	14	10	7
521:	4	9	9	6	14	9	15	10
529:	12	12	10	16	14	9	12	14
537:	7	7	15	10	7	9	9	9
545:	9	8	8	13	10	8	10	8
553:	12	11	9	5	8	5	13	8
561:	6	13	14	17	7	10	5	10
569:	8	8	9	11	12	10	11	6
577:	10	8	7	8	11	26	57	62
585:	28	4	11	8	10	14	10	15
593:	4	7	5	7	8	4	11	10
601:	4	8	14	6	9	8	5	29
609:	84	85	28	7	5	4	10	9
617:	12	13	7	5	7	3	12	6
625:	11	7	2	6	8	8	5	10
633:	9	10	7	10	6	7	6	8
641:	4	10	11	8	5	11	8	7
649:	7	10	5	11	4	7	1	10
657:	3	8	7	7	13	21	12	4
665:	11	12	8	11	5	6	10	9
673:	8	9	8	3	12	7	10	6
681:	11	6	5	4	8	14	7	8
689:	10	8	10	11	4	10	7	7
697:	4	8	8	11	11	10	5	8
705:	9	9	11	7	8	8	10	11
713:	8	10	9	4	5	4	7	14
721:	4	7	12	3	9	12	17	21
729:	7	10	4	5	7	9	3	3
737:	6	6	9	5	9	7	2	6
745:	4	5	6	5	11	8	6	7
753:	5	11	10	12	13	7	4	8
761:	5	9	5	12	5	9	8	16
769:	13	10	9	5	12	7	6	7
777:	6	7	5	6	8	5	5	4
785:	4	8	7	8	4	3	4	8
793:	7	9	9	6	5	3	3	2

801:	12	6	5	4	3	5	8	13

Sample Title: HTC-A01-S003-0612-01

Channel								
809:	5	6	6	7	8	3	6	2
817:	3	4	6	5	4	4	3	8
825:	10	4	2	10	4	6	5	4
833:	6	6	10	9	4	6	8	7
841:	4	12	6	4	6	5	5	6
849:	11	4	3	7	2	7	3	11
857:	3	6	9	7	4	13	6	4
865:	11	4	4	9	5	6	1	8
873:	4	5	1	3	7	9	4	8
881:	3	3	2	1	3	2	4	6
889:	6	2	5	6	3	13	7	4
897:	0	5	5	4	6	7	6	5
905:	9	7	7	3	8	24	43	29
913:	13	5	6	3	5	4	7	6
921:	6	3	2	1	3	4	4	3
929:	6	4	4	7	8	4	8	5
937:	3	10	4	6	3	4	7	3
945:	4	8	7	6	9	6	5	0
953:	7	5	5	6	10	4	4	3
961:	6	6	7	11	9	8	7	9
969:	24	19	7	4	5	3	5	6
977:	3	7	4	5	4	5	0	2
985:	1	5	4	6	5	5	5	4
993:	3	2	7	2	7	4	5	4
1001:	4	3	11	8	4	3	0	4
1009:	7	5	1	3	8	4	7	2
1017:	1	2	6	4	5	9	5	8
1025:	5	5	5	4	8	2	3	4
1033:	6	4	11	8	4	5	5	7
1041:	3	3	5	3	6	1	6	8
1049:	4	2	2	5	10	7	5	8
1057:	5	4	8	3	5	9	5	5
1065:	4	3	5	3	8	7	3	4
1073:	6	3	3	3	7	5	11	3
1081:	9	4	9	5	7	3	3	5
1089:	3	5	3	3	3	4	3	5
1097:	8	3	2	6	7	3	2	2
1105:	6	5	3	3	5	2	5	4
1113:	3	10	6	7	4	4	15	16
1121:	19	5	3	4	4	7	6	5
1129:	4	10	5	3	2	4	5	6
1137:	8	3	7	6	7	5	0	5
1145:	2	6	6	7	1	5	6	7
1153:	6	11	9	7	5	4	4	2
1161:	6	7	5	4	4	4	5	1
1169:	7	8	7	6	1	5	9	7
1177:	5	9	5	4	9	6	3	6
1185:	3	4	7	4	9	6	4	7
1193:	3	2	6	3	3	9	3	5
1201:	8	8	8	3	2	6	3	9
1209:	6	2	8	4	5	6	5	7
1217:	5	2	1	6	7	10	5	9
1225:	3	7	5	5	9	5	6	9

1233:	7	9	7	8	13	18	13	3

Sample Title: HTC-A01-S003-0612-01

Channel								
1241:	4	6	4	2	4	5	3	4
1249:	4	5	8	9	2	6	3	6
1257:	6	2	4	7	11	8	1	2
1265:	3	4	5	3	5	1	5	3
1273:	3	2	2	1	4	1	7	8
1281:	5	6	4	4	3	5	4	5
1289:	4	3	3	2	2	5	1	2
1297:	9	3	3	4	0	1	2	3
1305:	0	2	4	1	2	1	4	2
1313:	0	7	5	3	1	2	5	4
1321:	5	3	4	5	2	2	3	2
1329:	1	2	0	7	5	4	3	2
1337:	5	0	2	4	2	3	4	2
1345:	4	4	5	2	0	1	3	1
1353:	2	2	2	3	5	3	2	3
1361:	3	3	1	1	2	3	2	3
1369:	0	0	4	1	2	1	6	5
1377:	5	3	1	2	2	5	2	3
1385:	0	5	2	2	3	2	0	2
1393:	3	0	0	3	0	3	2	1
1401:	1	4	4	1	3	4	3	3
1409:	3	1	2	1	0	0	2	1
1417:	2	3	1	1	0	2	6	1
1425:	2	1	2	0	4	2	2	3
1433:	0	0	0	4	0	1	2	2
1441:	5	0	3	5	4	3	2	0
1449:	0	3	1	1	3	0	3	4
1457:	2	16	83	125	117	32	5	2
1465:	0	1	1	0	3	0	2	1
1473:	0	2	1	1	2	0	2	1
1481:	0	1	3	1	1	0	3	2
1489:	0	1	1	1	0	1	4	4
1497:	0	0	0	1	4	2	2	0
1505:	0	1	1	7	2	4	1	2
1513:	0	2	3	0	0	1	0	3
1521:	1	2	0	1	1	2	1	1
1529:	1	0	1	0	2	0	1	1
1537:	2	2	0	0	0	1	0	1
1545:	2	1	0	1	0	2	0	2
1553:	2	1	1	0	0	1	1	1
1561:	1	1	1	0	2	1	1	2
1569:	3	1	0	1	1	1	0	2
1577:	0	1	1	2	2	4	0	3
1585:	0	3	6	3	5	0	0	5
1593:	3	1	1	0	0	0	1	2
1601:	1	1	1	0	1	0	1	0
1609:	2	0	1	1	1	1	2	3
1617:	1	3	2	3	1	0	2	0
1625:	0	1	0	1	0	4	0	1
1633:	0	1	0	1	2	0	1	0
1641:	1	0	1	1	2	1	0	1
1649:	2	2	1	2	1	0	1	3
1657:	0	3	1	2	0	1	0	0

1665:	1	0	1	2	2	0	0	0

Sample Title: HTC-A01-S003-0612-01

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

2097:	1	1	0	4	1	3	1	0

Sample Title: HTC-A01-S003-0612-01

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

2529:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S003-0612-01

Channel								
2537:	1	0	0	0	0	1	0	1
2545:	0	2	0	2	0	0	0	0
2553:	0	1	0	0	1	0	1	0
2561:	0	0	0	0	0	1	0	1
2569:	0	0	0	1	1	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	2	2	0	0	0	0
2593:	0	0	0	0	0	0	1	1
2601:	0	0	0	0	0	2	0	1
2609:	0	2	4	8	12	15	3	3
2617:	0	0	0	0	0	0	0	0
2625:	0	0	0	1	0	0	0	1
2633:	0	2	0	0	0	0	0	0
2641:	0	1	0	1	0	1	1	0
2649:	0	0	0	0	0	0	2	1
2657:	0	0	0	1	0	1	0	0
2665:	0	0	0	0	0	0	0	1
2673:	0	0	0	0	0	1	0	0
2681:	0	1	0	1	0	1	0	0
2689:	0	0	0	0	0	0	0	1
2697:	0	0	0	1	0	0	1	0
2705:	0	0	0	0	1	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	1	1	1	0	0	0	1
2737:	0	0	1	0	0	0	1	0
2745:	0	0	0	0	0	0	0	0
2753:	1	1	1	0	0	0	0	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	1	0	0	0	0
2785:	1	0	1	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	1	0	1
2825:	0	1	0	0	0	0	0	0
2833:	0	1	0	0	0	0	0	0
2841:	1	0	0	0	0	0	0	0
2849:	1	1	0	0	0	0	1	0
2857:	0	0	0	0	0	1	0	0
2865:	0	0	1	0	0	0	0	0
2873:	1	0	1	0	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	1	0	0	0	0	0
2897:	1	0	0	1	0	0	0	0
2905:	0	0	0	0	0	1	1	0
2913:	1	0	1	1	1	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	1	0	0
2937:	0	0	1	0	0	0	0	0
2945:	0	0	2	0	0	0	0	0
2953:	0	0	0	0	0	1	0	1

2961:	0	0	0	1	1	0	0	0

Sample Title: HTC-A01-S003-0612-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S003-0612-01

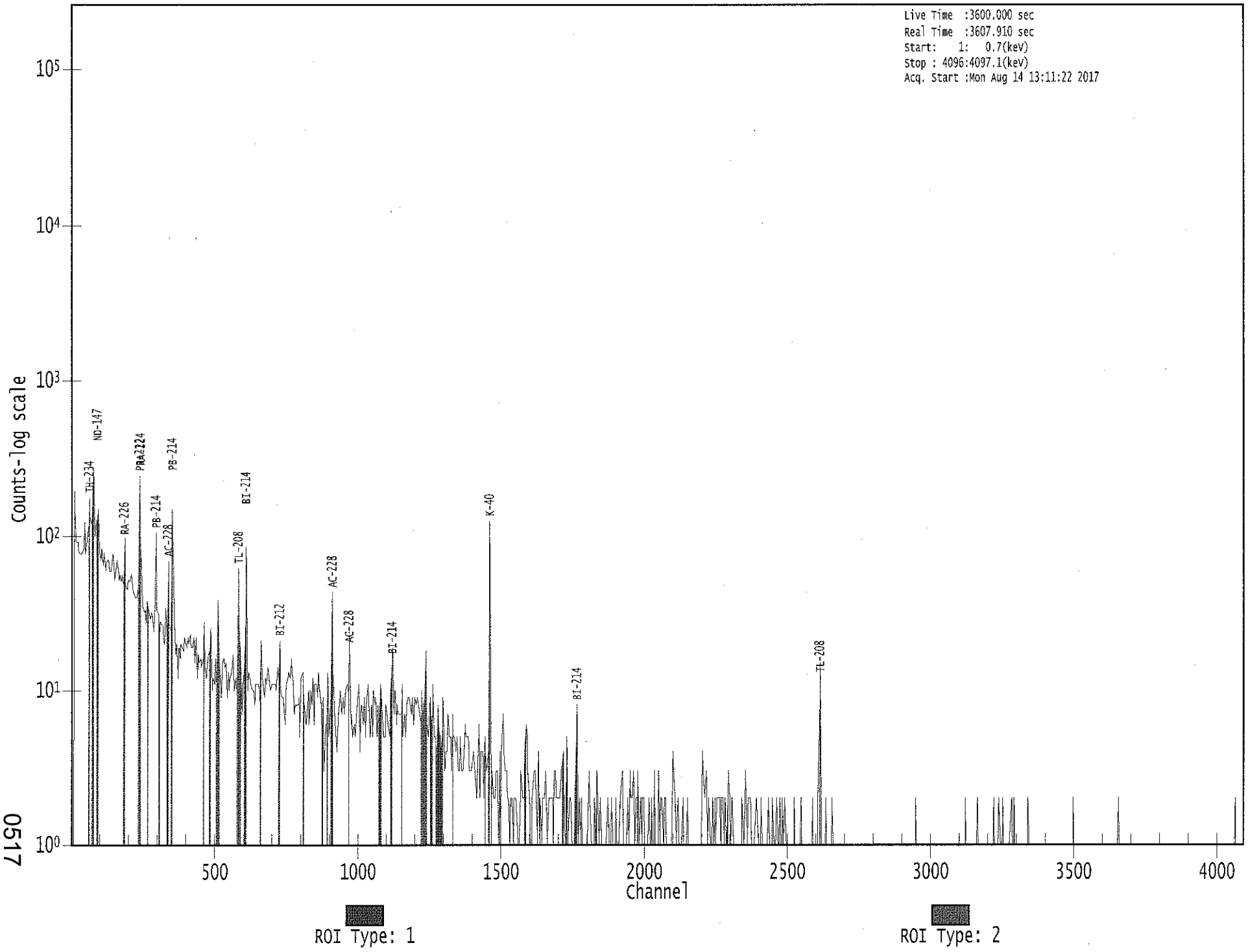
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	1	0	0	0	0	1	0
3433:	0	0	0	1	0	0	0	0
3441:	0	0	0	1	0	0	1	0
3449:	0	1	0	0	0	1	0	1
3457:	1	0	0	0	0	0	0	0
3465:	0	0	0	0	1	0	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	1	0	0	0	0	0
3497:	2	0	0	0	0	0	0	0
3505:	0	0	1	0	0	0	0	1
3513:	0	0	0	0	0	0	0	0
3521:	0	0	0	0	0	0	1	0
3529:	0	0	0	0	0	1	0	0
3537:	0	0	0	1	1	1	0	0
3545:	0	0	0	1	0	0	1	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	1	0	0	0	0
3577:	0	0	0	0	0	0	0	1
3585:	1	0	0	0	0	0	0	0
3593:	1	0	0	0	0	0	0	0
3601:	0	1	0	0	0	0	0	0
3609:	0	0	0	0	0	1	0	0
3617:	0	0	0	0	0	0	0	1
3625:	1	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	1	1	0	0	1	2
3657:	0	0	0	0	0	0	0	0
3665:	0	0	1	1	0	0	0	1
3673:	0	0	0	0	1	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	1
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	1	0	0	0
3713:	0	0	0	0	0	0	0	0
3721:	0	0	0	1	0	0	1	0
3729:	0	0	0	0	0	0	1	0
3737:	0	0	0	0	0	0	1	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	1	0	0
3761:	0	0	0	0	1	0	0	0
3769:	0	0	0	0	0	0	0	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	1	1	0	0	0
3793:	0	0	1	1	0	0	0	0
3801:	0	0	0	0	0	0	1	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: HTC-A01-S003-0612-01

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

0000055180.CNF



0617

KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-06
Sample Description	: HTC-A01-S003-1218-01
Sample Type	: SOIL
Sample Size	: 8.583E+02 grams
Facility	: Countroom
Sample Taken On	: 5/12/2017 9:29:17AM
Acquisition Started	: 8/14/2017 2:10:50PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.0 seconds
Dead Time	: 0.05 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55183

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 3:10:53PM
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	45.18	0.0000	0.00
2	63.48	62.54	0.0000	0.00
3	76.22	75.27	0.0000	0.00
4	86.45	85.51	0.0000	0.00
5	93.10	92.17	0.0000	0.00
6	156.30	155.38	0.0000	0.00
7	185.60	184.69	0.0000	0.00
8	209.11	208.21	0.0000	0.00
9	238.75	237.86	0.0000	0.00
10	242.47	241.58	0.0000	0.00
11	295.28	294.41	0.0000	0.00
12	337.57	336.71	0.0000	0.00
13	352.06	351.20	0.0000	0.00
14	582.74	581.98	0.0000	0.00
15	609.41	608.65	0.0000	0.00
16	666.70	665.97	0.0000	0.00
17	727.38	726.67	0.0000	0.00
18	788.71	788.02	0.0000	0.00
19	906.15	905.51	0.0000	0.00
20	911.10	910.46	0.0000	0.00
21	1055.36	1054.79	0.0000	0.00
22	1237.92	1237.44	0.0000	0.00
23	1247.65	1247.16	0.0000	0.00
24	1385.82	1385.41	0.0000	0.00
25	1460.49	1460.11	0.0000	0.00
26	1592.39	1592.08	0.0000	0.00
27	1676.89	1676.63	0.0000	0.00
28	1755.78	1755.56	0.0000	0.00
29	1763.99	1763.78	0.0000	0.00
30	1976.61	1976.52	0.0000	0.00
31	2204.88	2204.93	0.0000	0.00
32	2613.62	2613.94	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 3:10:53PM

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	41 -	49	45.18	1.21E+02	81.51	9.54E+02	2.42
	2	63.48	57 -	67	62.54	2.29E+02	113.34	1.59E+03	3.89
	3	76.22	69 -	81	75.27	7.59E+02	145.60	2.13E+03	4.32
	4	86.45	82 -	89	85.51	1.34E+02	97.34	1.50E+03	1.90
	5	93.10	89 -	95	92.17	1.59E+02	85.23	1.17E+03	2.41
	6	156.30	151 -	158	155.38	6.82E+01	70.11	7.62E+02	4.48
	7	185.60	181 -	188	184.69	1.17E+02	69.40	7.26E+02	1.76
	8	209.11	203 -	212	208.21	6.25E+01	71.20	6.85E+02	1.75
M	9	238.75	233 -	245	237.86	3.87E+02	60.95	3.85E+02	2.30
m	10	242.47	233 -	245	241.58	1.15E+02	63.12	3.83E+02	2.56
	11	295.28	290 -	297	294.41	1.64E+02	52.84	3.56E+02	2.20
	12	337.57	331 -	341	336.71	9.35E+01	56.40	3.75E+02	1.97
	13	352.06	346 -	356	351.20	3.19E+02	59.53	3.01E+02	2.77
	14	582.74	577 -	586	581.98	1.28E+02	38.20	1.35E+02	2.55
	15	609.41	604 -	612	608.65	2.10E+02	42.14	1.44E+02	2.20
	16	666.70	658 -	676	665.97	5.01E+01	54.04	2.32E+02	14.33
	17	727.38	722 -	730	726.67	4.28E+01	23.48	5.84E+01	4.19
	18	788.71	781 -	796	788.02	4.05E+01	39.04	1.37E+02	8.32
M	19	906.15	904 -	917	905.51	1.29E+01	10.17	2.35E+01	2.94
m	20	911.10	904 -	917	910.46	7.48E+01	24.40	4.85E+01	2.38
	21	1055.36	1048 -	1061	1054.79	3.87E+01	26.85	6.26E+01	8.75
	22	1237.92	1232 -	1241	1237.44	3.24E+01	21.10	4.51E+01	3.24
	23	1247.65	1242 -	1253	1247.16	3.41E+01	20.49	3.38E+01	8.03
	24	1385.82	1382 -	1389	1385.41	1.08E+01	10.77	1.25E+01	3.55
	25	1460.49	1455 -	1467	1460.11	2.54E+02	38.18	5.20E+01	2.84
	26	1592.39	1585 -	1597	1592.08	2.24E+01	15.96	1.91E+01	5.22
	27	1676.89	1672 -	1680	1676.63	6.89E+00	7.50	4.22E+00	1.08
	28	1755.78	1751 -	1759	1755.56	8.86E+00	8.02	4.27E+00	1.71
	29	1763.99	1759 -	1767	1763.78	2.52E+01	13.74	1.37E+01	3.47
	30	1976.61	1973 -	1979	1976.52	8.40E+00	7.23	3.20E+00	2.66
	31	2204.88	2197 -	2210	2204.93	1.49E+01	13.64	1.43E+01	3.06
	32	2613.62	2609 -	2618	2613.94	3.20E+01	11.31	0.00E+00	3.35

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 3:10:53PM

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	41 -	49	1.21E+02	81.51	9.54E+02	6.45E+01
	2	63.48	57 -	67	2.29E+02	113.34	1.59E+03	8.98E+01
	3	76.22	69 -	81	7.59E+02	145.60	2.13E+03	1.11E+02
	4	86.45	82 -	89	1.34E+02	97.34	1.50E+03	7.77E+01
	5	93.10	89 -	95	1.59E+02	85.23	1.17E+03	6.69E+01
	6	156.30	151 -	158	6.82E+01	70.11	7.62E+02	5.60E+01
	7	185.60	181 -	188	1.17E+02	69.40	7.26E+02	5.42E+01
	8	209.11	203 -	212	6.25E+01	71.20	6.85E+02	5.71E+01
M	9	238.75	233 -	245	3.87E+02	60.95	3.85E+02	3.23E+01
m	10	242.47	233 -	245	1.15E+02	63.12	3.83E+02	3.22E+01
	11	295.28	290 -	297	1.64E+02	52.84	3.56E+02	3.80E+01
	12	337.57	331 -	341	9.35E+01	56.40	3.75E+02	4.36E+01
	13	352.06	346 -	356	3.19E+02	59.53	3.01E+02	3.91E+01
	14	582.74	577 -	586	1.28E+02	38.20	1.35E+02	2.53E+01
	15	609.41	604 -	612	2.10E+02	42.14	1.44E+02	2.51E+01
	16	666.70	658 -	676	5.01E+01	54.04	2.32E+02	4.29E+01
	17	727.38	722 -	730	4.28E+01	23.48	5.84E+01	1.60E+01
	18	788.71	781 -	796	4.05E+01	39.04	1.37E+02	3.03E+01
M	19	906.15	904 -	917	1.29E+01	10.17	2.35E+01	7.97E+00
m	20	911.10	904 -	917	7.48E+01	24.40	4.85E+01	1.14E+01
	21	1055.36	1048 -	1061	3.87E+01	26.85	6.26E+01	1.96E+01
	22	1237.92	1232 -	1241	3.24E+01	21.10	4.51E+01	1.46E+01
	23	1247.65	1242 -	1253	3.41E+01	20.49	3.38E+01	1.38E+01
	24	1385.82	1382 -	1389	1.08E+01	10.77	1.25E+01	7.02E+00
	25	1460.49	1455 -	1467	2.54E+02	38.18	5.20E+01	1.73E+01
	26	1592.39	1585 -	1597	2.24E+01	15.96	1.91E+01	1.06E+01
	27	1676.89	1672 -	1680	6.89E+00	7.50	4.22E+00	4.40E+00
	28	1755.78	1751 -	1759	8.86E+00	8.02	4.27E+00	4.41E+00
	29	1763.99	1759 -	1767	2.52E+01	13.74	1.37E+01	7.72E+00
	30	1976.61	1973 -	1979	8.40E+00	7.23	3.20E+00	3.55E+00
	31	2204.88	2197 -	2210	1.49E+01	13.64	1.43E+01	9.25E+00

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
32	2613.62	2609 -	2618	3.20E+01	11.31	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 3:10:53PM

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	41 -	49	45.18	1.21E+02	81.51	9.54E+02	PB-210
	2	63.48	57 -	67	62.54	2.29E+02	113.34	1.59E+03	TH-234
									TH-230
	3	76.22	69 -	81	75.27	7.59E+02	145.60	2.13E+03	.....
	4	86.45	82 -	89	85.51	1.34E+02	97.34	1.50E+03	EU-155
									NP-237
	5	93.10	89 -	95	92.17	1.59E+02	85.23	1.17E+03	GA-67
	6	156.30	151 -	158	155.38	6.82E+01	70.11	7.62E+02	.....
	7	185.60	181 -	188	184.69	1.17E+02	69.40	7.26E+02	RA-226
	8	209.11	203 -	212	208.21	6.25E+01	71.20	6.85E+02	GA-67
									CM-243
M	9	238.75	233 -	245	237.86	3.87E+02	60.95	3.85E+02	PB-212
m	10	242.47	233 -	245	241.58	1.15E+02	63.12	3.83E+02	.....
	11	295.28	290 -	297	294.41	1.64E+02	52.84	3.56E+02	PB-214
	12	337.57	331 -	341	336.71	9.35E+01	56.40	3.75E+02	AC-228
	13	352.06	346 -	356	351.20	3.19E+02	59.53	3.01E+02	PB-214
	14	582.74	577 -	586	581.98	1.28E+02	38.20	1.35E+02	TL-208
	15	609.41	604 -	612	608.65	2.10E+02	42.14	1.44E+02	BI-214
	16	666.70	658 -	676	665.97	5.01E+01	54.04	2.32E+02	SB-126
	17	727.38	722 -	730	726.67	4.28E+01	23.48	5.84E+01	BI-212
	18	788.71	781 -	796	788.02	4.05E+01	39.04	1.37E+02	LA-138
M	19	906.15	904 -	917	905.51	1.29E+01	10.17	2.35E+01	.....
m	20	911.10	904 -	917	910.46	7.48E+01	24.40	4.85E+01	AC-228
									TL-204
	21	1055.36	1048 -	1061	1054.79	3.87E+01	26.85	6.26E+01	.....

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
22	1237.92	1232 -	1241	1237.44	3.24E+01	21.10	4.51E+01	CO-56
23	1247.65	1242 -	1253	1247.16	3.41E+01	20.49	3.38E+01	.....
24	1385.82	1382 -	1389	1385.41	1.08E+01	10.77	1.25E+01	.....
25	1460.49	1455 -	1467	1460.11	2.54E+02	38.18	5.20E+01	K-40
26	1592.39	1585 -	1597	1592.08	2.24E+01	15.96	1.91E+01	.....
27	1676.89	1672 -	1680	1676.63	6.89E+00	7.50	4.22E+00	.....
28	1755.78	1751 -	1759	1755.56	8.86E+00	8.02	4.27E+00	.....
29	1763.99	1759 -	1767	1763.78	2.52E+01	13.74	1.37E+01	BI-214
30	1976.61	1973 -	1979	1976.52	8.40E+00	7.23	3.20E+00	.....
31	2204.88	2197 -	2210	2204.93	1.49E+01	13.64	1.43E+01	BI-214
32	2613.62	2609 -	2618	2613.94	3.20E+01	11.31	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 3:10:53PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.13	1.21E+02	81.51	1.63E-02	1.56E-03
	2	63.48	2.29E+02	113.34	2.16E-02	1.64E-03
	3	76.22	7.59E+02	145.60	2.32E-02	1.91E-03
	4	86.45	1.34E+02	97.34	2.37E-02	2.13E-03
	5	93.10	1.59E+02	85.23	2.37E-02	2.09E-03
	6	156.30	6.82E+01	70.11	1.93E-02	1.53E-03
	7	185.60	1.17E+02	69.40	1.70E-02	1.40E-03
	8	209.11	6.25E+01	71.20	1.53E-02	1.29E-03
M	9	238.75	3.87E+02	60.95	1.36E-02	1.14E-03
m	10	242.47	1.15E+02	63.12	1.34E-02	1.12E-03
	11	295.28	1.64E+02	52.84	1.10E-02	9.13E-04
	12	337.57	9.35E+01	56.40	9.62E-03	8.24E-04
	13	352.06	3.19E+02	59.53	9.21E-03	7.94E-04
	14	582.74	1.28E+02	38.20	5.51E-03	6.31E-04
	15	609.41	2.10E+02	42.14	5.27E-03	6.20E-04
	16	666.70	5.01E+01	54.04	4.83E-03	5.92E-04
	17	727.38	4.28E+01	23.48	4.45E-03	5.16E-04
	18	788.71	4.05E+01	39.04	4.13E-03	4.39E-04
M	19	906.15	1.29E+01	10.17	3.64E-03	3.00E-04

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	20	911.10	7.48E+01	24.40	3.62E-03	2.99E-04
	21	1055.36	3.87E+01	26.85	3.18E-03	2.65E-04
	22	1237.92	3.24E+01	21.10	2.76E-03	2.33E-04
	23	1247.65	3.41E+01	20.49	2.74E-03	2.33E-04
	24	1385.82	1.08E+01	10.77	2.50E-03	2.19E-04
	25	1460.49	2.54E+02	38.18	2.39E-03	2.08E-04
	26	1592.39	2.24E+01	15.96	2.20E-03	1.88E-04
	27	1676.89	6.89E+00	7.50	2.10E-03	1.75E-04
	28	1755.78	8.86E+00	8.02	2.01E-03	1.63E-04
	29	1763.99	2.52E+01	13.74	2.00E-03	1.62E-04
	30	1976.61	8.40E+00	7.23	1.78E-03	1.51E-04
	31	2204.88	1.49E+01	13.64	1.58E-03	1.51E-04
	32	2613.62	3.20E+01	11.31	1.28E-03	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 3:10:53PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.13	1.21E+02	81.51	2.81E+01	7.56E+00	9.27E+01	8.19E+01
	2	63.48	2.29E+02	113.34	5.28E+01	8.63E+00	1.76E+02	1.14E+02
	3	76.22	7.59E+02	145.60			7.59E+02	1.46E+02
	4	86.45	1.34E+02	97.34			1.34E+02	9.73E+01
	5	93.10	1.59E+02	85.23	6.21E+01	4.71E+00	9.68E+01	8.54E+01
	6	156.30	6.82E+01	70.11			6.82E+01	7.01E+01
	7	185.60	1.17E+02	69.40	2.34E+01	8.57E+00	9.34E+01	6.99E+01
	8	209.11	6.25E+01	71.20			6.25E+01	7.12E+01
M	9	238.75	3.87E+02	60.95	8.90E+00	6.12E+00	3.78E+02	6.13E+01
m	10	242.47	1.15E+02	63.12			1.15E+02	6.31E+01
	11	295.28	1.64E+02	52.84			1.64E+02	5.28E+01
	12	337.57	9.35E+01	56.40			9.35E+01	5.64E+01
	13	352.06	3.19E+02	59.53			3.19E+02	5.95E+01
	14	582.74	1.28E+02	38.20	3.56E+00	2.78E+00	1.25E+02	3.83E+01
	15	609.41	2.10E+02	42.14			2.10E+02	4.21E+01
	16	666.70	5.01E+01	54.04			5.01E+01	5.40E+01
	17	727.38	4.28E+01	23.48			4.28E+01	2.35E+01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	788.71	4.05E+01	39.04			4.05E+01	3.90E+01
M	19	906.15	1.29E+01	10.17			1.29E+01	1.02E+01
m	20	911.10	7.48E+01	24.40			7.48E+01	2.44E+01
	21	1055.36	3.87E+01	26.85			3.87E+01	2.69E+01
	22	1237.92	3.24E+01	21.10			3.24E+01	2.11E+01
	23	1247.65	3.41E+01	20.49			3.41E+01	2.05E+01
	24	1385.82	1.08E+01	10.77			1.08E+01	1.08E+01
	25	1460.49	2.54E+02	38.18			2.54E+02	3.82E+01
	26	1592.39	2.24E+01	15.96			2.24E+01	1.60E+01
	27	1676.89	6.89E+00	7.50	1.65E+00	1.33E+00	5.24E+00	7.62E+00
	28	1755.78	8.86E+00	8.02			8.86E+00	8.02E+00
	29	1763.99	2.52E+01	13.74			2.52E+01	1.37E+01
	30	1976.61	8.40E+00	7.23			8.40E+00	7.23E+00
	31	2204.88	1.49E+01	13.64			1.49E+01	1.36E+01
	32	2613.62	3.20E+01	11.31			3.20E+01	1.13E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 3:10:53PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.13	1.21E+02	81.51	2.81E+01	7.56E+00	9.27E+01	8.19E+01
	2	63.48	2.29E+02	113.34	5.28E+01	8.63E+00	1.76E+02	1.14E+02
	3	76.22	7.59E+02	145.60			7.59E+02	1.46E+02
	4	86.45	1.34E+02	97.34			1.34E+02	9.73E+01
	5	93.10	1.59E+02	85.23	6.21E+01	4.71E+00	9.68E+01	8.54E+01
	6	156.30	6.82E+01	70.11			6.82E+01	7.01E+01
	7	185.60	1.17E+02	69.40	2.34E+01	8.57E+00	9.34E+01	6.99E+01
	8	209.11	6.25E+01	71.20			6.25E+01	7.12E+01
M	9	238.75	3.87E+02	60.95	8.90E+00	6.12E+00	3.78E+02	6.13E+01
m	10	242.47	1.15E+02	63.12			1.15E+02	6.31E+01
	11	295.28	1.64E+02	52.84			1.64E+02	5.28E+01
	12	337.57	9.35E+01	56.40			9.35E+01	5.64E+01
	13	352.06	3.19E+02	59.53			3.19E+02	5.95E+01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	14	582.74	1.28E+02	38.20	3.56E+00	2.78E+00	1.25E+02	3.83E+01
	15	609.41	2.10E+02	42.14			2.10E+02	4.21E+01
	16	666.70	5.01E+01	54.04			5.01E+01	5.40E+01
	17	727.38	4.28E+01	23.48			4.28E+01	2.35E+01
	18	788.71	4.05E+01	39.04			4.05E+01	3.90E+01
M	19	906.15	1.29E+01	10.17			1.29E+01	1.02E+01
m	20	911.10	7.48E+01	24.40			7.48E+01	2.44E+01
	21	1055.36	3.87E+01	26.85			3.87E+01	2.69E+01
	22	1237.92	3.24E+01	21.10			3.24E+01	2.11E+01
	23	1247.65	3.41E+01	20.49			3.41E+01	2.05E+01
	24	1385.82	1.08E+01	10.77			1.08E+01	1.08E+01
	25	1460.49	2.54E+02	38.18			2.54E+02	3.82E+01
	26	1592.39	2.24E+01	15.96			2.24E+01	1.60E+01
	27	1676.89	6.89E+00	7.50	1.65E+00	1.33E+00	5.24E+00	7.62E+00
	28	1755.78	8.86E+00	8.02			8.86E+00	8.02E+00
	29	1763.99	2.52E+01	13.74			2.52E+01	1.37E+01
	30	1976.61	8.40E+00	7.23			8.40E+00	7.23E+00
	31	2204.88	1.49E+01	13.64			1.49E+01	1.36E+01
	32	2613.62	3.20E+01	11.31			3.20E+01	1.13E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.983	1460.81	*	10.67	8.73E+00	1.53E+00
EU-155	0.362	86.50	*	30.90	1.66E-01	1.22E-01
		105.30		20.70		
TL-208	0.333	583.14	*	30.22	6.56E-01	2.15E-01
		860.37		4.48		
		2614.66		35.85		
PB-210	0.979	46.50	*	4.25	1.18E+00	1.05E+00
BI-212	0.770	727.17	*	11.80	7.13E-01	4.00E-01
		1620.62		2.75		
PB-212	0.895	238.63	*	44.60	5.45E-01	9.96E-02
		300.09		3.41		
BI-214	0.727	609.31	*	46.30	7.53E-01	1.75E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.727	1120.29		15.10		
		1764.49	*	15.80	6.97E-01	3.85E-01
		2204.22	*	4.98	1.65E+00	1.52E+00
PB-214	0.998	295.21	*	19.19	6.78E-01	2.25E-01
		351.92	*	37.19	8.15E-01	1.67E-01
RA-226	0.941	186.21	*	3.28	1.47E+00	2.91E+00
AC-228	0.568	338.32	*	11.40	7.46E-01	4.54E-01
		911.07	*	27.70	6.53E-01	2.20E-01
		969.11		16.60		
TH-234	0.994	63.29	*	3.80	1.88E+00	1.22E+00
NP-237	1.000	86.50	*	12.60	3.93E-01	2.88E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 3:10:53PM
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	76.22	2.10768E-01	9.59		
	5	93.10	2.68870E-02	44.09	Sum	
	6	156.30	1.89331E-02	51.43		
	8	209.11	1.73621E-02	56.96	Tol.	GA-67
						CM-243
m	10	242.47	3.19223E-02	27.46		
	16	666.70	1.39031E-02	53.98	Tol.	SB-126
	18	788.71	1.12398E-02	48.24	Tol.	LA-138
M	19	906.15	3.57145E-03	39.56		
	21	1055.36	1.07520E-02	34.69		
	22	1237.92	9.00758E-03	32.53		
	23	1247.65	9.47168E-03	30.05		
	24	1385.82	2.99020E-03	50.03		
	26	1592.39	6.23264E-03	35.57		
	27	1676.89	1.45421E-03	72.74		
	28	1755.78	2.46212E-03	45.22	Sum	
	30	1976.61	2.33333E-03	43.03		
	32	2613.62	8.88889E-03	17.68		

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

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	0.98	1460.81	*	10.67	8.73E+00	1.53E+00
EU-155	0.36	86.50	*	30.90	1.66E-01	1.22E-01
		105.30		20.70		
TL-208	0.33	583.14	*	30.22	6.56E-01	2.15E-01
		860.37		4.48		
		2614.66		35.85		
PB-210	0.97	46.50	*	4.25	1.18E+00	1.05E+00
BI-212	0.77	727.17	*	11.80	7.13E-01	4.00E-01
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	5.45E-01	9.96E-02
		300.09		3.41		
BI-214	0.72	609.31	*	46.30	7.53E-01	1.75E-01
		1120.29		15.10		
		1764.49	*	15.80	6.97E-01	3.85E-01
		2204.22	*	4.98	1.65E+00	1.52E+00
PB-214	0.99	295.21	*	19.19	6.78E-01	2.25E-01
		351.92	*	37.19	8.15E-01	1.67E-01
RA-226	0.94	186.21	*	3.28	1.47E+00	2.91E+00
AC-228	0.56	338.32	*	11.40	7.46E-01	4.54E-01
		911.07	*	27.70	6.53E-01	2.20E-01
		969.11		16.60		
TH-234	0.99	63.29	*	3.80	1.88E+00	1.22E+00
NP-237	1.00	86.50	*	12.60	3.93E-01	2.88E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.983	8.73E+00	1.53E+00	
?	EU-155	0.362	1.66E-01	1.22E-01	
	TL-208	0.333	6.56E-01	2.15E-01	
	PB-210	0.979	1.18E+00	1.05E+00	
	BI-212	0.770	7.13E-01	4.00E-01	
	PB-212	0.895	5.45E-01	9.96E-02	
	BI-214	0.727	7.53E-01	1.58E-01	
	PB-214	0.998	7.66E-01	1.34E-01	
	RA-226	0.941	1.47E+00	2.91E+00	
	AC-228	0.568	6.70E-01	1.98E-01	
	TH-234	0.994	1.88E+00	1.22E+00	
?	NP-237	1.000	3.93E-01	2.88E-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 1707078-06

HTC-A01-S003-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 3:10:53PM
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	76.22	2.10768E-01	9.59		
	5	93.10	2.68870E-02	44.09	Sum	
	6	156.30	1.89331E-02	51.43		
	8	209.11	1.73621E-02	56.96	Tol.	GA-67
						CM-243
m	10	242.47	3.19223E-02	27.46		
	16	666.70	1.39031E-02	53.98	Tol.	SB-126
	18	788.71	1.12398E-02	48.24	Tol.	LA-138
M	19	906.15	3.57145E-03	39.56		
	21	1055.36	1.07520E-02	34.69		
	22	1237.92	9.00758E-03	32.53		
	23	1247.65	9.47168E-03	30.05		
	24	1385.82	2.99020E-03	50.03		
	26	1592.39	6.23264E-03	35.57		
	27	1676.89	1.45421E-03	72.74		
	28	1755.78	2.46212E-03	45.22	Sum	
	30	1976.61	2.33333E-03	43.03		
	32	2613.62	8.88889E-03	17.68		

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 1707078-06

HTC-A01-S003-1218-01

+		BE-7	477.59		10.42	-1.74E+00	1.49E+00	1.49E+00
+		NA-22	1274.54		99.94	2.24E-02	8.54E-02	8.54E-02
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	5.57E-03	6.75E-02	6.75E-02
+		K-40	1460.81	*	10.67	8.73E+00	1.28E+00	1.28E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-5.91E-02	4.96E-02	4.96E-02
			78.34		96.00	2.08E-01		6.44E-02
+		SC-46	889.25		99.98	-1.53E-01	1.71E-01	1.71E-01
			1120.51		99.99	1.71E-01		2.60E-01
+		V-48	983.52		99.98	-1.00E+00	5.08E+00	5.08E+00
			1312.10		97.50	-1.11E+00		5.20E+00
+		CR-51	320.08		9.83	7.31E-01	5.18E+00	5.18E+00
+		MN-54	834.83		99.97	-2.23E-02	9.34E-02	9.34E-02
+		CO-56	846.75		99.96	-1.81E-02	1.78E-01	1.78E-01
			1037.75		14.03	3.35E-01		1.37E+00
			1238.25		67.00	1.42E-01		4.00E-01
			1771.40		15.51	-9.37E-01		9.15E-01
			2598.48		16.90	-9.19E-02		8.54E-01
+		CO-57	122.06		85.51	-2.04E-02	5.65E-02	5.65E-02
			136.48		10.60	-1.51E-01		4.79E-01
+		CO-58	810.76		99.40	-5.11E-03	1.94E-01	1.94E-01
+		FE-59	1099.22		56.50	-3.48E-01	5.96E-01	5.96E-01
			1291.56		43.20	-4.33E-02		8.22E-01
+		CO-60	1173.22		100.00	7.47E-02	8.03E-02	1.13E-01
			1332.49		100.00	-5.15E-03		8.03E-02
+		ZN-65	1115.52		50.75	-8.93E-02	2.47E-01	2.47E-01
+		GA-67	93.31		35.70	6.98E+07	6.69E+07	6.69E+07
			208.95		2.24	6.43E+08		1.04E+09
			300.22		16.00	-1.18E+07		1.64E+08
+		SE-75	121.11		16.70	-2.17E-01	1.17E-01	3.86E-01
			136.00		59.20	-3.76E-02		1.17E-01
			264.65		59.80	-4.11E-03		1.34E-01
			279.53		25.20	8.71E-02		3.18E-01
			400.65		11.40	-5.43E-01		7.93E-01
+		RB-82	776.52		13.00	-2.71E-01	7.51E+00	7.51E+00
+		RB-83	520.41		46.00	-1.71E-02	2.63E-01	2.63E-01
			529.64		30.30	9.17E-02		4.37E-01
			552.65		16.40	2.47E-01		8.05E-01
+		KR-85	513.99		0.43	2.03E+01	1.74E+01	1.74E+01
+		SR-85	513.99		99.27	2.39E-01	2.05E-01	2.05E-01
+		Y-88	898.02		93.40	-5.77E-02	1.02E-01	1.60E-01
			1836.01		99.38	3.38E-02		1.02E-01
+		MO-93	263.06		56.72	-8.12E-03	7.33E-02	8.03E-02
			684.67		99.68	2.92E-02		7.33E-02
			1477.11		99.08	-1.17E-03		7.40E-02
+		NB-93M	16.57		9.43	8.11E+00	5.22E+00	5.22E+00
+		NB-94	702.63		100.00	4.89E-02	7.71E-02	8.63E-02
			871.10		100.00	-3.32E-03		7.71E-02
+		NB-95	765.79		99.81	3.20E-01	5.58E-01	5.58E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NB-95M	235.69	25.00	2.96E+07	1.95E+07	1.95E+07
+	ZR-95	724.18	43.70	1.06E-01	3.77E-01	4.96E-01
		756.72	55.30	0.00E+00		3.77E-01
+	MO-99	181.06	6.20	-4.63E+09	1.09E+10	1.44E+10
		739.58	12.80	-4.86E+09		1.09E+10
		778.00	4.50	2.19E+09		3.32E+10
+	RU-103	497.08	89.00	-1.59E-01	3.05E-01	3.05E-01
+	RU-106	621.84	9.80	-2.00E-01	7.27E-01	7.27E-01
+	AG-108M	433.93	89.90	-2.49E-02	6.02E-02	6.02E-02
		614.37	90.40	-5.44E-03		7.76E-02
		722.95	90.50	1.82E-02		8.31E-02
+	CD-109	88.03	3.72	1.33E-01	1.54E+00	1.54E+00
+	AG-110M	657.75	93.14	-1.37E-02	1.09E-01	1.09E-01
		677.61	10.53	2.80E-02		8.92E-01
		706.67	16.46	7.50E-02		6.81E-01
		763.93	21.98	-1.10E-01		4.67E-01
		884.67	71.63	3.87E-02		1.57E-01
		1384.27	23.94	-7.90E-02		4.36E-01
+	CD-113M	263.70	0.02	9.97E+01	2.05E+02	2.05E+02
+	SN-113	255.12	1.93	1.98E+00	1.33E-01	4.12E+00
		391.69	64.90	-9.04E-02		1.33E-01
+	TE123M	159.00	84.10	-3.97E-03	8.60E-02	8.60E-02
+	SB-124	602.71	97.87	1.49E-02	1.80E-01	1.80E-01
		645.85	7.26	-9.30E-01		2.08E+00
		722.78	11.10	4.38E-01		2.00E+00
		1691.02	49.00	4.51E-02		3.58E-01
+	I-125	35.49	6.49	4.57E-01	3.39E+00	3.39E+00
+	SB-125	176.33	6.89	-8.20E-03	2.04E-01	6.59E-01
		427.89	29.33	-4.35E-02		2.04E-01
		463.38	10.35	8.84E-03		5.86E-01
		600.56	17.80	1.38E-01		3.80E-01
		635.90	11.32	4.07E-02		5.29E-01
+	SB-126	414.70	83.30	-6.14E+00	1.24E+01	1.24E+01
		666.33	99.60	-3.57E+00		1.56E+01
		695.00	99.60	4.40E-01		1.44E+01
		720.50	53.80	1.86E+00		2.36E+01
+	SN-126	87.57	37.00	1.16E-02	1.34E-01	1.34E-01
+	SB-127	473.00	25.00	1.36E+06	4.69E+06	5.22E+06
		685.20	35.70	1.87E+06		4.69E+06
		783.80	14.70	1.82E+05		1.30E+07
+	I-129	29.78	57.00	-1.03E-02	1.89E-01	1.89E-01
		33.60	13.20	2.89E-01		6.35E-01
		39.58	7.52	-1.36E-01		7.92E-01
+	I-131	284.30	6.05	4.58E+02	2.06E+02	2.51E+03
		364.48	81.20	4.12E+01		2.06E+02
		636.97	7.26	-5.31E+02		2.58E+03
		722.89	1.80	3.08E+03		1.41E+04
+	TE-132	49.72	13.10	3.15E+07	2.55E+07	2.05E+08

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		TE-132	228.16	88.00	-3.38E+06	2.55E+07	2.55E+07
+		BA-133	81.00	33.00	-3.50E-01	1.16E-01	1.51E-01
			302.84	17.80	1.08E-01		2.95E-01
			356.01	60.00	-1.06E-02		1.16E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	-7.68E+04	3.31E+04	3.31E+04
+		CS-134	563.23	8.38	-1.59E-01	7.13E-02	7.74E-01
			569.32	15.43	2.07E-01		4.66E-01
			604.70	97.60	-1.18E-02		7.13E-02
			795.84	85.40	-1.36E-03		1.04E-01
			801.93	8.73	4.03E-02		9.66E-01
+		CS-135	268.24	16.00	7.61E-02	3.11E-01	3.11E-01
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	1.46E+01	1.03E+01	8.29E+01
			163.89	4.61	4.89E+01		1.28E+02
			176.55	13.56	4.94E+00		4.55E+01
			273.65	12.66	1.44E+00		5.27E+01
			340.57	48.50	1.62E+00		1.81E+01
			818.50	99.70	-5.85E+00		1.03E+01
			1048.07	79.60	4.65E+00		1.61E+01
			1235.34	19.70	2.73E+01		8.17E+01
+		CS-137	661.65	85.12	-4.70E-03	9.68E-02	9.68E-02
+		LA-138	788.74	34.00	-8.34E-02	1.20E-01	2.47E-01
			1435.80	66.00	7.40E-03		1.20E-01
+		CE-139	165.85	80.35	-1.89E-02	8.14E-02	8.14E-02
+		BA-140	162.64	6.70	-3.97E+01	3.28E+01	9.94E+01
			304.84	4.50	-2.51E+01		1.79E+02
			423.70	3.20	9.88E+01		3.12E+02
			437.55	2.00	3.64E+02		4.81E+02
			537.32	25.00	-1.14E+01		3.28E+01
+		LA-140	328.77	20.50	7.93E+00	1.50E+01	3.94E+01
			487.03	45.50	-8.68E+00		2.06E+01
			815.85	23.50	-1.38E+01		5.10E+01
			1596.49	95.49	-1.15E+00		1.50E+01
+		CE-141	145.44	48.40	-1.73E-01	6.37E-01	6.37E-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	-3.24E-02	4.69E-01	4.69E-01
+		PM-144	476.78	42.00	-5.78E-02	8.03E-02	1.33E-01
			618.01	98.60	2.76E-02		8.03E-02
			696.49	99.49	-1.05E-02		9.32E-02
+		PM-145	36.85	21.70	1.52E-01	1.73E-01	3.24E-01
			37.36	39.70	8.11E-02		1.73E-01
			42.30	15.10	1.39E-02		3.71E-01
			72.40	2.31	-4.52E+00		2.29E+00
+		PM-146	453.90	39.94	4.67E-02	1.50E-01	1.50E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PM-146	735.90		14.01	-2.42E-02	1.50E-01	5.22E-01
		747.13		13.10	8.16E-02		6.01E-01
+	ND-147	91.11		28.90	9.73E+01	6.75E+01	6.75E+01
		531.02		13.10	2.90E+01		1.81E+02
+	PM-149	285.90		3.10	-7.74E+12	9.03E+12	9.03E+12
+	EU-152	121.78		20.50	-6.75E-02	1.87E-01	1.87E-01
		244.69		5.40	-2.64E-02		9.77E-01
		344.27		19.13	4.00E-02		2.62E-01
		778.89		9.20	1.62E-01		8.37E-01
		964.01		10.40	-4.50E-01		9.59E-01
		1085.78		7.22	-3.41E-01		1.18E+00
		1112.02		9.60	-5.48E-01		8.58E-01
		1407.95		14.94	-1.97E-02		4.69E-01
+	GD-153	97.43		31.30	-2.43E-02	1.70E-01	1.70E-01
		103.18		22.20	5.36E-02		2.22E-01
+	EU-154	123.07		40.50	2.64E-02	9.69E-02	9.69E-02
		723.30		19.70	8.61E-02		4.04E-01
		873.19		11.50	3.10E-02		6.63E-01
		996.32		10.30	-1.71E-01		8.43E-01
		1004.76		17.90	1.41E-01		4.72E-01
		1274.45		35.50	6.00E-02		2.29E-01
+	EU-155	86.50	*	30.90	1.66E-01	1.89E-01	1.96E-01
		105.30		20.70	2.27E-02		1.89E-01
+	EU-156	811.77		10.40	-1.71E+00	5.28E+01	5.28E+01
		1153.47		7.20	1.29E+01		9.89E+01
		1230.71		8.90	2.74E+01		7.98E+01
+	HO-166M	184.41		72.60	8.82E-02	7.08E-02	7.08E-02
		280.45		29.60	5.09E-02		1.57E-01
		410.94		11.10	-5.43E-02		5.15E-01
		711.69		54.10	4.21E-02		1.50E-01
+	TM-171	66.72		0.14	-8.61E+00	3.79E+01	3.79E+01
+	HF-172	67.35		5.31	-2.27E-01	3.79E-01	9.97E-01
		125.81		11.30	-4.33E-02		3.79E-01
+	LU-172	181.53		20.60	-2.61E+02	2.32E+03	3.79E+03
		900.72		29.81	-2.79E+03		4.61E+03
		1093.66		62.50	2.72E+02		2.32E+03
+	LU-173	100.72		5.24	-4.57E-01	2.63E-01	7.87E-01
		272.11		21.20	1.15E-01		2.63E-01
+	HF-175	343.40		84.00	2.28E-02	1.49E-01	1.49E-01
+	LU-176	88.34		13.30	3.22E-02	5.09E-02	3.73E-01
		201.83		86.00	-6.50E-03		5.09E-02
		306.78		94.00	2.15E-02		5.13E-02
+	HF-181	133.02		41.70	1.96E-01	2.98E-01	4.55E-01
		345.85		17.20	2.06E-01		1.32E+00
		482.03		82.80	6.83E-03		2.98E-01
+	TA-182	67.75		41.20	-2.39E-01	2.01E-01	2.01E-01
		1121.30		34.90	8.41E-02		5.75E-01
		1189.05		16.23	2.50E-01		1.06E+00
		1221.41		26.98	-1.35E-01		7.10E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02		11.44	2.81E-01	2.01E-01	1.47E+00
+	IR-192	308.46		29.68	-1.79E-01	2.84E-01	3.74E-01
		468.07		48.10	-4.29E-02		2.84E-01
+	HG-203	279.19		77.30	7.57E-02	2.44E-01	2.44E-01
+	TL-204	374.74		94.11	1.52E-02	5.89E-02	5.89E-02
		899.15		99.16	-1.10E-02		8.99E-02
		911.74		91.10	2.12E-01		1.49E-01
+	BI-207	569.67		97.72	3.02E-02	6.78E-02	6.78E-02
		1063.62		74.90	4.19E-02		1.24E-01
+	TL-208	583.14	*	30.22	6.56E-01	2.83E-01	2.83E-01
		860.37		4.48	-4.48E-02		1.79E+00
		2614.66		35.85	5.72E-01		5.46E-01
+	BI-210M	262.00		45.00	-6.92E-02	9.60E-02	9.60E-02
		300.00		23.00	-1.64E-02		2.28E-01
+	PB-210	46.50	*	4.25	1.18E+00	1.70E+00	1.70E+00
+	PB-211	404.84		2.90	2.50E-01	2.00E+00	2.00E+00
		831.96		2.90	-5.65E-01		2.78E+00
+	BI-212	727.17	*	11.80	7.13E-01	5.79E-01	5.79E-01
		1620.62		2.75	0.00E+00		2.07E+00
+	PB-212	238.63	*	44.60	5.45E-01	1.77E-01	1.77E-01
		300.09		3.41	-1.11E-01		1.54E+00
+	BI-214	609.31	*	46.30	7.53E-01	1.90E-01	1.90E-01
		1120.29		15.10	5.21E-01		7.89E-01
		1764.49	*	15.80	6.97E-01		5.03E-01
		2204.22	*	4.98	1.65E+00		2.36E+00
+	PB-214	295.21	*	19.19	6.78E-01	2.07E-01	3.25E-01
		351.92	*	37.19	8.15E-01		2.07E-01
+	RN-219	401.80		6.50	-6.45E-01	8.21E-01	8.21E-01
+	RA-223	323.87		3.88	-2.71E-01	1.27E+00	1.27E+00
+	RA-224	240.98		3.95	6.86E+00	1.99E+00	1.99E+00
+	RA-225	40.00		31.00	-2.68E+00	1.56E+01	1.56E+01
+	RA-226	186.21	*	3.28	1.47E+00	1.78E+00	1.78E+00
+	TH-227	50.10		8.40	9.63E-02	5.91E-01	6.26E-01
		236.00		11.50	8.96E-01		5.91E-01
		256.20		6.30	3.50E-01		7.24E-01
+	AC-228	338.32	*	11.40	7.46E-01	4.25E-01	7.17E-01
		911.07	*	27.70	6.53E-01		4.25E-01
		969.11		16.60	5.22E-02		6.45E-01
+	TH-230	48.44		16.90	1.77E-01	3.24E-01	3.24E-01
		62.85		4.60	1.89E+00		1.14E+00
		67.67		0.37	-1.51E+01		1.26E+01
+	PA-231	283.67		1.60	5.13E-01	2.25E+00	2.81E+00
		302.67		2.30	8.24E-01		2.25E+00
+	TH-231	25.64		14.70	-1.17E-01	7.23E-01	1.06E+00
		84.21		6.40	-6.41E-01		7.23E-01
+	PA-233	311.98		38.60	-7.67E-01	1.30E+00	1.30E+00
+	PA-234	131.20		20.40	-5.67E-02	1.96E-01	1.96E-01
		733.99		8.80	-3.70E-01		7.72E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	946.00		12.00	1.42E-01	1.96E-01	7.42E-01
+	PA-234M	1001.03		0.92	8.09E-01	9.39E+00	9.39E+00
+	TH-234	63.29	*	3.80	1.88E+00	1.97E+00	1.97E+00
+	U-235	143.76		10.50	1.25E-01	3.99E-01	3.99E-01
		163.35		4.70	-3.44E-01		8.61E-01
		205.31		4.70	2.28E-02		9.18E-01
+	NP-237	86.50	*	12.60	3.93E-01	4.64E-01	4.64E-01
+	NP-239	106.10		22.70	4.40E+10	1.84E+11	1.84E+11
		228.18		10.70	-6.06E+10		4.57E+11
		277.60		14.10	4.24E+10		3.61E+11
+	AM-241	59.54		35.90	-2.61E-02	1.38E-01	1.38E-01
+	AM-243	74.67		66.00	3.58E-01	9.71E-02	9.71E-02
+	CM-243	209.75		3.29	1.23E+00	3.31E-01	1.45E+00
		228.14		10.60	-5.57E-02		4.20E-01
		277.60		14.00	3.89E-02		3.31E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	1.49E+00	1.49E+00	-1.74E+00	6.90E-01
	NA-22	1274.54		99.94	8.54E-02	8.54E-02	2.24E-02	3.80E-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	6.75E-02	6.75E-02	5.57E-03	2.77E-02
+	K-40	1460.81	*	10.67	1.28E+00	1.28E+00	8.73E+00	5.94E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

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	4.96E-02	4.96E-02	-5.91E-02	2.42E-02
	78.34	96.00	6.44E-02		2.08E-01	3.17E-02
SC-46	889.25	99.98	1.71E-01	1.71E-01	-1.53E-01	7.86E-02
	1120.51	99.99	2.60E-01		1.71E-01	1.21E-01
V-48	983.52	99.98	5.08E+00	5.08E+00	-1.00E+00	2.33E+00
	1312.10	97.50	5.20E+00		-1.11E+00	2.33E+00
CR-51	320.08	9.83	5.18E+00	5.18E+00	7.31E-01	2.46E+00
MN-54	834.83	99.97	9.34E-02	9.34E-02	-2.23E-02	4.30E-02
CO-56	846.75	99.96	1.78E-01	1.78E-01	-1.81E-02	8.18E-02
	1037.75	14.03	1.37E+00		3.35E-01	6.27E-01
	1238.25	67.00	4.00E-01		1.42E-01	1.85E-01
	1771.40	15.51	9.15E-01		-9.37E-01	3.70E-01
	2598.48	16.90	8.54E-01		-9.19E-02	3.02E-01
CO-57	122.06	85.51	5.65E-02	5.65E-02	-2.04E-02	2.74E-02
	136.48	10.60	4.79E-01		-1.51E-01	2.33E-01
CO-58	810.76	99.40	1.94E-01	1.94E-01	-5.11E-03	8.96E-02
FE-59	1099.22	56.50	5.96E-01	5.96E-01	-3.48E-01	2.69E-01
	1291.56	43.20	8.22E-01		-4.33E-02	3.67E-01
CO-60	1173.22	100.00	1.13E-01	8.03E-02	7.47E-02	5.24E-02
	1332.49	100.00	8.03E-02		-5.15E-03	3.54E-02
ZN-65	1115.52	50.75	2.47E-01	2.47E-01	-8.93E-02	1.14E-01
GA-67	93.31	35.70	6.69E+07	6.69E+07	6.98E+07	3.27E+07
	208.95	2.24	1.04E+09		6.43E+08	5.05E+08
	300.22	16.00	1.64E+08		-1.18E+07	7.84E+07
SE-75	121.11	16.70	3.86E-01	1.17E-01	-2.17E-01	1.87E-01
	136.00	59.20	1.17E-01		-3.76E-02	5.67E-02
	264.65	59.80	1.34E-01		-4.11E-03	6.42E-02
	279.53	25.20	3.18E-01		8.71E-02	1.52E-01
	400.65	11.40	7.93E-01		-5.43E-01	3.74E-01
RB-82	776.52	13.00	7.51E+00	7.51E+00	-2.71E-01	3.47E+00
RB-83	520.41	46.00	2.63E-01	2.63E-01	-1.71E-02	1.22E-01
	529.64	30.30	4.37E-01		9.17E-02	2.05E-01
	552.65	16.40	8.05E-01		2.47E-01	3.76E-01
KR-85	513.99	0.43	1.74E+01	1.74E+01	2.03E+01	8.26E+00
SR-85	513.99	99.27	2.05E-01	2.05E-01	2.39E-01	9.72E-02
Y-88	898.02	93.40	1.60E-01	1.02E-01	-5.77E-02	7.36E-02
	1836.01	99.38	1.02E-01		3.38E-02	3.93E-02
MO-93	263.06	56.72	8.03E-02	7.33E-02	-8.12E-03	3.84E-02
	684.67	99.68	7.33E-02		2.92E-02	3.41E-02
	1477.11	99.08	7.40E-02		-1.17E-03	3.19E-02
NB-93M	16.57	9.43	5.22E+00	5.22E+00	8.11E+00	2.52E+00
NB-94	702.63	100.00	8.63E-02	7.71E-02	4.89E-02	4.06E-02
	871.10	100.00	7.71E-02		-3.32E-03	3.54E-02
NB-95	765.79	99.81	5.58E-01	5.58E-01	3.20E-01	2.61E-01
NB-95M	235.69	25.00	1.95E+07	1.95E+07	2.96E+07	9.50E+06
ZR-95	724.18	43.70	4.96E-01	3.77E-01	1.06E-01	2.31E-01
	756.72	55.30	3.77E-01		0.00E+00	1.75E-01
MO-99	181.06	6.20	1.44E+10	1.09E+10	-4.63E+09	6.99E+09
	739.58	12.80	1.09E+10		-4.86E+09	5.03E+09
	778.00	4.50	3.32E+10		2.19E+09	1.53E+10
RU-103	497.08	89.00	3.05E-01	3.05E-01	-1.59E-01	1.42E-01
RU-106	621.84	9.80	7.27E-01	7.27E-01	-2.00E-01	3.36E-01
AG-108M	433.93	89.90	6.02E-02	6.02E-02	-2.49E-02	2.83E-02

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

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	7.76E-02	6.02E-02	-5.44E-03	3.63E-02
	722.95	90.50	8.31E-02		1.82E-02	3.86E-02
CD-109	88.03	3.72	1.54E+00	1.54E+00	1.33E-01	7.52E-01
AG-110M	657.75	93.14	1.09E-01	1.09E-01	-1.37E-02	5.12E-02
	677.61	10.53	8.92E-01		2.80E-02	4.15E-01
	706.67	16.46	6.81E-01		7.50E-02	3.20E-01
	763.93	21.98	4.67E-01		-1.10E-01	2.17E-01
	884.67	71.63	1.57E-01		3.87E-02	7.30E-02
	1384.27	23.94	4.36E-01		-7.90E-02	1.92E-01
CD-113M	263.70	0.02	2.05E+02	2.05E+02	9.97E+01	9.85E+01
SN-113	255.12	1.93	4.12E+00	1.33E-01	1.98E+00	1.97E+00
	391.69	64.90	1.33E-01		-9.04E-02	6.25E-02
TE123M	159.00	84.10	8.60E-02	8.60E-02	-3.97E-03	4.17E-02
SB-124	602.71	97.87	1.80E-01	1.80E-01	1.49E-02	8.32E-02
	645.85	7.26	2.08E+00		-9.30E-01	9.41E-01
	722.78	11.10	2.00E+00		4.38E-01	9.31E-01
	1691.02	49.00	3.58E-01		4.51E-02	1.45E-01
I-125	35.49	6.49	3.39E+00	3.39E+00	4.57E-01	1.64E+00
SB-125	176.33	6.89	6.59E-01	2.04E-01	-8.20E-03	3.19E-01
	427.89	29.33	2.04E-01		-4.35E-02	9.63E-02
	463.38	10.35	5.86E-01		8.84E-03	2.75E-01
	600.56	17.80	3.80E-01		1.38E-01	1.77E-01
	635.90	11.32	5.29E-01		4.07E-02	2.43E-01
SB-126	414.70	83.30	1.24E+01	1.24E+01	-6.14E+00	5.84E+00
	666.33	99.60	1.56E+01		-3.57E+00	7.32E+00
	695.00	99.60	1.44E+01		4.40E-01	6.71E+00
	720.50	53.80	2.36E+01		1.86E+00	1.08E+01
SN-126	87.57	37.00	1.34E-01	1.34E-01	1.16E-02	6.57E-02
SB-127	473.00	25.00	5.22E+06	4.69E+06	1.36E+06	2.45E+06
	685.20	35.70	4.69E+06		1.87E+06	2.18E+06
	783.80	14.70	1.30E+07		1.82E+05	6.06E+06
I-129	29.78	57.00	1.89E-01	1.89E-01	-1.03E-02	9.18E-02
	33.60	13.20	6.35E-01		2.89E-01	3.08E-01
	39.58	7.52	7.92E-01		-1.36E-01	3.84E-01
I-131	284.30	6.05	2.51E+03	2.06E+02	4.58E+02	1.20E+03
	364.48	81.20	2.06E+02		4.12E+01	9.73E+01
	636.97	7.26	2.58E+03		-5.31E+02	1.18E+03
	722.89	1.80	1.41E+04		3.08E+03	6.54E+03
TE-132	49.72	13.10	2.05E+08	2.55E+07	3.15E+07	9.99E+07
	228.16	88.00	2.55E+07		-3.38E+06	1.23E+07
BA-133	81.00	33.00	1.51E-01	1.16E-01	-3.50E-01	7.39E-02
	302.84	17.80	2.95E-01		1.08E-01	1.41E-01
	356.01	60.00	1.16E-01		-1.06E-02	5.58E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	3.31E+04	3.31E+04	-7.68E+04	1.62E+04
CS-134	563.23	8.38	7.74E-01	7.13E-02	-1.59E-01	3.60E-01
	569.32	15.43	4.66E-01		2.07E-01	2.18E-01
	604.70	97.60	7.13E-02		-1.18E-02	3.32E-02
	795.84	85.40	1.04E-01		-1.36E-03	4.84E-02
	801.93	8.73	9.66E-01		4.03E-02	4.47E-01
CS-135	268.24	16.00	3.11E-01	3.11E-01	7.61E-02	1.49E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

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	8.29E+01	1.03E+01	1.46E+01	4.03E+01
	163.89	4.61	1.28E+02		4.89E+01	6.20E+01
	176.55	13.56	4.55E+01		4.94E+00	2.20E+01
	273.65	12.66	5.27E+01		1.44E+00	2.52E+01
	340.57	48.50	1.81E+01		1.62E+00	8.67E+00
	818.50	99.70	1.03E+01		-5.85E+00	4.74E+00
	1048.07	79.60	1.61E+01		4.65E+00	7.41E+00
	1235.34	19.70	8.17E+01		2.73E+01	3.77E+01
CS-137	661.65	85.12	9.68E-02	9.68E-02	-4.70E-03	4.55E-02
LA-138	788.74	34.00	2.47E-01	1.20E-01	-8.34E-02	1.15E-01
	1435.80	66.00	1.20E-01		7.40E-03	5.25E-02
CE-139	165.85	80.35	8.14E-02	8.14E-02	-1.89E-02	3.94E-02
BA-140	162.64	6.70	9.94E+01	3.28E+01	-3.97E+01	4.81E+01
	304.84	4.50	1.79E+02		-2.51E+01	8.53E+01
	423.70	3.20	3.12E+02		9.88E+01	1.48E+02
	437.55	2.00	4.81E+02		3.64E+02	2.27E+02
	537.32	25.00	3.28E+01		-1.14E+01	1.51E+01
LA-140	328.77	20.50	3.94E+01	1.50E+01	7.93E+00	1.87E+01
	487.03	45.50	2.06E+01		-8.68E+00	9.63E+00
	815.85	23.50	5.10E+01		-1.38E+01	2.34E+01
	1596.49	95.49	1.50E+01		-1.15E+00	6.59E+00
CE-141	145.44	48.40	6.37E-01	6.37E-01	-1.73E-01	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	4.69E-01	4.69E-01	-3.24E-02	2.28E-01
PM-144	476.78	42.00	1.33E-01	8.03E-02	-5.78E-02	6.15E-02
	618.01	98.60	8.03E-02		2.76E-02	3.74E-02
	696.49	99.49	9.32E-02		-1.05E-02	4.36E-02
PM-145	36.85	21.70	3.24E-01	1.73E-01	1.52E-01	1.57E-01
	37.36	39.70	1.73E-01		8.11E-02	8.39E-02
	42.30	15.10	3.71E-01		1.39E-02	1.80E-01
	72.40	2.31	2.29E+00		-4.52E+00	1.12E+00
PM-146	453.90	39.94	1.50E-01	1.50E-01	4.67E-02	7.08E-02
	735.90	14.01	5.22E-01		-2.42E-02	2.41E-01
	747.13	13.10	6.01E-01		8.16E-02	2.79E-01
ND-147	91.11	28.90	6.75E+01	6.75E+01	9.73E+01	3.31E+01
	531.02	13.10	1.81E+02		2.90E+01	8.47E+01
PM-149	285.90	3.10	9.03E+12	9.03E+12	-7.74E+12	4.29E+12
EU-152	121.78	20.50	1.87E-01	1.87E-01	-6.75E-02	9.10E-02
	244.69	5.40	9.77E-01		-2.64E-02	4.72E-01
	344.27	19.13	2.62E-01		4.00E-02	1.24E-01
	778.89	9.20	8.37E-01		1.62E-01	3.87E-01
	964.01	10.40	9.59E-01		-4.50E-01	4.46E-01
	1085.78	7.22	1.18E+00		-3.41E-01	5.37E-01
	1112.02	9.60	8.58E-01		-5.48E-01	3.88E-01
	1407.95	14.94	4.69E-01		-1.97E-02	2.02E-01
GD-153	97.43	31.30	1.70E-01	1.70E-01	-2.43E-02	8.27E-02
	103.18	22.20	2.22E-01		5.36E-02	1.08E-01
EU-154	123.07	40.50	9.69E-02	9.69E-02	2.64E-02	4.71E-02
	723.30	19.70	4.04E-01		8.61E-02	1.89E-01
	873.19	11.50	6.63E-01		3.10E-02	3.04E-01

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	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	8.43E-01	9.69E-02	-1.71E-01	3.86E-01
		1004.76		17.90	4.72E-01		1.41E-01	2.16E-01
		1274.45		35.50	2.29E-01		6.00E-02	1.02E-01
+	EU-155	86.50	*	30.90	1.96E-01	1.89E-01	1.66E-01	9.64E-02
		105.30		20.70	1.89E-01		2.27E-02	9.18E-02
	EU-156	811.77		10.40	5.28E+01	5.28E+01	-1.71E+00	2.43E+01
		1153.47		7.20	9.89E+01		1.29E+01	4.54E+01
		1230.71		8.90	7.98E+01		2.74E+01	3.64E+01
	HO-166M	184.41		72.60	7.08E-02	7.08E-02	8.82E-02	3.45E-02
		280.45		29.60	1.57E-01		5.09E-02	7.49E-02
		410.94		11.10	5.15E-01		-5.43E-02	2.44E-01
		711.69		54.10	1.50E-01		4.21E-02	7.03E-02
	TM-171	66.72		0.14	3.79E+01	3.79E+01	-8.61E+00	1.85E+01
	HF-172	67.35		5.31	9.97E-01	3.79E-01	-2.27E-01	4.87E-01
		125.81		11.30	3.79E-01		-4.33E-02	1.84E-01
	LU-172	181.53		20.60	3.79E+03	2.32E+03	-2.61E+02	1.84E+03
		900.72		29.81	4.61E+03		-2.79E+03	2.12E+03
		1093.66		62.50	2.32E+03		2.72E+02	1.05E+03
	LU-173	100.72		5.24	7.87E-01	2.63E-01	-4.57E-01	3.82E-01
		272.11		21.20	2.63E-01		1.15E-01	1.26E-01
	HF-175	343.40		84.00	1.49E-01	1.49E-01	2.28E-02	7.08E-02
	LU-176	88.34		13.30	3.73E-01	5.09E-02	3.22E-02	1.83E-01
		201.83		86.00	5.09E-02		-6.50E-03	2.46E-02
		306.78		94.00	5.13E-02		2.15E-02	2.45E-02
	HF-181	133.02		41.70	4.55E-01	2.98E-01	1.96E-01	2.21E-01
		345.85		17.20	1.32E+00		2.06E-01	6.28E-01
		482.03		82.80	2.98E-01		6.83E-03	1.39E-01
	TA-182	67.75		41.20	2.01E-01	2.01E-01	-2.39E-01	9.81E-02
		1121.30		34.90	5.75E-01		8.41E-02	2.67E-01
		1189.05		16.23	1.06E+00		2.50E-01	4.84E-01
		1221.41		26.98	7.10E-01		-1.35E-01	3.27E-01
		1231.02		11.44	1.47E+00		2.81E-01	6.71E-01
	IR-192	308.46		29.68	3.74E-01	2.84E-01	-1.79E-01	1.78E-01
		468.07		48.10	2.84E-01		-4.29E-02	1.33E-01
	HG-203	279.19		77.30	2.44E-01	2.44E-01	7.57E-02	1.17E-01
	TL-204	374.74		94.11	5.89E-02	5.89E-02	1.52E-02	2.79E-02
		899.15		99.16	8.99E-02		-1.10E-02	4.15E-02
		911.74		91.10	1.49E-01		2.12E-01	7.09E-02
	BI-207	569.67		97.72	6.78E-02	6.78E-02	3.02E-02	3.17E-02
		1063.62		74.90	1.24E-01		4.19E-02	5.68E-02
+	TL-208	583.14	*	30.22	2.83E-01	2.83E-01	6.56E-01	1.34E-01
		860.37		4.48	1.79E+00		-4.48E-02	8.26E-01
		2614.66		35.85	5.46E-01		5.72E-01	2.47E-01
	BI-210M	262.00		45.00	9.60E-02	9.60E-02	-6.92E-02	4.59E-02
		300.00		23.00	2.28E-01		-1.64E-02	1.09E-01
+	PB-210	46.50	*	4.25	1.70E+00	1.70E+00	1.18E+00	8.33E-01
	PB-211	404.84		2.90	2.00E+00	2.00E+00	2.50E-01	9.48E-01
		831.96		2.90	2.78E+00		-5.65E-01	1.29E+00
+	BI-212	727.17	*	11.80	5.79E-01	5.79E-01	7.13E-01	2.67E-01
		1620.62		2.75	2.07E+00		0.00E+00	8.36E-01
+	PB-212	238.63	*	44.60	1.77E-01	1.77E-01	5.45E-01	8.66E-02
		300.09		3.41	1.54E+00		-1.11E-01	7.38E-01
+	BI-214	609.31	*	46.30	1.90E-01	1.90E-01	7.53E-01	9.02E-02

Analysis Report for 1707078-06

HTC-A01-S003-1218-01

	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	7.89E-01	1.90E-01	5.21E-01	3.69E-01
		1764.49	*	15.80	5.03E-01		6.97E-01	2.14E-01
		2204.22	*	4.98	2.36E+00		1.65E+00	1.03E+00
+	PB-214	295.21	*	19.19	3.25E-01	2.07E-01	6.78E-01	1.57E-01
		351.92	*	37.19	2.07E-01		8.15E-01	1.00E-01
	RN-219	401.80		6.50	8.21E-01	8.21E-01	-6.45E-01	3.88E-01
	RA-223	323.87		3.88	1.27E+00	1.27E+00	-2.71E-01	6.02E-01
	RA-224	240.98		3.95	1.99E+00	1.99E+00	6.86E+00	9.73E-01
	RA-225	40.00		31.00	1.56E+01	1.56E+01	-2.68E+00	7.56E+00
+	RA-226	186.21	*	3.28	1.78E+00	1.78E+00	1.47E+00	8.69E-01
	TH-227	50.10		8.40	6.26E-01	5.91E-01	9.63E-02	3.05E-01
		236.00		11.50	5.91E-01		8.96E-01	2.88E-01
		256.20		6.30	7.24E-01		3.50E-01	3.47E-01
+	AC-228	338.32	*	11.40	7.17E-01	4.25E-01	7.46E-01	3.48E-01
		911.07	*	27.70	4.25E-01		6.53E-01	2.01E-01
		969.11		16.60	6.45E-01		5.22E-02	3.02E-01
	TH-230	48.44		16.90	3.24E-01	3.24E-01	1.77E-01	1.58E-01
		62.85		4.60	1.14E+00		1.89E+00	5.58E-01
		67.67		0.37	1.26E+01		-1.51E+01	6.18E+00
	PA-231	283.67		1.60	2.81E+00	2.25E+00	5.13E-01	1.34E+00
		302.67		2.30	2.25E+00		8.24E-01	1.08E+00
	TH-231	25.64		14.70	1.06E+00	7.23E-01	-1.17E-01	5.14E-01
		84.21		6.40	7.23E-01		-6.41E-01	3.54E-01
	PA-233	311.98		38.60	1.30E+00	1.30E+00	-7.67E-01	6.17E-01
	PA-234	131.20		20.40	1.96E-01	1.96E-01	-5.67E-02	9.51E-02
		733.99		8.80	7.72E-01		-3.70E-01	3.55E-01
		946.00		12.00	7.42E-01		1.42E-01	3.43E-01
	PA-234M	1001.03		0.92	9.39E+00	9.39E+00	8.09E-01	4.31E+00
+	TH-234	63.29	*	3.80	1.97E+00	1.97E+00	1.88E+00	9.70E-01
	U-235	143.76		10.50	3.99E-01	3.99E-01	1.25E-01	1.94E-01
		163.35		4.70	8.61E-01		-3.44E-01	4.17E-01
		205.31		4.70	9.18E-01		2.28E-02	4.43E-01
+	NP-237	86.50	*	12.60	4.64E-01	4.64E-01	3.93E-01	2.28E-01
	NP-239	106.10		22.70	1.84E+11	1.84E+11	4.40E+10	8.95E+10
		228.18		10.70	4.57E+11		-6.06E+10	2.20E+11
		277.60		14.10	3.61E+11		4.24E+10	1.72E+11
	AM-241	59.54		35.90	1.38E-01	1.38E-01	-2.61E-02	6.75E-02
	AM-243	74.67		66.00	9.71E-02	9.71E-02	3.58E-01	4.78E-02
	CM-243	209.75		3.29	1.45E+00	3.31E-01	1.23E+00	6.99E-01
		228.14		10.60	4.20E-01		-5.57E-02	2.02E-01
		277.60		14.00	3.31E-01		3.89E-02	1.58E-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 1707078-06

HTC-A01-S003-1218-01

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S003-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	11	65
17:	77	78	67	66	65	63	59	64
25:	61	61	65	46	59	58	58	57
33:	53	58	60	55	44	55	57	41
41:	42	58	55	63	80	97	78	65
49:	60	67	71	69	69	59	71	73
57:	64	72	86	91	95	128	118	110
65:	104	87	71	81	90	84	96	106
73:	163	216	242	250	210	109	94	93
81:	72	86	104	109	95	132	145	107
89:	107	106	112	140	127	89	63	73
97:	49	53	68	65	51	62	62	64
105:	67	59	72	52	60	60	54	51
113:	77	68	59	63	48	63	61	59
121:	52	58	49	59	71	63	45	66
129:	63	65	61	61	54	62	59	52
137:	56	58	56	66	56	57	70	58
145:	53	53	46	60	59	61	54	48
153:	59	67	59	59	58	45	35	51
161:	55	42	51	39	51	47	55	36
169:	48	43	56	39	47	43	51	51
177:	36	53	47	39	49	52	49	64
185:	104	76	45	41	52	46	48	45
193:	31	46	47	39	49	46	41	29
201:	35	42	33	44	33	41	26	62
209:	60	34	37	35	28	27	44	30
217:	41	51	25	37	33	39	26	29
225:	28	33	39	31	37	23	32	34
233:	27	31	33	55	131	188	104	62
241:	62	66	34	33	23	22	29	29
249:	23	27	17	32	26	33	23	27
257:	25	20	18	26	17	30	29	19
265:	31	32	23	25	34	39	24	24
273:	21	23	19	21	18	24	25	31
281:	24	19	19	22	18	14	11	22
289:	21	24	12	20	48	84	98	37
297:	19	25	30	33	21	15	25	24
305:	23	20	21	16	15	17	16	22
313:	19	13	25	19	17	17	18	24
321:	19	17	19	14	21	19	22	24
329:	11	15	16	18	20	24	20	31
337:	40	55	22	17	18	19	19	16
345:	15	14	14	17	29	80	123	110
353:	38	19	12	14	12	12	13	19
361:	14	11	14	17	14	20	15	12

369:	11	18	19	10	16	18	15	19

Sample Title: HTC-A01-S003-1218-01

Channel								
377:	16	11	17	15	17	13	12	17
385:	10	16	23	19	15	12	14	10
393:	8	9	6	25	11	11	10	16
401:	20	14	14	14	28	14	12	18
409:	17	19	16	16	11	13	13	10
417:	13	16	15	23	11	16	15	16
425:	18	16	10	16	14	6	16	14
433:	12	11	17	10	16	14	18	13
441:	8	3	11	14	13	11	8	11
449:	12	17	14	11	12	10	13	14
457:	11	10	11	12	15	17	12	14
465:	4	9	9	16	17	11	9	12
473:	10	11	7	7	8	3	5	8
481:	10	18	9	12	11	11	11	7
489:	13	11	14	10	10	7	7	8
497:	13	8	5	9	12	9	10	9
505:	10	8	4	9	18	41	27	19
513:	7	5	9	9	8	4	8	11
521:	11	11	11	10	10	12	11	8
529:	14	7	12	11	11	7	10	6
537:	2	5	5	10	3	9	14	8
545:	7	11	9	8	10	9	14	9
553:	4	16	6	1	14	13	7	8
561:	12	9	8	12	4	7	7	16
569:	10	12	10	11	6	9	9	8
577:	5	6	13	14	32	53	44	13
585:	8	8	6	9	13	9	8	12
593:	7	8	6	9	12	8	11	11
601:	4	5	9	5	7	10	20	90
609:	93	35	16	6	12	7	12	8
617:	10	11	9	5	3	8	6	7
625:	9	7	4	14	10	3	8	4
633:	9	9	3	6	5	5	3	8
641:	6	3	7	5	3	4	6	4
649:	4	8	9	8	7	4	7	9
657:	10	5	12	9	15	13	5	5
665:	11	14	8	7	10	7	8	9
673:	11	5	7	5	5	4	10	8
681:	7	9	5	8	6	5	4	8
689:	4	3	6	6	6	9	10	7
697:	7	8	9	6	9	13	7	12
705:	7	13	8	4	10	9	8	11
713:	9	6	7	5	3	4	13	4
721:	2	5	2	6	11	12	9	15
729:	8	4	2	9	8	4	2	4
737:	5	8	8	6	5	2	6	7
745:	8	8	5	11	4	6	6	6
753:	5	3	15	6	7	5	4	3
761:	3	9	4	9	4	11	12	13
769:	6	8	6	6	4	4	6	9
777:	4	8	6	5	2	8	6	3
785:	10	15	6	9	5	2	5	8
793:	11	8	7	4	6	3	6	4

801:	6	5	6	6	9	7	4	6

Sample Title: HTC-A01-S003-1218-01

Channel								
809:	5	6	2	7	8	4	4	4
817:	2	6	6	3	9	4	5	7
825:	9	9	4	7	6	7	3	5
833:	5	9	6	3	6	1	5	6
841:	5	7	5	8	10	4	4	4
849:	4	0	6	5	5	7	6	3
857:	5	3	11	3	9	3	6	5
865:	6	3	4	7	7	4	6	3
873:	6	3	3	6	2	2	5	11
881:	1	8	7	8	5	4	3	7
889:	6	6	5	3	4	7	10	2
897:	2	5	9	2	4	12	4	4
905:	9	5	12	5	14	34	21	18
913:	2	6	8	4	3	3	8	2
921:	6	5	9	4	2	3	3	4
929:	4	5	11	2	11	6	4	2
937:	4	6	4	1	3	9	4	3
945:	6	5	3	9	8	8	6	4
953:	5	4	3	3	6	3	3	5
961:	4	8	11	6	7	7	9	13
969:	13	5	7	4	6	6	6	5
977:	6	7	0	3	5	6	5	2
985:	5	9	7	4	4	5	4	3
993:	3	4	9	2	7	3	4	6
1001:	7	5	3	5	3	2	4	3
1009:	3	3	4	3	4	2	7	4
1017:	2	4	5	9	5	5	4	4
1025:	4	0	4	4	5	6	2	4
1033:	7	1	3	3	2	9	4	4
1041:	4	2	5	3	4	7	4	1
1049:	4	5	9	3	10	5	2	5
1057:	5	9	6	5	1	3	6	8
1065:	6	2	6	5	2	5	5	1
1073:	4	1	5	5	7	3	8	4
1081:	5	2	1	4	5	3	4	4
1089:	6	2	5	4	4	4	4	5
1097:	0	5	1	4	5	2	2	6
1105:	5	5	3	5	2	4	0	4
1113:	2	6	4	9	4	3	11	11
1121:	10	7	4	9	2	6	7	5
1129:	4	4	2	3	5	6	2	3
1137:	6	4	4	5	3	4	4	1
1145:	4	4	4	2	3	5	5	8
1153:	3	6	2	4	5	4	3	7
1161:	7	3	3	7	4	3	5	4
1169:	4	6	5	7	5	8	3	6
1177:	8	3	1	3	6	4	1	2
1185:	8	3	3	4	3	2	10	5
1193:	1	3	8	2	9	5	5	4
1201:	4	3	4	2	6	6	4	7
1209:	4	8	3	9	7	10	5	4
1217:	5	5	7	3	8	6	6	1
1225:	6	7	4	6	3	5	4	1

1233:	2	4	6	6	14	4	9	7

Sample Title: HTC-A01-S003-1218-01

Channel								
1241:	2	2	3	9	6	7	3	2
1249:	7	3	7	2	0	2	0	6
1257:	3	5	2	4	6	6	3	4
1265:	2	5	1	2	1	3	2	3
1273:	2	4	1	5	1	1	2	2
1281:	2	2	6	5	3	2	1	3
1289:	1	3	2	3	2	4	4	2
1297:	2	2	6	5	5	2	1	6
1305:	3	2	6	2	5	4	2	2
1313:	2	2	2	3	2	5	2	1
1321:	3	4	1	3	4	4	1	1
1329:	1	5	1	3	2	2	2	2
1337:	0	1	4	0	5	2	2	0
1345:	1	3	2	2	0	4	0	3
1353:	1	2	2	2	2	2	2	1
1361:	5	2	2	0	1	2	1	1
1369:	3	3	2	3	5	1	2	2
1377:	10	8	4	1	1	0	2	3
1385:	2	5	4	1	0	2	1	0
1393:	0	2	1	1	3	2	1	2
1401:	4	3	0	2	3	0	1	1
1409:	1	3	2	0	2	1	0	0
1417:	2	3	2	3	1	4	2	2
1425:	0	2	2	1	2	1	1	6
1433:	1	1	2	0	3	1	2	0
1441:	3	3	1	0	2	1	3	3
1449:	2	2	2	2	4	1	3	1
1457:	2	15	67	91	63	26	3	5
1465:	1	2	1	3	1	1	1	0
1473:	1	2	0	1	2	1	2	2
1481:	2	2	1	4	2	1	0	2
1489:	1	2	1	2	3	3	1	1
1497:	2	0	0	1	0	0	0	0
1505:	1	1	5	3	1	1	5	1
1513:	2	1	1	0	2	2	3	2
1521:	0	3	2	1	2	3	2	2
1529:	2	2	1	1	0	1	2	5
1537:	0	2	1	3	2	1	1	0
1545:	0	2	0	0	1	0	0	2
1553:	2	0	1	0	0	1	0	3
1561:	1	1	0	0	2	1	1	0
1569:	1	1	2	1	3	0	2	0
1577:	2	0	0	0	1	0	1	3
1585:	0	3	1	1	1	4	7	3
1593:	5	2	4	1	0	0	2	0
1601:	2	0	1	1	1	1	2	2
1609:	1	2	0	1	1	0	1	0
1617:	1	0	1	1	2	1	0	0
1625:	1	1	0	5	1	0	1	0
1633:	1	2	1	0	2	2	0	1
1641:	0	2	1	1	0	0	2	0
1649:	1	2	0	1	1	0	2	1
1657:	2	0	1	0	1	1	0	1

1665:	2	1	0	1	0	0	0	0

Sample Title: HTC-A01-S003-1218-01

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

2097:	2	0	1	0	1	0	6	0

Sample Title: HTC-A01-S003-1218-01

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

2529:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S003-1218-01

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

2961:	0	0	0	2	0	0	0	0

Sample Title: HTC-A01-S003-1218-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-1218-01

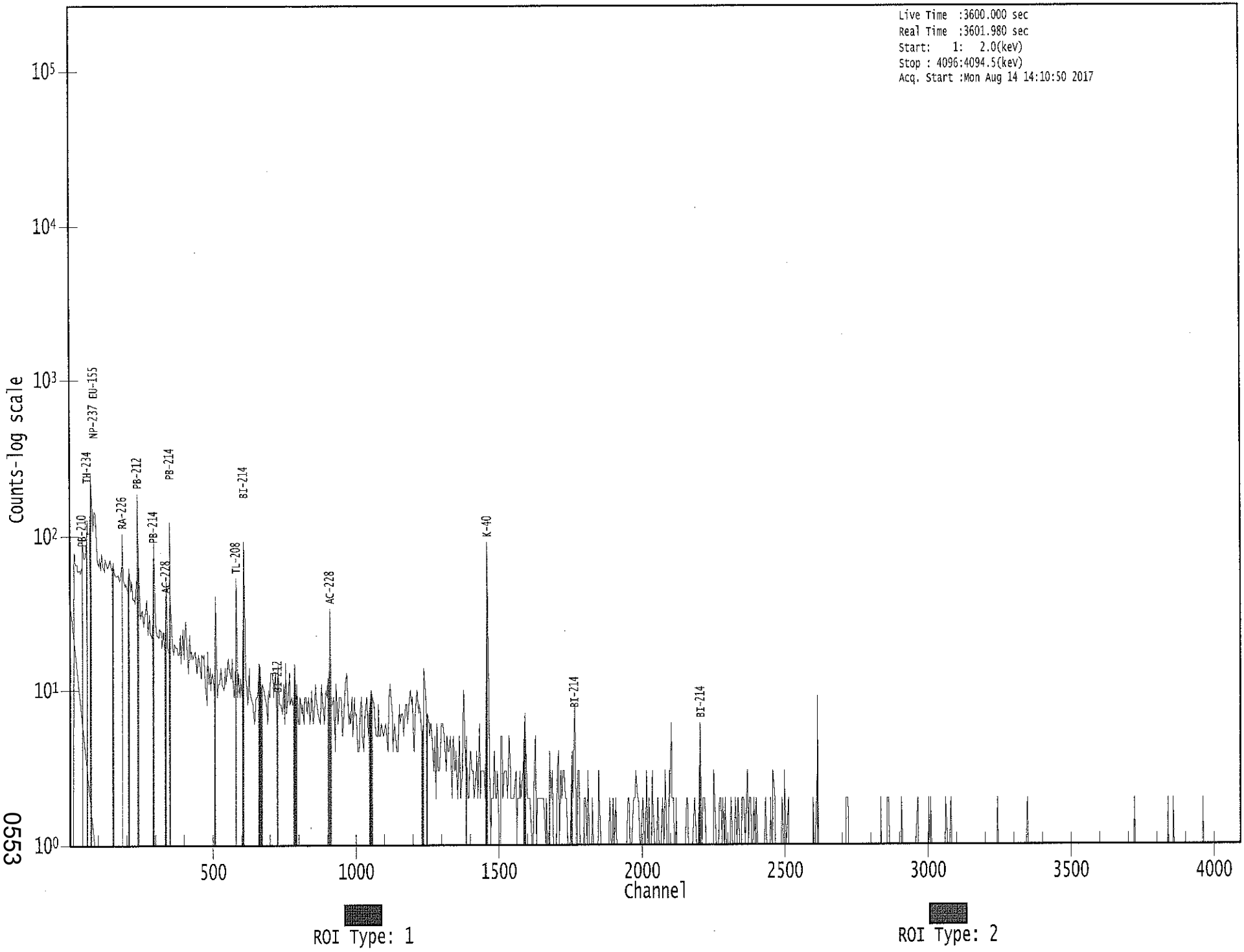
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	0	0	1	0	0
3449:	1	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	1	1	1	1	0	0	1
3473:	0	0	1	0	0	0	0	0
3481:	0	0	0	1	0	1	0	0
3489:	1	0	0	1	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-1218-01

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

0000055183.CNF



0553

JLB 8/14/17

Apex-Gamma

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-07
Sample Description	: HTC-A01-S003-1824-01
Sample Type	: SOIL
Sample Size	: 7.260E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:29:44AM
Acquisition Started	: 8/14/2017 2:11:49PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3610.1 seconds
Dead Time	: 0.28 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55184

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 3:12:00PM
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	46.75	47.06	0.0000	0.00
2	63.65	63.96	0.0000	0.00
3	75.04	75.34	0.0000	0.00
4	77.48	77.78	0.0000	0.00
5	87.70	88.00	0.0000	0.00
6	92.86	93.16	0.0000	0.00
7	129.67	129.95	0.0000	0.00
8	143.96	144.24	0.0000	0.00
9	186.13	186.40	0.0000	0.00
10	209.20	209.46	0.0000	0.00
11	238.94	239.19	0.0000	0.00
12	242.40	242.64	0.0000	0.00
13	259.22	259.46	0.0000	0.00
14	295.56	295.79	0.0000	0.00
15	338.16	338.37	0.0000	0.00
16	340.41	340.63	0.0000	0.00
17	352.22	352.43	0.0000	0.00
18	389.94	390.13	0.0000	0.00
19	396.53	396.73	0.0000	0.00
20	463.02	463.19	0.0000	0.00
21	511.72	511.87	0.0000	0.00
22	534.19	534.34	0.0000	0.00
23	579.51	579.64	0.0000	0.00
24	583.38	583.51	0.0000	0.00
25	609.46	609.58	0.0000	0.00
26	641.55	641.66	0.0000	0.00
27	661.24	661.34	0.0000	0.00
28	665.10	665.20	0.0000	0.00
29	727.64	727.72	0.0000	0.00
30	768.63	768.70	0.0000	0.00
31	805.59	805.65	0.0000	0.00
32	838.81	838.86	0.0000	0.00
33	859.71	859.75	0.0000	0.00
34	911.54	911.56	0.0000	0.00
35	933.82	933.83	0.0000	0.00
36	965.41	965.41	0.0000	0.00
37	968.73	968.73	0.0000	0.00
38	1001.06	1001.05	0.0000	0.00
39	1094.73	1094.69	0.0000	0.00
40	1103.90	1103.86	0.0000	0.00
41	1120.06	1120.01	0.0000	0.00
42	1238.20	1238.11	0.0000	0.00

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1280.86	1280.75	0.0000	0.00
44	1377.03	1376.89	0.0000	0.00
45	1383.31	1383.17	0.0000	0.00
46	1405.70	1405.55	0.0000	0.00
47	1431.23	1431.07	0.0000	0.00
48	1454.65	1454.49	0.0000	0.00
49	1460.40	1460.23	0.0000	0.00
50	1509.12	1508.94	0.0000	0.00
51	1555.20	1555.00	0.0000	0.00
52	1598.66	1598.44	0.0000	0.00
53	1635.33	1635.11	0.0000	0.00
54	1660.42	1660.18	0.0000	0.00
55	1729.60	1729.34	0.0000	0.00
56	1763.82	1763.55	0.0000	0.00
57	1846.07	1845.78	0.0000	0.00
58	1853.77	1853.47	0.0000	0.00
59	1872.09	1871.79	0.0000	0.00
60	1905.43	1905.11	0.0000	0.00
61	1946.18	1945.85	0.0000	0.00
62	2014.61	2014.26	0.0000	0.00
63	2051.19	2050.82	0.0000	0.00
64	2102.34	2101.96	0.0000	0.00
65	2117.81	2117.42	0.0000	0.00
66	2194.99	2194.58	0.0000	0.00
67	2203.11	2202.69	0.0000	0.00
68	2252.49	2252.06	0.0000	0.00
69	2446.29	2445.79	0.0000	0.00
70	2613.69	2613.14	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 3:12:00PM

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	46.75	43 -	52	47.06	3.30E+02	166.37	3.79E+03	1.91
	2	63.65	61 -	67	63.96	3.73E+02	159.05	4.34E+03	1.30
M	3	75.04	71 -	83	75.34	8.89E+02	179.44	4.16E+03	2.21
m	4	77.48	71 -	83	77.78	1.56E+03	165.64	3.59E+03	2.08
M	5	87.70	83 -	97	88.00	7.74E+02	198.86	5.33E+03	3.97
m	6	92.86	83 -	97	93.16	6.83E+02	150.11	3.23E+03	2.18
	7	129.67	126 -	133	129.95	1.22E+02	129.01	2.69E+03	4.80
	8	143.96	141 -	147	144.24	1.40E+02	115.67	2.32E+03	3.01
	9	186.13	181 -	191	186.40	8.59E+02	157.47	2.85E+03	2.30
	10	209.20	206 -	212	209.46	9.07E+01	95.91	1.59E+03	1.95
M	11	238.94	235 -	248	239.19	6.53E+02	92.37	1.09E+03	2.06
m	12	242.40	235 -	248	242.64	6.08E+02	93.02	1.01E+03	2.06
	13	259.22	256 -	262	259.46	7.11E+01	77.61	1.04E+03	1.36
	14	295.56	292 -	300	295.79	1.14E+03	114.00	1.31E+03	1.90
M	15	338.16	335 -	343	338.37	1.37E+02	60.75	6.26E+02	2.16
m	16	340.41	335 -	343	340.63	5.26E+01	61.11	6.08E+02	2.16
	17	352.22	347 -	356	352.43	2.07E+03	122.39	9.61E+02	2.19
	18	389.94	388 -	392	390.13	4.66E+01	41.47	3.23E+02	2.57
	19	396.53	393 -	401	396.73	8.44E+01	65.37	6.11E+02	1.58
	20	463.02	459 -	467	463.19	8.20E+01	60.40	5.06E+02	3.02
	21	511.72	507 -	518	511.87	1.98E+02	69.31	4.95E+02	2.39
	22	534.19	531 -	537	534.34	3.30E+01	40.94	2.76E+02	2.25
M	23	579.51	578 -	588	579.64	2.94E+01	27.50	1.60E+02	2.59
m	24	583.38	578 -	588	583.51	1.49E+02	47.72	2.99E+02	2.29
	25	609.46	603 -	615	609.58	1.40E+03	98.23	4.74E+02	2.22
	26	641.55	638 -	646	641.66	4.09E+01	43.21	2.54E+02	1.97
M	27	661.24	656 -	668	661.34	5.43E+01	36.41	1.84E+02	2.47
m	28	665.10	656 -	668	665.20	3.13E+01	41.13	2.44E+02	2.65
	29	727.64	724 -	731	727.72	4.12E+01	40.35	2.44E+02	2.52
	30	768.63	763 -	774	768.70	1.28E+02	56.96	3.41E+02	2.20
	31	805.59	802 -	810	805.65	4.49E+01	40.95	2.32E+02	1.56
	32	838.81	835 -	842	838.86	3.44E+01	36.55	1.99E+02	2.08
	33	859.71	855 -	865	859.75	5.02E+01	48.07	2.84E+02	3.78
	34	911.54	905 -	916	911.56	1.19E+02	52.61	2.81E+02	2.25
	35	933.82	930 -	937	933.83	5.86E+01	37.52	1.95E+02	2.21
M	36	965.41	964 -	972	965.41	1.67E+01	17.97	7.75E+01	1.76
m	37	968.73	964 -	972	968.73	5.85E+01	38.88	2.03E+02	2.59
	38	1001.06	995 -	1005	1001.05	3.15E+01	39.48	1.87E+02	2.75
	39	1094.73	1091 -	1098	1094.69	2.52E+01	29.12	1.26E+02	2.94
	40	1103.90	1099 -	1108	1103.86	3.50E+01	35.85	1.60E+02	3.09

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1120.06	1115	1126	1120.01	2.76E+02	56.75	2.66E+02	2.28
	42	1238.20	1234	1244	1238.11	1.14E+02	42.73	1.86E+02	3.01
	43	1280.86	1276	1284	1280.75	2.63E+01	32.25	1.43E+02	1.84
M	44	1377.03	1372	1387	1376.89	7.72E+01	27.93	7.20E+01	3.66
m	45	1383.31	1372	1387	1383.17	2.33E+01	24.74	7.20E+01	3.72
	46	1405.70	1397	1411	1405.55	5.05E+01	38.53	1.35E+02	3.25
	47	1431.23	1427	1436	1431.07	2.91E+01	19.05	3.58E+01	3.39
M	48	1454.65	1453	1468	1454.49	2.17E+01	7.55	8.09E+00	2.83
m	49	1460.40	1453	1468	1460.23	5.17E+02	49.19	5.09E+01	2.50
	50	1509.12	1503	1515	1508.94	5.96E+01	30.94	8.49E+01	2.43
	51	1555.20	1551	1559	1555.00	2.82E+01	17.01	2.76E+01	1.73
	52	1598.66	1595	1601	1598.44	1.70E+01	14.90	2.80E+01	1.80
	53	1635.33	1631	1639	1635.11	1.36E+01	16.05	3.09E+01	4.54
	54	1660.42	1657	1665	1660.18	2.26E+01	18.17	3.87E+01	1.55
	55	1729.60	1723	1739	1729.34	5.20E+01	23.77	3.40E+01	4.19
	56	1763.82	1758	1768	1763.55	2.30E+02	37.05	6.02E+01	2.45
	57	1846.07	1842	1850	1845.78	2.05E+01	17.02	3.29E+01	2.51
	58	1853.77	1851	1857	1853.47	9.26E+00	11.90	1.55E+01	1.25
	59	1872.09	1867	1875	1871.79	1.30E+01	13.00	1.80E+01	3.32
	60	1905.43	1903	1908	1905.11	6.13E+00	6.40	3.75E+00	3.06
	61	1946.18	1944	1948	1945.85	8.20E+00	7.25	3.60E+00	2.35
	62	2014.61	2011	2016	2014.26	5.64E+00	6.08	2.71E+00	2.07
	63	2051.19	2046	2054	2050.82	1.07E+01	10.02	8.67E+00	4.52
	64	2102.34	2096	2107	2101.96	2.62E+01	12.33	5.66E+00	2.17
	65	2117.81	2113	2121	2117.42	2.34E+01	13.44	1.32E+01	3.46
	66	2194.99	2191	2197	2194.58	9.85E+00	8.75	6.31E+00	1.86
	67	2203.11	2198	2208	2202.69	6.19E+01	17.04	6.23E+00	3.23
	68	2252.49	2246	2257	2252.06	1.11E+01	13.71	1.78E+01	2.15
	69	2446.29	2442	2449	2445.79	2.40E+01	9.80	0.00E+00	3.01
	70	2613.69	2608	2617	2613.14	5.10E+01	14.28	0.00E+00	2.47

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 3:12:00PM

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

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.75	43 -	52	3.30E+02	166.37	3.79E+03	1.33E+02
	2	63.65	61 -	67	3.73E+02	159.05	4.34E+03	1.27E+02
M	3	75.04	71 -	83	8.89E+02	179.44	4.16E+03	1.06E+02
m	4	77.48	71 -	83	1.56E+03	165.64	3.59E+03	9.85E+01
M	5	87.70	83 -	97	7.74E+02	198.86	5.33E+03	1.20E+02
m	6	92.86	83 -	97	6.83E+02	150.11	3.23E+03	9.35E+01
	7	129.67	126 -	133	1.22E+02	129.01	2.69E+03	1.04E+02
	8	143.96	141 -	147	1.40E+02	115.67	2.32E+03	9.31E+01
	9	186.13	181 -	191	8.59E+02	157.47	2.85E+03	1.20E+02
	10	209.20	206 -	212	9.07E+01	95.91	1.59E+03	7.73E+01
M	11	238.94	235 -	248	6.53E+02	92.37	1.09E+03	5.43E+01
m	12	242.40	235 -	248	6.08E+02	93.02	1.01E+03	5.23E+01
	13	259.22	256 -	262	7.11E+01	77.61	1.04E+03	6.23E+01
	14	295.56	292 -	300	1.14E+03	114.00	1.31E+03	7.55E+01
M	15	338.16	335 -	343	1.37E+02	60.75	6.26E+02	4.11E+01
m	16	340.41	335 -	343	5.26E+01	61.11	6.08E+02	4.05E+01
	17	352.22	347 -	356	2.07E+03	122.39	9.61E+02	6.73E+01
	18	389.94	388 -	392	4.66E+01	41.47	3.23E+02	3.22E+01
	19	396.53	393 -	401	8.44E+01	65.37	6.11E+02	5.16E+01
	20	463.02	459 -	467	8.20E+01	60.40	5.06E+02	4.74E+01
	21	511.72	507 -	518	1.98E+02	69.31	4.95E+02	5.21E+01
	22	534.19	531 -	537	3.30E+01	40.94	2.76E+02	3.23E+01
M	23	579.51	578 -	588	2.94E+01	27.50	1.60E+02	2.08E+01
m	24	583.38	578 -	588	1.49E+02	47.72	2.99E+02	2.85E+01
	25	609.46	603 -	615	1.40E+03	98.23	4.74E+02	5.22E+01
	26	641.55	638 -	646	4.09E+01	43.21	2.54E+02	3.39E+01
M	27	661.24	656 -	668	5.43E+01	36.41	1.84E+02	2.23E+01
m	28	665.10	656 -	668	3.13E+01	41.13	2.44E+02	2.57E+01
	29	727.64	724 -	731	4.12E+01	40.35	2.44E+02	3.14E+01
	30	768.63	763 -	774	1.28E+02	56.96	3.41E+02	4.30E+01
	31	805.59	802 -	810	4.49E+01	40.95	2.32E+02	3.18E+01
	32	838.81	835 -	842	3.44E+01	36.55	1.99E+02	2.85E+01
	33	859.71	855 -	865	5.02E+01	48.07	2.84E+02	3.78E+01
	34	911.54	905 -	916	1.19E+02	52.61	2.81E+02	3.93E+01
	35	933.82	930 -	937	5.86E+01	37.52	1.95E+02	2.82E+01
M	36	965.41	964 -	972	1.67E+01	17.97	7.75E+01	1.45E+01
m	37	968.73	964 -	972	5.85E+01	38.88	2.03E+02	2.34E+01
	38	1001.06	995 -	1005	3.15E+01	39.48	1.87E+02	3.11E+01
	39	1094.73	1091 -	1098	2.52E+01	29.12	1.26E+02	2.25E+01
	40	1103.90	1099 -	1108	3.50E+01	35.85	1.60E+02	2.78E+01
	41	1120.06	1115 -	1126	2.76E+02	56.75	2.66E+02	3.78E+01
	42	1238.20	1234 -	1244	1.14E+02	42.73	1.86E+02	3.04E+01
	43	1280.86	1276 -	1284	2.63E+01	32.25	1.43E+02	2.51E+01
M	44	1377.03	1372 -	1387	7.72E+01	27.93	7.20E+01	1.39E+01
m	45	1383.31	1372 -	1387	2.33E+01	24.74	7.20E+01	1.39E+01
	46	1405.70	1397 -	1411	5.05E+01	38.53	1.35E+02	2.94E+01
	47	1431.23	1427 -	1436	2.91E+01	19.05	3.58E+01	1.29E+01
M	48	1454.65	1453 -	1468	2.17E+01	7.55	8.09E+00	4.68E+00
m	49	1460.40	1453 -	1468	5.17E+02	49.19	5.09E+01	1.17E+01
	50	1509.12	1503 -	1515	5.96E+01	30.94	8.49E+01	2.20E+01
	51	1555.20	1551 -	1559	2.82E+01	17.01	2.76E+01	1.09E+01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
52	1598.66	1595 -	1601	1.70E+01	14.90	2.80E+01	1.02E+01
53	1635.33	1631 -	1639	1.36E+01	16.05	3.09E+01	1.17E+01
54	1660.42	1657 -	1665	2.26E+01	18.17	3.87E+01	1.27E+01
55	1729.60	1723 -	1739	5.20E+01	23.77	3.40E+01	1.55E+01
56	1763.82	1758 -	1768	2.30E+02	37.05	6.02E+01	1.75E+01
57	1846.07	1842 -	1850	2.05E+01	17.02	3.29E+01	1.18E+01
58	1853.77	1851 -	1857	9.26E+00	11.90	1.55E+01	8.40E+00
59	1872.09	1867 -	1875	1.30E+01	13.00	1.80E+01	8.89E+00
60	1905.43	1903 -	1908	6.13E+00	6.40	3.75E+00	3.34E+00
61	1946.18	1944 -	1948	8.20E+00	7.25	3.60E+00	3.65E+00
62	2014.61	2011 -	2016	5.64E+00	6.08	2.71E+00	3.12E+00
63	2051.19	2046 -	2054	1.07E+01	10.02	8.67E+00	6.25E+00
64	2102.34	2096 -	2107	2.62E+01	12.33	5.66E+00	5.65E+00
65	2117.81	2113 -	2121	2.34E+01	13.44	1.32E+01	7.68E+00
66	2194.99	2191 -	2197	9.85E+00	8.75	6.31E+00	5.01E+00
67	2203.11	2198 -	2208	6.19E+01	17.04	6.23E+00	5.37E+00
68	2252.49	2246 -	2257	1.11E+01	13.71	1.78E+01	9.85E+00
69	2446.29	2442 -	2449	2.40E+01	9.80	0.00E+00	0.00E+00
70	2613.69	2608 -	2617	5.10E+01	14.28	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 3:12:00PM

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	46.75	43 -	52	47.06	3.30E+02	166.37	3.79E+03	PB-210
	2	63.65	61 -	67	63.96	3.73E+02	159.05	4.34E+03	TH-234
									TH-230
M	3	75.04	71 -	83	75.34	8.89E+02	179.44	4.16E+03	AM-243
m	4	77.48	71 -	83	77.78	1.56E+03	165.64	3.59E+03	TI-44
M	5	87.70	83 -	97	88.00	7.74E+02	198.86	5.33E+03	SN-126

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CD-109
									LU-176
m	6	92.86	83 -	97	93.16	6.83E+02	150.11	3.23E+03	GA-67
	7	129.67	126 -	133	129.95	1.22E+02	129.01	2.69E+03	.....
	8	143.96	141 -	147	144.24	1.40E+02	115.67	2.32E+03	U-235
	9	186.13	181 -	191	186.40	8.59E+02	157.47	2.85E+03	RA-226
	10	209.20	206 -	212	209.46	9.07E+01	95.91	1.59E+03	GA-67
									CM-243
M	11	238.94	235 -	248	239.19	6.53E+02	92.37	1.09E+03	PB-212
m	12	242.40	235 -	248	242.64	6.08E+02	93.02	1.01E+03	.....
	13	259.22	256 -	262	259.46	7.11E+01	77.61	1.04E+03	.....
	14	295.56	292 -	300	295.79	1.14E+03	114.00	1.31E+03	PB-214
M	15	338.16	335 -	343	338.37	1.37E+02	60.75	6.26E+02	AC-228
m	16	340.41	335 -	343	340.63	5.26E+01	61.11	6.08E+02	CS-136
	17	352.22	347 -	356	352.43	2.07E+03	122.39	9.61E+02	PB-214
	18	389.94	388 -	392	390.13	4.66E+01	41.47	3.23E+02	.....
	19	396.53	393 -	401	396.73	8.44E+01	65.37	6.11E+02	.....
	20	463.02	459 -	467	463.19	8.20E+01	60.40	5.06E+02	SB-125
	21	511.72	507 -	518	511.87	1.98E+02	69.31	4.95E+02	.....
	22	534.19	531 -	537	534.34	3.30E+01	40.94	2.76E+02	.....
M	23	579.51	578 -	588	579.64	2.94E+01	27.50	1.60E+02	.....
m	24	583.38	578 -	588	583.51	1.49E+02	47.72	2.99E+02	TL-208
	25	609.46	603 -	615	609.58	1.40E+03	98.23	4.74E+02	BI-214
	26	641.55	638 -	646	641.66	4.09E+01	43.21	2.54E+02	.....
M	27	661.24	656 -	668	661.34	5.43E+01	36.41	1.84E+02	CS-137
m	28	665.10	656 -	668	665.20	3.13E+01	41.13	2.44E+02	CE-143
	29	727.64	724 -	731	727.72	4.12E+01	40.35	2.44E+02	BI-212
	30	768.63	763 -	774	768.70	1.28E+02	56.96	3.41E+02	.....
	31	805.59	802 -	810	805.65	4.49E+01	40.95	2.32E+02	.....
	32	838.81	835 -	842	838.86	3.44E+01	36.55	1.99E+02	.....
	33	859.71	855 -	865	859.75	5.02E+01	48.07	2.84E+02	TL-208
	34	911.54	905 -	916	911.56	1.19E+02	52.61	2.81E+02	TL-204
									AC-228
	35	933.82	930 -	937	933.83	5.86E+01	37.52	1.95E+02	.....
M	36	965.41	964 -	972	965.41	1.67E+01	17.97	7.75E+01	.....
m	37	968.73	964 -	972	968.73	5.85E+01	38.88	2.03E+02	AC-228
	38	1001.06	995 -	1005	1001.05	3.15E+01	39.48	1.87E+02	PA-234M
	39	1094.73	1091 -	1098	1094.69	2.52E+01	29.12	1.26E+02	.....
	40	1103.90	1099 -	1108	1103.86	3.50E+01	35.85	1.60E+02	.....
	41	1120.06	1115 -	1126	1120.01	2.76E+02	56.75	2.66E+02	BI-214
									SC-46
	42	1238.20	1234 -	1244	1238.11	1.14E+02	42.73	1.86E+02	CO-56
	43	1280.86	1276 -	1284	1280.75	2.63E+01	32.25	1.43E+02	.....
M	44	1377.03	1372 -	1387	1376.89	7.72E+01	27.93	7.20E+01	.....
m	45	1383.31	1372 -	1387	1383.17	2.33E+01	24.74	7.20E+01	AG-110M
	46	1405.70	1397 -	1411	1405.55	5.05E+01	38.53	1.35E+02	.....
	47	1431.23	1427 -	1436	1431.07	2.91E+01	19.05	3.58E+01	.....
M	48	1454.65	1453 -	1468	1454.49	2.17E+01	7.55	8.09E+00	.....
m	49	1460.40	1453 -	1468	1460.23	5.17E+02	49.19	5.09E+01	K-40
	50	1509.12	1503 -	1515	1508.94	5.96E+01	30.94	8.49E+01	.....
	51	1555.20	1551 -	1559	1555.00	2.82E+01	17.01	2.76E+01	.....
	52	1598.66	1595 -	1601	1598.44	1.70E+01	14.90	2.80E+01	.....
	53	1635.33	1631 -	1639	1635.11	1.36E+01	16.05	3.09E+01	.....
	54	1660.42	1657 -	1665	1660.18	2.26E+01	18.17	3.87E+01	.....

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
55	1729.60	1723 -	1739	1729.34	5.20E+01	23.77	3.40E+01	.....
56	1763.82	1758 -	1768	1763.55	2.30E+02	37.05	6.02E+01	BI-214
57	1846.07	1842 -	1850	1845.78	2.05E+01	17.02	3.29E+01	.....
58	1853.77	1851 -	1857	1853.47	9.26E+00	11.90	1.55E+01	.....
59	1872.09	1867 -	1875	1871.79	1.30E+01	13.00	1.80E+01	.....
60	1905.43	1903 -	1908	1905.11	6.13E+00	6.40	3.75E+00	.....
61	1946.18	1944 -	1948	1945.85	8.20E+00	7.25	3.60E+00	.....
62	2014.61	2011 -	2016	2014.26	5.64E+00	6.08	2.71E+00	.....
63	2051.19	2046 -	2054	2050.82	1.07E+01	10.02	8.67E+00	.....
64	2102.34	2096 -	2107	2101.96	2.62E+01	12.33	5.66E+00	.....
65	2117.81	2113 -	2121	2117.42	2.34E+01	13.44	1.32E+01	.....
66	2194.99	2191 -	2197	2194.58	9.85E+00	8.75	6.31E+00	.....
67	2203.11	2198 -	2208	2202.69	6.19E+01	17.04	6.23E+00	.....
68	2252.49	2246 -	2257	2252.06	1.11E+01	13.71	1.78E+01	.....
69	2446.29	2442 -	2449	2445.79	2.40E+01	9.80	0.00E+00	.....
70	2613.69	2608 -	2617	2613.14	5.10E+01	14.28	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 3:12:00PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.75	3.30E+02	166.37	1.74E-02	1.73E-03
	2	63.65	3.73E+02	159.05	2.45E-02	1.80E-03
M	3	75.04	8.89E+02	179.44	2.65E-02	2.02E-03
m	4	77.48	1.56E+03	165.64	2.68E-02	2.06E-03
M	5	87.70	7.74E+02	198.86	2.72E-02	2.25E-03
m	6	92.86	6.83E+02	150.11	2.71E-02	2.24E-03
	7	129.67	1.22E+02	129.01	2.45E-02	2.04E-03
	8	143.96	1.40E+02	115.67	2.32E-02	1.87E-03
	9	186.13	8.59E+02	157.47	1.96E-02	1.55E-03
	10	209.20	9.07E+01	95.91	1.79E-02	1.46E-03
M	11	238.94	6.53E+02	92.37	1.61E-02	1.34E-03
m	12	242.40	6.08E+02	93.02	1.59E-02	1.32E-03
	13	259.22	7.11E+01	77.61	1.51E-02	1.26E-03
	14	295.56	1.14E+03	114.00	1.35E-02	1.15E-03

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	15	338.16	1.37E+02	60.75	1.20E-02	1.06E-03
m	16	340.41	5.26E+01	61.11	1.19E-02	1.06E-03
	17	352.22	2.07E+03	122.39	1.15E-02	1.03E-03
	18	389.94	4.66E+01	41.47	1.05E-02	9.56E-04
	19	396.53	8.44E+01	65.37	1.04E-02	9.46E-04
	20	463.02	8.20E+01	60.40	9.02E-03	8.58E-04
	21	511.72	1.98E+02	69.31	8.24E-03	7.93E-04
	22	534.19	3.30E+01	40.94	7.93E-03	7.64E-04
M	23	579.51	2.94E+01	27.50	7.37E-03	7.03E-04
m	24	583.38	1.49E+02	47.72	7.32E-03	6.98E-04
	25	609.46	1.40E+03	98.23	7.04E-03	6.64E-04
	26	641.55	4.09E+01	43.21	6.72E-03	6.21E-04
M	27	661.24	5.43E+01	36.41	6.54E-03	5.95E-04
m	28	665.10	3.13E+01	41.13	6.51E-03	5.92E-04
	29	727.64	4.12E+01	40.35	6.01E-03	5.36E-04
	30	768.63	1.28E+02	56.96	5.72E-03	5.00E-04
	31	805.59	4.49E+01	40.95	5.49E-03	4.68E-04
	32	838.81	3.44E+01	36.55	5.29E-03	4.38E-04
	33	859.71	5.02E+01	48.07	5.18E-03	4.20E-04
	34	911.54	1.19E+02	52.61	4.92E-03	3.84E-04
	35	933.82	5.86E+01	37.52	4.82E-03	3.80E-04
M	36	965.41	1.67E+01	17.97	4.68E-03	3.75E-04
m	37	968.73	5.85E+01	38.88	4.67E-03	3.74E-04
	38	1001.06	3.15E+01	39.48	4.53E-03	3.69E-04
	39	1094.73	2.52E+01	29.12	4.20E-03	3.54E-04
	40	1103.90	3.50E+01	35.85	4.17E-03	3.52E-04
	41	1120.06	2.76E+02	56.75	4.12E-03	3.50E-04
	42	1238.20	1.14E+02	42.73	3.79E-03	3.22E-04
	43	1280.86	2.63E+01	32.25	3.68E-03	3.10E-04
M	44	1377.03	7.72E+01	27.93	3.47E-03	2.88E-04
m	45	1383.31	2.33E+01	24.74	3.46E-03	2.87E-04
	46	1405.70	5.05E+01	38.53	3.41E-03	2.84E-04
	47	1431.23	2.91E+01	19.05	3.36E-03	2.80E-04
M	48	1454.65	2.17E+01	7.55	3.32E-03	2.76E-04
m	49	1460.40	5.17E+02	49.19	3.31E-03	2.75E-04
	50	1509.12	5.96E+01	30.94	3.23E-03	2.67E-04
	51	1555.20	2.82E+01	17.01	3.15E-03	2.60E-04
	52	1598.66	1.70E+01	14.90	3.08E-03	2.53E-04
	53	1635.33	1.36E+01	16.05	3.03E-03	2.47E-04
	54	1660.42	2.26E+01	18.17	3.00E-03	2.43E-04
	55	1729.60	5.20E+01	23.77	2.91E-03	2.32E-04
	56	1763.82	2.30E+02	37.05	2.87E-03	2.27E-04
	57	1846.07	2.05E+01	17.02	2.77E-03	2.15E-04
	58	1853.77	9.26E+00	11.90	2.77E-03	2.15E-04
	59	1872.09	1.30E+01	13.00	2.75E-03	2.15E-04
	60	1905.43	6.13E+00	6.40	2.71E-03	2.15E-04
	61	1946.18	8.20E+00	7.25	2.67E-03	2.15E-04
	62	2014.61	5.64E+00	6.08	2.61E-03	2.15E-04
	63	2051.19	1.07E+01	10.02	2.58E-03	2.15E-04
	64	2102.34	2.62E+01	12.33	2.54E-03	2.15E-04
	65	2117.81	2.34E+01	13.44	2.53E-03	2.15E-04
	66	2194.99	9.85E+00	8.75	2.47E-03	2.15E-04
	67	2203.11	6.19E+01	17.04	2.46E-03	2.15E-04

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
68	2252.49	1.11E+01	13.71	2.43E-03	2.15E-04
69	2446.29	2.40E+01	9.80	2.32E-03	2.15E-04
70	2613.69	5.10E+01	14.28	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 3:12:00PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.75	3.30E+02	166.37	4.84E+01	1.23E+01	2.82E+02	1.67E+02
	2	63.65	3.73E+02	159.05	4.29E+01	6.03E+00	3.30E+02	1.59E+02
M	3	75.04	8.89E+02	179.44	1.67E+01	8.84E+00	8.72E+02	1.80E+02
m	4	77.48	1.56E+03	165.64			1.56E+03	1.66E+02
M	5	87.70	7.74E+02	198.86			7.74E+02	1.99E+02
m	6	92.86	6.83E+02	150.11	6.90E+01	7.61E+00	6.14E+02	1.50E+02
	7	129.67	1.22E+02	129.01			1.22E+02	1.29E+02
	8	143.96	1.40E+02	115.67			1.40E+02	1.16E+02
	9	186.13	8.59E+02	157.47	2.99E+01	5.81E+00	8.29E+02	1.58E+02
	10	209.20	9.07E+01	95.91			9.07E+01	9.59E+01
M	11	238.94	6.53E+02	92.37	9.49E+00	5.63E+00	6.44E+02	9.25E+01
m	12	242.40	6.08E+02	93.02			6.08E+02	9.30E+01
	13	259.22	7.11E+01	77.61			7.11E+01	7.76E+01
	14	295.56	1.14E+03	114.00			1.14E+03	1.14E+02
M	15	338.16	1.37E+02	60.75	4.73E+00	4.47E+00	1.32E+02	6.09E+01
m	16	340.41	5.26E+01	61.11			5.26E+01	6.11E+01
	17	352.22	2.07E+03	122.39			2.07E+03	1.22E+02
	18	389.94	4.66E+01	41.47			4.66E+01	4.15E+01
	19	396.53	8.44E+01	65.37			8.44E+01	6.54E+01
	20	463.02	8.20E+01	60.40			8.20E+01	6.04E+01
	21	511.72	1.98E+02	69.31	5.37E+01	4.54E+00	1.44E+02	6.95E+01
	22	534.19	3.30E+01	40.94			3.30E+01	4.09E+01
M	23	579.51	2.94E+01	27.50			2.94E+01	2.75E+01
m	24	583.38	1.49E+02	47.72			1.49E+02	4.77E+01
	25	609.46	1.40E+03	98.23	4.09E+00	3.07E+00	1.40E+03	9.83E+01
	26	641.55	4.09E+01	43.21			4.09E+01	4.32E+01
M	27	661.24	5.43E+01	36.41			5.43E+01	3.64E+01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	28	665.10	3.13E+01	41.13			3.13E+01	4.11E+01
	29	727.64	4.12E+01	40.35			4.12E+01	4.03E+01
	30	768.63	1.28E+02	56.96			1.28E+02	5.70E+01
	31	805.59	4.49E+01	40.95			4.49E+01	4.09E+01
	32	838.81	3.44E+01	36.55			3.44E+01	3.66E+01
	33	859.71	5.02E+01	48.07			5.02E+01	4.81E+01
	34	911.54	1.19E+02	52.61			1.19E+02	5.26E+01
	35	933.82	5.86E+01	37.52			5.86E+01	3.75E+01
M	36	965.41	1.67E+01	17.97			1.67E+01	1.80E+01
m	37	968.73	5.85E+01	38.88			5.85E+01	3.89E+01
	38	1001.06	3.15E+01	39.48			3.15E+01	3.95E+01
	39	1094.73	2.52E+01	29.12			2.52E+01	2.91E+01
	40	1103.90	3.50E+01	35.85			3.50E+01	3.58E+01
	41	1120.06	2.76E+02	56.75			2.76E+02	5.67E+01
	42	1238.20	1.14E+02	42.73			1.14E+02	4.27E+01
	43	1280.86	2.63E+01	32.25			2.63E+01	3.22E+01
M	44	1377.03	7.72E+01	27.93			7.72E+01	2.79E+01
m	45	1383.31	2.33E+01	24.74			2.33E+01	2.47E+01
	46	1405.70	5.05E+01	38.53			5.05E+01	3.85E+01
	47	1431.23	2.91E+01	19.05			2.91E+01	1.91E+01
M	48	1454.65	2.17E+01	7.55			2.17E+01	7.55E+00
m	49	1460.40	5.17E+02	49.19			5.17E+02	4.92E+01
	50	1509.12	5.96E+01	30.94			5.96E+01	3.09E+01
	51	1555.20	2.82E+01	17.01			2.82E+01	1.70E+01
	52	1598.66	1.70E+01	14.90			1.70E+01	1.49E+01
	53	1635.33	1.36E+01	16.05			1.36E+01	1.61E+01
	54	1660.42	2.26E+01	18.17			2.26E+01	1.82E+01
	55	1729.60	5.20E+01	23.77			5.20E+01	2.38E+01
	56	1763.82	2.30E+02	37.05			2.30E+02	3.71E+01
	57	1846.07	2.05E+01	17.02			2.05E+01	1.70E+01
	58	1853.77	9.26E+00	11.90			9.26E+00	1.19E+01
	59	1872.09	1.30E+01	13.00			1.30E+01	1.30E+01
	60	1905.43	6.13E+00	6.40			6.13E+00	6.40E+00
	61	1946.18	8.20E+00	7.25			8.20E+00	7.25E+00
	62	2014.61	5.64E+00	6.08			5.64E+00	6.08E+00
	63	2051.19	1.07E+01	10.02			1.07E+01	1.00E+01
	64	2102.34	2.62E+01	12.33			2.62E+01	1.23E+01
	65	2117.81	2.34E+01	13.44			2.34E+01	1.34E+01
	66	2194.99	9.85E+00	8.75			9.85E+00	8.75E+00
	67	2203.11	6.19E+01	17.04			6.19E+01	1.70E+01
	68	2252.49	1.11E+01	13.71			1.11E+01	1.37E+01
	69	2446.29	2.40E+01	9.80			2.40E+01	9.80E+00
	70	2613.69	5.10E+01	14.28			5.10E+01	1.43E+01

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

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 3:12:00PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.75	3.30E+02	166.37	4.84E+01	1.23E+01	2.82E+02	1.67E+02
	2	63.65	3.73E+02	159.05	4.29E+01	6.03E+00	3.30E+02	1.59E+02
M	3	75.04	8.89E+02	179.44	1.67E+01	8.84E+00	8.72E+02	1.80E+02
m	4	77.48	1.56E+03	165.64			1.56E+03	1.66E+02
M	5	87.70	7.74E+02	198.86			7.74E+02	1.99E+02
m	6	92.86	6.83E+02	150.11	6.90E+01	7.61E+00	6.14E+02	1.50E+02
	7	129.67	1.22E+02	129.01			1.22E+02	1.29E+02
	8	143.96	1.40E+02	115.67			1.40E+02	1.16E+02
	9	186.13	8.59E+02	157.47	2.99E+01	5.81E+00	8.29E+02	1.58E+02
	10	209.20	9.07E+01	95.91			9.07E+01	9.59E+01
M	11	238.94	6.53E+02	92.37	9.49E+00	5.63E+00	6.44E+02	9.25E+01
m	12	242.40	6.08E+02	93.02			6.08E+02	9.30E+01
	13	259.22	7.11E+01	77.61			7.11E+01	7.76E+01
	14	295.56	1.14E+03	114.00			1.14E+03	1.14E+02
M	15	338.16	1.37E+02	60.75	4.73E+00	4.47E+00	1.32E+02	6.09E+01
m	16	340.41	5.26E+01	61.11			5.26E+01	6.11E+01
	17	352.22	2.07E+03	122.39			2.07E+03	1.22E+02
	18	389.94	4.66E+01	41.47			4.66E+01	4.15E+01
	19	396.53	8.44E+01	65.37			8.44E+01	6.54E+01
	20	463.02	8.20E+01	60.40			8.20E+01	6.04E+01
	21	511.72	1.98E+02	69.31	5.37E+01	4.54E+00	1.44E+02	6.95E+01
	22	534.19	3.30E+01	40.94			3.30E+01	4.09E+01
M	23	579.51	2.94E+01	27.50			2.94E+01	2.75E+01
m	24	583.38	1.49E+02	47.72			1.49E+02	4.77E+01
	25	609.46	1.40E+03	98.23	4.09E+00	3.07E+00	1.40E+03	9.83E+01
	26	641.55	4.09E+01	43.21			4.09E+01	4.32E+01
M	27	661.24	5.43E+01	36.41			5.43E+01	3.64E+01
m	28	665.10	3.13E+01	41.13			3.13E+01	4.11E+01
	29	727.64	4.12E+01	40.35			4.12E+01	4.03E+01
	30	768.63	1.28E+02	56.96			1.28E+02	5.70E+01
	31	805.59	4.49E+01	40.95			4.49E+01	4.09E+01
	32	838.81	3.44E+01	36.55			3.44E+01	3.66E+01
	33	859.71	5.02E+01	48.07			5.02E+01	4.81E+01
	34	911.54	1.19E+02	52.61			1.19E+02	5.26E+01
	35	933.82	5.86E+01	37.52			5.86E+01	3.75E+01
M	36	965.41	1.67E+01	17.97			1.67E+01	1.80E+01
m	37	968.73	5.85E+01	38.88			5.85E+01	3.89E+01
	38	1001.06	3.15E+01	39.48			3.15E+01	3.95E+01
	39	1094.73	2.52E+01	29.12			2.52E+01	2.91E+01
	40	1103.90	3.50E+01	35.85			3.50E+01	3.58E+01
	41	1120.06	2.76E+02	56.75			2.76E+02	5.67E+01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1238.20	1.14E+02	42.73			1.14E+02	4.27E+01
	43	1280.86	2.63E+01	32.25			2.63E+01	3.22E+01
M	44	1377.03	7.72E+01	27.93			7.72E+01	2.79E+01
m	45	1383.31	2.33E+01	24.74			2.33E+01	2.47E+01
	46	1405.70	5.05E+01	38.53			5.05E+01	3.85E+01
	47	1431.23	2.91E+01	19.05			2.91E+01	1.91E+01
M	48	1454.65	2.17E+01	7.55			2.17E+01	7.55E+00
m	49	1460.40	5.17E+02	49.19			5.17E+02	4.92E+01
	50	1509.12	5.96E+01	30.94			5.96E+01	3.09E+01
	51	1555.20	2.82E+01	17.01			2.82E+01	1.70E+01
	52	1598.66	1.70E+01	14.90			1.70E+01	1.49E+01
	53	1635.33	1.36E+01	16.05			1.36E+01	1.61E+01
	54	1660.42	2.26E+01	18.17			2.26E+01	1.82E+01
	55	1729.60	5.20E+01	23.77			5.20E+01	2.38E+01
	56	1763.82	2.30E+02	37.05			2.30E+02	3.71E+01
	57	1846.07	2.05E+01	17.02			2.05E+01	1.70E+01
	58	1853.77	9.26E+00	11.90			9.26E+00	1.19E+01
	59	1872.09	1.30E+01	13.00			1.30E+01	1.30E+01
	60	1905.43	6.13E+00	6.40			6.13E+00	6.40E+00
	61	1946.18	8.20E+00	7.25			8.20E+00	7.25E+00
	62	2014.61	5.64E+00	6.08			5.64E+00	6.08E+00
	63	2051.19	1.07E+01	10.02			1.07E+01	1.00E+01
	64	2102.34	2.62E+01	12.33			2.62E+01	1.23E+01
	65	2117.81	2.34E+01	13.44			2.34E+01	1.34E+01
	66	2194.99	9.85E+00	8.75			9.85E+00	8.75E+00
	67	2203.11	6.19E+01	17.04			6.19E+01	1.70E+01
	68	2252.49	1.11E+01	13.71			1.11E+01	1.37E+01
	69	2446.29	2.40E+01	9.80			2.40E+01	9.80E+00
	70	2613.69	5.10E+01	14.28			5.10E+01	1.43E+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	0.973	1460.81	*	10.67	1.52E+01	1.94E+00
CD-109	0.983	88.03	*	3.72	9.11E+00	2.52E+00

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	0.997	87.57	*	37.00	7.97E-01	2.15E-01
CS-137	0.973	661.65	*	85.12	1.01E-01	6.86E-02
TL-208	0.919	583.14	*	30.22	6.98E-01	2.33E-01
		860.37	*	4.48	2.24E+00	2.15E+00
		2614.66	*	35.85	6.57E-01	1.95E-01
PB-210	0.990	46.50	*	4.25	3.97E+00	2.39E+00
BI-212	0.744	727.17	*	11.80	6.02E-01	5.91E-01
		1620.62		2.75		
PB-212	0.882	238.63	*	44.60	9.27E-01	1.54E-01
		300.09		3.41		
BI-214	0.916	609.31	*	46.30	4.44E+00	5.22E-01
		1120.29	*	15.10	4.59E+00	1.02E+00
		1764.49	*	15.80	5.25E+00	9.43E-01
		2204.22		4.98		
PB-214	0.984	295.21	*	19.19	4.57E+00	6.00E-01
		351.92	*	37.19	4.99E+00	5.35E-01
RA-226	0.999	186.21	*	3.28	1.33E+01	2.46E+01
AC-228	0.975	338.32	*	11.40	1.00E+00	4.71E-01
		911.07	*	27.70	9.07E-01	4.05E-01
		969.11	*	16.60	7.81E-01	5.23E-01
PA-234M	1.000	1001.03	*	0.92	7.80E+00	9.81E+00
TH-234	0.979	63.29	*	3.80	3.66E+00	1.79E+00
AM-243	0.978	74.67	*	66.00	5.15E-01	1.13E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 3:12:00PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.48	4.33875E-01	5.30	Tol.	TI-44
m	6	92.86	1.70503E-01	12.24	Sum	
	7	129.67	3.39942E-02	52.71		
	8	143.96	3.87905E-02	41.41	Tol.	U-235
	10	209.20	2.51916E-02	52.88	Tol.	GA-67
						CM-243

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	12	242.40	1.68985E-01	7.65		
	13	259.22	1.97382E-02	54.61		
m	16	340.41	1.46176E-02	58.06	Tol.	CS-136
	18	389.94	1.29567E-02	44.45		
	19	396.53	2.34466E-02	38.72		
	20	463.02	2.27732E-02	36.84	Tol.	SB-125
	21	511.72	3.99626E-02	24.14		
	22	534.19	9.17560E-03	61.97	Sum	
M	23	579.51	8.17374E-03	46.72		
	26	641.55	1.13608E-02	52.82		
m	28	665.10	8.69484E-03	65.71	Tol.	CE-143
	30	768.63	3.54553E-02	22.31	Sum	
	31	805.59	1.24741E-02	45.59		
	32	838.81	9.56675E-03	53.06		
	35	933.82	1.62901E-02	31.99	Sum	
M	36	965.41	4.65078E-03	53.65		
	39	1094.73	6.99495E-03	57.82		
	40	1103.90	9.71256E-03	51.26		
	42	1238.20	3.16761E-02	18.74	Tol.	CO-56
	43	1280.86	7.30442E-03	61.32		
M	44	1377.03	2.14310E-02	18.10		
m	45	1383.31	6.46969E-03	53.11	Tol.	AG-110M
	46	1405.70	1.40278E-02	38.15		
	47	1431.23	8.08806E-03	32.72		
M	48	1454.65	6.03754E-03	17.37	Sum	
	50	1509.12	1.65455E-02	25.97		
	51	1555.20	7.83069E-03	30.18		
	52	1598.66	4.72222E-03	43.82		
	53	1635.33	3.76437E-03	59.23		
	54	1660.42	6.28968E-03	40.11		
	55	1729.60	1.44444E-02	22.86	Sum	
	57	1846.07	5.70571E-03	41.44		
	58	1853.77	2.57353E-03	64.20		
	59	1872.09	3.61111E-03	50.00		
	60	1905.43	1.70139E-03	52.27		
	61	1946.18	2.27778E-03	44.18		
	62	2014.61	1.56746E-03	53.90		
	63	2051.19	2.96296E-03	46.99		
	64	2102.34	7.27012E-03	23.55	S-Esc	
	65	2117.81	6.49537E-03	28.75		
	66	2194.99	2.73504E-03	44.42		
	67	2203.11	1.71902E-02	13.76		
	68	2252.49	3.08333E-03	61.76		
	69	2446.29	6.66667E-03	20.41		

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 1707078-07

HTC-A01-S003-1824-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	1.52E+01	1.94E+00
CD-109	0.98	88.03	*	3.72	9.11E+00	2.52E+00
SN-126	0.99	87.57	*	37.00	7.97E-01	2.15E-01
CS-137	0.97	661.65	*	85.12	1.01E-01	6.86E-02
TL-208	0.91	583.14	*	30.22	6.98E-01	2.33E-01
		860.37	*	4.48	2.24E+00	2.15E+00
		2614.66	*	35.85	6.57E-01	1.95E-01
PB-210	0.99	46.50	*	4.25	3.97E+00	2.39E+00
BI-212	0.74	727.17	*	11.80	6.02E-01	5.91E-01
		1620.62		2.75		
PB-212	0.88	238.63	*	44.60	9.27E-01	1.54E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	4.44E+00	5.22E-01
		1120.29	*	15.10	4.59E+00	1.02E+00
		1764.49	*	15.80	5.25E+00	9.43E-01
		2204.22		4.98		
PB-214	0.98	295.21	*	19.19	4.57E+00	6.00E-01
		351.92	*	37.19	4.99E+00	5.35E-01
RA-226	0.99	186.21	*	3.28	1.33E+01	2.46E+01
AC-228	0.97	338.32	*	11.40	1.00E+00	4.71E-01
		911.07	*	27.70	9.07E-01	4.05E-01
		969.11	*	16.60	7.81E-01	5.23E-01
PA-234M	1.00	1001.03	*	0.92	7.80E+00	9.81E+00
TH-234	0.97	63.29	*	3.80	3.66E+00	1.79E+00
AM-243	0.97	74.67	*	66.00	5.15E-01	1.13E-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 1707078-07

HTC-A01-S003-1824-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.973	1.52E+01	1.94E+00	
?	CD-109	0.983	9.11E+00	2.52E+00	
?	SN-126	0.997	7.97E-01	2.15E-01	
	CS-137	0.973	1.01E-01	6.86E-02	
	TL-208	0.919	6.81E-01	1.49E-01	
	PB-210	0.990	3.97E+00	2.39E+00	
	BI-212	0.744	6.02E-01	5.91E-01	
	PB-212	0.882	9.27E-01	1.54E-01	
	BI-214	0.916	4.62E+00	4.17E-01	
	PB-214	0.984	4.81E+00	4.00E-01	
	RA-226	0.999	1.33E+01	2.46E+01	
	AC-228	0.975	9.05E-01	2.65E-01	
	PA-234M	1.000	7.80E+00	9.81E+00	
	TH-234	0.979	3.66E+00	1.79E+00	
	AM-243	0.978	5.15E-01	1.13E-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 1707078-07

HTC-A01-S003-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 3:12:00PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.48	4.33875E-01	5.30	Tol.	TI-44
m	6	92.86	1.70503E-01	12.24	Sum	
	7	129.67	3.39942E-02	52.71		
	8	143.96	3.87905E-02	41.41	Tol.	U-235
	10	209.20	2.51916E-02	52.88	Tol.	GA-67
						CM-243
m	12	242.40	1.68985E-01	7.65		
	13	259.22	1.97382E-02	54.61		
m	16	340.41	1.46176E-02	58.06	Tol.	CS-136
	18	389.94	1.29567E-02	44.45		
	19	396.53	2.34466E-02	38.72		
	20	463.02	2.27732E-02	36.84	Tol.	SB-125
	21	511.72	3.99626E-02	24.14		
	22	534.19	9.17560E-03	61.97	Sum	
M	23	579.51	8.17374E-03	46.72		
	26	641.55	1.13608E-02	52.82		
m	28	665.10	8.69484E-03	65.71	Tol.	CE-143
	30	768.63	3.54553E-02	22.31	Sum	
	31	805.59	1.24741E-02	45.59		
	32	838.81	9.56675E-03	53.06		
	35	933.82	1.62901E-02	31.99	Sum	
M	36	965.41	4.65078E-03	53.65		
	39	1094.73	6.99495E-03	57.82		
	40	1103.90	9.71256E-03	51.26		
	42	1238.20	3.16761E-02	18.74	Tol.	CO-56
	43	1280.86	7.30442E-03	61.32		
M	44	1377.03	2.14310E-02	18.10		
m	45	1383.31	6.46969E-03	53.11	Tol.	AG-110M
	46	1405.70	1.40278E-02	38.15		
	47	1431.23	8.08806E-03	32.72		
M	48	1454.65	6.03754E-03	17.37	Sum	
	50	1509.12	1.65455E-02	25.97		
	51	1555.20	7.83069E-03	30.18		
	52	1598.66	4.72222E-03	43.82		
	53	1635.33	3.76437E-03	59.23		

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	1660.42	6.28968E-03	40.11		
55	1729.60	1.44444E-02	22.86	Sum	
57	1846.07	5.70571E-03	41.44		
58	1853.77	2.57353E-03	64.20		
59	1872.09	3.61111E-03	50.00		
60	1905.43	1.70139E-03	52.27		
61	1946.18	2.27778E-03	44.18		
62	2014.61	1.56746E-03	53.90		
63	2051.19	2.96296E-03	46.99		
64	2102.34	7.27012E-03	23.55	S-Esc	
65	2117.81	6.49537E-03	28.75		
66	2194.99	2.73504E-03	44.42		
67	2203.11	1.71902E-02	13.76		
68	2252.49	3.08333E-03	61.76		
69	2446.29	6.66667E-03	20.41		

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	2.39E+00	2.77E+00	2.77E+00
+	NA-22	1274.54		99.94	1.13E-02	1.14E-01	1.14E-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	2.26E-02	8.66E-02	8.66E-02
+	K-40	1460.81	*	10.67	1.52E+01	1.55E+00	1.55E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.35E-03	8.09E-02	8.09E-02
		78.34		96.00	3.91E-01		1.05E-01
+	SC-46	889.25		99.98	-2.96E-02	2.15E-01	2.15E-01
		1120.51		99.99	1.61E+00		4.96E-01
+	V-48	983.52		99.98	-2.98E-01	5.49E+00	5.49E+00
		1312.10		97.50	1.38E+00		5.87E+00

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CR-51	320.08	9.83	-3.26E+00	7.90E+00	7.90E+00
+	MN-54	834.83	99.97	-7.04E-03	1.21E-01	1.21E-01
+	CO-56	846.75	99.96	9.39E-02	2.32E-01	2.32E-01
		1037.75	14.03	4.00E-01		1.61E+00
		1238.25	67.00	9.45E-01		5.85E-01
		1771.40	15.51	-2.65E-01		9.23E-01
		2598.48	16.90	-3.71E-01		4.55E-01
+	CO-57	122.06	85.51	-7.55E-03	8.60E-02	8.60E-02
		136.48	10.60	-1.18E-01		7.09E-01
+	CO-58	810.76	99.40	3.82E-02	2.32E-01	2.32E-01
+	FE-59	1099.22	56.50	-3.40E-01	8.44E-01	8.44E-01
		1291.56	43.20	-1.97E-01		1.00E+00
+	CO-60	1173.22	100.00	-9.37E-03	1.03E-01	1.20E-01
		1332.49	100.00	-2.44E-02		1.03E-01
+	ZN-65	1115.52	50.75	2.78E-02	2.96E-01	2.96E-01
+	GA-67	93.31	35.70	2.04E+08	8.60E+07	8.60E+07
		208.95	2.24	6.52E+08		1.46E+09
		300.22	16.00	5.78E+07		2.46E+08
+	SE-75	121.11	16.70	1.48E-01	1.74E-01	6.04E-01
		136.00	59.20	-1.37E-03		1.74E-01
		264.65	59.80	-2.31E-01		2.12E-01
		279.53	25.20	-3.72E-02		5.35E-01
		400.65	11.40	-2.33E-01		1.26E+00
+	RB-82	776.52	13.00	-9.19E-01	9.03E+00	9.03E+00
+	RB-83	520.41	46.00	-2.75E-02	3.53E-01	3.53E-01
		529.64	30.30	6.58E-02		5.76E-01
		552.65	16.40	3.61E-02		1.07E+00
+	KR-85	513.99	0.43	3.42E+01	2.44E+01	2.44E+01
+	SR-85	513.99	99.27	3.98E-01	2.84E-01	2.84E-01
+	Y-88	898.02	93.40	-1.36E-02	1.54E-01	1.95E-01
		1836.01	99.38	1.54E-02		1.54E-01
+	MO-93	263.06	56.72	-2.56E-02	8.41E-02	1.35E-01
		684.67	99.68	4.90E-03		8.41E-02
		1477.11	99.08	-4.04E-02		1.00E-01
+	NB-93M	16.57	9.43	-2.07E+01	7.86E+01	7.86E+01
+	NB-94	702.63	100.00	-2.53E-02	8.95E-02	9.10E-02
		871.10	100.00	-7.84E-02		8.95E-02
+	NB-95	765.79	99.81	7.85E-01	7.83E-01	7.83E-01
+	NB-95M	235.69	25.00	-2.79E+06	2.42E+07	2.42E+07
+	ZR-95	724.18	43.70	8.27E-02	4.58E-01	6.13E-01
		756.72	55.30	2.21E-02		4.58E-01
+	MO-99	181.06	6.20	1.78E+09	1.06E+10	1.67E+10
		739.58	12.80	7.59E+08		1.06E+10
		778.00	4.50	-1.95E+09		3.38E+10
+	RU-103	497.08	89.00	-9.19E-02	4.49E-01	4.49E-01
+	RU-106	621.84	9.80	-4.06E-01	9.61E-01	9.61E-01
+	AG-108M	433.93	89.90	7.21E-03	9.11E-02	9.11E-02

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-108M	614.37		90.40	-4.05E-03	9.11E-02	1.37E-01
		722.95		90.50	1.97E-02		1.04E-01
+	CD-109	88.03	*	3.72	9.11E+00	5.08E+00	5.08E+00
+	AG-110M	657.75		93.14	-4.12E-02	1.19E-01	1.19E-01
		677.61		10.53	4.45E-01		1.07E+00
		706.67		16.46	-3.01E-02		7.57E-01
		763.93		21.98	-8.72E-03		5.73E-01
		884.67		71.63	6.03E-02		1.91E-01
		1384.27		23.94	6.04E-02		5.87E-01
+	CD-113M	263.70		0.02	-7.07E+01	3.32E+02	3.32E+02
+	SN-113	255.12		1.93	-2.85E-01	2.12E-01	6.90E+00
		391.69		64.90	-1.88E-01		2.12E-01
+	TE123M	159.00		84.10	-3.75E-02	1.31E-01	1.31E-01
+	SB-124	602.71		97.87	-6.56E-03	2.42E-01	2.42E-01
		645.85		7.26	-7.19E-01		3.00E+00
		722.78		11.10	4.70E-01		2.47E+00
		1691.02		49.00	6.10E-02		4.80E-01
+	I-125	35.49		6.49	3.57E+00	6.27E+00	6.27E+00
+	SB-125	176.33		6.89	6.75E-01	3.05E-01	1.03E+00
		427.89		29.33	4.80E-02		3.05E-01
		463.38		10.35	7.53E-01		9.35E-01
		600.56		17.80	-1.86E-02		5.00E-01
		635.90		11.32	1.58E-01		8.41E-01
+	SB-126	414.70		83.30	-6.51E+00	1.70E+01	1.93E+01
		666.33		99.60	-1.39E+01		1.71E+01
		695.00		99.60	1.50E+00		1.70E+01
		720.50		53.80	6.73E+00		3.14E+01
+	SN-126	87.57	*	37.00	7.97E-01	4.44E-01	4.44E-01
+	SB-127	473.00		25.00	-1.26E+06	4.50E+06	6.30E+06
		685.20		35.70	2.62E+05		4.50E+06
		783.80		14.70	8.74E+06		1.33E+07
+	I-129	29.78		57.00	1.91E-01	4.38E-01	4.38E-01
		33.60		13.20	-4.77E-02		1.24E+00
		39.58		7.52	-2.38E-01		1.45E+00
+	I-131	284.30		6.05	5.53E+02	2.90E+02	4.06E+03
		364.48		81.20	1.04E+01		2.90E+02
		636.97		7.26	1.18E+02		3.75E+03
		722.89		1.80	3.06E+03		1.61E+04
+	TE-132	49.72		13.10	-3.75E+08	3.59E+07	2.67E+08
		228.16		88.00	-3.95E+06		3.59E+07
+	BA-133	81.00		33.00	-5.68E-01	2.36E-01	2.36E-01
		302.84		17.80	1.35E-01		4.58E-01
		356.01		60.00	-3.43E-03		2.58E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.09E+05	4.53E+04	4.53E+04
+	CS-134	563.23		8.38	-6.73E-01	1.28E-01	1.05E+00
		569.32		15.43	4.04E-01		6.27E-01
		604.70		97.60	-1.94E+00		1.31E-01
		795.84		85.40	7.14E-02		1.28E-01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-134	801.93		8.73	-1.10E-01	1.28E-01	1.18E+00
+		CS-135	268.24		16.00	1.56E-01	5.03E-01	5.03E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	5.22E+00	1.21E+01	1.18E+02
			163.89		4.61	3.67E+01		1.91E+02
			176.55		13.56	4.36E+01		6.68E+01
			273.65		12.66	8.24E+00		8.80E+01
			340.57		48.50	3.18E+01		2.62E+01
			818.50		99.70	-2.63E-02		1.21E+01
			1048.07		79.60	7.17E-01		1.76E+01
			1235.34		19.70	-6.00E+00		1.05E+02
+		CS-137	661.65	*	85.12	1.01E-01	1.64E-01	1.64E-01
+		LA-138	788.74		34.00	-1.06E-01	1.12E-01	2.69E-01
			1435.80		66.00	-2.13E-02		1.12E-01
+		CE-139	165.85		80.35	3.92E-02	1.31E-01	1.31E-01
+		BA-140	162.64		6.70	-2.86E+01	5.06E+01	1.48E+02
			304.84		4.50	-1.87E+02		2.65E+02
			423.70		3.20	-1.01E+02		4.09E+02
			437.55		2.00	3.27E+02		6.46E+02
			537.32		25.00	-5.79E+00		5.06E+01
+		LA-140	328.77		20.50	5.72E+00	1.78E+01	6.24E+01
			487.03		45.50	1.46E+01		2.84E+01
			815.85		23.50	-3.79E+01		5.75E+01
			1596.49		95.49	-8.47E-01		1.78E+01
+		CE-141	145.44		48.40	3.40E-01	9.80E-01	9.80E-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	-1.21E-02	7.04E-01	7.04E-01
+		PM-144	476.78		42.00	8.95E-02	9.60E-02	2.40E-01
			618.01		98.60	-2.93E-02		9.60E-02
			696.49		99.49	1.46E-02		1.09E-01
+		PM-145	36.85		21.70	-3.23E-01	3.17E-01	5.83E-01
			37.36		39.70	-5.54E-02		3.17E-01
			42.30		15.10	-3.25E-02		6.70E-01
			72.40		2.31	-1.08E+01		3.75E+00
+		PM-146	453.90		39.94	1.14E-01	2.25E-01	2.25E-01
			735.90		14.01	4.17E-02		6.25E-01
			747.13		13.10	-9.19E-02		6.78E-01
+		ND-147	91.11		28.90	-2.91E+01	9.77E+01	9.77E+01
			531.02		13.10	1.27E+01		2.29E+02
+		PM-149	285.90		3.10	-2.11E+12	1.24E+13	1.24E+13
+		EU-152	121.78		20.50	-2.51E-02	2.86E-01	2.86E-01
			244.69		5.40	3.13E+00		1.95E+00
			344.27		19.13	6.67E-02		4.27E-01
			778.89		9.20	2.46E-01		1.06E+00
			964.01		10.40	-4.18E-02		1.13E+00

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	1085.78		7.22	4.99E-01	2.86E-01	1.45E+00
		1112.02		9.60	3.08E-01		1.08E+00
		1407.95		14.94	3.79E-01		8.39E-01
+	GD-153	97.43		31.30	8.76E-02	2.48E-01	2.48E-01
		103.18		22.20	-2.65E-01		3.24E-01
+	EU-154	123.07		40.50	4.60E-02	1.47E-01	1.47E-01
		723.30		19.70	9.24E-02		4.85E-01
		873.19		11.50	6.31E-02		8.63E-01
		996.32		10.30	7.70E-03		9.05E-01
		1004.76		17.90	-7.03E-02		5.32E-01
		1274.45		35.50	3.04E-02		3.07E-01
+	EU-155	86.50		30.90	2.28E-01	2.60E-01	2.60E-01
		105.30		20.70	5.54E-02		2.81E-01
+	EU-156	811.77		10.40	1.20E+01	6.11E+01	6.11E+01
		1153.47		7.20	5.38E+01		1.24E+02
		1230.71		8.90	5.26E+00		8.64E+01
+	HO-166M	184.41		72.60	4.03E-01	1.26E-01	1.26E-01
		280.45		29.60	6.07E-04		2.65E-01
		410.94		11.10	2.49E-01		8.24E-01
		711.69		54.10	1.02E-02		1.75E-01
+	TM-171	66.72		0.14	1.92E+01	6.18E+01	6.18E+01
+	HF-172	67.35		5.31	-4.60E-02	5.62E-01	1.58E+00
		125.81		11.30	6.28E-02		5.62E-01
+	LU-172	181.53		20.60	-1.77E+04	2.68E+03	4.95E+03
		900.72		29.81	-1.75E+03		5.09E+03
		1093.66		62.50	1.28E+03		2.68E+03
+	LU-173	100.72		5.24	-1.79E-02	4.55E-01	1.23E+00
		272.11		21.20	3.85E-01		4.55E-01
+	HF-175	343.40		84.00	3.77E-02	2.41E-01	2.41E-01
+	LU-176	88.34		13.30	1.14E-01	7.87E-02	5.96E-01
		201.83		86.00	6.10E-03		7.87E-02
		306.78		94.00	7.89E-03		8.14E-02
+	HF-181	133.02		41.70	4.70E-03	4.60E-01	6.71E-01
		345.85		17.20	3.38E-01		2.14E+00
		482.03		82.80	-3.63E-02		4.60E-01
+	TA-182	67.75		41.20	-9.46E-03	3.25E-01	3.25E-01
		1121.30		34.90	3.79E+00		1.16E+00
		1189.05		16.23	-2.29E-01		1.25E+00
		1221.41		26.98	6.47E-01		7.94E-01
		1231.02		11.44	1.02E-01		1.68E+00
+	IR-192	308.46		29.68	-8.49E-02	4.08E-01	6.15E-01
		468.07		48.10	1.09E-01		4.08E-01
+	HG-203	279.19		77.30	-1.00E-01	4.07E-01	4.07E-01
+	TL-204	374.74		94.11	1.89E-02	8.76E-02	8.76E-02
		899.15		99.16	-4.55E-02		1.03E-01
		911.74		91.10	3.28E-01		1.66E-01
+	BI-207	569.67		97.72	6.59E-02	9.06E-02	9.06E-02
		1063.62		74.90	-4.46E-02		1.29E-01
+	TL-208	583.14	*	30.22	6.98E-01	3.49E-02	4.45E-01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TL-208	860.37	*	4.48	2.24E+00	3.49E-02	3.49E+00
		2614.66	*	35.85	6.57E-01		3.49E-02
+	BI-210M	262.00		45.00	-9.28E-03	1.75E-01	1.75E-01
		300.00		23.00	9.98E-02		4.24E-01
+	PB-210	46.50	*	4.25	3.97E+00	3.83E+00	3.83E+00
+	PB-211	404.84		2.90	-1.43E+00	2.90E+00	2.90E+00
		831.96		2.90	-1.87E-01		3.35E+00
+	BI-212	727.17	*	11.80	6.02E-01	9.58E-01	9.58E-01
		1620.62		2.75	2.17E-01		3.58E+00
+	PB-212	238.63	*	44.60	9.27E-01	3.34E-01	3.34E-01
		300.09		3.41	6.73E-01		2.86E+00
+	BI-214	609.31	*	46.30	4.44E+00	3.41E-01	3.41E-01
		1120.29	*	15.10	4.59E+00		1.30E+00
		1764.49	*	15.80	5.25E+00		8.62E-01
		2204.22		4.98	4.79E+00		3.37E+00
+	PB-214	295.21	*	19.19	4.57E+00	3.31E-01	6.16E-01
		351.92	*	37.19	4.99E+00		3.31E-01
+	RN-219	401.80		6.50	-4.37E-01	1.30E+00	1.30E+00
+	RA-223	323.87		3.88	-9.67E-01	1.97E+00	1.97E+00
+	RA-224	240.98		3.95	2.03E+01	3.37E+00	3.37E+00
+	RA-225	40.00		31.00	-4.44E+00	2.71E+01	2.71E+01
+	RA-226	186.21	*	3.28	1.33E+01	3.93E+00	3.93E+00
+	TH-227	50.10		8.40	-1.41E+00	8.88E-01	1.01E+00
		236.00		11.50	-1.02E-01		8.88E-01
		256.20		6.30	-1.23E-02		1.25E+00
+	AC-228	338.32	*	11.40	1.00E+00	6.18E-01	9.43E-01
		911.07	*	27.70	9.07E-01		6.18E-01
		969.11	*	16.60	7.81E-01		8.69E-01
+	TH-230	48.44		16.90	6.99E-01	5.58E-01	5.58E-01
		62.85		4.60	2.64E+00		1.90E+00
		67.67		0.37	-5.99E-01		2.06E+01
+	PA-231	283.67		1.60	1.37E+00	3.49E+00	4.97E+00
		302.67		2.30	1.03E+00		3.49E+00
+	TH-231	25.64		14.70	5.46E-01	1.14E+00	3.15E+00
		84.21		6.40	-1.33E+00		1.14E+00
+	PA-233	311.98		38.60	8.80E-02	2.21E+00	2.21E+00
+	PA-234	131.20		20.40	1.38E-01	3.04E-01	3.04E-01
		733.99		8.80	7.10E-02		9.80E-01
		946.00		12.00	-2.26E-03		8.02E-01
+	PA-234M	1001.03	*	0.92	7.80E+00	1.61E+01	1.61E+01
+	TH-234	63.29	*	3.80	3.66E+00	2.86E+00	2.86E+00
+	U-235	143.76		10.50	6.65E-01	6.31E-01	6.31E-01
		163.35		4.70	2.65E-01		1.38E+00
		205.31		4.70	6.62E-03		1.71E+00
+	NP-237	86.50		12.60	5.40E-01	6.16E-01	6.16E-01
+	NP-239	106.10		22.70	4.02E+10	2.04E+11	2.04E+11
		228.18		10.70	-6.53E+10		5.94E+11
		277.60		14.10	-8.20E+10		4.61E+11

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AM-241	59.54		35.90	4.10E-03	2.20E-01	2.20E-01
+	AM-243	74.67	*	66.00	5.15E-01	2.37E-01	2.37E-01
+	CM-243	209.75		3.29	7.98E-01	5.68E-01	2.48E+00
		228.14		10.60	-8.05E-02		7.33E-01
		277.60		14.00	-1.01E-01		5.68E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.77E+00	2.77E+00	2.39E+00	1.33E+00
	NA-22	1274.54		99.94	1.14E-01	1.14E-01	1.13E-02	5.31E-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	8.66E-02	8.66E-02	2.26E-02	3.83E-02
+	K-40	1460.81	*	10.67	1.55E+00	1.55E+00	1.52E+01	7.36E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	8.09E-02	8.09E-02	-2.35E-03	3.99E-02
		78.34		96.00	1.05E-01		3.91E-01	5.18E-02
	SC-46	889.25		99.98	2.15E-01	2.15E-01	-2.96E-02	1.01E-01
		1120.51		99.99	4.96E-01		1.61E+00	2.41E-01
	V-48	983.52		99.98	5.49E+00	5.49E+00	-2.98E-01	2.57E+00
		1312.10		97.50	5.87E+00		1.38E+00	2.71E+00
	CR-51	320.08		9.83	7.90E+00	7.90E+00	-3.26E+00	3.83E+00
	MN-54	834.83		99.97	1.21E-01	1.21E-01	-7.04E-03	5.73E-02
	CO-56	846.75		99.96	2.32E-01	2.32E-01	9.39E-02	1.10E-01
		1037.75		14.03	1.61E+00		4.00E-01	7.52E-01
		1238.25		67.00	5.85E-01		9.45E-01	2.80E-01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CO-56	1771.40		15.51	9.23E-01	2.32E-01	-2.65E-01	3.90E-01
		2598.48		16.90	4.55E-01		-3.71E-01	1.44E-01
	CO-57	122.06		85.51	8.60E-02	8.60E-02	-7.55E-03	4.22E-02
		136.48		10.60	7.09E-01		-1.18E-01	3.47E-01
	CO-58	810.76		99.40	2.32E-01	2.32E-01	3.82E-02	1.09E-01
	FE-59	1099.22		56.50	8.44E-01	8.44E-01	-3.40E-01	3.97E-01
		1291.56		43.20	1.00E+00		-1.97E-01	4.63E-01
	CO-60	1173.22		100.00	1.20E-01	1.03E-01	-9.37E-03	5.62E-02
		1332.49		100.00	1.03E-01		-2.44E-02	4.74E-02
	ZN-65	1115.52		50.75	2.96E-01	2.96E-01	2.78E-02	1.39E-01
	GA-67	93.31		35.70	8.60E+07	8.60E+07	2.04E+08	4.24E+07
		208.95		2.24	1.46E+09		6.52E+08	7.18E+08
		300.22		16.00	2.46E+08		5.78E+07	1.20E+08
	SE-75	121.11		16.70	6.04E-01	1.74E-01	1.48E-01	2.96E-01
		136.00		59.20	1.74E-01		-1.37E-03	8.53E-02
		264.65		59.80	2.12E-01		-2.31E-01	1.03E-01
		279.53		25.20	5.35E-01		-3.72E-02	2.61E-01
		400.65		11.40	1.26E+00		-2.33E-01	6.09E-01
	RB-82	776.52		13.00	9.03E+00	9.03E+00	-9.19E-01	4.27E+00
	RB-83	520.41		46.00	3.53E-01	3.53E-01	-2.75E-02	1.69E-01
		529.64		30.30	5.76E-01		6.58E-02	2.76E-01
		552.65		16.40	1.07E+00		3.61E-02	5.12E-01
	KR-85	513.99		0.43	2.44E+01	2.44E+01	3.42E+01	1.18E+01
	SR-85	513.99		99.27	2.84E-01	2.84E-01	3.98E-01	1.38E-01
	Y-88	898.02		93.40	1.95E-01	1.54E-01	-1.36E-02	9.19E-02
		1836.01		99.38	1.54E-01		1.54E-02	6.76E-02
	MO-93	263.06		56.72	1.35E-01	8.41E-02	-2.56E-02	6.59E-02
		684.67		99.68	8.41E-02		4.90E-03	3.98E-02
		1477.11		99.08	1.00E-01		-4.04E-02	4.58E-02
	NB-93M	16.57		9.43	7.86E+01	7.86E+01	-2.07E+01	3.85E+01
	NB-94	702.63		100.00	9.10E-02	8.95E-02	-2.53E-02	4.32E-02
		871.10		100.00	8.95E-02		-7.84E-02	4.20E-02
	NB-95	765.79		99.81	7.83E-01	7.83E-01	7.85E-01	3.76E-01
	NB-95M	235.69		25.00	2.42E+07	2.42E+07	-2.79E+06	1.19E+07
	ZR-95	724.18		43.70	6.13E-01	4.58E-01	8.27E-02	2.92E-01
		756.72		55.30	4.58E-01		2.21E-02	2.17E-01
	MO-99	181.06		6.20	1.67E+10	1.06E+10	1.78E+09	8.20E+09
		739.58		12.80	1.06E+10		7.59E+08	4.99E+09
		778.00		4.50	3.38E+10		-1.95E+09	1.60E+10
	RU-103	497.08		89.00	4.49E-01	4.49E-01	-9.19E-02	2.15E-01
	RU-106	621.84		9.80	9.61E-01	9.61E-01	-4.06E-01	4.56E-01
	AG-108M	433.93		89.90	9.11E-02	9.11E-02	7.21E-03	4.39E-02
		614.37		90.40	1.37E-01		-4.05E-03	6.64E-02
		722.95		90.50	1.04E-01		1.97E-02	4.93E-02
+	CD-109	88.03	*	3.72	5.08E+00	5.08E+00	9.11E+00	2.52E+00
	AG-110M	657.75		93.14	1.19E-01	1.19E-01	-4.12E-02	5.64E-02
		677.61		10.53	1.07E+00		4.45E-01	5.09E-01
		706.67		16.46	7.57E-01		-3.01E-02	3.61E-01
		763.93		21.98	5.73E-01		-8.72E-03	2.72E-01
		884.67		71.63	1.91E-01		6.03E-02	9.03E-02
		1384.27		23.94	5.87E-01		6.04E-02	2.72E-01
	CD-113M	263.70		0.02	3.32E+02	3.32E+02	-7.07E+01	1.62E+02
	SN-113	255.12		1.93	6.90E+00	2.12E-01	-2.85E-01	3.36E+00

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	SN-113	391.69		64.90	2.12E-01	2.12E-01	-1.88E-01	1.02E-01
	TE123M	159.00		84.10	1.31E-01	1.31E-01	-3.75E-02	6.41E-02
	SB-124	602.71		97.87	2.42E-01	2.42E-01	-6.56E-03	1.15E-01
		645.85		7.26	3.00E+00		-7.19E-01	1.41E+00
		722.78		11.10	2.47E+00		4.70E-01	1.17E+00
		1691.02		49.00	4.80E-01		6.10E-02	2.12E-01
	I-125	35.49		6.49	6.27E+00	6.27E+00	3.57E+00	3.07E+00
	SB-125	176.33		6.89	1.03E+00	3.05E-01	6.75E-01	5.06E-01
		427.89		29.33	3.05E-01		4.80E-02	1.47E-01
		463.38		10.35	9.35E-01		7.53E-01	4.52E-01
		600.56		17.80	5.00E-01		-1.86E-02	2.38E-01
		635.90		11.32	8.41E-01		1.58E-01	4.01E-01
	SB-126	414.70		83.30	1.93E+01	1.70E+01	-6.51E+00	9.32E+00
		666.33		99.60	1.71E+01		-1.39E+01	8.14E+00
		695.00		99.60	1.70E+01		1.50E+00	8.06E+00
		720.50		53.80	3.14E+01		6.73E+00	1.49E+01
+	SN-126	87.57	*	37.00	4.44E-01	4.44E-01	7.97E-01	2.21E-01
	SB-127	473.00		25.00	6.30E+06	4.50E+06	-1.26E+06	3.03E+06
		685.20		35.70	4.50E+06		2.62E+05	2.13E+06
		783.80		14.70	1.33E+07		8.74E+06	6.30E+06
	I-129	29.78		57.00	4.38E-01	4.38E-01	1.91E-01	2.14E-01
		33.60		13.20	1.24E+00		-4.77E-02	6.06E-01
		39.58		7.52	1.45E+00		-2.38E-01	7.12E-01
	I-131	284.30		6.05	4.06E+03	2.90E+02	5.53E+02	1.98E+03
		364.48		81.20	2.90E+02		1.04E+01	1.40E+02
		636.97		7.26	3.75E+03		1.18E+02	1.79E+03
		722.89		1.80	1.61E+04		3.06E+03	7.65E+03
	TE-132	49.72		13.10	2.67E+08	3.59E+07	-3.75E+08	1.31E+08
		228.16		88.00	3.59E+07		-3.95E+06	1.76E+07
	BA-133	81.00		33.00	2.36E-01	2.36E-01	-5.68E-01	1.16E-01
		302.84		17.80	4.58E-01		1.35E-01	2.23E-01
		356.01		60.00	2.58E-01		-3.43E-03	1.27E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	4.53E+04	4.53E+04	-1.09E+05	2.24E+04
	CS-134	563.23		8.38	1.05E+00	1.28E-01	-6.73E-01	5.00E-01
		569.32		15.43	6.27E-01		4.04E-01	3.00E-01
		604.70		97.60	1.31E-01		-1.94E+00	6.32E-02
		795.84		85.40	1.28E-01		7.14E-02	6.09E-02
		801.93		8.73	1.18E+00		-1.10E-01	5.56E-01
	CS-135	268.24		16.00	5.03E-01	5.03E-01	1.56E-01	2.46E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.18E+02	1.21E+01	5.22E+00	5.80E+01
		163.89		4.61	1.91E+02		3.67E+01	9.38E+01
		176.55		13.56	6.68E+01		4.36E+01	3.27E+01
		273.65		12.66	8.80E+01		8.24E+00	4.30E+01
		340.57		48.50	2.62E+01		3.18E+01	1.28E+01
		818.50		99.70	1.21E+01		-2.63E-02	5.71E+00
		1048.07		79.60	1.76E+01		7.17E-01	8.25E+00
		1235.34		19.70	1.05E+02		-6.00E+00	4.98E+01
+	CS-137	661.65	*	85.12	1.64E-01	1.64E-01	1.01E-01	7.97E-02
	LA-138	788.74		34.00	2.69E-01	1.12E-01	-1.06E-01	1.27E-01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
LA-138	1435.80	66.00	1.12E-01	1.12E-01	-2.13E-02	4.98E-02
CE-139	165.85	80.35	1.31E-01	1.31E-01	3.92E-02	6.40E-02
BA-140	162.64	6.70	1.48E+02	5.06E+01	-2.86E+01	7.26E+01
	304.84	4.50	2.65E+02		-1.87E+02	1.29E+02
	423.70	3.20	4.09E+02		-1.01E+02	1.98E+02
	437.55	2.00	6.46E+02		3.27E+02	3.11E+02
	537.32	25.00	5.06E+01		-5.79E+00	2.42E+01
LA-140	328.77	20.50	6.24E+01	1.78E+01	5.72E+00	3.03E+01
	487.03	45.50	2.84E+01		1.46E+01	1.36E+01
	815.85	23.50	5.75E+01		-3.79E+01	2.70E+01
	1596.49	95.49	1.78E+01		-8.47E-01	8.17E+00
CE-141	145.44	48.40	9.80E-01	9.80E-01	3.40E-01	4.81E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	7.04E-01	7.04E-01	-1.21E-02	3.45E-01
PM-144	476.78	42.00	2.40E-01	9.60E-02	8.95E-02	1.16E-01
	618.01	98.60	9.60E-02		-2.93E-02	4.55E-02
	696.49	99.49	1.09E-01		1.46E-02	5.17E-02
PM-145	36.85	21.70	5.83E-01	3.17E-01	-3.23E-01	2.86E-01
	37.36	39.70	3.17E-01		-5.54E-02	1.55E-01
	42.30	15.10	6.70E-01		-3.25E-02	3.29E-01
	72.40	2.31	3.75E+00		-1.08E+01	1.85E+00
PM-146	453.90	39.94	2.25E-01	2.25E-01	1.14E-01	1.09E-01
	735.90	14.01	6.25E-01		4.17E-02	2.95E-01
	747.13	13.10	6.78E-01		-9.19E-02	3.20E-01
ND-147	91.11	28.90	9.77E+01	9.77E+01	-2.91E+01	4.82E+01
	531.02	13.10	2.29E+02		1.27E+01	1.10E+02
PM-149	285.90	3.10	1.24E+13	1.24E+13	-2.11E+12	6.06E+12
EU-152	121.78	20.50	2.86E-01	2.86E-01	-2.51E-02	1.40E-01
	244.69	5.40	1.95E+00		3.13E+00	9.59E-01
	344.27	19.13	4.27E-01		6.67E-02	2.07E-01
	778.89	9.20	1.06E+00		2.46E-01	5.03E-01
	964.01	10.40	1.13E+00		-4.18E-02	5.34E-01
	1085.78	7.22	1.45E+00		4.99E-01	6.77E-01
	1112.02	9.60	1.08E+00		3.08E-01	5.05E-01
	1407.95	14.94	8.39E-01		3.79E-01	3.92E-01
GD-153	97.43	31.30	2.48E-01	2.48E-01	8.76E-02	1.22E-01
	103.18	22.20	3.24E-01		-2.65E-01	1.59E-01
EU-154	123.07	40.50	1.47E-01	1.47E-01	4.60E-02	7.19E-02
	723.30	19.70	4.85E-01		9.24E-02	2.31E-01
	873.19	11.50	8.63E-01		6.31E-02	4.07E-01
	996.32	10.30	9.05E-01		7.70E-03	4.22E-01
	1004.76	17.90	5.32E-01		-7.03E-02	2.48E-01
	1274.45	35.50	3.07E-01		3.04E-02	1.42E-01
EU-155	86.50	30.90	2.60E-01	2.60E-01	2.28E-01	1.28E-01
	105.30	20.70	2.81E-01		5.54E-02	1.38E-01
EU-156	811.77	10.40	6.11E+01	6.11E+01	1.20E+01	2.88E+01
	1153.47	7.20	1.24E+02		5.38E+01	5.85E+01
	1230.71	8.90	8.64E+01		5.26E+00	4.03E+01
HO-166M	184.41	72.60	1.26E-01	1.26E-01	4.03E-01	6.22E-02
	280.45	29.60	2.65E-01		6.07E-04	1.29E-01
	410.94	11.10	8.24E-01		2.49E-01	4.00E-01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	HO-166M	711.69		54.10	1.75E-01	1.26E-01	1.02E-02	8.34E-02
	TM-171	66.72		0.14	6.18E+01	6.18E+01	1.92E+01	3.05E+01
	HF-172	67.35		5.31	1.58E+00	5.62E-01	-4.60E-02	7.80E-01
		125.81		11.30	5.62E-01		6.28E-02	2.76E-01
	LU-172	181.53		20.60	4.95E+03	2.68E+03	-1.77E+04	2.42E+03
		900.72		29.81	5.09E+03		-1.75E+03	2.40E+03
		1093.66		62.50	2.68E+03		1.28E+03	1.26E+03
	LU-173	100.72		5.24	1.23E+00	4.55E-01	-1.79E-02	6.03E-01
		272.11		21.20	4.55E-01		3.85E-01	2.23E-01
	HF-175	343.40		84.00	2.41E-01	2.41E-01	3.77E-02	1.17E-01
	LU-176	88.34		13.30	5.96E-01	7.87E-02	1.14E-01	2.94E-01
		201.83		86.00	7.87E-02		6.10E-03	3.85E-02
		306.78		94.00	8.14E-02		7.89E-03	3.95E-02
	HF-181	133.02		41.70	6.71E-01	4.60E-01	4.70E-03	3.29E-01
		345.85		17.20	2.14E+00		3.38E-01	1.04E+00
		482.03		82.80	4.60E-01		-3.63E-02	2.21E-01
	TA-182	67.75		41.20	3.25E-01	3.25E-01	-9.46E-03	1.60E-01
		1121.30		34.90	1.16E+00		3.79E+00	5.61E-01
		1189.05		16.23	1.25E+00		-2.29E-01	5.88E-01
		1221.41		26.98	7.94E-01		6.47E-01	3.73E-01
		1231.02		11.44	1.68E+00		1.02E-01	7.84E-01
	IR-192	308.46		29.68	6.15E-01	4.08E-01	-8.49E-02	2.99E-01
		468.07		48.10	4.08E-01		1.09E-01	1.96E-01
	HG-203	279.19		77.30	4.07E-01	4.07E-01	-1.00E-01	1.98E-01
	TL-204	374.74		94.11	8.76E-02	8.76E-02	1.89E-02	4.24E-02
		899.15		99.16	1.03E-01		-4.55E-02	4.84E-02
		911.74		91.10	1.66E-01		3.28E-01	8.00E-02
	BI-207	569.67		97.72	9.06E-02	9.06E-02	6.59E-02	4.34E-02
		1063.62		74.90	1.29E-01		-4.46E-02	6.00E-02
+	TL-208	583.14	*	30.22	4.45E-01	3.49E-02	6.98E-01	2.16E-01
		860.37	*	4.48	3.49E+00		2.24E+00	1.68E+00
		2614.66	*	35.85	3.49E-02		6.57E-01	0.00E+00
	BI-210M	262.00		45.00	1.75E-01	1.75E-01	-9.28E-03	8.55E-02
		300.00		23.00	4.24E-01		9.98E-02	2.07E-01
+	PB-210	46.50	*	4.25	3.83E+00	3.83E+00	3.97E+00	1.90E+00
	PB-211	404.84		2.90	2.90E+00	2.90E+00	-1.43E+00	1.40E+00
		831.96		2.90	3.35E+00		-1.87E-01	1.59E+00
+	BI-212	727.17	*	11.80	9.58E-01	9.58E-01	6.02E-01	4.59E-01
		1620.62		2.75	3.58E+00		2.17E-01	1.62E+00
+	PB-212	238.63	*	44.60	3.34E-01	3.34E-01	9.27E-01	1.65E-01
		300.09		3.41	2.86E+00		6.73E-01	1.40E+00
+	BI-214	609.31	*	46.30	3.41E-01	3.41E-01	4.44E+00	1.66E-01
		1120.29	*	15.10	1.30E+00		4.59E+00	6.29E-01
		1764.49	*	15.80	8.62E-01		5.25E+00	4.00E-01
		2204.22		4.98	3.37E+00		4.79E+00	1.57E+00
+	PB-214	295.21	*	19.19	6.16E-01	3.31E-01	4.57E+00	3.02E-01
		351.92	*	37.19	3.31E-01		4.99E+00	1.62E-01
	RN-219	401.80		6.50	1.30E+00	1.30E+00	-4.37E-01	6.27E-01
	RA-223	323.87		3.88	1.97E+00	1.97E+00	-9.67E-01	9.55E-01
	RA-224	240.98		3.95	3.37E+00	3.37E+00	2.03E+01	1.66E+00
	RA-225	40.00		31.00	2.71E+01	2.71E+01	-4.44E+00	1.33E+01
+	RA-226	186.21	*	3.28	3.93E+00	3.93E+00	1.33E+01	1.94E+00
	TH-227	50.10		8.40	1.01E+00	8.88E-01	-1.41E+00	4.95E-01

Analysis Report for 1707078-07

HTC-A01-S003-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-227	236.00		11.50	8.88E-01	8.88E-01	-1.02E-01	4.36E-01
		256.20		6.30	1.25E+00		-1.23E-02	6.08E-01
+	AC-228	338.32	*	11.40	9.43E-01	6.18E-01	1.00E+00	4.61E-01
		911.07	*	27.70	6.18E-01		9.07E-01	2.99E-01
		969.11	*	16.60	8.69E-01		7.81E-01	4.17E-01
	TH-230	48.44		16.90	5.58E-01	5.58E-01	6.99E-01	2.75E-01
		62.85		4.60	1.90E+00		2.64E+00	9.36E-01
		67.67		0.37	2.06E+01		-5.99E-01	1.02E+01
	PA-231	283.67		1.60	4.97E+00	3.49E+00	1.37E+00	2.42E+00
		302.67		2.30	3.49E+00		1.03E+00	1.70E+00
	TH-231	25.64		14.70	3.15E+00	1.14E+00	5.46E-01	1.54E+00
		84.21		6.40	1.14E+00		-1.33E+00	5.60E-01
	PA-233	311.98		38.60	2.21E+00	2.21E+00	8.80E-02	1.07E+00
	PA-234	131.20		20.40	3.04E-01	3.04E-01	1.38E-01	1.49E-01
		733.99		8.80	9.80E-01		7.10E-02	4.63E-01
		946.00		12.00	8.02E-01		-2.26E-03	3.76E-01
+	PA-234M	1001.03	*	0.92	1.61E+01	1.61E+01	7.80E+00	7.72E+00
+	TH-234	63.29	*	3.80	2.86E+00	2.86E+00	3.66E+00	1.41E+00
	U-235	143.76		10.50	6.31E-01	6.31E-01	6.65E-01	3.10E-01
		163.35		4.70	1.38E+00		2.65E-01	6.77E-01
		205.31		4.70	1.71E+00		6.62E-03	8.39E-01
	NP-237	86.50		12.60	6.16E-01	6.16E-01	5.40E-01	3.04E-01
	NP-239	106.10		22.70	2.04E+11	2.04E+11	4.02E+10	1.00E+11
		228.18		10.70	5.94E+11		-6.53E+10	2.91E+11
		277.60		14.10	4.61E+11		-8.20E+10	2.25E+11
	AM-241	59.54		35.90	2.20E-01	2.20E-01	4.10E-03	1.08E-01
+	AM-243	74.67	*	66.00	2.37E-01	2.37E-01	5.15E-01	1.18E-01
	CM-243	209.75		3.29	2.48E+00	5.68E-01	7.98E-01	1.22E+00
		228.14		10.60	7.33E-01		-8.05E-02	3.59E-01
		277.60		14.00	5.68E-01		-1.01E-01	2.77E-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 1707078-07

HTC-A01-S003-1824-01

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-A01-S003-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3610

Channel								
1:	0	0	0	0	0	0	0	0
9:	5	219	267	218	216	216	190	174
17:	186	191	148	166	152	159	153	173
25:	146	152	153	158	151	158	150	161
33:	138	136	133	177	150	144	130	177
41:	178	160	171	183	189	227	346	294
49:	204	201	211	200	220	249	210	235
57:	221	249	252	299	290	328	359	545
65:	368	338	317	328	313	282	306	350
73:	348	416	703	722	846	1011	560	333
81:	303	310	288	317	324	318	385	488
89:	349	353	372	330	508	459	267	227
97:	209	211	207	217	180	182	170	189
105:	172	204	186	171	181	180	169	185
113:	192	181	173	175	169	204	193	180
121:	189	186	171	159	182	153	161	203
129:	199	196	186	207	164	174	174	172
137:	167	170	147	178	165	186	191	213
145:	207	189	151	173	168	171	157	180
153:	163	183	194	174	181	177	162	163
161:	129	157	167	143	178	160	156	169
169:	161	133	143	140	144	144	165	164
177:	150	130	157	131	131	142	145	170
185:	218	388	448	241	139	127	133	123
193:	129	141	143	131	123	116	145	130
201:	149	110	131	122	127	121	129	123
209:	137	151	123	104	109	117	113	104
217:	105	87	126	115	105	117	97	101
225:	93	98	95	86	108	109	102	105
233:	99	94	98	115	119	218	410	309
241:	170	315	341	150	86	77	82	75
249:	85	82	87	79	74	83	80	78
257:	77	81	113	87	84	70	71	72
265:	72	61	83	62	90	106	97	84
273:	78	77	88	76	75	73	64	69
281:	72	78	74	69	64	72	76	69
289:	69	69	74	54	54	115	423	666
297:	263	87	63	71	88	64	57	55
305:	59	63	57	52	54	65	56	51
313:	49	71	61	52	68	46	55	48
321:	51	41	55	48	68	46	57	65
329:	64	60	54	65	57	57	52	58
337:	57	110	110	72	75	46	44	53
345:	40	65	44	55	58	64	291	902
353:	832	212	57	36	46	40	40	35
361:	47	28	52	54	44	43	34	39

369:	45	39	38	46	54	50	36	31

Sample Title: HTC-A01-S003-1824-01

Channel								
377:	46	35	35	47	44	31	32	56
385:	57	40	52	42	49	49	45	23
393:	25	40	42	60	41	36	47	51
401:	48	38	43	36	39	44	44	52
409:	51	43	59	45	56	37	39	53
417:	34	44	46	46	35	40	29	42
425:	33	45	46	36	39	29	39	38
433:	36	27	35	27	44	35	34	34
441:	38	28	29	33	40	25	54	34
449:	33	29	35	32	47	28	40	40
457:	36	29	34	31	36	50	35	58
465:	33	32	26	25	30	34	34	26
473:	22	26	29	34	31	37	31	32
481:	35	26	21	35	28	27	29	31
489:	26	26	25	23	27	23	28	23
497:	20	26	24	26	25	29	29	25
505:	24	20	27	20	28	56	85	57
513:	42	31	28	25	28	18	19	28
521:	14	20	35	19	24	23	26	28
529:	21	25	22	24	26	30	31	19
537:	19	15	23	24	28	23	22	27
545:	23	18	25	18	28	22	25	29
553:	26	21	16	22	24	21	24	14
561:	20	22	23	22	18	27	30	29
569:	26	20	26	17	24	13	17	23
577:	19	20	32	22	30	41	80	80
585:	33	23	25	24	22	20	23	26
593:	19	18	21	21	30	24	21	9
601:	27	22	18	18	19	17	27	157
609:	526	592	184	31	15	21	16	17
617:	19	17	22	12	15	15	26	12
625:	14	20	22	10	17	20	16	22
633:	23	25	14	23	21	15	23	18
641:	28	28	14	18	15	9	14	14
649:	11	11	27	21	9	19	11	10
657:	15	14	10	24	39	41	15	20
665:	31	26	17	14	20	19	17	22
673:	16	11	16	22	17	16	20	16
681:	14	15	14	10	19	18	14	16
689:	18	11	23	18	24	19	14	15
697:	19	21	21	16	16	11	22	28
705:	20	11	20	18	24	17	23	22
713:	15	14	17	12	24	19	16	19
721:	22	15	18	13	17	21	30	28
729:	21	21	12	18	12	17	18	9
737:	16	16	10	12	13	13	18	10
745:	17	15	15	6	21	14	18	11
753:	20	23	14	14	15	11	17	17
761:	14	17	13	18	13	19	28	60
769:	50	26	21	16	20	14	13	17
777:	20	17	16	12	19	14	19	12
785:	26	21	13	9	14	18	16	10
793:	16	16	19	24	14	20	12	17

801:	9	14	12	19	21	33	19	15

Sample Title: HTC-A01-S003-1824-01

Channel								
809:	16	12	16	10	19	10	10	11
817:	8	13	13	17	20	7	16	14
825:	18	14	15	15	13	21	11	16
833:	17	11	15	16	12	19	24	18
841:	16	14	10	18	16	11	19	16
849:	14	17	12	15	10	12	10	12
857:	17	23	18	27	29	11	17	16
865:	12	17	13	13	9	11	13	11
873:	8	15	20	17	18	12	19	9
881:	20	13	17	16	18	10	17	19
889:	12	13	13	12	13	13	15	14
897:	18	11	14	10	12	11	18	16
905:	16	14	14	10	15	31	62	48
913:	22	8	16	4	12	11	21	12
921:	10	12	15	13	12	14	19	12
929:	10	16	12	13	29	36	23	16
937:	11	12	16	13	15	9	10	13
945:	9	11	11	14	12	10	12	14
953:	8	12	11	7	12	14	13	12
961:	10	20	15	11	24	17	17	30
969:	35	27	16	8	17	11	11	9
977:	11	7	14	9	10	10	19	9
985:	7	8	11	13	8	15	9	9
993:	6	13	9	10	10	11	6	25
1001:	14	20	7	10	3	10	11	6
1009:	19	6	10	14	10	9	12	7
1017:	9	12	7	7	11	9	15	11
1025:	9	13	13	14	12	14	7	17
1033:	5	12	11	8	9	14	10	10
1041:	10	8	10	11	9	7	10	8
1049:	13	10	20	10	12	8	9	9
1057:	11	10	12	8	7	10	10	8
1065:	10	11	8	9	15	8	12	10
1073:	13	8	7	5	9	10	11	14
1081:	8	16	11	11	8	12	11	11
1089:	8	5	6	9	6	19	9	21
1097:	9	9	11	11	13	10	12	18
1105:	12	15	5	8	5	10	11	7
1113:	14	13	8	11	10	24	87	126
1121:	68	36	12	10	9	8	15	5
1129:	12	11	12	11	10	9	7	15
1137:	10	10	8	12	11	11	9	10
1145:	13	7	15	11	10	12	6	9
1153:	12	26	16	19	13	11	11	14
1161:	2	11	6	12	8	10	11	9
1169:	8	11	6	11	7	21	12	12
1177:	19	11	8	7	14	11	10	8
1185:	11	11	13	9	10	8	13	14
1193:	19	10	8	5	11	11	9	5
1201:	9	3	8	7	8	14	12	15
1209:	15	11	9	10	10	12	12	10
1217:	7	9	10	9	18	12	13	12
1225:	7	3	12	9	9	10	12	11

1233:	7	7	14	11	37	43	34	20

Sample Title: HTC-A01-S003-1824-01

Channel								
1241:	10	11	12	8	11	15	5	8
1249:	7	7	6	14	11	7	7	12
1257:	4	8	6	4	10	3	12	13
1265:	10	7	5	12	6	3	10	6
1273:	7	10	7	10	8	6	10	15
1281:	20	11	8	10	5	14	11	5
1289:	7	9	9	6	9	6	7	3
1297:	5	6	13	5	7	8	8	5
1305:	5	10	9	4	7	2	7	11
1313:	7	8	6	4	6	9	9	5
1321:	8	6	7	3	11	10	4	6
1329:	7	6	6	5	6	7	9	11
1337:	9	4	8	4	6	7	5	8
1345:	1	8	7	4	5	2	7	7
1353:	9	10	10	6	6	6	6	3
1361:	8	5	4	6	1	5	8	5
1369:	4	7	6	2	5	8	10	26
1377:	25	18	12	8	8	8	6	14
1385:	8	4	4	4	6	8	4	5
1393:	4	3	9	4	5	6	5	10
1401:	10	6	5	4	2	13	17	15
1409:	11	7	2	7	10	2	3	4
1417:	8	8	7	8	4	7	6	4
1425:	3	1	2	2	6	10	7	8
1433:	2	6	3	1	3	2	4	5
1441:	7	5	2	7	7	8	3	7
1449:	5	3	2	4	0	11	4	8
1457:	8	27	96	195	158	52	9	9
1465:	6	7	3	2	7	3	4	7
1473:	5	4	5	1	4	3	5	1
1481:	9	4	7	5	4	2	3	2
1489:	5	3	7	6	4	2	5	3
1497:	4	5	5	2	4	4	2	7
1505:	4	1	5	22	23	13	3	7
1513:	7	5	3	4	3	2	5	5
1521:	5	6	6	8	5	3	3	7
1529:	7	6	3	6	6	5	3	3
1537:	4	4	7	3	5	7	8	5
1545:	3	6	3	3	4	1	1	3
1553:	5	10	5	5	6	4	3	1
1561:	4	5	1	5	5	1	1	2
1569:	1	2	5	6	3	4	3	3
1577:	3	4	4	2	4	6	5	2
1585:	1	4	2	6	6	3	9	4
1593:	5	2	2	5	2	6	10	5
1601:	1	3	5	4	3	3	4	1
1609:	5	2	4	4	2	2	3	1
1617:	6	6	4	4	2	1	3	5
1625:	4	4	2	1	2	3	1	1
1633:	5	6	5	3	7	1	0	3
1641:	1	3	4	6	3	4	2	3
1649:	2	3	1	4	3	1	2	1
1657:	0	0	7	15	5	7	3	2

1665:	3	4	2	0	1	3	2	2

Sample Title: HTC-A01-S003-1824-01

Channel								
1673:	5	4	3	2	1	2	4	1
1681:	2	3	3	1	4	0	0	2
1689:	1	0	4	3	3	3	3	2
1697:	1	3	1	2	2	1	3	2
1705:	2	1	1	1	2	0	2	1
1713:	2	2	2	2	3	0	3	5
1721:	2	0	2	2	2	1	9	12
1729:	11	11	6	1	2	3	1	1
1737:	2	3	0	2	1	1	2	1
1745:	2	2	3	3	1	3	0	1
1753:	3	1	0	4	3	4	3	2
1761:	10	29	89	71	39	11	2	0
1769:	4	2	1	0	1	0	0	2
1777:	2	1	4	1	0	3	3	1
1785:	1	0	3	2	1	1	1	1
1793:	2	0	1	2	2	2	2	4
1801:	0	5	0	2	2	4	4	3
1809:	1	3	0	1	1	1	1	0
1817:	3	0	1	2	1	1	4	0
1825:	0	1	3	1	2	1	4	2
1833:	1	0	2	2	4	4	2	1
1841:	0	2	3	2	6	7	11	3
1849:	1	2	3	3	3	6	1	1
1857:	0	1	3	3	0	1	0	1
1865:	3	1	1	2	2	1	6	1
1873:	6	3	0	2	1	1	1	4
1881:	1	3	2	3	0	1	3	2
1889:	3	1	1	1	3	1	3	2
1897:	1	2	1	2	0	0	0	3
1905:	1	3	1	0	1	3	1	2
1913:	3	4	1	1	2	3	1	2
1921:	2	1	1	0	2	1	2	1
1929:	1	2	1	1	0	1	1	4
1937:	1	2	1	1	4	1	2	0
1945:	4	4	2	0	0	1	0	1
1953:	2	1	3	2	0	1	1	1
1961:	5	3	0	1	2	0	2	0
1969:	3	1	0	2	3	1	3	1
1977:	0	2	0	1	2	2	0	0
1985:	1	2	2	2	3	2	2	3
1993:	0	1	2	1	1	0	0	1
2001:	0	0	1	0	2	2	0	0
2009:	1	0	0	0	1	3	3	0
2017:	1	2	1	3	0	2	2	0
2025:	0	4	0	3	1	1	1	2
2033:	1	3	2	1	1	1	1	0
2041:	1	0	0	0	2	0	1	1
2049:	4	1	4	2	2	0	0	2
2057:	2	2	1	3	1	0	0	2
2065:	2	2	3	1	0	1	1	1
2073:	0	1	3	0	0	0	0	1
2081:	0	0	3	0	2	0	0	0
2089:	0	1	3	0	1	1	0	1

2097:	1	1	3	3	3	4	7	3

Sample Title: HTC-A01-S003-1824-01

Channel								
2105:	2	1	0	0	2	2	1	1
2113:	1	0	2	7	5	9	5	1
2121:	0	1	1	1	3	1	1	3
2129:	0	1	0	3	1	1	3	1
2137:	2	1	1	0	2	0	0	1
2145:	0	1	0	1	1	0	1	2
2153:	0	0	2	3	0	0	0	0
2161:	0	0	0	0	0	0	2	0
2169:	0	1	1	1	1	0	3	1
2177:	0	2	0	0	2	3	2	0
2185:	1	1	2	3	1	1	1	2
2193:	0	3	5	2	0	0	1	2
2201:	8	19	15	15	2	1	2	0
2209:	1	2	0	2	0	1	1	2
2217:	1	0	0	0	0	1	1	0
2225:	4	1	1	0	1	0	1	1
2233:	0	1	0	3	1	0	1	0
2241:	1	4	1	2	0	1	1	1
2249:	2	0	2	3	4	1	1	2
2257:	2	0	2	0	2	0	2	0
2265:	2	3	0	1	3	1	1	0
2273:	2	0	0	1	1	0	0	0
2281:	1	0	0	1	1	1	2	1
2289:	1	2	2	0	2	0	0	2
2297:	0	1	2	0	1	2	1	0
2305:	1	2	0	1	1	2	0	0
2313:	2	0	1	1	2	0	1	0
2321:	0	0	0	0	0	0	1	0
2329:	3	0	0	1	1	1	1	0
2337:	1	0	2	1	3	1	0	1
2345:	0	1	2	1	2	0	0	0
2353:	1	1	0	1	0	1	0	1
2361:	0	1	2	2	2	1	0	2
2369:	1	0	1	1	2	0	1	1
2377:	0	1	0	0	2	2	2	1
2385:	1	4	1	0	1	0	0	1
2393:	2	0	1	0	0	1	0	1
2401:	0	0	2	1	1	1	0	1
2409:	4	1	1	0	0	0	2	2
2417:	0	1	0	1	0	2	0	0
2425:	0	0	1	0	1	2	2	0
2433:	0	1	1	1	1	0	1	2
2441:	0	0	2	1	8	5	5	3
2449:	0	0	0	2	0	0	0	1
2457:	0	0	0	1	1	1	0	0
2465:	2	0	0	0	2	0	0	1
2473:	0	1	1	2	0	0	0	0
2481:	2	1	0	0	0	1	1	0
2489:	0	0	1	0	1	0	0	0
2497:	1	3	0	0	0	0	0	0
2505:	1	0	0	2	0	0	0	0
2513:	0	0	0	0	2	0	1	1
2521:	1	0	1	0	1	0	2	0

2529:	0	2	1	1	0	0	0	0

Sample Title: HTC-A01-S003-1824-01

Channel								
2537:	0	0	0	0	1	0	0	0
2545:	0	0	1	0	0	0	3	1
2553:	0	0	0	0	1	0	1	0
2561:	0	0	0	0	0	0	0	0
2569:	0	1	0	1	1	1	0	0
2577:	0	1	0	1	0	0	0	1
2585:	0	0	0	0	1	0	0	2
2593:	1	0	0	0	1	0	0	0
2601:	0	0	0	1	1	2	0	0
2609:	1	1	4	9	17	10	6	3
2617:	0	0	0	2	0	0	1	1
2625:	1	0	0	0	0	0	1	0
2633:	1	0	0	0	0	0	0	0
2641:	0	1	1	0	0	0	0	0
2649:	0	0	0	1	0	0	0	0
2657:	0	0	0	0	1	0	0	0
2665:	0	0	0	0	0	0	0	1
2673:	0	1	0	2	0	0	0	0
2681:	0	0	3	0	1	0	1	0
2689:	0	0	0	1	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	1	0	2	0
2713:	0	0	0	0	0	1	0	0
2721:	0	1	0	1	0	0	0	0
2729:	0	1	0	0	0	2	0	1
2737:	1	0	0	0	0	0	2	0
2745:	0	1	0	0	1	1	1	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	2	0	0	0
2769:	0	0	0	0	0	0	1	1
2777:	1	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	1	0
2793:	0	0	1	0	1	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	1	0	0
2817:	0	0	0	1	0	0	0	0
2825:	0	1	1	0	0	0	1	0
2833:	0	1	0	0	0	0	2	0
2841:	1	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	1	0	1
2865:	0	0	0	0	1	1	0	0
2873:	0	0	0	0	1	0	0	0
2881:	0	0	1	0	0	0	0	2
2889:	0	0	0	0	0	0	0	0
2897:	1	0	0	0	0	0	0	0
2905:	0	0	0	0	0	1	0	0
2913:	0	1	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	1	0	0	0	0	0	0
2937:	0	0	0	1	0	0	0	0
2945:	0	1	0	0	0	1	0	0
2953:	0	0	0	1	0	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S003-1824-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S003-1824-01

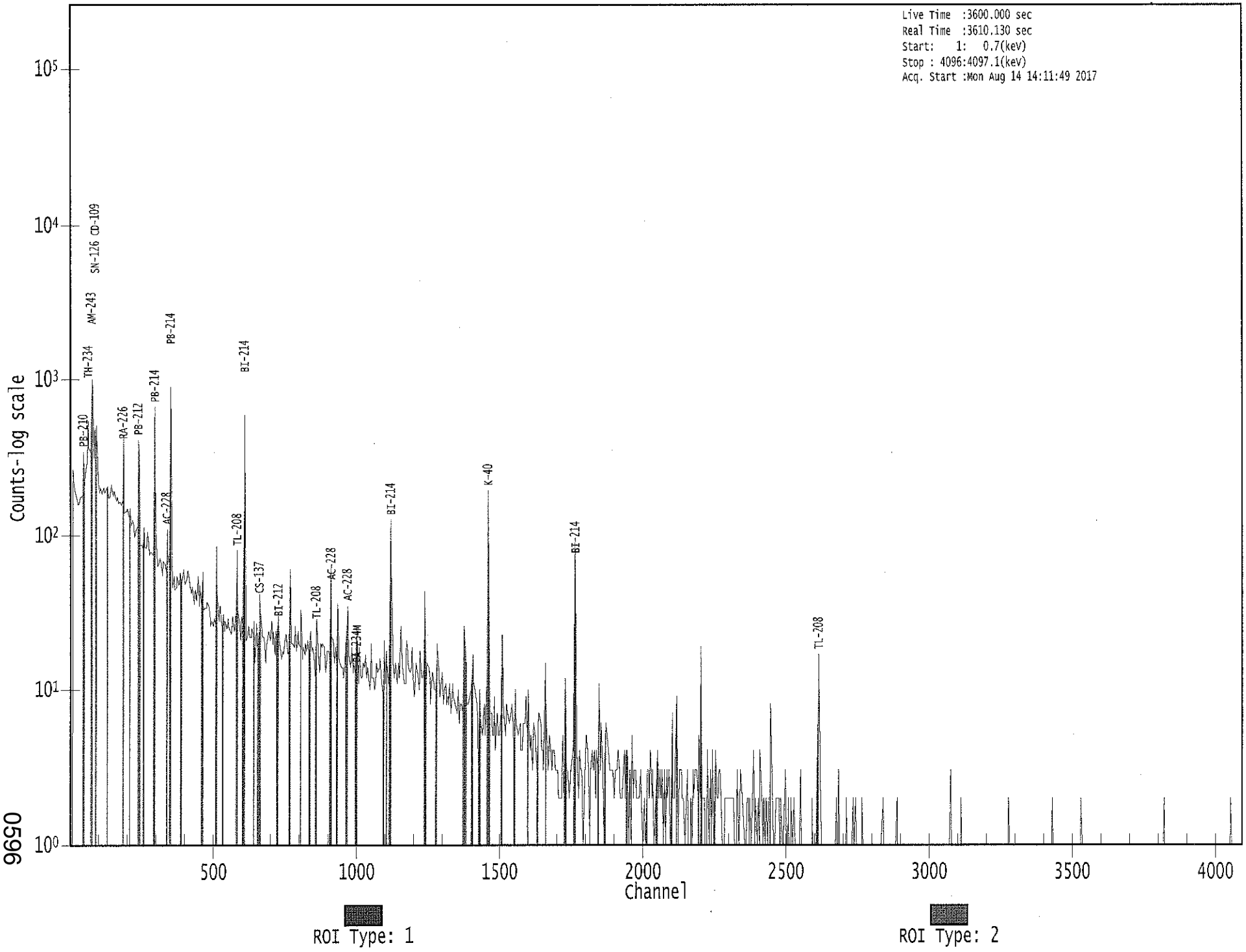
Channel								
3401:	1	0	0	0	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	1	0	0	0	1	1
3425:	0	0	0	1	1	2	0	0
3433:	1	0	0	0	0	1	0	0
3441:	0	0	0	0	1	0	0	0
3449:	1	0	1	0	0	0	0	1
3457:	0	1	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	0	1	0
3521:	0	0	0	1	0	0	0	0
3529:	2	1	0	1	0	0	1	0
3537:	0	0	0	0	1	0	1	0
3545:	0	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	0
3569:	0	0	0	0	0	0	0	0
3577:	0	0	0	0	0	0	0	0
3585:	0	1	0	0	0	0	0	0
3593:	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	1	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	1	0	0	0	0	0	0
3649:	0	1	0	0	0	0	0	0
3657:	0	1	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	0	0	0	0	0	0	0	0
3689:	0	0	0	0	0	0	0	0
3697:	0	0	0	0	1	0	0	1
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	0	0	1
3721:	1	0	0	0	0	1	1	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:	1	0	0	0	0	0	0	0
3801:	0	0	0	0	0	0	1	0
3809:	0	0	1	0	0	0	0	0
3817:	0	0	0	2	0	0	0	0

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-1824-01

Channel								
3833:	0	0	0	0	0	1	1	0
3841:	0	0	0	0	1	0	0	0
3849:	0	0	0	1	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	1	1
3889:	0	0	0	0	0	1	0	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	1	0	0	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:	0	0	0	0	1	0	0	1
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	0	1	0	0
3969:	0	0	1	0	0	0	0	0
3977:	0	0	0	0	0	0	1	0
3985:	1	1	0	0	0	0	1	0
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:	1	0	0	0	0	0	0	0
4025:	0	0	0	0	1	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	1	0	1	0	0	2	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055184.CNF



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KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-08
Sample Description	: HTC-A01-S003-2430-01
Sample Type	: SOIL
Sample Size	: 6.655E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:30:15AM
Acquisition Started	: 8/14/2017 2:27:53PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.8 seconds
Dead Time	: 0.05 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 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	: 55186

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 3:27:57PM
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	46.15	46.77	0.0000	0.00
2	62.97	63.58	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.13	77.72	0.0000	0.00
5	87.92	88.50	0.0000	0.00
6	92.41	92.99	0.0000	0.00
7	186.02	186.50	0.0000	0.00
8	209.13	209.59	0.0000	0.00
9	238.50	238.93	0.0000	0.00
10	241.87	242.29	0.0000	0.00
11	270.20	270.59	0.0000	0.00
12	295.19	295.56	0.0000	0.00
13	300.09	300.45	0.0000	0.00
14	328.14	328.48	0.0000	0.00
15	338.38	338.71	0.0000	0.00
16	351.87	352.18	0.0000	0.00
17	459.98	460.18	0.0000	0.00
18	462.98	463.18	0.0000	0.00
19	488.73	488.90	0.0000	0.00
20	495.79	495.95	0.0000	0.00
21	510.94	511.09	0.0000	0.00
22	583.44	583.52	0.0000	0.00
23	609.48	609.53	0.0000	0.00
24	647.38	647.39	0.0000	0.00
25	661.69	661.69	0.0000	0.00
26	727.65	727.58	0.0000	0.00
27	768.71	768.61	0.0000	0.00
28	794.98	794.85	0.0000	0.00
29	839.43	839.26	0.0000	0.00
30	860.92	860.72	0.0000	0.00
31	885.41	885.19	0.0000	0.00
32	911.47	911.22	0.0000	0.00
33	969.00	968.69	0.0000	0.00
34	1001.64	1001.30	0.0000	0.00
35	1120.98	1120.52	0.0000	0.00
36	1194.30	1193.77	0.0000	0.00
37	1206.85	1206.30	0.0000	0.00
38	1238.77	1238.20	0.0000	0.00
39	1281.30	1280.68	0.0000	0.00
40	1378.39	1377.67	0.0000	0.00
41	1401.82	1401.09	0.0000	0.00
42	1404.96	1404.22	0.0000	0.00

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1408.53	1407.78	0.0000	0.00
44	1415.00	1414.25	0.0000	0.00
45	1436.07	1435.30	0.0000	0.00
46	1448.81	1448.03	0.0000	0.00
47	1461.25	1460.45	0.0000	0.00
48	1494.41	1493.59	0.0000	0.00
49	1507.73	1506.89	0.0000	0.00
50	1588.64	1587.72	0.0000	0.00
51	1592.39	1591.47	0.0000	0.00
52	1620.94	1619.99	0.0000	0.00
53	1633.85	1632.88	0.0000	0.00
54	1730.09	1729.03	0.0000	0.00
55	1765.13	1764.04	0.0000	0.00
56	1840.51	1839.34	0.0000	0.00
57	1847.53	1846.36	0.0000	0.00
58	1863.20	1862.02	0.0000	0.00
59	1907.47	1906.24	0.0000	0.00
60	2017.15	2015.81	0.0000	0.00
61	2084.48	2083.08	0.0000	0.00
62	2102.35	2100.93	0.0000	0.00
63	2120.93	2119.50	0.0000	0.00
64	2204.61	2203.09	0.0000	0.00
65	2232.30	2230.75	0.0000	0.00
66	2353.41	2351.75	0.0000	0.00
67	2393.00	2391.31	0.0000	0.00
68	2447.31	2445.56	0.0000	0.00
69	2511.44	2509.63	0.0000	0.00
70	2614.90	2612.99	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 3:27:57PM

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	46.15	43 -	49	46.77	1.79E+02	94.74	1.51E+03	1.33
	2	62.97	59 -	66	63.58	3.62E+02	132.27	2.68E+03	1.52
M	3	74.72	71 -	81	75.31	6.48E+02	112.02	1.78E+03	1.81
m	4	77.13	71 -	81	77.72	1.02E+03	119.76	1.77E+03	1.82
M	5	87.92	83 -	97	88.50	3.58E+02	105.29	1.82E+03	2.02
m	6	92.41	83 -	97	92.99	4.90E+02	107.37	1.66E+03	2.02
	7	186.02	182 -	190	186.50	3.63E+02	110.93	1.67E+03	2.05
	8	209.13	207 -	212	209.59	8.55E+01	69.79	9.01E+02	1.82
M	9	238.50	233 -	246	238.93	1.04E+03	81.91	6.39E+02	1.73
m	10	241.87	233 -	246	242.29	4.08E+02	92.26	6.65E+02	1.90
	11	270.20	267 -	273	270.59	8.39E+01	67.46	7.66E+02	1.89
M	12	295.19	291 -	304	295.56	6.72E+02	69.97	4.60E+02	1.89
m	13	300.09	291 -	304	300.45	1.40E+02	74.43	5.67E+02	2.74
	14	328.14	325 -	332	328.48	6.79E+01	59.80	5.48E+02	1.88
	15	338.38	334 -	343	338.71	2.15E+02	77.14	7.21E+02	1.99
	16	351.87	347 -	356	352.18	1.14E+03	100.34	7.85E+02	1.76
M	17	459.98	459 -	466	460.18	2.07E+01	22.36	1.30E+02	1.75
m	18	462.98	459 -	466	463.18	7.00E+01	40.24	2.61E+02	1.98
	19	488.73	484 -	492	488.90	4.21E+01	45.35	2.86E+02	4.70
	20	495.79	494 -	498	495.95	3.27E+01	27.08	1.33E+02	2.09
	21	510.94	507 -	516	511.09	1.85E+02	56.81	3.56E+02	2.82
	22	583.44	580 -	589	583.52	3.12E+02	59.79	3.27E+02	2.16
	23	609.48	603 -	616	609.53	8.98E+02	85.01	3.96E+02	2.09
	24	647.38	643 -	650	647.39	3.41E+01	33.47	1.64E+02	1.30
	25	661.69	659 -	665	661.69	4.23E+01	38.59	2.43E+02	1.16
	26	727.65	724 -	731	727.58	7.58E+01	38.68	1.96E+02	2.19
	27	768.71	764 -	775	768.61	7.01E+01	55.71	3.50E+02	1.99
	28	794.98	792 -	798	794.85	3.11E+01	31.61	1.62E+02	1.50
	29	839.43	837 -	842	839.26	2.56E+01	25.98	1.11E+02	1.96
	30	860.92	857 -	864	860.72	3.80E+01	31.87	1.44E+02	2.72
	31	885.41	883 -	888	885.19	2.19E+01	22.63	8.63E+01	1.68
	32	911.47	907 -	916	911.22	1.83E+02	46.84	2.05E+02	1.82
	33	969.00	964 -	973	968.69	1.11E+02	46.49	2.45E+02	1.67
	34	1001.64	997 -	1006	1001.30	3.33E+01	35.33	1.57E+02	1.12
	35	1120.98	1116 -	1127	1120.52	1.71E+02	50.00	2.23E+02	2.59
	36	1194.30	1190 -	1198	1193.77	3.53E+01	32.31	1.37E+02	4.10
	37	1206.85	1203 -	1209	1206.30	2.83E+01	26.83	1.07E+02	3.29
	38	1238.77	1234 -	1244	1238.20	8.14E+01	43.81	2.07E+02	2.35
	39	1281.30	1277 -	1285	1280.68	3.37E+01	28.74	1.03E+02	2.44
	40	1378.39	1372 -	1381	1377.67	3.55E+01	28.98	9.90E+01	1.91

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1401.82	1398	1411	1401.09	2.44E+01	18.19	4.62E+01	2.38
m	42	1404.96	1398	1411	1404.22	1.43E+01	18.62	3.79E+01	2.39
m	43	1408.53	1398	1411	1407.78	2.77E+01	18.41	2.96E+01	2.39
	44	1415.00	1412	1418	1414.25	1.75E+01	13.62	2.10E+01	3.70
	45	1436.07	1431	1439	1435.30	1.32E+01	15.02	2.56E+01	2.81
	46	1448.81	1442	1453	1448.03	3.20E+01	22.63	4.80E+01	2.14
	47	1461.25	1454	1466	1460.45	1.02E+03	70.16	9.75E+01	2.25
	48	1494.41	1489	1498	1493.59	1.80E+01	16.79	3.00E+01	6.90
	49	1507.73	1502	1512	1506.89	2.20E+01	23.34	6.20E+01	1.91
M	50	1588.64	1582	1597	1587.72	2.29E+01	18.76	3.20E+01	2.69
m	51	1592.39	1582	1597	1591.47	2.53E+01	19.80	3.20E+01	2.69
	52	1620.94	1617	1624	1619.99	1.23E+01	13.11	2.13E+01	1.88
	53	1633.85	1624	1641	1632.88	2.87E+01	26.42	4.86E+01	10.62
	54	1730.09	1723	1734	1729.03	3.00E+01	17.66	2.40E+01	2.55
	55	1765.13	1758	1770	1764.04	1.61E+02	27.43	1.30E+01	2.26
	56	1840.51	1837	1842	1839.34	5.95E+00	8.19	8.10E+00	2.43
	57	1847.53	1843	1849	1846.36	2.32E+01	13.76	1.76E+01	2.63
	58	1863.20	1858	1864	1862.02	8.05E+00	7.23	3.90E+00	1.81
	59	1907.47	1902	1909	1906.24	7.00E+00	8.72	8.00E+00	2.25
	60	2017.15	2013	2017	2015.81	7.50E+00	7.25	5.00E+00	1.11
	61	2084.48	2079	2085	2083.08	5.13E+00	7.52	5.75E+00	1.31
	62	2102.35	2097	2106	2100.93	1.04E+01	13.56	2.12E+01	4.32
	63	2120.93	2115	2125	2119.50	1.48E+01	13.22	1.24E+01	4.93
	64	2204.61	2199	2209	2203.09	4.20E+01	18.25	2.20E+01	2.49
	65	2232.30	2227	2235	2230.75	9.50E+00	8.26	5.00E+00	3.40
	66	2353.41	2348	2355	2351.75	8.00E+00	5.66	0.00E+00	1.16
	67	2393.00	2387	2394	2391.31	5.94E+00	6.93	4.13E+00	2.95
	68	2447.31	2441	2450	2445.56	1.41E+01	11.22	9.79E+00	1.96
	69	2511.44	2506	2512	2509.63	8.00E+00	5.66	0.00E+00	1.92
	70	2614.90	2609	2618	2612.99	1.11E+02	23.47	1.59E+01	3.15

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 3:27:57PM

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

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.15	43 -	49	1.79E+02	94.74	1.51E+03	7.47E+01
	2	62.97	59 -	66	3.62E+02	132.27	2.68E+03	1.04E+02
M	3	74.72	71 -	81	6.48E+02	112.02	1.78E+03	6.93E+01
m	4	77.13	71 -	81	1.02E+03	119.76	1.77E+03	6.92E+01
M	5	87.92	83 -	97	3.58E+02	105.29	1.82E+03	7.01E+01
m	6	92.41	83 -	97	4.90E+02	107.37	1.66E+03	6.70E+01
	7	186.02	182 -	190	3.63E+02	110.93	1.67E+03	8.56E+01
	8	209.13	207 -	212	8.55E+01	69.79	9.01E+02	5.53E+01
M	9	238.50	233 -	246	1.04E+03	81.91	6.39E+02	4.16E+01
m	10	241.87	233 -	246	4.08E+02	92.26	6.65E+02	4.24E+01
	11	270.20	267 -	273	8.39E+01	67.46	7.66E+02	5.34E+01
M	12	295.19	291 -	304	6.72E+02	69.97	4.60E+02	3.53E+01
m	13	300.09	291 -	304	1.40E+02	74.43	5.67E+02	3.92E+01
	14	328.14	325 -	332	6.79E+01	59.80	5.48E+02	4.73E+01
	15	338.38	334 -	343	2.15E+02	77.14	7.21E+02	5.87E+01
	16	351.87	347 -	356	1.14E+03	100.34	7.85E+02	6.09E+01
M	17	459.98	459 -	466	2.07E+01	22.36	1.30E+02	1.87E+01
m	18	462.98	459 -	466	7.00E+01	40.24	2.61E+02	2.66E+01
	19	488.73	484 -	492	4.21E+01	45.35	2.86E+02	3.57E+01
	20	495.79	494 -	498	3.27E+01	27.08	1.33E+02	2.02E+01
	21	510.94	507 -	516	1.85E+02	56.81	3.56E+02	4.10E+01
	22	583.44	580 -	589	3.12E+02	59.79	3.27E+02	3.97E+01
	23	609.48	603 -	616	8.98E+02	85.01	3.96E+02	2.21E+01
	24	647.38	643 -	650	3.41E+01	33.47	1.64E+02	2.58E+01
	25	661.69	659 -	665	4.23E+01	38.59	2.43E+02	2.99E+01
	26	727.65	724 -	731	7.58E+01	38.68	1.96E+02	2.84E+01
	27	768.71	764 -	775	7.01E+01	55.71	3.50E+02	2.21E+01
	28	794.98	792 -	798	3.11E+01	31.61	1.62E+02	2.43E+01
	29	839.43	837 -	842	2.56E+01	25.98	1.11E+02	1.97E+01
	30	860.92	857 -	864	3.80E+01	31.87	1.44E+02	2.42E+01
	31	885.41	883 -	888	2.19E+01	22.63	8.63E+01	1.69E+01
	32	911.47	907 -	916	1.83E+02	46.84	2.05E+02	3.14E+01
	33	969.00	964 -	973	1.11E+02	46.49	2.45E+02	1.40E+01
	34	1001.64	997 -	1006	3.33E+01	35.33	1.57E+02	2.74E+01
	35	1120.98	1116 -	1127	1.71E+02	50.00	2.23E+02	3.50E+01
	36	1194.30	1190 -	1198	3.53E+01	32.31	1.37E+02	2.47E+01
	37	1206.85	1203 -	1209	2.83E+01	26.83	1.07E+02	2.02E+01
	38	1238.77	1234 -	1244	8.14E+01	43.81	2.07E+02	3.28E+01
	39	1281.30	1277 -	1285	3.37E+01	28.74	1.03E+02	2.16E+01
	40	1378.39	1372 -	1381	3.55E+01	28.98	9.90E+01	2.17E+01
M	41	1401.82	1398 -	1411	2.44E+01	18.19	4.62E+01	1.12E+01
m	42	1404.96	1398 -	1411	1.43E+01	18.62	3.79E+01	1.01E+01
m	43	1408.53	1398 -	1411	2.77E+01	18.41	2.96E+01	8.94E+00
	44	1415.00	1412 -	1418	1.75E+01	13.62	2.10E+01	8.83E+00
	45	1436.07	1431 -	1439	1.32E+01	15.02	2.56E+01	1.08E+01
	46	1448.81	1442 -	1453	3.20E+01	22.63	4.80E+01	1.61E+01
	47	1461.25	1454 -	1466	1.02E+03	70.16	9.75E+01	2.37E+01
	48	1494.41	1489 -	1498	1.80E+01	16.79	3.00E+01	1.19E+01
	49	1507.73	1502 -	1512	2.20E+01	23.34	6.20E+01	1.76E+01
M	50	1588.64	1582 -	1597	2.29E+01	18.76	3.20E+01	9.30E+00
m	51	1592.39	1582 -	1597	2.53E+01	19.80	3.20E+01	9.30E+00

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
52	1620.94	1617 -	1624	1.23E+01	13.11	2.13E+01	9.10E+00
53	1633.85	1624 -	1641	2.87E+01	26.42	4.86E+01	1.99E+01
54	1730.09	1723 -	1734	3.00E+01	17.66	2.40E+01	1.14E+01
55	1765.13	1758 -	1770	1.61E+02	27.43	1.30E+01	8.64E+00
56	1840.51	1837 -	1842	5.95E+00	8.19	8.10E+00	5.40E+00
57	1847.53	1843 -	1849	2.32E+01	13.76	1.76E+01	8.07E+00
58	1863.20	1858 -	1864	8.05E+00	7.23	3.90E+00	3.68E+00
59	1907.47	1902 -	1909	7.00E+00	8.72	8.00E+00	5.70E+00
60	2017.15	2013 -	2017	7.50E+00	7.25	5.00E+00	3.90E+00
61	2084.48	2079 -	2085	5.13E+00	7.52	5.75E+00	4.93E+00
62	2102.35	2097 -	2106	1.04E+01	13.56	2.12E+01	9.81E+00
63	2120.93	2115 -	2125	1.48E+01	13.22	1.24E+01	8.84E+00
64	2204.61	2199 -	2209	4.20E+01	18.25	2.20E+01	1.06E+01
65	2232.30	2227 -	2235	9.50E+00	8.26	5.00E+00	4.52E+00
66	2353.41	2348 -	2355	8.00E+00	5.66	0.00E+00	0.00E+00
67	2393.00	2387 -	2394	5.94E+00	6.93	4.13E+00	4.05E+00
68	2447.31	2441 -	2450	1.41E+01	11.22	9.79E+00	6.86E+00
69	2511.44	2506 -	2512	8.00E+00	5.66	0.00E+00	0.00E+00
70	2614.90	2609 -	2618	1.11E+02	23.47	1.59E+01	8.50E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 3:27:57PM

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	46.15	43 -	49	46.77	1.79E+02	94.74	1.51E+03	PB-210
	2	62.97	59 -	66	63.58	3.62E+02	132.27	2.68E+03	TH-230
									TH-234
M	3	74.72	71 -	81	75.31	6.48E+02	112.02	1.78E+03	AM-243
m	4	77.13	71 -	81	77.72	1.02E+03	119.76	1.77E+03	.....
M	5	87.92	83 -	97	88.50	3.58E+02	105.29	1.82E+03	CD-109

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									SN-126
									LU-176
m	6	92.41	83 -	97	92.99	4.90E+02	107.37	1.66E+03	GA-67
	7	186.02	182 -	190	186.50	3.63E+02	110.93	1.67E+03	RA-226
	8	209.13	207 -	212	209.59	8.55E+01	69.79	9.01E+02	GA-67
									CM-243
M	9	238.50	233 -	246	238.93	1.04E+03	81.91	6.39E+02	PB-212
m	10	241.87	233 -	246	242.29	4.08E+02	92.26	6.65E+02	RA-224
	11	270.20	267 -	273	270.59	8.39E+01	67.46	7.66E+02	.....
M	12	295.19	291 -	304	295.56	6.72E+02	69.97	4.60E+02	PB-214
m	13	300.09	291 -	304	300.45	1.40E+02	74.43	5.67E+02	PB-212
									BI-210M
									GA-67
	14	328.14	325 -	332	328.48	6.79E+01	59.80	5.48E+02	LA-140
	15	338.38	334 -	343	338.71	2.15E+02	77.14	7.21E+02	AC-228
	16	351.87	347 -	356	352.18	1.14E+03	100.34	7.85E+02	PB-214
M	17	459.98	459 -	466	460.18	2.07E+01	22.36	1.30E+02	.....
m	18	462.98	459 -	466	463.18	7.00E+01	40.24	2.61E+02	SB-125
	19	488.73	484 -	492	488.90	4.21E+01	45.35	2.86E+02	.....
	20	495.79	494 -	498	495.95	3.27E+01	27.08	1.33E+02	.....
	21	510.94	507 -	516	511.09	1.85E+02	56.81	3.56E+02	.....
	22	583.44	580 -	589	583.52	3.12E+02	59.79	3.27E+02	TL-208
	23	609.48	603 -	616	609.53	8.98E+02	85.01	3.96E+02	BI-214
	24	647.38	643 -	650	647.39	3.41E+01	33.47	1.64E+02	.....
	25	661.69	659 -	665	661.69	4.23E+01	38.59	2.43E+02	CS-137
	26	727.65	724 -	731	727.58	7.58E+01	38.68	1.96E+02	BI-212
	27	768.71	764 -	775	768.61	7.01E+01	55.71	3.50E+02	.....
	28	794.98	792 -	798	794.85	3.11E+01	31.61	1.62E+02	CS-134
	29	839.43	837 -	842	839.26	2.56E+01	25.98	1.11E+02	.....
	30	860.92	857 -	864	860.72	3.80E+01	31.87	1.44E+02	TL-208
	31	885.41	883 -	888	885.19	2.19E+01	22.63	8.63E+01	AG-110M
	32	911.47	907 -	916	911.22	1.83E+02	46.84	2.05E+02	TL-204
									AC-228
	33	969.00	964 -	973	968.69	1.11E+02	46.49	2.45E+02	AC-228
	34	1001.64	997 -	1006	1001.30	3.33E+01	35.33	1.57E+02	PA-234M
	35	1120.98	1116 -	1127	1120.52	1.71E+02	50.00	2.23E+02	TA-182
									SC-46
									BI-214
	36	1194.30	1190 -	1198	1193.77	3.53E+01	32.31	1.37E+02	.....
	37	1206.85	1203 -	1209	1206.30	2.83E+01	26.83	1.07E+02	.....
	38	1238.77	1234 -	1244	1238.20	8.14E+01	43.81	2.07E+02	CO-56
	39	1281.30	1277 -	1285	1280.68	3.37E+01	28.74	1.03E+02	.....
	40	1378.39	1372 -	1381	1377.67	3.55E+01	28.98	9.90E+01	.....
M	41	1401.82	1398 -	1411	1401.09	2.44E+01	18.19	4.62E+01	.....
m	42	1404.96	1398 -	1411	1404.22	1.43E+01	18.62	3.79E+01	.....
m	43	1408.53	1398 -	1411	1407.78	2.77E+01	18.41	2.96E+01	EU-152
	44	1415.00	1412 -	1418	1414.25	1.75E+01	13.62	2.10E+01	.....
	45	1436.07	1431 -	1439	1435.30	1.32E+01	15.02	2.56E+01	LA-138
	46	1448.81	1442 -	1453	1448.03	3.20E+01	22.63	4.80E+01	.....
	47	1461.25	1454 -	1466	1460.45	1.02E+03	70.16	9.75E+01	K-40
	48	1494.41	1489 -	1498	1493.59	1.80E+01	16.79	3.00E+01	.....
	49	1507.73	1502 -	1512	1506.89	2.20E+01	23.34	6.20E+01	.....
M	50	1588.64	1582 -	1597	1587.72	2.29E+01	18.76	3.20E+01	.....
m	51	1592.39	1582 -	1597	1591.47	2.53E+01	19.80	3.20E+01	.....

