WESTON SOLUTIONS, INC.

PO# 0094759

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #17-07084-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	0032
VI	Quality Control Sample Results Summary	0049
VII	Laboratory Technician's Notes & Run Logs	0060
VIII	Analytical Data (Isotopic Uranium)	0077
IX	Analytical Data (Isotopic Thorium)	0197
X	Analytical Data (Gamma Spectroscopy)	0317
	Last Page Number	1078

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 17-07084

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	JGB	Sample Log-In
		8-21-17	NJL	Data Compilation
		8/21/17	[illegible]	First Technical Data Review
		8/22/17	[illegible]	Second Technical Data Review
		9/6/17	[illegible]	Data Entry/Electronic Deliverable
		9/6/17	[illegible]	Case Narrative
		9/13/17	KBS	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: [signature] 9/13/17

Laboratory Manager Date

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

17-07084
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-S006-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	17:00	1	16 oz Poly Jar	N	958.7 g
	HTC-A01-S006-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	16:57	1	16 oz Poly Jar	N	923.7 g
	HTC-A01-S006-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	16:54	1	16 oz Poly Jar	N	964.4 g
	HTC-A01-S006-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	16:51	1	16 oz Poly Jar	N	898.4 g
	HTC-A01-S006-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	16:48	1	16 oz Poly Jar	N	984.5 g
	HTC-A01-S006-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	16:45	1	16 oz Poly Jar	N	1012.1 g
	HTC-A01-S007-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:21	1	16 oz Poly Jar	N	880.6 g
	HTC-A01-S007-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:18	1	16 oz Poly Jar	N	821.5 g
	HTC-A01-S007-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:15	1	16 oz Poly Jar	N	985.0 g
	HTC-A01-S007-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:12	1	16 oz Poly Jar	N	996.5 g
	HTC-A01-S007-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:09	1	16 oz Poly Jar	N	1078.2 g
	HTC-A01-S007-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:06	1	16 oz Poly Jar	N	1041.1 g
	HTC-A01-S007-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:03	1	16 oz Poly Jar	N	1019.3 g
	HTC-A01-S007-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	09:00	1	16 oz Poly Jar	N	994.7 g
	HTC-A01-S008-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:21	1	16 oz Poly Jar	Y	1073.1 g
	HTC-A01-S008-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:21	1	16 oz Poly Jar	N	958.3 g
	HTC-A01-S008-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:18	1	16 oz Poly Jar	N	1047.0 g
	HTC-A01-S008-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:15	1	16 oz Poly Jar	N	918.7 g
	HTC-A01-S008-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:12	1	16 oz Poly Jar	N	949.7 g
	HTC-A01-S008-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:09	1	16 oz Poly Jar	N	1022.7 g
4	HTC-A01-S008-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:06	1	16 oz Poly Jar	N	1071.6 g
5	HTC-A01-S008-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:03	1	16 oz Poly Jar	N	1018.8 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

0005

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

CHAIN OF CUSTODY RECORD

Case #: 445
Contact Name: Patrick Buster
Contact Phone: 903-348-3917

17-07084
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
6	HTC-A01-S008-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/13/2017	08:00	1	16 oz Poly Jar	N	1053.5 g
7&9	HTC-A02-S001-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:44	1	16 oz Poly Jar	Y	883.9 g
10	HTC-A02-S001-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:44	1	16 oz Poly Jar	N	878.1 g
11	HTC-A02-S001-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:41	1	16 oz Poly Jar	N	911.5 g
12	HTC-A02-S001-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:38	1	16 oz Poly Jar	N	938.7 g
13	HTC-A02-S001-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:35	1	16 oz Poly Jar	N	959.9 g
14	HTC-A02-S001-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:32	1	16 oz Poly Jar	N	909.3 g
15	HTC-A02-S001-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:29	1	16 oz Poly Jar	N	897.7 g
16	HTC-A02-S001-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	10:26	1	16 oz Poly Jar	N	880.7 g
17	HTC-A02-S002-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:57	1	16 oz Poly Jar	N	882.4 g
18	HTC-A02-S002-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:54	1	16 oz Poly Jar	N	969.6 g
19	HTC-A02-S002-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:51	1	16 oz Poly Jar	N	975.0 g
20	HTC-A02-S002-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:48	1	16 oz Poly Jar	N	886.3 g
	HTC-A02-S002-2430-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:45	1	16 oz Poly Jar	N	946.8 g
	HTC-A02-S002-3036-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:42	1	16 oz Poly Jar	N	1097.2 g
	HTC-A02-S002-3642-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:39	1	16 oz Poly Jar	N	1119.5 g
	HTC-A02-S002-4248-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	11:36	1	16 oz Poly Jar	N	1014.8 g
	HTC-A02-S003-0006-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:21	1	16 oz Poly Jar	Y	880.1 g
	HTC-A02-S003-0006-02	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:21	1	16 oz Poly Jar	N	863.7 g
	HTC-A02-S003-0612-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:18	1	16 oz Poly Jar	N	856.7 g
	HTC-A02-S003-1218-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:15	1	16 oz Poly Jar	N	830.1 g
	HTC-A02-S003-1824-01	Gamma Spec (Modified), Isotopic Th and U	Soil/Rock/Slag	5/15/2017	12:12	1	16 oz Poly Jar	N	708.9 g

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

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

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

0006

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07084
		Lab Deadline	8/10/2017
		Analysis	UUISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	59	L1.4
	05	52	L1.4
	06	45	L1.4
	07	75	L1.4
	08	87	L1.4
	09	87	L1.4
	10	83	L1.4
	11	55	L1.4
	12	65	L1.4
Fraction 08 is MS of fraction 07. Fraction 09 is MSD of fraction 07.	13	47	L1.4
	14	46	L1.4
	15	47	L1.4
	16	46	L1.4
	17	88	L1.4
	18	43	L1.4
	19	41	L1.4
	20	55	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1230	Key Sey	7-27-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1135	Key Sey	7-28-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Convey	7/28/17 1135
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Convey	8/9/17 1100
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-9-17 1100
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-17-17 1008
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	1038
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	0775
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		

Printed: 7/19/2017 9:27 AM

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	17-07084
		Lab Deadline	8/10/2017
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report on dry weight basis.	04	59	L1.4
	05	52	L1.4
	06	45	L1.4
	07	75	L1.4
	08	87	L1.4
	09	87	L1.4
	10	83	L1.4
	11	55	L1.4
	12	65	L1.4
Fraction 08 is MS of fraction 07. Fraction 09 is MSD of fraction 07.	13	47	L1.4
	14	46	L1.4
	15	47	L1.4
	16	46	L1.4
	17	88	L1.4
	18	43	L1.4
	19	41	L1.4
	20	55	L1.4

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1230	Ky Sej	7.27.17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1135	Ky Sej	7.28.17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	7/28/17 1135
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/9/17 1100 8/9/17 Jacot
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-9-17 1100
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-9-17 0800
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/17 0800
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/17/17	1242
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		

Printed: 7/19/2017 9:27 AM

EBERLINE ANALYTICAL Oak Ridge Laboratory	**Internal Chain of Custody**	Work Order #	**17-07084**
		Lab Deadline	**See Comments**
		Analysis	**Gamma - Level 4**
		Sample Matrix	**SO**

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Re-Analysis: 2Fractions 04-07 & 10-20 only: 21 day ingrowth: Report Ac228, Bi212, Cs137, K40, Pa234m, Pb212, Ra224, Ra226 from Bi214/Pb214, Ra228 from Ac228, Tl208, Th234 positives. Report on dry weight basis.	04	59	L1.4
	05	52	L1.4
	06	45	L1.4
	07	75	L1.4
	10	83	L1.4
	11	55	L1.4
	12	65	L1.4
	13	47	L1.4
	14	46	L1.4
~~Original Lab Deadline: 08/15/17~~ EGT 07/18/17	15	47	L1.4
~~Rerun Lab Deadline: 08/15/17 Fractions 04-07 & 10-20 only:~~	16	46	L1.4
~~Quick Count: Report Ac228, Bi212/214, Cs137, K40, Pa234m,~~	17	88	L1.4
~~Pb212/214, Ra224, Ra226 from 186 keV peak, Ra228 from~~	18	43	L1.4
~~Ac228, Tl208, Th234 & positives. Report on "AS IS" basis.~~	19	41	L1.4
	20	55	L1.4

	Location (circle one)					Technician Initials	
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1230	Kay Seay	7-22-17
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1135	Kay Seay	7-28-17
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 7/28/17	1135
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/19/17	0740
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		

Printed: 7/19/2017 9:04 AM

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	17-07084
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
94759	Case #445	H	08/10/2017	08/14/2017	08/15/2017

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma	ThISO	UUISO																					Ttl
01	LCS	07/19/17	SO	L1.4	X	X	X																					3
02	BLANK	07/19/17	SO	L1.4	X	X	X																					3
03	DUP	07/19/17	SO	L1.4	X	X	X																					3
04	HTC-A01-S008-3036-01	05/13/17 08:06	SO	L1.4	X	X	X																					3
05	HTC-A01-S008-3642-01	05/13/17 08:03	SO	L1.4	X	X	X																					3
06	HTC-A01-S008-4248-01	05/13/17 08:00	SO	L1.4	X	X	X																					3
07	HTC-A02-S001-0006-01	05/15/17 10:44	SO	L1.4	X	X	X																					3
08	HTC-A02-S001-0006-01 MS	05/15/17 10:44	SO	L1.4		X	X																					2
09	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	SO	L1.4		X	X																					2
10	HTC-A02-S001-0006-02	05/15/17 10:44	SO	L1.4	X	X	X																					3
11	HTC-A02-S001-0612-01	05/15/17 10:41	SO	L1.4	X	X	X																					3
12	HTC-A02-S001-1218-01	05/15/17 10:38	SO	L1.4	X	X	X																					3
13	HTC-A02-S001-1824-01	05/15/17 10:35	SO	L1.4	X	X	X																					3
14	HTC-A02-S001-2430-01	05/15/17 10:32	SO	L1.4	X	X	X																					3
15	HTC-A02-S001-3036-01	05/15/17 10:29	SO	L1.4	X	X	X																					3
16	HTC-A02-S001-3642-01	05/15/17 10:26	SO	L1.4	X	X	X																					3
17	HTC-A02-S002-0006-01	05/15/17 11:57	SO	L1.4	X	X	X																					3
18	HTC-A02-S002-0612-01	05/15/17 11:54	SO	L1.4	X	X	X																					3
19	HTC-A02-S002-1218-01	05/15/17 11:51	SO	L1.4	X	X	X																					3
20	HTC-A02-S002-1824-01	05/15/17 11:48	SO	L1.4	X	X	X																					3
		Totals Per Analysis (non QA samples)			15	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

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

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

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

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

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

0011

Printed: 7/19/2017 8:57 AM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 17-07084

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS NON-AQUEOUS

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

WERE SAMPLES:

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

WERE CHAIN OF CUSTODY SEALS:

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

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

REMARKS: _____

SIGNATURE: _____ DATE: 7-18-17

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

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

EBS-OR-42657

September 14, 2017

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

CASE NARRATIVE
Work Order # 17-07084-OR

SAMPLE RECEIPT

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

CLIENT ID	LAB ID	CLIENT ID	LAB ID
HTC-A01-S008-3036-01	17-07084-04	HTC-A02-S001-1824-01	17-07084-13
HTC-A01-S008-3642-01	17-07084-05	HTC-A02-S001-2430-01	17-07084-14
HTC-A01-S008-4248-01	17-07084-06	HTC-A02-S001-3036-01	17-07084-15
HTC-A02-S001-0006-01	17-07084-07	HTC-A02-S001-3642-01	17-07084-16
HTC-A02-S001-0006-01 MS	17-07084-08	HTC-A02-S002-0006-01	17-07084-17
HTC-A02-S001-0006-01 MSD	17-07084-09	HTC-A02-S002-0612-01	17-07084-18
HTC-A02-S001-0006-02	17-07084-10	HTC-A02-S002-1218-01	17-07084-19
HTC-A02-S001-0612-01	17-07084-11	HTC-A02-S002-1824-01	17-07084-20
HTC-A02-S001-1218-01	17-07084-12		

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-238 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the 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-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery. Results for the Uranium-234 and Uranium-238 matrix spike and matrix spike duplicate demonstrated an acceptable percent recovery.

ISOTOPIC THORIUM

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

Samples demonstrated acceptable results for all Thorium determinations. The Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated acceptable results. Chemical recovery was acceptable for all samples. Results for the Thorium-228, Thorium-230 and Thorium-232 duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery. Results for the Thorium-228 matrix spike demonstrated a high percent recovery. Results for the Thorium-230 matrix spike demonstrated a low percent recovery. Results for the Thorium-232 matrix spike demonstrated an acceptable percent recovery. Results for the Thorium-228 matrix spike duplicate demonstrated a high percent recovery. Results for the Thorium-230 and Thorium-232 matrix spike duplicate demonstrated an acceptable percent recovery. Due to the positive nature of the matrix spiked sample with Thorium-230 activity, resolution of the matrix spike additions were problematic.

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 Radium-226 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:	17-07084
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											
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Cobalt-60	EPA 901.1 Modified	1.24E+02	7.50E+00	9.83E+00	1.31E+00	pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	8.12E+01	9.92E+00	1.08E+01	1.60E+00	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	-6.21E-02	1.59E-01	1.59E-01	1.67E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	-1.49E-01	3.07E-01	3.07E-01	3.89E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	3.90E-02	6.08E-02	6.08E-02	1.07E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	1.95E-02	3.03E-02	3.03E-02	5.32E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	-1.32E-01	2.94E-01	2.94E-01	4.52E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	-3.72E+00	4.68E+00	4.68E+00	5.22E+00	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	2.20E-02	3.66E-02	3.66E-02	6.03E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	-1.40E-01	4.55E-01	4.55E-01	6.59E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	3.90E-02	6.08E-02	6.08E-02	1.07E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	-6.21E-02	1.59E-01	1.59E-01	1.67E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	5.26E-01	4.05E-01	4.06E-01	6.79E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	4.62E-02	7.59E-02	7.59E-02	1.38E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.77E+00	2.20E-01	2.38E-01	3.80E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.21E+00	4.46E-01	4.50E-01	6.87E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.13E+00	1.63E-01	1.73E-01	2.20E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	4.59E-02	5.19E-02	5.20E-02	8.37E-02	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.14E+01	2.28E+00	2.53E+00	8.74E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	3.45E+00	5.02E+00	5.02E+00	7.90E+00	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.84E+00	1.86E-01	2.09E-01	2.34E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	4.17E+00	1.40E+00	1.42E+00	2.65E+00	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.13E+00	1.63E-01	1.73E-01	2.20E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.77E+00	2.20E-01	2.38E-01	3.80E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.56E+00	1.25E+00	1.25E+00	1.67E+00	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.51E+00	1.98E-01	2.13E-01	1.12E-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

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:	**17-07084**
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
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.69E+00	2.19E-01	2.35E-01	4.25E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.02E+00	5.14E-01	5.17E-01	7.98E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.10E+00	1.69E-01	1.78E-01	2.27E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	-2.15E-02	5.36E-02	5.36E-02	7.72E-02	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.10E+01	2.32E+00	2.56E+00	1.17E+00	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	3.47E+00	4.79E+00	4.80E+00	7.90E+00	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.76E+00	1.82E-01	2.03E-01	2.21E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	4.97E+00	1.58E+00	1.60E+00	2.54E+00	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.10E+00	1.69E-01	1.78E-01	2.27E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.69E+00	2.19E-01	2.35E-01	4.25E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.91E+00	1.28E+00	1.28E+00	1.72E+00	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.67E+00	2.07E-01	2.24E-01	1.68E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.82E+00	3.16E-01	3.30E-01	4.41E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	9.36E-01	5.73E-01	5.75E-01	8.99E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.04E+00	1.73E-01	1.81E-01	2.38E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	8.37E-02	6.79E-02	6.80E-02	1.16E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.12E+01	2.54E+00	2.77E+00	1.08E+00	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	2.44E+00	6.86E+00	6.86E+00	1.11E+01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.46E+00	1.96E-01	2.10E-01	2.97E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.88E+01	2.33E+00	2.52E+00	3.43E+00	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.04E+00	1.73E-01	1.81E-01	2.38E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.82E+00	3.16E-01	3.30E-01	4.41E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.10E+00	1.30E+00	1.31E+00	2.18E+00	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.36E+00	2.75E-01	2.83E-01	4.96E-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:	**17-07084**
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
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.26E+00	2.33E-01	2.42E-01	3.77E-01	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.01E+00	5.70E-01	5.73E-01	1.00E+00	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.05E+00	1.87E-01	1.94E-01	7.74E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	5.02E-02	7.11E-02	7.11E-02	1.15E-01	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.46E+01	2.85E+00	3.12E+00	1.16E+00	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	3.63E+00	5.87E+00	5.87E+00	1.01E+01	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.36E+00	1.92E-01	2.04E-01	2.95E-01	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.99E+01	2.35E+00	2.56E+00	3.43E+00	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.05E+00	1.87E-01	1.94E-01	7.74E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.26E+00	2.33E-01	2.42E-01	3.77E-01	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.66E+00	1.64E+00	1.64E+00	2.73E+00	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.29E+00	2.66E-01	2.74E-01	4.84E-01	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	2.17E-01	7.57E-01	7.58E-01	1.04E+00	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	-3.50E-02	1.44E+00	1.44E+00	1.93E+00	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	2.94E+01	1.82E+00	2.36E+00	7.69E-01	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	-1.81E-02	8.23E-02	8.23E-02	2.89E-01	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.59E+00	2.15E+00	2.15E+00	3.53E+00	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	1.39E+01	1.72E+01	1.72E+01	2.87E+01	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	2.10E-03	1.27E-01	1.27E-01	5.45E-01	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	5.57E+01	6.02E+00	6.67E+00	6.79E+00	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	2.94E+01	1.82E+00	2.36E+00	7.69E-01	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	2.17E-01	7.57E-01	7.58E-01	1.04E+00	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	2.62E+01	4.22E+00	4.43E+00	6.04E+00	pCi/g
17-07084-07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	3.18E-01	4.80E-01	4.81E-01	5.05E-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:	**17-07084**
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
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	2.34E-01	3.35E-01	3.35E-01	5.07E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.44E-01	6.46E-01	6.46E-01	9.60E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	2.71E+01	1.37E+00	1.96E+00	5.31E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	1.15E-02	4.85E-02	4.85E-02	1.54E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.82E+00	1.34E+00	1.34E+00	2.13E+00	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	3.78E+01	1.56E+01	1.57E+01	2.47E+01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	-5.24E+00	5.29E-01	5.94E-01	2.94E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	4.68E+01	4.50E+00	5.10E+00	4.88E+00	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	2.71E+01	1.37E+00	1.96E+00	5.31E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	2.34E-01	3.35E-01	3.35E-01	5.07E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	2.13E+01	3.22E+00	3.40E+00	4.31E+00	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	4.52E-01	2.85E-01	2.86E-01	2.60E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	8.07E-01	3.72E-01	3.74E-01	8.63E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	-1.47E-02	7.22E-01	7.22E-01	1.21E+00	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.72E+01	1.01E+00	1.34E+00	5.52E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	-1.31E-01	1.30E-01	1.30E-01	1.74E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	1.34E+01	2.41E+00	2.51E+00	2.98E+00	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	2.67E+01	1.23E+01	1.24E+01	2.80E+01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	-1.76E-01	1.06E-01	1.07E-01	4.10E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	3.98E+01	4.43E+00	4.88E+00	5.34E+00	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.72E+01	1.01E+00	1.34E+00	5.52E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	8.07E-01	3.72E-01	3.74E-01	8.63E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.94E+01	3.76E+00	3.89E+00	5.68E+00	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.01E+00	2.11E-01	2.17E-01	9.89E-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:	**17-07084**
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
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	9.58E-01	4.47E-01	4.50E-01	7.42E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.66E+00	8.96E-01	9.00E-01	1.39E+00	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	3.79E+00	4.33E-01	4.75E-01	4.24E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	1.60E-01	1.12E-01	1.13E-01	1.74E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.09E+01	2.81E+00	3.01E+00	1.60E+00	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	-2.43E-01	1.25E+01	1.25E+01	1.72E+01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.42E+00	2.09E-01	2.21E-01	3.88E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	2.08E+01	2.72E+00	2.92E+00	3.97E+00	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	3.79E+00	4.33E-01	4.75E-01	4.24E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	9.58E-01	4.47E-01	4.50E-01	7.42E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	6.02E+00	2.67E+00	2.69E+00	4.35E+00	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.26E+00	2.90E-01	2.97E-01	6.98E-02	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.54E+00	2.26E-01	2.40E-01	2.82E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	9.07E-01	4.68E-01	4.70E-01	7.97E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.46E+00	1.75E-01	1.90E-01	4.17E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	5.34E-03	5.56E-02	5.56E-02	8.44E-02	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	3.31E+01	3.46E+00	3.86E+00	1.62E+00	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	5.90E+00	5.63E+00	5.64E+00	9.24E+00	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.56E+00	1.73E-01	1.91E-01	3.20E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	6.03E+00	1.81E+00	1.83E+00	3.69E+00	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.46E+00	1.75E-01	1.90E-01	4.17E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.54E+00	2.26E-01	2.40E-01	2.82E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.74E+00	1.50E+00	1.51E+00	2.50E+00	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.42E+00	2.08E-01	2.20E-01	1.26E-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:	**17-07084**
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
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.05E+00	2.78E-01	2.83E-01	6.59E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	5.73E-01	5.77E-01	5.78E-01	9.54E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.22E+00	1.91E-01	2.01E-01	2.56E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	2.08E-02	7.02E-02	7.02E-02	1.10E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.62E+01	2.99E+00	3.28E+00	1.09E+00	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	-5.36E-01	7.88E+00	7.88E+00	1.15E+01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.35E+00	1.81E-01	1.94E-01	3.24E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.84E+01	2.28E+00	2.47E+00	3.40E+00	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.22E+00	1.91E-01	2.01E-01	2.56E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.05E+00	2.78E-01	2.83E-01	6.59E-01	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	2.31E+00	1.73E+00	1.73E+00	2.86E+00	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.06E+00	2.22E-01	2.28E-01	1.20E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.14E+00	3.67E-01	3.72E-01	7.87E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	4.76E-01	8.94E-01	8.94E-01	1.31E+00	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	2.48E+00	3.54E-01	3.76E-01	4.23E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	6.93E-02	1.03E-01	1.03E-01	1.54E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.44E+01	3.12E+00	3.36E+00	1.12E+00	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	4.16E+00	1.23E+01	1.23E+01	1.82E+01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.35E+00	2.09E-01	2.21E-01	3.52E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.82E+01	2.51E+00	2.67E+00	3.84E+00	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	2.48E+00	3.54E-01	3.76E-01	4.23E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.14E+00	3.67E-01	3.72E-01	7.87E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	2.07E+00	1.98E+00	1.98E+00	3.31E+00	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.24E+00	2.91E-01	2.98E-01	3.60E-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

0023

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:	**17-07084**
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
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	5.98E-01	5.92E-01	5.93E-01	8.95E-01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	6.23E-01	1.16E+00	1.16E+00	1.73E+00	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	5.69E+01	2.89E+00	4.10E+00	9.98E-01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	1.93E-02	8.47E-02	8.47E-02	2.65E-01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	5.76E+00	2.08E+00	2.10E+00	3.21E+00	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	6.47E+01	2.31E+01	2.34E+01	3.62E+01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	-1.12E+01	1.06E+00	1.20E+00	5.19E-01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.02E+02	9.21E+00	1.06E+01	8.53E+00	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	5.69E+01	2.89E+00	4.10E+00	9.98E-01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	5.98E-01	5.92E-01	5.93E-01	8.95E-01	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	4.27E+01	5.73E+00	6.13E+00	7.22E+00	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	5.52E-01	2.07E-01	2.09E-01	2.87E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	7.56E-01	2.35E-01	2.38E-01	4.05E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	2.16E-01	3.81E-01	3.81E-01	6.18E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	8.52E-01	1.60E-01	1.66E-01	2.35E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	8.90E-03	5.24E-02	5.24E-02	7.97E-02	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	1.78E+01	2.08E+00	2.27E+00	7.14E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	2.70E+00	5.42E+00	5.43E+00	8.49E+00	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	9.46E-01	1.22E-01	1.31E-01	1.74E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.31E+01	1.60E+00	1.74E+00	2.43E+00	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	8.52E-01	1.60E-01	1.66E-01	2.35E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	7.56E-01	2.35E-01	2.38E-01	4.05E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	1.16E+00	1.01E+00	1.01E+00	1.37E+00	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	8.62E-01	1.51E-01	1.57E-01	9.03E-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: 17-07084
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
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.63E+00	3.56E-01	3.66E-01	1.08E+00	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.15E+00	1.01E+00	1.01E+00	1.66E+00	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.99E+00	3.45E-01	3.59E-01	4.91E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	2.86E-02	4.89E-02	4.89E-02	1.67E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	2.52E+01	3.22E+00	3.47E+00	1.45E+00	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	3.15E-01	1.20E+01	1.20E+01	1.70E+01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.36E+00	1.97E-01	2.09E-01	4.02E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	1.85E+01	2.52E+00	2.69E+00	3.83E+00	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	1.99E+00	3.45E-01	3.59E-01	4.91E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.63E+00	3.56E-01	3.66E-01	1.08E+00	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	2.72E+00	1.72E+00	1.72E+00	2.59E+00	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	8.94E-01	2.54E-01	2.58E-01	7.58E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.54E+00	2.46E-01	2.59E-01	4.94E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Bismuth-212	EPA 901.1 Modified	8.92E-01	5.24E-01	5.26E-01	8.83E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Bismuth-214	EPA 901.1 Modified	2.91E+00	2.83E-01	3.20E-01	2.49E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Cesium-137	EPA 901.1 Modified	3.34E-02	6.19E-02	6.19E-02	9.68E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Potassium-40	EPA 901.1 Modified	3.07E+01	3.27E+00	3.63E+00	1.64E+00	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	7.72E+00	6.18E+00	6.19E+00	1.06E+01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Lead-212	EPA 901.1 Modified	1.51E+00	1.81E-01	1.96E-01	3.84E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Radium-224	EPA 901.1 Modified	7.47E+00	1.73E+00	1.77E+00	4.36E+00	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Radium-226	EPA 901.1 Modified	2.91E+00	2.83E-01	3.20E-01	2.49E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Radium-228	EPA 901.1 Modified	1.54E+00	2.46E-01	2.59E-01	4.94E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Thorium-234	EPA 901.1 Modified	3.40E+00	1.80E+00	1.80E+00	2.93E+00	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/18/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.17E+00	1.96E-01	2.05E-01	2.27E-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:	**17-07084**
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
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Actinium-228	EPA 901.1 Modified	1.58E+00	2.53E-01	2.66E-01	4.56E-01	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Bismuth-212	EPA 901.1 Modified	1.20E+00	5.92E-01	5.96E-01	9.13E-01	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Bismuth-214	EPA 901.1 Modified	1.37E+00	1.86E-01	1.99E-01	2.36E-01	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Cesium-137	EPA 901.1 Modified	1.64E-02	5.89E-02	5.89E-02	9.13E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Potassium-40	EPA 901.1 Modified	3.14E+01	3.24E+00	3.62E+00	1.83E+00	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Protactinium-234m	EPA 901.1 Modified	5.36E-01	6.36E+00	6.36E+00	9.67E+00	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Lead-212	EPA 901.1 Modified	1.58E+00	1.75E-01	1.93E-01	2.85E-01	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Radium-224	EPA 901.1 Modified	3.82E+00	1.47E+00	1.49E+00	3.23E+00	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Radium-226	EPA 901.1 Modified	1.37E+00	1.86E-01	1.99E-01	2.36E-01	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Radium-228	EPA 901.1 Modified	1.58E+00	2.53E-01	2.66E-01	4.56E-01	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Thorium-234	EPA 901.1 Modified	2.96E+00	1.98E+00	1.98E+00	3.27E+00	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/19/2017	17-07084	Thallium-208	EPA 901.1 Modified	1.26E+00	1.79E-01	1.90E-01	2.07E-01	pCi/g
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	4.85E+00	1.74E-01			pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	5.95E+00	8.71E-01	1.04E+00	8.05E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	-1.14E-02	3.63E-02	3.63E-02	1.20E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	7.88E-01	2.82E-01	2.92E-01	1.96E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	6.57E-01	2.29E-01	2.37E-01	1.30E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.48E+00	3.63E-01	3.89E-01	1.22E-01	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.03E+00	2.69E-01	2.86E-01	8.03E-02	pCi/g
17-07084-07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.04E-01	1.04E-01	1.05E-01	1.44E-01	pCi/g
17-07084-08	MS	HTC-A02-S001-0006-01 MS	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	6.59E+00	1.48E+00	1.61E+00	1.73E-01	pCi/g
17-07084-09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	6.32E+00	1.31E+00	1.44E+00	9.76E-02	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	4.34E-01	2.29E-01	2.33E-01	1.30E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	8.98E-01	3.19E-01	3.30E-01	1.54E-01	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.98E+00	5.33E-01	5.65E-01	1.32E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.62E+00	4.38E-01	4.64E-01	6.58E-02	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.43E+00	3.98E-01	4.20E-01	8.96E-02	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	8.07E-01	2.40E-01	2.52E-01	7.90E-02	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.35E+00	4.58E-01	4.76E-01	1.91E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	5.87E-01	3.48E-01	3.53E-01	2.47E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.30E+00	3.62E-01	3.82E-01	1.12E-01	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.27E+00	3.57E-01	3.76E-01	7.93E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/17/2017	17-07084	Thorium-228	EPA 907.0 Modified	1.33E+00	3.59E-01	3.80E-01	9.43E-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

0026

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:	17-07084
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
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	5.39E+00	1.46E-01			pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	6.55E+00	9.43E-01	1.24E+00	1.03E-01	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	2.25E-01	1.31E-01	1.34E-01	1.07E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	8.27E-01	2.71E-01	2.90E-01	1.20E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	8.65E-01	2.60E-01	2.81E-01	1.13E-01	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.33E+00	3.25E-01	3.64E-01	7.17E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	9.44E-01	2.45E-01	2.72E-01	6.78E-02	pCi/g
17-07084-07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	9.78E+00	1.97E+00	2.31E+00	9.85E-02	pCi/g
17-07084-08	MS	HTC-A02-S001-0006-01 MS	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.26E+01	2.64E+00	3.06E+00	1.54E-01	pCi/g
17-07084-09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.43E+01	2.74E+00	3.26E+00	1.08E-01	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	3.14E+01	7.40E+00	8.36E+00	1.27E-01	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.79E+01	3.53E+00	4.17E+00	9.73E-02	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	5.05E+00	1.11E+00	1.28E+00	9.58E-02	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.17E+00	3.38E-01	3.68E-01	6.87E-02	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.21E+00	3.45E-01	3.77E-01	6.50E-02	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.74E+00	3.94E-01	4.49E-01	5.02E-02	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.19E+00	4.08E-01	4.34E-01	1.69E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	3.83E+01	1.08E+01	1.18E+01	1.49E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	2.26E+00	5.22E-01	5.92E-01	7.83E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	3.27E+00	7.03E-01	8.10E-01	9.07E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/17/2017	17-07084	Thorium-230	EPA 907.0 Modified	1.32E+00	3.47E-01	3.84E-01	8.99E-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

0027

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:	17-07084
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
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	4.85E+00	1.74E-01			pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	5.88E+00	8.62E-01	1.01E+00	5.84E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	3.22E-02	5.71E-02	5.72E-02	1.03E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	6.38E-01	2.33E-01	2.40E-01	1.36E-01	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	8.06E-01	2.46E-01	2.56E-01	7.23E-02	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.60E+00	3.70E-01	3.96E-01	8.20E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	9.77E-01	2.51E-01	2.65E-01	6.15E-02	pCi/g
17-07084-07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.39E-01	1.00E-01	1.01E-01	8.62E-02	pCi/g
17-07084-08	MS	HTC-A02-S001-0006-01 MS	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	5.40E+00	1.23E+00	1.32E+00	1.06E-01	pCi/g
17-07084-09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	5.82E+00	1.21E+00	1.31E+00	8.88E-02	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	6.73E-01	2.88E-01	2.94E-01	9.42E-02	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.14E+00	3.57E-01	3.70E-01	8.85E-02	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.49E+00	4.21E-01	4.41E-01	1.12E-01	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.39E+00	3.83E-01	4.02E-01	8.60E-02	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	9.19E-01	2.89E-01	3.00E-01	1.18E-01	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	7.81E-01	2.27E-01	2.37E-01	7.20E-02	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.14E+00	3.94E-01	4.07E-01	1.41E-01	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	5.71E-01	3.28E-01	3.32E-01	2.14E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.37E+00	3.61E-01	3.81E-01	6.21E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.02E+00	2.99E-01	3.12E-01	6.30E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/17/2017	17-07084	Thorium-232	EPA 907.0 Modified	1.08E+00	3.01E-01	3.16E-01	7.15E-02	pCi/g

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

EBERLINE SERVICES

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

Eberline Analytical
Final Report of Analysis

Report To:		Work Order Details:	
Smita Sumbaly		SDG:	17-07084
Weston Solutions, Inc.		Purchase Order:	0094759
1090 King Georges Post Rd Suite 201		Analysis Category:	ENVIRONMENTAL
Edison, NJ 08837		Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	7.31E+00	2.63E-01			pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	6.05E+00	8.67E-01	9.69E-01	7.89E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	4.87E-02	6.56E-02	6.57E-02	1.03E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	7.97E-01	2.19E-01	2.27E-01	6.80E-02	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	7.74E-01	2.06E-01	2.13E-01	7.39E-02	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.19E+00	2.63E-01	2.76E-01	5.40E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.10E+00	3.14E-01	3.23E-01	8.64E-02	pCi/g
17-07084-07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.64E+01	1.93E+00	2.26E+00	6.86E-02	pCi/g
17-07084-08	MS	HTC-A02-S001-0006-01 MS	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	2.32E+01	2.80E+00	3.26E+00	9.29E-02	pCi/g
17-07084-09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	2.29E+01	2.78E+00	3.22E+00	6.23E-02	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	2.44E+01	2.99E+00	3.46E+00	4.83E-02	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.86E+01	2.26E+00	2.62E+00	6.75E-02	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	3.00E+00	4.76E-01	5.22E-01	6.50E-02	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.02E+00	2.31E-01	2.42E-01	5.09E-02	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.05E+00	2.54E-01	2.64E-01	7.53E-02	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.88E+00	3.39E-01	3.65E-01	7.79E-02	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	9.32E-01	2.14E-01	2.24E-01	5.18E-02	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	4.06E+01	6.22E+00	6.86E+00	9.51E-02	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.71E+00	3.33E-01	3.55E-01	6.73E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	3.07E+00	4.96E-01	5.42E-01	6.13E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/17/2017	17-07084	Uranium-233/234	EPA 908.0 Modified	1.19E+00	2.65E-01	2.78E-01	6.60E-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:	17-07084
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
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	4.14E-01	1.69E-01	1.72E-01	8.53E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	0.00E+00	5.58E-02	5.58E-02	1.21E-01	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	7.72E-02	7.08E-02	7.10E-02	6.67E-02	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	5.29E-02	5.74E-02	5.75E-02	6.92E-02	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	9.76E-02	7.80E-02	7.83E-02	8.36E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.08E-01	9.91E-02	9.94E-02	9.31E-02	pCi/g
17-07084-07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.06E+00	2.64E-01	2.75E-01	5.89E-02	pCi/g
17-07084-08	MS	HTC-A02-S001-0006-01 MS	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.44E+00	3.40E-01	3.55E-01	8.46E-02	pCi/g
17-07084-09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	2.01E+00	4.19E-01	4.43E-01	9.64E-02	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	2.09E+00	4.16E-01	4.42E-01	7.49E-02	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.40E+00	3.15E-01	3.30E-01	5.80E-02	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	2.76E-01	1.21E-01	1.23E-01	6.08E-02	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	6.12E-02	5.83E-02	5.84E-02	6.28E-02	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.19E-01	8.73E-02	8.77E-02	7.41E-02	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.35E-01	8.40E-02	8.45E-02	6.07E-02	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	8.52E-02	6.81E-02	6.84E-02	7.30E-02	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	3.44E+00	7.46E-01	7.85E-01	1.41E-01	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	1.48E-01	9.19E-02	9.25E-02	6.63E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	2.14E-01	1.12E-01	1.13E-01	6.01E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/17/2017	17-07084	Uranium-235/236	EPA 908.0 Modified	5.99E-02	6.45E-02	6.46E-02	8.64E-02	pCi/g

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

0030

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:	**17-07084**
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
17-07084-01	LCS	KNOWN	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	7.08E+00	2.55E-01			pCi/g
17-07084-01	LCS	SPIKE	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	6.26E+00	8.90E-01	9.96E-01	5.48E-02	pCi/g
17-07084-02	MBL	BLANK	07/19/17 00:00	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	2.70E-02	4.58E-02	4.59E-02	7.77E-02	pCi/g
17-07084-03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	9.27E-01	2.39E-01	2.48E-01	5.38E-02	pCi/g
17-07084-04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	7.94E-01	2.09E-01	2.16E-01	7.36E-02	pCi/g
17-07084-05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.13E+00	2.53E-01	2.66E-01	6.75E-02	pCi/g
17-07084-06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.04E+00	3.05E-01	3.14E-01	1.23E-01	pCi/g
17-07084-07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.62E+01	1.90E+00	2.23E+00	4.75E-02	pCi/g
17-07084-08	MS	HTC-A02-S001-0006-01 MS	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	2.34E+01	2.82E+00	3.27E+00	6.22E-02	pCi/g
17-07084-09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	2.20E+01	2.68E+00	3.10E+00	5.41E-02	pCi/g
17-07084-10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	2.50E+01	3.06E+00	3.54E+00	4.81E-02	pCi/g
17-07084-11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.97E+01	2.37E+00	2.76E+00	5.36E-02	pCi/g
17-07084-12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	3.05E+00	4.80E-01	5.27E-01	4.91E-02	pCi/g
17-07084-13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	8.59E-01	2.09E-01	2.18E-01	6.68E-02	pCi/g
17-07084-14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	9.87E-01	2.44E-01	2.54E-01	5.22E-02	pCi/g
17-07084-15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.89E+00	3.38E-01	3.64E-01	6.13E-02	pCi/g
17-07084-16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	9.48E-01	2.15E-01	2.26E-01	5.16E-02	pCi/g
17-07084-17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	4.03E+01	6.18E+00	6.81E+00	8.63E-02	pCi/g
17-07084-18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.54E+00	3.10E-01	3.29E-01	4.67E-02	pCi/g
17-07084-19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	2.96E+00	4.83E-01	5.27E-01	4.85E-02	pCi/g
17-07084-20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	7/18/2017	8/17/2017	17-07084	Uranium-238	EPA 908.0 Modified	1.03E+00	2.42E-01	2.53E-01	6.97E-02	pCi/g

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

EBERLINE SERVICES

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

SECTION V

ANALYTICAL STANDARD

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

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Description of Solution

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

b. Chemical form: Uranyl Nitrate in H2O

c. Carrier content: None

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

Radioimpurities

Refer to attached technical data sheet

Radioactive Daughters

Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration: ±3.0%

b. Random uncertainty in assay: ±0.0%

c. Random uncertainty in weighing(s): ±2.0%

d. Total uncertainty at the 99% confidence level: ±3.6%

NIST Traceability

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

Leak Test(s)

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

Notes

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

ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 7/12/2017 0:00

SOLUTION REFERENCE #: IPL 479-50

SOLUTION #: U-8

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

Radionuclide: $^{234,235,238}U$

Reference Date: 1/1/1995 0:00

Certified Activity: 8.016E+00 µCi

Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution

Uranyl nitrate in dilute HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 479-50 **Date** 7/12/2017 0:00
Solution # U-8a

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

Radionuclide of Interest $^{234, 235, 238}U$
Parent Solution Conc. 1.7796E+04 dpm/ml
Reference Date 1/1/1995 0:00

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:
Dilution Solvent Used 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 4.0000 ml
Total Activity: 7.1182E+04 dpm
Final Volume: 1000.00 ml
Final Activity Concentration: 7.1182E+01 dpm/ml

NOTES:

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

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

Isotopic ratios from manufacturer's data sheet

Expiration Date: June 28, 2018

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

QC Approval _____ Date: 7/25/17

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

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

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

Method of measurement (see reverse of this certificate)

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

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

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

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

Not measured

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

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

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

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

Approved Signatory

Roger Wiltshire

Project Ref. AE2315

Roger Wiltshire

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

CURRENT DATE: 11/7/2016 0:00

SOLUTION REFERENCE #: AEA/Amersham 92/232/67

SOLUTION #: U-10

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

Radionuclide: ^{232}U

Reference Date: 3/1/2000 0:00

Certified Activity: 9.760E-01 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross: Weight, Grams

Empty Ampoule: Weight, Grams

Solution Net: Weight, Grams

Total Activity in Ampoule: 0.9760 µCi

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 2M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

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

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

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

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

Reference Date 3/1/2000 0:00

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

Dilution Instructions:

Dilution Solvent Used 2M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

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

Expiration Date: October 7, 2017

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

QC Approval _____ Date: 11/10/16

Th-18

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

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

Physical Description:

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

Radioimpurities:

None detected (daughters in equilibrium)

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

Method of Calibration:

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

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

Uncertainty of Measurement:

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

Notes:

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

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 #: IPE 867-54 SOLUTION #: Th-18

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

Radionuclide: ^{229}Th

Reference Date: 1/15/2002 0:00

Certified Activity: 1.013E+00 µCi

Certified Concentration: µCi per gram

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

Chemical Composition of Standard Solution

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

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

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

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

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

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

EBERLINE SERVICES

QUALITY CONTROL PROGRAM
MP-009

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

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

MP-009
Solution Reference # IPL 867-54

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

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

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

Reference Date 1/15/2002 0:00

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

Dilution Instructions:

Dilution Solvent Used 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2490E+01 dpm/ml

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

NOTES:

Expiration Date: August 11, 2018

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

QC Approval _____ Date: 8/16/17

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

Reference Date 11/1/1991 0:00

Parent Solution Conc. 2.30E+03 dpm/ml

Chemical Composition of Standard Solution

$^{230}Th(NO_3)_4$ in 0.1N HNO_3

Dilution Instructions:

Dilution Solvent Used 0.1N HNO_3

SECONDARY VOLUMETRIC DILUTION

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

Final Activity Concentration: 2.2999E+01 dpm/ml

NOTES:

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

Expiration Date: February 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.

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

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	1.978E+03	0.1	1.8	3.6	4π LS
Cd-109	88.0	4.614E+02	7.668E+04	2.837E+03	0.5	2.0	4.1	HPGe
Co-57	122.1	2.717E+02	2.240E+03	1.917E+03	0.4	1.7	3.4	HPGe
Ce-139	165.9	1.376E+02	2.655E+03	2.124E+03	0.4	1.7	3.6	HPGe
Hg-203	279.2	4.659E+01	6.068E+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
17-07084	UUISO Apex	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		82.79%	16.02%	100.00%	3.60%	7.31E+00	2.63E-01	6.05E+00	9.69E-01	U-8a	3.20E+01	3.60E+00	5.07E-01
U-238		88.37%	15.91%	100.00%	3.60%	7.08E+00	2.55E-01	6.26E+00	9.96E-01	U-8a	3.10E+01	3.60E+00	5.07E-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)
U-234	0.18	95.03%	7.17E+00	2.58E-01	2.32E+01	3.26E+00	1.64E+01	2.26E+00	1.02E+00	U-8a	3.20E+01	3.60	5.07E-01
U-238	0.12	103.58%	6.94E+00	2.50E-01	2.34E+01	3.27E+00	1.62E+01	2.23E+00	1.02E+00	U-8a	3.10E+01	3.60	5.07E-01

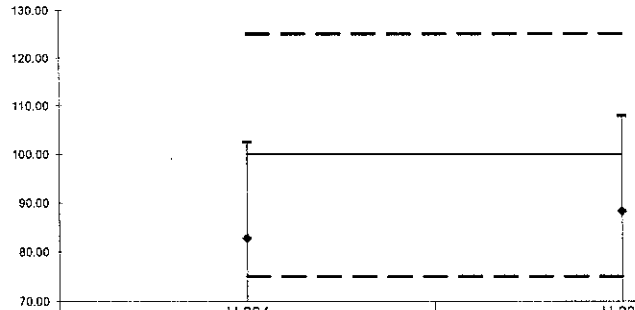
Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	0.15	2.94	7.74E-01	2.13E-01	7.97E-01	2.27E-01	0.83	OK				OK	OK
U-238	0.79	15.47	7.94E-01	2.16E-01	9.27E-01	2.48E-01	0.88	OK				OK	OK
U-235	0.52	37.29	5.29E-02	5.75E-02	7.72E-02	7.10E-02		OK				NA	OK

0050

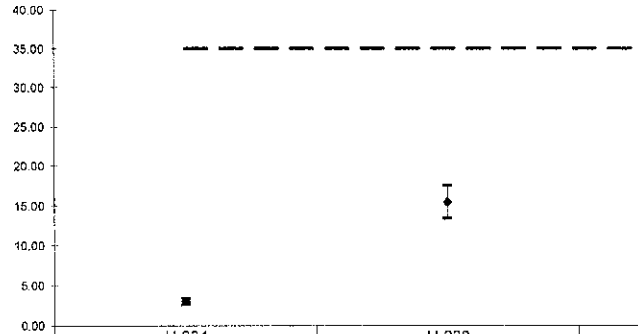
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



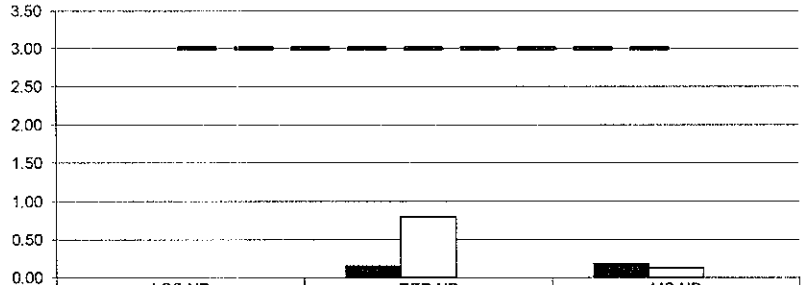
	U-234	U-238
Lower Error	63.17	68.85
Upper Error	102.40	107.88
%R	82.79	88.37
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



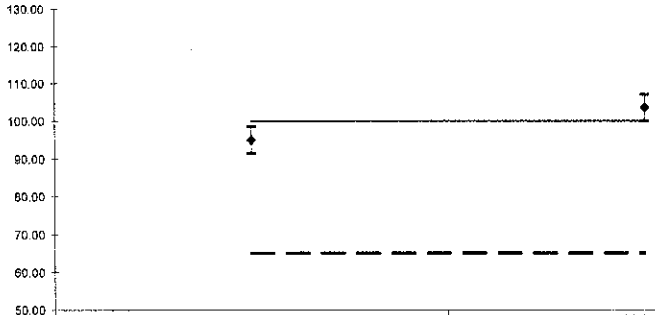
	U-234	U-238	U-235
Lower Error	3.35	17.55	55.70
Upper Error	2.53	13.38	18.87
RPD	2.94	15.47	37.29
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.15	0.18
U-238	0.00	0.79	0.12
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	91.52	100.05
Upper Error	98.55	107.10
%R	95.03	103.58
LCL	65	65
Mean	100	100
UCL	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	UUISO Apex	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		82.79%	16.02%	100.00%	3.60%	7.31E+00	2.63E-01	6.05E+00	9.69E-01	U-8a	3.20E+01	3.60E+00	5.07E-01
U-238		88.37%	15.91%	100.00%	3.60%	7.08E+00	2.55E-01	6.26E+00	9.96E-01	U-8a	3.10E+01	3.60E+00	5.07E-01

Matrix Spike Duplicate

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
U-234	0.28	92.12%	7.01E+00	2.52E-01	2.29E+01	3.22E+00	1.64E+01	2.26E+00	1.04E+00	U-8a	3.20E+01	3.60	5.06E-01
U-238	0.49	85.80%	6.79E+00	2.44E-01	2.20E+01	3.10E+00	1.62E+01	2.23E+00	1.04E+00	U-8a	3.10E+01	3.60	5.06E-01

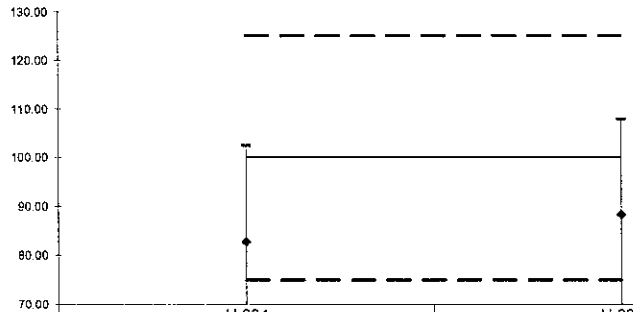
Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
U-234	0.15	2.94	7.74E-01	2.13E-01	7.97E-01	2.27E-01	0.83	OK				OK	OK
U-238	0.79	15.47	7.94E-01	2.16E-01	9.27E-01	2.48E-01	0.88	OK				OK	OK
U-235	0.52	37.29	5.29E-02	5.75E-02	7.72E-02	7.10E-02		OK				NA	OK

0052

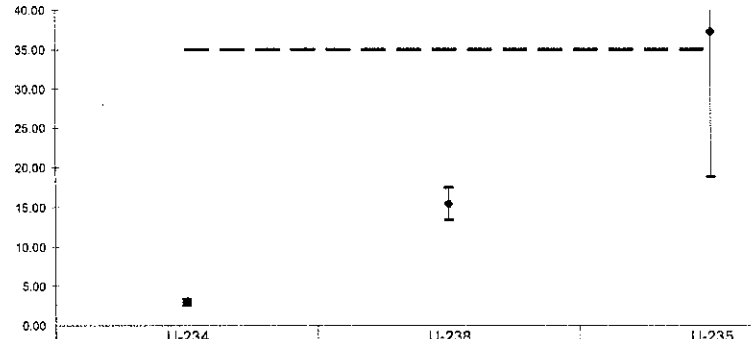
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	UUISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



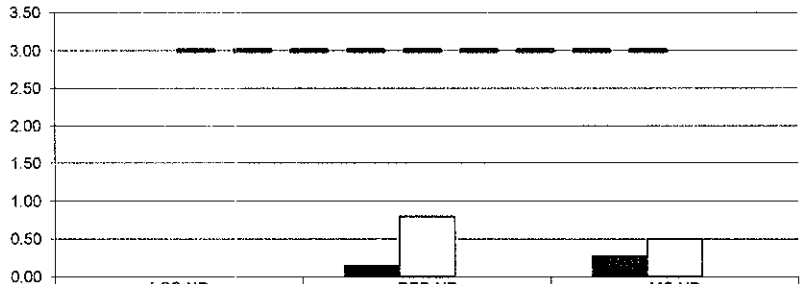
	U-234	U-238
Lower Error	63.17	68.85
Upper Error	102.40	107.88
%R	82.79	88.37
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



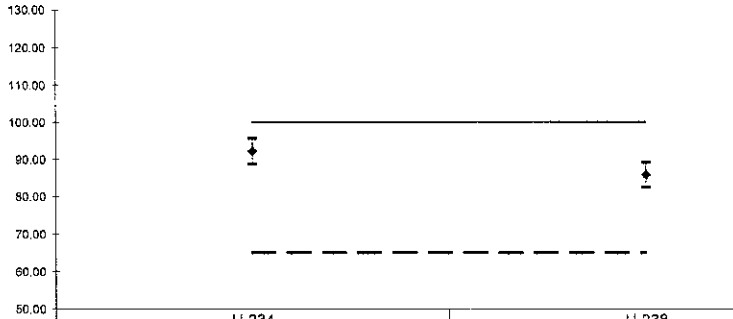
	U-234	U-238	U-235
Lower Error	3.35	17.55	55.70
Upper Error	2.53	13.38	18.87
RPD	2.94	15.47	37.29
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.00	0.15	0.28
U-238	0.00	0.79	0.49
	0.00	0.00	0.00
UCL	3	3	3

Matrix Spike % Recovery



	U-234	U-238
Lower Error	88.64	82.45
Upper Error	95.59	89.14
%R	92.12	85.80
LCL	65	65
Mean	100	100
UCL	135	135

0053

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	ThISO Apex	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		122.69%	17.41%	100.00%	3.60%	4.85E+00	1.74E-01	5.95E+00	1.04E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01
TH-230		121.42%	18.98%	100.00%	2.70%	5.39E+00	1.46E-01	6.55E+00	1.24E+00	Th-1b	2.35E+01	2.70E+00	5.09E-01
TH-232		121.31%	17.11%	100.00%	3.60%	4.85E+00	1.74E-01	5.88E+00	1.01E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01

Matrix Spike

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	2.69	151.77%	4.27E+00	1.54E-01	6.59E+00	1.61E+00	1.04E-01	1.05E-01	1.13E+00	Th-8b	1.04E+02	3.60	1.04E-01
TH-230	1.00	58.79%	4.76E+00	1.28E-01	1.26E+01	3.06E+00	9.78E+00	2.31E+00	1.13E+00	Th-1b	2.35E+01	2.70	5.09E-01
TH-232	1.46	123.18%	4.27E+00	1.54E-01	5.40E+00	1.32E+00	1.39E-01	1.01E-01	1.13E+00	Th-8b	1.04E+02	3.60	1.04E-01

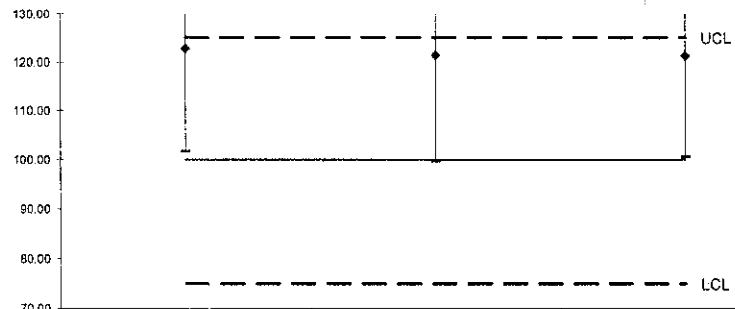
Duplicate Results / QC Summary

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU	LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
TH-228	0.69	18.23	6.57E-01	2.37E-01	7.88E-01	2.92E-01	1.23	OK				OK	OK
TH-230	0.18	4.44	8.65E-01	2.81E-01	8.27E-01	2.90E-01	1.21	OK				OK	OK
TH-232	0.94	23.30	8.06E-01	2.56E-01	6.38E-01	2.40E-01	1.21	OK				OK	OK

0054

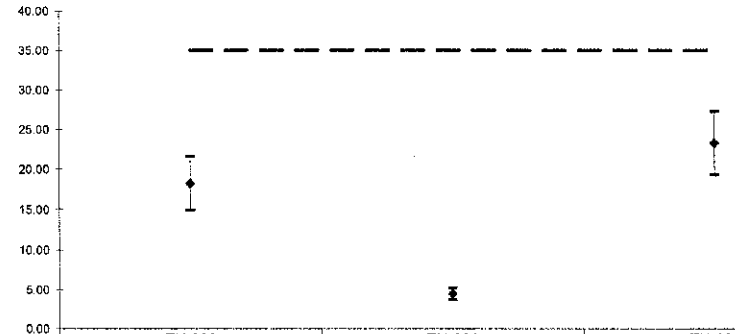
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



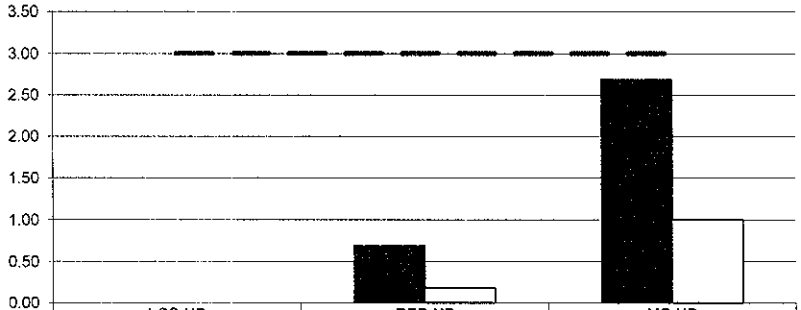
	TH-228	TH-230	TH-232
Lower Error	101.68	99.74	100.60
Upper Error	143.70	143.10	142.02
%R	122.69	121.42	121.31
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



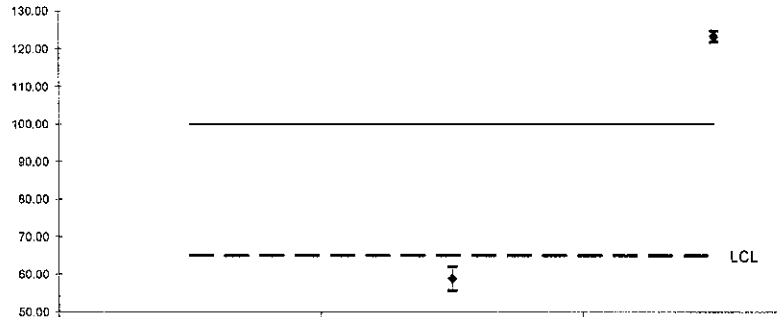
	TH-228	TH-230	TH-232
Lower Error	21.56	5.19	27.30
Upper Error	14.89	3.69	19.30
RPD	18.23	4.44	23.30
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.69	2.69
TH-230	0.00	0.18	1.00
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	150.01	55.60	121.71
Upper Error	153.53	61.98	124.65
%R	151.77	58.79	123.18
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	ThISO Apex	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		122.69%	17.41%	100.00%	3.60%	4.85E+00	1.74E-01	5.95E+00	1.04E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01
TH-230		121.42%	18.98%	100.00%	2.70%	5.39E+00	1.46E-01	6.55E+00	1.24E+00	Th-1b	2.35E+01	2.70E+00	5.09E-01
TH-232		121.31%	17.11%	100.00%	3.60%	4.85E+00	1.74E-01	5.88E+00	1.01E+00	Th-8b	1.04E+02	3.60E+00	1.04E-01

Matrix Spike Duplicate

Analyte	Normalized Difference	MS Actual % Rec	Expected MS Result	Expected MS Uncert	Actual MS Result	Actual MS CSU	Sample Result	Sample CSU	Sample Aliquot	Standard ID	Standard ACT (dpm)	Standard Error %	Standard Added (g)
TH-228	2.63	145.61%	4.27E+00	1.54E-01	6.32E+00	1.44E+00	1.04E-01	1.05E-01	1.13E+00	Th-8b	1.04E+02	3.60	1.03E-01
TH-230	0.15	93.66%	4.78E+00	1.29E-01	1.43E+01	3.26E+00	9.78E+00	2.31E+00	1.13E+00	Th-1b	2.35E+01	2.70	5.09E-01
TH-232	2.09	132.98%	4.27E+00	1.54E-01	5.82E+00	1.31E+00	1.39E-01	1.01E-01	1.13E+00	Th-8b	1.04E+02	3.60	1.03E-01

Duplicate Results

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Duplicate Result	Duplicate CSU
TH-228	0.69	18.23	6.57E-01	2.37E-01	7.88E-01	2.92E-01
TH-230	0.18	4.44	8.65E-01	2.81E-01	8.27E-01	2.90E-01
TH-232	0.94	23.30	8.06E-01	2.56E-01	6.38E-01	2.40E-01

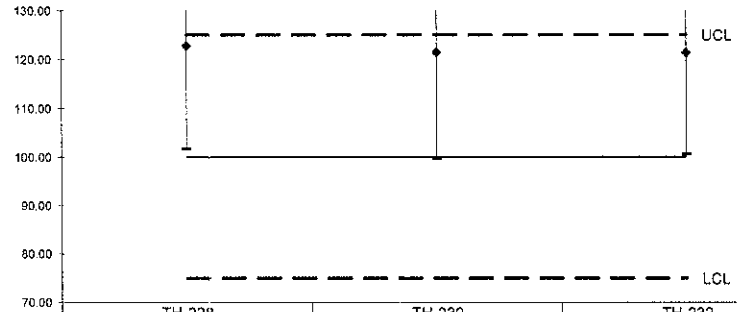
QC Summary

LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
1.23	OK				OK	OK
1.21	OK				OK	OK
1.21	OK				OK	OK

0056

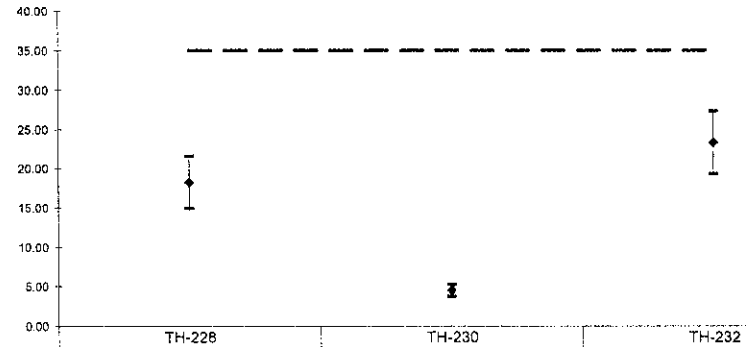
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	ThISO Apex	1	pCi	g	Weston Solutions, Inc.

LCS % Recovery



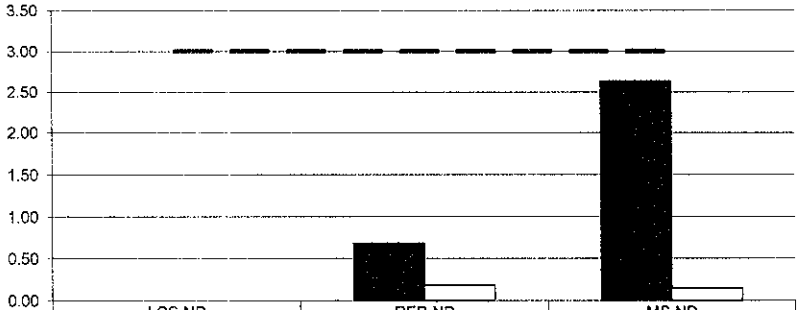
	TH-228	TH-230	TH-232
Lower Error	101.68	99.74	100.60
Upper Error	143.70	143.10	142.02
%R	122.69	121.42	121.31
LCL	75	75	75
Mean	100	100	100
UCL	125	125	125

Replicate Sample RPD



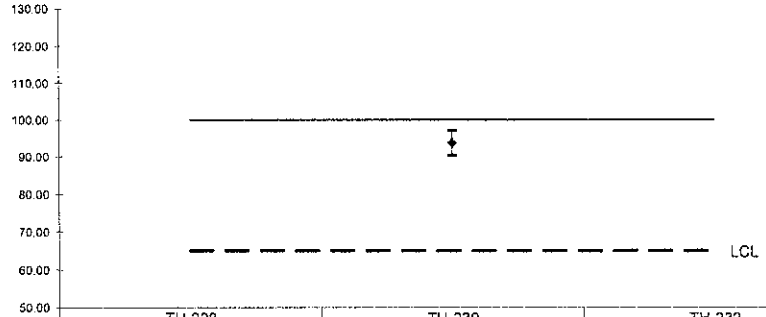
	TH-228	TH-230	TH-232
Lower Error	21.56	5.19	27.30
Upper Error	14.89	3.69	19.30
RPD	18.23	4.44	23.30
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.00	0.69	2.63
TH-230	0.00	0.18	0.15
UCL	3	3	3

Matrix Spike % Recovery



	TH-228	TH-230	TH-232
Lower Error	144.02	90.28	131.52
Upper Error	147.21	97.05	134.45
%R	145.61	93.66	132.98
LCL	65	65	65
Mean	100	100	100
UCL	135	135	135

0057

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	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		91.63%	7.93%	100.00%	3.89%	1.35E+02	5.27E+00	1.24E+02	9.83E+00	GAS-1402	1.35E+02	5.27E+00	7.36E+02
CS-137		96.21%	13.25%	100.00%	4.01%	8.44E+01	3.38E+00	8.12E+01	1.08E+01	GAS-1402	8.44E+01	3.38E+00	7.36E+02

Matrix Spike

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

Replicate Sample

Analyte	Normalized Difference	RPD	Original Result	Original CSU	Replicate Result	Replicate CSU
AC-228	0.46	4.56	1.69E+00	2.35E-01	1.77E+00	2.38E-01
K-40	0.23	1.97	2.10E+01	2.56E+00	2.14E+01	2.53E+00
RA-226	0.19	2.15	1.10E+00	1.78E-01	1.13E+00	1.73E-01

QC Summary

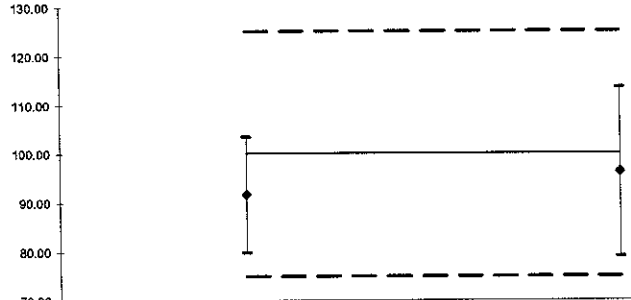
LCS Relative Bias	LCS % R		MS % R	MS ND	Rep RPD	Rep ND
0.92	OK		<CS-137	AC-228>	OK	
0.96	OK		<CO-60	K-40>	OK	OK
				RA-226>	OK	OK

0058

Version

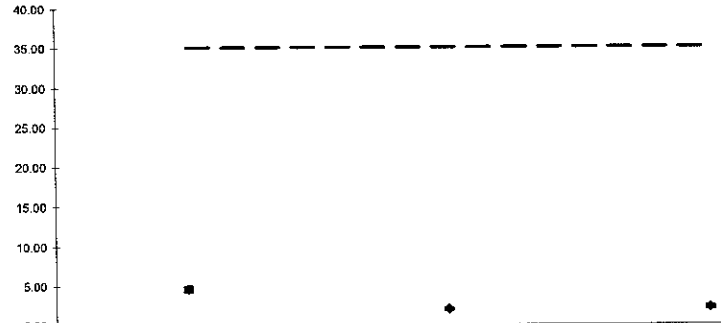
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
17-07084	Gamma	2	pCi	g	Weston Solutions, Inc.

LCS % Recovery



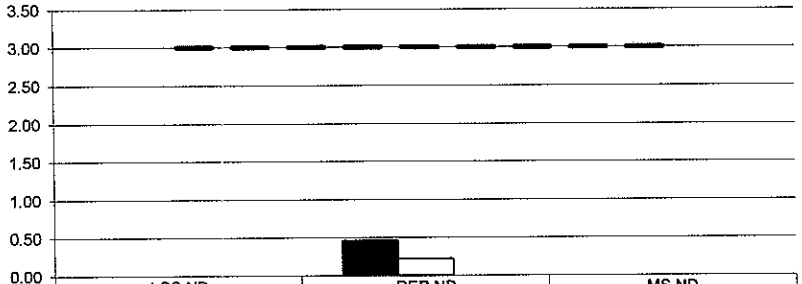
	CO-60	CS-137
Lower Error	79.81	78.95
Upper Error	103.46	113.47
%R	91.63	96.21
LCL	75	75
Mean	100	100
UCL	125	125

Replicate Sample RPD



	AC-228	K-40	RA-226
Lower Error	4.88	2.09	2.32
Upper Error	4.25	1.85	1.98
RPD	4.56	1.97	2.15
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
CO-60	0.00	0.46	0.00
CS-137	0.00	0.23	0.00
	0.00	0.00	0.00
UCL	3	3	3

No Matrix Spike

SECTION VII

LABORATORY TECHNICIAN'S NOTES
&
RUN LOGS

ISO-U NOTES

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	17-07084
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 06:46	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS

J Harvey
8/9/17

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	17-07084
		Analysis Code	UUISO
		Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 06:46	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/16/17 17:48	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.

8/16/17

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	17-07084
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 06:46	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/16/17 17:48	CHEM	JDEMELAS	Added concentrated HCl to sample beakers and heated to dryness; Added 20 ml 8N HCL to samples and transferred to new, labeled C-Tubes, rinsing with 8N HCl to bring volume to ~35 ml; Preconditioned resin columns with 35 ml 8N HCl; Centrifuged samples and loaded onto columns; Rinsed C-Tubes with 20 ml 8N HCl, centrifuged as needed and loaded onto columns; Rinsed columns with 35 ml 8N HCl – 0.1N NH4I, 35 ml of 6.5N HCl – 0.04N HF, and 10 ml of 6.5N HCl; Eluted Uranium with 50 ml of 0.5N HCl into clean, labeled 100 ml beakers; Dried-down samples on hotplate; Dissolved samples in ~10 ml of concentrated HCl; Transferred to new, labeled C-Tubes with DI H2O. Set samples aside for later precipitation and filtering.
3	08/17/17 05:01	CHEM	TSMITH	Followed steps 12.1.7 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Uranium)

8/17/17
JM

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07084	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/9/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/9/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/9/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/9/2017
017344P	Anion Exchange Resin	Reagent Grade	JDEMELAS	8/16/2017
019175S	HCl - HF	6.5N - 0.04N	JDEMELAS	8/16/2017
019067D01	Hydrochloric Acid	0.5N	JDEMELAS	8/16/2017
019168S	Hydrochloric Acid	6.5N	JDEMELAS	8/16/2017
019180S	Hydrochloric Acid	8N	JDEMELAS	8/16/2017
019181S	HCl - NH4I	8N - 0.1M	JDEMELAS	8/16/2017
019134P	Hydrochloric Acid	Reagent Grade	JDEMELAS	8/16/2017
019163S	Carbon substrate	Solution	TSMITH	8/17/2017
019063P	Ethyl Alcohol	1	TSMITH	8/17/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/17/2017
018890S	Neodymium Carrier	1 mg/ml	TSMITH	8/17/2017
019038P	Titanous Chloride	Reagent Grade	TSMITH	8/17/2017

Alpha #3

Date	Sample	Client	Time	Analyst	Initials
8/14/17	1707150A (3-4)	UCOR	1510	2h50	Th229	KB
8/14/17	1707150A (1-4)	UCOR	1511	2h50	UU	KB
8/16/17	1708021A (7-19)	TBE	1803	2h50	Rob	KB
8/16/17	1708022A (1-7)	TBE	1804	2h50	Rob	KB
8/17	Daily Pulse	NA	0520	1	NA	C
8/17	1708023A (1-13)	TBE	0637	2h5	Rob	C
8/17	1707084A (7-16)	Weston	0824	2h5	Th230	C
8/17	1707084A (17-20)	Weston	0972	2h5	Th230	C
8/17	1707085A (1-10)	Weston	0972	2h5	Th230	C
8/17/17	1708022A (1-7)	TBE	1119	2h50	Th	KB
8/17/17	Regentest R102ANT (1)	Lab	1119	1 hr	UUANT	KB
8/17/17	1707085A (17-18)	Weston	1121	2h50	Th	KB
8/17/17	1707085A (19-20)	Weston	1234	2h50	Th	KB
8/17/17	1707083A (1-12)	Weston	1237	2h50	UU	KB
8/17/17	1707083A (19-20)	Weston	1415	2h50	UU	KB
8/17/17	1707084A (1-8)	Weston	1414	2h50	UU	KB
8/17/17	1707084A (9-20)	Weston	1634	2h50	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	17-07084
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 06:45	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS

JHarvey
8/9/17

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	17-07084
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/09/17 06:45	PREP	JHARVEY	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- SUBMITTED SAMPLES TO SEPARATIONS
2	08/16/17 10:49	CHEM	TSMITH	Followed steps 12.2.1 to 12.2.5 in AP-005 . (Column separaiton for Thorium by Eichrom Anion resin)
3	08/17/17 04:59	CHEM	TSMITH	Followed steps 12.2.5 to 12.4.5 in AP-005 . (Precipitated and filtered samples for Thorium)

8-17-17
JR

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
17-07084	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
019093P	Hydrofluoric Acid	Reagent Grade	JHARVEY	8/9/2017
018971P	Nitric Acid	Reagent Grade	JHARVEY	8/9/2017
019133P	Perchloric Acid	Reagent Grade	JHARVEY	8/9/2017
018550P	Sulfuric Acid	Reagent Grade	JHARVEY	8/9/2017
017344P	Anion Exchange Resin	Reagent Grade	TSMITH	8/16/2017
019179S	Nitric Acid	8N	TSMITH	8/16/2017
019180S	Hydrochloric Acid	8N	TSMITH	8/16/2017
019134P	Hydrochloric Acid	Reagent Grade	TSMITH	8/16/2017
019106S	Cerrium Carrier	0.1mg/ml	TSMITH	8/17/2017
019063P	Ethyl Alcohol	1	TSMITH	8/17/2017
019093P	Hydrofluoric Acid	Reagent Grade	TSMITH	8/17/2017
019163S	Carbon substrate	Solution	TSMITH	8/17/2017

Alpha #1

Date	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/16/17	1708048A(1-4)	USA	1214	24:00	TH	KB
8/16/17	1707150A(1-2)	UWM	1214	24:00	TH	KB
8/16/17	1708021A (1-6)	TDE	1757	24:00	Rock	KB
8/17	Daily Pulse	LAB	0520	1	[illegible]	—
8/17	1707084A(1-6)	Weston	0824	24	THZ	—

Alpha #3

Date	Sample	Client	Fraction	CT Time	Analyst	Ver
8/14/17	1707150A (3-4)	UWOR	1510	24:00 –	Th 224	KB
8/14/17	1707150A (1-4)	UWOR	1511	24:00 –	UU	KB
8/16/17	1708021A (7-19)	TBE	1803	24:00 –	Rob	KB
8/16/17	1708022A (1-7)	TBE	1804	24:00 –	Rob	KB
8/17	Daily Pulse	NA	0520	–	NA	C
8/17	1708023A (1-13)	TBE	0637	24:5 –	Rob	C
8/17	1707084A (7-16)	Weston	0829	24:5 –	Thiso	C
8/17	1707084A (17-20)	Weston	0972	24:5 –	Thiso	C
8/17	1707085A (1-10)	Weston	0972	24:5 –	Thiso	C

GAMMA NOTES

GE1

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/18	1707167-03	MRI	0633	15	Be	[illegible]
8/18	1707127-05	Weston	0650	1h	✓	[illegible]
8/18	1707127-07	Weston	0751	1h	✓	[illegible]
8/18	1707127-10	Weston	0854	1h	✓	[illegible]
8/18	1707084-03	Weston	1230	1h	✓	[illegible]
8/18	1707084-04	Weston	1334	1h	✓	[illegible]
8/18/17	1708088-03	Caberra	1211	5 mins	Rn^{222}	KB
8/18/17	1708088-04	Caberra	1217	5 mins	Rn^{222}	KB
8/18/17	1708088-07	Caberra	1224	5 mins	Rn^{222}	KB
8/18/17	1707084-10	Weston	1438	1h	γ	KB
8/18/17	1707084-13	Weston	1539	1h	γ	KB
8/18/17	1707084-16	Weston	1640	1h	γ	KB
8/18/17	1707084-19	Weston	1742	1h	γ	KB
8/19/17	Daily Blank	Lab	0602	15 mins	γ	KB
8/19/17	GAF 16	Lab	0618	15 min	γ	KB
8/19/17	1707084-20	Weston	0637	1h	γ	KB

GE3

DATE	Sample #	Client	Load Time	CT Time	Analysis	Tech
8/17	1707128-05	Weston	0947	1h	✓	—
8/17	1707128-06	Weston	1044	1h	✓	—
8/17	1707128-09	Weston	1145	1h	✓	—
8/17/17	1707128-12	Weston	1245	1hr	✓	KB
8/17	1707128-15	Weston	1346	1h	✓	KB
8/17/17	1707128-18	Weston	1446	1hr	✓	KB
8/17/17	1708064-05	WCR	1547	2hr	✓	KB
8/17/17	1708077-01	Smoky Mt Solutions	1748	30min	✓	KB
8/17/17	1708077-03	Smoky Mt. Solutions	1820	2hrs	✓	KB
8/18	~~GRS~~/LOR	LAB	0520	15	✓	—
8/18	Dunlap	LAB	0542	15	✓	
8/18	1707164-02	STOPNP	0600	15	✓	—
8/18	1707167-01	MRA	0617	15	✓	—
8/18	~~1707167 04~~	MRA	0634	15	✓	—
8/18	1707127-06	Weston	0650	1h	✓	—
8/18	1707127-08	Weston	0852	1h	✓	—
8/18	1707127-02	Weston	0854	1h	✓	—
8/18	1707084-05	Weston	1230	1h	✓	—
8/18/18	1708088-01	Cabrera	1211	5 mins	Rn^{222}	KB
8/18/18	1708088-05	Cabrera	1217	5min	Rn^{222}	KB
8/18/17	1708088-08	Cabrera	1224	5min	Rn^{222}	KB
8/18/17	1707084-06	Weston	1336	1hr	✓	KB
8/18/17	1707084-11	Weston	1438	1hr	✓	KB
8/18/17	1707084-14	Weston	1639	1hr	✓	KB
8/18/17	1707084-17	Weston	1640	1hr	✓	KB

GE4

DATE	SAMPLE #	Client	Load Time	CT Time	Analysis	Tech
8/17/17	1708078-05	Solutient Tech	1608	1hr	✓	KB
8/17/17	1708078-06	Solutient Tech	1609	1hr	✓	KB
8/17/17	1708078-02	Solutient Tech	1710	1hr	✓	KB
8/17/17	1708064-02	UCOR	1711	4hr	✓	KB
8/18	[illegible]	LAB	0520	15	✓	[illegible]
8/18	[illegible]	LAB	0542	15	✓	[illegible]
8/18	1707164-03	STOFMD	0600	15	[illegible]	[illegible]
8/18	1707167-02	MPA	0617	15	[illegible]	[illegible]
8/18	1707127-03	Weston	0694	[illegible]	✓	[illegible]
8/18	1707127-04	Weston	0736	[illegible]	✓	[illegible]
8/18	1707127-09	Weston	0837	[illegible]	✓	—
8/18	1707127-01	Weston	0938	[illegible]	✓	—
8/18/17	1708088-02	Cabrera	1211	5mins	Rn222	KB
8/18/17	1708088-06	Cabrera	1217	5mins	Rn222	KB
8/18/17	1708088-09	Cabrera	1224	5min	Rn222	KB
8/18/17	1707084-01	Weston	1230	30mins	✓	KB
8/18/17	1707084-02	Weston	1308	1hr	✓	KB
8/18	1708088-01	Cabrera	1301	5min	Rn222	C
8/18/17	1707084-07	Weston	1411	1hr	✓	KB
8/18/17	1707084-12	Weston	1512	1hr	✓	KB
8/18/17	1707084-15	Weston	1613	1hr	✓	KB
8/18/17	1707084-18	Weston	1715	1hr	✓	KB

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

17-07084
UUISO
Run 1

Work Order	17-07084
Analysis Code	UUISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/10/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 908.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	18.32
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A01-S008-3036-01	59	05/13/17 08:06	1.0700E+00
04	DO	HTC-A01-S008-3036-01	59	05/13/17 08:06	1.0600E+00
05	TRG	HTC-A01-S008-3642-01	52	05/13/17 08:03	1.1300E+00
06	TRG	HTC-A01-S008-4248-01	45	05/13/17 08:00	1.1500E+00
07	MSO	HTC-A02-S001-0006-01	75	05/15/17 10:44	1.0300E+00
08	MS	HTC-A02-S001-0006-01	87	05/13/17 08:06	1.0200E+00
09	MSD	HTC-A02-S001-0006-01 MSD	87	05/15/17 10:44	1.0400E+00
10	TRG	HTC-A02-S001-0006-02	83	05/15/17 10:44	1.2400E+00
11	TRG	HTC-A02-S001-0612-01	55	05/15/17 10:41	1.1800E+00
12	TRG	HTC-A02-S001-1218-01	65	05/15/17 10:38	1.2300E+00
13	TRG	HTC-A02-S001-1824-01	47	05/15/17 10:35	1.1000E+00
14	TRG	HTC-A02-S001-2430-01	46	05/15/17 10:32	1.0400E+00
15	TRG	HTC-A02-S001-3036-01	47	05/15/17 10:29	1.1400E+00
16	TRG	HTC-A02-S001-3642-01	46	05/15/17 10:26	1.2400E+00
17	TRG	HTC-A02-S002-0006-01	88	05/15/17 11:57	1.3900E+00
18	TRG	HTC-A02-S002-0612-01	43	05/15/17 11:54	1.2000E+00
19	TRG	HTC-A02-S002-1218-01	41	05/15/17 11:51	1.0400E+00
20	TRG	HTC-A02-S002-1824-01	55	05/15/17 11:48	1.0500E+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.

17-07084
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	0.6098	11.2		0.00								
02	MBL	0.6086	11.1		0.00								
03	DUP	0.6096	11.2		0.00								
04	DO	0.6076	11.1		0.00								
05	TRG	0.6068	11.1		0.00								
06	TRG	0.6080	11.1		0.00								
07	MSO	0.6073	11.1		0.00								
08	MS	0.6064	11.1		0.00								
09	MSD	0.6066	11.1		0.00								
10	TRG	0.6052	11.1		0.00								
11	TRG	0.6055	11.1		0.00								
12	TRG	0.6056	11.1		0.00								
13	TRG	0.6057	11.1		0.00								
14	TRG	0.6035	11.1		0.00								
15	TRG	0.6039	11.1		0.00								
16	TRG	0.6057	11.1		0.00								
17	TRG	0.6031	11.0		0.00								
18	TRG	0.6050	11.1		0.00								
19	TRG	0.6026	11.0		0.00								
20	TRG	0.6035	11.1		0.00								

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

17-07084
UUISO
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/09/17 06:50	JHARVEY				
02	MBL			08/09/17 06:50	JHARVEY				
03	DUP			08/09/17 06:50	JHARVEY				
04	DO	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
05	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
06	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
07	MSO	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
08	MS	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
09	MSD	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
10	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
11	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
12	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
13	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
14	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
15	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
16	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
17	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
18	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
19	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				
20	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:50	JHARVEY				

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

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07084
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-234	LCS	LCS	pCi/g	6.05E+00	8.67E-01	7.89E-02	7.31E+00	82.79	OK		OK	
02	U-234	MBL	BLANK	pCi/g	4.87E-02	6.56E-02	1.03E-01					OK	OK
03	U-234	DUP	HTC-A01-S008-3036-01	pCi/g	7.97E-01	2.19E-01	6.80E-02				OK	OK	
04	U-234	DO	HTC-A01-S008-3036-01	pCi/g	7.74E-01	2.06E-01	7.39E-02					OK	
05	U-234	TRG	HTC-A01-S008-3642-01	pCi/g	1.19E+00	2.63E-01	5.40E-02					OK	
06	U-234	TRG	HTC-A01-S008-4248-01	pCi/g	1.10E+00	3.14E-01	8.64E-02					OK	
07	U-234	MSO	HTC-A02-S001-0006-01	pCi/g	1.64E+01	1.93E+00	6.86E-02					OK	
08	U-234	MS	HTC-A02-S001-0006-01	pCi/g	2.32E+01	2.80E+00	9.29E-02					OK	
09	U-234	MSD	HTC-A02-S001-0006-01 MSD	pCi/g	2.29E+01	2.78E+00	6.23E-02					OK	
10	U-234	TRG	HTC-A02-S001-0006-02	pCi/g	2.44E+01	2.99E+00	4.83E-02					OK	
11	U-234	TRG	HTC-A02-S001-0612-01	pCi/g	1.86E+01	2.26E+00	6.75E-02					OK	
12	U-234	TRG	HTC-A02-S001-1218-01	pCi/g	3.00E+00	4.76E-01	6.50E-02					OK	
13	U-234	TRG	HTC-A02-S001-1824-01	pCi/g	1.02E+00	2.31E-01	5.09E-02					OK	
14	U-234	TRG	HTC-A02-S001-2430-01	pCi/g	1.05E+00	2.54E-01	7.53E-02					OK	
15	U-234	TRG	HTC-A02-S001-3036-01	pCi/g	1.88E+00	3.39E-01	7.79E-02					OK	
16	U-234	TRG	HTC-A02-S001-3642-01	pCi/g	9.32E-01	2.14E-01	5.18E-02					OK	
17	U-234	TRG	HTC-A02-S002-0006-01	pCi/g	4.06E+01	6.22E+00	9.51E-02					OK	
18	U-234	TRG	HTC-A02-S002-0612-01	pCi/g	1.71E+00	3.33E-01	6.73E-02					OK	
19	U-234	TRG	HTC-A02-S002-1218-01	pCi/g	3.07E+00	4.96E-01	6.13E-02					OK	
20	U-234	TRG	HTC-A02-S002-1824-01	pCi/g	1.19E+00	2.65E-01	6.60E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07084-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07084
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	07/19/17 00:00	1.00E+00	115.95	0.00	0.00			
02	U-234	MBL	07/19/17 00:00	1.00E+00	107.35	0.00	0.00			
03	U-234	DUP	05/13/17 08:06	1.07E+00	140.48	0.00	0.00			
04	U-234	DO	05/13/17 08:06	1.06E+00	133.96	0.00	0.00			
05	U-234	TRG	05/13/17 08:03	1.13E+00	126.27	0.00	0.00			
06	U-234	TRG	05/13/17 08:00	1.15E+00	76.72	0.00	0.00			
07	U-234	MSO	05/15/17 10:44	1.03E+00	126.83	0.00	0.00			
08	U-234	MS	05/13/17 08:06	1.02E+00	134.88	0.00	0.00			
09	U-234	MSD	05/15/17 10:44	1.04E+00	116.53	0.00	0.00			
10	U-234	TRG	05/15/17 10:44	1.24E+00	107.02	0.00	0.00			
11	U-234	TRG	05/15/17 10:41	1.18E+00	126.45	0.00	0.00			
12	U-234	TRG	05/15/17 10:38	1.23E+00	114.75	0.00	0.00			
13	U-234	TRG	05/15/17 10:35	1.10E+00	142.74	0.00	0.00			
14	U-234	TRG	05/15/17 10:32	1.04E+00	131.59	0.00	0.00			
15	U-234	TRG	05/15/17 10:29	1.14E+00	122.23	0.00	0.00			
16	U-234	TRG	05/15/17 10:26	1.24E+00	119.65	0.00	0.00			
17	U-234	TRG	05/15/17 11:57	1.39E+00	56.23	0.00	0.00			
18	U-234	TRG	05/15/17 11:54	1.20E+00	109.74	0.00	0.00			
19	U-234	TRG	05/15/17 11:51	1.04E+00	129.52	0.00	0.00			
20	U-234	TRG	05/15/17 11:48	1.05E+00	126.15	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	08/17/17 14:15		A_Spec	Alpha_052	170	4.59 E+02	5.00 E-03	17.4
02	U-234	MBL	08/17/17 14:15		A_Spec	Alpha_053	170	2.98 E+00	6.00 E-03	15.1
03	U-234	DUP	08/17/17 14:15		A_Spec	Alpha_054	170	6.15 E+01	3.00 E-03	13.6
04	U-234	DO	08/17/17 14:15		A_Spec	Alpha_056	170	6.60 E+01	6.00 E-03	15.9
05	U-234	TRG	08/17/17 14:15		A_Spec	Alpha_057	170	1.06 E+02	2.00 E-03	16.5
06	U-234	TRG	08/17/17 14:15		A_Spec	Alpha_058	170	6.07 E+01	2.00 E-03	16.6
07	U-234	MSO	08/17/17 14:15		A_Spec	Alpha_059	170	1.44 E+03	0.00 E+00	17.8
08	U-234	MS	08/17/17 14:16		A_Spec	Alpha_060	170	1.78 E+03	9.00 E-03	14.8
09	U-234	MSD	08/17/17 16:33		A_Spec	Alpha_033	170	1.76 E+03	2.00 E-03	16.8
10	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_034	170	2.11 E+03	1.00 E-03	17.3
11	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_035	170	1.66 E+03	0.00 E+00	15.8
12	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_036	170	2.91 E+02	6.00 E-03	18.2
13	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_037	170	9.57 E+01	2.00 E-03	15.9
14	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_038	170	8.32 E+01	5.00 E-03	15.4
15	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_039	170	1.83 E+02	1.10 E-02	18.5
16	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_040	170	9.45 E+01	3.00 E-03	18.1
17	U-234	TRG	08/17/17 16:33		A_Spec	Alpha_043	170	2.24 E+03	3.00 E-03	18.7
18	U-234	TRG	08/17/17 16:34		A_Spec	Alpha_044	170	1.52 E+02	5.00 E-03	17.9
19	U-234	TRG	08/17/17 16:34		A_Spec	Alpha_045	170	2.62 E+02	3.00 E-03	16.9
20	U-234	TRG	08/17/17 16:34		A_Spec	Alpha_046	170	1.01 E+02	4.00 E-03	17.1

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-238	LCS	LCS	pCi/g	6.26E+00	8.90E-01	5.48E-02	7.08E+00	88.37	OK		OK	
02	U-238	MBL	BLANK	pCi/g	2.70E-02	4.58E-02	7.77E-02					OK	OK
03	U-238	DUP	HTC-A01-S008-3036-01	pCi/g	9.27E-01	2.39E-01	5.38E-02				OK	OK	
04	U-238	DO	HTC-A01-S008-3036-01	pCi/g	7.94E-01	2.09E-01	7.36E-02					OK	
05	U-238	TRG	HTC-A01-S008-3642-01	pCi/g	1.13E+00	2.53E-01	6.75E-02					OK	
06	U-238	TRG	HTC-A01-S008-4248-01	pCi/g	1.04E+00	3.05E-01	1.23E-01					OK	
07	U-238	MSO	HTC-A02-S001-0006-01	pCi/g	1.62E+01	1.90E+00	4.75E-02					OK	
08	U-238	MS	HTC-A02-S001-0006-01	pCi/g	2.34E+01	2.82E+00	6.22E-02					OK	
09	U-238	MSD	HTC-A02-S001-0006-01 MSD	pCi/g	2.20E+01	2.68E+00	5.41E-02					OK	
10	U-238	TRG	HTC-A02-S001-0006-02	pCi/g	2.50E+01	3.06E+00	4.81E-02					OK	
11	U-238	TRG	HTC-A02-S001-0612-01	pCi/g	1.97E+01	2.37E+00	5.36E-02					OK	
12	U-238	TRG	HTC-A02-S001-1218-01	pCi/g	3.05E+00	4.80E-01	4.91E-02					OK	
13	U-238	TRG	HTC-A02-S001-1824-01	pCi/g	8.59E-01	2.09E-01	6.68E-02					OK	
14	U-238	TRG	HTC-A02-S001-2430-01	pCi/g	9.87E-01	2.44E-01	5.22E-02					OK	
15	U-238	TRG	HTC-A02-S001-3036-01	pCi/g	1.89E+00	3.38E-01	6.13E-02					OK	
16	U-238	TRG	HTC-A02-S001-3642-01	pCi/g	9.48E-01	2.15E-01	5.16E-02					OK	
17	U-238	TRG	HTC-A02-S002-0006-01	pCi/g	4.03E+01	6.18E+00	8.63E-02					OK	
18	U-238	TRG	HTC-A02-S002-0612-01	pCi/g	1.54E+00	3.10E-01	4.67E-02					OK	
19	U-238	TRG	HTC-A02-S002-1218-01	pCi/g	2.96E+00	4.83E-01	4.85E-02					OK	
20	U-238	TRG	HTC-A02-S002-1824-01	pCi/g	1.03E+00	2.42E-01	6.97E-02					OK	

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07084
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-238	LCS	07/19/17 00:00	1.00E+00	115.95	0.00	0.00			
02	U-238	MBL	07/19/17 00:00	1.00E+00	107.35	0.00	0.00			
03	U-238	DUP	05/13/17 08:06	1.07E+00	140.48	0.00	0.00			
04	U-238	DO	05/13/17 08:06	1.06E+00	133.96	0.00	0.00			
05	U-238	TRG	05/13/17 08:03	1.13E+00	126.27	0.00	0.00			
06	U-238	TRG	05/13/17 08:00	1.15E+00	76.72	0.00	0.00			
07	U-238	MSO	05/15/17 10:44	1.03E+00	126.83	0.00	0.00			
08	U-238	MS	05/13/17 08:06	1.02E+00	134.88	0.00	0.00			
09	U-238	MSD	05/15/17 10:44	1.04E+00	116.53	0.00	0.00			
10	U-238	TRG	05/15/17 10:44	1.24E+00	107.02	0.00	0.00			
11	U-238	TRG	05/15/17 10:41	1.18E+00	126.45	0.00	0.00			
12	U-238	TRG	05/15/17 10:38	1.23E+00	114.75	0.00	0.00			
13	U-238	TRG	05/15/17 10:35	1.10E+00	142.74	0.00	0.00			
14	U-238	TRG	05/15/17 10:32	1.04E+00	131.59	0.00	0.00			
15	U-238	TRG	05/15/17 10:29	1.14E+00	122.23	0.00	0.00			
16	U-238	TRG	05/15/17 10:26	1.24E+00	119.65	0.00	0.00			
17	U-238	TRG	05/15/17 11:57	1.39E+00	56.23	0.00	0.00			
18	U-238	TRG	05/15/17 11:54	1.20E+00	109.74	0.00	0.00			
19	U-238	TRG	05/15/17 11:51	1.04E+00	129.52	0.00	0.00			
20	U-238	TRG	05/15/17 11:48	1.05E+00	126.15	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
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	08/17/17 14:15		A_Spec	Alpha_052	170	4.77 E+02	1.00 E-03	17.4
02	U-238	MBL	08/17/17 14:15		A_Spec	Alpha_053	170	1.66 E+00	2.00 E-03	15.1
03	U-238	DUP	08/17/17 14:15		A_Spec	Alpha_054	170	7.18 E+01	1.00 E-03	13.6
04	U-238	DO	08/17/17 14:15		A_Spec	Alpha_056	170	6.80 E+01	6.00 E-03	15.9
05	U-238	TRG	08/17/17 14:15		A_Spec	Alpha_057	170	1.00 E+02	0.00 E+00	16.5
06	U-238	TRG	08/17/17 14:15		A_Spec	Alpha_058	170	5.76 E+01	8.00 E-03	16.6
07	U-238	MSO	08/17/17 14:15		A_Spec	Alpha_059	170	1.42 E+03	1.00 E-03	17.8
08	U-238	MS	08/17/17 14:16		A_Spec	Alpha_060	170	1.80 E+03	2.00 E-03	14.8
09	U-238	MSD	08/17/17 16:33		A_Spec	Alpha_033	170	1.70 E+03	1.00 E-03	16.8
10	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_034	170	2.17 E+03	1.00 E-03	17.3
11	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_035	170	1.76 E+03	2.00 E-03	15.8
12	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_036	170	2.97 E+02	2.00 E-03	18.2
13	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_037	170	8.10 E+01	6.00 E-03	15.9
14	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_038	170	7.88 E+01	1.00 E-03	15.4
15	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_039	170	1.84 E+02	5.00 E-03	18.5
16	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_040	170	9.65 E+01	3.00 E-03	18.1
17	U-238	TRG	08/17/17 16:33		A_Spec	Alpha_043	170	2.23 E+03	2.00 E-03	18.7
18	U-238	TRG	08/17/17 16:34		A_Spec	Alpha_044	170	1.38 E+02	1.00 E-03	17.9
19	U-238	TRG	08/17/17 16:34		A_Spec	Alpha_045	170	2.55 E+02	1.00 E-03	16.9
20	U-238	TRG	08/17/17 16:34		A_Spec	Alpha_046	170	8.82 E+01	5.00 E-03	17.1

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07084
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-235	LCS	LCS	pCi/g	4.14E-01	1.69E-01	8.53E-02					OK	
02	U-235	MBL	BLANK	pCi/g	0.00E+00	5.58E-02	1.21E-01					OK	OK
03	U-235	DUP	HTC-A01-S008-3036-01	pCi/g	7.72E-02	7.08E-02	6.67E-02				NA	OK	
04	U-235	DO	HTC-A01-S008-3036-01	pCi/g	5.29E-02	5.74E-02	6.92E-02					OK	
05	U-235	TRG	HTC-A01-S008-3642-01	pCi/g	9.76E-02	7.80E-02	8.36E-02					OK	
06	U-235	TRG	HTC-A01-S008-4248-01	pCi/g	1.08E-01	9.91E-02	9.31E-02					OK	
07	U-235	MSO	HTC-A02-S001-0006-01	pCi/g	1.06E+00	2.64E-01	5.89E-02					OK	
08	U-235	MS	HTC-A02-S001-0006-01	pCi/g	1.44E+00	3.40E-01	8.46E-02					OK	
09	U-235	MSD	HTC-A02-S001-0006-01 MSD	pCi/g	2.01E+00	4.19E-01	9.64E-02					OK	
10	U-235	TRG	HTC-A02-S001-0006-02	pCi/g	2.09E+00	4.16E-01	7.49E-02					OK	
11	U-235	TRG	HTC-A02-S001-0612-01	pCi/g	1.40E+00	3.15E-01	5.80E-02					OK	
12	U-235	TRG	HTC-A02-S001-1218-01	pCi/g	2.76E-01	1.21E-01	6.08E-02					OK	
13	U-235	TRG	HTC-A02-S001-1824-01	pCi/g	6.12E-02	5.83E-02	6.28E-02					OK	
14	U-235	TRG	HTC-A02-S001-2430-01	pCi/g	1.19E-01	8.73E-02	7.41E-02					OK	
15	U-235	TRG	HTC-A02-S001-3036-01	pCi/g	1.35E-01	8.40E-02	6.07E-02					OK	
16	U-235	TRG	HTC-A02-S001-3642-01	pCi/g	8.52E-02	6.81E-02	7.30E-02					OK	
17	U-235	TRG	HTC-A02-S002-0006-01	pCi/g	3.44E+00	7.46E-01	1.41E-01					OK	
18	U-235	TRG	HTC-A02-S002-0612-01	pCi/g	1.48E-01	9.19E-02	6.63E-02					OK	
19	U-235	TRG	HTC-A02-S002-1218-01	pCi/g	2.14E-01	1.12E-01	6.01E-02					OK	
20	U-235	TRG	HTC-A02-S002-1824-01	pCi/g	5.99E-02	6.45E-02	8.64E-02					OK	

Z800

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07084
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	07/19/17 00:00	1.00E+00	115.95	0.00	0.00			
02	U-235	MBL	07/19/17 00:00	1.00E+00	107.35	0.00	0.00			
03	U-235	DUP	05/13/17 08:06	1.07E+00	140.48	0.00	0.00			
04	U-235	DO	05/13/17 08:06	1.06E+00	133.96	0.00	0.00			
05	U-235	TRG	05/13/17 08:03	1.13E+00	126.27	0.00	0.00			
06	U-235	TRG	05/13/17 08:00	1.15E+00	76.72	0.00	0.00			
07	U-235	MSO	05/15/17 10:44	1.03E+00	126.83	0.00	0.00			
08	U-235	MS	05/13/17 08:06	1.02E+00	134.88	0.00	0.00			
09	U-235	MSD	05/15/17 10:44	1.04E+00	116.53	0.00	0.00			
10	U-235	TRG	05/15/17 10:44	1.24E+00	107.02	0.00	0.00			
11	U-235	TRG	05/15/17 10:41	1.18E+00	126.45	0.00	0.00			
12	U-235	TRG	05/15/17 10:38	1.23E+00	114.75	0.00	0.00			
13	U-235	TRG	05/15/17 10:35	1.10E+00	142.74	0.00	0.00			
14	U-235	TRG	05/15/17 10:32	1.04E+00	131.59	0.00	0.00			
15	U-235	TRG	05/15/17 10:29	1.14E+00	122.23	0.00	0.00			
16	U-235	TRG	05/15/17 10:26	1.24E+00	119.65	0.00	0.00			
17	U-235	TRG	05/15/17 11:57	1.39E+00	56.23	0.00	0.00			
18	U-235	TRG	05/15/17 11:54	1.20E+00	109.74	0.00	0.00			
19	U-235	TRG	05/15/17 11:51	1.04E+00	129.52	0.00	0.00			
20	U-235	TRG	05/15/17 11:48	1.05E+00	126.15	0.00	0.00			

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Analytical Work Order: 17-07084
Client: Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	08/17/17 14:15		A_Spec	Alpha_052	170	2.55 E+01	3.00 E-03	17.4
02	U-235	MBL	08/17/17 14:15		A_Spec	Alpha_053	170	1.00 E+00	0.00 E+00	15.1
03	U-235	DUP	08/17/17 14:15		A_Spec	Alpha_054	170	4.83 E+00	1.00 E-03	13.6
04	U-235	DO	08/17/17 14:15		A_Spec	Alpha_056	170	3.66 E+00	2.00 E-03	15.9
05	U-235	TRG	08/17/17 14:15		A_Spec	Alpha_057	170	7.00 E+00	0.00 E+00	16.5
06	U-235	TRG	08/17/17 14:15		A_Spec	Alpha_058	170	4.83 E+00	1.00 E-03	16.6
07	U-235	MSO	08/17/17 14:15		A_Spec	Alpha_059	170	7.48 E+01	1.00 E-03	17.8
08	U-235	MS	08/17/17 14:16		A_Spec	Alpha_060	170	8.95 E+01	3.00 E-03	14.8
09	U-235	MSD	08/17/17 16:33		A_Spec	Alpha_033	170	1.25 E+02	0.00 E+00	16.8
10	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_034	170	1.46 E+02	3.00 E-03	17.3
11	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_035	170	1.01 E+02	1.00 E-03	15.8
12	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_036	170	2.17 E+01	2.00 E-03	18.2
13	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_037	170	4.66 E+00	2.00 E-03	15.9
14	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_038	170	7.66 E+00	2.00 E-03	15.4
15	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_039	170	1.07 E+01	2.00 E-03	18.5
16	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_040	170	7.00 E+00	0.00 E+00	18.1
17	U-235	TRG	08/17/17 16:33		A_Spec	Alpha_043	170	1.54 E+02	6.00 E-03	18.7
18	U-235	TRG	08/17/17 16:34		A_Spec	Alpha_044	170	1.07 E+01	2.00 E-03	17.9
19	U-235	TRG	08/17/17 16:34		A_Spec	Alpha_045	170	1.48 E+01	1.00 E-03	16.9
20	U-235	TRG	08/17/17 16:34		A_Spec	Alpha_046	170	4.15 E+00	5.00 E-03	17.1

Count Room Report
Client: Weston Solutions, Inc.

17-07084-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

09-25

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/19/17 00:00	1.0000	0.6098	11.1715		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.6086	11.1496		0.00		
03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	1.0700	0.6096	11.1679		0.00		
04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	1.0600	0.6076	11.1312		0.00		
05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	1.1300	0.6068	11.1166		0.00		
06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	1.1500	0.6080	11.1386		0.00		
07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	1.0300	0.6073	11.1257		0.00		
08	MS	HTC-A02-S001-0006-01	05/13/17 08:06	1.0200	0.6064	11.1092		0.00		
09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	1.0400	0.6066	11.1129		0.00		
10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	1.2400	0.6052	11.0873		0.00		
11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	1.1800	0.6055	11.0928		0.00		
12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	1.2300	0.6056	11.0946		0.00		
13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	1.1000	0.6057	11.0964		0.00		
14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	1.0400	0.6035	11.0561		0.00		
15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	1.1400	0.6039	11.0634		0.00		
16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	1.2400	0.6057	11.0964		0.00		
17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	1.3900	0.6031	11.0488		0.00		
18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	1.2000	0.6050	11.0836		0.00		
19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	1.0400	0.6026	11.0396		0.00		
20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	1.0500	0.6035	11.0561		0.00		

0090

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/9/2017 6:50 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07084	1	UUISO	8/9/2017 6:49	JHARVEY		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	Volume Used (g)	Volume Used (g)	Volume Used (g)	Volume Used (g)	Known pCi	Error Estimate	Added pCi	Error Estimate	Known pCi	Error Estimate	Added pCi	Error Estimate
U-234	U-8a	32.000	8/9/2017	0.550	0.5071	0.5079		0.5058	7.31	0.263	7.32	0.264	0.00	0.000	7.29	0.262
U-238	U-8a	31.000	8/9/2017	0.550	0.5071	0.5079		0.5058	7.08	0.255	7.09	0.255	0.00	0.000	7.06	0.254

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	U-232	U-10a	18.320	8/9/2017	0.6098	0.6600
02	U-232	U-10a	18.320	8/9/2017	0.6086	0.6600
03	U-232	U-10a	18.320	8/9/2017	0.6096	0.6600
04	U-232	U-10a	18.320	8/9/2017	0.6076	0.6600
05	U-232	U-10a	18.320	8/9/2017	0.6068	0.6600
06	U-232	U-10a	18.320	8/9/2017	0.6080	0.6600
07	U-232	U-10a	18.320	8/9/2017	0.6073	0.6600
08	U-232	U-10a	18.320	8/9/2017	0.6064	0.6600
09	U-232	U-10a	18.320	8/9/2017	0.6066	0.6600
10	U-232	U-10a	18.320	8/9/2017	0.6052	0.6600
11	U-232	U-10a	18.320	8/9/2017	0.6055	0.6600
12	U-232	U-10a	18.320	8/9/2017	0.6056	0.6600
13	U-232	U-10a	18.320	8/9/2017	0.6057	0.6600
14	U-232	U-10a	18.320	8/9/2017	0.6035	0.6600
15	U-232	U-10a	18.320	8/9/2017	0.6039	0.6600
16	U-232	U-10a	18.320	8/9/2017	0.6057	0.6600
17	U-232	U-10a	18.320	8/9/2017	0.6031	0.6600
18	U-232	U-10a	18.320	8/9/2017	0.6050	0.6600
19	U-232	U-10a	18.320	8/9/2017	0.6026	0.6600
20	U-232	U-10a	18.320	8/9/2017	0.6035	0.6600

Balance Printer Tapes

Tracer	LCS
0.6098 g 0.6086 g 0.6096 g 0.6076 g 0.6068 g 0.6080 g 0.6073 g 0.6064 g 0.6066 g 0.6052 g 0.6055 g 0.6056 g 0.6057 g 0.6035 g 0.6039 g 0.6057 g 0.6031 g 0.6050 g 0.6026 g 0.6035 g	0.5071 g

Matrix Spike

0.5079 g

0.5058 g

0091

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07084	1	UUISO	grams	8/10/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A01-S008-3036-01	DUP				1.00E+00	1.0700E+00	1.0700E+00				
04	HTC-A01-S008-3036-01	DO				1.00E+00	1.0600E+00	1.0600E+00				
05	HTC-A01-S008-3642-01	TRG				1.00E+00	1.1300E+00	1.1300E+00				
06	HTC-A01-S008-4248-01	TRG				1.00E+00	1.1500E+00	1.1500E+00				
07	HTC-A02-S001-0006-01	MSO				1.00E+00	1.0300E+00	1.0300E+00				
08	HTC-A02-S001-0006-01 MS	MS				1.00E+00	1.0200E+00	1.0200E+00				
09	HTC-A02-S001-0006-01 MSD	MSD				1.00E+00	1.0400E+00	1.0400E+00				
10	HTC-A02-S001-0006-02	TRG				1.00E+00	1.2400E+00	1.2400E+00				
11	HTC-A02-S001-0612-01	TRG				1.00E+00	1.1800E+00	1.1800E+00				
12	HTC-A02-S001-1218-01	TRG				1.00E+00	1.2300E+00	1.2300E+00				
13	HTC-A02-S001-1824-01	TRG				1.00E+00	1.1000E+00	1.1000E+00				
14	HTC-A02-S001-2430-01	TRG				1.00E+00	1.0400E+00	1.0400E+00				
15	HTC-A02-S001-3036-01	TRG				1.00E+00	1.1400E+00	1.1400E+00				
16	HTC-A02-S001-3642-01	TRG				1.00E+00	1.2400E+00	1.2400E+00				
17	HTC-A02-S002-0006-01	TRG				1.00E+00	1.3900E+00	1.3900E+00				
18	HTC-A02-S002-0612-01	TRG				1.00E+00	1.2000E+00	1.2000E+00				
19	HTC-A02-S002-1218-01	TRG				1.00E+00	1.0400E+00	1.0400E+00				
20	HTC-A02-S002-1824-01	TRG				1.00E+00	1.0500E+00	1.0500E+00				

Comments	

0092

Technician: JHarvey Date: 8/9/17

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
17-07084	8/10/2017	7/27/2017	7/28/2017	7/29/2017	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-S008-3036-01	14.6400	1060.5000	853.1200	1045.8600	838.4800	19.83%	80.17%	0.0000	0.0000	
05	HTC-A01-S008-3642-01	14.6100	1007.8400	772.3100	993.2300	757.7000	23.71%	76.29%	0.0000	0.0000	
06	HTC-A01-S008-4248-01	14.6500	1036.2200	806.6400	1021.5700	791.9900	22.47%	77.53%	0.0000	0.0000	
07	HTC-A02-S001-0006-01	14.6100	896.6400	857.5400	882.0300	842.9300	4.43%	95.57%	0.0000	0.0000	
08	HTC-A02-S001-0006-01 MS	14.6300	923.1200	881.6000	908.4900	866.9700	4.57%	95.43%	0.0000	0.0000	
09	HTC-A02-S001-0006-01 MSD	14.6300	923.1200	881.6000	908.4900	866.9700	4.57%	95.43%	0.0000	0.0000	
10	HTC-A02-S001-0006-02	14.6200	890.4000	855.0200	875.7800	840.4000	4.04%	95.96%	0.0000	0.0000	
11	HTC-A02-S001-0612-01	14.6000	913.9200	791.6500	899.3200	777.0500	13.60%	86.40%	0.0000	0.0000	
12	HTC-A02-S001-1218-01	14.5700	943.6200	776.9200	929.0500	762.3500	17.94%	82.06%	0.0000	0.0000	
13	HTC-A02-S001-1824-01	14.5600	972.4000	798.3400	957.8400	783.7800	18.17%	81.83%	0.0000	0.0000	
14	HTC-A02-S001-2430-01	14.6100	905.8800	757.1500	891.2700	742.5400	16.69%	83.31%	0.0000	0.0000	
15	HTC-A02-S001-3036-01	14.5500	899.1000	750.7300	884.5500	736.1800	16.77%	83.23%	0.0000	0.0000	
16	HTC-A02-S001-3642-01	14.5200	888.5600	737.0400	874.0400	722.5200	17.34%	82.66%	0.0000	0.0000	
17	HTC-A02-S002-0006-01	14.5600	893.5800	835.9200	879.0200	821.3600	6.56%	93.44%	0.0000	0.0000	
18	HTC-A02-S002-0612-01	14.5700	970.6000	802.7400	956.0300	788.1700	17.56%	82.44%	0.0000	0.0000	
19	HTC-A02-S002-1218-01	14.6300	944.5000	774.1100	929.8700	759.4800	18.32%	81.68%	0.0000	0.0000	
20	HTC-A02-S002-1824-01	14.6200	886.0000	730.8300	871.3800	716.2100	17.81%	82.19%	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)**

0093

Technician: Kenny Sallings Date: **Analysis: Rough Prep Logbook**

Apex-Alpha™

8/18

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 01
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/17/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:51 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.2014 +/- 0.0113
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 1.1595 +/- 0.0682

Control Certificate Name: NatU_U-8A
Chem. Recov. of Control: U-238 0.777410 +/- 0.061039
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	5.261	379.66	10.06	0.34	0.00E+000	7.4
U-234		4.711	459.15	9.16	0.85	0.00E+000	21.4
U-235		4.402	25.49	39.27	0.51	0.00E+000	3.0
U-238		4.137	476.83	8.98	0.17	0.00E+000	4.5

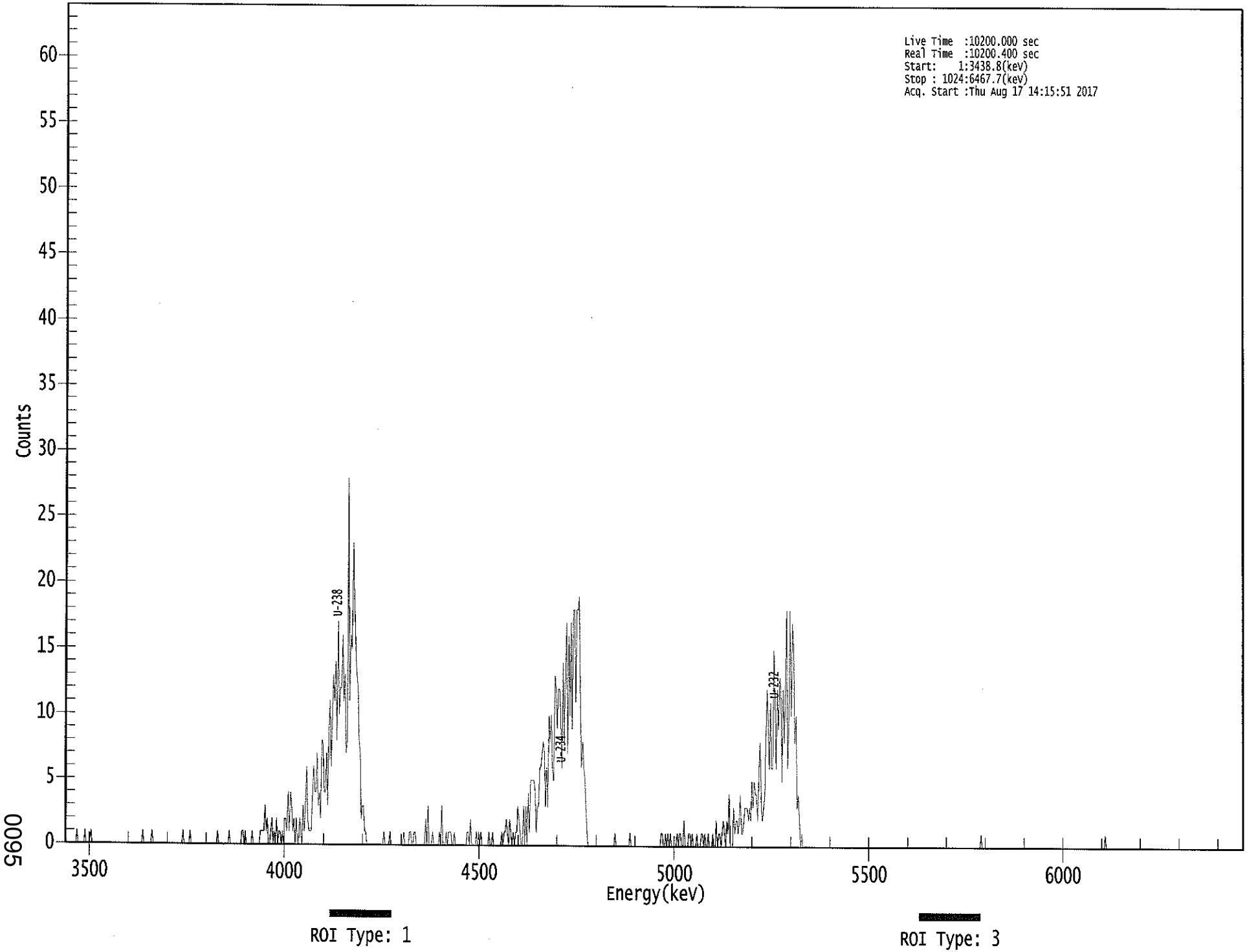
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.988	5302.50*	5.00E+000 +/- 5.52E-001	6.30E-002 +/- 6.95E-003
U-234	0.982	4761.50*	6.05E+000 +/- 8.67E-001	7.89E-002 +/- 8.70E-003
U-235	0.998	4385.50*	4.14E-001 +/- 1.69E-001	8.53E-002 +/- 9.41E-003
U-238	0.984	4184.40*	6.26E+000 +/- 8.90E-001	5.48E-002 +/- 6.04E-003

AG
8/18/17

0000191764.CNF



0095

****
***** 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:	1	0	0	0	0	0	0	0
9:	0	0	1	0	0	0	0	0
17:	0	1	0	0	0	0	1	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	1	0	0	0	0
73:	0	0	0	1	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	1	0
105:	0	0	0	0	1	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	1	0	0	0
137:	0	0	0	0	0	0	1	0
145:	0	0	0	0	0	0	0	0
153:	0	1	1	0	1	0	0	0
161:	0	0	1	0	0	0	0	0
169:	0	1	1	1	1	3	1	2
177:	0	0	1	2	0	1	0	2
185:	0	1	1	0	1	0	2	2
193:	1	4	1	4	3	1	2	0
201:	2	0	0	2	1	0	3	1
209:	3	6	2	1	1	1	4	6
217:	4	4	7	3	4	2	8	8
225:	4	4	7	3	9	11	6	10
233:	13	11	14	8	17	10	12	12
241:	16	11	13	7	8	28	11	16
249:	15	23	19	15	13	12	8	7
257:	2	3	3	1	1	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	1	0	0	0
281:	0	1	0	0	0	0	0	0
289:	0	0	0	0	0	1	0	0
297:	0	0	1	1	0	0	1	1
305:	0	0	0	0	0	0	0	0
313:	2	0	3	0	0	0	1	0
321:	0	0	0	0	1	0	3	0
329:	0	0	1	0	1	1	1	0
337:	0	1	0	0	0	0	0	0
345:	0	0	0	0	1	1	0	2
353:	0	0	0	0	1	0	1	0
361:	1	0	0	0	0	0	0	1

369:	0	0	1	0	0	0	0	0

Sample Title: 01

Channel								
377:	0	0	1	0	1	1	2	1
385:	0	2	1	0	1	0	1	1
393:	3	2	1	0	0	3	0	3
401:	0	4	1	5	5	5	5	4
409:	1	3	3	6	6	7	8	7
417:	3	6	3	10	8	10	6	5
425:	13	12	9	12	12	10	6	14
433:	8	13	17	7	16	10	17	9
441:	18	18	11	18	18	19	11	6
449:	8	6	5	3	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	1	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	1	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	1	1	0	0
521:	1	0	1	0	1	0	0	0
529:	0	0	1	0	1	1	0	0
537:	2	0	0	0	1	1	0	1
545:	0	0	0	1	0	0	0	1
553:	1	0	1	0	0	1	0	0
561:	0	1	0	0	2	0	1	1
569:	0	1	2	1	0	2	1	4
577:	0	0	0	3	1	2	2	1
585:	2	4	1	1	2	3	3	3
593:	2	3	2	5	3	5	4	4
601:	2	6	8	3	2	3	4	9
609:	12	9	6	11	6	6	15	11
617:	6	12	9	13	12	5	12	8
625:	12	18	6	10	18	10	17	15
633:	8	10	3	4	2	0	1	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	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	1	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	1	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/18

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 02
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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/17/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:53 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.609 mL
Effective Efficiency: 0.1626 +/- 0.0100
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 1.0735 +/- 0.0687

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	5.312	305.83	11.21	0.17	0.00E+000	19.4
U-234		4.777	2.98	134.36	1.02	0.00E+000	3.0
U-235		4.398	0.00	1960.0	0.00	0.00E+000	0.0
U-238		4.174	1.66	169.38	0.34	0.00E+000	3.0

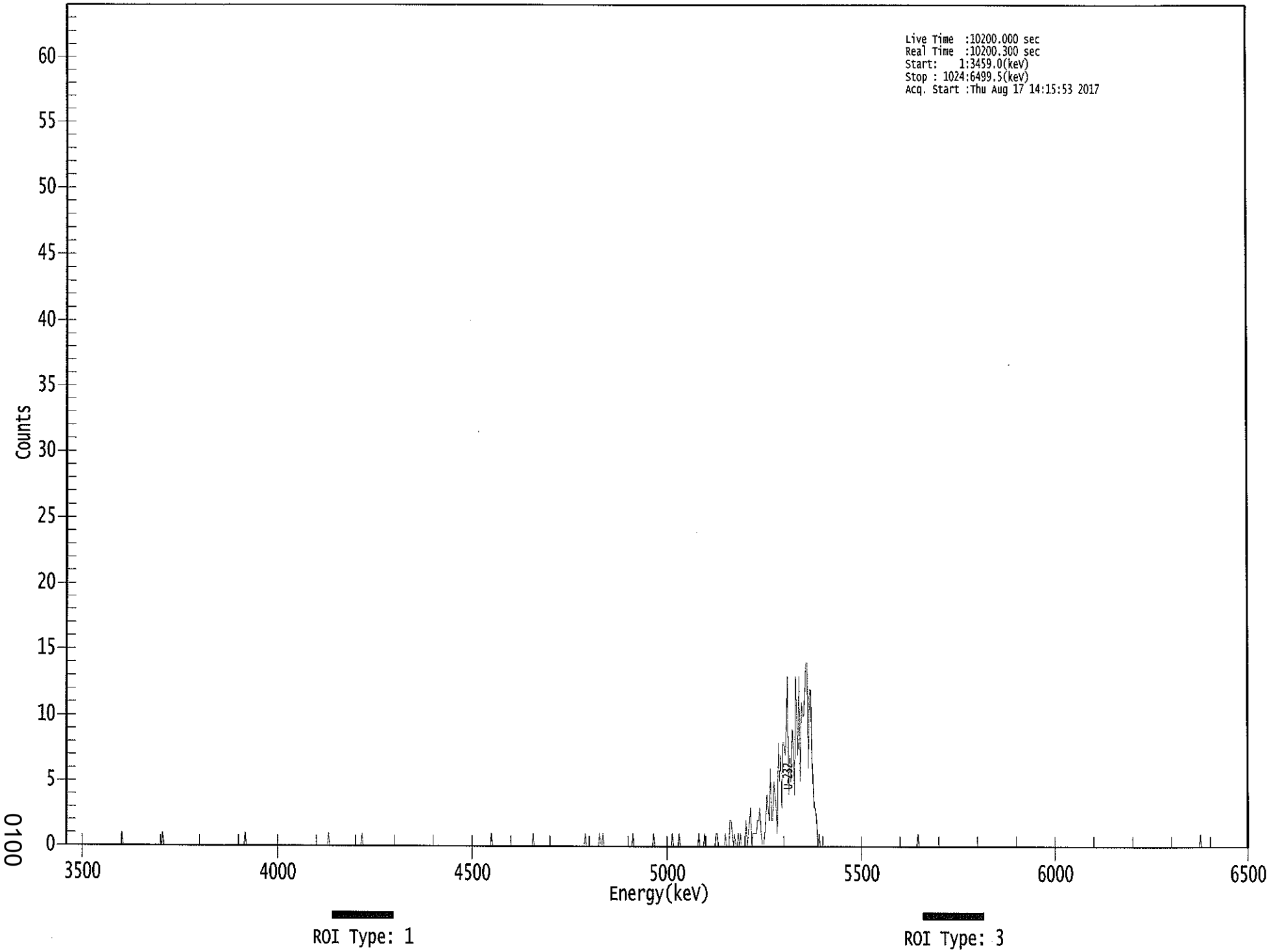
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	4.99E+000 +/- 6.04E-001	6.81E-002 +/- 8.24E-003
U-234	0.998	4761.50*	4.87E-002 +/- 6.56E-002	1.03E-001 +/- 1.24E-002
U-235	0.999	4385.50*	0.00E+000 +/- 5.58E-002	1.21E-001 +/- 1.46E-002
U-238	0.999	4184.40*	2.70E-002 +/- 4.58E-002	7.77E-002 +/- 9.39E-003

AG
8/18/17

0000191765.CNF



0100

****
***** 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:	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:	0	0	0	0	0	0	0	0
81:	0	0	0	1	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	0
137:	0	0	0	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	0	0	1	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	0	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	1	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	1
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	0	0	0	0	0	0	0	0
361:	0	0	0	0	0	0	0	1

369:	0	0	0	0	0	0	0	0

Sample Title: 02

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

801:	0	0	0	0	0	0	0	0

Sample Title: 02

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

Apex-Alpha™

8/18

Sample Description: HTC-A01-S008-3036-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 03
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: 1.070E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:55 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.610 mL
Effective Efficiency: 0.1915 +/- 0.0110
Counting Efficiency: 0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor: 1.4048 +/- 0.0845

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	360.81	10.34	1.19	0.00E+000	32.6
U-234		4.719	61.49	25.12	0.51	0.00E+000	3.3
U-235		4.384	4.83	91.00	0.17	0.00E+000	3.0
U-238		4.143	71.83	23.16	0.17	0.00E+000	5.9

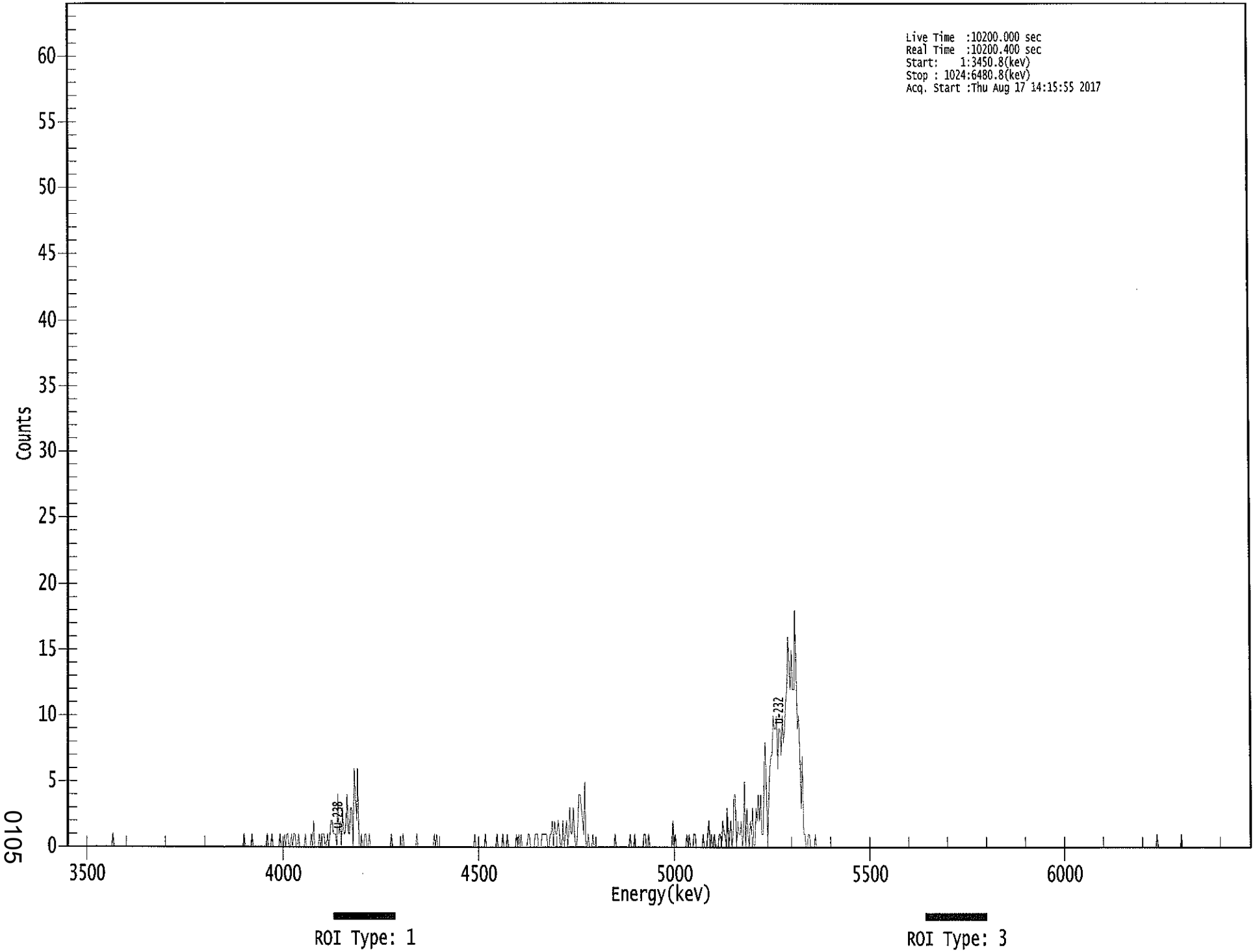
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.69E+000 +/- 5.29E-001	8.56E-002 +/- 9.65E-003
U-234	0.987	4761.50*	7.97E-001 +/- 2.19E-001	6.80E-002 +/- 7.67E-003
U-235	1.000	4385.50*	7.72E-002 +/- 7.08E-002	6.67E-002 +/- 7.52E-003
U-238	0.988	4184.40*	9.27E-001 +/- 2.39E-001	5.38E-002 +/- 6.07E-003

AG
8/18/17

0000191766.CNF



0105

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

369:	0	0	1	0	0	0	0	1

Sample Title: 03

Channel								
377:	0	0	0	1	0	0	0	0
385:	0	0	0	1	0	1	0	1
393:	0	0	0	0	0	1	1	0
401:	0	0	0	1	1	1	0	0
409:	0	1	1	1	1	1	0	0
417:	1	1	2	0	2	1	1	2
425:	1	0	0	2	0	1	2	0
433:	1	3	1	1	3	1	0	0
441:	2	4	4	3	2	1	5	0
449:	0	1	0	0	0	1	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	1	0	0	0	0	0	0	0
481:	0	0	0	0	0	1	0	0
489:	0	1	0	0	0	0	0	0
497:	0	1	1	0	0	1	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	2	0	1	0	0	0
529:	0	0	0	0	0	0	1	0
537:	1	0	0	0	1	1	0	0
545:	0	0	0	0	1	0	0	0
553:	1	2	0	1	0	0	1	0
561:	0	0	1	1	0	2	1	1
569:	0	3	0	1	2	0	1	4
577:	4	0	2	1	1	2	0	1
585:	5	0	3	1	0	2	1	3
593:	0	0	3	2	4	2	4	1
601:	1	6	8	4	0	4	6	7
609:	7	10	9	9	10	6	9	9
617:	7	10	8	9	11	12	16	14
625:	12	15	12	12	18	13	9	10
633:	7	3	7	1	1	0	0	1
641:	1	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: 03

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

Apex-Alpha™

Sample Description: HTC-A01-S008-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 04
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: 1.060E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:57 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.608 mL
Effective Efficiency: 0.2136 +/- 0.0118
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 1.3396 +/- 0.0772

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.272	401.15	9.80	0.85	0.00E+000	7.7
U-234		4.731	65.98	24.35	1.02	0.00E+000	3.7
U-235		4.370	3.66	107.87	0.34	0.00E+000	3.0
U-238		4.155	67.98	23.98	1.02	0.00E+000	5.3

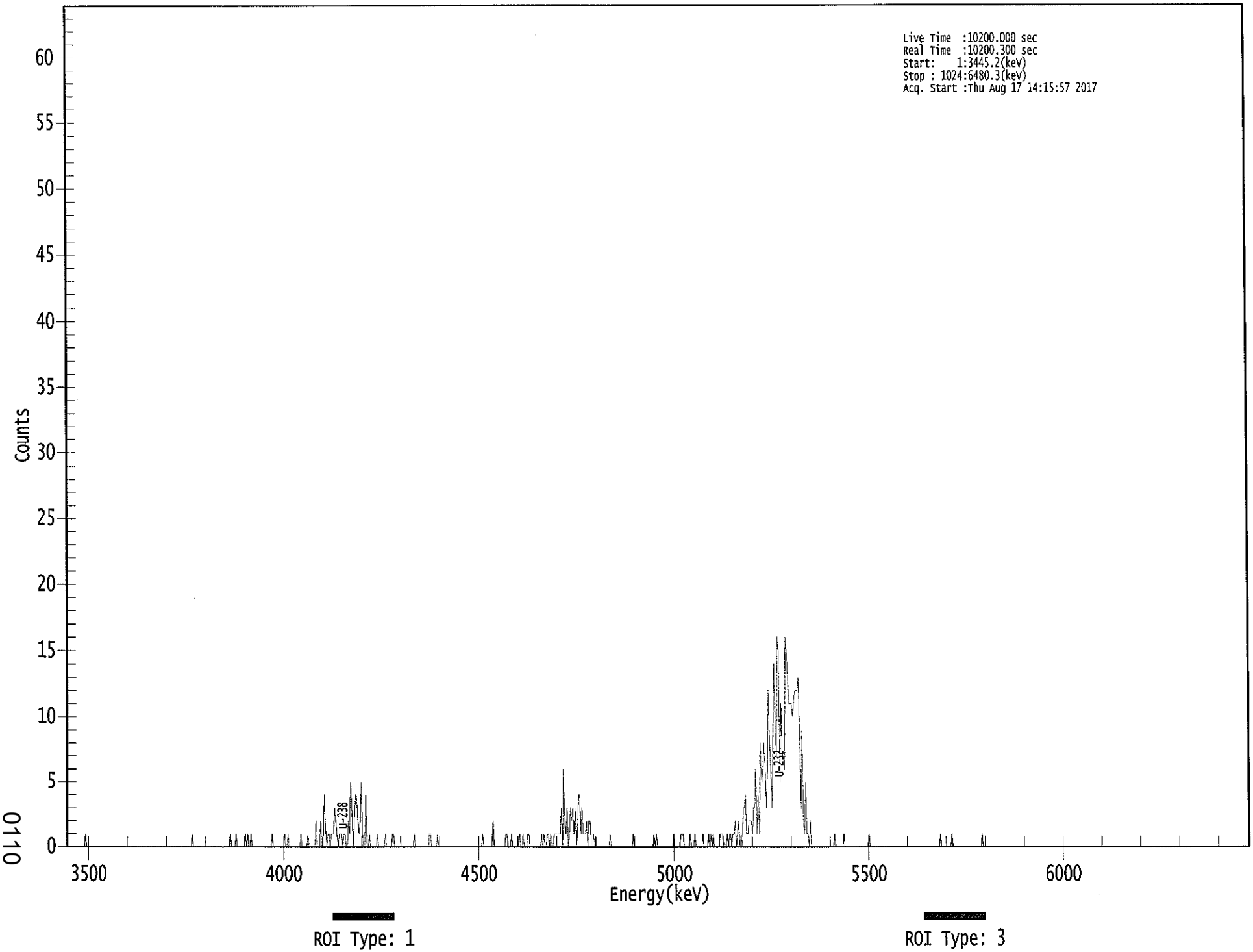
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.72E+000 +/- 5.09E-001	7.04E-002 +/- 7.59E-003
U-234	0.994	4761.50*	7.74E-001 +/- 2.06E-001	7.39E-002 +/- 7.97E-003
U-235	0.998	4385.50*	5.29E-002 +/- 5.74E-002	6.92E-002 +/- 7.46E-003
U-238	0.994	4184.40*	7.94E-001 +/- 2.09E-001	7.36E-002 +/- 7.93E-003

AG
8/18/17

0000191767.CNF



0110

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

369:	2	0	0	0	0	0	0	0

Sample Title: 04

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

801:	0	0	0	0	0	0	0	0

Sample Title: 04

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

Apex-Alpha™

8/18

Sample Description: HTC-A01-S008-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 05
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: 1.130E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:48 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.607 mL
Effective Efficiency: 0.2079 +/- 0.0116
Counting Efficiency: 0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor: 1.2627 +/- 0.0735

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.273	389.83	9.93	0.17	0.00E+000	6.8
U-234		4.728	105.66	19.10	0.34	0.00E+000	11.1
U-235		4.396	7.00	79.20	0.00	0.00E+000	3.0
U-238		4.144	100.00	19.70	0.00	0.00E+000	4.2

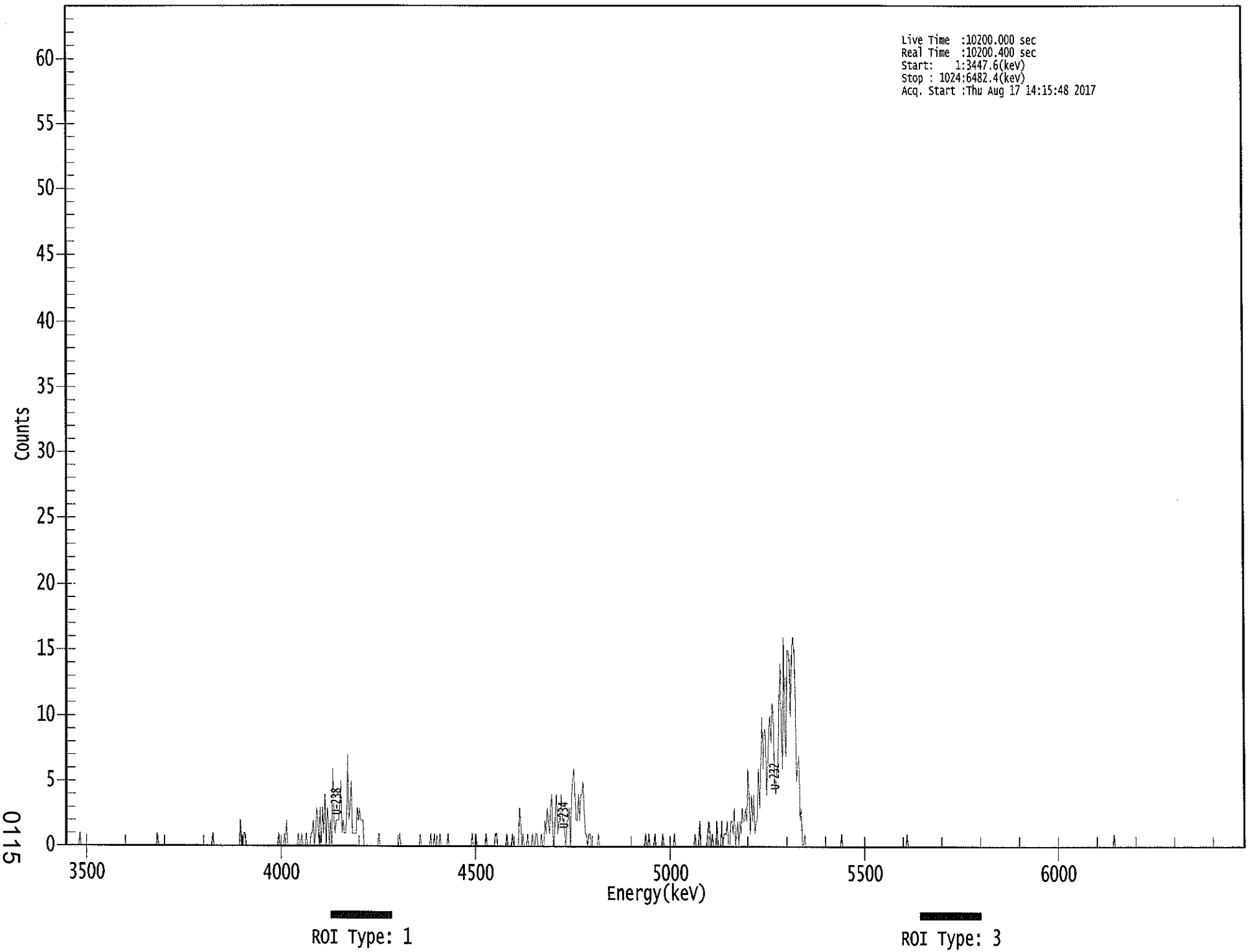
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.42E+000 +/- 4.82E-001	4.73E-002 +/- 5.16E-003
U-234	0.992	4761.50*	1.19E+000 +/- 2.63E-001	5.40E-002 +/- 5.89E-003
U-235	0.999	4385.50*	9.76E-002 +/- 7.80E-002	8.36E-002 +/- 9.12E-003
U-238	0.988	4184.40*	1.13E+000 +/- 2.53E-001	6.75E-002 +/- 7.36E-003

AG
8/18/17

0000191768.CNF



0115

****
***** 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	1	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	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	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	1
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	2
153:	0	0	1	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	0
185:	1	0	0	0	0	1	0	2
193:	0	0	0	0	0	0	0	0
201:	0	1	0	0	1	0	0	0
209:	1	0	0	0	1	1	2	0
217:	1	3	2	0	3	0	3	1
225:	4	0	3	2	0	2	0	6
233:	2	1	2	2	2	3	5	1
241:	2	1	1	2	7	2	3	5
249:	1	1	1	1	3	2	3	2
257:	2	2	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	1	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	1	0	0	0	0
313:	0	0	0	0	1	0	0	1
321:	0	0	0	0	1	0	0	0
329:	0	0	0	1	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	0	0	0
353:	1	0	0	1	0	0	0	0
361:	0	0	0	0	1	0	0	0

369:	0	0	0	0	1	1	0	0

Sample Title: 05

Channel								
377:	0	0	0	0	0	0	1	0
385:	0	0	0	1	0	0	0	0
393:	0	3	2	0	1	0	0	0
401:	1	0	0	0	1	0	0	1
409:	1	0	0	0	1	0	0	2
417:	1	3	2	1	3	4	1	0
425:	3	4	1	2	2	4	2	2
433:	1	0	2	2	3	0	4	5
441:	6	4	2	2	4	2	4	4
449:	5	3	1	1	0	1	1	0
457:	0	0	0	0	0	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	1	0
505:	0	1	0	0	0	0	1	0
513:	0	0	0	0	0	1	0	0
521:	0	0	0	0	0	0	0	1
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	1	0	0	0	2	0	0
553:	0	0	0	0	1	2	1	0
561:	1	0	0	0	2	0	0	0
569:	2	0	1	1	1	2	0	0
577:	2	2	1	3	0	1	2	0
585:	2	1	3	2	2	3	2	6
593:	4	1	4	2	4	1	2	2
601:	6	3	6	10	6	9	9	4
609:	6	9	10	8	11	10	5	4
617:	6	6	11	14	9	6	16	9
625:	7	15	15	14	10	15	16	15
633:	12	5	6	7	2	3	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:	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	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: 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	1	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/18

Sample Description: HTC-A01-S008-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 06
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: 1.150E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:49 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.608 mL
Effective Efficiency: 0.1277 +/- 0.0088
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 0.7672 +/- 0.0543

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	240.00	12.68	0.00	0.00E+000	13.8
U-234		4.730	60.66	25.25	0.34	0.00E+000	4.8
U-235		4.380	4.83	91.00	0.17	0.00E+000	3.0
U-238		4.155	57.64	26.17	1.36	0.00E+000	7.7

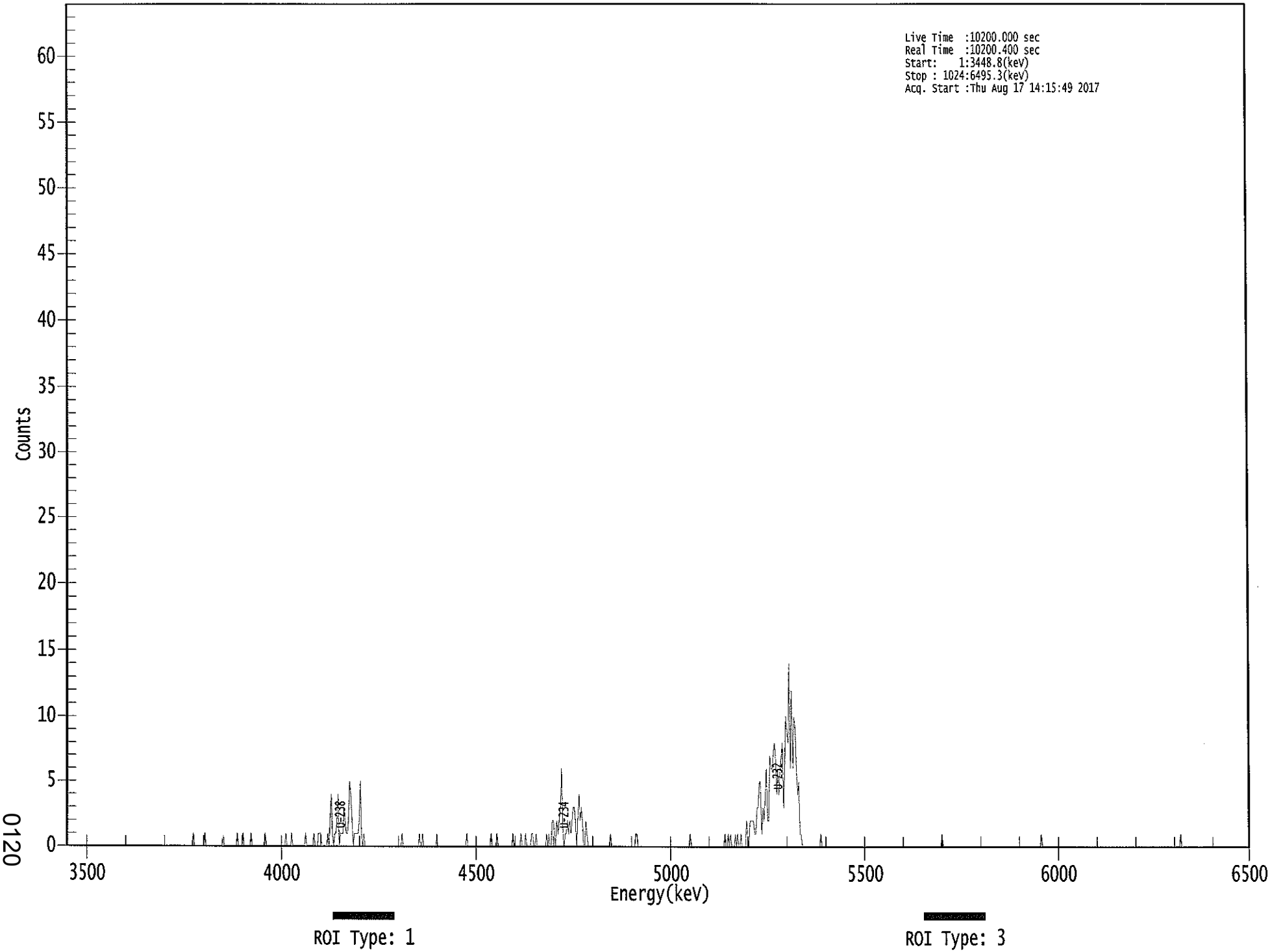
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.35E+000 +/- 5.85E-001	1.09E-001 +/- 1.46E-002
U-234	0.993	4761.50*	1.10E+000 +/- 3.14E-001	8.64E-002 +/- 1.16E-002
U-235	1.000	4385.50*	1.08E-001 +/- 9.91E-002	9.31E-002 +/- 1.25E-002
U-238	0.994	4184.40*	1.04E+000 +/- 3.05E-001	1.23E-001 +/- 1.66E-002

AG
8/18/17

0000191769.CNF



0120

****
***** 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	0	0	0	0
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	1	0	0
113:	0	0	0	0	0	0	0	1
121:	0	0	0	0	0	0	0	0
129:	0	0	0	0	0	0	0	1
137:	0	0	0	0	0	0	0	0
145:	0	0	0	1	0	0	0	0
153:	1	0	0	0	0	0	0	1
161:	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	1	0	0
193:	0	0	1	0	0	0	0	0
201:	0	0	0	0	0	0	1	0
209:	0	0	0	0	0	1	0	0
217:	0	1	1	1	0	0	0	0
225:	0	1	0	2	4	1	0	1
233:	1	2	4	0	1	1	1	3
241:	2	1	1	2	5	4	2	0
249:	1	1	1	1	2	5	1	0
257:	1	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	1	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	1	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	1	0	0	0	0

Sample Title: 06

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	1	0	0	0	0	0	0
393:	1	0	0	0	1	0	0	0
401:	0	1	1	0	0	1	0	0
409:	0	0	0	0	0	0	1	0
417:	1	0	0	2	2	1	0	2
425:	1	2	3	6	1	0	1	1
433:	2	1	2	1	2	3	3	2
441:	0	2	4	2	3	2	0	0
449:	2	1	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	1	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	1	1	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	1	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:	1	0	0	1	0	1	0	0
577:	0	1	0	1	0	0	1	0
585:	0	0	0	2	1	0	2	2
593:	2	2	1	1	3	3	5	5
601:	1	3	2	4	6	2	2	7
609:	6	6	7	8	7	4	6	4
617:	6	7	8	3	6	10	9	8
625:	14	6	12	6	10	9	6	4
633:	5	1	1	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	1	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	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: 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	1	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	1	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/18

Sample Description: HTC-A02-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 07
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: 1.030E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:15:59 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.607 mL
Effective Efficiency: 0.2253 +/- 0.0121
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 1.2683 +/- 0.0716

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.275	422.83	9.53	0.17	0.00E+000	20.0
U-234		4.732	1436.00	5.17	0.00	0.00E+000	42.8
U-235		4.393	74.83	22.69	0.17	0.00E+000	6.3
U-238		4.153	1420.83	5.20	0.17	0.00E+000	66.9

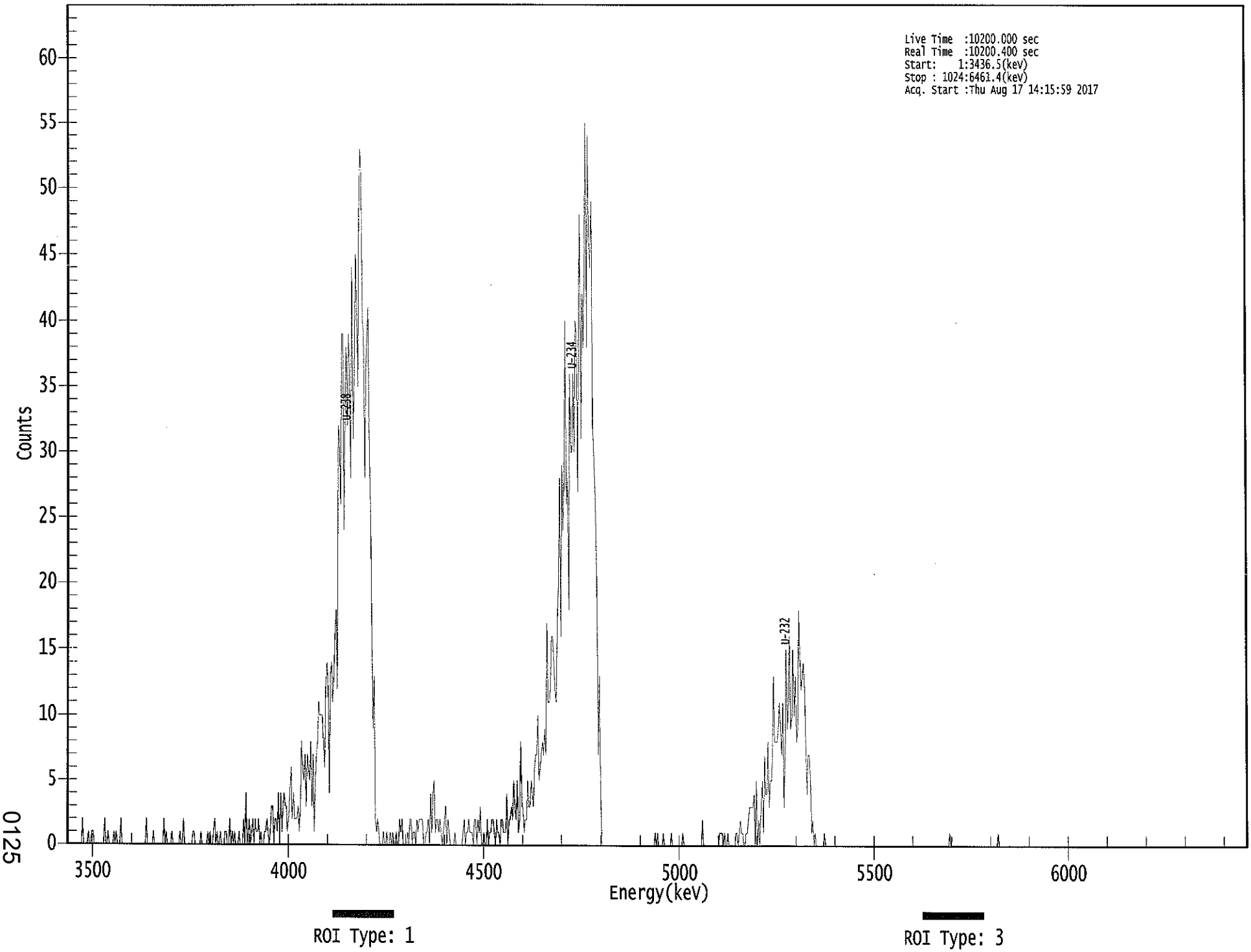
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.85E+000 +/- 5.12E-001	4.79E-002 +/- 5.05E-003
U-234	0.994	4761.50*	1.64E+001 +/- 1.93E+000	6.86E-002 +/- 7.24E-003
U-235	1.000	4385.50*	1.06E+000 +/- 2.64E-001	5.89E-002 +/- 6.21E-003
U-238	0.993	4184.40*	1.62E+001 +/- 1.90E+000	4.75E-002 +/- 5.02E-003

AG
8/18/17

0000191771.CNF



0125

****
***** 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	2	0	0
17:	0	0	1	0	0	1	1	0
25:	0	0	0	0	0	0	0	0
33:	2	0	0	1	0	0	0	0
41:	1	0	1	0	0	0	2	0
49:	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0
65:	0	0	0	0	2	0	0	0
73:	0	0	1	0	0	0	0	0
81:	0	0	0	2	0	1	0	0
89:	0	0	1	0	0	0	0	0
97:	0	1	0	0	2	0	0	0
105:	0	0	0	0	1	1	0	0
113:	0	0	0	1	0	0	0	0
121:	0	1	0	1	0	0	1	2
129:	0	1	0	0	1	0	0	0
137:	1	1	0	0	2	0	1	0
145:	1	0	0	0	1	0	0	0
153:	2	0	4	0	1	2	0	1
161:	2	0	2	1	1	2	0	1
169:	0	0	1	1	2	1	0	1
177:	3	3	0	2	2	1	4	0
185:	4	1	3	4	3	3	1	2
193:	4	6	2	4	2	2	2	3
201:	1	3	8	6	5	7	3	7
209:	6	5	8	3	7	1	5	7
217:	8	11	10	10	10	8	6	12
225:	14	12	4	13	14	11	13	16
233:	18	12	32	31	26	39	39	24
241:	34	38	32	39	36	28	44	31
249:	35	45	42	35	48	53	51	40
257:	39	28	36	39	41	30	26	16
265:	9	13	2	1	2	1	0	0
273:	0	1	0	0	1	0	0	1
281:	0	1	0	0	1	0	0	2
289:	1	2	0	0	0	0	1	0
297:	2	2	0	1	1	0	2	1
305:	2	2	2	2	0	0	1	1
313:	2	0	4	1	4	5	1	2
321:	2	1	2	1	0	1	2	3
329:	0	2	1	0	0	0	0	1
337:	0	0	0	0	0	0	1	2
345:	0	1	1	2	1	1	1	0
353:	2	2	0	2	1	3	0	0
361:	1	0	0	2	0	1	1	2

369:	2	1	0	2	1	1	0	2

Sample Title: 07

Channel								
377:	2	1	1	1	4	0	2	2
385:	3	2	5	3	2	5	1	2
393:	8	3	3	1	2	2	5	3
401:	3	5	4	3	6	7	7	10
409:	5	6	7	8	7	9	7	17
417:	11	11	12	16	16	14	12	11
425:	18	20	28	16	29	24	28	40
433:	26	28	18	36	30	30	36	30
441:	40	39	27	40	48	31	42	38
449:	44	55	38	54	46	44	49	32
457:	29	26	20	7	13	4	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	1	0	1	0
513:	0	0	0	1	0	0	0	0
521:	0	0	1	0	0	0	0	0
529:	0	0	0	0	1	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	2	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	1	1	1	0
569:	1	0	0	1	0	0	0	0
577:	0	0	1	1	0	1	2	1
585:	1	0	0	1	1	2	3	3
593:	3	3	4	0	5	0	2	0
601:	3	5	1	7	4	4	8	3
609:	5	5	7	13	8	8	8	9
617:	11	9	7	11	3	7	15	9
625:	11	16	9	10	15	10	13	8
633:	9	18	15	12	13	14	12	8
641:	4	7	7	5	1	2	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	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	1	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	1	0

Sample Title: 07

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

Apex-Alpha™

8/18

Sample Description: HTC-A02-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 08
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: 1.020E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 2:16:00 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.1992 +/- 0.0113
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 1.3488 +/- 0.0801

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.276	373.30	10.17	1.70	0.00E+000	20.9
U-234		4.730	1778.47	4.65	1.53	0.00E+000	66.7
U-235		4.400	89.49	20.79	0.51	0.00E+000	6.9
U-238		4.153	1796.66	4.62	0.34	0.00E+000	65.6

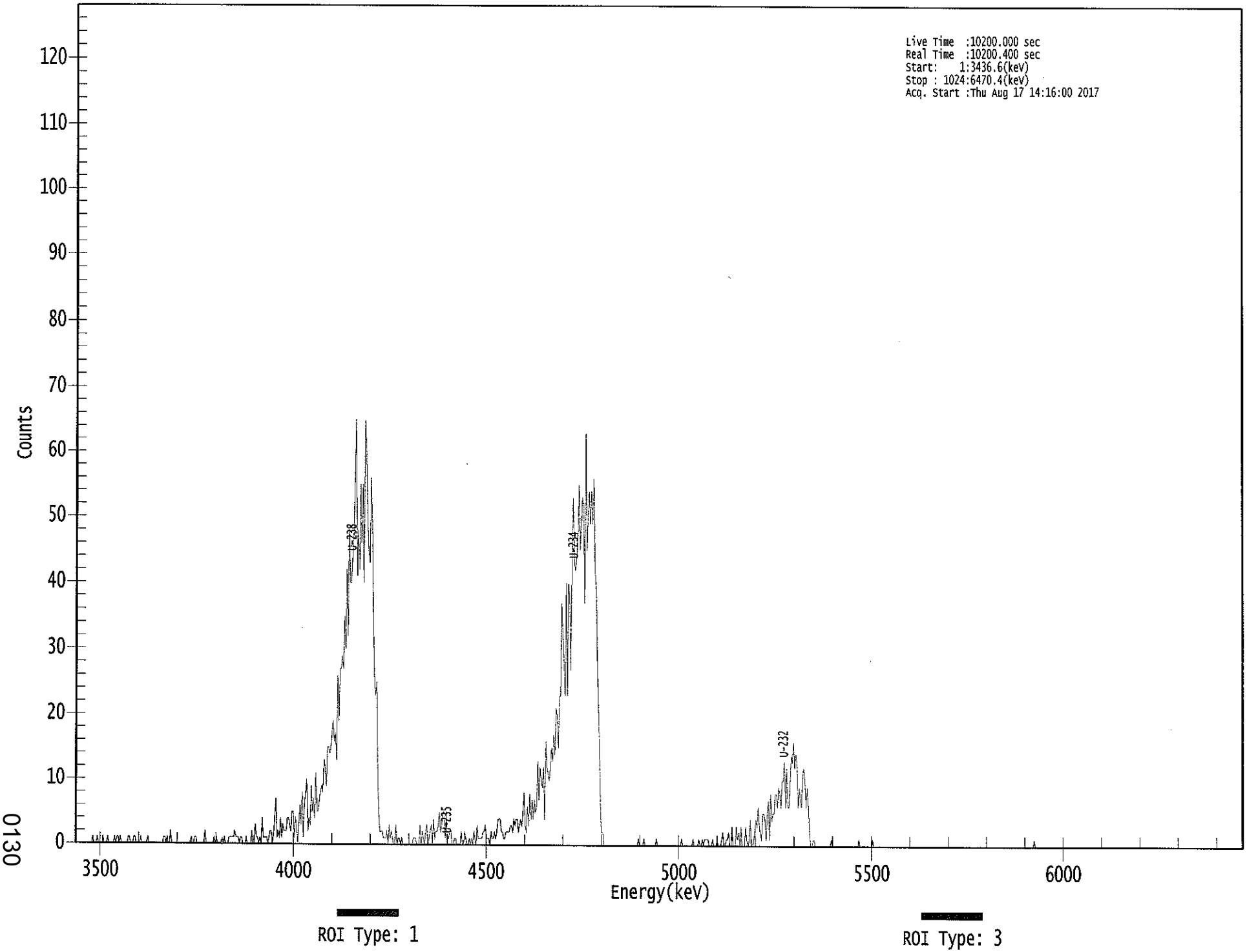
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.89E+000 +/- 5.44E-001	9.63E-002 +/- 1.07E-002
U-234	0.993	4761.50*	2.32E+001 +/- 2.80E+000	9.29E-002 +/- 1.03E-002
U-235	0.998	4385.50*	1.44E+000 +/- 3.40E-001	8.46E-002 +/- 9.41E-003
U-238	0.993	4184.40*	2.34E+001 +/- 2.82E+000	6.22E-002 +/- 6.92E-003

AG
8/18/17

0000191770.CNF



0130

****
***** 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	1
17:	0	0	0	1	0	0	0	0
25:	1	0	0	0	1	0	0	0
33:	0	0	1	0	1	1	0	1
41:	0	0	0	0	0	0	1	1
49:	0	0	0	1	1	0	0	0
57:	0	1	0	0	0	0	0	1
65:	0	0	0	0	0	0	0	0
73:	0	0	0	0	0	1	1	0
81:	1	0	0	2	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	1	0	0
105:	1	1	0	0	0	0	0	0
113:	0	2	0	0	0	0	0	0
121:	0	1	0	1	0	0	0	0
129:	1	0	1	0	0	0	1	1
137:	1	1	1	2	1	1	1	0
145:	1	1	0	0	0	1	0	0
153:	0	0	2	0	1	3	1	1
161:	0	1	0	4	1	1	1	1
169:	0	1	2	2	0	2	4	7
177:	1	2	1	4	1	3	2	2
185:	2	4	4	3	2	5	5	1
193:	4	3	0	3	6	3	8	1
201:	6	8	10	2	4	3	9	5
209:	7	4	11	5	5	7	8	9
217:	8	13	12	9	15	15	14	15
225:	17	19	16	17	13	26	19	27
233:	27	29	27	35	30	42	32	48
241:	40	40	44	47	56	65	41	48
249:	42	55	46	55	40	65	61	49
257:	45	43	56	49	34	25	23	25
265:	11	4	2	2	2	1	1	1
273:	2	0	3	1	2	1	0	0
281:	3	0	1	1	0	1	0	0
289:	0	0	0	0	0	0	0	1
297:	1	1	0	0	0	3	0	2
305:	1	0	2	3	0	1	2	3
313:	0	4	1	2	2	3	5	2
321:	3	5	5	1	5	1	1	2
329:	2	0	0	1	1	0	0	0
337:	0	2	0	0	2	1	0	0
345:	1	0	1	0	2	1	0	3
353:	1	1	1	1	2	2	3	1
361:	1	1	0	2	1	1	2	1

369:	2	4	4	4	2	2	1	1

Sample Title: 08

Channel								
377:	2	2	2	2	3	3	2	4
385:	3	4	4	2	3	4	3	5
393:	8	3	2	6	3	8	4	7
401:	4	7	5	6	13	7	12	10
409:	9	12	4	16	12	11	10	12
417:	15	13	17	14	21	20	15	23
425:	23	37	32	28	23	40	23	40
433:	38	27	44	53	43	42	44	47
441:	55	45	49	53	52	37	63	45
449:	50	54	49	54	49	56	42	39
457:	29	21	16	5	2	2	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	1	0	0	0
497:	0	1	0	0	0	0	0	0
505:	0	0	0	0	1	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	0	0	0
529:	0	0	1	0	0	0	0	0
537:	0	0	0	0	1	0	0	0
545:	0	1	0	0	1	0	1	1
553:	1	1	0	0	0	1	0	0
561:	0	1	0	0	0	1	2	0
569:	0	1	1	2	0	0	3	0
577:	0	0	3	1	2	0	3	0
585:	0	0	3	1	0	1	4	0
593:	0	1	2	4	3	6	3	2
601:	1	5	5	4	1	5	7	1
609:	8	4	5	5	8	8	6	9
617:	8	6	10	10	13	6	12	6
625:	6	9	14	13	16	12	14	13
633:	6	9	7	6	11	12	10	6
641:	9	6	2	0	0	1	1	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	1	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	1	0	0
689:	0	0	0	0	0	0	0	0
697:	0	1	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 08

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

Apex-Alpha™

8/18

Sample Description: HTC-A02-S001-0006-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 09
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:41 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.607 mL
Effective Efficiency: 0.1959 +/- 0.0112
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 1.1653 +/- 0.0695

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	367.32	10.24	0.68	0.00E+000	17.3
U-234		4.722	1756.66	4.68	0.34	0.00E+000	77.1
U-235		4.409	125.00	17.60	0.00	0.00E+000	5.2
U-238		4.145	1696.83	4.76	0.17	0.00E+000	76.0