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
52	1620.94	1617 -	1624	1619.99	1.23E+01	13.11	2.13E+01	BI-212
53	1633.85	1624 -	1641	1632.88	2.87E+01	26.42	4.86E+01	.....
54	1730.09	1723 -	1734	1729.03	3.00E+01	17.66	2.40E+01	.....
55	1765.13	1758 -	1770	1764.04	1.61E+02	27.43	1.30E+01	BI-214
56	1840.51	1837 -	1842	1839.34	5.95E+00	8.19	8.10E+00	.....
57	1847.53	1843 -	1849	1846.36	2.32E+01	13.76	1.76E+01	.....
58	1863.20	1858 -	1864	1862.02	8.05E+00	7.23	3.90E+00	.....
59	1907.47	1902 -	1909	1906.24	7.00E+00	8.72	8.00E+00	.....
60	2017.15	2013 -	2017	2015.81	7.50E+00	7.25	5.00E+00	.....
61	2084.48	2079 -	2085	2083.08	5.13E+00	7.52	5.75E+00	.....
62	2102.35	2097 -	2106	2100.93	1.04E+01	13.56	2.12E+01	.....
63	2120.93	2115 -	2125	2119.50	1.48E+01	13.22	1.24E+01	.....
64	2204.61	2199 -	2209	2203.09	4.20E+01	18.25	2.20E+01	BI-214
65	2232.30	2227 -	2235	2230.75	9.50E+00	8.26	5.00E+00	.....
66	2353.41	2348 -	2355	2351.75	8.00E+00	5.66	0.00E+00	.....
67	2393.00	2387 -	2394	2391.31	5.94E+00	6.93	4.13E+00	.....
68	2447.31	2441 -	2450	2445.56	1.41E+01	11.22	9.79E+00	.....
69	2511.44	2506 -	2512	2509.63	8.00E+00	5.66	0.00E+00	.....
70	2614.90	2609 -	2618	2612.99	1.11E+02	23.47	1.59E+01	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 3:27:57PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.15	1.79E+02	94.74	2.46E-02	2.22E-03
	2	62.97	3.62E+02	132.27	2.70E-02	2.25E-03
M	3	74.72	6.48E+02	112.02	2.75E-02	2.38E-03
m	4	77.13	1.02E+03	119.76	2.75E-02	2.40E-03
M	5	87.92	3.58E+02	105.29	2.74E-02	2.52E-03
m	6	92.41	4.90E+02	107.37	2.73E-02	2.45E-03
	7	186.02	3.63E+02	110.93	2.17E-02	1.68E-03
	8	209.13	8.55E+01	69.79	2.04E-02	1.61E-03
M	9	238.50	1.04E+03	81.91	1.89E-02	1.53E-03
m	10	241.87	4.08E+02	92.26	1.87E-02	1.52E-03
	11	270.20	8.39E+01	67.46	1.74E-02	1.43E-03

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	12	295.19	6.72E+02	69.97	1.64E-02	1.37E-03
m	13	300.09	1.40E+02	74.43	1.63E-02	1.36E-03
	14	328.14	6.79E+01	59.80	1.53E-02	1.29E-03
	15	338.38	2.15E+02	77.14	1.50E-02	1.27E-03
	16	351.87	1.14E+03	100.34	1.45E-02	1.24E-03
M	17	459.98	2.07E+01	22.36	1.19E-02	1.10E-03
m	18	462.98	7.00E+01	40.24	1.19E-02	1.10E-03
	19	488.73	4.21E+01	45.35	1.14E-02	1.08E-03
	20	495.79	3.27E+01	27.08	1.13E-02	1.08E-03
	21	510.94	1.85E+02	56.81	1.10E-02	1.07E-03
	22	583.44	3.12E+02	59.79	9.96E-03	1.02E-03
	23	609.48	8.98E+02	85.01	9.63E-03	1.01E-03
	24	647.38	3.41E+01	33.47	9.20E-03	9.81E-04
	25	661.69	4.23E+01	38.59	9.04E-03	9.72E-04
	26	727.65	7.58E+01	38.68	8.41E-03	8.67E-04
	27	768.71	7.01E+01	55.71	8.06E-03	8.02E-04
	28	794.98	3.11E+01	31.61	7.86E-03	7.60E-04
	29	839.43	2.56E+01	25.98	7.54E-03	6.90E-04
	30	860.92	3.80E+01	31.87	7.40E-03	6.55E-04
	31	885.41	2.19E+01	22.63	7.24E-03	6.16E-04
	32	911.47	1.83E+02	46.84	7.08E-03	5.91E-04
	33	969.00	1.11E+02	46.49	6.77E-03	5.69E-04
	34	1001.64	3.33E+01	35.33	6.60E-03	5.57E-04
	35	1120.98	1.71E+02	50.00	6.07E-03	5.11E-04
	36	1194.30	3.53E+01	32.31	5.79E-03	4.86E-04
	37	1206.85	2.83E+01	26.83	5.75E-03	4.83E-04
	38	1238.77	8.14E+01	43.81	5.64E-03	4.76E-04
	39	1281.30	3.37E+01	28.74	5.50E-03	4.66E-04
	40	1378.39	3.55E+01	28.98	5.22E-03	4.44E-04
M	41	1401.82	2.44E+01	18.19	5.16E-03	4.38E-04
m	42	1404.96	1.43E+01	18.62	5.15E-03	4.38E-04
m	43	1408.53	2.77E+01	18.41	5.14E-03	4.37E-04
	44	1415.00	1.75E+01	13.62	5.12E-03	4.35E-04
	45	1436.07	1.32E+01	15.02	5.07E-03	4.30E-04
	46	1448.81	3.20E+01	22.63	5.04E-03	4.28E-04
	47	1461.25	1.02E+03	70.16	5.01E-03	4.25E-04
	48	1494.41	1.80E+01	16.79	4.93E-03	4.17E-04
	49	1507.73	2.20E+01	23.34	4.89E-03	4.14E-04
M	50	1588.64	2.29E+01	18.76	4.71E-03	3.95E-04
m	51	1592.39	2.53E+01	19.80	4.71E-03	3.94E-04
	52	1620.94	1.23E+01	13.11	4.65E-03	3.88E-04
	53	1633.85	2.87E+01	26.42	4.62E-03	3.85E-04
	54	1730.09	3.00E+01	17.66	4.44E-03	3.62E-04
	55	1765.13	1.61E+02	27.43	4.37E-03	3.54E-04
	56	1840.51	5.95E+00	8.19	4.25E-03	3.38E-04
	57	1847.53	2.32E+01	13.76	4.23E-03	3.38E-04
	58	1863.20	8.05E+00	7.23	4.21E-03	3.38E-04
	59	1907.47	7.00E+00	8.72	4.14E-03	3.38E-04
	60	2017.15	7.50E+00	7.25	3.98E-03	3.38E-04
	61	2084.48	5.13E+00	7.52	3.89E-03	3.38E-04
	62	2102.35	1.04E+01	13.56	3.86E-03	3.38E-04
	63	2120.93	1.48E+01	13.22	3.84E-03	3.38E-04
	64	2204.61	4.20E+01	18.25	3.74E-03	3.38E-04

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
65	2232.30	9.50E+00	8.26	3.70E-03	3.38E-04
66	2353.41	8.00E+00	5.66	3.57E-03	3.38E-04
67	2393.00	5.94E+00	6.93	3.52E-03	3.38E-04
68	2447.31	1.41E+01	11.22	3.47E-03	3.38E-04
69	2511.44	8.00E+00	5.66	3.40E-03	3.38E-04
70	2614.90	1.11E+02	23.47	3.31E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 3:27:57PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.15	1.79E+02	94.74	4.28E+01	8.26E+00	1.36E+02	9.51E+01
	2	62.97	3.62E+02	132.27	6.71E+01	1.02E+01	2.95E+02	1.33E+02
M	3	74.72	6.48E+02	112.02			6.48E+02	1.12E+02
m	4	77.13	1.02E+03	119.76	7.83E+00	3.45E+00	1.01E+03	1.20E+02
M	5	87.92	3.58E+02	105.29			3.58E+02	1.05E+02
m	6	92.41	4.90E+02	107.37	1.35E+02	7.64E+00	3.56E+02	1.08E+02
	7	186.02	3.63E+02	110.93	5.47E+01	6.99E+00	3.08E+02	1.11E+02
	8	209.13	8.55E+01	69.79			8.55E+01	6.98E+01
M	9	238.50	1.04E+03	81.91	1.58E+01	5.72E+00	1.02E+03	8.21E+01
m	10	241.87	4.08E+02	92.26			4.08E+02	9.23E+01
	11	270.20	8.39E+01	67.46			8.39E+01	6.75E+01
M	12	295.19	6.72E+02	69.97			6.72E+02	7.00E+01
m	13	300.09	1.40E+02	74.43			1.40E+02	7.44E+01
	14	328.14	6.79E+01	59.80			6.79E+01	5.98E+01
	15	338.38	2.15E+02	77.14	1.94E+00	4.45E+00	2.13E+02	7.73E+01
	16	351.87	1.14E+03	100.34	8.23E+00	4.77E+00	1.14E+03	1.00E+02
M	17	459.98	2.07E+01	22.36			2.07E+01	2.24E+01
m	18	462.98	7.00E+01	40.24			7.00E+01	4.02E+01
	19	488.73	4.21E+01	45.35			4.21E+01	4.53E+01
	20	495.79	3.27E+01	27.08			3.27E+01	2.71E+01
	21	510.94	1.85E+02	56.81	7.54E+01	5.68E+00	1.10E+02	5.71E+01
	22	583.44	3.12E+02	59.79	7.97E+00	3.93E+00	3.04E+02	5.99E+01
	23	609.48	8.98E+02	85.01	5.86E+00	3.50E+00	8.92E+02	8.51E+01
	24	647.38	3.41E+01	33.47			3.41E+01	3.35E+01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	25	661.69	4.23E+01	38.59			4.23E+01	3.86E+01
	26	727.65	7.58E+01	38.68			7.58E+01	3.87E+01
	27	768.71	7.01E+01	55.71			7.01E+01	5.57E+01
	28	794.98	3.11E+01	31.61			3.11E+01	3.16E+01
	29	839.43	2.56E+01	25.98			2.56E+01	2.60E+01
	30	860.92	3.80E+01	31.87			3.80E+01	3.19E+01
	31	885.41	2.19E+01	22.63			2.19E+01	2.26E+01
	32	911.47	1.83E+02	46.84			1.83E+02	4.68E+01
	33	969.00	1.11E+02	46.49			1.11E+02	4.65E+01
	34	1001.64	3.33E+01	35.33	5.25E+00	2.97E+00	2.81E+01	3.55E+01
	35	1120.98	1.71E+02	50.00			1.71E+02	5.00E+01
	36	1194.30	3.53E+01	32.31			3.53E+01	3.23E+01
	37	1206.85	2.83E+01	26.83			2.83E+01	2.68E+01
	38	1238.77	8.14E+01	43.81			8.14E+01	4.38E+01
	39	1281.30	3.37E+01	28.74			3.37E+01	2.87E+01
	40	1378.39	3.55E+01	28.98			3.55E+01	2.90E+01
M	41	1401.82	2.44E+01	18.19			2.44E+01	1.82E+01
m	42	1404.96	1.43E+01	18.62			1.43E+01	1.86E+01
m	43	1408.53	2.77E+01	18.41			2.77E+01	1.84E+01
	44	1415.00	1.75E+01	13.62			1.75E+01	1.36E+01
	45	1436.07	1.32E+01	15.02			1.32E+01	1.50E+01
	46	1448.81	3.20E+01	22.63			3.20E+01	2.26E+01
	47	1461.25	1.02E+03	70.16	7.31E+00	2.50E+00	1.02E+03	7.02E+01
	48	1494.41	1.80E+01	16.79			1.80E+01	1.68E+01
	49	1507.73	2.20E+01	23.34			2.20E+01	2.33E+01
M	50	1588.64	2.29E+01	18.76			2.29E+01	1.88E+01
m	51	1592.39	2.53E+01	19.80			2.53E+01	1.98E+01
	52	1620.94	1.23E+01	13.11			1.23E+01	1.31E+01
	53	1633.85	2.87E+01	26.42			2.87E+01	2.64E+01
	54	1730.09	3.00E+01	17.66			3.00E+01	1.77E+01
	55	1765.13	1.61E+02	27.43			1.61E+02	2.74E+01
	56	1840.51	5.95E+00	8.19			5.95E+00	8.19E+00
	57	1847.53	2.32E+01	13.76			2.32E+01	1.38E+01
	58	1863.20	8.05E+00	7.23			8.05E+00	7.23E+00
	59	1907.47	7.00E+00	8.72			7.00E+00	8.72E+00
	60	2017.15	7.50E+00	7.25			7.50E+00	7.25E+00
	61	2084.48	5.13E+00	7.52			5.13E+00	7.52E+00
	62	2102.35	1.04E+01	13.56			1.04E+01	1.36E+01
	63	2120.93	1.48E+01	13.22			1.48E+01	1.32E+01
	64	2204.61	4.20E+01	18.25			4.20E+01	1.82E+01
	65	2232.30	9.50E+00	8.26			9.50E+00	8.26E+00
	66	2353.41	8.00E+00	5.66			8.00E+00	5.66E+00
	67	2393.00	5.94E+00	6.93			5.94E+00	6.93E+00
	68	2447.31	1.41E+01	11.22			1.41E+01	1.12E+01
	69	2511.44	8.00E+00	5.66			8.00E+00	5.66E+00
	70	2614.90	1.11E+02	23.47	5.15E+00	1.56E+00	1.06E+02	2.35E+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 1707078-08

HTC-A01-S003-2430-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 3:27:57PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.15	1.79E+02	94.74	4.28E+01	8.26E+00	1.36E+02	9.51E+01
	2	62.97	3.62E+02	132.27	6.71E+01	1.02E+01	2.95E+02	1.33E+02
M	3	74.72	6.48E+02	112.02			6.48E+02	1.12E+02
m	4	77.13	1.02E+03	119.76	7.83E+00	3.45E+00	1.01E+03	1.20E+02
M	5	87.92	3.58E+02	105.29			3.58E+02	1.05E+02
m	6	92.41	4.90E+02	107.37	1.35E+02	7.64E+00	3.56E+02	1.08E+02
	7	186.02	3.63E+02	110.93	5.47E+01	6.99E+00	3.08E+02	1.11E+02
	8	209.13	8.55E+01	69.79			8.55E+01	6.98E+01
M	9	238.50	1.04E+03	81.91	1.58E+01	5.72E+00	1.02E+03	8.21E+01
m	10	241.87	4.08E+02	92.26			4.08E+02	9.23E+01
	11	270.20	8.39E+01	67.46			8.39E+01	6.75E+01
M	12	295.19	6.72E+02	69.97			6.72E+02	7.00E+01
m	13	300.09	1.40E+02	74.43			1.40E+02	7.44E+01
	14	328.14	6.79E+01	59.80			6.79E+01	5.98E+01
	15	338.38	2.15E+02	77.14	1.94E+00	4.45E+00	2.13E+02	7.73E+01
	16	351.87	1.14E+03	100.34	8.23E+00	4.77E+00	1.14E+03	1.00E+02
M	17	459.98	2.07E+01	22.36			2.07E+01	2.24E+01
m	18	462.98	7.00E+01	40.24			7.00E+01	4.02E+01
	19	488.73	4.21E+01	45.35			4.21E+01	4.53E+01
	20	495.79	3.27E+01	27.08			3.27E+01	2.71E+01
	21	510.94	1.85E+02	56.81	7.54E+01	5.68E+00	1.10E+02	5.71E+01
	22	583.44	3.12E+02	59.79	7.97E+00	3.93E+00	3.04E+02	5.99E+01
	23	609.48	8.98E+02	85.01	5.86E+00	3.50E+00	8.92E+02	8.51E+01
	24	647.38	3.41E+01	33.47			3.41E+01	3.35E+01
	25	661.69	4.23E+01	38.59			4.23E+01	3.86E+01
	26	727.65	7.58E+01	38.68			7.58E+01	3.87E+01
	27	768.71	7.01E+01	55.71			7.01E+01	5.57E+01
	28	794.98	3.11E+01	31.61			3.11E+01	3.16E+01
	29	839.43	2.56E+01	25.98			2.56E+01	2.60E+01
	30	860.92	3.80E+01	31.87			3.80E+01	3.19E+01
	31	885.41	2.19E+01	22.63			2.19E+01	2.26E+01
	32	911.47	1.83E+02	46.84			1.83E+02	4.68E+01
	33	969.00	1.11E+02	46.49			1.11E+02	4.65E+01
	34	1001.64	3.33E+01	35.33	5.25E+00	2.97E+00	2.81E+01	3.55E+01
	35	1120.98	1.71E+02	50.00			1.71E+02	5.00E+01
	36	1194.30	3.53E+01	32.31			3.53E+01	3.23E+01
	37	1206.85	2.83E+01	26.83			2.83E+01	2.68E+01
	38	1238.77	8.14E+01	43.81			8.14E+01	4.38E+01
	39	1281.30	3.37E+01	28.74			3.37E+01	2.87E+01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	1378.39	3.55E+01	28.98			3.55E+01	2.90E+01
M	41	1401.82	2.44E+01	18.19			2.44E+01	1.82E+01
m	42	1404.96	1.43E+01	18.62			1.43E+01	1.86E+01
m	43	1408.53	2.77E+01	18.41			2.77E+01	1.84E+01
	44	1415.00	1.75E+01	13.62			1.75E+01	1.36E+01
	45	1436.07	1.32E+01	15.02			1.32E+01	1.50E+01
	46	1448.81	3.20E+01	22.63			3.20E+01	2.26E+01
	47	1461.25	1.02E+03	70.16	7.31E+00	2.50E+00	1.02E+03	7.02E+01
	48	1494.41	1.80E+01	16.79			1.80E+01	1.68E+01
	49	1507.73	2.20E+01	23.34			2.20E+01	2.33E+01
M	50	1588.64	2.29E+01	18.76			2.29E+01	1.88E+01
m	51	1592.39	2.53E+01	19.80			2.53E+01	1.98E+01
	52	1620.94	1.23E+01	13.11			1.23E+01	1.31E+01
	53	1633.85	2.87E+01	26.42			2.87E+01	2.64E+01
	54	1730.09	3.00E+01	17.66			3.00E+01	1.77E+01
	55	1765.13	1.61E+02	27.43			1.61E+02	2.74E+01
	56	1840.51	5.95E+00	8.19			5.95E+00	8.19E+00
	57	1847.53	2.32E+01	13.76			2.32E+01	1.38E+01
	58	1863.20	8.05E+00	7.23			8.05E+00	7.23E+00
	59	1907.47	7.00E+00	8.72			7.00E+00	8.72E+00
	60	2017.15	7.50E+00	7.25			7.50E+00	7.25E+00
	61	2084.48	5.13E+00	7.52			5.13E+00	7.52E+00
	62	2102.35	1.04E+01	13.56			1.04E+01	1.36E+01
	63	2120.93	1.48E+01	13.22			1.48E+01	1.32E+01
	64	2204.61	4.20E+01	18.25			4.20E+01	1.82E+01
	65	2232.30	9.50E+00	8.26			9.50E+00	8.26E+00
	66	2353.41	8.00E+00	5.66			8.00E+00	5.66E+00
	67	2393.00	5.94E+00	6.93			5.94E+00	6.93E+00
	68	2447.31	1.41E+01	11.22			1.41E+01	1.12E+01
	69	2511.44	8.00E+00	5.66			8.00E+00	5.66E+00
	70	2614.90	1.11E+02	23.47	5.15E+00	1.56E+00	1.06E+02	2.35E+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

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.970	1460.81	*	10.67	2.15E+01	2.39E+00
CD-109	0.998	88.03	*	3.72	4.55E+00	1.43E+00
SN-126	0.980	87.57	*	37.00	3.98E-01	1.23E-01
CS-137	1.000	661.65	*	85.12	6.23E-02	5.73E-02
LA-138	0.366	788.74		34.00		
		1435.80	*	66.00	4.45E-02	5.08E-02
TL-208	0.986	583.14	*	30.22	1.14E+00	2.53E-01
		860.37	*	4.48	1.29E+00	1.09E+00
		2614.66	*	35.85	1.01E+00	2.47E-01
PB-210	0.981	46.50	*	4.25	1.48E+00	1.04E+00
BI-212	0.968	727.17	*	11.80	8.62E-01	4.49E-01
		1620.62	*	2.75	1.09E+00	1.16E+00
PB-212	0.998	238.63	*	44.60	1.37E+00	1.56E-01
		300.09	*	3.41	2.85E+00	1.53E+00
BI-214	0.970	609.31	*	46.30	2.26E+00	3.19E-01
		1120.29	*	15.10	2.11E+00	6.40E-01
		1764.49	*	15.80	2.62E+00	4.96E-01
		2204.22	*	4.98	2.55E+00	1.13E+00
PB-214	1.000	295.21	*	19.19	2.40E+00	3.21E-01
		351.92	*	37.19	2.37E+00	2.91E-01
RA-224	0.882	240.98	*	3.95	6.23E+00	1.50E+00
RA-226	0.994	186.21	*	3.28	4.88E+00	9.11E+00
AC-228	0.987	338.32	*	11.40	1.41E+00	5.25E-01
		911.07	*	27.70	1.05E+00	2.83E-01
		969.11	*	16.60	1.12E+00	4.76E-01
PA-234M	0.942	1001.03	*	0.92	5.22E+00	6.60E+00
TH-234	0.984	63.29	*	3.80	3.25E+00	1.49E+00
AM-243	1.000	74.67	*	66.00	4.03E-01	7.80E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 3:27:57PM
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	4	77.13	2.79956E-01	5.94		

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	6	92.41	9.87614E-02	15.14	Sum	
	8	209.13	2.37389E-02	40.83	Tol.	GA-67 CM-243
	11	270.20	2.33167E-02	40.18		
	14	328.14	1.88645E-02	44.03	Tol.	LA-140
M	17	459.98	5.74602E-03	54.04		
m	18	462.98	1.94408E-02	28.75	Tol.	SB-125
	19	488.73	1.17042E-02	53.81		
	20	495.79	9.07828E-03	41.43		
	21	510.94	3.05040E-02	25.99		
	24	647.38	9.47677E-03	49.05	Sum	
	27	768.71	1.94728E-02	39.74	Sum	
	28	794.98	8.64583E-03	50.78	Sum	
	29	839.43	7.09876E-03	50.83		
	31	885.41	6.07265E-03	51.75	Tol.	AG-110M
	36	1194.30	9.79834E-03	45.79		
	37	1206.85	7.87263E-03	47.34	Sum	
	38	1238.77	2.26141E-02	26.91		
	39	1281.30	9.36111E-03	42.64		
	40	1378.39	9.85948E-03	40.83		
M	41	1401.82	6.77229E-03	37.30		
m	42	1404.96	3.96404E-03	65.24		
m	43	1408.53	7.70812E-03	33.16	Tol.	EU-152
	44	1415.00	4.86111E-03	38.91		
	46	1448.81	8.88889E-03	35.36		
	48	1494.41	5.00000E-03	46.65	Sum	
	49	1507.73	6.11111E-03	53.05	Sum	
M	50	1588.64	6.36596E-03	40.93	Sum	
m	51	1592.39	7.01392E-03	39.21	D-Esc	
	53	1633.85	7.97694E-03	46.00		
	54	1730.09	8.33333E-03	29.44	Sum	
	56	1840.51	1.65278E-03	68.78	Sum	
	57	1847.53	6.44531E-03	29.64		
	58	1863.20	2.23611E-03	44.90	Sum	
	59	1907.47	1.94444E-03	62.27		
	60	2017.15	2.08333E-03	48.30		
	61	2084.48	1.42361E-03	73.33		
	62	2102.35	2.88360E-03	65.33		
	63	2120.93	4.10714E-03	44.70		
	65	2232.30	2.63889E-03	43.48		
	66	2353.41	2.22222E-03	35.36		
	67	2393.00	1.64931E-03	58.34		
	68	2447.31	3.91813E-03	39.79	Sum	
	69	2511.44	2.22222E-03	35.36		

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

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	2.15E+01	2.39E+00
CD-109	0.99	88.03	*	3.72	4.55E+00	1.43E+00
SN-126	0.98	87.57	*	37.00	3.98E-01	1.23E-01
CS-137	1.00	661.65	*	85.12	6.23E-02	5.73E-02
LA-138	0.36	788.74		34.00		
		1435.80	*	66.00	4.45E-02	5.08E-02
TL-208	0.98	583.14	*	30.22	1.14E+00	2.53E-01
		860.37	*	4.48	1.29E+00	1.09E+00
		2614.66	*	35.85	1.01E+00	2.47E-01
PB-210	0.98	46.50	*	4.25	1.48E+00	1.04E+00
BI-212	0.96	727.17	*	11.80	8.62E-01	4.49E-01
		1620.62	*	2.75	1.09E+00	1.16E+00
PB-212	0.99	238.63	*	44.60	1.37E+00	1.56E-01
		300.09	*	3.41	2.85E+00	1.53E+00
BI-214	0.97	609.31	*	46.30	2.26E+00	3.19E-01
		1120.29	*	15.10	2.11E+00	6.40E-01
		1764.49	*	15.80	2.62E+00	4.96E-01
		2204.22	*	4.98	2.55E+00	1.13E+00
PB-214	1.00	295.21	*	19.19	2.40E+00	3.21E-01
		351.92	*	37.19	2.37E+00	2.91E-01
RA-224	0.88	240.98	*	3.95	6.23E+00	1.50E+00
RA-226	0.99	186.21	*	3.28	4.88E+00	9.11E+00
AC-228	0.98	338.32	*	11.40	1.41E+00	5.25E-01
		911.07	*	27.70	1.05E+00	2.83E-01
		969.11	*	16.60	1.12E+00	4.76E-01
PA-234M	0.94	1001.03	*	0.92	5.22E+00	6.60E+00
TH-234	0.98	63.29	*	3.80	3.25E+00	1.49E+00
AM-243	1.00	74.67	*	66.00	4.03E-01	7.80E-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 1707078-08

HTC-A01-S003-2430-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.970	2.15E+01	2.39E+00	
?	CD-109	0.998	4.55E+00	1.43E+00	
?	SN-126	0.980	3.98E-01	1.23E-01	
	CS-137	1.000	6.23E-02	5.73E-02	
	LA-138	0.366	4.45E-02	5.08E-02	
	TL-208	0.986	1.08E+00	1.74E-01	
	PB-210	0.981	1.48E+00	1.04E+00	
	BI-212	0.968	8.92E-01	4.19E-01	
	PB-212	0.998	1.39E+00	1.55E-01	
	BI-214	0.970	2.34E+00	2.42E-01	
	PB-214	1.000	2.38E+00	2.15E-01	
	RA-224	0.882	6.23E+00	1.50E+00	
	RA-226	0.994	4.88E+00	9.11E+00	
	AC-228	0.987	1.13E+00	2.21E-01	
	PA-234M	0.942	5.22E+00	6.60E+00	
	TH-234	0.984	3.25E+00	1.49E+00	
	AM-243	1.000	4.03E-01	7.80E-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 1707078-08

HTC-A01-S003-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 3:27:57PM
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	4	77.13	2.79956E-01	5.94		
m	6	92.41	9.87614E-02	15.14	Sum	
	8	209.13	2.37389E-02	40.83	Tol.	GA-67
						CM-243
	11	270.20	2.33167E-02	40.18		
	14	328.14	1.88645E-02	44.03	Tol.	LA-140
M	17	459.98	5.74602E-03	54.04		
m	18	462.98	1.94408E-02	28.75	Tol.	SB-125
	19	488.73	1.17042E-02	53.81		
	20	495.79	9.07828E-03	41.43		
	21	510.94	3.05040E-02	25.99		
	24	647.38	9.47677E-03	49.05	Sum	
	27	768.71	1.94728E-02	39.74	Sum	
	28	794.98	8.64583E-03	50.78	Sum	
	29	839.43	7.09876E-03	50.83		
	31	885.41	6.07265E-03	51.75	Tol.	AG-110M
	36	1194.30	9.79834E-03	45.79		
	37	1206.85	7.87263E-03	47.34	Sum	
	38	1238.77	2.26141E-02	26.91		
	39	1281.30	9.36111E-03	42.64		
	40	1378.39	9.85948E-03	40.83		
M	41	1401.82	6.77229E-03	37.30		
m	42	1404.96	3.96404E-03	65.24		
m	43	1408.53	7.70812E-03	33.16	Tol.	EU-152
	44	1415.00	4.86111E-03	38.91		
	46	1448.81	8.88889E-03	35.36		
	48	1494.41	5.00000E-03	46.65	Sum	
	49	1507.73	6.11111E-03	53.05	Sum	
M	50	1588.64	6.36596E-03	40.93	Sum	
m	51	1592.39	7.01392E-03	39.21	D-Esc	
	53	1633.85	7.97694E-03	46.00		
	54	1730.09	8.33333E-03	29.44	Sum	
	56	1840.51	1.65278E-03	68.78	Sum	
	57	1847.53	6.44531E-03	29.64		
	58	1863.20	2.23611E-03	44.90	Sum	

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
59	1907.47	1.94444E-03	62.27		
60	2017.15	2.08333E-03	48.30		
61	2084.48	1.42361E-03	73.33		
62	2102.35	2.88360E-03	65.33		
63	2120.93	4.10714E-03	44.70		
65	2232.30	2.63889E-03	43.48		
66	2353.41	2.22222E-03	35.36		
67	2393.00	1.64931E-03	58.34		
68	2447.31	3.91813E-03	39.79	Sum	
69	2511.44	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	-1.20E+00	1.75E+00	1.75E+00
+	NA-22	1274.54		99.94	8.79E-03	8.27E-02	8.27E-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	2.41E-03	3.71E-02	3.71E-02
+	K-40	1460.81	*	10.67	2.15E+01	1.08E+00	1.08E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	4.90E-02	6.44E-02	6.44E-02
		78.34		96.00	2.60E-01		8.69E-02
+	SC-46	889.25		99.98	-4.42E-02	1.46E-01	1.46E-01
		1120.51		99.99	6.60E-01		2.97E-01
+	V-48	983.52		99.98	3.20E-01	3.82E+00	3.82E+00
		1312.10		97.50	-4.28E-01		4.02E+00
+	CR-51	320.08		9.83	2.52E+00	5.97E+00	5.97E+00
+	MN-54	834.83		99.97	9.79E-03	8.54E-02	8.54E-02
+	CO-56	846.75		99.96	5.00E-02	1.51E-01	1.51E-01
		1037.75		14.03	4.81E-01		1.27E+00
		1238.25		67.00	4.58E-01		3.97E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	1771.40		15.51	-1.07E-01	1.51E-01	7.13E-01
		2598.48		16.90	-1.60E-01		3.36E-01
+	CO-57	122.06		85.51	2.11E-02	7.46E-02	7.46E-02
		136.48		10.60	3.22E-02		6.20E-01
+	CO-58	810.76		99.40	-1.66E-02	1.71E-01	1.71E-01
+	FE-59	1099.22		56.50	-3.30E-01	5.74E-01	5.74E-01
		1291.56		43.20	1.02E-01		7.03E-01
+	CO-60	1173.22		100.00	-1.79E-02	6.76E-02	8.91E-02
		1332.49		100.00	-4.48E-02		6.76E-02
+	ZN-65	1115.52		50.75	-7.96E-03	1.97E-01	1.97E-01
+	GA-67	93.31		35.70	1.85E+08	7.77E+07	7.77E+07
		208.95		2.24	7.61E+08		1.04E+09
		300.22		16.00	-6.07E+08		1.65E+08
+	SE-75	121.11		16.70	-2.71E-01	1.50E-01	5.00E-01
		136.00		59.20	7.78E-03		1.50E-01
		264.65		59.80	-1.93E-02		1.66E-01
		279.53		25.20	-1.76E-02		4.11E-01
		400.65		11.40	-3.52E-01		8.49E-01
+	RB-82	776.52		13.00	1.49E+00	6.86E+00	6.86E+00
+	RB-83	520.41		46.00	-8.25E-03	2.68E-01	2.68E-01
		529.64		30.30	-3.16E-01		3.80E-01
		552.65		16.40	1.08E-01		7.50E-01
+	KR-85	513.99		0.43	1.81E+01	1.86E+01	1.86E+01
+	SR-85	513.99		99.27	2.11E-01	2.17E-01	2.17E-01
+	Y-88	898.02		93.40	-6.53E-02	9.53E-02	1.43E-01
		1836.01		99.38	1.61E-02		9.53E-02
+	MO-93	263.06		56.72	-3.87E-02	6.05E-02	1.04E-01
		684.67		99.68	-2.41E-02		6.05E-02
		1477.11		99.08	9.32E-03		6.05E-02
+	NB-93M	16.57		9.43	-1.58E-01	5.54E-01	5.54E-01
+	NB-94	702.63		100.00	-3.59E-02	6.58E-02	6.61E-02
		871.10		100.00	6.16E-03		6.58E-02
+	NB-95	765.79		99.81	8.12E-01	5.77E-01	5.77E-01
+	NB-95M	235.69		25.00	-1.19E+08	1.49E+07	1.49E+07
+	ZR-95	724.18		43.70	-5.44E-02	3.39E-01	4.71E-01
		756.72		55.30	4.29E-02		3.39E-01
+	MO-99	181.06		6.20	5.72E+08	7.67E+09	1.33E+10
		739.58		12.80	-3.55E+09		7.67E+09
		778.00		4.50	-3.62E+09		2.34E+10
+	RU-103	497.08		89.00	-2.05E-02	3.28E-01	3.28E-01
+	RU-106	621.84		9.80	2.76E-01	7.70E-01	7.70E-01
+	AG-108M	433.93		89.90	1.38E-02	6.53E-02	6.53E-02
		614.37		90.40	-8.00E-01		8.13E-02
		722.95		90.50	-3.69E-03		7.58E-02
+	CD-109	88.03	*	3.72	4.55E+00	4.03E+00	4.03E+00
+	AG-110M	657.75		93.14	-2.00E-02	9.16E-02	9.16E-02
		677.61		10.53	5.30E-01		8.68E-01
		706.67		16.46	-9.00E-03		5.20E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	763.93		21.98	1.49E-01	9.16E-02	4.30E-01
		884.67		71.63	1.76E-03		1.23E-01
		1384.27		23.94	2.81E-02		3.68E-01
+	CD-113M	263.70		0.02	-4.88E+01	2.56E+02	2.56E+02
+	SN-113	255.12		1.93	-2.86E-01	1.62E-01	4.66E+00
		391.69		64.90	3.47E-02		1.62E-01
+	TE123M	159.00		84.10	-1.82E-02	1.05E-01	1.05E-01
+	SB-124	602.71		97.87	-4.63E-03	2.04E-01	2.04E-01
		645.85		7.26	1.78E+00		2.50E+00
		722.78		11.10	-8.80E-02		1.80E+00
		1691.02		49.00	2.49E-02		2.81E-01
+	I-125	35.49		6.49	7.03E-01	2.44E+00	2.44E+00
+	SB-125	176.33		6.89	1.55E-01	2.16E-01	8.29E-01
		427.89		29.33	-1.02E-02		2.16E-01
		463.38		10.35	1.94E-01		7.00E-01
		600.56		17.80	2.36E-02		3.82E-01
		635.90		11.32	-2.37E-02		5.64E-01
+	SB-126	414.70		83.30	-8.45E+00	1.25E+01	1.31E+01
		666.33		99.60	2.09E+00		1.28E+01
		695.00		99.60	-2.12E+00		1.25E+01
		720.50		53.80	-5.33E-01		2.36E+01
+	SN-126	87.57	*	37.00	3.98E-01	3.53E-01	3.53E-01
+	SB-127	473.00		25.00	-1.82E+05	3.24E+06	4.63E+06
		685.20		35.70	-1.29E+06		3.24E+06
		783.80		14.70	9.39E+06		1.04E+07
+	I-129	29.78		57.00	2.21E-02	1.07E-01	1.07E-01
		33.60		13.20	-3.07E-02		4.20E-01
		39.58		7.52	-2.95E-01		6.78E-01
+	I-131	284.30		6.05	7.00E+02	2.08E+02	3.08E+03
		364.48		81.20	1.24E+01		2.08E+02
		636.97		7.26	6.28E+01		2.57E+03
		722.89		1.80	-5.74E+02		1.18E+04
+	TE-132	49.72		13.10	-2.52E+07	2.35E+07	1.65E+08
		228.16		88.00	-6.21E+06		2.35E+07
+	BA-133	81.00		33.00	-8.04E-01	1.61E-01	1.81E-01
		302.84		17.80	1.05E-03		3.62E-01
		356.01		60.00	5.72E-02		1.61E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.55E+05	3.47E+04	3.47E+04
+	CS-134	563.23		8.38	-3.83E-01	9.32E-02	7.57E-01
		569.32		15.43	1.69E-01		4.61E-01
		604.70		97.60	-1.25E+00		9.32E-02
		795.84		85.40	7.32E-02		9.88E-02
		801.93		8.73	1.57E-01		8.96E-01
+	CS-135	268.24		16.00	5.06E-01	4.19E-01	4.19E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	3.47E+01	9.16E+00	9.84E+01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-136	163.89		4.61	2.05E+01	9.16E+00	1.53E+02
		176.55		13.56	1.00E+01		5.36E+01
		273.65		12.66	9.61E+00		7.10E+01
		340.57		48.50	3.58E+01		2.14E+01
		818.50		99.70	2.77E+00		9.16E+00
		1048.07		79.60	-4.33E+00		1.17E+01
		1235.34		19.70	5.29E+00		7.80E+01
+	CS-137	661.65	*	85.12	6.23E-02	9.21E-02	9.21E-02
+	LA-138	788.74		34.00	9.06E-02	8.20E-02	2.13E-01
		1435.80	*	66.00	4.45E-02		8.20E-02
+	CE-139	165.85		80.35	-4.33E-03	1.02E-01	1.02E-01
+	BA-140	162.64		6.70	6.36E+01	3.88E+01	1.24E+02
		304.84		4.50	-2.86E+01		1.93E+02
		423.70		3.20	-1.02E+02		2.97E+02
		437.55		2.00	-1.82E+02		4.41E+02
		537.32		25.00	1.45E+01		3.88E+01
+	LA-140	328.77		20.50	1.81E+01	9.84E+00	4.72E+01
		487.03		45.50	1.74E+00		2.02E+01
		815.85		23.50	-1.34E+01		4.42E+01
		1596.49		95.49	-3.93E-01		9.84E+00
+	CE-141	145.44		48.40	4.13E-01	8.15E-01	8.15E-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	7.07E-02	6.02E-01	6.02E-01
+	PM-144	476.78		42.00	-8.83E-02	6.93E-02	1.56E-01
		618.01		98.60	-6.79E-03		6.93E-02
		696.49		99.49	-6.70E-03		8.23E-02
+	PM-145	36.85		21.70	3.83E-02	1.34E-01	2.47E-01
		37.36		39.70	-1.31E-02		1.34E-01
		42.30		15.10	-3.24E-02		3.44E-01
		72.40		2.31	-4.10E+00		3.14E+00
+	PM-146	453.90		39.94	7.25E-02	1.55E-01	1.55E-01
		735.90		14.01	5.35E-03		4.47E-01
		747.13		13.10	-4.03E-01		4.87E-01
+	ND-147	91.11		28.90	1.66E+02	9.04E+01	9.04E+01
		531.02		13.10	-7.03E+01		1.57E+02
+	PM-149	285.90		3.10	4.61E+12	9.60E+12	9.60E+12
+	EU-152	121.78		20.50	-1.31E-01	2.41E-01	2.41E-01
		244.69		5.40	-5.26E-01		1.11E+00
		344.27		19.13	-1.13E-02		3.16E-01
		778.89		9.20	2.10E-01		7.63E-01
		964.01		10.40	-9.71E-02		7.74E-01
		1085.78		7.22	-1.97E-01		1.07E+00
		1112.02		9.60	3.82E-02		8.12E-01
		1407.95		14.94	4.04E-01		5.35E-01
+	GD-153	97.43		31.30	-1.22E-02	2.13E-01	2.13E-01
		103.18		22.20	-3.68E-03		2.93E-01
+	EU-154	123.07		40.50	4.04E-02	1.27E-01	1.27E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	723.30		19.70	-1.73E-02	1.27E-01	3.55E-01
		873.19		11.50	5.47E-02		5.84E-01
		996.32		10.30	-8.43E-02		6.73E-01
		1004.76		17.90	-2.16E-01		3.98E-01
		1274.45		35.50	2.36E-02		2.22E-01
+	EU-155	86.50		30.90	1.82E-01	2.27E-01	2.27E-01
		105.30		20.70	7.84E-02		2.52E-01
+	EU-156	811.77		10.40	2.50E+01	4.65E+01	4.65E+01
		1153.47		7.20	8.09E-01		8.13E+01
		1230.71		8.90	2.85E+01		7.26E+01
+	HO-166M	184.41		72.60	2.39E-01	9.69E-02	9.69E-02
		280.45		29.60	-5.05E-02		2.01E-01
		410.94		11.10	2.94E-02		5.78E-01
		711.69		54.10	-8.90E-02		1.12E-01
+	TM-171	66.72		0.14	1.52E+01	4.82E+01	4.82E+01
+	HF-172	67.35		5.31	9.56E-01	4.88E-01	1.26E+00
		125.81		11.30	-2.45E-01		4.88E-01
+	LU-172	181.53		20.60	1.67E+02	1.93E+03	3.88E+03
		900.72		29.81	1.57E+01		3.85E+03
		1093.66		62.50	1.08E+02		1.93E+03
+	LU-173	100.72		5.24	-4.31E-02	3.64E-01	1.08E+00
		272.11		21.20	-1.33E-02		3.64E-01
+	HF-175	343.40		84.00	-6.37E-03	1.78E-01	1.78E-01
+	LU-176	88.34		13.30	-1.14E-01	5.93E-02	5.24E-01
		201.83		86.00	-1.95E-02		6.13E-02
		306.78		94.00	-4.37E-03		5.93E-02
+	HF-181	133.02		41.70	6.69E-02	3.17E-01	5.70E-01
		345.85		17.20	-5.71E-02		1.59E+00
		482.03		82.80	9.38E-02		3.17E-01
+	TA-182	67.75		41.20	1.97E-01	2.59E-01	2.59E-01
		1121.30		34.90	1.52E+00		6.91E-01
		1189.05		16.23	-1.34E-01		9.04E-01
		1221.41		26.98	1.62E-01		5.82E-01
		1231.02		11.44	5.55E-01		1.41E+00
+	IR-192	308.46		29.68	2.18E-01	3.10E-01	4.66E-01
		468.07		48.10	9.56E-02		3.10E-01
+	HG-203	279.19		77.30	-1.34E-02	3.13E-01	3.13E-01
+	TL-204	374.74		94.11	-2.04E-02	6.54E-02	6.54E-02
		899.15		99.16	-4.52E-02		7.55E-02
		911.74		91.10	3.31E-01		1.41E-01
+	BI-207	569.67		97.72	7.59E-02	7.04E-02	7.04E-02
		1063.62		74.90	-2.40E-04		1.03E-01
+	TL-208	583.14	*	30.22	1.14E+00	2.04E-01	3.11E-01
		860.37	*	4.48	1.29E+00		1.74E+00
		2614.66	*	35.85	1.01E+00		2.04E-01
+	BI-210M	262.00		45.00	-3.54E-02	1.30E-01	1.30E-01
		300.00		23.00	-1.84E+00		2.99E-01
+	PB-210	46.50	*	4.25	1.48E+00	1.68E+00	1.68E+00
+	PB-211	404.84		2.90	-1.05E+00	2.15E+00	2.15E+00

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-211	831.96		2.90	1.59E-01	2.15E+00	2.32E+00
+	BI-212	727.17	*	11.80	8.62E-01	6.77E-01	6.77E-01
		1620.62	*	2.75	1.09E+00		1.85E+00
+	PB-212	238.63	*	44.60	1.37E+00	2.58E-01	2.58E-01
		300.09	*	3.41	2.85E+00		3.16E+00
+	BI-214	609.31	*	46.30	2.26E+00	2.59E-01	2.59E-01
		1120.29	*	15.10	2.11E+00		8.96E-01
		1764.49	*	15.80	2.62E+00		3.26E-01
		2204.22	*	4.98	2.55E+00		1.45E+00
+	PB-214	295.21	*	19.19	2.40E+00	2.61E-01	5.48E-01
		351.92	*	37.19	2.37E+00		2.61E-01
+	RN-219	401.80		6.50	-6.76E-01	8.79E-01	8.79E-01
+	RA-223	323.87		3.88	-4.51E-02	1.49E+00	1.49E+00
+	RA-224	240.98	*	3.95	6.23E+00	2.94E+00	2.94E+00
+	RA-225	40.00		31.00	-1.74E+00	1.31E+01	1.31E+01
+	RA-226	186.21	*	3.28	4.88E+00	2.79E+00	2.79E+00
+	TH-227	50.10		8.40	-1.41E-01	5.44E-01	6.22E-01
		236.00		11.50	-4.37E+00		5.44E-01
		256.20		6.30	9.78E-02		9.62E-01
+	AC-228	338.32	*	11.40	1.41E+00	3.77E-01	7.97E-01
		911.07	*	27.70	1.05E+00		3.77E-01
		969.11	*	16.60	1.12E+00		7.12E-01
+	TH-230	48.44		16.90	8.93E-02	3.42E-01	3.42E-01
		62.85		4.60	3.98E+00		1.51E+00
		67.67		0.37	1.25E+01		1.64E+01
+	PA-231	283.67		1.60	8.64E-01	2.75E+00	3.78E+00
		302.67		2.30	7.99E-03		2.75E+00
+	TH-231	25.64		14.70	-3.17E+00	5.24E-01	5.24E-01
		84.21		6.40	-9.18E-01		9.71E-01
+	PA-233	311.98		38.60	8.76E-01	1.63E+00	1.63E+00
+	PA-234	131.20		20.40	-2.62E-02	2.52E-01	2.52E-01
		733.99		8.80	5.21E-01		7.19E-01
		946.00		12.00	-2.05E-02		5.98E-01
+	PA-234M	1001.03	*	0.92	5.22E+00	1.08E+01	1.08E+01
+	TH-234	63.29	*	3.80	3.25E+00	2.35E+00	2.35E+00
+	U-235	143.76		10.50	3.08E-01	5.16E-01	5.16E-01
		163.35		4.70	1.48E-01		1.10E+00
		205.31		4.70	4.12E-01		1.12E+00
+	NP-237	86.50		12.60	4.30E-01	5.37E-01	5.37E-01
+	NP-239	106.10		22.70	9.04E+10	1.85E+11	1.85E+11
		228.18		10.70	-1.03E+11		3.88E+11
		277.60		14.10	1.42E+11		3.63E+11
+	AM-241	59.54		35.90	-2.58E-01	1.61E-01	1.61E-01
+	AM-243	74.67	*	66.00	4.03E-01	1.64E-01	1.64E-01
+	CM-243	209.75		3.29	9.87E-01	4.45E-01	1.74E+00
		228.14		10.60	-1.26E-01		4.78E-01
		277.60		14.00	1.74E-01		4.45E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction
? = 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	1.75E+00	1.75E+00	-1.20E+00	8.33E-01
	NA-22	1274.54		99.94	8.27E-02	8.27E-02	8.79E-03	3.84E-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	3.71E-02	3.71E-02	2.41E-03	1.50E-02
+	K-40	1460.81	*	10.67	1.08E+00	1.08E+00	2.15E+01	5.11E-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	6.44E-02	6.44E-02	4.90E-02	3.16E-02
		78.34		96.00	8.69E-02		2.60E-01	4.29E-02
	SC-46	889.25		99.98	1.46E-01	1.46E-01	-4.42E-02	6.85E-02
		1120.51		99.99	2.97E-01		6.60E-01	1.43E-01
	V-48	983.52		99.98	3.82E+00	3.82E+00	3.20E-01	1.78E+00
		1312.10		97.50	4.02E+00		-4.28E-01	1.84E+00
	CR-51	320.08		9.83	5.97E+00	5.97E+00	2.52E+00	2.88E+00
	MN-54	834.83		99.97	8.54E-02	8.54E-02	9.79E-03	4.02E-02
	CO-56	846.75		99.96	1.51E-01	1.51E-01	5.00E-02	7.08E-02
		1037.75		14.03	1.27E+00		4.81E-01	5.95E-01
		1238.25		67.00	3.97E-01		4.58E-01	1.89E-01
		1771.40		15.51	7.13E-01		-1.07E-01	3.05E-01
		2598.48		16.90	3.36E-01		-1.60E-01	1.06E-01
	CO-57	122.06		85.51	7.46E-02	7.46E-02	2.11E-02	3.64E-02
		136.48		10.60	6.20E-01		3.22E-02	3.03E-01
	CO-58	810.76		99.40	1.71E-01	1.71E-01	-1.66E-02	8.06E-02
	FE-59	1099.22		56.50	5.74E-01	5.74E-01	-3.30E-01	2.68E-01
		1291.56		43.20	7.03E-01		1.02E-01	3.24E-01
	CO-60	1173.22		100.00	8.91E-02	6.76E-02	-1.79E-02	4.19E-02
		1332.49		100.00	6.76E-02		-4.48E-02	3.09E-02
	ZN-65	1115.52		50.75	1.97E-01	1.97E-01	-7.96E-03	9.18E-02
	GA-67	93.31		35.70	7.77E+07	7.77E+07	1.85E+08	3.82E+07

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	GA-67	208.95		2.24	1.04E+09	7.77E+07	7.61E+08	5.05E+08
		300.22		16.00	1.65E+08		-6.07E+08	8.02E+07
	SE-75	121.11		16.70	5.00E-01	1.50E-01	-2.71E-01	2.44E-01
		136.00		59.20	1.50E-01		7.78E-03	7.32E-02
		264.65		59.80	1.66E-01		-1.93E-02	8.04E-02
		279.53		25.20	4.11E-01		-1.76E-02	2.00E-01
		400.65		11.40	8.49E-01		-3.52E-01	4.07E-01
	RB-82	776.52		13.00	6.86E+00	6.86E+00	1.49E+00	3.24E+00
	RB-83	520.41		46.00	2.68E-01	2.68E-01	-8.25E-03	1.28E-01
		529.64		30.30	3.80E-01		-3.16E-01	1.80E-01
		552.65		16.40	7.50E-01		1.08E-01	3.56E-01
	KR-85	513.99		0.43	1.86E+01	1.86E+01	1.81E+01	8.98E+00
	SR-85	513.99		99.27	2.17E-01	2.17E-01	2.11E-01	1.05E-01
	Y-88	898.02		93.40	1.43E-01	9.53E-02	-6.53E-02	6.71E-02
		1836.01		99.38	9.53E-02		1.61E-02	4.10E-02
	MO-93	263.06		56.72	1.04E-01	6.05E-02	-3.87E-02	5.04E-02
		684.67		99.68	6.05E-02		-2.41E-02	2.85E-02
		1477.11		99.08	6.05E-02		9.32E-03	2.71E-02
	NB-93M	16.57		9.43	5.54E-01	5.54E-01	-1.58E-01	2.62E-01
	NB-94	702.63		100.00	6.61E-02	6.58E-02	-3.59E-02	3.13E-02
		871.10		100.00	6.58E-02		6.16E-03	3.08E-02
	NB-95	765.79		99.81	5.77E-01	5.77E-01	8.12E-01	2.76E-01
	NB-95M	235.69		25.00	1.49E+07	1.49E+07	-1.19E+08	7.25E+06
	ZR-95	724.18		43.70	4.71E-01	3.39E-01	-5.44E-02	2.24E-01
		756.72		55.30	3.39E-01		4.29E-02	1.60E-01
	MO-99	181.06		6.20	1.33E+10	7.67E+09	5.72E+08	6.45E+09
		739.58		12.80	7.67E+09		-3.55E+09	3.60E+09
		778.00		4.50	2.34E+10		-3.62E+09	1.10E+10
	RU-103	497.08		89.00	3.28E-01	3.28E-01	-2.05E-02	1.56E-01
	RU-106	621.84		9.80	7.70E-01	7.70E-01	2.76E-01	3.66E-01
	AG-108M	433.93		89.90	6.53E-02	6.53E-02	1.38E-02	3.13E-02
		614.37		90.40	8.13E-02		-8.00E-01	3.89E-02
		722.95		90.50	7.58E-02		-3.69E-03	3.59E-02
+	CD-109	88.03	*	3.72	4.03E+00	4.03E+00	4.55E+00	2.00E+00
	AG-110M	657.75		93.14	9.16E-02	9.16E-02	-2.00E-02	4.35E-02
		677.61		10.53	8.68E-01		5.30E-01	4.13E-01
		706.67		16.46	5.20E-01		-9.00E-03	2.46E-01
		763.93		21.98	4.30E-01		1.49E-01	2.04E-01
		884.67		71.63	1.23E-01		1.76E-03	5.78E-02
		1384.27		23.94	3.68E-01		2.81E-02	1.68E-01
	CD-113M	263.70		0.02	2.56E+02	2.56E+02	-4.88E+01	1.24E+02
	SN-113	255.12		1.93	4.66E+00	1.62E-01	-2.86E-01	2.25E+00
		391.69		64.90	1.62E-01		3.47E-02	7.78E-02
	TE123M	159.00		84.10	1.05E-01	1.05E-01	-1.82E-02	5.14E-02
	SB-124	602.71		97.87	2.04E-01	2.04E-01	-4.63E-03	9.72E-02
		645.85		7.26	2.50E+00		1.78E+00	1.18E+00
		722.78		11.10	1.80E+00		-8.80E-02	8.55E-01
		1691.02		49.00	2.81E-01		2.49E-02	1.20E-01
	I-125	35.49		6.49	2.44E+00	2.44E+00	7.03E-01	1.19E+00
	SB-125	176.33		6.89	8.29E-01	2.16E-01	1.55E-01	4.04E-01
		427.89		29.33	2.16E-01		-1.02E-02	1.04E-01
		463.38		10.35	7.00E-01		1.94E-01	3.37E-01
		600.56		17.80	3.82E-01		2.36E-02	1.82E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	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	5.64E-01	2.16E-01	-2.37E-02	2.66E-01
	SB-126	414.70		83.30	1.31E+01	1.25E+01	-8.45E+00	6.30E+00
		666.33		99.60	1.28E+01		2.09E+00	6.08E+00
		695.00		99.60	1.25E+01		-2.12E+00	5.95E+00
		720.50		53.80	2.36E+01		-5.33E-01	1.12E+01
+	SN-126	87.57	*	37.00	3.53E-01	3.53E-01	3.98E-01	1.75E-01
	SB-127	473.00		25.00	4.63E+06	3.24E+06	-1.82E+05	2.21E+06
		685.20		35.70	3.24E+06		-1.29E+06	1.53E+06
		783.80		14.70	1.04E+07		9.39E+06	4.93E+06
	I-129	29.78		57.00	1.07E-01	1.07E-01	2.21E-02	5.21E-02
		33.60		13.20	4.20E-01		-3.07E-02	2.04E-01
		39.58		7.52	6.78E-01		-2.95E-01	3.30E-01
	I-131	284.30		6.05	3.08E+03	2.08E+02	7.00E+02	1.49E+03
		364.48		81.20	2.08E+02		1.24E+01	9.98E+01
		636.97		7.26	2.57E+03		6.28E+01	1.21E+03
		722.89		1.80	1.18E+04		-5.74E+02	5.57E+03
	TE-132	49.72		13.10	1.65E+08	2.35E+07	-2.52E+07	8.05E+07
		228.16		88.00	2.35E+07		-6.21E+06	1.14E+07
	BA-133	81.00		33.00	1.81E-01	1.61E-01	-8.04E-01	8.86E-02
		302.84		17.80	3.62E-01		1.05E-03	1.75E-01
		356.01		60.00	1.61E-01		5.72E-02	7.88E-02
	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.47E+04	3.47E+04	-1.55E+05	1.70E+04
	CS-134	563.23		8.38	7.57E-01	9.32E-02	-3.83E-01	3.59E-01
		569.32		15.43	4.61E-01		1.69E-01	2.20E-01
		604.70		97.60	9.32E-02		-1.25E+00	4.48E-02
		795.84		85.40	9.88E-02		7.32E-02	4.69E-02
		801.93		8.73	8.96E-01		1.57E-01	4.24E-01
	CS-135	268.24		16.00	4.19E-01	4.19E-01	5.06E-01	2.04E-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	9.84E+01	9.16E+00	3.47E+01	4.80E+01
		163.89		4.61	1.53E+02		2.05E+01	7.45E+01
		176.55		13.56	5.36E+01		1.00E+01	2.61E+01
		273.65		12.66	7.10E+01		9.61E+00	3.46E+01
		340.57		48.50	2.14E+01		3.58E+01	1.04E+01
		818.50		99.70	9.16E+00		2.77E+00	4.31E+00
		1048.07		79.60	1.17E+01		-4.33E+00	5.43E+00
		1235.34		19.70	7.80E+01		5.29E+00	3.72E+01
+	CS-137	661.65	*	85.12	9.21E-02	9.21E-02	6.23E-02	4.41E-02
+	LA-138	788.74		34.00	2.13E-01	8.20E-02	9.06E-02	1.01E-01
		1435.80	*	66.00	8.20E-02		4.45E-02	3.65E-02
	CE-139	165.85		80.35	1.02E-01	1.02E-01	-4.33E-03	4.98E-02
	BA-140	162.64		6.70	1.24E+02	3.88E+01	6.36E+01	6.03E+01
		304.84		4.50	1.93E+02		-2.86E+01	9.34E+01
		423.70		3.20	2.97E+02		-1.02E+02	1.43E+02
		437.55		2.00	4.41E+02		-1.82E+02	2.11E+02
		537.32		25.00	3.88E+01		1.45E+01	1.85E+01
	LA-140	328.77		20.50	4.72E+01	9.84E+00	1.81E+01	2.28E+01
		487.03		45.50	2.02E+01		1.74E+00	9.63E+00
		815.85		23.50	4.42E+01		-1.34E+01	2.08E+01
		1596.49		95.49	9.84E+00		-3.93E-01	4.39E+00

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-141	145.44	48.40	8.15E-01	8.15E-01	4.13E-01	3.98E-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	6.02E-01	6.02E-01	7.07E-02	2.94E-01
PM-144	476.78	42.00	1.56E-01	6.93E-02	-8.83E-02	7.44E-02
	618.01	98.60	6.93E-02		-6.79E-03	3.27E-02
	696.49	99.49	8.23E-02		-6.70E-03	3.90E-02
PM-145	36.85	21.70	2.47E-01	1.34E-01	3.83E-02	1.20E-01
	37.36	39.70	1.34E-01		-1.31E-02	6.54E-02
	42.30	15.10	3.44E-01		-3.24E-02	1.67E-01
	72.40	2.31	3.14E+00		-4.10E+00	1.54E+00
PM-146	453.90	39.94	1.55E-01	1.55E-01	7.25E-02	7.40E-02
	735.90	14.01	4.47E-01		5.35E-03	2.10E-01
	747.13	13.10	4.87E-01		-4.03E-01	2.29E-01
ND-147	91.11	28.90	9.04E+01	9.04E+01	1.66E+02	4.45E+01
	531.02	13.10	1.57E+02		-7.03E+01	7.47E+01
PM-149	285.90	3.10	9.60E+12	9.60E+12	4.61E+12	4.66E+12
EU-152	121.78	20.50	2.41E-01	2.41E-01	-1.31E-01	1.17E-01
	244.69	5.40	1.11E+00		-5.26E-01	5.41E-01
	344.27	19.13	3.16E-01		-1.13E-02	1.52E-01
	778.89	9.20	7.63E-01		2.10E-01	3.60E-01
	964.01	10.40	7.74E-01		-9.71E-02	3.65E-01
	1085.78	7.22	1.07E+00		-1.97E-01	4.99E-01
	1112.02	9.60	8.12E-01		3.82E-02	3.79E-01
	1407.95	14.94	5.35E-01		4.04E-01	2.47E-01
GD-153	97.43	31.30	2.13E-01	2.13E-01	-1.22E-02	1.04E-01
	103.18	22.20	2.93E-01		-3.68E-03	1.43E-01
EU-154	123.07	40.50	1.27E-01	1.27E-01	4.04E-02	6.18E-02
	723.30	19.70	3.55E-01		-1.73E-02	1.68E-01
	873.19	11.50	5.84E-01		5.47E-02	2.74E-01
	996.32	10.30	6.73E-01		-8.43E-02	3.14E-01
	1004.76	17.90	3.98E-01		-2.16E-01	1.86E-01
	1274.45	35.50	2.22E-01		2.36E-02	1.03E-01
EU-155	86.50	30.90	2.27E-01	2.27E-01	1.82E-01	1.12E-01
	105.30	20.70	2.52E-01		7.84E-02	1.23E-01
EU-156	811.77	10.40	4.65E+01	4.65E+01	2.50E+01	2.19E+01
	1153.47	7.20	8.13E+01		8.09E-01	3.81E+01
	1230.71	8.90	7.26E+01		2.85E+01	3.42E+01
HO-166M	184.41	72.60	9.69E-02	9.69E-02	2.39E-01	4.75E-02
	280.45	29.60	2.01E-01		-5.05E-02	9.74E-02
	410.94	11.10	5.78E-01		2.94E-02	2.79E-01
	711.69	54.10	1.12E-01		-8.90E-02	5.26E-02
TM-171	66.72	0.14	4.82E+01	4.82E+01	1.52E+01	2.36E+01
HF-172	67.35	5.31	1.26E+00	4.88E-01	9.56E-01	6.16E-01
	125.81	11.30	4.88E-01		-2.45E-01	2.38E-01
LU-172	181.53	20.60	3.88E+03	1.93E+03	1.67E+02	1.89E+03
	900.72	29.81	3.85E+03		1.57E+01	1.81E+03
	1093.66	62.50	1.93E+03		1.08E+02	9.02E+02
LU-173	100.72	5.24	1.08E+00	3.64E-01	-4.31E-02	5.26E-01
	272.11	21.20	3.64E-01		-1.33E-02	1.77E-01
HF-175	343.40	84.00	1.78E-01	1.78E-01	-6.37E-03	8.59E-02
LU-176	88.34	13.30	5.24E-01	5.93E-02	-1.14E-01	2.58E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	6.13E-02	5.93E-02	-1.95E-02	2.98E-02
		306.78		94.00	5.93E-02		-4.37E-03	2.87E-02
	HF-181	133.02		41.70	5.70E-01	3.17E-01	6.69E-02	2.78E-01
		345.85		17.20	1.59E+00		-5.71E-02	7.67E-01
		482.03		82.80	3.17E-01		9.38E-02	1.51E-01
	TA-182	67.75		41.20	2.59E-01	2.59E-01	1.97E-01	1.27E-01
		1121.30		34.90	6.91E-01		1.52E+00	3.33E-01
		1189.05		16.23	9.04E-01		-1.34E-01	4.24E-01
		1221.41		26.98	5.82E-01		1.62E-01	2.73E-01
		1231.02		11.44	1.41E+00		5.55E-01	6.64E-01
	IR-192	308.46		29.68	4.66E-01	3.10E-01	2.18E-01	2.25E-01
		468.07		48.10	3.10E-01		9.56E-02	1.49E-01
	HG-203	279.19		77.30	3.13E-01	3.13E-01	-1.34E-02	1.52E-01
	TL-204	374.74		94.11	6.54E-02	6.54E-02	-2.04E-02	3.15E-02
		899.15		99.16	7.55E-02		-4.52E-02	3.55E-02
		911.74		91.10	1.41E-01		3.31E-01	6.81E-02
	BI-207	569.67		97.72	7.04E-02	7.04E-02	7.59E-02	3.37E-02
		1063.62		74.90	1.03E-01		-2.40E-04	4.83E-02
+	TL-208	583.14	*	30.22	3.11E-01	2.04E-01	1.14E+00	1.50E-01
		860.37	*	4.48	1.74E+00		1.29E+00	8.23E-01
		2614.66	*	35.85	2.04E-01		1.01E+00	8.92E-02
	BI-210M	262.00		45.00	1.30E-01	1.30E-01	-3.54E-02	6.32E-02
		300.00		23.00	2.99E-01		-1.84E+00	1.45E-01
+	PB-210	46.50	*	4.25	1.68E+00	1.68E+00	1.48E+00	8.25E-01
	PB-211	404.84		2.90	2.15E+00	2.15E+00	-1.05E+00	1.03E+00
		831.96		2.90	2.32E+00		1.59E-01	1.09E+00
+	BI-212	727.17	*	11.80	6.77E-01	6.77E-01	8.62E-01	3.23E-01
		1620.62	*	2.75	1.85E+00		1.09E+00	8.04E-01
+	PB-212	238.63	*	44.60	2.58E-01	2.58E-01	1.37E+00	1.27E-01
		300.09	*	3.41	3.16E+00		2.85E+00	1.55E+00
+	BI-214	609.31	*	46.30	2.59E-01	2.59E-01	2.26E+00	1.26E-01
		1120.29	*	15.10	8.96E-01		2.11E+00	4.31E-01
		1764.49	*	15.80	3.26E-01		2.62E+00	1.41E-01
		2204.22	*	4.98	1.45E+00		2.55E+00	6.41E-01
+	PB-214	295.21	*	19.19	5.48E-01	2.61E-01	2.40E+00	2.69E-01
		351.92	*	37.19	2.61E-01		2.37E+00	1.28E-01
	RN-219	401.80		6.50	8.79E-01	8.79E-01	-6.76E-01	4.21E-01
	RA-223	323.87		3.88	1.49E+00	1.49E+00	-4.51E-02	7.18E-01
+	RA-224	240.98	*	3.95	2.94E+00	2.94E+00	6.23E+00	1.45E+00
	RA-225	40.00		31.00	1.31E+01	1.31E+01	-1.74E+00	6.36E+00
+	RA-226	186.21	*	3.28	2.79E+00	2.79E+00	4.88E+00	1.37E+00
	TH-227	50.10		8.40	6.22E-01	5.44E-01	-1.41E-01	3.04E-01
		236.00		11.50	5.44E-01		-4.37E+00	2.65E-01
		256.20		6.30	9.62E-01		9.78E-02	4.68E-01
+	AC-228	338.32	*	11.40	7.97E-01	3.77E-01	1.41E+00	3.89E-01
		911.07	*	27.70	3.77E-01		1.05E+00	1.81E-01
		969.11	*	16.60	7.12E-01		1.12E+00	3.42E-01
	TH-230	48.44		16.90	3.42E-01	3.42E-01	8.93E-02	1.68E-01
		62.85		4.60	1.51E+00		3.98E+00	7.43E-01
		67.67		0.37	1.64E+01		1.25E+01	8.04E+00
	PA-231	283.67		1.60	3.78E+00	2.75E+00	8.64E-01	1.83E+00
		302.67		2.30	2.75E+00		7.99E-03	1.33E+00
	TH-231	25.64		14.70	5.24E-01	5.24E-01	-3.17E+00	2.56E-01

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	9.71E-01	5.24E-01	-9.18E-01	4.77E-01
	PA-233	311.98		38.60	1.63E+00	1.63E+00	8.76E-01	7.87E-01
	PA-234	131.20		20.40	2.52E-01	2.52E-01	-2.62E-02	1.23E-01
		733.99		8.80	7.19E-01		5.21E-01	3.39E-01
		946.00		12.00	5.98E-01		-2.05E-02	2.80E-01
+	PA-234M	1001.03	*	0.92	1.08E+01	1.08E+01	5.22E+00	5.17E+00
+	TH-234	63.29	*	3.80	2.35E+00	2.35E+00	3.25E+00	1.16E+00
	U-235	143.76		10.50	5.16E-01	5.16E-01	3.08E-01	2.52E-01
		163.35		4.70	1.10E+00		1.48E-01	5.38E-01
		205.31		4.70	1.12E+00		4.12E-01	5.44E-01
	NP-237	86.50		12.60	5.37E-01	5.37E-01	4.30E-01	2.64E-01
	NP-239	106.10		22.70	1.85E+11	1.85E+11	9.04E+10	9.06E+10
		228.18		10.70	3.88E+11		-1.03E+11	1.88E+11
		277.60		14.10	3.63E+11		1.42E+11	1.76E+11
	AM-241	59.54		35.90	1.61E-01	1.61E-01	-2.58E-01	7.89E-02
+	AM-243	74.67	*	66.00	1.64E-01	1.64E-01	4.03E-01	8.10E-02
	CM-243	209.75		3.29	1.74E+00	4.45E-01	9.87E-01	8.48E-01
		228.14		10.60	4.78E-01		-1.26E-01	2.31E-01
		277.60		14.00	4.45E-01		1.74E-01	2.16E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707078-08

HTC-A01-S003-2430-01

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

Sample Title: HTC-A01-S003-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	100	114	95	194	550	172
25:	101	103	105	96	95	87	77	104
33:	76	86	92	92	101	89	93	93
41:	98	93	103	111	103	138	229	141
49:	108	124	130	111	137	147	136	143
57:	136	155	155	146	179	192	263	383
65:	215	169	189	196	210	190	168	189
73:	220	256	530	455	567	693	231	192
81:	168	184	143	220	243	164	250	342
89:	209	247	232	217	383	305	182	143
97:	138	120	131	134	135	116	104	116
105:	129	152	120	111	129	118	123	129
113:	134	135	130	111	117	120	116	104
121:	110	115	115	102	139	108	111	108
129:	138	125	105	120	112	120	120	112
137:	95	132	115	114	110	103	114	147
145:	127	114	99	108	94	119	117	111
153:	101	132	126	102	107	90	102	104
161:	95	113	92	117	102	72	99	90
169:	99	88	85	84	109	92	108	93
177:	94	101	96	82	99	85	84	94
185:	118	271	254	127	79	86	101	83
193:	72	79	79	78	94	88	85	78
201:	81	85	86	82	95	85	74	67
209:	126	131	77	61	83	80	70	74
217:	73	84	65	73	80	77	67	73
225:	70	64	63	60	67	72	62	74
233:	68	70	60	90	67	200	700	239
241:	125	252	195	68	51	53	49	57
249:	63	51	62	65	55	54	55	65
257:	57	61	66	52	57	53	54	41
265:	48	57	53	50	60	90	103	61
273:	50	59	66	49	63	59	53	40
281:	55	42	51	49	49	53	57	50
289:	48	46	38	49	55	65	288	348
297:	74	52	54	77	85	44	43	32
305:	36	40	39	37	46	40	43	43
313:	42	32	34	25	37	34	35	38
321:	45	35	41	33	39	42	33	65
329:	57	41	41	24	42	39	42	42
337:	43	118	131	53	44	35	28	37
345:	43	34	40	45	33	42	175	668
353:	401	61	34	37	46	33	41	22
361:	20	32	34	25	23	28	28	30

369:	27	39	38	43	27	38	28	29

Sample Title: HTC-A01-S003-2430-01

Channel								
377:	23	36	35	31	38	30	33	32
385:	32	33	34	28	36	32	30	30
393:	28	32	30	23	32	25	21	22
401:	27	30	39	22	29	37	42	26
409:	50	44	28	29	26	31	29	28
417:	32	23	32	35	29	24	33	34
425:	22	25	32	28	33	18	30	22
433:	23	30	25	23	25	19	25	23
441:	22	36	18	23	23	29	29	23
449:	27	11	22	26	21	31	29	24
457:	20	25	18	34	24	34	59	35
465:	23	21	23	29	31	27	26	25
473:	23	27	17	15	14	24	18	19
481:	24	23	24	16	19	15	31	20
489:	26	22	23	13	12	17	20	28
497:	23	11	14	20	21	18	23	11
505:	18	23	12	30	26	54	78	69
513:	35	18	21	20	16	16	26	11
521:	18	17	20	24	17	23	13	19
529:	18	15	15	13	18	25	22	25
537:	14	19	24	14	19	18	21	16
545:	21	13	17	13	21	13	18	17
553:	16	16	22	17	14	16	23	15
561:	13	27	18	19	12	12	17	25
569:	22	24	26	19	27	12	17	20
577:	22	15	23	14	23	53	147	129
585:	40	15	20	21	13	17	8	17
593:	14	19	15	15	14	17	18	13
601:	22	19	18	20	22	31	23	87
609:	376	368	66	15	23	24	15	8
617:	13	13	15	17	15	17	20	22
625:	12	14	16	18	17	19	10	29
633:	11	16	12	15	8	19	20	12
641:	9	11	10	10	18	13	10	28
649:	17	10	10	11	15	19	17	12
657:	19	11	17	19	22	46	20	22
665:	18	22	16	13	17	10	14	9
673:	10	13	19	14	31	19	12	19
681:	15	14	16	12	11	10	16	9
689:	12	16	20	20	18	15	18	14
697:	14	16	21	14	16	14	18	9
705:	20	15	19	20	13	9	15	14
713:	11	11	13	21	11	13	24	18
721:	12	18	16	12	19	14	41	45
729:	24	11	8	14	13	14	17	13
737:	11	7	7	11	13	19	16	14
745:	16	11	10	14	9	9	16	18
753:	13	24	12	15	19	16	9	6
761:	10	15	21	11	10	22	25	50
769:	42	13	13	11	23	14	11	16
777:	13	18	10	11	11	20	11	13
785:	23	37	12	12	11	16	8	11
793:	9	20	36	19	11	6	20	15

801:	11	14	17	14	11	23	10	11

Sample Title: HTC-A01-S003-2430-01

Channel								
809:	10	16	10	15	13	15	12	10
817:	7	14	13	14	16	8	6	7
825:	17	16	11	11	8	17	9	14
833:	10	13	13	16	8	15	24	18
841:	9	7	8	11	12	12	11	6
849:	15	12	10	11	8	13	13	7
857:	11	8	10	22	22	17	11	9
865:	9	10	10	12	8	8	13	10
873:	10	13	11	9	8	12	9	13
881:	15	5	7	12	13	19	7	7
889:	9	11	13	10	16	21	13	9
897:	14	11	15	9	16	10	16	14
905:	15	12	12	15	14	35	102	63
913:	16	10	8	11	7	9	14	7
921:	12	8	12	10	12	8	9	9
929:	11	14	10	8	18	25	17	15
937:	8	14	13	13	15	15	11	6
945:	18	13	6	9	15	3	14	10
953:	6	11	6	8	8	19	8	8
961:	12	12	12	12	22	10	14	34
969:	73	39	13	7	10	15	8	10
977:	5	10	10	10	9	8	11	8
985:	11	6	7	8	13	8	12	9
993:	11	8	11	7	11	10	6	22
1001:	12	13	9	11	8	10	4	13
1009:	11	11	8	8	9	10	10	13
1017:	7	6	7	4	7	13	7	14
1025:	10	13	6	8	8	9	8	12
1033:	10	11	6	11	14	12	12	15
1041:	7	8	12	11	7	11	6	11
1049:	12	7	6	10	10	6	8	11
1057:	13	12	10	12	6	11	10	11
1065:	12	13	9	12	9	9	11	6
1073:	7	6	7	10	9	11	12	9
1081:	9	10	12	6	9	13	11	10
1089:	14	12	5	5	14	9	11	18
1097:	8	9	7	9	12	7	17	14
1105:	10	11	10	6	11	11	8	10
1113:	10	8	12	9	13	7	45	71
1121:	62	18	18	12	7	12	9	8
1129:	9	4	7	7	11	4	13	6
1137:	6	9	11	12	8	11	8	12
1145:	10	7	11	10	10	11	9	8
1153:	9	18	11	12	10	14	12	12
1161:	7	8	8	7	10	11	9	12
1169:	14	12	5	10	12	13	20	10
1177:	16	10	12	9	7	13	8	9
1185:	20	3	15	14	8	9	10	16
1193:	10	17	17	10	8	7	7	10
1201:	8	10	10	7	16	20	10	14
1209:	5	7	13	12	10	7	11	8
1217:	15	11	12	13	9	19	7	12
1225:	6	12	9	15	11	15	11	14

1233:	12	11	10	16	30	42	27	10

Sample Title: HTC-A01-S003-2430-01

Channel								
1241:	9	13	8	9	7	8	15	10
1249:	9	17	7	6	11	12	8	6
1257:	10	6	5	4	10	8	7	5
1265:	9	7	9	10	5	7	8	9
1273:	9	8	8	7	8	9	6	19
1281:	16	12	5	6	4	5	7	7
1289:	5	10	4	8	5	8	7	5
1297:	7	4	8	5	6	7	10	9
1305:	5	4	9	7	5	3	6	6
1313:	7	8	5	8	2	8	10	11
1321:	8	9	5	4	10	2	6	11
1329:	4	4	8	6	3	7	5	8
1337:	8	4	10	5	3	7	7	5
1345:	6	4	4	7	7	4	6	7
1353:	3	4	5	9	2	5	6	6
1361:	7	4	1	6	4	3	4	3
1369:	5	2	9	4	6	6	5	4
1377:	22	24	7	4	3	4	7	4
1385:	8	5	7	5	9	3	3	3
1393:	6	5	2	7	4	4	4	6
1401:	14	9	3	9	4	6	8	14
1409:	5	5	1	2	7	7	4	5
1417:	2	1	2	4	4	1	6	7
1425:	3	3	4	3	1	2	2	1
1433:	3	5	4	7	2	2	0	2
1441:	3	1	3	5	4	2	11	8
1449:	6	6	5	5	0	4	2	5
1457:	7	26	118	403	339	119	17	14
1465:	12	6	5	3	2	2	3	3
1473:	6	5	2	6	1	4	1	3
1481:	3	2	2	3	3	3	4	2
1489:	1	7	2	3	1	3	7	7
1497:	2	0	3	4	1	3	5	2
1505:	6	5	4	10	11	3	3	1
1513:	6	5	2	4	5	2	0	5
1521:	0	3	5	3	4	2	4	3
1529:	5	3	1	4	5	3	4	2
1537:	4	2	2	6	1	4	6	0
1545:	1	0	1	3	5	2	0	4
1553:	4	1	8	3	2	4	2	2
1561:	1	1	1	4	2	1	1	0
1569:	0	2	2	3	1	4	0	2
1577:	2	2	5	6	1	3	5	4
1585:	3	4	9	12	6	5	13	12
1593:	5	4	5	2	3	1	3	4
1601:	1	5	3	3	3	0	0	1
1609:	4	3	3	1	1	4	1	0
1617:	1	3	2	6	5	1	3	2
1625:	2	4	2	5	3	5	6	5
1633:	1	2	1	5	3	4	1	2
1641:	0	1	7	3	1	0	2	2
1649:	1	3	2	2	1	2	1	1
1657:	4	1	2	3	3	3	6	1

1665:	1	1	1	5	1	3	2	1

Sample Title: HTC-A01-S003-2430-01

Channel								
1673:	1	2	0	2	2	3	2	3
1681:	2	3	0	4	1	1	0	3
1689:	2	0	2	1	4	2	2	0
1697:	0	1	2	1	2	1	2	3
1705:	1	2	2	0	0	1	0	0
1713:	0	3	0	2	2	2	0	4
1721:	1	0	2	2	1	2	3	8
1729:	9	5	3	3	4	0	2	0
1737:	1	1	1	1	3	2	0	1
1745:	2	4	1	0	2	0	2	0
1753:	2	2	2	1	0	1	1	3
1761:	4	10	31	61	38	9	4	2
1769:	2	1	0	1	2	3	2	0
1777:	1	2	0	1	2	0	0	2
1785:	0	1	1	0	1	2	1	3
1793:	0	1	1	3	2	2	0	0
1801:	2	1	1	0	0	1	0	2
1809:	1	0	2	1	1	1	0	1
1817:	0	1	1	2	1	1	1	3
1825:	2	0	1	2	0	1	1	4
1833:	0	3	2	1	1	2	3	3
1841:	1	0	1	0	5	10	10	5
1849:	1	3	3	3	1	2	3	1
1857:	1	0	0	2	1	3	4	0
1865:	0	2	2	1	2	1	1	1
1873:	0	1	1	2	1	1	0	0
1881:	3	2	1	0	4	1	2	1
1889:	5	1	2	0	3	2	1	3
1897:	2	2	0	3	1	0	0	1
1905:	2	3	4	1	0	1	1	0
1913:	2	1	2	2	3	0	0	1
1921:	2	1	1	1	2	1	1	1
1929:	1	3	0	2	3	0	1	3
1937:	2	1	1	0	0	1	4	1
1945:	0	0	1	1	4	2	1	2
1953:	1	2	0	0	0	1	1	2
1961:	1	0	0	2	0	1	1	0
1969:	0	1	0	1	1	0	3	1
1977:	2	1	0	2	3	1	0	1
1985:	0	0	2	0	0	2	1	3
1993:	1	1	2	0	2	1	0	1
2001:	2	1	1	2	0	6	1	0
2009:	3	2	0	1	1	0	2	7
2017:	0	0	4	0	1	0	0	2
2025:	1	0	1	2	0	1	1	0
2033:	0	2	2	0	2	2	2	1
2041:	0	0	1	1	1	0	2	0
2049:	2	0	0	1	0	1	1	0
2057:	1	0	2	0	1	0	0	0
2065:	0	0	1	0	1	2	1	2
2073:	1	1	1	2	3	0	0	0
2081:	1	1	2	4	0	2	0	1
2089:	2	0	1	0	1	2	0	1

2097:	0	0	3	4	5	3	4	1

Sample Title: HTC-A01-S003-2430-01

Channel								
2105:	1	0	3	0	2	0	1	0
2113:	2	3	0	3	2	5	4	1
2121:	1	3	1	1	0	0	1	1
2129:	1	1	0	2	0	0	1	0
2137:	2	0	2	1	0	1	0	1
2145:	2	0	0	2	1	2	1	2
2153:	0	2	1	2	1	0	0	1
2161:	1	0	2	2	0	1	0	0
2169:	2	1	1	0	0	1	1	1
2177:	2	0	0	2	0	1	2	1
2185:	1	0	0	0	1	0	1	0
2193:	1	1	1	0	1	2	0	3
2201:	6	8	15	10	6	1	3	1
2209:	0	2	3	1	4	0	3	0
2217:	1	1	0	0	1	0	2	1
2225:	1	0	0	0	2	3	3	2
2233:	1	1	0	1	1	0	0	0
2241:	1	0	1	0	1	2	0	1
2249:	3	2	0	0	1	0	0	1
2257:	1	2	0	0	0	1	1	0
2265:	0	0	1	2	1	1	2	1
2273:	1	0	1	0	3	2	0	0
2281:	1	1	1	1	1	4	2	2
2289:	1	2	0	2	0	3	1	3
2297:	1	0	1	0	0	0	1	3
2305:	1	1	3	0	0	1	0	3
2313:	2	0	0	1	3	0	2	0
2321:	0	3	1	0	1	1	3	1
2329:	0	1	2	0	2	1	1	0
2337:	4	2	4	1	0	1	1	3
2345:	0	1	0	0	0	1	4	0
2353:	2	1	0	0	2	0	3	0
2361:	0	3	1	1	0	1	1	4
2369:	0	1	1	1	1	1	1	2
2377:	0	1	1	0	1	0	1	0
2385:	0	1	0	0	1	2	1	3
2393:	1	0	0	2	0	1	2	0
2401:	2	1	0	0	1	1	1	1
2409:	0	0	1	1	1	0	1	1
2417:	1	1	1	3	0	1	1	0
2425:	0	2	0	1	0	1	0	0
2433:	0	0	1	0	2	2	0	0
2441:	0	2	1	0	2	6	4	2
2449:	1	1	1	2	1	0	0	0
2457:	0	2	2	0	0	1	0	0
2465:	0	0	0	0	0	1	0	0
2473:	2	0	0	0	0	1	0	0
2481:	0	0	2	0	0	1	3	0
2489:	1	0	0	1	1	1	0	0
2497:	2	0	0	0	0	0	0	0
2505:	0	0	1	1	1	2	3	0
2513:	0	0	0	0	0	0	0	1
2521:	0	0	2	0	0	1	0	2

2529:	1	1	1	1	0	1	2	1

Sample Title: HTC-A01-S003-2430-01

Channel								
2537:	0	1	1	0	0	2	0	0
2545:	1	2	0	1	0	1	0	1
2553:	1	0	2	0	0	0	0	1
2561:	1	1	0	0	0	0	0	1
2569:	2	0	1	0	0	0	2	2
2577:	0	1	0	1	0	0	0	0
2585:	0	0	0	0	0	0	0	1
2593:	0	0	0	1	0	0	0	0
2601:	0	1	0	0	0	0	0	1
2609:	0	2	9	31	35	29	9	2
2617:	2	0	2	1	0	0	0	0
2625:	0	1	0	0	0	1	0	0
2633:	0	0	1	1	0	0	0	1
2641:	0	0	0	0	0	0	0	0
2649:	0	1	0	0	0	0	0	0
2657:	0	0	0	0	1	0	0	0
2665:	0	0	0	1	0	0	0	0
2673:	1	0	0	0	1	1	0	1
2681:	1	0	1	1	0	0	0	0
2689:	1	0	1	0	1	0	1	0
2697:	1	1	1	0	0	1	0	1
2705:	0	1	0	0	0	0	0	0
2713:	0	0	2	0	1	1	0	0
2721:	0	0	1	0	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	0	2	0	1	0	0	0
2753:	1	0	0	1	0	0	0	0
2761:	0	2	0	1	0	0	1	0
2769:	0	0	1	0	1	1	0	1
2777:	0	1	0	0	1	0	0	0
2785:	0	0	1	0	0	0	0	1
2793:	1	0	0	0	2	1	1	0
2801:	0	0	0	0	0	1	0	0
2809:	0	1	1	1	0	0	0	0
2817:	0	0	0	1	0	0	1	0
2825:	0	0	0	0	0	0	0	0
2833:	0	2	1	0	0	0	0	0
2841:	0	1	0	1	2	1	0	0
2849:	1	0	0	0	1	1	0	1
2857:	0	1	0	0	0	0	0	0
2865:	0	0	0	0	0	0	1	0
2873:	0	0	1	0	1	0	0	0
2881:	0	1	1	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	0	0	0	2	0	0	0
2905:	0	0	1	0	0	0	0	0
2913:	0	0	0	0	0	0	1	0
2921:	0	0	0	0	0	0	0	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	1	0	0
2945:	0	0	0	0	0	0	0	0
2953:	1	1	1	0	0	1	1	0

2961:	0	0	0	1	0	0	0	1

Sample Title: HTC-A01-S003-2430-01

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

3393:	0	0	0	1	0	1	0	0

Sample Title: HTC-A01-S003-2430-01

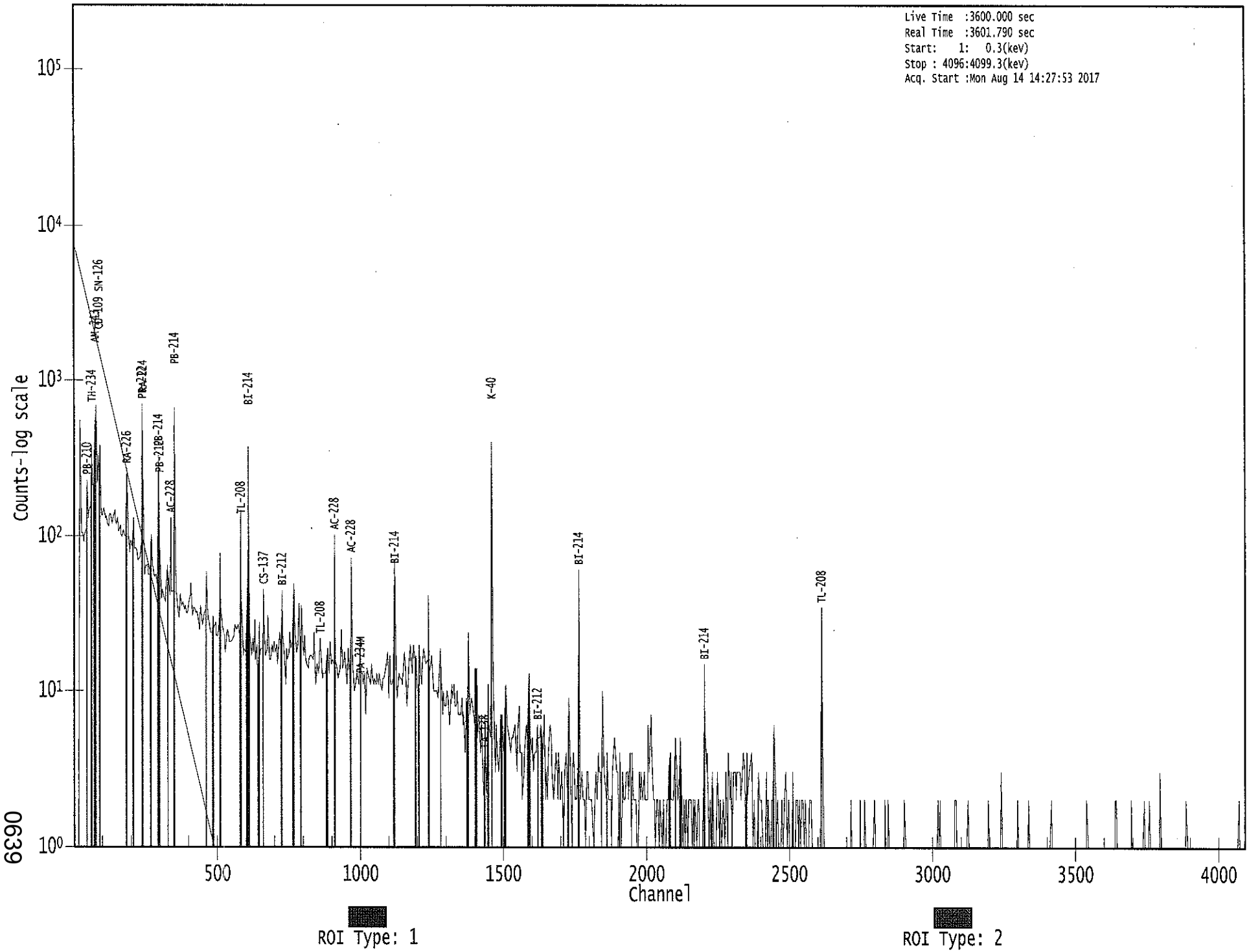
Channel								
3401:	0	0	0	1	0	0	1	0
3409:	0	1	0	0	0	0	0	2
3417:	0	0	0	0	0	1	1	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	0	1	0	0
3441:	1	0	0	0	0	0	0	0
3449:	0	0	1	0	0	0	1	1
3457:	1	0	0	0	0	0	0	0
3465:	0	0	0	0	1	0	0	1
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	1	0	1	0
3489:	0	1	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-2430-01

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

0000055186.CNF



0639

KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-09
HTC-A01-S003-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-09
Sample Description	: HTC-A01-S003-3036-01
Sample Type	: SOIL
Sample Size	: 6.849E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:30:45AM
Acquisition Started	: 8/14/2017 3:12:35PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.4 seconds
Dead Time	: 0.23 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 9 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55194

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 4:12:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	22.85	23.17	0.0000	0.00
2	46.77	47.08	0.0000	0.00
3	76.82	77.12	0.0000	0.00
4	87.47	87.77	0.0000	0.00
5	93.25	93.55	0.0000	0.00
6	163.68	163.95	0.0000	0.00
7	186.48	186.74	0.0000	0.00
8	239.00	239.25	0.0000	0.00
9	241.95	242.20	0.0000	0.00
10	295.70	295.93	0.0000	0.00
11	299.86	300.09	0.0000	0.00
12	328.58	328.80	0.0000	0.00
13	338.70	338.92	0.0000	0.00
14	342.96	343.17	0.0000	0.00
15	352.23	352.43	0.0000	0.00
16	463.87	464.04	0.0000	0.00
17	510.75	510.90	0.0000	0.00
18	583.35	583.48	0.0000	0.00
19	609.18	609.30	0.0000	0.00
20	762.43	762.50	0.0000	0.00
21	768.18	768.25	0.0000	0.00
22	784.86	784.92	0.0000	0.00
23	861.09	861.13	0.0000	0.00
24	911.26	911.28	0.0000	0.00
25	935.12	935.14	0.0000	0.00
26	968.08	968.09	0.0000	0.00
27	1104.07	1104.03	0.0000	0.00
28	1120.17	1120.12	0.0000	0.00
29	1236.76	1236.67	0.0000	0.00
30	1375.59	1375.45	0.0000	0.00
31	1378.62	1378.48	0.0000	0.00
32	1460.52	1460.36	0.0000	0.00
33	1507.65	1507.46	0.0000	0.00
34	1553.63	1553.43	0.0000	0.00
35	1581.79	1581.58	0.0000	0.00
36	1592.26	1592.05	0.0000	0.00
37	1677.09	1676.85	0.0000	0.00
38	1729.40	1729.14	0.0000	0.00
39	1764.43	1764.16	0.0000	0.00
40	1782.75	1782.47	0.0000	0.00
41	1798.63	1798.35	0.0000	0.00
42	2017.94	2017.58	0.0000	0.00

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2103.37	2102.99	0.0000	0.00
44	2117.71	2117.32	0.0000	0.00
45	2203.72	2203.30	0.0000	0.00
46	2350.70	2350.23	0.0000	0.00
47	2433.82	2433.33	0.0000	0.00
48	2614.26	2613.70	0.0000	0.00
49	2840.63	2840.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 4:12:45PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	22.85	21 -	25	23.17	6.12E+01	61.46	7.82E+02	2.10
	2	46.77	44 -	51	47.08	1.39E+02	96.97	1.49E+03	2.43
	3	76.82	73 -	81	77.12	1.06E+03	148.94	2.74E+03	3.23
	4	87.47	85 -	90	87.77	9.70E+01	101.36	1.99E+03	1.35
	5	93.25	91 -	98	93.55	2.03E+02	115.24	1.96E+03	1.99
	6	163.68	161 -	167	163.95	6.28E+01	68.69	8.06E+02	3.12
	7	186.48	183 -	191	186.74	2.46E+02	86.02	9.80E+02	2.69
M	8	239.00	234 -	246	239.25	6.96E+02	75.49	4.99E+02	2.06
m	9	241.95	234 -	246	242.20	2.13E+02	76.28	4.95E+02	2.06
M	10	295.70	293 -	316	295.93	2.96E+02	52.52	3.09E+02	1.96
m	11	299.86	293 -	316	300.09	5.54E+01	45.50	3.18E+02	1.84
	12	328.58	325 -	332	328.80	4.36E+01	50.16	3.87E+02	1.90
M	13	338.70	334 -	346	338.92	1.68E+02	51.58	3.19E+02	2.61
m	14	342.96	334 -	346	343.17	3.20E+01	50.16	3.25E+02	2.62
	15	352.23	347 -	357	352.43	4.95E+02	73.50	4.57E+02	2.19
	16	463.87	462 -	466	464.04	3.28E+01	25.77	1.16E+02	2.57
	17	510.75	505 -	516	510.90	1.55E+02	54.99	3.01E+02	2.12
	18	583.35	577 -	589	583.48	1.98E+02	57.25	2.92E+02	2.21
	19	609.18	603 -	614	609.30	2.97E+02	58.65	2.80E+02	2.15
M	20	762.43	761 -	771	762.50	1.82E+01	13.92	4.33E+01	2.99
m	21	768.18	761 -	771	768.25	3.80E+01	27.71	1.12E+02	2.49
	22	784.86	782 -	787	784.92	2.47E+01	20.74	6.66E+01	2.69
	23	861.09	857 -	865	861.13	5.12E+01	27.87	8.36E+01	2.17
	24	911.26	905 -	915	911.28	1.21E+02	41.52	1.66E+02	1.85
	25	935.12	931 -	940	935.14	3.46E+01	29.48	1.03E+02	4.04
	26	968.08	962 -	973	968.09	1.26E+02	38.26	1.20E+02	2.61
	27	1104.07	1101 -	1107	1104.03	1.92E+01	19.91	5.56E+01	1.11
	28	1120.17	1113 -	1126	1120.12	6.44E+01	45.66	2.03E+02	2.43
	29	1236.76	1232 -	1242	1236.67	5.40E+01	35.92	1.44E+02	3.54
M	30	1375.59	1374 -	1381	1375.45	8.32E+00	7.73	1.15E+01	2.26
m	31	1378.62	1374 -	1381	1378.48	1.62E+01	13.23	1.96E+01	2.58
	32	1460.52	1455 -	1464	1460.36	5.96E+02	52.64	5.59E+01	2.52
	33	1507.65	1504 -	1510	1507.46	1.55E+01	10.02	6.95E+00	2.80
	34	1553.63	1551 -	1556	1553.43	6.00E+00	7.35	6.00E+00	1.91
M	35	1581.79	1577 -	1597	1581.58	1.53E+01	8.96	1.17E+00	5.11
m	36	1592.26	1577 -	1597	1592.05	2.25E+01	14.08	8.13E+00	5.12
	37	1677.09	1674 -	1680	1676.85	7.00E+00	6.95	4.00E+00	1.08
	38	1729.40	1726 -	1732	1729.14	1.40E+01	7.48	0.00E+00	3.79
	39	1764.43	1760 -	1769	1764.16	4.20E+01	15.43	1.00E+01	2.20
	40	1782.75	1777 -	1787	1782.47	7.50E+00	10.61	1.10E+01	6.49

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1798.63	1795 -	1801	1798.35	7.22E+00	6.95	3.56E+00	3.35
42	2017.94	2013 -	2020	2017.58	4.86E+00	6.63	4.29E+00	2.90
43	2103.37	2100 -	2106	2102.99	1.03E+01	8.75	5.38E+00	1.98
44	2117.71	2114 -	2121	2117.32	6.78E+00	7.21	4.44E+00	2.51
45	2203.72	2199 -	2207	2203.30	1.35E+01	10.61	9.00E+00	1.45
46	2350.70	2347 -	2353	2350.23	6.50E+00	6.65	3.00E+00	2.16
47	2433.82	2428 -	2437	2433.33	1.15E+01	9.00	4.93E+00	1.13
48	2614.26	2609 -	2618	2613.70	6.10E+01	15.62	0.00E+00	2.61
49	2840.63	2837 -	2842	2840.00	5.00E+00	4.47	0.00E+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 : 8/14/2017 4:12:45PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	22.85	21 -	25	6.12E+01	61.46	7.82E+02	4.89E+01
	2	46.77	44 -	51	1.39E+02	96.97	1.49E+03	7.73E+01
	3	76.82	73 -	81	1.06E+03	148.94	2.74E+03	1.10E+02
	4	87.47	85 -	90	9.70E+01	101.36	1.99E+03	8.17E+01
	5	93.25	91 -	98	2.03E+02	115.24	1.96E+03	9.18E+01
	6	163.68	161 -	167	6.28E+01	68.69	8.06E+02	5.49E+01
	7	186.48	183 -	191	2.46E+02	86.02	9.80E+02	6.58E+01
M	8	239.00	234 -	246	6.96E+02	75.49	4.99E+02	3.67E+01
m	9	241.95	234 -	246	2.13E+02	76.28	4.95E+02	3.66E+01
M	10	295.70	293 -	316	2.96E+02	52.52	3.09E+02	2.89E+01
m	11	299.86	293 -	316	5.54E+01	45.50	3.18E+02	2.93E+01
	12	328.58	325 -	332	4.36E+01	50.16	3.87E+02	3.98E+01
M	13	338.70	334 -	346	1.68E+02	51.58	3.19E+02	2.94E+01
m	14	342.96	334 -	346	3.20E+01	50.16	3.25E+02	2.96E+01
	15	352.23	347 -	357	4.95E+02	73.50	4.57E+02	4.81E+01
	16	463.87	462 -	466	3.28E+01	25.77	1.16E+02	1.90E+01
	17	510.75	505 -	516	1.55E+02	54.99	3.01E+02	4.03E+01
	18	583.35	577 -	589	1.98E+02	57.25	2.92E+02	4.10E+01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	19	609.18	603 -	614	2.97E+02	58.65	2.80E+02	3.90E+01
M	20	762.43	761 -	771	1.82E+01	13.92	4.33E+01	1.08E+01
m	21	768.18	761 -	771	3.80E+01	27.71	1.12E+02	1.74E+01
	22	784.86	782 -	787	2.47E+01	20.74	6.66E+01	1.50E+01
	23	861.09	857 -	865	5.12E+01	27.87	8.36E+01	1.97E+01
	24	911.26	905 -	915	1.21E+02	41.52	1.66E+02	2.89E+01
	25	935.12	931 -	940	3.46E+01	29.48	1.03E+02	2.22E+01
	26	968.08	962 -	973	1.26E+02	38.26	1.20E+02	2.55E+01
	27	1104.07	1101 -	1107	1.92E+01	19.91	5.56E+01	1.47E+01
	28	1120.17	1113 -	1126	6.44E+01	45.66	2.03E+02	3.51E+01
	29	1236.76	1232 -	1242	5.40E+01	35.92	1.44E+02	2.69E+01
M	30	1375.59	1374 -	1381	8.32E+00	7.73	1.15E+01	5.58E+00
m	31	1378.62	1374 -	1381	1.62E+01	13.23	1.96E+01	7.29E+00
	32	1460.52	1455 -	1464	5.96E+02	52.64	5.59E+01	1.62E+01
	33	1507.65	1504 -	1510	1.55E+01	10.02	6.95E+00	5.09E+00
	34	1553.63	1551 -	1556	6.00E+00	7.35	6.00E+00	4.50E+00
M	35	1581.79	1577 -	1597	1.53E+01	8.96	1.17E+00	1.78E+00
m	36	1592.26	1577 -	1597	2.25E+01	14.08	8.13E+00	4.69E+00
	37	1677.09	1674 -	1680	7.00E+00	6.95	4.00E+00	3.70E+00
	38	1729.40	1726 -	1732	1.40E+01	7.48	0.00E+00	0.00E+00
	39	1764.43	1760 -	1769	4.20E+01	15.43	1.00E+01	6.88E+00
	40	1782.75	1777 -	1787	7.50E+00	10.61	1.10E+01	7.47E+00
	41	1798.63	1795 -	1801	7.22E+00	6.95	3.56E+00	3.62E+00
	42	2017.94	2013 -	2020	4.86E+00	6.63	4.29E+00	4.07E+00
	43	2103.37	2100 -	2106	1.03E+01	8.75	5.38E+00	4.88E+00
	44	2117.71	2114 -	2121	6.78E+00	7.21	4.44E+00	4.10E+00
	45	2203.72	2199 -	2207	1.35E+01	10.61	9.00E+00	6.29E+00
	46	2350.70	2347 -	2353	6.50E+00	6.65	3.00E+00	3.51E+00
	47	2433.82	2428 -	2437	1.15E+01	9.00	4.93E+00	4.85E+00
	48	2614.26	2609 -	2618	6.10E+01	15.62	0.00E+00	0.00E+00
	49	2840.63	2837 -	2842	5.00E+00	4.47	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 4:12:45PM

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

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

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	22.85	21 -	25	23.17	6.12E+01	61.46	7.82E+02	.....
	2	46.77	44 -	51	47.08	1.39E+02	96.97	1.49E+03	PB-210
	3	76.82	73 -	81	77.12	1.06E+03	148.94	2.74E+03	.....
	4	87.47	85 -	90	87.77	9.70E+01	101.36	1.99E+03	SN-126
									CD-109
									LU-176
									NP-237
									EU-155
	5	93.25	91 -	98	93.55	2.03E+02	115.24	1.96E+03	GA-67
	6	163.68	161 -	167	163.95	6.28E+01	68.69	8.06E+02	CS-136
									U-235
	7	186.48	183 -	191	186.74	2.46E+02	86.02	9.80E+02	RA-226
M	8	239.00	234 -	246	239.25	6.96E+02	75.49	4.99E+02	PB-212
m	9	241.95	234 -	246	242.20	2.13E+02	76.28	4.95E+02	RA-224
M	10	295.70	293 -	316	295.93	2.96E+02	52.52	3.09E+02	PB-214
m	11	299.86	293 -	316	300.09	5.54E+01	45.50	3.18E+02	BI-210M
									PB-212
									GA-67
	12	328.58	325 -	332	328.80	4.36E+01	50.16	3.87E+02	LA-140
M	13	338.70	334 -	346	338.92	1.68E+02	51.58	3.19E+02	AC-228
m	14	342.96	334 -	346	343.17	3.20E+01	50.16	3.25E+02	HF-175
	15	352.23	347 -	357	352.43	4.95E+02	73.50	4.57E+02	PB-214
	16	463.87	462 -	466	464.04	3.28E+01	25.77	1.16E+02	SB-125
	17	510.75	505 -	516	510.90	1.55E+02	54.99	3.01E+02	.....
	18	583.35	577 -	589	583.48	1.98E+02	57.25	2.92E+02	TL-208
	19	609.18	603 -	614	609.30	2.97E+02	58.65	2.80E+02	BI-214
M	20	762.43	761 -	771	762.50	1.82E+01	13.92	4.33E+01	.....
m	21	768.18	761 -	771	768.25	3.80E+01	27.71	1.12E+02	.....
	22	784.86	782 -	787	784.92	2.47E+01	20.74	6.66E+01	.....
	23	861.09	857 -	865	861.13	5.12E+01	27.87	8.36E+01	TL-208
	24	911.26	905 -	915	911.28	1.21E+02	41.52	1.66E+02	AC-228
									TL-204
	25	935.12	931 -	940	935.14	3.46E+01	29.48	1.03E+02	.....
	26	968.08	962 -	973	968.09	1.26E+02	38.26	1.20E+02	.....
	27	1104.07	1101 -	1107	1104.03	1.92E+01	19.91	5.56E+01	.....
	28	1120.17	1113 -	1126	1120.12	6.44E+01	45.66	2.03E+02	BI-214
									SC-46
	29	1236.76	1232 -	1242	1236.67	5.40E+01	35.92	1.44E+02	.....
M	30	1375.59	1374 -	1381	1375.45	8.32E+00	7.73	1.15E+01	.....
m	31	1378.62	1374 -	1381	1378.48	1.62E+01	13.23	1.96E+01	.....
	32	1460.52	1455 -	1464	1460.36	5.96E+02	52.64	5.59E+01	K-40
	33	1507.65	1504 -	1510	1507.46	1.55E+01	10.02	6.95E+00	.....
	34	1553.63	1551 -	1556	1553.43	6.00E+00	7.35	6.00E+00	.....
M	35	1581.79	1577 -	1597	1581.58	1.53E+01	8.96	1.17E+00	.....
m	36	1592.26	1577 -	1597	1592.05	2.25E+01	14.08	8.13E+00	.....
	37	1677.09	1674 -	1680	1676.85	7.00E+00	6.95	4.00E+00	I-135
	38	1729.40	1726 -	1732	1729.14	1.40E+01	7.48	0.00E+00	.....
	39	1764.43	1760 -	1769	1764.16	4.20E+01	15.43	1.00E+01	BI-214
	40	1782.75	1777 -	1787	1782.47	7.50E+00	10.61	1.10E+01	.....
	41	1798.63	1795 -	1801	1798.35	7.22E+00	6.95	3.56E+00	.....
	42	2017.94	2013 -	2020	2017.58	4.86E+00	6.63	4.29E+00	.....

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
43	2103.37	2100 -	2106	2102.99	1.03E+01	8.75	5.38E+00	.....
44	2117.71	2114 -	2121	2117.32	6.78E+00	7.21	4.44E+00	.....
45	2203.72	2199 -	2207	2203.30	1.35E+01	10.61	9.00E+00	BI-214
46	2350.70	2347 -	2353	2350.23	6.50E+00	6.65	3.00E+00	.....
47	2433.82	2428 -	2437	2433.33	1.15E+01	9.00	4.93E+00	.....
48	2614.26	2609 -	2618	2613.70	6.10E+01	15.62	0.00E+00	TL-208
49	2840.63	2837 -	2842	2840.00	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 4:12:45PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	22.85	6.12E+01	61.46	1.68E-03	1.73E-03
	2	46.77	1.39E+02	96.97	1.74E-02	1.73E-03
	3	76.82	1.06E+03	148.94	2.67E-02	2.05E-03
	4	87.47	9.70E+01	101.36	2.72E-02	2.25E-03
	5	93.25	2.03E+02	115.24	2.71E-02	2.24E-03
	6	163.68	6.28E+01	68.69	2.14E-02	1.65E-03
	7	186.48	2.46E+02	86.02	1.96E-02	1.55E-03
M	8	239.00	6.96E+02	75.49	1.61E-02	1.34E-03
m	9	241.95	2.13E+02	76.28	1.59E-02	1.33E-03
M	10	295.70	2.96E+02	52.52	1.35E-02	1.15E-03
m	11	299.86	5.54E+01	45.50	1.33E-02	1.14E-03
	12	328.58	4.36E+01	50.16	1.23E-02	1.08E-03
M	13	338.70	1.68E+02	51.58	1.19E-02	1.06E-03
m	14	342.96	3.20E+01	50.16	1.18E-02	1.05E-03
	15	352.23	4.95E+02	73.50	1.15E-02	1.03E-03
	16	463.87	3.28E+01	25.77	9.01E-03	8.57E-04
	17	510.75	1.55E+02	54.99	8.26E-03	7.95E-04
	18	583.35	1.98E+02	57.25	7.32E-03	6.98E-04
	19	609.18	2.97E+02	58.65	7.04E-03	6.64E-04
M	20	762.43	1.82E+01	13.92	5.76E-03	5.06E-04
m	21	768.18	3.80E+01	27.71	5.72E-03	5.01E-04
	22	784.86	2.47E+01	20.74	5.61E-03	4.86E-04
	23	861.09	5.12E+01	27.87	5.17E-03	4.19E-04

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	24	911.26	1.21E+02	41.52	4.92E-03	3.84E-04
	25	935.12	3.46E+01	29.48	4.81E-03	3.80E-04
	26	968.08	1.26E+02	38.26	4.67E-03	3.75E-04
	27	1104.07	1.92E+01	19.91	4.17E-03	3.52E-04
	28	1120.17	6.44E+01	45.66	4.12E-03	3.50E-04
	29	1236.76	5.40E+01	35.92	3.79E-03	3.23E-04
M	30	1375.59	8.32E+00	7.73	3.47E-03	2.89E-04
m	31	1378.62	1.62E+01	13.23	3.47E-03	2.88E-04
	32	1460.52	5.96E+02	52.64	3.31E-03	2.75E-04
	33	1507.65	1.55E+01	10.02	3.23E-03	2.68E-04
	34	1553.63	6.00E+00	7.35	3.15E-03	2.60E-04
M	35	1581.79	1.53E+01	8.96	3.11E-03	2.56E-04
m	36	1592.26	2.25E+01	14.08	3.09E-03	2.54E-04
	37	1677.09	7.00E+00	6.95	2.97E-03	2.40E-04
	38	1729.40	1.40E+01	7.48	2.91E-03	2.32E-04
	39	1764.43	4.20E+01	15.43	2.87E-03	2.26E-04
	40	1782.75	7.50E+00	10.61	2.84E-03	2.24E-04
	41	1798.63	7.22E+00	6.95	2.83E-03	2.21E-04
	42	2017.94	4.86E+00	6.63	2.61E-03	2.15E-04
	43	2103.37	1.03E+01	8.75	2.54E-03	2.15E-04
	44	2117.71	6.78E+00	7.21	2.53E-03	2.15E-04
	45	2203.72	1.35E+01	10.61	2.46E-03	2.15E-04
	46	2350.70	6.50E+00	6.65	2.37E-03	2.15E-04
	47	2433.82	1.15E+01	9.00	2.32E-03	2.15E-04
	48	2614.26	6.10E+01	15.62	2.24E-03	2.15E-04
	49	2840.63	5.00E+00	4.47	2.15E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 4:12:45PM

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

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	22.85	6.12E+01	61.46	1.03E+01	1.28E+01	5.09E+01	6.28E+01
2	46.77	1.39E+02	96.97	4.84E+01	1.23E+01	9.06E+01	9.77E+01
3	76.82	1.06E+03	148.94			1.06E+03	1.49E+02
4	87.47	9.70E+01	101.36			9.70E+01	1.01E+02

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	5	93.25	2.03E+02	115.24	6.90E+01	7.61E+00	1.34E+02	1.15E+02
	6	163.68	6.28E+01	68.69			6.28E+01	6.87E+01
	7	186.48	2.46E+02	86.02	2.99E+01	5.81E+00	2.16E+02	8.62E+01
M	8	239.00	6.96E+02	75.49	9.49E+00	5.63E+00	6.87E+02	7.57E+01
m	9	241.95	2.13E+02	76.28			2.13E+02	7.63E+01
M	10	295.70	2.96E+02	52.52			2.96E+02	5.25E+01
m	11	299.86	5.54E+01	45.50			5.54E+01	4.55E+01
	12	328.58	4.36E+01	50.16			4.36E+01	5.02E+01
M	13	338.70	1.68E+02	51.58	4.73E+00	4.47E+00	1.64E+02	5.18E+01
m	14	342.96	3.20E+01	50.16			3.20E+01	5.02E+01
	15	352.23	4.95E+02	73.50			4.95E+02	7.35E+01
	16	463.87	3.28E+01	25.77			3.28E+01	2.58E+01
	17	510.75	1.55E+02	54.99			1.55E+02	5.50E+01
	18	583.35	1.98E+02	57.25			1.98E+02	5.72E+01
	19	609.18	2.97E+02	58.65	4.09E+00	3.07E+00	2.93E+02	5.87E+01
M	20	762.43	1.82E+01	13.92			1.82E+01	1.39E+01
m	21	768.18	3.80E+01	27.71			3.80E+01	2.77E+01
	22	784.86	2.47E+01	20.74			2.47E+01	2.07E+01
	23	861.09	5.12E+01	27.87			5.12E+01	2.79E+01
	24	911.26	1.21E+02	41.52			1.21E+02	4.15E+01
	25	935.12	3.46E+01	29.48			3.46E+01	2.95E+01
	26	968.08	1.26E+02	38.26			1.26E+02	3.83E+01
	27	1104.07	1.92E+01	19.91			1.92E+01	1.99E+01
	28	1120.17	6.44E+01	45.66			6.44E+01	4.57E+01
	29	1236.76	5.40E+01	35.92			5.40E+01	3.59E+01
M	30	1375.59	8.32E+00	7.73			8.32E+00	7.73E+00
m	31	1378.62	1.62E+01	13.23			1.62E+01	1.32E+01
	32	1460.52	5.96E+02	52.64			5.96E+02	5.26E+01
	33	1507.65	1.55E+01	10.02			1.55E+01	1.00E+01
	34	1553.63	6.00E+00	7.35			6.00E+00	7.35E+00
M	35	1581.79	1.53E+01	8.96			1.53E+01	8.96E+00
m	36	1592.26	2.25E+01	14.08			2.25E+01	1.41E+01
	37	1677.09	7.00E+00	6.95			7.00E+00	6.95E+00
	38	1729.40	1.40E+01	7.48			1.40E+01	7.48E+00
	39	1764.43	4.20E+01	15.43			4.20E+01	1.54E+01
	40	1782.75	7.50E+00	10.61			7.50E+00	1.06E+01
	41	1798.63	7.22E+00	6.95			7.22E+00	6.95E+00
	42	2017.94	4.86E+00	6.63			4.86E+00	6.63E+00
	43	2103.37	1.03E+01	8.75			1.03E+01	8.75E+00
	44	2117.71	6.78E+00	7.21			6.78E+00	7.21E+00
	45	2203.72	1.35E+01	10.61			1.35E+01	1.06E+01
	46	2350.70	6.50E+00	6.65			6.50E+00	6.65E+00
	47	2433.82	1.15E+01	9.00			1.15E+01	9.00E+00
	48	2614.26	6.10E+01	15.62			6.10E+01	1.56E+01
	49	2840.63	5.00E+00	4.47			5.00E+00	4.47E+00

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

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 4:12:45PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	22.85	6.12E+01	61.46	1.03E+01	1.28E+01	5.09E+01	6.28E+01
	2	46.77	1.39E+02	96.97	4.84E+01	1.23E+01	9.06E+01	9.77E+01
	3	76.82	1.06E+03	148.94			1.06E+03	1.49E+02
	4	87.47	9.70E+01	101.36			9.70E+01	1.01E+02
	5	93.25	2.03E+02	115.24	6.90E+01	7.61E+00	1.34E+02	1.15E+02
	6	163.68	6.28E+01	68.69			6.28E+01	6.87E+01
	7	186.48	2.46E+02	86.02	2.99E+01	5.81E+00	2.16E+02	8.62E+01
M	8	239.00	6.96E+02	75.49	9.49E+00	5.63E+00	6.87E+02	7.57E+01
m	9	241.95	2.13E+02	76.28			2.13E+02	7.63E+01
M	10	295.70	2.96E+02	52.52			2.96E+02	5.25E+01
m	11	299.86	5.54E+01	45.50			5.54E+01	4.55E+01
	12	328.58	4.36E+01	50.16			4.36E+01	5.02E+01
M	13	338.70	1.68E+02	51.58	4.73E+00	4.47E+00	1.64E+02	5.18E+01
m	14	342.96	3.20E+01	50.16			3.20E+01	5.02E+01
	15	352.23	4.95E+02	73.50			4.95E+02	7.35E+01
	16	463.87	3.28E+01	25.77			3.28E+01	2.58E+01
	17	510.75	1.55E+02	54.99			1.55E+02	5.50E+01
	18	583.35	1.98E+02	57.25			1.98E+02	5.72E+01
	19	609.18	2.97E+02	58.65	4.09E+00	3.07E+00	2.93E+02	5.87E+01
M	20	762.43	1.82E+01	13.92			1.82E+01	1.39E+01
m	21	768.18	3.80E+01	27.71			3.80E+01	2.77E+01
	22	784.86	2.47E+01	20.74			2.47E+01	2.07E+01
	23	861.09	5.12E+01	27.87			5.12E+01	2.79E+01
	24	911.26	1.21E+02	41.52			1.21E+02	4.15E+01
	25	935.12	3.46E+01	29.48			3.46E+01	2.95E+01
	26	968.08	1.26E+02	38.26			1.26E+02	3.83E+01
	27	1104.07	1.92E+01	19.91			1.92E+01	1.99E+01
	28	1120.17	6.44E+01	45.66			6.44E+01	4.57E+01
	29	1236.76	5.40E+01	35.92			5.40E+01	3.59E+01
M	30	1375.59	8.32E+00	7.73			8.32E+00	7.73E+00
m	31	1378.62	1.62E+01	13.23			1.62E+01	1.32E+01
	32	1460.52	5.96E+02	52.64			5.96E+02	5.26E+01
	33	1507.65	1.55E+01	10.02			1.55E+01	1.00E+01
	34	1553.63	6.00E+00	7.35			6.00E+00	7.35E+00
M	35	1581.79	1.53E+01	8.96			1.53E+01	8.96E+00
m	36	1592.26	2.25E+01	14.08			2.25E+01	1.41E+01
	37	1677.09	7.00E+00	6.95			7.00E+00	6.95E+00
	38	1729.40	1.40E+01	7.48			1.40E+01	7.48E+00
	39	1764.43	4.20E+01	15.43			4.20E+01	1.54E+01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
40	1782.75	7.50E+00	10.61			7.50E+00	1.06E+01
41	1798.63	7.22E+00	6.95			7.22E+00	6.95E+00
42	2017.94	4.86E+00	6.63			4.86E+00	6.63E+00
43	2103.37	1.03E+01	8.75			1.03E+01	8.75E+00
44	2117.71	6.78E+00	7.21			6.78E+00	7.21E+00
45	2203.72	1.35E+01	10.61			1.35E+01	1.06E+01
46	2350.70	6.50E+00	6.65			6.50E+00	6.65E+00
47	2433.82	1.15E+01	9.00			1.15E+01	9.00E+00
48	2614.26	6.10E+01	15.62			6.10E+01	1.56E+01
49	2840.63	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	0.987	1460.81	*	10.67	1.85E+01	2.28E+00
CD-109	0.950	88.03	*	3.72	1.21E+00	1.27E+00
SN-126	0.998	87.57	*	37.00	1.06E-01	1.11E-01
HF-175	0.961	343.40	*	84.00	8.90E-02	1.40E-01
TL-208	0.979	583.14	*	30.22	9.80E-01	2.99E-01
		860.37	*	4.48	2.42E+00	1.33E+00
		2614.66	*	35.85	8.33E-01	2.28E-01
PB-210	0.989	46.50	*	4.25	1.35E+00	1.47E+00
PB-212	0.979	238.63	*	44.60	1.05E+00	1.45E-01
		300.09	*	3.41	1.34E+00	1.11E+00
BI-214	0.995	609.31	*	46.30	9.85E-01	2.18E-01
		1120.29	*	15.10	1.14E+00	8.11E-01
		1764.49	*	15.80	1.02E+00	3.82E-01
		2204.22	*	4.98	1.21E+00	9.53E-01
PB-214	0.977	295.21	*	19.19	1.26E+00	2.47E-01
		351.92	*	37.19	1.26E+00	2.19E-01
RA-224	0.860	240.98	*	3.95	3.71E+00	1.36E+00
RA-226	0.989	186.21	*	3.28	3.69E+00	6.92E+00
AC-228	0.573	338.32	*	11.40	1.32E+00	4.33E-01
		911.07	*	27.70	9.75E-01	3.42E-01
		969.11		16.60		

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
NP-237	0.862	86.50	*	12.60	3.11E-01	3.26E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 4:12:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	22.85	1.41369E-02	61.68		
	3	76.82	2.94555E-01	7.02		
	5	93.25	3.72513E-02	43.06	Sum	
	6	163.68	1.74502E-02	54.67	Tol.	CS-136 U-235
	12	328.58	1.21038E-02	57.56	Sum	
	16	463.87	9.10104E-03	39.32	Tol.	SB-125
	17	510.75	4.31917E-02	17.68		
M	20	762.43	5.05552E-03	38.24		
m	21	768.18	1.05531E-02	36.47		
	22	784.86	6.86303E-03	41.96		
	25	935.12	9.61563E-03	42.58	Sum	
	26	968.08	3.50000E-02	15.18		
	27	1104.07	5.33097E-03	51.86		
	29	1236.76	1.50066E-02	33.25		
M	30	1375.59	2.31029E-03	46.47		
m	31	1378.62	4.50598E-03	40.78		
	33	1507.65	4.31287E-03	32.28	Sum	
	34	1553.63	1.66667E-03	61.24		
M	35	1581.79	4.24866E-03	29.28		
m	36	1592.26	6.23865E-03	31.35	D-Esc	
	37	1677.09	1.94444E-03	49.62	Tol.	I-135
	38	1729.40	3.88889E-03	26.73	Sum	
	40	1782.75	2.08333E-03	70.71		
	41	1798.63	2.00617E-03	48.09	Sum	
	42	2017.94	1.34921E-03	68.28		
	43	2103.37	2.86325E-03	42.43	S-Esc	
	44	2117.71	1.88272E-03	53.20		

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
46	2350.70	1.80556E-03	51.17		
47	2433.82	3.20437E-03	39.01		
49	2840.63	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	1.85E+01	2.28E+00
CD-109	0.95	88.03	*	3.72	1.21E+00	1.27E+00
SN-126	0.99	87.57	*	37.00	1.06E-01	1.11E-01
HF-175	0.96	343.40	*	84.00	8.90E-02	1.40E-01
TL-208	0.97	583.14	*	30.22	9.80E-01	2.99E-01
		860.37	*	4.48	2.42E+00	1.33E+00
		2614.66	*	35.85	8.33E-01	2.28E-01
PB-210	0.98	46.50	*	4.25	1.35E+00	1.47E+00
PB-212	0.97	238.63	*	44.60	1.05E+00	1.45E-01
		300.09	*	3.41	1.34E+00	1.11E+00
BI-214	0.99	609.31	*	46.30	9.85E-01	2.18E-01
		1120.29	*	15.10	1.14E+00	8.11E-01
		1764.49	*	15.80	1.02E+00	3.82E-01
		2204.22	*	4.98	1.21E+00	9.53E-01
PB-214	0.97	295.21	*	19.19	1.26E+00	2.47E-01
		351.92	*	37.19	1.26E+00	2.19E-01
RA-224	0.86	240.98	*	3.95	3.71E+00	1.36E+00
RA-226	0.98	186.21	*	3.28	3.69E+00	6.92E+00
AC-228	0.57	338.32	*	11.40	1.32E+00	4.33E-01
		911.07	*	27.70	9.75E-01	3.42E-01
		969.11		16.60		
NP-237	0.86	86.50	*	12.60	3.11E-01	3.26E-01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

* = 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	0.987	1.85E+01	2.28E+00	
?	CD-109	0.950	1.21E+00	1.27E+00	
?	SN-126	0.998	1.06E-01	1.11E-01	
	HF-175	0.961	8.90E-02	1.40E-01	
	TL-208	0.979	9.15E-01	1.79E-01	
	PB-210	0.989	1.35E+00	1.47E+00	
	PB-212	0.979	1.05E+00	1.43E-01	
	BI-214	0.995	1.01E+00	1.81E-01	
	PB-214	0.977	1.26E+00	1.64E-01	
	RA-224	0.860	3.71E+00	1.36E+00	
	RA-226	0.989	3.69E+00	6.92E+00	
	AC-228	0.573	1.11E+00	2.69E-01	
?	NP-237	0.862	3.11E-01	3.26E-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 1707078-09

HTC-A01-S003-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 4:12:45PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	22.85	1.41369E-02	61.68		
	3	76.82	2.94555E-01	7.02		
	5	93.25	3.72513E-02	43.06	Sum	
	6	163.68	1.74502E-02	54.67	Tol.	CS-136
						U-235
	12	328.58	1.21038E-02	57.56	Sum	
	16	463.87	9.10104E-03	39.32	Tol.	SB-125
	17	510.75	4.31917E-02	17.68		
M	20	762.43	5.05552E-03	38.24		
m	21	768.18	1.05531E-02	36.47		
	22	784.86	6.86303E-03	41.96		
	25	935.12	9.61563E-03	42.58	Sum	
	26	968.08	3.50000E-02	15.18		
	27	1104.07	5.33097E-03	51.86		
	29	1236.76	1.50066E-02	33.25		
M	30	1375.59	2.31029E-03	46.47		
m	31	1378.62	4.50598E-03	40.78		
	33	1507.65	4.31287E-03	32.28	Sum	
	34	1553.63	1.66667E-03	61.24		
M	35	1581.79	4.24866E-03	29.28		
m	36	1592.26	6.23865E-03	31.35	D-Esc	
	37	1677.09	1.94444E-03	49.62	Tol.	I-135
	38	1729.40	3.88889E-03	26.73	Sum	
	40	1782.75	2.08333E-03	70.71		
	41	1798.63	2.00617E-03	48.09	Sum	
	42	2017.94	1.34921E-03	68.28		
	43	2103.37	2.86325E-03	42.43	S-Esc	
	44	2117.71	1.88272E-03	53.20		
	46	2350.70	1.80556E-03	51.17		
	47	2433.82	3.20437E-03	39.01		
	49	2840.63	1.38889E-03	44.72		

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-3.89E-01	2.03E+00	2.03E+00
+	NA-22	1274.54		99.94	-1.80E-04	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	9.11E-03	6.51E-02	6.51E-02
+	K-40	1460.81	*	10.67	1.85E+01	1.09E+00	1.09E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-6.04E-02	5.90E-02	5.90E-02
		78.34		96.00	1.98E-01		7.68E-02
+	SC-46	889.25		99.98	-3.69E-02	1.58E-01	1.58E-01
		1120.51		99.99	3.91E-01		3.07E-01
+	V-48	983.52		99.98	2.71E+00	4.53E+00	4.53E+00
		1312.10		97.50	-1.83E+00		4.55E+00
+	CR-51	320.08		9.83	1.47E+00	6.19E+00	6.19E+00
+	MN-54	834.83		99.97	5.95E-03	9.75E-02	9.75E-02
+	CO-56	846.75		99.96	1.31E-01	1.87E-01	1.87E-01
		1037.75		14.03	3.59E-01		1.48E+00
		1238.25		67.00	3.26E-01		4.67E-01
		1771.40		15.51	1.41E-02		1.02E+00
		2598.48		16.90	2.36E-01		8.60E-01
+	CO-57	122.06		85.51	1.60E-02	6.23E-02	6.23E-02
		136.48		10.60	-1.55E-01		5.26E-01
+	CO-58	810.76		99.40	-5.21E-02	1.86E-01	1.86E-01
+	FE-59	1099.22		56.50	1.06E-01	6.27E-01	6.27E-01
		1291.56		43.20	-1.92E-02		9.16E-01
+	CO-60	1173.22		100.00	2.55E-02	7.80E-02	1.05E-01
		1332.49		100.00	5.35E-03		7.80E-02
+	ZN-65	1115.52		50.75	-3.06E-01	2.60E-01	2.60E-01
+	GA-67	93.31		35.70	1.17E+08	6.32E+07	6.32E+07
		208.95		2.24	7.10E+08		1.08E+09
		300.22		16.00	-3.06E+08		1.77E+08
+	SE-75	121.11		16.70	3.01E-02	1.28E-01	4.26E-01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	2.79E-02	1.28E-01	1.28E-01
		264.65		59.80	-8.68E-02		1.57E-01
		279.53		25.20	-1.42E-01		3.92E-01
		400.65		11.40	3.79E-01		9.88E-01
+	RB-82	776.52		13.00	3.30E+00	7.78E+00	7.78E+00
+	RB-83	520.41		46.00	1.10E-01	2.99E-01	2.99E-01
		529.64		30.30	1.54E-01		4.78E-01
		552.65		16.40	2.02E-01		8.62E-01
+	KR-85	513.99		0.43	2.27E+01	2.17E+01	2.17E+01
+	SR-85	513.99		99.27	2.65E-01	2.53E-01	2.53E-01
+	Y-88	898.02		93.40	-1.63E-02	1.21E-01	1.57E-01
		1836.01		99.38	-8.47E-03		1.21E-01
+	MO-93	263.06		56.72	1.66E-02	6.68E-02	1.01E-01
		684.67		99.68	2.64E-02		7.34E-02
		1477.11		99.08	2.90E-03		6.68E-02
+	NB-93M	16.57		9.43	2.11E+01	6.24E+01	6.24E+01
+	NB-94	702.63		100.00	-9.47E-03	7.56E-02	7.56E-02
		871.10		100.00	1.50E-02		8.10E-02
+	NB-95	765.79		99.81	3.95E-01	5.93E-01	5.93E-01
+	NB-95M	235.69		25.00	6.15E+06	2.13E+07	2.13E+07
+	ZR-95	724.18		43.70	-1.06E-01	3.77E-01	5.35E-01
		756.72		55.30	-1.50E-01		3.77E-01
+	MO-99	181.06		6.20	2.51E+09	8.79E+09	1.20E+10
		739.58		12.80	-4.44E+09		8.79E+09
		778.00		4.50	2.12E+09		2.70E+10
+	RU-103	497.08		89.00	2.49E-01	3.86E-01	3.86E-01
+	RU-106	621.84		9.80	-1.79E-01	8.34E-01	8.34E-01
+	AG-108M	433.93		89.90	-3.40E-02	6.98E-02	6.98E-02
		614.37		90.40	1.03E-02		9.21E-02
		722.95		90.50	-8.94E-02		8.79E-02
+	CD-109	88.03	*	3.72	1.21E+00	2.07E+00	2.07E+00
+	AG-110M	657.75		93.14	-1.23E-01	9.46E-02	9.46E-02
		677.61		10.53	-3.96E-02		9.00E-01
		706.67		16.46	-1.84E-01		5.75E-01
		763.93		21.98	-5.63E-01		4.68E-01
		884.67		71.63	-4.21E-03		1.37E-01
		1384.27		23.94	1.54E-01		4.12E-01
+	CD-113M	263.70		0.02	-1.12E+01	2.47E+02	2.47E+02
+	SN-113	255.12		1.93	-2.17E+00	1.57E-01	4.98E+00
		391.69		64.90	2.65E-03		1.57E-01
+	TE123M	159.00		84.10	2.50E-02	9.22E-02	9.22E-02
+	SB-124	602.71		97.87	1.81E-02	2.12E-01	2.12E-01
		645.85		7.26	7.41E-01		2.98E+00
		722.78		11.10	-2.13E+00		2.09E+00
		1691.02		49.00	6.64E-02		4.17E-01
+	I-125	35.49		6.49	6.11E-01	5.11E+00	5.11E+00
+	SB-125	176.33		6.89	-1.24E-01	2.29E-01	6.93E-01
		427.89		29.33	-2.12E-02		2.29E-01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	3.03E-01	2.29E-01	6.80E-01
		600.56		17.80	6.94E-02		4.15E-01
		635.90		11.32	-2.01E-01		6.34E-01
+	SB-126	414.70		83.30	-1.04E+01	1.19E+01	1.19E+01
		666.33		99.60	-8.20E+00		1.35E+01
		695.00		99.60	2.27E+00		1.36E+01
		720.50		53.80	-9.80E+00		2.57E+01
+	SN-126	87.57	*	37.00	1.06E-01	1.81E-01	1.81E-01
+	SB-127	473.00		25.00	3.30E+05	3.95E+06	4.91E+06
		685.20		35.70	1.42E+06		3.95E+06
		783.80		14.70	1.73E+06		1.01E+07
+	I-129	29.78		57.00	1.39E-01	3.54E-01	3.54E-01
		33.60		13.20	-3.05E-01		9.91E-01
		39.58		7.52	2.26E-01		1.17E+00
+	I-131	284.30		6.05	-2.28E+02	2.28E+02	2.88E+03
		364.48		81.20	6.63E+01		2.28E+02
		636.97		7.26	2.43E+02		2.92E+03
		722.89		1.80	-1.39E+04		1.37E+04
+	TE-132	49.72		13.10	-2.31E+08	2.77E+07	2.02E+08
		228.16		88.00	-1.65E+06		2.77E+07
+	BA-133	81.00		33.00	-7.59E-03	1.53E-01	1.75E-01
		302.84		17.80	2.24E-01		3.60E-01
		356.01		60.00	6.78E-03		1.53E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.47E+03	3.39E+04	3.39E+04
+	CS-134	563.23		8.38	1.63E-01	9.12E-02	8.65E-01
		569.32		15.43	5.14E-02		4.50E-01
		604.70		97.60	-5.49E-01		9.12E-02
		795.84		85.40	5.78E-02		1.09E-01
		801.93		8.73	-2.45E-01		9.70E-01
+	CS-135	268.24		16.00	-8.80E-02	3.63E-01	3.63E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-4.08E+00	9.84E+00	8.04E+01
		163.89		4.61	1.04E+02		1.37E+02
		176.55		13.56	-8.03E+00		4.49E+01
		273.65		12.66	1.25E+01		6.81E+01
		340.57		48.50	4.21E+01		2.24E+01
		818.50		99.70	-3.71E+00		9.84E+00
		1048.07		79.60	-1.15E+00		1.36E+01
		1235.34		19.70	4.18E+01		9.29E+01
+	CS-137	661.65		85.12	8.55E-03	8.88E-02	8.88E-02
+	LA-138	788.74		34.00	-3.96E-02	1.19E-01	2.22E-01
		1435.80		66.00	1.74E-02		1.19E-01
+	CE-139	165.85		80.35	-2.29E-02	8.82E-02	8.82E-02
+	BA-140	162.64		6.70	5.19E+01	4.29E+01	1.08E+02
		304.84		4.50	-1.73E+02		2.00E+02
		423.70		3.20	-1.23E+02		3.05E+02

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BA-140	437.55	2.00	-1.33E+01	4.29E+01	4.84E+02
		537.32	25.00	-6.98E+00		4.29E+01
+	LA-140	328.77	20.50	3.67E+01	1.57E+01	4.81E+01
		487.03	45.50	-8.35E+00		2.06E+01
		815.85	23.50	5.13E+00		4.88E+01
		1596.49	95.49	2.91E-01		1.57E+01
+	CE-141	145.44	48.40	1.64E-01	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	-1.42E-01	5.07E-01	5.07E-01
+	PM-144	476.78	42.00	-5.68E-02	8.52E-02	1.78E-01
		618.01	98.60	-1.16E-02		8.52E-02
		696.49	99.49	2.81E-02		9.34E-02
+	PM-145	36.85	21.70	-5.22E-02	2.54E-01	4.75E-01
		37.36	39.70	1.39E-01		2.54E-01
		42.30	15.10	7.97E-02		5.03E-01
		72.40	2.31	3.24E-01		2.71E+00
+	PM-146	453.90	39.94	3.74E-02	1.62E-01	1.62E-01
		735.90	14.01	1.87E-01		5.88E-01
		747.13	13.10	1.20E-01		5.84E-01
+	ND-147	91.11	28.90	-6.35E+01	7.10E+01	7.10E+01
		531.02	13.10	7.95E+01		1.94E+02
+	PM-149	285.90	3.10	-4.06E+11	9.00E+12	9.00E+12
+	EU-152	121.78	20.50	5.32E-02	2.07E-01	2.07E-01
		244.69	5.40	-1.69E-02		1.33E+00
		344.27	19.13	-5.83E-01		3.26E-01
		778.89	9.20	3.59E-02		8.08E-01
		964.01	10.40	-2.14E+00		9.23E-01
		1085.78	7.22	-2.67E-01		1.27E+00
		1112.02	9.60	3.16E-01		9.85E-01
		1407.95	14.94	3.46E-01		6.15E-01
+	GD-153	97.43	31.30	5.13E-02	1.77E-01	1.77E-01
		103.18	22.20	-1.54E-01		2.44E-01
+	EU-154	123.07	40.50	2.27E-02	1.06E-01	1.06E-01
		723.30	19.70	-4.18E-01		4.12E-01
		873.19	11.50	2.48E-01		7.43E-01
		996.32	10.30	3.14E-01		8.57E-01
		1004.76	17.90	-8.23E-02		4.64E-01
		1274.45	35.50	-4.84E-04		2.86E-01
+	EU-155	86.50	30.90	1.46E-01	1.95E-01	1.95E-01
		105.30	20.70	-6.73E-02		2.14E-01
+	EU-156	811.77	10.40	-9.16E+00	4.99E+01	4.99E+01
		1153.47	7.20	1.69E+01		1.09E+02
		1230.71	8.90	9.30E+00		9.18E+01
+	HO-166M	184.41	72.60	8.09E-02	7.92E-02	7.92E-02
		280.45	29.60	-9.00E-02		1.92E-01
		410.94	11.10	2.12E-01		5.58E-01
		711.69	54.10	-1.87E-02		1.36E-01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-2.19E+01	4.50E+01	4.50E+01
+	HF-172	67.35		5.31	-1.18E+00	4.03E-01	1.15E+00
		125.81		11.30	-3.65E-01		4.03E-01
+	LU-172	181.53		20.60	9.51E+02	2.08E+03	3.52E+03
		900.72		29.81	-3.48E+02		4.33E+03
		1093.66		62.50	-2.71E+02		2.08E+03
+	LU-173	100.72		5.24	5.54E-01	3.37E-01	9.36E-01
		272.11		21.20	1.72E-01		3.37E-01
+	HF-175	343.40	*	84.00	8.90E-02	2.98E-01	2.98E-01
+	LU-176	88.34		13.30	3.25E-01	5.54E-02	4.46E-01
		201.83		86.00	2.74E-03		5.54E-02
		306.78		94.00	6.17E-03		6.16E-02
+	HF-181	133.02		41.70	-3.05E-01	3.43E-01	4.77E-01
		345.85		17.20	-2.53E+00		1.60E+00
		482.03		82.80	-3.63E-02		3.43E-01
+	TA-182	67.75		41.20	-2.43E-01	2.37E-01	2.37E-01
		1121.30		34.90	8.78E-01		7.09E-01
		1189.05		16.23	8.72E-01		1.26E+00
		1221.41		26.98	2.86E-01		7.01E-01
		1231.02		11.44	1.81E-01		1.78E+00
+	IR-192	308.46		29.68	-2.49E-02	3.02E-01	4.70E-01
		468.07		48.10	-7.81E-02		3.02E-01
+	HG-203	279.19		77.30	1.07E-01	3.07E-01	3.07E-01
+	TL-204	374.74		94.11	2.32E-02	6.70E-02	6.70E-02
		899.15		99.16	-1.09E-02		8.51E-02
		911.74		91.10	3.10E-01		1.63E-01
+	BI-207	569.67		97.72	1.36E-02	6.56E-02	6.56E-02
		1063.62		74.90	-5.64E-03		1.22E-01
+	TL-208	583.14	*	30.22	9.80E-01	3.70E-02	4.20E-01
		860.37	*	4.48	2.42E+00		1.99E+00
		2614.66	*	35.85	8.33E-01		3.70E-02
+	BI-210M	262.00		45.00	4.35E-02	1.28E-01	1.28E-01
		300.00		23.00	-5.23E-01		3.02E-01
+	PB-210	46.50	*	4.25	1.35E+00	2.40E+00	2.40E+00
+	PB-211	404.84		2.90	-1.17E-01	2.24E+00	2.24E+00
		831.96		2.90	-1.17E+00		2.59E+00
+	BI-212	727.17		11.80	6.18E-01	7.75E-01	7.75E-01
		1620.62		2.75	1.08E+00		3.00E+00
+	PB-212	238.63	*	44.60	1.05E+00	2.30E-01	2.30E-01
		300.09	*	3.41	1.34E+00		5.08E+00
+	BI-214	609.31	*	46.30	9.85E-01	2.73E-01	2.73E-01
		1120.29	*	15.10	1.14E+00		1.29E+00
		1764.49	*	15.80	1.02E+00		3.99E-01
		2204.22	*	4.98	1.21E+00		1.37E+00
+	PB-214	295.21	*	19.19	1.26E+00	2.53E-01	8.92E-01
		351.92	*	37.19	1.26E+00		2.53E-01
+	RN-219	401.80		6.50	8.28E-02	1.00E+00	1.00E+00
+	RA-223	323.87		3.88	-1.09E-01	1.47E+00	1.47E+00

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	3.71E+00	2.61E+00	2.61E+00
+	RA-225	40.00		31.00	4.22E+00	2.18E+01	2.18E+01
+	RA-226	186.21	*	3.28	3.69E+00	2.32E+00	2.32E+00
+	TH-227	50.10		8.40	-8.64E-01	7.54E-01	7.54E-01
		236.00		11.50	2.24E-01		7.75E-01
		256.20		6.30	-8.96E-02		8.89E-01
+	AC-228	338.32	*	11.40	1.32E+00	4.87E-01	8.66E-01
		911.07	*	27.70	9.75E-01		4.87E-01
		969.11		16.60	1.28E+00		8.34E-01
+	TH-230	48.44		16.90	5.45E-02	4.09E-01	4.09E-01
		62.85		4.60	7.75E-01		1.35E+00
		67.67		0.37	-1.54E+01		1.50E+01
+	PA-231	283.67		1.60	-1.20E+00	2.74E+00	3.47E+00
		302.67		2.30	1.70E+00		2.74E+00
+	TH-231	25.64		14.70	5.93E-01	8.51E-01	2.48E+00
		84.21		6.40	-1.01E-02		8.51E-01
+	PA-233	311.98		38.60	2.54E-01	1.66E+00	1.66E+00
+	PA-234	131.20		20.40	7.80E-02	2.20E-01	2.20E-01
		733.99		8.80	6.72E-02		8.93E-01
		946.00		12.00	1.46E-01		7.20E-01
+	PA-234M	1001.03		0.92	3.81E+00	9.61E+00	9.61E+00
+	TH-234	63.29		3.80	6.70E-01	1.61E+00	1.61E+00
+	U-235	143.76		10.50	1.20E-01	4.36E-01	4.36E-01
		163.35		4.70	7.48E-01		9.84E-01
		205.31		4.70	-1.21E+00		1.17E+00
+	NP-237	86.50	*	12.60	3.11E-01	5.33E-01	5.33E-01
+	NP-239	106.10		22.70	-4.94E+10	1.57E+11	1.57E+11
		228.18		10.70	-2.74E+10		4.60E+11
		277.60		14.10	2.87E+11		3.58E+11
+	AM-241	59.54		35.90	-3.93E-02	1.63E-01	1.63E-01
+	AM-243	74.67		66.00	-5.43E-02	1.09E-01	1.09E-01
+	CM-243	209.75		3.29	9.93E-01	4.35E-01	1.82E+00
		228.14		10.60	-3.33E-02		5.60E-01
		277.60		14.00	3.49E-01		4.35E-01

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

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.03E+00	2.03E+00	-3.89E-01	9.58E-01
	NA-22	1274.54		99.94	1.07E-01	1.07E-01	-1.80E-04	4.90E-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	6.51E-02	6.51E-02	9.11E-03	2.72E-02
+	K-40	1460.81	*	10.67	1.09E+00	1.09E+00	1.85E+01	5.02E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	5.90E-02	5.90E-02	-6.04E-02	2.89E-02
		78.34		96.00	7.68E-02		1.98E-01	3.78E-02
	SC-46	889.25		99.98	1.58E-01	1.58E-01	-3.69E-02	7.28E-02
		1120.51		99.99	3.07E-01		3.91E-01	1.45E-01
	V-48	983.52		99.98	4.53E+00	4.53E+00	2.71E+00	2.08E+00
		1312.10		97.50	4.55E+00		-1.83E+00	2.03E+00
	CR-51	320.08		9.83	6.19E+00	6.19E+00	1.47E+00	2.97E+00
	MN-54	834.83		99.97	9.75E-02	9.75E-02	5.95E-03	4.53E-02
	CO-56	846.75		99.96	1.87E-01	1.87E-01	1.31E-01	8.70E-02
		1037.75		14.03	1.48E+00		3.59E-01	6.84E-01
		1238.25		67.00	4.67E-01		3.26E-01	2.20E-01
		1771.40		15.51	1.02E+00		1.41E-02	4.34E-01
		2598.48		16.90	8.60E-01		2.36E-01	3.41E-01
	CO-57	122.06		85.51	6.23E-02	6.23E-02	1.60E-02	3.03E-02
		136.48		10.60	5.26E-01		-1.55E-01	2.56E-01
	CO-58	810.76		99.40	1.86E-01	1.86E-01	-5.21E-02	8.61E-02
	FE-59	1099.22		56.50	6.27E-01	6.27E-01	1.06E-01	2.87E-01
		1291.56		43.20	9.16E-01		-1.92E-02	4.18E-01
	CO-60	1173.22		100.00	1.05E-01	7.80E-02	2.55E-02	4.85E-02
		1332.49		100.00	7.80E-02		5.35E-03	3.47E-02
	ZN-65	1115.52		50.75	2.60E-01	2.60E-01	-3.06E-01	1.21E-01
	GA-67	93.31		35.70	6.32E+07	6.32E+07	1.17E+08	3.10E+07
		208.95		2.24	1.08E+09		7.10E+08	5.23E+08
		300.22		16.00	1.77E+08		-3.06E+08	8.55E+07
	SE-75	121.11		16.70	4.26E-01	1.28E-01	3.01E-02	2.07E-01
		136.00		59.20	1.28E-01		2.79E-02	6.24E-02
		264.65		59.80	1.57E-01		-8.68E-02	7.55E-02
		279.53		25.20	3.92E-01		-1.42E-01	1.89E-01
		400.65		11.40	9.88E-01		3.79E-01	4.72E-01
	RB-82	776.52		13.00	7.78E+00	7.78E+00	3.30E+00	3.64E+00
	RB-83	520.41		46.00	2.99E-01	2.99E-01	1.10E-01	1.41E-01
		529.64		30.30	4.78E-01		1.54E-01	2.26E-01
		552.65		16.40	8.62E-01		2.02E-01	4.06E-01
	KR-85	513.99		0.43	2.17E+01	2.17E+01	2.27E+01	1.04E+01
	SR-85	513.99		99.27	2.53E-01	2.53E-01	2.65E-01	1.22E-01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.57E-01	1.21E-01	-1.63E-02	7.24E-02
		1836.01		99.38	1.21E-01		-8.47E-03	5.07E-02
	MO-93	263.06		56.72	1.01E-01	6.68E-02	1.66E-02	4.87E-02
		684.67		99.68	7.34E-02		2.64E-02	3.43E-02
		1477.11		99.08	6.68E-02		2.90E-03	2.87E-02
	NB-93M	16.57		9.43	6.24E+01	6.24E+01	2.11E+01	3.04E+01
	NB-94	702.63		100.00	7.56E-02	7.56E-02	-9.47E-03	3.54E-02
		871.10		100.00	8.10E-02		1.50E-02	3.76E-02
	NB-95	765.79		99.81	5.93E-01	5.93E-01	3.95E-01	2.80E-01
	NB-95M	235.69		25.00	2.13E+07	2.13E+07	6.15E+06	1.04E+07
	ZR-95	724.18		43.70	5.35E-01	3.77E-01	-1.06E-01	2.52E-01
		756.72		55.30	3.77E-01		-1.50E-01	1.76E-01
	MO-99	181.06		6.20	1.20E+10	8.79E+09	2.51E+09	5.82E+09
		739.58		12.80	8.79E+09		-4.44E+09	4.08E+09
		778.00		4.50	2.70E+10		2.12E+09	1.26E+10
	RU-103	497.08		89.00	3.86E-01	3.86E-01	2.49E-01	1.83E-01
	RU-106	621.84		9.80	8.34E-01	8.34E-01	-1.79E-01	3.91E-01
	AG-108M	433.93		89.90	6.98E-02	6.98E-02	-3.40E-02	3.32E-02
		614.37		90.40	9.21E-02		1.03E-02	4.37E-02
		722.95		90.50	8.79E-02		-8.94E-02	4.13E-02
+	CD-109	88.03	*	3.72	2.07E+00	2.07E+00	1.21E+00	1.02E+00
	AG-110M	657.75		93.14	9.46E-02	9.46E-02	-1.23E-01	4.42E-02
		677.61		10.53	9.00E-01		-3.96E-02	4.22E-01
		706.67		16.46	5.75E-01		-1.84E-01	2.68E-01
		763.93		21.98	4.68E-01		-5.63E-01	2.19E-01
		884.67		71.63	1.37E-01		-4.21E-03	6.33E-02
		1384.27		23.94	4.12E-01		1.54E-01	1.83E-01
	CD-113M	263.70		0.02	2.47E+02	2.47E+02	-1.12E+01	1.19E+02
	SN-113	255.12		1.93	4.98E+00	1.57E-01	-2.17E+00	2.40E+00
		391.69		64.90	1.57E-01		2.65E-03	7.49E-02
	TE123M	159.00		84.10	9.22E-02	9.22E-02	2.50E-02	4.47E-02
	SB-124	602.71		97.87	2.12E-01	2.12E-01	1.81E-02	1.00E-01
		645.85		7.26	2.98E+00		7.41E-01	1.40E+00
		722.78		11.10	2.09E+00		-2.13E+00	9.83E-01
		1691.02		49.00	4.17E-01		6.64E-02	1.78E-01
	I-125	35.49		6.49	5.11E+00	5.11E+00	6.11E-01	2.49E+00
	SB-125	176.33		6.89	6.93E-01	2.29E-01	-1.24E-01	3.35E-01
		427.89		29.33	2.29E-01		-2.12E-02	1.09E-01
		463.38		10.35	6.80E-01		3.03E-01	3.23E-01
		600.56		17.80	4.15E-01		6.94E-02	1.95E-01
		635.90		11.32	6.34E-01		-2.01E-01	2.96E-01
	SB-126	414.70		83.30	1.19E+01	1.19E+01	-1.04E+01	5.64E+00
		666.33		99.60	1.35E+01		-8.20E+00	6.35E+00
		695.00		99.60	1.36E+01		2.27E+00	6.38E+00
		720.50		53.80	2.57E+01		-9.80E+00	1.20E+01
+	SN-126	87.57	*	37.00	1.81E-01	1.81E-01	1.06E-01	8.92E-02
	SB-127	473.00		25.00	4.91E+06	3.95E+06	3.30E+05	2.32E+06
		685.20		35.70	3.95E+06		1.42E+06	1.85E+06
		783.80		14.70	1.01E+07		1.73E+06	4.72E+06
	I-129	29.78		57.00	3.54E-01	3.54E-01	1.39E-01	1.72E-01
		33.60		13.20	9.91E-01		-3.05E-01	4.82E-01
		39.58		7.52	1.17E+00		2.26E-01	5.68E-01
	I-131	284.30		6.05	2.88E+03	2.28E+02	-2.28E+02	1.38E+03

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	2.28E+02	2.28E+02	6.63E+01	1.09E+02
	636.97	7.26	2.92E+03		2.43E+02	1.37E+03
	722.89	1.80	1.37E+04		-1.39E+04	6.43E+03
TE-132	49.72	13.10	2.02E+08	2.77E+07	-2.31E+08	9.85E+07
	228.16	88.00	2.77E+07		-1.65E+06	1.34E+07
BA-133	81.00	33.00	1.75E-01	1.53E-01	-7.59E-03	8.61E-02
	302.84	17.80	3.60E-01		2.24E-01	1.74E-01
	356.01	60.00	1.53E-01		6.78E-03	7.44E-02
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	3.39E+04	3.39E+04	-1.47E+03	1.66E+04
CS-134	563.23	8.38	8.65E-01	9.12E-02	1.63E-01	4.07E-01
	569.32	15.43	4.50E-01		5.14E-02	2.11E-01
	604.70	97.60	9.12E-02		-5.49E-01	4.32E-02
	795.84	85.40	1.09E-01		5.78E-02	5.11E-02
	801.93	8.73	9.70E-01		-2.45E-01	4.51E-01
CS-135	268.24	16.00	3.63E-01	3.63E-01	-8.80E-02	1.75E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	8.04E+01	9.84E+00	-4.08E+00	3.90E+01
	163.89	4.61	1.37E+02		1.04E+02	6.63E+01
	176.55	13.56	4.49E+01		-8.03E+00	2.17E+01
	273.65	12.66	6.81E+01		1.25E+01	3.29E+01
	340.57	48.50	2.24E+01		4.21E+01	1.08E+01
	818.50	99.70	9.84E+00		-3.71E+00	4.54E+00
	1048.07	79.60	1.36E+01		-1.15E+00	6.24E+00
	1235.34	19.70	9.29E+01		4.18E+01	4.38E+01
CS-137	661.65	85.12	8.88E-02	8.88E-02	8.55E-03	4.17E-02
LA-138	788.74	34.00	2.22E-01	1.19E-01	-3.96E-02	1.03E-01
	1435.80	66.00	1.19E-01		1.74E-02	5.28E-02
CE-139	165.85	80.35	8.82E-02	8.82E-02	-2.29E-02	4.27E-02
BA-140	162.64	6.70	1.08E+02	4.29E+01	5.19E+01	5.25E+01
	304.84	4.50	2.00E+02		-1.73E+02	9.59E+01
	423.70	3.20	3.05E+02		-1.23E+02	1.45E+02
	437.55	2.00	4.84E+02		-1.33E+01	2.30E+02
	537.32	25.00	4.29E+01		-6.98E+00	2.03E+01
LA-140	328.77	20.50	4.81E+01	1.57E+01	3.67E+01	2.31E+01
	487.03	45.50	2.06E+01		-8.35E+00	9.72E+00
	815.85	23.50	4.88E+01		5.13E+00	2.26E+01
	1596.49	95.49	1.57E+01		2.91E-01	7.04E+00
CE-141	145.44	48.40	6.81E-01	6.81E-01	1.64E-01	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	5.07E-01	5.07E-01	-1.42E-01	2.47E-01
PM-144	476.78	42.00	1.78E-01	8.52E-02	-5.68E-02	8.42E-02
	618.01	98.60	8.52E-02		-1.16E-02	4.00E-02
	696.49	99.49	9.34E-02		2.81E-02	4.39E-02
PM-145	36.85	21.70	4.75E-01	2.54E-01	-5.22E-02	2.31E-01
	37.36	39.70	2.54E-01		1.39E-01	1.24E-01
	42.30	15.10	5.03E-01		7.97E-02	2.44E-01
	72.40	2.31	2.71E+00		3.24E-01	1.33E+00
PM-146	453.90	39.94	1.62E-01	1.62E-01	3.74E-02	7.66E-02

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	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	5.88E-01	1.62E-01	1.87E-01	2.76E-01
		747.13		13.10	5.84E-01		1.20E-01	2.72E-01
	ND-147	91.11		28.90	7.10E+01	7.10E+01	-6.35E+01	3.48E+01
		531.02		13.10	1.94E+02		7.95E+01	9.19E+01
	PM-149	285.90		3.10	9.00E+12	9.00E+12	-4.06E+11	4.33E+12
	EU-152	121.78		20.50	2.07E-01	2.07E-01	5.32E-02	1.01E-01
		244.69		5.40	1.33E+00		-1.69E-02	6.48E-01
		344.27		19.13	3.26E-01		-5.83E-01	1.56E-01
		778.89		9.20	8.08E-01		3.59E-02	3.75E-01
		964.01		10.40	9.23E-01		-2.14E+00	4.31E-01
		1085.78		7.22	1.27E+00		-2.67E-01	5.86E-01
		1112.02		9.60	9.85E-01		3.16E-01	4.55E-01
		1407.95		14.94	6.15E-01		3.46E-01	2.78E-01
	GD-153	97.43		31.30	1.77E-01	1.77E-01	5.13E-02	8.64E-02
		103.18		22.20	2.44E-01		-1.54E-01	1.19E-01
	EU-154	123.07		40.50	1.06E-01	1.06E-01	2.27E-02	5.14E-02
		723.30		19.70	4.12E-01		-4.18E-01	1.93E-01
		873.19		11.50	7.43E-01		2.48E-01	3.46E-01
		996.32		10.30	8.57E-01		3.14E-01	3.96E-01
		1004.76		17.90	4.64E-01		-8.23E-02	2.13E-01
		1274.45		35.50	2.86E-01		-4.84E-04	1.32E-01
	EU-155	86.50		30.90	1.95E-01	1.95E-01	1.46E-01	9.58E-02
		105.30		20.70	2.14E-01		-6.73E-02	1.04E-01
	EU-156	811.77		10.40	4.99E+01	4.99E+01	-9.16E+00	2.31E+01
		1153.47		7.20	1.09E+02		1.69E+01	5.09E+01
		1230.71		8.90	9.18E+01		9.30E+00	4.28E+01
	HO-166M	184.41		72.60	7.92E-02	7.92E-02	8.09E-02	3.85E-02
		280.45		29.60	1.92E-01		-9.00E-02	9.24E-02
		410.94		11.10	5.58E-01		2.12E-01	2.66E-01
		711.69		54.10	1.36E-01		-1.87E-02	6.35E-02
	TM-171	66.72		0.14	4.50E+01	4.50E+01	-2.19E+01	2.20E+01
	HF-172	67.35		5.31	1.15E+00	4.03E-01	-1.18E+00	5.65E-01
		125.81		11.30	4.03E-01		-3.65E-01	1.96E-01
	LU-172	181.53		20.60	3.52E+03	2.08E+03	9.51E+02	1.70E+03
		900.72		29.81	4.33E+03		-3.48E+02	2.01E+03
		1093.66		62.50	2.08E+03		-2.71E+02	9.51E+02
	LU-173	100.72		5.24	9.36E-01	3.37E-01	5.54E-01	4.56E-01
		272.11		21.20	3.37E-01		1.72E-01	1.63E-01
+	HF-175	343.40	*	84.00	2.98E-01	2.98E-01	8.90E-02	1.45E-01
	LU-176	88.34		13.30	4.46E-01	5.54E-02	3.25E-01	2.19E-01
		201.83		86.00	5.54E-02		2.74E-03	2.68E-02
		306.78		94.00	6.16E-02		6.17E-03	2.96E-02
	HF-181	133.02		41.70	4.77E-01	3.43E-01	-3.05E-01	2.32E-01
		345.85		17.20	1.60E+00		-2.53E+00	7.67E-01
		482.03		82.80	3.43E-01		-3.63E-02	1.62E-01
	TA-182	67.75		41.20	2.37E-01	2.37E-01	-2.43E-01	1.16E-01
		1121.30		34.90	7.09E-01		8.78E-01	3.36E-01
		1189.05		16.23	1.26E+00		8.72E-01	5.91E-01
		1221.41		26.98	7.01E-01		2.86E-01	3.25E-01
		1231.02		11.44	1.78E+00		1.81E-01	8.31E-01
	IR-192	308.46		29.68	4.70E-01	3.02E-01	-2.49E-02	2.26E-01
		468.07		48.10	3.02E-01		-7.81E-02	1.43E-01
	HG-203	279.19		77.30	3.07E-01	3.07E-01	1.07E-01	1.48E-01

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	6.70E-02	6.70E-02	2.32E-02	3.20E-02
		899.15		99.16	8.51E-02		-1.09E-02	3.94E-02
		911.74		91.10	1.63E-01		3.10E-01	7.80E-02
	BI-207	569.67		97.72	6.56E-02	6.56E-02	1.36E-02	3.08E-02
		1063.62		74.90	1.22E-01		-5.64E-03	5.62E-02
+	TL-208	583.14	*	30.22	4.20E-01	3.70E-02	9.80E-01	2.03E-01
		860.37	*	4.48	1.99E+00		2.42E+00	9.31E-01
		2614.66	*	35.85	3.70E-02		8.33E-01	0.00E+00
	BI-210M	262.00		45.00	1.28E-01	1.28E-01	4.35E-02	6.19E-02
		300.00		23.00	3.02E-01		-5.23E-01	1.46E-01
+	PB-210	46.50	*	4.25	2.40E+00	2.40E+00	1.35E+00	1.18E+00
	PB-211	404.84		2.90	2.24E+00	2.24E+00	-1.17E-01	1.07E+00
		831.96		2.90	2.59E+00		-1.17E+00	1.20E+00
	BI-212	727.17		11.80	7.75E-01	7.75E-01	6.18E-01	3.67E-01
		1620.62		2.75	3.00E+00		1.08E+00	1.32E+00
+	PB-212	238.63	*	44.60	2.30E-01	2.30E-01	1.05E+00	1.13E-01
		300.09	*	3.41	5.08E+00		1.34E+00	2.51E+00
+	BI-214	609.31	*	46.30	2.73E-01	2.73E-01	9.85E-01	1.32E-01
		1120.29	*	15.10	1.29E+00		1.14E+00	6.20E-01
		1764.49	*	15.80	3.99E-01		1.02E+00	1.67E-01
		2204.22	*	4.98	1.37E+00		1.21E+00	5.62E-01
+	PB-214	295.21	*	19.19	8.92E-01	2.53E-01	1.26E+00	4.40E-01
		351.92	*	37.19	2.53E-01		1.26E+00	1.23E-01
	RN-219	401.80		6.50	1.00E+00	1.00E+00	8.28E-02	4.78E-01
	RA-223	323.87		3.88	1.47E+00	1.47E+00	-1.09E-01	7.04E-01
+	RA-224	240.98	*	3.95	2.61E+00	2.61E+00	3.71E+00	1.28E+00
	RA-225	40.00		31.00	2.18E+01	2.18E+01	4.22E+00	1.06E+01
+	RA-226	186.21	*	3.28	2.32E+00	2.32E+00	3.69E+00	1.14E+00
	TH-227	50.10		8.40	7.54E-01	7.54E-01	-8.64E-01	3.68E-01
		236.00		11.50	7.75E-01		2.24E-01	3.79E-01
		256.20		6.30	8.89E-01		-8.96E-02	4.29E-01
+	AC-228	338.32	*	11.40	8.66E-01	4.87E-01	1.32E+00	4.22E-01
		911.07	*	27.70	4.87E-01		9.75E-01	2.33E-01
		969.11		16.60	8.34E-01		1.28E+00	3.98E-01
	TH-230	48.44		16.90	4.09E-01	4.09E-01	5.45E-02	2.00E-01
		62.85		4.60	1.35E+00		7.75E-01	6.61E-01
		67.67		0.37	1.50E+01		-1.54E+01	7.36E+00
	PA-231	283.67		1.60	3.47E+00	2.74E+00	-1.20E+00	1.67E+00
		302.67		2.30	2.74E+00		1.70E+00	1.32E+00
	TH-231	25.64		14.70	2.48E+00	8.51E-01	5.93E-01	1.21E+00
		84.21		6.40	8.51E-01		-1.01E-02	4.17E-01
	PA-233	311.98		38.60	1.66E+00	1.66E+00	2.54E-01	7.96E-01
	PA-234	131.20		20.40	2.20E-01	2.20E-01	7.80E-02	1.07E-01
		733.99		8.80	8.93E-01		6.72E-02	4.18E-01
		946.00		12.00	7.20E-01		1.46E-01	3.34E-01
	PA-234M	1001.03		0.92	9.61E+00	9.61E+00	3.81E+00	4.45E+00
	TH-234	63.29		3.80	1.61E+00	1.61E+00	6.70E-01	7.88E-01
	U-235	143.76		10.50	4.36E-01	4.36E-01	1.20E-01	2.12E-01
		163.35		4.70	9.84E-01		7.48E-01	4.77E-01
		205.31		4.70	1.17E+00		-1.21E+00	5.69E-01
+	NP-237	86.50	*	12.60	5.33E-01	5.33E-01	3.11E-01	2.62E-01
	NP-239	106.10		22.70	1.57E+11	1.57E+11	-4.94E+10	7.65E+10
		228.18		10.70	4.60E+11		-2.74E+10	2.23E+11

Analysis Report for 1707078-09

HTC-A01-S003-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	3.58E+11	1.57E+11	2.87E+11	1.73E+11
AM-241	59.54	35.90	1.63E-01	1.63E-01	-3.93E-02	7.98E-02
AM-243	74.67	66.00	1.09E-01	1.09E-01	-5.43E-02	5.38E-02
CM-243	209.75	3.29	1.82E+00	4.35E-01	9.93E-01	8.84E-01
	228.14	10.60	5.60E-01		-3.33E-02	2.72E-01
	277.60	14.00	4.35E-01		3.49E-01	2.10E-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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S003-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	4	175	186	132	119	108	98	108
17:	105	93	89	81	82	91	108	103
25:	68	84	76	95	82	95	88	87
33:	85	86	78	83	91	93	83	89
41:	76	107	82	80	89	123	156	142
49:	102	97	94	111	122	120	122	101
57:	109	123	116	160	163	123	167	205
65:	181	146	146	140	161	144	169	179
73:	152	187	290	353	376	497	302	140
81:	135	149	147	154	157	152	195	246
89:	175	165	181	138	224	232	145	96
97:	88	80	108	106	89	100	84	92
105:	79	85	111	101	98	114	100	95
113:	94	75	86	90	84	81	75	71
121:	83	77	93	82	69	81	77	76
129:	89	111	79	73	83	79	85	84
137:	89	71	71	83	94	88	69	83
145:	92	79	64	74	68	74	82	67
153:	75	73	55	82	61	80	87	63
161:	61	70	76	68	83	59	49	60
169:	64	67	63	57	56	60	61	51
177:	69	58	60	70	62	66	52	64
185:	82	133	137	97	65	53	53	49
193:	71	58	61	54	59	51	67	67
201:	51	59	53	47	51	53	59	46
209:	55	82	65	51	53	47	54	49
217:	41	47	44	54	50	55	54	58
225:	53	48	46	47	52	57	50	55
233:	40	44	51	54	65	152	370	284
241:	126	137	110	54	38	40	42	37
249:	41	40	34	34	41	36	29	41
257:	40	29	44	42	41	35	43	32
265:	29	29	39	26	36	39	60	52
273:	31	34	44	38	40	41	44	31
281:	27	30	23	32	39	34	28	31
289:	31	37	31	26	24	38	98	170
297:	88	33	34	54	44	26	28	31
305:	26	38	21	30	30	26	32	25
313:	27	33	26	20	36	27	26	31
321:	26	26	22	29	25	27	22	42
329:	46	28	24	23	21	18	23	27
337:	30	57	89	55	34	30	26	34
345:	21	20	21	26	26	20	69	218
353:	203	70	25	24	21	21	23	12
361:	26	28	22	22	28	17	19	21

369:	19	22	17	29	28	13	17	19

Sample Title: HTC-A01-S003-3036-01

Channel								
377:	23	22	20	16	22	16	24	24
385:	16	34	22	20	25	25	22	14
393:	15	18	11	14	20	22	18	22
401:	22	28	25	23	18	25	19	15
409:	22	23	28	13	11	23	11	13
417:	13	16	14	19	25	14	23	20
425:	17	10	20	19	31	18	15	23
433:	12	23	16	18	18	17	22	11
441:	17	12	22	18	13	16	16	18
449:	15	13	13	15	17	19	18	14
457:	18	10	20	10	17	10	24	27
465:	24	6	15	14	13	9	20	12
473:	24	16	17	8	19	12	18	14
481:	17	16	11	11	12	14	15	11
489:	14	14	20	15	10	16	15	11
497:	14	19	17	17	10	9	15	10
505:	12	14	14	16	22	37	72	49
513:	26	15	16	13	15	17	14	7
521:	19	16	10	12	10	8	10	9
529:	17	19	13	21	14	16	15	16
537:	11	17	12	13	17	11	11	11
545:	10	13	15	14	12	14	10	16
553:	9	17	11	13	13	7	21	15
561:	17	6	12	14	6	16	6	12
569:	9	9	17	8	16	5	12	12
577:	11	11	13	18	15	30	74	91
585:	37	12	15	7	10	12	16	10
593:	13	3	12	7	11	10	12	13
601:	17	8	10	13	12	14	17	42
609:	115	135	40	10	17	12	17	7
617:	14	8	10	16	9	10	12	8
625:	11	11	15	8	9	12	15	12
633:	7	9	9	12	12	11	10	9
641:	12	8	5	14	9	18	5	14
649:	18	6	15	9	13	13	5	11
657:	10	15	9	3	14	26	15	7
665:	8	11	9	12	15	9	12	16
673:	11	6	16	12	6	6	12	7
681:	15	13	12	11	11	8	7	8
689:	5	7	10	9	3	12	11	14
697:	12	11	8	12	15	9	10	10
705:	10	8	14	11	11	4	11	15
713:	10	6	11	9	9	9	12	11
721:	12	11	5	10	11	18	23	24
729:	10	8	9	11	7	13	12	14
737:	8	6	16	6	10	5	6	9
745:	10	9	8	12	7	8	7	12
753:	13	14	9	8	8	12	6	8
761:	6	16	9	8	7	9	15	24
769:	27	8	7	10	12	12	11	7
777:	10	11	11	8	3	7	5	13
785:	11	17	5	7	5	7	9	9
793:	6	8	22	11	11	7	11	8

801:	5	7	10	12	8	11	11	9

Sample Title: HTC-A01-S003-3036-01

Channel								
809:	9	7	7	10	6	6	8	8
817:	7	8	9	3	8	7	11	10
825:	7	5	7	7	5	12	8	5
833:	10	7	6	16	8	7	6	7
841:	8	4	2	8	5	12	10	8
849:	9	10	8	5	5	8	13	7
857:	7	7	10	21	20	7	10	9
865:	2	4	2	10	6	8	7	14
873:	8	4	13	7	8	4	5	9
881:	9	10	5	7	5	6	3	12
889:	3	8	5	7	9	8	3	5
897:	11	8	11	9	5	4	11	9
905:	9	9	6	9	8	26	69	42
913:	14	8	4	8	6	14	8	4
921:	10	8	10	7	3	6	2	10
929:	4	8	4	7	12	14	11	13
937:	7	6	8	4	5	6	5	12
945:	7	10	6	6	10	7	9	9
953:	10	8	8	7	6	11	5	10
961:	6	4	8	13	12	12	11	47
969:	30	27	11	8	3	7	3	9
977:	4	7	3	3	6	6	8	9
985:	4	5	5	4	3	6	4	4
993:	7	6	7	10	6	8	7	4
1001:	9	9	9	7	3	4	8	4
1009:	5	10	5	5	6	12	7	6
1017:	13	7	13	6	9	6	8	14
1025:	6	6	6	2	3	10	7	3
1033:	7	9	9	7	6	7	9	5
1041:	10	4	6	9	6	9	7	1
1049:	6	6	4	3	7	7	3	6
1057:	5	7	3	9	5	9	10	3
1065:	5	9	9	7	10	8	9	4
1073:	10	7	4	4	4	7	10	8
1081:	8	9	8	6	6	8	10	5
1089:	5	7	8	7	4	7	4	7
1097:	3	6	7	7	4	5	16	6
1105:	8	7	1	5	10	8	4	8
1113:	6	5	8	8	12	11	19	27
1121:	29	7	13	10	3	8	7	3
1129:	8	5	5	9	13	12	4	8
1137:	5	8	6	9	10	4	9	8
1145:	11	8	10	13	7	6	10	10
1153:	8	8	17	8	6	9	9	4
1161:	8	2	9	7	2	9	2	8
1169:	4	7	12	9	7	1	9	8
1177:	5	8	9	6	6	6	8	2
1185:	8	11	9	12	13	5	14	6
1193:	5	8	9	7	14	3	9	13
1201:	6	5	6	16	8	6	9	7
1209:	12	8	7	6	9	5	12	3
1217:	8	15	4	8	7	8	8	6
1225:	3	9	11	8	13	10	8	4

1233:	12	10	11	19	14	19	11	10

Sample Title: HTC-A01-S003-3036-01

Channel								
1241:	9	7	7	3	8	6	5	5
1249:	7	5	5	6	6	7	6	3
1257:	7	6	7	2	2	3	1	7
1265:	9	6	10	10	9	3	7	7
1273:	6	2	13	4	5	5	8	6
1281:	12	5	8	4	7	12	2	6
1289:	2	6	5	5	8	5	3	5
1297:	7	5	6	3	5	1	5	5
1305:	4	7	8	3	5	3	2	5
1313:	3	4	2	3	6	1	3	3
1321:	2	3	2	7	2	4	3	6
1329:	2	3	3	3	4	4	3	2
1337:	1	6	3	4	5	5	1	4
1345:	2	7	4	4	2	4	3	3
1353:	2	4	1	2	1	4	4	4
1361:	1	2	2	4	5	4	4	3
1369:	2	2	5	4	4	0	6	5
1377:	4	9	6	4	0	3	3	7
1385:	2	3	3	1	3	3	2	5
1393:	5	4	1	4	2	1	0	5
1401:	4	4	3	2	3	2	4	2
1409:	6	9	4	1	2	4	4	2
1417:	2	2	2	3	1	1	0	2
1425:	3	0	3	1	1	2	1	3
1433:	2	1	4	3	4	2	5	1
1441:	5	3	2	3	0	2	0	1
1449:	2	1	2	4	3	3	4	3
1457:	2	22	106	204	211	55	16	1
1465:	3	1	1	3	0	2	2	2
1473:	2	3	1	1	3	0	0	3
1481:	0	0	2	2	0	3	1	1
1489:	1	3	1	2	0	3	2	5
1497:	3	3	3	0	3	4	0	0
1505:	2	2	4	6	5	0	2	1
1513:	0	1	0	1	1	0	1	1
1521:	1	1	1	2	0	1	1	1
1529:	5	1	1	2	0	3	1	2
1537:	2	0	5	0	2	1	4	1
1545:	2	1	0	1	0	1	0	1
1553:	4	3	1	0	1	0	1	4
1561:	1	1	2	1	1	2	2	1
1569:	3	0	2	2	0	3	0	0
1577:	0	0	0	4	3	3	2	2
1585:	1	1	2	3	2	3	4	10
1593:	1	4	5	3	0	1	2	1
1601:	0	2	0	2	1	1	2	1
1609:	1	2	0	0	1	0	0	2
1617:	3	0	3	4	4	1	1	1
1625:	1	3	1	0	3	4	1	3
1633:	0	3	1	1	2	1	2	1
1641:	1	1	0	2	0	1	1	0
1649:	3	1	2	2	1	0	1	1
1657:	1	0	3	3	1	1	0	3

1665:	1	1	0	0	1	1	2	2

Sample Title: HTC-A01-S003-3036-01

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

2097:	3	1	0	2	2	0	4	4

Sample Title: HTC-A01-S003-3036-01

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

2529:	0	0	0	0	1	3	0	0

Sample Title: HTC-A01-S003-3036-01

Channel								
2537:	2	0	0	1	3	0	0	0
2545:	0	0	1	1	0	0	0	0
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	1	0	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	2	0	0	0	0	0	0	0
2585:	0	0	0	1	0	0	0	1
2593:	0	1	0	0	1	0	1	1
2601:	1	0	0	0	0	0	0	0
2609:	0	0	3	7	15	21	11	3
2617:	1	0	0	0	0	0	0	0
2625:	0	0	0	0	2	1	0	0
2633:	1	0	0	0	0	0	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	0	0	0	0	0	0	0
2657:	0	0	1	1	1	1	0	0
2665:	0	0	0	0	0	0	0	0
2673:	1	0	1	0	0	0	0	0
2681:	0	1	1	1	0	1	0	0
2689:	2	0	0	0	3	1	0	0
2697:	1	0	0	0	1	0	0	0
2705:	0	0	1	0	0	0	0	0
2713:	0	0	0	0	2	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	1	0	0	0	0	0	0	0
2737:	0	0	2	1	0	1	0	0
2745:	0	0	0	0	2	0	0	0
2753:	0	0	0	0	0	0	1	0
2761:	0	1	0	0	0	0	0	0
2769:	0	0	0	2	0	1	0	0
2777:	1	0	0	0	0	0	0	1
2785:	0	0	1	0	0	0	0	0
2793:	0	0	0	0	0	0	1	1
2801:	0	0	0	1	0	0	0	1
2809:	0	0	0	0	1	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	1	0	0	0	0	2	1
2841:	2	0	0	0	0	0	1	1
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	1	0	0	1	0
2873:	0	1	0	0	1	0	0	0
2881:	0	1	1	0	0	0	0	0
2889:	1	1	0	0	0	1	0	0
2897:	0	0	0	1	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	1	0	0	0	0	0	0
2921:	1	0	0	0	0	0	0	0
2929:	0	0	0	0	1	0	0	0
2937:	0	0	1	0	0	1	0	0
2945:	0	0	0	0	0	0	0	0
2953:	1	0	0	0	2	0	1	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-3036-01

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

3393:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S003-3036-01

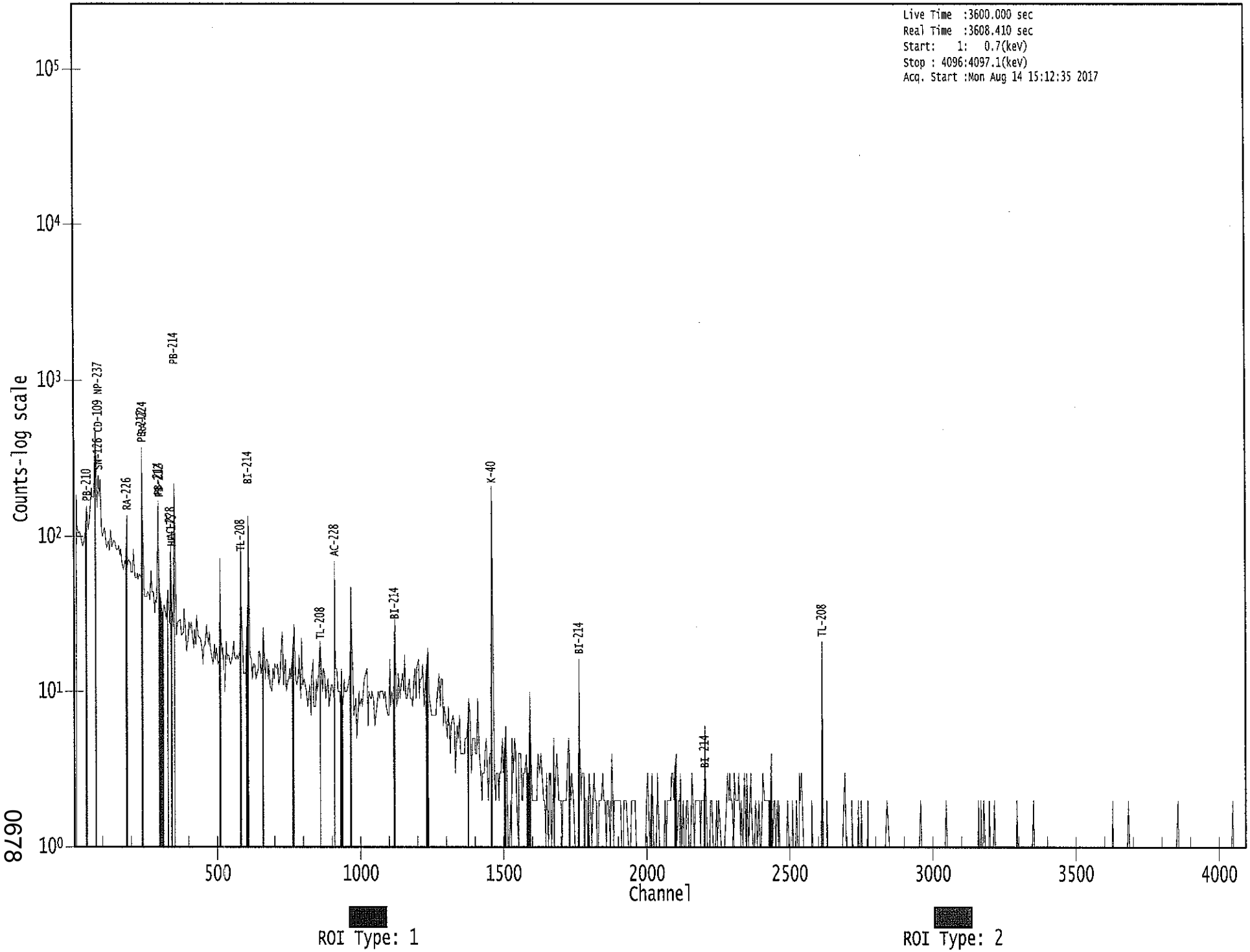
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	1
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	1	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	0	1	0	0	0	0	0
3457:	0	0	1	1	0	0	0	0
3465:	0	1	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-3036-01

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

0000055194.CNF



0678

KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-10
Sample Description	: HTC-A01-S003-3642-01
Sample Type	: SOIL
Sample Size	: 6.843E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:31:15AM
Acquisition Started	: 8/14/2017 3:12:42PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.8 seconds
Dead Time	: 0.05 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55195

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 4:13:11PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.26	45.31	0.0000	0.00
2	63.16	62.21	0.0000	0.00
3	76.16	75.22	0.0000	0.00
4	87.77	86.83	0.0000	0.00
5	92.78	91.85	0.0000	0.00
6	163.48	162.57	0.0000	0.00
7	186.07	185.16	0.0000	0.00
8	210.20	209.30	0.0000	0.00
9	238.72	237.83	0.0000	0.00
10	241.85	240.96	0.0000	0.00
11	270.54	269.66	0.0000	0.00
12	295.82	294.94	0.0000	0.00
13	327.94	327.07	0.0000	0.00
14	338.85	337.99	0.0000	0.00
15	352.18	351.33	0.0000	0.00
16	399.76	398.92	0.0000	0.00
17	463.91	463.09	0.0000	0.00
18	511.85	511.06	0.0000	0.00
19	583.11	582.34	0.0000	0.00
20	609.38	608.62	0.0000	0.00
21	727.11	726.40	0.0000	0.00
22	906.15	905.51	0.0000	0.00
23	911.42	910.79	0.0000	0.00
24	968.47	967.86	0.0000	0.00
25	974.96	974.35	0.0000	0.00
26	1062.40	1061.83	0.0000	0.00
27	1105.20	1104.65	0.0000	0.00
28	1332.79	1332.35	0.0000	0.00
29	1404.63	1404.22	0.0000	0.00
30	1460.56	1460.18	0.0000	0.00
31	1496.51	1496.15	0.0000	0.00
32	1505.74	1505.39	0.0000	0.00
33	1591.79	1591.48	0.0000	0.00
34	1619.90	1619.60	0.0000	0.00
35	1763.92	1763.71	0.0000	0.00
36	2035.07	2035.02	0.0000	0.00
37	2051.56	2051.52	0.0000	0.00
38	2101.83	2101.81	0.0000	0.00
39	2202.68	2202.73	0.0000	0.00
40	2252.28	2252.36	0.0000	0.00
41	2614.05	2614.36	0.0000	0.00

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 4:13:11PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.26	42 -	49	45.31	1.01E+02	87.45	1.21E+03	1.87
	2	63.16	56 -	68	62.21	2.59E+02	157.53	2.81E+03	2.96
	3	76.16	69 -	80	75.22	1.09E+03	163.17	2.78E+03	4.13
M	4	87.77	81 -	101	86.83	2.90E+02	112.08	1.75E+03	2.91
m	5	92.78	81 -	101	91.85	4.09E+02	112.73	1.52E+03	2.92
	6	163.48	159 -	166	162.57	6.00E+01	73.95	8.70E+02	4.02
	7	186.07	181 -	189	185.16	1.70E+02	79.17	8.61E+02	3.13
	8	210.20	206 -	213	209.30	1.04E+02	65.54	6.45E+02	2.15
M	9	238.72	233 -	245	237.83	5.80E+02	74.73	5.71E+02	2.23
m	10	241.85	233 -	245	240.96	1.91E+02	86.37	6.90E+02	2.92
	11	270.54	267 -	274	269.66	7.00E+01	52.42	4.18E+02	2.97
	12	295.82	289 -	301	294.94	2.49E+02	80.08	6.38E+02	2.31
	13	327.94	322 -	330	327.07	5.64E+01	54.21	4.15E+02	1.68
	14	338.85	334 -	342	337.99	1.26E+02	55.30	3.85E+02	2.33
	15	352.18	347 -	356	351.33	3.50E+02	59.09	2.96E+02	2.59
	16	399.76	396 -	401	398.92	2.88E+01	34.18	2.02E+02	2.12
	17	463.91	457 -	470	463.09	6.52E+01	58.85	3.52E+02	8.32
	18	511.85	506 -	517	511.06	1.28E+02	47.62	2.11E+02	2.85
	19	583.11	578 -	587	582.34	1.91E+02	45.35	1.84E+02	2.37
	20	609.38	604 -	615	608.62	2.80E+02	51.54	1.92E+02	2.44
	21	727.11	723 -	730	726.40	2.83E+01	32.43	1.57E+02	1.87
M	22	906.15	904 -	920	905.51	1.72E+01	10.52	1.91E+01	2.94
m	23	911.42	904 -	920	910.79	9.57E+01	31.44	8.15E+01	2.94
M	24	968.47	960 -	977	967.86	5.66E+01	34.63	1.12E+02	3.51
m	25	974.96	960 -	977	974.35	1.81E+01	21.38	5.35E+01	3.59
	26	1062.40	1058 -	1065	1061.83	2.43E+01	20.69	5.33E+01	3.89
	27	1105.20	1102 -	1108	1104.65	1.95E+01	21.38	6.70E+01	4.65
	28	1332.79	1326 -	1340	1332.35	3.98E+01	22.66	3.64E+01	8.10
	29	1404.63	1396 -	1414	1404.22	3.18E+01	27.67	4.85E+01	9.72
	30	1460.56	1455 -	1467	1460.18	4.85E+02	47.72	4.15E+01	2.86
	31	1496.51	1492 -	1501	1496.15	1.20E+01	10.86	1.00E+01	1.23
	32	1505.74	1501 -	1511	1505.39	1.35E+01	13.37	1.70E+01	1.16
	33	1591.79	1587 -	1596	1591.48	2.22E+01	14.83	1.56E+01	1.88
	34	1619.90	1616 -	1622	1619.60	1.23E+01	8.26	3.36E+00	1.91
	35	1763.92	1758 -	1771	1763.71	4.13E+01	17.15	1.55E+01	2.83
	36	2035.07	2031 -	2038	2035.02	8.05E+00	7.48	3.90E+00	3.11
	37	2051.56	2048 -	2054	2051.52	7.28E+00	6.95	3.44E+00	3.41
	38	2101.83	2097 -	2106	2101.81	2.15E+01	11.00	5.08E+00	4.25
	39	2202.68	2197 -	2206	2202.73	1.07E+01	10.68	1.06E+01	2.91
	40	2252.28	2248 -	2255	2252.36	7.22E+00	7.21	3.56E+00	3.53

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2614.05	2610 -	2617	2614.36	6.22E+01	16.49	3.63E+00	2.81

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 4:13:11PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.26	42 -	49	1.01E+02	87.45	1.21E+03	7.00E+01
	2	63.16	56 -	68	2.59E+02	157.53	2.81E+03	1.27E+02
	3	76.16	69 -	80	1.09E+03	163.17	2.78E+03	1.23E+02
M	4	87.77	81 -	101	2.90E+02	112.08	1.75E+03	6.87E+01
m	5	92.78	81 -	101	4.09E+02	112.73	1.52E+03	6.42E+01
	6	163.48	159 -	166	6.00E+01	73.95	8.70E+02	5.94E+01
	7	186.07	181 -	189	1.70E+02	79.17	8.61E+02	6.15E+01
	8	210.20	206 -	213	1.04E+02	65.54	6.45E+02	5.12E+01
M	9	238.72	233 -	245	5.80E+02	74.73	5.71E+02	3.93E+01
m	10	241.85	233 -	245	1.91E+02	86.37	6.90E+02	4.32E+01
	11	270.54	267 -	274	7.00E+01	52.42	4.18E+02	4.08E+01
	12	295.82	289 -	301	2.49E+02	80.08	6.38E+02	6.05E+01
	13	327.94	322 -	330	5.64E+01	54.21	4.15E+02	4.28E+01
	14	338.85	334 -	342	1.26E+02	55.30	3.85E+02	4.15E+01
	15	352.18	347 -	356	3.50E+02	59.09	2.96E+02	3.76E+01
	16	399.76	396 -	401	2.88E+01	34.18	2.02E+02	2.67E+01
	17	463.91	457 -	470	6.52E+01	58.85	3.52E+02	4.65E+01
	18	511.85	506 -	517	1.28E+02	47.62	2.11E+02	3.44E+01
	19	583.11	578 -	587	1.91E+02	45.35	1.84E+02	2.96E+01
	20	609.38	604 -	615	2.80E+02	51.54	1.92E+02	3.22E+01
	21	727.11	723 -	730	2.83E+01	32.43	1.57E+02	2.52E+01
M	22	906.15	904 -	920	1.72E+01	10.52	1.91E+01	7.18E+00
m	23	911.42	904 -	920	9.57E+01	31.44	8.15E+01	1.48E+01
M	24	968.47	960 -	977	5.66E+01	34.63	1.12E+02	1.74E+01
m	25	974.96	960 -	977	1.81E+01	21.38	5.35E+01	1.20E+01
	26	1062.40	1058 -	1065	2.43E+01	20.69	5.33E+01	1.49E+01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
27	1105.20	1102 -	1108	1.95E+01	21.38	6.70E+01	1.60E+01
28	1332.79	1326 -	1340	3.98E+01	22.66	3.64E+01	1.55E+01
29	1404.63	1396 -	1414	3.18E+01	27.67	4.85E+01	2.08E+01
30	1460.56	1455 -	1467	4.85E+02	47.72	4.15E+01	1.51E+01
31	1496.51	1492 -	1501	1.20E+01	10.86	1.00E+01	6.88E+00
32	1505.74	1501 -	1511	1.35E+01	13.37	1.70E+01	9.18E+00
33	1591.79	1587 -	1596	2.22E+01	14.83	1.56E+01	9.42E+00
34	1619.90	1616 -	1622	1.23E+01	8.26	3.36E+00	3.58E+00
35	1763.92	1758 -	1771	4.13E+01	17.15	1.55E+01	9.33E+00
36	2035.07	2031 -	2038	8.05E+00	7.48	3.90E+00	4.01E+00
37	2051.56	2048 -	2054	7.28E+00	6.95	3.44E+00	3.60E+00
38	2101.83	2097 -	2106	2.15E+01	11.00	5.08E+00	4.87E+00
39	2202.68	2197 -	2206	1.07E+01	10.68	1.06E+01	6.94E+00
40	2252.28	2248 -	2255	7.22E+00	7.21	3.56E+00	3.95E+00
41	2614.05	2610 -	2617	6.22E+01	16.49	3.63E+00	3.96E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 4:13:11PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.26	42 -	49	45.31	1.01E+02	87.45	1.21E+03	PB-210
	2	63.16	56 -	68	62.21	2.59E+02	157.53	2.81E+03	TH-234
									TH-230
	3	76.16	69 -	80	75.22	1.09E+03	163.17	2.78E+03	.....
M	4	87.77	81 -	101	86.83	2.90E+02	112.08	1.75E+03	SN-126
									CD-109
									LU-176
m	5	92.78	81 -	101	91.85	4.09E+02	112.73	1.52E+03	GA-67
	6	163.48	159 -	166	162.57	6.00E+01	73.95	8.70E+02	U-235
									CS-136

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									BA-140
	7	186.07	181 -	189	185.16	1.70E+02	79.17	8.61E+02	RA-226
	8	210.20	206 -	213	209.30	1.04E+02	65.54	6.45E+02	CM-243
M	9	238.72	233 -	245	237.83	5.80E+02	74.73	5.71E+02	PB-212
m	10	241.85	233 -	245	240.96	1.91E+02	86.37	6.90E+02	RA-224
	11	270.54	267 -	274	269.66	7.00E+01	52.42	4.18E+02	.....
	12	295.82	289 -	301	294.94	2.49E+02	80.08	6.38E+02	PB-214
	13	327.94	322 -	330	327.07	5.64E+01	54.21	4.15E+02	LA-140
	14	338.85	334 -	342	337.99	1.26E+02	55.30	3.85E+02	AC-228
	15	352.18	347 -	356	351.33	3.50E+02	59.09	2.96E+02	PB-214
	16	399.76	396 -	401	398.92	2.88E+01	34.18	2.02E+02	SE-75
	17	463.91	457 -	470	463.09	6.52E+01	58.85	3.52E+02	SB-125
	18	511.85	506 -	517	511.06	1.28E+02	47.62	2.11E+02	.....
	19	583.11	578 -	587	582.34	1.91E+02	45.35	1.84E+02	TL-208
	20	609.38	604 -	615	608.62	2.80E+02	51.54	1.92E+02	BI-214
	21	727.11	723 -	730	726.40	2.83E+01	32.43	1.57E+02	BI-212
M	22	906.15	904 -	920	905.51	1.72E+01	10.52	1.91E+01	.....
m	23	911.42	904 -	920	910.79	9.57E+01	31.44	8.15E+01	TL-204
									AC-228
M	24	968.47	960 -	977	967.86	5.66E+01	34.63	1.12E+02	AC-228
m	25	974.96	960 -	977	974.35	1.81E+01	21.38	5.35E+01	.....
	26	1062.40	1058 -	1065	1061.83	2.43E+01	20.69	5.33E+01	.....
	27	1105.20	1102 -	1108	1104.65	1.95E+01	21.38	6.70E+01	.....
	28	1332.79	1326 -	1340	1332.35	3.98E+01	22.66	3.64E+01	CO-60
	29	1404.63	1396 -	1414	1404.22	3.18E+01	27.67	4.85E+01	.....
	30	1460.56	1455 -	1467	1460.18	4.85E+02	47.72	4.15E+01	K-40
	31	1496.51	1492 -	1501	1496.15	1.20E+01	10.86	1.00E+01	.....
	32	1505.74	1501 -	1511	1505.39	1.35E+01	13.37	1.70E+01	.....
	33	1591.79	1587 -	1596	1591.48	2.22E+01	14.83	1.56E+01	.....
	34	1619.90	1616 -	1622	1619.60	1.23E+01	8.26	3.36E+00	BI-212
	35	1763.92	1758 -	1771	1763.71	4.13E+01	17.15	1.55E+01	BI-214
	36	2035.07	2031 -	2038	2035.02	8.05E+00	7.48	3.90E+00	.....
	37	2051.56	2048 -	2054	2051.52	7.28E+00	6.95	3.44E+00	.....
	38	2101.83	2097 -	2106	2101.81	2.15E+01	11.00	5.08E+00	.....
	39	2202.68	2197 -	2206	2202.73	1.07E+01	10.68	1.06E+01	.....
	40	2252.28	2248 -	2255	2252.36	7.22E+00	7.21	3.56E+00	.....
	41	2614.05	2610 -	2617	2614.36	6.22E+01	16.49	3.63E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 4:13:11PM