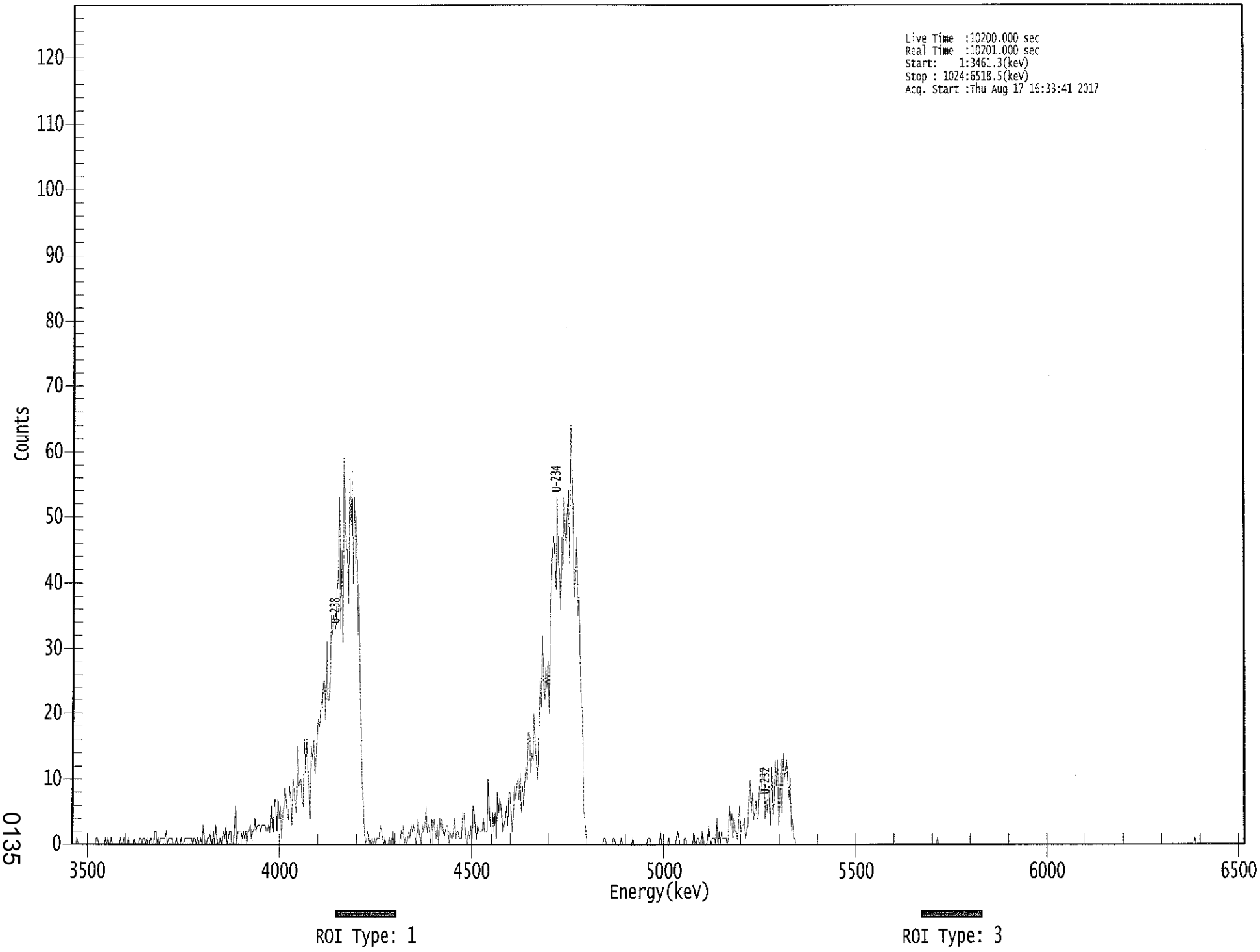
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.991	5302.50*	4.80E+000 +/- 5.37E-001	7.37E-002 +/- 8.24E-003
U-234	0.989	4761.50*	2.29E+001 +/- 2.78E+000	6.23E-002 +/- 6.97E-003
U-235	0.996	4385.50*	2.01E+000 +/- 4.19E-001	9.64E-002 +/- 1.08E-002
U-238	0.989	4184.40*	2.20E+001 +/- 2.68E+000	5.41E-002 +/- 6.06E-003

AG
8/18/17

0000191782.CNF



0135

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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	1	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	1	1	0
25:	0	0	0	0	0	1	0	1
33:	0	0	1	0	0	0	0	0
41:	0	0	1	0	0	1	0	0
49:	0	1	0	0	0	0	1	0
57:	0	0	0	1	1	0	1	1
65:	0	1	0	0	1	1	0	0
73:	2	2	0	1	0	1	1	1
81:	1	1	2	0	1	1	1	1
89:	0	0	0	1	0	0	0	1
97:	0	0	1	1	1	1	1	1
105:	1	0	1	1	0	1	0	0
113:	1	0	3	1	0	0	1	1
121:	2	0	0	2	0	3	1	0
129:	0	1	0	1	2	1	3	0
137:	1	2	2	0	0	2	6	0
145:	2	2	2	2	1	2	1	2
153:	0	2	2	3	1	2	2	4
161:	2	3	3	3	2	3	3	3
169:	3	2	2	3	2	6	3	2
177:	7	7	2	7	4	6	1	4
185:	6	9	7	5	4	9	7	3
193:	10	8	6	5	15	9	10	10
201:	7	6	16	11	16	11	9	4
209:	15	13	16	11	13	17	19	18
217:	22	21	25	25	19	31	22	22
225:	26	35	32	35	34	33	39	41
233:	53	33	45	31	59	50	45	45
241:	37	56	49	57	40	53	43	50
249:	32	40	27	17	10	6	2	0
257:	1	2	0	1	0	1	0	1
265:	0	1	1	1	3	2	1	0
273:	1	0	0	0	1	0	0	2
281:	0	1	0	0	0	0	2	1
289:	3	0	1	0	1	2	1	3
297:	2	3	2	0	1	4	2	1
305:	0	3	2	3	6	2	3	2
313:	0	4	2	4	2	1	3	0
321:	4	2	4	2	1	2	3	3
329:	0	2	1	1	2	4	1	2
337:	2	1	1	1	5	5	2	1
345:	0	2	1	3	1	6	5	2
353:	1	3	2	2	2	2	4	2
361:	2	2	10	5	3	0	5	2

369:	5	1	8	5	7	6	4	2

Sample Title: 09

Channel								
377:	3	4	6	3	8	8	5	2
385:	5	9	7	9	10	7	11	5
393:	9	6	10	12	10	17	17	11
401:	14	13	20	15	13	10	17	25
409:	21	32	25	22	27	24	28	20
417:	35	41	45	47	44	39	53	43
425:	42	36	47	42	53	48	46	51
433:	54	43	64	58	49	38	41	47
441:	35	38	28	21	21	6	4	2
449:	0	0	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	1
465:	1	0	0	0	0	0	0	1
473:	1	0	0	0	0	0	1	0
481:	0	0	0	0	0	0	0	0
489:	1	0	0	0	0	0	0	0
497:	0	0	0	0	0	1	1	1
505:	0	0	0	0	0	0	0	0
513:	2	0	0	0	0	0	0	1
521:	0	0	0	0	0	0	1	2
529:	1	0	0	0	0	1	1	0
537:	0	0	0	0	0	2	0	0
545:	1	1	0	0	2	1	0	0
553:	0	1	3	1	0	1	1	1
561:	0	4	0	2	0	2	1	1
569:	1	1	0	1	6	3	5	1
577:	4	2	2	1	3	6	2	3
585:	3	4	1	2	3	7	10	5
593:	8	4	5	7	4	4	9	8
601:	8	12	12	4	7	5	9	9
609:	3	12	4	7	13	9	13	3
617:	7	13	5	14	10	12	13	9
625:	7	11	2	4	1	1	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	1	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 09

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

8/18

Sample Description: HTC-A02-S001-0006-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 10
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.240E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:42 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.1850 +/- 0.0108
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.0702 +/- 0.0653

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.264	345.98	10.56	1.02	0.00E+000	10.6
U-234		4.720	2105.83	4.27	0.17	0.00E+000	73.8
U-235		4.398	146.49	16.23	0.51	0.00E+000	4.3
U-238		4.143	2171.83	4.21	0.17	0.00E+000	60.6

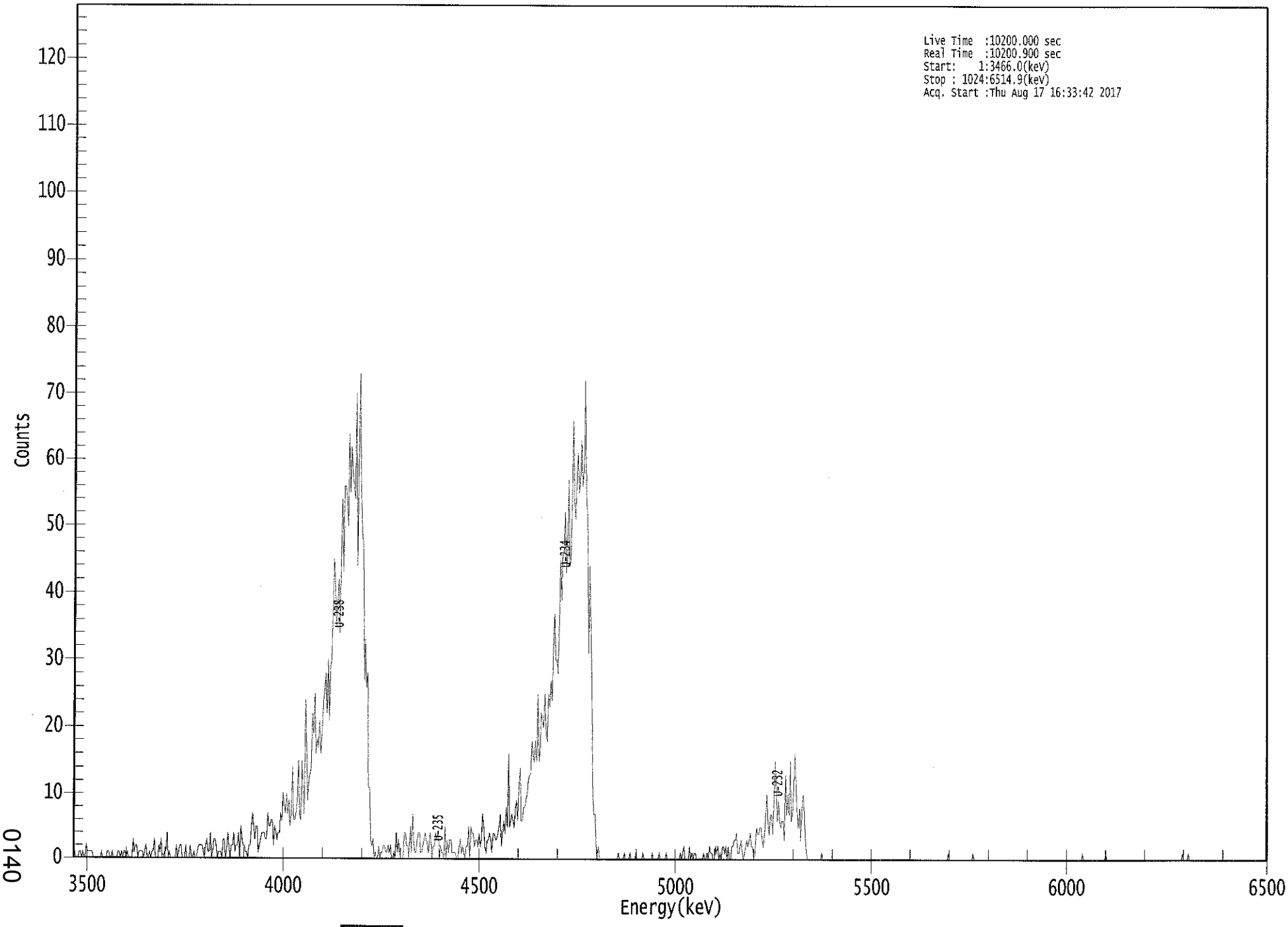
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.990	5302.50*	4.02E+000 +/- 4.61E-001	7.31E-002 +/- 8.39E-003
U-234	0.988	4761.50*	2.44E+001 +/- 2.99E+000	4.83E-002 +/- 5.55E-003
U-235	0.999	4385.50*	2.09E+000 +/- 4.16E-001	7.49E-002 +/- 8.60E-003
U-238	0.988	4184.40*	2.50E+001 +/- 3.06E+000	4.81E-002 +/- 5.52E-003

AG
8/18/17

0000191777.CNF



0140

****
***** 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: 10201

Channel								
1:	0	1	0	0	0	1	1	0
9:	1	0	0	2	1	1	1	1
17:	1	0	0	0	0	0	0	0
25:	1	0	0	0	0	1	1	0
33:	0	1	0	0	0	0	1	1
41:	0	1	0	1	1	0	1	0
49:	0	0	0	3	1	2	2	0
57:	1	1	1	1	0	1	2	0
65:	0	1	0	1	1	3	0	0
73:	0	2	1	3	0	0	1	1
81:	4	0	1	0	0	0	0	0
89:	2	0	1	2	2	0	0	0
97:	2	0	0	0	2	0	0	1
105:	0	0	1	2	2	2	2	1
113:	0	2	3	1	1	4	0	1
121:	3	3	2	0	1	1	1	0
129:	3	3	0	1	4	2	0	2
137:	2	4	1	2	2	4	0	5
145:	3	2	2	1	1	0	2	2
153:	5	7	5	3	5	5	1	2
161:	3	4	4	4	3	3	7	5
169:	5	6	6	2	5	4	3	4
177:	4	7	6	10	9	7	10	7
185:	9	5	7	14	6	6	7	9
193:	15	7	6	15	10	7	24	17
201:	9	12	13	14	22	19	25	16
209:	18	17	21	16	18	24	25	28
217:	22	30	21	29	30	38	45	40
225:	35	38	42	34	46	54	43	56
233:	56	54	50	64	55	62	58	56
241:	54	70	44	59	73	57	48	48
249:	27	33	26	28	11	11	3	2
257:	3	0	1	0	0	2	0	1
265:	1	2	2	1	1	2	1	2
273:	0	0	1	0	4	1	3	1
281:	0	0	0	4	4	2	2	0
289:	5	1	7	3	1	1	3	4
297:	4	1	1	2	3	4	3	2
305:	1	4	3	0	2	2	4	3
313:	4	2	2	1	1	0	5	0
321:	3	1	3	3	1	1	1	1
329:	0	0	2	3	1	2	1	0
337:	2	2	5	0	5	4	4	2
345:	3	3	2	4	2	3	7	5
353:	2	1	3	3	4	3	1	4
361:	4	3	3	4	5	7	2	4

369:	6	4	8	5	16	5	6	7

Sample Title: 10

Channel								
377:	6	5	8	9	6	11	14	6
385:	6	8	8	9	10	12	13	13
393:	18	16	15	18	15	25	15	17
401:	22	21	20	25	19	18	25	23
409:	27	24	32	37	30	30	28	36
417:	45	39	46	46	52	43	46	57
425:	44	45	53	66	54	51	57	61
433:	55	57	63	56	59	72	54	51
441:	31	44	34	24	10	7	7	2
449:	1	2	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	1	0	0	0	0	1
473:	0	0	0	0	1	0	0	0
481:	0	1	0	0	0	0	0	1
489:	0	0	0	0	0	0	0	1
497:	0	0	0	0	0	1	0	0
505:	0	0	0	1	0	0	0	0
513:	0	0	0	0	0	0	0	1
521:	0	1	2	0	0	0	0	2
529:	0	1	0	1	1	0	0	0
537:	0	0	0	1	0	0	1	0
545:	2	1	1	0	0	2	1	2
553:	0	1	0	2	2	1	2	0
561:	2	0	0	2	2	3	3	4
569:	1	1	2	3	1	0	1	2
577:	3	2	3	4	2	2	0	1
585:	5	4	4	5	5	3	2	4
593:	7	10	5	4	7	7	4	9
601:	15	11	6	9	6	5	6	6
609:	3	13	7	10	7	15	6	7
617:	11	16	12	7	5	8	3	8
625:	10	8	3	1	0	0	0	0
633:	0	0	0	0	0	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	1	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	1	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 10

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

Apex-Alpha™

Sample Description: HTC-A02-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 11
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.180E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:44 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.1998 +/- 0.0113
Counting Efficiency: 0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor: 1.2645 +/- 0.0748

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.276	373.83	10.14	0.17	0.00E+000	9.7
U-234		4.731	1655.00	4.82	0.00	0.00E+000	75.1
U-235		4.391	100.83	19.54	0.17	0.00E+000	6.3
U-238		4.153	1757.66	4.68	0.34	0.00E+000	50.6

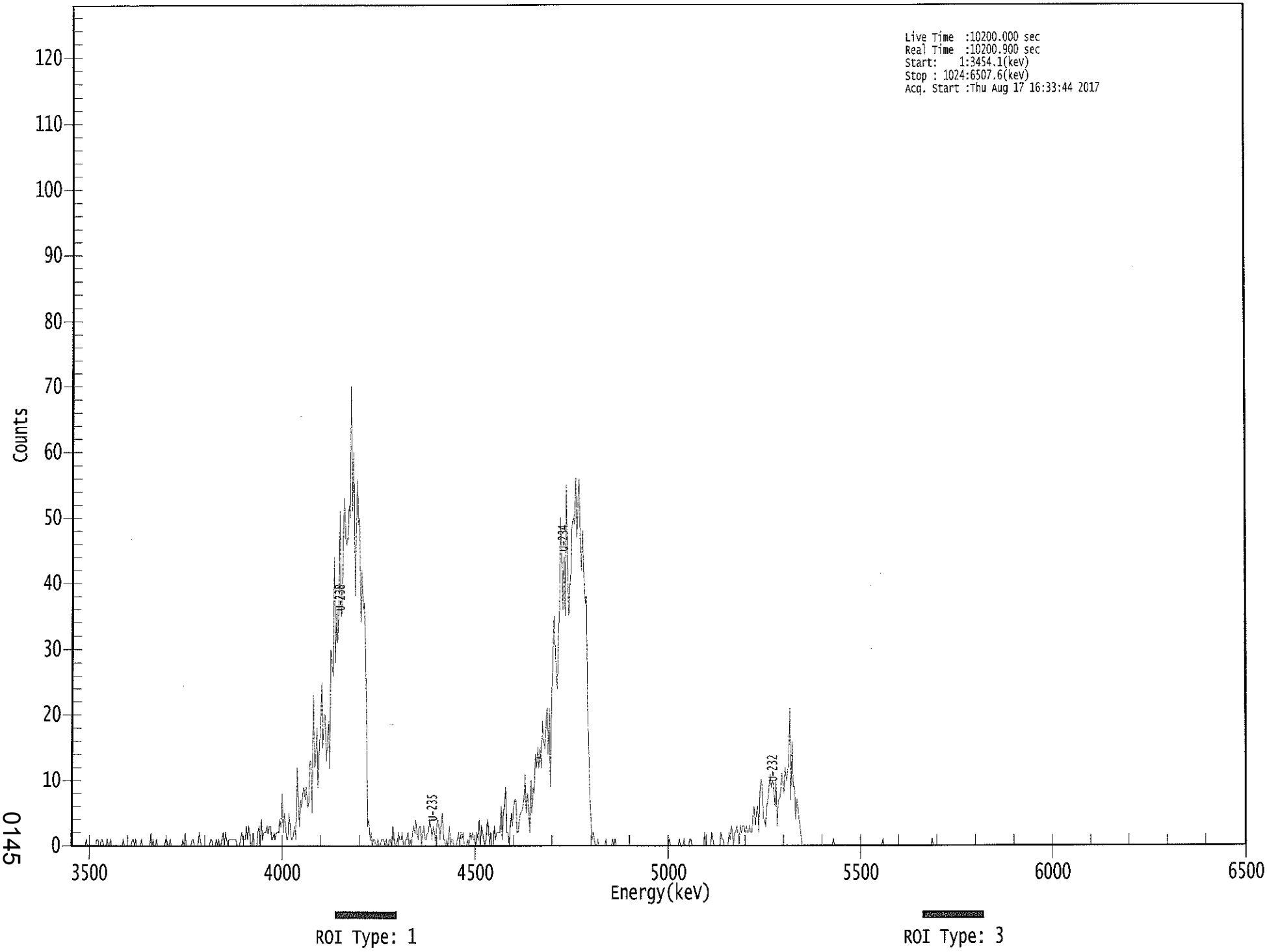
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	4.22E+000 +/- 4.69E-001	4.71E-002 +/- 5.23E-003
U-234	0.994	4761.50*	1.86E+001 +/- 2.26E+000	6.75E-002 +/- 7.50E-003
U-235	1.000	4385.50*	1.40E+000 +/- 3.15E-001	5.80E-002 +/- 6.44E-003
U-238	0.993	4184.40*	1.97E+001 +/- 2.37E+000	5.36E-002 +/- 5.95E-003

AG
8/18/17

0000191774.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: 10201

Channel							
1:	1	0	0	0	0	0	0	0
9:	0	0	0	0	0	1	0	0
17:	0	0	0	0	0	0	1	1
25:	0	0	1	1	0	0	0	1
33:	0	0	1	0	0	0	0	0
41:	0	0	0	0	0	1	0	0
49:	0	0	0	0	0	1	1	0
57:	1	0	0	0	0	1	0	0
65:	0	0	0	0	0	2	0	1
73:	0	0	1	0	0	0	0	0
81:	0	0	1	1	0	0	1	0
89:	0	0	0	0	0	0	0	0
97:	0	1	0	2	0	0	0	0
105:	0	1	1	0	0	0	0	2
113:	1	0	0	0	0	0	0	0
121:	0	1	1	0	0	0	1	0
129:	1	0	0	1	2	0	2	1
137:	0	1	1	1	1	1	1	1
145:	0	0	0	1	2	1	1	1
153:	3	1	3	2	0	0	2	0
161:	0	0	2	3	0	4	1	2
169:	2	2	3	2	3	3	1	1
177:	2	1	2	2	2	4	3	8
185:	2	5	3	1	1	5	3	1
193:	1	2	3	1	12	7	3	7
201:	6	8	9	7	9	6	6	13
209:	13	5	23	12	13	18	9	15
217:	18	25	15	20	20	13	16	19
225:	12	30	28	26	44	28	36	31
233:	37	51	35	36	48	53	47	46
241:	47	52	50	70	51	60	38	47
249:	56	49	50	34	42	36	37	28
257:	20	3	4	1	2	0	1	1
265:	0	0	1	0	0	1	1	1
273:	0	1	0	0	1	1	0	3
281:	1	0	0	1	2	1	1	2
289:	0	0	1	1	2	0	1	0
297:	2	3	2	4	2	1	3	3
305:	0	2	3	1	1	2	2	4
313:	3	1	3	2	1	3	4	3
321:	1	4	5	1	1	0	1	0
329:	3	0	1	1	0	0	0	1
337:	2	0	2	1	2	0	0	0
345:	1	0	2	1	2	1	1	0
353:	2	1	4	0	3	2	1	0
361:	1	4	3	0	2	0	0	3

369:	1	2	2	2	2	6	1	5

Sample Title: 11

Channel								
377:	6	9	2	2	0	3	5	3
385:	6	7	7	2	2	4	5	5
393:	6	7	11	5	8	6	2	10
401:	5	9	8	14	12	15	12	15
409:	12	19	16	15	18	21	14	21
417:	9	23	27	35	31	26	24	33
425:	36	50	44	36	44	35	55	43
433:	35	39	42	49	50	49	56	47
441:	52	56	46	42	48	41	37	38
449:	21	16	8	4	1	2	1	0
457:	0	1	0	0	0	0	0	0
465:	1	0	0	0	0	0	1	0
473:	1	0	0	0	0	0	0	0
481:	0	0	0	0	0	0	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	1
521:	0	0	0	0	0	0	0	0
529:	1	0	0	0	1	0	0	0
537:	0	1	1	0	0	0	0	0
545:	0	0	0	0	0	0	2	0
553:	0	0	0	0	2	1	0	0
561:	0	0	0	0	2	1	1	0
569:	0	0	0	2	1	3	2	0
577:	2	2	3	2	0	3	2	3
585:	3	2	3	2	2	3	2	2
593:	5	6	3	5	6	2	9	10
601:	9	4	4	3	6	7	9	11
609:	9	10	9	6	10	3	7	7
617:	8	11	10	8	12	10	11	13
625:	21	7	16	9	9	4	7	6
633:	4	3	1	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	1	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	1	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	1	0	0	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™

Sample Description: HTC-A02-S001-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.230E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:47 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.2093 +/- 0.0116
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 1.1475 +/- 0.0666

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	391.66	9.91	0.34	0.00E+000	13.8
U-234		4.724	290.98	11.51	1.02	0.00E+000	8.9
U-235		4.385	21.66	42.50	0.34	0.00E+000	5.9
U-238		4.143	296.66	11.39	0.34	0.00E+000	6.8

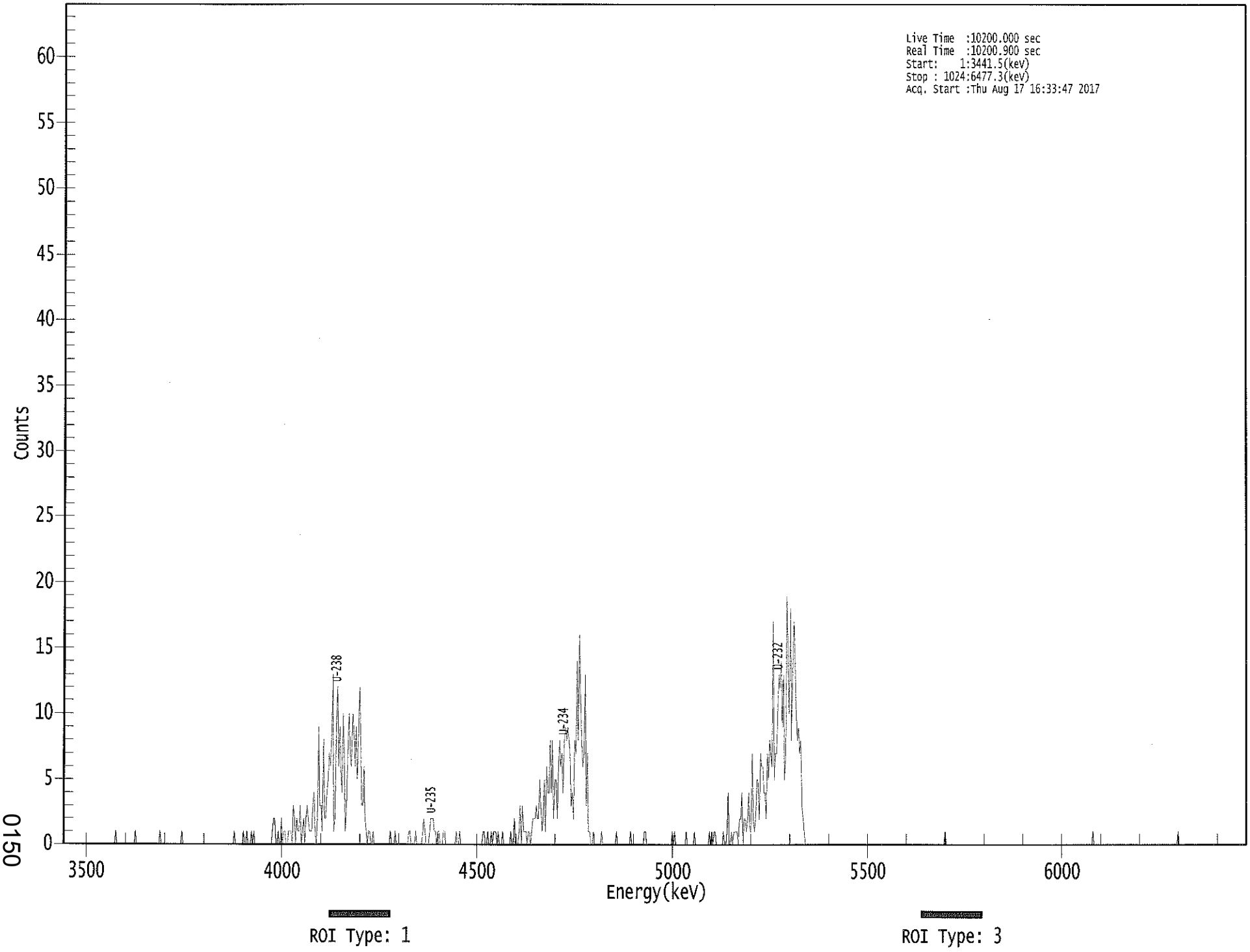
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.994	5302.50*	4.05E+000 +/- 4.41E-001	4.94E-002 +/- 5.38E-003
U-234	0.990	4761.50*	3.00E+000 +/- 4.76E-001	6.50E-002 +/- 7.08E-003
U-235	1.000	4385.50*	2.76E-001 +/- 1.21E-001	6.08E-002 +/- 6.62E-003
U-238	0.988	4184.40*	3.05E+000 +/- 4.80E-001	4.91E-002 +/- 5.35E-003

AG
8/18/17

0000191775.CNF



0150

****
***** 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: 10201

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

369:	0	1	0	1	1	1	0	1

Sample Title: 12

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

801:	0	0	0	0	0	0	0	0

Sample Title: 12

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

Apex-Alpha™

Sample Description: HTC-A02-S001-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.100E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:49 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.2266 +/- 0.0122
Counting Efficiency: 0.1587 +/- 0.0027 on 11/18/2016 10:08:53 AM
Chem. Recovery Factor: 1.4274 +/- 0.0806

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	5.294	424.15	9.53	0.85	0.00E+000	42.4
U-234		4.748	95.66	20.08	0.34	0.00E+000	9.3
U-235		4.376	4.66	94.59	0.34	0.00E+000	3.0
U-238		4.173	80.98	21.94	1.02	0.00E+000	6.0

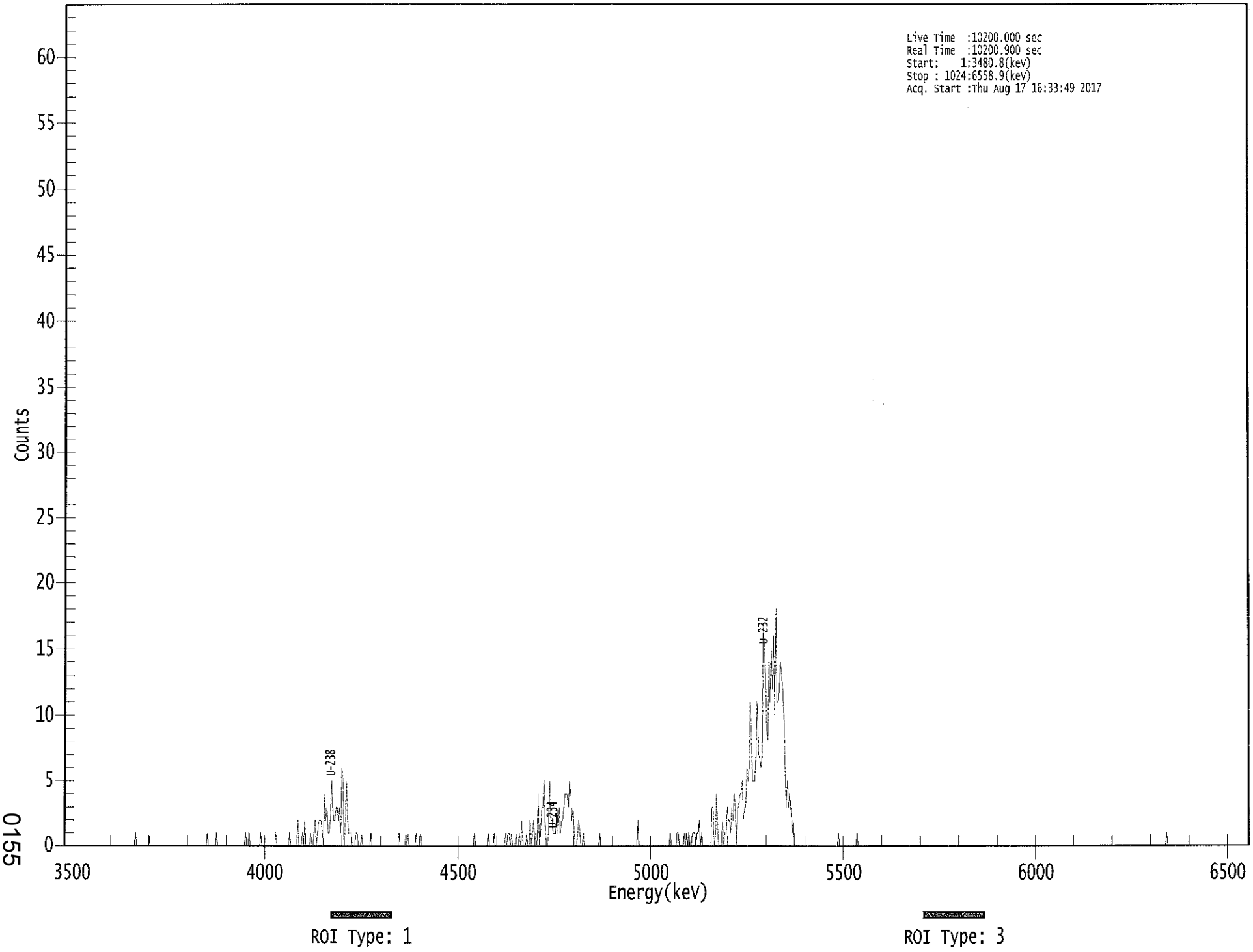
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.999	5302.50*	4.53E+000 +/- 4.78E-001	6.39E-002 +/- 6.74E-003
U-234	0.999	4761.50*	1.02E+000 +/- 2.31E-001	5.09E-002 +/- 5.37E-003
U-235	0.999	4385.50*	6.12E-002 +/- 5.83E-002	6.28E-002 +/- 6.62E-003
U-238	0.999	4184.40*	8.59E-001 +/- 2.09E-001	6.68E-002 +/- 7.05E-003

AG
8/18/17

0000191783.CNF



0155

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

Sample Title: 13

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	0	0	1	0	0	0	0	0

Sample Title: 13

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

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

Apex-Alpha™

8/18

Sample Description: HTC-A02-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:51 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.604 mL
Effective Efficiency: 0.2031 +/- 0.0114
Counting Efficiency: 0.1543 +/- 0.0027 on 11/18/2016 10:08:51 AM
Chem. Recovery Factor: 1.3159 +/- 0.0775

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	378.83	10.07	0.17	0.00E+000	20.0
U-234		4.726	83.15	21.62	0.85	0.00E+000	5.2
U-235		4.374	7.66	72.63	0.34	0.00E+000	3.0
U-238		4.145	78.83	22.10	0.17	0.00E+000	10.0

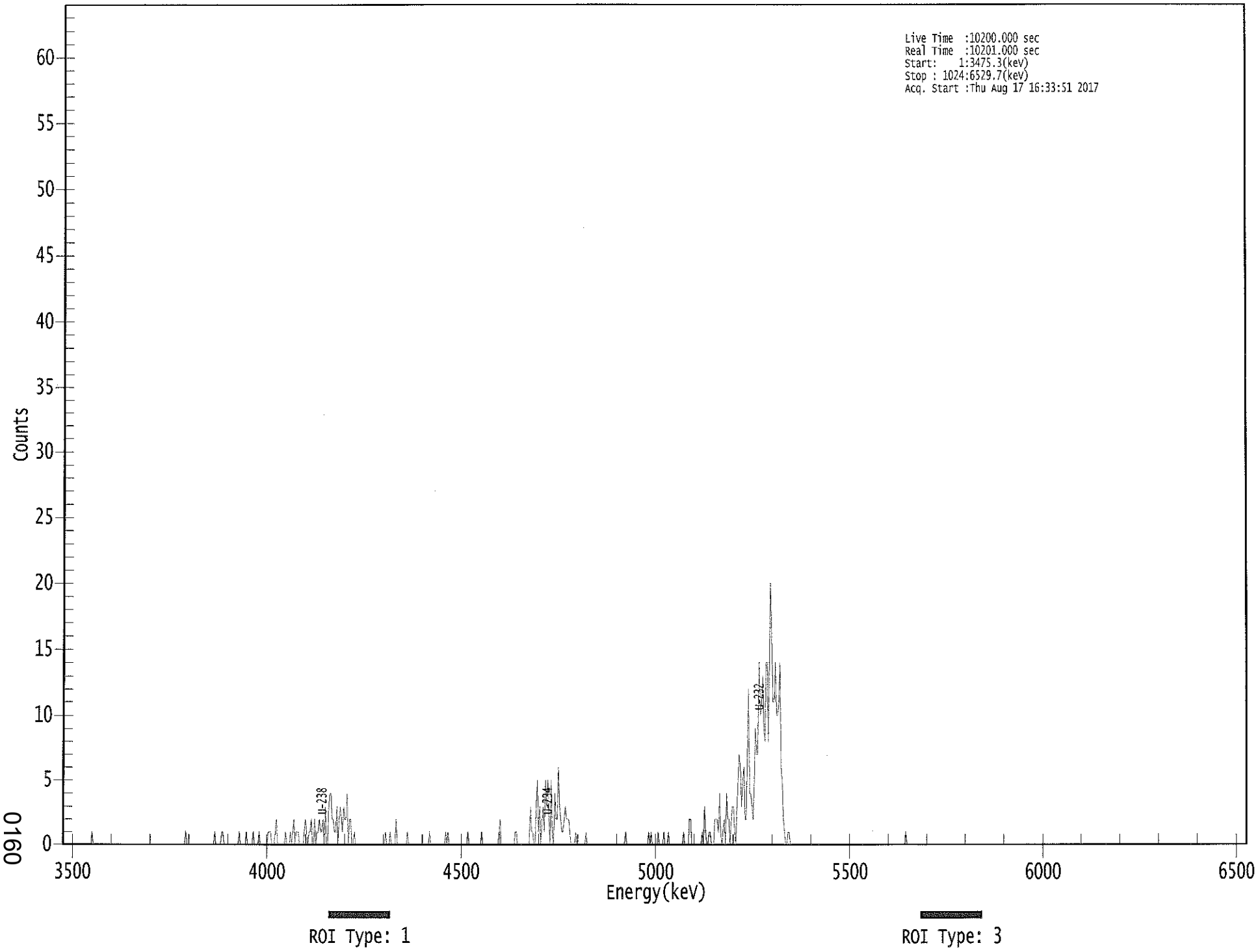
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.77E+000 +/- 5.27E-001	5.26E-002 +/- 5.80E-003
U-234	0.991	4761.50*	1.05E+000 +/- 2.54E-001	7.53E-002 +/- 8.31E-003
U-235	0.999	4385.50*	1.19E-001 +/- 8.73E-002	7.41E-002 +/- 8.18E-003
U-238	0.989	4184.40*	9.87E-001 +/- 2.44E-001	5.22E-002 +/- 5.76E-003

AG
8/18/17

0000191772.CNF



0160

****
***** 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: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	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	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	1	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	1	1	0	0	0	0	0
145:	0	0	0	0	0	0	0	0
153:	1	0	0	0	0	0	1	0
161:	0	0	0	0	1	0	0	0
169:	0	1	0	0	0	0	0	0
177:	0	1	1	1	0	0	0	1
185:	2	0	0	0	0	0	0	0
193:	1	0	0	0	1	0	1	2
201:	0	1	1	1	0	0	0	0
209:	1	2	1	0	1	1	2	0
217:	0	2	0	1	1	2	1	1
225:	2	0	3	0	0	3	4	4
233:	2	2	1	1	3	0	2	3
241:	2	1	3	2	2	4	0	2
249:	2	0	0	1	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	1	0
281:	0	0	1	0	0	0	0	2
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	1	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	1	0	1	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	0	0	1	0	0
353:	0	0	0	0	0	0	0	0
361:	0	1	0	0	0	0	0	0

369:	0	0	0	0	0	0	0	0

Sample Title: 14

Channel								
377:	1	2	0	0	0	0	0	0
385:	0	0	0	0	0	0	1	1
393:	0	0	0	0	0	0	0	0
401:	0	0	0	3	1	1	0	0
409:	3	5	1	3	0	2	3	1
417:	5	3	5	2	0	5	1	0
425:	4	2	2	6	3	2	1	1
433:	2	3	2	2	2	1	0	0
441:	0	0	1	0	0	0	0	0
449:	0	0	0	1	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	0	0	1	0	0
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	1	0	1	0	0	0	0
513:	0	1	0	0	0	0	1	0
521:	0	0	1	0	0	0	0	0
529:	0	0	0	0	0	0	0	1
537:	0	0	0	0	2	2	0	0
545:	0	0	0	0	0	0	0	1
553:	0	3	1	0	0	1	1	0
561:	0	0	2	2	2	1	4	1
569:	0	1	2	0	4	2	2	0
577:	2	3	3	1	0	3	5	7
585:	6	3	5	6	2	2	7	12
593:	4	4	3	2	5	9	7	7
601:	14	10	11	13	9	8	14	14
609:	8	15	20	15	11	11	14	10
617:	10	11	14	6	5	2	1	0
625:	0	1	1	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	1
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: 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	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

8/18

Sample Description: HTC-A02-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.140E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:53 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.604 mL
Effective Efficiency: 0.2263 +/- 0.0122
Counting Efficiency: 0.1852 +/- 0.0031 on 11/18/2016 10:08:50 AM
Chem. Recovery Factor: 1.2223 +/- 0.0691

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.259	422.45	9.57	2.55	0.00E+000	34.5
U-234		4.718	183.13	14.57	1.87	0.00E+000	5.6
U-235		4.383	10.66	61.14	0.34	0.00E+000	3.0
U-238		4.144	184.15	14.48	0.85	0.00E+000	11.0

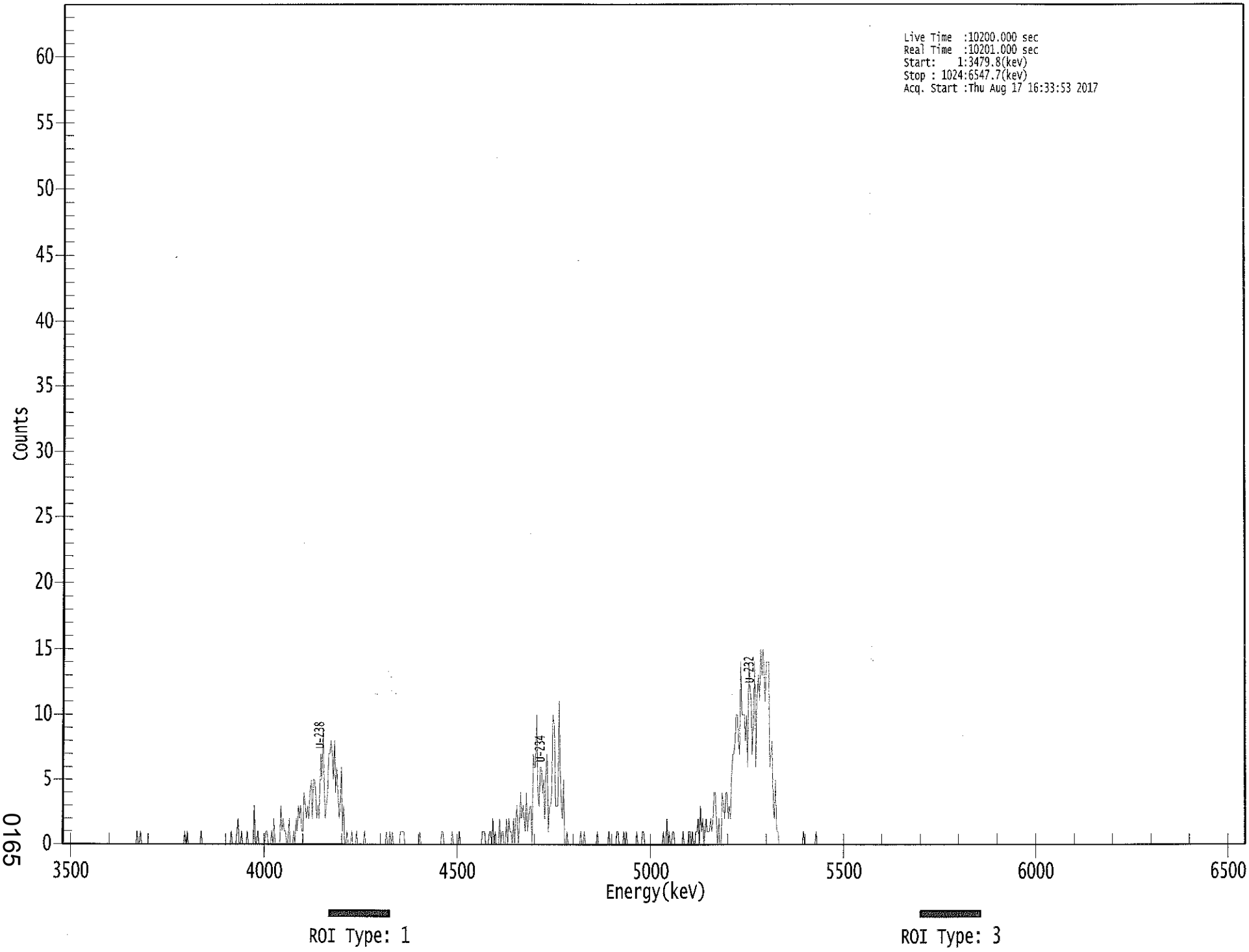
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.987	5302.50*	4.36E+000 +/- 4.61E-001	8.65E-002 +/- 9.16E-003
U-234	0.987	4761.50*	1.88E+000 +/- 3.39E-001	7.79E-002 +/- 8.24E-003
U-235	1.000	4385.50*	1.35E-001 +/- 8.40E-002	6.07E-002 +/- 6.42E-003
U-238	0.989	4184.40*	1.89E+000 +/- 3.38E-001	6.13E-002 +/- 6.49E-003

AG
8/18/17

0000191778.CNF



0165

****
***** 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: 10201

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

369:	1	1	0	2	0	1	0	0

Sample Title: 15

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

801:	0	0	0	0	0	0	0	0

Sample Title: 15

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

Apex-Alpha™

8/18

Sample Description: HTC-A02-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: U iso

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

Sample Size: 1.240E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:55 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.606 mL
Effective Efficiency: 0.2170 +/- 0.0119
Counting Efficiency: 0.1813 +/- 0.0031 on 11/18/2016 10:08:48 AM
Chem. Recovery Factor: 1.1965 +/- 0.0686

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.281	406.15	9.74	0.85	0.00E+000	22.3
U-234		4.730	94.49	20.23	0.51	0.00E+000	8.0
U-235		4.384	7.00	79.20	0.00	0.00E+000	3.0
U-238		4.169	96.49	20.01	0.51	0.00E+000	4.0

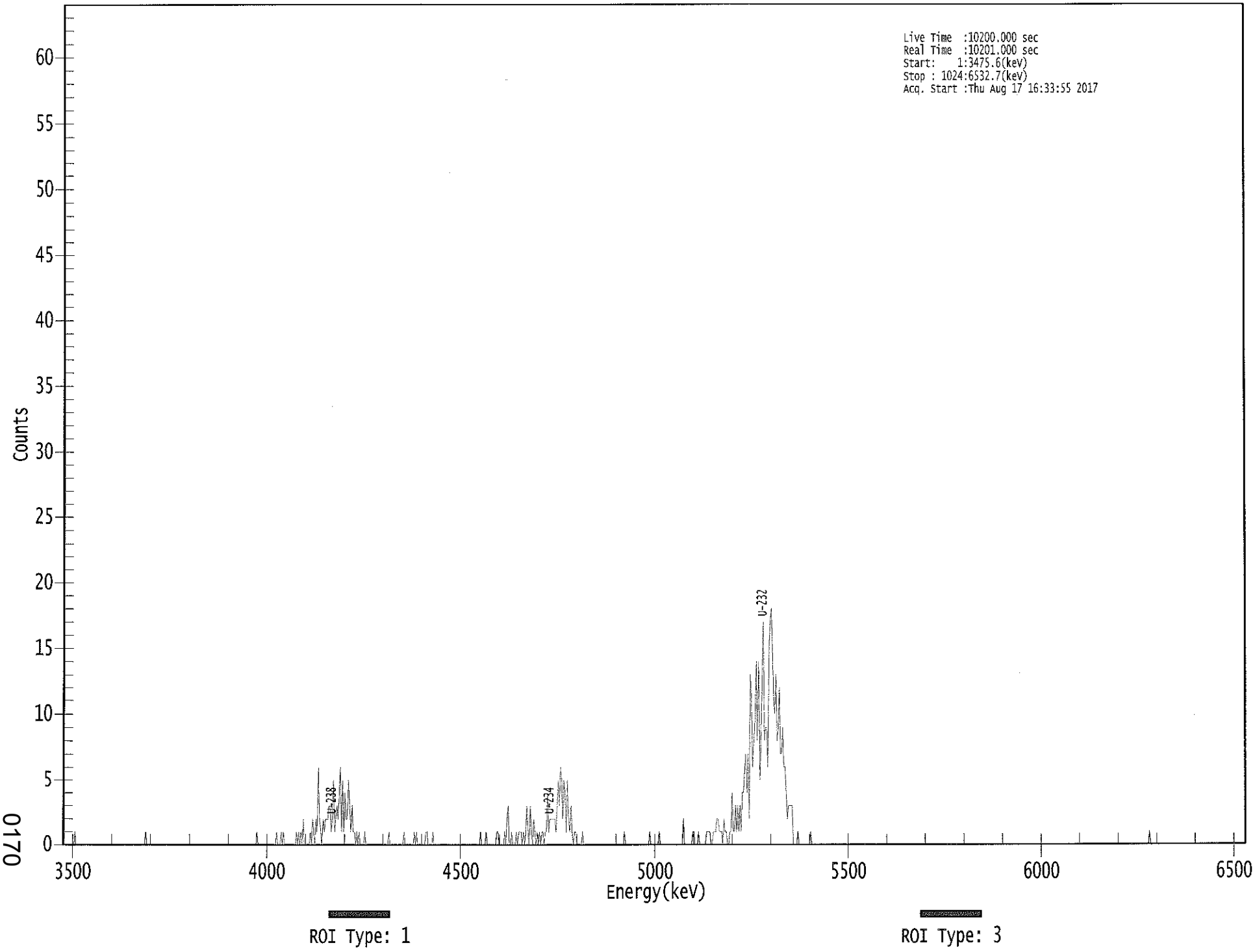
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.997	5302.50*	4.02E+000 +/- 4.31E-001	5.92E-002 +/- 6.36E-003
U-234	0.993	4761.50*	9.32E-001 +/- 2.14E-001	5.18E-002 +/- 5.56E-003
U-235	1.000	4385.50*	8.52E-002 +/- 6.81E-002	7.30E-002 +/- 7.83E-003
U-238	0.998	4184.40*	9.48E-001 +/- 2.15E-001	5.16E-002 +/- 5.53E-003

AG
8/18/17

0000191779.CNF



0170

****
***** 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: 10201

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

369:	0	0	0	0	0	0	1	1

Sample Title: 16

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

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

Apex-Alpha™

8/18

Sample Description: HTC-A02-S002-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 17
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: 1.390E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:33:57 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.1054 +/- 0.0079
Counting Efficiency: 0.1874 +/- 0.0032 on 11/18/2016 10:08:43 AM
Chem. Recovery Factor: 0.5623 +/- 0.0434

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.276	196.47	14.05	1.53	0.00E+000	6.0
U-234		4.729	2239.49	4.14	0.51	0.00E+000	77.3
U-235		4.384	153.98	15.86	1.02	0.00E+000	12.0
U-238		4.150	2233.66	4.15	0.34	0.00E+000	67.5

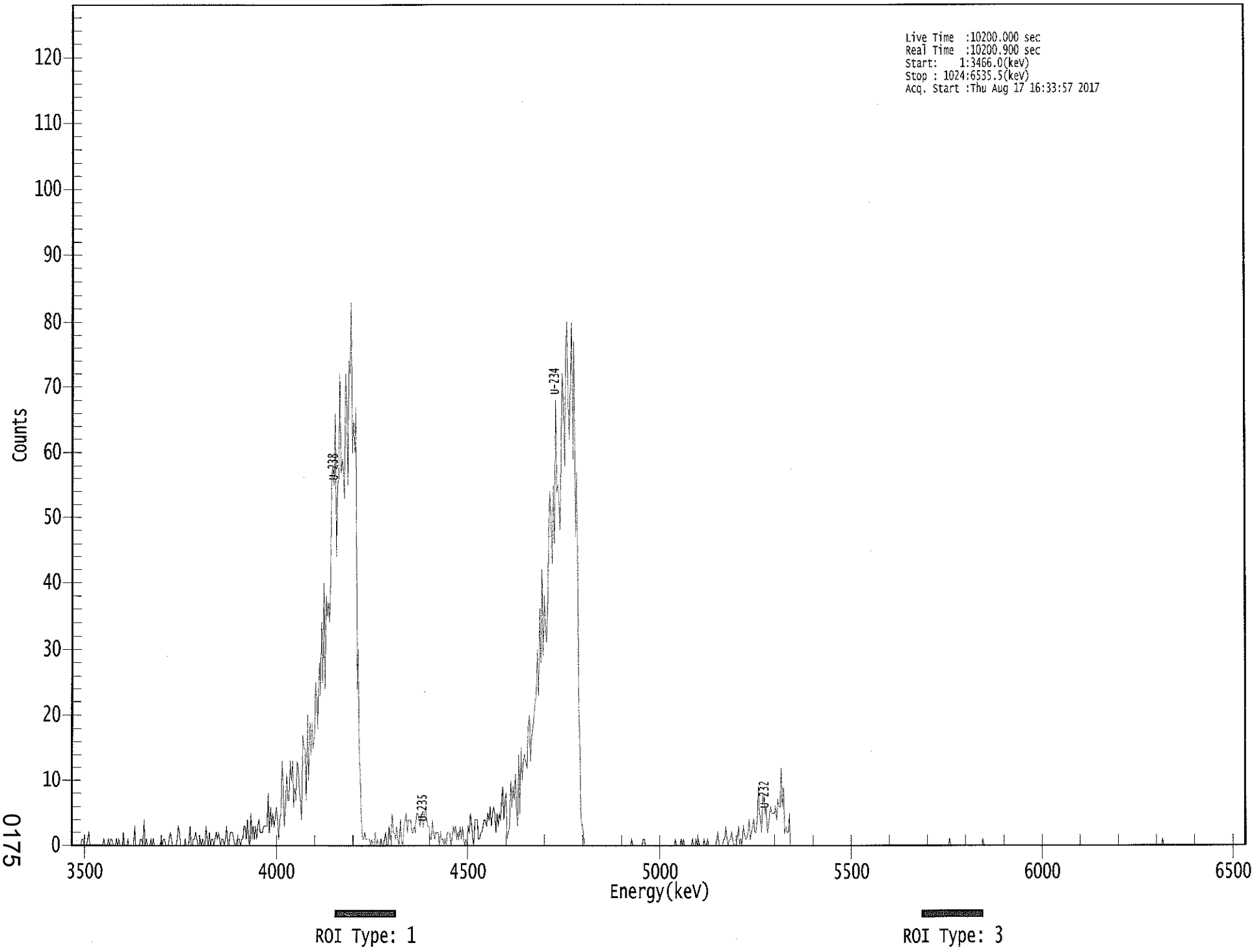
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.995	5302.50*	3.57E+000 +/- 5.27E-001	1.29E-001 +/- 1.91E-002
U-234	0.992	4761.50*	4.06E+001 +/- 6.22E+000	9.51E-002 +/- 1.40E-002
U-235	1.000	4385.50*	3.44E+000 +/- 7.46E-001	1.41E-001 +/- 2.08E-002
U-238	0.992	4184.40*	4.03E+001 +/- 6.18E+000	8.63E-002 +/- 1.27E-002

AG
8/18/17

0000191780.CNF



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

Sample Title: 17

Elapsed Live time: 10200
Elapsed Real Time: 10201

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	1	1	0	0	0	1	2
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	1	0	0	0
33:	1	0	1	1	0	0	0	1
41:	0	1	0	0	0	2	0	0
49:	0	1	0	0	0	0	0	3
57:	0	0	0	0	1	1	0	4
65:	0	1	0	0	0	1	0	1
73:	0	0	0	0	0	0	1	0
81:	1	1	0	0	0	1	2	1
89:	0	0	0	0	1	3	2	0
97:	0	0	0	1	0	0	0	3
105:	0	0	1	1	2	1	0	0
113:	1	0	1	0	0	3	1	0
121:	2	0	1	1	0	1	2	1
129:	2	1	0	1	1	0	1	3
137:	0	0	2	2	2	1	0	0
145:	1	1	1	0	1	1	3	3
153:	1	4	1	0	5	1	3	1
161:	3	1	3	4	2	2	2	3
169:	3	3	3	8	2	6	3	5
177:	3	4	6	4	1	4	5	13
185:	9	3	6	11	7	7	13	10
193:	13	6	9	7	13	12	8	7
201:	4	17	15	15	7	20	10	19
209:	14	19	15	17	25	22	18	28
217:	23	34	25	40	24	38	35	37
225:	34	40	57	58	55	66	44	55
233:	56	72	57	59	57	53	72	68
241:	55	74	72	83	60	65	60	67
249:	24	30	15	10	5	1	1	2
257:	1	1	1	1	0	1	0	0
265:	2	0	1	0	0	1	0	0
273:	1	2	0	0	3	1	2	5
281:	2	2	1	3	1	0	4	1
289:	0	3	4	5	2	4	4	4
297:	2	2	3	2	5	5	4	3
305:	5	4	3	5	6	4	3	3
313:	1	1	4	2	1	2	2	2
321:	0	2	1	1	0	1	0	2
329:	2	2	0	1	3	2	3	1
337:	2	1	3	1	3	1	0	1
345:	0	3	2	5	3	1	0	4
353:	4	4	1	1	2	2	3	4
361:	4	3	5	4	6	3	5	6

369:	5	2	5	3	5	4	7	9

Sample Title: 17

Channel								
377:	4	7	8	1	2	3	10	6
385:	9	7	11	6	3	14	5	15
393:	10	13	14	13	12	18	20	13
401:	16	18	19	22	23	30	23	36
409:	28	42	29	38	33	31	36	48
417:	54	50	43	55	46	68	54	55
425:	52	48	63	72	67	58	76	80
433:	67	62	71	80	59	77	47	57
441:	42	21	15	4	3	2	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	1
489:	0	0	0	0	0	0	0	0
497:	0	1	1	0	0	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	0	0
521:	0	0	0	0	0	1	0	0
529:	0	0	1	0	1	0	0	0
537:	0	0	0	0	1	0	0	1
545:	0	1	0	0	0	0	1	0
553:	0	1	0	0	0	0	0	0
561:	0	1	2	0	0	0	0	1
569:	1	3	1	0	1	1	2	1
577:	0	0	0	1	3	0	1	0
585:	3	2	1	1	2	4	1	2
593:	3	4	2	2	4	9	5	4
601:	2	8	8	5	6	2	3	5
609:	6	5	5	5	6	4	7	6
617:	6	12	6	9	2	3	2	2
625:	5	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	0	0	0	0
649:	0	0	0	0	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	1	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	1	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 17

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

Apex-Alpha™

Sample Description: HTC-A02-S002-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 18
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: 1.200E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:34:00 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.605 mL
Effective Efficiency: 0.1967 +/- 0.0112
Counting Efficiency: 0.1793 +/- 0.0030 on 11/18/2016 10:08:42 AM
Chem. Recovery Factor: 1.0974 +/- 0.0653

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	367.83	10.22	0.17	0.00E+000	25.9
U-234		4.722	152.15	15.94	0.85	0.00E+000	10.6
U-235		4.408	10.66	61.14	0.34	0.00E+000	3.0
U-238		4.151	137.83	16.71	0.17	0.00E+000	6.0

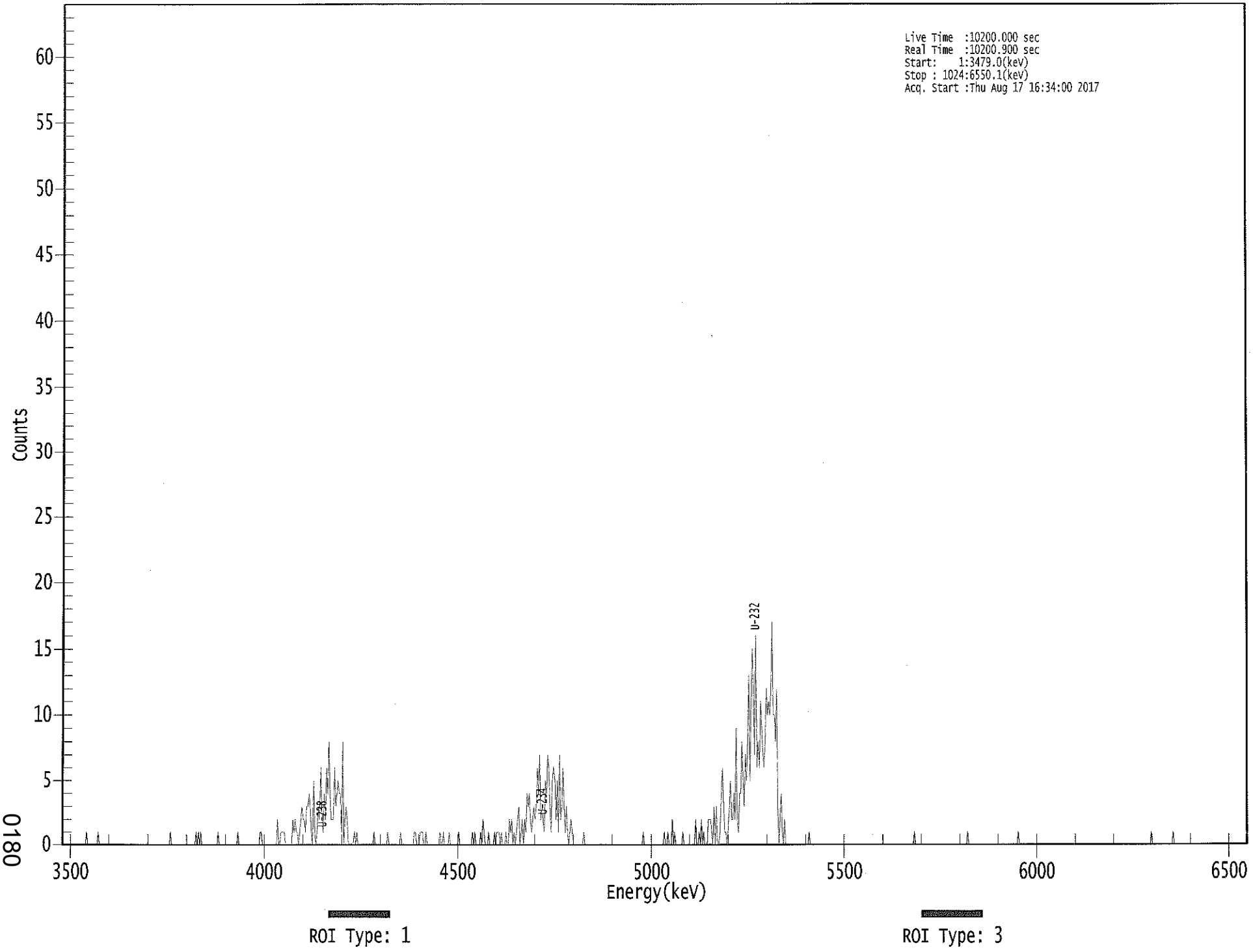
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.992	5302.50*	4.15E+000 +/- 4.63E-001	4.71E-002 +/- 5.26E-003
U-234	0.989	4761.50*	1.71E+000 +/- 3.33E-001	6.73E-002 +/- 7.52E-003
U-235	0.996	4385.50*	1.48E-001 +/- 9.19E-002	6.63E-002 +/- 7.41E-003
U-238	0.992	4184.40*	1.54E+000 +/- 3.10E-001	4.67E-002 +/- 5.22E-003

AG
8/18/17

0000191781.CNF



0180

****
***** 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: 10201

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

369:	0	0	0	0	1	0	1	1

Sample Title: 18

Channel								
377:	1	0	1	0	0	0	1	0
385:	0	2	1	2	0	1	0	1
393:	2	3	0	1	2	0	2	1
401:	4	3	4	2	1	2	3	2
409:	3	6	4	7	2	3	2	1
417:	5	4	7	6	3	1	5	6
425:	5	2	5	1	7	2	3	6
433:	3	1	3	1	0	1	2	1
441:	0	0	0	0	0	0	0	0
449:	0	1	0	0	0	0	0	0
457:	0	0	0	0	0	0	0	0
465:	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	1	0	0	0
505:	0	0	0	0	0	0	0	0
513:	0	0	0	0	0	0	1	0
521:	0	1	0	0	0	2	0	1
529:	0	0	0	0	0	0	1	0
537:	0	0	0	0	0	0	0	0
545:	0	2	0	0	1	0	2	0
553:	1	0	0	0	2	2	2	1
561:	0	3	0	3	0	0	1	3
569:	6	4	1	1	0	1	3	5
577:	2	2	4	2	9	2	1	4
585:	4	8	5	3	7	5	8	13
593:	5	11	15	12	7	16	6	8
601:	6	11	9	7	6	8	12	10
609:	11	10	12	17	10	10	8	12
617:	3	0	2	4	1	0	2	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	1	0	0	0	0
649:	0	0	0	0	0	0	0	0
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	0	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	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:	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	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: 18

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	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	1	0	0	0	0
945:	0	0	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™

BUB

Sample Description: HTC-A02-S002-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 19
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: 1.040E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:34:02 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.603 mL
Effective Efficiency: 0.2186 +/- 0.0120
Counting Efficiency: 0.1688 +/- 0.0029 on 11/18/2016 10:08:40 AM
Chem. Recovery Factor: 1.2952 +/- 0.0742

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	407.15	9.73	0.85	0.00E+000	12.5
U-234		4.726	262.49	12.11	0.51	0.00E+000	7.0
U-235		4.375	14.83	51.24	0.17	0.00E+000	4.5
U-238		4.150	254.83	12.28	0.17	0.00E+000	11.6

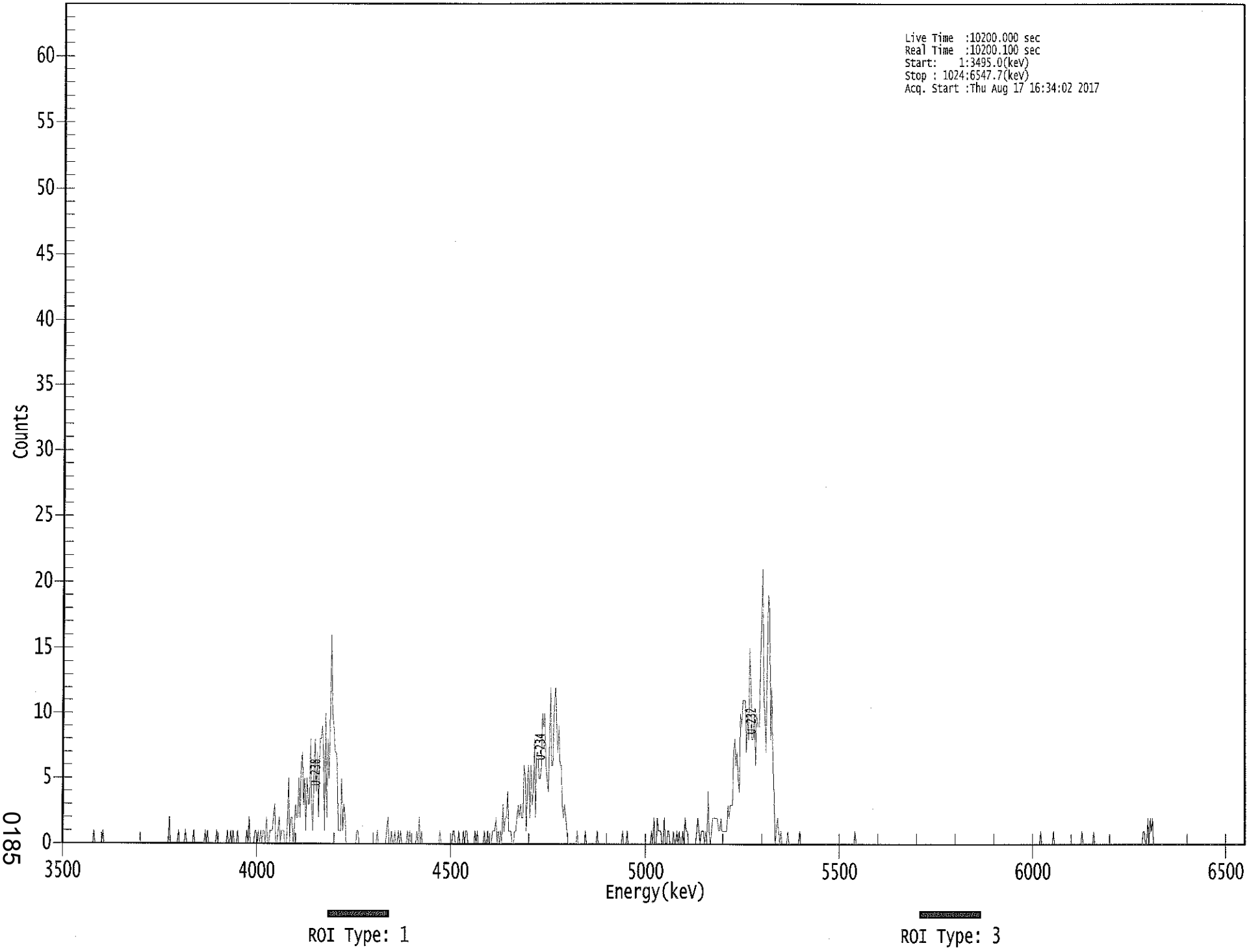
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.993	5302.50*	4.77E+000 +/- 5.11E-001	7.01E-002 +/- 7.52E-003
U-234	0.991	4761.50*	3.07E+000 +/- 4.96E-001	6.13E-002 +/- 6.57E-003
U-235	0.999	4385.50*	2.14E-001 +/- 1.12E-001	6.01E-002 +/- 6.45E-003
U-238	0.991	4184.40*	2.96E+000 +/- 4.83E-001	4.85E-002 +/- 5.20E-003

AG
8/18/17

0000191773.CNF



0185

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

Sample Title: 19

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	1	1	1	2	0

Sample Title: 19

Channel								
377:	1	0	1	0	3	1	2	2
385:	4	1	1	1	0	0	1	1
393:	2	3	2	3	2	2	6	5
401:	1	5	6	2	6	3	4	8
409:	2	7	7	5	5	6	10	9
417:	10	6	5	4	7	12	6	6
425:	11	12	9	7	9	6	6	3
433:	2	3	2	1	0	0	0	0
441:	0	0	0	0	1	0	0	0
449:	0	0	0	1	0	0	0	0
457:	0	0	0	0	0	1	0	0
465:	0	0	0	0	0	0	0	0
473:	0	0	0	0	0	0	0	0
481:	0	0	0	1	0	0	0	1
489:	0	0	0	0	0	0	0	0
497:	0	0	0	0	0	0	0	0
505:	0	0	0	0	1	0	2	0
513:	0	2	1	1	1	0	0	2
521:	0	0	1	1	0	0	0	1
529:	0	0	1	0	1	0	0	1
537:	0	2	1	1	0	0	0	0
545:	0	0	0	1	2	1	0	1
553:	1	1	0	1	0	4	1	0
561:	1	2	2	2	2	2	1	1
569:	2	1	1	1	1	1	3	2
577:	3	3	3	7	8	6	7	5
585:	4	10	9	11	11	11	7	10
593:	8	15	12	8	8	10	6	10
601:	9	9	14	17	21	11	10	7
609:	14	19	18	8	12	6	4	0
617:	1	2	1	0	1	0	0	0
625:	0	0	1	0	0	0	0	0
633:	0	0	0	0	1	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	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	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	0	0	0	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0
793:	0	0	0	0	0	0	0	0

801:	0	0	0	0	0	0	0	0

Sample Title: 19

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

Apex-Alpha™

C
8/18

Sample Description: HTC-A02-S002-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-UU
Sample Identification: 20
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: 1.050E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 6:37:59 AM
Acquisition Date/Time: 8/17/2017 4:34:05 PM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: U232_UU-10A
Tracer Quantity: 0.604 mL
Effective Efficiency: 0.2161 +/- 0.0119
Counting Efficiency: 0.1713 +/- 0.0029 on 11/18/2016 10:08:38 AM
Chem. Recovery Factor: 1.2615 +/- 0.0725

Peak Match Tolerance: 0.150 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
U-232	T	5.278	403.15	9.77	0.85	0.00E+000	13.3
U-234		4.724	101.32	19.55	0.68	0.00E+000	3.0
U-235		4.443	4.15	107.12	0.85	0.00E+000	3.0
U-238		4.146	88.15	20.99	0.85	0.00E+000	13.0

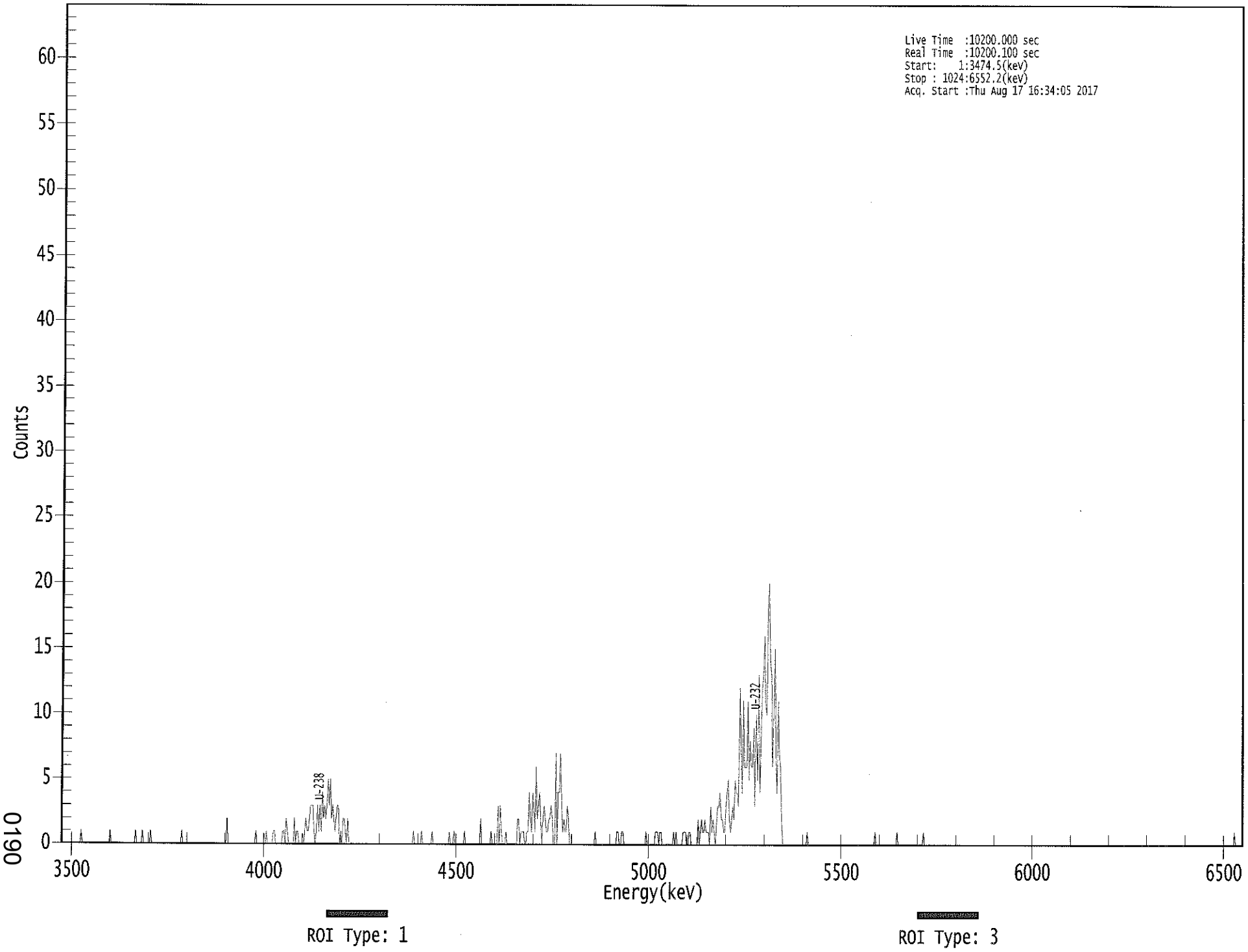
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
U-232	0.996	5302.50*	4.73E+000 +/- 5.09E-001	7.02E-002 +/- 7.56E-003
U-234	0.990	4761.50*	1.19E+000 +/- 2.65E-001	6.60E-002 +/- 7.10E-003
U-235	0.977	4385.50*	5.99E-002 +/- 6.45E-002	8.64E-002 +/- 9.30E-003
U-238	0.990	4184.40*	1.03E+000 +/- 2.42E-001	6.97E-002 +/- 7.51E-003

AG
8/18/17

0000191776.CNF



0190

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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	1	0	0	0	0

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

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

8/17/2017 6:50:22 AM

Apex-Alpha™

QA SUMMARY REPORT

Review Of QA Results - Pulser Check

Date : 8/17/2017
Time : 6:50:22 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/17/2017 5:20:17 AM
Alpha_004	21f	ALL	Passed	8/17/2017 5:20:18 AM
Alpha_005	21f	ALL	Not Done	
Alpha_006	21f	ALL	Not Done	
Alpha_007	21f	ALL	Not Done	
Alpha_008	21f	ALL	Not Done	
Alpha_009	21f	ALL	Not Done	
Alpha_010	21f	ALL	Passed	8/17/2017 5:20:18 AM
Alpha_011	21f	ALL	Passed	8/17/2017 5:20:19 AM
Alpha_012	21f	ALL	Passed	8/17/2017 5:20:20 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/17/2017 5:20:21 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:22 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:24 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:25 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:27 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:29 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/17/2017 5:20:31 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:32 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/17/2017 5:20:34 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:37 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:39 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:41 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:44 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:46 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:49 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:51 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:54 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:57 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:59 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:02 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:05 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:08 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:10 AM

Review of QA Results - Pulser Check

8/17/2017 6:50:22 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:14 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:17 AM

APPROVED BY: C

APPROVAL DATE: 8/17

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

17-07084
ThISO
Run 1

Work Order	17-07084
Analysis Code	ThISO
Run	1
Date Received	7/18/2017
Lab Deadline	8/10/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 907.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.46
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A01-S008-3036-01	59	05/13/17 08:06	1.0150E+00
04	DO	HTC-A01-S008-3036-01	59	05/13/17 08:06	1.0160E+00
05	TRG	HTC-A01-S008-3642-01	52	05/13/17 08:03	1.0800E+00
06	TRG	HTC-A01-S008-4248-01	45	05/13/17 08:00	1.2700E+00
07	MSO	HTC-A02-S001-0006-01	75	05/15/17 10:44	1.1350E+00
08	MS	HTC-A02-S001-0006-01	87	05/13/17 08:06	1.1340E+00
09	MSD	HTC-A02-S001-0006-01 MSD	87	05/15/17 10:44	1.1290E+00
10	TRG	HTC-A02-S001-0006-02	83	05/15/17 10:44	1.3300E+00
11	TRG	HTC-A02-S001-0612-01	55	05/15/17 10:41	1.0300E+00
12	TRG	HTC-A02-S001-1218-01	65	05/15/17 10:38	1.1500E+00
13	TRG	HTC-A02-S001-1824-01	47	05/15/17 10:35	1.3800E+00
14	TRG	HTC-A02-S001-2430-01	46	05/15/17 10:32	1.1100E+00
15	TRG	HTC-A02-S001-3036-01	47	05/15/17 10:29	1.0600E+00
16	TRG	HTC-A02-S001-3642-01	46	05/15/17 10:26	1.0800E+00
17	TRG	HTC-A02-S002-0006-01	88	05/15/17 11:57	1.2200E+00
18	TRG	HTC-A02-S002-0612-01	43	05/15/17 11:54	1.0000E+00
19	TRG	HTC-A02-S002-1218-01	41	05/15/17 11:51	1.0100E+00
20	TRG	HTC-A02-S002-1824-01	55	05/15/17 11:48	1.1300E+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.

17-07084
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	0.4722	10.6		0.00								
02	MBL	0.2356	5.3		0.00								
03	DUP	0.2371	5.3		0.00								
04	DO	0.2362	5.3		0.00								
05	TRG	0.2362	5.3		0.00								
06	TRG	0.2350	5.3		0.00								
07	MSO	0.2359	5.3		0.00								
08	MS	0.2353	5.3		0.00								
09	MSD	0.2346	5.3		0.00								
10	TRG	0.2348	5.3		0.00								
11	TRG	0.2344	5.3		0.00								
12	TRG	0.2357	5.3		0.00								
13	TRG	0.2362	5.3		0.00								
14	TRG	0.2345	5.3		0.00								
15	TRG	0.2342	5.3		0.00								
16	TRG	0.2357	5.3		0.00								
17	TRG	0.2337	5.2		0.00								
18	TRG	0.2347	5.3		0.00								
19	TRG	0.2349	5.3		0.00								
20	TRG	0.2343	5.3		0.00								

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

17-07084
ThISO
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/09/17 06:49	JHARVEY				
02	MBL			08/09/17 06:49	JHARVEY				
03	DUP			08/09/17 06:49	JHARVEY				
04	DO	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
05	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
06	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
07	MSO	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
08	MS	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
09	MSD	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
10	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
11	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
12	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
13	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
14	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
15	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
16	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
17	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
18	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
19	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				
20	TRG	07/28/17 08:53	KSALLINGS	08/09/17 06:49	JHARVEY				

0200

* 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: 17-07084-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.95E+00	8.71E-01	8.05E-02	4.85E+00	122.69	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	-1.14E-02	3.63E-02	1.20E-01					OK	OK
03	TH-228	DUP	HTC-A01-S008-3036-01	pCi/g	7.88E-01	2.82E-01	1.96E-01				OK	OK	
04	TH-228	DO	HTC-A01-S008-3036-01	pCi/g	6.57E-01	2.29E-01	1.30E-01					OK	
05	TH-228	TRG	HTC-A01-S008-3642-01	pCi/g	1.48E+00	3.63E-01	1.22E-01					OK	
06	TH-228	TRG	HTC-A01-S008-4248-01	pCi/g	1.03E+00	2.69E-01	8.03E-02					OK	
07	TH-228	MSO	HTC-A02-S001-0006-01	pCi/g	1.04E-01	1.04E-01	1.44E-01					OK	
08	TH-228	MS	HTC-A02-S001-0006-01	pCi/g	6.59E+00	1.48E+00	1.73E-01					OK	
09	TH-228	MSD	HTC-A02-S001-0006-01 MSD	pCi/g	6.32E+00	1.31E+00	9.76E-02					OK	
10	TH-228	TRG	HTC-A02-S001-0006-02	pCi/g	4.34E-01	2.29E-01	1.30E-01					OK	
11	TH-228	TRG	HTC-A02-S001-0612-01	pCi/g	8.98E-01	3.19E-01	1.54E-01					OK	
12	TH-228	TRG	HTC-A02-S001-1218-01	pCi/g	1.98E+00	5.33E-01	1.32E-01					OK	
13	TH-228	TRG	HTC-A02-S001-1824-01	pCi/g	1.62E+00	4.38E-01	6.58E-02					OK	
14	TH-228	TRG	HTC-A02-S001-2430-01	pCi/g	1.43E+00	3.98E-01	8.96E-02					OK	
15	TH-228	TRG	HTC-A02-S001-3036-01	pCi/g	8.07E-01	2.40E-01	7.90E-02					OK	
16	TH-228	TRG	HTC-A02-S001-3642-01	pCi/g	1.35E+00	4.58E-01	1.91E-01					OK	
17	TH-228	TRG	HTC-A02-S002-0006-01	pCi/g	5.87E-01	3.48E-01	2.47E-01					OK	
18	TH-228	TRG	HTC-A02-S002-0612-01	pCi/g	1.30E+00	3.62E-01	1.12E-01					OK	
19	TH-228	TRG	HTC-A02-S002-1218-01	pCi/g	1.27E+00	3.57E-01	7.93E-02					OK	
20	TH-228	TRG	HTC-A02-S002-1824-01	pCi/g	1.33E+00	3.59E-01	9.43E-02					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 17-07084-ThISO-1

Run: 1
Analysis Code: ThISO
Eberline Analytical Work Order: 17-07084
Client: Weston Solutions, Inc.
0202

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-228	LCS	07/19/17 00:00	1.00E+00	138.93	0.00	0.00			
02	TH-228	MBL	07/19/17 00:00	1.00E+00	86.46	0.00	0.00			
03	TH-228	DUP	05/13/17 08:06	1.02E+00	88.06	0.00	0.00			
04	TH-228	DO	05/13/17 08:06	1.02E+00	95.01	0.00	0.00			
05	TH-228	TRG	05/13/17 08:03	1.08E+00	109.05	0.00	0.00			
06	TH-228	TRG	05/13/17 08:00	1.27E+00	110.00	0.00	0.00			
07	TH-228	MSO	05/15/17 10:44	1.14E+00	95.47	0.00	0.00			
08	TH-228	MS	05/13/17 08:06	1.13E+00	87.02	0.00	0.00			
09	TH-228	MSD	05/15/17 10:44	1.13E+00	85.79	0.00	0.00			
10	TH-228	TRG	05/15/17 10:44	1.33E+00	58.30	0.00	0.00			
11	TH-228	TRG	05/15/17 10:41	1.03E+00	101.91	0.00	0.00			
12	TH-228	TRG	05/15/17 10:38	1.15E+00	85.23	0.00	0.00			
13	TH-228	TRG	05/15/17 10:35	1.38E+00	81.28	0.00	0.00			
14	TH-228	TRG	05/15/17 10:32	1.11E+00	92.25	0.00	0.00			
15	TH-228	TRG	05/15/17 10:29	1.06E+00	117.12	0.00	0.00			
16	TH-228	TRG	05/15/17 10:26	1.08E+00	74.49	0.00	0.00			
17	TH-228	TRG	05/15/17 11:57	1.22E+00	36.21	0.00	0.00			
18	TH-228	TRG	05/15/17 11:54	1.00E+00	102.98	0.00	0.00			
19	TH-228	TRG	05/15/17 11:51	1.01E+00	109.99	0.00	0.00			
20	TH-228	TRG	05/15/17 11:48	1.13E+00	94.39	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07084-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: ThISO
Run: 1

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	08/17/17 08:24		A_Spec	Alpha_003	170.02	4.87 E+02	7.00 E-03	15.6	
02	TH-228	MBL	08/17/17 08:24		A_Spec	Alpha_004	170	-7.00 E-01	1.00 E-02	18.8	
03	TH-228	DUP	08/17/17 08:24		A_Spec	Alpha_010	170	4.52 E+01	3.40 E-02	18.7	
04	TH-228	DO	08/17/17 08:24		A_Spec	Alpha_011	170.02	4.33 E+01	1.60 E-02	19.9	
05	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_012	170.02	1.13 E+02	2.00 E-02	18.8	
06	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_014	170.02	9.15 E+01	9.00 E-03	18.5	
07	TH-228	MSO	08/17/17 08:24		A_Spec	Alpha_049	170	5.79 E+00	1.30 E-02	14.9	
08	TH-228	MS	08/17/17 08:24		A_Spec	Alpha_050	170	3.19 E+02	1.50 E-02	14.3	
09	TH-228	MSD	08/17/17 08:24		A_Spec	Alpha_052	170	3.65 E+02	4.00 E-03	17.4	
10	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_053	170	1.75 E+01	3.00 E-03	15.1	
11	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_054	170	4.41 E+01	1.10 E-02	13.6	
12	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_056	170	1.06 E+02	9.00 E-03	15.9	
13	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_057	170	1.03 E+02	1.00 E-03	16.5	
14	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_058	170	8.35 E+01	3.00 E-03	16.6	
15	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_059	170	6.12 E+01	5.00 E-03	17.8	
16	TH-228	TRG	08/17/17 08:24		A_Spec	Alpha_060	170	5.50 E+01	1.20 E-02	14.8	
17	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_033	170	1.50 E+01	6.00 E-03	16.8	
18	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_034	170	7.96 E+01	8.00 E-03	17.3	
19	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_035	170	7.67 E+01	2.00 E-03	15.8	
20	TH-228	TRG	08/17/17 09:32		A_Spec	Alpha_036	170	8.90 E+01	6.00 E-03	18.2	

0203

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	6.55E+00	9.43E-01	1.03E-01	5.39E+00	121.42	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	2.25E-01	1.31E-01	1.07E-01					OK	OK
03	TH-230	DUP	HTC-A01-S008-3036-01	pCi/g	8.27E-01	2.71E-01	1.20E-01				OK	OK	
04	TH-230	DO	HTC-A01-S008-3036-01	pCi/g	8.65E-01	2.60E-01	1.13E-01					OK	
05	TH-230	TRG	HTC-A01-S008-3642-01	pCi/g	1.33E+00	3.25E-01	7.17E-02					OK	
06	TH-230	TRG	HTC-A01-S008-4248-01	pCi/g	9.44E-01	2.45E-01	6.78E-02					OK	
07	TH-230	MSO	HTC-A02-S001-0006-01	pCi/g	9.78E+00	1.97E+00	9.85E-02					OK	
08	TH-230	MS	HTC-A02-S001-0006-01	pCi/g	1.26E+01	2.64E+00	1.54E-01					OK	
09	TH-230	MSD	HTC-A02-S001-0006-01 MSD	pCi/g	1.43E+01	2.74E+00	1.08E-01					OK	
10	TH-230	TRG	HTC-A02-S001-0006-02	pCi/g	3.14E+01	7.40E+00	1.27E-01					OK	
11	TH-230	TRG	HTC-A02-S001-0612-01	pCi/g	1.79E+01	3.53E+00	9.73E-02					OK	
12	TH-230	TRG	HTC-A02-S001-1218-01	pCi/g	5.05E+00	1.11E+00	9.58E-02					OK	
13	TH-230	TRG	HTC-A02-S001-1824-01	pCi/g	1.17E+00	3.38E-01	6.87E-02					OK	
14	TH-230	TRG	HTC-A02-S001-2430-01	pCi/g	1.21E+00	3.45E-01	6.50E-02					OK	
15	TH-230	TRG	HTC-A02-S001-3036-01	pCi/g	1.74E+00	3.94E-01	5.02E-02					OK	
16	TH-230	TRG	HTC-A02-S001-3642-01	pCi/g	1.19E+00	4.08E-01	1.69E-01					OK	
17	TH-230	TRG	HTC-A02-S002-0006-01	pCi/g	3.83E+01	1.08E+01	1.49E-01					OK	
18	TH-230	TRG	HTC-A02-S002-0612-01	pCi/g	2.26E+00	5.22E-01	7.83E-02					OK	
19	TH-230	TRG	HTC-A02-S002-1218-01	pCi/g	3.27E+00	7.03E-01	9.07E-02					OK	
20	TH-230	TRG	HTC-A02-S002-1824-01	pCi/g	1.32E+00	3.47E-01	8.99E-02					OK	

0204

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-ThISO-1

Run	Analysis Code	Eberline Analytical Work Order	Client
1	ThISO	17-07084	Weston Solutions, Inc.

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	07/19/17 00:00	1.00E+00	138.93	0.00	0.00			
02	TH-230	MBL	07/19/17 00:00	1.00E+00	86.46	0.00	0.00			
03	TH-230	DUP	05/13/17 08:06	1.02E+00	88.06	0.00	0.00			
04	TH-230	DO	05/13/17 08:06	1.02E+00	95.01	0.00	0.00			
05	TH-230	TRG	05/13/17 08:03	1.08E+00	109.05	0.00	0.00			
06	TH-230	TRG	05/13/17 08:00	1.27E+00	110.00	0.00	0.00			
07	TH-230	MSO	05/15/17 10:44	1.14E+00	95.47	0.00	0.00			
08	TH-230	MS	05/13/17 08:06	1.13E+00	87.02	0.00	0.00			
09	TH-230	MSD	05/15/17 10:44	1.13E+00	85.79	0.00	0.00			
10	TH-230	TRG	05/15/17 10:44	1.33E+00	58.30	0.00	0.00			
11	TH-230	TRG	05/15/17 10:41	1.03E+00	101.91	0.00	0.00			
12	TH-230	TRG	05/15/17 10:38	1.15E+00	85.23	0.00	0.00			
13	TH-230	TRG	05/15/17 10:35	1.38E+00	81.28	0.00	0.00			
14	TH-230	TRG	05/15/17 10:32	1.11E+00	92.25	0.00	0.00			
15	TH-230	TRG	05/15/17 10:29	1.06E+00	117.12	0.00	0.00			
16	TH-230	TRG	05/15/17 10:26	1.08E+00	74.49	0.00	0.00			
17	TH-230	TRG	05/15/17 11:57	1.22E+00	36.21	0.00	0.00			
18	TH-230	TRG	05/15/17 11:54	1.00E+00	102.98	0.00	0.00			
19	TH-230	TRG	05/15/17 11:51	1.01E+00	109.99	0.00	0.00			
20	TH-230	TRG	05/15/17 11:48	1.13E+00	94.39	0.00	0.00			

0205

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: ThISO
Run: 1

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	08/17/17 08:24		A_Spec	Alpha_003	170.02	5.35 E+02	1.50 E-02	15.6	
02	TH-230	MBL	08/17/17 08:24		A_Spec	Alpha_004	170	1.38 E+01	7.00 E-03	18.8	
03	TH-230	DUP	08/17/17 08:24		A_Spec	Alpha_010	170	5.21 E+01	1.10 E-02	18.7	
04	TH-230	DO	08/17/17 08:24		A_Spec	Alpha_011	170.02	6.26 E+01	1.40 E-02	19.9	
05	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_012	170.02	1.11 E+02	5.00 E-03	18.8	
06	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_014	170.02	9.18 E+01	7.00 E-03	18.5	
07	TH-230	MSO	08/17/17 08:24		A_Spec	Alpha_049	170	5.94 E+02	5.00 E-03	14.9	
08	TH-230	MS	08/17/17 08:24		A_Spec	Alpha_050	170	6.70 E+02	1.40 E-02	14.3	
09	TH-230	MSD	08/17/17 08:24		A_Spec	Alpha_052	170	9.04 E+02	8.00 E-03	17.4	
10	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_053	170	1.39 E+03	4.00 E-03	15.1	
11	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_054	170	9.67 E+02	3.00 E-03	13.6	
12	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_056	170	2.97 E+02	4.00 E-03	15.9	
13	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_057	170	8.17 E+01	2.00 E-03	16.5	
14	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_058	170	7.78 E+01	1.00 E-03	16.6	
15	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_059	170	1.45 E+02	1.00 E-03	17.8	
16	TH-230	TRG	08/17/17 08:24		A_Spec	Alpha_060	170	5.31 E+01	1.10 E-02	14.8	
17	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_033	170	1.07 E+03	1.00 E-03	16.8	
18	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_034	170	1.51 E+02	3.00 E-03	17.3	
19	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_035	170	2.16 E+02	0.00 E+00	15.8	
20	TH-230	TRG	08/17/17 09:32		A_Spec	Alpha_036	170	9.68 E+01	7.00 E-03	18.2	

0206

Preliminary Data Report & Analytical Calculations
Work Order: 17-07084-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
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	5.88E+00	8.62E-01	5.84E-02	4.85E+00	121.31	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	3.22E-02	5.71E-02	1.03E-01					OK	OK
03	TH-232	DUP	HTC-A01-S008-3036-01	pCi/g	6.38E-01	2.33E-01	1.36E-01				OK	OK	
04	TH-232	DO	HTC-A01-S008-3036-01	pCi/g	8.06E-01	2.46E-01	7.23E-02					OK	
05	TH-232	TRG	HTC-A01-S008-3642-01	pCi/g	1.60E+00	3.70E-01	8.20E-02					OK	
06	TH-232	TRG	HTC-A01-S008-4248-01	pCi/g	9.77E-01	2.51E-01	6.15E-02					OK	
07	TH-232	MSO	HTC-A02-S001-0006-01	pCi/g	1.39E-01	1.00E-01	8.62E-02					OK	
08	TH-232	MS	HTC-A02-S001-0006-01	pCi/g	5.40E+00	1.23E+00	1.06E-01					OK	
09	TH-232	MSD	HTC-A02-S001-0006-01 MSD	pCi/g	5.82E+00	1.21E+00	8.88E-02					OK	
10	TH-232	TRG	HTC-A02-S001-0006-02	pCi/g	6.73E-01	2.88E-01	9.42E-02					OK	
11	TH-232	TRG	HTC-A02-S001-0612-01	pCi/g	1.14E+00	3.57E-01	8.85E-02					OK	
12	TH-232	TRG	HTC-A02-S001-1218-01	pCi/g	1.49E+00	4.21E-01	1.12E-01					OK	
13	TH-232	TRG	HTC-A02-S001-1824-01	pCi/g	1.39E+00	3.83E-01	8.60E-02					OK	
14	TH-232	TRG	HTC-A02-S001-2430-01	pCi/g	9.19E-01	2.89E-01	1.18E-01					OK	
15	TH-232	TRG	HTC-A02-S001-3036-01	pCi/g	7.81E-01	2.27E-01	7.20E-02					OK	
16	TH-232	TRG	HTC-A02-S001-3642-01	pCi/g	1.14E+00	3.94E-01	1.41E-01					OK	
17	TH-232	TRG	HTC-A02-S002-0006-01	pCi/g	5.71E-01	3.28E-01	2.14E-01					OK	
18	TH-232	TRG	HTC-A02-S002-0612-01	pCi/g	1.37E+00	3.61E-01	6.21E-02					OK	
19	TH-232	TRG	HTC-A02-S002-1218-01	pCi/g	1.02E+00	2.99E-01	6.30E-02					OK	
20	TH-232	TRG	HTC-A02-S002-1824-01	pCi/g	1.08E+00	3.01E-01	7.15E-02					OK	

0207

Preliminary Data Report & Analytical Calculations

Work Order: 17-07084-ThISO-1

Client: Weston Solutions, Inc.
Eberline Analytical Work Order: 17-07084
Analysis Code: ThISO
Run: 1
0208

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-232	LCS	07/19/17 00:00	1.00E+00	138.93	0.00	0.00			
02	TH-232	MBL	07/19/17 00:00	1.00E+00	86.46	0.00	0.00			
03	TH-232	DUP	05/13/17 08:06	1.02E+00	88.06	0.00	0.00			
04	TH-232	DO	05/13/17 08:06	1.02E+00	95.01	0.00	0.00			
05	TH-232	TRG	05/13/17 08:03	1.08E+00	109.05	0.00	0.00			
06	TH-232	TRG	05/13/17 08:00	1.27E+00	110.00	0.00	0.00			
07	TH-232	MSO	05/15/17 10:44	1.14E+00	95.47	0.00	0.00			
08	TH-232	MS	05/13/17 08:06	1.13E+00	87.02	0.00	0.00			
09	TH-232	MSD	05/15/17 10:44	1.13E+00	85.79	0.00	0.00			
10	TH-232	TRG	05/15/17 10:44	1.33E+00	58.30	0.00	0.00			
11	TH-232	TRG	05/15/17 10:41	1.03E+00	101.91	0.00	0.00			
12	TH-232	TRG	05/15/17 10:38	1.15E+00	85.23	0.00	0.00			
13	TH-232	TRG	05/15/17 10:35	1.38E+00	81.28	0.00	0.00			
14	TH-232	TRG	05/15/17 10:32	1.11E+00	92.25	0.00	0.00			
15	TH-232	TRG	05/15/17 10:29	1.06E+00	117.12	0.00	0.00			
16	TH-232	TRG	05/15/17 10:26	1.08E+00	74.49	0.00	0.00			
17	TH-232	TRG	05/15/17 11:57	1.22E+00	36.21	0.00	0.00			
18	TH-232	TRG	05/15/17 11:54	1.00E+00	102.98	0.00	0.00			
19	TH-232	TRG	05/15/17 11:51	1.01E+00	109.99	0.00	0.00			
20	TH-232	TRG	05/15/17 11:48	1.13E+00	94.39	0.00	0.00			

Preliminary Data Report & Analytical Calculations

Work Order: 17-07084-ThISO-1

Client	Eberline Analytical Work Order	Analysis Code	Run
Weston Solutions, Inc.	17-07084	ThISO	1

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	08/17/17 08:24		A_Spec	Alpha_003	170.02	4.82 E+02	2.00 E-03	15.6	
02	TH-232	MBL	08/17/17 08:24		A_Spec	Alpha_004	170	1.98 E+00	6.00 E-03	18.8	
03	TH-232	DUP	08/17/17 08:24		A_Spec	Alpha_010	170	4.03 E+01	1.60 E-02	18.7	
04	TH-232	DO	08/17/17 08:24		A_Spec	Alpha_011	170.02	5.85 E+01	3.00 E-03	19.9	
05	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_012	170.02	1.34 E+02	8.00 E-03	18.8	
06	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_014	170.02	9.51 E+01	5.00 E-03	18.5	
07	TH-232	MSO	08/17/17 08:24		A_Spec	Alpha_049	170	8.49 E+00	3.00 E-03	14.9	
08	TH-232	MS	08/17/17 08:24		A_Spec	Alpha_050	170	2.88 E+02	4.00 E-03	14.3	
09	TH-232	MSD	08/17/17 08:24		A_Spec	Alpha_052	170	3.69 E+02	4.00 E-03	17.4	
10	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_053	170	2.98 E+01	1.00 E-03	15.1	
11	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_054	170	6.17 E+01	2.00 E-03	13.6	
12	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_056	170	8.78 E+01	7.00 E-03	15.9	
13	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_057	170	9.70 E+01	0.00 E+00	16.5	
14	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_058	170	5.91 E+01	1.10 E-02	16.6	
15	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_059	170	6.50 E+01	0.00 E+00	17.8	
16	TH-232	TRG	08/17/17 08:24		A_Spec	Alpha_060	170	5.10 E+01	6.00 E-03	14.8	
17	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_033	170	1.60 E+01	0.00 E+00	16.8	
18	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_034	170	9.18 E+01	1.00 E-03	17.3	
19	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_035	170	6.78 E+01	1.00 E-03	15.8	
20	TH-232	TRG	08/17/17 09:32		A_Spec	Alpha_036	170	7.95 E+01	3.00 E-03	18.2	

0209

Count Room Report
Client: Weston Solutions, Inc.

17-07084-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	07/19/17 00:00	1.0000	0.4722	10.6056		0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000	0.2356	5.2916		0.00		
03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	1.0150	0.2371	5.3253		0.00		
04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	1.0160	0.2362	5.3051		0.00		
05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	1.0800	0.2362	5.3051		0.00		
06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	1.2700	0.2350	5.2781		0.00		
07	MSO	HTC-A02-S001-0006-01	05/15/17 10:44	1.1350	0.2359	5.2983		0.00		
08	MS	HTC-A02-S001-0006-01	05/13/17 08:06	1.1340	0.2353	5.2848		0.00		
09	MSD	HTC-A02-S001-0006-01 MSD	05/15/17 10:44	1.1290	0.2346	5.2691		0.00		
10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	1.3300	0.2348	5.2736		0.00		
11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	1.0300	0.2344	5.2646		0.00		
12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	1.1500	0.2357	5.2938		0.00		
13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	1.3800	0.2362	5.3051		0.00		
14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	1.1100	0.2345	5.2669		0.00		
15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	1.0600	0.2342	5.2601		0.00		
16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	1.0800	0.2357	5.2938		0.00		
17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	1.2200	0.2337	5.2489		0.00		
18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	1.0000	0.2347	5.2714		0.00		
19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	1.0100	0.2349	5.2759		0.00		
20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	1.1300	0.2343	5.2624		0.00		

Eberline Analytical
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/9/2017 6:49 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
17-07084	1	ThISO	8/9/2017 6:46	JHARVEY		

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	Sol #	Activity dpm/g	Solution Date	Approx Addition	Volume Used (g)	Volume Used (g)	Volume Used (g)	Volume Used (g)	Known pCi	Error Estimate	Added pCi	Error Estimate	Known pCi	Error Estimate	Added pCi	Error Estimate
Th-228	Th-8b	103.560	8/9/2017	0.100	0.1039	0.1039		0.1033	4.85	0.174	4.85	0.174	0.00	0.000	4.82	0.173
Th-230	Th-1b	23.520	8/9/2017	0.500	0.5090	0.5081		0.5093	5.39	0.146	5.38	0.145	0.00	0.000	5.40	0.146
Th-232	Th-8b	103.560	8/9/2017	0.100	0.1039	0.1039		0.1033	4.85	0.174	4.85	0.174	0.00	0.000	4.82	0.173

Tracers

fraction	Isotope	Sol #	Activity dpm/g	Solution Date	Volume Used (g)	Approx Addition
01	Th-229	Th-18a	22.460	8/9/2017	0.4722	0.2200
02	Th-229	Th-18a	22.460	8/9/2017	0.2356	0.2200
03	Th-229	Th-18a	22.460	8/9/2017	0.2371	0.2200
04	Th-229	Th-18a	22.460	8/9/2017	0.2362	0.2200
05	Th-229	Th-18a	22.460	8/9/2017	0.2362	0.2200
06	Th-229	Th-18a	22.460	8/9/2017	0.2350	0.2200
07	Th-229	Th-18a	22.460	8/9/2017	0.2359	0.2200
08	Th-229	Th-18a	22.460	8/9/2017	0.2353	0.2200
09	Th-229	Th-18a	22.460	8/9/2017	0.2346	0.2200
10	Th-229	Th-18a	22.460	8/9/2017	0.2348	0.2200
11	Th-229	Th-18a	22.460	8/9/2017	0.2344	0.2200
12	Th-229	Th-18a	22.460	8/9/2017	0.2357	0.2200
13	Th-229	Th-18a	22.460	8/9/2017	0.2362	0.2200
14	Th-229	Th-18a	22.460	8/9/2017	0.2345	0.2200
15	Th-229	Th-18a	22.460	8/9/2017	0.2342	0.2200
16	Th-229	Th-18a	22.460	8/9/2017	0.2357	0.2200
17	Th-229	Th-18a	22.460	8/9/2017	0.2337	0.2200
18	Th-229	Th-18a	22.460	8/9/2017	0.2347	0.2200
19	Th-229	Th-18a	22.460	8/9/2017	0.2349	0.2200
20	Th-229	Th-18a	22.460	8/9/2017	0.2343	0.2200

Balance Printer Tapes

Tracer

0.4722 g
0.2356 g
0.2371 g
0.2362 g
0.2362 g
0.2350 g
0.2359 g
0.2353 g
0.2346 g
0.2348 g
0.2344 g
0.2357 g
0.2362 g
0.2345 g
0.2342 g
0.2357 g
0.2337 g
0.2347 g
0.2349 g
0.2343 g

LCS

0.5090 g

0.1039 g

Matrix Spike

0.5081 g

0.1039 g

0.5093 g

0.1033 g

0211

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07084	1	ThISO	grams	8/10/2017	JHARVEY

Lab Fraction	Weston Solutions, Inc. Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS				1.00E+00	1.0000E+00	1.0000E+00				
02	BLANK	MBL				1.00E+00	1.0000E+00	1.0000E+00				
03	HTC-A01-S008-3036-01	DUP				1.00E+00	1.0150E+00	1.0150E+00				
04	HTC-A01-S008-3036-01	DO				1.00E+00	1.0160E+00	1.0160E+00				
05	HTC-A01-S008-3642-01	TRG				1.00E+00	1.0800E+00	1.0800E+00				
06	HTC-A01-S008-4248-01	TRG				1.00E+00	1.2700E+00	1.2700E+00				
07	HTC-A02-S001-0006-01	MSO				1.00E+00	1.1350E+00	1.1350E+00				
08	HTC-A02-S001-0006-01 MS	MS				1.00E+00	1.1340E+00	1.1340E+00				
09	HTC-A02-S001-0006-01 MSD	MSD				1.00E+00	1.1290E+00	1.1290E+00				
10	HTC-A02-S001-0006-02	TRG				1.00E+00	1.3300E+00	1.3300E+00				
11	HTC-A02-S001-0612-01	TRG				1.00E+00	1.0300E+00	1.0300E+00				
12	HTC-A02-S001-1218-01	TRG				1.00E+00	1.1500E+00	1.1500E+00				
13	HTC-A02-S001-1824-01	TRG				1.00E+00	1.3800E+00	1.3800E+00				
14	HTC-A02-S001-2430-01	TRG				1.00E+00	1.1100E+00	1.1100E+00				
15	HTC-A02-S001-3036-01	TRG				1.00E+00	1.0600E+00	1.0600E+00				
16	HTC-A02-S001-3642-01	TRG				1.00E+00	1.0800E+00	1.0800E+00				
17	HTC-A02-S002-0006-01	TRG				1.00E+00	1.2200E+00	1.2200E+00				
18	HTC-A02-S002-0612-01	TRG				1.00E+00	1.0000E+00	1.0000E+00				
19	HTC-A02-S002-1218-01	TRG				1.00E+00	1.0100E+00	1.0100E+00				
20	HTC-A02-S002-1824-01	TRG				1.00E+00	1.1300E+00	1.1300E+00				

Comments	

0212

Technician: JHarvey Date: 8/9/17

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
17-07084	8/10/2017	7/27/2017	7/28/2017	7/29/2017	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-S008-3036-01	14.6400	1060.5000	853.1200	1045.8600	838.4800	19.83%	80.17%	0.0000	0.0000	
05	HTC-A01-S008-3642-01	14.6100	1007.8400	772.3100	993.2300	757.7000	23.71%	76.29%	0.0000	0.0000	
06	HTC-A01-S008-4248-01	14.6500	1036.2200	806.6400	1021.5700	791.9900	22.47%	77.53%	0.0000	0.0000	
07	HTC-A02-S001-0006-01	14.6100	896.6400	857.5400	882.0300	842.9300	4.43%	95.57%	0.0000	0.0000	
08	HTC-A02-S001-0006-01 MS	14.6300	923.1200	881.6000	908.4900	866.9700	4.57%	95.43%	0.0000	0.0000	
09	HTC-A02-S001-0006-01 MSD	14.6300	923.1200	881.6000	908.4900	866.9700	4.57%	95.43%	0.0000	0.0000	
10	HTC-A02-S001-0006-02	14.6200	890.4000	855.0200	875.7800	840.4000	4.04%	95.96%	0.0000	0.0000	
11	HTC-A02-S001-0612-01	14.6000	913.9200	791.6500	899.3200	777.0500	13.60%	86.40%	0.0000	0.0000	
12	HTC-A02-S001-1218-01	14.5700	943.6200	776.9200	929.0500	762.3500	17.94%	82.06%	0.0000	0.0000	
13	HTC-A02-S001-1824-01	14.5600	972.4000	798.3400	957.8400	783.7800	18.17%	81.83%	0.0000	0.0000	
14	HTC-A02-S001-2430-01	14.6100	905.8800	757.1500	891.2700	742.5400	16.69%	83.31%	0.0000	0.0000	
15	HTC-A02-S001-3036-01	14.5500	899.1000	750.7300	884.5500	736.1800	16.77%	83.23%	0.0000	0.0000	
16	HTC-A02-S001-3642-01	14.5200	888.5600	737.0400	874.0400	722.5200	17.34%	82.66%	0.0000	0.0000	
17	HTC-A02-S002-0006-01	14.5600	893.5800	835.9200	879.0200	821.3600	6.56%	93.44%	0.0000	0.0000	
18	HTC-A02-S002-0612-01	14.5700	970.6000	802.7400	956.0300	788.1700	17.56%	82.44%	0.0000	0.0000	
19	HTC-A02-S002-1218-01	14.6300	944.5000	774.1100	929.8700	759.4800	18.32%	81.68%	0.0000	0.0000	
20	HTC-A02-S002-1824-01	14.6200	886.0000	730.8300	871.3800	716.2100	17.81%	82.19%	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)**

0213

Technician: Kerry Sallings Date: **Analysis: Rough Prep Logbook**

Analysis: ThISO Page No. 10165

KB 8/17/17

Apex-Alpha™

Sample Description: SPIKE
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-TH
Sample Identification: 01
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/17/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:03 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.472 mL
Effective Efficiency: 0.2170 +/- 0.0129
Counting Efficiency: 0.1562 +/- 0.0027 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 1.3893 +/- 0.0860

Control Certificate Name: NatTh_Th-8
Chem. Recov. of Control: TH-232 1.213060 +/- 0.097796
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		5.872	9.81	66.87	1.19	0.00E+000	0.0
TH-228		5.400	486.81	8.90	1.19	0.00E+000	32.5
TH-229	T	4.882	391.32	9.92	0.68	0.00E+000	16.1
TH-230		4.631	535.45	8.49	2.55	0.00E+000	24.0
TH-232		3.983	481.66	8.93	0.34	0.00E+000	31.9

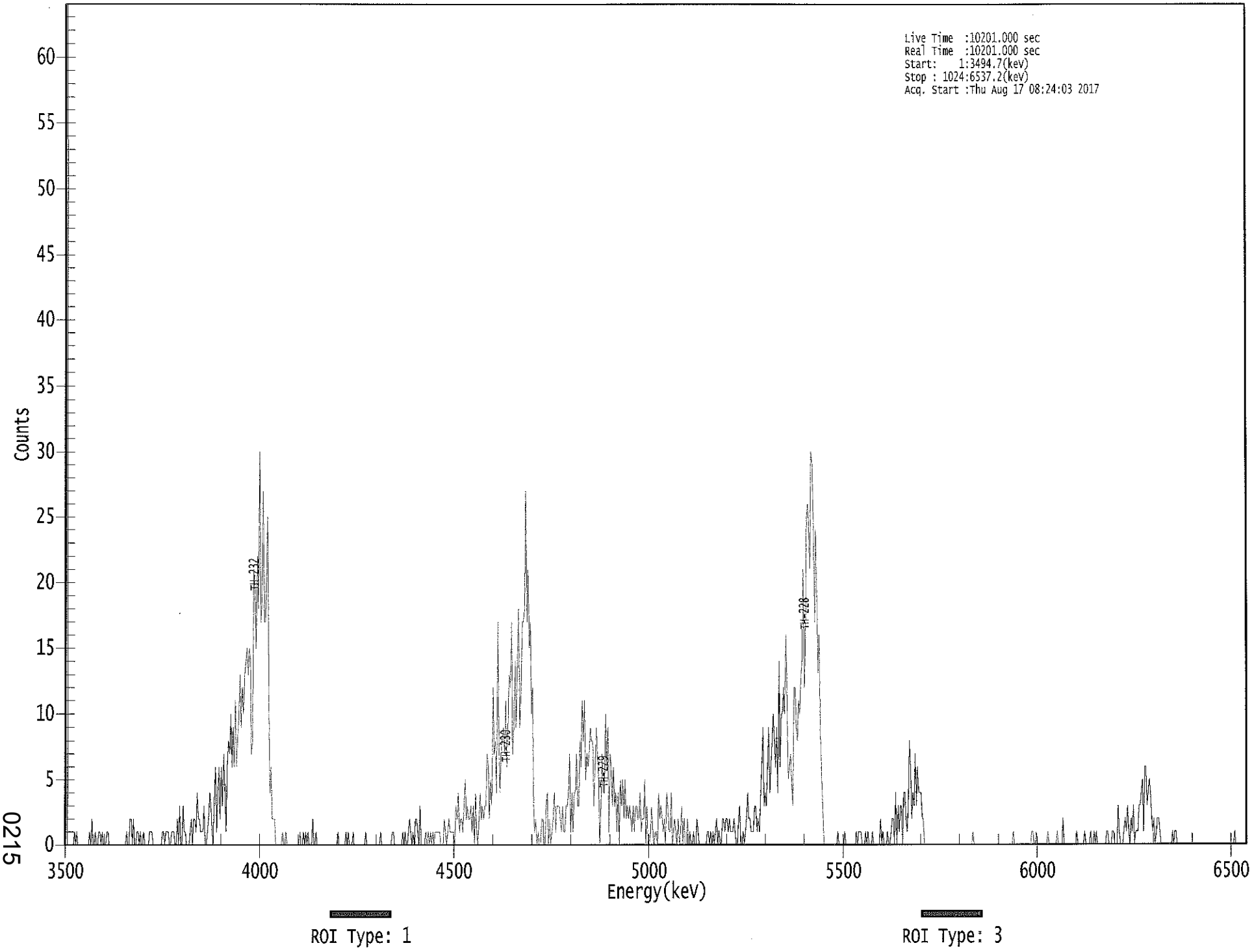
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.998	5850.00*	1.23E-001 +/- 8.34E-002	8.25E-002 +/- 9.59E-003
TH-228	1.000	5400.00*	5.95E+000 +/- 8.71E-001	8.05E-002 +/- 9.36E-003
TH-229	0.999	4872.00*	4.80E+000 +/- 5.58E-001	6.92E-002 +/- 8.05E-003
TH-230	0.991	4672.00*	6.55E+000 +/- 9.43E-001	1.03E-001 +/- 1.19E-002
TH-232	0.999	3997.00*	5.88E+000 +/- 8.62E-001	5.84E-002 +/- 6.79E-003

AG 8/17/17

0000191707.CNF



0215

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

Sample Title: 01

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	5	3	12	7	8	4	17	9

Sample Title: 01

Channel								
377:	4	7	8	9	7	11	6	9
385:	13	12	17	7	9	14	9	14
393:	18	9	11	17	17	18	27	17
401:	21	15	17	10	12	3	1	2
409:	0	1	0	0	2	2	0	0
417:	3	4	0	2	0	1	2	4
425:	1	3	3	3	2	1	3	1
433:	1	3	3	4	7	1	4	1
441:	4	4	7	3	3	8	6	11
449:	8	11	5	7	6	7	9	8
457:	8	3	6	9	7	5	0	3
465:	7	4	4	10	6	9	1	7
473:	6	3	6	3	4	1	4	0
481:	5	3	5	2	5	2	3	2
489:	3	2	1	3	1	3	3	2
497:	2	4	1	2	2	5	0	3
505:	0	0	1	3	1	0	1	1
513:	0	4	2	3	2	1	2	0
521:	4	3	1	1	4	0	1	2
529:	1	0	2	0	1	3	0	2
537:	0	0	2	0	1	0	0	1
545:	0	0	2	1	0	0	0	0
553:	0	0	0	1	1	0	1	0
561:	1	0	1	2	0	1	0	0
569:	2	2	1	2	2	1	2	1
577:	1	1	2	1	0	0	2	3
585:	0	0	1	0	1	2	4	2
593:	2	1	1	1	3	3	1	2
601:	1	4	6	9	3	4	3	6
609:	9	4	6	8	10	8	6	9
617:	4	14	6	10	10	12	10	16
625:	12	5	6	7	5	3	12	12
633:	9	8	11	10	13	14	21	12
641:	16	25	26	24	21	30	29	25
649:	17	24	19	13	16	9	5	3
657:	0	0	0	0	0	0	0	0
665:	0	0	0	0	1	0	0	0
673:	0	0	1	0	0	0	0	0
681:	0	0	0	0	1	0	1	1
689:	1	0	0	0	1	0	1	0
697:	0	0	1	0	0	0	0	0
705:	0	2	0	1	0	0	0	1
713:	0	0	1	2	2	0	4	0
721:	3	1	3	3	0	4	4	2
729:	1	3	8	6	2	4	3	7
737:	3	6	4	4	4	2	2	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	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	1	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	1	1	0	0
841:	1	0	0	0	0	0	0	0
849:	0	0	1	0	0	0	0	0
857:	0	0	1	0	0	0	0	2
865:	0	0	0	0	0	0	0	0
873:	0	0	0	1	0	0	0	0
881:	0	0	1	0	0	0	0	1
889:	0	0	1	0	1	0	0	0
897:	0	0	0	0	0	1	1	0
905:	0	0	1	1	0	0	0	3
913:	1	0	0	0	1	2	1	3
921:	1	0	2	1	3	0	1	1
929:	1	3	3	4	5	1	6	6
937:	3	4	5	4	2	1	2	0
945:	1	2	2	1	0	0	0	0
953:	0	0	0	0	0	0	1	0
961:	1	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	1	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

KB 8/18/17

Sample Description: BLANK
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 02
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 8/17/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:04 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: 0.1628 +/- 0.0144
Counting Efficiency: 0.1883 +/- 0.0032 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 0.8646 +/- 0.0781

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		5.758	2.49	138.29	0.51	0.00E+000	2.9
TH-228		5.377	-0.70	317.90	1.70	0.00E+000	2.9
TH-229	T	4.854	146.47	16.29	1.53	0.00E+000	6.2
TH-230		4.666	13.81	55.34	1.19	0.00E+000	2.9
TH-232		3.917	1.98	176.34	1.02	0.00E+000	2.9

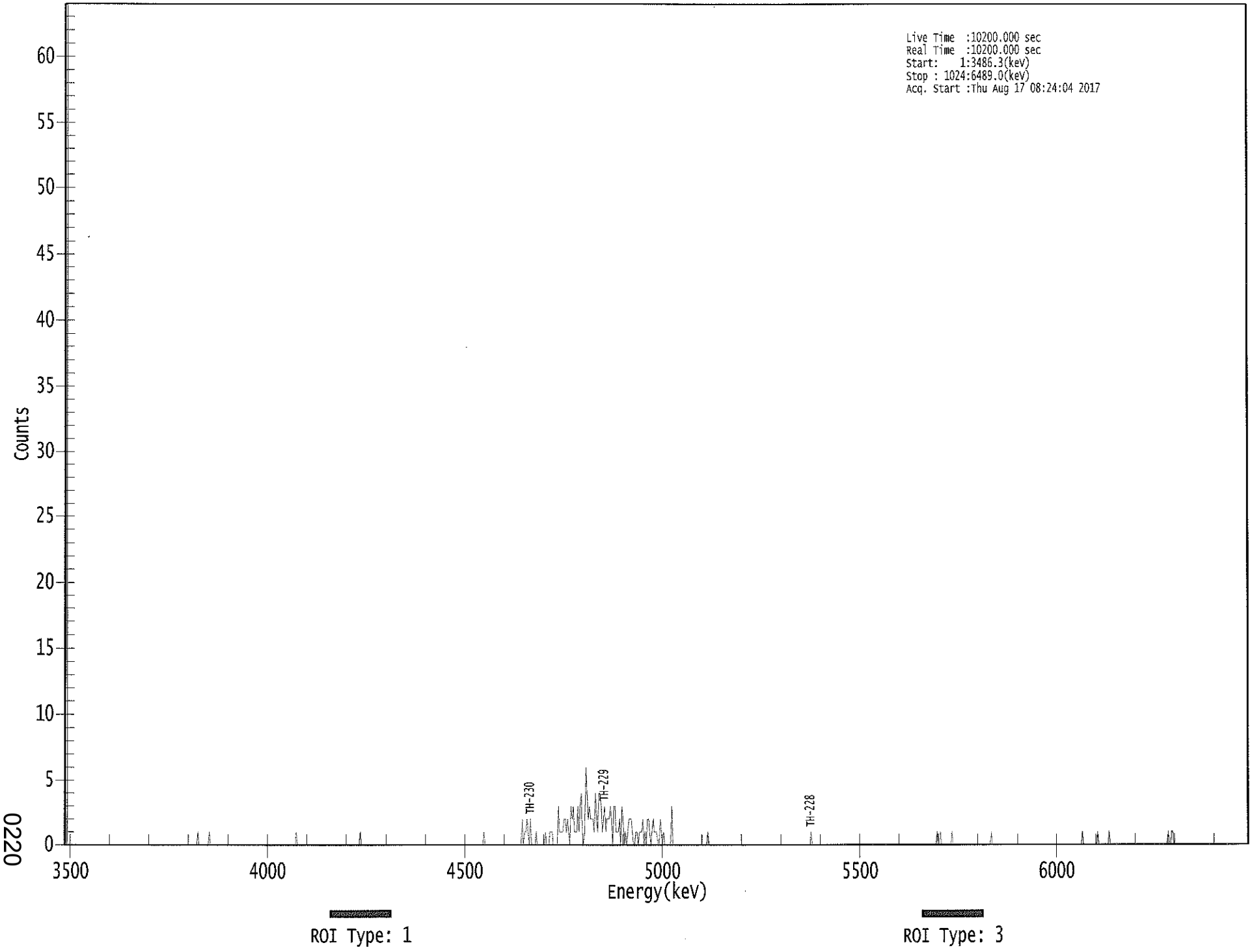
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.957	5850.00*	4.16E-002 +/- 5.79E-002	8.76E-002 +/- 1.52E-002
TH-228	0.997	5400.00*	-1.14E-002 +/- 3.63E-002	1.20E-001 +/- 2.08E-002
TH-229	0.998	4872.00*	2.39E+000 +/- 4.16E-001	1.16E-001 +/- 2.02E-002
TH-230	1.000	4672.00*	2.25E-001 +/- 1.31E-001	1.07E-001 +/- 1.87E-002
TH-232	0.967	3997.00*	3.22E-002 +/- 5.71E-002	1.03E-001 +/- 1.78E-002

AG 8/17/17

0000191671.CNF



0220

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

369:	0	0	0	0	0	0	0	0

Sample Title: 02

Channel								
377:	0	0	0	0	0	0	0	0
385:	0	0	0	0	0	0	0	0
393:	0	0	0	2	0	1	1	2
401:	1	0	2	0	0	0	0	1
409:	0	0	0	0	0	0	0	1
417:	0	0	0	1	1	1	0	0
425:	0	0	3	1	1	1	1	2
433:	2	1	2	1	0	3	2	3
441:	1	1	1	3	1	3	4	1
449:	0	1	6	4	2	3	2	2
457:	2	1	4	2	1	4	4	3
465:	1	2	3	1	2	2	2	3
473:	2	0	3	3	1	1	1	2
481:	0	3	2	0	1	0	1	2
489:	2	2	1	0	0	1	1	0
497:	1	1	1	2	0	1	0	2
505:	2	1	0	1	2	1	1	1
513:	0	0	2	1	0	1	0	0
521:	0	0	0	0	3	0	0	0
529:	0	0	0	0	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	1	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	0	0	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:	0	0	0	0	0	0	0	0
745:	0	0	0	0	0	0	0	0
753:	0	1	0	0	1	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:	1	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	1
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	1	0	0	0
897:	0	0	0	0	0	0	1	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	1	0	0	1	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0
1017:	0	0	0	0	0	0	0	0

Apex-Alpha™

TB 8/17/17

Sample Description: HTC-A01-S008-3036-01-DUP
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 03
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.015E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:05 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.237 mL
Effective Efficiency: 0.1649 +/- 0.0147
Counting Efficiency: 0.1872 +/- 0.0032 on 11/19/2016 1:08:16 PM
Chem. Recovery Factor: 0.8806 +/- 0.0800

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		5.798	2.62	173.91	2.38	0.00E+000	2.9
TH-228		5.346	45.22	31.25	5.78	0.00E+000	3.6
TH-229	T	4.868	149.22	16.40	5.78	0.00E+000	9.4
TH-230		4.625	52.13	27.71	1.87	0.00E+000	4.4
TH-232		3.950	40.28	32.08	2.72	0.00E+000	3.6

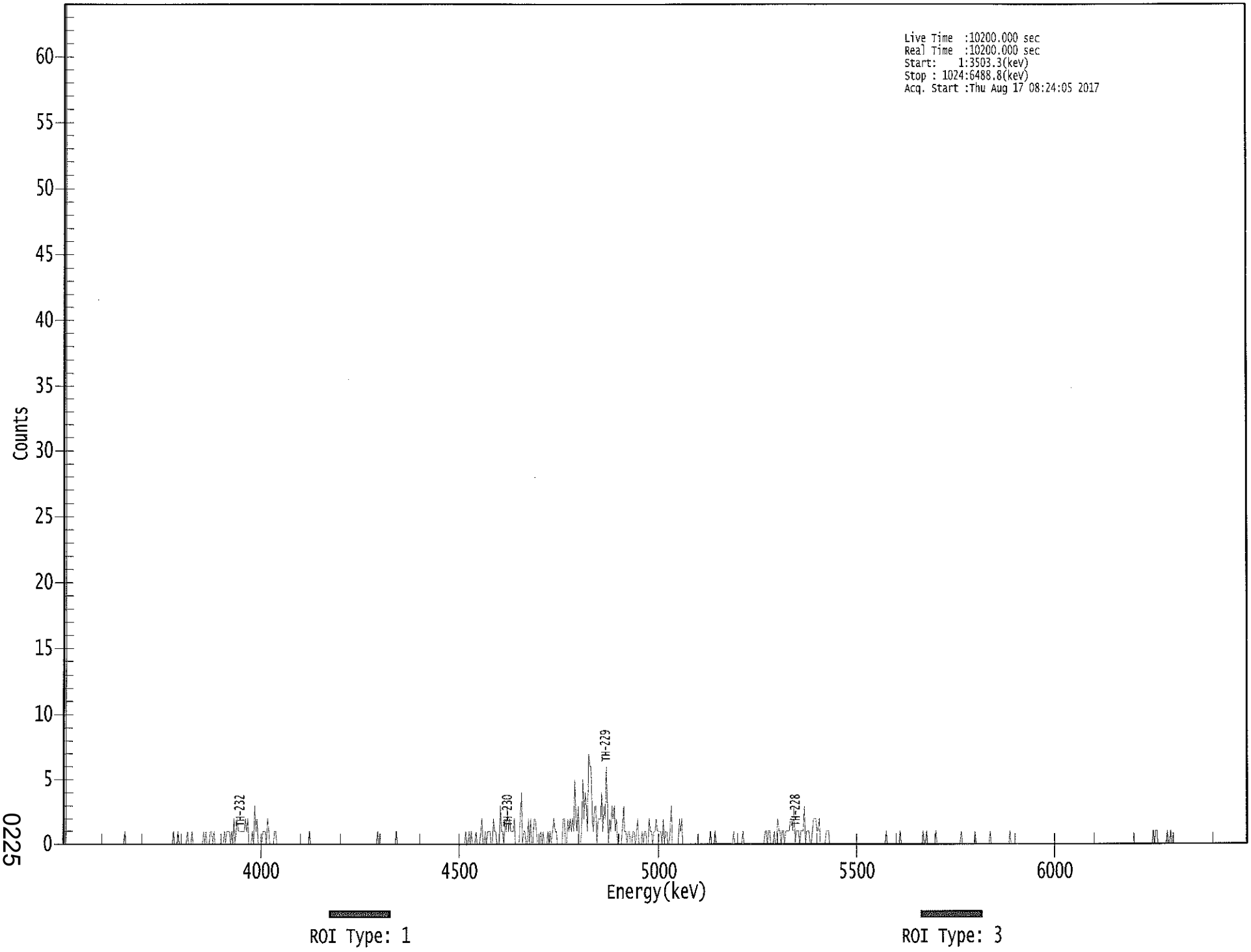
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.986	5850.00*	4.29E-002 +/- 7.50E-002	1.34E-001 +/- 2.35E-002
TH-228	0.985	5400.00*	7.88E-001 +/- 2.82E-001	1.96E-001 +/- 3.43E-002
TH-229	1.000	4872.00*	2.37E+000 +/- 4.15E-001	1.79E-001 +/- 3.13E-002
TH-230	0.989	4672.00*	8.27E-001 +/- 2.71E-001	1.20E-001 +/- 2.10E-002
TH-232	0.989	3997.00*	6.38E-001 +/- 2.33E-001	1.36E-001 +/- 2.38E-002

AG 8/17/17

0000191673.CNF



0225

****
***** 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:	10200	10200	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0
41:	0	0	0	0	0	0	0	0
49:	0	0	0	0	0	1	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	1
97:	0	0	0	1	0	0	0	0
105:	0	0	0	1	0	0	0	1
113:	0	0	0	0	0	0	0	0
121:	0	1	0	1	0	0	0	1
129:	1	0	1	0	0	0	0	0
137:	0	0	0	1	0	1	1	1
145:	0	1	0	2	0	1	2	1
153:	1	1	1	1	1	2	1	2
161:	0	0	0	1	0	3	1	2
169:	0	0	0	0	1	1	1	0
177:	2	1	0	0	0	0	1	1
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	0	1	0	0	0
217:	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0
233:	0	0	0	0	0	0	0	0
241:	0	0	0	0	0	0	0	0
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	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	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0
345:	0	0	0	1	0	0	1	0
353:	1	0	0	0	1	0	0	0
361:	1	2	0	0	1	0	1	1

369:	1	0	0	2	1	1	0	0

Sample Title: 03

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

Sample Title: 03

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	1	0	0	0	0	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	1	0	1
945:	1	0	0	0	0	0	0	0
953:	0	1	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

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A01-S008-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 04
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.016E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:06 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: 0.1892 +/- 0.0157
Counting Efficiency: 0.1991 +/- 0.0034 on 11/19/2016 1:08:17 PM
Chem. Recovery Factor: 0.9501 +/- 0.0804

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		5.872	1.96	208.51	2.04	0.00E+000	2.6
TH-228		5.374	43.28	30.87	2.72	0.00E+000	11.1
TH-229	T	4.866	170.64	15.07	1.36	0.00E+000	3.0
TH-230		4.636	62.62	25.31	2.38	0.00E+000	7.4
TH-232		3.957	58.49	25.76	0.51	0.00E+000	3.3

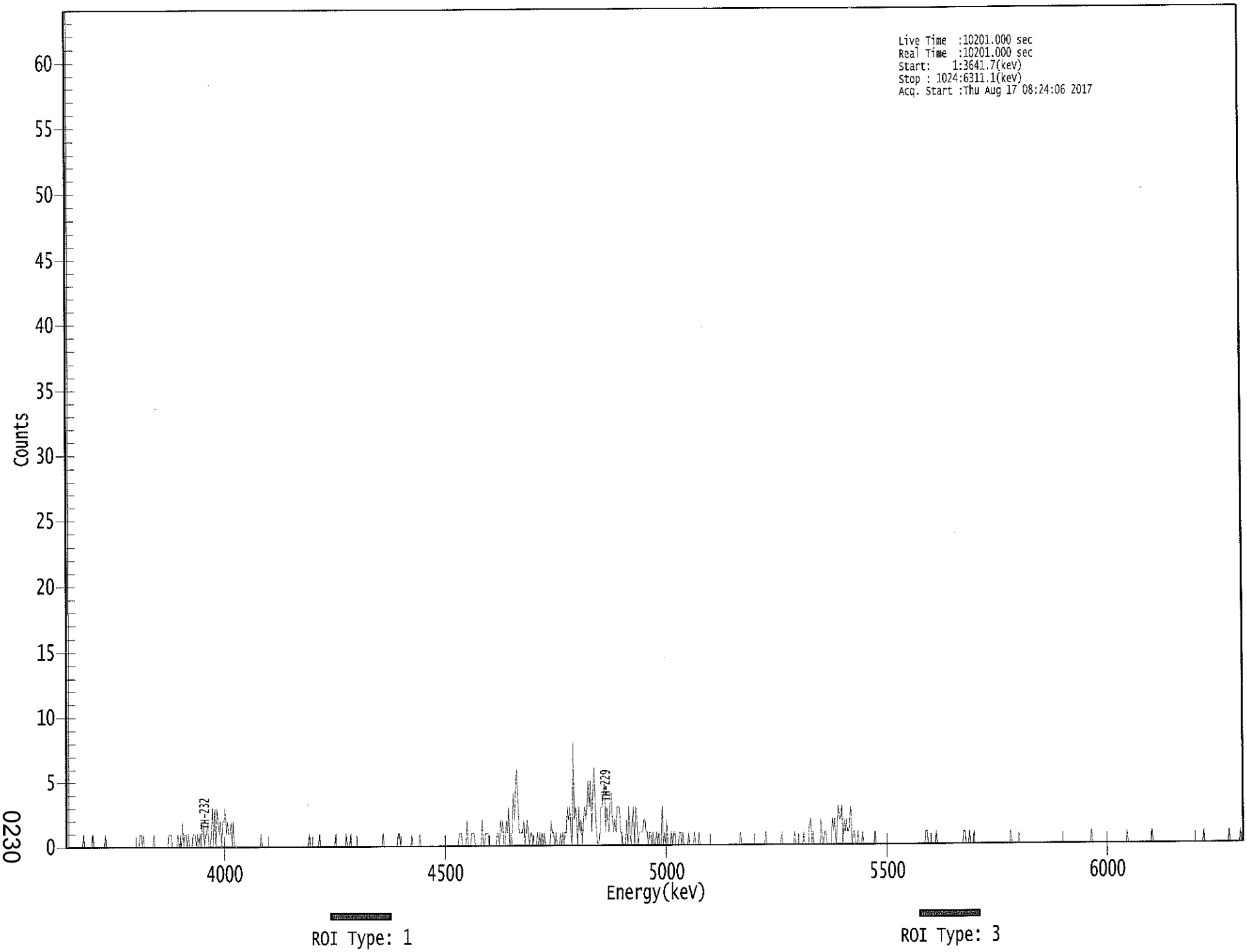
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	2.79E-002 +/- 5.84E-002	1.11E-001 +/- 1.80E-002
TH-228	0.996	5400.00*	6.57E-001 +/- 2.29E-001	1.30E-001 +/- 2.11E-002
TH-229	1.000	4872.00*	2.36E+000 +/- 3.84E-001	9.50E-002 +/- 1.54E-002
TH-230	0.993	4672.00*	8.65E-001 +/- 2.60E-001	1.13E-001 +/- 1.84E-002
TH-232	0.992	3997.00*	8.06E-001 +/- 2.46E-001	7.23E-002 +/- 1.18E-002

AEG 8/17/17

0000191674.CNF



0230

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

Sample Title: 04

Elapsed Live time: 10201
Elapsed Real Time: 10201

Channel								
1:	10201	10201	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	1
17:	0	0	0	0	0	0	0	1
25:	0	0	0	0	0	0	0	0
33:	0	0	1	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:	1	1	0	1	0	0	0	0
73:	0	0	0	0	1	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	1	1	1	0	0	0	0
97:	0	1	0	1	0	2	0	1
105:	1	0	1	0	0	0	1	1
113:	1	0	1	0	1	0	2	2
121:	0	1	1	2	0	0	1	3
129:	0	3	0	3	2	1	2	0
137:	2	2	3	1	2	1	1	2
145:	0	2	0	0	0	0	0	0
153:	0	0	0	0	0	0	0	0
161:	0	0	0	0	0	0	0	0
169:	0	1	0	0	0	0	0	0
177:	0	0	0	0	0	0	0	0
185:	0	0	0	0	0	0	0	0
193:	0	0	0	0	0	0	0	0
201:	0	0	0	0	0	0	0	0
209:	0	0	0	1	0	0	0	0
217:	0	0	0	0	1	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	1	0	0	0	1
249:	0	0	0	0	0	0	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	1	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	1	1	0	0	0	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	0
321:	0	0	0	0	0	0	0	0
329:	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	1	1
345:	0	0	0	0	2	0	0	0
353:	1	1	1	0	0	0	0	0
361:	0	2	0	0	1	1	1	0

369:	0	0	0	0	0	0	1	1

Sample Title: 04

Channel								
377:	0	2	1	2	0	0	2	1
385:	3	0	1	0	4	2	4	6
393:	4	1	1	1	1	2	0	1
401:	2	1	0	1	1	0	0	0
409:	0	1	0	1	0	1	0	1
417:	0	0	0	0	0	2	1	1
425:	0	1	0	0	0	1	0	1
433:	0	1	1	3	2	3	1	0
441:	8	2	3	2	0	3	1	2
449:	0	2	3	2	3	5	3	5
457:	1	4	6	3	1	0	0	1
465:	3	3	4	5	1	3	2	1
473:	4	4	2	1	2	1	3	3
481:	3	1	1	0	0	0	2	0
489:	3	1	0	2	3	0	3	2
497:	0	1	1	1	1	2	2	1
505:	1	0	1	1	0	1	0	0
513:	1	0	1	0	0	3	0	1
521:	0	2	0	0	0	1	0	1
529:	1	0	0	0	1	1	0	1
537:	0	0	0	0	1	0	0	0
545:	0	1	0	0	0	1	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	1	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	1
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	1	0	0
625:	0	0	0	0	0	0	0	0
633:	1	0	0	0	0	0	0	0
641:	1	0	0	0	0	2	2	0
649:	1	0	0	0	0	0	0	2
657:	0	0	1	1	0	0	0	0
665:	0	2	1	2	0	1	3	2
673:	2	3	0	2	1	2	1	1
681:	2	3	0	1	1	0	0	1
689:	0	0	0	1	0	0	0	0
697:	0	0	0	0	0	0	1	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0
737:	0	0	0	0	0	0	0	0
745:	0	0	1	1	0	0	0	0
753:	0	0	0	1	0	0	0	0
761:	0	0	0	0	0	0	0	0
769:	0	0	0	0	0	0	0	0
777:	0	0	0	1	1	0	0	0
785:	1	0	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: 04

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	1	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	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	1	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	1	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	1
945:	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	1	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	1	0	0	0

Apex-Alpha™

KB 8/17/17

Sample Description: HTC-A01-S008-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 05
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.080E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:07 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: 0.2051 +/- 0.0164
Counting Efficiency: 0.1881 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 1.0905 +/- 0.0892

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		5.875	4.98	97.79	1.02	0.00E+000	3.0
TH-228		5.368	112.60	18.79	3.40	0.00E+000	22.2
TH-229	T	4.876	184.98	14.46	1.02	0.00E+000	7.9
TH-230		4.629	111.15	18.67	0.85	0.00E+000	4.7
TH-232		3.958	133.64	17.06	1.36	0.00E+000	5.3

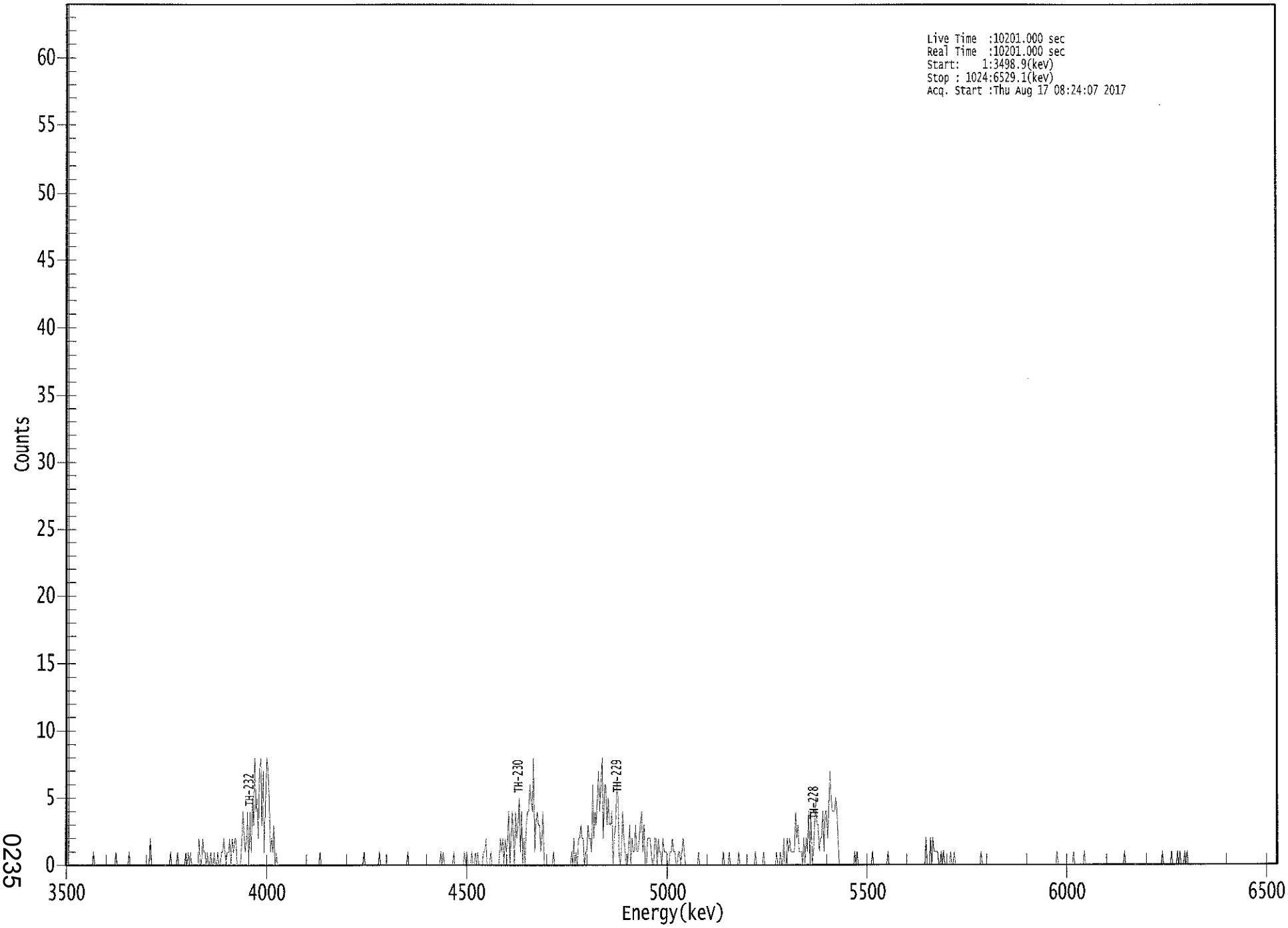
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	6.16E-002 +/- 6.10E-002	7.79E-002 +/- 1.22E-002
TH-228	0.995	5400.00*	1.48E+000 +/- 3.63E-001	1.22E-001 +/- 1.91E-002
TH-229	1.000	4872.00*	2.22E+000 +/- 3.49E-001	7.57E-002 +/- 1.19E-002
TH-230	0.991	4672.00*	1.33E+000 +/- 3.25E-001	7.17E-002 +/- 1.12E-002
TH-232	0.992	3997.00*	1.60E+000 +/- 3.70E-001	8.20E-002 +/- 1.29E-002

AG 8/17/17

0000191675.CNF



ROI Type: 1

ROI Type: 3

0235

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

Sample Title: 05

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	2	0	2	1	2	4	0	2

Sample Title: 05

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

801:	0	0	0	0	0	0	0	0

Sample Title: 05

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

Apex-Alpha™

KB 8/17/17

Sample Description: HTC-A01-S008-4248-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 06
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.270E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:08 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.2032 +/- 0.0164
Counting Efficiency: 0.1847 +/- 0.0032 on 11/19/2016 1:08:18 PM
Chem. Recovery Factor: 1.1000 +/- 0.0907

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		5.872	2.98	134.37	1.02	0.00E+000	2.9
TH-228		5.391	91.47	20.69	1.53	0.00E+000	6.5
TH-229	T	4.895	182.30	14.60	1.70	0.00E+000	3.8
TH-230		4.649	91.81	20.61	1.19	0.00E+000	8.8
TH-232		3.959	95.15	20.20	0.85	0.00E+000	8.1

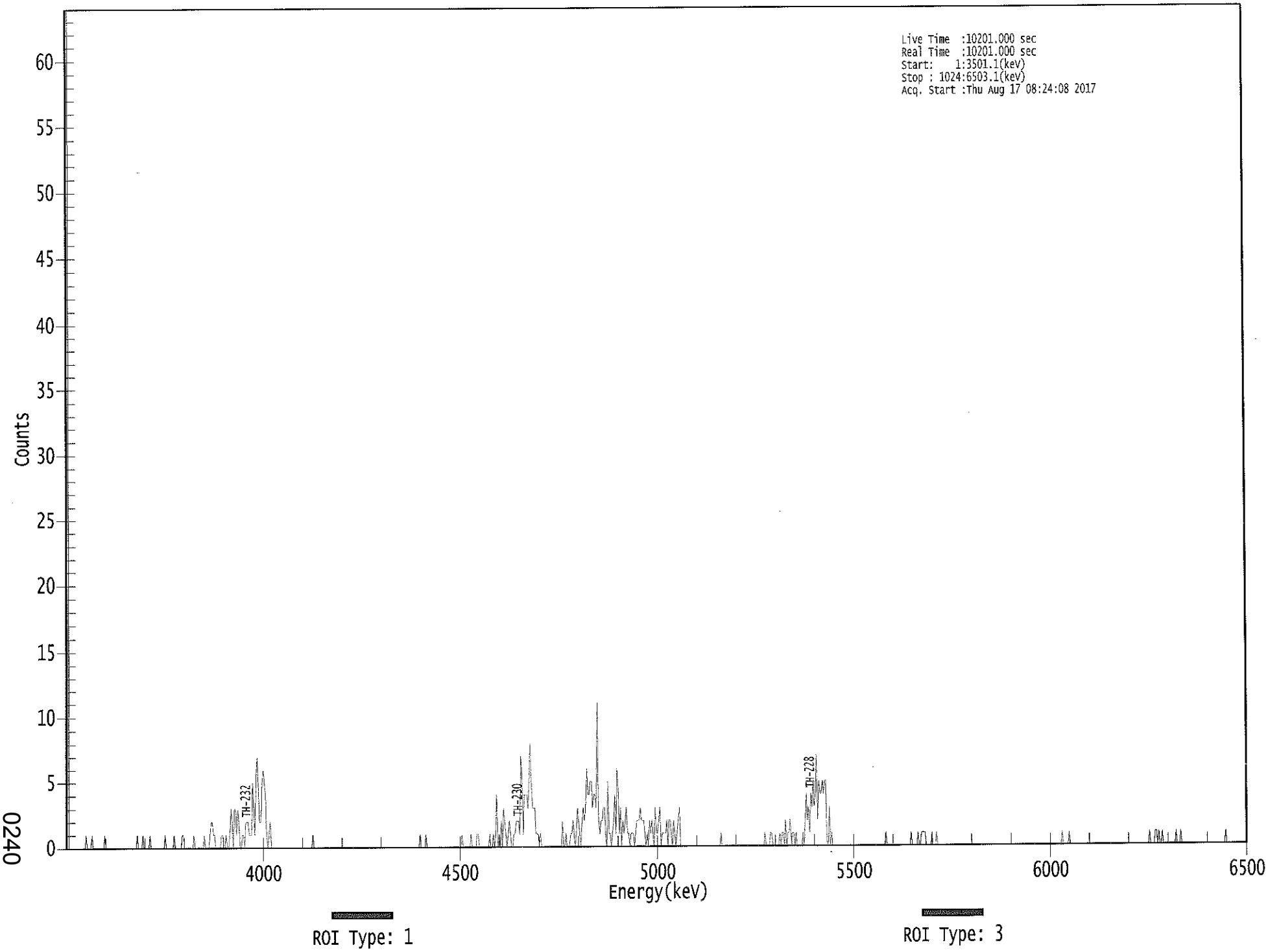
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	3.16E-002 +/- 4.28E-002	6.69E-002 +/- 1.06E-002
TH-228	0.999	5400.00*	1.03E+000 +/- 2.69E-001	8.03E-002 +/- 1.27E-002
TH-229	0.997	4872.00*	1.88E+000 +/- 2.97E-001	7.58E-002 +/- 1.20E-002
TH-230	0.997	4672.00*	9.44E-001 +/- 2.45E-001	6.78E-002 +/- 1.07E-002
TH-232	0.993	3997.00*	9.77E-001 +/- 2.51E-001	6.15E-002 +/- 9.72E-003

AG 8/17/17

0000191676.CNF



0240

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

Sample Title: 06

Elapsed Live time: 10201
Elapsed Real Time: 10201

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

369:	0	1	0	1	4	0	1	0

Sample Title: 06

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

801:	0	0	0	0	0	0	0	0

Sample Title: 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	1	0
865:	0	0	0	0	1	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	1	0	0	0	0	1
945:	1	0	1	0	0	1	0	0
953:	0	0	0	0	0	0	0	0
961:	0	1	0	0	0	1	0	0
969:	0	0	0	0	0	0	0	0
977:	0	0	0	0	0	0	0	0
985:	0	0	0	0	0	0	0	0
993:	0	0	0	0	0	0	0	0
1001:	0	0	0	0	1	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-A02-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 07
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.135E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:10 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: 0.1421 +/- 0.0134
Counting Efficiency: 0.1488 +/- 0.0026 on 11/18/2016 3:34:20 PM
Chem. Recovery Factor: 0.9547 +/- 0.0913

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	23.32	41.27	0.68	0.00E+000	3.0
TH-228		5.362	5.79	97.97	2.21	0.00E+000	3.0
TH-229	T	4.853	127.98	17.41	1.02	0.00E+000	5.2
TH-230		4.619	594.15	8.05	0.85	0.00E+000	48.8
TH-232		3.975	8.49	69.59	0.51	0.00E+000	3.0

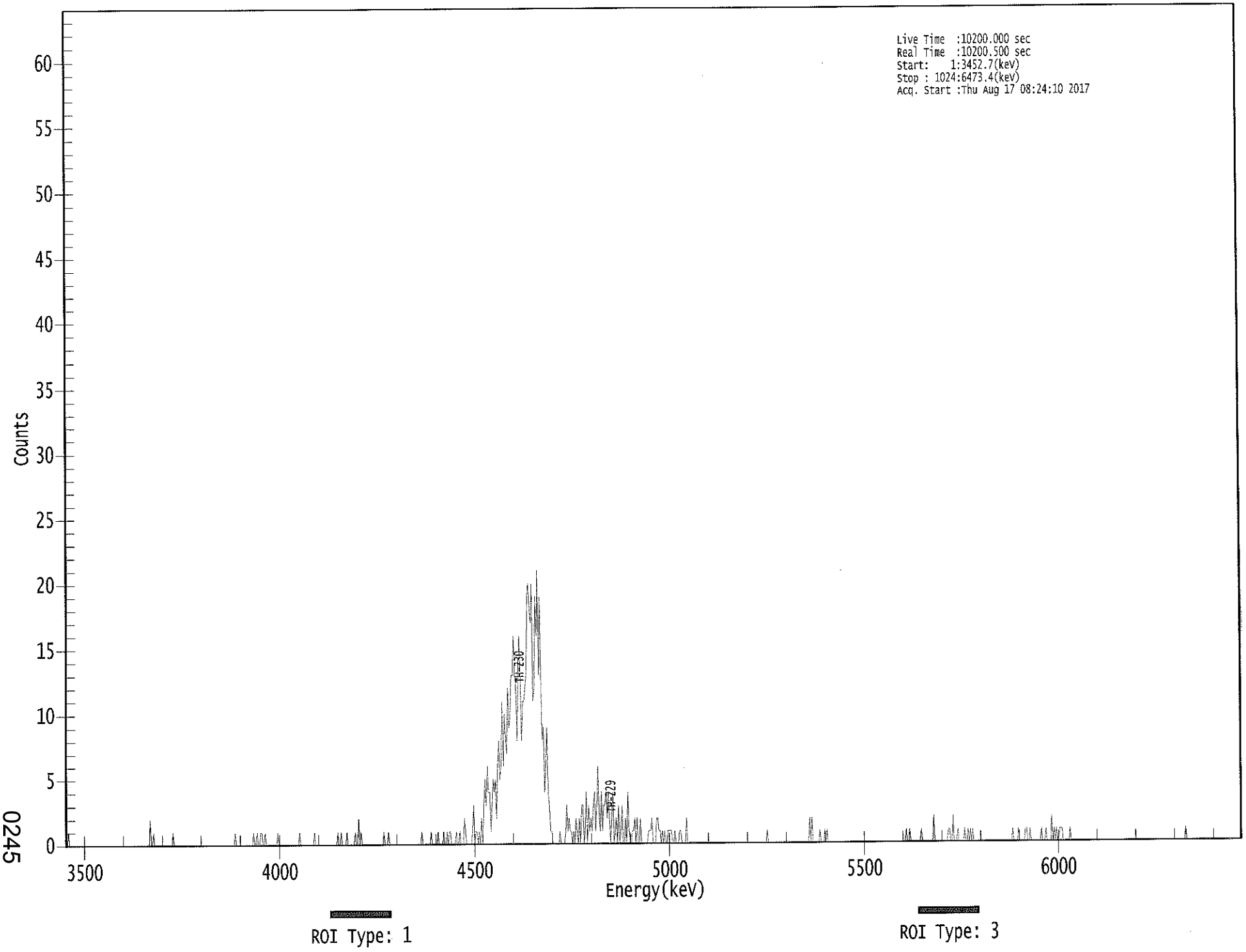
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.994	5850.00*	3.96E-001 +/- 1.79E-001	9.58E-002 +/- 1.77E-002
TH-228	0.992	5400.00*	1.04E-001 +/- 1.04E-001	1.44E-001 +/- 2.66E-002
TH-229	0.998	4872.00*	2.11E+000 +/- 3.89E-001	1.04E-001 +/- 1.92E-002
TH-230	0.985	4672.00*	9.78E+000 +/- 1.97E+000	9.85E-002 +/- 1.82E-002
TH-232	0.997	3997.00*	1.39E-001 +/- 1.00E-001	8.62E-002 +/- 1.59E-002

AG 8/17/17

0000191683.CNF



0245

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

Sample Title: 07

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	4	1	3	5	4	5	2	6

Sample Title: 07

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

801:	0	0	0	0	0	0	0	0

Sample Title: 07

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

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A01-S001-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 08
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: 1.134E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/13/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:12 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1247 +/- 0.0125
Counting Efficiency: 0.1433 +/- 0.0025 on 11/18/2016 3:34:18 PM
Chem. Recovery Factor: 0.8702 +/- 0.0883

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		5.855	22.81	42.27	1.19	0.00E+000	3.0
TH-228		5.344	319.45	11.02	2.55	0.00E+000	6.6
TH-229	T	4.881	111.98	18.62	1.02	0.00E+000	5.3
TH-230		4.606	669.62	7.59	2.38	0.00E+000	40.9
TH-232		3.942	288.32	11.56	0.68	0.00E+000	17.7

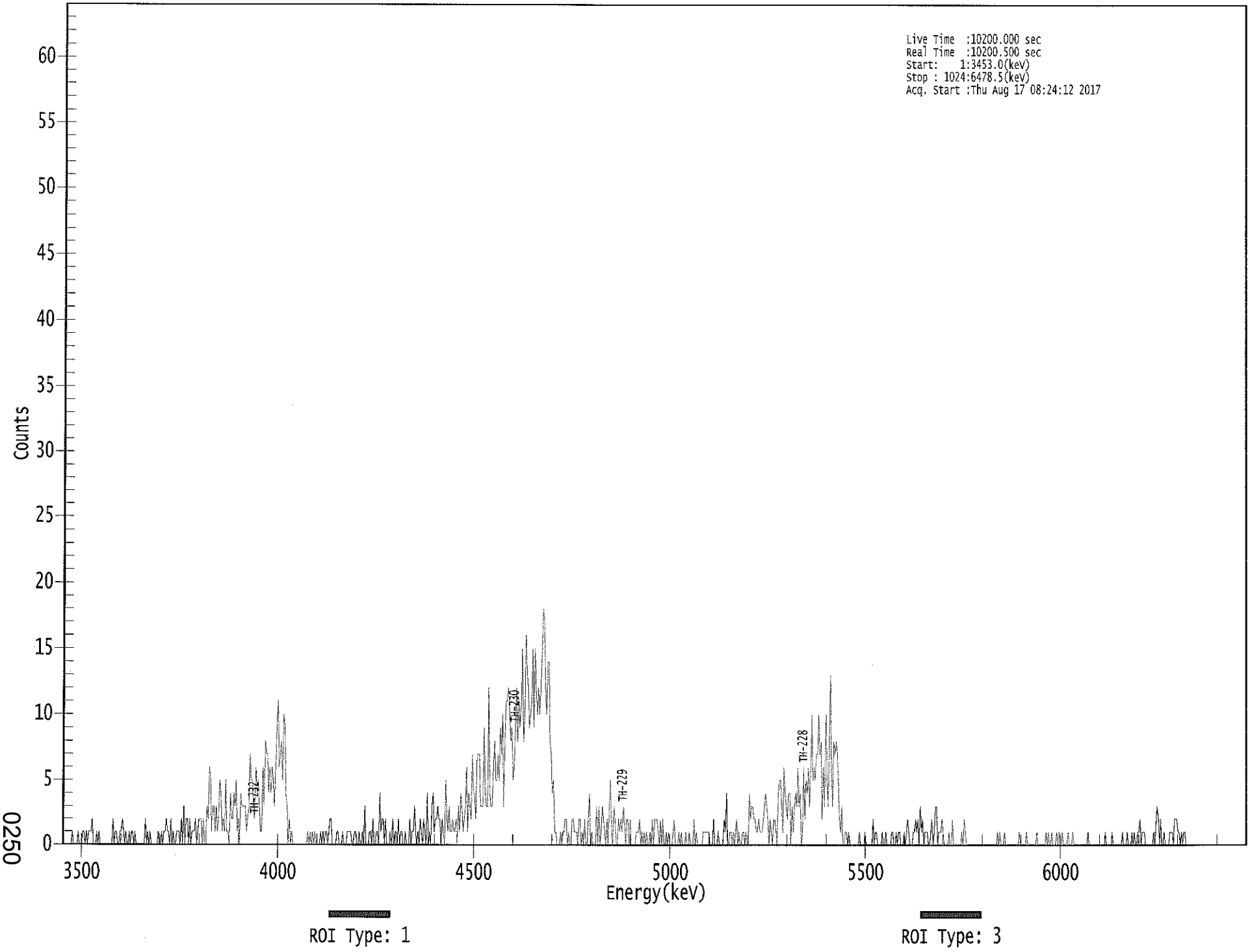
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	4.42E-001 +/- 2.06E-001	1.28E-001 +/- 2.50E-002
TH-228	0.984	5400.00*	6.59E+000 +/- 1.48E+000	1.73E-001 +/- 3.39E-002
TH-229	1.000	4872.00*	2.11E+000 +/- 4.13E-001	1.19E-001 +/- 2.32E-002
TH-230	0.978	4672.00*	1.26E+001 +/- 2.64E+000	1.54E-001 +/- 3.01E-002
TH-232	0.984	3997.00*	5.40E+000 +/- 1.23E+000	1.06E-001 +/- 2.07E-002

AG 8/17/17

0000191684.CNF



0250

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

Sample Title: 08

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	4	3	3	6	8	5	5	7

Sample Title: 08

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

801:	0	0	0	0	0	0	0	1

Sample Title: 08

Channel								
809:	0	1	0	0	0	1	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	1	0	0	0	0	0
833:	1	0	0	0	0	0	0	0
841:	0	1	0	0	0	0	0	0
849:	0	1	0	1	0	0	1	0
857:	0	0	1	0	1	0	0	1
865:	0	0	0	0	1	0	0	0
873:	1	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	1	0	0	0
905:	0	0	1	0	0	0	0	0
913:	0	0	0	1	0	0	0	1
921:	0	0	0	1	0	1	0	0
929:	1	1	2	0	1	1	1	0
937:	0	0	0	0	0	0	1	0
945:	2	3	2	0	2	0	0	1
953:	0	0	0	0	1	1	1	0
961:	2	2	2	1	1	0	1	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 8/17/17

Sample Description: HTC-A02-S001-0006-01 MSD
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 09
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: 1.129E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:14 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1490 +/- 0.0137
Counting Efficiency: 0.1737 +/- 0.0030 on 11/18/2016 3:34:15 PM
Chem. Recovery Factor: 0.8579 +/- 0.0804

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.861	22.66	41.53	0.34	0.00E+000	3.0
TH-228		5.327	365.32	10.27	0.68	0.00E+000	9.7
TH-229	T	4.862	133.49	17.00	0.51	0.00E+000	4.0
TH-230		4.593	903.64	6.53	1.36	0.00E+000	23.7
TH-232		3.926	369.32	10.21	0.68	0.00E+000	28.6

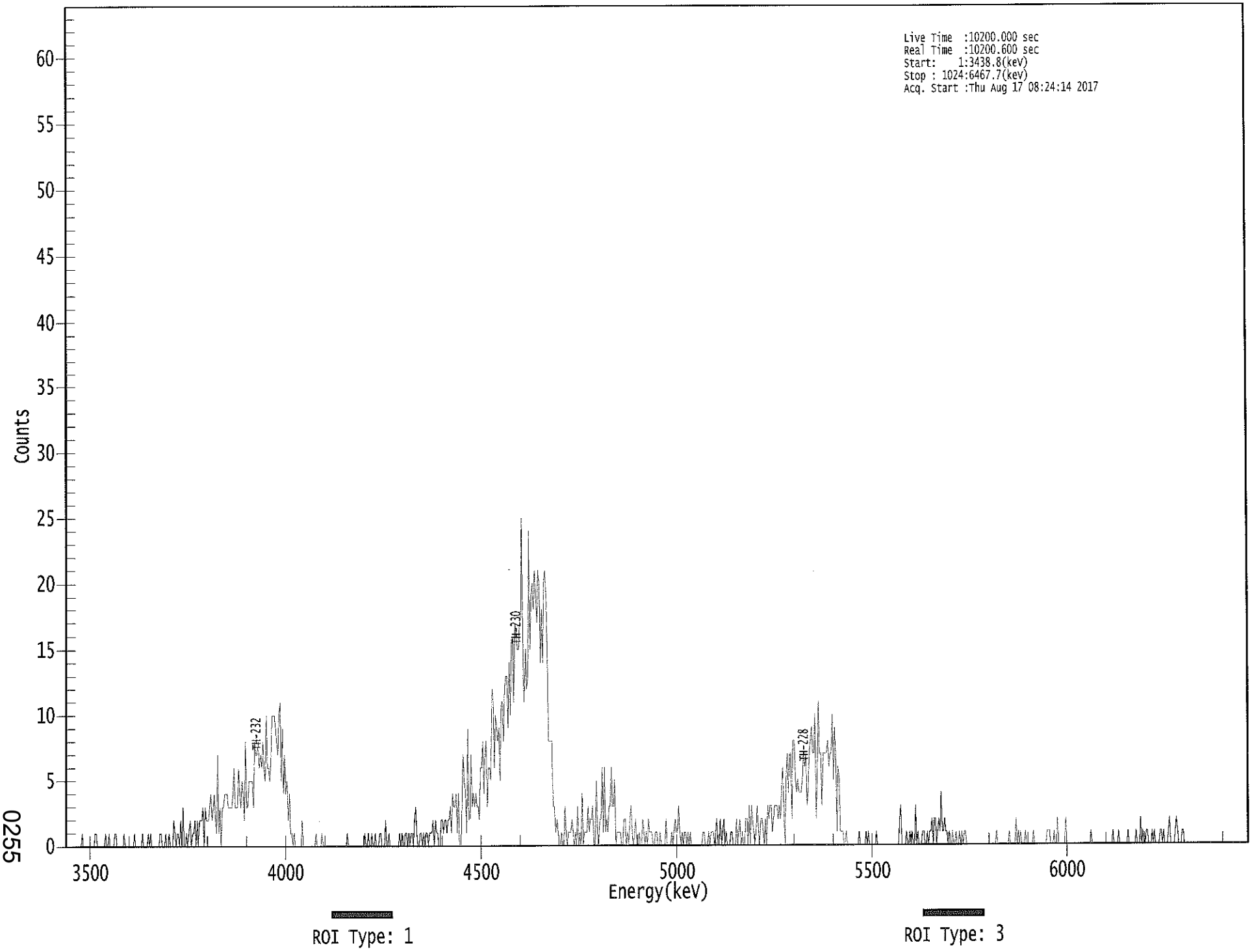
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.999	5850.00*	3.69E-001 +/- 1.67E-001	7.79E-002 +/- 1.41E-002
TH-228	0.973	5400.00*	6.32E+000 +/- 1.31E+000	9.76E-002 +/- 1.76E-002
TH-229	1.000	4872.00*	2.11E+000 +/- 3.81E-001	8.30E-002 +/- 1.50E-002
TH-230	0.968	4672.00*	1.43E+001 +/- 2.74E+000	1.08E-001 +/- 1.95E-002
TH-232	0.974	3997.00*	5.82E+000 +/- 1.21E+000	8.88E-002 +/- 1.60E-002