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.26	1.01E+02	87.45	1.63E-02	1.56E-03
	2	63.16	2.59E+02	157.53	2.15E-02	1.64E-03
	3	76.16	1.09E+03	163.17	2.32E-02	1.91E-03
M	4	87.77	2.90E+02	112.08	2.37E-02	2.16E-03
m	5	92.78	4.09E+02	112.73	2.37E-02	2.09E-03
	6	163.48	6.00E+01	73.95	1.87E-02	1.50E-03
	7	186.07	1.70E+02	79.17	1.69E-02	1.40E-03
	8	210.20	1.04E+02	65.54	1.53E-02	1.28E-03
M	9	238.72	5.80E+02	74.73	1.36E-02	1.14E-03
m	10	241.85	1.91E+02	86.37	1.34E-02	1.13E-03
	11	270.54	7.00E+01	52.42	1.20E-02	9.89E-04
	12	295.82	2.49E+02	80.08	1.10E-02	9.12E-04
	13	327.94	5.64E+01	54.21	9.91E-03	8.44E-04
	14	338.85	1.26E+02	55.30	9.58E-03	8.22E-04
	15	352.18	3.50E+02	59.09	9.21E-03	7.94E-04
	16	399.76	2.88E+01	34.18	8.08E-03	7.07E-04
	17	463.91	6.52E+01	58.85	6.93E-03	6.81E-04
	18	511.85	1.28E+02	47.62	6.27E-03	6.61E-04
	19	583.11	1.91E+02	45.35	5.51E-03	6.31E-04
	20	609.38	2.80E+02	51.54	5.27E-03	6.20E-04
	21	727.11	2.83E+01	32.43	4.45E-03	5.17E-04
M	22	906.15	1.72E+01	10.52	3.64E-03	3.00E-04
m	23	911.42	9.57E+01	31.44	3.62E-03	2.99E-04
M	24	968.47	5.66E+01	34.63	3.43E-03	2.85E-04
m	25	974.96	1.81E+01	21.38	3.41E-03	2.84E-04
	26	1062.40	2.43E+01	20.69	3.16E-03	2.63E-04
	27	1105.20	1.95E+01	21.38	3.05E-03	2.53E-04
	28	1332.79	3.98E+01	22.66	2.59E-03	2.27E-04
	29	1404.63	3.18E+01	27.67	2.47E-03	2.16E-04
	30	1460.56	4.85E+02	47.72	2.39E-03	2.08E-04
	31	1496.51	1.20E+01	10.86	2.33E-03	2.02E-04
	32	1505.74	1.35E+01	13.37	2.32E-03	2.01E-04
	33	1591.79	2.22E+01	14.83	2.20E-03	1.88E-04
	34	1619.90	1.23E+01	8.26	2.17E-03	1.84E-04
	35	1763.92	4.13E+01	17.15	2.00E-03	1.62E-04
	36	2035.07	8.05E+00	7.48	1.73E-03	1.51E-04
	37	2051.56	7.28E+00	6.95	1.71E-03	1.51E-04
	38	2101.83	2.15E+01	11.00	1.67E-03	1.51E-04
	39	2202.68	1.07E+01	10.68	1.58E-03	1.51E-04
	40	2252.28	7.22E+00	7.21	1.54E-03	1.51E-04
	41	2614.05	6.22E+01	16.49	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

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 4:13:11PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.26	1.01E+02	87.45	2.81E+01	7.56E+00	7.28E+01	8.78E+01
	2	63.16	2.59E+02	157.53	5.28E+01	8.63E+00	2.06E+02	1.58E+02
	3	76.16	1.09E+03	163.17			1.09E+03	1.63E+02
M	4	87.77	2.90E+02	112.08			2.90E+02	1.12E+02
m	5	92.78	4.09E+02	112.73	6.21E+01	4.71E+00	3.47E+02	1.13E+02
	6	163.48	6.00E+01	73.95			6.00E+01	7.39E+01
	7	186.07	1.70E+02	79.17	2.34E+01	8.57E+00	1.46E+02	7.96E+01
	8	210.20	1.04E+02	65.54			1.04E+02	6.55E+01
M	9	238.72	5.80E+02	74.73	8.90E+00	6.12E+00	5.71E+02	7.50E+01
m	10	241.85	1.91E+02	86.37			1.91E+02	8.64E+01
	11	270.54	7.00E+01	52.42			7.00E+01	5.24E+01
	12	295.82	2.49E+02	80.08			2.49E+02	8.01E+01
	13	327.94	5.64E+01	54.21			5.64E+01	5.42E+01
	14	338.85	1.26E+02	55.30			1.26E+02	5.53E+01
	15	352.18	3.50E+02	59.09			3.50E+02	5.91E+01
	16	399.76	2.88E+01	34.18			2.88E+01	3.42E+01
	17	463.91	6.52E+01	58.85			6.52E+01	5.88E+01
	18	511.85	1.28E+02	47.62	4.43E+01	4.80E+00	8.40E+01	4.79E+01
	19	583.11	1.91E+02	45.35	3.56E+00	2.78E+00	1.87E+02	4.54E+01
	20	609.38	2.80E+02	51.54			2.80E+02	5.15E+01
	21	727.11	2.83E+01	32.43			2.83E+01	3.24E+01
M	22	906.15	1.72E+01	10.52			1.72E+01	1.05E+01
m	23	911.42	9.57E+01	31.44			9.57E+01	3.14E+01
M	24	968.47	5.66E+01	34.63			5.66E+01	3.46E+01
m	25	974.96	1.81E+01	21.38			1.81E+01	2.14E+01
	26	1062.40	2.43E+01	20.69			2.43E+01	2.07E+01
	27	1105.20	1.95E+01	21.38			1.95E+01	2.14E+01
	28	1332.79	3.98E+01	22.66	2.20E-01	1.06E+00	3.96E+01	2.27E+01
	29	1404.63	3.18E+01	27.67			3.18E+01	2.77E+01
	30	1460.56	4.85E+02	47.72			4.85E+02	4.77E+01
	31	1496.51	1.20E+01	10.86			1.20E+01	1.09E+01
	32	1505.74	1.35E+01	13.37			1.35E+01	1.34E+01
	33	1591.79	2.22E+01	14.83			2.22E+01	1.48E+01
	34	1619.90	1.23E+01	8.26			1.23E+01	8.26E+00
	35	1763.92	4.13E+01	17.15			4.13E+01	1.71E+01
	36	2035.07	8.05E+00	7.48			8.05E+00	7.48E+00
	37	2051.56	7.28E+00	6.95			7.28E+00	6.95E+00
	38	2101.83	2.15E+01	11.00			2.15E+01	1.10E+01
	39	2202.68	1.07E+01	10.68			1.07E+01	1.07E+01
	40	2252.28	7.22E+00	7.21			7.22E+00	7.21E+00
	41	2614.05	6.22E+01	16.49			6.22E+01	1.65E+01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 4:13:11PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.26	1.01E+02	87.45	2.81E+01	7.56E+00	7.28E+01	8.78E+01
	2	63.16	2.59E+02	157.53	5.28E+01	8.63E+00	2.06E+02	1.58E+02
	3	76.16	1.09E+03	163.17			1.09E+03	1.63E+02
M	4	87.77	2.90E+02	112.08			2.90E+02	1.12E+02
m	5	92.78	4.09E+02	112.73	6.21E+01	4.71E+00	3.47E+02	1.13E+02
	6	163.48	6.00E+01	73.95			6.00E+01	7.39E+01
	7	186.07	1.70E+02	79.17	2.34E+01	8.57E+00	1.46E+02	7.96E+01
	8	210.20	1.04E+02	65.54			1.04E+02	6.55E+01
M	9	238.72	5.80E+02	74.73	8.90E+00	6.12E+00	5.71E+02	7.50E+01
m	10	241.85	1.91E+02	86.37			1.91E+02	8.64E+01
	11	270.54	7.00E+01	52.42			7.00E+01	5.24E+01
	12	295.82	2.49E+02	80.08			2.49E+02	8.01E+01
	13	327.94	5.64E+01	54.21			5.64E+01	5.42E+01
	14	338.85	1.26E+02	55.30			1.26E+02	5.53E+01
	15	352.18	3.50E+02	59.09			3.50E+02	5.91E+01
	16	399.76	2.88E+01	34.18			2.88E+01	3.42E+01
	17	463.91	6.52E+01	58.85			6.52E+01	5.88E+01
	18	511.85	1.28E+02	47.62	4.43E+01	4.80E+00	8.40E+01	4.79E+01
	19	583.11	1.91E+02	45.35	3.56E+00	2.78E+00	1.87E+02	4.54E+01
	20	609.38	2.80E+02	51.54			2.80E+02	5.15E+01
	21	727.11	2.83E+01	32.43			2.83E+01	3.24E+01
M	22	906.15	1.72E+01	10.52			1.72E+01	1.05E+01
m	23	911.42	9.57E+01	31.44			9.57E+01	3.14E+01
M	24	968.47	5.66E+01	34.63			5.66E+01	3.46E+01
m	25	974.96	1.81E+01	21.38			1.81E+01	2.14E+01
	26	1062.40	2.43E+01	20.69			2.43E+01	2.07E+01
	27	1105.20	1.95E+01	21.38			1.95E+01	2.14E+01
	28	1332.79	3.98E+01	22.66	2.20E-01	1.06E+00	3.96E+01	2.27E+01
	29	1404.63	3.18E+01	27.67			3.18E+01	2.77E+01
	30	1460.56	4.85E+02	47.72			4.85E+02	4.77E+01
	31	1496.51	1.20E+01	10.86			1.20E+01	1.09E+01
	32	1505.74	1.35E+01	13.37			1.35E+01	1.34E+01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
33	1591.79	2.22E+01	14.83			2.22E+01	1.48E+01
34	1619.90	1.23E+01	8.26			1.23E+01	8.26E+00
35	1763.92	4.13E+01	17.15			4.13E+01	1.71E+01
36	2035.07	8.05E+00	7.48			8.05E+00	7.48E+00
37	2051.56	7.28E+00	6.95			7.28E+00	6.95E+00
38	2101.83	2.15E+01	11.00			2.15E+01	1.10E+01
39	2202.68	1.07E+01	10.68			1.07E+01	1.07E+01
40	2252.28	7.22E+00	7.21			7.22E+00	7.21E+00
41	2614.05	6.22E+01	16.49			6.22E+01	1.65E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.990	1460.81	*	10.67	2.09E+01	2.78E+00
CD-109	0.989	88.03	*	3.72	4.16E+00	1.67E+00
SN-126	0.994	87.57	*	37.00	3.64E-01	1.44E-01
TL-208	0.854	583.14	*	30.22	1.23E+00	3.31E-01
		860.37		4.48		
		2614.66	*	35.85	1.49E+00	4.32E-01
PB-210	0.991	46.50	*	4.25	1.16E+00	1.40E+00
BI-212	0.984	727.17	*	11.80	5.92E-01	6.81E-01
		1620.62	*	2.75	2.27E+00	1.53E+00
PB-212	0.897	238.63	*	44.60	1.03E+00	1.61E-01
		300.09		3.41		
BI-214	0.667	609.31	*	46.30	1.26E+00	2.75E-01
		1120.29		15.10		
		1764.49	*	15.80	1.43E+00	6.07E-01
		2204.22		4.98		
PB-214	0.974	295.21	*	19.19	1.29E+00	4.29E-01
		351.92	*	37.19	1.12E+00	2.13E-01
RA-224	0.887	240.98	*	3.95	3.96E+00	1.82E+00
RA-226	0.997	186.21	*	3.28	2.89E+00	5.52E+00
AC-228	0.962	338.32	*	11.40	1.27E+00	5.66E-01
		911.07	*	27.70	1.05E+00	3.55E-01
		969.11	*	16.60	1.09E+00	6.74E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TH-234	0.997	63.29	*	3.80	2.77E+00	2.13E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 4:13:11PM
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	76.16	3.03057E-01	7.48		
m	5	92.78	9.64343E-02	16.25	Sum	
	6	163.48	1.66672E-02	61.62	Tol.	CS-136 BA-140 U-235
	8	210.20	2.88126E-02	31.59	Tol.	CM-243
	11	270.54	1.94395E-02	37.45		
	13	327.94	1.56597E-02	48.08	Tol.	LA-140
	16	399.76	7.99145E-03	59.40		
	17	463.91	1.81236E-02	45.10	Tol.	SB-125
	18	511.85	2.33418E-02	28.48		
M	22	906.15	4.76557E-03	30.67	Sum	
m	25	974.96	5.01445E-03	59.23	Sum	
	26	1062.40	6.75926E-03	42.51		
	27	1105.20	5.41405E-03	54.84		
	28	1332.79	1.09902E-02	28.66	Tol.	CO-60
	29	1404.63	8.81944E-03	43.57		
	31	1496.51	3.33333E-03	45.26		
	32	1505.74	3.75000E-03	49.52		
	33	1591.79	6.16667E-03	33.41	D-Esc	
	36	2035.07	2.23611E-03	46.48		
	37	2051.56	2.02160E-03	47.72		
	38	2101.83	5.96065E-03	25.63	Sum	
	39	2202.68	2.96875E-03	49.95	Sum	
	40	2252.28	2.00617E-03	49.92		

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.09E+01	2.78E+00
CD-109	0.98	88.03	*	3.72	4.16E+00	1.67E+00
SN-126	0.99	87.57	*	37.00	3.64E-01	1.44E-01
TL-208	0.85	583.14	*	30.22	1.23E+00	3.31E-01
		860.37		4.48		
		2614.66	*	35.85	1.49E+00	4.32E-01
PB-210	0.99	46.50	*	4.25	1.16E+00	1.40E+00
BI-212	0.98	727.17	*	11.80	5.92E-01	6.81E-01
		1620.62	*	2.75	2.27E+00	1.53E+00
PB-212	0.89	238.63	*	44.60	1.03E+00	1.61E-01
		300.09		3.41		
BI-214	0.66	609.31	*	46.30	1.26E+00	2.75E-01
		1120.29		15.10		
		1764.49	*	15.80	1.43E+00	6.07E-01
		2204.22		4.98		
PB-214	0.97	295.21	*	19.19	1.29E+00	4.29E-01
		351.92	*	37.19	1.12E+00	2.13E-01
RA-224	0.88	240.98	*	3.95	3.96E+00	1.82E+00
RA-226	0.99	186.21	*	3.28	2.89E+00	5.52E+00
AC-228	0.96	338.32	*	11.40	1.27E+00	5.66E-01
		911.07	*	27.70	1.05E+00	3.55E-01
		969.11	*	16.60	1.09E+00	6.74E-01
TH-234	0.99	63.29	*	3.80	2.77E+00	2.13E+00

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

* = 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	2.09E+01	2.78E+00	
?	CD-109	0.989	4.16E+00	1.67E+00	
?	SN-126	0.994	3.64E-01	1.44E-01	
	TL-208	0.854	1.33E+00	2.63E-01	
	PB-210	0.991	1.16E+00	1.40E+00	
	BI-212	0.984	8.68E-01	6.22E-01	
	PB-212	0.897	1.03E+00	1.61E-01	
	BI-214	0.667	1.29E+00	2.50E-01	
	PB-214	0.974	1.16E+00	1.90E-01	
	RA-224	0.887	3.96E+00	1.82E+00	
	RA-226	0.997	2.89E+00	5.52E+00	
	AC-228	0.962	1.11E+00	2.75E-01	
	TH-234	0.997	2.77E+00	2.13E+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 1707078-10

HTC-A01-S003-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 4:13:11PM
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	76.16	3.03057E-01	7.48		
m	5	92.78	9.64343E-02	16.25	Sum	
	6	163.48	1.66672E-02	61.62	Tol.	CS-136
						BA-140
						U-235
	8	210.20	2.88126E-02	31.59	Tol.	CM-243
	11	270.54	1.94395E-02	37.45		
	13	327.94	1.56597E-02	48.08	Tol.	LA-140
	16	399.76	7.99145E-03	59.40		
	17	463.91	1.81236E-02	45.10	Tol.	SB-125
	18	511.85	2.33418E-02	28.48		
M	22	906.15	4.76557E-03	30.67	Sum	
m	25	974.96	5.01445E-03	59.23	Sum	
	26	1062.40	6.75926E-03	42.51		
	27	1105.20	5.41405E-03	54.84		
	28	1332.79	1.09902E-02	28.66	Tol.	CO-60
	29	1404.63	8.81944E-03	43.57		
	31	1496.51	3.33333E-03	45.26		
	32	1505.74	3.75000E-03	49.52		
	33	1591.79	6.16667E-03	33.41	D-Esc	
	36	2035.07	2.23611E-03	46.48		
	37	2051.56	2.02160E-03	47.72		
	38	2101.83	5.96065E-03	25.63	Sum	
	39	2202.68	2.96875E-03	49.95	Sum	
	40	2252.28	2.00617E-03	49.92		

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

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

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	-6.53E-01	2.44E+00	2.44E+00
+		NA-22	1274.54		99.94	-6.77E-02	1.34E-01	1.34E-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	-2.26E-02	6.07E-02	6.07E-02
+		K-40	1460.81	*	10.67	2.09E+01	1.42E+00	1.42E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-9.49E-02	7.43E-02	7.43E-02
			78.34		96.00	3.63E-01		9.55E-02
+		SC-46	889.25		99.98	3.44E-02	2.63E-01	2.63E-01
			1120.51		99.99	7.46E-02		3.45E-01
+		V-48	983.52		99.98	5.63E-01	6.68E+00	6.68E+00
			1312.10		97.50	1.51E+00		7.61E+00
+		CR-51	320.08		9.83	4.06E+00	7.68E+00	7.68E+00
+		MN-54	834.83		99.97	-4.87E-02	1.45E-01	1.45E-01
+		CO-56	846.75		99.96	-1.07E-01	2.54E-01	2.54E-01
			1037.75		14.03	-4.60E-01		1.96E+00
			1238.25		67.00	-5.33E-02		5.38E-01
			1771.40		15.51	-3.23E-01		1.35E+00
			2598.48		16.90	1.14E-01		1.37E+00
+		CO-57	122.06		85.51	5.64E-02	8.24E-02	8.24E-02
			136.48		10.60	-1.10E-02		6.76E-01
+		CO-58	810.76		99.40	7.25E-02	2.85E-01	2.85E-01
+		FE-59	1099.22		56.50	-4.11E-01	1.03E+00	1.03E+00
			1291.56		43.20	-4.56E-01		1.31E+00
+		CO-60	1173.22		100.00	1.83E-02	1.44E-01	1.58E-01
			1332.49		100.00	6.86E-02		1.44E-01
+		ZN-65	1115.52		50.75	5.05E-03	3.87E-01	3.87E-01
+		GA-67	93.31		35.70	1.23E+08	8.09E+07	8.09E+07
			208.95		2.24	5.74E+08		1.21E+09
			300.22		16.00	-4.47E+08		1.90E+08
+		SE-75	121.11		16.70	-5.07E-02	1.65E-01	5.59E-01
			136.00		59.20	-1.51E-02		1.65E-01
			264.65		59.80	-3.11E-02		1.76E-01
			279.53		25.20	8.36E-02		4.56E-01
			400.65		11.40	-6.40E-02		1.20E+00
+		RB-82	776.52		13.00	-8.41E+00	9.81E+00	9.81E+00
+		RB-83	520.41		46.00	8.66E-02	3.61E-01	3.61E-01
			529.64		30.30	-3.06E-02		5.51E-01
			552.65		16.40	3.88E-01		1.04E+00
+		KR-85	513.99		0.43	3.05E+01	2.51E+01	2.51E+01
+		SR-85	513.99		99.27	3.56E-01	2.93E-01	2.93E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	1.16E-01	1.67E-01	2.35E-01
		1836.01		99.38	6.85E-02		1.67E-01
+	MO-93	263.06		56.72	7.80E-02	9.68E-02	1.18E-01
		684.67		99.68	-3.32E-02		9.68E-02
		1477.11		99.08	4.12E-02		1.02E-01
+	NB-93M	16.57		9.43	1.15E+01	7.33E+00	7.33E+00
+	NB-94	702.63		100.00	1.09E-02	1.09E-01	1.09E-01
		871.10		100.00	-3.35E-02		1.17E-01
+	NB-95	765.79		99.81	1.90E-01	7.87E-01	7.87E-01
+	NB-95M	235.69		25.00	3.91E+07	2.43E+07	2.43E+07
+	ZR-95	724.18		43.70	1.00E-01	5.32E-01	8.18E-01
		756.72		55.30	-1.75E-01		5.32E-01
+	MO-99	181.06		6.20	-8.53E+08	1.22E+10	1.50E+10
		739.58		12.80	-2.36E+09		1.22E+10
		778.00		4.50	-9.32E+09		3.82E+10
+	RU-103	497.08		89.00	3.22E-02	4.40E-01	4.40E-01
+	RU-106	621.84		9.80	2.24E-01	1.13E+00	1.13E+00
+	AG-108M	433.93		89.90	-4.55E-02	8.03E-02	8.03E-02
		614.37		90.40	-9.57E-03		9.61E-02
		722.95		90.50	2.80E-02		1.37E-01
+	CD-109	88.03	*	3.72	4.16E+00	4.91E+00	4.91E+00
+	AG-110M	657.75		93.14	1.08E-01	1.60E-01	1.60E-01
		677.61		10.53	4.19E-01		1.30E+00
		706.67		16.46	-4.71E-02		8.17E-01
		763.93		21.98	-8.29E-03		7.09E-01
		884.67		71.63	-5.91E-02		2.18E-01
		1384.27		23.94	-1.08E-01		5.70E-01
+	CD-113M	263.70		0.02	-7.59E+01	2.78E+02	2.78E+02
+	SN-113	255.12		1.93	-5.31E-01	2.07E-01	6.00E+00
		391.69		64.90	-3.89E-02		2.07E-01
+	TE123M	159.00		84.10	-1.32E-02	1.14E-01	1.14E-01
+	SB-124	602.71		97.87	3.71E-02	2.71E-01	2.71E-01
		645.85		7.26	3.59E-01		4.14E+00
		722.78		11.10	6.66E-01		3.26E+00
		1691.02		49.00	-1.78E-01		4.13E-01
+	I-125	35.49		6.49	1.44E+00	4.88E+00	4.88E+00
+	SB-125	176.33		6.89	3.02E-01	2.70E-01	9.22E-01
		427.89		29.33	1.76E-03		2.70E-01
		463.38		10.35	5.31E-01		9.37E-01
		600.56		17.80	1.69E-01		5.63E-01
		635.90		11.32	-3.43E-01		7.79E-01
+	SB-126	414.70		83.30	-2.63E+00	1.59E+01	1.59E+01
		666.33		99.60	-1.10E+01		1.89E+01
		695.00		99.60	-4.65E+00		1.99E+01
		720.50		53.80	-1.26E+01		3.76E+01
+	SN-126	87.57	*	37.00	3.64E-01	4.29E-01	4.29E-01
+	SB-127	473.00		25.00	-1.41E+05	5.21E+06	6.11E+06
		685.20		35.70	-1.79E+06		5.21E+06

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	1.23E+07	5.21E+06	1.67E+07
+	I-129	29.78	57.00	-8.06E-02	2.59E-01	2.59E-01
		33.60	13.20	-2.37E-01		8.85E-01
		39.58	7.52	-9.38E-02		1.19E+00
+	I-131	284.30	6.05	-1.11E+03	2.51E+02	3.25E+03
		364.48	81.20	-2.34E+02		2.51E+02
		636.97	7.26	-9.16E+02		3.62E+03
		722.89	1.80	4.36E+03		2.13E+04
+	TE-132	49.72	13.10	-1.27E+07	3.04E+07	2.35E+08
		228.16	88.00	-1.44E+06		3.04E+07
+	BA-133	81.00	33.00	-6.73E-01	1.55E-01	2.23E-01
		302.84	17.80	6.83E-02		4.20E-01
		356.01	60.00	-2.32E-02		1.55E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.30E+05	4.30E+04	4.30E+04
+	CS-134	563.23	8.38	2.70E-02	1.16E-01	1.12E+00
		569.32	15.43	1.72E-01		6.05E-01
		604.70	97.60	5.56E-03		1.18E-01
		795.84	85.40	-3.23E-02		1.16E-01
		801.93	8.73	1.15E+00		1.38E+00
+	CS-135	268.24	16.00	-6.68E-03	4.21E-01	4.21E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	7.86E+00	1.32E+01	1.04E+02
		163.89	4.61	9.64E+01		1.74E+02
		176.55	13.56	2.51E+01		5.93E+01
		273.65	12.66	-2.25E-01		7.45E+01
		340.57	48.50	3.26E+01		2.53E+01
		818.50	99.70	-8.62E+00		1.32E+01
		1048.07	79.60	9.60E+00		2.22E+01
		1235.34	19.70	4.71E+00		1.14E+02
+	CS-137	661.65	85.12	4.00E-02	1.32E-01	1.32E-01
+	LA-138	788.74	34.00	3.89E-02	1.34E-01	3.40E-01
		1435.80	66.00	-4.33E-02		1.34E-01
+	CE-139	165.85	80.35	-8.01E-03	1.17E-01	1.17E-01
+	BA-140	162.64	6.70	7.52E+01	5.34E+01	1.37E+02
		304.84	4.50	1.03E+02		2.39E+02
		423.70	3.20	-9.43E+01		3.53E+02
		437.55	2.00	-1.60E+02		5.86E+02
		537.32	25.00	1.38E+01		5.34E+01
+	LA-140	328.77	20.50	3.01E+01	1.84E+01	5.95E+01
		487.03	45.50	-1.17E+01		2.63E+01
		815.85	23.50	-6.30E-02		6.97E+01
		1596.49	95.49	2.91E+00		1.84E+01
+	CE-141	145.44	48.40	5.35E-01	8.76E-01	8.76E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	3.11E-02	6.78E-01	6.78E-01
+	PM-144	476.78	42.00	-1.48E-03	1.06E-01	2.21E-01
		618.01	98.60	1.71E-02		1.06E-01
		696.49	99.49	-1.83E-02		1.32E-01
+	PM-145	36.85	21.70	1.21E-01	2.51E-01	4.69E-01
		37.36	39.70	6.44E-02		2.51E-01
		42.30	15.10	3.10E-02		5.57E-01
		72.40	2.31	-8.87E+00		3.45E+00
+	PM-146	453.90	39.94	6.98E-02	2.11E-01	2.11E-01
		735.90	14.01	2.21E-01		8.00E-01
		747.13	13.10	2.57E-01		8.52E-01
+	ND-147	91.11	28.90	2.01E+02	9.42E+01	9.42E+01
		531.02	13.10	-1.44E+01		2.20E+02
+	PM-149	285.90	3.10	2.50E+12	1.03E+13	1.03E+13
+	EU-152	121.78	20.50	1.87E-01	2.74E-01	2.74E-01
		244.69	5.40	1.15E-01		1.41E+00
		344.27	19.13	3.27E-02		3.67E-01
		778.89	9.20	-4.15E-01		1.18E+00
		964.01	10.40	-1.14E+00		1.47E+00
		1085.78	7.22	-5.43E-01		1.70E+00
		1112.02	9.60	-2.11E-01		1.47E+00
		1407.95	14.94	1.12E-01		7.55E-01
+	GD-153	97.43	31.30	-3.43E-01	2.46E-01	2.46E-01
		103.18	22.20	-1.08E-01		3.04E-01
+	EU-154	123.07	40.50	7.51E-02	1.40E-01	1.40E-01
		723.30	19.70	8.26E-02		6.74E-01
		873.19	11.50	1.26E-01		1.05E+00
		996.32	10.30	-9.26E-01		1.10E+00
		1004.76	17.90	2.64E-01		7.25E-01
		1274.45	35.50	-1.82E-01		3.59E-01
+	EU-155	86.50	30.90	1.33E-01	2.41E-01	2.41E-01
		105.30	20.70	2.18E-02		2.61E-01
+	EU-156	811.77	10.40	1.92E+01	7.55E+01	7.55E+01
		1153.47	7.20	4.19E+01		1.50E+02
		1230.71	8.90	4.17E+01		1.35E+02
+	HO-166M	184.41	72.60	1.40E-01	9.49E-02	9.49E-02
		280.45	29.60	-1.33E-02		2.24E-01
		410.94	11.10	2.70E-02		6.54E-01
		711.69	54.10	1.39E-01		2.06E-01
+	TM-171	66.72	0.14	-2.28E+01	5.64E+01	5.64E+01
+	HF-172	67.35	5.31	-5.99E-01	5.39E-01	1.48E+00
		125.81	11.30	-3.48E-01		5.39E-01
+	LU-172	181.53	20.60	1.17E+02	3.37E+03	4.55E+03
		900.72	29.81	2.12E+02		5.70E+03
		1093.66	62.50	2.11E+03		3.37E+03
+	LU-173	100.72	5.24	-3.64E-01	3.83E-01	1.15E+00
		272.11	21.20	3.16E-01		3.83E-01
+	HF-175	343.40	84.00	1.85E-02	2.07E-01	2.07E-01
+	LU-176	88.34	13.30	-5.21E-01	7.07E-02	5.40E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	2.90E-02	7.07E-02	7.34E-02
		306.78		94.00	2.43E-02		7.07E-02
+	HF-181	133.02		41.70	5.04E-01	4.32E-01	6.57E-01
		345.85		17.20	1.66E-01		1.77E+00
		482.03		82.80	9.13E-03		4.32E-01
+	TA-182	67.75		41.20	-3.82E-01	2.99E-01	2.99E-01
		1121.30		34.90	-2.02E-01		7.80E-01
		1189.05		16.23	-1.92E-02		1.70E+00
		1221.41		26.98	8.14E-01		1.21E+00
		1231.02		11.44	1.41E-01		2.60E+00
+	IR-192	308.46		29.68	-3.95E-01	3.99E-01	4.98E-01
		468.07		48.10	-1.66E-01		3.99E-01
+	HG-203	279.19		77.30	6.19E-02	3.49E-01	3.49E-01
+	TL-204	374.74		94.11	-1.80E-02	8.00E-02	8.00E-02
		899.15		99.16	1.90E-02		1.23E-01
		911.74		91.10	3.20E-01		2.11E-01
+	BI-207	569.67		97.72	2.50E-02	8.83E-02	8.83E-02
		1063.62		74.90	2.50E-02		1.79E-01
+	TL-208	583.14	*	30.22	1.23E+00	2.54E-01	4.11E-01
		860.37		4.48	4.44E-01		2.66E+00
		2614.66	*	35.85	1.49E+00		2.54E-01
+	BI-210M	262.00		45.00	1.34E-02	1.46E-01	1.46E-01
		300.00		23.00	-7.65E-01		3.25E-01
+	PB-210	46.50	*	4.25	1.16E+00	2.30E+00	2.30E+00
+	PB-211	404.84		2.90	6.86E-01	2.57E+00	2.57E+00
		831.96		2.90	1.28E+00		4.19E+00
+	BI-212	727.17	*	11.80	5.92E-01	1.11E+00	1.11E+00
		1620.62	*	2.75	2.27E+00		1.82E+00
+	PB-212	238.63	*	44.60	1.03E+00	2.71E-01	2.71E-01
		300.09		3.41	-5.16E+00		2.20E+00
+	BI-214	609.31	*	46.30	1.26E+00	3.02E-01	3.02E-01
		1120.29		15.10	2.28E-01		1.06E+00
		1764.49	*	15.80	1.43E+00		7.43E-01
		2204.22		4.98	-9.29E-02		2.97E+00
+	PB-214	295.21	*	19.19	1.29E+00	2.50E-01	6.43E-01
		351.92	*	37.19	1.12E+00		2.50E-01
+	RN-219	401.80		6.50	2.36E-01	1.25E+00	1.25E+00
+	RA-223	323.87		3.88	3.76E-01	1.88E+00	1.88E+00
+	RA-224	240.98	*	3.95	3.96E+00	3.13E+00	3.13E+00
+	RA-225	40.00		31.00	-1.77E+00	2.23E+01	2.23E+01
+	RA-226	186.21	*	3.28	2.89E+00	2.52E+00	2.52E+00
+	TH-227	50.10		8.40	-4.76E-02	8.79E-01	8.79E-01
		236.00		11.50	1.42E+00		8.86E-01
		256.20		6.30	-2.19E-01		1.04E+00
+	AC-228	338.32	*	11.40	1.27E+00	7.35E-01	8.62E-01
		911.07	*	27.70	1.05E+00		7.35E-01
		969.11	*	16.60	1.09E+00		1.44E+00
+	TH-230	48.44		16.90	1.44E-01	4.53E-01	4.53E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	1.56E+00	4.53E-01	1.65E+00
		67.67		0.37	-2.42E+01		1.89E+01
+	PA-231	283.67		1.60	-1.35E+00	3.19E+00	3.95E+00
		302.67		2.30	5.20E-01		3.19E+00
+	TH-231	25.64		14.70	-8.18E-01	1.05E+00	1.46E+00
		84.21		6.40	-9.58E-01		1.05E+00
+	PA-233	311.98		38.60	-1.84E+00	1.72E+00	1.72E+00
+	PA-234	131.20		20.40	1.59E-01	2.90E-01	2.90E-01
		733.99		8.80	-1.78E-01		1.27E+00
		946.00		12.00	1.91E-01		1.04E+00
+	PA-234M	1001.03		0.92	6.25E+00	1.37E+01	1.37E+01
+	TH-234	63.29	*	3.80	2.77E+00	3.46E+00	3.46E+00
+	U-235	143.76		10.50	-4.33E-03	5.45E-01	5.45E-01
		163.35		4.70	6.86E-01		1.25E+00
		205.31		4.70	1.28E-01		1.30E+00
+	NP-237	86.50		12.60	3.16E-01	5.71E-01	5.71E-01
+	NP-239	106.10		22.70	6.70E+10	1.94E+11	1.94E+11
		228.18		10.70	-2.39E+10		5.04E+11
		277.60		14.10	6.53E+10		3.96E+11
+	AM-241	59.54		35.90	-8.91E-02	2.03E-01	2.03E-01
+	AM-243	74.67		66.00	6.46E-01	1.45E-01	1.45E-01
+	CM-243	209.75		3.29	1.78E+00	4.82E-01	2.07E+00
		228.14		10.60	-2.92E-02		6.14E-01
		277.60		14.00	7.94E-02		4.82E-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 1707078-10

HTC-A01-S003-3642-01

	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	2.44E+00	2.44E+00	-6.53E-01	1.15E+00
	NA-22	1274.54		99.94	1.34E-01	1.34E-01	-6.77E-02	6.09E-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	6.07E-02	6.07E-02	-2.26E-02	2.27E-02
+	K-40	1460.81	*	10.67	1.42E+00	1.42E+00	2.09E+01	6.50E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	7.43E-02	7.43E-02	-9.49E-02	3.64E-02
		78.34		96.00	9.55E-02		3.63E-01	4.71E-02
	SC-46	889.25		99.98	2.63E-01	2.63E-01	3.44E-02	1.23E-01
		1120.51		99.99	3.45E-01		7.46E-02	1.62E-01
	V-48	983.52		99.98	6.68E+00	6.68E+00	5.63E-01	3.09E+00
		1312.10		97.50	7.61E+00		1.51E+00	3.47E+00
	CR-51	320.08		9.83	7.68E+00	7.68E+00	4.06E+00	3.69E+00
	MN-54	834.83		99.97	1.45E-01	1.45E-01	-4.87E-02	6.80E-02
	CO-56	846.75		99.96	2.54E-01	2.54E-01	-1.07E-01	1.18E-01
		1037.75		14.03	1.96E+00		-4.60E-01	9.07E-01
		1238.25		67.00	5.38E-01		-5.33E-02	2.51E-01
		1771.40		15.51	1.35E+00		-3.23E-01	5.63E-01
		2598.48		16.90	1.37E+00		1.14E-01	5.32E-01
	CO-57	122.06		85.51	8.24E-02	8.24E-02	5.64E-02	4.02E-02
		136.48		10.60	6.76E-01		-1.10E-02	3.29E-01
	CO-58	810.76		99.40	2.85E-01	2.85E-01	7.25E-02	1.33E-01
	FE-59	1099.22		56.50	1.03E+00	1.03E+00	-4.11E-01	4.78E-01
		1291.56		43.20	1.31E+00		-4.56E-01	5.98E-01
	CO-60	1173.22		100.00	1.58E-01	1.44E-01	1.83E-02	7.35E-02
		1332.49		100.00	1.44E-01		6.86E-02	6.61E-02
	ZN-65	1115.52		50.75	3.87E-01	3.87E-01	5.05E-03	1.81E-01
	GA-67	93.31		35.70	8.09E+07	8.09E+07	1.23E+08	3.97E+07
		208.95		2.24	1.21E+09		5.74E+08	5.88E+08
		300.22		16.00	1.90E+08		-4.47E+08	9.16E+07
	SE-75	121.11		16.70	5.59E-01	1.65E-01	-5.07E-02	2.73E-01
		136.00		59.20	1.65E-01		-1.51E-02	8.06E-02
		264.65		59.80	1.76E-01		-3.11E-02	8.44E-02
		279.53		25.20	4.56E-01		8.36E-02	2.19E-01
		400.65		11.40	1.20E+00		-6.40E-02	5.74E-01
	RB-82	776.52		13.00	9.81E+00	9.81E+00	-8.41E+00	4.56E+00
	RB-83	520.41		46.00	3.61E-01	3.61E-01	8.66E-02	1.69E-01
		529.64		30.30	5.51E-01		-3.06E-02	2.58E-01
		552.65		16.40	1.04E+00		3.88E-01	4.85E-01
	KR-85	513.99		0.43	2.51E+01	2.51E+01	3.05E+01	1.20E+01
	SR-85	513.99		99.27	2.93E-01	2.93E-01	3.56E-01	1.40E-01
	Y-88	898.02		93.40	2.35E-01	1.67E-01	1.16E-01	1.09E-01
		1836.01		99.38	1.67E-01		6.85E-02	6.93E-02
	MO-93	263.06		56.72	1.18E-01	9.68E-02	7.80E-02	5.69E-02
		684.67		99.68	9.68E-02		-3.32E-02	4.52E-02
		1477.11		99.08	1.02E-01		4.12E-02	4.44E-02
	NB-93M	16.57		9.43	7.33E+00	7.33E+00	1.15E+01	3.56E+00
	NB-94	702.63		100.00	1.09E-01	1.09E-01	1.09E-02	5.15E-02
		871.10		100.00	1.17E-01		-3.35E-02	5.46E-02
	NB-95	765.79		99.81	7.87E-01	7.87E-01	1.90E-01	3.71E-01
	NB-95M	235.69		25.00	2.43E+07	2.43E+07	3.91E+07	1.19E+07
	ZR-95	724.18		43.70	8.18E-01	5.32E-01	1.00E-01	3.88E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	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	5.32E-01	5.32E-01	-1.75E-01	2.49E-01
	MO-99	181.06		6.20	1.50E+10	1.22E+10	-8.53E+08	7.28E+09
		739.58		12.80	1.22E+10		-2.36E+09	5.66E+09
		778.00		4.50	3.82E+10		-9.32E+09	1.78E+10
	RU-103	497.08		89.00	4.40E-01	4.40E-01	3.22E-02	2.07E-01
	RU-106	621.84		9.80	1.13E+00	1.13E+00	2.24E-01	5.30E-01
	AG-108M	433.93		89.90	8.03E-02	8.03E-02	-4.55E-02	3.79E-02
		614.37		90.40	9.61E-02		-9.57E-03	4.49E-02
		722.95		90.50	1.37E-01		2.80E-02	6.47E-02
+	CD-109	88.03	*	3.72	4.91E+00	4.91E+00	4.16E+00	2.43E+00
	AG-110M	657.75		93.14	1.60E-01	1.60E-01	1.08E-01	7.57E-02
		677.61		10.53	1.30E+00		4.19E-01	6.12E-01
		706.67		16.46	8.17E-01		-4.71E-02	3.83E-01
		763.93		21.98	7.09E-01		-8.29E-03	3.34E-01
		884.67		71.63	2.18E-01		-5.91E-02	1.02E-01
		1384.27		23.94	5.70E-01		-1.08E-01	2.53E-01
	CD-113M	263.70		0.02	2.78E+02	2.78E+02	-7.59E+01	1.33E+02
	SN-113	255.12		1.93	6.00E+00	2.07E-01	-5.31E-01	2.89E+00
		391.69		64.90	2.07E-01		-3.89E-02	9.85E-02
	TE123M	159.00		84.10	1.14E-01	1.14E-01	-1.32E-02	5.56E-02
	SB-124	602.71		97.87	2.71E-01	2.71E-01	3.71E-02	1.27E-01
		645.85		7.26	4.14E+00		3.59E-01	1.95E+00
		722.78		11.10	3.26E+00		6.66E-01	1.54E+00
		1691.02		49.00	4.13E-01		-1.78E-01	1.64E-01
	I-125	35.49		6.49	4.88E+00	4.88E+00	1.44E+00	2.38E+00
	SB-125	176.33		6.89	9.22E-01	2.70E-01	3.02E-01	4.48E-01
		427.89		29.33	2.70E-01		1.76E-03	1.28E-01
		463.38		10.35	9.37E-01		5.31E-01	4.47E-01
		600.56		17.80	5.63E-01		1.69E-01	2.65E-01
		635.90		11.32	7.79E-01		-3.43E-01	3.62E-01
	SB-126	414.70		83.30	1.59E+01	1.59E+01	-2.63E+00	7.55E+00
		666.33		99.60	1.89E+01		-1.10E+01	8.87E+00
		695.00		99.60	1.99E+01		-4.65E+00	9.34E+00
		720.50		53.80	3.76E+01		-1.26E+01	1.77E+01
+	SN-126	87.57	*	37.00	4.29E-01	4.29E-01	3.64E-01	2.13E-01
	SB-127	473.00		25.00	6.11E+06	5.21E+06	-1.41E+05	2.88E+06
		685.20		35.70	5.21E+06		-1.79E+06	2.43E+06
		783.80		14.70	1.67E+07		1.23E+07	7.86E+06
	I-129	29.78		57.00	2.59E-01	2.59E-01	-8.06E-02	1.26E-01
		33.60		13.20	8.85E-01		-2.37E-01	4.31E-01
		39.58		7.52	1.19E+00		-9.38E-02	5.78E-01
	I-131	284.30		6.05	3.25E+03	2.51E+02	-1.11E+03	1.56E+03
		364.48		81.20	2.51E+02		-2.34E+02	1.19E+02
		636.97		7.26	3.62E+03		-9.16E+02	1.69E+03
		722.89		1.80	2.13E+04		4.36E+03	1.01E+04
	TE-132	49.72		13.10	2.35E+08	3.04E+07	-1.27E+07	1.15E+08
		228.16		88.00	3.04E+07		-1.44E+06	1.47E+07
	BA-133	81.00		33.00	2.23E-01	1.55E-01	-6.73E-01	1.09E-01
		302.84		17.80	4.20E-01		6.83E-02	2.02E-01
		356.01		60.00	1.55E-01		-2.32E-02	7.50E-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	4.30E+04	4.30E+04	-1.30E+05	2.11E+04
	CS-134	563.23		8.38	1.12E+00	1.16E-01	2.70E-02	5.27E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

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	6.05E-01	1.16E-01	1.72E-01	2.84E-01
	604.70	97.60	1.18E-01		5.56E-03	5.60E-02
	795.84	85.40	1.16E-01		-3.23E-02	5.34E-02
	801.93	8.73	1.38E+00		1.15E+00	6.46E-01
CS-135	268.24	16.00	4.21E-01	4.21E-01	-6.68E-03	2.03E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.04E+02	1.32E+01	7.86E+00	5.06E+01
	163.89	4.61	1.74E+02		9.64E+01	8.48E+01
	176.55	13.56	5.93E+01		2.51E+01	2.88E+01
	273.65	12.66	7.45E+01		-2.25E-01	3.59E+01
	340.57	48.50	2.53E+01		3.26E+01	1.22E+01
	818.50	99.70	1.32E+01		-8.62E+00	6.11E+00
	1048.07	79.60	2.22E+01		9.60E+00	1.03E+01
	1235.34	19.70	1.14E+02		4.71E+00	5.32E+01
CS-137	661.65	85.12	1.32E-01	1.32E-01	4.00E-02	6.23E-02
LA-138	788.74	34.00	3.40E-01	1.34E-01	3.89E-02	1.60E-01
	1435.80	66.00	1.34E-01		-4.33E-02	5.76E-02
CE-139	165.85	80.35	1.17E-01	1.17E-01	-8.01E-03	5.71E-02
BA-140	162.64	6.70	1.37E+02	5.34E+01	7.52E+01	6.66E+01
	304.84	4.50	2.39E+02		1.03E+02	1.15E+02
	423.70	3.20	3.53E+02		-9.43E+01	1.67E+02
	437.55	2.00	5.86E+02		-1.60E+02	2.77E+02
	537.32	25.00	5.34E+01		1.38E+01	2.51E+01
LA-140	328.77	20.50	5.95E+01	1.84E+01	3.01E+01	2.86E+01
	487.03	45.50	2.63E+01		-1.17E+01	1.24E+01
	815.85	23.50	6.97E+01		-6.30E-02	3.24E+01
	1596.49	95.49	1.84E+01		2.91E+00	8.08E+00
CE-141	145.44	48.40	8.76E-01	8.76E-01	5.35E-01	4.27E-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	6.78E-01	6.78E-01	3.11E-02	3.31E-01
PM-144	476.78	42.00	2.21E-01	1.06E-01	-1.48E-03	1.04E-01
	618.01	98.60	1.06E-01		1.71E-02	4.94E-02
	696.49	99.49	1.32E-01		-1.83E-02	6.24E-02
PM-145	36.85	21.70	4.69E-01	2.51E-01	1.21E-01	2.29E-01
	37.36	39.70	2.51E-01		6.44E-02	1.22E-01
	42.30	15.10	5.57E-01		3.10E-02	2.71E-01
	72.40	2.31	3.45E+00		-8.87E+00	1.70E+00
PM-146	453.90	39.94	2.11E-01	2.11E-01	6.98E-02	9.98E-02
	735.90	14.01	8.00E-01		2.21E-01	3.75E-01
	747.13	13.10	8.52E-01		2.57E-01	3.99E-01
ND-147	91.11	28.90	9.42E+01	9.42E+01	2.01E+02	4.63E+01
	531.02	13.10	2.20E+02		-1.44E+01	1.03E+02
PM-149	285.90	3.10	1.03E+13	1.03E+13	2.50E+12	4.93E+12
EU-152	121.78	20.50	2.74E-01	2.74E-01	1.87E-01	1.34E-01
	244.69	5.40	1.41E+00		1.15E-01	6.84E-01
	344.27	19.13	3.67E-01		3.27E-02	1.75E-01
	778.89	9.20	1.18E+00		-4.15E-01	5.51E-01
	964.01	10.40	1.47E+00		-1.14E+00	6.93E-01
	1085.78	7.22	1.70E+00		-5.43E-01	7.84E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.47E+00	2.74E-01	-2.11E-01	6.82E-01
		1407.95		14.94	7.55E-01		1.12E-01	3.37E-01
	GD-153	97.43		31.30	2.46E-01	2.46E-01	-3.43E-01	1.20E-01
		103.18		22.20	3.04E-01		-1.08E-01	1.48E-01
	EU-154	123.07		40.50	1.40E-01	1.40E-01	7.51E-02	6.83E-02
		723.30		19.70	6.74E-01		8.26E-02	3.20E-01
		873.19		11.50	1.05E+00		1.26E-01	4.89E-01
		996.32		10.30	1.10E+00		-9.26E-01	5.07E-01
		1004.76		17.90	7.25E-01		2.64E-01	3.37E-01
		1274.45		35.50	3.59E-01		-1.82E-01	1.63E-01
	EU-155	86.50		30.90	2.41E-01	2.41E-01	1.33E-01	1.19E-01
		105.30		20.70	2.61E-01		2.18E-02	1.27E-01
	EU-156	811.77		10.40	7.55E+01	7.55E+01	1.92E+01	3.52E+01
		1153.47		7.20	1.50E+02		4.19E+01	7.01E+01
		1230.71		8.90	1.35E+02		4.17E+01	6.35E+01
	HO-166M	184.41		72.60	9.49E-02	9.49E-02	1.40E-01	4.63E-02
		280.45		29.60	2.24E-01		-1.33E-02	1.08E-01
		410.94		11.10	6.54E-01		2.70E-02	3.10E-01
		711.69		54.10	2.06E-01		1.39E-01	9.69E-02
	TM-171	66.72		0.14	5.64E+01	5.64E+01	-2.28E+01	2.77E+01
	HF-172	67.35		5.31	1.48E+00	5.39E-01	-5.99E-01	7.29E-01
		125.81		11.30	5.39E-01		-3.48E-01	2.63E-01
	LU-172	181.53		20.60	4.55E+03	3.37E+03	1.17E+02	2.21E+03
		900.72		29.81	5.70E+03		2.12E+02	2.64E+03
		1093.66		62.50	3.37E+03		2.11E+03	1.56E+03
	LU-173	100.72		5.24	1.15E+00	3.83E-01	-3.64E-01	5.62E-01
		272.11		21.20	3.83E-01		3.16E-01	1.85E-01
	HF-175	343.40		84.00	2.07E-01	2.07E-01	1.85E-02	9.88E-02
	LU-176	88.34		13.30	5.40E-01	7.07E-02	-5.21E-01	2.65E-01
		201.83		86.00	7.34E-02		2.90E-02	3.56E-02
		306.78		94.00	7.07E-02		2.43E-02	3.39E-02
	HF-181	133.02		41.70	6.57E-01	4.32E-01	5.04E-01	3.21E-01
		345.85		17.20	1.77E+00		1.66E-01	8.44E-01
		482.03		82.80	4.32E-01		9.13E-03	2.04E-01
	TA-182	67.75		41.20	2.99E-01	2.99E-01	-3.82E-01	1.47E-01
		1121.30		34.90	7.80E-01		-2.02E-01	3.65E-01
		1189.05		16.23	1.70E+00		-1.92E-02	7.91E-01
		1221.41		26.98	1.21E+00		8.14E-01	5.71E-01
		1231.02		11.44	2.60E+00		1.41E-01	1.22E+00
	IR-192	308.46		29.68	4.98E-01	3.99E-01	-3.95E-01	2.37E-01
		468.07		48.10	3.99E-01		-1.66E-01	1.89E-01
	HG-203	279.19		77.30	3.49E-01	3.49E-01	6.19E-02	1.68E-01
	TL-204	374.74		94.11	8.00E-02	8.00E-02	-1.80E-02	3.81E-02
		899.15		99.16	1.23E-01		1.90E-02	5.70E-02
		911.74		91.10	2.11E-01		3.20E-01	1.01E-01
	BI-207	569.67		97.72	8.83E-02	8.83E-02	2.50E-02	4.14E-02
		1063.62		74.90	1.79E-01		2.50E-02	8.34E-02
+	TL-208	583.14	*	30.22	4.11E-01	2.54E-01	1.23E+00	1.97E-01
		860.37		4.48	2.66E+00		4.44E-01	1.24E+00
		2614.66	*	35.85	2.54E-01		1.49E+00	9.48E-02
	BI-210M	262.00		45.00	1.46E-01	1.46E-01	1.34E-02	7.04E-02
		300.00		23.00	3.25E-01		-7.65E-01	1.57E-01
+	PB-210	46.50	*	4.25	2.30E+00	2.30E+00	1.16E+00	1.13E+00

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	2.57E+00	2.57E+00	6.86E-01	1.22E+00
		831.96		2.90	4.19E+00		1.28E+00	1.97E+00
+	BI-212	727.17	*	11.80	1.11E+00	1.11E+00	5.92E-01	5.26E-01
		1620.62	*	2.75	1.82E+00		2.27E+00	6.59E-01
+	PB-212	238.63	*	44.60	2.71E-01	2.71E-01	1.03E+00	1.33E-01
		300.09		3.41	2.20E+00		-5.16E+00	1.06E+00
+	BI-214	609.31	*	46.30	3.02E-01	3.02E-01	1.26E+00	1.45E-01
		1120.29		15.10	1.06E+00		2.28E-01	4.95E-01
		1764.49	*	15.80	7.43E-01		1.43E+00	3.24E-01
		2204.22		4.98	2.97E+00		-9.29E-02	1.30E+00
+	PB-214	295.21	*	19.19	6.43E-01	2.50E-01	1.29E+00	3.14E-01
		351.92	*	37.19	2.50E-01		1.12E+00	1.21E-01
	RN-219	401.80		6.50	1.25E+00	1.25E+00	2.36E-01	5.96E-01
	RA-223	323.87		3.88	1.88E+00	1.88E+00	3.76E-01	9.01E-01
+	RA-224	240.98	*	3.95	3.13E+00	3.13E+00	3.96E+00	1.54E+00
	RA-225	40.00		31.00	2.23E+01	2.23E+01	-1.77E+00	1.09E+01
+	RA-226	186.21	*	3.28	2.52E+00	2.52E+00	2.89E+00	1.23E+00
	TH-227	50.10		8.40	8.79E-01	8.79E-01	-4.76E-02	4.30E-01
		236.00		11.50	8.86E-01		1.42E+00	4.34E-01
		256.20		6.30	1.04E+00		-2.19E-01	5.04E-01
+	AC-228	338.32	*	11.40	8.62E-01	7.35E-01	1.27E+00	4.17E-01
		911.07	*	27.70	7.35E-01		1.05E+00	3.53E-01
		969.11	*	16.60	1.44E+00		1.09E+00	6.96E-01
	TH-230	48.44		16.90	4.53E-01	4.53E-01	1.44E-01	2.21E-01
		62.85		4.60	1.65E+00		1.56E+00	8.09E-01
		67.67		0.37	1.89E+01		-2.42E+01	9.28E+00
	PA-231	283.67		1.60	3.95E+00	3.19E+00	-1.35E+00	1.89E+00
		302.67		2.30	3.19E+00		5.20E-01	1.54E+00
	TH-231	25.64		14.70	1.46E+00	1.05E+00	-8.18E-01	7.10E-01
		84.21		6.40	1.05E+00		-9.58E-01	5.17E-01
	PA-233	311.98		38.60	1.72E+00	1.72E+00	-1.84E+00	8.19E-01
	PA-234	131.20		20.40	2.90E-01	2.90E-01	1.59E-01	1.41E-01
		733.99		8.80	1.27E+00		-1.78E-01	5.95E-01
		946.00		12.00	1.04E+00		1.91E-01	4.86E-01
	PA-234M	1001.03		0.92	1.37E+01	1.37E+01	6.25E+00	6.35E+00
+	TH-234	63.29	*	3.80	3.46E+00	3.46E+00	2.77E+00	1.71E+00
	U-235	143.76		10.50	5.45E-01	5.45E-01	-4.33E-03	2.66E-01
		163.35		4.70	1.25E+00		6.86E-01	6.07E-01
		205.31		4.70	1.30E+00		1.28E-01	6.32E-01
	NP-237	86.50		12.60	5.71E-01	5.71E-01	3.16E-01	2.81E-01
	NP-239	106.10		22.70	1.94E+11	1.94E+11	6.70E+10	9.44E+10
		228.18		10.70	5.04E+11		-2.39E+10	2.44E+11
		277.60		14.10	3.96E+11		6.53E+10	1.91E+11
	AM-241	59.54		35.90	2.03E-01	2.03E-01	-8.91E-02	9.96E-02
	AM-243	74.67		66.00	1.45E-01	1.45E-01	6.46E-01	7.16E-02
	CM-243	209.75		3.29	2.07E+00	4.82E-01	1.78E+00	1.00E+00
		228.14		10.60	6.14E-01		-2.92E-02	2.97E-01
		277.60		14.00	4.82E-01		7.94E-02	2.32E-01

Analysis Report for 1707078-10

HTC-A01-S003-3642-01

+ = 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-A01-S003-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	12	84
17:	113	77	90	84	93	75	76	64
25:	93	64	75	61	74	78	60	73
33:	68	73	76	68	73	88	69	71
41:	73	65	86	84	100	121	90	79
49:	83	80	96	89	92	99	96	90
57:	100	110	123	116	137	166	172	144
65:	119	132	130	123	121	131	143	145
73:	235	312	308	384	302	154	126	119
81:	101	123	144	145	156	152	209	120
89:	149	140	187	221	162	97	90	74
97:	97	103	84	83	72	64	62	80
105:	84	84	87	84	63	73	79	87
113:	78	75	92	72	63	68	90	69
121:	82	83	76	81	66	69	76	81
129:	90	98	86	83	70	87	72	61
137:	71	78	70	59	70	89	71	75
145:	69	60	65	71	68	53	64	66
153:	72	67	62	66	54	58	53	65
161:	56	73	73	64	53	58	49	61
169:	62	57	56	55	60	57	52	69
177:	49	59	48	52	42	56	57	82
185:	94	101	71	52	45	52	49	43
193:	55	47	47	66	39	66	56	42
201:	51	42	48	55	44	40	49	61
209:	80	62	44	50	40	38	51	50
217:	44	33	45	43	35	44	55	53
225:	33	51	37	43	38	47	29	50
233:	36	40	44	58	223	269	176	96
241:	102	88	38	29	34	40	28	29
249:	31	34	40	36	37	34	28	42
257:	36	36	45	32	30	33	32	30
265:	35	23	18	39	45	48	35	30
273:	35	29	32	34	38	29	40	18
281:	29	28	28	28	30	25	29	23
289:	25	27	27	37	48	92	104	51
297:	29	25	40	40	23	27	30	37
305:	25	22	26	16	19	16	24	21
313:	27	16	29	36	28	28	19	33
321:	25	27	17	26	31	30	47	34
329:	27	25	16	28	26	27	11	30
337:	71	69	42	26	22	21	14	30
345:	19	17	16	18	30	79	138	116
353:	48	23	16	14	13	19	26	23
361:	17	13	18	18	18	12	22	18

369:	29	21	16	20	26	18	18	17

Sample Title: HTC-A01-S003-3642-01

Channel								
377:	19	16	20	21	18	17	12	18
385:	26	17	20	21	18	18	26	21
393:	18	17	26	21	17	28	31	21
401:	12	13	23	21	21	8	24	12
409:	19	10	15	16	16	14	19	12
417:	17	16	21	14	11	12	22	7
425:	17	20	11	19	22	12	14	14
433:	18	16	7	17	16	16	14	18
441:	17	18	18	17	16	14	15	16
449:	13	14	16	17	17	22	10	19
457:	10	17	21	10	25	26	28	18
465:	21	11	14	11	20	9	13	11
473:	15	14	14	13	13	13	12	10
481:	19	12	13	13	9	17	16	13
489:	5	16	14	10	18	8	10	12
497:	12	9	12	11	10	12	14	13
505:	17	7	15	20	28	39	42	22
513:	11	13	16	14	7	6	12	13
521:	13	13	15	8	12	8	9	9
529:	13	17	11	10	10	15	11	11
537:	14	8	16	13	14	9	12	15
545:	11	6	8	6	12	12	6	8
553:	16	10	9	12	6	8	17	8
561:	13	11	14	12	7	14	15	11
569:	6	8	12	13	12	7	7	18
577:	12	7	11	17	40	83	63	32
585:	8	12	10	8	9	14	11	12
593:	7	11	12	11	9	17	13	13
601:	12	14	8	8	11	13	43	101
609:	105	43	16	9	10	12	5	11
617:	6	10	12	13	9	10	10	14
625:	15	7	10	7	11	11	13	5
633:	9	8	7	10	8	11	8	11
641:	11	13	12	18	5	11	18	12
649:	20	6	9	8	11	10	14	8
657:	10	11	12	13	20	9	7	10
665:	9	12	5	12	10	9	9	8
673:	11	9	14	13	4	9	9	8
681:	9	6	9	6	4	7	7	11
689:	8	10	9	11	13	8	7	6
697:	9	12	16	7	11	12	7	7
705:	6	8	9	11	7	9	8	9
713:	9	14	11	8	3	10	11	16
721:	7	8	10	10	10	23	22	10
729:	11	11	10	14	5	10	5	7
737:	9	9	8	4	5	5	8	6
745:	9	7	10	9	12	8	7	11
753:	4	9	4	10	9	6	10	8
761:	12	10	8	12	5	11	13	14
769:	10	8	11	5	10	9	6	6
777:	5	4	9	6	12	10	8	13
785:	14	12	8	10	6	5	2	7
793:	6	9	2	2	7	4	6	5

801:	8	10	11	11	6	6	5	8

Sample Title: HTC-A01-S003-3642-01

Channel								
809:	9	9	12	8	8	5	3	7
817:	6	5	4	5	5	9	8	8
825:	3	10	6	16	7	8	6	6
833:	14	9	5	7	8	9	6	10
841:	9	6	5	6	7	6	7	9
849:	8	8	6	10	10	8	2	7
857:	6	6	8	9	12	7	8	6
865:	11	6	9	8	9	4	13	8
873:	5	3	8	9	7	4	7	3
881:	13	10	7	8	6	7	7	6
889:	11	11	5	7	8	4	9	5
897:	8	5	9	10	6	4	4	2
905:	10	5	9	8	14	32	43	21
913:	11	8	8	6	7	6	5	6
921:	7	5	6	11	7	9	4	7
929:	7	7	3	8	10	7	6	8
937:	10	4	7	4	9	5	5	3
945:	11	5	12	8	6	3	11	8
953:	5	6	8	7	10	3	7	7
961:	8	5	11	10	12	12	20	24
969:	23	5	13	7	4	11	5	9
977:	1	6	6	9	5	6	9	2
985:	7	2	5	7	6	5	9	9
993:	4	4	3	6	3	9	1	6
1001:	11	7	6	9	3	8	3	6
1009:	4	6	5	12	6	5	3	4
1017:	5	9	9	7	3	7	6	6
1025:	5	5	4	6	10	4	4	3
1033:	7	6	4	7	0	3	11	6
1041:	6	6	12	6	6	5	5	1
1049:	9	8	5	3	4	10	8	5
1057:	4	5	5	8	9	6	11	6
1065:	1	4	9	1	7	9	7	2
1073:	4	5	5	5	7	2	8	3
1081:	4	5	5	6	6	7	3	4
1089:	6	7	7	8	6	7	8	4
1097:	5	4	4	8	7	5	13	7
1105:	10	5	9	4	4	9	6	10
1113:	7	5	5	8	7	10	12	11
1121:	12	6	7	5	3	15	9	10
1129:	7	8	6	7	9	7	10	4
1137:	7	7	5	6	10	11	8	10
1145:	7	8	7	6	10	6	3	6
1153:	10	9	7	10	7	4	4	9
1161:	11	9	4	5	7	7	9	9
1169:	6	8	8	5	12	3	6	7
1177:	10	6	5	5	3	13	9	4
1185:	4	11	10	11	6	5	9	5
1193:	6	7	5	8	4	11	9	10
1201:	6	5	12	9	8	8	9	10
1209:	6	8	11	11	6	6	8	10
1217:	9	10	12	9	12	14	7	10
1225:	9	6	9	2	12	11	5	9

1233:	13	9	4	6	6	11	7	6

Sample Title: HTC-A01-S003-3642-01

Channel								
1241:	6	9	9	5	5	5	12	3
1249:	9	7	10	5	4	2	6	3
1257:	3	9	5	3	3	6	6	4
1265:	8	5	5	7	4	4	10	0
1273:	5	4	1	3	2	7	6	7
1281:	5	11	3	8	8	3	9	3
1289:	7	4	5	3	3	1	5	1
1297:	6	9	1	2	4	4	0	7
1305:	4	2	2	6	4	5	4	2
1313:	3	3	4	6	6	4	2	6
1321:	1	4	4	7	2	1	4	8
1329:	4	6	3	3	3	7	5	3
1337:	4	4	2	1	1	3	2	4
1345:	2	3	4	0	4	3	2	1
1353:	5	3	3	3	4	1	4	1
1361:	1	2	1	5	3	2	1	4
1369:	3	1	1	1	2	3	2	5
1377:	2	6	2	1	1	0	5	1
1385:	6	4	2	1	1	3	3	1
1393:	2	3	2	3	2	3	5	6
1401:	6	3	3	4	2	2	4	4
1409:	2	2	1	2	2	0	1	2
1417:	1	5	4	2	3	4	3	2
1425:	7	6	1	1	1	3	0	1
1433:	2	1	2	2	2	1	2	2
1441:	3	3	4	4	3	3	4	1
1449:	1	0	4	1	2	2	0	4
1457:	9	30	97	149	152	45	14	1
1465:	1	1	3	1	1	0	1	2
1473:	2	1	3	2	2	0	0	4
1481:	2	1	0	1	3	1	3	2
1489:	5	2	1	0	1	1	6	2
1497:	3	1	2	1	0	1	1	7
1505:	2	2	2	3	2	1	1	1
1513:	1	0	1	0	2	0	3	2
1521:	3	3	2	1	1	1	2	3
1529:	1	1	1	1	1	0	0	0
1537:	3	0	2	0	2	1	0	0
1545:	1	0	1	3	2	1	1	0
1553:	1	1	1	0	2	1	4	1
1561:	1	2	0	0	0	1	1	0
1569:	1	1	3	2	2	0	1	1
1577:	0	5	3	0	2	0	2	3
1585:	2	2	2	5	1	1	9	5
1593:	4	2	1	0	0	3	2	1
1601:	0	0	1	0	0	1	0	4
1609:	0	2	2	0	2	1	0	0
1617:	1	1	3	6	3	0	1	1
1625:	2	1	1	0	1	5	1	3
1633:	0	1	1	3	2	0	2	1
1641:	0	1	0	0	2	0	1	0
1649:	0	1	2	2	0	4	0	1
1657:	1	1	0	0	2	1	1	0

1665:	0	1	2	2	1	0	2	2

Sample Title: HTC-A01-S003-3642-01

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

2097:	0	1	1	3	5	5	4	3

Sample Title: HTC-A01-S003-3642-01

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

2529:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-3642-01

Channel								
2537:	0	1	1	0	0	0	0	0
2545:	1	1	0	1	0	0	1	0
2553:	0	0	0	0	0	0	0	1
2561:	0	1	0	0	0	1	0	0
2569:	1	0	0	0	2	1	0	0
2577:	1	0	0	0	1	0	0	0
2585:	0	0	0	1	0	0	0	0
2593:	1	0	0	0	0	1	0	0
2601:	1	2	0	0	0	1	1	1
2609:	0	0	0	6	10	14	22	12
2617:	0	1	0	0	0	0	0	0
2625:	0	0	0	0	1	1	0	0
2633:	0	0	1	0	0	0	0	0
2641:	0	1	0	0	0	1	0	0
2649:	0	0	0	1	0	0	0	0
2657:	0	1	0	1	0	0	1	1
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	0	1	0	0	0	0	0	0
2689:	0	0	0	0	0	0	0	1
2697:	1	0	1	0	0	0	0	1
2705:	2	0	1	0	0	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	1	0	0	0	0	0	1
2729:	0	0	0	0	0	0	0	0
2737:	1	0	1	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	0	0	1	0	0	0
2769:	0	0	0	0	1	0	0	0
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	2	0	2	0	1
2825:	0	0	0	0	0	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	0	1	0	0
2849:	0	0	1	0	0	0	0	0
2857:	0	0	0	2	0	0	0	0
2865:	0	0	0	0	0	0	1	0
2873:	1	0	0	0	0	0	0	0
2881:	1	0	0	0	2	0	0	0
2889:	0	0	0	0	1	0	0	1
2897:	0	1	0	0	0	0	0	0
2905:	0	0	0	0	1	0	0	0
2913:	0	0	0	0	1	0	1	0
2921:	0	0	0	0	0	1	2	0
2929:	1	0	0	0	0	0	0	0
2937:	0	0	0	1	0	0	0	0
2945:	0	0	0	1	1	0	0	0
2953:	1	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-3642-01

Channel								
2969:	0	0	0	0	1	0	0	0
2977:	0	1	0	0	0	0	0	0
2985:	0	0	0	0	1	0	0	1
2993:	0	0	0	0	1	0	0	1
3001:	1	0	0	0	1	0	0	1
3009:	0	0	0	0	1	0	0	0
3017:	0	0	0	0	0	1	0	0
3025:	0	0	0	0	0	0	1	1
3033:	1	1	0	0	0	1	0	1
3041:	0	0	0	0	0	0	0	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	0	1	0
3065:	0	0	0	0	0	0	0	0
3073:	0	0	1	0	0	1	1	0
3081:	0	0	0	0	0	0	0	0
3089:	1	0	0	0	0	0	0	0
3097:	0	0	0	0	0	0	0	0
3105:	0	0	0	0	0	0	0	0
3113:	0	0	0	1	0	1	0	0
3121:	0	0	1	0	0	0	0	2
3129:	1	0	0	0	0	0	0	0
3137:	0	0	1	0	0	0	1	0
3145:	0	0	0	0	0	0	0	0
3153:	0	0	1	0	1	0	0	0
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	1	0	0	0	0
3177:	0	0	0	0	1	0	0	0
3185:	0	0	1	0	0	0	0	0
3193:	1	1	0	0	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	1	0	0	0	0	0	0	0
3217:	0	0	1	0	0	1	0	0
3225:	0	0	0	0	0	0	0	0
3233:	0	0	0	0	0	0	0	1
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	1	0	0	0
3257:	0	1	0	0	0	0	0	0
3265:	0	0	0	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	1	0	0	0	0	1	0	0
3289:	0	0	0	0	1	0	0	0
3297:	0	0	0	0	0	0	0	0
3305:	0	0	0	1	0	0	0	1
3313:	0	0	0	0	1	0	0	1
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	1
3345:	0	1	0	0	0	1	2	0
3353:	0	0	0	0	0	0	0	0
3361:	1	0	0	0	0	0	1	0
3369:	0	0	0	0	1	0	0	1
3377:	0	1	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: HTC-A01-S003-3642-01

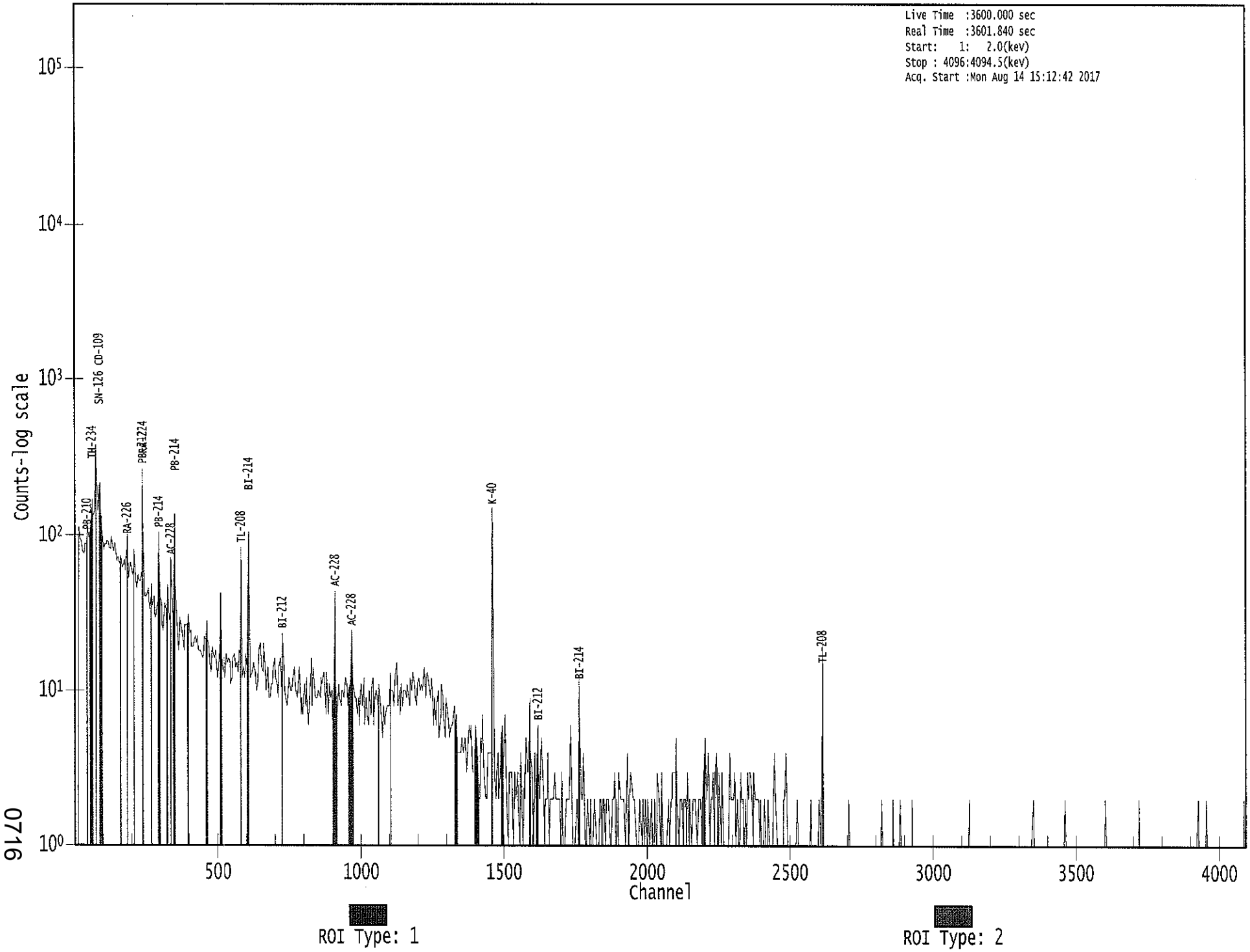
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	1	0	0	0	0	0	0
3441:	0	0	0	1	0	0	1	0
3449:	1	0	0	1	0	0	0	0
3457:	0	1	0	0	2	0	0	0
3465:	0	0	0	0	0	0	0	1
3473:	0	0	1	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	1	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	1	0	0	0	0	0

Sample Title: HTC-A01-S003-3642-01

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

0000055195.CNF



0716

KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-11
Sample Description	: HTC-A01-S003-4248-01
Sample Type	: SOIL
Sample Size	: 6.300E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:31:42AM
Acquisition Started	: 8/14/2017 3:29:20PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.6 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 18 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55197

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 4:29:25PM
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	63.12	63.72	0.0000	0.00
2	74.56	75.15	0.0000	0.00
3	77.26	77.85	0.0000	0.00
4	89.27	89.85	0.0000	0.00
5	92.56	93.14	0.0000	0.00
6	113.43	113.98	0.0000	0.00
7	186.21	186.69	0.0000	0.00
8	209.07	209.53	0.0000	0.00
9	238.63	239.06	0.0000	0.00
10	241.68	242.10	0.0000	0.00
11	270.28	270.67	0.0000	0.00
12	295.24	295.61	0.0000	0.00
13	300.28	300.65	0.0000	0.00
14	328.77	329.11	0.0000	0.00
15	337.96	338.29	0.0000	0.00
16	351.96	352.27	0.0000	0.00
17	409.68	409.93	0.0000	0.00
18	428.14	428.38	0.0000	0.00
19	462.99	463.19	0.0000	0.00
20	496.85	497.01	0.0000	0.00
21	510.91	511.06	0.0000	0.00
22	583.44	583.52	0.0000	0.00
23	605.02	605.07	0.0000	0.00
24	609.36	609.41	0.0000	0.00
25	631.66	631.69	0.0000	0.00
26	727.17	727.10	0.0000	0.00
27	768.20	768.09	0.0000	0.00
28	771.86	771.75	0.0000	0.00
29	796.14	796.00	0.0000	0.00
30	817.26	817.10	0.0000	0.00
31	862.42	862.22	0.0000	0.00
32	904.44	904.20	0.0000	0.00
33	911.38	911.13	0.0000	0.00
34	949.89	949.60	0.0000	0.00
35	965.51	965.20	0.0000	0.00
36	969.25	968.94	0.0000	0.00
37	1015.61	1015.25	0.0000	0.00
38	1031.30	1030.93	0.0000	0.00
39	1079.37	1078.96	0.0000	0.00
40	1117.25	1116.79	0.0000	0.00
41	1121.46	1121.00	0.0000	0.00
42	1155.71	1155.22	0.0000	0.00

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1238.35	1237.77	0.0000	0.00
44	1303.53	1302.89	0.0000	0.00
45	1353.85	1353.16	0.0000	0.00
46	1461.35	1460.55	0.0000	0.00
47	1538.62	1537.75	0.0000	0.00
48	1584.14	1583.22	0.0000	0.00
49	1588.92	1588.00	0.0000	0.00
50	1591.92	1591.00	0.0000	0.00
51	1626.06	1625.10	0.0000	0.00
52	1659.18	1658.19	0.0000	0.00
53	1729.63	1728.57	0.0000	0.00
54	1765.27	1764.18	0.0000	0.00
55	1811.02	1809.89	0.0000	0.00
56	1864.69	1863.50	0.0000	0.00
57	1902.28	1901.05	0.0000	0.00
58	1935.13	1933.88	0.0000	0.00
59	2104.76	2103.34	0.0000	0.00
60	2118.32	2116.88	0.0000	0.00
61	2165.91	2164.43	0.0000	0.00
62	2204.61	2203.09	0.0000	0.00
63	2245.11	2243.56	0.0000	0.00
64	2615.48	2613.57	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 4:29:25PM

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	63.12	61 -	67	63.72	1.66E+02	112.57	2.19E+03	1.21
M	2	74.56	72 -	83	75.15	4.57E+02	99.14	1.52E+03	1.65
m	3	77.26	72 -	83	77.85	6.43E+02	105.15	1.42E+03	1.65
m	4	89.27	83 -	97	89.85	2.02E+02	83.14	1.13E+03	1.67
m	5	92.56	83 -	97	93.14	3.30E+02	82.92	1.06E+03	1.67
	6	113.43	111 -	117	113.98	8.16E+01	84.57	1.24E+03	2.64
	7	186.21	183 -	190	186.69	2.23E+02	86.60	1.10E+03	1.90
	8	209.07	207 -	212	209.53	5.92E+01	64.71	7.92E+02	1.75
M	9	238.63	235 -	245	239.06	1.09E+03	80.88	4.98E+02	1.82
m	10	241.68	235 -	245	242.10	2.15E+02	81.60	5.03E+02	1.82
	11	270.28	267 -	274	270.67	9.11E+01	63.21	6.08E+02	2.07
M	12	295.24	292 -	305	295.61	3.35E+02	51.86	3.10E+02	1.81
m	13	300.28	292 -	305	300.65	9.82E+01	58.69	5.07E+02	2.74
	14	328.77	326 -	332	329.11	6.74E+01	50.21	4.03E+02	2.25
	15	337.96	333 -	343	338.29	2.75E+02	77.56	6.58E+02	2.02
	16	351.96	348 -	356	352.27	4.65E+02	76.62	6.17E+02	1.82
	17	409.68	407 -	413	409.93	6.50E+01	41.56	2.68E+02	2.92
	18	428.14	425 -	433	428.38	5.31E+01	46.09	2.98E+02	4.53
	19	462.99	460 -	465	463.19	4.10E+01	36.93	2.40E+02	1.42
	20	496.85	493 -	502	497.01	5.29E+01	43.97	2.48E+02	4.87
	21	510.91	506 -	515	511.06	2.30E+02	58.02	3.48E+02	1.59
	22	583.44	578 -	589	583.52	3.60E+02	62.67	3.08E+02	2.12
M	23	605.02	603 -	612	605.07	2.53E+01	18.65	8.64E+01	2.41
m	24	609.36	603 -	612	609.41	3.40E+02	44.45	1.36E+02	1.80
	25	631.66	628 -	636	631.69	4.21E+01	35.40	1.68E+02	2.94
	26	727.17	723 -	730	727.10	6.27E+01	39.29	2.15E+02	2.02
M	27	768.20	762 -	790	768.09	6.20E+01	34.70	1.54E+02	2.58
m	28	771.86	762 -	790	771.75	2.74E+01	34.81	1.49E+02	2.59
	29	796.14	790 -	801	796.00	4.37E+01	46.78	2.51E+02	4.83
	30	817.26	814 -	821	817.10	3.72E+01	28.98	1.14E+02	3.62
	31	862.42	856 -	870	862.22	8.83E+01	44.61	1.71E+02	3.45
M	32	904.44	899 -	920	904.20	2.75E+01	27.12	1.16E+02	2.20
m	33	911.38	899 -	920	911.13	2.15E+02	36.37	9.23E+01	1.93
	34	949.89	946 -	953	949.60	2.40E+01	29.46	1.30E+02	1.47
M	35	965.51	962 -	972	965.20	5.42E+01	31.95	1.04E+02	2.22
m	36	969.25	962 -	972	968.94	1.50E+02	36.23	1.30E+02	2.22
	37	1015.61	1011 -	1018	1015.25	2.76E+01	24.66	8.07E+01	3.59
	38	1031.30	1026 -	1034	1030.93	2.70E+01	28.46	1.08E+02	0.97
	39	1079.37	1076 -	1081	1078.96	2.12E+01	22.74	8.56E+01	2.55
M	40	1117.25	1114 -	1126	1116.79	2.02E+01	20.20	7.64E+01	2.28

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	1121.46	1114 -	1126	1121.00	6.98E+01	28.50	9.70E+01	2.08
	42	1155.71	1153 -	1158	1155.22	2.68E+01	23.90	9.24E+01	2.44
	43	1238.35	1233 -	1244	1237.77	5.25E+01	50.20	2.91E+02	2.46
	44	1303.53	1300 -	1305	1302.89	1.50E+01	18.97	6.00E+01	2.71
	45	1353.85	1349 -	1360	1353.16	2.30E+01	22.98	5.61E+01	5.87
	46	1461.35	1454 -	1467	1460.55	1.38E+03	79.30	8.49E+01	2.34
	47	1538.62	1532 -	1545	1537.75	3.10E+01	15.81	1.40E+01	11.16
M	48	1584.14	1582 -	1595	1583.22	8.38E+00	5.74	8.58E+00	2.44
m	49	1588.92	1582 -	1595	1588.00	1.87E+01	13.75	1.50E+01	2.22
m	50	1591.92	1582 -	1595	1591.00	2.18E+01	13.89	1.05E+01	2.22
	51	1626.06	1618 -	1633	1625.10	2.67E+01	22.54	4.07E+01	9.90
	52	1659.18	1652 -	1663	1658.19	1.40E+01	15.75	2.40E+01	1.10
	53	1729.63	1725 -	1732	1728.57	1.13E+01	14.56	2.74E+01	1.22
	54	1765.27	1760 -	1768	1764.18	6.75E+01	18.12	9.00E+00	1.60
	55	1811.02	1808 -	1812	1809.89	7.13E+00	8.90	9.75E+00	2.93
	56	1864.69	1861 -	1867	1863.50	8.50E+00	8.51	7.00E+00	1.62
	57	1902.28	1898 -	1903	1901.05	5.50E+00	6.08	3.00E+00	2.38
	58	1935.13	1931 -	1936	1933.88	8.00E+00	5.66	0.00E+00	1.66
	59	2104.76	2100 -	2106	2103.34	1.35E+01	12.22	1.70E+01	1.29
	60	2118.32	2112 -	2121	2116.88	1.57E+01	12.92	1.46E+01	3.70
	61	2165.91	2161 -	2167	2164.43	5.50E+00	7.78	7.00E+00	3.25
	62	2204.61	2197 -	2208	2203.09	3.40E+01	11.66	0.00E+00	2.60
	63	2245.11	2240 -	2246	2243.56	9.00E+00	6.00	0.00E+00	2.92
	64	2615.48	2609 -	2620	2613.57	1.34E+02	25.92	1.35E+01	2.44

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 4:29:25PM

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	63.12	61 -	67	1.66E+02	112.57	2.19E+03	9.01E+01
M	2	74.56	72 -	83	4.57E+02	99.14	1.52E+03	6.42E+01
m	3	77.26	72 -	83	6.43E+02	105.15	1.42E+03	6.18E+01
m	4	89.27	83 -	97	2.02E+02	83.14	1.13E+03	5.52E+01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	5	92.56	83 -	97	3.30E+02	82.92	1.06E+03	5.36E+01
	6	113.43	111 -	117	8.16E+01	84.57	1.24E+03	6.79E+01
	7	186.21	183 -	190	2.23E+02	86.60	1.10E+03	6.68E+01
	8	209.07	207 -	212	5.92E+01	64.71	7.92E+02	5.17E+01
M	9	238.63	235 -	245	1.09E+03	80.88	4.98E+02	3.67E+01
m	10	241.68	235 -	245	2.15E+02	81.60	5.03E+02	3.69E+01
	11	270.28	267 -	274	9.11E+01	63.21	6.08E+02	4.95E+01
M	12	295.24	292 -	305	3.35E+02	51.86	3.10E+02	2.89E+01
m	13	300.28	292 -	305	9.82E+01	58.69	5.07E+02	3.70E+01
	14	328.77	326 -	332	6.74E+01	50.21	4.03E+02	3.90E+01
	15	337.96	333 -	343	2.75E+02	77.56	6.58E+02	5.76E+01
	16	351.96	348 -	356	4.65E+02	76.62	6.17E+02	5.20E+01
	17	409.68	407 -	413	6.50E+01	41.56	2.68E+02	3.15E+01
	18	428.14	425 -	433	5.31E+01	46.09	2.98E+02	3.59E+01
	19	462.99	460 -	465	4.10E+01	36.93	2.40E+02	2.85E+01
	20	496.85	493 -	502	5.29E+01	43.97	2.48E+02	3.41E+01
	21	510.91	506 -	515	2.30E+02	58.02	3.48E+02	4.06E+01
	22	583.44	578 -	589	3.60E+02	62.67	3.08E+02	4.10E+01
M	23	605.02	603 -	612	2.53E+01	18.65	8.64E+01	1.53E+01
m	24	609.36	603 -	612	3.40E+02	44.45	1.36E+02	1.92E+01
	25	631.66	628 -	636	4.21E+01	35.40	1.68E+02	2.71E+01
	26	727.17	723 -	730	6.27E+01	39.29	2.15E+02	2.96E+01
M	27	768.20	762 -	790	6.20E+01	34.70	1.54E+02	2.04E+01
m	28	771.86	762 -	790	2.74E+01	34.81	1.49E+02	2.01E+01
	29	796.14	790 -	801	4.37E+01	46.78	2.51E+02	3.69E+01
	30	817.26	814 -	821	3.72E+01	28.98	1.14E+02	2.16E+01
	31	862.42	856 -	870	8.83E+01	44.61	1.71E+02	3.33E+01
M	32	904.44	899 -	920	2.75E+01	27.12	1.16E+02	1.77E+01
m	33	911.38	899 -	920	2.15E+02	36.37	9.23E+01	1.58E+01
	34	949.89	946 -	953	2.40E+01	29.46	1.30E+02	2.28E+01
M	35	965.51	962 -	972	5.42E+01	31.95	1.04E+02	1.68E+01
m	36	969.25	962 -	972	1.50E+02	36.23	1.30E+02	1.87E+01
	37	1015.61	1011 -	1018	2.76E+01	24.66	8.07E+01	1.83E+01
	38	1031.30	1026 -	1034	2.70E+01	28.46	1.08E+02	2.18E+01
	39	1079.37	1076 -	1081	2.12E+01	22.74	8.56E+01	1.71E+01
M	40	1117.25	1114 -	1126	2.02E+01	20.20	7.64E+01	1.44E+01
m	41	1121.46	1114 -	1126	6.98E+01	28.50	9.70E+01	1.62E+01
	42	1155.71	1153 -	1158	2.68E+01	23.90	9.24E+01	1.77E+01
	43	1238.35	1233 -	1244	5.25E+01	50.20	2.91E+02	3.95E+01
	44	1303.53	1300 -	1305	1.50E+01	18.97	6.00E+01	1.42E+01
	45	1353.85	1349 -	1360	2.30E+01	22.98	5.61E+01	1.72E+01
	46	1461.35	1454 -	1467	1.38E+03	79.30	8.49E+01	2.26E+01
	47	1538.62	1532 -	1545	3.10E+01	15.81	1.40E+01	9.23E+00
M	48	1584.14	1582 -	1595	8.38E+00	5.74	8.58E+00	4.81E+00
m	49	1588.92	1582 -	1595	1.87E+01	13.75	1.50E+01	6.37E+00
m	50	1591.92	1582 -	1595	2.18E+01	13.89	1.05E+01	5.33E+00
	51	1626.06	1618 -	1633	2.67E+01	22.54	4.07E+01	1.65E+01
	52	1659.18	1652 -	1663	1.40E+01	15.75	2.40E+01	1.14E+01
	53	1729.63	1725 -	1732	1.13E+01	14.56	2.74E+01	1.06E+01
	54	1765.27	1760 -	1768	6.75E+01	18.12	9.00E+00	6.29E+00
	55	1811.02	1808 -	1812	7.13E+00	8.90	9.75E+00	5.86E+00

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
56	1864.69	1861 -	1867	8.50E+00	8.51	7.00E+00	5.10E+00
57	1902.28	1898 -	1903	5.50E+00	6.08	3.00E+00	3.18E+00
58	1935.13	1931 -	1936	8.00E+00	5.66	0.00E+00	0.00E+00
59	2104.76	2100 -	2106	1.35E+01	12.22	1.70E+01	8.03E+00
60	2118.32	2112 -	2121	1.57E+01	12.92	1.46E+01	8.39E+00
61	2165.91	2161 -	2167	5.50E+00	7.78	7.00E+00	5.10E+00
62	2204.61	2197 -	2208	3.40E+01	11.66	0.00E+00	0.00E+00
63	2245.11	2240 -	2246	9.00E+00	6.00	0.00E+00	0.00E+00
64	2615.48	2609 -	2620	1.34E+02	25.92	1.35E+01	9.55E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 4:29:25PM

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	63.12	61 -	67	63.72	1.66E+02	112.57	2.19E+03	TH-234
									TH-230
M	2	74.56	72 -	83	75.15	4.57E+02	99.14	1.52E+03	AM-243
m	3	77.26	72 -	83	77.85	6.43E+02	105.15	1.42E+03	.....
m	4	89.27	83 -	97	89.85	2.02E+02	83.14	1.13E+03	LU-176
m	5	92.56	83 -	97	93.14	3.30E+02	82.92	1.06E+03	GA-67
	6	113.43	111 -	117	113.98	8.16E+01	84.57	1.24E+03	.....
	7	186.21	183 -	190	186.69	2.23E+02	86.60	1.10E+03	RA-226
	8	209.07	207 -	212	209.53	5.92E+01	64.71	7.92E+02	GA-67
									CM-243
M	9	238.63	235 -	245	239.06	1.09E+03	80.88	4.98E+02	PB-212
m	10	241.68	235 -	245	242.10	2.15E+02	81.60	5.03E+02	RA-224
	11	270.28	267 -	274	270.67	9.11E+01	63.21	6.08E+02	.....
M	12	295.24	292 -	305	295.61	3.35E+02	51.86	3.10E+02	PB-214
m	13	300.28	292 -	305	300.65	9.82E+01	58.69	5.07E+02	GA-67
									PB-212
									BI-210M

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	14	328.77	326 -	332	329.11	6.74E+01	50.21	4.03E+02	LA-140
	15	337.96	333 -	343	338.29	2.75E+02	77.56	6.58E+02	AC-228
	16	351.96	348 -	356	352.27	4.65E+02	76.62	6.17E+02	PB-214
	17	409.68	407 -	413	409.93	6.50E+01	41.56	2.68E+02	.....
	18	428.14	425 -	433	428.38	5.31E+01	46.09	2.98E+02	SB-125
	19	462.99	460 -	465	463.19	4.10E+01	36.93	2.40E+02	SB-125
	20	496.85	493 -	502	497.01	5.29E+01	43.97	2.48E+02	RU-103
	21	510.91	506 -	515	511.06	2.30E+02	58.02	3.48E+02	.....
	22	583.44	578 -	589	583.52	3.60E+02	62.67	3.08E+02	TL-208
M	23	605.02	603 -	612	605.07	2.53E+01	18.65	8.64E+01	CS-134
m	24	609.36	603 -	612	609.41	3.40E+02	44.45	1.36E+02	BI-214
	25	631.66	628 -	636	631.69	4.21E+01	35.40	1.68E+02	.....
	26	727.17	723 -	730	727.10	6.27E+01	39.29	2.15E+02	BI-212
M	27	768.20	762 -	790	768.09	6.20E+01	34.70	1.54E+02	.....
m	28	771.86	762 -	790	771.75	2.74E+01	34.81	1.49E+02	.....
	29	796.14	790 -	801	796.00	4.37E+01	46.78	2.51E+02	CS-134
	30	817.26	814 -	821	817.10	3.72E+01	28.98	1.14E+02	.....
	31	862.42	856 -	870	862.22	8.83E+01	44.61	1.71E+02	.....
M	32	904.44	899 -	920	904.20	2.75E+01	27.12	1.16E+02	.....
m	33	911.38	899 -	920	911.13	2.15E+02	36.37	9.23E+01	AC-228 TL-204
	34	949.89	946 -	953	949.60	2.40E+01	29.46	1.30E+02	.....
M	35	965.51	962 -	972	965.20	5.42E+01	31.95	1.04E+02	.....
m	36	969.25	962 -	972	968.94	1.50E+02	36.23	1.30E+02	AC-228
	37	1015.61	1011 -	1018	1015.25	2.76E+01	24.66	8.07E+01	.....
	38	1031.30	1026 -	1034	1030.93	2.70E+01	28.46	1.08E+02	.....
	39	1079.37	1076 -	1081	1078.96	2.12E+01	22.74	8.56E+01	.....
M	40	1117.25	1114 -	1126	1116.79	2.02E+01	20.20	7.64E+01	.....
m	41	1121.46	1114 -	1126	1121.00	6.98E+01	28.50	9.70E+01	TA-182 SC-46
	42	1155.71	1153 -	1158	1155.22	2.68E+01	23.90	9.24E+01	.....
	43	1238.35	1233 -	1244	1237.77	5.25E+01	50.20	2.91E+02	CO-56
	44	1303.53	1300 -	1305	1302.89	1.50E+01	18.97	6.00E+01	.....
	45	1353.85	1349 -	1360	1353.16	2.30E+01	22.98	5.61E+01	.....
	46	1461.35	1454 -	1467	1460.55	1.38E+03	79.30	8.49E+01	K-40
	47	1538.62	1532 -	1545	1537.75	3.10E+01	15.81	1.40E+01	.....
M	48	1584.14	1582 -	1595	1583.22	8.38E+00	5.74	8.58E+00	.....
m	49	1588.92	1582 -	1595	1588.00	1.87E+01	13.75	1.50E+01	.....
m	50	1591.92	1582 -	1595	1591.00	2.18E+01	13.89	1.05E+01	.....
	51	1626.06	1618 -	1633	1625.10	2.67E+01	22.54	4.07E+01	.....
	52	1659.18	1652 -	1663	1658.19	1.40E+01	15.75	2.40E+01	.....
	53	1729.63	1725 -	1732	1728.57	1.13E+01	14.56	2.74E+01	.....
	54	1765.27	1760 -	1768	1764.18	6.75E+01	18.12	9.00E+00	BI-214
	55	1811.02	1808 -	1812	1809.89	7.13E+00	8.90	9.75E+00	.....
	56	1864.69	1861 -	1867	1863.50	8.50E+00	8.51	7.00E+00	.....
	57	1902.28	1898 -	1903	1901.05	5.50E+00	6.08	3.00E+00	.....
	58	1935.13	1931 -	1936	1933.88	8.00E+00	5.66	0.00E+00	.....
	59	2104.76	2100 -	2106	2103.34	1.35E+01	12.22	1.70E+01	.....
	60	2118.32	2112 -	2121	2116.88	1.57E+01	12.92	1.46E+01	.....
	61	2165.91	2161 -	2167	2164.43	5.50E+00	7.78	7.00E+00	.....
	62	2204.61	2197 -	2208	2203.09	3.40E+01	11.66	0.00E+00	BI-214
	63	2245.11	2240 -	2246	2243.56	9.00E+00	6.00	0.00E+00	.....
	64	2615.48	2609 -	2620	2613.57	1.34E+02	25.92	1.35E+01	TL-208

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 4:29:25PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	63.12	1.66E+02	112.57	2.70E-02	2.26E-03
M	2	74.56	4.57E+02	99.14	2.75E-02	2.38E-03
m	3	77.26	6.43E+02	105.15	2.75E-02	2.41E-03
m	4	89.27	2.02E+02	83.14	2.74E-02	2.50E-03
m	5	92.56	3.30E+02	82.92	2.73E-02	2.45E-03
	6	113.43	8.16E+01	84.57	2.63E-02	2.11E-03
	7	186.21	2.23E+02	86.60	2.17E-02	1.68E-03
	8	209.07	5.92E+01	64.71	2.04E-02	1.61E-03
M	9	238.63	1.09E+03	80.88	1.89E-02	1.53E-03
m	10	241.68	2.15E+02	81.60	1.87E-02	1.52E-03
	11	270.28	9.11E+01	63.21	1.74E-02	1.43E-03
M	12	295.24	3.35E+02	51.86	1.64E-02	1.37E-03
m	13	300.28	9.82E+01	58.69	1.62E-02	1.36E-03
	14	328.77	6.74E+01	50.21	1.53E-02	1.29E-03
	15	337.96	2.75E+02	77.56	1.50E-02	1.27E-03
	16	351.96	4.65E+02	76.62	1.45E-02	1.24E-03
	17	409.68	6.50E+01	41.56	1.30E-02	1.13E-03
	18	428.14	5.31E+01	46.09	1.26E-02	1.12E-03
	19	462.99	4.10E+01	36.93	1.19E-02	1.10E-03
	20	496.85	5.29E+01	43.97	1.13E-02	1.08E-03
	21	510.91	2.30E+02	58.02	1.10E-02	1.07E-03
	22	583.44	3.60E+02	62.67	9.96E-03	1.02E-03
M	23	605.02	2.53E+01	18.65	9.69E-03	1.01E-03
m	24	609.36	3.40E+02	44.45	9.63E-03	1.01E-03
	25	631.66	4.21E+01	35.40	9.37E-03	9.91E-04
	26	727.17	6.27E+01	39.29	8.41E-03	8.68E-04
M	27	768.20	6.20E+01	34.70	8.07E-03	8.03E-04
m	28	771.86	2.74E+01	34.81	8.04E-03	7.97E-04
	29	796.14	4.37E+01	46.78	7.85E-03	7.58E-04
	30	817.26	3.72E+01	28.98	7.69E-03	7.25E-04
	31	862.42	8.83E+01	44.61	7.39E-03	6.53E-04
M	32	904.44	2.75E+01	27.12	7.13E-03	5.94E-04
m	33	911.38	2.15E+02	36.37	7.08E-03	5.91E-04
	34	949.89	2.40E+01	29.46	6.87E-03	5.77E-04

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	35	965.51	5.42E+01	31.95	6.78E-03	5.71E-04
m	36	969.25	1.50E+02	36.23	6.76E-03	5.69E-04
	37	1015.61	2.76E+01	24.66	6.53E-03	5.51E-04
	38	1031.30	2.70E+01	28.46	6.46E-03	5.45E-04
	39	1079.37	2.12E+01	22.74	6.24E-03	5.27E-04
M	40	1117.25	2.02E+01	20.20	6.09E-03	5.12E-04
m	41	1121.46	6.98E+01	28.50	6.07E-03	5.11E-04
	42	1155.71	2.68E+01	23.90	5.94E-03	4.98E-04
	43	1238.35	5.25E+01	50.20	5.64E-03	4.76E-04
	44	1303.53	1.50E+01	18.97	5.44E-03	4.61E-04
	45	1353.85	2.30E+01	22.98	5.29E-03	4.50E-04
	46	1461.35	1.38E+03	79.30	5.00E-03	4.25E-04
	47	1538.62	3.10E+01	15.81	4.82E-03	4.07E-04
M	48	1584.14	8.38E+00	5.74	4.72E-03	3.96E-04
m	49	1588.92	1.87E+01	13.75	4.71E-03	3.95E-04
m	50	1591.92	2.18E+01	13.89	4.71E-03	3.94E-04
	51	1626.06	2.67E+01	22.54	4.64E-03	3.86E-04
	52	1659.18	1.40E+01	15.75	4.57E-03	3.79E-04
	53	1729.63	1.13E+01	14.56	4.44E-03	3.62E-04
	54	1765.27	6.75E+01	18.12	4.37E-03	3.54E-04
	55	1811.02	7.13E+00	8.90	4.29E-03	3.44E-04
	56	1864.69	8.50E+00	8.51	4.21E-03	3.38E-04
	57	1902.28	5.50E+00	6.08	4.15E-03	3.38E-04
	58	1935.13	8.00E+00	5.66	4.10E-03	3.38E-04
	59	2104.76	1.35E+01	12.22	3.86E-03	3.38E-04
	60	2118.32	1.57E+01	12.92	3.84E-03	3.38E-04
	61	2165.91	5.50E+00	7.78	3.78E-03	3.38E-04
	62	2204.61	3.40E+01	11.66	3.74E-03	3.38E-04
	63	2245.11	9.00E+00	6.00	3.69E-03	3.38E-04
	64	2615.48	1.34E+02	25.92	3.30E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 4:29:25PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	63.12	1.66E+02	112.57	6.71E+01	1.02E+01	9.92E+01	1.13E+02
M	2	74.56	4.57E+02	99.14			4.57E+02	9.91E+01
m	3	77.26	6.43E+02	105.15	7.83E+00	3.45E+00	6.36E+02	1.05E+02
m	4	89.27	2.02E+02	83.14			2.02E+02	8.31E+01
m	5	92.56	3.30E+02	82.92	1.35E+02	7.64E+00	1.95E+02	8.33E+01
	6	113.43	8.16E+01	84.57			8.16E+01	8.46E+01
	7	186.21	2.23E+02	86.60	5.47E+01	6.99E+00	1.69E+02	8.69E+01
	8	209.07	5.92E+01	64.71			5.92E+01	6.47E+01
M	9	238.63	1.09E+03	80.88	1.58E+01	5.72E+00	1.07E+03	8.11E+01
m	10	241.68	2.15E+02	81.60			2.15E+02	8.16E+01
	11	270.28	9.11E+01	63.21			9.11E+01	6.32E+01
M	12	295.24	3.35E+02	51.86			3.35E+02	5.19E+01
m	13	300.28	9.82E+01	58.69			9.82E+01	5.87E+01
	14	328.77	6.74E+01	50.21			6.74E+01	5.02E+01
	15	337.96	2.75E+02	77.56	1.94E+00	4.45E+00	2.73E+02	7.77E+01
	16	351.96	4.65E+02	76.62	8.23E+00	4.77E+00	4.57E+02	7.68E+01
	17	409.68	6.50E+01	41.56			6.50E+01	4.16E+01
	18	428.14	5.31E+01	46.09			5.31E+01	4.61E+01
	19	462.99	4.10E+01	36.93			4.10E+01	3.69E+01
	20	496.85	5.29E+01	43.97			5.29E+01	4.40E+01
	21	510.91	2.30E+02	58.02	7.54E+01	5.68E+00	1.55E+02	5.83E+01
	22	583.44	3.60E+02	62.67	7.97E+00	3.93E+00	3.52E+02	6.28E+01
M	23	605.02	2.53E+01	18.65			2.53E+01	1.86E+01
m	24	609.36	3.40E+02	44.45	5.86E+00	3.50E+00	3.34E+02	4.46E+01
	25	631.66	4.21E+01	35.40			4.21E+01	3.54E+01
	26	727.17	6.27E+01	39.29			6.27E+01	3.93E+01
M	27	768.20	6.20E+01	34.70			6.20E+01	3.47E+01
m	28	771.86	2.74E+01	34.81			2.74E+01	3.48E+01
	29	796.14	4.37E+01	46.78			4.37E+01	4.68E+01
	30	817.26	3.72E+01	28.98			3.72E+01	2.90E+01
	31	862.42	8.83E+01	44.61			8.83E+01	4.46E+01
M	32	904.44	2.75E+01	27.12			2.75E+01	2.71E+01
m	33	911.38	2.15E+02	36.37			2.15E+02	3.64E+01
	34	949.89	2.40E+01	29.46			2.40E+01	2.95E+01
M	35	965.51	5.42E+01	31.95			5.42E+01	3.19E+01
m	36	969.25	1.50E+02	36.23			1.50E+02	3.62E+01
	37	1015.61	2.76E+01	24.66			2.76E+01	2.47E+01
	38	1031.30	2.70E+01	28.46			2.70E+01	2.85E+01
	39	1079.37	2.12E+01	22.74			2.12E+01	2.27E+01
M	40	1117.25	2.02E+01	20.20			2.02E+01	2.02E+01
m	41	1121.46	6.98E+01	28.50			6.98E+01	2.85E+01
	42	1155.71	2.68E+01	23.90			2.68E+01	2.39E+01
	43	1238.35	5.25E+01	50.20			5.25E+01	5.02E+01
	44	1303.53	1.50E+01	18.97			1.50E+01	1.90E+01
	45	1353.85	2.30E+01	22.98			2.30E+01	2.30E+01
	46	1461.35	1.38E+03	79.30	7.31E+00	2.50E+00	1.38E+03	7.93E+01
	47	1538.62	3.10E+01	15.81			3.10E+01	1.58E+01
M	48	1584.14	8.38E+00	5.74			8.38E+00	5.74E+00
m	49	1588.92	1.87E+01	13.75			1.87E+01	1.37E+01
m	50	1591.92	2.18E+01	13.89			2.18E+01	1.39E+01
	51	1626.06	2.67E+01	22.54			2.67E+01	2.25E+01
	52	1659.18	1.40E+01	15.75			1.40E+01	1.57E+01
	53	1729.63	1.13E+01	14.56			1.13E+01	1.46E+01
	54	1765.27	6.75E+01	18.12			6.75E+01	1.81E+01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
55	1811.02	7.13E+00	8.90			7.13E+00	8.90E+00
56	1864.69	8.50E+00	8.51			8.50E+00	8.51E+00
57	1902.28	5.50E+00	6.08			5.50E+00	6.08E+00
58	1935.13	8.00E+00	5.66			8.00E+00	5.66E+00
59	2104.76	1.35E+01	12.22			1.35E+01	1.22E+01
60	2118.32	1.57E+01	12.92			1.57E+01	1.29E+01
61	2165.91	5.50E+00	7.78			5.50E+00	7.78E+00
62	2204.61	3.40E+01	11.66			3.40E+01	1.17E+01
63	2245.11	9.00E+00	6.00			9.00E+00	6.00E+00
64	2615.48	1.34E+02	25.92	5.15E+00	1.56E+00	1.29E+02	2.60E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 4:29:25PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	63.12	1.66E+02	112.57	6.71E+01	1.02E+01	9.92E+01	1.13E+02
M	2	74.56	4.57E+02	99.14			4.57E+02	9.91E+01
m	3	77.26	6.43E+02	105.15	7.83E+00	3.45E+00	6.36E+02	1.05E+02
m	4	89.27	2.02E+02	83.14			2.02E+02	8.31E+01
m	5	92.56	3.30E+02	82.92	1.35E+02	7.64E+00	1.95E+02	8.33E+01
	6	113.43	8.16E+01	84.57			8.16E+01	8.46E+01
	7	186.21	2.23E+02	86.60	5.47E+01	6.99E+00	1.69E+02	8.69E+01
	8	209.07	5.92E+01	64.71			5.92E+01	6.47E+01
M	9	238.63	1.09E+03	80.88	1.58E+01	5.72E+00	1.07E+03	8.11E+01
m	10	241.68	2.15E+02	81.60			2.15E+02	8.16E+01
	11	270.28	9.11E+01	63.21			9.11E+01	6.32E+01
M	12	295.24	3.35E+02	51.86			3.35E+02	5.19E+01
m	13	300.28	9.82E+01	58.69			9.82E+01	5.87E+01
	14	328.77	6.74E+01	50.21			6.74E+01	5.02E+01
	15	337.96	2.75E+02	77.56	1.94E+00	4.45E+00	2.73E+02	7.77E+01
	16	351.96	4.65E+02	76.62	8.23E+00	4.77E+00	4.57E+02	7.68E+01
	17	409.68	6.50E+01	41.56			6.50E+01	4.16E+01
	18	428.14	5.31E+01	46.09			5.31E+01	4.61E+01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	19	462.99	4.10E+01	36.93			4.10E+01	3.69E+01
	20	496.85	5.29E+01	43.97			5.29E+01	4.40E+01
	21	510.91	2.30E+02	58.02	7.54E+01	5.68E+00	1.55E+02	5.83E+01
	22	583.44	3.60E+02	62.67	7.97E+00	3.93E+00	3.52E+02	6.28E+01
M	23	605.02	2.53E+01	18.65			2.53E+01	1.86E+01
m	24	609.36	3.40E+02	44.45	5.86E+00	3.50E+00	3.34E+02	4.46E+01
	25	631.66	4.21E+01	35.40			4.21E+01	3.54E+01
	26	727.17	6.27E+01	39.29			6.27E+01	3.93E+01
M	27	768.20	6.20E+01	34.70			6.20E+01	3.47E+01
m	28	771.86	2.74E+01	34.81			2.74E+01	3.48E+01
	29	796.14	4.37E+01	46.78			4.37E+01	4.68E+01
	30	817.26	3.72E+01	28.98			3.72E+01	2.90E+01
	31	862.42	8.83E+01	44.61			8.83E+01	4.46E+01
M	32	904.44	2.75E+01	27.12			2.75E+01	2.71E+01
m	33	911.38	2.15E+02	36.37			2.15E+02	3.64E+01
	34	949.89	2.40E+01	29.46			2.40E+01	2.95E+01
M	35	965.51	5.42E+01	31.95			5.42E+01	3.19E+01
m	36	969.25	1.50E+02	36.23			1.50E+02	3.62E+01
	37	1015.61	2.76E+01	24.66			2.76E+01	2.47E+01
	38	1031.30	2.70E+01	28.46			2.70E+01	2.85E+01
	39	1079.37	2.12E+01	22.74			2.12E+01	2.27E+01
M	40	1117.25	2.02E+01	20.20			2.02E+01	2.02E+01
m	41	1121.46	6.98E+01	28.50			6.98E+01	2.85E+01
	42	1155.71	2.68E+01	23.90			2.68E+01	2.39E+01
	43	1238.35	5.25E+01	50.20			5.25E+01	5.02E+01
	44	1303.53	1.50E+01	18.97			1.50E+01	1.90E+01
	45	1353.85	2.30E+01	22.98			2.30E+01	2.30E+01
	46	1461.35	1.38E+03	79.30	7.31E+00	2.50E+00	1.38E+03	7.93E+01
	47	1538.62	3.10E+01	15.81			3.10E+01	1.58E+01
M	48	1584.14	8.38E+00	5.74			8.38E+00	5.74E+00
m	49	1588.92	1.87E+01	13.75			1.87E+01	1.37E+01
m	50	1591.92	2.18E+01	13.89			2.18E+01	1.39E+01
	51	1626.06	2.67E+01	22.54			2.67E+01	2.25E+01
	52	1659.18	1.40E+01	15.75			1.40E+01	1.57E+01
	53	1729.63	1.13E+01	14.56			1.13E+01	1.46E+01
	54	1765.27	6.75E+01	18.12			6.75E+01	1.81E+01
	55	1811.02	7.13E+00	8.90			7.13E+00	8.90E+00
	56	1864.69	8.50E+00	8.51			8.50E+00	8.51E+00
	57	1902.28	5.50E+00	6.08			5.50E+00	6.08E+00
	58	1935.13	8.00E+00	5.66			8.00E+00	5.66E+00
	59	2104.76	1.35E+01	12.22			1.35E+01	1.22E+01
	60	2118.32	1.57E+01	12.92			1.57E+01	1.29E+01
	61	2165.91	5.50E+00	7.78			5.50E+00	7.78E+00
	62	2204.61	3.40E+01	11.66			3.40E+01	1.17E+01
	63	2245.11	9.00E+00	6.00			9.00E+00	6.00E+00
	64	2615.48	1.34E+02	25.92	5.15E+00	1.56E+00	1.29E+02	2.60E+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 1707078-11

HTC-A01-S003-4248-01

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	0.955	1460.81	*	10.67	3.07E+01	3.21E+00
RU-103	0.964	497.08	*	89.00	3.25E-01	2.75E-01
CS-134	0.738	563.23		8.38		
		569.32		15.43		
		604.70	*	97.60	3.48E-02	2.59E-02
		795.84	*	85.40	8.47E-02	9.10E-02
		801.93		8.73		
TL-208	0.828	583.14	*	30.22	1.39E+00	2.87E-01
		860.37		4.48		
		2614.66	*	35.85	1.30E+00	2.93E-01
BI-212	0.764	727.17	*	11.80	7.53E-01	4.78E-01
		1620.62		2.75		
PB-212	1.000	238.63	*	44.60	1.52E+00	1.68E-01
		300.09	*	3.41	2.11E+00	1.27E+00
BI-214	0.714	609.31	*	46.30	8.93E-01	1.51E-01
		1120.29		15.10		
		1764.49	*	15.80	1.16E+00	3.26E-01
		2204.22	*	4.98	2.18E+00	7.73E-01
PB-214	1.000	295.21	*	19.19	1.26E+00	2.23E-01
		351.92	*	37.19	1.01E+00	1.90E-01
RA-224	0.925	240.98	*	3.95	3.47E+00	1.35E+00
RA-226	1.000	186.21	*	3.28	2.83E+00	5.38E+00
AC-228	0.987	338.32	*	11.40	1.91E+00	5.66E-01
		911.07	*	27.70	1.31E+00	2.46E-01
		969.11	*	16.60	1.59E+00	4.07E-01
TH-234	0.995	63.29	*	3.80	1.15E+00	1.32E+00
AM-243	0.998	74.67	*	66.00	3.00E-01	7.01E-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 1707078-11

HTC-A01-S003-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 4:29:25PM
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	77.26	1.76531E-01	8.28		
m	4	89.27	5.59755E-02	20.63	Tol.	LU-176
m	5	92.56	5.42416E-02	21.32	Tol.	GA-67
	6	113.43	2.26611E-02	51.84		
	8	209.07	1.64362E-02	54.68	Tol.	GA-67 CM-243
	11	270.28	2.53143E-02	34.68		
	14	328.77	1.87319E-02	37.23	Tol.	LA-140
	17	409.68	1.80444E-02	31.99		
	18	428.14	1.47435E-02	43.42	Sum	
	19	462.99	1.13889E-02	45.04	Tol.	SB-125
	21	510.91	4.30191E-02	18.82		
	25	631.66	1.16931E-02	42.05		
M	27	768.20	1.72213E-02	27.98		
m	28	771.86	7.60648E-03	63.57		
	30	817.26	1.03369E-02	38.94		
	31	862.42	2.45235E-02	25.26		
M	32	904.44	7.62693E-03	49.39	Sum	
	34	949.89	6.66979E-03	61.35	S-Esc	
M	35	965.51	1.50458E-02	29.49	Sum	
	37	1015.61	7.67974E-03	44.59		
	38	1031.30	7.50000E-03	52.70		
	39	1079.37	5.88976E-03	53.62	Sum	
M	40	1117.25	5.61285E-03	49.98		
m	41	1121.46	1.93907E-02	20.41	Tol.	SC-46 TA-182
	42	1155.71	7.44673E-03	44.57	Sum	
	43	1238.35	1.45791E-02	47.82		
	44	1303.53	4.16667E-03	63.25		
	45	1353.85	6.38072E-03	50.02		
	47	1538.62	8.61111E-03	25.50		
M	48	1584.14	2.32717E-03	34.28		
m	49	1588.92	5.18170E-03	36.85		
m	50	1591.92	6.04492E-03	31.92	Sum	
	51	1626.06	7.40839E-03	42.25		
	52	1659.18	3.88889E-03	56.24		
	53	1729.63	3.14444E-03	64.31		
	55	1811.02	1.97917E-03	62.47		
	56	1864.69	2.36111E-03	50.09		
	57	1902.28	1.52778E-03	55.30		
	58	1935.13	2.22222E-03	35.36		
	59	2104.76	3.74369E-03	45.32	S-Esc	
	60	2118.32	4.35990E-03	41.17		
	61	2165.91	1.52778E-03	70.71		
	63	2245.11	2.50000E-03	33.33		

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

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

NUCLIDE 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	3.07E+01	3.21E+00
RU-103	0.96	497.08	*	89.00	3.25E-01	2.75E-01
CS-134	0.73	563.23		8.38		
		569.32		15.43		
		604.70	*	97.60	3.48E-02	2.59E-02
		795.84	*	85.40	8.47E-02	9.10E-02
		801.93		8.73		
TL-208	0.82	583.14	*	30.22	1.39E+00	2.87E-01
		860.37		4.48		
		2614.66	*	35.85	1.30E+00	2.93E-01
BI-212	0.76	727.17	*	11.80	7.53E-01	4.78E-01
		1620.62		2.75		
PB-212	1.00	238.63	*	44.60	1.52E+00	1.68E-01
		300.09	*	3.41	2.11E+00	1.27E+00
BI-214	0.71	609.31	*	46.30	8.93E-01	1.51E-01
		1120.29		15.10		
		1764.49	*	15.80	1.16E+00	3.26E-01
		2204.22	*	4.98	2.18E+00	7.73E-01
PB-214	1.00	295.21	*	19.19	1.26E+00	2.23E-01
		351.92	*	37.19	1.01E+00	1.90E-01
RA-224	0.92	240.98	*	3.95	3.47E+00	1.35E+00
RA-226	1.00	186.21	*	3.28	2.83E+00	5.38E+00
AC-228	0.98	338.32	*	11.40	1.91E+00	5.66E-01
		911.07	*	27.70	1.31E+00	2.46E-01
		969.11	*	16.60	1.59E+00	4.07E-01
TH-234	0.99	63.29	*	3.80	1.15E+00	1.32E+00
AM-243	0.99	74.67	*	66.00	3.00E-01	7.01E-02

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

* = 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	0.955	3.07E+01	3.21E+00	
RU-103	0.964	3.25E-01	2.75E-01	
CS-134	0.738	3.85E-02	2.49E-02	
TL-208	0.828	1.35E+00	2.05E-01	
BI-212	0.764	7.53E-01	4.78E-01	
PB-212	1.000	1.53E+00	1.67E-01	
BI-214	0.714	9.79E-01	1.35E-01	
PB-214	1.000	1.12E+00	1.44E-01	
RA-224	0.925	3.47E+00	1.35E+00	
RA-226	1.000	2.83E+00	5.38E+00	
AC-228	0.987	1.45E+00	1.98E-01	
TH-234	0.995	1.15E+00	1.32E+00	
AM-243	0.998	3.00E-01	7.01E-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 1707078-11

HTC-A01-S003-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 4:29:25PM
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	77.26	1.76531E-01	8.28		
m	4	89.27	5.59755E-02	20.63	Tol.	LU-176
m	5	92.56	5.42416E-02	21.32	Tol.	GA-67
	6	113.43	2.26611E-02	51.84		
	8	209.07	1.64362E-02	54.68	Tol.	GA-67
						CM-243
	11	270.28	2.53143E-02	34.68		
	14	328.77	1.87319E-02	37.23	Tol.	LA-140
	17	409.68	1.80444E-02	31.99		
	18	428.14	1.47435E-02	43.42	Sum	
	19	462.99	1.13889E-02	45.04	Tol.	SB-125
	21	510.91	4.30191E-02	18.82		
	25	631.66	1.16931E-02	42.05		
M	27	768.20	1.72213E-02	27.98		
m	28	771.86	7.60648E-03	63.57		
	30	817.26	1.03369E-02	38.94		
	31	862.42	2.45235E-02	25.26		
M	32	904.44	7.62693E-03	49.39	Sum	
	34	949.89	6.66979E-03	61.35	S-Esc	
M	35	965.51	1.50458E-02	29.49	Sum	
	37	1015.61	7.67974E-03	44.59		
	38	1031.30	7.50000E-03	52.70		
	39	1079.37	5.88976E-03	53.62	Sum	
M	40	1117.25	5.61285E-03	49.98		
m	41	1121.46	1.93907E-02	20.41	Tol.	SC-46
						TA-182
	42	1155.71	7.44673E-03	44.57	Sum	
	43	1238.35	1.45791E-02	47.82		
	44	1303.53	4.16667E-03	63.25		
	45	1353.85	6.38072E-03	50.02		
	47	1538.62	8.61111E-03	25.50		
M	48	1584.14	2.32717E-03	34.28		
m	49	1588.92	5.18170E-03	36.85		
m	50	1591.92	6.04492E-03	31.92	Sum	
	51	1626.06	7.40839E-03	42.25		

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	1659.18	3.88889E-03	56.24		
53	1729.63	3.14444E-03	64.31		
55	1811.02	1.97917E-03	62.47		
56	1864.69	2.36111E-03	50.09		
57	1902.28	1.52778E-03	55.30		
58	1935.13	2.22222E-03	35.36		
59	2104.76	3.74369E-03	45.32	S-Esc	
60	2118.32	4.35990E-03	41.17		
61	2165.91	1.52778E-03	70.71		
63	2245.11	2.50000E-03	33.33		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-4.74E-01	1.87E+00	1.87E+00
+	NA-22	1274.54		99.94	-2.66E-02	8.15E-02	8.15E-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	-2.78E-03	6.24E-02	6.24E-02
+	K-40	1460.81	*	10.67	3.07E+01	1.09E+00	1.09E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-4.18E-03	6.29E-02	6.29E-02
		78.34		96.00	1.97E-01		8.01E-02
+	SC-46	889.25		99.98	-2.81E-02	1.46E-01	1.46E-01
		1120.51		99.99	2.54E-01		2.52E-01
+	V-48	983.52		99.98	-1.99E+00	4.01E+00	4.19E+00
		1312.10		97.50	-3.23E+00		4.01E+00
+	CR-51	320.08		9.83	7.28E-01	5.95E+00	5.95E+00
+	MN-54	834.83		99.97	-2.30E-02	9.12E-02	9.12E-02
+	CO-56	846.75		99.96	4.35E-02	1.55E-01	1.55E-01
		1037.75		14.03	2.11E-01		1.22E+00
		1238.25		67.00	2.46E-01		3.96E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	1771.40		15.51	-1.60E-01	1.55E-01	6.67E-01
		2598.48		16.90	1.30E-01		6.33E-01
+	CO-57	122.06		85.51	4.77E-02	7.25E-02	7.25E-02
		136.48		10.60	-9.40E-02		5.86E-01
+	CO-58	810.76		99.40	1.16E-02	1.70E-01	1.70E-01
+	FE-59	1099.22		56.50	-7.88E-02	6.23E-01	6.23E-01
		1291.56		43.20	-1.55E-01		7.85E-01
+	CO-60	1173.22		100.00	2.10E-02	6.59E-02	9.30E-02
		1332.49		100.00	-3.54E-02		6.59E-02
+	ZN-65	1115.52		50.75	7.93E-03	2.10E-01	2.10E-01
+	GA-67	93.31		35.70	1.33E+08	7.31E+07	7.31E+07
		208.95		2.24	5.38E+08		1.01E+09
		300.22		16.00	-3.22E+08		1.58E+08
+	SE-75	121.11		16.70	1.97E-01	1.42E-01	4.97E-01
		136.00		59.20	-2.27E-02		1.42E-01
		264.65		59.80	-1.06E-02		1.50E-01
		279.53		25.20	3.41E-01		4.16E-01
		400.65		11.40	5.35E-01		8.94E-01
+	RB-82	776.52		13.00	-2.67E+00	6.26E+00	6.26E+00
+	RB-83	520.41		46.00	3.90E-02	2.77E-01	2.77E-01
		529.64		30.30	-1.67E-01		3.80E-01
		552.65		16.40	-3.33E-01		7.63E-01
+	KR-85	513.99		0.43	-2.24E+00	2.05E+01	2.05E+01
+	SR-85	513.99		99.27	-2.61E-02	2.39E-01	2.39E-01
+	Y-88	898.02		93.40	2.76E-03	1.04E-01	1.32E-01
		1836.01		99.38	3.77E-02		1.04E-01
+	MO-93	263.06		56.72	-3.62E-02	6.16E-02	9.30E-02
		684.67		99.68	-1.78E-02		6.69E-02
		1477.11		99.08	9.68E-03		6.16E-02
+	NB-93M	16.57		9.43	2.06E-01	6.02E-01	6.02E-01
+	NB-94	702.63		100.00	2.62E-03	5.62E-02	7.41E-02
		871.10		100.00	-9.10E-03		5.62E-02
+	NB-95	765.79		99.81	4.88E-01	5.37E-01	5.37E-01
+	NB-95M	235.69		25.00	-1.11E+08	1.55E+07	1.55E+07
+	ZR-95	724.18		43.70	6.87E-03	3.62E-01	5.12E-01
		756.72		55.30	2.08E-01		3.62E-01
+	MO-99	181.06		6.20	2.69E+09	8.18E+09	1.30E+10
		739.58		12.80	6.00E+08		8.18E+09
		778.00		4.50	-1.55E+10		2.21E+10
+	RU-103	497.08	*	89.00	3.25E-01	4.36E-01	4.36E-01
+	RU-106	621.84		9.80	1.28E-01	7.73E-01	7.73E-01
+	AG-108M	433.93		89.90	1.49E-03	6.15E-02	6.15E-02
		614.37		90.40	3.49E-03		7.86E-02
		722.95		90.50	3.05E-03		8.07E-02
+	CD-109	88.03		3.72	2.94E-01	2.04E+00	2.04E+00
+	AG-110M	657.75		93.14	1.26E-02	9.19E-02	9.19E-02
		677.61		10.53	5.44E-02		8.09E-01
		706.67		16.46	-1.00E-01		5.69E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		AG-110M	763.93		21.98	-5.34E-01	9.19E-02	4.21E-01
			884.67		71.63	4.04E-02		1.25E-01
			1384.27		23.94	-1.53E-02		3.39E-01
+		CD-113M	263.70		0.02	-3.95E+01	2.29E+02	2.29E+02
+		SN-113	255.12		1.93	1.01E+00	1.66E-01	4.35E+00
			391.69		64.90	1.35E-01		1.66E-01
+		TE123M	159.00		84.10	-3.50E-02	9.77E-02	9.77E-02
+		SB-124	602.71		97.87	1.47E-02	2.05E-01	2.05E-01
			645.85		7.26	2.39E-01		2.66E+00
			722.78		11.10	7.27E-02		1.92E+00
			1691.02		49.00	-4.74E-02		2.86E-01
+		I-125	35.49		6.49	8.02E-02	2.53E+00	2.53E+00
+		SB-125	176.33		6.89	-3.68E-01	2.17E-01	7.34E-01
			427.89		29.33	1.35E-01		2.17E-01
			463.38		10.35	2.92E-02		6.86E-01
			600.56		17.80	1.01E-01		3.93E-01
			635.90		11.32	3.80E-03		5.64E-01
+		SB-126	414.70		83.30	0.00E+00	1.21E+01	1.24E+01
			666.33		99.60	-8.41E+00		1.21E+01
			695.00		99.60	-5.02E+00		1.25E+01
			720.50		53.80	6.28E+00		2.38E+01
+		SN-126	87.57		37.00	1.75E-01	1.75E-01	1.75E-01
+		SB-127	473.00		25.00	2.19E+06	3.61E+06	4.90E+06
			685.20		35.70	-9.58E+05		3.61E+06
			783.80		14.70	5.18E+06		9.81E+06
+		I-129	29.78		57.00	-7.39E-02	1.02E-01	1.02E-01
			33.60		13.20	-5.96E-02		4.21E-01
			39.58		7.52	-8.52E-02		7.04E-01
+		I-131	284.30		6.05	9.51E+02	2.14E+02	2.96E+03
			364.48		81.20	1.03E+02		2.14E+02
			636.97		7.26	-1.21E+02		2.51E+03
			722.89		1.80	4.76E+02		1.26E+04
+		TE-132	49.72		13.10	-2.96E+08	2.33E+07	1.60E+08
			228.16		88.00	-6.22E+06		2.33E+07
+		BA-133	81.00		33.00	-6.57E-01	1.37E-01	1.67E-01
			302.84		17.80	2.24E-01		3.54E-01
			356.01		60.00	3.84E-02		1.37E-01
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00		38.00	-1.27E+05	3.23E+04	3.23E+04
+		CS-134	563.23		8.38	1.76E-01	9.26E-02	8.10E-01
			569.32		15.43	-1.56E-01		4.31E-01
			604.70	*	97.60	3.48E-02		9.26E-02
			795.84	*	85.40	8.47E-02		1.48E-01
			801.93		8.73	-7.94E-02		8.04E-01
+		CS-135	268.24		16.00	4.25E-01	3.83E-01	3.83E-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	4.27E+01	9.59E+00	9.12E+01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	163.89	4.61	6.32E+01	9.59E+00	1.49E+02
			176.55	13.56	-2.39E+01		4.76E+01
			273.65	12.66	-5.03E+00		6.54E+01
			340.57	48.50	5.20E+01		2.30E+01
			818.50	99.70	3.11E+00		9.59E+00
			1048.07	79.60	1.39E+00		1.31E+01
			1235.34	19.70	5.50E+01		8.17E+01
+		CS-137	661.65	85.12	1.74E-02	8.12E-02	8.12E-02
+		LA-138	788.74	34.00	-1.74E-01	9.58E-02	1.95E-01
			1435.80	66.00	1.14E-02		9.58E-02
+		CE-139	165.85	80.35	4.71E-02	9.92E-02	9.92E-02
+		BA-140	162.64	6.70	6.20E+01	3.72E+01	1.19E+02
			304.84	4.50	2.84E+01		1.95E+02
			423.70	3.20	7.11E+01		2.83E+02
			437.55	2.00	-3.73E+01		4.34E+02
			537.32	25.00	3.92E+00		3.72E+01
+		LA-140	328.77	20.50	2.82E+01	7.84E+00	4.72E+01
			487.03	45.50	5.30E+00		1.87E+01
			815.85	23.50	2.51E+00		4.70E+01
			1596.49	95.49	-9.72E-01		7.84E+00
+		CE-141	145.44	48.40	1.73E-01	7.74E-01	7.74E-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	-1.33E-01	5.78E-01	5.78E-01
+		PM-144	476.78	42.00	3.34E-02	8.32E-02	1.70E-01
			618.01	98.60	1.13E-02		8.32E-02
			696.49	99.49	1.25E-02		8.33E-02
+		PM-145	36.85	21.70	1.27E-01	1.39E-01	2.58E-01
			37.36	39.70	2.32E-02		1.39E-01
			42.30	15.10	-1.28E-01		3.37E-01
			72.40	2.31	-4.13E+00		3.01E+00
+		PM-146	453.90	39.94	4.95E-02	1.56E-01	1.56E-01
			735.90	14.01	-4.53E-02		4.94E-01
			747.13	13.10	1.26E-01		5.34E-01
+		ND-147	91.11	28.90	1.45E+02	8.52E+01	8.52E+01
			531.02	13.10	-4.49E+00		1.52E+02
+		PM-149	285.90	3.10	2.81E+12	9.18E+12	9.18E+12
+		EU-152	121.78	20.50	9.48E-02	2.39E-01	2.39E-01
			244.69	5.40	1.83E-01		9.99E-01
			344.27	19.13	-1.64E-04		3.16E-01
			778.89	9.20	-6.81E-01		6.75E-01
			964.01	10.40	-2.33E+00		8.73E-01
			1085.78	7.22	-4.63E-02		1.13E+00
			1112.02	9.60	7.07E-02		8.46E-01
			1407.95	14.94	2.69E-01		4.99E-01
+		GD-153	97.43	31.30	-3.78E-02	2.06E-01	2.06E-01
			103.18	22.20	3.77E-02		2.90E-01
+		EU-154	123.07	40.50	3.22E-02	1.23E-01	1.23E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	723.30		19.70	1.43E-02	1.23E-01	3.78E-01
		873.19		11.50	-2.89E-02		5.05E-01
		996.32		10.30	-3.98E-01		6.28E-01
		1004.76		17.90	1.80E-01		4.27E-01
		1274.45		35.50	-7.14E-02		2.19E-01
+	EU-155	86.50		30.90	1.56E-01	2.14E-01	2.14E-01
		105.30		20.70	6.53E-02		2.47E-01
+	EU-156	811.77		10.40	1.15E+01	4.69E+01	4.69E+01
		1153.47		7.20	3.49E+00		9.34E+01
		1230.71		8.90	-1.58E+01		7.51E+01
+	HO-166M	184.41		72.60	1.25E-01	8.42E-02	8.42E-02
		280.45		29.60	1.07E-02		2.00E-01
		410.94		11.10	4.85E-01		5.72E-01
		711.69		54.10	-4.03E-03		1.24E-01
+	TM-171	66.72		0.14	-4.19E+00	4.65E+01	4.65E+01
+	HF-172	67.35		5.31	-8.15E-02	4.64E-01	1.23E+00
		125.81		11.30	-3.15E-01		4.64E-01
+	LU-172	181.53		20.60	7.82E+02	2.03E+03	3.77E+03
		900.72		29.81	4.11E+01		3.59E+03
		1093.66		62.50	-5.32E+02		2.03E+03
+	LU-173	100.72		5.24	-6.12E-02	3.34E-01	1.06E+00
		272.11		21.20	-1.31E-01		3.34E-01
+	HF-175	343.40		84.00	-9.29E-05	1.86E-01	1.86E-01
+	LU-176	88.34		13.30	7.15E-02	5.85E-02	4.97E-01
		201.83		86.00	-4.11E-03		5.85E-02
		306.78		94.00	-2.26E-02		5.86E-02
+	HF-181	133.02		41.70	-1.26E-01	3.18E-01	5.48E-01
		345.85		17.20	-8.32E-04		1.56E+00
		482.03		82.80	4.54E-02		3.18E-01
+	TA-182	67.75		41.20	-1.68E-02	2.53E-01	2.53E-01
		1121.30		34.90	5.96E-01		5.79E-01
		1189.05		16.23	-6.11E-02		1.01E+00
		1221.41		26.98	-3.01E-02		5.90E-01
		1231.02		11.44	-3.06E-01		1.46E+00
+	IR-192	308.46		29.68	7.28E-02	2.98E-01	4.69E-01
		468.07		48.10	-3.53E-02		2.98E-01
+	HG-203	279.19		77.30	2.59E-01	3.16E-01	3.16E-01
+	TL-204	374.74		94.11	-3.94E-02	6.27E-02	6.27E-02
		899.15		99.16	-4.72E-03		7.13E-02
		911.74		91.10	3.78E-01		1.56E-01
+	BI-207	569.67		97.72	1.05E-02	6.49E-02	6.49E-02
		1063.62		74.90	8.49E-03		1.08E-01
+	TL-208	583.14	*	30.22	1.39E+00	2.35E-01	3.39E-01
		860.37		4.48	1.89E+00		1.80E+00
		2614.66	*	35.85	1.30E+00		2.35E-01
+	BI-210M	262.00		45.00	-3.15E-02	1.17E-01	1.17E-01
		300.00		23.00	-9.90E-01		2.77E-01
+	PB-210	46.50		4.25	5.08E-01	1.26E+00	1.26E+00
+	PB-211	404.84		2.90	4.16E-01	1.98E+00	1.98E+00

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-211	831.96		2.90	-1.86E-01	1.98E+00	2.44E+00
+	BI-212	727.17	*	11.80	7.53E-01	7.43E-01	7.43E-01
		1620.62		2.75	0.00E+00		2.19E+00
+	PB-212	238.63	*	44.60	1.52E+00	2.01E-01	2.01E-01
		300.09	*	3.41	2.11E+00		3.05E+00
+	BI-214	609.31	*	46.30	8.93E-01	1.73E-01	1.88E-01
		1120.29		15.10	7.79E-01		7.71E-01
		1764.49	*	15.80	1.16E+00		2.64E-01
		2204.22	*	4.98	2.18E+00		1.73E-01
+	PB-214	295.21	*	19.19	1.26E+00	2.37E-01	5.21E-01
		351.92	*	37.19	1.01E+00		2.37E-01
+	RN-219	401.80		6.50	5.19E-01	9.04E-01	9.04E-01
+	RA-223	323.87		3.88	1.59E-01	1.47E+00	1.47E+00
+	RA-224	240.98	*	3.95	3.47E+00	2.27E+00	2.27E+00
+	RA-225	40.00		31.00	-2.67E+00	1.33E+01	1.33E+01
+	RA-226	186.21	*	3.28	2.83E+00	2.33E+00	2.33E+00
+	TH-227	50.10		8.40	-1.12E-01	5.63E-01	6.12E-01
		236.00		11.50	-4.02E+00		5.63E-01
		256.20		6.30	3.91E-01		8.84E-01
+	AC-228	338.32	*	11.40	1.91E+00	6.43E-01	8.27E-01
		911.07	*	27.70	1.31E+00		6.43E-01
		969.11	*	16.60	1.59E+00		6.55E-01
+	TH-230	48.44		16.90	4.34E-02	3.17E-01	3.17E-01
		62.85		4.60	1.76E+00		1.40E+00
		67.67		0.37	-1.06E+00		1.60E+01
+	PA-231	283.67		1.60	1.14E+00	2.69E+00	3.66E+00
		302.67		2.30	1.70E+00		2.69E+00
+	TH-231	25.64		14.70	-3.02E+00	5.33E-01	5.33E-01
		84.21		6.40	-5.71E-01		9.10E-01
+	PA-233	311.98		38.60	2.71E-01	1.66E+00	1.66E+00
+	PA-234	131.20		20.40	1.29E-01	2.54E-01	2.54E-01
		733.99		8.80	9.96E-02		7.79E-01
		946.00		12.00	0.00E+00		5.88E-01
+	PA-234M	1001.03		0.92	4.12E+00	8.22E+00	8.22E+00
+	TH-234	63.29	*	3.80	1.15E+00	2.16E+00	2.16E+00
+	U-235	143.76		10.50	4.21E-01	5.02E-01	5.02E-01
		163.35		4.70	4.55E-01		1.08E+00
		205.31		4.70	7.37E-02		1.08E+00
+	NP-237	86.50		12.60	3.70E-01	5.07E-01	5.07E-01
+	NP-239	106.10		22.70	1.25E+11	1.83E+11	1.83E+11
		228.18		10.70	-1.03E+11		3.88E+11
		277.60		14.10	1.09E+11		3.53E+11
+	AM-241	59.54		35.90	2.06E-03	1.59E-01	1.59E-01
+	AM-243	74.67	*	66.00	3.00E-01	1.69E-01	1.69E-01
+	CM-243	209.75		3.29	8.74E-01	4.28E-01	1.69E+00
		228.14		10.60	-1.25E-01		4.71E-01
		277.60		14.00	1.32E-01		4.28E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

+ = 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	1.87E+00	1.87E+00	-4.74E-01	8.90E-01
	NA-22	1274.54		99.94	8.15E-02	8.15E-02	-2.66E-02	3.76E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	6.24E-02	6.24E-02	-2.78E-03	2.74E-02
+	K-40	1460.81	*	10.67	1.09E+00	1.09E+00	3.07E+01	5.17E-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	6.29E-02	6.29E-02	-4.18E-03	3.08E-02
		78.34		96.00	8.01E-02		1.97E-01	3.94E-02
	SC-46	889.25		99.98	1.46E-01	1.46E-01	-2.81E-02	6.80E-02
		1120.51		99.99	2.52E-01		2.54E-01	1.20E-01
	V-48	983.52		99.98	4.19E+00	4.01E+00	-1.99E+00	1.96E+00
		1312.10		97.50	4.01E+00		-3.23E+00	1.83E+00
	CR-51	320.08		9.83	5.95E+00	5.95E+00	7.28E-01	2.87E+00
	MN-54	834.83		99.97	9.12E-02	9.12E-02	-2.30E-02	4.30E-02
	CO-56	846.75		99.96	1.55E-01	1.55E-01	4.35E-02	7.24E-02
		1037.75		14.03	1.22E+00		2.11E-01	5.72E-01
		1238.25		67.00	3.96E-01		2.46E-01	1.89E-01
		1771.40		15.51	6.67E-01		-1.60E-01	2.79E-01
		2598.48		16.90	6.33E-01		1.30E-01	2.51E-01
	CO-57	122.06		85.51	7.25E-02	7.25E-02	4.77E-02	3.53E-02
		136.48		10.60	5.86E-01		-9.40E-02	2.85E-01
	CO-58	810.76		99.40	1.70E-01	1.70E-01	1.16E-02	7.98E-02
	FE-59	1099.22		56.50	6.23E-01	6.23E-01	-7.88E-02	2.92E-01
		1291.56		43.20	7.85E-01		-1.55E-01	3.63E-01
	CO-60	1173.22		100.00	9.30E-02	6.59E-02	2.10E-02	4.37E-02
		1332.49		100.00	6.59E-02		-3.54E-02	2.98E-02
	ZN-65	1115.52		50.75	2.10E-01	2.10E-01	7.93E-03	9.84E-02
	GA-67	93.31		35.70	7.31E+07	7.31E+07	1.33E+08	3.59E+07

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	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	1.01E+09	7.31E+07	5.38E+08	4.91E+08
		300.22		16.00	1.58E+08		-3.22E+08	7.66E+07
	SE-75	121.11		16.70	4.97E-01	1.42E-01	1.97E-01	2.42E-01
		136.00		59.20	1.42E-01		-2.27E-02	6.89E-02
		264.65		59.80	1.50E-01		-1.06E-02	7.22E-02
		279.53		25.20	4.16E-01		3.41E-01	2.02E-01
		400.65		11.40	8.94E-01		5.35E-01	4.29E-01
	RB-82	776.52		13.00	6.26E+00	6.26E+00	-2.67E+00	2.94E+00
	RB-83	520.41		46.00	2.77E-01	2.77E-01	3.90E-02	1.32E-01
		529.64		30.30	3.80E-01		-1.67E-01	1.80E-01
		552.65		16.40	7.63E-01		-3.33E-01	3.61E-01
	KR-85	513.99		0.43	2.05E+01	2.05E+01	-2.24E+00	9.92E+00
	SR-85	513.99		99.27	2.39E-01	2.39E-01	-2.61E-02	1.16E-01
	Y-88	898.02		93.40	1.32E-01	1.04E-01	2.76E-03	6.17E-02
		1836.01		99.38	1.04E-01		3.77E-02	4.50E-02
	MO-93	263.06		56.72	9.30E-02	6.16E-02	-3.62E-02	4.49E-02
		684.67		99.68	6.69E-02		-1.78E-02	3.16E-02
		1477.11		99.08	6.16E-02		9.68E-03	2.75E-02
	NB-93M	16.57		9.43	6.02E-01	6.02E-01	2.06E-01	2.85E-01
	NB-94	702.63		100.00	7.41E-02	5.62E-02	2.62E-03	3.52E-02
		871.10		100.00	5.62E-02		-9.10E-03	2.59E-02
	NB-95	765.79		99.81	5.37E-01	5.37E-01	4.88E-01	2.56E-01
	NB-95M	235.69		25.00	1.55E+07	1.55E+07	-1.11E+08	7.55E+06
	ZR-95	724.18		43.70	5.12E-01	3.62E-01	6.87E-03	2.44E-01
		756.72		55.30	3.62E-01		2.08E-01	1.71E-01
	MO-99	181.06		6.20	1.30E+10	8.18E+09	2.69E+09	6.31E+09
		739.58		12.80	8.18E+09		6.00E+08	3.85E+09
		778.00		4.50	2.21E+10		-1.55E+10	1.03E+10
+	RU-103	497.08	*	89.00	4.36E-01	4.36E-01	3.25E-01	2.10E-01
	RU-106	621.84		9.80	7.73E-01	7.73E-01	1.28E-01	3.66E-01
	AG-108M	433.93		89.90	6.15E-02	6.15E-02	1.49E-03	2.93E-02
		614.37		90.40	7.86E-02		3.49E-03	3.74E-02
		722.95		90.50	8.07E-02		3.05E-03	3.82E-02
	CD-109	88.03		3.72	2.04E+00	2.04E+00	2.94E-01	1.00E+00
	AG-110M	657.75		93.14	9.19E-02	9.19E-02	1.26E-02	4.35E-02
		677.61		10.53	8.09E-01		5.44E-02	3.82E-01
		706.67		16.46	5.69E-01		-1.00E-01	2.70E-01
		763.93		21.98	4.21E-01		-5.34E-01	1.99E-01
		884.67		71.63	1.25E-01		4.04E-02	5.87E-02
		1384.27		23.94	3.39E-01		-1.53E-02	1.53E-01
	CD-113M	263.70		0.02	2.29E+02	2.29E+02	-3.95E+01	1.10E+02
	SN-113	255.12		1.93	4.35E+00	1.66E-01	1.01E+00	2.09E+00
		391.69		64.90	1.66E-01		1.35E-01	7.95E-02
	TE123M	159.00		84.10	9.77E-02	9.77E-02	-3.50E-02	4.74E-02
	SB-124	602.71		97.87	2.05E-01	2.05E-01	1.47E-02	9.73E-02
		645.85		7.26	2.66E+00		2.39E-01	1.26E+00
		722.78		11.10	1.92E+00		7.27E-02	9.11E-01
		1691.02		49.00	2.86E-01		-4.74E-02	1.22E-01
	I-125	35.49		6.49	2.53E+00	2.53E+00	8.02E-02	1.23E+00
	SB-125	176.33		6.89	7.34E-01	2.17E-01	-3.68E-01	3.56E-01
		427.89		29.33	2.17E-01		1.35E-01	1.04E-01
		463.38		10.35	6.86E-01		2.92E-02	3.29E-01
		600.56		17.80	3.93E-01		1.01E-01	1.87E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	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	5.64E-01	2.17E-01	3.80E-03	2.66E-01
	SB-126	414.70		83.30	1.24E+01	1.21E+01	0.00E+00	5.94E+00
		666.33		99.60	1.21E+01		-8.41E+00	5.71E+00
		695.00		99.60	1.25E+01		-5.02E+00	5.90E+00
		720.50		53.80	2.38E+01		6.28E+00	1.12E+01
	SN-126	87.57		37.00	1.75E-01	1.75E-01	1.75E-01	8.59E-02
	SB-127	473.00		25.00	4.90E+06	3.61E+06	2.19E+06	2.34E+06
		685.20		35.70	3.61E+06		-9.58E+05	1.70E+06
		783.80		14.70	9.81E+06		5.18E+06	4.63E+06
	I-129	29.78		57.00	1.02E-01	1.02E-01	-7.39E-02	4.96E-02
		33.60		13.20	4.21E-01		-5.96E-02	2.05E-01
		39.58		7.52	7.04E-01		-8.52E-02	3.43E-01
	I-131	284.30		6.05	2.96E+03	2.14E+02	9.51E+02	1.43E+03
		364.48		81.20	2.14E+02		1.03E+02	1.03E+02
		636.97		7.26	2.51E+03		-1.21E+02	1.18E+03
		722.89		1.80	1.26E+04		4.76E+02	5.96E+03
	TE-132	49.72		13.10	1.60E+08	2.33E+07	-2.96E+08	7.81E+07
		228.16		88.00	2.33E+07		-6.22E+06	1.13E+07
	BA-133	81.00		33.00	1.67E-01	1.37E-01	-6.57E-01	8.18E-02
		302.84		17.80	3.54E-01		2.24E-01	1.71E-01
		356.01		60.00	1.37E-01		3.84E-02	6.64E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	3.23E+04	3.23E+04	-1.27E+05	1.58E+04
+	CS-134	563.23		8.38	8.10E-01	9.26E-02	1.76E-01	3.84E-01
		569.32		15.43	4.31E-01		-1.56E-01	2.04E-01
		604.70	*	97.60	9.26E-02		3.48E-02	4.44E-02
		795.84	*	85.40	1.48E-01		8.47E-02	7.15E-02
		801.93		8.73	8.04E-01		-7.94E-02	3.76E-01
	CS-135	268.24		16.00	3.83E-01	3.83E-01	4.25E-01	1.86E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	9.12E+01	9.59E+00	4.27E+01	4.44E+01
		163.89		4.61	1.49E+02		6.32E+01	7.26E+01
		176.55		13.56	4.76E+01		-2.39E+01	2.31E+01
		273.65		12.66	6.54E+01		-5.03E+00	3.17E+01
		340.57		48.50	2.30E+01		5.20E+01	1.12E+01
		818.50		99.70	9.59E+00		3.11E+00	4.51E+00
		1048.07		79.60	1.31E+01		1.39E+00	6.12E+00
		1235.34		19.70	8.17E+01		5.50E+01	3.89E+01
	CS-137	661.65		85.12	8.12E-02	8.12E-02	1.74E-02	3.85E-02
	LA-138	788.74		34.00	1.95E-01	9.58E-02	-1.74E-01	9.17E-02
		1435.80		66.00	9.58E-02		1.14E-02	4.31E-02
	CE-139	165.85		80.35	9.92E-02	9.92E-02	4.71E-02	4.82E-02
	BA-140	162.64		6.70	1.19E+02	3.72E+01	6.20E+01	5.79E+01
		304.84		4.50	1.95E+02		2.84E+01	9.40E+01
		423.70		3.20	2.83E+02		7.11E+01	1.35E+02
		437.55		2.00	4.34E+02		-3.73E+01	2.07E+02
		537.32		25.00	3.72E+01		3.92E+00	1.77E+01
	LA-140	328.77		20.50	4.72E+01	7.84E+00	2.82E+01	2.28E+01
		487.03		45.50	1.87E+01		5.30E+00	8.84E+00
		815.85		23.50	4.70E+01		2.51E+00	2.21E+01
		1596.49		95.49	7.84E+00		-9.72E-01	3.36E+00

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

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	7.74E-01	7.74E-01	1.73E-01	3.77E-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	5.78E-01	5.78E-01	-1.33E-01	2.82E-01
PM-144	476.78	42.00	1.70E-01	8.32E-02	3.34E-02	8.09E-02
	618.01	98.60	8.32E-02		1.13E-02	3.96E-02
	696.49	99.49	8.33E-02		1.25E-02	3.94E-02
PM-145	36.85	21.70	2.58E-01	1.39E-01	1.27E-01	1.26E-01
	37.36	39.70	1.39E-01		2.32E-02	6.79E-02
	42.30	15.10	3.37E-01		-1.28E-01	1.64E-01
	72.40	2.31	3.01E+00		-4.13E+00	1.48E+00
PM-146	453.90	39.94	1.56E-01	1.56E-01	4.95E-02	7.47E-02
	735.90	14.01	4.94E-01		-4.53E-02	2.33E-01
	747.13	13.10	5.34E-01		1.26E-01	2.52E-01
ND-147	91.11	28.90	8.52E+01	8.52E+01	1.45E+02	4.19E+01
	531.02	13.10	1.52E+02		-4.49E+00	7.20E+01
PM-149	285.90	3.10	9.18E+12	9.18E+12	2.81E+12	4.44E+12
EU-152	121.78	20.50	2.39E-01	2.39E-01	9.48E-02	1.17E-01
	244.69	5.40	9.99E-01		1.83E-01	4.83E-01
	344.27	19.13	3.16E-01		-1.64E-04	1.52E-01
	778.89	9.20	6.75E-01		-6.81E-01	3.15E-01
	964.01	10.40	8.73E-01		-2.33E+00	4.13E-01
	1085.78	7.22	1.13E+00		-4.63E-02	5.31E-01
	1112.02	9.60	8.46E-01		7.07E-02	3.95E-01
	1407.95	14.94	4.99E-01		2.69E-01	2.28E-01
GD-153	97.43	31.30	2.06E-01	2.06E-01	-3.78E-02	1.00E-01
	103.18	22.20	2.90E-01		3.77E-02	1.42E-01
EU-154	123.07	40.50	1.23E-01	1.23E-01	3.22E-02	5.97E-02
	723.30	19.70	3.78E-01		1.43E-02	1.79E-01
	873.19	11.50	5.05E-01		-2.89E-02	2.33E-01
	996.32	10.30	6.28E-01		-3.98E-01	2.90E-01
	1004.76	17.90	4.27E-01		1.80E-01	1.99E-01
	1274.45	35.50	2.19E-01		-7.14E-02	1.01E-01
EU-155	86.50	30.90	2.14E-01	2.14E-01	1.56E-01	1.05E-01
	105.30	20.70	2.47E-01		6.53E-02	1.20E-01
EU-156	811.77	10.40	4.69E+01	4.69E+01	1.15E+01	2.20E+01
	1153.47	7.20	9.34E+01		3.49E+00	4.41E+01
	1230.71	8.90	7.51E+01		-1.58E+01	3.53E+01
HO-166M	184.41	72.60	8.42E-02	8.42E-02	1.25E-01	4.11E-02
	280.45	29.60	2.00E-01		1.07E-02	9.68E-02
	410.94	11.10	5.72E-01		4.85E-01	2.75E-01
	711.69	54.10	1.24E-01		-4.03E-03	5.87E-02
TM-171	66.72	0.14	4.65E+01	4.65E+01	-4.19E+00	2.28E+01
HF-172	67.35	5.31	1.23E+00	4.64E-01	-8.15E-02	6.02E-01
	125.81	11.30	4.64E-01		-3.15E-01	2.26E-01
LU-172	181.53	20.60	3.77E+03	2.03E+03	7.82E+02	1.83E+03
	900.72	29.81	3.59E+03		4.11E+01	1.68E+03
	1093.66	62.50	2.03E+03		-5.32E+02	9.51E+02
LU-173	100.72	5.24	1.06E+00	3.34E-01	-6.12E-02	5.19E-01
	272.11	21.20	3.34E-01		-1.31E-01	1.62E-01
HF-175	343.40	84.00	1.86E-01	1.86E-01	-9.29E-05	8.99E-02
LU-176	88.34	13.30	4.97E-01	5.85E-02	7.15E-02	2.44E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	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	5.85E-02	5.85E-02	-4.11E-03	2.83E-02
		306.78		94.00	5.86E-02		-2.26E-02	2.82E-02
	HF-181	133.02		41.70	5.48E-01	3.18E-01	-1.26E-01	2.67E-01
		345.85		17.20	1.56E+00		-8.32E-04	7.51E-01
		482.03		82.80	3.18E-01		4.54E-02	1.51E-01
	TA-182	67.75		41.20	2.53E-01	2.53E-01	-1.68E-02	1.24E-01
		1121.30		34.90	5.79E-01		5.96E-01	2.76E-01
		1189.05		16.23	1.01E+00		-6.11E-02	4.74E-01
		1221.41		26.98	5.90E-01		-3.01E-02	2.76E-01
		1231.02		11.44	1.46E+00		-3.06E-01	6.85E-01
	IR-192	308.46		29.68	4.69E-01	2.98E-01	7.28E-02	2.27E-01
		468.07		48.10	2.98E-01		-3.53E-02	1.42E-01
	HG-203	279.19		77.30	3.16E-01	3.16E-01	2.59E-01	1.53E-01
	TL-204	374.74		94.11	6.27E-02	6.27E-02	-3.94E-02	3.00E-02
		899.15		99.16	7.13E-02		-4.72E-03	3.33E-02
		911.74		91.10	1.56E-01		3.78E-01	7.52E-02
	BI-207	569.67		97.72	6.49E-02	6.49E-02	1.05E-02	3.08E-02
		1063.62		74.90	1.08E-01		8.49E-03	5.07E-02
+	TL-208	583.14	*	30.22	3.39E-01	2.35E-01	1.39E+00	1.64E-01
		860.37		4.48	1.80E+00		1.89E+00	8.53E-01
		2614.66	*	35.85	2.35E-01		1.30E+00	1.04E-01
	BI-210M	262.00		45.00	1.17E-01	1.17E-01	-3.15E-02	5.66E-02
		300.00		23.00	2.77E-01		-9.90E-01	1.34E-01
	PB-210	46.50		4.25	1.26E+00	1.26E+00	5.08E-01	6.17E-01
	PB-211	404.84		2.90	1.98E+00	1.98E+00	4.16E-01	9.49E-01
		831.96		2.90	2.44E+00		-1.86E-01	1.15E+00
+	BI-212	727.17	*	11.80	7.43E-01	7.43E-01	7.53E-01	3.55E-01
		1620.62		2.75	2.19E+00		0.00E+00	9.70E-01
+	PB-212	238.63	*	44.60	2.01E-01	2.01E-01	1.52E+00	9.85E-02
		300.09	*	3.41	3.05E+00		2.11E+00	1.49E+00
+	BI-214	609.31	*	46.30	1.88E-01	1.73E-01	8.93E-01	9.02E-02
		1120.29		15.10	7.71E-01		7.79E-01	3.68E-01
		1764.49	*	15.80	2.64E-01		1.16E+00	1.08E-01
		2204.22	*	4.98	1.73E-01		2.18E+00	0.00E+00
+	PB-214	295.21	*	19.19	5.21E-01	2.37E-01	1.26E+00	2.55E-01
		351.92	*	37.19	2.37E-01		1.01E+00	1.16E-01
	RN-219	401.80		6.50	9.04E-01	9.04E-01	5.19E-01	4.33E-01
	RA-223	323.87		3.88	1.47E+00	1.47E+00	1.59E-01	7.06E-01
+	RA-224	240.98	*	3.95	2.27E+00	2.27E+00	3.47E+00	1.11E+00
	RA-225	40.00		31.00	1.33E+01	1.33E+01	-2.67E+00	6.48E+00
+	RA-226	186.21	*	3.28	2.33E+00	2.33E+00	2.83E+00	1.14E+00
	TH-227	50.10		8.40	6.12E-01	5.63E-01	-1.12E-01	2.98E-01
		236.00		11.50	5.63E-01		-4.02E+00	2.74E-01
		256.20		6.30	8.84E-01		3.91E-01	4.28E-01
+	AC-228	338.32	*	11.40	8.27E-01	6.43E-01	1.91E+00	4.04E-01
		911.07	*	27.70	6.43E-01		1.31E+00	3.13E-01
		969.11	*	16.60	6.55E-01		1.59E+00	3.13E-01
	TH-230	48.44		16.90	3.17E-01	3.17E-01	4.34E-02	1.55E-01
		62.85		4.60	1.40E+00		1.76E+00	6.88E-01
		67.67		0.37	1.60E+01		-1.06E+00	7.85E+00
	PA-231	283.67		1.60	3.66E+00	2.69E+00	1.14E+00	1.77E+00
		302.67		2.30	2.69E+00		1.70E+00	1.30E+00
	TH-231	25.64		14.70	5.33E-01	5.33E-01	-3.02E+00	2.60E-01

Analysis Report for 1707078-11

HTC-A01-S003-4248-01

	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	9.10E-01	5.33E-01	-5.71E-01	4.46E-01
	PA-233	311.98		38.60	1.66E+00	1.66E+00	2.71E-01	7.99E-01
	PA-234	131.20		20.40	2.54E-01	2.54E-01	1.29E-01	1.24E-01
		733.99		8.80	7.79E-01		9.96E-02	3.68E-01
		946.00		12.00	5.88E-01		0.00E+00	2.74E-01
	PA-234M	1001.03		0.92	8.22E+00	8.22E+00	4.12E+00	3.85E+00
+	TH-234	63.29	*	3.80	2.16E+00	2.16E+00	1.15E+00	1.06E+00
	U-235	143.76		10.50	5.02E-01	5.02E-01	4.21E-01	2.45E-01
		163.35		4.70	1.08E+00		4.55E-01	5.23E-01
		205.31		4.70	1.08E+00		7.37E-02	5.23E-01
	NP-237	86.50		12.60	5.07E-01	5.07E-01	3.70E-01	2.49E-01
	NP-239	106.10		22.70	1.83E+11	1.83E+11	1.25E+11	8.93E+10
		228.18		10.70	3.88E+11		-1.03E+11	1.87E+11
		277.60		14.10	3.53E+11		1.09E+11	1.71E+11
	AM-241	59.54		35.90	1.59E-01	1.59E-01	2.06E-03	7.79E-02
+	AM-243	74.67	*	66.00	1.69E-01	1.69E-01	3.00E-01	8.36E-02
	CM-243	209.75		3.29	1.69E+00	4.28E-01	8.74E-01	8.23E-01
		228.14		10.60	4.71E-01		-1.25E-01	2.28E-01
		277.60		14.00	4.28E-01		1.32E-01	2.07E-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 1707078-11

HTC-A01-S003-4248-01

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

Sample Title: HTC-A01-S003-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	2	104	87	96	186	560	199
25:	67	86	99	82	74	71	75	71
33:	81	81	84	88	90	100	93	81
41:	89	87	94	88	79	104	160	112
49:	80	105	101	111	129	107	122	113
57:	100	121	145	141	154	163	181	277
65:	173	162	153	174	152	174	178	155
73:	176	210	403	358	404	521	172	162
81:	145	139	107	140	191	151	210	266
89:	145	215	192	146	294	246	141	129
97:	102	100	104	118	118	109	91	107
105:	122	114	101	93	115	90	91	101
113:	105	116	103	94	91	83	80	90
121:	95	92	114	92	97	89	78	103
129:	98	117	114	90	99	109	85	97
137:	88	94	92	85	91	92	104	121
145:	101	93	87	76	90	84	82	89
153:	82	92	99	74	73	76	84	66
161:	86	73	96	85	88	78	73	78
169:	62	64	88	62	77	85	72	68
177:	72	72	58	73	77	78	69	75
185:	82	155	170	70	83	67	62	69
193:	60	68	76	76	72	49	76	79
201:	63	56	76	60	79	64	65	66
209:	97	105	62	60	74	67	57	71
217:	56	67	65	65	61	65	56	62
225:	54	64	66	41	64	47	63	58
233:	65	52	47	58	71	238	650	306
241:	125	166	105	47	45	56	45	42
249:	42	35	46	38	48	49	37	41
257:	52	47	45	37	38	33	48	44
265:	22	35	36	39	36	75	80	51
273:	41	37	43	29	58	57	42	39
281:	49	40	47	35	41	46	39	40
289:	35	30	33	28	31	53	149	194
297:	50	39	31	71	62	36	38	34
305:	30	34	37	36	31	33	48	42
313:	45	32	27	33	35	36	26	38
321:	31	32	37	27	41	27	37	50
329:	54	37	37	27	23	37	42	36
337:	44	131	115	50	54	40	32	37
345:	30	29	34	33	28	33	81	291
353:	205	31	37	35	35	40	32	22
361:	22	31	26	26	27	28	28	22

369:	18	27	29	24	25	31	26	31

Sample Title: HTC-A01-S003-4248-01

Channel								
377:	24	22	34	36	32	30	35	23
385:	36	29	22	22	32	31	30	37
393:	21	32	21	23	18	29	25	29
401:	18	32	21	31	24	18	18	26
409:	36	42	33	27	17	23	24	21
417:	20	25	23	23	28	30	23	17
425:	11	28	23	27	32	26	21	22
433:	12	25	21	19	20	21	25	21
441:	12	24	20	18	15	19	25	24
449:	16	29	23	28	20	23	28	22
457:	14	15	21	19	23	17	50	35
465:	17	23	22	20	19	18	28	18
473:	23	26	23	22	22	14	17	18
481:	18	17	21	19	18	20	13	13
489:	10	19	11	10	11	12	27	18
497:	21	19	24	15	16	14	14	14
505:	25	15	22	25	37	56	120	55
513:	27	29	18	12	20	24	14	21
521:	16	18	18	15	20	15	14	13
529:	16	15	14	12	15	17	17	13
537:	17	21	14	17	19	16	16	19
545:	16	17	13	20	19	20	12	17
553:	15	10	17	19	22	15	14	12
561:	19	19	19	15	19	16	11	21
569:	18	13	14	19	24	16	13	22
577:	22	8	20	16	25	53	156	131
585:	35	17	18	24	11	11	12	19
593:	16	16	14	13	9	12	20	18
601:	17	19	10	24	22	20	17	43
609:	174	141	33	10	16	19	15	20
617:	23	12	19	17	20	17	16	11
625:	6	13	11	6	7	23	19	19
633:	15	17	11	9	11	13	14	11
641:	17	12	15	17	14	10	16	12
649:	24	18	12	12	14	13	16	9
657:	13	12	15	14	26	15	14	12
665:	17	17	15	14	12	18	19	19
673:	14	9	23	15	12	11	11	15
681:	12	13	17	8	13	15	12	19
689:	19	16	14	13	14	16	14	16
697:	14	14	18	20	9	19	25	18
705:	16	13	11	24	15	16	16	12
713:	10	13	14	8	15	12	18	15
721:	12	19	10	19	16	20	44	38
729:	16	7	18	14	11	14	12	14
737:	12	14	13	11	12	12	10	13
745:	8	18	17	8	11	15	8	15
753:	8	15	23	13	9	15	10	18
761:	10	10	16	13	10	16	22	33
769:	29	13	17	23	15	13	12	10
777:	12	8	7	10	10	11	17	19
785:	16	15	11	11	13	10	7	12
793:	11	22	25	17	10	22	12	12

801:	9	10	6	10	13	15	7	9

Sample Title: HTC-A01-S003-4248-01

Channel								
809:	12	9	11	22	6	10	12	18
817:	10	18	11	10	5	8	14	12
825:	14	8	9	10	11	13	12	17
833:	5	8	17	20	9	15	13	20
841:	13	7	15	14	9	14	11	9
849:	8	9	7	8	11	9	5	7
857:	8	7	18	19	26	19	7	7
865:	10	12	13	11	7	3	8	6
873:	5	7	15	4	12	8	7	6
881:	8	11	7	11	11	8	16	9
889:	11	6	8	9	10	11	12	8
897:	9	10	7	11	9	12	11	19
905:	13	18	7	7	11	49	112	66
913:	16	18	14	9	9	12	3	5
921:	9	9	3	9	3	12	6	12
929:	8	9	8	6	18	17	12	11
937:	8	11	9	10	7	11	12	9
945:	6	8	10	12	10	19	13	12
953:	5	13	6	9	4	10	15	9
961:	5	8	12	13	33	23	14	48
969:	74	47	10	8	13	14	6	11
977:	4	14	11	12	12	15	5	13
985:	5	6	10	15	6	10	7	10
993:	9	8	4	3	9	7	9	12
1001:	11	20	5	7	11	5	10	6
1009:	5	7	7	6	5	15	12	10
1017:	10	3	4	8	8	5	11	5
1025:	6	6	8	9	12	5	11	7
1033:	19	4	8	9	12	8	14	12
1041:	6	9	6	11	11	8	10	14
1049:	8	10	7	9	10	9	13	7
1057:	11	8	11	11	14	7	11	13
1065:	10	8	14	7	12	16	7	7
1073:	8	10	9	7	10	13	14	16
1081:	4	9	11	8	11	6	10	17
1089:	13	9	11	5	12	13	13	10
1097:	4	15	9	17	11	8	10	10
1105:	9	10	16	9	11	11	11	10
1113:	9	6	10	10	17	9	21	41
1121:	40	11	9	13	16	6	11	15
1129:	9	10	13	11	14	9	4	10
1137:	9	9	11	11	12	16	12	12
1145:	11	9	10	15	14	12	17	9
1153:	7	15	19	14	11	7	8	15
1161:	11	11	16	13	12	8	11	7
1169:	13	12	12	10	12	13	12	9
1177:	13	7	11	10	12	16	19	12
1185:	11	17	11	11	7	15	14	9
1193:	11	15	17	9	18	14	12	10
1201:	15	10	13	4	6	16	8	17
1209:	8	14	10	12	12	6	9	10
1217:	7	14	9	11	10	13	11	8
1225:	10	16	10	13	12	14	12	11

1233:	11	17	8	22	32	31	13	15

Sample Title: HTC-A01-S003-4248-01

Channel								
1241:	7	19	7	16	10	7	9	12
1249:	4	8	13	6	10	10	6	8
1257:	11	9	14	9	5	10	9	8
1265:	9	7	6	12	10	3	7	4
1273:	7	5	10	10	6	15	6	9
1281:	12	8	5	6	4	8	5	5
1289:	9	4	9	6	12	8	8	13
1297:	8	6	5	5	5	13	9	11
1305:	2	8	5	3	9	5	4	8
1313:	4	4	9	12	9	5	7	7
1321:	6	4	3	10	5	3	3	7
1329:	7	4	5	4	5	6	0	8
1337:	7	3	5	4	3	3	6	7
1345:	3	4	3	1	0	3	8	5
1353:	6	2	6	7	2	3	4	5
1361:	3	8	5	3	4	2	5	5
1369:	6	5	2	5	5	7	1	5
1377:	10	13	7	2	5	4	5	7
1385:	2	4	1	3	5	4	3	4
1393:	1	3	3	2	8	5	6	6
1401:	5	5	3	3	9	5	5	9
1409:	4	4	2	3	4	3	3	1
1417:	3	4	10	1	3	2	3	3
1425:	2	2	6	1	2	4	5	1
1433:	5	7	2	5	2	5	2	3
1441:	2	4	2	2	3	6	0	2
1449:	4	6	4	5	1	4	2	3
1457:	14	24	166	485	503	156	23	17
1465:	14	8	6	1	2	4	4	2
1473:	5	4	2	0	2	4	6	2
1481:	3	2	0	2	4	3	1	1
1489:	1	1	2	2	1	5	1	4
1497:	3	2	2	2	7	2	1	0
1505:	2	5	6	4	6	6	2	6
1513:	3	1	2	4	0	1	3	2
1521:	0	3	4	1	1	0	2	0
1529:	2	4	1	0	3	5	4	4
1537:	4	2	2	4	3	3	1	3
1545:	0	1	0	0	2	4	1	3
1553:	0	2	2	2	4	3	1	0
1561:	0	3	0	3	0	1	4	1
1569:	3	0	2	0	3	0	2	0
1577:	1	2	2	2	3	0	5	1
1585:	0	2	8	9	4	2	10	5
1593:	3	3	0	1	2	1	2	3
1601:	2	1	2	1	3	1	2	4
1609:	1	2	1	1	0	4	3	1
1617:	1	1	3	2	3	5	5	5
1625:	3	1	2	1	4	6	4	1
1633:	1	2	2	3	2	3	0	3
1641:	0	0	0	1	0	3	1	1
1649:	2	4	0	2	1	3	2	0
1657:	2	3	2	7	1	3	0	2

1665:	4	1	1	0	1	0	3	1

Sample Title: HTC-A01-S003-4248-01

Channel								
1673:	3	2	2	2	5	1	1	0
1681:	1	3	1	2	2	2	2	0
1689:	1	0	3	3	2	3	1	3
1697:	1	2	0	3	2	1	4	0
1705:	1	1	1	3	1	2	1	1
1713:	4	2	2	3	1	3	1	3
1721:	4	2	1	2	2	0	4	5
1729:	11	1	2	0	3	0	2	1
1737:	1	1	0	2	3	2	1	1
1745:	2	1	0	0	0	2	1	1
1753:	1	3	0	0	4	4	1	0
1761:	1	6	12	30	11	7	4	1
1769:	0	1	0	2	1	0	1	1
1777:	1	0	2	2	1	1	0	0
1785:	0	1	1	1	1	0	0	1
1793:	0	1	1	2	0	0	1	2
1801:	1	1	0	1	1	3	2	2
1809:	5	1	4	0	1	2	1	1
1817:	1	0	2	0	5	1	0	1
1825:	1	0	4	0	1	0	1	1
1833:	0	3	2	2	3	3	0	3
1841:	2	1	1	1	3	4	6	3
1849:	1	0	2	0	0	2	2	0
1857:	4	2	1	0	1	1	5	3
1865:	0	1	1	0	4	2	1	1
1873:	1	0	0	2	2	0	0	0
1881:	0	3	0	1	0	1	0	1
1889:	2	2	2	1	0	1	0	1
1897:	1	0	0	2	3	2	0	0
1905:	1	1	1	2	1	1	0	0
1913:	2	1	1	0	0	0	0	2
1921:	3	0	1	1	3	2	0	1
1929:	1	0	0	1	1	4	2	0
1937:	0	2	1	3	2	1	0	2
1945:	0	2	1	0	1	2	0	3
1953:	0	1	2	1	1	0	2	0
1961:	1	1	1	2	0	2	3	2
1969:	1	0	1	0	1	0	0	2
1977:	0	2	2	1	1	1	0	2
1985:	3	1	5	1	2	0	1	3
1993:	0	2	4	0	2	4	2	2
2001:	0	4	1	0	1	3	2	0
2009:	1	0	2	0	2	2	1	4
2017:	1	1	2	0	0	0	0	1
2025:	0	0	1	0	2	0	3	0
2033:	2	1	0	0	1	0	0	0
2041:	3	1	1	1	1	1	0	0
2049:	1	2	1	1	3	1	1	1
2057:	0	0	1	0	1	1	1	0
2065:	0	0	0	0	2	0	0	2
2073:	0	1	3	1	1	1	0	1
2081:	5	1	1	2	0	0	2	0
2089:	0	1	2	2	0	1	2	3

2097:	3	1	2	1	2	3	9	3

Sample Title: HTC-A01-S003-4248-01

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

2529:	1	2	0	0	1	0	1	3

Sample Title: HTC-A01-S003-4248-01

Channel								
2537:	0	0	0	1	0	0	0	1
2545:	0	1	0	1	1	1	0	0
2553:	0	0	1	2	0	1	1	1
2561:	1	0	2	1	0	0	1	0
2569:	0	1	0	0	1	1	0	1
2577:	1	0	0	0	0	1	1	0
2585:	1	0	0	0	0	1	0	0
2593:	1	0	0	1	1	0	0	1
2601:	1	1	0	0	1	0	2	3
2609:	0	2	7	19	51	33	22	2
2617:	1	2	2	0	0	0	0	0
2625:	0	1	0	1	0	0	0	0
2633:	2	2	1	1	0	0	1	0
2641:	0	1	0	1	1	0	0	1
2649:	1	0	0	0	0	0	0	1
2657:	1	0	0	1	0	0	0	1
2665:	0	0	0	0	0	0	0	1
2673:	0	0	0	0	1	0	0	0
2681:	0	1	0	1	0	0	0	0
2689:	0	1	1	0	1	2	0	0
2697:	0	0	1	0	0	0	0	0
2705:	2	2	0	0	0	0	0	0
2713:	0	0	0	0	0	1	0	0
2721:	0	1	0	1	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	0	1	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	1	0	0	0	1
2761:	1	0	0	0	0	0	0	0
2769:	1	1	1	0	0	1	0	0
2777:	1	0	0	0	0	1	0	0
2785:	1	0	0	0	0	0	2	0
2793:	0	0	0	0	1	0	0	2
2801:	0	0	1	1	0	0	0	0
2809:	0	0	0	0	0	0	0	2
2817:	0	1	0	0	1	0	2	0
2825:	0	1	0	1	0	0	0	0
2833:	1	0	0	0	1	0	0	0
2841:	0	0	0	1	1	0	0	1
2849:	1	0	0	2	1	0	0	0
2857:	0	0	0	0	0	1	1	1
2865:	0	0	0	0	0	0	0	1
2873:	1	0	0	0	1	0	0	0
2881:	0	2	0	0	0	1	0	1
2889:	0	1	1	0	2	0	0	1
2897:	0	1	0	0	0	2	0	1
2905:	0	1	0	0	0	0	1	0
2913:	0	0	2	0	0	0	2	0
2921:	0	1	0	0	0	0	2	0
2929:	1	0	0	0	0	0	2	0
2937:	0	0	0	2	0	1	0	0
2945:	0	0	0	0	0	1	0	0
2953:	1	1	0	1	2	1	0	1

2961:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S003-4248-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S003-4248-01

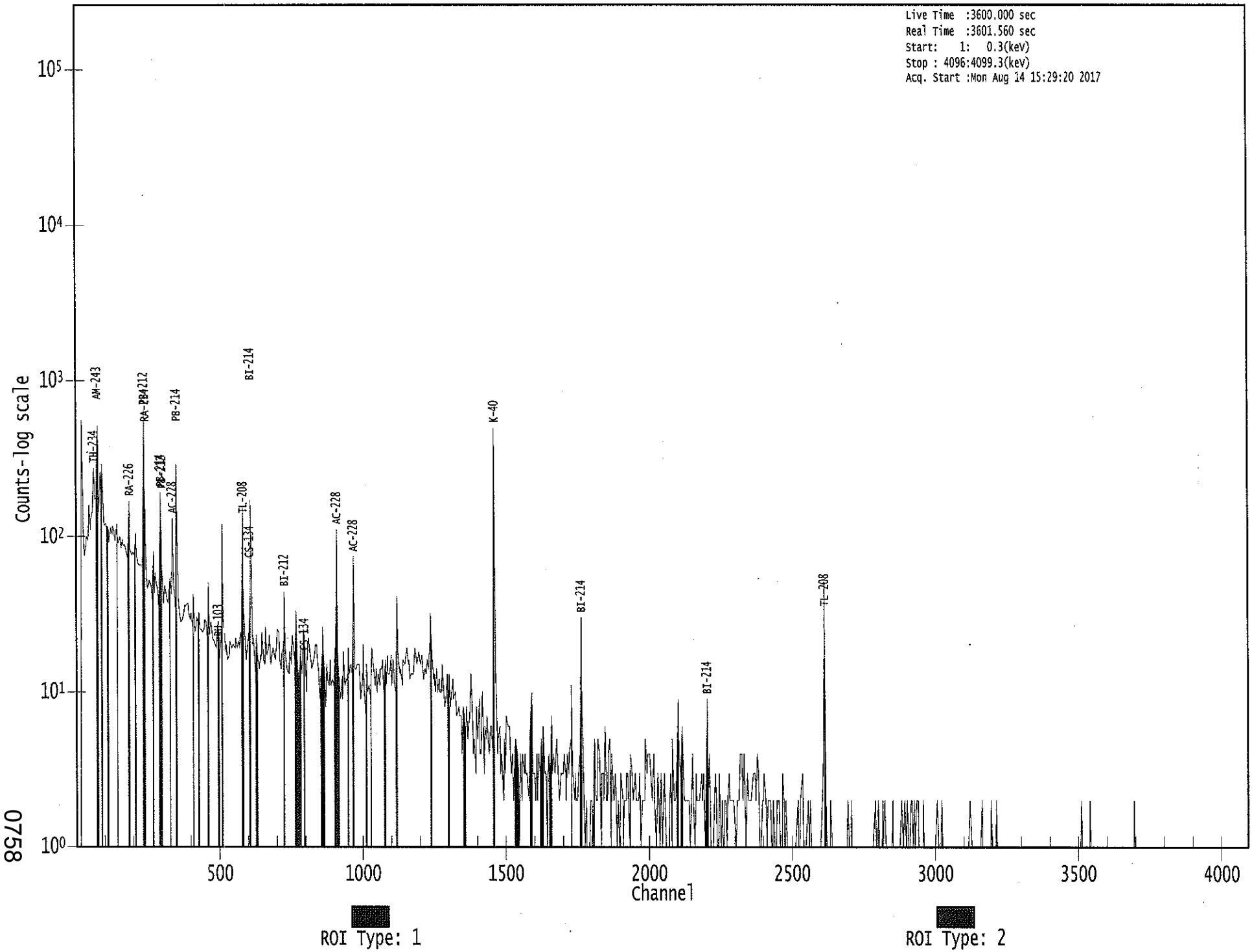
Channel								
3401:	1	0	0	0	0	0	1	0
3409:	0	0	0	0	1	0	0	0
3417:	1	0	0	1	0	0	1	1
3425:	0	0	0	1	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	0	0	1	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	1	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	1	0	0	0	0	0
3497:	0	0	0	0	0	0	0	1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

3825:	1	0	0	0	1	0	0	0

Sample Title: HTC-A01-S003-4248-01

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	1
3865:	0	1	0	0	0	0	0	0
3873:	0	0	0	0	0	0	0	0
3881:	0	0	1	0	1	0	0	0
3889:	0	0	0	0	0	0	0	0
3897:	0	0	1	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	1
3921:	1	0	0	0	0	0	0	0
3929:	1	1	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	0	0	0
3985:	0	1	0	0	0	1	0	0
3993:	0	0	1	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	1	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	1	0
4049:	0	0	0	0	0	0	1	0
4057:	0	1	0	0	1	0	0	0
4065:	0	0	0	0	0	1	0	0
4073:	0	0	0	1	0	0	1	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055197.CNF



0758

KB 9/27/17

Apex-Gamma

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-12
Sample Description	: HTC-A01-S004-0006-01
Sample Type	: SOIL
Sample Size	: 7.188E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:32:09AM
Acquisition Started	: 8/14/2017 4:13:12PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3774.9 seconds
Dead Time	: 4.63 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 8 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55201

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 5:16:09PM
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	16.83	17.15	0.0000	0.00
2	33.92	34.24	0.0000	0.00
3	38.92	39.24	0.0000	0.00
4	46.77	47.09	0.0000	0.00
5	57.51	57.82	0.0000	0.00
6	63.78	64.09	0.0000	0.00
7	76.44	76.74	0.0000	0.00
8	84.70	85.00	0.0000	0.00
9	90.70	91.00	0.0000	0.00
10	99.71	100.00	0.0000	0.00
11	105.70	105.99	0.0000	0.00
12	115.46	115.75	0.0000	0.00
13	129.35	129.63	0.0000	0.00
14	144.68	144.96	0.0000	0.00
15	154.24	154.51	0.0000	0.00
16	164.00	164.27	0.0000	0.00
17	186.23	186.49	0.0000	0.00
18	199.74	200.00	0.0000	0.00
19	209.59	209.85	0.0000	0.00
20	216.56	216.82	0.0000	0.00
21	238.91	239.16	0.0000	0.00
22	241.89	242.14	0.0000	0.00
23	252.51	252.75	0.0000	0.00
24	258.95	259.19	0.0000	0.00
25	270.49	270.73	0.0000	0.00
26	277.54	277.78	0.0000	0.00
27	288.09	288.32	0.0000	0.00
28	295.48	295.70	0.0000	0.00
29	300.34	300.57	0.0000	0.00
30	315.83	316.05	0.0000	0.00
31	328.22	328.43	0.0000	0.00
32	332.52	332.74	0.0000	0.00
33	338.53	338.74	0.0000	0.00
34	352.13	352.34	0.0000	0.00
35	388.35	388.55	0.0000	0.00
36	409.68	409.87	0.0000	0.00
37	453.15	453.32	0.0000	0.00
38	463.10	463.27	0.0000	0.00
39	479.98	480.15	0.0000	0.00
40	487.12	487.28	0.0000	0.00
41	510.77	510.92	0.0000	0.00
42	533.85	534.00	0.0000	0.00

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	562.76	562.89	0.0000	0.00
44	583.26	583.40	0.0000	0.00
45	609.39	609.52	0.0000	0.00
46	665.57	665.68	0.0000	0.00
47	676.20	676.30	0.0000	0.00
48	702.82	702.91	0.0000	0.00
49	720.02	720.11	0.0000	0.00
50	727.26	727.34	0.0000	0.00
51	742.62	742.69	0.0000	0.00
52	755.32	755.40	0.0000	0.00
53	768.34	768.41	0.0000	0.00
54	772.30	772.37	0.0000	0.00
55	785.00	785.07	0.0000	0.00
56	794.87	794.93	0.0000	0.00
57	806.23	806.28	0.0000	0.00
58	830.56	830.61	0.0000	0.00
59	835.64	835.69	0.0000	0.00
60	840.06	840.10	0.0000	0.00
61	860.46	860.50	0.0000	0.00
62	893.19	893.21	0.0000	0.00
63	903.96	903.98	0.0000	0.00
64	911.09	911.11	0.0000	0.00
65	933.96	933.97	0.0000	0.00
66	951.18	951.18	0.0000	0.00
67	964.63	964.63	0.0000	0.00
68	968.86	968.86	0.0000	0.00
69	1000.86	1000.85	0.0000	0.00
70	1051.61	1051.58	0.0000	0.00
71	1064.16	1064.13	0.0000	0.00
72	1078.49	1078.45	0.0000	0.00
73	1093.95	1093.91	0.0000	0.00
74	1110.76	1110.71	0.0000	0.00
75	1120.11	1120.06	0.0000	0.00
76	1133.19	1133.13	0.0000	0.00
77	1154.96	1154.90	0.0000	0.00
78	1206.88	1206.80	0.0000	0.00
79	1237.76	1237.67	0.0000	0.00
80	1246.11	1246.02	0.0000	0.00
81	1254.74	1254.64	0.0000	0.00
82	1264.57	1264.47	0.0000	0.00
83	1280.72	1280.61	0.0000	0.00
84	1377.29	1377.15	0.0000	0.00
85	1385.05	1384.91	0.0000	0.00
86	1400.65	1400.50	0.0000	0.00
87	1407.80	1407.65	0.0000	0.00
88	1459.46	1459.29	0.0000	0.00
89	1495.62	1495.44	0.0000	0.00
90	1509.16	1508.98	0.0000	0.00
91	1538.11	1537.92	0.0000	0.00
92	1542.85	1542.65	0.0000	0.00
93	1587.72	1587.52	0.0000	0.00
94	1591.99	1591.78	0.0000	0.00
95	1620.24	1620.02	0.0000	0.00
96	1624.64	1624.42	0.0000	0.00
97	1630.28	1630.05	0.0000	0.00

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1638.28	1638.06	0.0000	0.00
99	1660.72	1660.49	0.0000	0.00
100	1687.81	1687.57	0.0000	0.00
101	1712.67	1712.42	0.0000	0.00
102	1729.23	1728.97	0.0000	0.00
103	1741.43	1741.17	0.0000	0.00
104	1764.03	1763.76	0.0000	0.00
105	1847.10	1846.81	0.0000	0.00
106	1896.47	1896.15	0.0000	0.00
107	2102.85	2102.47	0.0000	0.00
108	2117.81	2117.42	0.0000	0.00
109	2203.41	2202.99	0.0000	0.00
110	2292.39	2291.95	0.0000	0.00
111	2319.40	2318.94	0.0000	0.00
112	2431.94	2431.45	0.0000	0.00
113	2446.98	2446.48	0.0000	0.00
114	2613.78	2613.23	0.0000	0.00
115	2686.19	2685.61	0.0000	0.00
116	2891.80	2891.15	0.0000	0.00
117	3017.98	3017.29	0.0000	0.00
118	3040.57	3039.88	0.0000	0.00
119	3053.05	3052.34	0.0000	0.00
120	3111.44	3110.71	0.0000	0.00
121	3124.29	3123.57	0.0000	0.00
122	3196.70	3195.95	0.0000	0.00
123	3211.77	3211.01	0.0000	0.00
124	3229.90	3229.14	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 5:16:09PM

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	16.83	15 -	20	17.15	1.41E+03	564.13	6.21E+04	1.97
M	2	33.92	30 -	42	34.24	3.25E+03	742.10	8.21E+04	3.69
m	3	38.92	30 -	42	39.24	1.25E+03	673.91	7.45E+04	2.63
	4	46.77	45 -	49	47.09	2.15E+03	489.69	5.17E+04	2.07
	5	57.51	56 -	60	57.82	5.47E+03	600.12	7.57E+04	2.06
	6	63.78	61 -	67	64.09	6.92E+03	841.50	1.25E+05	1.89
	7	76.44	71 -	82	76.74	9.80E+04	1470.72	2.21E+05	3.89
M	8	84.70	83 -	97	85.00	5.26E+03	650.36	8.59E+04	1.53
m	9	90.70	83 -	97	91.00	9.57E+03	683.06	7.71E+04	1.53
	10	99.71	99 -	102	100.00	1.75E+03	479.98	5.62E+04	1.92
	11	105.70	104 -	108	105.99	2.77E+03	563.22	6.82E+04	1.84
	12	115.46	114 -	118	115.75	6.75E+02	546.55	6.54E+04	1.15
	13	129.35	126 -	133	129.63	6.19E+03	818.24	1.07E+05	2.18
	14	144.68	143 -	148	144.96	1.52E+03	621.66	7.60E+04	1.90
	15	154.24	152 -	157	154.51	2.36E+03	610.52	7.24E+04	2.15
	16	164.00	162 -	167	164.27	9.25E+02	579.33	6.63E+04	1.73
	17	186.23	182 -	190	186.49	1.38E+04	807.87	9.17E+04	2.24
	18	199.74	198 -	203	200.00	8.85E+02	533.22	5.61E+04	2.72
	19	209.59	206 -	213	209.85	7.51E+03	679.89	7.16E+04	1.96
	20	216.56	215 -	219	216.82	5.02E+02	431.06	4.07E+04	2.01
M	21	238.91	234 -	250	239.16	8.96E+04	762.24	4.10E+04	2.06
m	22	241.89	234 -	250	242.14	2.09E+04	825.13	4.37E+04	2.46
	23	252.51	251 -	255	252.75	4.56E+02	353.94	2.74E+04	3.08
	24	258.95	257 -	262	259.19	1.21E+03	402.07	3.12E+04	2.99
M	25	270.49	266 -	281	270.73	7.21E+03	471.04	3.54E+04	2.26
m	26	277.54	266 -	281	277.78	3.51E+03	453.08	3.44E+04	2.31
M	27	288.09	285 -	304	288.32	7.92E+02	370.40	2.76E+04	2.59
m	28	295.48	285 -	304	295.70	2.41E+04	478.21	2.63E+04	2.02
m	29	300.34	285 -	304	300.57	5.45E+03	408.78	2.54E+04	2.13
	30	315.83	313 -	319	316.05	4.51E+02	382.26	2.62E+04	1.69
M	31	328.22	319 -	343	328.43	4.55E+03	402.88	2.62E+04	2.20
m	32	332.52	319 -	343	332.74	7.87E+02	436.76	2.98E+04	2.60
m	33	338.53	319 -	343	338.74	1.64E+04	421.66	2.22E+04	2.06
	34	352.13	348 -	357	352.34	4.04E+04	632.61	3.41E+04	2.20
	35	388.35	385 -	392	388.55	8.18E+02	381.21	2.37E+04	4.22
	36	409.68	404 -	413	409.87	2.38E+03	459.06	2.86E+04	1.95
	37	453.15	450 -	457	453.32	7.89E+02	324.31	1.70E+04	2.50
	38	463.10	459 -	467	463.27	4.83E+03	370.34	1.81E+04	2.32
	39	479.98	478 -	483	480.15	3.69E+02	245.73	1.17E+04	2.10
	40	487.12	485 -	489	487.28	2.28E+02	207.51	9.34E+03	1.75

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	510.77	506 -	516	510.92	8.64E+03	428.39	1.99E+04	2.30
	42	533.85	532 -	537	534.00	2.84E+02	225.53	9.98E+03	2.68
	43	562.76	559 -	566	562.89	8.69E+02	284.77	1.29E+04	2.17
	44	583.26	578 -	589	583.40	2.54E+04	500.61	1.86E+04	2.31
	45	609.39	605 -	615	609.52	2.82E+04	481.28	1.59E+04	2.31
	46	665.57	662 -	669	665.68	9.27E+02	252.33	9.98E+03	2.38
	47	676.20	674 -	679	676.30	2.27E+02	195.33	7.43E+03	2.91
	48	702.82	700 -	706	702.91	2.03E+02	229.96	9.48E+03	1.63
M	49	720.02	717 -	732	720.11	1.98E+02	161.18	5.59E+03	2.44
m	50	727.26	717 -	732	727.34	5.20E+03	252.81	7.84E+03	2.28
	51	742.62	740 -	746	742.69	3.28E+02	203.48	7.28E+03	3.36
	52	755.32	752 -	759	755.40	5.69E+02	229.09	8.36E+03	2.05
M	53	768.34	764 -	779	768.41	2.04E+03	204.60	7.10E+03	2.07
m	54	772.30	764 -	779	772.37	8.85E+02	219.77	7.09E+03	2.25
	55	785.00	779 -	790	785.07	1.83E+03	291.02	9.64E+03	2.32
	56	794.87	791 -	799	794.93	2.82E+03	238.41	7.02E+03	2.40
	57	806.23	802 -	810	806.28	6.37E+02	215.93	6.75E+03	2.63
M	58	830.56	826 -	844	830.61	3.56E+02	151.71	4.40E+03	1.91
m	59	835.64	826 -	844	835.69	1.15E+03	199.19	5.68E+03	2.77
m	60	840.06	826 -	844	840.10	7.48E+02	199.13	5.51E+03	2.77
	61	860.46	855 -	865	860.50	2.91E+03	250.93	6.85E+03	2.27
	62	893.19	890 -	896	893.21	2.58E+02	157.64	4.34E+03	2.41
M	63	903.96	900 -	918	903.98	4.95E+02	175.04	4.89E+03	2.55
m	64	911.09	900 -	918	911.11	1.57E+04	292.82	4.05E+03	2.34
	65	933.96	930 -	938	933.97	1.25E+03	189.37	4.75E+03	2.40
	66	951.18	949 -	954	951.18	1.32E+02	122.56	2.88E+03	3.23
M	67	964.63	955 -	977	964.63	3.16E+03	217.28	3.59E+03	2.52
m	68	968.86	955 -	977	968.86	9.19E+03	247.01	3.05E+03	2.29
	69	1000.86	997 -	1004	1000.85	4.42E+02	151.67	3.53E+03	2.57
	70	1051.61	1048 -	1055	1051.58	2.03E+02	135.79	2.93E+03	3.31
	71	1064.16	1061 -	1067	1064.13	2.01E+02	126.06	2.75E+03	4.26
	72	1078.49	1075 -	1081	1078.45	2.27E+02	126.59	2.74E+03	2.15
	73	1093.95	1091 -	1098	1093.91	2.37E+02	134.45	2.87E+03	2.89
	74	1110.76	1107 -	1114	1110.71	1.94E+02	133.76	2.84E+03	2.72
	75	1120.11	1115 -	1126	1120.06	5.80E+03	240.70	4.37E+03	2.47
	76	1133.19	1129 -	1137	1133.13	2.60E+02	141.22	2.90E+03	6.64
	77	1154.96	1150 -	1159	1154.90	7.01E+02	166.26	3.53E+03	2.80
	78	1206.88	1202 -	1211	1206.80	2.75E+02	145.95	2.89E+03	3.30
	79	1237.76	1233 -	1242	1237.67	1.89E+03	174.31	3.27E+03	2.39
	80	1246.11	1243 -	1252	1246.02	1.45E+02	157.59	3.48E+03	3.02
	81	1254.74	1252 -	1258	1254.64	1.36E+02	111.62	2.15E+03	3.03
	82	1264.57	1262 -	1268	1264.47	1.00E+02	106.10	1.98E+03	2.36
	83	1280.72	1277 -	1285	1280.61	5.00E+02	142.24	2.82E+03	2.38
M	84	1377.29	1372 -	1390	1377.15	1.42E+03	137.81	2.25E+03	2.57
m	85	1385.05	1372 -	1390	1384.91	3.50E+02	120.66	2.14E+03	2.66
	86	1400.65	1396 -	1404	1400.50	4.69E+02	129.44	2.30E+03	2.63
	87	1407.80	1404 -	1411	1407.65	8.03E+02	127.61	2.18E+03	2.62
	88	1459.46	1455 -	1465	1459.29	4.68E+02	144.01	2.52E+03	3.61
M	89	1495.62	1492 -	1516	1495.44	3.24E+02	103.33	1.72E+03	2.41
m	90	1509.16	1492 -	1516	1508.98	8.28E+02	153.64	2.68E+03	3.80
	91	1538.11	1535 -	1540	1537.92	1.15E+02	88.13	1.46E+03	1.78
	92	1542.85	1541 -	1546	1542.65	7.49E+01	85.29	1.39E+03	2.90
M	93	1587.72	1576 -	1598	1587.52	1.21E+03	134.36	1.85E+03	2.52

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	94	1591.99	1576 -	1598	1591.78	1.38E+03	151.43	2.10E+03	2.86
M	95	1620.24	1613 -	1627	1620.02	5.17E+02	100.08	1.45E+03	2.38
m	96	1624.64	1613 -	1627	1624.42	6.71E+01	85.01	1.31E+03	2.14
	97	1630.28	1627 -	1635	1630.05	5.82E+02	114.90	1.66E+03	2.66
	98	1638.28	1635 -	1641	1638.06	1.71E+02	82.36	1.10E+03	2.26
	99	1660.72	1655 -	1665	1660.49	3.14E+02	119.26	1.73E+03	3.04
	100	1687.81	1680 -	1696	1687.57	2.07E+02	159.80	2.35E+03	13.19
	101	1712.67	1710 -	1715	1712.42	5.52E+01	63.24	7.60E+02	3.54
	102	1729.23	1721 -	1736	1728.97	9.23E+02	166.63	2.40E+03	2.99
	103	1741.43	1739 -	1743	1741.17	4.85E+01	55.17	6.31E+02	2.54
	104	1764.03	1757 -	1771	1763.76	4.45E+03	188.28	1.86E+03	2.60
	105	1847.10	1842 -	1852	1846.81	6.46E+02	115.82	1.42E+03	2.40
	106	1896.47	1894 -	1898	1896.15	4.81E+01	57.35	6.86E+02	1.73
M	107	2102.85	2095 -	2122	2102.47	1.24E+03	129.41	1.45E+03	3.96
m	108	2117.81	2095 -	2122	2117.42	3.30E+02	106.43	1.35E+03	3.67
	109	2203.41	2198 -	2211	2202.99	1.10E+03	147.34	1.94E+03	3.08
	110	2292.39	2289 -	2296	2291.95	8.48E+01	89.24	1.27E+03	3.39
	111	2319.40	2315 -	2322	2318.94	7.55E+01	89.51	1.28E+03	3.09
	112	2431.94	2428 -	2434	2431.45	6.47E+01	63.48	6.73E+02	1.61
	113	2446.98	2442 -	2451	2446.48	2.90E+02	94.06	1.09E+03	2.89
	114	2613.78	2606 -	2621	2613.23	7.72E+03	190.35	5.34E+02	3.05
	115	2686.19	2681 -	2691	2685.61	5.72E+01	34.41	1.30E+02	4.44
	116	2891.80	2884 -	2896	2891.15	3.65E+01	25.30	5.69E+01	7.74
	117	3017.98	3008 -	3025	3017.29	2.96E+01	29.93	6.48E+01	12.50
	118	3040.57	3034 -	3045	3039.88	2.88E+01	16.00	1.64E+01	6.59
	119	3053.05	3047 -	3058	3052.34	1.88E+01	11.14	6.41E+00	1.24
	120	3111.44	3104 -	3115	3110.71	1.10E+01	13.71	1.80E+01	1.68
	121	3124.29	3118 -	3127	3123.57	3.83E+01	13.75	5.41E+00	2.52
	122	3196.70	3190 -	3201	3195.95	1.13E+02	24.41	1.80E+01	2.92
	123	3211.77	3206 -	3214	3211.01	4.64E+00	6.95	4.71E+00	1.10
	124	3229.90	3225 -	3232	3229.14	7.00E+00	5.29	0.00E+00	1.92

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 5:16:09PM

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

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	16.83	15 -	20	1.41E+03	564.13	6.21E+04	4.60E+02
M	2	33.92	30 -	42	3.25E+03	742.10	8.21E+04	4.71E+02
m	3	38.92	30 -	42	1.25E+03	673.91	7.45E+04	4.49E+02
	4	46.77	45 -	49	2.15E+03	489.69	5.17E+04	3.95E+02
	5	57.51	56 -	60	5.47E+03	600.12	7.57E+04	4.78E+02
	6	63.78	61 -	67	6.92E+03	841.50	1.25E+05	6.78E+02
	7	76.44	71 -	82	9.80E+04	1470.72	2.21E+05	1.09E+03
M	8	84.70	83 -	97	5.26E+03	650.36	8.59E+04	4.82E+02
m	9	90.70	83 -	97	9.57E+03	683.06	7.71E+04	4.56E+02
	10	99.71	99 -	102	1.75E+03	479.98	5.62E+04	4.40E+02
	11	105.70	104 -	108	2.77E+03	563.22	6.82E+04	4.55E+02
	12	115.46	114 -	118	6.75E+02	546.55	6.54E+04	4.47E+02
	13	129.35	126 -	133	6.19E+03	818.24	1.07E+05	6.60E+02
	14	144.68	143 -	148	1.52E+03	621.66	7.60E+04	5.07E+02
	15	154.24	152 -	157	2.36E+03	610.52	7.24E+04	4.95E+02
	16	164.00	162 -	167	9.25E+02	579.33	6.63E+04	4.74E+02
	17	186.23	182 -	190	1.38E+04	807.87	9.17E+04	6.35E+02
	18	199.74	198 -	203	8.85E+02	533.22	5.61E+04	4.36E+02
	19	209.59	206 -	213	7.51E+03	679.89	7.16E+04	5.40E+02
	20	216.56	215 -	219	5.02E+02	431.06	4.07E+04	3.52E+02
M	21	238.91	234 -	250	8.96E+04	762.24	4.10E+04	3.33E+02
m	22	241.89	234 -	250	2.09E+04	825.13	4.37E+04	3.44E+02
	23	252.51	251 -	255	4.56E+02	353.94	2.74E+04	2.89E+02
	24	258.95	257 -	262	1.21E+03	402.07	3.12E+04	3.26E+02
M	25	270.49	266 -	281	7.21E+03	471.04	3.54E+04	3.09E+02
m	26	277.54	266 -	281	3.51E+03	453.08	3.44E+04	3.05E+02
M	27	288.09	285 -	304	7.92E+02	370.40	2.76E+04	2.73E+02
m	28	295.48	285 -	304	2.41E+04	478.21	2.63E+04	2.67E+02
m	29	300.34	285 -	304	5.45E+03	408.78	2.54E+04	2.62E+02
	30	315.83	313 -	319	4.51E+02	382.26	2.62E+04	3.12E+02
M	31	328.22	319 -	343	4.55E+03	402.88	2.62E+04	2.66E+02
m	32	332.52	319 -	343	7.87E+02	436.76	2.98E+04	2.84E+02
m	33	338.53	319 -	343	1.64E+04	421.66	2.22E+04	2.45E+02
	34	352.13	348 -	357	4.04E+04	632.61	3.41E+04	4.02E+02
	35	388.35	385 -	392	8.18E+02	381.21	2.37E+04	3.10E+02
	36	409.68	404 -	413	2.38E+03	459.06	2.86E+04	3.69E+02
	37	453.15	450 -	457	7.89E+02	324.31	1.70E+04	2.63E+02
	38	463.10	459 -	467	4.83E+03	370.34	1.81E+04	2.82E+02
	39	479.98	478 -	483	3.69E+02	245.73	1.17E+04	2.00E+02
	40	487.12	485 -	489	2.28E+02	207.51	9.34E+03	1.69E+02
	41	510.77	506 -	516	8.64E+03	428.39	1.99E+04	3.17E+02
	42	533.85	532 -	537	2.84E+02	225.53	9.98E+03	1.83E+02
	43	562.76	559 -	566	8.69E+02	284.77	1.29E+04	2.29E+02
	44	583.26	578 -	589	2.54E+04	500.61	1.86E+04	3.17E+02
	45	609.39	605 -	615	2.82E+04	481.28	1.59E+04	2.83E+02
	46	665.57	662 -	669	9.27E+02	252.33	9.98E+03	2.01E+02
	47	676.20	674 -	679	2.27E+02	195.33	7.43E+03	1.59E+02
	48	702.82	700 -	706	2.03E+02	229.96	9.48E+03	1.88E+02
M	49	720.02	717 -	732	1.98E+02	161.18	5.59E+03	1.23E+02
m	50	727.26	717 -	732	5.20E+03	252.81	7.84E+03	1.46E+02
	51	742.62	740 -	746	3.28E+02	203.48	7.28E+03	1.65E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	755.32	752 -	759	5.69E+02	229.09	8.36E+03	1.84E+02
M	53	768.34	764 -	779	2.04E+03	204.60	7.10E+03	1.38E+02
m	54	772.30	764 -	779	8.85E+02	219.77	7.09E+03	1.38E+02
	55	785.00	779 -	790	1.83E+03	291.02	9.64E+03	2.29E+02
	56	794.87	791 -	799	2.82E+03	238.41	7.02E+03	1.75E+02
	57	806.23	802 -	810	6.37E+02	215.93	6.75E+03	1.73E+02
M	58	830.56	826 -	844	3.56E+02	151.71	4.40E+03	1.09E+02
m	59	835.64	826 -	844	1.15E+03	199.19	5.68E+03	1.24E+02
m	60	840.06	826 -	844	7.48E+02	199.13	5.51E+03	1.22E+02
	61	860.46	855 -	865	2.91E+03	250.93	6.85E+03	1.86E+02
	62	893.19	890 -	896	2.58E+02	157.64	4.34E+03	1.27E+02
M	63	903.96	900 -	918	4.95E+02	175.04	4.89E+03	1.15E+02
m	64	911.09	900 -	918	1.57E+04	292.82	4.05E+03	1.05E+02
	65	933.96	930 -	938	1.25E+03	189.37	4.75E+03	1.44E+02
	66	951.18	949 -	954	1.32E+02	122.56	2.88E+03	9.90E+01
M	67	964.63	955 -	977	3.16E+03	217.28	3.59E+03	9.85E+01
m	68	968.86	955 -	977	9.19E+03	247.01	3.05E+03	9.08E+01
	69	1000.86	997 -	1004	4.42E+02	151.67	3.53E+03	1.20E+02
	70	1051.61	1048 -	1055	2.03E+02	135.79	2.93E+03	1.09E+02
	71	1064.16	1061 -	1067	2.01E+02	126.06	2.75E+03	1.01E+02
	72	1078.49	1075 -	1081	2.27E+02	126.59	2.74E+03	1.01E+02
	73	1093.95	1091 -	1098	2.37E+02	134.45	2.87E+03	1.08E+02
	74	1110.76	1107 -	1114	1.94E+02	133.76	2.84E+03	1.08E+02
	75	1120.11	1115 -	1126	5.80E+03	240.70	4.37E+03	1.53E+02
	76	1133.19	1129 -	1137	2.60E+02	141.22	2.90E+03	1.13E+02
	77	1154.96	1150 -	1159	7.01E+02	166.26	3.53E+03	1.30E+02
	78	1206.88	1202 -	1211	2.75E+02	145.95	2.89E+03	1.17E+02
	79	1237.76	1233 -	1242	1.89E+03	174.31	3.27E+03	1.24E+02
	80	1246.11	1243 -	1252	1.45E+02	157.59	3.48E+03	1.28E+02
	81	1254.74	1252 -	1258	1.36E+02	111.62	2.15E+03	8.97E+01
	82	1264.57	1262 -	1268	1.00E+02	106.10	1.98E+03	8.56E+01
	83	1280.72	1277 -	1285	5.00E+02	142.24	2.82E+03	1.11E+02
M	84	1377.29	1372 -	1390	1.42E+03	137.81	2.25E+03	7.79E+01
m	85	1385.05	1372 -	1390	3.50E+02	120.66	2.14E+03	7.60E+01
	86	1400.65	1396 -	1404	4.69E+02	129.44	2.30E+03	1.00E+02
	87	1407.80	1404 -	1411	8.03E+02	127.61	2.18E+03	9.40E+01
	88	1459.46	1455 -	1465	4.68E+02	144.01	2.52E+03	1.13E+02
M	89	1495.62	1492 -	1516	3.24E+02	103.33	1.72E+03	6.81E+01
m	90	1509.16	1492 -	1516	8.28E+02	153.64	2.68E+03	8.51E+01
	91	1538.11	1535 -	1540	1.15E+02	88.13	1.46E+03	7.03E+01
	92	1542.85	1541 -	1546	7.49E+01	85.29	1.39E+03	6.87E+01
M	93	1587.72	1576 -	1598	1.21E+03	134.36	1.85E+03	7.07E+01
m	94	1591.99	1576 -	1598	1.38E+03	151.43	2.10E+03	7.54E+01
M	95	1620.24	1613 -	1627	5.17E+02	100.08	1.45E+03	6.27E+01
m	96	1624.64	1613 -	1627	6.71E+01	85.01	1.31E+03	5.95E+01
	97	1630.28	1627 -	1635	5.82E+02	114.90	1.66E+03	8.57E+01
	98	1638.28	1635 -	1641	1.71E+02	82.36	1.10E+03	6.42E+01
	99	1660.72	1655 -	1665	3.14E+02	119.26	1.73E+03	9.36E+01
	100	1687.81	1680 -	1696	2.07E+02	159.80	2.35E+03	1.29E+02
	101	1712.67	1710 -	1715	5.52E+01	63.24	7.60E+02	5.05E+01
	102	1729.23	1721 -	1736	9.23E+02	166.63	2.40E+03	1.28E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	103	1741.43	1739 -	1743	4.85E+01	55.17	6.31E+02	4.39E+01
	104	1764.03	1757 -	1771	4.45E+03	188.28	1.86E+03	1.09E+02
	105	1847.10	1842 -	1852	6.46E+02	115.82	1.42E+03	8.55E+01
	106	1896.47	1894 -	1898	4.81E+01	57.35	6.86E+02	4.57E+01
M	107	2102.85	2095 -	2122	1.24E+03	129.41	1.45E+03	6.27E+01
m	108	2117.81	2095 -	2122	3.30E+02	106.43	1.35E+03	6.04E+01
	109	2203.41	2198 -	2211	1.10E+03	147.34	1.94E+03	1.08E+02
	110	2292.39	2289 -	2296	8.48E+01	89.24	1.27E+03	7.18E+01
	111	2319.40	2315 -	2322	7.55E+01	89.51	1.28E+03	7.22E+01
	112	2431.94	2428 -	2434	6.47E+01	63.48	6.73E+02	5.05E+01
	113	2446.98	2442 -	2451	2.90E+02	94.06	1.09E+03	7.21E+01
	114	2613.78	2606 -	2621	7.72E+03	190.35	5.34E+02	6.02E+01
	115	2686.19	2681 -	2691	5.72E+01	34.41	1.30E+02	2.54E+01
	116	2891.80	2884 -	2896	3.65E+01	25.30	5.69E+01	1.83E+01
	117	3017.98	3008 -	3025	2.96E+01	29.93	6.48E+01	2.29E+01
	118	3040.57	3034 -	3045	2.88E+01	16.00	1.64E+01	9.75E+00
	119	3053.05	3047 -	3058	1.88E+01	11.14	6.41E+00	5.74E+00
	120	3111.44	3104 -	3115	1.10E+01	13.71	1.80E+01	9.86E+00
	121	3124.29	3118 -	3127	3.83E+01	13.75	5.41E+00	4.92E+00
	122	3196.70	3190 -	3201	1.13E+02	24.41	1.80E+01	9.87E+00
	123	3211.77	3206 -	3214	4.64E+00	6.95	4.71E+00	4.48E+00
	124	3229.90	3225 -	3232	7.00E+00	5.29	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 5:16:09PM

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	16.83	15 -	20	17.15	1.41E+03	564.13	6.21E+04	NB-93M
M	2	33.92	30 -	42	34.24	3.25E+03	742.10	8.21E+04	I-129
m	3	38.92	30 -	42	39.24	1.25E+03	673.91	7.45E+04	I-129

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	4	46.77	45 -	49	47.09	2.15E+03	489.69	5.17E+04	PB-210
	5	57.51	56 -	60	57.82	5.47E+03	600.12	7.57E+04	CE-143
	6	63.78	61 -	67	64.09	6.92E+03	841.50	1.25E+05	TH-234
									TH-230
	7	76.44	71 -	82	76.74	9.80E+04	1470.72	2.21E+05	.....
M	8	84.70	83 -	97	85.00	5.26E+03	650.36	8.59E+04	TH-231
m	9	90.70	83 -	97	91.00	9.57E+03	683.06	7.71E+04	ND-147
	10	99.71	99 -	102	100.00	1.75E+03	479.98	5.62E+04	.....
	11	105.70	104 -	108	105.99	2.77E+03	563.22	6.82E+04	EU-155
									NP-239
	12	115.46	114 -	118	115.75	6.75E+02	546.55	6.54E+04	.....
	13	129.35	126 -	133	129.63	6.19E+03	818.24	1.07E+05	.....
	14	144.68	143 -	148	144.96	1.52E+03	621.66	7.60E+04	CE-141
									U-235
	15	154.24	152 -	157	154.51	2.36E+03	610.52	7.24E+04	.....
	16	164.00	162 -	167	164.27	9.25E+02	579.33	6.63E+04	CS-136
									U-235
	17	186.23	182 -	190	186.49	1.38E+04	807.87	9.17E+04	RA-226
	18	199.74	198 -	203	200.00	8.85E+02	533.22	5.61E+04	.....
	19	209.59	206 -	213	209.85	7.51E+03	679.89	7.16E+04	CM-243
									GA-67
	20	216.56	215 -	219	216.82	5.02E+02	431.06	4.07E+04	.....
M	21	238.91	234 -	250	239.16	8.96E+04	762.24	4.10E+04	PB-212
m	22	241.89	234 -	250	242.14	2.09E+04	825.13	4.37E+04	RA-224
	23	252.51	251 -	255	252.75	4.56E+02	353.94	2.74E+04	.....
	24	258.95	257 -	262	259.19	1.21E+03	402.07	3.12E+04	.....
M	25	270.49	266 -	281	270.73	7.21E+03	471.04	3.54E+04	.....
m	26	277.54	266 -	281	277.78	3.51E+03	453.08	3.44E+04	CM-243
									NP-239
M	27	288.09	285 -	304	288.32	7.92E+02	370.40	2.76E+04	.....
m	28	295.48	285 -	304	295.70	2.41E+04	478.21	2.63E+04	PB-214
m	29	300.34	285 -	304	300.57	5.45E+03	408.78	2.54E+04	GA-67
									PB-212
									BI-210M
	30	315.83	313 -	319	316.05	4.51E+02	382.26	2.62E+04	.....
M	31	328.22	319 -	343	328.43	4.55E+03	402.88	2.62E+04	LA-140
m	32	332.52	319 -	343	332.74	7.87E+02	436.76	2.98E+04	.....
m	33	338.53	319 -	343	338.74	1.64E+04	421.66	2.22E+04	AC-228
	34	352.13	348 -	357	352.34	4.04E+04	632.61	3.41E+04	PB-214
	35	388.35	385 -	392	388.55	8.18E+02	381.21	2.37E+04	.....
	36	409.68	404 -	413	409.87	2.38E+03	459.06	2.86E+04	.....
	37	453.15	450 -	457	453.32	7.89E+02	324.31	1.70E+04	PM-146
	38	463.10	459 -	467	463.27	4.83E+03	370.34	1.81E+04	SB-125
	39	479.98	478 -	483	480.15	3.69E+02	245.73	1.17E+04	.....
	40	487.12	485 -	489	487.28	2.28E+02	207.51	9.34E+03	LA-140
	41	510.77	506 -	516	510.92	8.64E+03	428.39	1.99E+04	.....
	42	533.85	532 -	537	534.00	2.84E+02	225.53	9.98E+03	.....
	43	562.76	559 -	566	562.89	8.69E+02	284.77	1.29E+04	CS-134
	44	583.26	578 -	589	583.40	2.54E+04	500.61	1.86E+04	TL-208
	45	609.39	605 -	615	609.52	2.82E+04	481.28	1.59E+04	BI-214
	46	665.57	662 -	669	665.68	9.27E+02	252.33	9.98E+03	SB-126
	47	676.20	674 -	679	676.30	2.27E+02	195.33	7.43E+03	.....
	48	702.82	700 -	706	702.91	2.03E+02	229.96	9.48E+03	NB-94
M	49	720.02	717 -	732	720.11	1.98E+02	161.18	5.59E+03	SB-126

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	50	727.26	717 -	732	727.34	5.20E+03	252.81	7.84E+03	BI-212
	51	742.62	740 -	746	742.69	3.28E+02	203.48	7.28E+03	.....
	52	755.32	752 -	759	755.40	5.69E+02	229.09	8.36E+03	.....
M	53	768.34	764 -	779	768.41	2.04E+03	204.60	7.10E+03	.....
m	54	772.30	764 -	779	772.37	8.85E+02	219.77	7.09E+03	.....
	55	785.00	779 -	790	785.07	1.83E+03	291.02	9.64E+03	.....
	56	794.87	791 -	799	794.93	2.82E+03	238.41	7.02E+03	CS-134
	57	806.23	802 -	810	806.28	6.37E+02	215.93	6.75E+03	.....
M	58	830.56	826 -	844	830.61	3.56E+02	151.71	4.40E+03	.....
m	59	835.64	826 -	844	835.69	1.15E+03	199.19	5.68E+03	MN-54
m	60	840.06	826 -	844	840.10	7.48E+02	199.13	5.51E+03	.....
	61	860.46	855 -	865	860.50	2.91E+03	250.93	6.85E+03	TL-208
	62	893.19	890 -	896	893.21	2.58E+02	157.64	4.34E+03	.....
M	63	903.96	900 -	918	903.98	4.95E+02	175.04	4.89E+03	.....
m	64	911.09	900 -	918	911.11	1.57E+04	292.82	4.05E+03	AC-228 TL-204
	65	933.96	930 -	938	933.97	1.25E+03	189.37	4.75E+03	.....
	66	951.18	949 -	954	951.18	1.32E+02	122.56	2.88E+03	.....
M	67	964.63	955 -	977	964.63	3.16E+03	217.28	3.59E+03	EU-152
m	68	968.86	955 -	977	968.86	9.19E+03	247.01	3.05E+03	AC-228
	69	1000.86	997 -	1004	1000.85	4.42E+02	151.67	3.53E+03	PA-234M
	70	1051.61	1048 -	1055	1051.58	2.03E+02	135.79	2.93E+03	.....
	71	1064.16	1061 -	1067	1064.13	2.01E+02	126.06	2.75E+03	BI-207
	72	1078.49	1075 -	1081	1078.45	2.27E+02	126.59	2.74E+03	.....
	73	1093.95	1091 -	1098	1093.91	2.37E+02	134.45	2.87E+03	LU-172
	74	1110.76	1107 -	1114	1110.71	1.94E+02	133.76	2.84E+03	.....
	75	1120.11	1115 -	1126	1120.06	5.80E+03	240.70	4.37E+03	BI-214 SC-46
	76	1133.19	1129 -	1137	1133.13	2.60E+02	141.22	2.90E+03	.....
	77	1154.96	1150 -	1159	1154.90	7.01E+02	166.26	3.53E+03	.....
	78	1206.88	1202 -	1211	1206.80	2.75E+02	145.95	2.89E+03	.....
	79	1237.76	1233 -	1242	1237.67	1.89E+03	174.31	3.27E+03	CO-56
	80	1246.11	1243 -	1252	1246.02	1.45E+02	157.59	3.48E+03	.....
	81	1254.74	1252 -	1258	1254.64	1.36E+02	111.62	2.15E+03	.....
	82	1264.57	1262 -	1268	1264.47	1.00E+02	106.10	1.98E+03	.....
	83	1280.72	1277 -	1285	1280.61	5.00E+02	142.24	2.82E+03	.....
M	84	1377.29	1372 -	1390	1377.15	1.42E+03	137.81	2.25E+03	.....
m	85	1385.05	1372 -	1390	1384.91	3.50E+02	120.66	2.14E+03	AG-110M
	86	1400.65	1396 -	1404	1400.50	4.69E+02	129.44	2.30E+03	.....
	87	1407.80	1404 -	1411	1407.65	8.03E+02	127.61	2.18E+03	EU-152
	88	1459.46	1455 -	1465	1459.29	4.68E+02	144.01	2.52E+03	.....
M	89	1495.62	1492 -	1516	1495.44	3.24E+02	103.33	1.72E+03	.....
m	90	1509.16	1492 -	1516	1508.98	8.28E+02	153.64	2.68E+03	.....
	91	1538.11	1535 -	1540	1537.92	1.15E+02	88.13	1.46E+03	.....
	92	1542.85	1541 -	1546	1542.65	7.49E+01	85.29	1.39E+03	.....
M	93	1587.72	1576 -	1598	1587.52	1.21E+03	134.36	1.85E+03	.....
m	94	1591.99	1576 -	1598	1591.78	1.38E+03	151.43	2.10E+03	.....
M	95	1620.24	1613 -	1627	1620.02	5.17E+02	100.08	1.45E+03	BI-212
m	96	1624.64	1613 -	1627	1624.42	6.71E+01	85.01	1.31E+03	.....
	97	1630.28	1627 -	1635	1630.05	5.82E+02	114.90	1.66E+03	.....
	98	1638.28	1635 -	1641	1638.06	1.71E+02	82.36	1.10E+03	.....
	99	1660.72	1655 -	1665	1660.49	3.14E+02	119.26	1.73E+03	.....
	100	1687.81	1680 -	1696	1687.57	2.07E+02	159.80	2.35E+03	.....
	101	1712.67	1710 -	1715	1712.42	5.52E+01	63.24	7.60E+02	.....

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	102	1729.23	1721 -	1736	1728.97	9.23E+02	166.63	2.40E+03	.....
	103	1741.43	1739 -	1743	1741.17	4.85E+01	55.17	6.31E+02	.....
	104	1764.03	1757 -	1771	1763.76	4.45E+03	188.28	1.86E+03	BI-214
	105	1847.10	1842 -	1852	1846.81	6.46E+02	115.82	1.42E+03	.....
	106	1896.47	1894 -	1898	1896.15	4.81E+01	57.35	6.86E+02	.....
M	107	2102.85	2095 -	2122	2102.47	1.24E+03	129.41	1.45E+03	.....
m	108	2117.81	2095 -	2122	2117.42	3.30E+02	106.43	1.35E+03	.....
	109	2203.41	2198 -	2211	2202.99	1.10E+03	147.34	1.94E+03	BI-214
	110	2292.39	2289 -	2296	2291.95	8.48E+01	89.24	1.27E+03	.....
	111	2319.40	2315 -	2322	2318.94	7.55E+01	89.51	1.28E+03	.....
	112	2431.94	2428 -	2434	2431.45	6.47E+01	63.48	6.73E+02	.....
	113	2446.98	2442 -	2451	2446.48	2.90E+02	94.06	1.09E+03	.....
	114	2613.78	2606 -	2621	2613.23	7.72E+03	190.35	5.34E+02	TL-208
	115	2686.19	2681 -	2691	2685.61	5.72E+01	34.41	1.30E+02	.....
	116	2891.80	2884 -	2896	2891.15	3.65E+01	25.30	5.69E+01	.....
	117	3017.98	3008 -	3025	3017.29	2.96E+01	29.93	6.48E+01	.....
	118	3040.57	3034 -	3045	3039.88	2.88E+01	16.00	1.64E+01	.....
	119	3053.05	3047 -	3058	3052.34	1.88E+01	11.14	6.41E+00	.....
	120	3111.44	3104 -	3115	3110.71	1.10E+01	13.71	1.80E+01	.....
	121	3124.29	3118 -	3127	3123.57	3.83E+01	13.75	5.41E+00	.....
	122	3196.70	3190 -	3201	3195.95	1.13E+02	24.41	1.80E+01	.....
	123	3211.77	3206 -	3214	3211.01	4.64E+00	6.95	4.71E+00	.....
	124	3229.90	3225 -	3232	3229.14	7.00E+00	5.29	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 5:16:09PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	16.83	1.41E+03	564.13	2.26E-04	1.73E-03
M	2	33.92	3.25E+03	742.10	8.45E-03	1.73E-03
m	3	38.92	1.25E+03	673.91	1.21E-02	1.73E-03
	4	46.77	2.15E+03	489.69	1.74E-02	1.73E-03
	5	57.51	5.47E+03	600.12	2.26E-02	1.73E-03
	6	63.78	6.92E+03	841.50	2.45E-02	1.81E-03
	7	76.44	9.80E+04	1470.72	2.67E-02	2.04E-03

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	8	84.70	5.26E+03	650.36	2.71E-02	2.20E-03
m	9	90.70	9.57E+03	683.06	2.71E-02	2.25E-03
	10	99.71	1.75E+03	479.98	2.68E-02	2.21E-03
	11	105.70	2.77E+03	563.22	2.65E-02	2.19E-03
	12	115.46	6.75E+02	546.55	2.58E-02	2.15E-03
	13	129.35	6.19E+03	818.24	2.45E-02	2.04E-03
	14	144.68	1.52E+03	621.66	2.31E-02	1.87E-03
	15	154.24	2.36E+03	610.52	2.23E-02	1.76E-03
	16	164.00	9.25E+02	579.33	2.14E-02	1.65E-03
	17	186.23	1.38E+04	807.87	1.96E-02	1.55E-03
	18	199.74	8.85E+02	533.22	1.86E-02	1.49E-03
	19	209.59	7.51E+03	679.89	1.79E-02	1.45E-03
	20	216.56	5.02E+02	431.06	1.74E-02	1.43E-03
M	21	238.91	8.96E+04	762.24	1.61E-02	1.34E-03
m	22	241.89	2.09E+04	825.13	1.60E-02	1.33E-03
	23	252.51	4.56E+02	353.94	1.54E-02	1.28E-03
	24	258.95	1.21E+03	402.07	1.51E-02	1.26E-03
M	25	270.49	7.21E+03	471.04	1.45E-02	1.21E-03
m	26	277.54	3.51E+03	453.08	1.42E-02	1.19E-03
M	27	288.09	7.92E+02	370.40	1.38E-02	1.16E-03
m	28	295.48	2.41E+04	478.21	1.35E-02	1.15E-03
m	29	300.34	5.45E+03	408.78	1.33E-02	1.14E-03
	30	315.83	4.51E+02	382.26	1.27E-02	1.11E-03
M	31	328.22	4.55E+03	402.88	1.23E-02	1.08E-03
m	32	332.52	7.87E+02	436.76	1.21E-02	1.07E-03
m	33	338.53	1.64E+04	421.66	1.19E-02	1.06E-03
	34	352.13	4.04E+04	632.61	1.15E-02	1.03E-03
	35	388.35	8.18E+02	381.21	1.06E-02	9.59E-04
	36	409.68	2.38E+03	459.06	1.01E-02	9.29E-04
	37	453.15	7.89E+02	324.31	9.20E-03	8.71E-04
	38	463.10	4.83E+03	370.34	9.02E-03	8.58E-04
	39	479.98	3.69E+02	245.73	8.73E-03	8.35E-04
	40	487.12	2.28E+02	207.51	8.62E-03	8.26E-04
	41	510.77	8.64E+03	428.39	8.26E-03	7.95E-04
	42	533.85	2.84E+02	225.53	7.93E-03	7.64E-04
	43	562.76	8.69E+02	284.77	7.56E-03	7.26E-04
	44	583.26	2.54E+04	500.61	7.32E-03	6.99E-04
	45	609.39	2.82E+04	481.28	7.04E-03	6.64E-04
	46	665.57	9.27E+02	252.33	6.50E-03	5.91E-04
	47	676.20	2.27E+02	195.33	6.41E-03	5.82E-04
	48	702.82	2.03E+02	229.96	6.19E-03	5.58E-04
M	49	720.02	1.98E+02	161.18	6.06E-03	5.43E-04
m	50	727.26	5.20E+03	252.81	6.01E-03	5.37E-04
	51	742.62	3.28E+02	203.48	5.90E-03	5.23E-04
	52	755.32	5.69E+02	229.09	5.81E-03	5.12E-04
M	53	768.34	2.04E+03	204.60	5.72E-03	5.00E-04
m	54	772.30	8.85E+02	219.77	5.69E-03	4.97E-04
	55	785.00	1.83E+03	291.02	5.61E-03	4.86E-04
	56	794.87	2.82E+03	238.41	5.55E-03	4.77E-04
	57	806.23	6.37E+02	215.93	5.48E-03	4.67E-04
M	58	830.56	3.56E+02	151.71	5.34E-03	4.46E-04
m	59	835.64	1.15E+03	199.19	5.31E-03	4.41E-04
m	60	840.06	7.48E+02	199.13	5.29E-03	4.37E-04

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	61	860.46	2.91E+03	250.93	5.18E-03	4.19E-04
	62	893.19	2.58E+02	157.64	5.01E-03	3.90E-04
M	63	903.96	4.95E+02	175.04	4.96E-03	3.85E-04
m	64	911.09	1.57E+04	292.82	4.92E-03	3.84E-04
	65	933.96	1.25E+03	189.37	4.82E-03	3.80E-04
	66	951.18	1.32E+02	122.56	4.74E-03	3.77E-04
M	67	964.63	3.16E+03	217.28	4.68E-03	3.75E-04
m	68	968.86	9.19E+03	247.01	4.66E-03	3.74E-04
	69	1000.86	4.42E+02	151.67	4.54E-03	3.69E-04
	70	1051.61	2.03E+02	135.79	4.35E-03	3.61E-04
	71	1064.16	2.01E+02	126.06	4.30E-03	3.59E-04
	72	1078.49	2.27E+02	126.59	4.25E-03	3.56E-04
	73	1093.95	2.37E+02	134.45	4.20E-03	3.54E-04
	74	1110.76	1.94E+02	133.76	4.15E-03	3.51E-04
	75	1120.11	5.80E+03	240.70	4.12E-03	3.50E-04
	76	1133.19	2.60E+02	141.22	4.08E-03	3.47E-04
	77	1154.96	7.01E+02	166.26	4.01E-03	3.44E-04
	78	1206.88	2.75E+02	145.95	3.87E-03	3.31E-04
	79	1237.76	1.89E+03	174.31	3.79E-03	3.23E-04
	80	1246.11	1.45E+02	157.59	3.77E-03	3.20E-04
	81	1254.74	1.36E+02	111.62	3.74E-03	3.18E-04
	82	1264.57	1.00E+02	106.10	3.72E-03	3.15E-04
	83	1280.72	5.00E+02	142.24	3.68E-03	3.10E-04
M	84	1377.29	1.42E+03	137.81	3.47E-03	2.88E-04
m	85	1385.05	3.50E+02	120.66	3.45E-03	2.87E-04
	86	1400.65	4.69E+02	129.44	3.42E-03	2.85E-04
	87	1407.80	8.03E+02	127.61	3.41E-03	2.84E-04
	88	1459.46	4.68E+02	144.01	3.31E-03	2.75E-04
M	89	1495.62	3.24E+02	103.33	3.25E-03	2.69E-04
m	90	1509.16	8.28E+02	153.64	3.23E-03	2.67E-04
	91	1538.11	1.15E+02	88.13	3.18E-03	2.63E-04
	92	1542.85	7.49E+01	85.29	3.17E-03	2.62E-04
M	93	1587.72	1.21E+03	134.36	3.10E-03	2.55E-04
m	94	1591.99	1.38E+03	151.43	3.09E-03	2.54E-04
M	95	1620.24	5.17E+02	100.08	3.05E-03	2.50E-04
m	96	1624.64	6.71E+01	85.01	3.05E-03	2.49E-04
	97	1630.28	5.82E+02	114.90	3.04E-03	2.48E-04
	98	1638.28	1.71E+02	82.36	3.03E-03	2.47E-04
	99	1660.72	3.14E+02	119.26	3.00E-03	2.43E-04
	100	1687.81	2.07E+02	159.80	2.96E-03	2.39E-04
	101	1712.67	5.52E+01	63.24	2.93E-03	2.35E-04
	102	1729.23	9.23E+02	166.63	2.91E-03	2.32E-04
	103	1741.43	4.85E+01	55.17	2.89E-03	2.30E-04
	104	1764.03	4.45E+03	188.28	2.87E-03	2.27E-04
	105	1847.10	6.46E+02	115.82	2.77E-03	2.15E-04
	106	1896.47	4.81E+01	57.35	2.72E-03	2.15E-04
M	107	2102.85	1.24E+03	129.41	2.54E-03	2.15E-04
m	108	2117.81	3.30E+02	106.43	2.53E-03	2.15E-04
	109	2203.41	1.10E+03	147.34	2.46E-03	2.15E-04
	110	2292.39	8.48E+01	89.24	2.41E-03	2.15E-04
	111	2319.40	7.55E+01	89.51	2.39E-03	2.15E-04
	112	2431.94	6.47E+01	63.48	2.33E-03	2.15E-04
	113	2446.98	2.90E+02	94.06	2.32E-03	2.15E-04

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
114	2613.78	7.72E+03	190.35	2.24E-03	2.15E-04
115	2686.19	5.72E+01	34.41	2.21E-03	2.15E-04
116	2891.80	3.65E+01	25.30	2.14E-03	2.15E-04
117	3017.98	2.96E+01	29.93	2.10E-03	2.15E-04
118	3040.57	2.88E+01	16.00	2.10E-03	2.15E-04
119	3053.05	1.88E+01	11.14	2.09E-03	2.15E-04
120	3111.44	1.10E+01	13.71	2.08E-03	2.15E-04
121	3124.29	3.83E+01	13.75	2.08E-03	2.15E-04
122	3196.70	1.13E+02	24.41	2.06E-03	2.15E-04
123	3211.77	4.64E+00	6.95	2.06E-03	2.15E-04
124	3229.90	7.00E+00	5.29	2.05E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 5:16:09PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	16.83	1.41E+03	564.13			1.41E+03	5.64E+02
M	2	33.92	3.25E+03	742.10			3.25E+03	7.42E+02
m	3	38.92	1.25E+03	673.91			1.25E+03	6.74E+02
	4	46.77	2.15E+03	489.69	4.84E+01	1.23E+01	2.10E+03	4.90E+02
	5	57.51	5.47E+03	600.12			5.47E+03	6.00E+02
	6	63.78	6.92E+03	841.50	4.29E+01	6.03E+00	6.88E+03	8.42E+02
	7	76.44	9.80E+04	1470.72	1.67E+01	8.84E+00	9.80E+04	1.47E+03
M	8	84.70	5.26E+03	650.36	9.54E+00	8.76E+00	5.25E+03	6.50E+02
m	9	90.70	9.57E+03	683.06			9.57E+03	6.83E+02
	10	99.71	1.75E+03	479.98			1.75E+03	4.80E+02
	11	105.70	2.77E+03	563.22			2.77E+03	5.63E+02
	12	115.46	6.75E+02	546.55			6.75E+02	5.47E+02
	13	129.35	6.19E+03	818.24			6.19E+03	8.18E+02
	14	144.68	1.52E+03	621.66			1.52E+03	6.22E+02
	15	154.24	2.36E+03	610.52			2.36E+03	6.11E+02
	16	164.00	9.25E+02	579.33			9.25E+02	5.79E+02
	17	186.23	1.38E+04	807.87	2.99E+01	5.81E+00	1.38E+04	8.08E+02
	18	199.74	8.85E+02	533.22			8.85E+02	5.33E+02
	19	209.59	7.51E+03	679.89			7.51E+03	6.80E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	20	216.56	5.02E+02	431.06			5.02E+02	4.31E+02
M	21	238.91	8.96E+04	762.24	9.49E+00	5.63E+00	8.96E+04	7.62E+02
m	22	241.89	2.09E+04	825.13			2.09E+04	8.25E+02
	23	252.51	4.56E+02	353.94			4.56E+02	3.54E+02
	24	258.95	1.21E+03	402.07			1.21E+03	4.02E+02
M	25	270.49	7.21E+03	471.04			7.21E+03	4.71E+02
m	26	277.54	3.51E+03	453.08			3.51E+03	4.53E+02
M	27	288.09	7.92E+02	370.40			7.92E+02	3.70E+02
m	28	295.48	2.41E+04	478.21			2.41E+04	4.78E+02
m	29	300.34	5.45E+03	408.78			5.45E+03	4.09E+02
	30	315.83	4.51E+02	382.26			4.51E+02	3.82E+02
M	31	328.22	4.55E+03	402.88			4.55E+03	4.03E+02
m	32	332.52	7.87E+02	436.76			7.87E+02	4.37E+02
m	33	338.53	1.64E+04	421.66	4.73E+00	4.47E+00	1.64E+04	4.22E+02
	34	352.13	4.04E+04	632.61			4.04E+04	6.33E+02
	35	388.35	8.18E+02	381.21			8.18E+02	3.81E+02
	36	409.68	2.38E+03	459.06			2.38E+03	4.59E+02
	37	453.15	7.89E+02	324.31			7.89E+02	3.24E+02
	38	463.10	4.83E+03	370.34			4.83E+03	3.70E+02
	39	479.98	3.69E+02	245.73			3.69E+02	2.46E+02
	40	487.12	2.28E+02	207.51			2.28E+02	2.08E+02
	41	510.77	8.64E+03	428.39			8.64E+03	4.28E+02
	42	533.85	2.84E+02	225.53			2.84E+02	2.26E+02
	43	562.76	8.69E+02	284.77			8.69E+02	2.85E+02
	44	583.26	2.54E+04	500.61			2.54E+04	5.01E+02
	45	609.39	2.82E+04	481.28	4.09E+00	3.07E+00	2.82E+04	4.81E+02
	46	665.57	9.27E+02	252.33			9.27E+02	2.52E+02
	47	676.20	2.27E+02	195.33			2.27E+02	1.95E+02
	48	702.82	2.03E+02	229.96			2.03E+02	2.30E+02
M	49	720.02	1.98E+02	161.18			1.98E+02	1.61E+02
m	50	727.26	5.20E+03	252.81			5.20E+03	2.53E+02
	51	742.62	3.28E+02	203.48			3.28E+02	2.03E+02
	52	755.32	5.69E+02	229.09			5.69E+02	2.29E+02
M	53	768.34	2.04E+03	204.60			2.04E+03	2.05E+02
m	54	772.30	8.85E+02	219.77			8.85E+02	2.20E+02
	55	785.00	1.83E+03	291.02			1.83E+03	2.91E+02
	56	794.87	2.82E+03	238.41			2.82E+03	2.38E+02
	57	806.23	6.37E+02	215.93			6.37E+02	2.16E+02
M	58	830.56	3.56E+02	151.71			3.56E+02	1.52E+02
m	59	835.64	1.15E+03	199.19			1.15E+03	1.99E+02
m	60	840.06	7.48E+02	199.13			7.48E+02	1.99E+02
	61	860.46	2.91E+03	250.93			2.91E+03	2.51E+02
	62	893.19	2.58E+02	157.64			2.58E+02	1.58E+02
M	63	903.96	4.95E+02	175.04			4.95E+02	1.75E+02
m	64	911.09	1.57E+04	292.82			1.57E+04	2.93E+02
	65	933.96	1.25E+03	189.37			1.25E+03	1.89E+02
	66	951.18	1.32E+02	122.56			1.32E+02	1.23E+02
M	67	964.63	3.16E+03	217.28			3.16E+03	2.17E+02
m	68	968.86	9.19E+03	247.01			9.19E+03	2.47E+02
	69	1000.86	4.42E+02	151.67			4.42E+02	1.52E+02
	70	1051.61	2.03E+02	135.79			2.03E+02	1.36E+02
	71	1064.16	2.01E+02	126.06			2.01E+02	1.26E+02
	72	1078.49	2.27E+02	126.59			2.27E+02	1.27E+02
	73	1093.95	2.37E+02	134.45			2.37E+02	1.34E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	74	1110.76	1.94E+02	133.76			1.94E+02	1.34E+02
	75	1120.11	5.80E+03	240.70			5.80E+03	2.41E+02
	76	1133.19	2.60E+02	141.22			2.60E+02	1.41E+02
	77	1154.96	7.01E+02	166.26			7.01E+02	1.66E+02
	78	1206.88	2.75E+02	145.95			2.75E+02	1.46E+02
	79	1237.76	1.89E+03	174.31			1.89E+03	1.74E+02
	80	1246.11	1.45E+02	157.59			1.45E+02	1.58E+02
	81	1254.74	1.36E+02	111.62			1.36E+02	1.12E+02
	82	1264.57	1.00E+02	106.10			1.00E+02	1.06E+02
	83	1280.72	5.00E+02	142.24			5.00E+02	1.42E+02
M	84	1377.29	1.42E+03	137.81			1.42E+03	1.38E+02
m	85	1385.05	3.50E+02	120.66			3.50E+02	1.21E+02
	86	1400.65	4.69E+02	129.44			4.69E+02	1.29E+02
	87	1407.80	8.03E+02	127.61			8.03E+02	1.28E+02
	88	1459.46	4.68E+02	144.01			4.68E+02	1.44E+02
M	89	1495.62	3.24E+02	103.33			3.24E+02	1.03E+02
m	90	1509.16	8.28E+02	153.64			8.28E+02	1.54E+02
	91	1538.11	1.15E+02	88.13			1.15E+02	8.81E+01
	92	1542.85	7.49E+01	85.29			7.49E+01	8.53E+01
M	93	1587.72	1.21E+03	134.36			1.21E+03	1.34E+02
m	94	1591.99	1.38E+03	151.43			1.38E+03	1.51E+02
M	95	1620.24	5.17E+02	100.08			5.17E+02	1.00E+02
m	96	1624.64	6.71E+01	85.01			6.71E+01	8.50E+01
	97	1630.28	5.82E+02	114.90			5.82E+02	1.15E+02
	98	1638.28	1.71E+02	82.36			1.71E+02	8.24E+01
	99	1660.72	3.14E+02	119.26			3.14E+02	1.19E+02
	100	1687.81	2.07E+02	159.80			2.07E+02	1.60E+02
	101	1712.67	5.52E+01	63.24			5.52E+01	6.32E+01
	102	1729.23	9.23E+02	166.63			9.23E+02	1.67E+02
	103	1741.43	4.85E+01	55.17			4.85E+01	5.52E+01
	104	1764.03	4.45E+03	188.28			4.45E+03	1.88E+02
	105	1847.10	6.46E+02	115.82			6.46E+02	1.16E+02
	106	1896.47	4.81E+01	57.35			4.81E+01	5.73E+01
M	107	2102.85	1.24E+03	129.41			1.24E+03	1.29E+02
m	108	2117.81	3.30E+02	106.43			3.30E+02	1.06E+02
	109	2203.41	1.10E+03	147.34			1.10E+03	1.47E+02
	110	2292.39	8.48E+01	89.24			8.48E+01	8.92E+01
	111	2319.40	7.55E+01	89.51			7.55E+01	8.95E+01
	112	2431.94	6.47E+01	63.48			6.47E+01	6.35E+01
	113	2446.98	2.90E+02	94.06			2.90E+02	9.41E+01
	114	2613.78	7.72E+03	190.35			7.72E+03	1.90E+02
	115	2686.19	5.72E+01	34.41			5.72E+01	3.44E+01
	116	2891.80	3.65E+01	25.30			3.65E+01	2.53E+01
	117	3017.98	2.96E+01	29.93			2.96E+01	2.99E+01
	118	3040.57	2.88E+01	16.00			2.88E+01	1.60E+01
	119	3053.05	1.88E+01	11.14			1.88E+01	1.11E+01
	120	3111.44	1.10E+01	13.71			1.10E+01	1.37E+01
	121	3124.29	3.83E+01	13.75			3.83E+01	1.37E+01
	122	3196.70	1.13E+02	24.41			1.13E+02	2.44E+01
	123	3211.77	4.64E+00	6.95			4.64E+00	6.95E+00
	124	3229.90	7.00E+00	5.29			7.00E+00	5.29E+00

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 5:16:09PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	16.83	1.41E+03	564.13			1.41E+03	5.64E+02
M	2	33.92	3.25E+03	742.10			3.25E+03	7.42E+02
m	3	38.92	1.25E+03	673.91			1.25E+03	6.74E+02
	4	46.77	2.15E+03	489.69	4.84E+01	1.23E+01	2.10E+03	4.90E+02
	5	57.51	5.47E+03	600.12			5.47E+03	6.00E+02
	6	63.78	6.92E+03	841.50	4.29E+01	6.03E+00	6.88E+03	8.42E+02
	7	76.44	9.80E+04	1470.72	1.67E+01	8.84E+00	9.80E+04	1.47E+03
M	8	84.70	5.26E+03	650.36	9.54E+00	8.76E+00	5.25E+03	6.50E+02
m	9	90.70	9.57E+03	683.06			9.57E+03	6.83E+02
	10	99.71	1.75E+03	479.98			1.75E+03	4.80E+02
	11	105.70	2.77E+03	563.22			2.77E+03	5.63E+02
	12	115.46	6.75E+02	546.55			6.75E+02	5.47E+02
	13	129.35	6.19E+03	818.24			6.19E+03	8.18E+02
	14	144.68	1.52E+03	621.66			1.52E+03	6.22E+02
	15	154.24	2.36E+03	610.52			2.36E+03	6.11E+02
	16	164.00	9.25E+02	579.33			9.25E+02	5.79E+02
	17	186.23	1.38E+04	807.87	2.99E+01	5.81E+00	1.38E+04	8.08E+02
	18	199.74	8.85E+02	533.22			8.85E+02	5.33E+02
	19	209.59	7.51E+03	679.89			7.51E+03	6.80E+02
	20	216.56	5.02E+02	431.06			5.02E+02	4.31E+02
M	21	238.91	8.96E+04	762.24	9.49E+00	5.63E+00	8.96E+04	7.62E+02
m	22	241.89	2.09E+04	825.13			2.09E+04	8.25E+02
	23	252.51	4.56E+02	353.94			4.56E+02	3.54E+02
	24	258.95	1.21E+03	402.07			1.21E+03	4.02E+02
M	25	270.49	7.21E+03	471.04			7.21E+03	4.71E+02
m	26	277.54	3.51E+03	453.08			3.51E+03	4.53E+02
M	27	288.09	7.92E+02	370.40			7.92E+02	3.70E+02
m	28	295.48	2.41E+04	478.21			2.41E+04	4.78E+02
m	29	300.34	5.45E+03	408.78			5.45E+03	4.09E+02
	30	315.83	4.51E+02	382.26			4.51E+02	3.82E+02
M	31	328.22	4.55E+03	402.88			4.55E+03	4.03E+02
m	32	332.52	7.87E+02	436.76			7.87E+02	4.37E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	33	338.53	1.64E+04	421.66	4.73E+00	4.47E+00	1.64E+04	4.22E+02
	34	352.13	4.04E+04	632.61			4.04E+04	6.33E+02
	35	388.35	8.18E+02	381.21			8.18E+02	3.81E+02
	36	409.68	2.38E+03	459.06			2.38E+03	4.59E+02
	37	453.15	7.89E+02	324.31			7.89E+02	3.24E+02
	38	463.10	4.83E+03	370.34			4.83E+03	3.70E+02
	39	479.98	3.69E+02	245.73			3.69E+02	2.46E+02
	40	487.12	2.28E+02	207.51			2.28E+02	2.08E+02
	41	510.77	8.64E+03	428.39			8.64E+03	4.28E+02
	42	533.85	2.84E+02	225.53			2.84E+02	2.26E+02
	43	562.76	8.69E+02	284.77			8.69E+02	2.85E+02
	44	583.26	2.54E+04	500.61			2.54E+04	5.01E+02
	45	609.39	2.82E+04	481.28	4.09E+00	3.07E+00	2.82E+04	4.81E+02
	46	665.57	9.27E+02	252.33			9.27E+02	2.52E+02
	47	676.20	2.27E+02	195.33			2.27E+02	1.95E+02
	48	702.82	2.03E+02	229.96			2.03E+02	2.30E+02
M	49	720.02	1.98E+02	161.18			1.98E+02	1.61E+02
m	50	727.26	5.20E+03	252.81			5.20E+03	2.53E+02
	51	742.62	3.28E+02	203.48			3.28E+02	2.03E+02
	52	755.32	5.69E+02	229.09			5.69E+02	2.29E+02
M	53	768.34	2.04E+03	204.60			2.04E+03	2.05E+02
m	54	772.30	8.85E+02	219.77			8.85E+02	2.20E+02
	55	785.00	1.83E+03	291.02			1.83E+03	2.91E+02
	56	794.87	2.82E+03	238.41			2.82E+03	2.38E+02
	57	806.23	6.37E+02	215.93			6.37E+02	2.16E+02
M	58	830.56	3.56E+02	151.71			3.56E+02	1.52E+02
m	59	835.64	1.15E+03	199.19			1.15E+03	1.99E+02
m	60	840.06	7.48E+02	199.13			7.48E+02	1.99E+02
	61	860.46	2.91E+03	250.93			2.91E+03	2.51E+02
	62	893.19	2.58E+02	157.64			2.58E+02	1.58E+02
M	63	903.96	4.95E+02	175.04			4.95E+02	1.75E+02
m	64	911.09	1.57E+04	292.82			1.57E+04	2.93E+02
	65	933.96	1.25E+03	189.37			1.25E+03	1.89E+02
	66	951.18	1.32E+02	122.56			1.32E+02	1.23E+02
M	67	964.63	3.16E+03	217.28			3.16E+03	2.17E+02
m	68	968.86	9.19E+03	247.01			9.19E+03	2.47E+02
	69	1000.86	4.42E+02	151.67			4.42E+02	1.52E+02
	70	1051.61	2.03E+02	135.79			2.03E+02	1.36E+02
	71	1064.16	2.01E+02	126.06			2.01E+02	1.26E+02
	72	1078.49	2.27E+02	126.59			2.27E+02	1.27E+02
	73	1093.95	2.37E+02	134.45			2.37E+02	1.34E+02
	74	1110.76	1.94E+02	133.76			1.94E+02	1.34E+02
	75	1120.11	5.80E+03	240.70			5.80E+03	2.41E+02
	76	1133.19	2.60E+02	141.22			2.60E+02	1.41E+02
	77	1154.96	7.01E+02	166.26			7.01E+02	1.66E+02
	78	1206.88	2.75E+02	145.95			2.75E+02	1.46E+02
	79	1237.76	1.89E+03	174.31			1.89E+03	1.74E+02
	80	1246.11	1.45E+02	157.59			1.45E+02	1.58E+02
	81	1254.74	1.36E+02	111.62			1.36E+02	1.12E+02
	82	1264.57	1.00E+02	106.10			1.00E+02	1.06E+02
	83	1280.72	5.00E+02	142.24			5.00E+02	1.42E+02
M	84	1377.29	1.42E+03	137.81			1.42E+03	1.38E+02
m	85	1385.05	3.50E+02	120.66			3.50E+02	1.21E+02
	86	1400.65	4.69E+02	129.44			4.69E+02	1.29E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	87	1407.80	8.03E+02	127.61			8.03E+02	1.28E+02
	88	1459.46	4.68E+02	144.01			4.68E+02	1.44E+02
M	89	1495.62	3.24E+02	103.33			3.24E+02	1.03E+02
m	90	1509.16	8.28E+02	153.64			8.28E+02	1.54E+02
	91	1538.11	1.15E+02	88.13			1.15E+02	8.81E+01
	92	1542.85	7.49E+01	85.29			7.49E+01	8.53E+01
M	93	1587.72	1.21E+03	134.36			1.21E+03	1.34E+02
m	94	1591.99	1.38E+03	151.43			1.38E+03	1.51E+02
M	95	1620.24	5.17E+02	100.08			5.17E+02	1.00E+02
m	96	1624.64	6.71E+01	85.01			6.71E+01	8.50E+01
	97	1630.28	5.82E+02	114.90			5.82E+02	1.15E+02
	98	1638.28	1.71E+02	82.36			1.71E+02	8.24E+01
	99	1660.72	3.14E+02	119.26			3.14E+02	1.19E+02
	100	1687.81	2.07E+02	159.80			2.07E+02	1.60E+02
	101	1712.67	5.52E+01	63.24			5.52E+01	6.32E+01
	102	1729.23	9.23E+02	166.63			9.23E+02	1.67E+02
	103	1741.43	4.85E+01	55.17			4.85E+01	5.52E+01
	104	1764.03	4.45E+03	188.28			4.45E+03	1.88E+02
	105	1847.10	6.46E+02	115.82			6.46E+02	1.16E+02
	106	1896.47	4.81E+01	57.35			4.81E+01	5.73E+01
M	107	2102.85	1.24E+03	129.41			1.24E+03	1.29E+02
m	108	2117.81	3.30E+02	106.43			3.30E+02	1.06E+02
	109	2203.41	1.10E+03	147.34			1.10E+03	1.47E+02
	110	2292.39	8.48E+01	89.24			8.48E+01	8.92E+01
	111	2319.40	7.55E+01	89.51			7.55E+01	8.95E+01
	112	2431.94	6.47E+01	63.48			6.47E+01	6.35E+01
	113	2446.98	2.90E+02	94.06			2.90E+02	9.41E+01
	114	2613.78	7.72E+03	190.35			7.72E+03	1.90E+02
	115	2686.19	5.72E+01	34.41			5.72E+01	3.44E+01
	116	2891.80	3.65E+01	25.30			3.65E+01	2.53E+01
	117	3017.98	2.96E+01	29.93			2.96E+01	2.99E+01
	118	3040.57	2.88E+01	16.00			2.88E+01	1.60E+01
	119	3053.05	1.88E+01	11.14			1.88E+01	1.11E+01
	120	3111.44	1.10E+01	13.71			1.10E+01	1.37E+01
	121	3124.29	3.83E+01	13.75			3.83E+01	1.37E+01
	122	3196.70	1.13E+02	24.41			1.13E+02	2.44E+01
	123	3211.77	4.64E+00	6.95			4.64E+00	6.95E+00
	124	3229.90	7.00E+00	5.29			7.00E+00	5.29E+00

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
MN-54	0.899	834.83	*	99.97	2.79E+00	5.35E-01
NB-93M	0.989	16.57	*	9.43	7.01E+02	5.35E+03
PM-146	0.384	453.90	*	39.94	2.32E+00	9.77E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.465	91.11	*	28.90	4.61E+03	5.04E+02
		531.02		13.10		
TL-208	0.938	583.14	*	30.22	1.20E+02	1.17E+01
		860.37	*	4.48	1.31E+02	1.55E+01
		2614.66	*	35.85	1.00E+02	9.96E+00
PB-210	0.988	46.50	*	4.25	2.99E+01	7.57E+00
BI-212	0.995	727.17	*	11.80	7.66E+01	7.79E+00
		1620.62	*	2.75	6.43E+01	1.35E+01
PB-212	0.988	238.63	*	44.60	1.30E+02	1.09E+01
		300.09	*	3.41	1.26E+02	1.43E+01
BI-214	0.985	609.31	*	46.30	9.04E+01	8.66E+00
		1120.29	*	15.10	9.75E+01	9.21E+00
		1764.49	*	15.80	1.03E+02	9.20E+00
		2204.22	*	4.98	9.37E+01	1.50E+01
PB-214	0.992	295.21	*	19.19	9.75E+01	8.52E+00
		351.92	*	37.19	9.83E+01	8.93E+00
RA-224	0.876	240.98	*	3.95	3.47E+02	3.19E+01
RA-226	1.000	186.21	*	3.28	2.25E+02	4.11E+02
AC-228	0.996	338.32	*	11.40	1.26E+02	1.16E+01
		911.07	*	27.70	1.21E+02	9.67E+00
		969.11	*	16.60	1.24E+02	1.05E+01
PA-234M	0.995	1001.03	*	0.92	1.11E+02	3.90E+01
TH-234	0.962	63.29	*	3.80	7.70E+01	1.10E+01
U-235	0.570	143.76	*	10.50	6.54E+00	2.90E+00
		163.35	*	4.70	9.61E+00	6.28E+00
		205.31		4.70		
CM-243	0.369	209.75	*	3.29	1.34E+02	1.63E+01
		228.14		10.60		
		277.60	*	14.00	1.85E+01	2.85E+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 1707078-12

HTC-A01-S004-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 5:16:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	33.92	9.02598E-01	11.42	Sum	
m	3	38.92	3.46969E-01	26.98	Tol.	I-129
	5	57.51	1.52036E+00	5.48	Tol.	CE-143
	7	76.44	2.72206E+01	0.75		
M	8	84.70	1.45763E+00	6.20		
	10	99.71	4.86234E-01	13.71		
	11	105.70	7.70200E-01	10.16	Tol.	EU-155 NP-239
	12	115.46	1.87497E-01	40.49		
	13	129.35	1.72018E+00	6.61		
	15	154.24	6.55705E-01	12.93	Sum	
	18	199.74	2.45795E-01	30.13		
	20	216.56	1.39326E-01	42.97		
	23	252.51	1.26715E-01	38.79		
	24	258.95	3.36727E-01	16.58	Sum	
M	25	270.49	2.00232E+00	3.27		
M	27	288.09	2.19980E-01	23.39	Sum	
	30	315.83	1.25330E-01	42.36		
M	31	328.22	1.26453E+00	4.42	Sum	
m	32	332.52	2.18480E-01	27.77	Sum	
	35	388.35	2.27220E-01	23.30		
	36	409.68	6.60535E-01	9.65		
	38	463.10	1.34054E+00	3.84	Sum	
	39	479.98	1.02557E-01	33.28	Sum	
	40	487.12	6.34577E-02	45.42	Sum	
	41	510.77	2.39912E+00	2.48	Sum	
	42	533.85	7.89195E-02	39.69	Sum	
	43	562.76	2.41342E-01	16.39	Tol.	CS-134
	46	665.57	2.57639E-01	13.60	Tol.	SB-126
	47	676.20	6.31423E-02	42.96	Sum	
	48	702.82	5.64194E-02	56.61	Tol.	NB-94
M	49	720.02	5.48771E-02	40.79	Tol.	SB-126
	51	742.62	9.11707E-02	31.00	D-Esc	
	52	755.32	1.58068E-01	20.13		
M	53	768.34	5.65506E-01	5.02		
m	54	772.30	2.45937E-01	12.41		
	55	785.00	5.09330E-01	7.94		
	56	794.87	7.82748E-01	4.23	Sum	
	57	806.23	1.76868E-01	16.96	Sum	
M	58	830.56	9.89089E-02	21.30		
m	60	840.06	2.07668E-01	13.32		
	62	893.19	7.16394E-02	30.56		
M	63	903.96	1.37466E-01	17.69	Sum	
	65	933.96	3.47638E-01	7.57		
	66	951.18	3.67952E-02	46.26	Sum	

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	67	964.63	8.76986E-01	3.44		
	70	1051.61	5.63323E-02	33.48		
	71	1064.16	5.59194E-02	31.31	Sum	
	72	1078.49	6.30416E-02	27.89	Sum	
	73	1093.95	6.58096E-02	28.37	Tol.	LU-172
	74	1110.76	5.37885E-02	34.54		
	76	1133.19	7.22633E-02	27.14	Sum	
	77	1154.96	1.94825E-01	11.85	Sum	
	78	1206.88	7.63365E-02	26.55	Sum	
	79	1237.76	5.24451E-01	4.62	Tol.	CO-56
	80	1246.11	4.03339E-02	54.27	Sum	
	81	1254.74	3.77795E-02	41.04		
	82	1264.57	2.78755E-02	52.86	Sum	
	83	1280.72	1.39001E-01	14.21		
M	84	1377.29	3.94696E-01	4.85		
m	85	1385.05	9.73551E-02	17.21	Tol.	AG-110M
	86	1400.65	1.30395E-01	13.79		
	87	1407.80	2.22922E-01	7.95		
	88	1459.46	1.30004E-01	15.39	Sum	
M	89	1495.62	9.01189E-02	15.93		
m	90	1509.16	2.30008E-01	9.28		
	91	1538.11	3.20205E-02	38.23		
	92	1542.85	2.07932E-02	56.97		
M	93	1587.72	3.35767E-01	5.56	Sum	
m	94	1591.99	3.83146E-01	5.49	D-Esc	
m	96	1624.64	1.86383E-02	63.35		
	97	1630.28	1.61598E-01	9.88		
	98	1638.28	4.75724E-02	24.05	Sum	
	99	1660.72	8.71169E-02	19.01		
	100	1687.81	5.74775E-02	38.62		
	101	1712.67	1.53257E-02	57.31		
	102	1729.23	2.56257E-01	9.03	Sum	
	103	1741.43	1.34722E-02	56.87		
	105	1847.10	1.79456E-01	8.96	Sum	
	106	1896.47	1.33674E-02	59.59		
M	107	2102.85	3.44821E-01	5.21	S-Esc	
m	108	2117.81	9.16314E-02	16.13		
	110	2292.39	2.35447E-02	52.64		
	111	2319.40	2.09592E-02	59.31		
	112	2431.94	1.79828E-02	49.03		
	113	2446.98	8.06740E-02	16.19		
	115	2686.19	1.58971E-02	30.06		
	116	2891.80	1.01474E-02	34.63	Sum	
	117	3017.98	8.21685E-03	50.60		
	118	3040.57	8.00300E-03	27.77		
	119	3053.05	5.22096E-03	29.62		
	120	3111.44	3.05556E-03	62.32		
	121	3124.29	1.06369E-02	17.95		
	122	3196.70	3.13843E-02	10.80	Sum	
	123	3211.77	1.28968E-03	74.81		
	124	3229.90	1.94444E-03	37.80		

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
MN-54	0.89	834.83	*	99.97	2.79E+00	5.35E-01
NB-93M	0.98	16.57	*	9.43	7.01E+02	5.35E+03
PM-146	0.38	453.90	*	39.94	2.32E+00	9.77E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.46	91.11	*	28.90	4.61E+03	5.04E+02
		531.02		13.10		
TL-208	0.93	583.14	*	30.22	1.20E+02	1.17E+01
		860.37	*	4.48	1.31E+02	1.55E+01
		2614.66	*	35.85	1.00E+02	9.96E+00
PB-210	0.98	46.50	*	4.25	2.99E+01	7.57E+00
BI-212	0.99	727.17	*	11.80	7.66E+01	7.79E+00
		1620.62	*	2.75	6.43E+01	1.35E+01
PB-212	0.98	238.63	*	44.60	1.30E+02	1.09E+01
		300.09	*	3.41	1.26E+02	1.43E+01
BI-214	0.98	609.31	*	46.30	9.04E+01	8.66E+00
		1120.29	*	15.10	9.75E+01	9.21E+00
		1764.49	*	15.80	1.03E+02	9.20E+00
		2204.22	*	4.98	9.37E+01	1.50E+01
PB-214	0.99	295.21	*	19.19	9.75E+01	8.52E+00
		351.92	*	37.19	9.83E+01	8.93E+00
RA-224	0.87	240.98	*	3.95	3.47E+02	3.19E+01
RA-226	1.00	186.21	*	3.28	2.25E+02	4.11E+02
AC-228	0.99	338.32	*	11.40	1.26E+02	1.16E+01
		911.07	*	27.70	1.21E+02	9.67E+00
		969.11	*	16.60	1.24E+02	1.05E+01
PA-234M	0.99	1001.03	*	0.92	1.11E+02	3.90E+01
TH-234	0.96	63.29	*	3.80	7.70E+01	1.10E+01
U-235	0.57	143.76	*	10.50	6.54E+00	2.90E+00
		163.35	*	4.70	9.61E+00	6.28E+00
		205.31		4.70		
CM-243	0.36	209.75	*	3.29	1.34E+02	1.63E+01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CM-243	0.36	228.14		10.60		
		277.60	*	14.00	1.85E+01	2.85E+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
	MN-54	0.899	2.79E+00	5.35E-01	
	NB-93M	0.989	7.01E+02	5.35E+03	
X	CE-141	0.874			
	PM-146	0.384	2.32E+00	9.77E-01	
	ND-147	0.465	4.61E+03	5.04E+02	
	TL-208	0.938	1.13E+02	6.81E+00	
	PB-210	0.988	2.99E+01	7.57E+00	
	BI-212	0.995	7.35E+01	6.75E+00	
	PB-212	0.988	1.29E+02	8.66E+00	
	BI-214	0.985	9.62E+01	4.91E+00	
	PB-214	0.992	9.79E+01	6.16E+00	
	RA-224	0.876	3.47E+02	3.19E+01	
	RA-226	1.000	2.25E+02	4.11E+02	
	AC-228	0.996	1.23E+02	6.06E+00	
	PA-234M	0.995	1.11E+02	3.90E+01	
	TH-234	0.962	7.70E+01	1.10E+01	
	U-235	0.570	7.08E+00	2.63E+00	
	CM-243	0.369	2.20E+01	2.81E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 5:16:09PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	33.92	9.02598E-01	11.42	Sum	
m	3	38.92	3.46969E-01	26.98	Tol.	I-129
	5	57.51	1.52036E+00	5.48	Tol.	CE-143
	7	76.44	2.72206E+01	0.75		
M	8	84.70	1.45763E+00	6.20		
	10	99.71	4.86234E-01	13.71		
	11	105.70	7.70200E-01	10.16	Tol.	EU-155 NP-239
	12	115.46	1.87497E-01	40.49		
	13	129.35	1.72018E+00	6.61		
	15	154.24	6.55705E-01	12.93	Sum	
	18	199.74	2.45795E-01	30.13		
	20	216.56	1.39326E-01	42.97		
	23	252.51	1.26715E-01	38.79		
	24	258.95	3.36727E-01	16.58	Sum	
M	25	270.49	2.00232E+00	3.27		
M	27	288.09	2.19980E-01	23.39	Sum	
	30	315.83	1.25330E-01	42.36		
M	31	328.22	1.26453E+00	4.42	Sum	
m	32	332.52	2.18480E-01	27.77	Sum	
	35	388.35	2.27220E-01	23.30		
	36	409.68	6.60535E-01	9.65		
	38	463.10	1.34054E+00	3.84	Sum	
	39	479.98	1.02557E-01	33.28	Sum	
	40	487.12	6.34577E-02	45.42	Sum	
	41	510.77	2.39912E+00	2.48	Sum	
	42	533.85	7.89195E-02	39.69	Sum	
	43	562.76	2.41342E-01	16.39	Tol.	CS-134
	46	665.57	2.57639E-01	13.60	Tol.	SB-126
	47	676.20	6.31423E-02	42.96	Sum	
	48	702.82	5.64194E-02	56.61	Tol.	NB-94
M	49	720.02	5.48771E-02	40.79	Tol.	SB-126
	51	742.62	9.11707E-02	31.00	D-Esc	
	52	755.32	1.58068E-01	20.13		
M	53	768.34	5.65506E-01	5.02		

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	54	772.30	2.45937E-01	12.41		
	55	785.00	5.09330E-01	7.94		
	56	794.87	7.82748E-01	4.23	Sum	
	57	806.23	1.76868E-01	16.96	Sum	
M	58	830.56	9.89089E-02	21.30		
m	60	840.06	2.07668E-01	13.32		
	62	893.19	7.16394E-02	30.56		
M	63	903.96	1.37466E-01	17.69	Sum	
	65	933.96	3.47638E-01	7.57		
	66	951.18	3.67952E-02	46.26	Sum	
M	67	964.63	8.76986E-01	3.44		
	70	1051.61	5.63323E-02	33.48		
	71	1064.16	5.59194E-02	31.31	Sum	
	72	1078.49	6.30416E-02	27.89	Sum	
	73	1093.95	6.58096E-02	28.37	Tol.	LU-172
	74	1110.76	5.37885E-02	34.54		
	76	1133.19	7.22633E-02	27.14	Sum	
	77	1154.96	1.94825E-01	11.85	Sum	
	78	1206.88	7.63365E-02	26.55	Sum	
	79	1237.76	5.24451E-01	4.62	Tol.	CO-56
	80	1246.11	4.03339E-02	54.27	Sum	
	81	1254.74	3.77795E-02	41.04		
	82	1264.57	2.78755E-02	52.86	Sum	
	83	1280.72	1.39001E-01	14.21		
M	84	1377.29	3.94696E-01	4.85		
m	85	1385.05	9.73551E-02	17.21	Tol.	AG-110M
	86	1400.65	1.30395E-01	13.79		
	87	1407.80	2.22922E-01	7.95		
	88	1459.46	1.30004E-01	15.39	Sum	
M	89	1495.62	9.01189E-02	15.93		
m	90	1509.16	2.30008E-01	9.28		
	91	1538.11	3.20205E-02	38.23		
	92	1542.85	2.07932E-02	56.97		
M	93	1587.72	3.35767E-01	5.56	Sum	
m	94	1591.99	3.83146E-01	5.49	D-Esc	
m	96	1624.64	1.86383E-02	63.35		
	97	1630.28	1.61598E-01	9.88		
	98	1638.28	4.75724E-02	24.05	Sum	
	99	1660.72	8.71169E-02	19.01		
	100	1687.81	5.74775E-02	38.62		
	101	1712.67	1.53257E-02	57.31		
	102	1729.23	2.56257E-01	9.03	Sum	
	103	1741.43	1.34722E-02	56.87		
	105	1847.10	1.79456E-01	8.96	Sum	
	106	1896.47	1.33674E-02	59.59		

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	107	2102.85	3.44821E-01	5.21	S-Esc	
m	108	2117.81	9.16314E-02	16.13		
	110	2292.39	2.35447E-02	52.64		
	111	2319.40	2.09592E-02	59.31		
	112	2431.94	1.79828E-02	49.03		
	113	2446.98	8.06740E-02	16.19		
	115	2686.19	1.58971E-02	30.06		
	116	2891.80	1.01474E-02	34.63	Sum	
	117	3017.98	8.21685E-03	50.60		
	118	3040.57	8.00300E-03	27.77		
	119	3053.05	5.22096E-03	29.62		
	120	3111.44	3.05556E-03	62.32		
	121	3124.29	1.06369E-02	17.95		
	122	3196.70	3.13843E-02	10.80	Sum	
	123	3211.77	1.28968E-03	74.81		
	124	3229.90	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	-4.95E+00	1.53E+01	1.53E+01
+	NA-22	1274.54	99.94	1.16E-01	4.72E-01	4.72E-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	-1.25E-02	4.40E-01	4.40E-01
+	K-40	1460.81	10.67	1.31E+01	5.39E+00	5.39E+00
+	@ AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40	-1.89E-01	4.45E-01	4.45E-01
		78.34	96.00	1.46E+01		6.08E-01
+	SC-46	889.25	99.98	8.39E-03	9.93E-01	9.93E-01
		1120.51	99.99	3.09E+01		2.15E+00
+	V-48	983.52	99.98	4.49E+00	2.47E+01	2.47E+01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	V-48	1312.10		97.50	-2.88E+00	2.47E+01	2.57E+01
+	CR-51	320.08		9.83	-2.81E+01	4.76E+01	4.76E+01
+	MN-54	834.83	*	99.97	2.79E+00	1.50E+00	1.50E+00
+	CO-56	846.75		99.96	-4.44E-01	1.02E+00	1.02E+00
		1037.75		14.03	-3.98E-01		6.88E+00
		1238.25		67.00	1.79E+01		2.43E+00
		1771.40		15.51	4.28E-01		6.62E+00
		2598.48		16.90	-1.53E+00		3.59E+00
+	CO-57	122.06		85.51	-5.71E-01	5.15E-01	5.15E-01
		136.48		10.60	-1.30E+00		4.40E+00
+	CO-58	810.76		99.40	1.11E-01	1.16E+00	1.16E+00
+	FE-59	1099.22		56.50	2.24E-01	3.32E+00	3.32E+00
		1291.56		43.20	-3.44E+00		4.32E+00
+	CO-60	1173.22		100.00	-6.35E-02	4.44E-01	4.44E-01
		1332.49		100.00	-1.34E-01		4.56E-01
+	ZN-65	1115.52		50.75	-3.79E+01	1.24E+00	1.24E+00
+	GA-67	93.31		35.70	6.86E+09	5.15E+08	5.15E+08
		208.95		2.24	8.63E+10		9.84E+09
		300.22		16.00	-3.08E+10		1.46E+09
+	SE-75	121.11		16.70	-3.76E+00	1.07E+00	3.53E+00
		136.00		59.20	-2.10E-01		1.07E+00
		264.65		59.80	-8.22E-02		1.26E+00
		279.53		25.20	-8.33E-02		3.33E+00
		400.65		11.40	1.24E+00		7.41E+00
+	RB-82	776.52		13.00	-2.13E+02	4.76E+01	4.76E+01
+	RB-83	520.41		46.00	7.35E-01	2.20E+00	2.20E+00
		529.64		30.30	-6.27E-01		3.33E+00
		552.65		16.40	2.21E+00		6.32E+00
+	KR-85	513.99		0.43	1.07E+03	1.54E+02	1.54E+02
+	SR-85	513.99		99.27	1.25E+01	1.80E+00	1.80E+00
+	Y-88	898.02		93.40	1.73E-01	8.60E-01	9.11E-01
		1836.01		99.38	2.15E-01		8.60E-01
+	MO-93	263.06		56.72	-5.11E-02	5.27E-01	7.93E-01
		684.67		99.68	-4.25E-02		5.32E-01
		1477.11		99.08	2.10E-01		5.27E-01
+	NB-93M	16.57	*	9.43	7.01E+02	4.57E+02	4.57E+02
+	NB-94	702.63		100.00	2.19E-01	4.58E-01	5.56E-01
		871.10		100.00	6.80E-02		4.58E-01
+	NB-95	765.79		99.81	2.15E+01	4.23E+00	4.23E+00
+	NB-95M	235.69		25.00	3.59E+09	2.11E+08	2.11E+08
+	ZR-95	724.18		43.70	-4.26E+00	2.71E+00	4.25E+00
		756.72		55.30	4.24E+00		2.71E+00
+	MO-99	181.06		6.20	-1.11E+10	6.66E+10	1.04E+11
		739.58		12.80	9.96E+07		6.66E+10
		778.00		4.50	-7.29E+11		1.75E+11
+	RU-103	497.08		89.00	-3.05E+00	2.66E+00	2.66E+00
+	RU-106	621.84		9.80	-1.98E+00	5.90E+00	5.90E+00

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AG-108M	433.93	89.90	1.79E-01	5.16E-01	5.16E-01
		614.37	90.40	1.06E-01		7.24E-01
		722.95	90.50	-1.07E+01		6.37E-01
+	CD-109	88.03	3.72	1.20E+02	1.46E+01	1.46E+01
+	AG-110M	657.75	93.14	3.23E-01	7.03E-01	7.03E-01
		677.61	10.53	-2.05E-01		6.37E+00
		706.67	16.46	1.06E+00		4.29E+00
		763.93	21.98	2.67E-01		3.36E+00
		884.67	71.63	3.95E-01		8.29E-01
		1384.27	23.94	1.39E+00		2.78E+00
+	CD-113M	263.70	0.02	-1.26E+02	1.93E+03	1.93E+03
+	SN-113	255.12	1.93	-2.30E+01	1.31E+00	4.09E+01
		391.69	64.90	-4.31E-01		1.31E+00
+	TE123M	159.00	84.10	-4.91E-01	7.72E-01	7.72E-01
+	SB-124	602.71	97.87	-5.95E-01	1.47E+00	1.47E+00
		645.85	7.26	-1.38E+01		1.98E+01
		722.78	11.10	-2.55E+02		1.52E+01
		1691.02	49.00	5.44E-01		2.68E+00
+	I-125	35.49	6.49	1.73E+01	3.66E+01	3.66E+01
+	SB-125	176.33	6.89	1.95E-02	1.73E+00	6.01E+00
		427.89	29.33	1.10E+00		1.73E+00
		463.38	10.35	5.67E+01		6.07E+00
		600.56	17.80	4.19E-01		2.97E+00
		635.90	11.32	-1.80E+00		4.64E+00
+	SB-126	414.70	83.30	-2.46E+01	9.72E+01	1.06E+02
		666.33	99.60	2.74E+02		1.02E+02
		695.00	99.60	-3.12E+01		9.72E+01
		720.50	53.80	-9.61E+02		1.79E+02
+	SN-126	87.57	37.00	1.05E+01	1.28E+00	1.28E+00
+	SB-127	473.00	25.00	-2.16E+06	2.89E+07	3.68E+07
		685.20	35.70	-2.31E+06		2.89E+07
		783.80	14.70	3.77E+08		7.88E+07
+	I-129	29.78	57.00	3.44E-01	2.36E+00	2.36E+00
		33.60	13.20	1.56E+01		7.22E+00
		39.58	7.52	4.12E+00		8.05E+00
+	I-131	284.30	6.05	-4.80E+03	1.73E+03	2.32E+04
		364.48	81.20	7.49E+02		1.73E+03
		636.97	7.26	-6.11E+02		2.12E+04
		722.89	1.80	-1.67E+06		9.95E+04
+	TE-132	49.72	13.10	-5.39E+08	2.25E+08	1.37E+09
		228.16	88.00	-3.43E+07		2.25E+08
+	BA-133	81.00	33.00	-4.59E+01	1.23E+00	1.29E+00
		302.84	17.80	7.97E-01		2.95E+00
		356.01	60.00	2.17E-01		1.23E+00
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-8.91E+06	2.52E+05	2.52E+05
+	CS-134	563.23	8.38	1.49E+01	7.09E-01	6.80E+00
		569.32	15.43	1.46E+00		3.54E+00
		604.70	97.60	4.96E-03		7.09E-01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-134	795.84		85.40	6.90E+00	7.09E-01	8.42E-01
			801.93		8.73	4.54E-01		5.99E+00
+		CS-135	268.24		16.00	1.59E+01	3.20E+00	3.20E+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	2.03E+03	6.39E+01	7.21E+02
			163.89		4.61	1.22E+03		1.14E+03
			176.55		13.56	1.27E+00		3.90E+02
			273.65		12.66	-2.11E+03		5.55E+02
			340.57		48.50	3.83E+03		1.95E+02
			818.50		99.70	5.50E+00		6.39E+01
			1048.07		79.60	-6.81E+00		7.25E+01
			1235.34		19.70	1.98E+03		4.64E+02
+		CS-137	661.65		85.12	6.52E-02	6.17E-01	6.17E-01
+		LA-138	788.74		34.00	-1.10E+01	6.77E-01	1.54E+00
			1435.80		66.00	-3.16E-01		6.77E-01
+		CE-139	165.85		80.35	6.05E-01	7.64E-01	7.64E-01
+		BA-140	162.64		6.70	7.14E+02	3.05E+02	8.98E+02
			304.84		4.50	3.04E+02		1.59E+03
			423.70		3.20	1.72E+02		2.34E+03
			437.55		2.00	-6.60E+02		3.61E+03
			537.32		25.00	9.25E+01		3.05E+02
+		LA-140	328.77		20.50	2.35E+03	1.14E+02	4.08E+02
			487.03		45.50	8.72E+01		1.61E+02
			815.85		23.50	-1.55E+01		3.10E+02
			1596.49		95.49	2.06E+01		1.14E+02
+		CE-141	145.44	*	48.40	1.04E+01	6.94E+00	6.94E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	3.04E-01	4.26E+00	4.26E+00
+		PM-144	476.78		42.00	-5.30E-01	5.92E-01	1.34E+00
			618.01		98.60	-2.02E-01		5.92E-01
			696.49		99.49	3.58E-02		6.39E-01
+		PM-145	36.85		21.70	-1.08E+00	1.79E+00	3.40E+00
			37.36		39.70	1.22E-01		1.79E+00
			42.30		15.10	-2.04E-01		3.47E+00
			72.40		2.31	-4.50E+02		2.15E+01
+		PM-146	453.90	*	39.94	2.32E+00	1.55E+00	1.55E+00
			735.90		14.01	-2.39E-01		3.80E+00
			747.13		13.10	1.14E+00		4.05E+00
+		ND-147	91.11	*	28.90	4.61E+03	1.10E+03	1.10E+03
			531.02		13.10	-3.06E+02		1.31E+03
+		PM-149	285.90		3.10	-1.25E+13	7.35E+13	7.35E+13
+		EU-152	121.78		20.50	-1.90E+00	1.71E+00	1.71E+00
			244.69		5.40	-2.20E+02		1.10E+01
			344.27		19.13	-1.18E+00		2.51E+00
			778.89		9.20	-1.23E+01		5.43E+00

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	964.01	10.40	-1.43E+02	1.71E+00	7.55E+00
		1085.78	7.22	7.16E-01		5.85E+00
		1112.02	9.60	1.93E+00		4.73E+00
		1407.95	14.94	1.65E+01		4.12E+00
+	GD-153	97.43	31.30	-1.85E+01	1.46E+00	1.46E+00
		103.18	22.20	-1.21E+01		2.00E+00
+	EU-154	123.07	40.50	-7.74E-01	8.81E-01	8.81E-01
		723.30	19.70	-5.00E+01		2.98E+00
		873.19	11.50	1.14E+00		4.10E+00
		996.32	10.30	1.14E+00		4.30E+00
		1004.76	17.90	1.45E-01		2.48E+00
		1274.45	35.50	3.12E-01		1.27E+00
+	EU-155	86.50	30.90	1.13E+01	1.57E+00	1.57E+00
		105.30	20.70	4.96E+00		1.77E+00
+	EU-156	811.77	10.40	2.80E+01	3.13E+02	3.13E+02
		1153.47	7.20	1.52E+03		5.27E+02
		1230.71	8.90	6.73E+01		3.45E+02
+	HO-166M	184.41	72.60	7.31E+00	6.62E-01	6.62E-01
		280.45	29.60	-3.11E-01		1.61E+00
		410.94	11.10	1.93E+01		4.79E+00
		711.69	54.10	-2.85E-01		9.63E-01
+	TM-171	66.72	0.14	1.20E+02	3.36E+02	3.36E+02
+	HF-172	67.35	5.31	-3.70E+00	3.52E+00	8.71E+00
		125.81	11.30	-6.14E-01		3.52E+00
+	LU-172	181.53	20.60	-3.05E+03	1.13E+04	3.00E+04
		900.72	29.81	1.50E+03		2.60E+04
		1093.66	62.50	1.21E+04		1.13E+04
+	LU-173	100.72	5.24	1.04E+01	2.86E+00	7.53E+00
		272.11	21.20	1.90E+01		2.86E+00
+	HF-175	343.40	84.00	-6.64E-01	1.42E+00	1.42E+00
+	LU-176	88.34	13.30	2.83E+01	4.71E-01	3.63E+00
		201.83	86.00	-2.00E-01		4.75E-01
		306.78	94.00	-4.76E-02		4.71E-01
+	HF-181	133.02	41.70	3.47E-01	2.63E+00	4.10E+00
		345.85	17.20	-5.96E+00		1.23E+01
		482.03	82.80	3.78E-01		2.63E+00
+	TA-182	67.75	41.20	-7.61E-01	1.79E+00	1.79E+00
		1121.30	34.90	7.21E+01		5.02E+00
		1189.05	16.23	1.86E+00		4.62E+00
		1221.41	26.98	1.39E+00		2.82E+00
		1231.02	11.44	1.30E+00		6.69E+00
+	IR-192	308.46	29.68	-1.41E+00	2.37E+00	3.55E+00
		468.07	48.10	1.97E-02		2.37E+00
+	HG-203	279.19	77.30	1.33E+01	2.56E+00	2.56E+00
+	TL-204	374.74	94.11	-3.22E-02	4.90E-01	5.13E-01
		899.15	99.16	9.34E-02		4.90E-01
		911.74	91.10	3.79E+01		1.52E+00
+	BI-207	569.67	97.72	1.95E-01	5.18E-01	5.18E-01
		1063.62	74.90	4.25E-01		6.11E-01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TL-208	583.14	*	30.22	1.20E+02	1.60E+00	3.01E+00
		860.37	*	4.48	1.31E+02		1.69E+01
		2614.66	*	35.85	1.00E+02		1.60E+00
+	BI-210M	262.00		45.00	-6.31E-02	9.91E-01	9.91E-01
		300.00		23.00	-5.22E+01		2.48E+00
+	PB-210	46.50	*	4.25	2.99E+01	1.13E+01	1.13E+01
+	PB-211	404.84		2.90	6.94E+00	1.72E+01	1.72E+01
		831.96		2.90	-2.13E+01		1.83E+01
+	BI-212	727.17	*	11.80	7.66E+01	9.70E+00	9.70E+00
		1620.62	*	2.75	6.43E+01		3.36E+01
+	PB-212	238.63	*	44.60	1.30E+02	2.44E+00	2.44E+00
		300.09	*	3.41	1.26E+02		3.67E+01
+	BI-214	609.31	*	46.30	9.04E+01	1.83E+00	1.83E+00
		1120.29	*	15.10	9.75E+01		5.19E+00
		1764.49	*	15.80	1.03E+02		5.11E+00
		2204.22	*	4.98	9.37E+01		1.86E+01
+	PB-214	295.21	*	19.19	9.75E+01	1.96E+00	6.44E+00
		351.92	*	37.19	9.83E+01		1.96E+00
+	RN-219	401.80		6.50	2.56E+00	7.63E+00	7.63E+00
+	RA-223	323.87		3.88	-1.14E+02	1.22E+01	1.22E+01
+	RA-224	240.98	*	3.95	3.47E+02	2.79E+01	2.79E+01
+	RA-225	40.00		31.00	7.71E+01	1.51E+02	1.51E+02
+	RA-226	186.21	*	3.28	2.25E+02	2.07E+01	2.07E+01
+	TH-227	50.10		8.40	-2.00E+00	5.09E+00	5.09E+00
		236.00		11.50	1.30E+02		7.63E+00
		256.20		6.30	9.25E-01		7.18E+00
+	AC-228	338.32	*	11.40	1.26E+02	4.27E+00	1.39E+01
		911.07	*	27.70	1.21E+02		4.27E+00
		969.11	*	16.60	1.24E+02		7.80E+00
+	TH-230	48.44		16.90	-2.46E-01	2.68E+00	2.68E+00
		62.85		4.60	4.37E+01		9.72E+00
		67.67		0.37	-4.82E+01		1.13E+02
+	PA-231	283.67		1.60	-5.81E+00	2.25E+01	2.82E+01
		302.67		2.30	6.06E+00		2.25E+01
+	TH-231	25.64		14.70	4.30E+00	6.65E+00	1.70E+01
		84.21		6.40	-4.36E+01		6.65E+00
+	PA-233	311.98		38.60	-1.26E+00	1.26E+01	1.26E+01
+	PA-234	131.20		20.40	1.17E+01	1.94E+00	1.94E+00
		733.99		8.80	1.36E+00		5.87E+00
		946.00		12.00	-4.48E-01		3.68E+00
+	PA-234M	1001.03	*	0.92	1.11E+02	6.07E+01	6.07E+01
+	TH-234	63.29	*	3.80	7.70E+01	1.52E+01	1.52E+01
+	U-235	143.76	*	10.50	6.54E+00	4.37E+00	4.37E+00
		163.35	*	4.70	9.61E+00		9.87E+00
		205.31		4.70	-8.56E-02		1.07E+01
+	NP-237	86.50		12.60	2.68E+01	3.71E+00	3.71E+00
+	NP-239	106.10		22.70	3.69E+12	1.31E+12	1.31E+12

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NP-239	228.18		10.70	-5.72E+11	1.31E+12	3.75E+12
		277.60		14.10	1.45E+13		2.95E+12
+	AM-241	59.54		35.90	-6.55E+00	1.22E+00	1.22E+00
+	AM-243	74.67		66.00	1.02E+01	9.15E-01	9.15E-01
+	CM-243	209.75	*	3.29	1.34E+02	4.52E+00	1.93E+01
		228.14		10.60	-6.88E-01		4.52E+00
		277.60	*	14.00	1.85E+01		7.33E+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	1.53E+01	1.53E+01	-4.95E+00	7.62E+00
	NA-22	1274.54		99.94	4.72E-01	4.72E-01	1.16E-01	2.32E-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	4.40E-01	4.40E-01	-1.25E-02	2.15E-01
	K-40	1460.81		10.67	5.39E+00	5.39E+00	1.31E+01	2.66E+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	4.45E-01	4.45E-01	-1.89E-01	2.22E-01
		78.34		96.00	6.08E-01		1.46E+01	3.04E-01
	SC-46	889.25		99.98	9.93E-01	9.93E-01	8.39E-03	4.91E-01
		1120.51		99.99	2.15E+00		3.09E+01	1.07E+00
	V-48	983.52		99.98	2.47E+01	2.47E+01	4.49E+00	1.22E+01
		1312.10		97.50	2.57E+01		-2.88E+00	1.26E+01
	CR-51	320.08		9.83	4.76E+01	4.76E+01	-2.81E+01	2.37E+01
+	MN-54	834.83	*	99.97	1.50E+00	1.50E+00	2.79E+00	7.44E-01
	CO-56	846.75		99.96	1.02E+00	1.02E+00	-4.44E-01	5.04E-01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CO-56	1037.75		14.03	6.88E+00	1.02E+00	-3.98E-01	3.39E+00
		1238.25		67.00	2.43E+00		1.79E+01	1.20E+00
		1771.40		15.51	6.62E+00		4.28E-01	3.24E+00
		2598.48		16.90	3.59E+00		-1.53E+00	1.71E+00
	CO-57	122.06		85.51	5.15E-01	5.15E-01	-5.71E-01	2.56E-01
		136.48		10.60	4.40E+00		-1.30E+00	2.19E+00
	CO-58	810.76		99.40	1.16E+00	1.16E+00	1.11E-01	5.74E-01
	FE-59	1099.22		56.50	3.32E+00	3.32E+00	2.24E-01	1.63E+00
		1291.56		43.20	4.32E+00		-3.44E+00	2.12E+00
	CO-60	1173.22		100.00	4.44E-01	4.44E-01	-6.35E-02	2.18E-01
		1332.49		100.00	4.56E-01		-1.34E-01	2.24E-01
	ZN-65	1115.52		50.75	1.24E+00	1.24E+00	-3.79E+01	6.11E-01
	GA-67	93.31		35.70	5.15E+08	5.15E+08	6.86E+09	2.57E+08
		208.95		2.24	9.84E+09		8.63E+10	4.90E+09
		300.22		16.00	1.46E+09		-3.08E+10	7.29E+08
	SE-75	121.11		16.70	3.53E+00	1.07E+00	-3.76E+00	1.76E+00
		136.00		59.20	1.07E+00		-2.10E-01	5.31E-01
		264.65		59.80	1.26E+00		-8.22E-02	6.25E-01
		279.53		25.20	3.33E+00		-8.33E-02	1.66E+00
		400.65		11.40	7.41E+00		1.24E+00	3.68E+00
	RB-82	776.52		13.00	4.76E+01	4.76E+01	-2.13E+02	2.36E+01
	RB-83	520.41		46.00	2.20E+00	2.20E+00	7.35E-01	1.09E+00
		529.64		30.30	3.33E+00		-6.27E-01	1.65E+00
		552.65		16.40	6.32E+00		2.21E+00	3.14E+00
	KR-85	513.99		0.43	1.54E+02	1.54E+02	1.07E+03	7.67E+01
	SR-85	513.99		99.27	1.80E+00	1.80E+00	1.25E+01	8.94E-01
	Y-88	898.02		93.40	9.11E-01	8.60E-01	1.73E-01	4.50E-01
		1836.01		99.38	8.60E-01		2.15E-01	4.21E-01
	MO-93	263.06		56.72	7.93E-01	5.27E-01	-5.11E-02	3.95E-01
		684.67		99.68	5.32E-01		-4.25E-02	2.64E-01
		1477.11		99.08	5.27E-01		2.10E-01	2.59E-01
+	NB-93M	16.57	*	9.43	4.57E+02	4.57E+02	7.01E+02	2.28E+02
	NB-94	702.63		100.00	5.56E-01	4.58E-01	2.19E-01	2.76E-01
		871.10		100.00	4.58E-01		6.80E-02	2.26E-01
	NB-95	765.79		99.81	4.23E+00	4.23E+00	2.15E+01	2.10E+00
	NB-95M	235.69		25.00	2.11E+08	2.11E+08	3.59E+09	1.05E+08
	ZR-95	724.18		43.70	4.25E+00	2.71E+00	-4.26E+00	2.11E+00
		756.72		55.30	2.71E+00		4.24E+00	1.34E+00
	MO-99	181.06		6.20	1.04E+11	6.66E+10	-1.11E+10	5.17E+10
		739.58		12.80	6.66E+10		9.96E+07	3.30E+10
		778.00		4.50	1.75E+11		-7.29E+11	8.65E+10
	RU-103	497.08		89.00	2.66E+00	2.66E+00	-3.05E+00	1.32E+00
	RU-106	621.84		9.80	5.90E+00	5.90E+00	-1.98E+00	2.93E+00
	AG-108M	433.93		89.90	5.16E-01	5.16E-01	1.79E-01	2.56E-01
		614.37		90.40	7.24E-01		1.06E-01	3.60E-01
		722.95		90.50	6.37E-01		-1.07E+01	3.16E-01
	CD-109	88.03		3.72	1.46E+01	1.46E+01	1.20E+02	7.29E+00
	AG-110M	657.75		93.14	7.03E-01	7.03E-01	3.23E-01	3.49E-01
		677.61		10.53	6.37E+00		-2.05E-01	3.16E+00
		706.67		16.46	4.29E+00		1.06E+00	2.13E+00
		763.93		21.98	3.36E+00		2.67E-01	1.66E+00
		884.67		71.63	8.29E-01		3.95E-01	4.09E-01
		1384.27		23.94	2.78E+00		1.39E+00	1.37E+00

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-113M	263.70	0.02	1.93E+03	1.93E+03	-1.26E+02	9.59E+02
SN-113	255.12	1.93	4.09E+01	1.31E+00	-2.30E+01	2.04E+01
	391.69	64.90	1.31E+00		-4.31E-01	6.49E-01
TE123M	159.00	84.10	7.72E-01	7.72E-01	-4.91E-01	3.85E-01
SB-124	602.71	97.87	1.47E+00	1.47E+00	-5.95E-01	7.29E-01
	645.85	7.26	1.98E+01		-1.38E+01	9.81E+00
	722.78	11.10	1.52E+01		-2.55E+02	7.52E+00
	1691.02	49.00	2.68E+00		5.44E-01	1.31E+00
I-125	35.49	6.49	3.66E+01	3.66E+01	1.73E+01	1.82E+01
SB-125	176.33	6.89	6.01E+00	1.73E+00	1.95E-02	2.99E+00
	427.89	29.33	1.73E+00		1.10E+00	8.58E-01
	463.38	10.35	6.07E+00		5.67E+01	3.02E+00
	600.56	17.80	2.97E+00		4.19E-01	1.47E+00
	635.90	11.32	4.64E+00		-1.80E+00	2.30E+00
SB-126	414.70	83.30	1.06E+02	9.72E+01	-2.46E+01	5.26E+01
	666.33	99.60	1.02E+02		2.74E+02	5.04E+01
	695.00	99.60	9.72E+01		-3.12E+01	4.82E+01
	720.50	53.80	1.79E+02		-9.61E+02	8.85E+01
SN-126	87.57	37.00	1.28E+00	1.28E+00	1.05E+01	6.38E-01
SB-127	473.00	25.00	3.68E+07	2.89E+07	-2.16E+06	1.82E+07
	685.20	35.70	2.89E+07		-2.31E+06	1.43E+07
	783.80	14.70	7.88E+07		3.77E+08	3.91E+07
I-129	29.78	57.00	2.36E+00	2.36E+00	3.44E-01	1.17E+00
	33.60	13.20	7.22E+00		1.56E+01	3.60E+00
	39.58	7.52	8.05E+00		4.12E+00	4.01E+00
I-131	284.30	6.05	2.32E+04	1.73E+03	-4.80E+03	1.16E+04
	364.48	81.20	1.73E+03		7.49E+02	8.62E+02
	636.97	7.26	2.12E+04		-6.11E+02	1.05E+04
	722.89	1.80	9.95E+04		-1.67E+06	4.94E+04
TE-132	49.72	13.10	1.37E+09	2.25E+08	-5.39E+08	6.84E+08
	228.16	88.00	2.25E+08		-3.43E+07	1.12E+08
BA-133	81.00	33.00	1.29E+00	1.23E+00	-4.59E+01	6.46E-01
	302.84	17.80	2.95E+00		7.97E-01	1.47E+00
	356.01	60.00	1.23E+00		2.17E-01	6.12E-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	2.52E+05	2.52E+05	-8.91E+06	1.25E+05
CS-134	563.23	8.38	6.80E+00	7.09E-01	1.49E+01	3.38E+00
	569.32	15.43	3.54E+00		1.46E+00	1.76E+00
	604.70	97.60	7.09E-01		4.96E-03	3.52E-01
	795.84	85.40	8.42E-01		6.90E+00	4.18E-01
	801.93	8.73	5.99E+00		4.54E-01	2.96E+00
CS-135	268.24	16.00	3.20E+00	3.20E+00	1.59E+01	1.59E+00
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	7.21E+02	6.39E+01	2.03E+03	3.59E+02
	163.89	4.61	1.14E+03		1.22E+03	5.66E+02
	176.55	13.56	3.90E+02		1.27E+00	1.94E+02
	273.65	12.66	5.55E+02		-2.11E+03	2.76E+02
	340.57	48.50	1.95E+02		3.83E+03	9.71E+01
	818.50	99.70	6.39E+01		5.50E+00	3.16E+01
	1048.07	79.60	7.25E+01		-6.81E+00	3.57E+01
	1235.34	19.70	4.64E+02		1.98E+03	2.29E+02

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CS-137	661.65		85.12	6.17E-01	6.17E-01	6.52E-02	3.06E-01
	LA-138	788.74		34.00	1.54E+00	6.77E-01	-1.10E+01	7.65E-01
		1435.80		66.00	6.77E-01		-3.16E-01	3.32E-01
	CE-139	165.85		80.35	7.64E-01	7.64E-01	6.05E-01	3.81E-01
	BA-140	162.64		6.70	8.98E+02	3.05E+02	7.14E+02	4.48E+02
		304.84		4.50	1.59E+03		3.04E+02	7.94E+02
		423.70		3.20	2.34E+03		1.72E+02	1.16E+03
		437.55		2.00	3.61E+03		-6.60E+02	1.79E+03
		537.32		25.00	3.05E+02		9.25E+01	1.51E+02
	LA-140	328.77		20.50	4.08E+02	1.14E+02	2.35E+03	2.03E+02
		487.03		45.50	1.61E+02		8.72E+01	8.01E+01
		815.85		23.50	3.10E+02		-1.55E+01	1.53E+02
		1596.49		95.49	1.14E+02		2.06E+01	5.61E+01
	CE-141	145.44	*	48.40	6.94E+00	6.94E+00	1.04E+01	3.46E+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	4.26E+00	4.26E+00	3.04E-01	2.12E+00
	PM-144	476.78		42.00	1.34E+00	5.92E-01	-5.30E-01	6.67E-01
		618.01		98.60	5.92E-01		-2.02E-01	2.94E-01
		696.49		99.49	6.39E-01		3.58E-02	3.17E-01
	PM-145	36.85		21.70	3.40E+00	1.79E+00	-1.08E+00	1.69E+00
		37.36		39.70	1.79E+00		1.22E-01	8.91E-01
		42.30		15.10	3.47E+00		-2.04E-01	1.73E+00
		72.40		2.31	2.15E+01		-4.50E+02	1.07E+01
+	PM-146	453.90	*	39.94	1.55E+00	1.55E+00	2.32E+00	7.71E-01
		735.90		14.01	3.80E+00		-2.39E-01	1.88E+00
		747.13		13.10	4.05E+00		1.14E+00	2.00E+00
+	ND-147	91.11	*	28.90	1.10E+03	1.10E+03	4.61E+03	5.52E+02
		531.02		13.10	1.31E+03		-3.06E+02	6.52E+02
	PM-149	285.90		3.10	7.35E+13	7.35E+13	-1.25E+13	3.66E+13
	EU-152	121.78		20.50	1.71E+00	1.71E+00	-1.90E+00	8.53E-01
		244.69		5.40	1.10E+01		-2.20E+02	5.47E+00
		344.27		19.13	2.51E+00		-1.18E+00	1.25E+00
		778.89		9.20	5.43E+00		-1.23E+01	2.69E+00
		964.01		10.40	7.55E+00		-1.43E+02	3.75E+00
		1085.78		7.22	5.85E+00		7.16E-01	2.88E+00
		1112.02		9.60	4.73E+00		1.93E+00	2.33E+00
		1407.95		14.94	4.12E+00		1.65E+01	2.03E+00
	GD-153	97.43		31.30	1.46E+00	1.46E+00	-1.85E+01	7.29E-01
		103.18		22.20	2.00E+00		-1.21E+01	9.98E-01
	EU-154	123.07		40.50	8.81E-01	8.81E-01	-7.74E-01	4.39E-01
		723.30		19.70	2.98E+00		-5.00E+01	1.48E+00
		873.19		11.50	4.10E+00		1.14E+00	2.02E+00
		996.32		10.30	4.30E+00		1.14E+00	2.12E+00
		1004.76		17.90	2.48E+00		1.45E-01	1.22E+00
		1274.45		35.50	1.27E+00		3.12E-01	6.22E-01
	EU-155	86.50		30.90	1.57E+00	1.57E+00	1.13E+01	7.82E-01
		105.30		20.70	1.77E+00		4.96E+00	8.81E-01
	EU-156	811.77		10.40	3.13E+02	3.13E+02	2.80E+01	1.55E+02
		1153.47		7.20	5.27E+02		1.52E+03	2.60E+02
		1230.71		8.90	3.45E+02		6.73E+01	1.70E+02
	HO-166M	184.41		72.60	6.62E-01	6.62E-01	7.31E+00	3.30E-01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	HO-166M	280.45		29.60	1.61E+00	6.62E-01	-3.11E-01	8.03E-01
		410.94		11.10	4.79E+00		1.93E+01	2.38E+00
		711.69		54.10	9.63E-01		-2.85E-01	4.77E-01
	TM-171	66.72		0.14	3.36E+02	3.36E+02	1.20E+02	1.67E+02
	HF-172	67.35		5.31	8.71E+00	3.52E+00	-3.70E+00	4.34E+00
		125.81		11.30	3.52E+00		-6.14E-01	1.75E+00
	LU-172	181.53		20.60	3.00E+04	1.13E+04	-3.05E+03	1.50E+04
		900.72		29.81	2.60E+04		1.50E+03	1.28E+04
		1093.66		62.50	1.13E+04		1.21E+04	5.55E+03
	LU-173	100.72		5.24	7.53E+00	2.86E+00	1.04E+01	3.76E+00
		272.11		21.20	2.86E+00		1.90E+01	1.43E+00
	HF-175	343.40		84.00	1.42E+00	1.42E+00	-6.64E-01	7.04E-01
	LU-176	88.34		13.30	3.63E+00	4.71E-01	2.83E+01	1.81E+00
		201.83		86.00	4.75E-01		-2.00E-01	2.37E-01
		306.78		94.00	4.71E-01		-4.76E-02	2.34E-01
	HF-181	133.02		41.70	4.10E+00	2.63E+00	3.47E-01	2.04E+00
		345.85		17.20	1.23E+01		-5.96E+00	6.13E+00
		482.03		82.80	2.63E+00		3.78E-01	1.31E+00
	TA-182	67.75		41.20	1.79E+00	1.79E+00	-7.61E-01	8.93E-01
		1121.30		34.90	5.02E+00		7.21E+01	2.49E+00
		1189.05		16.23	4.62E+00		1.86E+00	2.27E+00
		1221.41		26.98	2.82E+00		1.39E+00	1.39E+00
		1231.02		11.44	6.69E+00		1.30E+00	3.29E+00
	IR-192	308.46		29.68	3.55E+00	2.37E+00	-1.41E+00	1.76E+00
		468.07		48.10	2.37E+00		1.97E-02	1.18E+00
	HG-203	279.19		77.30	2.56E+00	2.56E+00	1.33E+01	1.27E+00
	TL-204	374.74		94.11	5.13E-01	4.90E-01	-3.22E-02	2.55E-01
		899.15		99.16	4.90E-01		9.34E-02	2.42E-01
		911.74		91.10	1.52E+00		3.79E+01	7.59E-01
	BI-207	569.67		97.72	5.18E-01	5.18E-01	1.95E-01	2.57E-01
		1063.62		74.90	6.11E-01		4.25E-01	3.01E-01
+	TL-208	583.14	*	30.22	3.01E+00	1.60E+00	1.20E+02	1.50E+00
		860.37	*	4.48	1.69E+01		1.31E+02	8.39E+00
		2614.66	*	35.85	1.60E+00		1.00E+02	7.83E-01
	BI-210M	262.00		45.00	9.91E-01	9.91E-01	-6.31E-02	4.93E-01
		300.00		23.00	2.48E+00		-5.22E+01	1.24E+00
+	PB-210	46.50	*	4.25	1.13E+01	1.13E+01	2.99E+01	5.63E+00
	PB-211	404.84		2.90	1.72E+01	1.72E+01	6.94E+00	8.55E+00
		831.96		2.90	1.83E+01		-2.13E+01	9.08E+00
+	BI-212	727.17	*	11.80	9.70E+00	9.70E+00	7.66E+01	4.83E+00
		1620.62	*	2.75	3.36E+01		6.43E+01	1.66E+01
+	PB-212	238.63	*	44.60	2.44E+00	2.44E+00	1.30E+02	1.22E+00
		300.09	*	3.41	3.67E+01		1.26E+02	1.83E+01
+	BI-214	609.31	*	46.30	1.83E+00	1.83E+00	9.04E+01	9.08E-01
		1120.29	*	15.10	5.19E+00		9.75E+01	2.57E+00
		1764.49	*	15.80	5.11E+00		1.03E+02	2.52E+00
		2204.22	*	4.98	1.86E+01		9.37E+01	9.21E+00
+	PB-214	295.21	*	19.19	6.44E+00	1.96E+00	9.75E+01	3.21E+00
		351.92	*	37.19	1.96E+00		9.83E+01	9.79E-01
	RN-219	401.80		6.50	7.63E+00	7.63E+00	2.56E+00	3.79E+00
	RA-223	323.87		3.88	1.22E+01	1.22E+01	-1.14E+02	6.05E+00
+	RA-224	240.98	*	3.95	2.79E+01	2.79E+01	3.47E+02	1.39E+01
	RA-225	40.00		31.00	1.51E+02	1.51E+02	7.71E+01	7.51E+01

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	RA-226	186.21	*	3.28	2.07E+01	2.07E+01	2.25E+02	1.03E+01
	TH-227	50.10		8.40	5.09E+00	5.09E+00	-2.00E+00	2.53E+00
		236.00		11.50	7.63E+00		1.30E+02	3.81E+00
		256.20		6.30	7.18E+00		9.25E-01	3.58E+00
+	AC-228	338.32	*	11.40	1.39E+01	4.27E+00	1.26E+02	6.93E+00
		911.07	*	27.70	4.27E+00		1.21E+02	2.12E+00
		969.11	*	16.60	7.80E+00		1.24E+02	3.88E+00
	TH-230	48.44		16.90	2.68E+00	2.68E+00	-2.46E-01	1.33E+00
		62.85		4.60	9.72E+00		4.37E+01	4.85E+00
		67.67		0.37	1.13E+02		-4.82E+01	5.65E+01
	PA-231	283.67		1.60	2.82E+01	2.25E+01	-5.81E+00	1.40E+01
		302.67		2.30	2.25E+01		6.06E+00	1.12E+01
	TH-231	25.64		14.70	1.70E+01	6.65E+00	4.30E+00	8.45E+00
		84.21		6.40	6.65E+00		-4.36E+01	3.32E+00
	PA-233	311.98		38.60	1.26E+01	1.26E+01	-1.26E+00	6.25E+00
	PA-234	131.20		20.40	1.94E+00	1.94E+00	1.17E+01	9.66E-01
		733.99		8.80	5.87E+00		1.36E+00	2.91E+00
		946.00		12.00	3.68E+00		-4.48E-01	1.82E+00
+	PA-234M	1001.03	*	0.92	6.07E+01	6.07E+01	1.11E+02	3.00E+01
+	TH-234	63.29	*	3.80	1.52E+01	1.52E+01	7.70E+01	7.60E+00
+	U-235	143.76	*	10.50	4.37E+00	4.37E+00	6.54E+00	2.18E+00
		163.35	*	4.70	9.87E+00		9.61E+00	4.92E+00
		205.31		4.70	1.07E+01		-8.56E-02	5.31E+00
	NP-237	86.50		12.60	3.71E+00	3.71E+00	2.68E+01	1.85E+00
	NP-239	106.10		22.70	1.31E+12	1.31E+12	3.69E+12	6.55E+11
		228.18		10.70	3.75E+12		-5.72E+11	1.87E+12
		277.60		14.10	2.95E+12		1.45E+13	1.47E+12
	AM-241	59.54		35.90	1.22E+00	1.22E+00	-6.55E+00	6.07E-01
	AM-243	74.67		66.00	9.15E-01	9.15E-01	1.02E+01	4.57E-01
+	CM-243	209.75	*	3.29	1.93E+01	4.52E+00	1.34E+02	9.65E+00
		228.14		10.60	4.52E+00		-6.88E-01	2.25E+00
		277.60	*	14.00	7.33E+00		1.85E+01	3.66E+00

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

No Action Level results available for reporting purposes.

Analysis Report for 1707078-12

HTC-A01-S004-0006-01

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3775

Channel								
1:	0	0	0	0	0	0	0	1
9:	279	6673	6195	5771	5629	5636	5373	5879
17:	5680	5299	5201	5056	4856	4661	4598	4637
25:	4707	4555	4687	4451	4554	4371	4515	4984
33:	5224	5140	5247	5153	5034	4968	4916	5092
41:	4874	4737	4717	4764	4770	5537	6333	6051
49:	5315	5595	5727	5827	6077	6715	6556	7324
57:	9017	10236	8867	7894	8112	8512	10239	12232
65:	10663	9880	9542	9668	9502	9354	9707	9972
73:	10725	14347	25095	26621	31099	35567	17339	9853
81:	9123	9056	8800	10353	11848	10582	14506	17795
89:	13189	13456	13591	11260	15496	16781	10950	7706
97:	6903	7018	7743	8148	7458	6481	6522	6670
105:	7454	8365	7599	6802	7151	7101	6842	6642
113:	6959	6824	6762	7036	6447	6325	6314	6368
121:	6358	6379	6396	6602	6685	6915	6745	7131
129:	8767	9361	7640	6633	6676	6602	6538	6496
137:	6491	6431	6488	6457	6487	6406	6427	6830
145:	7060	6514	6371	6312	6234	6090	6260	6216
153:	6330	6972	7010	6195	5859	5933	5597	5672
161:	5621	5628	5805	5944	5571	5541	5574	5329
169:	5340	5277	5345	5057	5315	5188	5355	5205
177:	5226	5233	5259	5211	5304	5271	5355	5334
185:	6550	10150	10456	6510	5137	4916	4950	5007
193:	4914	4854	4904	4900	4784	4726	4994	5024
201:	4904	4658	4613	4616	4777	4824	4620	4770
209:	6690	8096	5739	4423	4168	4289	4156	4317
217:	4341	4111	3925	4016	3899	3876	3934	3870
225:	3937	3875	3765	3806	3773	3792	3728	3757
233:	3788	3855	3996	4175	5829	20114	44369	29433
241:	11611	11189	8603	4440	3188	2931	2799	2814
249:	2785	2734	2832	2882	2899	2859	2680	2741
257:	2801	2952	2939	2978	2629	2494	2463	2455
265:	2624	2531	2489	2551	3091	4880	5333	3750
273:	2761	2531	2587	2726	3420	3904	3103	2433
281:	2448	2394	2309	2357	2310	2434	2325	2432
289:	2516	2469	2246	2198	2254	3807	10260	12740
297:	5747	2550	2565	4083	4282	2735	2176	2055
305:	2084	2073	1983	1915	1912	1912	1901	1904
313:	1914	1894	2065	1970	1936	1895	1875	1811
321:	2017	2072	1977	2017	1908	1940	2454	3643
329:	3475	2359	1998	2058	2184	2027	1854	1955
337:	2791	7171	8991	4539	2250	1952	1861	1814
345:	1705	1664	1750	1686	1775	2266	7466	18694
353:	15518	4661	1876	1712	1745	1643	1646	1498
361:	1548	1522	1533	1542	1555	1514	1544	1496

369:	1458	1506	1521	1543	1360	1503	1525	1500

Sample Title: HTC-A01-S004-0006-01

Channel								
377:	1589	1566	1510	1528	1440	1482	1512	1497
385:	1413	1541	1631	1702	1614	1686	1566	1517
393:	1488	1428	1449	1435	1549	1433	1534	1412
401:	1563	1668	1579	1527	1548	1500	1443	1527
409:	2076	2491	1767	1439	1366	1288	1414	1337
417:	1390	1311	1360	1334	1329	1267	1250	1289
425:	1270	1348	1304	1253	1238	1247	1196	1175
433:	1210	1181	1182	1119	1150	1112	1060	1136
441:	1197	1108	1115	1116	1132	1128	1092	1113
449:	1024	1114	1147	1157	1274	1263	1124	1110
457:	1098	1016	999	1048	1136	1820	2911	2520
465:	1370	1047	1040	974	1039	1069	1016	986
473:	1037	997	1005	985	995	1054	1043	1105
481:	1119	976	936	954	966	967	1019	1046
489:	901	933	933	922	1011	948	849	867
497:	895	903	919	859	927	956	868	1010
505:	933	863	911	1050	1519	2909	4369	2792
513:	1332	978	941	908	907	895	890	924
521:	858	904	889	919	882	834	883	873
529:	841	872	810	789	965	867	931	856
537:	865	844	886	859	823	794	880	832
545:	801	906	875	822	848	873	854	796
553:	882	828	852	832	822	821	809	819
561:	848	1065	1185	969	850	788	817	809
569:	839	857	845	911	836	811	850	873
577:	753	793	854	911	1247	4210	10519	9379
585:	3235	997	860	879	824	735	728	747
593:	768	690	739	758	764	805	790	756
601:	698	754	698	729	686	765	1019	3824
609:	11236	11297	3960	1079	768	774	735	728
617:	686	644	655	709	647	641	672	697
625:	664	681	718	618	622	671	702	672
633:	666	652	614	693	681	667	662	671
641:	678	643	635	679	623	588	630	666
649:	653	653	703	699	612	650	656	643
657:	703	620	667	645	663	607	672	734
665:	874	972	772	658	629	601	642	660
673:	623	656	671	680	701	648	584	625
681:	668	659	669	600	664	638	682	654
689:	646	680	617	648	608	678	629	646
697:	626	677	666	668	666	736	807	714
705:	664	687	682	717	639	607	636	608
713:	585	561	597	555	562	590	587	653
721:	606	561	592	571	665	1384	2584	2265
729:	1053	602	550	573	548	563	551	564
737:	592	553	531	531	587	596	638	613
745:	500	501	522	567	501	564	523	535
753:	544	610	756	665	565	535	539	496
761:	528	511	700	634	571	628	889	1410
769:	1291	742	665	859	753	606	443	472
777:	431	427	419	440	489	545	543	587
785:	794	962	615	451	417	394	373	367
793:	581	1125	1550	1029	517	382	403	387

801:	409	388	386	420	501	595	586	406

Sample Title: HTC-A01-S004-0006-01

Channel								
809:	384	346	367	393	354	394	370	380
817:	371	386	373	370	380	391	375	367
825:	390	364	408	350	409	483	526	422
833:	358	428	714	728	556	463	550	618
841:	554	377	367	339	332	347	314	296
849:	348	316	335	333	334	298	293	311
857:	349	362	628	1282	1396	622	395	355
865:	341	312	314	317	302	344	343	301
873:	324	339	318	331	324	330	289	297
881:	302	322	311	302	325	329	310	315
889:	284	321	292	351	416	413	342	292
897:	339	298	329	287	320	338	453	506
905:	396	347	341	351	1010	3564	6748	4452
913:	1323	411	342	333	329	270	282	252
921:	274	256	246	262	276	258	256	288
929:	265	265	240	333	583	793	575	311
937:	258	266	259	252	251	246	250	283
945:	254	273	254	246	264	286	252	292
953:	252	227	233	228	259	273	298	273
961:	259	264	593	1233	1319	804	1031	2784
969:	3987	2104	533	256	253	275	253	233
977:	212	207	220	214	210	256	222	236
985:	224	237	238	268	201	241	181	214
993:	220	232	242	221	237	218	240	365
1001:	393	316	237	201	227	217	207	187
1009:	183	217	203	196	206	213	218	214
1017:	245	242	208	245	207	219	197	192
1025:	242	192	184	190	199	202	202	225
1033:	239	209	196	194	206	188	197	221
1041:	231	198	186	218	198	184	181	192
1049:	186	216	243	238	223	187	185	177
1057:	214	200	195	183	190	233	214	245
1065:	265	237	194	215	226	207	213	209
1073:	179	223	178	198	229	296	306	213
1081:	179	206	179	177	179	187	183	173
1089:	195	166	171	223	219	259	204	211
1097:	200	184	191	214	209	186	201	199
1105:	215	192	185	184	214	245	224	202
1113:	194	165	173	170	224	513	1497	2413
1121:	1555	567	250	226	208	190	194	174
1129:	161	196	197	207	200	207	178	208
1137:	156	156	190	178	204	178	151	189
1145:	146	165	161	177	204	178	176	189
1153:	244	374	429	333	213	165	166	163
1161:	196	159	182	185	166	175	174	186
1169:	177	162	176	165	159	165	176	181
1177:	177	154	172	171	177	201	168	157
1185:	176	184	157	154	165	144	166	167
1193:	146	141	160	164	170	164	146	153
1201:	165	119	170	161	170	186	221	197
1209:	185	168	142	151	141	182	168	141
1217:	169	179	164	152	144	152	168	162
1225:	146	143	145	145	170	168	156	161

1233:	158	163	187	361	744	904	480	223

Sample Title: HTC-A01-S004-0006-01

Channel								
1241:	159	142	191	165	204	243	204	213
1249:	174	164	164	162	197	183	203	164
1257:	170	134	161	148	138	135	156	182
1265:	170	157	147	143	147	166	161	147
1273:	161	175	145	146	149	140	213	340
1281:	360	233	153	172	149	178	173	133
1289:	159	155	148	158	129	169	166	157
1297:	156	168	141	154	167	147	163	159
1305:	149	132	133	126	138	139	142	136
1313:	167	137	158	171	153	154	153	140
1321:	137	157	155	134	140	130	155	140
1329:	145	137	128	151	129	146	170	145
1337:	159	140	133	158	124	165	160	139
1345:	156	143	132	151	171	166	132	159
1353:	160	156	130	139	143	152	170	163
1361:	132	182	155	155	179	159	157	162
1369:	159	141	144	147	144	160	204	448
1377:	651	524	266	143	147	132	173	234
1385:	252	194	164	136	157	130	131	136
1393:	151	113	117	122	149	137	165	254
1401:	292	222	151	125	144	250	395	411
1409:	254	184	128	141	139	123	140	139
1417:	129	144	152	148	145	126	148	130
1425:	154	132	128	132	125	153	144	136
1433:	124	125	140	146	116	139	125	122
1441:	159	113	137	137	125	121	131	127
1449:	114	104	145	132	145	104	118	122
1457:	165	200	238	196	175	140	130	121
1465:	124	111	117	134	140	141	110	111
1473:	125	132	116	128	130	138	124	139
1481:	133	136	128	123	126	134	130	118
1489:	143	126	130	116	121	174	244	223
1497:	171	126	146	181	185	168	123	120
1505:	134	155	188	344	335	267	196	180
1513:	169	137	124	120	122	117	106	108
1521:	123	134	114	120	136	143	131	139
1529:	125	130	109	111	112	116	127	114
1537:	149	191	155	110	134	146	150	136
1545:	98	104	119	112	99	102	85	89
1553:	112	99	94	118	101	86	118	107
1561:	96	105	81	87	97	78	98	92
1569:	83	96	92	103	116	108	111	115
1577:	89	120	154	166	187	178	179	144
1585:	146	286	503	541	299	260	482	582
1593:	373	209	140	103	136	107	130	100
1601:	94	85	113	80	94	92	111	96
1609:	100	89	96	105	90	101	102	99
1617:	105	126	225	308	243	115	119	133
1625:	145	109	87	137	256	305	213	142
1633:	94	98	80	97	126	144	105	95
1641:	72	69	95	84	63	84	87	72
1649:	76	92	76	83	73	70	70	82
1657:	86	76	127	170	160	128	89	112

1665:	81	93	105	68	88	72	78	73

Sample Title: HTC-A01-S004-0006-01

Channel								
1673:	79	50	74	81	96	77	74	69
1681:	88	87	91	98	99	77	78	51
1689:	77	83	84	97	92	85	69	56
1697:	78	78	62	72	74	89	68	67
1705:	76	65	77	67	62	56	76	80
1713:	81	77	65	68	78	73	80	77
1721:	78	74	80	81	79	92	168	310
1729:	360	261	136	83	82	87	78	76
1737:	70	70	61	80	78	88	57	66
1745:	64	70	67	70	56	77	80	63
1753:	74	82	59	69	55	74	71	77
1761:	154	529	1297	1609	856	253	104	83
1769:	74	78	61	63	71	66	75	57
1777:	73	82	63	56	57	63	61	60
1785:	65	63	78	60	56	61	65	56
1793:	64	68	71	69	71	59	63	50
1801:	65	63	64	80	75	76	78	53
1809:	70	59	75	52	69	77	66	51
1817:	60	61	65	68	75	65	59	67
1825:	81	63	62	72	62	56	80	69
1833:	73	68	63	80	87	99	69	74
1841:	76	76	69	81	137	300	252	156
1849:	85	66	68	67	45	58	82	61
1857:	57	68	82	71	69	70	50	69
1865:	66	80	65	80	74	70	59	89
1873:	68	62	72	64	72	70	59	75
1881:	73	76	61	88	75	89	84	80
1889:	69	89	86	75	68	74	79	84
1897:	93	61	73	64	73	78	64	71
1905:	67	59	75	66	81	84	54	85
1913:	57	67	65	75	66	63	83	70
1921:	73	73	82	77	53	64	78	64
1929:	87	84	72	73	55	82	76	84
1937:	81	70	52	78	66	62	59	61
1945:	60	71	86	66	61	80	81	58
1953:	89	71	58	78	71	64	77	76
1961:	65	62	65	66	69	64	61	68
1969:	67	70	82	56	66	55	72	63
1977:	69	62	67	54	81	62	52	67
1985:	62	56	80	62	64	69	67	65
1993:	72	70	55	55	54	62	64	62
2001:	51	63	59	69	69	58	75	60
2009:	66	65	65	69	57	66	53	83
2017:	52	73	63	63	75	63	61	64
2025:	67	50	58	66	65	63	75	61
2033:	61	74	55	52	65	59	70	67
2041:	66	54	65	51	53	47	54	60
2049:	60	60	58	68	58	53	69	64
2057:	44	51	66	67	57	61	58	54
2065:	57	55	85	61	71	67	65	64
2073:	67	58	57	58	68	55	55	62
2081:	69	74	70	71	71	76	67	63
2089:	70	63	48	63	64	58	62	66

2097:	60	70	91	165	250	358	347	248

Sample Title: HTC-A01-S004-0006-01

Channel								
2105:	144	88	83	96	80	84	78	69
2113:	67	72	60	120	132	153	106	92
2121:	61	62	61	61	69	63	51	49
2129:	61	62	68	58	59	61	62	59
2137:	63	57	58	56	72	57	66	67
2145:	70	51	68	65	59	63	60	66
2153:	54	54	60	68	55	69	64	61
2161:	69	73	70	68	60	47	61	68
2169:	62	55	75	61	74	88	79	67
2177:	63	71	65	64	63	68	75	56
2185:	68	73	71	55	57	71	71	72
2193:	59	63	61	75	69	59	79	76
2201:	176	330	411	316	161	78	84	79
2209:	78	73	71	75	52	62	62	70
2217:	68	60	76	61	87	80	89	82
2225:	80	70	77	64	77	69	68	76
2233:	85	78	60	70	88	67	86	68
2241:	76	67	61	87	66	72	55	83
2249:	65	76	67	69	78	68	66	72
2257:	73	75	88	81	76	70	70	72
2265:	70	63	80	66	71	83	91	74
2273:	69	79	69	78	76	64	56	62
2281:	88	69	76	85	82	105	87	86
2289:	76	93	112	90	109	84	74	81
2297:	75	76	82	67	71	88	81	76
2305:	70	90	65	86	93	76	80	86
2313:	65	89	80	93	87	95	108	96
2321:	94	62	91	101	76	80	76	93
2329:	89	80	90	85	84	85	78	88
2337:	86	92	98	91	92	91	86	89
2345:	107	104	91	84	99	95	94	92
2353:	88	97	88	99	109	85	95	95
2361:	84	99	90	97	90	99	95	104
2369:	112	86	99	108	91	91	106	94
2377:	84	98	92	90	73	89	80	68
2385:	66	66	78	76	68	68	70	71
2393:	64	57	63	73	51	59	63	50
2401:	58	62	62	56	56	60	61	50
2409:	56	47	60	59	56	70	43	67
2417:	71	59	55	68	65	40	45	47
2425:	53	51	58	58	54	63	58	73
2433:	54	41	41	54	59	44	58	60
2441:	57	59	51	68	105	139	153	101
2449:	62	47	52	52	58	42	50	56
2457:	45	46	47	49	33	48	41	44
2465:	46	41	42	36	44	51	40	41
2473:	41	41	32	47	41	39	43	56
2481:	30	30	45	35	41	35	25	38
2489:	30	34	39	31	20	35	27	35
2497:	22	41	26	32	29	27	24	27
2505:	30	26	30	27	27	30	26	29
2513:	27	14	28	14	27	17	19	21
2521:	17	20	21	21	16	19	20	26

2529:	17	20	16	12	13	19	13	12

Sample Title: HTC-A01-S004-0006-01

Channel								
2537:	21	14	26	21	20	22	17	16
2545:	17	23	8	13	20	25	14	16
2553:	16	12	14	10	17	18	4	13
2561:	22	25	15	10	21	14	26	24
2569:	20	15	17	22	11	13	10	14
2577:	14	18	12	15	19	21	21	17
2585:	16	15	15	23	22	16	18	16
2593:	15	15	13	11	13	12	20	19
2601:	13	22	28	13	18	17	21	17
2609:	35	103	623	1526	2384	1953	891	243
2617:	57	41	35	23	17	15	12	10
2625:	8	12	12	12	5	8	10	4
2633:	12	9	5	14	3	5	8	9
2641:	11	4	9	8	13	3	6	3
2649:	5	7	7	2	7	7	4	4
2657:	8	7	6	4	6	7	8	7
2665:	7	11	6	9	13	7	14	8
2673:	6	5	15	9	9	4	8	3
2681:	5	10	7	14	14	21	12	17
2689:	5	10	7	8	9	7	8	10
2697:	8	8	7	10	7	8	4	5
2705:	6	8	8	6	10	6	4	13
2713:	5	6	9	7	6	3	4	3
2721:	5	5	3	8	6	5	6	4
2729:	3	13	6	8	6	5	8	3
2737:	9	6	6	5	3	7	8	7
2745:	6	3	5	3	11	10	7	12
2753:	6	7	6	9	8	11	11	9
2761:	5	5	7	5	7	8	4	4
2769:	9	10	6	7	9	6	4	8
2777:	3	4	8	7	4	6	6	4
2785:	5	7	5	5	8	7	6	8
2793:	2	9	7	4	6	7	5	8
2801:	8	4	7	6	5	11	8	4
2809:	5	11	9	8	5	6	8	1
2817:	5	9	7	8	8	3	7	5
2825:	7	5	4	7	8	8	9	4
2833:	5	7	5	4	8	7	7	5
2841:	5	6	9	9	7	5	6	3
2849:	5	5	8	6	9	7	4	3
2857:	3	6	5	5	3	3	9	2
2865:	5	2	4	1	5	9	5	3
2873:	7	6	3	4	2	3	6	5
2881:	2	3	7	1	3	3	2	9
2889:	10	9	9	1	7	3	7	1
2897:	0	4	5	0	2	6	5	4
2905:	5	10	2	5	1	4	3	2
2913:	2	8	3	6	5	6	1	9
2921:	6	7	3	4	5	5	3	5
2929:	4	2	4	6	1	3	5	7
2937:	1	11	4	4	4	5	4	3
2945:	2	4	4	7	5	3	3	5
2953:	2	5	6	3	5	3	1	3

2961:	6	7	3	6	2	2	4	4

Sample Title: HTC-A01-S004-0006-01

Channel								
2969:	7	3	2	1	4	3	3	0
2977:	2	7	2	4	7	5	5	7
2985:	5	2	4	2	2	1	2	4
2993:	3	3	3	7	4	1	6	3
3001:	1	3	3	6	4	6	4	3
3009:	4	6	1	6	1	3	5	7
3017:	7	1	2	4	1	1	3	7
3025:	0	1	3	1	4	1	3	3
3033:	3	0	4	3	5	2	2	5
3041:	7	3	4	2	0	0	0	1
3049:	3	0	1	7	2	3	2	2
3057:	1	0	1	2	1	0	1	2
3065:	2	0	0	3	2	2	1	2
3073:	2	1	2	2	1	0	0	0
3081:	4	1	2	2	4	1	2	1
3089:	3	0	3	1	1	2	1	3
3097:	1	0	2	0	0	0	1	1
3105:	2	1	0	1	1	5	3	2
3113:	1	2	1	0	0	1	0	1
3121:	2	6	9	13	5	4	0	0
3129:	3	0	1	1	3	1	0	2
3137:	1	2	2	1	1	0	2	3
3145:	0	0	1	1	1	0	0	0
3153:	1	1	1	0	1	1	1	2
3161:	0	0	1	1	0	0	1	0
3169:	1	3	0	1	2	2	1	0
3177:	2	0	0	3	1	2	2	0
3185:	1	1	0	2	0	1	0	2
3193:	5	9	25	36	29	8	5	2
3201:	0	2	0	0	0	1	0	0
3209:	0	0	4	1	1	0	0	0
3217:	0	0	1	0	0	0	0	0
3225:	0	1	0	0	3	2	1	0
3233:	0	1	2	0	1	0	0	0
3241:	0	0	1	0	1	0	2	0
3249:	0	2	1	0	1	1	1	0
3257:	0	0	0	1	1	0	0	0
3265:	0	1	1	1	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	1	1	1	1	1
3289:	1	1	0	0	1	0	0	0
3297:	0	0	1	0	1	0	0	2
3305:	1	0	1	0	0	0	0	0
3313:	0	0	0	0	0	0	0	0
3321:	1	0	0	1	0	0	0	0
3329:	0	0	1	0	0	0	1	0
3337:	0	1	1	0	0	0	0	0
3345:	1	0	0	1	0	1	0	0
3353:	0	0	1	0	0	1	1	0
3361:	0	0	0	1	1	1	1	0
3369:	1	0	0	0	0	0	0	0
3377:	2	1	0	0	0	0	2	0
3385:	0	1	1	0	0	0	0	0

3393:	0	1	0	0	0	0	0	0

Sample Title: HTC-A01-S004-0006-01

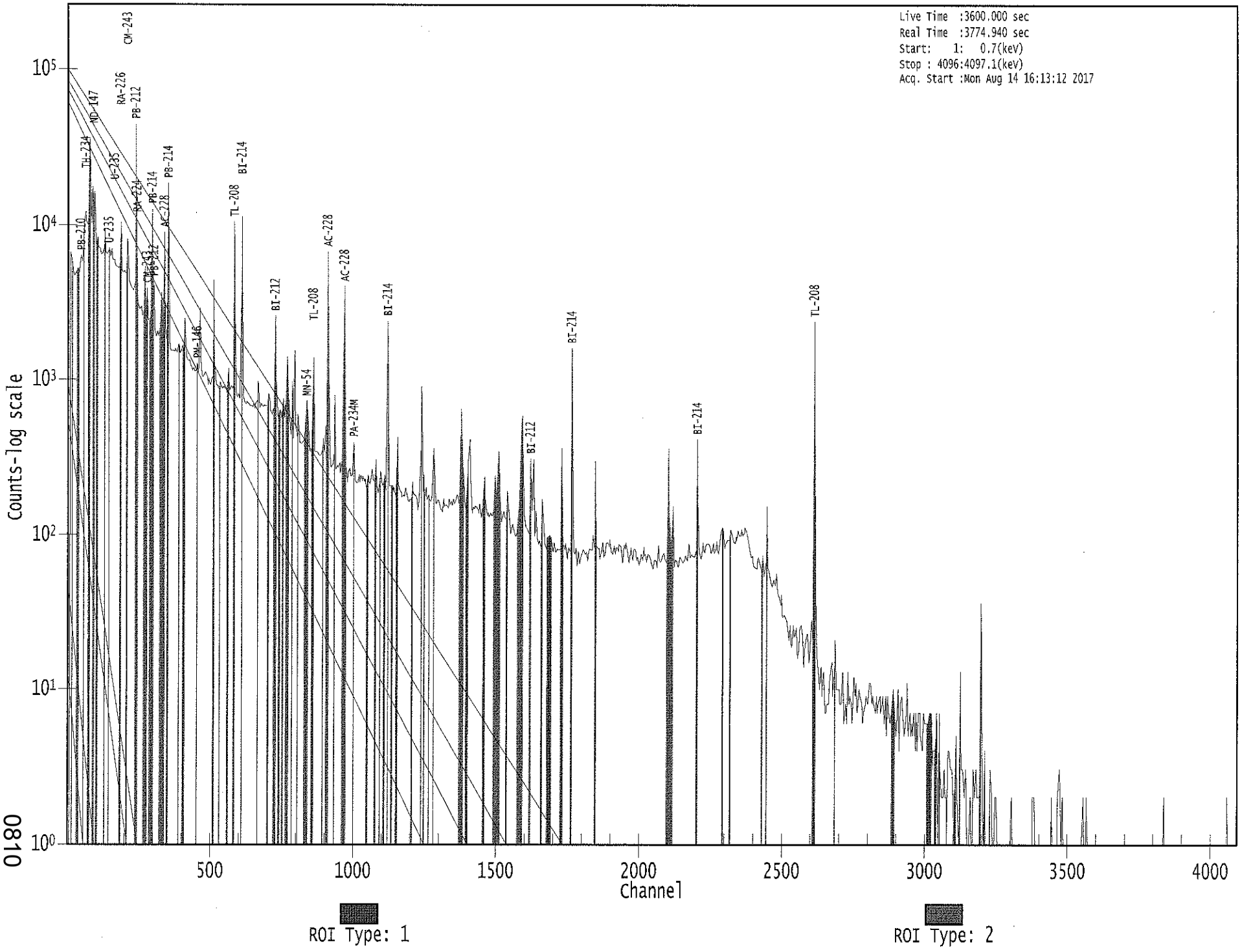
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	1	1
3417:	1	0	0	0	0	0	0	0
3425:	0	0	0	1	0	1	0	0
3433:	0	1	0	0	0	0	0	0
3441:	0	0	0	2	0	0	0	0
3449:	0	1	0	0	1	0	0	1
3457:	0	0	0	0	1	1	0	1
3465:	2	0	1	0	0	0	1	3
3473:	0	3	2	0	1	1	0	0
3481:	0	2	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	1	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S004-0006-01

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

0000055201.CNF



0810

LB 8/14/17

Apex-Gamma

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-13
Sample Description	: HTC-A01-S004-0612-01
Sample Type	: SOIL
Sample Size	: 7.931E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:32:39AM
Acquisition Started	: 8/14/2017 4:13:20PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3676.5 seconds
Dead Time	: 2.08 %
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	: 55202

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 5:14:38PM
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	25.16	24.20	0.0000	0.00
2	34.62	33.66	0.0000	0.00
3	39.29	38.33	0.0000	0.00
4	46.61	45.66	0.0000	0.00
5	57.14	56.19	0.0000	0.00
6	64.14	63.19	0.0000	0.00
7	76.33	75.39	0.0000	0.00
8	84.38	83.44	0.0000	0.00
9	87.12	86.18	0.0000	0.00
10	90.16	89.23	0.0000	0.00
11	93.19	92.26	0.0000	0.00
12	99.30	98.37	0.0000	0.00
13	105.24	104.30	0.0000	0.00
14	115.30	114.36	0.0000	0.00
15	129.14	128.21	0.0000	0.00
16	144.32	143.40	0.0000	0.00
17	153.85	152.93	0.0000	0.00
18	185.89	184.98	0.0000	0.00
19	209.39	208.49	0.0000	0.00
20	216.46	215.56	0.0000	0.00
21	238.65	237.76	0.0000	0.00
22	241.45	240.56	0.0000	0.00
23	258.54	257.65	0.0000	0.00
24	270.26	269.38	0.0000	0.00
25	277.30	276.42	0.0000	0.00
26	295.24	294.37	0.0000	0.00
27	300.14	299.27	0.0000	0.00
28	327.92	327.06	0.0000	0.00
29	338.42	337.56	0.0000	0.00
30	351.89	351.04	0.0000	0.00
31	409.49	408.66	0.0000	0.00
32	441.06	440.23	0.0000	0.00
33	453.60	452.78	0.0000	0.00
34	463.04	462.22	0.0000	0.00
35	510.71	509.91	0.0000	0.00
36	562.77	561.99	0.0000	0.00
37	571.34	570.57	0.0000	0.00
38	583.10	582.33	0.0000	0.00
39	609.24	608.48	0.0000	0.00
40	621.55	620.79	0.0000	0.00
41	641.00	640.25	0.0000	0.00
42	722.16	721.45	0.0000	0.00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	727.12	726.41	0.0000	0.00
44	742.97	742.26	0.0000	0.00
45	754.77	754.07	0.0000	0.00
46	768.22	767.52	0.0000	0.00
47	772.12	771.43	0.0000	0.00
48	781.93	781.24	0.0000	0.00
49	785.54	784.85	0.0000	0.00
50	794.79	794.10	0.0000	0.00
51	806.09	805.41	0.0000	0.00
52	830.49	829.82	0.0000	0.00
53	835.46	834.79	0.0000	0.00
54	840.17	839.50	0.0000	0.00
55	860.39	859.73	0.0000	0.00
56	873.92	873.27	0.0000	0.00
57	892.79	892.14	0.0000	0.00
58	904.06	903.42	0.0000	0.00
59	911.01	910.38	0.0000	0.00
60	922.24	921.61	0.0000	0.00
61	933.68	933.06	0.0000	0.00
62	964.51	963.90	0.0000	0.00
63	968.74	968.13	0.0000	0.00
64	987.49	986.89	0.0000	0.00
65	1000.55	999.95	0.0000	0.00
66	1078.51	1077.95	0.0000	0.00
67	1092.84	1092.28	0.0000	0.00
68	1110.15	1109.60	0.0000	0.00
69	1120.00	1119.46	0.0000	0.00
70	1154.67	1154.14	0.0000	0.00
71	1208.94	1208.43	0.0000	0.00
72	1237.80	1237.31	0.0000	0.00
73	1246.35	1245.86	0.0000	0.00
74	1253.95	1253.47	0.0000	0.00
75	1280.32	1279.85	0.0000	0.00
76	1315.49	1315.04	0.0000	0.00
77	1377.18	1376.76	0.0000	0.00
78	1385.97	1385.55	0.0000	0.00
79	1401.17	1400.76	0.0000	0.00
80	1407.86	1407.46	0.0000	0.00
81	1442.13	1441.74	0.0000	0.00
82	1459.54	1459.16	0.0000	0.00
83	1495.38	1495.02	0.0000	0.00
84	1500.99	1500.63	0.0000	0.00
85	1510.06	1509.71	0.0000	0.00
86	1580.58	1580.26	0.0000	0.00
87	1587.58	1587.26	0.0000	0.00
88	1592.25	1591.94	0.0000	0.00
89	1605.89	1605.59	0.0000	0.00
90	1620.51	1620.21	0.0000	0.00
91	1630.21	1629.92	0.0000	0.00
92	1638.41	1638.13	0.0000	0.00
93	1660.52	1660.25	0.0000	0.00
94	1684.00	1683.74	0.0000	0.00
95	1710.73	1710.49	0.0000	0.00
96	1719.36	1719.12	0.0000	0.00
97	1729.01	1728.78	0.0000	0.00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1764.03	1763.82	0.0000	0.00
99	1847.24	1847.08	0.0000	0.00
100	1871.82	1871.67	0.0000	0.00
101	2084.64	2084.61	0.0000	0.00
102	2102.94	2102.92	0.0000	0.00
103	2116.57	2116.56	0.0000	0.00
104	2203.66	2203.71	0.0000	0.00
105	2446.88	2447.09	0.0000	0.00
106	2613.83	2614.14	0.0000	0.00
107	2771.97	2772.40	0.0000	0.00
108	2839.47	2839.94	0.0000	0.00
109	2966.61	2967.18	0.0000	0.00
110	3024.65	3025.26	0.0000	0.00
111	3072.41	3073.06	0.0000	0.00
112	3124.23	3124.92	0.0000	0.00
113	3197.07	3197.81	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 5:14:38PM

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	25.16	22 -	27	24.20	5.26E+02	471.83	4.39E+04	1.66
M	2	34.62	28 -	41	33.66	3.79E+03	781.82	7.92E+04	4.41
m	3	39.29	28 -	41	38.33	1.14E+03	475.07	4.35E+04	1.91
	4	46.61	43 -	48	45.66	8.20E+02	483.96	4.64E+04	2.09
	5	57.14	54 -	59	56.19	5.38E+03	580.21	6.33E+04	2.53
	6	64.14	60 -	67	63.19	5.06E+03	771.19	9.63E+04	3.38
M	7	76.33	68 -	96	75.39	6.38E+04	1181.39	1.46E+05	3.84
m	8	84.38	68 -	96	83.44	6.34E+03	1032.84	1.26E+05	3.52
m	9	87.12	68 -	96	86.18	1.81E+04	967.75	1.13E+05	3.17
m	10	90.16	68 -	96	89.23	9.30E+03	751.60	7.70E+04	2.36
m	11	93.19	68 -	96	92.26	1.34E+04	723.10	7.54E+04	2.26
	12	99.30	96 -	102	98.37	1.16E+03	635.38	7.26E+04	2.12
	13	105.24	102 -	107	104.30	1.98E+03	568.11	6.32E+04	2.15
	14	115.30	112 -	117	114.36	1.39E+03	551.27	5.94E+04	2.70
	15	129.14	125 -	132	128.21	5.25E+03	717.04	8.21E+04	2.22
	16	144.32	141 -	146	143.40	1.05E+03	541.53	5.77E+04	1.98
	17	153.85	150 -	156	152.93	2.12E+03	597.24	6.32E+04	2.97
	18	185.89	181 -	189	184.98	7.32E+03	697.74	7.03E+04	2.38
	19	209.39	205 -	212	208.49	6.61E+03	590.78	5.35E+04	2.27
	20	216.46	213 -	219	215.56	6.47E+02	491.72	4.34E+04	3.78
M	21	238.65	232 -	245	237.76	7.10E+04	709.32	3.62E+04	2.22
m	22	241.45	232 -	245	240.56	1.17E+04	737.46	3.68E+04	2.54
	23	258.54	255 -	261	257.65	7.24E+02	395.39	2.77E+04	3.76
M	24	270.26	265 -	280	269.38	5.16E+03	405.40	2.63E+04	2.35
m	25	277.30	265 -	280	276.42	2.87E+03	392.11	2.56E+04	2.44
M	26	295.24	285 -	303	294.37	1.13E+04	413.78	2.29E+04	2.27
m	27	300.14	285 -	303	299.27	4.19E+03	381.70	2.19E+04	2.32
	28	327.92	323 -	330	327.06	2.93E+03	397.43	2.44E+04	2.03
	29	338.42	333 -	342	337.56	1.30E+04	499.24	2.80E+04	2.35
	30	351.89	346 -	356	351.04	1.91E+04	527.78	2.69E+04	2.38
	31	409.49	405 -	412	408.66	1.76E+03	327.74	1.66E+04	2.40
	32	441.06	436 -	443	440.23	4.05E+02	281.94	1.30E+04	4.03
	33	453.60	449 -	456	452.78	4.35E+02	279.77	1.27E+04	2.17
	34	463.04	458 -	467	462.22	3.78E+03	345.22	1.48E+04	2.50
	35	510.71	505 -	515	509.91	6.75E+03	373.24	1.49E+04	2.52
	36	562.77	558 -	566	561.99	8.51E+02	272.51	1.09E+04	3.35
	37	571.34	568 -	574	570.57	2.54E+02	217.07	8.39E+03	1.80
	38	583.10	577 -	588	582.33	1.92E+04	433.93	1.39E+04	2.44
	39	609.24	604 -	613	608.48	1.30E+04	355.42	1.06E+04	2.43
	40	621.55	619 -	623	620.79	1.35E+02	148.89	4.79E+03	2.74

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	641.00	638 -	643	640.25	2.15E+02	169.72	5.58E+03	3.65
M	42	722.16	720 -	730	721.45	9.66E+01	73.62	1.73E+03	1.97
m	43	727.12	720 -	730	726.41	3.87E+03	221.01	6.06E+03	2.34
	44	742.97	740 -	745	742.26	1.38E+02	156.41	4.78E+03	2.82
	45	754.77	750 -	758	754.07	5.75E+02	215.10	6.77E+03	2.23
M	46	768.22	764 -	778	767.52	9.70E+02	184.87	5.77E+03	2.38
m	47	772.12	764 -	778	771.43	5.89E+02	164.05	4.46E+03	2.16
M	48	781.93	778 -	789	781.24	2.79E+02	139.40	3.61E+03	2.62
m	49	785.54	778 -	789	784.85	7.51E+02	181.18	4.80E+03	2.63
	50	794.79	790 -	798	794.10	2.04E+03	204.47	5.16E+03	2.58
	51	806.09	802 -	809	805.41	2.21E+02	163.18	4.27E+03	2.29
M	52	830.49	827 -	844	829.82	2.43E+02	109.06	2.48E+03	2.25
m	53	835.46	827 -	844	834.79	8.18E+02	180.12	4.36E+03	2.91
m	54	840.17	827 -	844	839.50	5.13E+02	164.34	3.78E+03	2.75
	55	860.39	855 -	865	859.73	2.12E+03	214.46	4.98E+03	2.41
	56	873.92	871 -	875	873.27	7.99E+01	95.54	1.95E+03	2.40
	57	892.79	889 -	895	892.14	1.95E+02	125.71	2.73E+03	2.07
M	58	904.06	896 -	916	903.42	4.59E+02	173.01	3.90E+03	3.23
m	59	911.01	896 -	916	910.38	1.18E+04	248.91	2.61E+03	2.47
	60	922.24	919 -	924	921.61	8.30E+01	101.38	1.98E+03	1.48
	61	933.68	927 -	938	933.06	6.88E+02	186.30	3.99E+03	2.69
M	62	964.51	952 -	974	963.90	2.13E+03	149.01	2.25E+03	2.41
m	63	968.74	952 -	974	968.13	6.93E+03	218.92	2.35E+03	2.56
	64	987.49	984 -	991	986.89	1.21E+02	113.60	2.07E+03	4.60
	65	1000.55	995 -	1005	999.95	3.63E+02	151.37	2.87E+03	3.12
	66	1078.51	1074 -	1083	1077.95	2.18E+02	132.17	2.35E+03	3.11
	67	1092.84	1088 -	1097	1092.28	1.32E+02	131.77	2.42E+03	1.99
	68	1110.15	1106 -	1113	1109.60	1.22E+02	111.98	2.00E+03	3.02
	69	1120.00	1114 -	1125	1119.46	2.60E+03	181.89	2.83E+03	2.63
	70	1154.67	1150 -	1157	1154.14	3.53E+02	109.20	1.75E+03	2.53
	71	1208.94	1204 -	1213	1208.43	1.58E+02	124.41	2.11E+03	5.25
M	72	1237.80	1232 -	1250	1237.31	8.82E+02	116.72	1.66E+03	2.65
m	73	1246.35	1232 -	1250	1245.86	1.73E+02	124.06	2.14E+03	3.37
	74	1253.95	1251 -	1257	1253.47	9.56E+01	89.55	1.37E+03	2.74
	75	1280.32	1276 -	1284	1279.85	2.05E+02	114.18	1.89E+03	1.81
	76	1315.49	1313 -	1318	1315.04	5.90E+01	73.23	1.02E+03	3.09
	77	1377.18	1371 -	1381	1376.76	6.55E+02	135.12	2.09E+03	2.92
	78	1385.97	1382 -	1393	1385.55	1.73E+02	134.64	2.17E+03	3.60
M	79	1401.17	1393 -	1411	1400.76	2.30E+02	107.15	1.58E+03	3.13
m	80	1407.86	1393 -	1411	1407.46	3.39E+02	109.42	1.61E+03	3.00
	81	1442.13	1438 -	1445	1441.74	1.09E+02	86.53	1.17E+03	2.34
	82	1459.54	1454 -	1464	1459.16	4.34E+02	118.58	1.64E+03	3.61
M	83	1495.38	1489 -	1504	1495.02	2.77E+02	99.77	1.34E+03	3.16
m	84	1500.99	1489 -	1504	1500.63	2.20E+02	90.42	1.19E+03	3.17
	85	1510.06	1505 -	1515	1509.71	3.61E+02	117.19	1.64E+03	2.46
M	86	1580.58	1574 -	1597	1580.26	2.06E+02	94.55	1.10E+03	2.90
m	87	1587.58	1574 -	1597	1587.26	9.57E+02	105.83	1.06E+03	2.68
m	88	1592.25	1574 -	1597	1591.94	1.33E+03	124.44	1.33E+03	2.91
	89	1605.89	1602 -	1610	1605.59	8.93E+01	85.44	1.07E+03	1.72
M	90	1620.51	1612 -	1634	1620.21	4.07E+02	94.32	1.11E+03	2.91
m	91	1630.21	1612 -	1634	1629.92	4.91E+02	94.13	1.03E+03	2.92
	92	1638.41	1635 -	1645	1638.13	1.82E+02	98.11	1.18E+03	2.81
	93	1660.52	1656 -	1664	1660.25	1.06E+02	85.79	1.07E+03	2.72

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
94	1684.00	1681 -	1688	1683.74	8.09E+01	72.03	8.16E+02	3.82
95	1710.73	1708 -	1713	1710.49	4.55E+01	53.10	5.27E+02	2.09
96	1719.36	1715 -	1724	1719.12	9.24E+01	79.69	8.53E+02	1.43
97	1729.01	1724 -	1734	1728.78	3.97E+02	96.26	1.03E+03	3.00
98	1764.03	1756 -	1771	1763.82	2.11E+03	152.67	1.49E+03	2.95
99	1847.24	1841 -	1856	1847.08	3.57E+02	122.98	1.38E+03	3.40
100	1871.82	1867 -	1876	1871.67	7.45E+01	85.92	1.02E+03	4.53
101	2084.64	2082 -	2088	2084.61	5.28E+01	59.63	6.12E+02	3.91
102	2102.94	2096 -	2110	2102.92	9.72E+02	133.04	1.45E+03	3.75
103	2116.57	2111 -	2124	2116.56	1.20E+02	114.17	1.40E+03	3.61
104	2203.66	2198 -	2211	2203.71	5.52E+02	124.45	1.47E+03	3.08
105	2446.88	2442 -	2451	2447.09	1.36E+02	83.03	9.00E+02	3.38
106	2613.83	2606 -	2622	2614.14	5.86E+03	163.44	3.06E+02	3.26
107	2771.97	2767 -	2777	2772.40	2.84E+01	17.87	2.72E+01	6.98
108	2839.47	2836 -	2845	2839.94	1.48E+01	18.55	4.23E+01	4.90
109	2966.61	2963 -	2970	2967.18	1.15E+01	13.71	2.30E+01	2.88
110	3024.65	3021 -	3028	3025.26	1.17E+01	10.77	1.06E+01	1.22
111	3072.41	3067 -	3076	3073.06	6.22E+00	7.81	5.56E+00	2.90
112	3124.23	3120 -	3129	3124.92	1.95E+01	10.63	4.95E+00	3.60
113	3197.07	3193 -	3202	3197.81	5.93E+01	17.49	9.38E+00	3.02

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 5:14:38PM

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	25.16	22 -	27	5.26E+02	471.83	4.39E+04	3.86E+02
M	2	34.62	28 -	41	3.79E+03	781.82	7.92E+04	4.63E+02
m	3	39.29	28 -	41	1.14E+03	475.07	4.35E+04	3.43E+02
	4	46.61	43 -	48	8.20E+02	483.96	4.64E+04	3.95E+02
	5	57.14	54 -	59	5.38E+03	580.21	6.33E+04	4.61E+02
	6	64.14	60 -	67	5.06E+03	771.19	9.63E+04	6.23E+02
M	7	76.33	68 -	96	6.38E+04	1181.39	1.46E+05	6.28E+02
m	8	84.38	68 -	96	6.34E+03	1032.84	1.26E+05	5.84E+02

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	9	87.12	68 -	96	1.81E+04	967.75	1.13E+05	5.52E+02
m	10	90.16	68 -	96	9.30E+03	751.60	7.70E+04	4.56E+02
m	11	93.19	68 -	96	1.34E+04	723.10	7.54E+04	4.51E+02
	12	99.30	96 -	102	1.16E+03	635.38	7.26E+04	5.19E+02
	13	105.24	102 -	107	1.98E+03	568.11	6.32E+04	4.61E+02
	14	115.30	112 -	117	1.39E+03	551.27	5.94E+04	4.49E+02
	15	129.14	125 -	132	5.25E+03	717.04	8.21E+04	5.77E+02
	16	144.32	141 -	146	1.05E+03	541.53	5.77E+04	4.42E+02
	17	153.85	150 -	156	2.12E+03	597.24	6.32E+04	4.85E+02
	18	185.89	181 -	189	7.32E+03	697.74	7.03E+04	5.56E+02
	19	209.39	205 -	212	6.61E+03	590.78	5.35E+04	4.67E+02
	20	216.46	213 -	219	6.47E+02	491.72	4.34E+04	4.02E+02
M	21	238.65	232 -	245	7.10E+04	709.32	3.62E+04	3.13E+02
m	22	241.45	232 -	245	1.17E+04	737.46	3.68E+04	3.15E+02
	23	258.54	255 -	261	7.24E+02	395.39	2.77E+04	3.22E+02
M	24	270.26	265 -	280	5.16E+03	405.40	2.63E+04	2.66E+02
m	25	277.30	265 -	280	2.87E+03	392.11	2.56E+04	2.63E+02
M	26	295.24	285 -	303	1.13E+04	413.78	2.29E+04	2.49E+02
m	27	300.14	285 -	303	4.19E+03	381.70	2.19E+04	2.43E+02
	28	327.92	323 -	330	2.93E+03	397.43	2.44E+04	3.14E+02
	29	338.42	333 -	342	1.30E+04	499.24	2.80E+04	3.65E+02
	30	351.89	346 -	356	1.91E+04	527.78	2.69E+04	3.70E+02
	31	409.49	405 -	412	1.76E+03	327.74	1.66E+04	2.60E+02
	32	441.06	436 -	443	4.05E+02	281.94	1.30E+04	2.29E+02
	33	453.60	449 -	456	4.35E+02	279.77	1.27E+04	2.27E+02
	34	463.04	458 -	467	3.78E+03	345.22	1.48E+04	2.65E+02
	35	510.71	505 -	515	6.75E+03	373.24	1.49E+04	2.75E+02
	36	562.77	558 -	566	8.51E+02	272.51	1.09E+04	2.19E+02
	37	571.34	568 -	574	2.54E+02	217.07	8.39E+03	1.76E+02
	38	583.10	577 -	588	1.92E+04	433.93	1.39E+04	2.74E+02
	39	609.24	604 -	613	1.30E+04	355.42	1.06E+04	2.24E+02
	40	621.55	619 -	623	1.35E+02	148.89	4.79E+03	1.21E+02
	41	641.00	638 -	643	2.15E+02	169.72	5.58E+03	1.37E+02
M	42	722.16	720 -	730	9.66E+01	73.62	1.73E+03	6.85E+01
m	43	727.12	720 -	730	3.87E+03	221.01	6.06E+03	1.28E+02
	44	742.97	740 -	745	1.38E+02	156.41	4.78E+03	1.27E+02
	45	754.77	750 -	758	5.75E+02	215.10	6.77E+03	9.01E+01
M	46	768.22	764 -	778	9.70E+02	184.87	5.77E+03	1.25E+02
m	47	772.12	764 -	778	5.89E+02	164.05	4.46E+03	1.10E+02
M	48	781.93	778 -	789	2.79E+02	139.40	3.61E+03	9.88E+01
m	49	785.54	778 -	789	7.51E+02	181.18	4.80E+03	1.14E+02
	50	794.79	790 -	798	2.04E+03	204.47	5.16E+03	1.51E+02
	51	806.09	802 -	809	2.21E+02	163.18	4.27E+03	1.32E+02
M	52	830.49	827 -	844	2.43E+02	109.06	2.48E+03	8.19E+01
m	53	835.46	827 -	844	8.18E+02	180.12	4.36E+03	1.09E+02
m	54	840.17	827 -	844	5.13E+02	164.34	3.78E+03	1.01E+02
	55	860.39	855 -	865	2.12E+03	214.46	4.98E+03	1.59E+02
	56	873.92	871 -	875	7.99E+01	95.54	1.95E+03	7.71E+01
	57	892.79	889 -	895	1.95E+02	125.71	2.73E+03	1.01E+02
M	58	904.06	896 -	916	4.59E+02	173.01	3.90E+03	1.03E+02
m	59	911.01	896 -	916	1.18E+04	248.91	2.61E+03	8.40E+01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	60	922.24	919 -	924	8.30E+01	101.38	1.98E+03	8.20E+01
	61	933.68	927 -	938	6.88E+02	186.30	3.99E+03	6.05E+01
M	62	964.51	952 -	974	2.13E+03	149.01	2.25E+03	7.79E+01
m	63	968.74	952 -	974	6.93E+03	218.92	2.35E+03	7.97E+01
	64	987.49	984 -	991	1.21E+02	113.60	2.07E+03	9.16E+01
	65	1000.55	995 -	1005	3.63E+02	151.37	2.87E+03	1.20E+02
	66	1078.51	1074 -	1083	2.18E+02	132.17	2.35E+03	1.06E+02
	67	1092.84	1088 -	1097	1.32E+02	131.77	2.42E+03	1.07E+02
	68	1110.15	1106 -	1113	1.22E+02	111.98	2.00E+03	9.02E+01
	69	1120.00	1114 -	1125	2.60E+03	181.89	2.83E+03	1.24E+02
	70	1154.67	1150 -	1157	3.53E+02	109.20	1.75E+03	8.43E+01
	71	1208.94	1204 -	1213	1.58E+02	124.41	2.11E+03	1.00E+02
M	72	1237.80	1232 -	1250	8.82E+02	116.72	1.66E+03	6.70E+01
m	73	1246.35	1232 -	1250	1.73E+02	124.06	2.14E+03	7.60E+01
	74	1253.95	1251 -	1257	9.56E+01	89.55	1.37E+03	7.18E+01
	75	1280.32	1276 -	1284	2.05E+02	114.18	1.89E+03	9.09E+01
	76	1315.49	1313 -	1318	5.90E+01	73.23	1.02E+03	5.89E+01
	77	1377.18	1371 -	1381	6.55E+02	135.12	2.09E+03	1.03E+02
	78	1385.97	1382 -	1393	1.73E+02	134.64	2.17E+03	1.09E+02
M	79	1401.17	1393 -	1411	2.30E+02	107.15	1.58E+03	6.54E+01
m	80	1407.86	1393 -	1411	3.39E+02	109.42	1.61E+03	6.60E+01
	81	1442.13	1438 -	1445	1.09E+02	86.53	1.17E+03	6.90E+01
	82	1459.54	1454 -	1464	4.34E+02	118.58	1.64E+03	9.13E+01
M	83	1495.38	1489 -	1504	2.77E+02	99.77	1.34E+03	6.01E+01
m	84	1500.99	1489 -	1504	2.20E+02	90.42	1.19E+03	5.67E+01
	85	1510.06	1505 -	1515	3.61E+02	117.19	1.64E+03	9.11E+01
M	86	1580.58	1574 -	1597	2.06E+02	94.55	1.10E+03	5.46E+01
m	87	1587.58	1574 -	1597	9.57E+02	105.83	1.06E+03	5.34E+01
m	88	1592.25	1574 -	1597	1.33E+03	124.44	1.33E+03	5.99E+01
	89	1605.89	1602 -	1610	8.93E+01	85.44	1.07E+03	6.85E+01
M	90	1620.51	1612 -	1634	4.07E+02	94.32	1.11E+03	5.47E+01
m	91	1630.21	1612 -	1634	4.91E+02	94.13	1.03E+03	5.27E+01
	92	1638.41	1635 -	1645	1.82E+02	98.11	1.18E+03	7.75E+01
	93	1660.52	1656 -	1664	1.06E+02	85.79	1.07E+03	6.85E+01
	94	1684.00	1681 -	1688	8.09E+01	72.03	8.16E+02	5.73E+01
	95	1710.73	1708 -	1713	4.55E+01	53.10	5.27E+02	4.22E+01
	96	1719.36	1715 -	1724	9.24E+01	79.69	8.53E+02	6.36E+01
	97	1729.01	1724 -	1734	3.97E+02	96.26	1.03E+03	7.20E+01
	98	1764.03	1756 -	1771	2.11E+03	152.67	1.49E+03	1.00E+02
	99	1847.24	1841 -	1856	3.57E+02	122.98	1.38E+03	9.62E+01
	100	1871.82	1867 -	1876	7.45E+01	85.92	1.02E+03	6.92E+01
	101	2084.64	2082 -	2088	5.28E+01	59.63	6.12E+02	4.75E+01
	102	2102.94	2096 -	2110	9.72E+02	133.04	1.45E+03	9.66E+01
	103	2116.57	2111 -	2124	1.20E+02	114.17	1.40E+03	9.21E+01
	104	2203.66	2198 -	2211	5.52E+02	124.45	1.47E+03	9.47E+01
	105	2446.88	2442 -	2451	1.36E+02	83.03	9.00E+02	6.55E+01
	106	2613.83	2606 -	2622	5.86E+03	163.44	3.06E+02	4.71E+01
	107	2771.97	2767 -	2777	2.84E+01	17.87	2.72E+01	1.18E+01
	108	2839.47	2836 -	2845	1.48E+01	18.55	4.23E+01	1.39E+01
	109	2966.61	2963 -	2970	1.15E+01	13.71	2.30E+01	9.80E+00
	110	3024.65	3021 -	3028	1.17E+01	10.77	1.06E+01	6.84E+00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
111	3072.41	3067 -	3076	6.22E+00	7.81	5.56E+00	4.94E+00
112	3124.23	3120 -	3129	1.95E+01	10.63	4.95E+00	4.86E+00
113	3197.07	3193 -	3202	5.93E+01	17.49	9.38E+00	6.82E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 5:14:38PM

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	25.16	22 -	27	24.20	5.26E+02	471.83	4.39E+04	TH-231
M	2	34.62	28 -	41	33.66	3.79E+03	781.82	7.92E+04	I-125
m	3	39.29	28 -	41	38.33	1.14E+03	475.07	4.35E+04	I-129
									RA-225
	4	46.61	43 -	48	45.66	8.20E+02	483.96	4.64E+04	PB-210
	5	57.14	54 -	59	56.19	5.38E+03	580.21	6.33E+04	CE-143
	6	64.14	60 -	67	63.19	5.06E+03	771.19	9.63E+04	TH-234
M	7	76.33	68 -	96	75.39	6.38E+04	1181.39	1.46E+05	.....
m	8	84.38	68 -	96	83.44	6.34E+03	1032.84	1.26E+05	TH-231
m	9	87.12	68 -	96	86.18	1.81E+04	967.75	1.13E+05	SN-126
									NP-237
									EU-155
									CD-109
m	10	90.16	68 -	96	89.23	9.30E+03	751.60	7.70E+04	ND-147
m	11	93.19	68 -	96	92.26	1.34E+04	723.10	7.54E+04	GA-67
	12	99.30	96 -	102	98.37	1.16E+03	635.38	7.26E+04	.....
	13	105.24	102 -	107	104.30	1.98E+03	568.11	6.32E+04	EU-155
									NP-239
	14	115.30	112 -	117	114.36	1.39E+03	551.27	5.94E+04	.....
	15	129.14	125 -	132	128.21	5.25E+03	717.04	8.21E+04	.....
	16	144.32	141 -	146	143.40	1.05E+03	541.53	5.77E+04	U-235
	17	153.85	150 -	156	152.93	2.12E+03	597.24	6.32E+04	CS-136
	18	185.89	181 -	189	184.98	7.32E+03	697.74	7.03E+04	RA-226

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	19	209.39	205 -	212	208.49	6.61E+03	590.78	5.35E+04	CM-243
									GA-67
	20	216.46	213 -	219	215.56	6.47E+02	491.72	4.34E+04	.....
M	21	238.65	232 -	245	237.76	7.10E+04	709.32	3.62E+04	PB-212
m	22	241.45	232 -	245	240.56	1.17E+04	737.46	3.68E+04	RA-224
	23	258.54	255 -	261	257.65	7.24E+02	395.39	2.77E+04	.....
M	24	270.26	265 -	280	269.38	5.16E+03	405.40	2.63E+04	.....
m	25	277.30	265 -	280	276.42	2.87E+03	392.11	2.56E+04	CM-243
									NP-239
M	26	295.24	285 -	303	294.37	1.13E+04	413.78	2.29E+04	PB-214
m	27	300.14	285 -	303	299.27	4.19E+03	381.70	2.19E+04	PB-212
									GA-67
									BI-210M
	28	327.92	323 -	330	327.06	2.93E+03	397.43	2.44E+04	LA-140
	29	338.42	333 -	342	337.56	1.30E+04	499.24	2.80E+04	AC-228
	30	351.89	346 -	356	351.04	1.91E+04	527.78	2.69E+04	PB-214
	31	409.49	405 -	412	408.66	1.76E+03	327.74	1.66E+04	.....
	32	441.06	436 -	443	440.23	4.05E+02	281.94	1.30E+04	.....
	33	453.60	449 -	456	452.78	4.35E+02	279.77	1.27E+04	PM-146
	34	463.04	458 -	467	462.22	3.78E+03	345.22	1.48E+04	SB-125
	35	510.71	505 -	515	509.91	6.75E+03	373.24	1.49E+04	.....
	36	562.77	558 -	566	561.99	8.51E+02	272.51	1.09E+04	CS-134
	37	571.34	568 -	574	570.57	2.54E+02	217.07	8.39E+03	.....
	38	583.10	577 -	588	582.33	1.92E+04	433.93	1.39E+04	TL-208
	39	609.24	604 -	613	608.48	1.30E+04	355.42	1.06E+04	BI-214
	40	621.55	619 -	623	620.79	1.35E+02	148.89	4.79E+03	RU-106
	41	641.00	638 -	643	640.25	2.15E+02	169.72	5.58E+03	.....
M	42	722.16	720 -	730	721.45	9.66E+01	73.62	1.73E+03	SB-124
									I-131
									AG-108M
m	43	727.12	720 -	730	726.41	3.87E+03	221.01	6.06E+03	BI-212
	44	742.97	740 -	745	742.26	1.38E+02	156.41	4.78E+03	.....
	45	754.77	750 -	758	754.07	5.75E+02	215.10	6.77E+03	.....
M	46	768.22	764 -	778	767.52	9.70E+02	184.87	5.77E+03	.....
m	47	772.12	764 -	778	771.43	5.89E+02	164.05	4.46E+03	.....
M	48	781.93	778 -	789	781.24	2.79E+02	139.40	3.61E+03	.....
m	49	785.54	778 -	789	784.85	7.51E+02	181.18	4.80E+03	.....
	50	794.79	790 -	798	794.10	2.04E+03	204.47	5.16E+03	.....
	51	806.09	802 -	809	805.41	2.21E+02	163.18	4.27E+03	.....
M	52	830.49	827 -	844	829.82	2.43E+02	109.06	2.48E+03	.....
m	53	835.46	827 -	844	834.79	8.18E+02	180.12	4.36E+03	MN-54
m	54	840.17	827 -	844	839.50	5.13E+02	164.34	3.78E+03	.....
	55	860.39	855 -	865	859.73	2.12E+03	214.46	4.98E+03	TL-208
	56	873.92	871 -	875	873.27	7.99E+01	95.54	1.95E+03	EU-154
	57	892.79	889 -	895	892.14	1.95E+02	125.71	2.73E+03	.....
M	58	904.06	896 -	916	903.42	4.59E+02	173.01	3.90E+03	.....
m	59	911.01	896 -	916	910.38	1.18E+04	248.91	2.61E+03	AC-228
									TL-204
	60	922.24	919 -	924	921.61	8.30E+01	101.38	1.98E+03	.....
	61	933.68	927 -	938	933.06	6.88E+02	186.30	3.99E+03	.....
M	62	964.51	952 -	974	963.90	2.13E+03	149.01	2.25E+03	EU-152
m	63	968.74	952 -	974	968.13	6.93E+03	218.92	2.35E+03	AC-228
	64	987.49	984 -	991	986.89	1.21E+02	113.60	2.07E+03	.....
	65	1000.55	995 -	1005	999.95	3.63E+02	151.37	2.87E+03	PA-234M

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	66	1078.51	1074 -	1083	1077.95	2.18E+02	132.17	2.35E+03	.....
	67	1092.84	1088 -	1097	1092.28	1.32E+02	131.77	2.42E+03	LU-172
	68	1110.15	1106 -	1113	1109.60	1.22E+02	111.98	2.00E+03	.....
	69	1120.00	1114 -	1125	1119.46	2.60E+03	181.89	2.83E+03	BI-214 SC-46
	70	1154.67	1150 -	1157	1154.14	3.53E+02	109.20	1.75E+03	.....
	71	1208.94	1204 -	1213	1208.43	1.58E+02	124.41	2.11E+03	.....
M	72	1237.80	1232 -	1250	1237.31	8.82E+02	116.72	1.66E+03	CO-56
m	73	1246.35	1232 -	1250	1245.86	1.73E+02	124.06	2.14E+03	.....
	74	1253.95	1251 -	1257	1253.47	9.56E+01	89.55	1.37E+03	.....
	75	1280.32	1276 -	1284	1279.85	2.05E+02	114.18	1.89E+03	.....
	76	1315.49	1313 -	1318	1315.04	5.90E+01	73.23	1.02E+03	.....
	77	1377.18	1371 -	1381	1376.76	6.55E+02	135.12	2.09E+03	.....
	78	1385.97	1382 -	1393	1385.55	1.73E+02	134.64	2.17E+03	.....
M	79	1401.17	1393 -	1411	1400.76	2.30E+02	107.15	1.58E+03	.....
m	80	1407.86	1393 -	1411	1407.46	3.39E+02	109.42	1.61E+03	EU-152
	81	1442.13	1438 -	1445	1441.74	1.09E+02	86.53	1.17E+03	.....
	82	1459.54	1454 -	1464	1459.16	4.34E+02	118.58	1.64E+03	.....
M	83	1495.38	1489 -	1504	1495.02	2.77E+02	99.77	1.34E+03	.....
m	84	1500.99	1489 -	1504	1500.63	2.20E+02	90.42	1.19E+03	.....
	85	1510.06	1505 -	1515	1509.71	3.61E+02	117.19	1.64E+03	.....
M	86	1580.58	1574 -	1597	1580.26	2.06E+02	94.55	1.10E+03	.....
m	87	1587.58	1574 -	1597	1587.26	9.57E+02	105.83	1.06E+03	.....
m	88	1592.25	1574 -	1597	1591.94	1.33E+03	124.44	1.33E+03	.....
	89	1605.89	1602 -	1610	1605.59	8.93E+01	85.44	1.07E+03	.....
M	90	1620.51	1612 -	1634	1620.21	4.07E+02	94.32	1.11E+03	BI-212
m	91	1630.21	1612 -	1634	1629.92	4.91E+02	94.13	1.03E+03	.....
	92	1638.41	1635 -	1645	1638.13	1.82E+02	98.11	1.18E+03	.....
	93	1660.52	1656 -	1664	1660.25	1.06E+02	85.79	1.07E+03	.....
	94	1684.00	1681 -	1688	1683.74	8.09E+01	72.03	8.16E+02	.....
	95	1710.73	1708 -	1713	1710.49	4.55E+01	53.10	5.27E+02	.....
	96	1719.36	1715 -	1724	1719.12	9.24E+01	79.69	8.53E+02	.....
	97	1729.01	1724 -	1734	1728.78	3.97E+02	96.26	1.03E+03	.....
	98	1764.03	1756 -	1771	1763.82	2.11E+03	152.67	1.49E+03	BI-214
	99	1847.24	1841 -	1856	1847.08	3.57E+02	122.98	1.38E+03	.....
	100	1871.82	1867 -	1876	1871.67	7.45E+01	85.92	1.02E+03	.....
	101	2084.64	2082 -	2088	2084.61	5.28E+01	59.63	6.12E+02	.....
	102	2102.94	2096 -	2110	2102.92	9.72E+02	133.04	1.45E+03	.....
	103	2116.57	2111 -	2124	2116.56	1.20E+02	114.17	1.40E+03	.....
	104	2203.66	2198 -	2211	2203.71	5.52E+02	124.45	1.47E+03	BI-214
	105	2446.88	2442 -	2451	2447.09	1.36E+02	83.03	9.00E+02	.....
	106	2613.83	2606 -	2622	2614.14	5.86E+03	163.44	3.06E+02	TL-208
	107	2771.97	2767 -	2777	2772.40	2.84E+01	17.87	2.72E+01	.....
	108	2839.47	2836 -	2845	2839.94	1.48E+01	18.55	4.23E+01	.....
	109	2966.61	2963 -	2970	2967.18	1.15E+01	13.71	2.30E+01	.....
	110	3024.65	3021 -	3028	3025.26	1.17E+01	10.77	1.06E+01	.....
	111	3072.41	3067 -	3076	3073.06	6.22E+00	7.81	5.56E+00	.....
	112	3124.23	3120 -	3129	3124.92	1.95E+01	10.63	4.95E+00	.....
	113	3197.07	3193 -	3202	3197.81	5.93E+01	17.49	9.38E+00	.....

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 5:14:38PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	25.16	5.26E+02	471.83	5.26E-03	1.56E-03
M	2	34.62	3.79E+03	781.82	1.06E-02	1.56E-03
m	3	39.29	1.14E+03	475.07	1.31E-02	1.56E-03
	4	46.61	8.20E+02	483.96	1.65E-02	1.56E-03
	5	57.14	5.38E+03	580.21	2.01E-02	1.56E-03
	6	64.14	5.06E+03	771.19	2.17E-02	1.66E-03
M	7	76.33	6.38E+04	1181.39	2.32E-02	1.92E-03
m	8	84.38	6.34E+03	1032.84	2.36E-02	2.09E-03
m	9	87.12	1.81E+04	967.75	2.37E-02	2.15E-03
m	10	90.16	9.30E+03	751.60	2.37E-02	2.13E-03
m	11	93.19	1.34E+04	723.10	2.36E-02	2.09E-03
	12	99.30	1.16E+03	635.38	2.35E-02	2.00E-03
	13	105.24	1.98E+03	568.11	2.32E-02	1.91E-03
	14	115.30	1.39E+03	551.27	2.26E-02	1.75E-03
	15	129.14	5.25E+03	717.04	2.15E-02	1.63E-03
	16	144.32	1.05E+03	541.53	2.03E-02	1.57E-03
	17	153.85	2.12E+03	597.24	1.95E-02	1.54E-03
	18	185.89	7.32E+03	697.74	1.69E-02	1.40E-03
	19	209.39	6.61E+03	590.78	1.53E-02	1.28E-03
	20	216.46	6.47E+02	491.72	1.49E-02	1.25E-03
M	21	238.65	7.10E+04	709.32	1.36E-02	1.14E-03
m	22	241.45	1.17E+04	737.46	1.34E-02	1.13E-03
	23	258.54	7.24E+02	395.39	1.26E-02	1.05E-03
M	24	270.26	5.16E+03	405.40	1.20E-02	9.90E-04
m	25	277.30	2.87E+03	392.11	1.17E-02	9.56E-04
M	26	295.24	1.13E+04	413.78	1.10E-02	9.13E-04
m	27	300.14	4.19E+03	381.70	1.08E-02	9.03E-04
	28	327.92	2.93E+03	397.43	9.91E-03	8.44E-04
	29	338.42	1.30E+04	499.24	9.60E-03	8.22E-04
	30	351.89	1.91E+04	527.78	9.22E-03	7.94E-04
	31	409.49	1.76E+03	327.74	7.88E-03	7.03E-04
	32	441.06	4.05E+02	281.94	7.30E-03	6.90E-04
	33	453.60	4.35E+02	279.77	7.09E-03	6.85E-04
	34	463.04	3.78E+03	345.22	6.94E-03	6.81E-04

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	35	510.71	6.75E+03	373.24	6.29E-03	6.61E-04
	36	562.77	8.51E+02	272.51	5.70E-03	6.40E-04
	37	571.34	2.54E+02	217.07	5.62E-03	6.36E-04
	38	583.10	1.92E+04	433.93	5.51E-03	6.31E-04
	39	609.24	1.30E+04	355.42	5.27E-03	6.20E-04
	40	621.55	1.35E+02	148.89	5.17E-03	6.15E-04
	41	641.00	2.15E+02	169.72	5.02E-03	6.07E-04
M	42	722.16	9.66E+01	73.62	4.48E-03	5.23E-04
m	43	727.12	3.87E+03	221.01	4.45E-03	5.17E-04
	44	742.97	1.38E+02	156.41	4.36E-03	4.97E-04
	45	754.77	5.75E+02	215.10	4.30E-03	4.82E-04
M	46	768.22	9.70E+02	184.87	4.23E-03	4.65E-04
m	47	772.12	5.89E+02	164.05	4.21E-03	4.60E-04
M	48	781.93	2.79E+02	139.40	4.16E-03	4.48E-04
m	49	785.54	7.51E+02	181.18	4.14E-03	4.43E-04
	50	794.79	2.04E+03	204.47	4.10E-03	4.32E-04
	51	806.09	2.21E+02	163.18	4.04E-03	4.17E-04
M	52	830.49	2.43E+02	109.06	3.94E-03	3.87E-04
m	53	835.46	8.18E+02	180.12	3.91E-03	3.80E-04
m	54	840.17	5.13E+02	164.34	3.89E-03	3.75E-04
	55	860.39	2.12E+03	214.46	3.81E-03	3.49E-04
	56	873.92	7.99E+01	95.54	3.76E-03	3.32E-04
	57	892.79	1.95E+02	125.71	3.69E-03	3.08E-04
M	58	904.06	4.59E+02	173.01	3.64E-03	3.01E-04
m	59	911.01	1.18E+04	248.91	3.62E-03	2.99E-04
	60	922.24	8.30E+01	101.38	3.58E-03	2.96E-04
	61	933.68	6.88E+02	186.30	3.54E-03	2.94E-04
M	62	964.51	2.13E+03	149.01	3.44E-03	2.86E-04
m	63	968.74	6.93E+03	218.92	3.43E-03	2.85E-04
	64	987.49	1.21E+02	113.60	3.37E-03	2.81E-04
	65	1000.55	3.63E+02	151.37	3.33E-03	2.78E-04
	66	1078.51	2.18E+02	132.17	3.12E-03	2.60E-04
	67	1092.84	1.32E+02	131.77	3.08E-03	2.56E-04
	68	1110.15	1.22E+02	111.98	3.04E-03	2.52E-04
	69	1120.00	2.60E+03	181.89	3.02E-03	2.50E-04
	70	1154.67	3.53E+02	109.20	2.94E-03	2.42E-04
	71	1208.94	1.58E+02	124.41	2.82E-03	2.35E-04
M	72	1237.80	8.82E+02	116.72	2.76E-03	2.33E-04
m	73	1246.35	1.73E+02	124.06	2.75E-03	2.33E-04
	74	1253.95	9.56E+01	89.55	2.73E-03	2.32E-04
	75	1280.32	2.05E+02	114.18	2.68E-03	2.31E-04
	76	1315.49	5.90E+01	73.23	2.62E-03	2.28E-04
	77	1377.18	6.55E+02	135.12	2.51E-03	2.20E-04
	78	1385.97	1.73E+02	134.64	2.50E-03	2.19E-04
M	79	1401.17	2.30E+02	107.15	2.48E-03	2.17E-04
m	80	1407.86	3.39E+02	109.42	2.47E-03	2.16E-04
	81	1442.13	1.09E+02	86.53	2.41E-03	2.11E-04
	82	1459.54	4.34E+02	118.58	2.39E-03	2.08E-04
M	83	1495.38	2.77E+02	99.77	2.33E-03	2.03E-04
m	84	1500.99	2.20E+02	90.42	2.33E-03	2.02E-04
	85	1510.06	3.61E+02	117.19	2.31E-03	2.00E-04
M	86	1580.58	2.06E+02	94.55	2.22E-03	1.90E-04
m	87	1587.58	9.57E+02	105.83	2.21E-03	1.89E-04

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	88	1592.25	1.33E+03	124.44	2.20E-03	1.88E-04
	89	1605.89	8.93E+01	85.44	2.19E-03	1.86E-04
M	90	1620.51	4.07E+02	94.32	2.17E-03	1.84E-04
m	91	1630.21	4.91E+02	94.13	2.16E-03	1.82E-04
	92	1638.41	1.82E+02	98.11	2.15E-03	1.81E-04
	93	1660.52	1.06E+02	85.79	2.12E-03	1.78E-04
	94	1684.00	8.09E+01	72.03	2.09E-03	1.74E-04
	95	1710.73	4.55E+01	53.10	2.06E-03	1.70E-04
	96	1719.36	9.24E+01	79.69	2.05E-03	1.69E-04
	97	1729.01	3.97E+02	96.26	2.04E-03	1.67E-04
	98	1764.03	2.11E+03	152.67	2.00E-03	1.62E-04
	99	1847.24	3.57E+02	122.98	1.91E-03	1.51E-04
	100	1871.82	7.45E+01	85.92	1.88E-03	1.51E-04
	101	2084.64	5.28E+01	59.63	1.68E-03	1.51E-04
	102	2102.94	9.72E+02	133.04	1.67E-03	1.51E-04
	103	2116.57	1.20E+02	114.17	1.66E-03	1.51E-04
	104	2203.66	5.52E+02	124.45	1.58E-03	1.51E-04
	105	2446.88	1.36E+02	83.03	1.40E-03	1.51E-04
	106	2613.83	5.86E+03	163.44	1.28E-03	1.51E-04
	107	2771.97	2.84E+01	17.87	1.18E-03	1.51E-04
	108	2839.47	1.48E+01	18.55	1.14E-03	1.51E-04
	109	2966.61	1.15E+01	13.71	1.07E-03	1.51E-04
	110	3024.65	1.17E+01	10.77	1.03E-03	1.51E-04
	111	3072.41	6.22E+00	7.81	1.01E-03	1.51E-04
	112	3124.23	1.95E+01	10.63	9.81E-04	1.51E-04
	113	3197.07	5.93E+01	17.49	9.44E-04	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 5:14:38PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	25.16	5.26E+02	471.83			5.26E+02	4.72E+02
M	2	34.62	3.79E+03	781.82			3.79E+03	7.82E+02
m	3	39.29	1.14E+03	475.07			1.14E+03	4.75E+02
	4	46.61	8.20E+02	483.96	2.81E+01	7.56E+00	7.92E+02	4.84E+02

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	5	57.14	5.38E+03	580.21			5.38E+03	5.80E+02
	6	64.14	5.06E+03	771.19	5.28E+01	8.63E+00	5.00E+03	7.71E+02
M	7	76.33	6.38E+04	1181.39			6.38E+04	1.18E+03
m	8	84.38	6.34E+03	1032.84	7.68E+00	3.13E+00	6.33E+03	1.03E+03
m	9	87.12	1.81E+04	967.75			1.81E+04	9.68E+02
m	10	90.16	9.30E+03	751.60			9.30E+03	7.52E+02
m	11	93.19	1.34E+04	723.10	6.21E+01	4.71E+00	1.34E+04	7.23E+02
	12	99.30	1.16E+03	635.38			1.16E+03	6.35E+02
	13	105.24	1.98E+03	568.11			1.98E+03	5.68E+02
	14	115.30	1.39E+03	551.27			1.39E+03	5.51E+02
	15	129.14	5.25E+03	717.04			5.25E+03	7.17E+02
	16	144.32	1.05E+03	541.53			1.05E+03	5.42E+02
	17	153.85	2.12E+03	597.24			2.12E+03	5.97E+02
	18	185.89	7.32E+03	697.74	2.34E+01	8.57E+00	7.30E+03	6.98E+02
	19	209.39	6.61E+03	590.78			6.61E+03	5.91E+02
	20	216.46	6.47E+02	491.72			6.47E+02	4.92E+02
M	21	238.65	7.10E+04	709.32	8.90E+00	6.12E+00	7.10E+04	7.09E+02
m	22	241.45	1.17E+04	737.46			1.17E+04	7.37E+02
	23	258.54	7.24E+02	395.39			7.24E+02	3.95E+02
M	24	270.26	5.16E+03	405.40			5.16E+03	4.05E+02
m	25	277.30	2.87E+03	392.11			2.87E+03	3.92E+02
M	26	295.24	1.13E+04	413.78			1.13E+04	4.14E+02
m	27	300.14	4.19E+03	381.70			4.19E+03	3.82E+02
	28	327.92	2.93E+03	397.43			2.93E+03	3.97E+02
	29	338.42	1.30E+04	499.24			1.30E+04	4.99E+02
	30	351.89	1.91E+04	527.78			1.91E+04	5.28E+02
	31	409.49	1.76E+03	327.74			1.76E+03	3.28E+02
	32	441.06	4.05E+02	281.94			4.05E+02	2.82E+02
	33	453.60	4.35E+02	279.77			4.35E+02	2.80E+02
	34	463.04	3.78E+03	345.22			3.78E+03	3.45E+02
	35	510.71	6.75E+03	373.24	4.43E+01	4.80E+00	6.71E+03	3.73E+02
	36	562.77	8.51E+02	272.51			8.51E+02	2.73E+02
	37	571.34	2.54E+02	217.07			2.54E+02	2.17E+02
	38	583.10	1.92E+04	433.93	3.56E+00	2.78E+00	1.92E+04	4.34E+02
	39	609.24	1.30E+04	355.42			1.30E+04	3.55E+02
	40	621.55	1.35E+02	148.89			1.35E+02	1.49E+02
	41	641.00	2.15E+02	169.72			2.15E+02	1.70E+02
M	42	722.16	9.66E+01	73.62			9.66E+01	7.36E+01
m	43	727.12	3.87E+03	221.01			3.87E+03	2.21E+02
	44	742.97	1.38E+02	156.41			1.38E+02	1.56E+02
	45	754.77	5.75E+02	215.10			5.75E+02	2.15E+02
M	46	768.22	9.70E+02	184.87			9.70E+02	1.85E+02
m	47	772.12	5.89E+02	164.05			5.89E+02	1.64E+02
M	48	781.93	2.79E+02	139.40			2.79E+02	1.39E+02
m	49	785.54	7.51E+02	181.18			7.51E+02	1.81E+02
	50	794.79	2.04E+03	204.47			2.04E+03	2.04E+02
	51	806.09	2.21E+02	163.18			2.21E+02	1.63E+02
M	52	830.49	2.43E+02	109.06			2.43E+02	1.09E+02
m	53	835.46	8.18E+02	180.12			8.18E+02	1.80E+02
m	54	840.17	5.13E+02	164.34			5.13E+02	1.64E+02
	55	860.39	2.12E+03	214.46			2.12E+03	2.14E+02
	56	873.92	7.99E+01	95.54			7.99E+01	9.55E+01
	57	892.79	1.95E+02	125.71			1.95E+02	1.26E+02
M	58	904.06	4.59E+02	173.01			4.59E+02	1.73E+02

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	59	911.01	1.18E+04	248.91			1.18E+04	2.49E+02
	60	922.24	8.30E+01	101.38			8.30E+01	1.01E+02
	61	933.68	6.88E+02	186.30			6.88E+02	1.86E+02
M	62	964.51	2.13E+03	149.01			2.13E+03	1.49E+02
m	63	968.74	6.93E+03	218.92			6.93E+03	2.19E+02
	64	987.49	1.21E+02	113.60			1.21E+02	1.14E+02
	65	1000.55	3.63E+02	151.37			3.63E+02	1.51E+02
	66	1078.51	2.18E+02	132.17			2.18E+02	1.32E+02
	67	1092.84	1.32E+02	131.77			1.32E+02	1.32E+02
	68	1110.15	1.22E+02	111.98			1.22E+02	1.12E+02
	69	1120.00	2.60E+03	181.89			2.60E+03	1.82E+02
	70	1154.67	3.53E+02	109.20			3.53E+02	1.09E+02
	71	1208.94	1.58E+02	124.41			1.58E+02	1.24E+02
M	72	1237.80	8.82E+02	116.72			8.82E+02	1.17E+02
m	73	1246.35	1.73E+02	124.06			1.73E+02	1.24E+02
	74	1253.95	9.56E+01	89.55			9.56E+01	8.96E+01
	75	1280.32	2.05E+02	114.18			2.05E+02	1.14E+02
	76	1315.49	5.90E+01	73.23			5.90E+01	7.32E+01
	77	1377.18	6.55E+02	135.12			6.55E+02	1.35E+02
	78	1385.97	1.73E+02	134.64			1.73E+02	1.35E+02
M	79	1401.17	2.30E+02	107.15			2.30E+02	1.07E+02
m	80	1407.86	3.39E+02	109.42			3.39E+02	1.09E+02
	81	1442.13	1.09E+02	86.53			1.09E+02	8.65E+01
	82	1459.54	4.34E+02	118.58			4.34E+02	1.19E+02
M	83	1495.38	2.77E+02	99.77			2.77E+02	9.98E+01
m	84	1500.99	2.20E+02	90.42			2.20E+02	9.04E+01
	85	1510.06	3.61E+02	117.19			3.61E+02	1.17E+02
M	86	1580.58	2.06E+02	94.55			2.06E+02	9.46E+01
m	87	1587.58	9.57E+02	105.83			9.57E+02	1.06E+02
m	88	1592.25	1.33E+03	124.44			1.33E+03	1.24E+02
	89	1605.89	8.93E+01	85.44			8.93E+01	8.54E+01
M	90	1620.51	4.07E+02	94.32			4.07E+02	9.43E+01
m	91	1630.21	4.91E+02	94.13			4.91E+02	9.41E+01
	92	1638.41	1.82E+02	98.11			1.82E+02	9.81E+01
	93	1660.52	1.06E+02	85.79			1.06E+02	8.58E+01
	94	1684.00	8.09E+01	72.03			8.09E+01	7.20E+01
	95	1710.73	4.55E+01	53.10			4.55E+01	5.31E+01
	96	1719.36	9.24E+01	79.69			9.24E+01	7.97E+01
	97	1729.01	3.97E+02	96.26			3.97E+02	9.63E+01
	98	1764.03	2.11E+03	152.67			2.11E+03	1.53E+02
	99	1847.24	3.57E+02	122.98			3.57E+02	1.23E+02
	100	1871.82	7.45E+01	85.92			7.45E+01	8.59E+01
	101	2084.64	5.28E+01	59.63			5.28E+01	5.96E+01
	102	2102.94	9.72E+02	133.04			9.72E+02	1.33E+02
	103	2116.57	1.20E+02	114.17			1.20E+02	1.14E+02
	104	2203.66	5.52E+02	124.45			5.52E+02	1.24E+02
	105	2446.88	1.36E+02	83.03			1.36E+02	8.30E+01
	106	2613.83	5.86E+03	163.44			5.86E+03	1.63E+02
	107	2771.97	2.84E+01	17.87			2.84E+01	1.79E+01
	108	2839.47	1.48E+01	18.55			1.48E+01	1.85E+01
	109	2966.61	1.15E+01	13.71			1.15E+01	1.37E+01
	110	3024.65	1.17E+01	10.77			1.17E+01	1.08E+01
	111	3072.41	6.22E+00	7.81			6.22E+00	7.81E+00
	112	3124.23	1.95E+01	10.63			1.95E+01	1.06E+01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
113	3197.07	5.93E+01	17.49			5.93E+01	1.75E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 5:14:38PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	25.16	5.26E+02	471.83			5.26E+02	4.72E+02
M	2	34.62	3.79E+03	781.82			3.79E+03	7.82E+02
m	3	39.29	1.14E+03	475.07			1.14E+03	4.75E+02
	4	46.61	8.20E+02	483.96	2.81E+01	7.56E+00	7.92E+02	4.84E+02
	5	57.14	5.38E+03	580.21			5.38E+03	5.80E+02
	6	64.14	5.06E+03	771.19	5.28E+01	8.63E+00	5.00E+03	7.71E+02
M	7	76.33	6.38E+04	1181.39			6.38E+04	1.18E+03
m	8	84.38	6.34E+03	1032.84	7.68E+00	3.13E+00	6.33E+03	1.03E+03
m	9	87.12	1.81E+04	967.75			1.81E+04	9.68E+02
m	10	90.16	9.30E+03	751.60			9.30E+03	7.52E+02
m	11	93.19	1.34E+04	723.10	6.21E+01	4.71E+00	1.34E+04	7.23E+02
	12	99.30	1.16E+03	635.38			1.16E+03	6.35E+02
	13	105.24	1.98E+03	568.11			1.98E+03	5.68E+02
	14	115.30	1.39E+03	551.27			1.39E+03	5.51E+02
	15	129.14	5.25E+03	717.04			5.25E+03	7.17E+02
	16	144.32	1.05E+03	541.53			1.05E+03	5.42E+02
	17	153.85	2.12E+03	597.24			2.12E+03	5.97E+02
	18	185.89	7.32E+03	697.74	2.34E+01	8.57E+00	7.30E+03	6.98E+02
	19	209.39	6.61E+03	590.78			6.61E+03	5.91E+02
	20	216.46	6.47E+02	491.72			6.47E+02	4.92E+02
M	21	238.65	7.10E+04	709.32	8.90E+00	6.12E+00	7.10E+04	7.09E+02
m	22	241.45	1.17E+04	737.46			1.17E+04	7.37E+02
	23	258.54	7.24E+02	395.39			7.24E+02	3.95E+02
M	24	270.26	5.16E+03	405.40			5.16E+03	4.05E+02
m	25	277.30	2.87E+03	392.11			2.87E+03	3.92E+02
M	26	295.24	1.13E+04	413.78			1.13E+04	4.14E+02
m	27	300.14	4.19E+03	381.70			4.19E+03	3.82E+02

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	28	327.92	2.93E+03	397.43			2.93E+03	3.97E+02
	29	338.42	1.30E+04	499.24			1.30E+04	4.99E+02
	30	351.89	1.91E+04	527.78			1.91E+04	5.28E+02
	31	409.49	1.76E+03	327.74			1.76E+03	3.28E+02
	32	441.06	4.05E+02	281.94			4.05E+02	2.82E+02
	33	453.60	4.35E+02	279.77			4.35E+02	2.80E+02
	34	463.04	3.78E+03	345.22			3.78E+03	3.45E+02
	35	510.71	6.75E+03	373.24	4.43E+01	4.80E+00	6.71E+03	3.73E+02
	36	562.77	8.51E+02	272.51			8.51E+02	2.73E+02
	37	571.34	2.54E+02	217.07			2.54E+02	2.17E+02
	38	583.10	1.92E+04	433.93	3.56E+00	2.78E+00	1.92E+04	4.34E+02
	39	609.24	1.30E+04	355.42			1.30E+04	3.55E+02
	40	621.55	1.35E+02	148.89			1.35E+02	1.49E+02
	41	641.00	2.15E+02	169.72			2.15E+02	1.70E+02
M	42	722.16	9.66E+01	73.62			9.66E+01	7.36E+01
m	43	727.12	3.87E+03	221.01			3.87E+03	2.21E+02
	44	742.97	1.38E+02	156.41			1.38E+02	1.56E+02
	45	754.77	5.75E+02	215.10			5.75E+02	2.15E+02
M	46	768.22	9.70E+02	184.87			9.70E+02	1.85E+02
m	47	772.12	5.89E+02	164.05			5.89E+02	1.64E+02
M	48	781.93	2.79E+02	139.40			2.79E+02	1.39E+02
m	49	785.54	7.51E+02	181.18			7.51E+02	1.81E+02
	50	794.79	2.04E+03	204.47			2.04E+03	2.04E+02
	51	806.09	2.21E+02	163.18			2.21E+02	1.63E+02
M	52	830.49	2.43E+02	109.06			2.43E+02	1.09E+02
m	53	835.46	8.18E+02	180.12			8.18E+02	1.80E+02
m	54	840.17	5.13E+02	164.34			5.13E+02	1.64E+02
	55	860.39	2.12E+03	214.46			2.12E+03	2.14E+02
	56	873.92	7.99E+01	95.54			7.99E+01	9.55E+01
	57	892.79	1.95E+02	125.71			1.95E+02	1.26E+02
M	58	904.06	4.59E+02	173.01			4.59E+02	1.73E+02
m	59	911.01	1.18E+04	248.91			1.18E+04	2.49E+02
	60	922.24	8.30E+01	101.38			8.30E+01	1.01E+02
	61	933.68	6.88E+02	186.30			6.88E+02	1.86E+02
M	62	964.51	2.13E+03	149.01			2.13E+03	1.49E+02
m	63	968.74	6.93E+03	218.92			6.93E+03	2.19E+02
	64	987.49	1.21E+02	113.60			1.21E+02	1.14E+02
	65	1000.55	3.63E+02	151.37			3.63E+02	1.51E+02
	66	1078.51	2.18E+02	132.17			2.18E+02	1.32E+02
	67	1092.84	1.32E+02	131.77			1.32E+02	1.32E+02
	68	1110.15	1.22E+02	111.98			1.22E+02	1.12E+02
	69	1120.00	2.60E+03	181.89			2.60E+03	1.82E+02
	70	1154.67	3.53E+02	109.20			3.53E+02	1.09E+02
	71	1208.94	1.58E+02	124.41			1.58E+02	1.24E+02
M	72	1237.80	8.82E+02	116.72			8.82E+02	1.17E+02
m	73	1246.35	1.73E+02	124.06			1.73E+02	1.24E+02
	74	1253.95	9.56E+01	89.55			9.56E+01	8.96E+01
	75	1280.32	2.05E+02	114.18			2.05E+02	1.14E+02
	76	1315.49	5.90E+01	73.23			5.90E+01	7.32E+01
	77	1377.18	6.55E+02	135.12			6.55E+02	1.35E+02
	78	1385.97	1.73E+02	134.64			1.73E+02	1.35E+02
M	79	1401.17	2.30E+02	107.15			2.30E+02	1.07E+02
m	80	1407.86	3.39E+02	109.42			3.39E+02	1.09E+02
	81	1442.13	1.09E+02	86.53			1.09E+02	8.65E+01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	82	1459.54	4.34E+02	118.58			4.34E+02	1.19E+02
M	83	1495.38	2.77E+02	99.77			2.77E+02	9.98E+01
m	84	1500.99	2.20E+02	90.42			2.20E+02	9.04E+01
	85	1510.06	3.61E+02	117.19			3.61E+02	1.17E+02
M	86	1580.58	2.06E+02	94.55			2.06E+02	9.46E+01
m	87	1587.58	9.57E+02	105.83			9.57E+02	1.06E+02
m	88	1592.25	1.33E+03	124.44			1.33E+03	1.24E+02
	89	1605.89	8.93E+01	85.44			8.93E+01	8.54E+01
M	90	1620.51	4.07E+02	94.32			4.07E+02	9.43E+01
m	91	1630.21	4.91E+02	94.13			4.91E+02	9.41E+01
	92	1638.41	1.82E+02	98.11			1.82E+02	9.81E+01
	93	1660.52	1.06E+02	85.79			1.06E+02	8.58E+01
	94	1684.00	8.09E+01	72.03			8.09E+01	7.20E+01
	95	1710.73	4.55E+01	53.10			4.55E+01	5.31E+01
	96	1719.36	9.24E+01	79.69			9.24E+01	7.97E+01
	97	1729.01	3.97E+02	96.26			3.97E+02	9.63E+01
	98	1764.03	2.11E+03	152.67			2.11E+03	1.53E+02
	99	1847.24	3.57E+02	122.98			3.57E+02	1.23E+02
	100	1871.82	7.45E+01	85.92			7.45E+01	8.59E+01
	101	2084.64	5.28E+01	59.63			5.28E+01	5.96E+01
	102	2102.94	9.72E+02	133.04			9.72E+02	1.33E+02
	103	2116.57	1.20E+02	114.17			1.20E+02	1.14E+02
	104	2203.66	5.52E+02	124.45			5.52E+02	1.24E+02
	105	2446.88	1.36E+02	83.03			1.36E+02	8.30E+01
	106	2613.83	5.86E+03	163.44			5.86E+03	1.63E+02
	107	2771.97	2.84E+01	17.87			2.84E+01	1.79E+01
	108	2839.47	1.48E+01	18.55			1.48E+01	1.85E+01
	109	2966.61	1.15E+01	13.71			1.15E+01	1.37E+01
	110	3024.65	1.17E+01	10.77			1.17E+01	1.08E+01
	111	3072.41	6.22E+00	7.81			6.22E+00	7.81E+00
	112	3124.23	1.95E+01	10.63			1.95E+01	1.06E+01
	113	3197.07	5.93E+01	17.49			5.93E+01	1.75E+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 1707078-13

HTC-A01-S004-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
MN-54	0.938	834.83	*	99.97	2.43E+00	5.86E-01
RU-106	0.986	621.84	*	9.80	3.01E+00	3.35E+00
CD-109	0.874	88.03	*	3.72	2.24E+02	2.70E+01
I-125	0.874	35.49	*	6.49	1.53E+02	3.89E+01
PM-146	0.435	453.90	*	39.94	1.50E+00	9.76E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.424	91.11	*	28.90	4.65E+03	5.63E+02
		531.02		13.10		
EU-155	0.964	86.50	*	30.90	2.43E+01	2.56E+00
		105.30	*	20.70	4.03E+00	1.21E+00
TL-208	0.945	583.14	*	30.22	1.09E+02	1.28E+01
		860.37	*	4.48	1.17E+02	1.60E+01
		2614.66	*	35.85	1.21E+02	1.47E+01
PB-210	0.998	46.50	*	4.25	1.08E+01	6.67E+00
BI-212	0.999	727.17	*	11.80	6.97E+01	9.02E+00
		1620.62	*	2.75	6.47E+01	1.59E+01
PB-212	1.000	238.63	*	44.60	1.11E+02	9.39E+00
		300.09	*	3.41	1.07E+02	1.32E+01
BI-214	0.988	609.31	*	46.30	5.05E+01	6.10E+00
		1120.29	*	15.10	5.40E+01	5.86E+00
		1764.49	*	15.80	6.32E+01	6.87E+00
		2204.22	*	4.98	6.63E+01	1.62E+01
PB-214	1.000	295.21	*	19.19	5.06E+01	4.58E+00
		351.92	*	37.19	5.27E+01	4.77E+00
RA-224	0.965	240.98	*	3.95	2.09E+02	2.19E+01
RA-225	0.756	40.00	*	31.00	2.10E+02	9.12E+01
RA-226	0.984	186.21	*	3.28	1.24E+02	2.28E+02
AC-228	0.993	338.32	*	11.40	1.12E+02	1.05E+01
		911.07	*	27.70	1.12E+02	9.52E+00
		969.11	*	16.60	1.15E+02	1.03E+01
TH-231	0.973	25.64	*	14.70	6.45E+00	6.09E+00
		84.21	*	6.40	3.96E+01	7.35E+00
PA-234M	0.964	1001.03	*	0.92	1.12E+02	4.77E+01
TH-234	0.891	63.29	*	3.80	5.74E+01	9.88E+00
CM-243	0.357	209.75	*	3.29	1.25E+02	1.53E+01
		228.14		10.60		
		277.60	*	14.00	1.66E+01	2.64E+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 1707078-13

HTC-A01-S004-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 5:14:38PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	5	57.14	1.49353E+00	5.40	Tol.	CE-143
M	7	76.33	1.77332E+01	0.93		
m	11	93.19	3.71100E+00	2.71	Sum	
	12	99.30	3.21381E-01	27.46	Sum	
	14	115.30	3.85070E-01	19.88	Sum	
	15	129.14	1.45868E+00	6.83	Sum	
	16	144.32	2.91408E-01	25.81	Sum	
	17	153.85	5.89290E-01	14.08	Sum	
	20	216.46	1.79747E-01	37.99		
	23	258.54	2.01220E-01	27.29		
M	24	270.26	1.43314E+00	3.93	Sum	
	28	327.92	8.13719E-01	6.78	Sum	
	31	409.49	4.90000E-01	9.29		
	32	441.06	1.12445E-01	34.82		
	34	463.04	1.05064E+00	4.56	Sum	
	35	510.71	1.86267E+00	2.78		
	36	562.77	2.36515E-01	16.00	Tol.	CS-134
	37	571.34	7.06519E-02	42.67		
	41	641.00	5.96507E-02	39.52		
M	42	722.16	2.68284E-02	38.11	Tol.	AG-108M I-131
	44	742.97	3.83100E-02	56.70	D-Esc	
	45	754.77	1.59722E-01	18.70		
M	46	768.22	2.69384E-01	9.53	Sum	
m	47	772.12	1.63700E-01	13.92		
M	48	781.93	7.75335E-02	24.97		
m	49	785.54	2.08614E-01	12.06		
	50	794.79	5.66415E-01	5.01	Sum	
	51	806.09	6.14910E-02	36.86	Sum	
M	52	830.49	6.74160E-02	22.47	Sum	
m	54	840.17	1.42553E-01	16.01		
	56	873.92	2.22049E-02	59.76	Sum	
	57	892.79	5.40447E-02	32.31		
M	58	904.06	1.27536E-01	18.84	Sum	
	60	922.24	2.30657E-02	61.05	Sum	
	61	933.68	1.91089E-01	13.54		
M	62	964.51	5.90901E-01	3.50		
	64	987.49	3.37428E-02	46.76		
	66	1078.51	6.05987E-02	30.29	Sum	
	67	1092.84	3.66602E-02	49.92	Tol.	LU-172
	68	1110.15	3.39546E-02	45.81	S-Esc	
	70	1154.67	9.81437E-02	15.45	Sum	
	71	1208.94	4.39974E-02	39.27		
M	72	1237.80	2.45081E-01	6.61	Tol.	CO-56

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	73	1246.35	4.79740E-02	35.92	Sum	
	74	1253.95	2.65533E-02	46.84	S-Esc	
	75	1280.32	5.70157E-02	27.81		
	76	1315.49	1.63947E-02	62.04		
	77	1377.18	1.81989E-01	10.31		
	78	1385.97	4.79861E-02	38.97		
M	79	1401.17	6.38355E-02	23.31		
m	80	1407.86	9.42877E-02	16.12		
	81	1442.13	3.02701E-02	39.70		
	82	1459.54	1.20608E-01	13.66		
M	83	1495.38	7.68985E-02	18.02		
m	84	1500.99	6.11640E-02	20.53		
	85	1510.06	1.00139E-01	16.25		
M	86	1580.58	5.71628E-02	22.97		
m	87	1587.58	2.65818E-01	5.53	Sum	
m	88	1592.25	3.70350E-01	4.67	D-Esc	
	89	1605.89	2.48111E-02	47.83		
m	91	1630.21	1.36367E-01	9.59		
	92	1638.41	5.05874E-02	26.94	Sum	
	93	1660.52	2.94633E-02	40.44	Sum	
	94	1684.00	2.24659E-02	44.53	Sum	
	95	1710.73	1.26429E-02	58.34	Sum	
	96	1719.36	2.56623E-02	43.13		
	97	1729.01	1.10368E-01	12.11	Sum	
	99	1847.24	9.92888E-02	17.20	Sum	
	100	1871.82	2.06947E-02	57.66		
	101	2084.64	1.46619E-02	56.48		
	102	2102.94	2.69976E-01	6.84	S-Esc	
	103	2116.57	3.34156E-02	47.45	Sum	
	105	2446.88	3.77199E-02	30.57		
	107	2771.97	7.89021E-03	31.45		
	108	2839.47	4.12037E-03	62.52		
	109	2966.61	3.18841E-03	59.73	Sum	
	110	3024.65	3.25163E-03	46.00		
	111	3072.41	1.72840E-03	62.76		
	112	3124.23	5.42298E-03	27.23		
	113	3197.07	1.64757E-02	14.75	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 1707078-13

HTC-A01-S004-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
MN-54	0.93	834.83	*	99.97	2.43E+00	5.86E-01
RU-106	0.98	621.84	*	9.80	3.01E+00	3.35E+00
CD-109	0.87	88.03	*	3.72	2.24E+02	2.70E+01
I-125	0.87	35.49	*	6.49	1.53E+02	3.89E+01
PM-146	0.43	453.90	*	39.94	1.50E+00	9.76E-01
		735.90		14.01		
		747.13		13.10		
ND-147	0.42	91.11	*	28.90	4.65E+03	5.63E+02
		531.02		13.10		
EU-155	0.96	86.50	*	30.90	2.43E+01	2.56E+00
		105.30	*	20.70	4.03E+00	1.21E+00
TL-208	0.94	583.14	*	30.22	1.09E+02	1.28E+01
		860.37	*	4.48	1.17E+02	1.60E+01
		2614.66	*	35.85	1.21E+02	1.47E+01
PB-210	0.99	46.50	*	4.25	1.08E+01	6.67E+00
BI-212	0.99	727.17	*	11.80	6.97E+01	9.02E+00
		1620.62	*	2.75	6.47E+01	1.59E+01
PB-212	1.00	238.63	*	44.60	1.11E+02	9.39E+00
		300.09	*	3.41	1.07E+02	1.32E+01
BI-214	0.98	609.31	*	46.30	5.05E+01	6.10E+00
		1120.29	*	15.10	5.40E+01	5.86E+00
		1764.49	*	15.80	6.32E+01	6.87E+00
		2204.22	*	4.98	6.63E+01	1.62E+01
PB-214	1.00	295.21	*	19.19	5.06E+01	4.58E+00
		351.92	*	37.19	5.27E+01	4.77E+00
RA-224	0.96	240.98	*	3.95	2.09E+02	2.19E+01
RA-225	0.75	40.00	*	31.00	2.10E+02	9.12E+01
RA-226	0.98	186.21	*	3.28	1.24E+02	2.28E+02
AC-228	0.99	338.32	*	11.40	1.12E+02	1.05E+01
		911.07	*	27.70	1.12E+02	9.52E+00
		969.11	*	16.60	1.15E+02	1.03E+01
TH-231	0.97	25.64	*	14.70	6.45E+00	6.09E+00
		84.21	*	6.40	3.96E+01	7.35E+00
PA-234M	0.96	1001.03	*	0.92	1.12E+02	4.77E+01
TH-234	0.89	63.29	*	3.80	5.74E+01	9.88E+00
CM-243	0.35	209.75	*	3.29	1.25E+02	1.53E+01
		228.14		10.60		
		277.60	*	14.00	1.66E+01	2.64E+00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

* = 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
	MN-54	0.938	2.43E+00	5.86E-01	
	RU-106	0.986	3.01E+00	3.35E+00	
	CD-109	0.874	1.87E+02	2.60E+01	
	I-125	0.874	1.53E+02	3.89E+01	
X	SN-126	0.967			
	PM-146	0.435	1.50E+00	9.76E-01	
	ND-147	0.424	4.65E+03	5.63E+02	
	EU-155	0.964	4.03E+00	1.21E+00	
	TL-208	0.945	1.15E+02	8.26E+00	
	PB-210	0.998	1.08E+01	6.67E+00	
	BI-212	0.999	6.85E+01	7.85E+00	
	PB-212	1.000	1.10E+02	7.66E+00	
	BI-214	0.988	5.58E+01	3.51E+00	
	PB-214	1.000	5.16E+01	3.30E+00	
	RA-224	0.965	2.09E+02	2.19E+01	
	RA-225	0.756	2.10E+02	9.12E+01	
	RA-226	0.984	1.24E+02	2.28E+02	
	AC-228	0.993	1.13E+02	5.82E+00	
	TH-231	0.973	1.99E+01	4.69E+00	
	PA-234M	0.964	1.12E+02	4.77E+01	
	TH-234	0.891	5.74E+01	9.88E+00	
X	NP-237	0.942			
	CM-243	0.357	1.98E+01	2.61E+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 1707078-13

HTC-A01-S004-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 5:14:38PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	5	57.14	1.49353E+00	5.40	Tol.	CE-143
M	7	76.33	1.77332E+01	0.93		
m	11	93.19	3.71100E+00	2.71	Sum	
	12	99.30	3.21381E-01	27.46	Sum	
	14	115.30	3.85070E-01	19.88	Sum	
	15	129.14	1.45868E+00	6.83	Sum	
	16	144.32	2.91408E-01	25.81	Sum	
	17	153.85	5.89290E-01	14.08	Sum	
	20	216.46	1.79747E-01	37.99		
	23	258.54	2.01220E-01	27.29		
M	24	270.26	1.43314E+00	3.93	Sum	
	28	327.92	8.13719E-01	6.78	Sum	
	31	409.49	4.90000E-01	9.29		
	32	441.06	1.12445E-01	34.82		
	34	463.04	1.05064E+00	4.56	Sum	
	35	510.71	1.86267E+00	2.78		
	36	562.77	2.36515E-01	16.00	Tol.	CS-134
	37	571.34	7.06519E-02	42.67		
	41	641.00	5.96507E-02	39.52		
M	42	722.16	2.68284E-02	38.11	Tol.	AG-108M I-131
	44	742.97	3.83100E-02	56.70	D-Esc	
	45	754.77	1.59722E-01	18.70		
M	46	768.22	2.69384E-01	9.53	Sum	
m	47	772.12	1.63700E-01	13.92		
M	48	781.93	7.75335E-02	24.97		
m	49	785.54	2.08614E-01	12.06		
	50	794.79	5.66415E-01	5.01	Sum	
	51	806.09	6.14910E-02	36.86	Sum	
M	52	830.49	6.74160E-02	22.47	Sum	
m	54	840.17	1.42553E-01	16.01		
	56	873.92	2.22049E-02	59.76	Sum	
	57	892.79	5.40447E-02	32.31		
M	58	904.06	1.27536E-01	18.84	Sum	

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	60	922.24	2.30657E-02	61.05	Sum	
	61	933.68	1.91089E-01	13.54		
M	62	964.51	5.90901E-01	3.50		
	64	987.49	3.37428E-02	46.76		
	66	1078.51	6.05987E-02	30.29	Sum	
	67	1092.84	3.66602E-02	49.92	Tol.	LU-172
	68	1110.15	3.39546E-02	45.81	S-Esc	
	70	1154.67	9.81437E-02	15.45	Sum	
	71	1208.94	4.39974E-02	39.27		
M	72	1237.80	2.45081E-01	6.61	Tol.	CO-56
m	73	1246.35	4.79740E-02	35.92	Sum	
	74	1253.95	2.65533E-02	46.84	S-Esc	
	75	1280.32	5.70157E-02	27.81		
	76	1315.49	1.63947E-02	62.04		
	77	1377.18	1.81989E-01	10.31		
	78	1385.97	4.79861E-02	38.97		
M	79	1401.17	6.38355E-02	23.31		
m	80	1407.86	9.42877E-02	16.12		
	81	1442.13	3.02701E-02	39.70		
	82	1459.54	1.20608E-01	13.66		
M	83	1495.38	7.68985E-02	18.02		
m	84	1500.99	6.11640E-02	20.53		
	85	1510.06	1.00139E-01	16.25		
M	86	1580.58	5.71628E-02	22.97		
m	87	1587.58	2.65818E-01	5.53	Sum	
m	88	1592.25	3.70350E-01	4.67	D-Esc	
	89	1605.89	2.48111E-02	47.83		
m	91	1630.21	1.36367E-01	9.59		
	92	1638.41	5.05874E-02	26.94	Sum	
	93	1660.52	2.94633E-02	40.44	Sum	
	94	1684.00	2.24659E-02	44.53	Sum	
	95	1710.73	1.26429E-02	58.34	Sum	
	96	1719.36	2.56623E-02	43.13		
	97	1729.01	1.10368E-01	12.11	Sum	
	99	1847.24	9.92888E-02	17.20	Sum	
	100	1871.82	2.06947E-02	57.66		
	101	2084.64	1.46619E-02	56.48		
	102	2102.94	2.69976E-01	6.84	S-Esc	
	103	2116.57	3.34156E-02	47.45	Sum	
	105	2446.88	3.77199E-02	30.57		
	107	2771.97	7.89021E-03	31.45		
	108	2839.47	4.12037E-03	62.52		
	109	2966.61	3.18841E-03	59.73	Sum	
	110	3024.65	3.25163E-03	46.00		
	111	3072.41	1.72840E-03	62.76		

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
112	3124.23	5.42298E-03	27.23		
113	3197.07	1.64757E-02	14.75	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		-3.51E+00	1.54E+01	1.54E+01
+	NA-22	1274.54	99.94		-1.68E-01	5.51E-01	5.51E-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		-1.04E-01	5.06E-01	5.06E-01
+	K-40	1460.81	10.67		1.30E+01	5.86E+00	5.86E+00
+	@ AR-41	1293.64	99.16		1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88	94.40		-2.78E+00	4.55E-01	4.55E-01
		78.34	96.00		1.70E+01		6.10E-01
+	SC-46	889.25	99.98		-3.54E-01	1.15E+00	1.15E+00
		1120.51	99.99		1.76E+01		1.93E+00
+	V-48	983.52	99.98		-8.63E+00	2.71E+01	2.71E+01
		1312.10	97.50		3.62E+00		3.04E+01
+	CR-51	320.08	9.83		1.91E+00	4.65E+01	4.65E+01
+	MN-54	834.83	99.97	*	2.43E+00	1.45E+00	1.45E+00
+	CO-56	846.75	99.96		-2.53E-01	1.20E+00	1.20E+00
		1037.75	14.03		-5.45E+00		7.71E+00
		1238.25	67.00		8.58E+00		2.33E+00
		1771.40	15.51		-5.26E-02		7.45E+00
		2598.48	16.90		-1.20E+00		4.90E+00
+	CO-57	122.06	85.51		-5.38E-01	5.56E-01	5.56E-01
		136.48	10.60		-2.31E-01		4.72E+00
+	CO-58	810.76	99.40		6.50E-02	1.38E+00	1.38E+00
+	FE-59	1099.22	56.50		-7.20E-02	3.74E+00	3.74E+00
		1291.56	43.20		1.16E+00		5.22E+00
+	CO-60	1173.22	100.00		8.15E-02	5.16E-01	5.16E-01
		1332.49	100.00		-1.06E-01		5.42E-01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	-1.21E+00	1.87E+00	1.87E+00
+	GA-67	93.31		35.70	4.35E+09	5.20E+08	5.20E+08
		208.95		2.24	7.30E+10		9.15E+09
		300.22		16.00	-1.36E+10		1.34E+09
+	SE-75	121.11		16.70	-2.72E+00	1.14E+00	3.81E+00
		136.00		59.20	3.28E-02		1.14E+00
		264.65		59.80	1.80E-01		1.20E+00
		279.53		25.20	5.67E-01		3.18E+00
		400.65		11.40	-1.18E+00		7.33E+00
+	RB-82	776.52		13.00	-1.78E+02	5.78E+01	5.78E+01
+	RB-83	520.41		46.00	1.41E+00	2.28E+00	2.28E+00
		529.64		30.30	1.15E+00		3.50E+00
		552.65		16.40	-5.39E+00		6.47E+00
+	KR-85	513.99		0.43	7.87E+02	1.58E+02	1.58E+02
+	SR-85	513.99		99.27	9.17E+00	1.84E+00	1.84E+00
+	Y-88	898.02		93.40	-2.31E+00	9.71E-01	1.06E+00
		1836.01		99.38	3.54E-01		9.71E-01
+	MO-93	263.06		56.72	1.12E-01	5.31E-01	7.47E-01
		684.67		99.68	3.01E-01		6.41E-01
		1477.11		99.08	-1.22E-01		5.31E-01
+	NB-93M	16.57		9.43	4.99E+02	4.20E+01	4.20E+01
+	NB-94	702.63		100.00	4.22E-01	5.26E-01	6.65E-01
		871.10		100.00	5.11E-02		5.26E-01
+	NB-95	765.79		99.81	2.03E+00	4.57E+00	4.57E+00
+	NB-95M	235.69		25.00	5.92E+09	2.14E+08	2.14E+08
+	ZR-95	724.18		43.70	3.28E+01	3.22E+00	5.36E+00
		756.72		55.30	-8.38E-01		3.22E+00
+	MO-99	181.06		6.20	-4.83E+10	7.82E+10	1.12E+11
		739.58		12.80	-2.18E+10		7.82E+10
		778.00		4.50	-1.03E+12		2.11E+11
+	RU-103	497.08		89.00	-1.67E+00	2.76E+00	2.76E+00
+	RU-106	621.84	*	9.80	3.01E+00	5.45E+00	5.45E+00
+	AG-108M	433.93		89.90	1.69E-01	5.16E-01	5.16E-01
		614.37		90.40	4.13E-02		5.85E-01
		722.95		90.50	4.97E-02		8.60E-01
+	CD-109	88.03	*	3.72	2.24E+02	4.62E+01	4.62E+01
+	AG-110M	657.75		93.14	-6.57E-02	8.47E-01	8.47E-01
		677.61		10.53	-6.51E-01		7.61E+00
		706.67		16.46	4.46E+00		5.21E+00
		763.93		21.98	1.55E+00		4.00E+00
		884.67		71.63	-3.54E-03		9.47E-01
		1384.27		23.94	-9.52E+00		3.02E+00
+	CD-113M	263.70		0.02	2.75E+02	1.83E+03	1.83E+03
+	SN-113	255.12		1.93	6.71E-01	1.30E+00	3.86E+01
		391.69		64.90	-5.17E-01		1.30E+00
+	TE123M	159.00		84.10	-2.43E-01	8.31E-01	8.31E-01
+	SB-124	602.71		97.87	5.54E-01	1.55E+00	1.55E+00
		645.85		7.26	-3.55E+00		2.09E+01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78		11.10	1.19E+00	1.55E+00	2.05E+01
		1691.02		49.00	1.33E+00		2.90E+00
+	I-125	35.49	*	6.49	1.53E+02	6.21E+01	6.21E+01
+	SB-125	176.33		6.89	4.14E+00	1.71E+00	6.52E+00
		427.89		29.33	-2.38E-02		1.71E+00
		463.38		10.35	5.29E+01		6.21E+00
		600.56		17.80	2.34E+00		3.12E+00
		635.90		11.32	-1.42E+00		4.81E+00
+	SB-126	414.70		83.30	3.29E+00	1.05E+02	1.05E+02
		666.33		99.60	1.19E+02		1.18E+02
		695.00		99.60	-7.67E+01		1.18E+02
		720.50		53.80	1.88E+00		2.18E+02
+	SN-126	87.57	*	37.00	1.96E+01	4.04E+00	4.04E+00
+	SB-127	473.00		25.00	2.81E+07	3.48E+07	3.77E+07
		685.20		35.70	1.63E+07		3.48E+07
		783.80		14.70	3.14E+08		8.80E+07
+	I-129	29.78		57.00	-5.94E+00	1.60E+00	1.60E+00
		33.60		13.20	1.25E+01		5.67E+00
		39.58		7.52	-2.88E+00		7.34E+00
+	I-131	284.30		6.05	2.20E+03	1.71E+03	2.21E+04
		364.48		81.20	-8.80E+02		1.71E+03
		636.97		7.26	-6.48E+03		2.21E+04
		722.89		1.80	7.78E+03		1.34E+05
+	TE-132	49.72		13.10	-2.08E+09	2.12E+08	1.37E+09
		228.16		88.00	-8.70E+07		2.12E+08
+	BA-133	81.00		33.00	-3.92E+01	9.81E-01	1.39E+00
		302.84		17.80	1.04E-01		2.80E+00
		356.01		60.00	4.50E-02		9.81E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-7.62E+06	2.70E+05	2.70E+05
+	CS-134	563.23		8.38	1.84E+01	7.13E-01	7.23E+00
		569.32		15.43	-2.25E-01		3.70E+00
		604.70		97.60	2.57E-01		7.13E-01
		795.84		85.40	6.01E+00		9.42E-01
		801.93		8.73	1.89E+00		6.98E+00
+	CS-135	268.24		16.00	1.75E+01	3.04E+00	3.04E+00
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	1.92E+03	7.45E+01	7.61E+02
		163.89		4.61	4.29E+02		1.21E+03
		176.55		13.56	1.47E+02		4.24E+02
		273.65		12.66	-2.33E+03		5.18E+02
		340.57		48.50	2.70E+03		1.87E+02
		818.50		99.70	4.17E+01		7.45E+01
		1048.07		79.60	-1.79E+01		8.11E+01
		1235.34		19.70	2.01E+03		4.74E+02
+	CS-137	661.65		85.12	2.32E-01	7.43E-01	7.43E-01
+	LA-138	788.74		34.00	-1.93E+01	7.86E-01	1.87E+00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		LA-138	1435.80		66.00	1.32E-01	7.86E-01	7.86E-01
+		CE-139	165.85		80.35	4.60E-01	8.18E-01	8.18E-01
+		BA-140	162.64		6.70	1.66E+02	3.11E+02	9.59E+02
			304.84		4.50	-3.82E+01		1.52E+03
			423.70		3.20	9.15E+02		2.33E+03
			437.55		2.00	2.09E+02		3.65E+03
			537.32		25.00	-4.02E+01		3.11E+02
+		LA-140	328.77		20.50	2.40E+03	1.32E+02	4.02E+02
			487.03		45.50	-2.42E+00		1.64E+02
			815.85		23.50	-7.78E+01		3.60E+02
			1596.49		95.49	2.77E+01		1.32E+02
+		CE-141	145.44		48.40	-3.58E-01	6.14E+00	6.14E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	5.23E-02	4.59E+00	4.59E+00
+		PM-144	476.78		42.00	-2.62E-01	6.25E-01	1.37E+00
			618.01		98.60	-2.03E-01		6.25E-01
			696.49		99.49	-5.00E-01		7.72E-01
+		PM-145	36.85		21.70	9.10E+00	1.59E+00	2.98E+00
			37.36		39.70	4.86E+00		1.59E+00
			42.30		15.10	-1.13E+01		3.31E+00
			72.40		2.31	-4.58E+02		2.18E+01
+		PM-146	453.90	*	39.94	1.50E+00	1.58E+00	1.58E+00
			735.90		14.01	-3.29E+00		4.48E+00
			747.13		13.10	-1.28E-01		4.88E+00
+		ND-147	91.11	*	28.90	4.65E+03	1.38E+03	1.86E+03
			531.02		13.10	2.13E+02		1.38E+03
+		PM-149	285.90		3.10	4.15E+12	6.99E+13	6.99E+13
+		EU-152	121.78		20.50	-1.79E+00	1.85E+00	1.85E+00
			244.69		5.40	1.86E+00		9.13E+00
			344.27		19.13	-4.18E-01		2.43E+00
			778.89		9.20	-3.03E+01		6.44E+00
			964.01		10.40	-9.53E+01		9.35E+00
			1085.78		7.22	-1.12E+00		6.45E+00
			1112.02		9.60	-2.24E+01		5.49E+00
			1407.95		14.94	5.21E+00		4.25E+00
+		GD-153	97.43		31.30	-8.82E+00	1.63E+00	1.63E+00
			103.18		22.20	1.66E+00		2.20E+00
+		EU-154	123.07		40.50	-3.23E-01	9.51E-01	9.51E-01
			723.30		19.70	2.70E+01		4.41E+00
			873.19		11.50	-1.43E+00		4.61E+00
			996.32		10.30	-7.01E-02		4.93E+00
			1004.76		17.90	-4.80E-01		2.91E+00
			1274.45		35.50	-4.51E-01		1.48E+00
+		EU-155	86.50	*	30.90	2.43E+01	1.89E+00	5.01E+00
			105.30	*	20.70	4.03E+00		1.89E+00
+		EU-156	811.77		10.40	7.19E+01	3.66E+02	3.66E+02
			1153.47		7.20	9.42E+02		5.48E+02