AG 8/17/17

0000191677.CNF



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

Sample Title: 09

Elapsed Live time: 10200
Elapsed Real Time: 10201

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

369:	12	11	6	10	9	8	9	5

Sample Title: 09

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

Sample Title: 09

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

Apex-Alpha™

Sample Description: HTC-A02-S001-0006-02
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001917
Batch Identification: 1707084A-TH
Sample Identification: 10
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: 1.330E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:15 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.0883 +/- 0.0104
Counting Efficiency: 0.1515 +/- 0.0026 on 11/18/2016 3:34:14 PM
Chem. Recovery Factor: 0.5830 +/- 0.0691

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		5.887	55.32	26.54	0.68	0.00E+000	3.5
TH-228		5.381	17.49	47.66	0.51	0.00E+000	4.5
TH-229	T	4.898	79.15	22.17	0.85	0.00E+000	8.2
TH-230		4.666	1388.32	5.26	0.68	0.00E+000	50.2
TH-232		3.988	29.83	36.01	0.17	0.00E+000	3.0

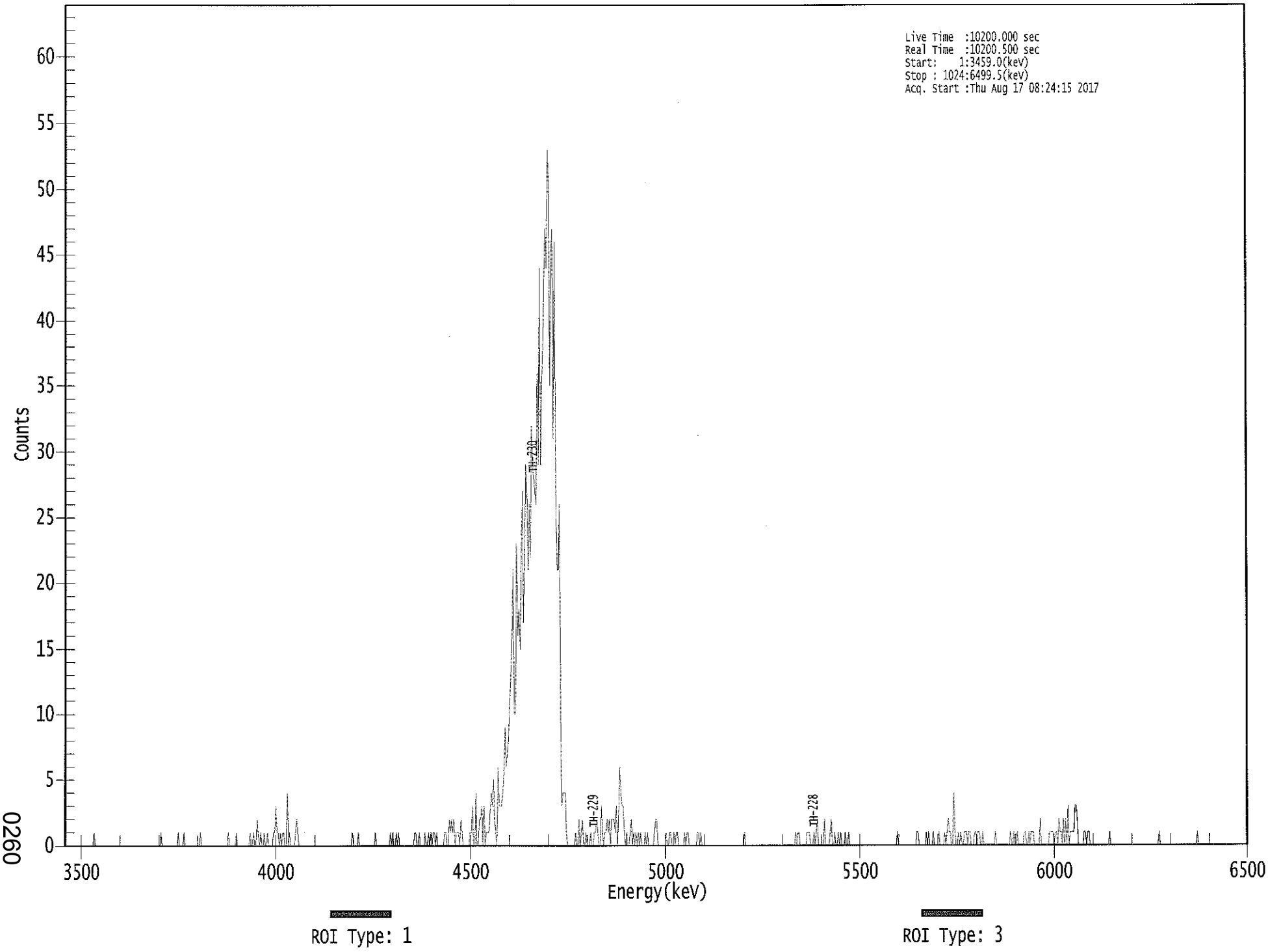
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.993	5850.00*	1.29E+000 +/- 4.53E-001	1.32E-001 +/- 3.03E-002
TH-228	0.998	5400.00*	4.34E-001 +/- 2.29E-001	1.30E-001 +/- 2.99E-002
TH-229	0.996	4872.00*	1.79E+000 +/- 4.12E-001	1.36E-001 +/- 3.12E-002
TH-230	1.000	4672.00*	3.14E+001 +/- 7.40E+000	1.27E-001 +/- 2.93E-002
TH-232	1.000	3997.00*	6.73E-001 +/- 2.88E-001	9.42E-002 +/- 2.16E-002

AG
8/17/17

0000191678.CNF



0260

****
***** 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: 10201

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

369:	4	3	5	2	1	0	6	3

Sample Title: 10

Channel								
377:	3	3	4	5	9	6	7	8
385:	11	13	16	21	10	10	23	16
393:	18	15	21	27	17	23	29	27
401:	21	26	22	32	29	28	27	26
409:	36	29	44	29	35	38	43	47
417:	44	53	51	35	45	47	31	46
425:	25	21	21	26	10	3	4	4
433:	4	1	0	0	0	0	0	0
441:	0	1	0	0	2	0	1	2
449:	0	0	1	0	0	0	1	0
457:	0	1	1	2	1	0	0	3
465:	1	0	1	1	2	1	2	0
473:	2	2	2	1	3	0	2	6
481:	4	3	3	1	0	1	0	0
489:	1	2	0	1	0	1	0	1
497:	0	1	0	0	0	1	0	1
505:	0	0	0	0	0	1	2	2
513:	0	0	0	0	0	0	0	1
521:	0	0	1	1	0	0	1	0
529:	1	1	0	0	0	0	0	1
537:	0	1	1	0	0	0	0	0
545:	0	0	1	1	0	1	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	0	0	0	1	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0
625:	0	0	0	0	0	0	0	1
633:	0	1	1	0	0	0	0	0
641:	0	1	1	1	0	0	0	1
649:	0	1	2	0	0	0	0	0
657:	2	0	0	0	0	1	2	0
665:	0	1	0	0	1	0	1	0
673:	0	0	1	0	0	1	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	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:	1	1	0	0	0	0	0	0
745:	1	0	1	0	0	0	1	0
753:	0	0	0	1	0	0	0	0
761:	1	0	1	2	1	1	0	0
769:	4	1	0	0	1	0	1	0
777:	0	1	1	1	0	1	1	0
785:	0	0	1	1	0	1	1	0
793:	0	1	0	0	0	0	0	0

801:	0	0	0	0	1	0	0	0

Sample Title: 10

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

MB 9/17/17

Sample Description: HTC-A02-S001-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 11
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: 1.030E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:17 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.1389 +/- 0.0132
Counting Efficiency: 0.1363 +/- 0.0024 on 11/18/2016 3:34:12 PM
Chem. Recovery Factor: 1.0191 +/- 0.0986

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.919	46.66	28.82	0.34	0.00E+000	5.2
TH-228		5.366	44.13	30.23	1.87	0.00E+000	6.3
TH-229	T	4.863	124.32	17.63	0.68	0.00E+000	4.7
TH-230		4.629	967.49	6.30	0.51	0.00E+000	43.3
TH-232		3.962	61.66	25.04	0.34	0.00E+000	4.9

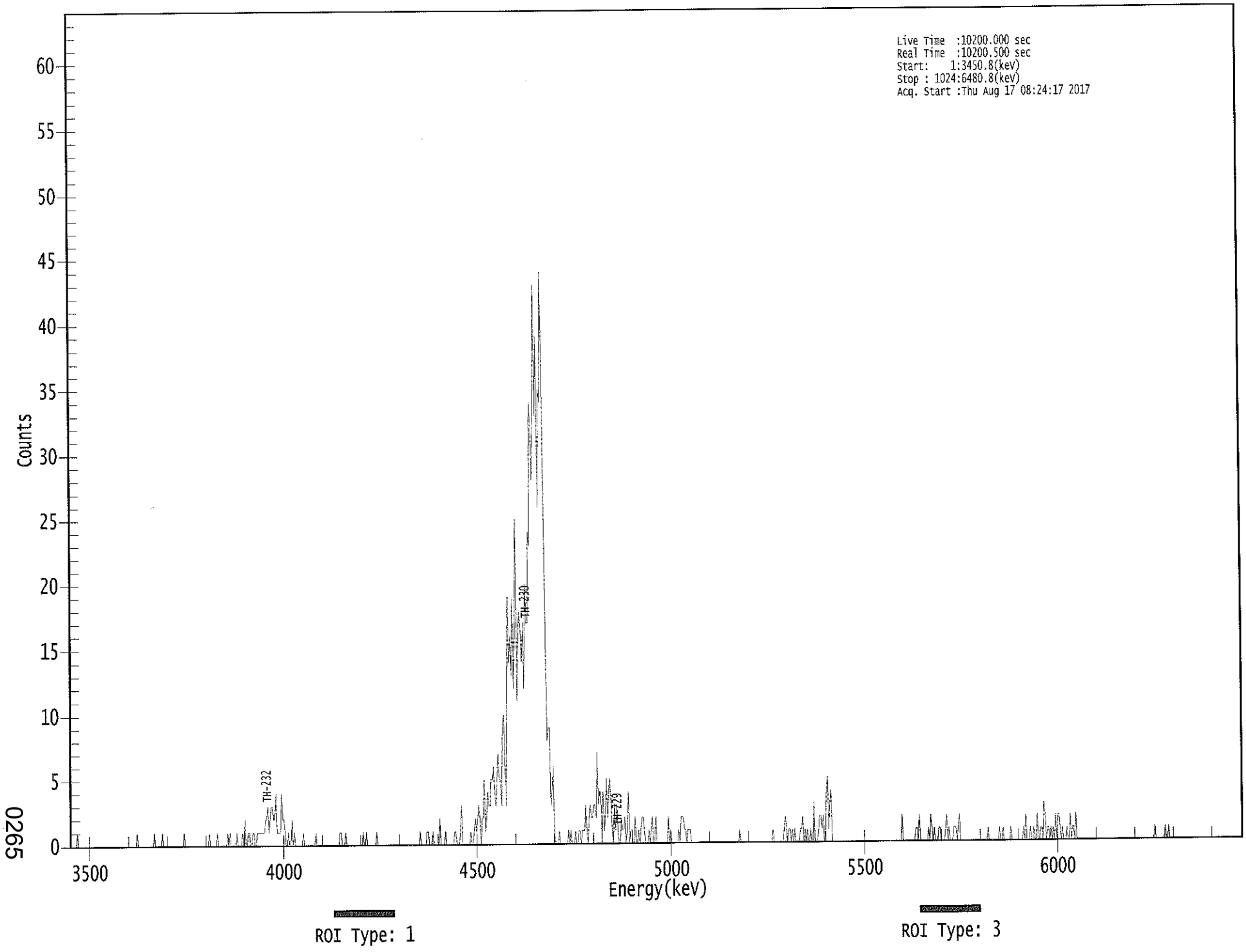
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.976	5850.00*	8.93E-001 +/- 3.07E-001	9.16E-002 +/- 1.71E-002
TH-228	0.994	5400.00*	8.98E-001 +/- 3.19E-001	1.54E-001 +/- 2.87E-002
TH-229	1.000	4872.00*	2.31E+000 +/- 4.31E-001	1.05E-001 +/- 1.96E-002
TH-230	0.990	4672.00*	1.79E+001 +/- 3.53E+000	9.73E-002 +/- 1.82E-002
TH-232	0.993	3997.00*	1.14E+000 +/- 3.57E-001	8.85E-002 +/- 1.65E-002

AG
8/17/17

0000191679.CNF



0265

****
***** 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: 10201

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

369:	5	6	4	3	5	7	5	5

Sample Title: 11

Channel								
377:	3	9	10	7	3	10	19	14
385:	16	13	19	12	17	25	11	16
393:	18	16	14	17	12	20	17	17
401:	24	23	34	32	28	34	43	33
409:	39	26	35	34	44	38	26	14
417:	8	9	9	3	4	6	1	0
425:	0	0	1	0	0	0	0	0
433:	0	0	1	0	1	0	0	0
441:	1	0	0	1	1	0	1	1
449:	1	3	1	0	2	3	2	2
457:	3	3	2	7	3	4	4	0
465:	4	1	2	5	2	4	5	3
473:	1	0	3	1	3	1	0	0
481:	2	1	1	2	0	1	4	0
489:	1	1	0	0	2	0	0	1
497:	0	1	2	2	1	0	0	0
505:	1	0	1	2	0	0	2	0
513:	0	0	0	0	0	0	0	0
521:	0	2	0	1	0	0	0	0
529:	0	0	1	0	2	2	2	1
537:	1	0	1	1	1	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	1
585:	0	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	0	0	0	0
609:	0	0	0	0	1	0	0	0
617:	0	0	0	0	0	0	1	2
625:	1	0	1	1	0	1	0	1
633:	0	0	0	0	1	1	2	0
641:	1	0	1	0	0	1	0	0
649:	3	0	0	0	1	2	2	1
657:	2	0	1	4	5	1	3	4
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	2	0	0
729:	0	0	0	0	0	0	0	0
737:	0	1	1	0	2	0	0	0
745:	0	0	0	0	1	0	2	1
753:	0	1	0	0	0	1	1	0
761:	0	0	0	1	2	0	1	0
769:	0	0	1	1	1	0	1	2
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:	1	0	0	0	0	0	0	0

Sample Title: 11

Channel								
809:	0	0	1	0	0	1	0	0
817:	0	0	0	0	1	0	0	0
825:	0	0	0	0	0	0	0	1
833:	0	2	0	0	0	1	0	0
841:	1	0	0	2	0	0	1	1
849:	0	3	2	0	1	1	0	1
857:	0	1	0	2	0	2	2	1
865:	0	1	0	0	0	1	0	0
873:	2	0	1	1	0	2	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	0
921:	0	0	0	0	0	0	0	0
929:	0	0	0	0	0	0	0	0
937:	0	0	0	0	0	0	0	0
945:	0	0	1	0	0	0	0	0
953:	0	0	0	1	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™

KP 8/17/17

Sample Description: HTC-A02-S001-1218-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 12
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.150E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:19 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: 0.1359 +/- 0.0131
Counting Efficiency: 0.1595 +/- 0.0027 on 11/18/2016 3:34:09 PM
Chem. Recovery Factor: 0.8523 +/- 0.0834

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		5.891	14.64	53.94	1.36	0.00E+000	3.0
TH-228		5.352	106.47	19.15	1.53	0.00E+000	6.9
TH-229	T	4.865	122.30	17.87	1.70	0.00E+000	7.4
TH-230		4.619	297.32	11.38	0.68	0.00E+000	8.8
TH-232		3.953	87.81	21.08	1.19	0.00E+000	5.6

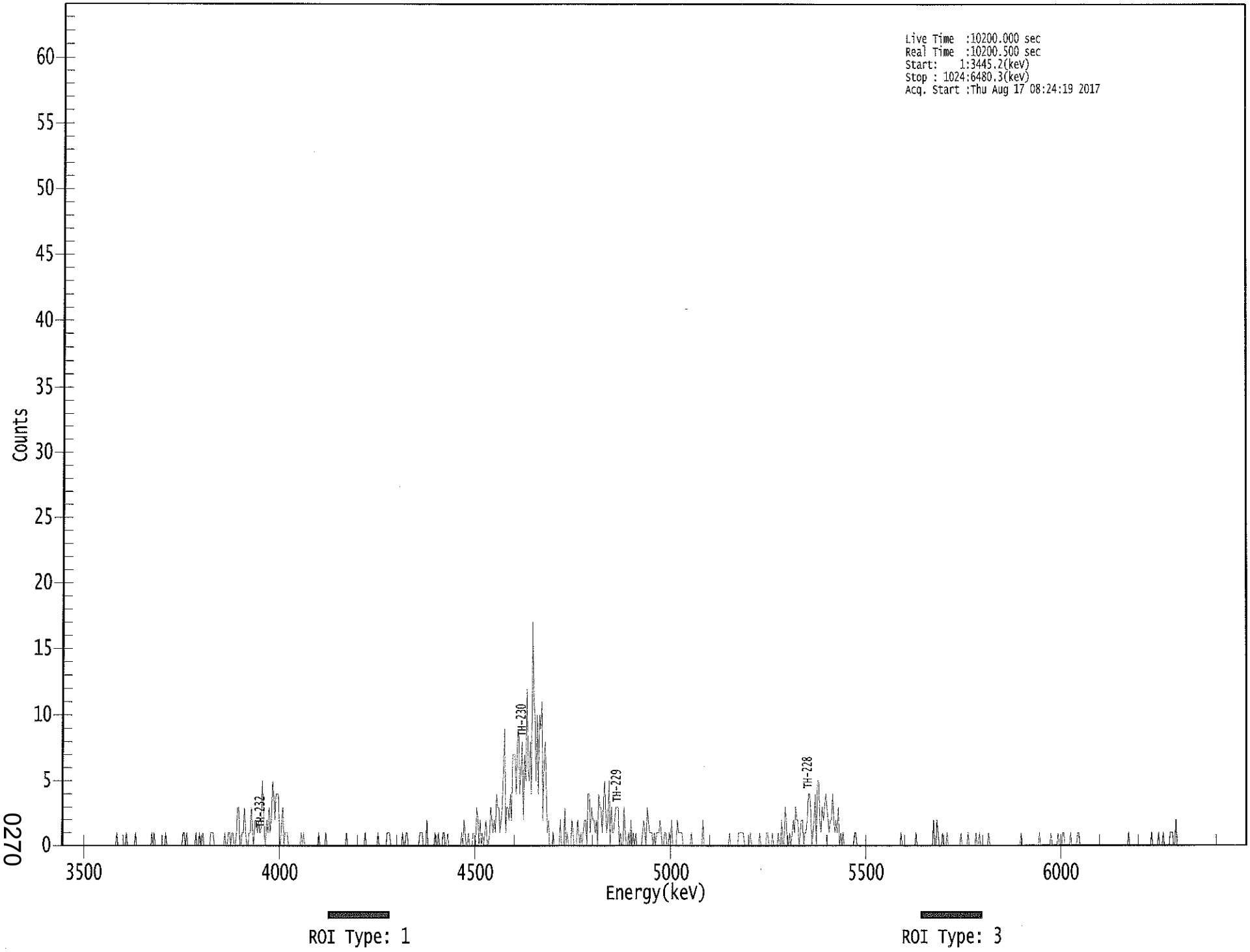
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.991	5850.00*	2.57E-001 +/- 1.47E-001	1.20E-001 +/- 2.27E-002
TH-228	0.988	5400.00*	1.98E+000 +/- 5.33E-001	1.32E-001 +/- 2.50E-002
TH-229	1.000	4872.00*	2.08E+000 +/- 3.93E-001	1.25E-001 +/- 2.36E-002
TH-230	0.985	4672.00*	5.05E+000 +/- 1.11E+000	9.58E-002 +/- 1.81E-002
TH-232	0.990	3997.00*	1.49E+000 +/- 4.21E-001	1.12E-001 +/- 2.11E-002