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	-3.47E+00	3.66E+02	3.96E+02
+	HO-166M	184.41		72.60	5.82E+00	6.66E-01	6.66E-01
		280.45		29.60	2.61E-01		1.52E+00
		410.94		11.10	1.69E+01		4.78E+00
		711.69		54.10	5.74E-01		1.18E+00
+	TM-171	66.72		0.14	-4.63E+01	3.40E+02	3.40E+02
+	HF-172	67.35		5.31	-1.22E+00	3.91E+00	8.96E+00
		125.81		11.30	-6.86E-01		3.91E+00
+	LU-172	181.53		20.60	-1.05E+04	1.27E+04	3.34E+04
		900.72		29.81	2.84E+04		2.98E+04
		1093.66		62.50	1.14E+04		1.27E+04
+	LU-173	100.72		5.24	-2.03E+01	2.67E+00	7.97E+00
		272.11		21.20	7.78E+00		2.67E+00
+	HF-175	343.40		84.00	-2.36E-01	1.37E+00	1.37E+00
+	LU-176	88.34		13.30	1.78E+01	4.55E-01	3.62E+00
		201.83		86.00	5.39E-01		5.20E-01
		306.78		94.00	-2.66E-01		4.55E-01
+	HF-181	133.02		41.70	-4.80E-01	2.69E+00	4.44E+00
		345.85		17.20	-2.12E+00		1.20E+01
		482.03		82.80	8.32E-01		2.69E+00
+	TA-182	67.75		41.20	-1.12E+01	1.83E+00	1.83E+00
		1121.30		34.90	4.07E+01		4.49E+00
		1189.05		16.23	-1.16E+00		5.32E+00
		1221.41		26.98	5.31E-01		3.25E+00
		1231.02		11.44	4.54E-01		7.84E+00
+	IR-192	308.46		29.68	1.96E-01	2.40E+00	3.46E+00
		468.07		48.10	-5.64E-01		2.40E+00
+	HG-203	279.19		77.30	1.17E+01	2.45E+00	2.45E+00
+	TL-204	374.74		94.11	-9.57E-02	5.11E-01	5.11E-01
		899.15		99.16	-9.42E-01		5.84E-01
		911.74		91.10	3.53E+01		1.64E+00
+	BI-207	569.67		97.72	-3.27E-02	5.39E-01	5.39E-01
		1063.62		74.90	2.09E-01		6.68E-01
+	TL-208	583.14	*	30.22	1.09E+02	2.00E+00	3.14E+00
		860.37	*	4.48	1.17E+02		1.78E+01
		2614.66	*	35.85	1.21E+02		2.00E+00
+	BI-210M	262.00		45.00	1.38E-01	9.33E-01	9.33E-01
		300.00		23.00	-2.30E+01		2.27E+00
+	PB-210	46.50	*	4.25	1.08E+01	1.08E+01	1.08E+01
+	PB-211	404.84		2.90	4.96E+00	1.71E+01	1.71E+01
		831.96		2.90	1.80E+01		2.14E+01
+	BI-212	727.17	*	11.80	6.97E+01	7.58E+00	7.58E+00
		1620.62	*	2.75	6.47E+01		4.86E+01
+	PB-212	238.63	*	44.60	1.11E+02	1.94E+00	1.94E+00
		300.09	*	3.41	1.07E+02		3.36E+01
+	BI-214	609.31	*	46.30	5.05E+01	1.75E+00	1.75E+00
		1120.29	*	15.10	5.40E+01		5.21E+00
		1764.49	*	15.80	6.32E+01		6.10E+00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22	*	4.98	6.63E+01	1.75E+00	2.31E+01
+	PB-214	295.21	*	19.19	5.06E+01	2.05E+00	5.88E+00
		351.92	*	37.19	5.27E+01		2.05E+00
+	RN-219	401.80		6.50	4.14E+00	7.55E+00	7.55E+00
+	RA-223	323.87		3.88	3.26E+00	1.20E+01	1.20E+01
+	RA-224	240.98	*	3.95	2.09E+02	2.22E+01	2.22E+01
+	RA-225	40.00	*	31.00	2.10E+02	2.71E+02	2.71E+02
+	RA-226	186.21	*	3.28	1.24E+02	1.90E+01	1.90E+01
+	TH-227	50.10		8.40	-7.74E+00	5.08E+00	5.08E+00
		236.00		11.50	2.14E+02		7.73E+00
		256.20		6.30	-7.75E-01		6.78E+00
+	AC-228	338.32	*	11.40	1.12E+02	4.64E+00	6.35E+00
		911.07	*	27.70	1.12E+02		4.64E+00
		969.11	*	16.60	1.15E+02		8.03E+00
+	TH-230	48.44		16.90	-9.16E-01	2.58E+00	2.58E+00
		62.85		4.60	-2.47E+00		9.54E+00
		67.67		0.37	-7.09E+02		1.16E+02
+	PA-231	283.67		1.60	2.66E+00	2.13E+01	2.68E+01
		302.67		2.30	7.88E-01		2.13E+01
+	TH-231	25.64	*	14.70	6.45E+00	9.50E+00	9.50E+00
		84.21	*	6.40	3.96E+01		2.35E+01
+	PA-233	311.98		38.60	-1.73E-02	1.22E+01	1.22E+01
+	PA-234	131.20		20.40	1.07E+01	2.05E+00	2.05E+00
		733.99		8.80	-6.00E-01		6.97E+00
		946.00		12.00	-8.80E-01		4.08E+00
+	PA-234M	1001.03	*	0.92	1.12E+02	7.53E+01	7.53E+01
+	TH-234	63.29	*	3.80	5.74E+01	1.43E+01	1.43E+01
+	U-235	143.76		10.50	7.47E+00	3.87E+00	3.87E+00
		163.35		4.70	1.51E+00		8.73E+00
		205.31		4.70	3.71E+00		9.69E+00
+	NP-237	86.50	*	12.60	5.75E+01	1.19E+01	1.19E+01
+	NP-239	106.10		22.70	4.42E+12	1.40E+12	1.40E+12
		228.18		10.70	-1.45E+12		3.54E+12
		277.60		14.10	1.25E+13		2.82E+12
+	AM-241	59.54		35.90	-2.26E+00	1.25E+00	1.25E+00
+	AM-243	74.67		66.00	3.52E+01	9.36E-01	9.36E-01
+	CM-243	209.75	*	3.29	1.25E+02	4.26E+00	1.77E+01
		228.14		10.60	-1.74E+00		4.26E+00
		277.60	*	14.00	1.66E+01		6.93E+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 1707078-13

HTC-A01-S004-0612-01

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	1.54E+01	1.54E+01	-3.51E+00	7.66E+00
	NA-22	1274.54		99.94	5.51E-01	5.51E-01	-1.68E-01	2.70E-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	5.06E-01	5.06E-01	-1.04E-01	2.47E-01
	K-40	1460.81		10.67	5.86E+00	5.86E+00	1.30E+01	2.88E+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	4.55E-01	4.55E-01	-2.78E+00	2.27E-01
		78.34		96.00	6.10E-01		1.70E+01	3.04E-01
	SC-46	889.25		99.98	1.15E+00	1.15E+00	-3.54E-01	5.69E-01
		1120.51		99.99	1.93E+00		1.76E+01	9.54E-01
	V-48	983.52		99.98	2.71E+01	2.71E+01	-8.63E+00	1.34E+01
		1312.10		97.50	3.04E+01		3.62E+00	1.49E+01
	CR-51	320.08		9.83	4.65E+01	4.65E+01	1.91E+00	2.31E+01
+	MN-54	834.83	*	99.97	1.45E+00	1.45E+00	2.43E+00	7.21E-01
	CO-56	846.75		99.96	1.20E+00	1.20E+00	-2.53E-01	5.91E-01
		1037.75		14.03	7.71E+00		-5.45E+00	3.79E+00
		1238.25		67.00	2.33E+00		8.58E+00	1.15E+00
		1771.40		15.51	7.45E+00		-5.26E-02	3.63E+00
		2598.48		16.90	4.90E+00		-1.20E+00	2.32E+00
	CO-57	122.06		85.51	5.56E-01	5.56E-01	-5.38E-01	2.77E-01
		136.48		10.60	4.72E+00		-2.31E-01	2.35E+00
	CO-58	810.76		99.40	1.38E+00	1.38E+00	6.50E-02	6.80E-01
	FE-59	1099.22		56.50	3.74E+00	3.74E+00	-7.20E-02	1.84E+00
		1291.56		43.20	5.22E+00		1.16E+00	2.56E+00
	CO-60	1173.22		100.00	5.16E-01	5.16E-01	8.15E-02	2.54E-01
		1332.49		100.00	5.42E-01		-1.06E-01	2.66E-01
	ZN-65	1115.52		50.75	1.87E+00	1.87E+00	-1.21E+00	9.23E-01
	GA-67	93.31		35.70	5.20E+08	5.20E+08	4.35E+09	2.60E+08
		208.95		2.24	9.15E+09		7.30E+10	4.56E+09
		300.22		16.00	1.34E+09		-1.36E+10	6.66E+08
	SE-75	121.11		16.70	3.81E+00	1.14E+00	-2.72E+00	1.90E+00
		136.00		59.20	1.14E+00		3.28E-02	5.71E-01
		264.65		59.80	1.20E+00		1.80E-01	5.97E-01
		279.53		25.20	3.18E+00		5.67E-01	1.58E+00
		400.65		11.40	7.33E+00		-1.18E+00	3.64E+00
	RB-82	776.52		13.00	5.78E+01	5.78E+01	-1.78E+02	2.86E+01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	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	2.28E+00	2.28E+00	1.41E+00	1.13E+00
		529.64		30.30	3.50E+00		1.15E+00	1.74E+00
		552.65		16.40	6.47E+00		-5.39E+00	3.21E+00
	KR-85	513.99		0.43	1.58E+02	1.58E+02	7.87E+02	7.86E+01
	SR-85	513.99		99.27	1.84E+00	1.84E+00	9.17E+00	9.16E-01
	Y-88	898.02		93.40	1.06E+00	9.71E-01	-2.31E+00	5.22E-01
		1836.01		99.38	9.71E-01		3.54E-01	4.73E-01
	MO-93	263.06		56.72	7.47E-01	5.31E-01	1.12E-01	3.72E-01
		684.67		99.68	6.41E-01		3.01E-01	3.18E-01
		1477.11		99.08	5.31E-01		-1.22E-01	2.60E-01
	NB-93M	16.57		9.43	4.20E+01	4.20E+01	4.99E+02	2.09E+01
	NB-94	702.63		100.00	6.65E-01	5.26E-01	4.22E-01	3.30E-01
		871.10		100.00	5.26E-01		5.11E-02	2.60E-01
	NB-95	765.79		99.81	4.57E+00	4.57E+00	2.03E+00	2.27E+00
	NB-95M	235.69		25.00	2.14E+08	2.14E+08	5.92E+09	1.07E+08
	ZR-95	724.18		43.70	5.36E+00	3.22E+00	3.28E+01	2.66E+00
		756.72		55.30	3.22E+00		-8.38E-01	1.60E+00
	MO-99	181.06		6.20	1.12E+11	7.82E+10	-4.83E+10	5.60E+10
		739.58		12.80	7.82E+10		-2.18E+10	3.88E+10
		778.00		4.50	2.11E+11		-1.03E+12	1.05E+11
	RU-103	497.08		89.00	2.76E+00	2.76E+00	-1.67E+00	1.37E+00
+	RU-106	621.84	*	9.80	5.45E+00	5.45E+00	3.01E+00	2.69E+00
	AG-108M	433.93		89.90	5.16E-01	5.16E-01	1.69E-01	2.56E-01
		614.37		90.40	5.85E-01		4.13E-02	2.90E-01
		722.95		90.50	8.60E-01		4.97E-02	4.27E-01
+	CD-109	88.03	*	3.72	4.62E+01	4.62E+01	2.24E+02	2.31E+01
	AG-110M	657.75		93.14	8.47E-01	8.47E-01	-6.57E-02	4.20E-01
		677.61		10.53	7.61E+00		-6.51E-01	3.77E+00
		706.67		16.46	5.21E+00		4.46E+00	2.58E+00
		763.93		21.98	4.00E+00		1.55E+00	1.98E+00
		884.67		71.63	9.47E-01		-3.54E-03	4.67E-01
		1384.27		23.94	3.02E+00		-9.52E+00	1.48E+00
	CD-113M	263.70		0.02	1.83E+03	1.83E+03	2.75E+02	9.08E+02
	SN-113	255.12		1.93	3.86E+01	1.30E+00	6.71E-01	1.92E+01
		391.69		64.90	1.30E+00		-5.17E-01	6.45E-01
	TE123M	159.00		84.10	8.31E-01	8.31E-01	-2.43E-01	4.14E-01
	SB-124	602.71		97.87	1.55E+00	1.55E+00	5.54E-01	7.68E-01
		645.85		7.26	2.09E+01		-3.55E+00	1.03E+01
		722.78		11.10	2.05E+01		1.19E+00	1.02E+01
		1691.02		49.00	2.90E+00		1.33E+00	1.41E+00
+	I-125	35.49	*	6.49	6.21E+01	6.21E+01	1.53E+02	3.10E+01
	SB-125	176.33		6.89	6.52E+00	1.71E+00	4.14E+00	3.25E+00
		427.89		29.33	1.71E+00		-2.38E-02	8.50E-01
		463.38		10.35	6.21E+00		5.29E+01	3.09E+00
		600.56		17.80	3.12E+00		2.34E+00	1.54E+00
		635.90		11.32	4.81E+00		-1.42E+00	2.38E+00
	SB-126	414.70		83.30	1.05E+02	1.05E+02	3.29E+00	5.20E+01
		666.33		99.60	1.18E+02		1.19E+02	5.84E+01
		695.00		99.60	1.18E+02		-7.67E+01	5.83E+01
		720.50		53.80	2.18E+02		1.88E+00	1.08E+02
	SN-126	87.57	*	37.00	4.04E+00	4.04E+00	1.96E+01	2.02E+00
	SB-127	473.00		25.00	3.77E+07	3.48E+07	2.81E+07	1.87E+07
		685.20		35.70	3.48E+07		1.63E+07	1.72E+07

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

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	8.80E+07	3.48E+07	3.14E+08	4.36E+07
I-129	29.78	57.00	1.60E+00	1.60E+00	-5.94E+00	7.98E-01
	33.60	13.20	5.67E+00		1.25E+01	2.82E+00
	39.58	7.52	7.34E+00		-2.88E+00	3.66E+00
I-131	284.30	6.05	2.21E+04	1.71E+03	2.20E+03	1.10E+04
	364.48	81.20	1.71E+03		-8.80E+02	8.51E+02
	636.97	7.26	2.21E+04		-6.48E+03	1.09E+04
	722.89	1.80	1.34E+05		7.78E+03	6.67E+04
TE-132	49.72	13.10	1.37E+09	2.12E+08	-2.08E+09	6.81E+08
	228.16	88.00	2.12E+08		-8.70E+07	1.06E+08
BA-133	81.00	33.00	1.39E+00	9.81E-01	-3.92E+01	6.93E-01
	302.84	17.80	2.80E+00		1.04E-01	1.39E+00
	356.01	60.00	9.81E-01		4.50E-02	4.88E-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	2.70E+05	2.70E+05	-7.62E+06	1.35E+05
CS-134	563.23	8.38	7.23E+00	7.13E-01	1.84E+01	3.58E+00
	569.32	15.43	3.70E+00		-2.25E-01	1.83E+00
	604.70	97.60	7.13E-01		2.57E-01	3.54E-01
	795.84	85.40	9.42E-01		6.01E+00	4.67E-01
	801.93	8.73	6.98E+00		1.89E+00	3.45E+00
CS-135	268.24	16.00	3.04E+00	3.04E+00	1.75E+01	1.51E+00
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	7.61E+02	7.45E+01	1.92E+03	3.79E+02
	163.89	4.61	1.21E+03		4.29E+02	6.04E+02
	176.55	13.56	4.24E+02		1.47E+02	2.11E+02
	273.65	12.66	5.18E+02		-2.33E+03	2.58E+02
	340.57	48.50	1.87E+02		2.70E+03	9.33E+01
	818.50	99.70	7.45E+01		4.17E+01	3.68E+01
	1048.07	79.60	8.11E+01		-1.79E+01	3.98E+01
	1235.34	19.70	4.74E+02		2.01E+03	2.34E+02
CS-137	661.65	85.12	7.43E-01	7.43E-01	2.32E-01	3.68E-01
LA-138	788.74	34.00	1.87E+00	7.86E-01	-1.93E+01	9.28E-01
	1435.80	66.00	7.86E-01		1.32E-01	3.85E-01
CE-139	165.85	80.35	8.18E-01	8.18E-01	4.60E-01	4.08E-01
BA-140	162.64	6.70	9.59E+02	3.11E+02	1.66E+02	4.78E+02
	304.84	4.50	1.52E+03		-3.82E+01	7.58E+02
	423.70	3.20	2.33E+03		9.15E+02	1.16E+03
	437.55	2.00	3.65E+03		2.09E+02	1.81E+03
	537.32	25.00	3.11E+02		-4.02E+01	1.54E+02
LA-140	328.77	20.50	4.02E+02	1.32E+02	2.40E+03	2.00E+02
	487.03	45.50	1.64E+02		-2.42E+00	8.15E+01
	815.85	23.50	3.60E+02		-7.78E+01	1.78E+02
	1596.49	95.49	1.32E+02		2.77E+01	6.52E+01
CE-141	145.44	48.40	6.14E+00	6.14E+00	-3.58E-01	3.06E+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	4.59E+00	4.59E+00	5.23E-02	2.29E+00
PM-144	476.78	42.00	1.37E+00	6.25E-01	-2.62E-01	6.78E-01
	618.01	98.60	6.25E-01		-2.03E-01	3.10E-01
	696.49	99.49	7.72E-01		-5.00E-01	3.83E-01

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	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	2.98E+00	1.59E+00	9.10E+00	1.48E+00
		37.36		39.70	1.59E+00		4.86E+00	7.93E-01
		42.30		15.10	3.31E+00		-1.13E+01	1.65E+00
		72.40		2.31	2.18E+01		-4.58E+02	1.09E+01
+	PM-146	453.90	*	39.94	1.58E+00	1.58E+00	1.50E+00	7.85E-01
		735.90		14.01	4.48E+00		-3.29E+00	2.22E+00
		747.13		13.10	4.88E+00		-1.28E-01	2.42E+00
+	ND-147	91.11	*	28.90	1.86E+03	1.38E+03	4.65E+03	9.27E+02
		531.02		13.10	1.38E+03		2.13E+02	6.85E+02
	PM-149	285.90		3.10	6.99E+13	6.99E+13	4.15E+12	3.48E+13
	EU-152	121.78		20.50	1.85E+00	1.85E+00	-1.79E+00	9.21E-01
		244.69		5.40	9.13E+00		1.86E+00	4.55E+00
		344.27		19.13	2.43E+00		-4.18E-01	1.21E+00
		778.89		9.20	6.44E+00		-3.03E+01	3.19E+00
		964.01		10.40	9.35E+00		-9.53E+01	4.64E+00
		1085.78		7.22	6.45E+00		-1.12E+00	3.16E+00
		1112.02		9.60	5.49E+00		-2.24E+01	2.70E+00
		1407.95		14.94	4.25E+00		5.21E+00	2.09E+00
	GD-153	97.43		31.30	1.63E+00	1.63E+00	-8.82E+00	8.12E-01
		103.18		22.20	2.20E+00		1.66E+00	1.10E+00
	EU-154	123.07		40.50	9.51E-01	9.51E-01	-3.23E-01	4.74E-01
		723.30		19.70	4.41E+00		2.70E+01	2.19E+00
		873.19		11.50	4.61E+00		-1.43E+00	2.28E+00
		996.32		10.30	4.93E+00		-7.01E-02	2.43E+00
		1004.76		17.90	2.91E+00		-4.80E-01	1.43E+00
		1274.45		35.50	1.48E+00		-4.51E-01	7.25E-01
+	EU-155	86.50	*	30.90	5.01E+00	1.89E+00	2.43E+01	2.50E+00
		105.30	*	20.70	1.89E+00		4.03E+00	9.42E-01
	EU-156	811.77		10.40	3.66E+02	3.66E+02	7.19E+01	1.81E+02
		1153.47		7.20	5.48E+02		9.42E+02	2.69E+02
		1230.71		8.90	3.96E+02		-3.47E+00	1.95E+02
	HO-166M	184.41		72.60	6.66E-01	6.66E-01	5.82E+00	3.32E-01
		280.45		29.60	1.52E+00		2.61E-01	7.59E-01
		410.94		11.10	4.78E+00		1.69E+01	2.37E+00
		711.69		54.10	1.18E+00		5.74E-01	5.83E-01
	TM-171	66.72		0.14	3.40E+02	3.40E+02	-4.63E+01	1.70E+02
	HF-172	67.35		5.31	8.96E+00	3.91E+00	-1.22E+00	4.47E+00
		125.81		11.30	3.91E+00		-6.86E-01	1.95E+00
	LU-172	181.53		20.60	3.34E+04	1.27E+04	-1.05E+04	1.67E+04
		900.72		29.81	2.98E+04		2.84E+04	1.47E+04
		1093.66		62.50	1.27E+04		1.14E+04	6.23E+03
	LU-173	100.72		5.24	7.97E+00	2.67E+00	-2.03E+01	3.97E+00
		272.11		21.20	2.67E+00		7.78E+00	1.33E+00
	HF-175	343.40		84.00	1.37E+00	1.37E+00	-2.36E-01	6.83E-01
	LU-176	88.34		13.30	3.62E+00	4.55E-01	1.78E+01	1.81E+00
		201.83		86.00	5.20E-01		5.39E-01	2.59E-01
		306.78		94.00	4.55E-01		-2.66E-01	2.26E-01
	HF-181	133.02		41.70	4.44E+00	2.69E+00	-4.80E-01	2.21E+00
		345.85		17.20	1.20E+01		-2.12E+00	5.99E+00
		482.03		82.80	2.69E+00		8.32E-01	1.33E+00
	TA-182	67.75		41.20	1.83E+00	1.83E+00	-1.12E+01	9.13E-01
		1121.30		34.90	4.49E+00		4.07E+01	2.22E+00
		1189.05		16.23	5.32E+00		-1.16E+00	2.61E+00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	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	3.25E+00	1.83E+00	5.31E-01	1.60E+00
		1231.02		11.44	7.84E+00		4.54E-01	3.85E+00
	IR-192	308.46		29.68	3.46E+00	2.40E+00	1.96E-01	1.72E+00
		468.07		48.10	2.40E+00		-5.64E-01	1.19E+00
	HG-203	279.19		77.30	2.45E+00	2.45E+00	1.17E+01	1.22E+00
	TL-204	374.74		94.11	5.11E-01	5.11E-01	-9.57E-02	2.54E-01
		899.15		99.16	5.84E-01		-9.42E-01	2.88E-01
		911.74		91.10	1.64E+00		3.53E+01	8.15E-01
	BI-207	569.67		97.72	5.39E-01	5.39E-01	-3.27E-02	2.67E-01
		1063.62		74.90	6.68E-01		2.09E-01	3.29E-01
+	TL-208	583.14	*	30.22	3.14E+00	2.00E+00	1.09E+02	1.56E+00
		860.37	*	4.48	1.78E+01		1.17E+02	8.83E+00
		2614.66	*	35.85	2.00E+00		1.21E+02	9.72E-01
	BI-210M	262.00		45.00	9.33E-01	9.33E-01	1.38E-01	4.64E-01
		300.00		23.00	2.27E+00		-2.30E+01	1.13E+00
+	PB-210	46.50	*	4.25	1.08E+01	1.08E+01	1.08E+01	5.38E+00
	PB-211	404.84		2.90	1.71E+01	1.71E+01	4.96E+00	8.51E+00
		831.96		2.90	2.14E+01		1.80E+01	1.06E+01
+	BI-212	727.17	*	11.80	7.58E+00	7.58E+00	6.97E+01	3.77E+00
		1620.62	*	2.75	4.86E+01		6.47E+01	2.41E+01
+	PB-212	238.63	*	44.60	1.94E+00	1.94E+00	1.11E+02	9.70E-01
		300.09	*	3.41	3.36E+01		1.07E+02	1.68E+01
+	BI-214	609.31	*	46.30	1.75E+00	1.75E+00	5.05E+01	8.69E-01
		1120.29	*	15.10	5.21E+00		5.40E+01	2.58E+00
		1764.49	*	15.80	6.10E+00		6.32E+01	3.01E+00
		2204.22	*	4.98	2.31E+01		6.63E+01	1.14E+01
+	PB-214	295.21	*	19.19	5.88E+00	2.05E+00	5.06E+01	2.93E+00
		351.92	*	37.19	2.05E+00		5.27E+01	1.02E+00
	RN-219	401.80		6.50	7.55E+00	7.55E+00	4.14E+00	3.75E+00
	RA-223	323.87		3.88	1.20E+01	1.20E+01	3.26E+00	5.99E+00
+	RA-224	240.98	*	3.95	2.22E+01	2.22E+01	2.09E+02	1.11E+01
+	RA-225	40.00	*	31.00	2.71E+02	2.71E+02	2.10E+02	1.35E+02
+	RA-226	186.21	*	3.28	1.90E+01	1.90E+01	1.24E+02	9.48E+00
	TH-227	50.10		8.40	5.08E+00	5.08E+00	-7.74E+00	2.53E+00
		236.00		11.50	7.73E+00		2.14E+02	3.86E+00
		256.20		6.30	6.78E+00		-7.75E-01	3.37E+00
+	AC-228	338.32	*	11.40	6.35E+00	4.64E+00	1.12E+02	3.16E+00
		911.07	*	27.70	4.64E+00		1.12E+02	2.31E+00
		969.11	*	16.60	8.03E+00		1.15E+02	3.99E+00
	TH-230	48.44		16.90	2.58E+00	2.58E+00	-9.16E-01	1.28E+00
		62.85		4.60	9.54E+00		-2.47E+00	4.76E+00
		67.67		0.37	1.16E+02		-7.09E+02	5.78E+01
	PA-231	283.67		1.60	2.68E+01	2.13E+01	2.66E+00	1.33E+01
		302.67		2.30	2.13E+01		7.88E-01	1.06E+01
+	TH-231	25.64	*	14.70	9.50E+00	9.50E+00	6.45E+00	4.73E+00
		84.21	*	6.40	2.35E+01		3.96E+01	1.17E+01
	PA-233	311.98		38.60	1.22E+01	1.22E+01	-1.73E-02	6.07E+00
	PA-234	131.20		20.40	2.05E+00	2.05E+00	1.07E+01	1.02E+00
		733.99		8.80	6.97E+00		-6.00E-01	3.45E+00
		946.00		12.00	4.08E+00		-8.80E-01	2.01E+00
+	PA-234M	1001.03	*	0.92	7.53E+01	7.53E+01	1.12E+02	3.72E+01
+	TH-234	63.29	*	3.80	1.43E+01	1.43E+01	5.74E+01	7.16E+00
	U-235	143.76		10.50	3.87E+00	3.87E+00	7.47E+00	1.93E+00

Analysis Report for 1707078-13

HTC-A01-S004-0612-01

	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	8.73E+00	3.87E+00	1.51E+00	4.35E+00
		205.31		4.70	9.69E+00		3.71E+00	4.83E+00
	NP-237	86.50	*	12.60	1.19E+01	1.19E+01	5.75E+01	5.93E+00
	NP-239	106.10		22.70	1.40E+12	1.40E+12	4.42E+12	6.99E+11
		228.18		10.70	3.54E+12		-1.45E+12	1.76E+12
		277.60		14.10	2.82E+12		1.25E+13	1.40E+12
	AM-241	59.54		35.90	1.25E+00	1.25E+00	-2.26E+00	6.24E-01
	AM-243	74.67		66.00	9.36E-01	9.36E-01	3.52E+01	4.67E-01
+	CM-243	209.75	*	3.29	1.77E+01	4.26E+00	1.25E+02	8.83E+00
		228.14		10.60	4.26E+00		-1.74E+00	2.12E+00
		277.60	*	14.00	6.93E+00		1.66E+01	3.46E+00

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3677

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	3	905	4188
17:	4251	4107	4020	3771	3890	3717	3963	3842
25:	3678	3685	3616	3512	3656	3692	3829	4119
33:	4359	4479	4036	4045	4008	4040	4115	3739
41:	3633	3657	3603	3803	4198	4351	4100	3968
49:	4119	4282	4322	4571	4738	5269	6227	7314
57:	7077	5795	5352	5586	6185	7073	7347	7066
65:	6777	6681	6501	6428	6677	6716	7137	8548
73:	13589	17554	18562	22708	16684	8081	6053	6030
81:	6183	6693	7959	7873	8890	11736	10654	9172
89:	9869	8527	8487	10955	9471	6351	5234	5045
97:	5479	5710	5978	5279	5009	4965	5478	6113
105:	6251	5436	5355	5599	5299	5130	5094	5242
113:	5198	5436	5373	5107	4746	4861	4964	4919
121:	4956	5004	5172	5148	5245	5307	6085	7309
129:	6667	5403	5174	5115	5050	5128	4922	5023
137:	5031	4887	4838	4967	4781	5068	5286	5035
145:	4935	4818	4719	4591	4653	4579	4747	5127
153:	5173	5146	4465	4480	4396	4468	4378	4315
161:	4290	4390	4372	4199	4176	4205	4140	4060
169:	4065	4033	4077	3981	4213	4055	4036	4025
177:	3990	4057	3971	3876	4118	4030	4267	5588
185:	6837	5686	4242	3953	3736	3925	3749	3819
193:	3713	3658	3782	3664	3639	3741	3726	3648
201:	3640	3594	3666	3596	3513	3430	4306	6031
209:	5582	3939	3317	3236	3130	3309	3306	3247
217:	3221	3081	3049	3027	3104	3098	3078	3057
225:	2961	2969	2939	2897	2945	2890	2935	2902
233:	2935	2962	3444	7870	24699	31653	16364	7716
241:	6269	4051	2444	2178	2120	2190	2084	1998
249:	2084	2067	2160	2202	2100	2083	2142	2194
257:	2115	2184	2069	1953	1933	1840	1967	1944
265:	1876	1849	2075	2696	3780	3595	2389	1943
273:	1875	1878	2225	2867	2767	2184	1881	1782
281:	1830	1813	1762	1738	1742	1735	1829	1821
289:	1699	1727	1619	1809	3413	6027	5353	2761
297:	1811	2283	3246	2819	1853	1640	1565	1489
305:	1561	1536	1433	1463	1441	1439	1533	1454
313:	1446	1471	1425	1472	1395	1459	1427	1482
321:	1572	1491	1487	1481	1573	2139	2969	2390
329:	1593	1500	1611	1553	1470	1404	1602	3069
337:	6231	5971	2815	1610	1434	1392	1235	1326
345:	1300	1247	1277	1334	2145	5700	9032	5975
353:	2158	1263	1259	1139	1221	1164	1153	1194
361:	1144	1124	1144	1161	1123	1163	1160	1166

369:	1191	1143	1121	1109	1153	1181	1120	1182

Sample Title: HTC-A01-S004-0612-01

Channel								
377:	1141	1169	1123	1140	1128	1115	1099	1155
385:	1164	1219	1181	1158	1229	1106	1095	1103
393:	1162	1141	1185	1096	1085	1100	1087	1159
401:	1163	1145	1102	1148	1095	1107	1229	1664
409:	1692	1285	1007	995	957	995	1007	1000
417:	941	954	970	1016	956	942	947	885
425:	908	998	935	874	924	865	888	893
433:	871	836	837	803	812	863	953	851
441:	883	890	834	772	810	801	840	802
449:	820	833	829	935	896	838	845	808
457:	761	772	753	951	1501	2156	1740	1049
465:	770	758	744	699	754	770	776	779
473:	790	741	750	696	774	824	736	762
481:	760	743	741	719	718	769	672	662
489:	724	661	718	701	657	711	678	654
497:	701	689	682	723	697	690	767	694
505:	712	644	770	1239	2477	3211	2057	976
513:	734	748	651	668	675	656	661	682
521:	652	728	691	653	630	677	691	639
529:	694	684	638	647	651	669	648	615
537:	595	642	642	615	640	620	619	669
545:	632	647	664	663	643	591	607	620
553:	619	585	619	639	636	584	621	721
561:	838	839	775	651	644	626	577	602
569:	633	696	648	629	629	614	600	601
577:	615	593	697	1100	3752	7746	6828	2412
585:	721	563	606	533	574	573	538	531
593:	525	531	546	518	554	565	541	540
601:	559	594	570	525	528	789	2276	5265
609:	5037	2121	693	570	514	513	538	512
617:	518	501	497	563	497	526	445	486
625:	506	466	512	486	499	475	467	483
633:	503	471	492	470	466	487	534	507
641:	517	493	465	448	456	514	505	489
649:	485	516	494	498	486	497	482	506
657:	514	506	492	502	524	483	537	591
665:	602	564	508	529	522	477	476	498
673:	480	518	481	475	503	492	469	490
681:	486	492	497	480	566	467	446	520
689:	454	496	498	473	475	503	457	511
697:	487	523	523	549	499	590	572	501
705:	483	494	515	498	494	502	445	470
713:	469	426	414	417	439	499	429	438
721:	484	452	453	518	1005	1862	1741	870
729:	458	411	454	382	382	422	371	394
737:	431	378	401	403	431	448	445	409
745:	391	400	397	406	382	367	427	407
753:	441	585	560	424	393	354	400	354
761:	401	455	485	424	399	598	693	766
769:	521	424	602	537	411	339	309	324
777:	303	300	332	311	404	385	424	505
785:	589	468	330	298	308	290	326	380
793:	735	1063	833	453	286	254	300	262

801:	300	263	264	318	358	377	283	255

Sample Title: HTC-A01-S004-0612-01

Channel								
809:	239	273	248	258	247	274	279	251
817:	273	246	261	281	264	252	253	244
825:	294	266	236	277	299	356	299	257
833:	291	457	535	396	285	355	388	389
841:	290	258	256	224	238	231	210	224
849:	219	223	210	242	238	226	252	210
857:	251	440	890	1023	566	293	229	231
865:	224	209	228	218	226	214	184	229
873:	212	256	176	210	211	211	225	207
881:	215	221	242	219	209	196	203	188
889:	197	215	213	277	254	219	187	208
897:	227	234	192	221	218	235	338	324
905:	267	208	240	540	2086	4440	3949	1564
913:	367	173	187	179	178	180	173	183
921:	184	207	170	154	159	185	156	177
929:	202	163	174	307	410	376	223	172
937:	159	164	161	171	153	162	177	161
945:	149	185	188	153	142	170	168	169
953:	140	163	174	155	209	216	195	167
961:	181	305	735	984	666	654	1651	2672
969:	1994	719	214	135	142	127	143	145
977:	159	155	134	136	136	150	132	122
985:	163	153	151	162	154	129	124	139
993:	121	139	113	162	136	159	180	232
1001:	207	190	142	134	141	127	120	137
1009:	142	134	128	122	116	142	116	154
1017:	151	139	119	130	119	134	139	116
1025:	142	149	143	145	126	139	156	168
1033:	170	121	125	124	136	120	117	137
1041:	124	136	122	125	114	140	122	111
1049:	136	129	143	140	123	128	119	129
1057:	124	105	127	133	129	117	150	156
1065:	162	127	129	147	142	131	110	107
1073:	138	124	98	152	195	197	177	117
1081:	111	105	116	98	118	120	101	117
1089:	121	125	136	138	166	148	139	126
1097:	125	137	119	127	123	140	118	126
1105:	133	128	135	139	169	158	158	121
1113:	115	127	123	124	200	505	968	969
1121:	467	173	116	124	118	113	113	123
1129:	109	98	121	110	138	118	111	119
1137:	115	97	112	118	123	119	121	108
1145:	117	96	104	124	115	105	120	139
1153:	162	232	215	153	103	115	125	131
1161:	115	115	123	133	118	127	113	89
1169:	110	96	114	121	130	126	115	105
1177:	122	118	112	116	136	126	106	125
1185:	97	107	113	114	104	126	105	101
1193:	114	108	101	113	99	104	109	118
1201:	104	126	112	114	103	135	128	144
1209:	136	129	122	103	99	100	99	120
1217:	106	101	104	115	123	104	109	95
1225:	109	101	110	99	113	105	106	98

1233:	110	113	142	246	422	353	214	126

Sample Title: HTC-A01-S004-0612-01

Channel								
1241:	94	100	110	143	134	160	143	127
1249:	112	100	116	109	135	121	116	96
1257:	90	93	115	101	108	92	112	88
1265:	105	104	96	105	116	113	85	112
1273:	103	97	104	95	120	123	122	198
1281:	167	102	116	105	113	113	119	141
1289:	106	102	98	93	106	115	105	102
1297:	97	108	102	102	85	112	112	93
1305:	90	101	103	112	108	93	104	89
1313:	90	114	89	111	86	79	85	93
1321:	120	100	103	102	95	106	105	87
1329:	116	87	113	109	111	89	101	102
1337:	104	119	98	108	105	117	111	99
1345:	105	93	122	113	127	118	96	123
1353:	106	105	108	97	121	101	97	105
1361:	119	97	102	90	87	109	103	94
1369:	106	97	90	96	102	126	145	272
1377:	313	239	151	79	85	107	103	130
1385:	135	120	113	96	91	95	93	89
1393:	84	88	95	86	111	100	105	150
1401:	171	132	111	112	124	150	201	178
1409:	155	87	83	98	96	96	78	95
1417:	89	91	78	65	79	74	89	77
1425:	99	95	80	92	79	89	100	83
1433:	89	93	85	86	82	78	86	88
1441:	100	105	80	85	70	65	98	81
1449:	98	98	72	74	91	64	84	90
1457:	106	186	184	156	133	102	78	71
1465:	73	105	83	84	77	75	82	88
1473:	67	98	84	87	70	91	83	72
1481:	85	86	89	89	79	85	75	82
1489:	66	76	85	87	96	149	148	155
1497:	97	92	113	130	130	123	95	76
1505:	73	70	106	170	159	113	106	122
1513:	92	89	80	69	91	77	84	81
1521:	81	93	80	88	86	87	104	74
1529:	79	81	87	88	74	86	70	81
1537:	82	73	99	75	72	74	87	85
1545:	70	79	61	65	80	66	74	54
1553:	61	76	75	77	86	81	62	58
1561:	80	77	69	62	83	67	53	69
1569:	55	76	73	71	53	64	65	79
1577:	66	78	102	122	134	98	86	83
1585:	112	215	403	343	227	235	416	538
1593:	396	162	89	78	67	90	81	68
1601:	53	61	71	69	73	73	89	71
1609:	60	58	65	64	58	64	75	75
1617:	64	86	160	190	157	108	82	87
1625:	96	67	73	103	180	219	165	80
1633:	71	42	69	72	105	99	82	63
1641:	62	61	58	56	46	59	73	58
1649:	62	57	53	57	63	51	55	62
1657:	64	51	81	90	102	73	64	53

1665:	67	61	75	60	55	50	63	69

Sample Title: HTC-A01-S004-0612-01

Channel								
1673:	56	62	43	50	54	68	57	50
1681:	44	67	71	76	71	60	53	47
1689:	61	46	65	51	65	49	64	43
1697:	44	57	61	58	53	57	55	46
1705:	51	50	40	49	44	60	63	50
1713:	43	44	43	44	73	57	57	54
1721:	46	54	43	48	36	61	87	157
1729:	177	139	64	58	38	45	50	49
1737:	50	67	57	59	58	55	46	63
1745:	58	53	42	51	51	38	59	51
1753:	51	54	49	45	59	58	75	72
1761:	93	222	558	697	499	181	73	44
1769:	61	66	48	44	53	60	53	44
1777:	52	51	44	45	39	56	56	43
1785:	58	45	38	53	40	48	51	62
1793:	63	53	70	49	57	49	44	51
1801:	58	41	59	50	63	59	51	45
1809:	60	55	52	40	56	47	68	47
1817:	60	62	58	40	65	60	47	50
1825:	52	46	48	58	41	45	60	42
1833:	52	60	57	64	54	68	67	36
1841:	46	62	52	51	73	118	127	118
1849:	68	52	44	43	37	54	63	37
1857:	52	40	63	45	49	49	30	56
1865:	45	44	49	49	57	62	63	71
1873:	72	64	40	56	53	55	52	43
1881:	63	59	39	44	65	77	55	46
1889:	65	48	46	47	42	59	43	55
1897:	59	52	50	52	76	57	63	55
1905:	50	66	55	66	58	58	50	58
1913:	52	48	79	51	62	56	68	57
1921:	54	55	49	58	39	40	50	58
1929:	52	55	50	61	54	59	59	57
1937:	52	50	52	54	45	51	54	58
1945:	55	49	50	49	44	58	67	61
1953:	56	55	62	57	51	58	51	49
1961:	44	56	55	66	53	51	48	55
1969:	42	42	54	61	54	51	58	50
1977:	45	50	51	53	57	51	47	60
1985:	35	52	45	53	43	50	40	50
1993:	46	49	46	45	46	53	59	52
2001:	46	44	60	56	41	62	56	55
2009:	45	45	51	49	43	51	50	48
2017:	52	49	57	52	41	53	46	47
2025:	61	49	54	59	55	43	41	40
2033:	53	60	39	59	50	41	49	42
2041:	42	43	67	45	59	55	57	52
2049:	47	44	51	53	47	61	56	55
2057:	45	46	57	50	50	63	48	43
2065:	53	52	57	52	53	47	40	52
2073:	62	51	41	45	42	50	61	48
2081:	38	42	54	57	59	56	50	41
2089:	52	51	52	69	50	44	50	51

2097:	49	66	62	101	168	233	288	241

Sample Title: HTC-A01-S004-0612-01

Channel								
2105:	146	71	70	51	56	44	49	52
2113:	60	56	67	60	80	83	56	58
2121:	60	48	47	45	61	52	58	47
2129:	49	42	53	55	62	61	59	48
2137:	58	60	57	55	52	53	51	44
2145:	53	44	44	51	49	60	56	53
2153:	40	39	48	63	58	56	62	52
2161:	62	57	53	49	56	55	45	63
2169:	49	57	53	54	50	69	58	64
2177:	50	71	62	55	61	50	56	48
2185:	53	46	52	53	54	61	59	58
2193:	67	55	48	50	65	44	57	63
2201:	81	139	197	212	136	72	63	65
2209:	55	59	44	58	47	62	62	53
2217:	53	58	53	46	60	37	52	62
2225:	50	58	49	54	61	55	62	54
2233:	58	49	61	65	64	53	62	70
2241:	62	65	58	64	58	57	66	69
2249:	60	47	70	55	50	61	66	65
2257:	60	64	60	63	64	59	48	54
2265:	65	52	63	63	59	68	75	73
2273:	47	64	58	72	61	61	71	71
2281:	60	62	82	69	76	71	77	61
2289:	65	68	61	73	80	69	72	71
2297:	71	62	75	69	78	66	76	67
2305:	63	57	75	79	60	64	77	73
2313:	86	70	74	61	74	76	73	67
2321:	58	69	68	78	78	67	83	58
2329:	79	78	66	60	82	74	79	79
2337:	75	67	85	75	74	55	84	63
2345:	85	73	97	91	78	87	78	84
2353:	71	90	66	71	72	72	80	81
2361:	90	68	65	95	87	82	84	86
2369:	78	77	82	86	90	74	70	77
2377:	83	74	80	73	76	75	62	75
2385:	57	67	61	59	44	74	43	50
2393:	50	44	46	60	46	68	64	34
2401:	63	45	50	35	50	49	44	44
2409:	52	40	55	54	57	60	41	50
2417:	61	44	59	43	50	45	51	45
2425:	39	52	52	45	48	50	39	53
2433:	41	47	46	44	48	48	53	44
2441:	51	49	58	48	59	65	79	80
2449:	68	44	36	46	44	51	39	38
2457:	36	39	34	37	39	37	32	41
2465:	28	27	41	36	28	38	28	38
2473:	41	48	24	26	31	24	28	30
2481:	31	39	30	38	31	35	27	8
2489:	34	25	16	26	32	26	19	25
2497:	27	26	22	23	20	27	21	22
2505:	33	19	18	17	18	17	25	19
2513:	20	17	20	14	18	15	17	7
2521:	21	16	16	17	12	14	19	20

2529:	8	12	14	11	15	14	23	13

Sample Title: HTC-A01-S004-0612-01

Channel								
2537:	15	16	14	9	10	21	11	9
2545:	10	13	16	16	6	14	9	8
2553:	12	9	14	9	11	7	10	16
2561:	13	23	15	10	8	18	6	10
2569:	12	10	11	16	16	9	9	12
2577:	8	8	5	11	7	15	8	12
2585:	10	10	12	8	9	13	5	11
2593:	10	13	13	14	11	12	11	9
2601:	10	11	11	12	15	14	18	19
2609:	17	46	141	482	1202	1700	1415	704
2617:	199	31	7	5	6	4	4	4
2625:	6	6	4	3	11	9	3	7
2633:	2	3	8	7	1	8	3	2
2641:	9	7	7	2	8	7	5	6
2649:	9	5	3	7	6	4	9	5
2657:	4	5	3	5	3	4	5	4
2665:	5	1	5	5	7	6	6	2
2673:	2	2	1	4	5	4	4	5
2681:	3	6	2	5	4	9	10	8
2689:	7	7	3	7	9	3	4	7
2697:	1	6	3	5	4	4	3	6
2705:	3	4	4	9	8	4	7	6
2713:	3	8	4	6	5	7	4	6
2721:	7	1	5	2	4	5	4	5
2729:	3	4	4	2	6	3	2	6
2737:	5	7	4	7	9	2	0	6
2745:	4	4	4	6	2	0	7	5
2753:	3	1	5	4	0	5	4	2
2761:	4	3	6	4	2	2	1	2
2769:	4	5	7	6	1	6	4	5
2777:	1	1	6	3	2	2	5	2
2785:	3	5	5	4	1	2	4	2
2793:	4	1	3	7	1	5	3	3
2801:	3	1	6	6	1	3	5	5
2809:	3	7	2	1	0	4	3	4
2817:	8	3	3	5	0	5	9	3
2825:	0	5	3	4	5	3	2	0
2833:	5	1	0	2	3	5	3	5
2841:	5	7	0	4	2	4	4	2
2849:	2	2	3	3	2	2	3	3
2857:	4	3	2	5	1	3	3	4
2865:	4	1	2	0	4	3	4	4
2873:	3	1	3	5	4	3	3	2
2881:	3	3	3	3	2	3	1	1
2889:	3	1	6	5	5	5	1	2
2897:	3	4	3	0	1	0	7	0
2905:	2	1	1	5	1	2	2	3
2913:	3	5	4	2	1	2	4	3
2921:	7	2	1	4	1	3	0	3
2929:	1	2	0	2	2	2	1	4
2937:	5	4	1	4	3	0	3	3
2945:	6	2	1	3	2	6	4	2
2953:	1	3	2	2	1	1	1	2

2961:	3	2	2	3	1	5	2	7

Sample Title: HTC-A01-S004-0612-01

Channel								
2969:	3	0	2	3	3	0	0	0
2977:	2	0	2	1	3	0	0	1
2985:	0	3	1	3	0	2	1	3
2993:	2	1	1	2	3	0	1	1
3001:	0	1	4	2	0	1	1	2
3009:	2	1	1	3	3	2	1	1
3017:	2	4	1	1	2	2	2	2
3025:	2	2	5	0	0	1	1	1
3033:	0	1	2	2	1	2	2	0
3041:	0	1	2	2	0	0	2	1
3049:	0	3	1	0	1	4	2	2
3057:	2	1	0	3	0	1	2	0
3065:	3	0	1	1	0	0	0	0
3073:	3	1	3	0	0	2	2	0
3081:	0	0	0	2	0	0	0	1
3089:	2	0	2	1	2	0	2	0
3097:	2	3	1	0	3	0	1	0
3105:	0	1	0	0	0	2	0	0
3113:	0	0	1	0	0	1	0	0
3121:	0	0	3	5	6	5	2	1
3129:	0	1	0	0	1	0	1	2
3137:	2	2	0	1	0	2	1	0
3145:	0	2	1	0	1	1	1	0
3153:	0	0	0	0	0	0	1	2
3161:	0	0	1	0	1	0	0	1
3169:	0	1	1	1	0	0	1	1
3177:	0	0	0	1	0	1	0	0
3185:	0	0	1	0	0	1	0	2
3193:	0	2	1	8	20	15	13	1
3201:	4	0	0	0	0	0	0	0
3209:	0	0	1	0	0	2	1	0
3217:	0	0	1	1	0	0	1	0
3225:	1	0	0	0	0	1	0	1
3233:	0	1	0	0	0	0	1	0
3241:	0	0	1	0	0	0	1	0
3249:	1	0	1	2	0	0	1	0
3257:	0	0	0	0	0	0	0	1
3265:	0	0	0	0	0	0	0	1
3273:	1	0	0	0	0	0	0	0
3281:	1	1	1	1	0	0	0	0
3289:	1	0	0	0	1	1	1	0
3297:	0	0	1	0	0	0	0	0
3305:	0	0	0	0	1	0	0	0
3313:	0	0	2	0	0	0	0	0
3321:	0	0	1	0	1	0	0	0
3329:	0	0	0	1	0	0	0	0
3337:	1	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	1	0
3353:	0	0	0	0	1	0	0	0
3361:	0	0	1	0	0	1	0	0
3369:	0	0	1	1	0	0	0	0
3377:	0	0	1	0	0	0	0	0
3385:	0	1	0	0	0	0	0	0

3393:	0	0	0	0	1	0	1	0

Sample Title: HTC-A01-S004-0612-01

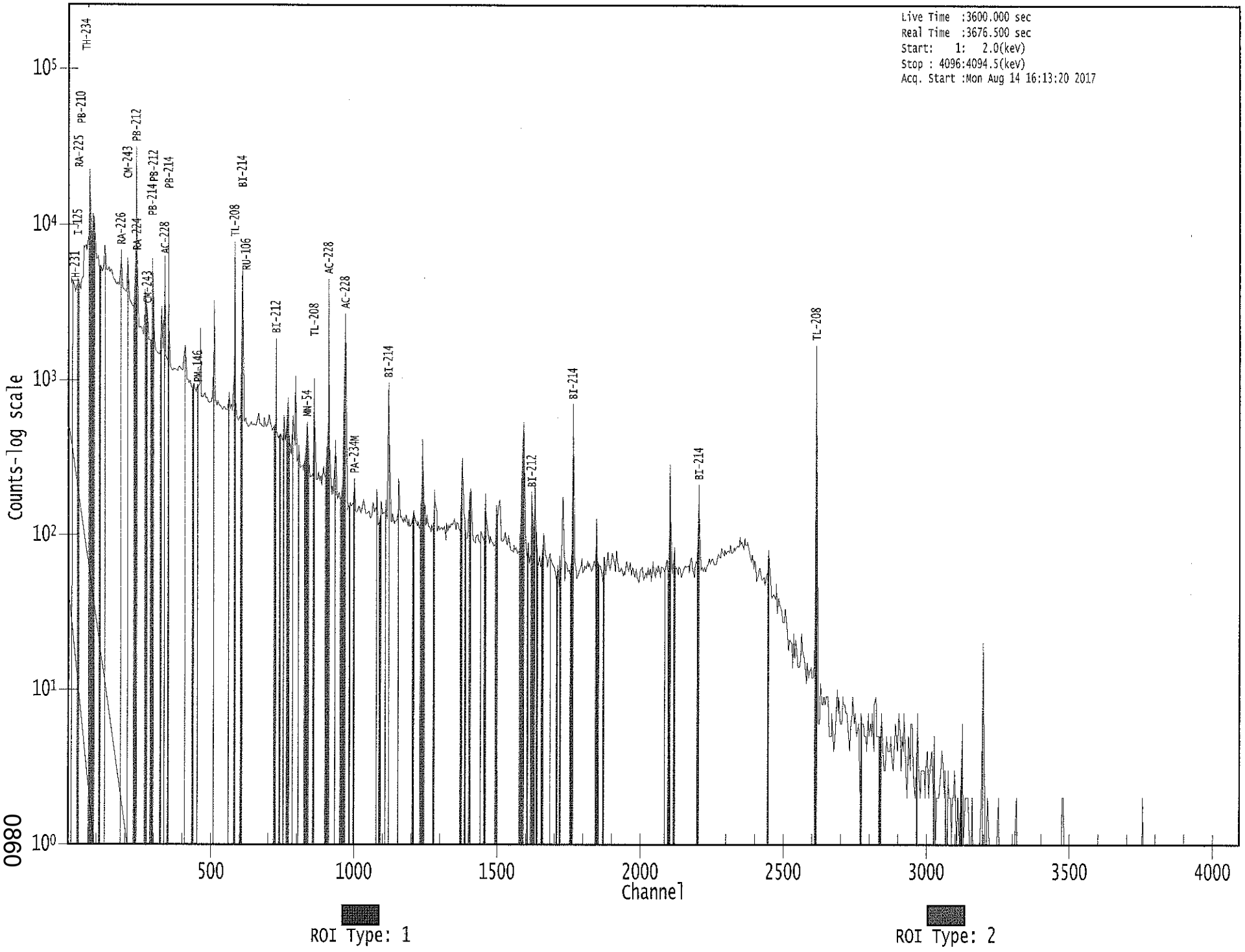
Channel								
3401:	0	0	0	0	0	1	0	0
3409:	0	0	0	0	1	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	1	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	1	0
3449:	1	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	1	2	1	1	0	2	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	1	0	0
3497:	0	0	0	0	0	1	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S004-0612-01

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

0000055202.CNF



0980

KB 8/14/17

Apex-Gamma

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-14
Sample Description	: HTC-A01-S004-1218-01
Sample Type	: SOIL
Sample Size	: 7.824E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:33:06AM
Acquisition Started	: 8/14/2017 4:30:11PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3674.5 seconds
Dead Time	: 2.03 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 18 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55205

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 5:31:29PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	34.20	34.84	0.0000	0.00
2	38.69	39.32	0.0000	0.00
3	46.25	46.87	0.0000	0.00
4	57.10	57.71	0.0000	0.00
5	63.43	64.04	0.0000	0.00
6	75.98	76.58	0.0000	0.00
7	87.57	88.15	0.0000	0.00
8	92.39	92.97	0.0000	0.00
9	99.16	99.73	0.0000	0.00
10	105.18	105.74	0.0000	0.00
11	115.10	115.66	0.0000	0.00
12	129.06	129.60	0.0000	0.00
13	144.22	144.75	0.0000	0.00
14	153.98	154.49	0.0000	0.00
15	185.85	186.33	0.0000	0.00
16	209.18	209.63	0.0000	0.00
17	215.49	215.94	0.0000	0.00
18	235.74	236.17	0.0000	0.00
19	238.52	238.94	0.0000	0.00
20	241.38	241.80	0.0000	0.00
21	258.54	258.94	0.0000	0.00
22	270.11	270.51	0.0000	0.00
23	277.27	277.65	0.0000	0.00
24	287.61	287.99	0.0000	0.00
25	295.13	295.50	0.0000	0.00
26	300.00	300.36	0.0000	0.00
27	322.71	323.05	0.0000	0.00
28	327.89	328.23	0.0000	0.00
29	332.17	332.50	0.0000	0.00
30	338.24	338.56	0.0000	0.00
31	351.82	352.13	0.0000	0.00
32	355.89	356.20	0.0000	0.00
33	375.98	376.26	0.0000	0.00
34	388.08	388.35	0.0000	0.00
35	409.35	409.60	0.0000	0.00
36	420.36	420.60	0.0000	0.00
37	453.03	453.23	0.0000	0.00
38	462.95	463.15	0.0000	0.00
39	487.34	487.51	0.0000	0.00
40	503.85	504.00	0.0000	0.00
41	510.67	510.82	0.0000	0.00
42	514.67	514.82	0.0000	0.00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	562.73	562.83	0.0000	0.00
44	571.54	571.63	0.0000	0.00
45	583.19	583.26	0.0000	0.00
46	587.19	587.26	0.0000	0.00
47	609.32	609.37	0.0000	0.00
48	613.15	613.19	0.0000	0.00
49	640.89	640.91	0.0000	0.00
50	665.42	665.41	0.0000	0.00
51	702.43	702.39	0.0000	0.00
52	708.03	707.98	0.0000	0.00
53	727.31	727.24	0.0000	0.00
54	743.14	743.06	0.0000	0.00
55	755.06	754.97	0.0000	0.00
56	763.51	763.41	0.0000	0.00
57	768.40	768.29	0.0000	0.00
58	772.13	772.02	0.0000	0.00
59	782.03	781.91	0.0000	0.00
60	785.74	785.61	0.0000	0.00
61	795.08	794.94	0.0000	0.00
62	806.22	806.07	0.0000	0.00
63	830.73	830.56	0.0000	0.00
64	835.84	835.66	0.0000	0.00
65	840.21	840.03	0.0000	0.00
66	860.60	860.40	0.0000	0.00
67	893.11	892.87	0.0000	0.00
68	904.27	904.03	0.0000	0.00
69	911.35	911.09	0.0000	0.00
70	915.26	915.00	0.0000	0.00
71	934.15	933.87	0.0000	0.00
72	952.68	952.38	0.0000	0.00
73	959.25	958.95	0.0000	0.00
74	964.88	964.58	0.0000	0.00
75	969.14	968.83	0.0000	0.00
76	988.39	988.06	0.0000	0.00
77	995.54	995.20	0.0000	0.00
78	1001.36	1001.02	0.0000	0.00
79	1033.32	1032.95	0.0000	0.00
80	1040.04	1039.66	0.0000	0.00
81	1052.61	1052.21	0.0000	0.00
82	1064.68	1064.28	0.0000	0.00
83	1078.81	1078.39	0.0000	0.00
84	1094.45	1094.01	0.0000	0.00
85	1108.83	1108.38	0.0000	0.00
86	1120.59	1120.13	0.0000	0.00
87	1155.27	1154.77	0.0000	0.00
88	1182.57	1182.04	0.0000	0.00
89	1207.81	1207.26	0.0000	0.00
90	1238.20	1237.62	0.0000	0.00
91	1247.02	1246.44	0.0000	0.00
92	1254.17	1253.57	0.0000	0.00
93	1281.20	1280.58	0.0000	0.00
94	1364.83	1364.13	0.0000	0.00
95	1377.91	1377.20	0.0000	0.00
96	1385.51	1384.78	0.0000	0.00
97	1401.74	1401.00	0.0000	0.00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
98	1408.53	1407.78	0.0000	0.00
99	1460.32	1459.53	0.0000	0.00
100	1496.15	1495.32	0.0000	0.00
101	1501.98	1501.14	0.0000	0.00
102	1509.62	1508.78	0.0000	0.00
103	1513.07	1512.22	0.0000	0.00
104	1543.89	1543.01	0.0000	0.00
105	1581.00	1580.09	0.0000	0.00
106	1583.50	1582.58	0.0000	0.00
107	1588.50	1587.58	0.0000	0.00
108	1592.89	1591.96	0.0000	0.00
109	1621.09	1620.13	0.0000	0.00
110	1625.18	1624.22	0.0000	0.00
111	1631.00	1630.04	0.0000	0.00
112	1638.75	1637.78	0.0000	0.00
113	1661.68	1660.69	0.0000	0.00
114	1666.75	1665.75	0.0000	0.00
115	1685.74	1684.72	0.0000	0.00
116	1693.26	1692.24	0.0000	0.00
117	1730.09	1729.03	0.0000	0.00
118	1764.95	1763.86	0.0000	0.00
119	1807.24	1806.10	0.0000	0.00
120	1838.85	1837.68	0.0000	0.00
121	1847.80	1846.63	0.0000	0.00
122	1937.45	1936.19	0.0000	0.00
123	2018.86	2017.53	0.0000	0.00
124	2104.16	2102.74	0.0000	0.00
125	2119.11	2117.68	0.0000	0.00
126	2155.57	2154.10	0.0000	0.00
127	2204.67	2203.15	0.0000	0.00
128	2235.30	2233.76	0.0000	0.00
129	2281.55	2279.96	0.0000	0.00
130	2289.14	2287.54	0.0000	0.00
131	2294.11	2292.51	0.0000	0.00
132	2448.06	2446.31	0.0000	0.00
133	2615.07	2613.16	0.0000	0.00
134	2765.88	2763.83	0.0000	0.00
135	2771.80	2769.75	0.0000	0.00
136	2890.92	2888.75	0.0000	0.00
137	3125.32	3122.93	0.0000	0.00
138	3198.25	3195.80	0.0000	0.00
139	3475.05	3472.33	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 5:31:29PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	34.20	31 -	43	34.84	7.13E+03	500.63	4.38E+04	2.11
m	2	38.69	31 -	43	39.32	4.15E+03	624.50	5.95E+04	2.80
	3	46.25	45 -	49	46.87	1.19E+03	427.41	3.98E+04	1.24
	4	57.10	56 -	60	57.71	5.02E+03	526.30	5.75E+04	1.70
	5	63.43	61 -	67	64.04	3.87E+03	736.02	9.64E+04	1.53
	6	75.98	71 -	82	76.58	7.75E+04	1320.35	1.79E+05	3.86
M	7	87.57	83 -	97	88.15	1.47E+04	630.75	6.79E+04	1.67
m	8	92.39	83 -	97	92.97	1.38E+04	636.02	6.36E+04	1.67
	9	99.16	98 -	102	99.73	2.49E+03	523.23	5.85E+04	1.68
	10	105.18	103 -	108	105.74	2.58E+03	609.55	7.25E+04	1.78
	11	115.10	114 -	118	115.66	8.26E+02	515.67	5.81E+04	1.39
	12	129.06	126 -	133	129.60	6.08E+03	779.61	9.73E+04	2.07
	13	144.22	142 -	147	144.75	1.29E+03	591.04	6.87E+04	1.92
	14	153.98	152 -	157	154.49	2.18E+03	583.94	6.63E+04	1.88
	15	185.85	183 -	189	186.33	1.01E+04	644.61	6.81E+04	1.92
	16	209.18	206 -	213	209.63	8.03E+03	671.50	6.94E+04	1.88
	17	215.49	214 -	219	215.94	8.03E+02	493.34	4.79E+04	1.73
M	18	235.74	235 -	250	236.17	1.60E+03	216.13	1.51E+04	1.49
m	19	238.52	235 -	250	238.94	9.76E+04	756.37	3.26E+04	1.57
m	20	241.38	235 -	250	241.80	2.26E+04	849.96	4.19E+04	2.43
	21	258.54	257 -	262	258.94	4.16E+02	397.93	3.12E+04	1.01
M	22	270.11	266 -	281	270.51	8.17E+03	416.37	2.81E+04	1.94
m	23	277.27	266 -	281	277.65	4.06E+03	397.62	2.80E+04	1.94
M	24	287.61	285 -	303	287.99	5.65E+02	320.80	2.28E+04	1.62
m	25	295.13	285 -	303	295.50	2.10E+04	428.56	2.21E+04	1.64
m	26	300.00	285 -	303	300.36	6.80E+03	352.78	2.15E+04	1.78
M	27	322.71	319 -	344	323.05	8.69E+02	465.03	3.28E+04	3.04
m	28	327.89	319 -	344	328.23	5.39E+03	319.90	1.80E+04	1.73
m	29	332.17	319 -	344	332.50	1.15E+03	428.55	2.86E+04	2.56
m	30	338.24	319 -	344	338.56	2.03E+04	401.10	1.75E+04	1.69
M	31	351.82	346 -	359	352.13	3.68E+04	468.89	1.59E+04	1.66
m	32	355.89	346 -	359	356.20	1.32E+03	529.67	2.43E+04	2.54
	33	375.98	374 -	379	376.26	3.31E+02	295.73	1.72E+04	2.37
	34	388.08	386 -	391	388.35	6.43E+02	297.77	1.72E+04	4.00
	35	409.35	406 -	413	409.60	2.64E+03	380.95	2.23E+04	1.88
	36	420.36	418 -	423	420.60	3.35E+02	275.53	1.49E+04	5.48
	37	453.03	450 -	456	453.23	5.62E+02	291.02	1.50E+04	1.30
	38	462.95	459 -	467	463.15	5.76E+03	379.93	1.87E+04	1.67
	39	487.34	485 -	491	487.51	3.60E+02	269.48	1.29E+04	1.57
M	40	503.85	501 -	517	504.00	3.27E+02	234.51	1.07E+04	2.00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
m	41	510.67	501 -	517	510.82	1.09E+04	314.66	1.07E+04	2.00
m	42	514.67	501 -	517	514.82	3.81E+02	252.39	1.07E+04	2.01
	43	562.73	559 -	567	562.83	1.24E+03	316.25	1.46E+04	2.06
	44	571.54	569 -	574	571.63	4.23E+02	225.33	9.83E+03	3.64
M	45	583.19	577 -	591	583.26	3.34E+04	425.50	9.48E+03	1.86
m	46	587.19	577 -	591	587.26	1.38E+03	337.75	1.03E+04	2.48
M	47	609.32	603 -	617	609.37	2.81E+04	380.80	7.13E+03	1.80
m	48	613.15	603 -	617	613.19	1.15E+03	433.58	1.25E+04	2.87
	49	640.89	639 -	644	640.91	1.72E+02	200.97	7.96E+03	2.17
	50	665.42	662 -	669	665.41	6.04E+02	262.14	1.10E+04	1.91
	51	702.43	700 -	705	702.39	3.20E+02	202.59	7.97E+03	3.31
	52	708.03	705 -	711	707.98	2.79E+02	225.68	8.99E+03	2.28
	53	727.31	723 -	732	727.24	7.33E+03	337.12	1.21E+04	2.02
	54	743.14	741 -	746	743.06	2.37E+02	181.29	6.38E+03	1.54
	55	755.06	751 -	759	754.97	1.05E+03	256.29	9.47E+03	2.08
M	56	763.51	760 -	776	763.41	5.86E+02	204.88	7.29E+03	2.35
m	57	768.40	760 -	776	768.29	2.67E+03	203.89	6.03E+03	1.95
m	58	772.13	760 -	776	772.02	1.39E+03	228.85	6.80E+03	2.35
M	59	782.03	779 -	789	781.91	4.41E+02	148.26	4.56E+03	1.80
m	60	785.74	779 -	789	785.61	1.58E+03	183.82	5.40E+03	1.92
	61	795.08	791 -	800	794.94	3.71E+03	274.42	8.62E+03	1.91
	62	806.22	803 -	810	806.07	5.57E+02	199.74	6.25E+03	1.73
M	63	830.73	827 -	844	830.56	4.77E+02	154.67	4.50E+03	2.01
m	64	835.84	827 -	844	835.66	1.58E+03	185.29	5.12E+03	2.38
m	65	840.21	827 -	844	840.03	1.13E+03	182.23	4.97E+03	2.26
	66	860.60	855 -	863	860.40	3.90E+03	233.76	6.00E+03	2.14
	67	893.11	890 -	896	892.87	3.83E+02	155.52	4.12E+03	2.64
M	68	904.27	898 -	919	904.03	5.83E+02	159.80	4.17E+03	2.20
m	69	911.35	898 -	919	911.09	2.28E+04	330.44	3.43E+03	1.98
m	70	915.26	898 -	919	915.00	6.28E+02	218.06	3.29E+03	2.00
	71	934.15	930 -	938	933.87	1.27E+03	192.29	4.91E+03	1.74
	72	952.68	950 -	955	952.38	1.96E+02	124.53	2.93E+03	2.56
M	73	959.25	956 -	978	958.95	1.82E+02	106.74	2.37E+03	2.44
m	74	964.88	956 -	978	964.58	4.59E+03	194.91	3.28E+03	2.44
m	75	969.14	956 -	978	968.83	1.33E+04	265.23	2.71E+03	1.92
	76	988.39	986 -	991	988.06	1.46E+02	114.99	2.53E+03	2.13
M	77	995.54	994 -	1007	995.20	1.10E+02	66.95	1.24E+03	2.23
m	78	1001.36	994 -	1007	1001.02	6.60E+02	135.69	2.80E+03	2.24
	79	1033.32	1029 -	1036	1032.95	3.35E+02	137.71	2.92E+03	2.76
	80	1040.04	1037 -	1043	1039.66	1.42E+02	119.79	2.51E+03	4.46
	81	1052.61	1048 -	1055	1052.21	2.11E+02	132.24	2.77E+03	3.52
	82	1064.68	1061 -	1068	1064.28	1.48E+02	141.69	3.25E+03	2.21
	83	1078.81	1075 -	1082	1078.39	3.66E+02	138.67	2.95E+03	2.24
	84	1094.45	1090 -	1098	1094.01	4.31E+02	149.64	3.19E+03	1.94
	85	1108.83	1101 -	1114	1108.38	5.36E+02	214.35	4.87E+03	2.24
	86	1120.59	1115 -	1125	1120.13	6.33E+03	237.78	4.17E+03	1.96
	87	1155.27	1150 -	1160	1154.77	6.87E+02	186.09	4.25E+03	2.50
	88	1182.57	1179 -	1185	1182.04	1.23E+02	110.49	2.12E+03	1.49
	89	1207.81	1203 -	1211	1207.26	1.70E+02	136.93	2.79E+03	1.96
	90	1238.20	1231 -	1241	1237.62	2.48E+03	188.94	3.43E+03	2.22
	91	1247.02	1243 -	1250	1246.44	3.23E+02	135.09	2.82E+03	1.99
	92	1254.17	1251 -	1256	1253.57	1.17E+02	102.02	1.98E+03	3.17
	93	1281.20	1276 -	1284	1280.58	5.22E+02	144.68	2.89E+03	2.53

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	94	1364.83	1360	1368	1364.13	1.46E+02	130.63	2.54E+03	4.58
M	95	1377.91	1371	1389	1377.20	1.53E+03	134.29	1.98E+03	2.38
m	96	1385.51	1371	1389	1384.78	3.08E+02	111.86	2.17E+03	2.38
M	97	1401.74	1397	1411	1401.00	5.51E+02	110.80	1.82E+03	2.38
m	98	1408.53	1397	1411	1407.78	8.37E+02	116.43	1.87E+03	2.39
	99	1460.32	1453	1466	1459.53	9.87E+02	187.58	3.47E+03	3.70
M	100	1496.15	1489	1504	1495.32	5.68E+02	117.46	1.94E+03	2.64
m	101	1501.98	1489	1504	1501.14	2.85E+02	90.73	1.40E+03	2.08
M	102	1509.62	1505	1518	1508.78	7.98E+02	111.79	1.66E+03	2.41
m	103	1513.07	1505	1518	1512.22	2.02E+02	110.24	1.73E+03	2.42
	104	1543.89	1541	1546	1543.01	1.03E+02	85.49	1.38E+03	1.57
M	105	1581.00	1576	1598	1580.09	3.64E+02	121.59	1.86E+03	3.03
m	106	1583.50	1576	1598	1582.58	2.09E+02	144.48	2.10E+03	3.25
m	107	1588.50	1576	1598	1587.58	1.88E+03	128.51	1.54E+03	2.29
m	108	1592.89	1576	1598	1591.96	1.25E+03	133.46	1.64E+03	2.37
M	109	1621.09	1613	1645	1620.13	9.31E+02	101.52	1.20E+03	2.40
m	110	1625.18	1613	1645	1624.22	2.07E+02	92.53	1.17E+03	2.46
m	111	1631.00	1613	1645	1630.04	1.08E+03	103.04	1.13E+03	2.46
m	112	1638.75	1613	1645	1637.78	3.27E+02	87.24	1.08E+03	2.46
M	113	1661.68	1657	1669	1660.69	2.70E+02	80.21	1.11E+03	2.05
m	114	1666.75	1657	1669	1665.75	1.45E+02	96.23	1.37E+03	2.63
	115	1685.74	1682	1688	1684.72	1.05E+02	80.49	1.09E+03	3.50
	116	1693.26	1689	1696	1692.24	9.57E+01	87.82	1.22E+03	3.20
	117	1730.09	1724	1732	1729.03	1.00E+03	116.73	1.48E+03	2.28
	118	1764.95	1757	1770	1763.86	5.35E+03	197.78	1.97E+03	2.37
	119	1807.24	1801	1810	1806.10	8.04E+01	98.30	1.33E+03	5.47
	120	1838.85	1833	1842	1837.68	1.56E+02	105.68	1.51E+03	4.73
	121	1847.80	1843	1851	1846.63	5.82E+02	110.36	1.52E+03	2.30
	122	1937.45	1933	1939	1936.19	8.33E+01	76.07	9.93E+02	4.33
	123	2018.86	2013	2021	2017.53	8.94E+01	86.02	1.08E+03	4.81
	124	2104.16	2096	2112	2102.74	2.05E+03	183.20	2.43E+03	3.71
	125	2119.11	2113	2122	2117.68	3.10E+02	108.03	1.49E+03	2.29
	126	2155.57	2152	2157	2154.10	5.87E+01	64.10	7.63E+02	2.44
	127	2204.67	2199	2208	2203.15	1.28E+03	128.47	1.64E+03	2.65
	128	2235.30	2231	2237	2233.76	7.60E+01	78.69	1.08E+03	3.67
	129	2281.55	2277	2284	2279.96	1.01E+02	90.55	1.31E+03	6.22
M	130	2289.14	2285	2297	2287.54	5.59E+01	71.91	1.02E+03	1.95
m	131	2294.11	2285	2297	2292.51	1.77E+02	102.78	1.50E+03	2.92
	132	2448.06	2442	2452	2446.31	4.19E+02	105.03	1.24E+03	2.85
	133	2615.07	2606	2620	2613.16	1.34E+04	243.00	5.84E+02	2.83
M	134	2765.88	2760	2772	2763.83	2.15E+01	24.08	8.00E+01	2.77
m	135	2771.80	2760	2772	2769.75	2.12E+01	19.47	5.14E+01	2.77
	136	2890.92	2884	2894	2888.75	5.06E+01	32.67	1.15E+02	2.20
	137	3125.32	3115	3126	3122.93	7.92E+01	24.82	4.17E+01	2.63
	138	3198.25	3190	3203	3195.80	2.57E+02	34.86	1.98E+01	3.62
	139	3475.05	3468	3476	3472.33	2.10E+01	9.17	0.00E+00	3.04

Analysis Report for 1707078-14

HTC-A01-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 ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 5:31:29PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	34.20	31 -	43	7.13E+03	500.63	4.38E+04	3.44E+02
m	2	38.69	31 -	43	4.15E+03	624.50	5.95E+04	4.01E+02
	3	46.25	45 -	49	1.19E+03	427.41	3.98E+04	3.47E+02
	4	57.10	56 -	60	5.02E+03	526.30	5.75E+04	4.17E+02
	5	63.43	61 -	67	3.87E+03	736.02	9.64E+04	5.96E+02
	6	75.98	71 -	82	7.75E+04	1320.35	1.79E+05	9.84E+02
M	7	87.57	83 -	97	1.47E+04	630.75	6.79E+04	4.28E+02
m	8	92.39	83 -	97	1.38E+04	636.02	6.36E+04	4.15E+02
	9	99.16	98 -	102	2.49E+03	523.23	5.85E+04	4.22E+02
	10	105.18	103 -	108	2.58E+03	609.55	7.25E+04	4.94E+02
	11	115.10	114 -	118	8.26E+02	515.67	5.81E+04	4.21E+02
	12	129.06	126 -	133	6.08E+03	779.61	9.73E+04	6.28E+02
	13	144.22	142 -	147	1.29E+03	591.04	6.87E+04	4.82E+02
	14	153.98	152 -	157	2.18E+03	583.94	6.63E+04	4.74E+02
	15	185.85	183 -	189	1.01E+04	644.61	6.81E+04	5.03E+02
	16	209.18	206 -	213	8.03E+03	671.50	6.94E+04	5.32E+02
	17	215.49	214 -	219	8.03E+02	493.34	4.79E+04	4.03E+02
M	18	235.74	235 -	250	1.60E+03	216.13	1.51E+04	2.02E+02
m	19	238.52	235 -	250	9.76E+04	756.37	3.26E+04	2.97E+02
m	20	241.38	235 -	250	2.26E+04	849.96	4.19E+04	3.36E+02
	21	258.54	257 -	262	4.16E+02	397.93	3.12E+04	3.25E+02
M	22	270.11	266 -	281	8.17E+03	416.37	2.81E+04	2.76E+02
m	23	277.27	266 -	281	4.06E+03	397.62	2.80E+04	2.75E+02
M	24	287.61	285 -	303	5.65E+02	320.80	2.28E+04	2.48E+02
m	25	295.13	285 -	303	2.10E+04	428.56	2.21E+04	2.45E+02
m	26	300.00	285 -	303	6.80E+03	352.78	2.15E+04	2.41E+02
M	27	322.71	319 -	344	8.69E+02	465.03	3.28E+04	2.98E+02
m	28	327.89	319 -	344	5.39E+03	319.90	1.80E+04	2.21E+02
m	29	332.17	319 -	344	1.15E+03	428.55	2.86E+04	2.78E+02
m	30	338.24	319 -	344	2.03E+04	401.10	1.75E+04	2.18E+02
M	31	351.82	346 -	359	3.68E+04	468.89	1.59E+04	2.07E+02

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	32	355.89	346 -	359	1.32E+03	529.67	2.43E+04	2.56E+02
	33	375.98	374 -	379	3.31E+02	295.73	1.72E+04	2.41E+02
	34	388.08	386 -	391	6.43E+02	297.77	1.72E+04	2.41E+02
	35	409.35	406 -	413	2.64E+03	380.95	2.23E+04	3.02E+02
	36	420.36	418 -	423	3.35E+02	275.53	1.49E+04	2.24E+02
	37	453.03	450 -	456	5.62E+02	291.02	1.50E+04	2.36E+02
	38	462.95	459 -	467	5.76E+03	379.93	1.87E+04	2.86E+02
	39	487.34	485 -	491	3.60E+02	269.48	1.29E+04	2.19E+02
M	40	503.85	501 -	517	3.27E+02	234.51	1.07E+04	1.70E+02
m	41	510.67	501 -	517	1.09E+04	314.66	1.07E+04	1.70E+02
m	42	514.67	501 -	517	3.81E+02	252.39	1.07E+04	1.70E+02
	43	562.73	559 -	567	1.24E+03	316.25	1.46E+04	2.53E+02
	44	571.54	569 -	574	4.23E+02	225.33	9.83E+03	1.82E+02
M	45	583.19	577 -	591	3.34E+04	425.50	9.48E+03	1.60E+02
m	46	587.19	577 -	591	1.38E+03	337.75	1.03E+04	1.67E+02
M	47	609.32	603 -	617	2.81E+04	380.80	7.13E+03	1.39E+02
m	48	613.15	603 -	617	1.15E+03	433.58	1.25E+04	1.84E+02
	49	640.89	639 -	644	1.72E+02	200.97	7.96E+03	1.64E+02
	50	665.42	662 -	669	6.04E+02	262.14	1.10E+04	2.12E+02
	51	702.43	700 -	705	3.20E+02	202.59	7.97E+03	1.64E+02
	52	708.03	705 -	711	2.79E+02	225.68	8.99E+03	1.83E+02
	53	727.31	723 -	732	7.33E+03	337.12	1.21E+04	2.39E+02
	54	743.14	741 -	746	2.37E+02	181.29	6.38E+03	1.47E+02
	55	755.06	751 -	759	1.05E+03	256.29	9.47E+03	2.04E+02
M	56	763.51	760 -	776	5.86E+02	204.88	7.29E+03	1.40E+02
m	57	768.40	760 -	776	2.67E+03	203.89	6.03E+03	1.28E+02
m	58	772.13	760 -	776	1.39E+03	228.85	6.80E+03	1.36E+02
M	59	782.03	779 -	789	4.41E+02	148.26	4.56E+03	1.11E+02
m	60	785.74	779 -	789	1.58E+03	183.82	5.40E+03	1.21E+02
	61	795.08	791 -	800	3.71E+03	274.42	8.62E+03	2.02E+02
	62	806.22	803 -	810	5.57E+02	199.74	6.25E+03	1.60E+02
M	63	830.73	827 -	844	4.77E+02	154.67	4.50E+03	1.10E+02
m	64	835.84	827 -	844	1.58E+03	185.29	5.12E+03	1.18E+02
m	65	840.21	827 -	844	1.13E+03	182.23	4.97E+03	1.16E+02
	66	860.60	855 -	863	3.90E+03	233.76	6.00E+03	1.62E+02
	67	893.11	890 -	896	3.83E+02	155.52	4.12E+03	1.24E+02
M	68	904.27	898 -	919	5.83E+02	159.80	4.17E+03	1.06E+02
m	69	911.35	898 -	919	2.28E+04	330.44	3.43E+03	9.63E+01
m	70	915.26	898 -	919	6.28E+02	218.06	3.29E+03	9.44E+01
	71	934.15	930 -	938	1.27E+03	192.29	4.91E+03	1.47E+02
	72	952.68	950 -	955	1.96E+02	124.53	2.93E+03	9.97E+01
M	73	959.25	956 -	978	1.82E+02	106.74	2.37E+03	8.01E+01
m	74	964.88	956 -	978	4.59E+03	194.91	3.28E+03	9.42E+01
m	75	969.14	956 -	978	1.33E+04	265.23	2.71E+03	8.56E+01
	76	988.39	986 -	991	1.46E+02	114.99	2.53E+03	9.24E+01
M	77	995.54	994 -	1007	1.10E+02	66.95	1.24E+03	5.78E+01
m	78	1001.36	994 -	1007	6.60E+02	135.69	2.80E+03	8.69E+01
	79	1033.32	1029 -	1036	3.35E+02	137.71	2.92E+03	1.09E+02
	80	1040.04	1037 -	1043	1.42E+02	119.79	2.51E+03	9.65E+01
	81	1052.61	1048 -	1055	2.11E+02	132.24	2.77E+03	1.06E+02
	82	1064.68	1061 -	1068	1.48E+02	141.69	3.25E+03	1.15E+02

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	83	1078.81	1075 -	1082	3.66E+02	138.67	2.95E+03	1.10E+02
	84	1094.45	1090 -	1098	4.31E+02	149.64	3.19E+03	1.18E+02
	85	1108.83	1101 -	1114	5.36E+02	214.35	4.87E+03	1.72E+02
	86	1120.59	1115 -	1125	6.33E+03	237.78	4.17E+03	1.45E+02
	87	1155.27	1150 -	1160	6.87E+02	186.09	4.25E+03	1.47E+02
	88	1182.57	1179 -	1185	1.23E+02	110.49	2.12E+03	8.90E+01
	89	1207.81	1203 -	1211	1.70E+02	136.93	2.79E+03	1.10E+02
	90	1238.20	1231 -	1241	2.48E+03	188.94	3.43E+03	1.32E+02
	91	1247.02	1243 -	1250	3.23E+02	135.09	2.82E+03	1.07E+02
	92	1254.17	1251 -	1256	1.17E+02	102.02	1.98E+03	8.20E+01
	93	1281.20	1276 -	1284	5.22E+02	144.68	2.89E+03	1.13E+02
	94	1364.83	1360 -	1368	1.46E+02	130.63	2.54E+03	1.06E+02
M	95	1377.91	1371 -	1389	1.53E+03	134.29	1.98E+03	7.31E+01
m	96	1385.51	1371 -	1389	3.08E+02	111.86	2.17E+03	7.67E+01
M	97	1401.74	1397 -	1411	5.51E+02	110.80	1.82E+03	7.02E+01
m	98	1408.53	1397 -	1411	8.37E+02	116.43	1.87E+03	7.11E+01
	99	1460.32	1453 -	1466	9.87E+02	187.58	3.47E+03	1.45E+02
M	100	1496.15	1489 -	1504	5.68E+02	117.46	1.94E+03	7.24E+01
m	101	1501.98	1489 -	1504	2.85E+02	90.73	1.40E+03	6.14E+01
M	102	1509.62	1505 -	1518	7.98E+02	111.79	1.66E+03	6.69E+01
m	103	1513.07	1505 -	1518	2.02E+02	110.24	1.73E+03	6.83E+01
	104	1543.89	1541 -	1546	1.03E+02	85.49	1.38E+03	6.83E+01
M	105	1581.00	1576 -	1598	3.64E+02	121.59	1.86E+03	7.08E+01
m	106	1583.50	1576 -	1598	2.09E+02	144.48	2.10E+03	7.53E+01
m	107	1588.50	1576 -	1598	1.88E+03	128.51	1.54E+03	6.45E+01
m	108	1592.89	1576 -	1598	1.25E+03	133.46	1.64E+03	6.65E+01
M	109	1621.09	1613 -	1645	9.31E+02	101.52	1.20E+03	5.70E+01
m	110	1625.18	1613 -	1645	2.07E+02	92.53	1.17E+03	5.62E+01
m	111	1631.00	1613 -	1645	1.08E+03	103.04	1.13E+03	5.53E+01
m	112	1638.75	1613 -	1645	3.27E+02	87.24	1.08E+03	5.39E+01
M	113	1661.68	1657 -	1669	2.70E+02	80.21	1.11E+03	5.48E+01
m	114	1666.75	1657 -	1669	1.45E+02	96.23	1.37E+03	6.09E+01
	115	1685.74	1682 -	1688	1.05E+02	80.49	1.09E+03	6.40E+01
	116	1693.26	1689 -	1696	9.57E+01	87.82	1.22E+03	7.04E+01
	117	1730.09	1724 -	1732	1.00E+03	116.73	1.48E+03	8.06E+01
	118	1764.95	1757 -	1770	5.35E+03	197.78	1.97E+03	1.09E+02
	119	1807.24	1801 -	1810	8.04E+01	98.30	1.33E+03	7.94E+01
	120	1838.85	1833 -	1842	1.56E+02	105.68	1.51E+03	8.44E+01
	121	1847.80	1843 -	1851	5.82E+02	110.36	1.52E+03	8.16E+01
	122	1937.45	1933 -	1939	8.33E+01	76.07	9.93E+02	6.07E+01
	123	2018.86	2013 -	2021	8.94E+01	86.02	1.08E+03	6.90E+01
	124	2104.16	2096 -	2112	2.05E+03	183.20	2.43E+03	1.31E+02
	125	2119.11	2113 -	2122	3.10E+02	108.03	1.49E+03	8.39E+01
	126	2155.57	2152 -	2157	5.87E+01	64.10	7.63E+02	5.12E+01
	127	2204.67	2199 -	2208	1.28E+03	128.47	1.64E+03	8.78E+01
	128	2235.30	2231 -	2237	7.60E+01	78.69	1.08E+03	6.31E+01
	129	2281.55	2277 -	2284	1.01E+02	90.55	1.31E+03	7.26E+01
M	130	2289.14	2285 -	2297	5.59E+01	71.91	1.02E+03	5.25E+01
m	131	2294.11	2285 -	2297	1.77E+02	102.78	1.50E+03	6.36E+01
	132	2448.06	2442 -	2452	4.19E+02	105.03	1.24E+03	7.95E+01
	133	2615.07	2606 -	2620	1.34E+04	243.00	5.84E+02	6.13E+01

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	134	2765.88	2760 -	2772	2.15E+01	24.08	8.00E+01	1.47E+01
m	135	2771.80	2760 -	2772	2.12E+01	19.47	5.14E+01	1.18E+01
	136	2890.92	2884 -	2894	5.06E+01	32.67	1.15E+02	2.42E+01
	137	3125.32	3115 -	3126	7.92E+01	24.82	4.17E+01	1.42E+01
	138	3198.25	3190 -	3203	2.57E+02	34.86	1.98E+01	1.12E+01
	139	3475.05	3468 -	3476	2.10E+01	9.17	0.00E+00	0.00E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 5:31:29PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	34.20	31 -	43	34.84	7.13E+03	500.63	4.38E+04	I-129
m	2	38.69	31 -	43	39.32	4.15E+03	624.50	5.95E+04	I-129
	3	46.25	45 -	49	46.87	1.19E+03	427.41	3.98E+04	PB-210
	4	57.10	56 -	60	57.71	5.02E+03	526.30	5.75E+04	CE-143
	5	63.43	61 -	67	64.04	3.87E+03	736.02	9.64E+04	TH-234
									TH-230
	6	75.98	71 -	82	76.58	7.75E+04	1320.35	1.79E+05	.....
M	7	87.57	83 -	97	88.15	1.47E+04	630.75	6.79E+04	SN-126
									CD-109
									LU-176
m	8	92.39	83 -	97	92.97	1.38E+04	636.02	6.36E+04	GA-67
	9	99.16	98 -	102	99.73	2.49E+03	523.23	5.85E+04	.....
	10	105.18	103 -	108	105.74	2.58E+03	609.55	7.25E+04	EU-155
									NP-239
	11	115.10	114 -	118	115.66	8.26E+02	515.67	5.81E+04	.....
	12	129.06	126 -	133	129.60	6.08E+03	779.61	9.73E+04	.....
	13	144.22	142 -	147	144.75	1.29E+03	591.04	6.87E+04	U-235
	14	153.98	152 -	157	154.49	2.18E+03	583.94	6.63E+04	CS-136
	15	185.85	183 -	189	186.33	1.01E+04	644.61	6.81E+04	RA-226
	16	209.18	206 -	213	209.63	8.03E+03	671.50	6.94E+04	GA-67

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CM-243
	17	215.49	214 -	219	215.94	8.03E+02	493.34	4.79E+04	.....
M	18	235.74	235 -	250	236.17	1.60E+03	216.13	1.51E+04	NB-95M
									TH-227
m	19	238.52	235 -	250	238.94	9.76E+04	756.37	3.26E+04	PB-212
m	20	241.38	235 -	250	241.80	2.26E+04	849.96	4.19E+04	RA-224
	21	258.54	257 -	262	258.94	4.16E+02	397.93	3.12E+04	.....
M	22	270.11	266 -	281	270.51	8.17E+03	416.37	2.81E+04	.....
m	23	277.27	266 -	281	277.65	4.06E+03	397.62	2.80E+04	CM-243
									NP-239
M	24	287.61	285 -	303	287.99	5.65E+02	320.80	2.28E+04	.....
m	25	295.13	285 -	303	295.50	2.10E+04	428.56	2.21E+04	PB-214
m	26	300.00	285 -	303	300.36	6.80E+03	352.78	2.15E+04	BI-210M
									PB-212
									GA-67
M	27	322.71	319 -	344	323.05	8.69E+02	465.03	3.28E+04	.....
m	28	327.89	319 -	344	328.23	5.39E+03	319.90	1.80E+04	LA-140
m	29	332.17	319 -	344	332.50	1.15E+03	428.55	2.86E+04	.....
m	30	338.24	319 -	344	338.56	2.03E+04	401.10	1.75E+04	AC-228
M	31	351.82	346 -	359	352.13	3.68E+04	468.89	1.59E+04	PB-214
m	32	355.89	346 -	359	356.20	1.32E+03	529.67	2.43E+04	BA-133
	33	375.98	374 -	379	376.26	3.31E+02	295.73	1.72E+04	.....
	34	388.08	386 -	391	388.35	6.43E+02	297.77	1.72E+04	.....
	35	409.35	406 -	413	409.60	2.64E+03	380.95	2.23E+04	.....
	36	420.36	418 -	423	420.60	3.35E+02	275.53	1.49E+04	.....
	37	453.03	450 -	456	453.23	5.62E+02	291.02	1.50E+04	PM-146
	38	462.95	459 -	467	463.15	5.76E+03	379.93	1.87E+04	SB-125
	39	487.34	485 -	491	487.51	3.60E+02	269.48	1.29E+04	LA-140
M	40	503.85	501 -	517	504.00	3.27E+02	234.51	1.07E+04	.....
m	41	510.67	501 -	517	510.82	1.09E+04	314.66	1.07E+04	.....
m	42	514.67	501 -	517	514.82	3.81E+02	252.39	1.07E+04	KR-85
									SR-85
	43	562.73	559 -	567	562.83	1.24E+03	316.25	1.46E+04	CS-134
	44	571.54	569 -	574	571.63	4.23E+02	225.33	9.83E+03	.....
M	45	583.19	577 -	591	583.26	3.34E+04	425.50	9.48E+03	TL-208
m	46	587.19	577 -	591	587.26	1.38E+03	337.75	1.03E+04	.....
M	47	609.32	603 -	617	609.37	2.81E+04	380.80	7.13E+03	BI-214
m	48	613.15	603 -	617	613.19	1.15E+03	433.58	1.25E+04	.....
	49	640.89	639 -	644	640.91	1.72E+02	200.97	7.96E+03	.....
	50	665.42	662 -	669	665.41	6.04E+02	262.14	1.10E+04	CE-143
									SB-126
	51	702.43	700 -	705	702.39	3.20E+02	202.59	7.97E+03	NB-94
	52	708.03	705 -	711	707.98	2.79E+02	225.68	8.99E+03	.....
	53	727.31	723 -	732	727.24	7.33E+03	337.12	1.21E+04	BI-212
	54	743.14	741 -	746	743.06	2.37E+02	181.29	6.38E+03	.....
	55	755.06	751 -	759	754.97	1.05E+03	256.29	9.47E+03	.....
M	56	763.51	760 -	776	763.41	5.86E+02	204.88	7.29E+03	AG-110M
m	57	768.40	760 -	776	768.29	2.67E+03	203.89	6.03E+03	.....
m	58	772.13	760 -	776	772.02	1.39E+03	228.85	6.80E+03	.....
M	59	782.03	779 -	789	781.91	4.41E+02	148.26	4.56E+03	.....
m	60	785.74	779 -	789	785.61	1.58E+03	183.82	5.40E+03	.....
	61	795.08	791 -	800	794.94	3.71E+03	274.42	8.62E+03	CS-134
	62	806.22	803 -	810	806.07	5.57E+02	199.74	6.25E+03	.....
M	63	830.73	827 -	844	830.56	4.77E+02	154.67	4.50E+03	.....

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	64	835.84	827 -	844	835.66	1.58E+03	185.29	5.12E+03	.....
m	65	840.21	827 -	844	840.03	1.13E+03	182.23	4.97E+03	.....
	66	860.60	855 -	863	860.40	3.90E+03	233.76	6.00E+03	TL-208
	67	893.11	890 -	896	892.87	3.83E+02	155.52	4.12E+03	.....
M	68	904.27	898 -	919	904.03	5.83E+02	159.80	4.17E+03	.....
m	69	911.35	898 -	919	911.09	2.28E+04	330.44	3.43E+03	AC-228
									TL-204
m	70	915.26	898 -	919	915.00	6.28E+02	218.06	3.29E+03	.....
	71	934.15	930 -	938	933.87	1.27E+03	192.29	4.91E+03	.....
	72	952.68	950 -	955	952.38	1.96E+02	124.53	2.93E+03	.....
M	73	959.25	956 -	978	958.95	1.82E+02	106.74	2.37E+03	.....
m	74	964.88	956 -	978	964.58	4.59E+03	194.91	3.28E+03	EU-152
m	75	969.14	956 -	978	968.83	1.33E+04	265.23	2.71E+03	AC-228
	76	988.39	986 -	991	988.06	1.46E+02	114.99	2.53E+03	.....
M	77	995.54	994 -	1007	995.20	1.10E+02	66.95	1.24E+03	EU-154
m	78	1001.36	994 -	1007	1001.02	6.60E+02	135.69	2.80E+03	PA-234M
	79	1033.32	1029 -	1036	1032.95	3.35E+02	137.71	2.92E+03	.....
	80	1040.04	1037 -	1043	1039.66	1.42E+02	119.79	2.51E+03	.....
	81	1052.61	1048 -	1055	1052.21	2.11E+02	132.24	2.77E+03	.....
	82	1064.68	1061 -	1068	1064.28	1.48E+02	141.69	3.25E+03	.....
	83	1078.81	1075 -	1082	1078.39	3.66E+02	138.67	2.95E+03	.....
	84	1094.45	1090 -	1098	1094.01	4.31E+02	149.64	3.19E+03	LU-172
	85	1108.83	1101 -	1114	1108.38	5.36E+02	214.35	4.87E+03	.....
	86	1120.59	1115 -	1125	1120.13	6.33E+03	237.78	4.17E+03	SC-46
									BI-214
									TA-182
	87	1155.27	1150 -	1160	1154.77	6.87E+02	186.09	4.25E+03	.....
	88	1182.57	1179 -	1185	1182.04	1.23E+02	110.49	2.12E+03	.....
	89	1207.81	1203 -	1211	1207.26	1.70E+02	136.93	2.79E+03	.....
	90	1238.20	1231 -	1241	1237.62	2.48E+03	188.94	3.43E+03	CO-56
	91	1247.02	1243 -	1250	1246.44	3.23E+02	135.09	2.82E+03	.....
	92	1254.17	1251 -	1256	1253.57	1.17E+02	102.02	1.98E+03	.....
	93	1281.20	1276 -	1284	1280.58	5.22E+02	144.68	2.89E+03	.....
	94	1364.83	1360 -	1368	1364.13	1.46E+02	130.63	2.54E+03	.....
M	95	1377.91	1371 -	1389	1377.20	1.53E+03	134.29	1.98E+03	.....
m	96	1385.51	1371 -	1389	1384.78	3.08E+02	111.86	2.17E+03	.....
M	97	1401.74	1397 -	1411	1401.00	5.51E+02	110.80	1.82E+03	.....
m	98	1408.53	1397 -	1411	1407.78	8.37E+02	116.43	1.87E+03	EU-152
	99	1460.32	1453 -	1466	1459.53	9.87E+02	187.58	3.47E+03	K-40
M	100	1496.15	1489 -	1504	1495.32	5.68E+02	117.46	1.94E+03	.....
m	101	1501.98	1489 -	1504	1501.14	2.85E+02	90.73	1.40E+03	.....
M	102	1509.62	1505 -	1518	1508.78	7.98E+02	111.79	1.66E+03	.....
m	103	1513.07	1505 -	1518	1512.22	2.02E+02	110.24	1.73E+03	.....
	104	1543.89	1541 -	1546	1543.01	1.03E+02	85.49	1.38E+03	.....
M	105	1581.00	1576 -	1598	1580.09	3.64E+02	121.59	1.86E+03	.....
m	106	1583.50	1576 -	1598	1582.58	2.09E+02	144.48	2.10E+03	.....
m	107	1588.50	1576 -	1598	1587.58	1.88E+03	128.51	1.54E+03	.....
m	108	1592.89	1576 -	1598	1591.96	1.25E+03	133.46	1.64E+03	.....
M	109	1621.09	1613 -	1645	1620.13	9.31E+02	101.52	1.20E+03	BI-212
m	110	1625.18	1613 -	1645	1624.22	2.07E+02	92.53	1.17E+03	.....
m	111	1631.00	1613 -	1645	1630.04	1.08E+03	103.04	1.13E+03	.....
m	112	1638.75	1613 -	1645	1637.78	3.27E+02	87.24	1.08E+03	.....
M	113	1661.68	1657 -	1669	1660.69	2.70E+02	80.21	1.11E+03	.....
m	114	1666.75	1657 -	1669	1665.75	1.45E+02	96.23	1.37E+03	.....

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	115	1685.74	1682 -	1688	1684.72	1.05E+02	80.49	1.09E+03	.....
	116	1693.26	1689 -	1696	1692.24	9.57E+01	87.82	1.22E+03	.....
	117	1730.09	1724 -	1732	1729.03	1.00E+03	116.73	1.48E+03	.....
	118	1764.95	1757 -	1770	1763.86	5.35E+03	197.78	1.97E+03	BI-214
	119	1807.24	1801 -	1810	1806.10	8.04E+01	98.30	1.33E+03	.....
	120	1838.85	1833 -	1842	1837.68	1.56E+02	105.68	1.51E+03	.....
	121	1847.80	1843 -	1851	1846.63	5.82E+02	110.36	1.52E+03	.....
	122	1937.45	1933 -	1939	1936.19	8.33E+01	76.07	9.93E+02	.....
	123	2018.86	2013 -	2021	2017.53	8.94E+01	86.02	1.08E+03	.....
	124	2104.16	2096 -	2112	2102.74	2.05E+03	183.20	2.43E+03	.....
	125	2119.11	2113 -	2122	2117.68	3.10E+02	108.03	1.49E+03	.....
	126	2155.57	2152 -	2157	2154.10	5.87E+01	64.10	7.63E+02	.....
	127	2204.67	2199 -	2208	2203.15	1.28E+03	128.47	1.64E+03	BI-214
	128	2235.30	2231 -	2237	2233.76	7.60E+01	78.69	1.08E+03	.....
	129	2281.55	2277 -	2284	2279.96	1.01E+02	90.55	1.31E+03	.....
M	130	2289.14	2285 -	2297	2287.54	5.59E+01	71.91	1.02E+03	.....
m	131	2294.11	2285 -	2297	2292.51	1.77E+02	102.78	1.50E+03	.....
	132	2448.06	2442 -	2452	2446.31	4.19E+02	105.03	1.24E+03	.....
	133	2615.07	2606 -	2620	2613.16	1.34E+04	243.00	5.84E+02	TL-208
M	134	2765.88	2760 -	2772	2763.83	2.15E+01	24.08	8.00E+01	.....
m	135	2771.80	2760 -	2772	2769.75	2.12E+01	19.47	5.14E+01	.....
	136	2890.92	2884 -	2894	2888.75	5.06E+01	32.67	1.15E+02	.....
	137	3125.32	3115 -	3126	3122.93	7.92E+01	24.82	4.17E+01	.....
	138	3198.25	3190 -	3203	3195.80	2.57E+02	34.86	1.98E+01	.....
	139	3475.05	3468 -	3476	3472.33	2.10E+01	9.17	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 5:31:29PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	34.20	7.13E+03	500.63	2.09E-02	2.22E-03
m	2	38.69	4.15E+03	624.50	2.25E-02	2.22E-03
	3	46.25	1.19E+03	427.41	2.46E-02	2.22E-03
	4	57.10	5.02E+03	526.30	2.64E-02	2.22E-03
	5	63.43	3.87E+03	736.02	2.70E-02	2.26E-03

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	6	75.98	7.75E+04	1320.35	2.75E-02	2.39E-03
M	7	87.57	1.47E+04	630.75	2.74E-02	2.52E-03
m	8	92.39	1.38E+04	636.02	2.73E-02	2.45E-03
	9	99.16	2.49E+03	523.23	2.70E-02	2.34E-03
	10	105.18	2.58E+03	609.55	2.67E-02	2.24E-03
	11	115.10	8.26E+02	515.67	2.62E-02	2.09E-03
	12	129.06	6.08E+03	779.61	2.53E-02	1.94E-03
	13	144.22	1.29E+03	591.04	2.44E-02	1.85E-03
	14	153.98	2.18E+03	583.94	2.37E-02	1.80E-03
	15	185.85	1.01E+04	644.61	2.17E-02	1.68E-03
	16	209.18	8.03E+03	671.50	2.04E-02	1.61E-03
	17	215.49	8.03E+02	493.34	2.00E-02	1.59E-03
M	18	235.74	1.60E+03	216.13	1.90E-02	1.53E-03
m	19	238.52	9.76E+04	756.37	1.89E-02	1.53E-03
m	20	241.38	2.26E+04	849.96	1.87E-02	1.52E-03
	21	258.54	4.16E+02	397.93	1.79E-02	1.47E-03
M	22	270.11	8.17E+03	416.37	1.74E-02	1.43E-03
m	23	277.27	4.06E+03	397.62	1.71E-02	1.41E-03
M	24	287.61	5.65E+02	320.80	1.67E-02	1.39E-03
m	25	295.13	2.10E+04	428.56	1.64E-02	1.37E-03
m	26	300.00	6.80E+03	352.78	1.63E-02	1.36E-03
M	27	322.71	8.69E+02	465.03	1.55E-02	1.31E-03
m	28	327.89	5.39E+03	319.90	1.53E-02	1.29E-03
m	29	332.17	1.15E+03	428.55	1.52E-02	1.28E-03
m	30	338.24	2.03E+04	401.10	1.50E-02	1.27E-03
M	31	351.82	3.68E+04	468.89	1.45E-02	1.24E-03
m	32	355.89	1.32E+03	529.67	1.44E-02	1.23E-03
	33	375.98	3.31E+02	295.73	1.39E-02	1.18E-03
	34	388.08	6.43E+02	297.77	1.35E-02	1.15E-03
	35	409.35	2.64E+03	380.95	1.30E-02	1.13E-03
	36	420.36	3.35E+02	275.53	1.28E-02	1.13E-03
	37	453.03	5.62E+02	291.02	1.21E-02	1.11E-03
	38	462.95	5.76E+03	379.93	1.19E-02	1.10E-03
	39	487.34	3.60E+02	269.48	1.14E-02	1.08E-03
M	40	503.85	3.27E+02	234.51	1.11E-02	1.07E-03
m	41	510.67	1.09E+04	314.66	1.10E-02	1.07E-03
m	42	514.67	3.81E+02	252.39	1.10E-02	1.07E-03
	43	562.73	1.24E+03	316.25	1.02E-02	1.04E-03
	44	571.54	4.23E+02	225.33	1.01E-02	1.03E-03
M	45	583.19	3.34E+04	425.50	9.96E-03	1.02E-03
m	46	587.19	1.38E+03	337.75	9.91E-03	1.02E-03
M	47	609.32	2.81E+04	380.80	9.63E-03	1.01E-03
m	48	613.15	1.15E+03	433.58	9.59E-03	1.00E-03
	49	640.89	1.72E+02	200.97	9.27E-03	9.85E-04
	50	665.42	6.04E+02	262.14	9.00E-03	9.66E-04
	51	702.43	3.20E+02	202.59	8.64E-03	9.07E-04
	52	708.03	2.79E+02	225.68	8.59E-03	8.98E-04
	53	727.31	7.33E+03	337.12	8.41E-03	8.68E-04
	54	743.14	2.37E+02	181.29	8.27E-03	8.43E-04
	55	755.06	1.05E+03	256.29	8.17E-03	8.24E-04
M	56	763.51	5.86E+02	204.88	8.10E-03	8.10E-04
m	57	768.40	2.67E+03	203.89	8.06E-03	8.02E-04
m	58	772.13	1.39E+03	228.85	8.03E-03	7.96E-04

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	59	782.03	4.41E+02	148.26	7.96E-03	7.81E-04
m	60	785.74	1.58E+03	183.82	7.93E-03	7.75E-04
	61	795.08	3.71E+03	274.42	7.86E-03	7.60E-04
	62	806.22	5.57E+02	199.74	7.77E-03	7.42E-04
M	63	830.73	4.77E+02	154.67	7.60E-03	7.03E-04
m	64	835.84	1.58E+03	185.29	7.56E-03	6.95E-04
m	65	840.21	1.13E+03	182.23	7.53E-03	6.88E-04
	66	860.60	3.90E+03	233.76	7.40E-03	6.56E-04
	67	893.11	3.83E+02	155.52	7.19E-03	6.04E-04
M	68	904.27	5.83E+02	159.80	7.13E-03	5.94E-04
m	69	911.35	2.28E+04	330.44	7.09E-03	5.91E-04
m	70	915.26	6.28E+02	218.06	7.06E-03	5.90E-04
	71	934.15	1.27E+03	192.29	6.95E-03	5.83E-04
	72	952.68	1.96E+02	124.53	6.85E-03	5.76E-04
M	73	959.25	1.82E+02	106.74	6.82E-03	5.73E-04
m	74	964.88	4.59E+03	194.91	6.79E-03	5.71E-04
m	75	969.14	1.33E+04	265.23	6.77E-03	5.69E-04
	76	988.39	1.46E+02	114.99	6.67E-03	5.62E-04
M	77	995.54	1.10E+02	66.95	6.63E-03	5.59E-04
m	78	1001.36	6.60E+02	135.69	6.60E-03	5.57E-04
	79	1033.32	3.35E+02	137.71	6.45E-03	5.45E-04
	80	1040.04	1.42E+02	119.79	6.42E-03	5.42E-04
	81	1052.61	2.11E+02	132.24	6.36E-03	5.37E-04
	82	1064.68	1.48E+02	141.69	6.31E-03	5.33E-04
	83	1078.81	3.66E+02	138.67	6.25E-03	5.27E-04
	84	1094.45	4.31E+02	149.64	6.18E-03	5.21E-04
	85	1108.83	5.36E+02	214.35	6.12E-03	5.16E-04
	86	1120.59	6.33E+03	237.78	6.07E-03	5.11E-04
	87	1155.27	6.87E+02	186.09	5.94E-03	4.98E-04
	88	1182.57	1.23E+02	110.49	5.84E-03	4.89E-04
	89	1207.81	1.70E+02	136.93	5.75E-03	4.83E-04
	90	1238.20	2.48E+03	188.94	5.64E-03	4.76E-04
	91	1247.02	3.23E+02	135.09	5.61E-03	4.74E-04
	92	1254.17	1.17E+02	102.02	5.59E-03	4.72E-04
	93	1281.20	5.22E+02	144.68	5.50E-03	4.66E-04
	94	1364.83	1.46E+02	130.63	5.26E-03	4.47E-04
M	95	1377.91	1.53E+03	134.29	5.22E-03	4.44E-04
m	96	1385.51	3.08E+02	111.86	5.20E-03	4.42E-04
M	97	1401.74	5.51E+02	110.80	5.16E-03	4.38E-04
m	98	1408.53	8.37E+02	116.43	5.14E-03	4.37E-04
	99	1460.32	9.87E+02	187.58	5.01E-03	4.25E-04
M	100	1496.15	5.68E+02	117.46	4.92E-03	4.17E-04
m	101	1501.98	2.85E+02	90.73	4.91E-03	4.15E-04
M	102	1509.62	7.98E+02	111.79	4.89E-03	4.13E-04
m	103	1513.07	2.02E+02	110.24	4.88E-03	4.13E-04
	104	1543.89	1.03E+02	85.49	4.81E-03	4.06E-04
M	105	1581.00	3.64E+02	121.59	4.73E-03	3.97E-04
m	106	1583.50	2.09E+02	144.48	4.73E-03	3.96E-04
m	107	1588.50	1.88E+03	128.51	4.71E-03	3.95E-04
m	108	1592.89	1.25E+03	133.46	4.71E-03	3.94E-04
M	109	1621.09	9.31E+02	101.52	4.65E-03	3.88E-04
m	110	1625.18	2.07E+02	92.53	4.64E-03	3.87E-04
m	111	1631.00	1.08E+03	103.04	4.63E-03	3.85E-04

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	112	1638.75	3.27E+02	87.24	4.61E-03	3.84E-04
M	113	1661.68	2.70E+02	80.21	4.57E-03	3.78E-04
m	114	1666.75	1.45E+02	96.23	4.56E-03	3.77E-04
	115	1685.74	1.05E+02	80.49	4.52E-03	3.73E-04
	116	1693.26	9.57E+01	87.82	4.50E-03	3.71E-04
	117	1730.09	1.00E+03	116.73	4.44E-03	3.62E-04
	118	1764.95	5.35E+03	197.78	4.37E-03	3.54E-04
	119	1807.24	8.04E+01	98.30	4.30E-03	3.45E-04
	120	1838.85	1.56E+02	105.68	4.25E-03	3.38E-04
	121	1847.80	5.82E+02	110.36	4.23E-03	3.38E-04
	122	1937.45	8.33E+01	76.07	4.09E-03	3.38E-04
	123	2018.86	8.94E+01	86.02	3.98E-03	3.38E-04
	124	2104.16	2.05E+03	183.20	3.86E-03	3.38E-04
	125	2119.11	3.10E+02	108.03	3.84E-03	3.38E-04
	126	2155.57	5.87E+01	64.10	3.80E-03	3.38E-04
	127	2204.67	1.28E+03	128.47	3.74E-03	3.38E-04
	128	2235.30	7.60E+01	78.69	3.70E-03	3.38E-04
	129	2281.55	1.01E+02	90.55	3.65E-03	3.38E-04
M	130	2289.14	5.59E+01	71.91	3.64E-03	3.38E-04
m	131	2294.11	1.77E+02	102.78	3.63E-03	3.38E-04
	132	2448.06	4.19E+02	105.03	3.47E-03	3.38E-04
	133	2615.07	1.34E+04	243.00	3.31E-03	3.38E-04
M	134	2765.88	2.15E+01	24.08	3.17E-03	3.38E-04
m	135	2771.80	2.12E+01	19.47	3.17E-03	3.38E-04
	136	2890.92	5.06E+01	32.67	3.07E-03	3.38E-04
	137	3125.32	7.92E+01	24.82	2.90E-03	3.38E-04
	138	3198.25	2.57E+02	34.86	2.85E-03	3.38E-04
	139	3475.05	2.10E+01	9.17	2.67E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 5:31:29PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	34.20	7.13E+03	500.63			7.13E+03	5.01E+02
m	2	38.69	4.15E+03	624.50			4.15E+03	6.24E+02

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	3	46.25	1.19E+03	427.41	4.28E+01	8.26E+00	1.15E+03	4.27E+02
	4	57.10	5.02E+03	526.30			5.02E+03	5.26E+02
	5	63.43	3.87E+03	736.02	6.71E+01	1.02E+01	3.80E+03	7.36E+02
	6	75.98	7.75E+04	1320.35			7.75E+04	1.32E+03
M	7	87.57	1.47E+04	630.75			1.47E+04	6.31E+02
m	8	92.39	1.38E+04	636.02	1.35E+02	7.64E+00	1.36E+04	6.36E+02
	9	99.16	2.49E+03	523.23	7.32E+00	2.91E+00	2.48E+03	5.23E+02
	10	105.18	2.58E+03	609.55			2.58E+03	6.10E+02
	11	115.10	8.26E+02	515.67			8.26E+02	5.16E+02
	12	129.06	6.08E+03	779.61			6.08E+03	7.80E+02
	13	144.22	1.29E+03	591.04	1.54E+01	2.12E+01	1.27E+03	5.91E+02
	14	153.98	2.18E+03	583.94			2.18E+03	5.84E+02
	15	185.85	1.01E+04	644.61	5.47E+01	6.99E+00	1.01E+04	6.45E+02
	16	209.18	8.03E+03	671.50			8.03E+03	6.71E+02
	17	215.49	8.03E+02	493.34			8.03E+02	4.93E+02
M	18	235.74	1.60E+03	216.13			1.60E+03	2.16E+02
m	19	238.52	9.76E+04	756.37	1.58E+01	5.72E+00	9.75E+04	7.56E+02
m	20	241.38	2.26E+04	849.96			2.26E+04	8.50E+02
	21	258.54	4.16E+02	397.93			4.16E+02	3.98E+02
M	22	270.11	8.17E+03	416.37			8.17E+03	4.16E+02
m	23	277.27	4.06E+03	397.62			4.06E+03	3.98E+02
M	24	287.61	5.65E+02	320.80			5.65E+02	3.21E+02
m	25	295.13	2.10E+04	428.56			2.10E+04	4.29E+02
m	26	300.00	6.80E+03	352.78			6.80E+03	3.53E+02
M	27	322.71	8.69E+02	465.03			8.69E+02	4.65E+02
m	28	327.89	5.39E+03	319.90			5.39E+03	3.20E+02
m	29	332.17	1.15E+03	428.55			1.15E+03	4.29E+02
m	30	338.24	2.03E+04	401.10	1.94E+00	4.45E+00	2.03E+04	4.01E+02
M	31	351.82	3.68E+04	468.89	8.23E+00	4.77E+00	3.67E+04	4.69E+02
m	32	355.89	1.32E+03	529.67			1.32E+03	5.30E+02
	33	375.98	3.31E+02	295.73			3.31E+02	2.96E+02
	34	388.08	6.43E+02	297.77			6.43E+02	2.98E+02
	35	409.35	2.64E+03	380.95			2.64E+03	3.81E+02
	36	420.36	3.35E+02	275.53			3.35E+02	2.76E+02
	37	453.03	5.62E+02	291.02			5.62E+02	2.91E+02
	38	462.95	5.76E+03	379.93			5.76E+03	3.80E+02
	39	487.34	3.60E+02	269.48			3.60E+02	2.69E+02
M	40	503.85	3.27E+02	234.51			3.27E+02	2.35E+02
m	41	510.67	1.09E+04	314.66	7.54E+01	5.68E+00	1.09E+04	3.15E+02
m	42	514.67	3.81E+02	252.39			3.81E+02	2.52E+02
	43	562.73	1.24E+03	316.25			1.24E+03	3.16E+02
	44	571.54	4.23E+02	225.33			4.23E+02	2.25E+02
M	45	583.19	3.34E+04	425.50	7.97E+00	3.93E+00	3.34E+04	4.26E+02
m	46	587.19	1.38E+03	337.75			1.38E+03	3.38E+02
M	47	609.32	2.81E+04	380.80	5.86E+00	3.50E+00	2.81E+04	3.81E+02
m	48	613.15	1.15E+03	433.58			1.15E+03	4.34E+02
	49	640.89	1.72E+02	200.97			1.72E+02	2.01E+02
	50	665.42	6.04E+02	262.14			6.04E+02	2.62E+02
	51	702.43	3.20E+02	202.59			3.20E+02	2.03E+02
	52	708.03	2.79E+02	225.68			2.79E+02	2.26E+02
	53	727.31	7.33E+03	337.12			7.33E+03	3.37E+02
	54	743.14	2.37E+02	181.29			2.37E+02	1.81E+02
	55	755.06	1.05E+03	256.29			1.05E+03	2.56E+02
M	56	763.51	5.86E+02	204.88			5.86E+02	2.05E+02

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	57	768.40	2.67E+03	203.89			2.67E+03	2.04E+02
m	58	772.13	1.39E+03	228.85			1.39E+03	2.29E+02
M	59	782.03	4.41E+02	148.26			4.41E+02	1.48E+02
m	60	785.74	1.58E+03	183.82	1.09E+00	2.79E+00	1.58E+03	1.84E+02
	61	795.08	3.71E+03	274.42			3.71E+03	2.74E+02
	62	806.22	5.57E+02	199.74			5.57E+02	2.00E+02
M	63	830.73	4.77E+02	154.67			4.77E+02	1.55E+02
m	64	835.84	1.58E+03	185.29			1.58E+03	1.85E+02
m	65	840.21	1.13E+03	182.23			1.13E+03	1.82E+02
	66	860.60	3.90E+03	233.76			3.90E+03	2.34E+02
	67	893.11	3.83E+02	155.52			3.83E+02	1.56E+02
M	68	904.27	5.83E+02	159.80			5.83E+02	1.60E+02
m	69	911.35	2.28E+04	330.44			2.28E+04	3.30E+02
m	70	915.26	6.28E+02	218.06			6.28E+02	2.18E+02
	71	934.15	1.27E+03	192.29			1.27E+03	1.92E+02
	72	952.68	1.96E+02	124.53			1.96E+02	1.25E+02
M	73	959.25	1.82E+02	106.74			1.82E+02	1.07E+02
m	74	964.88	4.59E+03	194.91			4.59E+03	1.95E+02
m	75	969.14	1.33E+04	265.23			1.33E+04	2.65E+02
	76	988.39	1.46E+02	114.99			1.46E+02	1.15E+02
M	77	995.54	1.10E+02	66.95			1.10E+02	6.70E+01
m	78	1001.36	6.60E+02	135.69	5.25E+00	2.97E+00	6.55E+02	1.36E+02
	79	1033.32	3.35E+02	137.71			3.35E+02	1.38E+02
	80	1040.04	1.42E+02	119.79			1.42E+02	1.20E+02
	81	1052.61	2.11E+02	132.24			2.11E+02	1.32E+02
	82	1064.68	1.48E+02	141.69			1.48E+02	1.42E+02
	83	1078.81	3.66E+02	138.67			3.66E+02	1.39E+02
	84	1094.45	4.31E+02	149.64			4.31E+02	1.50E+02
	85	1108.83	5.36E+02	214.35			5.36E+02	2.14E+02
	86	1120.59	6.33E+03	237.78			6.33E+03	2.38E+02
	87	1155.27	6.87E+02	186.09			6.87E+02	1.86E+02
	88	1182.57	1.23E+02	110.49			1.23E+02	1.10E+02
	89	1207.81	1.70E+02	136.93			1.70E+02	1.37E+02
	90	1238.20	2.48E+03	188.94			2.48E+03	1.89E+02
	91	1247.02	3.23E+02	135.09			3.23E+02	1.35E+02
	92	1254.17	1.17E+02	102.02			1.17E+02	1.02E+02
	93	1281.20	5.22E+02	144.68			5.22E+02	1.45E+02
	94	1364.83	1.46E+02	130.63			1.46E+02	1.31E+02
M	95	1377.91	1.53E+03	134.29			1.53E+03	1.34E+02
m	96	1385.51	3.08E+02	111.86			3.08E+02	1.12E+02
M	97	1401.74	5.51E+02	110.80			5.51E+02	1.11E+02
m	98	1408.53	8.37E+02	116.43			8.37E+02	1.16E+02
	99	1460.32	9.87E+02	187.58			9.87E+02	1.88E+02
M	100	1496.15	5.68E+02	117.46			5.68E+02	1.17E+02
m	101	1501.98	2.85E+02	90.73			2.85E+02	9.07E+01
M	102	1509.62	7.98E+02	111.79			7.98E+02	1.12E+02
m	103	1513.07	2.02E+02	110.24			2.02E+02	1.10E+02
	104	1543.89	1.03E+02	85.49			1.03E+02	8.55E+01
M	105	1581.00	3.64E+02	121.59			3.64E+02	1.22E+02
m	106	1583.50	2.09E+02	144.48			2.09E+02	1.44E+02
m	107	1588.50	1.88E+03	128.51			1.88E+03	1.29E+02
m	108	1592.89	1.25E+03	133.46			1.25E+03	1.33E+02
M	109	1621.09	9.31E+02	101.52			9.31E+02	1.02E+02
m	110	1625.18	2.07E+02	92.53			2.07E+02	9.25E+01

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	111	1631.00	1.08E+03	103.04			1.08E+03	1.03E+02
m	112	1638.75	3.27E+02	87.24			3.27E+02	8.72E+01
M	113	1661.68	2.70E+02	80.21			2.70E+02	8.02E+01
m	114	1666.75	1.45E+02	96.23			1.45E+02	9.62E+01
	115	1685.74	1.05E+02	80.49			1.05E+02	8.05E+01
	116	1693.26	9.57E+01	87.82			9.57E+01	8.78E+01
	117	1730.09	1.00E+03	116.73			1.00E+03	1.17E+02
	118	1764.95	5.35E+03	197.78			5.35E+03	1.98E+02
	119	1807.24	8.04E+01	98.30			8.04E+01	9.83E+01
	120	1838.85	1.56E+02	105.68			1.56E+02	1.06E+02
	121	1847.80	5.82E+02	110.36			5.82E+02	1.10E+02
	122	1937.45	8.33E+01	76.07			8.33E+01	7.61E+01
	123	2018.86	8.94E+01	86.02			8.94E+01	8.60E+01
	124	2104.16	2.05E+03	183.20	1.50E+00	1.48E+00	2.04E+03	1.83E+02
	125	2119.11	3.10E+02	108.03			3.10E+02	1.08E+02
	126	2155.57	5.87E+01	64.10			5.87E+01	6.41E+01
	127	2204.67	1.28E+03	128.47			1.28E+03	1.28E+02
	128	2235.30	7.60E+01	78.69			7.60E+01	7.87E+01
	129	2281.55	1.01E+02	90.55			1.01E+02	9.06E+01
M	130	2289.14	5.59E+01	71.91			5.59E+01	7.19E+01
m	131	2294.11	1.77E+02	102.78			1.77E+02	1.03E+02
	132	2448.06	4.19E+02	105.03			4.19E+02	1.05E+02
	133	2615.07	1.34E+04	243.00	5.15E+00	1.56E+00	1.34E+04	2.43E+02
M	134	2765.88	2.15E+01	24.08			2.15E+01	2.41E+01
m	135	2771.80	2.12E+01	19.47			2.12E+01	1.95E+01
	136	2890.92	5.06E+01	32.67			5.06E+01	3.27E+01
	137	3125.32	7.92E+01	24.82			7.92E+01	2.48E+01
	138	3198.25	2.57E+02	34.86			2.57E+02	3.49E+01
	139	3475.05	2.10E+01	9.17			2.10E+01	9.17E+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 : 8/14/2017 5:31:29PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	34.20	7.13E+03	500.63			7.13E+03	5.01E+02
m	2	38.69	4.15E+03	624.50			4.15E+03	6.24E+02
	3	46.25	1.19E+03	427.41	4.28E+01	8.26E+00	1.15E+03	4.27E+02
	4	57.10	5.02E+03	526.30			5.02E+03	5.26E+02
	5	63.43	3.87E+03	736.02	6.71E+01	1.02E+01	3.80E+03	7.36E+02
	6	75.98	7.75E+04	1320.35			7.75E+04	1.32E+03
M	7	87.57	1.47E+04	630.75			1.47E+04	6.31E+02
m	8	92.39	1.38E+04	636.02	1.35E+02	7.64E+00	1.36E+04	6.36E+02
	9	99.16	2.49E+03	523.23	7.32E+00	2.91E+00	2.48E+03	5.23E+02
	10	105.18	2.58E+03	609.55			2.58E+03	6.10E+02
	11	115.10	8.26E+02	515.67			8.26E+02	5.16E+02
	12	129.06	6.08E+03	779.61			6.08E+03	7.80E+02
	13	144.22	1.29E+03	591.04	1.54E+01	2.12E+01	1.27E+03	5.91E+02
	14	153.98	2.18E+03	583.94			2.18E+03	5.84E+02
	15	185.85	1.01E+04	644.61	5.47E+01	6.99E+00	1.01E+04	6.45E+02
	16	209.18	8.03E+03	671.50			8.03E+03	6.71E+02
	17	215.49	8.03E+02	493.34			8.03E+02	4.93E+02
M	18	235.74	1.60E+03	216.13			1.60E+03	2.16E+02
m	19	238.52	9.76E+04	756.37	1.58E+01	5.72E+00	9.75E+04	7.56E+02
m	20	241.38	2.26E+04	849.96			2.26E+04	8.50E+02
	21	258.54	4.16E+02	397.93			4.16E+02	3.98E+02
M	22	270.11	8.17E+03	416.37			8.17E+03	4.16E+02
m	23	277.27	4.06E+03	397.62			4.06E+03	3.98E+02
M	24	287.61	5.65E+02	320.80			5.65E+02	3.21E+02
m	25	295.13	2.10E+04	428.56			2.10E+04	4.29E+02
m	26	300.00	6.80E+03	352.78			6.80E+03	3.53E+02
M	27	322.71	8.69E+02	465.03			8.69E+02	4.65E+02
m	28	327.89	5.39E+03	319.90			5.39E+03	3.20E+02
m	29	332.17	1.15E+03	428.55			1.15E+03	4.29E+02
m	30	338.24	2.03E+04	401.10	1.94E+00	4.45E+00	2.03E+04	4.01E+02
M	31	351.82	3.68E+04	468.89	8.23E+00	4.77E+00	3.67E+04	4.69E+02
m	32	355.89	1.32E+03	529.67			1.32E+03	5.30E+02
	33	375.98	3.31E+02	295.73			3.31E+02	2.96E+02
	34	388.08	6.43E+02	297.77			6.43E+02	2.98E+02
	35	409.35	2.64E+03	380.95			2.64E+03	3.81E+02
	36	420.36	3.35E+02	275.53			3.35E+02	2.76E+02
	37	453.03	5.62E+02	291.02			5.62E+02	2.91E+02
	38	462.95	5.76E+03	379.93			5.76E+03	3.80E+02
	39	487.34	3.60E+02	269.48			3.60E+02	2.69E+02
M	40	503.85	3.27E+02	234.51			3.27E+02	2.35E+02
m	41	510.67	1.09E+04	314.66	7.54E+01	5.68E+00	1.09E+04	3.15E+02
m	42	514.67	3.81E+02	252.39			3.81E+02	2.52E+02
	43	562.73	1.24E+03	316.25			1.24E+03	3.16E+02
	44	571.54	4.23E+02	225.33			4.23E+02	2.25E+02
M	45	583.19	3.34E+04	425.50	7.97E+00	3.93E+00	3.34E+04	4.26E+02
m	46	587.19	1.38E+03	337.75			1.38E+03	3.38E+02
M	47	609.32	2.81E+04	380.80	5.86E+00	3.50E+00	2.81E+04	3.81E+02
m	48	613.15	1.15E+03	433.58			1.15E+03	4.34E+02
	49	640.89	1.72E+02	200.97			1.72E+02	2.01E+02
	50	665.42	6.04E+02	262.14			6.04E+02	2.62E+02
	51	702.43	3.20E+02	202.59			3.20E+02	2.03E+02
	52	708.03	2.79E+02	225.68			2.79E+02	2.26E+02
	53	727.31	7.33E+03	337.12			7.33E+03	3.37E+02
	54	743.14	2.37E+02	181.29			2.37E+02	1.81E+02

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	55	755.06	1.05E+03	256.29			1.05E+03	2.56E+02
M	56	763.51	5.86E+02	204.88			5.86E+02	2.05E+02
m	57	768.40	2.67E+03	203.89			2.67E+03	2.04E+02
m	58	772.13	1.39E+03	228.85			1.39E+03	2.29E+02
M	59	782.03	4.41E+02	148.26			4.41E+02	1.48E+02
m	60	785.74	1.58E+03	183.82	1.09E+00	2.79E+00	1.58E+03	1.84E+02
	61	795.08	3.71E+03	274.42			3.71E+03	2.74E+02
	62	806.22	5.57E+02	199.74			5.57E+02	2.00E+02
M	63	830.73	4.77E+02	154.67			4.77E+02	1.55E+02
m	64	835.84	1.58E+03	185.29			1.58E+03	1.85E+02
m	65	840.21	1.13E+03	182.23			1.13E+03	1.82E+02
	66	860.60	3.90E+03	233.76			3.90E+03	2.34E+02
	67	893.11	3.83E+02	155.52			3.83E+02	1.56E+02
M	68	904.27	5.83E+02	159.80			5.83E+02	1.60E+02
m	69	911.35	2.28E+04	330.44			2.28E+04	3.30E+02
m	70	915.26	6.28E+02	218.06			6.28E+02	2.18E+02
	71	934.15	1.27E+03	192.29			1.27E+03	1.92E+02
	72	952.68	1.96E+02	124.53			1.96E+02	1.25E+02
M	73	959.25	1.82E+02	106.74			1.82E+02	1.07E+02
m	74	964.88	4.59E+03	194.91			4.59E+03	1.95E+02
m	75	969.14	1.33E+04	265.23			1.33E+04	2.65E+02
	76	988.39	1.46E+02	114.99			1.46E+02	1.15E+02
M	77	995.54	1.10E+02	66.95			1.10E+02	6.70E+01
m	78	1001.36	6.60E+02	135.69	5.25E+00	2.97E+00	6.55E+02	1.36E+02
	79	1033.32	3.35E+02	137.71			3.35E+02	1.38E+02
	80	1040.04	1.42E+02	119.79			1.42E+02	1.20E+02
	81	1052.61	2.11E+02	132.24			2.11E+02	1.32E+02
	82	1064.68	1.48E+02	141.69			1.48E+02	1.42E+02
	83	1078.81	3.66E+02	138.67			3.66E+02	1.39E+02
	84	1094.45	4.31E+02	149.64			4.31E+02	1.50E+02
	85	1108.83	5.36E+02	214.35			5.36E+02	2.14E+02
	86	1120.59	6.33E+03	237.78			6.33E+03	2.38E+02
	87	1155.27	6.87E+02	186.09			6.87E+02	1.86E+02
	88	1182.57	1.23E+02	110.49			1.23E+02	1.10E+02
	89	1207.81	1.70E+02	136.93			1.70E+02	1.37E+02
	90	1238.20	2.48E+03	188.94			2.48E+03	1.89E+02
	91	1247.02	3.23E+02	135.09			3.23E+02	1.35E+02
	92	1254.17	1.17E+02	102.02			1.17E+02	1.02E+02
	93	1281.20	5.22E+02	144.68			5.22E+02	1.45E+02
	94	1364.83	1.46E+02	130.63			1.46E+02	1.31E+02
M	95	1377.91	1.53E+03	134.29			1.53E+03	1.34E+02
m	96	1385.51	3.08E+02	111.86			3.08E+02	1.12E+02
M	97	1401.74	5.51E+02	110.80			5.51E+02	1.11E+02
m	98	1408.53	8.37E+02	116.43			8.37E+02	1.16E+02
	99	1460.32	9.87E+02	187.58			9.87E+02	1.88E+02
M	100	1496.15	5.68E+02	117.46			5.68E+02	1.17E+02
m	101	1501.98	2.85E+02	90.73			2.85E+02	9.07E+01
M	102	1509.62	7.98E+02	111.79			7.98E+02	1.12E+02
m	103	1513.07	2.02E+02	110.24			2.02E+02	1.10E+02
	104	1543.89	1.03E+02	85.49			1.03E+02	8.55E+01
M	105	1581.00	3.64E+02	121.59			3.64E+02	1.22E+02
m	106	1583.50	2.09E+02	144.48			2.09E+02	1.44E+02
m	107	1588.50	1.88E+03	128.51			1.88E+03	1.29E+02
m	108	1592.89	1.25E+03	133.46			1.25E+03	1.33E+02

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	109	1621.09	9.31E+02	101.52			9.31E+02	1.02E+02
m	110	1625.18	2.07E+02	92.53			2.07E+02	9.25E+01
m	111	1631.00	1.08E+03	103.04			1.08E+03	1.03E+02
m	112	1638.75	3.27E+02	87.24			3.27E+02	8.72E+01
M	113	1661.68	2.70E+02	80.21			2.70E+02	8.02E+01
m	114	1666.75	1.45E+02	96.23			1.45E+02	9.62E+01
	115	1685.74	1.05E+02	80.49			1.05E+02	8.05E+01
	116	1693.26	9.57E+01	87.82			9.57E+01	8.78E+01
	117	1730.09	1.00E+03	116.73			1.00E+03	1.17E+02
	118	1764.95	5.35E+03	197.78			5.35E+03	1.98E+02
	119	1807.24	8.04E+01	98.30			8.04E+01	9.83E+01
	120	1838.85	1.56E+02	105.68			1.56E+02	1.06E+02
	121	1847.80	5.82E+02	110.36			5.82E+02	1.10E+02
	122	1937.45	8.33E+01	76.07			8.33E+01	7.61E+01
	123	2018.86	8.94E+01	86.02			8.94E+01	8.60E+01
	124	2104.16	2.05E+03	183.20	1.50E+00	1.48E+00	2.04E+03	1.83E+02
	125	2119.11	3.10E+02	108.03			3.10E+02	1.08E+02
	126	2155.57	5.87E+01	64.10			5.87E+01	6.41E+01
	127	2204.67	1.28E+03	128.47			1.28E+03	1.28E+02
	128	2235.30	7.60E+01	78.69			7.60E+01	7.87E+01
	129	2281.55	1.01E+02	90.55			1.01E+02	9.06E+01
M	130	2289.14	5.59E+01	71.91			5.59E+01	7.19E+01
m	131	2294.11	1.77E+02	102.78			1.77E+02	1.03E+02
	132	2448.06	4.19E+02	105.03			4.19E+02	1.05E+02
	133	2615.07	1.34E+04	243.00	5.15E+00	1.56E+00	1.34E+04	2.43E+02
M	134	2765.88	2.15E+01	24.08			2.15E+01	2.41E+01
m	135	2771.80	2.12E+01	19.47			2.12E+01	1.95E+01
	136	2890.92	5.06E+01	32.67			5.06E+01	3.27E+01
	137	3125.32	7.92E+01	24.82			7.92E+01	2.48E+01
	138	3198.25	2.57E+02	34.86			2.57E+02	3.49E+01
	139	3475.05	2.10E+01	9.17			2.10E+01	9.17E+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 1707078-14

HTC-A01-S004-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.962	1460.81	*	10.67	1.77E+01	3.71E+00
KR-85	0.928	513.99	*	0.43	7.81E+01	5.23E+01
SR-85	0.919	513.99	*	99.27	9.11E-01	6.10E-01
CD-109	0.966	88.03	*	3.72	1.60E+02	1.87E+01
SN-126	1.000	87.57	*	37.00	1.40E+01	1.41E+00
PM-146	0.353	453.90	*	39.94	1.16E+00	6.07E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.986	583.14	*	30.22	1.06E+02	1.10E+01
		860.37	*	4.48	1.13E+02	1.21E+01
		2614.66	*	35.85	1.08E+02	1.12E+01
PB-210	0.990	46.50	*	4.25	1.06E+01	4.07E+00
BI-212	0.991	727.17	*	11.80	7.08E+01	8.00E+00
		1620.62	*	2.75	6.99E+01	9.60E+00
PB-212	0.998	238.63	*	44.60	1.11E+02	9.04E+00
		300.09	*	3.41	1.18E+02	1.16E+01
BI-214	0.989	609.31	*	46.30	6.04E+01	6.36E+00
		1120.29	*	15.10	6.63E+01	6.11E+00
		1764.49	*	15.80	7.44E+01	6.62E+00
		2204.22	*	4.98	6.58E+01	8.91E+00
PB-214	0.999	295.21	*	19.19	6.40E+01	5.50E+00
		351.92	*	37.19	6.52E+01	5.61E+00
RA-224	0.975	240.98	*	3.95	2.93E+02	2.62E+01
RA-226	0.980	186.21	*	3.28	1.35E+02	2.48E+02
AC-228	0.994	338.32	*	11.40	1.14E+02	9.94E+00
		911.07	*	27.70	1.12E+02	9.46E+00
		969.11	*	16.60	1.14E+02	9.85E+00
PA-234M	0.983	1001.03	*	0.92	1.03E+02	2.32E+01
TH-234	0.997	63.29	*	3.80	3.56E+01	7.50E+00
CM-243	0.360	209.75	*	3.29	1.16E+02	1.33E+01
		228.14		10.60		
		277.60	*	14.00	1.63E+01	2.09E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 5:31:29PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	34.20	1.98159E+00	3.51	Tol.	I-129
m	2	38.69	1.15279E+00	7.52	Tol.	I-129
	4	57.10	1.39414E+00	5.24	Tol.	CE-143
	6	75.98	2.15277E+01	0.85		
m	8	92.39	3.78965E+00	2.33	Sum	
	9	99.16	6.88815E-01	10.55	D-Esc	
	10	105.18	7.16235E-01	11.82	Tol.	EU-155 NP-239
	11	115.10	2.29477E-01	31.21		
	12	129.06	1.68897E+00	6.41		
	13	144.22	3.52675E-01	23.29		
	14	153.98	6.05539E-01	13.39	Tol.	CS-136
	17	215.49	2.22946E-01	30.73		
M	18	235.74	4.45013E-01	6.75	Tol.	NB-95M TH-227
	21	258.54	1.15555E-01	47.83		
M	22	270.11	2.26871E+00	2.55		
M	24	287.61	1.57065E-01	28.37	Sum	
M	27	322.71	2.41343E-01	26.76	Sum	
m	28	327.89	1.49784E+00	2.97	Tol.	LA-140
m	29	332.17	3.19346E-01	18.64		
m	32	355.89	3.66970E-01	20.05	Tol.	BA-133
	33	375.98	9.20101E-02	44.64		
	34	388.08	1.78481E-01	23.17	Sum	
	35	409.35	7.32056E-01	7.23		
	36	420.36	9.30636E-02	41.12		
	38	462.95	1.59985E+00	3.30	Sum	
	39	487.34	1.00116E-01	37.38	Sum	
M	40	503.85	9.08575E-02	35.85	Sum	
m	41	510.67	3.01967E+00	1.45		
	43	562.73	3.43559E-01	12.79	Tol.	CS-134
	44	571.54	1.17399E-01	26.66	Sum	
m	46	587.19	3.83614E-01	12.23		
m	48	613.15	3.19434E-01	18.85		
	49	640.89	4.77359E-02	58.47		
	50	665.42	1.67715E-01	21.71	Tol.	SB-126 CE-143
	51	702.43	8.89942E-02	31.62	Tol.	NB-94
	52	708.03	7.75076E-02	40.44		
	54	743.14	6.58741E-02	38.22	D-Esc	
	55	755.06	2.91983E-01	12.19	Sum	
M	56	763.51	1.62725E-01	17.49	Tol.	AG-110M
m	57	768.40	7.42304E-01	3.81	Sum	
m	58	772.13	3.85263E-01	8.25		
M	59	782.03	1.22451E-01	16.82		
m	60	785.74	4.39105E-01	5.81		
	61	795.08	1.03021E+00	3.70	Sum	
	62	806.22	1.54800E-01	17.92		
M	63	830.73	1.32364E-01	16.23		
m	64	835.84	4.37640E-01	5.88		
m	65	840.21	3.13859E-01	8.06		
	67	893.11	1.06299E-01	20.32		
M	68	904.27	1.62044E-01	13.70	Sum	
m	70	915.26	1.74535E-01	17.35		

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	71	934.15	3.51514E-01	7.60	Sum	
	72	952.68	5.44299E-02	31.78		
M	73	959.25	5.06309E-02	29.28		
m	74	964.88	1.27453E+00	2.12	Sum	
	76	988.39	4.04906E-02	39.44		
M	77	995.54	3.04458E-02	30.54	Tol.	EU-154
	79	1033.32	9.29365E-02	20.58	Sum	
	80	1040.04	3.94312E-02	42.20		
	81	1052.61	5.86856E-02	31.30		
	82	1064.68	4.12336E-02	47.73	Sum	
	83	1078.81	1.01615E-01	18.95	Sum	
	84	1094.45	1.19682E-01	17.37	Tol.	LU-172
	85	1108.83	1.49021E-01	19.98		
	87	1155.27	1.90705E-01	13.55	Sum	
	88	1182.57	3.41517E-02	44.94	D-Esc	
	89	1207.81	4.72176E-02	40.28	Sum	
	90	1238.20	6.89262E-01	3.81	Tol.	CO-56
	91	1247.02	8.96968E-02	20.92	Sum	
	92	1254.17	3.25408E-02	43.55	S-Esc	
	93	1281.20	1.44933E-01	13.86		
	94	1364.83	4.05962E-02	44.69	Sum	
M	95	1377.91	4.26371E-01	4.37		
m	96	1385.51	8.54330E-02	18.19		
M	97	1401.74	1.52972E-01	10.06		
m	98	1408.53	2.32439E-01	6.96		
M	100	1496.15	1.57709E-01	10.34		
m	101	1501.98	7.91586E-02	15.92		
M	102	1509.62	2.21545E-01	7.01		
m	103	1513.07	5.61689E-02	27.26		
	104	1543.89	2.85048E-02	41.65		
M	105	1581.00	1.01199E-01	16.69		
m	106	1583.50	5.81554E-02	34.50		
m	107	1588.50	5.23568E-01	3.41	Sum	
m	108	1592.89	3.46692E-01	5.35	D-Esc	
m	110	1625.18	5.75395E-02	22.34		
m	111	1631.00	2.99209E-01	4.78		
m	112	1638.75	9.09658E-02	13.32	Sum	
M	113	1661.68	7.50889E-02	14.84		
m	114	1666.75	4.02230E-02	33.23	Sum	
	115	1685.74	2.92340E-02	38.24		
	116	1693.26	2.65796E-02	45.89	S-Esc	
	117	1730.09	2.77868E-01	5.83	Sum	
	119	1807.24	2.23325E-02	61.13	Sum	
	120	1838.85	4.33916E-02	33.83		
	121	1847.80	1.61528E-01	9.49	Sum	
	122	1937.45	2.31327E-02	45.67	Sum	
	123	2018.86	2.48302E-02	48.12		
	124	2104.16	5.67787E-01	4.48	S-Esc	
	125	2119.11	8.61111E-02	17.42		
	126	2155.57	1.63002E-02	54.62		
	128	2235.30	2.11188E-02	51.75		
	129	2281.55	2.80408E-02	44.85		
M	130	2289.14	1.55237E-02	64.34		
m	131	2294.11	4.91559E-02	29.04		

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	132	2448.06	1.16305E-01	12.54		
M	134	2765.88	5.96702E-03	56.06	Sum	
m	135	2771.80	5.88443E-03	45.95		
	136	2890.92	1.40484E-02	32.30		
	137	3125.32	2.19889E-02	15.68		
	138	3198.25	7.14180E-02	6.78	Sum	
	139	3475.05	5.83333E-03	21.82	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	0.96	1460.81	*	10.67	1.77E+01	3.71E+00
KR-85	0.92	513.99	*	0.43	7.81E+01	5.23E+01
SR-85	0.91	513.99	*	99.27	9.11E-01	6.10E-01
CD-109	0.96	88.03	*	3.72	1.60E+02	1.87E+01
SN-126	1.00	87.57	*	37.00	1.40E+01	1.41E+00
PM-146	0.35	453.90	*	39.94	1.16E+00	6.07E-01
		735.90		14.01		
		747.13		13.10		
TL-208	0.98	583.14	*	30.22	1.06E+02	1.10E+01
		860.37	*	4.48	1.13E+02	1.21E+01
		2614.66	*	35.85	1.08E+02	1.12E+01
PB-210	0.99	46.50	*	4.25	1.06E+01	4.07E+00
BI-212	0.99	727.17	*	11.80	7.08E+01	8.00E+00
		1620.62	*	2.75	6.99E+01	9.60E+00
PB-212	0.99	238.63	*	44.60	1.11E+02	9.04E+00
		300.09	*	3.41	1.18E+02	1.16E+01
BI-214	0.98	609.31	*	46.30	6.04E+01	6.36E+00
		1120.29	*	15.10	6.63E+01	6.11E+00
		1764.49	*	15.80	7.44E+01	6.62E+00
		2204.22	*	4.98	6.58E+01	8.91E+00
PB-214	0.99	295.21	*	19.19	6.40E+01	5.50E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.99	351.92	*	37.19	6.52E+01	5.61E+00
RA-224	0.97	240.98	*	3.95	2.93E+02	2.62E+01
RA-226	0.98	186.21	*	3.28	1.35E+02	2.48E+02
AC-228	0.99	338.32	*	11.40	1.14E+02	9.94E+00
		911.07	*	27.70	1.12E+02	9.46E+00
		969.11	*	16.60	1.14E+02	9.85E+00
PA-234M	0.98	1001.03	*	0.92	1.03E+02	2.32E+01
TH-234	0.99	63.29	*	3.80	3.56E+01	7.50E+00
CM-243	0.36	209.75	*	3.29	1.16E+02	1.33E+01
		228.14		10.60		
		277.60	*	14.00	1.63E+01	2.09E+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	0.962	1.77E+01	3.71E+00	
?	KR-85	0.928	7.81E+01	5.23E+01	
?	SR-85	0.919	9.11E-01	6.10E-01	
?	CD-109	0.966	1.60E+02	1.87E+01	
?	SN-126	1.000	1.40E+01	1.41E+00	
	PM-146	0.353	1.16E+00	6.07E-01	
	TL-208	0.986	1.09E+02	6.59E+00	
	PB-210	0.990	1.06E+01	4.07E+00	
	BI-212	0.991	7.05E+01	6.15E+00	
	PB-212	0.998	1.14E+02	7.13E+00	
	BI-214	0.989	6.67E+01	3.39E+00	
	PB-214	0.999	6.46E+01	3.93E+00	
	RA-224	0.975	2.93E+02	2.62E+01	
	RA-226	0.980	1.35E+02	2.48E+02	
	AC-228	0.994	1.13E+02	5.63E+00	
	PA-234M	0.983	1.03E+02	2.32E+01	

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TH-234	0.997	3.56E+01	7.50E+00	
CM-243	0.360	1.87E+01	2.07E+00	

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

Errors quoted at 2.000sigma

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 5:31:29PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	1	34.20	1.98159E+00	3.51	Tol.	I-129
m	2	38.69	1.15279E+00	7.52	Tol.	I-129
	4	57.10	1.39414E+00	5.24	Tol.	CE-143
	6	75.98	2.15277E+01	0.85		
m	8	92.39	3.78965E+00	2.33	Sum	
	9	99.16	6.88815E-01	10.55	D-Esc	
	10	105.18	7.16235E-01	11.82	Tol.	EU-155 NP-239
	11	115.10	2.29477E-01	31.21		
	12	129.06	1.68897E+00	6.41		
	13	144.22	3.52675E-01	23.29		
	14	153.98	6.05539E-01	13.39	Tol.	CS-136
	17	215.49	2.22946E-01	30.73		
M	18	235.74	4.45013E-01	6.75	Tol.	NB-95M TH-227
	21	258.54	1.15555E-01	47.83		
M	22	270.11	2.26871E+00	2.55		
M	24	287.61	1.57065E-01	28.37	Sum	
M	27	322.71	2.41343E-01	26.76	Sum	
m	28	327.89	1.49784E+00	2.97	Tol.	LA-140
m	29	332.17	3.19346E-01	18.64		
m	32	355.89	3.66970E-01	20.05	Tol.	BA-133
	33	375.98	9.20101E-02	44.64		
	34	388.08	1.78481E-01	23.17	Sum	
	35	409.35	7.32056E-01	7.23		
	36	420.36	9.30636E-02	41.12		
	38	462.95	1.59985E+00	3.30	Sum	
	39	487.34	1.00116E-01	37.38	Sum	
M	40	503.85	9.08575E-02	35.85	Sum	
m	41	510.67	3.01967E+00	1.45		
	43	562.73	3.43559E-01	12.79	Tol.	CS-134
	44	571.54	1.17399E-01	26.66	Sum	
m	46	587.19	3.83614E-01	12.23		
m	48	613.15	3.19434E-01	18.85		
	49	640.89	4.77359E-02	58.47		

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	50	665.42	1.67715E-01	21.71	Tol.	SB-126
						CE-143
	51	702.43	8.89942E-02	31.62	Tol.	NB-94
	52	708.03	7.75076E-02	40.44		
	54	743.14	6.58741E-02	38.22	D-Esc	
	55	755.06	2.91983E-01	12.19	Sum	
M	56	763.51	1.62725E-01	17.49	Tol.	AG-110M
m	57	768.40	7.42304E-01	3.81	Sum	
m	58	772.13	3.85263E-01	8.25		
M	59	782.03	1.22451E-01	16.82		
m	60	785.74	4.39105E-01	5.81		
	61	795.08	1.03021E+00	3.70	Sum	
	62	806.22	1.54800E-01	17.92		
M	63	830.73	1.32364E-01	16.23		
m	64	835.84	4.37640E-01	5.88		
m	65	840.21	3.13859E-01	8.06		
	67	893.11	1.06299E-01	20.32		
M	68	904.27	1.62044E-01	13.70	Sum	
m	70	915.26	1.74535E-01	17.35		
	71	934.15	3.51514E-01	7.60	Sum	
	72	952.68	5.44299E-02	31.78		
M	73	959.25	5.06309E-02	29.28		
m	74	964.88	1.27453E+00	2.12	Sum	
	76	988.39	4.04906E-02	39.44		
M	77	995.54	3.04458E-02	30.54	Tol.	EU-154
	79	1033.32	9.29365E-02	20.58	Sum	
	80	1040.04	3.94312E-02	42.20		
	81	1052.61	5.86856E-02	31.30		
	82	1064.68	4.12336E-02	47.73	Sum	
	83	1078.81	1.01615E-01	18.95	Sum	
	84	1094.45	1.19682E-01	17.37	Tol.	LU-172
	85	1108.83	1.49021E-01	19.98		
	87	1155.27	1.90705E-01	13.55	Sum	
	88	1182.57	3.41517E-02	44.94	D-Esc	
	89	1207.81	4.72176E-02	40.28	Sum	
	90	1238.20	6.89262E-01	3.81	Tol.	CO-56
	91	1247.02	8.96968E-02	20.92	Sum	
	92	1254.17	3.25408E-02	43.55	S-Esc	
	93	1281.20	1.44933E-01	13.86		
	94	1364.83	4.05962E-02	44.69	Sum	
M	95	1377.91	4.26371E-01	4.37		
m	96	1385.51	8.54330E-02	18.19		
M	97	1401.74	1.52972E-01	10.06		
m	98	1408.53	2.32439E-01	6.96		
M	100	1496.15	1.57709E-01	10.34		

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	101	1501.98	7.91586E-02	15.92		
M	102	1509.62	2.21545E-01	7.01		
m	103	1513.07	5.61689E-02	27.26		
	104	1543.89	2.85048E-02	41.65		
M	105	1581.00	1.01199E-01	16.69		
m	106	1583.50	5.81554E-02	34.50		
m	107	1588.50	5.23568E-01	3.41	Sum	
m	108	1592.89	3.46692E-01	5.35	D-Esc	
m	110	1625.18	5.75395E-02	22.34		
m	111	1631.00	2.99209E-01	4.78		
m	112	1638.75	9.09658E-02	13.32	Sum	
M	113	1661.68	7.50889E-02	14.84		
m	114	1666.75	4.02230E-02	33.23	Sum	
	115	1685.74	2.92340E-02	38.24		
	116	1693.26	2.65796E-02	45.89	S-Esc	
	117	1730.09	2.77868E-01	5.83	Sum	
	119	1807.24	2.23325E-02	61.13	Sum	
	120	1838.85	4.33916E-02	33.83		
	121	1847.80	1.61528E-01	9.49	Sum	
	122	1937.45	2.31327E-02	45.67	Sum	
	123	2018.86	2.48302E-02	48.12		
	124	2104.16	5.67787E-01	4.48	S-Esc	
	125	2119.11	8.61111E-02	17.42		
	126	2155.57	1.63002E-02	54.62		
	128	2235.30	2.11188E-02	51.75		
	129	2281.55	2.80408E-02	44.85		
M	130	2289.14	1.55237E-02	64.34		
m	131	2294.11	4.91559E-02	29.04		
	132	2448.06	1.16305E-01	12.54		
M	134	2765.88	5.96702E-03	56.06	Sum	
m	135	2771.80	5.88443E-03	45.95		
	136	2890.92	1.40484E-02	32.30		
	137	3125.32	2.19889E-02	15.68		
	138	3198.25	7.14180E-02	6.78	Sum	
	139	3475.05	5.83333E-03	21.82	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 1707078-14

HTC-A01-S004-1218-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	1.28E+01	1.06E+01	1.06E+01
+	NA-22	1274.54		99.94	3.31E-02	2.98E-01	2.98E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	4.72E-02	2.47E-01	2.47E-01
+	K-40	1460.81	*	10.67	1.77E+01	5.27E+00	5.27E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-6.31E-03	3.39E-01	3.39E-01
		78.34		96.00	9.67E+00		4.83E-01
+	SC-46	889.25		99.98	2.61E-01	6.47E-01	6.47E-01
		1120.51		99.99	2.08E+01		1.39E+00
+	V-48	983.52		99.98	3.16E+00	1.56E+01	1.56E+01
		1312.10		97.50	-9.50E+00		1.56E+01
+	CR-51	320.08		9.83	7.66E-01	3.52E+01	3.52E+01
+	MN-54	834.83		99.97	-6.87E-01	4.69E-01	4.69E-01
+	CO-56	846.75		99.96	-1.78E-01	6.57E-01	6.57E-01
		1037.75		14.03	-3.16E+00		4.38E+00
		1238.25		67.00	1.29E+01		1.60E+00
		1771.40		15.51	-3.56E-01		3.82E+00
		2598.48		16.90	-7.27E-01		2.57E+00
+	CO-57	122.06		85.51	-1.59E-01	4.42E-01	4.42E-01
		136.48		10.60	-2.39E+00		3.68E+00
+	CO-58	810.76		99.40	-1.69E-01	7.47E-01	7.47E-01
+	FE-59	1099.22		56.50	-2.25E-01	2.00E+00	2.00E+00
		1291.56		43.20	6.91E-01		2.70E+00
+	CO-60	1173.22		100.00	6.20E-02	2.80E-01	2.80E-01
		1332.49		100.00	-1.24E-01		2.81E-01
+	ZN-65	1115.52		50.75	-3.09E+01	7.47E-01	7.47E-01
+	GA-67	93.31		35.70	3.80E+09	4.22E+08	4.22E+08
		208.95		2.24	7.01E+10		6.96E+09
		300.22		16.00	-1.17E+10		1.04E+09
+	SE-75	121.11		16.70	-1.75E+00	8.90E-01	3.03E+00
		136.00		59.20	-5.77E-01		8.90E-01
		264.65		59.80	-2.81E-02		9.53E-01
		279.53		25.20	2.10E-01		2.54E+00
		400.65		11.40	4.03E+00		5.26E+00
+	RB-82	776.52		13.00	1.05E+01	3.33E+01	3.33E+01
+	RB-83	520.41		46.00	1.19E-01	1.51E+00	1.51E+00
		529.64		30.30	-1.19E+00		2.29E+00
		552.65		16.40	1.34E+00		4.27E+00
+	KR-85	513.99	*	0.43	7.81E+01	1.79E+02	1.79E+02
+	SR-85	513.99	*	99.27	9.11E-01	2.08E+00	2.08E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-1.80E+00	4.96E-01	5.79E-01
		1836.01		99.38	1.64E-01		4.96E-01
+	MO-93	263.06		56.72	-1.75E-02	2.77E-01	5.94E-01
		684.67		99.68	2.29E-02		3.53E-01
		1477.11		99.08	3.26E-02		2.77E-01
+	NB-93M	16.57		9.43	-2.19E+00	2.68E+00	2.68E+00
+	NB-94	702.63		100.00	5.88E-02	2.96E-01	3.68E-01
		871.10		100.00	-6.08E-03		2.96E-01
+	NB-95	765.79		99.81	1.91E+01	2.90E+00	2.90E+00
+	NB-95M	235.69		25.00	-6.31E+09	1.17E+08	1.17E+08
+	ZR-95	724.18		43.70	-3.31E-01	1.86E+00	3.14E+00
		756.72		55.30	3.77E+00		1.86E+00
+	MO-99	181.06		6.20	-1.48E+10	4.36E+10	8.35E+10
		739.58		12.80	-2.80E+09		4.36E+10
		778.00		4.50	3.94E+10		1.17E+11
+	RU-103	497.08		89.00	-3.19E-01	1.85E+00	1.85E+00
+	RU-106	621.84		9.80	1.18E+00	4.02E+00	4.02E+00
+	AG-108M	433.93		89.90	1.13E-01	3.60E-01	3.60E-01
		614.37		90.40	-2.72E+01		4.50E-01
		722.95		90.50	9.92E-03		4.35E-01
+	CD-109	88.03	*	3.72	1.60E+02	2.28E+01	2.28E+01
+	AG-110M	657.75		93.14	9.13E-02	4.76E-01	4.76E-01
		677.61		10.53	-1.04E+00		4.25E+00
		706.67		16.46	1.42E+00		2.88E+00
		763.93		21.98	-1.96E+01		2.26E+00
		884.67		71.63	-5.35E-03		5.30E-01
		1384.27		23.94	3.74E-01		1.74E+00
+	CD-113M	263.70		0.02	-4.30E+01	1.46E+03	1.46E+03
+	SN-113	255.12		1.93	-7.40E+00	9.20E-01	2.61E+01
		391.69		64.90	-1.82E-01		9.20E-01
+	TE123M	159.00		84.10	-3.71E-01	6.34E-01	6.34E-01
+	SB-124	602.71		97.87	1.94E-01	1.01E+00	1.01E+00
		645.85		7.26	1.57E+00		1.35E+01
		722.78		11.10	2.36E-01		1.04E+01
		1691.02		49.00	-9.71E-01		1.49E+00
+	I-125	35.49		6.49	9.18E+01	1.53E+01	1.53E+01
+	SB-125	176.33		6.89	1.65E+00	1.20E+00	4.84E+00
		427.89		29.33	7.66E-01		1.20E+00
		463.38		10.35	4.69E+01		4.44E+00
		600.56		17.80	6.11E-01		2.01E+00
		635.90		11.32	-1.94E-01		3.11E+00
+	SB-126	414.70		83.30	-6.20E+00	6.54E+01	7.35E+01
		666.33		99.60	1.33E+02		6.82E+01
		695.00		99.60	2.21E+01		6.54E+01
		720.50		53.80	5.10E+01		1.20E+02
+	SN-126	87.57	*	37.00	1.40E+01	1.99E+00	1.99E+00
+	SB-127	473.00		25.00	-2.32E+07	1.92E+07	2.54E+07
		685.20		35.70	1.24E+06		1.92E+07

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-127	783.80	14.70	3.25E+08	1.92E+07	5.47E+07
+	I-129	29.78	57.00	-2.80E-01	5.56E-01	5.56E-01
		33.60	13.20	1.67E+01		2.61E+00
		39.58	7.52	1.23E+01		3.90E+00
+	I-131	284.30	6.05	1.76E+03	1.24E+03	1.76E+04
		364.48	81.20	-1.21E+02		1.24E+03
		636.97	7.26	-2.71E+02		1.43E+04
		722.89	1.80	1.55E+03		6.80E+04
+	TE-132	49.72	13.10	-7.40E+08	1.49E+08	8.25E+08
		228.16	88.00	-1.17E+08		1.49E+08
+	BA-133	81.00	33.00	-2.91E+01	7.88E-01	9.95E-01
		302.84	17.80	6.19E-01		2.28E+00
		356.01	60.00	-1.13E+01		7.88E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-5.66E+06	1.93E+05	1.93E+05
+	CS-134	563.23	8.38	1.48E+01	4.69E-01	4.75E+00
		569.32	15.43	-3.68E-01		2.45E+00
		604.70	97.60	-3.50E+01		4.69E-01
		795.84	85.40	5.73E+00		5.97E-01
		801.93	8.73	-8.51E-02		3.97E+00
+	CS-135	268.24	16.00	2.50E+01	2.51E+00	2.51E+00
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.64E+03	4.19E+01	5.95E+02
		163.89	4.61	4.43E+01		9.22E+02
		176.55	13.56	1.07E+02		3.15E+02
		273.65	12.66	-2.55E+03		4.21E+02
		340.57	48.50	3.50E+03		1.52E+02
		818.50	99.70	3.08E+01		4.19E+01
		1048.07	79.60	5.27E+00		4.41E+01
		1235.34	19.70	1.54E+03		3.05E+02
+	CS-137	661.65	85.12	7.65E-02	4.23E-01	4.23E-01
+	LA-138	788.74	34.00	-9.05E+00	4.05E-01	1.06E+00
		1435.80	66.00	-2.91E-02		4.05E-01
+	CE-139	165.85	80.35	4.85E-01	6.23E-01	6.23E-01
+	BA-140	162.64	6.70	-2.06E+02	2.09E+02	7.29E+02
		304.84	4.50	-1.87E+02		1.17E+03
		423.70	3.20	-3.09E+02		1.63E+03
		437.55	2.00	5.38E+02		2.53E+03
		537.32	25.00	5.79E+01		2.09E+02
+	LA-140	328.77	20.50	2.15E+03	5.57E+01	3.07E+02
		487.03	45.50	7.20E+01		1.12E+02
		815.85	23.50	-6.84E+00		2.02E+02
		1596.49	95.49	-1.31E+02		5.57E+01
+	CE-141	145.44	48.40	5.69E+00	4.80E+00	4.80E+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 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54		10.80	-1.44E+00	3.61E+00	3.61E+00
+	PM-144	476.78		42.00	-9.26E-02	4.08E-01	9.31E-01
		618.01		98.60	1.34E-02		4.08E-01
		696.49		99.49	-2.74E-01		4.23E-01
+	PM-145	36.85		21.70	-2.55E+00	7.92E-01	1.51E+00
		37.36		39.70	-3.76E+00		7.92E-01
		42.30		15.10	-1.01E+01		1.76E+00
		72.40		2.31	-8.85E+01		1.74E+01
+	PM-146	453.90	*	39.94	1.16E+00	9.76E-01	9.76E-01
		735.90		14.01	-9.57E-01		2.49E+00
		747.13		13.10	1.05E-01		2.66E+00
+	ND-147	91.11		28.90	5.99E+03	5.00E+02	5.00E+02
		531.02		13.10	3.70E+02		9.12E+02
+	PM-149	285.90		3.10	-2.83E+12	5.57E+13	5.57E+13
+	EU-152	121.78		20.50	-8.42E-01	1.46E+00	1.46E+00
		244.69		5.40	-5.32E+01		6.42E+00
		344.27		19.13	-1.10E+01		1.80E+00
		778.89		9.20	1.20E+00		3.70E+00
		964.01		10.40	-1.70E+02		5.28E+00
		1085.78		7.22	1.89E+00		3.64E+00
		1112.02		9.60	3.23E+00		3.14E+00
		1407.95		14.94	7.07E+00		2.51E+00
+	GD-153	97.43		31.30	-1.07E+01	1.24E+00	1.24E+00
		103.18		22.20	-1.68E-01		1.76E+00
+	EU-154	123.07		40.50	3.83E-02	7.57E-01	7.57E-01
		723.30		19.70	4.64E-02		2.03E+00
		873.19		11.50	2.87E+00		2.66E+00
		996.32		10.30	-1.02E+01		2.73E+00
		1004.76		17.90	2.61E+00		1.73E+00
		1274.45		35.50	8.89E-02		8.00E-01
+	EU-155	86.50		30.90	4.55E+00	1.29E+00	1.29E+00
		105.30		20.70	4.34E+00		1.52E+00
+	EU-156	811.77		10.40	-5.40E+01	2.03E+02	2.03E+02
		1153.47		7.20	1.05E+03		3.37E+02
		1230.71		8.90	-5.58E+01		2.16E+02
+	HO-166M	184.41		72.60	6.06E+00	5.25E-01	5.25E-01
		280.45		29.60	1.15E-01		1.22E+00
		410.94		11.10	1.73E+01		3.44E+00
		711.69		54.10	4.35E-02		6.41E-01
+	TM-171	66.72		0.14	8.94E+01	2.51E+02	2.51E+02
+	HF-172	67.35		5.31	-1.23E-01	2.99E+00	6.61E+00
		125.81		11.30	4.04E-01		2.99E+00
+	LU-172	181.53		20.60	-4.26E+03	7.44E+03	2.41E+04
		900.72		29.81	-3.65E+04		1.61E+04
		1093.66		62.50	1.44E+04		7.44E+03
+	LU-173	100.72		5.24	3.60E+00	2.18E+00	6.42E+00
		272.11		21.20	-1.62E+00		2.18E+00
+	HF-175	343.40		84.00	-2.88E+01	1.03E+00	1.03E+00
+	LU-176	88.34		13.30	2.61E+01	3.52E-01	3.04E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	-2.80E-01	3.52E-01	3.78E-01
		306.78		94.00	-1.46E-01		3.52E-01
+	HF-181	133.02		41.70	-1.36E+00	1.81E+00	3.42E+00
		345.85		17.20	-2.19E+02		9.04E+00
		482.03		82.80	9.20E-01		1.81E+00
+	TA-182	67.75		41.20	-2.54E-02	1.36E+00	1.36E+00
		1121.30		34.90	4.93E+01		3.25E+00
		1189.05		16.23	-5.32E-01		2.81E+00
		1221.41		26.98	-3.95E-01		1.77E+00
		1231.02		11.44	-1.08E+00		4.18E+00
+	IR-192	308.46		29.68	-2.53E+00	1.63E+00	2.65E+00
		468.07		48.10	2.39E-01		1.63E+00
+	HG-203	279.19		77.30	1.60E-01	1.93E+00	1.93E+00
+	TL-204	374.74		94.11	-6.63E-02	3.15E-01	3.66E-01
		899.15		99.16	-1.16E+00		3.15E-01
		911.74		91.10	3.44E+01		1.16E+00
+	BI-207	569.67		97.72	1.96E-01	3.58E-01	3.58E-01
		1063.62		74.90	4.16E-01		3.83E-01
+	TL-208	583.14	*	30.22	1.06E+02	1.02E+00	2.33E+00
		860.37	*	4.48	1.13E+02		9.49E+00
		2614.66	*	35.85	1.08E+02		1.02E+00
+	BI-210M	262.00		45.00	-2.16E-02	7.49E-01	7.49E-01
		300.00		23.00	-5.14E+01		1.80E+00
+	PB-210	46.50	*	4.25	1.06E+01	6.45E+00	6.45E+00
+	PB-211	404.84		2.90	3.05E+00	1.21E+01	1.21E+01
		831.96		2.90	-1.69E+01		1.24E+01
+	BI-212	727.17	*	11.80	7.08E+01	4.65E+00	4.65E+00
		1620.62	*	2.75	6.99E+01		3.76E+01
+	PB-212	238.63	*	44.60	1.11E+02	1.78E+00	1.78E+00
		300.09	*	3.41	1.18E+02		2.62E+01
+	BI-214	609.31	*	46.30	6.04E+01	1.49E+00	1.49E+00
		1120.29	*	15.10	6.63E+01		3.07E+00
		1764.49	*	15.80	7.44E+01		3.08E+00
		2204.22	*	4.98	6.58E+01		9.20E+00
+	PB-214	295.21	*	19.19	6.40E+01	1.72E+00	4.61E+00
		351.92	*	37.19	6.52E+01		1.72E+00
+	RN-219	401.80		6.50	3.66E+00	5.39E+00	5.39E+00
+	RA-223	323.87		3.88	-1.18E+02	8.96E+00	8.96E+00
+	RA-224	240.98	*	3.95	2.93E+02	2.04E+01	2.04E+01
+	RA-225	40.00		31.00	1.35E+02	7.31E+01	7.31E+01
+	RA-226	186.21	*	3.28	1.35E+02	1.36E+01	1.36E+01
+	TH-227	50.10		8.40	-4.13E+00	3.12E+00	3.12E+00
		236.00		11.50	-2.27E+02		4.21E+00
		256.20		6.30	-1.30E+00		5.45E+00
+	AC-228	338.32	*	11.40	1.14E+02	3.08E+00	1.03E+01
		911.07	*	27.70	1.12E+02		3.08E+00
		969.11	*	16.60	1.14E+02		5.02E+00
+	TH-230	48.44		16.90	-1.62E-01	1.57E+00	1.57E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	2.08E+01	1.57E+00	6.96E+00
		67.67		0.37	-1.60E+00		8.62E+01
+	PA-231	283.67		1.60	2.13E+00	1.73E+01	2.12E+01
		302.67		2.30	4.71E+00		1.73E+01
+	TH-231	25.64		14.70	-4.25E+00	2.42E+00	2.42E+00
		84.21		6.40	-2.33E+01		5.51E+00
+	PA-233	311.98		38.60	1.85E+00	9.37E+00	9.37E+00
+	PA-234	131.20		20.40	2.40E+00	1.59E+00	1.59E+00
		733.99		8.80	-2.54E+00		3.89E+00
		946.00		12.00	6.90E-01		2.39E+00
+	PA-234M	1001.03	*	0.92	1.03E+02	5.55E+01	5.55E+01
+	TH-234	63.29	*	3.80	3.56E+01	1.12E+01	1.12E+01
+	U-235	143.76		10.50	5.50E+00	3.03E+00	3.03E+00
		163.35		4.70	3.18E-01		6.62E+00
		205.31		4.70	1.27E+00		6.96E+00
+	NP-237	86.50		12.60	1.08E+01	3.04E+00	3.04E+00
+	NP-239	106.10		22.70	5.07E+12	1.15E+12	1.15E+12
		228.18		10.70	-1.94E+12		2.48E+12
		277.60		14.10	1.28E+13		2.26E+12
+	AM-241	59.54		35.90	-3.69E+00	8.57E-01	8.57E-01
+	AM-243	74.67		66.00	-3.16E+00	7.35E-01	7.35E-01
+	CM-243	209.75	*	3.29	1.16E+02	2.98E+00	1.54E+01
		228.14		10.60	-2.33E+00		2.98E+00
		277.60	*	14.00	1.63E+01		5.37E+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

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	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	1.06E+01	1.06E+01	1.28E+01	5.28E+00
	NA-22	1274.54		99.94	2.98E-01	2.98E-01	3.31E-02	1.46E-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	2.47E-01	2.47E-01	4.72E-02	1.21E-01
+	K-40	1460.81	*	10.67	5.27E+00	5.27E+00	1.77E+01	2.61E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	3.39E-01	3.39E-01	-6.31E-03	1.69E-01
		78.34		96.00	4.83E-01		9.67E+00	2.41E-01
	SC-46	889.25		99.98	6.47E-01	6.47E-01	2.61E-01	3.19E-01
		1120.51		99.99	1.39E+00		2.08E+01	6.92E-01
	V-48	983.52		99.98	1.56E+01	1.56E+01	3.16E+00	7.69E+00
		1312.10		97.50	1.56E+01		-9.50E+00	7.64E+00
	CR-51	320.08		9.83	3.52E+01	3.52E+01	7.66E-01	1.75E+01
	MN-54	834.83		99.97	4.69E-01	4.69E-01	-6.87E-01	2.33E-01
	CO-56	846.75		99.96	6.57E-01	6.57E-01	-1.78E-01	3.25E-01
		1037.75		14.03	4.38E+00		-3.16E+00	2.16E+00
		1238.25		67.00	1.60E+00		1.29E+01	7.94E-01
		1771.40		15.51	3.82E+00		-3.56E-01	1.87E+00
		2598.48		16.90	2.57E+00		-7.27E-01	1.23E+00
	CO-57	122.06		85.51	4.42E-01	4.42E-01	-1.59E-01	2.20E-01
		136.48		10.60	3.68E+00		-2.39E+00	1.84E+00
	CO-58	810.76		99.40	7.47E-01	7.47E-01	-1.69E-01	3.69E-01
	FE-59	1099.22		56.50	2.00E+00	2.00E+00	-2.25E-01	9.85E-01
		1291.56		43.20	2.70E+00		6.91E-01	1.33E+00
	CO-60	1173.22		100.00	2.80E-01	2.80E-01	6.20E-02	1.38E-01
		1332.49		100.00	2.81E-01		-1.24E-01	1.38E-01
	ZN-65	1115.52		50.75	7.47E-01	7.47E-01	-3.09E+01	3.68E-01
	GA-67	93.31		35.70	4.22E+08	4.22E+08	3.80E+09	2.10E+08
		208.95		2.24	6.96E+09		7.01E+10	3.47E+09
		300.22		16.00	1.04E+09		-1.17E+10	5.17E+08
	SE-75	121.11		16.70	3.03E+00	8.90E-01	-1.75E+00	1.51E+00
		136.00		59.20	8.90E-01		-5.77E-01	4.44E-01
		264.65		59.80	9.53E-01		-2.81E-02	4.74E-01
		279.53		25.20	2.54E+00		2.10E-01	1.26E+00
		400.65		11.40	5.26E+00		4.03E+00	2.62E+00
	RB-82	776.52		13.00	3.33E+01	3.33E+01	1.05E+01	1.65E+01
	RB-83	520.41		46.00	1.51E+00	1.51E+00	1.19E-01	7.49E-01
		529.64		30.30	2.29E+00		-1.19E+00	1.13E+00
		552.65		16.40	4.27E+00		1.34E+00	2.12E+00
+	KR-85	513.99	*	0.43	1.79E+02	1.79E+02	7.81E+01	8.91E+01
+	SR-85	513.99	*	99.27	2.08E+00	2.08E+00	9.11E-01	1.04E+00
	Y-88	898.02		93.40	5.79E-01	4.96E-01	-1.80E+00	2.86E-01
		1836.01		99.38	4.96E-01		1.64E-01	2.42E-01
	MO-93	263.06		56.72	5.94E-01	2.77E-01	-1.75E-02	2.96E-01
		684.67		99.68	3.53E-01		2.29E-02	1.75E-01
		1477.11		99.08	2.77E-01		3.26E-02	1.36E-01
	NB-93M	16.57		9.43	2.68E+00	2.68E+00	-2.19E+00	1.33E+00
	NB-94	702.63		100.00	3.68E-01	2.96E-01	5.88E-02	1.83E-01
		871.10		100.00	2.96E-01		-6.08E-03	1.46E-01
	NB-95	765.79		99.81	2.90E+00	2.90E+00	1.91E+01	1.44E+00
	NB-95M	235.69		25.00	1.17E+08	1.17E+08	-6.31E+09	5.83E+07
	ZR-95	724.18		43.70	3.14E+00	1.86E+00	-3.31E-01	1.56E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	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	1.86E+00	1.86E+00	3.77E+00	9.22E-01
	MO-99	181.06		6.20	8.35E+10	4.36E+10	-1.48E+10	4.16E+10
		739.58		12.80	4.36E+10		-2.80E+09	2.16E+10
		778.00		4.50	1.17E+11		3.94E+10	5.79E+10
	RU-103	497.08		89.00	1.85E+00	1.85E+00	-3.19E-01	9.20E-01
	RU-106	621.84		9.80	4.02E+00	4.02E+00	1.18E+00	2.00E+00
	AG-108M	433.93		89.90	3.60E-01	3.60E-01	1.13E-01	1.79E-01
		614.37		90.40	4.50E-01		-2.72E+01	2.23E-01
		722.95		90.50	4.35E-01		9.92E-03	2.16E-01
+	CD-109	88.03	*	3.72	2.28E+01	2.28E+01	1.60E+02	1.14E+01
	AG-110M	657.75		93.14	4.76E-01	4.76E-01	9.13E-02	2.36E-01
		677.61		10.53	4.25E+00		-1.04E+00	2.11E+00
		706.67		16.46	2.88E+00		1.42E+00	1.43E+00
		763.93		21.98	2.26E+00		-1.96E+01	1.12E+00
		884.67		71.63	5.30E-01		-5.35E-03	2.62E-01
		1384.27		23.94	1.74E+00		3.74E-01	8.55E-01
	CD-113M	263.70		0.02	1.46E+03	1.46E+03	-4.30E+01	7.26E+02
	SN-113	255.12		1.93	2.61E+01	9.20E-01	-7.40E+00	1.30E+01
		391.69		64.90	9.20E-01		-1.82E-01	4.58E-01
	TE123M	159.00		84.10	6.34E-01	6.34E-01	-3.71E-01	3.16E-01
	SB-124	602.71		97.87	1.01E+00	1.01E+00	1.94E-01	4.99E-01
		645.85		7.26	1.35E+01		1.57E+00	6.71E+00
		722.78		11.10	1.04E+01		2.36E-01	5.14E+00
		1691.02		49.00	1.49E+00		-9.71E-01	7.28E-01
	I-125	35.49		6.49	1.53E+01	1.53E+01	9.18E+01	7.62E+00
	SB-125	176.33		6.89	4.84E+00	1.20E+00	1.65E+00	2.41E+00
		427.89		29.33	1.20E+00		7.66E-01	5.97E-01
		463.38		10.35	4.44E+00		4.69E+01	2.21E+00
		600.56		17.80	2.01E+00		6.11E-01	9.96E-01
		635.90		11.32	3.11E+00		-1.94E-01	1.54E+00
	SB-126	414.70		83.30	7.35E+01	6.54E+01	-6.20E+00	3.65E+01
		666.33		99.60	6.82E+01		1.33E+02	3.38E+01
		695.00		99.60	6.54E+01		2.21E+01	3.24E+01
		720.50		53.80	1.20E+02		5.10E+01	5.95E+01
+	SN-126	87.57	*	37.00	1.99E+00	1.99E+00	1.40E+01	9.94E-01
	SB-127	473.00		25.00	2.54E+07	1.92E+07	-2.32E+07	1.26E+07
		685.20		35.70	1.92E+07		1.24E+06	9.51E+06
		783.80		14.70	5.47E+07		3.25E+08	2.71E+07
	I-129	29.78		57.00	5.56E-01	5.56E-01	-2.80E-01	2.77E-01
		33.60		13.20	2.61E+00		1.67E+01	1.30E+00
		39.58		7.52	3.90E+00		1.23E+01	1.94E+00
	I-131	284.30		6.05	1.76E+04	1.24E+03	1.76E+03	8.78E+03
		364.48		81.20	1.24E+03		-1.21E+02	6.17E+02
		636.97		7.26	1.43E+04		-2.71E+02	7.08E+03
		722.89		1.80	6.80E+04		1.55E+03	3.37E+04
	TE-132	49.72		13.10	8.25E+08	1.49E+08	-7.40E+08	4.11E+08
		228.16		88.00	1.49E+08		-1.17E+08	7.41E+07
	BA-133	81.00		33.00	9.95E-01	7.88E-01	-2.91E+01	4.96E-01
		302.84		17.80	2.28E+00		6.19E-01	1.13E+00
		356.01		60.00	7.88E-01		-1.13E+01	3.92E-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	1.93E+05	1.93E+05	-5.66E+06	9.64E+04
	CS-134	563.23		8.38	4.75E+00	4.69E-01	1.48E+01	2.36E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	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	2.45E+00	4.69E-01	-3.68E-01	1.21E+00
		604.70		97.60	4.69E-01		-3.50E+01	2.33E-01
		795.84		85.40	5.97E-01		5.73E+00	2.97E-01
		801.93		8.73	3.97E+00		-8.51E-02	1.96E+00
	CS-135	268.24		16.00	2.51E+00	2.51E+00	2.50E+01	1.25E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	5.95E+02	4.19E+01	1.64E+03	2.97E+02
		163.89		4.61	9.22E+02		4.43E+01	4.59E+02
		176.55		13.56	3.15E+02		1.07E+02	1.57E+02
		273.65		12.66	4.21E+02		-2.55E+03	2.10E+02
		340.57		48.50	1.52E+02		3.50E+03	7.56E+01
		818.50		99.70	4.19E+01		3.08E+01	2.07E+01
		1048.07		79.60	4.41E+01		5.27E+00	2.17E+01
		1235.34		19.70	3.05E+02		1.54E+03	1.51E+02
	CS-137	661.65		85.12	4.23E-01	4.23E-01	7.65E-02	2.10E-01
	LA-138	788.74		34.00	1.06E+00	4.05E-01	-9.05E+00	5.25E-01
		1435.80		66.00	4.05E-01		-2.91E-02	1.98E-01
	CE-139	165.85		80.35	6.23E-01	6.23E-01	4.85E-01	3.10E-01
	BA-140	162.64		6.70	7.29E+02	2.09E+02	-2.06E+02	3.63E+02
		304.84		4.50	1.17E+03		-1.87E+02	5.83E+02
		423.70		3.20	1.63E+03		-3.09E+02	8.09E+02
		437.55		2.00	2.53E+03		5.38E+02	1.26E+03
		537.32		25.00	2.09E+02		5.79E+01	1.04E+02
	LA-140	328.77		20.50	3.07E+02	5.57E+01	2.15E+03	1.53E+02
		487.03		45.50	1.12E+02		7.20E+01	5.57E+01
		815.85		23.50	2.02E+02		-6.84E+00	9.99E+01
		1596.49		95.49	5.57E+01		-1.31E+02	2.74E+01
	CE-141	145.44		48.40	4.80E+00	4.80E+00	5.69E+00	2.39E+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	3.61E+00	3.61E+00	-1.44E+00	1.80E+00
	PM-144	476.78		42.00	9.31E-01	4.08E-01	-9.26E-02	4.62E-01
		618.01		98.60	4.08E-01		1.34E-02	2.02E-01
		696.49		99.49	4.23E-01		-2.74E-01	2.09E-01
	PM-145	36.85		21.70	1.51E+00	7.92E-01	-2.55E+00	7.54E-01
		37.36		39.70	7.92E-01		-3.76E+00	3.94E-01
		42.30		15.10	1.76E+00		-1.01E+01	8.76E-01
		72.40		2.31	1.74E+01		-8.85E+01	8.68E+00
+	PM-146	453.90	*	39.94	9.76E-01	9.76E-01	1.16E+00	4.85E-01
		735.90		14.01	2.49E+00		-9.57E-01	1.23E+00
		747.13		13.10	2.66E+00		1.05E-01	1.32E+00
	ND-147	91.11		28.90	5.00E+02	5.00E+02	5.99E+03	2.50E+02
		531.02		13.10	9.12E+02		3.70E+02	4.53E+02
	PM-149	285.90		3.10	5.57E+13	5.57E+13	-2.83E+12	2.77E+13
	EU-152	121.78		20.50	1.46E+00	1.46E+00	-8.42E-01	7.28E-01
		244.69		5.40	6.42E+00		-5.32E+01	3.20E+00
		344.27		19.13	1.80E+00		-1.10E+01	8.95E-01
		778.89		9.20	3.70E+00		1.20E+00	1.83E+00
		964.01		10.40	5.28E+00		-1.70E+02	2.62E+00
		1085.78		7.22	3.64E+00		1.89E+00	1.79E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	3.14E+00	1.46E+00	3.23E+00	1.55E+00
		1407.95		14.94	2.51E+00		7.07E+00	1.24E+00
	GD-153	97.43		31.30	1.24E+00	1.24E+00	-1.07E+01	6.17E-01
		103.18		22.20	1.76E+00		-1.68E-01	8.77E-01
	EU-154	123.07		40.50	7.57E-01	7.57E-01	3.83E-02	3.77E-01
		723.30		19.70	2.03E+00		4.64E-02	1.01E+00
		873.19		11.50	2.66E+00		2.87E+00	1.32E+00
		996.32		10.30	2.73E+00		-1.02E+01	1.34E+00
		1004.76		17.90	1.73E+00		2.61E+00	8.55E-01
		1274.45		35.50	8.00E-01		8.89E-02	3.93E-01
	EU-155	86.50		30.90	1.29E+00	1.29E+00	4.55E+00	6.42E-01
		105.30		20.70	1.52E+00		4.34E+00	7.59E-01
	EU-156	811.77		10.40	2.03E+02	2.03E+02	-5.40E+01	1.00E+02
		1153.47		7.20	3.37E+02		1.05E+03	1.66E+02
		1230.71		8.90	2.16E+02		-5.58E+01	1.06E+02
	HO-166M	184.41		72.60	5.25E-01	5.25E-01	6.06E+00	2.62E-01
		280.45		29.60	1.22E+00		1.15E-01	6.07E-01
		410.94		11.10	3.44E+00		1.73E+01	1.71E+00
		711.69		54.10	6.41E-01		4.35E-02	3.18E-01
	TM-171	66.72		0.14	2.51E+02	2.51E+02	8.94E+01	1.25E+02
	HF-172	67.35		5.31	6.61E+00	2.99E+00	-1.23E-01	3.29E+00
		125.81		11.30	2.99E+00		4.04E-01	1.49E+00
	LU-172	181.53		20.60	2.41E+04	7.44E+03	-4.26E+03	1.20E+04
		900.72		29.81	1.61E+04		-3.65E+04	7.95E+03
		1093.66		62.50	7.44E+03		1.44E+04	3.67E+03
	LU-173	100.72		5.24	6.42E+00	2.18E+00	3.60E+00	3.20E+00
		272.11		21.20	2.18E+00		-1.62E+00	1.09E+00
	HF-175	343.40		84.00	1.03E+00	1.03E+00	-2.88E+01	5.15E-01
	LU-176	88.34		13.30	3.04E+00	3.52E-01	2.61E+01	1.52E+00
		201.83		86.00	3.78E-01		-2.80E-01	1.88E-01
		306.78		94.00	3.52E-01		-1.46E-01	1.75E-01
	HF-181	133.02		41.70	3.42E+00	1.81E+00	-1.36E+00	1.71E+00
		345.85		17.20	9.04E+00		-2.19E+02	4.49E+00
		482.03		82.80	1.81E+00		9.20E-01	9.01E-01
	TA-182	67.75		41.20	1.36E+00	1.36E+00	-2.54E-02	6.79E-01
		1121.30		34.90	3.25E+00		4.93E+01	1.62E+00
		1189.05		16.23	2.81E+00		-5.32E-01	1.38E+00
		1221.41		26.98	1.77E+00		-3.95E-01	8.69E-01
		1231.02		11.44	4.18E+00		-1.08E+00	2.05E+00
	IR-192	308.46		29.68	2.65E+00	1.63E+00	-2.53E+00	1.32E+00
		468.07		48.10	1.63E+00		2.39E-01	8.11E-01
	HG-203	279.19		77.30	1.93E+00	1.93E+00	1.60E-01	9.62E-01
	TL-204	374.74		94.11	3.66E-01	3.15E-01	-6.63E-02	1.82E-01
		899.15		99.16	3.15E-01		-1.16E+00	1.56E-01
		911.74		91.10	1.16E+00		3.44E+01	5.76E-01
	BI-207	569.67		97.72	3.58E-01	3.58E-01	1.96E-01	1.78E-01
		1063.62		74.90	3.83E-01		4.16E-01	1.89E-01
+	TL-208	583.14	*	30.22	2.33E+00	1.02E+00	1.06E+02	1.16E+00
		860.37	*	4.48	9.49E+00		1.13E+02	4.70E+00
		2614.66	*	35.85	1.02E+00		1.08E+02	4.97E-01
	BI-210M	262.00		45.00	7.49E-01	7.49E-01	-2.16E-02	3.73E-01
		300.00		23.00	1.80E+00		-5.14E+01	8.96E-01
+	PB-210	46.50	*	4.25	6.45E+00	6.45E+00	1.06E+01	3.21E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	1.21E+01	1.21E+01	3.05E+00	6.00E+00
		831.96		2.90	1.24E+01		-1.69E+01	6.12E+00
+	BI-212	727.17	*	11.80	4.65E+00	4.65E+00	7.08E+01	2.31E+00
		1620.62	*	2.75	3.76E+01		6.99E+01	1.87E+01
+	PB-212	238.63	*	44.60	1.78E+00	1.78E+00	1.11E+02	8.86E-01
		300.09	*	3.41	2.62E+01		1.18E+02	1.31E+01
+	BI-214	609.31	*	46.30	1.49E+00	1.49E+00	6.04E+01	7.40E-01
		1120.29	*	15.10	3.07E+00		6.63E+01	1.52E+00
		1764.49	*	15.80	3.08E+00		7.44E+01	1.52E+00
		2204.22	*	4.98	9.20E+00		6.58E+01	4.53E+00
+	PB-214	295.21	*	19.19	4.61E+00	1.72E+00	6.40E+01	2.30E+00
		351.92	*	37.19	1.72E+00		6.52E+01	8.56E-01
	RN-219	401.80		6.50	5.39E+00	5.39E+00	3.66E+00	2.68E+00
	RA-223	323.87		3.88	8.96E+00	8.96E+00	-1.18E+02	4.46E+00
+	RA-224	240.98	*	3.95	2.04E+01	2.04E+01	2.93E+02	1.02E+01
	RA-225	40.00		31.00	7.31E+01	7.31E+01	1.35E+02	3.64E+01
+	RA-226	186.21	*	3.28	1.36E+01	1.36E+01	1.35E+02	6.79E+00
	TH-227	50.10		8.40	3.12E+00	3.12E+00	-4.13E+00	1.55E+00
		236.00		11.50	4.21E+00		-2.27E+02	2.10E+00
		256.20		6.30	5.45E+00		-1.30E+00	2.71E+00
+	AC-228	338.32	*	11.40	1.03E+01	3.08E+00	1.14E+02	5.15E+00
		911.07	*	27.70	3.08E+00		1.12E+02	1.53E+00
		969.11	*	16.60	5.02E+00		1.14E+02	2.50E+00
	TH-230	48.44		16.90	1.57E+00	1.57E+00	-1.62E-01	7.80E-01
		62.85		4.60	6.96E+00		2.08E+01	3.47E+00
		67.67		0.37	8.62E+01		-1.60E+00	4.30E+01
	PA-231	283.67		1.60	2.12E+01	1.73E+01	2.13E+00	1.05E+01
		302.67		2.30	1.73E+01		4.71E+00	8.63E+00
	TH-231	25.64		14.70	2.42E+00	2.42E+00	-4.25E+00	1.21E+00
		84.21		6.40	5.51E+00		-2.33E+01	2.75E+00
	PA-233	311.98		38.60	9.37E+00	9.37E+00	1.85E+00	4.66E+00
	PA-234	131.20		20.40	1.59E+00	1.59E+00	2.40E+00	7.95E-01
		733.99		8.80	3.89E+00		-2.54E+00	1.93E+00
		946.00		12.00	2.39E+00		6.90E-01	1.18E+00
+	PA-234M	1001.03	*	0.92	5.55E+01	5.55E+01	1.03E+02	2.76E+01
+	TH-234	63.29	*	3.80	1.12E+01	1.12E+01	3.56E+01	5.58E+00
	U-235	143.76		10.50	3.03E+00	3.03E+00	5.50E+00	1.51E+00
		163.35		4.70	6.62E+00		3.18E-01	3.30E+00
		205.31		4.70	6.96E+00		1.27E+00	3.47E+00
	NP-237	86.50		12.60	3.04E+00	3.04E+00	1.08E+01	1.52E+00
	NP-239	106.10		22.70	1.15E+12	1.15E+12	5.07E+12	5.72E+11
		228.18		10.70	2.48E+12		-1.94E+12	1.24E+12
		277.60		14.10	2.26E+12		1.28E+13	1.13E+12
	AM-241	59.54		35.90	8.57E-01	8.57E-01	-3.69E+00	4.27E-01
	AM-243	74.67		66.00	7.35E-01	7.35E-01	-3.16E+00	3.67E-01
+	CM-243	209.75	*	3.29	1.54E+01	2.98E+00	1.16E+02	7.66E+00
		228.14		10.60	2.98E+00		-2.33E+00	1.48E+00
		277.60	*	14.00	5.37E+00		1.63E+01	2.68E+00

Analysis Report for 1707078-14

HTC-A01-S004-1218-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3675

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	59	3499	3725	3619	3701	4161	3580
25:	3647	3575	3387	3487	3487	3482	3692	3768
33:	4092	5381	7024	4866	4376	4552	4472	5267
41:	4261	3745	3800	3760	3661	4158	5021	4175
49:	4059	4261	4377	4455	4829	5122	4878	5707
57:	7088	8590	6513	5882	6232	6293	7645	9255
65:	7683	7645	7322	7782	7447	7495	7707	8137
73:	8993	11171	23486	18990	26158	29556	9645	7930
81:	7661	7552	7118	9034	9867	7922	12878	15582
89:	9028	12521	11249	8281	13941	13607	7667	6280
97:	5884	6026	6660	7280	6090	5694	5879	5785
105:	7004	7694	6481	5981	6475	6160	5951	6091
113:	6058	6019	6125	6370	5778	5602	5735	5666
121:	5634	5650	5930	6095	6035	6039	6126	6540
129:	8500	8517	6423	6357	6226	6005	5825	5820
137:	5881	5805	5815	5692	5929	5810	5808	6362
145:	6095	5879	5674	5567	5637	5707	5673	5650
153:	5605	6646	6445	5553	5435	5425	5360	5282
161:	5148	5107	5207	5316	5059	5114	5157	5068
169:	5006	4874	4847	4881	4771	4857	4714	4882
177:	4896	4774	5003	4834	4761	4996	4946	4886
185:	5886	10027	8647	5090	4674	4886	4893	4827
193:	4618	4549	4741	4628	4571	4690	4725	4735
201:	4498	4533	4542	4451	4649	4596	4340	4575
209:	7632	8546	4782	4173	4111	4137	4215	4450
217:	4174	3868	3902	3895	3747	3900	3860	3997
225:	3780	3776	3796	3591	3666	3630	3696	3708
233:	3838	3905	3749	4699	5281	24593	62816	20449
241:	9696	12067	7487	3927	3014	2857	2809	2689
249:	2693	2655	2613	2755	2808	2655	2629	2751
257:	2763	2643	3027	2595	2460	2504	2469	2489
265:	2349	2347	2497	2458	3026	5633	5684	3018
273:	2462	2615	2692	2594	3692	4406	2726	2356
281:	2272	2392	2284	2312	2307	2307	2383	2564
289:	2465	2164	2158	2221	2259	3457	11542	11616
297:	3196	2183	2749	5390	4667	2279	2087	2155
305:	2022	2048	1949	1915	1974	1910	1922	1914
313:	2015	1931	1847	1915	1890	1859	1819	1910
321:	1878	2093	2011	2091	1896	1926	2394	4683
329:	3417	2039	1952	2171	2176	1894	1828	1956
337:	2757	9987	11282	3114	2131	2051	1959	1692
345:	1750	1629	1724	1699	1841	2111	7136	22292
353:	11194	2271	1832	1921	1988	1629	1514	1481
361:	1537	1537	1467	1529	1446	1551	1434	1466

369:	1474	1501	1411	1452	1419	1426	1546	1538

Sample Title: HTC-A01-S004-1218-01

Channel								
377:	1498	1461	1483	1411	1499	1463	1448	1477
385:	1365	1508	1552	1576	1605	1544	1466	1401
393:	1501	1464	1430	1441	1465	1475	1493	1505
401:	1542	1625	1510	1476	1472	1477	1466	1457
409:	2461	2744	1533	1324	1338	1333	1314	1305
417:	1251	1252	1344	1330	1289	1280	1293	1178
425:	1207	1262	1264	1278	1172	1197	1232	1171
433:	1144	1163	1112	1118	1103	1082	1100	1154
441:	1195	1082	1074	1051	1088	1115	1082	1111
449:	1091	1043	1080	1134	1423	1168	1137	1074
457:	1074	1056	1028	1081	1143	1807	4142	2608
465:	1201	1044	1034	1030	1062	1060	953	1031
473:	960	986	955	1019	1033	1059	1091	1011
481:	1110	995	944	923	939	930	1129	1036
489:	926	949	918	919	948	919	923	889
497:	885	924	964	866	909	908	981	1051
505:	957	919	956	983	1683	3820	6288	2727
513:	1228	1033	1058	954	902	889	831	925
521:	899	853	959	918	895	834	866	862
529:	866	885	811	861	935	960	882	859
537:	870	880	857	817	833	834	878	885
545:	832	877	890	865	879	860	805	855
553:	839	809	849	818	758	796	811	828
561:	900	1231	1293	896	859	899	839	803
569:	799	919	903	951	962	806	860	870
577:	815	805	899	1015	1259	4871	17190	11850
585:	2023	1053	1211	1150	905	725	742	708
593:	727	797	766	777	728	749	768	763
601:	785	741	730	735	758	761	990	3499
609:	13824	11249	2230	995	984	1037	822	726
617:	683	700	722	750	672	735	686	661
625:	633	671	674	679	660	677	678	676
633:	671	693	646	738	640	661	633	725
641:	741	700	672	679	670	629	653	714
649:	694	672	642	733	670	655	677	650
657:	651	693	690	701	697	690	665	726
665:	1015	960	701	681	689	687	656	647
673:	699	693	655	725	670	656	667	597
681:	662	620	692	652	676	647	644	658
689:	676	664	656	711	659	664	669	654
697:	660	661	647	648	737	763	770	726
705:	661	691	760	730	668	641	625	586
713:	582	620	614	552	592	622	660	673
721:	635	584	580	664	674	1628	4016	3006
729:	914	635	594	657	586	540	534	562
737:	546	585	557	529	544	587	658	564
745:	555	518	538	547	589	496	541	542
753:	609	685	948	812	558	535	555	509
761:	552	566	770	711	554	695	913	1675
769:	1433	614	679	1130	899	526	441	440
777:	500	477	442	446	535	699	547	574
785:	1031	1148	620	457	454	436	443	435
793:	597	1401	2201	1116	499	424	442	462

801:	388	424	397	390	522	709	530	394

Sample Title: HTC-A01-S004-1218-01

Channel								
809:	374	366	386	380	349	355	397	378
817:	416	369	397	367	393	391	349	357
825:	438	372	391	334	392	561	569	422
833:	418	426	854	989	535	468	629	818
841:	640	386	355	332	365	317	342	329
849:	302	309	337	330	343	353	303	359
857:	335	394	686	1949	1866	677	334	345
865:	353	324	320	314	304	349	343	357
873:	329	313	342	332	298	298	316	324
881:	325	307	324	278	313	315	348	317
889:	309	270	334	385	447	405	306	298
897:	299	301	323	305	351	352	442	558
905:	460	345	366	389	887	4759	11250	6349
913:	1085	483	571	465	356	264	272	274
921:	241	263	272	253	292	276	267	289
929:	253	291	251	292	591	951	525	281
937:	272	267	280	227	242	268	257	314
945:	259	266	293	259	257	251	289	328
953:	293	275	227	249	295	296	315	265
961:	256	285	590	1788	2061	801	917	4093
969:	6688	2528	503	341	359	338	258	253
977:	232	196	242	225	250	232	263	225
985:	207	210	256	277	239	227	202	223
993:	214	201	248	220	246	237	254	350
1001:	509	337	224	233	234	225	196	192
1009:	207	214	212	192	197	218	196	184
1017:	200	202	214	177	197	202	208	200
1025:	181	194	195	191	197	199	205	255
1033:	295	276	196	174	174	211	225	211
1041:	180	209	188	179	184	176	186	169
1049:	173	179	243	235	219	209	169	170
1057:	188	193	202	192	205	211	225	247
1065:	271	226	198	192	222	239	185	186
1073:	217	207	172	192	249	327	352	213
1081:	182	156	206	175	170	164	192	203
1089:	167	176	183	195	272	353	248	232
1097:	185	180	183	159	173	187	198	201
1105:	216	201	182	190	235	324	310	184
1113:	194	178	185	190	234	367	1451	3063
1121:	1709	471	281	254	213	180	181	188
1129:	173	187	178	165	203	208	178	196
1137:	165	165	187	167	163	187	164	168
1145:	174	165	200	177	200	187	209	200
1153:	228	405	466	342	206	202	185	182
1161:	204	148	197	160	170	185	206	188
1169:	183	165	166	177	175	160	188	199
1177:	161	156	161	157	176	217	170	150
1185:	153	140	159	152	155	154	162	175
1193:	176	161	180	173	135	173	178	163
1201:	161	149	145	168	153	168	222	208
1209:	161	168	171	152	150	151	168	187
1217:	168	168	184	155	164	153	176	158
1225:	157	174	155	171	155	142	166	167

1233:	192	170	202	293	868	1161	587	242

Sample Title: HTC-A01-S004-1218-01

Channel								
1241:	150	167	192	192	207	265	311	209
1249:	177	181	167	195	201	211	189	143
1257:	174	169	145	164	167	173	151	158
1265:	158	149	149	158	156	160	158	143
1273:	183	159	178	158	167	161	238	353
1281:	327	233	170	161	148	170	160	179
1289:	146	150	166	146	147	153	135	142
1297:	154	145	135	165	176	167	147	170
1305:	134	161	143	126	144	151	148	150
1313:	132	138	151	161	152	151	152	167
1321:	152	145	159	142	140	148	158	148
1329:	145	141	148	133	142	161	152	157
1337:	158	170	139	141	148	144	158	167
1345:	160	147	159	172	141	147	132	139
1353:	133	121	137	142	147	142	142	132
1361:	128	168	171	180	173	167	154	143
1369:	146	127	127	140	172	197	205	414
1377:	791	672	297	162	158	177	160	197
1385:	286	219	161	153	157	167	153	143
1393:	146	151	148	124	133	150	151	213
1401:	373	262	170	134	163	209	380	471
1409:	265	150	128	143	157	141	132	135
1417:	128	124	132	139	128	119	138	132
1425:	140	149	111	103	134	146	135	131
1433:	116	128	133	108	133	135	111	125
1441:	120	128	135	131	131	132	134	120
1449:	122	130	117	124	127	144	120	126
1457:	181	298	379	354	284	185	129	140
1465:	122	132	113	126	137	123	131	114
1473:	127	123	115	121	128	113	139	127
1481:	114	92	112	136	124	131	115	128
1489:	124	131	132	135	147	194	322	296
1497:	179	124	125	164	254	179	132	113
1505:	115	129	160	358	434	265	181	213
1513:	193	136	134	133	145	116	140	112
1521:	118	139	123	107	137	126	126	143
1529:	117	119	114	115	112	116	137	102
1537:	136	175	128	116	115	139	183	140
1545:	113	102	127	117	117	112	105	89
1553:	108	93	104	141	145	106	100	125
1561:	103	114	100	124	103	89	81	111
1569:	80	88	106	91	97	92	106	95
1577:	116	99	191	219	220	181	188	129
1585:	141	331	732	847	377	206	427	625
1593:	408	197	145	114	117	112	133	105
1601:	92	82	104	100	102	99	107	100
1609:	107	109	78	91	88	88	91	109
1617:	105	124	273	447	354	157	112	172
1625:	130	111	100	135	319	514	340	131
1633:	99	93	98	105	176	210	132	84
1641:	84	89	94	91	54	95	69	94
1649:	76	85	86	64	67	93	68	114
1657:	83	70	111	188	205	132	90	113

1665:	126	136	102	90	82	82	76	86

Sample Title: HTC-A01-S004-1218-01

Channel								
1673:	75	62	75	97	86	104	91	109
1681:	84	84	101	100	111	110	75	71
1689:	77	83	92	103	105	92	80	76
1697:	81	76	90	76	80	83	75	83
1705:	67	77	80	58	67	86	80	80
1713:	91	76	79	71	72	72	65	51
1721:	67	68	88	87	90	79	117	321
1729:	519	339	119	70	84	81	86	90
1737:	100	85	84	80	70	67	89	70
1745:	73	76	73	73	69	68	63	81
1753:	62	76	70	71	74	92	81	91
1761:	124	474	1528	2119	1067	285	122	117
1769:	95	68	68	67	82	70	76	84
1777:	83	73	71	72	68	69	79	86
1785:	72	76	72	71	85	67	68	69
1793:	76	68	80	68	78	76	59	66
1801:	70	57	56	92	79	87	84	75
1809:	81	66	65	75	72	69	69	69
1817:	69	69	76	67	68	73	74	72
1825:	76	59	66	72	66	56	85	82
1833:	62	85	93	95	97	112	100	91
1841:	91	85	72	76	142	284	330	177
1849:	93	81	89	90	75	79	59	50
1857:	71	66	69	83	68	79	71	68
1865:	83	70	68	88	74	75	91	86
1873:	92	93	71	72	70	69	84	67
1881:	66	72	68	78	89	76	92	82
1889:	88	99	90	73	74	73	80	95
1897:	76	68	83	79	70	73	71	85
1905:	57	75	76	80	86	66	82	70
1913:	76	69	68	80	80	58	75	82
1921:	75	74	67	77	70	77	72	76
1929:	78	77	76	79	59	82	92	96
1937:	89	96	66	79	78	88	62	62
1945:	62	81	75	71	78	103	94	71
1953:	79	75	88	73	75	58	82	67
1961:	71	69	79	76	71	76	73	74
1969:	79	76	65	70	83	83	77	63
1977:	77	69	66	68	76	68	63	63
1985:	66	80	60	80	81	73	66	61
1993:	65	68	63	69	80	74	75	66
2001:	57	83	64	69	66	70	60	69
2009:	75	82	61	69	55	76	64	90
2017:	61	76	63	96	49	68	69	65
2025:	61	64	67	66	72	61	69	80
2033:	62	66	85	67	67	69	56	83
2041:	63	77	75	71	73	78	62	67
2049:	67	68	84	68	64	53	69	64
2057:	63	75	73	71	81	69	68	59
2065:	65	72	69	70	62	64	55	77
2073:	69	52	71	54	45	67	69	57
2081:	73	57	58	64	66	63	81	71
2089:	79	77	74	59	76	67	76	59

2097:	83	83	106	178	374	559	543	418

Sample Title: HTC-A01-S004-1218-01

Channel								
2105:	209	133	92	94	89	77	84	80
2113:	69	72	63	120	173	207	116	73
2121:	86	76	73	71	73	83	69	69
2129:	70	69	64	88	67	61	86	75
2137:	77	77	72	73	73	71	71	73
2145:	84	85	73	69	81	75	77	69
2153:	85	90	78	58	60	55	63	73
2161:	70	92	67	78	94	66	81	86
2169:	70	78	63	90	70	88	76	95
2177:	84	81	66	73	79	72	92	77
2185:	81	79	82	78	68	85	84	89
2193:	93	92	85	84	91	79	73	91
2201:	139	364	544	404	190	110	96	84
2209:	89	81	84	74	78	72	77	74
2217:	76	95	87	92	86	73	98	67
2225:	71	94	84	88	93	72	72	95
2233:	86	104	95	87	75	86	75	89
2241:	85	77	84	72	69	76	84	79
2249:	85	93	76	86	67	90	91	81
2257:	87	80	87	67	78	99	82	85
2265:	98	95	86	88	80	88	80	67
2273:	85	103	99	61	91	86	105	96
2281:	99	100	84	93	79	91	97	110
2289:	78	84	112	141	117	112	103	88
2297:	83	80	92	84	91	71	91	94
2305:	105	104	83	106	105	102	80	97
2313:	88	98	88	102	106	98	99	105
2321:	98	101	108	101	96	91	99	91
2329:	118	116	109	103	127	104	111	113
2337:	122	100	115	122	109	92	116	110
2345:	98	111	113	115	111	122	120	102
2353:	121	113	120	124	90	128	130	137
2361:	113	103	97	112	107	123	103	104
2369:	101	115	130	111	118	118	107	112
2377:	129	113	90	98	83	98	94	95
2385:	91	85	87	72	102	84	67	87
2393:	99	74	82	77	64	90	86	81
2401:	74	76	77	72	92	82	67	72
2409:	63	80	70	60	53	71	75	70
2417:	53	77	64	70	61	78	63	73
2425:	77	61	64	59	66	67	64	65
2433:	63	70	68	68	51	74	67	69
2441:	66	50	64	90	137	195	148	112
2449:	66	60	65	54	57	53	54	55
2457:	52	65	62	63	56	37	58	65
2465:	46	66	57	59	47	38	52	55
2473:	46	51	43	47	46	50	42	49
2481:	41	47	41	48	35	35	46	42
2489:	42	41	47	32	43	41	39	44
2497:	38	48	37	29	31	25	32	26
2505:	34	28	39	25	28	23	34	32
2513:	20	15	32	27	16	25	33	15
2521:	17	36	21	20	26	24	24	22

2529:	12	22	28	19	19	17	20	22

Sample Title: HTC-A01-S004-1218-01

Channel								
2537:	16	14	16	18	24	11	21	14
2545:	23	20	20	15	22	16	27	17
2553:	19	22	25	26	20	20	19	24
2561:	22	20	18	15	13	14	18	22
2569:	21	18	10	18	25	17	20	25
2577:	22	20	23	21	17	22	22	17
2585:	17	18	15	15	18	28	13	20
2593:	16	33	13	18	20	19	19	21
2601:	27	34	22	27	23	18	23	35
2609:	83	213	974	2842	4405	3257	1125	300
2617:	161	126	78	25	12	20	13	18
2625:	5	20	11	12	20	12	20	8
2633:	12	7	13	14	8	10	8	15
2641:	12	12	14	11	11	11	12	11
2649:	12	11	17	10	18	12	11	6
2657:	13	12	10	14	13	15	11	9
2665:	8	10	10	9	7	7	16	16
2673:	12	8	19	11	18	16	16	13
2681:	12	18	18	15	24	14	20	16
2689:	17	9	9	15	3	10	18	5
2697:	13	22	11	15	11	10	11	5
2705:	13	6	12	12	10	11	8	9
2713:	17	10	10	12	12	10	18	9
2721:	10	12	13	15	9	13	12	21
2729:	14	10	8	12	12	10	8	9
2737:	16	10	13	14	16	14	8	13
2745:	15	14	5	11	12	9	10	10
2753:	14	11	10	12	6	9	7	4
2761:	8	5	18	13	8	6	7	9
2769:	8	12	13	3	5	8	9	13
2777:	6	12	12	11	7	8	9	8
2785:	6	10	10	14	8	13	13	12
2793:	9	3	6	11	8	11	6	11
2801:	8	12	8	11	11	10	8	11
2809:	4	8	13	3	14	11	4	13
2817:	9	10	5	9	6	2	10	5
2825:	8	9	5	7	10	6	6	7
2833:	18	12	10	9	6	9	10	7
2841:	9	9	10	9	6	6	9	12
2849:	6	9	4	12	6	13	7	7
2857:	6	2	11	7	10	9	4	10
2865:	7	9	9	7	9	3	9	6
2873:	7	7	12	7	10	7	11	1
2881:	11	4	6	5	9	10	11	9
2889:	20	16	10	7	6	5	5	3
2897:	7	6	6	12	4	9	6	5
2905:	5	9	11	7	4	11	9	6
2913:	6	4	11	8	2	5	6	7
2921:	9	7	7	6	9	7	2	5
2929:	9	6	5	8	7	4	11	7
2937:	11	10	9	5	3	7	7	5
2945:	4	10	4	6	6	2	5	7
2953:	7	5	3	6	6	11	8	4

2961:	8	9	6	4	4	6	8	10

Sample Title: HTC-A01-S004-1218-01

Channel								
2969:	6	6	6	8	4	2	7	8
2977:	7	5	6	3	5	6	4	4
2985:	2	2	5	7	8	4	3	6
2993:	5	5	4	8	7	4	4	6
3001:	6	5	3	8	8	3	4	10
3009:	5	3	7	5	3	7	7	4
3017:	9	5	5	6	3	5	3	5
3025:	4	2	6	5	3	4	3	3
3033:	6	2	6	3	3	0	4	3
3041:	2	2	4	7	1	7	5	0
3049:	2	5	5	3	2	5	1	0
3057:	2	4	1	5	1	6	4	1
3065:	5	1	4	1	3	5	3	0
3073:	4	2	4	3	2	6	0	3
3081:	3	4	6	4	2	6	2	1
3089:	5	3	2	3	2	4	2	2
3097:	2	3	1	1	5	1	2	1
3105:	3	2	2	4	1	2	1	1
3113:	6	1	4	1	1	1	1	5
3121:	8	16	29	25	9	0	1	2
3129:	3	0	1	2	2	2	3	1
3137:	0	1	3	0	3	1	2	3
3145:	5	2	1	3	1	0	2	2
3153:	1	2	1	2	2	2	0	3
3161:	2	1	1	0	1	3	2	3
3169:	3	2	1	1	1	0	2	0
3177:	1	1	0	1	1	0	4	1
3185:	3	1	1	2	2	0	1	1
3193:	14	42	61	69	49	12	10	4
3201:	3	1	0	1	1	2	0	2
3209:	0	1	1	1	0	1	1	2
3217:	1	2	4	0	1	0	2	1
3225:	1	0	1	0	1	1	0	1
3233:	2	2	0	1	0	1	0	3
3241:	1	0	3	1	0	0	1	0
3249:	0	1	1	0	2	2	0	0
3257:	1	1	0	0	2	2	1	1
3265:	0	2	0	0	0	1	0	2
3273:	0	1	1	2	2	2	0	2
3281:	1	1	1	1	0	1	0	0
3289:	3	1	0	2	4	1	1	0
3297:	1	1	4	1	3	0	2	3
3305:	0	1	1	1	1	2	0	1
3313:	0	2	2	2	1	1	1	0
3321:	0	0	0	1	0	1	0	0
3329:	1	0	1	0	1	2	1	1
3337:	1	1	0	0	0	0	1	1
3345:	1	0	0	0	0	1	0	1
3353:	1	2	2	0	0	1	0	2
3361:	1	1	1	1	1	0	0	0
3369:	2	1	2	0	2	0	2	4
3377:	0	1	0	3	1	0	1	0
3385:	2	0	0	0	0	0	0	0

3393:	1	1	0	0	0	0	1	0

Sample Title: HTC-A01-S004-1218-01

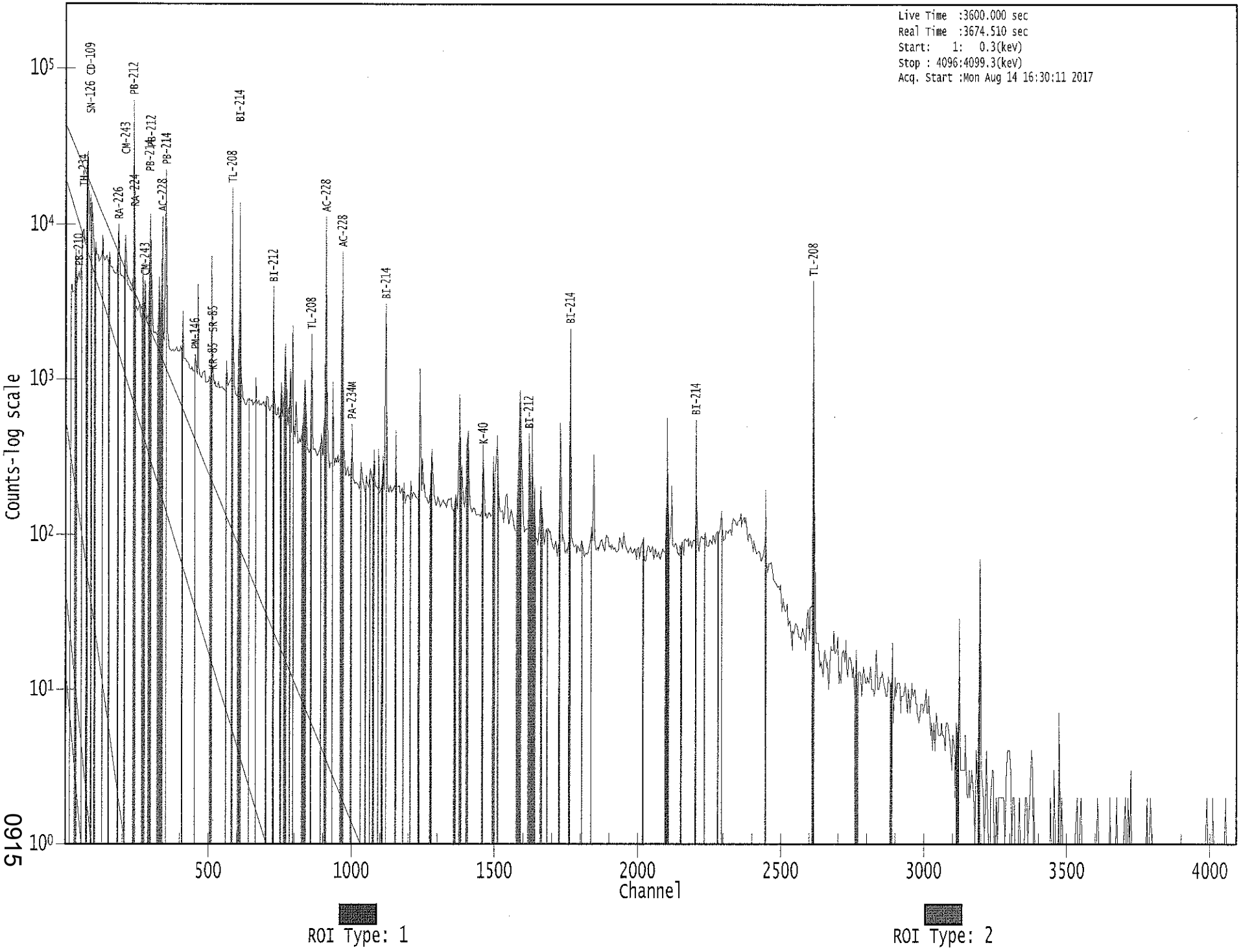
Channel								
3401:	0	1	0	1	0	0	1	0
3409:	0	0	1	0	0	0	0	0
3417:	1	1	0	0	1	1	1	0
3425:	0	0	1	1	0	1	0	1
3433:	0	0	1	1	0	0	0	0
3441:	0	2	0	0	1	1	0	0
3449:	0	0	0	0	0	0	3	0
3457:	1	0	0	1	0	0	1	0
3465:	0	0	0	0	1	1	3	7
3473:	4	4	1	0	0	0	0	1
3481:	0	2	0	0	1	1	0	0
3489:	0	1	0	0	0	0	0	0
3497:	1	0	0	0	1	1	0	1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

3825:	0	0	0	0	0	0	1	0

Sample Title: HTC-A01-S004-1218-01

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

0000055205.CNF



0915

Apex-Gamma

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-15
Sample Description	: HTC-A01-S004-1824-01
Sample Type	: SOIL
Sample Size	: 5.416E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:33:37AM
Acquisition Started	: 8/14/2017 5:16:37PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3611.3 seconds
Dead Time	: 0.31 %
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	: 55208

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 6:17:16PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.69	47.00	0.0000	0.00
2	63.66	63.96	0.0000	0.00
3	75.22	75.52	0.0000	0.00
4	77.58	77.88	0.0000	0.00
5	87.56	87.86	0.0000	0.00
6	92.94	93.24	0.0000	0.00
7	154.08	154.36	0.0000	0.00
8	162.94	163.21	0.0000	0.00
9	186.30	186.57	0.0000	0.00
10	209.41	209.66	0.0000	0.00
11	239.11	239.36	0.0000	0.00
12	242.08	242.33	0.0000	0.00
13	258.45	258.69	0.0000	0.00
14	269.51	269.74	0.0000	0.00
15	277.62	277.86	0.0000	0.00
16	295.54	295.76	0.0000	0.00
17	301.49	301.72	0.0000	0.00
18	328.08	328.29	0.0000	0.00
19	338.82	339.03	0.0000	0.00
20	352.17	352.38	0.0000	0.00
21	463.20	463.37	0.0000	0.00
22	511.53	511.69	0.0000	0.00
23	522.71	522.86	0.0000	0.00
24	583.39	583.52	0.0000	0.00
25	609.58	609.70	0.0000	0.00
26	640.00	640.12	0.0000	0.00
27	661.55	661.66	0.0000	0.00
28	665.90	666.00	0.0000	0.00
29	727.32	727.40	0.0000	0.00
30	769.03	769.10	0.0000	0.00
31	784.94	785.00	0.0000	0.00
32	794.55	794.61	0.0000	0.00
33	840.12	840.16	0.0000	0.00
34	860.71	860.75	0.0000	0.00
35	904.69	904.71	0.0000	0.00
36	911.33	911.35	0.0000	0.00
37	933.91	933.92	0.0000	0.00
38	940.68	940.69	0.0000	0.00
39	949.51	949.52	0.0000	0.00
40	964.67	964.67	0.0000	0.00
41	968.90	968.90	0.0000	0.00
42	1000.18	1000.17	0.0000	0.00

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1008.51	1008.50	0.0000	0.00
44	1120.34	1120.29	0.0000	0.00
45	1160.51	1160.44	0.0000	0.00
46	1165.83	1165.77	0.0000	0.00
47	1238.63	1238.54	0.0000	0.00
48	1279.92	1279.82	0.0000	0.00
49	1330.57	1330.45	0.0000	0.00
50	1377.75	1377.61	0.0000	0.00
51	1460.60	1460.43	0.0000	0.00
52	1621.04	1620.82	0.0000	0.00
53	1630.73	1630.50	0.0000	0.00
54	1639.72	1639.50	0.0000	0.00
55	1649.62	1649.39	0.0000	0.00
56	1660.73	1660.49	0.0000	0.00
57	1665.74	1665.51	0.0000	0.00
58	1670.24	1670.00	0.0000	0.00
59	1701.36	1701.11	0.0000	0.00
60	1729.25	1728.99	0.0000	0.00
61	1764.31	1764.04	0.0000	0.00
62	1845.90	1845.61	0.0000	0.00
63	1896.06	1895.75	0.0000	0.00
64	1899.96	1899.64	0.0000	0.00
65	2090.44	2090.07	0.0000	0.00
66	2102.90	2102.51	0.0000	0.00
67	2118.12	2117.73	0.0000	0.00
68	2124.46	2124.07	0.0000	0.00
69	2175.22	2174.81	0.0000	0.00
70	2203.75	2203.34	0.0000	0.00
71	2297.68	2297.24	0.0000	0.00
72	2326.56	2326.11	0.0000	0.00
73	2445.46	2444.96	0.0000	0.00
74	2614.00	2613.44	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 6:17:16PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.69	44 -	50	47.00	2.60E+02	130.04	2.91E+03	1.90
	2	63.66	60 -	66	63.96	3.84E+02	167.50	4.84E+03	2.03
M	3	75.22	67 -	82	75.52	1.69E+03	201.00	4.75E+03	2.39
m	4	77.58	67 -	82	77.88	2.45E+03	188.32	3.90E+03	2.03
M	5	87.56	83 -	97	87.86	1.39E+03	209.71	5.56E+03	3.97
m	6	92.94	83 -	97	93.24	9.62E+02	176.11	3.94E+03	2.57
	7	154.08	152 -	158	154.36	1.13E+02	122.00	2.62E+03	2.76
	8	162.94	161 -	166	163.21	8.93E+01	103.06	2.05E+03	2.64
	9	186.30	183 -	190	186.57	5.41E+02	133.28	2.60E+03	2.18
	10	209.41	206 -	213	209.66	1.68E+02	120.93	2.31E+03	1.60
M	11	239.11	234 -	247	239.36	2.44E+03	130.57	1.39E+03	2.00
m	12	242.08	234 -	247	242.33	7.26E+02	147.16	1.64E+03	2.52
	13	258.45	255 -	262	258.69	9.01E+01	91.80	1.34E+03	3.07
	14	269.51	264 -	273	269.74	2.24E+02	108.40	1.55E+03	2.94
	15	277.62	275 -	281	277.86	6.72E+01	79.29	1.09E+03	1.79
	16	295.54	292 -	299	295.76	9.70E+02	110.92	1.41E+03	1.92
	17	301.49	300 -	306	301.72	1.13E+02	79.87	1.03E+03	1.79
	18	328.08	323 -	332	328.29	1.39E+02	98.79	1.31E+03	2.01
	19	338.82	335 -	344	339.03	4.21E+02	99.95	1.18E+03	2.13
	20	352.17	346 -	357	352.38	1.71E+03	128.93	1.22E+03	2.16
	21	463.20	458 -	468	463.37	1.70E+02	78.51	7.30E+02	2.17
	22	511.53	507 -	518	511.69	3.39E+02	79.92	6.25E+02	2.26
	23	522.71	520 -	526	522.86	3.77E+01	45.88	3.59E+02	3.13
	24	583.39	579 -	587	583.52	7.32E+02	73.38	3.78E+02	2.25
	25	609.58	604 -	616	609.70	1.31E+03	99.52	5.36E+02	2.39
	26	640.00	638 -	643	640.12	3.00E+01	32.94	1.90E+02	2.58
M	27	661.55	658 -	670	661.66	7.05E+01	48.41	3.44E+02	2.65
m	28	665.90	658 -	670	666.00	4.05E+01	48.17	3.53E+02	2.64
	29	727.32	724 -	732	727.40	1.21E+02	53.48	3.68E+02	2.06
	30	769.03	762 -	777	769.10	1.09E+02	81.66	6.19E+02	2.72
	31	784.94	781 -	788	785.00	4.02E+01	43.68	2.90E+02	1.16
	32	794.55	791 -	797	794.61	9.16E+01	35.32	1.59E+02	2.56
	33	840.12	837 -	843	840.16	4.11E+01	36.87	2.12E+02	1.57
	34	860.71	857 -	864	860.75	5.51E+01	40.79	2.42E+02	2.15
M	35	904.69	901 -	919	904.71	3.78E+01	34.58	1.63E+02	3.40
m	36	911.33	901 -	919	911.35	4.08E+02	49.87	1.56E+02	2.36
M	37	933.91	928 -	945	933.92	4.75E+01	38.19	1.92E+02	3.11
m	38	940.68	928 -	945	940.69	2.17E+01	35.70	1.66E+02	3.12
	39	949.51	946 -	953	949.52	3.78E+01	31.50	1.41E+02	3.50
M	40	964.67	962 -	972	964.67	6.53E+01	29.87	1.55E+02	2.43

Analysis Report for 1707078-15

HTC-A01-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	968.90	962 -	972	968.90	2.61E+02	48.21	1.78E+02	2.78
M	42	1000.18	996 -	1012	1000.17	2.87E+01	34.60	1.66E+02	2.87
m	43	1008.51	996 -	1012	1008.50	2.06E+01	33.66	1.57E+02	2.87
	44	1120.34	1115 -	1124	1120.29	2.06E+02	45.65	1.80E+02	2.34
	45	1160.51	1159 -	1162	1160.44	1.51E+01	18.00	6.19E+01	1.56
	46	1165.83	1163 -	1169	1165.77	2.70E+01	24.71	9.21E+01	2.92
	47	1238.63	1233 -	1244	1238.54	8.85E+01	48.00	2.37E+02	1.88
	48	1279.92	1274 -	1284	1279.82	3.18E+01	35.82	1.54E+02	5.18
	49	1330.57	1327 -	1335	1330.45	2.13E+01	26.94	9.74E+01	3.74
	50	1377.75	1374 -	1381	1377.61	7.68E+01	28.50	8.44E+01	1.83
	51	1460.60	1454 -	1467	1460.43	4.64E+02	56.40	1.48E+02	2.90
	52	1621.04	1617 -	1626	1620.82	3.01E+01	20.90	4.58E+01	2.01
M	53	1630.73	1626 -	1644	1630.50	2.42E+01	17.37	4.19E+01	2.90
m	54	1639.72	1626 -	1644	1639.50	2.06E+01	17.37	1.77E+01	2.91
	55	1649.62	1645 -	1654	1649.39	2.13E+01	13.82	1.54E+01	4.07
M	56	1660.73	1655 -	1683	1660.49	2.25E+01	15.26	1.80E+01	2.92
m	57	1665.74	1655 -	1683	1665.51	1.14E+01	14.87	1.80E+01	2.92
m	58	1670.24	1655 -	1683	1670.00	1.53E+01	12.37	1.40E+01	2.41
	59	1701.36	1698 -	1705	1701.11	1.23E+01	14.56	2.54E+01	1.79
	60	1729.25	1724 -	1732	1728.99	4.11E+01	22.06	4.97E+01	3.40
	61	1764.31	1759 -	1770	1764.04	1.63E+02	33.59	5.82E+01	2.53
	62	1845.90	1840 -	1850	1845.61	2.25E+01	21.45	4.91E+01	2.49
M	63	1896.06	1892 -	1902	1895.75	1.28E+01	12.81	1.60E+01	2.74
m	64	1899.96	1892 -	1902	1899.64	9.52E+00	10.00	1.20E+01	3.27
	65	2090.44	2087 -	2094	2090.07	6.00E+00	8.49	8.00E+00	1.01
	66	2102.90	2097 -	2106	2102.51	2.36E+01	20.22	4.48E+01	1.48
	67	2118.12	2112 -	2121	2117.73	1.19E+01	14.87	2.41E+01	2.79
	68	2124.46	2122 -	2128	2124.07	7.88E+00	10.63	1.63E+01	2.49
	69	2175.22	2171 -	2178	2174.81	9.32E+00	12.49	1.94E+01	7.17
	70	2203.75	2198 -	2207	2203.34	3.06E+01	22.52	5.49E+01	2.76
	71	2297.68	2292 -	2302	2297.24	1.69E+01	13.67	1.41E+01	8.63
	72	2326.56	2322 -	2330	2326.11	1.22E+01	15.02	2.75E+01	3.81
	73	2445.46	2441 -	2449	2444.96	2.80E+01	10.58	0.00E+00	6.25
	74	2614.00	2609 -	2618	2613.44	2.16E+02	29.95	4.43E+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 : 8/14/2017 6:17:16PM

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

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.69	44 -	50	2.60E+02	130.04	2.91E+03	1.04E+02
	2	63.66	60 -	66	3.84E+02	167.50	4.84E+03	1.34E+02
M	3	75.22	67 -	82	1.69E+03	201.00	4.75E+03	1.13E+02
m	4	77.58	67 -	82	2.45E+03	188.32	3.90E+03	1.03E+02
M	5	87.56	83 -	97	1.39E+03	209.71	5.56E+03	1.23E+02
m	6	92.94	83 -	97	9.62E+02	176.11	3.94E+03	1.03E+02
	7	154.08	152 -	158	1.13E+02	122.00	2.62E+03	9.88E+01
	8	162.94	161 -	166	8.93E+01	103.06	2.05E+03	8.33E+01
	9	186.30	183 -	190	5.41E+02	133.28	2.60E+03	1.03E+02
	10	209.41	206 -	213	1.68E+02	120.93	2.31E+03	9.71E+01
M	11	239.11	234 -	247	2.44E+03	130.57	1.39E+03	6.14E+01
m	12	242.08	234 -	247	7.26E+02	147.16	1.64E+03	6.65E+01
	13	258.45	255 -	262	9.01E+01	91.80	1.34E+03	7.38E+01
	14	269.51	264 -	273	2.24E+02	108.40	1.55E+03	8.56E+01
	15	277.62	275 -	281	6.72E+01	79.29	1.09E+03	6.38E+01
	16	295.54	292 -	299	9.70E+02	110.92	1.41E+03	7.54E+01
	17	301.49	300 -	306	1.13E+02	79.87	1.03E+03	6.33E+01
	18	328.08	323 -	332	1.39E+02	98.79	1.31E+03	7.89E+01
	19	338.82	335 -	344	4.21E+02	99.95	1.18E+03	7.49E+01
	20	352.17	346 -	357	1.71E+03	128.93	1.22E+03	8.13E+01
	21	463.20	458 -	468	1.70E+02	78.51	7.30E+02	6.09E+01
	22	511.53	507 -	518	3.39E+02	79.92	6.25E+02	5.83E+01
	23	522.71	520 -	526	3.77E+01	45.88	3.59E+02	3.63E+01
	24	583.39	579 -	587	7.32E+02	73.38	3.78E+02	4.07E+01
	25	609.58	604 -	616	1.31E+03	99.52	5.36E+02	5.61E+01
	26	640.00	638 -	643	3.00E+01	32.94	1.90E+02	2.55E+01
M	27	661.55	658 -	670	7.05E+01	48.41	3.44E+02	3.05E+01
m	28	665.90	658 -	670	4.05E+01	48.17	3.53E+02	3.09E+01
	29	727.32	724 -	732	1.21E+02	53.48	3.68E+02	4.01E+01
	30	769.03	762 -	777	1.09E+02	81.66	6.19E+02	2.73E+01
	31	784.94	781 -	788	4.02E+01	43.68	2.90E+02	3.44E+01
	32	794.55	791 -	797	9.16E+01	35.32	1.59E+02	2.44E+01
	33	840.12	837 -	843	4.11E+01	36.87	2.12E+02	2.84E+01
	34	860.71	857 -	864	5.51E+01	40.79	2.42E+02	3.12E+01
M	35	904.69	901 -	919	3.78E+01	34.58	1.63E+02	2.10E+01
m	36	911.33	901 -	919	4.08E+02	49.87	1.56E+02	2.05E+01
M	37	933.91	928 -	945	4.75E+01	38.19	1.92E+02	2.28E+01
m	38	940.68	928 -	945	2.17E+01	35.70	1.66E+02	2.12E+01
	39	949.51	946 -	953	3.78E+01	31.50	1.41E+02	2.38E+01
M	40	964.67	962 -	972	6.53E+01	29.87	1.55E+02	2.04E+01
m	41	968.90	962 -	972	2.61E+02	48.21	1.78E+02	2.19E+01
M	42	1000.18	996 -	1012	2.87E+01	34.60	1.66E+02	2.12E+01
m	43	1008.51	996 -	1012	2.06E+01	33.66	1.57E+02	2.06E+01
	44	1120.34	1115 -	1124	2.06E+02	45.65	1.80E+02	2.92E+01
	45	1160.51	1159 -	1162	1.51E+01	18.00	6.19E+01	1.33E+01
	46	1165.83	1163 -	1169	2.70E+01	24.71	9.21E+01	1.84E+01
	47	1238.63	1233 -	1244	8.85E+01	48.00	2.37E+02	2.12E+01
	48	1279.92	1274 -	1284	3.18E+01	35.82	1.54E+02	2.79E+01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	49	1330.57	1327 -	1335	2.13E+01	26.94	9.74E+01	2.08E+01
	50	1377.75	1374 -	1381	7.68E+01	28.50	8.44E+01	1.85E+01
	51	1460.60	1454 -	1467	4.64E+02	56.40	1.48E+02	2.99E+01
	52	1621.04	1617 -	1626	3.01E+01	20.90	4.58E+01	1.46E+01
M	53	1630.73	1626 -	1644	2.42E+01	17.37	4.19E+01	1.06E+01
m	54	1639.72	1626 -	1644	2.06E+01	17.37	1.77E+01	6.91E+00
	55	1649.62	1645 -	1654	2.13E+01	13.82	1.54E+01	8.46E+00
M	56	1660.73	1655 -	1683	2.25E+01	15.26	1.80E+01	6.97E+00
m	57	1665.74	1655 -	1683	1.14E+01	14.87	1.80E+01	6.97E+00
m	58	1670.24	1655 -	1683	1.53E+01	12.37	1.40E+01	6.15E+00
	59	1701.36	1698 -	1705	1.23E+01	14.56	2.54E+01	1.05E+01
	60	1729.25	1724 -	1732	4.11E+01	22.06	4.97E+01	1.48E+01
	61	1764.31	1759 -	1770	1.63E+02	33.59	5.82E+01	1.79E+01
	62	1845.90	1840 -	1850	2.25E+01	21.45	4.91E+01	1.58E+01
M	63	1896.06	1892 -	1902	1.28E+01	12.81	1.60E+01	6.58E+00
m	64	1899.96	1892 -	1902	9.52E+00	10.00	1.20E+01	5.70E+00
	65	2090.44	2087 -	2094	6.00E+00	8.49	8.00E+00	5.70E+00
	66	2102.90	2097 -	2106	2.36E+01	20.22	4.48E+01	1.46E+01
	67	2118.12	2112 -	2121	1.19E+01	14.87	2.41E+01	1.08E+01
	68	2124.46	2122 -	2128	7.88E+00	10.63	1.63E+01	7.42E+00
	69	2175.22	2171 -	2178	9.32E+00	12.49	1.94E+01	8.96E+00
	70	2203.75	2198 -	2207	3.06E+01	22.52	5.49E+01	1.61E+01
	71	2297.68	2292 -	2302	1.69E+01	13.67	1.41E+01	8.97E+00
	72	2326.56	2322 -	2330	1.22E+01	15.02	2.75E+01	1.09E+01
	73	2445.46	2441 -	2449	2.80E+01	10.58	0.00E+00	0.00E+00
	74	2614.00	2609 -	2618	2.16E+02	29.95	4.43E+00	4.78E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 6:17:16PM

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

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

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.69	44 -	50	47.00	2.60E+02	130.04	2.91E+03	PB-210
	2	63.66	60 -	66	63.96	3.84E+02	167.50	4.84E+03	TH-234
									TH-230
M	3	75.22	67 -	82	75.52	1.69E+03	201.00	4.75E+03	AM-243
m	4	77.58	67 -	82	77.88	2.45E+03	188.32	3.90E+03	TI-44
M	5	87.56	83 -	97	87.86	1.39E+03	209.71	5.56E+03	SN-126
									CD-109
									LU-176
m	6	92.94	83 -	97	93.24	9.62E+02	176.11	3.94E+03	GA-67
	7	154.08	152 -	158	154.36	1.13E+02	122.00	2.62E+03	CS-136
	8	162.94	161 -	166	163.21	8.93E+01	103.06	2.05E+03	BA-140
									U-235
									CS-136
	9	186.30	183 -	190	186.57	5.41E+02	133.28	2.60E+03	RA-226
	10	209.41	206 -	213	209.66	1.68E+02	120.93	2.31E+03	CM-243
									GA-67
M	11	239.11	234 -	247	239.36	2.44E+03	130.57	1.39E+03	PB-212
m	12	242.08	234 -	247	242.33	7.26E+02	147.16	1.64E+03	.....
	13	258.45	255 -	262	258.69	9.01E+01	91.80	1.34E+03	.....
	14	269.51	264 -	273	269.74	2.24E+02	108.40	1.55E+03	.....
	15	277.62	275 -	281	277.86	6.72E+01	79.29	1.09E+03	CM-243
									NP-239
	16	295.54	292 -	299	295.76	9.70E+02	110.92	1.41E+03	PB-214
	17	301.49	300 -	306	301.72	1.13E+02	79.87	1.03E+03	.....
	18	328.08	323 -	332	328.29	1.39E+02	98.79	1.31E+03	LA-140
	19	338.82	335 -	344	339.03	4.21E+02	99.95	1.18E+03	AC-228
	20	352.17	346 -	357	352.38	1.71E+03	128.93	1.22E+03	PB-214
	21	463.20	458 -	468	463.37	1.70E+02	78.51	7.30E+02	SB-125
	22	511.53	507 -	518	511.69	3.39E+02	79.92	6.25E+02	.....
	23	522.71	520 -	526	522.86	3.77E+01	45.88	3.59E+02	.....
	24	583.39	579 -	587	583.52	7.32E+02	73.38	3.78E+02	TL-208
	25	609.58	604 -	616	609.70	1.31E+03	99.52	5.36E+02	BI-214
	26	640.00	638 -	643	640.12	3.00E+01	32.94	1.90E+02	.....
M	27	661.55	658 -	670	661.66	7.05E+01	48.41	3.44E+02	CS-137
m	28	665.90	658 -	670	666.00	4.05E+01	48.17	3.53E+02	SB-126
	29	727.32	724 -	732	727.40	1.21E+02	53.48	3.68E+02	BI-212
	30	769.03	762 -	777	769.10	1.09E+02	81.66	6.19E+02	.....
	31	784.94	781 -	788	785.00	4.02E+01	43.68	2.90E+02	.....
	32	794.55	791 -	797	794.61	9.16E+01	35.32	1.59E+02	.....
	33	840.12	837 -	843	840.16	4.11E+01	36.87	2.12E+02	.....
	34	860.71	857 -	864	860.75	5.51E+01	40.79	2.42E+02	TL-208
M	35	904.69	901 -	919	904.71	3.78E+01	34.58	1.63E+02	.....
m	36	911.33	901 -	919	911.35	4.08E+02	49.87	1.56E+02	AC-228
									TL-204
M	37	933.91	928 -	945	933.92	4.75E+01	38.19	1.92E+02	.....
m	38	940.68	928 -	945	940.69	2.17E+01	35.70	1.66E+02	.....
	39	949.51	946 -	953	949.52	3.78E+01	31.50	1.41E+02	.....
M	40	964.67	962 -	972	964.67	6.53E+01	29.87	1.55E+02	EU-152
m	41	968.90	962 -	972	968.90	2.61E+02	48.21	1.78E+02	AC-228
M	42	1000.18	996 -	1012	1000.17	2.87E+01	34.60	1.66E+02	PA-234M
m	43	1008.51	996 -	1012	1008.50	2.06E+01	33.66	1.57E+02	.....
	44	1120.34	1115 -	1124	1120.29	2.06E+02	45.65	1.80E+02	BI-214
									SC-46
									TA-182

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	45	1160.51	1159 -	1162	1160.44	1.51E+01	18.00	6.19E+01	.....
	46	1165.83	1163 -	1169	1165.77	2.70E+01	24.71	9.21E+01	.....
	47	1238.63	1233 -	1244	1238.54	8.85E+01	48.00	2.37E+02	CO-56
	48	1279.92	1274 -	1284	1279.82	3.18E+01	35.82	1.54E+02	.....
	49	1330.57	1327 -	1335	1330.45	2.13E+01	26.94	9.74E+01	.....
	50	1377.75	1374 -	1381	1377.61	7.68E+01	28.50	8.44E+01	.....
	51	1460.60	1454 -	1467	1460.43	4.64E+02	56.40	1.48E+02	K-40
	52	1621.04	1617 -	1626	1620.82	3.01E+01	20.90	4.58E+01	BI-212
M	53	1630.73	1626 -	1644	1630.50	2.42E+01	17.37	4.19E+01	.....
m	54	1639.72	1626 -	1644	1639.50	2.06E+01	17.37	1.77E+01	.....
	55	1649.62	1645 -	1654	1649.39	2.13E+01	13.82	1.54E+01	.....
M	56	1660.73	1655 -	1683	1660.49	2.25E+01	15.26	1.80E+01	.....
m	57	1665.74	1655 -	1683	1665.51	1.14E+01	14.87	1.80E+01	.....
m	58	1670.24	1655 -	1683	1670.00	1.53E+01	12.37	1.40E+01	.....
	59	1701.36	1698 -	1705	1701.11	1.23E+01	14.56	2.54E+01	.....
	60	1729.25	1724 -	1732	1728.99	4.11E+01	22.06	4.97E+01	.....
	61	1764.31	1759 -	1770	1764.04	1.63E+02	33.59	5.82E+01	BI-214
	62	1845.90	1840 -	1850	1845.61	2.25E+01	21.45	4.91E+01	.....
M	63	1896.06	1892 -	1902	1895.75	1.28E+01	12.81	1.60E+01	.....
m	64	1899.96	1892 -	1902	1899.64	9.52E+00	10.00	1.20E+01	.....
	65	2090.44	2087 -	2094	2090.07	6.00E+00	8.49	8.00E+00	.....
	66	2102.90	2097 -	2106	2102.51	2.36E+01	20.22	4.48E+01	.....
	67	2118.12	2112 -	2121	2117.73	1.19E+01	14.87	2.41E+01	.....
	68	2124.46	2122 -	2128	2124.07	7.88E+00	10.63	1.63E+01	.....
	69	2175.22	2171 -	2178	2174.81	9.32E+00	12.49	1.94E+01	.....
	70	2203.75	2198 -	2207	2203.34	3.06E+01	22.52	5.49E+01	BI-214
	71	2297.68	2292 -	2302	2297.24	1.69E+01	13.67	1.41E+01	.....
	72	2326.56	2322 -	2330	2326.11	1.22E+01	15.02	2.75E+01	.....
	73	2445.46	2441 -	2449	2444.96	2.80E+01	10.58	0.00E+00	.....
	74	2614.00	2609 -	2618	2613.44	2.16E+02	29.95	4.43E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 6:17:16PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.69	2.60E+02	130.04	1.74E-02	1.73E-03
	2	63.66	3.84E+02	167.50	2.45E-02	1.80E-03
M	3	75.22	1.69E+03	201.00	2.65E-02	2.02E-03
m	4	77.58	2.45E+03	188.32	2.68E-02	2.06E-03
M	5	87.56	1.39E+03	209.71	2.72E-02	2.25E-03
m	6	92.94	9.62E+02	176.11	2.71E-02	2.24E-03
	7	154.08	1.13E+02	122.00	2.23E-02	1.76E-03
	8	162.94	8.93E+01	103.06	2.15E-02	1.66E-03
	9	186.30	5.41E+02	133.28	1.96E-02	1.55E-03
	10	209.41	1.68E+02	120.93	1.79E-02	1.46E-03
M	11	239.11	2.44E+03	130.57	1.61E-02	1.34E-03
m	12	242.08	7.26E+02	147.16	1.59E-02	1.33E-03
	13	258.45	9.01E+01	91.80	1.51E-02	1.26E-03
	14	269.51	2.24E+02	108.40	1.46E-02	1.22E-03
	15	277.62	6.72E+01	79.29	1.42E-02	1.19E-03
	16	295.54	9.70E+02	110.92	1.35E-02	1.15E-03
	17	301.49	1.13E+02	79.87	1.32E-02	1.13E-03
	18	328.08	1.39E+02	98.79	1.23E-02	1.08E-03
	19	338.82	4.21E+02	99.95	1.19E-02	1.06E-03
	20	352.17	1.71E+03	128.93	1.15E-02	1.03E-03
	21	463.20	1.70E+02	78.51	9.02E-03	8.58E-04
	22	511.53	3.39E+02	79.92	8.25E-03	7.94E-04
	23	522.71	3.77E+01	45.88	8.09E-03	7.79E-04
	24	583.39	7.32E+02	73.38	7.32E-03	6.98E-04
	25	609.58	1.31E+03	99.52	7.04E-03	6.64E-04
	26	640.00	3.00E+01	32.94	6.74E-03	6.23E-04
M	27	661.55	7.05E+01	48.41	6.54E-03	5.95E-04
m	28	665.90	4.05E+01	48.17	6.50E-03	5.91E-04
	29	727.32	1.21E+02	53.48	6.01E-03	5.37E-04
	30	769.03	1.09E+02	81.66	5.72E-03	5.00E-04
	31	784.94	4.02E+01	43.68	5.61E-03	4.86E-04
	32	794.55	9.16E+01	35.32	5.55E-03	4.77E-04
	33	840.12	4.11E+01	36.87	5.29E-03	4.37E-04
	34	860.71	5.51E+01	40.79	5.17E-03	4.19E-04
M	35	904.69	3.78E+01	34.58	4.95E-03	3.85E-04
m	36	911.33	4.08E+02	49.87	4.92E-03	3.84E-04
M	37	933.91	4.75E+01	38.19	4.82E-03	3.80E-04
m	38	940.68	2.17E+01	35.70	4.79E-03	3.79E-04
	39	949.51	3.78E+01	31.50	4.75E-03	3.78E-04
M	40	964.67	6.53E+01	29.87	4.68E-03	3.75E-04
m	41	968.90	2.61E+02	48.21	4.66E-03	3.74E-04
M	42	1000.18	2.87E+01	34.60	4.54E-03	3.69E-04
m	43	1008.51	2.06E+01	33.66	4.51E-03	3.68E-04
	44	1120.34	2.06E+02	45.65	4.12E-03	3.50E-04
	45	1160.51	1.51E+01	18.00	4.00E-03	3.43E-04
	46	1165.83	2.70E+01	24.71	3.98E-03	3.42E-04
	47	1238.63	8.85E+01	48.00	3.78E-03	3.22E-04
	48	1279.92	3.18E+01	35.82	3.68E-03	3.11E-04
	49	1330.57	2.13E+01	26.94	3.57E-03	2.96E-04
	50	1377.75	7.68E+01	28.50	3.47E-03	2.88E-04
	51	1460.60	4.64E+02	56.40	3.31E-03	2.75E-04
	52	1621.04	3.01E+01	20.90	3.05E-03	2.49E-04
M	53	1630.73	2.42E+01	17.37	3.04E-03	2.48E-04

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	54	1639.72	2.06E+01	17.37	3.03E-03	2.46E-04
	55	1649.62	2.13E+01	13.82	3.01E-03	2.45E-04
M	56	1660.73	2.25E+01	15.26	3.00E-03	2.43E-04
m	57	1665.74	1.14E+01	14.87	2.99E-03	2.42E-04
m	58	1670.24	1.53E+01	12.37	2.98E-03	2.42E-04
	59	1701.36	1.23E+01	14.56	2.94E-03	2.37E-04
	60	1729.25	4.11E+01	22.06	2.91E-03	2.32E-04
	61	1764.31	1.63E+02	33.59	2.87E-03	2.26E-04
	62	1845.90	2.25E+01	21.45	2.77E-03	2.15E-04
M	63	1896.06	1.28E+01	12.81	2.72E-03	2.15E-04
m	64	1899.96	9.52E+00	10.00	2.72E-03	2.15E-04
	65	2090.44	6.00E+00	8.49	2.55E-03	2.15E-04
	66	2102.90	2.36E+01	20.22	2.54E-03	2.15E-04
	67	2118.12	1.19E+01	14.87	2.53E-03	2.15E-04
	68	2124.46	7.88E+00	10.63	2.52E-03	2.15E-04
	69	2175.22	9.32E+00	12.49	2.48E-03	2.15E-04
	70	2203.75	3.06E+01	22.52	2.46E-03	2.15E-04
	71	2297.68	1.69E+01	13.67	2.40E-03	2.15E-04
	72	2326.56	1.22E+01	15.02	2.39E-03	2.15E-04
	73	2445.46	2.80E+01	10.58	2.32E-03	2.15E-04
	74	2614.00	2.16E+02	29.95	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 6:17:16PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.69	2.60E+02	130.04	4.84E+01	1.23E+01	2.12E+02	1.31E+02
	2	63.66	3.84E+02	167.50	4.29E+01	6.03E+00	3.41E+02	1.68E+02
M	3	75.22	1.69E+03	201.00	1.67E+01	8.84E+00	1.67E+03	2.01E+02
m	4	77.58	2.45E+03	188.32			2.45E+03	1.88E+02
M	5	87.56	1.39E+03	209.71			1.39E+03	2.10E+02
m	6	92.94	9.62E+02	176.11	6.90E+01	7.61E+00	8.93E+02	1.76E+02
	7	154.08	1.13E+02	122.00			1.13E+02	1.22E+02
	8	162.94	8.93E+01	103.06			8.93E+01	1.03E+02
	9	186.30	5.41E+02	133.28	2.99E+01	5.81E+00	5.12E+02	1.33E+02

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	10	209.41	1.68E+02	120.93			1.68E+02	1.21E+02
M	11	239.11	2.44E+03	130.57	9.49E+00	5.63E+00	2.43E+03	1.31E+02
m	12	242.08	7.26E+02	147.16			7.26E+02	1.47E+02
	13	258.45	9.01E+01	91.80			9.01E+01	9.18E+01
	14	269.51	2.24E+02	108.40			2.24E+02	1.08E+02
	15	277.62	6.72E+01	79.29			6.72E+01	7.93E+01
	16	295.54	9.70E+02	110.92			9.70E+02	1.11E+02
	17	301.49	1.13E+02	79.87			1.13E+02	7.99E+01
	18	328.08	1.39E+02	98.79			1.39E+02	9.88E+01
	19	338.82	4.21E+02	99.95	4.73E+00	4.47E+00	4.16E+02	1.00E+02
	20	352.17	1.71E+03	128.93			1.71E+03	1.29E+02
	21	463.20	1.70E+02	78.51			1.70E+02	7.85E+01
	22	511.53	3.39E+02	79.92	5.37E+01	4.54E+00	2.86E+02	8.01E+01
	23	522.71	3.77E+01	45.88			3.77E+01	4.59E+01
	24	583.39	7.32E+02	73.38			7.32E+02	7.34E+01
	25	609.58	1.31E+03	99.52	4.09E+00	3.07E+00	1.31E+03	9.96E+01
	26	640.00	3.00E+01	32.94			3.00E+01	3.29E+01
M	27	661.55	7.05E+01	48.41			7.05E+01	4.84E+01
m	28	665.90	4.05E+01	48.17			4.05E+01	4.82E+01
	29	727.32	1.21E+02	53.48			1.21E+02	5.35E+01
	30	769.03	1.09E+02	81.66			1.09E+02	8.17E+01
	31	784.94	4.02E+01	43.68			4.02E+01	4.37E+01
	32	794.55	9.16E+01	35.32			9.16E+01	3.53E+01
	33	840.12	4.11E+01	36.87			4.11E+01	3.69E+01
	34	860.71	5.51E+01	40.79			5.51E+01	4.08E+01
M	35	904.69	3.78E+01	34.58			3.78E+01	3.46E+01
m	36	911.33	4.08E+02	49.87			4.08E+02	4.99E+01
M	37	933.91	4.75E+01	38.19			4.75E+01	3.82E+01
m	38	940.68	2.17E+01	35.70			2.17E+01	3.57E+01
	39	949.51	3.78E+01	31.50			3.78E+01	3.15E+01
M	40	964.67	6.53E+01	29.87			6.53E+01	2.99E+01
m	41	968.90	2.61E+02	48.21			2.61E+02	4.82E+01
M	42	1000.18	2.87E+01	34.60			2.87E+01	3.46E+01
m	43	1008.51	2.06E+01	33.66			2.06E+01	3.37E+01
	44	1120.34	2.06E+02	45.65			2.06E+02	4.57E+01
	45	1160.51	1.51E+01	18.00			1.51E+01	1.80E+01
	46	1165.83	2.70E+01	24.71			2.70E+01	2.47E+01
	47	1238.63	8.85E+01	48.00	6.68E-01	1.26E+00	8.78E+01	4.80E+01
	48	1279.92	3.18E+01	35.82			3.18E+01	3.58E+01
	49	1330.57	2.13E+01	26.94			2.13E+01	2.69E+01
	50	1377.75	7.68E+01	28.50			7.68E+01	2.85E+01
	51	1460.60	4.64E+02	56.40			4.64E+02	5.64E+01
	52	1621.04	3.01E+01	20.90			3.01E+01	2.09E+01
M	53	1630.73	2.42E+01	17.37			2.42E+01	1.74E+01
m	54	1639.72	2.06E+01	17.37			2.06E+01	1.74E+01
	55	1649.62	2.13E+01	13.82			2.13E+01	1.38E+01
M	56	1660.73	2.25E+01	15.26			2.25E+01	1.53E+01
m	57	1665.74	1.14E+01	14.87			1.14E+01	1.49E+01
m	58	1670.24	1.53E+01	12.37			1.53E+01	1.24E+01
	59	1701.36	1.23E+01	14.56			1.23E+01	1.46E+01
	60	1729.25	4.11E+01	22.06			4.11E+01	2.21E+01
	61	1764.31	1.63E+02	33.59			1.63E+02	3.36E+01
	62	1845.90	2.25E+01	21.45			2.25E+01	2.15E+01
M	63	1896.06	1.28E+01	12.81			1.28E+01	1.28E+01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	64	1899.96	9.52E+00	10.00			9.52E+00	1.00E+01
	65	2090.44	6.00E+00	8.49			6.00E+00	8.49E+00
	66	2102.90	2.36E+01	20.22			2.36E+01	2.02E+01
	67	2118.12	1.19E+01	14.87			1.19E+01	1.49E+01
	68	2124.46	7.88E+00	10.63			7.88E+00	1.06E+01
	69	2175.22	9.32E+00	12.49			9.32E+00	1.25E+01
	70	2203.75	3.06E+01	22.52			3.06E+01	2.25E+01
	71	2297.68	1.69E+01	13.67			1.69E+01	1.37E+01
	72	2326.56	1.22E+01	15.02			1.22E+01	1.50E+01
	73	2445.46	2.80E+01	10.58			2.80E+01	1.06E+01
	74	2614.00	2.16E+02	29.95			2.16E+02	2.99E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 6:17:16PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.69	2.60E+02	130.04	4.84E+01	1.23E+01	2.12E+02	1.31E+02
	2	63.66	3.84E+02	167.50	4.29E+01	6.03E+00	3.41E+02	1.68E+02
M	3	75.22	1.69E+03	201.00	1.67E+01	8.84E+00	1.67E+03	2.01E+02
m	4	77.58	2.45E+03	188.32			2.45E+03	1.88E+02
M	5	87.56	1.39E+03	209.71			1.39E+03	2.10E+02
m	6	92.94	9.62E+02	176.11	6.90E+01	7.61E+00	8.93E+02	1.76E+02
	7	154.08	1.13E+02	122.00			1.13E+02	1.22E+02
	8	162.94	8.93E+01	103.06			8.93E+01	1.03E+02
	9	186.30	5.41E+02	133.28	2.99E+01	5.81E+00	5.12E+02	1.33E+02
	10	209.41	1.68E+02	120.93			1.68E+02	1.21E+02
M	11	239.11	2.44E+03	130.57	9.49E+00	5.63E+00	2.43E+03	1.31E+02
m	12	242.08	7.26E+02	147.16			7.26E+02	1.47E+02
	13	258.45	9.01E+01	91.80			9.01E+01	9.18E+01
	14	269.51	2.24E+02	108.40			2.24E+02	1.08E+02
	15	277.62	6.72E+01	79.29			6.72E+01	7.93E+01
	16	295.54	9.70E+02	110.92			9.70E+02	1.11E+02
	17	301.49	1.13E+02	79.87			1.13E+02	7.99E+01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	18	328.08	1.39E+02	98.79			1.39E+02	9.88E+01
	19	338.82	4.21E+02	99.95	4.73E+00	4.47E+00	4.16E+02	1.00E+02
	20	352.17	1.71E+03	128.93			1.71E+03	1.29E+02
	21	463.20	1.70E+02	78.51			1.70E+02	7.85E+01
	22	511.53	3.39E+02	79.92	5.37E+01	4.54E+00	2.86E+02	8.01E+01
	23	522.71	3.77E+01	45.88			3.77E+01	4.59E+01
	24	583.39	7.32E+02	73.38			7.32E+02	7.34E+01
	25	609.58	1.31E+03	99.52	4.09E+00	3.07E+00	1.31E+03	9.96E+01
	26	640.00	3.00E+01	32.94			3.00E+01	3.29E+01
M	27	661.55	7.05E+01	48.41			7.05E+01	4.84E+01
m	28	665.90	4.05E+01	48.17			4.05E+01	4.82E+01
	29	727.32	1.21E+02	53.48			1.21E+02	5.35E+01
	30	769.03	1.09E+02	81.66			1.09E+02	8.17E+01
	31	784.94	4.02E+01	43.68			4.02E+01	4.37E+01
	32	794.55	9.16E+01	35.32			9.16E+01	3.53E+01
	33	840.12	4.11E+01	36.87			4.11E+01	3.69E+01
	34	860.71	5.51E+01	40.79			5.51E+01	4.08E+01
M	35	904.69	3.78E+01	34.58			3.78E+01	3.46E+01
m	36	911.33	4.08E+02	49.87			4.08E+02	4.99E+01
M	37	933.91	4.75E+01	38.19			4.75E+01	3.82E+01
m	38	940.68	2.17E+01	35.70			2.17E+01	3.57E+01
	39	949.51	3.78E+01	31.50			3.78E+01	3.15E+01
M	40	964.67	6.53E+01	29.87			6.53E+01	2.99E+01
m	41	968.90	2.61E+02	48.21			2.61E+02	4.82E+01
M	42	1000.18	2.87E+01	34.60			2.87E+01	3.46E+01
m	43	1008.51	2.06E+01	33.66			2.06E+01	3.37E+01
	44	1120.34	2.06E+02	45.65			2.06E+02	4.57E+01
	45	1160.51	1.51E+01	18.00			1.51E+01	1.80E+01
	46	1165.83	2.70E+01	24.71			2.70E+01	2.47E+01
	47	1238.63	8.85E+01	48.00	6.68E-01	1.26E+00	8.78E+01	4.80E+01
	48	1279.92	3.18E+01	35.82			3.18E+01	3.58E+01
	49	1330.57	2.13E+01	26.94			2.13E+01	2.69E+01
	50	1377.75	7.68E+01	28.50			7.68E+01	2.85E+01
	51	1460.60	4.64E+02	56.40			4.64E+02	5.64E+01
	52	1621.04	3.01E+01	20.90			3.01E+01	2.09E+01
M	53	1630.73	2.42E+01	17.37			2.42E+01	1.74E+01
m	54	1639.72	2.06E+01	17.37			2.06E+01	1.74E+01
	55	1649.62	2.13E+01	13.82			2.13E+01	1.38E+01
M	56	1660.73	2.25E+01	15.26			2.25E+01	1.53E+01
m	57	1665.74	1.14E+01	14.87			1.14E+01	1.49E+01
m	58	1670.24	1.53E+01	12.37			1.53E+01	1.24E+01
	59	1701.36	1.23E+01	14.56			1.23E+01	1.46E+01
	60	1729.25	4.11E+01	22.06			4.11E+01	2.21E+01
	61	1764.31	1.63E+02	33.59			1.63E+02	3.36E+01
	62	1845.90	2.25E+01	21.45			2.25E+01	2.15E+01
M	63	1896.06	1.28E+01	12.81			1.28E+01	1.28E+01
m	64	1899.96	9.52E+00	10.00			9.52E+00	1.00E+01
	65	2090.44	6.00E+00	8.49			6.00E+00	8.49E+00
	66	2102.90	2.36E+01	20.22			2.36E+01	2.02E+01
	67	2118.12	1.19E+01	14.87			1.19E+01	1.49E+01
	68	2124.46	7.88E+00	10.63			7.88E+00	1.06E+01
	69	2175.22	9.32E+00	12.49			9.32E+00	1.25E+01
	70	2203.75	3.06E+01	22.52			3.06E+01	2.25E+01
	71	2297.68	1.69E+01	13.67			1.69E+01	1.37E+01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
72	2326.56	1.22E+01	15.02			1.22E+01	1.50E+01
73	2445.46	2.80E+01	10.58			2.80E+01	1.06E+01
74	2614.00	2.16E+02	29.95			2.16E+02	2.99E+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	0.993	1460.81	*	10.67	1.82E+01	2.71E+00
CD-109	0.964	88.03	*	3.72	2.19E+01	3.99E+00
SN-126	1.000	87.57	*	37.00	1.92E+00	3.30E-01
CS-137	0.999	661.65	*	85.12	1.76E-01	1.22E-01
TL-208	0.959	583.14	*	30.22	4.59E+00	6.34E-01
		860.37	*	4.48	3.30E+00	2.45E+00
		2614.66	*	35.85	3.73E+00	6.29E-01
PB-210	0.995	46.50	*	4.25	4.01E+00	2.51E+00
BI-212	0.992	727.17	*	11.80	2.37E+00	1.07E+00
		1620.62	*	2.75	4.97E+00	3.48E+00
PB-212	0.862	238.63	*	44.60	4.70E+00	4.65E-01
		300.09		3.41		
BI-214	0.990	609.31	*	46.30	5.55E+00	6.73E-01
		1120.29	*	15.10	4.60E+00	1.09E+00
		1764.49	*	15.80	4.99E+00	1.10E+00
		2204.22	*	4.98	3.45E+00	2.56E+00
PB-214	0.988	295.21	*	19.19	5.21E+00	7.43E-01
		351.92	*	37.19	5.52E+00	6.46E-01
RA-226	0.999	186.21	*	3.28	1.10E+01	2.04E+01
AC-228	0.984	338.32	*	11.40	4.24E+00	1.09E+00
		911.07	*	27.70	4.15E+00	6.02E-01
		969.11	*	16.60	4.66E+00	9.41E-01
PA-234M	0.891	1001.03	*	0.92	9.53E+00	1.15E+01
TH-234	0.979	63.29	*	3.80	5.07E+00	2.52E+00
AM-243	0.953	74.67	*	66.00	1.32E+00	1.88E-01
CM-243	0.367	209.75	*	3.29	3.97E+00	2.88E+00
		228.14		10.60		
		277.60	*	14.00	4.72E-01	5.58E-01

Analysis Report for 1707078-15

HTC-A01-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 : 8/14/2017 6:17:16PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.58	6.80710E-01	3.84	Tol.	TI-44
m	6	92.94	2.48129E-01	9.87	Sum	
	7	154.08	3.13471E-02	54.05	Tol.	CS-136
	8	162.94	2.48095E-02	57.69	Sum	
m	12	242.08	2.01588E-01	10.14		
	13	258.45	2.50366E-02	50.93		
	14	269.51	6.22978E-02	24.17		
	17	301.49	3.13448E-02	35.39		
	18	328.08	3.85192E-02	35.62	Tol.	LA-140
	21	463.20	4.71856E-02	23.11	Sum	
	22	511.53	7.93589E-02	14.01		
	23	522.71	1.04800E-02	60.81		
	26	640.00	8.33111E-03	54.91		
m	28	665.90	1.12472E-02	59.48	Tol.	SB-126
	30	769.03	3.03885E-02	37.32	Sum	
	31	784.94	1.11674E-02	54.33		
	32	794.55	2.54475E-02	19.28		
	33	840.12	1.14182E-02	44.85		
M	35	904.69	1.04880E-02	45.80	Sum	
M	37	933.91	1.31874E-02	40.22		
m	38	940.68	6.02492E-03	82.29		
	39	949.51	1.04861E-02	41.72	S-Esc	
M	40	964.67	1.81476E-02	22.86	Tol.	EU-152
m	43	1008.51	5.73041E-03	81.58		
	45	1160.51	4.18478E-03	59.74		
	46	1165.83	7.49239E-03	45.80	Sum	
	47	1238.63	2.43952E-02	27.34	Sum	
	48	1279.92	8.83665E-03	56.30		
	49	1330.57	5.91667E-03	63.23	Sum	
	50	1377.75	2.13317E-02	18.55		
M	53	1630.73	6.72989E-03	35.85	Sum	
m	54	1639.72	5.72110E-03	42.17		

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	55	1649.62	5.91475E-03	32.45		
M	56	1660.73	6.25869E-03	33.87		
m	57	1665.74	3.16969E-03	65.14		
m	58	1670.24	4.26355E-03	40.29	Sum	
	59	1701.36	3.42222E-03	59.09		
	60	1729.25	1.14289E-02	26.81	Sum	
	62	1845.90	6.24114E-03	47.74		
M	63	1896.06	3.56343E-03	49.91		
m	64	1899.96	2.64541E-03	52.50		
	65	2090.44	1.66667E-03	70.71		
	66	2102.90	6.55797E-03	42.83	S-Esc	
	67	2118.12	3.31597E-03	62.27		
	68	2124.46	2.18750E-03	67.49		
	69	2175.22	2.58772E-03	67.04		
	71	2297.68	4.70486E-03	40.34		
	72	2326.56	3.39744E-03	61.39		
	73	2445.46	7.77778E-03	18.90		

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	1.82E+01	2.71E+00
CD-109	0.96	88.03	*	3.72	2.19E+01	3.99E+00
SN-126	1.00	87.57	*	37.00	1.92E+00	3.30E-01
CS-137	0.99	661.65	*	85.12	1.76E-01	1.22E-01
TL-208	0.95	583.14	*	30.22	4.59E+00	6.34E-01
		860.37	*	4.48	3.30E+00	2.45E+00
		2614.66	*	35.85	3.73E+00	6.29E-01
PB-210	0.99	46.50	*	4.25	4.01E+00	2.51E+00
BI-212	0.99	727.17	*	11.80	2.37E+00	1.07E+00
		1620.62	*	2.75	4.97E+00	3.48E+00
PB-212	0.86	238.63	*	44.60	4.70E+00	4.65E-01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.86	300.09		3.41		
BI-214	0.99	609.31	*	46.30	5.55E+00	6.73E-01
		1120.29	*	15.10	4.60E+00	1.09E+00
		1764.49	*	15.80	4.99E+00	1.10E+00
		2204.22	*	4.98	3.45E+00	2.56E+00
PB-214	0.98	295.21	*	19.19	5.21E+00	7.43E-01
		351.92	*	37.19	5.52E+00	6.46E-01
RA-226	0.99	186.21	*	3.28	1.10E+01	2.04E+01
AC-228	0.98	338.32	*	11.40	4.24E+00	1.09E+00
		911.07	*	27.70	4.15E+00	6.02E-01
		969.11	*	16.60	4.66E+00	9.41E-01
PA-234M	0.89	1001.03	*	0.92	9.53E+00	1.15E+01
TH-234	0.97	63.29	*	3.80	5.07E+00	2.52E+00
AM-243	0.95	74.67	*	66.00	1.32E+00	1.88E-01
CM-243	0.36	209.75	*	3.29	3.97E+00	2.88E+00
		228.14		10.60		
		277.60	*	14.00	4.72E-01	5.58E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.993	1.82E+01	2.71E+00	
?	CD-109	0.964	2.19E+01	3.99E+00	
?	SN-126	1.000	1.92E+00	3.30E-01	
	CS-137	0.999	1.76E-01	1.22E-01	
	TL-208	0.959	4.13E+00	4.39E-01	
	PB-210	0.995	4.01E+00	2.51E+00	
	BI-212	0.992	2.59E+00	1.02E+00	
	PB-212	0.862	4.70E+00	4.65E-01	
	BI-214	0.990	5.16E+00	4.99E-01	
	PB-214	0.988	5.39E+00	4.88E-01	

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
RA-226	0.999	1.10E+01	2.04E+01	
AC-228	0.984	4.29E+00	4.59E-01	
PA-234M	0.891	9.53E+00	1.15E+01	
TH-234	0.979	5.07E+00	2.52E+00	
AM-243	0.953	1.32E+00	1.88E-01	
CM-243	0.367	5.98E-01	5.47E-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

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:17:16PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	4	77.58	6.80710E-01	3.84	Tol.	TI-44
m	6	92.94	2.48129E-01	9.87	Sum	
	7	154.08	3.13471E-02	54.05	Tol.	CS-136
	8	162.94	2.48095E-02	57.69	Sum	
m	12	242.08	2.01588E-01	10.14		
	13	258.45	2.50366E-02	50.93		
	14	269.51	6.22978E-02	24.17		
	17	301.49	3.13448E-02	35.39		
	18	328.08	3.85192E-02	35.62	Tol.	LA-140
	21	463.20	4.71856E-02	23.11	Sum	
	22	511.53	7.93589E-02	14.01		
	23	522.71	1.04800E-02	60.81		
	26	640.00	8.33111E-03	54.91		
m	28	665.90	1.12472E-02	59.48	Tol.	SB-126
	30	769.03	3.03885E-02	37.32	Sum	
	31	784.94	1.11674E-02	54.33		
	32	794.55	2.54475E-02	19.28		
	33	840.12	1.14182E-02	44.85		
M	35	904.69	1.04880E-02	45.80	Sum	
M	37	933.91	1.31874E-02	40.22		
m	38	940.68	6.02492E-03	82.29		
	39	949.51	1.04861E-02	41.72	S-Esc	
M	40	964.67	1.81476E-02	22.86	Tol.	EU-152
m	43	1008.51	5.73041E-03	81.58		
	45	1160.51	4.18478E-03	59.74		
	46	1165.83	7.49239E-03	45.80	Sum	
	47	1238.63	2.43952E-02	27.34	Sum	
	48	1279.92	8.83665E-03	56.30		
	49	1330.57	5.91667E-03	63.23	Sum	
	50	1377.75	2.13317E-02	18.55		
M	53	1630.73	6.72989E-03	35.85	Sum	
m	54	1639.72	5.72110E-03	42.17		
	55	1649.62	5.91475E-03	32.45		

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	56	1660.73	6.25869E-03	33.87		
m	57	1665.74	3.16969E-03	65.14		
m	58	1670.24	4.26355E-03	40.29	Sum	
	59	1701.36	3.42222E-03	59.09		
	60	1729.25	1.14289E-02	26.81	Sum	
	62	1845.90	6.24114E-03	47.74		
M	63	1896.06	3.56343E-03	49.91		
m	64	1899.96	2.64541E-03	52.50		
	65	2090.44	1.66667E-03	70.71		
	66	2102.90	6.55797E-03	42.83	S-Esc	
	67	2118.12	3.31597E-03	62.27		
	68	2124.46	2.18750E-03	67.49		
	69	2175.22	2.58772E-03	67.04		
	71	2297.68	4.70486E-03	40.34		
	72	2326.56	3.39744E-03	61.39		
	73	2445.46	7.77778E-03	18.90		

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	-2.26E-01	3.84E+00	3.84E+00
+	NA-22	1274.54		99.94	9.50E-03	1.53E-01	1.53E-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	-7.67E-03	1.13E-01	1.13E-01
+	K-40	1460.81	*	10.67	1.82E+01	2.46E+00	2.46E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-9.88E-02	1.22E-01	1.22E-01
		78.34		96.00	9.30E-01		1.64E-01
+	SC-46	889.25		99.98	7.15E-03	2.88E-01	2.88E-01
		1120.51		99.99	1.51E+00		5.77E-01
+	V-48	983.52		99.98	1.52E+00	7.80E+00	7.80E+00

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	V-48	1312.10	97.50	3.40E-01	7.80E+00	8.84E+00
+	CR-51	320.08	9.83	3.85E+00	1.18E+01	1.18E+01
+	MN-54	834.83	99.97	4.12E-03	1.72E-01	1.72E-01
+	CO-56	846.75	99.96	2.73E-02	2.99E-01	2.99E-01
		1037.75	14.03	-1.08E+00		2.17E+00
		1238.25	67.00	6.41E-01		7.40E-01
		1771.40	15.51	-4.77E-01		1.64E+00
		2598.48	16.90	-2.16E-01		1.09E+00
+	CO-57	122.06	85.51	-9.93E-02	1.21E-01	1.21E-01
		136.48	10.60	-8.20E-01		9.98E-01
+	CO-58	810.76	99.40	-8.42E-02	3.30E-01	3.30E-01
+	FE-59	1099.22	56.50	-2.83E-01	1.04E+00	1.04E+00
		1291.56	43.20	9.13E-01		1.48E+00
+	CO-60	1173.22	100.00	5.56E-02	1.53E-01	1.62E-01
		1332.49	100.00	6.44E-02		1.53E-01
+	ZN-65	1115.52	50.75	2.92E-02	3.86E-01	3.86E-01
+	GA-67	93.31	35.70	3.85E+08	1.29E+08	1.29E+08
		208.95	2.24	2.79E+09		2.33E+09
		300.22	16.00	-1.68E+09		3.74E+08
+	SE-75	121.11	16.70	-3.52E-01	2.46E-01	8.41E-01
		136.00	59.20	-1.05E-01		2.46E-01
		264.65	59.80	-4.19E-01		3.13E-01
		279.53	25.20	-2.11E-02		7.78E-01
		400.65	11.40	-4.15E-01		1.73E+00
+	RB-82	776.52	13.00	-2.85E+00	1.27E+01	1.27E+01
+	RB-83	520.41	46.00	-6.39E-02	5.53E-01	5.53E-01
		529.64	30.30	1.48E-01		8.35E-01
		552.65	16.40	7.17E-01		1.57E+00
+	KR-85	513.99	0.43	7.66E+01	3.97E+01	3.97E+01
+	SR-85	513.99	99.27	8.93E-01	4.63E-01	4.63E-01
+	Y-88	898.02	93.40	2.28E-02	2.43E-01	2.57E-01
		1836.01	99.38	5.53E-02		2.43E-01
+	MO-93	263.06	56.72	-2.09E-01	1.34E-01	1.92E-01
		684.67	99.68	6.83E-02		1.34E-01
		1477.11	99.08	3.75E-02		1.39E-01
+	NB-93M	16.57	9.43	8.70E+00	1.15E+02	1.15E+02
+	NB-94	702.63	100.00	5.01E-02	1.30E-01	1.44E-01
		871.10	100.00	-3.71E-04		1.30E-01
+	NB-95	765.79	99.81	1.02E+00	1.11E+00	1.11E+00
+	NB-95M	235.69	25.00	2.43E+07	4.64E+07	4.64E+07
+	ZR-95	724.18	43.70	1.96E-01	7.59E-01	1.01E+00
		756.72	55.30	3.09E-01		7.59E-01
+	MO-99	181.06	6.20	1.44E+10	1.80E+10	2.58E+10
		739.58	12.80	2.57E+09		1.80E+10
		778.00	4.50	-1.07E+10		4.83E+10
+	RU-103	497.08	89.00	-3.14E-02	6.83E-01	6.83E-01
+	RU-106	621.84	9.80	-2.92E-01	1.38E+00	1.38E+00

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AG-108M	433.93		89.90	-1.01E-01	1.28E-01	1.28E-01
		614.37		90.40	-6.87E-01		2.04E-01
		722.95		90.50	2.65E-02		1.54E-01
+	CD-109	88.03	*	3.72	2.19E+01	6.96E+00	6.96E+00
+	AG-110M	657.75		93.14	-1.78E-02	1.83E-01	1.83E-01
		677.61		10.53	-4.96E-01		1.58E+00
		706.67		16.46	-2.57E-01		1.10E+00
		763.93		21.98	-1.50E+00		8.75E-01
		884.67		71.63	-7.49E-02		2.35E-01
		1384.27		23.94	1.94E-01		7.29E-01
+	CD-113M	263.70		0.02	-5.08E+02	4.76E+02	4.76E+02
+	SN-113	255.12		1.93	1.72E+00	3.32E-01	1.01E+01
		391.69		64.90	8.45E-02		3.32E-01
+	TE123M	159.00		84.10	1.23E-02	1.84E-01	1.84E-01
+	SB-124	602.71		97.87	7.32E-02	3.93E-01	3.93E-01
		645.85		7.26	1.32E+00		4.95E+00
		722.78		11.10	6.33E-01		3.68E+00
		1691.02		49.00	-1.47E-01		6.88E-01
+	I-125	35.49		6.49	-4.17E+00	9.27E+00	9.27E+00
+	SB-125	176.33		6.89	-4.06E-01	4.41E-01	1.46E+00
		427.89		29.33	2.32E-01		4.41E-01
		463.38		10.35	2.38E+00		1.49E+00
		600.56		17.80	1.75E-01		7.97E-01
		635.90		11.32	-1.44E-01		1.12E+00
+	SB-126	414.70		83.30	-3.95E+01	2.53E+01	2.67E+01
		666.33		99.60	-1.44E+01		2.62E+01
		695.00		99.60	6.58E+00		2.53E+01
		720.50		53.80	-6.69E+00		4.45E+01
+	SN-126	87.57	*	37.00	1.92E+00	6.09E-01	6.09E-01
+	SB-127	473.00		25.00	-2.33E+06	7.34E+06	9.66E+06
		685.20		35.70	3.73E+06		7.34E+06
		783.80		14.70	1.93E+07		2.07E+07
+	I-129	29.78		57.00	1.12E-01	6.58E-01	6.58E-01
		33.60		13.20	-7.06E-01		1.84E+00
		39.58		7.52	-5.20E-01		2.13E+00
+	I-131	284.30		6.05	-1.60E+03	4.37E+02	5.61E+03
		364.48		81.20	2.63E+02		4.37E+02
		636.97		7.26	8.54E+02		5.43E+03
		722.89		1.80	4.16E+03		2.42E+04
+	TE-132	49.72		13.10	6.02E+07	5.50E+07	3.85E+08
		228.16		88.00	-6.94E+06		5.50E+07
+	BA-133	81.00		33.00	-1.95E+00	3.34E-01	3.42E-01
		302.84		17.80	8.98E-01		7.18E-01
		356.01		60.00	3.84E-02		3.34E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-3.81E+05	6.67E+04	6.67E+04
+	CS-134	563.23		8.38	9.87E-01	1.90E-01	1.74E+00
		569.32		15.43	-6.81E-01		8.58E-01
		604.70		97.60	1.64E-02		1.90E-01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-134	795.84		85.40	-4.11E-02	1.90E-01	1.98E-01
			801.93		8.73	-2.11E-01		1.59E+00
+		CS-135	268.24		16.00	7.70E-01	7.63E-01	7.63E-01
+	@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41		28.60	1.00E+26		1.00E+26
	@		1678.03		9.54	1.00E+26		1.00E+26
+		CS-136	153.22		7.46	1.28E+02	1.62E+01	1.75E+02
			163.89		4.61	2.09E+02		2.81E+02
			176.55		13.56	-2.64E+01		9.52E+01
			273.65		12.66	-9.61E+01		1.28E+02
			340.57		48.50	1.41E+02		4.46E+01
			818.50		99.70	-4.59E+00		1.62E+01
			1048.07		79.60	-8.88E+00		2.40E+01
			1235.34		19.70	6.42E+01		1.43E+02
+		CS-137	661.65	*	85.12	1.76E-01	2.79E-01	2.79E-01
+		LA-138	788.74		34.00	-5.22E-02	2.27E-01	3.99E-01
			1435.80		66.00	8.79E-02		2.27E-01
+		CE-139	165.85		80.35	-2.41E-02	1.84E-01	1.84E-01
+		BA-140	162.64		6.70	1.01E+02	7.76E+01	2.21E+02
			304.84		4.50	-7.87E+01		3.96E+02
			423.70		3.20	-4.80E+02		5.73E+02
			437.55		2.00	3.34E+02		9.23E+02
			537.32		25.00	1.68E+01		7.76E+01
+		LA-140	328.77		20.50	7.69E+01	2.98E+01	1.01E+02
			487.03		45.50	-4.99E+00		4.08E+01
			815.85		23.50	7.30E+00		8.18E+01
			1596.49		95.49	4.81E+00		2.98E+01
+		CE-141	145.44		48.40	2.62E-01	1.34E+00	1.34E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-4.96E-01	1.00E+00	1.00E+00
+		PM-144	476.78		42.00	-9.34E-02	1.36E-01	3.45E-01
			618.01		98.60	3.40E-02		1.36E-01
			696.49		99.49	-5.70E-02		1.62E-01
+		PM-145	36.85		21.70	-6.09E-01	4.65E-01	8.62E-01
			37.36		39.70	1.48E-01		4.65E-01
			42.30		15.10	2.42E-01		9.37E-01
			72.40		2.31	-2.88E+01		5.58E+00
+		PM-146	453.90		39.94	8.41E-02	3.12E-01	3.12E-01
			735.90		14.01	-4.18E-01		9.86E-01
			747.13		13.10	2.41E-01		1.12E+00
+		ND-147	91.11		28.90	-2.02E+02	1.44E+02	1.44E+02
			531.02		13.10	-6.01E+01		3.23E+02
+		PM-149	285.90		3.10	6.82E+11	1.81E+13	1.81E+13
+		EU-152	121.78		20.50	-3.30E-01	4.04E-01	4.04E-01
			244.69		5.40	-8.10E+00		2.75E+00
			344.27		19.13	-2.65E+00		6.03E-01
			778.89		9.20	-3.25E-01		1.46E+00

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	964.01	10.40	-4.30E+00	4.04E-01	1.96E+00
		1085.78	7.22	-8.48E-01		1.88E+00
		1112.02	9.60	4.30E-01		1.61E+00
		1407.95	14.94	4.55E-01		1.12E+00
+	GD-153	97.43	31.30	4.85E-02	3.51E-01	3.51E-01
		103.18	22.20	-3.07E-01		4.78E-01
+	EU-154	123.07	40.50	-9.72E-02	2.09E-01	2.09E-01
		723.30	19.70	1.24E-01		7.23E-01
		873.19	11.50	-3.75E-01		1.12E+00
		996.32	10.30	1.06E-01		1.28E+00
		1004.76	17.90	-2.33E-01		7.97E-01
		1274.45	35.50	2.55E-02		4.11E-01
+	EU-155	86.50	30.90	8.53E-01	3.98E-01	3.98E-01
		105.30	20.70	3.52E-02		4.10E-01
+	EU-156	811.77	10.40	-3.41E+00	8.80E+01	8.80E+01
		1153.47	7.20	4.56E+01		1.58E+02
		1230.71	8.90	1.77E+01		1.31E+02
+	HO-166M	184.41	72.60	3.24E-01	1.65E-01	1.65E-01
		280.45	29.60	4.71E-02		3.82E-01
		410.94	11.10	7.07E-01		1.19E+00
		711.69	54.10	-6.69E-02		2.51E-01
+	TM-171	66.72	0.14	-1.13E+02	9.17E+01	9.17E+01
+	HF-172	67.35	5.31	-1.93E+00	8.41E-01	2.38E+00
		125.81	11.30	-5.96E-01		8.41E-01
+	LU-172	181.53	20.60	1.56E+03	3.72E+03	7.32E+03
		900.72	29.81	1.15E+03		7.20E+03
		1093.66	62.50	1.56E+03		3.72E+03
+	LU-173	100.72	5.24	5.75E-01	6.62E-01	1.80E+00
		272.11	21.20	3.88E-01		6.62E-01
+	HF-175	343.40	84.00	-1.50E+00	3.41E-01	3.41E-01
+	LU-176	88.34	13.30	1.25E+00	1.13E-01	9.07E-01
		201.83	86.00	-1.18E-02		1.13E-01
		306.78	94.00	7.90E-03		1.17E-01
+	HF-181	133.02	41.70	-1.16E-01	6.53E-01	9.73E-01
		345.85	17.20	-1.08E+01		3.04E+00
		482.03	82.80	-3.40E-01		6.53E-01
+	TA-182	67.75	41.20	-3.98E-01	4.90E-01	4.90E-01
		1121.30	34.90	2.89E+00		1.33E+00
		1189.05	16.23	-1.32E-01		1.50E+00
		1221.41	26.98	-2.01E-01		9.96E-01
		1231.02	11.44	3.43E-01		2.53E+00
+	IR-192	308.46	29.68	-2.68E-01	6.12E-01	8.65E-01
		468.07	48.10	-1.92E-01		6.12E-01
+	HG-203	279.19	77.30	2.04E-01	5.96E-01	5.96E-01
+	TL-204	374.74	94.11	2.83E-02	1.31E-01	1.31E-01
		899.15	99.16	2.97E-02		1.37E-01
		911.74	91.10	1.30E+00		3.43E-01
+	BI-207	569.67	97.72	3.12E-02	1.30E-01	1.30E-01
		1063.62	74.90	5.34E-02		1.86E-01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TL-208	583.14	*	30.22	4.59E+00	2.12E-01	5.28E-01
		860.37	*	4.48	3.30E+00		3.90E+00
		2614.66	*	35.85	3.73E+00		2.12E-01
+	BI-210M	262.00		45.00	-1.02E-01	2.43E-01	2.43E-01
		300.00		23.00	-2.83E+00		6.29E-01
+	PB-210	46.50	*	4.25	4.01E+00	4.02E+00	4.02E+00
+	PB-211	404.84		2.90	-3.28E+00	4.10E+00	4.10E+00
		831.96		2.90	-3.77E-01		4.66E+00
+	BI-212	727.17	*	11.80	2.37E+00	1.62E+00	1.62E+00
		1620.62	*	2.75	4.97E+00		5.28E+00
+	PB-212	238.63	*	44.60	4.70E+00	5.06E-01	5.06E-01
		300.09		3.41	-1.91E+01		4.25E+00
+	BI-214	609.31	*	46.30	5.55E+00	4.91E-01	4.91E-01
		1120.29	*	15.10	4.60E+00		1.36E+00
		1764.49	*	15.80	4.99E+00		1.18E+00
		2204.22	*	4.98	3.45E+00		3.95E+00
+	PB-214	295.21	*	19.19	5.21E+00	5.35E-01	8.25E-01
		351.92	*	37.19	5.52E+00		5.35E-01
+	RN-219	401.80		6.50	2.72E-01	1.81E+00	1.81E+00
+	RA-223	323.87		3.88	3.24E-01	3.03E+00	3.03E+00
+	RA-224	240.98		3.95	6.76E+01	6.39E+00	6.39E+00
+	RA-225	40.00		31.00	-9.75E+00	4.00E+01	4.00E+01
+	RA-226	186.21	*	3.28	1.10E+01	4.52E+00	4.52E+00
+	TH-227	50.10		8.40	2.21E-01	1.41E+00	1.41E+00
		236.00		11.50	8.71E-01		1.66E+00
		256.20		6.30	7.26E-02		1.79E+00
+	AC-228	338.32	*	11.40	4.24E+00	1.12E+00	1.56E+00
		911.07	*	27.70	4.15E+00		1.12E+00
		969.11	*	16.60	4.66E+00		1.32E+00
+	TH-230	48.44		16.90	2.75E-01	7.67E-01	7.67E-01
		62.85		4.60	4.70E+00		2.69E+00
		67.67		0.37	-2.52E+01		3.10E+01
+	PA-231	283.67		1.60	1.26E+00	5.46E+00	6.82E+00
		302.67		2.30	6.83E+00		5.46E+00
+	TH-231	25.64		14.70	-1.62E+00	1.66E+00	4.54E+00
		84.21		6.40	-2.99E+00		1.66E+00
+	PA-233	311.98		38.60	4.20E-01	3.06E+00	3.06E+00
+	PA-234	131.20		20.40	5.36E-01	4.56E-01	4.56E-01
		733.99		8.80	-9.39E-02		1.51E+00
		946.00		12.00	-5.88E-01		1.08E+00
+	PA-234M	1001.03	*	0.92	9.53E+00	3.05E+01	3.05E+01
+	TH-234	63.29	*	3.80	5.07E+00	4.04E+00	4.04E+00
+	U-235	143.76		10.50	3.96E-01	8.48E-01	8.48E-01
		163.35		4.70	1.50E+00		2.01E+00
		205.31		4.70	-4.69E-01		2.53E+00
+	NP-237	86.50		12.60	2.02E+00	9.42E-01	9.42E-01
+	NP-239	106.10		22.70	2.65E+10	3.09E+11	3.09E+11

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NP-239	228.18		10.70	-1.16E+11	3.09E+11	9.20E+11
		277.60		14.10	4.50E+11		6.95E+11
+	AM-241	59.54		35.90	-4.56E-02	3.13E-01	3.13E-01
+	AM-243	74.67	*	66.00	1.32E+00	4.05E-01	4.05E-01
+	CM-243	209.75	*	3.29	3.97E+00	9.14E-01	4.66E+00
		228.14		10.60	-1.38E-01		1.09E+00
		277.60	*	14.00	4.72E-01		9.14E-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	3.84E+00	3.84E+00	-2.26E-01	1.85E+00
	NA-22	1274.54		99.94	1.53E-01	1.53E-01	9.50E-03	7.12E-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	1.13E-01	1.13E-01	-7.67E-03	5.01E-02
+	K-40	1460.81	*	10.67	2.46E+00	2.46E+00	1.82E+01	1.17E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.22E-01	1.22E-01	-9.88E-02	6.00E-02
		78.34		96.00	1.64E-01		9.30E-01	8.10E-02
	SC-46	889.25		99.98	2.88E-01	2.88E-01	7.15E-03	1.36E-01
		1120.51		99.99	5.77E-01		1.51E+00	2.79E-01
	V-48	983.52		99.98	7.80E+00	7.80E+00	1.52E+00	3.67E+00
		1312.10		97.50	8.84E+00		3.40E-01	4.11E+00
	CR-51	320.08		9.83	1.18E+01	1.18E+01	3.85E+00	5.75E+00
	MN-54	834.83		99.97	1.72E-01	1.72E-01	4.12E-03	8.14E-02
	CO-56	846.75		99.96	2.99E-01	2.99E-01	2.73E-02	1.41E-01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CO-56	1037.75		14.03	2.17E+00	2.99E-01	-1.08E+00	1.02E+00
		1238.25		67.00	7.40E-01		6.41E-01	3.53E-01
		1771.40		15.51	1.64E+00		-4.77E-01	7.21E-01
		2598.48		16.90	1.09E+00		-2.16E-01	4.32E-01
	CO-57	122.06		85.51	1.21E-01	1.21E-01	-9.93E-02	5.96E-02
		136.48		10.60	9.98E-01		-8.20E-01	4.89E-01
	CO-58	810.76		99.40	3.30E-01	3.30E-01	-8.42E-02	1.56E-01
	FE-59	1099.22		56.50	1.04E+00	1.04E+00	-2.83E-01	4.86E-01
		1291.56		43.20	1.48E+00		9.13E-01	6.91E-01
	CO-60	1173.22		100.00	1.62E-01	1.53E-01	5.56E-02	7.63E-02
		1332.49		100.00	1.53E-01		6.44E-02	7.13E-02
	ZN-65	1115.52		50.75	3.86E-01	3.86E-01	2.92E-02	1.81E-01
	GA-67	93.31		35.70	1.29E+08	1.29E+08	3.85E+08	6.39E+07
		208.95		2.24	2.33E+09		2.79E+09	1.14E+09
		300.22		16.00	3.74E+08		-1.68E+09	1.84E+08
	SE-75	121.11		16.70	8.41E-01	2.46E-01	-3.52E-01	4.13E-01
		136.00		59.20	2.46E-01		-1.05E-01	1.21E-01
		264.65		59.80	3.13E-01		-4.19E-01	1.53E-01
		279.53		25.20	7.78E-01		-2.11E-02	3.80E-01
		400.65		11.40	1.73E+00		-4.15E-01	8.40E-01
	RB-82	776.52		13.00	1.27E+01	1.27E+01	-2.85E+00	6.01E+00
	RB-83	520.41		46.00	5.53E-01	5.53E-01	-6.39E-02	2.66E-01
		529.64		30.30	8.35E-01		1.48E-01	4.01E-01
		552.65		16.40	1.57E+00		7.17E-01	7.53E-01
	KR-85	513.99		0.43	3.97E+01	3.97E+01	7.66E+01	1.93E+01
	SR-85	513.99		99.27	4.63E-01	4.63E-01	8.93E-01	2.25E-01
	Y-88	898.02		93.40	2.57E-01	2.43E-01	2.28E-02	1.21E-01
		1836.01		99.38	2.43E-01		5.53E-02	1.09E-01
	MO-93	263.06		56.72	1.92E-01	1.34E-01	-2.09E-01	9.38E-02
		684.67		99.68	1.34E-01		6.83E-02	6.41E-02
		1477.11		99.08	1.39E-01		3.75E-02	6.38E-02
	NB-93M	16.57		9.43	1.15E+02	1.15E+02	8.70E+00	5.67E+01
	NB-94	702.63		100.00	1.44E-01	1.30E-01	5.01E-02	6.90E-02
		871.10		100.00	1.30E-01		-3.71E-04	6.14E-02
	NB-95	765.79		99.81	1.11E+00	1.11E+00	1.02E+00	5.36E-01
	NB-95M	235.69		25.00	4.64E+07	4.64E+07	2.43E+07	2.29E+07
	ZR-95	724.18		43.70	1.01E+00	7.59E-01	1.96E-01	4.85E-01
		756.72		55.30	7.59E-01		3.09E-01	3.63E-01
	MO-99	181.06		6.20	2.58E+10	1.80E+10	1.44E+10	1.27E+10
		739.58		12.80	1.80E+10		2.57E+09	8.57E+09
		778.00		4.50	4.83E+10		-1.07E+10	2.29E+10
	RU-103	497.08		89.00	6.83E-01	6.83E-01	-3.14E-02	3.29E-01
	RU-106	621.84		9.80	1.38E+00	1.38E+00	-2.92E-01	6.57E-01
	AG-108M	433.93		89.90	1.28E-01	1.28E-01	-1.01E-01	6.20E-02
		614.37		90.40	2.04E-01		-6.87E-01	9.90E-02
		722.95		90.50	1.54E-01		2.65E-02	7.38E-02
+	CD-109	88.03	*	3.72	6.96E+00	6.96E+00	2.19E+01	3.46E+00
	AG-110M	657.75		93.14	1.83E-01	1.83E-01	-1.78E-02	8.74E-02
		677.61		10.53	1.58E+00		-4.96E-01	7.54E-01
		706.67		16.46	1.10E+00		-2.57E-01	5.24E-01
		763.93		21.98	8.75E-01		-1.50E+00	4.18E-01
		884.67		71.63	2.35E-01		-7.49E-02	1.11E-01
		1384.27		23.94	7.29E-01		1.94E-01	3.35E-01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CD-113M	263.70		0.02	4.76E+02	4.76E+02	-5.08E+02	2.32E+02
	SN-113	255.12		1.93	1.01E+01	3.32E-01	1.72E+00	4.95E+00
		391.69		64.90	3.32E-01		8.45E-02	1.61E-01
	TE123M	159.00		84.10	1.84E-01	1.84E-01	1.23E-02	9.00E-02
	SB-124	602.71		97.87	3.93E-01	3.93E-01	7.32E-02	1.89E-01
		645.85		7.26	4.95E+00		1.32E+00	2.36E+00
		722.78		11.10	3.68E+00		6.33E-01	1.76E+00
		1691.02		49.00	6.88E-01		-1.47E-01	3.06E-01
	I-125	35.49		6.49	9.27E+00	9.27E+00	-4.17E+00	4.54E+00
	SB-125	176.33		6.89	1.46E+00	4.41E-01	-4.06E-01	7.17E-01
		427.89		29.33	4.41E-01		2.32E-01	2.13E-01
		463.38		10.35	1.49E+00		2.38E+00	7.24E-01
		600.56		17.80	7.97E-01		1.75E-01	3.83E-01
		635.90		11.32	1.12E+00		-1.44E-01	5.36E-01
	SB-126	414.70		83.30	2.67E+01	2.53E+01	-3.95E+01	1.29E+01
		666.33		99.60	2.62E+01		-1.44E+01	1.26E+01
		695.00		99.60	2.53E+01		6.58E+00	1.21E+01
		720.50		53.80	4.45E+01		-6.69E+00	2.12E+01
+	SN-126	87.57	*	37.00	6.09E-01	6.09E-01	1.92E+00	3.02E-01
	SB-127	473.00		25.00	9.66E+06	7.34E+06	-2.33E+06	4.66E+06
		685.20		35.70	7.34E+06		3.73E+06	3.51E+06
		783.80		14.70	2.07E+07		1.93E+07	9.91E+06
	I-129	29.78		57.00	6.58E-01	6.58E-01	1.12E-01	3.23E-01
		33.60		13.20	1.84E+00		-7.06E-01	9.02E-01
		39.58		7.52	2.13E+00		-5.20E-01	1.05E+00
	I-131	284.30		6.05	5.61E+03	4.37E+02	-1.60E+03	2.74E+03
		364.48		81.20	4.37E+02		2.63E+02	2.12E+02
		636.97		7.26	5.43E+03		8.54E+02	2.60E+03
		722.89		1.80	2.42E+04		4.16E+03	1.16E+04
	TE-132	49.72		13.10	3.85E+08	5.50E+07	6.02E+07	1.89E+08
		228.16		88.00	5.50E+07		-6.94E+06	2.70E+07
	BA-133	81.00		33.00	3.42E-01	3.34E-01	-1.95E+00	1.69E-01
		302.84		17.80	7.18E-01		8.98E-01	3.51E-01
		356.01		60.00	3.34E-01		3.84E-02	1.64E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	6.67E+04	6.67E+04	-3.81E+05	3.29E+04
	CS-134	563.23		8.38	1.74E+00	1.90E-01	9.87E-01	8.39E-01
		569.32		15.43	8.58E-01		-6.81E-01	4.12E-01
		604.70		97.60	1.90E-01		1.64E-02	9.21E-02
		795.84		85.40	1.98E-01		-4.11E-02	9.45E-02
		801.93		8.73	1.59E+00		-2.11E-01	7.52E-01
	CS-135	268.24		16.00	7.63E-01	7.63E-01	7.70E-01	3.74E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.75E+02	1.62E+01	1.28E+02	8.61E+01
		163.89		4.61	2.81E+02		2.09E+02	1.38E+02
		176.55		13.56	9.52E+01		-2.64E+01	4.67E+01
		273.65		12.66	1.28E+02		-9.61E+01	6.27E+01
		340.57		48.50	4.46E+01		1.41E+02	2.18E+01
		818.50		99.70	1.62E+01		-4.59E+00	7.61E+00
		1048.07		79.60	2.40E+01		-8.88E+00	1.13E+01
		1235.34		19.70	1.43E+02		6.42E+01	6.82E+01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	CS-137	661.65	*	85.12	2.79E-01	2.79E-01	1.76E-01	1.36E-01
	LA-138	788.74		34.00	3.99E-01	2.27E-01	-5.22E-02	1.90E-01
		1435.80		66.00	2.27E-01		8.79E-02	1.05E-01
	CE-139	165.85		80.35	1.84E-01	1.84E-01	-2.41E-02	9.01E-02
	BA-140	162.64		6.70	2.21E+02	7.76E+01	1.01E+02	1.08E+02
		304.84		4.50	3.96E+02		-7.87E+01	1.93E+02
		423.70		3.20	5.73E+02		-4.80E+02	2.77E+02
		437.55		2.00	9.23E+02		3.34E+02	4.46E+02
		537.32		25.00	7.76E+01		1.68E+01	3.73E+01
	LA-140	328.77		20.50	1.01E+02	2.98E+01	7.69E+01	4.92E+01
		487.03		45.50	4.08E+01		-4.99E+00	1.96E+01
		815.85		23.50	8.18E+01		7.30E+00	3.86E+01
		1596.49		95.49	2.98E+01		4.81E+00	1.39E+01
	CE-141	145.44		48.40	1.34E+00	1.34E+00	2.62E-01	6.58E-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	1.00E+00	1.00E+00	-4.96E-01	4.92E-01
	PM-144	476.78		42.00	3.45E-01	1.36E-01	-9.34E-02	1.66E-01
		618.01		98.60	1.36E-01		3.40E-02	6.46E-02
		696.49		99.49	1.62E-01		-5.70E-02	7.75E-02
	PM-145	36.85		21.70	8.62E-01	4.65E-01	-6.09E-01	4.23E-01
		37.36		39.70	4.65E-01		1.48E-01	2.28E-01
		42.30		15.10	9.37E-01		2.42E-01	4.60E-01
		72.40		2.31	5.58E+00		-2.88E+01	2.76E+00
	PM-146	453.90		39.94	3.12E-01	3.12E-01	8.41E-02	1.51E-01
		735.90		14.01	9.86E-01		-4.18E-01	4.70E-01
		747.13		13.10	1.12E+00		2.41E-01	5.33E-01
	ND-147	91.11		28.90	1.44E+02	1.44E+02	-2.02E+02	7.12E+01
		531.02		13.10	3.23E+02		-6.01E+01	1.55E+02
	PM-149	285.90		3.10	1.81E+13	1.81E+13	6.82E+11	8.81E+12
	EU-152	121.78		20.50	4.04E-01	4.04E-01	-3.30E-01	1.98E-01
		244.69		5.40	2.75E+00		-8.10E+00	1.35E+00
		344.27		19.13	6.03E-01		-2.65E+00	2.93E-01
		778.89		9.20	1.46E+00		-3.25E-01	6.91E-01
		964.01		10.40	1.96E+00		-4.30E+00	9.39E-01
		1085.78		7.22	1.88E+00		-8.48E-01	8.76E-01
		1112.02		9.60	1.61E+00		4.30E-01	7.57E-01
		1407.95		14.94	1.12E+00		4.55E-01	5.21E-01
	GD-153	97.43		31.30	3.51E-01	3.51E-01	4.85E-02	1.73E-01
		103.18		22.20	4.78E-01		-3.07E-01	2.35E-01
	EU-154	123.07		40.50	2.09E-01	2.09E-01	-9.72E-02	1.03E-01
		723.30		19.70	7.23E-01		1.24E-01	3.46E-01
		873.19		11.50	1.12E+00		-3.75E-01	5.25E-01
		996.32		10.30	1.28E+00		1.06E-01	5.99E-01
		1004.76		17.90	7.97E-01		-2.33E-01	3.75E-01
		1274.45		35.50	4.11E-01		2.55E-02	1.91E-01
	EU-155	86.50		30.90	3.98E-01	3.98E-01	8.53E-01	1.97E-01
		105.30		20.70	4.10E-01		3.52E-02	2.02E-01
	EU-156	811.77		10.40	8.80E+01	8.80E+01	-3.41E+00	4.17E+01
		1153.47		7.20	1.58E+02		4.56E+01	7.44E+01
		1230.71		8.90	1.31E+02		1.77E+01	6.14E+01
	HO-166M	184.41		72.60	1.65E-01	1.65E-01	3.24E-01	8.10E-02

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	HO-166M	280.45		29.60	3.82E-01	1.65E-01	4.71E-02	1.87E-01
		410.94		11.10	1.19E+00		7.07E-01	5.77E-01
		711.69		54.10	2.51E-01		-6.69E-02	1.20E-01
	TM-171	66.72		0.14	9.17E+01	9.17E+01	-1.13E+02	4.53E+01
	HF-172	67.35		5.31	2.38E+00	8.41E-01	-1.93E+00	1.17E+00
		125.81		11.30	8.41E-01		-5.96E-01	4.13E-01
	LU-172	181.53		20.60	7.32E+03	3.72E+03	1.56E+03	3.59E+03
		900.72		29.81	7.20E+03		1.15E+03	3.40E+03
		1093.66		62.50	3.72E+03		1.56E+03	1.75E+03
	LU-173	100.72		5.24	1.80E+00	6.62E-01	5.75E-01	8.83E-01
		272.11		21.20	6.62E-01		3.88E-01	3.24E-01
	HF-175	343.40		84.00	3.41E-01	3.41E-01	-1.50E+00	1.66E-01
	LU-176	88.34		13.30	9.07E-01	1.13E-01	1.25E+00	4.48E-01
		201.83		86.00	1.13E-01		-1.18E-02	5.53E-02
		306.78		94.00	1.17E-01		7.90E-03	5.72E-02
	HF-181	133.02		41.70	9.73E-01	6.53E-01	-1.16E-01	4.78E-01
		345.85		17.20	3.04E+00		-1.08E+01	1.48E+00
		482.03		82.80	6.53E-01		-3.40E-01	3.14E-01
	TA-182	67.75		41.20	4.90E-01	4.90E-01	-3.98E-01	2.42E-01
		1121.30		34.90	1.33E+00		2.89E+00	6.41E-01
		1189.05		16.23	1.50E+00		-1.32E-01	6.98E-01
		1221.41		26.98	9.96E-01		-2.01E-01	4.66E-01
		1231.02		11.44	2.53E+00		3.43E-01	1.19E+00
	IR-192	308.46		29.68	8.65E-01	6.12E-01	-2.68E-01	4.21E-01
		468.07		48.10	6.12E-01		-1.92E-01	2.96E-01
	HG-203	279.19		77.30	5.96E-01	5.96E-01	2.04E-01	2.91E-01
	TL-204	374.74		94.11	1.31E-01	1.31E-01	2.83E-02	6.34E-02
		899.15		99.16	1.37E-01		2.97E-02	6.46E-02
		911.74		91.10	3.43E-01		1.30E+00	1.67E-01
	BI-207	569.67		97.72	1.30E-01	1.30E-01	3.12E-02	6.22E-02
		1063.62		74.90	1.86E-01		5.34E-02	8.71E-02
+	TL-208	583.14	*	30.22	5.28E-01	2.12E-01	4.59E+00	2.55E-01
		860.37	*	4.48	3.90E+00		3.30E+00	1.87E+00
		2614.66	*	35.85	2.12E-01		3.73E+00	8.27E-02
	BI-210M	262.00		45.00	2.43E-01	2.43E-01	-1.02E-01	1.19E-01
		300.00		23.00	6.29E-01		-2.83E+00	3.08E-01
+	PB-210	46.50	*	4.25	4.02E+00	4.02E+00	4.01E+00	1.98E+00
	PB-211	404.84		2.90	4.10E+00	4.10E+00	-3.28E+00	1.99E+00
		831.96		2.90	4.66E+00		-3.77E-01	2.21E+00
+	BI-212	727.17	*	11.80	1.62E+00	1.62E+00	2.37E+00	7.84E-01
		1620.62	*	2.75	5.28E+00		4.97E+00	2.42E+00
+	PB-212	238.63	*	44.60	5.06E-01	5.06E-01	4.70E+00	2.50E-01
		300.09		3.41	4.25E+00		-1.91E+01	2.08E+00
+	BI-214	609.31	*	46.30	4.91E-01	4.91E-01	5.55E+00	2.40E-01
		1120.29	*	15.10	1.36E+00		4.60E+00	6.51E-01
		1764.49	*	15.80	1.18E+00		4.99E+00	5.50E-01
		2204.22	*	4.98	3.95E+00		3.45E+00	1.82E+00
+	PB-214	295.21	*	19.19	8.25E-01	5.35E-01	5.21E+00	4.05E-01
		351.92	*	37.19	5.35E-01		5.52E+00	2.63E-01
	RN-219	401.80		6.50	1.81E+00	1.81E+00	2.72E-01	8.78E-01
	RA-223	323.87		3.88	3.03E+00	3.03E+00	3.24E-01	1.48E+00
	RA-224	240.98		3.95	6.39E+00	6.39E+00	6.76E+01	3.17E+00
	RA-225	40.00		31.00	4.00E+01	4.00E+01	-9.75E+00	1.96E+01

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	RA-226	186.21	*	3.28	4.52E+00	4.52E+00	1.10E+01	2.23E+00
	TH-227	50.10		8.40	1.41E+00	1.41E+00	2.21E-01	6.94E-01
		236.00		11.50	1.66E+00		8.71E-01	8.21E-01
		256.20		6.30	1.79E+00		7.26E-02	8.77E-01
+	AC-228	338.32	*	11.40	1.56E+00	1.12E+00	4.24E+00	7.65E-01
		911.07	*	27.70	1.12E+00		4.15E+00	5.47E-01
		969.11	*	16.60	1.32E+00		4.66E+00	6.37E-01
	TH-230	48.44		16.90	7.67E-01	7.67E-01	2.75E-01	3.77E-01
		62.85		4.60	2.69E+00		4.70E+00	1.33E+00
		67.67		0.37	3.10E+01		-2.52E+01	1.53E+01
	PA-231	283.67		1.60	6.82E+00	5.46E+00	1.26E+00	3.33E+00
		302.67		2.30	5.46E+00		6.83E+00	2.67E+00
	TH-231	25.64		14.70	4.54E+00	1.66E+00	-1.62E+00	2.23E+00
		84.21		6.40	1.66E+00		-2.99E+00	8.18E-01
	PA-233	311.98		38.60	3.06E+00	3.06E+00	4.20E-01	1.49E+00
	PA-234	131.20		20.40	4.56E-01	4.56E-01	5.36E-01	2.24E-01
		733.99		8.80	1.51E+00		-9.39E-02	7.17E-01
		946.00		12.00	1.08E+00		-5.88E-01	5.08E-01
+	PA-234M	1001.03	*	0.92	3.05E+01	3.05E+01	9.53E+00	1.48E+01
+	TH-234	63.29	*	3.80	4.04E+00	4.04E+00	5.07E+00	2.00E+00
	U-235	143.76		10.50	8.48E-01	8.48E-01	3.96E-01	4.16E-01
		163.35		4.70	2.01E+00		1.50E+00	9.88E-01
		205.31		4.70	2.53E+00		-4.69E-01	1.24E+00
	NP-237	86.50		12.60	9.42E-01	9.42E-01	2.02E+00	4.65E-01
	NP-239	106.10		22.70	3.09E+11	3.09E+11	2.65E+10	1.52E+11
		228.18		10.70	9.20E+11		-1.16E+11	4.51E+11
		277.60		14.10	6.95E+11		4.50E+11	3.40E+11
	AM-241	59.54		35.90	3.13E-01	3.13E-01	-4.56E-02	1.54E-01
+	AM-243	74.67	*	66.00	4.05E-01	4.05E-01	1.32E+00	2.02E-01
+	CM-243	209.75	*	3.29	4.66E+00	9.14E-01	3.97E+00	2.30E+00
		228.14		10.60	1.09E+00		-1.38E-01	5.36E-01
		277.60	*	14.00	9.14E-01		4.72E-01	4.48E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1707078-15

HTC-A01-S004-1824-01

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3611

Channel								
1:	0	0	0	0	0	0	0	0
9:	5	276	303	285	266	239	234	211
17:	240	214	174	196	176	171	191	175
25:	212	166	172	185	193	216	204	183
33:	204	189	165	178	189	178	185	206
41:	187	192	202	168	211	253	356	302
49:	211	212	239	251	239	320	260	257
57:	274	272	320	323	342	344	424	536
65:	468	366	366	412	434	413	407	350
73:	413	541	919	1060	1173	1510	790	377
81:	312	323	295	364	388	392	499	675
89:	482	413	453	377	560	556	391	262
97:	214	233	221	264	231	226	199	199
105:	230	250	217	201	218	221	215	221
113:	214	246	236	215	208	213	208	198
121:	198	200	189	200	223	234	216	200
129:	240	289	243	218	205	224	168	192
137:	180	191	185	212	191	173	193	196
145:	220	208	167	176	188	193	202	184
153:	216	234	226	201	178	182	183	188
161:	160	202	196	216	170	170	167	165
169:	180	174	176	144	165	187	167	159
177:	149	190	191	161	201	177	149	169
185:	200	380	395	230	159	159	165	172
193:	172	168	169	159	150	137	151	142
201:	152	154	146	144	152	157	161	137
209:	191	245	171	126	136	138	140	138
217:	122	124	148	137	111	125	122	104
225:	123	134	120	126	125	124	107	127
233:	141	116	134	124	135	431	1188	980
241:	394	353	338	164	106	95	100	92
249:	75	87	83	100	94	91	87	92
257:	107	92	115	92	94	80	79	72
265:	81	85	98	101	100	139	131	119
273:	74	85	83	79	101	117	88	74
281:	68	78	70	87	67	83	77	61
289:	90	80	76	81	89	129	366	578
297:	267	88	78	115	133	96	77	63
305:	84	62	60	61	61	80	66	49
313:	63	66	48	65	54	78	57	69
321:	63	75	57	70	75	81	67	114
329:	115	75	83	59	72	72	55	56
337:	82	168	247	150	90	53	53	56
345:	55	45	56	66	71	75	196	737
353:	693	215	61	51	54	50	56	47
361:	34	45	38	64	49	43	64	62

369:	40	55	50	52	70	48	53	49

Sample Title: HTC-A01-S004-1824-01

Channel								
377:	52	47	62	35	44	55	39	54
385:	50	59	50	53	55	62	50	59
393:	46	49	55	53	46	42	55	49
401:	40	34	45	51	55	39	53	54
409:	55	81	78	41	52	37	47	54
417:	54	41	54	53	52	45	46	29
425:	42	39	38	40	60	54	38	42
433:	35	39	34	49	36	46	36	36
441:	41	33	36	32	41	34	38	44
449:	40	26	39	33	48	42	44	42
457:	27	41	36	35	53	40	86	75
465:	52	37	43	37	28	39	34	53
473:	33	40	29	31	45	44	38	27
481:	31	42	28	31	36	31	38	26
489:	39	29	27	40	32	31	33	24
497:	30	27	31	44	27	30	42	26
505:	35	31	24	31	51	75	142	104
513:	56	36	33	36	34	30	20	25
521:	26	39	33	38	31	25	31	44
529:	24	23	20	27	33	21	32	28
537:	29	34	33	33	31	21	40	27
545:	31	32	27	25	19	31	29	30
553:	21	28	30	24	25	23	30	41
561:	36	25	36	35	36	20	21	33
569:	30	21	28	30	34	30	18	36
577:	21	32	11	24	37	85	314	284
585:	119	32	15	26	26	28	30	25
593:	27	29	21	29	33	34	25	36
601:	22	31	26	26	21	31	42	152
609:	445	504	214	52	31	25	20	15
617:	18	22	18	24	15	21	11	27
625:	18	28	15	18	25	30	21	22
633:	11	28	20	24	17	19	24	28
641:	23	18	13	16	25	24	20	24
649:	25	26	20	28	28	18	23	9
657:	24	18	21	19	50	45	35	26
665:	24	42	22	22	16	20	25	27
673:	16	31	21	19	28	29	20	19
681:	12	21	27	14	21	27	19	24
689:	20	18	24	25	21	17	35	22
697:	19	22	16	25	29	25	30	21
705:	22	24	30	18	28	19	28	19
713:	22	17	19	18	30	18	17	16
721:	21	25	22	16	22	34	68	77
729:	27	22	19	20	23	17	17	22
737:	18	17	24	31	21	23	17	23
745:	19	22	14	25	26	22	19	20
753:	22	35	30	24	24	21	25	14
761:	25	17	15	26	25	16	36	52
769:	56	36	14	29	27	22	22	14
777:	12	24	11	14	25	21	18	23
785:	24	37	15	22	12	11	16	12
793:	17	46	42	29	9	10	9	14

801:	16	18	15	14	20	23	21	19

Sample Title: HTC-A01-S004-1824-01

Channel								
809:	16	15	10	15	16	20	15	14
817:	10	8	11	13	13	18	8	15
825:	5	12	15	12	19	19	12	10
833:	14	15	23	22	16	19	26	37
841:	20	20	9	16	13	11	22	13
849:	14	13	14	13	19	20	6	15
857:	12	7	20	35	48	30	10	14
865:	19	15	14	15	18	12	12	15
873:	14	9	10	16	13	14	7	15
881:	15	15	14	14	7	18	18	6
889:	15	16	14	9	21	10	14	12
897:	13	21	11	10	10	12	15	21
905:	20	25	9	11	20	77	163	147
913:	49	20	16	15	14	10	11	13
921:	7	10	7	14	15	13	10	14
929:	15	12	15	6	27	30	25	18
937:	9	13	6	14	19	9	13	10
945:	4	13	9	12	20	15	17	14
953:	8	10	18	10	11	13	14	11
961:	17	17	21	37	39	31	34	81
969:	91	70	28	7	9	13	9	6
977:	12	15	12	11	18	9	11	9
985:	14	13	9	6	14	12	9	8
993:	13	4	12	7	10	12	15	22
1001:	14	17	9	11	11	8	11	18
1009:	11	11	12	8	9	8	11	9
1017:	9	10	14	16	12	13	6	8
1025:	13	13	10	7	17	13	14	6
1033:	14	10	11	11	10	11	10	7
1041:	13	17	12	13	9	11	9	13
1049:	16	12	9	15	14	10	13	10
1057:	15	7	10	9	4	16	9	15
1065:	11	7	13	12	5	9	11	6
1073:	9	8	8	11	10	14	9	12
1081:	17	14	11	10	12	6	10	12
1089:	6	10	10	15	12	11	11	14
1097:	10	11	9	8	11	7	12	12
1105:	12	9	7	16	8	15	15	14
1113:	13	11	9	11	13	11	43	90
1121:	78	24	11	6	10	18	5	9
1129:	14	11	13	6	14	16	7	8
1137:	11	12	10	14	12	7	5	5
1145:	13	7	11	12	8	14	4	12
1153:	10	17	24	8	12	11	12	14
1161:	16	4	8	9	16	10	12	10
1169:	8	6	11	11	14	13	13	14
1177:	12	8	8	7	15	10	6	11
1185:	12	13	8	3	12	6	6	13
1193:	5	10	10	10	9	17	12	12
1201:	5	12	20	10	13	19	11	13
1209:	4	16	7	11	13	6	12	10
1217:	13	11	11	9	10	5	14	12
1225:	13	10	4	11	13	14	9	11

1233:	15	10	6	18	28	46	26	16

Sample Title: HTC-A01-S004-1824-01

Channel								
1241:	9	18	12	3	12	4	7	9
1249:	9	11	10	8	8	13	8	12
1257:	8	5	10	6	9	5	12	3
1265:	1	6	9	9	6	5	8	8
1273:	6	7	7	10	12	5	8	16
1281:	15	12	11	6	9	6	8	11
1289:	9	10	8	8	8	9	5	4
1297:	7	4	6	11	7	5	9	5
1305:	7	12	4	13	6	10	9	11
1313:	10	8	7	9	8	8	6	2
1321:	4	7	5	14	7	7	5	7
1329:	14	12	4	10	8	6	4	6
1337:	6	4	6	10	5	6	9	3
1345:	6	4	10	5	2	8	4	4
1353:	9	8	2	4	8	7	9	10
1361:	10	4	9	6	4	3	5	4
1369:	8	4	5	7	6	4	9	10
1377:	27	43	15	7	4	7	6	14
1385:	4	5	4	4	6	5	5	7
1393:	5	7	6	10	6	5	7	9
1401:	10	7	9	8	3	7	16	18
1409:	11	5	6	6	6	5	3	1
1417:	8	8	2	6	5	4	3	4
1425:	2	9	10	5	7	3	5	3
1433:	7	7	9	5	8	11	5	6
1441:	7	4	7	2	9	4	7	3
1449:	2	2	8	5	5	5	4	7
1457:	6	26	84	149	147	69	12	5
1465:	9	7	8	3	5	8	1	5
1473:	1	1	6	5	5	6	6	8
1481:	2	2	6	6	4	3	2	7
1489:	8	2	2	3	10	4	4	7
1497:	5	7	4	7	9	4	6	1
1505:	4	2	5	11	9	8	10	8
1513:	8	4	6	9	7	0	4	3
1521:	6	7	5	5	6	3	1	5
1529:	4	3	3	4	8	6	9	2
1537:	8	9	2	1	2	2	4	10
1545:	3	5	1	3	3	2	4	4
1553:	1	3	6	5	9	4	3	4
1561:	1	2	4	5	3	2	5	2
1569:	2	7	4	7	1	0	5	2
1577:	5	3	12	6	1	8	5	4
1585:	3	4	10	12	10	9	4	19
1593:	11	6	6	6	2	6	5	4
1601:	4	9	4	8	9	5	4	2
1609:	3	2	5	2	6	4	3	2
1617:	2	3	5	14	9	7	3	4
1625:	3	3	2	3	3	12	9	3
1633:	2	3	6	5	5	4	3	9
1641:	4	1	3	0	1	2	2	5
1649:	5	4	4	2	2	2	0	3
1657:	3	5	2	9	10	2	3	1

1665:	5	3	7	3	1	7	3	2

Sample Title: HTC-A01-S004-1824-01

Channel								
1673:	1	2	4	1	2	3	5	4
1681:	1	3	0	2	3	4	0	1
1689:	2	5	1	1	9	3	0	1
1697:	4	1	4	4	7	4	2	2
1705:	1	1	4	3	2	1	1	2
1713:	0	5	4	2	1	2	3	4
1721:	3	3	2	4	0	4	4	15
1729:	16	12	9	2	3	4	4	1
1737:	4	4	3	3	1	1	2	2
1745:	4	3	3	5	2	3	2	4
1753:	5	1	2	2	4	4	2	3
1761:	0	15	43	65	38	17	2	2
1769:	2	3	1	3	2	1	3	5
1777:	3	2	3	3	2	5	2	2
1785:	2	1	4	4	1	3	3	3
1793:	3	4	1	2	1	1	6	3
1801:	3	1	3	2	1	4	4	0
1809:	2	2	1	3	3	2	1	0
1817:	4	6	5	0	1	1	5	2
1825:	1	1	4	3	4	3	1	2
1833:	2	2	3	4	3	5	3	2
1841:	3	5	4	2	6	9	10	4
1849:	1	1	3	0	4	3	2	5
1857:	2	1	4	1	6	2	4	2
1865:	4	1	2	1	2	3	1	6
1873:	1	1	3	3	0	4	1	2
1881:	3	2	3	1	1	0	0	2
1889:	1	1	1	1	1	3	4	6
1897:	2	2	6	3	2	1	1	4
1905:	2	1	4	5	2	2	1	3
1913:	3	5	5	3	6	2	3	2
1921:	2	0	2	1	3	1	2	1
1929:	2	6	4	3	3	2	3	5
1937:	4	2	1	3	0	1	2	2
1945:	4	3	3	4	3	2	3	4
1953:	6	2	3	2	3	2	4	2
1961:	1	3	2	2	0	3	1	1
1969:	0	2	1	0	1	3	3	2
1977:	1	4	3	5	1	2	2	2
1985:	2	1	6	2	0	1	1	0
1993:	4	0	2	4	1	2	1	2
2001:	2	0	0	1	1	2	1	2
2009:	2	3	1	1	4	3	3	4
2017:	0	2	2	1	0	4	3	2
2025:	2	1	1	2	1	2	2	2
2033:	3	2	2	2	1	3	3	3
2041:	3	3	0	0	4	2	1	2
2049:	1	0	0	2	0	2	1	0
2057:	1	2	0	3	2	0	0	0
2065:	1	2	2	0	2	0	0	7
2073:	1	3	1	0	1	2	3	1
2081:	3	2	1	2	0	1	0	0
2089:	5	1	1	2	1	0	1	3

2097:	1	4	1	5	5	4	8	14

Sample Title: HTC-A01-S004-1824-01

Channel								
2105:	3	1	4	2	1	1	3	1
2113:	3	2	2	1	3	7	1	4
2121:	0	1	3	5	4	2	1	0
2129:	3	1	0	2	3	2	3	1
2137:	1	4	0	0	1	3	0	2
2145:	1	1	2	4	0	2	2	2
2153:	3	3	2	3	1	0	2	3
2161:	2	0	3	5	2	2	4	5
2169:	2	0	3	2	1	2	4	4
2177:	3	0	2	1	1	1	1	1
2185:	3	3	1	1	2	1	4	4
2193:	0	2	2	3	3	3	3	0
2201:	8	5	15	11	10	3	0	5
2209:	4	1	1	2	1	1	2	2
2217:	4	1	2	2	4	1	1	1
2225:	1	4	0	0	4	1	3	0
2233:	1	1	3	2	3	3	4	1
2241:	3	2	3	0	3	2	2	4
2249:	1	1	2	2	1	2	1	1
2257:	3	1	2	7	3	4	5	3
2265:	1	1	3	0	1	0	2	1
2273:	1	1	3	0	1	2	1	2
2281:	2	4	1	0	2	0	2	1
2289:	2	1	2	1	6	2	0	1
2297:	1	4	5	1	3	0	0	5
2305:	2	4	2	3	1	3	3	4
2313:	2	1	2	2	4	2	1	1
2321:	0	2	1	1	7	2	4	6
2329:	2	1	3	1	4	3	2	3
2337:	1	2	4	2	0	5	2	3
2345:	1	2	4	2	4	0	1	3
2353:	1	5	1	3	3	1	5	0
2361:	5	3	2	3	5	3	3	1
2369:	3	1	1	4	2	1	1	0
2377:	1	3	1	6	1	3	3	1
2385:	2	1	1	0	3	2	3	2
2393:	3	2	2	2	2	2	3	1
2401:	3	1	6	1	3	4	2	0
2409:	5	1	1	0	1	3	2	1
2417:	0	3	0	0	1	1	2	1
2425:	3	1	2	3	0	2	1	4
2433:	2	3	2	2	1	2	4	0
2441:	0	4	3	4	7	3	3	4
2449:	0	0	3	3	0	0	1	2
2457:	2	2	2	1	1	1	0	0
2465:	0	1	0	3	1	1	1	3
2473:	0	3	1	4	2	2	4	1
2481:	0	0	0	0	2	2	0	0
2489:	1	2	0	1	1	2	0	0
2497:	1	0	1	2	0	0	0	1
2505:	0	0	1	0	0	0	0	0
2513:	0	0	0	2	0	1	0	0
2521:	2	0	1	0	2	1	0	2

2529:	1	2	0	2	1	1	1	0

Sample Title: HTC-A01-S004-1824-01

Channel								
2537:	2	0	2	1	0	2	0	0
2545:	2	0	0	0	1	1	0	1
2553:	0	1	1	0	0	1	2	0
2561:	1	1	0	1	2	0	0	0
2569:	1	0	0	1	1	1	1	1
2577:	1	0	0	1	0	1	0	1
2585:	0	0	0	0	1	0	1	0
2593:	0	0	0	1	1	1	1	0
2601:	0	1	2	2	0	0	0	1
2609:	0	2	16	32	66	56	35	7
2617:	4	0	0	0	2	2	0	0
2625:	1	1	0	0	1	1	0	1
2633:	0	1	0	0	1	0	0	0
2641:	1	0	0	1	0	2	0	0
2649:	0	0	1	1	1	0	1	0
2657:	0	1	0	1	0	0	1	0
2665:	0	0	0	2	0	1	0	0
2673:	0	0	1	0	0	0	1	1
2681:	1	0	0	1	0	0	0	1
2689:	1	0	0	0	0	0	1	1
2697:	0	1	1	1	0	0	1	1
2705:	1	1	0	0	0	0	0	1
2713:	0	1	0	0	0	0	2	1
2721:	0	0	2	1	1	0	0	0
2729:	0	0	0	1	1	0	1	0
2737:	1	0	1	0	0	2	0	0
2745:	0	0	1	0	0	0	0	0
2753:	0	0	0	1	0	0	0	0
2761:	0	1	0	0	1	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	1	0	0	0
2785:	0	0	0	1	0	0	0	1
2793:	0	0	0	0	2	0	0	0
2801:	0	1	0	1	1	1	1	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	1	0	0	0	0	0
2825:	0	0	1	0	1	1	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	1	0	0
2857:	2	2	0	0	0	1	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	1	1	0	0
2881:	0	0	1	0	1	0	0	0
2889:	0	1	0	1	0	0	0	0
2897:	0	0	0	0	1	0	1	1
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	1	0	0	0	0
2921:	0	0	1	1	0	0	0	0
2929:	0	1	0	1	0	0	0	1
2937:	1	1	0	0	0	0	0	0
2945:	0	2	0	1	0	0	1	0
2953:	1	0	0	0	0	1	0	0

2961:	1	1	1	0	0	0	0	0

Sample Title: HTC-A01-S004-1824-01

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

3393:	0	1	0	2	0	0	0	0

Sample Title: HTC-A01-S004-1824-01

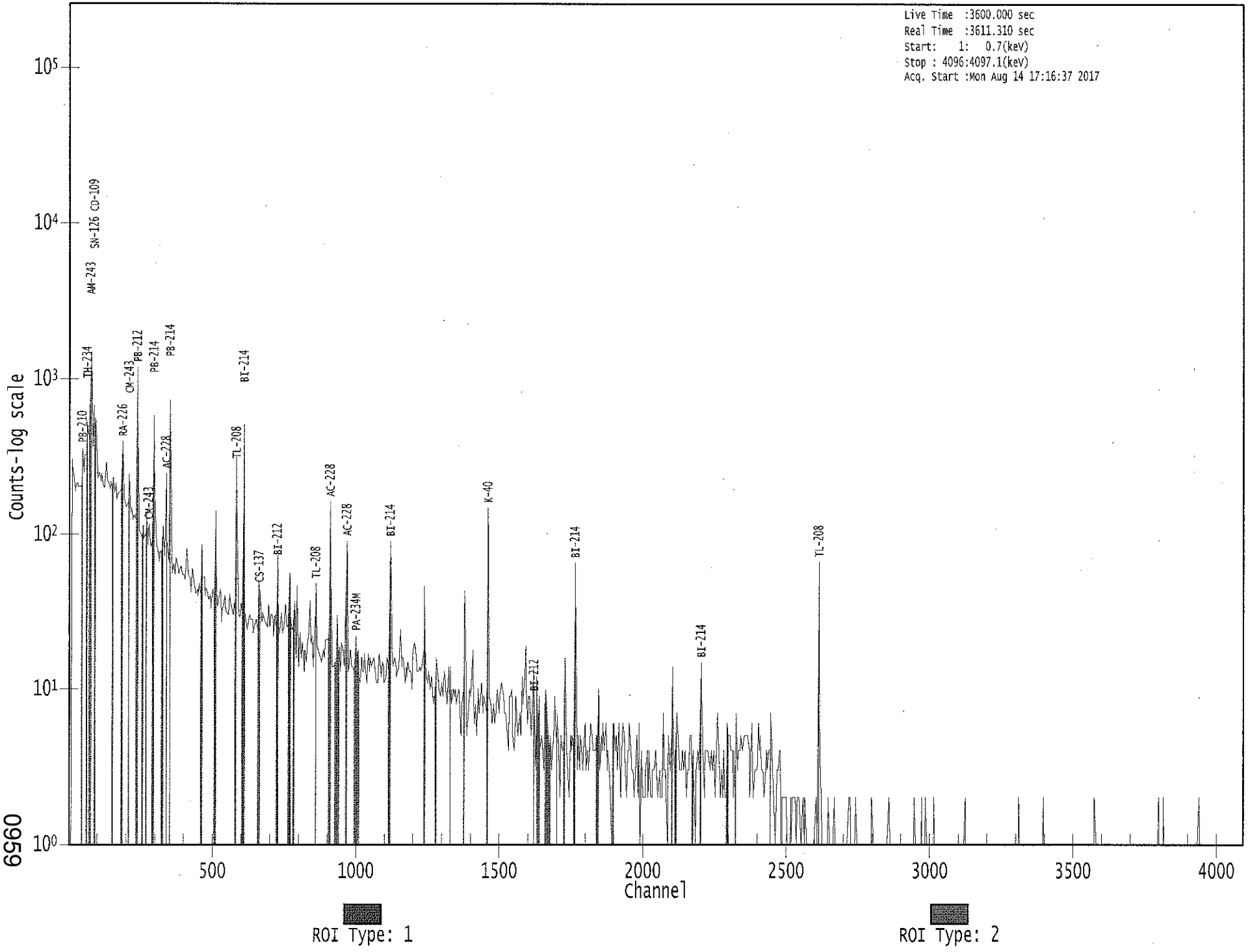
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	1	0	0	0	1	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	1	0	0	1	0	0
3465:	0	0	0	0	1	0	0	0
3473:	0	0	0	1	0	0	0	0
3481:	1	1	1	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S004-1824-01

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

0000055208.CNF



0969

KB 8/18/17

Apex-Gamma

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-16
Sample Description	: HTC-A01-S004-2430-01
Sample Type	: SOIL
Sample Size	: 6.401E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:34:03AM
Acquisition Started	: 8/14/2017 5:16:45PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.1 seconds
Dead Time	: 0.06 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55209

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/15/17

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 6:16:48PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	59.35	58.41	0.0000	0.00
2	73.56	72.62	0.0000	0.00
3	76.81	75.87	0.0000	0.00
4	92.32	91.38	0.0000	0.00
5	129.45	128.52	0.0000	0.00
6	155.09	154.17	0.0000	0.00
7	186.25	185.34	0.0000	0.00
8	198.89	197.98	0.0000	0.00
9	209.48	208.58	0.0000	0.00
10	239.35	238.46	0.0000	0.00
11	270.78	269.90	0.0000	0.00
12	295.23	294.36	0.0000	0.00
13	300.32	299.45	0.0000	0.00
14	328.37	327.51	0.0000	0.00
15	338.91	338.06	0.0000	0.00
16	351.74	350.89	0.0000	0.00
17	427.22	426.39	0.0000	0.00
18	464.13	463.32	0.0000	0.00
19	510.66	509.87	0.0000	0.00
20	514.62	513.83	0.0000	0.00
21	574.77	574.00	0.0000	0.00
22	583.25	582.48	0.0000	0.00
23	609.27	608.51	0.0000	0.00
24	617.28	616.53	0.0000	0.00
25	726.91	726.20	0.0000	0.00
26	795.89	795.20	0.0000	0.00
27	861.14	860.48	0.0000	0.00
28	911.34	910.70	0.0000	0.00
29	965.12	964.51	0.0000	0.00
30	969.01	968.40	0.0000	0.00
31	1057.28	1056.70	0.0000	0.00
32	1063.57	1063.00	0.0000	0.00
33	1120.34	1119.80	0.0000	0.00
34	1398.44	1398.03	0.0000	0.00
35	1460.59	1460.21	0.0000	0.00
36	1524.35	1524.01	0.0000	0.00
37	1588.72	1588.41	0.0000	0.00
38	1653.48	1653.21	0.0000	0.00
39	1661.91	1661.64	0.0000	0.00
40	1686.65	1686.40	0.0000	0.00
41	1727.42	1727.19	0.0000	0.00
42	1737.34	1737.11	0.0000	0.00

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1764.27	1764.06	0.0000	0.00
44	1793.79	1793.59	0.0000	0.00
45	1847.54	1847.37	0.0000	0.00
46	2103.05	2103.03	0.0000	0.00
47	2202.57	2202.62	0.0000	0.00
48	2210.79	2210.84	0.0000	0.00
49	2288.76	2288.86	0.0000	0.00
50	2312.51	2312.63	0.0000	0.00
51	2345.43	2345.57	0.0000	0.00
52	2368.18	2368.33	0.0000	0.00
53	2449.99	2450.20	0.0000	0.00
54	2614.06	2614.38	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 6:16:48PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	59.35	56 -	66	58.41	1.67E+02	66.03	9.30E+02	2.69
M	2	73.56	70 -	79	72.62	2.50E+02	111.14	1.98E+03	3.26
m	3	76.81	70 -	79	75.87	1.17E+03	153.62	2.75E+03	3.14
m	4	92.32	81 -	96	91.38	3.76E+02	130.76	2.10E+03	2.92
	5	129.45	125 -	131	128.52	1.41E+02	88.35	1.31E+03	3.16
	6	155.09	151 -	159	154.17	8.41E+01	97.13	1.39E+03	2.07
	7	186.25	182 -	189	185.34	1.49E+02	84.85	1.09E+03	2.30
	8	198.89	195 -	201	197.98	6.31E+01	69.07	8.20E+02	3.02
	9	209.48	205 -	212	208.58	1.15E+02	79.85	9.82E+02	2.64
	10	239.35	232 -	244	238.46	1.22E+03	123.23	1.21E+03	2.42
	11	270.78	266 -	274	269.90	1.04E+02	66.53	6.17E+02	2.49
	12	295.23	291 -	297	294.36	1.93E+02	58.22	4.77E+02	2.23
	13	300.32	298 -	302	299.45	5.47E+01	41.79	3.39E+02	2.11
	14	328.37	324 -	331	327.51	4.47E+01	53.63	4.45E+02	2.40
	15	338.91	332 -	344	338.06	2.37E+02	77.23	5.86E+02	3.20
	16	351.74	345 -	356	350.89	4.18E+02	76.16	5.17E+02	2.41
	17	427.22	423 -	429	426.39	3.32E+01	38.02	2.34E+02	1.28
	18	464.13	458 -	470	463.32	6.05E+01	62.76	4.33E+02	4.99
M	19	510.66	505 -	516	509.87	1.37E+02	48.51	2.43E+02	3.27
m	20	514.62	505 -	516	513.83	2.01E+01	25.89	1.33E+02	2.87
M	21	574.77	565 -	591	574.00	2.72E+01	30.44	1.66E+02	2.30
m	22	583.25	565 -	591	582.48	3.15E+02	47.62	1.62E+02	2.79
	23	609.27	604 -	613	608.51	2.29E+02	48.85	2.11E+02	2.36
	24	617.28	614 -	619	616.53	2.48E+01	24.72	9.84E+01	3.05
	25	726.91	722 -	730	726.20	6.26E+01	34.87	1.49E+02	3.13
	26	795.89	789 -	800	795.20	3.73E+01	37.31	1.53E+02	6.65
	27	861.14	856 -	864	860.48	4.26E+01	34.07	1.51E+02	4.34
	28	911.34	906 -	917	910.70	1.39E+02	51.88	2.58E+02	2.50
M	29	965.12	963 -	978	964.51	3.12E+01	10.58	2.00E+01	1.44
m	30	969.01	963 -	978	968.40	1.10E+02	34.07	9.00E+01	2.92
M	31	1057.28	1051 -	1067	1056.70	2.92E+01	36.33	1.52E+02	4.00
m	32	1063.57	1051 -	1067	1063.00	2.61E+01	23.37	8.59E+01	2.49
	33	1120.34	1115 -	1125	1119.80	4.92E+01	37.27	1.58E+02	1.89
	34	1398.44	1393 -	1403	1398.03	1.54E+01	17.48	3.12E+01	5.67
	35	1460.59	1455 -	1467	1460.21	5.13E+02	51.13	6.98E+01	2.76
	36	1524.35	1521 -	1527	1524.01	1.45E+01	8.73	2.94E+00	3.16
	37	1588.72	1581 -	1594	1588.41	3.84E+01	14.73	7.19E+00	6.23
	38	1653.48	1649 -	1657	1653.21	9.31E+00	9.62	7.38E+00	3.33
	39	1661.91	1658 -	1667	1661.64	9.60E+00	10.49	1.08E+01	1.29
	40	1686.65	1682 -	1691	1686.40	9.24E+00	11.96	1.55E+01	3.62

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1727.42	1723 -	1730	1727.19	8.33E+00	8.94	7.33E+00	3.51
42	1737.34	1734 -	1740	1737.11	6.13E+00	6.65	3.75E+00	3.05
43	1764.27	1759 -	1768	1764.06	4.06E+01	14.04	4.88E+00	2.63
44	1793.79	1790 -	1796	1793.59	7.33E+00	6.95	3.33E+00	2.52
45	1847.54	1842 -	1852	1847.37	8.50E+00	10.79	1.10E+01	2.78
46	2103.05	2099 -	2106	2103.03	1.60E+01	10.58	8.00E+00	3.90
47	2202.57	2198 -	2207	2202.62	1.30E+01	7.21	0.00E+00	1.45
48	2210.79	2208 -	2214	2210.84	8.08E+00	8.51	7.83E+00	3.05
49	2288.76	2286 -	2291	2288.86	7.00E+00	5.29	0.00E+00	1.98
50	2312.51	2310 -	2315	2312.63	8.00E+00	5.66	0.00E+00	2.98
51	2345.43	2340 -	2352	2345.57	1.54E+01	10.87	7.11E+00	7.21
52	2368.18	2363 -	2372	2368.33	1.30E+01	11.05	1.00E+01	5.42
53	2449.99	2446 -	2454	2450.20	8.95E+00	8.02	4.09E+00	6.76
54	2614.06	2610 -	2618	2614.38	8.40E+01	18.33	0.00E+00	3.83

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 6:16:48PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	59.35	56 -	66	1.67E+02	66.03	9.30E+02	5.01E+01
M	2	73.56	70 -	79	2.50E+02	111.14	1.98E+03	7.32E+01
m	3	76.81	70 -	79	1.17E+03	153.62	2.75E+03	8.62E+01
m	4	92.32	81 -	96	3.76E+02	130.76	2.10E+03	7.54E+01
	5	129.45	125 -	131	1.41E+02	88.35	1.31E+03	6.99E+01
	6	155.09	151 -	159	8.41E+01	97.13	1.39E+03	7.84E+01
	7	186.25	182 -	189	1.49E+02	84.85	1.09E+03	6.68E+01
	8	198.89	195 -	201	6.31E+01	69.07	8.20E+02	5.53E+01
	9	209.48	205 -	212	1.15E+02	79.85	9.82E+02	6.32E+01
	10	239.35	232 -	244	1.22E+03	123.23	1.21E+03	8.35E+01
	11	270.78	266 -	274	1.04E+02	66.53	6.17E+02	5.20E+01
	12	295.23	291 -	297	1.93E+02	58.22	4.77E+02	4.21E+01
	13	300.32	298 -	302	5.47E+01	41.79	3.39E+02	3.21E+01
	14	328.37	324 -	331	4.47E+01	53.63	4.45E+02	4.27E+01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	15	338.91	332 -	344	2.37E+02	77.23	5.86E+02	5.82E+01
	16	351.74	345 -	356	4.18E+02	76.16	5.17E+02	5.28E+01
	17	427.22	423 -	429	3.32E+01	38.02	2.34E+02	2.98E+01
	18	464.13	458 -	470	6.05E+01	62.76	4.33E+02	5.00E+01
M	19	510.66	505 -	516	1.37E+02	48.51	2.43E+02	2.56E+01
m	20	514.62	505 -	516	2.01E+01	25.89	1.33E+02	1.89E+01
M	21	574.77	565 -	591	2.72E+01	30.44	1.66E+02	2.12E+01
m	22	583.25	565 -	591	3.15E+02	47.62	1.62E+02	2.09E+01
	23	609.27	604 -	613	2.29E+02	48.85	2.11E+02	3.15E+01
	24	617.28	614 -	619	2.48E+01	24.72	9.84E+01	1.86E+01
	25	726.91	722 -	730	6.26E+01	34.87	1.49E+02	2.55E+01
	26	795.89	789 -	800	3.73E+01	37.31	1.53E+02	2.90E+01
	27	861.14	856 -	864	4.26E+01	34.07	1.51E+02	2.59E+01
	28	911.34	906 -	917	1.39E+02	51.88	2.58E+02	3.80E+01
M	29	965.12	963 -	978	3.12E+01	10.58	2.00E+01	7.35E+00
m	30	969.01	963 -	978	1.10E+02	34.07	9.00E+01	1.56E+01
M	31	1057.28	1051 -	1067	2.92E+01	36.33	1.52E+02	2.02E+01
m	32	1063.57	1051 -	1067	2.61E+01	23.37	8.59E+01	1.52E+01
	33	1120.34	1115 -	1125	4.92E+01	37.27	1.58E+02	2.84E+01
	34	1398.44	1393 -	1403	1.54E+01	17.48	3.12E+01	1.28E+01
	35	1460.59	1455 -	1467	5.13E+02	51.13	6.98E+01	1.95E+01
	36	1524.35	1521 -	1527	1.45E+01	8.73	2.94E+00	3.50E+00
	37	1588.72	1581 -	1594	3.84E+01	14.73	7.19E+00	6.54E+00
	38	1653.48	1649 -	1657	9.31E+00	9.62	7.38E+00	6.11E+00
	39	1661.91	1658 -	1667	9.60E+00	10.49	1.08E+01	6.96E+00
	40	1686.65	1682 -	1691	9.24E+00	11.96	1.55E+01	8.47E+00
	41	1727.42	1723 -	1730	8.33E+00	8.94	7.33E+00	5.62E+00
	42	1737.34	1734 -	1740	6.13E+00	6.65	3.75E+00	3.65E+00
	43	1764.27	1759 -	1768	4.06E+01	14.04	4.88E+00	4.85E+00
	44	1793.79	1790 -	1796	7.33E+00	6.95	3.33E+00	3.58E+00
	45	1847.54	1842 -	1852	8.50E+00	10.79	1.10E+01	7.47E+00
	46	2103.05	2099 -	2106	1.60E+01	10.58	8.00E+00	5.70E+00
	47	2202.57	2198 -	2207	1.30E+01	7.21	0.00E+00	0.00E+00
	48	2210.79	2208 -	2214	8.08E+00	8.51	7.83E+00	5.21E+00
	49	2288.76	2286 -	2291	7.00E+00	5.29	0.00E+00	0.00E+00
	50	2312.51	2310 -	2315	8.00E+00	5.66	0.00E+00	0.00E+00
	51	2345.43	2340 -	2352	1.54E+01	10.87	7.11E+00	6.18E+00
	52	2368.18	2363 -	2372	1.30E+01	11.05	1.00E+01	6.88E+00
	53	2449.99	2446 -	2454	8.95E+00	8.02	4.09E+00	4.38E+00
	54	2614.06	2610 -	2618	8.40E+01	18.33	0.00E+00	0.00E+00

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

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 6:16:48PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	59.35	56 -	66	58.41	1.67E+02	66.03	9.30E+02	AM-241
M	2	73.56	70 -	79	72.62	2.50E+02	111.14	1.98E+03	.....
m	3	76.81	70 -	79	75.87	1.17E+03	153.62	2.75E+03	.....
m	4	92.32	81 -	96	91.38	3.76E+02	130.76	2.10E+03	GA-67
	5	129.45	125 -	131	128.52	1.41E+02	88.35	1.31E+03	.....
	6	155.09	151 -	159	154.17	8.41E+01	97.13	1.39E+03	.....
	7	186.25	182 -	189	185.34	1.49E+02	84.85	1.09E+03	RA-226
	8	198.89	195 -	201	197.98	6.31E+01	69.07	8.20E+02	.....
	9	209.48	205 -	212	208.58	1.15E+02	79.85	9.82E+02	CM-243
									GA-67
	10	239.35	232 -	244	238.46	1.22E+03	123.23	1.21E+03	PB-212
	11	270.78	266 -	274	269.90	1.04E+02	66.53	6.17E+02	.....
	12	295.23	291 -	297	294.36	1.93E+02	58.22	4.77E+02	PB-214
	13	300.32	298 -	302	299.45	5.47E+01	41.79	3.39E+02	GA-67
									PB-212
									BI-210M
	14	328.37	324 -	331	327.51	4.47E+01	53.63	4.45E+02	LA-140
	15	338.91	332 -	344	338.06	2.37E+02	77.23	5.86E+02	AC-228
	16	351.74	345 -	356	350.89	4.18E+02	76.16	5.17E+02	PB-214
	17	427.22	423 -	429	426.39	3.32E+01	38.02	2.34E+02	SB-125
	18	464.13	458 -	470	463.32	6.05E+01	62.76	4.33E+02	SB-125
M	19	510.66	505 -	516	509.87	1.37E+02	48.51	2.43E+02	.....
m	20	514.62	505 -	516	513.83	2.01E+01	25.89	1.33E+02	KR-85
									SR-85
M	21	574.77	565 -	591	574.00	2.72E+01	30.44	1.66E+02	.....
m	22	583.25	565 -	591	582.48	3.15E+02	47.62	1.62E+02	TL-208
	23	609.27	604 -	613	608.51	2.29E+02	48.85	2.11E+02	BI-214
	24	617.28	614 -	619	616.53	2.48E+01	24.72	9.84E+01	PM-144
	25	726.91	722 -	730	726.20	6.26E+01	34.87	1.49E+02	BI-212
	26	795.89	789 -	800	795.20	3.73E+01	37.31	1.53E+02	CS-134
	27	861.14	856 -	864	860.48	4.26E+01	34.07	1.51E+02	TL-208
	28	911.34	906 -	917	910.70	1.39E+02	51.88	2.58E+02	AC-228
									TL-204
M	29	965.12	963 -	978	964.51	3.12E+01	10.58	2.00E+01	.....
m	30	969.01	963 -	978	968.40	1.10E+02	34.07	9.00E+01	AC-228
M	31	1057.28	1051 -	1067	1056.70	2.92E+01	36.33	1.52E+02	.....
m	32	1063.57	1051 -	1067	1063.00	2.61E+01	23.37	8.59E+01	BI-207
	33	1120.34	1115 -	1125	1119.80	4.92E+01	37.27	1.58E+02	BI-214
									SC-46
									TA-182
	34	1398.44	1393 -	1403	1398.03	1.54E+01	17.48	3.12E+01	.....

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
35	1460.59	1455 -	1467	1460.21	5.13E+02	51.13	6.98E+01	K-40
36	1524.35	1521 -	1527	1524.01	1.45E+01	8.73	2.94E+00	.....
37	1588.72	1581 -	1594	1588.41	3.84E+01	14.73	7.19E+00	.....
38	1653.48	1649 -	1657	1653.21	9.31E+00	9.62	7.38E+00	.....
39	1661.91	1658 -	1667	1661.64	9.60E+00	10.49	1.08E+01	.....
40	1686.65	1682 -	1691	1686.40	9.24E+00	11.96	1.55E+01	.....
41	1727.42	1723 -	1730	1727.19	8.33E+00	8.94	7.33E+00	.....
42	1737.34	1734 -	1740	1737.11	6.13E+00	6.65	3.75E+00	.....
43	1764.27	1759 -	1768	1764.06	4.06E+01	14.04	4.88E+00	BI-214
44	1793.79	1790 -	1796	1793.59	7.33E+00	6.95	3.33E+00	.....
45	1847.54	1842 -	1852	1847.37	8.50E+00	10.79	1.10E+01	.....
46	2103.05	2099 -	2106	2103.03	1.60E+01	10.58	8.00E+00	.....
47	2202.57	2198 -	2207	2202.62	1.30E+01	7.21	0.00E+00	.....
48	2210.79	2208 -	2214	2210.84	8.08E+00	8.51	7.83E+00	.....
49	2288.76	2286 -	2291	2288.86	7.00E+00	5.29	0.00E+00	.....
50	2312.51	2310 -	2315	2312.63	8.00E+00	5.66	0.00E+00	.....
51	2345.43	2340 -	2352	2345.57	1.54E+01	10.87	7.11E+00	.....
52	2368.18	2363 -	2372	2368.33	1.30E+01	11.05	1.00E+01	.....
53	2449.99	2446 -	2454	2450.20	8.95E+00	8.02	4.09E+00	.....
54	2614.06	2610 -	2618	2614.38	8.40E+01	18.33	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 6:16:48PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	59.35	1.67E+02	66.03	2.07E-02	1.56E-03
M	2	73.56	2.50E+02	111.14	2.30E-02	1.86E-03
m	3	76.81	1.17E+03	153.62	2.33E-02	1.93E-03
m	4	92.32	3.76E+02	130.76	2.37E-02	2.10E-03
	5	129.45	1.41E+02	88.35	2.15E-02	1.62E-03
	6	155.09	8.41E+01	97.13	1.94E-02	1.53E-03
	7	186.25	1.49E+02	84.85	1.69E-02	1.40E-03
	8	198.89	6.31E+01	69.07	1.60E-02	1.33E-03
	9	209.48	1.15E+02	79.85	1.53E-02	1.28E-03
	10	239.35	1.22E+03	123.23	1.36E-02	1.14E-03

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	270.78	1.04E+02	66.53	1.20E-02	9.87E-04
	12	295.23	1.93E+02	58.22	1.10E-02	9.13E-04
	13	300.32	5.47E+01	41.79	1.08E-02	9.02E-04
	14	328.37	4.47E+01	53.63	9.90E-03	8.44E-04
	15	338.91	2.37E+02	77.23	9.58E-03	8.21E-04
	16	351.74	4.18E+02	76.16	9.22E-03	7.94E-04
	17	427.22	3.32E+01	38.02	7.54E-03	6.96E-04
	18	464.13	6.05E+01	62.76	6.93E-03	6.81E-04
M	19	510.66	1.37E+02	48.51	6.29E-03	6.61E-04
m	20	514.62	2.01E+01	25.89	6.24E-03	6.60E-04
M	21	574.77	2.72E+01	30.44	5.58E-03	6.35E-04
m	22	583.25	3.15E+02	47.62	5.50E-03	6.31E-04
	23	609.27	2.29E+02	48.85	5.27E-03	6.20E-04
	24	617.28	2.48E+01	24.72	5.21E-03	6.17E-04
	25	726.91	6.26E+01	34.87	4.45E-03	5.17E-04
	26	795.89	3.73E+01	37.31	4.09E-03	4.30E-04
	27	861.14	4.26E+01	34.07	3.81E-03	3.48E-04
	28	911.34	1.39E+02	51.88	3.62E-03	2.99E-04
M	29	965.12	3.12E+01	10.58	3.44E-03	2.86E-04
m	30	969.01	1.10E+02	34.07	3.43E-03	2.85E-04
M	31	1057.28	2.92E+01	36.33	3.17E-03	2.65E-04
m	32	1063.57	2.61E+01	23.37	3.16E-03	2.63E-04
	33	1120.34	4.92E+01	37.27	3.01E-03	2.50E-04
	34	1398.44	1.54E+01	17.48	2.48E-03	2.17E-04
	35	1460.59	5.13E+02	51.13	2.39E-03	2.08E-04
	36	1524.35	1.45E+01	8.73	2.29E-03	1.98E-04
	37	1588.72	3.84E+01	14.73	2.21E-03	1.88E-04
	38	1653.48	9.31E+00	9.62	2.13E-03	1.79E-04
	39	1661.91	9.60E+00	10.49	2.12E-03	1.77E-04
	40	1686.65	9.24E+00	11.96	2.09E-03	1.74E-04
	41	1727.42	8.33E+00	8.94	2.04E-03	1.68E-04
	42	1737.34	6.13E+00	6.65	2.03E-03	1.66E-04
	43	1764.27	4.06E+01	14.04	2.00E-03	1.62E-04
	44	1793.79	7.33E+00	6.95	1.97E-03	1.58E-04
	45	1847.54	8.50E+00	10.79	1.91E-03	1.51E-04
	46	2103.05	1.60E+01	10.58	1.67E-03	1.51E-04
	47	2202.57	1.30E+01	7.21	1.58E-03	1.51E-04
	48	2210.79	8.08E+00	8.51	1.58E-03	1.51E-04
	49	2288.76	7.00E+00	5.29	1.51E-03	1.51E-04
	50	2312.51	8.00E+00	5.66	1.50E-03	1.51E-04
	51	2345.43	1.54E+01	10.87	1.47E-03	1.51E-04
	52	2368.18	1.30E+01	11.05	1.45E-03	1.51E-04
	53	2449.99	8.95E+00	8.02	1.39E-03	1.51E-04
	54	2614.06	8.40E+01	18.33	1.28E-03	1.51E-04

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

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 6:16:48PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	59.35	1.67E+02	66.03			1.67E+02	6.60E+01
M	2	73.56	2.50E+02	111.14			2.50E+02	1.11E+02
m	3	76.81	1.17E+03	153.62			1.17E+03	1.54E+02
m	4	92.32	3.76E+02	130.76	6.21E+01	4.71E+00	3.13E+02	1.31E+02
	5	129.45	1.41E+02	88.35			1.41E+02	8.84E+01
	6	155.09	8.41E+01	97.13			8.41E+01	9.71E+01
	7	186.25	1.49E+02	84.85	2.34E+01	8.57E+00	1.26E+02	8.53E+01
	8	198.89	6.31E+01	69.07	5.27E+00	6.73E+00	5.78E+01	6.94E+01
	9	209.48	1.15E+02	79.85			1.15E+02	7.98E+01
	10	239.35	1.22E+03	123.23	8.90E+00	6.12E+00	1.21E+03	1.23E+02
	11	270.78	1.04E+02	66.53			1.04E+02	6.65E+01
	12	295.23	1.93E+02	58.22			1.93E+02	5.82E+01
	13	300.32	5.47E+01	41.79			5.47E+01	4.18E+01
	14	328.37	4.47E+01	53.63			4.47E+01	5.36E+01
	15	338.91	2.37E+02	77.23			2.37E+02	7.72E+01
	16	351.74	4.18E+02	76.16			4.18E+02	7.62E+01
	17	427.22	3.32E+01	38.02			3.32E+01	3.80E+01
	18	464.13	6.05E+01	62.76			6.05E+01	6.28E+01
M	19	510.66	1.37E+02	48.51	4.43E+01	4.80E+00	9.25E+01	4.87E+01
m	20	514.62	2.01E+01	25.89			2.01E+01	2.59E+01
M	21	574.77	2.72E+01	30.44			2.72E+01	3.04E+01
m	22	583.25	3.15E+02	47.62	3.56E+00	2.78E+00	3.12E+02	4.77E+01
	23	609.27	2.29E+02	48.85			2.29E+02	4.88E+01
	24	617.28	2.48E+01	24.72			2.48E+01	2.47E+01
	25	726.91	6.26E+01	34.87			6.26E+01	3.49E+01
	26	795.89	3.73E+01	37.31			3.73E+01	3.73E+01
	27	861.14	4.26E+01	34.07			4.26E+01	3.41E+01
	28	911.34	1.39E+02	51.88			1.39E+02	5.19E+01
M	29	965.12	3.12E+01	10.58			3.12E+01	1.06E+01
m	30	969.01	1.10E+02	34.07			1.10E+02	3.41E+01
M	31	1057.28	2.92E+01	36.33			2.92E+01	3.63E+01
m	32	1063.57	2.61E+01	23.37			2.61E+01	2.34E+01
	33	1120.34	4.92E+01	37.27			4.92E+01	3.73E+01
	34	1398.44	1.54E+01	17.48			1.54E+01	1.75E+01
	35	1460.59	5.13E+02	51.13			5.13E+02	5.11E+01
	36	1524.35	1.45E+01	8.73			1.45E+01	8.73E+00
	37	1588.72	3.84E+01	14.73			3.84E+01	1.47E+01
	38	1653.48	9.31E+00	9.62			9.31E+00	9.62E+00
	39	1661.91	9.60E+00	10.49			9.60E+00	1.05E+01
	40	1686.65	9.24E+00	11.96			9.24E+00	1.20E+01
	41	1727.42	8.33E+00	8.94			8.33E+00	8.94E+00
	42	1737.34	6.13E+00	6.65			6.13E+00	6.65E+00
	43	1764.27	4.06E+01	14.04			4.06E+01	1.40E+01
	44	1793.79	7.33E+00	6.95			7.33E+00	6.95E+00

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1847.54	8.50E+00	10.79			8.50E+00	1.08E+01
46	2103.05	1.60E+01	10.58			1.60E+01	1.06E+01
47	2202.57	1.30E+01	7.21			1.30E+01	7.21E+00
48	2210.79	8.08E+00	8.51			8.08E+00	8.51E+00
49	2288.76	7.00E+00	5.29			7.00E+00	5.29E+00
50	2312.51	8.00E+00	5.66			8.00E+00	5.66E+00
51	2345.43	1.54E+01	10.87			1.54E+01	1.09E+01
52	2368.18	1.30E+01	11.05			1.30E+01	1.10E+01
53	2449.99	8.95E+00	8.02			8.95E+00	8.02E+00
54	2614.06	8.40E+01	18.33			8.40E+01	1.83E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 6:16:48PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	59.35	1.67E+02	66.03			1.67E+02	6.60E+01
M	2	73.56	2.50E+02	111.14			2.50E+02	1.11E+02
m	3	76.81	1.17E+03	153.62			1.17E+03	1.54E+02
m	4	92.32	3.76E+02	130.76	6.21E+01	4.71E+00	3.13E+02	1.31E+02
	5	129.45	1.41E+02	88.35			1.41E+02	8.84E+01
	6	155.09	8.41E+01	97.13			8.41E+01	9.71E+01
	7	186.25	1.49E+02	84.85	2.34E+01	8.57E+00	1.26E+02	8.53E+01
	8	198.89	6.31E+01	69.07	5.27E+00	6.73E+00	5.78E+01	6.94E+01
	9	209.48	1.15E+02	79.85			1.15E+02	7.98E+01
	10	239.35	1.22E+03	123.23	8.90E+00	6.12E+00	1.21E+03	1.23E+02
	11	270.78	1.04E+02	66.53			1.04E+02	6.65E+01
	12	295.23	1.93E+02	58.22			1.93E+02	5.82E+01
	13	300.32	5.47E+01	41.79			5.47E+01	4.18E+01
	14	328.37	4.47E+01	53.63			4.47E+01	5.36E+01
	15	338.91	2.37E+02	77.23			2.37E+02	7.72E+01
	16	351.74	4.18E+02	76.16			4.18E+02	7.62E+01
	17	427.22	3.32E+01	38.02			3.32E+01	3.80E+01
	18	464.13	6.05E+01	62.76			6.05E+01	6.28E+01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	19	510.66	1.37E+02	48.51	4.43E+01	4.80E+00	9.25E+01	4.87E+01
m	20	514.62	2.01E+01	25.89			2.01E+01	2.59E+01
M	21	574.77	2.72E+01	30.44			2.72E+01	3.04E+01
m	22	583.25	3.15E+02	47.62	3.56E+00	2.78E+00	3.12E+02	4.77E+01
	23	609.27	2.29E+02	48.85			2.29E+02	4.88E+01
	24	617.28	2.48E+01	24.72			2.48E+01	2.47E+01
	25	726.91	6.26E+01	34.87			6.26E+01	3.49E+01
	26	795.89	3.73E+01	37.31			3.73E+01	3.73E+01
	27	861.14	4.26E+01	34.07			4.26E+01	3.41E+01
	28	911.34	1.39E+02	51.88			1.39E+02	5.19E+01
M	29	965.12	3.12E+01	10.58			3.12E+01	1.06E+01
m	30	969.01	1.10E+02	34.07			1.10E+02	3.41E+01
M	31	1057.28	2.92E+01	36.33			2.92E+01	3.63E+01
m	32	1063.57	2.61E+01	23.37			2.61E+01	2.34E+01
	33	1120.34	4.92E+01	37.27			4.92E+01	3.73E+01
	34	1398.44	1.54E+01	17.48			1.54E+01	1.75E+01
	35	1460.59	5.13E+02	51.13			5.13E+02	5.11E+01
	36	1524.35	1.45E+01	8.73			1.45E+01	8.73E+00
	37	1588.72	3.84E+01	14.73			3.84E+01	1.47E+01
	38	1653.48	9.31E+00	9.62			9.31E+00	9.62E+00
	39	1661.91	9.60E+00	10.49			9.60E+00	1.05E+01
	40	1686.65	9.24E+00	11.96			9.24E+00	1.20E+01
	41	1727.42	8.33E+00	8.94			8.33E+00	8.94E+00
	42	1737.34	6.13E+00	6.65			6.13E+00	6.65E+00
	43	1764.27	4.06E+01	14.04			4.06E+01	1.40E+01
	44	1793.79	7.33E+00	6.95			7.33E+00	6.95E+00
	45	1847.54	8.50E+00	10.79			8.50E+00	1.08E+01
	46	2103.05	1.60E+01	10.58			1.60E+01	1.06E+01
	47	2202.57	1.30E+01	7.21			1.30E+01	7.21E+00
	48	2210.79	8.08E+00	8.51			8.08E+00	8.51E+00
	49	2288.76	7.00E+00	5.29			7.00E+00	5.29E+00
	50	2312.51	8.00E+00	5.66			8.00E+00	5.66E+00
	51	2345.43	1.54E+01	10.87			1.54E+01	1.09E+01
	52	2368.18	1.30E+01	11.05			1.30E+01	1.10E+01
	53	2449.99	8.95E+00	8.02			8.95E+00	8.02E+00
	54	2614.06	8.40E+01	18.33			8.40E+01	1.83E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.992	1460.81	*	10.67	2.36E+01	3.17E+00
KR-85	0.938	513.99	*	0.43	8.86E+00	1.14E+01
SR-85	0.928	513.99	*	99.27	1.03E-01	1.33E-01
TL-208	0.965	583.14	*	30.22	2.20E+00	4.20E-01
		860.37	*	4.48	2.93E+00	2.36E+00
		2614.66	*	35.85	2.15E+00	5.33E-01
BI-212	0.768	727.17	*	11.80	1.40E+00	7.95E-01
		1620.62		2.75		
PB-212	0.925	238.63	*	44.60	2.34E+00	3.10E-01
		300.09	*	3.41	1.73E+00	1.33E+00
BI-214	0.936	609.31	*	46.30	1.10E+00	2.68E-01
		1120.29	*	15.10	1.27E+00	9.66E-01
		1764.49	*	15.80	1.51E+00	5.35E-01
		2204.22		4.98		
PB-214	0.997	295.21	*	19.19	1.07E+00	3.35E-01
		351.92	*	37.19	1.43E+00	2.88E-01
RA-226	1.000	186.21	*	3.28	2.67E+00	5.21E+00
AC-228	0.982	338.32	*	11.40	2.55E+00	8.58E-01
		911.07	*	27.70	1.63E+00	6.22E-01
		969.11	*	16.60	2.27E+00	7.28E-01
AM-241	0.994	59.54	*	35.90	2.64E-01	1.06E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:16:48PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	73.56	6.94882E-02	22.21		
m	3	76.81	3.24158E-01	6.58		
m	4	92.32	8.70705E-02	20.87	Tol.	GA-67
	5	129.45	3.92741E-02	31.25		
	6	155.09	2.33738E-02	57.71		

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	8	198.89	1.60525E-02	60.04		
	9	209.48	3.19582E-02	34.70	Tol.	GA-67 CM-243
	11	270.78	2.90237E-02	31.84		
	14	328.37	1.24303E-02	59.92	Tol.	LA-140
	17	427.22	9.23241E-03	57.19	Tol.	SB-125
	18	464.13	1.68156E-02	51.84	Tol.	SB-125
M	19	510.66	2.56891E-02	26.35		
M	21	574.77	7.56858E-03	55.86	Sum	
	24	617.28	6.88438E-03	49.87	Tol.	PM-144
	26	795.89	1.03728E-02	49.96	Sum	
M	29	965.12	8.67820E-03	16.94		
M	31	1057.28	8.11458E-03	62.19		
m	32	1063.57	7.25242E-03	44.76	Tol.	BI-207
	34	1398.44	4.27419E-03	56.80		
	36	1524.35	4.03646E-03	30.05		
	37	1588.72	1.06680E-02	19.18	Sum	
	38	1653.48	2.58547E-03	51.67		
	39	1661.91	2.66667E-03	54.63		
	40	1686.65	2.56536E-03	64.74		
	41	1727.42	2.31482E-03	53.67		
	42	1737.34	1.70139E-03	54.30		
	44	1793.79	2.03704E-03	47.36		
	45	1847.54	2.36111E-03	63.49	Sum	
	46	2103.05	4.44444E-03	33.07	S-Esc	
	47	2202.57	3.61111E-03	27.74		
	48	2210.79	2.24537E-03	52.67		
	49	2288.76	1.94444E-03	37.80		
	50	2312.51	2.22222E-03	35.36		
	51	2345.43	4.29094E-03	35.20		
	52	2368.18	3.61111E-03	42.48		
	53	2449.99	2.48737E-03	44.76		

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 1707078-16

HTC-A01-S004-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.36E+01	3.17E+00
KR-85	0.93	513.99	*	0.43	8.86E+00	1.14E+01
SR-85	0.92	513.99	*	99.27	1.03E-01	1.33E-01
TL-208	0.96	583.14	*	30.22	2.20E+00	4.20E-01
		860.37	*	4.48	2.93E+00	2.36E+00
		2614.66	*	35.85	2.15E+00	5.33E-01
BI-212	0.76	727.17	*	11.80	1.40E+00	7.95E-01
		1620.62		2.75		
PB-212	0.92	238.63	*	44.60	2.34E+00	3.10E-01
		300.09	*	3.41	1.73E+00	1.33E+00
BI-214	0.93	609.31	*	46.30	1.10E+00	2.68E-01
		1120.29	*	15.10	1.27E+00	9.66E-01
		1764.49	*	15.80	1.51E+00	5.35E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.07E+00	3.35E-01
		351.92	*	37.19	1.43E+00	2.88E-01
RA-226	1.00	186.21	*	3.28	2.67E+00	5.21E+00
AC-228	0.98	338.32	*	11.40	2.55E+00	8.58E-01
		911.07	*	27.70	1.63E+00	6.22E-01
		969.11	*	16.60	2.27E+00	7.28E-01
AM-241	0.99	59.54	*	35.90	2.64E-01	1.06E-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	0.992	2.36E+01	3.17E+00	
?	KR-85	0.938	8.86E+00	1.14E+01	
?	SR-85	0.928	1.03E-01	1.33E-01	
	TL-208	0.965	2.19E+00	3.27E-01	
	BI-212	0.768	1.40E+00	7.95E-01	
	PB-212	0.925	2.31E+00	3.02E-01	

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-214	0.936	1.18E+00	2.33E-01	
PB-214	0.997	1.27E+00	2.18E-01	
RA-226	1.000	2.67E+00	5.21E+00	
AC-228	0.982	2.05E+00	4.14E-01	
AM-241	0.994	2.64E-01	1.06E-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 1707078-16

HTC-A01-S004-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 6:16:48PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	73.56	6.94882E-02	22.21		
m	3	76.81	3.24158E-01	6.58		
m	4	92.32	8.70705E-02	20.87	Tol.	GA-67
	5	129.45	3.92741E-02	31.25		
	6	155.09	2.33738E-02	57.71		
	8	198.89	1.60525E-02	60.04		
	9	209.48	3.19582E-02	34.70	Tol.	GA-67
						CM-243
	11	270.78	2.90237E-02	31.84		
	14	328.37	1.24303E-02	59.92	Tol.	LA-140
	17	427.22	9.23241E-03	57.19	Tol.	SB-125
	18	464.13	1.68156E-02	51.84	Tol.	SB-125
M	19	510.66	2.56891E-02	26.35		
M	21	574.77	7.56858E-03	55.86	Sum	
	24	617.28	6.88438E-03	49.87	Tol.	PM-144
	26	795.89	1.03728E-02	49.96	Sum	
M	29	965.12	8.67820E-03	16.94		
M	31	1057.28	8.11458E-03	62.19		
m	32	1063.57	7.25242E-03	44.76	Tol.	BI-207
	34	1398.44	4.27419E-03	56.80		
	36	1524.35	4.03646E-03	30.05		
	37	1588.72	1.06680E-02	19.18	Sum	
	38	1653.48	2.58547E-03	51.67		
	39	1661.91	2.66667E-03	54.63		
	40	1686.65	2.56536E-03	64.74		
	41	1727.42	2.31482E-03	53.67		
	42	1737.34	1.70139E-03	54.30		
	44	1793.79	2.03704E-03	47.36		
	45	1847.54	2.36111E-03	63.49	Sum	
	46	2103.05	4.44444E-03	33.07	S-Esc	
	47	2202.57	3.61111E-03	27.74		
	48	2210.79	2.24537E-03	52.67		
	49	2288.76	1.94444E-03	37.80		
	50	2312.51	2.22222E-03	35.36		
	51	2345.43	4.29094E-03	35.20		

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	2368.18	3.61111E-03	42.48		
53	2449.99	2.48737E-03	44.76		

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	4.20E-01	2.85E+00	2.85E+00
+	NA-22	1274.54		99.94	1.48E-02	1.79E-01	1.79E-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	-1.81E-02	1.00E-01	1.00E-01
+	K-40	1460.81	*	10.67	2.36E+01	1.92E+00	1.92E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.28E-02	9.03E-02	9.03E-02
		78.34		96.00	4.87E-01		1.15E-01
+	SC-46	889.25		99.98	1.50E-01	3.01E-01	3.01E-01
		1120.51		99.99	4.64E-01		4.41E-01
+	V-48	983.52		99.98	-2.96E+00	7.86E+00	8.08E+00
		1312.10		97.50	-3.22E+00		7.86E+00
+	CR-51	320.08		9.83	-1.99E+00	8.51E+00	8.51E+00
+	MN-54	834.83		99.97	-8.91E-02	1.53E-01	1.53E-01
+	CO-56	846.75		99.96	-1.58E-01	2.57E-01	2.57E-01
		1037.75		14.03	4.14E-01		2.47E+00
		1238.25		67.00	5.18E-01		7.55E-01
		1771.40		15.51	-1.65E-01		1.44E+00
		2598.48		16.90	1.22E-01		1.47E+00
+	CO-57	122.06		85.51	-2.55E-02	9.71E-02	9.71E-02
		136.48		10.60	3.78E-01		8.28E-01
+	CO-58	810.76		99.40	7.75E-02	3.15E-01	3.15E-01
+	FE-59	1099.22		56.50	4.85E-01	1.20E+00	1.20E+00
		1291.56		43.20	4.39E-01		1.52E+00
+	CO-60	1173.22		100.00	-1.62E-02	1.26E-01	1.73E-01
		1332.49		100.00	-2.52E-02		1.26E-01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	-4.41E-02	4.54E-01	4.54E-01
+	GA-67	93.31		35.70	1.81E+08	1.00E+08	1.00E+08
		208.95		2.24	1.56E+09		1.58E+09
		300.22		16.00	-5.04E+08		2.33E+08
+	SE-75	121.11		16.70	-2.16E-01	2.00E-01	6.66E-01
		136.00		59.20	-9.90E-03		2.00E-01
		264.65		59.80	3.39E-02		2.08E-01
		279.53		25.20	2.70E-01		5.57E-01
		400.65		11.40	1.39E-01		1.36E+00
+	RB-82	776.52		13.00	-5.80E-01	1.29E+01	1.29E+01
+	RB-83	520.41		46.00	2.06E-01	4.70E-01	4.70E-01
		529.64		30.30	9.54E-02		6.50E-01
		552.65		16.40	-3.91E-02		1.28E+00
+	KR-85	513.99	*	0.43	8.86E+00	3.38E+01	3.38E+01
+	SR-85	513.99	*	99.27	1.03E-01	3.95E-01	3.95E-01
+	Y-88	898.02		93.40	-2.21E-01	2.12E-01	2.42E-01
		1836.01		99.38	1.01E-01		2.12E-01
+	MO-93	263.06		56.72	-4.50E-02	1.22E-01	1.28E-01
		684.67		99.68	6.19E-03		1.34E-01
		1477.11		99.08	2.21E-02		1.22E-01
+	NB-93M	16.57		9.43	1.75E+01	8.70E+00	8.70E+00
+	NB-94	702.63		100.00	-5.65E-02	1.34E-01	1.34E-01
		871.10		100.00	2.30E-02		1.43E-01
+	NB-95	765.79		99.81	7.53E-01	9.49E-01	9.49E-01
+	NB-95M	235.69		25.00	6.46E+07	3.23E+07	3.23E+07
+	ZR-95	724.18		43.70	-1.36E-01	6.69E-01	9.13E-01
		756.72		55.30	1.13E-01		6.69E-01
+	MO-99	181.06		6.20	-1.14E+09	1.63E+10	1.95E+10
		739.58		12.80	-4.17E+09		1.63E+10
		778.00		4.50	-1.00E+10		4.74E+10
+	RU-103	497.08		89.00	9.05E-02	5.42E-01	5.42E-01
+	RU-106	621.84		9.80	6.09E-02	1.26E+00	1.26E+00
+	AG-108M	433.93		89.90	-1.90E-02	1.01E-01	1.01E-01
		614.37		90.40	-3.71E-01		1.21E-01
		722.95		90.50	2.11E-03		1.55E-01
+	CD-109	88.03		3.72	-6.17E-01	2.68E+00	2.68E+00
+	AG-110M	657.75		93.14	-4.93E-02	1.56E-01	1.56E-01
		677.61		10.53	6.88E-01		1.65E+00
		706.67		16.46	-2.54E-01		1.05E+00
		763.93		21.98	-6.35E-01		7.93E-01
		884.67		71.63	9.46E-02		2.34E-01
		1384.27		23.94	-5.92E-02		7.36E-01
+	CD-113M	263.70		0.02	-2.12E+01	3.15E+02	3.15E+02
+	SN-113	255.12		1.93	1.88E+00	2.43E-01	6.94E+00
		391.69		64.90	-1.19E-01		2.43E-01
+	TE123M	159.00		84.10	2.68E-03	1.40E-01	1.40E-01
+	SB-124	602.71		97.87	2.23E-02	2.99E-01	2.99E-01
		645.85		7.26	1.22E+00		4.54E+00

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78	11.10	5.03E-02	2.99E-01	3.70E+00
		1691.02	49.00	1.07E-01		6.77E-01
+	I-125	35.49	6.49	-3.41E+00	5.64E+00	5.64E+00
+	SB-125	176.33	6.89	2.16E-01	3.32E-01	1.13E+00
		427.89	29.33	4.49E-02		3.32E-01
		463.38	10.35	1.03E+00		1.14E+00
		600.56	17.80	1.91E-01		6.18E-01
		635.90	11.32	-3.55E-01		9.33E-01
+	SB-126	414.70	83.30	-3.34E-01	1.92E+01	1.92E+01
		666.33	99.60	3.59E+00		2.20E+01
		695.00	99.60	3.44E+00		2.62E+01
		720.50	53.80	1.39E+00		4.31E+01
+	SN-126	87.57	37.00	-5.40E-02	2.34E-01	2.34E-01
+	SB-127	473.00	25.00	-8.53E+05	6.60E+06	6.60E+06
		685.20	35.70	3.38E+05		7.33E+06
		783.80	14.70	3.81E+06		1.81E+07
+	I-129	29.78	57.00	2.22E-02	3.07E-01	3.07E-01
		33.60	13.20	3.15E-01		1.05E+00
		39.58	7.52	3.32E-01		1.44E+00
+	I-131	284.30	6.05	1.96E+02	3.22E+02	4.06E+03
		364.48	81.20	-3.27E+01		3.22E+02
		636.97	7.26	-1.44E+03		4.30E+03
		722.89	1.80	3.31E+02		2.43E+04
+	TE-132	49.72	13.10	-1.59E+08	3.74E+07	2.86E+08
		228.16	88.00	8.06E+06		3.74E+07
+	BA-133	81.00	33.00	-6.55E-01	1.79E-01	2.68E-01
		302.84	17.80	1.03E-02		5.07E-01
		356.01	60.00	-7.76E-03		1.79E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.28E+05	5.23E+04	5.23E+04
+	CS-134	563.23	8.38	-2.28E-01	1.32E-01	1.27E+00
		569.32	15.43	-5.95E-02		7.57E-01
		604.70	97.60	1.10E-02		1.32E-01
		795.84	85.40	1.33E-01		1.75E-01
		801.93	8.73	3.03E-01		1.54E+00
+	CS-135	268.24	16.00	1.05E-02	5.18E-01	5.18E-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+00	1.67E+01	1.34E+02
		163.89	4.61	1.45E+02		2.13E+02
		176.55	13.56	6.57E+00		7.36E+01
		273.65	12.66	-5.68E+00		9.09E+01
		340.57	48.50	5.52E+01		3.10E+01
		818.50	99.70	1.54E+00		1.67E+01
		1048.07	79.60	8.63E+00		2.55E+01
		1235.34	19.70	6.86E+01		1.53E+02
+	CS-137	661.65	85.12	4.01E-03	1.40E-01	1.40E-01
+	LA-138	788.74	34.00	6.07E-02	1.76E-01	3.62E-01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LA-138	1435.80	66.00	2.90E-02	1.76E-01	1.76E-01
+	CE-139	165.85	80.35	6.92E-02	1.44E-01	1.44E-01
+	BA-140	162.64	6.70	3.53E+01	5.64E+01	1.64E+02
		304.84	4.50	2.33E+00		2.87E+02
		423.70	3.20	9.78E+01		4.67E+02
		437.55	2.00	4.34E+02		7.56E+02
		537.32	25.00	-1.65E+01		5.64E+01
+	LA-140	328.77	20.50	2.07E+01	2.02E+01	6.72E+01
		487.03	45.50	1.03E+01		3.20E+01
		815.85	23.50	-5.74E+00		8.34E+01
		1596.49	95.49	-2.20E+00		2.02E+01
+	CE-141	145.44	48.40	2.44E-01	1.06E+00	1.06E+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	-1.87E-01	8.00E-01	8.00E-01
+	PM-144	476.78	42.00	-2.73E-02	1.23E-01	2.51E-01
		618.01	98.60	-6.86E-02		1.23E-01
		696.49	99.49	4.23E-02		1.73E-01
+	PM-145	36.85	21.70	-1.54E-01	2.94E-01	5.50E-01
		37.36	39.70	-8.25E-02		2.94E-01
		42.30	15.10	-7.90E-01		6.63E-01
		72.40	2.31	-7.46E-01		4.26E+00
+	PM-146	453.90	39.94	1.74E-02	2.31E-01	2.31E-01
		735.90	14.01	-4.71E-01		9.30E-01
		747.13	13.10	-1.21E-01		9.98E-01
+	ND-147	91.11	28.90	2.26E+02	1.14E+02	1.14E+02
		531.02	13.10	8.68E+01		2.62E+02
+	PM-149	285.90	3.10	-8.33E+11	1.27E+13	1.27E+13
+	EU-152	121.78	20.50	-8.48E-02	3.23E-01	3.23E-01
		244.69	5.40	-1.04E-01		1.66E+00
		344.27	19.13	-5.49E-01		4.55E-01
		778.89	9.20	-1.51E-01		1.46E+00
		964.01	10.40	-3.57E-01		1.68E+00
		1085.78	7.22	-8.78E-01		1.93E+00
		1112.02	9.60	8.66E-02		1.60E+00
		1407.95	14.94	8.84E-02		8.07E-01
+	GD-153	97.43	31.30	8.14E-02	3.08E-01	3.08E-01
		103.18	22.20	2.34E-02		3.95E-01
+	EU-154	123.07	40.50	-2.67E-02	1.66E-01	1.66E-01
		723.30	19.70	-1.12E-01		7.52E-01
		873.19	11.50	1.35E-01		1.26E+00
		996.32	10.30	-2.94E-01		1.32E+00
		1004.76	17.90	2.90E-01		8.77E-01
		1274.45	35.50	3.97E-02		4.81E-01
+	EU-155	86.50	30.90	2.03E-01	2.88E-01	2.88E-01
		105.30	20.70	-1.18E-01		3.30E-01
+	EU-156	811.77	10.40	3.89E+01	8.80E+01	8.80E+01
		1153.47	7.20	-2.24E-01		1.63E+02

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	-9.61E+01	8.80E+01	1.52E+02
+	HO-166M	184.41		72.60	1.57E-01	1.15E-01	1.15E-01
		280.45		29.60	1.07E-01		2.76E-01
		410.94		11.10	3.37E-01		8.41E-01
		711.69		54.10	8.88E-02		2.53E-01
+	TM-171	66.72		0.14	-9.54E+00	6.72E+01	6.72E+01
+	HF-172	67.35		5.31	-2.51E-01	6.81E-01	1.77E+00
		125.81		11.30	-2.59E-02		6.81E-01
+	LU-172	181.53		20.60	-2.65E+00	3.99E+03	5.72E+03
		900.72		29.81	-7.36E+03		6.31E+03
		1093.66		62.50	5.18E+02		3.99E+03
+	LU-173	100.72		5.24	-6.76E-02	4.68E-01	1.46E+00
		272.11		21.20	4.48E-01		4.68E-01
+	HF-175	343.40		84.00	-3.10E-01	2.57E-01	2.57E-01
+	LU-176	88.34		13.30	-1.50E-01	8.69E-02	6.52E-01
		201.83		86.00	3.26E-03		8.84E-02
		306.78		94.00	1.39E-02		8.69E-02
+	HF-181	133.02		41.70	2.10E-03	5.10E-01	7.82E-01
		345.85		17.20	-7.87E+00		2.14E+00
		482.03		82.80	-1.25E-01		5.10E-01
+	TA-182	67.75		41.20	-5.17E-02	3.63E-01	3.63E-01
		1121.30		34.90	1.06E+00		1.03E+00
		1189.05		16.23	6.85E-01		1.89E+00
		1221.41		26.98	-5.03E-01		1.21E+00
		1231.02		11.44	-2.04E+00		3.03E+00
+	IR-192	308.46		29.68	-2.51E-01	4.78E-01	6.44E-01
		468.07		48.10	-2.58E-01		4.78E-01
+	HG-203	279.19		77.30	1.80E-01	4.22E-01	4.22E-01
+	TL-204	374.74		94.11	-3.77E-02	8.94E-02	8.94E-02
		899.15		99.16	-5.47E-02		1.31E-01
		911.74		91.10	5.12E-01		2.77E-01
+	BI-207	569.67		97.72	-8.67E-03	1.10E-01	1.10E-01
		1063.62		74.90	-3.90E-02		2.15E-01
+	TL-208	583.14	*	30.22	2.20E+00	6.92E-02	1.06E+00
		860.37	*	4.48	2.93E+00		3.75E+00
		2614.66	*	35.85	2.15E+00		6.92E-02
+	BI-210M	262.00		45.00	-3.75E-02	1.61E-01	1.61E-01
		300.00		23.00	-8.46E-01		3.91E-01
+	PB-210	46.50		4.25	8.67E-01	2.25E+00	2.25E+00
+	PB-211	404.84		2.90	-1.27E+00	3.10E+00	3.10E+00
		831.96		2.90	-1.94E-01		4.23E+00
+	BI-212	727.17	*	11.80	1.40E+00	1.20E+00	1.20E+00
		1620.62		2.75	1.14E+00		3.96E+00
+	PB-212	238.63	*	44.60	2.34E+00	3.31E-01	3.31E-01
		300.09	*	3.41	1.73E+00		2.13E+00
+	BI-214	609.31	*	46.30	1.10E+00	3.16E-01	3.16E-01
		1120.29	*	15.10	1.27E+00		1.53E+00
		1764.49	*	15.80	1.51E+00		4.61E-01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22		4.98	-4.72E-01	3.16E-01	2.80E+00
+	PB-214	295.21	*	19.19	1.07E+00	3.71E-01	4.82E-01
		351.92	*	37.19	1.43E+00		3.71E-01
+	RN-219	401.80		6.50	9.83E-02	1.39E+00	1.39E+00
+	RA-223	323.87		3.88	4.83E-02	2.10E+00	2.10E+00
+	RA-224	240.98		3.95	2.45E+01	3.98E+00	3.98E+00
+	RA-225	40.00		31.00	6.28E+00	2.72E+01	2.72E+01
+	RA-226	186.21	*	3.28	2.67E+00	2.92E+00	2.92E+00
+	TH-227	50.10		8.40	-5.84E-01	1.05E+00	1.05E+00
		236.00		11.50	2.31E+00		1.16E+00
		256.20		6.30	7.89E-01		1.23E+00
+	AC-228	338.32	*	11.40	2.55E+00	9.21E-01	1.28E+00
		911.07	*	27.70	1.63E+00		9.21E-01
		969.11	*	16.60	2.27E+00		1.35E+00
+	TH-230	48.44		16.90	4.79E-01	5.48E-01	5.48E-01
		62.85		4.60	1.26E+00		1.95E+00
		67.67		0.37	-3.27E+00		2.30E+01
+	PA-231	283.67		1.60	2.36E-01	3.86E+00	4.90E+00
		302.67		2.30	7.80E-02		3.86E+00
+	TH-231	25.64		14.70	4.15E-01	1.25E+00	1.74E+00
		84.21		6.40	-1.53E+00		1.25E+00
+	PA-233	311.98		38.60	6.48E-01	2.36E+00	2.36E+00
+	PA-234	131.20		20.40	-2.18E-02	3.56E-01	3.56E-01
		733.99		8.80	-9.52E-03		1.47E+00
		946.00		12.00	3.04E-01		1.09E+00
+	PA-234M	1001.03		0.92	1.78E+00	1.56E+01	1.56E+01
+	TH-234	63.29		3.80	1.52E+00	2.35E+00	2.35E+00
+	U-235	143.76		10.50	-9.59E-02	6.63E-01	6.63E-01
		163.35		4.70	3.20E-01		1.49E+00
		205.31		4.70	6.05E-02		1.63E+00
+	NP-237	86.50		12.60	4.82E-01	6.82E-01	6.82E-01
+	NP-239	106.10		22.70	-6.38E+10	2.48E+11	2.48E+11
		228.18		10.70	1.35E+11		6.26E+11
		277.60		14.10	2.61E+11		4.90E+11
+	AM-241	59.54	*	35.90	2.64E-01	3.53E-01	3.53E-01
+	AM-243	74.67		66.00	8.81E-01	1.77E-01	1.77E-01
+	CM-243	209.75		3.29	2.90E+00	5.81E-01	2.60E+00
		228.14		10.60	1.60E-01		7.44E-01
		277.60		14.00	3.09E-01		5.81E-01

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

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

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	2.85E+00	2.85E+00	4.20E-01	1.35E+00
	NA-22	1274.54		99.94	1.79E-01	1.79E-01	1.48E-02	8.34E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.00E-01	1.00E-01	-1.81E-02	4.21E-02
+	K-40	1460.81	*	10.67	1.92E+00	1.92E+00	2.36E+01	8.99E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	9.03E-02	9.03E-02	-1.28E-02	4.44E-02
		78.34		96.00	1.15E-01		4.87E-01	5.68E-02
	SC-46	889.25		99.98	3.01E-01	3.01E-01	1.50E-01	1.41E-01
		1120.51		99.99	4.41E-01		4.64E-01	2.09E-01
	V-48	983.52		99.98	8.08E+00	7.86E+00	-2.96E+00	3.77E+00
		1312.10		97.50	7.86E+00		-3.22E+00	3.57E+00
	CR-51	320.08		9.83	8.51E+00	8.51E+00	-1.99E+00	4.09E+00
	MN-54	834.83		99.97	1.53E-01	1.53E-01	-8.91E-02	7.17E-02
	CO-56	846.75		99.96	2.57E-01	2.57E-01	-1.58E-01	1.19E-01
		1037.75		14.03	2.47E+00		4.14E-01	1.16E+00
		1238.25		67.00	7.55E-01		5.18E-01	3.58E-01
		1771.40		15.51	1.44E+00		-1.65E-01	6.03E-01
		2598.48		16.90	1.47E+00		1.22E-01	5.69E-01
	CO-57	122.06		85.51	9.71E-02	9.71E-02	-2.55E-02	4.75E-02
		136.48		10.60	8.28E-01		3.78E-01	4.05E-01
	CO-58	810.76		99.40	3.15E-01	3.15E-01	7.75E-02	1.47E-01
	FE-59	1099.22		56.50	1.20E+00	1.20E+00	4.85E-01	5.62E-01
		1291.56		43.20	1.52E+00		4.39E-01	7.01E-01
	CO-60	1173.22		100.00	1.73E-01	1.26E-01	-1.62E-02	8.10E-02
		1332.49		100.00	1.26E-01		-2.52E-02	5.66E-02
	ZN-65	1115.52		50.75	4.54E-01	4.54E-01	-4.41E-02	2.13E-01
	GA-67	93.31		35.70	1.00E+08	1.00E+08	1.81E+08	4.93E+07
		208.95		2.24	1.58E+09		1.56E+09	7.70E+08
		300.22		16.00	2.33E+08		-5.04E+08	1.13E+08
	SE-75	121.11		16.70	6.66E-01	2.00E-01	-2.16E-01	3.25E-01
		136.00		59.20	2.00E-01		-9.90E-03	9.76E-02
		264.65		59.80	2.08E-01		3.39E-02	1.00E-01
		279.53		25.20	5.57E-01		2.70E-01	2.69E-01
		400.65		11.40	1.36E+00		1.39E-01	6.53E-01
	RB-82	776.52		13.00	1.29E+01	1.29E+01	-5.80E-01	6.08E+00

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	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	4.70E-01	4.70E-01	2.06E-01	2.23E-01
		529.64		30.30	6.50E-01		9.54E-02	3.07E-01
		552.65		16.40	1.28E+00		-3.91E-02	6.07E-01
+	KR-85	513.99	*	0.43	3.38E+01	3.38E+01	8.86E+00	1.63E+01
+	SR-85	513.99	*	99.27	3.95E-01	3.95E-01	1.03E-01	1.90E-01
	Y-88	898.02		93.40	2.42E-01	2.12E-01	-2.21E-01	1.12E-01
		1836.01		99.38	2.12E-01		1.01E-01	9.08E-02
	MO-93	263.06		56.72	1.28E-01	1.22E-01	-4.50E-02	6.17E-02
		684.67		99.68	1.34E-01		6.19E-03	6.36E-02
		1477.11		99.08	1.22E-01		2.21E-02	5.43E-02
	NB-93M	16.57		9.43	8.70E+00	8.70E+00	1.75E+01	4.24E+00
	NB-94	702.63		100.00	1.34E-01	1.34E-01	-5.65E-02	6.36E-02
		871.10		100.00	1.43E-01		2.30E-02	6.75E-02
	NB-95	765.79		99.81	9.49E-01	9.49E-01	7.53E-01	4.51E-01
	NB-95M	235.69		25.00	3.23E+07	3.23E+07	6.46E+07	1.59E+07
	ZR-95	724.18		43.70	9.13E-01	6.69E-01	-1.36E-01	4.34E-01
		756.72		55.30	6.69E-01		1.13E-01	3.16E-01
	MO-99	181.06		6.20	1.95E+10	1.63E+10	-1.14E+09	9.53E+09
		739.58		12.80	1.63E+10		-4.17E+09	7.69E+09
		778.00		4.50	4.74E+10		-1.00E+10	2.23E+10
	RU-103	497.08		89.00	5.42E-01	5.42E-01	9.05E-02	2.57E-01
	RU-106	621.84		9.80	1.26E+00	1.26E+00	6.09E-02	5.92E-01
	AG-108M	433.93		89.90	1.01E-01	1.01E-01	-1.90E-02	4.81E-02
		614.37		90.40	1.21E-01		-3.71E-01	5.69E-02
		722.95		90.50	1.55E-01		2.11E-03	7.36E-02
	CD-109	88.03		3.72	2.68E+00	2.68E+00	-6.17E-01	1.32E+00
	AG-110M	657.75		93.14	1.56E-01	1.56E-01	-4.93E-02	7.35E-02
		677.61		10.53	1.65E+00		6.88E-01	7.82E-01
		706.67		16.46	1.05E+00		-2.54E-01	4.99E-01
		763.93		21.98	7.93E-01		-6.35E-01	3.75E-01
		884.67		71.63	2.34E-01		9.46E-02	1.10E-01
		1384.27		23.94	7.36E-01		-5.92E-02	3.34E-01
	CD-113M	263.70		0.02	3.15E+02	3.15E+02	-2.12E+01	1.52E+02
	SN-113	255.12		1.93	6.94E+00	2.43E-01	1.88E+00	3.36E+00
		391.69		64.90	2.43E-01		-1.19E-01	1.16E-01
	TE123M	159.00		84.10	1.40E-01	1.40E-01	2.68E-03	6.85E-02
	SB-124	602.71		97.87	2.99E-01	2.99E-01	2.23E-02	1.40E-01
		645.85		7.26	4.54E+00		1.22E+00	2.14E+00
		722.78		11.10	3.70E+00		5.03E-02	1.75E+00
		1691.02		49.00	6.77E-01		1.07E-01	2.93E-01
	I-125	35.49		6.49	5.64E+00	5.64E+00	-3.41E+00	2.75E+00
	SB-125	176.33		6.89	1.13E+00	3.32E-01	2.16E-01	5.51E-01
		427.89		29.33	3.32E-01		4.49E-02	1.59E-01
		463.38		10.35	1.14E+00		1.03E+00	5.46E-01
		600.56		17.80	6.18E-01		1.91E-01	2.91E-01
		635.90		11.32	9.33E-01		-3.55E-01	4.37E-01
	SB-126	414.70		83.30	1.92E+01	1.92E+01	-3.34E-01	9.16E+00
		666.33		99.60	2.20E+01		3.59E+00	1.04E+01
		695.00		99.60	2.62E+01		3.44E+00	1.25E+01
		720.50		53.80	4.31E+01		1.39E+00	2.03E+01
	SN-126	87.57		37.00	2.34E-01	2.34E-01	-5.40E-02	1.15E-01
	SB-127	473.00		25.00	6.60E+06	6.60E+06	-8.53E+05	3.11E+06
		685.20		35.70	7.33E+06		3.38E+05	3.48E+06

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

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	1.81E+07	6.60E+06	3.81E+06	8.53E+06
I-129	29.78	57.00	3.07E-01	3.07E-01	2.22E-02	1.50E-01
	33.60	13.20	1.05E+00		3.15E-01	5.14E-01
	39.58	7.52	1.44E+00		3.32E-01	7.03E-01
I-131	284.30	6.05	4.06E+03	3.22E+02	1.96E+02	1.96E+03
	364.48	81.20	3.22E+02		-3.27E+01	1.54E+02
	636.97	7.26	4.30E+03		-1.44E+03	2.01E+03
	722.89	1.80	2.43E+04		3.31E+02	1.15E+04
TE-132	49.72	13.10	2.86E+08	3.74E+07	-1.59E+08	1.40E+08
	228.16	88.00	3.74E+07		8.06E+06	1.82E+07
BA-133	81.00	33.00	2.68E-01	1.79E-01	-6.55E-01	1.32E-01
	302.84	17.80	5.07E-01		1.03E-02	2.45E-01
	356.01	60.00	1.79E-01		-7.76E-03	8.68E-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	5.23E+04	5.23E+04	-1.28E+05	2.58E+04
CS-134	563.23	8.38	1.27E+00	1.32E-01	-2.28E-01	6.00E-01
	569.32	15.43	7.57E-01		-5.95E-02	3.58E-01
	604.70	97.60	1.32E-01		1.10E-02	6.26E-02
	795.84	85.40	1.75E-01		1.33E-01	8.25E-02
	801.93	8.73	1.54E+00		3.03E-01	7.21E-01
CS-135	268.24	16.00	5.18E-01	5.18E-01	1.05E-02	2.51E-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	1.34E+02	1.67E+01	-3.23E+00	6.54E+01
	163.89	4.61	2.13E+02		1.45E+02	1.04E+02
	176.55	13.56	7.36E+01		6.57E+00	3.59E+01
	273.65	12.66	9.09E+01		-5.68E+00	4.40E+01
	340.57	48.50	3.10E+01		5.52E+01	1.50E+01
	818.50	99.70	1.67E+01		1.54E+00	7.78E+00
	1048.07	79.60	2.55E+01		8.63E+00	1.19E+01
	1235.34	19.70	1.53E+02		6.86E+01	7.23E+01
CS-137	661.65	85.12	1.40E-01	1.40E-01	4.01E-03	6.59E-02
LA-138	788.74	34.00	3.62E-01	1.76E-01	6.07E-02	1.70E-01
	1435.80	66.00	1.76E-01		2.90E-02	7.82E-02
CE-139	165.85	80.35	1.44E-01	1.44E-01	6.92E-02	7.04E-02
BA-140	162.64	6.70	1.64E+02	5.64E+01	3.53E+01	7.99E+01
	304.84	4.50	2.87E+02		2.33E+00	1.38E+02
	423.70	3.20	4.67E+02		9.78E+01	2.23E+02
	437.55	2.00	7.56E+02		4.34E+02	3.61E+02
	537.32	25.00	5.64E+01		-1.65E+01	2.65E+01
LA-140	328.77	20.50	6.72E+01	2.02E+01	2.07E+01	3.23E+01
	487.03	45.50	3.20E+01		1.03E+01	1.51E+01
	815.85	23.50	8.34E+01		-5.74E+00	3.90E+01
	1596.49	95.49	2.02E+01		-2.20E+00	8.92E+00
CE-141	145.44	48.40	1.06E+00	1.06E+00	2.44E-01	5.20E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	8.00E-01	8.00E-01	-1.87E-01	3.91E-01
PM-144	476.78	42.00	2.51E-01	1.23E-01	-2.73E-02	1.19E-01
	618.01	98.60	1.23E-01		-6.86E-02	5.76E-02
	696.49	99.49	1.73E-01		4.23E-02	8.22E-02

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

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	5.50E-01	2.94E-01	-1.54E-01	2.69E-01
	37.36	39.70	2.94E-01		-8.25E-02	1.43E-01
	42.30	15.10	6.63E-01		-7.90E-01	3.24E-01
	72.40	2.31	4.26E+00		-7.46E-01	2.10E+00
PM-146	453.90	39.94	2.31E-01	2.31E-01	1.74E-02	1.09E-01
	735.90	14.01	9.30E-01		-4.71E-01	4.38E-01
	747.13	13.10	9.98E-01		-1.21E-01	4.70E-01
ND-147	91.11	28.90	1.14E+02	1.14E+02	2.26E+02	5.60E+01
	531.02	13.10	2.62E+02		8.68E+01	1.24E+02
PM-149	285.90	3.10	1.27E+13	1.27E+13	-8.33E+11	6.13E+12
EU-152	121.78	20.50	3.23E-01	3.23E-01	-8.48E-02	1.58E-01
	244.69	5.40	1.66E+00		-1.04E-01	8.09E-01
	344.27	19.13	4.55E-01		-5.49E-01	2.18E-01
	778.89	9.20	1.46E+00		-1.51E-01	6.87E-01
	964.01	10.40	1.68E+00		-3.57E-01	7.95E-01
	1085.78	7.22	1.93E+00		-8.78E-01	8.91E-01
	1112.02	9.60	1.60E+00		8.66E-02	7.47E-01
	1407.95	14.94	8.07E-01		8.84E-02	3.60E-01
GD-153	97.43	31.30	3.08E-01	3.08E-01	8.14E-02	1.51E-01
	103.18	22.20	3.95E-01		2.34E-02	1.93E-01
EU-154	123.07	40.50	1.66E-01	1.66E-01	-2.67E-02	8.14E-02
	723.30	19.70	7.52E-01		-1.12E-01	3.57E-01
	873.19	11.50	1.26E+00		1.35E-01	5.94E-01
	996.32	10.30	1.32E+00		-2.94E-01	6.11E-01
	1004.76	17.90	8.77E-01		2.90E-01	4.11E-01
	1274.45	35.50	4.81E-01		3.97E-02	2.24E-01
EU-155	86.50	30.90	2.88E-01	2.88E-01	2.03E-01	1.42E-01
	105.30	20.70	3.30E-01		-1.18E-01	1.62E-01
EU-156	811.77	10.40	8.80E+01	8.80E+01	3.89E+01	4.13E+01
	1153.47	7.20	1.63E+02		-2.24E-01	7.64E+01
	1230.71	8.90	1.52E+02		-9.61E+01	7.16E+01
HO-166M	184.41	72.60	1.15E-01	1.15E-01	1.57E-01	5.62E-02
	280.45	29.60	2.76E-01		1.07E-01	1.33E-01
	410.94	11.10	8.41E-01		3.37E-01	4.02E-01
	711.69	54.10	2.53E-01		8.88E-02	1.20E-01
TM-171	66.72	0.14	6.72E+01	6.72E+01	-9.54E+00	3.30E+01
HF-172	67.35	5.31	1.77E+00	6.81E-01	-2.51E-01	8.69E-01
	125.81	11.30	6.81E-01		-2.59E-02	3.33E-01
LU-172	181.53	20.60	5.72E+03	3.99E+03	-2.65E+00	2.79E+03
	900.72	29.81	6.31E+03		-7.36E+03	2.93E+03
	1093.66	62.50	3.99E+03		5.18E+02	1.87E+03
LU-173	100.72	5.24	1.46E+00	4.68E-01	-6.76E-02	7.15E-01
	272.11	21.20	4.68E-01		4.48E-01	2.27E-01
HF-175	343.40	84.00	2.57E-01	2.57E-01	-3.10E-01	1.23E-01
LU-176	88.34	13.30	6.52E-01	8.69E-02	-1.50E-01	3.21E-01
	201.83	86.00	8.84E-02		3.26E-03	4.30E-02
	306.78	94.00	8.69E-02		1.39E-02	4.18E-02
HF-181	133.02	41.70	7.82E-01	5.10E-01	2.10E-03	3.83E-01
	345.85	17.20	2.14E+00		-7.87E+00	1.03E+00
	482.03	82.80	5.10E-01		-1.25E-01	2.42E-01
TA-182	67.75	41.20	3.63E-01	3.63E-01	-5.17E-02	1.79E-01
	1121.30	34.90	1.03E+00		1.06E+00	4.88E-01
	1189.05	16.23	1.89E+00		6.85E-01	8.84E-01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	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	1.21E+00	3.63E-01	-5.03E-01	5.66E-01
		1231.02		11.44	3.03E+00		-2.04E+00	1.43E+00
	IR-192	308.46		29.68	6.44E-01	4.78E-01	-2.51E-01	3.10E-01
		468.07		48.10	4.78E-01		-2.58E-01	2.27E-01
	HG-203	279.19		77.30	4.22E-01	4.22E-01	1.80E-01	2.04E-01
	TL-204	374.74		94.11	8.94E-02	8.94E-02	-3.77E-02	4.27E-02
		899.15		99.16	1.31E-01		-5.47E-02	6.10E-02
		911.74		91.10	2.77E-01		5.12E-01	1.34E-01
	BI-207	569.67		97.72	1.10E-01	1.10E-01	-8.67E-03	5.23E-02
		1063.62		74.90	2.15E-01		-3.90E-02	1.01E-01
+	TL-208	583.14	*	30.22	1.06E+00	6.92E-02	2.20E+00	5.19E-01
		860.37	*	4.48	3.75E+00		2.93E+00	1.78E+00
		2614.66	*	35.85	6.92E-02		2.15E+00	0.00E+00
	BI-210M	262.00		45.00	1.61E-01	1.61E-01	-3.75E-02	7.75E-02
		300.00		23.00	3.91E-01		-8.46E-01	1.89E-01
	PB-210	46.50		4.25	2.25E+00	2.25E+00	8.67E-01	1.10E+00
	PB-211	404.84		2.90	3.10E+00	3.10E+00	-1.27E+00	1.48E+00
		831.96		2.90	4.23E+00		-1.94E-01	1.97E+00
+	BI-212	727.17	*	11.80	1.20E+00	1.20E+00	1.40E+00	5.71E-01
		1620.62		2.75	3.96E+00		1.14E+00	1.71E+00
+	PB-212	238.63	*	44.60	3.31E-01	3.31E-01	2.34E+00	1.63E-01
		300.09	*	3.41	2.13E+00		1.73E+00	1.02E+00
+	BI-214	609.31	*	46.30	3.16E-01	3.16E-01	1.10E+00	1.52E-01
		1120.29	*	15.10	1.53E+00		1.27E+00	7.32E-01
		1764.49	*	15.80	4.61E-01		1.51E+00	1.80E-01
		2204.22		4.98	2.80E+00		-4.72E-01	1.20E+00
+	PB-214	295.21	*	19.19	4.82E-01	3.71E-01	1.07E+00	2.33E-01
		351.92	*	37.19	3.71E-01		1.43E+00	1.81E-01
	RN-219	401.80		6.50	1.39E+00	1.39E+00	9.83E-02	6.67E-01
	RA-223	323.87		3.88	2.10E+00	2.10E+00	4.83E-02	1.01E+00
	RA-224	240.98		3.95	3.98E+00	3.98E+00	2.45E+01	1.96E+00
	RA-225	40.00		31.00	2.72E+01	2.72E+01	6.28E+00	1.33E+01
+	RA-226	186.21	*	3.28	2.92E+00	2.92E+00	2.67E+00	1.43E+00
	TH-227	50.10		8.40	1.05E+00	1.05E+00	-5.84E-01	5.16E-01
		236.00		11.50	1.16E+00		2.31E+00	5.69E-01
		256.20		6.30	1.23E+00		7.89E-01	5.93E-01
+	AC-228	338.32	*	11.40	1.28E+00	9.21E-01	2.55E+00	6.25E-01
		911.07	*	27.70	9.21E-01		1.63E+00	4.45E-01
		969.11	*	16.60	1.35E+00		2.27E+00	6.48E-01
	TH-230	48.44		16.90	5.48E-01	5.48E-01	4.79E-01	2.68E-01
		62.85		4.60	1.95E+00		1.26E+00	9.59E-01
		67.67		0.37	2.30E+01		-3.27E+00	1.13E+01
	PA-231	283.67		1.60	4.90E+00	3.86E+00	2.36E-01	2.36E+00
		302.67		2.30	3.86E+00		7.80E-02	1.87E+00
	TH-231	25.64		14.70	1.74E+00	1.25E+00	4.15E-01	8.50E-01
		84.21		6.40	1.25E+00		-1.53E+00	6.16E-01
	PA-233	311.98		38.60	2.36E+00	2.36E+00	6.48E-01	1.14E+00
	PA-234	131.20		20.40	3.56E-01	3.56E-01	-2.18E-02	1.74E-01
		733.99		8.80	1.47E+00		-9.52E-03	6.92E-01
		946.00		12.00	1.09E+00		3.04E-01	5.07E-01
	PA-234M	1001.03		0.92	1.56E+01	1.56E+01	1.78E+00	7.29E+00
	TH-234	63.29		3.80	2.35E+00	2.35E+00	1.52E+00	1.16E+00
	U-235	143.76		10.50	6.63E-01	6.63E-01	-9.59E-02	3.24E-01

Analysis Report for 1707078-16

HTC-A01-S004-2430-01

	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	1.49E+00	6.63E-01	3.20E-01	7.26E-01
		205.31		4.70	1.63E+00		6.05E-02	7.92E-01
	NP-237	86.50		12.60	6.82E-01	6.82E-01	4.82E-01	3.36E-01
	NP-239	106.10		22.70	2.48E+11	2.48E+11	-6.38E+10	1.21E+11
		228.18		10.70	6.26E+11		1.35E+11	3.04E+11
		277.60		14.10	4.90E+11		2.61E+11	2.37E+11
+	AM-241	59.54	*	35.90	3.53E-01	3.53E-01	2.64E-01	1.74E-01
	AM-243	74.67		66.00	1.77E-01	1.77E-01	8.81E-01	8.73E-02
	CM-243	209.75		3.29	2.60E+00	5.81E-01	2.90E+00	1.27E+00
		228.14		10.60	7.44E-01		1.60E-01	3.61E-01
		277.60		14.00	5.81E-01		3.09E-01	2.81E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	13	121
17:	105	114	114	102	99	90	118	81
25:	95	96	67	90	71	84	95	98
33:	83	81	82	94	86	84	111	94
41:	88	99	88	104	121	152	111	122
49:	89	121	107	103	154	115	110	102
57:	160	143	152	166	167	204	182	180
65:	151	145	176	162	176	178	211	197
73:	297	404	395	468	411	223	130	141
81:	137	151	169	184	147	235	214	207
89:	191	193	207	261	227	146	133	100
97:	115	125	133	110	107	97	112	118
105:	110	94	116	103	115	114	83	99
113:	113	106	100	92	99	90	88	91
121:	102	87	105	108	99	110	116	125
129:	135	124	85	86	104	92	102	90
137:	91	105	89	92	88	83	81	97
145:	107	94	90	94	99	75	90	85
153:	100	113	92	84	89	67	59	88
161:	69	79	84	82	85	89	86	69
169:	67	75	63	75	72	77	78	85
177:	74	71	74	78	79	68	78	93
185:	130	122	79	59	67	62	59	73
193:	64	62	58	63	86	62	89	59
201:	56	59	70	65	64	69	69	107
209:	96	86	59	56	62	51	68	59
217:	60	63	54	68	57	56	51	47
225:	59	52	60	57	53	63	53	52
233:	54	60	56	96	298	468	292	134
241:	118	92	61	40	42	49	38	43
249:	42	39	41	43	44	43	37	47
257:	43	45	32	32	39	37	33	34
265:	37	31	38	41	63	75	56	45
273:	31	33	36	41	53	36	45	38
281:	34	38	38	33	35	37	30	34
289:	35	36	31	36	61	116	111	48
297:	28	41	60	52	41	30	37	35
305:	31	29	37	30	35	31	27	34
313:	36	41	26	31	24	47	18	26
321:	39	25	29	34	21	34	44	49
329:	37	24	24	26	32	25	38	44
337:	77	76	63	36	39	29	29	16
345:	25	29	20	26	43	104	182	137
353:	47	22	19	22	23	22	27	24
361:	16	32	33	21	29	21	18	28

369:	22	26	21	27	16	14	25	18

Sample Title: HTC-A01-S004-2430-01

Channel								
377:	26	33	17	34	20	31	22	15
385:	21	35	28	18	23	19	31	21
393:	28	29	21	31	22	21	29	25
401:	28	17	22	21	19	21	30	33
409:	18	22	25	17	20	16	24	18
417:	19	21	19	29	25	21	20	22
425:	23	20	33	19	13	15	20	18
433:	17	17	23	28	22	30	18	15
441:	14	19	12	17	23	27	17	13
449:	18	20	20	18	19	11	18	15
457:	19	16	18	19	28	31	33	19
465:	28	24	17	19	11	14	18	18
473:	16	12	6	16	17	16	23	17
481:	11	12	18	16	17	21	14	13
489:	13	13	17	14	14	17	15	17
497:	19	13	14	16	11	17	17	9
505:	13	12	15	26	46	51	55	24
513:	27	13	17	10	17	12	13	24
521:	21	20	13	12	16	12	13	13
529:	15	22	9	11	15	8	12	10
537:	16	10	11	18	17	13	16	17
545:	8	15	12	17	17	13	12	16
553:	14	17	11	14	15	19	12	9
561:	18	12	16	13	13	13	17	19
569:	22	14	18	7	14	23	16	8
577:	17	12	20	21	42	117	111	60
585:	16	15	18	12	13	17	6	10
593:	9	13	12	11	11	17	12	13
601:	11	15	12	8	13	19	41	74
609:	97	42	20	9	11	11	16	11
617:	19	12	5	8	12	25	12	11
625:	18	15	11	11	16	13	11	14
633:	9	11	9	10	15	6	15	12
641:	14	7	17	17	13	16	10	14
649:	14	7	8	11	6	11	9	11
657:	14	9	8	11	11	14	13	12
665:	7	14	9	15	6	9	8	11
673:	15	14	10	12	16	12	15	16
681:	13	14	11	18	10	14	10	10
689:	12	12	16	16	12	14	11	24
697:	14	12	14	18	11	15	12	10
705:	11	12	11	14	15	13	14	13
713:	17	9	11	7	14	15	4	15
721:	10	6	16	8	22	23	24	14
729:	13	11	6	16	13	14	9	11
737:	4	11	8	15	12	12	11	12
745:	8	9	10	6	12	10	5	12
753:	8	15	16	13	13	8	8	7
761:	14	10	15	9	11	9	15	24
769:	15	10	10	16	8	10	9	9
777:	8	13	10	10	11	11	7	12
785:	12	8	11	6	10	6	4	7
793:	15	16	12	10	10	8	12	4

801:	6	8	9	6	11	3	7	9

Sample Title: HTC-A01-S004-2430-01

Channel								
809:	9	14	12	8	8	5	8	4
817:	9	6	13	5	7	12	7	6
825:	6	9	8	7	7	7	5	5
833:	10	11	8	11	5	8	12	15
841:	8	8	6	8	3	6	4	9
849:	4	7	9	4	6	9	8	11
857:	11	9	17	18	21	10	16	5
865:	10	8	10	14	7	3	9	17
873:	8	11	9	11	10	7	5	12
881:	7	9	5	5	8	4	6	12
889:	6	5	14	16	7	6	9	3
897:	7	9	9	2	7	7	7	5
905:	15	13	4	9	37	56	71	34
913:	10	6	10	7	11	6	7	6
921:	10	5	5	7	6	2	11	9
929:	5	11	11	11	6	11	7	15
937:	7	8	5	5	10	6	7	3
945:	10	4	6	9	6	7	5	3
953:	8	7	8	7	8	6	5	7
961:	10	6	4	19	21	11	23	40
969:	41	21	7	6	5	7	8	7
977:	6	3	7	5	13	13	4	6
985:	8	5	5	15	9	5	5	5
993:	6	6	4	7	6	7	4	12
1001:	13	6	6	6	8	9	8	9
1009:	11	5	3	9	6	7	4	4
1017:	11	7	10	5	6	9	4	4
1025:	10	4	3	9	7	3	7	9
1033:	13	6	10	6	4	11	8	8
1041:	5	9	4	5	11	11	11	4
1049:	7	8	5	5	8	5	9	18
1057:	7	16	8	8	9	7	16	5
1065:	7	11	4	8	7	5	10	6
1073:	5	9	10	8	10	5	7	6
1081:	7	3	6	6	6	7	8	5
1089:	4	11	6	7	7	11	7	8
1097:	10	9	7	5	7	10	7	3
1105:	4	9	7	10	8	5	9	1
1113:	6	11	5	9	10	14	20	28
1121:	10	12	5	6	9	4	5	8
1129:	4	9	6	3	9	6	7	7
1137:	9	7	9	5	7	6	11	12
1145:	4	7	8	5	7	8	7	11
1153:	10	7	3	6	11	10	7	9
1161:	8	11	7	10	12	11	6	9
1169:	5	9	9	9	13	3	6	10
1177:	5	8	5	10	5	7	7	8
1185:	6	9	6	10	10	11	9	7
1193:	5	3	4	10	8	9	4	9
1201:	7	9	10	8	7	7	5	11
1209:	11	5	10	7	14	14	10	9
1217:	11	8	6	9	8	8	11	7
1225:	11	9	10	13	6	8	14	6

1233:	10	8	14	11	19	21	9	11

Sample Title: HTC-A01-S004-2430-01

Channel								
1241:	12	9	9	8	6	9	9	8
1249:	5	7	9	10	8	4	3	6
1257:	7	8	8	7	7	8	6	8
1265:	11	6	7	1	6	6	3	6
1273:	9	5	9	5	6	10	8	10
1281:	5	9	3	6	1	4	6	5
1289:	4	5	7	4	4	7	6	4
1297:	4	6	5	3	6	9	5	7
1305:	4	6	8	4	7	8	2	2
1313:	2	3	5	1	5	4	5	8
1321:	5	3	3	2	5	6	1	5
1329:	4	2	3	3	2	3	1	4
1337:	3	4	3	2	1	2	3	1
1345:	5	4	2	4	4	4	5	5
1353:	4	1	2	3	3	1	5	1
1361:	3	0	1	5	3	1	0	4
1369:	4	2	1	3	1	4	2	3
1377:	10	2	5	3	2	5	3	5
1385:	4	5	3	2	1	4	2	2
1393:	2	1	5	4	1	6	2	7
1401:	2	1	0	2	4	1	5	0
1409:	2	2	3	4	3	1	6	3
1417:	3	4	3	1	5	0	2	3
1425:	2	3	2	4	2	4	2	2
1433:	4	1	2	2	3	2	3	2
1441:	0	0	5	1	2	3	3	1
1449:	0	5	3	3	3	3	0	3
1457:	5	31	105	180	136	60	17	4
1465:	3	1	3	4	3	1	1	3
1473:	2	3	3	2	1	2	3	3
1481:	2	1	1	4	7	2	1	1
1489:	1	3	3	0	5	1	5	0
1497:	3	3	2	3	1	6	0	2
1505:	4	3	1	3	4	6	2	3
1513:	1	1	3	3	3	2	2	1
1521:	0	3	3	6	0	4	0	0
1529:	1	1	1	0	1	1	1	0
1537:	3	0	2	1	0	0	2	2
1545:	0	0	1	0	1	2	1	2
1553:	2	2	1	2	2	3	2	1
1561:	2	1	0	1	2	2	3	2
1569:	1	0	1	1	4	1	2	0
1577:	1	2	2	1	0	4	2	1
1585:	1	1	8	4	7	2	3	6
1593:	3	0	0	3	2	2	1	2
1601:	2	1	1	1	2	2	1	2
1609:	0	2	1	2	0	1	0	3
1617:	0	0	3	3	2	0	2	1
1625:	1	2	1	4	1	3	3	2
1633:	3	1	3	0	2	2	3	1
1641:	0	2	2	2	0	2	1	0
1649:	2	1	0	2	4	0	3	1
1657:	0	0	0	2	6	1	1	1

1665:	1	2	1	1	0	1	2	0

Sample Title: HTC-A01-S004-2430-01

Channel								
1673:	2	1	3	2	0	1	0	2
1681:	0	1	1	1	3	1	3	5
1689:	1	1	0	2	0	1	1	0
1697:	0	0	0	0	3	1	2	2
1705:	0	1	0	2	0	0	0	0
1713:	1	0	2	1	1	2	1	0
1721:	2	0	0	1	0	2	3	3
1729:	3	0	2	1	0	0	0	3
1737:	1	3	1	0	1	0	1	1
1745:	1	0	3	2	0	0	1	1
1753:	0	1	1	2	1	0	0	3
1761:	0	1	8	11	15	3	2	0
1769:	1	1	2	0	1	1	1	2
1777:	0	1	1	1	2	3	2	2
1785:	1	2	1	0	0	1	0	1
1793:	2	3	2	0	0	0	0	1
1801:	3	0	1	2	0	1	2	3
1809:	1	0	0	0	2	0	2	0
1817:	1	0	0	1	1	0	0	0
1825:	2	2	1	1	1	0	0	1
1833:	0	1	0	2	2	2	3	1
1841:	1	0	0	1	1	3	3	2
1849:	1	1	1	1	0	2	0	1
1857:	1	1	3	0	0	2	1	3
1865:	1	0	0	0	2	1	0	4
1873:	1	1	0	0	3	1	2	1
1881:	1	1	0	2	2	1	1	1
1889:	0	1	5	0	1	0	2	1
1897:	2	0	1	2	0	0	1	1
1905:	0	0	1	0	1	1	3	1
1913:	1	1	0	1	0	1	1	0
1921:	1	3	1	1	0	3	0	0
1929:	3	1	0	3	1	2	2	2
1937:	0	0	0	2	2	0	2	2
1945:	0	0	4	1	0	1	1	1
1953:	1	0	4	0	1	2	1	1
1961:	1	1	0	1	0	0	3	1
1969:	1	2	0	0	2	3	0	0
1977:	2	0	0	0	0	1	0	1
1985:	1	2	0	2	1	0	1	1
1993:	1	3	0	1	3	0	0	1
2001:	0	0	0	0	0	2	2	1
2009:	2	0	1	1	1	0	0	0
2017:	1	0	0	2	0	1	3	1
2025:	0	1	0	1	1	0	3	1
2033:	1	1	0	0	0	1	1	1
2041:	2	0	1	0	2	2	1	1
2049:	1	0	0	1	0	0	0	1
2057:	1	1	1	0	0	0	0	0
2065:	1	1	0	0	0	1	0	0
2073:	3	0	1	0	2	0	1	1
2081:	0	0	0	1	0	1	1	1
2089:	4	1	2	1	1	0	3	1