AG 8/17/17

0000191682.CNF



0270

```
*****************************************************
*****   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: 10201

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

369:	1	3	2	1	2	1	4	3

Sample Title: 12

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

801:	0	0	0	0	0	0	0	0

Sample Title: 12

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

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S001-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 13
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.380E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:21 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: 0.1338 +/- 0.0129
Counting Efficiency: 0.1646 +/- 0.0028 on 11/18/2016 3:34:08 PM
Chem. Recovery Factor: 0.8128 +/- 0.0795

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		5.891	6.00	86.43	0.00	0.00E+000	3.0
TH-228		5.338	102.83	19.35	0.17	0.00E+000	15.8
TH-229	T	4.851	120.66	17.87	0.34	0.00E+000	7.9
TH-230		4.607	81.66	21.74	0.34	0.00E+000	3.3
TH-232		3.938	97.00	20.00	0.00	0.00E+000	8.5

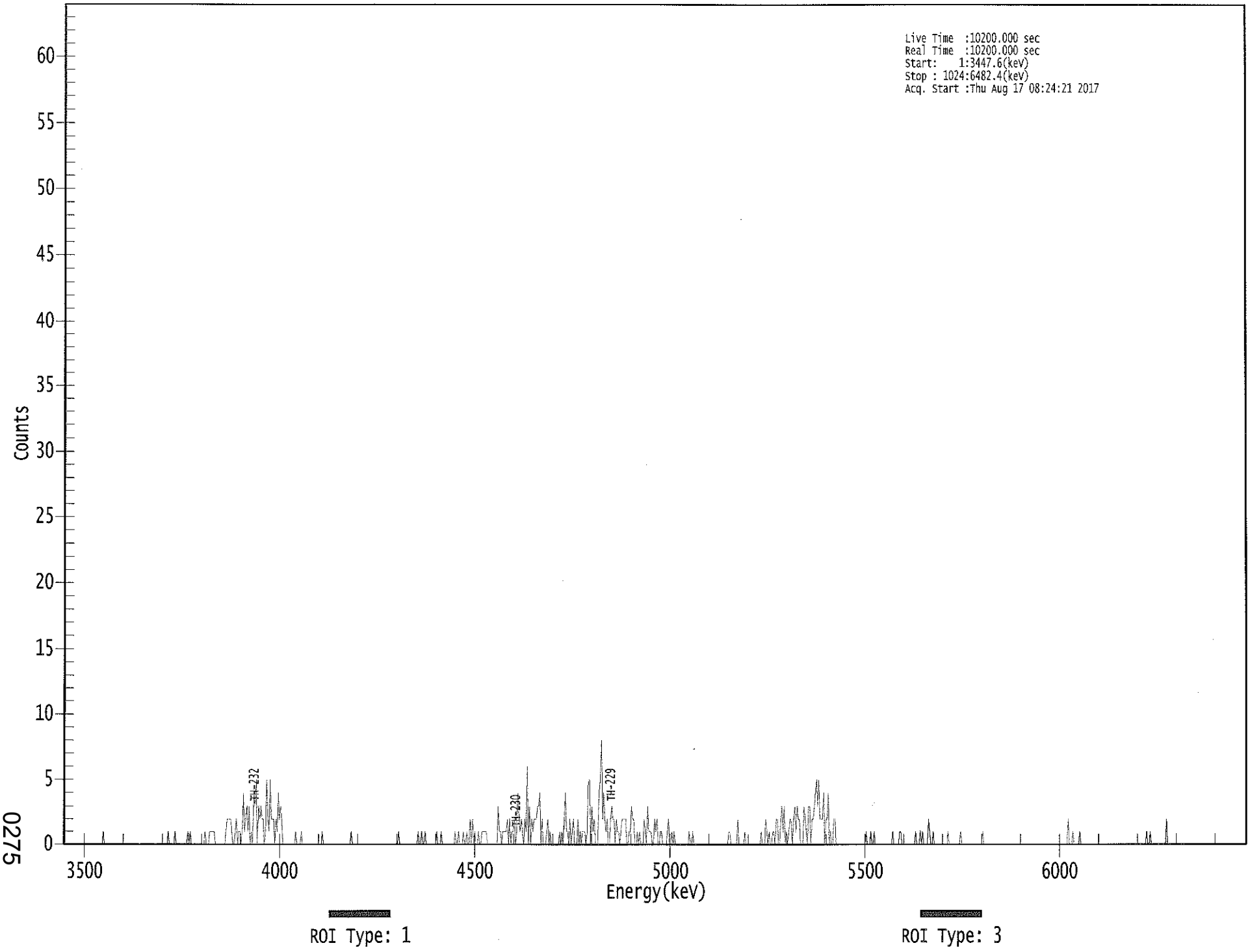
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.991	5850.00*	8.90E-002 +/- 7.88E-002	8.90E-002 +/- 1.68E-002
TH-228	0.980	5400.00*	1.62E+000 +/- 4.38E-001	6.58E-002 +/- 1.24E-002
TH-229	0.998	4872.00*	1.74E+000 +/- 3.28E-001	6.89E-002 +/- 1.30E-002
TH-230	0.978	4672.00*	1.17E+000 +/- 3.38E-001	6.87E-002 +/- 1.30E-002
TH-232	0.982	3997.00*	1.39E+000 +/- 3.83E-001	8.60E-002 +/- 1.62E-002

AG 8/17/17

0000191680.CNF



0275

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

Sample Title: 13

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	0	0	0	0	0	0
25:	0	0	0	0	0	0	0	0
33:	0	0	1	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	1	0	0	0	0	0
97:	1	0	0	0	0	0	0	0
105:	0	0	0	1	0	1	0	0
113:	0	0	0	0	0	0	0	0
121:	0	0	1	0	0	0	1	1
129:	1	1	1	0	0	0	0	0
137:	0	0	0	0	1	2	2	2
145:	2	1	0	0	1	2	0	1
153:	1	0	1	4	1	2	3	1
161:	3	0	1	0	4	3	5	0
169:	3	2	3	2	2	0	1	5
177:	2	1	5	2	2	2	0	2
185:	1	4	2	3	2	0	0	0
193:	0	0	0	0	0	0	0	0
201:	1	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	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	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0
289:	0	1	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	1	0	0	1	0	0
313:	1	0	0	0	0	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	1	0	0
345:	0	1	0	0	1	0	0	2
353:	0	2	0	1	0	0	1	0
361:	0	1	1	1	1	1	0	0

369:	0	0	0	0	0	0	0	3

Sample Title: 13

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

801:	0	0	0	0	0	0	0	0

Sample Title: 13

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	0	0	0	0
833:	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	0	0	0	0	0	0
865:	0	0	0	0	2	0	0	0
873:	1	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:	1	0	0	1	0	0	0	0
945:	0	0	0	0	0	0	0	0
953:	0	2	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 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S001-2430-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 14
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.110E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:23 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1536 +/- 0.0140
Counting Efficiency: 0.1665 +/- 0.0028 on 11/18/2016 3:34:06 PM
Chem. Recovery Factor: 0.9225 +/- 0.0853

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		5.872	6.66	78.18	0.34	0.00E+000	3.0
TH-228		5.361	83.49	21.53	0.51	0.00E+000	15.9
TH-229	T	4.860	137.49	16.75	0.51	0.00E+000	9.9
TH-230		4.623	77.83	22.25	0.17	0.00E+000	7.4
TH-232		3.950	59.13	25.96	1.87	0.00E+000	5.0

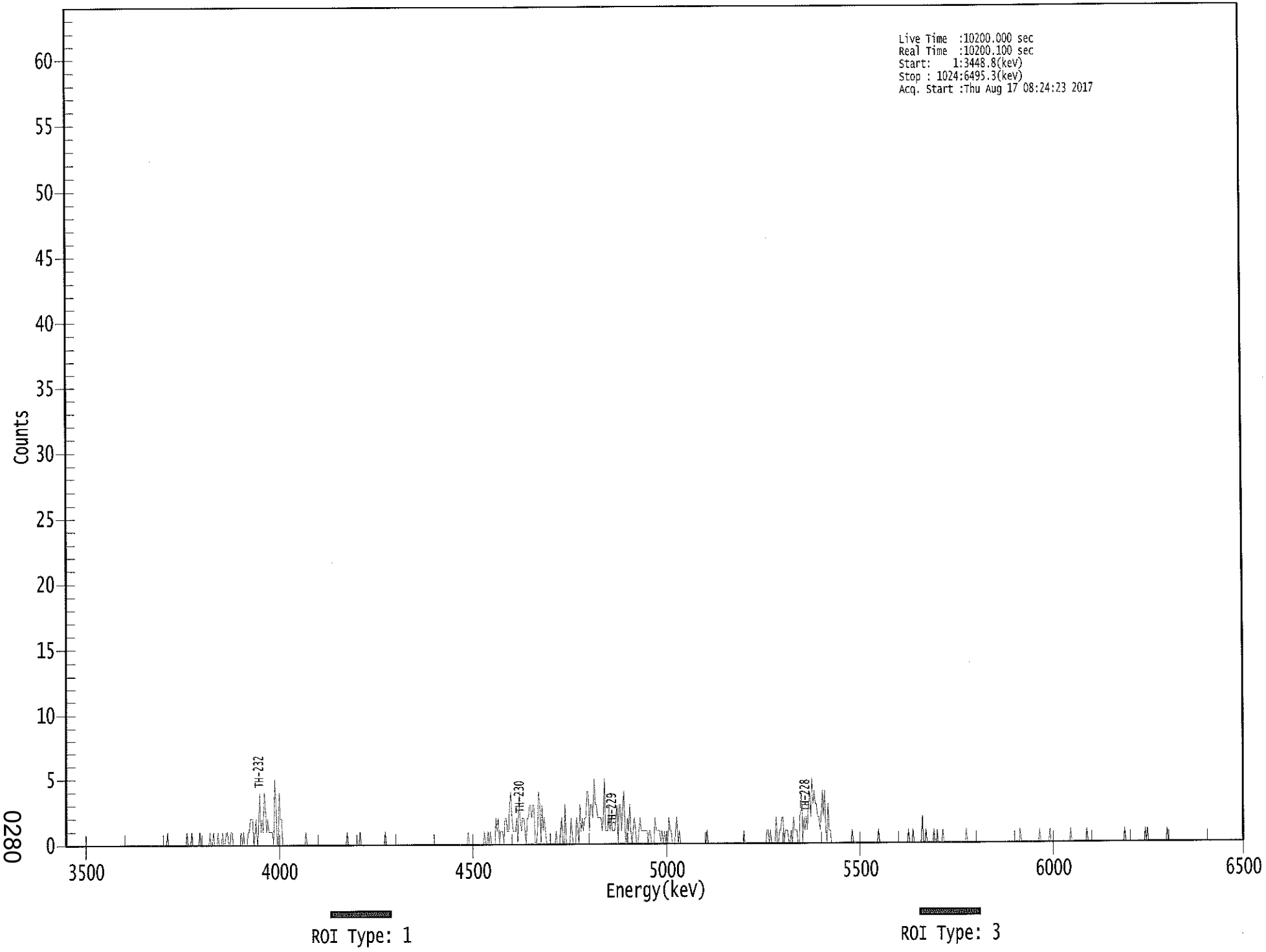
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.997	5850.00*	1.07E-001 +/- 8.58E-002	7.68E-002 +/- 1.37E-002
TH-228	0.992	5400.00*	1.43E+000 +/- 3.98E-001	8.96E-002 +/- 1.60E-002
TH-229	0.999	4872.00*	2.15E+000 +/- 3.83E-001	8.20E-002 +/- 1.46E-002
TH-230	0.988	4672.00*	1.21E+000 +/- 3.45E-001	6.50E-002 +/- 1.16E-002
TH-232	0.989	3997.00*	9.19E-001 +/- 2.89E-001	1.18E-001 +/- 2.10E-002

AG 8/17/17

0000191681.CNF



0280

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

Sample Title: 14

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	1	0	0	0	0	2	1	2

Sample Title: 14

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

801:	0	0	0	0	0	0	0	0

Sample Title: 14

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

Apex-Alpha™

KB 8/18/17

Sample Description: HTC-A02-S001-3036-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 15
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.060E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:25 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.2080 +/- 0.0166
Counting Efficiency: 0.1776 +/- 0.0030 on 11/18/2016 3:40:57 PM
Chem. Recovery Factor: 1.1712 +/- 0.0955

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		5.855	5.32	91.11	0.68	0.00E+000	3.0
TH-228		5.364	61.15	25.27	0.85	0.00E+000	3.4
TH-229	T	4.868	186.00	14.41	0.00	0.00E+000	7.4
TH-230		4.623	144.83	16.30	0.17	0.00E+000	3.5
TH-232		3.963	65.00	24.50	0.00	0.00E+000	6.2

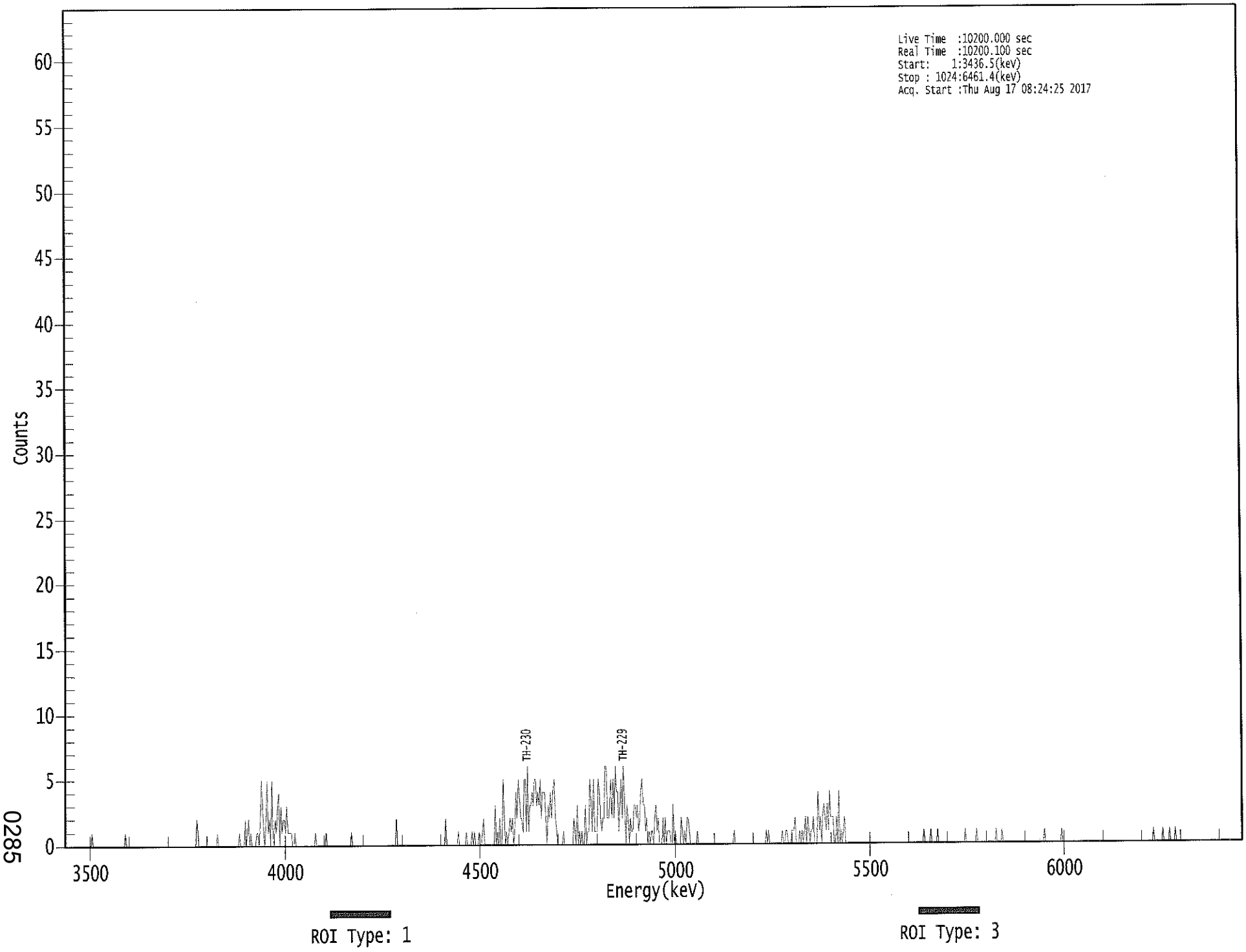
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	6.61E-002 +/- 6.11E-002	7.01E-002 +/- 1.10E-002
TH-228	0.993	5400.00*	8.07E-001 +/- 2.40E-001	7.90E-002 +/- 1.24E-002
TH-229	1.000	4872.00*	2.25E+000 +/- 3.51E-001	7.24E-002 +/- 1.13E-002
TH-230	0.988	4672.00*	1.74E+000 +/- 3.94E-001	5.02E-002 +/- 7.86E-003
TH-232	0.994	3997.00*	7.81E-001 +/- 2.27E-001	7.20E-002 +/- 1.13E-002

AG 8/17/17

0000191685.CNF



0285

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

Sample Title: 15

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	0	3	0	1

Sample Title: 15

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

801:	0	0	0	0	0	0	0	0

Sample Title: 15

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

Apex-Alpha™

Sample Description: HTC-A02-S001-3642-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-TH
Sample Identification: 16
Sample Geometry: Shelf 2
Procedure Description: Th iso

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

Sample Size: 1.080E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 8:24:27 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: 0.1100 +/- 0.0116
Counting Efficiency: 0.1477 +/- 0.0026 on 11/18/2016 3:34:04 PM
Chem. Recovery Factor: 0.7449 +/- 0.0798

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		5.859	1.79	229.05	2.21	0.00E+000	3.0
TH-228		5.358	54.96	27.01	2.04	0.00E+000	4.9
TH-229	T	4.861	98.98	19.82	1.02	0.00E+000	4.0
TH-230		4.624	53.13	27.44	1.87	0.00E+000	3.0
TH-232		3.943	50.98	27.77	1.02	0.00E+000	4.9

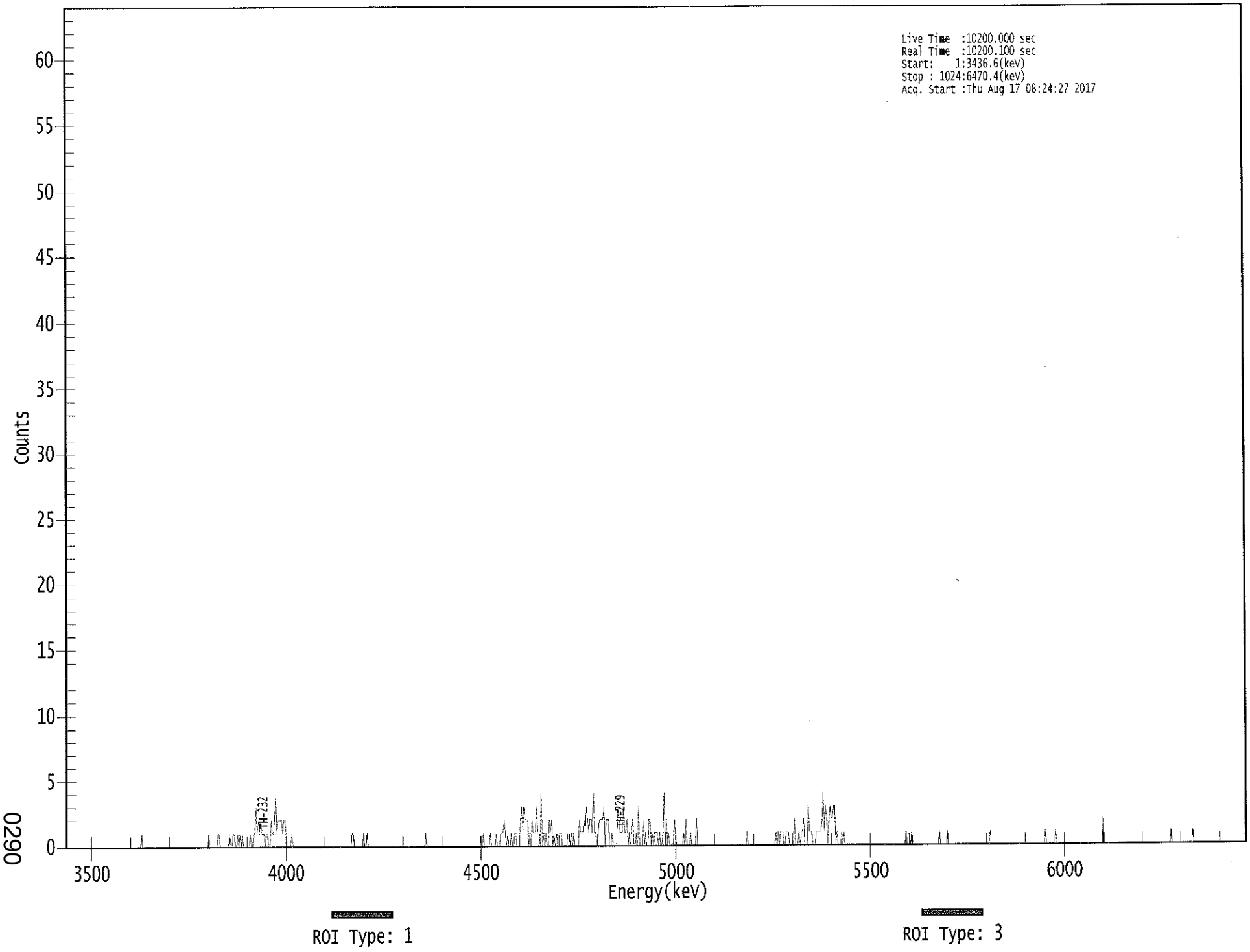
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	1.000	5850.00*	4.13E-002 +/- 9.50E-002	1.84E-001 +/- 3.82E-002
TH-228	0.991	5400.00*	1.35E+000 +/- 4.58E-001	1.91E-001 +/- 3.96E-002
TH-229	0.999	4872.00*	2.22E+000 +/- 4.60E-001	1.41E-001 +/- 2.93E-002
TH-230	0.988	4672.00*	1.19E+000 +/- 4.08E-001	1.69E-001 +/- 3.51E-002
TH-232	0.985	3997.00*	1.14E+000 +/- 3.94E-001	1.41E-001 +/- 2.91E-002

AG 8/17/17

0000191686.CNF



0290

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

Sample Title: 16

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	0	0	0	0	1	0	0	0

Sample Title: 16

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

Sample Title: 16

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

KB 8/17/17

Apex-Alpha™

Sample Description: HTC-A02-S002-0006-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-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: 1.220E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 9:32:10 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.0609 +/- 0.0085
Counting Efficiency: 0.1681 +/- 0.0029 on 11/18/2016 10:08:33 AM
Chem. Recovery Factor: 0.3621 +/- 0.0511

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	50.83	27.55	0.17	0.00E+000	3.4
TH-228		5.371	14.98	52.62	1.02	0.00E+000	4.5
TH-229	T	4.864	54.32	26.79	0.68	0.00E+000	4.5
TH-230		4.625	1070.83	5.99	0.17	0.00E+000	36.6
TH-232		3.949	16.00	50.51	0.00	0.00E+000	4.5

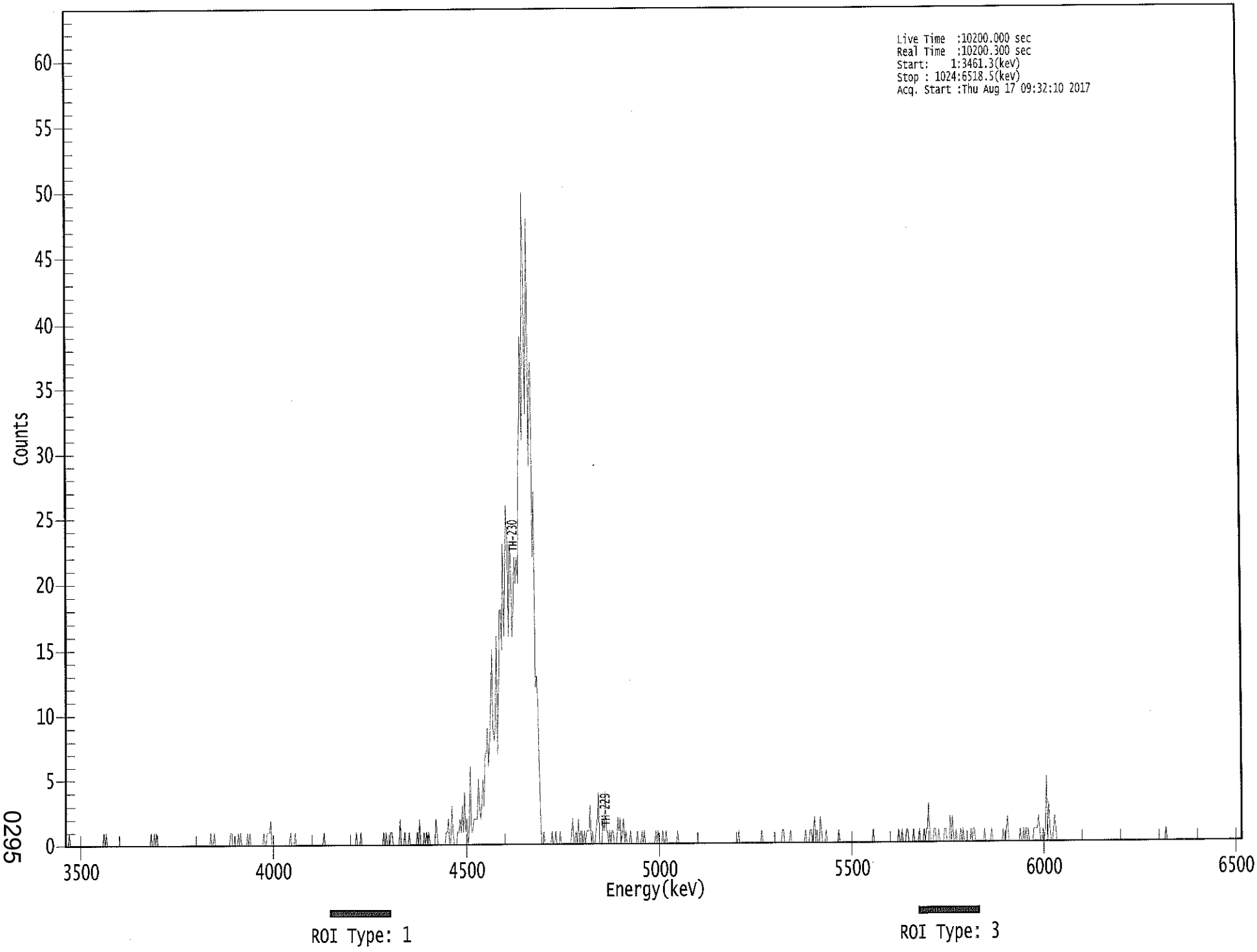
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.991	5850.00*	1.88E+000 +/- 7.29E-001	1.54E-001 +/- 4.23E-002
TH-228	0.995	5400.00*	5.87E-001 +/- 3.48E-001	2.47E-001 +/- 6.78E-002
TH-229	1.000	4872.00*	1.95E+000 +/- 5.35E-001	2.02E-001 +/- 5.55E-002
TH-230	0.989	4672.00*	3.83E+001 +/- 1.08E+001	1.49E-001 +/- 4.10E-002
TH-232	0.988	3997.00*	5.71E-001 +/- 3.28E-001	2.14E-001 +/- 5.88E-002

AG 8/17/17

0000191698.CNF



0295

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

Sample Title: 17

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	8	11	15	9	8	9	16	7

Sample Title: 17

Channel								
377:	12	18	18	15	23	16	21	26
385:	23	16	23	22	16	18	22	20
393:	22	20	29	33	39	31	50	44
401:	33	40	48	29	36	37	22	27
409:	12	13	11	6	3	0	0	1
417:	0	0	0	0	0	0	1	0
425:	0	1	0	0	0	1	0	0
433:	0	0	0	0	0	0	0	1
441:	2	0	0	1	0	2	0	1
449:	1	0	1	0	1	1	1	3
457:	0	1	0	0	1	2	4	0
465:	0	0	2	1	4	1	1	0
473:	1	0	1	1	0	0	0	2
481:	1	2	0	1	2	0	1	0
489:	0	0	1	0	0	0	0	0
497:	1	0	0	0	1	0	1	0
505:	0	0	0	0	0	0	0	0
513:	1	0	1	0	0	0	1	0
521:	0	1	0	0	0	0	0	0
529:	0	0	0	1	0	0	0	0
537:	0	0	0	0	0	0	0	0
545:	0	0	0	0	0	0	0	0
553:	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0
569:	0	0	0	0	0	0	0	0
577:	0	0	0	0	0	0	0	0
585:	1	0	0	0	0	0	0	0
593:	0	0	0	0	0	0	0	0
601:	0	0	0	0	1	0	0	0
609:	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	1	1
625:	0	0	0	0	0	1	0	0
633:	0	0	0	0	0	0	0	0
641:	0	0	1	0	0	0	1	1
649:	0	1	2	0	1	0	0	2
657:	1	0	0	0	1	0	0	0
665:	0	0	0	0	0	0	0	1
673:	0	0	0	0	0	0	0	0
681:	0	0	0	0	0	0	0	0
689:	0	0	0	0	0	0	0	0
697:	0	0	0	0	0	1	0	0
705:	0	0	0	0	0	0	0	0
713:	0	0	0	0	0	0	0	0
721:	0	0	0	1	0	0	1	0
729:	0	0	1	1	0	0	0	0
737:	1	0	0	0	0	1	0	0
745:	0	1	0	1	1	3	1	0
753:	0	0	1	1	0	0	1	0
761:	0	0	0	1	1	0	0	0
769:	2	0	2	0	0	1	0	0
777:	0	1	0	1	0	0	0	0
785:	0	0	1	0	1	1	0	0
793:	0	0	0	0	0	0	1	0

801:	0	0	0	0	1	0	0	0

Sample Title: 17

Channel								
809:	0	0	0	0	0	0	1	0
817:	0	1	2	0	0	0	0	0
825:	0	0	0	0	0	1	0	0
833:	1	0	1	0	1	0	0	0
841:	0	1	1	1	1	2	1	0
849:	0	1	0	1	5	0	3	1
857:	0	0	1	2	1	0	0	0
865:	0	0	0	0	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	0	0	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

Apex-Alpha™

KB 8/18/17

Sample Description: HTC-A02-S002-0612-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-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: 1.000E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 9:32:11 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.235 mL
Effective Efficiency: 0.1780 +/- 0.0152
Counting Efficiency: 0.1728 +/- 0.0029 on 11/18/2016 10:08:58 AM
Chem. Recovery Factor: 1.0298 +/- 0.0894

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.898	13.64	56.08	1.36	0.00E+000	3.0
TH-228		5.360	79.64	22.18	1.36	0.00E+000	6.0
TH-229	T	4.859	159.49	15.55	0.51	0.00E+000	3.6
TH-230		4.630	151.49	15.96	0.51	0.00E+000	6.1
TH-232		3.954	91.83	20.48	0.17	0.00E+000	9.9

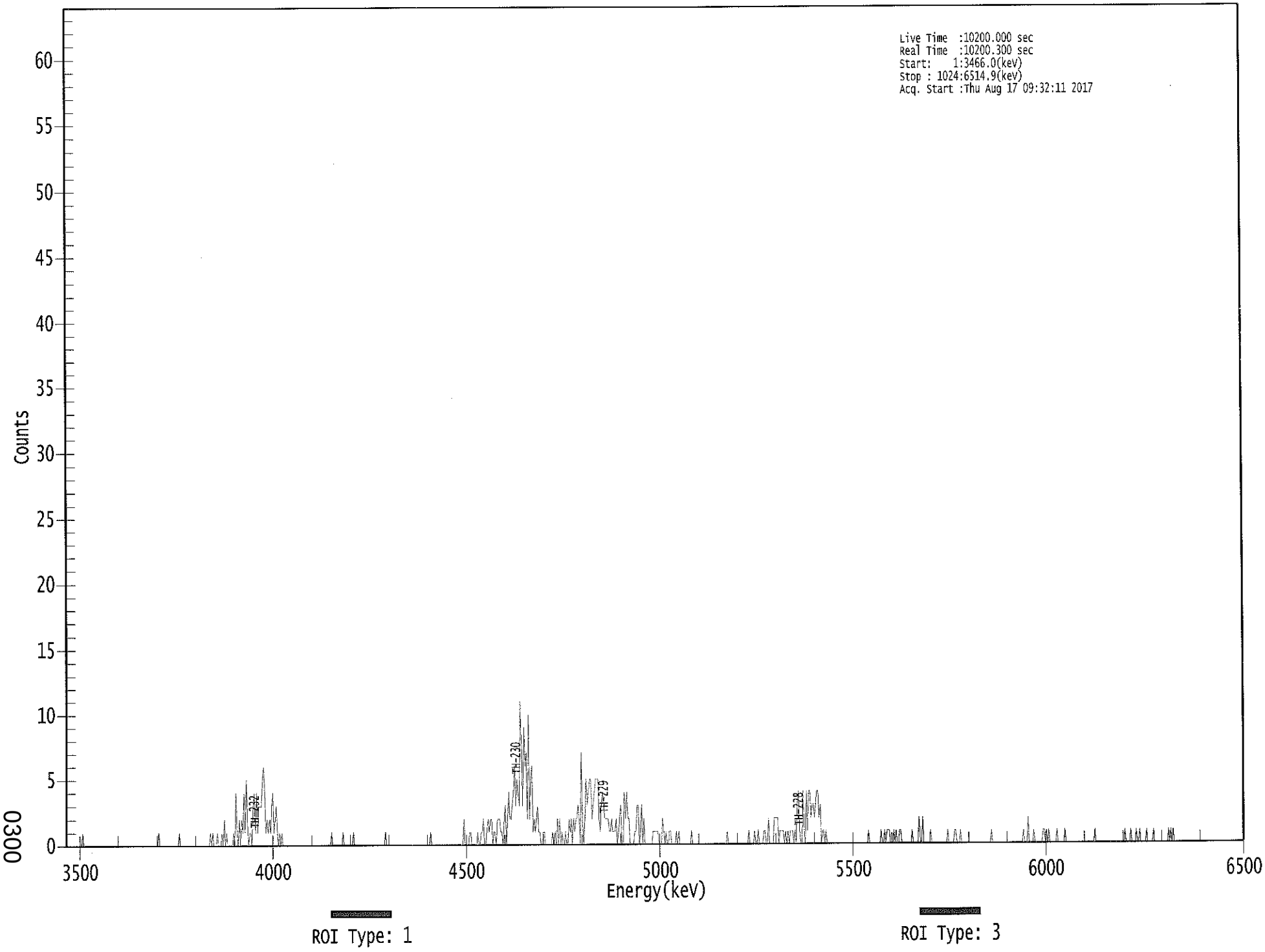
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	2.10E-001 +/- 1.23E-001	1.06E-001 +/- 1.76E-002
TH-228	0.992	5400.00*	1.30E+000 +/- 3.62E-001	1.12E-001 +/- 1.87E-002
TH-229	0.999	4872.00*	2.39E+000 +/- 3.98E-001	7.85E-002 +/- 1.31E-002
TH-230	0.991	4672.00*	2.26E+000 +/- 5.22E-001	7.83E-002 +/- 1.31E-002
TH-232	0.991	3997.00*	1.37E+000 +/- 3.61E-001	6.21E-002 +/- 1.04E-002

AG 8/17/17

0000191699.CNF



0300

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

Sample Title: 18

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	2	2	0	1	1	0	2	2

Sample Title: 18

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

801:	0	0	0	1	0	0	0	0

Sample Title: 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	1
833:	0	0	0	2	0	0	0	0
841:	1	0	0	0	0	0	0	0
849:	1	1	0	1	0	1	0	0
857:	0	0	0	0	1	0	0	0
865:	0	0	0	1	0	0	0	0
873:	0	0	0	0	0	0	0	0
881:	0	0	0	0	0	0	0	0
889:	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	0	0	0
905:	0	0	0	0	0	0	0	0
913:	0	0	0	0	0	0	0	1
921:	0	0	0	0	1	0	0	0
929:	0	1	0	0	1	0	0	0
937:	0	0	1	0	0	0	0	0
945:	1	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	1
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™

Sample Description:	HTC-A02-S002-1218-01
Spectrum File:	\\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification:	1707084A-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:	1.010E+000 +/- 0.000E+000 gram
Sample Date/Time:	5/15/2017 5:48:06 AM
Acquisition Date/Time:	8/17/2017 9:32:06 AM
Acquisition Live Time:	170.0 minutes
Acquisition Real Time:	170.0 minutes
Tracer Certificate:	Th229_S_TH-18A
Tracer Quantity:	0.235 mL
Effective Efficiency:	0.1738 +/- 0.0149
Counting Efficiency:	0.1580 +/- 0.0027 on 11/18/2016 10:08:56 AM
Chem. Recovery Factor:	1.0999 +/- 0.0964
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	7.32	76.28	0.68	0.00E+000	3.0
TH-228		5.370	76.66	22.44	0.34	0.00E+000	9.0
TH-229	T	4.866	155.83	15.71	0.17	0.00E+000	7.1
TH-230		4.632	216.00	13.37	0.00	0.00E+000	4.6
TH-232		3.954	67.83	23.83	0.17	0.00E+000	6.0

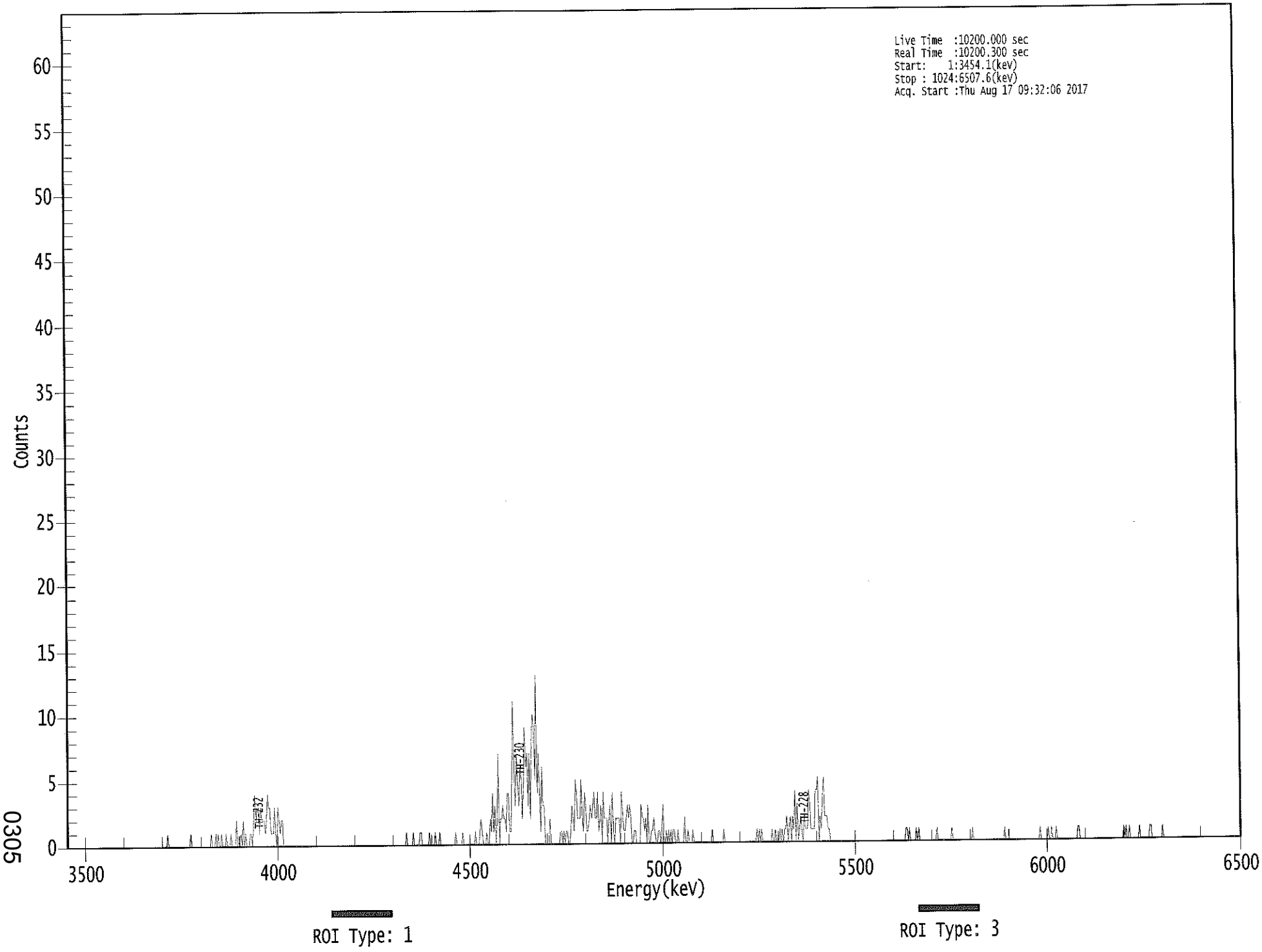
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.988	5850.00*	1.14E-001 +/- 8.93E-002	8.81E-002 +/- 1.48E-002
TH-228	0.995	5400.00*	1.27E+000 +/- 3.57E-001	7.93E-002 +/- 1.34E-002
TH-229	1.000	4872.00*	2.36E+000 +/- 3.98E-001	6.33E-002 +/- 1.07E-002
TH-230	0.992	4672.00*	3.27E+000 +/- 7.03E-001	9.07E-002 +/- 1.53E-002
TH-232	0.990	3997.00*	1.02E+000 +/- 2.99E-001	6.30E-002 +/- 1.06E-002

AG
8/17/17

0000191689.CNF



0305

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

Sample Title: 19

Elapsed Live time: 10200
Elapsed Real Time: 10200

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

369:	2	1	4	1	3	0	2	7

Sample Title: 19

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

801:	0	0	0	0	0	0	0	0

Sample Title: 19

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

Apex-Alpha™

KB 8/18/17

Sample Description: HTC-A02-S002-1824-01
Spectrum File: \\OR-ALPHA1\Canberra\ApexAlpha\Root\Data\00001916
Batch Identification: 1707084A-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: 1.130E+000 +/- 0.000E+000 gram
Sample Date/Time: 5/15/2017 5:48:06 AM
Acquisition Date/Time: 8/17/2017 9:32:08 AM
Acquisition Live Time: 170.0 minutes
Acquisition Real Time: 170.0 minutes

Tracer Certificate: Th229_S_TH-18A
Tracer Quantity: 0.234 mL
Effective Efficiency: 0.1721 +/- 0.0149
Counting Efficiency: 0.1824 +/- 0.0031 on 11/18/2016 10:08:54 AM
Chem. Recovery Factor: 0.9439 +/- 0.0833

Peak Match Tolerance: 0.175 MeV

PEAK AREA REPORT

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	Reagent Backgnd	FWHM (keV)
TH-227		5.894	6.66	78.18	0.34	0.00E+000	3.0
TH-228		5.361	88.98	20.92	1.02	0.00E+000	4.9
TH-229	T	4.868	153.98	15.86	1.02	0.00E+000	6.7
TH-230		4.618	96.81	20.06	1.19	0.00E+000	4.2
TH-232		3.949	79.49	22.07	0.51	0.00E+000	5.2

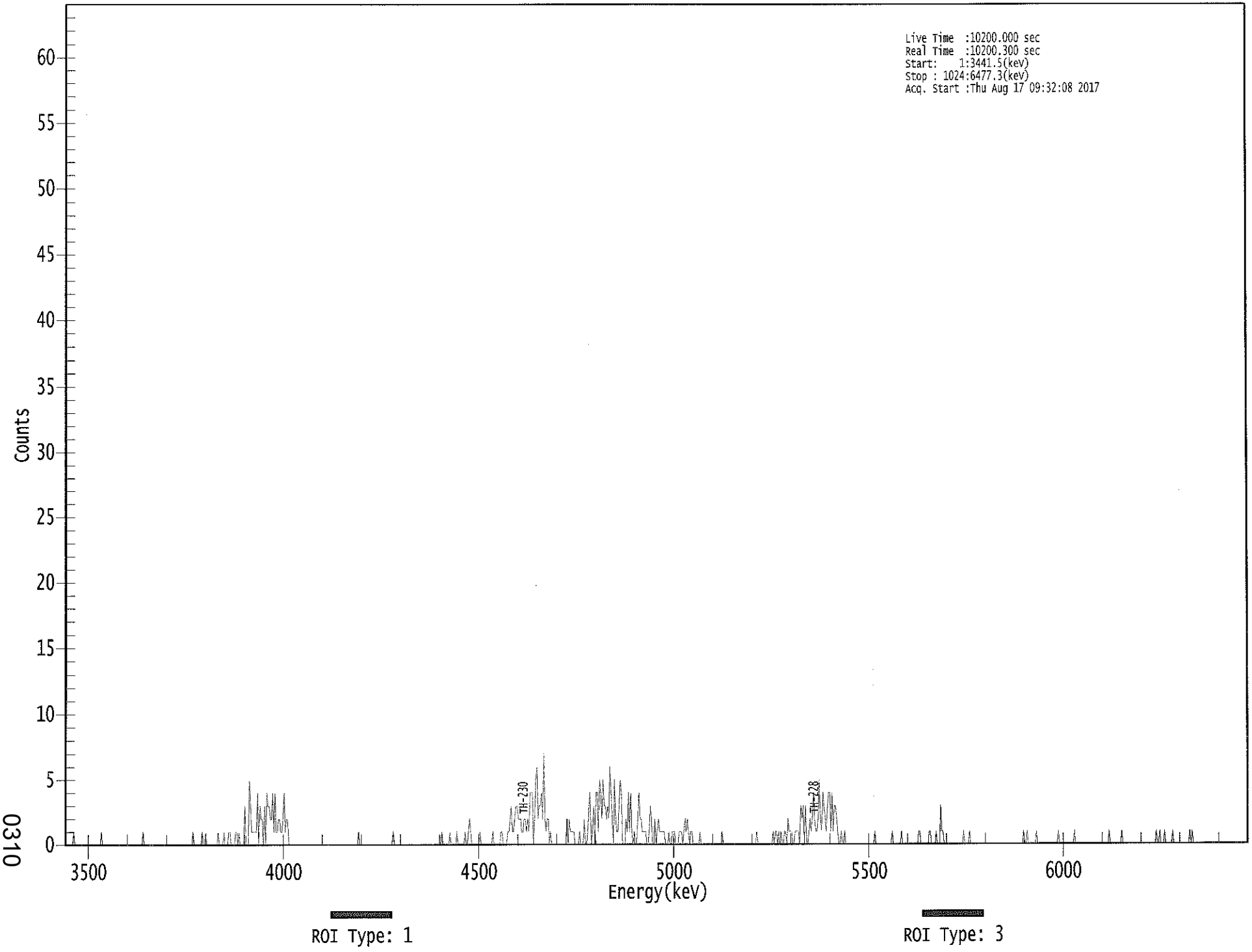
T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS

Nuclide	Id Conf.	Energy (keV)	Activity (pCi/gram)	MDA (pCi/gram)
TH-227	0.990	5850.00*	9.38E-002 +/- 7.51E-002	6.73E-002 +/- 1.14E-002
TH-228	0.992	5400.00*	1.33E+000 +/- 3.59E-001	9.43E-002 +/- 1.60E-002
TH-229	1.000	4872.00*	2.11E+000 +/- 3.58E-001	8.62E-002 +/- 1.46E-002
TH-230	0.985	4672.00*	1.32E+000 +/- 3.47E-001	8.99E-002 +/- 1.53E-002
TH-232	0.988	3997.00*	1.08E+000 +/- 3.01E-001	7.15E-002 +/- 1.21E-002

AG 8/17/17

0000191688.CNF



0310

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

Sample Title: 20

Elapsed Live time: 10200
Elapsed Real Time: 10200

Channel								
1:	0	0	0	0	0	0	0	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	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	1	0	0	0	0
73:	0	0	0	0	0	0	0	0
81:	0	0	0	0	0	0	0	0
89:	0	0	0	0	0	0	0	0
97:	0	0	0	0	0	0	0	0
105:	0	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	1	0
121:	0	1	0	0	0	0	0	0
129:	0	0	0	0	1	0	0	0
137:	0	1	0	0	0	1	1	0
145:	0	0	0	1	1	0	1	0
153:	0	0	0	3	0	0	0	5
161:	3	1	1	1	1	1	4	0
169:	3	2	2	0	3	0	4	3
177:	3	2	2	4	1	4	1	1
185:	2	2	1	1	2	4	1	2
193:	2	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	1	0	0
257:	0	0	0	0	0	0	0	0
265:	0	0	0	0	0	0	0	0
273:	0	0	0	0	0	0	0	0
281:	0	0	0	1	0	0	0	0
289:	0	0	0	0	0	0	0	0
297:	0	0	0	0	0	0	0	0
305:	0	0	0	0	0	0	0	0
313:	0	0	0	0	0	0	0	0
321:	0	0	0	0	0	1	0	0
329:	0	0	0	0	1	0	0	0
337:	0	0	1	0	0	0	0	0
345:	0	1	0	0	1	2	1	0
353:	0	0	0	0	0	0	1	0
361:	0	0	0	0	0	0	0	0

369:	0	1	0	0	0	0	0	0

Sample Title: 20

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

801:	0	0	0	0	0	0	0	0

Sample Title: 20

Channel								
809:	0	0	0	0	0	0	0	0
817:	0	0	0	0	0	0	0	0
825:	0	0	0	0	1	0	0	1
833:	0	0	0	0	0	0	0	1
841:	0	0	0	0	0	0	0	0
849:	0	0	0	0	0	0	0	0
857:	0	0	1	0	0	0	0	0
865:	0	0	0	0	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	0	0	0	0	0	1	0
905:	0	0	0	0	0	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	0	0	0	0	0
937:	0	0	0	0	0	0	0	1
945:	0	0	1	0	0	0	1	0
953:	0	0	0	0	0	1	0	0
961:	0	0	0	0	0	0	0	0
969:	0	0	0	0	1	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

8/17/2017 6:50:22 AM

Apex-Alpha™

QA SUMMARY REPORT
Review Of QA Results - Pulser Check

Date : 8/17/2017
Time : 6:50:22 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_001	21f	ALL	Not Done	
Alpha_002	21f	ALL	Not Done	
Alpha_003	21f	ALL	Passed	8/17/2017 5:20:17 AM
Alpha_004	21f	ALL	Passed	8/17/2017 5:20:18 AM
Alpha_005	21f	ALL	Not Done	
Alpha_006	21f	ALL	Not Done	
Alpha_007	21f	ALL	Not Done	
Alpha_008	21f	ALL	Not Done	
Alpha_009	21f	ALL	Not Done	
Alpha_010	21f	ALL	Passed	8/17/2017 5:20:18 AM
Alpha_011	21f	ALL	Passed	8/17/2017 5:20:19 AM
Alpha_012	21f	ALL	Passed	8/17/2017 5:20:20 AM
Alpha_013	21f	ALL	Not Done	
Alpha_014	21f	ALL	Passed	8/17/2017 5:20:21 AM
Alpha_015	21f	ALL	Not Done	
Alpha_016	21f	ALL	Not Done	
Alpha_033	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:22 AM
Alpha_034	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:24 AM
Alpha_035	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:25 AM
Alpha_036	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:27 AM
Alpha_037	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:29 AM
Alpha_038	Alpha Analyst100DC	Peak Energy	Action	8/17/2017 5:20:31 AM
Alpha_039	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:32 AM
Alpha_040	Alpha Analyst100DC	Peak FWHM	Action	8/17/2017 5:20:34 AM
Alpha_041	Alpha Analyst100DC	ALL	Not Done	
Alpha_042	Alpha Analyst100DC	ALL	Not Done	
Alpha_043	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:37 AM
Alpha_044	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:39 AM
Alpha_045	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:41 AM
Alpha_046	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:44 AM
Alpha_047	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:46 AM
Alpha_048	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:49 AM
Alpha_049	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:51 AM
Alpha_050	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:54 AM
Alpha_051	Alpha Analyst100DC	ALL	Not Done	
Alpha_052	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:57 AM
Alpha_053	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:20:59 AM
Alpha_054	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:02 AM
Alpha_055	Alpha Analyst100DC	ALL	Not Done	
Alpha_056	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:05 AM
Alpha_057	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:08 AM
Alpha_058	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:10 AM

Review of QA Results - Pulser Check

8/17/2017 6:50:22 AM

CHAMBER	DEVICE	PARAMETER	FLAG	DATE
Alpha_059	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:14 AM
Alpha_060	Alpha Analyst100DC	ALL	Passed	8/17/2017 5:21:17 AM

APPROVED BY: C

APPROVAL DATE: 8/17

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

17-07084
Gamma
Run 2

Work Order	17-07084
Analysis Code	Gamma
Run	2
Date Received	7/18/2017
Lab Deadline	8/10/2017
Client	Weston Solutions, Inc.
Project	94759
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 901.1 Modified
Instrument Type	Gamma Spectroscopy
Radiometric Tracer	
Radiometric Sol#	
Tracer Act (dpm/g)	
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		07/19/17 00:00	1.0000E+00
02	MBL	BLANK		07/19/17 00:00	1.0000E+00
03	DUP	HTC-A01-S008-3036-01	59	05/13/17 08:06	6.5153E+02
04	DO	HTC-A01-S008-3036-01	59	05/13/17 08:06	6.5153E+02
05	TRG	HTC-A01-S008-3642-01	52	05/13/17 08:03	5.8342E+02
06	TRG	HTC-A01-S008-4248-01	45	05/13/17 08:00	5.7932E+02
07	TRG	HTC-A02-S001-0006-01	75	05/15/17 10:44	7.6176E+02
10	TRG	HTC-A02-S001-0006-02	83	05/15/17 10:44	7.6471E+02
11	TRG	HTC-A02-S001-0612-01	55	05/15/17 10:41	6.8975E+02
12	TRG	HTC-A02-S001-1218-01	65	05/15/17 10:38	6.3401E+02
13	TRG	HTC-A02-S001-1824-01	47	05/15/17 10:35	5.7790E+02
14	TRG	HTC-A02-S001-2430-01	46	05/15/17 10:32	5.6817E+02
15	TRG	HTC-A02-S001-3036-01	47	05/15/17 10:29	5.6970E+02
16	TRG	HTC-A02-S001-3642-01	46	05/15/17 10:26	5.3822E+02
17	TRG	HTC-A02-S002-0006-01	88	05/15/17 11:57	7.5503E+02
18	TRG	HTC-A02-S002-0612-01	43	05/15/17 11:54	5.8406E+02
19	TRG	HTC-A02-S002-1218-01	41	05/15/17 11:51	5.7516E+02
20	TRG	HTC-A02-S002-1824-01	55	05/15/17 11:48	5.3927E+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.

17-07084
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								
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								

0319

* 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.

17-07084
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	07/28/17 08:53	KSALLINGS						
05	TRG	07/28/17 08:53	KSALLINGS						
06	TRG	07/28/17 08:53	KSALLINGS						
07	TRG	07/28/17 08:53	KSALLINGS						
10	TRG	07/28/17 08:53	KSALLINGS						
11	TRG	07/28/17 08:53	KSALLINGS						
12	TRG	07/28/17 08:53	KSALLINGS						
13	TRG	07/28/17 08:53	KSALLINGS						
14	TRG	07/28/17 08:53	KSALLINGS						
15	TRG	07/28/17 08:53	KSALLINGS						
16	TRG	07/28/17 08:53	KSALLINGS						
17	TRG	07/28/17 08:53	KSALLINGS						
18	TRG	07/28/17 08:53	KSALLINGS						
19	TRG	07/28/17 08:53	KSALLINGS						
20	TRG	07/28/17 08:53	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: 17-07084-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
01	CO-60	LCS	LCS	pCi/g	1.24E+02	7.50E+00	1.31E+00	1.35E+02	91.63	OK		07/19/17 00:00	1.00E+00	08/18/17 12:30	YES
01	CS-137	LCS	LCS	pCi/g	8.12E+01	9.92E+00	1.60E+00	8.44E+01	96.21	OK		07/19/17 00:00	1.00E+00	08/18/17 12:30	YES
02	AC-228	MBL	BLANK	pCi/g	-6.21E-02	1.59E-01	1.67E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	BI-212	MBL	BLANK	pCi/g	-1.49E-01	3.07E-01	3.89E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	RA-226	MBL	BLANK	pCi/g	3.90E-02	6.08E-02	1.07E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	CS-137	MBL	BLANK	pCi/g	1.95E-02	3.03E-02	5.32E-02					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	K-40	MBL	BLANK	pCi/g	-1.32E-01	2.94E-01	4.52E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	PA-234M	MBL	BLANK	pCi/g	-3.72E+00	4.68E+00	5.22E+00					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	PB-212	MBL	BLANK	pCi/g	2.20E-02	3.66E-02	6.03E-02					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	RA-224	MBL	BLANK	pCi/g	-1.40E-01	4.55E-01	6.59E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	RA-228	MBL	BLANK	pCi/g	-6.21E-02	1.59E-01	1.67E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	TH-234	MBL	BLANK	pCi/g	5.26E-01	4.05E-01	6.79E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
02	TL-208	MBL	BLANK	pCi/g	4.62E-02	7.59E-02	1.38E-01					07/19/17 00:00	1.00E+00	08/18/17 13:08	NO
03	AC-228	DUP	HTC-A01-S008-3036-01	pCi/g	1.77E+00	2.20E-01	3.80E-01				OK	05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	BI-212	DUP	HTC-A01-S008-3036-01	pCi/g	1.21E+00	4.46E-01	6.87E-01					05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	RA-226	DUP	HTC-A01-S008-3036-01	pCi/g	1.13E+00	1.63E-01	2.20E-01				OK	05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	CS-137	DUP	HTC-A01-S008-3036-01	pCi/g	4.59E-02	5.19E-02	8.37E-02					05/13/17 08:06	6.52E+02	08/18/17 12:30	NO
03	K-40	DUP	HTC-A01-S008-3036-01	pCi/g	2.14E+01	2.28E+00	8.74E-01				OK	05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	PA-234M	DUP	HTC-A01-S008-3036-01	pCi/g	3.45E+00	5.02E+00	7.90E+00					05/13/17 08:06	6.52E+02	08/18/17 12:30	NO
03	PB-212	DUP	HTC-A01-S008-3036-01	pCi/g	1.84E+00	1.86E-01	2.34E-01					05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	RA-224	DUP	HTC-A01-S008-3036-01	pCi/g	4.17E+00	1.40E+00	2.65E+00					05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	RA-228	DUP	HTC-A01-S008-3036-01	pCi/g	1.77E+00	2.20E-01	3.80E-01					05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
03	TH-234	DUP	HTC-A01-S008-3036-01	pCi/g	1.56E+00	1.25E+00	1.67E+00					05/13/17 08:06	6.52E+02	08/18/17 12:30	NO
03	TL-208	DUP	HTC-A01-S008-3036-01	pCi/g	1.51E+00	1.98E-01	1.12E-01					05/13/17 08:06	6.52E+02	08/18/17 12:30	YES
04	AC-228	DO	HTC-A01-S008-3036-01	pCi/g	1.69E+00	2.19E-01	4.25E-01					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	BI-212	DO	HTC-A01-S008-3036-01	pCi/g	1.02E+00	5.14E-01	7.98E-01					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	RA-226	DO	HTC-A01-S008-3036-01	pCi/g	1.10E+00	1.69E-01	2.27E-01					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	CS-137	DO	HTC-A01-S008-3036-01	pCi/g	-2.15E-02	5.36E-02	7.72E-02					05/13/17 08:06	6.52E+02	08/18/17 13:36	NO
04	K-40	DO	HTC-A01-S008-3036-01	pCi/g	2.10E+01	2.32E+00	1.17E+00					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	PA-234M	DO	HTC-A01-S008-3036-01	pCi/g	3.47E+00	4.79E+00	7.90E+00					05/13/17 08:06	6.52E+02	08/18/17 13:36	NO
04	PB-212	DO	HTC-A01-S008-3036-01	pCi/g	1.76E+00	1.82E-01	2.21E-01					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	RA-224	DO	HTC-A01-S008-3036-01	pCi/g	4.97E+00	1.58E+00	2.54E+00					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	RA-228	DO	HTC-A01-S008-3036-01	pCi/g	1.69E+00	2.19E-01	4.25E-01					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
04	TH-234	DO	HTC-A01-S008-3036-01	pCi/g	1.91E+00	1.28E+00	1.72E+00					05/13/17 08:06	6.52E+02	08/18/17 13:36	NO
04	TL-208	DO	HTC-A01-S008-3036-01	pCi/g	1.67E+00	2.07E-01	1.68E-01					05/13/17 08:06	6.52E+02	08/18/17 13:36	YES
05	AC-228	TRG	HTC-A01-S008-3642-01	pCi/g	1.82E+00	3.16E-01	4.41E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	YES
05	BI-212	TRG	HTC-A01-S008-3642-01	pCi/g	9.36E-01	5.73E-01	8.99E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	YES
05	RA-226	TRG	HTC-A01-S008-3642-01	pCi/g	1.04E+00	1.73E-01	2.38E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	YES

0321

Work Order: 17-07084-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-S008-3642-01	pCi/g	8.37E-02	6.79E-02	1.16E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	NO
05	K-40	TRG	HTC-A01-S008-3642-01	pCi/g	2.12E+01	2.54E+00	1.08E+00					05/13/17 08:03	5.83E+02	08/18/17 12:30	YES
05	PA-234M	TRG	HTC-A01-S008-3642-01	pCi/g	2.44E+00	6.86E+00	1.11E+01					05/13/17 08:03	5.83E+02	08/18/17 12:30	NO
05	PB-212	TRG	HTC-A01-S008-3642-01	pCi/g	1.46E+00	1.96E-01	2.97E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	NO
05	RA-224	TRG	HTC-A01-S008-3642-01	pCi/g	1.88E+01	2.33E+00	3.43E+00					05/13/17 08:03	5.83E+02	08/18/17 12:30	NO
05	RA-228	TRG	HTC-A01-S008-3642-01	pCi/g	1.82E+00	3.16E-01	4.41E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	YES
05	TH-234	TRG	HTC-A01-S008-3642-01	pCi/g	1.10E+00	1.30E+00	2.18E+00					05/13/17 08:03	5.83E+02	08/18/17 12:30	YES
05	TL-208	TRG	HTC-A01-S008-3642-01	pCi/g	1.36E+00	2.75E-01	4.96E-01					05/13/17 08:03	5.83E+02	08/18/17 12:30	NO
06	AC-228	TRG	HTC-A01-S008-4248-01	pCi/g	1.26E+00	2.33E-01	3.77E-01					05/13/17 08:00	5.79E+02	08/18/17 13:36	YES
06	BI-212	TRG	HTC-A01-S008-4248-01	pCi/g	1.01E+00	5.70E-01	1.00E+00					05/13/17 08:00	5.79E+02	08/18/17 13:36	NO
06	RA-226	TRG	HTC-A01-S008-4248-01	pCi/g	1.05E+00	1.87E-01	7.74E-02					05/13/17 08:00	5.79E+02	08/18/17 13:36	YES
06	CS-137	TRG	HTC-A01-S008-4248-01	pCi/g	5.02E-02	7.11E-02	1.15E-01					05/13/17 08:00	5.79E+02	08/18/17 13:36	NO
06	K-40	TRG	HTC-A01-S008-4248-01	pCi/g	2.46E+01	2.85E+00	1.16E+00					05/13/17 08:00	5.79E+02	08/18/17 13:36	YES
06	PA-234M	TRG	HTC-A01-S008-4248-01	pCi/g	3.63E+00	5.87E+00	1.01E+01					05/13/17 08:00	5.79E+02	08/18/17 13:36	NO
06	PB-212	TRG	HTC-A01-S008-4248-01	pCi/g	1.36E+00	1.92E-01	2.95E-01					05/13/17 08:00	5.79E+02	08/18/17 13:36	NO
06	RA-224	TRG	HTC-A01-S008-4248-01	pCi/g	1.99E+01	2.35E+00	3.43E+00					05/13/17 08:00	5.79E+02	08/18/17 13:36	NO
06	RA-228	TRG	HTC-A01-S008-4248-01	pCi/g	1.26E+00	2.33E-01	3.77E-01					05/13/17 08:00	5.79E+02	08/18/17 13:36	YES
06	TH-234	TRG	HTC-A01-S008-4248-01	pCi/g	1.66E+00	1.64E+00	2.73E+00					05/13/17 08:00	5.79E+02	08/18/17 13:36	YES
06	TL-208	TRG	HTC-A01-S008-4248-01	pCi/g	1.29E+00	2.66E-01	4.84E-01					05/13/17 08:00	5.79E+02	08/18/17 13:36	NO
07	AC-228	TRG	HTC-A02-S001-0006-01	pCi/g	2.17E-01	7.57E-01	1.04E+00					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
07	BI-212	TRG	HTC-A02-S001-0006-01	pCi/g	-3.50E-02	1.44E+00	1.93E+00					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
07	RA-226	TRG	HTC-A02-S001-0006-01	pCi/g	2.94E+01	1.82E+00	7.69E-01					05/15/17 10:44	7.62E+02	08/18/17 14:10	YES
07	CS-137	TRG	HTC-A02-S001-0006-01	pCi/g	-1.81E-02	8.23E-02	2.89E-01					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
07	K-40	TRG	HTC-A02-S001-0006-01	pCi/g	2.59E+00	2.15E+00	3.53E+00					05/15/17 10:44	7.62E+02	08/18/17 14:10	YES
07	PA-234M	TRG	HTC-A02-S001-0006-01	pCi/g	1.39E+01	1.72E+01	2.87E+01					05/15/17 10:44	7.62E+02	08/18/17 14:10	YES
07	PB-212	TRG	HTC-A02-S001-0006-01	pCi/g	2.10E-03	1.27E-01	5.45E-01					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
07	RA-224	TRG	HTC-A02-S001-0006-01	pCi/g	5.57E+01	6.02E+00	6.79E+00					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
07	RA-228	TRG	HTC-A02-S001-0006-01	pCi/g	2.17E-01	7.57E-01	1.04E+00					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
07	TH-234	TRG	HTC-A02-S001-0006-01	pCi/g	2.62E+01	4.22E+00	6.04E+00					05/15/17 10:44	7.62E+02	08/18/17 14:10	YES
07	TL-208	TRG	HTC-A02-S001-0006-01	pCi/g	3.18E-01	4.80E-01	5.05E-01					05/15/17 10:44	7.62E+02	08/18/17 14:10	NO
10	AC-228	TRG	HTC-A02-S001-0006-02	pCi/g	2.34E-01	3.35E-01	5.07E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO
10	BI-212	TRG	HTC-A02-S001-0006-02	pCi/g	1.44E-01	6.46E-01	9.60E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO
10	RA-226	TRG	HTC-A02-S001-0006-02	pCi/g	2.71E+01	1.37E+00	5.31E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	YES
10	CS-137	TRG	HTC-A02-S001-0006-02	pCi/g	1.15E-02	4.85E-02	1.54E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO
10	K-40	TRG	HTC-A02-S001-0006-02	pCi/g	2.82E+00	1.34E+00	2.13E+00					05/15/17 10:44	7.65E+02	08/18/17 14:38	YES
10	PA-234M	TRG	HTC-A02-S001-0006-02	pCi/g	3.78E+01	1.56E+01	2.47E+01					05/15/17 10:44	7.65E+02	08/18/17 14:38	YES
10	PB-212	TRG	HTC-A02-S001-0006-02	pCi/g	-5.24E+00	5.29E-01	2.94E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO
10	RA-224	TRG	HTC-A02-S001-0006-02	pCi/g	4.68E+01	4.50E+00	4.88E+00					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO

Work Order: 17-07084-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
10	RA-228	TRG	HTC-A02-S001-0006-02	pCi/g	2.34E-01	3.35E-01	5.07E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO
10	TH-234	TRG	HTC-A02-S001-0006-02	pCi/g	2.13E+01	3.22E+00	4.31E+00					05/15/17 10:44	7.65E+02	08/18/17 14:38	YES
10	TL-208	TRG	HTC-A02-S001-0006-02	pCi/g	4.52E-01	2.85E-01	2.60E-01					05/15/17 10:44	7.65E+02	08/18/17 14:38	NO
11	AC-228	TRG	HTC-A02-S001-0612-01	pCi/g	8.07E-01	3.72E-01	8.63E-01					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
11	BI-212	TRG	HTC-A02-S001-0612-01	pCi/g	-1.47E-02	7.22E-01	1.21E+00					05/15/17 10:41	6.90E+02	08/18/17 14:38	NO
11	RA-226	TRG	HTC-A02-S001-0612-01	pCi/g	1.72E+01	1.01E+00	5.52E-01					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
11	CS-137	TRG	HTC-A02-S001-0612-01	pCi/g	-1.31E-01	1.30E-01	1.74E-01					05/15/17 10:41	6.90E+02	08/18/17 14:38	NO
11	K-40	TRG	HTC-A02-S001-0612-01	pCi/g	1.34E+01	2.41E+00	2.98E+00					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
11	PA-234M	TRG	HTC-A02-S001-0612-01	pCi/g	2.67E+01	1.23E+01	2.80E+01					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
11	PB-212	TRG	HTC-A02-S001-0612-01	pCi/g	-1.76E-01	1.06E-01	4.10E-01					05/15/17 10:41	6.90E+02	08/18/17 14:38	NO
11	RA-224	TRG	HTC-A02-S001-0612-01	pCi/g	3.98E+01	4.43E+00	5.34E+00					05/15/17 10:41	6.90E+02	08/18/17 14:38	NO
11	RA-228	TRG	HTC-A02-S001-0612-01	pCi/g	8.07E-01	3.72E-01	8.63E-01					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
11	TH-234	TRG	HTC-A02-S001-0612-01	pCi/g	1.94E+01	3.76E+00	5.68E+00					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
11	TL-208	TRG	HTC-A02-S001-0612-01	pCi/g	1.01E+00	2.11E-01	9.89E-02					05/15/17 10:41	6.90E+02	08/18/17 14:38	YES
12	AC-228	TRG	HTC-A02-S001-1218-01	pCi/g	9.58E-01	4.47E-01	7.42E-01					05/15/17 10:38	6.34E+02	08/18/17 15:12	NO
12	BI-212	TRG	HTC-A02-S001-1218-01	pCi/g	1.66E+00	8.96E-01	1.39E+00					05/15/17 10:38	6.34E+02	08/18/17 15:12	YES
12	RA-226	TRG	HTC-A02-S001-1218-01	pCi/g	3.79E+00	4.33E-01	4.24E-01					05/15/17 10:38	6.34E+02	08/18/17 15:12	YES
12	CS-137	TRG	HTC-A02-S001-1218-01	pCi/g	1.60E-01	1.12E-01	1.74E-01					05/15/17 10:38	6.34E+02	08/18/17 15:12	NO
12	K-40	TRG	HTC-A02-S001-1218-01	pCi/g	2.09E+01	2.81E+00	1.60E+00					05/15/17 10:38	6.34E+02	08/18/17 15:12	YES
12	PA-234M	TRG	HTC-A02-S001-1218-01	pCi/g	-2.43E-01	1.25E+01	1.72E+01					05/15/17 10:38	6.34E+02	08/18/17 15:12	NO
12	PB-212	TRG	HTC-A02-S001-1218-01	pCi/g	1.42E+00	2.09E-01	3.88E-01					05/15/17 10:38	6.34E+02	08/18/17 15:12	YES
12	RA-224	TRG	HTC-A02-S001-1218-01	pCi/g	2.08E+01	2.72E+00	3.97E+00					05/15/17 10:38	6.34E+02	08/18/17 15:12	NO
12	RA-228	TRG	HTC-A02-S001-1218-01	pCi/g	9.58E-01	4.47E-01	7.42E-01					05/15/17 10:38	6.34E+02	08/18/17 15:12	NO
12	TH-234	TRG	HTC-A02-S001-1218-01	pCi/g	6.02E+00	2.67E+00	4.35E+00					05/15/17 10:38	6.34E+02	08/18/17 15:12	YES
12	TL-208	TRG	HTC-A02-S001-1218-01	pCi/g	1.26E+00	2.90E-01	6.98E-02					05/15/17 10:38	6.34E+02	08/18/17 15:12	YES
13	AC-228	TRG	HTC-A02-S001-1824-01	pCi/g	1.54E+00	2.26E-01	2.82E-01					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	BI-212	TRG	HTC-A02-S001-1824-01	pCi/g	9.07E-01	4.68E-01	7.97E-01					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	RA-226	TRG	HTC-A02-S001-1824-01	pCi/g	1.46E+00	1.75E-01	4.17E-01					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	CS-137	TRG	HTC-A02-S001-1824-01	pCi/g	5.34E-03	5.56E-02	8.44E-02					05/15/17 10:35	5.78E+02	08/18/17 15:39	NO
13	K-40	TRG	HTC-A02-S001-1824-01	pCi/g	3.31E+01	3.46E+00	1.62E+00					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	PA-234M	TRG	HTC-A02-S001-1824-01	pCi/g	5.90E+00	5.63E+00	9.24E+00					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	PB-212	TRG	HTC-A02-S001-1824-01	pCi/g	1.56E+00	1.73E-01	3.20E-01					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	RA-224	TRG	HTC-A02-S001-1824-01	pCi/g	6.03E+00	1.81E+00	3.69E+00					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	RA-228	TRG	HTC-A02-S001-1824-01	pCi/g	1.54E+00	2.26E-01	2.82E-01					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	TH-234	TRG	HTC-A02-S001-1824-01	pCi/g	1.74E+00	1.50E+00	2.50E+00					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
13	TL-208	TRG	HTC-A02-S001-1824-01	pCi/g	1.42E+00	2.08E-01	1.26E-01					05/15/17 10:35	5.78E+02	08/18/17 15:39	YES
14	AC-228	TRG	HTC-A02-S001-2430-01	pCi/g	1.05E+00	2.78E-01	6.59E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
14	BI-212	TRG	HTC-A02-S001-2430-01	pCi/g	5.73E-01	5.77E-01	9.54E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES

0323

Work Order: 17-07084-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
14	RA-226	TRG	HTC-A02-S001-2430-01	pCi/g	1.22E+00	1.91E-01	2.56E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
14	CS-137	TRG	HTC-A02-S001-2430-01	pCi/g	2.08E-02	7.02E-02	1.10E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	NO
14	K-40	TRG	HTC-A02-S001-2430-01	pCi/g	2.62E+01	2.99E+00	1.09E+00					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
14	PA-234M	TRG	HTC-A02-S001-2430-01	pCi/g	-5.36E-01	7.88E+00	1.15E+01					05/15/17 10:32	5.68E+02	08/18/17 15:39	NO
14	PB-212	TRG	HTC-A02-S001-2430-01	pCi/g	1.35E+00	1.81E-01	3.24E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
14	RA-224	TRG	HTC-A02-S001-2430-01	pCi/g	1.84E+01	2.28E+00	3.40E+00					05/15/17 10:32	5.68E+02	08/18/17 15:39	NO
14	RA-228	TRG	HTC-A02-S001-2430-01	pCi/g	1.05E+00	2.78E-01	6.59E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
14	TH-234	TRG	HTC-A02-S001-2430-01	pCi/g	2.31E+00	1.73E+00	2.86E+00					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
14	TL-208	TRG	HTC-A02-S001-2430-01	pCi/g	1.06E+00	2.22E-01	1.20E-01					05/15/17 10:32	5.68E+02	08/18/17 15:39	YES
15	AC-228	TRG	HTC-A02-S001-3036-01	pCi/g	1.14E+00	3.67E-01	7.87E-01					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
15	BI-212	TRG	HTC-A02-S001-3036-01	pCi/g	4.76E-01	8.94E-01	1.31E+00					05/15/17 10:29	5.70E+02	08/18/17 16:13	NO
15	RA-226	TRG	HTC-A02-S001-3036-01	pCi/g	2.48E+00	3.54E-01	4.23E-01					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
15	CS-137	TRG	HTC-A02-S001-3036-01	pCi/g	6.93E-02	1.03E-01	1.54E-01					05/15/17 10:29	5.70E+02	08/18/17 16:13	NO
15	K-40	TRG	HTC-A02-S001-3036-01	pCi/g	2.44E+01	3.12E+00	1.12E+00					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
15	PA-234M	TRG	HTC-A02-S001-3036-01	pCi/g	4.16E+00	1.23E+01	1.82E+01					05/15/17 10:29	5.70E+02	08/18/17 16:13	NO
15	PB-212	TRG	HTC-A02-S001-3036-01	pCi/g	1.35E+00	2.09E-01	3.52E-01					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
15	RA-224	TRG	HTC-A02-S001-3036-01	pCi/g	1.82E+01	2.51E+00	3.84E+00					05/15/17 10:29	5.70E+02	08/18/17 16:13	NO
15	RA-228	TRG	HTC-A02-S001-3036-01	pCi/g	1.14E+00	3.67E-01	7.87E-01					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
15	TH-234	TRG	HTC-A02-S001-3036-01	pCi/g	2.07E+00	1.98E+00	3.31E+00					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
15	TL-208	TRG	HTC-A02-S001-3036-01	pCi/g	1.24E+00	2.91E-01	3.60E-01					05/15/17 10:29	5.70E+02	08/18/17 16:13	YES
16	AC-228	TRG	HTC-A02-S001-3642-01	pCi/g	5.98E-01	5.92E-01	8.95E-01					05/15/17 10:26	5.38E+02	08/18/17 16:40	NO
16	BI-212	TRG	HTC-A02-S001-3642-01	pCi/g	6.23E-01	1.16E+00	1.73E+00					05/15/17 10:26	5.38E+02	08/18/17 16:40	NO
16	RA-226	TRG	HTC-A02-S001-3642-01	pCi/g	5.69E+01	2.89E+00	9.98E-01					05/15/17 10:26	5.38E+02	08/18/17 16:40	YES
16	CS-137	TRG	HTC-A02-S001-3642-01	pCi/g	1.93E-02	8.47E-02	2.65E-01					05/15/17 10:26	5.38E+02	08/18/17 16:40	NO
16	K-40	TRG	HTC-A02-S001-3642-01	pCi/g	5.76E+00	2.08E+00	3.21E+00					05/15/17 10:26	5.38E+02	08/18/17 16:40	YES
16	PA-234M	TRG	HTC-A02-S001-3642-01	pCi/g	6.47E+01	2.31E+01	3.62E+01					05/15/17 10:26	5.38E+02	08/18/17 16:40	YES
16	PB-212	TRG	HTC-A02-S001-3642-01	pCi/g	-1.12E+01	1.06E+00	5.19E-01					05/15/17 10:26	5.38E+02	08/18/17 16:40	NO
16	RA-224	TRG	HTC-A02-S001-3642-01	pCi/g	1.02E+02	9.21E+00	8.53E+00					05/15/17 10:26	5.38E+02	08/18/17 16:40	NO
16	RA-228	TRG	HTC-A02-S001-3642-01	pCi/g	5.98E-01	5.92E-01	8.95E-01					05/15/17 10:26	5.38E+02	08/18/17 16:40	NO
16	TH-234	TRG	HTC-A02-S001-3642-01	pCi/g	4.27E+01	5.73E+00	7.22E+00					05/15/17 10:26	5.38E+02	08/18/17 16:40	YES
16	TL-208	TRG	HTC-A02-S001-3642-01	pCi/g	5.52E-01	2.07E-01	2.87E-01					05/15/17 10:26	5.38E+02	08/18/17 16:40	YES
17	AC-228	TRG	HTC-A02-S002-0006-01	pCi/g	7.56E-01	2.35E-01	4.05E-01					05/15/17 11:57	7.55E+02	08/18/17 16:40	YES
17	BI-212	TRG	HTC-A02-S002-0006-01	pCi/g	2.16E-01	3.81E-01	6.18E-01					05/15/17 11:57	7.55E+02	08/18/17 16:40	NO
17	RA-226	TRG	HTC-A02-S002-0006-01	pCi/g	8.52E-01	1.60E-01	2.35E-01					05/15/17 11:57	7.55E+02	08/18/17 16:40	YES
17	CS-137	TRG	HTC-A02-S002-0006-01	pCi/g	8.90E-03	5.24E-02	7.97E-02					05/15/17 11:57	7.55E+02	08/18/17 16:40	NO
17	K-40	TRG	HTC-A02-S002-0006-01	pCi/g	1.78E+01	2.08E+00	7.14E-01					05/15/17 11:57	7.55E+02	08/18/17 16:40	YES
17	PA-234M	TRG	HTC-A02-S002-0006-01	pCi/g	2.70E+00	5.42E+00	8.49E+00					05/15/17 11:57	7.55E+02	08/18/17 16:40	NO
17	PB-212	TRG	HTC-A02-S002-0006-01	pCi/g	9.46E-01	1.22E-01	1.74E-01					05/15/17 11:57	7.55E+02	08/18/17 16:40	YES

Work Order: 17-07084-Gamma-2

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LSC Known	LCS %R	LCS Flag	RPD Flag	Sample Date	Sample Aliquot	Counting Date/Time	Identified
17	RA-224	TRG	HTC-A02-S002-0006-01	pCi/g	1.31E+01	1.60E+00	2.43E+00					05/15/17 11:57	7.55E+02	08/18/17 16:40	NO
17	RA-228	TRG	HTC-A02-S002-0006-01	pCi/g	7.56E-01	2.35E-01	4.05E-01					05/15/17 11:57	7.55E+02	08/18/17 16:40	YES
17	TH-234	TRG	HTC-A02-S002-0006-01	pCi/g	1.16E+00	1.01E+00	1.37E+00					05/15/17 11:57	7.55E+02	08/18/17 16:40	NO
17	TL-208	TRG	HTC-A02-S002-0006-01	pCi/g	8.62E-01	1.51E-01	9.03E-02					05/15/17 11:57	7.55E+02	08/18/17 16:40	YES
18	AC-228	TRG	HTC-A02-S002-0612-01	pCi/g	1.63E+00	3.56E-01	1.08E+00					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
18	BI-212	TRG	HTC-A02-S002-0612-01	pCi/g	1.15E+00	1.01E+00	1.66E+00					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
18	RA-226	TRG	HTC-A02-S002-0612-01	pCi/g	1.99E+00	3.45E-01	4.91E-01					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
18	CS-137	TRG	HTC-A02-S002-0612-01	pCi/g	2.86E-02	4.89E-02	1.67E-01					05/15/17 11:54	5.84E+02	08/18/17 17:15	NO
18	K-40	TRG	HTC-A02-S002-0612-01	pCi/g	2.52E+01	3.22E+00	1.45E+00					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
18	PA-234M	TRG	HTC-A02-S002-0612-01	pCi/g	3.15E-01	1.20E+01	1.70E+01					05/15/17 11:54	5.84E+02	08/18/17 17:15	NO
18	PB-212	TRG	HTC-A02-S002-0612-01	pCi/g	1.36E+00	1.97E-01	4.02E-01					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
18	RA-224	TRG	HTC-A02-S002-0612-01	pCi/g	1.85E+01	2.52E+00	3.83E+00					05/15/17 11:54	5.84E+02	08/18/17 17:15	NO
18	RA-228	TRG	HTC-A02-S002-0612-01	pCi/g	1.63E+00	3.56E-01	1.08E+00					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
18	TH-234	TRG	HTC-A02-S002-0612-01	pCi/g	2.72E+00	1.72E+00	2.59E+00					05/15/17 11:54	5.84E+02	08/18/17 17:15	NO
18	TL-208	TRG	HTC-A02-S002-0612-01	pCi/g	8.94E-01	2.54E-01	7.58E-02					05/15/17 11:54	5.84E+02	08/18/17 17:15	YES
19	AC-228	TRG	HTC-A02-S002-1218-01	pCi/g	1.54E+00	2.46E-01	4.94E-01					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	BI-212	TRG	HTC-A02-S002-1218-01	pCi/g	8.92E-01	5.24E-01	8.83E-01					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	RA-226	TRG	HTC-A02-S002-1218-01	pCi/g	2.91E+00	2.83E-01	2.49E-01					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	CS-137	TRG	HTC-A02-S002-1218-01	pCi/g	3.34E-02	6.19E-02	9.68E-02					05/15/17 11:51	5.75E+02	08/18/17 17:42	NO
19	K-40	TRG	HTC-A02-S002-1218-01	pCi/g	3.07E+01	3.27E+00	1.64E+00					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	PA-234M	TRG	HTC-A02-S002-1218-01	pCi/g	7.72E+00	6.18E+00	1.06E+01					05/15/17 11:51	5.75E+02	08/18/17 17:42	NO
19	PB-212	TRG	HTC-A02-S002-1218-01	pCi/g	1.51E+00	1.81E-01	3.84E-01					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	RA-224	TRG	HTC-A02-S002-1218-01	pCi/g	7.47E+00	1.73E+00	4.36E+00					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	RA-228	TRG	HTC-A02-S002-1218-01	pCi/g	1.54E+00	2.46E-01	4.94E-01					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	TH-234	TRG	HTC-A02-S002-1218-01	pCi/g	3.40E+00	1.80E+00	2.93E+00					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
19	TL-208	TRG	HTC-A02-S002-1218-01	pCi/g	1.17E+00	1.96E-01	2.27E-01					05/15/17 11:51	5.75E+02	08/18/17 17:42	YES
20	AC-228	TRG	HTC-A02-S002-1824-01	pCi/g	1.58E+00	2.53E-01	4.56E-01					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	BI-212	TRG	HTC-A02-S002-1824-01	pCi/g	1.20E+00	5.92E-01	9.13E-01					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	RA-226	TRG	HTC-A02-S002-1824-01	pCi/g	1.37E+00	1.86E-01	2.36E-01					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	CS-137	TRG	HTC-A02-S002-1824-01	pCi/g	1.64E-02	5.89E-02	9.13E-02					05/15/17 11:48	5.39E+02	08/19/17 06:37	NO
20	K-40	TRG	HTC-A02-S002-1824-01	pCi/g	3.14E+01	3.24E+00	1.83E+00					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	PA-234M	TRG	HTC-A02-S002-1824-01	pCi/g	5.36E-01	6.36E+00	9.67E+00					05/15/17 11:48	5.39E+02	08/19/17 06:37	NO
20	PB-212	TRG	HTC-A02-S002-1824-01	pCi/g	1.58E+00	1.75E-01	2.85E-01					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	RA-224	TRG	HTC-A02-S002-1824-01	pCi/g	3.82E+00	1.47E+00	3.23E+00					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	RA-228	TRG	HTC-A02-S002-1824-01	pCi/g	1.58E+00	2.53E-01	4.56E-01					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	TH-234	TRG	HTC-A02-S002-1824-01	pCi/g	2.96E+00	1.98E+00	3.27E+00					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES
20	TL-208	TRG	HTC-A02-S002-1824-01	pCi/g	1.26E+00	1.79E-01	2.07E-01					05/15/17 11:48	5.39E+02	08/19/17 06:37	YES

Count Room Report
Client: Weston Solutions, Inc.

17-07084-Gamma-2 (pCi/g) in SO
Tracer ID:

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	07/19/17 00:00	1.0000				0.00		
02	MBL	BLANK	07/19/17 00:00	1.0000				0.00		
03	DUP	HTC-A01-S008-3036-01	05/13/17 08:06	651.5300				0.00		
04	DO	HTC-A01-S008-3036-01	05/13/17 08:06	651.5300				0.00		
05	TRG	HTC-A01-S008-3642-01	05/13/17 08:03	583.4200				0.00		
06	TRG	HTC-A01-S008-4248-01	05/13/17 08:00	579.3200				0.00		
07	TRG	HTC-A02-S001-0006-01	05/15/17 10:44	761.7600				0.00		
10	TRG	HTC-A02-S001-0006-02	05/15/17 10:44	764.7100				0.00		
11	TRG	HTC-A02-S001-0612-01	05/15/17 10:41	689.7500				0.00		
12	TRG	HTC-A02-S001-1218-01	05/15/17 10:38	634.0100				0.00		
13	TRG	HTC-A02-S001-1824-01	05/15/17 10:35	577.9000				0.00		
14	TRG	HTC-A02-S001-2430-01	05/15/17 10:32	568.1700				0.00		
15	TRG	HTC-A02-S001-3036-01	05/15/17 10:29	569.7000				0.00		
16	TRG	HTC-A02-S001-3642-01	05/15/17 10:26	538.2200				0.00		
17	TRG	HTC-A02-S002-0006-01	05/15/17 11:57	755.0300				0.00		
18	TRG	HTC-A02-S002-0612-01	05/15/17 11:54	584.0600				0.00		
19	TRG	HTC-A02-S002-1218-01	05/15/17 11:51	575.1600				0.00		
20	TRG	HTC-A02-S002-1824-01	05/15/17 11:48	539.2700				0.00		

Eberline Analytical
Oak Ridge Laboratory

Aliquot Worksheet

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
17-07084	2	Gamma	grams	8/10/2017	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-S008-3036-01	DUP					6.5153E+02	6.5153E+02				
04	HTC-A01-S008-3036-01	DO					6.5153E+02	6.5153E+02				
05	HTC-A01-S008-3642-01	TRG					5.8342E+02	5.8342E+02				
06	HTC-A01-S008-4248-01	TRG					5.7932E+02	5.7932E+02				
07	HTC-A02-S001-0006-01	TRG					7.6176E+02	7.6176E+02				
10	HTC-A02-S001-0006-02	TRG					7.6471E+02	7.6471E+02				
11	HTC-A02-S001-0612-01	TRG					6.8975E+02	6.8975E+02				
12	HTC-A02-S001-1218-01	TRG					6.3401E+02	6.3401E+02				
13	HTC-A02-S001-1824-01	TRG					5.7790E+02	5.7790E+02				
14	HTC-A02-S001-2430-01	TRG					5.6817E+02	5.6817E+02				
15	HTC-A02-S001-3036-01	TRG					5.6970E+02	5.6970E+02				
16	HTC-A02-S001-3642-01	TRG					5.3822E+02	5.3822E+02				
17	HTC-A02-S002-0006-01	TRG					7.5503E+02	7.5503E+02				
18	HTC-A02-S002-0612-01	TRG					5.8406E+02	5.8406E+02				
19	HTC-A02-S002-1218-01	TRG					5.7516E+02	5.7516E+02				
20	HTC-A02-S002-1824-01	TRG					5.3927E+02	5.3927E+02				

Comments	

0327

Technician: Kenny Sallings Date: 7/28/17

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
17-07084	8/10/2017	7/27/2017	7/28/2017	7/29/2017	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-S008-3036-01	14.6400	1060.5000	853.1200	1045.8600	838.4800	19.83%	80.17%	0.0000	0.0000	
05	HTC-A01-S008-3642-01	14.6100	1007.8400	772.3100	993.2300	757.7000	23.71%	76.29%	0.0000	0.0000	
06	HTC-A01-S008-4248-01	14.6500	1036.2200	806.6400	1021.5700	791.9900	22.47%	77.53%	0.0000	0.0000	
07	HTC-A02-S001-0006-01	14.6100	896.6400	857.5400	882.0300	842.9300	4.43%	95.57%	0.0000	0.0000	
08	HTC-A02-S001-0006-01 MS	14.6300	923.1200	881.6000	908.4900	866.9700	4.57%	95.43%	0.0000	0.0000	
09	HTC-A02-S001-0006-01 MSD	14.6300	923.1200	881.6000	908.4900	866.9700	4.57%	95.43%	0.0000	0.0000	
10	HTC-A02-S001-0006-02	14.6200	890.4000	855.0200	875.7800	840.4000	4.04%	95.96%	0.0000	0.0000	
11	HTC-A02-S001-0612-01	14.6000	913.9200	791.6500	899.3200	777.0500	13.60%	86.40%	0.0000	0.0000	
12	HTC-A02-S001-1218-01	14.5700	943.6200	776.9200	929.0500	762.3500	17.94%	82.06%	0.0000	0.0000	
13	HTC-A02-S001-1824-01	14.5600	972.4000	798.3400	957.8400	783.7800	18.17%	81.83%	0.0000	0.0000	
14	HTC-A02-S001-2430-01	14.6100	905.8800	757.1500	891.2700	742.5400	16.69%	83.31%	0.0000	0.0000	
15	HTC-A02-S001-3036-01	14.5500	899.1000	750.7300	884.5500	736.1800	16.77%	83.23%	0.0000	0.0000	
16	HTC-A02-S001-3642-01	14.5200	888.5600	737.0400	874.0400	722.5200	17.34%	82.66%	0.0000	0.0000	
17	HTC-A02-S002-0006-01	14.5600	893.5800	835.9200	879.0200	821.3600	6.56%	93.44%	0.0000	0.0000	
18	HTC-A02-S002-0612-01	14.5700	970.6000	802.7400	956.0300	788.1700	17.56%	82.44%	0.0000	0.0000	
19	HTC-A02-S002-1218-01	14.6300	944.5000	774.1100	929.8700	759.4800	18.32%	81.68%	0.0000	0.0000	
20	HTC-A02-S002-1824-01	14.6200	886.0000	730.8300	871.3800	716.2100	17.81%	82.19%	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)**

0328

Technician: Kerry Sallings

Date: **Analysis: Rough Prep Logbook**

Analysis: Gamma Page No. 10165

Eckert & Ziegler
Analytics

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

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

GAS-1402

98503

Sand in 16 Ounce PP Taral Jar Filled to Capacity

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

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

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

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

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

(Certificate continued on reverse side)

ANA Form005 Rev. ---

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Apex-Gamma

8/18

Analysis Report for 1707084-01
GAS-1402

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-01
Sample Description	: GAS-1402
Sample Type	: SOIL
Sample Size	: 7.360E+02 grams
Facility	: Countroom
Sample Taken On	: 10/1/2014 9:02:55AM
Acquisition Started	: 8/18/2017 12:30:33PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 1800.0 seconds
Real Time	: 1843.8 seconds
Dead Time	: 2.38 %
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	: 55515

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/21/17

Analysis Report for 1707084-01

GAS-1402

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 1:01:21PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	22.70	21.74	0.0000	0.00
2	32.04	31.09	0.0000	0.00
3	52.03	51.08	0.0000	0.00
4	59.55	58.61	0.0000	0.00
5	67.27	66.32	0.0000	0.00
6	88.03	87.09	0.0000	0.00
7	122.25	121.32	0.0000	0.00
8	136.67	135.74	0.0000	0.00
9	165.83	164.92	0.0000	0.00
10	358.76	357.91	0.0000	0.00
11	391.55	390.71	0.0000	0.00
12	661.51	660.77	0.0000	0.00
13	1172.84	1172.32	0.0000	0.00
14	1332.05	1331.60	0.0000	0.00
15	1369.38	1368.96	0.0000	0.00
16	1466.56	1466.18	0.0000	0.00
17	1496.98	1496.62	0.0000	0.00
18	1543.58	1543.25	0.0000	0.00
19	1835.53	1835.35	0.0000	0.00
20	1844.45	1844.28	0.0000	0.00
21	2153.37	2153.38	0.0000	0.00
22	2504.13	2504.37	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-01

GAS-1402

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 1:01:21PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	22.70	20 -	25	21.74	7.16E+04	873.86	8.71E+04	2.03
	2	32.04	29 -	34	31.09	1.61E+03	239.13	1.02E+04	2.20
M	3	52.03	43 -	62	51.08	1.50E+04	791.58	4.27E+04	5.02
m	4	59.55	43 -	62	58.61	8.90E+04	681.25	1.99E+04	2.52
	5	67.27	64 -	70	66.32	4.52E+02	323.42	1.88E+04	3.67
	6	88.03	81 -	93	87.09	2.67E+04	579.49	2.62E+04	2.28
	7	122.25	117 -	126	121.32	4.48E+03	339.75	1.39E+04	2.33
	8	136.67	132 -	139	135.74	5.28E+02	252.73	1.03E+04	2.11
	9	165.83	162 -	168	164.92	4.38E+02	213.36	7.96E+03	1.71
	10	358.76	356 -	361	357.91	1.30E+02	146.50	4.18E+03	3.37
	11	391.55	388 -	394	390.71	1.36E+02	165.07	4.86E+03	2.06
	12	661.51	654 -	665	660.77	1.54E+04	309.10	4.24E+03	2.43
	13	1172.84	1165 -	1177	1172.32	1.20E+04	254.40	2.00E+03	2.69
	14	1332.05	1325 -	1339	1331.60	1.09E+04	219.26	4.65E+02	2.68
	15	1369.38	1361 -	1381	1368.96	4.49E+01	51.76	2.02E+02	12.64
	16	1466.56	1457 -	1476	1466.18	4.96E+01	41.86	1.27E+02	11.23
	17	1496.98	1493 -	1500	1496.62	1.78E+01	16.97	3.64E+01	4.86
	18	1543.58	1535 -	1552	1543.25	3.30E+01	37.59	1.14E+02	15.87
	19	1835.53	1831 -	1841	1835.35	4.47E+01	20.72	3.47E+01	4.05
	20	1844.45	1841 -	1847	1844.28	1.47E+01	10.62	8.53E+00	3.14
	21	2153.37	2150 -	2158	2153.38	1.46E+01	15.15	2.47E+01	3.53
	22	2504.13	2498 -	2509	2504.37	7.60E+01	17.44	0.00E+00	2.55

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 : 8/18/2017 1:01:21PM

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

Analysis Report for 1707084-01

GAS-1402

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	22.70	20 -	25	7.16E+04	873.86	8.71E+04	5.68E+02
	2	32.04	29 -	34	1.61E+03	239.13	1.02E+04	1.85E+02
M	3	52.03	43 -	62	1.50E+04	791.58	4.27E+04	3.40E+02
m	4	59.55	43 -	62	8.90E+04	681.25	1.99E+04	2.32E+02
	5	67.27	64 -	70	4.52E+02	323.42	1.88E+04	2.64E+02
	6	88.03	81 -	93	2.67E+04	579.49	2.62E+04	3.93E+02
	7	122.25	117 -	126	4.48E+03	339.75	1.39E+04	2.57E+02
	8	136.67	132 -	139	5.28E+02	252.73	1.03E+04	2.04E+02
	9	165.83	162 -	168	4.38E+02	213.36	7.96E+03	1.72E+02
	10	358.76	356 -	361	1.30E+02	146.50	4.18E+03	1.19E+02
	11	391.55	388 -	394	1.36E+02	165.07	4.86E+03	1.34E+02
	12	661.51	654 -	665	1.54E+04	309.10	4.24E+03	1.51E+02
	13	1172.84	1165 -	1177	1.20E+04	254.40	2.00E+03	1.07E+02
	14	1332.05	1325 -	1339	1.09E+04	219.26	4.65E+02	5.57E+01
	15	1369.38	1361 -	1381	4.49E+01	51.76	2.02E+02	4.11E+01
	16	1466.56	1457 -	1476	4.96E+01	41.86	1.27E+02	3.24E+01
	17	1496.98	1493 -	1500	1.78E+01	16.97	3.64E+01	1.21E+01
	18	1543.58	1535 -	1552	3.30E+01	37.59	1.14E+02	2.94E+01
	19	1835.53	1831 -	1841	4.47E+01	20.72	3.47E+01	1.30E+01
	20	1844.45	1841 -	1847	1.47E+01	10.62	8.53E+00	6.03E+00
	21	2153.37	2150 -	2158	1.46E+01	15.15	2.47E+01	1.07E+01
	22	2504.13	2498 -	2509	7.60E+01	17.44	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 : 8/18/2017 1:01:21PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide

Analysis Report for 1707084-01

GAS-1402

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	22.70	20 -	25	21.74	7.16E+04	873.86	8.71E+04	.....
	2	32.04	29 -	34	31.09	1.61E+03	239.13	1.02E+04	.....
M	3	52.03	43 -	62	51.08	1.50E+04	791.58	4.27E+04	.....
m	4	59.55	43 -	62	58.61	8.90E+04	681.25	1.99E+04	AM-241
	5	67.27	64 -	70	66.32	4.52E+02	323.42	1.88E+04	HF-172 TH-230 TA-182 TM-171 TI-44
	6	88.03	81 -	93	87.09	2.67E+04	579.49	2.62E+04	CD-109 LU-176 SN-126
	7	122.25	117 -	126	121.32	4.48E+03	339.75	1.39E+04	CO-57 EU-152 EU-154
	8	136.67	132 -	139	135.74	5.28E+02	252.73	1.03E+04	CO-57 SE-75
	9	165.83	162 -	168	164.92	4.38E+02	213.36	7.96E+03	CE-139
	10	358.76	356 -	361	357.91	1.30E+02	146.50	4.18E+03	.....
	11	391.55	388 -	394	390.71	1.36E+02	165.07	4.86E+03	SN-113
	12	661.51	654 -	665	660.77	1.54E+04	309.10	4.24E+03	CS-137
	13	1172.84	1165 -	1177	1172.32	1.20E+04	254.40	2.00E+03	CO-60
	14	1332.05	1325 -	1339	1331.60	1.09E+04	219.26	4.65E+02	CO-60
	15	1369.38	1361 -	1381	1368.96	4.49E+01	51.76	2.02E+02	NA-24
	16	1466.56	1457 -	1476	1466.18	4.96E+01	41.86	1.27E+02	.....
	17	1496.98	1493 -	1500	1496.62	1.78E+01	16.97	3.64E+01	.....
	18	1543.58	1535 -	1552	1543.25	3.30E+01	37.59	1.14E+02	.....
	19	1835.53	1831 -	1841	1835.35	4.47E+01	20.72	3.47E+01	Y-88
	20	1844.45	1841 -	1847	1844.28	1.47E+01	10.62	8.53E+00	.....
	21	2153.37	2150 -	2158	2153.38	1.46E+01	15.15	2.47E+01	.....
	22	2504.13	2498 -	2509	2504.37	7.60E+01	17.44	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 : 8/18/2017 1:01:21PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty

Analysis Report for 1707084-01

GAS-1402

	1	22.70	7.16E+04	873.86	4.00E-03	1.56E-03
	2	32.04	1.61E+03	239.13	9.11E-03	1.56E-03
M	3	52.03	1.50E+04	791.58	1.85E-02	1.56E-03
m	4	59.55	8.90E+04	681.25	2.07E-02	1.56E-03
	5	67.27	4.52E+02	323.42	2.22E-02	1.72E-03
	6	88.03	2.67E+04	579.49	2.37E-02	2.17E-03
	7	122.25	4.48E+03	339.75	2.21E-02	1.65E-03
	8	136.67	5.28E+02	252.73	2.09E-02	1.60E-03
	9	165.83	4.38E+02	213.36	1.85E-02	1.49E-03
	10	358.76	1.30E+02	146.50	9.04E-03	7.80E-04
	11	391.55	1.36E+02	165.07	8.25E-03	7.11E-04
	12	661.51	1.54E+04	309.10	4.87E-03	5.99E-04
	13	1172.84	1.20E+04	254.40	2.90E-03	2.38E-04
	14	1332.05	1.09E+04	219.26	2.59E-03	2.27E-04
	15	1369.38	4.49E+01	51.76	2.53E-03	2.22E-04
	16	1466.56	4.96E+01	41.86	2.38E-03	2.07E-04
	17	1496.98	1.78E+01	16.97	2.33E-03	2.02E-04
	18	1543.58	3.30E+01	37.59	2.27E-03	1.95E-04
	19	1835.53	4.47E+01	20.72	1.92E-03	1.51E-04
	20	1844.45	1.47E+01	10.62	1.91E-03	1.51E-04
	21	2153.37	1.46E+01	15.15	1.62E-03	1.51E-04
	22	2504.13	7.60E+01	17.44	1.35E-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 : 8/18/2017 1:01:21PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	22.70	7.16E+04	873.86			7.16E+04	8.74E+02
	2	32.04	1.61E+03	239.13			1.61E+03	2.39E+02
M	3	52.03	1.50E+04	791.58			1.50E+04	7.92E+02
m	4	59.55	8.90E+04	681.25			8.90E+04	6.81E+02
	5	67.27	4.52E+02	323.42			4.52E+02	3.23E+02
	6	88.03	2.67E+04	579.49			2.67E+04	5.79E+02
	7	122.25	4.48E+03	339.75			4.48E+03	3.40E+02
	8	136.67	5.28E+02	252.73			5.28E+02	2.53E+02
	9	165.83	4.38E+02	213.36			4.38E+02	2.13E+02
	10	358.76	1.30E+02	146.50			1.30E+02	1.46E+02
	11	391.55	1.36E+02	165.07			1.36E+02	1.65E+02

Analysis Report for 1707084-01

GAS-1402

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
12	661.51	1.54E+04	309.10	4.86E-01	1.68E+00	1.54E+04	3.09E+02
13	1172.84	1.20E+04	254.40			1.20E+04	2.54E+02
14	1332.05	1.09E+04	219.26			1.09E+04	2.19E+02
15	1369.38	4.49E+01	51.76			4.49E+01	5.18E+01
16	1466.56	4.96E+01	41.86			4.96E+01	4.19E+01
17	1496.98	1.78E+01	16.97			1.78E+01	1.70E+01
18	1543.58	3.30E+01	37.59			3.30E+01	3.76E+01
19	1835.53	4.47E+01	20.72			4.47E+01	2.07E+01
20	1844.45	1.47E+01	10.62			1.47E+01	1.06E+01
21	2153.37	1.46E+01	15.15			1.46E+01	1.51E+01
22	2504.13	7.60E+01	17.44			7.60E+01	1.74E+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 : 8/18/2017 1:01:21PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.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	22.70	7.16E+04	873.86			7.16E+04	8.74E+02
	2	32.04	1.61E+03	239.13			1.61E+03	2.39E+02
M	3	52.03	1.50E+04	791.58			1.50E+04	7.92E+02
m	4	59.55	8.90E+04	681.25			8.90E+04	6.81E+02
	5	67.27	4.52E+02	323.42			4.52E+02	3.23E+02
	6	88.03	2.67E+04	579.49			2.67E+04	5.79E+02
	7	122.25	4.48E+03	339.75			4.48E+03	3.40E+02
	8	136.67	5.28E+02	252.73			5.28E+02	2.53E+02
	9	165.83	4.38E+02	213.36			4.38E+02	2.13E+02
	10	358.76	1.30E+02	146.50			1.30E+02	1.46E+02
	11	391.55	1.36E+02	165.07			1.36E+02	1.65E+02
	12	661.51	1.54E+04	309.10	4.86E-01	1.68E+00	1.54E+04	3.09E+02
	13	1172.84	1.20E+04	254.40			1.20E+04	2.54E+02
	14	1332.05	1.09E+04	219.26			1.09E+04	2.19E+02
	15	1369.38	4.49E+01	51.76			4.49E+01	5.18E+01
	16	1466.56	4.96E+01	41.86			4.96E+01	4.19E+01
	17	1496.98	1.78E+01	16.97			1.78E+01	1.70E+01

Analysis Report for 1707084-01

GAS-1402

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
18	1543.58	3.30E+01	37.59			3.30E+01	3.76E+01
19	1835.53	4.47E+01	20.72			4.47E+01	2.07E+01
20	1844.45	1.47E+01	10.62			1.47E+01	1.06E+01
21	2153.37	1.46E+01	15.15			1.46E+01	1.51E+01
22	2504.13	7.60E+01	17.44			7.60E+01	1.74E+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
CO-57	0.922	122.06	*	85.51	7.14E+01	7.66E+00
		136.48	*	10.60	7.18E+01	3.49E+01
CO-60	0.972	1173.22	*	100.00	1.23E+02	1.04E+01
		1332.49	*	100.00	1.25E+02	1.13E+01
CD-109	0.975	88.03	*	3.72	2.97E+03	3.31E+02
SN-113	0.619	255.12		1.93		
		391.69	*	64.90	2.92E+02	3.56E+02
SN-126	0.967	87.57	*	37.00	6.21E+01	5.84E+00
CS-137	0.997	661.65	*	85.12	8.12E+01	1.01E+01
CE-139	0.747	165.85	*	80.35	1.20E+02	5.94E+01
TM-171	0.943	66.72	*	0.14	8.38E+02	6.03E+02
AM-241	1.000	59.54	*	35.90	2.45E+02	1.86E+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

Analysis Report for 1707084-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 1:01:21PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	22.70	3.97706E+01	0.61		
	2	32.04	8.95297E-01	7.42		
M	3	52.03	8.31882E+00	2.64		
	10	358.76	7.20030E-02	56.52		
	15	1369.38	2.49410E-02	57.64	Tol.	NA-24
	16	1466.56	2.75369E-02	42.22		
	17	1496.98	9.88426E-03	47.69	Sum	
	18	1543.58	1.83333E-02	56.95		
	19	1835.53	2.48118E-02	23.20	Tol.	Y-88
	20	1844.45	8.18713E-03	36.03		
	21	2153.37	8.12757E-03	51.78		
	22	2504.13	4.22222E-02	11.47	Sum	

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CO-57	0.92	122.06	*	85.51	7.14E+01	7.66E+00
		136.48	*	10.60	7.18E+01	3.49E+01
CO-60	0.97	1173.22	*	100.00	1.23E+02	1.04E+01
		1332.49	*	100.00	1.25E+02	1.13E+01
CD-109	0.97	88.03	*	3.72	2.97E+03	3.31E+02
SN-113	0.61	255.12		1.93		
		391.69	*	64.90	2.92E+02	3.56E+02

Analysis Report for 1707084-01

GAS-1402

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	0.96	87.57	*	37.00	6.21E+01	5.84E+00
CS-137	0.99	661.65	*	85.12	8.12E+01	1.01E+01
CE-139	0.74	165.85	*	80.35	1.20E+02	5.94E+01
TM-171	0.94	66.72	*	0.14	8.38E+02	6.03E+02
AM-241	1.00	59.54	*	35.90	2.45E+02	1.86E+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
	CO-57	0.922	7.14E+01	7.49E+00	
	CO-60	0.972	1.24E+02	7.65E+00	
?	CD-109	0.975	2.97E+03	3.31E+02	
	SN-113	0.619	2.92E+02	3.56E+02	
?	SN-126	0.967	6.21E+01	5.84E+00	
	CS-137	0.997	8.12E+01	1.01E+01	
	CE-139	0.747	1.20E+02	5.94E+01	
	TM-171	0.943	8.38E+02	6.03E+02	
	AM-241	1.000	2.45E+02	1.86E+01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707084-01

GAS-1402

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 1:01:21PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	22.70	3.97706E+01	0.61		
	2	32.04	8.95297E-01	7.42		
M	3	52.03	8.31882E+00	2.64		
	10	358.76	7.20030E-02	56.52		
	15	1369.38	2.49410E-02	57.64	Tol.	NA-24
	16	1466.56	2.75369E-02	42.22		
	17	1496.98	9.88426E-03	47.69	Sum	
	18	1543.58	1.83333E-02	56.95		
	19	1835.53	2.48118E-02	23.20	Tol.	Y-88
	20	1844.45	8.18713E-03	36.03		
	21	2153.37	8.12757E-03	51.78		
	22	2504.13	4.22222E-02	11.47	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	1.23E+06	5.54E+06	5.54E+06
+	NA-22	1274.54	99.94	-8.22E-02	1.03E+00	1.03E+00
+	@ NA-24	1368.53	99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09	99.86	0.00E+00		1.00E+26
+	AL-26	1808.65	99.76	-8.88E-02	2.47E-01	2.47E-01

Analysis Report for 1707084-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	K-40	1460.81		10.67	-1.03E+00	2.91E+00	2.91E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	7.55E-01	4.34E-01	4.65E-01
		78.34		96.00	-2.41E-02		4.34E-01
+	SC-46	889.25		99.98	4.93E+03	6.47E+03	6.73E+03
		1120.51		99.99	1.82E+03		6.47E+03
+	V-48	983.52		99.98	1.42E+19	3.27E+19	7.83E+19
		1312.10		97.50	-2.19E+19		3.27E+19
+	CR-51	320.08		9.83	-9.95E+10	1.35E+12	1.35E+12
+	MN-54	834.83		99.97	2.00E+00	1.02E+01	1.02E+01
+	CO-56	846.75		99.96	4.76E+03	7.23E+03	1.09E+04
		1037.75		14.03	3.93E+04		8.55E+04
		1238.25		67.00	-9.33E+02		9.15E+03
		1771.40		15.51	-9.72E+03		1.99E+04
		2598.48		16.90	9.83E+02		7.23E+03
+	CO-57	122.06	*	85.51	7.14E+01	8.24E+00	8.24E+00
		136.48	*	10.60	7.18E+01		5.59E+01
+	CO-58	810.76		99.40	-1.46E+04	2.81E+04	2.81E+04
+	FE-59	1099.22		56.50	8.06E+06	1.51E+07	2.69E+07
		1291.56		43.20	9.02E+06		1.51E+07
+	CO-60	1173.22	*	100.00	1.23E+02	1.31E+00	2.23E+00
		1332.49	*	100.00	1.25E+02		1.31E+00
+	ZN-65	1115.52		50.75	2.82E+01	4.57E+01	4.57E+01
+	@ GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26
	@	208.95		2.24	1.00E+26		1.00E+26
	@	300.22		16.00	1.00E+26		1.00E+26
+	SE-75	121.11		16.70	1.01E+04	2.41E+02	1.10E+03
		136.00		59.20	3.82E+02		2.41E+02
		264.65		59.80	-1.56E+00		3.26E+02
		279.53		25.20	-9.59E+01		7.97E+02
		400.65		11.40	-5.08E+02		2.25E+03
+	RB-82	776.52		13.00	-9.31E+12	1.69E+13	1.69E+13
+	RB-83	520.41		46.00	-2.02E+03	6.51E+03	6.51E+03
		529.64		30.30	-3.70E+03		9.87E+03
		552.65		16.40	7.33E+03		1.82E+04
+	KR-85	513.99		0.43	8.31E+01	1.85E+02	1.85E+02
+	SR-85	513.99		99.27	2.31E+04	5.15E+04	5.15E+04
+	Y-88	898.02		93.40	-5.47E+02	3.84E+02	1.15E+03
		1836.01		99.38	4.04E+02		3.84E+02
+	MO-93	263.06		56.72	-1.10E-01	3.59E-01	9.31E-01
		684.67		99.68	1.82E-01		9.30E-01
		1477.11		99.08	-4.82E-02		3.59E-01
+	NB-93M	16.57		9.43	-8.58E+03	7.93E+01	7.93E+01
+	NB-94	702.63		100.00	-5.08E-01	7.88E-01	7.88E-01
		871.10		100.00	4.83E-01		1.07E+00
+	NB-95	765.79		99.81	2.68E+08	9.60E+08	9.60E+08
+	@ NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707084-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		ZR-95	724.18		43.70	2.27E+04	1.36E+05	1.69E+05
			756.72		55.30	-1.01E+05		1.36E+05
+	@	MO-99	181.06		6.20	1.00E+26	1.00E+26	1.00E+26
	@		739.58		12.80	1.00E+26		1.00E+26
	@		778.00		4.50	1.00E+26		1.00E+26
+		RU-103	497.08		89.00	1.69E+07	8.12E+07	8.12E+07
+		RU-106	621.84		9.80	-1.78E+01	4.88E+01	4.88E+01
+		AG-108M	433.93		89.90	1.11E-01	7.40E-01	7.40E-01
			614.37		90.40	6.85E-02		7.45E-01
			722.95		90.50	-3.32E-02		9.34E-01
+		CD-109	88.03	*	3.72	2.97E+03	8.81E+01	8.81E+01
+		AG-110M	657.75		93.14	6.91E+02	2.46E+01	4.51E+01
			677.61		10.53	-6.11E+01		1.34E+02
			706.67		16.46	-1.12E+01		8.93E+01
			763.93		21.98	-5.62E+00		7.37E+01
			884.67		71.63	-1.19E+01		2.77E+01
			1384.27		23.94	7.82E+00		2.46E+01
+		CD-113M	263.70		0.02	-2.82E+02	2.21E+03	2.21E+03
+		SN-113	255.12		1.93	-1.02E+03	5.84E+02	1.28E+04
			391.69	*	64.90	2.92E+02		5.84E+02
+		TE123M	159.00		84.10	-5.11E+00	1.71E+02	1.71E+02
+		SB-124	602.71		97.87	3.64E+04	1.07E+05	1.21E+05
			645.85		7.26	-1.57E+05		1.74E+06
			722.78		11.10	-4.86E+04		1.37E+06
			1691.02		49.00	8.37E+03		1.07E+05
+		I-125	35.49		6.49	3.91E+04	2.08E+06	2.08E+06
+		SB-125	176.33		6.89	4.03E+00	4.51E+00	1.04E+01
			427.89		29.33	-2.50E-01		4.51E+00
			463.38		10.35	3.75E+00		1.42E+01
			600.56		17.80	-1.71E+00		7.46E+00
			635.90		11.32	-1.29E+00		1.24E+01
+	@	SB-126	414.70		83.30	1.00E+26	1.00E+26	1.00E+26
	@		666.33		99.60	1.00E+26		1.00E+26
	@		695.00		99.60	1.00E+26		1.00E+26
	@		720.50		53.80	1.00E+26		1.00E+26
+		SN-126	87.57	*	37.00	6.21E+01	1.84E+00	1.84E+00
+	@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26
	@		685.20		35.70	1.00E+26		1.00E+26
	@		783.80		14.70	1.00E+26		1.00E+26
+		I-129	29.78		57.00	-1.89E+01	2.05E+00	2.05E+00
			33.60		13.20	2.19E+00		6.47E+00
			39.58		7.52	-2.58E+01		8.57E+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

Analysis Report for 1707084-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BA-133	81.00		33.00	-3.83E-01	1.08E+00	1.48E+00
			302.84		17.80	2.27E+00		3.23E+00
			356.01		60.00	-4.64E-01		1.08E+00
+	@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26
+		CS-134	563.23		8.38	-8.99E+00	1.76E+00	1.93E+01
			569.32		15.43	-3.81E+00		1.08E+01
			604.70		97.60	-2.77E-01		1.76E+00
			795.84		85.40	3.31E+00		2.87E+00
			801.93		8.73	-1.41E+01		2.77E+01
+		CS-135	268.24		16.00	-7.37E-01	2.77E+00	2.77E+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	8.12E+01	1.60E+00	1.60E+00
+		LA-138	788.74		34.00	-8.32E-01	4.24E-01	2.62E+00
			1435.80		66.00	-2.69E-01		4.24E-01
+		CE-139	165.85	*	80.35	1.20E+02	9.52E+01	9.52E+01
+	@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26
	@		304.84		4.50	1.00E+26		1.00E+26
	@		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	-8.74E+07	3.60E+09	3.60E+09
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-2.18E+00	3.82E+01	3.82E+01
+		PM-144	476.78		42.00	8.37E-01	4.97E+00	1.22E+01
			618.01		98.60	-5.69E-01		4.97E+00
			696.49		99.49	-5.28E-01		5.89E+00
+		PM-145	36.85		21.70	-3.37E+00	1.84E+00	3.44E+00
			37.36		39.70	-1.80E+00		1.84E+00
			42.30		15.10	-1.08E+01		4.67E+00
			72.40		2.31	-2.88E+00		2.02E+01
+		PM-146	453.90		39.94	2.71E-01	2.42E+00	2.42E+00

Analysis Report for 1707084-01

GAS-1402

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		PM-146	735.90		14.01	7.34E+00	2.42E+00	8.71E+00
			747.13		13.10	2.59E+00		9.25E+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	2.26E+01	2.35E+00	2.35E+00
			244.69		5.40	-2.46E+00		9.38E+00
			344.27		19.13	-8.70E-01		3.09E+00
			778.89		9.20	8.62E-01		1.12E+01
			964.01		10.40	-7.08E+00		1.38E+01
			1085.78		7.22	-1.75E+00		1.91E+01
			1112.02		9.60	1.47E+01		1.48E+01
			1407.95		14.94	9.80E-01		2.62E+00
+		GD-153	97.43		31.30	1.04E+01	1.91E+01	1.91E+01
			103.18		22.20	-6.46E+00		2.67E+01
+		EU-154	123.07		40.50	1.27E+01	1.29E+00	1.29E+00
			723.30		19.70	7.13E-01		5.31E+00
			873.19		11.50	-2.87E+00		1.15E+01
			996.32		10.30	-2.38E+00		1.39E+01
			1004.76		17.90	7.39E+00		8.16E+00
			1274.45		35.50	-1.35E-01		1.69E+00
+		EU-155	86.50		30.90	1.08E+02	2.10E+00	3.58E+00
			105.30		20.70	9.05E-03		2.10E+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	1.86E-01	5.13E-01	5.13E-01
			280.45		29.60	-3.16E-01		1.53E+00
			410.94		11.10	1.81E+00		5.41E+00
			711.69		54.10	-9.39E-02		1.51E+00
+		TM-171	66.72	*	0.14	8.38E+02	9.83E+02	9.83E+02
+		HF-172	67.35		5.31	-6.10E+01	9.16E+00	2.30E+01
			125.81		11.30	1.37E+00		9.16E+00
+	@	LU-172	181.53		20.60	1.00E+26	1.00E+26	1.00E+26
	@		900.72		29.81	1.00E+26		1.00E+26
	@		1093.66		62.50	1.00E+26		1.00E+26
+		LU-173	100.72		5.24	-5.74E-01	9.16E+00	2.38E+01
			272.11		21.20	-2.04E+00		9.16E+00
+		HF-175	343.40		84.00	-5.71E+03	2.03E+04	2.03E+04
+		LU-176	88.34		13.30	1.67E+02	4.57E-01	5.51E+00
			201.83		86.00	-1.55E-01		4.57E-01
			306.78		94.00	-6.44E-03		5.08E-01
+		HF-181	133.02		41.70	-1.61E+06	2.20E+07	2.20E+07
			345.85		17.20	-4.14E+07		8.79E+07
			482.03		82.80	1.07E+07		2.39E+07
+		TA-182	67.75		41.20	9.83E+02	6.05E+02	6.05E+02
			1121.30		34.90	4.28E+02		1.78E+03
			1189.05		16.23	-2.24E+02		2.88E+03
			1221.41		26.98	7.25E+02		1.42E+03

Analysis Report for 1707084-01

GAS-1402

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TA-182	1231.02	11.44	-1.17E+03	6.05E+02	3.03E+03
+	IR-192	308.46	29.68	2.28E+03	2.87E+04	3.08E+04
		468.07	48.10	1.15E+04		2.87E+04
+	HG-203	279.19	77.30	1.11E+06	3.72E+06	3.72E+06
+	TL-204	374.74	94.11	1.24E-03	9.93E-01	9.93E-01
		899.15	99.16	-6.47E-01		1.97E+00
		911.74	91.10	1.23E-01		2.22E+00
+	BI-207	569.67	97.72	-2.43E-01	6.86E-01	6.86E-01
		1063.62	74.90	-3.79E-01		1.64E+00
+	TL-208	583.14	30.22	-1.48E+00	5.83E-01	2.12E+00
		860.37	4.48	-1.02E+01		2.32E+01
		2614.66	35.85	1.90E-01		5.83E-01
+	BI-210M	262.00	45.00	2.84E-01	9.81E-01	9.81E-01
		300.00	23.00	-2.97E-01		2.05E+00
+	PB-210	46.50	4.25	-1.92E+01	2.00E+01	2.00E+01
+	PB-211	404.84	2.90	2.65E+00	2.03E+01	2.03E+01
		831.96	2.90	4.20E+00		3.39E+01
+	BI-212	727.17	11.80	-8.57E-01	6.95E+00	6.95E+00
		1620.62	2.75	1.84E+00		1.06E+01
+	PB-212	238.63	44.60	-1.35E-01	9.82E-01	9.82E-01
		300.09	3.41	-2.00E+00		1.38E+01
+	BI-214	609.31	46.30	9.15E-01	1.44E+00	1.44E+00
		1120.29	15.10	2.01E+00		7.15E+00
		1764.49	15.80	8.76E-01		2.17E+00
		2204.22	4.98	2.33E+00		6.61E+00
+	PB-214	295.21	19.19	-2.91E-01	1.42E+00	2.44E+00
		351.92	37.19	5.01E-01		1.42E+00
+	RN-219	401.80	6.50	2.78E+00	9.04E+00	9.04E+00
+	RA-223	323.87	3.88	8.29E-01	1.27E+01	1.27E+01
+	RA-224	240.98	3.95	6.96E+00	1.12E+01	1.12E+01
+	@ RA-225	40.00	31.00	1.00E+26	1.00E+26	1.00E+26
+	RA-226	186.21	3.28	8.11E+00	1.15E+01	1.15E+01
+	TH-227	50.10	8.40	5.76E+01	3.81E+00	9.95E+00
		236.00	11.50	1.71E+00		3.81E+00
		256.20	6.30	1.20E+00		6.95E+00
+	AC-228	338.32	11.40	9.88E-01	4.32E+00	4.41E+00
		911.07	27.70	3.15E+00		4.32E+00
		969.11	16.60	2.34E+00		7.28E+00
+	TH-230	48.44	16.90	1.27E+01	4.68E+00	4.68E+00
		62.85	4.60	5.99E+02		2.20E+01
		67.67	0.37	1.87E+02		1.15E+02
+	PA-231	283.67	1.60	5.65E+00	2.07E+01	2.84E+01
		302.67	2.30	1.45E+01		2.07E+01
+	TH-231	25.64	14.70	-1.04E+02	7.80E+00	2.95E+01
		84.21	6.40	-2.81E+02		7.80E+00
+	PA-233	311.98	38.60	3.34E+11	6.80E+11	6.80E+11
+	PA-234	131.20	20.40	-1.48E-02	1.48E+00	1.48E+00
		733.99	8.80	-8.37E-01		9.54E+00

Analysis Report for 1707084-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PA-234	946.00		12.00	-4.83E-01	1.48E+00	1.09E+01
+	PA-234M	1001.03		0.92	4.59E+01	1.25E+02	1.25E+02
+	TH-234	63.29		3.80	7.22E+02	2.66E+01	2.66E+01
+	U-235	143.76		10.50	-7.05E-01	2.98E+00	2.98E+00
		163.35		4.70	-1.75E-01		7.22E+00
		205.31		4.70	3.16E+00		8.46E+00
+	NP-237	86.50		12.60	1.78E+02	5.88E+00	5.88E+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	2.45E+02	3.42E+00	3.42E+00
+	AM-243	74.67		66.00	1.54E-01	6.24E-01	6.24E-01
+	CM-243	209.75		3.29	-2.61E+00	3.53E+00	1.33E+01
		228.14		10.60	2.62E+00		4.43E+00
		277.60		14.00	1.51E+00		3.53E+00

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59	10.42	5.54E+06	5.54E+06	1.23E+06	2.74E+06
	NA-22	1274.54	99.94	1.03E+00	1.03E+00	-8.22E-02	4.92E-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	2.47E-01	2.47E-01	-8.88E-02	1.09E-01
	K-40	1460.81	10.67	2.91E+00	2.91E+00	-1.03E+00	1.34E+00
@	AR-41	1293.64	99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20

Analysis Report for 1707084-01

GAS-1402

	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	4.65E-01	4.34E-01	7.55E-01	2.31E-01
		78.34		96.00	4.34E-01		-2.41E-02	2.16E-01
	SC-46	889.25		99.98	6.73E+03	6.47E+03	4.93E+03	3.32E+03
		1120.51		99.99	6.47E+03		1.82E+03	3.18E+03
	V-48	983.52		99.98	7.83E+19	3.27E+19	1.42E+19	3.86E+19
		1312.10		97.50	3.27E+19		-2.19E+19	1.56E+19
	CR-51	320.08		9.83	1.35E+12	1.35E+12	-9.95E+10	6.67E+11
	MN-54	834.83		99.97	1.02E+01	1.02E+01	2.00E+00	5.05E+00
	CO-56	846.75		99.96	1.09E+04	7.23E+03	4.76E+03	5.37E+03
		1037.75		14.03	8.55E+04		3.93E+04	4.21E+04
		1238.25		67.00	9.15E+03		-9.33E+02	4.42E+03
		1771.40		15.51	1.99E+04		-9.72E+03	8.99E+03
		2598.48		16.90	7.23E+03		9.83E+02	2.29E+03
+	CO-57	122.06	*	85.51	8.24E+00	8.24E+00	7.14E+01	4.10E+00
		136.48	*	10.60	5.59E+01		7.18E+01	2.78E+01
	CO-58	810.76		99.40	2.81E+04	2.81E+04	-1.46E+04	1.38E+04
	FE-59	1099.22		56.50	2.69E+07	1.51E+07	8.06E+06	1.33E+07
		1291.56		43.20	1.51E+07		9.02E+06	7.26E+06
+	CO-60	1173.22	*	100.00	2.23E+00	1.31E+00	1.23E+02	1.10E+00
		1332.49	*	100.00	1.31E+00		1.25E+02	6.41E-01
	ZN-65	1115.52		50.75	4.57E+01	4.57E+01	2.82E+01	2.25E+01
@	GA-67	93.31		35.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		208.95		2.24	1.00E+26		1.00E+26	1.00E+20
@		300.22		16.00	1.00E+26		1.00E+26	1.00E+20
	SE-75	121.11		16.70	1.10E+03	2.41E+02	1.01E+04	5.45E+02
		136.00		59.20	2.41E+02		3.82E+02	1.19E+02
		264.65		59.80	3.26E+02		-1.56E+00	1.62E+02
		279.53		25.20	7.97E+02		-9.59E+01	3.94E+02
		400.65		11.40	2.25E+03		-5.08E+02	1.11E+03
	RB-82	776.52		13.00	1.69E+13	1.69E+13	-9.31E+12	8.33E+12
	RB-83	520.41		46.00	6.51E+03	6.51E+03	-2.02E+03	3.21E+03
		529.64		30.30	9.87E+03		-3.70E+03	4.86E+03
		552.65		16.40	1.82E+04		7.33E+03	8.96E+03
	KR-85	513.99		0.43	1.85E+02	1.85E+02	8.31E+01	9.12E+01
	SR-85	513.99		99.27	5.15E+04	5.15E+04	2.31E+04	2.54E+04
	Y-88	898.02		93.40	1.15E+03	3.84E+02	-5.47E+02	5.66E+02
		1836.01		99.38	3.84E+02		4.04E+02	1.79E+02
	MO-93	263.06		56.72	9.31E-01	3.59E-01	-1.10E-01	4.61E-01
		684.67		99.68	9.30E-01		1.82E-01	4.58E-01
		1477.11		99.08	3.59E-01		-4.82E-02	1.65E-01
	NB-93M	16.57		9.43	7.93E+01	7.93E+01	-8.58E+03	3.94E+01
	NB-94	702.63		100.00	7.88E-01	7.88E-01	-5.08E-01	3.88E-01
		871.10		100.00	1.07E+00		4.83E-01	5.29E-01
	NB-95	765.79		99.81	9.60E+08	9.60E+08	2.68E+08	4.73E+08
@	NB-95M	235.69		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	ZR-95	724.18		43.70	1.69E+05	1.36E+05	2.27E+04	8.33E+04
		756.72		55.30	1.36E+05		-1.01E+05	6.70E+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	8.12E+07	8.12E+07	1.69E+07	4.01E+07
	RU-106	621.84		9.80	4.88E+01	4.88E+01	-1.78E+01	2.40E+01
	AG-108M	433.93		89.90	7.40E-01	7.40E-01	1.11E-01	3.66E-01

Analysis Report for 1707084-01

GAS-1402

	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	7.45E-01	7.40E-01	6.85E-02	3.67E-01
		722.95		90.50	9.34E-01		-3.32E-02	4.60E-01
+	CD-109	88.03	*	3.72	8.81E+01	8.81E+01	2.97E+03	4.39E+01
	AG-110M	657.75		93.14	4.51E+01	2.46E+01	6.91E+02	2.24E+01
		677.61		10.53	1.34E+02		-6.11E+01	6.62E+01
		706.67		16.46	8.93E+01		-1.12E+01	4.40E+01
		763.93		21.98	7.37E+01		-5.62E+00	3.63E+01
		884.67		71.63	2.77E+01		-1.19E+01	1.37E+01
		1384.27		23.94	2.46E+01		7.82E+00	1.15E+01
	CD-113M	263.70		0.02	2.21E+03	2.21E+03	-2.82E+02	1.09E+03
+	SN-113	255.12		1.93	1.28E+04	5.84E+02	-1.02E+03	6.33E+03
		391.69	*	64.90	5.84E+02		2.92E+02	2.89E+02
	TE123M	159.00		84.10	1.71E+02	1.71E+02	-5.11E+00	8.48E+01
	SB-124	602.71		97.87	1.21E+05	1.07E+05	3.64E+04	5.98E+04
		645.85		7.26	1.74E+06		-1.57E+05	8.57E+05
		722.78		11.10	1.37E+06		-4.86E+04	6.74E+05
		1691.02		49.00	1.07E+05		8.37E+03	4.88E+04
	I-125	35.49		6.49	2.08E+06	2.08E+06	3.91E+04	1.03E+06
	SB-125	176.33		6.89	1.04E+01	4.51E+00	4.03E+00	5.17E+00
		427.89		29.33	4.51E+00		-2.50E-01	2.23E+00
		463.38		10.35	1.42E+01		3.75E+00	7.00E+00
		600.56		17.80	7.46E+00		-1.71E+00	3.67E+00
		635.90		11.32	1.24E+01		-1.29E+00	6.10E+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	1.84E+00	1.84E+00	6.21E+01	9.17E-01
@	SB-127	473.00		25.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		685.20		35.70	1.00E+26		1.00E+26	1.00E+20
@		783.80		14.70	1.00E+26		1.00E+26	1.00E+20
	I-129	29.78		57.00	2.05E+00	2.05E+00	-1.89E+01	1.02E+00
		33.60		13.20	6.47E+00		2.19E+00	3.21E+00
		39.58		7.52	8.57E+00		-2.58E+01	4.26E+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	1.48E+00	1.08E+00	-3.83E-01	7.36E-01
		302.84		17.80	3.23E+00		2.27E+00	1.60E+00
		356.01		60.00	1.08E+00		-4.64E-01	5.31E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	XE-133	81.00		38.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	CS-134	563.23		8.38	1.93E+01	1.76E+00	-8.99E+00	9.50E+00
		569.32		15.43	1.08E+01		-3.81E+00	5.30E+00
		604.70		97.60	1.76E+00		-2.77E-01	8.67E-01
		795.84		85.40	2.87E+00		3.31E+00	1.42E+00
		801.93		8.73	2.77E+01		-1.41E+01	1.37E+01
	CS-135	268.24		16.00	2.77E+00	2.77E+00	-7.37E-01	1.37E+00
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20

Analysis Report for 1707084-01

GAS-1402

	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	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	1.60E+00	1.60E+00	8.12E+01	7.95E-01
	LA-138	788.74		34.00	2.62E+00	4.24E-01	-8.32E-01	1.29E+00
		1435.80		66.00	4.24E-01		-2.69E-01	1.95E-01
+	CE-139	165.85	*	80.35	9.52E+01	9.52E+01	1.20E+02	4.72E+01
@	BA-140	162.64		6.70	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		304.84		4.50	1.00E+26		1.00E+26	1.00E+20
@		423.70		3.20	1.00E+26		1.00E+26	1.00E+20
@		437.55		2.00	1.00E+26		1.00E+26	1.00E+20
@		537.32		25.00	1.00E+26		1.00E+26	1.00E+20
@	LA-140	328.77		20.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		487.03		45.50	1.00E+26		1.00E+26	1.00E+20
@		815.85		23.50	1.00E+26		1.00E+26	1.00E+20
@		1596.49		95.49	1.00E+26		1.00E+26	1.00E+20
	CE-141	145.44		48.40	3.60E+09	3.60E+09	-8.74E+07	1.78E+09
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	3.82E+01	3.82E+01	-2.18E+00	1.89E+01
	PM-144	476.78		42.00	1.22E+01	4.97E+00	8.37E-01	6.05E+00
		618.01		98.60	4.97E+00		-5.69E-01	2.45E+00
		696.49		99.49	5.89E+00		-5.28E-01	2.90E+00
	PM-145	36.85		21.70	3.44E+00	1.84E+00	-3.37E+00	1.71E+00
		37.36		39.70	1.84E+00		-1.80E+00	9.11E-01
		42.30		15.10	4.67E+00		-1.08E+01	2.32E+00
		72.40		2.31	2.02E+01		-2.88E+00	1.00E+01
	PM-146	453.90		39.94	2.42E+00	2.42E+00	2.71E-01	1.20E+00
		735.90		14.01	8.71E+00		7.34E+00	4.29E+00
		747.13		13.10	9.25E+00		2.59E+00	4.56E+00
@	ND-147	91.11		28.90	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		531.02		13.10	1.00E+26		1.00E+26	1.00E+20
@	PM-149	285.90		3.10	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	EU-152	121.78		20.50	2.35E+00	2.35E+00	2.26E+01	1.17E+00
		244.69		5.40	9.38E+00		-2.46E+00	4.64E+00
		344.27		19.13	3.09E+00		-8.70E-01	1.52E+00
		778.89		9.20	1.12E+01		8.62E-01	5.53E+00
		964.01		10.40	1.38E+01		-7.08E+00	6.81E+00
		1085.78		7.22	1.91E+01		-1.75E+00	9.38E+00
		1112.02		9.60	1.48E+01		1.47E+01	7.29E+00
		1407.95		14.94	2.62E+00		9.80E-01	1.22E+00
	GD-153	97.43		31.30	1.91E+01	1.91E+01	1.04E+01	9.46E+00
		103.18		22.20	2.67E+01		-6.46E+00	1.32E+01
	EU-154	123.07		40.50	1.29E+00	1.29E+00	1.27E+01	6.42E-01
		723.30		19.70	5.31E+00		7.13E-01	2.61E+00
		873.19		11.50	1.15E+01		-2.87E+00	5.67E+00

Analysis Report for 1707084-01

GAS-1402

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-154	996.32		10.30	1.39E+01	1.29E+00	-2.38E+00	6.85E+00
		1004.76		17.90	8.16E+00		7.39E+00	4.02E+00
		1274.45		35.50	1.69E+00		-1.35E-01	8.07E-01
	EU-155	86.50		30.90	3.58E+00	2.10E+00	1.08E+02	1.79E+00
		105.30		20.70	2.10E+00		9.05E-03	1.04E+00
@	EU-156	811.77		10.40	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1153.47		7.20	1.00E+26		1.00E+26	1.00E+20
@		1230.71		8.90	1.00E+26		1.00E+26	1.00E+20
	HO-166M	184.41		72.60	5.13E-01	5.13E-01	1.86E-01	2.54E-01
		280.45		29.60	1.53E+00		-3.16E-01	7.58E-01
		410.94		11.10	5.41E+00		1.81E+00	2.68E+00
		711.69		54.10	1.51E+00		-9.39E-02	7.44E-01
+	TM-171	66.72	*	0.14	9.83E+02	9.83E+02	8.38E+02	4.89E+02
	HF-172	67.35		5.31	2.30E+01	9.16E+00	-6.10E+01	1.14E+01
		125.81		11.30	9.16E+00		1.37E+00	4.55E+00
@	LU-172	181.53		20.60	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		900.72		29.81	1.00E+26		1.00E+26	1.00E+20
@		1093.66		62.50	1.00E+26		1.00E+26	1.00E+20
	LU-173	100.72		5.24	2.38E+01	9.16E+00	-5.74E-01	1.18E+01
		272.11		21.20	9.16E+00		-2.04E+00	4.53E+00
	HF-175	343.40		84.00	2.03E+04	2.03E+04	-5.71E+03	1.00E+04
	LU-176	88.34		13.30	5.51E+00	4.57E-01	1.67E+02	2.75E+00
		201.83		86.00	4.57E-01		-1.55E-01	2.26E-01
		306.78		94.00	5.08E-01		-6.44E-03	2.51E-01
	HF-181	133.02		41.70	2.20E+07	2.20E+07	-1.61E+06	1.09E+07
		345.85		17.20	8.79E+07		-4.14E+07	4.35E+07
		482.03		82.80	2.39E+07		1.07E+07	1.18E+07
	TA-182	67.75		41.20	6.05E+02	6.05E+02	9.83E+02	3.01E+02
		1121.30		34.90	1.78E+03		4.28E+02	8.77E+02
		1189.05		16.23	2.88E+03		-2.24E+02	1.40E+03
		1221.41		26.98	1.42E+03		7.25E+02	6.91E+02
		1231.02		11.44	3.03E+03		-1.17E+03	1.47E+03
	IR-192	308.46		29.68	3.08E+04	2.87E+04	2.28E+03	1.52E+04
		468.07		48.10	2.87E+04		1.15E+04	1.42E+04
	HG-203	279.19		77.30	3.72E+06	3.72E+06	1.11E+06	1.84E+06
	TL-204	374.74		94.11	9.93E-01	9.93E-01	1.24E-03	4.91E-01
		899.15		99.16	1.97E+00		-6.47E-01	9.70E-01
		911.74		91.10	2.22E+00		1.23E-01	1.09E+00
	BI-207	569.67		97.72	6.86E-01	6.86E-01	-2.43E-01	3.37E-01
		1063.62		74.90	1.64E+00		-3.79E-01	8.08E-01
	TL-208	583.14		30.22	2.12E+00	5.83E-01	-1.48E+00	1.05E+00
		860.37		4.48	2.32E+01		-1.02E+01	1.15E+01
		2614.66		35.85	5.83E-01		1.90E-01	2.31E-01
	BI-210M	262.00		45.00	9.81E-01	9.81E-01	2.84E-01	4.86E-01
		300.00		23.00	2.05E+00		-2.97E-01	1.01E+00
	PB-210	46.50		4.25	2.00E+01	2.00E+01	-1.92E+01	9.93E+00
	PB-211	404.84		2.90	2.03E+01	2.03E+01	2.65E+00	1.00E+01
		831.96		2.90	3.39E+01		4.20E+00	1.67E+01
	BI-212	727.17		11.80	6.95E+00	6.95E+00	-8.57E-01	3.42E+00
		1620.62		2.75	1.06E+01		1.84E+00	4.84E+00
	PB-212	238.63		44.60	9.82E-01	9.82E-01	-1.35E-01	4.86E-01
		300.09		3.41	1.38E+01		-2.00E+00	6.84E+00
	BI-214	609.31		46.30	1.44E+00	1.44E+00	9.15E-01	7.10E-01

Analysis Report for 1707084-01

GAS-1402

	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	7.15E+00	1.44E+00	2.01E+00	3.51E+00
		1764.49		15.80	2.17E+00		8.76E-01	9.98E-01
		2204.22		4.98	6.61E+00		2.33E+00	2.96E+00
	PB-214	295.21		19.19	2.44E+00	1.42E+00	-2.91E-01	1.21E+00
		351.92		37.19	1.42E+00		5.01E-01	7.04E-01
	RN-219	401.80		6.50	9.04E+00	9.04E+00	2.78E+00	4.47E+00
	RA-223	323.87		3.88	1.27E+01	1.27E+01	8.29E-01	6.29E+00
	RA-224	240.98		3.95	1.12E+01	1.12E+01	6.96E+00	5.55E+00
@	RA-225	40.00		31.00	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	RA-226	186.21		3.28	1.15E+01	1.15E+01	8.11E+00	5.70E+00
	TH-227	50.10		8.40	9.95E+00	3.81E+00	5.76E+01	4.96E+00
		236.00		11.50	3.81E+00		1.71E+00	1.89E+00
		256.20		6.30	6.95E+00		1.20E+00	3.44E+00
	AC-228	338.32		11.40	4.41E+00	4.32E+00	9.88E-01	2.18E+00
		911.07		27.70	4.32E+00		3.15E+00	2.13E+00
		969.11		16.60	7.28E+00		2.34E+00	3.59E+00
	TH-230	48.44		16.90	4.68E+00	4.68E+00	1.27E+01	2.33E+00
		62.85		4.60	2.20E+01		5.99E+02	1.10E+01
		67.67		0.37	1.15E+02		1.87E+02	5.72E+01
	PA-231	283.67		1.60	2.84E+01	2.07E+01	5.65E+00	1.41E+01
		302.67		2.30	2.07E+01		1.45E+01	1.02E+01
	TH-231	25.64		14.70	2.95E+01	7.80E+00	-1.04E+02	1.47E+01
		84.21		6.40	7.80E+00		-2.81E+02	3.88E+00
	PA-233	311.98		38.60	6.80E+11	6.80E+11	3.34E+11	3.36E+11
	PA-234	131.20		20.40	1.48E+00	1.48E+00	-1.48E-02	7.33E-01
		733.99		8.80	9.54E+00		-8.37E-01	4.70E+00
		946.00		12.00	1.09E+01		-4.83E-01	5.38E+00
	PA-234M	1001.03		0.92	1.25E+02	1.25E+02	4.59E+01	6.16E+01
	TH-234	63.29		3.80	2.66E+01	2.66E+01	7.22E+02	1.33E+01
	U-235	143.76		10.50	2.98E+00	2.98E+00	-7.05E-01	1.47E+00
		163.35		4.70	7.22E+00		-1.75E-01	3.58E+00
		205.31		4.70	8.46E+00		3.16E+00	4.19E+00
	NP-237	86.50		12.60	5.88E+00	5.88E+00	1.78E+02	2.93E+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	3.42E+00	3.42E+00	2.45E+02	1.71E+00
	AM-243	74.67		66.00	6.24E-01	6.24E-01	1.54E-01	3.10E-01
	CM-243	209.75		3.29	1.33E+01	3.53E+00	-2.61E+00	6.57E+00
		228.14		10.60	4.43E+00		2.62E+00	2.19E+00
		277.60		14.00	3.53E+00		1.51E+00	1.75E+00

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

Analysis Report for 1707084-01

GAS-1402

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: GAS-1402

Elapsed Live time: 1800
Elapsed Real Time: 1844

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	238	1859
17:	2067	1926	4314	18724	37439	26613	12006	12218
25:	8142	2494	919	744	803	1179	1623	1411
33:	881	834	981	1061	1001	965	1020	1149
41:	1310	1448	1563	1775	1953	2156	2658	3674
49:	4105	4139	3937	3887	3777	3917	4240	4626
57:	9960	27667	32367	12770	2185	1110	1154	1249
65:	1403	1441	1433	1459	1444	1438	1476	1392
73:	1369	1401	1406	1429	1466	1374	1376	1331
81:	1408	1425	1519	1544	2006	6046	11801	8681
89:	2298	828	754	754	725	717	744	711
97:	749	757	745	686	679	724	708	722
105:	715	698	702	686	714	704	647	731
113:	704	739	745	763	713	766	863	1428
121:	2411	2088	1026	731	704	678	638	717
129:	647	621	649	634	629	705	812	870
137:	696	666	664	626	655	606	627	631
145:	615	637	646	592	590	630	611	613
153:	617	591	575	605	618	595	570	645
161:	573	565	624	648	763	651	587	579
169:	557	571	595	594	596	583	590	586
177:	646	561	589	556	603	600	609	658
185:	614	656	637	653	622	613	644	607
193:	605	609	667	643	621	631	545	644
201:	611	596	574	603	599	607	593	583
209:	560	629	593	657	605	635	625	640
217:	648	632	654	645	616	611	628	640
225:	626	594	583	606	587	554	540	539
233:	565	558	554	548	578	596	561	521
241:	502	555	553	490	527	555	484	554
249:	505	497	506	450	477	492	513	463
257:	474	490	457	446	489	452	487	450
265:	443	451	454	462	474	408	454	448
273:	454	482	482	460	423	434	436	456
281:	433	421	401	424	399	424	405	397
289:	418	447	425	391	388	424	427	441
297:	404	380	436	404	376	404	400	403
305:	417	397	347	416	405	407	402	380
313:	404	399	398	389	369	391	391	365
321:	356	427	376	379	399	359	381	355
329:	376	366	385	368	340	363	359	348
337:	358	399	344	356	389	317	375	351
345:	371	345	371	357	370	370	392	355
353:	381	355	339	372	397	361	390	351
361:	349	338	368	330	356	341	333	357

369:	360	354	345	391	328	354	357	326

Sample Title: GAS-1402

Channel								
377:	356	345	348	335	357	317	329	322
385:	348	334	325	367	355	367	401	380
393:	359	335	360	345	315	378	319	332
401:	318	336	386	348	341	337	311	348
409:	337	356	349	357	347	340	315	339
417:	336	299	351	344	368	369	341	427
425:	357	369	356	355	341	345	353	395
433:	364	375	367	364	358	384	347	370
441:	352	376	346	382	373	322	345	328
449:	360	364	352	341	343	351	359	370
457:	381	330	369	387	360	382	377	385
465:	351	410	384	386	362	423	393	339
473:	345	350	334	332	355	338	285	296
481:	319	290	300	310	231	275	264	275
489:	287	288	281	284	275	283	264	276
497:	268	259	253	254	241	255	294	255
505:	223	239	257	282	271	288	257	287
513:	259	259	255	264	241	234	231	237
521:	236	228	242	212	253	223	225	232
529:	226	220	261	198	229	250	192	268
537:	209	235	205	221	199	196	201	209
545:	195	220	210	202	219	196	180	222
553:	198	219	213	198	180	205	207	180
561:	177	187	194	188	183	213	196	201
569:	186	167	181	216	204	228	218	208
577:	202	212	180	174	193	198	207	197
585:	195	192	230	205	205	177	190	192
593:	185	209	194	194	180	176	172	185
601:	177	187	205	173	196	169	186	206
609:	186	191	199	193	165	168	192	188
617:	188	173	183	164	189	180	173	189
625:	194	180	159	193	168	181	188	185
633:	199	186	171	194	170	177	203	170
641:	189	201	175	170	168	177	192	198
649:	175	204	198	168	204	165	201	190
657:	208	323	1496	4597	6177	3141	697	205
665:	158	176	148	153	159	164	156	155
673:	169	163	157	158	169	143	159	156
681:	151	166	187	165	160	151	151	140
689:	147	168	154	149	152	168	152	176
697:	174	146	156	155	181	139	153	160
705:	161	160	174	156	165	150	153	154
713:	172	168	188	175	165	158	180	188
721:	163	162	176	152	154	160	161	167
729:	163	141	140	163	167	184	170	163
737:	186	168	167	145	153	170	173	164
745:	167	147	143	161	155	167	162	158
753:	171	177	152	136	182	150	163	140
761:	178	183	136	182	185	158	165	164
769:	172	164	182	155	174	182	149	164
777:	178	166	137	165	192	159	164	164
785:	156	159	140	161	151	181	175	173
793:	158	191	180	169	186	161	174	137

801:	138	173	173	170	190	183	176	179

Sample Title: GAS-1402

Channel								
809:	192	152	162	178	145	167	177	187
817:	174	186	196	186	192	168	176	163
825:	165	178	172	205	165	168	190	172
833:	178	187	175	161	200	205	183	160
841:	197	183	184	185	198	196	203	196
849:	202	185	190	183	190	195	196	200
857:	168	195	181	214	210	170	190	171
865:	195	206	201	209	180	208	175	204
873:	185	196	180	197	168	184	185	198
881:	201	186	192	162	185	207	179	202
889:	201	222	207	215	242	208	195	216
897:	223	215	217	206	181	235	227	218
905:	215	221	224	224	208	235	246	229
913:	204	235	199	203	245	223	196	222
921:	200	263	251	229	227	234	254	240
929:	205	247	235	231	242	249	237	211
937:	243	244	240	260	257	244	248	257
945:	241	254	255	257	252	267	243	249
953:	233	233	237	243	260	247	231	239
961:	248	221	206	217	209	218	178	209
969:	218	204	214	183	188	185	179	205
977:	184	184	190	176	168	180	196	181
985:	183	188	171	171	174	181	175	197
993:	195	161	180	164	181	164	159	169
1001:	183	173	201	185	170	161	194	174
1009:	171	146	164	167	172	163	160	195
1017:	177	160	178	193	173	172	155	183
1025:	174	164	170	166	152	185	150	149
1033:	160	167	171	157	154	161	161	187
1041:	143	145	167	169	168	158	165	175
1049:	155	175	156	161	157	160	139	161
1057:	166	159	164	150	160	140	174	163
1065:	154	157	174	159	172	169	192	151
1073:	156	152	151	170	182	153	161	182
1081:	165	155	176	157	156	179	165	149
1089:	157	151	165	137	174	158	165	181
1097:	165	159	161	174	178	154	164	167
1105:	146	132	182	184	169	155	172	176
1113:	148	150	156	145	141	145	125	131
1121:	117	103	108	118	111	90	97	97
1129:	94	102	110	91	96	96	108	101
1137:	104	88	89	84	94	104	105	74
1145:	89	105	84	90	94	94	84	93
1153:	103	84	111	87	88	78	107	89
1161:	87	86	93	86	76	96	85	83
1169:	133	544	2177	4153	3699	1476	286	84
1177:	66	77	78	73	75	59	62	75
1185:	57	60	65	60	64	75	56	63
1193:	49	61	54	63	58	65	57	55
1201:	49	41	53	54	43	56	42	43
1209:	31	37	29	42	46	38	37	45
1217:	46	41	35	41	37	40	36	39
1225:	36	41	26	21	23	36	34	30

1233:	38	39	33	33	36	23	38	19

Sample Title: GAS-1402

Channel								
1241:	26	22	28	25	33	27	23	22
1249:	32	24	24	30	22	19	31	23
1257:	31	20	20	23	24	18	17	21
1265:	35	20	20	28	21	20	23	22
1273:	20	22	18	12	14	17	16	14
1281:	20	18	25	18	15	20	24	18
1289:	23	17	23	27	28	23	15	11
1297:	22	19	17	22	20	19	21	24
1305:	19	24	16	21	13	18	15	18
1313:	12	12	26	18	23	22	24	19
1321:	27	22	22	26	19	23	26	68
1329:	355	1330	3342	3606	1804	427	49	11
1337:	17	16	12	8	6	8	14	12
1345:	11	7	12	9	7	9	3	9
1353:	5	7	11	4	9	4	6	5
1361:	3	7	5	6	13	12	6	7
1369:	10	10	8	4	7	6	3	6
1377:	10	7	6	6	4	7	8	3
1385:	9	10	2	12	5	6	6	2
1393:	9	4	9	5	5	6	7	4
1401:	8	6	1	9	7	7	9	4
1409:	7	9	8	7	8	6	5	5
1417:	10	8	3	3	6	9	7	3
1425:	10	3	10	10	4	4	5	6
1433:	6	4	2	4	5	5	6	10
1441:	11	3	6	11	4	3	9	5
1449:	8	2	5	5	6	7	7	4
1457:	4	6	7	8	10	2	3	8
1465:	6	8	9	4	2	8	4	6
1473:	3	6	5	4	1	7	6	6
1481:	8	5	11	8	6	7	4	4
1489:	6	6	2	1	1	3	7	3
1497:	9	2	8	3	4	6	5	5
1505:	5	1	7	13	6	4	6	4
1513:	8	4	3	5	2	4	8	9
1521:	4	4	7	4	4	3	5	8
1529:	5	7	8	9	7	3	5	9
1537:	4	9	2	3	4	9	8	3
1545:	4	2	2	4	6	6	7	3
1553:	2	4	8	5	3	5	2	4
1561:	5	9	6	10	6	5	3	5
1569:	3	1	5	11	5	3	2	3
1577:	4	4	4	3	8	4	5	5
1585:	10	7	3	4	3	4	8	5
1593:	4	10	4	8	4	4	8	7
1601:	7	4	4	6	3	5	2	3
1609:	5	3	3	5	3	2	6	2
1617:	2	4	2	4	7	4	8	4
1625:	5	3	2	3	3	4	6	4
1633:	4	3	1	5	4	6	4	5
1641:	5	2	4	6	3	3	5	4
1649:	4	4	1	4	4	2	2	1
1657:	6	3	4	1	4	4	4	2

1665:	3	5	3	3	6	4	10	2

Sample Title: GAS-1402

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

2097:	1	1	1	5	4	2	3	3

Sample Title: GAS-1402

Channel								
2105:	2	2	4	4	2	1	0	2
2113:	4	0	5	2	3	1	1	1
2121:	1	1	4	2	1	2	1	1
2129:	0	2	2	1	2	2	3	2
2137:	2	2	2	2	1	3	1	2
2145:	2	0	3	5	2	2	2	5
2153:	6	5	4	1	1	1	1	1
2161:	1	3	2	0	4	2	1	2
2169:	2	3	1	1	2	3	4	4
2177:	1	2	7	3	2	3	3	0
2185:	3	4	2	0	2	1	0	3
2193:	1	3	2	4	2	2	1	1
2201:	4	4	3	5	1	4	0	2
2209:	2	1	2	3	1	3	2	0
2217:	0	1	0	1	2	0	1	2
2225:	4	3	2	2	5	3	1	3
2233:	3	0	2	0	1	0	1	1
2241:	3	3	2	0	2	5	2	2
2249:	5	1	2	1	3	1	3	0
2257:	0	2	3	0	5	1	3	4
2265:	3	1	1	0	3	1	3	1
2273:	1	0	2	2	2	3	3	3
2281:	4	2	2	2	1	4	3	1
2289:	4	2	2	2	2	1	4	0
2297:	1	1	2	4	1	2	2	0
2305:	2	2	2	1	3	1	0	2
2313:	1	1	1	0	0	0	1	2
2321:	2	0	2	0	0	2	1	0
2329:	1	4	0	0	2	3	2	1
2337:	0	2	1	2	2	1	1	1
2345:	1	0	2	0	3	2	1	2
2353:	1	1	0	0	2	0	2	0
2361:	0	2	0	2	1	3	1	1
2369:	0	0	2	2	0	0	1	2
2377:	0	2	2	0	0	0	0	1
2385:	1	1	0	1	1	0	0	0
2393:	0	1	1	0	1	0	0	1
2401:	0	2	0	2	0	0	0	0
2409:	2	1	0	1	0	1	1	1
2417:	0	1	0	2	0	0	0	0
2425:	0	0	1	1	0	2	0	1
2433:	0	0	0	0	0	1	0	1
2441:	0	0	2	0	0	0	1	1
2449:	1	1	1	0	0	0	0	1
2457:	0	0	1	0	0	0	0	2
2465:	0	1	0	0	0	0	1	0
2473:	0	0	0	0	0	1	1	0
2481:	2	0	0	0	0	1	1	1
2489:	0	0	0	0	0	1	0	0
2497:	0	0	3	1	0	4	8	24
2505:	18	11	5	2	0	0	0	0
2513:	0	1	0	0	0	0	0	0
2521:	0	0	0	0	0	1	0	0

2529:	0	1	0	1	0	0	1	0

Sample Title: GAS-1402

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

2961:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

Channel								
2969:	0	0	1	0	0	0	0	0
2977:	0	0	0	0	1	1	0	0
2985:	0	0	0	0	0	1	0	0
2993:	1	0	0	0	0	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	0	0	1	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	0	0	0
3041:	0	0	0	0	0	0	0	0
3049:	0	0	0	0	0	0	0	0
3057:	0	0	0	0	0	0	0	0
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	0
3089:	0	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	0	0	0	0	0	0	0
3121:	1	0	0	0	0	0	0	0
3129:	0	0	0	0	0	0	0	1
3137:	0	0	0	0	0	0	0	0
3145:	0	0	0	0	0	0	0	0
3153:	0	0	0	0	0	0	0	0
3161:	0	0	0	0	0	0	0	0
3169:	0	0	0	0	0	0	0	0
3177:	1	0	0	0	0	0	0	0
3185:	0	0	0	0	0	0	0	0
3193:	0	0	0	0	0	0	0	0
3201:	0	0	0	0	0	0	0	0
3209:	0	0	2	0	0	0	0	0
3217:	0	0	0	0	0	0	0	0
3225:	0	0	0	1	0	0	0	0
3233:	0	0	0	0	0	0	0	0
3241:	0	0	0	0	0	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	1	0	0
3265:	0	0	1	0	0	0	0	0
3273:	0	0	0	0	0	0	0	0
3281:	0	0	0	1	1	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	0	0	0	0
3313:	0	0	0	0	0	1	0	0
3321:	0	0	0	0	0	0	0	0
3329:	0	0	0	0	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	0
3353:	0	0	0	0	0	0	0	0
3361:	0	0	0	0	0	0	0	0
3369:	0	0	0	0	0	0	0	0
3377:	0	0	0	0	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	0	0	0	0	0	0

Sample Title: GAS-1402

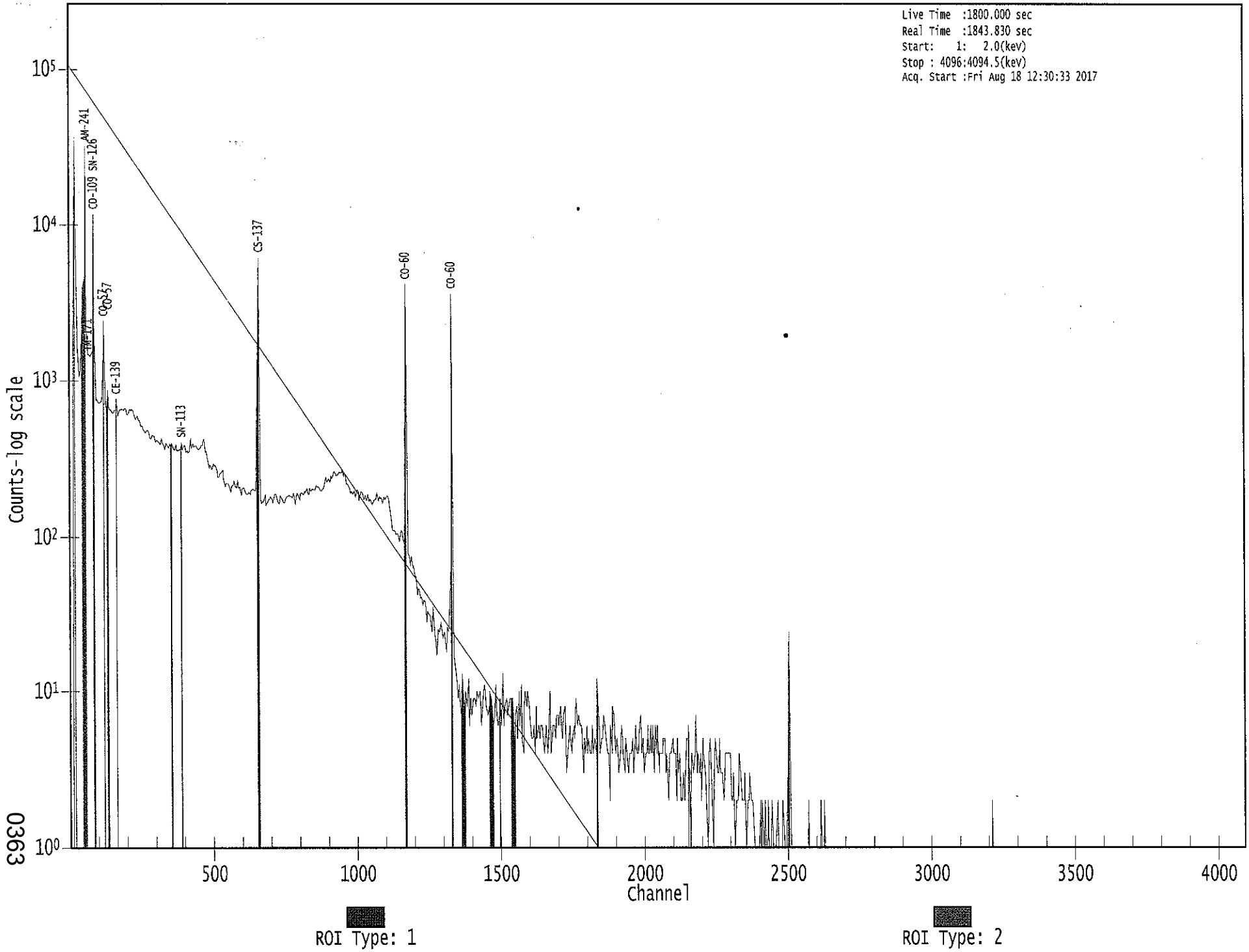
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	1	0	0	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	1	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0
3505:	0	0	0	0	0	0	0	0
3513:	0	0	0	0	0	1	0	0
3521:	0	0	0	0	0	0	1	0
3529:	0	0	0	0	0	0	0	0
3537:	0	0	0	0	0	0	0	1
3545:	0	0	0	0	0	1	0	1
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	1
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	0	0	0	0	0	0
3601:	0	0	1	1	0	0	0	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	0	0	1	0	0	0	0	0
3633:	0	0	0	0	0	0	0	0
3641:	0	0	0	0	0	0	0	0
3649:	0	0	0	0	0	0	1	0
3657:	0	0	0	0	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	1	0	0	0
3681:	0	0	0	0	0	0	0	1
3689:	1	0	0	0	0	0	0	0
3697:	0	0	0	0	0	0	0	0
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	1	0	0	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	0
3753:	0	0	0	0	0	0	0	0
3761:	0	0	0	0	0	0	0	0
3769:	0	0	0	0	0	0	1	0
3777:	0	0	0	0	0	0	0	0
3785:	0	0	0	0	0	0	0	0
3793:	0	0	0	0	1	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	1	0	0	0
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	1
3873:	0	0	0	0	0	0	1	0
3881:	0	0	0	0	0	1	0	0
3889:	0	0	0	0	1	0	0	0
3897:	0	0	0	0	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	1	0	0	1	0	0
3969:	0	0	0	0	0	0	0	1
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	0	0	0	1	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	1	0	0
4025:	0	0	0	0	0	0	0	0
4033:	0	0	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	1
4089:	0	0	0	0	0	0	0	0

0000055515.CNF



0363

KB 9/13/17

Apex-Gamma

Analysis Report for 1707084-02
BLANK

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-02
Sample Description	: BLANK
Sample Type	: SOIL
Sample Size	: 7.834E+02 grams
Facility	: Countroom
Sample Taken On	: 8/18/2017 9:03:23AM
Acquisition Started	: 8/18/2017 1:08:11PM
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	: 55517

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-02

BLANK

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 2:08:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	151.06	150.14	0.0000	0.00
2	345.84	344.99	0.0000	0.00
3	352.85	351.99	0.0000	0.00
4	510.80	510.01	0.0000	0.00
5	556.59	555.81	0.0000	0.00
6	581.88	581.11	0.0000	0.00
7	675.33	674.60	0.0000	0.00
8	994.78	994.18	0.0000	0.00
9	1073.38	1072.82	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-02

BLANK

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 2:08:13PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	151.06	148 -	153	150.14	1.94E+01	21.77	8.12E+01	2.89
M	2	345.84	342 -	360	344.99	1.56E+01	15.07	3.10E+01	3.20
m	3	352.85	342 -	360	351.99	1.77E+01	21.98	5.53E+01	3.20
	4	510.80	506 -	516	510.01	5.82E+01	22.97	4.16E+01	2.30
	5	556.59	554 -	559	555.81	7.23E+00	8.89	1.15E+01	1.42
	6	581.88	577 -	585	581.11	1.77E+01	13.60	1.65E+01	2.90
	7	675.33	669 -	677	674.60	9.95E+00	12.53	1.81E+01	2.01
	8	994.78	992 -	996	994.18	4.50E+00	6.36	5.00E+00	2.49
	9	1073.38	1069 -	1077	1072.82	1.10E+01	6.63	0.00E+00	4.65

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 2:08:13PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	151.06	148 -	153	1.94E+01	21.77	8.12E+01	1.64E+01
M	2	345.84	342 -	360	1.56E+01	15.07	3.10E+01	9.15E+00
m	3	352.85	342 -	360	1.77E+01	21.98	5.53E+01	1.22E+01
	4	510.80	506 -	516	5.82E+01	22.97	4.16E+01	1.41E+01
	5	556.59	554 -	559	7.23E+00	8.89	1.15E+01	5.82E+00
	6	581.88	577 -	585	1.77E+01	13.60	1.65E+01	8.78E+00

Analysis Report for 1707084-02

BLANK

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
7	675.33	669 -	677	9.95E+00	12.53	1.81E+01	8.90E+00
8	994.78	992 -	996	4.50E+00	6.36	5.00E+00	3.90E+00
9	1073.38	1069 -	1077	1.10E+01	6.63	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 : 8/18/2017 2:08:13PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	151.06	148 -	153	150.14	1.94E+01	21.77	8.12E+01	.....
M	2	345.84	342 -	360	344.99	1.56E+01	15.07	3.10E+01	HF-181
m	3	352.85	342 -	360	351.99	1.77E+01	21.98	5.53E+01	PB-214
	4	510.80	506 -	516	510.01	5.82E+01	22.97	4.16E+01	.....
	5	556.59	554 -	559	555.81	7.23E+00	8.89	1.15E+01	.....
	6	581.88	577 -	585	581.11	1.77E+01	13.60	1.65E+01	.....
	7	675.33	669 -	677	674.60	9.95E+00	12.53	1.81E+01	.....
	8	994.78	992 -	996	994.18	4.50E+00	6.36	5.00E+00	.....
	9	1073.38	1069 -	1077	1072.82	1.10E+01	6.63	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 1707084-02

BLANK

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/18/2017 2:08:13PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	151.06	1.94E+01	21.77	1.97E-02	1.55E-03
M	2	345.84	1.56E+01	15.07	9.38E-03	8.07E-04
m	3	352.85	1.77E+01	21.98	9.19E-03	7.92E-04
	4	510.80	5.82E+01	22.97	6.28E-03	6.61E-04
	5	556.59	7.23E+00	8.89	5.77E-03	6.42E-04
	6	581.88	1.77E+01	13.60	5.52E-03	6.32E-04
	7	675.33	9.95E+00	12.53	4.77E-03	5.82E-04
	8	994.78	4.50E+00	6.36	3.35E-03	2.79E-04
	9	1073.38	1.10E+01	6.63	3.13E-03	2.61E-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 : 8/18/2017 2:08:13PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	151.06	1.94E+01	21.77			1.94E+01	2.18E+01
M	2	345.84	1.56E+01	15.07			1.56E+01	1.51E+01
m	3	352.85	1.77E+01	21.98			1.77E+01	2.20E+01
	4	510.80	5.82E+01	22.97	3.93E+01	5.03E+00	1.89E+01	2.35E+01
	5	556.59	7.23E+00	8.89			7.23E+00	8.89E+00
	6	581.88	1.77E+01	13.60			1.77E+01	1.36E+01
	7	675.33	9.95E+00	12.53			9.95E+00	1.25E+01
	8	994.78	4.50E+00	6.36			4.50E+00	6.36E+00
	9	1073.38	1.10E+01	6.63			1.10E+01	6.63E+00

Analysis Report for 1707084-02

BLANK

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 : 8/18/2017 2:08:13PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.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	151.06	1.94E+01	21.77			1.94E+01	2.18E+01
M	2	345.84	1.56E+01	15.07			1.56E+01	1.51E+01
m	3	352.85	1.77E+01	21.98			1.77E+01	2.20E+01
	4	510.80	5.82E+01	22.97	3.93E+01	5.03E+00	1.89E+01	2.35E+01
	5	556.59	7.23E+00	8.89			7.23E+00	8.89E+00
	6	581.88	1.77E+01	13.60			1.77E+01	1.36E+01
	7	675.33	9.95E+00	12.53			9.95E+00	1.25E+01
	8	994.78	4.50E+00	6.36			4.50E+00	6.36E+00
	9	1073.38	1.10E+01	6.63			1.10E+01	6.63E+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 1707084-02

BLANK

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.336	295.21		19.19		
		351.92	*	37.19	4.95E-02	6.18E-02

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 2:08:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	151.06	5.38889E-03	56.11		
M	2	345.84	4.32382E-03	48.40	Tol.	HF-181
	4	510.80	5.25809E-03	62.12		
	5	556.59	2.00855E-03	61.46		
	6	581.88	4.92521E-03	38.36		
	7	675.33	2.76316E-03	62.98		
	8	994.78	1.25000E-03	70.71		
	9	1073.38	3.05556E-03	30.15		

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 1707084-02

BLANK

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	0.33	295.21		19.19		
		351.92	*	37.19	4.95E-02	6.18E-02

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

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
PB-214	0.336	4.95E-02	6.18E-02	

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

Errors quoted at 2.000sigma

Analysis Report for 1707084-02

BLANK

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 2:08:13PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	151.06	5.38889E-03	56.11		
M	2	345.84	4.32382E-03	48.40	Tol.	HF-181
	4	510.80	5.25809E-03	62.12		
	5	556.59	2.00855E-03	61.46		
	6	581.88	4.92521E-03	38.36		
	7	675.33	2.76316E-03	62.98		
	8	994.78	1.25000E-03	70.71		
	9	1073.38	3.05556E-03	30.15		

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	-4.31E-02	3.29E-01	3.29E-01
+	NA-22	1274.54	99.94	5.94E-03	5.02E-02	5.02E-02
+	NA-24	1368.53	99.99	-4.68E-03	2.70E-02	6.14E-02
		2754.09	99.86	0.00E+00		2.70E-02
+	AL-26	1808.65	99.76	2.16E-02	6.95E-02	6.95E-02
+	K-40	1460.81	10.67	-1.32E-01	4.52E-01	4.52E-01
+	AR-41	1293.64	99.16	-3.20E-02	2.21E-01	2.21E-01
+	TI-44	67.88	94.40	-2.17E-02	2.05E-02	2.28E-02
		78.34	96.00	6.09E-04		2.05E-02

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SC-46	889.25	99.98	1.18E-02	5.53E-02	5.53E-02
		1120.51	99.99	3.82E-02		6.60E-02
+	V-48	983.52	99.98	1.78E-02	5.57E-02	5.57E-02
		1312.10	97.50	2.20E-03		5.99E-02
+	CR-51	320.08	9.83	-1.45E-02	2.72E-01	2.72E-01
+	MN-54	834.83	99.97	2.66E-02	5.07E-02	5.07E-02
+	CO-56	846.75	99.96	2.60E-02	5.97E-02	5.97E-02
		1037.75	14.03	-1.26E-01		3.70E-01
		1238.25	67.00	-3.42E-02		6.80E-02
		1771.40	15.51	1.50E-01		4.93E-01
		2598.48	16.90	0.00E+00		4.09E-01
+	CO-57	122.06	85.51	2.06E-02	2.39E-02	2.39E-02
		136.48	10.60	7.99E-02		1.83E-01
+	CO-58	810.76	99.40	-2.22E-02	3.81E-02	3.81E-02
+	FE-59	1099.22	56.50	2.52E-02	1.01E-01	1.01E-01
		1291.56	43.20	1.67E-02		1.10E-01
+	CO-60	1173.22	100.00	-4.78E-03	3.56E-02	3.56E-02
		1332.49	100.00	-1.85E-02		4.45E-02
+	ZN-65	1115.52	50.75	-3.12E-02	9.91E-02	9.91E-02
+	GA-67	93.31	35.70	6.80E-02	6.54E-02	6.54E-02
		208.95	2.24	-1.72E-01		1.01E+00
		300.22	16.00	-3.27E-02		1.74E-01
+	SE-75	121.11	16.70	3.11E-02	3.22E-02	1.19E-01
		136.00	59.20	4.92E-03		3.22E-02
		264.65	59.80	3.27E-03		4.89E-02
		279.53	25.20	-1.91E-02		1.14E-01
		400.65	11.40	-4.18E-02		2.29E-01
+	RB-82	776.52	13.00	-9.65E-02	3.08E-01	3.08E-01
+	RB-83	520.41	46.00	-5.79E-03	7.78E-02	7.78E-02
		529.64	30.30	2.61E-03		1.17E-01
		552.65	16.40	1.59E-02		2.26E-01
+	KR-85	513.99	0.43	3.61E+00	1.25E+01	1.25E+01
+	SR-85	513.99	99.27	1.58E-02	5.46E-02	5.46E-02
+	Y-88	898.02	93.40	2.33E-02	5.81E-02	5.81E-02
		1836.01	99.38	-1.00E-02		6.03E-02
+	MO-93	263.06	56.72	-2.44E-02	4.69E-02	5.00E-02
		684.67	99.68	3.42E-02		4.69E-02
		1477.11	99.08	-7.37E-03		5.37E-02
+	NB-93M	16.57	9.43	5.12E+00	3.98E+00	3.98E+00
+	NB-94	702.63	100.00	-8.20E-03	4.61E-02	5.96E-02
		871.10	100.00	-1.14E-02		4.61E-02
+	NB-95	765.79	99.81	-2.75E-02	2.98E-02	2.98E-02
+	NB-95M	235.69	25.00	1.52E-02	1.09E-01	1.09E-01
+	ZR-95	724.18	43.70	6.55E-02	8.15E-02	1.16E-01
		756.72	55.30	2.98E-02		8.15E-02
+	MO-99	181.06	6.20	-1.20E-01	3.69E-01	3.69E-01
		739.58	12.80	3.11E-02		3.72E-01
		778.00	4.50	1.60E-01		1.01E+00

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RU-103	497.08	89.00	2.02E-03	3.84E-02	3.84E-02
+	RU-106	621.84	9.80	1.40E-01	4.25E-01	4.25E-01
+	AG-108M	433.93	89.90	-8.90E-03	3.38E-02	3.38E-02
		614.37	90.40	-9.78E-03		4.77E-02
		722.95	90.50	1.30E-02		5.44E-02
+	CD-109	88.03	3.72	-1.17E+00	4.41E-01	4.41E-01
+	AG-110M	657.75	93.14	1.38E-02	4.72E-02	4.72E-02
		677.61	10.53	-1.08E-01		4.08E-01
		706.67	16.46	6.04E-02		3.65E-01
		763.93	21.98	-9.75E-02		1.35E-01
		884.67	71.63	2.32E-03		7.25E-02
		1384.27	23.94	9.94E-02		2.54E-01
+	CD-113M	263.70	0.02	-4.07E+01	1.22E+02	1.22E+02
+	SN-113	255.12	1.93	-8.94E-01	4.31E-02	1.22E+00
		391.69	64.90	-4.44E-03		4.31E-02
+	TE123M	159.00	84.10	8.44E-03	2.67E-02	2.67E-02
+	SB-124	602.71	97.87	-1.45E-02	3.82E-02	3.82E-02
		645.85	7.26	2.47E-01		6.38E-01
		722.78	11.10	1.06E-01		4.44E-01
		1691.02	49.00	1.57E-02		1.13E-01
+	I-125	35.49	6.49	9.91E-02	6.18E-01	6.18E-01
+	SB-125	176.33	6.89	-1.48E-01	1.06E-01	2.93E-01
		427.89	29.33	-5.29E-02		1.06E-01
		463.38	10.35	-4.10E-02		3.21E-01
		600.56	17.80	-6.76E-02		2.03E-01
		635.90	11.32	1.33E-01		3.76E-01
+	SB-126	414.70	83.30	-4.54E-03	3.92E-02	4.15E-02
		666.33	99.60	-9.32E-03		3.92E-02
		695.00	99.60	-2.09E-02		5.44E-02
		720.50	53.80	-3.03E-02		8.31E-02
+	SN-126	87.57	37.00	-1.18E-01	4.43E-02	4.43E-02
+	SB-127	473.00	25.00	1.46E-02	1.36E-01	1.37E-01
		685.20	35.70	9.89E-02		1.36E-01
		783.80	14.70	-1.53E-01		2.83E-01
+	I-129	29.78	57.00	-1.53E-02	1.10E-01	1.10E-01
		33.60	13.20	2.09E-01		3.66E-01
		39.58	7.52	-1.64E-04		4.47E-01
+	I-131	284.30	6.05	1.22E-01	3.92E-02	4.82E-01
		364.48	81.20	2.49E-03		3.92E-02
		636.97	7.26	2.55E-01		5.96E-01
		722.89	1.80	6.65E-01		2.78E+00
+	TE-132	49.72	13.10	-1.67E-01	2.93E-02	2.08E-01
		228.16	88.00	-7.32E-04		2.93E-02
+	BA-133	81.00	33.00	1.42E-02	5.57E-02	5.81E-02
		302.84	17.80	3.26E-02		1.57E-01
		356.01	60.00	-2.01E-02		5.57E-02
+	I-133	529.87	86.30	1.07E-03	4.79E-02	4.79E-02
+	XE-133	81.00	38.00	1.26E-02	5.18E-02	5.18E-02

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CS-134	563.23	8.38	1.45E-01	4.25E-02	4.61E-01
		569.32	15.43	-1.83E-01		2.59E-01
		604.70	97.60	-2.92E-04		4.25E-02
		795.84	85.40	1.35E-02		5.16E-02
		801.93	8.73	4.22E-03		5.76E-01
+	CS-135	268.24	16.00	4.50E-02	1.76E-01	1.76E-01
+	I-135	1131.51	22.50	-6.91E-02	2.48E-01	2.48E-01
		1260.41	28.60	2.56E-02		2.99E-01
		1678.03	9.54	-5.16E-02		5.69E-01
+	CS-136	153.22	7.46	8.22E-03	4.58E-02	2.88E-01
		163.89	4.61	-4.17E-02		4.84E-01
		176.55	13.56	4.32E-02		1.60E-01
		273.65	12.66	-7.96E-03		2.20E-01
		340.57	48.50	1.26E-02		5.53E-02
		818.50	99.70	1.22E-03		4.58E-02
		1048.07	79.60	6.09E-03		6.63E-02
		1235.34	19.70	-1.48E-02		2.50E-01
+	CS-137	661.65	85.12	1.95E-02	5.32E-02	5.32E-02
+	LA-138	788.74	34.00	6.83E-03	7.20E-02	1.19E-01
		1435.80	66.00	5.99E-03		7.20E-02
+	CE-139	165.85	80.35	-1.33E-02	2.63E-02	2.63E-02
+	BA-140	162.64	6.70	1.73E-02	1.49E-01	3.32E-01
		304.84	4.50	-3.71E-01		6.09E-01
		423.70	3.20	1.53E-03		1.05E+00
		437.55	2.00	-3.95E-02		1.55E+00
		537.32	25.00	-5.34E-02		1.49E-01
+	LA-140	328.77	20.50	5.49E-02	4.28E-02	1.59E-01
		487.03	45.50	0.00E+00		8.07E-02
		815.85	23.50	4.17E-02		1.87E-01
		1596.49	95.49	9.22E-03		4.28E-02
+	CE-141	145.44	48.40	1.77E-02	4.07E-02	4.07E-02
+	CE-143	57.36	11.80	7.52E-03	7.83E-02	2.07E-01
		293.26	42.00	2.10E-02		7.83E-02
		664.55	5.20	3.77E-01		9.39E-01
+	CE-144	133.54	10.80	-9.26E-02	1.60E-01	1.60E-01
+	PM-144	476.78	42.00	-2.69E-02	4.30E-02	7.60E-02
		618.01	98.60	-1.13E-03		4.30E-02
		696.49	99.49	1.62E-03		6.03E-02
+	PM-145	36.85	21.70	2.86E-03	9.08E-02	1.70E-01
		37.36	39.70	1.53E-03		9.08E-02
		42.30	15.10	-2.50E-01		1.97E-01
		72.40	2.31	1.29E-01		8.92E-01
+	PM-146	453.90	39.94	-2.74E-02	8.47E-02	8.47E-02
		735.90	14.01	1.24E-01		3.22E-01
		747.13	13.10	2.11E-01		3.88E-01
+	ND-147	91.11	28.90	8.29E-02	7.70E-02	7.70E-02
		531.02	13.10	7.66E-02		3.01E-01
+	PM-149	285.90	3.10	-3.60E-01	9.26E-01	9.26E-01
+	EU-152	121.78	20.50	8.56E-02	9.95E-02	9.95E-02

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	244.69	5.40	-7.24E-03	9.95E-02	4.67E-01
		344.27	19.13	8.63E-03		1.65E-01
		778.89	9.20	-4.54E-02		4.53E-01
		964.01	10.40	0.00E+00		4.46E-01
		1085.78	7.22	-2.36E-01		6.80E-01
		1112.02	9.60	-6.58E-02		4.94E-01
		1407.95	14.94	-9.98E-02		3.13E-01
+	GD-153	97.43	31.30	-3.45E-02	5.93E-02	5.93E-02
		103.18	22.20	-6.83E-03		7.40E-02
+	EU-154	123.07	40.50	3.20E-02	4.95E-02	4.95E-02
		723.30	19.70	1.45E-01		2.56E-01
		873.19	11.50	-2.11E-02		3.86E-01
		996.32	10.30	-6.96E-02		4.64E-01
		1004.76	17.90	1.84E-01		3.62E-01
		1274.45	35.50	1.67E-02		1.41E-01
+	EU-155	86.50	30.90	-6.37E-02	5.46E-02	5.46E-02
		105.30	20.70	-3.18E-02		8.14E-02
+	EU-156	811.77	10.40	-1.85E-01	3.67E-01	3.67E-01
		1153.47	7.20	-1.65E-01		6.86E-01
		1230.71	8.90	0.00E+00		5.87E-01
+	HO-166M	184.41	72.60	7.14E-03	3.25E-02	3.25E-02
		280.45	29.60	-3.35E-02		9.36E-02
		410.94	11.10	2.89E-02		3.19E-01
		711.69	54.10	3.08E-02		1.03E-01
+	TM-171	66.72	0.14	1.98E+00	1.70E+01	1.70E+01
+	HF-172	67.35	5.31	5.19E-02	1.61E-01	4.46E-01
		125.81	11.30	-2.36E-02		1.61E-01
+	LU-172	181.53	20.60	-2.81E-02	9.90E-02	1.11E-01
		900.72	29.81	2.45E-03		1.63E-01
		1093.66	62.50	4.22E-02		9.90E-02
+	LU-173	100.72	5.24	-1.59E-02	1.25E-01	3.14E-01
		272.11	21.20	-7.99E-02		1.25E-01
+	HF-175	343.40	84.00	1.96E-03	3.75E-02	3.75E-02
+	LU-176	88.34	13.30	-3.28E-01	2.56E-02	1.23E-01
		201.83	86.00	-1.53E-02		2.56E-02
		306.78	94.00	1.34E-02		3.29E-02
+	HF-181	133.02	41.70	-1.66E-02	4.19E-02	4.21E-02
		345.85	17.20	3.00E-02		1.80E-01
		482.03	82.80	-1.43E-02		4.19E-02
+	TA-182	67.75	41.20	-4.98E-02	5.24E-02	5.24E-02
		1121.30	34.90	1.10E-01		1.89E-01
		1189.05	16.23	1.45E-01		4.02E-01
		1221.41	26.98	1.70E-02		2.12E-01
		1231.02	11.44	1.69E-01		4.79E-01
+	IR-192	308.46	29.68	1.52E-02	6.68E-02	1.04E-01
		468.07	48.10	-1.15E-02		6.68E-02
+	HG-203	279.19	77.30	1.15E-02	3.83E-02	3.83E-02
+	TL-204	374.74	94.11	-3.99E-03	3.06E-02	3.06E-02
		899.15	99.16	1.25E-02		5.14E-02

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TL-204	911.74		91.10	1.09E-03	3.06E-02	5.48E-02
+	BI-207	569.67		97.72	-2.90E-02	4.09E-02	4.09E-02
		1063.62		74.90	3.74E-02		7.36E-02
+	TL-208	583.14		30.22	4.62E-02	1.38E-01	1.38E-01
		860.37		4.48	0.00E+00		9.78E-01
		2614.66		35.85	2.09E-02		1.54E-01
+	BI-210M	262.00		45.00	5.87E-04	6.49E-02	6.49E-02
		300.00		23.00	-2.18E-02		1.16E-01
+	PB-210	46.50		4.25	4.44E-02	6.94E-01	6.94E-01
+	PB-211	404.84		2.90	-3.06E-02	1.04E+00	1.04E+00
		831.96		2.90	8.35E-01		1.69E+00
+	BI-212	727.17		11.80	-1.49E-01	3.89E-01	3.89E-01
		1620.62		2.75	1.29E-01		2.11E+00
+	PB-212	238.63		44.60	2.20E-02	6.03E-02	6.03E-02
		300.09		3.41	-1.47E-01		7.83E-01
+	BI-214	609.31		46.30	3.90E-02	1.07E-01	1.07E-01
		1120.29		15.10	2.53E-01		4.36E-01
		1764.49		15.80	-1.52E-01		2.23E-01
		2204.22		4.98	2.33E-01		1.46E+00
+	PB-214	295.21		19.19	-1.05E-02	1.52E-01	1.52E-01
		351.92	*	37.19	4.95E-02		1.61E-01
+	RN-219	401.80		6.50	-5.50E-02	4.12E-01	4.12E-01
+	RA-223	323.87		3.88	6.33E-02	8.08E-01	8.08E-01
+	RA-224	240.98		3.95	-1.40E-01	6.59E-01	6.59E-01
+	RA-225	40.00		31.00	-3.96E-05	1.08E-01	1.08E-01
+	RA-226	186.21		3.28	2.19E-01	7.19E-01	7.19E-01
+	TH-227	50.10		8.40	-2.48E-01	2.28E-01	3.08E-01
		236.00		11.50	3.19E-02		2.28E-01
		256.20		6.30	-2.52E-01		3.94E-01
+	AC-228	338.32		11.40	3.75E-02	1.67E-01	2.39E-01
		911.07		27.70	-6.21E-02		1.67E-01
		969.11		16.60	5.48E-02		2.67E-01
+	TH-230	48.44		16.90	7.20E-02	1.73E-01	1.73E-01
		62.85		4.60	4.37E-01		5.63E-01
		67.67		0.37	-5.55E+00		5.83E+00
+	PA-231	283.67		1.60	4.52E-01	1.22E+00	1.79E+00
		302.67		2.30	2.52E-01		1.22E+00
+	TH-231	25.64		14.70	-1.37E-01	2.86E-01	6.62E-01
		84.21		6.40	7.04E-02		2.86E-01
+	PA-233	311.98		38.60	3.53E-02	8.03E-02	8.03E-02
+	PA-234	131.20		20.40	5.41E-04	8.58E-02	8.58E-02
		733.99		8.80	-1.23E-02		4.81E-01
		946.00		12.00	1.01E-01		3.43E-01
+	PA-234M	1001.03		0.92	-3.72E+00	5.22E+00	5.22E+00
+	TH-234	63.29		3.80	5.26E-01	6.79E-01	6.79E-01
+	U-235	143.76		10.50	1.32E-01	1.94E-01	1.94E-01
		163.35		4.70	2.44E-02		4.69E-01
		205.31		4.70	-1.30E-01		4.57E-01

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	12.60	-1.56E-01	1.34E-01	1.34E-01
+	NP-239	106.10	22.70	1.85E-02	8.19E-02	8.19E-02
		228.18	10.70	-6.12E-03		2.45E-01
		277.60	14.10	8.92E-02		2.28E-01
+	AM-241	59.54	35.90	-6.47E-02	6.34E-02	6.34E-02
+	AM-243	74.67	66.00	8.62E-03	3.09E-02	3.09E-02
+	CM-243	209.75	3.29	-1.35E-01	2.17E-01	6.72E-01
		228.14	10.60	-5.84E-03		2.33E-01
		277.60	14.00	8.49E-02		2.17E-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	3.29E-01	3.29E-01	-4.31E-02	1.46E-01
NA-22	1274.54	99.94	5.02E-02	5.02E-02	5.94E-03	2.03E-02
NA-24	1368.53	99.99	6.14E-02	2.70E-02	-4.68E-03	2.44E-02
	2754.09	99.86	2.70E-02		0.00E+00	0.00E+00
AL-26	1808.65	99.76	6.95E-02	6.95E-02	2.16E-02	2.81E-02
K-40	1460.81	10.67	4.52E-01	4.52E-01	-1.32E-01	1.75E-01
AR-41	1293.64	99.16	2.21E-01	2.21E-01	-3.20E-02	8.28E-02
TI-44	67.88	94.40	2.28E-02	2.05E-02	-2.17E-02	1.08E-02
	78.34	96.00	2.05E-02		6.09E-04	9.68E-03
SC-46	889.25	99.98	5.53E-02	5.53E-02	1.18E-02	2.42E-02
	1120.51	99.99	6.60E-02		3.82E-02	2.87E-02
V-48	983.52	99.98	5.57E-02	5.57E-02	1.78E-02	2.40E-02
	1312.10	97.50	5.99E-02		2.20E-03	2.48E-02
CR-51	320.08	9.83	2.72E-01	2.72E-01	-1.45E-02	1.23E-01

Analysis Report for 1707084-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
MN-54	834.83	99.97	5.07E-02	5.07E-02	2.66E-02	2.21E-02
CO-56	846.75	99.96	5.97E-02	5.97E-02	2.60E-02	2.65E-02
	1037.75	14.03	3.70E-01		-1.26E-01	1.56E-01
	1238.25	67.00	6.80E-02		-3.42E-02	2.70E-02
	1771.40	15.51	4.93E-01		1.50E-01	2.05E-01
	2598.48	16.90	4.09E-01		0.00E+00	1.45E-01
CO-57	122.06	85.51	2.39E-02	2.39E-02	2.06E-02	1.13E-02
	136.48	10.60	1.83E-01		7.99E-02	8.59E-02
CO-58	810.76	99.40	3.81E-02	3.81E-02	-2.22E-02	1.58E-02
FE-59	1099.22	56.50	1.01E-01	1.01E-01	2.52E-02	4.28E-02
	1291.56	43.20	1.10E-01		1.67E-02	4.35E-02
CO-60	1173.22	100.00	3.56E-02	3.56E-02	-4.78E-03	1.33E-02
	1332.49	100.00	4.45E-02		-1.85E-02	1.72E-02
ZN-65	1115.52	50.75	9.91E-02	9.91E-02	-3.12E-02	4.11E-02
GA-67	93.31	35.70	6.54E-02	6.54E-02	6.80E-02	3.11E-02
	208.95	2.24	1.01E+00		-1.72E-01	4.68E-01
	300.22	16.00	1.74E-01		-3.27E-02	7.92E-02
SE-75	121.11	16.70	1.19E-01	3.22E-02	3.11E-02	5.62E-02
	136.00	59.20	3.22E-02		4.92E-03	1.50E-02
	264.65	59.80	4.89E-02		3.27E-03	2.27E-02
	279.53	25.20	1.14E-01		-1.91E-02	5.27E-02
	400.65	11.40	2.29E-01		-4.18E-02	1.00E-01
RB-82	776.52	13.00	3.08E-01	3.08E-01	-9.65E-02	1.30E-01
RB-83	520.41	46.00	7.78E-02	7.78E-02	-5.79E-03	3.43E-02
	529.64	30.30	1.17E-01		2.61E-03	5.16E-02
	552.65	16.40	2.26E-01		1.59E-02	9.95E-02
KR-85	513.99	0.43	1.25E+01	1.25E+01	3.61E+00	5.76E+00
SR-85	513.99	99.27	5.46E-02	5.46E-02	1.58E-02	2.52E-02
Y-88	898.02	93.40	5.81E-02	5.81E-02	2.33E-02	2.52E-02
	1836.01	99.38	6.03E-02		-1.00E-02	2.34E-02
MO-93	263.06	56.72	5.00E-02	4.69E-02	-2.44E-02	2.31E-02
	684.67	99.68	4.69E-02		3.42E-02	2.07E-02
	1477.11	99.08	5.37E-02		-7.37E-03	2.13E-02
NB-93M	16.57	9.43	3.98E+00	3.98E+00	5.12E+00	1.90E+00
NB-94	702.63	100.00	5.96E-02	4.61E-02	-8.20E-03	2.70E-02
	871.10	100.00	4.61E-02		-1.14E-02	1.96E-02
NB-95	765.79	99.81	2.98E-02	2.98E-02	-2.75E-02	1.18E-02
NB-95M	235.69	25.00	1.09E-01	1.09E-01	1.52E-02	5.03E-02
ZR-95	724.18	43.70	1.16E-01	8.15E-02	6.55E-02	5.12E-02
	756.72	55.30	8.15E-02		2.98E-02	3.53E-02
MO-99	181.06	6.20	3.69E-01	3.69E-01	-1.20E-01	1.72E-01
	739.58	12.80	3.72E-01		3.11E-02	1.62E-01
	778.00	4.50	1.01E+00		1.60E-01	4.31E-01
RU-103	497.08	89.00	3.84E-02	3.84E-02	2.02E-03	1.70E-02
RU-106	621.84	9.80	4.25E-01	4.25E-01	1.40E-01	1.87E-01
AG-108M	433.93	89.90	3.38E-02	3.38E-02	-8.90E-03	1.49E-02
	614.37	90.40	4.77E-02		-9.78E-03	2.11E-02
	722.95	90.50	5.44E-02		1.30E-02	2.40E-02
CD-109	88.03	3.72	4.41E-01	4.41E-01	-1.17E+00	2.06E-01
AG-110M	657.75	93.14	4.72E-02	4.72E-02	1.38E-02	2.08E-02
	677.61	10.53	4.08E-01		-1.08E-01	1.78E-01
	706.67	16.46	3.65E-01		6.04E-02	1.65E-01
	763.93	21.98	1.35E-01		-9.75E-02	5.34E-02

Analysis Report for 1707084-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
AG-110M	884.67	71.63	7.25E-02	4.72E-02	2.32E-03	3.14E-02
	1384.27	23.94	2.54E-01		9.94E-02	1.05E-01
CD-113M	263.70	0.02	1.22E+02	1.22E+02	-4.07E+01	5.66E+01
SN-113	255.12	1.93	1.22E+00	4.31E-02	-8.94E-01	5.59E-01
	391.69	64.90	4.31E-02		-4.44E-03	1.91E-02
TE123M	159.00	84.10	2.67E-02	2.67E-02	8.44E-03	1.25E-02
SB-124	602.71	97.87	3.82E-02	3.82E-02	-1.45E-02	1.66E-02
	645.85	7.26	6.38E-01		2.47E-01	2.83E-01
	722.78	11.10	4.44E-01		1.06E-01	1.96E-01
	1691.02	49.00	1.13E-01		1.57E-02	4.38E-02
I-125	35.49	6.49	6.18E-01	6.18E-01	9.91E-02	2.91E-01
SB-125	176.33	6.89	2.93E-01	1.06E-01	-1.48E-01	1.36E-01
	427.89	29.33	1.06E-01		-5.29E-02	4.73E-02
	463.38	10.35	3.21E-01		-4.10E-02	1.42E-01
	600.56	17.80	2.03E-01		-6.76E-02	8.76E-02
	635.90	11.32	3.76E-01		1.33E-01	1.65E-01
SB-126	414.70	83.30	4.15E-02	3.92E-02	-4.54E-03	1.87E-02
	666.33	99.60	3.92E-02		-9.32E-03	1.69E-02
	695.00	99.60	5.44E-02		-2.09E-02	2.44E-02
	720.50	53.80	8.31E-02		-3.03E-02	3.61E-02
SN-126	87.57	37.00	4.43E-02	4.43E-02	-1.18E-01	2.07E-02
SB-127	473.00	25.00	1.37E-01	1.36E-01	1.46E-02	6.07E-02
	685.20	35.70	1.36E-01		9.89E-02	5.98E-02
	783.80	14.70	2.83E-01		-1.53E-01	1.20E-01
I-129	29.78	57.00	1.10E-01	1.10E-01	-1.53E-02	5.20E-02
	33.60	13.20	3.66E-01		2.09E-01	1.73E-01
	39.58	7.52	4.47E-01		-1.64E-04	2.10E-01
I-131	284.30	6.05	4.82E-01	3.92E-02	1.22E-01	2.22E-01
	364.48	81.20	3.92E-02		2.49E-03	1.78E-02
	636.97	7.26	5.96E-01		2.55E-01	2.62E-01
	722.89	1.80	2.78E+00		6.65E-01	1.23E+00
TE-132	49.72	13.10	2.08E-01	2.93E-02	-1.67E-01	9.80E-02
	228.16	88.00	2.93E-02		-7.32E-04	1.36E-02
BA-133	81.00	33.00	5.81E-02	5.57E-02	1.42E-02	2.74E-02
	302.84	17.80	1.57E-01		3.26E-02	7.18E-02
	356.01	60.00	5.57E-02		-2.01E-02	2.55E-02
I-133	529.87	86.30	4.79E-02	4.79E-02	1.07E-03	2.11E-02
XE-133	81.00	38.00	5.18E-02	5.18E-02	1.26E-02	2.44E-02
CS-134	563.23	8.38	4.61E-01	4.25E-02	1.45E-01	2.04E-01
	569.32	15.43	2.59E-01		-1.83E-01	1.15E-01
	604.70	97.60	4.25E-02		-2.92E-04	1.87E-02
	795.84	85.40	5.16E-02		1.35E-02	2.21E-02
	801.93	8.73	5.76E-01		4.22E-03	2.51E-01
CS-135	268.24	16.00	1.76E-01	1.76E-01	4.50E-02	8.12E-02
I-135	1131.51	22.50	2.48E-01	2.48E-01	-6.91E-02	9.28E-02
	1260.41	28.60	2.99E-01		2.56E-02	1.23E-01
	1678.03	9.54	5.69E-01		-5.16E-02	1.80E-01
CS-136	153.22	7.46	2.88E-01	4.58E-02	8.22E-03	1.35E-01
	163.89	4.61	4.84E-01		-4.17E-02	2.27E-01
	176.55	13.56	1.60E-01		4.32E-02	7.47E-02
	273.65	12.66	2.20E-01		-7.96E-03	1.01E-01
	340.57	48.50	5.53E-02		1.26E-02	2.48E-02
	818.50	99.70	4.58E-02		1.22E-03	1.96E-02

Analysis Report for 1707084-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	1048.07	79.60	6.63E-02	4.58E-02	6.09E-03	2.80E-02
	1235.34	19.70	2.50E-01		-1.48E-02	1.01E-01
CS-137	661.65	85.12	5.32E-02	5.32E-02	1.95E-02	2.35E-02
LA-138	788.74	34.00	1.19E-01	7.20E-02	6.83E-03	5.03E-02
	1435.80	66.00	7.20E-02		5.99E-03	2.79E-02
CE-139	165.85	80.35	2.63E-02	2.63E-02	-1.33E-02	1.23E-02
BA-140	162.64	6.70	3.32E-01	1.49E-01	1.73E-02	1.55E-01
	304.84	4.50	6.09E-01		-3.71E-01	2.77E-01
	423.70	3.20	1.05E+00		1.53E-03	4.72E-01
	437.55	2.00	1.55E+00		-3.95E-02	6.84E-01
	537.32	25.00	1.49E-01		-5.34E-02	6.58E-02
LA-140	328.77	20.50	1.59E-01	4.28E-02	5.49E-02	7.29E-02
	487.03	45.50	8.07E-02		0.00E+00	3.60E-02
	815.85	23.50	1.87E-01		4.17E-02	7.95E-02
	1596.49	95.49	4.28E-02		9.22E-03	1.52E-02
CE-141	145.44	48.40	4.07E-02	4.07E-02	1.77E-02	1.90E-02
CE-143	57.36	11.80	2.07E-01	7.83E-02	7.52E-03	9.73E-02
	293.26	42.00	7.83E-02		2.10E-02	3.61E-02
	664.55	5.20	9.39E-01		3.77E-01	4.13E-01
CE-144	133.54	10.80	1.60E-01	1.60E-01	-9.26E-02	7.43E-02
PM-144	476.78	42.00	7.60E-02	4.30E-02	-2.69E-02	3.34E-02
	618.01	98.60	4.30E-02		-1.13E-03	1.90E-02
	696.49	99.49	6.03E-02		1.62E-03	2.74E-02
PM-145	36.85	21.70	1.70E-01	9.08E-02	2.86E-03	7.99E-02
	37.36	39.70	9.08E-02		1.53E-03	4.27E-02
	42.30	15.10	1.97E-01		-2.50E-01	9.24E-02
	72.40	2.31	8.92E-01		1.29E-01	4.22E-01
PM-146	453.90	39.94	8.47E-02	8.47E-02	-2.74E-02	3.78E-02
	735.90	14.01	3.22E-01		1.24E-01	1.40E-01
	747.13	13.10	3.88E-01		2.11E-01	1.71E-01
ND-147	91.11	28.90	7.70E-02	7.70E-02	8.29E-02	3.66E-02
	531.02	13.10	3.01E-01		7.66E-02	1.34E-01
PM-149	285.90	3.10	9.26E-01	9.26E-01	-3.60E-01	4.24E-01
EU-152	121.78	20.50	9.95E-02	9.95E-02	8.56E-02	4.69E-02
	244.69	5.40	4.67E-01		-7.24E-03	2.16E-01
	344.27	19.13	1.65E-01		8.63E-03	7.52E-02
	778.89	9.20	4.53E-01		-4.54E-02	1.93E-01
	964.01	10.40	4.46E-01		0.00E+00	1.87E-01
	1085.78	7.22	6.80E-01		-2.36E-01	2.82E-01
	1112.02	9.60	4.94E-01		-6.58E-02	2.02E-01
	1407.95	14.94	3.13E-01		-9.98E-02	1.21E-01
GD-153	97.43	31.30	5.93E-02	5.93E-02	-3.45E-02	2.79E-02
	103.18	22.20	7.40E-02		-6.83E-03	3.45E-02
EU-154	123.07	40.50	4.95E-02	4.95E-02	3.20E-02	2.33E-02
	723.30	19.70	2.56E-01		1.45E-01	1.13E-01
	873.19	11.50	3.86E-01		-2.11E-02	1.63E-01
	996.32	10.30	4.64E-01		-6.96E-02	1.94E-01
	1004.76	17.90	3.62E-01		1.84E-01	1.59E-01
	1274.45	35.50	1.41E-01		1.67E-02	5.71E-02
EU-155	86.50	30.90	5.46E-02	5.46E-02	-6.37E-02	2.55E-02
	105.30	20.70	8.14E-02		-3.18E-02	3.80E-02
EU-156	811.77	10.40	3.67E-01	3.67E-01	-1.85E-01	1.52E-01
	1153.47	7.20	6.86E-01		-1.65E-01	2.81E-01

Analysis Report for 1707084-02

BLANK

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-156	1230.71		8.90	5.87E-01	3.67E-01	0.00E+00	2.41E-01
	HO-166M	184.41		72.60	3.25E-02	3.25E-02	7.14E-03	1.52E-02
		280.45		29.60	9.36E-02		-3.35E-02	4.30E-02
		410.94		11.10	3.19E-01		2.89E-02	1.45E-01
		711.69		54.10	1.03E-01		3.08E-02	4.63E-02
	TM-171	66.72		0.14	1.70E+01	1.70E+01	1.98E+00	8.07E+00
	HF-172	67.35		5.31	4.46E-01	1.61E-01	5.19E-02	2.12E-01
		125.81		11.30	1.61E-01		-2.36E-02	7.52E-02
	LU-172	181.53		20.60	1.11E-01	9.90E-02	-2.81E-02	5.20E-02
		900.72		29.81	1.63E-01		2.45E-03	6.92E-02
		1093.66		62.50	9.90E-02		4.22E-02	4.26E-02
	LU-173	100.72		5.24	3.14E-01	1.25E-01	-1.59E-02	1.46E-01
		272.11		21.20	1.25E-01		-7.99E-02	5.76E-02
	HF-175	343.40		84.00	3.75E-02	3.75E-02	1.96E-03	1.71E-02
	LU-176	88.34		13.30	1.23E-01	2.56E-02	-3.28E-01	5.75E-02
		201.83		86.00	2.56E-02		-1.53E-02	1.18E-02
		306.78		94.00	3.29E-02		1.34E-02	1.52E-02
	HF-181	133.02		41.70	4.21E-02	4.19E-02	-1.66E-02	1.96E-02
		345.85		17.20	1.80E-01		3.00E-02	8.20E-02
		482.03		82.80	4.19E-02		-1.43E-02	1.86E-02
	TA-182	67.75		41.20	5.24E-02	5.24E-02	-4.98E-02	2.48E-02
		1121.30		34.90	1.89E-01		1.10E-01	8.22E-02
		1189.05		16.23	4.02E-01		1.45E-01	1.73E-01
		1221.41		26.98	2.12E-01		1.70E-02	8.88E-02
		1231.02		11.44	4.79E-01		1.69E-01	1.99E-01
	IR-192	308.46		29.68	1.04E-01	6.68E-02	1.52E-02	4.78E-02
		468.07		48.10	6.68E-02		-1.15E-02	2.95E-02
	HG-203	279.19		77.30	3.83E-02	3.83E-02	1.15E-02	1.77E-02
	TL-204	374.74		94.11	3.06E-02	3.06E-02	-3.99E-03	1.37E-02
		899.15		99.16	5.14E-02		1.25E-02	2.21E-02
		911.74		91.10	5.48E-02		1.09E-03	2.34E-02
	BI-207	569.67		97.72	4.09E-02	4.09E-02	-2.90E-02	1.81E-02
		1063.62		74.90	7.36E-02		3.74E-02	3.13E-02
	TL-208	583.14		30.22	1.38E-01	1.38E-01	4.62E-02	6.14E-02
		860.37		4.48	9.78E-01		0.00E+00	4.13E-01
		2614.66		35.85	1.54E-01		2.09E-02	4.86E-02
	BI-210M	262.00		45.00	6.49E-02	6.49E-02	5.87E-04	3.01E-02
		300.00		23.00	1.16E-01		-2.18E-02	5.28E-02
	PB-210	46.50		4.25	6.94E-01	6.94E-01	4.44E-02	3.28E-01
	PB-211	404.84		2.90	1.04E+00	1.04E+00	-3.06E-02	4.62E-01
		831.96		2.90	1.69E+00		8.35E-01	7.32E-01
	BI-212	727.17		11.80	3.89E-01	3.89E-01	-1.49E-01	1.70E-01
		1620.62		2.75	2.11E+00		1.29E-01	8.36E-01
	PB-212	238.63		44.60	6.03E-02	6.03E-02	2.20E-02	2.80E-02
		300.09		3.41	7.83E-01		-1.47E-01	3.56E-01
	BI-214	609.31		46.30	1.07E-01	1.07E-01	3.90E-02	4.83E-02
		1120.29		15.10	4.36E-01		2.53E-01	1.90E-01
		1764.49		15.80	2.23E-01		-1.52E-01	7.06E-02
		2204.22		4.98	1.46E+00		2.33E-01	5.66E-01
+	PB-214	295.21		19.19	1.52E-01	1.52E-01	-1.05E-02	6.99E-02
		351.92	*	37.19	1.61E-01		4.95E-02	7.66E-02
	RN-219	401.80		6.50	4.12E-01	4.12E-01	-5.50E-02	1.81E-01
	RA-223	323.87		3.88	8.08E-01	8.08E-01	6.33E-02	3.71E-01

Analysis Report for 1707084-02

BLANK

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
RA-224	240.98	3.95	6.59E-01	6.59E-01	-1.40E-01	3.05E-01
RA-225	40.00	31.00	1.08E-01	1.08E-01	-3.96E-05	5.07E-02
RA-226	186.21	3.28	7.19E-01	7.19E-01	2.19E-01	3.36E-01
TH-227	50.10	8.40	3.08E-01	2.28E-01	-2.48E-01	1.46E-01
	236.00	11.50	2.28E-01		3.19E-02	1.06E-01
	256.20	6.30	3.94E-01		-2.52E-01	1.81E-01
AC-228	338.32	11.40	2.39E-01	1.67E-01	3.75E-02	1.08E-01
	911.07	27.70	1.67E-01		-6.21E-02	7.03E-02
	969.11	16.60	2.67E-01		5.48E-02	1.11E-01
TH-230	48.44	16.90	1.73E-01	1.73E-01	7.20E-02	8.21E-02
	62.85	4.60	5.63E-01		4.37E-01	2.68E-01
	67.67	0.37	5.83E+00		-5.55E+00	2.76E+00
PA-231	283.67	1.60	1.79E+00	1.22E+00	4.52E-01	8.23E-01
	302.67	2.30	1.22E+00		2.52E-01	5.55E-01
TH-231	25.64	14.70	6.62E-01	2.86E-01	-1.37E-01	3.15E-01
	84.21	6.40	2.86E-01		7.04E-02	1.34E-01
PA-233	311.98	38.60	8.03E-02	8.03E-02	3.53E-02	3.69E-02
PA-234	131.20	20.40	8.58E-02	8.58E-02	5.41E-04	3.99E-02
	733.99	8.80	4.81E-01		-1.23E-02	2.07E-01
	946.00	12.00	3.43E-01		1.01E-01	1.40E-01
PA-234M	1001.03	0.92	5.22E+00	5.22E+00	-3.72E+00	2.18E+00
TH-234	63.29	3.80	6.79E-01	6.79E-01	5.26E-01	3.23E-01
U-235	143.76	10.50	1.94E-01	1.94E-01	1.32E-01	9.11E-02
	163.35	4.70	4.69E-01		2.44E-02	2.20E-01
	205.31	4.70	4.57E-01		-1.30E-01	2.11E-01
NP-237	86.50	12.60	1.34E-01	1.34E-01	-1.56E-01	6.25E-02
NP-239	106.10	22.70	8.19E-02	8.19E-02	1.85E-02	3.83E-02
	228.18	10.70	2.45E-01		-6.12E-03	1.13E-01
	277.60	14.10	2.28E-01		8.92E-02	1.06E-01
AM-241	59.54	35.90	6.34E-02	6.34E-02	-6.47E-02	3.00E-02
AM-243	74.67	66.00	3.09E-02	3.09E-02	8.62E-03	1.46E-02
CM-243	209.75	3.29	6.72E-01	2.17E-01	-1.35E-01	3.10E-01
	228.14	10.60	2.33E-01		-5.84E-03	1.08E-01
	277.60	14.00	2.17E-01		8.49E-02	1.01E-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 1707084-02

BLANK

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: BLANK

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	2	45
17:	32	37	28	27	24	19	23	24
25:	16	16	18	15	12	22	14	11
33:	9	19	10	20	7	11	8	5
41:	18	19	3	19	29	23	12	8
49:	12	12	12	17	16	16	10	4
57:	15	14	14	10	12	31	35	27
65:	12	16	10	12	14	13	17	13
73:	10	21	14	13	12	12	11	12
81:	9	20	15	13	6	8	7	12
89:	9	11	26	35	23	13	11	12
97:	9	8	9	9	8	12	10	11
105:	5	9	12	14	14	5	11	18
113:	14	4	13	5	10	14	10	16
121:	17	9	11	14	10	4	7	14
129:	6	7	6	9	12	12	8	4
137:	18	7	12	10	6	12	17	11
145:	15	5	6	3	13	13	14	10
153:	7	10	9	12	6	16	9	15
161:	14	9	12	7	9	9	11	10
169:	13	9	8	8	8	8	8	10
177:	6	7	16	8	6	10	9	10
185:	14	12	10	5	7	11	8	16
193:	13	6	13	16	13	6	9	10
201:	8	9	7	3	11	5	5	7
209:	8	6	6	12	7	11	12	7
217:	4	7	5	5	8	10	6	9
225:	7	8	9	5	10	5	9	6
233:	6	6	4	14	10	10	7	8
241:	5	9	4	7	10	10	3	11
249:	2	13	5	2	5	6	2	8
257:	10	9	11	7	10	3	11	6
265:	5	10	11	6	7	5	1	9
273:	6	9	7	9	7	7	6	10
281:	5	4	5	10	6	6	5	4
289:	7	8	7	3	11	7	4	7
297:	5	4	8	4	3	4	7	5
305:	7	3	6	11	7	3	8	7
313:	4	4	5	3	1	6	2	7
321:	6	5	4	5	4	11	8	6
329:	6	5	3	3	6	6	2	3
337:	4	3	5	5	3	2	4	8
345:	6	9	3	3	4	5	10	6
353:	7	7	3	4	3	9	13	1
361:	5	7	2	5	5	4	4	2

369:	3	4	3	2	6	2	6	2

Sample Title: BLANK

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

801:	1	2	3	3	2	2	1	1

Sample Title: BLANK

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

1233:	0	1	1	0	0	0	2	1

Sample Title: BLANK

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

1665:	0	0	0	1	0	1	0	0

Sample Title: BLANK

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

2097:	0	0	0	0	0	1	0	0

Sample Title: BLANK

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

2529:	0	0	0	0	0	1	1	0

Sample Title: BLANK

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

2961:	0	1	0	1	0	0	0	0

Sample Title: BLANK

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

3393:	0	0	2	0	0	0	0	0

Sample Title: BLANK

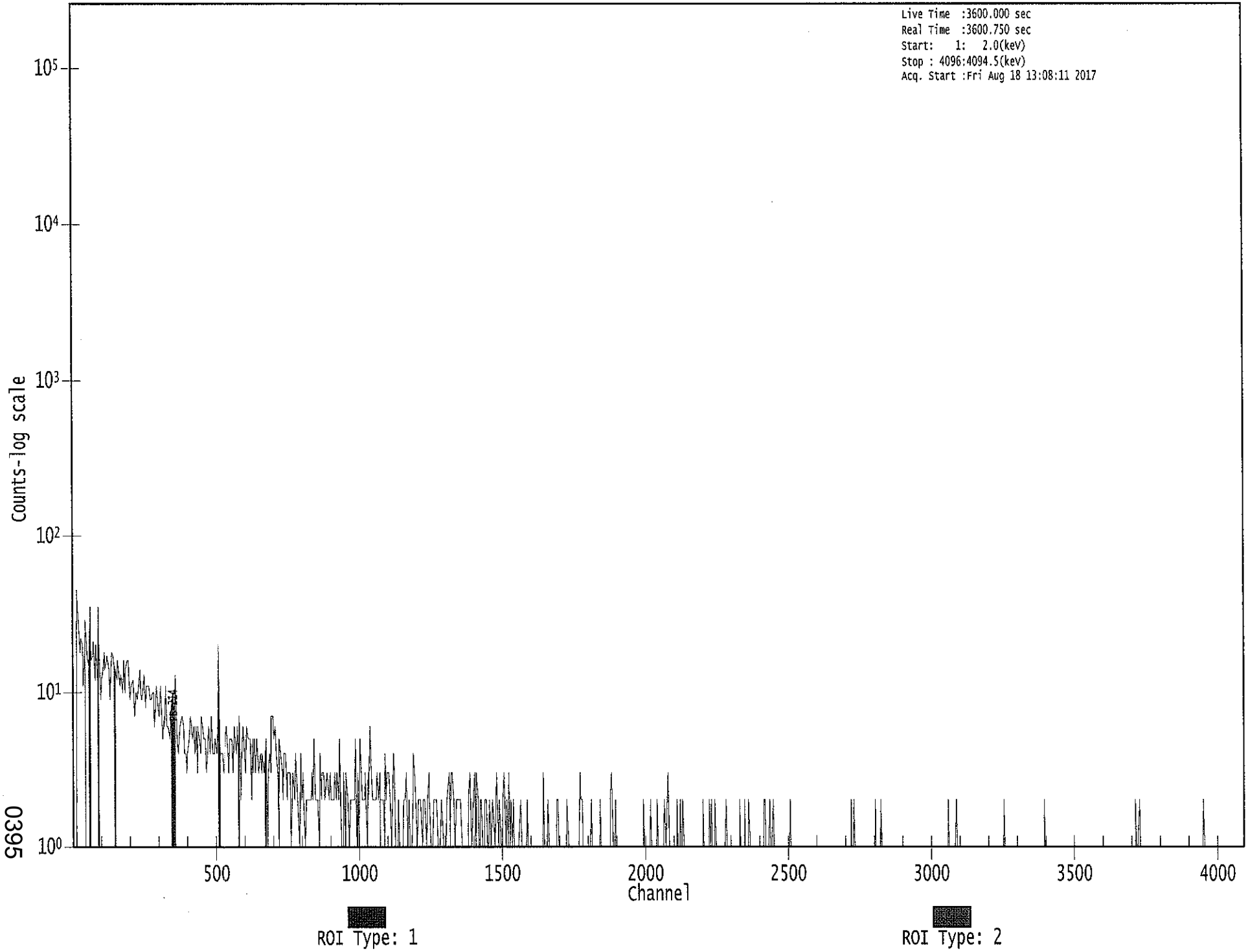
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	1	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	0	0	1	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	1	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	0	1	0	0	0	0	1	0

Sample Title: BLANK

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

0000055517.CNF



0395

Apex-Gamma

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-03
Sample Description	: HTC-A01-S008-3036-01
Sample Type	: SOIL
Sample Size	: 6.515E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:03:50AM
Acquisition Started	: 8/18/2017 12:30:18PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.6 seconds
Dead Time	: 0.05 %
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	: 55513

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/21/17

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 1:30:26PM
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	46.02	46.64	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	92.58	93.15	0.0000	0.00
6	128.68	129.21	0.0000	0.00
7	154.77	155.28	0.0000	0.00
8	185.73	186.21	0.0000	0.00
9	209.35	209.81	0.0000	0.00
10	238.58	239.00	0.0000	0.00
11	241.74	242.17	0.0000	0.00
12	256.77	257.18	0.0000	0.00
13	269.99	270.39	0.0000	0.00
14	280.91	281.29	0.0000	0.00
15	295.06	295.43	0.0000	0.00
16	300.48	300.84	0.0000	0.00
17	314.56	314.91	0.0000	0.00
18	338.46	338.78	0.0000	0.00
19	351.90	352.21	0.0000	0.00
20	356.50	356.80	0.0000	0.00
21	389.77	390.04	0.0000	0.00
22	410.02	410.27	0.0000	0.00
23	463.20	463.40	0.0000	0.00
24	510.86	511.01	0.0000	0.00
25	583.20	583.27	0.0000	0.00
26	609.39	609.44	0.0000	0.00
27	727.66	727.59	0.0000	0.00
28	768.09	767.98	0.0000	0.00
29	786.26	786.14	0.0000	0.00
30	794.52	794.39	0.0000	0.00
31	862.71	862.51	0.0000	0.00
32	911.45	911.20	0.0000	0.00
33	935.05	934.77	0.0000	0.00
34	950.72	950.43	0.0000	0.00
35	958.91	958.61	0.0000	0.00
36	965.10	964.80	0.0000	0.00
37	969.23	968.92	0.0000	0.00
38	991.54	991.20	0.0000	0.00
39	1031.74	1031.37	0.0000	0.00
40	1120.30	1119.84	0.0000	0.00
41	1238.37	1237.80	0.0000	0.00
42	1337.29	1336.62	0.0000	0.00

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1360.39	1359.69	0.0000	0.00
44	1378.39	1377.67	0.0000	0.00
45	1390.24	1389.52	0.0000	0.00
46	1461.19	1460.40	0.0000	0.00
47	1466.37	1465.57	0.0000	0.00
48	1541.13	1540.25	0.0000	0.00
49	1588.11	1587.19	0.0000	0.00
50	1621.21	1620.26	0.0000	0.00
51	1631.46	1630.50	0.0000	0.00
52	1658.21	1657.22	0.0000	0.00
53	1661.22	1660.22	0.0000	0.00
54	1719.51	1718.46	0.0000	0.00
55	1730.48	1729.42	0.0000	0.00
56	1765.21	1764.12	0.0000	0.00
57	1848.60	1847.43	0.0000	0.00
58	1896.45	1895.23	0.0000	0.00
59	1928.21	1926.96	0.0000	0.00
60	2071.89	2070.50	0.0000	0.00
61	2103.39	2101.97	0.0000	0.00
62	2155.64	2154.17	0.0000	0.00
63	2204.50	2202.98	0.0000	0.00
64	2303.90	2302.29	0.0000	0.00
65	2361.65	2359.98	0.0000	0.00
66	2447.74	2445.99	0.0000	0.00
67	2615.09	2613.19	0.0000	0.00
68	2643.80	2641.87	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 1:30:26PM

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	46.02	43 -	50	46.64	1.80E+02	96.52	1.44E+03	1.51
M	2	74.56	71 -	81	75.15	4.68E+02	106.55	1.81E+03	1.65
m	3	77.26	71 -	81	77.85	8.36E+02	114.98	1.82E+03	1.65
m	4	89.27	83 -	97	89.85	1.81E+02	91.65	1.54E+03	1.67
m	5	92.58	83 -	97	93.15	3.55E+02	91.65	1.40E+03	1.67
	6	128.68	126 -	131	129.21	7.24E+01	80.19	1.23E+03	1.56
	7	154.77	151 -	159	155.28	9.62E+01	99.04	1.45E+03	2.67
	8	185.73	182 -	189	186.21	2.37E+02	93.04	1.28E+03	1.66
	9	209.35	206 -	213	209.81	1.94E+02	84.69	1.05E+03	1.89
M	10	238.58	234 -	246	239.00	1.38E+03	89.09	5.59E+02	1.82
m	11	241.74	234 -	246	242.17	2.67E+02	89.25	5.26E+02	1.82
	12	256.77	253 -	262	257.18	9.51E+01	76.72	7.78E+02	3.89
	13	269.99	267 -	274	270.39	1.02E+02	67.68	6.94E+02	1.68
	14	280.91	275 -	291	281.29	1.24E+02	119.58	1.30E+03	13.41
	15	295.06	292 -	299	295.43	3.00E+02	75.89	7.76E+02	1.87
	16	300.48	300 -	304	300.84	6.75E+01	46.92	3.97E+02	2.72
	17	314.56	312 -	318	314.91	4.68E+01	51.26	4.36E+02	3.28
	18	338.46	334 -	342	338.78	2.46E+02	73.22	6.70E+02	1.90
M	19	351.90	346 -	360	352.21	6.14E+02	59.55	2.37E+02	1.71
m	20	356.50	346 -	360	356.80	4.25E+01	57.06	3.64E+02	2.54
	21	389.77	385 -	394	390.04	6.70E+01	58.15	4.44E+02	5.54
	22	410.02	407 -	414	410.27	7.58E+01	50.68	3.72E+02	2.68
	23	463.20	459 -	468	463.40	1.18E+02	53.71	3.45E+02	2.07
	24	510.86	506 -	516	511.01	2.09E+02	62.41	4.11E+02	2.05
	25	583.20	579 -	587	583.27	3.59E+02	58.04	2.98E+02	1.99
	26	609.39	605 -	614	609.44	3.95E+02	63.58	3.56E+02	2.10
	27	727.66	724 -	731	727.59	1.02E+02	39.80	1.89E+02	1.89
	28	768.09	764 -	771	767.98	2.96E+01	36.00	1.97E+02	1.87
	29	786.26	784 -	789	786.14	3.89E+01	26.78	1.14E+02	1.76
	30	794.52	792 -	799	794.39	4.40E+01	33.70	1.60E+02	2.08
	31	862.71	857 -	872	862.51	9.28E+01	48.83	2.06E+02	4.60
	32	911.45	907 -	916	911.20	3.01E+02	47.25	1.53E+02	1.84
	33	935.05	929 -	944	934.77	5.70E+01	47.12	1.96E+02	4.81
	34	950.72	946 -	954	950.43	3.28E+01	28.81	1.06E+02	4.09
	35	958.91	956 -	961	958.61	2.46E+01	22.14	7.88E+01	3.24
M	36	965.10	961 -	975	964.80	4.25E+01	26.70	1.12E+02	1.88
m	37	969.23	961 -	975	968.92	1.84E+02	37.31	1.09E+02	2.22
	38	991.54	986 -	996	991.20	5.76E+01	29.15	8.28E+01	7.63
	39	1031.74	1027 -	1035	1031.37	3.31E+01	28.32	1.02E+02	3.32
	40	1120.30	1115 -	1124	1119.84	1.06E+02	40.17	1.71E+02	1.59

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1238.37	1234 -	1241	1237.80	4.99E+01	35.38	1.74E+02	1.30
	42	1337.29	1331 -	1341	1336.62	2.78E+01	20.83	4.04E+01	5.55
	43	1360.39	1356 -	1363	1359.69	2.11E+01	17.20	3.37E+01	3.21
	44	1378.39	1376 -	1382	1377.67	2.03E+01	17.98	4.14E+01	1.78
	45	1390.24	1387 -	1392	1389.52	1.16E+01	13.15	2.29E+01	2.24
M	46	1461.19	1455 -	1469	1460.40	9.95E+02	64.51	2.80E+01	2.40
m	47	1466.37	1455 -	1469	1465.57	3.22E+01	46.60	3.20E+01	2.79
	48	1541.13	1536 -	1543	1540.25	1.08E+01	12.65	1.85E+01	2.00
	49	1588.11	1581 -	1590	1587.19	3.00E+01	23.24	6.00E+01	1.88
M	50	1621.21	1616 -	1635	1620.26	1.71E+01	16.42	3.06E+01	2.97
m	51	1631.46	1616 -	1635	1630.50	1.79E+01	15.41	2.18E+01	2.98
M	52	1658.21	1656 -	1663	1657.22	5.76E+00	5.94	9.67E+00	2.47
m	53	1661.22	1656 -	1663	1660.22	1.68E+01	11.19	1.38E+01	2.47
	54	1719.51	1716 -	1721	1718.46	8.79E+00	9.59	1.04E+01	2.97
	55	1730.48	1723 -	1734	1729.42	3.59E+01	13.86	6.23E+00	2.12
	56	1765.21	1758 -	1769	1764.12	8.90E+01	25.38	3.60E+01	2.07
	57	1848.60	1844 -	1852	1847.43	1.58E+01	12.20	1.25E+01	3.28
	58	1896.45	1891 -	1899	1895.23	1.20E+01	8.73	4.07E+00	3.69
	59	1928.21	1923 -	1931	1926.96	1.04E+01	12.21	1.32E+01	6.11
	60	2071.89	2068 -	2072	2070.50	5.50E+00	6.67	5.00E+00	1.01
	61	2103.39	2097 -	2105	2101.97	3.10E+01	11.14	0.00E+00	2.47
	62	2155.64	2152 -	2156	2154.17	6.00E+00	4.90	0.00E+00	2.74
	63	2204.50	2197 -	2208	2202.98	3.15E+01	17.78	2.31E+01	1.88
	64	2303.90	2300 -	2304	2302.29	7.00E+00	5.29	0.00E+00	1.16
	65	2361.65	2354 -	2366	2359.98	1.55E+01	18.20	2.89E+01	1.42
	66	2447.74	2442 -	2448	2445.99	7.17E+00	6.95	3.67E+00	1.70
	67	2615.09	2608 -	2620	2613.19	1.83E+02	27.06	0.00E+00	2.62
	68	2643.80	2638 -	2645	2641.87	6.13E+00	6.93	3.75E+00	2.11

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 1:30:26PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.02	43 -	50	1.80E+02	96.52	1.44E+03	7.62E+01
M	2	74.56	71 -	81	4.68E+02	106.55	1.81E+03	6.99E+01
m	3	77.26	71 -	81	8.36E+02	114.98	1.82E+03	7.02E+01
m	4	89.27	83 -	97	1.81E+02	91.65	1.54E+03	6.46E+01
m	5	92.58	83 -	97	3.55E+02	91.65	1.40E+03	6.15E+01
	6	128.68	126 -	131	7.24E+01	80.19	1.23E+03	6.44E+01
	7	154.77	151 -	159	9.62E+01	99.04	1.45E+03	7.98E+01
	8	185.73	182 -	189	2.37E+02	93.04	1.28E+03	7.22E+01
	9	209.35	206 -	213	1.94E+02	84.69	1.05E+03	6.57E+01
M	10	238.58	234 -	246	1.38E+03	89.09	5.59E+02	3.89E+01
m	11	241.74	234 -	246	2.67E+02	89.25	5.26E+02	3.77E+01
	12	256.77	253 -	262	9.51E+01	76.72	7.78E+02	6.10E+01
	13	269.99	267 -	274	1.02E+02	67.68	6.94E+02	5.31E+01
	14	280.91	275 -	291	1.24E+02	119.58	1.30E+03	9.66E+01
	15	295.06	292 -	299	3.00E+02	75.89	7.76E+02	5.55E+01
	16	300.48	300 -	304	6.75E+01	46.92	3.97E+02	3.61E+01
	17	314.56	312 -	318	4.68E+01	51.26	4.36E+02	4.06E+01
	18	338.46	334 -	342	2.46E+02	73.22	6.70E+02	5.44E+01
M	19	351.90	346 -	360	6.14E+02	59.55	2.37E+02	2.53E+01
m	20	356.50	346 -	360	4.25E+01	57.06	3.64E+02	3.14E+01
	21	389.77	385 -	394	6.70E+01	58.15	4.44E+02	4.59E+01
	22	410.02	407 -	414	7.58E+01	50.68	3.72E+02	3.91E+01
	23	463.20	459 -	468	1.18E+02	53.71	3.45E+02	4.04E+01
	24	510.86	506 -	516	2.09E+02	62.41	4.11E+02	4.55E+01
	25	583.20	579 -	587	3.59E+02	58.04	2.98E+02	3.61E+01
	26	609.39	605 -	614	3.95E+02	63.58	3.56E+02	4.08E+01
	27	727.66	724 -	731	1.02E+02	39.80	1.89E+02	2.82E+01
	28	768.09	764 -	771	2.96E+01	36.00	1.97E+02	2.82E+01
	29	786.26	784 -	789	3.89E+01	26.78	1.14E+02	1.95E+01
	30	794.52	792 -	799	4.40E+01	33.70	1.60E+02	2.55E+01
	31	862.71	857 -	872	9.28E+01	48.83	2.06E+02	3.69E+01
	32	911.45	907 -	916	3.01E+02	47.25	1.53E+02	3.07E+01
	33	935.05	929 -	944	5.70E+01	47.12	1.96E+02	3.67E+01
	34	950.72	946 -	954	3.28E+01	28.81	1.06E+02	2.17E+01
	35	958.91	956 -	961	2.46E+01	22.14	7.88E+01	1.63E+01
M	36	965.10	961 -	975	4.25E+01	26.70	1.12E+02	1.74E+01
m	37	969.23	961 -	975	1.84E+02	37.31	1.09E+02	1.71E+01
	38	991.54	986 -	996	5.76E+01	29.15	8.28E+01	2.05E+01
	39	1031.74	1027 -	1035	3.31E+01	28.32	1.02E+02	2.13E+01
	40	1120.30	1115 -	1124	1.06E+02	40.17	1.71E+02	2.84E+01
	41	1238.37	1234 -	1241	4.99E+01	35.38	1.74E+02	2.67E+01
	42	1337.29	1331 -	1341	2.78E+01	20.83	4.04E+01	1.48E+01
	43	1360.39	1356 -	1363	2.11E+01	17.20	3.37E+01	1.20E+01
	44	1378.39	1376 -	1382	2.03E+01	17.98	4.14E+01	1.28E+01
	45	1390.24	1387 -	1392	1.16E+01	13.15	2.29E+01	9.25E+00
M	46	1461.19	1455 -	1469	9.95E+02	64.51	2.80E+01	8.70E+00
m	47	1466.37	1455 -	1469	3.22E+01	46.60	3.20E+01	9.30E+00
	48	1541.13	1536 -	1543	1.08E+01	12.65	1.85E+01	8.89E+00
	49	1588.11	1581 -	1590	3.00E+01	23.24	6.00E+01	1.68E+01
M	50	1621.21	1616 -	1635	1.71E+01	16.42	3.06E+01	9.10E+00
m	51	1631.46	1616 -	1635	1.79E+01	15.41	2.18E+01	7.67E+00

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	52	1658.21	1656 -	1663	5.76E+00	5.94	9.67E+00	5.11E+00
m	53	1661.22	1656 -	1663	1.68E+01	11.19	1.38E+01	6.11E+00
	54	1719.51	1716 -	1721	8.79E+00	9.59	1.04E+01	6.20E+00
	55	1730.48	1723 -	1734	3.59E+01	13.86	6.23E+00	5.72E+00
	56	1765.21	1758 -	1769	8.90E+01	25.38	3.60E+01	1.39E+01
	57	1848.60	1844 -	1852	1.58E+01	12.20	1.25E+01	7.61E+00
	58	1896.45	1891 -	1899	1.20E+01	8.73	4.07E+00	4.38E+00
	59	1928.21	1923 -	1931	1.04E+01	12.21	1.32E+01	8.52E+00
	60	2071.89	2068 -	2072	5.50E+00	6.67	5.00E+00	3.90E+00
	61	2103.39	2097 -	2105	3.10E+01	11.14	0.00E+00	0.00E+00
	62	2155.64	2152 -	2156	6.00E+00	4.90	0.00E+00	0.00E+00
	63	2204.50	2197 -	2208	3.15E+01	17.78	2.31E+01	1.13E+01
	64	2303.90	2300 -	2304	7.00E+00	5.29	0.00E+00	0.00E+00
	65	2361.65	2354 -	2366	1.55E+01	18.20	2.89E+01	1.35E+01
	66	2447.74	2442 -	2448	7.17E+00	6.95	3.67E+00	3.64E+00
	67	2615.09	2608 -	2620	1.83E+02	27.06	0.00E+00	0.00E+00
	68	2643.80	2638 -	2645	6.13E+00	6.93	3.75E+00	3.98E+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 : 8/18/2017 1:30:26PM

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	46.02	43 -	50	46.64	1.80E+02	96.52	1.44E+03	PB-210
M	2	74.56	71 -	81	75.15	4.68E+02	106.55	1.81E+03	AM-243
m	3	77.26	71 -	81	77.85	8.36E+02	114.98	1.82E+03	.....
m	4	89.27	83 -	97	89.85	1.81E+02	91.65	1.54E+03	LU-176
m	5	92.58	83 -	97	93.15	3.55E+02	91.65	1.40E+03	GA-67
	6	128.68	126 -	131	129.21	7.24E+01	80.19	1.23E+03	.....
	7	154.77	151 -	159	155.28	9.62E+01	99.04	1.45E+03	.....
	8	185.73	182 -	189	186.21	2.37E+02	93.04	1.28E+03	RA-226

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	9	209.35	206 -	213	209.81	1.94E+02	84.69	1.05E+03	CM-243
									GA-67
M	10	238.58	234 -	246	239.00	1.38E+03	89.09	5.59E+02	PB-212
m	11	241.74	234 -	246	242.17	2.67E+02	89.25	5.26E+02	RA-224
	12	256.77	253 -	262	257.18	9.51E+01	76.72	7.78E+02	TH-227
	13	269.99	267 -	274	270.39	1.02E+02	67.68	6.94E+02	.....
	14	280.91	275 -	291	281.29	1.24E+02	119.58	1.30E+03	HO-166M
	15	295.06	292 -	299	295.43	3.00E+02	75.89	7.76E+02	PB-214
	16	300.48	300 -	304	300.84	6.75E+01	46.92	3.97E+02	GA-67
									PB-212
									BI-210M
	17	314.56	312 -	318	314.91	4.68E+01	51.26	4.36E+02	.....
	18	338.46	334 -	342	338.78	2.46E+02	73.22	6.70E+02	AC-228
M	19	351.90	346 -	360	352.21	6.14E+02	59.55	2.37E+02	PB-214
m	20	356.50	346 -	360	356.80	4.25E+01	57.06	3.64E+02	BA-133
	21	389.77	385 -	394	390.04	6.70E+01	58.15	4.44E+02	.....
	22	410.02	407 -	414	410.27	7.58E+01	50.68	3.72E+02	HO-166M
	23	463.20	459 -	468	463.40	1.18E+02	53.71	3.45E+02	SB-125
	24	510.86	506 -	516	511.01	2.09E+02	62.41	4.11E+02	.....
	25	583.20	579 -	587	583.27	3.59E+02	58.04	2.98E+02	TL-208
	26	609.39	605 -	614	609.44	3.95E+02	63.58	3.56E+02	BI-214
	27	727.66	724 -	731	727.59	1.02E+02	39.80	1.89E+02	BI-212
	28	768.09	764 -	771	767.98	2.96E+01	36.00	1.97E+02	.....
	29	786.26	784 -	789	786.14	3.89E+01	26.78	1.14E+02	.....
	30	794.52	792 -	799	794.39	4.40E+01	33.70	1.60E+02	.....
	31	862.71	857 -	872	862.51	9.28E+01	48.83	2.06E+02	.....
	32	911.45	907 -	916	911.20	3.01E+02	47.25	1.53E+02	TL-204
									AC-228
	33	935.05	929 -	944	934.77	5.70E+01	47.12	1.96E+02	.....
	34	950.72	946 -	954	950.43	3.28E+01	28.81	1.06E+02	.....
	35	958.91	956 -	961	958.61	2.46E+01	22.14	7.88E+01	.....
M	36	965.10	961 -	975	964.80	4.25E+01	26.70	1.12E+02	.....
m	37	969.23	961 -	975	968.92	1.84E+02	37.31	1.09E+02	AC-228
	38	991.54	986 -	996	991.20	5.76E+01	29.15	8.28E+01	.....
	39	1031.74	1027 -	1035	1031.37	3.31E+01	28.32	1.02E+02	.....
	40	1120.30	1115 -	1124	1119.84	1.06E+02	40.17	1.71E+02	BI-214
									SC-46
									TA-182
	41	1238.37	1234 -	1241	1237.80	4.99E+01	35.38	1.74E+02	CO-56
	42	1337.29	1331 -	1341	1336.62	2.78E+01	20.83	4.04E+01	.....
	43	1360.39	1356 -	1363	1359.69	2.11E+01	17.20	3.37E+01	.....
	44	1378.39	1376 -	1382	1377.67	2.03E+01	17.98	4.14E+01	.....
	45	1390.24	1387 -	1392	1389.52	1.16E+01	13.15	2.29E+01	.....
M	46	1461.19	1455 -	1469	1460.40	9.95E+02	64.51	2.80E+01	K-40
m	47	1466.37	1455 -	1469	1465.57	3.22E+01	46.60	3.20E+01	.....
	48	1541.13	1536 -	1543	1540.25	1.08E+01	12.65	1.85E+01	.....
	49	1588.11	1581 -	1590	1587.19	3.00E+01	23.24	6.00E+01	.....
M	50	1621.21	1616 -	1635	1620.26	1.71E+01	16.42	3.06E+01	BI-212
m	51	1631.46	1616 -	1635	1630.50	1.79E+01	15.41	2.18E+01	.....
M	52	1658.21	1656 -	1663	1657.22	5.76E+00	5.94	9.67E+00	.....
m	53	1661.22	1656 -	1663	1660.22	1.68E+01	11.19	1.38E+01	.....
	54	1719.51	1716 -	1721	1718.46	8.79E+00	9.59	1.04E+01	.....
	55	1730.48	1723 -	1734	1729.42	3.59E+01	13.86	6.23E+00	.....
	56	1765.21	1758 -	1769	1764.12	8.90E+01	25.38	3.60E+01	BI-214

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
57	1848.60	1844 -	1852	1847.43	1.58E+01	12.20	1.25E+01	.....
58	1896.45	1891 -	1899	1895.23	1.20E+01	8.73	4.07E+00	.....
59	1928.21	1923 -	1931	1926.96	1.04E+01	12.21	1.32E+01	.....
60	2071.89	2068 -	2072	2070.50	5.50E+00	6.67	5.00E+00	.....
61	2103.39	2097 -	2105	2101.97	3.10E+01	11.14	0.00E+00	.....
62	2155.64	2152 -	2156	2154.17	6.00E+00	4.90	0.00E+00	.....
63	2204.50	2197 -	2208	2202.98	3.15E+01	17.78	2.31E+01	BI-214
64	2303.90	2300 -	2304	2302.29	7.00E+00	5.29	0.00E+00	.....
65	2361.65	2354 -	2366	2359.98	1.55E+01	18.20	2.89E+01	.....
66	2447.74	2442 -	2448	2445.99	7.17E+00	6.95	3.67E+00	.....
67	2615.09	2608 -	2620	2613.19	1.83E+02	27.06	0.00E+00	TL-208
68	2643.80	2638 -	2645	2641.87	6.13E+00	6.93	3.75E+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 : 8/18/2017 1:30:26PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.02	1.80E+02	96.52	2.46E-02	2.22E-03
M	2	74.56	4.68E+02	106.55	2.75E-02	2.38E-03
m	3	77.26	8.36E+02	114.98	2.75E-02	2.41E-03
m	4	89.27	1.81E+02	91.65	2.74E-02	2.50E-03
m	5	92.58	3.55E+02	91.65	2.73E-02	2.45E-03
	6	128.68	7.24E+01	80.19	2.54E-02	1.94E-03
	7	154.77	9.62E+01	99.04	2.37E-02	1.80E-03
	8	185.73	2.37E+02	93.04	2.17E-02	1.68E-03
	9	209.35	1.94E+02	84.69	2.04E-02	1.61E-03
M	10	238.58	1.38E+03	89.09	1.89E-02	1.53E-03
m	11	241.74	2.67E+02	89.25	1.87E-02	1.52E-03
	12	256.77	9.51E+01	76.72	1.80E-02	1.47E-03
	13	269.99	1.02E+02	67.68	1.74E-02	1.43E-03
	14	280.91	1.24E+02	119.58	1.70E-02	1.40E-03
	15	295.06	3.00E+02	75.89	1.64E-02	1.37E-03
	16	300.48	6.75E+01	46.92	1.62E-02	1.36E-03
	17	314.56	4.68E+01	51.26	1.57E-02	1.33E-03
	18	338.46	2.46E+02	73.22	1.50E-02	1.27E-03

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
M	19	351.90	6.14E+02	59.55	1.45E-02	1.24E-03
m	20	356.50	4.25E+01	57.06	1.44E-02	1.23E-03
	21	389.77	6.70E+01	58.15	1.35E-02	1.15E-03
	22	410.02	7.58E+01	50.68	1.30E-02	1.13E-03
	23	463.20	1.18E+02	53.71	1.19E-02	1.10E-03
	24	510.86	2.09E+02	62.41	1.10E-02	1.07E-03
	25	583.20	3.59E+02	58.04	9.96E-03	1.02E-03
	26	609.39	3.95E+02	63.58	9.63E-03	1.01E-03
	27	727.66	1.02E+02	39.80	8.41E-03	8.67E-04
	28	768.09	2.96E+01	36.00	8.07E-03	8.03E-04
	29	786.26	3.89E+01	26.78	7.92E-03	7.74E-04
	30	794.52	4.40E+01	33.70	7.86E-03	7.61E-04
	31	862.71	9.28E+01	48.83	7.38E-03	6.53E-04
	32	911.45	3.01E+02	47.25	7.08E-03	5.91E-04
	33	935.05	5.70E+01	47.12	6.95E-03	5.82E-04
	34	950.72	3.28E+01	28.81	6.86E-03	5.76E-04
	35	958.91	2.46E+01	22.14	6.82E-03	5.73E-04
M	36	965.10	4.25E+01	26.70	6.79E-03	5.71E-04
m	37	969.23	1.84E+02	37.31	6.76E-03	5.69E-04
	38	991.54	5.76E+01	29.15	6.65E-03	5.61E-04
	39	1031.74	3.31E+01	28.32	6.46E-03	5.45E-04
	40	1120.30	1.06E+02	40.17	6.07E-03	5.11E-04
	41	1238.37	4.99E+01	35.38	5.64E-03	4.76E-04
	42	1337.29	2.78E+01	20.83	5.34E-03	4.53E-04
	43	1360.39	2.11E+01	17.20	5.27E-03	4.48E-04
	44	1378.39	2.03E+01	17.98	5.22E-03	4.44E-04
	45	1390.24	1.16E+01	13.15	5.19E-03	4.41E-04
M	46	1461.19	9.95E+02	64.51	5.01E-03	4.25E-04
m	47	1466.37	3.22E+01	46.60	4.99E-03	4.23E-04
	48	1541.13	1.08E+01	12.65	4.82E-03	4.06E-04
	49	1588.11	3.00E+01	23.24	4.72E-03	3.95E-04
M	50	1621.21	1.71E+01	16.42	4.65E-03	3.88E-04
m	51	1631.46	1.79E+01	15.41	4.63E-03	3.85E-04
M	52	1658.21	5.76E+00	5.94	4.57E-03	3.79E-04
m	53	1661.22	1.68E+01	11.19	4.57E-03	3.78E-04
	54	1719.51	8.79E+00	9.59	4.46E-03	3.65E-04
	55	1730.48	3.59E+01	13.86	4.44E-03	3.62E-04
	56	1765.21	8.90E+01	25.38	4.37E-03	3.54E-04
	57	1848.60	1.58E+01	12.20	4.23E-03	3.38E-04
	58	1896.45	1.20E+01	8.73	4.16E-03	3.38E-04
	59	1928.21	1.04E+01	12.21	4.11E-03	3.38E-04
	60	2071.89	5.50E+00	6.67	3.90E-03	3.38E-04
	61	2103.39	3.10E+01	11.14	3.86E-03	3.38E-04
	62	2155.64	6.00E+00	4.90	3.80E-03	3.38E-04
	63	2204.50	3.15E+01	17.78	3.74E-03	3.38E-04
	64	2303.90	7.00E+00	5.29	3.62E-03	3.38E-04
	65	2361.65	1.55E+01	18.20	3.56E-03	3.38E-04
	66	2447.74	7.17E+00	6.95	3.47E-03	3.38E-04
	67	2615.09	1.83E+02	27.06	3.31E-03	3.38E-04
	68	2643.80	6.13E+00	6.93	3.28E-03	3.38E-04

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/18/2017 1:30:26PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.02	1.80E+02	96.52	3.93E+01	8.32E+00	1.41E+02	9.69E+01
M	2	74.56	4.68E+02	106.55			4.68E+02	1.07E+02
m	3	77.26	8.36E+02	114.98			8.36E+02	1.15E+02
m	4	89.27	1.81E+02	91.65			1.81E+02	9.17E+01
m	5	92.58	3.55E+02	91.65	1.35E+02	2.05E+01	2.20E+02	9.39E+01
	6	128.68	7.24E+01	80.19			7.24E+01	8.02E+01
	7	154.77	9.62E+01	99.04			9.62E+01	9.90E+01
	8	185.73	2.37E+02	93.04	4.68E+01	7.65E+00	1.91E+02	9.34E+01
	9	209.35	1.94E+02	84.69			1.94E+02	8.47E+01
M	10	238.58	1.38E+03	89.09	2.06E+01	6.26E+00	1.36E+03	8.93E+01
m	11	241.74	2.67E+02	89.25			2.67E+02	8.92E+01
	12	256.77	9.51E+01	76.72			9.51E+01	7.67E+01
	13	269.99	1.02E+02	67.68			1.02E+02	6.77E+01
	14	280.91	1.24E+02	119.58			1.24E+02	1.20E+02
	15	295.06	3.00E+02	75.89			3.00E+02	7.59E+01
	16	300.48	6.75E+01	46.92			6.75E+01	4.69E+01
	17	314.56	4.68E+01	51.26			4.68E+01	5.13E+01
	18	338.46	2.46E+02	73.22			2.46E+02	7.32E+01
M	19	351.90	6.14E+02	59.55	3.12E+00	4.40E+00	6.10E+02	5.97E+01
m	20	356.50	4.25E+01	57.06			4.25E+01	5.71E+01
	21	389.77	6.70E+01	58.15			6.70E+01	5.81E+01
	22	410.02	7.58E+01	50.68			7.58E+01	5.07E+01
	23	463.20	1.18E+02	53.71			1.18E+02	5.37E+01
	24	510.86	2.09E+02	62.41	7.85E+01	5.73E+00	1.30E+02	6.27E+01
	25	583.20	3.59E+02	58.04			3.59E+02	5.80E+01
	26	609.39	3.95E+02	63.58	6.00E+00	4.13E+00	3.89E+02	6.37E+01
	27	727.66	1.02E+02	39.80			1.02E+02	3.98E+01
	28	768.09	2.96E+01	36.00			2.96E+01	3.60E+01
	29	786.26	3.89E+01	26.78			3.89E+01	2.68E+01
	30	794.52	4.40E+01	33.70			4.40E+01	3.37E+01
	31	862.71	9.28E+01	48.83			9.28E+01	4.88E+01
	32	911.45	3.01E+02	47.25	5.15E+00	3.10E+00	2.95E+02	4.74E+01
	33	935.05	5.70E+01	47.12			5.70E+01	4.71E+01
	34	950.72	3.28E+01	28.81			3.28E+01	2.88E+01
	35	958.91	2.46E+01	22.14			2.46E+01	2.21E+01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	36	965.10	4.25E+01	26.70			4.25E+01	2.67E+01
m	37	969.23	1.84E+02	37.31	0.00E+00	0.00E+00	1.84E+02	3.73E+01
	38	991.54	5.76E+01	29.15			5.76E+01	2.92E+01
	39	1031.74	3.31E+01	28.32			3.31E+01	2.83E+01
	40	1120.30	1.06E+02	40.17			1.06E+02	4.02E+01
	41	1238.37	4.99E+01	35.38			4.99E+01	3.54E+01
	42	1337.29	2.78E+01	20.83			2.78E+01	2.08E+01
	43	1360.39	2.11E+01	17.20			2.11E+01	1.72E+01
	44	1378.39	2.03E+01	17.98			2.03E+01	1.80E+01
	45	1390.24	1.16E+01	13.15			1.16E+01	1.32E+01
M	46	1461.19	9.95E+02	64.51	4.04E+00	2.32E+00	9.91E+02	6.46E+01
m	47	1466.37	3.22E+01	46.60			3.22E+01	4.66E+01
	48	1541.13	1.08E+01	12.65			1.08E+01	1.26E+01
	49	1588.11	3.00E+01	23.24			3.00E+01	2.32E+01
M	50	1621.21	1.71E+01	16.42			1.71E+01	1.64E+01
m	51	1631.46	1.79E+01	15.41			1.79E+01	1.54E+01
M	52	1658.21	5.76E+00	5.94			5.76E+00	5.94E+00
m	53	1661.22	1.68E+01	11.19			1.68E+01	1.12E+01
	54	1719.51	8.79E+00	9.59			8.79E+00	9.59E+00
	55	1730.48	3.59E+01	13.86			3.59E+01	1.39E+01
	56	1765.21	8.90E+01	25.38			8.90E+01	2.54E+01
	57	1848.60	1.58E+01	12.20			1.58E+01	1.22E+01
	58	1896.45	1.20E+01	8.73			1.20E+01	8.73E+00
	59	1928.21	1.04E+01	12.21			1.04E+01	1.22E+01
	60	2071.89	5.50E+00	6.67			5.50E+00	6.67E+00
	61	2103.39	3.10E+01	11.14			3.10E+01	1.11E+01
	62	2155.64	6.00E+00	4.90			6.00E+00	4.90E+00
	63	2204.50	3.15E+01	17.78			3.15E+01	1.78E+01
	64	2303.90	7.00E+00	5.29			7.00E+00	5.29E+00
	65	2361.65	1.55E+01	18.20			1.55E+01	1.82E+01
	66	2447.74	7.17E+00	6.95			7.17E+00	6.95E+00
	67	2615.09	1.83E+02	27.06	6.52E+00	1.61E+00	1.76E+02	2.71E+01
	68	2643.80	6.13E+00	6.93			6.13E+00	6.93E+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 1707084-03

HTC-A01-S008-3036-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 1:30:26PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.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	46.02	1.80E+02	96.52	3.93E+01	8.32E+00	1.41E+02	9.69E+01
M	2	74.56	4.68E+02	106.55			4.68E+02	1.07E+02
m	3	77.26	8.36E+02	114.98			8.36E+02	1.15E+02
m	4	89.27	1.81E+02	91.65			1.81E+02	9.17E+01
m	5	92.58	3.55E+02	91.65	1.35E+02	2.05E+01	2.20E+02	9.39E+01
	6	128.68	7.24E+01	80.19			7.24E+01	8.02E+01
	7	154.77	9.62E+01	99.04			9.62E+01	9.90E+01
	8	185.73	2.37E+02	93.04	4.68E+01	7.65E+00	1.91E+02	9.34E+01
	9	209.35	1.94E+02	84.69			1.94E+02	8.47E+01
M	10	238.58	1.38E+03	89.09	2.06E+01	6.26E+00	1.36E+03	8.93E+01
m	11	241.74	2.67E+02	89.25			2.67E+02	8.92E+01
	12	256.77	9.51E+01	76.72			9.51E+01	7.67E+01
	13	269.99	1.02E+02	67.68			1.02E+02	6.77E+01
	14	280.91	1.24E+02	119.58			1.24E+02	1.20E+02
	15	295.06	3.00E+02	75.89			3.00E+02	7.59E+01
	16	300.48	6.75E+01	46.92			6.75E+01	4.69E+01
	17	314.56	4.68E+01	51.26			4.68E+01	5.13E+01
	18	338.46	2.46E+02	73.22			2.46E+02	7.32E+01
M	19	351.90	6.14E+02	59.55	3.12E+00	4.40E+00	6.10E+02	5.97E+01
m	20	356.50	4.25E+01	57.06			4.25E+01	5.71E+01
	21	389.77	6.70E+01	58.15			6.70E+01	5.81E+01
	22	410.02	7.58E+01	50.68			7.58E+01	5.07E+01
	23	463.20	1.18E+02	53.71			1.18E+02	5.37E+01
	24	510.86	2.09E+02	62.41	7.85E+01	5.73E+00	1.30E+02	6.27E+01
	25	583.20	3.59E+02	58.04			3.59E+02	5.80E+01
	26	609.39	3.95E+02	63.58	6.00E+00	4.13E+00	3.89E+02	6.37E+01
	27	727.66	1.02E+02	39.80			1.02E+02	3.98E+01
	28	768.09	2.96E+01	36.00			2.96E+01	3.60E+01
	29	786.26	3.89E+01	26.78			3.89E+01	2.68E+01
	30	794.52	4.40E+01	33.70			4.40E+01	3.37E+01
	31	862.71	9.28E+01	48.83			9.28E+01	4.88E+01
	32	911.45	3.01E+02	47.25	5.15E+00	3.10E+00	2.95E+02	4.74E+01
	33	935.05	5.70E+01	47.12			5.70E+01	4.71E+01
	34	950.72	3.28E+01	28.81			3.28E+01	2.88E+01
	35	958.91	2.46E+01	22.14			2.46E+01	2.21E+01
M	36	965.10	4.25E+01	26.70			4.25E+01	2.67E+01
m	37	969.23	1.84E+02	37.31	0.00E+00	0.00E+00	1.84E+02	3.73E+01
	38	991.54	5.76E+01	29.15			5.76E+01	2.92E+01
	39	1031.74	3.31E+01	28.32			3.31E+01	2.83E+01
	40	1120.30	1.06E+02	40.17			1.06E+02	4.02E+01
	41	1238.37	4.99E+01	35.38			4.99E+01	3.54E+01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1337.29	2.78E+01	20.83			2.78E+01	2.08E+01
	43	1360.39	2.11E+01	17.20			2.11E+01	1.72E+01
	44	1378.39	2.03E+01	17.98			2.03E+01	1.80E+01
	45	1390.24	1.16E+01	13.15			1.16E+01	1.32E+01
M	46	1461.19	9.95E+02	64.51	4.04E+00	2.32E+00	9.91E+02	6.46E+01
m	47	1466.37	3.22E+01	46.60			3.22E+01	4.66E+01
	48	1541.13	1.08E+01	12.65			1.08E+01	1.26E+01
	49	1588.11	3.00E+01	23.24			3.00E+01	2.32E+01
M	50	1621.21	1.71E+01	16.42			1.71E+01	1.64E+01
m	51	1631.46	1.79E+01	15.41			1.79E+01	1.54E+01
M	52	1658.21	5.76E+00	5.94			5.76E+00	5.94E+00
m	53	1661.22	1.68E+01	11.19			1.68E+01	1.12E+01
	54	1719.51	8.79E+00	9.59			8.79E+00	9.59E+00
	55	1730.48	3.59E+01	13.86			3.59E+01	1.39E+01
	56	1765.21	8.90E+01	25.38			8.90E+01	2.54E+01
	57	1848.60	1.58E+01	12.20			1.58E+01	1.22E+01
	58	1896.45	1.20E+01	8.73			1.20E+01	8.73E+00
	59	1928.21	1.04E+01	12.21			1.04E+01	1.22E+01
	60	2071.89	5.50E+00	6.67			5.50E+00	6.67E+00
	61	2103.39	3.10E+01	11.14			3.10E+01	1.11E+01
	62	2155.64	6.00E+00	4.90			6.00E+00	4.90E+00
	63	2204.50	3.15E+01	17.78			3.15E+01	1.78E+01
	64	2303.90	7.00E+00	5.29			7.00E+00	5.29E+00
	65	2361.65	1.55E+01	18.20			1.55E+01	1.82E+01
	66	2447.74	7.17E+00	6.95			7.17E+00	6.95E+00
	67	2615.09	1.83E+02	27.06	6.52E+00	1.61E+00	1.76E+02	2.71E+01
	68	2643.80	6.13E+00	6.93			6.13E+00	6.93E+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	0.977	1460.81	*	10.67	2.14E+01	2.33E+00
TL-208	0.872	583.14	*	30.22	1.37E+00	2.63E-01
		860.37		4.48		
		2614.66	*	35.85	1.72E+00	3.17E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-210	0.964	46.50	*	4.25	1.57E+00	1.09E+00
BI-212	0.959	727.17	*	11.80	1.18E+00	4.78E-01
		1620.62	*	2.75	1.54E+00	1.49E+00
PB-212	0.998	238.63	*	44.60	1.86E+00	1.94E-01
		300.09	*	3.41	1.41E+00	9.83E-01
BI-214	0.983	609.31	*	46.30	1.01E+00	1.95E-01
		1120.29	*	15.10	1.33E+00	5.17E-01
		1764.49	*	15.80	1.48E+00	4.40E-01
		2204.22	*	4.98	1.95E+00	1.12E+00
PB-214	0.999	295.21	*	19.19	1.10E+00	2.92E-01
		351.92	*	37.19	1.30E+00	1.69E-01
RA-224	0.911	240.98	*	3.95	4.17E+00	1.43E+00
RA-226	0.964	186.21	*	3.28	3.08E+00	5.84E+00
AC-228	0.987	338.32	*	11.40	1.66E+00	5.15E-01
		911.07	*	27.70	1.73E+00	3.14E-01
		969.11	*	16.60	1.89E+00	4.15E-01
AM-243	0.998	74.67	*	66.00	2.98E-01	7.25E-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 : 8/18/2017 1:30:26PM
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	2.32256E-01	6.88		
m	4	89.27	5.03390E-02	25.29	Tol.	LU-176
m	5	92.58	6.09955E-02	21.39	Sum	
	6	128.68	2.00973E-02	55.42		
	7	154.77	2.67234E-02	51.47		
	9	209.35	5.37991E-02	21.86	Tol.	CM-243
	12	256.77	2.64073E-02	40.35	Tol.	TH-227
	13	269.99	2.83636E-02	33.14		
	14	280.91	3.45027E-02	48.14	Tol.	HO-166M
	17	314.56	1.29974E-02	54.78		
m	20	356.50	1.18021E-02	67.15	Tol.	BA-133

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	21	389.77	1.86150E-02	43.38		
	22	410.02	2.10613E-02	33.42	Tol.	HO-166M
	23	463.20	3.27064E-02	22.81	Tol.	SB-125
	24	510.86	3.61768E-02	24.06		
	28	768.09	8.22591E-03	60.78	Sum	
	29	786.26	1.07943E-02	34.45		
	30	794.52	1.22222E-02	38.30	Sum	
	31	862.71	2.57667E-02	26.32		
	33	935.05	1.58315E-02	41.34	Sum	
	34	950.72	9.11499E-03	43.90	S-Esc	
	35	958.91	6.83160E-03	45.00		
M	36	965.10	1.18070E-02	31.41		
	38	991.54	1.59933E-02	25.31		
	39	1031.74	9.18651E-03	42.81		
	41	1238.37	1.38625E-02	35.45	Tol.	CO-56
	42	1337.29	7.72569E-03	37.45	Sum	
	43	1360.39	5.87354E-03	40.68		
	44	1378.39	5.63347E-03	44.33		
	45	1390.24	3.21256E-03	56.86		
m	47	1466.37	8.94736E-03	72.34		
	48	1541.13	2.98611E-03	58.83		
	49	1588.11	8.33333E-03	38.73		
m	51	1631.46	4.98317E-03	42.95		
M	52	1658.21	1.60075E-03	51.51		
m	53	1661.22	4.67301E-03	33.26		
	54	1719.51	2.44048E-03	54.59		
	55	1730.48	9.96795E-03	19.31	Sum	
	57	1848.60	4.38131E-03	38.66	Sum	
	58	1896.45	3.32341E-03	36.49		
	59	1928.21	2.89216E-03	58.62		
	60	2071.89	1.52778E-03	60.64		
	61	2103.39	8.61111E-03	17.96	S-Esc	
	62	2155.64	1.66667E-03	40.82		
	64	2303.90	1.94444E-03	37.80		
	65	2361.65	4.31944E-03	58.52		
	66	2447.74	1.99074E-03	48.46		
	68	2643.80	1.70139E-03	56.56		

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 1707084-03

HTC-A01-S008-3036-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	2.14E+01	2.33E+00
TL-208	0.87	583.14	*	30.22	1.37E+00	2.63E-01
		860.37		4.48		
		2614.66	*	35.85	1.72E+00	3.17E-01
PB-210	0.96	46.50	*	4.25	1.57E+00	1.09E+00
BI-212	0.95	727.17	*	11.80	1.18E+00	4.78E-01
		1620.62	*	2.75	1.54E+00	1.49E+00
PB-212	0.99	238.63	*	44.60	1.86E+00	1.94E-01
		300.09	*	3.41	1.41E+00	9.83E-01
BI-214	0.98	609.31	*	46.30	1.01E+00	1.95E-01
		1120.29	*	15.10	1.33E+00	5.17E-01
		1764.49	*	15.80	1.48E+00	4.40E-01
		2204.22	*	4.98	1.95E+00	1.12E+00
PB-214	0.99	295.21	*	19.19	1.10E+00	2.92E-01
		351.92	*	37.19	1.30E+00	1.69E-01
RA-224	0.91	240.98	*	3.95	4.17E+00	1.43E+00
RA-226	0.96	186.21	*	3.28	3.08E+00	5.84E+00
AC-228	0.98	338.32	*	11.40	1.66E+00	5.15E-01
		911.07	*	27.70	1.73E+00	3.14E-01
		969.11	*	16.60	1.89E+00	4.15E-01
AM-243	0.99	74.67	*	66.00	2.98E-01	7.25E-02

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.977	2.14E+01	2.33E+00	
TL-208	0.872	1.51E+00	2.02E-01	
PB-210	0.964	1.57E+00	1.09E+00	
BI-212	0.959	1.21E+00	4.55E-01	
PB-212	0.998	1.84E+00	1.90E-01	
BI-214	0.983	1.13E+00	1.67E-01	
PB-214	0.999	1.25E+00	1.46E-01	
RA-224	0.911	4.17E+00	1.43E+00	
RA-226	0.964	3.08E+00	5.84E+00	
AC-228	0.987	1.77E+00	2.25E-01	
AM-243	0.998	2.98E-01	7.25E-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 1707084-03

HTC-A01-S008-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 1:30:26PM
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	2.32256E-01	6.88		
m	4	89.27	5.03390E-02	25.29	Tol.	LU-176
m	5	92.58	6.09955E-02	21.39	Sum	
	6	128.68	2.00973E-02	55.42		
	7	154.77	2.67234E-02	51.47		
	9	209.35	5.37991E-02	21.86	Tol.	CM-243
	12	256.77	2.64073E-02	40.35	Tol.	TH-227
	13	269.99	2.83636E-02	33.14		
	14	280.91	3.45027E-02	48.14	Tol.	HO-166M
	17	314.56	1.29974E-02	54.78		
m	20	356.50	1.18021E-02	67.15	Tol.	BA-133
	21	389.77	1.86150E-02	43.38		
	22	410.02	2.10613E-02	33.42	Tol.	HO-166M
	23	463.20	3.27064E-02	22.81	Tol.	SB-125
	24	510.86	3.61768E-02	24.06		
	28	768.09	8.22591E-03	60.78	Sum	
	29	786.26	1.07943E-02	34.45		
	30	794.52	1.22222E-02	38.30	Sum	
	31	862.71	2.57667E-02	26.32		
	33	935.05	1.58315E-02	41.34	Sum	
	34	950.72	9.11499E-03	43.90	S-Esc	
	35	958.91	6.83160E-03	45.00		
M	36	965.10	1.18070E-02	31.41		
	38	991.54	1.59933E-02	25.31		
	39	1031.74	9.18651E-03	42.81		
	41	1238.37	1.38625E-02	35.45	Tol.	CO-56
	42	1337.29	7.72569E-03	37.45	Sum	
	43	1360.39	5.87354E-03	40.68		
	44	1378.39	5.63347E-03	44.33		
	45	1390.24	3.21256E-03	56.86		
m	47	1466.37	8.94736E-03	72.34		
	48	1541.13	2.98611E-03	58.83		
	49	1588.11	8.33333E-03	38.73		
m	51	1631.46	4.98317E-03	42.95		

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	52	1658.21	1.60075E-03	51.51		
m	53	1661.22	4.67301E-03	33.26		
	54	1719.51	2.44048E-03	54.59		
	55	1730.48	9.96795E-03	19.31	Sum	
	57	1848.60	4.38131E-03	38.66	Sum	
	58	1896.45	3.32341E-03	36.49		
	59	1928.21	2.89216E-03	58.62		
	60	2071.89	1.52778E-03	60.64		
	61	2103.39	8.61111E-03	17.96	S-Esc	
	62	2155.64	1.66667E-03	40.82		
	64	2303.90	1.94444E-03	37.80		
	65	2361.65	4.31944E-03	58.52		
	66	2447.74	1.99074E-03	48.46		
	68	2643.80	1.70139E-03	56.56		

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	-4.36E-01	1.85E+00	1.85E+00
+		NA-22	1274.54		99.94	-4.78E-02	7.75E-02	7.75E-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	1.21E-02	4.26E-02	4.26E-02
+		K-40	1460.81	*	10.67	2.14E+01	8.74E-01	8.74E-01
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.15E-02	6.34E-02	6.34E-02
			78.34		96.00	2.05E-01		8.44E-02
+		SC-46	889.25		99.98	1.14E-01	1.63E-01	1.63E-01
			1120.51		99.99	3.87E-01		2.62E-01
+		V-48	983.52		99.98	1.03E+00	4.31E+00	4.31E+00
			1312.10		97.50	-1.48E+00		4.82E+00
+		CR-51	320.08		9.83	3.13E-01	6.31E+00	6.31E+00

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	MN-54	834.83	99.97	-2.07E-02	9.07E-02	9.07E-02
+	CO-56	846.75	99.96	-1.06E-01	1.36E-01	1.36E-01
		1037.75	14.03	2.30E-01		1.08E+00
		1238.25	67.00	4.43E-01		3.95E-01
		1771.40	15.51	-1.96E-01		8.30E-01
		2598.48	16.90	-3.45E-03		7.25E-01
+	CO-57	122.06	85.51	1.16E-02	7.43E-02	7.43E-02
		136.48	10.60	1.03E-01		6.07E-01
+	CO-58	810.76	99.40	1.56E-02	1.60E-01	1.60E-01
+	FE-59	1099.22	56.50	1.45E-01	6.64E-01	6.64E-01
		1291.56	43.20	-2.63E-01		7.08E-01
+	CO-60	1173.22	100.00	-4.66E-02	6.47E-02	8.00E-02
		1332.49	100.00	8.11E-03		6.47E-02
+	ZN-65	1115.52	50.75	-4.12E-02	1.86E-01	1.86E-01
+	GA-67	93.31	35.70	2.93E+08	1.71E+08	1.71E+08
		208.95	2.24	2.99E+09		2.50E+09
		300.22	16.00	-9.13E+08		3.65E+08
+	SE-75	121.11	16.70	1.16E-01	1.49E-01	5.20E-01
		136.00	59.20	2.52E-02		1.49E-01
		264.65	59.80	-3.75E-02		1.62E-01
		279.53	25.20	2.71E-01		4.23E-01
		400.65	11.40	-3.70E-01		9.00E-01
+	RB-82	776.52	13.00	-2.82E+00	6.65E+00	6.65E+00
+	RB-83	520.41	46.00	-1.42E-01	2.56E-01	2.56E-01
		529.64	30.30	-4.99E-02		4.12E-01
		552.65	16.40	-4.50E-02		7.55E-01
+	KR-85	513.99	0.43	3.09E+01	2.00E+01	2.00E+01
+	SR-85	513.99	99.27	3.75E-01	2.42E-01	2.42E-01
+	Y-88	898.02	93.40	-1.31E-02	8.54E-02	1.22E-01
		1836.01	99.38	-1.71E-02		8.54E-02
+	MO-93	263.06	56.72	-2.28E-02	4.79E-02	9.59E-02
		684.67	99.68	3.54E-02		6.57E-02
		1477.11	99.08	-1.67E-02		4.79E-02
+	NB-93M	16.57	9.43	-1.38E-01	5.39E-01	5.39E-01
+	NB-94	702.63	100.00	-7.48E-03	6.50E-02	6.51E-02
		871.10	100.00	-1.25E-03		6.50E-02
+	NB-95	765.79	99.81	2.78E-01	5.15E-01	5.15E-01
+	NB-95M	235.69	25.00	-2.67E+08	3.48E+07	3.48E+07
+	ZR-95	724.18	43.70	-2.97E-02	3.44E-01	5.39E-01
		756.72	55.30	4.55E-02		3.44E-01
+	MO-99	181.06	6.20	4.26E+09	2.25E+10	3.54E+10
		739.58	12.80	3.94E+09		2.25E+10
		778.00	4.50	-1.72E+10		5.92E+10
+	RU-103	497.08	89.00	-1.84E-01	3.31E-01	3.31E-01
+	RU-106	621.84	9.80	1.79E-01	7.33E-01	7.33E-01
+	AG-108M	433.93	89.90	-2.22E-02	6.01E-02	6.01E-02
		614.37	90.40	-3.21E-03		8.18E-02
		722.95	90.50	1.19E-03		7.64E-02

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CD-109	88.03	3.72	-2.90E-01	2.09E+00	2.09E+00
+	AG-110M	657.75	93.14	1.65E-03	9.18E-02	9.18E-02
		677.61	10.53	-3.57E-01		7.40E-01
		706.67	16.46	1.05E-01		5.51E-01
		763.93	21.98	9.72E-02		3.84E-01
		884.67	71.63	-5.00E-02		1.12E-01
		1384.27	23.94	8.38E-03		2.91E-01
+	CD-113M	263.70	0.02	-5.62E+01	2.33E+02	2.33E+02
+	SN-113	255.12	1.93	1.21E+00	1.65E-01	4.63E+00
		391.69	64.90	1.56E-02		1.65E-01
+	TE123M	159.00	84.10	-1.54E-02	1.03E-01	1.03E-01
+	SB-124	602.71	97.87	-8.75E-02	1.98E-01	1.98E-01
		645.85	7.26	-5.82E-01		2.73E+00
		722.78	11.10	2.98E-02		1.90E+00
		1691.02	49.00	-2.26E-02		3.01E-01
+	I-125	35.49	6.49	2.01E+00	2.54E+00	2.54E+00
+	SB-125	176.33	6.89	-1.69E-01	2.03E-01	7.61E-01
		427.89	29.33	5.46E-02		2.03E-01
		463.38	10.35	1.29E+00		7.53E-01
		600.56	17.80	5.12E-02		3.96E-01
		635.90	11.32	-1.07E-01		5.93E-01
+	SB-126	414.70	83.30	1.41E+00	1.39E+01	1.58E+01
		666.33	99.60	-5.15E+00		1.49E+01
		695.00	99.60	-2.49E+00		1.39E+01
		720.50	53.80	-4.69E+00		2.92E+01
+	SN-126	87.57	37.00	1.86E-01	1.79E-01	1.79E-01
+	SB-127	473.00	25.00	1.25E+06	7.14E+06	8.60E+06
		685.20	35.70	3.84E+06		7.14E+06
		783.80	14.70	4.18E+06		2.04E+07
+	I-129	29.78	57.00	7.77E-03	1.04E-01	1.04E-01
		33.60	13.20	-1.24E-01		4.19E-01
		39.58	7.52	-2.06E-01		6.52E-01
+	I-131	284.30	6.05	-1.48E+03	2.88E+02	4.01E+03
		364.48	81.20	-1.26E+00		2.88E+02
		636.97	7.26	-3.33E+02		3.85E+03
		722.89	1.80	2.61E+02		1.67E+04
+	TE-132	49.72	13.10	3.38E+07	5.54E+07	3.60E+08
		228.16	88.00	1.73E+07		5.54E+07
+	BA-133	81.00	33.00	-8.06E-01	1.32E-01	1.78E-01
		302.84	17.80	-3.47E-02		3.60E-01
		356.01	60.00	-1.37E-01		1.32E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-2.61E+05	5.76E+04	5.76E+04
+	CS-134	563.23	8.38	4.19E-01	7.85E-02	8.19E-01
		569.32	15.43	-1.56E-01		4.30E-01
		604.70	97.60	1.65E-03		7.85E-02
		795.84	85.40	8.49E-02		1.01E-01
		801.93	8.73	1.59E-01		8.10E-01
+	CS-135	268.24	16.00	3.63E-01	3.94E-01	3.94E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	6.65E+01	1.02E+01	1.14E+02
			163.89	4.61	4.73E+00		1.78E+02
			176.55	13.56	-1.34E+01		6.04E+01
			273.65	12.66	2.60E+00		8.32E+01
			340.57	48.50	5.66E+00		2.82E+01
			818.50	99.70	-2.91E+00		1.02E+01
			1048.07	79.60	-2.79E-01		1.43E+01
			1235.34	19.70	1.58E+00		9.35E+01
+		CS-137	661.65	85.12	4.59E-02	8.37E-02	8.37E-02
+		LA-138	788.74	34.00	1.71E-02	8.45E-02	2.17E-01
			1435.80	66.00	-4.70E-02		8.45E-02
+		CE-139	165.85	80.35	3.03E-02	9.98E-02	9.98E-02
+		BA-140	162.64	6.70	3.96E+01	4.66E+01	1.43E+02
			304.84	4.50	4.79E+01		2.44E+02
			423.70	3.20	-1.52E+02		3.28E+02
			437.55	2.00	-3.20E+01		5.56E+02
			537.32	25.00	1.12E+01		4.66E+01
+		LA-140	328.77	20.50	9.15E+00	1.19E+01	5.84E+01
			487.03	45.50	1.78E+00		2.54E+01
			815.85	23.50	-2.19E+01		4.88E+01
			1596.49	95.49	-1.85E+00		1.19E+01
+		CE-141	145.44	48.40	7.36E-01	8.34E-01	8.34E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-9.59E-02	5.86E-01	5.86E-01
+		PM-144	476.78	42.00	-5.76E-02	7.60E-02	1.51E-01
			618.01	98.60	-8.05E-03		7.60E-02
			696.49	99.49	2.07E-02		7.67E-02
+		PM-145	36.85	21.70	-1.51E-01	1.31E-01	2.40E-01
			37.36	39.70	-4.41E-02		1.31E-01
			42.30	15.10	-4.27E-02		3.27E-01
			72.40	2.31	-2.50E+00		3.07E+00
+		PM-146	453.90	39.94	9.64E-02	1.57E-01	1.57E-01
			735.90	14.01	5.76E-02		4.63E-01
			747.13	13.10	-1.99E-01		4.83E-01
+		ND-147	91.11	28.90	2.36E+02	1.12E+02	1.12E+02
			531.02	13.10	-5.86E+01		2.00E+02
+		PM-149	285.90	3.10	1.90E+12	3.05E+13	3.05E+13
+		EU-152	121.78	20.50	5.47E-02	2.45E-01	2.45E-01
			244.69	5.40	-9.16E-01		1.04E+00
			344.27	19.13	4.84E-02		2.94E-01
			778.89	9.20	2.02E-01		7.09E-01
			964.01	10.40	-3.57E+00		8.55E-01
			1085.78	7.22	3.71E-01		1.04E+00
			1112.02	9.60	-1.75E-02		7.54E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	1407.95		14.94	1.75E-01	2.45E-01	4.83E-01
+	GD-153	97.43		31.30	5.91E-03	2.13E-01	2.13E-01
		103.18		22.20	1.90E-01		2.99E-01
+	EU-154	123.07		40.50	-4.37E-02	1.22E-01	1.22E-01
		723.30		19.70	5.60E-03		3.58E-01
		873.19		11.50	-7.39E-02		5.70E-01
		996.32		10.30	-1.08E-01		6.93E-01
		1004.76		17.90	1.49E-01		4.02E-01
		1274.45		35.50	-1.28E-01		2.08E-01
+	EU-155	86.50		30.90	1.52E-01	2.20E-01	2.20E-01
		105.30		20.70	4.06E-02		2.49E-01
+	EU-156	811.77		10.40	1.02E+01	4.92E+01	4.92E+01
		1153.47		7.20	4.26E+01		9.81E+01
		1230.71		8.90	-2.60E+01		7.85E+01
+	HO-166M	184.41		72.60	1.76E-01	8.76E-02	8.76E-02
		280.45		29.60	1.26E-02		1.99E-01
		410.94		11.10	4.88E-01		5.98E-01
		711.69		54.10	-7.60E-03		1.27E-01
+	TM-171	66.72		0.14	-8.42E+01	4.71E+01	4.71E+01
+	HF-172	67.35		5.31	-2.25E-01	4.83E-01	1.24E+00
		125.81		11.30	-2.55E-02		4.83E-01
+	LU-172	181.53		20.60	6.94E+02	2.90E+03	5.77E+03
		900.72		29.81	-2.02E+03		4.75E+03
		1093.66		62.50	1.08E+03		2.90E+03
+	LU-173	100.72		5.24	-2.54E-01	3.45E-01	1.07E+00
		272.11		21.20	5.82E-02		3.45E-01
+	HF-175	343.40		84.00	2.84E-02	1.76E-01	1.76E-01
+	LU-176	88.34		13.30	-7.03E-02	5.97E-02	5.07E-01
		201.83		86.00	1.21E-02		6.08E-02
		306.78		94.00	2.61E-02		5.97E-02
+	HF-181	133.02		41.70	-9.58E-02	3.35E-01	5.86E-01
		345.85		17.20	2.61E-01		1.61E+00
		482.03		82.80	-1.48E-01		3.35E-01
+	TA-182	67.75		41.20	-4.73E-02	2.61E-01	2.61E-01
		1121.30		34.90	1.01E+00		6.14E-01
		1189.05		16.23	2.65E-01		9.34E-01
		1221.41		26.98	-1.82E-01		5.31E-01
		1231.02		11.44	-4.32E-01		1.31E+00
+	IR-192	308.46		29.68	1.79E-01	2.94E-01	4.79E-01
		468.07		48.10	3.28E-02		2.94E-01
+	HG-203	279.19		77.30	2.14E-01	3.33E-01	3.33E-01
+	TL-204	374.74		94.11	-3.27E-03	6.20E-02	6.20E-02
		899.15		99.16	-8.20E-03		6.50E-02
		911.74		91.10	5.75E-01		1.70E-01
+	BI-207	569.67		97.72	6.94E-03	6.49E-02	6.49E-02
		1063.62		74.90	3.19E-02		9.86E-02
+	TL-208	583.14	*	30.22	1.37E+00	1.12E-01	2.87E-01
		860.37		4.48	2.25E+00		1.81E+00
		2614.66	*	35.85	1.72E+00		1.12E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-210M	262.00		45.00	7.94E-03	1.20E-01	1.20E-01
		300.00		23.00	-1.10E+00		2.87E-01
+	PB-210	46.50	*	4.25	1.57E+00	1.75E+00	1.75E+00
+	PB-211	404.84		2.90	9.23E-01	2.13E+00	2.13E+00
		831.96		2.90	-4.89E-01		2.39E+00
+	BI-212	727.17	*	11.80	1.18E+00	6.87E-01	6.87E-01
		1620.62	*	2.75	1.54E+00		4.06E+00
+	PB-212	238.63	*	44.60	1.86E+00	2.34E-01	2.34E-01
		300.09	*	3.41	1.41E+00		1.56E+00
+	BI-214	609.31	*	46.30	1.01E+00	2.20E-01	2.20E-01
		1120.29	*	15.10	1.33E+00		7.48E-01
		1764.49	*	15.80	1.48E+00		5.11E-01
		2204.22	*	4.98	1.95E+00		1.57E+00
+	PB-214	295.21	*	19.19	1.10E+00	2.74E-01	4.16E-01
		351.92	*	37.19	1.30E+00		2.74E-01
+	RN-219	401.80		6.50	1.83E-01	9.29E-01	9.29E-01
+	RA-223	323.87		3.88	-1.69E+00	1.46E+00	1.46E+00
+	RA-224	240.98	*	3.95	4.17E+00	2.65E+00	2.65E+00
+	RA-225	40.00		31.00	2.23E+00	1.50E+01	1.50E+01
+	RA-226	186.21	*	3.28	3.08E+00	2.42E+00	2.42E+00
+	TH-227	50.10		8.40	-2.69E-01	5.85E-01	5.85E-01
		236.00		11.50	-4.59E+00		5.97E-01
		256.20		6.30	1.02E+00		9.31E-01
+	AC-228	338.32	*	11.40	1.66E+00	3.80E-01	7.54E-01
		911.07	*	27.70	1.73E+00		3.80E-01
		969.11	*	16.60	1.89E+00		7.96E-01
+	TH-230	48.44		16.90	-1.65E-02	3.15E-01	3.15E-01
		62.85		4.60	1.51E+00		1.38E+00
		67.67		0.37	-2.93E+00		1.61E+01
+	PA-231	283.67		1.60	-2.80E+00	2.74E+00	3.47E+00
		302.67		2.30	-2.64E-01		2.74E+00
+	TH-231	25.64		14.70	-2.64E+00	5.19E-01	5.19E-01
		84.21		6.40	-8.46E-01		9.47E-01
+	PA-233	311.98		38.60	3.16E-02	1.84E+00	1.84E+00
+	PA-234	131.20		20.40	-5.13E-03	2.51E-01	2.51E-01
		733.99		8.80	2.19E-01		6.99E-01
		946.00		12.00	-2.01E-01		5.23E-01
+	PA-234M	1001.03		0.92	3.45E+00	7.90E+00	7.90E+00
+	TH-234	63.29		3.80	1.56E+00	1.67E+00	1.67E+00
+	U-235	143.76		10.50	1.14E-01	4.76E-01	4.76E-01
		163.35		4.70	2.78E-02		1.04E+00
		205.31		4.70	-1.28E-01		1.11E+00
+	NP-237	86.50		12.60	3.60E-01	5.20E-01	5.20E-01
+	NP-239	106.10		22.70	3.93E+11	5.84E+11	5.84E+11
		228.18		10.70	3.95E+11		1.26E+12
		277.60		14.10	8.29E+11		1.16E+12
+	AM-241	59.54		35.90	-1.25E-01	1.56E-01	1.56E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	AM-243	74.67	*	66.00	2.98E-01	1.69E-01	1.69E-01
+	CM-243	209.75		3.29	2.78E+00	4.45E-01	1.84E+00
		228.14		10.60	1.53E-01		4.88E-01
		277.60		14.00	3.20E-01		4.45E-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	1.85E+00	1.85E+00	-4.36E-01	8.78E-01
	NA-22	1274.54		99.94	7.75E-02	7.75E-02	-4.78E-02	3.57E-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	4.26E-02	4.26E-02	1.21E-02	1.77E-02
+	K-40	1460.81	*	10.67	8.74E-01	8.74E-01	2.14E+01	4.08E-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	6.34E-02	6.34E-02	-1.15E-02	3.11E-02
		78.34		96.00	8.44E-02		2.05E-01	4.16E-02
	SC-46	889.25		99.98	1.63E-01	1.63E-01	1.14E-01	7.65E-02
		1120.51		99.99	2.62E-01		3.87E-01	1.25E-01
	V-48	983.52		99.98	4.31E+00	4.31E+00	1.03E+00	2.00E+00
		1312.10		97.50	4.82E+00		-1.48E+00	2.21E+00
	CR-51	320.08		9.83	6.31E+00	6.31E+00	3.13E-01	3.04E+00
	MN-54	834.83		99.97	9.07E-02	9.07E-02	-2.07E-02	4.28E-02
	CO-56	846.75		99.96	1.36E-01	1.36E-01	-1.06E-01	6.30E-02
		1037.75		14.03	1.08E+00		2.30E-01	4.99E-01
		1238.25		67.00	3.95E-01		4.43E-01	1.88E-01
		1771.40		15.51	8.30E-01		-1.96E-01	3.61E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CO-56	2598.48	16.90	7.25E-01	1.36E-01	-3.45E-03	2.97E-01
CO-57	122.06	85.51	7.43E-02	7.43E-02	1.16E-02	3.63E-02
	136.48	10.60	6.07E-01		1.03E-01	2.96E-01
CO-58	810.76	99.40	1.60E-01	1.60E-01	1.56E-02	7.49E-02
FE-59	1099.22	56.50	6.64E-01	6.64E-01	1.45E-01	3.12E-01
	1291.56	43.20	7.08E-01		-2.63E-01	3.24E-01
CO-60	1173.22	100.00	8.00E-02	6.47E-02	-4.66E-02	3.72E-02
	1332.49	100.00	6.47E-02		8.11E-03	2.94E-02
ZN-65	1115.52	50.75	1.86E-01	1.86E-01	-4.12E-02	8.62E-02
GA-67	93.31	35.70	1.71E+08	1.71E+08	2.93E+08	8.41E+07
	208.95	2.24	2.50E+09		2.99E+09	1.22E+09
	300.22	16.00	3.65E+08		-9.13E+08	1.77E+08
SE-75	121.11	16.70	5.20E-01	1.49E-01	1.16E-01	2.53E-01
	136.00	59.20	1.49E-01		2.52E-02	7.24E-02
	264.65	59.80	1.62E-01		-3.75E-02	7.84E-02
	279.53	25.20	4.23E-01		2.71E-01	2.05E-01
	400.65	11.40	9.00E-01		-3.70E-01	4.32E-01
RB-82	776.52	13.00	6.65E+00	6.65E+00	-2.82E+00	3.12E+00
RB-83	520.41	46.00	2.56E-01	2.56E-01	-1.42E-01	1.21E-01
	529.64	30.30	4.12E-01		-4.99E-02	1.96E-01
	552.65	16.40	7.55E-01		-4.50E-02	3.57E-01
KR-85	513.99	0.43	2.00E+01	2.00E+01	3.09E+01	9.65E+00
SR-85	513.99	99.27	2.42E-01	2.42E-01	3.75E-01	1.17E-01
Y-88	898.02	93.40	1.22E-01	8.54E-02	-1.31E-02	5.64E-02
	1836.01	99.38	8.54E-02		-1.71E-02	3.58E-02
MO-93	263.06	56.72	9.59E-02	4.79E-02	-2.28E-02	4.64E-02
	684.67	99.68	6.57E-02		3.54E-02	3.10E-02
	1477.11	99.08	4.79E-02		-1.67E-02	2.07E-02
NB-93M	16.57	9.43	5.39E-01	5.39E-01	-1.38E-01	2.54E-01
NB-94	702.63	100.00	6.51E-02	6.50E-02	-7.48E-03	3.07E-02
	871.10	100.00	6.50E-02		-1.25E-03	3.04E-02
NB-95	765.79	99.81	5.15E-01	5.15E-01	2.78E-01	2.44E-01
NB-95M	235.69	25.00	3.48E+07	3.48E+07	-2.67E+08	1.70E+07
ZR-95	724.18	43.70	5.39E-01	3.44E-01	-2.97E-02	2.57E-01
	756.72	55.30	3.44E-01		4.55E-02	1.62E-01
MO-99	181.06	6.20	3.54E+10	2.25E+10	4.26E+09	1.72E+10
	739.58	12.80	2.25E+10		3.94E+09	1.06E+10
	778.00	4.50	5.92E+10		-1.72E+10	2.77E+10
RU-103	497.08	89.00	3.31E-01	3.31E-01	-1.84E-01	1.57E-01
RU-106	621.84	9.80	7.33E-01	7.33E-01	1.79E-01	3.46E-01
AG-108M	433.93	89.90	6.01E-02	6.01E-02	-2.22E-02	2.86E-02
	614.37	90.40	8.18E-02		-3.21E-03	3.91E-02
	722.95	90.50	7.64E-02		1.19E-03	3.61E-02
CD-109	88.03	3.72	2.09E+00	2.09E+00	-2.90E-01	1.03E+00
AG-110M	657.75	93.14	9.18E-02	9.18E-02	1.65E-03	4.35E-02
	677.61	10.53	7.40E-01		-3.57E-01	3.48E-01
	706.67	16.46	5.51E-01		1.05E-01	2.61E-01
	763.93	21.98	3.84E-01		9.72E-02	1.81E-01
	884.67	71.63	1.12E-01		-5.00E-02	5.19E-02
	1384.27	23.94	2.91E-01		8.38E-03	1.29E-01
CD-113M	263.70	0.02	2.33E+02	2.33E+02	-5.62E+01	1.13E+02
SN-113	255.12	1.93	4.63E+00	1.65E-01	1.21E+00	2.24E+00
	391.69	64.90	1.65E-01		1.56E-02	7.93E-02

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
TE123M	159.00	84.10	1.03E-01	1.03E-01	-1.54E-02	4.99E-02
SB-124	602.71	97.87	1.98E-01	1.98E-01	-8.75E-02	9.38E-02
	645.85	7.26	2.73E+00		-5.82E-01	1.29E+00
	722.78	11.10	1.90E+00		2.98E-02	9.01E-01
	1691.02	49.00	3.01E-01		-2.26E-02	1.29E-01
I-125	35.49	6.49	2.54E+00	2.54E+00	2.01E+00	1.23E+00
SB-125	176.33	6.89	7.61E-01	2.03E-01	-1.69E-01	3.70E-01
	427.89	29.33	2.03E-01		5.46E-02	9.71E-02
	463.38	10.35	7.53E-01		1.29E+00	3.63E-01
	600.56	17.80	3.96E-01		5.12E-02	1.88E-01
	635.90	11.32	5.93E-01		-1.07E-01	2.81E-01
SB-126	414.70	83.30	1.58E+01	1.39E+01	1.41E+00	7.58E+00
	666.33	99.60	1.49E+01		-5.15E+00	7.04E+00
	695.00	99.60	1.39E+01		-2.49E+00	6.55E+00
	720.50	53.80	2.92E+01		-4.69E+00	1.38E+01
SN-126	87.57	37.00	1.79E-01	1.79E-01	1.86E-01	8.82E-02
SB-127	473.00	25.00	8.60E+06	7.14E+06	1.25E+06	4.09E+06
	685.20	35.70	7.14E+06		3.84E+06	3.37E+06
	783.80	14.70	2.04E+07		4.18E+06	9.70E+06
I-129	29.78	57.00	1.04E-01	1.04E-01	7.77E-03	5.08E-02
	33.60	13.20	4.19E-01		-1.24E-01	2.04E-01
	39.58	7.52	6.52E-01		-2.06E-01	3.17E-01
I-131	284.30	6.05	4.01E+03	2.88E+02	-1.48E+03	1.94E+03
	364.48	81.20	2.88E+02		-1.26E+00	1.38E+02
	636.97	7.26	3.85E+03		-3.33E+02	1.82E+03
	722.89	1.80	1.67E+04		2.61E+02	7.88E+03
TE-132	49.72	13.10	3.60E+08	5.54E+07	3.38E+07	1.76E+08
	228.16	88.00	5.54E+07		1.73E+07	2.68E+07
BA-133	81.00	33.00	1.78E-01	1.32E-01	-8.06E-01	8.73E-02
	302.84	17.80	3.60E-01		-3.47E-02	1.75E-01
	356.01	60.00	1.32E-01		-1.37E-01	6.41E-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	5.76E+04	5.76E+04	-2.61E+05	2.82E+04
CS-134	563.23	8.38	8.19E-01	7.85E-02	4.19E-01	3.90E-01
	569.32	15.43	4.30E-01		-1.56E-01	2.04E-01
	604.70	97.60	7.85E-02		1.65E-03	3.75E-02
	795.84	85.40	1.01E-01		8.49E-02	4.79E-02
	801.93	8.73	8.10E-01		1.59E-01	3.80E-01
CS-135	268.24	16.00	3.94E-01	3.94E-01	3.63E-01	1.91E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.14E+02	1.02E+01	6.65E+01	5.56E+01
	163.89	4.61	1.78E+02		4.73E+00	8.64E+01
	176.55	13.56	6.04E+01		-1.34E+01	2.94E+01
	273.65	12.66	8.32E+01		2.60E+00	4.04E+01
	340.57	48.50	2.82E+01		5.66E+00	1.37E+01
	818.50	99.70	1.02E+01		-2.91E+00	4.78E+00
	1048.07	79.60	1.43E+01		-2.79E-01	6.65E+00
	1235.34	19.70	9.35E+01		1.58E+00	4.44E+01
CS-137	661.65	85.12	8.37E-02	8.37E-02	4.59E-02	3.98E-02
LA-138	788.74	34.00	2.17E-01	8.45E-02	1.71E-02	1.03E-01
	1435.80	66.00	8.45E-02		-4.70E-02	3.76E-02

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CE-139	165.85	80.35	9.98E-02	9.98E-02	3.03E-02	4.85E-02
BA-140	162.64	6.70	1.43E+02	4.66E+01	3.96E+01	6.96E+01
	304.84	4.50	2.44E+02		4.79E+01	1.18E+02
	423.70	3.20	3.28E+02		-1.52E+02	1.57E+02
	437.55	2.00	5.56E+02		-3.20E+01	2.66E+02
	537.32	25.00	4.66E+01		1.12E+01	2.21E+01
LA-140	328.77	20.50	5.84E+01	1.19E+01	9.15E+00	2.82E+01
	487.03	45.50	2.54E+01		1.78E+00	1.21E+01
	815.85	23.50	4.88E+01		-2.19E+01	2.28E+01
	1596.49	95.49	1.19E+01		-1.85E+00	5.30E+00
CE-141	145.44	48.40	8.34E-01	8.34E-01	7.36E-01	4.07E-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	5.86E-01	5.86E-01	-9.59E-02	2.86E-01
PM-144	476.78	42.00	1.51E-01	7.60E-02	-5.76E-02	7.18E-02
	618.01	98.60	7.60E-02		-8.05E-03	3.60E-02
	696.49	99.49	7.67E-02		2.07E-02	3.62E-02
PM-145	36.85	21.70	2.40E-01	1.31E-01	-1.51E-01	1.17E-01
	37.36	39.70	1.31E-01		-4.41E-02	6.36E-02
	42.30	15.10	3.27E-01		-4.27E-02	1.59E-01
	72.40	2.31	3.07E+00		-2.50E+00	1.51E+00
PM-146	453.90	39.94	1.57E-01	1.57E-01	9.64E-02	7.50E-02
	735.90	14.01	4.63E-01		5.76E-02	2.18E-01
	747.13	13.10	4.83E-01		-1.99E-01	2.27E-01
ND-147	91.11	28.90	1.12E+02	1.12E+02	2.36E+02	5.53E+01
	531.02	13.10	2.00E+02		-5.86E+01	9.50E+01
PM-149	285.90	3.10	3.05E+13	3.05E+13	1.90E+12	1.48E+13
EU-152	121.78	20.50	2.45E-01	2.45E-01	5.47E-02	1.19E-01
	244.69	5.40	1.04E+00		-9.16E-01	5.06E-01
	344.27	19.13	2.94E-01		4.84E-02	1.41E-01
	778.89	9.20	7.09E-01		2.02E-01	3.33E-01
	964.01	10.40	8.55E-01		-3.57E+00	4.05E-01
	1085.78	7.22	1.04E+00		3.71E-01	4.84E-01
	1112.02	9.60	7.54E-01		-1.75E-02	3.50E-01
	1407.95	14.94	4.83E-01		1.75E-01	2.21E-01
GD-153	97.43	31.30	2.13E-01	2.13E-01	5.91E-03	1.04E-01
	103.18	22.20	2.99E-01		1.90E-01	1.46E-01
EU-154	123.07	40.50	1.22E-01	1.22E-01	-4.37E-02	5.96E-02
	723.30	19.70	3.58E-01		5.60E-03	1.69E-01
	873.19	11.50	5.70E-01		-7.39E-02	2.66E-01
	996.32	10.30	6.93E-01		-1.08E-01	3.23E-01
	1004.76	17.90	4.02E-01		1.49E-01	1.87E-01
	1274.45	35.50	2.08E-01		-1.28E-01	9.57E-02
EU-155	86.50	30.90	2.20E-01	2.20E-01	1.52E-01	1.08E-01
	105.30	20.70	2.49E-01		4.06E-02	1.21E-01
EU-156	811.77	10.40	4.92E+01	4.92E+01	1.02E+01	2.30E+01
	1153.47	7.20	9.81E+01		4.26E+01	4.60E+01
	1230.71	8.90	7.85E+01		-2.60E+01	3.66E+01
HO-166M	184.41	72.60	8.76E-02	8.76E-02	1.76E-01	4.28E-02
	280.45	29.60	1.99E-01		1.26E-02	9.64E-02
	410.94	11.10	5.98E-01		4.88E-01	2.88E-01
	711.69	54.10	1.27E-01		-7.60E-03	5.99E-02

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TM-171	66.72		0.14	4.71E+01	4.71E+01	-8.42E+01	2.31E+01
	HF-172	67.35		5.31	1.24E+00	4.83E-01	-2.25E-01	6.09E-01
		125.81		11.30	4.83E-01		-2.55E-02	2.36E-01
	LU-172	181.53		20.60	5.77E+03	2.90E+03	6.94E+02	2.80E+03
		900.72		29.81	4.75E+03		-2.02E+03	2.20E+03
		1093.66		62.50	2.90E+03		1.08E+03	1.36E+03
	LU-173	100.72		5.24	1.07E+00	3.45E-01	-2.54E-01	5.22E-01
		272.11		21.20	3.45E-01		5.82E-02	1.68E-01
	HF-175	343.40		84.00	1.76E-01	1.76E-01	2.84E-02	8.49E-02
	LU-176	88.34		13.30	5.07E-01	5.97E-02	-7.03E-02	2.49E-01
		201.83		86.00	6.08E-02		1.21E-02	2.95E-02
		306.78		94.00	5.97E-02		2.61E-02	2.88E-02
	HF-181	133.02		41.70	5.86E-01	3.35E-01	-9.58E-02	2.86E-01
		345.85		17.20	1.61E+00		2.61E-01	7.74E-01
		482.03		82.80	3.35E-01		-1.48E-01	1.59E-01
	TA-182	67.75		41.20	2.61E-01	2.61E-01	-4.73E-02	1.28E-01
		1121.30		34.90	6.14E-01		1.01E+00	2.94E-01
		1189.05		16.23	9.34E-01		2.65E-01	4.37E-01
		1221.41		26.98	5.31E-01		-1.82E-01	2.47E-01
		1231.02		11.44	1.31E+00		-4.32E-01	6.10E-01
	IR-192	308.46		29.68	4.79E-01	2.94E-01	1.79E-01	2.32E-01
		468.07		48.10	2.94E-01		3.28E-02	1.40E-01
	HG-203	279.19		77.30	3.33E-01	3.33E-01	2.14E-01	1.62E-01
	TL-204	374.74		94.11	6.20E-02	6.20E-02	-3.27E-03	2.97E-02
		899.15		99.16	6.50E-02		-8.20E-03	3.02E-02
		911.74		91.10	1.70E-01		5.75E-01	8.25E-02
	BI-207	569.67		97.72	6.49E-02	6.49E-02	6.94E-03	3.09E-02
		1063.62		74.90	9.86E-02		3.19E-02	4.60E-02
+	TL-208	583.14	*	30.22	2.87E-01	1.12E-01	1.37E+00	1.38E-01
		860.37		4.48	1.81E+00		2.25E+00	8.56E-01
		2614.66	*	35.85	1.12E-01		1.72E+00	4.28E-02
	BI-210M	262.00		45.00	1.20E-01	1.20E-01	7.94E-03	5.81E-02
		300.00		23.00	2.87E-01		-1.10E+00	1.39E-01
+	PB-210	46.50	*	4.25	1.75E+00	1.75E+00	1.57E+00	8.60E-01
	PB-211	404.84		2.90	2.13E+00	2.13E+00	9.23E-01	1.02E+00
		831.96		2.90	2.39E+00		-4.89E-01	1.12E+00
+	BI-212	727.17	*	11.80	6.87E-01	6.87E-01	1.18E+00	3.28E-01
		1620.62	*	2.75	4.06E+00		1.54E+00	1.91E+00
+	PB-212	238.63	*	44.60	2.34E-01	2.34E-01	1.86E+00	1.15E-01
		300.09	*	3.41	1.56E+00		1.41E+00	7.52E-01
+	BI-214	609.31	*	46.30	2.20E-01	2.20E-01	1.01E+00	1.06E-01
		1120.29	*	15.10	7.48E-01		1.33E+00	3.57E-01
		1764.49	*	15.80	5.11E-01		1.48E+00	2.33E-01
		2204.22	*	4.98	1.57E+00		1.95E+00	7.02E-01
+	PB-214	295.21	*	19.19	4.16E-01	2.74E-01	1.10E+00	2.03E-01
		351.92	*	37.19	2.74E-01		1.30E+00	1.34E-01
	RN-219	401.80		6.50	9.29E-01	9.29E-01	1.83E-01	4.46E-01
	RA-223	323.87		3.88	1.46E+00	1.46E+00	-1.69E+00	7.03E-01
+	RA-224	240.98	*	3.95	2.65E+00	2.65E+00	4.17E+00	1.30E+00
	RA-225	40.00		31.00	1.50E+01	1.50E+01	2.23E+00	7.28E+00
+	RA-226	186.21	*	3.28	2.42E+00	2.42E+00	3.08E+00	1.19E+00
	TH-227	50.10		8.40	5.85E-01	5.85E-01	-2.69E-01	2.85E-01
		236.00		11.50	5.97E-01		-4.59E+00	2.92E-01

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-227	256.20		6.30	9.31E-01	5.85E-01	1.02E+00	4.52E-01
+	AC-228	338.32	*	11.40	7.54E-01	3.80E-01	1.66E+00	3.68E-01
		911.07	*	27.70	3.80E-01		1.73E+00	1.82E-01
		969.11	*	16.60	7.96E-01		1.89E+00	3.84E-01
	TH-230	48.44		16.90	3.15E-01	3.15E-01	-1.65E-02	1.54E-01
		62.85		4.60	1.38E+00		1.51E+00	6.76E-01
		67.67		0.37	1.61E+01		-2.93E+00	7.91E+00
	PA-231	283.67		1.60	3.47E+00	2.74E+00	-2.80E+00	1.68E+00
		302.67		2.30	2.74E+00		-2.64E-01	1.33E+00
	TH-231	25.64		14.70	5.19E-01	5.19E-01	-2.64E+00	2.53E-01
		84.21		6.40	9.47E-01		-8.46E-01	4.65E-01
	PA-233	311.98		38.60	1.84E+00	1.84E+00	3.16E-02	8.89E-01
	PA-234	131.20		20.40	2.51E-01	2.51E-01	-5.13E-03	1.22E-01
		733.99		8.80	6.99E-01		2.19E-01	3.28E-01
		946.00		12.00	5.23E-01		-2.01E-01	2.43E-01
	PA-234M	1001.03		0.92	7.90E+00	7.90E+00	3.45E+00	3.69E+00
	TH-234	63.29		3.80	1.67E+00	1.67E+00	1.56E+00	8.18E-01
	U-235	143.76		10.50	4.76E-01	4.76E-01	1.14E-01	2.32E-01
		163.35		4.70	1.04E+00		2.78E-02	5.07E-01
		205.31		4.70	1.11E+00		-1.28E-01	5.38E-01
	NP-237	86.50		12.60	5.20E-01	5.20E-01	3.60E-01	2.56E-01
	NP-239	106.10		22.70	5.84E+11	5.84E+11	3.93E+11	2.85E+11
		228.18		10.70	1.26E+12		3.95E+11	6.12E+11
		277.60		14.10	1.16E+12		8.29E+11	5.61E+11
	AM-241	59.54		35.90	1.56E-01	1.56E-01	-1.25E-01	7.62E-02
+	AM-243	74.67	*	66.00	1.69E-01	1.69E-01	2.98E-01	8.36E-02
	CM-243	209.75		3.29	1.84E+00	4.45E-01	2.78E+00	8.98E-01
		228.14		10.60	4.88E-01		1.53E-01	2.36E-01
		277.60		14.00	4.45E-01		3.20E-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

Analysis Report for 1707084-03

HTC-A01-S008-3036-01

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-S008-3036-01

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	90	102	83	170	535	186
25:	100	75	91	89	70	84	82	93
33:	76	82	102	76	98	77	68	105
41:	84	78	82	103	91	128	180	110
49:	104	103	94	115	98	127	136	126
57:	134	138	131	171	155	145	193	308
65:	177	157	177	196	183	173	186	180
73:	191	237	451	377	448	675	220	166
81:	163	204	149	161	217	169	233	292
89:	175	244	203	178	340	280	146	128
97:	139	118	132	106	108	112	121	106
105:	127	139	109	102	123	98	99	110
113:	116	83	113	103	97	100	101	101
121:	135	97	104	104	101	109	105	110
129:	127	143	91	109	112	95	114	88
137:	98	104	111	98	95	95	75	118
145:	90	114	93	89	79	81	77	84
153:	78	118	99	106	78	100	82	82
161:	97	75	88	90	83	86	75	85
169:	75	76	82	91	81	78	77	83
177:	74	85	74	88	82	93	65	89
185:	94	229	163	85	58	89	75	79
193:	70	61	59	89	71	73	71	92
201:	72	78	73	73	74	76	84	70
209:	128	142	74	82	65	53	86	63
217:	83	71	66	74	62	41	53	64
225:	68	55	68	62	63	66	65	47
233:	69	48	66	78	90	282	848	344
241:	140	194	123	79	45	47	55	53
249:	47	54	53	38	49	56	43	47
257:	68	49	49	55	38	30	41	53
265:	35	41	48	62	36	70	91	52
273:	51	39	46	56	56	63	51	45
281:	52	44	40	33	39	41	36	55
289:	48	38	32	38	42	66	178	229
297:	62	37	36	82	74	48	39	23
305:	41	32	38	49	37	42	39	34
313:	39	48	41	44	31	28	27	39
321:	34	38	35	35	39	30	35	70
329:	47	33	39	36	41	42	40	35
337:	49	123	160	60	48	24	43	33
345:	24	26	28	38	31	32	103	356
353:	203	44	25	42	37	29	33	21
361:	24	24	19	29	30	25	33	26

369:	40	20	42	26	25	39	27	19

Sample Title: HTC-A01-S008-3036-01

Channel								
377:	33	22	24	27	35	32	22	27
385:	19	22	33	28	34	35	37	30
393:	28	23	20	25	30	26	22	26
401:	27	37	26	28	38	31	22	29
409:	49	49	37	29	30	17	25	25
417:	27	24	20	28	16	24	21	27
425:	15	23	24	30	23	20	22	17
433:	17	20	30	25	12	25	25	25
441:	19	27	27	25	19	25	26	20
449:	22	19	36	17	23	28	18	23
457:	25	21	14	16	30	29	62	56
465:	20	24	21	18	16	27	16	9
473:	24	21	19	11	17	17	20	13
481:	29	15	20	16	21	23	31	25
489:	15	16	21	24	14	17	16	12
497:	15	17	20	15	23	19	18	18
505:	17	14	16	23	22	73	108	56
513:	29	27	21	25	18	13	15	16
521:	11	18	15	19	18	17	16	18
529:	17	15	14	14	24	14	22	19
537:	23	18	17	15	17	12	18	20
545:	18	13	13	12	18	15	13	21
553:	17	10	17	15	16	17	12	17
561:	17	22	25	19	18	12	18	11
569:	10	22	22	24	22	20	20	19
577:	19	19	12	24	19	49	187	158
585:	30	16	13	22	18	12	20	10
593:	13	16	17	20	12	25	24	15
601:	13	21	20	12	16	21	10	46
609:	178	191	53	19	20	19	23	17
617:	8	21	11	13	17	11	18	18
625:	12	12	10	18	16	7	16	14
633:	11	12	15	19	15	18	17	16
641:	20	20	18	13	18	16	11	17
649:	18	19	12	16	11	13	16	9
657:	10	17	19	14	25	20	18	14
665:	19	17	12	15	11	11	18	14
673:	14	14	14	11	10	13	17	11
681:	10	16	17	13	11	17	18	8
689:	13	8	15	7	11	19	17	7
697:	13	12	15	15	9	15	8	11
705:	18	22	24	8	16	12	17	16
713:	14	10	22	14	17	11	18	16
721:	12	13	19	14	16	16	63	53
729:	14	13	7	10	18	10	10	14
737:	12	4	16	14	12	22	16	12
745:	14	12	13	9	14	4	8	13
753:	10	21	13	8	12	13	13	11
761:	17	8	13	7	8	18	13	29
769:	28	13	12	17	8	17	8	13
777:	13	6	10	8	17	14	11	4
785:	18	31	19	14	10	12	16	4
793:	20	26	35	13	9	9	8	12

801:	10	11	14	12	11	14	9	12

Sample Title: HTC-A01-S008-3036-01

Channel								
809:	8	10	7	8	10	14	10	5
817:	8	10	6	16	12	9	12	12
825:	10	11	10	13	7	8	15	9
833:	14	12	20	14	17	9	13	23
841:	11	14	8	9	10	8	3	12
849:	9	5	15	11	12	7	9	5
857:	5	16	15	25	19	20	12	7
865:	6	8	11	12	8	15	12	5
873:	10	7	9	9	12	10	7	10
881:	11	6	4	5	9	15	9	16
889:	10	11	13	11	7	9	10	7
897:	4	11	9	8	7	12	6	11
905:	13	11	7	14	14	55	155	89
913:	18	13	9	3	8	10	11	12
921:	7	5	4	12	12	14	8	10
929:	4	12	14	10	14	19	16	7
937:	9	8	7	6	7	8	10	4
945:	7	7	4	8	16	13	12	15
953:	6	5	5	7	11	10	16	13
961:	7	7	14	29	30	9	15	65
969:	89	52	5	12	10	12	6	7
977:	9	6	11	10	4	10	10	13
985:	4	3	9	11	12	12	7	8
993:	8	8	18	3	5	14	9	10
1001:	14	6	10	7	8	11	9	6
1009:	5	6	9	5	9	7	6	8
1017:	6	6	13	9	7	4	3	9
1025:	4	8	5	10	8	10	14	15
1033:	11	9	2	8	15	2	8	7
1041:	5	9	11	9	12	8	2	10
1049:	9	8	8	7	7	5	9	9
1057:	10	10	6	6	10	13	9	12
1065:	6	9	7	7	8	6	6	12
1073:	5	8	5	10	8	7	10	3
1081:	8	11	12	9	12	11	4	5
1089:	7	9	8	8	12	15	9	10
1097:	8	11	16	15	11	9	9	8
1105:	9	5	8	7	12	6	13	9
1113:	5	5	7	11	7	13	18	67
1121:	39	8	10	11	11	7	14	9
1129:	9	8	16	6	2	6	14	4
1137:	11	12	11	6	11	4	11	12
1145:	6	5	12	5	9	14	10	11
1153:	6	14	13	8	4	14	13	17
1161:	6	7	7	8	15	10	11	11
1169:	9	11	10	10	7	9	7	8
1177:	15	12	11	8	7	8	11	17
1185:	8	10	13	19	7	11	6	7
1193:	5	8	14	11	10	9	9	12
1201:	12	14	9	8	8	4	11	11
1209:	8	13	7	13	9	11	8	11
1217:	9	5	6	10	13	7	12	9
1225:	13	10	10	7	7	8	12	9

1233:	14	10	13	17	20	39	14	15

Sample Title: HTC-A01-S008-3036-01

Channel								
1241:	9	11	4	5	10	4	5	12
1249:	7	9	6	7	9	9	3	11
1257:	3	10	9	8	10	3	8	4
1265:	5	6	7	5	9	10	1	8
1273:	9	4	11	8	6	7	13	9
1281:	8	7	10	6	8	11	6	6
1289:	4	6	4	7	5	8	4	9
1297:	7	2	6	10	9	8	9	8
1305:	4	6	4	4	6	4	11	7
1313:	6	3	9	9	3	3	9	4
1321:	8	4	7	6	4	4	5	6
1329:	5	6	1	5	4	2	9	9
1337:	6	2	5	5	0	1	4	2
1345:	5	4	4	3	7	8	5	5
1353:	6	4	2	4	5	3	7	8
1361:	7	4	0	3	2	4	5	5
1369:	2	3	5	3	5	1	5	3
1377:	13	15	3	2	2	3	2	4
1385:	3	4	3	4	7	5	3	1
1393:	1	3	3	6	4	6	4	1
1401:	10	9	4	3	7	5	11	3
1409:	5	5	2	2	3	1	2	2
1417:	3	5	2	2	4	2	6	1
1425:	1	3	5	4	3	3	6	3
1433:	6	2	1	4	2	4	7	4
1441:	2	6	2	3	4	1	1	4
1449:	2	4	4	3	1	3	1	6
1457:	11	31	151	346	358	104	15	6
1465:	17	6	3	2	1	3	3	3
1473:	1	0	2	4	3	1	3	1
1481:	5	2	2	2	3	4	0	2
1489:	3	3	0	1	4	4	2	5
1497:	2	1	1	3	1	3	6	4
1505:	4	5	2	7	7	4	4	3
1513:	3	2	4	2	4	0	2	0
1521:	2	3	0	1	2	2	5	4
1529:	2	4	2	3	2	4	1	3
1537:	2	2	0	4	6	3	0	1
1545:	1	4	2	3	2	0	1	1
1553:	2	4	1	2	3	0	1	4
1561:	3	1	1	1	4	0	3	1
1569:	0	0	2	2	0	2	0	0
1577:	1	2	4	4	2	3	3	5
1585:	5	4	17	12	7	2	4	6
1593:	11	0	3	1	2	2	2	3
1601:	3	5	1	3	3	0	2	0
1609:	2	1	3	4	5	2	1	3
1617:	1	4	5	8	9	2	3	2
1625:	2	1	2	2	2	9	6	2
1633:	1	4	0	2	5	2	3	4
1641:	5	1	2	2	1	1	1	3
1649:	0	0	2	1	1	3	2	2
1657:	4	0	0	8	3	1	0	1

1665:	1	2	1	3	2	1	2	2

Sample Title: HTC-A01-S008-3036-01

Channel								
1673:	1	1	2	1	2	0	1	1
1681:	0	2	1	3	3	0	0	1
1689:	0	4	2	2	3	4	1	0
1697:	3	1	3	0	1	0	1	2
1705:	2	2	1	0	1	2	1	2
1713:	1	3	2	1	4	2	5	2
1721:	0	1	0	1	2	1	1	7
1729:	12	6	2	4	3	0	0	0
1737:	0	1	3	1	0	1	1	2
1745:	1	1	2	0	1	1	0	0
1753:	0	1	2	0	1	2	1	0
1761:	4	4	25	37	15	9	4	3
1769:	3	0	0	2	3	0	3	0
1777:	1	3	4	1	0	2	2	1
1785:	2	0	0	2	1	1	2	1
1793:	1	0	1	0	1	2	1	4
1801:	3	1	1	0	3	1	1	0
1809:	1	0	2	1	0	4	0	0
1817:	2	3	2	1	0	1	3	2
1825:	3	1	2	3	2	1	3	1
1833:	1	2	0	1	0	4	3	0
1841:	1	4	2	0	2	6	3	6
1849:	2	2	1	0	1	2	0	1
1857:	2	1	3	1	4	1	1	0
1865:	2	2	1	1	2	1	2	1
1873:	1	0	0	1	3	1	3	3
1881:	1	1	2	1	3	1	4	1
1889:	4	1	0	1	3	0	3	5
1897:	1	1	0	0	2	1	4	2
1905:	0	0	3	0	2	2	1	2
1913:	2	1	2	2	0	2	0	5
1921:	3	1	3	4	2	0	1	0
1929:	5	2	0	0	0	2	1	2
1937:	2	0	0	2	1	0	3	2
1945:	1	1	0	3	0	1	2	2
1953:	3	1	2	3	1	1	3	1
1961:	3	2	2	3	0	2	2	3
1969:	1	0	0	1	1	0	1	2
1977:	0	0	1	4	1	3	1	4
1985:	3	1	2	1	2	0	0	1
1993:	1	3	3	1	3	0	3	0
2001:	1	2	0	3	2	2	1	2
2009:	0	2	1	0	1	5	1	0
2017:	1	1	0	1	2	0	2	1
2025:	1	1	2	2	0	1	2	0
2033:	0	2	0	1	2	1	0	0
2041:	1	2	1	1	0	3	1	2
2049:	0	1	0	2	1	0	1	0
2057:	1	0	1	1	2	1	2	0
2065:	2	1	0	1	1	1	5	0
2073:	1	0	2	1	1	0	2	0
2081:	3	1	1	0	1	1	1	2
2089:	3	3	2	3	4	0	2	0

2097:	0	1	1	4	4	7	10	4

Sample Title: HTC-A01-S008-3036-01

Channel								
2105:	0	0	2	2	3	1	2	0
2113:	1	4	0	1	3	4	2	1
2121:	1	1	1	1	0	1	2	2
2129:	2	2	2	2	1	2	0	0
2137:	1	1	1	0	2	1	0	0
2145:	2	1	2	1	3	0	0	0
2153:	2	1	3	0	0	2	1	2
2161:	2	0	3	2	1	2	2	2
2169:	0	1	0	2	3	3	1	4
2177:	0	2	0	1	1	0	2	0
2185:	0	1	1	0	1	0	3	3
2193:	2	3	1	1	2	2	3	1
2201:	3	6	13	7	1	1	3	1
2209:	0	2	3	3	1	1	1	2
2217:	4	0	1	1	1	3	1	3
2225:	1	1	0	0	0	2	2	2
2233:	2	3	0	1	1	0	1	3
2241:	3	1	0	2	1	1	2	0
2249:	0	0	1	2	0	1	1	3
2257:	1	0	4	2	0	3	1	1
2265:	2	1	1	0	0	1	0	0
2273:	2	3	0	1	3	1	2	2
2281:	3	3	1	3	1	1	2	0
2289:	2	4	1	3	0	1	2	5
2297:	1	1	0	0	2	1	4	0
2305:	0	0	0	1	1	1	4	2
2313:	1	3	1	1	5	0	3	0
2321:	0	3	0	0	1	0	3	2
2329:	1	2	2	1	3	5	0	0
2337:	3	2	0	1	2	1	3	0
2345:	2	1	1	3	1	1	1	3
2353:	2	2	1	3	1	7	4	2
2361:	1	3	3	2	1	0	1	2
2369:	1	0	0	1	0	2	3	2
2377:	1	2	1	1	1	0	2	2
2385:	1	4	1	2	3	2	1	1
2393:	1	4	0	2	0	0	1	1
2401:	1	1	0	2	1	0	1	1
2409:	0	1	0	0	2	1	0	1
2417:	3	1	0	0	2	1	1	2
2425:	0	2	0	1	1	1	1	0
2433:	3	1	1	1	1	0	1	0
2441:	0	1	1	0	0	3	4	0
2449:	0	2	0	1	2	0	0	0
2457:	0	1	2	0	3	1	0	2
2465:	1	0	2	1	0	1	0	1
2473:	1	1	1	1	0	2	0	1
2481:	1	0	1	1	0	1	0	0
2489:	0	0	0	0	0	2	0	0
2497:	0	0	1	0	0	0	1	1
2505:	0	0	0	0	1	3	0	0
2513:	0	1	1	1	0	1	1	0
2521:	0	1	0	0	0	3	0	0

2529:	1	0	0	1	1	2	0	0

Sample Title: HTC-A01-S008-3036-01

Channel								
2537:	1	0	1	0	0	0	0	0
2545:	0	1	0	0	0	0	1	0
2553:	0	1	0	0	1	0	0	0
2561:	0	0	0	1	0	0	1	1
2569:	1	0	0	0	1	1	1	0
2577:	1	1	0	0	1	0	0	0
2585:	0	1	0	0	0	0	1	2
2593:	1	0	1	0	1	1	0	2
2601:	1	0	0	1	0	1	0	0
2609:	1	4	9	38	64	41	19	4
2617:	1	1	1	0	0	0	1	0
2625:	0	0	2	0	0	0	0	0
2633:	0	0	0	0	1	0	0	1
2641:	3	2	1	1	0	0	1	0
2649:	0	0	0	0	0	0	0	1
2657:	2	1	0	0	1	0	0	0
2665:	0	0	1	0	0	1	0	0
2673:	3	1	0	0	0	1	0	0
2681:	0	0	0	2	2	0	3	0
2689:	2	1	3	0	0	1	0	1
2697:	0	0	0	0	0	0	0	0
2705:	1	1	1	0	1	1	1	1
2713:	0	0	0	0	0	0	0	0
2721:	0	0	1	1	1	0	0	0
2729:	0	0	0	0	1	0	1	0
2737:	1	1	0	0	1	0	0	0
2745:	1	1	0	0	1	1	0	0
2753:	1	0	1	0	0	0	1	0
2761:	0	0	0	0	0	1	0	2
2769:	0	0	0	0	0	0	1	0
2777:	0	0	0	0	0	0	1	2
2785:	0	0	0	0	0	0	0	0
2793:	0	2	1	0	0	1	0	0
2801:	1	0	0	0	0	0	1	0
2809:	2	0	0	0	1	1	1	0
2817:	0	0	0	1	1	0	0	0
2825:	0	0	0	1	0	0	0	0
2833:	1	0	0	0	1	0	0	1
2841:	0	0	0	0	0	0	1	0
2849:	0	0	0	1	1	0	0	1
2857:	1	1	0	0	0	0	0	0
2865:	0	1	0	0	1	1	0	0
2873:	0	0	0	0	0	0	0	1
2881:	0	0	0	0	0	0	0	0
2889:	0	0	0	0	0	0	0	2
2897:	0	0	0	0	0	0	0	2
2905:	0	0	2	0	0	0	0	0
2913:	1	1	1	0	1	0	0	0
2921:	0	0	1	1	0	2	0	1
2929:	0	0	0	0	0	1	0	0
2937:	0	1	0	1	0	1	0	0
2945:	0	1	1	0	0	0	0	0
2953:	0	0	0	1	1	0	0	0

2961:	0	0	0	3	0	0	0	0

Sample Title: HTC-A01-S008-3036-01

Channel								
2969:	0	0	0	1	0	0	1	0
2977:	1	0	0	2	0	1	1	0
2985:	1	0	1	0	2	0	0	0
2993:	1	0	1	0	1	0	0	0
3001:	0	0	0	0	0	0	0	0
3009:	1	0	0	0	0	1	0	0
3017:	0	0	0	0	0	0	0	0
3025:	0	0	0	0	0	0	0	0
3033:	0	0	0	1	0	0	0	0
3041:	0	0	0	0	1	1	0	0
3049:	0	0	0	1	0	0	0	0
3057:	0	0	0	0	1	0	0	1
3065:	0	0	0	0	0	0	0	0
3073:	0	0	0	0	0	0	0	0
3081:	1	1	0	0	0	0	1	0
3089:	0	0	0	0	1	0	0	1
3097:	1	0	0	0	0	0	0	0
3105:	0	0	0	0	0	1	0	0
3113:	0	0	0	1	3	0	0	0
3121:	0	0	0	1	0	0	0	0
3129:	0	0	0	0	0	0	0	0
3137:	0	0	0	0	0	2	0	1
3145:	1	0	0	0	0	0	0	1
3153:	0	0	1	0	0	1	0	0
3161:	0	1	0	0	1	0	0	0
3169:	0	1	0	0	0	1	0	0
3177:	0	0	0	0	0	0	1	0
3185:	0	0	0	0	2	0	0	0
3193:	2	2	0	1	1	1	1	0
3201:	1	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	1	1	0	0	0	0	0
3241:	0	0	0	0	1	0	0	0
3249:	0	0	0	0	0	0	0	0
3257:	0	0	0	0	0	0	0	0
3265:	0	0	1	0	0	0	0	0
3273:	1	0	0	1	1	0	0	0
3281:	0	1	0	0	0	0	0	0
3289:	0	0	0	0	0	1	1	0
3297:	0	0	1	0	0	0	0	0
3305:	0	0	0	0	0	0	0	0
3313:	0	1	0	0	0	0	0	1
3321:	0	0	0	0	0	0	0	0
3329:	0	0	1	1	0	0	0	0
3337:	0	0	0	0	0	0	0	0
3345:	0	0	0	0	0	0	0	1
3353:	0	0	0	0	0	2	1	1
3361:	0	0	0	0	2	0	0	0
3369:	0	0	0	1	1	0	0	0
3377:	0	0	0	1	0	0	0	0
3385:	0	0	0	0	0	0	0	0

3393:	0	0	1	0	0	0	1	0

Sample Title: HTC-A01-S008-3036-01

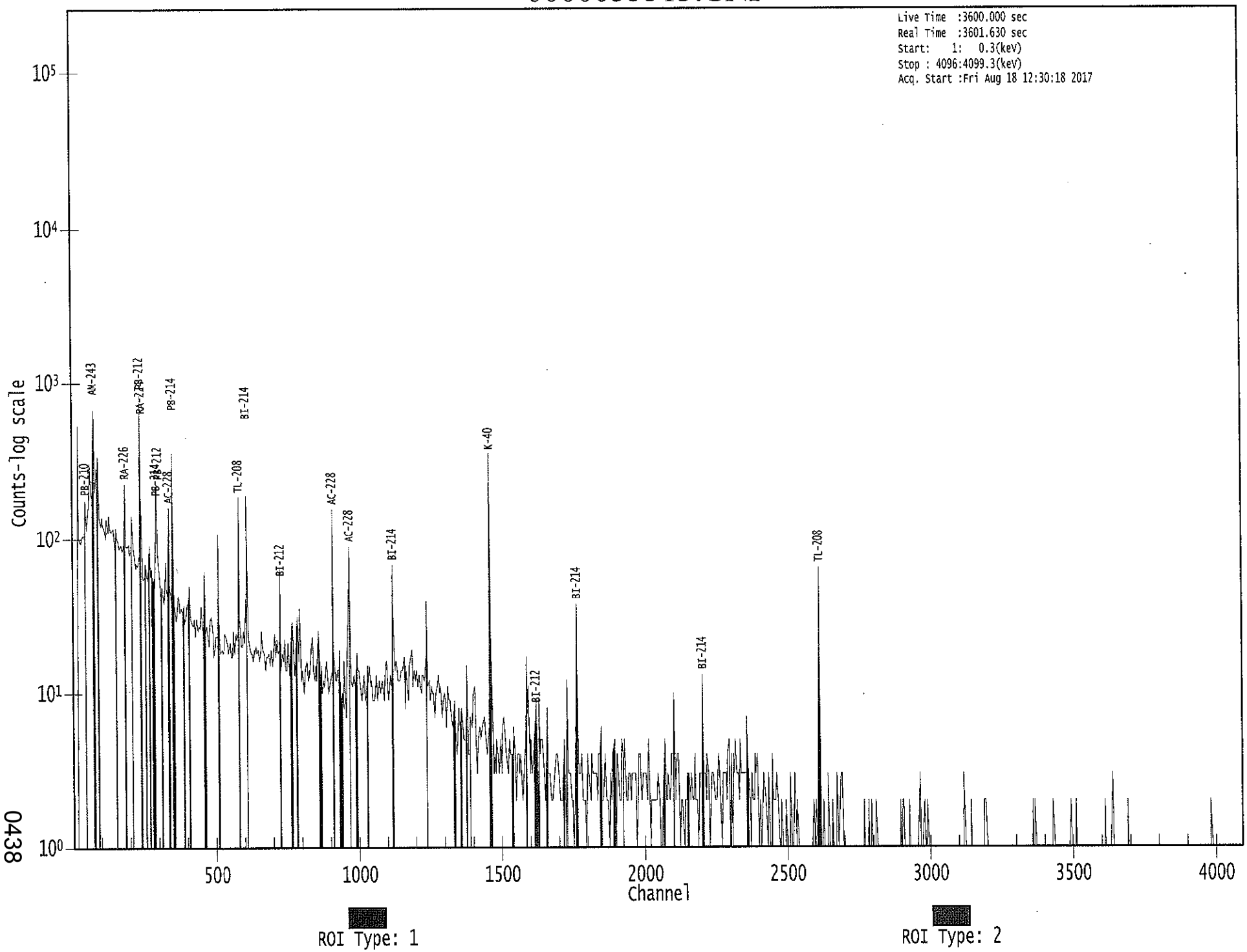
Channel								
3401:	0	0	0	0	0	0	1	0
3409:	1	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	1	0	2	1	0	0
3433:	0	1	0	1	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	1	0	0	0	0	0	0
3473:	1	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	1	0
3489:	0	0	0	2	0	1	1	0
3497:	0	0	1	1	0	0	0	0
3505:	0	0	0	0	2	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	1	0	0	1
3537:	0	0	0	1	0	0	0	0
3545:	0	0	0	0	1	0	0	0
3553:	0	1	0	0	0	0	0	0
3561:	0	0	0	0	0	0	0	1
3569:	0	0	0	1	1	0	0	0
3577:	0	1	0	0	0	0	1	0
3585:	1	0	0	0	0	0	1	0
3593:	0	0	1	0	0	0	0	0
3601:	0	0	0	0	0	0	0	0
3609:	1	0	2	0	0	0	0	0
3617:	0	1	0	0	0	0	0	0
3625:	0	0	0	0	0	0	0	1
3633:	0	1	0	0	1	3	0	0
3641:	0	1	0	0	0	1	0	0
3649:	0	1	0	0	1	0	0	0
3657:	1	0	0	0	0	0	0	0
3665:	1	0	1	0	0	0	0	0
3673:	0	0	0	1	1	0	0	0
3681:	0	0	1	0	0	0	0	0
3689:	0	1	2	1	0	0	0	0
3697:	0	0	1	0	0	0	0	1
3705:	0	0	0	0	0	0	0	0
3713:	0	0	0	0	0	1	0	0
3721:	0	0	0	0	0	0	0	0
3729:	0	0	0	0	0	0	0	0
3737:	0	1	0	0	0	0	0	0
3745:	0	1	1	0	0	0	1	1
3753:	1	0	0	0	0	0	0	0
3761:	0	0	0	0	1	0	0	0
3769:	0	0	0	0	1	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	1	1	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	1	0

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S008-3036-01

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	1	0
3857:	0	0	0	0	1	0	0	1
3865:	0	0	0	0	1	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	1	0	1	0
3897:	0	0	0	0	0	0	0	0
3905:	0	0	0	0	0	0	0	0
3913:	0	0	0	0	0	0	0	0
3921:	0	0	0	0	1	0	0	0
3929:	0	0	1	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	2	0	1	0
3985:	0	0	1	1	0	0	0	0
3993:	0	0	1	0	0	0	0	0
4001:	0	0	0	1	1	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	1	0	0
4033:	0	0	1	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	1	0	0	0	0	0	0
4057:	0	0	1	0	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	0	0	0	0	0	0
4081:	1	0	0	0	0	0	0	0
4089:	0	0	0	0	0	0	0	0

0000055513.CNF



0438

MB 8/18/17

Apex-Gamma

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-04
Sample Description	: HTC-A01-S008-3036-01
Sample Type	: SOIL
Sample Size	: 6.515E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:04:25AM
Acquisition Started	: 8/18/2017 1:36:29PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.6 seconds
Dead Time	: 0.05 %
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	: 55518

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 2:36:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.24	46.87	0.0000	0.00
2	52.79	53.41	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.18	77.77	0.0000	0.00
5	87.77	88.35	0.0000	0.00
6	92.92	93.50	0.0000	0.00
7	98.93	99.49	0.0000	0.00
8	129.71	130.24	0.0000	0.00
9	154.42	154.93	0.0000	0.00
10	185.91	186.39	0.0000	0.00
11	209.59	210.05	0.0000	0.00
12	235.92	236.35	0.0000	0.00
13	238.67	239.09	0.0000	0.00
14	241.89	242.31	0.0000	0.00
15	269.80	270.20	0.0000	0.00
16	295.17	295.54	0.0000	0.00
17	300.45	300.81	0.0000	0.00
18	328.39	328.72	0.0000	0.00
19	338.69	339.01	0.0000	0.00
20	352.07	352.38	0.0000	0.00
21	374.80	375.08	0.0000	0.00
22	396.03	396.30	0.0000	0.00
23	409.40	409.66	0.0000	0.00
24	426.09	426.32	0.0000	0.00
25	440.17	440.39	0.0000	0.00
26	463.12	463.32	0.0000	0.00
27	510.89	511.04	0.0000	0.00
28	583.52	583.60	0.0000	0.00
29	609.44	609.49	0.0000	0.00
30	727.30	727.24	0.0000	0.00
31	755.54	755.44	0.0000	0.00
32	768.64	768.53	0.0000	0.00
33	786.50	786.37	0.0000	0.00
34	795.89	795.75	0.0000	0.00
35	860.51	860.31	0.0000	0.00
36	871.53	871.32	0.0000	0.00
37	911.48	911.22	0.0000	0.00
38	916.62	916.36	0.0000	0.00
39	922.79	922.53	0.0000	0.00
40	935.11	934.83	0.0000	0.00
41	957.83	957.53	0.0000	0.00
42	965.31	965.01	0.0000	0.00

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	969.33	969.02	0.0000	0.00
44	1069.45	1069.04	0.0000	0.00
45	1095.36	1094.93	0.0000	0.00
46	1105.11	1104.67	0.0000	0.00
47	1120.70	1120.24	0.0000	0.00
48	1164.65	1164.15	0.0000	0.00
49	1337.92	1337.24	0.0000	0.00
50	1376.27	1375.56	0.0000	0.00
51	1408.49	1407.75	0.0000	0.00
52	1414.47	1413.72	0.0000	0.00
53	1434.77	1434.00	0.0000	0.00
54	1461.24	1460.44	0.0000	0.00
55	1588.39	1587.47	0.0000	0.00
56	1592.71	1591.79	0.0000	0.00
57	1630.81	1629.85	0.0000	0.00
58	1694.31	1693.28	0.0000	0.00
59	1728.72	1727.66	0.0000	0.00
60	1764.87	1763.78	0.0000	0.00
61	1833.74	1832.58	0.0000	0.00
62	1848.06	1846.89	0.0000	0.00
63	2013.90	2012.57	0.0000	0.00
64	2071.90	2070.51	0.0000	0.00
65	2101.65	2100.24	0.0000	0.00
66	2105.19	2103.76	0.0000	0.00
67	2120.13	2118.70	0.0000	0.00
68	2433.35	2431.62	0.0000	0.00
69	2444.25	2442.50	0.0000	0.00
70	2447.97	2446.22	0.0000	0.00
71	2494.01	2492.22	0.0000	0.00
72	2522.23	2520.41	0.0000	0.00
73	2615.20	2613.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 2:36:33PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.24	44 -	49	46.87	1.21E+02	78.22	1.13E+03	1.60
	2	52.79	51 -	56	53.41	8.46E+01	82.53	1.29E+03	2.15
M	3	74.72	71 -	81	75.31	5.21E+02	106.99	1.76E+03	1.81
m	4	77.18	71 -	81	77.77	9.92E+02	115.63	1.71E+03	1.82
m	5	87.77	83 -	97	88.35	3.22E+02	101.05	1.73E+03	2.02
m	6	92.92	83 -	97	93.50	3.87E+02	102.22	1.54E+03	2.02
	7	98.93	98 -	102	99.49	6.81E+01	72.14	1.09E+03	1.38
	8	129.71	125 -	134	130.24	1.31E+02	122.83	2.08E+03	1.53
	9	154.42	152 -	158	154.93	1.00E+02	83.24	1.19E+03	3.36
	10	185.91	182 -	191	186.39	2.23E+02	109.55	1.59E+03	2.03
	11	209.59	205 -	214	210.05	2.16E+02	99.02	1.26E+03	1.87
M	12	235.92	235 -	246	236.35	4.06E+01	27.69	2.51E+02	2.00
m	13	238.67	235 -	246	239.09	1.31E+03	89.45	5.62E+02	1.60
m	14	241.89	235 -	246	242.31	3.19E+02	99.90	7.10E+02	2.38
	15	269.80	265 -	274	270.20	1.14E+02	81.72	8.86E+02	1.83
	16	295.17	292 -	298	295.54	3.18E+02	66.43	5.72E+02	1.85
	17	300.45	299 -	304	300.81	7.17E+01	52.67	4.97E+02	1.68
	18	328.39	325 -	332	328.72	7.67E+01	58.28	5.13E+02	2.07
	19	338.69	335 -	344	339.01	2.26E+02	75.56	6.77E+02	1.81
	20	352.07	346 -	357	352.38	6.24E+02	88.72	6.72E+02	1.67
	21	374.80	372 -	378	375.08	4.03E+01	44.45	3.31E+02	4.50
	22	396.03	393 -	399	396.30	3.88E+01	43.29	3.14E+02	3.23
	23	409.40	406 -	413	409.66	4.20E+01	50.20	3.92E+02	1.82
	24	426.09	424 -	429	426.32	6.30E+01	35.13	1.94E+02	2.94
	25	440.17	438 -	443	440.39	2.65E+01	33.65	2.07E+02	2.05
	26	463.12	459 -	466	463.32	6.63E+01	47.92	3.35E+02	2.18
	27	510.89	506 -	516	511.04	1.97E+02	63.67	4.37E+02	1.95
	28	583.52	580 -	589	583.60	4.53E+02	63.00	3.15E+02	2.13
	29	609.44	605 -	614	609.49	4.26E+02	65.81	3.76E+02	2.03
	30	727.30	723 -	731	727.24	8.76E+01	44.29	2.49E+02	2.07
	31	755.54	751 -	760	755.44	4.17E+01	40.06	2.07E+02	5.36
	32	768.64	760 -	778	768.53	1.29E+02	60.54	2.67E+02	5.89
	33	786.50	783 -	791	786.37	3.87E+01	35.69	1.75E+02	2.20
	34	795.89	791 -	801	795.75	4.48E+01	46.80	2.64E+02	2.22
	35	860.51	854 -	866	860.31	8.56E+01	41.52	1.63E+02	3.90
	36	871.53	867 -	874	871.32	3.10E+01	27.35	1.04E+02	3.30
M	37	911.48	906 -	919	911.22	3.06E+02	41.18	9.84E+01	1.95
m	38	916.62	906 -	919	916.36	1.84E+01	34.35	1.00E+02	2.66
	39	922.79	919 -	928	922.53	3.15E+01	26.93	8.70E+01	2.41
	40	935.11	930 -	939	934.83	4.02E+01	31.10	1.16E+02	3.16

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	957.83	954 -	960	957.53	2.97E+01	23.70	8.07E+01	1.75
M	42	965.31	961 -	978	965.01	7.33E+01	32.11	8.89E+01	2.22
m	43	969.33	961 -	978	969.02	1.80E+02	36.15	9.70E+01	2.22
	44	1069.45	1066 -	1072	1069.04	2.10E+01	24.22	8.59E+01	1.17
	45	1095.36	1092 -	1098	1094.93	2.79E+01	24.63	8.22E+01	3.12
	46	1105.11	1100 -	1109	1104.67	2.43E+01	30.05	1.15E+02	2.99
	47	1120.70	1115 -	1124	1120.24	7.59E+01	40.83	1.94E+02	1.53
	48	1164.65	1160 -	1167	1164.15	2.46E+01	30.98	1.43E+02	2.05
	49	1337.92	1334 -	1340	1337.24	1.69E+01	16.70	3.81E+01	4.49
	50	1376.27	1370 -	1379	1375.56	3.18E+01	24.10	6.44E+01	2.24
	51	1408.49	1404 -	1411	1407.75	3.52E+01	15.23	1.36E+01	3.85
M	52	1414.47	1412 -	1442	1413.72	1.76E+01	7.16	7.69E-01	2.89
m	53	1434.77	1412 -	1442	1434.00	1.14E+01	13.16	2.80E+01	2.18
	54	1461.24	1455 -	1466	1460.44	9.76E+02	69.77	1.22E+02	2.28
M	55	1588.39	1584 -	1597	1587.47	2.77E+01	13.42	1.55E+01	2.69
m	56	1592.71	1584 -	1597	1591.79	2.30E+01	16.37	1.26E+01	2.54
	57	1630.81	1625 -	1632	1629.85	1.33E+01	14.70	2.53E+01	2.76
	58	1694.31	1690 -	1696	1693.28	1.00E+01	8.75	6.00E+00	3.65
	59	1728.72	1724 -	1731	1727.66	1.76E+01	12.81	1.47E+01	3.69
	60	1764.87	1759 -	1768	1763.78	7.64E+01	23.47	3.51E+01	2.44
	61	1833.74	1829 -	1835	1832.58	9.36E+00	7.50	3.27E+00	2.51
	62	1848.06	1843 -	1851	1846.89	1.81E+01	13.45	1.38E+01	5.32
	63	2013.90	2009 -	2015	2012.57	1.13E+01	8.02	3.31E+00	1.74
	64	2071.90	2067 -	2073	2070.51	7.33E+00	6.95	3.33E+00	2.46
M	65	2101.65	2099 -	2109	2100.24	1.03E+01	6.36	5.35E+00	2.49
m	66	2105.19	2099 -	2109	2103.76	2.67E+01	14.00	6.70E+00	2.60
	67	2120.13	2114 -	2125	2118.70	1.95E+01	11.31	7.00E+00	3.38
	68	2433.35	2427 -	2435	2431.62	8.50E+00	9.62	9.00E+00	5.54
M	69	2444.25	2439 -	2450	2442.50	1.07E+01	7.75	0.00E+00	2.52
m	70	2447.97	2439 -	2450	2446.22	1.01E+01	8.72	0.00E+00	2.69
	71	2494.01	2486 -	2496	2492.22	9.13E+00	8.85	5.75E+00	3.38
	72	2522.23	2518 -	2522	2520.41	4.83E+00	5.50	2.33E+00	0.96
	73	2615.20	2608 -	2619	2613.29	1.65E+02	26.61	6.67E+00	3.22

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 2:36:33PM

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

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.24	44 -	49	1.21E+02	78.22	1.13E+03	6.17E+01
	2	52.79	51 -	56	8.46E+01	82.53	1.29E+03	6.61E+01
M	3	74.72	71 -	81	5.21E+02	106.99	1.76E+03	6.90E+01
m	4	77.18	71 -	81	9.92E+02	115.63	1.71E+03	6.81E+01
m	5	87.77	83 -	97	3.22E+02	101.05	1.73E+03	6.84E+01
m	6	92.92	83 -	97	3.87E+02	102.22	1.54E+03	6.45E+01
	7	98.93	98 -	102	6.81E+01	72.14	1.09E+03	5.77E+01
	8	129.71	125 -	134	1.31E+02	122.83	2.08E+03	9.92E+01
	9	154.42	152 -	158	1.00E+02	83.24	1.19E+03	6.64E+01
	10	185.91	182 -	191	2.23E+02	109.55	1.59E+03	8.66E+01
	11	209.59	205 -	214	2.16E+02	99.02	1.26E+03	7.77E+01
M	12	235.92	235 -	246	4.06E+01	27.69	2.51E+02	2.61E+01
m	13	238.67	235 -	246	1.31E+03	89.45	5.62E+02	3.90E+01
m	14	241.89	235 -	246	3.19E+02	99.90	7.10E+02	4.38E+01
	15	269.80	265 -	274	1.14E+02	81.72	8.86E+02	6.48E+01
	16	295.17	292 -	298	3.18E+02	66.43	5.72E+02	4.61E+01
	17	300.45	299 -	304	7.17E+01	52.67	4.97E+02	4.10E+01
	18	328.39	325 -	332	7.67E+01	58.28	5.13E+02	4.57E+01
	19	338.69	335 -	344	2.26E+02	75.56	6.77E+02	5.70E+01
	20	352.07	346 -	357	6.24E+02	88.72	6.72E+02	3.11E+01
	21	374.80	372 -	378	4.03E+01	44.45	3.31E+02	3.50E+01
	22	396.03	393 -	399	3.88E+01	43.29	3.14E+02	3.41E+01
	23	409.40	406 -	413	4.20E+01	50.20	3.92E+02	3.99E+01
	24	426.09	424 -	429	6.30E+01	35.13	1.94E+02	2.58E+01
	25	440.17	438 -	443	2.65E+01	33.65	2.07E+02	2.63E+01
	26	463.12	459 -	466	6.63E+01	47.92	3.35E+02	3.70E+01
	27	510.89	506 -	516	1.97E+02	63.67	4.37E+02	4.70E+01
	28	583.52	580 -	589	4.53E+02	63.00	3.15E+02	3.82E+01
	29	609.44	605 -	614	4.26E+02	65.81	3.76E+02	4.21E+01
	30	727.30	723 -	731	8.76E+01	44.29	2.49E+02	3.30E+01
	31	755.54	751 -	760	4.17E+01	40.06	2.07E+02	3.12E+01
	32	768.64	760 -	778	1.29E+02	60.54	2.67E+02	4.61E+01
	33	786.50	783 -	791	3.87E+01	35.69	1.75E+02	2.75E+01
	34	795.89	791 -	801	4.48E+01	46.80	2.64E+02	3.69E+01
	35	860.51	854 -	866	8.56E+01	41.52	1.63E+02	3.06E+01
	36	871.53	867 -	874	3.10E+01	27.35	1.04E+02	2.05E+01
M	37	911.48	906 -	919	3.06E+02	41.18	9.84E+01	1.63E+01
m	38	916.62	906 -	919	1.84E+01	34.35	1.00E+02	1.65E+01
	39	922.79	919 -	928	3.15E+01	26.93	8.70E+01	2.01E+01
	40	935.11	930 -	939	4.02E+01	31.10	1.16E+02	2.33E+01
	41	957.83	954 -	960	2.97E+01	23.70	8.07E+01	1.73E+01
M	42	965.31	961 -	978	7.33E+01	32.11	8.89E+01	1.55E+01
m	43	969.33	961 -	978	1.80E+02	36.15	9.70E+01	1.62E+01
	44	1069.45	1066 -	1072	2.10E+01	24.22	8.59E+01	1.84E+01
	45	1095.36	1092 -	1098	2.79E+01	24.63	8.22E+01	1.83E+01
	46	1105.11	1100 -	1109	2.43E+01	30.05	1.15E+02	2.33E+01
	47	1120.70	1115 -	1124	7.59E+01	40.83	1.94E+02	3.04E+01
	48	1164.65	1160 -	1167	2.46E+01	30.98	1.43E+02	2.41E+01
	49	1337.92	1334 -	1340	1.69E+01	16.70	3.81E+01	1.19E+01
	50	1376.27	1370 -	1379	3.18E+01	24.10	6.44E+01	1.75E+01
	51	1408.49	1404 -	1411	3.52E+01	15.23	1.36E+01	7.85E+00

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	52	1414.47	1412 -	1442	1.76E+01	7.16	7.69E-01	1.44E+00
m	53	1434.77	1412 -	1442	1.14E+01	13.16	2.80E+01	8.70E+00
	54	1461.24	1455 -	1466	9.76E+02	69.77	1.22E+02	2.55E+01
M	55	1588.39	1584 -	1597	2.77E+01	13.42	1.55E+01	6.48E+00
m	56	1592.71	1584 -	1597	2.30E+01	16.37	1.26E+01	5.84E+00
	57	1630.81	1625 -	1632	1.33E+01	14.70	2.53E+01	1.05E+01
	58	1694.31	1690 -	1696	1.00E+01	8.75	6.00E+00	4.97E+00
	59	1728.72	1724 -	1731	1.76E+01	12.81	1.47E+01	7.95E+00
	60	1764.87	1759 -	1768	7.64E+01	23.47	3.51E+01	1.29E+01
	61	1833.74	1829 -	1835	9.36E+00	7.50	3.27E+00	3.56E+00
	62	1848.06	1843 -	1851	1.81E+01	13.45	1.38E+01	8.56E+00
	63	2013.90	2009 -	2015	1.13E+01	8.02	3.31E+00	3.57E+00
	64	2071.90	2067 -	2073	7.33E+00	6.95	3.33E+00	3.58E+00
M	65	2101.65	2099 -	2109	1.03E+01	6.36	5.35E+00	3.80E+00
m	66	2105.19	2099 -	2109	2.67E+01	14.00	6.70E+00	4.25E+00
	67	2120.13	2114 -	2125	1.95E+01	11.31	7.00E+00	5.81E+00
	68	2433.35	2427 -	2435	8.50E+00	9.62	9.00E+00	6.29E+00
M	69	2444.25	2439 -	2450	1.07E+01	7.75	0.00E+00	0.00E+00
m	70	2447.97	2439 -	2450	1.01E+01	8.72	0.00E+00	0.00E+00
	71	2494.01	2486 -	2496	9.13E+00	8.85	5.75E+00	5.31E+00
	72	2522.23	2518 -	2522	4.83E+00	5.50	2.33E+00	2.72E+00
	73	2615.20	2608 -	2619	1.65E+02	26.61	6.67E+00	5.77E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 2:36:33PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.24	44 -	49	46.87	1.21E+02	78.22	1.13E+03	PB-210
	2	52.79	51 -	56	53.41	8.46E+01	82.53	1.29E+03	.....
M	3	74.72	71 -	81	75.31	5.21E+02	106.99	1.76E+03	AM-243

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
m	4	77.18	71 -	81	77.77	9.92E+02	115.63	1.71E+03	.....
m	5	87.77	83 -	97	88.35	3.22E+02	101.05	1.73E+03	SN-126 CD-109 LU-176
m	6	92.92	83 -	97	93.50	3.87E+02	102.22	1.54E+03	GA-67
	7	98.93	98 -	102	99.49	6.81E+01	72.14	1.09E+03	.....
	8	129.71	125 -	134	130.24	1.31E+02	122.83	2.08E+03	.....
	9	154.42	152 -	158	154.93	1.00E+02	83.24	1.19E+03	.....
	10	185.91	182 -	191	186.39	2.23E+02	109.55	1.59E+03	RA-226
	11	209.59	205 -	214	210.05	2.16E+02	99.02	1.26E+03	CM-243 GA-67
M	12	235.92	235 -	246	236.35	4.06E+01	27.69	2.51E+02	TH-227 NB-95M
m	13	238.67	235 -	246	239.09	1.31E+03	89.45	5.62E+02	PB-212
m	14	241.89	235 -	246	242.31	3.19E+02	99.90	7.10E+02	RA-224
	15	269.80	265 -	274	270.20	1.14E+02	81.72	8.86E+02	.....
	16	295.17	292 -	298	295.54	3.18E+02	66.43	5.72E+02	PB-214
	17	300.45	299 -	304	300.81	7.17E+01	52.67	4.97E+02	GA-67 PB-212 BI-210M
	18	328.39	325 -	332	328.72	7.67E+01	58.28	5.13E+02	LA-140
	19	338.69	335 -	344	339.01	2.26E+02	75.56	6.77E+02	AC-228
	20	352.07	346 -	357	352.38	6.24E+02	88.72	6.72E+02	PB-214
	21	374.80	372 -	378	375.08	4.03E+01	44.45	3.31E+02	TL-204
	22	396.03	393 -	399	396.30	3.88E+01	43.29	3.14E+02	.....
	23	409.40	406 -	413	409.66	4.20E+01	50.20	3.92E+02	.....
	24	426.09	424 -	429	426.32	6.30E+01	35.13	1.94E+02	.....
	25	440.17	438 -	443	440.39	2.65E+01	33.65	2.07E+02	.....
	26	463.12	459 -	466	463.32	6.63E+01	47.92	3.35E+02	SB-125
	27	510.89	506 -	516	511.04	1.97E+02	63.67	4.37E+02	.....
	28	583.52	580 -	589	583.60	4.53E+02	63.00	3.15E+02	TL-208
	29	609.44	605 -	614	609.49	4.26E+02	65.81	3.76E+02	BI-214
	30	727.30	723 -	731	727.24	8.76E+01	44.29	2.49E+02	BI-212
	31	755.54	751 -	760	755.44	4.17E+01	40.06	2.07E+02	.....
	32	768.64	760 -	778	768.53	1.29E+02	60.54	2.67E+02	.....
	33	786.50	783 -	791	786.37	3.87E+01	35.69	1.75E+02	.....
	34	795.89	791 -	801	795.75	4.48E+01	46.80	2.64E+02	CS-134
	35	860.51	854 -	866	860.31	8.56E+01	41.52	1.63E+02	TL-208
	36	871.53	867 -	874	871.32	3.10E+01	27.35	1.04E+02	NB-94
M	37	911.48	906 -	919	911.22	3.06E+02	41.18	9.84E+01	TL-204 AC-228
m	38	916.62	906 -	919	916.36	1.84E+01	34.35	1.00E+02	.....
	39	922.79	919 -	928	922.53	3.15E+01	26.93	8.70E+01	.....
	40	935.11	930 -	939	934.83	4.02E+01	31.10	1.16E+02	.....
	41	957.83	954 -	960	957.53	2.97E+01	23.70	8.07E+01	.....
M	42	965.31	961 -	978	965.01	7.33E+01	32.11	8.89E+01	.....
m	43	969.33	961 -	978	969.02	1.80E+02	36.15	9.70E+01	AC-228
	44	1069.45	1066 -	1072	1069.04	2.10E+01	24.22	8.59E+01	.....
	45	1095.36	1092 -	1098	1094.93	2.79E+01	24.63	8.22E+01	.....
	46	1105.11	1100 -	1109	1104.67	2.43E+01	30.05	1.15E+02	.....
	47	1120.70	1115 -	1124	1120.24	7.59E+01	40.83	1.94E+02	SC-46 BI-214 TA-182
	48	1164.65	1160 -	1167	1164.15	2.46E+01	30.98	1.43E+02	.....

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	49	1337.92	1334 -	1340	1337.24	1.69E+01	16.70	3.81E+01	.....
	50	1376.27	1370 -	1379	1375.56	3.18E+01	24.10	6.44E+01	.....
	51	1408.49	1404 -	1411	1407.75	3.52E+01	15.23	1.36E+01	EU-152
M	52	1414.47	1412 -	1442	1413.72	1.76E+01	7.16	7.69E-01	.....
m	53	1434.77	1412 -	1442	1434.00	1.14E+01	13.16	2.80E+01	.....
	54	1461.24	1455 -	1466	1460.44	9.76E+02	69.77	1.22E+02	K-40
M	55	1588.39	1584 -	1597	1587.47	2.77E+01	13.42	1.55E+01	.....
m	56	1592.71	1584 -	1597	1591.79	2.30E+01	16.37	1.26E+01	.....
	57	1630.81	1625 -	1632	1629.85	1.33E+01	14.70	2.53E+01	.....
	58	1694.31	1690 -	1696	1693.28	1.00E+01	8.75	6.00E+00	.....
	59	1728.72	1724 -	1731	1727.66	1.76E+01	12.81	1.47E+01	.....
	60	1764.87	1759 -	1768	1763.78	7.64E+01	23.47	3.51E+01	BI-214
	61	1833.74	1829 -	1835	1832.58	9.36E+00	7.50	3.27E+00	.....
	62	1848.06	1843 -	1851	1846.89	1.81E+01	13.45	1.38E+01	.....
	63	2013.90	2009 -	2015	2012.57	1.13E+01	8.02	3.31E+00	.....
	64	2071.90	2067 -	2073	2070.51	7.33E+00	6.95	3.33E+00	.....
M	65	2101.65	2099 -	2109	2100.24	1.03E+01	6.36	5.35E+00	.....
m	66	2105.19	2099 -	2109	2103.76	2.67E+01	14.00	6.70E+00	.....
	67	2120.13	2114 -	2125	2118.70	1.95E+01	11.31	7.00E+00	.....
	68	2433.35	2427 -	2435	2431.62	8.50E+00	9.62	9.00E+00	.....
M	69	2444.25	2439 -	2450	2442.50	1.07E+01	7.75	0.00E+00	.....
m	70	2447.97	2439 -	2450	2446.22	1.01E+01	8.72	0.00E+00	.....
	71	2494.01	2486 -	2496	2492.22	9.13E+00	8.85	5.75E+00	.....
	72	2522.23	2518 -	2522	2520.41	4.83E+00	5.50	2.33E+00	.....
	73	2615.20	2608 -	2619	2613.29	1.65E+02	26.61	6.67E+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 : 8/18/2017 2:36:33PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.24	1.21E+02	78.22	2.46E-02	2.22E-03
	2	52.79	8.46E+01	82.53	2.58E-02	2.22E-03
M	3	74.72	5.21E+02	106.99	2.75E-02	2.38E-03
m	4	77.18	9.92E+02	115.63	2.75E-02	2.41E-03
m	5	87.77	3.22E+02	101.05	2.74E-02	2.52E-03

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	6	92.92	3.87E+02	102.22	2.73E-02	2.44E-03
	7	98.93	6.81E+01	72.14	2.70E-02	2.35E-03
	8	129.71	1.31E+02	122.83	2.53E-02	1.93E-03
	9	154.42	1.00E+02	83.24	2.37E-02	1.80E-03
	10	185.91	2.23E+02	109.55	2.17E-02	1.68E-03
	11	209.59	2.16E+02	99.02	2.04E-02	1.61E-03
M	12	235.92	4.06E+01	27.69	1.90E-02	1.53E-03
m	13	238.67	1.31E+03	89.45	1.89E-02	1.53E-03
m	14	241.89	3.19E+02	99.90	1.87E-02	1.52E-03
	15	269.80	1.14E+02	81.72	1.75E-02	1.44E-03
	16	295.17	3.18E+02	66.43	1.64E-02	1.37E-03
	17	300.45	7.17E+01	52.67	1.62E-02	1.36E-03
	18	328.39	7.67E+01	58.28	1.53E-02	1.29E-03
	19	338.69	2.26E+02	75.56	1.49E-02	1.27E-03
	20	352.07	6.24E+02	88.72	1.45E-02	1.24E-03
	21	374.80	4.03E+01	44.45	1.39E-02	1.18E-03
	22	396.03	3.88E+01	43.29	1.33E-02	1.14E-03
	23	409.40	4.20E+01	50.20	1.30E-02	1.13E-03
	24	426.09	6.30E+01	35.13	1.26E-02	1.12E-03
	25	440.17	2.65E+01	33.65	1.23E-02	1.11E-03
	26	463.12	6.63E+01	47.92	1.19E-02	1.10E-03
	27	510.89	1.97E+02	63.67	1.10E-02	1.07E-03
	28	583.52	4.53E+02	63.00	9.96E-03	1.02E-03
	29	609.44	4.26E+02	65.81	9.63E-03	1.01E-03
	30	727.30	8.76E+01	44.29	8.41E-03	8.68E-04
	31	755.54	4.17E+01	40.06	8.17E-03	8.23E-04
	32	768.64	1.29E+02	60.54	8.06E-03	8.02E-04
	33	786.50	3.87E+01	35.69	7.92E-03	7.74E-04
	34	795.89	4.48E+01	46.80	7.85E-03	7.59E-04
	35	860.51	8.56E+01	41.52	7.40E-03	6.56E-04
	36	871.53	3.10E+01	27.35	7.33E-03	6.39E-04
M	37	911.48	3.06E+02	41.18	7.08E-03	5.91E-04
m	38	916.62	1.84E+01	34.35	7.05E-03	5.89E-04
	39	922.79	3.15E+01	26.93	7.02E-03	5.87E-04
	40	935.11	4.02E+01	31.10	6.95E-03	5.82E-04
	41	957.83	2.97E+01	23.70	6.82E-03	5.74E-04
M	42	965.31	7.33E+01	32.11	6.79E-03	5.71E-04
m	43	969.33	1.80E+02	36.15	6.76E-03	5.69E-04
	44	1069.45	2.10E+01	24.22	6.29E-03	5.31E-04
	45	1095.36	2.79E+01	24.63	6.18E-03	5.21E-04
	46	1105.11	2.43E+01	30.05	6.13E-03	5.17E-04
	47	1120.70	7.59E+01	40.83	6.07E-03	5.11E-04
	48	1164.65	2.46E+01	30.98	5.90E-03	4.94E-04
	49	1337.92	1.69E+01	16.70	5.33E-03	4.53E-04
	50	1376.27	3.18E+01	24.10	5.23E-03	4.44E-04
	51	1408.49	3.52E+01	15.23	5.14E-03	4.37E-04
M	52	1414.47	1.76E+01	7.16	5.12E-03	4.35E-04
m	53	1434.77	1.14E+01	13.16	5.07E-03	4.31E-04
	54	1461.24	9.76E+02	69.77	5.01E-03	4.25E-04
M	55	1588.39	2.77E+01	13.42	4.71E-03	3.95E-04
m	56	1592.71	2.30E+01	16.37	4.71E-03	3.94E-04
	57	1630.81	1.33E+01	14.70	4.63E-03	3.85E-04
	58	1694.31	1.00E+01	8.75	4.50E-03	3.71E-04

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	59	1728.72	1.76E+01	12.81	4.44E-03	3.63E-04
	60	1764.87	7.64E+01	23.47	4.37E-03	3.54E-04
	61	1833.74	9.36E+00	7.50	4.26E-03	3.38E-04
	62	1848.06	1.81E+01	13.45	4.23E-03	3.38E-04
	63	2013.90	1.13E+01	8.02	3.98E-03	3.38E-04
	64	2071.90	7.33E+00	6.95	3.90E-03	3.38E-04
M	65	2101.65	1.03E+01	6.36	3.86E-03	3.38E-04
m	66	2105.19	2.67E+01	14.00	3.86E-03	3.38E-04
	67	2120.13	1.95E+01	11.31	3.84E-03	3.38E-04
	68	2433.35	8.50E+00	9.62	3.48E-03	3.38E-04
M	69	2444.25	1.07E+01	7.75	3.47E-03	3.38E-04
m	70	2447.97	1.01E+01	8.72	3.47E-03	3.38E-04
	71	2494.01	9.13E+00	8.85	3.42E-03	3.38E-04
	72	2522.23	4.83E+00	5.50	3.39E-03	3.38E-04
	73	2615.20	1.65E+02	26.61	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 : 8/18/2017 2:36:33PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.24	1.21E+02	78.22	3.93E+01	8.32E+00	8.14E+01	7.87E+01
	2	52.79	8.46E+01	82.53			8.46E+01	8.25E+01
M	3	74.72	5.21E+02	106.99			5.21E+02	1.07E+02
m	4	77.18	9.92E+02	115.63			9.92E+02	1.16E+02
m	5	87.77	3.22E+02	101.05			3.22E+02	1.01E+02
m	6	92.92	3.87E+02	102.22	1.35E+02	2.05E+01	2.51E+02	1.04E+02
	7	98.93	6.81E+01	72.14	8.69E+00	3.15E+00	5.94E+01	7.22E+01
	8	129.71	1.31E+02	122.83			1.31E+02	1.23E+02
	9	154.42	1.00E+02	83.24			1.00E+02	8.32E+01
	10	185.91	2.23E+02	109.55	4.68E+01	7.65E+00	1.76E+02	1.10E+02
	11	209.59	2.16E+02	99.02			2.16E+02	9.90E+01
M	12	235.92	4.06E+01	27.69			4.06E+01	2.77E+01
m	13	238.67	1.31E+03	89.45	2.06E+01	6.26E+00	1.29E+03	8.97E+01
m	14	241.89	3.19E+02	99.90			3.19E+02	9.99E+01
	15	269.80	1.14E+02	81.72			1.14E+02	8.17E+01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	16	295.17	3.18E+02	66.43			3.18E+02	6.64E+01
	17	300.45	7.17E+01	52.67			7.17E+01	5.27E+01
	18	328.39	7.67E+01	58.28			7.67E+01	5.83E+01
	19	338.69	2.26E+02	75.56			2.26E+02	7.56E+01
	20	352.07	6.24E+02	88.72	3.12E+00	4.40E+00	6.21E+02	8.88E+01
	21	374.80	4.03E+01	44.45			4.03E+01	4.44E+01
	22	396.03	3.88E+01	43.29			3.88E+01	4.33E+01
	23	409.40	4.20E+01	50.20			4.20E+01	5.02E+01
	24	426.09	6.30E+01	35.13			6.30E+01	3.51E+01
	25	440.17	2.65E+01	33.65			2.65E+01	3.36E+01
	26	463.12	6.63E+01	47.92			6.63E+01	4.79E+01
	27	510.89	1.97E+02	63.67	7.85E+01	5.73E+00	1.19E+02	6.39E+01
	28	583.52	4.53E+02	63.00			4.53E+02	6.30E+01
	29	609.44	4.26E+02	65.81	6.00E+00	4.13E+00	4.20E+02	6.59E+01
	30	727.30	8.76E+01	44.29			8.76E+01	4.43E+01
	31	755.54	4.17E+01	40.06			4.17E+01	4.01E+01
	32	768.64	1.29E+02	60.54			1.29E+02	6.05E+01
	33	786.50	3.87E+01	35.69			3.87E+01	3.57E+01
	34	795.89	4.48E+01	46.80			4.48E+01	4.68E+01
	35	860.51	8.56E+01	41.52	3.72E-01	2.26E+00	8.53E+01	4.16E+01
	36	871.53	3.10E+01	27.35			3.10E+01	2.73E+01
M	37	911.48	3.06E+02	41.18	5.15E+00	3.10E+00	3.01E+02	4.13E+01
m	38	916.62	1.84E+01	34.35			1.84E+01	3.44E+01
	39	922.79	3.15E+01	26.93			3.15E+01	2.69E+01
	40	935.11	4.02E+01	31.10			4.02E+01	3.11E+01
	41	957.83	2.97E+01	23.70			2.97E+01	2.37E+01
M	42	965.31	7.33E+01	32.11			7.33E+01	3.21E+01
m	43	969.33	1.80E+02	36.15	0.00E+00	0.00E+00	1.80E+02	3.61E+01
	44	1069.45	2.10E+01	24.22			2.10E+01	2.42E+01
	45	1095.36	2.79E+01	24.63			2.79E+01	2.46E+01
	46	1105.11	2.43E+01	30.05			2.43E+01	3.00E+01
	47	1120.70	7.59E+01	40.83			7.59E+01	4.08E+01
	48	1164.65	2.46E+01	30.98			2.46E+01	3.10E+01
	49	1337.92	1.69E+01	16.70			1.69E+01	1.67E+01
	50	1376.27	3.18E+01	24.10			3.18E+01	2.41E+01
	51	1408.49	3.52E+01	15.23			3.52E+01	1.52E+01
M	52	1414.47	1.76E+01	7.16			1.76E+01	7.16E+00
m	53	1434.77	1.14E+01	13.16			1.14E+01	1.32E+01
	54	1461.24	9.76E+02	69.77	4.04E+00	2.32E+00	9.72E+02	6.98E+01
M	55	1588.39	2.77E+01	13.42			2.77E+01	1.34E+01
m	56	1592.71	2.30E+01	16.37			2.30E+01	1.64E+01
	57	1630.81	1.33E+01	14.70			1.33E+01	1.47E+01
	58	1694.31	1.00E+01	8.75			1.00E+01	8.75E+00
	59	1728.72	1.76E+01	12.81			1.76E+01	1.28E+01
	60	1764.87	7.64E+01	23.47			7.64E+01	2.35E+01
	61	1833.74	9.36E+00	7.50			9.36E+00	7.50E+00
	62	1848.06	1.81E+01	13.45			1.81E+01	1.35E+01
	63	2013.90	1.13E+01	8.02			1.13E+01	8.02E+00
	64	2071.90	7.33E+00	6.95			7.33E+00	6.95E+00
M	65	2101.65	1.03E+01	6.36			1.03E+01	6.36E+00
m	66	2105.19	2.67E+01	14.00			2.67E+01	1.40E+01
	67	2120.13	1.95E+01	11.31			1.95E+01	1.13E+01
	68	2433.35	8.50E+00	9.62			8.50E+00	9.62E+00
M	69	2444.25	1.07E+01	7.75			1.07E+01	7.75E+00

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	70	2447.97	1.01E+01	8.72			1.01E+01	8.72E+00
	71	2494.01	9.13E+00	8.85			9.13E+00	8.85E+00
	72	2522.23	4.83E+00	5.50			4.83E+00	5.50E+00
	73	2615.20	1.65E+02	26.61	6.52E+00	1.61E+00	1.58E+02	2.67E+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 : 8/18/2017 2:36:33PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.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	46.24	1.21E+02	78.22	3.93E+01	8.32E+00	8.14E+01	7.87E+01
	2	52.79	8.46E+01	82.53			8.46E+01	8.25E+01
M	3	74.72	5.21E+02	106.99			5.21E+02	1.07E+02
m	4	77.18	9.92E+02	115.63			9.92E+02	1.16E+02
m	5	87.77	3.22E+02	101.05			3.22E+02	1.01E+02
m	6	92.92	3.87E+02	102.22	1.35E+02	2.05E+01	2.51E+02	1.04E+02
	7	98.93	6.81E+01	72.14	8.69E+00	3.15E+00	5.94E+01	7.22E+01
	8	129.71	1.31E+02	122.83			1.31E+02	1.23E+02
	9	154.42	1.00E+02	83.24			1.00E+02	8.32E+01
	10	185.91	2.23E+02	109.55	4.68E+01	7.65E+00	1.76E+02	1.10E+02
	11	209.59	2.16E+02	99.02			2.16E+02	9.90E+01
M	12	235.92	4.06E+01	27.69			4.06E+01	2.77E+01
m	13	238.67	1.31E+03	89.45	2.06E+01	6.26E+00	1.29E+03	8.97E+01
m	14	241.89	3.19E+02	99.90			3.19E+02	9.99E+01
	15	269.80	1.14E+02	81.72			1.14E+02	8.17E+01
	16	295.17	3.18E+02	66.43			3.18E+02	6.64E+01
	17	300.45	7.17E+01	52.67			7.17E+01	5.27E+01
	18	328.39	7.67E+01	58.28			7.67E+01	5.83E+01
	19	338.69	2.26E+02	75.56			2.26E+02	7.56E+01
	20	352.07	6.24E+02	88.72	3.12E+00	4.40E+00	6.21E+02	8.88E+01
	21	374.80	4.03E+01	44.45			4.03E+01	4.44E+01
	22	396.03	3.88E+01	43.29			3.88E+01	4.33E+01
	23	409.40	4.20E+01	50.20			4.20E+01	5.02E+01
	24	426.09	6.30E+01	35.13			6.30E+01	3.51E+01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	25	440.17	2.65E+01	33.65			2.65E+01	3.36E+01
	26	463.12	6.63E+01	47.92			6.63E+01	4.79E+01
	27	510.89	1.97E+02	63.67	7.85E+01	5.73E+00	1.19E+02	6.39E+01
	28	583.52	4.53E+02	63.00			4.53E+02	6.30E+01
	29	609.44	4.26E+02	65.81	6.00E+00	4.13E+00	4.20E+02	6.59E+01
	30	727.30	8.76E+01	44.29			8.76E+01	4.43E+01
	31	755.54	4.17E+01	40.06			4.17E+01	4.01E+01
	32	768.64	1.29E+02	60.54			1.29E+02	6.05E+01
	33	786.50	3.87E+01	35.69			3.87E+01	3.57E+01
	34	795.89	4.48E+01	46.80			4.48E+01	4.68E+01
	35	860.51	8.56E+01	41.52	3.72E-01	2.26E+00	8.53E+01	4.16E+01
	36	871.53	3.10E+01	27.35			3.10E+01	2.73E+01
M	37	911.48	3.06E+02	41.18	5.15E+00	3.10E+00	3.01E+02	4.13E+01
m	38	916.62	1.84E+01	34.35			1.84E+01	3.44E+01
	39	922.79	3.15E+01	26.93			3.15E+01	2.69E+01
	40	935.11	4.02E+01	31.10			4.02E+01	3.11E+01
	41	957.83	2.97E+01	23.70			2.97E+01	2.37E+01
M	42	965.31	7.33E+01	32.11			7.33E+01	3.21E+01
m	43	969.33	1.80E+02	36.15	0.00E+00	0.00E+00	1.80E+02	3.61E+01
	44	1069.45	2.10E+01	24.22			2.10E+01	2.42E+01
	45	1095.36	2.79E+01	24.63			2.79E+01	2.46E+01
	46	1105.11	2.43E+01	30.05			2.43E+01	3.00E+01
	47	1120.70	7.59E+01	40.83			7.59E+01	4.08E+01
	48	1164.65	2.46E+01	30.98			2.46E+01	3.10E+01
	49	1337.92	1.69E+01	16.70			1.69E+01	1.67E+01
	50	1376.27	3.18E+01	24.10			3.18E+01	2.41E+01
	51	1408.49	3.52E+01	15.23			3.52E+01	1.52E+01
M	52	1414.47	1.76E+01	7.16			1.76E+01	7.16E+00
m	53	1434.77	1.14E+01	13.16			1.14E+01	1.32E+01
	54	1461.24	9.76E+02	69.77	4.04E+00	2.32E+00	9.72E+02	6.98E+01
M	55	1588.39	2.77E+01	13.42			2.77E+01	1.34E+01
m	56	1592.71	2.30E+01	16.37			2.30E+01	1.64E+01
	57	1630.81	1.33E+01	14.70			1.33E+01	1.47E+01
	58	1694.31	1.00E+01	8.75			1.00E+01	8.75E+00
	59	1728.72	1.76E+01	12.81			1.76E+01	1.28E+01
	60	1764.87	7.64E+01	23.47			7.64E+01	2.35E+01
	61	1833.74	9.36E+00	7.50			9.36E+00	7.50E+00
	62	1848.06	1.81E+01	13.45			1.81E+01	1.35E+01
	63	2013.90	1.13E+01	8.02			1.13E+01	8.02E+00
	64	2071.90	7.33E+00	6.95			7.33E+00	6.95E+00
M	65	2101.65	1.03E+01	6.36			1.03E+01	6.36E+00
m	66	2105.19	2.67E+01	14.00			2.67E+01	1.40E+01
	67	2120.13	1.95E+01	11.31			1.95E+01	1.13E+01
	68	2433.35	8.50E+00	9.62			8.50E+00	9.62E+00
M	69	2444.25	1.07E+01	7.75			1.07E+01	7.75E+00
m	70	2447.97	1.01E+01	8.72			1.01E+01	8.72E+00
	71	2494.01	9.13E+00	8.85			9.13E+00	8.85E+00
	72	2522.23	4.83E+00	5.50			4.83E+00	5.50E+00
	73	2615.20	1.65E+02	26.61	6.52E+00	1.61E+00	1.58E+02	2.67E+01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.971	1460.81	*	10.67	2.10E+01	2.37E+00
CD-109	0.989	88.03	*	3.72	4.20E+00	1.40E+00
SN-126	0.994	87.57	*	37.00	3.66E-01	1.20E-01
TL-204	0.502	374.74	*	94.11	3.73E-02	4.12E-02
		899.15		99.16		
		911.74	*	91.10	5.64E-01	9.06E-02
TL-208	0.967	583.14	*	30.22	1.74E+00	3.00E-01
		860.37	*	4.48	2.96E+00	1.47E+00
		2614.66	*	35.85	1.54E+00	3.03E-01
PB-210	0.990	46.50	*	4.25	9.04E-01	8.78E-01
BI-212	0.761	727.17	*	11.80	1.02E+00	5.25E-01
		1620.62		2.75		
PB-212	0.998	238.63	*	44.60	1.76E+00	1.88E-01
		300.09	*	3.41	1.49E+00	1.10E+00
BI-214	0.920	609.31	*	46.30	1.08E+00	2.05E-01
		1120.29	*	15.10	9.54E-01	5.19E-01
		1764.49	*	15.80	1.27E+00	4.05E-01
		2204.22		4.98		
PB-214	0.998	295.21	*	19.19	1.16E+00	2.61E-01
		351.92	*	37.19	1.32E+00	2.20E-01
RA-224	0.876	240.98	*	3.95	4.97E+00	1.61E+00
RA-226	0.985	186.21	*	3.28	2.84E+00	5.50E+00
AC-228	0.980	338.32	*	11.40	1.53E+00	5.27E-01
		911.07	*	27.70	1.77E+00	2.84E-01
		969.11	*	16.60	1.85E+00	4.02E-01
AM-243	1.000	74.67	*	66.00	3.31E-01	7.38E-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 1707084-04

HTC-A01-S008-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 2:36:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	52.79	2.35138E-02	48.75		
m	4	77.18	2.75658E-01	5.83		
m	6	92.92	6.98584E-02	20.73	Sum	
	7	98.93	1.65101E-02	60.74	D-Esc	
	8	129.71	3.64543E-02	46.80		
	9	154.42	2.77832E-02	41.61		
	11	209.59	5.99252E-02	22.95	Tol.	GA-67 CM-243
M	12	235.92	1.12868E-02	34.08	Tol.	TH-227
	15	269.80	3.17320E-02	35.77		
	18	328.39	2.13063E-02	37.99		
	22	396.03	1.07724E-02	55.82		
	23	409.40	1.16667E-02	59.76		
	24	426.09	1.75122E-02	27.86	Sum	
	25	440.17	7.36111E-03	63.48	D-Esc	
	26	463.12	1.84259E-02	36.12	Sum	
	27	510.89	3.30415E-02	26.87		
	31	755.54	1.15814E-02	48.04		
	32	768.64	3.57125E-02	23.55	Sum	
	33	786.50	1.07385E-02	46.16		
	34	795.89	1.24309E-02	52.29	Sum	
	36	871.53	8.61111E-03	44.11	Tol.	NB-94
m	38	916.62	5.10193E-03	93.51		
	39	922.79	8.75000E-03	42.74	Sum	
	40	935.11	1.11565E-02	38.71	Sum	
	41	957.83	8.23611E-03	39.97	Sum	
M	42	965.31	2.03566E-02	21.90	Sum	
	44	1069.45	5.84418E-03	57.57		
	45	1095.36	7.75564E-03	44.11		
	46	1105.11	6.75982E-03	61.74		
	48	1164.65	6.82870E-03	63.02		
	49	1337.92	4.70679E-03	49.27		
	50	1376.27	8.82812E-03	37.92		
	51	1408.49	9.77513E-03	21.64	Tol.	EU-152
M	52	1414.47	4.88524E-03	20.35		
m	53	1434.77	3.15952E-03	57.86		
M	55	1588.39	7.70564E-03	24.18	Sum	
m	56	1592.71	6.38884E-03	35.59	D-Esc	
	57	1630.81	3.70726E-03	55.06		
	58	1694.31	2.77778E-03	43.73		
	59	1728.72	4.90000E-03	36.30		

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	61	1833.74	2.60101E-03	40.05		
	62	1848.06	5.03333E-03	37.12	Sum	
	63	2013.90	3.15171E-03	35.32		
	64	2071.90	2.03704E-03	47.36		
M	65	2101.65	2.85770E-03	30.93		
m	66	2105.19	7.41090E-03	26.24	S-Esc	
	67	2120.13	5.41667E-03	29.01		
	68	2433.35	2.36111E-03	56.57		
M	69	2444.25	2.96244E-03	36.32		
m	70	2447.97	2.79658E-03	43.30		
	71	2494.01	2.53472E-03	48.47		
	72	2522.23	1.34259E-03	56.90		

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	0.97	1460.81	*	10.67	2.10E+01	2.37E+00
CD-109	0.98	88.03	*	3.72	4.20E+00	1.40E+00
SN-126	0.99	87.57	*	37.00	3.66E-01	1.20E-01
TL-204	0.50	374.74	*	94.11	3.73E-02	4.12E-02
		899.15		99.16		
		911.74	*	91.10	5.64E-01	9.06E-02
TL-208	0.96	583.14	*	30.22	1.74E+00	3.00E-01
		860.37	*	4.48	2.96E+00	1.47E+00
		2614.66	*	35.85	1.54E+00	3.03E-01
PB-210	0.99	46.50	*	4.25	9.04E-01	8.78E-01
BI-212	0.76	727.17	*	11.80	1.02E+00	5.25E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.76E+00	1.88E-01
		300.09	*	3.41	1.49E+00	1.10E+00
BI-214	0.92	609.31	*	46.30	1.08E+00	2.05E-01
		1120.29	*	15.10	9.54E-01	5.19E-01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.92	1764.49	*	15.80	1.27E+00	4.05E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	1.16E+00	2.61E-01
		351.92	*	37.19	1.32E+00	2.20E-01
RA-224	0.87	240.98	*	3.95	4.97E+00	1.61E+00
RA-226	0.98	186.21	*	3.28	2.84E+00	5.50E+00
AC-228	0.98	338.32	*	11.40	1.53E+00	5.27E-01
		911.07	*	27.70	1.77E+00	2.84E-01
		969.11	*	16.60	1.85E+00	4.02E-01
AM-243	1.00	74.67	*	66.00	3.31E-01	7.38E-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	2.10E+01	2.37E+00	
?	CD-109	0.989	4.20E+00	1.40E+00	
?	SN-126	0.994	3.66E-01	1.20E-01	
	TL-204	0.502	3.51E-02	3.95E-02	
	TL-208	0.967	1.67E+00	2.11E-01	
	PB-210	0.990	9.04E-01	8.78E-01	
	BI-212	0.761	1.02E+00	5.25E-01	
	PB-212	0.998	1.76E+00	1.86E-01	
	BI-214	0.920	1.10E+00	1.72E-01	
	PB-214	0.998	1.26E+00	1.68E-01	
	RA-224	0.876	4.97E+00	1.61E+00	
	RA-226	0.985	2.84E+00	5.50E+00	
	AC-228	0.980	1.69E+00	2.23E-01	
	AM-243	1.000	3.31E-01	7.38E-02	

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

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

Errors quoted at 2.000sigma

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 2:36:33PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	52.79	2.35138E-02	48.75		
m	4	77.18	2.75658E-01	5.83		
m	6	92.92	6.98584E-02	20.73	Sum	
	7	98.93	1.65101E-02	60.74	D-Esc	
	8	129.71	3.64543E-02	46.80		
	9	154.42	2.77832E-02	41.61		
	11	209.59	5.99252E-02	22.95	Tol.	GA-67
						CM-243
M	12	235.92	1.12868E-02	34.08	Tol.	TH-227
	15	269.80	3.17320E-02	35.77		
	18	328.39	2.13063E-02	37.99		
	22	396.03	1.07724E-02	55.82		
	23	409.40	1.16667E-02	59.76		
	24	426.09	1.75122E-02	27.86	Sum	
	25	440.17	7.36111E-03	63.48	D-Esc	
	26	463.12	1.84259E-02	36.12	Sum	
	27	510.89	3.30415E-02	26.87		
	31	755.54	1.15814E-02	48.04		
	32	768.64	3.57125E-02	23.55	Sum	
	33	786.50	1.07385E-02	46.16		
	34	795.89	1.24309E-02	52.29	Sum	
	36	871.53	8.61111E-03	44.11	Tol.	NB-94
m	38	916.62	5.10193E-03	93.51		
	39	922.79	8.75000E-03	42.74	Sum	
	40	935.11	1.11565E-02	38.71	Sum	
	41	957.83	8.23611E-03	39.97	Sum	
M	42	965.31	2.03566E-02	21.90	Sum	
	44	1069.45	5.84418E-03	57.57		
	45	1095.36	7.75564E-03	44.11		
	46	1105.11	6.75982E-03	61.74		
	48	1164.65	6.82870E-03	63.02		
	49	1337.92	4.70679E-03	49.27		
	50	1376.27	8.82812E-03	37.92		
	51	1408.49	9.77513E-03	21.64	Tol.	EU-152

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	52	1414.47	4.88524E-03	20.35		
m	53	1434.77	3.15952E-03	57.86		
M	55	1588.39	7.70564E-03	24.18	Sum	
m	56	1592.71	6.38884E-03	35.59	D-Esc	
	57	1630.81	3.70726E-03	55.06		
	58	1694.31	2.77778E-03	43.73		
	59	1728.72	4.90000E-03	36.30		
	61	1833.74	2.60101E-03	40.05		
	62	1848.06	5.03333E-03	37.12	Sum	
	63	2013.90	3.15171E-03	35.32		
	64	2071.90	2.03704E-03	47.36		
M	65	2101.65	2.85770E-03	30.93		
m	66	2105.19	7.41090E-03	26.24	S-Esc	
	67	2120.13	5.41667E-03	29.01		
	68	2433.35	2.36111E-03	56.57		
M	69	2444.25	2.96244E-03	36.32		
m	70	2447.97	2.79658E-03	43.30		
	71	2494.01	2.53472E-03	48.47		
	72	2522.23	1.34259E-03	56.90		

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	1.49E+00	2.03E+00	2.03E+00
+		NA-22	1274.54		99.94	-2.65E-02	7.75E-02	7.75E-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	1.49E-02	4.87E-02	4.87E-02
+		K-40	1460.81	*	10.67	2.10E+01	1.17E+00	1.17E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-2.20E-02	6.43E-02	6.43E-02

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TI-44	78.34	96.00	2.38E-01	6.43E-02	8.53E-02
+	SC-46	889.25	99.98	-2.54E-02	1.48E-01	1.48E-01
		1120.51	99.99	3.22E-01		2.47E-01
+	V-48	983.52	99.98	-3.46E-01	4.57E+00	4.57E+00
		1312.10	97.50	2.61E+00		5.43E+00
+	CR-51	320.08	9.83	-1.91E+00	6.06E+00	6.06E+00
+	MN-54	834.83	99.97	-1.75E-02	9.21E-02	9.21E-02
+	CO-56	846.75	99.96	6.76E-02	1.47E-01	1.47E-01
		1037.75	14.03	-1.63E-01		1.20E+00
		1238.25	67.00	1.51E-01		3.71E-01
		1771.40	15.51	3.46E-01		8.30E-01
		2598.48	16.90	-1.21E-01		4.49E-01
+	CO-57	122.06	85.51	-6.30E-03	7.15E-02	7.15E-02
		136.48	10.60	-1.07E-01		5.79E-01
+	CO-58	810.76	99.40	-9.97E-02	1.53E-01	1.53E-01
+	FE-59	1099.22	56.50	-5.41E-01	4.92E-01	4.92E-01
		1291.56	43.20	1.93E-01		7.63E-01
+	CO-60	1173.22	100.00	1.85E-02	6.19E-02	8.96E-02
		1332.49	100.00	2.23E-03		6.19E-02
+	ZN-65	1115.52	50.75	1.56E-02	1.99E-01	1.99E-01
+	GA-67	93.31	35.70	3.23E+08	1.71E+08	1.71E+08
		208.95	2.24	2.08E+09		2.49E+09
		300.22	16.00	-8.28E+08		3.77E+08
+	SE-75	121.11	16.70	-6.16E-02	1.42E-01	5.00E-01
		136.00	59.20	-2.62E-02		1.42E-01
		264.65	59.80	-4.44E-03		1.68E-01
		279.53	25.20	3.46E-01		4.22E-01
		400.65	11.40	3.76E-02		8.82E-01
+	RB-82	776.52	13.00	-2.73E+00	6.09E+00	6.09E+00
+	RB-83	520.41	46.00	-8.23E-02	2.79E-01	2.79E-01
		529.64	30.30	-3.51E-02		4.32E-01
		552.65	16.40	-8.29E-02		7.78E-01
+	KR-85	513.99	0.43	3.16E+01	2.04E+01	2.04E+01
+	SR-85	513.99	99.27	3.84E-01	2.48E-01	2.48E-01
+	Y-88	898.02	93.40	-1.50E-02	9.65E-02	1.33E-01
		1836.01	99.38	-8.98E-03		9.65E-02
+	MO-93	263.06	56.72	-3.38E-02	4.48E-02	9.86E-02
		684.67	99.68	1.40E-02		6.35E-02
		1477.11	99.08	1.04E-02		4.48E-02
+	NB-93M	16.57	9.43	-2.42E-01	5.07E-01	5.07E-01
+	NB-94	702.63	100.00	1.75E-03	6.78E-02	6.78E-02
		871.10	100.00	2.49E-02		6.84E-02
+	NB-95	765.79	99.81	2.77E-01	5.34E-01	5.34E-01
+	NB-95M	235.69	25.00	-3.13E+08	3.44E+07	3.44E+07
+	ZR-95	724.18	43.70	4.33E-02	3.74E-01	5.21E-01
		756.72	55.30	2.15E-01		3.74E-01
+	MO-99	181.06	6.20	-3.60E+09	2.15E+10	3.44E+10
		739.58	12.80	2.08E+08		2.15E+10

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	MO-99	778.00		4.50	5.04E+09	2.15E+10	5.23E+10
+	RU-103	497.08		89.00	-6.52E-02	3.41E-01	3.41E-01
+	RU-106	621.84		9.80	-2.11E-01	7.01E-01	7.01E-01
+	AG-108M	433.93		89.90	2.31E-02	5.99E-02	5.99E-02
		614.37		90.40	9.73E-03		8.28E-02
		722.95		90.50	7.03E-03		7.50E-02
+	CD-109	88.03	*	3.72	4.20E+00	4.03E+00	4.03E+00
+	AG-110M	657.75		93.14	1.30E-02	9.23E-02	9.23E-02
		677.61		10.53	1.58E-01		7.48E-01
		706.67		16.46	5.63E-03		5.40E-01
		763.93		21.98	-1.79E-01		4.29E-01
		884.67		71.63	-2.69E-02		1.19E-01
		1384.27		23.94	-2.12E-02		3.31E-01
+	CD-113M	263.70		0.02	-4.57E+01	2.46E+02	2.46E+02
+	SN-113	255.12		1.93	8.28E-01	1.54E-01	4.56E+00
		391.69		64.90	4.27E-02		1.54E-01
+	TE123M	159.00		84.10	1.85E-02	1.02E-01	1.02E-01
+	SB-124	602.71		97.87	5.24E-02	2.05E-01	2.05E-01
		645.85		7.26	-8.60E-02		2.50E+00
		722.78		11.10	1.75E-01		1.87E+00
		1691.02		49.00	9.98E-03		3.01E-01
+	I-125	35.49		6.49	-7.08E-01	2.44E+00	2.44E+00
+	SB-125	176.33		6.89	1.36E-01	2.15E-01	7.53E-01
		427.89		29.33	-2.27E-02		2.15E-01
		463.38		10.35	4.02E-01		7.09E-01
		600.56		17.80	1.04E-01		3.83E-01
		635.90		11.32	7.91E-03		5.55E-01
+	SB-126	414.70		83.30	3.40E+00	1.45E+01	1.62E+01
		666.33		99.60	-4.67E-01		1.56E+01
		695.00		99.60	-7.29E+00		1.45E+01
		720.50		53.80	9.32E+00		2.84E+01
+	SN-126	87.57	*	37.00	3.66E-01	3.50E-01	3.50E-01
+	SB-127	473.00		25.00	-1.11E+07	6.96E+06	8.10E+06
		685.20		35.70	1.54E+06		6.96E+06
		783.80		14.70	1.86E+06		1.92E+07
+	I-129	29.78		57.00	-8.81E-02	1.01E-01	1.01E-01
		33.60		13.20	-1.13E-02		4.14E-01
		39.58		7.52	1.58E-01		6.73E-01
+	I-131	284.30		6.05	3.55E+02	2.81E+02	4.07E+03
		364.48		81.20	-8.64E+01		2.81E+02
		636.97		7.26	-3.08E+02		3.50E+03
		722.89		1.80	1.54E+03		1.64E+04
+	TE-132	49.72		13.10	-6.40E+08	5.50E+07	3.78E+08
		228.16		88.00	-2.18E+07		5.50E+07
+	BA-133	81.00		33.00	-8.75E-01	1.32E-01	1.75E-01
		302.84		17.80	-2.14E-02		3.63E-01
		356.01		60.00	-1.28E-03		1.32E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	XE-133	81.00	38.00	-2.85E+05	5.70E+04	5.70E+04
+	CS-134	563.23	8.38	-2.89E-01	8.15E-02	7.89E-01
		569.32	15.43	8.91E-02		4.58E-01
		604.70	97.60	4.66E-03		8.15E-02
		795.84	85.40	1.12E-01		1.06E-01
		801.93	8.73	-2.41E-01		8.10E-01
+	CS-135	268.24	16.00	5.57E-01	4.10E-01	4.10E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	8.32E+01	1.07E+01	1.19E+02