2097:	1	1	0	1	2	7	2	3

Sample Title: HTC-A01-S004-2430-01

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

2529:	0	1	0	0	0	0	1	0

Sample Title: HTC-A01-S004-2430-01

Channel								
2537:	0	0	0	0	0	0	0	1
2545:	0	0	0	1	1	1	0	1
2553:	0	0	0	0	0	0	0	0
2561:	0	0	1	0	1	0	0	0
2569:	0	0	0	1	0	0	1	1
2577:	0	0	0	0	0	0	1	0
2585:	0	0	0	0	1	0	0	1
2593:	0	0	1	1	0	0	2	0
2601:	0	0	0	1	0	0	0	0
2609:	0	0	1	8	14	22	19	14
2617:	6	0	0	0	0	1	0	0
2625:	0	0	0	0	0	1	0	0
2633:	0	0	0	0	0	0	2	0
2641:	0	0	1	0	0	0	0	0
2649:	0	0	0	0	0	1	0	1
2657:	0	1	0	0	1	0	1	0
2665:	0	0	0	0	0	0	0	1
2673:	0	0	0	0	0	1	0	0
2681:	0	0	0	0	0	0	1	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	1	0	0	0
2705:	0	0	0	0	0	1	1	0
2713:	0	1	1	0	0	0	0	0
2721:	1	0	0	0	1	0	0	0
2729:	0	0	0	0	1	0	0	1
2737:	0	0	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	1	0	0	0	0
2761:	0	1	0	0	0	0	0	0
2769:	0	0	0	0	0	0	0	0
2777:	1	0	0	0	0	1	0	0
2785:	0	1	0	0	0	0	0	1
2793:	0	0	0	0	0	1	0	0
2801:	0	0	0	0	0	0	0	1
2809:	0	0	0	0	0	0	1	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	1	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	1	0	1	1	0
2849:	1	0	0	1	0	0	1	0
2857:	0	0	0	1	1	0	0	0
2865:	0	0	0	0	1	0	0	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	0	0	1	0	0
2889:	0	0	0	0	0	0	1	0
2897:	0	0	1	0	0	0	0	0
2905:	0	0	0	0	1	0	1	0
2913:	0	0	1	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	1	0	0	0	1	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	1	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S004-2430-01

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

3393:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S004-2430-01

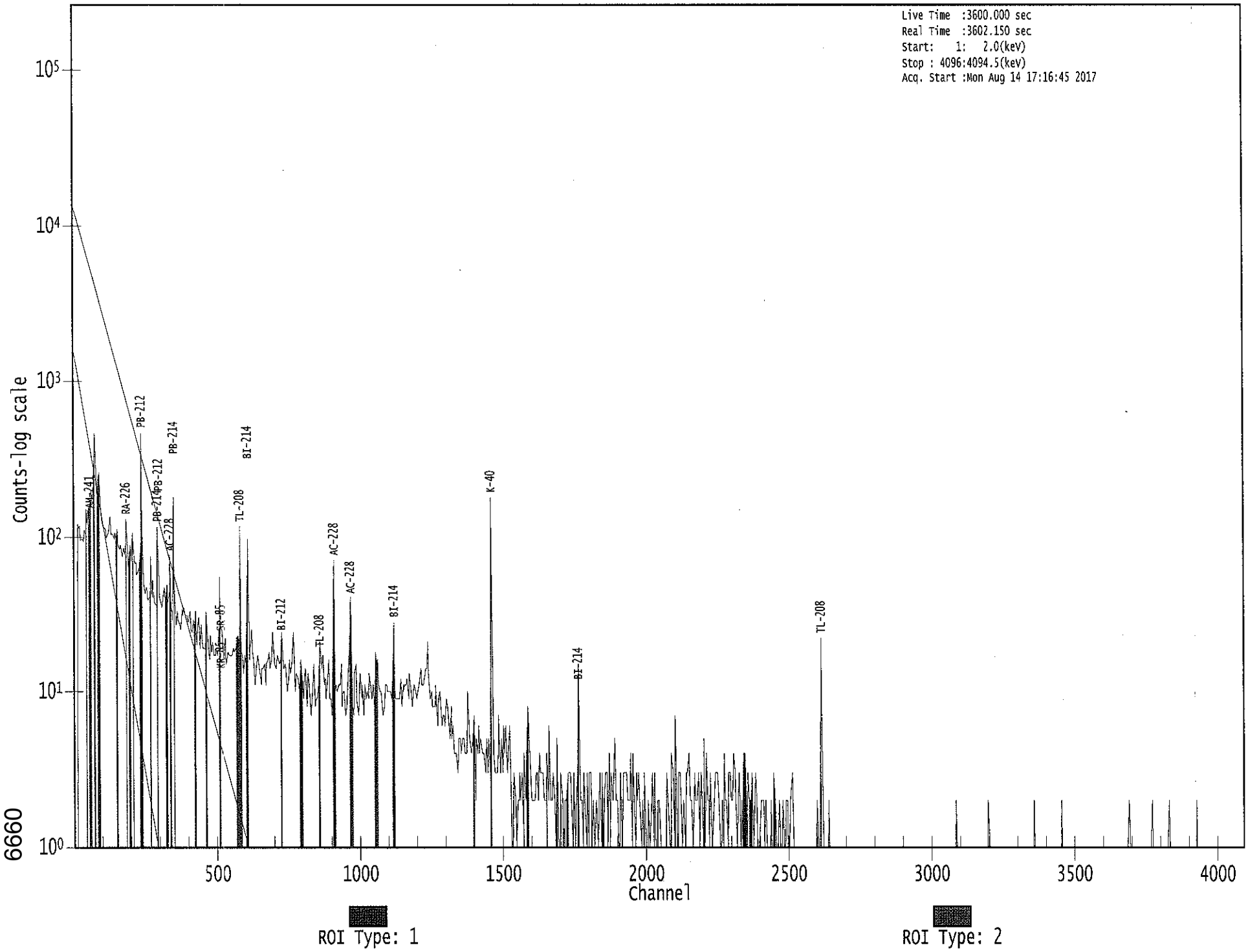
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	0	0	0	0	0
3417:	0	0	0	0	1	0	0	0
3425:	0	0	0	1	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	2	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	1	0	1	0
3473:	0	0	0	0	0	1	0	0
3481:	0	0	0	1	0	0	0	0
3489:	0	0	0	0	0	0	1	0
3497:	0	0	1	0	0	0	0	0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

3825:	0	1	0	0	0	0	2	0

Sample Title: HTC-A01-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	1
3857:	0	0	1	0	0	0	1	0
3865:	0	0	0	0	0	0	1	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	0	0	0
3905:	1	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	0	0	2	0
3929:	0	0	0	0	0	0	1	0
3937:	1	0	0	0	0	0	0	0
3945:	1	0	0	0	0	0	0	0
3953:	0	0	0	0	0	0	0	0
3961:	0	0	0	0	1	0	0	0
3969:	0	0	1	1	0	0	0	0
3977:	0	0	1	0	0	0	1	0
3985:	0	0	0	0	1	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	1	0	0	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	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	1	0	0	0	0	1	1
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

0000055209.CNF



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Apex-Gamma

8/15

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-17
Sample Description	: HTC-A01-S004-3036-01
Sample Type	: SOIL
Sample Size	: 5.531E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:34:33AM
Acquisition Started	: 8/14/2017 6:18:11PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3609.4 seconds
Dead Time	: 0.26 %
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	: 55215

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 7:18:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	75.31	75.61	0.0000	0.00
2	77.57	77.88	0.0000	0.00
3	84.85	85.15	0.0000	0.00
4	87.85	88.15	0.0000	0.00
5	93.45	93.75	0.0000	0.00
6	130.19	130.48	0.0000	0.00
7	145.08	145.36	0.0000	0.00
8	162.83	163.11	0.0000	0.00
9	170.22	170.50	0.0000	0.00
10	186.26	186.53	0.0000	0.00
11	209.72	209.98	0.0000	0.00
12	239.05	239.30	0.0000	0.00
13	242.06	242.31	0.0000	0.00
14	270.46	270.70	0.0000	0.00
15	295.52	295.75	0.0000	0.00
16	300.91	301.14	0.0000	0.00
17	328.51	328.73	0.0000	0.00
18	338.77	338.98	0.0000	0.00
19	352.22	352.43	0.0000	0.00
20	463.14	463.31	0.0000	0.00
21	467.79	467.96	0.0000	0.00
22	511.35	511.51	0.0000	0.00
23	583.49	583.62	0.0000	0.00
24	609.74	609.86	0.0000	0.00
25	727.71	727.79	0.0000	0.00
26	795.58	795.64	0.0000	0.00
27	860.92	860.95	0.0000	0.00
28	911.72	911.74	0.0000	0.00
29	935.13	935.15	0.0000	0.00
30	965.00	965.00	0.0000	0.00
31	968.93	968.93	0.0000	0.00
32	1120.37	1120.32	0.0000	0.00
33	1238.44	1238.35	0.0000	0.00
34	1281.55	1281.45	0.0000	0.00
35	1334.62	1334.49	0.0000	0.00
36	1378.19	1378.05	0.0000	0.00
37	1408.78	1408.63	0.0000	0.00
38	1438.79	1438.64	0.0000	0.00
39	1460.65	1460.48	0.0000	0.00
40	1591.75	1591.54	0.0000	0.00
41	1729.60	1729.34	0.0000	0.00
42	1754.01	1753.75	0.0000	0.00

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1764.35	1764.08	0.0000	0.00
44	1794.00	1793.72	0.0000	0.00
45	1810.62	1810.33	0.0000	0.00
46	1821.45	1821.17	0.0000	0.00
47	1846.44	1846.14	0.0000	0.00
48	1865.66	1865.36	0.0000	0.00
49	1953.21	1952.87	0.0000	0.00
50	2011.95	2011.60	0.0000	0.00
51	2101.96	2101.58	0.0000	0.00
52	2165.15	2164.75	0.0000	0.00
53	2203.45	2203.03	0.0000	0.00
54	2272.48	2272.04	0.0000	0.00
55	2411.95	2411.46	0.0000	0.00
56	2614.28	2613.73	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 7:18:23PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	1	75.31	71 -	82	75.61	6.15E+02	136.65	2.37E+03	2.21
m	2	77.57	71 -	82	77.88	9.63E+02	136.66	2.15E+03	2.22
M	3	84.85	83 -	91	85.15	1.41E+02	89.21	1.54E+03	1.68
m	4	87.85	83 -	91	88.15	2.27E+02	92.71	1.72E+03	1.68
	5	93.45	91 -	97	93.75	2.77E+02	111.17	1.93E+03	2.10
	6	130.19	126 -	134	130.48	1.62E+02	102.71	1.52E+03	4.25
	7	145.08	142 -	148	145.36	8.25E+01	82.12	1.17E+03	4.40
	8	162.83	161 -	166	163.11	6.09E+01	67.18	8.52E+02	2.71
	9	170.22	167 -	173	170.50	6.90E+01	75.14	9.76E+02	3.29
	10	186.26	183 -	190	186.53	2.16E+02	83.64	1.03E+03	1.95
	11	209.72	205 -	214	209.98	1.66E+02	96.76	1.22E+03	2.31
M	12	239.05	234 -	250	239.30	1.20E+03	88.81	6.17E+02	2.08
m	13	242.06	234 -	250	242.31	2.40E+02	100.62	7.10E+02	2.74
	14	270.46	266 -	274	270.70	1.26E+02	67.99	6.33E+02	2.65
	15	295.52	292 -	299	295.75	2.37E+02	68.93	6.38E+02	2.07
	16	300.91	299 -	304	301.14	5.61E+01	47.55	4.02E+02	1.87
	17	328.51	326 -	332	328.73	5.49E+01	50.82	4.34E+02	1.80
	18	338.77	335 -	343	338.98	2.03E+02	65.77	5.42E+02	2.15
	19	352.22	348 -	357	352.43	4.86E+02	73.84	5.04E+02	2.04
M	20	463.14	459 -	470	463.31	8.77E+01	43.27	2.58E+02	2.74
m	21	467.79	459 -	470	467.96	2.16E+01	27.19	1.32E+02	2.20
	22	511.35	507 -	518	511.51	1.60E+02	59.09	3.45E+02	3.10
	23	583.49	579 -	590	583.62	3.10E+02	61.12	3.12E+02	2.41
	24	609.74	604 -	615	609.86	3.25E+02	62.00	3.18E+02	2.32
	25	727.71	723 -	732	727.79	7.54E+01	42.07	2.09E+02	2.73
	26	795.58	793 -	800	795.64	3.34E+01	33.23	1.65E+02	1.46
	27	860.92	856 -	865	860.95	4.79E+01	32.06	1.18E+02	3.52
	28	911.72	906 -	923	911.74	2.13E+02	60.20	2.52E+02	2.41
	29	935.13	933 -	939	935.15	1.97E+01	22.48	7.85E+01	2.90
M	30	965.00	962 -	978	965.00	3.27E+01	21.30	9.81E+01	2.35
m	31	968.93	962 -	978	968.93	1.16E+02	33.70	1.10E+02	2.35
	32	1120.37	1116 -	1125	1120.32	6.90E+01	38.29	1.70E+02	1.75
	33	1238.44	1235 -	1244	1238.35	4.51E+01	35.48	1.52E+02	5.50
	34	1281.55	1278 -	1284	1281.45	2.19E+01	20.30	5.81E+01	2.33
	35	1334.62	1327 -	1340	1334.49	2.85E+01	30.41	8.69E+01	6.04
	36	1378.19	1371 -	1384	1378.05	3.83E+01	27.89	6.75E+01	5.65
	37	1408.78	1404 -	1414	1408.63	2.55E+01	16.03	1.69E+01	8.22
	38	1438.79	1436 -	1441	1438.64	9.00E+00	9.80	1.20E+01	2.75
	39	1460.65	1454 -	1466	1460.48	7.43E+02	59.38	6.50E+01	2.58
	40	1591.75	1587 -	1595	1591.54	2.03E+01	19.14	4.14E+01	3.18

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1729.60	1725 -	1735	1729.34	1.43E+01	15.00	2.34E+01	2.41
42	1754.01	1751 -	1756	1753.75	5.00E+00	7.07	6.00E+00	2.25
43	1764.35	1759 -	1768	1764.08	6.20E+01	17.83	1.00E+01	2.82
44	1794.00	1790 -	1797	1793.72	1.22E+01	8.49	3.57E+00	1.39
45	1810.62	1808 -	1813	1810.33	5.00E+00	7.07	6.00E+00	1.45
46	1821.45	1819 -	1823	1821.17	5.50E+00	6.67	5.00E+00	1.89
47	1846.44	1841 -	1849	1846.14	1.25E+01	11.69	1.31E+01	1.26
48	1865.66	1861 -	1870	1865.36	1.33E+01	9.43	5.44E+00	1.36
49	1953.21	1949 -	1956	1952.87	8.00E+00	7.48	4.00E+00	3.88
50	2011.95	2007 -	2014	2011.60	6.00E+00	8.49	8.00E+00	1.75
51	2101.96	2097 -	2105	2101.58	1.90E+01	8.72	0.00E+00	3.07
52	2165.15	2160 -	2168	2164.75	8.00E+00	10.81	1.20E+01	6.68
53	2203.45	2200 -	2208	2203.03	1.17E+01	11.69	1.46E+01	1.40
54	2272.48	2265 -	2278	2272.04	1.96E+01	11.87	6.74E+00	8.02
55	2411.95	2408 -	2414	2411.46	8.35E+00	7.23	3.30E+00	3.63
56	2614.28	2608 -	2618	2613.73	9.84E+01	21.83	1.13E+01	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 : 8/14/2017 7:18:23PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	1	75.31	71 -	82	6.15E+02	136.65	2.37E+03	8.01E+01
m	2	77.57	71 -	82	9.63E+02	136.66	2.15E+03	7.63E+01
M	3	84.85	83 -	91	1.41E+02	89.21	1.54E+03	6.45E+01
m	4	87.85	83 -	91	2.27E+02	92.71	1.72E+03	6.81E+01
	5	93.45	91 -	97	2.77E+02	111.17	1.93E+03	8.72E+01
	6	130.19	126 -	134	1.62E+02	102.71	1.52E+03	8.18E+01
	7	145.08	142 -	148	8.25E+01	82.12	1.17E+03	6.58E+01
	8	162.83	161 -	166	6.09E+01	67.18	8.52E+02	5.37E+01
	9	170.22	167 -	173	6.90E+01	75.14	9.76E+02	6.02E+01
	10	186.26	183 -	190	2.16E+02	83.64	1.03E+03	6.44E+01
	11	209.72	205 -	214	1.66E+02	96.76	1.22E+03	7.67E+01
M	12	239.05	234 -	250	1.20E+03	88.81	6.17E+02	4.08E+01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	13	242.06	234 -	250	2.40E+02	100.62	7.10E+02	4.38E+01
	14	270.46	266 -	274	1.26E+02	67.99	6.33E+02	5.28E+01
	15	295.52	292 -	299	2.37E+02	68.93	6.38E+02	5.07E+01
	16	300.91	299 -	304	5.61E+01	47.55	4.02E+02	3.71E+01
	17	328.51	326 -	332	5.49E+01	50.82	4.34E+02	4.00E+01
	18	338.77	335 -	343	2.03E+02	65.77	5.42E+02	4.87E+01
	19	352.22	348 -	357	4.86E+02	73.84	5.04E+02	4.87E+01
M	20	463.14	459 -	470	8.77E+01	43.27	2.58E+02	2.64E+01
m	21	467.79	459 -	470	2.16E+01	27.19	1.32E+02	1.89E+01
	22	511.35	507 -	518	1.60E+02	59.09	3.45E+02	4.39E+01
	23	583.49	579 -	590	3.10E+02	61.12	3.12E+02	4.11E+01
	24	609.74	604 -	615	3.25E+02	62.00	3.18E+02	4.15E+01
	25	727.71	723 -	732	7.54E+01	42.07	2.09E+02	3.15E+01
	26	795.58	793 -	800	3.34E+01	33.23	1.65E+02	2.56E+01
	27	860.92	856 -	865	4.79E+01	32.06	1.18E+02	2.38E+01
	28	911.72	906 -	923	2.13E+02	60.20	2.52E+02	1.63E+01
	29	935.13	933 -	939	1.97E+01	22.48	7.85E+01	1.70E+01
M	30	965.00	962 -	978	3.27E+01	21.30	9.81E+01	1.63E+01
m	31	968.93	962 -	978	1.16E+02	33.70	1.10E+02	1.72E+01
	32	1120.37	1116 -	1125	6.90E+01	38.29	1.70E+02	2.84E+01
	33	1238.44	1235 -	1244	4.51E+01	35.48	1.52E+02	2.70E+01
	34	1281.55	1278 -	1284	2.19E+01	20.30	5.81E+01	1.48E+01
	35	1334.62	1327 -	1340	2.85E+01	30.41	8.69E+01	1.04E+01
	36	1378.19	1371 -	1384	3.83E+01	27.89	6.75E+01	2.06E+01
	37	1408.78	1404 -	1414	2.55E+01	16.03	1.69E+01	1.02E+01
	38	1438.79	1436 -	1441	9.00E+00	9.80	1.20E+01	6.37E+00
	39	1460.65	1454 -	1466	7.43E+02	59.38	6.50E+01	1.93E+01
	40	1591.75	1587 -	1595	2.03E+01	19.14	4.14E+01	1.39E+01
	41	1729.60	1725 -	1735	1.43E+01	15.00	2.34E+01	1.06E+01
	42	1754.01	1751 -	1756	5.00E+00	7.07	6.00E+00	4.50E+00
	43	1764.35	1759 -	1768	6.20E+01	17.83	1.00E+01	6.88E+00
	44	1794.00	1790 -	1797	1.22E+01	8.49	3.57E+00	3.95E+00
	45	1810.62	1808 -	1813	5.00E+00	7.07	6.00E+00	4.50E+00
	46	1821.45	1819 -	1823	5.50E+00	6.67	5.00E+00	3.90E+00
	47	1846.44	1841 -	1849	1.25E+01	11.69	1.31E+01	7.66E+00
	48	1865.66	1861 -	1870	1.33E+01	9.43	5.44E+00	4.92E+00
	49	1953.21	1949 -	1956	8.00E+00	7.48	4.00E+00	4.03E+00
	50	2011.95	2007 -	2014	6.00E+00	8.49	8.00E+00	5.70E+00
	51	2101.96	2097 -	2105	1.90E+01	8.72	0.00E+00	0.00E+00
	52	2165.15	2160 -	2168	8.00E+00	10.81	1.20E+01	7.57E+00
	53	2203.45	2200 -	2208	1.17E+01	11.69	1.46E+01	7.79E+00
	54	2272.48	2265 -	2278	1.96E+01	11.87	6.74E+00	6.50E+00
	55	2411.95	2408 -	2414	8.35E+00	7.23	3.30E+00	3.57E+00
	56	2614.28	2608 -	2618	9.84E+01	21.83	1.13E+01	7.49E+00

Analysis Report for 1707078-17

HTC-A01-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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 7:18:23PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	1	75.31	71 -	82	75.61	6.15E+02	136.65	2.37E+03	AM-243
m	2	77.57	71 -	82	77.88	9.63E+02	136.66	2.15E+03	TI-44
M	3	84.85	83 -	91	85.15	1.41E+02	89.21	1.54E+03	TH-231
m	4	87.85	83 -	91	88.15	2.27E+02	92.71	1.72E+03	CD-109
									SN-126
									LU-176
	5	93.45	91 -	97	93.75	2.77E+02	111.17	1.93E+03	GA-67
	6	130.19	126 -	134	130.48	1.62E+02	102.71	1.52E+03	.....
	7	145.08	142 -	148	145.36	8.25E+01	82.12	1.17E+03	CE-141
	8	162.83	161 -	166	163.11	6.09E+01	67.18	8.52E+02	BA-140
									U-235
	9	170.22	167 -	173	170.50	6.90E+01	75.14	9.76E+02	.....
	10	186.26	183 -	190	186.53	2.16E+02	83.64	1.03E+03	RA-226
	11	209.72	205 -	214	209.98	1.66E+02	96.76	1.22E+03	CM-243
									GA-67
M	12	239.05	234 -	250	239.30	1.20E+03	88.81	6.17E+02	PB-212
m	13	242.06	234 -	250	242.31	2.40E+02	100.62	7.10E+02	.....
	14	270.46	266 -	274	270.70	1.26E+02	67.99	6.33E+02	.....
	15	295.52	292 -	299	295.75	2.37E+02	68.93	6.38E+02	PB-214
	16	300.91	299 -	304	301.14	5.61E+01	47.55	4.02E+02	GA-67
									PB-212
									BI-210M
	17	328.51	326 -	332	328.73	5.49E+01	50.82	4.34E+02	LA-140
	18	338.77	335 -	343	338.98	2.03E+02	65.77	5.42E+02	AC-228
	19	352.22	348 -	357	352.43	4.86E+02	73.84	5.04E+02	PB-214
M	20	463.14	459 -	470	463.31	8.77E+01	43.27	2.58E+02	SB-125
m	21	467.79	459 -	470	467.96	2.16E+01	27.19	1.32E+02	IR-192
	22	511.35	507 -	518	511.51	1.60E+02	59.09	3.45E+02	.....
	23	583.49	579 -	590	583.62	3.10E+02	61.12	3.12E+02	TL-208
	24	609.74	604 -	615	609.86	3.25E+02	62.00	3.18E+02	BI-214

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	25	727.71	723 -	732	727.79	7.54E+01	42.07	2.09E+02	BI-212
	26	795.58	793 -	800	795.64	3.34E+01	33.23	1.65E+02	CS-134
	27	860.92	856 -	865	860.95	4.79E+01	32.06	1.18E+02	TL-208
	28	911.72	906 -	923	911.74	2.13E+02	60.20	2.52E+02	TL-204
									AC-228
	29	935.13	933 -	939	935.15	1.97E+01	22.48	7.85E+01	.....
M	30	965.00	962 -	978	965.00	3.27E+01	21.30	9.81E+01	EU-152
m	31	968.93	962 -	978	968.93	1.16E+02	33.70	1.10E+02	AC-228
	32	1120.37	1116 -	1125	1120.32	6.90E+01	38.29	1.70E+02	BI-214
									SC-46
									TA-182
	33	1238.44	1235 -	1244	1238.35	4.51E+01	35.48	1.52E+02	CO-56
	34	1281.55	1278 -	1284	1281.45	2.19E+01	20.30	5.81E+01	.....
	35	1334.62	1327 -	1340	1334.49	2.85E+01	30.41	8.69E+01	.....
	36	1378.19	1371 -	1384	1378.05	3.83E+01	27.89	6.75E+01	.....
	37	1408.78	1404 -	1414	1408.63	2.55E+01	16.03	1.69E+01	EU-152
	38	1438.79	1436 -	1441	1438.64	9.00E+00	9.80	1.20E+01	.....
	39	1460.65	1454 -	1466	1460.48	7.43E+02	59.38	6.50E+01	K-40
	40	1591.75	1587 -	1595	1591.54	2.03E+01	19.14	4.14E+01	.....
	41	1729.60	1725 -	1735	1729.34	1.43E+01	15.00	2.34E+01	.....
	42	1754.01	1751 -	1756	1753.75	5.00E+00	7.07	6.00E+00	.....
	43	1764.35	1759 -	1768	1764.08	6.20E+01	17.83	1.00E+01	BI-214
	44	1794.00	1790 -	1797	1793.72	1.22E+01	8.49	3.57E+00	.....
	45	1810.62	1808 -	1813	1810.33	5.00E+00	7.07	6.00E+00	.....
	46	1821.45	1819 -	1823	1821.17	5.50E+00	6.67	5.00E+00	.....
	47	1846.44	1841 -	1849	1846.14	1.25E+01	11.69	1.31E+01	.....
	48	1865.66	1861 -	1870	1865.36	1.33E+01	9.43	5.44E+00	.....
	49	1953.21	1949 -	1956	1952.87	8.00E+00	7.48	4.00E+00	.....
	50	2011.95	2007 -	2014	2011.60	6.00E+00	8.49	8.00E+00	.....
	51	2101.96	2097 -	2105	2101.58	1.90E+01	8.72	0.00E+00	.....
	52	2165.15	2160 -	2168	2164.75	8.00E+00	10.81	1.20E+01	.....
	53	2203.45	2200 -	2208	2203.03	1.17E+01	11.69	1.46E+01	BI-214
	54	2272.48	2265 -	2278	2272.04	1.96E+01	11.87	6.74E+00	.....
	55	2411.95	2408 -	2414	2411.46	8.35E+00	7.23	3.30E+00	.....
	56	2614.28	2608 -	2618	2613.73	9.84E+01	21.83	1.13E+01	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 7:18:23PM

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	1	75.31	6.15E+02	136.65	2.66E-02	2.02E-03
m	2	77.57	9.63E+02	136.66	2.68E-02	2.06E-03
M	3	84.85	1.41E+02	89.21	2.71E-02	2.20E-03
m	4	87.85	2.27E+02	92.71	2.72E-02	2.26E-03
	5	93.45	2.77E+02	111.17	2.71E-02	2.24E-03
	6	130.19	1.62E+02	102.71	2.45E-02	2.03E-03
	7	145.08	8.25E+01	82.12	2.31E-02	1.86E-03
	8	162.83	6.09E+01	67.18	2.15E-02	1.66E-03
	9	170.22	6.90E+01	75.14	2.09E-02	1.61E-03
	10	186.26	2.16E+02	83.64	1.96E-02	1.55E-03
	11	209.72	1.66E+02	96.76	1.79E-02	1.45E-03
M	12	239.05	1.20E+03	88.81	1.61E-02	1.34E-03
m	13	242.06	2.40E+02	100.62	1.59E-02	1.33E-03
	14	270.46	1.26E+02	67.99	1.45E-02	1.21E-03
	15	295.52	2.37E+02	68.93	1.35E-02	1.15E-03
	16	300.91	5.61E+01	47.55	1.32E-02	1.14E-03
	17	328.51	5.49E+01	50.82	1.23E-02	1.08E-03
	18	338.77	2.03E+02	65.77	1.19E-02	1.06E-03
	19	352.22	4.86E+02	73.84	1.15E-02	1.03E-03
M	20	463.14	8.77E+01	43.27	9.02E-03	8.58E-04
m	21	467.79	2.16E+01	27.19	8.94E-03	8.52E-04
	22	511.35	1.60E+02	59.09	8.25E-03	7.94E-04
	23	583.49	3.10E+02	61.12	7.32E-03	6.98E-04
	24	609.74	3.25E+02	62.00	7.04E-03	6.63E-04
	25	727.71	7.54E+01	42.07	6.00E-03	5.36E-04
	26	795.58	3.34E+01	33.23	5.55E-03	4.76E-04
	27	860.92	4.79E+01	32.06	5.17E-03	4.19E-04
	28	911.72	2.13E+02	60.20	4.92E-03	3.84E-04
	29	935.13	1.97E+01	22.48	4.81E-03	3.80E-04
M	30	965.00	3.27E+01	21.30	4.68E-03	3.75E-04
m	31	968.93	1.16E+02	33.70	4.66E-03	3.74E-04
	32	1120.37	6.90E+01	38.29	4.12E-03	3.50E-04
	33	1238.44	4.51E+01	35.48	3.78E-03	3.22E-04
	34	1281.55	2.19E+01	20.30	3.68E-03	3.10E-04
	35	1334.62	2.85E+01	30.41	3.56E-03	2.95E-04
	36	1378.19	3.83E+01	27.89	3.47E-03	2.88E-04
	37	1408.78	2.55E+01	16.03	3.41E-03	2.83E-04
	38	1438.79	9.00E+00	9.80	3.35E-03	2.79E-04
	39	1460.65	7.43E+02	59.38	3.31E-03	2.75E-04
	40	1591.75	2.03E+01	19.14	3.09E-03	2.54E-04
	41	1729.60	1.43E+01	15.00	2.91E-03	2.32E-04
	42	1754.01	5.00E+00	7.07	2.88E-03	2.28E-04
	43	1764.35	6.20E+01	17.83	2.87E-03	2.26E-04
	44	1794.00	1.22E+01	8.49	2.83E-03	2.22E-04
	45	1810.62	5.00E+00	7.07	2.81E-03	2.19E-04
	46	1821.45	5.50E+00	6.67	2.80E-03	2.17E-04
	47	1846.44	1.25E+01	11.69	2.77E-03	2.15E-04
	48	1865.66	1.33E+01	9.43	2.75E-03	2.15E-04
	49	1953.21	8.00E+00	7.48	2.67E-03	2.15E-04
	50	2011.95	6.00E+00	8.49	2.61E-03	2.15E-04
	51	2101.96	1.90E+01	8.72	2.54E-03	2.15E-04
	52	2165.15	8.00E+00	10.81	2.49E-03	2.15E-04
	53	2203.45	1.17E+01	11.69	2.46E-03	2.15E-04

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2272.48	1.96E+01	11.87	2.42E-03	2.15E-04
55	2411.95	8.35E+00	7.23	2.34E-03	2.15E-04
56	2614.28	9.84E+01	21.83	2.24E-03	2.15E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 7:18:23PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	1	75.31	6.15E+02	136.65	1.67E+01	8.84E+00	5.98E+02	1.37E+02
m	2	77.57	9.63E+02	136.66			9.63E+02	1.37E+02
M	3	84.85	1.41E+02	89.21	9.54E+00	8.76E+00	1.32E+02	8.96E+01
m	4	87.85	2.27E+02	92.71			2.27E+02	9.27E+01
	5	93.45	2.77E+02	111.17	6.90E+01	7.61E+00	2.08E+02	1.11E+02
	6	130.19	1.62E+02	102.71			1.62E+02	1.03E+02
	7	145.08	8.25E+01	82.12			8.25E+01	8.21E+01
	8	162.83	6.09E+01	67.18			6.09E+01	6.72E+01
	9	170.22	6.90E+01	75.14			6.90E+01	7.51E+01
	10	186.26	2.16E+02	83.64	2.99E+01	5.81E+00	1.86E+02	8.38E+01
	11	209.72	1.66E+02	96.76			1.66E+02	9.68E+01
M	12	239.05	1.20E+03	88.81	9.49E+00	5.63E+00	1.19E+03	8.90E+01
m	13	242.06	2.40E+02	100.62			2.40E+02	1.01E+02
	14	270.46	1.26E+02	67.99			1.26E+02	6.80E+01
	15	295.52	2.37E+02	68.93			2.37E+02	6.89E+01
	16	300.91	5.61E+01	47.55			5.61E+01	4.75E+01
	17	328.51	5.49E+01	50.82			5.49E+01	5.08E+01
	18	338.77	2.03E+02	65.77	4.73E+00	4.47E+00	1.98E+02	6.59E+01
	19	352.22	4.86E+02	73.84			4.86E+02	7.38E+01
M	20	463.14	8.77E+01	43.27			8.77E+01	4.33E+01
m	21	467.79	2.16E+01	27.19			2.16E+01	2.72E+01
	22	511.35	1.60E+02	59.09	5.37E+01	4.54E+00	1.07E+02	5.93E+01
	23	583.49	3.10E+02	61.12			3.10E+02	6.11E+01
	24	609.74	3.25E+02	62.00	4.09E+00	3.07E+00	3.21E+02	6.21E+01
	25	727.71	7.54E+01	42.07			7.54E+01	4.21E+01
	26	795.58	3.34E+01	33.23			3.34E+01	3.32E+01
	27	860.92	4.79E+01	32.06			4.79E+01	3.21E+01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	28	911.72	2.13E+02	60.20			2.13E+02	6.02E+01
	29	935.13	1.97E+01	22.48			1.97E+01	2.25E+01
M	30	965.00	3.27E+01	21.30			3.27E+01	2.13E+01
m	31	968.93	1.16E+02	33.70			1.16E+02	3.37E+01
	32	1120.37	6.90E+01	38.29			6.90E+01	3.83E+01
	33	1238.44	4.51E+01	35.48			4.51E+01	3.55E+01
	34	1281.55	2.19E+01	20.30			2.19E+01	2.03E+01
	35	1334.62	2.85E+01	30.41	3.65E+00	2.18E+00	2.49E+01	3.05E+01
	36	1378.19	3.83E+01	27.89			3.83E+01	2.79E+01
	37	1408.78	2.55E+01	16.03			2.55E+01	1.60E+01
	38	1438.79	9.00E+00	9.80			9.00E+00	9.80E+00
	39	1460.65	7.43E+02	59.38			7.43E+02	5.94E+01
	40	1591.75	2.03E+01	19.14			2.03E+01	1.91E+01
	41	1729.60	1.43E+01	15.00			1.43E+01	1.50E+01
	42	1754.01	5.00E+00	7.07			5.00E+00	7.07E+00
	43	1764.35	6.20E+01	17.83			6.20E+01	1.78E+01
	44	1794.00	1.22E+01	8.49			1.22E+01	8.49E+00
	45	1810.62	5.00E+00	7.07			5.00E+00	7.07E+00
	46	1821.45	5.50E+00	6.67			5.50E+00	6.67E+00
	47	1846.44	1.25E+01	11.69			1.25E+01	1.17E+01
	48	1865.66	1.33E+01	9.43			1.33E+01	9.43E+00
	49	1953.21	8.00E+00	7.48			8.00E+00	7.48E+00
	50	2011.95	6.00E+00	8.49			6.00E+00	8.49E+00
	51	2101.96	1.90E+01	8.72			1.90E+01	8.72E+00
	52	2165.15	8.00E+00	10.81			8.00E+00	1.08E+01
	53	2203.45	1.17E+01	11.69			1.17E+01	1.17E+01
	54	2272.48	1.96E+01	11.87			1.96E+01	1.19E+01
	55	2411.95	8.35E+00	7.23			8.35E+00	7.23E+00
	56	2614.28	9.84E+01	21.83			9.84E+01	2.18E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/14/2017 7:18:23PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
M	1	75.31	6.15E+02	136.65	1.67E+01	8.84E+00	5.98E+02	1.37E+02
m	2	77.57	9.63E+02	136.66			9.63E+02	1.37E+02
M	3	84.85	1.41E+02	89.21	9.54E+00	8.76E+00	1.32E+02	8.96E+01
m	4	87.85	2.27E+02	92.71			2.27E+02	9.27E+01
	5	93.45	2.77E+02	111.17	6.90E+01	7.61E+00	2.08E+02	1.11E+02
	6	130.19	1.62E+02	102.71			1.62E+02	1.03E+02
	7	145.08	8.25E+01	82.12			8.25E+01	8.21E+01
	8	162.83	6.09E+01	67.18			6.09E+01	6.72E+01
	9	170.22	6.90E+01	75.14			6.90E+01	7.51E+01
	10	186.26	2.16E+02	83.64	2.99E+01	5.81E+00	1.86E+02	8.38E+01
	11	209.72	1.66E+02	96.76			1.66E+02	9.68E+01
M	12	239.05	1.20E+03	88.81	9.49E+00	5.63E+00	1.19E+03	8.90E+01
m	13	242.06	2.40E+02	100.62			2.40E+02	1.01E+02
	14	270.46	1.26E+02	67.99			1.26E+02	6.80E+01
	15	295.52	2.37E+02	68.93			2.37E+02	6.89E+01
	16	300.91	5.61E+01	47.55			5.61E+01	4.75E+01
	17	328.51	5.49E+01	50.82			5.49E+01	5.08E+01
	18	338.77	2.03E+02	65.77	4.73E+00	4.47E+00	1.98E+02	6.59E+01
	19	352.22	4.86E+02	73.84			4.86E+02	7.38E+01
M	20	463.14	8.77E+01	43.27			8.77E+01	4.33E+01
m	21	467.79	2.16E+01	27.19			2.16E+01	2.72E+01
	22	511.35	1.60E+02	59.09	5.37E+01	4.54E+00	1.07E+02	5.93E+01
	23	583.49	3.10E+02	61.12			3.10E+02	6.11E+01
	24	609.74	3.25E+02	62.00	4.09E+00	3.07E+00	3.21E+02	6.21E+01
	25	727.71	7.54E+01	42.07			7.54E+01	4.21E+01
	26	795.58	3.34E+01	33.23			3.34E+01	3.32E+01
	27	860.92	4.79E+01	32.06			4.79E+01	3.21E+01
	28	911.72	2.13E+02	60.20			2.13E+02	6.02E+01
	29	935.13	1.97E+01	22.48			1.97E+01	2.25E+01
M	30	965.00	3.27E+01	21.30			3.27E+01	2.13E+01
m	31	968.93	1.16E+02	33.70			1.16E+02	3.37E+01
	32	1120.37	6.90E+01	38.29			6.90E+01	3.83E+01
	33	1238.44	4.51E+01	35.48			4.51E+01	3.55E+01
	34	1281.55	2.19E+01	20.30			2.19E+01	2.03E+01
	35	1334.62	2.85E+01	30.41	3.65E+00	2.18E+00	2.49E+01	3.05E+01
	36	1378.19	3.83E+01	27.89			3.83E+01	2.79E+01
	37	1408.78	2.55E+01	16.03			2.55E+01	1.60E+01
	38	1438.79	9.00E+00	9.80			9.00E+00	9.80E+00
	39	1460.65	7.43E+02	59.38			7.43E+02	5.94E+01
	40	1591.75	2.03E+01	19.14			2.03E+01	1.91E+01
	41	1729.60	1.43E+01	15.00			1.43E+01	1.50E+01
	42	1754.01	5.00E+00	7.07			5.00E+00	7.07E+00
	43	1764.35	6.20E+01	17.83			6.20E+01	1.78E+01
	44	1794.00	1.22E+01	8.49			1.22E+01	8.49E+00
	45	1810.62	5.00E+00	7.07			5.00E+00	7.07E+00
	46	1821.45	5.50E+00	6.67			5.50E+00	6.67E+00
	47	1846.44	1.25E+01	11.69			1.25E+01	1.17E+01
	48	1865.66	1.33E+01	9.43			1.33E+01	9.43E+00
	49	1953.21	8.00E+00	7.48			8.00E+00	7.48E+00
	50	2011.95	6.00E+00	8.49			6.00E+00	8.49E+00
	51	2101.96	1.90E+01	8.72			1.90E+01	8.72E+00
	52	2165.15	8.00E+00	10.81			8.00E+00	1.08E+01
	53	2203.45	1.17E+01	11.69			1.17E+01	1.17E+01
	54	2272.48	1.96E+01	11.87			1.96E+01	1.19E+01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2411.95	8.35E+00	7.23			8.35E+00	7.23E+00
56	2614.28	9.84E+01	21.83			9.84E+01	2.18E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.996	1460.81	*	10.67	2.86E+01	3.35E+00
CD-109	0.995	88.03	*	3.72	3.51E+00	1.48E+00
SN-126	0.987	87.57	*	37.00	3.07E-01	1.28E-01
CE-141	0.940	145.44	*	48.40	7.34E-01	8.26E-01
IR-192	0.307	308.46		29.68		
		468.07	*	48.10	1.63E-01	2.06E-01
TL-208	0.977	583.14	*	30.22	1.90E+00	4.16E-01
		860.37	*	4.48	2.80E+00	1.89E+00
		2614.66	*	35.85	1.66E+00	4.02E-01
BI-212	0.736	727.17	*	11.80	1.45E+00	8.16E-01
		1620.62		2.75		
PB-212	0.967	238.63	*	44.60	2.24E+00	2.51E-01
		300.09	*	3.41	1.69E+00	1.44E+00
BI-214	0.977	609.31	*	46.30	1.34E+00	2.88E-01
		1120.29	*	15.10	1.51E+00	8.46E-01
		1764.49	*	15.80	1.86E+00	5.55E-01
		2204.22	*	4.98	1.30E+00	1.30E+00
PB-214	0.986	295.21	*	19.19	1.25E+00	3.78E-01
		351.92	*	37.19	1.54E+00	2.71E-01
RA-226	1.000	186.21	*	3.28	3.93E+00	7.41E+00
AC-228	0.959	338.32	*	11.40	1.98E+00	6.81E-01
		911.07	*	27.70	2.12E+00	6.22E-01
		969.11	*	16.60	2.03E+00	6.13E-01
AM-243	0.937	74.67	*	66.00	4.64E-01	1.12E-01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 7:18:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.57	2.67423E-01	7.10		
M	3	84.85	3.65826E-02	34.03	Tol.	TH-231
	5	93.45	5.78423E-02	26.76		
	6	130.19	4.51056E-02	31.63		
	8	162.83	1.69199E-02	55.14	Sum	
	9	170.22	1.91567E-02	54.48		
	11	209.72	4.61918E-02	29.09	Tol.	CM-243
m	13	242.06	6.66879E-02	20.96		
	14	270.46	3.49277E-02	27.04		
	17	328.51	1.52369E-02	46.32	Tol.	LA-140
M	20	463.14	2.43629E-02	24.67	Tol.	SB-125
	22	511.35	2.96345E-02	27.78		
	26	795.58	9.29119E-03	49.67	Sum	
	29	935.13	5.48493E-03	56.93	Sum	
M	30	965.00	9.08014E-03	32.58	Tol.	EU-152
	33	1238.44	1.25379E-02	39.31		
	34	1281.55	6.09477E-03	46.27		
	35	1334.62	6.91630E-03	61.23		
	36	1378.19	1.06250E-02	36.46		
	37	1408.78	7.09150E-03	31.40	Tol.	EU-152
	38	1438.79	2.50000E-03	54.43		
	40	1591.75	5.63686E-03	47.17	D-Esc	
	41	1729.60	3.97436E-03	52.42	Sum	
	42	1754.01	1.38889E-03	70.71		
	44	1794.00	3.39286E-03	34.74		
	45	1810.62	1.38889E-03	70.71		
	46	1821.45	1.52778E-03	60.64		
	47	1846.44	3.46491E-03	46.87		
	48	1865.66	3.68924E-03	35.52		
	49	1953.21	2.22222E-03	46.77		
	50	2011.95	1.66667E-03	70.71		
	51	2101.96	5.27778E-03	22.94		

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	2165.15	2.22222E-03	67.53		
54	2272.48	5.45290E-03	30.24		
55	2411.95	2.31944E-03	43.28		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.86E+01	3.35E+00
CD-109	0.99	88.03	*	3.72	3.51E+00	1.48E+00
SN-126	0.98	87.57	*	37.00	3.07E-01	1.28E-01
CE-141	0.94	145.44	*	48.40	7.34E-01	8.26E-01
IR-192	0.30	308.46		29.68		
		468.07	*	48.10	1.63E-01	2.06E-01
TL-208	0.97	583.14	*	30.22	1.90E+00	4.16E-01
		860.37	*	4.48	2.80E+00	1.89E+00
		2614.66	*	35.85	1.66E+00	4.02E-01
BI-212	0.73	727.17	*	11.80	1.45E+00	8.16E-01
		1620.62		2.75		
PB-212	0.96	238.63	*	44.60	2.24E+00	2.51E-01
		300.09	*	3.41	1.69E+00	1.44E+00
BI-214	0.97	609.31	*	46.30	1.34E+00	2.88E-01
		1120.29	*	15.10	1.51E+00	8.46E-01
		1764.49	*	15.80	1.86E+00	5.55E-01
		2204.22	*	4.98	1.30E+00	1.30E+00
PB-214	0.98	295.21	*	19.19	1.25E+00	3.78E-01
		351.92	*	37.19	1.54E+00	2.71E-01
RA-226	1.00	186.21	*	3.28	3.93E+00	7.41E+00
AC-228	0.95	338.32	*	11.40	1.98E+00	6.81E-01
		911.07	*	27.70	2.12E+00	6.22E-01
		969.11	*	16.60	2.03E+00	6.13E-01
AM-243	0.93	74.67	*	66.00	4.64E-01	1.12E-01

Analysis Report for 1707078-17

HTC-A01-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	0.996	2.86E+01	3.35E+00	
?	CD-109	0.995	3.51E+00	1.48E+00	
?	SN-126	0.987	3.07E-01	1.28E-01	
	CE-141	0.940	7.34E-01	8.26E-01	
	IR-192	0.307	1.63E-01	2.06E-01	
	TL-208	0.977	1.80E+00	2.86E-01	
	BI-212	0.736	1.45E+00	8.16E-01	
	PB-212	0.967	2.23E+00	2.47E-01	
	BI-214	0.977	1.45E+00	2.40E-01	
	PB-214	0.986	1.44E+00	2.20E-01	
	RA-226	1.000	3.93E+00	7.41E+00	
	AC-228	0.959	2.05E+00	3.67E-01	
	AM-243	0.937	4.64E-01	1.12E-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 1707078-17

HTC-A01-S004-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 7:18:23PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	2	77.57	2.67423E-01	7.10		
M	3	84.85	3.65826E-02	34.03	Tol.	TH-231
	5	93.45	5.78423E-02	26.76		
	6	130.19	4.51056E-02	31.63		
	8	162.83	1.69199E-02	55.14	Sum	
	9	170.22	1.91567E-02	54.48		
	11	209.72	4.61918E-02	29.09	Tol.	CM-243
m	13	242.06	6.66879E-02	20.96		
	14	270.46	3.49277E-02	27.04		
	17	328.51	1.52369E-02	46.32	Tol.	LA-140
M	20	463.14	2.43629E-02	24.67	Tol.	SB-125
	22	511.35	2.96345E-02	27.78		
	26	795.58	9.29119E-03	49.67	Sum	
	29	935.13	5.48493E-03	56.93	Sum	
M	30	965.00	9.08014E-03	32.58	Tol.	EU-152
	33	1238.44	1.25379E-02	39.31		
	34	1281.55	6.09477E-03	46.27		
	35	1334.62	6.91630E-03	61.23		
	36	1378.19	1.06250E-02	36.46		
	37	1408.78	7.09150E-03	31.40	Tol.	EU-152
	38	1438.79	2.50000E-03	54.43		
	40	1591.75	5.63686E-03	47.17	D-Esc	
	41	1729.60	3.97436E-03	52.42	Sum	
	42	1754.01	1.38889E-03	70.71		
	44	1794.00	3.39286E-03	34.74		
	45	1810.62	1.38889E-03	70.71		
	46	1821.45	1.52778E-03	60.64		
	47	1846.44	3.46491E-03	46.87		
	48	1865.66	3.68924E-03	35.52		
	49	1953.21	2.22222E-03	46.77		
	50	2011.95	1.66667E-03	70.71		
	51	2101.96	5.27778E-03	22.94		
	52	2165.15	2.22222E-03	67.53		

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
54	2272.48	5.45290E-03	30.24		
55	2411.95	2.31944E-03	43.28		

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	-1.45E+00	2.78E+00	2.78E+00
+	NA-22	1274.54		99.94	3.13E-02	1.45E-01	1.45E-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	9.19E-03	9.42E-02	9.42E-02
+	K-40	1460.81	*	10.67	2.86E+01	1.59E+00	1.59E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-3.96E-03	8.39E-02	8.39E-02
		78.34		96.00	3.37E-01		1.05E-01
+	SC-46	889.25		99.98	-1.69E-02	2.35E-01	2.35E-01
		1120.51		99.99	4.11E-01		3.88E-01
+	V-48	983.52		99.98	-5.82E-01	5.87E+00	5.87E+00
		1312.10		97.50	-3.21E+00		6.07E+00
+	CR-51	320.08		9.83	-2.88E-01	7.96E+00	7.96E+00
+	MN-54	834.83		99.97	-4.20E-03	1.34E-01	1.34E-01
+	CO-56	846.75		99.96	7.89E-03	2.10E-01	2.10E-01
		1037.75		14.03	-3.94E-01		1.88E+00
		1238.25		67.00	4.13E-01		6.05E-01
		1771.40		15.51	6.39E-02		1.11E+00
		2598.48		16.90	1.63E-01		1.07E+00
+	CO-57	122.06		85.51	2.55E-02	8.55E-02	8.55E-02
		136.48		10.60	-9.62E-03		6.80E-01
+	CO-58	810.76		99.40	-6.56E-03	2.40E-01	2.40E-01
+	FE-59	1099.22		56.50	-4.79E-02	9.41E-01	9.41E-01
		1291.56		43.20	6.70E-01		1.33E+00
+	CO-60	1173.22		100.00	-1.82E-02	1.32E-01	1.38E-01
		1332.49		100.00	4.92E-02		1.32E-01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	ZN-65	1115.52		50.75	-3.74E-03	3.39E-01	3.39E-01
+	GA-67	93.31		35.70	1.54E+08	8.55E+07	8.55E+07
		208.95		2.24	2.26E+09		1.64E+09
		300.22		16.00	-4.12E+08		2.40E+08
+	SE-75	121.11		16.70	2.29E-01	1.63E-01	5.95E-01
		136.00		59.20	-3.43E-02		1.63E-01
		264.65		59.80	-1.21E-02		2.07E-01
		279.53		25.20	-3.78E-04		5.48E-01
		400.65		11.40	-3.75E-01		1.23E+00
+	RB-82	776.52		13.00	-1.92E+00	1.05E+01	1.05E+01
+	RB-83	520.41		46.00	-7.21E-03	3.86E-01	3.86E-01
		529.64		30.30	-1.55E-01		6.33E-01
		552.65		16.40	-3.71E-01		1.21E+00
+	KR-85	513.99		0.43	3.10E+01	2.74E+01	2.74E+01
+	SR-85	513.99		99.27	3.61E-01	3.20E-01	3.20E-01
+	Y-88	898.02		93.40	-1.55E-02	1.63E-01	2.20E-01
		1836.01		99.38	3.93E-02		1.63E-01
+	MO-93	263.06		56.72	1.83E-02	9.76E-02	1.29E-01
		684.67		99.68	1.88E-02		9.95E-02
		1477.11		99.08	3.88E-02		9.76E-02
+	NB-93M	16.57		9.43	-5.35E+01	8.20E+01	8.20E+01
+	NB-94	702.63		100.00	-2.96E-02	1.02E-01	1.02E-01
		871.10		100.00	8.17E-02		1.13E-01
+	NB-95	765.79		99.81	5.31E-01	7.73E-01	7.73E-01
+	NB-95M	235.69		25.00	4.13E+07	3.22E+07	3.22E+07
+	ZR-95	724.18		43.70	1.90E-01	5.56E-01	7.57E-01
		756.72		55.30	3.30E-01		5.56E-01
+	MO-99	181.06		6.20	1.18E+09	1.30E+10	1.59E+10
		739.58		12.80	5.44E+08		1.30E+10
		778.00		4.50	-1.59E+10		3.87E+10
+	RU-103	497.08		89.00	2.34E-01	5.19E-01	5.19E-01
+	RU-106	621.84		9.80	-2.15E-02	1.06E+00	1.06E+00
+	AG-108M	433.93		89.90	-8.85E-02	8.52E-02	8.52E-02
		614.37		90.40	-5.07E-03		1.36E-01
		722.95		90.50	4.60E-02		1.26E-01
+	CD-109	88.03	*	3.72	3.51E+00	3.33E+00	3.33E+00
+	AG-110M	657.75		93.14	4.74E-02	1.44E-01	1.44E-01
		677.61		10.53	-4.25E-01		1.15E+00
		706.67		16.46	1.28E-01		8.20E-01
		763.93		21.98	-5.51E-01		6.24E-01
		884.67		71.63	-7.19E-02		1.88E-01
		1384.27		23.94	8.39E-02		5.42E-01
+	CD-113M	263.70		0.02	-2.76E+01	3.13E+02	3.13E+02
+	SN-113	255.12		1.93	-6.42E-01	2.19E-01	6.73E+00
		391.69		64.90	3.17E-02		2.19E-01
+	TE123M	159.00		84.10	-4.36E-03	1.21E-01	1.21E-01
+	SB-124	602.71		97.87	-1.99E-02	2.81E-01	2.81E-01
		645.85		7.26	-1.19E+00		3.59E+00

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	722.78		11.10	1.10E+00	2.81E-01	3.00E+00
		1691.02		49.00	4.75E-02		5.35E-01
+	I-125	35.49		6.49	-6.90E+00	6.75E+00	6.75E+00
+	SB-125	176.33		6.89	-1.92E-01	3.19E-01	9.10E-01
		427.89		29.33	2.16E-01		3.19E-01
		463.38		10.35	1.10E+00		1.08E+00
		600.56		17.80	1.74E-01		5.72E-01
		635.90		11.32	1.02E-01		9.11E-01
+	SB-126	414.70		83.30	-8.31E+00	1.82E+01	1.82E+01
		666.33		99.60	7.18E+00		1.90E+01
		695.00		99.60	4.87E+00		2.03E+01
		720.50		53.80	6.48E+00		3.51E+01
+	SN-126	87.57	*	37.00	3.07E-01	2.91E-01	2.91E-01
+	SB-127	473.00		25.00	-1.44E+06	5.48E+06	6.57E+06
		685.20		35.70	1.03E+06		5.48E+06
		783.80		14.70	5.78E+06		1.54E+07
+	I-129	29.78		57.00	-1.87E-01	4.77E-01	4.77E-01
		33.60		13.20	1.85E-01		1.37E+00
		39.58		7.52	8.36E-01		1.62E+00
+	I-131	284.30		6.05	2.11E+03	3.00E+02	4.10E+03
		364.48		81.20	-2.30E+01		3.00E+02
		636.97		7.26	5.08E+02		4.19E+03
		722.89		1.80	7.24E+03		1.98E+04
+	TE-132	49.72		13.10	-1.96E+08	3.67E+07	2.76E+08
		228.16		88.00	-2.03E+07		3.67E+07
+	BA-133	81.00		33.00	-9.89E-01	1.92E-01	2.24E-01
		302.84		17.80	9.20E-03		4.78E-01
		356.01		60.00	-6.29E-03		1.92E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.94E+05	4.41E+04	4.41E+04
+	CS-134	563.23		8.38	3.07E-01	1.15E-01	1.20E+00
		569.32		15.43	-1.41E-01		6.36E-01
		604.70		97.60	2.14E-03		1.15E-01
		795.84		85.40	9.11E-02		1.56E-01
		801.93		8.73	5.29E-01		1.47E+00
+	CS-135	268.24		16.00	9.63E-02	5.11E-01	5.11E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	2.11E+01	1.39E+01	1.12E+02
		163.89		4.61	1.19E+02		1.83E+02
		176.55		13.56	-1.25E+01		5.94E+01
		273.65		12.66	-1.58E+01		9.03E+01
		340.57		48.50	5.82E+01		3.09E+01
		818.50		99.70	4.65E+00		1.39E+01
		1048.07		79.60	-6.10E+00		1.96E+01
		1235.34		19.70	2.36E+01		1.22E+02
+	CS-137	661.65		85.12	-9.10E-03	1.18E-01	1.18E-01
+	LA-138	788.74		34.00	-6.98E-02	1.38E-01	3.01E-01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		LA-138	1435.80		66.00	2.10E-02	1.38E-01	1.38E-01
+		CE-139	165.85		80.35	-9.10E-02	1.17E-01	1.17E-01
+		BA-140	162.64		6.70	7.28E+01	5.42E+01	1.45E+02
			304.84		4.50	-1.64E+01		2.68E+02
			423.70		3.20	-1.69E+02		3.97E+02
			437.55		2.00	3.00E+02		6.58E+02
			537.32		25.00	-1.66E+01		5.42E+01
+		LA-140	328.77		20.50	2.65E+01	2.05E+01	6.77E+01
			487.03		45.50	-1.11E+01		3.17E+01
			815.85		23.50	-3.00E+01		6.30E+01
			1596.49		95.49	-4.84E-01		2.05E+01
+		CE-141	145.44	*	48.40	7.34E-01	1.20E+00	1.20E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-1.73E-01	6.69E-01	6.69E-01
+		PM-144	476.78		42.00	-3.38E-02	1.11E-01	2.46E-01
			618.01		98.60	3.42E-02		1.11E-01
			696.49		99.49	2.89E-02		1.30E-01
+		PM-145	36.85		21.70	3.24E-01	3.52E-01	6.58E-01
			37.36		39.70	2.35E-02		3.52E-01
			42.30		15.10	-3.10E-01		7.20E-01
			72.40		2.31	-1.13E+01		3.81E+00
+		PM-146	453.90		39.94	-1.13E-02	2.14E-01	2.14E-01
			735.90		14.01	-1.41E-01		7.33E-01
			747.13		13.10	3.37E-01		8.63E-01
+		ND-147	91.11		28.90	-7.64E+01	9.55E+01	9.55E+01
			531.02		13.10	1.01E+02		2.57E+02
+		PM-149	285.90		3.10	4.28E+12	1.29E+13	1.29E+13
+		EU-152	121.78		20.50	8.47E-02	2.84E-01	2.84E-01
			244.69		5.40	-5.19E+00		1.70E+00
			344.27		19.13	-9.77E-02		4.28E-01
			778.89		9.20	-2.92E-01		1.17E+00
			964.01		10.40	-2.99E+00		1.32E+00
			1085.78		7.22	1.83E-01		1.76E+00
			1112.02		9.60	-1.38E-01		1.33E+00
			1407.95		14.94	1.34E-01		7.14E-01
+		GD-153	97.43		31.30	3.34E-02	2.33E-01	2.33E-01
			103.18		22.20	-3.74E-02		3.32E-01
+		EU-154	123.07		40.50	-2.84E-03	1.44E-01	1.44E-01
			723.30		19.70	2.15E-01		5.89E-01
			873.19		11.50	-2.10E-01		9.55E-01
			996.32		10.30	1.48E-01		1.08E+00
			1004.76		17.90	3.02E-01		6.73E-01
			1274.45		35.50	8.40E-02		3.89E-01
+		EU-155	86.50		30.90	3.85E-01	2.70E-01	2.70E-01
			105.30		20.70	-5.12E-02		2.82E-01
+		EU-156	811.77		10.40	1.44E+01	6.63E+01	6.63E+01
			1153.47		7.20	-4.23E+01		1.28E+02

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-156	1230.71		8.90	6.24E+00	6.63E+01	1.21E+02
+	HO-166M	184.41		72.60	1.17E-01	1.01E-01	1.01E-01
		280.45		29.60	1.16E-01		2.74E-01
		410.94		11.10	3.69E-01		7.95E-01
		711.69		54.10	-1.16E-01		1.72E-01
+	TM-171	66.72		0.14	-1.74E+01	6.29E+01	6.29E+01
+	HF-172	67.35		5.31	-7.75E-02	5.46E-01	1.64E+00
		125.81		11.30	-6.00E-02		5.46E-01
+	LU-172	181.53		20.60	2.62E+02	3.09E+03	4.60E+03
		900.72		29.81	2.31E+03		6.02E+03
		1093.66		62.50	-2.93E+02		3.09E+03
+	LU-173	100.72		5.24	4.07E-01	4.58E-01	1.23E+00
		272.11		21.20	2.56E-01		4.58E-01
+	HF-175	343.40		84.00	-5.53E-02	2.42E-01	2.42E-01
+	LU-176	88.34		13.30	5.31E-01	7.67E-02	5.99E-01
		201.83		86.00	-1.71E-03		7.67E-02
		306.78		94.00	-5.78E-03		7.92E-02
+	HF-181	133.02		41.70	2.39E-02	4.94E-01	6.53E-01
		345.85		17.20	-4.96E-01		2.12E+00
		482.03		82.80	-3.47E-01		4.94E-01
+	TA-182	67.75		41.20	-1.59E-02	3.38E-01	3.38E-01
		1121.30		34.90	1.03E+00		9.18E-01
		1189.05		16.23	2.40E-01		1.57E+00
		1221.41		26.98	-5.01E-01		9.30E-01
		1231.02		11.44	1.21E-01		2.35E+00
+	IR-192	308.46		29.68	9.97E-02	6.11E-01	6.11E-01
		468.07	*	48.10	1.63E-01		6.43E-01
+	HG-203	279.19		77.30	2.19E-01	4.22E-01	4.22E-01
+	TL-204	374.74		94.11	-6.08E-03	8.73E-02	8.73E-02
		899.15		99.16	1.46E-02		1.19E-01
		911.74		91.10	6.33E-01		2.43E-01
+	BI-207	569.67		97.72	-3.83E-02	9.19E-02	9.19E-02
		1063.62		74.90	3.59E-02		1.63E-01
+	TL-208	583.14	*	30.22	1.90E+00	2.99E-01	5.21E-01
		860.37	*	4.48	2.80E+00		2.95E+00
		2614.66	*	35.85	1.66E+00		2.99E-01
+	BI-210M	262.00		45.00	9.18E-02	1.65E-01	1.65E-01
		300.00		23.00	-6.86E-01		4.00E-01
+	PB-210	46.50		4.25	7.12E-01	2.27E+00	2.27E+00
+	PB-211	404.84		2.90	1.61E-01	3.03E+00	3.03E+00
		831.96		2.90	-1.23E+00		3.48E+00
+	BI-212	727.17	*	11.80	1.45E+00	1.26E+00	1.26E+00
		1620.62		2.75	7.67E-01		4.35E+00
+	PB-212	238.63	*	44.60	2.24E+00	3.91E-01	3.91E-01
		300.09	*	3.41	1.69E+00		2.31E+00
+	BI-214	609.31	*	46.30	1.34E+00	3.59E-01	3.59E-01
		1120.29	*	15.10	1.51E+00		1.30E+00
		1764.49	*	15.80	1.86E+00		4.94E-01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	2204.22	*	4.98	1.30E+00	3.59E-01	2.02E+00
+	PB-214	295.21	*	19.19	1.25E+00	3.17E-01	5.48E-01
		351.92	*	37.19	1.54E+00		3.17E-01
+	RN-219	401.80		6.50	-1.68E-01	1.28E+00	1.28E+00
+	RA-223	323.87		3.88	-2.41E-01	1.93E+00	1.93E+00
+	RA-224	240.98		3.95	2.92E+01	4.19E+00	4.19E+00
+	RA-225	40.00		31.00	1.57E+01	3.05E+01	3.05E+01
+	RA-226	186.21	*	3.28	3.93E+00	2.81E+00	2.81E+00
+	TH-227	50.10		8.40	-7.13E-01	1.00E+00	1.00E+00
		236.00		11.50	1.47E+00		1.14E+00
		256.20		6.30	1.56E-01		1.20E+00
+	AC-228	338.32	*	11.40	1.98E+00	8.90E-01	1.00E+00
		911.07	*	27.70	2.12E+00		8.90E-01
		969.11	*	16.60	2.03E+00		1.48E+00
+	TH-230	48.44		16.90	-1.92E-01	5.31E-01	5.31E-01
		62.85		4.60	1.04E+00		1.80E+00
		67.67		0.37	-1.01E+00		2.14E+01
+	PA-231	283.67		1.60	7.86E-02	3.63E+00	4.90E+00
		302.67		2.30	7.00E-02		3.63E+00
+	TH-231	25.64		14.70	-2.82E-01	1.15E+00	3.49E+00
		84.21		6.40	-6.46E-01		1.15E+00
+	PA-233	311.98		38.60	6.40E-01	2.17E+00	2.17E+00
+	PA-234	131.20		20.40	3.63E-01	3.08E-01	3.08E-01
		733.99		8.80	3.03E-01		1.19E+00
		946.00		12.00	1.71E-01		9.20E-01
+	PA-234M	1001.03		0.92	-2.93E+00	1.20E+01	1.20E+01
+	TH-234	63.29		3.80	1.52E+00	2.20E+00	2.20E+00
+	U-235	143.76		10.50	-9.53E-03	5.76E-01	5.76E-01
		163.35		4.70	8.48E-01		1.31E+00
		205.31		4.70	-4.22E-02		1.74E+00
+	NP-237	86.50		12.60	9.11E-01	6.38E-01	6.38E-01
+	NP-239	106.10		22.70	-3.91E+10	2.15E+11	2.15E+11
		228.18		10.70	-3.40E+11		6.16E+11
		277.60		14.10	1.51E+11		4.85E+11
+	AM-241	59.54		35.90	-1.54E-01	2.22E-01	2.22E-01
+	AM-243	74.67	*	66.00	4.64E-01	2.17E-01	2.17E-01
+	CM-243	209.75		3.29	3.94E+00	5.68E-01	2.69E+00
		228.14		10.60	-3.99E-01		7.23E-01
		277.60		14.00	1.76E-01		5.68E-01

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

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.78E+00	2.78E+00	-1.45E+00	1.32E+00
	NA-22	1274.54		99.94	1.45E-01	1.45E-01	3.13E-02	6.73E-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	9.42E-02	9.42E-02	9.19E-03	4.06E-02
+	K-40	1460.81	*	10.67	1.59E+00	1.59E+00	2.86E+01	7.43E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	8.39E-02	8.39E-02	-3.96E-03	4.12E-02
		78.34		96.00	1.05E-01		3.37E-01	5.15E-02
	SC-46	889.25		99.98	2.35E-01	2.35E-01	-1.69E-02	1.10E-01
		1120.51		99.99	3.88E-01		4.11E-01	1.84E-01
	V-48	983.52		99.98	5.87E+00	5.87E+00	-5.82E-01	2.71E+00
		1312.10		97.50	6.07E+00		-3.21E+00	2.73E+00
	CR-51	320.08		9.83	7.96E+00	7.96E+00	-2.88E-01	3.83E+00
	MN-54	834.83		99.97	1.34E-01	1.34E-01	-4.20E-03	6.29E-02
	CO-56	846.75		99.96	2.10E-01	2.10E-01	7.89E-03	9.68E-02
		1037.75		14.03	1.88E+00		-3.94E-01	8.72E-01
		1238.25		67.00	6.05E-01		4.13E-01	2.86E-01
		1771.40		15.51	1.11E+00		6.39E-02	4.58E-01
		2598.48		16.90	1.07E+00		1.63E-01	4.23E-01
	CO-57	122.06		85.51	8.55E-02	8.55E-02	2.55E-02	4.17E-02
		136.48		10.60	6.80E-01		-9.62E-03	3.31E-01
	CO-58	810.76		99.40	2.40E-01	2.40E-01	-6.56E-03	1.12E-01
	FE-59	1099.22		56.50	9.41E-01	9.41E-01	-4.79E-02	4.38E-01
		1291.56		43.20	1.33E+00		6.70E-01	6.15E-01
	CO-60	1173.22		100.00	1.38E-01	1.32E-01	-1.82E-02	6.44E-02
		1332.49		100.00	1.32E-01		4.92E-02	6.08E-02
	ZN-65	1115.52		50.75	3.39E-01	3.39E-01	-3.74E-03	1.58E-01
	GA-67	93.31		35.70	8.55E+07	8.55E+07	1.54E+08	4.20E+07
		208.95		2.24	1.64E+09		2.26E+09	8.02E+08
		300.22		16.00	2.40E+08		-4.12E+08	1.17E+08
	SE-75	121.11		16.70	5.95E-01	1.63E-01	2.29E-01	2.90E-01
		136.00		59.20	1.63E-01		-3.43E-02	7.91E-02
		264.65		59.80	2.07E-01		-1.21E-02	9.99E-02
		279.53		25.20	5.48E-01		-3.78E-04	2.65E-01
		400.65		11.40	1.23E+00		-3.75E-01	5.89E-01
	RB-82	776.52		13.00	1.05E+01	1.05E+01	-1.92E+00	4.92E+00

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	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	3.86E-01	3.86E-01	-7.21E-03	1.83E-01
		529.64		30.30	6.33E-01		-1.55E-01	3.00E-01
		552.65		16.40	1.21E+00		-3.71E-01	5.74E-01
	KR-85	513.99		0.43	2.74E+01	2.74E+01	3.10E+01	1.32E+01
	SR-85	513.99		99.27	3.20E-01	3.20E-01	3.61E-01	1.54E-01
	Y-88	898.02		93.40	2.20E-01	1.63E-01	-1.55E-02	1.03E-01
		1836.01		99.38	1.63E-01		3.93E-02	6.95E-02
	MO-93	263.06		56.72	1.29E-01	9.76E-02	1.83E-02	6.21E-02
		684.67		99.68	9.95E-02		1.88E-02	4.68E-02
		1477.11		99.08	9.76E-02		3.88E-02	4.30E-02
	NB-93M	16.57		9.43	8.20E+01	8.20E+01	-5.35E+01	4.00E+01
	NB-94	702.63		100.00	1.02E-01	1.02E-01	-2.96E-02	4.78E-02
		871.10		100.00	1.13E-01		8.17E-02	5.31E-02
	NB-95	765.79		99.81	7.73E-01	7.73E-01	5.31E-01	3.66E-01
	NB-95M	235.69		25.00	3.22E+07	3.22E+07	4.13E+07	1.58E+07
	ZR-95	724.18		43.70	7.57E-01	5.56E-01	1.90E-01	3.59E-01
		756.72		55.30	5.56E-01		3.30E-01	2.62E-01
	MO-99	181.06		6.20	1.59E+10	1.30E+10	1.18E+09	7.68E+09
		739.58		12.80	1.30E+10		5.44E+08	6.10E+09
		778.00		4.50	3.87E+10		-1.59E+10	1.81E+10
	RU-103	497.08		89.00	5.19E-01	5.19E-01	2.34E-01	2.47E-01
	RU-106	621.84		9.80	1.06E+00	1.06E+00	-2.15E-02	5.00E-01
	AG-108M	433.93		89.90	8.52E-02	8.52E-02	-8.85E-02	4.04E-02
		614.37		90.40	1.36E-01		-5.07E-03	6.53E-02
		722.95		90.50	1.26E-01		4.60E-02	5.96E-02
+	CD-109	88.03	*	3.72	3.33E+00	3.33E+00	3.51E+00	1.64E+00
	AG-110M	657.75		93.14	1.44E-01	1.44E-01	4.74E-02	6.81E-02
		677.61		10.53	1.15E+00		-4.25E-01	5.40E-01
		706.67		16.46	8.20E-01		1.28E-01	3.87E-01
		763.93		21.98	6.24E-01		-5.51E-01	2.93E-01
		884.67		71.63	1.88E-01		-7.19E-02	8.76E-02
		1384.27		23.94	5.42E-01		8.39E-02	2.42E-01
	CD-113M	263.70		0.02	3.13E+02	3.13E+02	-2.76E+01	1.51E+02
	SN-113	255.12		1.93	6.73E+00	2.19E-01	-6.42E-01	3.25E+00
		391.69		64.90	2.19E-01		3.17E-02	1.05E-01
	TE123M	159.00		84.10	1.21E-01	1.21E-01	-4.36E-03	5.89E-02
	SB-124	602.71		97.87	2.81E-01	2.81E-01	-1.99E-02	1.33E-01
		645.85		7.26	3.59E+00		-1.19E+00	1.68E+00
		722.78		11.10	3.00E+00		1.10E+00	1.42E+00
		1691.02		49.00	5.35E-01		4.75E-02	2.30E-01
	I-125	35.49		6.49	6.75E+00	6.75E+00	-6.90E+00	3.29E+00
	SB-125	176.33		6.89	9.10E-01	3.19E-01	-1.92E-01	4.41E-01
		427.89		29.33	3.19E-01		2.16E-01	1.53E-01
		463.38		10.35	1.08E+00		1.10E+00	5.18E-01
		600.56		17.80	5.72E-01		1.74E-01	2.70E-01
		635.90		11.32	9.11E-01		1.02E-01	4.30E-01
	SB-126	414.70		83.30	1.82E+01	1.82E+01	-8.31E+00	8.68E+00
		666.33		99.60	1.90E+01		7.18E+00	8.98E+00
		695.00		99.60	2.03E+01		4.87E+00	9.60E+00
		720.50		53.80	3.51E+01		6.48E+00	1.65E+01
+	SN-126	87.57	*	37.00	2.91E-01	2.91E-01	3.07E-01	1.44E-01
	SB-127	473.00		25.00	6.57E+06	5.48E+06	-1.44E+06	3.12E+06
		685.20		35.70	5.48E+06		1.03E+06	2.58E+06

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	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	1.54E+07	5.48E+06	5.78E+06	7.26E+06
	I-129	29.78		57.00	4.77E-01	4.77E-01	-1.87E-01	2.33E-01
		33.60		13.20	1.37E+00		1.85E-01	6.67E-01
		39.58		7.52	1.62E+00		8.36E-01	7.93E-01
	I-131	284.30		6.05	4.10E+03	3.00E+02	2.11E+03	1.98E+03
		364.48		81.20	3.00E+02		-2.30E+01	1.44E+02
		636.97		7.26	4.19E+03		5.08E+02	1.98E+03
		722.89		1.80	1.98E+04		7.24E+03	9.38E+03
	TE-132	49.72		13.10	2.76E+08	3.67E+07	-1.96E+08	1.35E+08
		228.16		88.00	3.67E+07		-2.03E+07	1.78E+07
	BA-133	81.00		33.00	2.24E-01	1.92E-01	-9.89E-01	1.10E-01
		302.84		17.80	4.78E-01		9.20E-03	2.31E-01
		356.01		60.00	1.92E-01		-6.29E-03	9.35E-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	4.41E+04	4.41E+04	-1.94E+05	2.16E+04
	CS-134	563.23		8.38	1.20E+00	1.15E-01	3.07E-01	5.70E-01
		569.32		15.43	6.36E-01		-1.41E-01	3.01E-01
		604.70		97.60	1.15E-01		2.14E-03	5.47E-02
		795.84		85.40	1.56E-01		9.11E-02	7.37E-02
		801.93		8.73	1.47E+00		5.29E-01	6.94E-01
	CS-135	268.24		16.00	5.11E-01	5.11E-01	9.63E-02	2.48E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.12E+02	1.39E+01	2.11E+01	5.46E+01
		163.89		4.61	1.83E+02		1.19E+02	8.90E+01
		176.55		13.56	5.94E+01		-1.25E+01	2.88E+01
		273.65		12.66	9.03E+01		-1.58E+01	4.38E+01
		340.57		48.50	3.09E+01		5.82E+01	1.50E+01
		818.50		99.70	1.39E+01		4.65E+00	6.51E+00
		1048.07		79.60	1.96E+01		-6.10E+00	9.07E+00
		1235.34		19.70	1.22E+02		2.36E+01	5.78E+01
	CS-137	661.65		85.12	1.18E-01	1.18E-01	-9.10E-03	5.59E-02
	LA-138	788.74		34.00	3.01E-01	1.38E-01	-6.98E-02	1.41E-01
		1435.80		66.00	1.38E-01		2.10E-02	6.05E-02
	CE-139	165.85		80.35	1.17E-01	1.17E-01	-9.10E-02	5.68E-02
	BA-140	162.64		6.70	1.45E+02	5.42E+01	7.28E+01	7.05E+01
		304.84		4.50	2.68E+02		-1.64E+01	1.29E+02
		423.70		3.20	3.97E+02		-1.69E+02	1.89E+02
		437.55		2.00	6.58E+02		3.00E+02	3.14E+02
		537.32		25.00	5.42E+01		-1.66E+01	2.56E+01
	LA-140	328.77		20.50	6.77E+01	2.05E+01	2.65E+01	3.27E+01
		487.03		45.50	3.17E+01		-1.11E+01	1.51E+01
		815.85		23.50	6.30E+01		-3.00E+01	2.92E+01
		1596.49		95.49	2.05E+01		-4.84E-01	9.25E+00
+	CE-141	145.44	*	48.40	1.20E+00	1.20E+00	7.34E-01	5.86E-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	6.69E-01	6.69E-01	-1.73E-01	3.26E-01
	PM-144	476.78		42.00	2.46E-01	1.11E-01	-3.38E-02	1.17E-01
		618.01		98.60	1.11E-01		3.42E-02	5.25E-02
		696.49		99.49	1.30E-01		2.89E-02	6.16E-02

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

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	6.58E-01	3.52E-01	3.24E-01	3.21E-01
	37.36	39.70	3.52E-01		2.35E-02	1.72E-01
	42.30	15.10	7.20E-01		-3.10E-01	3.51E-01
	72.40	2.31	3.81E+00		-1.13E+01	1.87E+00
PM-146	453.90	39.94	2.14E-01	2.14E-01	-1.13E-02	1.02E-01
	735.90	14.01	7.33E-01		-1.41E-01	3.44E-01
	747.13	13.10	8.63E-01		3.37E-01	4.07E-01
ND-147	91.11	28.90	9.55E+01	9.55E+01	-7.64E+01	4.69E+01
	531.02	13.10	2.57E+02		1.01E+02	1.22E+02
PM-149	285.90	3.10	1.29E+13	1.29E+13	4.28E+12	6.25E+12
EU-152	121.78	20.50	2.84E-01	2.84E-01	8.47E-02	1.38E-01
	244.69	5.40	1.70E+00		-5.19E+00	8.28E-01
	344.27	19.13	4.28E-01		-9.77E-02	2.06E-01
	778.89	9.20	1.17E+00		-2.92E-01	5.47E-01
	964.01	10.40	1.32E+00		-2.99E+00	6.23E-01
	1085.78	7.22	1.76E+00		1.83E-01	8.18E-01
	1112.02	9.60	1.33E+00		-1.38E-01	6.18E-01
	1407.95	14.94	7.14E-01		1.34E-01	3.20E-01
GD-153	97.43	31.30	2.33E-01	2.33E-01	3.34E-02	1.14E-01
	103.18	22.20	3.32E-01		-3.74E-02	1.62E-01
EU-154	123.07	40.50	1.44E-01	1.44E-01	-2.84E-03	7.01E-02
	723.30	19.70	5.89E-01		2.15E-01	2.79E-01
	873.19	11.50	9.55E-01		-2.10E-01	4.46E-01
	996.32	10.30	1.08E+00		1.48E-01	5.00E-01
	1004.76	17.90	6.73E-01		3.02E-01	3.14E-01
	1274.45	35.50	3.89E-01		8.40E-02	1.80E-01
EU-155	86.50	30.90	2.70E-01	2.70E-01	3.85E-01	1.33E-01
	105.30	20.70	2.82E-01		-5.12E-02	1.38E-01
EU-156	811.77	10.40	6.63E+01	6.63E+01	1.44E+01	3.09E+01
	1153.47	7.20	1.28E+02		-4.23E+01	5.95E+01
	1230.71	8.90	1.21E+02		6.24E+00	5.69E+01
HO-166M	184.41	72.60	1.01E-01	1.01E-01	1.17E-01	4.93E-02
	280.45	29.60	2.74E-01		1.16E-01	1.33E-01
	410.94	11.10	7.95E-01		3.69E-01	3.81E-01
	711.69	54.10	1.72E-01		-1.16E-01	8.03E-02
TM-171	66.72	0.14	6.29E+01	6.29E+01	-1.74E+01	3.09E+01
HF-172	67.35	5.31	1.64E+00	5.46E-01	-7.75E-02	8.06E-01
	125.81	11.30	5.46E-01		-6.00E-02	2.66E-01
LU-172	181.53	20.60	4.60E+03	3.09E+03	2.62E+02	2.23E+03
	900.72	29.81	6.02E+03		2.31E+03	2.82E+03
	1093.66	62.50	3.09E+03		-2.93E+02	1.44E+03
LU-173	100.72	5.24	1.23E+00	4.58E-01	4.07E-01	6.02E-01
	272.11	21.20	4.58E-01		2.56E-01	2.22E-01
HF-175	343.40	84.00	2.42E-01	2.42E-01	-5.53E-02	1.16E-01
LU-176	88.34	13.30	5.99E-01	7.67E-02	5.31E-01	2.94E-01
	201.83	86.00	7.67E-02		-1.71E-03	3.72E-02
	306.78	94.00	7.92E-02		-5.78E-03	3.81E-02
HF-181	133.02	41.70	6.53E-01	4.94E-01	2.39E-02	3.18E-01
	345.85	17.20	2.12E+00		-4.96E-01	1.02E+00
	482.03	82.80	4.94E-01		-3.47E-01	2.35E-01
TA-182	67.75	41.20	3.38E-01	3.38E-01	-1.59E-02	1.66E-01
	1121.30	34.90	9.18E-01		1.03E+00	4.36E-01
	1189.05	16.23	1.57E+00		2.40E-01	7.32E-01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	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	9.30E-01	3.38E-01	-5.01E-01	4.34E-01
		1231.02		11.44	2.35E+00		1.21E-01	1.10E+00
+	IR-192	308.46		29.68	6.11E-01	6.11E-01	9.97E-02	2.94E-01
		468.07	*	48.10	6.43E-01		1.63E-01	3.11E-01
	HG-203	279.19		77.30	4.22E-01	4.22E-01	2.19E-01	2.04E-01
	TL-204	374.74		94.11	8.73E-02	8.73E-02	-6.08E-03	4.18E-02
		899.15		99.16	1.19E-01		1.46E-02	5.57E-02
		911.74		91.10	2.43E-01		6.33E-01	1.17E-01
	BI-207	569.67		97.72	9.19E-02	9.19E-02	-3.83E-02	4.34E-02
		1063.62		74.90	1.63E-01		3.59E-02	7.56E-02
+	TL-208	583.14	*	30.22	5.21E-01	2.99E-01	1.90E+00	2.52E-01
		860.37	*	4.48	2.95E+00		2.80E+00	1.39E+00
		2614.66	*	35.85	2.99E-01		1.66E+00	1.27E-01
	BI-210M	262.00		45.00	1.65E-01	1.65E-01	9.18E-02	8.00E-02
		300.00		23.00	4.00E-01		-6.86E-01	1.94E-01
	PB-210	46.50		4.25	2.27E+00	2.27E+00	7.12E-01	1.11E+00
	PB-211	404.84		2.90	3.03E+00	3.03E+00	1.61E-01	1.45E+00
		831.96		2.90	3.48E+00		-1.23E+00	1.62E+00
+	BI-212	727.17	*	11.80	1.26E+00	1.26E+00	1.45E+00	6.04E-01
		1620.62		2.75	4.35E+00		7.67E-01	1.95E+00
+	PB-212	238.63	*	44.60	3.91E-01	3.91E-01	2.24E+00	1.93E-01
		300.09	*	3.41	2.31E+00		1.69E+00	1.12E+00
+	BI-214	609.31	*	46.30	3.59E-01	3.59E-01	1.34E+00	1.74E-01
		1120.29	*	15.10	1.30E+00		1.51E+00	6.20E-01
		1764.49	*	15.80	4.94E-01		1.86E+00	2.06E-01
		2204.22	*	4.98	2.02E+00		1.30E+00	8.63E-01
+	PB-214	295.21	*	19.19	5.48E-01	3.17E-01	1.25E+00	2.67E-01
		351.92	*	37.19	3.17E-01		1.54E+00	1.54E-01
	RN-219	401.80		6.50	1.28E+00	1.28E+00	-1.68E-01	6.12E-01
	RA-223	323.87		3.88	1.93E+00	1.93E+00	-2.41E-01	9.29E-01
	RA-224	240.98		3.95	4.19E+00	4.19E+00	2.92E+01	2.07E+00
	RA-225	40.00		31.00	3.05E+01	3.05E+01	1.57E+01	1.49E+01
+	RA-226	186.21	*	3.28	2.81E+00	2.81E+00	3.93E+00	1.38E+00
	TH-227	50.10		8.40	1.00E+00	1.00E+00	-7.13E-01	4.90E-01
		236.00		11.50	1.14E+00		1.47E+00	5.62E-01
		256.20		6.30	1.20E+00		1.56E-01	5.82E-01
+	AC-228	338.32	*	11.40	1.00E+00	8.90E-01	1.98E+00	4.89E-01
		911.07	*	27.70	8.90E-01		2.12E+00	4.31E-01
		969.11	*	16.60	1.48E+00		2.03E+00	7.15E-01
	TH-230	48.44		16.90	5.31E-01	5.31E-01	-1.92E-01	2.60E-01
		62.85		4.60	1.80E+00		1.04E+00	8.86E-01
		67.67		0.37	2.14E+01		-1.01E+00	1.05E+01
	PA-231	283.67		1.60	4.90E+00	3.63E+00	7.86E-02	2.37E+00
		302.67		2.30	3.63E+00		7.00E-02	1.76E+00
	TH-231	25.64		14.70	3.49E+00	1.15E+00	-2.82E-01	1.70E+00
		84.21		6.40	1.15E+00		-6.46E-01	5.65E-01
	PA-233	311.98		38.60	2.17E+00	2.17E+00	6.40E-01	1.04E+00
	PA-234	131.20		20.40	3.08E-01	3.08E-01	3.63E-01	1.51E-01
		733.99		8.80	1.19E+00		3.03E-01	5.58E-01
		946.00		12.00	9.20E-01		1.71E-01	4.28E-01
	PA-234M	1001.03		0.92	1.20E+01	1.20E+01	-2.93E+00	5.56E+00
	TH-234	63.29		3.80	2.20E+00	2.20E+00	1.52E+00	1.08E+00
	U-235	143.76		10.50	5.76E-01	5.76E-01	-9.53E-03	2.80E-01

Analysis Report for 1707078-17

HTC-A01-S004-3036-01

	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	1.31E+00	5.76E-01	8.48E-01	6.37E-01
		205.31		4.70	1.74E+00		-4.22E-02	8.47E-01
	NP-237	86.50		12.60	6.38E-01	6.38E-01	9.11E-01	3.14E-01
	NP-239	106.10		22.70	2.15E+11	2.15E+11	-3.91E+10	1.05E+11
		228.18		10.70	6.16E+11		-3.40E+11	2.99E+11
		277.60		14.10	4.85E+11		1.51E+11	2.35E+11
	AM-241	59.54		35.90	2.22E-01	2.22E-01	-1.54E-01	1.09E-01
+	AM-243	74.67	*	66.00	2.17E-01	2.17E-01	4.64E-01	1.08E-01
	CM-243	209.75		3.29	2.69E+00	5.68E-01	3.94E+00	1.31E+00
		228.14		10.60	7.23E-01		-3.99E-01	3.51E-01
		277.60		14.00	5.68E-01		1.76E-01	2.75E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-3036-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	7	205	254	193	177	143	124	125
17:	112	93	103	116	89	112	117	99
25:	131	98	121	106	110	98	106	112
33:	111	79	94	128	99	91	126	109
41:	119	123	104	109	130	139	159	137
49:	90	132	133	139	132	155	126	133
57:	165	150	170	164	165	178	198	241
65:	201	191	192	205	205	184	194	213
73:	190	248	420	481	513	591	333	159
81:	160	136	143	178	232	192	218	297
89:	215	200	204	174	234	254	168	118
97:	88	112	118	105	106	110	113	104
105:	106	118	101	104	106	114	100	108
113:	108	82	111	94	100	95	107	98
121:	101	96	109	97	86	92	99	89
129:	110	125	107	117	103	79	82	78
137:	92	96	88	98	72	80	95	88
145:	101	104	117	84	96	83	77	105
153:	89	85	88	77	87	80	86	71
161:	74	89	93	84	76	71	69	68
169:	89	83	95	82	71	68	70	70
177:	62	70	66	72	73	62	58	76
185:	81	121	163	98	68	64	71	79
193:	74	63	81	73	63	77	61	74
201:	64	73	64	74	71	71	74	82
209:	90	118	100	63	64	45	60	67
217:	56	57	57	55	65	54	58	63
225:	48	57	70	57	56	58	38	59
233:	68	52	53	64	72	213	589	430
241:	165	127	117	68	42	43	42	49
249:	37	32	43	39	48	33	51	56
257:	38	34	52	45	44	38	31	34
265:	45	29	39	50	41	64	69	82
273:	35	33	34	43	44	57	47	40
281:	31	49	35	48	45	26	46	35
289:	39	29	35	36	38	47	119	157
297:	84	38	37	50	62	44	38	26
305:	36	28	25	37	34	32	30	37
313:	26	33	30	23	31	24	32	41
321:	22	27	32	37	29	24	30	51
329:	65	38	35	29	40	31	27	33
337:	40	77	118	77	32	36	34	28
345:	37	22	21	25	33	26	67	238
353:	183	76	32	27	31	23	26	26
361:	24	23	20	28	25	26	28	24

369:	23	29	35	22	29	24	18	26

Sample Title: HTC-A01-S004-3036-01

Channel								
377:	20	29	14	24	26	33	26	27
385:	22	25	21	19	18	19	24	24
393:	26	36	19	25	24	24	19	19
401:	21	23	20	36	29	25	27	25
409:	32	29	31	20	16	28	19	18
417:	23	28	27	17	18	22	15	23
425:	20	18	25	26	24	29	24	19
433:	14	12	24	15	13	26	23	20
441:	22	16	23	26	22	21	19	22
449:	19	21	15	18	22	22	20	23
457:	11	25	12	21	28	27	46	45
465:	27	14	19	26	16	13	12	20
473:	23	16	15	20	24	23	16	17
481:	15	22	28	20	18	26	27	20
489:	19	12	26	18	21	20	17	20
497:	17	22	16	17	9	14	12	16
505:	18	20	16	16	28	49	61	57
513:	27	23	18	16	12	10	14	15
521:	24	14	16	11	23	15	17	17
529:	15	16	13	18	22	23	14	13
537:	15	11	17	10	14	16	25	13
545:	16	10	14	15	26	17	19	13
553:	20	19	14	15	22	14	17	13
561:	17	12	17	21	13	17	13	12
569:	13	18	15	14	15	16	22	19
577:	20	21	5	20	15	48	118	134
585:	62	16	10	8	12	18	8	15
593:	11	9	15	8	13	18	16	14
601:	14	16	13	13	15	15	14	35
609:	113	137	66	26	22	17	11	16
617:	12	16	15	9	12	12	6	14
625:	13	7	13	16	10	10	10	10
633:	14	15	16	13	11	15	12	14
641:	16	11	17	7	8	9	11	15
649:	11	19	7	17	6	19	18	15
657:	16	17	14	16	8	15	10	22
665:	11	9	16	14	17	10	13	14
673:	11	14	8	10	16	10	11	15
681:	9	11	18	6	5	15	13	17
689:	11	9	14	15	16	17	17	12
697:	16	12	17	12	9	14	12	15
705:	16	10	17	12	16	6	12	11
713:	9	3	14	13	15	11	8	14
721:	20	13	9	10	14	26	27	38
729:	16	15	18	7	13	14	7	10
737:	17	9	7	17	7	7	14	20
745:	5	14	8	16	15	14	15	6
753:	14	15	19	17	9	11	12	11
761:	9	9	12	12	6	16	18	16
769:	30	12	13	15	19	16	8	12
777:	11	9	11	16	11	9	12	15
785:	15	7	21	6	9	12	10	7
793:	9	10	30	20	14	7	13	13

801:	11	14	12	15	16	8	8	7

Sample Title: HTC-A01-S004-3036-01

Channel								
809:	8	10	10	10	8	6	9	9
817:	6	7	11	9	13	11	9	6
825:	11	8	6	10	4	6	15	7
833:	9	5	17	12	16	8	7	15
841:	8	6	6	8	7	13	6	6
849:	7	3	6	9	7	4	9	5
857:	9	7	10	18	21	14	13	6
865:	4	6	4	15	7	13	8	11
873:	6	14	3	11	7	14	6	13
881:	9	10	12	11	4	12	5	6
889:	12	9	10	11	15	8	8	10
897:	8	11	8	14	9	9	9	11
905:	7	7	12	5	15	41	84	70
913:	26	12	4	7	7	13	5	8
921:	14	5	4	10	8	5	5	7
929:	6	10	10	5	5	14	9	13
937:	6	5	7	5	5	8	8	7
945:	9	4	10	8	14	6	11	3
953:	12	11	8	3	7	10	7	7
961:	13	8	6	14	24	13	12	41
969:	52	37	10	7	9	5	6	7
977:	12	4	6	9	7	8	8	6
985:	6	4	8	8	6	4	6	6
993:	5	5	12	12	6	8	5	7
1001:	8	9	10	7	10	8	12	6
1009:	1	10	8	6	7	6	7	14
1017:	4	12	10	6	8	10	13	3
1025:	10	6	5	1	4	12	12	8
1033:	10	7	10	11	8	6	10	4
1041:	7	13	6	14	2	8	14	6
1049:	5	9	9	10	7	4	19	9
1057:	6	11	10	5	10	5	6	12
1065:	12	6	8	5	9	7	10	4
1073:	10	6	7	8	7	7	7	12
1081:	10	5	8	10	14	10	10	6
1089:	3	13	4	10	11	5	6	14
1097:	8	11	8	5	4	9	11	10
1105:	8	11	6	8	12	3	9	7
1113:	11	11	6	11	10	9	20	39
1121:	23	10	12	14	6	11	4	6
1129:	10	9	8	9	12	10	7	8
1137:	12	7	5	7	6	8	5	10
1145:	7	6	8	13	12	6	7	5
1153:	8	11	11	11	10	6	10	13
1161:	4	10	4	13	10	4	9	9
1169:	11	6	10	9	6	14	6	10
1177:	13	5	8	8	5	13	9	7
1185:	10	11	10	10	11	10	9	9
1193:	9	10	7	6	8	10	6	7
1201:	8	11	12	12	9	11	9	14
1209:	8	9	11	14	12	15	11	13
1217:	15	10	10	5	10	6	9	15
1225:	11	11	9	9	6	11	8	14

1233:	13	13	4	17	21	18	14	12

Sample Title: HTC-A01-S004-3036-01

Channel								
1241:	16	9	5	5	9	5	8	11
1249:	8	7	11	8	10	8	8	13
1257:	7	6	8	2	7	8	3	3
1265:	4	6	6	9	9	7	8	6
1273:	7	9	10	8	6	4	7	7
1281:	10	13	8	2	5	5	4	6
1289:	16	5	9	6	5	5	4	6
1297:	1	6	3	3	5	5	2	8
1305:	7	5	7	4	2	4	6	7
1313:	1	3	5	7	6	8	2	7
1321:	4	10	9	6	4	5	4	5
1329:	4	8	4	4	7	12	5	4
1337:	5	1	8	1	3	4	3	2
1345:	7	4	3	2	4	6	2	3
1353:	6	6	4	4	3	7	4	2
1361:	3	3	3	6	4	4	8	8
1369:	4	2	5	4	2	2	5	8
1377:	11	8	8	4	7	4	3	1
1385:	2	4	3	1	2	5	3	3
1393:	5	6	5	3	3	3	2	5
1401:	6	3	3	1	6	6	4	2
1409:	2	4	2	5	2	0	0	3
1417:	5	3	3	1	3	5	1	3
1425:	1	1	6	2	3	2	3	0
1433:	1	4	2	0	2	6	3	4
1441:	0	2	1	1	2	2	8	1
1449:	3	4	2	5	1	2	2	3
1457:	7	23	101	237	260	114	21	1
1465:	2	3	4	3	4	0	1	4
1473:	3	3	4	3	2	2	1	1
1481:	0	0	1	5	3	0	1	3
1489:	3	0	3	1	2	2	4	3
1497:	0	3	1	2	3	2	0	3
1505:	3	2	4	3	6	3	1	3
1513:	1	2	2	3	3	1	0	2
1521:	1	1	3	2	2	0	2	3
1529:	2	0	0	3	1	3	4	2
1537:	1	5	3	3	4	1	3	0
1545:	4	0	1	4	3	2	2	3
1553:	1	2	2	3	1	2	0	1
1561:	1	0	0	0	1	2	1	0
1569:	2	0	1	2	2	0	3	2
1577:	2	0	2	2	2	2	2	2
1585:	2	6	2	5	5	5	6	7
1593:	7	3	1	1	3	1	5	2
1601:	5	1	1	3	1	0	1	3
1609:	1	1	1	4	0	2	4	2
1617:	2	2	2	6	5	5	0	3
1625:	2	2	0	3	5	2	4	5
1633:	2	0	3	1	1	1	2	2
1641:	0	1	1	1	3	1	1	1
1649:	0	0	3	1	0	0	2	2
1657:	3	0	2	5	3	1	0	1

1665:	5	1	0	1	1	1	2	1

Sample Title: HTC-A01-S004-3036-01

Channel								
1673:	1	0	3	0	0	0	2	0
1681:	1	1	4	2	2	0	1	1
1689:	1	1	1	4	2	0	2	1
1697:	2	1	1	0	1	2	2	0
1705:	3	0	0	1	1	1	1	2
1713:	0	1	2	0	1	0	1	2
1721:	1	1	0	0	1	0	0	5
1729:	8	6	1	1	1	3	0	3
1737:	1	1	0	2	0	2	0	1
1745:	0	5	4	0	3	0	1	0
1753:	2	3	2	0	1	1	0	1
1761:	1	4	15	22	17	5	2	0
1769:	1	1	0	1	0	3	0	1
1777:	0	1	2	1	2	0	1	2
1785:	3	0	1	0	1	0	1	2
1793:	3	6	0	2	0	0	0	3
1801:	0	0	2	0	0	4	1	0
1809:	1	4	2	1	0	1	0	3
1817:	1	0	1	1	3	3	0	1
1825:	0	0	1	0	0	1	1	0
1833:	2	1	2	1	1	1	2	1
1841:	0	1	2	2	2	3	3	6
1849:	0	2	1	3	2	2	2	1
1857:	4	2	0	0	0	2	1	2
1865:	1	5	2	2	1	0	1	0
1873:	2	0	1	0	2	2	1	0
1881:	1	1	2	1	0	3	2	1
1889:	1	1	1	2	0	1	1	1
1897:	2	3	2	2	1	0	1	0
1905:	1	0	1	1	2	1	0	1
1913:	0	1	0	0	0	2	2	2
1921:	2	1	0	1	2	0	1	2
1929:	0	0	1	3	2	0	2	1
1937:	1	1	0	1	2	1	3	0
1945:	0	1	1	0	0	2	0	0
1953:	4	2	2	0	1	1	1	2
1961:	1	1	2	1	1	0	1	1
1969:	0	1	2	1	2	0	2	0
1977:	4	0	0	0	1	0	3	0
1985:	2	0	1	0	4	1	1	1
1993:	1	3	0	0	0	0	0	1
2001:	0	2	0	0	2	1	0	1
2009:	0	1	2	4	2	0	1	2
2017:	1	3	0	0	0	2	1	0
2025:	1	0	0	0	0	1	1	0
2033:	0	1	1	1	0	1	1	1
2041:	2	1	1	0	1	1	1	1
2049:	1	0	1	0	0	1	0	1
2057:	2	0	0	2	1	0	0	2
2065:	2	0	0	1	0	2	0	1
2073:	1	0	0	0	0	2	0	0
2081:	1	1	1	3	3	1	2	0
2089:	2	3	0	1	1	1	0	0

2097:	0	1	1	1	6	4	5	1

Sample Title: HTC-A01-S004-3036-01

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

2529:	0	0	0	1	1	0	1	0

Sample Title: HTC-A01-S004-3036-01

Channel								
2537:	0	0	0	0	0	2	2	0
2545:	1	0	1	1	0	0	0	0
2553:	0	1	0	0	0	0	0	1
2561:	1	1	1	0	0	1	0	0
2569:	0	0	1	0	0	1	1	0
2577:	1	0	0	1	1	1	1	0
2585:	0	0	0	1	0	0	0	0
2593:	1	1	0	0	1	0	0	0
2601:	1	2	0	1	0	0	1	1
2609:	0	0	7	13	22	36	15	8
2617:	2	0	0	0	0	0	0	0
2625:	0	0	2	0	0	1	0	0
2633:	2	0	1	0	0	0	0	0
2641:	0	0	0	1	0	0	0	0
2649:	0	1	0	0	0	0	0	1
2657:	0	1	1	0	1	0	0	0
2665:	0	0	0	0	0	0	1	1
2673:	0	1	0	3	0	0	0	0
2681:	1	0	0	2	0	0	0	0
2689:	0	1	0	0	0	0	0	2
2697:	1	0	0	0	0	1	0	0
2705:	1	0	0	0	0	0	0	0
2713:	0	1	0	0	0	1	0	0
2721:	0	0	0	1	0	0	0	1
2729:	0	0	0	0	0	0	1	1
2737:	0	0	0	0	1	0	0	0
2745:	0	0	0	0	0	0	1	1
2753:	0	1	0	0	1	0	0	1
2761:	0	0	0	1	0	0	0	0
2769:	2	1	0	0	0	0	0	0
2777:	0	1	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	1
2793:	2	0	0	1	0	1	1	0
2801:	0	1	0	0	0	1	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	1	0
2825:	0	0	1	0	1	0	0	1
2833:	1	0	0	0	1	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	1	0	2	0	0	0	0
2857:	0	0	0	0	0	1	0	0
2865:	0	0	0	1	1	0	2	0
2873:	0	0	1	0	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	1	0	1	0	0	0
2897:	0	0	1	0	0	0	2	0
2905:	0	0	0	0	0	0	1	0
2913:	0	0	2	0	0	0	0	0
2921:	0	0	0	1	0	0	0	0
2929:	1	0	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	1
2945:	0	1	0	0	2	0	0	0
2953:	1	0	1	0	1	0	0	0

2961:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S004-3036-01

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

Sample Title: HTC-A01-S004-3036-01

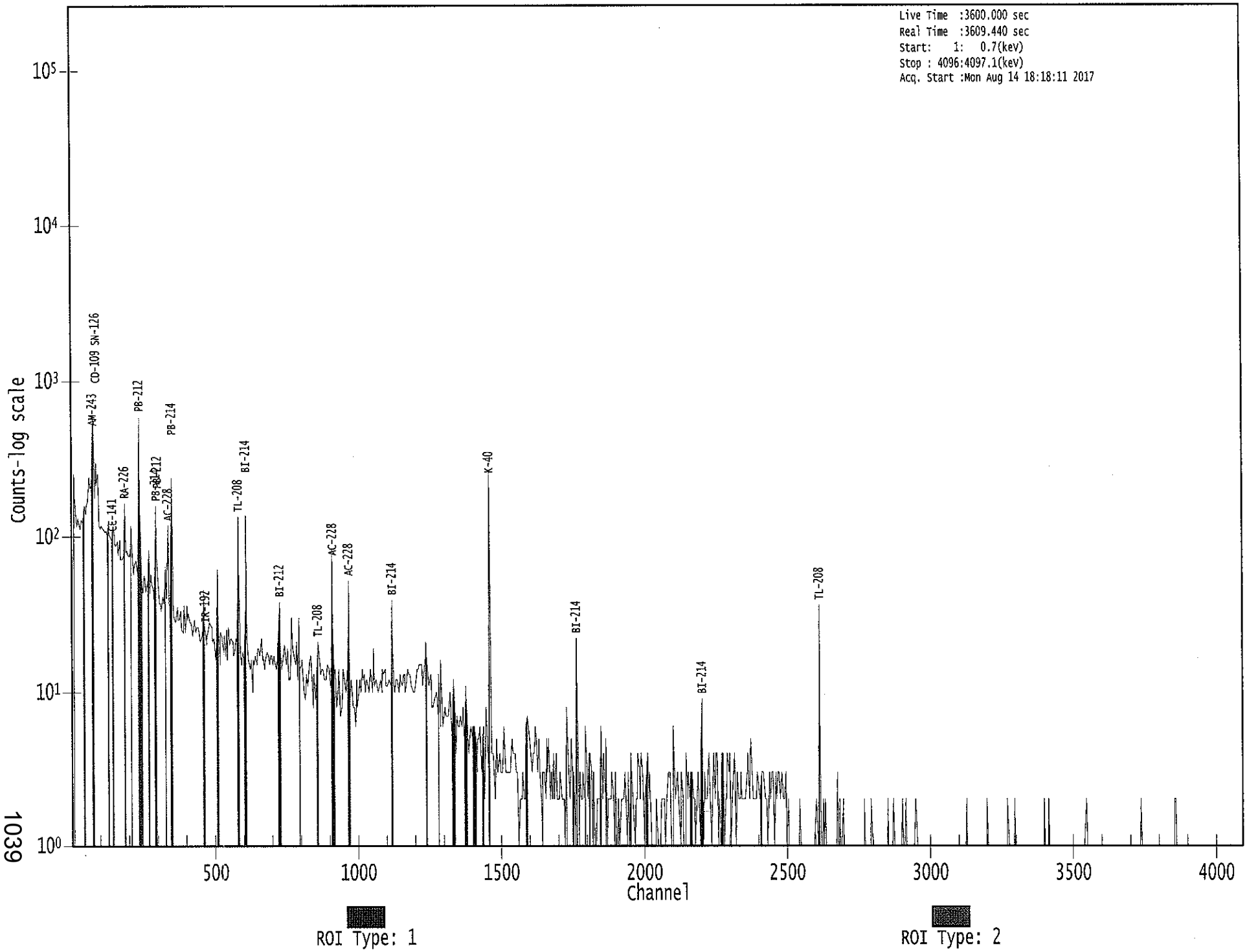
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	1	2	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	1	0	0	0	0	1
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	0	0	0	0	0
3457:	0	0	1	1	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S004-3036-01

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

0000055215.CNF



1039

Apex-Gamma

8/15

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-18
Sample Description	: HTC-A01-S004-3642-01
Sample Type	: SOIL
Sample Size	: 6.535E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:34:59AM
Acquisition Started	: 8/14/2017 6:18:19PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3603.0 seconds
Dead Time	: 0.08 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 15 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55216

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/14/2017 7:18:51PM
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	62.42	61.47	0.0000	0.00
2	76.22	75.28	0.0000	0.00
3	87.84	86.90	0.0000	0.00
4	93.13	92.19	0.0000	0.00
5	129.19	128.27	0.0000	0.00
6	182.10	181.19	0.0000	0.00
7	186.15	185.25	0.0000	0.00
8	190.56	189.65	0.0000	0.00
9	209.52	208.62	0.0000	0.00
10	239.20	238.31	0.0000	0.00
11	270.11	269.23	0.0000	0.00
12	295.32	294.44	0.0000	0.00
13	300.60	299.72	0.0000	0.00
14	327.91	327.04	0.0000	0.00
15	338.43	337.58	0.0000	0.00
16	352.08	351.23	0.0000	0.00
17	409.49	408.66	0.0000	0.00
18	440.42	439.60	0.0000	0.00
19	462.57	461.75	0.0000	0.00
20	510.96	510.16	0.0000	0.00
21	583.16	582.39	0.0000	0.00
22	609.53	608.77	0.0000	0.00
23	727.05	726.34	0.0000	0.00
24	784.18	783.49	0.0000	0.00
25	796.23	795.54	0.0000	0.00
26	806.74	806.06	0.0000	0.00
27	860.72	860.06	0.0000	0.00
28	906.64	906.00	0.0000	0.00
29	911.45	910.82	0.0000	0.00
30	918.63	918.00	0.0000	0.00
31	964.61	964.00	0.0000	0.00
32	968.95	968.33	0.0000	0.00
33	1120.05	1119.51	0.0000	0.00
34	1228.72	1228.23	0.0000	0.00
35	1237.45	1236.96	0.0000	0.00
36	1268.30	1267.82	0.0000	0.00
37	1328.38	1327.94	0.0000	0.00
38	1335.69	1335.25	0.0000	0.00
39	1390.20	1389.78	0.0000	0.00
40	1426.90	1426.50	0.0000	0.00
41	1460.69	1460.31	0.0000	0.00
42	1474.31	1473.94	0.0000	0.00

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1495.10	1494.74	0.0000	0.00
44	1523.74	1523.40	0.0000	0.00
45	1535.43	1535.10	0.0000	0.00
46	1588.59	1588.28	0.0000	0.00
47	1601.21	1600.91	0.0000	0.00
48	1621.26	1620.97	0.0000	0.00
49	1630.38	1630.10	0.0000	0.00
50	1763.66	1763.45	0.0000	0.00
51	1945.48	1945.37	0.0000	0.00
52	1991.39	1991.31	0.0000	0.00
53	2103.90	2103.88	0.0000	0.00
54	2135.02	2135.03	0.0000	0.00
55	2244.54	2244.61	0.0000	0.00
56	2385.56	2385.72	0.0000	0.00
57	2614.17	2614.49	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 7:18:51PM

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	62.42	56 -	66	61.47	2.44E+02	193.31	4.87E+03	2.56
	2	76.22	69 -	80	75.28	2.57E+03	233.64	5.52E+03	4.11
M	3	87.84	81 -	96	86.90	1.07E+03	189.54	4.20E+03	5.14
m	4	93.13	81 -	96	92.19	4.39E+02	130.55	2.46E+03	2.24
	5	129.19	124 -	132	128.27	2.16E+02	132.87	2.58E+03	2.56
M	6	182.10	179 -	192	181.19	7.24E+01	57.38	7.63E+02	2.02
m	7	186.15	179 -	192	185.25	3.40E+02	112.81	1.71E+03	3.08
m	8	190.56	179 -	192	189.65	7.71E+01	80.55	1.14E+03	2.14
	9	209.52	206 -	212	208.62	1.79E+02	87.05	1.24E+03	2.09
	10	239.20	233 -	244	238.31	2.40E+03	152.71	1.69E+03	2.51
	11	270.11	265 -	273	269.23	1.55E+02	83.49	9.79E+02	2.08
M	12	295.32	290 -	302	294.44	3.06E+02	77.33	8.05E+02	2.61
m	13	300.60	290 -	302	299.72	9.23E+01	57.38	5.79E+02	2.13
	14	327.91	323 -	331	327.04	7.23E+01	71.98	7.55E+02	2.15
M	15	338.43	333 -	354	337.58	3.06E+02	67.43	6.39E+02	2.37
m	16	352.08	333 -	354	351.23	4.34E+02	69.91	5.59E+02	2.22
	17	409.49	405 -	412	408.66	5.25E+01	55.53	4.77E+02	1.97
	18	440.42	437 -	442	439.60	4.12E+01	41.11	3.04E+02	3.66
	19	462.57	458 -	466	461.75	9.69E+01	56.10	4.28E+02	2.13
	20	510.96	505 -	516	510.16	2.23E+02	69.11	4.84E+02	2.54
	21	583.16	577 -	588	582.39	5.04E+02	77.49	5.01E+02	2.33
	22	609.53	605 -	613	608.77	3.03E+02	56.51	3.02E+02	2.93
	23	727.05	720 -	731	726.34	1.19E+02	56.25	3.36E+02	2.61
	24	784.18	779 -	787	783.49	3.54E+01	36.58	1.83E+02	2.92
	25	796.23	789 -	802	795.54	8.95E+01	52.44	2.65E+02	4.74
	26	806.74	803 -	810	806.06	2.83E+01	32.43	1.57E+02	1.57
	27	860.72	856 -	864	860.06	6.20E+01	34.41	1.44E+02	2.91
M	28	906.64	903 -	927	906.00	2.03E+01	20.19	9.25E+01	2.43
m	29	911.45	903 -	927	910.82	3.01E+02	42.56	1.09E+02	2.28
m	30	918.63	903 -	927	918.00	2.84E+01	25.13	8.52E+01	2.44
M	31	964.61	961 -	973	964.00	4.46E+01	24.11	1.10E+02	2.45
m	32	968.95	961 -	973	968.33	1.88E+02	42.28	1.47E+02	2.58
	33	1120.05	1116 -	1124	1119.51	7.27E+01	34.29	1.39E+02	2.18
	34	1228.72	1226 -	1231	1228.23	2.57E+01	22.14	7.67E+01	2.93
	35	1237.45	1232 -	1241	1236.96	4.84E+01	36.73	1.65E+02	1.52
	36	1268.30	1265 -	1271	1267.82	2.02E+01	21.66	6.56E+01	2.75
	37	1328.38	1324 -	1331	1327.94	1.92E+01	20.00	4.96E+01	3.07
	38	1335.69	1331 -	1339	1335.25	2.04E+01	20.07	4.93E+01	5.63
	39	1390.20	1388 -	1392	1389.78	1.16E+01	11.30	1.87E+01	2.19
	40	1426.90	1423 -	1430	1426.50	2.87E+01	14.42	1.46E+01	2.97

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1460.69	1453 -	1467	1460.31	5.73E+02	53.50	6.00E+01	2.94
42	1474.31	1471 -	1476	1473.94	1.06E+01	10.82	1.48E+01	2.48
43	1495.10	1491 -	1499	1494.74	1.95E+01	15.01	2.30E+01	2.59
44	1523.74	1519 -	1526	1523.40	9.11E+00	12.33	1.78E+01	1.51
45	1535.43	1532 -	1539	1535.10	1.46E+01	9.17	4.76E+00	1.39
46	1588.59	1573 -	1595	1588.28	6.67E+01	36.85	8.27E+01	6.33
47	1601.21	1598 -	1603	1600.91	7.25E+00	10.05	1.35E+01	2.69
48	1621.26	1616 -	1627	1620.97	2.29E+01	19.18	3.02E+01	3.52
49	1630.38	1627 -	1633	1630.10	1.47E+01	11.70	1.46E+01	2.34
50	1763.66	1758 -	1769	1763.45	4.78E+01	18.33	1.84E+01	2.52
51	1945.48	1937 -	1955	1945.37	2.49E+01	14.36	8.10E+00	16.53
52	1991.39	1988 -	1996	1991.31	1.15E+01	12.85	1.90E+01	1.24
53	2103.90	2098 -	2110	2103.88	4.20E+01	12.96	0.00E+00	5.24
54	2135.02	2130 -	2138	2135.03	1.13E+01	11.52	1.33E+01	1.42
55	2244.54	2240 -	2249	2244.61	1.28E+01	16.06	2.84E+01	7.23
56	2385.56	2380 -	2389	2385.72	9.74E+00	13.27	1.85E+01	2.60
57	2614.17	2608 -	2619	2614.49	1.63E+02	26.46	6.44E+00	3.01

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/14/2017 7:18:51PM

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	62.42	56 -	66	2.44E+02	193.31	4.87E+03	1.57E+02
	2	76.22	69 -	80	2.57E+03	233.64	5.52E+03	1.73E+02
M	3	87.84	81 -	96	1.07E+03	189.54	4.20E+03	1.07E+02
m	4	93.13	81 -	96	4.39E+02	130.55	2.46E+03	8.15E+01
	5	129.19	124 -	132	2.16E+02	132.87	2.58E+03	1.07E+02
M	6	182.10	179 -	192	7.24E+01	57.38	7.63E+02	4.54E+01
m	7	186.15	179 -	192	3.40E+02	112.81	1.71E+03	6.80E+01
m	8	190.56	179 -	192	7.71E+01	80.55	1.14E+03	5.54E+01
	9	209.52	206 -	212	1.79E+02	87.05	1.24E+03	6.81E+01
	10	239.20	233 -	244	2.40E+03	152.71	1.69E+03	9.63E+01
	11	270.11	265 -	273	1.55E+02	83.49	9.79E+02	6.55E+01

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	12	295.32	290 -	302	3.06E+02	77.33	8.05E+02	4.67E+01
m	13	300.60	290 -	302	9.23E+01	57.38	5.79E+02	3.96E+01
	14	327.91	323 -	331	7.23E+01	71.98	7.55E+02	5.75E+01
M	15	338.43	333 -	354	3.06E+02	67.43	6.39E+02	4.16E+01
m	16	352.08	333 -	354	4.34E+02	69.91	5.59E+02	3.89E+01
	17	409.49	405 -	412	5.25E+01	55.53	4.77E+02	4.41E+01
	18	440.42	437 -	442	4.12E+01	41.11	3.04E+02	3.21E+01
	19	462.57	458 -	466	9.69E+01	56.10	4.28E+02	4.32E+01
	20	510.96	505 -	516	2.23E+02	69.11	4.84E+02	5.12E+01
	21	583.16	577 -	588	5.04E+02	77.49	5.01E+02	5.19E+01
	22	609.53	605 -	613	3.03E+02	56.51	3.02E+02	3.66E+01
	23	727.05	720 -	731	1.19E+02	56.25	3.36E+02	4.26E+01
	24	784.18	779 -	787	3.54E+01	36.58	1.83E+02	2.84E+01
	25	796.23	789 -	802	8.95E+01	52.44	2.65E+02	4.02E+01
	26	806.74	803 -	810	2.83E+01	32.43	1.57E+02	2.52E+01
	27	860.72	856 -	864	6.20E+01	34.41	1.44E+02	2.51E+01
M	28	906.64	903 -	927	2.03E+01	20.19	9.25E+01	1.58E+01
m	29	911.45	903 -	927	3.01E+02	42.56	1.09E+02	1.72E+01
m	30	918.63	903 -	927	2.84E+01	25.13	8.52E+01	1.52E+01
M	31	964.61	961 -	973	4.46E+01	24.11	1.10E+02	1.72E+01
m	32	968.95	961 -	973	1.88E+02	42.28	1.47E+02	2.00E+01
	33	1120.05	1116 -	1124	7.27E+01	34.29	1.39E+02	2.45E+01
	34	1228.72	1226 -	1231	2.57E+01	22.14	7.67E+01	1.62E+01
	35	1237.45	1232 -	1241	4.84E+01	36.73	1.65E+02	2.79E+01
	36	1268.30	1265 -	1271	2.02E+01	21.66	6.56E+01	1.62E+01
	37	1328.38	1324 -	1331	1.92E+01	20.00	4.96E+01	1.48E+01
	38	1335.69	1331 -	1339	2.04E+01	20.07	4.93E+01	1.47E+01
	39	1390.20	1388 -	1392	1.16E+01	11.30	1.87E+01	7.41E+00
	40	1426.90	1423 -	1430	2.87E+01	14.42	1.46E+01	7.93E+00
	41	1460.69	1453 -	1467	5.73E+02	53.50	6.00E+01	1.96E+01
	42	1474.31	1471 -	1476	1.06E+01	10.82	1.48E+01	7.10E+00
	43	1495.10	1491 -	1499	1.95E+01	15.01	2.30E+01	9.98E+00
	44	1523.74	1519 -	1526	9.11E+00	12.33	1.78E+01	8.84E+00
	45	1535.43	1532 -	1539	1.46E+01	9.17	4.76E+00	4.15E+00
	46	1588.59	1573 -	1595	6.67E+01	36.85	8.27E+01	1.16E+01
	47	1601.21	1598 -	1603	7.25E+00	10.05	1.35E+01	6.97E+00
	48	1621.26	1616 -	1627	2.29E+01	19.18	3.02E+01	1.37E+01
	49	1630.38	1627 -	1633	1.47E+01	11.70	1.46E+01	7.27E+00
	50	1763.66	1758 -	1769	4.78E+01	18.33	1.84E+01	9.89E+00
	51	1945.48	1937 -	1955	2.49E+01	14.36	8.10E+00	8.48E+00
	52	1991.39	1988 -	1996	1.15E+01	12.85	1.90E+01	8.97E+00
	53	2103.90	2098 -	2110	4.20E+01	12.96	0.00E+00	0.00E+00
	54	2135.02	2130 -	2138	1.13E+01	11.52	1.33E+01	7.69E+00
	55	2244.54	2240 -	2249	1.28E+01	16.06	2.84E+01	1.18E+01
	56	2385.56	2380 -	2389	9.74E+00	13.27	1.85E+01	9.62E+00
	57	2614.17	2608 -	2619	1.63E+02	26.46	6.44E+00	5.75E+00

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/14/2017 7:18:51PM

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	62.42	56 -	66	61.47	2.44E+02	193.31	4.87E+03	TH-230
									TH-234
	2	76.22	69 -	80	75.28	2.57E+03	233.64	5.52E+03	.....
M	3	87.84	81 -	96	86.90	1.07E+03	189.54	4.20E+03	CD-109
									SN-126
									LU-176
m	4	93.13	81 -	96	92.19	4.39E+02	130.55	2.46E+03	GA-67
	5	129.19	124 -	132	128.27	2.16E+02	132.87	2.58E+03	.....
M	6	182.10	179 -	192	181.19	7.24E+01	57.38	7.63E+02	LU-172
m	7	186.15	179 -	192	185.25	3.40E+02	112.81	1.71E+03	RA-226
m	8	190.56	179 -	192	189.65	7.71E+01	80.55	1.14E+03	.....
	9	209.52	206 -	212	208.62	1.79E+02	87.05	1.24E+03	CM-243
									GA-67
	10	239.20	233 -	244	238.31	2.40E+03	152.71	1.69E+03	PB-212
	11	270.11	265 -	273	269.23	1.55E+02	83.49	9.79E+02	.....
M	12	295.32	290 -	302	294.44	3.06E+02	77.33	8.05E+02	PB-214
m	13	300.60	290 -	302	299.72	9.23E+01	57.38	5.79E+02	GA-67
									PB-212
									BI-210M
	14	327.91	323 -	331	327.04	7.23E+01	71.98	7.55E+02	LA-140
M	15	338.43	333 -	354	337.58	3.06E+02	67.43	6.39E+02	AC-228
m	16	352.08	333 -	354	351.23	4.34E+02	69.91	5.59E+02	PB-214
	17	409.49	405 -	412	408.66	5.25E+01	55.53	4.77E+02	.....
	18	440.42	437 -	442	439.60	4.12E+01	41.11	3.04E+02	.....
	19	462.57	458 -	466	461.75	9.69E+01	56.10	4.28E+02	SB-125
	20	510.96	505 -	516	510.16	2.23E+02	69.11	4.84E+02	.....
	21	583.16	577 -	588	582.39	5.04E+02	77.49	5.01E+02	TL-208
	22	609.53	605 -	613	608.77	3.03E+02	56.51	3.02E+02	BI-214
	23	727.05	720 -	731	726.34	1.19E+02	56.25	3.36E+02	BI-212
	24	784.18	779 -	787	783.49	3.54E+01	36.58	1.83E+02	SB-127

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	25	796.23	789 -	802	795.54	8.95E+01	52.44	2.65E+02	CS-134
	26	806.74	803 -	810	806.06	2.83E+01	32.43	1.57E+02	.....
	27	860.72	856 -	864	860.06	6.20E+01	34.41	1.44E+02	TL-208
M	28	906.64	903 -	927	906.00	2.03E+01	20.19	9.25E+01	.....
m	29	911.45	903 -	927	910.82	3.01E+02	42.56	1.09E+02	TL-204 AC-228
m	30	918.63	903 -	927	918.00	2.84E+01	25.13	8.52E+01	.....
M	31	964.61	961 -	973	964.00	4.46E+01	24.11	1.10E+02	EU-152
m	32	968.95	961 -	973	968.33	1.88E+02	42.28	1.47E+02	AC-228
	33	1120.05	1116 -	1124	1119.51	7.27E+01	34.29	1.39E+02	BI-214 SC-46
	34	1228.72	1226 -	1231	1228.23	2.57E+01	22.14	7.67E+01	.....
	35	1237.45	1232 -	1241	1236.96	4.84E+01	36.73	1.65E+02	CO-56
	36	1268.30	1265 -	1271	1267.82	2.02E+01	21.66	6.56E+01	.....
	37	1328.38	1324 -	1331	1327.94	1.92E+01	20.00	4.96E+01	.....
	38	1335.69	1331 -	1339	1335.25	2.04E+01	20.07	4.93E+01	.....
	39	1390.20	1388 -	1392	1389.78	1.16E+01	11.30	1.87E+01	.....
	40	1426.90	1423 -	1430	1426.50	2.87E+01	14.42	1.46E+01	.....
	41	1460.69	1453 -	1467	1460.31	5.73E+02	53.50	6.00E+01	K-40
	42	1474.31	1471 -	1476	1473.94	1.06E+01	10.82	1.48E+01	.....
	43	1495.10	1491 -	1499	1494.74	1.95E+01	15.01	2.30E+01	.....
	44	1523.74	1519 -	1526	1523.40	9.11E+00	12.33	1.78E+01	.....
	45	1535.43	1532 -	1539	1535.10	1.46E+01	9.17	4.76E+00	.....
	46	1588.59	1573 -	1595	1588.28	6.67E+01	36.85	8.27E+01	.....
	47	1601.21	1598 -	1603	1600.91	7.25E+00	10.05	1.35E+01	.....
	48	1621.26	1616 -	1627	1620.97	2.29E+01	19.18	3.02E+01	BI-212
	49	1630.38	1627 -	1633	1630.10	1.47E+01	11.70	1.46E+01	.....
	50	1763.66	1758 -	1769	1763.45	4.78E+01	18.33	1.84E+01	BI-214
	51	1945.48	1937 -	1955	1945.37	2.49E+01	14.36	8.10E+00	.....
	52	1991.39	1988 -	1996	1991.31	1.15E+01	12.85	1.90E+01	.....
	53	2103.90	2098 -	2110	2103.88	4.20E+01	12.96	0.00E+00	.....
	54	2135.02	2130 -	2138	2135.03	1.13E+01	11.52	1.33E+01	.....
	55	2244.54	2240 -	2249	2244.61	1.28E+01	16.06	2.84E+01	.....
	56	2385.56	2380 -	2389	2385.72	9.74E+00	13.27	1.85E+01	.....
	57	2614.17	2608 -	2619	2614.49	1.63E+02	26.46	6.44E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/14/2017 7:18:51PM

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	62.42	2.44E+02	193.31	2.14E-02	1.62E-03
	2	76.22	2.57E+03	233.64	2.32E-02	1.91E-03
M	3	87.84	1.07E+03	189.54	2.37E-02	2.16E-03
m	4	93.13	4.39E+02	130.55	2.36E-02	2.09E-03
	5	129.19	2.16E+02	132.87	2.15E-02	1.63E-03
M	6	182.10	7.24E+01	57.38	1.72E-02	1.42E-03
m	7	186.15	3.40E+02	112.81	1.69E-02	1.40E-03
m	8	190.56	7.71E+01	80.55	1.66E-02	1.37E-03
	9	209.52	1.79E+02	87.05	1.53E-02	1.28E-03
	10	239.20	2.40E+03	152.71	1.36E-02	1.14E-03
	11	270.11	1.55E+02	83.49	1.21E-02	9.91E-04
M	12	295.32	3.06E+02	77.33	1.10E-02	9.13E-04
m	13	300.60	9.23E+01	57.38	1.08E-02	9.02E-04
	14	327.91	7.23E+01	71.98	9.91E-03	8.45E-04
M	15	338.43	3.06E+02	67.43	9.60E-03	8.22E-04
m	16	352.08	4.34E+02	69.91	9.21E-03	7.94E-04
	17	409.49	5.25E+01	55.53	7.88E-03	7.03E-04
	18	440.42	4.12E+01	41.11	7.31E-03	6.90E-04
	19	462.57	9.69E+01	56.10	6.95E-03	6.81E-04
	20	510.96	2.23E+02	69.11	6.28E-03	6.61E-04
	21	583.16	5.04E+02	77.49	5.51E-03	6.31E-04
	22	609.53	3.03E+02	56.51	5.27E-03	6.20E-04
	23	727.05	1.19E+02	56.25	4.45E-03	5.17E-04
	24	784.18	3.54E+01	36.58	4.15E-03	4.45E-04
	25	796.23	8.95E+01	52.44	4.09E-03	4.30E-04
	26	806.74	2.83E+01	32.43	4.04E-03	4.17E-04
	27	860.72	6.20E+01	34.41	3.81E-03	3.49E-04
M	28	906.64	2.03E+01	20.19	3.64E-03	3.00E-04
m	29	911.45	3.01E+02	42.56	3.62E-03	2.99E-04
m	30	918.63	2.84E+01	25.13	3.59E-03	2.97E-04
M	31	964.61	4.46E+01	24.11	3.44E-03	2.86E-04
m	32	968.95	1.88E+02	42.28	3.43E-03	2.85E-04
	33	1120.05	7.27E+01	34.29	3.02E-03	2.50E-04
	34	1228.72	2.57E+01	22.14	2.78E-03	2.34E-04
	35	1237.45	4.84E+01	36.73	2.76E-03	2.33E-04
	36	1268.30	2.02E+01	21.66	2.70E-03	2.31E-04
	37	1328.38	1.92E+01	20.00	2.60E-03	2.27E-04
	38	1335.69	2.04E+01	20.07	2.58E-03	2.27E-04
	39	1390.20	1.16E+01	11.30	2.49E-03	2.18E-04
	40	1426.90	2.87E+01	14.42	2.44E-03	2.13E-04
	41	1460.69	5.73E+02	53.50	2.38E-03	2.08E-04
	42	1474.31	1.06E+01	10.82	2.37E-03	2.06E-04
	43	1495.10	1.95E+01	15.01	2.34E-03	2.03E-04
	44	1523.74	9.11E+00	12.33	2.30E-03	1.98E-04
	45	1535.43	1.46E+01	9.17	2.28E-03	1.97E-04
	46	1588.59	6.67E+01	36.85	2.21E-03	1.89E-04
	47	1601.21	7.25E+00	10.05	2.19E-03	1.87E-04
	48	1621.26	2.29E+01	19.18	2.17E-03	1.84E-04
	49	1630.38	1.47E+01	11.70	2.16E-03	1.82E-04
	50	1763.66	4.78E+01	18.33	2.00E-03	1.62E-04
	51	1945.48	2.49E+01	14.36	1.81E-03	1.51E-04
	52	1991.39	1.15E+01	12.85	1.77E-03	1.51E-04
	53	2103.90	4.20E+01	12.96	1.67E-03	1.51E-04

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
54	2135.02	1.13E+01	11.52	1.64E-03	1.51E-04
55	2244.54	1.28E+01	16.06	1.55E-03	1.51E-04
56	2385.56	9.74E+00	13.27	1.44E-03	1.51E-04
57	2614.17	1.63E+02	26.46	1.28E-03	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/14/2017 7:18:51PM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	62.42	2.44E+02	193.31			2.44E+02	1.93E+02
	2	76.22	2.57E+03	233.64			2.57E+03	2.34E+02
M	3	87.84	1.07E+03	189.54			1.07E+03	1.90E+02
m	4	93.13	4.39E+02	130.55	6.21E+01	4.71E+00	3.77E+02	1.31E+02
	5	129.19	2.16E+02	132.87			2.16E+02	1.33E+02
M	6	182.10	7.24E+01	57.38			7.24E+01	5.74E+01
m	7	186.15	3.40E+02	112.81	2.34E+01	8.57E+00	3.16E+02	1.13E+02
m	8	190.56	7.71E+01	80.55			7.71E+01	8.05E+01
	9	209.52	1.79E+02	87.05			1.79E+02	8.70E+01
	10	239.20	2.40E+03	152.71	8.90E+00	6.12E+00	2.39E+03	1.53E+02
	11	270.11	1.55E+02	83.49			1.55E+02	8.35E+01
M	12	295.32	3.06E+02	77.33			3.06E+02	7.73E+01
m	13	300.60	9.23E+01	57.38			9.23E+01	5.74E+01
	14	327.91	7.23E+01	71.98			7.23E+01	7.20E+01
M	15	338.43	3.06E+02	67.43			3.06E+02	6.74E+01
m	16	352.08	4.34E+02	69.91			4.34E+02	6.99E+01
	17	409.49	5.25E+01	55.53			5.25E+01	5.55E+01
	18	440.42	4.12E+01	41.11			4.12E+01	4.11E+01
	19	462.57	9.69E+01	56.10			9.69E+01	5.61E+01
	20	510.96	2.23E+02	69.11	4.43E+01	4.80E+00	1.79E+02	6.93E+01
	21	583.16	5.04E+02	77.49	3.56E+00	2.78E+00	5.00E+02	7.75E+01
	22	609.53	3.03E+02	56.51			3.03E+02	5.65E+01
	23	727.05	1.19E+02	56.25			1.19E+02	5.62E+01
	24	784.18	3.54E+01	36.58			3.54E+01	3.66E+01
	25	796.23	8.95E+01	52.44			8.95E+01	5.24E+01
	26	806.74	2.83E+01	32.43			2.83E+01	3.24E+01

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	27	860.72	6.20E+01	34.41			6.20E+01	3.44E+01
M	28	906.64	2.03E+01	20.19			2.03E+01	2.02E+01
m	29	911.45	3.01E+02	42.56			3.01E+02	4.26E+01
m	30	918.63	2.84E+01	25.13			2.84E+01	2.51E+01
M	31	964.61	4.46E+01	24.11			4.46E+01	2.41E+01
m	32	968.95	1.88E+02	42.28			1.88E+02	4.23E+01
	33	1120.05	7.27E+01	34.29			7.27E+01	3.43E+01
	34	1228.72	2.57E+01	22.14			2.57E+01	2.21E+01
	35	1237.45	4.84E+01	36.73			4.84E+01	3.67E+01
	36	1268.30	2.02E+01	21.66	8.74E-01	1.75E+00	1.93E+01	2.17E+01
	37	1328.38	1.92E+01	20.00			1.92E+01	2.00E+01
	38	1335.69	2.04E+01	20.07			2.04E+01	2.01E+01
	39	1390.20	1.16E+01	11.30			1.16E+01	1.13E+01
	40	1426.90	2.87E+01	14.42			2.87E+01	1.44E+01
	41	1460.69	5.73E+02	53.50			5.73E+02	5.35E+01
	42	1474.31	1.06E+01	10.82			1.06E+01	1.08E+01
	43	1495.10	1.95E+01	15.01			1.95E+01	1.50E+01
	44	1523.74	9.11E+00	12.33			9.11E+00	1.23E+01
	45	1535.43	1.46E+01	9.17			1.46E+01	9.17E+00
	46	1588.59	6.67E+01	36.85			6.67E+01	3.68E+01
	47	1601.21	7.25E+00	10.05			7.25E+00	1.00E+01
	48	1621.26	2.29E+01	19.18			2.29E+01	1.92E+01
	49	1630.38	1.47E+01	11.70			1.47E+01	1.17E+01
	50	1763.66	4.78E+01	18.33			4.78E+01	1.83E+01
	51	1945.48	2.49E+01	14.36			2.49E+01	1.44E+01
	52	1991.39	1.15E+01	12.85			1.15E+01	1.28E+01
	53	2103.90	4.20E+01	12.96			4.20E+01	1.30E+01
	54	2135.02	1.13E+01	11.52			1.13E+01	1.15E+01
	55	2244.54	1.28E+01	16.06			1.28E+01	1.61E+01
	56	2385.56	9.74E+00	13.27			9.74E+00	1.33E+01
	57	2614.17	1.63E+02	26.46			1.63E+02	2.65E+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 : 8/14/2017 7:18:51PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054853.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	62.42	2.44E+02	193.31			2.44E+02	1.93E+02
	2	76.22	2.57E+03	233.64			2.57E+03	2.34E+02
M	3	87.84	1.07E+03	189.54			1.07E+03	1.90E+02
m	4	93.13	4.39E+02	130.55	6.21E+01	4.71E+00	3.77E+02	1.31E+02
	5	129.19	2.16E+02	132.87			2.16E+02	1.33E+02
M	6	182.10	7.24E+01	57.38			7.24E+01	5.74E+01
m	7	186.15	3.40E+02	112.81	2.34E+01	8.57E+00	3.16E+02	1.13E+02
m	8	190.56	7.71E+01	80.55			7.71E+01	8.05E+01
	9	209.52	1.79E+02	87.05			1.79E+02	8.70E+01
	10	239.20	2.40E+03	152.71	8.90E+00	6.12E+00	2.39E+03	1.53E+02
	11	270.11	1.55E+02	83.49			1.55E+02	8.35E+01
M	12	295.32	3.06E+02	77.33			3.06E+02	7.73E+01
m	13	300.60	9.23E+01	57.38			9.23E+01	5.74E+01
	14	327.91	7.23E+01	71.98			7.23E+01	7.20E+01
M	15	338.43	3.06E+02	67.43			3.06E+02	6.74E+01
m	16	352.08	4.34E+02	69.91			4.34E+02	6.99E+01
	17	409.49	5.25E+01	55.53			5.25E+01	5.55E+01
	18	440.42	4.12E+01	41.11			4.12E+01	4.11E+01
	19	462.57	9.69E+01	56.10			9.69E+01	5.61E+01
	20	510.96	2.23E+02	69.11	4.43E+01	4.80E+00	1.79E+02	6.93E+01
	21	583.16	5.04E+02	77.49	3.56E+00	2.78E+00	5.00E+02	7.75E+01
	22	609.53	3.03E+02	56.51			3.03E+02	5.65E+01
	23	727.05	1.19E+02	56.25			1.19E+02	5.62E+01
	24	784.18	3.54E+01	36.58			3.54E+01	3.66E+01
	25	796.23	8.95E+01	52.44			8.95E+01	5.24E+01
	26	806.74	2.83E+01	32.43			2.83E+01	3.24E+01
	27	860.72	6.20E+01	34.41			6.20E+01	3.44E+01
M	28	906.64	2.03E+01	20.19			2.03E+01	2.02E+01
m	29	911.45	3.01E+02	42.56			3.01E+02	4.26E+01
m	30	918.63	2.84E+01	25.13			2.84E+01	2.51E+01
M	31	964.61	4.46E+01	24.11			4.46E+01	2.41E+01
m	32	968.95	1.88E+02	42.28			1.88E+02	4.23E+01
	33	1120.05	7.27E+01	34.29			7.27E+01	3.43E+01
	34	1228.72	2.57E+01	22.14			2.57E+01	2.21E+01
	35	1237.45	4.84E+01	36.73			4.84E+01	3.67E+01
	36	1268.30	2.02E+01	21.66	8.74E-01	1.75E+00	1.93E+01	2.17E+01
	37	1328.38	1.92E+01	20.00			1.92E+01	2.00E+01
	38	1335.69	2.04E+01	20.07			2.04E+01	2.01E+01
	39	1390.20	1.16E+01	11.30			1.16E+01	1.13E+01
	40	1426.90	2.87E+01	14.42			2.87E+01	1.44E+01
	41	1460.69	5.73E+02	53.50			5.73E+02	5.35E+01
	42	1474.31	1.06E+01	10.82			1.06E+01	1.08E+01
	43	1495.10	1.95E+01	15.01			1.95E+01	1.50E+01
	44	1523.74	9.11E+00	12.33			9.11E+00	1.23E+01
	45	1535.43	1.46E+01	9.17			1.46E+01	9.17E+00
	46	1588.59	6.67E+01	36.85			6.67E+01	3.68E+01
	47	1601.21	7.25E+00	10.05			7.25E+00	1.00E+01
	48	1621.26	2.29E+01	19.18			2.29E+01	1.92E+01
	49	1630.38	1.47E+01	11.70			1.47E+01	1.17E+01
	50	1763.66	4.78E+01	18.33			4.78E+01	1.83E+01
	51	1945.48	2.49E+01	14.36			2.49E+01	1.44E+01
	52	1991.39	1.15E+01	12.85			1.15E+01	1.28E+01
	53	2103.90	4.20E+01	12.96			4.20E+01	1.30E+01
	54	2135.02	1.13E+01	11.52			1.13E+01	1.15E+01

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	2244.54	1.28E+01	16.06			1.28E+01	1.61E+01
56	2385.56	9.74E+00	13.27			9.74E+00	1.33E+01
57	2614.17	1.63E+02	26.46			1.63E+02	2.65E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.998	1460.81	*	10.67	2.59E+01	3.35E+00
CD-109	0.994	88.03	*	3.72	1.61E+01	3.34E+00
SN-126	0.989	87.57	*	37.00	1.41E+00	2.80E-01
TL-208	0.980	583.14	*	30.22	3.45E+00	6.66E-01
		860.37	*	4.48	4.17E+00	2.35E+00
		2614.66	*	35.85	4.08E+00	8.19E-01
BI-212	0.986	727.17	*	11.80	2.61E+00	1.27E+00
		1620.62	*	2.75	4.41E+00	3.72E+00
PB-212	0.950	238.63	*	44.60	4.55E+00	4.80E-01
		300.09	*	3.41	2.87E+00	1.80E+00
BI-214	0.911	609.31	*	46.30	1.43E+00	3.15E-01
		1120.29	*	15.10	1.83E+00	8.78E-01
		1764.49	*	15.80	1.74E+00	6.81E-01
		2204.22		4.98		
PB-214	0.997	295.21	*	19.19	1.66E+00	4.42E-01
		351.92	*	37.19	1.46E+00	2.66E-01
RA-226	0.999	186.21	*	3.28	6.55E+00	1.22E+01
AC-228	0.987	338.32	*	11.40	3.22E+00	7.60E-01
		911.07	*	27.70	3.45E+00	5.65E-01
		969.11	*	16.60	3.79E+00	9.11E-01
TH-234	0.886	63.29	*	3.80	3.46E+00	2.75E+00

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 7:18:51PM
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	76.22	7.14658E-01	4.54		
m	4	93.13	1.04651E-01	17.34	Tol.	GA-67
	5	129.19	5.98965E-02	30.81		
M	6	182.10	2.01209E-02	39.61	Tol.	LU-172
m	8	190.56	2.14074E-02	52.26		
	9	209.52	4.96857E-02	24.33	Tol.	GA-67 CM-243
	11	270.11	4.29835E-02	26.98		
	14	327.91	2.00861E-02	49.77	Sum	
	17	409.49	1.45905E-02	52.86		
	18	440.42	1.14335E-02	49.94	Sum	
	19	462.57	2.69087E-02	28.96	Tol.	SB-125
	20	510.96	4.96452E-02	19.38		
	24	784.18	9.84471E-03	51.61	Tol.	SB-127
	25	796.23	2.48661E-02	29.29	Sum	
	26	806.74	7.85696E-03	57.34		
M	28	906.64	5.62833E-03	49.81		
m	30	918.63	7.90258E-03	44.17		
M	31	964.61	1.24027E-02	27.00	Tol.	EU-152
	34	1228.72	7.13108E-03	43.11		
	35	1237.45	1.34436E-02	37.95		
	36	1268.30	5.36770E-03	56.23		
	37	1328.38	5.32828E-03	52.13		
	38	1335.69	5.65432E-03	49.30	Sum	
	39	1390.20	3.23413E-03	48.54		
	40	1426.90	7.97839E-03	25.11		
	42	1474.31	2.94753E-03	50.97		
	43	1495.10	5.41219E-03	38.51	Sum	
	44	1523.74	2.53086E-03	67.66	Sum	
	45	1535.43	4.06046E-03	31.35		
	46	1588.59	1.85159E-02	27.64	Sum	
	47	1601.21	2.01389E-03	69.31		
	49	1630.38	4.07828E-03	39.86		
	51	1945.48	6.93008E-03	28.78		

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
52	1991.39	3.19444E-03	55.85		
53	2103.90	1.16667E-02	15.43	S-Esc	
54	2135.02	3.14815E-03	50.83		
55	2244.54	3.54938E-03	62.85		
56	2385.56	2.70468E-03	68.13		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.59E+01	3.35E+00
CD-109	0.99	88.03	*	3.72	1.61E+01	3.34E+00
SN-126	0.98	87.57	*	37.00	1.41E+00	2.80E-01
TL-208	0.98	583.14	*	30.22	3.45E+00	6.66E-01
		860.37	*	4.48	4.17E+00	2.35E+00
		2614.66	*	35.85	4.08E+00	8.19E-01
BI-212	0.98	727.17	*	11.80	2.61E+00	1.27E+00
		1620.62	*	2.75	4.41E+00	3.72E+00
PB-212	0.95	238.63	*	44.60	4.55E+00	4.80E-01
		300.09	*	3.41	2.87E+00	1.80E+00
BI-214	0.91	609.31	*	46.30	1.43E+00	3.15E-01
		1120.29	*	15.10	1.83E+00	8.78E-01
		1764.49	*	15.80	1.74E+00	6.81E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.66E+00	4.42E-01
		351.92	*	37.19	1.46E+00	2.66E-01
RA-226	0.99	186.21	*	3.28	6.55E+00	1.22E+01
AC-228	0.98	338.32	*	11.40	3.22E+00	7.60E-01
		911.07	*	27.70	3.45E+00	5.65E-01
		969.11	*	16.60	3.79E+00	9.11E-01
TH-234	0.88	63.29	*	3.80	3.46E+00	2.75E+00

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

* = 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	0.998	2.59E+01	3.35E+00	
?	CD-109	0.994	1.61E+01	3.34E+00	
?	SN-126	0.989	1.41E+00	2.80E-01	
	TL-208	0.980	3.72E+00	5.05E-01	
	BI-212	0.986	2.79E+00	1.20E+00	
	PB-212	0.950	4.43E+00	4.64E-01	
	BI-214	0.911	1.52E+00	2.72E-01	
	PB-214	0.997	1.51E+00	2.28E-01	
	RA-226	0.999	6.55E+00	1.22E+01	
	AC-228	0.987	3.45E+00	4.06E-01	
	TH-234	0.886	3.46E+00	2.75E+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 1707078-18

HTC-A01-S004-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/14/2017 7:18:51PM
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	76.22	7.14658E-01	4.54		
m	4	93.13	1.04651E-01	17.34	Tol.	GA-67
	5	129.19	5.98965E-02	30.81		
M	6	182.10	2.01209E-02	39.61	Tol.	LU-172
m	8	190.56	2.14074E-02	52.26		
	9	209.52	4.96857E-02	24.33	Tol.	GA-67 CM-243
	11	270.11	4.29835E-02	26.98		
	14	327.91	2.00861E-02	49.77	Sum	
	17	409.49	1.45905E-02	52.86		
	18	440.42	1.14335E-02	49.94	Sum	
	19	462.57	2.69087E-02	28.96	Tol.	SB-125
	20	510.96	4.96452E-02	19.38		
	24	784.18	9.84471E-03	51.61	Tol.	SB-127
	25	796.23	2.48661E-02	29.29	Sum	
	26	806.74	7.85696E-03	57.34		
M	28	906.64	5.62833E-03	49.81		
m	30	918.63	7.90258E-03	44.17		
M	31	964.61	1.24027E-02	27.00	Tol.	EU-152
	34	1228.72	7.13108E-03	43.11		
	35	1237.45	1.34436E-02	37.95		
	36	1268.30	5.36770E-03	56.23		
	37	1328.38	5.32828E-03	52.13		
	38	1335.69	5.65432E-03	49.30	Sum	
	39	1390.20	3.23413E-03	48.54		
	40	1426.90	7.97839E-03	25.11		
	42	1474.31	2.94753E-03	50.97		
	43	1495.10	5.41219E-03	38.51	Sum	
	44	1523.74	2.53086E-03	67.66	Sum	
	45	1535.43	4.06046E-03	31.35		
	46	1588.59	1.85159E-02	27.64	Sum	
	47	1601.21	2.01389E-03	69.31		
	49	1630.38	4.07828E-03	39.86		
	51	1945.48	6.93008E-03	28.78		
	52	1991.39	3.19444E-03	55.85		

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	2103.90	1.16667E-02	15.43	S-Esc	
54	2135.02	3.14815E-03	50.83		
55	2244.54	3.54938E-03	62.85		
56	2385.56	2.70468E-03	68.13		

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	2.88E+00	3.83E+00	3.83E+00
+		NA-22	1274.54		99.94	2.04E-02	1.73E-01	1.73E-01
+	@	NA-24	1368.53		99.99	0.00E+00	1.00E+26	1.00E+26
	@		2754.09		99.86	0.00E+00		1.00E+26
+		AL-26	1808.65		99.76	-2.10E-02	9.84E-02	9.84E-02
+		K-40	1460.81	*	10.67	2.59E+01	1.90E+00	1.90E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	1.52E-02	1.09E-01	1.09E-01
			78.34		96.00	9.18E-01		1.47E-01
+		SC-46	889.25		99.98	3.37E-02	3.20E-01	3.20E-01
			1120.51		99.99	5.46E-01		4.80E-01
+		V-48	983.52		99.98	-2.33E+00	8.20E+00	8.20E+00
			1312.10		97.50	-7.42E-01		8.86E+00
+		CR-51	320.08		9.83	3.42E-01	1.02E+01	1.02E+01
+		MN-54	834.83		99.97	-3.61E-02	1.83E-01	1.83E-01
+		CO-56	846.75		99.96	1.95E-01	3.33E-01	3.33E-01
			1037.75		14.03	2.01E-02		2.22E+00
			1238.25		67.00	5.82E-01		7.76E-01
			1771.40		15.51	4.25E-01		1.80E+00
			2598.48		16.90	2.40E-01		1.57E+00
+		CO-57	122.06		85.51	-6.00E-02	1.12E-01	1.12E-01
			136.48		10.60	1.81E-01		9.82E-01
+		CO-58	810.76		99.40	-1.40E-01	3.50E-01	3.50E-01
+		FE-59	1099.22		56.50	-3.20E-01	1.22E+00	1.22E+00
			1291.56		43.20	7.98E-01		1.59E+00

Analysis Report for 1707078-18

HTC-A01-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	-1.30E-03	1.59E-01	1.85E-01
		1332.49		100.00	-1.70E-02		1.59E-01
+	ZN-65	1115.52		50.75	-5.73E-02	4.91E-01	4.91E-01
+	GA-67	93.31		35.70	1.68E+08	1.19E+08	1.19E+08
		208.95		2.24	2.24E+09		1.90E+09
		300.22		16.00	-4.81E+08		2.83E+08
+	SE-75	121.11		16.70	-6.90E-01	2.36E-01	7.69E-01
		136.00		59.20	2.12E-02		2.36E-01
		264.65		59.80	-5.79E-02		2.49E-01
		279.53		25.20	5.32E-01		6.65E-01
		400.65		11.40	1.55E-01		1.59E+00
+	RB-82	776.52		13.00	3.46E-01	1.48E+01	1.48E+01
+	RB-83	520.41		46.00	-5.42E-02	5.12E-01	5.12E-01
		529.64		30.30	-3.13E-01		7.53E-01
		552.65		16.40	1.76E-02		1.54E+00
+	KR-85	513.99		0.43	4.54E+01	3.58E+01	3.58E+01
+	SR-85	513.99		99.27	5.30E-01	4.18E-01	4.18E-01
+	Y-88	898.02		93.40	9.24E-03	2.42E-01	2.78E-01
		1836.01		99.38	8.83E-02		2.42E-01
+	MO-93	263.06		56.72	-1.77E-02	1.39E-01	1.57E-01
		684.67		99.68	8.69E-02		1.59E-01
		1477.11		99.08	-2.30E-03		1.39E-01
+	NB-93M	16.57		9.43	2.40E+01	9.79E+00	9.79E+00
+	NB-94	702.63		100.00	3.25E-02	1.46E-01	1.53E-01
		871.10		100.00	2.52E-02		1.46E-01
+	NB-95	765.79		99.81	8.99E-02	1.07E+00	1.07E+00
+	NB-95M	235.69		25.00	1.74E+08	4.41E+07	4.41E+07
+	ZR-95	724.18		43.70	6.00E-01	7.67E-01	1.18E+00
		756.72		55.30	-3.65E-01		7.67E-01
+	MO-99	181.06		6.20	-3.56E+09	1.91E+10	2.32E+10
		739.58		12.80	7.44E+09		1.91E+10
		778.00		4.50	-5.97E+09		5.52E+10
+	RU-103	497.08		89.00	1.12E-01	6.74E-01	6.74E-01
+	RU-106	621.84		9.80	-1.88E-01	1.43E+00	1.43E+00
+	AG-108M	433.93		89.90	4.11E-03	1.20E-01	1.20E-01
		614.37		90.40	5.54E-02		1.42E-01
		722.95		90.50	3.70E-03		1.93E-01
+	CD-109	88.03	*	3.72	1.61E+01	5.88E+00	5.88E+00
+	AG-110M	657.75		93.14	-5.21E-02	2.06E-01	2.06E-01
		677.61		10.53	5.40E-01		1.87E+00
		706.67		16.46	1.20E-02		1.19E+00
		763.93		21.98	-9.58E-02		9.57E-01
		884.67		71.63	-1.79E-02		2.66E-01
		1384.27		23.94	-2.17E-01		7.41E-01
+	CD-113M	263.70		0.02	-5.66E+01	3.90E+02	3.90E+02
+	SN-113	255.12		1.93	4.67E+00	2.83E-01	8.36E+00
		391.69		64.90	3.38E-02		2.83E-01
+	TE123M	159.00		84.10	-1.56E-01	1.71E-01	1.71E-01

Analysis Report for 1707078-18

HTC-A01-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	2.08E-01	3.83E-01	3.83E-01
		645.85		7.26	1.52E+00		4.83E+00
		722.78		11.10	8.83E-02		4.60E+00
		1691.02		49.00	-4.06E-01		5.75E-01
+	I-125	35.49		6.49	-3.25E+00	6.73E+00	6.73E+00
+	SB-125	176.33		6.89	2.24E-01	3.85E-01	1.32E+00
		427.89		29.33	1.29E-01		3.85E-01
		463.38		10.35	1.23E+00		1.32E+00
		600.56		17.80	5.65E-02		7.41E-01
		635.90		11.32	2.55E-01		1.21E+00
+	SB-126	414.70		83.30	1.73E+00	2.36E+01	2.36E+01
		666.33		99.60	2.32E+01		2.87E+01
		695.00		99.60	2.86E+00		2.68E+01
		720.50		53.80	1.14E+01		5.18E+01
+	SN-126	87.57	*	37.00	1.41E+00	5.15E-01	5.15E-01
+	SB-127	473.00		25.00	-2.82E+06	8.75E+06	8.94E+06
		685.20		35.70	4.78E+06		8.75E+06
		783.80		14.70	8.62E+06		2.08E+07
+	I-129	29.78		57.00	-5.76E-02	3.66E-01	3.66E-01
		33.60		13.20	5.88E-02		1.25E+00
		39.58		7.52	-1.85E-01		1.70E+00
+	I-131	284.30		6.05	-1.34E+03	3.61E+02	4.77E+03
		364.48		81.20	-1.99E+02		3.61E+02
		636.97		7.26	4.32E+03		5.66E+03
		722.89		1.80	5.83E+02		3.03E+04
+	TE-132	49.72		13.10	-2.16E+08	4.22E+07	3.41E+08
		228.16		88.00	-4.14E+07		4.22E+07
+	BA-133	81.00		33.00	-1.64E+00	2.14E-01	3.28E-01
		302.84		17.80	-6.55E-02		5.97E-01
		356.01		60.00	-9.08E-03		2.14E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-3.23E+05	6.43E+04	6.43E+04
+	CS-134	563.23		8.38	1.91E-02	1.57E-01	1.61E+00
		569.32		15.43	5.73E-02		8.59E-01
		604.70		97.60	3.65E-02		1.57E-01
		795.84		85.40	1.81E-01		2.22E-01
		801.93		8.73	-9.63E-01		1.95E+00
+	CS-135	268.24		16.00	7.22E-01	6.42E-01	6.42E-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	1.16E+02	1.99E+01	1.61E+02
		163.89		4.61	1.31E+02		2.53E+02
		176.55		13.56	1.77E+01		8.54E+01
		273.65		12.66	-1.14E+01		1.08E+02
		340.57		48.50	8.58E+01		3.81E+01
		818.50		99.70	1.48E+01		1.99E+01
		1048.07		79.60	1.10E+01		2.79E+01
		1235.34		19.70	1.06E+01		1.50E+02

Analysis Report for 1707078-18

HTC-A01-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	-6.46E-02	1.75E-01	1.75E-01
+	LA-138	788.74	34.00	-5.35E-01	2.34E-01	4.33E-01
		1435.80	66.00	1.46E-01		2.34E-01
+	CE-139	165.85	80.35	-2.11E-02	1.67E-01	1.67E-01
+	BA-140	162.64	6.70	9.04E+00	7.15E+01	2.00E+02
		304.84	4.50	1.19E+02		3.46E+02
		423.70	3.20	-1.44E+02		5.01E+02
		437.55	2.00	-1.60E+02		8.79E+02
		537.32	25.00	9.93E+00		7.15E+01
+	LA-140	328.77	20.50	5.06E+01	2.71E+01	8.24E+01
		487.03	45.50	4.80E+00		3.64E+01
		815.85	23.50	-2.05E+01		9.26E+01
		1596.49	95.49	-2.88E-01		2.71E+01
+	CE-141	145.44	48.40	6.24E-02	1.27E+00	1.27E+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	6.31E-03	9.58E-01	9.58E-01
+	PM-144	476.78	42.00	2.85E-02	1.46E-01	3.27E-01
		618.01	98.60	1.55E-02		1.46E-01
		696.49	99.49	-6.01E-02		1.71E-01
+	PM-145	36.85	21.70	-6.23E-02	3.50E-01	6.55E-01
		37.36	39.70	-3.33E-02		3.50E-01
		42.30	15.10	-1.03E+00		7.83E-01
		72.40	2.31	-2.26E+01		5.21E+00
+	PM-146	453.90	39.94	2.30E-01	2.88E-01	2.88E-01
		735.90	14.01	1.38E-01		1.06E+00
		747.13	13.10	1.90E-01		1.18E+00
+	ND-147	91.11	28.90	3.58E+02	1.39E+02	1.39E+02
		531.02	13.10	-1.19E+02		3.02E+02
+	PM-149	285.90	3.10	9.90E+11	1.55E+13	1.55E+13
+	EU-152	121.78	20.50	-1.99E-01	3.72E-01	3.72E-01
		244.69	5.40	2.88E-01		2.00E+00
		344.27	19.13	-1.29E+00		5.13E-01
		778.89	9.20	-4.06E-01		1.59E+00
		964.01	10.40	1.71E-01		2.07E+00
		1085.78	7.22	-3.01E-01		2.37E+00
		1112.02	9.60	-1.75E-01		1.84E+00
		1407.95	14.94	3.24E-01		1.10E+00
+	GD-153	97.43	31.30	1.14E-01	3.55E-01	3.55E-01
		103.18	22.20	9.49E-02		4.66E-01
+	EU-154	123.07	40.50	-7.86E-02	1.93E-01	1.93E-01
		723.30	19.70	4.94E-01		9.68E-01
		873.19	11.50	-3.31E-01		1.24E+00
		996.32	10.30	2.81E-01		1.50E+00
		1004.76	17.90	-2.80E-01		8.75E-01
		1274.45	35.50	5.47E-02		4.64E-01
+	EU-155	86.50	30.90	6.32E-01	3.66E-01	3.66E-01
		105.30	20.70	-1.73E-01		3.90E-01

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-156	811.77		10.40	-3.13E+01	9.37E+01	9.37E+01
		1153.47		7.20	2.17E+01		1.71E+02
		1230.71		8.90	-1.35E+02		1.53E+02
+	HO-166M	184.41		72.60	2.25E-01	1.41E-01	1.41E-01
		280.45		29.60	-1.04E-02		3.18E-01
		410.94		11.10	1.27E-01		9.96E-01
		711.69		54.10	-9.27E-02		2.69E-01
+	TM-171	66.72		0.14	1.13E+01	8.17E+01	8.17E+01
+	HF-172	67.35		5.31	2.97E-01	8.03E-01	2.15E+00
		125.81		11.30	-7.15E-02		8.03E-01
+	LU-172	181.53		20.60	-1.17E+04	4.30E+03	6.93E+03
		900.72		29.81	9.30E+01		7.46E+03
		1093.66		62.50	8.35E+02		4.30E+03
+	LU-173	100.72		5.24	7.78E-02	5.71E-01	1.72E+00
		272.11		21.20	6.09E-01		5.71E-01
+	HF-175	343.40		84.00	-7.28E-01	2.90E-01	2.90E-01
+	LU-176	88.34		13.30	1.24E+00	1.04E-01	8.33E-01
		201.83		86.00	4.18E-02		1.08E-01
		306.78		94.00	1.73E-02		1.04E-01
+	HF-181	133.02		41.70	8.15E-02	6.07E-01	9.45E-01
		345.85		17.20	-7.31E+00		2.53E+00
		482.03		82.80	-9.67E-02		6.07E-01
+	TA-182	67.75		41.20	6.12E-02	4.40E-01	4.40E-01
		1121.30		34.90	1.23E+00		1.12E+00
		1189.05		16.23	-1.18E+00		1.94E+00
		1221.41		26.98	4.26E-01		1.27E+00
		1231.02		11.44	-2.02E+00		3.06E+00
+	IR-192	308.46		29.68	5.34E-01	5.33E-01	7.98E-01
		468.07		48.10	-2.58E-02		5.33E-01
+	HG-203	279.19		77.30	3.89E-01	5.05E-01	5.05E-01
+	TL-204	374.74		94.11	2.41E-02	1.14E-01	1.14E-01
		899.15		99.16	-1.92E-02		1.49E-01
		911.74		91.10	1.07E+00		3.42E-01
+	BI-207	569.67		97.72	8.35E-03	1.25E-01	1.25E-01
		1063.62		74.90	-1.24E-01		2.13E-01
+	TL-208	583.14	*	30.22	3.45E+00	3.56E-01	7.38E-01
		860.37	*	4.48	4.17E+00		3.57E+00
		2614.66	*	35.85	4.08E+00		3.56E-01
+	BI-210M	262.00		45.00	-2.52E-02	1.96E-01	1.96E-01
		300.00		23.00	-8.01E-01		4.71E-01
+	PB-210	46.50		4.25	1.43E+00	2.67E+00	2.67E+00
+	PB-211	404.84		2.90	4.39E-01	3.72E+00	3.72E+00
		831.96		2.90	-1.21E+00		4.87E+00
+	BI-212	727.17	*	11.80	2.61E+00	1.92E+00	1.92E+00
		1620.62	*	2.75	4.41E+00		5.79E+00
+	PB-212	238.63	*	44.60	4.55E+00	3.72E-01	3.72E-01
		300.09	*	3.41	2.87E+00		5.10E+00
+	BI-214	609.31	*	46.30	1.43E+00	3.57E-01	3.57E-01

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	BI-214	1120.29	*	15.10	1.83E+00	3.57E-01	1.30E+00
		1764.49	*	15.80	1.74E+00		8.18E-01
		2204.22		4.98	1.90E+00		3.35E+00
+	PB-214	295.21	*	19.19	1.66E+00	8.26E-01	9.11E-01
		351.92	*	37.19	1.46E+00		8.26E-01
+	RN-219	401.80		6.50	-4.49E-01	1.61E+00	1.61E+00
+	RA-223	323.87		3.88	1.63E-02	2.47E+00	2.47E+00
+	RA-224	240.98		3.95	4.65E+01	5.31E+00	5.31E+00
+	RA-225	40.00		31.00	-3.51E+00	3.22E+01	3.22E+01
+	RA-226	186.21	*	3.28	6.55E+00	5.13E+00	5.13E+00
+	TH-227	50.10		8.40	-7.89E-01	1.24E+00	1.24E+00
		236.00		11.50	6.17E+00		1.57E+00
		256.20		6.30	3.34E-01		1.46E+00
+	AC-228	338.32	*	11.40	3.22E+00	1.35E+00	2.60E+00
		911.07	*	27.70	3.45E+00		1.35E+00
		969.11	*	16.60	3.79E+00		1.50E+00
+	TH-230	48.44		16.90	3.20E-01	6.44E-01	6.44E-01
		62.85		4.60	2.37E+00		2.36E+00
		67.67		0.37	3.87E+00		2.78E+01
+	PA-231	283.67		1.60	-1.62E+00	4.54E+00	5.74E+00
		302.67		2.30	-4.98E-01		4.54E+00
+	TH-231	25.64		14.70	9.96E-01	1.55E+00	2.08E+00
		84.21		6.40	-2.67E+00		1.55E+00
+	PA-233	311.98		38.60	-1.94E+00	2.67E+00	2.67E+00
+	PA-234	131.20		20.40	6.49E-01	4.38E-01	4.38E-01
		733.99		8.80	-5.21E-01		1.64E+00
		946.00		12.00	-3.24E-01		1.18E+00
+	PA-234M	1001.03		0.92	-8.61E+00	1.60E+01	1.60E+01
+	TH-234	63.29	*	3.80	3.46E+00	4.48E+00	4.48E+00
+	U-235	143.76		10.50	7.11E-02	7.99E-01	7.99E-01
		163.35		4.70	8.19E-02		1.81E+00
		205.31		4.70	7.61E-01		1.99E+00
+	NP-237	86.50		12.60	1.50E+00	8.66E-01	8.66E-01
+	NP-239	106.10		22.70	-1.88E+10	2.97E+11	2.97E+11
		228.18		10.70	-6.94E+11		7.08E+11
		277.60		14.10	4.24E+11		6.00E+11
+	AM-241	59.54		35.90	-1.98E-03	2.96E-01	2.96E-01
+	AM-243	74.67		66.00	1.66E+00	2.26E-01	2.26E-01
+	CM-243	209.75		3.29	2.26E+00	7.03E-01	3.08E+00
		228.14		10.60	-8.15E-01		8.32E-01
		277.60		14.00	4.96E-01		7.03E-01

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

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.83E+00	3.83E+00	2.88E+00	1.84E+00
	NA-22	1274.54		99.94	1.73E-01	1.73E-01	2.04E-02	8.03E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	0.00E+00	1.00E+20
@		2754.09		99.86	1.00E+26		0.00E+00	1.00E+20
	AL-26	1808.65		99.76	9.84E-02	9.84E-02	-2.10E-02	4.12E-02
+	K-40	1460.81	*	10.67	1.90E+00	1.90E+00	2.59E+01	8.87E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	1.09E-01	1.09E-01	1.52E-02	5.39E-02
		78.34		96.00	1.47E-01		9.18E-01	7.31E-02
	SC-46	889.25		99.98	3.20E-01	3.20E-01	3.37E-02	1.51E-01
		1120.51		99.99	4.80E-01		5.46E-01	2.29E-01
	V-48	983.52		99.98	8.20E+00	8.20E+00	-2.33E+00	3.84E+00
		1312.10		97.50	8.86E+00		-7.42E-01	4.08E+00
	CR-51	320.08		9.83	1.02E+01	1.02E+01	3.42E-01	4.94E+00
	MN-54	834.83		99.97	1.83E-01	1.83E-01	-3.61E-02	8.64E-02
	CO-56	846.75		99.96	3.33E-01	3.33E-01	1.95E-01	1.57E-01
		1037.75		14.03	2.22E+00		2.01E-02	1.03E+00
		1238.25		67.00	7.76E-01		5.82E-01	3.69E-01
		1771.40		15.51	1.80E+00		4.25E-01	7.87E-01
		2598.48		16.90	1.57E+00		2.40E-01	6.23E-01
	CO-57	122.06		85.51	1.12E-01	1.12E-01	-6.00E-02	5.49E-02
		136.48		10.60	9.82E-01		1.81E-01	4.82E-01
	CO-58	810.76		99.40	3.50E-01	3.50E-01	-1.40E-01	1.65E-01
	FE-59	1099.22		56.50	1.22E+00	1.22E+00	-3.20E-01	5.74E-01
		1291.56		43.20	1.59E+00		7.98E-01	7.35E-01
	CO-60	1173.22		100.00	1.85E-01	1.59E-01	-1.30E-03	8.70E-02
		1332.49		100.00	1.59E-01		-1.70E-02	7.32E-02
	ZN-65	1115.52		50.75	4.91E-01	4.91E-01	-5.73E-02	2.32E-01
	GA-67	93.31		35.70	1.19E+08	1.19E+08	1.68E+08	5.87E+07
		208.95		2.24	1.90E+09		2.24E+09	9.33E+08
		300.22		16.00	2.83E+08		-4.81E+08	1.38E+08
	SE-75	121.11		16.70	7.69E-01	2.36E-01	-6.90E-01	3.77E-01
		136.00		59.20	2.36E-01		2.12E-02	1.16E-01
		264.65		59.80	2.49E-01		-5.79E-02	1.21E-01
		279.53		25.20	6.65E-01		5.32E-01	3.24E-01
		400.65		11.40	1.59E+00		1.55E-01	7.64E-01

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

	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	1.48E+01	1.48E+01	3.46E-01	7.03E+00
	RB-83	520.41		46.00	5.12E-01	5.12E-01	-5.42E-02	2.44E-01
		529.64		30.30	7.53E-01		-3.13E-01	3.58E-01
		552.65		16.40	1.54E+00		1.76E-02	7.33E-01
	KR-85	513.99		0.43	3.58E+01	3.58E+01	4.54E+01	1.73E+01
	SR-85	513.99		99.27	4.18E-01	4.18E-01	5.30E-01	2.02E-01
	Y-88	898.02		93.40	2.78E-01	2.42E-01	9.24E-03	1.30E-01
		1836.01		99.38	2.42E-01		8.83E-02	1.06E-01
	MO-93	263.06		56.72	1.57E-01	1.39E-01	-1.77E-02	7.60E-02
		684.67		99.68	1.59E-01		8.69E-02	7.61E-02
		1477.11		99.08	1.39E-01		-2.30E-03	6.25E-02
	NB-93M	16.57		9.43	9.79E+00	9.79E+00	2.40E+01	4.78E+00
	NB-94	702.63		100.00	1.53E-01	1.46E-01	3.25E-02	7.33E-02
		871.10		100.00	1.46E-01		2.52E-02	6.91E-02
	NB-95	765.79		99.81	1.07E+00	1.07E+00	8.99E-02	5.14E-01
	NB-95M	235.69		25.00	4.41E+07	4.41E+07	1.74E+08	2.18E+07
	ZR-95	724.18		43.70	1.18E+00	7.67E-01	6.00E-01	5.67E-01
		756.72		55.30	7.67E-01		-3.65E-01	3.65E-01
	MO-99	181.06		6.20	2.32E+10	1.91E+10	-3.56E+09	1.14E+10
		739.58		12.80	1.91E+10		7.44E+09	9.07E+09
		778.00		4.50	5.52E+10		-5.97E+09	2.62E+10
	RU-103	497.08		89.00	6.74E-01	6.74E-01	1.12E-01	3.23E-01
	RU-106	621.84		9.80	1.43E+00	1.43E+00	-1.88E-01	6.80E-01
	AG-108M	433.93		89.90	1.20E-01	1.20E-01	4.11E-03	5.76E-02
		614.37		90.40	1.42E-01		5.54E-02	6.77E-02
		722.95		90.50	1.93E-01		3.70E-03	9.25E-02
+	CD-109	88.03	*	3.72	5.88E+00	5.88E+00	1.61E+01	2.92E+00
	AG-110M	657.75		93.14	2.06E-01	2.06E-01	-5.21E-02	9.87E-02
		677.61		10.53	1.87E+00		5.40E-01	8.93E-01
		706.67		16.46	1.19E+00		1.20E-02	5.69E-01
		763.93		21.98	9.57E-01		-9.58E-02	4.57E-01
		884.67		71.63	2.66E-01		-1.79E-02	1.25E-01
		1384.27		23.94	7.41E-01		-2.17E-01	3.37E-01
	CD-113M	263.70		0.02	3.90E+02	3.90E+02	-5.66E+01	1.89E+02
	SN-113	255.12		1.93	8.36E+00	2.83E-01	4.67E+00	4.07E+00
		391.69		64.90	2.83E-01		3.38E-02	1.36E-01
	TE123M	159.00		84.10	1.71E-01	1.71E-01	-1.56E-01	8.38E-02
	SB-124	602.71		97.87	3.83E-01	3.83E-01	2.08E-01	1.83E-01
		645.85		7.26	4.83E+00		1.52E+00	2.29E+00
		722.78		11.10	4.60E+00		8.83E-02	2.21E+00
		1691.02		49.00	5.75E-01		-4.06E-01	2.43E-01
	I-125	35.49		6.49	6.73E+00	6.73E+00	-3.25E+00	3.30E+00
	SB-125	176.33		6.89	1.32E+00	3.85E-01	2.24E-01	6.48E-01
		427.89		29.33	3.85E-01		1.29E-01	1.85E-01
		463.38		10.35	1.32E+00		1.23E+00	6.36E-01
		600.56		17.80	7.41E-01		5.65E-02	3.53E-01
		635.90		11.32	1.21E+00		2.55E-01	5.74E-01
	SB-126	414.70		83.30	2.36E+01	2.36E+01	1.73E+00	1.14E+01
		666.33		99.60	2.87E+01		2.32E+01	1.38E+01
		695.00		99.60	2.68E+01		2.86E+00	1.28E+01
		720.50		53.80	5.18E+01		1.14E+01	2.47E+01
+	SN-126	87.57	*	37.00	5.15E-01	5.15E-01	1.41E+00	2.56E-01
	SB-127	473.00		25.00	8.94E+06	8.75E+06	-2.82E+06	4.29E+06

Analysis Report for 1707078-18

HTC-A01-S004-3642-01

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	8.75E+06	8.75E+06	4.78E+06	4.19E+06
	783.80	14.70	2.08E+07		8.62E+06	9.89E+06
I-129	29.78	57.00	3.66E-01	3.66E-01	-5.76E-02	1.80E-01
	33.60	13.20	1.25E+00		5.88E-02	6.13E-01
	39.58	7.52	1.70E+00		-1.85E-01	8.34E-01
I-131	284.30	6.05	4.77E+03	3.61E+02	-1.34E+03	2.31E+03
	364.48	81.20	3.61E+02		-1.99E+02	1.74E+02
	636.97	7.26	5.66E+03		4.32E+03	2.70E+03
	722.89	1.80	3.03E+04		5.83E+02	1.46E+04
TE-132	49.72	13.10	3.41E+08	4.22E+07	-2.16E+08	1.68E+08
	228.16	88.00	4.22E+07		-4.14E+07	2.06E+07
BA-133	81.00	33.00	3.28E-01	2.14E-01	-1.64E+00	1.62E-01
	302.84	17.80	5.97E-01		-6.55E-02	2.90E-01
	356.01	60.00	2.14E-01		-9.08E-03	1.04E-01
@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
XE-133	81.00	38.00	6.43E+04	6.43E+04	-3.23E+05	3.18E+04
CS-134	563.23	8.38	1.61E+00	1.57E-01	1.91E-02	7.69E-01
	569.32	15.43	8.59E-01		5.73E-02	4.10E-01
	604.70	97.60	1.57E-01		3.65E-02	7.54E-02
	795.84	85.40	2.22E-01		1.81E-01	1.06E-01
	801.93	8.73	1.95E+00		-9.63E-01	9.29E-01
CS-135	268.24	16.00	6.42E-01	6.42E-01	7.22E-01	3.13E-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	1.61E+02	1.99E+01	1.16E+02	7.92E+01
	163.89	4.61	2.53E+02		1.31E+02	1.24E+02
	176.55	13.56	8.54E+01		1.77E+01	4.18E+01
	273.65	12.66	1.08E+02		-1.14E+01	5.26E+01
	340.57	48.50	3.81E+01		8.58E+01	1.86E+01
	818.50	99.70	1.99E+01		1.48E+01	9.42E+00
	1048.07	79.60	2.79E+01		1.10E+01	1.31E+01
	1235.34	19.70	1.50E+02		1.06E+01	7.10E+01
CS-137	661.65	85.12	1.75E-01	1.75E-01	-6.46E-02	8.38E-02
LA-138	788.74	34.00	4.33E-01	2.34E-01	-5.35E-01	2.05E-01
	1435.80	66.00	2.34E-01		1.46E-01	1.07E-01
CE-139	165.85	80.35	1.67E-01	1.67E-01	-2.11E-02	8.20E-02
BA-140	162.64	6.70	2.00E+02	7.15E+01	9.04E+00	9.79E+01
	304.84	4.50	3.46E+02		1.19E+02	1.68E+02
	423.70	3.20	5.01E+02		-1.44E+02	2.41E+02
	437.55	2.00	8.79E+02		-1.60E+02	4.23E+02
	537.32	25.00	7.15E+01		9.93E+00	3.41E+01
LA-140	328.77	20.50	8.24E+01	2.71E+01	5.06E+01	4.00E+01
	487.03	45.50	3.64E+01		4.80E+00	1.74E+01
	815.85	23.50	9.26E+01		-2.05E+01	4.37E+01
	1596.49	95.49	2.71E+01		-2.88E-01	1.24E+01
CE-141	145.44	48.40	1.27E+00	1.27E+00	6.24E-02	6.26E-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	9.58E-01	9.58E-01	6.31E-03	4.70E-01
PM-144	476.78	42.00	3.27E-01	1.46E-01	2.85E-02	1.57E-01
	618.01	98.60	1.46E-01		1.55E-02	6.94E-02

Analysis Report for 1707078-18

HTC-A01-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	1.71E-01	1.46E-01	-6.01E-02	8.17E-02
PM-145	36.85	21.70	6.55E-01	3.50E-01	-6.23E-02	3.22E-01
	37.36	39.70	3.50E-01		-3.33E-02	1.72E-01
	42.30	15.10	7.83E-01		-1.03E+00	3.84E-01
	72.40	2.31	5.21E+00		-2.26E+01	2.58E+00
PM-146	453.90	39.94	2.88E-01	2.88E-01	2.30E-01	1.39E-01
	735.90	14.01	1.06E+00		1.38E-01	5.02E-01
	747.13	13.10	1.18E+00		1.90E-01	5.60E-01
ND-147	91.11	28.90	1.39E+02	1.39E+02	3.58E+02	6.86E+01
	531.02	13.10	3.02E+02		-1.19E+02	1.44E+02
PM-149	285.90	3.10	1.55E+13	1.55E+13	9.90E+11	7.52E+12
EU-152	121.78	20.50	3.72E-01	3.72E-01	-1.99E-01	1.83E-01
	244.69	5.40	2.00E+00		2.88E-01	9.80E-01
	344.27	19.13	5.13E-01		-1.29E+00	2.48E-01
	778.89	9.20	1.59E+00		-4.06E-01	7.56E-01
	964.01	10.40	2.07E+00		1.71E-01	9.92E-01
	1085.78	7.22	2.37E+00		-3.01E-01	1.12E+00
	1112.02	9.60	1.84E+00		-1.75E-01	8.67E-01
	1407.95	14.94	1.10E+00		3.24E-01	5.09E-01
GD-153	97.43	31.30	3.55E-01	3.55E-01	1.14E-01	1.75E-01
	103.18	22.20	4.66E-01		9.49E-02	2.29E-01
EU-154	123.07	40.50	1.93E-01	1.93E-01	-7.86E-02	9.46E-02
	723.30	19.70	9.68E-01		4.94E-01	4.66E-01
	873.19	11.50	1.24E+00		-3.31E-01	5.85E-01
	996.32	10.30	1.50E+00		2.81E-01	7.04E-01
	1004.76	17.90	8.75E-01		-2.80E-01	4.11E-01
	1274.45	35.50	4.64E-01		5.47E-02	2.15E-01
EU-155	86.50	30.90	3.66E-01	3.66E-01	6.32E-01	1.81E-01
	105.30	20.70	3.90E-01		-1.73E-01	1.91E-01
EU-156	811.77	10.40	9.37E+01	9.37E+01	-3.13E+01	4.42E+01
	1153.47	7.20	1.71E+02		2.17E+01	8.01E+01
	1230.71	8.90	1.53E+02		-1.35E+02	7.19E+01
HO-166M	184.41	72.60	1.41E-01	1.41E-01	2.25E-01	6.90E-02
	280.45	29.60	3.18E-01		-1.04E-02	1.54E-01
	410.94	11.10	9.96E-01		1.27E-01	4.80E-01
	711.69	54.10	2.69E-01		-9.27E-02	1.28E-01
TM-171	66.72	0.14	8.17E+01	8.17E+01	1.13E+01	4.03E+01
HF-172	67.35	5.31	2.15E+00	8.03E-01	2.97E-01	1.06E+00
	125.81	11.30	8.03E-01		-7.15E-02	3.95E-01
LU-172	181.53	20.60	6.93E+03	4.30E+03	-1.17E+04	3.40E+03
	900.72	29.81	7.46E+03		9.30E+01	3.51E+03
	1093.66	62.50	4.30E+03		8.35E+02	2.02E+03
LU-173	100.72	5.24	1.72E+00	5.71E-01	7.78E-02	8.44E-01
	272.11	21.20	5.71E-01		6.09E-01	2.79E-01
HF-175	343.40	84.00	2.90E-01	2.90E-01	-7.28E-01	1.40E-01
LU-176	88.34	13.30	8.33E-01	1.04E-01	1.24E+00	4.11E-01
	201.83	86.00	1.08E-01		4.18E-02	5.27E-02
	306.78	94.00	1.04E-01		1.73E-02	5.06E-02
HF-181	133.02	41.70	9.45E-01	6.07E-01	8.15E-02	4.64E-01
	345.85	17.20	2.53E+00		-7.31E+00	1.22E+00
	482.03	82.80	6.07E-01		-9.67E-02	2.91E-01
TA-182	67.75	41.20	4.40E-01	4.40E-01	6.12E-02	2.17E-01
	1121.30	34.90	1.12E+00		1.23E+00	5.31E-01

Analysis Report for 1707078-18

HTC-A01-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	1.94E+00	4.40E-01	-1.18E+00	9.12E-01
		1221.41		26.98	1.27E+00		4.26E-01	5.99E-01
		1231.02		11.44	3.06E+00		-2.02E+00	1.44E+00
	IR-192	308.46		29.68	7.98E-01	5.33E-01	5.34E-01	3.87E-01
		468.07		48.10	5.33E-01		-2.58E-02	2.55E-01
	HG-203	279.19		77.30	5.05E-01	5.05E-01	3.89E-01	2.46E-01
	TL-204	374.74		94.11	1.14E-01	1.14E-01	2.41E-02	5.52E-02
		899.15		99.16	1.49E-01		-1.92E-02	6.98E-02
		911.74		91.10	3.42E-01		1.07E+00	1.66E-01
	BI-207	569.67		97.72	1.25E-01	1.25E-01	8.35E-03	5.98E-02
		1063.62		74.90	2.13E-01		-1.24E-01	9.98E-02
+	TL-208	583.14	*	30.22	7.38E-01	3.56E-01	3.45E+00	3.60E-01
		860.37	*	4.48	3.57E+00		4.17E+00	1.69E+00
		2614.66	*	35.85	3.56E-01		4.08E+00	1.44E-01
	BI-210M	262.00		45.00	1.96E-01	1.96E-01	-2.52E-02	9.54E-02
		300.00		23.00	4.71E-01		-8.01E-01	2.29E-01
	PB-210	46.50		4.25	2.67E+00	2.67E+00	1.43E+00	1.31E+00
	PB-211	404.84		2.90	3.72E+00	3.72E+00	4.39E-01	1.79E+00
		831.96		2.90	4.87E+00		-1.21E+00	2.30E+00
+	BI-212	727.17	*	11.80	1.92E+00	1.92E+00	2.61E+00	9.33E-01
		1620.62	*	2.75	5.79E+00		4.41E+00	2.64E+00
+	PB-212	238.63	*	44.60	3.72E-01	3.72E-01	4.55E+00	1.83E-01
		300.09	*	3.41	5.10E+00		2.87E+00	2.51E+00
+	BI-214	609.31	*	46.30	3.57E-01	3.57E-01	1.43E+00	1.72E-01
		1120.29	*	15.10	1.30E+00		1.83E+00	6.17E-01
		1764.49	*	15.80	8.18E-01		1.74E+00	3.60E-01
		2204.22		4.98	3.35E+00		1.90E+00	1.48E+00
+	PB-214	295.21	*	19.19	9.11E-01	8.26E-01	1.66E+00	4.48E-01
		351.92	*	37.19	8.26E-01		1.46E+00	4.08E-01
	RN-219	401.80		6.50	1.61E+00	1.61E+00	-4.49E-01	7.76E-01
	RA-223	323.87		3.88	2.47E+00	2.47E+00	1.63E-02	1.20E+00
	RA-224	240.98		3.95	5.31E+00	5.31E+00	4.65E+01	2.62E+00
	RA-225	40.00		31.00	3.22E+01	3.22E+01	-3.51E+00	1.58E+01
+	RA-226	186.21	*	3.28	5.13E+00	5.13E+00	6.55E+00	2.54E+00
	TH-227	50.10		8.40	1.24E+00	1.24E+00	-7.89E-01	6.12E-01
		236.00		11.50	1.57E+00		6.17E+00	7.74E-01
		256.20		6.30	1.46E+00		3.34E-01	7.12E-01
+	AC-228	338.32	*	11.40	2.60E+00	1.35E+00	3.22E+00	1.28E+00
		911.07	*	27.70	1.35E+00		3.45E+00	6.60E-01
		969.11	*	16.60	1.50E+00		3.79E+00	7.24E-01
	TH-230	48.44		16.90	6.44E-01	6.44E-01	3.20E-01	3.17E-01
		62.85		4.60	2.36E+00		2.37E+00	1.16E+00
		67.67		0.37	2.78E+01		3.87E+00	1.37E+01
	PA-231	283.67		1.60	5.74E+00	4.54E+00	-1.62E+00	2.78E+00
		302.67		2.30	4.54E+00		-4.98E-01	2.21E+00
	TH-231	25.64		14.70	2.08E+00	1.55E+00	9.96E-01	1.02E+00
		84.21		6.40	1.55E+00		-2.67E+00	7.64E-01
	PA-233	311.98		38.60	2.67E+00	2.67E+00	-1.94E+00	1.29E+00
	PA-234	131.20		20.40	4.38E-01	4.38E-01	6.49E-01	2.15E-01
		733.99		8.80	1.64E+00		-5.21E-01	7.82E-01
		946.00		12.00	1.18E+00		-3.24E-01	5.55E-01
	PA-234M	1001.03		0.92	1.60E+01	1.60E+01	-8.61E+00	7.51E+00
+	TH-234	63.29	*	3.80	4.48E+00	4.48E+00	3.46E+00	2.22E+00

Analysis Report for 1707078-18

HTC-A01-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	7.99E-01	7.99E-01	7.11E-02	3.92E-01
	163.35	4.70	1.81E+00		8.19E-02	8.87E-01
	205.31	4.70	1.99E+00		7.61E-01	9.73E-01
NP-237	86.50	12.60	8.66E-01	8.66E-01	1.50E+00	4.28E-01
NP-239	106.10	22.70	2.97E+11	2.97E+11	-1.88E+10	1.46E+11
	228.18	10.70	7.08E+11		-6.94E+11	3.45E+11
	277.60	14.10	6.00E+11		4.24E+11	2.92E+11
AM-241	59.54	35.90	2.96E-01	2.96E-01	-1.98E-03	1.46E-01
AM-243	74.67	66.00	2.26E-01	2.26E-01	1.66E+00	1.12E-01
CM-243	209.75	3.29	3.08E+00	7.03E-01	2.26E+00	1.51E+00
	228.14	10.60	8.32E-01		-8.15E-01	4.05E-01
	277.60	14.00	7.03E-01		4.96E-01	3.42E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3603

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	16	163
17:	169	145	127	126	121	132	152	133
25:	156	117	122	143	131	126	127	130
33:	112	130	150	140	122	126	147	153
41:	125	149	125	154	206	186	166	151
49:	171	157	175	173	190	181	197	178
57:	202	218	240	207	280	320	297	258
65:	241	239	267	270	245	274	252	335
73:	481	689	746	854	711	329	219	196
81:	213	229	236	296	307	391	399	319
89:	329	311	310	348	320	205	153	144
97:	193	169	171	165	163	152	148	158
105:	194	156	131	163	171	139	150	151
113:	179	151	151	154	128	141	134	122
121:	129	124	148	137	162	129	176	219
129:	225	177	147	136	153	136	140	138
137:	136	147	144	132	139	151	126	155
145:	139	138	129	136	134	146	142	129
153:	153	172	119	117	128	135	112	113
161:	131	118	129	123	124	112	112	92
169:	111	120	103	112	112	112	113	124
177:	96	97	94	111	134	104	122	167
185:	182	195	117	110	127	105	113	86
193:	103	107	102	91	100	118	101	88
201:	91	100	116	104	110	81	108	171
209:	158	103	95	82	85	105	91	79
217:	82	93	79	77	81	85	86	79
225:	83	67	60	87	69	68	95	86
233:	79	80	101	195	641	911	548	221
241:	181	143	82	65	57	69	76	63
249:	46	61	65	65	77	56	74	68
257:	51	63	56	65	60	55	44	55
265:	51	65	46	71	126	104	76	52
273:	53	58	53	73	87	57	51	57
281:	49	55	38	55	51	61	54	61
289:	60	45	60	39	91	156	154	86
297:	56	53	78	86	57	43	52	43
305:	58	53	61	40	50	46	50	40
313:	38	49	56	46	53	44	49	44
321:	40	43	36	44	44	53	73	74
329:	44	42	40	48	48	42	44	88
337:	151	157	78	50	34	44	40	36
345:	33	35	32	36	54	119	212	180
353:	66	28	48	35	41	42	37	43
361:	42	29	24	30	35	30	34	30

369:	42	40	39	36	32	35	43	44

Sample Title: HTC-A01-S004-3642-01

Channel								
377:	28	32	27	30	26	32	39	30
385:	39	33	33	44	27	35	34	32
393:	33	37	31	36	35	31	24	33
401:	38	34	39	31	32	40	27	42
409:	49	37	33	31	26	33	31	37
417:	31	31	28	26	22	28	26	31
425:	37	23	38	24	25	28	33	18
433:	44	27	30	26	27	38	32	38
441:	39	19	30	29	27	38	27	23
449:	19	31	26	32	31	28	22	32
457:	20	22	32	26	39	65	56	25
465:	23	23	29	23	32	18	31	25
473:	22	24	33	32	32	25	26	35
481:	17	25	20	22	15	28	19	31
489:	18	22	19	18	28	27	19	33
497:	18	21	34	26	31	20	23	25
505:	17	19	25	42	64	99	70	40
513:	22	25	23	19	20	17	18	22
521:	19	28	26	24	23	19	20	17
529:	23	10	25	21	22	22	27	21
537:	19	22	19	16	16	21	26	26
545:	24	23	28	23	17	16	23	21
553:	17	28	30	18	18	26	25	28
561:	26	19	21	27	13	22	24	18
569:	20	21	26	19	17	26	19	19
577:	20	26	20	25	89	205	212	73
585:	22	19	25	18	26	12	19	14
593:	20	19	17	23	12	16	20	20
601:	23	23	25	19	18	18	54	113
609:	114	75	30	14	18	13	23	21
617:	24	14	13	16	18	17	18	21
625:	10	17	14	29	16	19	20	14
633:	21	20	18	17	23	20	20	11
641:	11	11	17	17	14	13	18	22
649:	18	14	26	18	14	24	25	20
657:	19	16	21	16	14	24	15	28
665:	14	22	18	21	18	20	15	12
673:	21	18	19	10	21	22	16	23
681:	17	18	20	20	19	17	22	17
689:	10	15	22	19	13	15	7	18
697:	15	19	17	16	19	15	22	18
705:	18	15	16	16	16	17	15	18
713:	15	14	12	16	21	17	16	13
721:	17	21	10	15	33	54	48	28
729:	20	19	9	18	15	10	8	19
737:	11	20	16	6	21	18	13	13
745:	11	14	12	13	22	17	16	12
753:	17	25	14	15	12	15	11	18
761:	16	24	20	12	12	18	21	20
769:	22	16	25	19	23	12	9	16
777:	15	12	10	13	14	14	18	17
785:	22	11	8	11	9	13	9	16
793:	22	24	28	15	20	16	12	12

801:	15	11	7	13	22	15	13	12

Sample Title: HTC-A01-S004-3642-01

Channel								
809:	12	13	8	11	4	10	12	15
817:	9	13	13	9	13	11	6	9
825:	9	9	11	12	8	11	9	12
833:	8	13	12	15	14	12	20	11
841:	10	15	4	11	9	9	13	7
849:	19	13	5	6	12	8	7	9
857:	8	9	27	29	26	9	11	6
865:	10	7	11	16	11	10	7	8
873:	11	14	11	11	3	13	5	7
881:	10	12	16	7	18	6	6	11
889:	12	12	10	7	11	9	8	7
897:	10	11	7	11	9	9	10	9
905:	11	17	8	12	40	90	141	52
913:	18	8	12	5	8	17	8	8
921:	5	7	7	8	9	7	4	7
929:	10	8	2	10	7	15	7	8
937:	5	14	4	9	6	10	3	9
945:	8	7	12	9	12	12	14	5
953:	6	11	10	11	6	11	13	13
961:	10	12	11	28	25	19	41	78
969:	62	30	12	6	5	10	8	10
977:	6	13	6	9	9	8	10	10
985:	8	5	6	9	9	7	7	5
993:	13	12	9	11	4	9	7	9
1001:	8	9	7	10	6	16	7	8
1009:	9	16	5	5	7	9	6	11
1017:	6	6	4	8	9	4	8	5
1025:	8	9	4	7	10	8	5	4
1033:	8	6	8	7	6	6	5	6
1041:	7	7	9	7	8	6	11	3
1049:	12	12	15	7	8	6	7	7
1057:	11	9	12	6	6	8	5	13
1065:	11	9	7	12	13	19	14	7
1073:	10	7	11	7	10	12	11	14
1081:	9	9	8	8	13	7	9	11
1089:	11	12	4	12	12	5	16	7
1097:	7	5	10	9	9	6	7	12
1105:	9	7	12	14	8	7	13	10
1113:	15	5	3	9	8	15	27	37
1121:	18	10	8	10	8	13	6	12
1129:	10	8	14	6	7	9	5	7
1137:	9	5	3	8	7	11	8	5
1145:	11	6	12	10	7	8	8	11
1153:	8	8	13	8	9	6	7	9
1161:	7	8	12	7	8	14	6	10
1169:	10	10	9	8	11	7	9	6
1177:	13	8	8	10	11	15	10	11
1185:	6	9	11	12	3	12	8	13
1193:	7	15	8	13	17	14	6	12
1201:	8	11	10	13	6	10	18	7
1209:	12	14	14	13	10	7	5	5
1217:	7	7	12	7	11	17	11	12
1225:	8	6	16	11	18	8	5	7

1233:	9	8	13	13	25	15	17	14

Sample Title: HTC-A01-S004-3642-01

Channel								
1241:	10	11	10	13	11	7	8	4
1249:	8	11	8	10	5	9	6	8
1257:	5	9	8	3	7	6	14	6
1265:	9	5	12	10	8	6	3	3
1273:	5	12	9	7	6	6	9	3
1281:	8	11	6	6	3	6	6	9
1289:	7	6	5	6	3	6	7	1
1297:	6	3	6	10	10	6	5	5
1305:	9	3	2	6	7	2	6	7
1313:	3	3	9	3	10	4	4	6
1321:	2	7	4	7	5	3	10	2
1329:	11	5	1	2	10	8	4	4
1337:	5	7	4	1	4	5	7	8
1345:	2	5	7	5	6	3	5	6
1353:	6	4	1	5	9	4	4	4
1361:	3	1	7	2	4	7	3	4
1369:	3	4	3	3	4	4	3	9
1377:	8	8	3	5	2	6	5	7
1385:	3	4	2	0	7	7	5	2
1393:	3	2	8	4	3	3	6	5
1401:	2	6	4	3	8	7	5	5
1409:	9	4	3	4	3	5	5	1
1417:	10	1	4	4	1	1	2	4
1425:	7	4	11	4	4	0	1	7
1433:	6	4	2	8	4	7	2	1
1441:	3	2	5	1	2	3	0	1
1449:	5	4	2	1	3	4	3	5
1457:	8	21	104	183	167	81	13	2
1465:	5	2	2	2	0	2	1	1
1473:	5	6	4	1	1	4	3	3
1481:	2	3	2	1	2	3	1	2
1489:	2	1	1	2	4	7	7	3
1497:	2	3	2	1	4	5	3	4
1505:	1	0	3	3	13	3	5	3
1513:	4	2	2	6	1	4	1	2
1521:	4	0	3	6	2	0	0	3
1529:	2	3	0	0	3	2	3	7
1537:	1	1	0	1	1	1	3	2
1545:	1	0	4	5	2	2	3	2
1553:	2	0	3	2	5	5	2	4
1561:	3	0	2	1	2	0	3	0
1569:	2	0	2	2	2	1	1	1
1577:	3	5	5	2	4	2	2	6
1585:	4	3	10	5	10	5	11	14
1593:	8	4	0	3	2	2	0	5
1601:	3	4	0	1	1	3	4	1
1609:	5	1	0	0	3	0	3	2
1617:	1	2	7	9	5	6	1	3
1625:	1	1	0	1	6	7	4	4
1633:	0	3	3	1	4	1	1	1
1641:	2	3	0	2	1	5	3	1
1649:	6	2	0	4	2	2	2	2
1657:	3	1	1	7	5	1	2	5

1665:	2	3	3	0	2	4	1	1

Sample Title: HTC-A01-S004-3642-01

Channel								
1673:	3	5	1	0	3	0	3	2
1681:	1	2	1	3	1	4	0	2
1689:	1	3	1	0	1	0	2	4
1697:	1	2	1	3	5	3	0	4
1705:	0	3	3	2	0	3	0	3
1713:	2	1	2	4	1	2	2	0
1721:	1	4	3	1	2	1	4	3
1729:	8	4	2	1	2	3	4	2
1737:	1	2	3	0	1	1	0	2
1745:	1	0	1	1	2	1	1	0
1753:	1	1	0	2	0	1	1	2
1761:	6	2	11	17	12	1	2	1
1769:	1	1	2	1	4	1	3	1
1777:	1	1	4	2	1	0	1	0
1785:	1	0	3	0	4	0	2	5
1793:	1	2	2	2	2	0	2	1
1801:	2	2	1	0	1	1	0	2
1809:	0	0	3	2	1	1	1	2
1817:	2	0	3	4	0	2	1	1
1825:	0	0	2	0	0	1	2	1
1833:	1	1	4	0	1	3	3	3
1841:	2	1	0	2	1	3	4	4
1849:	2	3	2	1	2	0	2	1
1857:	1	2	1	3	2	0	2	4
1865:	0	3	3	0	1	1	2	1
1873:	2	4	0	1	0	3	3	3
1881:	3	1	2	1	3	3	1	2
1889:	2	0	2	2	1	4	1	3
1897:	1	1	1	4	2	1	1	3
1905:	0	4	1	5	1	3	2	0
1913:	1	3	1	1	0	0	3	1
1921:	0	0	1	0	2	2	1	1
1929:	3	0	3	1	1	2	1	1
1937:	0	4	1	1	0	3	3	3
1945:	1	2	2	2	1	1	1	1
1953:	1	2	0	0	0	2	2	1
1961:	1	3	0	0	4	1	2	5
1969:	2	2	2	1	2	2	2	0
1977:	1	1	1	5	0	2	0	3
1985:	1	2	1	0	3	3	2	6
1993:	2	2	1	2	1	4	2	0
2001:	3	3	1	0	0	0	1	0
2009:	1	0	4	0	1	0	2	0
2017:	2	3	1	0	1	2	1	1
2025:	2	1	0	2	5	1	2	2
2033:	3	0	0	0	1	0	1	1
2041:	0	2	0	2	3	0	3	3
2049:	6	4	2	1	1	0	3	1
2057:	2	2	1	1	2	1	1	1
2065:	2	2	3	0	3	0	0	3
2073:	2	2	0	4	0	3	2	3
2081:	1	3	1	2	1	1	3	0
2089:	2	2	1	1	2	1	1	1

2097:	0	0	1	3	3	9	5	3

Sample Title: HTC-A01-S004-3642-01

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

2529:	1	0	0	0	1	0	0	0

Sample Title: HTC-A01-S004-3642-01

Channel								
2537:	0	1	0	0	1	1	0	1
2545:	0	0	0	2	2	0	0	0
2553:	0	0	0	0	1	1	0	1
2561:	0	0	0	0	0	0	1	0
2569:	1	0	0	0	1	0	0	0
2577:	0	1	0	0	0	2	0	0
2585:	0	0	2	0	0	0	0	0
2593:	1	0	0	0	0	1	0	0
2601:	0	1	3	0	0	1	1	0
2609:	1	1	1	16	17	48	41	31
2617:	9	1	0	0	1	1	0	0
2625:	0	0	1	1	1	1	0	0
2633:	0	0	0	1	0	1	0	0
2641:	0	0	0	0	0	0	0	1
2649:	0	0	0	0	0	0	0	0
2657:	2	0	1	2	0	1	0	0
2665:	0	0	1	0	0	1	0	0
2673:	0	0	0	1	0	0	0	0
2681:	1	0	0	0	0	0	0	1
2689:	0	0	1	0	0	1	0	0
2697:	0	0	0	0	0	0	0	0
2705:	2	1	0	0	0	1	0	1
2713:	0	0	0	0	1	0	0	0
2721:	2	0	0	0	0	0	0	0
2729:	1	0	0	1	0	0	1	1
2737:	0	0	0	0	0	0	0	0
2745:	1	1	0	0	0	1	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	1	2	1	0	0	1
2769:	1	0	1	0	0	1	0	1
2777:	0	0	0	1	1	1	0	1
2785:	1	0	0	1	0	0	2	0
2793:	0	0	0	0	0	0	1	1
2801:	1	1	0	1	0	0	1	0
2809:	1	0	0	0	0	0	0	0
2817:	0	0	1	0	0	0	1	0
2825:	1	0	0	0	0	0	1	0
2833:	0	0	1	1	1	0	0	0
2841:	0	2	0	0	1	0	0	0
2849:	0	0	0	0	1	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	0	0	0	0	1	0	1	0
2873:	1	0	0	1	0	0	0	1
2881:	0	0	0	1	0	0	0	0
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	2
2905:	0	0	0	0	0	0	0	0
2913:	1	2	1	0	0	0	0	1
2921:	1	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	1	0	0	3	0	0	0
2945:	2	0	0	0	0	0	0	0
2953:	0	1	0	1	0	0	0	0

2961:	0	0	1	1	1	0	0	1

Sample Title: HTC-A01-S004-3642-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S004-3642-01

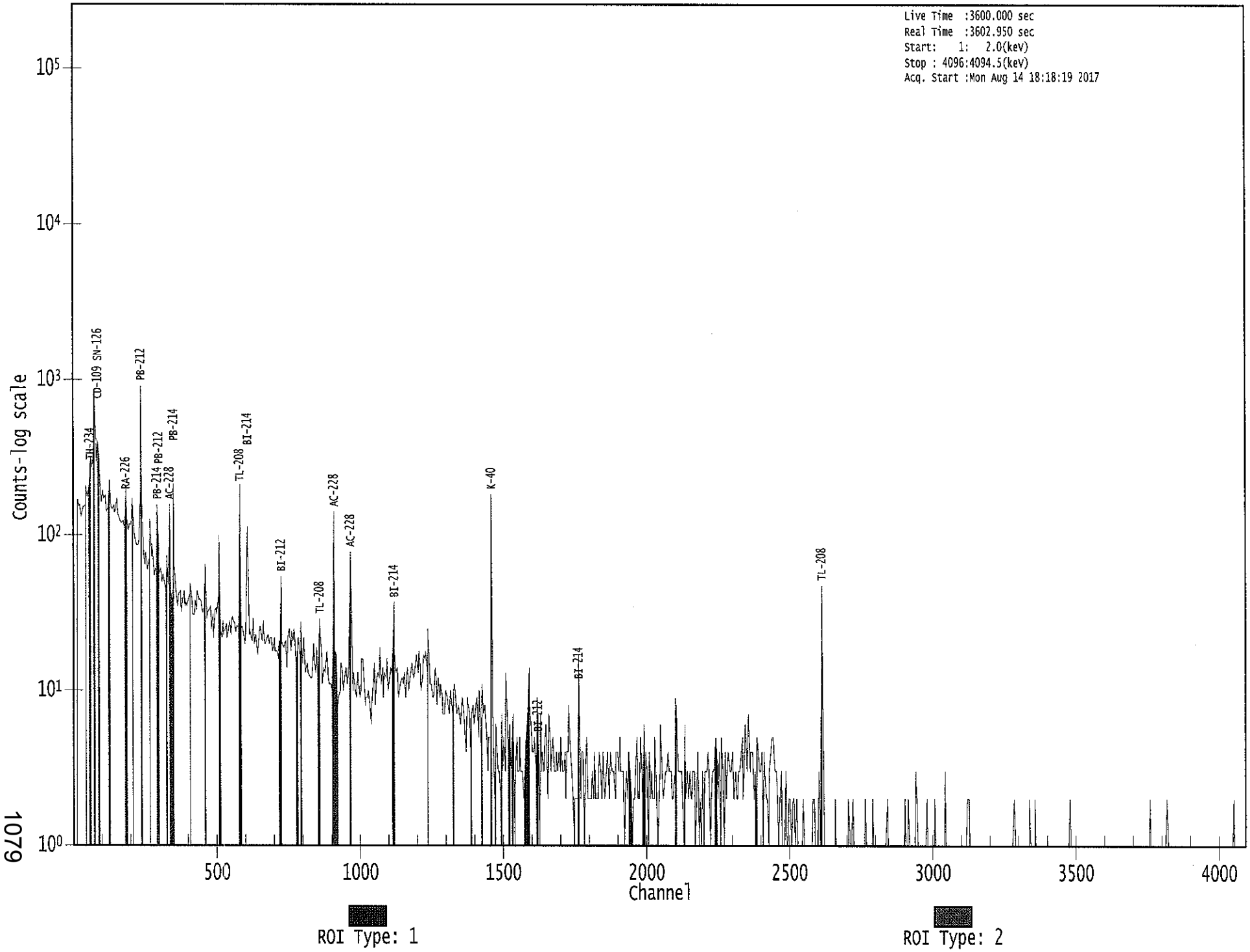
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	1	0	1	0	0
3425:	0	0	0	0	0	0	0	0
3433:	1	0	0	0	0	0	0	0
3441:	0	0	0	0	1	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	0	0	0	0
3473:	0	1	1	0	1	1	0	2
3481:	0	1	1	0	0	1	0	1
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	0	0	0	0	0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

3825:	0	1	0	1	0	0	0	0

Sample Title: HTC-A01-S004-3642-01

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

0000055216.CNF



Apex-Gamma

8/15

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-19
Sample Description	: HTC-A01-S004-4248-01
Sample Type	: SOIL
Sample Size	: 6.607E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:35:25AM
Acquisition Started	: 8/15/2017 5:52:25AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.3 seconds
Dead Time	: 0.06 %
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	: 55227

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 6:52:30AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	31.91	32.55	0.0000	0.00
2	46.32	46.95	0.0000	0.00
3	63.40	64.01	0.0000	0.00
4	76.07	76.66	0.0000	0.00
5	85.12	85.70	0.0000	0.00
6	89.27	89.85	0.0000	0.00
7	92.81	93.38	0.0000	0.00
8	99.39	99.96	0.0000	0.00
9	115.08	115.64	0.0000	0.00
10	128.85	129.39	0.0000	0.00
11	154.23	154.74	0.0000	0.00
12	185.83	186.31	0.0000	0.00
13	205.42	205.88	0.0000	0.00
14	209.47	209.92	0.0000	0.00
15	234.91	235.34	0.0000	0.00
16	238.58	239.01	0.0000	0.00
17	241.38	241.80	0.0000	0.00
18	270.40	270.79	0.0000	0.00
19	277.36	277.75	0.0000	0.00
20	295.15	295.52	0.0000	0.00
21	299.70	300.06	0.0000	0.00
22	327.89	328.23	0.0000	0.00
23	338.39	338.71	0.0000	0.00
24	351.85	352.16	0.0000	0.00
25	452.88	453.09	0.0000	0.00
26	462.73	462.92	0.0000	0.00
27	510.51	510.66	0.0000	0.00
28	547.59	547.70	0.0000	0.00
29	583.24	583.32	0.0000	0.00
30	609.49	609.54	0.0000	0.00
31	662.90	662.90	0.0000	0.00
32	727.66	727.59	0.0000	0.00
33	754.70	754.60	0.0000	0.00
34	770.44	770.33	0.0000	0.00
35	795.26	795.12	0.0000	0.00
36	805.63	805.48	0.0000	0.00
37	861.11	860.91	0.0000	0.00
38	869.52	869.31	0.0000	0.00
39	911.51	911.26	0.0000	0.00
40	933.13	932.86	0.0000	0.00
41	965.10	964.80	0.0000	0.00
42	969.33	969.02	0.0000	0.00

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1004.82	1004.48	0.0000	0.00
44	1111.60	1111.15	0.0000	0.00
45	1120.67	1120.21	0.0000	0.00
46	1174.11	1173.60	0.0000	0.00
47	1238.23	1237.65	0.0000	0.00
48	1282.03	1281.41	0.0000	0.00
49	1376.93	1376.22	0.0000	0.00
50	1409.52	1408.78	0.0000	0.00
51	1461.45	1460.65	0.0000	0.00
52	1466.09	1465.29	0.0000	0.00
53	1511.52	1510.68	0.0000	0.00
54	1589.45	1588.53	0.0000	0.00
55	1593.39	1592.47	0.0000	0.00
56	1621.73	1620.78	0.0000	0.00
57	1625.18	1624.22	0.0000	0.00
58	1629.96	1629.00	0.0000	0.00
59	1765.75	1764.66	0.0000	0.00
60	1930.56	1929.31	0.0000	0.00
61	1971.89	1970.60	0.0000	0.00
62	2104.83	2103.41	0.0000	0.00
63	2134.81	2133.36	0.0000	0.00
64	2207.05	2205.53	0.0000	0.00
65	2221.06	2219.53	0.0000	0.00
66	2278.32	2276.74	0.0000	0.00
67	2349.46	2347.80	0.0000	0.00
68	2395.53	2393.83	0.0000	0.00
69	2402.30	2400.59	0.0000	0.00
70	2615.71	2613.80	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 6:52:30AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	31.91	30 -	35	32.55	6.84E+01	80.36	1.23E+03	2.83
	2	46.32	44 -	49	46.95	1.20E+02	93.97	1.66E+03	1.45
	3	63.40	61 -	67	64.01	2.31E+02	144.45	3.64E+03	1.32
	4	76.07	71 -	81	76.66	2.66E+03	230.07	5.62E+03	3.79
M	5	85.12	82 -	97	85.70	4.40E+02	137.26	3.03E+03	2.21
m	6	89.27	82 -	97	89.85	3.14E+02	111.85	2.01E+03	1.67
m	7	92.81	82 -	97	93.38	7.76E+02	138.91	2.60E+03	2.23
	8	99.39	98 -	103	99.96	1.04E+02	101.12	1.95E+03	1.93
	9	115.08	113 -	118	115.64	1.05E+02	96.09	1.76E+03	2.25
	10	128.85	126 -	133	129.39	2.18E+02	122.93	2.36E+03	2.00
	11	154.23	152 -	157	154.74	1.34E+02	90.68	1.53E+03	2.23
	12	185.83	183 -	189	186.31	3.31E+02	103.63	1.71E+03	1.93
M	13	205.42	204 -	213	205.88	4.55E+01	47.94	6.48E+02	1.79
m	14	209.47	204 -	213	209.92	2.55E+02	73.99	1.01E+03	1.74
M	15	234.91	233 -	247	235.34	1.02E+02	64.50	8.87E+02	2.31
m	16	238.58	233 -	247	239.01	2.54E+03	119.97	7.77E+02	1.56
m	17	241.38	233 -	247	241.80	4.99E+02	134.13	1.01E+03	2.24
	18	270.40	267 -	274	270.79	1.77E+02	79.12	9.28E+02	2.04
	19	277.36	275 -	281	277.75	1.30E+02	71.10	8.22E+02	1.69
M	20	295.15	292 -	304	295.52	4.30E+02	64.29	5.63E+02	1.69
m	21	299.70	292 -	304	300.06	2.01E+02	70.71	7.67E+02	2.30
	22	327.89	325 -	331	328.23	1.27E+02	64.59	6.69E+02	1.88
M	23	338.39	335 -	357	338.71	5.19E+02	67.27	5.24E+02	1.89
m	24	351.85	335 -	357	352.16	8.52E+02	71.35	3.84E+02	1.81
	25	452.88	449 -	456	453.09	7.70E+01	54.37	4.36E+02	2.94
	26	462.73	459 -	468	462.92	1.52E+02	66.86	5.56E+02	1.94
	27	510.51	506 -	515	510.66	3.62E+02	71.64	5.29E+02	1.78
	28	547.59	545 -	551	547.70	3.52E+01	38.17	2.42E+02	2.47
	29	583.24	579 -	588	583.32	7.69E+02	85.25	6.07E+02	1.92
	30	609.49	604 -	615	609.54	5.72E+02	85.37	6.28E+02	2.04
	31	662.90	658 -	667	662.90	4.48E+01	55.49	4.12E+02	1.57
	32	727.66	723 -	732	727.59	1.81E+02	58.70	3.85E+02	1.78
	33	754.70	751 -	758	754.60	5.10E+01	41.09	2.46E+02	1.74
	34	770.44	764 -	777	770.33	1.27E+02	64.33	3.93E+02	6.31
	35	795.26	792 -	798	795.12	8.94E+01	38.08	1.97E+02	1.40
	36	805.63	803 -	809	805.48	3.13E+01	31.55	1.59E+02	2.53
	37	861.11	857 -	864	860.91	6.34E+01	40.74	2.31E+02	1.70
	38	869.52	866 -	872	869.31	3.50E+01	29.83	1.30E+02	1.66
	39	911.51	907 -	914	911.26	5.53E+02	56.96	1.72E+02	2.08
	40	933.13	928 -	936	932.86	7.50E+01	33.45	1.26E+02	2.71

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	965.10	958 -	976	964.80	8.64E+01	30.76	1.30E+02	2.11
m	42	969.33	958 -	976	969.02	2.80E+02	44.15	1.22E+02	2.22
	43	1004.82	999 -	1009	1004.48	4.00E+01	40.98	2.00E+02	5.31
M	44	1111.60	1108 -	1124	1111.15	2.91E+01	27.80	1.20E+02	2.28
m	45	1120.67	1108 -	1124	1120.21	1.28E+02	35.34	1.24E+02	2.28
	46	1174.11	1171 -	1177	1173.60	2.57E+01	28.37	1.31E+02	3.84
	47	1238.23	1234 -	1240	1237.65	6.96E+01	33.51	1.53E+02	2.41
	48	1282.03	1278 -	1284	1281.41	2.44E+01	25.20	9.72E+01	3.19
	49	1376.93	1371 -	1380	1376.22	3.48E+01	28.98	1.00E+02	1.94
	50	1409.52	1405 -	1416	1408.78	3.10E+01	29.87	9.60E+01	3.23
M	51	1461.45	1454 -	1469	1460.65	1.21E+03	71.21	3.83E+01	2.42
m	52	1466.09	1454 -	1469	1465.29	3.91E+01	56.99	4.76E+01	2.61
	53	1511.52	1506 -	1515	1510.68	2.37E+01	21.89	5.46E+01	2.18
M	54	1589.45	1583 -	1600	1588.53	2.62E+01	24.33	7.83E+01	2.69
m	55	1593.39	1583 -	1600	1592.47	3.07E+01	25.14	6.06E+01	2.69
M	56	1621.73	1614 -	1632	1620.78	2.58E+01	16.55	3.09E+01	2.46
m	57	1625.18	1614 -	1632	1624.22	1.26E+01	15.42	2.22E+01	2.46
m	58	1629.96	1614 -	1632	1629.00	2.11E+01	15.80	1.41E+01	2.24
	59	1765.75	1759 -	1771	1764.66	9.77E+01	27.85	4.47E+01	2.31
	60	1930.56	1927 -	1932	1929.31	8.75E+00	9.11	1.05E+01	2.75
	61	1971.89	1968 -	1973	1970.60	9.50E+00	11.22	1.70E+01	3.59
	62	2104.83	2098 -	2112	2103.41	4.56E+01	27.53	6.27E+01	3.58
	63	2134.81	2130 -	2137	2133.36	6.73E+00	8.72	8.55E+00	1.75
	64	2207.05	2199 -	2214	2205.53	3.87E+01	23.49	3.86E+01	3.88
	65	2221.06	2215 -	2225	2219.53	1.50E+01	15.00	2.20E+01	5.62
	66	2278.32	2274 -	2280	2276.74	9.03E+00	10.44	1.19E+01	1.78
	67	2349.46	2343 -	2352	2347.80	1.90E+01	14.70	2.00E+01	1.75
	68	2395.53	2391 -	2397	2393.83	9.42E+00	9.42	7.15E+00	2.57
	69	2402.30	2397 -	2405	2400.59	9.50E+00	9.82	9.00E+00	1.14
	70	2615.71	2607 -	2620	2613.80	2.89E+02	37.52	2.80E+01	2.54

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 : 8/15/2017 6:52:30AM

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

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	31.91	30 -	35	6.84E+01	80.36	1.23E+03	6.46E+01
	2	46.32	44 -	49	1.20E+02	93.97	1.66E+03	7.51E+01
	3	63.40	61 -	67	2.31E+02	144.45	3.64E+03	1.16E+02
	4	76.07	71 -	81	2.66E+03	230.07	5.62E+03	1.69E+02
M	5	85.12	82 -	97	4.40E+02	137.26	3.03E+03	9.05E+01
m	6	89.27	82 -	97	3.14E+02	111.85	2.01E+03	7.37E+01
m	7	92.81	82 -	97	7.76E+02	138.91	2.60E+03	8.39E+01
	8	99.39	98 -	103	1.04E+02	101.12	1.95E+03	8.14E+01
	9	115.08	113 -	118	1.05E+02	96.09	1.76E+03	7.72E+01
	10	128.85	126 -	133	2.18E+02	122.93	2.36E+03	9.81E+01
	11	154.23	152 -	157	1.34E+02	90.68	1.53E+03	7.21E+01
	12	185.83	183 -	189	3.31E+02	103.63	1.71E+03	7.97E+01
M	13	205.42	204 -	213	4.55E+01	47.94	6.48E+02	4.19E+01
m	14	209.47	204 -	213	2.55E+02	73.99	1.01E+03	5.22E+01
M	15	234.91	233 -	247	1.02E+02	64.50	8.87E+02	4.90E+01
m	16	238.58	233 -	247	2.54E+03	119.97	7.77E+02	4.58E+01
m	17	241.38	233 -	247	4.99E+02	134.13	1.01E+03	5.23E+01
	18	270.40	267 -	274	1.77E+02	79.12	9.28E+02	6.13E+01
	19	277.36	275 -	281	1.30E+02	71.10	8.22E+02	5.54E+01
M	20	295.15	292 -	304	4.30E+02	64.29	5.63E+02	3.90E+01
m	21	299.70	292 -	304	2.01E+02	70.71	7.67E+02	4.55E+01
	22	327.89	325 -	331	1.27E+02	64.59	6.69E+02	4.98E+01
M	23	338.39	335 -	357	5.19E+02	67.27	5.24E+02	3.76E+01
m	24	351.85	335 -	357	8.52E+02	71.35	3.84E+02	3.22E+01
	25	452.88	449 -	456	7.70E+01	54.37	4.36E+02	4.23E+01
	26	462.73	459 -	468	1.52E+02	66.86	5.56E+02	5.11E+01
	27	510.51	506 -	515	3.62E+02	71.64	5.29E+02	4.99E+01
	28	547.59	545 -	551	3.52E+01	38.17	2.42E+02	2.98E+01
	29	583.24	579 -	588	7.69E+02	85.25	6.07E+02	5.32E+01
	30	609.49	604 -	615	5.72E+02	85.37	6.28E+02	5.81E+01
	31	662.90	658 -	667	4.48E+01	55.49	4.12E+02	4.43E+01
	32	727.66	723 -	732	1.81E+02	58.70	3.85E+02	4.29E+01
	33	754.70	751 -	758	5.10E+01	41.09	2.46E+02	3.17E+01
	34	770.44	764 -	777	1.27E+02	64.33	3.93E+02	4.95E+01
	35	795.26	792 -	798	8.94E+01	38.08	1.97E+02	2.72E+01
	36	805.63	803 -	809	3.13E+01	31.55	1.59E+02	2.42E+01
	37	861.11	857 -	864	6.34E+01	40.74	2.31E+02	3.08E+01
	38	869.52	866 -	872	3.50E+01	29.83	1.30E+02	2.25E+01
	39	911.51	907 -	914	5.53E+02	56.96	1.72E+02	2.64E+01
	40	933.13	928 -	936	7.50E+01	33.45	1.26E+02	2.35E+01
M	41	965.10	958 -	976	8.64E+01	30.76	1.30E+02	1.87E+01
m	42	969.33	958 -	976	2.80E+02	44.15	1.22E+02	1.82E+01
	43	1004.82	999 -	1009	4.00E+01	40.98	2.00E+02	3.20E+01
M	44	1111.60	1108 -	1124	2.91E+01	27.80	1.20E+02	1.80E+01
m	45	1120.67	1108 -	1124	1.28E+02	35.34	1.24E+02	1.83E+01
	46	1174.11	1171 -	1177	2.57E+01	28.37	1.31E+02	2.18E+01
	47	1238.23	1234 -	1240	6.96E+01	33.51	1.53E+02	2.39E+01
	48	1282.03	1278 -	1284	2.44E+01	25.20	9.72E+01	1.91E+01
	49	1376.93	1371 -	1380	3.48E+01	28.98	1.00E+02	1.13E+01
	50	1409.52	1405 -	1416	3.10E+01	29.87	9.60E+01	2.28E+01
M	51	1461.45	1454 -	1469	1.21E+03	71.21	3.83E+01	1.02E+01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	52	1466.09	1454 -	1469	3.91E+01	56.99	4.76E+01	1.13E+01
	53	1511.52	1506 -	1515	2.37E+01	21.89	5.46E+01	1.61E+01
M	54	1589.45	1583 -	1600	2.62E+01	24.33	7.83E+01	1.45E+01
m	55	1593.39	1583 -	1600	3.07E+01	25.14	6.06E+01	1.28E+01
M	56	1621.73	1614 -	1632	2.58E+01	16.55	3.09E+01	9.14E+00
m	57	1625.18	1614 -	1632	1.26E+01	15.42	2.22E+01	7.75E+00
m	58	1629.96	1614 -	1632	2.11E+01	15.80	1.41E+01	6.16E+00
	59	1765.75	1759 -	1771	9.77E+01	27.85	4.47E+01	1.61E+01
	60	1930.56	1927 -	1932	8.75E+00	9.11	1.05E+01	5.70E+00
	61	1971.89	1968 -	1973	9.50E+00	11.22	1.70E+01	7.71E+00
	62	2104.83	2098 -	2112	4.56E+01	27.53	6.27E+01	1.97E+01
	63	2134.81	2130 -	2137	6.73E+00	8.72	8.55E+00	5.76E+00
	64	2207.05	2199 -	2214	3.87E+01	23.49	3.86E+01	1.64E+01
	65	2221.06	2215 -	2225	1.50E+01	15.00	2.20E+01	1.06E+01
	66	2278.32	2274 -	2280	9.03E+00	10.44	1.19E+01	7.02E+00
	67	2349.46	2343 -	2352	1.90E+01	14.70	2.00E+01	9.73E+00
	68	2395.53	2391 -	2397	9.42E+00	9.42	7.15E+00	5.87E+00
	69	2402.30	2397 -	2405	9.50E+00	9.82	9.00E+00	6.29E+00
	70	2615.71	2607 -	2620	2.89E+02	37.52	2.80E+01	1.30E+01

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/15/2017 6:52:30AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	31.91	30 -	35	32.55	6.84E+01	80.36	1.23E+03	.....
	2	46.32	44 -	49	46.95	1.20E+02	93.97	1.66E+03	PB-210
	3	63.40	61 -	67	64.01	2.31E+02	144.45	3.64E+03	TH-234 TH-230
	4	76.07	71 -	81	76.66	2.66E+03	230.07	5.62E+03	.....
M	5	85.12	82 -	97	85.70	4.40E+02	137.26	3.03E+03	TH-231

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	6	89.27	82 -	97	89.85	3.14E+02	111.85	2.01E+03	LU-176
m	7	92.81	82 -	97	93.38	7.76E+02	138.91	2.60E+03	GA-67
	8	99.39	98 -	103	99.96	1.04E+02	101.12	1.95E+03	.....
	9	115.08	113 -	118	115.64	1.05E+02	96.09	1.76E+03	.....
	10	128.85	126 -	133	129.39	2.18E+02	122.93	2.36E+03	.....
	11	154.23	152 -	157	154.74	1.34E+02	90.68	1.53E+03	.....
	12	185.83	183 -	189	186.31	3.31E+02	103.63	1.71E+03	RA-226
M	13	205.42	204 -	213	205.88	4.55E+01	47.94	6.48E+02	U-235
m	14	209.47	204 -	213	209.92	2.55E+02	73.99	1.01E+03	CM-243
									GA-67
M	15	234.91	233 -	247	235.34	1.02E+02	64.50	8.87E+02	NB-95M
m	16	238.58	233 -	247	239.01	2.54E+03	119.97	7.77E+02	PB-212
m	17	241.38	233 -	247	241.80	4.99E+02	134.13	1.01E+03	RA-224
	18	270.40	267 -	274	270.79	1.77E+02	79.12	9.28E+02	.....
	19	277.36	275 -	281	277.75	1.30E+02	71.10	8.22E+02	CM-243
									NP-239
M	20	295.15	292 -	304	295.52	4.30E+02	64.29	5.63E+02	PB-214
m	21	299.70	292 -	304	300.06	2.01E+02	70.71	7.67E+02	BI-210M
									PB-212
									GA-67
	22	327.89	325 -	331	328.23	1.27E+02	64.59	6.69E+02	LA-140
M	23	338.39	335 -	357	338.71	5.19E+02	67.27	5.24E+02	AC-228
m	24	351.85	335 -	357	352.16	8.52E+02	71.35	3.84E+02	PB-214
	25	452.88	449 -	456	453.09	7.70E+01	54.37	4.36E+02	.....
	26	462.73	459 -	468	462.92	1.52E+02	66.86	5.56E+02	SB-125
	27	510.51	506 -	515	510.66	3.62E+02	71.64	5.29E+02	.....
	28	547.59	545 -	551	547.70	3.52E+01	38.17	2.42E+02	.....
	29	583.24	579 -	588	583.32	7.69E+02	85.25	6.07E+02	TL-208
	30	609.49	604 -	615	609.54	5.72E+02	85.37	6.28E+02	BI-214
	31	662.90	658 -	667	662.90	4.48E+01	55.49	4.12E+02	.....
	32	727.66	723 -	732	727.59	1.81E+02	58.70	3.85E+02	BI-212
	33	754.70	751 -	758	754.60	5.10E+01	41.09	2.46E+02	.....
	34	770.44	764 -	777	770.33	1.27E+02	64.33	3.93E+02	.....
	35	795.26	792 -	798	795.12	8.94E+01	38.08	1.97E+02	CS-134
	36	805.63	803 -	809	805.48	3.13E+01	31.55	1.59E+02	.....
	37	861.11	857 -	864	860.91	6.34E+01	40.74	2.31E+02	TL-208
	38	869.52	866 -	872	869.31	3.50E+01	29.83	1.30E+02	.....
	39	911.51	907 -	914	911.26	5.53E+02	56.96	1.72E+02	TL-204
									AC-228
	40	933.13	928 -	936	932.86	7.50E+01	33.45	1.26E+02	.....
M	41	965.10	958 -	976	964.80	8.64E+01	30.76	1.30E+02	.....
m	42	969.33	958 -	976	969.02	2.80E+02	44.15	1.22E+02	AC-228
	43	1004.82	999 -	1009	1004.48	4.00E+01	40.98	2.00E+02	EU-154
M	44	1111.60	1108 -	1124	1111.15	2.91E+01	27.80	1.20E+02	EU-152
m	45	1120.67	1108 -	1124	1120.21	1.28E+02	35.34	1.24E+02	SC-46
									BI-214
									TA-182
	46	1174.11	1171 -	1177	1173.60	2.57E+01	28.37	1.31E+02	CO-60
	47	1238.23	1234 -	1240	1237.65	6.96E+01	33.51	1.53E+02	CO-56
	48	1282.03	1278 -	1284	1281.41	2.44E+01	25.20	9.72E+01	.....
	49	1376.93	1371 -	1380	1376.22	3.48E+01	28.98	1.00E+02	.....
	50	1409.52	1405 -	1416	1408.78	3.10E+01	29.87	9.60E+01	.....
M	51	1461.45	1454 -	1469	1460.65	1.21E+03	71.21	3.83E+01	K-40
m	52	1466.09	1454 -	1469	1465.29	3.91E+01	56.99	4.76E+01	.....