		163.89	4.61	1.28E+01		1.81E+02
		176.55	13.56	1.08E+01		6.00E+01
		273.65	12.66	-4.17E+01		8.07E+01
		340.57	48.50	6.56E+01		2.74E+01
		818.50	99.70	3.32E+00		1.07E+01
		1048.07	79.60	-3.74E+00		1.39E+01
		1235.34	19.70	9.34E+00		8.76E+01
+	CS-137	661.65	85.12	-2.15E-02	7.72E-02	7.72E-02
+	LA-138	788.74	34.00	-3.74E-02	8.10E-02	2.13E-01
		1435.80	66.00	-3.44E-02		8.10E-02
+	CE-139	165.85	80.35	4.80E-02	1.03E-01	1.03E-01
+	BA-140	162.64	6.70	-4.32E+01	4.60E+01	1.42E+02
		304.84	4.50	-1.17E+01		2.47E+02
		423.70	3.20	9.47E+00		3.77E+02
		437.55	2.00	-3.48E+01		5.35E+02
		537.32	25.00	2.39E+01		4.60E+01
+	LA-140	328.77	20.50	3.62E+01	1.12E+01	5.96E+01
		487.03	45.50	1.43E-01		2.54E+01
		815.85	23.50	1.86E+01		5.28E+01
		1596.49	95.49	-7.48E-01		1.12E+01
+	CE-141	145.44	48.40	4.05E-01	8.64E-01	8.64E-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	-9.64E-02	5.96E-01	5.96E-01
+	PM-144	476.78	42.00	2.94E-03	7.67E-02	1.61E-01
		618.01	98.60	3.37E-03		7.67E-02
		696.49	99.49	7.78E-06		8.01E-02
+	PM-145	36.85	21.70	-2.09E-01	1.30E-01	2.32E-01
		37.36	39.70	-6.03E-02		1.30E-01
		42.30	15.10	-7.74E-02		3.35E-01
		72.40	2.31	-6.38E+00		3.05E+00
+	PM-146	453.90	39.94	-7.82E-02	1.47E-01	1.47E-01
		735.90	14.01	1.26E-02		4.68E-01
		747.13	13.10	1.15E-01		5.20E-01
+	ND-147	91.11	28.90	1.59E+02	1.11E+02	1.11E+02
		531.02	13.10	-4.39E+00		2.10E+02
+	PM-149	285.90	3.10	-4.88E+12	3.05E+13	3.05E+13

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	EU-152	121.78		20.50	-2.90E-02	2.35E-01	2.35E-01
		244.69		5.40	3.75E-01		1.13E+00
		344.27		19.13	-2.61E-01		3.00E-01
		778.89		9.20	6.86E-02		6.02E-01
		964.01		10.40	-2.38E+00		9.42E-01
		1085.78		7.22	-6.01E-01		9.35E-01
		1112.02		9.60	-7.47E-03		8.24E-01
		1407.95		14.94	4.06E-01		5.00E-01
+	GD-153	97.43		31.30	-3.17E-01	2.15E-01	2.15E-01
		103.18		22.20	2.04E-02		2.87E-01
+	EU-154	123.07		40.50	-8.05E-03	1.22E-01	1.22E-01
		723.30		19.70	3.29E-02		3.51E-01
		873.19		11.50	8.69E-02		6.27E-01
		996.32		10.30	-1.12E-01		6.98E-01
		1004.76		17.90	-6.13E-02		3.93E-01
		1274.45		35.50	-7.10E-02		2.08E-01
+	EU-155	86.50		30.90	1.73E-01	2.21E-01	2.21E-01
		105.30		20.70	2.45E-02		2.45E-01
+	EU-156	811.77		10.40	-2.61E+01	4.76E+01	4.76E+01
		1153.47		7.20	1.99E+01		9.65E+01
		1230.71		8.90	-2.17E+00		8.34E+01
+	HO-166M	184.41		72.60	1.26E-01	8.46E-02	8.46E-02
		280.45		29.60	6.82E-02		2.02E-01
		410.94		11.10	2.48E-01		5.65E-01
		711.69		54.10	-7.95E-03		1.21E-01
+	TM-171	66.72		0.14	-7.52E+01	4.83E+01	4.83E+01
+	HF-172	67.35		5.31	-4.30E-01	4.82E-01	1.26E+00
		125.81		11.30	-4.67E-01		4.82E-01
+	LU-172	181.53		20.60	-5.83E+02	3.08E+03	5.56E+03
		900.72		29.81	1.10E+03		5.35E+03
		1093.66		62.50	1.86E+02		3.08E+03
+	LU-173	100.72		5.24	4.26E-01	3.37E-01	1.09E+00
		272.11		21.20	-1.11E-01		3.37E-01
+	HF-175	343.40		84.00	-4.93E-01	1.80E-01	1.80E-01
+	LU-176	88.34		13.30	2.61E-01	5.91E-02	5.09E-01
		201.83		86.00	-1.39E-02		5.91E-02
		306.78		94.00	-3.22E-02		5.91E-02
+	HF-181	133.02		41.70	-9.64E-02	3.48E-01	5.97E-01
		345.85		17.20	-1.95E+00		1.65E+00
		482.03		82.80	-1.69E-01		3.48E-01
+	TA-182	67.75		41.20	-9.05E-02	2.65E-01	2.65E-01
		1121.30		34.90	9.87E-01		5.81E-01
		1189.05		16.23	-1.48E-01		9.70E-01
		1221.41		26.98	3.83E-01		6.02E-01
		1231.02		11.44	-3.60E-02		1.39E+00
+	IR-192	308.46		29.68	-7.57E-03	3.03E-01	4.65E-01
		468.07		48.10	1.62E-01		3.03E-01
+	HG-203	279.19		77.30	2.73E-01	3.33E-01	3.33E-01
+	TL-204	374.74	*	94.11	3.73E-02	6.73E-02	6.73E-02

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TL-204	899.15		99.16	2.29E-02	6.73E-02	7.33E-02
		911.74	*	91.10	5.64E-01		1.36E-01
+	BI-207	569.67		97.72	3.37E-02	6.84E-02	6.84E-02
		1063.62		74.90	1.24E-02		9.64E-02
+	TL-208	583.14	*	30.22	1.74E+00	1.68E-01	3.03E-01
		860.37	*	4.48	2.96E+00		2.22E+00
		2614.66	*	35.85	1.54E+00		1.68E-01
+	BI-210M	262.00		45.00	-2.69E-02	1.24E-01	1.24E-01
		300.00		23.00	-9.63E-01		2.87E-01
+	PB-210	46.50	*	4.25	9.04E-01	1.43E+00	1.43E+00
+	PB-211	404.84		2.90	-2.87E-01	1.88E+00	1.88E+00
		831.96		2.90	-1.22E+00		2.35E+00
+	BI-212	727.17	*	11.80	1.02E+00	7.98E-01	7.98E-01
		1620.62		2.75	1.09E+00		2.42E+00
+	PB-212	238.63	*	44.60	1.76E+00	2.21E-01	2.21E-01
		300.09	*	3.41	1.49E+00		1.76E+00
+	BI-214	609.31	*	46.30	1.08E+00	2.27E-01	2.27E-01
		1120.29	*	15.10	9.54E-01		7.97E-01
		1764.49	*	15.80	1.27E+00		4.75E-01
		2204.22		4.98	6.11E-01		1.64E+00
+	PB-214	295.21	*	19.19	1.16E+00	2.64E-01	3.47E-01
		351.92	*	37.19	1.32E+00		2.64E-01
+	RN-219	401.80		6.50	1.80E-03	8.65E-01	8.65E-01
+	RA-223	323.87		3.88	6.92E-02	1.38E+00	1.38E+00
+	RA-224	240.98	*	3.95	4.97E+00	2.54E+00	2.54E+00
+	RA-225	40.00		31.00	1.01E+00	1.54E+01	1.54E+01
+	RA-226	186.21	*	3.28	2.84E+00	2.88E+00	2.88E+00
+	TH-227	50.10		8.40	-5.98E-01	5.86E-01	6.20E-01
		236.00		11.50	-5.34E+00		5.86E-01
		256.20		6.30	6.22E-01		9.16E-01
+	AC-228	338.32	*	11.40	1.53E+00	4.25E-01	7.90E-01
		911.07	*	27.70	1.77E+00		4.25E-01
		969.11	*	16.60	1.85E+00		8.52E-01
+	TH-230	48.44		16.90	1.54E-01	3.20E-01	3.20E-01
		62.85		4.60	1.55E+00		1.41E+00
		67.67		0.37	-5.59E+00		1.64E+01
+	PA-231	283.67		1.60	-1.59E+00	2.76E+00	3.48E+00
		302.67		2.30	-1.63E-01		2.76E+00
+	TH-231	25.64		14.70	-3.29E+00	4.99E-01	4.99E-01
		84.21		6.40	-1.04E+00		9.43E-01
+	PA-233	311.98		38.60	1.54E-01	1.73E+00	1.73E+00
+	PA-234	131.20		20.40	2.45E-01	2.66E-01	2.66E-01
		733.99		8.80	-6.27E-02		7.31E-01
		946.00		12.00	6.42E-02		5.80E-01
+	PA-234M	1001.03		0.92	3.47E+00	7.90E+00	7.90E+00
+	TH-234	63.29		3.80	1.91E+00	1.72E+00	1.72E+00
+	U-235	143.76		10.50	1.42E-01	4.96E-01	4.96E-01
		163.35		4.70	7.48E-02		1.06E+00

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	U-235	205.31		4.70	-1.55E+00	4.96E-01	1.12E+00
+	NP-237	86.50		12.60	4.08E-01	5.23E-01	5.23E-01
+	NP-239	106.10		22.70	4.11E+10	5.74E+11	5.74E+11
		228.18		10.70	-5.00E+11		1.26E+12
		277.60		14.10	8.25E+11		1.14E+12
+	AM-241	59.54		35.90	-1.42E-01	1.58E-01	1.58E-01
+	AM-243	74.67	*	66.00	3.31E-01	1.66E-01	1.66E-01
+	CM-243	209.75		3.29	1.93E+00	4.34E-01	1.80E+00
		228.14		10.60	-1.90E-01		4.80E-01
		277.60		14.00	3.14E-01		4.34E-01

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

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	1.49E+00	9.68E-01
	NA-22	1274.54		99.94	7.75E-02	7.75E-02	-2.65E-02	3.57E-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	4.87E-02	4.87E-02	1.49E-02	2.07E-02
+	K-40	1460.81	*	10.67	1.17E+00	1.17E+00	2.10E+01	5.57E-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	6.43E-02	6.43E-02	-2.20E-02	3.15E-02
		78.34		96.00	8.53E-02		2.38E-01	4.20E-02
	SC-46	889.25		99.98	1.48E-01	1.48E-01	-2.54E-02	6.89E-02
		1120.51		99.99	2.47E-01		3.22E-01	1.18E-01
	V-48	983.52		99.98	4.57E+00	4.57E+00	-3.46E-01	2.13E+00
		1312.10		97.50	5.43E+00		2.61E+00	2.52E+00

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	CR-51	320.08		9.83	6.06E+00	6.06E+00	-1.91E+00	2.91E+00
	MN-54	834.83		99.97	9.21E-02	9.21E-02	-1.75E-02	4.35E-02
	CO-56	846.75		99.96	1.47E-01	1.47E-01	6.76E-02	6.84E-02
		1037.75		14.03	1.20E+00		-1.63E-01	5.59E-01
		1238.25		67.00	3.71E-01		1.51E-01	1.76E-01
		1771.40		15.51	8.30E-01		3.46E-01	3.61E-01
		2598.48		16.90	4.49E-01		-1.21E-01	1.59E-01
	CO-57	122.06		85.51	7.15E-02	7.15E-02	-6.30E-03	3.49E-02
		136.48		10.60	5.79E-01		-1.07E-01	2.82E-01
	CO-58	810.76		99.40	1.53E-01	1.53E-01	-9.97E-02	7.10E-02
	FE-59	1099.22		56.50	4.92E-01	4.92E-01	-5.41E-01	2.26E-01
		1291.56		43.20	7.63E-01		1.93E-01	3.52E-01
	CO-60	1173.22		100.00	8.96E-02	6.19E-02	1.85E-02	4.20E-02
		1332.49		100.00	6.19E-02		2.23E-03	2.79E-02
	ZN-65	1115.52		50.75	1.99E-01	1.99E-01	1.56E-02	9.28E-02
	GA-67	93.31		35.70	1.71E+08	1.71E+08	3.23E+08	8.41E+07
		208.95		2.24	2.49E+09		2.08E+09	1.21E+09
		300.22		16.00	3.77E+08		-8.28E+08	1.83E+08
	SE-75	121.11		16.70	5.00E-01	1.42E-01	-6.16E-02	2.44E-01
		136.00		59.20	1.42E-01		-2.62E-02	6.90E-02
		264.65		59.80	1.68E-01		-4.44E-03	8.13E-02
		279.53		25.20	4.22E-01		3.46E-01	2.05E-01
		400.65		11.40	8.82E-01		3.76E-02	4.23E-01
	RB-82	776.52		13.00	6.09E+00	6.09E+00	-2.73E+00	2.84E+00
	RB-83	520.41		46.00	2.79E-01	2.79E-01	-8.23E-02	1.33E-01
		529.64		30.30	4.32E-01		-3.51E-02	2.06E-01
		552.65		16.40	7.78E-01		-8.29E-02	3.69E-01
	KR-85	513.99		0.43	2.04E+01	2.04E+01	3.16E+01	9.87E+00
	SR-85	513.99		99.27	2.48E-01	2.48E-01	3.84E-01	1.20E-01
	Y-88	898.02		93.40	1.33E-01	9.65E-02	-1.50E-02	6.22E-02
		1836.01		99.38	9.65E-02		-8.98E-03	4.13E-02
	MO-93	263.06		56.72	9.86E-02	4.48E-02	-3.38E-02	4.77E-02
		684.67		99.68	6.35E-02		1.40E-02	2.99E-02
		1477.11		99.08	4.48E-02		1.04E-02	1.92E-02
	NB-93M	16.57		9.43	5.07E-01	5.07E-01	-2.42E-01	2.38E-01
	NB-94	702.63		100.00	6.78E-02	6.78E-02	1.75E-03	3.21E-02
		871.10		100.00	6.84E-02		2.49E-02	3.21E-02
	NB-95	765.79		99.81	5.34E-01	5.34E-01	2.77E-01	2.54E-01
	NB-95M	235.69		25.00	3.44E+07	3.44E+07	-3.13E+08	1.68E+07
	ZR-95	724.18		43.70	5.21E-01	3.74E-01	4.33E-02	2.48E-01
		756.72		55.30	3.74E-01		2.15E-01	1.77E-01
	MO-99	181.06		6.20	3.44E+10	2.15E+10	-3.60E+09	1.67E+10
		739.58		12.80	2.15E+10		2.08E+08	1.01E+10
		778.00		4.50	5.23E+10		5.04E+09	2.42E+10
	RU-103	497.08		89.00	3.41E-01	3.41E-01	-6.52E-02	1.62E-01
	RU-106	621.84		9.80	7.01E-01	7.01E-01	-2.11E-01	3.30E-01
	AG-108M	433.93		89.90	5.99E-02	5.99E-02	2.31E-02	2.85E-02
		614.37		90.40	8.28E-02		9.73E-03	3.96E-02
		722.95		90.50	7.50E-02		7.03E-03	3.55E-02
+	CD-109	88.03	*	3.72	4.03E+00	4.03E+00	4.20E+00	2.00E+00
	AG-110M	657.75		93.14	9.23E-02	9.23E-02	1.30E-02	4.37E-02
		677.61		10.53	7.48E-01		1.58E-01	3.52E-01
		706.67		16.46	5.40E-01		5.63E-03	2.55E-01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-110M	763.93		21.98	4.29E-01	9.23E-02	-1.79E-01	2.03E-01
		884.67		71.63	1.19E-01		-2.69E-02	5.58E-02
		1384.27		23.94	3.31E-01		-2.12E-02	1.49E-01
	CD-113M	263.70		0.02	2.46E+02	2.46E+02	-4.57E+01	1.19E+02
	SN-113	255.12		1.93	4.56E+00	1.54E-01	8.28E-01	2.20E+00
		391.69		64.90	1.54E-01		4.27E-02	7.38E-02
	TE123M	159.00		84.10	1.02E-01	1.02E-01	1.85E-02	4.97E-02
	SB-124	602.71		97.87	2.05E-01	2.05E-01	5.24E-02	9.73E-02
		645.85		7.26	2.50E+00		-8.60E-02	1.18E+00
		722.78		11.10	1.87E+00		1.75E-01	8.84E-01
		1691.02		49.00	3.01E-01		9.98E-03	1.29E-01
	I-125	35.49		6.49	2.44E+00	2.44E+00	-7.08E-01	1.19E+00
	SB-125	176.33		6.89	7.53E-01	2.15E-01	1.36E-01	3.66E-01
		427.89		29.33	2.15E-01		-2.27E-02	1.03E-01
		463.38		10.35	7.09E-01		4.02E-01	3.41E-01
		600.56		17.80	3.83E-01		1.04E-01	1.82E-01
		635.90		11.32	5.55E-01		7.91E-03	2.62E-01
	SB-126	414.70		83.30	1.62E+01	1.45E+01	3.40E+00	7.75E+00
		666.33		99.60	1.56E+01		-4.67E-01	7.38E+00
		695.00		99.60	1.45E+01		-7.29E+00	6.83E+00
		720.50		53.80	2.84E+01		9.32E+00	1.34E+01
+	SN-126	87.57	*	37.00	3.50E-01	3.50E-01	3.66E-01	1.74E-01
	SB-127	473.00		25.00	8.10E+06	6.96E+06	-1.11E+07	3.84E+06
		685.20		35.70	6.96E+06		1.54E+06	3.28E+06
		783.80		14.70	1.92E+07		1.86E+06	9.06E+06
	I-129	29.78		57.00	1.01E-01	1.01E-01	-8.81E-02	4.88E-02
		33.60		13.20	4.14E-01		-1.13E-02	2.01E-01
		39.58		7.52	6.73E-01		1.58E-01	3.28E-01
	I-131	284.30		6.05	4.07E+03	2.81E+02	3.55E+02	1.97E+03
		364.48		81.20	2.81E+02		-8.64E+01	1.35E+02
		636.97		7.26	3.50E+03		-3.08E+02	1.65E+03
		722.89		1.80	1.64E+04		1.54E+03	7.76E+03
	TE-132	49.72		13.10	3.78E+08	5.50E+07	-6.40E+08	1.84E+08
		228.16		88.00	5.50E+07		-2.18E+07	2.66E+07
	BA-133	81.00		33.00	1.75E-01	1.32E-01	-8.75E-01	8.59E-02
		302.84		17.80	3.63E-01		-2.14E-02	1.76E-01
		356.01		60.00	1.32E-01		-1.28E-03	6.43E-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	5.70E+04	5.70E+04	-2.85E+05	2.79E+04
	CS-134	563.23		8.38	7.89E-01	8.15E-02	-2.89E-01	3.75E-01
		569.32		15.43	4.58E-01		8.91E-02	2.18E-01
		604.70		97.60	8.15E-02		4.66E-03	3.90E-02
		795.84		85.40	1.06E-01		1.12E-01	5.06E-02
		801.93		8.73	8.10E-01		-2.41E-01	3.80E-01
	CS-135	268.24		16.00	4.10E-01	4.10E-01	5.57E-01	1.99E-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	1.07E+01	8.32E+01	5.78E+01
		163.89		4.61	1.81E+02		1.28E+01	8.79E+01
		176.55		13.56	6.00E+01		1.08E+01	2.91E+01
		273.65		12.66	8.07E+01		-4.17E+01	3.92E+01
		340.57		48.50	2.74E+01		6.56E+01	1.34E+01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	818.50	99.70	1.07E+01	1.07E+01	3.32E+00	5.00E+00
	1048.07	79.60	1.39E+01		-3.74E+00	6.43E+00
	1235.34	19.70	8.76E+01		9.34E+00	4.15E+01
CS-137	661.65	85.12	7.72E-02	7.72E-02	-2.15E-02	3.66E-02
LA-138	788.74	34.00	2.13E-01	8.10E-02	-3.74E-02	1.01E-01
	1435.80	66.00	8.10E-02		-3.44E-02	3.58E-02
CE-139	165.85	80.35	1.03E-01	1.03E-01	4.80E-02	4.99E-02
BA-140	162.64	6.70	1.42E+02	4.60E+01	-4.32E+01	6.92E+01
	304.84	4.50	2.47E+02		-1.17E+01	1.19E+02
	423.70	3.20	3.77E+02		9.47E+00	1.81E+02
	437.55	2.00	5.35E+02		-3.48E+01	2.55E+02
	537.32	25.00	4.60E+01		2.39E+01	2.19E+01
LA-140	328.77	20.50	5.96E+01	1.12E+01	3.62E+01	2.89E+01
	487.03	45.50	2.54E+01		1.43E-01	1.21E+01
	815.85	23.50	5.28E+01		1.86E+01	2.47E+01
	1596.49	95.49	1.12E+01		-7.48E-01	4.92E+00
CE-141	145.44	48.40	8.64E-01	8.64E-01	4.05E-01	4.21E-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	5.96E-01	5.96E-01	-9.64E-02	2.91E-01
PM-144	476.78	42.00	1.61E-01	7.67E-02	2.94E-03	7.69E-02
	618.01	98.60	7.67E-02		3.37E-03	3.64E-02
	696.49	99.49	8.01E-02		7.78E-06	3.79E-02
PM-145	36.85	21.70	2.32E-01	1.30E-01	-2.09E-01	1.13E-01
	37.36	39.70	1.30E-01		-6.03E-02	6.35E-02
	42.30	15.10	3.35E-01		-7.74E-02	1.63E-01
	72.40	2.31	3.05E+00		-6.38E+00	1.50E+00
PM-146	453.90	39.94	1.47E-01	1.47E-01	-7.82E-02	7.00E-02
	735.90	14.01	4.68E-01		1.26E-02	2.20E-01
	747.13	13.10	5.20E-01		1.15E-01	2.45E-01
ND-147	91.11	28.90	1.11E+02	1.11E+02	1.59E+02	5.44E+01
	531.02	13.10	2.10E+02		-4.39E+00	1.00E+02
PM-149	285.90	3.10	3.05E+13	3.05E+13	-4.88E+12	1.48E+13
EU-152	121.78	20.50	2.35E-01	2.35E-01	-2.90E-02	1.15E-01
	244.69	5.40	1.13E+00		3.75E-01	5.49E-01
	344.27	19.13	3.00E-01		-2.61E-01	1.44E-01
	778.89	9.20	6.02E-01		6.86E-02	2.79E-01
	964.01	10.40	9.42E-01		-2.38E+00	4.49E-01
	1085.78	7.22	9.35E-01		-6.01E-01	4.32E-01
	1112.02	9.60	8.24E-01		-7.47E-03	3.85E-01
	1407.95	14.94	5.00E-01		4.06E-01	2.29E-01
GD-153	97.43	31.30	2.15E-01	2.15E-01	-3.17E-01	1.05E-01
	103.18	22.20	2.87E-01		2.04E-02	1.40E-01
EU-154	123.07	40.50	1.22E-01	1.22E-01	-8.05E-03	5.95E-02
	723.30	19.70	3.51E-01		3.29E-02	1.66E-01
	873.19	11.50	6.27E-01		8.69E-02	2.95E-01
	996.32	10.30	6.98E-01		-1.12E-01	3.26E-01
	1004.76	17.90	3.93E-01		-6.13E-02	1.83E-01
	1274.45	35.50	2.08E-01		-7.10E-02	9.57E-02
EU-155	86.50	30.90	2.21E-01	2.21E-01	1.73E-01	1.09E-01
	105.30	20.70	2.45E-01		2.45E-02	1.20E-01
EU-156	811.77	10.40	4.76E+01	4.76E+01	-2.61E+01	2.22E+01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-156	1153.47		7.20	9.65E+01	4.76E+01	1.99E+01	4.52E+01
		1230.71		8.90	8.34E+01		-2.17E+00	3.91E+01
	HO-166M	184.41		72.60	8.46E-02	8.46E-02	1.26E-01	4.13E-02
		280.45		29.60	2.02E-01		6.82E-02	9.77E-02
		410.94		11.10	5.65E-01		2.48E-01	2.71E-01
		711.69		54.10	1.21E-01		-7.95E-03	5.71E-02
	TM-171	66.72		0.14	4.83E+01	4.83E+01	-7.52E+01	2.37E+01
	HF-172	67.35		5.31	1.26E+00	4.82E-01	-4.30E-01	6.17E-01
		125.81		11.30	4.82E-01		-4.67E-01	2.35E-01
	LU-172	181.53		20.60	5.56E+03	3.08E+03	-5.83E+02	2.70E+03
		900.72		29.81	5.35E+03		1.10E+03	2.51E+03
		1093.66		62.50	3.08E+03		1.86E+02	1.45E+03
	LU-173	100.72		5.24	1.09E+00	3.37E-01	4.26E-01	5.34E-01
		272.11		21.20	3.37E-01		-1.11E-01	1.64E-01
	HF-175	343.40		84.00	1.80E-01	1.80E-01	-4.93E-01	8.69E-02
	LU-176	88.34		13.30	5.09E-01	5.91E-02	2.61E-01	2.50E-01
		201.83		86.00	5.91E-02		-1.39E-02	2.87E-02
		306.78		94.00	5.91E-02		-3.22E-02	2.85E-02
	HF-181	133.02		41.70	5.97E-01	3.48E-01	-9.64E-02	2.91E-01
		345.85		17.20	1.65E+00		-1.95E+00	7.94E-01
		482.03		82.80	3.48E-01		-1.69E-01	1.66E-01
	TA-182	67.75		41.20	2.65E-01	2.65E-01	-9.05E-02	1.30E-01
		1121.30		34.90	5.81E-01		9.87E-01	2.77E-01
		1189.05		16.23	9.70E-01		-1.48E-01	4.55E-01
		1221.41		26.98	6.02E-01		3.83E-01	2.83E-01
		1231.02		11.44	1.39E+00		-3.60E-02	6.50E-01
	IR-192	308.46		29.68	4.65E-01	3.03E-01	-7.57E-03	2.24E-01
		468.07		48.10	3.03E-01		1.62E-01	1.44E-01
	HG-203	279.19		77.30	3.33E-01	3.33E-01	2.73E-01	1.61E-01
+	TL-204	374.74	*	94.11	6.73E-02	6.73E-02	3.73E-02	3.24E-02
		899.15		99.16	7.33E-02		2.29E-02	3.43E-02
		911.74	*	91.10	1.36E-01		5.64E-01	6.53E-02
	BI-207	569.67		97.72	6.84E-02	6.84E-02	3.37E-02	3.26E-02
		1063.62		74.90	9.64E-02		1.24E-02	4.49E-02
+	TL-208	583.14	*	30.22	3.03E-01	1.68E-01	1.74E+00	1.46E-01
		860.37	*	4.48	2.22E+00		2.96E+00	1.07E+00
		2614.66	*	35.85	1.68E-01		1.54E+00	7.06E-02
	BI-210M	262.00		45.00	1.24E-01	1.24E-01	-2.69E-02	5.98E-02
		300.00		23.00	2.87E-01		-9.63E-01	1.39E-01
+	PB-210	46.50	*	4.25	1.43E+00	1.43E+00	9.04E-01	7.00E-01
	PB-211	404.84		2.90	1.88E+00	1.88E+00	-2.87E-01	9.01E-01
		831.96		2.90	2.35E+00		-1.22E+00	1.10E+00
+	BI-212	727.17	*	11.80	7.98E-01	7.98E-01	1.02E+00	3.83E-01
		1620.62		2.75	2.42E+00		1.09E+00	1.09E+00
+	PB-212	238.63	*	44.60	2.21E-01	2.21E-01	1.76E+00	1.09E-01
		300.09	*	3.41	1.76E+00		1.49E+00	8.53E-01
+	BI-214	609.31	*	46.30	2.27E-01	2.27E-01	1.08E+00	1.10E-01
		1120.29	*	15.10	7.97E-01		9.54E-01	3.82E-01
		1764.49	*	15.80	4.75E-01		1.27E+00	2.15E-01
		2204.22		4.98	1.64E+00		6.11E-01	7.35E-01
+	PB-214	295.21	*	19.19	3.47E-01	2.64E-01	1.16E+00	1.68E-01
		351.92	*	37.19	2.64E-01		1.32E+00	1.29E-01
	RN-219	401.80		6.50	8.65E-01	8.65E-01	1.80E-03	4.14E-01

Analysis Report for 1707084-04

HTC-A01-S008-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RA-223	323.87		3.88	1.38E+00	1.38E+00	6.92E-02	6.64E-01
+	RA-224	240.98	*	3.95	2.54E+00	2.54E+00	4.97E+00	1.25E+00
	RA-225	40.00		31.00	1.54E+01	1.54E+01	1.01E+00	7.50E+00
+	RA-226	186.21	*	3.28	2.88E+00	2.88E+00	2.84E+00	1.42E+00
	TH-227	50.10		8.40	6.20E-01	5.86E-01	-5.98E-01	3.03E-01
		236.00		11.50	5.86E-01		-5.34E+00	2.86E-01
		256.20		6.30	9.16E-01		6.22E-01	4.44E-01
+	AC-228	338.32	*	11.40	7.90E-01	4.25E-01	1.53E+00	3.86E-01
		911.07	*	27.70	4.25E-01		1.77E+00	2.05E-01
		969.11	*	16.60	8.52E-01		1.85E+00	4.12E-01
	TH-230	48.44		16.90	3.20E-01	3.20E-01	1.54E-01	1.56E-01
		62.85		4.60	1.41E+00		1.55E+00	6.94E-01
		67.67		0.37	1.64E+01		-5.59E+00	8.02E+00
	PA-231	283.67		1.60	3.48E+00	2.76E+00	-1.59E+00	1.68E+00
		302.67		2.30	2.76E+00		-1.63E-01	1.34E+00
	TH-231	25.64		14.70	4.99E-01	4.99E-01	-3.29E+00	2.43E-01
		84.21		6.40	9.43E-01		-1.04E+00	4.63E-01
	PA-233	311.98		38.60	1.73E+00	1.73E+00	1.54E-01	8.35E-01
	PA-234	131.20		20.40	2.66E-01	2.66E-01	2.45E-01	1.30E-01
		733.99		8.80	7.31E-01		-6.27E-02	3.44E-01
		946.00		12.00	5.80E-01		6.42E-02	2.71E-01
	PA-234M	1001.03		0.92	7.90E+00	7.90E+00	3.47E+00	3.69E+00
	TH-234	63.29		3.80	1.72E+00	1.72E+00	1.91E+00	8.45E-01
	U-235	143.76		10.50	4.96E-01	4.96E-01	1.42E-01	2.42E-01
		163.35		4.70	1.06E+00		7.48E-02	5.14E-01
		205.31		4.70	1.12E+00		-1.55E+00	5.46E-01
	NP-237	86.50		12.60	5.23E-01	5.23E-01	4.08E-01	2.57E-01
	NP-239	106.10		22.70	5.74E+11	5.74E+11	4.11E+10	2.80E+11
		228.18		10.70	1.26E+12		-5.00E+11	6.10E+11
		277.60		14.10	1.14E+12		8.25E+11	5.54E+11
	AM-241	59.54		35.90	1.58E-01	1.58E-01	-1.42E-01	7.75E-02
+	AM-243	74.67	*	66.00	1.66E-01	1.66E-01	3.31E-01	8.19E-02
	CM-243	209.75		3.29	1.80E+00	4.34E-01	1.93E+00	8.78E-01
		228.14		10.60	4.80E-01		-1.90E-01	2.32E-01
		277.60		14.00	4.34E-01		3.14E-01	2.11E-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 1707084-04

HTC-A01-S008-3036-01

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-S008-3036-01

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	79	100	86	151	569	174
25:	77	94	72	81	83	73	72	78
33:	108	82	73	78	92	77	71	104
41:	108	80	77	93	103	100	161	134
49:	97	107	112	117	146	141	116	99
57:	114	138	160	172	159	136	218	303
65:	214	173	186	185	179	188	177	185
73:	204	234	430	438	468	703	216	155
81:	163	168	151	179	208	167	216	317
89:	190	213	221	167	297	300	172	116
97:	122	111	155	129	112	105	103	107
105:	111	127	104	118	105	127	104	114
113:	140	109	110	93	91	98	98	98
121:	99	91	104	107	99	112	106	103
129:	132	160	109	121	120	110	100	86
137:	96	100	86	89	83	108	108	107
145:	99	113	113	108	89	92	94	74
153:	100	113	114	121	93	79	92	85
161:	85	90	73	91	87	94	92	80
169:	79	77	93	91	83	69	85	71
177:	70	76	83	69	75	75	77	87
185:	94	179	159	103	84	79	82	85
193:	73	71	75	69	86	73	85	71
201:	71	77	70	77	73	80	81	78
209:	112	137	75	73	89	47	60	61
217:	66	62	64	73	67	56	49	70
225:	70	73	59	77	65	53	59	61
233:	75	74	53	83	81	251	861	332
241:	127	178	172	77	65	43	53	39
249:	56	42	40	47	42	46	51	49
257:	53	55	56	45	42	38	44	50
265:	44	47	54	56	55	70	93	60
273:	37	41	43	41	50	77	67	36
281:	36	54	30	37	39	47	45	43
289:	42	48	32	47	38	58	151	207
297:	67	36	48	64	78	40	44	46
305:	36	36	37	36	35	30	44	36
313:	43	23	35	31	34	41	27	29
321:	27	30	25	36	32	26	44	60
329:	69	37	40	25	36	38	39	35
337:	29	112	150	55	41	35	39	30
345:	31	30	31	29	44	29	75	361
353:	214	40	42	42	23	28	27	29
361:	24	32	27	22	20	25	23	27

369:	32	26	32	10	32	36	31	35

Sample Title: HTC-A01-S008-3036-01

Channel								
377:	39	23	29	25	28	25	34	20
385:	30	36	24	29	34	32	22	18
393:	22	18	33	31	38	31	23	26
401:	32	26	24	22	23	26	23	20
409:	46	42	29	27	25	24	30	24
417:	25	29	24	20	23	35	17	19
425:	32	35	39	23	12	18	17	24
433:	20	26	27	15	13	18	19	26
441:	30	21	16	21	28	25	19	17
449:	26	28	15	22	23	18	21	21
457:	28	30	19	22	25	31	51	48
465:	23	15	21	29	26	18	19	15
473:	14	9	14	21	25	24	21	21
481:	27	20	18	15	23	17	33	21
489:	13	25	26	19	19	17	17	10
497:	13	21	21	20	17	19	13	15
505:	22	13	21	19	25	60	113	70
513:	25	23	22	25	19	16	20	14
521:	20	16	22	20	22	17	17	16
529:	20	22	19	15	21	15	23	16
537:	17	19	20	14	11	10	24	10
545:	17	19	18	15	20	12	18	16
553:	13	19	17	20	18	16	21	12
561:	18	25	21	14	16	14	25	17
569:	25	19	16	20	22	18	17	22
577:	14	20	14	12	14	65	209	180
585:	50	14	23	33	11	24	13	18
593:	14	15	15	16	10	20	8	15
601:	22	19	18	19	17	17	21	47
609:	210	193	48	19	22	20	19	18
617:	17	17	9	11	21	10	14	17
625:	9	17	10	14	22	18	16	16
633:	14	7	17	12	19	12	12	12
641:	10	15	12	22	8	13	8	15
649:	14	18	10	17	8	16	16	16
657:	17	16	11	12	23	13	21	14
665:	15	27	10	15	14	19	13	16
673:	11	8	10	16	10	9	16	17
681:	10	15	10	15	11	17	12	13
689:	8	13	16	9	12	14	13	22
697:	13	10	19	18	15	21	8	18
705:	14	13	11	20	12	18	21	10
713:	9	12	15	14	13	18	15	14
721:	14	13	12	8	18	23	54	54
729:	16	15	12	18	14	10	17	6
737:	12	18	9	8	12	14	12	10
745:	15	21	12	8	17	8	11	10
753:	16	15	20	19	19	17	10	8
761:	14	18	17	10	13	8	26	22
769:	29	10	13	20	15	8	9	9
777:	10	3	8	6	11	10	5	12
785:	19	25	16	13	8	17	11	12
793:	9	23	34	27	12	14	15	13

801:	7	14	11	8	10	17	15	10

Sample Title: HTC-A01-S008-3036-01

Channel								
809:	9	9	6	8	14	6	10	10
817:	13	11	10	10	9	9	6	6
825:	8	5	12	8	9	12	12	14
833:	14	7	14	20	18	11	17	19
841:	15	9	8	10	11	6	14	7
849:	7	11	5	6	8	4	10	10
857:	9	14	12	27	21	18	19	10
865:	6	7	6	7	9	12	18	10
873:	16	5	8	13	8	4	12	9
881:	7	10	10	9	11	5	16	9
889:	14	7	10	8	11	12	5	9
897:	15	11	10	12	6	12	7	11
905:	10	10	10	8	14	54	159	94
913:	23	7	10	11	15	5	2	10
921:	14	11	4	6	8	6	8	6
929:	4	6	5	5	12	20	10	14
937:	11	9	6	7	11	6	8	8
945:	13	10	9	17	5	7	13	8
953:	7	4	11	10	8	14	18	5
961:	7	12	11	28	41	23	14	46
969:	92	42	17	10	9	6	8	9
977:	11	7	8	5	9	10	10	7
985:	13	7	10	11	5	14	6	11
993:	10	16	8	8	5	14	5	12
1001:	11	10	9	9	11	5	7	9
1009:	12	9	6	5	11	7	11	10
1017:	6	6	10	11	8	5	11	4
1025:	6	5	9	7	10	12	7	9
1033:	12	10	10	11	5	11	7	10
1041:	12	7	15	8	6	9	8	6
1049:	10	4	10	4	10	8	6	12
1057:	7	6	5	9	5	11	12	7
1065:	8	10	9	9	19	7	9	1
1073:	8	8	6	8	8	10	10	8
1081:	12	10	7	4	9	5	9	7
1089:	10	12	10	10	10	16	12	10
1097:	8	3	4	7	6	4	15	4
1105:	15	7	8	9	7	5	10	12
1113:	12	9	14	8	3	8	22	55
1121:	28	13	13	9	7	8	7	5
1129:	8	10	5	7	7	14	4	8
1137:	8	10	13	6	9	10	7	10
1145:	12	6	4	7	15	13	5	8
1153:	10	8	12	17	5	10	12	8
1161:	7	11	15	21	15	10	9	7
1169:	6	18	7	8	10	14	9	13
1177:	7	18	7	7	13	7	8	11
1185:	18	10	12	12	10	13	9	13
1193:	9	12	10	11	13	5	9	9
1201:	8	10	10	9	12	14	13	13
1209:	8	7	9	7	7	9	14	6
1217:	11	21	8	15	12	8	10	7
1225:	7	7	9	8	11	15	7	12

1233:	14	14	15	11	14	26	20	15

Sample Title: HTC-A01-S008-3036-01

Channel								
1241:	10	8	16	9	6	9	9	7
1249:	4	5	6	9	9	8	9	2
1257:	6	11	6	7	5	12	4	7
1265:	5	13	11	4	8	12	5	5
1273:	8	7	7	6	9	7	7	9
1281:	11	11	4	11	7	3	9	3
1289:	4	10	9	9	7	5	6	4
1297:	6	5	9	9	4	4	8	9
1305:	3	3	6	7	8	6	7	9
1313:	11	5	4	7	6	5	3	7
1321:	5	7	1	4	6	5	3	5
1329:	4	6	1	5	5	1	7	6
1337:	5	8	8	1	4	3	7	5
1345:	3	6	2	6	4	4	6	4
1353:	2	2	0	3	3	3	6	6
1361:	1	3	6	5	3	5	2	3
1369:	2	3	2	6	7	5	7	9
1377:	14	9	2	6	3	2	3	4
1385:	7	4	5	4	5	4	4	0
1393:	6	6	3	3	2	10	3	2
1401:	5	7	2	2	5	4	11	10
1409:	3	7	0	0	6	4	6	5
1417:	6	4	1	2	3	3	4	4
1425:	2	3	3	2	5	1	10	2
1433:	3	7	1	2	3	2	2	5
1441:	1	2	3	1	4	2	6	3
1449:	0	0	6	3	1	6	2	6
1457:	6	26	125	380	347	99	16	13
1465:	11	6	6	6	0	2	3	1
1473:	3	1	2	1	2	1	2	1
1481:	0	4	1	2	1	2	3	3
1489:	3	5	1	1	5	1	3	3
1497:	3	1	2	4	7	1	1	2
1505:	3	3	1	8	5	2	0	6
1513:	2	6	2	2	3	3	2	1
1521:	5	1	2	4	2	2	1	1
1529:	0	5	1	2	4	0	1	1
1537:	0	4	3	2	2	4	0	1
1545:	4	1	2	1	2	1	0	2
1553:	3	1	3	1	1	3	2	4
1561:	1	0	2	4	3	2	1	4
1569:	1	1	2	5	1	1	2	0
1577:	3	0	5	4	1	1	3	0
1585:	2	2	12	11	9	1	8	8
1593:	10	2	2	2	0	1	1	1
1601:	3	4	1	3	2	2	3	1
1609:	1	1	2	1	1	3	0	1
1617:	5	1	4	3	7	2	5	4
1625:	3	2	3	1	7	5	5	0
1633:	0	1	1	0	2	2	4	1
1641:	1	0	0	3	5	0	2	2
1649:	2	0	1	1	1	2	4	3
1657:	2	0	2	2	3	4	2	3

1665:	4	3	2	6	2	4	1	2

Sample Title: HTC-A01-S008-3036-01

Channel								
1673:	1	3	2	1	0	2	2	1
1681:	3	1	0	0	1	3	0	3
1689:	1	1	0	5	2	2	3	0
1697:	0	3	2	2	1	1	0	5
1705:	3	2	1	3	2	2	0	1
1713:	1	1	0	2	1	0	0	3
1721:	3	2	2	1	3	5	5	1
1729:	8	2	0	1	3	0	2	2
1737:	1	4	2	1	0	3	1	1
1745:	1	2	2	1	0	2	0	2
1753:	2	1	1	3	1	1	0	2
1761:	1	10	20	31	17	9	2	2
1769:	4	4	1	1	1	0	0	3
1777:	2	3	1	3	2	1	4	4
1785:	2	0	3	0	1	1	1	4
1793:	1	3	2	2	1	0	1	0
1801:	3	0	2	2	3	1	2	0
1809:	1	3	1	0	0	0	3	0
1817:	1	0	3	1	2	1	2	0
1825:	4	2	1	0	1	1	1	2
1833:	3	3	0	0	1	3	2	3
1841:	2	3	1	4	4	4	3	5
1849:	3	1	0	0	1	0	0	1
1857:	1	1	0	3	2	2	1	3
1865:	1	0	1	1	0	3	1	1
1873:	1	1	2	2	3	1	1	1
1881:	3	1	0	1	4	1	1	3
1889:	2	1	0	3	0	1	0	1
1897:	1	1	1	1	2	1	2	1
1905:	2	2	0	0	1	2	1	1
1913:	0	0	2	4	0	2	0	1
1921:	1	0	2	0	2	2	2	0
1929:	2	2	2	3	1	3	4	1
1937:	1	0	1	2	1	2	2	1
1945:	2	0	1	1	2	2	2	2
1953:	1	1	2	2	3	2	0	0
1961:	1	0	1	2	2	1	0	0
1969:	0	0	2	1	1	1	2	0
1977:	2	1	2	0	0	1	1	2
1985:	1	2	0	1	1	0	1	0
1993:	1	0	1	0	1	4	0	0
2001:	0	0	1	2	0	1	2	0
2009:	1	1	2	1	5	3	0	0
2017:	2	1	2	0	2	1	1	0
2025:	0	2	1	3	0	2	1	2
2033:	2	1	2	1	3	1	3	2
2041:	2	1	1	2	3	0	1	2
2049:	0	0	2	1	0	3	0	2
2057:	1	1	4	1	2	2	0	0
2065:	1	0	1	0	0	4	2	2
2073:	0	0	3	1	1	1	1	1
2081:	0	2	0	1	0	0	1	2
2089:	3	0	1	2	2	2	2	1

2097:	2	2	0	5	4	4	9	11

Sample Title: HTC-A01-S008-3036-01

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

2529:	1	1	0	0	0	1	1	1

Sample Title: HTC-A01-S008-3036-01

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	1	3	0	0	0	0	0	1
2553:	0	0	0	2	0	0	0	1
2561:	0	0	1	0	1	0	0	0
2569:	1	1	0	0	1	1	0	1
2577:	0	0	2	2	1	0	2	1
2585:	0	0	1	0	0	0	1	0
2593:	0	0	0	0	1	0	1	0
2601:	0	1	0	1	0	0	0	0
2609:	1	3	13	31	46	42	19	9
2617:	2	2	0	1	1	0	0	1
2625:	0	0	2	0	0	1	0	0
2633:	0	0	1	0	0	1	0	1
2641:	1	0	0	0	0	0	0	1
2649:	0	0	0	0	0	1	2	0
2657:	0	0	0	0	1	1	1	1
2665:	0	0	1	0	0	0	1	0
2673:	2	0	0	1	0	0	0	1
2681:	0	0	2	0	1	0	1	0
2689:	1	0	0	0	0	1	1	0
2697:	0	1	0	0	0	1	0	0
2705:	0	1	0	0	1	0	1	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	1	0	1	0	0	1
2729:	1	0	1	0	0	0	0	0
2737:	0	0	1	1	0	0	0	0
2745:	0	1	0	2	1	1	1	0
2753:	0	1	0	0	0	0	1	0
2761:	0	1	0	0	0	0	0	0
2769:	0	0	0	0	0	0	1	0
2777:	0	0	0	0	0	0	1	2
2785:	0	1	1	0	0	0	0	0
2793:	0	0	1	0	1	0	1	1
2801:	0	0	0	1	1	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	1	0	1	1	0	1	0	0
2825:	0	0	0	0	0	0	0	1
2833:	0	1	0	0	1	1	1	0
2841:	0	1	0	0	1	0	0	1
2849:	1	0	1	0	0	0	0	0
2857:	1	0	0	1	1	0	0	0
2865:	0	0	0	0	1	1	0	0
2873:	1	0	0	0	1	0	0	0
2881:	0	0	1	0	0	0	0	1
2889:	0	1	1	0	0	0	0	2
2897:	0	1	0	0	0	0	0	0
2905:	0	0	1	0	0	0	0	1
2913:	0	0	0	0	1	1	0	0
2921:	1	0	0	1	0	0	0	0
2929:	0	0	1	0	1	0	0	2
2937:	0	0	1	0	0	1	0	0
2945:	0	0	0	1	0	1	0	0
2953:	0	0	0	0	0	1	0	0

2961:	0	0	0	0	1	0	0	0

Sample Title: HTC-A01-S008-3036-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S008-3036-01

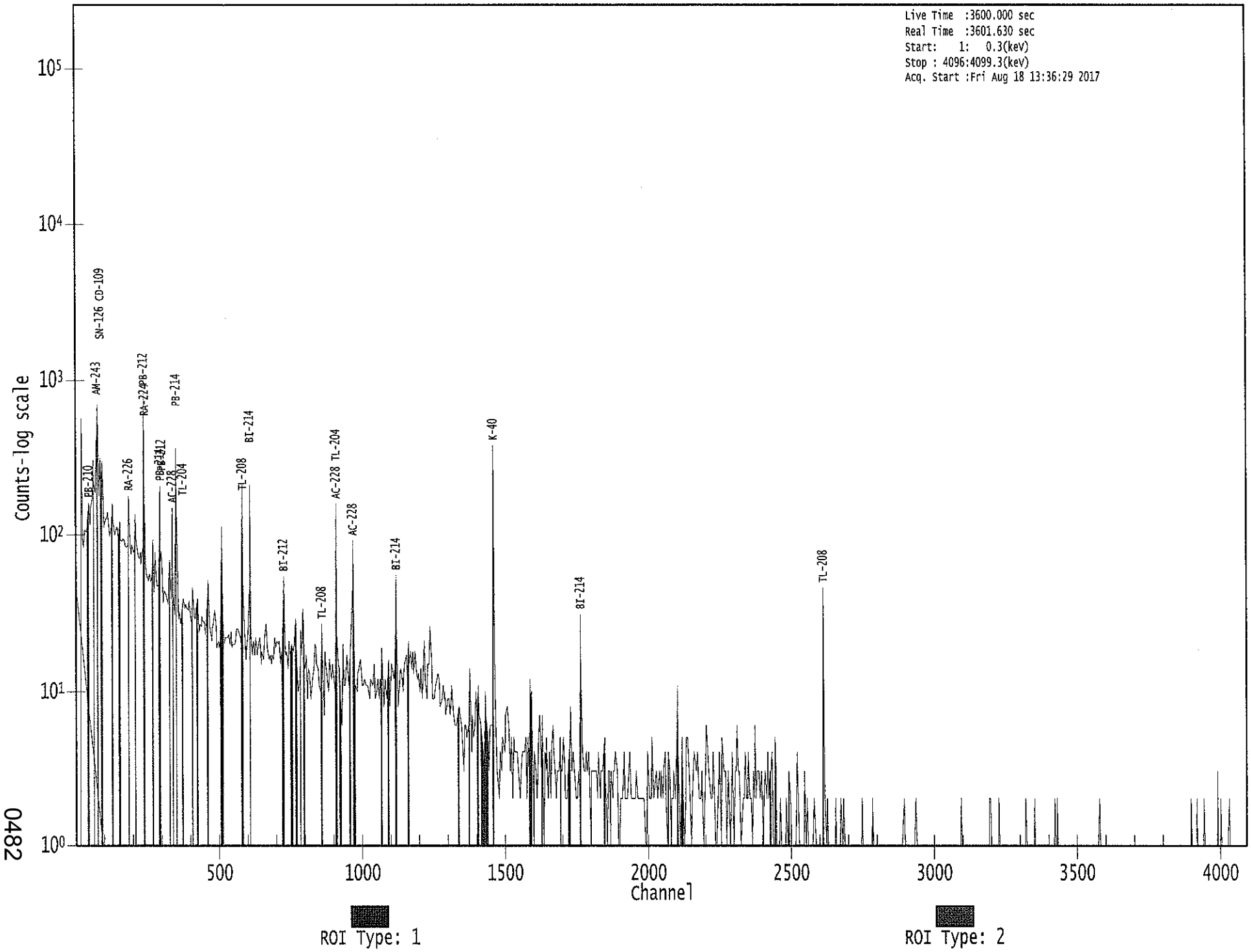
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	0	0	1	1	0
3417:	0	1	1	0	0	2	0	0
3425:	0	0	0	0	1	2	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	1	0	0	1
3449:	0	0	0	0	0	0	0	0
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	1	1	0	0	0
3489:	0	0	1	0	0	0	1	0
3497:	1	0	0	0	0	0	0	1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

3825:	0	0	0	0	0	1	0	1

Sample Title: HTC-A01-S008-3036-01

Channel								
3833:	0	0	0	0	0	0	0	0
3841:	1	0	0	0	0	0	1	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	1	0	0	0	0	1
3873:	0	0	0	0	0	0	0	0
3881:	0	0	0	0	0	0	0	0
3889:	0	0	0	1	0	0	0	0
3897:	0	2	0	0	0	0	0	0
3905:	0	0	1	1	0	0	0	0
3913:	0	0	0	0	0	2	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	2	0
3945:	0	1	0	0	0	0	0	0
3953:	1	0	0	0	0	0	1	0
3961:	0	1	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	1	0	1
3985:	0	0	0	0	0	1	3	1
3993:	1	0	0	0	0	0	0	0
4001:	0	2	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	1
4017:	1	0	0	0	0	0	0	0
4025:	1	0	1	0	0	0	0	2
4033:	0	0	0	0	0	0	0	1
4041:	0	1	0	0	0	0	0	0
4049:	0	0	1	1	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	1	0	1	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

0000055518.CNF



0482

Apex-Gamma

Analysis Report for 1707084-05
HTC-A01-S008-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-05
Sample Description	: HTC-A01-S008-3642-01
Sample Type	: SOIL
Sample Size	: 5.834E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:04:56AM
Acquisition Started	: 8/18/2017 12:30:27PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.8 seconds
Dead Time	: 0.24 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 10 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55514

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

8/21/17

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 1:30:54PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.82	47.13	0.0000	0.00
2	63.78	64.08	0.0000	0.00
3	76.47	76.77	0.0000	0.00
4	88.46	88.75	0.0000	0.00
5	93.62	93.92	0.0000	0.00
6	129.44	129.72	0.0000	0.00
7	154.62	154.90	0.0000	0.00
8	186.06	186.32	0.0000	0.00
9	209.58	209.84	0.0000	0.00
10	239.84	240.08	0.0000	0.00
11	270.23	270.47	0.0000	0.00
12	295.75	295.98	0.0000	0.00
13	329.03	329.24	0.0000	0.00
14	338.68	338.89	0.0000	0.00
15	352.13	352.34	0.0000	0.00
16	462.25	462.42	0.0000	0.00
17	511.45	511.60	0.0000	0.00
18	583.15	583.28	0.0000	0.00
19	609.43	609.55	0.0000	0.00
20	632.74	632.86	0.0000	0.00
21	638.52	638.63	0.0000	0.00
22	727.81	727.89	0.0000	0.00
23	767.93	768.00	0.0000	0.00
24	771.96	772.03	0.0000	0.00
25	795.50	795.56	0.0000	0.00
26	806.47	806.52	0.0000	0.00
27	861.72	861.76	0.0000	0.00
28	882.74	882.77	0.0000	0.00
29	911.18	911.20	0.0000	0.00
30	933.50	933.51	0.0000	0.00
31	1066.65	1066.62	0.0000	0.00
32	1092.97	1092.93	0.0000	0.00
33	1120.48	1120.43	0.0000	0.00
34	1129.05	1129.00	0.0000	0.00
35	1291.78	1291.67	0.0000	0.00
36	1399.98	1399.84	0.0000	0.00
37	1460.46	1460.29	0.0000	0.00
38	1554.21	1554.01	0.0000	0.00
39	1587.00	1586.79	0.0000	0.00
40	1591.67	1591.46	0.0000	0.00
41	1631.54	1631.31	0.0000	0.00
42	1660.20	1659.96	0.0000	0.00

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1692.39	1692.14	0.0000	0.00
44	1728.80	1728.55	0.0000	0.00
45	1764.04	1763.77	0.0000	0.00
46	1770.40	1770.13	0.0000	0.00
47	1875.81	1875.50	0.0000	0.00
48	1903.03	1902.71	0.0000	0.00
49	2202.52	2202.11	0.0000	0.00
50	2249.81	2249.38	0.0000	0.00
51	2260.95	2260.52	0.0000	0.00
52	2305.70	2305.25	0.0000	0.00
53	2345.56	2345.10	0.0000	0.00
54	2613.26	2612.71	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 1:30:54PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.82	44 -	50	47.13	1.56E+02	88.48	1.32E+03	1.77
	2	63.78	61 -	66	64.08	1.11E+02	95.61	1.73E+03	2.43
	3	76.47	71 -	82	76.77	1.32E+03	171.90	3.03E+03	3.72
	4	88.46	87 -	91	88.75	1.32E+02	86.65	1.56E+03	1.47
	5	93.62	91 -	100	93.92	2.34E+02	136.36	2.35E+03	2.59
	6	129.44	127 -	133	129.72	6.86E+01	77.58	1.05E+03	1.56
	7	154.62	152 -	158	154.90	9.24E+01	71.51	8.53E+02	2.56
	8	186.06	182 -	192	186.32	2.04E+02	100.87	1.25E+03	2.47
	9	209.58	207 -	212	209.84	6.64E+01	55.89	5.65E+02	2.08
	10	239.84	234 -	253	240.08	1.06E+03	150.37	1.50E+03	2.39
	11	270.23	267 -	274	270.47	6.93E+01	59.33	5.41E+02	1.88
	12	295.75	292 -	300	295.98	2.11E+02	67.20	5.69E+02	1.65
	13	329.03	326 -	333	329.24	7.97E+01	48.62	3.43E+02	2.52
	14	338.68	335 -	343	338.89	1.95E+02	58.40	4.04E+02	2.48
	15	352.13	347 -	357	352.34	4.13E+02	69.19	4.18E+02	2.22
	16	462.25	457 -	468	462.42	8.39E+01	52.57	2.96E+02	3.60
	17	511.45	506 -	517	511.60	1.64E+02	52.57	2.62E+02	2.74
	18	583.15	578 -	587	583.28	2.46E+02	48.83	2.00E+02	2.27
	19	609.43	605 -	613	609.55	2.65E+02	47.52	1.84E+02	2.42
	20	632.74	629 -	635	632.86	2.07E+01	24.80	9.46E+01	1.65
	21	638.52	636 -	643	638.63	3.35E+01	26.23	9.29E+01	6.38
	22	727.81	724 -	731	727.89	5.15E+01	31.87	1.33E+02	3.22
M	23	767.93	763 -	774	768.00	3.53E+01	24.31	8.27E+01	2.04
m	24	771.96	763 -	774	772.03	2.20E+01	18.67	5.80E+01	2.25
M	25	795.50	791 -	810	795.56	2.04E+01	30.84	1.30E+02	3.01
m	26	806.47	791 -	810	806.52	1.96E+01	29.72	1.20E+02	3.02
	27	861.72	857 -	865	861.76	4.00E+01	28.24	9.60E+01	2.65
	28	882.74	880 -	885	882.77	1.53E+01	16.94	4.54E+01	1.69
	29	911.18	907 -	917	911.20	1.92E+02	38.50	1.00E+02	3.20
	30	933.50	929 -	938	933.51	2.86E+01	26.00	8.08E+01	2.02
	31	1066.65	1064 -	1069	1066.62	1.56E+01	19.08	6.08E+01	1.45
	32	1092.97	1087 -	1098	1092.93	2.79E+01	28.00	8.41E+01	2.63
M	33	1120.48	1115 -	1134	1120.43	5.62E+01	29.68	9.51E+01	2.94
m	34	1129.05	1115 -	1134	1129.00	1.55E+01	21.38	6.14E+01	2.21
	35	1291.78	1286 -	1296	1291.67	2.97E+01	24.47	5.86E+01	6.47
	36	1399.98	1396 -	1405	1399.84	1.69E+01	15.52	2.41E+01	5.22
	37	1460.46	1456 -	1466	1460.29	5.84E+02	50.89	3.53E+01	2.39
	38	1554.21	1550 -	1557	1554.01	8.17E+00	8.94	7.67E+00	2.74
M	39	1587.00	1584 -	1593	1586.79	1.72E+01	11.53	1.12E+01	3.19
m	40	1591.67	1584 -	1593	1591.46	1.28E+01	10.16	1.71E+01	1.81

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1631.54	1627 -	1636	1631.31	1.59E+01	9.85	4.17E+00	3.03
42	1660.20	1656 -	1663	1659.96	9.46E+00	9.17	7.08E+00	3.62
43	1692.39	1690 -	1694	1692.14	7.00E+00	5.29	0.00E+00	1.66
44	1728.80	1724 -	1732	1728.55	1.33E+01	11.86	1.34E+01	1.33
45	1764.04	1760 -	1766	1763.77	3.61E+01	12.82	3.71E+00	2.72
46	1770.40	1768 -	1772	1770.13	4.58E+00	5.50	2.83E+00	2.72
47	1875.81	1872 -	1878	1875.50	8.00E+00	5.66	0.00E+00	4.70
48	1903.03	1897 -	1906	1902.71	8.15E+00	10.10	9.69E+00	3.09
49	2202.52	2197 -	2205	2202.11	1.96E+01	10.40	4.86E+00	4.02
50	2249.81	2246 -	2251	2249.38	5.36E+00	6.08	3.29E+00	1.96
51	2260.95	2255 -	2266	2260.52	1.29E+01	10.00	6.19E+00	6.29
52	2305.70	2302 -	2308	2305.25	8.00E+00	5.66	0.00E+00	1.33
53	2345.56	2342 -	2348	2345.10	1.00E+01	6.32	0.00E+00	1.66
54	2613.26	2608 -	2616	2612.71	6.09E+01	16.50	4.27E+00	2.90

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 : 8/18/2017 1:30:54PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.82	44 -	50	1.56E+02	88.48	1.32E+03	6.98E+01
2	63.78	61 -	66	1.11E+02	95.61	1.73E+03	7.67E+01
3	76.47	71 -	82	1.32E+03	171.90	3.03E+03	1.28E+02
4	88.46	87 -	91	1.32E+02	86.65	1.56E+03	6.87E+01
5	93.62	91 -	100	2.34E+02	136.36	2.35E+03	1.09E+02
6	129.44	127 -	133	6.86E+01	77.58	1.05E+03	6.23E+01
7	154.62	152 -	158	9.24E+01	71.51	8.53E+02	5.66E+01
8	186.06	182 -	192	2.04E+02	100.87	1.25E+03	7.95E+01
9	209.58	207 -	212	6.64E+01	55.89	5.65E+02	4.39E+01
10	239.84	234 -	253	1.06E+03	150.37	1.50E+03	3.86E+01
11	270.23	267 -	274	6.93E+01	59.33	5.41E+02	4.68E+01
12	295.75	292 -	300	2.11E+02	67.20	5.69E+02	4.98E+01
13	329.03	326 -	333	7.97E+01	48.62	3.43E+02	3.72E+01
14	338.68	335 -	343	1.95E+02	58.40	4.04E+02	4.22E+01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	15	352.13	347 -	357	4.13E+02	69.19	4.18E+02	4.60E+01
	16	462.25	457 -	468	8.39E+01	52.57	2.96E+02	4.05E+01
	17	511.45	506 -	517	1.64E+02	52.57	2.62E+02	3.77E+01
	18	583.15	578 -	587	2.46E+02	48.83	2.00E+02	3.07E+01
	19	609.43	605 -	613	2.65E+02	47.52	1.84E+02	2.85E+01
	20	632.74	629 -	635	2.07E+01	24.80	9.46E+01	1.90E+01
	21	638.52	636 -	643	3.35E+01	26.23	9.29E+01	1.93E+01
	22	727.81	724 -	731	5.15E+01	31.87	1.33E+02	2.34E+01
M	23	767.93	763 -	774	3.53E+01	24.31	8.27E+01	1.49E+01
m	24	771.96	763 -	774	2.20E+01	18.67	5.80E+01	1.25E+01
M	25	795.50	791 -	810	2.04E+01	30.84	1.30E+02	1.88E+01
m	26	806.47	791 -	810	1.96E+01	29.72	1.20E+02	1.80E+01
	27	861.72	857 -	865	4.00E+01	28.24	9.60E+01	2.08E+01
	28	882.74	880 -	885	1.53E+01	16.94	4.54E+01	1.24E+01
	29	911.18	907 -	917	1.92E+02	38.50	1.00E+02	2.20E+01
	30	933.50	929 -	938	2.86E+01	26.00	8.08E+01	1.95E+01
	31	1066.65	1064 -	1069	1.56E+01	19.08	6.08E+01	1.43E+01
	32	1092.97	1087 -	1098	2.79E+01	28.00	8.41E+01	2.13E+01
M	33	1120.48	1115 -	1134	5.62E+01	29.68	9.51E+01	1.60E+01
m	34	1129.05	1115 -	1134	1.55E+01	21.38	6.14E+01	1.29E+01
	35	1291.78	1286 -	1296	2.97E+01	24.47	5.86E+01	1.80E+01
	36	1399.98	1396 -	1405	1.69E+01	15.52	2.41E+01	1.08E+01
	37	1460.46	1456 -	1466	5.84E+02	50.89	3.53E+01	1.31E+01
	38	1554.21	1550 -	1557	8.17E+00	8.94	7.67E+00	5.66E+00
M	39	1587.00	1584 -	1593	1.72E+01	11.53	1.12E+01	5.50E+00
m	40	1591.67	1584 -	1593	1.28E+01	10.16	1.71E+01	6.79E+00
	41	1631.54	1627 -	1636	1.59E+01	9.85	4.17E+00	4.75E+00
	42	1660.20	1656 -	1663	9.46E+00	9.17	7.08E+00	5.58E+00
	43	1692.39	1690 -	1694	7.00E+00	5.29	0.00E+00	0.00E+00
	44	1728.80	1724 -	1732	1.33E+01	11.86	1.34E+01	7.69E+00
	45	1764.04	1760 -	1766	3.61E+01	12.82	3.71E+00	3.65E+00
	46	1770.40	1768 -	1772	4.58E+00	5.50	2.83E+00	2.84E+00
	47	1875.81	1872 -	1878	8.00E+00	5.66	0.00E+00	0.00E+00
	48	1903.03	1897 -	1906	8.15E+00	10.10	9.69E+00	6.85E+00
	49	2202.52	2197 -	2205	1.96E+01	10.40	4.86E+00	4.50E+00
	50	2249.81	2246 -	2251	5.36E+00	6.08	3.29E+00	3.24E+00
	51	2260.95	2255 -	2266	1.29E+01	10.00	6.19E+00	5.72E+00
	52	2305.70	2302 -	2308	8.00E+00	5.66	0.00E+00	0.00E+00
	53	2345.56	2342 -	2348	1.00E+01	6.32	0.00E+00	0.00E+00
	54	2613.26	2608 -	2616	6.09E+01	16.50	4.27E+00	4.41E+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 1707084-05

HTC-A01-S008-3642-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 1:30:54PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.82	44 -	50	47.13	1.56E+02	88.48	1.32E+03	PB-210
	2	63.78	61 -	66	64.08	1.11E+02	95.61	1.73E+03	TH-234
									TH-230
	3	76.47	71 -	82	76.77	1.32E+03	171.90	3.03E+03	.....
	4	88.46	87 -	91	88.75	1.32E+02	86.65	1.56E+03	LU-176
									CD-109
									SN-126
	5	93.62	91 -	100	93.92	2.34E+02	136.36	2.35E+03	GA-67
	6	129.44	127 -	133	129.72	6.86E+01	77.58	1.05E+03	.....
	7	154.62	152 -	158	154.90	9.24E+01	71.51	8.53E+02	.....
	8	186.06	182 -	192	186.32	2.04E+02	100.87	1.25E+03	RA-226
	9	209.58	207 -	212	209.84	6.64E+01	55.89	5.65E+02	CM-243
									GA-67
	10	239.84	234 -	253	240.08	1.06E+03	150.37	1.50E+03	.....
	11	270.23	267 -	274	270.47	6.93E+01	59.33	5.41E+02	.....
	12	295.75	292 -	300	295.98	2.11E+02	67.20	5.69E+02	PB-214
	13	329.03	326 -	333	329.24	7.97E+01	48.62	3.43E+02	LA-140
	14	338.68	335 -	343	338.89	1.95E+02	58.40	4.04E+02	AC-228
	15	352.13	347 -	357	352.34	4.13E+02	69.19	4.18E+02	PB-214
	16	462.25	457 -	468	462.42	8.39E+01	52.57	2.96E+02	.....
	17	511.45	506 -	517	511.60	1.64E+02	52.57	2.62E+02	.....
	18	583.15	578 -	587	583.28	2.46E+02	48.83	2.00E+02	TL-208
	19	609.43	605 -	613	609.55	2.65E+02	47.52	1.84E+02	BI-214
	20	632.74	629 -	635	632.86	2.07E+01	24.80	9.46E+01	.....
	21	638.52	636 -	643	638.63	3.35E+01	26.23	9.29E+01	.....
	22	727.81	724 -	731	727.89	5.15E+01	31.87	1.33E+02	BI-212
M	23	767.93	763 -	774	768.00	3.53E+01	24.31	8.27E+01	.....
m	24	771.96	763 -	774	772.03	2.20E+01	18.67	5.80E+01	.....
M	25	795.50	791 -	810	795.56	2.04E+01	30.84	1.30E+02	CS-134
m	26	806.47	791 -	810	806.52	1.96E+01	29.72	1.20E+02	.....
	27	861.72	857 -	865	861.76	4.00E+01	28.24	9.60E+01	.....
	28	882.74	880 -	885	882.77	1.53E+01	16.94	4.54E+01	.....
	29	911.18	907 -	917	911.20	1.92E+02	38.50	1.00E+02	AC-228
									TL-204
	30	933.50	929 -	938	933.51	2.86E+01	26.00	8.08E+01	.....
	31	1066.65	1064 -	1069	1066.62	1.56E+01	19.08	6.08E+01	.....
	32	1092.97	1087 -	1098	1092.93	2.79E+01	28.00	8.41E+01	LU-172
M	33	1120.48	1115 -	1134	1120.43	5.62E+01	29.68	9.51E+01	SC-46
									BI-214
									TA-182
m	34	1129.05	1115 -	1134	1129.00	1.55E+01	21.38	6.14E+01	.....

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	35	1291.78	1286 -	1296	1291.67	2.97E+01	24.47	5.86E+01	FE-59
	36	1399.98	1396 -	1405	1399.84	1.69E+01	15.52	2.41E+01	.....
	37	1460.46	1456 -	1466	1460.29	5.84E+02	50.89	3.53E+01	K-40
	38	1554.21	1550 -	1557	1554.01	8.17E+00	8.94	7.67E+00	.....
M	39	1587.00	1584 -	1593	1586.79	1.72E+01	11.53	1.12E+01	.....
m	40	1591.67	1584 -	1593	1591.46	1.28E+01	10.16	1.71E+01	.....
	41	1631.54	1627 -	1636	1631.31	1.59E+01	9.85	4.17E+00	.....
	42	1660.20	1656 -	1663	1659.96	9.46E+00	9.17	7.08E+00	.....
	43	1692.39	1690 -	1694	1692.14	7.00E+00	5.29	0.00E+00	.....
	44	1728.80	1724 -	1732	1728.55	1.33E+01	11.86	1.34E+01	.....
	45	1764.04	1760 -	1766	1763.77	3.61E+01	12.82	3.71E+00	BI-214
	46	1770.40	1768 -	1772	1770.13	4.58E+00	5.50	2.83E+00	CO-56
	47	1875.81	1872 -	1878	1875.50	8.00E+00	5.66	0.00E+00	.....
	48	1903.03	1897 -	1906	1902.71	8.15E+00	10.10	9.69E+00	.....
	49	2202.52	2197 -	2205	2202.11	1.96E+01	10.40	4.86E+00	.....
	50	2249.81	2246 -	2251	2249.38	5.36E+00	6.08	3.29E+00	.....
	51	2260.95	2255 -	2266	2260.52	1.29E+01	10.00	6.19E+00	.....
	52	2305.70	2302 -	2308	2305.25	8.00E+00	5.66	0.00E+00	.....
	53	2345.56	2342 -	2348	2345.10	1.00E+01	6.32	0.00E+00	.....
	54	2613.26	2608 -	2616	2612.71	6.09E+01	16.50	4.27E+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 : 8/18/2017 1:30:54PM

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
1	46.82	1.56E+02	88.48	1.74E-02	1.73E-03
2	63.78	1.11E+02	95.61	2.45E-02	1.81E-03
3	76.47	1.32E+03	171.90	2.67E-02	2.04E-03
4	88.46	1.32E+02	86.65	2.72E-02	2.26E-03
5	93.62	2.34E+02	136.36	2.71E-02	2.24E-03
6	129.44	6.86E+01	77.58	2.45E-02	2.04E-03
7	154.62	9.24E+01	71.51	2.22E-02	1.75E-03
8	186.06	2.04E+02	100.87	1.96E-02	1.55E-03
9	209.58	6.64E+01	55.89	1.79E-02	1.45E-03
10	239.84	1.06E+03	150.37	1.61E-02	1.33E-03

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	11	270.23	6.93E+01	59.33	1.45E-02	1.21E-03
	12	295.75	2.11E+02	67.20	1.34E-02	1.15E-03
	13	329.03	7.97E+01	48.62	1.22E-02	1.08E-03
	14	338.68	1.95E+02	58.40	1.19E-02	1.06E-03
	15	352.13	4.13E+02	69.19	1.15E-02	1.03E-03
	16	462.25	8.39E+01	52.57	9.04E-03	8.59E-04
	17	511.45	1.64E+02	52.57	8.25E-03	7.94E-04
	18	583.15	2.46E+02	48.83	7.33E-03	6.99E-04
	19	609.43	2.65E+02	47.52	7.04E-03	6.64E-04
	20	632.74	2.07E+01	24.80	6.81E-03	6.33E-04
	21	638.52	3.35E+01	26.23	6.75E-03	6.25E-04
	22	727.81	5.15E+01	31.87	6.00E-03	5.36E-04
M	23	767.93	3.53E+01	24.31	5.72E-03	5.01E-04
m	24	771.96	2.20E+01	18.67	5.70E-03	4.97E-04
M	25	795.50	2.04E+01	30.84	5.55E-03	4.76E-04
m	26	806.47	1.96E+01	29.72	5.48E-03	4.67E-04
	27	861.72	4.00E+01	28.24	5.17E-03	4.18E-04
	28	882.74	1.53E+01	16.94	5.06E-03	4.00E-04
	29	911.18	1.92E+02	38.50	4.92E-03	3.84E-04
	30	933.50	2.86E+01	26.00	4.82E-03	3.80E-04
	31	1066.65	1.56E+01	19.08	4.29E-03	3.58E-04
	32	1092.97	2.79E+01	28.00	4.20E-03	3.54E-04
M	33	1120.48	5.62E+01	29.68	4.12E-03	3.50E-04
m	34	1129.05	1.55E+01	21.38	4.09E-03	3.48E-04
	35	1291.78	2.97E+01	24.47	3.66E-03	3.07E-04
	36	1399.98	1.69E+01	15.52	3.42E-03	2.85E-04
	37	1460.46	5.84E+02	50.89	3.31E-03	2.75E-04
	38	1554.21	8.17E+00	8.94	3.15E-03	2.60E-04
M	39	1587.00	1.72E+01	11.53	3.10E-03	2.55E-04
m	40	1591.67	1.28E+01	10.16	3.10E-03	2.54E-04
	41	1631.54	1.59E+01	9.85	3.04E-03	2.48E-04
	42	1660.20	9.46E+00	9.17	3.00E-03	2.43E-04
	43	1692.39	7.00E+00	5.29	2.95E-03	2.38E-04
	44	1728.80	1.33E+01	11.86	2.91E-03	2.32E-04
	45	1764.04	3.61E+01	12.82	2.87E-03	2.27E-04
	46	1770.40	4.58E+00	5.50	2.86E-03	2.26E-04
	47	1875.81	8.00E+00	5.66	2.74E-03	2.15E-04
	48	1903.03	8.15E+00	10.10	2.71E-03	2.15E-04
	49	2202.52	1.96E+01	10.40	2.47E-03	2.15E-04
	50	2249.81	5.36E+00	6.08	2.43E-03	2.15E-04
	51	2260.95	1.29E+01	10.00	2.43E-03	2.15E-04
	52	2305.70	8.00E+00	5.66	2.40E-03	2.15E-04
	53	2345.56	1.00E+01	6.32	2.37E-03	2.15E-04
	54	2613.26	6.09E+01	16.50	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

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/18/2017 1:30:54PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.82	1.56E+02	88.48	5.19E+01	1.08E+01	1.04E+02	8.91E+01
	2	63.78	1.11E+02	95.61	3.11E+01	1.15E+01	7.99E+01	9.63E+01
	3	76.47	1.32E+03	171.90			1.32E+03	1.72E+02
	4	88.46	1.32E+02	86.65			1.32E+02	8.67E+01
	5	93.62	2.34E+02	136.36	7.43E+01	4.99E+00	1.59E+02	1.36E+02
	6	129.44	6.86E+01	77.58			6.86E+01	7.76E+01
	7	154.62	9.24E+01	71.51			9.24E+01	7.15E+01
	8	186.06	2.04E+02	100.87	3.36E+01	5.83E+00	1.70E+02	1.01E+02
	9	209.58	6.64E+01	55.89			6.64E+01	5.59E+01
	10	239.84	1.06E+03	150.37	1.14E+01	5.08E+00	1.04E+03	1.50E+02
	11	270.23	6.93E+01	59.33			6.93E+01	5.93E+01
	12	295.75	2.11E+02	67.20			2.11E+02	6.72E+01
	13	329.03	7.97E+01	48.62			7.97E+01	4.86E+01
	14	338.68	1.95E+02	58.40	0.00E+00	0.00E+00	1.95E+02	5.84E+01
	15	352.13	4.13E+02	69.19			4.13E+02	6.92E+01
	16	462.25	8.39E+01	52.57			8.39E+01	5.26E+01
	17	511.45	1.64E+02	52.57	5.38E+01	4.80E+00	1.10E+02	5.28E+01
	18	583.15	2.46E+02	48.83	1.58E+00	2.86E+00	2.45E+02	4.89E+01
	19	609.43	2.65E+02	47.52	3.58E+00	2.96E+00	2.61E+02	4.76E+01
	20	632.74	2.07E+01	24.80			2.07E+01	2.48E+01
	21	638.52	3.35E+01	26.23			3.35E+01	2.62E+01
	22	727.81	5.15E+01	31.87			5.15E+01	3.19E+01
M	23	767.93	3.53E+01	24.31			3.53E+01	2.43E+01
m	24	771.96	2.20E+01	18.67			2.20E+01	1.87E+01
M	25	795.50	2.04E+01	30.84			2.04E+01	3.08E+01
m	26	806.47	1.96E+01	29.72			1.96E+01	2.97E+01
	27	861.72	4.00E+01	28.24			4.00E+01	2.82E+01
	28	882.74	1.53E+01	16.94			1.53E+01	1.69E+01
	29	911.18	1.92E+02	38.50			1.92E+02	3.85E+01
	30	933.50	2.86E+01	26.00			2.86E+01	2.60E+01
	31	1066.65	1.56E+01	19.08			1.56E+01	1.91E+01
	32	1092.97	2.79E+01	28.00			2.79E+01	2.80E+01
M	33	1120.48	5.62E+01	29.68			5.62E+01	2.97E+01
m	34	1129.05	1.55E+01	21.38			1.55E+01	2.14E+01
	35	1291.78	2.97E+01	24.47			2.97E+01	2.45E+01
	36	1399.98	1.69E+01	15.52			1.69E+01	1.55E+01
	37	1460.46	5.84E+02	50.89	3.11E+00	2.06E+00	5.81E+02	5.09E+01
	38	1554.21	8.17E+00	8.94			8.17E+00	8.94E+00
M	39	1587.00	1.72E+01	11.53			1.72E+01	1.15E+01
m	40	1591.67	1.28E+01	10.16			1.28E+01	1.02E+01
	41	1631.54	1.59E+01	9.85			1.59E+01	9.85E+00
	42	1660.20	9.46E+00	9.17			9.46E+00	9.17E+00
	43	1692.39	7.00E+00	5.29			7.00E+00	5.29E+00
	44	1728.80	1.33E+01	11.86			1.33E+01	1.19E+01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1764.04	3.61E+01	12.82			3.61E+01	1.28E+01
46	1770.40	4.58E+00	5.50			4.58E+00	5.50E+00
47	1875.81	8.00E+00	5.66			8.00E+00	5.66E+00
48	1903.03	8.15E+00	10.10			8.15E+00	1.01E+01
49	2202.52	1.96E+01	10.40			1.96E+01	1.04E+01
50	2249.81	5.36E+00	6.08			5.36E+00	6.08E+00
51	2260.95	1.29E+01	10.00			1.29E+01	1.00E+01
52	2305.70	8.00E+00	5.66			8.00E+00	5.66E+00
53	2345.56	1.00E+01	6.32			1.00E+01	6.32E+00
54	2613.26	6.09E+01	16.50	1.69E+00	9.96E-01	5.92E+01	1.65E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 1:30:54PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.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	46.82	1.56E+02	88.48	5.19E+01	1.08E+01	1.04E+02	8.91E+01
2	63.78	1.11E+02	95.61	3.11E+01	1.15E+01	7.99E+01	9.63E+01
3	76.47	1.32E+03	171.90			1.32E+03	1.72E+02
4	88.46	1.32E+02	86.65			1.32E+02	8.67E+01
5	93.62	2.34E+02	136.36	7.43E+01	4.99E+00	1.59E+02	1.36E+02
6	129.44	6.86E+01	77.58			6.86E+01	7.76E+01
7	154.62	9.24E+01	71.51			9.24E+01	7.15E+01
8	186.06	2.04E+02	100.87	3.36E+01	5.83E+00	1.70E+02	1.01E+02
9	209.58	6.64E+01	55.89			6.64E+01	5.59E+01
10	239.84	1.06E+03	150.37	1.14E+01	5.08E+00	1.04E+03	1.50E+02
11	270.23	6.93E+01	59.33			6.93E+01	5.93E+01
12	295.75	2.11E+02	67.20			2.11E+02	6.72E+01
13	329.03	7.97E+01	48.62			7.97E+01	4.86E+01
14	338.68	1.95E+02	58.40	0.00E+00	0.00E+00	1.95E+02	5.84E+01
15	352.13	4.13E+02	69.19			4.13E+02	6.92E+01
16	462.25	8.39E+01	52.57			8.39E+01	5.26E+01
17	511.45	1.64E+02	52.57	5.38E+01	4.80E+00	1.10E+02	5.28E+01
18	583.15	2.46E+02	48.83	1.58E+00	2.86E+00	2.45E+02	4.89E+01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	19	609.43	2.65E+02	47.52	3.58E+00	2.96E+00	2.61E+02	4.76E+01
	20	632.74	2.07E+01	24.80			2.07E+01	2.48E+01
	21	638.52	3.35E+01	26.23			3.35E+01	2.62E+01
	22	727.81	5.15E+01	31.87			5.15E+01	3.19E+01
M	23	767.93	3.53E+01	24.31			3.53E+01	2.43E+01
m	24	771.96	2.20E+01	18.67			2.20E+01	1.87E+01
M	25	795.50	2.04E+01	30.84			2.04E+01	3.08E+01
m	26	806.47	1.96E+01	29.72			1.96E+01	2.97E+01
	27	861.72	4.00E+01	28.24			4.00E+01	2.82E+01
	28	882.74	1.53E+01	16.94			1.53E+01	1.69E+01
	29	911.18	1.92E+02	38.50			1.92E+02	3.85E+01
	30	933.50	2.86E+01	26.00			2.86E+01	2.60E+01
	31	1066.65	1.56E+01	19.08			1.56E+01	1.91E+01
	32	1092.97	2.79E+01	28.00			2.79E+01	2.80E+01
M	33	1120.48	5.62E+01	29.68			5.62E+01	2.97E+01
m	34	1129.05	1.55E+01	21.38			1.55E+01	2.14E+01
	35	1291.78	2.97E+01	24.47			2.97E+01	2.45E+01
	36	1399.98	1.69E+01	15.52			1.69E+01	1.55E+01
	37	1460.46	5.84E+02	50.89	3.11E+00	2.06E+00	5.81E+02	5.09E+01
	38	1554.21	8.17E+00	8.94			8.17E+00	8.94E+00
M	39	1587.00	1.72E+01	11.53			1.72E+01	1.15E+01
m	40	1591.67	1.28E+01	10.16			1.28E+01	1.02E+01
	41	1631.54	1.59E+01	9.85			1.59E+01	9.85E+00
	42	1660.20	9.46E+00	9.17			9.46E+00	9.17E+00
	43	1692.39	7.00E+00	5.29			7.00E+00	5.29E+00
	44	1728.80	1.33E+01	11.86			1.33E+01	1.19E+01
	45	1764.04	3.61E+01	12.82			3.61E+01	1.28E+01
	46	1770.40	4.58E+00	5.50			4.58E+00	5.50E+00
	47	1875.81	8.00E+00	5.66			8.00E+00	5.66E+00
	48	1903.03	8.15E+00	10.10			8.15E+00	1.01E+01
	49	2202.52	1.96E+01	10.40			1.96E+01	1.04E+01
	50	2249.81	5.36E+00	6.08			5.36E+00	6.08E+00
	51	2260.95	1.29E+01	10.00			1.29E+01	1.00E+01
	52	2305.70	8.00E+00	5.66			8.00E+00	5.66E+00
	53	2345.56	1.00E+01	6.32			1.00E+01	6.32E+00
	54	2613.26	6.09E+01	16.50	1.69E+00	9.96E-01	5.92E+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

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.980	1460.81	*	10.67	2.12E+01	2.59E+00
CD-109	0.971	88.03	*	3.72	1.95E+00	1.29E+00
SN-126	0.882	87.57	*	37.00	1.70E-01	1.12E-01
PB-210	0.984	46.50	*	4.25	1.83E+00	1.57E+00
BI-212	0.721	727.17	*	11.80	9.36E-01	5.85E-01
		1620.62		2.75		
BI-214	0.925	609.31	*	46.30	1.03E+00	2.12E-01
		1120.29	*	15.10	1.16E+00	6.22E-01
		1764.49	*	15.80	1.03E+00	3.73E-01
		2204.22		4.98		
PB-214	0.980	295.21	*	19.19	1.05E+00	3.47E-01
		351.92	*	37.19	1.24E+00	2.35E-01
RA-226	0.996	186.21	*	3.28	3.41E+00	6.56E+00
AC-228	0.575	338.32	*	11.40	1.84E+00	5.76E-01
		911.07	*	27.70	1.81E+00	3.90E-01
		969.11		16.60		
TH-234	0.963	63.29	*	3.80	1.10E+00	1.33E+00

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 1:30:54PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
3	76.47	3.66721E-01	6.51		
5	93.62	4.42182E-02	42.86	Sum	
6	129.44	1.90672E-02	56.51		
7	154.62	2.56567E-02	38.71		
9	209.58	1.84328E-02	42.11	Tol.	GA-67 CM-243
10	239.84	2.89993E-01	7.21		
11	270.23	1.92373E-02	42.83		
13	329.03	2.21293E-02	30.52	Tol.	LA-140

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	16	462.25	2.33076E-02	31.33		
	17	511.45	3.06283E-02	23.94		
	18	583.15	6.79439E-02	10.00	Tol.	TL-208
	20	632.74	5.75572E-03	59.84		
	21	638.52	9.31424E-03	39.11		
M	23	767.93	9.79689E-03	34.46		
m	24	771.96	6.11876E-03	42.39		
M	25	795.50	5.67745E-03	75.44	Sum	
m	26	806.47	5.44110E-03	75.85		
	27	861.72	1.11111E-02	35.30		
	28	882.74	4.24708E-03	55.40		
	30	933.50	7.93881E-03	45.49		
	31	1066.65	4.32971E-03	61.20	Sum	
	32	1092.97	7.76190E-03	50.10	Tol.	LU-172
m	34	1129.05	4.30563E-03	68.96		
	35	1291.78	8.24859E-03	41.21		
	36	1399.98	4.70306E-03	45.85		
	38	1554.21	2.26852E-03	54.76		
M	39	1587.00	4.78674E-03	33.46		
m	40	1591.67	3.55924E-03	39.65		
	41	1631.54	4.42130E-03	30.94		
	42	1660.20	2.62821E-03	48.43		
	43	1692.39	1.94444E-03	37.80		
	44	1728.80	3.69444E-03	44.60		
	46	1770.40	1.27315E-03	60.00		
	47	1875.81	2.22222E-03	35.36		
	48	1903.03	2.26496E-03	61.93		
	49	2202.52	5.43561E-03	26.58		
	50	2249.81	1.48810E-03	56.77		
	51	2260.95	3.58507E-03	38.74		
	52	2305.70	2.22222E-03	35.36		
	53	2345.56	2.77778E-03	31.62		
	54	2613.26	1.64364E-02	13.97		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.98	1460.81	*	10.67	2.12E+01	2.59E+00
CD-109	0.97	88.03	*	3.72	1.95E+00	1.29E+00
SN-126	0.88	87.57	*	37.00	1.70E-01	1.12E-01
PB-210	0.98	46.50	*	4.25	1.83E+00	1.57E+00
BI-212	0.72	727.17	*	11.80	9.36E-01	5.85E-01
		1620.62		2.75		
BI-214	0.92	609.31	*	46.30	1.03E+00	2.12E-01
		1120.29	*	15.10	1.16E+00	6.22E-01
		1764.49	*	15.80	1.03E+00	3.73E-01
		2204.22		4.98		
PB-214	0.98	295.21	*	19.19	1.05E+00	3.47E-01
		351.92	*	37.19	1.24E+00	2.35E-01
RA-226	0.99	186.21	*	3.28	3.41E+00	6.56E+00
AC-228	0.57	338.32	*	11.40	1.84E+00	5.76E-01
		911.07	*	27.70	1.81E+00	3.90E-01
		969.11		16.60		
TH-234	0.96	63.29	*	3.80	1.10E+00	1.33E+00

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.980	2.12E+01	2.59E+00	
?	CD-109	0.971	1.95E+00	1.29E+00	
?	SN-126	0.882	1.70E-01	1.12E-01	
	PB-210	0.984	1.83E+00	1.57E+00	
	BI-212	0.721	9.36E-01	5.85E-01	
	BI-214	0.925	1.04E+00	1.77E-01	
	PB-214	0.980	1.18E+00	1.95E-01	
	RA-226	0.996	3.41E+00	6.56E+00	
	AC-228	0.575	1.82E+00	3.23E-01	
	TH-234	0.963	1.10E+00	1.33E+00	

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

? = 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 1707084-05

HTC-A01-S008-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 1:30:54PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.47	3.66721E-01	6.51		
	5	93.62	4.42182E-02	42.86	Sum	
	6	129.44	1.90672E-02	56.51		
	7	154.62	2.56567E-02	38.71		
	9	209.58	1.84328E-02	42.11	Tol.	GA-67
						CM-243
	10	239.84	2.89993E-01	7.21		
	11	270.23	1.92373E-02	42.83		
	13	329.03	2.21293E-02	30.52	Tol.	LA-140
	16	462.25	2.33076E-02	31.33		
	17	511.45	3.06283E-02	23.94		
	18	583.15	6.79439E-02	10.00	Tol.	TL-208
	20	632.74	5.75572E-03	59.84		
	21	638.52	9.31424E-03	39.11		
M	23	767.93	9.79689E-03	34.46		
m	24	771.96	6.11876E-03	42.39		
M	25	795.50	5.67745E-03	75.44	Sum	
m	26	806.47	5.44110E-03	75.85		
	27	861.72	1.11111E-02	35.30		
	28	882.74	4.24708E-03	55.40		
	30	933.50	7.93881E-03	45.49		
	31	1066.65	4.32971E-03	61.20	Sum	
	32	1092.97	7.76190E-03	50.10	Tol.	LU-172
m	34	1129.05	4.30563E-03	68.96		
	35	1291.78	8.24859E-03	41.21		
	36	1399.98	4.70306E-03	45.85		
	38	1554.21	2.26852E-03	54.76		
M	39	1587.00	4.78674E-03	33.46		
m	40	1591.67	3.55924E-03	39.65		
	41	1631.54	4.42130E-03	30.94		
	42	1660.20	2.62821E-03	48.43		
	43	1692.39	1.94444E-03	37.80		
	44	1728.80	3.69444E-03	44.60		
	46	1770.40	1.27315E-03	60.00		
	47	1875.81	2.22222E-03	35.36		

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
48	1903.03	2.26496E-03	61.93		
49	2202.52	5.43561E-03	26.58		
50	2249.81	1.48810E-03	56.77		
51	2260.95	3.58507E-03	38.74		
52	2305.70	2.22222E-03	35.36		
53	2345.56	2.77778E-03	31.62		
54	2613.26	1.64364E-02	13.97		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-5.81E-01	2.40E+00	2.40E+00
+	NA-22	1274.54		99.94	5.90E-02	1.22E-01	1.22E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-3.80E-02	6.88E-02	6.88E-02
+	K-40	1460.81	*	10.67	2.12E+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	1.49E-02	6.78E-02	6.78E-02
		78.34		96.00	2.24E-01		8.76E-02
+	SC-46	889.25		99.98	5.57E-02	1.94E-01	1.94E-01
		1120.51		99.99	4.17E-01		3.53E-01
+	V-48	983.52		99.98	4.16E+00	6.56E+00	7.68E+00
		1312.10		97.50	2.56E+00		6.56E+00
+	CR-51	320.08		9.83	-1.36E+00	7.68E+00	7.68E+00
+	MN-54	834.83		99.97	-8.24E-03	1.22E-01	1.22E-01
+	CO-56	846.75		99.96	-2.01E-02	2.05E-01	2.05E-01
		1037.75		14.03	-5.16E-01		1.66E+00
		1238.25		67.00	-1.19E-01		5.10E-01
		1771.40		15.51	-1.26E+00		1.19E+00
		2598.48		16.90	0.00E+00		2.16E-01
+	CO-57	122.06		85.51	-5.19E-03	7.22E-02	7.22E-02
		136.48		10.60	-1.30E-01		5.94E-01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-58	810.76		99.40	4.17E-02	2.23E-01	2.23E-01
+	FE-59	1099.22		56.50	2.46E-01	8.09E-01	8.09E-01
		1291.56		43.20	5.98E-01		1.22E+00
+	CO-60	1173.22		100.00	2.23E-02	1.09E-01	1.24E-01
		1332.49		100.00	7.60E-03		1.09E-01
+	ZN-65	1115.52		50.75	6.06E-03	2.85E-01	2.85E-01
+	GA-67	93.31		35.70	3.56E+08	1.74E+08	1.74E+08
		208.95		2.24	8.06E+08		2.87E+09
		300.22		16.00	1.29E+08		4.60E+08
+	SE-75	121.11		16.70	2.39E-01	1.49E-01	5.16E-01
		136.00		59.20	2.86E-02		1.49E-01
		264.65		59.80	8.18E-02		1.98E-01
		279.53		25.20	-9.77E-02		4.69E-01
		400.65		11.40	3.94E-01		1.11E+00
+	RB-82	776.52		13.00	-3.32E+00	8.92E+00	8.92E+00
+	RB-83	520.41		46.00	2.27E-01	3.51E-01	3.51E-01
		529.64		30.30	3.55E-01		5.58E-01
		552.65		16.40	4.46E-02		1.06E+00
+	KR-85	513.99		0.43	3.66E+01	2.55E+01	2.55E+01
+	SR-85	513.99		99.27	4.45E-01	3.09E-01	3.09E-01
+	Y-88	898.02		93.40	4.78E-02	1.76E-01	1.89E-01
		1836.01		99.38	3.87E-02		1.76E-01
+	MO-93	263.06		56.72	9.98E-03	8.50E-02	1.17E-01
		684.67		99.68	1.82E-02		8.50E-02
		1477.11		99.08	2.27E-02		8.81E-02
+	NB-93M	16.57		9.43	-1.67E+01	7.33E+01	7.33E+01
+	NB-94	702.63		100.00	2.13E-03	8.93E-02	8.93E-02
		871.10		100.00	4.67E-03		9.51E-02
+	NB-95	765.79		99.81	4.31E-01	7.19E-01	7.19E-01
+	NB-95M	235.69		25.00	3.12E+05	5.28E+07	5.28E+07
+	ZR-95	724.18		43.70	-9.79E-02	4.88E-01	6.45E-01
		756.72		55.30	4.15E-02		4.88E-01
+	MO-99	181.06		6.20	-7.78E+09	2.87E+10	3.68E+10
		739.58		12.80	-5.88E+07		2.87E+10
		778.00		4.50	-4.07E+10		8.14E+10
+	RU-103	497.08		89.00	4.69E-02	4.72E-01	4.72E-01
+	RU-106	621.84		9.80	1.72E-01	9.56E-01	9.56E-01
+	AG-108M	433.93		89.90	-3.69E-02	7.88E-02	7.88E-02
		614.37		90.40	1.73E-02		1.13E-01
		722.95		90.50	-1.03E-02		1.04E-01
+	CD-109	88.03	*	3.72	1.95E+00	2.06E+00	2.06E+00
+	AG-110M	657.75		93.14	-2.44E-02	1.23E-01	1.23E-01
		677.61		10.53	1.51E-01		9.76E-01
		706.67		16.46	-3.81E-01		6.87E-01
		763.93		21.98	6.81E-02		5.36E-01
		884.67		71.63	-1.78E-03		1.61E-01
		1384.27		23.94	9.68E-02		4.79E-01
+	CD-113M	263.70		0.02	8.78E+01	2.89E+02	2.89E+02

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SN-113	255.12		1.93	3.11E+00	1.95E-01	5.84E+00
		391.69		64.90	4.43E-02		1.95E-01
+	TE123M	159.00		84.10	7.35E-03	1.03E-01	1.03E-01
+	SB-124	602.71		97.87	6.74E-02	2.49E-01	2.49E-01
		645.85		7.26	7.09E-01		3.12E+00
		722.78		11.10	-2.57E-01		2.59E+00
		1691.02		49.00	1.77E-01		4.93E-01
+	I-125	35.49		6.49	-2.35E+00	6.39E+00	6.39E+00
+	SB-125	176.33		6.89	-1.66E-01	2.75E-01	7.98E-01
		427.89		29.33	7.10E-02		2.75E-01
		463.38		10.35	7.87E-01		8.77E-01
		600.56		17.80	1.33E-01		4.88E-01
		635.90		11.32	1.34E-01		7.95E-01
+	SB-126	414.70		83.30	-1.36E+00	1.97E+01	1.97E+01
		666.33		99.60	-7.56E+00		2.03E+01
		695.00		99.60	9.64E+00		2.10E+01
		720.50		53.80	-1.96E+00		4.02E+01
+	SN-126	87.57	*	37.00	1.70E-01	1.79E-01	1.79E-01
+	SB-127	473.00		25.00	6.24E+06	9.24E+06	1.17E+07
		685.20		35.70	1.98E+06		9.24E+06
		783.80		14.70	2.12E+07		2.68E+07
+	I-129	29.78		57.00	-2.39E-01	4.15E-01	4.15E-01
		33.60		13.20	3.89E-01		1.21E+00
		39.58		7.52	3.26E-01		1.38E+00
+	I-131	284.30		6.05	1.71E+02	3.71E+02	4.82E+03
		364.48		81.20	2.19E+02		3.71E+02
		636.97		7.26	-1.48E+03		4.74E+03
		722.89		1.80	-2.25E+03		2.27E+04
+	TE-132	49.72		13.10	4.09E+07	6.97E+07	5.45E+08
		228.16		88.00	2.16E+07		6.97E+07
+	BA-133	81.00		33.00	-5.82E-01	1.69E-01	1.94E-01
		302.84		17.80	-2.38E-02		3.90E-01
		356.01		60.00	2.13E-02		1.69E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.88E+05	6.29E+04	6.29E+04
+	CS-134	563.23		8.38	2.60E-02	9.87E-02	1.00E+00
		569.32		15.43	2.17E-01		5.59E-01
		604.70		97.60	1.04E-02		9.87E-02
		795.84		85.40	1.26E-01		1.36E-01
		801.93		8.73	-8.27E-01		1.09E+00
+	CS-135	268.24		16.00	6.73E-02	4.68E-01	4.68E-01
+	@ I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41		28.60	1.00E+26		1.00E+26
	@	1678.03		9.54	1.00E+26		1.00E+26
+	CS-136	153.22		7.46	-1.39E+00	1.48E+01	1.20E+02
		163.89		4.61	2.98E+01		1.85E+02
		176.55		13.56	-1.32E+01		6.34E+01
		273.65		12.66	-5.54E+00		9.54E+01
		340.57		48.50	6.05E+01		3.27E+01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	818.50	99.70	7.17E+00	1.48E+01	1.48E+01
			1048.07	79.60	7.74E-01		2.16E+01
			1235.34	19.70	9.20E+01		1.33E+02
+		CS-137	661.65	85.12	8.37E-02	1.16E-01	1.16E-01
+		LA-138	788.74	34.00	4.20E-02	1.05E-01	2.50E-01
			1435.80	66.00	-6.34E-03		1.05E-01
+		CE-139	165.85	80.35	2.83E-02	1.05E-01	1.05E-01
+		BA-140	162.64	6.70	-5.25E+01	5.60E+01	1.44E+02
			304.84	4.50	2.72E+01		2.88E+02
			423.70	3.20	1.38E+02		4.62E+02
			437.55	2.00	1.42E+01		7.24E+02
			537.32	25.00	-1.49E+01		5.60E+01
+		LA-140	328.77	20.50	6.28E+01	1.94E+01	7.29E+01
			487.03	45.50	-1.11E+01		3.07E+01
			815.85	23.50	-5.26E+01		6.35E+01
			1596.49	95.49	-7.15E-01		1.94E+01
+		CE-141	145.44	48.40	-2.15E-01	8.28E-01	8.28E-01
+	@	CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26	42.00	1.00E+26		1.00E+26
	@		664.55	5.20	1.00E+26		1.00E+26
+		CE-144	133.54	10.80	-1.24E-02	5.83E-01	5.83E-01
+		PM-144	476.78	42.00	4.97E-02	9.84E-02	2.12E-01
			618.01	98.60	-3.51E-03		9.84E-02
			696.49	99.49	-1.59E-02		1.07E-01
+		PM-145	36.85	21.70	-2.15E-01	3.08E-01	5.68E-01
			37.36	39.70	1.44E-01		3.08E-01
			42.30	15.10	-6.35E-02		5.96E-01
			72.40	2.31	-8.05E+00		3.11E+00
+		PM-146	453.90	39.94	-2.11E-02	1.91E-01	1.91E-01
			735.90	14.01	1.46E-01		6.52E-01
			747.13	13.10	-5.39E-01		6.17E-01
+		ND-147	91.11	28.90	-6.05E+01	1.08E+02	1.08E+02
			531.02	13.10	4.55E+01		2.70E+02
+		PM-149	285.90	3.10	1.43E+13	3.72E+13	3.72E+13
+		EU-152	121.78	20.50	-1.71E-02	2.38E-01	2.38E-01
			244.69	5.40	-4.55E+00		1.50E+00
			344.27	19.13	-1.34E-02		3.57E-01
			778.89	9.20	5.53E-01		1.03E+00
			964.01	10.40	-1.58E+00		1.15E+00
			1085.78	7.22	3.57E-01		1.24E+00
			1112.02	9.60	4.01E-01		1.16E+00
			1407.95	14.94	1.02E-01		5.31E-01
+		GD-153	97.43	31.30	-3.98E-01	2.05E-01	2.05E-01
			103.18	22.20	-1.99E-01		2.75E-01
+		EU-154	123.07	40.50	-4.24E-02	1.19E-01	1.19E-01
			723.30	19.70	-4.84E-02		4.87E-01
			873.19	11.50	3.24E-01		8.67E-01
			996.32	10.30	2.71E-01		1.02E+00
			1004.76	17.90	2.62E-01		5.73E-01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	1274.45		35.50	1.58E-01	1.19E-01	3.25E-01
+	EU-155	86.50		30.90	-4.31E-02	2.24E-01	2.24E-01
		105.30		20.70	1.74E-02		2.37E-01
+	EU-156	811.77		10.40	-2.51E+00	6.56E+01	6.56E+01
		1153.47		7.20	-5.55E+00		1.33E+02
		1230.71		8.90	2.91E+01		1.32E+02
+	HO-166M	184.41		72.60	1.11E-01	9.20E-02	9.20E-02
		280.45		29.60	1.99E-02		2.29E-01
		410.94		11.10	4.97E-01		7.06E-01
		711.69		54.10	2.15E-02		1.80E-01
+	TM-171	66.72		0.14	1.33E+01	5.24E+01	5.24E+01
+	HF-172	67.35		5.31	2.92E-01	4.66E-01	1.33E+00
		125.81		11.30	2.65E-02		4.66E-01
+	LU-172	181.53		20.60	-9.07E+02	4.01E+03	6.19E+03
		900.72		29.81	-1.61E+03		7.04E+03
		1093.66		62.50	2.07E+03		4.01E+03
+	LU-173	100.72		5.24	3.85E-02	4.07E-01	1.04E+00
		272.11		21.20	3.70E-01		4.07E-01
+	HF-175	343.40		84.00	-7.87E-03	2.09E-01	2.09E-01
+	LU-176	88.34		13.30	2.95E-01	6.55E-02	5.11E-01
		201.83		86.00	-8.53E-03		6.55E-02
		306.78		94.00	-2.67E-02		6.81E-02
+	HF-181	133.02		41.70	-1.00E-01	4.53E-01	5.83E-01
		345.85		17.20	-7.24E-02		1.88E+00
		482.03		82.80	1.52E-01		4.53E-01
+	TA-182	67.75		41.20	6.13E-02	2.79E-01	2.79E-01
		1121.30		34.90	9.75E-01		8.13E-01
		1189.05		16.23	-4.81E-02		1.30E+00
		1221.41		26.98	-4.03E-01		7.45E-01
		1231.02		11.44	4.84E-01		2.20E+00
+	IR-192	308.46		29.68	2.47E-01	3.66E-01	5.48E-01
		468.07		48.10	2.88E-02		3.66E-01
+	HG-203	279.19		77.30	-1.70E-02	3.69E-01	3.69E-01
+	TL-204	374.74		94.11	6.58E-02	7.75E-02	7.75E-02
		899.15		99.16	2.36E-02		9.92E-02
		911.74		91.10	5.28E-01		2.15E-01
+	BI-207	569.67		97.72	3.25E-02	8.29E-02	8.29E-02
		1063.62		74.90	-1.12E-02		1.39E-01
+	TL-208	583.14		30.22	1.36E+00	4.96E-01	4.96E-01
		860.37		4.48	1.59E+00		2.40E+00
		2614.66		35.85	-2.67E-02		6.45E-01
+	BI-210M	262.00		45.00	-3.17E-03	1.43E-01	1.43E-01
		300.00		23.00	9.62E-02		3.43E-01
+	PB-210	46.50	*	4.25	1.83E+00	2.55E+00	2.55E+00
+	PB-211	404.84		2.90	-3.99E-01	2.54E+00	2.54E+00
		831.96		2.90	-6.17E-01		3.25E+00
+	BI-212	727.17	*	11.80	9.36E-01	8.99E-01	8.99E-01
		1620.62		2.75	5.06E-01		3.18E+00

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-212	238.63		44.60	1.46E+00	2.97E-01	2.97E-01
		300.09		3.41	6.49E-01		2.31E+00
+	BI-214	609.31	*	46.30	1.03E+00	2.38E-01	2.38E-01
		1120.29	*	15.10	1.16E+00		1.65E+00
		1764.49	*	15.80	1.03E+00		2.84E-01
		2204.22		4.98	-2.80E-01		2.52E+00
+	PB-214	295.21	*	19.19	1.05E+00	2.84E-01	5.10E-01
		351.92	*	37.19	1.24E+00		2.84E-01
+	RN-219	401.80		6.50	2.24E-01	1.12E+00	1.12E+00
+	RA-223	323.87		3.88	1.94E-01	1.67E+00	1.67E+00
+	RA-224	240.98		3.95	1.88E+01	3.43E+00	3.43E+00
+	RA-225	40.00		31.00	7.32E+00	3.10E+01	3.10E+01
+	RA-226	186.21	*	3.28	3.41E+00	3.27E+00	3.27E+00
+	TH-227	50.10		8.40	6.66E-02	8.87E-01	8.87E-01
		236.00		11.50	5.36E-03		9.08E-01
		256.20		6.30	7.66E-01		1.01E+00
+	AC-228	338.32	*	11.40	1.84E+00	4.41E-01	8.23E-01
		911.07	*	27.70	1.81E+00		4.41E-01
		969.11		16.60	8.85E-01		8.96E-01
+	TH-230	48.44		16.90	5.27E-01	4.95E-01	4.95E-01
		62.85		4.60	1.35E+00		1.58E+00
		67.67		0.37	3.79E+00		1.73E+01
+	PA-231	283.67		1.60	-1.33E+00	2.96E+00	4.16E+00
		302.67		2.30	-1.81E-01		2.96E+00
+	TH-231	25.64		14.70	-9.54E-01	9.37E-01	2.98E+00
		84.21		6.40	-5.50E-01		9.37E-01
+	PA-233	311.98		38.60	-3.81E-01	2.00E+00	2.00E+00
+	PA-234	131.20		20.40	2.24E-01	2.62E-01	2.62E-01
		733.99		8.80	5.08E-01		1.02E+00
		946.00		12.00	6.71E-02		8.24E-01
+	PA-234M	1001.03		0.92	2.44E+00	1.11E+01	1.11E+01
+	TH-234	63.29	*	3.80	1.10E+00	2.18E+00	2.18E+00
+	U-235	143.76		10.50	1.19E-01	4.89E-01	4.89E-01
		163.35		4.70	1.75E-01		1.08E+00
		205.31		4.70	2.55E-01		1.44E+00
+	NP-237	86.50		12.60	-1.02E-01	5.30E-01	5.30E-01
+	NP-239	106.10		22.70	4.03E+10	5.48E+11	5.48E+11
		228.18		10.70	4.93E+11		1.59E+12
		277.60		14.10	2.62E+11		1.26E+12
+	AM-241	59.54		35.90	6.32E-03	1.92E-01	1.92E-01
+	AM-243	74.67		66.00	4.93E-02	1.30E-01	1.30E-01
+	CM-243	209.75		3.29	7.85E-01	4.87E-01	2.10E+00
		228.14		10.60	1.90E-01		6.14E-01
		277.60		14.00	1.01E-01		4.87E-01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

+ = 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
? = CAUTION: MDA value is inconsistent with Currie MDA at 95% confidence level

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.40E+00	2.40E+00	-5.81E-01	1.13E+00
	NA-22	1274.54		99.94	1.22E-01	1.22E-01	5.90E-02	5.57E-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	6.88E-02	6.88E-02	-3.80E-02	2.82E-02
+	K-40	1460.81	*	10.67	1.08E+00	1.08E+00	2.12E+01	4.91E-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	6.78E-02	6.78E-02	1.49E-02	3.32E-02
		78.34		96.00	8.76E-02		2.24E-01	4.31E-02
	SC-46	889.25		99.98	1.94E-01	1.94E-01	5.57E-02	8.92E-02
		1120.51		99.99	3.53E-01		4.17E-01	1.67E-01
	V-48	983.52		99.98	7.68E+00	6.56E+00	4.16E+00	3.58E+00
		1312.10		97.50	6.56E+00		2.56E+00	2.94E+00
	CR-51	320.08		9.83	7.68E+00	7.68E+00	-1.36E+00	3.68E+00
	MN-54	834.83		99.97	1.22E-01	1.22E-01	-8.24E-03	5.68E-02
	CO-56	846.75		99.96	2.05E-01	2.05E-01	-2.01E-02	9.49E-02
		1037.75		14.03	1.66E+00		-5.16E-01	7.66E-01
		1238.25		67.00	5.10E-01		-1.19E-01	2.39E-01
		1771.40		15.51	1.19E+00		-1.26E+00	5.02E-01
		2598.48		16.90	2.16E-01		0.00E+00	0.00E+00
	CO-57	122.06		85.51	7.22E-02	7.22E-02	-5.19E-03	3.51E-02
		136.48		10.60	5.94E-01		-1.30E-01	2.88E-01
	CO-58	810.76		99.40	2.23E-01	2.23E-01	4.17E-02	1.03E-01
	FE-59	1099.22		56.50	8.09E-01	8.09E-01	2.46E-01	3.71E-01
		1291.56		43.20	1.22E+00		5.98E-01	5.62E-01
	CO-60	1173.22		100.00	1.24E-01	1.09E-01	2.23E-02	5.75E-02
		1332.49		100.00	1.09E-01		7.60E-03	4.92E-02
	ZN-65	1115.52		50.75	2.85E-01	2.85E-01	6.06E-03	1.32E-01
	GA-67	93.31		35.70	1.74E+08	1.74E+08	3.56E+08	8.53E+07

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	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	2.87E+09	1.74E+08	8.06E+08	1.39E+09
		300.22		16.00	4.60E+08		1.29E+08	2.22E+08
	SE-75	121.11		16.70	5.16E-01	1.49E-01	2.39E-01	2.51E-01
		136.00		59.20	1.49E-01		2.86E-02	7.23E-02
		264.65		59.80	1.98E-01		8.18E-02	9.54E-02
		279.53		25.20	4.69E-01		-9.77E-02	2.26E-01
		400.65		11.40	1.11E+00		3.94E-01	5.30E-01
	RB-82	776.52		13.00	8.92E+00	8.92E+00	-3.32E+00	4.13E+00
	RB-83	520.41		46.00	3.51E-01	3.51E-01	2.27E-01	1.65E-01
		529.64		30.30	5.58E-01		3.55E-01	2.63E-01
		552.65		16.40	1.06E+00		4.46E-02	5.00E-01
	KR-85	513.99		0.43	2.55E+01	2.55E+01	3.66E+01	1.22E+01
	SR-85	513.99		99.27	3.09E-01	3.09E-01	4.45E-01	1.49E-01
	Y-88	898.02		93.40	1.89E-01	1.76E-01	4.78E-02	8.72E-02
		1836.01		99.38	1.76E-01		3.87E-02	7.61E-02
	MO-93	263.06		56.72	1.17E-01	8.50E-02	9.98E-03	5.63E-02
		684.67		99.68	8.50E-02		1.82E-02	3.97E-02
		1477.11		99.08	8.81E-02		2.27E-02	3.86E-02
	NB-93M	16.57		9.43	7.33E+01	7.33E+01	-1.67E+01	3.57E+01
	NB-94	702.63		100.00	8.93E-02	8.93E-02	2.13E-03	4.18E-02
		871.10		100.00	9.51E-02		4.67E-03	4.41E-02
	NB-95	765.79		99.81	7.19E-01	7.19E-01	4.31E-01	3.39E-01
	NB-95M	235.69		25.00	5.28E+07	5.28E+07	3.12E+05	2.59E+07
	ZR-95	724.18		43.70	6.45E-01	4.88E-01	-9.79E-02	3.03E-01
		756.72		55.30	4.88E-01		4.15E-02	2.28E-01
	MO-99	181.06		6.20	3.68E+10	2.87E+10	-7.78E+09	1.78E+10
		739.58		12.80	2.87E+10		-5.88E+07	1.34E+10
		778.00		4.50	8.14E+10		-4.07E+10	3.78E+10
	RU-103	497.08		89.00	4.72E-01	4.72E-01	4.69E-02	2.23E-01
	RU-106	621.84		9.80	9.56E-01	9.56E-01	1.72E-01	4.47E-01
	AG-108M	433.93		89.90	7.88E-02	7.88E-02	-3.69E-02	3.74E-02
		614.37		90.40	1.13E-01		1.73E-02	5.39E-02
		722.95		90.50	1.04E-01		-1.03E-02	4.87E-02
+	CD-109	88.03	*	3.72	2.06E+00	2.06E+00	1.95E+00	1.01E+00
	AG-110M	657.75		93.14	1.23E-01	1.23E-01	-2.44E-02	5.80E-02
		677.61		10.53	9.76E-01		1.51E-01	4.54E-01
		706.67		16.46	6.87E-01		-3.81E-01	3.21E-01
		763.93		21.98	5.36E-01		6.81E-02	2.50E-01
		884.67		71.63	1.61E-01		-1.78E-03	7.43E-02
		1384.27		23.94	4.79E-01		9.68E-02	2.12E-01
	CD-113M	263.70		0.02	2.89E+02	2.89E+02	8.78E+01	1.39E+02
	SN-113	255.12		1.93	5.84E+00	1.95E-01	3.11E+00	2.82E+00
		391.69		64.90	1.95E-01		4.43E-02	9.31E-02
	TE123M	159.00		84.10	1.03E-01	1.03E-01	7.35E-03	4.97E-02
	SB-124	602.71		97.87	2.49E-01	2.49E-01	6.74E-02	1.17E-01
		645.85		7.26	3.12E+00		7.09E-01	1.45E+00
		722.78		11.10	2.59E+00		-2.57E-01	1.21E+00
		1691.02		49.00	4.93E-01		1.77E-01	2.10E-01
	I-125	35.49		6.49	6.39E+00	6.39E+00	-2.35E+00	3.11E+00
	SB-125	176.33		6.89	7.98E-01	2.75E-01	-1.66E-01	3.86E-01
		427.89		29.33	2.75E-01		7.10E-02	1.31E-01
		463.38		10.35	8.77E-01		7.87E-01	4.19E-01
		600.56		17.80	4.88E-01		1.33E-01	2.30E-01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	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	7.95E-01	2.75E-01	1.34E-01	3.73E-01
	SB-126	414.70		83.30	1.97E+01	1.97E+01	-1.36E+00	9.36E+00
		666.33		99.60	2.03E+01		-7.56E+00	9.51E+00
		695.00		99.60	2.10E+01		9.64E+00	9.88E+00
		720.50		53.80	4.02E+01		-1.96E+00	1.89E+01
+	SN-126	87.57	*	37.00	1.79E-01	1.79E-01	1.70E-01	8.80E-02
	SB-127	473.00		25.00	1.17E+07	9.24E+06	6.24E+06	5.56E+06
		685.20		35.70	9.24E+06		1.98E+06	4.32E+06
		783.80		14.70	2.68E+07		2.12E+07	1.26E+07
	I-129	29.78		57.00	4.15E-01	4.15E-01	-2.39E-01	2.02E-01
		33.60		13.20	1.21E+00		3.89E-01	5.91E-01
		39.58		7.52	1.38E+00		3.26E-01	6.73E-01
	I-131	284.30		6.05	4.82E+03	3.71E+02	1.71E+02	2.32E+03
		364.48		81.20	3.71E+02		2.19E+02	1.77E+02
		636.97		7.26	4.74E+03		-1.48E+03	2.22E+03
		722.89		1.80	2.27E+04		-2.25E+03	1.06E+04
	TE-132	49.72		13.10	5.45E+08	6.97E+07	4.09E+07	2.66E+08
		228.16		88.00	6.97E+07		2.16E+07	3.37E+07
	BA-133	81.00		33.00	1.94E-01	1.69E-01	-5.82E-01	9.53E-02
		302.84		17.80	3.90E-01		-2.38E-02	1.87E-01
		356.01		60.00	1.69E-01		2.13E-02	8.18E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	6.29E+04	6.29E+04	-1.88E+05	3.08E+04
	CS-134	563.23		8.38	1.00E+00	9.87E-02	2.60E-02	4.71E-01
		569.32		15.43	5.59E-01		2.17E-01	2.63E-01
		604.70		97.60	9.87E-02		1.04E-02	4.66E-02
		795.84		85.40	1.36E-01		1.26E-01	6.37E-02
		801.93		8.73	1.09E+00		-8.27E-01	5.05E-01
	CS-135	268.24		16.00	4.68E-01	4.68E-01	6.73E-02	2.27E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.20E+02	1.48E+01	-1.39E+00	5.81E+01
		163.89		4.61	1.85E+02		2.98E+01	8.95E+01
		176.55		13.56	6.34E+01		-1.32E+01	3.06E+01
		273.65		12.66	9.54E+01		-5.54E+00	4.61E+01
		340.57		48.50	3.27E+01		6.05E+01	1.58E+01
		818.50		99.70	1.48E+01		7.17E+00	6.87E+00
		1048.07		79.60	2.16E+01		7.74E-01	9.98E+00
		1235.34		19.70	1.33E+02		9.20E+01	6.27E+01
	CS-137	661.65		85.12	1.16E-01	1.16E-01	8.37E-02	5.47E-02
	LA-138	788.74		34.00	2.50E-01	1.05E-01	4.20E-02	1.16E-01
		1435.80		66.00	1.05E-01		-6.34E-03	4.48E-02
	CE-139	165.85		80.35	1.05E-01	1.05E-01	2.83E-02	5.08E-02
	BA-140	162.64		6.70	1.44E+02	5.60E+01	-5.25E+01	6.99E+01
		304.84		4.50	2.88E+02		2.72E+01	1.38E+02
		423.70		3.20	4.62E+02		1.38E+02	2.20E+02
		437.55		2.00	7.24E+02		1.42E+01	3.44E+02
		537.32		25.00	5.60E+01		-1.49E+01	2.63E+01
	LA-140	328.77		20.50	7.29E+01	1.94E+01	6.28E+01	3.51E+01
		487.03		45.50	3.07E+01		-1.11E+01	1.45E+01
		815.85		23.50	6.35E+01		-5.26E+01	2.91E+01
		1596.49		95.49	1.94E+01		-7.15E-01	8.57E+00

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

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	8.28E-01	8.28E-01	-2.15E-01	4.01E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	5.83E-01	5.83E-01	-1.24E-02	2.83E-01
PM-144	476.78	42.00	2.12E-01	9.84E-02	4.97E-02	1.01E-01
	618.01	98.60	9.84E-02		-3.51E-03	4.61E-02
	696.49	99.49	1.07E-01		-1.59E-02	5.02E-02
PM-145	36.85	21.70	5.68E-01	3.08E-01	-2.15E-01	2.77E-01
	37.36	39.70	3.08E-01		1.44E-01	1.50E-01
	42.30	15.10	5.96E-01		-6.35E-02	2.90E-01
	72.40	2.31	3.11E+00		-8.05E+00	1.53E+00
PM-146	453.90	39.94	1.91E-01	1.91E-01	-2.11E-02	9.05E-02
	735.90	14.01	6.52E-01		1.46E-01	3.04E-01
	747.13	13.10	6.17E-01		-5.39E-01	2.85E-01
ND-147	91.11	28.90	1.08E+02	1.08E+02	-6.05E+01	5.30E+01
	531.02	13.10	2.70E+02		4.55E+01	1.27E+02
PM-149	285.90	3.10	3.72E+13	3.72E+13	1.43E+13	1.79E+13
EU-152	121.78	20.50	2.38E-01	2.38E-01	-1.71E-02	1.16E-01
	244.69	5.40	1.50E+00		-4.55E+00	7.27E-01
	344.27	19.13	3.57E-01		-1.34E-02	1.70E-01
	778.89	9.20	1.03E+00		5.53E-01	4.81E-01
	964.01	10.40	1.15E+00		-1.58E+00	5.39E-01
	1085.78	7.22	1.24E+00		3.57E-01	5.62E-01
	1112.02	9.60	1.16E+00		4.01E-01	5.34E-01
	1407.95	14.94	5.31E-01		1.02E-01	2.31E-01
GD-153	97.43	31.30	2.05E-01	2.05E-01	-3.98E-01	9.99E-02
	103.18	22.20	2.75E-01		-1.99E-01	1.33E-01
EU-154	123.07	40.50	1.19E-01	1.19E-01	-4.24E-02	5.76E-02
	723.30	19.70	4.87E-01		-4.84E-02	2.28E-01
	873.19	11.50	8.67E-01		3.24E-01	4.03E-01
	996.32	10.30	1.02E+00		2.71E-01	4.75E-01
	1004.76	17.90	5.73E-01		2.62E-01	2.64E-01
	1274.45	35.50	3.25E-01		1.58E-01	1.49E-01
EU-155	86.50	30.90	2.24E-01	2.24E-01	-4.31E-02	1.10E-01
	105.30	20.70	2.37E-01		1.74E-02	1.15E-01
EU-156	811.77	10.40	6.56E+01	6.56E+01	-2.51E+00	3.02E+01
	1153.47	7.20	1.33E+02		-5.55E+00	6.17E+01
	1230.71	8.90	1.32E+02		2.91E+01	6.19E+01
HO-166M	184.41	72.60	9.20E-02	9.20E-02	1.11E-01	4.48E-02
	280.45	29.60	2.29E-01		1.99E-02	1.10E-01
	410.94	11.10	7.06E-01		4.97E-01	3.37E-01
	711.69	54.10	1.80E-01		2.15E-02	8.48E-02
TM-171	66.72	0.14	5.24E+01	5.24E+01	1.33E+01	2.57E+01
HF-172	67.35	5.31	1.33E+00	4.66E-01	2.92E-01	6.51E-01
	125.81	11.30	4.66E-01		2.65E-02	2.26E-01
LU-172	181.53	20.60	6.19E+03	4.01E+03	-9.07E+02	3.00E+03
	900.72	29.81	7.04E+03		-1.61E+03	3.25E+03
	1093.66	62.50	4.01E+03		2.07E+03	1.85E+03
LU-173	100.72	5.24	1.04E+00	4.07E-01	3.85E-02	5.05E-01
	272.11	21.20	4.07E-01		3.70E-01	1.97E-01
HF-175	343.40	84.00	2.09E-01	2.09E-01	-7.87E-03	1.00E-01
LU-176	88.34	13.30	5.11E-01	6.55E-02	2.95E-01	2.50E-01

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	6.55E-02	6.55E-02	-8.53E-03	3.17E-02
		306.78		94.00	6.81E-02		-2.67E-02	3.26E-02
	HF-181	133.02		41.70	5.83E-01	4.53E-01	-1.00E-01	2.83E-01
		345.85		17.20	1.88E+00		-7.24E-02	8.97E-01
		482.03		82.80	4.53E-01		1.52E-01	2.14E-01
	TA-182	67.75		41.20	2.79E-01	2.79E-01	6.13E-02	1.37E-01
		1121.30		34.90	8.13E-01		9.75E-01	3.85E-01
		1189.05		16.23	1.30E+00		-4.81E-02	6.00E-01
		1221.41		26.98	7.45E-01		-4.03E-01	3.42E-01
		1231.02		11.44	2.20E+00		4.84E-01	1.03E+00
	IR-192	308.46		29.68	5.48E-01	3.66E-01	2.47E-01	2.63E-01
		468.07		48.10	3.66E-01		2.88E-02	1.73E-01
	HG-203	279.19		77.30	3.69E-01	3.69E-01	-1.70E-02	1.78E-01
	TL-204	374.74		94.11	7.75E-02	7.75E-02	6.58E-02	3.70E-02
		899.15		99.16	9.92E-02		2.36E-02	4.59E-02
		911.74		91.10	2.15E-01		5.28E-01	1.04E-01
	BI-207	569.67		97.72	8.29E-02	8.29E-02	3.25E-02	3.91E-02
		1063.62		74.90	1.39E-01		-1.12E-02	6.40E-02
	TL-208	583.14		30.22	4.96E-01	4.96E-01	1.36E+00	2.40E-01
		860.37		4.48	2.40E+00		1.59E+00	1.13E+00
		2614.66		35.85	6.45E-01		-2.67E-02	3.01E-01
	BI-210M	262.00		45.00	1.43E-01	1.43E-01	-3.17E-03	6.89E-02
		300.00		23.00	3.43E-01		9.62E-02	1.66E-01
+	PB-210	46.50	*	4.25	2.55E+00	2.55E+00	1.83E+00	1.25E+00
	PB-211	404.84		2.90	2.54E+00	2.54E+00	-3.99E-01	1.21E+00
		831.96		2.90	3.25E+00		-6.17E-01	1.51E+00
+	BI-212	727.17	*	11.80	8.99E-01	8.99E-01	9.36E-01	4.25E-01
		1620.62		2.75	3.18E+00		5.06E-01	1.38E+00
	PB-212	238.63		44.60	2.97E-01	2.97E-01	1.46E+00	1.46E-01
		300.09		3.41	2.31E+00		6.49E-01	1.12E+00
+	BI-214	609.31	*	46.30	2.38E-01	2.38E-01	1.03E+00	1.14E-01
		1120.29	*	15.10	1.65E+00		1.16E+00	7.97E-01
		1764.49	*	15.80	2.84E-01		1.03E+00	1.04E-01
		2204.22		4.98	2.52E+00		-2.80E-01	1.12E+00
+	PB-214	295.21	*	19.19	5.10E-01	2.84E-01	1.05E+00	2.48E-01
		351.92	*	37.19	2.84E-01		1.24E+00	1.38E-01
	RN-219	401.80		6.50	1.12E+00	1.12E+00	2.24E-01	5.32E-01
	RA-223	323.87		3.88	1.67E+00	1.67E+00	1.94E-01	7.98E-01
	RA-224	240.98		3.95	3.43E+00	3.43E+00	1.88E+01	1.69E+00
	RA-225	40.00		31.00	3.10E+01	3.10E+01	7.32E+00	1.51E+01
+	RA-226	186.21	*	3.28	3.27E+00	3.27E+00	3.41E+00	1.61E+00
	TH-227	50.10		8.40	8.87E-01	8.87E-01	6.66E-02	4.33E-01
		236.00		11.50	9.08E-01		5.36E-03	4.45E-01
		256.20		6.30	1.01E+00		7.66E-01	4.86E-01
+	AC-228	338.32	*	11.40	8.23E-01	4.41E-01	1.84E+00	3.99E-01
		911.07	*	27.70	4.41E-01		1.81E+00	2.07E-01
		969.11		16.60	8.96E-01		8.85E-01	4.25E-01
	TH-230	48.44		16.90	4.95E-01	4.95E-01	5.27E-01	2.42E-01
		62.85		4.60	1.58E+00		1.35E+00	7.76E-01
		67.67		0.37	1.73E+01		3.79E+00	8.45E+00
	PA-231	283.67		1.60	4.16E+00	2.96E+00	-1.33E+00	2.00E+00
		302.67		2.30	2.96E+00		-1.81E-01	1.42E+00
	TH-231	25.64		14.70	2.98E+00	9.37E-01	-9.54E-01	1.45E+00

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	9.37E-01	9.37E-01	-5.50E-01	4.58E-01
	PA-233	311.98		38.60	2.00E+00	2.00E+00	-3.81E-01	9.57E-01
	PA-234	131.20		20.40	2.62E-01	2.62E-01	2.24E-01	1.27E-01
		733.99		8.80	1.02E+00		5.08E-01	4.78E-01
		946.00		12.00	8.24E-01		6.71E-02	3.81E-01
	PA-234M	1001.03		0.92	1.11E+01	1.11E+01	2.44E+00	5.12E+00
+	TH-234	63.29	*	3.80	2.18E+00	2.18E+00	1.10E+00	1.07E+00
	U-235	143.76		10.50	4.89E-01	4.89E-01	1.19E-01	2.38E-01
		163.35		4.70	1.08E+00		1.75E-01	5.24E-01
		205.31		4.70	1.44E+00		2.55E-01	6.98E-01
	NP-237	86.50		12.60	5.30E-01	5.30E-01	-1.02E-01	2.60E-01
	NP-239	106.10		22.70	5.48E+11	5.48E+11	4.03E+10	2.66E+11
		228.18		10.70	1.59E+12		4.93E+11	7.69E+11
		277.60		14.10	1.26E+12		2.62E+11	6.09E+11
	AM-241	59.54		35.90	1.92E-01	1.92E-01	6.32E-03	9.37E-02
	AM-243	74.67		66.00	1.30E-01	1.30E-01	4.93E-02	6.41E-02
	CM-243	209.75		3.29	2.10E+00	4.87E-01	7.85E-01	1.02E+00
		228.14		10.60	6.14E-01		1.90E-01	2.97E-01
		277.60		14.00	4.87E-01		1.01E-01	2.35E-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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707084-05

HTC-A01-S008-3642-01

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

Sample Title: HTC-A01-S008-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	185	174	144	148	122	108	100
17:	106	89	90	92	80	82	101	85
25:	87	87	100	87	92	92	82	92
33:	101	97	71	97	87	95	94	96
41:	93	78	86	86	100	107	178	147
49:	103	94	107	97	99	115	96	120
57:	109	131	123	153	148	130	178	199
65:	185	138	142	156	137	132	133	154
73:	166	191	290	404	350	484	280	133
81:	121	127	114	138	164	150	139	230
89:	198	161	185	143	218	226	185	103
97:	82	87	102	80	92	73	81	76
105:	76	95	95	71	86	82	64	84
113:	59	97	85	73	74	73	88	94
121:	71	68	85	70	73	83	62	82
129:	95	118	83	73	79	74	71	82
137:	82	71	55	85	67	68	84	73
145:	80	69	69	64	73	78	62	74
153:	72	77	90	84	66	56	56	67
161:	57	52	61	76	56	67	73	43
169:	57	62	60	44	74	62	57	50
177:	62	59	58	49	62	53	73	77
185:	61	121	127	93	58	59	54	51
193:	61	58	58	54	48	68	48	55
201:	59	58	56	53	63	54	52	45
209:	74	82	59	37	49	52	42	58
217:	31	44	60	50	63	55	36	48
225:	47	44	43	44	40	39	49	37
233:	40	45	43	50	64	161	370	338
241:	142	108	86	64	42	51	30	37
249:	37	42	39	31	23	46	29	37
257:	41	31	35	25	29	40	26	42
265:	42	39	27	42	39	54	71	47
273:	30	30	39	34	31	42	36	30
281:	28	33	34	33	37	29	28	32
289:	41	27	30	24	34	24	78	152
297:	80	42	32	30	41	33	28	18
305:	31	27	33	27	18	24	28	28
313:	21	20	32	25	21	30	26	29
321:	21	29	22	29	23	17	24	48
329:	45	36	34	28	19	26	20	28
337:	40	70	97	65	28	29	20	24
345:	21	20	18	25	24	39	60	155
353:	183	68	20	14	16	22	16	18
361:	8	21	22	22	28	19	21	20

369:	26	13	15	18	17	30	22	18

Sample Title: HTC-A01-S008-3642-01

Channel								
377:	18	23	15	12	22	22	23	30
385:	15	25	21	20	18	21	19	15
393:	24	21	21	10	22	18	15	22
401:	18	21	20	26	18	18	16	24
409:	19	27	21	27	20	20	13	19
417:	19	11	15	17	17	23	19	16
425:	20	28	18	22	16	20	11	14
433:	20	20	19	19	12	20	23	21
441:	13	19	14	17	14	16	22	12
449:	25	9	19	18	14	16	17	14
457:	17	18	19	21	25	18	35	25
465:	21	15	10	8	12	17	17	18
473:	16	22	11	7	15	10	19	22
481:	12	9	15	12	22	12	16	10
489:	11	13	19	19	20	17	14	12
497:	17	11	21	11	8	12	16	13
505:	11	13	14	11	12	40	57	64
513:	28	22	15	10	9	11	12	14
521:	10	10	21	11	7	8	14	11
529:	15	10	21	11	13	12	9	17
537:	5	10	13	14	14	14	12	17
545:	17	9	14	17	13	12	10	14
553:	19	15	14	9	11	12	12	12
561:	13	15	17	9	11	6	12	11
569:	17	12	15	13	10	9	14	8
577:	7	11	13	8	19	43	91	107
585:	34	13	7	15	17	11	16	20
593:	8	13	13	10	13	13	9	12
601:	13	11	10	15	3	15	18	25
609:	101	114	60	12	9	14	9	12
617:	13	7	12	12	12	11	11	3
625:	10	7	10	9	8	9	9	10
633:	19	12	1	10	10	14	14	9
641:	13	6	4	8	7	4	14	16
649:	6	10	10	10	9	14	9	8
657:	9	11	14	10	21	17	12	12
665:	16	12	6	12	11	10	11	10
673:	6	8	9	8	10	7	9	8
681:	10	9	8	9	9	11	11	11
689:	11	5	10	10	15	13	10	7
697:	15	11	9	10	11	11	13	8
705:	9	13	10	12	7	10	12	16
713:	16	12	15	13	12	12	14	14
721:	10	11	10	10	14	10	22	23
729:	20	13	6	8	11	13	11	10
737:	11	3	8	12	6	13	9	10
745:	5	6	6	10	9	4	10	14
753:	7	8	10	19	8	10	9	9
761:	7	12	4	8	12	8	14	23
769:	21	9	7	16	9	4	7	11
777:	11	5	7	8	7	19	8	7
785:	14	10	12	6	4	11	4	7
793:	11	9	17	14	14	8	12	8

801:	5	8	4	10	8	16	9	10

Sample Title: HTC-A01-S008-3642-01

Channel								
809:	9	5	8	8	8	4	4	5
817:	8	7	5	8	14	8	4	9
825:	6	11	10	9	8	8	7	9
833:	11	8	10	11	9	8	14	9
841:	12	10	9	9	8	8	8	7
849:	3	7	7	6	10	8	7	8
857:	7	4	7	12	19	17	10	8
865:	4	3	5	8	10	6	8	13
873:	9	3	12	9	6	3	4	3
881:	5	8	13	7	2	6	4	7
889:	6	7	8	7	6	5	8	7
897:	9	11	7	6	4	8	5	7
905:	12	4	1	10	15	47	54	56
913:	22	16	8	7	6	6	12	8
921:	7	7	8	6	7	6	8	4
929:	3	6	8	6	8	10	14	5
937:	6	3	6	6	5	5	7	9
945:	6	5	5	10	11	13	5	2
953:	11	8	7	8	3	6	4	11
961:	5	9	7	18	14	12	10	33
969:	27	23	8	8	5	6	4	11
977:	8	13	7	8	10	13	9	9
985:	8	9	8	5	6	5	1	7
993:	11	4	12	7	9	6	4	8
1001:	7	10	8	8	6	3	9	5
1009:	2	4	6	9	9	6	4	7
1017:	8	4	4	5	7	5	2	9
1025:	5	4	3	6	6	9	9	3
1033:	11	9	5	4	6	8	6	8
1041:	8	10	2	6	8	10	3	8
1049:	3	12	4	6	11	3	6	8
1057:	14	5	7	9	5	6	4	5
1065:	5	13	9	9	5	6	7	5
1073:	8	9	11	9	5	8	6	7
1081:	7	3	12	4	4	2	4	2
1089:	4	6	7	5	9	11	8	5
1097:	4	5	3	6	4	15	5	4
1105:	6	10	2	8	8	7	9	5
1113:	8	7	5	6	8	10	18	30
1121:	16	15	9	7	8	4	4	6
1129:	11	4	12	12	6	3	5	7
1137:	7	5	7	5	1	7	5	7
1145:	7	14	7	8	10	5	7	7
1153:	9	6	10	6	4	8	4	12
1161:	3	7	11	3	8	7	11	6
1169:	7	4	8	10	10	5	5	12
1177:	10	4	9	6	4	2	5	4
1185:	4	9	7	8	6	7	9	4
1193:	14	5	8	1	6	4	8	15
1201:	5	3	13	7	12	5	11	11
1209:	11	4	9	11	11	10	7	8
1217:	10	4	10	6	7	6	3	7
1225:	10	7	8	10	7	8	8	12

1233:	12	12	10	9	17	16	5	11

Sample Title: HTC-A01-S008-3642-01

Channel								
1241:	6	12	12	6	7	6	7	5
1249:	4	3	3	4	6	9	3	4
1257:	9	6	9	3	3	3	5	7
1265:	2	10	6	6	3	3	10	7
1273:	4	4	3	3	10	5	3	7
1281:	3	2	3	6	6	4	6	4
1289:	8	6	7	9	7	2	6	0
1297:	2	4	7	4	5	10	4	4
1305:	5	3	2	2	3	2	4	2
1313:	3	6	6	2	3	7	3	4
1321:	3	1	5	1	3	2	3	2
1329:	3	9	4	2	6	4	4	7
1337:	4	6	2	1	5	5	5	2
1345:	2	1	4	4	5	2	3	2
1353:	2	0	4	0	5	8	1	2
1361:	3	5	3	1	2	5	4	1
1369:	2	1	2	3	1	2	0	3
1377:	12	2	6	2	4	1	3	4
1385:	4	4	0	2	0	2	6	0
1393:	1	1	3	0	4	4	6	2
1401:	5	4	1	1	2	0	6	2
1409:	3	1	1	0	3	3	3	2
1417:	4	2	3	4	1	2	4	0
1425:	3	1	1	5	1	2	4	2
1433:	4	1	1	0	1	3	1	2
1441:	0	2	0	4	0	1	2	1
1449:	1	3	2	1	0	3	2	0
1457:	4	30	90	221	174	69	9	1
1465:	2	2	2	1	1	1	0	2
1473:	1	0	2	5	1	3	0	5
1481:	0	1	2	2	2	2	1	3
1489:	2	2	1	2	2	1	1	2
1497:	2	3	2	1	1	2	1	5
1505:	2	2	6	2	2	1	0	4
1513:	3	1	3	0	3	1	1	3
1521:	0	3	2	1	2	2	1	3
1529:	1	1	2	2	2	1	0	1
1537:	7	1	0	2	1	1	3	0
1545:	2	1	2	0	0	0	1	1
1553:	1	4	2	3	0	2	1	1
1561:	0	2	2	0	1	2	0	1
1569:	1	1	1	1	0	2	0	1
1577:	2	4	0	0	2	7	0	1
1585:	1	6	5	7	2	1	9	6
1593:	0	4	3	1	0	1	4	0
1601:	2	1	5	0	1	2	1	1
1609:	3	1	1	1	1	0	1	0
1617:	1	1	3	3	4	2	1	0
1625:	3	1	0	1	2	6	1	4
1633:	1	2	1	0	0	0	0	0
1641:	0	0	3	0	1	0	4	2
1649:	1	2	2	0	2	1	1	1
1657:	0	3	1	4	3	1	0	0

1665:	1	0	0	0	2	1	4	0

Sample Title: HTC-A01-S008-3642-01

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

2097:	1	1	1	1	1	2	1	1

Sample Title: HTC-A01-S008-3642-01

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

2529:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S008-3642-01

Channel								
2537:	0	0	0	0	0	0	0	0
2545:	0	1	1	0	0	0	0	0
2553:	0	1	1	0	0	0	0	0
2561:	0	0	0	0	0	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	1	0	0	0	0	0	1	0
2593:	2	0	0	0	0	0	0	0
2601:	0	0	0	0	0	0	0	0
2609:	0	2	6	23	13	14	5	0
2617:	1	1	1	0	0	1	0	0
2625:	0	0	0	0	1	0	1	0
2633:	0	0	1	0	1	1	0	0
2641:	2	0	1	1	0	0	0	0
2649:	0	0	0	0	0	0	0	1
2657:	0	0	1	0	1	0	1	0
2665:	0	0	0	0	0	0	0	1
2673:	0	1	0	0	0	0	0	0
2681:	0	0	0	2	1	0	0	1
2689:	0	1	2	0	0	0	0	1
2697:	2	0	0	0	0	1	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	1	0	0	1	0	0	0
2721:	0	1	1	0	0	0	0	0
2729:	0	0	0	0	0	1	0	1
2737:	0	1	0	1	0	0	4	0
2745:	0	0	0	0	0	0	0	0
2753:	1	0	0	0	0	0	1	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	1	1	0	0	0
2777:	1	0	0	0	1	0	0	1
2785:	0	0	0	1	0	0	0	0
2793:	0	0	0	0	0	0	0	1
2801:	0	0	0	0	0	1	0	1
2809:	0	0	0	0	0	2	0	0
2817:	0	0	0	0	0	2	0	0
2825:	0	0	0	0	0	0	0	1
2833:	0	0	0	0	0	1	0	0
2841:	0	1	0	0	1	0	0	0
2849:	0	0	0	0	0	0	0	1
2857:	1	0	0	0	0	0	0	0
2865:	1	0	1	0	0	0	0	0
2873:	0	0	0	1	0	0	0	0
2881:	0	1	0	0	0	0	1	0
2889:	0	0	0	0	1	0	0	0
2897:	0	1	0	0	0	0	1	0
2905:	0	0	1	0	0	0	0	1
2913:	0	0	1	1	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	0	0	0	0	0	1	1	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	1	0	0	0	0

Sample Title: HTC-A01-S008-3642-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S008-3642-01

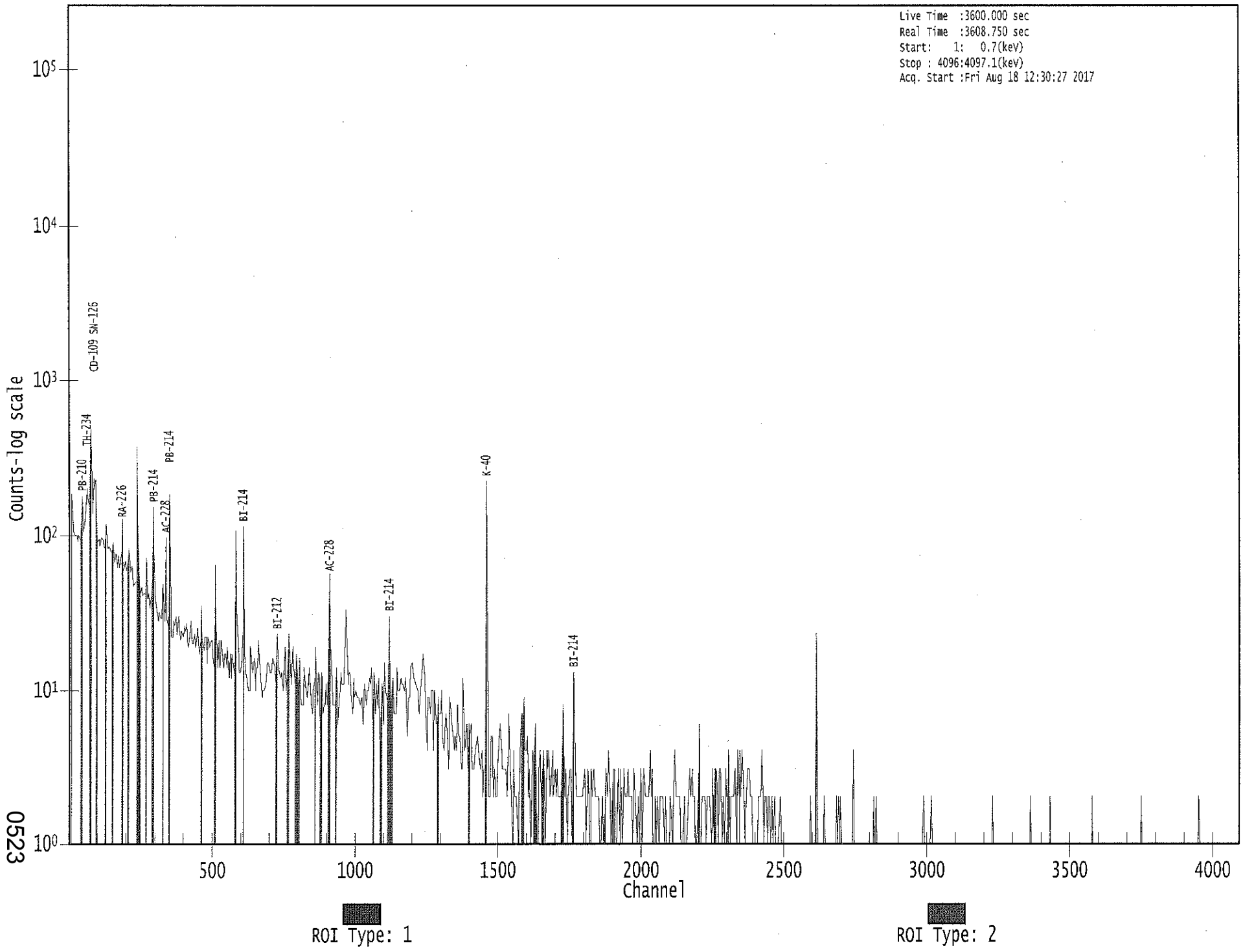
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	1	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	2	1
3433:	0	0	0	0	0	0	1	0
3441:	0	0	1	1	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	1	0	0	0	0	1	0
3473:	1	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	1	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A01-S008-3642-01

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

0000055514.CNF



0523

KB 8/21/17

Apex-Gamma

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-06
Sample Description	: HTC-A01-S008-4248-01
Sample Type	: SOIL
Sample Size	: 5.793E+02 grams
Facility	: Countroom
Sample Taken On	: 5/13/2017 9:05:24AM
Acquisition Started	: 8/18/2017 1:36:35PM
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)	: 10 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55519

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/21/17

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 2:37:02PM
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	40.49	40.80	0.0000	0.00
2	64.23	64.54	0.0000	0.00
3	76.59	76.89	0.0000	0.00
4	87.93	88.23	0.0000	0.00
5	93.32	93.62	0.0000	0.00
6	186.59	186.86	0.0000	0.00
7	210.47	210.73	0.0000	0.00
8	225.99	226.24	0.0000	0.00
9	239.67	239.92	0.0000	0.00
10	270.43	270.67	0.0000	0.00
11	278.13	278.36	0.0000	0.00
12	295.55	295.78	0.0000	0.00
13	339.05	339.26	0.0000	0.00
14	352.43	352.64	0.0000	0.00
15	463.23	463.40	0.0000	0.00
16	511.30	511.46	0.0000	0.00
17	583.46	583.59	0.0000	0.00
18	588.78	588.91	0.0000	0.00
19	609.54	609.66	0.0000	0.00
20	662.66	662.77	0.0000	0.00
21	728.50	728.58	0.0000	0.00
22	766.35	766.42	0.0000	0.00
23	796.72	796.78	0.0000	0.00
24	829.19	829.24	0.0000	0.00
25	841.50	841.55	0.0000	0.00
26	862.00	862.03	0.0000	0.00
27	875.34	875.37	0.0000	0.00
28	911.20	911.22	0.0000	0.00
29	965.67	965.67	0.0000	0.00
30	968.66	968.66	0.0000	0.00
31	1119.58	1119.53	0.0000	0.00
32	1245.87	1245.78	0.0000	0.00
33	1331.45	1331.33	0.0000	0.00
34	1435.38	1435.22	0.0000	0.00
35	1438.93	1438.77	0.0000	0.00
36	1447.23	1447.07	0.0000	0.00
37	1460.39	1460.22	0.0000	0.00
38	1569.65	1569.44	0.0000	0.00
39	1591.92	1591.71	0.0000	0.00
40	1618.22	1618.00	0.0000	0.00
41	1662.03	1661.80	0.0000	0.00
42	1723.18	1722.93	0.0000	0.00

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1728.91	1728.65	0.0000	0.00
44	1749.51	1749.24	0.0000	0.00
45	1752.51	1752.24	0.0000	0.00
46	1763.50	1763.23	0.0000	0.00
47	1793.48	1793.20	0.0000	0.00
48	1911.54	1911.22	0.0000	0.00
49	1982.63	1982.29	0.0000	0.00
50	2028.19	2027.83	0.0000	0.00
51	2613.60	2613.04	0.0000	0.00
52	2910.65	2910.00	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 2:37:02PM

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	40.49	39 -	43	40.80	5.59E+01	61.02	7.84E+02	2.42
	2	64.23	61 -	68	64.54	1.51E+02	120.05	2.31E+03	2.30
	3	76.59	71 -	81	76.89	1.12E+03	163.18	2.95E+03	3.61
	4	87.93	86 -	90	88.23	7.29E+01	83.21	1.47E+03	1.19
	5	93.32	91 -	98	93.62	2.40E+02	109.69	1.77E+03	1.90
	6	186.59	183 -	192	186.86	1.89E+02	95.11	1.17E+03	1.98
	7	210.47	206 -	215	210.73	1.88E+02	81.85	8.36E+02	3.32
	8	225.99	224 -	229	226.24	7.16E+01	48.92	4.19E+02	3.83
	9	239.67	234 -	245	239.92	1.03E+03	107.00	9.14E+02	2.10
M	10	270.43	267 -	281	270.67	3.78E+01	44.07	3.78E+02	2.09
m	11	278.13	267 -	281	278.36	5.63E+01	43.75	3.21E+02	2.10
	12	295.55	291 -	299	295.78	2.06E+02	68.00	5.83E+02	1.71
	13	339.05	335 -	343	339.26	1.92E+02	57.43	3.85E+02	1.48
	14	352.43	348 -	357	352.64	3.59E+02	67.93	4.52E+02	2.17
	15	463.23	461 -	466	463.40	4.86E+01	28.76	1.23E+02	2.06
	16	511.30	506 -	517	511.46	1.82E+02	54.22	2.78E+02	2.53
M	17	583.46	579 -	591	583.59	2.24E+02	40.87	1.42E+02	2.33
m	18	588.78	579 -	591	588.91	1.89E+01	30.36	1.23E+02	2.36
	19	609.54	605 -	615	609.66	2.69E+02	52.98	2.31E+02	2.01
	20	662.66	657 -	668	662.77	4.09E+01	43.95	2.18E+02	4.67
	21	728.50	724 -	733	728.58	7.42E+01	37.91	1.58E+02	2.69
	22	766.35	760 -	774	766.42	4.92E+01	49.80	2.42E+02	6.13
	23	796.72	791 -	803	796.78	6.35E+01	37.62	1.37E+02	8.77
	24	829.19	825 -	834	829.24	2.84E+01	29.77	1.11E+02	2.05
	25	841.50	834 -	850	841.55	6.51E+01	42.15	1.44E+02	11.26
	26	862.00	856 -	869	862.03	6.02E+01	39.56	1.48E+02	6.68
	27	875.34	871 -	878	875.37	2.58E+01	24.58	8.24E+01	4.05
	28	911.20	907 -	914	911.22	1.24E+02	31.62	8.40E+01	1.92
M	29	965.67	962 -	975	965.67	2.25E+01	28.20	1.07E+02	2.85
m	30	968.66	962 -	975	968.66	6.34E+01	27.59	8.48E+01	1.91
	31	1119.58	1115 -	1124	1119.53	3.94E+01	35.31	1.57E+02	2.25
	32	1245.87	1243 -	1249	1245.78	2.35E+01	21.47	6.71E+01	3.46
	33	1331.45	1328 -	1335	1331.33	1.96E+01	14.97	2.48E+01	3.13
M	34	1435.38	1433 -	1443	1435.22	1.15E+01	6.93	4.00E+00	2.73
m	35	1438.93	1433 -	1443	1438.77	1.11E+01	12.51	9.00E+00	3.10
	36	1447.23	1444 -	1451	1447.07	1.36E+01	11.31	1.28E+01	3.98
	37	1460.39	1455 -	1466	1460.22	6.74E+02	54.66	3.75E+01	2.44
	38	1569.65	1565 -	1572	1569.44	7.00E+00	8.72	8.00E+00	1.60
	39	1591.92	1587 -	1596	1591.71	2.11E+01	17.86	2.99E+01	1.67
	40	1618.22	1614 -	1621	1618.00	7.00E+00	8.72	8.00E+00	1.28

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1662.03	1656 -	1666	1661.80	1.09E+01	12.91	1.62E+01	2.83
	42	1723.18	1721 -	1725	1722.93	5.80E+00	8.06	8.40E+00	2.76
	43	1728.91	1726 -	1732	1728.65	9.50E+00	8.75	7.00E+00	1.45
M	44	1749.51	1748 -	1755	1749.24	7.49E+00	3.46	0.00E+00	2.69
m	45	1752.51	1748 -	1755	1752.24	1.27E+01	6.32	0.00E+00	2.69
	46	1763.50	1757 -	1767	1763.23	3.90E+01	12.49	0.00E+00	3.38
	47	1793.48	1790 -	1795	1793.20	3.40E+00	5.39	3.20E+00	1.10
	48	1911.54	1907 -	1914	1911.22	9.00E+00	6.00	0.00E+00	3.23
	49	1982.63	1979 -	1985	1982.29	7.00E+00	5.29	0.00E+00	1.33
	50	2028.19	2024 -	2030	2027.83	6.00E+00	4.90	0.00E+00	1.98
	51	2613.60	2607 -	2619	2613.04	8.00E+01	19.35	5.98E+00	2.87
	52	2910.65	2907 -	2912	2910.00	5.00E+00	4.47	0.00E+00	1.50

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 : 8/18/2017 2:37:02PM

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	40.49	39 -	43	5.59E+01	61.02	7.84E+02	4.86E+01
	2	64.23	61 -	68	1.51E+02	120.05	2.31E+03	9.66E+01
	3	76.59	71 -	81	1.12E+03	163.18	2.95E+03	1.22E+02
	4	87.93	86 -	90	7.29E+01	83.21	1.47E+03	6.69E+01
	5	93.32	91 -	98	2.40E+02	109.69	1.77E+03	8.65E+01
	6	186.59	183 -	192	1.89E+02	95.11	1.17E+03	7.48E+01
	7	210.47	206 -	215	1.88E+02	81.85	8.36E+02	6.34E+01
	8	225.99	224 -	229	7.16E+01	48.92	4.19E+02	3.77E+01
	9	239.67	234 -	245	1.03E+03	107.00	9.14E+02	7.04E+01
M	10	270.43	267 -	281	3.78E+01	44.07	3.78E+02	3.19E+01
m	11	278.13	267 -	281	5.63E+01	43.75	3.21E+02	2.95E+01
	12	295.55	291 -	299	2.06E+02	68.00	5.83E+02	5.07E+01
	13	339.05	335 -	343	1.92E+02	57.43	3.85E+02	4.14E+01
	14	352.43	348 -	357	3.59E+02	67.93	4.52E+02	4.63E+01
	15	463.23	461 -	466	4.86E+01	28.76	1.23E+02	2.07E+01
	16	511.30	506 -	517	1.82E+02	54.22	2.78E+02	3.87E+01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	17	583.46	579 -	591	2.24E+02	40.87	1.42E+02	1.96E+01
m	18	588.78	579 -	591	1.89E+01	30.36	1.23E+02	1.82E+01
	19	609.54	605 -	615	2.69E+02	52.98	2.31E+02	3.42E+01
	20	662.66	657 -	668	4.09E+01	43.95	2.18E+02	3.46E+01
	21	728.50	724 -	733	7.42E+01	37.91	1.58E+02	2.78E+01
	22	766.35	760 -	774	4.92E+01	49.80	2.42E+02	3.93E+01
	23	796.72	791 -	803	6.35E+01	37.62	1.37E+02	2.80E+01
	24	829.19	825 -	834	2.84E+01	29.77	1.11E+02	2.28E+01
	25	841.50	834 -	850	6.51E+01	42.15	1.44E+02	3.20E+01
	26	862.00	856 -	869	6.02E+01	39.56	1.48E+02	2.99E+01
	27	875.34	871 -	878	2.58E+01	24.58	8.24E+01	1.84E+01
	28	911.20	907 -	914	1.24E+02	31.62	8.40E+01	1.85E+01
M	29	965.67	962 -	975	2.25E+01	28.20	1.07E+02	1.70E+01
m	30	968.66	962 -	975	6.34E+01	27.59	8.48E+01	1.51E+01
	31	1119.58	1115 -	1124	3.94E+01	35.31	1.57E+02	2.71E+01
	32	1245.87	1243 -	1249	2.35E+01	21.47	6.71E+01	1.57E+01
	33	1331.45	1328 -	1335	1.96E+01	14.97	2.48E+01	9.92E+00
M	34	1435.38	1433 -	1443	1.15E+01	6.93	4.00E+00	3.29E+00
m	35	1438.93	1433 -	1443	1.11E+01	12.51	9.00E+00	4.93E+00
	36	1447.23	1444 -	1451	1.36E+01	11.31	1.28E+01	7.05E+00
	37	1460.39	1455 -	1466	6.74E+02	54.66	3.75E+01	1.40E+01
	38	1569.65	1565 -	1572	7.00E+00	8.72	8.00E+00	5.70E+00
	39	1591.92	1587 -	1596	2.11E+01	17.86	2.99E+01	1.26E+01
	40	1618.22	1614 -	1621	7.00E+00	8.72	8.00E+00	5.70E+00
	41	1662.03	1656 -	1666	1.09E+01	12.91	1.62E+01	9.12E+00
	42	1723.18	1721 -	1725	5.80E+00	8.06	8.40E+00	5.31E+00
	43	1728.91	1726 -	1732	9.50E+00	8.75	7.00E+00	5.10E+00
M	44	1749.51	1748 -	1755	7.49E+00	3.46	0.00E+00	0.00E+00
m	45	1752.51	1748 -	1755	1.27E+01	6.32	0.00E+00	0.00E+00
	46	1763.50	1757 -	1767	3.90E+01	12.49	0.00E+00	0.00E+00
	47	1793.48	1790 -	1795	3.40E+00	5.39	3.20E+00	3.23E+00
	48	1911.54	1907 -	1914	9.00E+00	6.00	0.00E+00	0.00E+00
	49	1982.63	1979 -	1985	7.00E+00	5.29	0.00E+00	0.00E+00
	50	2028.19	2024 -	2030	6.00E+00	4.90	0.00E+00	0.00E+00
	51	2613.60	2607 -	2619	8.00E+01	19.35	5.98E+00	6.05E+00
	52	2910.65	2907 -	2912	5.00E+00	4.47	0.00E+00	0.00E+00

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

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 2:37:02PM

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	40.49	39 -	43	40.80	5.59E+01	61.02	7.84E+02	RA-225
									I-129
	2	64.23	61 -	68	64.54	1.51E+02	120.05	2.31E+03	TH-234
	3	76.59	71 -	81	76.89	1.12E+03	163.18	2.95E+03	.....
	4	87.93	86 -	90	88.23	7.29E+01	83.21	1.47E+03	CD-109
									SN-126
									LU-176
	5	93.32	91 -	98	93.62	2.40E+02	109.69	1.77E+03	GA-67
	6	186.59	183 -	192	186.86	1.89E+02	95.11	1.17E+03	RA-226
	7	210.47	206 -	215	210.73	1.88E+02	81.85	8.36E+02	CM-243
	8	225.99	224 -	229	226.24	7.16E+01	48.92	4.19E+02	.....
	9	239.67	234 -	245	239.92	1.03E+03	107.00	9.14E+02	.....
M	10	270.43	267 -	281	270.67	3.78E+01	44.07	3.78E+02	.....
m	11	278.13	267 -	281	278.36	5.63E+01	43.75	3.21E+02	CM-243
									NP-239
	12	295.55	291 -	299	295.78	2.06E+02	68.00	5.83E+02	PB-214
	13	339.05	335 -	343	339.26	1.92E+02	57.43	3.85E+02	AC-228
	14	352.43	348 -	357	352.64	3.59E+02	67.93	4.52E+02	PB-214
	15	463.23	461 -	466	463.40	4.86E+01	28.76	1.23E+02	SB-125
	16	511.30	506 -	517	511.46	1.82E+02	54.22	2.78E+02	.....
M	17	583.46	579 -	591	583.59	2.24E+02	40.87	1.42E+02	TL-208
m	18	588.78	579 -	591	588.91	1.89E+01	30.36	1.23E+02	.....
	19	609.54	605 -	615	609.66	2.69E+02	52.98	2.31E+02	BI-214
	20	662.66	657 -	668	662.77	4.09E+01	43.95	2.18E+02	.....
	21	728.50	724 -	733	728.58	7.42E+01	37.91	1.58E+02	.....
	22	766.35	760 -	774	766.42	4.92E+01	49.80	2.42E+02	NB-95
	23	796.72	791 -	803	796.78	6.35E+01	37.62	1.37E+02	CS-134
	24	829.19	825 -	834	829.24	2.84E+01	29.77	1.11E+02	.....
	25	841.50	834 -	850	841.55	6.51E+01	42.15	1.44E+02	.....
	26	862.00	856 -	869	862.03	6.02E+01	39.56	1.48E+02	.....
	27	875.34	871 -	878	875.37	2.58E+01	24.58	8.24E+01	.....
	28	911.20	907 -	914	911.22	1.24E+02	31.62	8.40E+01	AC-228
									TL-204
M	29	965.67	962 -	975	965.67	2.25E+01	28.20	1.07E+02	.....
m	30	968.66	962 -	975	968.66	6.34E+01	27.59	8.48E+01	AC-228
	31	1119.58	1115 -	1124	1119.53	3.94E+01	35.31	1.57E+02	BI-214
									SC-46
	32	1245.87	1243 -	1249	1245.78	2.35E+01	21.47	6.71E+01	.....
	33	1331.45	1328 -	1335	1331.33	1.96E+01	14.97	2.48E+01	.....
M	34	1435.38	1433 -	1443	1435.22	1.15E+01	6.93	4.00E+00	LA-138
m	35	1438.93	1433 -	1443	1438.77	1.11E+01	12.51	9.00E+00	..

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	36	1447.23	1444 -	1451	1447.07	1.36E+01	11.31	1.28E+01	.....
	37	1460.39	1455 -	1466	1460.22	6.74E+02	54.66	3.75E+01	K-40
	38	1569.65	1565 -	1572	1569.44	7.00E+00	8.72	8.00E+00	.....
	39	1591.92	1587 -	1596	1591.71	2.11E+01	17.86	2.99E+01	.....
	40	1618.22	1614 -	1621	1618.00	7.00E+00	8.72	8.00E+00	.....
	41	1662.03	1656 -	1666	1661.80	1.09E+01	12.91	1.62E+01	.....
	42	1723.18	1721 -	1725	1722.93	5.80E+00	8.06	8.40E+00	.....
	43	1728.91	1726 -	1732	1728.65	9.50E+00	8.75	7.00E+00	.....
M	44	1749.51	1748 -	1755	1749.24	7.49E+00	3.46	0.00E+00	.....
m	45	1752.51	1748 -	1755	1752.24	1.27E+01	6.32	0.00E+00	.....
	46	1763.50	1757 -	1767	1763.23	3.90E+01	12.49	0.00E+00	BI-214
	47	1793.48	1790 -	1795	1793.20	3.40E+00	5.39	3.20E+00	.....
	48	1911.54	1907 -	1914	1911.22	9.00E+00	6.00	0.00E+00	.....
	49	1982.63	1979 -	1985	1982.29	7.00E+00	5.29	0.00E+00	.....
	50	2028.19	2024 -	2030	2027.83	6.00E+00	4.90	0.00E+00	.....
	51	2613.60	2607 -	2619	2613.04	8.00E+01	19.35	5.98E+00	.....
	52	2910.65	2907 -	2912	2910.00	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 : 8/18/2017 2:37:02PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	40.49	5.59E+01	61.02	1.33E-02	1.73E-03
	2	64.23	1.51E+02	120.05	2.47E-02	1.81E-03
	3	76.59	1.12E+03	163.18	2.67E-02	2.05E-03
	4	87.93	7.29E+01	83.21	2.72E-02	2.26E-03
	5	93.32	2.40E+02	109.69	2.71E-02	2.24E-03
	6	186.59	1.89E+02	95.11	1.96E-02	1.55E-03
	7	210.47	1.88E+02	81.85	1.78E-02	1.45E-03
	8	225.99	7.16E+01	48.92	1.69E-02	1.39E-03
	9	239.67	1.03E+03	107.00	1.61E-02	1.34E-03
M	10	270.43	3.78E+01	44.07	1.45E-02	1.21E-03
m	11	278.13	5.63E+01	43.75	1.42E-02	1.18E-03
	12	295.55	2.06E+02	68.00	1.35E-02	1.15E-03
	13	339.05	1.92E+02	57.43	1.19E-02	1.06E-03

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	14	352.43	3.59E+02	67.93	1.15E-02	1.03E-03
	15	463.23	4.86E+01	28.76	9.02E-03	8.58E-04
	16	511.30	1.82E+02	54.22	8.25E-03	7.94E-04
M	17	583.46	2.24E+02	40.87	7.32E-03	6.98E-04
m	18	588.78	1.89E+01	30.36	7.26E-03	6.91E-04
	19	609.54	2.69E+02	52.98	7.04E-03	6.64E-04
	20	662.66	4.09E+01	43.95	6.53E-03	5.94E-04
	21	728.50	7.42E+01	37.91	6.00E-03	5.36E-04
	22	766.35	4.92E+01	49.80	5.73E-03	5.02E-04
	23	796.72	6.35E+01	37.62	5.54E-03	4.75E-04
	24	829.19	2.84E+01	29.77	5.35E-03	4.47E-04
	25	841.50	6.51E+01	42.15	5.28E-03	4.36E-04
	26	862.00	6.02E+01	39.56	5.17E-03	4.18E-04
	27	875.34	2.58E+01	24.58	5.10E-03	4.06E-04
	28	911.20	1.24E+02	31.62	4.92E-03	3.84E-04
M	29	965.67	2.25E+01	28.20	4.68E-03	3.75E-04
m	30	968.66	6.34E+01	27.59	4.67E-03	3.74E-04
	31	1119.58	3.94E+01	35.31	4.12E-03	3.50E-04
	32	1245.87	2.35E+01	21.47	3.77E-03	3.20E-04
	33	1331.45	1.96E+01	14.97	3.57E-03	2.96E-04
M	34	1435.38	1.15E+01	6.93	3.36E-03	2.79E-04
m	35	1438.93	1.11E+01	12.51	3.35E-03	2.79E-04
	36	1447.23	1.36E+01	11.31	3.33E-03	2.77E-04
	37	1460.39	6.74E+02	54.66	3.31E-03	2.75E-04
	38	1569.65	7.00E+00	8.72	3.13E-03	2.58E-04
	39	1591.92	2.11E+01	17.86	3.09E-03	2.54E-04
	40	1618.22	7.00E+00	8.72	3.06E-03	2.50E-04
	41	1662.03	1.09E+01	12.91	3.00E-03	2.43E-04
	42	1723.18	5.80E+00	8.06	2.92E-03	2.33E-04
	43	1728.91	9.50E+00	8.75	2.91E-03	2.32E-04
M	44	1749.51	7.49E+00	3.46	2.88E-03	2.29E-04
m	45	1752.51	1.27E+01	6.32	2.88E-03	2.28E-04
	46	1763.50	3.90E+01	12.49	2.87E-03	2.27E-04
	47	1793.48	3.40E+00	5.39	2.83E-03	2.22E-04
	48	1911.54	9.00E+00	6.00	2.71E-03	2.15E-04
	49	1982.63	7.00E+00	5.29	2.64E-03	2.15E-04
	50	2028.19	6.00E+00	4.90	2.60E-03	2.15E-04
	51	2613.60	8.00E+01	19.35	2.24E-03	2.15E-04
	52	2910.65	5.00E+00	4.47	2.13E-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 : 8/18/2017 2:37:02PM

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	40.49	5.59E+01	61.02			5.59E+01	6.10E+01
	2	64.23	1.51E+02	120.05	3.11E+01	1.15E+01	1.20E+02	1.21E+02
	3	76.59	1.12E+03	163.18			1.12E+03	1.63E+02
	4	87.93	7.29E+01	83.21			7.29E+01	8.32E+01
	5	93.32	2.40E+02	109.69	7.43E+01	4.99E+00	1.65E+02	1.10E+02
	6	186.59	1.89E+02	95.11	3.36E+01	5.83E+00	1.55E+02	9.53E+01
	7	210.47	1.88E+02	81.85			1.88E+02	8.18E+01
	8	225.99	7.16E+01	48.92			7.16E+01	4.89E+01
	9	239.67	1.03E+03	107.00	1.14E+01	5.08E+00	1.02E+03	1.07E+02
M	10	270.43	3.78E+01	44.07			3.78E+01	4.41E+01
m	11	278.13	5.63E+01	43.75			5.63E+01	4.37E+01
	12	295.55	2.06E+02	68.00			2.06E+02	6.80E+01
	13	339.05	1.92E+02	57.43	0.00E+00	0.00E+00	1.92E+02	5.74E+01
	14	352.43	3.59E+02	67.93			3.59E+02	6.79E+01
	15	463.23	4.86E+01	28.76			4.86E+01	2.88E+01
	16	511.30	1.82E+02	54.22	5.38E+01	4.80E+00	1.28E+02	5.44E+01
M	17	583.46	2.24E+02	40.87	1.58E+00	2.86E+00	2.23E+02	4.10E+01
m	18	588.78	1.89E+01	30.36			1.89E+01	3.04E+01
	19	609.54	2.69E+02	52.98	3.58E+00	2.96E+00	2.65E+02	5.31E+01
	20	662.66	4.09E+01	43.95			4.09E+01	4.40E+01
	21	728.50	7.42E+01	37.91			7.42E+01	3.79E+01
	22	766.35	4.92E+01	49.80			4.92E+01	4.98E+01
	23	796.72	6.35E+01	37.62			6.35E+01	3.76E+01
	24	829.19	2.84E+01	29.77			2.84E+01	2.98E+01
	25	841.50	6.51E+01	42.15			6.51E+01	4.21E+01
	26	862.00	6.02E+01	39.56			6.02E+01	3.96E+01
	27	875.34	2.58E+01	24.58			2.58E+01	2.46E+01
	28	911.20	1.24E+02	31.62			1.24E+02	3.16E+01
M	29	965.67	2.25E+01	28.20			2.25E+01	2.82E+01
m	30	968.66	6.34E+01	27.59			6.34E+01	2.76E+01
	31	1119.58	3.94E+01	35.31			3.94E+01	3.53E+01
	32	1245.87	2.35E+01	21.47			2.35E+01	2.15E+01
	33	1331.45	1.96E+01	14.97	1.02E+00	2.74E+00	1.86E+01	1.52E+01
M	34	1435.38	1.15E+01	6.93			1.15E+01	6.93E+00
m	35	1438.93	1.11E+01	12.51			1.11E+01	1.25E+01
	36	1447.23	1.36E+01	11.31			1.36E+01	1.13E+01
	37	1460.39	6.74E+02	54.66	3.11E+00	2.06E+00	6.71E+02	5.47E+01
	38	1569.65	7.00E+00	8.72			7.00E+00	8.72E+00
	39	1591.92	2.11E+01	17.86			2.11E+01	1.79E+01
	40	1618.22	7.00E+00	8.72			7.00E+00	8.72E+00
	41	1662.03	1.09E+01	12.91			1.09E+01	1.29E+01
	42	1723.18	5.80E+00	8.06			5.80E+00	8.06E+00
	43	1728.91	9.50E+00	8.75			9.50E+00	8.75E+00
M	44	1749.51	7.49E+00	3.46			7.49E+00	3.46E+00
m	45	1752.51	1.27E+01	6.32			1.27E+01	6.32E+00
	46	1763.50	3.90E+01	12.49			3.90E+01	1.25E+01
	47	1793.48	3.40E+00	5.39			3.40E+00	5.39E+00
	48	1911.54	9.00E+00	6.00			9.00E+00	6.00E+00
	49	1982.63	7.00E+00	5.29			7.00E+00	5.29E+00

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
50	2028.19	6.00E+00	4.90			6.00E+00	4.90E+00
51	2613.60	8.00E+01	19.35	1.69E+00	9.96E-01	7.83E+01	1.94E+01
52	2910.65	5.00E+00	4.47			5.00E+00	4.47E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 2:37:02PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.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	40.49	5.59E+01	61.02			5.59E+01	6.10E+01
	2	64.23	1.51E+02	120.05	3.11E+01	1.15E+01	1.20E+02	1.21E+02
	3	76.59	1.12E+03	163.18			1.12E+03	1.63E+02
	4	87.93	7.29E+01	83.21			7.29E+01	8.32E+01
	5	93.32	2.40E+02	109.69	7.43E+01	4.99E+00	1.65E+02	1.10E+02
	6	186.59	1.89E+02	95.11	3.36E+01	5.83E+00	1.55E+02	9.53E+01
	7	210.47	1.88E+02	81.85			1.88E+02	8.18E+01
	8	225.99	7.16E+01	48.92			7.16E+01	4.89E+01
	9	239.67	1.03E+03	107.00	1.14E+01	5.08E+00	1.02E+03	1.07E+02
M	10	270.43	3.78E+01	44.07			3.78E+01	4.41E+01
m	11	278.13	5.63E+01	43.75			5.63E+01	4.37E+01
	12	295.55	2.06E+02	68.00			2.06E+02	6.80E+01
	13	339.05	1.92E+02	57.43	0.00E+00	0.00E+00	1.92E+02	5.74E+01
	14	352.43	3.59E+02	67.93			3.59E+02	6.79E+01
	15	463.23	4.86E+01	28.76			4.86E+01	2.88E+01
	16	511.30	1.82E+02	54.22	5.38E+01	4.80E+00	1.28E+02	5.44E+01
M	17	583.46	2.24E+02	40.87	1.58E+00	2.86E+00	2.23E+02	4.10E+01
m	18	588.78	1.89E+01	30.36			1.89E+01	3.04E+01
	19	609.54	2.69E+02	52.98	3.58E+00	2.96E+00	2.65E+02	5.31E+01
	20	662.66	4.09E+01	43.95			4.09E+01	4.40E+01
	21	728.50	7.42E+01	37.91			7.42E+01	3.79E+01
	22	766.35	4.92E+01	49.80			4.92E+01	4.98E+01
	23	796.72	6.35E+01	37.62			6.35E+01	3.76E+01
	24	829.19	2.84E+01	29.77			2.84E+01	2.98E+01
	25	841.50	6.51E+01	42.15			6.51E+01	4.21E+01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	26	862.00	6.02E+01	39.56			6.02E+01	3.96E+01
	27	875.34	2.58E+01	24.58			2.58E+01	2.46E+01
	28	911.20	1.24E+02	31.62			1.24E+02	3.16E+01
M	29	965.67	2.25E+01	28.20			2.25E+01	2.82E+01
m	30	968.66	6.34E+01	27.59			6.34E+01	2.76E+01
	31	1119.58	3.94E+01	35.31			3.94E+01	3.53E+01
	32	1245.87	2.35E+01	21.47			2.35E+01	2.15E+01
	33	1331.45	1.96E+01	14.97	1.02E+00	2.74E+00	1.86E+01	1.52E+01
M	34	1435.38	1.15E+01	6.93			1.15E+01	6.93E+00
m	35	1438.93	1.11E+01	12.51			1.11E+01	1.25E+01
	36	1447.23	1.36E+01	11.31			1.36E+01	1.13E+01
	37	1460.39	6.74E+02	54.66	3.11E+00	2.06E+00	6.71E+02	5.47E+01
	38	1569.65	7.00E+00	8.72			7.00E+00	8.72E+00
	39	1591.92	2.11E+01	17.86			2.11E+01	1.79E+01
	40	1618.22	7.00E+00	8.72			7.00E+00	8.72E+00
	41	1662.03	1.09E+01	12.91			1.09E+01	1.29E+01
	42	1723.18	5.80E+00	8.06			5.80E+00	8.06E+00
	43	1728.91	9.50E+00	8.75			9.50E+00	8.75E+00
M	44	1749.51	7.49E+00	3.46			7.49E+00	3.46E+00
m	45	1752.51	1.27E+01	6.32			1.27E+01	6.32E+00
	46	1763.50	3.90E+01	12.49			3.90E+01	1.25E+01
	47	1793.48	3.40E+00	5.39			3.40E+00	5.39E+00
	48	1911.54	9.00E+00	6.00			9.00E+00	6.00E+00
	49	1982.63	7.00E+00	5.29			7.00E+00	5.29E+00
	50	2028.19	6.00E+00	4.90			6.00E+00	4.90E+00
	51	2613.60	8.00E+01	19.35	1.69E+00	9.96E-01	7.83E+01	1.94E+01
	52	2910.65	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	0.972	1460.81	*	10.67	2.46E+01	2.91E+00
NB-95	0.915	765.79	*	99.81	7.62E-01	7.73E-01
CD-109	0.998	88.03	*	3.72	1.08E+00	1.24E+00
SN-126	0.980	87.57	*	37.00	9.40E-02	1.08E-01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
LA-138	0.343	788.74		34.00		
		1435.80	*	66.00	6.73E-02	4.09E-02
BI-214	0.885	609.31	*	46.30	1.05E+00	2.33E-01
		1120.29	*	15.10	8.21E-01	7.39E-01
		1764.49	*	15.80	1.12E+00	3.68E-01
		2204.22		4.98		
PB-214	0.967	295.21	*	19.19	1.04E+00	3.53E-01
		351.92	*	37.19	1.09E+00	2.27E-01
RA-225	0.776	40.00	*	31.00	1.67E+01	1.84E+01
RA-226	0.977	186.21	*	3.28	3.14E+00	6.06E+00
AC-228	0.972	338.32	*	11.40	1.83E+00	5.71E-01
		911.07	*	27.70	1.18E+00	3.14E-01
		969.11	*	16.60	1.06E+00	4.69E-01
TH-234	0.867	63.29	*	3.80	1.66E+00	1.67E+00
CM-243	0.338	209.75	*	3.29	4.17E+00	1.85E+00
		228.14		10.60		
		277.60	*	14.00	3.70E-01	2.89E-01

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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 2:37:02PM
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	76.59	3.11878E-01	7.27		
	5	93.32	4.58806E-02	33.24	Tol.	GA-67
	8	225.99	1.98972E-02	34.15		
	9	239.67	2.82414E-01	5.27		
M	10	270.43	1.05084E-02	58.24		
	15	463.23	1.34912E-02	29.61	Tol.	SB-125
	16	511.30	3.56553E-02	21.20		
M	17	583.46	6.18747E-02	9.20	Tol.	TL-208
m	18	588.78	5.24989E-03	80.33		
	20	662.66	1.13657E-02	53.71		
	21	728.50	2.06218E-02	25.53		
	23	796.72	1.76284E-02	29.64	Sum	

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	24	829.19	7.87698E-03	52.48		
	25	841.50	1.80839E-02	32.37		
	26	862.00	1.67185E-02	32.86		
	27	875.34	7.16211E-03	47.66		
M	29	965.67	6.25523E-03	62.61		
	32	1245.87	6.52047E-03	45.72	Sum	
	33	1331.45	5.15868E-03	40.97		
m	35	1438.93	3.09320E-03	56.17		
	36	1447.23	3.78472E-03	41.52		
	38	1569.65	1.94444E-03	62.27		
	39	1591.92	5.85262E-03	42.39		
	40	1618.22	1.94444E-03	62.27		
	41	1662.03	3.02632E-03	59.26		
	42	1723.18	1.61111E-03	69.50		
	43	1728.91	2.63889E-03	46.03	Sum	
M	44	1749.51	2.08039E-03	23.13		
m	45	1752.51	3.52639E-03	24.91		
	47	1793.48	9.44444E-04	79.19		
	48	1911.54	2.50000E-03	33.33		
	49	1982.63	1.94444E-03	37.80		
	50	2028.19	1.66667E-03	40.82		
	51	2613.60	2.17550E-02	12.37		
	52	2910.65	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	0.97	1460.81	*	10.67	2.46E+01	2.91E+00
NB-95	0.91	765.79	*	99.81	7.62E-01	7.73E-01
CD-109	0.99	88.03	*	3.72	1.08E+00	1.24E+00
SN-126	0.98	87.57	*	37.00	9.40E-02	1.08E-01
LA-138	0.34	788.74		34.00		

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
LA-138	0.34	1435.80	*	66.00	6.73E-02	4.09E-02
BI-214	0.88	609.31	*	46.30	1.05E+00	2.33E-01
		1120.29	*	15.10	8.21E-01	7.39E-01
		1764.49	*	15.80	1.12E+00	3.68E-01
		2204.22		4.98		
PB-214	0.96	295.21	*	19.19	1.04E+00	3.53E-01
		351.92	*	37.19	1.09E+00	2.27E-01
RA-225	0.77	40.00	*	31.00	1.67E+01	1.84E+01
RA-226	0.97	186.21	*	3.28	3.14E+00	6.06E+00
AC-228	0.97	338.32	*	11.40	1.83E+00	5.71E-01
		911.07	*	27.70	1.18E+00	3.14E-01
		969.11	*	16.60	1.06E+00	4.69E-01
TH-234	0.86	63.29	*	3.80	1.66E+00	1.67E+00
CM-243	0.33	209.75	*	3.29	4.17E+00	1.85E+00
		228.14		10.60		
		277.60	*	14.00	3.70E-01	2.89E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.972	2.46E+01	2.91E+00	
	NB-95	0.915	7.62E-01	7.73E-01	
?	CD-109	0.998	1.08E+00	1.24E+00	
?	SN-126	0.980	9.40E-02	1.08E-01	
	LA-138	0.343	6.73E-02	4.09E-02	
	BI-214	0.885	1.05E+00	1.90E-01	
	PB-214	0.967	1.07E+00	1.91E-01	
	RA-225	0.776	1.67E+01	1.84E+01	
	RA-226	0.977	3.14E+00	6.06E+00	
	AC-228	0.972	1.26E+00	2.38E-01	
	TH-234	0.867	1.66E+00	1.67E+00	

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
CM-243	0.338	4.61E-01	2.86E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 2:37:02PM
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	76.59	3.11878E-01	7.27		
	5	93.32	4.58806E-02	33.24	Tol.	GA-67
	8	225.99	1.98972E-02	34.15		
	9	239.67	2.82414E-01	5.27		
M	10	270.43	1.05084E-02	58.24		
	15	463.23	1.34912E-02	29.61	Tol.	SB-125
	16	511.30	3.56553E-02	21.20		
M	17	583.46	6.18747E-02	9.20	Tol.	TL-208
m	18	588.78	5.24989E-03	80.33		
	20	662.66	1.13657E-02	53.71		
	21	728.50	2.06218E-02	25.53		
	23	796.72	1.76284E-02	29.64	Sum	
	24	829.19	7.87698E-03	52.48		
	25	841.50	1.80839E-02	32.37		
	26	862.00	1.67185E-02	32.86		
	27	875.34	7.16211E-03	47.66		
M	29	965.67	6.25523E-03	62.61		
	32	1245.87	6.52047E-03	45.72	Sum	
	33	1331.45	5.15868E-03	40.97		
m	35	1438.93	3.09320E-03	56.17		
	36	1447.23	3.78472E-03	41.52		
	38	1569.65	1.94444E-03	62.27		
	39	1591.92	5.85262E-03	42.39		
	40	1618.22	1.94444E-03	62.27		
	41	1662.03	3.02632E-03	59.26		
	42	1723.18	1.61111E-03	69.50		
	43	1728.91	2.63889E-03	46.03	Sum	
M	44	1749.51	2.08039E-03	23.13		
m	45	1752.51	3.52639E-03	24.91		
	47	1793.48	9.44444E-04	79.19		
	48	1911.54	2.50000E-03	33.33		
	49	1982.63	1.94444E-03	37.80		
	50	2028.19	1.66667E-03	40.82		
	51	2613.60	2.17550E-02	12.37		
	52	2910.65	1.38889E-03	44.72		

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-2.17E-01	2.32E+00	2.32E+00
+		NA-22	1274.54		99.94	-2.14E-02	1.18E-01	1.18E-01
+	@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@		2754.09		99.86	1.00E+26		1.00E+26
+		AL-26	1808.65		99.76	-1.67E-02	5.54E-02	5.54E-02
+		K-40	1460.81	*	10.67	2.46E+01	1.16E+00	1.16E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	7.93E-03	7.09E-02	7.09E-02
			78.34		96.00	1.98E-01		8.65E-02
+		SC-46	889.25		99.98	3.17E-02	2.20E-01	2.20E-01
			1120.51		99.99	2.50E-01		3.40E-01
+		V-48	983.52		99.98	8.49E-01	7.18E+00	7.18E+00
			1312.10		97.50	3.91E+00		7.95E+00
+		CR-51	320.08		9.83	-1.04E+00	7.81E+00	7.81E+00
+		MN-54	834.83		99.97	-3.16E-02	1.14E-01	1.14E-01
+		CO-56	846.75		99.96	2.98E-02	2.16E-01	2.16E-01
			1037.75		14.03	4.33E-02		1.73E+00
			1238.25		67.00	3.61E-01		5.07E-01
			1771.40		15.51	1.38E-01		9.70E-01
			2598.48		16.90	-1.34E-01		8.65E-01
+		CO-57	122.06		85.51	-3.20E-02	6.84E-02	6.84E-02
			136.48		10.60	2.81E-02		6.10E-01
+		CO-58	810.76		99.40	-1.54E-01	2.16E-01	2.16E-01
+		FE-59	1099.22		56.50	-7.44E-02	8.50E-01	8.50E-01
			1291.56		43.20	2.58E-01		1.17E+00
+		CO-60	1173.22		100.00	1.06E-02	1.09E-01	1.26E-01
			1332.49		100.00	4.44E-02		1.09E-01
+		ZN-65	1115.52		50.75	7.17E-03	3.03E-01	3.03E-01
+		GA-67	93.31		35.70	3.39E+08	1.70E+08	1.70E+08
			208.95		2.24	2.75E+09		3.12E+09
			300.22		16.00	2.70E+08		4.72E+08
+		SE-75	121.11		16.70	-2.82E-01	1.48E-01	4.77E-01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-4.18E-02	1.48E-01	1.48E-01
		264.65		59.80	-8.59E-03		1.86E-01
		279.53		25.20	5.01E-02		4.78E-01
		400.65		11.40	7.85E-01		1.13E+00
+	RB-82	776.52		13.00	-1.72E+00	9.45E+00	9.45E+00
+	RB-83	520.41		46.00	-2.12E-01	3.68E-01	3.68E-01
		529.64		30.30	-3.45E-01		5.45E-01
		552.65		16.40	-1.56E-01		1.03E+00
+	KR-85	513.99		0.43	4.19E+01	2.70E+01	2.70E+01
+	SR-85	513.99		99.27	5.09E-01	3.28E-01	3.28E-01
+	Y-88	898.02		93.40	6.25E-02	1.66E-01	1.98E-01
		1836.01		99.38	-1.10E-02		1.66E-01
+	MO-93	263.06		56.72	1.27E-02	5.72E-02	1.15E-01
		684.67		99.68	-4.58E-02		7.95E-02
		1477.11		99.08	-2.30E-02		5.72E-02
+	NB-93M	16.57		9.43	3.15E+01	7.55E+01	7.55E+01
+	NB-94	702.63		100.00	-1.69E-02	8.94E-02	8.94E-02
		871.10		100.00	-4.21E-02		9.01E-02
+	NB-95	765.79	*	99.81	7.62E-01	1.26E+00	1.26E+00
+	NB-95M	235.69		25.00	1.68E+07	5.37E+07	5.37E+07
+	ZR-95	724.18		43.70	8.10E-02	4.59E-01	6.53E-01
		756.72		55.30	8.98E-02		4.59E-01
+	MO-99	181.06		6.20	5.43E+09	3.17E+10	3.97E+10
		739.58		12.80	1.30E+10		3.17E+10
		778.00		4.50	-5.20E+09		8.57E+10
+	RU-103	497.08		89.00	-3.51E-02	4.54E-01	4.54E-01
+	RU-106	621.84		9.80	2.49E-01	9.94E-01	9.94E-01
+	AG-108M	433.93		89.90	1.06E-02	7.71E-02	7.71E-02
		614.37		90.40	2.88E-03		1.04E-01
		722.95		90.50	1.05E-02		9.34E-02
+	CD-109	88.03	*	3.72	1.08E+00	2.03E+00	2.03E+00
+	AG-110M	657.75		93.14	6.93E-04	1.24E-01	1.24E-01
		677.61		10.53	5.93E-01		1.10E+00
		706.67		16.46	1.18E-01		7.19E-01
		763.93		21.98	-8.75E-02		5.99E-01
		884.67		71.63	4.64E-02		1.69E-01
		1384.27		23.94	-1.50E-01		4.61E-01
+	CD-113M	263.70		0.02	-2.56E+01	2.79E+02	2.79E+02
+	SN-113	255.12		1.93	1.27E+00	2.12E-01	6.06E+00
		391.69		64.90	1.25E-01		2.12E-01
+	TE123M	159.00		84.10	2.84E-02	1.10E-01	1.10E-01
+	SB-124	602.71		97.87	-2.08E-02	2.48E-01	2.48E-01
		645.85		7.26	1.02E+00		3.69E+00
		722.78		11.10	2.61E-01		2.33E+00
		1691.02		49.00	-1.37E-01		4.11E-01
+	I-125	35.49		6.49	-2.89E+00	6.00E+00	6.00E+00
+	SB-125	176.33		6.89	-1.49E-01	2.56E-01	8.01E-01
		427.89		29.33	1.14E-02		2.56E-01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	2.36E-01	2.56E-01	7.94E-01
		600.56		17.80	-7.53E-02		4.51E-01
		635.90		11.32	1.53E-01		8.05E-01
+	SB-126	414.70		83.30	4.81E+00	2.04E+01	2.13E+01
		666.33		99.60	-8.09E+00		2.04E+01
		695.00		99.60	6.92E+00		2.16E+01
		720.50		53.80	7.48E+00		3.56E+01
+	SN-126	87.57	*	37.00	9.40E-02	1.76E-01	1.76E-01
+	SB-127	473.00		25.00	4.07E+06	8.71E+06	1.19E+07
		685.20		35.70	-5.02E+06		8.71E+06
		783.80		14.70	1.00E+06		2.53E+07
+	I-129	29.78		57.00	-8.55E-02	4.18E-01	4.18E-01
		33.60		13.20	2.52E-01		1.18E+00
		39.58		7.52	2.54E-01		1.35E+00
+	I-131	284.30		6.05	-1.21E+03	3.37E+02	4.54E+03
		364.48		81.20	-3.96E+01		3.37E+02
		636.97		7.26	4.83E+02		5.01E+03
		722.89		1.80	2.29E+03		2.05E+04
+	TE-132	49.72		13.10	-4.59E+08	7.23E+07	5.39E+08
		228.16		88.00	-2.73E+06		7.23E+07
+	BA-133	81.00		33.00	-3.62E-02	1.73E-01	1.97E-01
		302.84		17.80	2.33E-01		4.16E-01
		356.01		60.00	-9.39E-05		1.73E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.18E+04	6.41E+04	6.41E+04
+	CS-134	563.23		8.38	6.95E-01	9.49E-02	1.17E+00
		569.32		15.43	-1.37E-01		5.81E-01
		604.70		97.60	-1.85E-02		9.49E-02
		795.84		85.40	9.71E-02		1.36E-01
		801.93		8.73	-1.86E-01		1.16E+00
+	CS-135	268.24		16.00	4.21E-02	4.28E-01	4.28E-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	-3.48E+01	1.57E+01	1.12E+02
		163.89		4.61	6.62E+00		1.91E+02
		176.55		13.56	-1.18E+01		6.38E+01
		273.65		12.66	-8.13E+01		8.82E+01
		340.57		48.50	6.72E+01		3.25E+01
		818.50		99.70	1.41E+00		1.57E+01
		1048.07		79.60	-6.53E+00		2.12E+01
		1235.34		19.70	9.92E+00		1.22E+02
+	CS-137	661.65		85.12	5.02E-02	1.15E-01	1.15E-01
+	LA-138	788.74		34.00	1.22E-01	9.55E-02	2.66E-01
		1435.80	*	66.00	6.73E-02		9.55E-02
+	CE-139	165.85		80.35	1.81E-02	1.08E-01	1.08E-01
+	BA-140	162.64		6.70	-3.05E+01	5.88E+01	1.51E+02
		304.84		4.50	-8.07E+01		2.91E+02
		423.70		3.20	-3.46E+01		4.30E+02

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	-1.29E+02	5.88E+01	6.62E+02
			537.32	25.00	-2.12E+01		5.88E+01
+		LA-140	328.77	20.50	7.89E+00	2.17E+01	7.33E+01
			487.03	45.50	5.13E+00		3.14E+01
			815.85	23.50	-2.28E+00		7.52E+01
			1596.49	95.49	2.84E-01		2.17E+01
+		CE-141	145.44	48.40	-1.97E-01	8.38E-01	8.38E-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	9.44E-03	6.00E-01	6.00E-01
+		PM-144	476.78	42.00	1.74E-02	9.41E-02	1.99E-01
			618.01	98.60	-6.83E-03		9.41E-02
			696.49	99.49	-3.18E-04		1.13E-01
+		PM-145	36.85	21.70	-2.00E-02	2.84E-01	5.38E-01
			37.36	39.70	-7.87E-02		2.84E-01
			42.30	15.10	-2.86E-01		6.07E-01
			72.40	2.31	-8.63E+00		3.08E+00
+		PM-146	453.90	39.94	-1.39E-01	1.80E-01	1.80E-01