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	53	1511.52	1506 -	1515	1510.68	2.37E+01	21.89	5.46E+01	.....
M	54	1589.45	1583 -	1600	1588.53	2.62E+01	24.33	7.83E+01	.....
m	55	1593.39	1583 -	1600	1592.47	3.07E+01	25.14	6.06E+01	.....
M	56	1621.73	1614 -	1632	1620.78	2.58E+01	16.55	3.09E+01	.....
m	57	1625.18	1614 -	1632	1624.22	1.26E+01	15.42	2.22E+01	.....
m	58	1629.96	1614 -	1632	1629.00	2.11E+01	15.80	1.41E+01	.....
	59	1765.75	1759 -	1771	1764.66	9.77E+01	27.85	4.47E+01	.....
	60	1930.56	1927 -	1932	1929.31	8.75E+00	9.11	1.05E+01	.....
	61	1971.89	1968 -	1973	1970.60	9.50E+00	11.22	1.70E+01	.....
	62	2104.83	2098 -	2112	2103.41	4.56E+01	27.53	6.27E+01	.....
	63	2134.81	2130 -	2137	2133.36	6.73E+00	8.72	8.55E+00	.....
	64	2207.05	2199 -	2214	2205.53	3.87E+01	23.49	3.86E+01	.....
	65	2221.06	2215 -	2225	2219.53	1.50E+01	15.00	2.20E+01	.....
	66	2278.32	2274 -	2280	2276.74	9.03E+00	10.44	1.19E+01	.....
	67	2349.46	2343 -	2352	2347.80	1.90E+01	14.70	2.00E+01	.....
	68	2395.53	2391 -	2397	2393.83	9.42E+00	9.42	7.15E+00	.....
	69	2402.30	2397 -	2405	2400.59	9.50E+00	9.82	9.00E+00	.....
	70	2615.71	2607 -	2620	2613.80	2.89E+02	37.52	2.80E+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 : 8/15/2017 6:52:30AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	31.91	6.84E+01	80.36	1.99E-02	2.22E-03
	2	46.32	1.20E+02	93.97	2.46E-02	2.22E-03
	3	63.40	2.31E+02	144.45	2.70E-02	2.26E-03
	4	76.07	2.66E+03	230.07	2.75E-02	2.39E-03
M	5	85.12	4.40E+02	137.26	2.75E-02	2.49E-03
m	6	89.27	3.14E+02	111.85	2.74E-02	2.50E-03
m	7	92.81	7.76E+02	138.91	2.73E-02	2.44E-03
	8	99.39	1.04E+02	101.12	2.70E-02	2.34E-03
	9	115.08	1.05E+02	96.09	2.62E-02	2.09E-03
	10	128.85	2.18E+02	122.93	2.54E-02	1.94E-03
	11	154.23	1.34E+02	90.68	2.37E-02	1.80E-03
	12	185.83	3.31E+02	103.63	2.17E-02	1.68E-03

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	13	205.42	4.55E+01	47.94	2.06E-02	1.62E-03
m	14	209.47	2.55E+02	73.99	2.04E-02	1.61E-03
M	15	234.91	1.02E+02	64.50	1.90E-02	1.54E-03
m	16	238.58	2.54E+03	119.97	1.89E-02	1.53E-03
m	17	241.38	4.99E+02	134.13	1.87E-02	1.52E-03
	18	270.40	1.77E+02	79.12	1.74E-02	1.43E-03
	19	277.36	1.30E+02	71.10	1.71E-02	1.41E-03
M	20	295.15	4.30E+02	64.29	1.64E-02	1.37E-03
m	21	299.70	2.01E+02	70.71	1.63E-02	1.36E-03
	22	327.89	1.27E+02	64.59	1.53E-02	1.29E-03
M	23	338.39	5.19E+02	67.27	1.50E-02	1.27E-03
m	24	351.85	8.52E+02	71.35	1.45E-02	1.24E-03
	25	452.88	7.70E+01	54.37	1.21E-02	1.11E-03
	26	462.73	1.52E+02	66.86	1.19E-02	1.10E-03
	27	510.51	3.62E+02	71.64	1.10E-02	1.07E-03
	28	547.59	3.52E+01	38.17	1.05E-02	1.04E-03
	29	583.24	7.69E+02	85.25	9.96E-03	1.02E-03
	30	609.49	5.72E+02	85.37	9.63E-03	1.01E-03
	31	662.90	4.48E+01	55.49	9.03E-03	9.70E-04
	32	727.66	1.81E+02	58.70	8.41E-03	8.67E-04
	33	754.70	5.10E+01	41.09	8.18E-03	8.24E-04
	34	770.44	1.27E+02	64.33	8.05E-03	7.99E-04
	35	795.26	8.94E+01	38.08	7.86E-03	7.60E-04
	36	805.63	3.13E+01	31.55	7.78E-03	7.43E-04
	37	861.11	6.34E+01	40.74	7.40E-03	6.55E-04
	38	869.52	3.50E+01	29.83	7.34E-03	6.42E-04
	39	911.51	5.53E+02	56.96	7.08E-03	5.91E-04
	40	933.13	7.50E+01	33.45	6.96E-03	5.83E-04
M	41	965.10	8.64E+01	30.76	6.79E-03	5.71E-04
m	42	969.33	2.80E+02	44.15	6.76E-03	5.69E-04
	43	1004.82	4.00E+01	40.98	6.58E-03	5.56E-04
M	44	1111.60	2.91E+01	27.80	6.11E-03	5.15E-04
m	45	1120.67	1.28E+02	35.34	6.07E-03	5.11E-04
	46	1174.11	2.57E+01	28.37	5.87E-03	4.91E-04
	47	1238.23	6.96E+01	33.51	5.64E-03	4.76E-04
	48	1282.03	2.44E+01	25.20	5.50E-03	4.66E-04
	49	1376.93	3.48E+01	28.98	5.22E-03	4.44E-04
	50	1409.52	3.10E+01	29.87	5.14E-03	4.37E-04
M	51	1461.45	1.21E+03	71.21	5.00E-03	4.25E-04
m	52	1466.09	3.91E+01	56.99	4.99E-03	4.24E-04
	53	1511.52	2.37E+01	21.89	4.89E-03	4.13E-04
M	54	1589.45	2.62E+01	24.33	4.71E-03	3.95E-04
m	55	1593.39	3.07E+01	25.14	4.70E-03	3.94E-04
M	56	1621.73	2.58E+01	16.55	4.65E-03	3.87E-04
m	57	1625.18	1.26E+01	15.42	4.64E-03	3.87E-04
m	58	1629.96	2.11E+01	15.80	4.63E-03	3.86E-04
	59	1765.75	9.77E+01	27.85	4.37E-03	3.54E-04
	60	1930.56	8.75E+00	9.11	4.10E-03	3.38E-04
	61	1971.89	9.50E+00	11.22	4.04E-03	3.38E-04
	62	2104.83	4.56E+01	27.53	3.86E-03	3.38E-04
	63	2134.81	6.73E+00	8.72	3.82E-03	3.38E-04
	64	2207.05	3.87E+01	23.49	3.73E-03	3.38E-04
	65	2221.06	1.50E+01	15.00	3.72E-03	3.38E-04

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
66	2278.32	9.03E+00	10.44	3.65E-03	3.38E-04
67	2349.46	1.90E+01	14.70	3.57E-03	3.38E-04
68	2395.53	9.42E+00	9.42	3.52E-03	3.38E-04
69	2402.30	9.50E+00	9.82	3.51E-03	3.38E-04
70	2615.71	2.89E+02	37.52	3.30E-03	3.38E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/15/2017 6:52:30AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	31.91	6.84E+01	80.36			6.84E+01	8.04E+01
	2	46.32	1.20E+02	93.97	4.28E+01	8.26E+00	7.70E+01	9.43E+01
	3	63.40	2.31E+02	144.45	6.71E+01	1.02E+01	1.63E+02	1.45E+02
	4	76.07	2.66E+03	230.07			2.66E+03	2.30E+02
M	5	85.12	4.40E+02	137.26	1.21E+01	3.87E+00	4.28E+02	1.37E+02
m	6	89.27	3.14E+02	111.85			3.14E+02	1.12E+02
m	7	92.81	7.76E+02	138.91	1.35E+02	7.64E+00	6.41E+02	1.39E+02
	8	99.39	1.04E+02	101.12	7.32E+00	2.91E+00	9.70E+01	1.01E+02
	9	115.08	1.05E+02	96.09			1.05E+02	9.61E+01
	10	128.85	2.18E+02	122.93			2.18E+02	1.23E+02
	11	154.23	1.34E+02	90.68			1.34E+02	9.07E+01
	12	185.83	3.31E+02	103.63	5.47E+01	6.99E+00	2.77E+02	1.04E+02
M	13	205.42	4.55E+01	47.94			4.55E+01	4.79E+01
m	14	209.47	2.55E+02	73.99			2.55E+02	7.40E+01
M	15	234.91	1.02E+02	64.50			1.02E+02	6.45E+01
m	16	238.58	2.54E+03	119.97	1.58E+01	5.72E+00	2.52E+03	1.20E+02
m	17	241.38	4.99E+02	134.13			4.99E+02	1.34E+02
	18	270.40	1.77E+02	79.12			1.77E+02	7.91E+01
	19	277.36	1.30E+02	71.10			1.30E+02	7.11E+01
M	20	295.15	4.30E+02	64.29			4.30E+02	6.43E+01
m	21	299.70	2.01E+02	70.71			2.01E+02	7.07E+01
	22	327.89	1.27E+02	64.59			1.27E+02	6.46E+01
M	23	338.39	5.19E+02	67.27	1.94E+00	4.45E+00	5.17E+02	6.74E+01
m	24	351.85	8.52E+02	71.35	8.23E+00	4.77E+00	8.44E+02	7.15E+01
	25	452.88	7.70E+01	54.37			7.70E+01	5.44E+01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	26	462.73	1.52E+02	66.86			1.52E+02	6.69E+01
	27	510.51	3.62E+02	71.64	7.54E+01	5.68E+00	2.87E+02	7.19E+01
	28	547.59	3.52E+01	38.17			3.52E+01	3.82E+01
	29	583.24	7.69E+02	85.25	7.97E+00	3.93E+00	7.61E+02	8.53E+01
	30	609.49	5.72E+02	85.37	5.86E+00	3.50E+00	5.66E+02	8.54E+01
	31	662.90	4.48E+01	55.49			4.48E+01	5.55E+01
	32	727.66	1.81E+02	58.70			1.81E+02	5.87E+01
	33	754.70	5.10E+01	41.09			5.10E+01	4.11E+01
	34	770.44	1.27E+02	64.33			1.27E+02	6.43E+01
	35	795.26	8.94E+01	38.08			8.94E+01	3.81E+01
	36	805.63	3.13E+01	31.55			3.13E+01	3.15E+01
	37	861.11	6.34E+01	40.74			6.34E+01	4.07E+01
	38	869.52	3.50E+01	29.83			3.50E+01	2.98E+01
	39	911.51	5.53E+02	56.96			5.53E+02	5.70E+01
	40	933.13	7.50E+01	33.45			7.50E+01	3.35E+01
M	41	965.10	8.64E+01	30.76			8.64E+01	3.08E+01
m	42	969.33	2.80E+02	44.15			2.80E+02	4.42E+01
	43	1004.82	4.00E+01	40.98			4.00E+01	4.10E+01
M	44	1111.60	2.91E+01	27.80			2.91E+01	2.78E+01
m	45	1120.67	1.28E+02	35.34			1.28E+02	3.53E+01
	46	1174.11	2.57E+01	28.37	3.28E+00	2.38E+00	2.25E+01	2.85E+01
	47	1238.23	6.96E+01	33.51			6.96E+01	3.35E+01
	48	1282.03	2.44E+01	25.20			2.44E+01	2.52E+01
	49	1376.93	3.48E+01	28.98			3.48E+01	2.90E+01
	50	1409.52	3.10E+01	29.87			3.10E+01	2.99E+01
M	51	1461.45	1.21E+03	71.21	7.31E+00	2.50E+00	1.20E+03	7.13E+01
m	52	1466.09	3.91E+01	56.99			3.91E+01	5.70E+01
	53	1511.52	2.37E+01	21.89			2.37E+01	2.19E+01
M	54	1589.45	2.62E+01	24.33			2.62E+01	2.43E+01
m	55	1593.39	3.07E+01	25.14			3.07E+01	2.51E+01
M	56	1621.73	2.58E+01	16.55			2.58E+01	1.65E+01
m	57	1625.18	1.26E+01	15.42			1.26E+01	1.54E+01
m	58	1629.96	2.11E+01	15.80			2.11E+01	1.58E+01
	59	1765.75	9.77E+01	27.85			9.77E+01	2.79E+01
	60	1930.56	8.75E+00	9.11			8.75E+00	9.11E+00
	61	1971.89	9.50E+00	11.22			9.50E+00	1.12E+01
	62	2104.83	4.56E+01	27.53			4.56E+01	2.75E+01
	63	2134.81	6.73E+00	8.72			6.73E+00	8.72E+00
	64	2207.05	3.87E+01	23.49			3.87E+01	2.35E+01
	65	2221.06	1.50E+01	15.00			1.50E+01	1.50E+01
	66	2278.32	9.03E+00	10.44			9.03E+00	1.04E+01
	67	2349.46	1.90E+01	14.70			1.90E+01	1.47E+01
	68	2395.53	9.42E+00	9.42			9.42E+00	9.42E+00
	69	2402.30	9.50E+00	9.82			9.50E+00	9.82E+00
	70	2615.71	2.89E+02	37.52	5.15E+00	1.56E+00	2.84E+02	3.76E+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 1707078-19

HTC-A01-S004-4248-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 6:52:30AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054850.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	31.91	6.84E+01	80.36			6.84E+01	8.04E+01
	2	46.32	1.20E+02	93.97	4.28E+01	8.26E+00	7.70E+01	9.43E+01
	3	63.40	2.31E+02	144.45	6.71E+01	1.02E+01	1.63E+02	1.45E+02
	4	76.07	2.66E+03	230.07			2.66E+03	2.30E+02
M	5	85.12	4.40E+02	137.26	1.21E+01	3.87E+00	4.28E+02	1.37E+02
m	6	89.27	3.14E+02	111.85			3.14E+02	1.12E+02
m	7	92.81	7.76E+02	138.91	1.35E+02	7.64E+00	6.41E+02	1.39E+02
	8	99.39	1.04E+02	101.12	7.32E+00	2.91E+00	9.70E+01	1.01E+02
	9	115.08	1.05E+02	96.09			1.05E+02	9.61E+01
	10	128.85	2.18E+02	122.93			2.18E+02	1.23E+02
	11	154.23	1.34E+02	90.68			1.34E+02	9.07E+01
	12	185.83	3.31E+02	103.63	5.47E+01	6.99E+00	2.77E+02	1.04E+02
M	13	205.42	4.55E+01	47.94			4.55E+01	4.79E+01
m	14	209.47	2.55E+02	73.99			2.55E+02	7.40E+01
M	15	234.91	1.02E+02	64.50			1.02E+02	6.45E+01
m	16	238.58	2.54E+03	119.97	1.58E+01	5.72E+00	2.52E+03	1.20E+02
m	17	241.38	4.99E+02	134.13			4.99E+02	1.34E+02
	18	270.40	1.77E+02	79.12			1.77E+02	7.91E+01
	19	277.36	1.30E+02	71.10			1.30E+02	7.11E+01
M	20	295.15	4.30E+02	64.29			4.30E+02	6.43E+01
m	21	299.70	2.01E+02	70.71			2.01E+02	7.07E+01
	22	327.89	1.27E+02	64.59			1.27E+02	6.46E+01
M	23	338.39	5.19E+02	67.27	1.94E+00	4.45E+00	5.17E+02	6.74E+01
m	24	351.85	8.52E+02	71.35	8.23E+00	4.77E+00	8.44E+02	7.15E+01
	25	452.88	7.70E+01	54.37			7.70E+01	5.44E+01
	26	462.73	1.52E+02	66.86			1.52E+02	6.69E+01
	27	510.51	3.62E+02	71.64	7.54E+01	5.68E+00	2.87E+02	7.19E+01
	28	547.59	3.52E+01	38.17			3.52E+01	3.82E+01
	29	583.24	7.69E+02	85.25	7.97E+00	3.93E+00	7.61E+02	8.53E+01
	30	609.49	5.72E+02	85.37	5.86E+00	3.50E+00	5.66E+02	8.54E+01
	31	662.90	4.48E+01	55.49			4.48E+01	5.55E+01
	32	727.66	1.81E+02	58.70			1.81E+02	5.87E+01
	33	754.70	5.10E+01	41.09			5.10E+01	4.11E+01
	34	770.44	1.27E+02	64.33			1.27E+02	6.43E+01
	35	795.26	8.94E+01	38.08			8.94E+01	3.81E+01
	36	805.63	3.13E+01	31.55			3.13E+01	3.15E+01
	37	861.11	6.34E+01	40.74			6.34E+01	4.07E+01
	38	869.52	3.50E+01	29.83			3.50E+01	2.98E+01
	39	911.51	5.53E+02	56.96			5.53E+02	5.70E+01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	933.13	7.50E+01	33.45			7.50E+01	3.35E+01
M	41	965.10	8.64E+01	30.76			8.64E+01	3.08E+01
m	42	969.33	2.80E+02	44.15			2.80E+02	4.42E+01
	43	1004.82	4.00E+01	40.98			4.00E+01	4.10E+01
M	44	1111.60	2.91E+01	27.80			2.91E+01	2.78E+01
m	45	1120.67	1.28E+02	35.34			1.28E+02	3.53E+01
	46	1174.11	2.57E+01	28.37	3.28E+00	2.38E+00	2.25E+01	2.85E+01
	47	1238.23	6.96E+01	33.51			6.96E+01	3.35E+01
	48	1282.03	2.44E+01	25.20			2.44E+01	2.52E+01
	49	1376.93	3.48E+01	28.98			3.48E+01	2.90E+01
	50	1409.52	3.10E+01	29.87			3.10E+01	2.99E+01
M	51	1461.45	1.21E+03	71.21	7.31E+00	2.50E+00	1.20E+03	7.13E+01
m	52	1466.09	3.91E+01	56.99			3.91E+01	5.70E+01
	53	1511.52	2.37E+01	21.89			2.37E+01	2.19E+01
M	54	1589.45	2.62E+01	24.33			2.62E+01	2.43E+01
m	55	1593.39	3.07E+01	25.14			3.07E+01	2.51E+01
M	56	1621.73	2.58E+01	16.55			2.58E+01	1.65E+01
m	57	1625.18	1.26E+01	15.42			1.26E+01	1.54E+01
m	58	1629.96	2.11E+01	15.80			2.11E+01	1.58E+01
	59	1765.75	9.77E+01	27.85			9.77E+01	2.79E+01
	60	1930.56	8.75E+00	9.11			8.75E+00	9.11E+00
	61	1971.89	9.50E+00	11.22			9.50E+00	1.12E+01
	62	2104.83	4.56E+01	27.53			4.56E+01	2.75E+01
	63	2134.81	6.73E+00	8.72			6.73E+00	8.72E+00
	64	2207.05	3.87E+01	23.49			3.87E+01	2.35E+01
	65	2221.06	1.50E+01	15.00			1.50E+01	1.50E+01
	66	2278.32	9.03E+00	10.44			9.03E+00	1.04E+01
	67	2349.46	1.90E+01	14.70			1.90E+01	1.47E+01
	68	2395.53	9.42E+00	9.42			9.42E+00	9.42E+00
	69	2402.30	9.50E+00	9.82			9.50E+00	9.82E+00
	70	2615.71	2.89E+02	37.52	5.15E+00	1.56E+00	2.84E+02	3.76E+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

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.937	1460.81	*	10.67	2.56E+01	2.70E+00
TL-208	0.390	583.14	*	30.22	2.87E+00	4.37E-01
		860.37	*	4.48	2.17E+00	1.41E+00
		2614.66		35.85		
PB-210	0.995	46.50	*	4.25	8.43E-01	1.04E+00
BI-212	0.733	727.17	*	11.80	2.08E+00	7.06E-01
		1620.62		2.75		
PB-212	0.998	238.63	*	44.60	3.41E+00	3.20E-01
		300.09	*	3.41	4.12E+00	1.49E+00
BI-214	0.688	609.31	*	46.30	1.44E+00	2.65E-01
		1120.29	*	15.10	1.59E+00	4.58E-01
		1764.49		15.80		
		2204.22		4.98		
PB-214	0.999	295.21	*	19.19	1.55E+00	2.65E-01
		351.92	*	37.19	1.77E+00	2.13E-01
RA-224	0.975	240.98	*	3.95	7.66E+00	2.15E+00
RA-226	0.977	186.21	*	3.28	4.41E+00	8.25E+00
AC-228	0.982	338.32	*	11.40	3.45E+00	5.36E-01
		911.07	*	27.70	3.20E+00	4.24E-01
		969.11	*	16.60	2.84E+00	5.07E-01
TH-234	0.998	63.29	*	3.80	1.81E+00	1.61E+00
CM-243	0.369	209.75	*	3.29	4.35E+00	1.31E+00
		228.14		10.60		
		277.60	*	14.00	6.19E-01	3.43E-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 : 8/15/2017 6:52:30AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	31.91	1.90063E-02	58.72		
	4	76.07	7.38376E-01	4.33		
M	5	85.12	1.18864E-01	16.05	Tol.	TH-231
m	6	89.27	8.71868E-02	17.82	Tol.	LU-176
m	7	92.81	1.78134E-01	10.85	Sum	

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	8	99.39	2.69384E-02	52.16	D-Esc	
	9	115.08	2.91890E-02	45.72		
	10	128.85	6.04760E-02	28.23		
	11	154.23	3.70979E-02	33.95		
M	13	205.42	1.26414E-02	52.67	Tol.	U-235
M	15	234.91	2.84159E-02	31.53		
	18	270.40	4.91311E-02	22.37		
	22	327.89	3.51750E-02	25.50	Tol.	LA-140
	25	452.88	2.13936E-02	35.30		
	26	462.73	4.22384E-02	21.98	Sum	
	27	510.51	7.97527E-02	12.52		
	28	547.59	9.77564E-03	54.23	Sum	
	31	662.90	1.24436E-02	61.93		
	33	754.70	1.41539E-02	40.32		
	34	770.44	3.53515E-02	25.27		
	35	795.26	2.48463E-02	21.29	Sum	
	36	805.63	8.68994E-03	50.42		
	38	869.52	9.71389E-03	42.65		
	40	933.13	2.08293E-02	22.31		
M	41	965.10	2.40043E-02	17.80		
	43	1004.82	1.11250E-02	51.16	Sum	
M	44	1111.60	8.09545E-03	47.69	Tol.	EU-152
	46	1174.11	6.23843E-03	63.39		
	47	1238.23	1.93341E-02	24.07		
	48	1282.03	6.77131E-03	51.69		
	49	1376.93	9.66340E-03	41.66		
	50	1409.52	8.61111E-03	48.17		
m	52	1466.09	1.08598E-02	72.89		
	53	1511.52	6.57680E-03	46.22		
M	54	1589.45	7.28184E-03	46.41	Sum	
m	55	1593.39	8.53633E-03	40.90		
M	56	1621.73	7.17900E-03	32.01		
m	57	1625.18	3.51210E-03	60.98		
m	58	1629.96	5.86304E-03	37.44		
	59	1765.75	2.71262E-02	14.26		
	60	1930.56	2.43056E-03	52.06		
	61	1971.89	2.63889E-03	59.08		
	62	2104.83	1.26786E-02	30.16		
	63	2134.81	1.86869E-03	64.79		
	64	2207.05	1.07447E-02	30.37		
	65	2221.06	4.16667E-03	50.00		
	66	2278.32	2.50926E-03	57.79		
	67	2349.46	5.27778E-03	38.68		
	68	2395.53	2.61752E-03	49.99		
	69	2402.30	2.63889E-03	51.70		
	70	2615.71	7.88484E-02	6.62		

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 1707078-19

HTC-A01-S004-4248-01

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	0.93	1460.81	*	10.67	2.56E+01	2.70E+00
TL-208	0.39	583.14	*	30.22	2.87E+00	4.37E-01
		860.37	*	4.48	2.17E+00	1.41E+00
		2614.66		35.85		
PB-210	0.99	46.50	*	4.25	8.43E-01	1.04E+00
BI-212	0.73	727.17	*	11.80	2.08E+00	7.06E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	3.41E+00	3.20E-01
		300.09	*	3.41	4.12E+00	1.49E+00
BI-214	0.68	609.31	*	46.30	1.44E+00	2.65E-01
		1120.29	*	15.10	1.59E+00	4.58E-01
		1764.49		15.80		
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.55E+00	2.65E-01
		351.92	*	37.19	1.77E+00	2.13E-01
RA-224	0.97	240.98	*	3.95	7.66E+00	2.15E+00
RA-226	0.97	186.21	*	3.28	4.41E+00	8.25E+00
AC-228	0.98	338.32	*	11.40	3.45E+00	5.36E-01
		911.07	*	27.70	3.20E+00	4.24E-01
		969.11	*	16.60	2.84E+00	5.07E-01
TH-234	0.99	63.29	*	3.80	1.81E+00	1.61E+00
CM-243	0.36	209.75	*	3.29	4.35E+00	1.31E+00
		228.14		10.60		
		277.60	*	14.00	6.19E-01	3.43E-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 1707078-19

HTC-A01-S004-4248-01

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.937	2.56E+01	2.70E+00	
TL-208	0.390	2.81E+00	4.17E-01	
PB-210	0.995	8.43E-01	1.04E+00	
BI-212	0.733	2.08E+00	7.06E-01	
PB-212	0.998	3.44E+00	3.13E-01	
BI-214	0.688	1.48E+00	2.29E-01	
PB-214	0.999	1.69E+00	1.66E-01	
RA-224	0.975	7.66E+00	2.15E+00	
RA-226	0.977	4.41E+00	8.25E+00	
AC-228	0.982	3.16E+00	2.78E-01	
TH-234	0.998	1.81E+00	1.61E+00	
CM-243	0.369	8.58E-01	3.31E-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 1707078-19

HTC-A01-S004-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 6:52:30AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	31.91	1.90063E-02	58.72		
	4	76.07	7.38376E-01	4.33		
M	5	85.12	1.18864E-01	16.05	Tol.	TH-231
m	6	89.27	8.71868E-02	17.82	Tol.	LU-176
m	7	92.81	1.78134E-01	10.85	Sum	
	8	99.39	2.69384E-02	52.16	D-Esc	
	9	115.08	2.91890E-02	45.72		
	10	128.85	6.04760E-02	28.23		
	11	154.23	3.70979E-02	33.95		
M	13	205.42	1.26414E-02	52.67	Tol.	U-235
M	15	234.91	2.84159E-02	31.53		
	18	270.40	4.91311E-02	22.37		
	22	327.89	3.51750E-02	25.50	Tol.	LA-140
	25	452.88	2.13936E-02	35.30		
	26	462.73	4.22384E-02	21.98	Sum	
	27	510.51	7.97527E-02	12.52		
	28	547.59	9.77564E-03	54.23	Sum	
	31	662.90	1.24436E-02	61.93		
	33	754.70	1.41539E-02	40.32		
	34	770.44	3.53515E-02	25.27		
	35	795.26	2.48463E-02	21.29	Sum	
	36	805.63	8.68994E-03	50.42		
	38	869.52	9.71389E-03	42.65		
	40	933.13	2.08293E-02	22.31		
M	41	965.10	2.40043E-02	17.80		
	43	1004.82	1.11250E-02	51.16	Sum	
M	44	1111.60	8.09545E-03	47.69	Tol.	EU-152
	46	1174.11	6.23843E-03	63.39		
	47	1238.23	1.93341E-02	24.07		
	48	1282.03	6.77131E-03	51.69		
	49	1376.93	9.66340E-03	41.66		
	50	1409.52	8.61111E-03	48.17		
m	52	1466.09	1.08598E-02	72.89		
	53	1511.52	6.57680E-03	46.22		
M	54	1589.45	7.28184E-03	46.41	Sum	

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	55	1593.39	8.53633E-03	40.90		
M	56	1621.73	7.17900E-03	32.01		
m	57	1625.18	3.51210E-03	60.98		
m	58	1629.96	5.86304E-03	37.44		
	59	1765.75	2.71262E-02	14.26		
	60	1930.56	2.43056E-03	52.06		
	61	1971.89	2.63889E-03	59.08		
	62	2104.83	1.26786E-02	30.16		
	63	2134.81	1.86869E-03	64.79		
	64	2207.05	1.07447E-02	30.37		
	65	2221.06	4.16667E-03	50.00		
	66	2278.32	2.50926E-03	57.79		
	67	2349.46	5.27778E-03	38.68		
	68	2395.53	2.61752E-03	49.99		
	69	2402.30	2.63889E-03	51.70		
	70	2615.71	7.88484E-02	6.62		

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	-9.84E-01	2.16E+00	2.16E+00
+	NA-22	1274.54		99.94	1.43E-02	9.24E-02	9.24E-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	-1.99E-02	4.62E-02	4.62E-02
+	K-40	1460.81	*	10.67	2.56E+01	1.06E+00	1.06E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	4.43E-03	7.85E-02	7.85E-02
		78.34		96.00	4.51E-01		1.07E-01
+	SC-46	889.25		99.98	-1.37E-02	1.58E-01	1.58E-01
		1120.51		99.99	5.97E-01		2.82E-01
+	V-48	983.52		99.98	-3.98E-02	4.27E+00	4.27E+00

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	V-48	1312.10	97.50	6.77E-01	4.27E+00	4.55E+00
+	CR-51	320.08	9.83	5.94E-01	6.99E+00	6.99E+00
+	MN-54	834.83	99.97	3.65E-02	1.10E-01	1.10E-01
+	CO-56	846.75	99.96	-5.21E-02	1.66E-01	1.66E-01
		1037.75	14.03	1.31E-01		1.30E+00
		1238.25	67.00	2.82E-01		4.05E-01
		1771.40	15.51	-1.05E-01		8.18E-01
		2598.48	16.90	1.11E-01		6.06E-01
+	CO-57	122.06	85.51	1.05E-02	8.72E-02	8.72E-02
		136.48	10.60	-3.37E-01		6.86E-01
+	CO-58	810.76	99.40	3.91E-02	1.78E-01	1.78E-01
+	FE-59	1099.22	56.50	-2.11E-01	5.72E-01	5.72E-01
		1291.56	43.20	-3.58E-01		7.49E-01
+	CO-60	1173.22	100.00	8.22E-03	6.81E-02	9.53E-02
		1332.49	100.00	-4.39E-02		6.81E-02
+	ZN-65	1115.52	50.75	-7.24E-01	2.08E-01	2.08E-01
+	GA-67	93.31	35.70	2.58E+08	1.04E+08	1.04E+08
		208.95	2.24	2.19E+09		1.47E+09
		300.22	16.00	-2.89E+08		2.24E+08
+	SE-75	121.11	16.70	1.00E-01	1.66E-01	5.99E-01
		136.00	59.20	-8.15E-02		1.66E-01
		264.65	59.80	3.07E-02		1.85E-01
		279.53	25.20	2.94E-02		5.00E-01
		400.65	11.40	-3.19E-01		1.05E+00
+	RB-82	776.52	13.00	-6.54E-01	7.51E+00	7.51E+00
+	RB-83	520.41	46.00	-1.25E-01	3.21E-01	3.21E-01
		529.64	30.30	6.32E-02		4.87E-01
		552.65	16.40	-6.81E-02		8.14E-01
+	KR-85	513.99	0.43	2.70E+00	2.45E+01	2.45E+01
+	SR-85	513.99	99.27	3.17E-02	2.88E-01	2.88E-01
+	Y-88	898.02	93.40	-1.27E-02	8.62E-02	1.32E-01
		1836.01	99.38	-6.48E-02		8.62E-02
+	MO-93	263.06	56.72	-2.65E-02	6.31E-02	1.16E-01
		684.67	99.68	1.01E-02		7.62E-02
		1477.11	99.08	1.32E-02		6.31E-02
+	NB-93M	16.57	9.43	4.58E-02	6.32E-01	6.32E-01
+	NB-94	702.63	100.00	-1.43E-02	7.34E-02	8.10E-02
		871.10	100.00	3.26E-04		7.34E-02
+	NB-95	765.79	99.81	3.22E-01	5.88E-01	5.88E-01
+	NB-95M	235.69	25.00	-2.64E+08	2.41E+07	2.41E+07
+	ZR-95	724.18	43.70	2.04E-03	4.17E-01	6.48E-01
		756.72	55.30	-3.04E-02		4.17E-01
+	MO-99	181.06	6.20	-8.54E+08	1.06E+10	1.83E+10
		739.58	12.80	1.32E+09		1.06E+10
		778.00	4.50	-7.89E+09		2.95E+10
+	RU-103	497.08	89.00	4.19E-02	3.89E-01	3.89E-01
+	RU-106	621.84	9.80	2.99E-01	8.51E-01	8.51E-01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AG-108M	433.93	89.90	-3.77E-02	7.04E-02	7.04E-02
		614.37	90.40	1.30E-02		9.57E-02
		722.95	90.50	2.93E-03		9.27E-02
+	CD-109	88.03	3.72	1.19E+00	2.62E+00	2.62E+00
+	AG-110M	657.75	93.14	2.98E-03	1.03E-01	1.03E-01
		677.61	10.53	-2.24E-01		8.60E-01
		706.67	16.46	-3.98E-01		6.22E-01
		763.93	21.98	8.28E-02		5.01E-01
		884.67	71.63	-3.30E-02		1.24E-01
		1384.27	23.94	2.54E-01		4.05E-01
+	CD-113M	263.70	0.02	-1.47E+01	2.84E+02	2.84E+02
+	SN-113	255.12	1.93	-1.27E-02	1.83E-01	5.08E+00
		391.69	64.90	-1.72E-02		1.83E-01
+	TE123M	159.00	84.10	-4.87E-02	1.19E-01	1.19E-01
+	SB-124	602.71	97.87	6.37E-02	2.19E-01	2.19E-01
		645.85	7.26	1.06E+00		3.05E+00
		722.78	11.10	7.04E-02		2.22E+00
		1691.02	49.00	-1.90E-01		2.64E-01
+	I-125	35.49	6.49	-9.52E-01	2.72E+00	2.72E+00
+	SB-125	176.33	6.89	2.83E-01	2.47E-01	9.44E-01
		427.89	29.33	9.72E-02		2.47E-01
		463.38	10.35	1.45E+00		8.83E-01
		600.56	17.80	1.66E-01		4.49E-01
		635.90	11.32	2.98E-01		6.81E-01
+	SB-126	414.70	83.30	-2.04E+01	1.42E+01	1.53E+01
		666.33	99.60	-2.89E+00		1.47E+01
		695.00	99.60	-1.32E+00		1.42E+01
		720.50	53.80	-4.11E+00		2.82E+01
+	SN-126	87.57	37.00	2.19E-01	2.22E-01	2.22E-01
+	SB-127	473.00	25.00	1.05E+06	4.58E+06	5.90E+06
		685.20	35.70	6.05E+05		4.58E+06
		783.80	14.70	8.38E+06		1.26E+07
+	I-129	29.78	57.00	-3.75E-03	1.18E-01	1.18E-01
		33.60	13.20	-3.09E-01		4.73E-01
		39.58	7.52	-3.56E-02		8.29E-01
+	I-131	284.30	6.05	4.19E+02	2.66E+02	3.55E+03
		364.48	81.20	1.78E+01		2.66E+02
		636.97	7.26	-4.26E+02		3.17E+03
		722.89	1.80	4.81E+02		1.52E+04
+	TE-132	49.72	13.10	2.25E+07	3.33E+07	2.12E+08
		228.16	88.00	7.07E+06		3.33E+07
+	BA-133	81.00	33.00	-1.38E+00	1.50E-01	2.10E-01
		302.84	17.80	1.72E-02		4.35E-01
		356.01	60.00	-1.82E-02		1.50E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.89E+05	4.40E+04	4.40E+04
+	CS-134	563.23	8.38	5.43E-02	9.17E-02	9.83E-01
		569.32	15.43	5.49E-02		5.22E-01
		604.70	97.60	9.09E-03		9.17E-02

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-134	795.84	85.40	1.49E-01	9.17E-02	1.23E-01
			801.93	8.73	1.16E-01		9.24E-01
+		CS-135	268.24	16.00	2.98E-01	4.55E-01	4.55E-01
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	1.09E+02	9.49E+00	1.19E+02
			163.89	4.61	1.75E+01		1.79E+02
			176.55	13.56	1.89E+01		6.32E+01
			273.65	12.66	-8.45E+01		8.25E+01
			340.57	48.50	1.11E+02		3.00E+01
			818.50	99.70	-4.19E+00		9.49E+00
			1048.07	79.60	-3.78E+00		1.39E+01
			1235.34	19.70	-7.97E+00		8.07E+01
+		CS-137	661.65	85.12	3.36E-02	9.72E-02	9.72E-02
+		LA-138	788.74	34.00	8.65E-02	9.28E-02	2.37E-01
			1435.80	66.00	2.11E-02		9.28E-02
+		CE-139	165.85	80.35	1.91E-02	1.19E-01	1.19E-01
+		BA-140	162.64	6.70	-9.36E-01	4.66E+01	1.42E+02
			304.84	4.50	7.81E+01		2.36E+02
			423.70	3.20	-6.61E+00		3.55E+02
			437.55	2.00	2.21E+01		5.25E+02
			537.32	25.00	5.30E+00		4.66E+01
+		LA-140	328.77	20.50	6.76E+01	1.45E+01	6.12E+01
			487.03	45.50	-3.74E+00		2.43E+01
			815.85	23.50	1.52E+01		4.91E+01
			1596.49	95.49	6.37E+00		1.45E+01
+		CE-141	145.44	48.40	8.92E-02	9.25E-01	9.25E-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	6.85E-02	6.63E-01	6.63E-01
+		PM-144	476.78	42.00	-5.04E-02	8.85E-02	1.89E-01
			618.01	98.60	-6.41E-04		8.85E-02
			696.49	99.49	-4.10E-02		8.86E-02
+		PM-145	36.85	21.70	-5.05E-02	1.58E-01	2.79E-01
			37.36	39.70	-5.64E-02		1.58E-01
			42.30	15.10	-7.49E-02		4.10E-01
			72.40	2.31	-5.43E+00		3.86E+00
+		PM-146	453.90	39.94	9.24E-02	1.86E-01	1.86E-01
			735.90	14.01	-1.24E-01		5.29E-01
			747.13	13.10	4.25E-02		6.02E-01
+		ND-147	91.11	28.90	3.37E+02	1.13E+02	1.13E+02
			531.02	13.10	2.87E-01		1.98E+02
+		PM-149	285.90	3.10	5.64E+12	1.29E+13	1.29E+13
+		EU-152	121.78	20.50	4.82E-02	2.88E-01	2.88E-01
			244.69	5.40	-1.61E+00		1.21E+00
			344.27	19.13	-3.94E-01		3.52E-01
			778.89	9.20	-1.38E-01		7.97E-01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	964.01	10.40	-4.59E+00	2.88E-01	1.03E+00
		1085.78	7.22	6.06E-01		1.15E+00
		1112.02	9.60	2.43E-01		8.86E-01
		1407.95	14.94	1.57E-01		5.72E-01
+	GD-153	97.43	31.30	-4.40E-01	2.55E-01	2.55E-01
		103.18	22.20	1.20E-01		3.49E-01
+	EU-154	123.07	40.50	3.02E-02	1.50E-01	1.50E-01
		723.30	19.70	1.37E-02		4.34E-01
		873.19	11.50	1.96E-02		6.11E-01
		996.32	10.30	8.36E-02		7.35E-01
		1004.76	17.90	4.03E-01		4.93E-01
		1274.45	35.50	3.85E-02		2.48E-01
+	EU-155	86.50	30.90	2.45E-01	2.75E-01	2.75E-01
		105.30	20.70	-3.71E-02		2.96E-01
+	EU-156	811.77	10.40	2.53E+01	4.99E+01	4.99E+01
		1153.47	7.20	6.25E+01		9.74E+01
		1230.71	8.90	-3.59E+01		7.36E+01
+	HO-166M	184.41	72.60	2.43E-01	1.05E-01	1.05E-01
		280.45	29.60	3.69E-02		2.40E-01
		410.94	11.10	3.43E-01		6.74E-01
		711.69	54.10	-6.88E-02		1.39E-01
+	TM-171	66.72	0.14	-6.53E+00	5.81E+01	5.81E+01
+	HF-172	67.35	5.31	8.64E-02	5.85E-01	1.53E+00
		125.81	11.30	-3.40E-03		5.85E-01
+	LU-172	181.53	20.60	-2.27E+02	2.16E+03	4.85E+03
		900.72	29.81	-3.33E+03		3.54E+03
		1093.66	62.50	3.76E+02		2.16E+03
+	LU-173	100.72	5.24	8.72E-01	4.09E-01	1.30E+00
		272.11	21.20	-1.48E-01		4.09E-01
+	HF-175	343.40	84.00	-8.56E-01	2.03E-01	2.03E-01
+	LU-176	88.34	13.30	2.89E-01	6.89E-02	6.36E-01
		201.83	86.00	2.46E-02		7.15E-02
		306.78	94.00	2.36E-02		6.89E-02
+	HF-181	133.02	41.70	6.54E-02	3.87E-01	6.33E-01
		345.85	17.20	-6.55E+00		1.75E+00
		482.03	82.80	6.99E-02		3.87E-01
+	TA-182	67.75	41.20	1.79E-02	3.17E-01	3.17E-01
		1121.30	34.90	1.17E+00		6.50E-01
		1189.05	16.23	-1.93E-01		9.75E-01
		1221.41	26.98	-1.17E-01		6.30E-01
		1231.02	11.44	-6.81E-01		1.40E+00
+	IR-192	308.46	29.68	-9.56E-02	3.45E-01	5.15E-01
		468.07	48.10	2.87E-02		3.45E-01
+	HG-203	279.19	77.30	2.24E-02	3.82E-01	3.82E-01
+	TL-204	374.74	94.11	1.65E-02	6.80E-02	7.36E-02
		899.15	99.16	-5.28E-02		6.80E-02
		911.74	91.10	9.97E-01		2.20E-01
+	BI-207	569.67	97.72	-2.27E-02	7.36E-02	7.36E-02
		1063.62	74.90	7.33E-02		1.20E-01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TL-208	583.14	*	30.22	2.87E+00	4.14E-01	4.14E-01
		860.37	*	4.48	2.17E+00		2.21E+00
		2614.66		35.85	2.65E+00		7.91E-01
+	BI-210M	262.00		45.00	4.45E-02	1.48E-01	1.48E-01
		300.00		23.00	-1.12E+00		3.45E-01
+	PB-210	46.50	*	4.25	8.43E-01	1.70E+00	1.70E+00
+	PB-211	404.84		2.90	-3.22E+00	2.47E+00	2.47E+00
		831.96		2.90	-2.24E+00		2.76E+00
+	BI-212	727.17	*	11.80	2.08E+00	1.01E+00	1.01E+00
		1620.62		2.75	1.50E+00		3.08E+00
+	PB-212	238.63	*	44.60	3.41E+00	3.12E-01	3.12E-01
		300.09	*	3.41	4.12E+00		3.58E+00
+	BI-214	609.31	*	46.30	1.44E+00	3.04E-01	3.04E-01
		1120.29	*	15.10	1.59E+00		1.11E+00
		1764.49		15.80	1.37E+00		8.25E-01
		2204.22		4.98	7.20E-01		1.98E+00
+	PB-214	295.21	*	19.19	1.55E+00	5.20E-01	6.18E-01
		351.92	*	37.19	1.77E+00		5.20E-01
+	RN-219	401.80		6.50	4.74E-01	1.11E+00	1.11E+00
+	RA-223	323.87		3.88	-1.77E-01	1.71E+00	1.71E+00
+	RA-224	240.98	*	3.95	7.66E+00	3.58E+00	3.58E+00
+	RA-225	40.00		31.00	6.24E+00	1.66E+01	1.66E+01
+	RA-226	186.21	*	3.28	4.41E+00	2.62E+00	2.62E+00
+	TH-227	50.10		8.40	-2.60E-01	7.00E-01	7.00E-01
		236.00		11.50	-8.54E+00		7.80E-01
		256.20		6.30	2.46E-01		1.05E+00
+	AC-228	338.32	*	11.40	3.45E+00	3.22E-01	1.66E+00
		911.07	*	27.70	3.20E+00		3.22E-01
		969.11	*	16.60	2.84E+00		1.04E+00
+	TH-230	48.44		16.90	-3.14E-03	3.63E-01	3.63E-01
		62.85		4.60	1.45E+00		1.67E+00
		67.67		0.37	1.13E+00		2.00E+01
+	PA-231	283.67		1.60	-1.61E+00	3.31E+00	4.05E+00
		302.67		2.30	1.31E-01		3.31E+00
+	TH-231	25.64		14.70	-3.30E+00	5.56E-01	5.56E-01
		84.21		6.40	2.91E-01		1.20E+00
+	PA-233	311.98		38.60	-1.32E+00	1.81E+00	1.81E+00
+	PA-234	131.20		20.40	3.52E-02	2.99E-01	2.99E-01
		733.99		8.80	-2.61E-01		8.33E-01
		946.00		12.00	-1.86E-01		6.02E-01
+	PA-234M	1001.03		0.92	1.25E+00	8.81E+00	8.81E+00
+	TH-234	63.29	*	3.80	1.81E+00	2.63E+00	2.63E+00
+	U-235	143.76		10.50	3.26E-02	5.70E-01	5.70E-01
		163.35		4.70	1.22E-01		1.25E+00
		205.31		4.70	-3.42E+00		1.31E+00
+	NP-237	86.50		12.60	5.79E-01	6.50E-01	6.50E-01
+	NP-239	106.10		22.70	1.98E+11	2.68E+11	2.68E+11

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	NP-239	228.18		10.70	1.23E+11	2.68E+11	5.80E+11
		277.60		14.10	4.45E+11		5.20E+11
+	AM-241	59.54		35.90	4.68E-02	1.91E-01	1.91E-01
+	AM-243	74.67		66.00	-1.24E-01	1.63E-01	1.63E-01
+	CM-243	209.75	*	3.29	4.35E+00	5.41E-01	3.16E+00
		228.14		10.60	1.26E-01		5.91E-01
		277.60	*	14.00	6.19E-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

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	2.16E+00	2.16E+00	-9.84E-01	1.04E+00
	NA-22	1274.54		99.94	9.24E-02	9.24E-02	1.43E-02	4.32E-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	4.62E-02	4.62E-02	-1.99E-02	1.95E-02
+	K-40	1460.81	*	10.67	1.06E+00	1.06E+00	2.56E+01	5.00E-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	7.85E-02	7.85E-02	4.43E-03	3.87E-02
		78.34		96.00	1.07E-01		4.51E-01	5.29E-02
	SC-46	889.25		99.98	1.58E-01	1.58E-01	-1.37E-02	7.42E-02
		1120.51		99.99	2.82E-01		5.97E-01	1.35E-01
	V-48	983.52		99.98	4.27E+00	4.27E+00	-3.98E-02	2.00E+00
		1312.10		97.50	4.55E+00		6.77E-01	2.10E+00
	CR-51	320.08		9.83	6.99E+00	6.99E+00	5.94E-01	3.39E+00
	MN-54	834.83		99.97	1.10E-01	1.10E-01	3.65E-02	5.23E-02
	CO-56	846.75		99.96	1.66E-01	1.66E-01	-5.21E-02	7.82E-02

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CO-56	1037.75	14.03	1.30E+00	1.66E-01	1.31E-01	6.10E-01
	1238.25	67.00	4.05E-01		2.82E-01	1.93E-01
	1771.40	15.51	8.18E-01		-1.05E-01	3.57E-01
	2598.48	16.90	6.06E-01		1.11E-01	2.41E-01
CO-57	122.06	85.51	8.72E-02	8.72E-02	1.05E-02	4.27E-02
	136.48	10.60	6.86E-01		-3.37E-01	3.36E-01
CO-58	810.76	99.40	1.78E-01	1.78E-01	3.91E-02	8.39E-02
FE-59	1099.22	56.50	5.72E-01	5.72E-01	-2.11E-01	2.67E-01
	1291.56	43.20	7.49E-01		-3.58E-01	3.46E-01
CO-60	1173.22	100.00	9.53E-02	6.81E-02	8.22E-03	4.49E-02
	1332.49	100.00	6.81E-02		-4.39E-02	3.11E-02
ZN-65	1115.52	50.75	2.08E-01	2.08E-01	-7.24E-01	9.73E-02
GA-67	93.31	35.70	1.04E+08	1.04E+08	2.58E+08	5.11E+07
	208.95	2.24	1.47E+09		2.19E+09	7.22E+08
	300.22	16.00	2.24E+08		-2.89E+08	1.09E+08
SE-75	121.11	16.70	5.99E-01	1.66E-01	1.00E-01	2.94E-01
	136.00	59.20	1.66E-01		-8.15E-02	8.13E-02
	264.65	59.80	1.85E-01		3.07E-02	9.00E-02
	279.53	25.20	5.00E-01		2.94E-02	2.44E-01
	400.65	11.40	1.05E+00		-3.19E-01	5.08E-01
RB-82	776.52	13.00	7.51E+00	7.51E+00	-6.54E-01	3.57E+00
RB-83	520.41	46.00	3.21E-01	3.21E-01	-1.25E-01	1.54E-01
	529.64	30.30	4.87E-01		6.32E-02	2.33E-01
	552.65	16.40	8.14E-01		-6.81E-02	3.88E-01
KR-85	513.99	0.43	2.45E+01	2.45E+01	2.70E+00	1.19E+01
SR-85	513.99	99.27	2.88E-01	2.88E-01	3.17E-02	1.40E-01
Y-88	898.02	93.40	1.32E-01	8.62E-02	-1.27E-02	6.17E-02
	1836.01	99.38	8.62E-02		-6.48E-02	3.64E-02
MO-93	263.06	56.72	1.16E-01	6.31E-02	-2.65E-02	5.63E-02
	684.67	99.68	7.62E-02		1.01E-02	3.63E-02
	1477.11	99.08	6.31E-02		1.32E-02	2.84E-02
NB-93M	16.57	9.43	6.32E-01	6.32E-01	4.58E-02	3.01E-01
NB-94	702.63	100.00	8.10E-02	7.34E-02	-1.43E-02	3.87E-02
	871.10	100.00	7.34E-02		3.26E-04	3.46E-02
NB-95	765.79	99.81	5.88E-01	5.88E-01	3.22E-01	2.82E-01
NB-95M	235.69	25.00	2.41E+07	2.41E+07	-2.64E+08	1.18E+07
ZR-95	724.18	43.70	6.48E-01	4.17E-01	2.04E-03	3.13E-01
	756.72	55.30	4.17E-01		-3.04E-02	1.99E-01
MO-99	181.06	6.20	1.83E+10	1.06E+10	-8.54E+08	8.92E+09
	739.58	12.80	1.06E+10		1.32E+09	5.05E+09
	778.00	4.50	2.95E+10		-7.89E+09	1.40E+10
RU-103	497.08	89.00	3.89E-01	3.89E-01	4.19E-02	1.87E-01
RU-106	621.84	9.80	8.51E-01	8.51E-01	2.99E-01	4.06E-01
AG-108M	433.93	89.90	7.04E-02	7.04E-02	-3.77E-02	3.38E-02
	614.37	90.40	9.57E-02		1.30E-02	4.61E-02
	722.95	90.50	9.27E-02		2.93E-03	4.43E-02
CD-109	88.03	3.72	2.62E+00	2.62E+00	1.19E+00	1.29E+00
AG-110M	657.75	93.14	1.03E-01	1.03E-01	2.98E-03	4.91E-02
	677.61	10.53	8.60E-01		-2.24E-01	4.08E-01
	706.67	16.46	6.22E-01		-3.98E-01	2.97E-01
	763.93	21.98	5.01E-01		8.28E-02	2.39E-01
	884.67	71.63	1.24E-01		-3.30E-02	5.84E-02
	1384.27	23.94	4.05E-01		2.54E-01	1.87E-01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CD-113M	263.70	0.02	2.84E+02	2.84E+02	-1.47E+01	1.38E+02
SN-113	255.12	1.93	5.08E+00	1.83E-01	-1.27E-02	2.46E+00
	391.69	64.90	1.83E-01		-1.72E-02	8.82E-02
TE123M	159.00	84.10	1.19E-01	1.19E-01	-4.87E-02	5.81E-02
SB-124	602.71	97.87	2.19E-01	2.19E-01	6.37E-02	1.05E-01
	645.85	7.26	3.05E+00		1.06E+00	1.46E+00
	722.78	11.10	2.22E+00		7.04E-02	1.06E+00
	1691.02	49.00	2.64E-01		-1.90E-01	1.11E-01
I-125	35.49	6.49	2.72E+00	2.72E+00	-9.52E-01	1.33E+00
SB-125	176.33	6.89	9.44E-01	2.47E-01	2.83E-01	4.62E-01
	427.89	29.33	2.47E-01		9.72E-02	1.19E-01
	463.38	10.35	8.83E-01		1.45E+00	4.28E-01
	600.56	17.80	4.49E-01		1.66E-01	2.15E-01
	635.90	11.32	6.81E-01		2.98E-01	3.25E-01
SB-126	414.70	83.30	1.53E+01	1.42E+01	-2.04E+01	7.36E+00
	666.33	99.60	1.47E+01		-2.89E+00	7.05E+00
	695.00	99.60	1.42E+01		-1.32E+00	6.78E+00
	720.50	53.80	2.82E+01		-4.11E+00	1.35E+01
SN-126	87.57	37.00	2.22E-01	2.22E-01	2.19E-01	1.10E-01
SB-127	473.00	25.00	5.90E+06	4.58E+06	1.05E+06	2.84E+06
	685.20	35.70	4.58E+06		6.05E+05	2.18E+06
	783.80	14.70	1.26E+07		8.38E+06	6.04E+06
I-129	29.78	57.00	1.18E-01	1.18E-01	-3.75E-03	5.77E-02
	33.60	13.20	4.73E-01		-3.09E-01	2.31E-01
	39.58	7.52	8.29E-01		-3.56E-02	4.05E-01
I-131	284.30	6.05	3.55E+03	2.66E+02	4.19E+02	1.72E+03
	364.48	81.20	2.66E+02		1.78E+01	1.28E+02
	636.97	7.26	3.17E+03		-4.26E+02	1.51E+03
	722.89	1.80	1.52E+04		4.81E+02	7.28E+03
TE-132	49.72	13.10	2.12E+08	3.33E+07	2.25E+07	1.04E+08
	228.16	88.00	3.33E+07		7.07E+06	1.62E+07
BA-133	81.00	33.00	2.10E-01	1.50E-01	-1.38E+00	1.04E-01
	302.84	17.80	4.35E-01		1.72E-02	2.12E-01
	356.01	60.00	1.50E-01		-1.82E-02	7.31E-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	4.40E+04	4.40E+04	-2.89E+05	2.17E+04
CS-134	563.23	8.38	9.83E-01	9.17E-02	5.43E-02	4.72E-01
	569.32	15.43	5.22E-01		5.49E-02	2.50E-01
	604.70	97.60	9.17E-02		9.09E-03	4.41E-02
	795.84	85.40	1.23E-01		1.49E-01	5.91E-02
	801.93	8.73	9.24E-01		1.16E-01	4.37E-01
CS-135	268.24	16.00	4.55E-01	4.55E-01	2.98E-01	2.22E-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	1.19E+02	9.49E+00	1.09E+02	5.81E+01
	163.89	4.61	1.79E+02		1.75E+01	8.76E+01
	176.55	13.56	6.32E+01		1.89E+01	3.09E+01
	273.65	12.66	8.25E+01		-8.45E+01	4.02E+01
	340.57	48.50	3.00E+01		1.11E+02	1.47E+01
	818.50	99.70	9.49E+00		-4.19E+00	4.46E+00
	1048.07	79.60	1.39E+01		-3.78E+00	6.53E+00
	1235.34	19.70	8.07E+01		-7.97E+00	3.84E+01

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-137	661.65	85.12	9.72E-02	9.72E-02	3.36E-02	4.66E-02
LA-138	788.74	34.00	2.37E-01	9.28E-02	8.65E-02	1.13E-01
	1435.80	66.00	9.28E-02		2.11E-02	4.18E-02
CE-139	165.85	80.35	1.19E-01	1.19E-01	1.91E-02	5.79E-02
BA-140	162.64	6.70	1.42E+02	4.66E+01	-9.36E-01	6.95E+01
	304.84	4.50	2.36E+02		7.81E+01	1.15E+02
	423.70	3.20	3.55E+02		-6.61E+00	1.71E+02
	437.55	2.00	5.25E+02		2.21E+01	2.53E+02
	537.32	25.00	4.66E+01		5.30E+00	2.24E+01
LA-140	328.77	20.50	6.12E+01	1.45E+01	6.76E+01	2.98E+01
	487.03	45.50	2.43E+01		-3.74E+00	1.17E+01
	815.85	23.50	4.91E+01		1.52E+01	2.32E+01
	1596.49	95.49	1.45E+01		6.37E+00	6.68E+00
CE-141	145.44	48.40	9.25E-01	9.25E-01	8.92E-02	4.53E-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	6.85E-02	3.24E-01
PM-144	476.78	42.00	1.89E-01	8.85E-02	-5.04E-02	9.10E-02
	618.01	98.60	8.85E-02		-6.41E-04	4.23E-02
	696.49	99.49	8.86E-02		-4.10E-02	4.22E-02
PM-145	36.85	21.70	2.79E-01	1.58E-01	-5.05E-02	1.36E-01
	37.36	39.70	1.58E-01		-5.64E-02	7.71E-02
	42.30	15.10	4.10E-01		-7.49E-02	2.01E-01
	72.40	2.31	3.86E+00		-5.43E+00	1.90E+00
PM-146	453.90	39.94	1.86E-01	1.86E-01	9.24E-02	8.95E-02
	735.90	14.01	5.29E-01		-1.24E-01	2.51E-01
	747.13	13.10	6.02E-01		4.25E-02	2.86E-01
ND-147	91.11	28.90	1.13E+02	1.13E+02	3.37E+02	5.57E+01
	531.02	13.10	1.98E+02		2.87E-01	9.47E+01
PM-149	285.90	3.10	1.29E+13	1.29E+13	5.64E+12	6.26E+12
EU-152	121.78	20.50	2.88E-01	2.88E-01	4.82E-02	1.41E-01
	244.69	5.40	1.21E+00		-1.61E+00	5.92E-01
	344.27	19.13	3.52E-01		-3.94E-01	1.71E-01
	778.89	9.20	7.97E-01		-1.38E-01	3.77E-01
	964.01	10.40	1.03E+00		-4.59E+00	4.93E-01
	1085.78	7.22	1.15E+00		6.06E-01	5.40E-01
	1112.02	9.60	8.86E-01		2.43E-01	4.16E-01
	1407.95	14.94	5.72E-01		1.57E-01	2.66E-01
GD-153	97.43	31.30	2.55E-01	2.55E-01	-4.40E-01	1.25E-01
	103.18	22.20	3.49E-01		1.20E-01	1.71E-01
EU-154	123.07	40.50	1.50E-01	1.50E-01	3.02E-02	7.35E-02
	723.30	19.70	4.34E-01		1.37E-02	2.08E-01
	873.19	11.50	6.11E-01		1.96E-02	2.87E-01
	996.32	10.30	7.35E-01		8.36E-02	3.45E-01
	1004.76	17.90	4.93E-01		4.03E-01	2.33E-01
	1274.45	35.50	2.48E-01		3.85E-02	1.16E-01
EU-155	86.50	30.90	2.75E-01	2.75E-01	2.45E-01	1.36E-01
	105.30	20.70	2.96E-01		-3.71E-02	1.45E-01
EU-156	811.77	10.40	4.99E+01	4.99E+01	2.53E+01	2.36E+01
	1153.47	7.20	9.74E+01		6.25E+01	4.61E+01
	1230.71	8.90	7.36E+01		-3.59E+01	3.46E+01
HO-166M	184.41	72.60	1.05E-01	1.05E-01	2.43E-01	5.14E-02

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	HO-166M	280.45		29.60	2.40E-01	1.05E-01	3.69E-02	1.17E-01
		410.94		11.10	6.74E-01		3.43E-01	3.27E-01
		711.69		54.10	1.39E-01		-6.88E-02	6.64E-02
	TM-171	66.72		0.14	5.81E+01	5.81E+01	-6.53E+00	2.86E+01
	HF-172	67.35		5.31	1.53E+00	5.85E-01	8.64E-02	7.55E-01
		125.81		11.30	5.85E-01		-3.40E-03	2.87E-01
	LU-172	181.53		20.60	4.85E+03	2.16E+03	-2.27E+02	2.37E+03
		900.72		29.81	3.54E+03		-3.33E+03	1.65E+03
		1093.66		62.50	2.16E+03		3.76E+02	1.02E+03
	LU-173	100.72		5.24	1.30E+00	4.09E-01	8.72E-01	6.39E-01
		272.11		21.20	4.09E-01		-1.48E-01	2.00E-01
	HF-175	343.40		84.00	2.03E-01	2.03E-01	-8.56E-01	9.86E-02
	LU-176	88.34		13.30	6.36E-01	6.89E-02	2.89E-01	3.14E-01
		201.83		86.00	7.15E-02		2.46E-02	3.49E-02
		306.78		94.00	6.89E-02		2.36E-02	3.34E-02
	HF-181	133.02		41.70	6.33E-01	3.87E-01	6.54E-02	3.10E-01
		345.85		17.20	1.75E+00		-6.55E+00	8.47E-01
		482.03		82.80	3.87E-01		6.99E-02	1.86E-01
	TA-182	67.75		41.20	3.17E-01	3.17E-01	1.79E-02	1.56E-01
		1121.30		34.90	6.50E-01		1.17E+00	3.12E-01
		1189.05		16.23	9.75E-01		-1.93E-01	4.59E-01
		1221.41		26.98	6.30E-01		-1.17E-01	2.97E-01
		1231.02		11.44	1.40E+00		-6.81E-01	6.56E-01
	IR-192	308.46		29.68	5.15E-01	3.45E-01	-9.56E-02	2.50E-01
		468.07		48.10	3.45E-01		2.87E-02	1.66E-01
	HG-203	279.19		77.30	3.82E-01	3.82E-01	2.24E-02	1.86E-01
	TL-204	374.74		94.11	7.36E-02	6.80E-02	1.65E-02	3.56E-02
		899.15		99.16	6.80E-02		-5.28E-02	3.17E-02
		911.74		91.10	2.20E-01		9.97E-01	1.08E-01
	BI-207	569.67		97.72	7.36E-02	7.36E-02	-2.27E-02	3.53E-02
		1063.62		74.90	1.20E-01		7.33E-02	5.65E-02
+	TL-208	583.14	*	30.22	4.14E-01	4.14E-01	2.87E+00	2.02E-01
		860.37	*	4.48	2.21E+00		2.17E+00	1.06E+00
		2614.66		35.85	7.91E-01		2.65E+00	3.82E-01
	BI-210M	262.00		45.00	1.48E-01	1.48E-01	4.45E-02	7.21E-02
		300.00		23.00	3.45E-01		-1.12E+00	1.68E-01
+	PB-210	46.50	*	4.25	1.70E+00	1.70E+00	8.43E-01	8.34E-01
	PB-211	404.84		2.90	2.47E+00	2.47E+00	-3.22E+00	1.20E+00
		831.96		2.90	2.76E+00		-2.24E+00	1.31E+00
+	BI-212	727.17	*	11.80	1.01E+00	1.01E+00	2.08E+00	4.91E-01
		1620.62		2.75	3.08E+00		1.50E+00	1.42E+00
+	PB-212	238.63	*	44.60	3.12E-01	3.12E-01	3.41E+00	1.54E-01
		300.09	*	3.41	3.58E+00		4.12E+00	1.76E+00
+	BI-214	609.31	*	46.30	3.04E-01	3.04E-01	1.44E+00	1.49E-01
		1120.29	*	15.10	1.11E+00		1.59E+00	5.37E-01
		1764.49		15.80	8.25E-01		1.37E+00	3.90E-01
		2204.22		4.98	1.98E+00		7.20E-01	9.10E-01
+	PB-214	295.21	*	19.19	6.18E-01	5.20E-01	1.55E+00	3.04E-01
		351.92	*	37.19	5.20E-01		1.77E+00	2.57E-01
	RN-219	401.80		6.50	1.11E+00	1.11E+00	4.74E-01	5.36E-01
	RA-223	323.87		3.88	1.71E+00	1.71E+00	-1.77E-01	8.28E-01
+	RA-224	240.98	*	3.95	3.58E+00	3.58E+00	7.66E+00	1.77E+00
	RA-225	40.00		31.00	1.66E+01	1.66E+01	6.24E+00	8.13E+00

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
+	RA-226	186.21	*	3.28	2.62E+00	2.62E+00	4.41E+00	1.29E+00
	TH-227	50.10		8.40	7.00E-01	7.00E-01	-2.60E-01	3.43E-01
		236.00		11.50	7.80E-01		-8.54E+00	3.83E-01
		256.20		6.30	1.05E+00		2.46E-01	5.13E-01
+	AC-228	338.32	*	11.40	1.66E+00	3.22E-01	3.45E+00	8.20E-01
		911.07	*	27.70	3.22E-01		3.20E+00	1.53E-01
		969.11	*	16.60	1.04E+00		2.84E+00	5.05E-01
	TH-230	48.44		16.90	3.63E-01	3.63E-01	-3.14E-03	1.78E-01
		62.85		4.60	1.67E+00		1.45E+00	8.23E-01
		67.67		0.37	2.00E+01		1.13E+00	9.84E+00
	PA-231	283.67		1.60	4.05E+00	3.31E+00	-1.61E+00	1.97E+00
		302.67		2.30	3.31E+00		1.31E-01	1.61E+00
	TH-231	25.64		14.70	5.56E-01	5.56E-01	-3.30E+00	2.72E-01
		84.21		6.40	1.20E+00		2.91E-01	5.94E-01
	PA-233	311.98		38.60	1.81E+00	1.81E+00	-1.32E+00	8.76E-01
	PA-234	131.20		20.40	2.99E-01	2.99E-01	3.52E-02	1.47E-01
		733.99		8.80	8.33E-01		-2.61E-01	3.96E-01
		946.00		12.00	6.02E-01		-1.86E-01	2.82E-01
	PA-234M	1001.03		0.92	8.81E+00	8.81E+00	1.25E+00	4.15E+00
+	TH-234	63.29	*	3.80	2.63E+00	2.63E+00	1.81E+00	1.30E+00
	U-235	143.76		10.50	5.70E-01	5.70E-01	3.26E-02	2.79E-01
		163.35		4.70	1.25E+00		1.22E-01	6.12E-01
		205.31		4.70	1.31E+00		-3.42E+00	6.42E-01
	NP-237	86.50		12.60	6.50E-01	6.50E-01	5.79E-01	3.21E-01
	NP-239	106.10		22.70	2.68E+11	2.68E+11	1.98E+11	1.31E+11
		228.18		10.70	5.80E+11		1.23E+11	2.83E+11
		277.60		14.10	5.20E+11		4.45E+11	2.54E+11
	AM-241	59.54		35.90	1.91E-01	1.91E-01	4.68E-02	9.41E-02
	AM-243	74.67		66.00	1.63E-01	1.63E-01	-1.24E-01	8.08E-02
+	CM-243	209.75	*	3.29	3.16E+00	5.41E-01	4.35E+00	1.55E+00
		228.14		10.60	5.91E-01		1.26E-01	2.88E-01
		277.60	*	14.00	5.41E-01		6.19E-01	2.64E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1707078-19

HTC-A01-S004-4248-01

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S004-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3602

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	1	129	125	106	222	566	169
25:	121	132	114	104	107	105	117	123
33:	129	114	97	104	135	108	145	149
41:	167	124	143	154	131	158	211	161
49:	135	127	180	162	161	192	193	181
57:	198	237	218	246	232	227	306	431
65:	295	283	279	276	280	291	279	270
73:	313	393	785	653	927	1033	345	237
81:	231	226	227	300	345	248	439	460
89:	266	359	346	275	505	485	200	189
97:	168	180	209	192	166	164	167	142
105:	163	233	174	150	193	173	159	168
113:	138	167	185	190	150	153	130	148
121:	135	171	153	168	159	155	174	154
129:	242	225	168	139	141	140	136	141
137:	133	131	152	169	147	134	125	147
145:	157	167	145	124	164	147	142	133
153:	149	163	181	146	125	115	145	139
161:	121	110	127	145	132	118	115	125
169:	128	124	129	144	120	108	131	129
177:	118	127	128	119	127	118	127	115
185:	150	294	260	128	113	131	117	118
193:	115	126	109	111	104	104	106	120
201:	108	107	125	97	114	133	103	105
209:	177	231	112	102	88	100	97	102
217:	116	105	90	88	82	99	93	101
225:	98	103	90	114	101	90	100	95
233:	86	118	109	118	120	535	1664	549
241:	241	275	162	113	63	81	72	60
249:	72	72	72	59	67	59	62	70
257:	76	75	81	64	62	75	58	76
265:	60	50	60	58	59	125	125	76
273:	81	57	64	68	93	125	76	54
281:	61	54	66	62	51	57	54	70
289:	66	49	56	59	52	66	239	252
297:	76	72	63	131	119	53	53	47
305:	61	51	46	64	50	43	46	45
313:	49	51	47	60	55	45	57	42
321:	47	53	51	44	47	57	52	113
329:	100	54	38	61	61	50	42	45
337:	61	220	292	95	56	57	54	44
345:	48	37	39	45	39	61	160	485
353:	276	59	47	65	34	35	37	38
361:	43	42	44	44	38	33	44	48

369:	44	39	40	39	43	57	44	26

Sample Title: HTC-A01-S004-4248-01

Channel								
377:	41	32	37	36	50	30	45	32
385:	31	43	42	45	38	53	46	33
393:	31	34	39	40	36	32	41	35
401:	49	49	34	44	51	47	36	36
409:	44	94	37	35	33	38	33	42
417:	41	26	45	32	37	45	29	41
425:	34	49	29	32	43	35	21	31
433:	24	38	32	30	29	26	36	30
441:	31	23	36	30	27	45	34	25
449:	38	37	29	32	50	42	48	19
457:	29	20	30	23	34	59	97	63
465:	31	33	31	29	31	26	37	23
473:	35	35	31	19	24	28	27	33
481:	35	29	32	30	23	29	30	22
489:	24	43	33	27	26	21	21	30
497:	26	28	32	25	24	24	24	23
505:	18	28	35	32	53	97	186	96
513:	40	32	28	31	35	28	25	28
521:	26	29	27	24	27	30	22	30
529:	26	27	27	25	25	20	24	27
537:	29	34	24	34	29	26	20	16
545:	15	19	32	34	26	17	13	24
553:	12	24	26	22	26	30	28	25
561:	20	28	40	35	20	29	22	31
569:	30	29	22	22	17	31	28	25
577:	27	27	20	31	31	96	412	315
585:	61	32	37	38	34	20	21	30
593:	22	18	36	23	23	25	23	33
601:	21	27	24	22	19	18	22	77
609:	249	300	75	25	31	21	27	31
617:	17	18	18	26	21	23	18	23
625:	14	17	18	19	23	20	19	20
633:	24	20	24	18	23	23	16	16
641:	16	25	21	19	21	24	23	25
649:	24	20	17	20	16	17	11	20
657:	22	23	12	18	41	33	22	29
665:	27	28	18	20	14	22	24	24
673:	20	15	18	17	15	17	24	10
681:	23	25	18	14	18	25	18	23
689:	23	19	27	19	20	11	17	20
697:	26	24	15	21	24	36	24	20
705:	26	9	27	28	21	19	28	21
713:	13	12	21	24	17	20	22	23
721:	24	22	21	25	22	27	108	77
729:	28	24	26	16	19	16	11	15
737:	18	19	17	14	18	14	18	22
745:	14	21	15	21	15	20	13	25
753:	23	18	35	26	20	14	15	23
761:	31	15	21	15	23	20	29	43
769:	30	16	21	32	31	18	16	18
777:	12	10	16	12	19	20	19	19
785:	26	28	18	20	14	20	16	15
793:	9	28	76	35	15	10	16	16

801:	15	12	9	18	21	26	15	13

Sample Title: HTC-A01-S004-4248-01

Channel								
809:	9	15	15	10	19	14	16	11
817:	10	15	11	10	12	17	11	12
825:	15	18	17	14	11	15	20	19
833:	17	11	26	36	24	15	15	23
841:	17	25	16	16	17	13	14	13
849:	10	11	8	17	15	18	8	19
857:	16	12	13	39	52	17	19	11
865:	13	14	13	13	20	26	8	6
873:	7	12	9	12	6	17	15	10
881:	14	7	14	13	13	11	6	11
889:	15	13	11	20	12	14	15	11
897:	9	10	9	6	12	9	10	17
905:	15	12	11	12	17	94	264	195
913:	36	10	10	17	13	9	15	9
921:	19	12	10	15	9	13	5	8
929:	12	10	17	13	20	28	24	6
937:	9	7	12	11	12	13	12	8
945:	13	14	12	8	11	15	12	7
953:	13	8	11	13	17	7	12	17
961:	18	11	14	40	49	18	19	84
969:	134	77	26	13	18	14	5	8
977:	6	9	8	13	9	10	16	10
985:	10	6	12	12	13	14	13	10
993:	15	9	9	8	13	11	11	7
1001:	10	18	22	12	11	16	15	9
1009:	9	6	10	12	6	13	13	14
1017:	9	12	14	10	16	11	7	9
1025:	3	10	15	9	3	16	8	14
1033:	9	11	11	20	10	11	4	16
1041:	11	11	10	14	12	9	16	10
1049:	10	10	13	13	15	7	10	14
1057:	14	12	4	7	16	14	18	11
1065:	15	20	14	10	8	15	8	8
1073:	14	12	14	10	13	17	12	9
1081:	10	18	11	6	10	11	12	14
1089:	8	7	12	11	5	24	13	9
1097:	9	11	8	10	11	9	6	7
1105:	9	16	9	8	10	12	22	17
1113:	11	6	5	10	12	15	23	65
1121:	57	14	19	8	10	12	18	11
1129:	10	12	8	13	13	10	11	15
1137:	8	10	14	11	11	9	11	11
1145:	14	4	14	13	8	14	16	9
1153:	9	18	22	18	12	9	10	10
1161:	10	10	14	12	14	7	12	15
1169:	14	8	6	16	19	12	19	13
1177:	6	16	7	14	10	18	12	11
1185:	12	8	8	16	12	13	13	16
1193:	16	15	7	12	13	18	12	14
1201:	8	12	10	12	13	10	15	15
1209:	23	19	10	14	13	16	20	16
1217:	14	10	11	12	13	8	26	16
1225:	18	12	12	13	11	8	16	12

1233:	11	13	17	15	27	38	29	7

Sample Title: HTC-A01-S004-4248-01

Channel								
1241:	13	17	17	11	15	9	15	12
1249:	11	13	15	11	12	6	10	10
1257:	10	8	4	9	11	12	14	6
1265:	10	7	10	7	14	11	13	11
1273:	11	7	8	12	9	6	8	13
1281:	13	16	11	6	7	15	10	9
1289:	7	5	7	11	6	7	9	7
1297:	11	10	10	14	11	10	9	3
1305:	10	8	12	6	8	4	8	7
1313:	10	8	5	2	12	8	6	9
1321:	8	9	7	7	7	8	10	8
1329:	4	4	7	6	6	9	1	7
1337:	8	9	6	4	9	3	13	6
1345:	5	9	3	5	10	1	2	4
1353:	6	5	3	5	9	5	4	3
1361:	3	7	4	8	9	6	7	7
1369:	7	4	5	6	8	10	2	10
1377:	21	16	4	3	8	5	7	5
1385:	10	5	6	3	4	1	6	5
1393:	3	3	6	2	4	7	5	2
1401:	4	8	10	6	2	11	12	15
1409:	10	2	5	5	2	6	8	1
1417:	7	1	7	4	4	2	7	4
1425:	6	0	6	4	5	5	3	5
1433:	2	6	4	5	2	4	3	2
1441:	4	3	5	3	3	1	2	8
1449:	3	6	0	7	3	2	5	4
1457:	9	27	125	360	490	185	38	12
1465:	20	14	6	3	2	4	5	3
1473:	7	4	4	1	5	1	5	2
1481:	3	2	3	9	6	4	0	5
1489:	5	3	2	5	5	4	2	7
1497:	5	3	3	4	9	7	3	6
1505:	4	2	2	5	10	9	4	6
1513:	5	4	4	1	6	1	5	6
1521:	3	0	6	2	1	4	1	2
1529:	5	4	3	5	5	6	3	4
1537:	6	2	6	3	7	5	4	5
1545:	6	3	2	2	0	3	1	1
1553:	3	1	2	3	3	4	1	6
1561:	2	4	1	2	7	3	4	4
1569:	3	2	1	5	1	1	1	3
1577:	4	3	6	4	6	8	5	4
1585:	7	4	9	15	16	7	5	17
1593:	17	7	6	6	3	3	7	1
1601:	3	5	3	1	2	2	1	4
1609:	6	1	2	3	4	2	3	4
1617:	3	4	6	11	13	7	3	7
1625:	3	2	3	1	10	9	16	0
1633:	1	4	3	0	1	4	4	2
1641:	2	2	3	1	2	1	3	0
1649:	1	1	1	5	1	3	3	5
1657:	1	2	2	1	5	2	5	4

1665:	2	1	4	1	0	1	2	2

Sample Title: HTC-A01-S004-4248-01

Channel								
1673:	1	4	2	6	1	5	2	1
1681:	3	3	1	4	1	6	2	2
1689:	0	1	1	2	2	5	1	2
1697:	3	1	0	0	2	1	2	3
1705:	3	2	3	3	1	0	0	4
1713:	4	2	3	1	3	2	2	2
1721:	2	3	2	4	6	2	2	5
1729:	7	9	7	0	4	1	1	1
1737:	1	2	2	2	2	3	4	0
1745:	1	0	3	1	2	3	0	1
1753:	2	1	3	2	0	2	2	1
1761:	1	5	12	37	35	13	6	3
1769:	1	2	2	1	1	2	3	4
1777:	0	3	3	2	2	2	1	2
1785:	2	0	2	3	3	2	2	3
1793:	1	2	3	0	2	2	0	0
1801:	0	3	2	3	3	1	1	1
1809:	1	2	1	4	1	1	1	3
1817:	0	3	3	2	2	2	3	2
1825:	0	3	1	1	2	6	5	2
1833:	2	1	1	2	1	1	1	3
1841:	2	2	0	4	5	6	4	2
1849:	1	1	0	5	2	0	3	2
1857:	3	2	3	3	1	0	2	5
1865:	2	3	3	1	1	2	2	2
1873:	0	1	3	2	4	3	3	2
1881:	0	1	2	3	2	0	2	4
1889:	2	1	0	4	3	2	4	3
1897:	2	0	4	1	1	2	0	0
1905:	2	3	4	0	3	0	4	1
1913:	2	4	0	1	2	5	0	3
1921:	2	3	3	1	2	0	0	4
1929:	1	7	2	0	3	3	2	4
1937:	2	0	3	6	0	2	3	3
1945:	0	0	0	1	2	1	4	1
1953:	3	1	2	2	1	0	3	0
1961:	2	1	2	2	1	2	4	0
1969:	5	4	4	5	0	2	0	2
1977:	0	2	5	1	2	3	1	0
1985:	5	0	1	1	0	0	4	2
1993:	6	2	1	2	5	2	0	0
2001:	2	0	2	4	2	2	1	1
2009:	0	1	3	0	1	1	4	0
2017:	2	1	0	1	1	4	3	4
2025:	3	2	2	2	3	2	2	0
2033:	2	3	3	3	1	2	1	2
2041:	0	1	0	4	0	4	1	1
2049:	3	2	1	0	3	1	0	3
2057:	2	2	0	2	1	5	1	1
2065:	4	2	1	1	3	2	0	0
2073:	2	2	5	2	2	3	0	4
2081:	1	3	1	2	0	0	3	2
2089:	1	3	3	4	1	1	3	1

2097:	2	1	0	4	8	10	15	13

Sample Title: HTC-A01-S004-4248-01

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

2529:	1	2	0	0	2	0	2	0

Sample Title: HTC-A01-S004-4248-01

Channel								
2537:	0	0	2	0	0	0	0	0
2545:	1	0	0	1	0	1	1	1
2553:	2	0	1	0	1	1	1	0
2561:	1	2	1	0	0	0	0	0
2569:	1	0	1	1	0	0	1	0
2577:	1	0	0	0	1	0	2	0
2585:	3	1	1	0	0	1	0	0
2593:	1	0	1	0	1	0	1	1
2601:	0	0	1	3	0	2	0	2
2609:	1	2	8	29	84	100	49	12
2617:	9	3	3	1	1	0	0	0
2625:	0	0	0	0	2	0	0	0
2633:	1	1	0	0	1	1	2	0
2641:	0	0	0	1	0	1	1	2
2649:	0	0	1	1	0	0	0	1
2657:	2	0	1	1	1	0	0	0
2665:	0	0	0	3	0	1	0	0
2673:	1	0	2	0	0	0	1	0
2681:	0	1	0	1	0	1	2	1
2689:	0	0	2	0	0	0	0	0
2697:	1	0	0	0	0	1	1	2
2705:	0	1	0	0	0	0	2	0
2713:	1	1	1	0	0	1	2	1
2721:	0	0	1	0	1	0	0	0
2729:	0	0	1	0	0	0	1	0
2737:	1	1	1	3	0	0	0	0
2745:	0	0	0	0	0	2	0	0
2753:	0	0	0	0	0	0	0	0
2761:	1	0	0	1	1	0	0	0
2769:	1	2	0	0	0	0	0	0
2777:	1	1	1	0	0	0	0	0
2785:	0	1	0	0	1	0	1	0
2793:	1	0	0	0	0	1	1	0
2801:	1	0	1	0	1	0	0	0
2809:	0	2	0	2	0	0	0	0
2817:	0	0	1	0	0	0	1	0
2825:	0	0	1	0	0	0	0	1
2833:	0	0	0	0	0	0	0	0
2841:	1	1	0	0	0	1	0	0
2849:	0	0	0	0	0	1	0	1
2857:	0	0	0	0	0	2	1	0
2865:	0	0	0	1	0	0	1	2
2873:	1	0	0	1	1	1	0	0
2881:	0	0	0	1	0	0	1	0
2889:	0	0	0	0	0	0	1	1
2897:	0	0	1	0	1	0	2	0
2905:	0	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	1	0
2921:	0	0	0	0	1	1	0	0
2929:	0	0	1	0	0	0	0	0
2937:	0	0	0	0	0	3	0	0
2945:	1	0	1	2	0	0	1	0
2953:	0	1	1	1	0	0	0	0

2961:	0	0	1	1	1	0	0	1

Sample Title: HTC-A01-S004-4248-01

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

3393:	1	0	0	0	0	0	0	0

Sample Title: HTC-A01-S004-4248-01

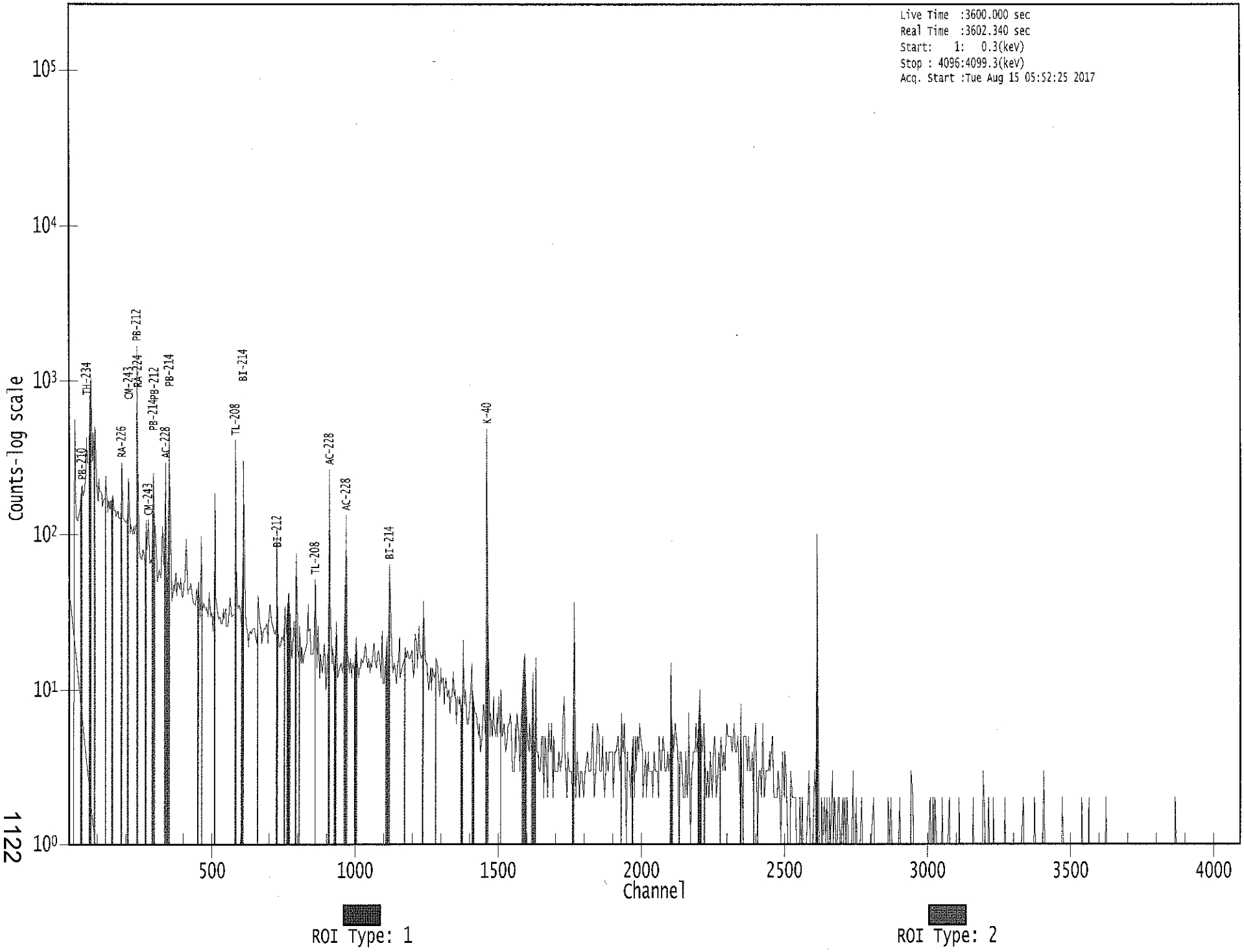
Channel								
3401:	1	1	1	0	0	3	0	0
3409:	0	0	0	0	1	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	1	0	0	0	0	0
3441:	0	0	1	1	1	0	0	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	0	1	0	0	0
3465:	0	0	0	0	0	2	0	0
3473:	0	1	1	0	0	0	0	0
3481:	0	0	0	0	1	0	0	0
3489:	0	0	1	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S004-4248-01

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

0000055227.CNF



Apex-Gamma

8/15

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707078-20
Sample Description	: HTC-A01-S005-0006-01
Sample Type	: SOIL
Sample Size	: 6.191E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:35:59AM
Acquisition Started	: 8/15/2017 5:52:56AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3609.7 seconds
Dead Time	: 0.27 %
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	: 55229

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/15/17

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/15/2017 6:53:07AM
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	45.88	46.19	0.0000	0.00
2	63.49	63.79	0.0000	0.00
3	76.43	76.73	0.0000	0.00
4	86.56	86.85	0.0000	0.00
5	92.94	93.24	0.0000	0.00
6	105.16	105.45	0.0000	0.00
7	130.10	130.38	0.0000	0.00
8	144.27	144.55	0.0000	0.00
9	154.31	154.59	0.0000	0.00
10	186.44	186.71	0.0000	0.00
11	238.84	239.09	0.0000	0.00
12	242.18	242.42	0.0000	0.00
13	258.89	259.13	0.0000	0.00
14	269.87	270.11	0.0000	0.00
15	295.35	295.58	0.0000	0.00
16	328.75	328.97	0.0000	0.00
17	338.23	338.44	0.0000	0.00
18	352.14	352.35	0.0000	0.00
19	462.82	462.99	0.0000	0.00
20	494.46	494.62	0.0000	0.00
21	511.09	511.25	0.0000	0.00
22	583.27	583.40	0.0000	0.00
23	609.40	609.53	0.0000	0.00
24	661.82	661.92	0.0000	0.00
25	665.42	665.53	0.0000	0.00
26	702.64	702.73	0.0000	0.00
27	727.46	727.54	0.0000	0.00
28	738.20	738.28	0.0000	0.00
29	768.27	768.33	0.0000	0.00
30	788.93	788.99	0.0000	0.00
31	837.69	837.74	0.0000	0.00
32	911.05	911.07	0.0000	0.00
33	933.90	933.91	0.0000	0.00
34	969.31	969.31	0.0000	0.00
35	1119.99	1119.94	0.0000	0.00
36	1155.25	1155.19	0.0000	0.00
37	1239.33	1239.24	0.0000	0.00
38	1377.98	1377.84	0.0000	0.00
39	1385.40	1385.26	0.0000	0.00
40	1407.91	1407.76	0.0000	0.00
41	1460.60	1460.43	0.0000	0.00
42	1511.38	1511.20	0.0000	0.00

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1538.89	1538.69	0.0000	0.00
44	1642.27	1642.04	0.0000	0.00
45	1683.25	1683.01	0.0000	0.00
46	1692.77	1692.52	0.0000	0.00
47	1729.45	1729.20	0.0000	0.00
48	1760.18	1759.91	0.0000	0.00
49	1764.30	1764.04	0.0000	0.00
50	1825.94	1825.65	0.0000	0.00
51	1848.14	1847.84	0.0000	0.00
52	2102.69	2102.31	0.0000	0.00
53	2118.39	2118.00	0.0000	0.00
54	2130.39	2130.00	0.0000	0.00
55	2141.40	2141.00	0.0000	0.00
56	2203.54	2203.13	0.0000	0.00
57	2236.99	2236.57	0.0000	0.00
58	2292.42	2291.97	0.0000	0.00
59	2447.80	2447.30	0.0000	0.00
60	2614.19	2613.63	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 6:53:07AM

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	45.88	43 -	49	46.19	2.71E+02	117.30	2.33E+03	1.60
	2	63.49	60 -	66	63.79	3.00E+02	146.25	3.68E+03	1.83
	3	76.43	72 -	83	76.73	2.24E+03	249.93	6.65E+03	3.71
	4	86.56	83 -	90	86.85	3.96E+02	162.02	4.13E+03	1.70
	5	92.94	90 -	96	93.24	5.72E+02	139.13	3.02E+03	2.06
	6	105.16	104 -	108	105.45	8.13E+01	84.18	1.50E+03	1.96
	7	130.10	128 -	133	130.38	8.61E+01	97.09	1.81E+03	2.37
	8	144.27	142 -	147	144.55	9.86E+01	93.60	1.68E+03	1.82
	9	154.31	151 -	158	154.59	1.65E+02	116.50	2.14E+03	2.77
	10	186.44	183 -	191	186.71	6.52E+02	128.71	2.14E+03	2.16
M	11	238.84	235 -	249	239.09	8.20E+02	102.24	1.11E+03	2.26
m	12	242.18	235 -	249	242.42	5.04E+02	102.67	1.05E+03	2.27
	13	258.89	257 -	261	259.13	5.03E+01	55.35	6.31E+02	2.14
	14	269.87	266 -	274	270.11	1.19E+02	87.46	1.11E+03	2.67
	15	295.35	291 -	299	295.58	9.66E+02	103.76	1.06E+03	2.10
	16	328.75	324 -	333	328.97	1.43E+02	80.02	8.29E+02	6.14
	17	338.23	334 -	342	338.44	2.53E+02	74.07	6.88E+02	2.35
	18	352.14	349 -	357	352.35	1.72E+03	106.71	6.72E+02	2.15
	19	462.82	459 -	467	462.99	5.97E+01	54.99	4.21E+02	2.25
	20	494.46	491 -	498	494.62	4.29E+01	46.65	3.30E+02	2.72
	21	511.09	507 -	515	511.25	1.69E+02	56.48	3.85E+02	2.41
	22	583.27	577 -	588	583.40	2.48E+02	63.72	3.83E+02	2.32
	23	609.40	604 -	615	609.53	1.20E+03	89.96	4.12E+02	2.21
M	24	661.82	657 -	674	661.92	1.01E+02	42.92	1.94E+02	2.91
m	25	665.42	657 -	674	665.53	4.85E+01	42.92	1.86E+02	2.91
	26	702.64	699 -	706	702.73	3.22E+01	38.00	2.18E+02	1.40
	27	727.46	724 -	732	727.54	6.20E+01	42.06	2.34E+02	2.08
	28	738.20	732 -	745	738.28	5.02E+01	52.55	2.76E+02	9.76
	29	768.27	764 -	774	768.33	1.09E+02	49.07	2.60E+02	2.43
	30	788.93	779 -	797	788.99	7.81E+01	72.29	4.26E+02	9.94
	31	837.69	834 -	842	837.74	5.36E+01	35.17	1.57E+02	5.76
	32	911.05	905 -	915	911.07	1.58E+02	45.97	1.95E+02	2.44
	33	933.90	928 -	938	933.91	4.78E+01	44.71	2.38E+02	2.61
	34	969.31	965 -	974	969.31	7.59E+01	46.14	2.50E+02	1.81
	35	1119.99	1114 -	1125	1119.94	2.83E+02	51.61	1.90E+02	1.99
	36	1155.25	1149 -	1163	1155.19	5.99E+01	50.95	2.50E+02	3.44
	37	1239.33	1234 -	1247	1239.24	1.24E+02	48.05	1.96E+02	3.05
	38	1377.98	1373 -	1382	1377.84	4.93E+01	29.73	9.33E+01	2.19
	39	1385.40	1383 -	1388	1385.26	1.52E+01	15.07	3.36E+01	2.97
	40	1407.91	1404 -	1411	1407.76	4.19E+01	22.45	5.63E+01	2.08

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1460.60	1455 -	1465	1460.43	5.69E+02	54.57	9.36E+01	2.48
	42	1511.38	1505 -	1518	1511.20	4.92E+01	27.44	5.76E+01	4.78
	43	1538.89	1530 -	1550	1538.69	5.45E+01	31.71	6.30E+01	13.76
	44	1642.27	1638 -	1646	1642.04	1.95E+01	15.54	2.10E+01	1.28
	45	1683.25	1680 -	1686	1683.01	7.56E+00	6.95	2.89E+00	3.20
	46	1692.77	1688 -	1697	1692.52	2.23E+01	11.18	5.36E+00	6.11
	47	1729.45	1725 -	1734	1729.20	3.50E+01	21.28	4.40E+01	2.07
M	48	1760.18	1759 -	1769	1759.91	7.48E+00	5.70	3.00E+00	3.50
m	49	1764.30	1759 -	1769	1764.04	1.80E+02	27.94	7.00E+00	2.37
	50	1825.94	1822 -	1829	1825.65	7.79E+00	10.20	1.24E+01	1.56
	51	1848.14	1842 -	1852	1847.84	3.07E+01	16.88	2.07E+01	1.83
	52	2102.69	2100 -	2104	2102.31	5.50E+00	6.67	5.00E+00	1.28
	53	2118.39	2113 -	2123	2118.00	1.53E+01	14.73	1.73E+01	3.06
	54	2130.39	2126 -	2132	2130.00	5.50E+00	7.78	7.00E+00	1.62
	55	2141.40	2137 -	2144	2141.00	9.00E+00	6.00	0.00E+00	2.98
	56	2203.54	2199 -	2206	2203.13	3.60E+01	16.97	2.40E+01	2.24
	57	2236.99	2233 -	2239	2236.57	8.25E+00	7.23	3.50E+00	3.71
	58	2292.42	2289 -	2294	2291.97	7.56E+00	6.71	2.89E+00	1.73
	59	2447.80	2443 -	2450	2447.30	1.90E+01	11.14	8.00E+00	2.78
	60	2614.19	2608 -	2617	2613.63	5.60E+01	17.15	1.00E+01	2.50

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/15/2017 6:53:07AM

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	45.88	43 -	49	2.71E+02	117.30	2.33E+03	9.25E+01
2	63.49	60 -	66	3.00E+02	146.25	3.68E+03	1.17E+02
3	76.43	72 -	83	2.24E+03	249.93	6.65E+03	1.90E+02
4	86.56	83 -	90	3.96E+02	162.02	4.13E+03	1.29E+02
5	92.94	90 -	96	5.72E+02	139.13	3.02E+03	1.07E+02
6	105.16	104 -	108	8.13E+01	84.18	1.50E+03	6.76E+01
7	130.10	128 -	133	8.61E+01	97.09	1.81E+03	7.83E+01
8	144.27	142 -	147	9.86E+01	93.60	1.68E+03	7.52E+01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	9	154.31	151 -	158	1.65E+02	116.50	2.14E+03	9.34E+01
	10	186.44	183 -	191	6.52E+02	128.71	2.14E+03	9.71E+01
M	11	238.84	235 -	249	8.20E+02	102.24	1.11E+03	5.48E+01
m	12	242.18	235 -	249	5.04E+02	102.67	1.05E+03	5.33E+01
	13	258.89	257 -	261	5.03E+01	55.35	6.31E+02	4.40E+01
	14	269.87	266 -	274	1.19E+02	87.46	1.11E+03	6.96E+01
	15	295.35	291 -	299	9.66E+02	103.76	1.06E+03	6.83E+01
	16	328.75	324 -	333	1.43E+02	80.02	8.29E+02	6.28E+01
	17	338.23	334 -	342	2.53E+02	74.07	6.88E+02	5.50E+01
	18	352.14	349 -	357	1.72E+03	106.71	6.72E+02	5.53E+01
	19	462.82	459 -	467	5.97E+01	54.99	4.21E+02	4.34E+01
	20	494.46	491 -	498	4.29E+01	46.65	3.30E+02	3.68E+01
	21	511.09	507 -	515	1.69E+02	56.48	3.85E+02	4.12E+01
	22	583.27	577 -	588	2.48E+02	63.72	3.83E+02	4.55E+01
	23	609.40	604 -	615	1.20E+03	89.96	4.12E+02	4.73E+01
M	24	661.82	657 -	674	1.01E+02	42.92	1.94E+02	2.29E+01
m	25	665.42	657 -	674	4.85E+01	42.92	1.86E+02	2.24E+01
	26	702.64	699 -	706	3.22E+01	38.00	2.18E+02	2.98E+01
	27	727.46	724 -	732	6.20E+01	42.06	2.34E+02	3.21E+01
	28	738.20	732 -	745	5.02E+01	52.55	2.76E+02	4.16E+01
	29	768.27	764 -	774	1.09E+02	49.07	2.60E+02	3.65E+01
	30	788.93	779 -	797	7.81E+01	72.29	4.26E+02	5.76E+01
	31	837.69	834 -	842	5.36E+01	35.17	1.57E+02	2.63E+01
	32	911.05	905 -	915	1.58E+02	45.97	1.95E+02	3.16E+01
	33	933.90	928 -	938	4.78E+01	44.71	2.38E+02	3.50E+01
	34	969.31	965 -	974	7.59E+01	46.14	2.50E+02	3.51E+01
	35	1119.99	1114 -	1125	2.83E+02	51.61	1.90E+02	3.22E+01
	36	1155.25	1149 -	1163	5.99E+01	50.95	2.50E+02	3.99E+01
	37	1239.33	1234 -	1247	1.24E+02	48.05	1.96E+02	3.50E+01
	38	1377.98	1373 -	1382	4.93E+01	29.73	9.33E+01	2.15E+01
	39	1385.40	1383 -	1388	1.52E+01	15.07	3.36E+01	1.06E+01
	40	1407.91	1404 -	1411	4.19E+01	22.45	5.63E+01	1.51E+01
	41	1460.60	1455 -	1465	5.69E+02	54.57	9.36E+01	2.18E+01
	42	1511.38	1505 -	1518	4.92E+01	27.44	5.76E+01	1.94E+01
	43	1538.89	1530 -	1550	5.45E+01	31.71	6.30E+01	2.31E+01
	44	1642.27	1638 -	1646	1.95E+01	15.54	2.10E+01	1.05E+01
	45	1683.25	1680 -	1686	7.56E+00	6.95	2.89E+00	3.49E+00
	46	1692.77	1688 -	1697	2.23E+01	11.18	5.36E+00	4.91E+00
	47	1729.45	1725 -	1734	3.50E+01	21.28	4.40E+01	1.45E+01
M	48	1760.18	1759 -	1769	7.48E+00	5.70	3.00E+00	2.85E+00
m	49	1764.30	1759 -	1769	1.80E+02	27.94	7.00E+00	4.35E+00
	50	1825.94	1822 -	1829	7.79E+00	10.20	1.24E+01	7.02E+00
	51	1848.14	1842 -	1852	3.07E+01	16.88	2.07E+01	1.05E+01
	52	2102.69	2100 -	2104	5.50E+00	6.67	5.00E+00	3.90E+00
	53	2118.39	2113 -	2123	1.53E+01	14.73	1.73E+01	1.03E+01
	54	2130.39	2126 -	2132	5.50E+00	7.78	7.00E+00	5.10E+00
	55	2141.40	2137 -	2144	9.00E+00	6.00	0.00E+00	0.00E+00
	56	2203.54	2199 -	2206	3.60E+01	16.97	2.40E+01	9.86E+00
	57	2236.99	2233 -	2239	8.25E+00	7.23	3.50E+00	3.61E+00
	58	2292.42	2289 -	2294	7.56E+00	6.71	2.89E+00	3.16E+00
	59	2447.80	2443 -	2450	1.90E+01	11.14	8.00E+00	5.70E+00

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
60	2614.19	2608 -	2617	5.60E+01	17.15	1.00E+01	6.88E+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 : 8/15/2017 6:53:07AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	45.88	43 -	49	46.19	2.71E+02	117.30	2.33E+03	PB-210
	2	63.49	60 -	66	63.79	3.00E+02	146.25	3.68E+03	TH-234 TH-230
	3	76.43	72 -	83	76.73	2.24E+03	249.93	6.65E+03	.....
	4	86.56	83 -	90	86.85	3.96E+02	162.02	4.13E+03	NP-237 EU-155
	5	92.94	90 -	96	93.24	5.72E+02	139.13	3.02E+03	GA-67
	6	105.16	104 -	108	105.45	8.13E+01	84.18	1.50E+03	EU-155 NP-239
	7	130.10	128 -	133	130.38	8.61E+01	97.09	1.81E+03	.....
	8	144.27	142 -	147	144.55	9.86E+01	93.60	1.68E+03	U-235
	9	154.31	151 -	158	154.59	1.65E+02	116.50	2.14E+03	.....
	10	186.44	183 -	191	186.71	6.52E+02	128.71	2.14E+03	RA-226
M	11	238.84	235 -	249	239.09	8.20E+02	102.24	1.11E+03	PB-212
m	12	242.18	235 -	249	242.42	5.04E+02	102.67	1.05E+03	.....
	13	258.89	257 -	261	259.13	5.03E+01	55.35	6.31E+02	.....
	14	269.87	266 -	274	270.11	1.19E+02	87.46	1.11E+03	.....
	15	295.35	291 -	299	295.58	9.66E+02	103.76	1.06E+03	PB-214
	16	328.75	324 -	333	328.97	1.43E+02	80.02	8.29E+02	LA-140
	17	338.23	334 -	342	338.44	2.53E+02	74.07	6.88E+02	AC-228
	18	352.14	349 -	357	352.35	1.72E+03	106.71	6.72E+02	PB-214
	19	462.82	459 -	467	462.99	5.97E+01	54.99	4.21E+02	SB-125
	20	494.46	491 -	498	494.62	4.29E+01	46.65	3.30E+02	.....
	21	511.09	507 -	515	511.25	1.69E+02	56.48	3.85E+02	.....
	22	583.27	577 -	588	583.40	2.48E+02	63.72	3.83E+02	TL-208

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	23	609.40	604 -	615	609.53	1.20E+03	89.96	4.12E+02	BI-214
M	24	661.82	657 -	674	661.92	1.01E+02	42.92	1.94E+02	CS-137
m	25	665.42	657 -	674	665.53	4.85E+01	42.92	1.86E+02	CE-143
									SB-126
	26	702.64	699 -	706	702.73	3.22E+01	38.00	2.18E+02	NB-94
	27	727.46	724 -	732	727.54	6.20E+01	42.06	2.34E+02	BI-212
	28	738.20	732 -	745	738.28	5.02E+01	52.55	2.76E+02	.....
	29	768.27	764 -	774	768.33	1.09E+02	49.07	2.60E+02	.....
	30	788.93	779 -	797	788.99	7.81E+01	72.29	4.26E+02	LA-138
	31	837.69	834 -	842	837.74	5.36E+01	35.17	1.57E+02	.....
	32	911.05	905 -	915	911.07	1.58E+02	45.97	1.95E+02	AC-228
									TL-204
	33	933.90	928 -	938	933.91	4.78E+01	44.71	2.38E+02	.....
	34	969.31	965 -	974	969.31	7.59E+01	46.14	2.50E+02	AC-228
	35	1119.99	1114 -	1125	1119.94	2.83E+02	51.61	1.90E+02	BI-214
									SC-46
	36	1155.25	1149 -	1163	1155.19	5.99E+01	50.95	2.50E+02	.....
	37	1239.33	1234 -	1247	1239.24	1.24E+02	48.05	1.96E+02	.....
	38	1377.98	1373 -	1382	1377.84	4.93E+01	29.73	9.33E+01	.....
	39	1385.40	1383 -	1388	1385.26	1.52E+01	15.07	3.36E+01	.....
	40	1407.91	1404 -	1411	1407.76	4.19E+01	22.45	5.63E+01	EU-152
	41	1460.60	1455 -	1465	1460.43	5.69E+02	54.57	9.36E+01	K-40
	42	1511.38	1505 -	1518	1511.20	4.92E+01	27.44	5.76E+01	.....
	43	1538.89	1530 -	1550	1538.69	5.45E+01	31.71	6.30E+01	.....
	44	1642.27	1638 -	1646	1642.04	1.95E+01	15.54	2.10E+01	.....
	45	1683.25	1680 -	1686	1683.01	7.56E+00	6.95	2.89E+00	.....
	46	1692.77	1688 -	1697	1692.52	2.23E+01	11.18	5.36E+00	.....
	47	1729.45	1725 -	1734	1729.20	3.50E+01	21.28	4.40E+01	.....
M	48	1760.18	1759 -	1769	1759.91	7.48E+00	5.70	3.00E+00	.....
m	49	1764.30	1759 -	1769	1764.04	1.80E+02	27.94	7.00E+00	BI-214
	50	1825.94	1822 -	1829	1825.65	7.79E+00	10.20	1.24E+01	.....
	51	1848.14	1842 -	1852	1847.84	3.07E+01	16.88	2.07E+01	.....
	52	2102.69	2100 -	2104	2102.31	5.50E+00	6.67	5.00E+00	.....
	53	2118.39	2113 -	2123	2118.00	1.53E+01	14.73	1.73E+01	.....
	54	2130.39	2126 -	2132	2130.00	5.50E+00	7.78	7.00E+00	.....
	55	2141.40	2137 -	2144	2141.00	9.00E+00	6.00	0.00E+00	.....
	56	2203.54	2199 -	2206	2203.13	3.60E+01	16.97	2.40E+01	BI-214
	57	2236.99	2233 -	2239	2236.57	8.25E+00	7.23	3.50E+00	.....
	58	2292.42	2289 -	2294	2291.97	7.56E+00	6.71	2.89E+00	.....
	59	2447.80	2443 -	2450	2447.30	1.90E+01	11.14	8.00E+00	.....
	60	2614.19	2608 -	2617	2613.63	5.60E+01	17.15	1.00E+01	TL-208

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

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/15/2017 6:53:07AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	45.88	2.71E+02	117.30	1.69E-02	1.73E-03
	2	63.49	3.00E+02	146.25	2.45E-02	1.80E-03
	3	76.43	2.24E+03	249.93	2.67E-02	2.04E-03
	4	86.56	3.96E+02	162.02	2.71E-02	2.23E-03
	5	92.94	5.72E+02	139.13	2.71E-02	2.24E-03
	6	105.16	8.13E+01	84.18	2.65E-02	2.19E-03
	7	130.10	8.61E+01	97.09	2.45E-02	2.03E-03
	8	144.27	9.86E+01	93.60	2.32E-02	1.87E-03
	9	154.31	1.65E+02	116.50	2.22E-02	1.76E-03
	10	186.44	6.52E+02	128.71	1.96E-02	1.55E-03
M	11	238.84	8.20E+02	102.24	1.61E-02	1.34E-03
m	12	242.18	5.04E+02	102.67	1.59E-02	1.33E-03
	13	258.89	5.03E+01	55.35	1.51E-02	1.26E-03
	14	269.87	1.19E+02	87.46	1.46E-02	1.22E-03
	15	295.35	9.66E+02	103.76	1.35E-02	1.15E-03
	16	328.75	1.43E+02	80.02	1.23E-02	1.08E-03
	17	338.23	2.53E+02	74.07	1.20E-02	1.06E-03
	18	352.14	1.72E+03	106.71	1.15E-02	1.03E-03
	19	462.82	5.97E+01	54.99	9.03E-03	8.58E-04
	20	494.46	4.29E+01	46.65	8.50E-03	8.16E-04
	21	511.09	1.69E+02	56.48	8.25E-03	7.94E-04
	22	583.27	2.48E+02	63.72	7.32E-03	6.99E-04
	23	609.40	1.20E+03	89.96	7.04E-03	6.64E-04
M	24	661.82	1.01E+02	42.92	6.54E-03	5.94E-04
m	25	665.42	4.85E+01	42.92	6.51E-03	5.91E-04
	26	702.64	3.22E+01	38.00	6.20E-03	5.58E-04
	27	727.46	6.20E+01	42.06	6.01E-03	5.37E-04
	28	738.20	5.02E+01	52.55	5.93E-03	5.27E-04
	29	768.27	1.09E+02	49.07	5.72E-03	5.01E-04
	30	788.93	7.81E+01	72.29	5.59E-03	4.82E-04
	31	837.69	5.36E+01	35.17	5.30E-03	4.39E-04
	32	911.05	1.58E+02	45.97	4.92E-03	3.84E-04
	33	933.90	4.78E+01	44.71	4.82E-03	3.80E-04
	34	969.31	7.59E+01	46.14	4.66E-03	3.74E-04
	35	1119.99	2.83E+02	51.61	4.12E-03	3.50E-04
	36	1155.25	5.99E+01	50.95	4.01E-03	3.44E-04
	37	1239.33	1.24E+02	48.05	3.78E-03	3.22E-04
	38	1377.98	4.93E+01	29.73	3.47E-03	2.88E-04
	39	1385.40	1.52E+01	15.07	3.45E-03	2.87E-04
	40	1407.91	4.19E+01	22.45	3.41E-03	2.84E-04
	41	1460.60	5.69E+02	54.57	3.31E-03	2.75E-04
	42	1511.38	4.92E+01	27.44	3.22E-03	2.67E-04
	43	1538.89	5.45E+01	31.71	3.18E-03	2.63E-04
	44	1642.27	1.95E+01	15.54	3.02E-03	2.46E-04
	45	1683.25	7.56E+00	6.95	2.97E-03	2.39E-04

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	46	1692.77	2.23E+01	11.18	2.95E-03	2.38E-04
	47	1729.45	3.50E+01	21.28	2.91E-03	2.32E-04
M	48	1760.18	7.48E+00	5.70	2.87E-03	2.27E-04
m	49	1764.30	1.80E+02	27.94	2.87E-03	2.26E-04
	50	1825.94	7.79E+00	10.20	2.80E-03	2.17E-04
	51	1848.14	3.07E+01	16.88	2.77E-03	2.15E-04
	52	2102.69	5.50E+00	6.67	2.54E-03	2.15E-04
	53	2118.39	1.53E+01	14.73	2.53E-03	2.15E-04
	54	2130.39	5.50E+00	7.78	2.52E-03	2.15E-04
	55	2141.40	9.00E+00	6.00	2.51E-03	2.15E-04
	56	2203.54	3.60E+01	16.97	2.46E-03	2.15E-04
	57	2236.99	8.25E+00	7.23	2.44E-03	2.15E-04
	58	2292.42	7.56E+00	6.71	2.41E-03	2.15E-04
	59	2447.80	1.90E+01	11.14	2.32E-03	2.15E-04
	60	2614.19	5.60E+01	17.15	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 : 8/15/2017 6:53:07AM

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

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	45.88	2.71E+02	117.30			2.71E+02	1.17E+02
	2	63.49	3.00E+02	146.25	4.29E+01	6.03E+00	2.58E+02	1.46E+02
	3	76.43	2.24E+03	249.93	1.67E+01	8.84E+00	2.22E+03	2.50E+02
	4	86.56	3.96E+02	162.02			3.96E+02	1.62E+02
	5	92.94	5.72E+02	139.13	6.90E+01	7.61E+00	5.03E+02	1.39E+02
	6	105.16	8.13E+01	84.18			8.13E+01	8.42E+01
	7	130.10	8.61E+01	97.09			8.61E+01	9.71E+01
	8	144.27	9.86E+01	93.60			9.86E+01	9.36E+01
	9	154.31	1.65E+02	116.50			1.65E+02	1.16E+02
	10	186.44	6.52E+02	128.71	2.99E+01	5.81E+00	6.22E+02	1.29E+02
M	11	238.84	8.20E+02	102.24	9.49E+00	5.63E+00	8.11E+02	1.02E+02
m	12	242.18	5.04E+02	102.67			5.04E+02	1.03E+02
	13	258.89	5.03E+01	55.35			5.03E+01	5.54E+01
	14	269.87	1.19E+02	87.46			1.19E+02	8.75E+01
	15	295.35	9.66E+02	103.76			9.66E+02	1.04E+02

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	16	328.75	1.43E+02	80.02			1.43E+02	8.00E+01
	17	338.23	2.53E+02	74.07	4.73E+00	4.47E+00	2.48E+02	7.42E+01
	18	352.14	1.72E+03	106.71			1.72E+03	1.07E+02
	19	462.82	5.97E+01	54.99			5.97E+01	5.50E+01
	20	494.46	4.29E+01	46.65			4.29E+01	4.66E+01
	21	511.09	1.69E+02	56.48	5.37E+01	4.54E+00	1.16E+02	5.67E+01
	22	583.27	2.48E+02	63.72			2.48E+02	6.37E+01
	23	609.40	1.20E+03	89.96	4.09E+00	3.07E+00	1.19E+03	9.00E+01
M	24	661.82	1.01E+02	42.92	4.67E+00	3.34E+00	9.62E+01	4.31E+01
m	25	665.42	4.85E+01	42.92			4.85E+01	4.29E+01
	26	702.64	3.22E+01	38.00			3.22E+01	3.80E+01
	27	727.46	6.20E+01	42.06			6.20E+01	4.21E+01
	28	738.20	5.02E+01	52.55			5.02E+01	5.25E+01
	29	768.27	1.09E+02	49.07			1.09E+02	4.91E+01
	30	788.93	7.81E+01	72.29			7.81E+01	7.23E+01
	31	837.69	5.36E+01	35.17			5.36E+01	3.52E+01
	32	911.05	1.58E+02	45.97			1.58E+02	4.60E+01
	33	933.90	4.78E+01	44.71			4.78E+01	4.47E+01
	34	969.31	7.59E+01	46.14			7.59E+01	4.61E+01
	35	1119.99	2.83E+02	51.61			2.83E+02	5.16E+01
	36	1155.25	5.99E+01	50.95			5.99E+01	5.10E+01
	37	1239.33	1.24E+02	48.05	6.68E-01	1.26E+00	1.23E+02	4.81E+01
	38	1377.98	4.93E+01	29.73			4.93E+01	2.97E+01
	39	1385.40	1.52E+01	15.07			1.52E+01	1.51E+01
	40	1407.91	4.19E+01	22.45			4.19E+01	2.24E+01
	41	1460.60	5.69E+02	54.57			5.69E+02	5.46E+01
	42	1511.38	4.92E+01	27.44			4.92E+01	2.74E+01
	43	1538.89	5.45E+01	31.71			5.45E+01	3.17E+01
	44	1642.27	1.95E+01	15.54			1.95E+01	1.55E+01
	45	1683.25	7.56E+00	6.95			7.56E+00	6.95E+00
	46	1692.77	2.23E+01	11.18			2.23E+01	1.12E+01
	47	1729.45	3.50E+01	21.28			3.50E+01	2.13E+01
M	48	1760.18	7.48E+00	5.70			7.48E+00	5.70E+00
m	49	1764.30	1.80E+02	27.94			1.80E+02	2.79E+01
	50	1825.94	7.79E+00	10.20			7.79E+00	1.02E+01
	51	1848.14	3.07E+01	16.88			3.07E+01	1.69E+01
	52	2102.69	5.50E+00	6.67			5.50E+00	6.67E+00
	53	2118.39	1.53E+01	14.73			1.53E+01	1.47E+01
	54	2130.39	5.50E+00	7.78			5.50E+00	7.78E+00
	55	2141.40	9.00E+00	6.00			9.00E+00	6.00E+00
	56	2203.54	3.60E+01	16.97			3.60E+01	1.70E+01
	57	2236.99	8.25E+00	7.23			8.25E+00	7.23E+00
	58	2292.42	7.56E+00	6.71			7.56E+00	6.71E+00
	59	2447.80	1.90E+01	11.14			1.90E+01	1.11E+01
	60	2614.19	5.60E+01	17.15			5.60E+01	1.71E+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 1707078-20

HTC-A01-S005-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/15/2017 6:53:07AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000054852.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	45.88	2.71E+02	117.30			2.71E+02	1.17E+02
	2	63.49	3.00E+02	146.25	4.29E+01	6.03E+00	2.58E+02	1.46E+02
	3	76.43	2.24E+03	249.93	1.67E+01	8.84E+00	2.22E+03	2.50E+02
	4	86.56	3.96E+02	162.02			3.96E+02	1.62E+02
	5	92.94	5.72E+02	139.13	6.90E+01	7.61E+00	5.03E+02	1.39E+02
	6	105.16	8.13E+01	84.18			8.13E+01	8.42E+01
	7	130.10	8.61E+01	97.09			8.61E+01	9.71E+01
	8	144.27	9.86E+01	93.60			9.86E+01	9.36E+01
	9	154.31	1.65E+02	116.50			1.65E+02	1.16E+02
	10	186.44	6.52E+02	128.71	2.99E+01	5.81E+00	6.22E+02	1.29E+02
M	11	238.84	8.20E+02	102.24	9.49E+00	5.63E+00	8.11E+02	1.02E+02
m	12	242.18	5.04E+02	102.67			5.04E+02	1.03E+02
	13	258.89	5.03E+01	55.35			5.03E+01	5.54E+01
	14	269.87	1.19E+02	87.46			1.19E+02	8.75E+01
	15	295.35	9.66E+02	103.76			9.66E+02	1.04E+02
	16	328.75	1.43E+02	80.02			1.43E+02	8.00E+01
	17	338.23	2.53E+02	74.07	4.73E+00	4.47E+00	2.48E+02	7.42E+01
	18	352.14	1.72E+03	106.71			1.72E+03	1.07E+02
	19	462.82	5.97E+01	54.99			5.97E+01	5.50E+01
	20	494.46	4.29E+01	46.65			4.29E+01	4.66E+01
	21	511.09	1.69E+02	56.48	5.37E+01	4.54E+00	1.16E+02	5.67E+01
	22	583.27	2.48E+02	63.72			2.48E+02	6.37E+01
	23	609.40	1.20E+03	89.96	4.09E+00	3.07E+00	1.19E+03	9.00E+01
M	24	661.82	1.01E+02	42.92	4.67E+00	3.34E+00	9.62E+01	4.31E+01
m	25	665.42	4.85E+01	42.92			4.85E+01	4.29E+01
	26	702.64	3.22E+01	38.00			3.22E+01	3.80E+01
	27	727.46	6.20E+01	42.06			6.20E+01	4.21E+01
	28	738.20	5.02E+01	52.55			5.02E+01	5.25E+01
	29	768.27	1.09E+02	49.07			1.09E+02	4.91E+01
	30	788.93	7.81E+01	72.29			7.81E+01	7.23E+01
	31	837.69	5.36E+01	35.17			5.36E+01	3.52E+01
	32	911.05	1.58E+02	45.97			1.58E+02	4.60E+01
	33	933.90	4.78E+01	44.71			4.78E+01	4.47E+01
	34	969.31	7.59E+01	46.14			7.59E+01	4.61E+01
	35	1119.99	2.83E+02	51.61			2.83E+02	5.16E+01
	36	1155.25	5.99E+01	50.95			5.99E+01	5.10E+01
	37	1239.33	1.24E+02	48.05	6.68E-01	1.26E+00	1.23E+02	4.81E+01
	38	1377.98	4.93E+01	29.73			4.93E+01	2.97E+01
	39	1385.40	1.52E+01	15.07			1.52E+01	1.51E+01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	1407.91	4.19E+01	22.45			4.19E+01	2.24E+01
	41	1460.60	5.69E+02	54.57			5.69E+02	5.46E+01
	42	1511.38	4.92E+01	27.44			4.92E+01	2.74E+01
	43	1538.89	5.45E+01	31.71			5.45E+01	3.17E+01
	44	1642.27	1.95E+01	15.54			1.95E+01	1.55E+01
	45	1683.25	7.56E+00	6.95			7.56E+00	6.95E+00
	46	1692.77	2.23E+01	11.18			2.23E+01	1.12E+01
	47	1729.45	3.50E+01	21.28			3.50E+01	2.13E+01
M	48	1760.18	7.48E+00	5.70			7.48E+00	5.70E+00
m	49	1764.30	1.80E+02	27.94			1.80E+02	2.79E+01
	50	1825.94	7.79E+00	10.20			7.79E+00	1.02E+01
	51	1848.14	3.07E+01	16.88			3.07E+01	1.69E+01
	52	2102.69	5.50E+00	6.67			5.50E+00	6.67E+00
	53	2118.39	1.53E+01	14.73			1.53E+01	1.47E+01
	54	2130.39	5.50E+00	7.78			5.50E+00	7.78E+00
	55	2141.40	9.00E+00	6.00			9.00E+00	6.00E+00
	56	2203.54	3.60E+01	16.97			3.60E+01	1.70E+01
	57	2236.99	8.25E+00	7.23			8.25E+00	7.23E+00
	58	2292.42	7.56E+00	6.71			7.56E+00	6.71E+00
	59	2447.80	1.90E+01	11.14			1.90E+01	1.11E+01
	60	2614.19	5.60E+01	17.15			5.60E+01	1.71E+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	0.993	1460.81	*	10.67	1.95E+01	2.51E+00
CS-137	0.995	661.65	*	85.12	2.11E-01	9.63E-02
EU-155	0.998	86.50	*	30.90	5.94E-01	2.48E-01
		105.30	*	20.70	1.86E-01	1.93E-01
TL-208	0.869	583.14	*	30.22	1.36E+00	3.72E-01
		860.37		4.48		
		2614.66	*	35.85	8.46E-01	2.72E-01
PB-210	0.940	46.50	*	4.25	4.63E+00	2.06E+00
BI-212	0.762	727.17	*	11.80	1.06E+00	7.26E-01
		1620.62		2.75		

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-212	0.889	238.63	*	44.60	1.37E+00	2.07E-01
		300.09		3.41		
BI-214	0.991	609.31	*	46.30	4.43E+00	5.36E-01
		1120.29	*	15.10	5.52E+00	1.11E+00
		1764.49	*	15.80	4.83E+00	8.40E-01
		2204.22	*	4.98	3.56E+00	1.71E+00
PB-214	0.994	295.21	*	19.19	4.53E+00	6.21E-01
		351.92	*	37.19	4.85E+00	5.29E-01
RA-226	0.991	186.21	*	3.28	1.18E+01	2.17E+01
AC-228	0.998	338.32	*	11.40	2.21E+00	6.89E-01
		911.07	*	27.70	1.41E+00	4.23E-01
		969.11	*	16.60	1.19E+00	7.29E-01
TH-234	0.994	63.29	*	3.80	3.36E+00	1.92E+00
NP-237	1.000	86.50	*	12.60	1.41E+00	5.86E-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 : 8/15/2017 6:53:07AM
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	76.43	6.17402E-01	5.63		
	5	92.94	1.39833E-01	13.84		
	7	130.10	2.39152E-02	56.38		
	8	144.27	2.73928E-02	47.46	Tol.	U-235
	9	154.31	4.57407E-02	35.37		
m	12	242.18	1.39888E-01	10.19		
	13	258.89	1.39617E-02	55.06		
	14	269.87	3.30628E-02	36.74		
	16	328.75	3.96187E-02	28.05		
	19	462.82	1.65802E-02	46.06	Tol.	SB-125
	20	494.46	1.19191E-02	54.36		
	21	511.09	3.21094E-02	24.51		
m	25	665.42	1.34751E-02	44.24	Tol.	SB-126 CE-143
	26	702.64	8.94602E-03	59.00		

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	28	738.20	1.39458E-02	52.33		
	29	768.27	3.02766E-02	22.51		
	30	788.93	2.16810E-02	46.31	Tol.	LA-138
	31	837.69	1.48832E-02	32.82		
	33	933.90	1.32801E-02	46.76		
	36	1155.25	1.66276E-02	42.56	Sum	
	37	1239.33	3.42753E-02	19.48		
	38	1377.98	1.37037E-02	30.13		
	39	1385.40	4.22743E-03	49.50		
	40	1407.91	1.16270E-02	26.82	Tol.	EU-152
	42	1511.38	1.36645E-02	27.89		
	43	1538.89	1.51389E-02	29.09		
	44	1642.27	5.41667E-03	39.85		
	45	1683.25	2.09877E-03	45.97		
	46	1692.77	6.20000E-03	25.05	S-Esc	
	47	1729.45	9.71979E-03	30.41	Sum	
M	48	1760.18	2.07809E-03	38.10		
	50	1825.94	2.16270E-03	65.49		
	51	1848.14	8.51626E-03	27.53	Sum	
	52	2102.69	1.52778E-03	60.64	S-Esc	
	53	2118.39	4.25926E-03	48.04		
	54	2130.39	1.52778E-03	70.71		
	55	2141.40	2.50000E-03	33.33		
	57	2236.99	2.29167E-03	43.81		
	58	2292.42	2.09877E-03	44.39		
	59	2447.80	5.27778E-03	29.30		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.95E+01	2.51E+00
CS-137	0.99	661.65	*	85.12	2.11E-01	9.63E-02

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.99	86.50	*	30.90	5.94E-01	2.48E-01
		105.30	*	20.70	1.86E-01	1.93E-01
TL-208	0.86	583.14	*	30.22	1.36E+00	3.72E-01
		860.37		4.48		
		2614.66	*	35.85	8.46E-01	2.72E-01
PB-210	0.94	46.50	*	4.25	4.63E+00	2.06E+00
BI-212	0.76	727.17	*	11.80	1.06E+00	7.26E-01
		1620.62		2.75		
PB-212	0.88	238.63	*	44.60	1.37E+00	2.07E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	4.43E+00	5.36E-01
		1120.29	*	15.10	5.52E+00	1.11E+00
		1764.49	*	15.80	4.83E+00	8.40E-01
		2204.22	*	4.98	3.56E+00	1.71E+00
PB-214	0.99	295.21	*	19.19	4.53E+00	6.21E-01
		351.92	*	37.19	4.85E+00	5.29E-01
RA-226	0.99	186.21	*	3.28	1.18E+01	2.17E+01
AC-228	0.99	338.32	*	11.40	2.21E+00	6.89E-01
		911.07	*	27.70	1.41E+00	4.23E-01
		969.11	*	16.60	1.19E+00	7.29E-01
TH-234	0.99	63.29	*	3.80	3.36E+00	1.92E+00
NP-237	1.00	86.50	*	12.60	1.41E+00	5.86E-01

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.993	1.95E+01	2.51E+00	
CS-137	0.995	2.11E-01	9.63E-02	
EU-155	0.998	1.86E-01	1.93E-01	
TL-208	0.869	1.02E+00	2.19E-01	
PB-210	0.940	4.63E+00	2.06E+00	

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
BI-212	0.762	1.06E+00	7.26E-01	
PB-212	0.889	1.37E+00	2.07E-01	
BI-214	0.991	4.62E+00	4.06E-01	
PB-214	0.994	4.72E+00	4.03E-01	
RA-226	0.991	1.18E+01	2.17E+01	
AC-228	0.998	1.54E+00	3.23E-01	
TH-234	0.994	3.36E+00	1.92E+00	
NP-237	1.000	9.65E-01	7.43E-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 1707078-20

HTC-A01-S005-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/15/2017 6:53:07AM
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	76.43	6.17402E-01	5.63		
	5	92.94	1.39833E-01	13.84		
	7	130.10	2.39152E-02	56.38		
	8	144.27	2.73928E-02	47.46	Tol.	U-235
	9	154.31	4.57407E-02	35.37		
m	12	242.18	1.39888E-01	10.19		
	13	258.89	1.39617E-02	55.06		
	14	269.87	3.30628E-02	36.74		
	16	328.75	3.96187E-02	28.05		
	19	462.82	1.65802E-02	46.06	Tol.	SB-125
	20	494.46	1.19191E-02	54.36		
	21	511.09	3.21094E-02	24.51		
m	25	665.42	1.34751E-02	44.24	Tol.	SB-126 CE-143
	26	702.64	8.94602E-03	59.00		
	28	738.20	1.39458E-02	52.33		
	29	768.27	3.02766E-02	22.51		
	30	788.93	2.16810E-02	46.31	Tol.	LA-138
	31	837.69	1.48832E-02	32.82		
	33	933.90	1.32801E-02	46.76		
	36	1155.25	1.66276E-02	42.56	Sum	
	37	1239.33	3.42753E-02	19.48		
	38	1377.98	1.37037E-02	30.13		
	39	1385.40	4.22743E-03	49.50		
	40	1407.91	1.16270E-02	26.82	Tol.	EU-152
	42	1511.38	1.36645E-02	27.89		
	43	1538.89	1.51389E-02	29.09		
	44	1642.27	5.41667E-03	39.85		
	45	1683.25	2.09877E-03	45.97		
	46	1692.77	6.20000E-03	25.05	S-Esc	
	47	1729.45	9.71979E-03	30.41	Sum	
M	48	1760.18	2.07809E-03	38.10		
	50	1825.94	2.16270E-03	65.49		
	51	1848.14	8.51626E-03	27.53	Sum	
	52	2102.69	1.52778E-03	60.64	S-Esc	

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
53	2118.39	4.25926E-03	48.04		
54	2130.39	1.52778E-03	70.71		
55	2141.40	2.50000E-03	33.33		
57	2236.99	2.29167E-03	43.81		
58	2292.42	2.09877E-03	44.39		
59	2447.80	5.27778E-03	29.30		

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	-1.85E-01	3.11E+00	3.11E+00
+	NA-22	1274.54		99.94	-3.97E-02	1.14E-01	1.14E-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	1.89E-02	8.95E-02	8.95E-02
+	K-40	1460.81	*	10.67	1.95E+01	1.59E+00	1.59E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.50E-02	8.76E-02	8.76E-02
		78.34		96.00	4.27E-01		1.16E-01
+	SC-46	889.25		99.98	-6.49E-02	2.18E-01	2.18E-01
		1120.51		99.99	1.56E+00		5.55E-01
+	V-48	983.52		99.98	4.03E-02	6.59E+00	6.66E+00
		1312.10		97.50	1.52E+00		6.59E+00
+	CR-51	320.08		9.83	5.91E+00	9.48E+00	9.48E+00
+	MN-54	834.83		99.97	-1.19E-02	1.38E-01	1.38E-01
+	CO-56	846.75		99.96	7.89E-02	2.55E-01	2.55E-01
		1037.75		14.03	-7.54E-01		1.78E+00
		1238.25		67.00	1.14E+00		6.60E-01
		1771.40		15.51	-1.72E-01		9.92E-01
		2598.48		16.90	1.40E-01		8.77E-01
+	CO-57	122.06		85.51	-7.79E-03	9.34E-02	9.34E-02
		136.48		10.60	1.68E-01		7.99E-01
+	CO-58	810.76		99.40	-1.01E-01	2.58E-01	2.58E-01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	FE-59	1099.22	56.50	-1.68E-01	8.93E-01	8.93E-01
		1291.56	43.20	-1.57E-01		1.14E+00
+	CO-60	1173.22	100.00	1.65E-02	1.06E-01	1.40E-01
		1332.49	100.00	-7.07E-02		1.06E-01
+	ZN-65	1115.52	50.75	-3.96E-02	3.06E-01	3.06E-01
+	GA-67	93.31	35.70	2.86E+08	1.07E+08	1.07E+08
		208.95	2.24	-2.80E+08		1.85E+09
		300.22	16.00	1.55E+08		2.97E+08
+	SE-75	121.11	16.70	-5.66E-02	1.92E-01	6.42E-01
		136.00	59.20	-2.12E-02		1.92E-01
		264.65	59.80	-2.00E-02		2.43E-01
		279.53	25.20	-9.75E-02		5.90E-01
		400.65	11.40	-2.94E-01		1.43E+00
+	RB-82	776.52	13.00	1.94E+00	9.79E+00	9.79E+00
+	RB-83	520.41	46.00	-1.67E-02	4.26E-01	4.26E-01
		529.64	30.30	-2.77E-01		6.34E-01
		552.65	16.40	-2.73E-02		1.19E+00
+	KR-85	513.99	0.43	-2.62E+00	2.77E+01	2.77E+01
+	SR-85	513.99	99.27	-3.07E-02	3.25E-01	3.25E-01
+	Y-88	898.02	93.40	-1.06E-01	1.57E-01	2.20E-01
		1836.01	99.38	-2.36E-02		1.57E-01
+	MO-93	263.06	56.72	-1.24E-02	1.03E-01	1.49E-01
		684.67	99.68	-1.27E-02		1.03E-01
		1477.11	99.08	-7.29E-02		1.13E-01
+	NB-93M	16.57	9.43	-1.36E+01	8.95E+01	8.95E+01
+	NB-94	702.63	100.00	2.61E-02	1.10E-01	1.10E-01
		871.10	100.00	1.52E-02		1.10E-01
+	NB-95	765.79	99.81	9.39E-01	8.94E-01	8.94E-01
+	NB-95M	235.69	25.00	-5.82E+06	3.19E+07	3.19E+07
+	ZR-95	724.18	43.70	-4.77E-02	5.22E-01	7.17E-01
		756.72	55.30	5.22E-02		5.22E-01
+	MO-99	181.06	6.20	3.56E+09	1.40E+10	2.16E+10
		739.58	12.80	2.19E+07		1.40E+10
		778.00	4.50	8.23E+09		4.26E+10
+	RU-103	497.08	89.00	1.03E-01	5.61E-01	5.61E-01
+	RU-106	621.84	9.80	1.67E-01	1.12E+00	1.12E+00
+	AG-108M	433.93	89.90	1.05E-03	1.05E-01	1.05E-01
		614.37	90.40	1.50E-02		1.51E-01
		722.95	90.50	3.31E-02		1.22E-01
+	CD-109	88.03	3.72	3.03E+00	2.62E+00	2.62E+00
+	AG-110M	657.75	93.14	2.42E-02	1.44E-01	1.44E-01
		677.61	10.53	-2.49E-01		1.16E+00
		706.67	16.46	-8.94E-02		8.02E-01
		763.93	21.98	6.22E-02		6.47E-01
		884.67	71.63	2.90E-02		1.94E-01
		1384.27	23.94	-1.35E-01		5.75E-01
+	CD-113M	263.70	0.02	-3.06E+01	3.65E+02	3.65E+02
+	SN-113	255.12	1.93	-2.29E-01	2.50E-01	7.74E+00

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SN-113	391.69	64.90	2.64E-02	2.50E-01	2.50E-01
+	TE123M	159.00	84.10	1.07E-02	1.40E-01	1.40E-01
+	SB-124	602.71	97.87	2.27E-02	2.83E-01	2.83E-01
		645.85	7.26	8.52E-01		3.83E+00
		722.78	11.10	7.95E-01		2.92E+00
		1691.02	49.00	3.38E-01		6.05E-01
+	I-125	35.49	6.49	4.38E-01	7.13E+00	7.13E+00
+	SB-125	176.33	6.89	1.11E-01	3.44E-01	1.09E+00
		427.89	29.33	-6.59E-02		3.44E-01
		463.38	10.35	8.42E-01		9.98E-01
		600.56	17.80	-1.16E-01		5.47E-01
		635.90	11.32	8.14E-02		8.18E-01
+	SB-126	414.70	83.30	3.99E+00	2.00E+01	2.22E+01
		666.33	99.60	1.80E+00		2.24E+01
		695.00	99.60	1.07E+01		2.00E+01
		720.50	53.80	7.16E+00		3.73E+01
+	SN-126	87.57	37.00	2.64E-01	2.29E-01	2.29E-01
+	SB-127	473.00	25.00	2.63E+06	6.21E+06	8.42E+06
		685.20	35.70	-7.62E+05		6.21E+06
		783.80	14.70	9.14E+06		1.74E+07
+	I-129	29.78	57.00	-3.04E-02	4.93E-01	4.93E-01
		33.60	13.20	-9.36E-02		1.38E+00
		39.58	7.52	1.07E-01		1.67E+00
+	I-131	284.30	6.05	4.58E+03	3.34E+02	4.89E+03
		364.48	81.20	-9.89E+01		3.34E+02
		636.97	7.26	4.66E+02		3.90E+03
		722.89	1.80	5.44E+03		2.00E+04
+	TE-132	49.72	13.10	-1.93E+08	4.49E+07	3.34E+08
		228.16	88.00	-6.37E+06		4.49E+07
+	BA-133	81.00	33.00	-9.44E-01	2.47E-01	2.47E-01
		302.84	17.80	4.18E-01		5.10E-01
		356.01	60.00	-1.84E-02		2.64E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-1.98E+05	5.18E+04	5.18E+04
+	CS-134	563.23	8.38	1.17E-01	1.37E-01	1.30E+00
		569.32	15.43	2.05E-01		7.13E-01
		604.70	97.60	1.15E-02		1.47E-01
		795.84	85.40	-5.80E-03		1.37E-01
		801.93	8.73	-5.95E-01		1.29E+00
+	CS-135	268.24	16.00	2.05E-01	5.69E-01	5.69E-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	5.34E+01	1.55E+01	1.38E+02
		163.89	4.61	-6.63E+00		2.06E+02
		176.55	13.56	7.44E+00		7.27E+01
		273.65	12.66	2.14E+01		1.00E+02
		340.57	48.50	-6.12E+00		3.04E+01
		818.50	99.70	-5.37E+00		1.55E+01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	1048.07		79.60	-1.36E+01	1.55E+01	1.97E+01
			1235.34		19.70	-1.94E+01		1.22E+02
+		CS-137	661.65	*	85.12	2.11E-01	2.29E-01	2.29E-01
+		LA-138	788.74		34.00	7.65E-02	1.47E-01	3.37E-01
			1435.80		66.00	-1.21E-02		1.47E-01
+		CE-139	165.85		80.35	-1.74E-02	1.34E-01	1.34E-01
+		BA-140	162.64		6.70	-1.00E+01	6.17E+01	1.64E+02
			304.84		4.50	-2.05E+02		3.02E+02
			423.70		3.20	1.44E+02		4.78E+02
			437.55		2.00	3.12E+02		7.47E+02
			537.32		25.00	6.53E+00		6.17E+01
+		LA-140	328.77		20.50	9.90E+01	2.35E+01	7.64E+01
			487.03		45.50	-5.36E+00		3.22E+01
			815.85		23.50	1.44E+01		7.48E+01
			1596.49		95.49	8.11E+00		2.35E+01
+		CE-141	145.44		48.40	7.18E-01	1.09E+00	1.09E+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	2.30E-01	7.77E-01	7.77E-01
+		PM-144	476.78		42.00	-2.14E-03	1.08E-01	2.74E-01
			618.01		98.60	1.04E-02		1.08E-01
			696.49		99.49	2.33E-02		1.22E-01
+		PM-145	36.85		21.70	-1.41E-01	3.59E-01	6.68E-01
			37.36		39.70	-2.40E-01		3.59E-01
			42.30		15.10	-7.49E-02		7.61E-01
			72.40		2.31	-1.53E+01		4.21E+00
+		PM-146	453.90		39.94	-3.15E-02	2.34E-01	2.34E-01
			735.90		14.01	9.51E-02		7.54E-01
			747.13		13.10	1.33E-02		7.10E-01
+		ND-147	91.11		28.90	-7.32E+01	1.09E+02	1.09E+02
			531.02		13.10	-6.20E+01		2.63E+02
+		PM-149	285.90		3.10	7.87E+11	1.71E+13	1.71E+13
+		EU-152	121.78		20.50	-2.58E-02	3.10E-01	3.10E-01
			244.69		5.40	2.50E+00		2.14E+00
			344.27		19.13	-9.82E-02		4.63E-01
			778.89		9.20	4.87E-02		1.14E+00
			964.01		10.40	5.78E-01		1.30E+00
			1085.78		7.22	-4.17E-01		1.60E+00
			1112.02		9.60	-1.58E-01		1.17E+00
			1407.95		14.94	1.06E+00		9.98E-01
+		GD-153	97.43		31.30	7.04E-02	2.62E-01	2.62E-01
			103.18		22.20	-1.99E-01		3.58E-01
+		EU-154	123.07		40.50	1.81E-02	1.60E-01	1.60E-01
			723.30		19.70	1.55E-01		5.69E-01
			873.19		11.50	1.86E-01		9.44E-01
			996.32		10.30	-7.84E-01		1.09E+00
			1004.76		17.90	9.48E-02		6.82E-01
			1274.45		35.50	-1.07E-01		3.07E-01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-155	86.50	*	30.90	5.94E-01	3.16E-01	3.91E-01
		105.30	*	20.70	1.86E-01		3.16E-01
+	EU-156	811.77		10.40	4.55E+01	7.49E+01	7.49E+01
		1153.47		7.20	1.29E+02		1.50E+02
		1230.71		8.90	-2.94E+00		1.10E+02
+	HO-166M	184.41		72.60	3.72E-01	1.36E-01	1.36E-01
		280.45		29.60	-2.25E-02		2.93E-01
		410.94		11.10	-1.83E-01		8.81E-01
		711.69		54.10	7.49E-02		2.03E-01
+	TM-171	66.72		0.14	2.22E+01	6.68E+01	6.68E+01
+	HF-172	67.35		5.31	-4.90E-01	6.26E-01	1.71E+00
		125.81		11.30	-8.80E-02		6.26E-01
+	LU-172	181.53		20.60	9.11E+02	3.21E+03	5.75E+03
		900.72		29.81	-7.08E+02		6.45E+03
		1093.66		62.50	7.35E+02		3.21E+03
+	LU-173	100.72		5.24	-1.04E+00	4.98E-01	1.30E+00
		272.11		21.20	2.40E-01		4.98E-01
+	HF-175	343.40		84.00	-5.58E-02	2.63E-01	2.63E-01
+	LU-176	88.34		13.30	-4.20E-01	8.79E-02	6.38E-01
		201.83		86.00	3.82E-02		9.11E-02
		306.78		94.00	-6.49E-02		8.79E-02
+	HF-181	133.02		41.70	-1.82E-02	5.29E-01	7.47E-01
		345.85		17.20	-1.53E+00		2.37E+00
		482.03		82.80	2.78E-02		5.29E-01
+	TA-182	67.75		41.20	-1.01E-01	3.54E-01	3.54E-01
		1121.30		34.90	3.76E+00		1.30E+00
		1189.05		16.23	-5.46E-01		1.34E+00
		1221.41		26.98	4.83E-01		9.61E-01
		1231.02		11.44	-5.57E-02		2.08E+00
+	IR-192	308.46		29.68	-3.42E-02	4.33E-01	6.86E-01
		468.07		48.10	3.41E-02		4.33E-01
+	HG-203	279.19		77.30	-5.74E-02	4.52E-01	4.52E-01
+	TL-204	374.74		94.11	3.74E-02	1.02E-01	1.02E-01
		899.15		99.16	-3.71E-02		1.19E-01
		911.74		91.10	3.76E-01		1.97E-01
+	BI-207	569.67		97.72	5.14E-02	1.04E-01	1.04E-01
		1063.62		74.90	-9.08E-02		1.43E-01
+	TL-208	583.14	*	30.22	1.36E+00	2.49E-01	5.14E-01
		860.37		4.48	6.68E-01		2.57E+00
		2614.66	*	35.85	8.46E-01		2.49E-01
+	BI-210M	262.00		45.00	-1.53E-02	1.90E-01	1.90E-01
		300.00		23.00	2.32E-01		4.46E-01
+	PB-210	46.50	*	4.25	4.63E+00	3.21E+00	3.21E+00
+	PB-211	404.84		2.90	-3.84E+00	3.26E+00	3.26E+00
		831.96		2.90	-3.92E-02		3.66E+00
+	BI-212	727.17	*	11.80	1.06E+00	1.14E+00	1.14E+00
		1620.62		2.75	1.85E+00		4.25E+00
+	PB-212	238.63	*	44.60	1.37E+00	3.94E-01	3.94E-01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-212	300.09		3.41	1.57E+00	3.94E-01	3.01E+00
+	BI-214	609.31	*	46.30	4.43E+00	3.63E-01	3.63E-01
		1120.29	*	15.10	5.52E+00		1.31E+00
		1764.49	*	15.80	4.83E+00		4.53E-01
		2204.22	*	4.98	3.56E+00		2.22E+00
+	PB-214	295.21	*	19.19	4.53E+00	3.20E-01	6.54E-01
		351.92	*	37.19	4.85E+00		3.20E-01
+	RN-219	401.80		6.50	4.66E-02	1.49E+00	1.49E+00
+	RA-223	323.87		3.88	2.91E-01	2.33E+00	2.33E+00
+	RA-224	240.98		3.95	2.34E+01	3.89E+00	3.89E+00
+	RA-225	40.00		31.00	2.06E+00	3.21E+01	3.21E+01
+	RA-226	186.21	*	3.28	1.18E+01	3.75E+00	3.75E+00
+	TH-227	50.10		8.40	-6.34E-01	1.03E+00	1.10E+00
		236.00		11.50	-1.88E-01		1.03E+00
		256.20		6.30	9.28E-02		1.38E+00
+	AC-228	338.32	*	11.40	2.21E+00	5.87E-01	1.01E+00
		911.07	*	27.70	1.41E+00		5.87E-01
		969.11	*	16.60	1.19E+00		1.14E+00
+	TH-230	48.44		16.90	-1.07E-01	6.00E-01	6.00E-01
		62.85		4.60	3.91E+00		2.07E+00
		67.67		0.37	-6.37E+00		2.23E+01
+	PA-231	283.67		1.60	2.13E+00	3.88E+00	5.58E+00
		302.67		2.30	3.18E+00		3.88E+00
+	TH-231	25.64		14.70	9.42E-01	1.27E+00	3.63E+00
		84.21		6.40	-8.38E-01		1.27E+00
+	PA-233	311.98		38.60	1.52E+00	2.51E+00	2.51E+00
+	PA-234	131.20		20.40	1.80E-01	3.35E-01	3.35E-01
		733.99		8.80	3.05E-01		1.19E+00
		946.00		12.00	-6.57E-02		9.89E-01
+	PA-234M	1001.03		0.92	4.10E+00	1.35E+01	1.35E+01
+	TH-234	63.29	*	3.80	3.36E+00	3.10E+00	3.10E+00
+	U-235	143.76		10.50	3.64E-01	6.65E-01	6.65E-01
		163.35		4.70	-4.62E-02		1.44E+00
		205.31		4.70	-4.99E-01		1.91E+00
+	NP-237	86.50	*	12.60	1.41E+00	9.26E-01	9.26E-01
+	NP-239	106.10		22.70	1.89E+11	2.75E+11	2.75E+11
		228.18		10.70	-1.11E+11		7.84E+11
		277.60		14.10	-4.05E+11		5.95E+11
+	AM-241	59.54		35.90	1.06E-02	2.43E-01	2.43E-01
+	AM-243	74.67		66.00	4.29E-01	1.77E-01	1.77E-01
+	CM-243	209.75		3.29	8.48E-02	6.05E-01	2.73E+00
		228.14		10.60	-1.13E-01		7.99E-01
		277.60		14.00	-4.12E-01		6.05E-01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated
@ = Half-life too short to be able to perform the decay correction
? = 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	3.11E+00	3.11E+00	-1.85E-01	1.49E+00
	NA-22	1274.54		99.94	1.14E-01	1.14E-01	-3.97E-02	5.24E-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	8.95E-02	8.95E-02	1.89E-02	3.89E-02
+	K-40	1460.81	*	10.67	1.59E+00	1.59E+00	1.95E+01	7.48E-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	8.76E-02	8.76E-02	-2.50E-02	4.31E-02
		78.34		96.00	1.16E-01		4.27E-01	5.72E-02
	SC-46	889.25		99.98	2.18E-01	2.18E-01	-6.49E-02	1.02E-01
		1120.51		99.99	5.55E-01		1.56E+00	2.69E-01
	V-48	983.52		99.98	6.66E+00	6.59E+00	4.03E-02	3.12E+00
		1312.10		97.50	6.59E+00		1.52E+00	3.02E+00
	CR-51	320.08		9.83	9.48E+00	9.48E+00	5.91E+00	4.60E+00
	MN-54	834.83		99.97	1.38E-01	1.38E-01	-1.19E-02	6.50E-02
	CO-56	846.75		99.96	2.55E-01	2.55E-01	7.89E-02	1.20E-01
		1037.75		14.03	1.78E+00		-7.54E-01	8.29E-01
		1238.25		67.00	6.60E-01		1.14E+00	3.15E-01
		1771.40		15.51	9.92E-01		-1.72E-01	4.11E-01
		2598.48		16.90	8.77E-01		1.40E-01	3.40E-01
	CO-57	122.06		85.51	9.34E-02	9.34E-02	-7.79E-03	4.57E-02
		136.48		10.60	7.99E-01		1.68E-01	3.91E-01
	CO-58	810.76		99.40	2.58E-01	2.58E-01	-1.01E-01	1.22E-01
	FE-59	1099.22		56.50	8.93E-01	8.93E-01	-1.68E-01	4.17E-01
		1291.56		43.20	1.14E+00		-1.57E-01	5.26E-01
	CO-60	1173.22		100.00	1.40E-01	1.06E-01	1.65E-02	6.59E-02
		1332.49		100.00	1.06E-01		-7.07E-02	4.85E-02
	ZN-65	1115.52		50.75	3.06E-01	3.06E-01	-3.96E-02	1.43E-01
	GA-67	93.31		35.70	1.07E+08	1.07E+08	2.86E+08	5.29E+07

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
GA-67	208.95	2.24	1.85E+09	1.07E+08	-2.80E+08	9.07E+08
	300.22	16.00	2.97E+08		1.55E+08	1.45E+08
SE-75	121.11	16.70	6.42E-01	1.92E-01	-5.66E-02	3.14E-01
	136.00	59.20	1.92E-01		-2.12E-02	9.41E-02
	264.65	59.80	2.43E-01		-2.00E-02	1.18E-01
	279.53	25.20	5.90E-01		-9.75E-02	2.87E-01
	400.65	11.40	1.43E+00		-2.94E-01	6.92E-01
RB-82	776.52	13.00	9.79E+00	9.79E+00	1.94E+00	4.61E+00
RB-83	520.41	46.00	4.26E-01	4.26E-01	-1.67E-02	2.04E-01
	529.64	30.30	6.34E-01		-2.77E-01	3.03E-01
	552.65	16.40	1.19E+00		-2.73E-02	5.69E-01
KR-85	513.99	0.43	2.77E+01	2.77E+01	-2.62E+00	1.34E+01
SR-85	513.99	99.27	3.25E-01	3.25E-01	-3.07E-02	1.57E-01
Y-88	898.02	93.40	2.20E-01	1.57E-01	-1.06E-01	1.03E-01
	1836.01	99.38	1.57E-01		-2.36E-02	6.77E-02
MO-93	263.06	56.72	1.49E-01	1.03E-01	-1.24E-02	7.27E-02
	684.67	99.68	1.03E-01		-1.27E-02	4.91E-02
	1477.11	99.08	1.13E-01		-7.29E-02	5.14E-02
NB-93M	16.57	9.43	8.95E+01	8.95E+01	-1.36E+01	4.39E+01
NB-94	702.63	100.00	1.10E-01	1.10E-01	2.61E-02	5.21E-02
	871.10	100.00	1.10E-01		1.52E-02	5.20E-02
NB-95	765.79	99.81	8.94E-01	8.94E-01	9.39E-01	4.29E-01
NB-95M	235.69	25.00	3.19E+07	3.19E+07	-5.82E+06	1.57E+07
ZR-95	724.18	43.70	7.17E-01	5.22E-01	-4.77E-02	3.41E-01
	756.72	55.30	5.22E-01		5.22E-02	2.47E-01
MO-99	181.06	6.20	2.16E+10	1.40E+10	3.56E+09	1.05E+10
	739.58	12.80	1.40E+10		2.19E+07	6.57E+09
	778.00	4.50	4.26E+10		8.23E+09	2.01E+10
RU-103	497.08	89.00	5.61E-01	5.61E-01	1.03E-01	2.69E-01
RU-106	621.84	9.80	1.12E+00	1.12E+00	1.67E-01	5.30E-01
AG-108M	433.93	89.90	1.05E-01	1.05E-01	1.05E-03	5.05E-02
	614.37	90.40	1.51E-01		1.50E-02	7.28E-02
	722.95	90.50	1.22E-01		3.31E-02	5.78E-02
CD-109	88.03	3.72	2.62E+00	2.62E+00	3.03E+00	1.29E+00
AG-110M	657.75	93.14	1.44E-01	1.44E-01	2.42E-02	6.84E-02
	677.61	10.53	1.16E+00		-2.49E-01	5.49E-01
	706.67	16.46	8.02E-01		-8.94E-02	3.80E-01
	763.93	21.98	6.47E-01		6.22E-02	3.06E-01
	884.67	71.63	1.94E-01		2.90E-02	9.11E-02
	1384.27	23.94	5.75E-01		-1.35E-01	2.62E-01
CD-113M	263.70	0.02	3.65E+02	3.65E+02	-3.06E+01	1.78E+02
SN-113	255.12	1.93	7.74E+00	2.50E-01	-2.29E-01	3.77E+00
	391.69	64.90	2.50E-01		2.64E-02	1.21E-01
TE123M	159.00	84.10	1.40E-01	1.40E-01	1.07E-02	6.85E-02
SB-124	602.71	97.87	2.83E-01	2.83E-01	2.27E-02	1.35E-01
	645.85	7.26	3.83E+00		8.52E-01	1.81E+00
	722.78	11.10	2.92E+00		7.95E-01	1.39E+00
	1691.02	49.00	6.05E-01		3.38E-01	2.69E-01
I-125	35.49	6.49	7.13E+00	7.13E+00	4.38E-01	3.49E+00
SB-125	176.33	6.89	1.09E+00	3.44E-01	1.11E-01	5.31E-01
	427.89	29.33	3.44E-01		-6.59E-02	1.66E-01
	463.38	10.35	9.98E-01		8.42E-01	4.80E-01
	600.56	17.80	5.47E-01		-1.16E-01	2.60E-01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	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	8.18E-01	3.44E-01	8.14E-02	3.86E-01
	SB-126	414.70		83.30	2.22E+01	2.00E+01	3.99E+00	1.07E+01
		666.33		99.60	2.24E+01		1.80E+00	1.07E+01
		695.00		99.60	2.00E+01		1.07E+01	9.50E+00
		720.50		53.80	3.73E+01		7.16E+00	1.77E+01
	SN-126	87.57		37.00	2.29E-01	2.29E-01	2.64E-01	1.13E-01
	SB-127	473.00		25.00	8.42E+06	6.21E+06	2.63E+06	4.05E+06
		685.20		35.70	6.21E+06		-7.62E+05	2.95E+06
		783.80		14.70	1.74E+07		9.14E+06	8.27E+06
	I-129	29.78		57.00	4.93E-01	4.93E-01	-3.04E-02	2.41E-01
		33.60		13.20	1.38E+00		-9.36E-02	6.75E-01
		39.58		7.52	1.67E+00		1.07E-01	8.18E-01
	I-131	284.30		6.05	4.89E+03	3.34E+02	4.58E+03	2.38E+03
		364.48		81.20	3.34E+02		-9.89E+01	1.61E+02
		636.97		7.26	3.90E+03		4.66E+02	1.84E+03
		722.89		1.80	2.00E+04		5.44E+03	9.48E+03
	TE-132	49.72		13.10	3.34E+08	4.49E+07	-1.93E+08	1.64E+08
		228.16		88.00	4.49E+07		-6.37E+06	2.19E+07
	BA-133	81.00		33.00	2.47E-01	2.47E-01	-9.44E-01	1.22E-01
		302.84		17.80	5.10E-01		4.18E-01	2.48E-01
		356.01		60.00	2.64E-01		-1.84E-02	1.30E-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	5.18E+04	5.18E+04	-1.98E+05	2.55E+04
	CS-134	563.23		8.38	1.30E+00	1.37E-01	1.17E-01	6.20E-01
		569.32		15.43	7.13E-01		2.05E-01	3.41E-01
		604.70		97.60	1.47E-01		1.15E-02	7.07E-02
		795.84		85.40	1.37E-01		-5.80E-03	6.50E-02
		801.93		8.73	1.29E+00		-5.95E-01	6.10E-01
	CS-135	268.24		16.00	5.69E-01	5.69E-01	2.05E-01	2.78E-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	1.38E+02	1.55E+01	5.34E+01	6.75E+01
		163.89		4.61	2.06E+02		-6.63E+00	1.01E+02
		176.55		13.56	7.27E+01		7.44E+00	3.55E+01
		273.65		12.66	1.00E+02		2.14E+01	4.88E+01
		340.57		48.50	3.04E+01		-6.12E+00	1.48E+01
		818.50		99.70	1.55E+01		-5.37E+00	7.30E+00
		1048.07		79.60	1.97E+01		-1.36E+01	9.20E+00
		1235.34		19.70	1.22E+02		-1.94E+01	5.80E+01
+	CS-137	661.65	*	85.12	2.29E-01	2.29E-01	2.11E-01	1.11E-01
	LA-138	788.74		34.00	3.37E-01	1.47E-01	7.65E-02	1.60E-01
		1435.80		66.00	1.47E-01		-1.21E-02	6.62E-02
	CE-139	165.85		80.35	1.34E-01	1.34E-01	-1.74E-02	6.57E-02
	BA-140	162.64		6.70	1.64E+02	6.17E+01	-1.00E+01	8.01E+01
		304.84		4.50	3.02E+02		-2.05E+02	1.46E+02
		423.70		3.20	4.78E+02		1.44E+02	2.31E+02
		437.55		2.00	7.47E+02		3.12E+02	3.59E+02
		537.32		25.00	6.17E+01		6.53E+00	2.95E+01
	LA-140	328.77		20.50	7.64E+01	2.35E+01	9.90E+01	3.72E+01
		487.03		45.50	3.22E+01		-5.36E+00	1.54E+01
		815.85		23.50	7.48E+01		1.44E+01	3.53E+01
		1596.49		95.49	2.35E+01		8.11E+00	1.08E+01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	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	1.09E+00	1.09E+00	7.18E-01	5.34E-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	7.77E-01	7.77E-01	2.30E-01	3.81E-01
	PM-144	476.78		42.00	2.74E-01	1.08E-01	-2.14E-03	1.32E-01
		618.01		98.60	1.08E-01		1.04E-02	5.12E-02
		696.49		99.49	1.22E-01		2.33E-02	5.77E-02
	PM-145	36.85		21.70	6.68E-01	3.59E-01	-1.41E-01	3.27E-01
		37.36		39.70	3.59E-01		-2.40E-01	1.76E-01
		42.30		15.10	7.61E-01		-7.49E-02	3.73E-01
		72.40		2.31	4.21E+00		-1.53E+01	2.08E+00
	PM-146	453.90		39.94	2.34E-01	2.34E-01	-3.15E-02	1.13E-01
		735.90		14.01	7.54E-01		9.51E-02	3.57E-01
		747.13		13.10	7.10E-01		1.33E-02	3.33E-01
	ND-147	91.11		28.90	1.09E+02	1.09E+02	-7.32E+01	5.38E+01
		531.02		13.10	2.63E+02		-6.20E+01	1.26E+02
	PM-149	285.90		3.10	1.71E+13	1.71E+13	7.87E+11	8.30E+12
	EU-152	121.78		20.50	3.10E-01	3.10E-01	-2.58E-02	1.52E-01
		244.69		5.40	2.14E+00		2.50E+00	1.05E+00
		344.27		19.13	4.63E-01		-9.82E-02	2.24E-01
		778.89		9.20	1.14E+00		4.87E-02	5.36E-01
		964.01		10.40	1.30E+00		5.78E-01	6.18E-01
		1085.78		7.22	1.60E+00		-4.17E-01	7.43E-01
		1112.02		9.60	1.17E+00		-1.58E-01	5.43E-01
		1407.95		14.94	9.98E-01		1.06E+00	4.66E-01
	GD-153	97.43		31.30	2.62E-01	2.62E-01	7.04E-02	1.28E-01
		103.18		22.20	3.58E-01		-1.99E-01	1.75E-01
	EU-154	123.07		40.50	1.60E-01	1.60E-01	1.81E-02	7.82E-02
		723.30		19.70	5.69E-01		1.55E-01	2.71E-01
		873.19		11.50	9.44E-01		1.86E-01	4.44E-01
		996.32		10.30	1.09E+00		-7.84E-01	5.10E-01
		1004.76		17.90	6.82E-01		9.48E-02	3.20E-01
		1274.45		35.50	3.07E-01		-1.07E-01	1.40E-01
+	EU-155	86.50	*	30.90	3.91E-01	3.16E-01	5.94E-01	1.94E-01
		105.30	*	20.70	3.16E-01		1.86E-01	1.55E-01
	EU-156	811.77		10.40	7.49E+01	7.49E+01	4.55E+01	3.54E+01
		1153.47		7.20	1.50E+02		1.29E+02	7.11E+01
		1230.71		8.90	1.10E+02		-2.94E+00	5.12E+01
	HO-166M	184.41		72.60	1.36E-01	1.36E-01	3.72E-01	6.70E-02
		280.45		29.60	2.93E-01		-2.25E-02	1.43E-01
		410.94		11.10	8.81E-01		-1.83E-01	4.26E-01
		711.69		54.10	2.03E-01		7.49E-02	9.67E-02
	TM-171	66.72		0.14	6.68E+01	6.68E+01	2.22E+01	3.29E+01
	HF-172	67.35		5.31	1.71E+00	6.26E-01	-4.90E-01	8.44E-01
		125.81		11.30	6.26E-01		-8.80E-02	3.07E-01
	LU-172	181.53		20.60	5.75E+03	3.21E+03	9.11E+02	2.81E+03
		900.72		29.81	6.45E+03		-7.08E+02	3.04E+03
		1093.66		62.50	3.21E+03		7.35E+02	1.50E+03
	LU-173	100.72		5.24	1.30E+00	4.98E-01	-1.04E+00	6.36E-01
		272.11		21.20	4.98E-01		2.40E-01	2.43E-01
	HF-175	343.40		84.00	2.63E-01	2.63E-01	-5.58E-02	1.27E-01
	LU-176	88.34		13.30	6.38E-01	8.79E-02	-4.20E-01	3.15E-01

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	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	9.11E-02	8.79E-02	3.82E-02	4.45E-02
		306.78		94.00	8.79E-02		-6.49E-02	4.26E-02
	HF-181	133.02		41.70	7.47E-01	5.29E-01	-1.82E-02	3.66E-01
		345.85		17.20	2.37E+00		-1.53E+00	1.15E+00
		482.03		82.80	5.29E-01		2.78E-02	2.54E-01
	TA-182	67.75		41.20	3.54E-01	3.54E-01	-1.01E-01	1.74E-01
		1121.30		34.90	1.30E+00		3.76E+00	6.28E-01
		1189.05		16.23	1.34E+00		-5.46E-01	6.22E-01
		1221.41		26.98	9.61E-01		4.83E-01	4.52E-01
		1231.02		11.44	2.08E+00		-5.57E-02	9.71E-01
	IR-192	308.46		29.68	6.86E-01	4.33E-01	-3.42E-02	3.33E-01
		468.07		48.10	4.33E-01		3.41E-02	2.07E-01
	HG-203	279.19		77.30	4.52E-01	4.52E-01	-5.74E-02	2.20E-01
	TL-204	374.74		94.11	1.02E-01	1.02E-01	3.74E-02	4.92E-02
		899.15		99.16	1.19E-01		-3.71E-02	5.62E-02
		911.74		91.10	1.97E-01		3.76E-01	9.47E-02
	BI-207	569.67		97.72	1.04E-01	1.04E-01	5.14E-02	4.95E-02
		1063.62		74.90	1.43E-01		-9.08E-02	6.64E-02
+	TL-208	583.14	*	30.22	5.14E-01	2.49E-01	1.36E+00	2.50E-01
		860.37		4.48	2.57E+00		6.68E-01	1.22E+00
		2614.66	*	35.85	2.49E-01		8.46E-01	1.04E-01
	BI-210M	262.00		45.00	1.90E-01	1.90E-01	-1.53E-02	9.27E-02
		300.00		23.00	4.46E-01		2.32E-01	2.18E-01
+	PB-210	46.50	*	4.25	3.21E+00	3.21E+00	4.63E+00	1.58E+00
	PB-211	404.84		2.90	3.26E+00	3.26E+00	-3.84E+00	1.57E+00
		831.96		2.90	3.66E+00		-3.92E-02	1.72E+00
+	BI-212	727.17	*	11.80	1.14E+00	1.14E+00	1.06E+00	5.49E-01
		1620.62		2.75	4.25E+00		1.85E+00	1.93E+00
+	PB-212	238.63	*	44.60	3.94E-01	3.94E-01	1.37E+00	1.95E-01
		300.09		3.41	3.01E+00		1.57E+00	1.47E+00
+	BI-214	609.31	*	46.30	3.63E-01	3.63E-01	4.43E+00	1.77E-01
		1120.29	*	15.10	1.31E+00		5.52E+00	6.28E-01
		1764.49	*	15.80	4.53E-01		4.83E+00	1.90E-01
		2204.22	*	4.98	2.22E+00		3.56E+00	9.75E-01
+	PB-214	295.21	*	19.19	6.54E-01	3.20E-01	4.53E+00	3.21E-01
		351.92	*	37.19	3.20E-01		4.85E+00	1.56E-01
	RN-219	401.80		6.50	1.49E+00	1.49E+00	4.66E-02	7.19E-01
	RA-223	323.87		3.88	2.33E+00	2.33E+00	2.91E-01	1.13E+00
	RA-224	240.98		3.95	3.89E+00	3.89E+00	2.34E+01	1.92E+00
	RA-225	40.00		31.00	3.21E+01	3.21E+01	2.06E+00	1.57E+01
+	RA-226	186.21	*	3.28	3.75E+00	3.75E+00	1.18E+01	1.85E+00
	TH-227	50.10		8.40	1.10E+00	1.03E+00	-6.34E-01	5.38E-01
		236.00		11.50	1.03E+00		-1.88E-01	5.08E-01
		256.20		6.30	1.38E+00		9.28E-02	6.74E-01
+	AC-228	338.32	*	11.40	1.01E+00	5.87E-01	2.21E+00	4.92E-01
		911.07	*	27.70	5.87E-01		1.41E+00	2.81E-01
		969.11	*	16.60	1.14E+00		1.19E+00	5.51E-01
	TH-230	48.44		16.90	6.00E-01	6.00E-01	-1.07E-01	2.95E-01
		62.85		4.60	2.07E+00		3.91E+00	1.02E+00
		67.67		0.37	2.23E+01		-6.37E+00	1.10E+01
	PA-231	283.67		1.60	5.58E+00	3.88E+00	2.13E+00	2.72E+00
		302.67		2.30	3.88E+00		3.18E+00	1.88E+00
	TH-231	25.64		14.70	3.63E+00	1.27E+00	9.42E-01	1.78E+00

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.27E+00	1.27E+00	-8.38E-01	6.23E-01
	PA-233	311.98		38.60	2.51E+00	2.51E+00	1.52E+00	1.22E+00
	PA-234	131.20		20.40	3.35E-01	3.35E-01	1.80E-01	1.64E-01
		733.99		8.80	1.19E+00		3.05E-01	5.62E-01
		946.00		12.00	9.89E-01		-6.57E-02	4.66E-01
	PA-234M	1001.03		0.92	1.35E+01	1.35E+01	4.10E+00	6.34E+00
+	TH-234	63.29	*	3.80	3.10E+00	3.10E+00	3.36E+00	1.53E+00
	U-235	143.76		10.50	6.65E-01	6.65E-01	3.64E-01	3.26E-01
		163.35		4.70	1.44E+00		-4.62E-02	7.02E-01
		205.31		4.70	1.91E+00		-4.99E-01	9.36E-01
+	NP-237	86.50	*	12.60	9.26E-01	9.26E-01	1.41E+00	4.58E-01
	NP-239	106.10		22.70	2.75E+11	2.75E+11	1.89E+11	1.35E+11
		228.18		10.70	7.84E+11		-1.11E+11	3.83E+11
		277.60		14.10	5.95E+11		-4.05E+11	2.89E+11
	AM-241	59.54		35.90	2.43E-01	2.43E-01	1.06E-02	1.19E-01
	AM-243	74.67		66.00	1.77E-01	1.77E-01	4.29E-01	8.77E-02
	CM-243	209.75		3.29	2.73E+00	6.05E-01	8.48E-02	1.33E+00
		228.14		10.60	7.99E-01		-1.13E-01	3.90E-01
		277.60		14.00	6.05E-01		-4.12E-01	2.94E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707078-20

HTC-A01-S005-0006-01

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

Sample Title: HTC-A01-S005-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3610

Channel								
1:	0	0	0	0	0	0	0	0
9:	19	304	269	238	251	188	174	193
17:	175	151	145	162	134	130	136	153
25:	143	160	157	143	150	143	132	149
33:	137	119	136	132	139	158	134	163
41:	181	122	157	187	178	224	299	211
49:	178	198	166	201	236	211	211	187
57:	198	228	259	255	272	237	356	438
65:	327	253	281	273	276	259	303	285
73:	291	406	661	723	875	893	390	282
81:	273	248	236	293	311	272	357	434
89:	288	268	274	300	463	393	211	171
97:	174	182	160	172	147	145	148	158
105:	190	181	153	149	147	149	163	152
113:	161	152	157	165	146	154	146	141
121:	152	163	144	154	151	159	149	158
129:	163	179	183	161	149	150	153	171
137:	134	145	160	145	146	126	138	197
145:	186	145	145	140	147	157	134	159
153:	157	178	180	154	147	124	125	147
161:	128	127	128	134	121	119	130	109
169:	127	122	157	134	113	125	115	127
177:	119	131	121	125	117	138	110	125
185:	175	369	375	178	143	128	119	111
193:	120	120	110	107	123	128	84	136
201:	110	118	123	139	125	118	106	90
209:	104	136	112	116	102	100	98	93
217:	104	96	92	113	101	89	79	100
225:	88	75	93	90	77	91	80	91
233:	80	77	92	99	104	251	434	306
241:	176	294	253	139	84	84	66	66
249:	69	72	82	67	79	67	75	73
257:	63	77	90	81	55	65	61	76
265:	59	60	74	70	70	96	101	85
273:	58	58	68	71	63	58	63	47
281:	55	87	70	64	61	64	60	67
289:	61	50	65	64	69	110	403	492
297:	189	59	46	75	66	68	53	61
305:	39	48	45	43	51	55	47	66
313:	48	57	46	39	52	52	52	56
321:	54	60	43	47	45	57	66	68
329:	58	61	55	53	47	30	53	52
337:	72	95	127	74	51	43	33	41
345:	50	45	48	53	41	79	268	771
353:	639	146	33	45	30	33	31	42
361:	32	33	34	40	39	24	41	41

369:	33	49	46	48	44	38	51	38

Sample Title: HTC-A01-S005-0006-01

Channel								
377:	33	40	27	34	41	35	35	34
385:	22	35	36	39	44	43	38	34
393:	36	38	42	40	37	31	37	46
401:	57	35	42	31	40	50	41	32
409:	58	47	40	29	42	35	41	41
417:	45	42	26	38	29	42	31	47
425:	37	25	38	33	32	40	40	41
433:	30	28	33	37	27	31	33	34
441:	28	35	18	27	26	29	39	35
449:	31	34	24	21	25	45	29	28
457:	29	29	27	21	34	40	48	32
465:	32	18	18	22	23	28	31	32
473:	27	31	27	35	33	28	26	28
481:	28	32	29	25	27	23	27	19
489:	24	30	17	30	26	30	36	33
497:	22	14	23	31	22	22	24	23
505:	25	28	17	21	42	48	81	68
513:	37	31	17	24	18	29	21	22
521:	14	29	33	13	27	23	24	21
529:	17	21	21	23	22	29	21	28
537:	17	21	20	26	16	28	31	27
545:	26	22	24	23	20	17	33	13
553:	24	17	20	19	21	19	22	17
561:	26	25	26	26	23	20	25	23
569:	27	21	17	31	19	17	17	17
577:	19	18	18	23	19	50	107	93
585:	38	22	18	14	14	20	21	28
593:	16	15	20	17	30	16	18	17
601:	15	18	20	16	16	25	23	135
609:	496	461	144	33	25	16	12	21
617:	14	13	14	17	17	13	19	15
625:	19	13	20	11	16	15	20	11
633:	17	7	17	18	15	10	13	16
641:	7	17	19	17	13	15	17	18
649:	13	21	11	9	8	10	17	15
657:	8	16	14	21	40	41	38	23
665:	33	22	22	14	15	13	15	14
673:	15	7	12	16	13	17	15	17
681:	12	17	23	24	14	14	15	10
689:	23	16	10	21	15	23	18	10
697:	15	20	10	17	18	21	32	16
705:	17	10	15	21	13	19	22	21
713:	14	20	20	16	11	14	11	28
721:	20	17	10	16	16	18	36	31
729:	18	18	16	10	16	21	22	13
737:	11	9	12	12	17	14	14	12
745:	5	10	14	13	14	9	15	13
753:	15	15	21	19	8	12	10	18
761:	14	14	14	12	11	23	24	55
769:	46	30	10	11	11	6	16	12
777:	15	13	11	16	11	17	15	11
785:	20	30	19	12	15	15	7	18
793:	5	24	20	18	7	14	12	16

801:	13	13	15	11	11	29	11	4

Sample Title: HTC-A01-S005-0006-01

Channel								
809:	16	17	10	10	12	18	13	8
817:	14	17	15	13	16	16	18	17
825:	7	15	8	14	11	12	16	12
833:	11	7	20	12	22	15	21	19
841:	10	6	11	11	12	9	14	15
849:	15	20	17	12	10	10	15	11
857:	10	13	12	16	21	14	14	6
865:	18	12	11	17	14	11	7	16
873:	12	12	15	9	5	8	10	12
881:	8	15	15	11	12	8	9	11
889:	7	15	4	16	9	15	12	9
897:	16	16	12	5	16	14	22	9
905:	16	15	9	10	15	41	69	46
913:	24	11	0	11	11	12	13	10
921:	11	5	7	11	10	14	12	14
929:	12	10	8	12	28	32	23	13
937:	8	7	11	13	11	10	14	4
945:	12	15	14	17	13	11	20	11
953:	11	16	7	12	10	10	12	7
961:	17	12	17	22	13	12	18	29
969:	54	33	8	13	13	8	10	9
977:	10	5	10	13	6	11	12	11
985:	13	15	7	11	9	8	13	8
993:	12	10	12	8	11	5	11	17
1001:	16	14	9	16	13	10	14	5
1009:	5	9	13	10	13	10	10	9
1017:	14	5	4	7	11	10	8	10
1025:	13	9	7	9	11	12	11	12
1033:	13	8	13	8	11	7	3	12
1041:	9	10	14	15	10	13	12	8
1049:	10	5	7	12	13	12	11	6
1057:	5	10	12	10	10	8	7	8
1065:	7	6	11	12	12	12	14	11
1073:	4	7	15	6	12	14	11	10
1081:	11	16	8	9	9	7	9	11
1089:	10	9	7	15	13	12	8	6
1097:	11	10	7	7	8	17	10	12
1105:	5	11	11	9	9	7	12	9
1113:	3	6	11	7	12	18	62	121
1121:	66	34	13	14	14	9	6	13
1129:	6	10	11	10	14	11	15	14
1137:	8	15	6	10	9	15	10	6
1145:	11	5	9	6	7	7	9	10
1153:	17	14	25	19	12	9	15	10
1161:	12	9	10	10	7	14	9	12
1169:	10	15	11	13	16	12	6	7
1177:	8	13	10	12	11	7	7	13
1185:	13	6	10	11	7	12	10	7
1193:	13	7	14	13	11	11	13	17
1201:	8	8	9	10	15	11	11	15
1209:	8	13	11	9	7	5	7	13
1217:	6	8	11	13	10	16	15	15
1225:	11	7	8	7	9	10	18	11

1233:	6	11	14	9	31	38	35	17

Sample Title: HTC-A01-S005-0006-01

Channel								
1241:	10	7	5	9	15	15	6	6
1249:	3	5	10	10	14	15	11	10
1257:	13	8	6	6	8	6	4	5
1265:	3	4	8	10	5	4	4	3
1273:	10	5	7	6	6	11	9	9
1281:	15	15	8	8	8	9	7	9
1289:	8	8	3	5	8	6	8	6
1297:	4	9	7	6	9	3	11	6
1305:	8	5	4	4	5	2	7	7
1313:	7	6	7	5	6	7	3	10
1321:	12	4	5	10	4	5	7	6
1329:	2	5	7	5	9	1	6	10
1337:	8	3	8	9	9	9	5	6
1345:	4	6	7	8	7	9	4	6
1353:	8	4	3	6	2	2	9	7
1361:	6	6	8	2	8	2	5	5
1369:	5	4	6	8	7	2	10	7
1377:	22	24	11	7	4	2	3	6
1385:	8	7	5	3	3	4	8	4
1393:	4	6	3	3	4	9	8	5
1401:	10	10	5	1	7	4	20	14
1409:	11	7	6	2	6	5	7	6
1417:	6	2	1	3	0	5	6	4
1425:	6	2	6	2	2	5	4	5
1433:	5	7	3	5	2	1	4	3
1441:	5	1	3	6	3	2	1	4
1449:	3	4	5	3	5	6	2	7
1457:	9	21	85	184	206	75	20	4
1465:	3	6	2	4	7	2	6	3
1473:	3	5	5	2	4	5	3	3
1481:	4	6	8	4	5	5	4	3
1489:	5	3	3	1	3	3	3	7
1497:	3	1	2	4	5	3	2	5
1505:	2	2	5	14	11	6	6	8
1513:	6	3	5	4	5	1	1	3
1521:	5	1	4	4	5	5	7	2
1529:	3	0	8	4	6	3	4	4
1537:	5	7	6	2	5	3	8	8
1545:	1	2	2	3	4	1	2	3
1553:	3	2	2	2	6	3	1	4
1561:	4	4	2	2	3	5	2	3
1569:	3	4	6	2	5	5	4	1
1577:	5	1	6	5	3	11	8	5
1585:	5	6	7	8	3	5	5	8
1593:	4	8	4	7	6	3	6	3
1601:	5	2	3	2	3	2	1	1
1609:	2	3	0	5	3	3	2	4
1617:	3	1	4	7	1	2	4	7
1625:	3	1	3	3	6	3	5	1
1633:	3	1	3	1	5	1	5	5
1641:	3	4	9	1	2	0	0	3
1649:	1	3	2	1	2	4	1	1
1657:	2	1	7	6	4	3	3	1

1665:	3	3	0	3	3	3	0	3

Sample Title: HTC-A01-S005-0006-01

Channel								
1673:	1	4	1	6	1	0	1	0
1681:	1	3	2	2	1	0	0	0
1689:	0	5	3	5	4	2	3	3
1697:	0	1	2	0	0	2	3	1
1705:	2	1	7	2	2	1	3	1
1713:	2	2	0	3	3	3	3	3
1721:	2	3	1	2	3	1	3	12
1729:	18	9	9	1	1	0	4	2
1737:	2	2	1	1	1	0	0	4
1745:	1	0	2	0	1	2	1	1
1753:	0	0	3	0	2	1	0	4
1761:	3	10	42	75	43	12	1	1
1769:	0	1	2	1	0	1	1	1
1777:	3	4	0	2	3	1	1	2
1785:	1	2	1	3	2	0	2	1
1793:	2	2	0	1	2	4	0	4
1801:	0	2	1	3	1	3	2	2
1809:	1	0	1	2	2	0	1	1
1817:	1	3	3	0	0	1	2	1
1825:	1	3	5	1	0	2	1	1
1833:	2	1	1	0	5	0	2	1
1841:	2	2	1	3	1	6	12	6
1849:	2	4	4	0	0	1	1	2
1857:	0	3	3	1	4	0	2	1
1865:	0	0	1	0	1	3	0	0
1873:	0	2	0	1	1	1	2	0
1881:	1	0	1	0	1	0	2	1
1889:	1	1	1	3	0	2	3	1
1897:	2	1	4	3	2	2	3	2
1905:	3	2	2	0	1	1	3	1
1913:	2	2	0	1	3	1	0	1
1921:	1	1	0	1	6	1	0	1
1929:	1	1	2	2	0	2	1	0
1937:	1	1	3	3	1	1	1	5
1945:	2	1	3	1	2	2	2	3
1953:	3	1	2	0	6	0	3	1
1961:	5	2	0	0	2	2	1	1
1969:	4	2	3	1	1	3	0	4
1977:	1	0	3	2	1	1	0	2
1985:	0	1	1	1	2	3	1	1
1993:	0	2	0	1	0	0	0	1
2001:	1	2	2	2	0	1	1	1
2009:	1	1	1	3	1	2	2	0
2017:	3	0	2	3	1	1	2	2
2025:	0	0	1	0	1	0	2	2
2033:	3	1	3	2	0	2	0	1
2041:	1	1	1	0	1	1	1	0
2049:	2	2	0	1	2	1	0	0
2057:	1	0	3	2	1	0	0	3
2065:	2	0	2	0	1	1	1	0
2073:	1	0	0	1	3	1	0	1
2081:	1	0	0	1	1	1	0	0
2089:	0	1	2	0	0	1	1	1

2097:	0	2	1	0	2	2	4	0

Sample Title: HTC-A01-S005-0006-01

Channel								
2105:	1	1	2	3	2	1	0	2
2113:	2	1	0	4	6	5	3	1
2121:	1	1	0	0	1	0	1	1
2129:	0	4	3	0	1	1	0	0
2137:	0	1	0	2	2	3	1	0
2145:	0	1	0	3	0	0	0	1
2153:	1	0	0	1	2	1	0	1
2161:	1	1	1	2	2	2	1	1
2169:	1	2	0	0	1	1	1	2
2177:	2	1	1	5	0	0	0	2
2185:	1	3	1	0	2	3	0	0
2193:	0	1	2	1	1	2	1	0
2201:	3	10	18	11	5	0	3	0
2209:	1	1	2	1	1	1	2	0
2217:	0	0	2	1	0	2	1	0
2225:	0	0	0	0	1	0	2	1
2233:	0	0	3	3	0	4	0	0
2241:	1	1	0	2	1	1	1	2
2249:	2	0	0	1	1	1	0	1
2257:	1	1	3	0	2	4	2	0
2265:	2	1	0	0	2	0	0	0
2273:	0	0	2	1	0	0	2	2
2281:	1	0	3	0	0	0	0	1
2289:	0	2	0	4	3	0	0	1
2297:	0	1	0	1	2	3	0	1
2305:	1	4	0	0	2	2	0	2
2313:	1	0	0	1	1	3	0	1
2321:	2	1	0	0	1	0	0	0
2329:	2	0	1	3	1	2	1	1
2337:	1	0	0	0	0	0	2	0
2345:	1	0	2	1	0	1	1	1
2353:	2	0	3	2	0	0	0	0
2361:	4	0	1	4	1	1	1	0
2369:	0	1	2	1	2	2	0	1
2377:	2	0	1	0	1	0	0	0
2385:	1	0	1	0	1	2	1	0
2393:	1	1	0	2	1	2	0	2
2401:	1	0	0	0	0	0	1	0
2409:	2	0	1	3	0	1	0	1
2417:	0	0	0	0	1	1	0	0
2425:	0	0	1	1	0	0	0	2
2433:	2	1	0	0	0	1	1	2
2441:	1	0	1	0	2	3	6	7
2449:	4	0	1	1	2	1	2	1
2457:	1	1	0	0	0	1	0	1
2465:	0	1	0	1	0	0	0	1
2473:	0	1	0	0	0	0	1	0
2481:	0	1	0	1	1	0	0	0
2489:	0	0	2	0	1	1	2	1
2497:	0	2	1	2	0	1	0	0
2505:	0	0	0	0	0	1	0	0
2513:	0	1	0	1	1	0	0	0
2521:	2	0	0	0	0	0	0	0

2529:	0	0	0	0	1	0	0	1

Sample Title: HTC-A01-S005-0006-01

Channel								
2537:	0	0	2	0	0	0	2	4
2545:	0	2	1	1	0	0	1	0
2553:	0	0	1	0	0	0	1	0
2561:	0	0	1	0	0	0	0	0
2569:	0	0	0	1	0	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	1	0	0	0	0
2593:	0	0	2	1	0	0	0	0
2601:	1	0	0	0	1	0	1	0
2609:	1	0	4	7	14	20	10	5
2617:	0	1	0	1	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	1	0	0	0	0	0	0
2641:	1	0	1	0	1	1	2	0
2649:	1	0	0	0	0	0	1	0
2657:	0	0	1	1	0	1	0	0
2665:	0	0	1	1	0	0	0	1
2673:	0	0	1	0	0	1	1	0
2681:	0	0	1	0	1	0	0	1
2689:	0	0	1	0	0	0	1	0
2697:	0	0	0	1	0	0	1	0
2705:	0	1	0	0	0	0	0	0
2713:	0	0	0	1	0	0	0	0
2721:	0	0	2	0	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	0	1	0	0	0
2745:	0	0	0	0	0	1	0	1
2753:	0	0	0	1	1	0	0	0
2761:	2	1	2	0	0	1	0	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	1	0
2785:	2	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:	2	0	1	0	0	1	0	0
2817:	1	0	0	0	0	0	0	1
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	0	0	1	0	0	1	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	1	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	1	0	0	0	0	1	0	0
2881:	0	0	0	0	0	1	0	0
2889:	0	0	0	0	1	1	2	0
2897:	1	0	0	1	0	0	0	0
2905:	0	0	0	0	0	0	0	0
2913:	0	1	1	0	0	0	0	1
2921:	2	0	0	0	0	0	0	0
2929:	0	0	0	0	0	1	1	0
2937:	1	0	0	0	0	0	0	0
2945:	0	0	1	0	0	0	0	1
2953:	0	0	0	1	0	0	0	0

2961:	0	0	0	0	1	0	0	1

Sample Title: HTC-A01-S005-0006-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0006-01

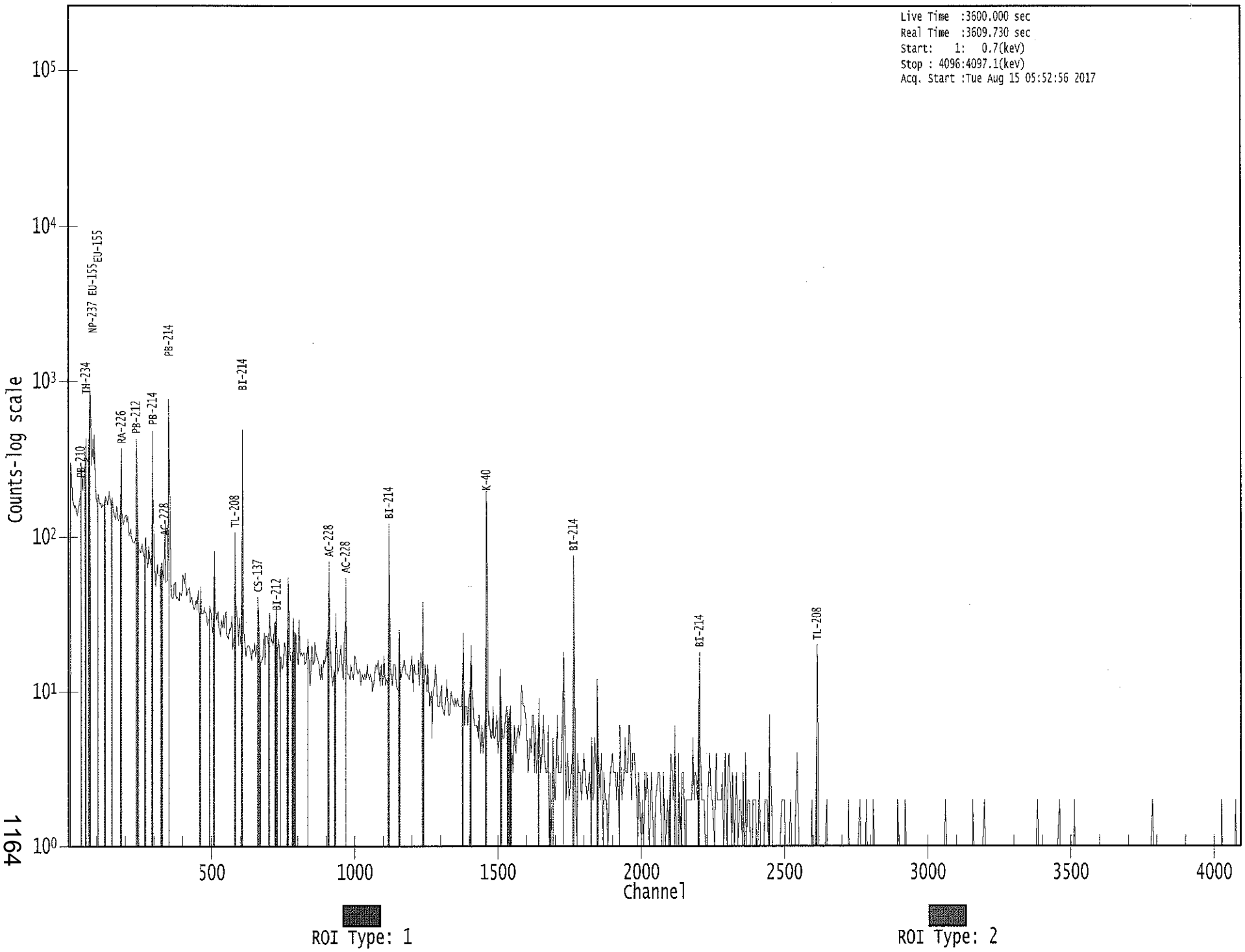
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	1	0	1	0	0	0	0
3433:	0	0	0	0	0	0	1	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	1	0	0	0
3457:	0	0	0	2	0	0	0	0
3465:	1	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	1	0
3497:	0	1	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S005-0006-01

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

0000055229.CNF



8/14

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/14/17 5:46:24 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004B.QCK

Detector: GE4
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/14/17 5:31:04 AM
Measurement Date: 8/14/17 5:31:06 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.2 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE4 [SD: 7.1760E+000+/-131.65]	1.5989E+000	-4.2360E-002 < : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

8/14

Last Results Report
8/14/17 5:46:14 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003B.QCK

Detector: GE3
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/14/17 5:30:56 AM
Measurement Date: 8/14/17 5:30:57 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3	1.8760E+003	-2.6000E-001
[SD: 2.1825E+003+/-1178.7]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/14

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Last Results Report
8/14/17 5:45:54 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001B.QCK

Detector: GE1
Geometry: <None>
Certificate: <None>
Sample ID: QA Background Ch
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 8/14/17 5:30:39 AM
Measurement Date: 8/14/17 5:30:40 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 900.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE1 [SD: 2.2767E+000+/- 1.249]	2.1678E+000	-8.7138E-002 < : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/14

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/14/17 5:26:25 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000004GAW-16C.QCK

Detector: GE4
Geometry: <None>
Certificate: GAW-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/14/17 5:10:01 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 968.4 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8359E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6067E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3318E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	2.0719E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.4579E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6793E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	3.0235E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		<Ab 8/14 : : : >
Decay corrected activity	1.2547E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Decay corrected activity	6.2860E+004	
Boundary Limits: [4.890E-002, 7.335E-002]		< : : : >
Decay corrected activity	9.0449E+004	

Boundary Limits: [7.743E-002, 1.161E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8698E+005	
Boundary Limits: [1.609E-001, 2.414E-001]		< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

8/14

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*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
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Last Results Report
8/14/17 5:25:52 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000003GAS-1602C.QC

Detector: GE3
Geometry: <None>
Certificate: GAS-1602
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/14/17 5:09:54 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 934.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9956E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6160E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3321E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8354E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.8860E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.2622E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.4804E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.8192E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5637E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Decay corrected activity	6.1032E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 9.3562E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8730E+005	
Boundary Limits: [1.600E-001, 2.400E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** 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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8/14

Last Results Report
8/14/17 5:25:03 AM

QA File: \\OR-GAMMA1\ApexRoot\Countroom\QA\D0000000001GAF-16C.QCK

Detector: GE1
Geometry: <None>
Certificate: GAF-16
Sample ID: QA Calibration C
Sample Desc: QA Count
Sample Quantity: 1.0000E+000
Sample Date: 10/1/16 12:00:00 PM
Measurement Date: 8/14/17 5:09:19 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 929.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9965E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6175E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3324E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8356E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4229E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	1.8403E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.2135E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7055E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5120E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.7942E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Decay corrected activity 1.0504E+004
Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity Boundary Limits: [1.690E-002, 2.534E-002]	2.0247E+004	< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-Sigma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

****
***** G E N I E Q U A L I T Y A S S U R A N C E *****
****

Last Results Report
8/15/17 5:47:33 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: 8/15/17 5:32:19 AM
Measurement Date: 8/15/17 5:32:20 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+/- 1.249]	2.2578E+000	-1.5023E-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)

8/15

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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
8/15/17 5:47:50 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: 8/15/17 5:32:34 AM
Measurement Date: 8/15/17 5:32:36 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	1.8510E+003	-2.8108E-001
[SD: 2.1822E+003+/-1178.1]		< : : : >

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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8/15

Last Results Report
8/15/17 5:28:06 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: 8/15/17 5:12:22 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 929.1 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9976E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6180E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
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	1.4243E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8142E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.3126E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.3413E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5100E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.7611E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >
Decay corrected activity	1.0522E+004	

Boundary Limits: [8.130E-003, 1.220E-002] < : : : >

Decay corrected activity 2.0471E+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)

8/15

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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
8/15/17 5:28:31 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: 8/15/17 5:12:44 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 934.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9904E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6156E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3320E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8352E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	1.9459E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.3402E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.5008E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7410E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5704E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Decay corrected activity	5.9822E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		

Decay corrected activity 9.2696E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Decay corrected activity	1.8555E+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)