			735.90	14.01	-1.69E-01		6.09E-01
			747.13	13.10	-3.89E-01		6.43E-01
+		ND-147	91.11	28.90	-1.02E+02	1.02E+02	1.02E+02
			531.02	13.10	-3.50E+01		2.74E+02
+		PM-149	285.90	3.10	-5.17E+12	3.50E+13	3.50E+13
+		EU-152	121.78	20.50	-1.05E-01	2.25E-01	2.25E-01
			244.69	5.40	-3.38E-01		1.48E+00
			344.27	19.13	-1.47E-01		3.56E-01
			778.89	9.20	7.96E-02		9.79E-01
			964.01	10.40	-1.82E+00		1.20E+00
			1085.78	7.22	-3.71E-01		1.44E+00
			1112.02	9.60	-2.50E-01		1.06E+00
			1407.95	14.94	1.22E-01		6.20E-01
+		GD-153	97.43	31.30	6.29E-02	2.08E-01	2.08E-01
			103.18	22.20	-3.28E-01		2.70E-01
+		EU-154	123.07	40.50	1.80E-03	1.17E-01	1.17E-01
			723.30	19.70	4.90E-02		4.38E-01
			873.19	11.50	1.99E-01		8.59E-01
			996.32	10.30	-1.27E-02		9.07E-01
			1004.76	17.90	-9.37E-02		4.94E-01
			1274.45	35.50	-5.73E-02		3.17E-01
+		EU-155	86.50	30.90	2.40E-01	2.20E-01	2.20E-01
			105.30	20.70	1.92E-02		2.36E-01
+		EU-156	811.77	10.40	-4.87E+01	6.81E+01	6.81E+01
			1153.47	7.20	-9.05E+00		1.30E+02
			1230.71	8.90	-6.25E+01		1.25E+02
+		HO-166M	184.41	72.60	1.04E-01	9.30E-02	9.30E-02
			280.45	29.60	4.66E-02		2.31E-01
			410.94	11.10	4.24E-01		7.11E-01
			711.69	54.10	5.87E-02		1.65E-01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	5.62E+00	5.52E+01	5.52E+01
+	HF-172	67.35		5.31	1.56E-01	4.66E-01	1.39E+00
		125.81		11.30	-1.28E-01		4.66E-01
+	LU-172	181.53		20.60	-4.89E+02	4.17E+03	6.45E+03
		900.72		29.81	1.51E+03		7.71E+03
		1093.66		62.50	8.05E+02		4.17E+03
+	LU-173	100.72		5.24	9.47E-01	3.68E-01	1.07E+00
		272.11		21.20	1.65E-01		3.68E-01
+	HF-175	343.40		84.00	-8.65E-02	2.09E-01	2.09E-01
+	LU-176	88.34		13.30	9.52E-02	6.59E-02	4.90E-01
		201.83		86.00	1.17E-02		6.59E-02
		306.78		94.00	-3.47E-02		6.76E-02
+	HF-181	133.02		41.70	2.76E-01	3.88E-01	6.18E-01
		345.85		17.20	-7.96E-01		1.87E+00
		482.03		82.80	-2.82E-01		3.88E-01
+	TA-182	67.75		41.20	3.27E-02	2.92E-01	2.92E-01
		1121.30		34.90	4.26E-01		7.78E-01
		1189.05		16.23	4.41E-01		1.48E+00
		1221.41		26.98	7.08E-01		9.47E-01
		1231.02		11.44	-1.04E+00		2.08E+00
+	IR-192	308.46		29.68	-3.59E-01	3.47E-01	5.32E-01
		468.07		48.10	5.60E-02		3.47E-01
+	HG-203	279.19		77.30	1.50E-01	3.77E-01	3.77E-01
+	TL-204	374.74		94.11	-1.03E-02	7.57E-02	7.57E-02
		899.15		99.16	-1.84E-02		1.02E-01
		911.74		91.10	3.41E-01		1.87E-01
+	BI-207	569.67		97.72	6.79E-03	8.52E-02	8.52E-02
		1063.62		74.90	3.19E-02		1.33E-01
+	TL-208	583.14		30.22	1.29E+00	4.84E-01	4.84E-01
		860.37		4.48	1.53E+00		2.49E+00
		2614.66		35.85	1.28E+00		7.24E-01
+	BI-210M	262.00		45.00	-1.30E-02	1.42E-01	1.42E-01
		300.00		23.00	1.99E-01		3.49E-01
+	PB-210	46.50		4.25	1.19E+00	1.99E+00	1.99E+00
+	PB-211	404.84		2.90	-1.32E+00	2.46E+00	2.46E+00
		831.96		2.90	-1.31E+00		3.27E+00
+	BI-212	727.17		11.80	1.01E+00	1.00E+00	1.00E+00
		1620.62		2.75	-3.09E-01		2.91E+00
+	PB-212	238.63		44.60	1.36E+00	2.95E-01	2.95E-01
		300.09		3.41	1.35E+00		2.35E+00
+	BI-214	609.31	*	46.30	1.05E+00	7.74E-02	2.85E-01
		1120.29	*	15.10	8.21E-01		1.19E+00
		1764.49	*	15.80	1.12E+00		7.74E-02
		2204.22		4.98	1.00E+00		2.06E+00
+	PB-214	295.21	*	19.19	1.04E+00	2.89E-01	5.22E-01
		351.92	*	37.19	1.09E+00		2.89E-01
+	RN-219	401.80		6.50	5.23E-01	1.13E+00	1.13E+00
+	RA-223	323.87		3.88	-1.91E+00	1.78E+00	1.78E+00

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.99E+01	3.43E+00	3.43E+00
+	RA-225	40.00	*	31.00	1.67E+01	2.99E+01	2.99E+01
+	RA-226	186.21	*	3.28	3.14E+00	3.11E+00	3.11E+00
+	TH-227	50.10		8.40	-7.41E-01	8.69E-01	8.69E-01
		236.00		11.50	2.87E-01		9.15E-01
		256.20		6.30	5.78E-01		1.07E+00
+	AC-228	338.32	*	11.40	1.83E+00	3.77E-01	8.14E-01
		911.07	*	27.70	1.18E+00		3.77E-01
		969.11	*	16.60	1.06E+00		1.14E+00
+	TH-230	48.44		16.90	-3.96E-04	4.61E-01	4.61E-01
		62.85		4.60	1.72E+00		1.60E+00
		67.67		0.37	2.02E+00		1.81E+01
+	PA-231	283.67		1.60	-8.57E-01	3.16E+00	3.81E+00
		302.67		2.30	1.77E+00		3.16E+00
+	TH-231	25.64		14.70	-4.98E-01	9.35E-01	3.01E+00
		84.21		6.40	2.23E-02		9.35E-01
+	PA-233	311.98		38.60	4.78E-01	2.10E+00	2.10E+00
+	PA-234	131.20		20.40	1.31E-01	2.59E-01	2.59E-01
		733.99		8.80	-1.74E-01		9.43E-01
		946.00		12.00	-3.12E-01		7.45E-01
+	PA-234M	1001.03		0.92	3.63E+00	1.01E+01	1.01E+01
+	TH-234	63.29	*	3.80	1.66E+00	2.73E+00	2.73E+00
+	U-235	143.76		10.50	-3.99E-02	4.90E-01	4.90E-01
		163.35		4.70	3.87E-02		1.12E+00
		205.31		4.70	1.81E-01		1.45E+00
+	NP-237	86.50		12.60	5.67E-01	5.19E-01	5.19E-01
+	NP-239	106.10		22.70	4.51E+10	5.53E+11	5.53E+11
		228.18		10.70	-6.26E+10		1.66E+12
		277.60		14.10	1.92E+11		1.27E+12
+	AM-241	59.54		35.90	-2.31E-02	1.85E-01	1.85E-01
+	AM-243	74.67		66.00	1.51E-02	1.27E-01	1.27E-01
+	CM-243	209.75	*	3.29	4.17E+00	6.31E-01	2.88E+00
		228.14		10.60	-2.39E-02		6.31E-01
		277.60	*	14.00	3.70E-01		9.40E-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 1707084-06

HTC-A01-S008-4248-01

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	2.32E+00	2.32E+00	-2.17E-01	1.09E+00
	NA-22	1274.54		99.94	1.18E-01	1.18E-01	-2.14E-02	5.40E-02
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	5.54E-02	5.54E-02	-1.67E-02	2.15E-02
+	K-40	1460.81	*	10.67	1.16E+00	1.16E+00	2.46E+01	5.29E-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	7.09E-02	7.09E-02	7.93E-03	3.47E-02
		78.34		96.00	8.65E-02		1.98E-01	4.26E-02
	SC-46	889.25		99.98	2.20E-01	2.20E-01	3.17E-02	1.02E-01
		1120.51		99.99	3.40E-01		2.50E-01	1.60E-01
	V-48	983.52		99.98	7.18E+00	7.18E+00	8.49E-01	3.33E+00
		1312.10		97.50	7.95E+00		3.91E+00	3.64E+00
	CR-51	320.08		9.83	7.81E+00	7.81E+00	-1.04E+00	3.74E+00
	MN-54	834.83		99.97	1.14E-01	1.14E-01	-3.16E-02	5.31E-02
	CO-56	846.75		99.96	2.16E-01	2.16E-01	2.98E-02	1.00E-01
		1037.75		14.03	1.73E+00		4.33E-02	7.97E-01
		1238.25		67.00	5.07E-01		3.61E-01	2.37E-01
		1771.40		15.51	9.70E-01		1.38E-01	3.92E-01
		2598.48		16.90	8.65E-01		-1.34E-01	3.24E-01
	CO-57	122.06		85.51	6.84E-02	6.84E-02	-3.20E-02	3.32E-02
		136.48		10.60	6.10E-01		2.81E-02	2.96E-01
	CO-58	810.76		99.40	2.16E-01	2.16E-01	-1.54E-01	9.98E-02
	FE-59	1099.22		56.50	8.50E-01	8.50E-01	-7.44E-02	3.91E-01
		1291.56		43.20	1.17E+00		2.58E-01	5.33E-01
	CO-60	1173.22		100.00	1.26E-01	1.09E-01	1.06E-02	5.85E-02
		1332.49		100.00	1.09E-01		4.44E-02	4.96E-02
	ZN-65	1115.52		50.75	3.03E-01	3.03E-01	7.17E-03	1.40E-01
	GA-67	93.31		35.70	1.70E+08	1.70E+08	3.39E+08	8.31E+07
		208.95		2.24	3.12E+09		2.75E+09	1.52E+09
		300.22		16.00	4.72E+08		2.70E+08	2.28E+08
	SE-75	121.11		16.70	4.77E-01	1.48E-01	-2.82E-01	2.31E-01
		136.00		59.20	1.48E-01		-4.18E-02	7.18E-02
		264.65		59.80	1.86E-01		-8.59E-03	8.95E-02
		279.53		25.20	4.78E-01		5.01E-02	2.30E-01
		400.65		11.40	1.13E+00		7.85E-01	5.38E-01
	RB-82	776.52		13.00	9.45E+00	9.45E+00	-1.72E+00	4.39E+00
	RB-83	520.41		46.00	3.68E-01	3.68E-01	-2.12E-01	1.74E-01
		529.64		30.30	5.45E-01		-3.45E-01	2.57E-01
		552.65		16.40	1.03E+00		-1.56E-01	4.84E-01
	KR-85	513.99		0.43	2.70E+01	2.70E+01	4.19E+01	1.30E+01
	SR-85	513.99		99.27	3.28E-01	3.28E-01	5.09E-01	1.58E-01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	1.98E-01	1.66E-01	6.25E-02	9.20E-02
		1836.01		99.38	1.66E-01		-1.10E-02	7.10E-02
	MO-93	263.06		56.72	1.15E-01	5.72E-02	1.27E-02	5.56E-02
		684.67		99.68	7.95E-02		-4.58E-02	3.69E-02
		1477.11		99.08	5.72E-02		-2.30E-02	2.31E-02
	NB-93M	16.57		9.43	7.55E+01	7.55E+01	3.15E+01	3.68E+01
	NB-94	702.63		100.00	8.94E-02	8.94E-02	-1.69E-02	4.19E-02
		871.10		100.00	9.01E-02		-4.21E-02	4.16E-02
+	NB-95	765.79	*	99.81	1.26E+00	1.26E+00	7.62E-01	6.08E-01
	NB-95M	235.69		25.00	5.37E+07	5.37E+07	1.68E+07	2.63E+07
	ZR-95	724.18		43.70	6.53E-01	4.59E-01	8.10E-02	3.07E-01
		756.72		55.30	4.59E-01		8.98E-02	2.14E-01
	MO-99	181.06		6.20	3.97E+10	3.17E+10	5.43E+09	1.92E+10
		739.58		12.80	3.17E+10		1.30E+10	1.49E+10
		778.00		4.50	8.57E+10		-5.20E+09	3.98E+10
	RU-103	497.08		89.00	4.54E-01	4.54E-01	-3.51E-02	2.14E-01
	RU-106	621.84		9.80	9.94E-01	9.94E-01	2.49E-01	4.66E-01
	AG-108M	433.93		89.90	7.71E-02	7.71E-02	1.06E-02	3.65E-02
		614.37		90.40	1.04E-01		2.88E-03	4.94E-02
		722.95		90.50	9.34E-02		1.05E-02	4.35E-02
+	CD-109	88.03	*	3.72	2.03E+00	2.03E+00	1.08E+00	9.94E-01
	AG-110M	657.75		93.14	1.24E-01	1.24E-01	6.93E-04	5.80E-02
		677.61		10.53	1.10E+00		5.93E-01	5.14E-01
		706.67		16.46	7.19E-01		1.18E-01	3.37E-01
		763.93		21.98	5.99E-01		-8.75E-02	2.81E-01
		884.67		71.63	1.69E-01		4.64E-02	7.79E-02
		1384.27		23.94	4.61E-01		-1.50E-01	2.03E-01
	CD-113M	263.70		0.02	2.79E+02	2.79E+02	-2.56E+01	1.34E+02
	SN-113	255.12		1.93	6.06E+00	2.12E-01	1.27E+00	2.92E+00
		391.69		64.90	2.12E-01		1.25E-01	1.01E-01
	TE123M	159.00		84.10	1.10E-01	1.10E-01	2.84E-02	5.31E-02
	SB-124	602.71		97.87	2.48E-01	2.48E-01	-2.08E-02	1.16E-01
		645.85		7.26	3.69E+00		1.02E+00	1.73E+00
		722.78		11.10	2.33E+00		2.61E-01	1.08E+00
		1691.02		49.00	4.11E-01		-1.37E-01	1.69E-01
	I-125	35.49		6.49	6.00E+00	6.00E+00	-2.89E+00	2.91E+00
	SB-125	176.33		6.89	8.01E-01	2.56E-01	-1.49E-01	3.87E-01
		427.89		29.33	2.56E-01		1.14E-02	1.22E-01
		463.38		10.35	7.94E-01		2.36E-01	3.77E-01
		600.56		17.80	4.51E-01		-7.53E-02	2.11E-01
		635.90		11.32	8.05E-01		1.53E-01	3.78E-01
	SB-126	414.70		83.30	2.13E+01	2.04E+01	4.81E+00	1.02E+01
		666.33		99.60	2.04E+01		-8.09E+00	9.60E+00
		695.00		99.60	2.16E+01		6.92E+00	1.02E+01
		720.50		53.80	3.56E+01		7.48E+00	1.65E+01
+	SN-126	87.57	*	37.00	1.76E-01	1.76E-01	9.40E-02	8.64E-02
	SB-127	473.00		25.00	1.19E+07	8.71E+06	4.07E+06	5.62E+06
		685.20		35.70	8.71E+06		-5.02E+06	4.05E+06
		783.80		14.70	2.53E+07		1.00E+06	1.18E+07
	I-129	29.78		57.00	4.18E-01	4.18E-01	-8.55E-02	2.03E-01
		33.60		13.20	1.18E+00		2.52E-01	5.74E-01
		39.58		7.52	1.35E+00		2.54E-01	6.56E-01
	I-131	284.30		6.05	4.54E+03	3.37E+02	-1.21E+03	2.18E+03

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	3.37E+02	3.37E+02	-3.96E+01	1.60E+02
		636.97		7.26	5.01E+03		4.83E+02	2.35E+03
		722.89		1.80	2.05E+04		2.29E+03	9.52E+03
	TE-132	49.72		13.10	5.39E+08	7.23E+07	-4.59E+08	2.63E+08
		228.16		88.00	7.23E+07		-2.73E+06	3.50E+07
	BA-133	81.00		33.00	1.97E-01	1.73E-01	-3.62E-02	9.64E-02
		302.84		17.80	4.16E-01		2.33E-01	2.00E-01
		356.01		60.00	1.73E-01		-9.39E-05	8.39E-02
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	6.41E+04	6.41E+04	-1.18E+04	3.14E+04
	CS-134	563.23		8.38	1.17E+00	9.49E-02	6.95E-01	5.53E-01
		569.32		15.43	5.81E-01		-1.37E-01	2.74E-01
		604.70		97.60	9.49E-02		-1.85E-02	4.47E-02
		795.84		85.40	1.36E-01		9.71E-02	6.42E-02
		801.93		8.73	1.16E+00		-1.86E-01	5.40E-01
	CS-135	268.24		16.00	4.28E-01	4.28E-01	4.21E-02	2.07E-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	1.57E+01	-3.48E+01	5.42E+01
		163.89		4.61	1.91E+02		6.62E+00	9.27E+01
		176.55		13.56	6.38E+01		-1.18E+01	3.08E+01
		273.65		12.66	8.82E+01		-8.13E+01	4.25E+01
		340.57		48.50	3.25E+01		6.72E+01	1.57E+01
		818.50		99.70	1.57E+01		1.41E+00	7.31E+00
		1048.07		79.60	2.12E+01		-6.53E+00	9.75E+00
		1235.34		19.70	1.22E+02		9.92E+00	5.73E+01
	CS-137	661.65		85.12	1.15E-01	1.15E-01	5.02E-02	5.45E-02
+	LA-138	788.74		34.00	2.66E-01	9.55E-02	1.22E-01	1.24E-01
		1435.80	*	66.00	9.55E-02		6.73E-02	3.98E-02
	CE-139	165.85		80.35	1.08E-01	1.08E-01	1.81E-02	5.24E-02
	BA-140	162.64		6.70	1.51E+02	5.88E+01	-3.05E+01	7.32E+01
		304.84		4.50	2.91E+02		-8.07E+01	1.40E+02
		423.70		3.20	4.30E+02		-3.46E+01	2.04E+02
		437.55		2.00	6.62E+02		-1.29E+02	3.13E+02
		537.32		25.00	5.88E+01		-2.12E+01	2.77E+01
	LA-140	328.77		20.50	7.33E+01	2.17E+01	7.89E+00	3.53E+01
		487.03		45.50	3.14E+01		5.13E+00	1.48E+01
		815.85		23.50	7.52E+01		-2.28E+00	3.50E+01
		1596.49		95.49	2.17E+01		2.84E-01	9.72E+00
	CE-141	145.44		48.40	8.38E-01	8.38E-01	-1.97E-01	4.06E-01
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	6.00E-01	6.00E-01	9.44E-03	2.91E-01
	PM-144	476.78		42.00	1.99E-01	9.41E-02	1.74E-02	9.38E-02
		618.01		98.60	9.41E-02		-6.83E-03	4.40E-02
		696.49		99.49	1.13E-01		-3.18E-04	5.32E-02
	PM-145	36.85		21.70	5.38E-01	2.84E-01	-2.00E-02	2.61E-01
		37.36		39.70	2.84E-01		-7.87E-02	1.38E-01
		42.30		15.10	6.07E-01		-2.86E-01	2.95E-01
		72.40		2.31	3.08E+00		-8.63E+00	1.51E+00
	PM-146	453.90		39.94	1.80E-01	1.80E-01	-1.39E-01	8.50E-02

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	6.09E-01	1.80E-01	-1.69E-01	2.83E-01
	747.13	13.10	6.43E-01		-3.89E-01	2.98E-01
ND-147	91.11	28.90	1.02E+02	1.02E+02	-1.02E+02	5.01E+01
	531.02	13.10	2.74E+02		-3.50E+01	1.29E+02
PM-149	285.90	3.10	3.50E+13	3.50E+13	-5.17E+12	1.68E+13
EU-152	121.78	20.50	2.25E-01	2.25E-01	-1.05E-01	1.09E-01
	244.69	5.40	1.48E+00		-3.38E-01	7.18E-01
	344.27	19.13	3.56E-01		-1.47E-01	1.70E-01
	778.89	9.20	9.79E-01		7.96E-02	4.55E-01
	964.01	10.40	1.20E+00		-1.82E+00	5.64E-01
	1085.78	7.22	1.44E+00		-3.71E-01	6.64E-01
	1112.02	9.60	1.06E+00		-2.50E-01	4.86E-01
	1407.95	14.94	6.20E-01		1.22E-01	2.75E-01
GD-153	97.43	31.30	2.08E-01	2.08E-01	6.29E-02	1.01E-01
	103.18	22.20	2.70E-01		-3.28E-01	1.31E-01
EU-154	123.07	40.50	1.17E-01	1.17E-01	1.80E-03	5.70E-02
	723.30	19.70	4.38E-01		4.90E-02	2.04E-01
	873.19	11.50	8.59E-01		1.99E-01	3.99E-01
	996.32	10.30	9.07E-01		-1.27E-02	4.15E-01
	1004.76	17.90	4.94E-01		-9.37E-02	2.25E-01
	1274.45	35.50	3.17E-01		-5.73E-02	1.45E-01
EU-155	86.50	30.90	2.20E-01	2.20E-01	2.40E-01	1.08E-01
	105.30	20.70	2.36E-01		1.92E-02	1.15E-01
EU-156	811.77	10.40	6.81E+01	6.81E+01	-4.87E+01	3.14E+01
	1153.47	7.20	1.30E+02		-9.05E+00	5.97E+01
	1230.71	8.90	1.25E+02		-6.25E+01	5.82E+01
HO-166M	184.41	72.60	9.30E-02	9.30E-02	1.04E-01	4.53E-02
	280.45	29.60	2.31E-01		4.66E-02	1.11E-01
	410.94	11.10	7.11E-01		4.24E-01	3.40E-01
	711.69	54.10	1.65E-01		5.87E-02	7.72E-02
TM-171	66.72	0.14	5.52E+01	5.52E+01	5.62E+00	2.70E+01
HF-172	67.35	5.31	1.39E+00	4.66E-01	1.56E-01	6.82E-01
	125.81	11.30	4.66E-01		-1.28E-01	2.26E-01
LU-172	181.53	20.60	6.45E+03	4.17E+03	-4.89E+02	3.13E+03
	900.72	29.81	7.71E+03		1.51E+03	3.58E+03
	1093.66	62.50	4.17E+03		8.05E+02	1.93E+03
LU-173	100.72	5.24	1.07E+00	3.68E-01	9.47E-01	5.20E-01
	272.11	21.20	3.68E-01		1.65E-01	1.78E-01
HF-175	343.40	84.00	2.09E-01	2.09E-01	-8.65E-02	9.98E-02
LU-176	88.34	13.30	4.90E-01	6.59E-02	9.52E-02	2.40E-01
	201.83	86.00	6.59E-02		1.17E-02	3.18E-02
	306.78	94.00	6.76E-02		-3.47E-02	3.24E-02
HF-181	133.02	41.70	6.18E-01	3.88E-01	2.76E-01	3.01E-01
	345.85	17.20	1.87E+00		-7.96E-01	8.92E-01
	482.03	82.80	3.88E-01		-2.82E-01	1.82E-01
TA-182	67.75	41.20	2.92E-01	2.92E-01	3.27E-02	1.43E-01
	1121.30	34.90	7.78E-01		4.26E-01	3.67E-01
	1189.05	16.23	1.48E+00		4.41E-01	6.89E-01
	1221.41	26.98	9.47E-01		7.08E-01	4.43E-01
	1231.02	11.44	2.08E+00		-1.04E+00	9.67E-01
IR-192	308.46	29.68	5.32E-01	3.47E-01	-3.59E-01	2.55E-01
	468.07	48.10	3.47E-01		5.60E-02	1.64E-01
HG-203	279.19	77.30	3.77E-01	3.77E-01	1.50E-01	1.81E-01

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	7.57E-02	7.57E-02	-1.03E-02	3.61E-02
		899.15		99.16	1.02E-01		-1.84E-02	4.71E-02
		911.74		91.10	1.87E-01		3.41E-01	8.94E-02
	BI-207	569.67		97.72	8.52E-02	8.52E-02	6.79E-03	4.02E-02
		1063.62		74.90	1.33E-01		3.19E-02	6.09E-02
	TL-208	583.14		30.22	4.84E-01	4.84E-01	1.29E+00	2.34E-01
		860.37		4.48	2.49E+00		1.53E+00	1.17E+00
		2614.66		35.85	7.24E-01		1.28E+00	3.40E-01
	BI-210M	262.00		45.00	1.42E-01	1.42E-01	-1.30E-02	6.84E-02
		300.00		23.00	3.49E-01		1.99E-01	1.69E-01
	PB-210	46.50		4.25	1.99E+00	1.99E+00	1.19E+00	9.72E-01
	PB-211	404.84		2.90	2.46E+00	2.46E+00	-1.32E+00	1.17E+00
		831.96		2.90	3.27E+00		-1.31E+00	1.52E+00
	BI-212	727.17		11.80	1.00E+00	1.00E+00	1.01E+00	4.75E-01
		1620.62		2.75	2.91E+00		-3.09E-01	1.24E+00
	PB-212	238.63		44.60	2.95E-01	2.95E-01	1.36E+00	1.45E-01
		300.09		3.41	2.35E+00		1.35E+00	1.14E+00
+	BI-214	609.31	*	46.30	2.85E-01	7.74E-02	1.05E+00	1.37E-01
		1120.29	*	15.10	1.19E+00		8.21E-01	5.66E-01
		1764.49	*	15.80	7.74E-02		1.12E+00	0.00E+00
		2204.22		4.98	2.06E+00		1.00E+00	8.86E-01
+	PB-214	295.21	*	19.19	5.22E-01	2.89E-01	1.04E+00	2.54E-01
		351.92	*	37.19	2.89E-01		1.09E+00	1.40E-01
	RN-219	401.80		6.50	1.13E+00	1.13E+00	5.23E-01	5.37E-01
	RA-223	323.87		3.88	1.78E+00	1.78E+00	-1.91E+00	8.53E-01
	RA-224	240.98		3.95	3.43E+00	3.43E+00	1.99E+01	1.69E+00
+	RA-225	40.00	*	31.00	2.99E+01	2.99E+01	1.67E+01	1.45E+01
+	RA-226	186.21	*	3.28	3.11E+00	3.11E+00	3.14E+00	1.53E+00
	TH-227	50.10		8.40	8.69E-01	8.69E-01	-7.41E-01	4.24E-01
		236.00		11.50	9.15E-01		2.87E-01	4.48E-01
		256.20		6.30	1.07E+00		5.78E-01	5.14E-01
+	AC-228	338.32	*	11.40	8.14E-01	3.77E-01	1.83E+00	3.94E-01
		911.07	*	27.70	3.77E-01		1.18E+00	1.76E-01
		969.11	*	16.60	1.14E+00		1.06E+00	5.49E-01
	TH-230	48.44		16.90	4.61E-01	4.61E-01	-3.96E-04	2.25E-01
		62.85		4.60	1.60E+00		1.72E+00	7.84E-01
		67.67		0.37	1.81E+01		2.02E+00	8.85E+00
	PA-231	283.67		1.60	3.81E+00	3.16E+00	-8.57E-01	1.83E+00
		302.67		2.30	3.16E+00		1.77E+00	1.52E+00
	TH-231	25.64		14.70	3.01E+00	9.35E-01	-4.98E-01	1.46E+00
		84.21		6.40	9.35E-01		2.23E-02	4.58E-01
	PA-233	311.98		38.60	2.10E+00	2.10E+00	4.78E-01	1.01E+00
	PA-234	131.20		20.40	2.59E-01	2.59E-01	1.31E-01	1.26E-01
		733.99		8.80	9.43E-01		-1.74E-01	4.38E-01
		946.00		12.00	7.45E-01		-3.12E-01	3.42E-01
	PA-234M	1001.03		0.92	1.01E+01	1.01E+01	3.63E+00	4.63E+00
+	TH-234	63.29	*	3.80	2.73E+00	2.73E+00	1.66E+00	1.35E+00
	U-235	143.76		10.50	4.90E-01	4.90E-01	-3.99E-02	2.38E-01
		163.35		4.70	1.12E+00		3.87E-02	5.42E-01
		205.31		4.70	1.45E+00		1.81E-01	7.04E-01
	NP-237	86.50		12.60	5.19E-01	5.19E-01	5.67E-01	2.54E-01
	NP-239	106.10		22.70	5.53E+11	5.53E+11	4.51E+10	2.69E+11
		228.18		10.70	1.66E+12		-6.26E+10	8.02E+11

Analysis Report for 1707084-06

HTC-A01-S008-4248-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	1.27E+12	5.53E+11	1.92E+11	6.10E+11
	AM-241	59.54		35.90	1.85E-01	1.85E-01	-2.31E-02	9.05E-02
	AM-243	74.67		66.00	1.27E-01	1.27E-01	1.51E-02	6.25E-02
+	CM-243	209.75	*	3.29	2.88E+00	6.31E-01	4.17E+00	1.41E+00
		228.14		10.60	6.31E-01		-2.39E-02	3.06E-01
		277.60	*	14.00	9.40E-01		3.70E-01	4.61E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A01-S008-4248-01

Elapsed Live time: 3600
Elapsed Real Time: 3608

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	158	196	163	154	112	113	97
17:	113	104	89	83	72	72	81	99
25:	82	93	87	88	101	91	82	83
33:	97	76	89	80	80	62	80	88
41:	101	96	83	84	89	120	119	129
49:	92	105	92	100	124	106	99	88
57:	114	114	112	136	132	136	173	193
65:	211	142	170	150	156	145	141	157
73:	154	181	270	379	331	455	269	139
81:	120	131	124	124	162	136	147	220
89:	168	138	154	140	194	232	142	94
97:	86	82	97	99	85	79	88	61
105:	67	103	95	78	71	81	92	84
113:	80	75	83	74	75	83	81	63
121:	68	80	49	82	75	71	68	68
129:	79	93	92	93	74	71	92	66
137:	72	69	77	76	75	77	86	69
145:	73	65	77	74	69	75	68	61
153:	73	63	56	63	73	70	68	73
161:	55	68	63	56	83	59	75	57
169:	61	62	57	52	58	49	52	55
177:	52	54	71	70	59	66	65	74
185:	59	115	149	93	59	51	52	57
193:	50	54	53	62	42	53	62	56
201:	48	54	58	64	44	56	47	49
209:	81	89	80	61	49	56	38	33
217:	53	43	44	46	56	47	30	44
225:	49	55	52	48	33	34	48	41
233:	46	38	53	41	64	123	409	307
241:	139	113	96	65	37	32	32	27
249:	34	29	28	25	37	42	40	42
257:	38	29	39	37	35	33	33	27
265:	28	41	28	34	32	43	51	32
273:	28	41	22	27	34	51	43	36
281:	18	31	27	31	18	29	29	30
289:	34	32	36	37	41	39	77	134
297:	72	39	23	39	48	40	31	29
305:	23	24	20	31	24	22	27	23
313:	20	48	22	24	23	36	22	27
321:	23	27	23	25	35	27	26	49
329:	44	25	29	30	35	31	20	23
337:	32	56	120	51	33	27	22	14
345:	16	20	25	24	27	25	52	147
353:	173	68	22	25	22	20	21	23
361:	16	18	18	18	19	14	19	16

369:	19	16	21	11	20	21	23	24

Sample Title: HTC-A01-S008-4248-01

Channel								
377:	19	19	17	28	21	12	23	21
385:	22	14	18	19	30	17	22	21
393:	19	30	23	16	19	13	24	21
401:	15	25	22	22	12	12	21	18
409:	27	26	21	23	19	24	26	10
417:	22	26	15	18	13	17	15	22
425:	18	20	14	19	18	12	14	17
433:	12	23	13	14	15	13	15	22
441:	11	15	15	16	15	20	17	14
449:	20	15	7	14	24	14	10	18
457:	13	20	23	14	12	17	33	28
465:	12	8	9	11	14	14	20	17
473:	11	16	21	8	17	9	12	8
481:	13	10	16	11	9	20	16	15
489:	13	15	19	7	15	16	12	11
497:	12	12	13	17	15	17	12	13
505:	13	8	12	21	19	33	66	63
513:	33	20	16	18	12	13	13	15
521:	14	16	12	14	18	22	13	14
529:	10	10	13	15	14	18	11	12
537:	10	12	17	7	13	17	11	16
545:	15	11	15	17	9	13	14	8
553:	10	11	15	15	18	9	11	19
561:	10	16	20	15	18	15	7	19
569:	16	11	14	10	17	10	10	10
577:	12	15	8	12	14	42	80	96
585:	40	11	11	9	18	11	8	9
593:	12	12	14	9	8	10	7	17
601:	7	11	8	9	12	13	6	29
609:	99	138	46	7	13	12	9	12
617:	8	6	12	12	10	9	12	8
625:	13	8	14	10	8	15	7	15
633:	14	15	12	11	14	12	3	10
641:	10	6	14	16	13	4	10	15
649:	11	14	9	16	6	12	11	11
657:	10	13	12	13	11	21	14	16
665:	13	15	7	5	11	17	9	7
673:	12	5	11	12	10	15	5	12
681:	12	7	7	11	10	9	7	7
689:	10	12	10	12	7	15	9	11
697:	16	14	7	11	16	11	10	8
705:	8	10	15	10	11	13	10	8
713:	7	12	11	5	5	8	6	7
721:	9	9	12	10	8	7	33	31
729:	24	12	9	10	9	2	7	8
737:	13	9	9	13	7	10	13	8
745:	9	8	5	11	11	2	10	11
753:	10	15	11	10	5	8	8	6
761:	8	9	12	20	12	6	14	17
769:	17	10	11	9	10	9	9	10
777:	11	9	3	8	10	9	8	7
785:	12	15	5	13	11	7	3	7
793:	8	20	19	14	8	6	10	9

801:	9	16	3	8	7	11	11	8

Sample Title: HTC-A01-S008-4248-01

Channel								
809:	7	3	10	8	7	5	9	11
817:	12	5	9	9	7	8	13	5
825:	5	7	10	10	8	15	13	7
833:	6	3	9	14	9	9	3	8
841:	7	13	7	8	13	11	4	8
849:	6	5	3	8	9	5	7	3
857:	8	5	12	16	18	16	6	7
865:	13	11	7	8	4	7	6	5
873:	8	12	10	10	12	4	4	4
881:	5	4	9	8	7	9	5	9
889:	5	9	7	14	4	11	8	2
897:	11	10	8	7	11	5	6	10
905:	9	6	5	6	8	30	59	32
913:	21	5	5	6	9	7	6	8
921:	4	5	5	8	3	5	11	6
929:	5	4	7	10	4	8	8	6
937:	8	6	3	2	5	7	6	8
945:	4	5	2	12	5	11	8	5
953:	12	11	6	6	7	6	4	10
961:	7	9	10	10	18	14	13	36
969:	34	20	8	7	5	6	4	9
977:	6	6	6	5	7	5	8	12
985:	5	8	11	11	7	5	5	4
993:	9	7	6	2	8	4	4	4
1001:	9	11	5	4	5	2	6	2
1009:	4	7	3	4	2	3	4	8
1017:	6	3	8	10	9	4	9	10
1025:	4	8	7	5	4	5	1	5
1033:	8	6	10	5	2	8	4	7
1041:	12	4	9	10	11	6	6	9
1049:	1	5	7	6	8	8	7	4
1057:	5	5	2	2	6	4	6	7
1065:	10	6	3	5	9	6	4	8
1073:	7	11	11	8	4	8	10	3
1081:	12	8	6	4	8	4	10	6
1089:	6	4	7	5	12	6	8	7
1097:	7	11	4	6	7	4	6	8
1105:	5	7	8	6	4	6	5	4
1113:	9	8	4	11	9	10	14	24
1121:	24	9	6	7	12	7	7	6
1129:	5	5	8	5	7	11	6	5
1137:	8	8	6	9	8	5	9	9
1145:	9	13	6	8	7	6	9	7
1153:	7	4	5	8	8	5	5	10
1161:	6	10	9	3	10	15	11	4
1169:	5	6	9	9	10	8	6	7
1177:	12	7	3	8	7	5	7	5
1185:	6	7	8	19	9	5	9	8
1193:	10	8	6	8	4	10	6	5
1201:	12	12	7	11	9	9	12	11
1209:	10	8	7	5	4	10	14	4
1217:	9	11	9	8	8	11	16	8
1225:	6	4	14	5	12	14	4	8

1233:	11	6	10	16	7	14	13	8

Sample Title: HTC-A01-S008-4248-01

Channel								
1241:	4	4	5	8	11	10	12	6
1249:	5	5	9	11	7	9	5	4
1257:	3	5	3	6	2	7	5	8
1265:	1	4	4	3	7	6	4	6
1273:	3	6	6	4	9	7	5	7
1281:	13	6	4	8	3	5	5	5
1289:	3	6	5	12	4	3	5	3
1297:	6	2	2	7	7	8	7	6
1305:	2	5	6	3	6	5	6	7
1313:	4	5	6	4	1	3	3	3
1321:	2	2	1	7	7	4	2	0
1329:	4	4	9	4	7	3	1	3
1337:	5	3	5	3	5	1	2	4
1345:	1	4	6	1	4	2	3	4
1353:	2	4	4	2	3	6	4	3
1361:	1	5	5	1	1	3	2	1
1369:	0	2	0	3	3	2	3	2
1377:	8	6	4	5	2	3	3	3
1385:	2	4	1	3	3	1	4	1
1393:	3	2	2	3	4	3	1	6
1401:	6	2	1	1	1	4	6	0
1409:	1	5	4	6	1	6	1	2
1417:	3	2	1	1	0	1	3	1
1425:	0	1	1	0	0	1	3	1
1433:	0	0	6	4	3	5	2	5
1441:	3	1	1	0	5	1	4	6
1449:	2	2	0	2	3	2	0	2
1457:	9	36	119	249	188	66	15	5
1465:	2	2	2	1	1	0	1	1
1473:	1	1	0	2	0	0	0	1
1481:	1	1	2	0	1	2	3	3
1489:	0	5	1	2	0	1	3	0
1497:	0	1	2	2	2	1	1	2
1505:	1	2	4	3	1	2	0	1
1513:	4	3	0	1	1	2	3	2
1521:	2	1	2	2	2	0	1	2
1529:	0	1	1	3	0	2	0	1
1537:	3	1	2	2	5	2	1	2
1545:	1	2	0	1	0	2	0	2
1553:	1	3	0	1	3	1	1	0
1561:	1	1	2	1	0	1	0	0
1569:	5	3	2	0	1	3	3	0
1577:	1	1	3	3	2	0	2	4
1585:	3	3	3	4	3	5	3	9
1593:	5	2	1	1	0	1	2	3
1601:	2	2	0	1	2	1	1	1
1609:	1	4	1	0	1	0	1	2
1617:	0	4	2	2	0	1	0	1
1625:	2	1	0	0	3	2	2	1
1633:	2	3	0	0	0	2	3	0
1641:	3	0	1	1	1	0	1	3
1649:	0	0	0	2	0	2	1	1
1657:	1	0	1	4	4	3	1	2

1665:	2	0	1	2	0	0	0	0

Sample Title: HTC-A01-S008-4248-01

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

2097:	2	1	2	1	5	1	4	1

Sample Title: HTC-A01-S008-4248-01

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

2529:	0	0	0	1	0	0	0	1

Sample Title: HTC-A01-S008-4248-01

Channel								
2537:	1	1	0	0	0	0	0	0
2545:	0	1	0	0	0	1	0	0
2553:	0	0	0	1	3	0	1	1
2561:	0	1	0	1	0	0	0	0
2569:	0	2	1	0	0	2	0	0
2577:	0	1	1	0	0	0	1	0
2585:	0	0	0	0	1	0	1	0
2593:	1	0	0	0	1	1	0	0
2601:	0	1	0	1	0	0	1	0
2609:	0	3	7	17	26	20	6	1
2617:	1	1	0	0	1	0	1	0
2625:	1	0	1	0	1	1	0	1
2633:	2	0	0	1	0	0	0	0
2641:	0	0	0	0	0	0	0	1
2649:	0	0	1	0	0	0	0	1
2657:	0	0	0	0	0	0	0	0
2665:	0	0	1	0	0	0	1	0
2673:	1	1	0	0	0	0	0	0
2681:	1	1	0	1	0	0	0	1
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	0	0	1	1	0
2705:	0	0	0	0	0	1	1	1
2713:	0	0	0	0	0	0	0	1
2721:	0	1	0	0	0	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	1	0	0	1	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	1	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	1	0	0	0	1	0
2777:	0	1	0	1	0	1	0	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	0	0	0	0	0	0
2801:	1	0	0	0	0	0	2	0
2809:	0	1	1	0	1	1	0	0
2817:	0	0	0	0	1	1	0	0
2825:	0	1	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	1	0	0	0	0	0	0	0
2849:	0	0	2	0	0	1	0	0
2857:	0	0	0	0	1	0	0	0
2865:	0	0	0	0	0	0	1	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	1	0
2897:	0	0	0	0	0	1	1	0
2905:	1	0	0	0	1	3	1	0
2913:	0	0	0	0	1	0	0	0
2921:	0	0	0	1	0	0	0	1
2929:	0	0	0	0	0	0	0	0
2937:	0	0	0	0	0	3	0	0
2945:	0	0	0	0	1	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	0	0	1

Sample Title: HTC-A01-S008-4248-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A01-S008-4248-01

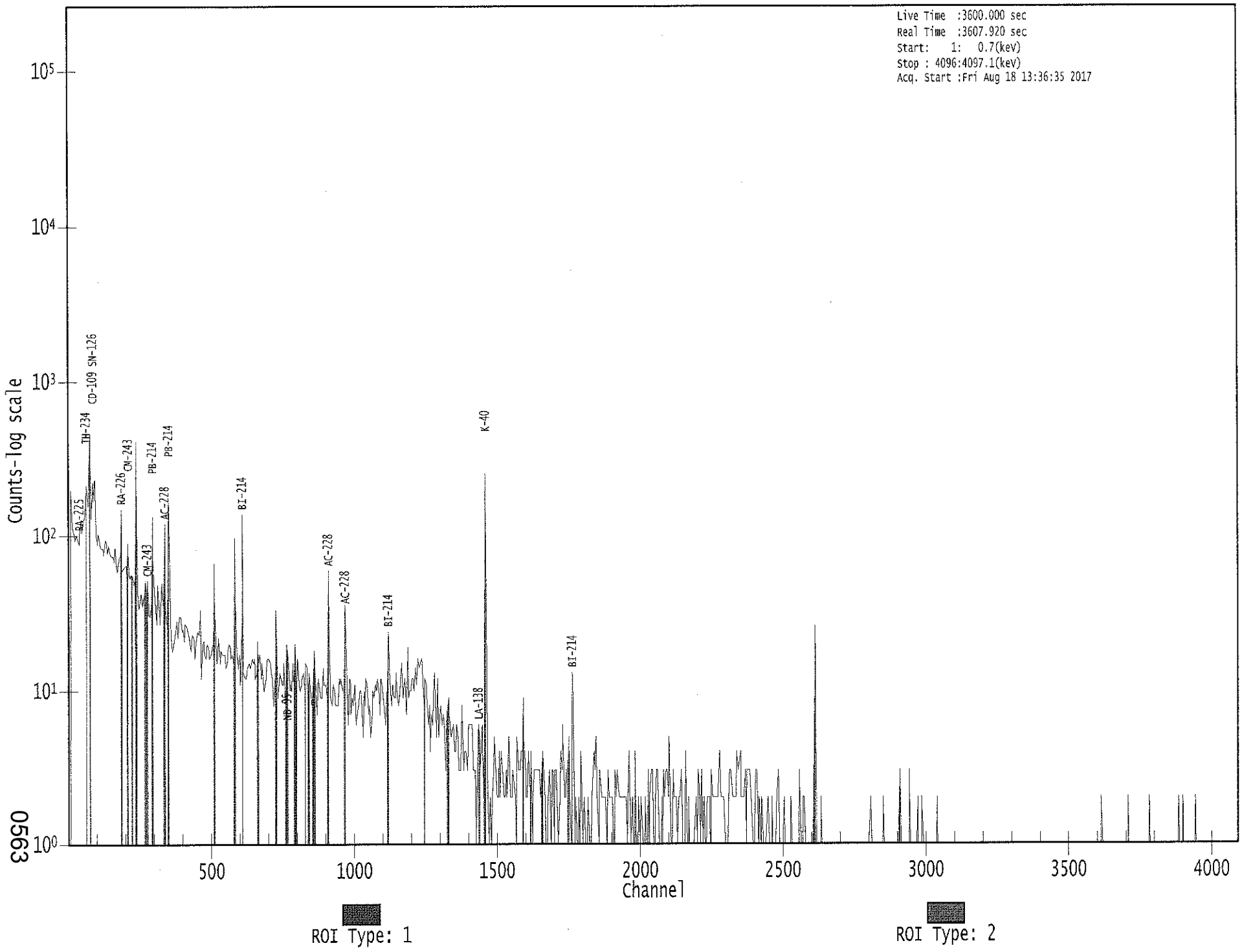
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	1	0	0	1	0	0	0
3473:	0	0	0	1	0	1	0	0
3481:	0	0	0	0	1	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	1
3505:	0	0	0	0	0	0	0	1
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	1	0
3545:	0	0	0	0	0	0	0	1
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:	1	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	1	0	0	0	1	0
3609:	0	0	0	0	2	1	1	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	0	0	0	0	0	0
3649:	0	0	0	0	0	0	0	0
3657:	0	0	0	1	0	0	0	0
3665:	0	0	0	0	0	0	0	0
3673:	0	0	0	0	0	0	0	0
3681:	1	0	0	0	0	0	0	0
3689:	0	0	1	0	0	0	1	1
3697:	0	0	0	0	0	0	0	0
3705:	1	0	0	2	0	0	0	0
3713:	0	0	0	0	0	1	0	0
3721:	0	0	0	0	0	0	0	1
3729:	0	0	0	0	0	0	1	0
3737:	0	0	0	0	0	0	0	0
3745:	1	0	0	0	0	1	0	0
3753:	0	0	0	0	0	1	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	1	2	1	0
3785:	0	0	0	0	0	0	0	0
3793:	0	1	0	1	0	0	0	0
3801:	0	0	0	0	1	1	0	0
3809:	0	0	0	0	0	0	0	0
3817:	0	0	1	0	0	0	1	0

3825:	0	0	0	0	0	1	0	0

Sample Title: HTC-A01-S008-4248-01

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

0000055519.CNF



0563

ICB 8/21/17

Apex-Gamma

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-07
Sample Description	: HTC-A02-S001-0006-01
Sample Type	: SOIL
Sample Size	: 7.618E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:05:57AM
Acquisition Started	: 8/18/2017 2:10:56PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3612.4 seconds
Dead Time	: 0.34 %
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	: 55521

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 3:11:10PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	25.13	24.17	0.0000	0.00
2	46.52	45.57	0.0000	0.00
3	53.16	52.21	0.0000	0.00
4	63.32	62.37	0.0000	0.00
5	76.48	75.53	0.0000	0.00
6	84.46	83.52	0.0000	0.00
7	87.55	86.61	0.0000	0.00
8	92.75	91.81	0.0000	0.00
9	144.09	143.17	0.0000	0.00
10	154.32	153.40	0.0000	0.00
11	163.99	163.07	0.0000	0.00
12	186.20	185.29	0.0000	0.00
13	196.71	195.80	0.0000	0.00
14	204.36	203.46	0.0000	0.00
15	242.16	241.27	0.0000	0.00
16	257.87	256.99	0.0000	0.00
17	269.86	268.98	0.0000	0.00
18	295.37	294.50	0.0000	0.00
19	329.63	328.77	0.0000	0.00
20	352.07	351.21	0.0000	0.00
21	388.34	387.50	0.0000	0.00
22	470.90	470.09	0.0000	0.00
23	481.16	480.36	0.0000	0.00
24	486.60	485.79	0.0000	0.00
25	510.58	509.78	0.0000	0.00
26	591.91	591.14	0.0000	0.00
27	609.34	608.58	0.0000	0.00
28	665.27	664.53	0.0000	0.00
29	703.27	702.54	0.0000	0.00
30	768.23	767.54	0.0000	0.00
31	785.62	784.93	0.0000	0.00
32	806.40	805.72	0.0000	0.00
33	838.40	837.73	0.0000	0.00
34	933.88	933.26	0.0000	0.00
35	963.12	962.51	0.0000	0.00
36	980.59	979.99	0.0000	0.00
37	1000.46	999.86	0.0000	0.00
38	1068.82	1068.25	0.0000	0.00
39	1071.81	1071.25	0.0000	0.00
40	1120.03	1119.49	0.0000	0.00
41	1155.05	1154.52	0.0000	0.00
42	1206.83	1206.33	0.0000	0.00

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1237.86	1237.37	0.0000	0.00
44	1280.79	1280.32	0.0000	0.00
45	1296.62	1296.16	0.0000	0.00
46	1377.33	1376.91	0.0000	0.00
47	1385.09	1384.67	0.0000	0.00
48	1401.15	1400.74	0.0000	0.00
49	1407.66	1407.26	0.0000	0.00
50	1459.90	1459.52	0.0000	0.00
51	1508.83	1508.48	0.0000	0.00
52	1537.69	1537.35	0.0000	0.00
53	1542.78	1542.45	0.0000	0.00
54	1582.87	1582.56	0.0000	0.00
55	1660.97	1660.70	0.0000	0.00
56	1683.67	1683.42	0.0000	0.00
57	1693.24	1692.98	0.0000	0.00
58	1729.36	1729.12	0.0000	0.00
59	1763.99	1763.77	0.0000	0.00
60	1837.04	1836.87	0.0000	0.00
61	1846.59	1846.42	0.0000	0.00
62	1864.70	1864.54	0.0000	0.00
63	2056.72	2056.68	0.0000	0.00
64	2117.63	2117.63	0.0000	0.00
65	2149.38	2149.39	0.0000	0.00
66	2203.32	2203.36	0.0000	0.00
67	2282.84	2282.93	0.0000	0.00
68	2293.31	2293.41	0.0000	0.00
69	2446.66	2446.87	0.0000	0.00
70	2614.03	2614.35	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 3:11:10PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	25.13	22 -	27	24.17	1.61E+02	191.00	7.15E+03	2.88
	2	46.52	42 -	49	45.57	1.04E+03	270.84	1.16E+04	2.10
	3	53.16	50 -	56	52.21	2.77E+02	262.36	1.24E+04	1.85
	4	63.32	59 -	65	62.37	2.23E+03	317.15	1.68E+04	2.31
	5	76.48	69 -	81	75.53	1.14E+04	576.20	3.36E+04	3.97
M	6	84.46	82 -	96	83.52	5.69E+02	123.62	4.87E+03	2.16
m	7	87.55	82 -	96	86.61	2.24E+03	343.70	1.79E+04	2.64
m	8	92.75	82 -	96	91.81	3.52E+03	344.10	1.59E+04	2.65
	9	144.09	140 -	146	143.17	3.29E+02	255.64	1.16E+04	1.89
	10	154.32	151 -	155	153.40	2.09E+02	194.05	8.13E+03	1.85
	11	163.99	161 -	167	163.07	3.58E+02	230.11	9.32E+03	2.89
	12	186.20	181 -	190	185.29	3.52E+03	317.32	1.23E+04	2.31
	13	196.71	193 -	199	195.80	3.55E+02	209.88	7.73E+03	3.43
	14	204.36	201 -	207	203.46	2.75E+02	200.76	7.11E+03	2.91
	15	242.16	237 -	247	241.27	3.13E+03	284.50	8.89E+03	2.30
	16	257.87	253 -	262	256.99	5.08E+02	217.72	6.46E+03	5.43
	17	269.86	266 -	273	268.98	2.05E+02	181.10	5.36E+03	2.15
	18	295.37	290 -	298	294.50	6.46E+03	240.20	4.90E+03	2.34
	19	329.63	325 -	331	328.77	1.33E+02	128.06	2.87E+03	1.59
	20	352.07	346 -	356	351.21	1.04E+04	272.15	4.31E+03	2.37
	21	388.34	384 -	391	387.50	1.30E+02	133.93	2.90E+03	3.16
	22	470.90	468 -	473	470.09	7.69E+01	79.22	1.18E+03	1.11
	23	481.16	478 -	483	480.36	7.50E+01	80.69	1.24E+03	1.78
	24	486.60	484 -	488	485.79	6.39E+01	69.92	1.03E+03	2.43
	25	510.58	506 -	514	509.78	1.88E+02	105.36	1.60E+03	3.34
	26	591.91	589 -	594	591.14	6.47E+01	64.86	7.91E+02	2.42
	27	609.34	603 -	614	608.58	7.13E+03	203.82	1.62E+03	2.43
	28	665.27	660 -	668	664.53	1.84E+02	83.99	9.71E+02	2.15
	29	703.27	697 -	706	702.54	7.10E+01	85.35	1.00E+03	3.65
	30	768.23	760 -	774	767.54	7.59E+02	124.50	1.31E+03	2.93
	31	785.62	780 -	789	784.93	1.15E+02	83.73	9.38E+02	2.70
	32	806.40	800 -	810	805.72	1.89E+02	90.87	9.99E+02	2.30
	33	838.40	834 -	842	837.73	1.37E+02	74.20	7.67E+02	3.05
	34	933.88	927 -	938	933.26	3.01E+02	98.22	1.05E+03	2.66
	35	963.12	960 -	966	962.51	4.86E+01	56.16	5.43E+02	2.54
	36	980.59	976 -	984	979.99	5.55E+01	68.54	6.89E+02	5.51
	37	1000.46	996 -	1002	999.86	4.33E+01	54.30	4.99E+02	2.58
m	38	1068.82	1062 -	1074	1068.25	6.44E+01	49.13	3.61E+02	2.35
m	39	1071.81	1062 -	1074	1071.25	6.94E+01	53.37	4.14E+02	2.74
	40	1120.03	1114 -	1125	1119.49	1.32E+03	106.43	7.53E+02	2.53

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1155.05	1150	1159	1154.52	1.61E+02	59.49	4.11E+02	2.21
	42	1206.83	1201	1212	1206.33	8.55E+01	61.64	4.33E+02	7.02
	43	1237.86	1232	1243	1237.37	4.98E+02	80.57	5.57E+02	2.77
	44	1280.79	1276	1283	1280.32	1.37E+02	50.52	3.31E+02	3.16
	45	1296.62	1294	1299	1296.16	3.10E+01	33.24	1.98E+02	1.96
M	46	1377.33	1370	1389	1376.91	3.49E+02	53.47	2.76E+02	2.42
m	47	1385.09	1370	1389	1384.67	5.37E+01	64.71	4.07E+02	4.16
M	48	1401.15	1394	1411	1400.74	1.11E+02	51.75	3.10E+02	2.85
m	49	1407.66	1394	1411	1407.26	1.74E+02	49.60	3.02E+02	2.61
	50	1459.90	1455	1464	1459.52	6.83E+01	56.24	4.07E+02	1.72
	51	1508.83	1502	1514	1508.48	1.77E+02	69.49	4.76E+02	3.75
M	52	1537.69	1531	1546	1537.35	6.24E+01	55.45	3.95E+02	3.18
m	53	1542.78	1531	1546	1542.45	3.84E+01	44.72	3.18E+02	3.18
	54	1582.87	1579	1588	1582.56	4.44E+01	45.13	2.67E+02	1.94
	55	1660.97	1655	1664	1660.70	4.64E+01	39.60	1.91E+02	2.14
	56	1683.67	1681	1686	1683.42	1.72E+01	20.78	7.36E+01	2.95
	57	1693.24	1687	1698	1692.98	5.58E+01	37.68	1.48E+02	5.31
	58	1729.36	1722	1735	1729.12	2.43E+02	45.89	1.25E+02	2.78
	59	1763.99	1756	1771	1763.77	9.66E+02	77.07	2.06E+02	2.88
M	60	1837.04	1831	1853	1836.87	2.83E+01	29.19	9.53E+01	3.60
m	61	1846.59	1831	1853	1846.42	1.32E+02	35.38	8.47E+01	3.60
	62	1864.70	1862	1867	1864.54	2.50E+01	13.78	1.80E+01	3.76
	63	2056.72	2046	2069	2056.68	5.07E+01	26.53	3.45E+01	14.96
	64	2117.63	2111	2125	2117.63	5.72E+01	31.79	8.16E+01	2.66
	65	2149.38	2144	2154	2149.39	1.60E+01	13.67	1.59E+01	5.58
	66	2203.32	2198	2208	2203.36	2.50E+02	37.56	5.50E+01	2.85
	67	2282.84	2278	2285	2282.93	4.50E+00	6.32	3.00E+00	2.70
	68	2293.31	2287	2299	2293.41	2.59E+01	12.58	6.17E+00	3.09
	69	2446.66	2440	2451	2446.87	9.70E+01	19.70	0.00E+00	3.83
	70	2614.03	2609	2618	2614.35	2.00E+01	8.94	0.00E+00	5.33

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 3:11:10PM

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

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	25.13	22 -	27	1.61E+02	191.00	7.15E+03	1.56E+02
	2	46.52	42 -	49	1.04E+03	270.84	1.16E+04	2.16E+02
	3	53.16	50 -	56	2.77E+02	262.36	1.24E+04	2.14E+02
	4	63.32	59 -	65	2.23E+03	317.15	1.68E+04	2.49E+02
	5	76.48	69 -	81	1.14E+04	576.20	3.36E+04	4.40E+02
M	6	84.46	82 -	96	5.69E+02	123.62	4.87E+03	1.15E+02
m	7	87.55	82 -	96	2.24E+03	343.70	1.79E+04	2.20E+02
m	8	92.75	82 -	96	3.52E+03	344.10	1.59E+04	2.07E+02
	9	144.09	140 -	146	3.29E+02	255.64	1.16E+04	2.08E+02
	10	154.32	151 -	155	2.09E+02	194.05	8.13E+03	1.58E+02
	11	163.99	161 -	167	3.58E+02	230.11	9.32E+03	1.87E+02
	12	186.20	181 -	190	3.52E+03	317.32	1.23E+04	2.42E+02
	13	196.71	193 -	199	3.55E+02	209.88	7.73E+03	1.70E+02
	14	204.36	201 -	207	2.75E+02	200.76	7.11E+03	1.63E+02
	15	242.16	237 -	247	3.13E+03	284.50	8.89E+03	3.09E+02
	16	257.87	253 -	262	5.08E+02	217.72	6.46E+03	1.75E+02
	17	269.86	266 -	273	2.05E+02	181.10	5.36E+03	1.47E+02
	18	295.37	290 -	298	6.46E+03	240.20	4.90E+03	1.47E+02
	19	329.63	325 -	331	1.33E+02	128.06	2.87E+03	1.04E+02
	20	352.07	346 -	356	1.04E+04	272.15	4.31E+03	1.48E+02
	21	388.34	384 -	391	1.30E+02	133.93	2.90E+03	1.08E+02
	22	470.90	468 -	473	7.69E+01	79.22	1.18E+03	6.35E+01
	23	481.16	478 -	483	7.50E+01	80.69	1.24E+03	6.48E+01
	24	486.60	484 -	488	6.39E+01	69.92	1.03E+03	5.60E+01
	25	510.58	506 -	514	1.88E+02	105.36	1.60E+03	8.36E+01
	26	591.91	589 -	594	6.47E+01	64.86	7.91E+02	5.17E+01
	27	609.34	603 -	614	7.13E+03	203.82	1.62E+03	9.38E+01
	28	665.27	660 -	668	1.84E+02	83.99	9.71E+02	6.53E+01
	29	703.27	697 -	706	7.10E+01	85.35	1.00E+03	6.88E+01
	30	768.23	760 -	774	7.59E+02	124.50	1.31E+03	9.18E+01
	31	785.62	780 -	789	1.15E+02	83.73	9.38E+02	6.65E+01
	32	806.40	800 -	810	1.89E+02	90.87	9.99E+02	7.12E+01
	33	838.40	834 -	842	1.37E+02	74.20	7.67E+02	5.79E+01
	34	933.88	927 -	938	3.01E+02	98.22	1.05E+03	7.55E+01
	35	963.12	960 -	966	4.86E+01	56.16	5.43E+02	4.47E+01
	36	980.59	976 -	984	5.55E+01	68.54	6.89E+02	5.50E+01
	37	1000.46	996 -	1002	4.33E+01	54.30	4.99E+02	4.33E+01
m	38	1068.82	1062 -	1074	6.44E+01	49.13	3.61E+02	3.12E+01
m	39	1071.81	1062 -	1074	6.94E+01	53.37	4.14E+02	3.34E+01
	40	1120.03	1114 -	1125	1.32E+03	106.43	7.53E+02	6.39E+01
	41	1155.05	1150 -	1159	1.61E+02	59.49	4.11E+02	4.42E+01
	42	1206.83	1201 -	1212	8.55E+01	61.64	4.33E+02	4.83E+01
	43	1237.86	1232 -	1243	4.98E+02	80.57	5.57E+02	5.51E+01
	44	1280.79	1276 -	1283	1.37E+02	50.52	3.31E+02	3.68E+01
	45	1296.62	1294 -	1299	3.10E+01	33.24	1.98E+02	2.57E+01
M	46	1377.33	1370 -	1389	3.49E+02	53.47	2.76E+02	2.73E+01
m	47	1385.09	1370 -	1389	5.37E+01	64.71	4.07E+02	3.32E+01
M	48	1401.15	1394 -	1411	1.11E+02	51.75	3.10E+02	2.89E+01
m	49	1407.66	1394 -	1411	1.74E+02	49.60	3.02E+02	2.86E+01
	50	1459.90	1455 -	1464	6.83E+01	56.24	4.07E+02	4.42E+01
	51	1508.83	1502 -	1514	1.77E+02	69.49	4.76E+02	5.28E+01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	52	1537.69	1531 -	1546	6.24E+01	55.45	3.95E+02	3.27E+01
m	53	1542.78	1531 -	1546	3.84E+01	44.72	3.18E+02	2.93E+01
	54	1582.87	1579 -	1588	4.44E+01	45.13	2.67E+02	3.54E+01
	55	1660.97	1655 -	1664	4.64E+01	39.60	1.91E+02	3.06E+01
	56	1683.67	1681 -	1686	1.72E+01	20.78	7.36E+01	1.57E+01
	57	1693.24	1687 -	1698	5.58E+01	37.68	1.48E+02	2.84E+01
	58	1729.36	1722 -	1735	2.43E+02	45.89	1.25E+02	2.77E+01
	59	1763.99	1756 -	1771	9.66E+02	77.07	2.06E+02	3.74E+01
M	60	1837.04	1831 -	1853	2.83E+01	29.19	9.53E+01	1.61E+01
m	61	1846.59	1831 -	1853	1.32E+02	35.38	8.47E+01	1.51E+01
	62	1864.70	1862 -	1867	2.50E+01	13.78	1.80E+01	7.80E+00
	63	2056.72	2046 -	2069	5.07E+01	26.53	3.45E+01	1.84E+01
	64	2117.63	2111 -	2125	5.72E+01	31.79	8.16E+01	2.30E+01
	65	2149.38	2144 -	2154	1.60E+01	13.67	1.59E+01	9.10E+00
	66	2203.32	2198 -	2208	2.50E+02	37.56	5.50E+01	1.67E+01
	67	2282.84	2278 -	2285	4.50E+00	6.32	3.00E+00	3.86E+00
	68	2293.31	2287 -	2299	2.59E+01	12.58	6.17E+00	6.07E+00
	69	2446.66	2440 -	2451	9.70E+01	19.70	0.00E+00	0.00E+00
	70	2614.03	2609 -	2618	2.00E+01	8.94	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 : 8/18/2017 3:11:10PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	25.13	22 -	27	24.17	1.61E+02	191.00	7.15E+03	TH-231
2	46.52	42 -	49	45.57	1.04E+03	270.84	1.16E+04	PB-210
3	53.16	50 -	56	52.21	2.77E+02	262.36	1.24E+04	.....
4	63.32	59 -	65	62.37	2.23E+03	317.15	1.68E+04	TH-234 TH-230
5	76.48	69 -	81	75.53	1.14E+04	576.20	3.36E+04	.....

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	6	84.46	82 -	96	83.52	5.69E+02	123.62	4.87E+03	TH-231
m	7	87.55	82 -	96	86.61	2.24E+03	343.70	1.79E+04	SN-126 CD-109 LU-176
m	8	92.75	82 -	96	91.81	3.52E+03	344.10	1.59E+04	GA-67
	9	144.09	140 -	146	143.17	3.29E+02	255.64	1.16E+04	U-235
	10	154.32	151 -	155	153.40	2.09E+02	194.05	8.13E+03	.....
	11	163.99	161 -	167	163.07	3.58E+02	230.11	9.32E+03	CS-136 U-235
	12	186.20	181 -	190	185.29	3.52E+03	317.32	1.23E+04	RA-226
	13	196.71	193 -	199	195.80	3.55E+02	209.88	7.73E+03	.....
	14	204.36	201 -	207	203.46	2.75E+02	200.76	7.11E+03	U-235
	15	242.16	237 -	247	241.27	3.13E+03	284.50	8.89E+03	.....
	16	257.87	253 -	262	256.99	5.08E+02	217.72	6.46E+03	.....
	17	269.86	266 -	273	268.98	2.05E+02	181.10	5.36E+03	.....
	18	295.37	290 -	298	294.50	6.46E+03	240.20	4.90E+03	PB-214
	19	329.63	325 -	331	328.77	1.33E+02	128.06	2.87E+03	LA-140
	20	352.07	346 -	356	351.21	1.04E+04	272.15	4.31E+03	PB-214
	21	388.34	384 -	391	387.50	1.30E+02	133.93	2.90E+03	.....
	22	470.90	468 -	473	470.09	7.69E+01	79.22	1.18E+03	.....
	23	481.16	478 -	483	480.36	7.50E+01	80.69	1.24E+03	HF-181
	24	486.60	484 -	488	485.79	6.39E+01	69.92	1.03E+03	LA-140
	25	510.58	506 -	514	509.78	1.88E+02	105.36	1.60E+03	.....
	26	591.91	589 -	594	591.14	6.47E+01	64.86	7.91E+02	.....
	27	609.34	603 -	614	608.58	7.13E+03	203.82	1.62E+03	BI-214
	28	665.27	660 -	668	664.53	1.84E+02	83.99	9.71E+02	CE-143
	29	703.27	697 -	706	702.54	7.10E+01	85.35	1.00E+03	NB-94
	30	768.23	760 -	774	767.54	7.59E+02	124.50	1.31E+03	.....
	31	785.62	780 -	789	784.93	1.15E+02	83.73	9.38E+02	.....
	32	806.40	800 -	810	805.72	1.89E+02	90.87	9.99E+02	.....
	33	838.40	834 -	842	837.73	1.37E+02	74.20	7.67E+02	.....
	34	933.88	927 -	938	933.26	3.01E+02	98.22	1.05E+03	.....
	35	963.12	960 -	966	962.51	4.86E+01	56.16	5.43E+02	EU-152
	36	980.59	976 -	984	979.99	5.55E+01	68.54	6.89E+02	.....
	37	1000.46	996 -	1002	999.86	4.33E+01	54.30	4.99E+02	PA-234M
m	38	1068.82	1062 -	1074	1068.25	6.44E+01	49.13	3.61E+02	.....
m	39	1071.81	1062 -	1074	1071.25	6.94E+01	53.37	4.14E+02	.....
	40	1120.03	1114 -	1125	1119.49	1.32E+03	106.43	7.53E+02	BI-214 SC-46
	41	1155.05	1150 -	1159	1154.52	1.61E+02	59.49	4.11E+02	.....
	42	1206.83	1201 -	1212	1206.33	8.55E+01	61.64	4.33E+02	.....
	43	1237.86	1232 -	1243	1237.37	4.98E+02	80.57	5.57E+02	CO-56
	44	1280.79	1276 -	1283	1280.32	1.37E+02	50.52	3.31E+02	.....
	45	1296.62	1294 -	1299	1296.16	3.10E+01	33.24	1.98E+02	.....
M	46	1377.33	1370 -	1389	1376.91	3.49E+02	53.47	2.76E+02	.....
m	47	1385.09	1370 -	1389	1384.67	5.37E+01	64.71	4.07E+02	AG-110M
M	48	1401.15	1394 -	1411	1400.74	1.11E+02	51.75	3.10E+02	.....
m	49	1407.66	1394 -	1411	1407.26	1.74E+02	49.60	3.02E+02	EU-152
	50	1459.90	1455 -	1464	1459.52	6.83E+01	56.24	4.07E+02	K-40
	51	1508.83	1502 -	1514	1508.48	1.77E+02	69.49	4.76E+02	.....
M	52	1537.69	1531 -	1546	1537.35	6.24E+01	55.45	3.95E+02	.....
m	53	1542.78	1531 -	1546	1542.45	3.84E+01	44.72	3.18E+02	.....
	54	1582.87	1579 -	1588	1582.56	4.44E+01	45.13	2.67E+02	.....
	55	1660.97	1655 -	1664	1660.70	4.64E+01	39.60	1.91E+02	.....

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	56	1683.67	1681 -	1686	1683.42	1.72E+01	20.78	7.36E+01	.....
	57	1693.24	1687 -	1698	1692.98	5.58E+01	37.68	1.48E+02	.....
	58	1729.36	1722 -	1735	1729.12	2.43E+02	45.89	1.25E+02	.....
	59	1763.99	1756 -	1771	1763.77	9.66E+02	77.07	2.06E+02	BI-214
M	60	1837.04	1831 -	1853	1836.87	2.83E+01	29.19	9.53E+01	.....
m	61	1846.59	1831 -	1853	1846.42	1.32E+02	35.38	8.47E+01	.....
	62	1864.70	1862 -	1867	1864.54	2.50E+01	13.78	1.80E+01	.....
	63	2056.72	2046 -	2069	2056.68	5.07E+01	26.53	3.45E+01	.....
	64	2117.63	2111 -	2125	2117.63	5.72E+01	31.79	8.16E+01	.....
	65	2149.38	2144 -	2154	2149.39	1.60E+01	13.67	1.59E+01	.....
	66	2203.32	2198 -	2208	2203.36	2.50E+02	37.56	5.50E+01	BI-214
	67	2282.84	2278 -	2285	2282.93	4.50E+00	6.32	3.00E+00	.....
	68	2293.31	2287 -	2299	2293.41	2.59E+01	12.58	6.17E+00	.....
	69	2446.66	2440 -	2451	2446.87	9.70E+01	19.70	0.00E+00	.....
	70	2614.03	2609 -	2618	2614.35	2.00E+01	8.94	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 : 8/18/2017 3:11:10PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	25.13	1.61E+02	191.00	5.24E-03	1.56E-03
	2	46.52	1.04E+03	270.84	1.65E-02	1.56E-03
	3	53.16	2.77E+02	262.36	1.89E-02	1.56E-03
	4	63.32	2.23E+03	317.15	2.15E-02	1.64E-03
	5	76.48	1.14E+04	576.20	2.33E-02	1.92E-03
M	6	84.46	5.69E+02	123.62	2.36E-02	2.09E-03
m	7	87.55	2.24E+03	343.70	2.37E-02	2.16E-03
m	8	92.75	3.52E+03	344.10	2.37E-02	2.09E-03
	9	144.09	3.29E+02	255.64	2.03E-02	1.57E-03
	10	154.32	2.09E+02	194.05	1.94E-02	1.54E-03
	11	163.99	3.58E+02	230.11	1.86E-02	1.50E-03
	12	186.20	3.52E+03	317.32	1.69E-02	1.40E-03
	13	196.71	3.55E+02	209.88	1.62E-02	1.35E-03
	14	204.36	2.75E+02	200.76	1.56E-02	1.31E-03
	15	242.16	3.13E+03	284.50	1.34E-02	1.13E-03

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	16	257.87	5.08E+02	217.72	1.26E-02	1.05E-03
	17	269.86	2.05E+02	181.10	1.21E-02	9.92E-04
	18	295.37	6.46E+03	240.20	1.10E-02	9.13E-04
	19	329.63	1.33E+02	128.06	9.86E-03	8.41E-04
	20	352.07	1.04E+04	272.15	9.21E-03	7.94E-04
	21	388.34	1.30E+02	133.93	8.32E-03	7.18E-04
	22	470.90	7.69E+01	79.22	6.83E-03	6.78E-04
	23	481.16	7.50E+01	80.69	6.68E-03	6.73E-04
	24	486.60	6.39E+01	69.92	6.60E-03	6.71E-04
	25	510.58	1.88E+02	105.36	6.29E-03	6.61E-04
	26	591.91	6.47E+01	64.86	5.43E-03	6.28E-04
	27	609.34	7.13E+03	203.82	5.27E-03	6.20E-04
	28	665.27	1.84E+02	83.99	4.84E-03	5.94E-04
	29	703.27	7.10E+01	85.35	4.59E-03	5.46E-04
	30	768.23	7.59E+02	124.50	4.23E-03	4.65E-04
	31	785.62	1.15E+02	83.73	4.14E-03	4.43E-04
	32	806.40	1.89E+02	90.87	4.04E-03	4.17E-04
	33	838.40	1.37E+02	74.20	3.90E-03	3.77E-04
	34	933.88	3.01E+02	98.22	3.54E-03	2.94E-04
	35	963.12	4.86E+01	56.16	3.44E-03	2.87E-04
	36	980.59	5.55E+01	68.54	3.39E-03	2.83E-04
	37	1000.46	4.33E+01	54.30	3.33E-03	2.78E-04
m	38	1068.82	6.44E+01	49.13	3.14E-03	2.62E-04
m	39	1071.81	6.94E+01	53.37	3.13E-03	2.61E-04
	40	1120.03	1.32E+03	106.43	3.02E-03	2.50E-04
	41	1155.05	1.61E+02	59.49	2.94E-03	2.42E-04
	42	1206.83	8.55E+01	61.64	2.82E-03	2.35E-04
	43	1237.86	4.98E+02	80.57	2.76E-03	2.33E-04
	44	1280.79	1.37E+02	50.52	2.68E-03	2.31E-04
	45	1296.62	3.10E+01	33.24	2.65E-03	2.29E-04
M	46	1377.33	3.49E+02	53.47	2.51E-03	2.20E-04
m	47	1385.09	5.37E+01	64.71	2.50E-03	2.19E-04
M	48	1401.15	1.11E+02	51.75	2.48E-03	2.17E-04
m	49	1407.66	1.74E+02	49.60	2.47E-03	2.16E-04
	50	1459.90	6.83E+01	56.24	2.39E-03	2.08E-04
	51	1508.83	1.77E+02	69.49	2.32E-03	2.01E-04
M	52	1537.69	6.24E+01	55.45	2.28E-03	1.96E-04
m	53	1542.78	3.84E+01	44.72	2.27E-03	1.95E-04
	54	1582.87	4.44E+01	45.13	2.22E-03	1.89E-04
	55	1660.97	4.64E+01	39.60	2.12E-03	1.78E-04
	56	1683.67	1.72E+01	20.78	2.09E-03	1.74E-04
	57	1693.24	5.58E+01	37.68	2.08E-03	1.73E-04
	58	1729.36	2.43E+02	45.89	2.04E-03	1.67E-04
	59	1763.99	9.66E+02	77.07	2.00E-03	1.62E-04
M	60	1837.04	2.83E+01	29.19	1.92E-03	1.51E-04
m	61	1846.59	1.32E+02	35.38	1.91E-03	1.51E-04
	62	1864.70	2.50E+01	13.78	1.89E-03	1.51E-04
	63	2056.72	5.07E+01	26.53	1.71E-03	1.51E-04
	64	2117.63	5.72E+01	31.79	1.65E-03	1.51E-04
	65	2149.38	1.60E+01	13.67	1.63E-03	1.51E-04
	66	2203.32	2.50E+02	37.56	1.58E-03	1.51E-04
	67	2282.84	4.50E+00	6.32	1.52E-03	1.51E-04
	68	2293.31	2.59E+01	12.58	1.51E-03	1.51E-04

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
69	2446.66	9.70E+01	19.70	1.40E-03	1.51E-04
70	2614.03	2.00E+01	8.94	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 : 8/18/2017 3:11:10PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	25.13	1.61E+02	191.00			1.61E+02	1.91E+02
	2	46.52	1.04E+03	270.84	2.70E+01	8.29E+00	1.01E+03	2.71E+02
	3	53.16	2.77E+02	262.36			2.77E+02	2.62E+02
	4	63.32	2.23E+03	317.15	5.43E+01	8.76E+00	2.17E+03	3.17E+02
	5	76.48	1.14E+04	576.20			1.14E+04	5.76E+02
M	6	84.46	5.69E+02	123.62			5.69E+02	1.24E+02
m	7	87.55	2.24E+03	343.70			2.24E+03	3.44E+02
m	8	92.75	3.52E+03	344.10	6.28E+01	7.82E+00	3.45E+03	3.44E+02
	9	144.09	3.29E+02	255.64			3.29E+02	2.56E+02
	10	154.32	2.09E+02	194.05			2.09E+02	1.94E+02
	11	163.99	3.58E+02	230.11			3.58E+02	2.30E+02
	12	186.20	3.52E+03	317.32	2.54E+01	6.86E+00	3.50E+03	3.17E+02
	13	196.71	3.55E+02	209.88			3.55E+02	2.10E+02
	14	204.36	2.75E+02	200.76			2.75E+02	2.01E+02
	15	242.16	3.13E+03	284.50			3.13E+03	2.85E+02
	16	257.87	5.08E+02	217.72			5.08E+02	2.18E+02
	17	269.86	2.05E+02	181.10	4.54E+00	5.58E+00	2.00E+02	1.81E+02
	18	295.37	6.46E+03	240.20			6.46E+03	2.40E+02
	19	329.63	1.33E+02	128.06			1.33E+02	1.28E+02
	20	352.07	1.04E+04	272.15			1.04E+04	2.72E+02
	21	388.34	1.30E+02	133.93			1.30E+02	1.34E+02
	22	470.90	7.69E+01	79.22			7.69E+01	7.92E+01
	23	481.16	7.50E+01	80.69			7.50E+01	8.07E+01
	24	486.60	6.39E+01	69.92			6.39E+01	6.99E+01
	25	510.58	1.88E+02	105.36	3.93E+01	5.03E+00	1.49E+02	1.05E+02
	26	591.91	6.47E+01	64.86			6.47E+01	6.49E+01
	27	609.34	7.13E+03	203.82			7.13E+03	2.04E+02
	28	665.27	1.84E+02	83.99			1.84E+02	8.40E+01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	29	703.27	7.10E+01	85.35			7.10E+01	8.53E+01
	30	768.23	7.59E+02	124.50			7.59E+02	1.24E+02
	31	785.62	1.15E+02	83.73			1.15E+02	8.37E+01
	32	806.40	1.89E+02	90.87			1.89E+02	9.09E+01
	33	838.40	1.37E+02	74.20			1.37E+02	7.42E+01
	34	933.88	3.01E+02	98.22			3.01E+02	9.82E+01
	35	963.12	4.86E+01	56.16			4.86E+01	5.62E+01
	36	980.59	5.55E+01	68.54			5.55E+01	6.85E+01
	37	1000.46	4.33E+01	54.30			4.33E+01	5.43E+01
m	38	1068.82	6.44E+01	49.13			6.44E+01	4.91E+01
m	39	1071.81	6.94E+01	53.37			6.94E+01	5.34E+01
	40	1120.03	1.32E+03	106.43			1.32E+03	1.06E+02
	41	1155.05	1.61E+02	59.49			1.61E+02	5.95E+01
	42	1206.83	8.55E+01	61.64			8.55E+01	6.16E+01
	43	1237.86	4.98E+02	80.57			4.98E+02	8.06E+01
	44	1280.79	1.37E+02	50.52			1.37E+02	5.05E+01
	45	1296.62	3.10E+01	33.24			3.10E+01	3.32E+01
M	46	1377.33	3.49E+02	53.47			3.49E+02	5.35E+01
m	47	1385.09	5.37E+01	64.71			5.37E+01	6.47E+01
M	48	1401.15	1.11E+02	51.75			1.11E+02	5.17E+01
m	49	1407.66	1.74E+02	49.60			1.74E+02	4.96E+01
	50	1459.90	6.83E+01	56.24	1.35E+00	1.57E+00	6.70E+01	5.63E+01
	51	1508.83	1.77E+02	69.49			1.77E+02	6.95E+01
M	52	1537.69	6.24E+01	55.45			6.24E+01	5.55E+01
m	53	1542.78	3.84E+01	44.72			3.84E+01	4.47E+01
	54	1582.87	4.44E+01	45.13			4.44E+01	4.51E+01
	55	1660.97	4.64E+01	39.60			4.64E+01	3.96E+01
	56	1683.67	1.72E+01	20.78			1.72E+01	2.08E+01
	57	1693.24	5.58E+01	37.68			5.58E+01	3.77E+01
	58	1729.36	2.43E+02	45.89			2.43E+02	4.59E+01
	59	1763.99	9.66E+02	77.07			9.66E+02	7.71E+01
M	60	1837.04	2.83E+01	29.19			2.83E+01	2.92E+01
m	61	1846.59	1.32E+02	35.38			1.32E+02	3.54E+01
	62	1864.70	2.50E+01	13.78			2.50E+01	1.38E+01
	63	2056.72	5.07E+01	26.53			5.07E+01	2.65E+01
	64	2117.63	5.72E+01	31.79			5.72E+01	3.18E+01
	65	2149.38	1.60E+01	13.67			1.60E+01	1.37E+01
	66	2203.32	2.50E+02	37.56			2.50E+02	3.76E+01
	67	2282.84	4.50E+00	6.32			4.50E+00	6.32E+00
	68	2293.31	2.59E+01	12.58			2.59E+01	1.26E+01
	69	2446.66	9.70E+01	19.70			9.70E+01	1.97E+01
	70	2614.03	2.00E+01	8.94			2.00E+01	8.94E+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 1707084-07

HTC-A02-S001-0006-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 3:11:10PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.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	25.13	1.61E+02	191.00			1.61E+02	1.91E+02
	2	46.52	1.04E+03	270.84	2.70E+01	8.29E+00	1.01E+03	2.71E+02
	3	53.16	2.77E+02	262.36			2.77E+02	2.62E+02
	4	63.32	2.23E+03	317.15	5.43E+01	8.76E+00	2.17E+03	3.17E+02
	5	76.48	1.14E+04	576.20			1.14E+04	5.76E+02
M	6	84.46	5.69E+02	123.62			5.69E+02	1.24E+02
m	7	87.55	2.24E+03	343.70			2.24E+03	3.44E+02
m	8	92.75	3.52E+03	344.10	6.28E+01	7.82E+00	3.45E+03	3.44E+02
	9	144.09	3.29E+02	255.64			3.29E+02	2.56E+02
	10	154.32	2.09E+02	194.05			2.09E+02	1.94E+02
	11	163.99	3.58E+02	230.11			3.58E+02	2.30E+02
	12	186.20	3.52E+03	317.32	2.54E+01	6.86E+00	3.50E+03	3.17E+02
	13	196.71	3.55E+02	209.88			3.55E+02	2.10E+02
	14	204.36	2.75E+02	200.76			2.75E+02	2.01E+02
	15	242.16	3.13E+03	284.50			3.13E+03	2.85E+02
	16	257.87	5.08E+02	217.72			5.08E+02	2.18E+02
	17	269.86	2.05E+02	181.10	4.54E+00	5.58E+00	2.00E+02	1.81E+02
	18	295.37	6.46E+03	240.20			6.46E+03	2.40E+02
	19	329.63	1.33E+02	128.06			1.33E+02	1.28E+02
	20	352.07	1.04E+04	272.15			1.04E+04	2.72E+02
	21	388.34	1.30E+02	133.93			1.30E+02	1.34E+02
	22	470.90	7.69E+01	79.22			7.69E+01	7.92E+01
	23	481.16	7.50E+01	80.69			7.50E+01	8.07E+01
	24	486.60	6.39E+01	69.92			6.39E+01	6.99E+01
	25	510.58	1.88E+02	105.36	3.93E+01	5.03E+00	1.49E+02	1.05E+02
	26	591.91	6.47E+01	64.86			6.47E+01	6.49E+01
	27	609.34	7.13E+03	203.82			7.13E+03	2.04E+02
	28	665.27	1.84E+02	83.99			1.84E+02	8.40E+01
	29	703.27	7.10E+01	85.35			7.10E+01	8.53E+01
	30	768.23	7.59E+02	124.50			7.59E+02	1.24E+02
	31	785.62	1.15E+02	83.73			1.15E+02	8.37E+01
	32	806.40	1.89E+02	90.87			1.89E+02	9.09E+01
	33	838.40	1.37E+02	74.20			1.37E+02	7.42E+01
	34	933.88	3.01E+02	98.22			3.01E+02	9.82E+01
	35	963.12	4.86E+01	56.16			4.86E+01	5.62E+01
	36	980.59	5.55E+01	68.54			5.55E+01	6.85E+01
	37	1000.46	4.33E+01	54.30			4.33E+01	5.43E+01
m	38	1068.82	6.44E+01	49.13			6.44E+01	4.91E+01
m	39	1071.81	6.94E+01	53.37			6.94E+01	5.34E+01
	40	1120.03	1.32E+03	106.43			1.32E+03	1.06E+02
	41	1155.05	1.61E+02	59.49			1.61E+02	5.95E+01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1206.83	8.55E+01	61.64			8.55E+01	6.16E+01
	43	1237.86	4.98E+02	80.57			4.98E+02	8.06E+01
	44	1280.79	1.37E+02	50.52			1.37E+02	5.05E+01
	45	1296.62	3.10E+01	33.24			3.10E+01	3.32E+01
M	46	1377.33	3.49E+02	53.47			3.49E+02	5.35E+01
m	47	1385.09	5.37E+01	64.71			5.37E+01	6.47E+01
M	48	1401.15	1.11E+02	51.75			1.11E+02	5.17E+01
m	49	1407.66	1.74E+02	49.60			1.74E+02	4.96E+01
	50	1459.90	6.83E+01	56.24	1.35E+00	1.57E+00	6.70E+01	5.63E+01
	51	1508.83	1.77E+02	69.49			1.77E+02	6.95E+01
M	52	1537.69	6.24E+01	55.45			6.24E+01	5.55E+01
m	53	1542.78	3.84E+01	44.72			3.84E+01	4.47E+01
	54	1582.87	4.44E+01	45.13			4.44E+01	4.51E+01
	55	1660.97	4.64E+01	39.60			4.64E+01	3.96E+01
	56	1683.67	1.72E+01	20.78			1.72E+01	2.08E+01
	57	1693.24	5.58E+01	37.68			5.58E+01	3.77E+01
	58	1729.36	2.43E+02	45.89			2.43E+02	4.59E+01
	59	1763.99	9.66E+02	77.07			9.66E+02	7.71E+01
M	60	1837.04	2.83E+01	29.19			2.83E+01	2.92E+01
m	61	1846.59	1.32E+02	35.38			1.32E+02	3.54E+01
	62	1864.70	2.50E+01	13.78			2.50E+01	1.38E+01
	63	2056.72	5.07E+01	26.53			5.07E+01	2.65E+01
	64	2117.63	5.72E+01	31.79			5.72E+01	3.18E+01
	65	2149.38	1.60E+01	13.67			1.60E+01	1.37E+01
	66	2203.32	2.50E+02	37.56			2.50E+02	3.76E+01
	67	2282.84	4.50E+00	6.32			4.50E+00	6.32E+00
	68	2293.31	2.59E+01	12.58			2.59E+01	1.26E+01
	69	2446.66	9.70E+01	19.70			9.70E+01	1.97E+01
	70	2614.03	2.00E+01	8.94			2.00E+01	8.94E+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	0.876	1460.81	*	10.67	2.59E+00	2.19E+00
CD-109	0.963	88.03	*	3.72	2.88E+01	5.43E+00

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	1.000	87.57	*	37.00	2.51E+00	4.49E-01
PB-210	1.000	46.50	*	4.25	1.44E+01	4.08E+00
BI-214	0.982	609.31	*	46.30	2.88E+01	3.48E+00
		1120.29	*	15.10	2.86E+01	3.31E+00
		1764.49	*	15.80	3.01E+01	3.43E+00
		2204.22	*	4.98	3.12E+01	5.57E+00
PB-214	0.996	295.21	*	19.19	3.01E+01	2.73E+00
		351.92	*	37.19	2.99E+01	2.69E+00
RA-226	1.000	186.21	*	3.28	6.21E+01	1.14E+02
TH-231	0.969	25.64	*	14.70	2.06E+00	2.52E+00
		84.21	*	6.40	3.70E+00	8.70E-01
PA-234M	0.950	1001.03	*	0.92	1.39E+01	1.75E+01
TH-234	1.000	63.29	*	3.80	2.62E+01	4.31E+00
U-235	0.943	143.76	*	10.50	1.52E+00	1.21E+00
		163.35	*	4.70	4.03E+00	2.70E+00
		205.31	*	4.70	3.69E+00	2.78E+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 : 8/18/2017 3:11:10PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.16	7.70682E-02	47.28		
	5	76.48	3.17131E+00	2.52		
m	8	92.75	9.59346E-01	4.98	Sum	
	10	154.32	5.79555E-02	46.50		
	13	196.71	9.85736E-02	29.57		
	15	242.16	8.69513E-01	4.54		
	16	257.87	1.41212E-01	21.41		
	17	269.86	5.56738E-02	45.20	Sum	
	19	329.63	3.69591E-02	48.12	Sum	
	21	388.34	3.59907E-02	51.68		
	22	470.90	2.13474E-02	51.54		
	23	481.16	2.08419E-02	53.77	Sum	
	24	486.60	1.77627E-02	54.67	Tol.	LA-140

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	25	510.58	4.13375E-02	35.44		
	26	591.91	1.79689E-02	50.13		
	28	665.27	5.12160E-02	22.78	Tol.	CE-143
	29	703.27	1.97222E-02	60.10	Sum	
	30	768.23	2.10830E-01	8.20		
	31	785.62	3.18774E-02	36.48		
	32	806.40	5.23752E-02	24.10		
	33	838.40	3.81275E-02	27.03		
	34	933.88	8.34957E-02	16.34		
	35	963.12	1.34983E-02	57.79	Tol.	EU-152
	36	980.59	1.54111E-02	61.77		
m	38	1068.82	1.78858E-02	38.15		
m	39	1071.81	1.92827E-02	38.44		
	41	1155.05	4.46175E-02	18.52		
	42	1206.83	2.37445E-02	36.06	Sum	
	43	1237.86	1.38449E-01	8.08		
	44	1280.79	3.79507E-02	18.49		
	45	1296.62	8.60897E-03	53.63	Sum	
M	46	1377.33	9.69269E-02	7.66		
m	47	1385.09	1.49132E-02	60.27	Tol.	AG-110M
M	48	1401.15	3.08796E-02	23.28		
m	49	1407.66	4.83729E-02	14.24	Tol.	EU-152
	51	1508.83	4.92195E-02	19.61		
M	52	1537.69	1.73206E-02	44.47		
m	53	1542.78	1.06702E-02	58.21		
	54	1582.87	1.23463E-02	50.77		
	55	1660.97	1.28815E-02	42.69		
	56	1683.67	4.77366E-03	60.47		
	57	1693.24	1.55053E-02	33.75	S-Esc	
	58	1729.36	6.76017E-02	9.43	Sum	
M	60	1837.04	7.87425E-03	51.48		
m	61	1846.59	3.67993E-02	13.35		
	62	1864.70	6.94444E-03	27.57		
	63	2056.72	1.40911E-02	26.15		
	64	2117.63	1.58929E-02	27.78		
	65	2149.38	4.45602E-03	42.59		
	67	2282.84	1.25000E-03	70.27		
	68	2293.31	7.19828E-03	24.27		
	69	2446.66	2.69444E-02	10.15		
	70	2614.03	5.55556E-03	22.36	Tol.	TL-208

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

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.87	1460.81	*	10.67	2.59E+00	2.19E+00
CD-109	0.96	88.03	*	3.72	2.88E+01	5.43E+00
SN-126	1.00	87.57	*	37.00	2.51E+00	4.49E-01
PB-210	1.00	46.50	*	4.25	1.44E+01	4.08E+00
BI-214	0.98	609.31	*	46.30	2.88E+01	3.48E+00
		1120.29	*	15.10	2.86E+01	3.31E+00
		1764.49	*	15.80	3.01E+01	3.43E+00
		2204.22	*	4.98	3.12E+01	5.57E+00
PB-214	0.99	295.21	*	19.19	3.01E+01	2.73E+00
		351.92	*	37.19	2.99E+01	2.69E+00
RA-226	1.00	186.21	*	3.28	6.21E+01	1.14E+02
TH-231	0.96	25.64	*	14.70	2.06E+00	2.52E+00
		84.21	*	6.40	3.70E+00	8.70E-01
PA-234M	0.95	1001.03	*	0.92	1.39E+01	1.75E+01
TH-234	1.00	63.29	*	3.80	2.62E+01	4.31E+00
U-235	0.94	143.76	*	10.50	1.52E+00	1.21E+00
		163.35	*	4.70	4.03E+00	2.70E+00
		205.31	*	4.70	3.69E+00	2.78E+00

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.876	2.59E+00	2.19E+00	
?	CD-109	0.963	2.88E+01	5.43E+00	
?	SN-126	1.000	2.51E+00	4.49E-01	
	PB-210	1.000	1.44E+01	4.08E+00	
	BI-214	0.982	2.94E+01	1.85E+00	
	PB-214	0.996	3.00E+01	1.92E+00	
	RA-226	1.000	6.21E+01	1.14E+02	
	TH-231	0.969	3.53E+00	8.22E-01	
	PA-234M	0.950	1.39E+01	1.75E+01	
	TH-234	1.000	2.62E+01	4.31E+00	
	U-235	0.943	2.18E+00	1.03E+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 1707084-07

HTC-A02-S001-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 3:11:10PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	53.16	7.70682E-02	47.28		
	5	76.48	3.17131E+00	2.52		
m	8	92.75	9.59346E-01	4.98	Sum	
	10	154.32	5.79555E-02	46.50		
	13	196.71	9.85736E-02	29.57		
	15	242.16	8.69513E-01	4.54		
	16	257.87	1.41212E-01	21.41		
	17	269.86	5.56738E-02	45.20	Sum	
	19	329.63	3.69591E-02	48.12	Sum	
	21	388.34	3.59907E-02	51.68		
	22	470.90	2.13474E-02	51.54		
	23	481.16	2.08419E-02	53.77	Sum	
	24	486.60	1.77627E-02	54.67	Tol.	LA-140
	25	510.58	4.13375E-02	35.44		
	26	591.91	1.79689E-02	50.13		
	28	665.27	5.12160E-02	22.78	Tol.	CE-143
	29	703.27	1.97222E-02	60.10	Sum	
	30	768.23	2.10830E-01	8.20		
	31	785.62	3.18774E-02	36.48		
	32	806.40	5.23752E-02	24.10		
	33	838.40	3.81275E-02	27.03		
	34	933.88	8.34957E-02	16.34		
	35	963.12	1.34983E-02	57.79	Tol.	EU-152
	36	980.59	1.54111E-02	61.77		
m	38	1068.82	1.78858E-02	38.15		
m	39	1071.81	1.92827E-02	38.44		
	41	1155.05	4.46175E-02	18.52		
	42	1206.83	2.37445E-02	36.06	Sum	
	43	1237.86	1.38449E-01	8.08		
	44	1280.79	3.79507E-02	18.49		
	45	1296.62	8.60897E-03	53.63	Sum	
M	46	1377.33	9.69269E-02	7.66		
m	47	1385.09	1.49132E-02	60.27	Tol.	AG-110M
M	48	1401.15	3.08796E-02	23.28		
m	49	1407.66	4.83729E-02	14.24	Tol.	EU-152

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	51	1508.83	4.92195E-02	19.61		
M	52	1537.69	1.73206E-02	44.47		
m	53	1542.78	1.06702E-02	58.21		
	54	1582.87	1.23463E-02	50.77		
	55	1660.97	1.28815E-02	42.69		
	56	1683.67	4.77366E-03	60.47		
	57	1693.24	1.55053E-02	33.75	S-Esc	
	58	1729.36	6.76017E-02	9.43	Sum	
M	60	1837.04	7.87425E-03	51.48		
m	61	1846.59	3.67993E-02	13.35		
	62	1864.70	6.94444E-03	27.57		
	63	2056.72	1.40911E-02	26.15		
	64	2117.63	1.58929E-02	27.78		
	65	2149.38	4.45602E-03	42.59		
	67	2282.84	1.25000E-03	70.27		
	68	2293.31	7.19828E-03	24.27		
	69	2446.66	2.69444E-02	10.15		
	70	2614.03	5.55556E-03	22.36	Tol.	TL-208

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-1.73E+00	6.39E+00	6.39E+00
+	NA-22	1274.54		99.94	-9.29E-03	2.76E-01	2.76E-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	-8.03E-02	1.65E-01	1.65E-01
+	K-40	1460.81	*	10.67	2.59E+00	3.53E+00	3.53E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-1.38E-03	2.14E-01	2.14E-01
		78.34		96.00	3.85E+00		2.84E-01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SC-46	889.25	99.98	2.34E-01	5.96E-01	5.96E-01
		1120.51	99.99	9.41E+00		1.35E+00
+	V-48	983.52	99.98	5.16E-01	1.65E+01	1.71E+01
		1312.10	97.50	7.17E+00		1.65E+01
+	CR-51	320.08	9.83	-4.68E+00	1.98E+01	1.98E+01
+	MN-54	834.83	99.97	7.59E-02	3.31E-01	3.31E-01
+	CO-56	846.75	99.96	3.48E-01	6.20E-01	6.20E-01
		1037.75	14.03	3.48E+00		4.36E+00
		1238.25	67.00	6.24E+00		1.56E+00
		1771.40	15.51	2.95E-01		2.32E+00
		2598.48	16.90	4.18E-01		1.26E+00
+	CO-57	122.06	85.51	2.57E-02	2.36E-01	2.36E-01
		136.48	10.60	5.04E-01		1.99E+00
+	CO-58	810.76	99.40	-2.10E-01	6.66E-01	6.66E-01
+	FE-59	1099.22	56.50	-3.84E-01	1.98E+00	1.98E+00
		1291.56	43.20	-1.67E-01		2.46E+00
+	CO-60	1173.22	100.00	-1.42E-01	2.65E-01	2.65E-01
		1332.49	100.00	1.48E-01		2.79E-01
+	ZN-65	1115.52	50.75	-9.10E-03	1.23E+00	1.23E+00
+	GA-67	93.31	35.70	1.78E+09	3.53E+08	3.53E+08
		208.95	2.24	6.34E+08		4.91E+09
		300.22	16.00	2.00E+08		8.58E+08
+	SE-75	121.11	16.70	2.08E-01	4.80E-01	1.63E+00
		136.00	59.20	-4.25E-01		4.80E-01
		264.65	59.80	-9.30E-03		5.08E-01
		279.53	25.20	-2.31E+00		1.24E+00
		400.65	11.40	-1.04E+00		3.11E+00
+	RB-82	776.52	13.00	-2.39E+00	2.38E+01	2.38E+01
+	RB-83	520.41	46.00	-2.97E-02	8.80E-01	8.80E-01
		529.64	30.30	-4.02E-01		1.32E+00
		552.65	16.40	4.02E-01		2.54E+00
+	KR-85	513.99	0.43	3.05E+00	4.84E+01	4.84E+01
+	SR-85	513.99	99.27	3.63E-02	5.76E-01	5.76E-01
+	Y-88	898.02	93.40	-2.71E-01	4.30E-01	5.31E-01
		1836.01	99.38	2.34E-01		4.30E-01
+	MO-93	263.06	56.72	-5.71E-03	2.23E-01	3.22E-01
		684.67	99.68	2.37E-02		2.23E-01
		1477.11	99.08	8.11E-02		2.90E-01
+	NB-93M	16.57	9.43	8.39E+01	1.76E+01	1.76E+01
+	NB-94	702.63	100.00	1.62E-01	2.35E-01	2.35E-01
		871.10	100.00	6.98E-03		2.61E-01
+	NB-95	765.79	99.81	9.56E+00	2.40E+00	2.40E+00
+	NB-95M	235.69	25.00	-2.05E+07	6.76E+07	6.76E+07
+	ZR-95	724.18	43.70	8.66E-01	1.18E+00	1.52E+00
		756.72	55.30	-1.13E-01		1.18E+00
+	MO-99	181.06	6.20	7.78E+09	4.98E+10	7.76E+10
		739.58	12.80	1.53E+10		4.98E+10
		778.00	4.50	-1.38E+10		1.37E+11

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RU-103	497.08		89.00	-4.14E-02	1.13E+00	1.13E+00
+	RU-106	621.84		9.80	1.51E-01	2.21E+00	2.21E+00
+	AG-108M	433.93		89.90	-1.44E-01	2.15E-01	2.15E-01
		614.37		90.40	4.59E-02		2.28E-01
		722.95		90.50	-1.19E-02		2.59E-01
+	CD-109	88.03	*	3.72	2.88E+01	1.12E+01	1.12E+01
+	AG-110M	657.75		93.14	-3.69E-02	2.96E-01	2.96E-01
		677.61		10.53	-8.22E-02		2.62E+00
		706.67		16.46	-1.45E-01		1.85E+00
		763.93		21.98	-3.15E+00		1.81E+00
		884.67		71.63	-1.27E-01		4.83E-01
		1384.27		23.94	-5.50E+00		1.52E+00
+	CD-113M	263.70		0.02	-1.41E+01	7.74E+02	7.74E+02
+	SN-113	255.12		1.93	-2.55E+00	5.62E-01	1.70E+01
		391.69		64.90	8.76E-02		5.62E-01
+	TE123M	159.00		84.10	-1.88E-01	3.64E-01	3.64E-01
+	SB-124	602.71		97.87	1.18E-01	6.19E-01	6.19E-01
		645.85		7.26	-1.01E+00		7.52E+00
		722.78		11.10	-2.91E-01		6.30E+00
		1691.02		49.00	7.09E-01		1.45E+00
+	I-125	35.49		6.49	-8.53E+00	1.23E+01	1.23E+01
+	SB-125	176.33		6.89	-5.11E-01	7.63E-01	2.73E+00
		427.89		29.33	1.71E-01		7.63E-01
		463.38		10.35	1.49E+00		2.06E+00
		600.56		17.80	1.21E-01		1.23E+00
		635.90		11.32	-9.54E-01		1.69E+00
+	SB-126	414.70		83.30	-9.72E+00	4.54E+01	5.18E+01
		666.33		99.60	4.34E-02		5.17E+01
		695.00		99.60	1.08E+01		4.54E+01
		720.50		53.80	5.68E+00		8.90E+01
+	SN-126	87.57	*	37.00	2.51E+00	9.78E-01	9.78E-01
+	SB-127	473.00		25.00	-7.86E+05	1.71E+07	2.13E+07
		685.20		35.70	1.82E+06		1.71E+07
		783.80		14.70	4.93E+07		5.00E+07
+	I-129	29.78		57.00	-2.89E-03	6.69E-01	6.69E-01
		33.60		13.20	-1.13E+00		2.22E+00
		39.58		7.52	-1.00E+00		3.06E+00
+	I-131	284.30		6.05	7.61E+03	8.15E+02	1.14E+04
		364.48		81.20	2.44E+02		8.15E+02
		636.97		7.26	-4.36E+03		9.24E+03
		722.89		1.80	-2.20E+03		4.78E+04
+	TE-132	49.72		13.10	-8.71E+08	1.28E+08	9.95E+08
		228.16		88.00	-6.69E+07		1.28E+08
+	BA-133	81.00		33.00	-3.87E+00	6.15E-01	6.72E-01
		302.84		17.80	8.44E-02		1.05E+00
		356.01		60.00	-1.33E-03		6.15E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-9.71E+05	1.68E+05	1.68E+05

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		CS-134	563.23	8.38	7.24E-01	3.09E-01	2.62E+00
			569.32	15.43	-5.63E-02		1.42E+00
			604.70	97.60	6.82E-03		3.65E-01
			795.84	85.40	2.63E-02		3.09E-01
			801.93	8.73	-2.50E-01		3.24E+00
+		CS-135	268.24	16.00	-3.46E-02	1.19E+00	1.19E+00
+	@	I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@		1260.41	28.60	1.00E+26		1.00E+26
	@		1678.03	9.54	1.00E+26		1.00E+26
+		CS-136	153.22	7.46	3.87E+01	3.75E+01	3.70E+02
			163.89	4.61	3.24E+02		5.79E+02
			176.55	13.56	3.43E+01		1.97E+02
			273.65	12.66	9.62E+01		2.30E+02
			340.57	48.50	3.49E+01		6.18E+01
			818.50	99.70	-4.96E+00		3.75E+01
			1048.07	79.60	-1.27E+01		5.02E+01
			1235.34	19.70	1.21E+03		3.43E+02
+		CS-137	661.65	85.12	-1.81E-02	2.89E-01	2.89E-01
+		LA-138	788.74	34.00	-5.31E-02	4.00E-01	7.76E-01
			1435.80	66.00	-5.17E-02		4.00E-01
+		CE-139	165.85	80.35	8.91E-02	3.54E-01	3.54E-01
+		BA-140	162.64	6.70	-1.30E+02	1.38E+02	4.62E+02
			304.84	4.50	-1.62E+02		6.98E+02
			423.70	3.20	-6.46E+02		1.16E+03
			437.55	2.00	4.04E+02		1.66E+03
			537.32	25.00	-3.74E+01		1.38E+02
+		LA-140	328.77	20.50	5.29E+00	5.17E+01	1.59E+02
			487.03	45.50	1.92E+01		7.70E+01
			815.85	23.50	-1.17E+02		1.78E+02
			1596.49	95.49	3.68E+01		5.17E+01
+		CE-141	145.44	48.40	-5.03E-01	2.83E+00	2.83E+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	-7.15E-01	1.90E+00	1.90E+00
+		PM-144	476.78	42.00	-1.49E-01	2.20E-01	5.40E-01
			618.01	98.60	2.86E-02		2.20E-01
			696.49	99.49	9.59E-02		2.68E-01
+		PM-145	36.85	21.70	-1.14E+00	6.23E-01	1.17E+00
			37.36	39.70	-6.07E-01		6.23E-01
			42.30	15.10	-2.49E-01		1.45E+00
			72.40	2.31	-9.73E+01		9.82E+00
+		PM-146	453.90	39.94	2.12E-01	5.10E-01	5.10E-01
			735.90	14.01	2.12E-01		1.70E+00
			747.13	13.10	2.67E-01		1.92E+00
+		ND-147	91.11	28.90	1.49E+03	3.02E+02	3.02E+02
			531.02	13.10	8.36E+01		5.87E+02
+		PM-149	285.90	3.10	3.56E+13	5.55E+13	5.55E+13
+		EU-152	121.78	20.50	8.49E-02	7.80E-01	7.80E-01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	244.69	5.40	2.65E+01	7.80E-01	4.66E+00
		344.27	19.13	-2.14E-01		1.04E+00
		778.89	9.20	-2.60E-01		2.57E+00
		964.01	10.40	-1.07E-01		2.65E+00
		1085.78	7.22	-2.55E-01		3.56E+00
		1112.02	9.60	-4.79E-01		2.86E+00
		1407.95	14.94	2.47E+00		2.38E+00
+	GD-153	97.43	31.30	3.04E-01	7.09E-01	7.09E-01
		103.18	22.20	-8.71E-01		8.93E-01
+	EU-154	123.07	40.50	1.28E-01	4.00E-01	4.00E-01
		723.30	19.70	6.99E-01		1.22E+00
		873.19	11.50	-1.38E-01		2.29E+00
		996.32	10.30	4.75E-01		2.70E+00
		1004.76	17.90	4.06E-01		1.54E+00
		1274.45	35.50	-2.49E-02		7.40E-01
+	EU-155	86.50	30.90	7.57E-01	6.84E-01	6.84E-01
		105.30	20.70	-4.44E-01		7.59E-01
+	EU-156	811.77	10.40	-2.45E+01	1.81E+02	1.81E+02
		1153.47	7.20	3.94E+02		3.18E+02
		1230.71	8.90	-3.04E+00		2.32E+02
+	HO-166M	184.41	72.60	2.75E+00	3.31E-01	3.31E-01
		280.45	29.60	-1.20E-01		6.18E-01
		410.94	11.10	-7.09E-01		1.87E+00
		711.69	54.10	-1.32E-01		4.13E-01
+	TM-171	66.72	0.14	-1.03E+00	1.65E+02	1.65E+02
+	HF-172	67.35	5.31	-2.71E-02	1.55E+00	4.34E+00
		125.81	11.30	-9.69E-01		1.55E+00
+	LU-172	181.53	20.60	3.88E+03	7.62E+03	1.78E+04
		900.72	29.81	8.95E+03		1.76E+04
		1093.66	62.50	2.52E+02		7.62E+03
+	LU-173	100.72	5.24	2.64E-01	1.07E+00	3.34E+00
		272.11	21.20	2.06E+00		1.07E+00
+	HF-175	343.40	84.00	-1.23E-01	5.97E-01	5.97E-01
+	LU-176	88.34	13.30	-6.06E+00	1.89E-01	1.52E+00
		201.83	86.00	-4.98E-02		2.13E-01
		306.78	94.00	-2.86E-02		1.89E-01
+	HF-181	133.02	41.70	3.05E-01	1.13E+00	1.86E+00
		345.85	17.20	1.51E+00		5.43E+00
		482.03	82.80	-4.99E-01		1.13E+00
+	TA-182	67.75	41.20	-5.64E-03	8.70E-01	8.70E-01
		1121.30	34.90	2.22E+01		3.15E+00
		1189.05	16.23	-4.47E-01		2.88E+00
		1221.41	26.98	-1.85E-01		1.64E+00
		1231.02	11.44	-4.54E-02		4.26E+00
+	IR-192	308.46	29.68	5.95E-02	9.95E-01	1.46E+00
		468.07	48.10	-6.85E-02		9.95E-01
+	HG-203	279.19	77.30	-1.24E+00	9.70E-01	9.70E-01
+	TL-204	374.74	94.11	8.02E-02	2.16E-01	2.16E-01
		899.15	99.16	4.60E-02		2.90E-01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TL-204	911.74		91.10	1.96E-01	2.16E-01	3.36E-01
+	BI-207	569.67		97.72	-8.20E-03	2.07E-01	2.07E-01
		1063.62		74.90	-1.58E-02		3.43E-01
+	TL-208	583.14		30.22	3.18E-01	5.05E-01	7.08E-01
		860.37		4.48	-5.46E+00		5.70E+00
		2614.66		35.85	4.30E-01		5.05E-01
+	BI-210M	262.00		45.00	-1.61E-03	4.09E-01	4.09E-01
		300.00		23.00	2.24E-01		9.65E-01
+	PB-210	46.50	*	4.25	1.44E+01	6.19E+00	6.19E+00
+	PB-211	404.84		2.90	5.39E+00	7.34E+00	7.34E+00
		831.96		2.90	-8.52E-01		8.53E+00
+	BI-212	727.17		11.80	-3.50E-02	1.93E+00	1.93E+00
		1620.62		2.75	3.65E-01		8.02E+00
+	PB-212	238.63		44.60	2.10E-03	5.45E-01	5.45E-01
		300.09		3.41	1.51E+00		6.51E+00
+	BI-214	609.31	*	46.30	2.88E+01	7.69E-01	7.69E-01
		1120.29	*	15.10	2.86E+01		2.83E+00
		1764.49	*	15.80	3.01E+01		2.42E+00
		2204.22	*	4.98	3.12E+01		4.52E+00
+	PB-214	295.21	*	19.19	3.01E+01	8.61E-01	1.38E+00
		351.92	*	37.19	2.99E+01		8.61E-01
+	RN-219	401.80		6.50	-7.07E-01	3.17E+00	3.17E+00
+	RA-223	323.87		3.88	-4.17E-01	4.65E+00	4.65E+00
+	RA-224	240.98		3.95	5.57E+01	6.79E+00	6.79E+00
+	RA-225	40.00		31.00	-2.07E+01	6.32E+01	6.32E+01
+	RA-226	186.21	*	3.28	6.21E+01	8.66E+00	8.66E+00
+	TH-227	50.10		8.40	-2.15E+00	1.68E+00	2.45E+00
		236.00		11.50	-5.10E-01		1.68E+00
		256.20		6.30	3.07E+00		3.03E+00
+	AC-228	338.32		11.40	6.61E-01	1.04E+00	1.73E+00
		911.07		27.70	2.17E-01		1.04E+00
		969.11		16.60	-8.58E-02		1.65E+00
+	TH-230	48.44		16.90	1.61E+00	1.26E+00	1.26E+00
		62.85		4.60	2.23E+01		4.81E+00
		67.67		0.37	-3.53E-01		5.44E+01
+	PA-231	283.67		1.60	7.80E+00	7.98E+00	1.17E+01
		302.67		2.30	6.41E-01		7.98E+00
+	TH-231	25.64	*	14.70	2.06E+00	4.02E+00	4.02E+00
		84.21	*	6.40	3.70E+00		5.39E+00
+	PA-233	311.98		38.60	-5.95E-01	5.31E+00	5.31E+00
+	PA-234	131.20		20.40	1.90E-02	7.93E-01	7.93E-01
		733.99		8.80	-1.21E+00		2.56E+00
		946.00		12.00	-2.79E-01		2.14E+00
+	PA-234M	1001.03	*	0.92	1.39E+01	2.87E+01	2.87E+01
+	TH-234	63.29	*	3.80	2.62E+01	6.04E+00	6.04E+00
+	U-235	143.76	*	10.50	1.52E+00	1.94E+00	1.94E+00
		163.35	*	4.70	4.03E+00		4.23E+00
		205.31	*	4.70	3.69E+00		4.40E+00

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	12.60	1.79E+00	1.62E+00	1.62E+00
+	NP-239	106.10	22.70	-3.59E+11	1.00E+12	1.00E+12
		228.18	10.70	-1.30E+12		2.49E+12
		277.60	14.10	-3.81E+10		1.95E+12
+	AM-241	59.54	35.90	-1.67E-01	5.82E-01	5.82E-01
+	AM-243	74.67	66.00	5.91E+00	4.23E-01	4.23E-01
+	CM-243	209.75	3.29	5.77E-01	1.33E+00	5.41E+00
		228.14	10.60	-8.89E-01		1.70E+00
		277.60	14.00	-2.59E-02		1.33E+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	6.39E+00	6.39E+00	-1.73E+00	3.13E+00
	NA-22	1274.54		99.94	2.76E-01	2.76E-01	-9.29E-03	1.33E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.65E-01	1.65E-01	-8.03E-02	7.54E-02
+	K-40	1460.81	*	10.67	3.53E+00	3.53E+00	2.59E+00	1.71E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	2.14E-01	2.14E-01	-1.38E-03	1.06E-01
		78.34		96.00	2.84E-01		3.85E+00	1.41E-01
	SC-46	889.25		99.98	5.96E-01	5.96E-01	2.34E-01	2.90E-01
		1120.51		99.99	1.35E+00		9.41E+00	6.67E-01
	V-48	983.52		99.98	1.71E+01	1.65E+01	5.16E-01	8.30E+00
		1312.10		97.50	1.65E+01		7.17E+00	7.95E+00
	CR-51	320.08		9.83	1.98E+01	1.98E+01	-4.68E+00	9.77E+00

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MN-54	834.83		99.97	3.31E-01	3.31E-01	7.59E-02	1.62E-01
	CO-56	846.75		99.96	6.20E-01	6.20E-01	3.48E-01	3.02E-01
		1037.75		14.03	4.36E+00		3.48E+00	2.11E+00
		1238.25		67.00	1.56E+00		6.24E+00	7.62E-01
		1771.40		15.51	2.32E+00		2.95E-01	1.06E+00
		2598.48		16.90	1.26E+00		4.18E-01	4.86E-01
	CO-57	122.06		85.51	2.36E-01	2.36E-01	2.57E-02	1.17E-01
		136.48		10.60	1.99E+00		5.04E-01	9.89E-01
	CO-58	810.76		99.40	6.66E-01	6.66E-01	-2.10E-01	3.25E-01
	FE-59	1099.22		56.50	1.98E+00	1.98E+00	-3.84E-01	9.58E-01
		1291.56		43.20	2.46E+00		-1.67E-01	1.18E+00
	CO-60	1173.22		100.00	2.65E-01	2.65E-01	-1.42E-01	1.28E-01
		1332.49		100.00	2.79E-01		1.48E-01	1.34E-01
	ZN-65	1115.52		50.75	1.23E+00	1.23E+00	-9.10E-03	6.06E-01
	GA-67	93.31		35.70	3.53E+08	3.53E+08	1.78E+09	1.75E+08
		208.95		2.24	4.91E+09		6.34E+08	2.43E+09
		300.22		16.00	8.58E+08		2.00E+08	4.24E+08
	SE-75	121.11		16.70	1.63E+00	4.80E-01	2.08E-01	8.11E-01
		136.00		59.20	4.80E-01		-4.25E-01	2.38E-01
		264.65		59.80	5.08E-01		-9.30E-03	2.51E-01
		279.53		25.20	1.24E+00		-2.31E+00	6.10E-01
		400.65		11.40	3.11E+00		-1.04E+00	1.53E+00
	RB-82	776.52		13.00	2.38E+01	2.38E+01	-2.39E+00	1.16E+01
	RB-83	520.41		46.00	8.80E-01	8.80E-01	-2.97E-02	4.30E-01
		529.64		30.30	1.32E+00		-4.02E-01	6.43E-01
		552.65		16.40	2.54E+00		4.02E-01	1.24E+00
	KR-85	513.99		0.43	4.84E+01	4.84E+01	3.05E+00	2.37E+01
	SR-85	513.99		99.27	5.76E-01	5.76E-01	3.63E-02	2.82E-01
	Y-88	898.02		93.40	5.31E-01	4.30E-01	-2.71E-01	2.58E-01
		1836.01		99.38	4.30E-01		2.34E-01	2.02E-01
	MO-93	263.06		56.72	3.22E-01	2.23E-01	-5.71E-03	1.59E-01
		684.67		99.68	2.23E-01		2.37E-02	1.09E-01
		1477.11		99.08	2.90E-01		8.11E-02	1.39E-01
	NB-93M	16.57		9.43	1.76E+01	1.76E+01	8.39E+01	8.70E+00
	NB-94	702.63		100.00	2.35E-01	2.35E-01	1.62E-01	1.15E-01
		871.10		100.00	2.61E-01		6.98E-03	1.27E-01
	NB-95	765.79		99.81	2.40E+00	2.40E+00	9.56E+00	1.18E+00
	NB-95M	235.69		25.00	6.76E+07	6.76E+07	-2.05E+07	3.35E+07
	ZR-95	724.18		43.70	1.52E+00	1.18E+00	8.66E-01	7.38E-01
		756.72		55.30	1.18E+00		-1.13E-01	5.74E-01
	MO-99	181.06		6.20	7.76E+10	4.98E+10	7.78E+09	3.85E+10
		739.58		12.80	4.98E+10		1.53E+10	2.43E+10
		778.00		4.50	1.37E+11		-1.38E+10	6.65E+10
	RU-103	497.08		89.00	1.13E+00	1.13E+00	-4.14E-02	5.51E-01
	RU-106	621.84		9.80	2.21E+00	2.21E+00	1.51E-01	1.07E+00
	AG-108M	433.93		89.90	2.15E-01	2.15E-01	-1.44E-01	1.06E-01
		614.37		90.40	2.28E-01		4.59E-02	1.11E-01
		722.95		90.50	2.59E-01		-1.19E-02	1.26E-01
+	CD-109	88.03	*	3.72	1.12E+01	1.12E+01	2.88E+01	5.59E+00
	AG-110M	657.75		93.14	2.96E-01	2.96E-01	-3.69E-02	1.44E-01
		677.61		10.53	2.62E+00		-8.22E-02	1.28E+00
		706.67		16.46	1.85E+00		-1.45E-01	9.02E-01
		763.93		21.98	1.81E+00		-3.15E+00	8.87E-01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-110M	884.67		71.63	4.83E-01	2.96E-01	-1.27E-01	2.35E-01
		1384.27		23.94	1.52E+00		-5.50E+00	7.29E-01
	CD-113M	263.70		0.02	7.74E+02	7.74E+02	-1.41E+01	3.82E+02
	SN-113	255.12		1.93	1.70E+01	5.62E-01	-2.55E+00	8.42E+00
		391.69		64.90	5.62E-01		8.76E-02	2.77E-01
	TE123M	159.00		84.10	3.64E-01	3.64E-01	-1.88E-01	1.80E-01
	SB-124	602.71		97.87	6.19E-01	6.19E-01	1.18E-01	3.02E-01
		645.85		7.26	7.52E+00		-1.01E+00	3.65E+00
		722.78		11.10	6.30E+00		-2.91E-01	3.07E+00
		1691.02		49.00	1.45E+00		7.09E-01	6.86E-01
	I-125	35.49		6.49	1.23E+01	1.23E+01	-8.53E+00	6.11E+00
	SB-125	176.33		6.89	2.73E+00	7.63E-01	-5.11E-01	1.35E+00
		427.89		29.33	7.63E-01		1.71E-01	3.75E-01
		463.38		10.35	2.06E+00		1.49E+00	1.01E+00
		600.56		17.80	1.23E+00		1.21E-01	5.98E-01
		635.90		11.32	1.69E+00		-9.54E-01	8.19E-01
	SB-126	414.70		83.30	5.18E+01	4.54E+01	-9.72E+00	2.55E+01
		666.33		99.60	5.17E+01		4.34E-02	2.53E+01
		695.00		99.60	4.54E+01		1.08E+01	2.21E+01
		720.50		53.80	8.90E+01		5.68E+00	4.34E+01
+	SN-126	87.57	*	37.00	9.78E-01	9.78E-01	2.51E+00	4.88E-01
	SB-127	473.00		25.00	2.13E+07	1.71E+07	-7.86E+05	1.04E+07
		685.20		35.70	1.71E+07		1.82E+06	8.33E+06
		783.80		14.70	5.00E+07		4.93E+07	2.44E+07
	I-129	29.78		57.00	6.69E-01	6.69E-01	-2.89E-03	3.31E-01
		33.60		13.20	2.22E+00		-1.13E+00	1.10E+00
		39.58		7.52	3.06E+00		-1.00E+00	1.52E+00
	I-131	284.30		6.05	1.14E+04	8.15E+02	7.61E+03	5.63E+03
		364.48		81.20	8.15E+02		2.44E+02	4.01E+02
		636.97		7.26	9.24E+03		-4.36E+03	4.48E+03
		722.89		1.80	4.78E+04		-2.20E+03	2.33E+04
	TE-132	49.72		13.10	9.95E+08	1.28E+08	-8.71E+08	4.94E+08
		228.16		88.00	1.28E+08		-6.69E+07	6.31E+07
	BA-133	81.00		33.00	6.72E-01	6.15E-01	-3.87E+00	3.34E-01
		302.84		17.80	1.05E+00		8.44E-02	5.18E-01
		356.01		60.00	6.15E-01		-1.33E-03	3.05E-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	1.68E+05	1.68E+05	-9.71E+05	8.38E+04
	CS-134	563.23		8.38	2.62E+00	3.09E-01	7.24E-01	1.28E+00
		569.32		15.43	1.42E+00		-5.63E-02	6.93E-01
		604.70		97.60	3.65E-01		6.82E-03	1.80E-01
		795.84		85.40	3.09E-01		2.63E-02	1.51E-01
		801.93		8.73	3.24E+00		-2.50E-01	1.58E+00
	CS-135	268.24		16.00	1.19E+00	1.19E+00	-3.46E-02	5.86E-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	3.70E+02	3.75E+01	3.87E+01	1.84E+02
		163.89		4.61	5.79E+02		3.24E+02	2.87E+02
		176.55		13.56	1.97E+02		3.43E+01	9.77E+01
		273.65		12.66	2.30E+02		9.62E+01	1.14E+02
		340.57		48.50	6.18E+01		3.49E+01	3.05E+01
		818.50		99.70	3.75E+01		-4.96E+00	1.83E+01

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	1048.07	79.60	5.02E+01	3.75E+01	-1.27E+01	2.43E+01
	1235.34	19.70	3.43E+02		1.21E+03	1.68E+02
CS-137	661.65	85.12	2.89E-01	2.89E-01	-1.81E-02	1.41E-01
LA-138	788.74	34.00	7.76E-01	4.00E-01	-5.31E-02	3.79E-01
	1435.80	66.00	4.00E-01		-5.17E-02	1.92E-01
CE-139	165.85	80.35	3.54E-01	3.54E-01	8.91E-02	1.76E-01
BA-140	162.64	6.70	4.62E+02	1.38E+02	-1.30E+02	2.29E+02
	304.84	4.50	6.98E+02		-1.62E+02	3.44E+02
	423.70	3.20	1.16E+03		-6.46E+02	5.69E+02
	437.55	2.00	1.66E+03		4.04E+02	8.15E+02
	537.32	25.00	1.38E+02		-3.74E+01	6.73E+01
LA-140	328.77	20.50	1.59E+02	5.17E+01	5.29E+00	7.82E+01
	487.03	45.50	7.70E+01		1.92E+01	3.77E+01
	815.85	23.50	1.78E+02		-1.17E+02	8.65E+01
	1596.49	95.49	5.17E+01		3.68E+01	2.48E+01
CE-141	145.44	48.40	2.83E+00	2.83E+00	-5.03E-01	1.41E+00
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	1.90E+00	1.90E+00	-7.15E-01	9.40E-01
PM-144	476.78	42.00	5.40E-01	2.20E-01	-1.49E-01	2.64E-01
	618.01	98.60	2.20E-01		2.86E-02	1.07E-01
	696.49	99.49	2.68E-01		9.59E-02	1.31E-01
PM-145	36.85	21.70	1.17E+00	6.23E-01	-1.14E+00	5.78E-01
	37.36	39.70	6.23E-01		-6.07E-01	3.09E-01
	42.30	15.10	1.45E+00		-2.49E-01	7.19E-01
	72.40	2.31	9.82E+00		-9.73E+01	4.89E+00
PM-146	453.90	39.94	5.10E-01	5.10E-01	2.12E-01	2.50E-01
	735.90	14.01	1.70E+00		2.12E-01	8.28E-01
	747.13	13.10	1.92E+00		2.67E-01	9.34E-01
ND-147	91.11	28.90	3.02E+02	3.02E+02	1.49E+03	1.50E+02
	531.02	13.10	5.87E+02		8.36E+01	2.86E+02
PM-149	285.90	3.10	5.55E+13	5.55E+13	3.56E+13	2.74E+13
EU-152	121.78	20.50	7.80E-01	7.80E-01	8.49E-02	3.87E-01
	244.69	5.40	4.66E+00		2.65E+01	2.31E+00
	344.27	19.13	1.04E+00		-2.14E-01	5.11E-01
	778.89	9.20	2.57E+00		-2.60E-01	1.25E+00
	964.01	10.40	2.65E+00		-1.07E-01	1.29E+00
	1085.78	7.22	3.56E+00		-2.55E-01	1.72E+00
	1112.02	9.60	2.86E+00		-4.79E-01	1.38E+00
	1407.95	14.94	2.38E+00		2.47E+00	1.15E+00
GD-153	97.43	31.30	7.09E-01	7.09E-01	3.04E-01	3.52E-01
	103.18	22.20	8.93E-01		-8.71E-01	4.43E-01
EU-154	123.07	40.50	4.00E-01	4.00E-01	1.28E-01	1.98E-01
	723.30	19.70	1.22E+00		6.99E-01	5.96E-01
	873.19	11.50	2.29E+00		-1.38E-01	1.11E+00
	996.32	10.30	2.70E+00		4.75E-01	1.31E+00
	1004.76	17.90	1.54E+00		4.06E-01	7.48E-01
	1274.45	35.50	7.40E-01		-2.49E-02	3.56E-01
EU-155	86.50	30.90	6.84E-01	6.84E-01	7.57E-01	3.40E-01
	105.30	20.70	7.59E-01		-4.44E-01	3.77E-01
EU-156	811.77	10.40	1.81E+02	1.81E+02	-2.45E+01	8.82E+01
	1153.47	7.20	3.18E+02		3.94E+02	1.54E+02

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-156	1230.71		8.90	2.32E+02	1.81E+02	-3.04E+00	1.12E+02
	HO-166M	184.41		72.60	3.31E-01	3.31E-01	2.75E+00	1.64E-01
		280.45		29.60	6.18E-01		-1.20E-01	3.05E-01
		410.94		11.10	1.87E+00		-7.09E-01	9.22E-01
		711.69		54.10	4.13E-01		-1.32E-01	2.01E-01
	TM-171	66.72		0.14	1.65E+02	1.65E+02	-1.03E+00	8.19E+01
	HF-172	67.35		5.31	4.34E+00	1.55E+00	-2.71E-02	2.16E+00
		125.81		11.30	1.55E+00		-9.69E-01	7.69E-01
	LU-172	181.53		20.60	1.78E+04	7.62E+03	3.88E+03	8.82E+03
		900.72		29.81	1.76E+04		8.95E+03	8.55E+03
		1093.66		62.50	7.62E+03		2.52E+02	3.68E+03
	LU-173	100.72		5.24	3.34E+00	1.07E+00	2.64E-01	1.66E+00
		272.11		21.20	1.07E+00		2.06E+00	5.31E-01
	HF-175	343.40		84.00	5.97E-01	5.97E-01	-1.23E-01	2.94E-01
	LU-176	88.34		13.30	1.52E+00	1.89E-01	-6.06E+00	7.57E-01
		201.83		86.00	2.13E-01		-4.98E-02	1.06E-01
		306.78		94.00	1.89E-01		-2.86E-02	9.33E-02
	HF-181	133.02		41.70	1.86E+00	1.13E+00	3.05E-01	9.22E-01
		345.85		17.20	5.43E+00		1.51E+00	2.68E+00
		482.03		82.80	1.13E+00		-4.99E-01	5.53E-01
	TA-182	67.75		41.20	8.70E-01	8.70E-01	-5.64E-03	4.32E-01
		1121.30		34.90	3.15E+00		2.22E+01	1.55E+00
		1189.05		16.23	2.88E+00		-4.47E-01	1.39E+00
		1221.41		26.98	1.64E+00		-1.85E-01	7.86E-01
		1231.02		11.44	4.26E+00		-4.54E-02	2.05E+00
	IR-192	308.46		29.68	1.46E+00	9.95E-01	5.95E-02	7.18E-01
		468.07		48.10	9.95E-01		-6.85E-02	4.88E-01
	HG-203	279.19		77.30	9.70E-01	9.70E-01	-1.24E+00	4.79E-01
	TL-204	374.74		94.11	2.16E-01	2.16E-01	8.02E-02	1.06E-01
		899.15		99.16	2.90E-01		4.60E-02	1.41E-01
		911.74		91.10	3.36E-01		1.96E-01	1.64E-01
	BI-207	569.67		97.72	2.07E-01	2.07E-01	-8.20E-03	1.01E-01
		1063.62		74.90	3.43E-01		-1.58E-02	1.66E-01
	TL-208	583.14		30.22	7.08E-01	5.05E-01	3.18E-01	3.46E-01
		860.37		4.48	5.70E+00		-5.46E+00	2.77E+00
		2614.66		35.85	5.05E-01		4.30E-01	2.24E-01
	BI-210M	262.00		45.00	4.09E-01	4.09E-01	-1.61E-03	2.02E-01
		300.00		23.00	9.65E-01		2.24E-01	4.77E-01
+	PB-210	46.50	*	4.25	6.19E+00	6.19E+00	1.44E+01	3.08E+00
	PB-211	404.84		2.90	7.34E+00	7.34E+00	5.39E+00	3.61E+00
		831.96		2.90	8.53E+00		-8.52E-01	4.15E+00
	BI-212	727.17		11.80	1.93E+00	1.93E+00	-3.50E-02	9.39E-01
		1620.62		2.75	8.02E+00		3.65E-01	3.79E+00
	PB-212	238.63		44.60	5.45E-01	5.45E-01	2.10E-03	2.71E-01
		300.09		3.41	6.51E+00		1.51E+00	3.22E+00
+	BI-214	609.31	*	46.30	7.69E-01	7.69E-01	2.88E+01	3.79E-01
		1120.29	*	15.10	2.83E+00		2.86E+01	1.38E+00
		1764.49	*	15.80	2.42E+00		3.01E+01	1.17E+00
		2204.22	*	4.98	4.52E+00		3.12E+01	2.09E+00
+	PB-214	295.21	*	19.19	1.38E+00	8.61E-01	3.01E+01	6.84E-01
		351.92	*	37.19	8.61E-01		2.99E+01	4.27E-01
	RN-219	401.80		6.50	3.17E+00	3.17E+00	-7.07E-01	1.56E+00
	RA-223	323.87		3.88	4.65E+00	4.65E+00	-4.17E-01	2.29E+00

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RA-224	240.98		3.95	6.79E+00	6.79E+00	5.57E+01	3.37E+00
	RA-225	40.00		31.00	6.32E+01	6.32E+01	-2.07E+01	3.13E+01
+	RA-226	186.21	*	3.28	8.66E+00	8.66E+00	6.21E+01	4.30E+00
	TH-227	50.10		8.40	2.45E+00	1.68E+00	-2.15E+00	1.22E+00
		236.00		11.50	1.68E+00		-5.10E-01	8.34E-01
		256.20		6.30	3.03E+00		3.07E+00	1.50E+00
	AC-228	338.32		11.40	1.73E+00	1.04E+00	6.61E-01	8.53E-01
		911.07		27.70	1.04E+00		2.17E-01	5.05E-01
		969.11		16.60	1.65E+00		-8.58E-02	8.03E-01
	TH-230	48.44		16.90	1.26E+00	1.26E+00	1.61E+00	6.25E-01
		62.85		4.60	4.81E+00		2.23E+01	2.39E+00
		67.67		0.37	5.44E+01		-3.53E-01	2.70E+01
	PA-231	283.67		1.60	1.17E+01	7.98E+00	7.80E+00	5.77E+00
		302.67		2.30	7.98E+00		6.41E-01	3.94E+00
+	TH-231	25.64	*	14.70	4.02E+00	4.02E+00	2.06E+00	1.99E+00
		84.21	*	6.40	5.39E+00		3.70E+00	2.69E+00
	PA-233	311.98		38.60	5.31E+00	5.31E+00	-5.95E-01	2.62E+00
	PA-234	131.20		20.40	7.93E-01	7.93E-01	1.90E-02	3.94E-01
		733.99		8.80	2.56E+00		-1.21E+00	1.25E+00
		946.00		12.00	2.14E+00		-2.79E-01	1.04E+00
+	PA-234M	1001.03	*	0.92	2.87E+01	2.87E+01	1.39E+01	1.39E+01
+	TH-234	63.29	*	3.80	6.04E+00	6.04E+00	2.62E+01	3.00E+00
+	U-235	143.76	*	10.50	1.94E+00	1.94E+00	1.52E+00	9.63E-01
		163.35	*	4.70	4.23E+00		4.03E+00	2.10E+00
		205.31	*	4.70	4.40E+00		3.69E+00	2.18E+00
	NP-237	86.50		12.60	1.62E+00	1.62E+00	1.79E+00	8.04E-01
	NP-239	106.10		22.70	1.00E+12	1.00E+12	-3.59E+11	4.97E+11
		228.18		10.70	2.49E+12		-1.30E+12	1.23E+12
		277.60		14.10	1.95E+12		-3.81E+10	9.62E+11
	AM-241	59.54		35.90	5.82E-01	5.82E-01	-1.67E-01	2.89E-01
	AM-243	74.67		66.00	4.23E-01	4.23E-01	5.91E+00	2.11E-01
	CM-243	209.75		3.29	5.41E+00	1.33E+00	5.77E-01	2.68E+00
		228.14		10.60	1.70E+00		-8.89E-01	8.39E-01
		277.60		14.00	1.33E+00		-2.59E-02	6.55E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1707084-07

HTC-A02-S001-0006-01

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-A02-S001-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3612

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	52	693
17:	721	680	642	628	614	602	667	636
25:	632	620	581	595	588	566	570	630
33:	568	598	517	553	604	585	650	628
41:	657	646	723	767	1085	1236	914	738
49:	733	838	860	1011	1052	885	912	929
57:	1001	1053	1123	1174	1454	2056	2060	1481
65:	1258	1314	1357	1377	1314	1367	1375	1551
73:	2282	3177	3310	4228	3694	1950	1388	1335
81:	1264	1230	1516	1355	1453	1951	1824	1489
89:	1355	1398	1935	2367	1700	1195	971	837
97:	967	929	826	816	833	844	820	833
105:	818	823	824	884	886	865	890	888
113:	899	831	804	806	799	808	798	795
121:	851	855	792	801	818	809	784	765
129:	841	846	789	765	809	805	770	748
137:	873	754	872	818	788	921	1029	926
145:	824	837	802	839	838	884	846	853
153:	904	906	766	793	749	807	753	691
161:	710	824	753	749	704	657	621	662
169:	740	653	667	640	653	657	668	607
177:	624	686	671	636	639	664	729	1161
185:	1996	1767	915	635	584	601	601	555
193:	584	610	656	619	633	551	567	512
201:	536	589	533	636	548	506	481	511
209:	481	478	474	477	458	479	455	467
217:	469	450	414	421	409	460	452	425
225:	408	411	468	402	410	458	420	454
233:	396	475	477	493	497	505	539	960
241:	1644	1411	547	416	383	343	331	353
249:	353	336	320	356	318	402	376	423
257:	398	450	404	345	309	313	311	298
265:	311	295	318	387	450	404	345	347
273:	341	381	338	297	291	288	283	294
281:	296	281	360	314	276	319	280	289
289:	284	264	277	334	1065	2622	2735	1038
297:	319	257	284	277	272	251	240	238
305:	243	224	242	245	214	207	239	210
313:	235	240	236	220	212	236	225	225
321:	196	228	228	208	223	204	222	211
329:	276	240	194	201	254	249	218	203
337:	246	264	250	228	211	240	221	222
345:	237	215	216	227	495	2218	4385	3295
353:	930	220	165	168	171	159	161	169
361:	180	172	179	163	172	140	171	160

369:	157	180	192	190	189	171	171	195

Sample Title: HTC-A02-S001-0006-01

Channel								
377:	177	170	188	158	174	194	187	179
385:	190	212	213	224	197	194	171	189
393:	172	179	171	160	170	163	176	190
401:	190	189	174	182	225	179	189	167
409:	159	174	171	187	181	192	150	166
417:	184	198	183	176	176	197	169	167
425:	146	168	162	198	155	151	143	138
433:	119	130	124	139	123	135	112	137
441:	112	128	137	138	134	127	125	117
449:	116	120	120	113	135	148	131	125
457:	122	120	112	117	156	134	99	129
465:	129	111	107	106	142	106	113	100
473:	102	85	115	98	108	106	127	135
481:	105	112	109	92	141	125	126	96
489:	114	115	107	105	99	88	98	89
497:	89	108	95	81	95	93	95	104
505:	87	77	98	105	144	130	140	107
513:	98	89	100	96	106	82	87	78
521:	85	71	102	90	71	86	79	75
529:	75	83	86	90	99	85	83	95
537:	108	87	91	82	102	88	91	93
545:	91	96	74	78	78	78	80	85
553:	95	85	71	83	80	75	77	81
561:	77	90	89	83	97	91	74	77
569:	78	87	80	93	80	77	75	77
577:	72	82	121	79	87	107	94	74
585:	69	88	84	61	69	79	86	92
593:	66	68	65	93	75	74	81	81
601:	82	71	77	69	65	150	874	2518
609:	2721	1116	175	60	57	56	68	48
617:	58	39	57	71	54	53	58	61
625:	62	52	58	42	60	54	64	55
633:	52	44	56	48	53	59	68	53
641:	70	56	46	50	56	59	63	40
649:	54	45	46	55	54	44	53	56
657:	56	55	52	57	59	54	73	106
665:	132	82	56	51	56	60	65	54
673:	56	54	50	46	50	55	45	50
681:	53	52	38	55	53	63	53	61
689:	57	50	55	68	56	56	41	57
697:	43	48	52	59	59	73	59	69
705:	60	49	51	50	59	47	53	54
713:	44	52	55	63	49	52	69	58
721:	51	57	52	45	53	57	61	49
729:	47	42	49	50	51	56	51	44
737:	55	50	59	49	61	80	56	52
745:	51	53	59	49	51	51	61	46
753:	51	58	58	48	54	41	48	44
761:	53	59	49	57	77	140	243	257
769:	160	72	51	56	49	47	36	51
777:	62	40	44	45	53	48	44	73
785:	87	89	56	41	48	50	44	49
793:	50	56	64	40	41	49	49	45

801:	50	47	50	65	104	115	69	40

Sample Title: HTC-A02-S001-0006-01

Channel								
809:	54	49	39	54	35	42	52	49
817:	39	54	50	51	58	46	57	54
825:	51	63	52	42	44	51	53	58
833:	37	40	48	62	64	86	73	53
841:	49	46	46	53	55	62	60	54
849:	52	57	45	50	43	63	58	44
857:	39	45	53	38	48	42	66	51
865:	57	54	45	43	54	33	59	41
873:	57	48	40	46	45	43	58	48
881:	52	41	48	49	41	55	51	53
889:	52	53	58	43	48	42	46	53
897:	39	58	53	46	46	62	50	51
905:	52	40	62	49	61	49	64	48
913:	62	53	56	48	55	45	43	49
921:	46	34	39	44	38	48	29	38
929:	37	50	50	98	153	140	84	51
937:	47	51	48	44	37	39	44	43
945:	38	35	37	44	43	39	36	36
953:	38	36	50	30	43	40	31	38
961:	44	51	56	46	44	41	43	44
969:	49	46	47	37	46	48	41	35
977:	41	53	46	53	55	38	48	31
985:	46	33	35	42	30	34	41	36
993:	47	38	39	43	27	38	51	53
1001:	54	27	36	29	48	33	39	41
1009:	19	38	32	38	39	38	36	36
1017:	29	37	27	30	41	35	34	36
1025:	33	41	39	34	26	44	27	26
1033:	32	40	39	38	32	33	37	35
1041:	39	30	30	31	37	39	37	29
1049:	37	34	46	43	39	38	25	38
1057:	34	36	33	39	24	27	38	27
1065:	41	34	26	55	45	34	53	31
1073:	29	27	25	29	30	32	39	39
1081:	30	29	39	30	28	30	35	22
1089:	31	26	24	32	29	31	29	32
1097:	30	33	26	32	22	32	36	35
1105:	32	36	38	35	25	30	34	31
1113:	32	34	41	27	72	202	487	455
1121:	218	72	28	30	32	28	25	30
1129:	30	39	26	41	34	34	33	26
1137:	29	23	37	28	17	34	30	21
1145:	35	27	32	30	17	28	28	25
1153:	41	52	78	49	22	26	17	21
1161:	31	32	37	26	36	31	30	26
1169:	16	26	29	32	25	30	27	24
1177:	34	27	36	38	36	41	33	24
1185:	30	24	26	32	26	27	29	23
1193:	32	26	19	33	16	26	22	17
1201:	18	30	20	24	26	27	30	40
1209:	28	18	23	18	19	20	18	26
1217:	30	18	22	30	20	18	21	31
1225:	21	24	24	32	31	23	25	27

1233:	24	34	35	115	189	171	80	35

Sample Title: HTC-A02-S001-0006-01

Channel								
1241:	26	22	19	23	19	22	28	27
1249:	20	24	21	37	25	22	23	17
1257:	20	30	25	26	24	22	20	17
1265:	18	15	19	24	31	22	24	26
1273:	23	19	27	24	23	23	56	65
1281:	59	36	16	17	23	21	20	29
1289:	14	22	16	27	18	11	24	32
1297:	24	21	18	18	26	18	28	24
1305:	26	20	22	21	24	18	30	21
1313:	25	21	18	24	18	18	13	27
1321:	18	26	21	25	17	21	22	35
1329:	23	20	24	26	23	17	23	23
1337:	18	18	22	13	16	23	11	16
1345:	25	15	12	19	12	20	20	14
1353:	21	26	19	14	15	21	14	19
1361:	19	21	22	23	14	18	18	27
1369:	24	20	27	17	19	24	40	118
1377:	145	101	35	18	16	23	30	37
1385:	23	24	21	22	13	19	20	21
1393:	20	12	18	21	24	25	28	60
1401:	51	42	33	21	17	46	81	75
1409:	29	25	18	22	16	18	15	23
1417:	19	20	20	18	14	23	26	25
1425:	28	18	10	20	26	17	18	17
1433:	20	25	16	21	15	20	27	12
1441:	27	23	22	18	16	17	28	21
1449:	17	23	20	21	24	24	23	26
1457:	26	26	34	51	32	18	19	17
1465:	19	18	12	22	19	22	16	19
1473:	30	17	22	16	20	30	15	21
1481:	24	19	23	18	25	16	23	21
1489:	21	16	20	30	20	24	22	32
1497:	20	19	22	18	27	20	34	19
1505:	30	23	47	52	55	60	24	16
1513:	24	11	17	26	19	24	18	29
1521:	14	24	21	16	20	18	28	15
1529:	20	25	14	27	23	28	15	25
1537:	35	50	23	19	25	32	34	17
1545:	16	18	22	15	14	14	10	17
1553:	11	21	20	19	20	14	25	16
1561:	15	11	9	17	16	18	13	18
1569:	15	13	11	15	14	12	18	23
1577:	11	9	16	12	18	26	32	15
1585:	16	17	13	13	15	16	14	11
1593:	19	21	16	16	20	23	25	18
1601:	13	16	9	18	9	9	18	8
1609:	11	13	17	12	14	15	11	12
1617:	10	4	11	19	14	11	7	9
1625:	8	7	10	15	9	11	14	12
1633:	11	10	7	19	8	6	6	10
1641:	12	10	11	14	7	7	12	13
1649:	9	11	11	7	13	18	11	10
1657:	12	10	16	31	25	12	11	4

1665:	7	6	4	8	10	4	9	6

Sample Title: HTC-A02-S001-0006-01

Channel								
1673:	8	8	5	10	14	5	5	4
1681:	6	8	13	9	11	7	7	8
1689:	9	10	14	21	11	14	10	15
1697:	8	3	8	10	6	5	3	10
1705:	5	9	6	3	5	7	4	7
1713:	10	2	9	5	7	9	7	6
1721:	6	5	7	8	8	6	23	55
1729:	84	60	25	7	10	7	1	6
1737:	10	7	3	2	5	10	2	4
1745:	9	7	9	5	7	7	6	6
1753:	10	4	7	9	7	9	10	8
1761:	36	105	266	325	202	69	9	3
1769:	2	3	6	4	2	2	7	3
1777:	3	0	9	7	5	3	5	2
1785:	5	10	4	1	6	9	5	9
1793:	4	6	3	7	3	6	2	6
1801:	5	4	9	2	5	4	3	3
1809:	4	6	9	5	3	10	7	6
1817:	8	5	10	3	6	4	6	4
1825:	3	6	4	7	7	5	4	7
1833:	6	9	9	10	13	14	7	7
1841:	6	3	13	12	28	36	43	29
1849:	11	8	3	4	4	3	2	7
1857:	2	4	6	9	2	1	9	9
1865:	2	12	1	2	7	3	7	4
1873:	11	7	9	8	7	6	8	6
1881:	3	7	7	5	6	3	6	2
1889:	6	7	7	1	4	6	3	12
1897:	8	6	5	5	5	6	2	5
1905:	6	6	4	8	3	4	8	6
1913:	4	3	3	7	1	2	4	3
1921:	2	7	5	8	0	5	6	7
1929:	3	6	4	9	7	7	4	8
1937:	9	9	2	9	4	8	7	3
1945:	9	2	6	3	3	6	0	6
1953:	4	3	5	13	3	1	8	6
1961:	12	5	6	5	4	5	7	6
1969:	3	11	7	5	3	3	3	3
1977:	6	6	7	5	2	2	4	2
1985:	6	2	4	7	6	5	6	7
1993:	3	5	4	5	4	4	3	4
2001:	5	4	1	4	1	2	5	4
2009:	6	3	9	2	6	1	6	3
2017:	5	0	2	4	4	4	3	3
2025:	4	0	0	4	5	5	4	5
2033:	3	1	1	2	2	4	3	1
2041:	1	3	5	2	1	1	2	4
2049:	4	10	5	2	2	3	3	1
2057:	2	1	1	2	3	1	3	6
2065:	2	4	3	2	1	0	4	1
2073:	5	2	2	1	2	2	2	5
2081:	2	2	3	2	3	3	2	2
2089:	6	4	1	2	0	3	2	2

2097:	2	3	3	3	3	2	2	1

Sample Title: HTC-A02-S001-0006-01

Channel								
2105:	2	2	5	3	3	5	1	4
2113:	2	2	5	8	23	26	16	2
2121:	4	1	1	1	2	3	2	0
2129:	2	2	1	3	1	0	1	0
2137:	1	2	1	1	4	1	1	1
2145:	1	4	1	2	5	3	3	2
2153:	2	0	1	3	1	0	1	3
2161:	2	1	3	4	2	2	0	1
2169:	0	0	2	4	0	2	1	3
2177:	4	3	1	1	1	2	3	4
2185:	6	1	4	0	4	0	0	3
2193:	3	2	4	2	3	2	1	6
2201:	18	41	84	70	42	11	2	0
2209:	5	0	1	1	6	1	1	0
2217:	1	2	1	4	0	4	0	1
2225:	1	0	0	0	1	0	1	1
2233:	0	2	1	1	1	1	1	1
2241:	0	3	1	0	2	3	0	0
2249:	1	0	1	0	1	1	2	1
2257:	1	1	0	1	1	3	2	0
2265:	3	0	1	1	3	1	0	0
2273:	0	0	2	1	0	0	0	0
2281:	0	2	2	2	0	1	0	1
2289:	1	2	5	2	7	2	3	2
2297:	2	2	0	0	2	1	1	0
2305:	2	0	1	1	2	0	1	4
2313:	1	0	0	0	1	1	1	0
2321:	1	0	0	0	1	0	1	0
2329:	1	1	1	0	0	1	0	2
2337:	0	1	1	1	2	1	0	0
2345:	0	1	0	1	0	1	0	1
2353:	0	0	3	0	1	1	0	1
2361:	0	1	0	1	1	1	0	1
2369:	0	0	0	0	0	2	0	1
2377:	1	0	1	1	0	0	1	1
2385:	1	0	1	1	0	0	1	0
2393:	1	1	0	0	0	1	1	0
2401:	1	0	1	0	0	0	0	0
2409:	0	0	1	1	0	0	0	1
2417:	0	0	0	0	0	1	0	0
2425:	0	0	3	0	0	0	0	0
2433:	1	0	0	0	0	1	0	0
2441:	1	2	0	1	13	19	27	19
2449:	13	2	0	0	0	0	0	1
2457:	1	1	1	1	1	0	0	0
2465:	2	0	0	0	1	0	1	0
2473:	1	0	0	0	1	0	1	0
2481:	2	2	0	0	0	0	0	0
2489:	2	1	0	0	0	0	3	0
2497:	0	1	0	2	1	1	0	0
2505:	1	1	0	1	0	0	0	0
2513:	1	1	0	2	1	0	0	2
2521:	1	0	0	0	0	1	0	0

2529:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S001-0006-01

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

2961:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S001-0006-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-0006-01

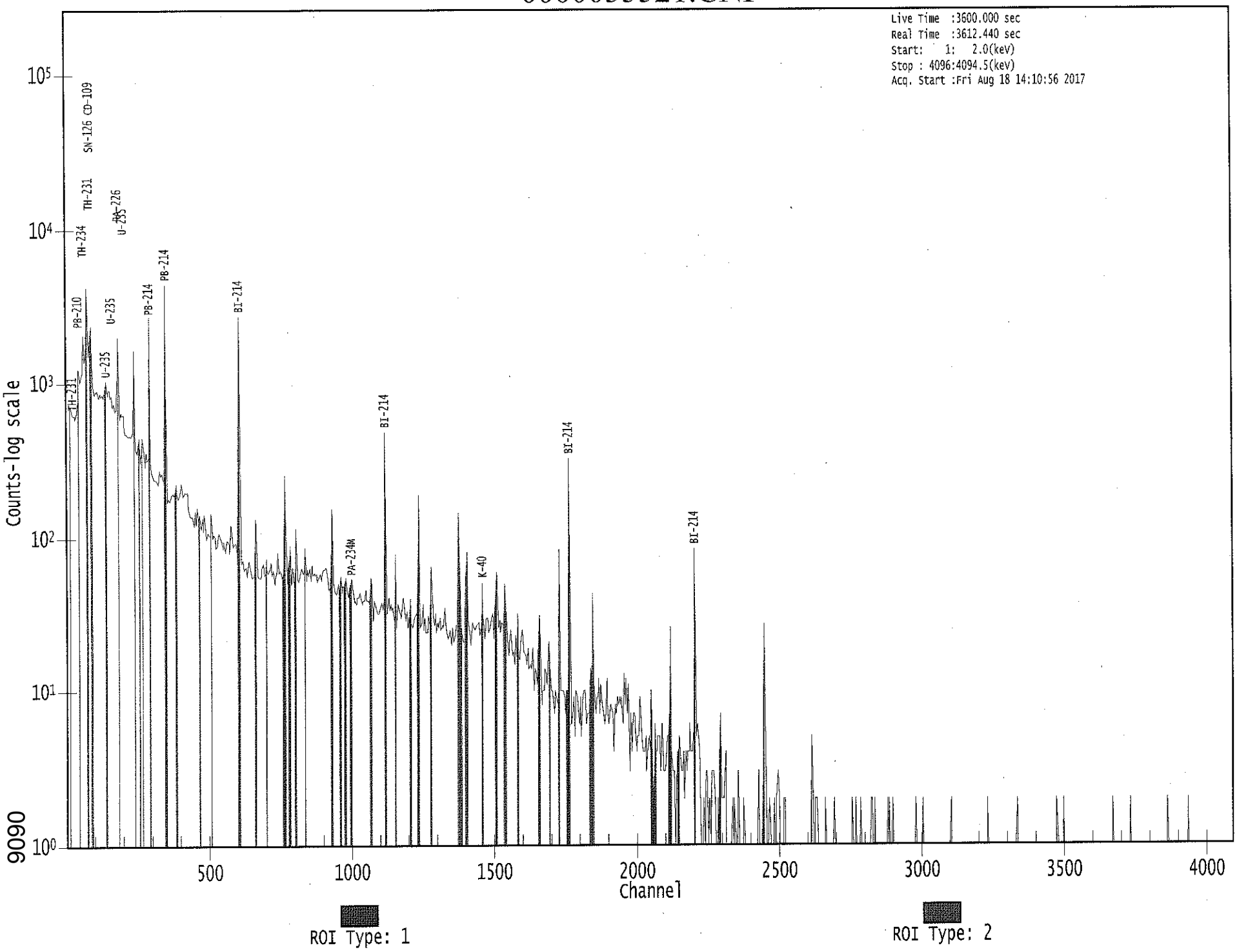
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	1	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	1	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	1
3441:	0	0	0	0	0	0	1	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	2	0	1	0	0	0	0	1
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	2	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-0006-01

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

0000055521.CNF



9090

KB 8/18/17

Apex-Gamma

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-10
Sample Description	: HTC-A02-S001-0006-02
Sample Type	: SOIL
Sample Size	: 7.647E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:06:30AM
Acquisition Started	: 8/18/2017 2:38:29PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3610.5 seconds
Dead Time	: 0.29 %
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	: 55522

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 3:38:42PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.42	47.05	0.0000	0.00
2	52.89	53.50	0.0000	0.00
3	63.14	63.74	0.0000	0.00
4	74.72	75.31	0.0000	0.00
5	77.20	77.79	0.0000	0.00
6	83.92	84.50	0.0000	0.00
7	87.71	88.29	0.0000	0.00
8	92.30	92.88	0.0000	0.00
9	112.72	113.28	0.0000	0.00
10	144.00	144.52	0.0000	0.00
11	154.90	155.41	0.0000	0.00
12	186.02	186.50	0.0000	0.00
13	205.20	205.66	0.0000	0.00
14	235.77	236.20	0.0000	0.00
15	242.00	242.43	0.0000	0.00
16	257.35	257.76	0.0000	0.00
17	271.09	271.48	0.0000	0.00
18	285.99	286.37	0.0000	0.00
19	295.26	295.62	0.0000	0.00
20	299.73	300.10	0.0000	0.00
21	324.05	324.39	0.0000	0.00
22	338.34	338.67	0.0000	0.00
23	351.96	352.27	0.0000	0.00
24	356.01	356.32	0.0000	0.00
25	388.97	389.24	0.0000	0.00
26	454.86	455.07	0.0000	0.00
27	462.34	462.54	0.0000	0.00
28	486.97	487.14	0.0000	0.00
29	511.54	511.69	0.0000	0.00
30	533.89	534.01	0.0000	0.00
31	581.61	581.69	0.0000	0.00
32	609.44	609.49	0.0000	0.00
33	613.50	613.55	0.0000	0.00
34	665.69	665.68	0.0000	0.00
35	703.23	703.19	0.0000	0.00
36	720.15	720.09	0.0000	0.00
37	742.64	742.55	0.0000	0.00
38	768.28	768.17	0.0000	0.00
39	786.11	785.99	0.0000	0.00
40	805.95	805.80	0.0000	0.00
41	831.96	831.79	0.0000	0.00
42	839.10	838.92	0.0000	0.00

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	934.30	934.03	0.0000	0.00
44	964.10	963.80	0.0000	0.00
45	1001.76	1001.42	0.0000	0.00
46	1043.37	1042.98	0.0000	0.00
47	1048.18	1047.80	0.0000	0.00
48	1051.60	1051.20	0.0000	0.00
49	1104.68	1104.24	0.0000	0.00
50	1120.59	1120.13	0.0000	0.00
51	1125.67	1125.21	0.0000	0.00
52	1133.71	1133.24	0.0000	0.00
53	1148.36	1147.87	0.0000	0.00
54	1155.32	1154.83	0.0000	0.00
55	1181.61	1181.09	0.0000	0.00
56	1207.44	1206.90	0.0000	0.00
57	1226.76	1226.19	0.0000	0.00
58	1238.68	1238.11	0.0000	0.00
59	1254.50	1253.91	0.0000	0.00
60	1281.33	1280.71	0.0000	0.00
61	1304.54	1303.90	0.0000	0.00
62	1314.16	1313.50	0.0000	0.00
63	1377.93	1377.22	0.0000	0.00
64	1384.94	1384.22	0.0000	0.00
65	1401.95	1401.22	0.0000	0.00
66	1408.53	1407.78	0.0000	0.00
67	1461.23	1460.43	0.0000	0.00
68	1470.56	1469.76	0.0000	0.00
69	1487.13	1486.31	0.0000	0.00
70	1509.42	1508.58	0.0000	0.00
71	1539.07	1538.20	0.0000	0.00
72	1543.98	1543.10	0.0000	0.00
73	1583.21	1582.29	0.0000	0.00
74	1607.59	1606.65	0.0000	0.00
75	1661.48	1660.49	0.0000	0.00
76	1684.60	1683.59	0.0000	0.00
77	1695.07	1694.05	0.0000	0.00
78	1730.06	1729.01	0.0000	0.00
79	1740.85	1739.78	0.0000	0.00
80	1764.92	1763.82	0.0000	0.00
81	1769.75	1768.65	0.0000	0.00
82	1835.16	1834.00	0.0000	0.00
83	1847.65	1846.48	0.0000	0.00
84	1874.91	1873.71	0.0000	0.00
85	2119.08	2117.64	0.0000	0.00
86	2204.46	2202.94	0.0000	0.00
87	2209.07	2207.55	0.0000	0.00
88	2293.77	2292.17	0.0000	0.00
89	2298.61	2297.00	0.0000	0.00
90	2371.94	2370.27	0.0000	0.00
91	2418.65	2416.93	0.0000	0.00
92	2448.01	2446.27	0.0000	0.00
93	2615.12	2613.22	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 3:38:42PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.42	44 -	49	47.05	1.18E+03	212.02	8.08E+03	1.47
	2	52.89	51 -	57	53.50	3.94E+02	260.39	1.21E+04	1.56
	3	63.14	61 -	66	63.74	2.32E+03	287.71	1.48E+04	1.37
M	4	74.72	71 -	83	75.31	4.12E+03	299.65	1.43E+04	1.81
m	5	77.20	71 -	83	77.79	7.15E+03	324.69	1.43E+04	1.82
M	6	83.92	83 -	97	84.50	8.82E+02	126.43	5.13E+03	2.01
m	7	87.71	83 -	97	88.29	2.21E+03	281.10	1.41E+04	2.02
m	8	92.30	83 -	97	92.88	3.82E+03	287.90	1.23E+04	2.02
	9	112.72	111 -	116	113.28	2.13E+02	226.07	1.00E+04	2.03
	10	144.00	142 -	147	144.52	5.85E+02	225.76	9.71E+03	1.91
	11	154.90	154 -	158	155.41	2.39E+02	195.10	8.20E+03	2.06
	12	186.02	182 -	190	186.50	3.68E+03	314.17	1.29E+04	1.99
	13	205.20	203 -	208	205.66	1.54E+02	187.46	6.84E+03	1.14
M	14	235.77	233 -	245	236.20	1.96E+02	125.43	3.84E+03	1.49
m	15	242.00	233 -	245	242.43	4.02E+03	190.97	4.51E+03	1.77
	16	257.35	254 -	261	257.76	4.29E+02	193.07	5.92E+03	3.77
	17	271.09	265 -	276	271.48	9.43E+02	262.68	8.15E+03	3.20
	18	285.99	284 -	289	286.37	1.78E+02	138.61	3.71E+03	3.04
M	19	295.26	290 -	304	295.62	8.74E+03	220.29	3.00E+03	1.68
m	20	299.73	290 -	304	300.10	5.02E+02	224.98	4.59E+03	2.74
	21	324.05	322 -	327	324.39	1.36E+02	124.57	3.00E+03	1.95
	22	338.34	337 -	341	338.67	9.34E+01	108.39	2.52E+03	1.48
M	23	351.96	346 -	360	352.27	1.51E+04	265.98	2.19E+03	1.71
m	24	356.01	346 -	360	356.32	5.08E+02	210.72	3.01E+03	2.54
	25	388.97	385 -	393	389.24	2.93E+02	147.01	3.13E+03	2.46
	26	454.86	452 -	458	455.07	1.04E+02	101.15	1.78E+03	2.76
	27	462.34	460 -	465	462.54	1.33E+02	88.77	1.47E+03	2.59
	28	486.97	484 -	489	487.14	1.27E+02	85.70	1.36E+03	1.81
	29	511.54	506 -	519	511.69	3.31E+02	163.11	2.79E+03	3.43
	30	533.89	531 -	537	534.01	8.12E+01	88.89	1.38E+03	1.28
	31	581.61	576 -	585	581.69	1.82E+02	115.06	1.78E+03	4.85
M	32	609.44	603 -	617	609.49	1.14E+04	225.86	1.01E+03	1.84
m	33	613.50	603 -	617	613.55	3.64E+02	174.43	1.18E+03	2.49
	34	665.69	662 -	670	665.68	3.12E+02	94.82	1.18E+03	1.95
	35	703.23	700 -	705	703.19	9.83E+01	62.98	7.15E+02	2.04
	36	720.15	717 -	723	720.09	1.02E+02	66.82	7.42E+02	1.29
	37	742.64	738 -	747	742.55	1.21E+02	88.95	1.06E+03	3.29
	38	768.28	763 -	773	768.17	1.13E+03	122.26	1.39E+03	2.15
	39	786.11	782 -	791	785.99	2.84E+02	92.21	1.06E+03	1.82
	40	805.95	801 -	810	805.80	1.96E+02	95.36	1.19E+03	1.73

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	831.96	829 -	835	831.79	7.36E+01	68.77	8.09E+02	1.59
	42	839.10	836 -	842	838.92	9.85E+01	70.39	8.29E+02	1.55
	43	934.30	930 -	938	934.03	5.93E+02	88.76	8.50E+02	1.73
M	44	964.10	960 -	973	963.80	1.15E+02	60.27	5.52E+02	2.22
	45	1001.76	996 -	1007	1001.42	2.38E+02	96.10	1.03E+03	2.45
	46	1043.37	1041 -	1045	1042.98	3.58E+01	40.09	3.16E+02	1.41
M	47	1048.18	1046 -	1055	1047.80	5.61E+01	28.36	1.75E+02	2.25
m	48	1051.60	1046 -	1055	1051.20	7.37E+01	54.30	4.70E+02	2.26
	49	1104.68	1100 -	1108	1104.24	7.80E+01	66.60	6.34E+02	2.26
M	50	1120.59	1113 -	1128	1120.13	2.47E+03	110.65	4.35E+02	2.28
m	51	1125.67	1113 -	1128	1125.21	1.09E+02	58.23	4.09E+02	2.28
	52	1133.71	1129 -	1138	1133.24	1.14E+02	66.40	5.63E+02	3.68
M	53	1148.36	1144 -	1159	1147.87	3.63E+01	52.02	4.82E+02	2.29
m	54	1155.32	1144 -	1159	1154.83	2.40E+02	59.62	4.79E+02	2.30
	55	1181.61	1177 -	1184	1181.09	5.22E+01	55.86	4.88E+02	2.93
	56	1207.44	1203 -	1210	1206.90	9.41E+01	55.96	4.58E+02	1.53
	57	1226.76	1224 -	1230	1226.19	3.88E+01	45.93	3.58E+02	2.02
	58	1238.68	1231 -	1248	1238.11	9.98E+02	119.89	9.37E+02	2.23
	59	1254.50	1249 -	1258	1253.91	9.46E+01	60.82	4.73E+02	3.19
	60	1281.33	1276 -	1285	1280.71	1.86E+02	71.85	6.33E+02	1.97
	61	1304.54	1300 -	1307	1303.90	6.16E+01	46.95	3.23E+02	3.18
	62	1314.16	1308 -	1319	1313.50	1.19E+02	62.71	4.32E+02	9.68
M	63	1377.93	1371 -	1391	1377.22	6.47E+02	67.31	3.15E+02	2.38
m	64	1384.94	1371 -	1391	1384.22	9.74E+01	48.28	3.29E+02	2.38
M	65	1401.95	1395 -	1414	1401.22	2.01E+02	50.59	3.17E+02	2.38
m	66	1408.53	1395 -	1414	1407.78	3.59E+02	57.75	3.30E+02	2.39
	67	1461.23	1455 -	1466	1460.43	1.57E+02	72.97	5.83E+02	2.64
	68	1470.56	1466 -	1473	1469.76	4.69E+01	47.92	3.50E+02	3.80
	69	1487.13	1481 -	1491	1486.31	5.95E+01	64.48	5.23E+02	4.71
	70	1509.42	1503 -	1513	1508.58	3.21E+02	75.20	5.82E+02	2.56
M	71	1539.07	1535 -	1547	1538.20	6.50E+01	42.07	3.23E+02	1.91
m	72	1543.98	1535 -	1547	1543.10	8.56E+01	53.07	3.90E+02	2.51
	73	1583.21	1578 -	1586	1582.29	7.44E+01	54.62	4.11E+02	2.03
	74	1607.59	1603 -	1609	1606.65	3.51E+01	35.82	1.98E+02	1.89
	75	1661.48	1657 -	1666	1660.49	1.41E+02	44.73	2.06E+02	2.34
	76	1684.60	1677 -	1688	1683.59	4.65E+01	43.73	2.15E+02	2.99
	77	1695.07	1689 -	1700	1694.05	6.45E+01	38.00	1.43E+02	4.12
M	78	1730.06	1723 -	1747	1729.01	4.76E+02	51.15	1.22E+02	2.55
m	79	1740.85	1723 -	1747	1739.78	2.75E+01	27.20	8.60E+01	2.74
M	80	1764.92	1756 -	1775	1763.82	2.02E+03	92.79	9.01E+01	2.37
m	81	1769.75	1756 -	1775	1768.65	8.85E+01	93.41	7.25E+01	3.66
M	82	1835.16	1833 -	1862	1834.00	1.45E+01	8.63	1.21E+01	2.29
m	83	1847.65	1833 -	1862	1846.48	2.67E+02	37.36	3.96E+01	2.78
	84	1874.91	1869 -	1881	1873.71	5.00E+01	36.70	1.30E+02	3.84
	85	2119.08	2112 -	2124	2117.64	1.70E+02	37.43	8.52E+01	2.34
M	86	2204.46	2196 -	2213	2202.94	5.67E+02	49.42	3.30E+01	2.41
m	87	2209.07	2196 -	2213	2207.55	2.07E+01	30.59	2.48E+01	2.62
M	88	2293.77	2287 -	2303	2292.17	4.60E+01	17.11	1.44E+01	2.92
m	89	2298.61	2287 -	2303	2297.00	9.89E+00	12.52	3.09E+00	2.41
	90	2371.94	2366 -	2374	2370.27	8.73E+00	8.02	4.55E+00	3.72
	91	2418.65	2414 -	2419	2416.93	7.67E+00	6.71	2.67E+00	1.99
	92	2448.01	2442 -	2451	2446.27	1.69E+02	26.70	5.70E+00	2.74
	93	2615.12	2610 -	2616	2613.22	3.51E+01	12.66	3.76E+00	2.16

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 3:38:42PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.42	44 -	49	1.18E+03	212.02	8.08E+03	1.65E+02
	2	52.89	51 -	57	3.94E+02	260.39	1.21E+04	2.12E+02
	3	63.14	61 -	66	2.32E+03	287.71	1.48E+04	2.23E+02
M	4	74.72	71 -	83	4.12E+03	299.65	1.43E+04	1.96E+02
m	5	77.20	71 -	83	7.15E+03	324.69	1.43E+04	1.97E+02
M	6	83.92	83 -	97	8.82E+02	126.43	5.13E+03	1.18E+02
m	7	87.71	83 -	97	2.21E+03	281.10	1.41E+04	1.95E+02
m	8	92.30	83 -	97	3.82E+03	287.90	1.23E+04	1.82E+02
	9	112.72	111 -	116	2.13E+02	226.07	1.00E+04	1.84E+02
	10	144.00	142 -	147	5.85E+02	225.76	9.71E+03	1.81E+02
	11	154.90	154 -	158	2.39E+02	195.10	8.20E+03	1.58E+02
	12	186.02	182 -	190	3.68E+03	314.17	1.29E+04	2.38E+02
	13	205.20	203 -	208	1.54E+02	187.46	6.84E+03	1.53E+02
M	14	235.77	233 -	245	1.96E+02	125.43	3.84E+03	1.02E+02
m	15	242.00	233 -	245	4.02E+03	190.97	4.51E+03	1.10E+02
	16	257.35	254 -	261	4.29E+02	193.07	5.92E+03	1.55E+02
	17	271.09	265 -	276	9.43E+02	262.68	8.15E+03	2.10E+02
	18	285.99	284 -	289	1.78E+02	138.61	3.71E+03	1.12E+02
M	19	295.26	290 -	304	8.74E+03	220.29	3.00E+03	9.00E+01
m	20	299.73	290 -	304	5.02E+02	224.98	4.59E+03	1.11E+02
	21	324.05	322 -	327	1.36E+02	124.57	3.00E+03	1.01E+02
	22	338.34	337 -	341	9.34E+01	108.39	2.52E+03	8.77E+01
M	23	351.96	346 -	360	1.51E+04	265.98	2.19E+03	7.69E+01
m	24	356.01	346 -	360	5.08E+02	210.72	3.01E+03	9.02E+01
	25	388.97	385 -	393	2.93E+02	147.01	3.13E+03	1.18E+02
	26	454.86	452 -	458	1.04E+02	101.15	1.78E+03	8.14E+01
	27	462.34	460 -	465	1.33E+02	88.77	1.47E+03	7.05E+01
	28	486.97	484 -	489	1.27E+02	85.70	1.36E+03	6.80E+01
	29	511.54	506 -	519	3.31E+02	163.11	2.79E+03	1.31E+02
	30	533.89	531 -	537	8.12E+01	88.89	1.38E+03	7.16E+01
	31	581.61	576 -	585	1.82E+02	115.06	1.78E+03	9.19E+01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	32	609.44	603 -	617	1.14E+04	225.86	1.01E+03	5.23E+01
m	33	613.50	603 -	617	3.64E+02	174.43	1.18E+03	5.65E+01
	34	665.69	662 -	670	3.12E+02	94.82	1.18E+03	7.23E+01
	35	703.23	700 -	705	9.83E+01	62.98	7.15E+02	4.91E+01
	36	720.15	717 -	723	1.02E+02	66.82	7.42E+02	5.24E+01
	37	742.64	738 -	747	1.21E+02	88.95	1.06E+03	7.08E+01
	38	768.28	763 -	773	1.13E+03	122.26	1.39E+03	8.39E+01
	39	786.11	782 -	791	2.84E+02	92.21	1.06E+03	7.05E+01
	40	805.95	801 -	810	1.96E+02	95.36	1.19E+03	7.49E+01
	41	831.96	829 -	835	7.36E+01	68.77	8.09E+02	5.47E+01
	42	839.10	836 -	842	9.85E+01	70.39	8.29E+02	5.55E+01
	43	934.30	930 -	938	5.93E+02	88.76	8.50E+02	6.10E+01
M	44	964.10	960 -	973	1.15E+02	60.27	5.52E+02	3.86E+01
	45	1001.76	996 -	1007	2.38E+02	96.10	1.03E+03	7.48E+01
	46	1043.37	1041 -	1045	3.58E+01	40.09	3.16E+02	3.15E+01
M	47	1048.18	1046 -	1055	5.61E+01	28.36	1.75E+02	2.18E+01
m	48	1051.60	1046 -	1055	7.37E+01	54.30	4.70E+02	3.56E+01
	49	1104.68	1100 -	1108	7.80E+01	66.60	6.34E+02	5.28E+01
M	50	1120.59	1113 -	1128	2.47E+03	110.65	4.35E+02	3.43E+01
m	51	1125.67	1113 -	1128	1.09E+02	58.23	4.09E+02	3.32E+01
	52	1133.71	1129 -	1138	1.14E+02	66.40	5.63E+02	5.17E+01
M	53	1148.36	1144 -	1159	3.63E+01	52.02	4.82E+02	3.61E+01
m	54	1155.32	1144 -	1159	2.40E+02	59.62	4.79E+02	3.60E+01
	55	1181.61	1177 -	1184	5.22E+01	55.86	4.88E+02	4.44E+01
	56	1207.44	1203 -	1210	9.41E+01	55.96	4.58E+02	4.32E+01
	57	1226.76	1224 -	1230	3.88E+01	45.93	3.58E+02	3.63E+01
	58	1238.68	1231 -	1248	9.98E+02	119.89	9.37E+02	3.16E+01
	59	1254.50	1249 -	1258	9.46E+01	60.82	4.73E+02	4.74E+01
	60	1281.33	1276 -	1285	1.86E+02	71.85	6.33E+02	5.46E+01
	61	1304.54	1300 -	1307	6.16E+01	46.95	3.23E+02	3.64E+01
	62	1314.16	1308 -	1319	1.19E+02	62.71	4.32E+02	4.83E+01
M	63	1377.93	1371 -	1391	6.47E+02	67.31	3.15E+02	2.92E+01
m	64	1384.94	1371 -	1391	9.74E+01	48.28	3.29E+02	2.98E+01
M	65	1401.95	1395 -	1414	2.01E+02	50.59	3.17E+02	2.93E+01
m	66	1408.53	1395 -	1414	3.59E+02	57.75	3.30E+02	2.99E+01
	67	1461.23	1455 -	1466	1.57E+02	72.97	5.83E+02	3.45E+01
	68	1470.56	1466 -	1473	4.69E+01	47.92	3.50E+02	3.77E+01
	69	1487.13	1481 -	1491	5.95E+01	64.48	5.23E+02	5.15E+01
	70	1509.42	1503 -	1513	3.21E+02	75.20	5.82E+02	5.43E+01
M	71	1539.07	1535 -	1547	6.50E+01	42.07	3.23E+02	2.96E+01
m	72	1543.98	1535 -	1547	8.56E+01	53.07	3.90E+02	3.25E+01
	73	1583.21	1578 -	1586	7.44E+01	54.62	4.11E+02	4.26E+01
	74	1607.59	1603 -	1609	3.51E+01	35.82	1.98E+02	2.78E+01
	75	1661.48	1657 -	1666	1.41E+02	44.73	2.06E+02	3.12E+01
	76	1684.60	1677 -	1688	4.65E+01	43.73	2.15E+02	3.41E+01
	77	1695.07	1689 -	1700	6.45E+01	38.00	1.43E+02	2.83E+01
M	78	1730.06	1723 -	1747	4.76E+02	51.15	1.22E+02	1.81E+01
m	79	1740.85	1723 -	1747	2.75E+01	27.20	8.60E+01	1.52E+01
M	80	1764.92	1756 -	1775	2.02E+03	92.79	9.01E+01	1.56E+01
m	81	1769.75	1756 -	1775	8.85E+01	93.41	7.25E+01	1.40E+01
M	82	1835.16	1833 -	1862	1.45E+01	8.63	1.21E+01	5.72E+00

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	83	1847.65	1833 -	1862	2.67E+02	37.36	3.96E+01	1.03E+01
	84	1874.91	1869 -	1881	5.00E+01	36.70	1.30E+02	2.78E+01
	85	2119.08	2112 -	2124	1.70E+02	37.43	8.52E+01	2.21E+01
M	86	2204.46	2196 -	2213	5.67E+02	49.42	3.30E+01	9.45E+00
m	87	2209.07	2196 -	2213	2.07E+01	30.59	2.48E+01	8.19E+00
M	88	2293.77	2287 -	2303	4.60E+01	17.11	1.44E+01	6.23E+00
m	89	2298.61	2287 -	2303	9.89E+00	12.52	3.09E+00	2.89E+00
	90	2371.94	2366 -	2374	8.73E+00	8.02	4.55E+00	4.45E+00
	91	2418.65	2414 -	2419	7.67E+00	6.71	2.67E+00	3.11E+00
	92	2448.01	2442 -	2451	1.69E+02	26.70	5.70E+00	4.96E+00
	93	2615.12	2610 -	2616	3.51E+01	12.66	3.76E+00	3.65E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 3:38:42PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.42	44 -	49	47.05	1.18E+03	212.02	8.08E+03	PB-210
	2	52.89	51 -	57	53.50	3.94E+02	260.39	1.21E+04	.....
	3	63.14	61 -	66	63.74	2.32E+03	287.71	1.48E+04	TH-234
									TH-230
M	4	74.72	71 -	83	75.31	4.12E+03	299.65	1.43E+04	AM-243
m	5	77.20	71 -	83	77.79	7.15E+03	324.69	1.43E+04	.....
M	6	83.92	83 -	97	84.50	8.82E+02	126.43	5.13E+03	TH-231
m	7	87.71	83 -	97	88.29	2.21E+03	281.10	1.41E+04	SN-126
									CD-109
									LU-176
m	8	92.30	83 -	97	92.88	3.82E+03	287.90	1.23E+04	.....
	9	112.72	111 -	116	113.28	2.13E+02	226.07	1.00E+04	.....
	10	144.00	142 -	147	144.52	5.85E+02	225.76	9.71E+03	U-235
	11	154.90	154 -	158	155.41	2.39E+02	195.10	8.20E+03	.....
	12	186.02	182 -	190	186.50	3.68E+03	314.17	1.29E+04	RA-226

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	13	205.20	203 -	208	205.66	1.54E+02	187.46	6.84E+03	U-235
M	14	235.77	233 -	245	236.20	1.96E+02	125.43	3.84E+03	NB-95M
									TH-227
m	15	242.00	233 -	245	242.43	4.02E+03	190.97	4.51E+03	.....
	16	257.35	254 -	261	257.76	4.29E+02	193.07	5.92E+03	.....
	17	271.09	265 -	276	271.48	9.43E+02	262.68	8.15E+03	.....
	18	285.99	284 -	289	286.37	1.78E+02	138.61	3.71E+03	PM-149
M	19	295.26	290 -	304	295.62	8.74E+03	220.29	3.00E+03	PB-214
m	20	299.73	290 -	304	300.10	5.02E+02	224.98	4.59E+03	BI-210M
									PB-212
									GA-67
	21	324.05	322 -	327	324.39	1.36E+02	124.57	3.00E+03	RA-223
	22	338.34	337 -	341	338.67	9.34E+01	108.39	2.52E+03	AC-228
M	23	351.96	346 -	360	352.27	1.51E+04	265.98	2.19E+03	PB-214
m	24	356.01	346 -	360	356.32	5.08E+02	210.72	3.01E+03	BA-133
	25	388.97	385 -	393	389.24	2.93E+02	147.01	3.13E+03	.....
	26	454.86	452 -	458	455.07	1.04E+02	101.15	1.78E+03	PM-146
	27	462.34	460 -	465	462.54	1.33E+02	88.77	1.47E+03	.....
	28	486.97	484 -	489	487.14	1.27E+02	85.70	1.36E+03	LA-140
	29	511.54	506 -	519	511.69	3.31E+02	163.11	2.79E+03	.....
	30	533.89	531 -	537	534.01	8.12E+01	88.89	1.38E+03	.....
	31	581.61	576 -	585	581.69	1.82E+02	115.06	1.78E+03	.....
M	32	609.44	603 -	617	609.49	1.14E+04	225.86	1.01E+03	BI-214
m	33	613.50	603 -	617	613.55	3.64E+02	174.43	1.18E+03	AG-108M
	34	665.69	662 -	670	665.68	3.12E+02	94.82	1.18E+03	SB-126
	35	703.23	700 -	705	703.19	9.83E+01	62.98	7.15E+02	NB-94
	36	720.15	717 -	723	720.09	1.02E+02	66.82	7.42E+02	SB-126
	37	742.64	738 -	747	742.55	1.21E+02	88.95	1.06E+03	.....
	38	768.28	763 -	773	768.17	1.13E+03	122.26	1.39E+03	.....
	39	786.11	782 -	791	785.99	2.84E+02	92.21	1.06E+03	.....
	40	805.95	801 -	810	805.80	1.96E+02	95.36	1.19E+03	.....
	41	831.96	829 -	835	831.79	7.36E+01	68.77	8.09E+02	PB-211
	42	839.10	836 -	842	838.92	9.85E+01	70.39	8.29E+02	.....
	43	934.30	930 -	938	934.03	5.93E+02	88.76	8.50E+02	.....
M	44	964.10	960 -	973	963.80	1.15E+02	60.27	5.52E+02	EU-152
	45	1001.76	996 -	1007	1001.42	2.38E+02	96.10	1.03E+03	PA-234M
	46	1043.37	1041 -	1045	1042.98	3.58E+01	40.09	3.16E+02	.....
M	47	1048.18	1046 -	1055	1047.80	5.61E+01	28.36	1.75E+02	CS-136
m	48	1051.60	1046 -	1055	1051.20	7.37E+01	54.30	4.70E+02	.....
	49	1104.68	1100 -	1108	1104.24	7.80E+01	66.60	6.34E+02	.....
M	50	1120.59	1113 -	1128	1120.13	2.47E+03	110.65	4.35E+02	SC-46
									BI-214
									TA-182
m	51	1125.67	1113 -	1128	1125.21	1.09E+02	58.23	4.09E+02	.....
	52	1133.71	1129 -	1138	1133.24	1.14E+02	66.40	5.63E+02	.....
M	53	1148.36	1144 -	1159	1147.87	3.63E+01	52.02	4.82E+02	.....
m	54	1155.32	1144 -	1159	1154.83	2.40E+02	59.62	4.79E+02	.....
	55	1181.61	1177 -	1184	1181.09	5.22E+01	55.86	4.88E+02	.....
	56	1207.44	1203 -	1210	1206.90	9.41E+01	55.96	4.58E+02	.....
	57	1226.76	1224 -	1230	1226.19	3.88E+01	45.93	3.58E+02	.....
	58	1238.68	1231 -	1248	1238.11	9.98E+02	119.89	9.37E+02	CO-56
	59	1254.50	1249 -	1258	1253.91	9.46E+01	60.82	4.73E+02	.....
	60	1281.33	1276 -	1285	1280.71	1.86E+02	71.85	6.33E+02	.....
	61	1304.54	1300 -	1307	1303.90	6.16E+01	46.95	3.23E+02	.....

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	62	1314.16	1308 -	1319	1313.50	1.19E+02	62.71	4.32E+02	.....
M	63	1377.93	1371 -	1391	1377.22	6.47E+02	67.31	3.15E+02	.....
m	64	1384.94	1371 -	1391	1384.22	9.74E+01	48.28	3.29E+02	AG-110M
M	65	1401.95	1395 -	1414	1401.22	2.01E+02	50.59	3.17E+02	.....
m	66	1408.53	1395 -	1414	1407.78	3.59E+02	57.75	3.30E+02	EU-152
	67	1461.23	1455 -	1466	1460.43	1.57E+02	72.97	5.83E+02	K-40
	68	1470.56	1466 -	1473	1469.76	4.69E+01	47.92	3.50E+02	.....
	69	1487.13	1481 -	1491	1486.31	5.95E+01	64.48	5.23E+02	.....
	70	1509.42	1503 -	1513	1508.58	3.21E+02	75.20	5.82E+02	.....
M	71	1539.07	1535 -	1547	1538.20	6.50E+01	42.07	3.23E+02	.....
m	72	1543.98	1535 -	1547	1543.10	8.56E+01	53.07	3.90E+02	.....
	73	1583.21	1578 -	1586	1582.29	7.44E+01	54.62	4.11E+02	.....
	74	1607.59	1603 -	1609	1606.65	3.51E+01	35.82	1.98E+02	.....
	75	1661.48	1657 -	1666	1660.49	1.41E+02	44.73	2.06E+02	.....
	76	1684.60	1677 -	1688	1683.59	4.65E+01	43.73	2.15E+02	.....
	77	1695.07	1689 -	1700	1694.05	6.45E+01	38.00	1.43E+02	.....
M	78	1730.06	1723 -	1747	1729.01	4.76E+02	51.15	1.22E+02	.....
m	79	1740.85	1723 -	1747	1739.78	2.75E+01	27.20	8.60E+01	.....
M	80	1764.92	1756 -	1775	1763.82	2.02E+03	92.79	9.01E+01	BI-214
m	81	1769.75	1756 -	1775	1768.65	8.85E+01	93.41	7.25E+01	.....
M	82	1835.16	1833 -	1862	1834.00	1.45E+01	8.63	1.21E+01	Y-88
m	83	1847.65	1833 -	1862	1846.48	2.67E+02	37.36	3.96E+01	.....
	84	1874.91	1869 -	1881	1873.71	5.00E+01	36.70	1.30E+02	.....
	85	2119.08	2112 -	2124	2117.64	1.70E+02	37.43	8.52E+01	.....
M	86	2204.46	2196 -	2213	2202.94	5.67E+02	49.42	3.30E+01	BI-214
m	87	2209.07	2196 -	2213	2207.55	2.07E+01	30.59	2.48E+01	.....
M	88	2293.77	2287 -	2303	2292.17	4.60E+01	17.11	1.44E+01	.....
m	89	2298.61	2287 -	2303	2297.00	9.89E+00	12.52	3.09E+00	.....
	90	2371.94	2366 -	2374	2370.27	8.73E+00	8.02	4.55E+00	.....
	91	2418.65	2414 -	2419	2416.93	7.67E+00	6.71	2.67E+00	.....
	92	2448.01	2442 -	2451	2446.27	1.69E+02	26.70	5.70E+00	.....
	93	2615.12	2610 -	2616	2613.22	3.51E+01	12.66	3.76E+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 : 8/18/2017 3:38:42PM

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.42	1.18E+03	212.02	2.46E-02	2.22E-03
	2	52.89	3.94E+02	260.39	2.58E-02	2.22E-03
	3	63.14	2.32E+03	287.71	2.70E-02	2.26E-03
M	4	74.72	4.12E+03	299.65	2.75E-02	2.38E-03
m	5	77.20	7.15E+03	324.69	2.75E-02	2.41E-03
M	6	83.92	8.82E+02	126.43	2.75E-02	2.48E-03
m	7	87.71	2.21E+03	281.10	2.74E-02	2.52E-03
m	8	92.30	3.82E+03	287.90	2.73E-02	2.45E-03
	9	112.72	2.13E+02	226.07	2.63E-02	2.12E-03
	10	144.00	5.85E+02	225.76	2.44E-02	1.86E-03
	11	154.90	2.39E+02	195.10	2.37E-02	1.80E-03
	12	186.02	3.68E+03	314.17	2.17E-02	1.68E-03
	13	205.20	1.54E+02	187.46	2.06E-02	1.62E-03
M	14	235.77	1.96E+02	125.43	1.90E-02	1.53E-03
m	15	242.00	4.02E+03	190.97	1.87E-02	1.52E-03
	16	257.35	4.29E+02	193.07	1.80E-02	1.47E-03
	17	271.09	9.43E+02	262.68	1.74E-02	1.43E-03
	18	285.99	1.78E+02	138.61	1.68E-02	1.39E-03
M	19	295.26	8.74E+03	220.29	1.64E-02	1.37E-03
m	20	299.73	5.02E+02	224.98	1.63E-02	1.36E-03
	21	324.05	1.36E+02	124.57	1.54E-02	1.30E-03
	22	338.34	9.34E+01	108.39	1.50E-02	1.27E-03
M	23	351.96	1.51E+04	265.98	1.45E-02	1.24E-03
m	24	356.01	5.08E+02	210.72	1.44E-02	1.23E-03
	25	388.97	2.93E+02	147.01	1.35E-02	1.15E-03
	26	454.86	1.04E+02	101.15	1.20E-02	1.10E-03
	27	462.34	1.33E+02	88.77	1.19E-02	1.10E-03
	28	486.97	1.27E+02	85.70	1.14E-02	1.08E-03
	29	511.54	3.31E+02	163.11	1.10E-02	1.07E-03
	30	533.89	8.12E+01	88.89	1.07E-02	1.05E-03
	31	581.61	1.82E+02	115.06	9.98E-03	1.02E-03
M	32	609.44	1.14E+04	225.86	9.63E-03	1.01E-03
m	33	613.50	3.64E+02	174.43	9.58E-03	1.00E-03
	34	665.69	3.12E+02	94.82	9.00E-03	9.66E-04
	35	703.23	9.83E+01	62.98	8.63E-03	9.06E-04
	36	720.15	1.02E+02	66.82	8.47E-03	8.79E-04
	37	742.64	1.21E+02	88.95	8.28E-03	8.43E-04
	38	768.28	1.13E+03	122.26	8.07E-03	8.03E-04
	39	786.11	2.84E+02	92.21	7.93E-03	7.74E-04
	40	805.95	1.96E+02	95.36	7.78E-03	7.43E-04
	41	831.96	7.36E+01	68.77	7.59E-03	7.01E-04
	42	839.10	9.85E+01	70.39	7.54E-03	6.90E-04
	43	934.30	5.93E+02	88.76	6.95E-03	5.83E-04
M	44	964.10	1.15E+02	60.27	6.79E-03	5.71E-04
	45	1001.76	2.38E+02	96.10	6.60E-03	5.57E-04
	46	1043.37	3.58E+01	40.09	6.40E-03	5.41E-04
M	47	1048.18	5.61E+01	28.36	6.38E-03	5.39E-04
m	48	1051.60	7.37E+01	54.30	6.36E-03	5.38E-04
	49	1104.68	7.80E+01	66.60	6.14E-03	5.17E-04
M	50	1120.59	2.47E+03	110.65	6.07E-03	5.11E-04
m	51	1125.67	1.09E+02	58.23	6.05E-03	5.09E-04
	52	1133.71	1.14E+02	66.40	6.02E-03	5.06E-04
M	53	1148.36	3.63E+01	52.02	5.96E-03	5.01E-04

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	54	1155.32	2.40E+02	59.62	5.94E-03	4.98E-04
	55	1181.61	5.22E+01	55.86	5.84E-03	4.89E-04
	56	1207.44	9.41E+01	55.96	5.75E-03	4.83E-04
	57	1226.76	3.88E+01	45.93	5.68E-03	4.79E-04
	58	1238.68	9.98E+02	119.89	5.64E-03	4.76E-04
	59	1254.50	9.46E+01	60.82	5.59E-03	4.72E-04
	60	1281.33	1.86E+02	71.85	5.50E-03	4.66E-04
	61	1304.54	6.16E+01	46.95	5.43E-03	4.61E-04
	62	1314.16	1.19E+02	62.71	5.40E-03	4.59E-04
M	63	1377.93	6.47E+02	67.31	5.22E-03	4.44E-04
m	64	1384.94	9.74E+01	48.28	5.20E-03	4.42E-04
M	65	1401.95	2.01E+02	50.59	5.16E-03	4.38E-04
m	66	1408.53	3.59E+02	57.75	5.14E-03	4.37E-04
	67	1461.23	1.57E+02	72.97	5.01E-03	4.25E-04
	68	1470.56	4.69E+01	47.92	4.98E-03	4.22E-04
	69	1487.13	5.95E+01	64.48	4.94E-03	4.19E-04
	70	1509.42	3.21E+02	75.20	4.89E-03	4.13E-04
M	71	1539.07	6.50E+01	42.07	4.82E-03	4.07E-04
m	72	1543.98	8.56E+01	53.07	4.81E-03	4.05E-04
	73	1583.21	7.44E+01	54.62	4.73E-03	3.96E-04
	74	1607.59	3.51E+01	35.82	4.67E-03	3.91E-04
	75	1661.48	1.41E+02	44.73	4.57E-03	3.78E-04
	76	1684.60	4.65E+01	43.73	4.52E-03	3.73E-04
	77	1695.07	6.45E+01	38.00	4.50E-03	3.70E-04
M	78	1730.06	4.76E+02	51.15	4.44E-03	3.62E-04
m	79	1740.85	2.75E+01	27.20	4.42E-03	3.60E-04
M	80	1764.92	2.02E+03	92.79	4.37E-03	3.54E-04
m	81	1769.75	8.85E+01	93.41	4.37E-03	3.53E-04
M	82	1835.16	1.45E+01	8.63	4.25E-03	3.38E-04
m	83	1847.65	2.67E+02	37.36	4.23E-03	3.38E-04
	84	1874.91	5.00E+01	36.70	4.19E-03	3.38E-04
	85	2119.08	1.70E+02	37.43	3.84E-03	3.38E-04
M	86	2204.46	5.67E+02	49.42	3.74E-03	3.38E-04
m	87	2209.07	2.07E+01	30.59	3.73E-03	3.38E-04
M	88	2293.77	4.60E+01	17.11	3.63E-03	3.38E-04
m	89	2298.61	9.89E+00	12.52	3.63E-03	3.38E-04
	90	2371.94	8.73E+00	8.02	3.55E-03	3.38E-04
	91	2418.65	7.67E+00	6.71	3.50E-03	3.38E-04
	92	2448.01	1.69E+02	26.70	3.47E-03	3.38E-04
	93	2615.12	3.51E+01	12.66	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

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/18/2017 3:38:42PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.42	1.18E+03	212.02	3.93E+01	8.32E+00	1.14E+03	2.12E+02
	2	52.89	3.94E+02	260.39			3.94E+02	2.60E+02
	3	63.14	2.32E+03	287.71	9.62E+01	1.46E+01	2.22E+03	2.88E+02
M	4	74.72	4.12E+03	299.65			4.12E+03	3.00E+02
m	5	77.20	7.15E+03	324.69			7.15E+03	3.25E+02
M	6	83.92	8.82E+02	126.43	1.14E+01	7.66E+00	8.71E+02	1.27E+02
m	7	87.71	2.21E+03	281.10			2.21E+03	2.81E+02
m	8	92.30	3.82E+03	287.90	1.35E+02	2.05E+01	3.69E+03	2.89E+02
	9	112.72	2.13E+02	226.07			2.13E+02	2.26E+02
	10	144.00	5.85E+02	225.76	1.15E+01	3.83E+00	5.74E+02	2.26E+02
	11	154.90	2.39E+02	195.10			2.39E+02	1.95E+02
	12	186.02	3.68E+03	314.17	4.68E+01	7.65E+00	3.64E+03	3.14E+02
	13	205.20	1.54E+02	187.46			1.54E+02	1.87E+02
M	14	235.77	1.96E+02	125.43			1.96E+02	1.25E+02
m	15	242.00	4.02E+03	190.97			4.02E+03	1.91E+02
	16	257.35	4.29E+02	193.07			4.29E+02	1.93E+02
	17	271.09	9.43E+02	262.68			9.43E+02	2.63E+02
	18	285.99	1.78E+02	138.61			1.78E+02	1.39E+02
M	19	295.26	8.74E+03	220.29			8.74E+03	2.20E+02
m	20	299.73	5.02E+02	224.98			5.02E+02	2.25E+02
	21	324.05	1.36E+02	124.57			1.36E+02	1.25E+02
	22	338.34	9.34E+01	108.39			9.34E+01	1.08E+02
M	23	351.96	1.51E+04	265.98	3.12E+00	4.40E+00	1.51E+04	2.66E+02
m	24	356.01	5.08E+02	210.72			5.08E+02	2.11E+02
	25	388.97	2.93E+02	147.01			2.93E+02	1.47E+02
	26	454.86	1.04E+02	101.15			1.04E+02	1.01E+02
	27	462.34	1.33E+02	88.77			1.33E+02	8.88E+01
	28	486.97	1.27E+02	85.70			1.27E+02	8.57E+01
	29	511.54	3.31E+02	163.11	7.85E+01	5.73E+00	2.53E+02	1.63E+02
	30	533.89	8.12E+01	88.89			8.12E+01	8.89E+01
	31	581.61	1.82E+02	115.06			1.82E+02	1.15E+02
M	32	609.44	1.14E+04	225.86	6.00E+00	4.13E+00	1.14E+04	2.26E+02
m	33	613.50	3.64E+02	174.43			3.64E+02	1.74E+02
	34	665.69	3.12E+02	94.82			3.12E+02	9.48E+01
	35	703.23	9.83E+01	62.98			9.83E+01	6.30E+01
	36	720.15	1.02E+02	66.82			1.02E+02	6.68E+01
	37	742.64	1.21E+02	88.95	7.47E-01	3.10E+00	1.20E+02	8.90E+01
	38	768.28	1.13E+03	122.26			1.13E+03	1.22E+02
	39	786.11	2.84E+02	92.21			2.84E+02	9.22E+01
	40	805.95	1.96E+02	95.36			1.96E+02	9.54E+01
	41	831.96	7.36E+01	68.77			7.36E+01	6.88E+01
	42	839.10	9.85E+01	70.39			9.85E+01	7.04E+01
	43	934.30	5.93E+02	88.76			5.93E+02	8.88E+01
M	44	964.10	1.15E+02	60.27			1.15E+02	6.03E+01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	45	1001.76	2.38E+02	96.10	4.17E+00	2.92E+00	2.34E+02	9.61E+01
	46	1043.37	3.58E+01	40.09			3.58E+01	4.01E+01
M	47	1048.18	5.61E+01	28.36			5.61E+01	2.84E+01
m	48	1051.60	7.37E+01	54.30			7.37E+01	5.43E+01
	49	1104.68	7.80E+01	66.60			7.80E+01	6.66E+01
M	50	1120.59	2.47E+03	110.65			2.47E+03	1.11E+02
m	51	1125.67	1.09E+02	58.23			1.09E+02	5.82E+01
	52	1133.71	1.14E+02	66.40			1.14E+02	6.64E+01
M	53	1148.36	3.63E+01	52.02			3.63E+01	5.20E+01
m	54	1155.32	2.40E+02	59.62			2.40E+02	5.96E+01
	55	1181.61	5.22E+01	55.86			5.22E+01	5.59E+01
	56	1207.44	9.41E+01	55.96			9.41E+01	5.60E+01
	57	1226.76	3.88E+01	45.93			3.88E+01	4.59E+01
	58	1238.68	9.98E+02	119.89			9.98E+02	1.20E+02
	59	1254.50	9.46E+01	60.82			9.46E+01	6.08E+01
	60	1281.33	1.86E+02	71.85			1.86E+02	7.18E+01
	61	1304.54	6.16E+01	46.95			6.16E+01	4.69E+01
	62	1314.16	1.19E+02	62.71			1.19E+02	6.27E+01
M	63	1377.93	6.47E+02	67.31			6.47E+02	6.73E+01
m	64	1384.94	9.74E+01	48.28			9.74E+01	4.83E+01
M	65	1401.95	2.01E+02	50.59			2.01E+02	5.06E+01
m	66	1408.53	3.59E+02	57.75			3.59E+02	5.78E+01
	67	1461.23	1.57E+02	72.97	4.04E+00	2.32E+00	1.53E+02	7.30E+01
	68	1470.56	4.69E+01	47.92			4.69E+01	4.79E+01
	69	1487.13	5.95E+01	64.48			5.95E+01	6.45E+01
	70	1509.42	3.21E+02	75.20			3.21E+02	7.52E+01
M	71	1539.07	6.50E+01	42.07			6.50E+01	4.21E+01
m	72	1543.98	8.56E+01	53.07			8.56E+01	5.31E+01
	73	1583.21	7.44E+01	54.62			7.44E+01	5.46E+01
	74	1607.59	3.51E+01	35.82			3.51E+01	3.58E+01
	75	1661.48	1.41E+02	44.73			1.41E+02	4.47E+01
	76	1684.60	4.65E+01	43.73			4.65E+01	4.37E+01
	77	1695.07	6.45E+01	38.00			6.45E+01	3.80E+01
M	78	1730.06	4.76E+02	51.15			4.76E+02	5.11E+01
m	79	1740.85	2.75E+01	27.20			2.75E+01	2.72E+01
M	80	1764.92	2.02E+03	92.79			2.02E+03	9.28E+01
m	81	1769.75	8.85E+01	93.41			8.85E+01	9.34E+01
M	82	1835.16	1.45E+01	8.63			1.45E+01	8.63E+00
m	83	1847.65	2.67E+02	37.36			2.67E+02	3.74E+01
	84	1874.91	5.00E+01	36.70			5.00E+01	3.67E+01
	85	2119.08	1.70E+02	37.43			1.70E+02	3.74E+01
M	86	2204.46	5.67E+02	49.42			5.67E+02	4.94E+01
m	87	2209.07	2.07E+01	30.59			2.07E+01	3.06E+01
M	88	2293.77	4.60E+01	17.11			4.60E+01	1.71E+01
m	89	2298.61	9.89E+00	12.52			9.89E+00	1.25E+01
	90	2371.94	8.73E+00	8.02			8.73E+00	8.02E+00
	91	2418.65	7.67E+00	6.71			7.67E+00	6.71E+00
	92	2448.01	1.69E+02	26.70			1.69E+02	2.67E+01
	93	2615.12	3.51E+01	12.66	6.52E+00	1.61E+00	2.86E+01	1.28E+01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 3:38:42PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.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	46.42	1.18E+03	212.02	3.93E+01	8.32E+00	1.14E+03	2.12E+02
	2	52.89	3.94E+02	260.39			3.94E+02	2.60E+02
	3	63.14	2.32E+03	287.71	9.62E+01	1.46E+01	2.22E+03	2.88E+02
M	4	74.72	4.12E+03	299.65			4.12E+03	3.00E+02
m	5	77.20	7.15E+03	324.69			7.15E+03	3.25E+02
M	6	83.92	8.82E+02	126.43	1.14E+01	7.66E+00	8.71E+02	1.27E+02
m	7	87.71	2.21E+03	281.10			2.21E+03	2.81E+02
m	8	92.30	3.82E+03	287.90	1.35E+02	2.05E+01	3.69E+03	2.89E+02
	9	112.72	2.13E+02	226.07			2.13E+02	2.26E+02
	10	144.00	5.85E+02	225.76	1.15E+01	3.83E+00	5.74E+02	2.26E+02
	11	154.90	2.39E+02	195.10			2.39E+02	1.95E+02
	12	186.02	3.68E+03	314.17	4.68E+01	7.65E+00	3.64E+03	3.14E+02
	13	205.20	1.54E+02	187.46			1.54E+02	1.87E+02
M	14	235.77	1.96E+02	125.43			1.96E+02	1.25E+02
m	15	242.00	4.02E+03	190.97			4.02E+03	1.91E+02
	16	257.35	4.29E+02	193.07			4.29E+02	1.93E+02
	17	271.09	9.43E+02	262.68			9.43E+02	2.63E+02
	18	285.99	1.78E+02	138.61			1.78E+02	1.39E+02
M	19	295.26	8.74E+03	220.29			8.74E+03	2.20E+02
m	20	299.73	5.02E+02	224.98			5.02E+02	2.25E+02
	21	324.05	1.36E+02	124.57			1.36E+02	1.25E+02
	22	338.34	9.34E+01	108.39			9.34E+01	1.08E+02
M	23	351.96	1.51E+04	265.98	3.12E+00	4.40E+00	1.51E+04	2.66E+02
m	24	356.01	5.08E+02	210.72			5.08E+02	2.11E+02
	25	388.97	2.93E+02	147.01			2.93E+02	1.47E+02
	26	454.86	1.04E+02	101.15			1.04E+02	1.01E+02
	27	462.34	1.33E+02	88.77			1.33E+02	8.88E+01
	28	486.97	1.27E+02	85.70			1.27E+02	8.57E+01
	29	511.54	3.31E+02	163.11	7.85E+01	5.73E+00	2.53E+02	1.63E+02
	30	533.89	8.12E+01	88.89			8.12E+01	8.89E+01
	31	581.61	1.82E+02	115.06			1.82E+02	1.15E+02
M	32	609.44	1.14E+04	225.86	6.00E+00	4.13E+00	1.14E+04	2.26E+02

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	33	613.50	3.64E+02	174.43			3.64E+02	1.74E+02
	34	665.69	3.12E+02	94.82			3.12E+02	9.48E+01
	35	703.23	9.83E+01	62.98			9.83E+01	6.30E+01
	36	720.15	1.02E+02	66.82			1.02E+02	6.68E+01
	37	742.64	1.21E+02	88.95	7.47E-01	3.10E+00	1.20E+02	8.90E+01
	38	768.28	1.13E+03	122.26			1.13E+03	1.22E+02
	39	786.11	2.84E+02	92.21			2.84E+02	9.22E+01
	40	805.95	1.96E+02	95.36			1.96E+02	9.54E+01
	41	831.96	7.36E+01	68.77			7.36E+01	6.88E+01
	42	839.10	9.85E+01	70.39			9.85E+01	7.04E+01
	43	934.30	5.93E+02	88.76			5.93E+02	8.88E+01
M	44	964.10	1.15E+02	60.27			1.15E+02	6.03E+01
	45	1001.76	2.38E+02	96.10	4.17E+00	2.92E+00	2.34E+02	9.61E+01
	46	1043.37	3.58E+01	40.09			3.58E+01	4.01E+01
M	47	1048.18	5.61E+01	28.36			5.61E+01	2.84E+01
m	48	1051.60	7.37E+01	54.30			7.37E+01	5.43E+01
	49	1104.68	7.80E+01	66.60			7.80E+01	6.66E+01
M	50	1120.59	2.47E+03	110.65			2.47E+03	1.11E+02
m	51	1125.67	1.09E+02	58.23			1.09E+02	5.82E+01
	52	1133.71	1.14E+02	66.40			1.14E+02	6.64E+01
M	53	1148.36	3.63E+01	52.02			3.63E+01	5.20E+01
m	54	1155.32	2.40E+02	59.62			2.40E+02	5.96E+01
	55	1181.61	5.22E+01	55.86			5.22E+01	5.59E+01
	56	1207.44	9.41E+01	55.96			9.41E+01	5.60E+01
	57	1226.76	3.88E+01	45.93			3.88E+01	4.59E+01
	58	1238.68	9.98E+02	119.89			9.98E+02	1.20E+02
	59	1254.50	9.46E+01	60.82			9.46E+01	6.08E+01
	60	1281.33	1.86E+02	71.85			1.86E+02	7.18E+01
	61	1304.54	6.16E+01	46.95			6.16E+01	4.69E+01
	62	1314.16	1.19E+02	62.71			1.19E+02	6.27E+01
M	63	1377.93	6.47E+02	67.31			6.47E+02	6.73E+01
m	64	1384.94	9.74E+01	48.28			9.74E+01	4.83E+01
M	65	1401.95	2.01E+02	50.59			2.01E+02	5.06E+01
m	66	1408.53	3.59E+02	57.75			3.59E+02	5.78E+01
	67	1461.23	1.57E+02	72.97	4.04E+00	2.32E+00	1.53E+02	7.30E+01
	68	1470.56	4.69E+01	47.92			4.69E+01	4.79E+01
	69	1487.13	5.95E+01	64.48			5.95E+01	6.45E+01
	70	1509.42	3.21E+02	75.20			3.21E+02	7.52E+01
M	71	1539.07	6.50E+01	42.07			6.50E+01	4.21E+01
m	72	1543.98	8.56E+01	53.07			8.56E+01	5.31E+01
	73	1583.21	7.44E+01	54.62			7.44E+01	5.46E+01
	74	1607.59	3.51E+01	35.82			3.51E+01	3.58E+01
	75	1661.48	1.41E+02	44.73			1.41E+02	4.47E+01
	76	1684.60	4.65E+01	43.73			4.65E+01	4.37E+01
	77	1695.07	6.45E+01	38.00			6.45E+01	3.80E+01
M	78	1730.06	4.76E+02	51.15			4.76E+02	5.11E+01
m	79	1740.85	2.75E+01	27.20			2.75E+01	2.72E+01
M	80	1764.92	2.02E+03	92.79			2.02E+03	9.28E+01
m	81	1769.75	8.85E+01	93.41			8.85E+01	9.34E+01
M	82	1835.16	1.45E+01	8.63			1.45E+01	8.63E+00
m	83	1847.65	2.67E+02	37.36			2.67E+02	3.74E+01
	84	1874.91	5.00E+01	36.70			5.00E+01	3.67E+01
	85	2119.08	1.70E+02	37.43			1.70E+02	3.74E+01
M	86	2204.46	5.67E+02	49.42			5.67E+02	4.94E+01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	87	2209.07	2.07E+01	30.59			2.07E+01	3.06E+01
M	88	2293.77	4.60E+01	17.11			4.60E+01	1.71E+01
m	89	2298.61	9.89E+00	12.52			9.89E+00	1.25E+01
	90	2371.94	8.73E+00	8.02			8.73E+00	8.02E+00
	91	2418.65	7.67E+00	6.71			7.67E+00	6.71E+00
	92	2448.01	1.69E+02	26.70			1.69E+02	2.67E+01
	93	2615.12	3.51E+01	12.66	6.52E+00	1.61E+00	2.86E+01	1.28E+01

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

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	2.82E+00	1.36E+00
CD-109	0.983	88.03	*	3.72	2.45E+01	4.11E+00
SN-126	0.997	87.57	*	37.00	2.14E+00	3.36E-01
PM-146	0.339	453.90	*	39.94	2.20E-01	2.14E-01
		735.90		14.01		
		747.13		13.10		
PB-210	0.999	46.50	*	4.25	1.07E+01	2.23E+00
BI-214	0.990	609.31	*	46.30	2.50E+01	2.66E+00
		1120.29	*	15.10	2.64E+01	2.52E+00
		1764.49	*	15.80	2.87E+01	2.67E+00
		2204.22	*	4.98	2.99E+01	3.76E+00
PB-214	1.000	295.21	*	19.19	2.72E+01	2.37E+00
		351.92	*	37.19	2.74E+01	2.39E+00
RA-223	0.995	323.87	*	3.88	2.23E+00	2.05E+00
RA-226	0.994	186.21	*	3.28	5.01E+01	9.19E+01
PA-234M	0.918	1001.03	*	0.92	3.78E+01	1.59E+01
TH-234	0.996	63.29	*	3.80	2.13E+01	3.28E+00
U-235	0.617	143.76	*	10.50	2.20E+00	9.44E-01
		163.35		4.70		
		205.31	*	4.70	1.56E+00	1.92E+00
AM-243	1.000	74.67	*	66.00	2.23E+00	2.52E-01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

* = 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 : 8/18/2017 3:38:42PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	52.89	1.09404E-01	33.06		
m	5	77.20	1.98667E+00	2.27		
M	6	83.92	2.41907E-01	7.27	Tol.	TH-231
m	8	92.30	1.02418E+00	3.91	Sum	
	9	112.72	5.91859E-02	53.05		
	11	154.90	6.63808E-02	40.82		
M	14	235.77	5.44714E-02	31.98	Tol.	NB-95M
						TH-227
m	15	242.00	1.11534E+00	2.38		
	16	257.35	1.19272E-01	22.48		
	17	271.09	2.61885E-01	13.93		
	18	285.99	4.94232E-02	38.95	Tol.	PM-149
m	20	299.73	1.39506E-01	22.40	Tol.	GA-67
						BI-210M
						PB-212
	22	338.34	2.59324E-02	58.05	Tol.	AC-228
m	24	356.01	1.41221E-01	20.72	Tol.	BA-133
	25	388.97	8.13512E-02	25.10		
	27	462.34	3.69973E-02	33.33		
	28	486.97	3.53273E-02	33.69	Tol.	LA-140
	29	511.54	7.01791E-02	32.30		
	30	533.89	2.25631E-02	54.72		
	31	581.61	5.05815E-02	31.59		
m	33	613.50	1.01159E-01	23.95	Tol.	AG-108M
	34	665.69	8.67752E-02	15.18	Tol.	SB-126
	35	703.23	2.73087E-02	32.03	Sum	
	36	720.15	2.82723E-02	32.82	Tol.	SB-126
	37	742.64	3.33700E-02	37.04	D-Esc	
	38	768.28	3.15276E-01	5.39		
	39	786.11	7.90016E-02	16.21		
	40	805.95	5.44804E-02	24.31	Sum	
	41	831.96	2.04492E-02	46.71	Tol.	PB-211
	42	839.10	2.73638E-02	35.73		
	43	934.30	1.64777E-01	7.48	Sum	

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	44	964.10	3.18069E-02	26.32	Tol.	EU-152
	46	1043.37	9.94774E-03	55.97		
M	47	1048.18	1.55817E-02	25.28	Sum	
m	48	1051.60	2.04749E-02	36.83		
	49	1104.68	2.16614E-02	42.70		
m	51	1125.67	3.04096E-02	26.60		
	52	1133.71	3.17835E-02	29.02		
M	53	1148.36	1.00888E-02	71.62		
m	54	1155.32	6.67686E-02	12.40		
	55	1181.61	1.45097E-02	53.47	D-Esc	
	56	1207.44	2.61279E-02	29.75	Sum	
	57	1226.76	1.07760E-02	59.19		
	58	1238.68	2.77309E-01	6.00		
	59	1254.50	2.62848E-02	32.14	S-Esc	
	60	1281.33	5.17451E-02	19.28		
	61	1304.54	1.71051E-02	38.12		
	62	1314.16	3.30556E-02	26.35		
M	63	1377.93	1.79689E-01	5.20		
m	64	1384.94	2.70529E-02	24.79	Tol.	AG-110M
M	65	1401.95	5.57572E-02	12.60		
m	66	1408.53	9.98551E-02	8.03	Tol.	EU-152
	68	1470.56	1.30355E-02	51.05		
	69	1487.13	1.65312E-02	54.17		
	70	1509.42	8.91757E-02	11.71		
M	71	1539.07	1.80617E-02	32.35		
m	72	1543.98	2.37887E-02	30.98		
	73	1583.21	2.06736E-02	36.69		
	74	1607.59	9.73881E-03	51.09		
	75	1661.48	3.91661E-02	15.86		
	76	1684.60	1.29221E-02	47.00		
	77	1695.07	1.79238E-02	29.45		
M	78	1730.06	1.32088E-01	5.38	Sum	
m	79	1740.85	7.62658E-03	49.54		
m	81	1769.75	2.45711E-02	52.80		
M	82	1835.16	4.03463E-03	29.71	Tol.	Y-88
m	83	1847.65	7.42428E-02	6.99		
	84	1874.91	1.38829E-02	36.72		
	85	2119.08	4.73279E-02	10.99		
m	87	2209.07	5.75742E-03	73.80		
M	88	2293.77	1.27771E-02	18.60		
m	89	2298.61	2.74633E-03	63.32		
	90	2371.94	2.42424E-03	45.92		
	91	2418.65	2.12963E-03	43.75		
	92	2448.01	4.69864E-02	7.89		
	93	2615.12	7.94566E-03	22.31	Tol.	TL-208

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

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	2.82E+00	1.36E+00
CD-109	0.98	88.03	*	3.72	2.45E+01	4.11E+00
SN-126	0.99	87.57	*	37.00	2.14E+00	3.36E-01
PM-146	0.33	453.90	*	39.94	2.20E-01	2.14E-01
		735.90		14.01		
		747.13		13.10		
PB-210	0.99	46.50	*	4.25	1.07E+01	2.23E+00
BI-214	0.99	609.31	*	46.30	2.50E+01	2.66E+00
		1120.29	*	15.10	2.64E+01	2.52E+00
		1764.49	*	15.80	2.87E+01	2.67E+00
		2204.22	*	4.98	2.99E+01	3.76E+00
PB-214	1.00	295.21	*	19.19	2.72E+01	2.37E+00
		351.92	*	37.19	2.74E+01	2.39E+00
RA-223	0.99	323.87	*	3.88	2.23E+00	2.05E+00
RA-226	0.99	186.21	*	3.28	5.01E+01	9.19E+01
PA-234M	0.91	1001.03	*	0.92	3.78E+01	1.59E+01
TH-234	0.99	63.29	*	3.80	2.13E+01	3.28E+00
U-235	0.61	143.76	*	10.50	2.20E+00	9.44E-01
		163.35		4.70		
		205.31	*	4.70	1.56E+00	1.92E+00
AM-243	1.00	74.67	*	66.00	2.23E+00	2.52E-01

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.973	2.82E+00	1.36E+00	
?	CD-109	0.983	2.45E+01	4.11E+00	
?	SN-126	0.997	2.14E+00	3.36E-01	
	PM-146	0.339	2.20E-01	2.14E-01	
	PB-210	0.999	1.07E+01	2.23E+00	
	BI-214	0.990	2.71E+01	1.40E+00	
	PB-214	1.000	2.73E+01	1.68E+00	
	RA-223	0.995	2.23E+00	2.05E+00	
	RA-226	0.994	5.01E+01	9.19E+01	
	PA-234M	0.918	3.78E+01	1.59E+01	
	TH-234	0.996	2.13E+01	3.28E+00	
	U-235	0.617	2.08E+00	8.47E-01	
	AM-243	1.000	2.23E+00	2.52E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 3:38:42PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	52.89	1.09404E-01	33.06		
m	5	77.20	1.98667E+00	2.27		
M	6	83.92	2.41907E-01	7.27	Tol.	TH-231
m	8	92.30	1.02418E+00	3.91	Sum	
	9	112.72	5.91859E-02	53.05		
	11	154.90	6.63808E-02	40.82		
M	14	235.77	5.44714E-02	31.98	Tol.	NB-95M
						TH-227
m	15	242.00	1.11534E+00	2.38		
	16	257.35	1.19272E-01	22.48		
	17	271.09	2.61885E-01	13.93		
	18	285.99	4.94232E-02	38.95	Tol.	PM-149
m	20	299.73	1.39506E-01	22.40	Tol.	GA-67
						BI-210M
						PB-212
	22	338.34	2.59324E-02	58.05	Tol.	AC-228
m	24	356.01	1.41221E-01	20.72	Tol.	BA-133
	25	388.97	8.13512E-02	25.10		
	27	462.34	3.69973E-02	33.33		
	28	486.97	3.53273E-02	33.69	Tol.	LA-140
	29	511.54	7.01791E-02	32.30		
	30	533.89	2.25631E-02	54.72		
	31	581.61	5.05815E-02	31.59		
m	33	613.50	1.01159E-01	23.95	Tol.	AG-108M
	34	665.69	8.67752E-02	15.18	Tol.	SB-126
	35	703.23	2.73087E-02	32.03	Sum	
	36	720.15	2.82723E-02	32.82	Tol.	SB-126
	37	742.64	3.33700E-02	37.04	D-Esc	
	38	768.28	3.15276E-01	5.39		
	39	786.11	7.90016E-02	16.21		
	40	805.95	5.44804E-02	24.31	Sum	
	41	831.96	2.04492E-02	46.71	Tol.	PB-211
	42	839.10	2.73638E-02	35.73		
	43	934.30	1.64777E-01	7.48	Sum	
M	44	964.10	3.18069E-02	26.32	Tol.	EU-152

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	46	1043.37	9.94774E-03	55.97		
M	47	1048.18	1.55817E-02	25.28	Sum	
m	48	1051.60	2.04749E-02	36.83		
	49	1104.68	2.16614E-02	42.70		
m	51	1125.67	3.04096E-02	26.60		
	52	1133.71	3.17835E-02	29.02		
M	53	1148.36	1.00888E-02	71.62		
m	54	1155.32	6.67686E-02	12.40		
	55	1181.61	1.45097E-02	53.47	D-Esc	
	56	1207.44	2.61279E-02	29.75	Sum	
	57	1226.76	1.07760E-02	59.19		
	58	1238.68	2.77309E-01	6.00		
	59	1254.50	2.62848E-02	32.14	S-Esc	
	60	1281.33	5.17451E-02	19.28		
	61	1304.54	1.71051E-02	38.12		
	62	1314.16	3.30556E-02	26.35		
M	63	1377.93	1.79689E-01	5.20		
m	64	1384.94	2.70529E-02	24.79	Tol.	AG-110M
M	65	1401.95	5.57572E-02	12.60		
m	66	1408.53	9.98551E-02	8.03	Tol.	EU-152
	68	1470.56	1.30355E-02	51.05		
	69	1487.13	1.65312E-02	54.17		
	70	1509.42	8.91757E-02	11.71		
M	71	1539.07	1.80617E-02	32.35		
m	72	1543.98	2.37887E-02	30.98		
	73	1583.21	2.06736E-02	36.69		
	74	1607.59	9.73881E-03	51.09		
	75	1661.48	3.91661E-02	15.86		
	76	1684.60	1.29221E-02	47.00		
	77	1695.07	1.79238E-02	29.45		
M	78	1730.06	1.32088E-01	5.38	Sum	
m	79	1740.85	7.62658E-03	49.54		
m	81	1769.75	2.45711E-02	52.80		
M	82	1835.16	4.03463E-03	29.71	Tol.	Y-88
m	83	1847.65	7.42428E-02	6.99		
	84	1874.91	1.38829E-02	36.72		
	85	2119.08	4.73279E-02	10.99		
m	87	2209.07	5.75742E-03	73.80		
M	88	2293.77	1.27771E-02	18.60		
m	89	2298.61	2.74633E-03	63.32		
	90	2371.94	2.42424E-03	45.92		
	91	2418.65	2.12963E-03	43.75		
	92	2448.01	4.69864E-02	7.89		
	93	2615.12	7.94566E-03	22.31	Tol.	TL-208

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	3.06E+00	4.13E+00	4.13E+00
+	NA-22	1274.54		99.94	2.78E-02	1.32E-01	1.32E-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	-8.58E-03	8.00E-02	8.00E-02
+	K-40	1460.81	*	10.67	2.82E+00	2.13E+00	2.13E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	7.18E-03	1.49E-01	1.49E-01
		78.34		96.00	1.67E+00		2.06E-01
+	SC-46	889.25		99.98	-3.64E-02	2.92E-01	2.92E-01
		1120.51		99.99	8.21E+00		8.65E-01
+	V-48	983.52		99.98	-6.53E-01	7.84E+00	7.84E+00
		1312.10		97.50	6.06E-01		7.85E+00
+	CR-51	320.08		9.83	-2.90E+00	1.38E+01	1.38E+01
+	MN-54	834.83		99.97	-1.78E-01	1.69E-01	1.69E-01
+	CO-56	846.75		99.96	-5.83E-02	3.01E-01	3.01E-01
		1037.75		14.03	-1.57E+00		1.88E+00
		1238.25		67.00	5.38E+00		9.58E-01
		1771.40		15.51	-1.30E+01		1.89E+00
		2598.48		16.90	8.09E-02		3.76E-01
+	CO-57	122.06		85.51	7.02E-03	1.70E-01	1.70E-01
		136.48		10.60	1.39E-01		1.44E+00
+	CO-58	810.76		99.40	-6.96E-02	3.18E-01	3.18E-01
+	FE-59	1099.22		56.50	-1.51E-01	9.59E-01	9.59E-01
		1291.56		43.20	-3.69E-01		1.26E+00
+	CO-60	1173.22		100.00	-1.53E-02	1.22E-01	1.22E-01
		1332.49		100.00	-2.27E-03		1.26E-01
+	ZN-65	1115.52		50.75	-1.03E+01	3.72E-01	3.72E-01
+	GA-67	93.31		35.70	2.07E+09	2.75E+08	2.75E+08
		208.95		2.24	-6.80E+08		3.23E+09
		300.22		16.00	-1.51E+10		5.57E+08
+	SE-75	121.11		16.70	-2.15E-02	3.50E-01	1.19E+00

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	3.37E-02	3.50E-01	3.50E-01
		264.65		59.80	-3.13E-02		3.77E-01
		279.53		25.20	-5.76E-01		9.10E-01
		400.65		11.40	-1.84E+00		2.01E+00
+	RB-82	776.52		13.00	5.29E+00	1.29E+01	1.29E+01
+	RB-83	520.41		46.00	1.08E-01	5.14E-01	5.14E-01
		529.64		30.30	-9.42E-02		8.09E-01
		552.65		16.40	-4.88E-01		1.53E+00
+	KR-85	513.99		0.43	3.26E+01	3.03E+01	3.03E+01
+	SR-85	513.99		99.27	3.88E-01	3.61E-01	3.61E-01
+	Y-88	898.02		93.40	-1.69E-02	1.88E-01	2.64E-01
		1836.01		99.38	1.32E-01		1.88E-01
+	MO-93	263.06		56.72	-1.93E-02	1.17E-01	2.36E-01
		684.67		99.68	-1.44E-03		1.17E-01
		1477.11		99.08	2.16E-02		1.31E-01
+	NB-93M	16.57		9.43	-8.58E-01	1.02E+00	1.02E+00
+	NB-94	702.63		100.00	5.54E-02	1.23E-01	1.23E-01
		871.10		100.00	2.09E-03		1.30E-01
+	NB-95	765.79		99.81	7.92E+00	1.46E+00	1.46E+00
+	NB-95M	235.69		25.00	-2.61E+06	4.33E+07	4.33E+07
+	ZR-95	724.18		43.70	-1.07E-01	5.94E-01	7.32E-01
		756.72		55.30	-1.83E-01		5.94E-01
+	MO-99	181.06		6.20	2.58E+09	2.47E+10	5.30E+10
		739.58		12.80	6.91E+09		2.47E+10
		778.00		4.50	1.69E+10		7.25E+10
+	RU-103	497.08		89.00	2.32E-01	6.85E-01	6.85E-01
+	RU-106	621.84		9.80	-8.59E-01	1.30E+00	1.30E+00
+	AG-108M	433.93		89.90	9.00E-02	1.31E-01	1.39E-01
		614.37		90.40	-6.43E+00		2.31E-01
		722.95		90.50	-4.72E-02		1.31E-01
+	CD-109	88.03	*	3.72	2.45E+01	9.67E+00	9.67E+00
+	AG-110M	657.75		93.14	-4.40E-02	1.54E-01	1.54E-01
		677.61		10.53	3.09E-01		1.37E+00
		706.67		16.46	-3.78E-01		9.50E-01
		763.93		21.98	1.61E-02		8.71E-01
		884.67		71.63	-1.34E-01		2.33E-01
		1384.27		23.94	1.10E-01		8.60E-01
+	CD-113M	263.70		0.02	-4.74E+01	5.74E+02	5.74E+02
+	SN-113	255.12		1.93	-3.43E+00	3.58E-01	1.08E+01
		391.69		64.90	-4.42E-02		3.58E-01
+	TE123M	159.00		84.10	-7.62E-02	2.56E-01	2.56E-01
+	SB-124	602.71		97.87	1.31E-02	4.05E-01	4.05E-01
		645.85		7.26	-7.80E-01		4.35E+00
		722.78		11.10	-1.15E+00		3.20E+00
		1691.02		49.00	-2.75E-03		6.13E-01
+	I-125	35.49		6.49	1.77E+00	5.14E+00	5.14E+00
+	SB-125	176.33		6.89	-8.70E-01	4.77E-01	1.87E+00
		427.89		29.33	2.17E-01		4.77E-01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	-1.60E-01	4.77E-01	1.28E+00
		600.56		17.80	9.26E-02		7.35E-01
		635.90		11.32	3.02E-01		1.05E+00
+	SB-126	414.70		83.30	1.05E+01	2.37E+01	3.33E+01
		666.33		99.60	7.39E+01		2.99E+01
		695.00		99.60	4.10E+00		2.37E+01
		720.50		53.80	5.49E+01		4.59E+01
+	SN-126	87.57	*	37.00	2.14E+00	8.43E-01	8.43E-01
+	SB-127	473.00		25.00	2.78E+05	9.03E+06	1.37E+07
		685.20		35.70	-1.11E+05		9.03E+06
		783.80		14.70	5.02E+07		2.82E+07
+	I-129	29.78		57.00	-2.01E-02	2.12E-01	2.12E-01
		33.60		13.20	2.16E-01		8.63E-01
		39.58		7.52	-9.93E-01		1.42E+00
+	I-131	284.30		6.05	-9.03E+02	5.39E+02	8.13E+03
		364.48		81.20	1.44E+01		5.39E+02
		636.97		7.26	2.59E+03		5.69E+03
		722.89		1.80	-8.73E+03		2.43E+04
+	TE-132	49.72		13.10	-3.30E+09	8.30E+07	5.56E+08
		228.16		88.00	-2.80E+07		8.30E+07
+	BA-133	81.00		33.00	-4.40E+00	4.42E-01	4.42E-01
		302.84		17.80	-7.28E-02		7.89E-01
		356.01		60.00	2.14E+00		4.64E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.11E+06	1.11E+05	1.11E+05
+	CS-134	563.23		8.38	-6.42E-01	1.52E-01	1.50E+00
		569.32		15.43	-5.40E-02		8.28E-01
		604.70		97.60	-1.14E+01		2.20E-01
		795.84		85.40	1.36E-02		1.52E-01
		801.93		8.73	-1.36E-01		1.58E+00
+	CS-135	268.24		16.00	1.64E+00	9.12E-01	9.12E-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	-1.20E+02	1.95E+01	2.60E+02
		163.89		4.61	3.02E+01		4.09E+02
		176.55		13.56	-6.26E+01		1.35E+02
		273.65		12.66	1.84E+01		1.72E+02
		340.57		48.50	2.84E+00		4.17E+01
		818.50		99.70	-8.90E-01		1.95E+01
		1048.07		79.60	-1.01E+01		2.41E+01
		1235.34		19.70	6.09E+02		1.89E+02
+	CS-137	661.65		85.12	1.15E-02	1.54E-01	1.54E-01
+	LA-138	788.74		34.00	3.42E-01	2.01E-01	4.21E-01
		1435.80		66.00	1.22E-01		2.01E-01
+	CE-139	165.85		80.35	2.08E-01	2.52E-01	2.52E-01
+	BA-140	162.64		6.70	8.71E+01	8.54E+01	3.27E+02
		304.84		4.50	-1.87E+02		4.96E+02
		423.70		3.20	-2.93E+01		7.21E+02

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-4.90E+02	8.54E+01	1.04E+03
			537.32		25.00	-1.41E+01		8.54E+01
+		LA-140	328.77		20.50	3.09E+01	2.52E+01	1.12E+02
			487.03		45.50	3.27E+01		4.74E+01
			815.85		23.50	4.12E+01		9.60E+01
			1596.49		95.49	9.26E+00		2.52E+01
+		CE-141	145.44		48.40	2.37E+00	2.03E+00	2.03E+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	4.64E-02	1.37E+00	1.37E+00
+		PM-144	476.78		42.00	1.57E-01	1.36E-01	3.54E-01
			618.01		98.60	3.89E-03		1.47E-01
			696.49		99.49	-1.90E-02		1.36E-01
+		PM-145	36.85		21.70	-2.54E-01	2.79E-01	5.07E-01
			37.36		39.70	1.15E-01		2.79E-01
			42.30		15.10	-2.09E-01		7.19E-01
			72.40		2.31	-3.40E+01		7.14E+00
+		PM-146	453.90	*	39.94	2.20E-01	3.50E-01	3.50E-01
			735.90		14.01	-1.99E-02		8.17E-01
			747.13		13.10	4.02E-02		9.38E-01
+		ND-147	91.11		28.90	1.06E+03	2.31E+02	2.31E+02
			531.02		13.10	-5.45E+00		3.70E+02
+		PM-149	285.90		3.10	6.09E+12	3.95E+13	3.95E+13
+		EU-152	121.78		20.50	-1.02E-02	5.65E-01	5.65E-01
			244.69		5.40	1.60E-01		2.95E+00
			344.27		19.13	2.19E-01		7.05E-01
			778.89		9.20	1.31E-01		1.31E+00
			964.01		10.40	5.83E-01		1.38E+00
			1085.78		7.22	5.97E-01		1.64E+00
			1112.02		9.60	-6.34E-02		1.36E+00
			1407.95		14.94	3.00E+00		1.45E+00
+		GD-153	97.43		31.30	5.33E-01	4.94E-01	4.94E-01
			103.18		22.20	8.48E-03		6.52E-01
+		EU-154	123.07		40.50	2.27E-02	2.89E-01	2.89E-01
			723.30		19.70	-2.21E-01		6.15E-01
			873.19		11.50	2.83E-01		1.17E+00
			996.32		10.30	1.17E-01		1.25E+00
			1004.76		17.90	8.11E-01		8.82E-01
			1274.45		35.50	7.46E-02		3.54E-01
+		EU-155	86.50		30.90	1.13E+00	5.10E-01	5.10E-01
			105.30		20.70	-4.05E-01		5.51E-01
+		EU-156	811.77		10.40	1.13E+01	9.29E+01	9.29E+01
			1153.47		7.20	2.93E+02		1.82E+02
			1230.71		8.90	-1.02E+02		1.04E+02
+		HO-166M	184.41		72.60	2.08E+00	2.10E-01	2.46E-01
			280.45		29.60	1.49E-01		4.47E-01
			410.94		11.10	-9.70E-01		1.19E+00
			711.69		54.10	6.60E-02		2.10E-01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	2.64E+01	1.11E+02	1.11E+02
+	HF-172	67.35		5.31	1.40E-01	1.12E+00	2.90E+00
		125.81		11.30	-2.68E-01		1.12E+00
+	LU-172	181.53		20.60	5.59E+02	3.78E+03	1.15E+04
		900.72		29.81	-2.18E+02		8.49E+03
		1093.66		62.50	1.99E+03		3.78E+03
+	LU-173	100.72		5.24	1.39E+00	8.10E-01	2.46E+00
		272.11		21.20	2.12E+00		8.10E-01
+	HF-175	343.40		84.00	1.26E-01	4.02E-01	4.02E-01
+	LU-176	88.34		13.30	-3.72E+00	1.34E-01	1.15E+00
		201.83		86.00	1.18E-02		1.44E-01
		306.78		94.00	-8.92E-02		1.34E-01
+	HF-181	133.02		41.70	4.51E-02	7.07E-01	1.33E+00
		345.85		17.20	9.03E-01		3.77E+00
		482.03		82.80	2.73E-01		7.07E-01
+	TA-182	67.75		41.20	2.92E-02	6.04E-01	6.04E-01
		1121.30		34.90	1.88E+01		2.01E+00
		1189.05		16.23	4.99E-01		1.37E+00
		1221.41		26.98	2.04E-01		7.92E-01
		1231.02		11.44	-1.83E+00		1.86E+00
+	IR-192	308.46		29.68	-3.89E-01	6.14E-01	1.04E+00
		468.07		48.10	4.16E-01		6.14E-01
+	HG-203	279.19		77.30	-4.46E-01	7.05E-01	7.05E-01
+	TL-204	374.74		94.11	1.03E-02	1.34E-01	1.34E-01
		899.15		99.16	-3.57E-02		1.39E-01
		911.74		91.10	7.48E-02		1.62E-01
+	BI-207	569.67		97.72	1.04E-02	1.22E-01	1.22E-01
		1063.62		74.90	2.51E-02		1.60E-01
+	TL-208	583.14		30.22	4.52E-01	2.60E-01	4.32E-01
		860.37		4.48	5.32E-01		2.97E+00
		2614.66		35.85	2.97E-01		2.60E-01
+	BI-210M	262.00		45.00	-2.38E-02	3.01E-01	3.01E-01
		300.00		23.00	-2.01E+01		7.05E-01
+	PB-210	46.50	*	4.25	1.07E+01	3.15E+00	3.15E+00
+	PB-211	404.84		2.90	2.59E+00	4.66E+00	4.76E+00
		831.96		2.90	3.72E+00		4.66E+00
+	BI-212	727.17		11.80	1.44E-01	9.60E-01	9.60E-01
		1620.62		2.75	8.23E-01		4.19E+00
+	PB-212	238.63		44.60	-5.24E+00	2.94E-01	2.94E-01
		300.09		3.41	-1.35E+02		4.76E+00
+	BI-214	609.31	*	46.30	2.50E+01	5.31E-01	5.31E-01
		1120.29	*	15.10	2.64E+01		1.69E+00
		1764.49	*	15.80	2.87E+01		1.23E+00
		2204.22	*	4.98	2.99E+01		2.59E+00
+	PB-214	295.21	*	19.19	2.72E+01	6.99E-01	1.39E+00
		351.92	*	37.19	2.74E+01		6.99E-01
+	RN-219	401.80		6.50	-7.84E-01	2.07E+00	2.07E+00
+	RA-223	323.87	*	3.88	2.23E+00	3.35E+00	3.35E+00

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	4.68E+01	4.88E+00	4.88E+00
+	RA-225	40.00		31.00	-8.03E+00	3.01E+01	3.01E+01
+	RA-226	186.21	*	3.28	5.01E+01	6.62E+00	6.62E+00
+	TH-227	50.10		8.40	-5.80E+00	1.07E+00	1.38E+00
		236.00		11.50	-6.47E-02		1.07E+00
		256.20		6.30	3.73E+00		2.24E+00
+	AC-228	338.32		11.40	2.76E-01	5.07E-01	1.17E+00
		911.07		27.70	2.34E-01		5.07E-01
		969.11		16.60	-2.69E-01		8.16E-01
+	TH-230	48.44		16.90	1.37E+00	7.42E-01	7.42E-01
		62.85		4.60	1.94E+01		3.40E+00
		67.67		0.37	1.83E+00		3.78E+01
+	PA-231	283.67		1.60	-1.31E+00	6.00E+00	8.32E+00
		302.67		2.30	-5.54E-01		6.00E+00
+	TH-231	25.64		14.70	-2.43E+00	9.65E-01	9.65E-01
		84.21		6.40	-6.36E+00		2.24E+00
+	PA-233	311.98		38.60	1.69E+00	3.88E+00	3.88E+00
+	PA-234	131.20		20.40	-2.48E-01	5.70E-01	5.70E-01
		733.99		8.80	-2.38E-01		1.25E+00
		946.00		12.00	-2.12E-01		1.05E+00
+	PA-234M	1001.03	*	0.92	3.78E+01	2.47E+01	2.47E+01
+	TH-234	63.29	*	3.80	2.13E+01	4.31E+00	4.31E+00
+	U-235	143.76	*	10.50	2.20E+00	1.40E+00	1.40E+00
		163.35		4.70	1.96E-01		2.65E+00
		205.31	*	4.70	1.56E+00		3.13E+00
+	NP-237	86.50		12.60	2.68E+00	1.21E+00	1.21E+00
+	NP-239	106.10		22.70	-3.80E+11	7.32E+11	7.32E+11
		228.18		10.70	-5.48E+11		1.62E+12
		277.60		14.10	-2.47E+11		1.45E+12
+	AM-241	59.54		35.90	-2.23E-01	3.58E-01	3.58E-01
+	AM-243	74.67	*	66.00	2.23E+00	4.64E-01	4.64E-01
+	CM-243	209.75		3.29	-1.52E+00	9.79E-01	3.54E+00
		228.14		10.60	-3.71E-01		1.10E+00
		277.60		14.00	-1.67E-01		9.79E-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 1707084-10

HTC-A02-S001-0006-02

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	4.13E+00	4.13E+00	3.06E+00	2.03E+00
	NA-22	1274.54		99.94	1.32E-01	1.32E-01	2.78E-02	6.35E-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	8.00E-02	8.00E-02	-8.58E-03	3.69E-02
+	K-40	1460.81	*	10.67	2.13E+00	2.13E+00	2.82E+00	1.04E+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	1.49E-01	1.49E-01	7.18E-03	7.37E-02
		78.34		96.00	2.06E-01		1.67E+00	1.02E-01
	SC-46	889.25		99.98	2.92E-01	2.92E-01	-3.64E-02	1.42E-01
		1120.51		99.99	8.65E-01		8.21E+00	4.28E-01
	V-48	983.52		99.98	7.84E+00	7.84E+00	-6.53E-01	3.80E+00
		1312.10		97.50	7.85E+00		6.06E-01	3.77E+00
	CR-51	320.08		9.83	1.38E+01	1.38E+01	-2.90E+00	6.82E+00
	MN-54	834.83		99.97	1.69E-01	1.69E-01	-1.78E-01	8.24E-02
	CO-56	846.75		99.96	3.01E-01	3.01E-01	-5.83E-02	1.47E-01
		1037.75		14.03	1.88E+00		-1.57E+00	9.05E-01
		1238.25		67.00	9.58E-01		5.38E+00	4.71E-01
		1771.40		15.51	1.89E+00		-1.30E+01	9.00E-01
		2598.48		16.90	3.76E-01		8.09E-02	1.33E-01
	CO-57	122.06		85.51	1.70E-01	1.70E-01	7.02E-03	8.43E-02
		136.48		10.60	1.44E+00		1.39E-01	7.13E-01
	CO-58	810.76		99.40	3.18E-01	3.18E-01	-6.96E-02	1.54E-01
	FE-59	1099.22		56.50	9.59E-01	9.59E-01	-1.51E-01	4.63E-01
		1291.56		43.20	1.26E+00		-3.69E-01	6.04E-01
	CO-60	1173.22		100.00	1.22E-01	1.22E-01	-1.53E-02	5.86E-02
		1332.49		100.00	1.26E-01		-2.27E-03	6.03E-02
	ZN-65	1115.52		50.75	3.72E-01	3.72E-01	-1.03E+01	1.81E-01
	GA-67	93.31		35.70	2.75E+08	2.75E+08	2.07E+09	1.37E+08
		208.95		2.24	3.23E+09		-6.80E+08	1.60E+09
		300.22		16.00	5.57E+08		-1.51E+10	2.75E+08
	SE-75	121.11		16.70	1.19E+00	3.50E-01	-2.15E-02	5.88E-01
		136.00		59.20	3.50E-01		3.37E-02	1.73E-01
		264.65		59.80	3.77E-01		-3.13E-02	1.86E-01
		279.53		25.20	9.10E-01		-5.76E-01	4.50E-01
		400.65		11.40	2.01E+00		-1.84E+00	9.91E-01
	RB-82	776.52		13.00	1.29E+01	1.29E+01	5.29E+00	6.28E+00
	RB-83	520.41		46.00	5.14E-01	5.14E-01	1.08E-01	2.51E-01
		529.64		30.30	8.09E-01		-9.42E-02	3.96E-01
		552.65		16.40	1.53E+00		-4.88E-01	7.48E-01
	KR-85	513.99		0.43	3.03E+01	3.03E+01	3.26E+01	1.49E+01
	SR-85	513.99		99.27	3.61E-01	3.61E-01	3.88E-01	1.77E-01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	Y-88	898.02		93.40	2.64E-01	1.88E-01	-1.69E-02	1.28E-01
		1836.01		99.38	1.88E-01		1.32E-01	8.81E-02
	MO-93	263.06		56.72	2.36E-01	1.17E-01	-1.93E-02	1.17E-01
		684.67		99.68	1.17E-01		-1.44E-03	5.71E-02
		1477.11		99.08	1.31E-01		2.16E-02	6.26E-02
	NB-93M	16.57		9.43	1.02E+00	1.02E+00	-8.58E-01	4.98E-01
	NB-94	702.63		100.00	1.23E-01	1.23E-01	5.54E-02	6.02E-02
		871.10		100.00	1.30E-01		2.09E-03	6.34E-02
	NB-95	765.79		99.81	1.46E+00	1.46E+00	7.92E+00	7.22E-01
	NB-95M	235.69		25.00	4.33E+07	4.33E+07	-2.61E+06	2.14E+07
	ZR-95	724.18		43.70	7.32E-01	5.94E-01	-1.07E-01	3.56E-01
		756.72		55.30	5.94E-01		-1.83E-01	2.89E-01
	MO-99	181.06		6.20	5.30E+10	2.47E+10	2.58E+09	2.62E+10
		739.58		12.80	2.47E+10		6.91E+09	1.20E+10
		778.00		4.50	7.25E+10		1.69E+10	3.53E+10
	RU-103	497.08		89.00	6.85E-01	6.85E-01	2.32E-01	3.35E-01
	RU-106	621.84		9.80	1.30E+00	1.30E+00	-8.59E-01	6.34E-01
	AG-108M	433.93		89.90	1.39E-01	1.31E-01	9.00E-02	6.84E-02
		614.37		90.40	2.31E-01		-6.43E+00	1.14E-01
		722.95		90.50	1.31E-01		-4.72E-02	6.39E-02
+	CD-109	88.03	*	3.72	9.67E+00	9.67E+00	2.45E+01	4.82E+00
	AG-110M	657.75		93.14	1.54E-01	1.54E-01	-4.40E-02	7.47E-02
		677.61		10.53	1.37E+00		3.09E-01	6.69E-01
		706.67		16.46	9.50E-01		-3.78E-01	4.63E-01
		763.93		21.98	8.71E-01		1.61E-02	4.26E-01
		884.67		71.63	2.33E-01		-1.34E-01	1.13E-01
		1384.27		23.94	8.60E-01		1.10E-01	4.16E-01
	CD-113M	263.70		0.02	5.74E+02	5.74E+02	-4.74E+01	2.83E+02
	SN-113	255.12		1.93	1.08E+01	3.58E-01	-3.43E+00	5.31E+00
		391.69		64.90	3.58E-01		-4.42E-02	1.76E-01
	TE123M	159.00		84.10	2.56E-01	2.56E-01	-7.62E-02	1.27E-01
	SB-124	602.71		97.87	4.05E-01	4.05E-01	1.31E-02	1.98E-01
		645.85		7.26	4.35E+00		-7.80E-01	2.12E+00
		722.78		11.10	3.20E+00		-1.15E+00	1.56E+00
		1691.02		49.00	6.13E-01		-2.75E-03	2.89E-01
	I-125	35.49		6.49	5.14E+00	5.14E+00	1.77E+00	2.54E+00
	SB-125	176.33		6.89	1.87E+00	4.77E-01	-8.70E-01	9.27E-01
		427.89		29.33	4.77E-01		2.17E-01	2.35E-01
		463.38		10.35	1.28E+00		-1.60E-01	6.28E-01
		600.56		17.80	7.35E-01		9.26E-02	3.60E-01
		635.90		11.32	1.05E+00		3.02E-01	5.13E-01
	SB-126	414.70		83.30	3.33E+01	2.37E+01	1.05E+01	1.64E+01
		666.33		99.60	2.99E+01		7.39E+01	1.47E+01
		695.00		99.60	2.37E+01		4.10E+00	1.15E+01
		720.50		53.80	4.59E+01		5.49E+01	2.24E+01
+	SN-126	87.57	*	37.00	8.43E-01	8.43E-01	2.14E+00	4.20E-01
	SB-127	473.00		25.00	1.37E+07	9.03E+06	2.78E+05	6.70E+06
		685.20		35.70	9.03E+06		-1.11E+05	4.40E+06
		783.80		14.70	2.82E+07		5.02E+07	1.38E+07
	I-129	29.78		57.00	2.12E-01	2.12E-01	-2.01E-02	1.05E-01
		33.60		13.20	8.63E-01		2.16E-01	4.27E-01
		39.58		7.52	1.42E+00		-9.93E-01	7.01E-01
	I-131	284.30		6.05	8.13E+03	5.39E+02	-9.03E+02	4.02E+03

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	I-131	364.48		81.20	5.39E+02	5.39E+02	1.44E+01	2.65E+02
		636.97		7.26	5.69E+03		2.59E+03	2.77E+03
		722.89		1.80	2.43E+04		-8.73E+03	1.18E+04
	TE-132	49.72		13.10	5.56E+08	8.30E+07	-3.30E+09	2.76E+08
		228.16		88.00	8.30E+07		-2.80E+07	4.10E+07
	BA-133	81.00		33.00	4.42E-01	4.42E-01	-4.40E+00	2.19E-01
		302.84		17.80	7.89E-01		-7.28E-02	3.90E-01
		356.01		60.00	4.64E-01		2.14E+00	2.31E-01
@	I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	XE-133	81.00		38.00	1.11E+05	1.11E+05	-1.11E+06	5.51E+04
	CS-134	563.23		8.38	1.50E+00	1.52E-01	-6.42E-01	7.32E-01
		569.32		15.43	8.28E-01		-5.40E-02	4.05E-01
		604.70		97.60	2.20E-01		-1.14E+01	1.08E-01
		795.84		85.40	1.52E-01		1.36E-02	7.37E-02
		801.93		8.73	1.58E+00		-1.36E-01	7.67E-01
	CS-135	268.24		16.00	9.12E-01	9.12E-01	1.64E+00	4.51E-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	2.60E+02	1.95E+01	-1.20E+02	1.29E+02
		163.89		4.61	4.09E+02		3.02E+01	2.03E+02
		176.55		13.56	1.35E+02		-6.26E+01	6.67E+01
		273.65		12.66	1.72E+02		1.84E+01	8.53E+01
		340.57		48.50	4.17E+01		2.84E+00	2.06E+01
		818.50		99.70	1.95E+01		-8.90E-01	9.48E+00
		1048.07		79.60	2.41E+01		-1.01E+01	1.17E+01
		1235.34		19.70	1.89E+02		6.09E+02	9.28E+01
	CS-137	661.65		85.12	1.54E-01	1.54E-01	1.15E-02	7.55E-02
	LA-138	788.74		34.00	4.21E-01	2.01E-01	3.42E-01	2.06E-01
		1435.80		66.00	2.01E-01		1.22E-01	9.66E-02
	CE-139	165.85		80.35	2.52E-01	2.52E-01	2.08E-01	1.25E-01
	BA-140	162.64		6.70	3.27E+02	8.54E+01	8.71E+01	1.62E+02
		304.84		4.50	4.96E+02		-1.87E+02	2.45E+02
		423.70		3.20	7.21E+02		-2.93E+01	3.55E+02
		437.55		2.00	1.04E+03		-4.90E+02	5.11E+02
		537.32		25.00	8.54E+01		-1.41E+01	4.18E+01
	LA-140	328.77		20.50	1.12E+02	2.52E+01	3.09E+01	5.52E+01
		487.03		45.50	4.74E+01		3.27E+01	2.32E+01
		815.85		23.50	9.60E+01		4.12E+01	4.67E+01
		1596.49		95.49	2.52E+01		9.26E+00	1.21E+01
	CE-141	145.44		48.40	2.03E+00	2.03E+00	2.37E+00	1.00E+00
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	1.37E+00	1.37E+00	4.64E-02	6.79E-01
	PM-144	476.78		42.00	3.54E-01	1.36E-01	1.57E-01	1.74E-01
		618.01		98.60	1.47E-01		3.89E-03	7.17E-02
		696.49		99.49	1.36E-01		-1.90E-02	6.62E-02
	PM-145	36.85		21.70	5.07E-01	2.79E-01	-2.54E-01	2.51E-01
		37.36		39.70	2.79E-01		1.15E-01	1.38E-01
		42.30		15.10	7.19E-01		-2.09E-01	3.56E-01
		72.40		2.31	7.14E+00		-3.40E+01	3.55E+00
+	PM-146	453.90	*	39.94	3.50E-01	3.50E-01	2.20E-01	1.72E-01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
PM-146	735.90	14.01	8.17E-01	3.50E-01	-1.99E-02	3.97E-01
	747.13	13.10	9.38E-01		4.02E-02	4.57E-01
ND-147	91.11	28.90	2.31E+02	2.31E+02	1.06E+03	1.15E+02
	531.02	13.10	3.70E+02		-5.45E+00	1.81E+02
PM-149	285.90	3.10	3.95E+13	3.95E+13	6.09E+12	1.95E+13
EU-152	121.78	20.50	5.65E-01	5.65E-01	-1.02E-02	2.80E-01
	244.69	5.40	2.95E+00		1.60E-01	1.46E+00
	344.27	19.13	7.05E-01		2.19E-01	3.48E-01
	778.89	9.20	1.31E+00		1.31E-01	6.39E-01
	964.01	10.40	1.38E+00		5.83E-01	6.69E-01
	1085.78	7.22	1.64E+00		5.97E-01	7.92E-01
	1112.02	9.60	1.36E+00		-6.34E-02	6.56E-01
	1407.95	14.94	1.45E+00		3.00E+00	7.06E-01
GD-153	97.43	31.30	4.94E-01	4.94E-01	5.33E-01	2.45E-01
	103.18	22.20	6.52E-01		8.48E-03	3.23E-01
EU-154	123.07	40.50	2.89E-01	2.89E-01	2.27E-02	1.43E-01
	723.30	19.70	6.15E-01		-2.21E-01	3.00E-01
	873.19	11.50	1.17E+00		2.83E-01	5.70E-01
	996.32	10.30	1.25E+00		1.17E-01	6.06E-01
	1004.76	17.90	8.82E-01		8.11E-01	4.30E-01
	1274.45	35.50	3.54E-01		7.46E-02	1.70E-01
EU-155	86.50	30.90	5.10E-01	5.10E-01	1.13E+00	2.54E-01
	105.30	20.70	5.51E-01		-4.05E-01	2.73E-01
EU-156	811.77	10.40	9.29E+01	9.29E+01	1.13E+01	4.52E+01
	1153.47	7.20	1.82E+02		2.93E+02	8.84E+01
	1230.71	8.90	1.04E+02		-1.02E+02	4.99E+01
HO-166M	184.41	72.60	2.46E-01	2.10E-01	2.08E+00	1.22E-01
	280.45	29.60	4.47E-01		1.49E-01	2.21E-01
	410.94	11.10	1.19E+00		-9.70E-01	5.87E-01
	711.69	54.10	2.10E-01		6.60E-02	1.02E-01
TM-171	66.72	0.14	1.11E+02	1.11E+02	2.64E+01	5.52E+01
HF-172	67.35	5.31	2.90E+00	1.12E+00	1.40E-01	1.44E+00
	125.81	11.30	1.12E+00		-2.68E-01	5.55E-01
LU-172	181.53	20.60	1.15E+04	3.78E+03	5.59E+02	5.68E+03
	900.72	29.81	8.49E+03		-2.18E+02	4.13E+03
	1093.66	62.50	3.78E+03		1.99E+03	1.82E+03
LU-173	100.72	5.24	2.46E+00	8.10E-01	1.39E+00	1.22E+00
	272.11	21.20	8.10E-01		2.12E+00	4.01E-01
HF-175	343.40	84.00	4.02E-01	4.02E-01	1.26E-01	1.98E-01
LU-176	88.34	13.30	1.15E+00	1.34E-01	-3.72E+00	5.73E-01
	201.83	86.00	1.44E-01		1.18E-02	7.11E-02
	306.78	94.00	1.34E-01		-8.92E-02	6.62E-02
HF-181	133.02	41.70	1.33E+00	7.07E-01	4.51E-02	6.61E-01
	345.85	17.20	3.77E+00		9.03E-01	1.86E+00
	482.03	82.80	7.07E-01		2.73E-01	3.47E-01
TA-182	67.75	41.20	6.04E-01	6.04E-01	2.92E-02	3.00E-01
	1121.30	34.90	2.01E+00		1.88E+01	9.92E-01
	1189.05	16.23	1.37E+00		4.99E-01	6.58E-01
	1221.41	26.98	7.92E-01		2.04E-01	3.80E-01
	1231.02	11.44	1.86E+00		-1.83E+00	8.96E-01
IR-192	308.46	29.68	1.04E+00	6.14E-01	-3.89E-01	5.14E-01
	468.07	48.10	6.14E-01		4.16E-01	3.01E-01
HG-203	279.19	77.30	7.05E-01	7.05E-01	-4.46E-01	3.48E-01

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	1.34E-01	1.34E-01	1.03E-02	6.60E-02
		899.15		99.16	1.39E-01		-3.57E-02	6.77E-02
		911.74		91.10	1.62E-01		7.48E-02	7.88E-02
	BI-207	569.67		97.72	1.22E-01	1.22E-01	1.04E-02	5.96E-02
		1063.62		74.90	1.60E-01		2.51E-02	7.74E-02
	TL-208	583.14		30.22	4.32E-01	2.60E-01	4.52E-01	2.12E-01
		860.37		4.48	2.97E+00		5.32E-01	1.45E+00
		2614.66		35.85	2.60E-01		2.97E-01	1.19E-01
	BI-210M	262.00		45.00	3.01E-01	3.01E-01	-2.38E-02	1.49E-01
		300.00		23.00	7.05E-01		-2.01E+01	3.49E-01
+	PB-210	46.50	*	4.25	3.15E+00	3.15E+00	1.07E+01	1.56E+00
	PB-211	404.84		2.90	4.76E+00	4.66E+00	2.59E+00	2.34E+00
		831.96		2.90	4.66E+00		3.72E+00	2.27E+00
	BI-212	727.17		11.80	9.60E-01	9.60E-01	1.44E-01	4.66E-01
		1620.62		2.75	4.19E+00		8.23E-01	1.99E+00
	PB-212	238.63		44.60	2.94E-01	2.94E-01	-5.24E+00	1.45E-01
		300.09		3.41	4.76E+00		-1.35E+02	2.36E+00
+	BI-214	609.31	*	46.30	5.31E-01	5.31E-01	2.50E+01	2.63E-01
		1120.29	*	15.10	1.69E+00		2.64E+01	8.30E-01
		1764.49	*	15.80	1.23E+00		2.87E+01	5.94E-01
		2204.22	*	4.98	2.59E+00		2.99E+01	1.22E+00
+	PB-214	295.21	*	19.19	1.39E+00	6.99E-01	2.72E+01	6.92E-01
		351.92	*	37.19	6.99E-01		2.74E+01	3.47E-01
	RN-219	401.80		6.50	2.07E+00	2.07E+00	-7.84E-01	1.02E+00
+	RA-223	323.87	*	3.88	3.35E+00	3.35E+00	2.23E+00	1.65E+00
	RA-224	240.98		3.95	4.88E+00	4.88E+00	4.68E+01	2.42E+00
	RA-225	40.00		31.00	3.01E+01	3.01E+01	-8.03E+00	1.49E+01
+	RA-226	186.21	*	3.28	6.62E+00	6.62E+00	5.01E+01	3.29E+00
	TH-227	50.10		8.40	1.38E+00	1.07E+00	-5.80E+00	6.82E-01
		236.00		11.50	1.07E+00		-6.47E-02	5.31E-01
		256.20		6.30	2.24E+00		3.73E+00	1.11E+00
	AC-228	338.32		11.40	1.17E+00	5.07E-01	2.76E-01	5.79E-01
		911.07		27.70	5.07E-01		2.34E-01	2.47E-01
		969.11		16.60	8.16E-01		-2.69E-01	3.96E-01
	TH-230	48.44		16.90	7.42E-01	7.42E-01	1.37E+00	3.68E-01
		62.85		4.60	3.40E+00		1.94E+01	1.69E+00
		67.67		0.37	3.78E+01		1.83E+00	1.88E+01
	PA-231	283.67		1.60	8.32E+00	6.00E+00	-1.31E+00	4.11E+00
		302.67		2.30	6.00E+00		-5.54E-01	2.96E+00
	TH-231	25.64		14.70	9.65E-01	9.65E-01	-2.43E+00	4.77E-01
		84.21		6.40	2.24E+00		-6.36E+00	1.11E+00
	PA-233	311.98		38.60	3.88E+00	3.88E+00	1.69E+00	1.92E+00
	PA-234	131.20		20.40	5.70E-01	5.70E-01	-2.48E-01	2.82E-01
		733.99		8.80	1.25E+00		-2.38E-01	6.06E-01
		946.00		12.00	1.05E+00		-2.12E-01	5.10E-01
+	PA-234M	1001.03	*	0.92	2.47E+01	2.47E+01	3.78E+01	1.21E+01
+	TH-234	63.29	*	3.80	4.31E+00	4.31E+00	2.13E+01	2.14E+00
+	U-235	143.76	*	10.50	1.40E+00	1.40E+00	2.20E+00	6.96E-01
		163.35		4.70	2.65E+00		1.96E-01	1.31E+00
		205.31	*	4.70	3.13E+00		1.56E+00	1.55E+00
	NP-237	86.50		12.60	1.21E+00	1.21E+00	2.68E+00	6.00E-01
	NP-239	106.10		22.70	7.32E+11	7.32E+11	-3.80E+11	3.63E+11
		228.18		10.70	1.62E+12		-5.48E+11	8.00E+11

Analysis Report for 1707084-10

HTC-A02-S001-0006-02

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	NP-239	277.60		14.10	1.45E+12	7.32E+11	-2.47E+11	7.16E+11
	AM-241	59.54		35.90	3.58E-01	3.58E-01	-2.23E-01	1.78E-01
+	AM-243	74.67	*	66.00	4.64E-01	4.64E-01	2.23E+00	2.31E-01
	CM-243	209.75		3.29	3.54E+00	9.79E-01	-1.52E+00	1.75E+00
		228.14		10.60	1.10E+00		-3.71E-01	5.43E-01
		277.60		14.00	9.79E-01		-1.67E-01	4.84E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S001-0006-02

Elapsed Live time: 3600
Elapsed Real Time: 3610

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	3	474	561	527	623	979	665
25:	473	511	499	498	453	525	470	509
33:	493	522	504	568	533	535	531	583
41:	547	577	628	623	653	859	1421	966
49:	695	730	843	789	990	1134	895	918
57:	886	968	1032	1065	1203	1286	1706	2680
65:	1537	1298	1316	1438	1421	1393	1442	1410
73:	1513	1757	3368	3230	3647	5237	1941	1606
81:	1470	1391	1242	1640	1618	1195	1656	2324
89:	1444	1492	1450	1495	3042	1990	1227	1049
97:	854	969	1025	901	800	797	848	806
105:	784	874	792	810	863	898	853	899
113:	935	947	797	784	826	819	826	826
121:	814	838	821	796	804	833	773	846
129:	816	827	814	814	830	755	780	892
137:	815	798	872	849	847	799	839	1112
145:	1038	849	804	795	832	888	900	840
153:	840	888	948	885	844	774	811	827
161:	801	752	781	871	775	732	776	732
169:	706	704	719	689	716	721	705	730
177:	608	683	689	670	734	704	693	697
185:	909	2395	2447	891	717	689	744	675
193:	600	659	646	592	641	604	629	622
201:	613	631	622	606	591	661	558	536
209:	527	507	525	502	561	514	503	498
217:	539	497	524	509	503	490	463	493
225:	475	484	494	443	472	500	443	474
233:	506	467	463	610	546	494	573	505
241:	745	2290	2051	640	428	439	451	417
249:	391	382	411	406	348	398	357	455
257:	465	418	527	416	355	381	360	339
265:	343	372	342	330	430	583	492	517
273:	384	412	451	363	314	374	339	377
281:	333	338	303	303	350	365	373	337
289:	303	323	323	356	356	671	3609	4619
297:	1014	354	396	470	415	310	308	294
305:	272	256	269	263	277	273	308	260
313:	271	296	290	266	277	231	264	248
321:	248	241	262	318	310	247	258	250
329:	293	300	278	252	270	271	258	266
337:	261	289	318	249	234	254	244	271
345:	269	245	246	275	339	389	1962	8088
353:	5174	694	311	342	390	257	211	190
361:	179	183	180	197	186	199	183	188

369:	196	183	185	171	205	216	176	168

Sample Title: HTC-A02-S001-0006-02

Channel								
377:	180	181	172	194	180	178	160	202
385:	166	189	215	218	269	240	203	189
393:	170	162	210	211	197	198	196	191
401:	201	216	231	190	237	251	220	182
409:	215	204	175	191	190	216	188	216
417:	200	207	194	198	198	179	189	171
425:	196	176	196	188	174	165	170	161
433:	164	152	173	150	155	129	129	147
441:	125	160	143	141	153	160	127	120
449:	135	143	138	119	145	154	148	173
457:	123	134	119	119	140	180	168	152
465:	111	140	112	134	139	152	151	115
473:	113	139	141	125	135	127	139	154
481:	151	126	116	123	123	129	155	172
489:	106	112	130	99	121	108	121	99
497:	98	112	106	110	89	101	96	96
505:	106	108	105	102	135	175	189	158
513:	138	125	106	113	103	89	81	107
521:	95	101	98	82	116	75	95	90
529:	98	92	98	99	114	148	103	100
537:	110	93	121	98	106	123	110	109
545:	97	105	99	100	84	85	95	109
553:	101	80	106	96	100	118	94	109
561:	86	87	77	83	101	91	94	90
569:	85	94	89	103	106	83	98	94
577:	90	108	89	133	123	111	116	130
585:	78	88	85	89	88	105	83	74
593:	84	90	82	89	70	89	88	97
601:	101	87	81	111	124	158	168	960
609:	4931	4792	963	181	174	227	149	88
617:	76	93	69	70	59	72	62	72
625:	61	71	69	61	67	86	75	78
633:	69	75	79	76	52	68	74	72
641:	45	69	67	63	46	62	64	63
649:	64	68	70	72	69	69	57	56
657:	64	65	57	70	83	63	74	73
665:	219	206	84	80	48	54	66	48
673:	61	68	64	75	58	53	65	53
681:	74	55	58	64	65	77	77	70
689:	69	70	65	73	53	72	70	55
697:	58	73	56	61	61	74	97	104
705:	59	62	70	68	53	69	73	61
713:	55	61	57	46	50	64	61	108
721:	69	52	69	45	52	62	71	65
729:	58	58	61	46	60	57	57	53
737:	46	55	57	60	73	75	80	63
745:	65	66	59	52	70	61	56	60
753:	77	61	55	50	71	50	62	65
761:	55	64	53	60	71	123	223	538
769:	436	127	70	59	71	64	72	60
777:	61	67	70	54	54	45	62	63
785:	114	184	109	62	52	67	55	56
793:	59	65	55	44	53	55	62	52

801:	57	70	57	68	74	162	123	63

Sample Title: HTC-A02-S001-0006-02

Channel								
809:	56	62	66	49	54	69	69	68
817:	50	67	73	41	76	71	61	51
825:	56	64	67	48	63	48	76	100
833:	70	58	63	56	55	87	126	78
841:	56	55	63	61	64	62	58	66
849:	67	54	73	64	46	54	70	62
857:	66	58	51	80	68	53	64	48
865:	64	54	52	49	69	58	50	69
873:	61	58	67	60	47	64	62	67
881:	52	63	57	54	67	41	55	68
889:	57	71	53	72	65	59	64	49
897:	51	53	75	65	51	58	56	65
905:	56	65	57	60	55	63	73	88
913:	58	53	43	67	53	49	53	63
921:	56	52	45	40	56	51	62	58
929:	42	48	60	55	173	333	161	74
937:	60	54	44	47	50	46	44	59
945:	56	56	41	44	41	56	51	43
953:	48	48	40	46	55	52	33	43
961:	52	44	62	94	66	51	48	55
969:	76	61	44	44	38	48	33	34
977:	34	44	51	47	42	58	51	44
985:	45	30	50	41	47	50	46	38
993:	43	38	53	41	43	52	45	99
1001:	136	103	53	52	48	46	34	45
1009:	47	39	38	43	31	46	42	44
1017:	37	36	45	40	43	34	41	44
1025:	35	40	48	48	40	45	40	47
1033:	42	34	35	35	37	32	31	35
1041:	43	41	42	48	20	35	37	56
1049:	43	37	68	59	40	36	38	37
1057:	46	40	28	38	34	38	32	38
1065:	33	41	31	39	54	51	49	38
1073:	35	42	36	34	35	43	28	25
1081:	37	25	37	36	38	34	39	27
1089:	28	30	35	46	35	41	38	38
1097:	31	39	34	37	39	40	56	55
1105:	42	45	40	41	29	53	46	29
1113:	38	42	39	42	61	97	493	1123
1121:	676	185	43	51	73	45	48	20
1129:	38	40	33	36	55	52	39	42
1137:	34	27	28	39	27	30	41	28
1145:	36	38	34	51	42	28	34	31
1153:	55	100	139	73	37	36	30	38
1161:	42	39	30	29	35	35	33	38
1169:	28	29	31	28	38	32	30	24
1177:	31	30	32	37	51	40	45	30
1185:	36	42	29	41	33	21	33	34
1193:	28	26	31	26	22	33	34	34
1201:	31	31	29	40	36	40	65	42
1209:	44	27	28	37	24	27	37	24
1217:	36	42	26	30	30	33	26	20
1225:	34	46	37	27	25	29	26	31

1233:	29	33	43	84	260	419	226	62

Sample Title: HTC-A02-S001-0006-02

Channel								
1241:	43	39	35	22	37	28	27	23
1249:	27	25	30	35	51	35	42	27
1257:	35	24	21	28	29	26	35	27
1265:	16	22	36	25	31	22	27	32
1273:	23	35	33	24	31	32	45	86
1281:	119	58	43	32	33	36	29	39
1289:	23	29	32	35	26	19	31	32
1297:	16	24	23	23	29	26	29	35
1305:	35	28	18	18	32	29	35	28
1313:	31	21	23	37	30	33	18	18
1321:	25	27	22	23	26	36	16	22
1329:	21	25	25	36	23	29	27	30
1337:	36	26	30	24	37	20	27	25
1345:	32	17	30	22	22	24	23	26
1353:	29	26	22	36	23	27	30	22
1361:	22	29	15	32	19	23	19	30
1369:	28	21	22	19	29	38	33	138
1377:	284	246	78	37	31	30	36	60
1385:	62	57	28	29	28	30	23	25
1393:	21	21	23	23	22	26	26	46
1401:	111	81	35	30	18	73	152	165
1409:	82	29	36	31	22	22	27	26
1417:	24	33	27	24	28	28	22	32
1425:	27	37	23	27	25	30	18	32
1433:	17	23	36	33	28	31	19	24
1441:	27	26	27	22	26	36	24	28
1449:	27	24	26	30	26	34	19	27
1457:	37	34	50	67	70	35	28	36
1465:	21	25	20	30	34	33	32	25
1473:	23	19	27	24	29	24	30	24
1481:	23	27	25	28	37	36	36	31
1489:	31	27	20	28	23	24	24	19
1497:	27	28	30	38	30	28	27	34
1505:	27	31	54	138	140	83	28	29
1513:	21	30	17	29	18	25	29	30
1521:	27	34	27	26	21	24	26	24
1529:	32	25	16	20	35	36	21	27
1537:	46	48	48	23	29	44	58	43
1545:	29	22	20	25	21	29	16	18
1553:	19	20	20	31	24	28	22	20
1561:	18	19	18	24	13	28	23	23
1569:	25	29	20	12	19	16	17	27
1577:	24	25	26	13	32	63	55	27
1585:	22	17	26	19	27	23	25	25
1593:	29	26	28	26	23	28	25	22
1601:	21	17	25	18	13	18	27	26
1609:	7	12	24	18	20	12	18	15
1617:	25	22	16	21	12	13	15	20
1625:	12	13	13	23	14	21	16	16
1633:	11	17	14	15	12	16	14	10
1641:	9	14	15	12	9	16	8	9
1649:	8	10	15	7	13	8	6	16
1657:	4	17	31	51	68	31	9	12

1665:	11	10	11	9	8	7	10	10

Sample Title: HTC-A02-S001-0006-02

Channel								
1673:	13	7	11	10	10	10	8	8
1681:	11	22	17	26	12	10	10	10
1689:	6	8	18	15	20	17	11	10
1697:	9	7	11	4	5	8	8	7
1705:	12	4	8	16	6	6	10	6
1713:	8	12	7	9	6	7	4	10
1721:	8	10	9	7	9	14	40	122
1729:	183	125	33	12	15	15	12	9
1737:	10	5	5	17	9	8	6	7
1745:	9	9	3	7	11	2	13	9
1753:	6	5	12	7	6	6	6	17
1761:	33	162	550	839	394	84	23	40
1769:	27	15	11	10	7	8	3	2
1777:	11	1	7	6	5	4	5	4
1785:	5	10	4	5	0	4	12	4
1793:	5	6	6	2	7	10	9	7
1801:	8	6	13	4	5	8	6	7
1809:	9	5	8	8	5	9	6	6
1817:	6	15	7	2	5	8	13	5
1825:	9	8	6	7	9	4	5	3
1833:	1	8	4	13	21	27	14	7
1841:	4	7	7	7	43	96	77	57
1849:	15	8	9	6	7	9	6	5
1857:	8	8	8	7	6	3	3	9
1865:	4	8	10	9	4	14	9	18
1873:	15	10	8	6	4	6	8	9
1881:	4	4	6	9	10	6	6	9
1889:	9	13	4	6	9	10	14	7
1897:	14	8	10	5	2	17	5	6
1905:	6	10	6	7	5	8	3	9
1913:	4	7	7	4	3	6	6	5
1921:	6	6	8	4	7	7	6	5
1929:	5	7	7	10	6	8	7	11
1937:	12	9	5	5	4	6	6	8
1945:	7	11	5	4	4	10	8	11
1953:	9	5	10	7	6	4	4	6
1961:	6	5	6	9	8	5	8	1
1969:	7	4	13	3	11	8	4	11
1977:	6	7	5	9	5	5	4	2
1985:	2	10	7	5	6	1	4	5
1993:	9	3	7	4	3	2	5	3
2001:	1	4	6	7	3	0	6	9
2009:	8	7	5	7	6	4	5	8
2017:	6	3	6	4	7	3	4	6
2025:	5	1	5	2	7	8	7	8
2033:	5	5	3	3	5	8	3	5
2041:	5	1	2	5	2	1	6	3
2049:	5	4	5	5	4	5	6	3
2057:	5	1	3	9	2	5	8	7
2065:	0	2	4	4	1	3	5	5
2073:	2	6	1	2	7	2	2	1
2081:	3	2	3	3	4	3	8	4
2089:	4	6	2	0	1	4	1	5

2097:	1	2	4	2	3	3	4	3

Sample Title: HTC-A02-S001-0006-02

Channel								
2105:	3	5	3	2	4	5	4	2
2113:	7	4	6	14	63	61	29	11
2121:	5	3	5	3	4	3	2	3
2129:	0	4	1	3	0	2	2	3
2137:	1	1	3	4	3	4	1	0
2145:	4	1	3	5	6	4	3	4
2153:	2	5	1	0	6	2	3	3
2161:	4	5	2	0	5	2	1	5
2169:	3	4	1	2	4	4	4	2
2177:	5	2	0	3	2	4	4	3
2185:	2	3	1	2	3	5	4	8
2193:	0	1	4	2	3	2	6	11
2201:	30	148	223	139	26	7	13	5
2209:	4	2	2	4	0	3	1	3
2217:	3	3	0	2	1	1	1	0
2225:	4	4	1	0	0	2	3	3
2233:	1	2	0	3	1	1	2	0
2241:	2	1	1	6	0	2	2	3
2249:	2	1	1	2	0	0	2	1
2257:	1	1	4	3	1	1	1	1
2265:	0	1	1	0	1	0	0	1
2273:	3	2	0	2	1	1	1	2
2281:	3	4	0	0	5	1	2	1
2289:	2	4	10	17	14	5	3	2
2297:	4	1	1	2	1	1	0	0
2305:	1	0	2	3	0	3	3	0
2313:	2	1	1	0	0	0	0	1
2321:	1	1	0	0	0	0	1	1
2329:	0	2	1	1	1	2	1	0
2337:	1	1	4	1	1	0	1	1
2345:	3	1	0	1	0	0	2	0
2353:	0	2	4	0	3	0	1	0
2361:	0	1	0	1	0	0	0	1
2369:	2	3	2	2	1	0	1	1
2377:	0	1	3	1	1	0	1	0
2385:	0	2	2	1	3	0	1	1
2393:	2	1	0	0	0	2	1	2
2401:	2	0	1	0	2	1	1	1
2409:	0	0	2	1	0	1	1	1
2417:	3	3	0	0	0	2	0	1
2425:	1	2	1	0	0	0	1	0
2433:	1	1	1	1	0	3	1	0
2441:	0	0	1	10	31	56	52	16
2449:	3	2	1	0	1	2	0	0
2457:	0	0	0	1	0	0	1	0
2465:	0	0	1	0	0	0	0	1
2473:	0	0	1	2	0	0	0	0
2481:	0	1	1	1	1	2	1	1
2489:	0	0	2	0	0	1	0	2
2497:	0	0	0	0	0	0	0	2
2505:	0	0	1	1	0	0	0	0
2513:	1	0	0	0	0	0	0	0
2521:	0	0	0	0	0	0	0	2

2529:	0	0	0	1	0	0	1	0

Sample Title: HTC-A02-S001-0006-02

Channel								
2537:	0	0	1	2	0	0	1	1
2545:	0	0	0	0	0	0	0	0
2553:	0	1	0	2	1	1	0	0
2561:	1	1	0	0	0	3	0	1
2569:	0	0	1	0	0	0	0	0
2577:	0	0	1	0	2	0	0	2
2585:	0	1	0	2	0	0	0	0
2593:	0	0	0	1	0	0	0	0
2601:	1	0	0	0	1	2	1	0
2609:	0	0	2	7	10	16	2	0
2617:	1	0	0	2	0	0	0	0
2625:	1	0	0	0	1	0	0	0
2633:	0	0	1	0	2	1	0	0
2641:	0	0	0	1	0	0	0	0
2649:	0	0	0	0	0	0	1	1
2657:	0	0	0	0	1	0	0	0
2665:	0	0	0	2	1	1	0	0
2673:	0	1	0	0	1	0	0	0
2681:	0	0	1	0	1	0	1	0
2689:	0	0	1	1	1	0	0	1
2697:	1	2	0	0	1	0	1	1
2705:	0	0	0	0	0	0	0	0
2713:	0	1	1	1	0	0	0	0
2721:	1	0	0	0	0	0	0	0
2729:	0	0	2	0	1	0	0	0
2737:	0	0	1	0	0	0	0	0
2745:	1	0	0	0	0	1	0	0
2753:	0	0	0	0	1	0	0	0
2761:	0	0	0	0	0	1	1	1
2769:	0	0	0	0	0	0	1	0
2777:	1	0	0	1	0	0	0	1
2785:	0	0	0	0	0	1	0	1
2793:	0	0	1	0	0	0	1	0
2801:	0	0	0	1	0	0	1	0
2809:	0	0	0	1	0	0	0	1
2817:	0	0	1	1	0	0	0	0
2825:	0	0	0	0	0	0	1	1
2833:	1	0	0	0	0	0	0	0
2841:	0	0	0	1	0	0	1	0
2849:	2	0	1	1	1	0	0	0
2857:	0	0	0	0	1	0	1	1
2865:	0	0	0	2	1	0	0	1
2873:	0	0	0	0	0	0	2	0
2881:	0	0	0	0	0	0	0	0
2889:	0	0	1	0	0	1	1	0
2897:	1	1	1	0	0	0	0	0
2905:	0	0	0	0	0	0	1	1
2913:	2	0	1	0	0	0	0	1
2921:	1	0	0	0	0	1	0	0
2929:	0	0	0	1	0	0	1	0
2937:	1	0	0	0	1	1	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	1	0	0	0	0	0	0

2961:	0	0	1	0	0	0	0	0

Sample Title: HTC-A02-S001-0006-02

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-0006-02

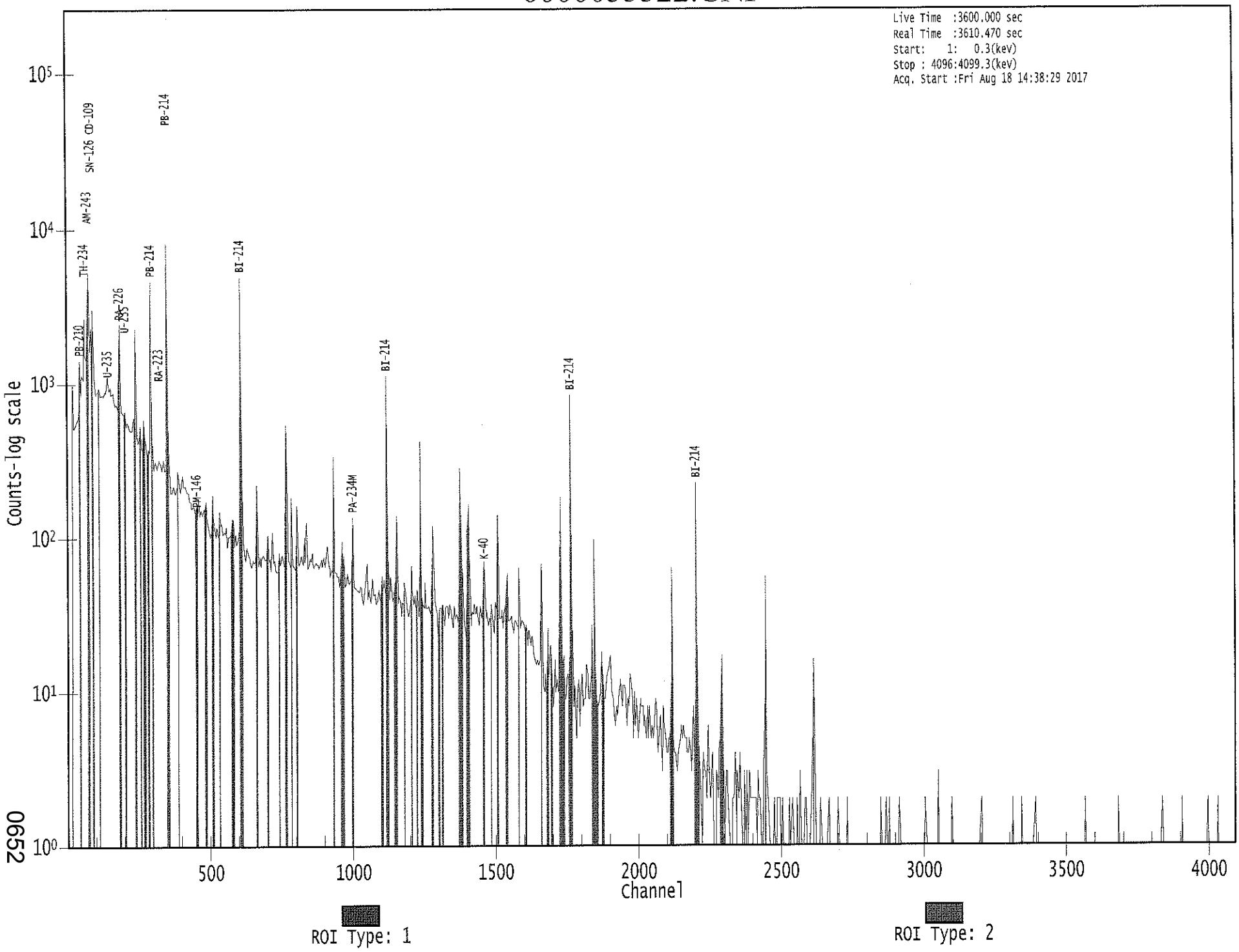
Channel								
3401:	0	0	0	0	1	0	0	0
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	1	0	0
3425:	0	0	0	0	0	1	0	0
3433:	0	1	0	0	1	0	1	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	0	0	0	1	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	1	0	0	0	0	0
3497:	0	0	1	0	1	0	0	0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

3825:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S001-0006-02

Channel								
3833:	0	0	0	2	0	0	0	1
3841:	0	0	0	0	1	1	0	1
3849:	0	0	0	0	0	0	0	0
3857:	1	0	0	0	0	0	0	0
3865:	0	0	0	0	0	0	0	0
3873:	0	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	1	0	0	0	0	0
3905:	2	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:	1	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	0	0	1	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	1	0	0	0	0
3977:	0	0	1	0	1	0	0	0
3985:	0	0	0	0	0	0	0	1
3993:	0	0	0	2	0	0	0	0
4001:	0	0	0	0	0	0	0	1
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	2	0
4033:	0	0	0	0	0	0	0	1
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	1	0	0	0	0	0
4073:	0	1	0	0	0	0	0	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	0	1	0	0

0000055522.CNF



0652

KB 8/18/17

Apex-Gamma

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-11
Sample Description	: HTC-A02-S001-0612-01
Sample Type	: SOIL
Sample Size	: 6.898E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:06:57AM
Acquisition Started	: 8/18/2017 2:38:38PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3615.5 seconds
Dead Time	: 0.43 %
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	: 55523

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 3:39:19PM
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	46.91	47.22	0.0000	0.00
2	53.95	54.26	0.0000	0.00
3	63.39	63.70	0.0000	0.00
4	76.77	77.07	0.0000	0.00
5	85.62	85.92	0.0000	0.00
6	87.95	88.25	0.0000	0.00
7	93.23	93.52	0.0000	0.00
8	144.42	144.70	0.0000	0.00
9	153.78	154.06	0.0000	0.00
10	164.47	164.74	0.0000	0.00
11	186.46	186.73	0.0000	0.00
12	242.01	242.26	0.0000	0.00
13	270.27	270.51	0.0000	0.00
14	295.70	295.93	0.0000	0.00
15	338.73	338.94	0.0000	0.00
16	352.37	352.58	0.0000	0.00
17	462.72	462.89	0.0000	0.00
18	510.75	510.91	0.0000	0.00
19	582.77	582.90	0.0000	0.00
20	609.63	609.75	0.0000	0.00
21	623.96	624.08	0.0000	0.00
22	665.36	665.46	0.0000	0.00
23	703.81	703.90	0.0000	0.00
24	719.07	719.16	0.0000	0.00
25	765.06	765.13	0.0000	0.00
26	768.54	768.61	0.0000	0.00
27	782.14	782.21	0.0000	0.00
28	786.14	786.21	0.0000	0.00
29	806.80	806.85	0.0000	0.00
30	839.25	839.29	0.0000	0.00
31	912.00	912.02	0.0000	0.00
32	934.15	934.16	0.0000	0.00
33	969.27	969.28	0.0000	0.00
34	996.72	996.71	0.0000	0.00
35	1001.39	1001.38	0.0000	0.00
36	1051.87	1051.85	0.0000	0.00
37	1096.84	1096.79	0.0000	0.00
38	1120.39	1120.34	0.0000	0.00
39	1155.64	1155.58	0.0000	0.00
40	1238.12	1238.03	0.0000	0.00
41	1252.02	1251.93	0.0000	0.00
42	1280.72	1280.61	0.0000	0.00

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1315.23	1315.11	0.0000	0.00
44	1377.56	1377.42	0.0000	0.00
45	1386.07	1385.93	0.0000	0.00
46	1400.33	1400.19	0.0000	0.00
47	1407.56	1407.41	0.0000	0.00
48	1460.85	1460.68	0.0000	0.00
49	1509.19	1509.01	0.0000	0.00
50	1661.31	1661.07	0.0000	0.00
51	1705.69	1705.45	0.0000	0.00
52	1728.85	1728.60	0.0000	0.00
53	1764.28	1764.01	0.0000	0.00
54	1838.06	1837.77	0.0000	0.00
55	1847.36	1847.06	0.0000	0.00
56	1854.12	1853.82	0.0000	0.00
57	1874.28	1873.97	0.0000	0.00
58	1898.31	1898.00	0.0000	0.00
59	1903.14	1902.82	0.0000	0.00
60	1932.21	1931.89	0.0000	0.00
61	1937.53	1937.21	0.0000	0.00
62	2028.33	2027.97	0.0000	0.00
63	2101.77	2101.39	0.0000	0.00
64	2117.92	2117.54	0.0000	0.00
65	2203.67	2203.26	0.0000	0.00
66	2293.72	2293.27	0.0000	0.00
67	2326.89	2326.43	0.0000	0.00
68	2382.34	2381.86	0.0000	0.00
69	2447.07	2446.57	0.0000	0.00
70	2613.84	2613.29	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 3:39:19PM

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	46.91	44 -	50	47.22	7.89E+02	200.98	6.81E+03	1.84
	2	53.95	52 -	57	54.26	1.97E+02	189.67	7.08E+03	1.90
	3	63.39	59 -	67	63.70	1.68E+03	304.04	1.32E+04	1.87
	4	76.77	71 -	82	77.07	7.80E+03	432.91	1.95E+04	3.76
M	5	85.62	83 -	97	85.92	8.46E+02	184.32	7.34E+03	2.46
m	6	87.95	83 -	97	88.25	1.49E+03	245.43	9.51E+03	2.46
m	7	93.23	83 -	97	93.52	2.56E+03	247.17	8.19E+03	2.48
	8	144.42	142 -	147	144.70	2.18E+02	175.89	6.00E+03	2.18
	9	153.78	152 -	157	154.06	1.49E+02	169.22	5.60E+03	2.58
	10	164.47	162 -	167	164.74	1.50E+02	163.06	5.16E+03	5.18
	11	186.46	182 -	191	186.73	2.28E+03	252.00	7.75E+03	2.06
	12	242.01	238 -	247	242.26	2.36E+03	220.87	5.46E+03	2.02
	13	270.27	267 -	273	270.51	2.32E+02	130.04	2.91E+03	2.94
	14	295.70	291 -	301	295.93	4.42E+03	215.25	3.82E+03	2.09
	15	338.73	337 -	343	338.94	9.96E+01	108.08	2.06E+03	1.87
	16	352.37	348 -	358	352.58	7.29E+03	221.80	2.63E+03	2.22
	17	462.72	460 -	466	462.89	8.69E+01	77.55	1.03E+03	1.75
	18	510.75	506 -	515	510.91	2.35E+02	92.80	1.10E+03	4.12
	19	582.77	578 -	587	582.90	2.68E+02	88.92	9.80E+02	2.02
	20	609.63	603 -	615	609.75	5.01E+03	172.53	1.15E+03	2.22
	21	623.96	619 -	629	624.08	7.27E+01	78.97	7.95E+02	5.09
	22	665.36	660 -	672	665.46	1.63E+02	95.44	9.95E+02	2.31
	23	703.81	700 -	708	703.90	8.00E+01	63.05	5.62E+02	2.26
	24	719.07	715 -	724	719.16	6.24E+01	72.83	7.27E+02	1.94
M	25	765.06	763 -	775	765.13	3.62E+01	33.59	2.54E+02	2.02
m	26	768.54	763 -	775	768.61	5.15E+02	72.55	5.25E+02	2.65
M	27	782.14	780 -	791	782.21	4.43E+01	38.71	2.93E+02	2.25
m	28	786.14	780 -	791	786.21	1.23E+02	54.06	4.32E+02	2.26
	29	806.80	803 -	812	806.85	1.39E+02	68.91	5.96E+02	2.17
	30	839.25	836 -	843	839.29	7.29E+01	59.26	5.38E+02	2.94
	31	912.00	908 -	917	912.02	1.20E+02	67.62	5.84E+02	2.01
	32	934.15	929 -	939	934.16	2.58E+02	74.02	5.89E+02	2.11
	33	969.27	967 -	973	969.28	4.19E+01	47.36	3.76E+02	3.07
M	34	996.72	995 -	1006	996.71	4.42E+01	23.57	1.34E+02	2.87
m	35	1001.39	995 -	1006	1001.38	1.02E+02	47.45	3.32E+02	2.38
	36	1051.87	1049 -	1055	1051.85	3.49E+01	40.39	2.74E+02	2.65
	37	1096.84	1095 -	1100	1096.79	2.88E+01	34.48	2.08E+02	2.85
	38	1120.39	1116 -	1124	1120.34	9.87E+02	78.89	3.48E+02	2.57
	39	1155.64	1151 -	1160	1155.58	1.25E+02	55.34	3.57E+02	2.46
	40	1238.12	1233 -	1244	1238.03	3.53E+02	70.43	4.42E+02	2.49

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1252.02	1248	1257	1251.93	5.52E+01	47.52	2.94E+02	3.32
	42	1280.72	1275	1287	1280.61	7.55E+01	64.57	4.55E+02	2.22
	43	1315.23	1312	1318	1315.11	3.10E+01	33.24	1.78E+02	2.93
M	44	1377.56	1373	1390	1377.42	2.33E+02	46.56	2.36E+02	2.37
m	45	1386.07	1373	1390	1385.93	3.57E+01	48.88	2.94E+02	3.39
	46	1400.33	1395	1404	1400.19	7.14E+01	42.32	2.15E+02	3.29
	47	1407.56	1404	1411	1407.41	8.66E+01	41.23	2.29E+02	2.32
	48	1460.85	1455	1467	1460.68	4.38E+02	70.63	3.73E+02	2.42
	49	1509.19	1505	1514	1509.01	7.94E+01	51.17	3.25E+02	1.85
	50	1661.31	1654	1667	1661.07	6.15E+01	41.71	1.59E+02	3.11
	51	1705.69	1701	1709	1705.45	2.10E+01	20.07	4.80E+01	2.87
	52	1728.85	1721	1735	1728.60	1.73E+02	39.33	8.99E+01	2.90
	53	1764.28	1757	1770	1764.01	7.55E+02	59.87	6.30E+01	2.68
M	54	1838.06	1833	1867	1837.77	2.83E+01	21.75	5.63E+01	3.29
m	55	1847.36	1833	1867	1847.06	1.28E+02	29.41	4.45E+01	3.29
m	56	1854.12	1833	1867	1853.82	1.59E+01	20.90	3.47E+01	3.29
	57	1874.28	1868	1879	1873.97	1.90E+01	21.45	4.80E+01	3.44
M	58	1898.31	1893	1912	1898.00	2.88E+01	16.67	3.08E+01	2.49
m	59	1903.14	1893	1912	1902.82	1.06E+01	20.00	3.74E+01	3.32
M	60	1932.21	1929	1945	1931.89	1.53E+01	14.49	2.64E+01	2.75
m	61	1937.53	1929	1945	1937.21	2.46E+01	18.33	4.11E+01	2.75
	62	2028.33	2024	2031	2027.97	1.30E+01	11.14	1.21E+01	3.63
	63	2101.77	2098	2106	2101.39	1.55E+01	16.42	3.29E+01	1.81
	64	2117.92	2113	2122	2117.54	5.74E+01	20.83	2.73E+01	3.79
	65	2203.67	2197	2212	2203.26	1.80E+02	32.37	3.51E+01	3.48
	66	2293.72	2289	2297	2293.27	1.46E+01	14.19	2.08E+01	1.65
	67	2326.89	2323	2328	2326.43	7.00E+00	5.29	0.00E+00	1.47
	68	2382.34	2378	2386	2381.86	9.50E+00	9.82	9.00E+00	1.65
	69	2447.07	2443	2451	2446.57	4.20E+01	16.88	1.80E+01	2.50
	70	2613.84	2609	2616	2613.29	7.00E+01	16.73	0.00E+00	2.85

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 : 8/18/2017 3:39:19PM

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

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.91	44 -	50	7.89E+02	200.98	6.81E+03	1.59E+02
	2	53.95	52 -	57	1.97E+02	189.67	7.08E+03	1.54E+02
	3	63.39	59 -	67	1.68E+03	304.04	1.32E+04	2.41E+02
	4	76.77	71 -	82	7.80E+03	432.91	1.95E+04	3.25E+02
M	5	85.62	83 -	97	8.46E+02	184.32	7.34E+03	1.41E+02
m	6	87.95	83 -	97	1.49E+03	245.43	9.51E+03	1.60E+02
m	7	93.23	83 -	97	2.56E+03	247.17	8.19E+03	1.49E+02
	8	144.42	142 -	147	2.18E+02	175.89	6.00E+03	1.43E+02
	9	153.78	152 -	157	1.49E+02	169.22	5.60E+03	1.38E+02
	10	164.47	162 -	167	1.50E+02	163.06	5.16E+03	1.33E+02
	11	186.46	182 -	191	2.28E+03	252.00	7.75E+03	1.92E+02
	12	242.01	238 -	247	2.36E+03	220.87	5.46E+03	1.63E+02
	13	270.27	267 -	273	2.32E+02	130.04	2.91E+03	1.04E+02
	14	295.70	291 -	301	4.42E+03	215.25	3.82E+03	1.39E+02
	15	338.73	337 -	343	9.96E+01	108.08	2.06E+03	8.73E+01
	16	352.37	348 -	358	7.29E+03	221.80	2.63E+03	1.16E+02
	17	462.72	460 -	466	8.69E+01	77.55	1.03E+03	6.19E+01
	18	510.75	506 -	515	2.35E+02	92.80	1.10E+03	7.20E+01
	19	582.77	578 -	587	2.68E+02	88.92	9.80E+02	6.80E+01
	20	609.63	603 -	615	5.01E+03	172.53	1.15E+03	8.11E+01
	21	623.96	619 -	629	7.27E+01	78.97	7.95E+02	6.34E+01
	22	665.36	660 -	672	1.63E+02	95.44	9.95E+02	7.56E+01
	23	703.81	700 -	708	8.00E+01	63.05	5.62E+02	4.97E+01
	24	719.07	715 -	724	6.24E+01	72.83	7.27E+02	5.84E+01
M	25	765.06	763 -	775	3.62E+01	33.59	2.54E+02	2.62E+01
m	26	768.54	763 -	775	5.15E+02	72.55	5.25E+02	3.77E+01
M	27	782.14	780 -	791	4.43E+01	38.71	2.93E+02	2.81E+01
m	28	786.14	780 -	791	1.23E+02	54.06	4.32E+02	3.42E+01
	29	806.80	803 -	812	1.39E+02	68.91	5.96E+02	5.32E+01
	30	839.25	836 -	843	7.29E+01	59.26	5.38E+02	4.66E+01
	31	912.00	908 -	917	1.20E+02	67.62	5.84E+02	5.26E+01
	32	934.15	929 -	939	2.58E+02	74.02	5.89E+02	5.48E+01
	33	969.27	967 -	973	4.19E+01	47.36	3.76E+02	3.74E+01
M	34	996.72	995 -	1006	4.42E+01	23.57	1.34E+02	1.91E+01
m	35	1001.39	995 -	1006	1.02E+02	47.45	3.32E+02	3.00E+01
	36	1051.87	1049 -	1055	3.49E+01	40.39	2.74E+02	3.17E+01
	37	1096.84	1095 -	1100	2.88E+01	34.48	2.08E+02	2.69E+01
	38	1120.39	1116 -	1124	9.87E+02	78.89	3.48E+02	3.92E+01
	39	1155.64	1151 -	1160	1.25E+02	55.34	3.57E+02	4.16E+01
	40	1238.12	1233 -	1244	3.53E+02	70.43	4.42E+02	4.90E+01
	41	1252.02	1248 -	1257	5.52E+01	47.52	2.94E+02	3.71E+01
	42	1280.72	1275 -	1287	7.55E+01	64.57	4.55E+02	5.11E+01
	43	1315.23	1312 -	1318	3.10E+01	33.24	1.78E+02	2.57E+01
M	44	1377.56	1373 -	1390	2.33E+02	46.56	2.36E+02	2.53E+01
m	45	1386.07	1373 -	1390	3.57E+01	48.88	2.94E+02	2.82E+01
	46	1400.33	1395 -	1404	7.14E+01	42.32	2.15E+02	3.19E+01
	47	1407.56	1404 -	1411	8.66E+01	41.23	2.29E+02	3.02E+01
	48	1460.85	1455 -	1467	4.38E+02	70.63	3.73E+02	4.68E+01
	49	1509.19	1505 -	1514	7.94E+01	51.17	3.25E+02	3.94E+01
	50	1661.31	1654 -	1667	6.15E+01	41.71	1.59E+02	3.18E+01
	51	1705.69	1701 -	1709	2.10E+01	20.07	4.80E+01	1.47E+01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	52	1728.85	1721 -	1735	1.73E+02	39.33	8.99E+01	2.40E+01
	53	1764.28	1757 -	1770	7.55E+02	59.87	6.30E+01	1.96E+01
M	54	1838.06	1833 -	1867	2.83E+01	21.75	5.63E+01	1.23E+01
m	55	1847.36	1833 -	1867	1.28E+02	29.41	4.45E+01	1.10E+01
m	56	1854.12	1833 -	1867	1.59E+01	20.90	3.47E+01	9.68E+00
	57	1874.28	1868 -	1879	1.90E+01	21.45	4.80E+01	1.61E+01
M	58	1898.31	1893 -	1912	2.88E+01	16.67	3.08E+01	9.12E+00
m	59	1903.14	1893 -	1912	1.06E+01	20.00	3.74E+01	1.01E+01
M	60	1932.21	1929 -	1945	1.53E+01	14.49	2.64E+01	8.44E+00
m	61	1937.53	1929 -	1945	2.46E+01	18.33	4.11E+01	1.05E+01
	62	2028.33	2024 -	2031	1.30E+01	11.14	1.21E+01	6.98E+00
	63	2101.77	2098 -	2106	1.55E+01	16.42	3.29E+01	1.18E+01
	64	2117.92	2113 -	2122	5.74E+01	20.83	2.73E+01	1.18E+01
	65	2203.67	2197 -	2212	1.80E+02	32.37	3.51E+01	1.48E+01
	66	2293.72	2289 -	2297	1.46E+01	14.19	2.08E+01	9.82E+00
	67	2326.89	2323 -	2328	7.00E+00	5.29	0.00E+00	0.00E+00
	68	2382.34	2378 -	2386	9.50E+00	9.82	9.00E+00	6.29E+00
	69	2447.07	2443 -	2451	4.20E+01	16.88	1.80E+01	8.89E+00
	70	2613.84	2609 -	2616	7.00E+01	16.73	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 : 8/18/2017 3:39:19PM

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	46.91	44 -	50	47.22	7.89E+02	200.98	6.81E+03	PB-210
	2	53.95	52 -	57	54.26	1.97E+02	189.67	7.08E+03	.....
	3	63.39	59 -	67	63.70	1.68E+03	304.04	1.32E+04	TH-234 TH-230
	4	76.77	71 -	82	77.07	7.80E+03	432.91	1.95E+04	.....
M	5	85.62	83 -	97	85.92	8.46E+02	184.32	7.34E+03	EU-155

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									NP-237
m	6	87.95	83 -	97	88.25	1.49E+03	245.43	9.51E+03	CD-109
									SN-126
									LU-176
m	7	93.23	83 -	97	93.52	2.56E+03	247.17	8.19E+03	GA-67
	8	144.42	142 -	147	144.70	2.18E+02	175.89	6.00E+03	U-235
	9	153.78	152 -	157	154.06	1.49E+02	169.22	5.60E+03	CS-136
	10	164.47	162 -	167	164.74	1.50E+02	163.06	5.16E+03	CS-136
	11	186.46	182 -	191	186.73	2.28E+03	252.00	7.75E+03	RA-226
	12	242.01	238 -	247	242.26	2.36E+03	220.87	5.46E+03	.....
	13	270.27	267 -	273	270.51	2.32E+02	130.04	2.91E+03	.....
	14	295.70	291 -	301	295.93	4.42E+03	215.25	3.82E+03	PB-214
	15	338.73	337 -	343	338.94	9.96E+01	108.08	2.06E+03	AC-228
	16	352.37	348 -	358	352.58	7.29E+03	221.80	2.63E+03	PB-214
	17	462.72	460 -	466	462.89	8.69E+01	77.55	1.03E+03	SB-125
	18	510.75	506 -	515	510.91	2.35E+02	92.80	1.10E+03	.....
	19	582.77	578 -	587	582.90	2.68E+02	88.92	9.80E+02	TL-208
	20	609.63	603 -	615	609.75	5.01E+03	172.53	1.15E+03	BI-214
	21	623.96	619 -	629	624.08	7.27E+01	78.97	7.95E+02	.....
	22	665.36	660 -	672	665.46	1.63E+02	95.44	9.95E+02	CE-143
									SB-126
	23	703.81	700 -	708	703.90	8.00E+01	63.05	5.62E+02	.....
	24	719.07	715 -	724	719.16	6.24E+01	72.83	7.27E+02	.....
M	25	765.06	763 -	775	765.13	3.62E+01	33.59	2.54E+02	NB-95
m	26	768.54	763 -	775	768.61	5.15E+02	72.55	5.25E+02	.....
M	27	782.14	780 -	791	782.21	4.43E+01	38.71	2.93E+02	.....
m	28	786.14	780 -	791	786.21	1.23E+02	54.06	4.32E+02	.....
	29	806.80	803 -	812	806.85	1.39E+02	68.91	5.96E+02	.....
	30	839.25	836 -	843	839.29	7.29E+01	59.26	5.38E+02	.....
	31	912.00	908 -	917	912.02	1.20E+02	67.62	5.84E+02	TL-204
									AC-228
	32	934.15	929 -	939	934.16	2.58E+02	74.02	5.89E+02	.....
	33	969.27	967 -	973	969.28	4.19E+01	47.36	3.76E+02	AC-228
M	34	996.72	995 -	1006	996.71	4.42E+01	23.57	1.34E+02	EU-154
m	35	1001.39	995 -	1006	1001.38	1.02E+02	47.45	3.32E+02	PA-234M
	36	1051.87	1049 -	1055	1051.85	3.49E+01	40.39	2.74E+02	.....
	37	1096.84	1095 -	1100	1096.79	2.88E+01	34.48	2.08E+02	.....
	38	1120.39	1116 -	1124	1120.34	9.87E+02	78.89	3.48E+02	BI-214
									SC-46
									TA-182
	39	1155.64	1151 -	1160	1155.58	1.25E+02	55.34	3.57E+02	.....
	40	1238.12	1233 -	1244	1238.03	3.53E+02	70.43	4.42E+02	CO-56
	41	1252.02	1248 -	1257	1251.93	5.52E+01	47.52	2.94E+02	.....
	42	1280.72	1275 -	1287	1280.61	7.55E+01	64.57	4.55E+02	.....
	43	1315.23	1312 -	1318	1315.11	3.10E+01	33.24	1.78E+02	.....
M	44	1377.56	1373 -	1390	1377.42	2.33E+02	46.56	2.36E+02	.....
m	45	1386.07	1373 -	1390	1385.93	3.57E+01	48.88	2.94E+02	.....
	46	1400.33	1395 -	1404	1400.19	7.14E+01	42.32	2.15E+02	.....
	47	1407.56	1404 -	1411	1407.41	8.66E+01	41.23	2.29E+02	EU-152
	48	1460.85	1455 -	1467	1460.68	4.38E+02	70.63	3.73E+02	K-40
	49	1509.19	1505 -	1514	1509.01	7.94E+01	51.17	3.25E+02	.....
	50	1661.31	1654 -	1667	1661.07	6.15E+01	41.71	1.59E+02	.....
	51	1705.69	1701 -	1709	1705.45	2.10E+01	20.07	4.80E+01	.....
	52	1728.85	1721 -	1735	1728.60	1.73E+02	39.33	8.99E+01	.....

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	53	1764.28	1757 -	1770	1764.01	7.55E+02	59.87	6.30E+01	BI-214
M	54	1838.06	1833 -	1867	1837.77	2.83E+01	21.75	5.63E+01	.....
m	55	1847.36	1833 -	1867	1847.06	1.28E+02	29.41	4.45E+01	.....
m	56	1854.12	1833 -	1867	1853.82	1.59E+01	20.90	3.47E+01	.....
	57	1874.28	1868 -	1879	1873.97	1.90E+01	21.45	4.80E+01	.....
M	58	1898.31	1893 -	1912	1898.00	2.88E+01	16.67	3.08E+01	.....
m	59	1903.14	1893 -	1912	1902.82	1.06E+01	20.00	3.74E+01	.....
M	60	1932.21	1929 -	1945	1931.89	1.53E+01	14.49	2.64E+01	.....
m	61	1937.53	1929 -	1945	1937.21	2.46E+01	18.33	4.11E+01	.....
	62	2028.33	2024 -	2031	2027.97	1.30E+01	11.14	1.21E+01	.....
	63	2101.77	2098 -	2106	2101.39	1.55E+01	16.42	3.29E+01	.....
	64	2117.92	2113 -	2122	2117.54	5.74E+01	20.83	2.73E+01	.....
	65	2203.67	2197 -	2212	2203.26	1.80E+02	32.37	3.51E+01	BI-214
	66	2293.72	2289 -	2297	2293.27	1.46E+01	14.19	2.08E+01	.....
	67	2326.89	2323 -	2328	2326.43	7.00E+00	5.29	0.00E+00	.....
	68	2382.34	2378 -	2386	2381.86	9.50E+00	9.82	9.00E+00	.....
	69	2447.07	2443 -	2451	2446.57	4.20E+01	16.88	1.80E+01	.....
	70	2613.84	2609 -	2616	2613.29	7.00E+01	16.73	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 : 8/18/2017 3:39:19PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.91	7.89E+02	200.98	1.75E-02	1.73E-03
	2	53.95	1.97E+02	189.67	2.11E-02	1.73E-03
	3	63.39	1.68E+03	304.04	2.44E-02	1.80E-03
	4	76.77	7.80E+03	432.91	2.67E-02	2.05E-03
M	5	85.62	8.46E+02	184.32	2.71E-02	2.21E-03
m	6	87.95	1.49E+03	245.43	2.72E-02	2.26E-03
m	7	93.23	2.56E+03	247.17	2.71E-02	2.24E-03
	8	144.42	2.18E+02	175.89	2.32E-02	1.87E-03
	9	153.78	1.49E+02	169.22	2.23E-02	1.76E-03
	10	164.47	1.50E+02	163.06	2.14E-02	1.64E-03
	11	186.46	2.28E+03	252.00	1.96E-02	1.55E-03
	12	242.01	2.36E+03	220.87	1.59E-02	1.33E-03

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	13	270.27	2.32E+02	130.04	1.45E-02	1.21E-03
	14	295.70	4.42E+03	215.25	1.35E-02	1.15E-03
	15	338.73	9.96E+01	108.08	1.19E-02	1.06E-03
	16	352.37	7.29E+03	221.80	1.15E-02	1.03E-03
	17	462.72	8.69E+01	77.55	9.03E-03	8.58E-04
	18	510.75	2.35E+02	92.80	8.26E-03	7.95E-04
	19	582.77	2.68E+02	88.92	7.33E-03	6.99E-04
	20	609.63	5.01E+03	172.53	7.04E-03	6.64E-04
	21	623.96	7.27E+01	78.97	6.89E-03	6.45E-04
	22	665.36	1.63E+02	95.44	6.51E-03	5.91E-04
	23	703.81	8.00E+01	63.05	6.19E-03	5.57E-04
	24	719.07	6.24E+01	72.83	6.07E-03	5.44E-04
M	25	765.06	3.62E+01	33.59	5.74E-03	5.03E-04
m	26	768.54	5.15E+02	72.55	5.72E-03	5.00E-04
M	27	782.14	4.43E+01	38.71	5.63E-03	4.88E-04
m	28	786.14	1.23E+02	54.06	5.61E-03	4.85E-04
	29	806.80	1.39E+02	68.91	5.48E-03	4.67E-04
	30	839.25	7.29E+01	59.26	5.29E-03	4.38E-04
	31	912.00	1.20E+02	67.62	4.92E-03	3.84E-04
	32	934.15	2.58E+02	74.02	4.82E-03	3.80E-04
	33	969.27	4.19E+01	47.36	4.66E-03	3.74E-04
M	34	996.72	4.42E+01	23.57	4.55E-03	3.70E-04
m	35	1001.39	1.02E+02	47.45	4.53E-03	3.69E-04
	36	1051.87	3.49E+01	40.39	4.35E-03	3.61E-04
	37	1096.84	2.88E+01	34.48	4.19E-03	3.53E-04
	38	1120.39	9.87E+02	78.89	4.12E-03	3.50E-04
	39	1155.64	1.25E+02	55.34	4.01E-03	3.44E-04
	40	1238.12	3.53E+02	70.43	3.79E-03	3.22E-04
	41	1252.02	5.52E+01	47.52	3.75E-03	3.18E-04
	42	1280.72	7.55E+01	64.57	3.68E-03	3.10E-04
	43	1315.23	3.10E+01	33.24	3.60E-03	3.01E-04
M	44	1377.56	2.33E+02	46.56	3.47E-03	2.88E-04
m	45	1386.07	3.57E+01	48.88	3.45E-03	2.87E-04
	46	1400.33	7.14E+01	42.32	3.42E-03	2.85E-04
	47	1407.56	8.66E+01	41.23	3.41E-03	2.84E-04
	48	1460.85	4.38E+02	70.63	3.31E-03	2.75E-04
	49	1509.19	7.94E+01	51.17	3.23E-03	2.67E-04
	50	1661.31	6.15E+01	41.71	3.00E-03	2.43E-04
	51	1705.69	2.10E+01	20.07	2.94E-03	2.36E-04
	52	1728.85	1.73E+02	39.33	2.91E-03	2.32E-04
	53	1764.28	7.55E+02	59.87	2.87E-03	2.26E-04
M	54	1838.06	2.83E+01	21.75	2.78E-03	2.15E-04
m	55	1847.36	1.28E+02	29.41	2.77E-03	2.15E-04
m	56	1854.12	1.59E+01	20.90	2.76E-03	2.15E-04
	57	1874.28	1.90E+01	21.45	2.74E-03	2.15E-04
M	58	1898.31	2.88E+01	16.67	2.72E-03	2.15E-04
m	59	1903.14	1.06E+01	20.00	2.71E-03	2.15E-04
M	60	1932.21	1.53E+01	14.49	2.69E-03	2.15E-04
m	61	1937.53	2.46E+01	18.33	2.68E-03	2.15E-04
	62	2028.33	1.30E+01	11.14	2.60E-03	2.15E-04
	63	2101.77	1.55E+01	16.42	2.54E-03	2.15E-04
	64	2117.92	5.74E+01	20.83	2.53E-03	2.15E-04
	65	2203.67	1.80E+02	32.37	2.46E-03	2.15E-04

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
66	2293.72	1.46E+01	14.19	2.41E-03	2.15E-04
67	2326.89	7.00E+00	5.29	2.39E-03	2.15E-04
68	2382.34	9.50E+00	9.82	2.35E-03	2.15E-04
69	2447.07	4.20E+01	16.88	2.32E-03	2.15E-04
70	2613.84	7.00E+01	16.73	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 : 8/18/2017 3:39:19PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.91	7.89E+02	200.98	5.19E+01	1.08E+01	7.37E+02	2.01E+02
	2	53.95	1.97E+02	189.67			1.97E+02	1.90E+02
	3	63.39	1.68E+03	304.04	3.11E+01	1.15E+01	1.65E+03	3.04E+02
	4	76.77	7.80E+03	432.91			7.80E+03	4.33E+02
M	5	85.62	8.46E+02	184.32	5.84E+00	3.13E+00	8.40E+02	1.84E+02
m	6	87.95	1.49E+03	245.43			1.49E+03	2.45E+02
m	7	93.23	2.56E+03	247.17	7.43E+01	4.99E+00	2.48E+03	2.47E+02
	8	144.42	2.18E+02	175.89	1.25E+00	7.51E+00	2.17E+02	1.76E+02
	9	153.78	1.49E+02	169.22			1.49E+02	1.69E+02
	10	164.47	1.50E+02	163.06			1.50E+02	1.63E+02
	11	186.46	2.28E+03	252.00	3.36E+01	5.83E+00	2.25E+03	2.52E+02
	12	242.01	2.36E+03	220.87			2.36E+03	2.21E+02
	13	270.27	2.32E+02	130.04			2.32E+02	1.30E+02
	14	295.70	4.42E+03	215.25			4.42E+03	2.15E+02
	15	338.73	9.96E+01	108.08	0.00E+00	0.00E+00	9.96E+01	1.08E+02
	16	352.37	7.29E+03	221.80			7.29E+03	2.22E+02
	17	462.72	8.69E+01	77.55			8.69E+01	7.75E+01
	18	510.75	2.35E+02	92.80	5.38E+01	4.80E+00	1.81E+02	9.29E+01
	19	582.77	2.68E+02	88.92	1.58E+00	2.86E+00	2.66E+02	8.90E+01
	20	609.63	5.01E+03	172.53	3.58E+00	2.96E+00	5.01E+03	1.73E+02
	21	623.96	7.27E+01	78.97			7.27E+01	7.90E+01
	22	665.36	1.63E+02	95.44			1.63E+02	9.54E+01
	23	703.81	8.00E+01	63.05			8.00E+01	6.30E+01
	24	719.07	6.24E+01	72.83			6.24E+01	7.28E+01
M	25	765.06	3.62E+01	33.59			3.62E+01	3.36E+01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	26	768.54	5.15E+02	72.55			5.15E+02	7.26E+01
M	27	782.14	4.43E+01	38.71			4.43E+01	3.87E+01
m	28	786.14	1.23E+02	54.06			1.23E+02	5.41E+01
	29	806.80	1.39E+02	68.91			1.39E+02	6.89E+01
	30	839.25	7.29E+01	59.26			7.29E+01	5.93E+01
	31	912.00	1.20E+02	67.62			1.20E+02	6.76E+01
	32	934.15	2.58E+02	74.02			2.58E+02	7.40E+01
	33	969.27	4.19E+01	47.36			4.19E+01	4.74E+01
M	34	996.72	4.42E+01	23.57			4.42E+01	2.36E+01
m	35	1001.39	1.02E+02	47.45	8.44E-02	2.31E+00	1.02E+02	4.75E+01
	36	1051.87	3.49E+01	40.39			3.49E+01	4.04E+01
	37	1096.84	2.88E+01	34.48			2.88E+01	3.45E+01
	38	1120.39	9.87E+02	78.89			9.87E+02	7.89E+01
	39	1155.64	1.25E+02	55.34			1.25E+02	5.53E+01
	40	1238.12	3.53E+02	70.43			3.53E+02	7.04E+01
	41	1252.02	5.52E+01	47.52			5.52E+01	4.75E+01
	42	1280.72	7.55E+01	64.57			7.55E+01	6.46E+01
	43	1315.23	3.10E+01	33.24			3.10E+01	3.32E+01
M	44	1377.56	2.33E+02	46.56			2.33E+02	4.66E+01
m	45	1386.07	3.57E+01	48.88			3.57E+01	4.89E+01
	46	1400.33	7.14E+01	42.32			7.14E+01	4.23E+01
	47	1407.56	8.66E+01	41.23			8.66E+01	4.12E+01
	48	1460.85	4.38E+02	70.63	3.11E+00	2.06E+00	4.35E+02	7.07E+01
	49	1509.19	7.94E+01	51.17			7.94E+01	5.12E+01
	50	1661.31	6.15E+01	41.71			6.15E+01	4.17E+01
	51	1705.69	2.10E+01	20.07			2.10E+01	2.01E+01
	52	1728.85	1.73E+02	39.33			1.73E+02	3.93E+01
	53	1764.28	7.55E+02	59.87			7.55E+02	5.99E+01
M	54	1838.06	2.83E+01	21.75			2.83E+01	2.17E+01
m	55	1847.36	1.28E+02	29.41			1.28E+02	2.94E+01
m	56	1854.12	1.59E+01	20.90			1.59E+01	2.09E+01
	57	1874.28	1.90E+01	21.45			1.90E+01	2.14E+01
M	58	1898.31	2.88E+01	16.67			2.88E+01	1.67E+01
m	59	1903.14	1.06E+01	20.00			1.06E+01	2.00E+01
M	60	1932.21	1.53E+01	14.49			1.53E+01	1.45E+01
m	61	1937.53	2.46E+01	18.33			2.46E+01	1.83E+01
	62	2028.33	1.30E+01	11.14			1.30E+01	1.11E+01
	63	2101.77	1.55E+01	16.42			1.55E+01	1.64E+01
	64	2117.92	5.74E+01	20.83			5.74E+01	2.08E+01
	65	2203.67	1.80E+02	32.37			1.80E+02	3.24E+01
	66	2293.72	1.46E+01	14.19			1.46E+01	1.42E+01
	67	2326.89	7.00E+00	5.29			7.00E+00	5.29E+00
	68	2382.34	9.50E+00	9.82			9.50E+00	9.82E+00
	69	2447.07	4.20E+01	16.88			4.20E+01	1.69E+01
	70	2613.84	7.00E+01	16.73	1.69E+00	9.96E-01	6.83E+01	1.68E+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 1707084-11

HTC-A02-S001-0612-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 3:39:19PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.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	46.91	7.89E+02	200.98	5.19E+01	1.08E+01	7.37E+02	2.01E+02
	2	53.95	1.97E+02	189.67			1.97E+02	1.90E+02
	3	63.39	1.68E+03	304.04	3.11E+01	1.15E+01	1.65E+03	3.04E+02
	4	76.77	7.80E+03	432.91			7.80E+03	4.33E+02
M	5	85.62	8.46E+02	184.32	5.84E+00	3.13E+00	8.40E+02	1.84E+02
m	6	87.95	1.49E+03	245.43			1.49E+03	2.45E+02
m	7	93.23	2.56E+03	247.17	7.43E+01	4.99E+00	2.48E+03	2.47E+02
	8	144.42	2.18E+02	175.89	1.25E+00	7.51E+00	2.17E+02	1.76E+02
	9	153.78	1.49E+02	169.22			1.49E+02	1.69E+02
	10	164.47	1.50E+02	163.06			1.50E+02	1.63E+02
	11	186.46	2.28E+03	252.00	3.36E+01	5.83E+00	2.25E+03	2.52E+02
	12	242.01	2.36E+03	220.87			2.36E+03	2.21E+02
	13	270.27	2.32E+02	130.04			2.32E+02	1.30E+02
	14	295.70	4.42E+03	215.25			4.42E+03	2.15E+02
	15	338.73	9.96E+01	108.08	0.00E+00	0.00E+00	9.96E+01	1.08E+02
	16	352.37	7.29E+03	221.80			7.29E+03	2.22E+02
	17	462.72	8.69E+01	77.55			8.69E+01	7.75E+01
	18	510.75	2.35E+02	92.80	5.38E+01	4.80E+00	1.81E+02	9.29E+01
	19	582.77	2.68E+02	88.92	1.58E+00	2.86E+00	2.66E+02	8.90E+01
	20	609.63	5.01E+03	172.53	3.58E+00	2.96E+00	5.01E+03	1.73E+02
	21	623.96	7.27E+01	78.97			7.27E+01	7.90E+01
	22	665.36	1.63E+02	95.44			1.63E+02	9.54E+01
	23	703.81	8.00E+01	63.05			8.00E+01	6.30E+01
	24	719.07	6.24E+01	72.83			6.24E+01	7.28E+01
M	25	765.06	3.62E+01	33.59			3.62E+01	3.36E+01
m	26	768.54	5.15E+02	72.55			5.15E+02	7.26E+01
M	27	782.14	4.43E+01	38.71			4.43E+01	3.87E+01
m	28	786.14	1.23E+02	54.06			1.23E+02	5.41E+01
	29	806.80	1.39E+02	68.91			1.39E+02	6.89E+01
	30	839.25	7.29E+01	59.26			7.29E+01	5.93E+01
	31	912.00	1.20E+02	67.62			1.20E+02	6.76E+01
	32	934.15	2.58E+02	74.02			2.58E+02	7.40E+01
	33	969.27	4.19E+01	47.36			4.19E+01	4.74E+01
M	34	996.72	4.42E+01	23.57			4.42E+01	2.36E+01
m	35	1001.39	1.02E+02	47.45	8.44E-02	2.31E+00	1.02E+02	4.75E+01
	36	1051.87	3.49E+01	40.39			3.49E+01	4.04E+01
	37	1096.84	2.88E+01	34.48			2.88E+01	3.45E+01
	38	1120.39	9.87E+02	78.89			9.87E+02	7.89E+01
	39	1155.64	1.25E+02	55.34			1.25E+02	5.53E+01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	40	1238.12	3.53E+02	70.43			3.53E+02	7.04E+01
	41	1252.02	5.52E+01	47.52			5.52E+01	4.75E+01
	42	1280.72	7.55E+01	64.57			7.55E+01	6.46E+01
	43	1315.23	3.10E+01	33.24			3.10E+01	3.32E+01
M	44	1377.56	2.33E+02	46.56			2.33E+02	4.66E+01
m	45	1386.07	3.57E+01	48.88			3.57E+01	4.89E+01
	46	1400.33	7.14E+01	42.32			7.14E+01	4.23E+01
	47	1407.56	8.66E+01	41.23			8.66E+01	4.12E+01
	48	1460.85	4.38E+02	70.63	3.11E+00	2.06E+00	4.35E+02	7.07E+01
	49	1509.19	7.94E+01	51.17			7.94E+01	5.12E+01
	50	1661.31	6.15E+01	41.71			6.15E+01	4.17E+01
	51	1705.69	2.10E+01	20.07			2.10E+01	2.01E+01
	52	1728.85	1.73E+02	39.33			1.73E+02	3.93E+01
	53	1764.28	7.55E+02	59.87			7.55E+02	5.99E+01
M	54	1838.06	2.83E+01	21.75			2.83E+01	2.17E+01
m	55	1847.36	1.28E+02	29.41			1.28E+02	2.94E+01
m	56	1854.12	1.59E+01	20.90			1.59E+01	2.09E+01
	57	1874.28	1.90E+01	21.45			1.90E+01	2.14E+01
M	58	1898.31	2.88E+01	16.67			2.88E+01	1.67E+01
m	59	1903.14	1.06E+01	20.00			1.06E+01	2.00E+01
M	60	1932.21	1.53E+01	14.49			1.53E+01	1.45E+01
m	61	1937.53	2.46E+01	18.33			2.46E+01	1.83E+01
	62	2028.33	1.30E+01	11.14			1.30E+01	1.11E+01
	63	2101.77	1.55E+01	16.42			1.55E+01	1.64E+01
	64	2117.92	5.74E+01	20.83			5.74E+01	2.08E+01
	65	2203.67	1.80E+02	32.37			1.80E+02	3.24E+01
	66	2293.72	1.46E+01	14.19			1.46E+01	1.42E+01
	67	2326.89	7.00E+00	5.29			7.00E+00	5.29E+00
	68	2382.34	9.50E+00	9.82			9.50E+00	9.82E+00
	69	2447.07	4.20E+01	16.88			4.20E+01	1.69E+01
	70	2613.84	7.00E+01	16.73	1.69E+00	9.96E-01	6.83E+01	1.68E+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 1707084-11

HTC-A02-S001-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.000	1460.81	*	10.67	1.34E+01	2.46E+00
NB-95	0.884	765.79	*	99.81	4.52E-01	4.21E-01
CD-109	0.999	88.03	*	3.72	1.85E+01	3.59E+00
SN-126	0.977	87.57	*	37.00	1.62E+00	2.98E-01
TL-208	0.826	583.14	*	30.22	1.31E+00	4.55E-01
		860.37		4.48		
		2614.66	*	35.85	9.26E-01	2.44E-01
PB-210	0.973	46.50	*	4.25	1.09E+01	3.16E+00
BI-214	0.986	609.31	*	46.30	1.67E+01	1.68E+00
		1120.29	*	15.10	1.73E+01	2.02E+00
		1764.49	*	15.80	1.81E+01	2.03E+00
		2204.22	*	4.98	1.60E+01	3.19E+00
PB-214	0.966	295.21	*	19.19	1.86E+01	1.83E+00
		351.92	*	37.19	1.85E+01	1.75E+00
RA-226	0.990	186.21	*	3.28	3.81E+01	7.00E+01
AC-228	0.927	338.32	*	11.40	7.97E-01	8.67E-01
		911.07	*	27.70	9.58E-01	5.45E-01
		969.11	*	16.60	5.89E-01	6.68E-01
PA-234M	0.980	1001.03	*	0.92	2.67E+01	1.26E+01
TH-234	0.998	63.29	*	3.80	1.94E+01	3.84E+00
NP-237	0.884	86.50	*	12.60	2.67E+00	6.26E-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 : 8/18/2017 3:39:19PM
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	53.95	5.48298E-02	48.05		
	4	76.77	2.16728E+00	2.77		
m	7	93.23	6.89492E-01	4.98	Sum	
	8	144.42	6.02269E-02	40.60	Tol.	U-235
	9	153.78	4.14558E-02	56.69	Tol.	CS-136
	10	164.47	4.17732E-02	54.21	Tol.	CS-136
	12	242.01	6.55977E-01	4.68		
	13	270.27	6.45003E-02	28.00		

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	17	462.72	2.41398E-02	44.62	Tol.	SB-125
	18	510.75	5.04106E-02	25.60		
	21	623.96	2.01974E-02	54.30		
	22	665.36	4.54038E-02	29.19	Tol.	SB-126 CE-143
	23	703.81	2.22211E-02	39.41	Sum	
	24	719.07	1.73422E-02	58.33		
m	26	768.54	1.43008E-01	7.05	Sum	
M	27	782.14	1.23009E-02	43.71		
m	28	786.14	3.41491E-02	21.99		
	29	806.80	3.86581E-02	24.76		
	30	839.25	2.02469E-02	40.65		
	32	934.15	7.17905E-02	14.32	Sum	
M	34	996.72	1.22686E-02	26.68	Sum	
	36	1051.87	9.68104E-03	57.94		
	37	1096.84	8.00752E-03	59.81		
	39	1155.64	3.46480E-02	22.18	Sum	
	40	1238.12	9.80285E-02	9.98	Tol.	CO-56
	41	1252.02	1.53259E-02	43.06		
	42	1280.72	2.09722E-02	42.76		
	43	1315.23	8.61806E-03	53.57		
M	44	1377.56	6.48281E-02	9.98		
m	45	1386.07	9.90729E-03	68.52		
	46	1400.33	1.98417E-02	29.62		
	47	1407.56	2.40423E-02	23.82	Tol.	EU-152
	49	1509.19	2.20604E-02	32.21		
	50	1661.31	1.70843E-02	33.91		
	51	1705.69	5.83333E-03	47.78		
	52	1728.85	4.80670E-02	11.36		
M	54	1838.06	7.86929E-03	38.39		
m	55	1847.36	3.54448E-02	11.52		
m	56	1854.12	4.42772E-03	65.57		
	57	1874.28	5.28424E-03	56.37		
M	58	1898.31	7.98971E-03	28.98		
m	59	1903.14	2.93193E-03	94.74		
M	60	1932.21	4.23922E-03	47.48		
m	61	1937.53	6.82149E-03	37.32		
	62	2028.33	3.60380E-03	42.92		
	63	2101.77	4.31858E-03	52.82		
	64	2117.92	1.59311E-02	18.16		
	66	2293.72	4.06111E-03	48.52		
	67	2326.89	1.94444E-03	37.80		
	68	2382.34	2.63889E-03	51.70		
	69	2447.07	1.16667E-02	20.10		

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 1707084-11

HTC-A02-S001-0612-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	1.00	1460.81	*	10.67	1.34E+01	2.46E+00
NB-95	0.88	765.79	*	99.81	4.52E-01	4.21E-01
CD-109	0.99	88.03	*	3.72	1.85E+01	3.59E+00
SN-126	0.97	87.57	*	37.00	1.62E+00	2.98E-01
TL-208	0.82	583.14	*	30.22	1.31E+00	4.55E-01
		860.37		4.48		
		2614.66	*	35.85	9.26E-01	2.44E-01
PB-210	0.97	46.50	*	4.25	1.09E+01	3.16E+00
BI-214	0.98	609.31	*	46.30	1.67E+01	1.68E+00
		1120.29	*	15.10	1.73E+01	2.02E+00
		1764.49	*	15.80	1.81E+01	2.03E+00
		2204.22	*	4.98	1.60E+01	3.19E+00
PB-214	0.96	295.21	*	19.19	1.86E+01	1.83E+00
		351.92	*	37.19	1.85E+01	1.75E+00
RA-226	0.99	186.21	*	3.28	3.81E+01	7.00E+01
AC-228	0.92	338.32	*	11.40	7.97E-01	8.67E-01
		911.07	*	27.70	9.58E-01	5.45E-01
		969.11	*	16.60	5.89E-01	6.68E-01
PA-234M	0.98	1001.03	*	0.92	2.67E+01	1.26E+01
TH-234	0.99	63.29	*	3.80	1.94E+01	3.84E+00
NP-237	0.88	86.50	*	12.60	2.67E+00	6.26E-01

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	1.000	1.34E+01	2.46E+00	
	NB-95	0.884	4.52E-01	4.21E-01	
?	CD-109	0.999	1.85E+01	3.59E+00	
?	SN-126	0.977	1.62E+00	2.98E-01	
	TL-208	0.826	1.01E+00	2.15E-01	
	PB-210	0.973	1.09E+01	3.16E+00	
	BI-214	0.986	1.72E+01	1.03E+00	
	PB-214	0.966	1.86E+01	1.26E+00	
	RA-226	0.990	3.81E+01	7.00E+01	
	AC-228	0.927	8.07E-01	3.80E-01	
	PA-234M	0.980	2.67E+01	1.26E+01	
	TH-234	0.998	1.94E+01	3.84E+00	
	NP-237	0.884	2.67E+00	6.26E-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 1707084-11

HTC-A02-S001-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 3:39:19PM
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	53.95	5.48298E-02	48.05		
	4	76.77	2.16728E+00	2.77		
m	7	93.23	6.89492E-01	4.98	Sum	
	8	144.42	6.02269E-02	40.60	Tol.	U-235
	9	153.78	4.14558E-02	56.69	Tol.	CS-136
	10	164.47	4.17732E-02	54.21	Tol.	CS-136
	12	242.01	6.55977E-01	4.68		
	13	270.27	6.45003E-02	28.00		
	17	462.72	2.41398E-02	44.62	Tol.	SB-125
	18	510.75	5.04106E-02	25.60		
	21	623.96	2.01974E-02	54.30		
	22	665.36	4.54038E-02	29.19	Tol.	SB-126
						CE-143
	23	703.81	2.22211E-02	39.41	Sum	
	24	719.07	1.73422E-02	58.33		
m	26	768.54	1.43008E-01	7.05	Sum	
M	27	782.14	1.23009E-02	43.71		
m	28	786.14	3.41491E-02	21.99		
	29	806.80	3.86581E-02	24.76		
	30	839.25	2.02469E-02	40.65		
	32	934.15	7.17905E-02	14.32	Sum	
M	34	996.72	1.22686E-02	26.68	Sum	
	36	1051.87	9.68104E-03	57.94		
	37	1096.84	8.00752E-03	59.81		
	39	1155.64	3.46480E-02	22.18	Sum	
	40	1238.12	9.80285E-02	9.98	Tol.	CO-56
	41	1252.02	1.53259E-02	43.06		
	42	1280.72	2.09722E-02	42.76		
	43	1315.23	8.61806E-03	53.57		
M	44	1377.56	6.48281E-02	9.98		
m	45	1386.07	9.90729E-03	68.52		
	46	1400.33	1.98417E-02	29.62		
	47	1407.56	2.40423E-02	23.82	Tol.	EU-152
	49	1509.19	2.20604E-02	32.21		
	50	1661.31	1.70843E-02	33.91		

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	51	1705.69	5.83333E-03	47.78		
	52	1728.85	4.80670E-02	11.36		
M	54	1838.06	7.86929E-03	38.39		
m	55	1847.36	3.54448E-02	11.52		
m	56	1854.12	4.42772E-03	65.57		
	57	1874.28	5.28424E-03	56.37		
M	58	1898.31	7.98971E-03	28.98		
m	59	1903.14	2.93193E-03	94.74		
M	60	1932.21	4.23922E-03	47.48		
m	61	1937.53	6.82149E-03	37.32		
	62	2028.33	3.60380E-03	42.92		
	63	2101.77	4.31858E-03	52.82		
	64	2117.92	1.59311E-02	18.16		
	66	2293.72	4.06111E-03	48.52		
	67	2326.89	1.94444E-03	37.80		
	68	2382.34	2.63889E-03	51.70		
	69	2447.07	1.16667E-02	20.10		

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	-3.56E-01	4.51E+00	4.51E+00
+	NA-22	1274.54		99.94	-1.90E-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	-2.40E-02	1.14E-01	1.14E-01
+	K-40	1460.81	*	10.67	1.34E+01	2.98E+00	2.98E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	9.08E-02	1.37E-01	1.37E-01
		78.34		96.00	1.31E+00		1.87E-01
+	SC-46	889.25		99.98	2.45E-01	3.67E-01	3.67E-01
		1120.51		99.99	5.77E+00		9.24E-01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	V-48	983.52		99.98	9.65E-01	9.49E+00	9.49E+00
		1312.10		97.50	8.53E-01		1.03E+01
+	CR-51	320.08		9.83	-1.01E+01	1.45E+01	1.45E+01
+	MN-54	834.83		99.97	5.89E-02	2.02E-01	2.02E-01
+	CO-56	846.75		99.96	1.47E-01	3.54E-01	3.54E-01
		1037.75		14.03	1.59E+00		2.62E+00
		1238.25		67.00	3.41E+00		1.04E+00
		1771.40		15.51	1.39E-01		1.78E+00
		2598.48		16.90	-3.87E-01		6.16E-01
+	CO-57	122.06		85.51	1.01E-02	1.49E-01	1.49E-01
		136.48		10.60	-4.28E-01		1.26E+00
+	CO-58	810.76		99.40	-5.10E-02	3.72E-01	3.72E-01
+	FE-59	1099.22		56.50	-1.49E-01	1.21E+00	1.21E+00
		1291.56		43.20	4.00E-01		1.63E+00
+	CO-60	1173.22		100.00	3.06E-03	1.68E-01	1.68E-01
		1332.49		100.00	-9.61E-02		1.71E-01
+	ZN-65	1115.52		50.75	8.43E-02	4.51E-01	4.51E-01
+	GA-67	93.31		35.70	1.53E+09	2.43E+08	2.43E+08
		208.95		2.24	2.16E+09		3.80E+09
		300.22		16.00	6.38E+07		7.11E+08
+	SE-75	121.11		16.70	-5.76E-01	3.03E-01	1.02E+00
		136.00		59.20	-1.42E-01		3.03E-01
		264.65		59.80	-2.57E-01		3.79E-01
		279.53		25.20	-2.02E-01		9.44E-01
		400.65		11.40	-1.13E+00		2.08E+00
+	RB-82	776.52		13.00	-1.66E-01	1.45E+01	1.45E+01
+	RB-83	520.41		46.00	-4.20E-02	6.08E-01	6.08E-01
		529.64		30.30	-9.79E-02		9.46E-01
		552.65		16.40	-6.42E-02		1.79E+00
+	KR-85	513.99		0.43	-2.88E+00	3.43E+01	3.43E+01
+	SR-85	513.99		99.27	-3.43E-02	4.09E-01	4.09E-01
+	Y-88	898.02		93.40	9.65E-02	2.81E-01	3.18E-01
		1836.01		99.38	1.83E-01		2.81E-01
+	MO-93	263.06		56.72	-1.10E-01	1.37E-01	2.37E-01
		684.67		99.68	-4.74E-02		1.37E-01
		1477.11		99.08	7.69E-02		1.93E-01
+	NB-93M	16.57		9.43	2.46E+01	1.31E+02	1.31E+02
+	NB-94	702.63		100.00	1.17E-01	1.46E-01	1.46E-01
		871.10		100.00	6.26E-02		1.62E-01
+	NB-95	765.79	*	99.81	4.52E-01	1.63E+00	1.63E+00
+	NB-95M	235.69		25.00	-8.24E+07	5.29E+07	5.29E+07
+	ZR-95	724.18		43.70	-4.64E-02	7.18E-01	9.38E-01
		756.72		55.30	1.48E-03		7.18E-01
+	MO-99	181.06		6.20	8.73E+09	3.04E+10	4.97E+10
		739.58		12.80	-1.03E+10		3.04E+10
		778.00		4.50	-9.61E+08		8.27E+10
+	RU-103	497.08		89.00	2.46E-01	7.86E-01	7.86E-01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RU-106	621.84		9.80	-2.38E-02	1.60E+00	1.60E+00
+	AG-108M	433.93		89.90	3.50E-02	1.51E-01	1.51E-01
		614.37		90.40	2.07E-02		2.90E-01
		722.95		90.50	-1.81E-02		1.67E-01
+	CD-109	88.03	*	3.72	1.85E+01	8.34E+00	8.34E+00
+	AG-110M	657.75		93.14	4.91E-02	1.86E-01	1.86E-01
		677.61		10.53	-2.26E-01		1.62E+00
		706.67		16.46	-2.61E-01		1.09E+00
		763.93		21.98	1.61E-01		9.55E-01
		884.67		71.63	3.58E-02		2.97E-01
		1384.27		23.94	-2.22E-01		1.02E+00
+	CD-113M	263.70		0.02	-5.84E+02	5.71E+02	5.71E+02
+	SN-113	255.12		1.93	-2.16E+00	3.82E-01	1.24E+01
		391.69		64.90	-6.83E-02		3.82E-01
+	TE123M	159.00		84.10	9.57E-02	2.36E-01	2.36E-01
+	SB-124	602.71		97.87	-6.55E-02	4.26E-01	4.26E-01
		645.85		7.26	-7.20E-01		5.15E+00
		722.78		11.10	-4.40E-01		4.07E+00
		1691.02		49.00	2.02E-01		8.51E-01
+	I-125	35.49		6.49	1.01E-01	1.09E+01	1.09E+01
+	SB-125	176.33		6.89	-1.03E+00	5.14E-01	1.72E+00
		427.89		29.33	-1.24E-01		5.14E-01
		463.38		10.35	1.06E+00		1.47E+00
		600.56		17.80	-1.65E-01		8.41E-01
		635.90		11.32	4.10E-01		1.22E+00
+	SB-126	414.70		83.30	-1.74E+01	2.73E+01	3.56E+01
		666.33		99.60	3.67E+01		3.35E+01
		695.00		99.60	7.39E-01		2.73E+01
		720.50		53.80	3.90E+01		5.89E+01
+	SN-126	87.57	*	37.00	1.62E+00	7.27E-01	7.27E-01
+	SB-127	473.00		25.00	6.07E+06	1.05E+07	1.52E+07
		685.20		35.70	-3.65E+06		1.05E+07
		783.80		14.70	4.52E+07		3.36E+07
+	I-129	29.78		57.00	-2.30E-01	7.10E-01	7.10E-01
		33.60		13.20	2.28E-01		2.07E+00
		39.58		7.52	-3.64E-01		2.42E+00
+	I-131	284.30		6.05	4.14E+03	5.82E+02	8.30E+03
		364.48		81.20	-1.11E+02		5.82E+02
		636.97		7.26	1.34E+03		6.53E+03
		722.89		1.80	-3.34E+03		3.09E+04
+	TE-132	49.72		13.10	-1.85E+09	9.67E+07	6.97E+08
		228.16		88.00	2.49E+07		9.67E+07
+	BA-133	81.00		33.00	-2.66E+00	4.19E-01	4.19E-01
		302.84		17.80	7.65E-02		7.53E-01
		356.01		60.00	4.52E+00		5.21E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-6.68E+05	1.05E+05	1.05E+05
+	CS-134	563.23		8.38	7.80E-01	1.91E-01	1.81E+00

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CS-134	569.32	15.43	-7.15E-01	1.91E-01	9.40E-01
		604.70	97.60	-7.45E+00		2.19E-01
		795.84	85.40	4.61E-02		1.91E-01
		801.93	8.73	4.86E-01		1.83E+00
+	CS-135	268.24	16.00	-2.15E-02	8.88E-01	8.88E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	1.34E+02	2.19E+01	2.32E+02
		163.89	4.61	1.59E+02		3.76E+02
		176.55	13.56	-7.42E+01		1.23E+02
		273.65	12.66	1.78E+01		1.72E+02
		340.57	48.50	5.43E+01		4.66E+01
		818.50	99.70	-4.98E+00		2.19E+01
		1048.07	79.60	8.11E+00		2.94E+01
		1235.34	19.70	2.23E+02		2.06E+02
+	CS-137	661.65	85.12	-1.31E-01	1.74E-01	1.74E-01
+	LA-138	788.74	34.00	2.98E-01	2.54E-01	5.02E-01
		1435.80	66.00	9.86E-02		2.54E-01
+	CE-139	165.85	80.35	1.36E-02	2.28E-01	2.28E-01
+	BA-140	162.64	6.70	1.17E+02	9.58E+01	3.01E+02
		304.84	4.50	-1.52E+02		5.03E+02
		423.70	3.20	2.59E+02		8.19E+02
		437.55	2.00	-2.81E+01		1.16E+03
		537.32	25.00	2.53E+01		9.58E+01
+	LA-140	328.77	20.50	1.07E+01	3.47E+01	1.17E+02
		487.03	45.50	6.17E+00		5.30E+01
		815.85	23.50	-5.95E+01		1.04E+02
		1596.49	95.49	1.75E+01		3.47E+01
+	CE-141	145.44	48.40	1.57E+00	1.82E+00	1.82E+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	5.25E-01	1.22E+00	1.22E+00
+	PM-144	476.78	42.00	-1.84E-01	1.47E-01	3.84E-01
		618.01	98.60	1.22E-02		1.47E-01
		696.49	99.49	-3.94E-02		1.52E-01
+	PM-145	36.85	21.70	5.36E-01	5.29E-01	9.98E-01
		37.36	39.70	-2.73E-02		5.29E-01
		42.30	15.10	-3.61E-01		1.10E+00
		72.40	2.31	-4.83E+01		6.33E+00
+	PM-146	453.90	39.94	2.72E-01	3.73E-01	3.73E-01
		735.90	14.01	1.67E-01		1.06E+00
		747.13	13.10	3.73E-01		1.18E+00
+	ND-147	91.11	28.90	-4.03E+02	1.94E+02	1.94E+02
		531.02	13.10	1.35E+02		4.23E+02
+	PM-149	285.90	3.10	7.82E+12	4.03E+13	4.03E+13
+	EU-152	121.78	20.50	3.35E-02	4.92E-01	4.92E-01
		244.69	5.40	2.09E+01		3.61E+00

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-152	344.27	19.13	1.36E-01	4.92E-01	7.58E-01
		778.89	9.20	-1.80E-02		1.59E+00
		964.01	10.40	2.48E-01		1.63E+00
		1085.78	7.22	-8.45E-01		2.24E+00
		1112.02	9.60	6.46E-01		1.75E+00
		1407.95	14.94	1.97E+00		1.45E+00
+	GD-153	97.43	31.30	1.66E-01	4.23E-01	4.23E-01
		103.18	22.20	-5.77E-01		5.58E-01
+	EU-154	123.07	40.50	-1.88E-02	2.53E-01	2.53E-01
		723.30	19.70	-8.46E-02		7.82E-01
		873.19	11.50	-4.36E-01		1.38E+00
		996.32	10.30	-8.42E-02		1.64E+00
		1004.76	17.90	3.43E-03		9.93E-01
		1274.45	35.50	-5.08E-02		4.81E-01
+	EU-155	86.50	30.90	1.29E+00	4.58E-01	4.58E-01
		105.30	20.70	-1.40E-01		4.79E-01
+	EU-156	811.77	10.40	2.15E-01	1.06E+02	1.06E+02
		1153.47	7.20	2.30E+02		2.19E+02
		1230.71	8.90	-3.52E+01		1.45E+02
+	HO-166M	184.41	72.60	1.10E+00	2.22E-01	2.22E-01
		280.45	29.60	6.09E-02		4.63E-01
		410.94	11.10	6.53E-03		1.32E+00
		711.69	54.10	-6.47E-03		2.45E-01
+	TM-171	66.72	0.14	3.28E+01	1.06E+02	1.06E+02
+	HF-172	67.35	5.31	1.78E+00	1.01E+00	2.69E+00
		125.81	11.30	1.61E-01		1.01E+00
+	LU-172	181.53	20.60	1.27E+03	5.19E+03	1.08E+04
		900.72	29.81	-4.75E+03		1.01E+04
		1093.66	62.50	-6.00E+02		5.19E+03
+	LU-173	100.72	5.24	8.88E-01	7.92E-01	2.11E+00
		272.11	21.20	5.43E-02		7.92E-01
+	HF-175	343.40	84.00	7.81E-02	4.36E-01	4.36E-01
+	LU-176	88.34	13.30	-7.66E-01	1.36E-01	1.03E+00
		201.83	86.00	-2.07E-02		1.36E-01
		306.78	94.00	-5.90E-02		1.37E-01
+	HF-181	133.02	41.70	-1.84E-01	8.08E-01	1.18E+00
		345.85	17.20	7.09E-01		3.94E+00
		482.03	82.80	4.73E-01		8.08E-01
+	TA-182	67.75	41.20	3.70E-01	5.59E-01	5.59E-01
		1121.30	34.90	1.32E+01		2.14E+00
		1189.05	16.23	-8.25E-01		1.71E+00
		1221.41	26.98	-4.87E-01		1.02E+00
		1231.02	11.44	-6.32E-01		2.60E+00
+	IR-192	308.46	29.68	-1.76E-02	6.78E-01	1.07E+00
		468.07	48.10	2.64E-01		6.78E-01
+	HG-203	279.19	77.30	-1.71E-01	7.36E-01	7.36E-01
+	TL-204	374.74	94.11	5.71E-02	1.51E-01	1.51E-01
		899.15	99.16	6.70E-02		1.71E-01
		911.74	91.10	2.99E-01		2.20E-01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BI-207	569.67		97.72	-5.24E-02	1.38E-01	1.38E-01
		1063.62		74.90	4.93E-02		2.08E-01
+	TL-208	583.14	*	30.22	1.31E+00	9.89E-02	6.82E-01
		860.37		4.48	4.85E-01		3.54E+00
		2614.66	*	35.85	9.26E-01		9.89E-02
+	BI-210M	262.00		45.00	-8.19E-02	2.96E-01	2.96E-01
		300.00		23.00	7.15E-02		7.96E-01
+	PB-210	46.50	*	4.25	1.09E+01	4.75E+00	4.75E+00
+	PB-211	404.84		2.90	1.55E+00	5.07E+00	5.07E+00
		831.96		2.90	-1.06E+00		5.37E+00
+	BI-212	727.17		11.80	-1.47E-02	1.21E+00	1.21E+00
		1620.62		2.75	-8.25E-01		6.04E+00
+	PB-212	238.63		44.60	-1.76E-01	4.10E-01	4.10E-01
		300.09		3.41	4.82E-01		5.37E+00
+	BI-214	609.31	*	46.30	1.67E+01	5.52E-01	5.52E-01
		1120.29	*	15.10	1.73E+01		1.42E+00
		1764.49	*	15.80	1.81E+01		1.01E+00
		2204.22	*	4.98	1.60E+01		2.87E+00
+	PB-214	295.21	*	19.19	1.86E+01	5.98E-01	1.19E+00
		351.92	*	37.19	1.85E+01		5.98E-01
+	RN-219	401.80		6.50	-4.86E-01	2.14E+00	2.14E+00
+	RA-223	323.87		3.88	9.70E-01	3.51E+00	3.51E+00
+	RA-224	240.98		3.95	3.98E+01	5.34E+00	5.34E+00
+	RA-225	40.00		31.00	-7.47E+00	4.97E+01	4.97E+01
+	RA-226	186.21	*	3.28	3.81E+01	6.56E+00	6.56E+00
+	TH-227	50.10		8.40	-4.53E+00	1.31E+00	1.70E+00
		236.00		11.50	-2.05E+00		1.31E+00
		256.20		6.30	5.77E-02		2.16E+00
+	AC-228	338.32	*	11.40	7.97E-01	8.63E-01	1.42E+00
		911.07	*	27.70	9.58E-01		8.63E-01
		969.11	*	16.60	5.89E-01		1.09E+00
+	TH-230	48.44		16.90	2.00E+00	9.43E-01	9.43E-01
		62.85		4.60	1.66E+01		3.35E+00
		67.67		0.37	2.31E+01		3.50E+01
+	PA-231	283.67		1.60	2.49E+00	5.73E+00	8.49E+00
		302.67		2.30	5.82E-01		5.73E+00
+	TH-231	25.64		14.70	-2.75E-01	1.96E+00	5.09E+00
		84.21		6.40	-5.32E+00		1.96E+00
+	PA-233	311.98		38.60	2.53E+00	3.98E+00	3.98E+00
+	PA-234	131.20		20.40	7.83E-02	5.11E-01	5.11E-01
		733.99		8.80	7.17E-01		1.63E+00
		946.00		12.00	-5.70E-02		1.30E+00
+	PA-234M	1001.03	*	0.92	2.67E+01	2.80E+01	2.80E+01
+	TH-234	63.29	*	3.80	1.94E+01	5.68E+00	5.68E+00
+	U-235	143.76		10.50	1.33E+00	1.10E+00	1.10E+00
		163.35		4.70	1.03E+00		2.44E+00
		205.31		4.70	-5.63E-01		2.91E+00

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	NP-237	86.50	*	12.60	2.67E+00	2.11E+00	2.11E+00
+	NP-239	106.10		22.70	-1.85E+11	6.32E+11	6.32E+11
		228.18		10.70	4.85E+11		1.89E+12
		277.60		14.10	4.59E+11		1.48E+12
+	AM-241	59.54		35.90	-8.30E-01	3.69E-01	3.69E-01
+	AM-243	74.67		66.00	2.78E-01	2.69E-01	2.69E-01
+	CM-243	209.75		3.29	7.43E-01	9.98E-01	4.15E+00
		228.14		10.60	3.29E-01		1.28E+00
		277.60		14.00	3.10E-01		9.98E-01

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	4.51E+00	4.51E+00	-3.56E-01	2.20E+00
	NA-22	1274.54		99.94	1.79E-01	1.79E-01	-1.90E-02	8.54E-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	1.14E-01	1.14E-01	-2.40E-02	5.18E-02
+	K-40	1460.81	*	10.67	2.98E+00	2.98E+00	1.34E+01	1.45E+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	1.37E-01	1.37E-01	9.08E-02	6.80E-02
		78.34		96.00	1.87E-01		1.31E+00	9.29E-02
	SC-46	889.25		99.98	3.67E-01	3.67E-01	2.45E-01	1.77E-01
		1120.51		99.99	9.24E-01		5.77E+00	4.54E-01
	V-48	983.52		99.98	9.49E+00	9.49E+00	9.65E-01	4.54E+00
		1312.10		97.50	1.03E+01		8.53E-01	4.90E+00
	CR-51	320.08		9.83	1.45E+01	1.45E+01	-1.01E+01	7.11E+00

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	MN-54	834.83		99.97	2.02E-01	2.02E-01	5.89E-02	9.78E-02
	CO-56	846.75		99.96	3.54E-01	3.54E-01	1.47E-01	1.70E-01
		1037.75		14.03	2.62E+00		1.59E+00	1.25E+00
		1238.25		67.00	1.04E+00		3.41E+00	5.06E-01
		1771.40		15.51	1.78E+00		1.39E-01	8.15E-01
		2598.48		16.90	6.16E-01		-3.87E-01	2.18E-01
	CO-57	122.06		85.51	1.49E-01	1.49E-01	1.01E-02	7.35E-02
		136.48		10.60	1.26E+00		-4.28E-01	6.20E-01
	CO-58	810.76		99.40	3.72E-01	3.72E-01	-5.10E-02	1.79E-01
	FE-59	1099.22		56.50	1.21E+00	1.21E+00	-1.49E-01	5.78E-01
		1291.56		43.20	1.63E+00		4.00E-01	7.74E-01
	CO-60	1173.22		100.00	1.68E-01	1.68E-01	3.06E-03	8.02E-02
		1332.49		100.00	1.71E-01		-9.61E-02	8.12E-02
	ZN-65	1115.52		50.75	4.51E-01	4.51E-01	8.43E-02	2.16E-01
	GA-67	93.31		35.70	2.43E+08	2.43E+08	1.53E+09	1.20E+08
		208.95		2.24	3.80E+09		2.16E+09	1.88E+09
		300.22		16.00	7.11E+08		6.38E+07	3.51E+08
	SE-75	121.11		16.70	1.02E+00	3.03E-01	-5.76E-01	5.02E-01
		136.00		59.20	3.03E-01		-1.42E-01	1.49E-01
		264.65		59.80	3.79E-01		-2.57E-01	1.87E-01
		279.53		25.20	9.44E-01		-2.02E-01	4.65E-01
		400.65		11.40	2.08E+00		-1.13E+00	1.02E+00
	RB-82	776.52		13.00	1.45E+01	1.45E+01	-1.66E-01	6.98E+00
	RB-83	520.41		46.00	6.08E-01	6.08E-01	-4.20E-02	2.95E-01
		529.64		30.30	9.46E-01		-9.79E-02	4.60E-01
		552.65		16.40	1.79E+00		-6.42E-02	8.70E-01
	KR-85	513.99		0.43	3.43E+01	3.43E+01	-2.88E+00	1.67E+01
	SR-85	513.99		99.27	4.09E-01	4.09E-01	-3.43E-02	1.99E-01
	Y-88	898.02		93.40	3.18E-01	2.81E-01	9.65E-02	1.53E-01
		1836.01		99.38	2.81E-01		1.83E-01	1.31E-01
	MO-93	263.06		56.72	2.37E-01	1.37E-01	-1.10E-01	1.17E-01
		684.67		99.68	1.37E-01		-4.74E-02	6.59E-02
		1477.11		99.08	1.93E-01		7.69E-02	9.20E-02
	NB-93M	16.57		9.43	1.31E+02	1.31E+02	2.46E+01	6.47E+01
	NB-94	702.63		100.00	1.46E-01	1.46E-01	1.17E-01	7.04E-02
		871.10		100.00	1.62E-01		6.26E-02	7.82E-02
+	NB-95	765.79	*	99.81	1.63E+00	1.63E+00	4.52E-01	7.98E-01
	NB-95M	235.69		25.00	5.29E+07	5.29E+07	-8.24E+07	2.61E+07
	ZR-95	724.18		43.70	9.38E-01	7.18E-01	-4.64E-02	4.53E-01
		756.72		55.30	7.18E-01		1.48E-03	3.46E-01
	MO-99	181.06		6.20	4.97E+10	3.04E+10	8.73E+09	2.45E+10
		739.58		12.80	3.04E+10		-1.03E+10	1.47E+10
		778.00		4.50	8.27E+10		-9.61E+08	3.98E+10
	RU-103	497.08		89.00	7.86E-01	7.86E-01	2.46E-01	3.83E-01
	RU-106	621.84		9.80	1.60E+00	1.60E+00	-2.38E-02	7.72E-01
	AG-108M	433.93		89.90	1.51E-01	1.51E-01	3.50E-02	7.38E-02
		614.37		90.40	2.90E-01		2.07E-02	1.43E-01
		722.95		90.50	1.67E-01		-1.81E-02	8.07E-02
+	CD-109	88.03	*	3.72	8.34E+00	8.34E+00	1.85E+01	4.15E+00
	AG-110M	657.75		93.14	1.86E-01	1.86E-01	4.91E-02	9.00E-02
		677.61		10.53	1.62E+00		-2.26E-01	7.80E-01
		706.67		16.46	1.09E+00		-2.61E-01	5.25E-01
		763.93		21.98	9.55E-01		1.61E-01	4.62E-01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	AG-110M	884.67		71.63	2.97E-01	1.86E-01	3.58E-02	1.43E-01
		1384.27		23.94	1.02E+00		-2.22E-01	4.87E-01
	CD-113M	263.70		0.02	5.71E+02	5.71E+02	-5.84E+02	2.81E+02
	SN-113	255.12		1.93	1.24E+01	3.82E-01	-2.16E+00	6.13E+00
		391.69		64.90	3.82E-01		-6.83E-02	1.87E-01
	TE123M	159.00		84.10	2.36E-01	2.36E-01	9.57E-02	1.17E-01
	SB-124	602.71		97.87	4.26E-01	4.26E-01	-6.55E-02	2.07E-01
		645.85		7.26	5.15E+00		-7.20E-01	2.49E+00
		722.78		11.10	4.07E+00		-4.40E-01	1.97E+00
		1691.02		49.00	8.51E-01		2.02E-01	3.95E-01
	I-125	35.49		6.49	1.09E+01	1.09E+01	1.01E-01	5.36E+00
	SB-125	176.33		6.89	1.72E+00	5.14E-01	-1.03E+00	8.46E-01
		427.89		29.33	5.14E-01		-1.24E-01	2.51E-01
		463.38		10.35	1.47E+00		1.06E+00	7.17E-01
		600.56		17.80	8.41E-01		-1.65E-01	4.08E-01
		635.90		11.32	1.22E+00		4.10E-01	5.87E-01
	SB-126	414.70		83.30	3.56E+01	2.73E+01	-1.74E+01	1.74E+01
		666.33		99.60	3.35E+01		3.67E+01	1.63E+01
		695.00		99.60	2.73E+01		7.39E-01	1.32E+01
		720.50		53.80	5.89E+01		3.90E+01	2.85E+01
+	SN-126	87.57	*	37.00	7.27E-01	7.27E-01	1.62E+00	3.62E-01
	SB-127	473.00		25.00	1.52E+07	1.05E+07	6.07E+06	7.41E+06
		685.20		35.70	1.05E+07		-3.65E+06	5.08E+06
		783.80		14.70	3.36E+07		4.52E+07	1.63E+07
	I-129	29.78		57.00	7.10E-01	7.10E-01	-2.30E-01	3.50E-01
		33.60		13.20	2.07E+00		2.28E-01	1.02E+00
		39.58		7.52	2.42E+00		-3.64E-01	1.19E+00
	I-131	284.30		6.05	8.30E+03	5.82E+02	4.14E+03	4.08E+03
		364.48		81.20	5.82E+02		-1.11E+02	2.85E+02
		636.97		7.26	6.53E+03		1.34E+03	3.16E+03
		722.89		1.80	3.09E+04		-3.34E+03	1.49E+04
	TE-132	49.72		13.10	6.97E+08	9.67E+07	-1.85E+09	3.45E+08
		228.16		88.00	9.67E+07		2.49E+07	4.77E+07
	BA-133	81.00		33.00	4.19E-01	4.19E-01	-2.66E+00	2.08E-01
		302.84		17.80	7.53E-01		7.65E-02	3.70E-01
		356.01		60.00	5.21E-01		4.52E+00	2.58E-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	1.05E+05	1.05E+05	-6.68E+05	5.23E+04
	CS-134	563.23		8.38	1.81E+00	1.91E-01	7.80E-01	8.81E-01
		569.32		15.43	9.40E-01		-7.15E-01	4.56E-01
		604.70		97.60	2.19E-01		-7.45E+00	1.07E-01
		795.84		85.40	1.91E-01		4.61E-02	9.23E-02
		801.93		8.73	1.83E+00		4.86E-01	8.83E-01
	CS-135	268.24		16.00	8.88E-01	8.88E-01	-2.15E-02	4.38E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	2.32E+02	2.19E+01	1.34E+02	1.15E+02
		163.89		4.61	3.76E+02		1.59E+02	1.86E+02
		176.55		13.56	1.23E+02		-7.42E+01	6.09E+01
		273.65		12.66	1.72E+02		1.78E+01	8.47E+01
		340.57		48.50	4.66E+01		5.43E+01	2.29E+01
		818.50		99.70	2.19E+01		-4.98E+00	1.05E+01

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-136	1048.07	79.60	2.94E+01	2.19E+01	8.11E+00	1.41E+01
	1235.34	19.70	2.06E+02		2.23E+02	1.00E+02
CS-137	661.65	85.12	1.74E-01	1.74E-01	-1.31E-01	8.43E-02
LA-138	788.74	34.00	5.02E-01	2.54E-01	2.98E-01	2.43E-01
	1435.80	66.00	2.54E-01		9.86E-02	1.20E-01
CE-139	165.85	80.35	2.28E-01	2.28E-01	1.36E-02	1.12E-01
BA-140	162.64	6.70	3.01E+02	9.58E+01	1.17E+02	1.49E+02
	304.84	4.50	5.03E+02		-1.52E+02	2.47E+02
	423.70	3.20	8.19E+02		2.59E+02	4.01E+02
	437.55	2.00	1.16E+03		-2.81E+01	5.66E+02
	537.32	25.00	9.58E+01		2.53E+01	4.66E+01
LA-140	328.77	20.50	1.17E+02	3.47E+01	1.07E+01	5.74E+01
	487.03	45.50	5.30E+01		6.17E+00	2.58E+01
	815.85	23.50	1.04E+02		-5.95E+01	4.99E+01
	1596.49	95.49	3.47E+01		1.75E+01	1.65E+01
CE-141	145.44	48.40	1.82E+00	1.82E+00	1.57E+00	9.01E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	1.22E+00	1.22E+00	5.25E-01	6.01E-01
PM-144	476.78	42.00	3.84E-01	1.47E-01	-1.84E-01	1.87E-01
	618.01	98.60	1.47E-01		1.22E-02	7.12E-02
	696.49	99.49	1.52E-01		-3.94E-02	7.32E-02
PM-145	36.85	21.70	9.98E-01	5.29E-01	5.36E-01	4.92E-01
	37.36	39.70	5.29E-01		-2.73E-02	2.61E-01
	42.30	15.10	1.10E+00		-3.61E-01	5.44E-01
	72.40	2.31	6.33E+00		-4.83E+01	3.14E+00
PM-146	453.90	39.94	3.73E-01	3.73E-01	2.72E-01	1.82E-01
	735.90	14.01	1.06E+00		1.67E-01	5.11E-01
	747.13	13.10	1.18E+00		3.73E-01	5.71E-01
ND-147	91.11	28.90	1.94E+02	1.94E+02	-4.03E+02	9.62E+01
	531.02	13.10	4.23E+02		1.35E+02	2.06E+02
PM-149	285.90	3.10	4.03E+13	4.03E+13	7.82E+12	1.99E+13
EU-152	121.78	20.50	4.92E-01	4.92E-01	3.35E-02	2.43E-01
	244.69	5.40	3.61E+00		2.09E+01	1.79E+00
	344.27	19.13	7.58E-01		1.36E-01	3.72E-01
	778.89	9.20	1.59E+00		-1.80E-02	7.66E-01
	964.01	10.40	1.63E+00		2.48E-01	7.85E-01
	1085.78	7.22	2.24E+00		-8.45E-01	1.07E+00
	1112.02	9.60	1.75E+00		6.46E-01	8.39E-01
	1407.95	14.94	1.45E+00		1.97E+00	6.97E-01
GD-153	97.43	31.30	4.23E-01	4.23E-01	1.66E-01	2.09E-01
	103.18	22.20	5.58E-01		-5.77E-01	2.76E-01
EU-154	123.07	40.50	2.53E-01	2.53E-01	-1.88E-02	1.25E-01
	723.30	19.70	7.82E-01		-8.46E-02	3.78E-01
	873.19	11.50	1.38E+00		-4.36E-01	6.66E-01
	996.32	10.30	1.64E+00		-8.42E-02	7.89E-01
	1004.76	17.90	9.93E-01		3.43E-03	4.78E-01
	1274.45	35.50	4.81E-01		-5.08E-02	2.29E-01
EU-155	86.50	30.90	4.58E-01	4.58E-01	1.29E+00	2.27E-01
	105.30	20.70	4.79E-01		-1.40E-01	2.37E-01
EU-156	811.77	10.40	1.06E+02	1.06E+02	2.15E-01	5.09E+01
	1153.47	7.20	2.19E+02		2.30E+02	1.05E+02

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-156	1230.71		8.90	1.45E+02	1.06E+02	-3.52E+01	6.90E+01
	HO-166M	184.41		72.60	2.22E-01	2.22E-01	1.10E+00	1.10E-01
		280.45		29.60	4.63E-01		6.09E-02	2.28E-01
		410.94		11.10	1.32E+00		6.53E-03	6.48E-01
		711.69		54.10	2.45E-01		-6.47E-03	1.18E-01
	TM-171	66.72		0.14	1.06E+02	1.06E+02	3.28E+01	5.27E+01
	HF-172	67.35		5.31	2.69E+00	1.01E+00	1.78E+00	1.33E+00
		125.81		11.30	1.01E+00		1.61E-01	4.97E-01
	LU-172	181.53		20.60	1.08E+04	5.19E+03	1.27E+03	5.31E+03
		900.72		29.81	1.01E+04		-4.75E+03	4.87E+03
		1093.66		62.50	5.19E+03		-6.00E+02	2.49E+03
	LU-173	100.72		5.24	2.11E+00	7.92E-01	8.88E-01	1.04E+00
		272.11		21.20	7.92E-01		5.43E-02	3.90E-01
	HF-175	343.40		84.00	4.36E-01	4.36E-01	7.81E-02	2.14E-01
	LU-176	88.34		13.30	1.03E+00	1.36E-01	-7.66E-01	5.09E-01
		201.83		86.00	1.36E-01		-2.07E-02	6.71E-02
		306.78		94.00	1.37E-01		-5.90E-02	6.74E-02
	HF-181	133.02		41.70	1.18E+00	8.08E-01	-1.84E-01	5.81E-01
		345.85		17.20	3.94E+00		7.09E-01	1.94E+00
		482.03		82.80	8.08E-01		4.73E-01	3.94E-01
	TA-182	67.75		41.20	5.59E-01	5.59E-01	3.70E-01	2.77E-01
		1121.30		34.90	2.14E+00		1.32E+01	1.05E+00
		1189.05		16.23	1.71E+00		-8.25E-01	8.15E-01
		1221.41		26.98	1.02E+00		-4.87E-01	4.86E-01
		1231.02		11.44	2.60E+00		-6.32E-01	1.24E+00
	IR-192	308.46		29.68	1.07E+00	6.78E-01	-1.76E-02	5.25E-01
		468.07		48.10	6.78E-01		2.64E-01	3.31E-01
	HG-203	279.19		77.30	7.36E-01	7.36E-01	-1.71E-01	3.62E-01
	TL-204	374.74		94.11	1.51E-01	1.51E-01	5.71E-02	7.38E-02
		899.15		99.16	1.71E-01		6.70E-02	8.23E-02
		911.74		91.10	2.20E-01		2.99E-01	1.07E-01
	BI-207	569.67		97.72	1.38E-01	1.38E-01	-5.24E-02	6.71E-02
		1063.62		74.90	2.08E-01		4.93E-02	9.93E-02
+	TL-208	583.14	*	30.22	6.82E-01	9.89E-02	1.31E+00	3.34E-01
		860.37		4.48	3.54E+00		4.85E-01	1.71E+00
		2614.66	*	35.85	9.89E-02		9.26E-01	3.11E-02
	BI-210M	262.00		45.00	2.96E-01	2.96E-01	-8.19E-02	1.46E-01
		300.00		23.00	7.96E-01		7.15E-02	3.93E-01
+	PB-210	46.50	*	4.25	4.75E+00	4.75E+00	1.09E+01	2.35E+00
	PB-211	404.84		2.90	5.07E+00	5.07E+00	1.55E+00	2.49E+00
		831.96		2.90	5.37E+00		-1.06E+00	2.59E+00
	BI-212	727.17		11.80	1.21E+00	1.21E+00	-1.47E-02	5.84E-01
		1620.62		2.75	6.04E+00		-8.25E-01	2.85E+00
	PB-212	238.63		44.60	4.10E-01	4.10E-01	-1.76E-01	2.03E-01
		300.09		3.41	5.37E+00		4.82E-01	2.65E+00
+	BI-214	609.31	*	46.30	5.52E-01	5.52E-01	1.67E+01	2.71E-01
		1120.29	*	15.10	1.42E+00		1.73E+01	6.87E-01
		1764.49	*	15.80	1.01E+00		1.81E+01	4.71E-01
		2204.22	*	4.98	2.87E+00		1.60E+01	1.32E+00
+	PB-214	295.21	*	19.19	1.19E+00	5.98E-01	1.86E+01	5.87E-01
		351.92	*	37.19	5.98E-01		1.85E+01	2.96E-01
	RN-219	401.80		6.50	2.14E+00	2.14E+00	-4.86E-01	1.05E+00
	RA-223	323.87		3.88	3.51E+00	3.51E+00	9.70E-01	1.73E+00

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	RA-224	240.98		3.95	5.34E+00	5.34E+00	3.98E+01	2.65E+00
	RA-225	40.00		31.00	4.97E+01	4.97E+01	-7.47E+00	2.45E+01
+	RA-226	186.21	*	3.28	6.56E+00	6.56E+00	3.81E+01	3.26E+00
	TH-227	50.10		8.40	1.70E+00	1.31E+00	-4.53E+00	8.43E-01
		236.00		11.50	1.31E+00		-2.05E+00	6.49E-01
		256.20		6.30	2.16E+00		5.77E-02	1.07E+00
+	AC-228	338.32	*	11.40	1.42E+00	8.63E-01	7.97E-01	6.99E-01
		911.07	*	27.70	8.63E-01		9.58E-01	4.20E-01
		969.11	*	16.60	1.09E+00		5.89E-01	5.27E-01
	TH-230	48.44		16.90	9.43E-01	9.43E-01	2.00E+00	4.67E-01
		62.85		4.60	3.35E+00		1.66E+01	1.66E+00
		67.67		0.37	3.50E+01		2.31E+01	1.73E+01
	PA-231	283.67		1.60	8.49E+00	5.73E+00	2.49E+00	4.18E+00
		302.67		2.30	5.73E+00		5.82E-01	2.82E+00
	TH-231	25.64		14.70	5.09E+00	1.96E+00	-2.75E-01	2.51E+00
		84.21		6.40	1.96E+00		-5.32E+00	9.72E-01
	PA-233	311.98		38.60	3.98E+00	3.98E+00	2.53E+00	1.95E+00
	PA-234	131.20		20.40	5.11E-01	5.11E-01	7.83E-02	2.52E-01
		733.99		8.80	1.63E+00		7.17E-01	7.89E-01
		946.00		12.00	1.30E+00		-5.70E-02	6.27E-01
+	PA-234M	1001.03	*	0.92	2.80E+01	2.80E+01	2.67E+01	1.37E+01
+	TH-234	63.29	*	3.80	5.68E+00	5.68E+00	1.94E+01	2.83E+00
	U-235	143.76		10.50	1.10E+00	1.10E+00	1.33E+00	5.45E-01
		163.35		4.70	2.44E+00		1.03E+00	1.20E+00
		205.31		4.70	2.91E+00		-5.63E-01	1.44E+00
+	NP-237	86.50	*	12.60	2.11E+00	2.11E+00	2.67E+00	1.05E+00
	NP-239	106.10		22.70	6.32E+11	6.32E+11	-1.85E+11	3.12E+11
		228.18		10.70	1.89E+12		4.85E+11	9.31E+11
		277.60		14.10	1.48E+12		4.59E+11	7.27E+11
	AM-241	59.54		35.90	3.69E-01	3.69E-01	-8.30E-01	1.83E-01
	AM-243	74.67		66.00	2.69E-01	2.69E-01	2.78E-01	1.33E-01
	CM-243	209.75		3.29	4.15E+00	9.98E-01	7.43E-01	2.05E+00
		228.14		10.60	1.28E+00		3.29E-01	6.31E-01
		277.60		14.00	9.98E-01		3.10E-01	4.92E-01

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

No Action Level results available for reporting purposes.

Analysis Report for 1707084-11

HTC-A02-S001-0612-01

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-A02-S001-0612-01

Elapsed Live time: 3600
Elapsed Real Time: 3616

Channel								
1:	0	0	0	0	0	0	0	0
9:	4	442	544	526	491	493	449	481
17:	489	450	393	413	423	365	378	372
25:	363	384	385	369	376	399	341	386
33:	389	364	359	412	402	407	388	376
41:	425	412	412	472	456	531	915	810
49:	506	504	540	546	601	689	660	624
57:	618	632	681	704	761	861	1034	1543
65:	1198	768	753	859	906	862	837	845
73:	954	1049	1831	2338	2316	2944	1774	995
81:	843	823	734	862	997	830	1008	1393
89:	1046	886	936	906	1533	1497	914	639
97:	518	525	588	540	511	465	468	477
105:	479	504	504	481	520	534	528	532
113:	521	554	508	483	458	474	422	497
121:	456	433	517	497	519	474	542	474
129:	501	511	461	471	513	453	484	492
137:	445	449	494	470	514	517	496	610
145:	583	542	468	509	501	492	463	478
153:	512	512	536	450	463	466	474	489
161:	490	434	479	478	473	434	434	382
169:	451	401	391	390	400	411	387	401
177:	381	363	398	415	414	390	428	399
185:	535	1095	1416	723	441	381	349	402
193:	389	355	352	368	386	390	386	353
201:	369	357	348	339	329	352	362	330
209:	301	324	335	305	290	301	294	286
217:	315	281	276	288	302	301	293	310
225:	268	274	284	287	270	274	275	228
233:	259	246	265	300	359	342	532	483
241:	422	891	1165	528	282	230	215	221
249:	218	205	216	232	229	200	218	248
257:	260	227	242	267	207	207	195	181
265:	197	210	202	222	235	283	286	262
273:	196	222	230	220	212	236	181	191
281:	202	196	199	203	188	181	188	203
289:	171	170	182	189	184	324	1326	2204
297:	1142	280	154	182	160	183	152	163
305:	144	152	149	143	155	156	151	162
313:	138	167	171	150	131	165	137	139
321:	136	153	161	154	169	151	154	152
329:	159	160	150	140	140	144	135	163
337:	110	193	213	166	163	148	139	172
345:	147	149	149	129	170	200	801	2685
353:	3083	1016	172	127	119	99	112	107
361:	110	124	102	101	100	96	122	125

369:	103	132	102	118	127	112	106	120

Sample Title: HTC-A02-S001-0612-01

Channel								
377:	114	117	113	93	127	117	105	116
385:	107	107	125	126	121	118	115	108
393:	111	117	114	121	105	95	97	86
401:	92	144	111	109	121	112	135	108
409:	119	145	104	103	115	121	102	120
417:	104	110	111	122	109	123	129	129
425:	104	104	107	101	106	84	92	90
433:	83	94	93	99	75	88	69	89
441:	79	89	76	96	86	82	82	82
449:	74	91	98	89	96	97	99	84
457:	91	75	84	69	96	79	119	101
465:	75	61	81	74	75	68	95	76
473:	67	82	83	62	66	67	79	78
481:	97	80	79	67	78	67	79	82
489:	81	72	73	64	59	75	67	65
497:	60	54	74	57	54	64	70	60
505:	52	54	62	61	85	97	110	109
513:	84	61	61	52	60	64	57	58
521:	61	72	50	48	68	56	55	63
529:	60	60	52	50	78	69	52	65
537:	65	65	49	67	49	58	63	59
545:	67	55	51	71	50	57	68	50
553:	46	72	59	54	57	57	59	55
561:	60	53	62	57	66	55	51	45
569:	49	60	59	44	63	61	51	63
577:	44	45	60	76	75	57	113	147
585:	84	60	41	65	51	60	48	45
593:	49	56	51	61	50	54	54	52
601:	44	54	46	64	58	42	85	373
609:	1583	2154	902	143	51	51	31	45
617:	39	35	34	38	36	54	44	56
625:	36	50	45	41	36	39	38	32
633:	37	39	38	35	54	34	41	35
641:	38	40	30	30	36	27	48	36
649:	46	37	36	50	25	28	38	44
657:	35	37	43	33	49	52	39	48
665:	75	92	64	49	43	39	37	41
673:	36	34	43	30	38	33	28	33
681:	49	39	41	41	42	28	33	38
689:	38	45	38	43	46	30	37	34
697:	27	33	35	28	31	38	64	51
705:	46	39	32	32	30	31	51	34
713:	30	30	32	41	33	44	49	62
721:	46	37	40	42	40	36	42	44
729:	37	26	41	30	42	42	35	39
737:	38	34	35	41	32	49	45	55
745:	41	33	56	35	29	32	28	32
753:	33	41	35	31	33	35	39	30
761:	35	38	25	30	51	45	90	191
769:	206	117	57	35	38	39	37	31
777:	35	36	29	28	32	50	35	39
785:	52	88	64	43	36	37	27	38
793:	33	42	40	40	30	31	34	30

801:	37	37	26	32	40	80	87	47

Sample Title: HTC-A02-S001-0612-01

Channel								
809:	30	35	31	29	28	28	37	31
817:	32	29	22	42	36	29	37	33
825:	37	39	40	49	30	34	32	39
833:	43	38	34	31	34	57	48	68
841:	42	30	32	37	38	39	31	27
849:	32	29	24	31	26	35	42	23
857:	39	32	29	47	37	36	24	33
865:	35	35	25	33	53	40	32	28
873:	32	32	33	32	32	30	29	33
881:	38	42	32	21	31	40	39	41
889:	28	37	32	39	30	33	25	33
897:	36	33	39	32	31	30	26	33
905:	39	38	30	29	34	46	72	52
913:	45	43	32	22	37	21	21	24
921:	30	25	43	24	27	32	34	34
929:	25	40	28	36	72	134	97	32
937:	26	35	28	21	23	26	22	27
945:	27	19	35	39	31	33	33	32
953:	27	19	35	29	26	30	30	21
961:	30	32	24	34	47	29	26	44
969:	42	47	33	21	17	36	33	26
977:	31	30	30	17	23	29	28	20
985:	16	31	28	27	22	27	15	33
993:	32	22	22	38	26	31	34	30
1001:	67	48	39	26	33	22	28	28
1009:	28	28	27	29	37	28	22	28
1017:	23	26	29	22	27	16	21	27
1025:	28	23	19	26	16	24	24	38
1033:	24	22	27	37	24	26	18	22
1041:	20	14	20	25	21	27	29	16
1049:	17	17	36	30	32	20	20	24
1057:	25	16	19	19	23	31	16	27
1065:	23	20	18	19	24	26	26	24
1073:	25	19	21	35	22	18	24	22
1081:	20	15	16	18	25	24	26	22
1089:	32	34	36	29	20	20	23	29
1097:	27	23	17	14	16	25	28	28
1105:	19	25	22	18	12	32	20	26
1113:	28	27	24	21	22	39	210	387
1121:	315	117	38	12	21	19	25	30
1129:	23	24	20	27	24	26	17	20
1137:	20	18	21	19	18	21	22	23
1145:	20	13	19	23	20	28	19	18
1153:	30	39	64	45	35	16	20	17
1161:	10	17	28	16	22	22	20	29
1169:	19	19	25	23	17	19	23	21
1177:	15	22	17	21	32	30	28	17
1185:	21	31	18	13	20	18	17	15
1193:	18	32	21	14	17	15	30	19
1201:	30	28	18	25	23	28	29	36
1209:	21	19	19	23	26	24	15	17
1217:	17	14	19	25	19	17	18	12
1225:	22	27	25	18	17	28	19	19

1233:	19	23	18	35	109	160	103	42

Sample Title: HTC-A02-S001-0612-01

Channel								
1241:	14	22	15	14	22	23	13	13
1249:	21	22	24	25	31	14	18	21
1257:	13	19	12	16	12	13	18	13
1265:	12	12	31	15	20	21	21	20
1273:	20	15	20	21	18	18	24	37
1281:	46	29	19	23	19	17	12	23
1289:	13	19	20	16	14	16	17	15
1297:	18	18	15	20	19	17	13	18
1305:	16	21	13	14	13	25	11	15
1313:	16	17	22	22	18	10	15	19
1321:	9	15	15	15	12	15	17	22
1329:	13	18	24	17	15	18	17	29
1337:	18	15	11	11	17	14	14	20
1345:	15	14	11	15	20	11	19	17
1353:	12	12	24	10	14	15	13	10
1361:	12	12	14	20	13	11	17	7
1369:	13	16	15	19	18	19	14	50
1377:	104	93	47	16	13	18	13	19
1385:	30	27	29	12	17	13	15	15
1393:	12	13	6	11	15	17	20	28
1401:	28	32	12	10	14	24	49	50
1409:	26	13	15	19	14	13	16	12
1417:	15	11	12	9	17	12	14	20
1425:	13	19	18	10	14	15	14	16
1433:	19	14	18	14	11	15	20	14
1441:	9	12	12	14	22	15	20	16
1449:	17	17	16	11	11	24	12	15
1457:	16	26	73	148	177	75	28	16
1465:	11	16	11	12	9	12	14	19
1473:	12	12	11	17	9	17	20	16
1481:	21	10	7	14	15	10	7	15
1489:	26	12	12	17	12	15	19	14
1497:	12	11	9	13	12	19	18	18
1505:	18	15	23	34	57	36	15	15
1513:	12	17	13	8	13	12	19	20
1521:	13	16	12	17	6	16	12	13
1529:	15	15	20	19	21	17	14	9
1537:	15	22	21	14	12	17	16	24
1545:	16	7	11	7	7	12	12	8
1553:	16	12	15	12	10	14	16	13
1561:	7	9	10	9	15	13	13	10
1569:	14	9	11	13	11	8	8	9
1577:	7	12	9	5	15	13	15	18
1585:	14	12	11	8	19	7	10	13
1593:	11	17	15	14	10	10	17	14
1601:	11	13	5	4	10	11	9	9
1609:	10	8	7	11	9	9	10	6
1617:	13	8	11	14	8	9	10	10
1625:	11	12	10	11	5	9	7	9
1633:	4	5	13	8	5	6	9	9
1641:	9	4	6	10	4	7	6	7
1649:	7	9	5	4	10	7	7	9
1657:	10	10	9	17	25	16	14	8

1665:	3	2	4	3	4	6	4	4

Sample Title: HTC-A02-S001-0612-01

Channel								
1673:	7	2	6	1	7	8	2	8
1681:	7	4	7	13	6	2	7	6
1689:	3	6	5	9	7	10	4	6
1697:	7	3	4	4	3	5	4	8
1705:	4	10	3	5	3	1	3	9
1713:	8	3	4	4	6	4	5	1
1721:	4	5	6	9	8	7	16	33
1729:	51	38	18	9	7	5	2	5
1737:	5	3	9	4	8	5	6	8
1745:	11	7	4	5	10	7	4	3
1753:	7	6	6	1	3	5	4	9
1761:	15	48	157	265	198	61	7	7
1769:	4	3	2	4	5	3	3	2
1777:	3	6	3	2	4	5	5	2
1785:	2	4	3	5	5	3	1	7
1793:	5	1	1	5	4	3	1	0
1801:	1	1	5	3	5	3	2	6
1809:	2	4	3	5	0	11	1	2
1817:	4	0	2	2	1	3	7	4
1825:	1	5	3	4	2	5	3	4
1833:	2	6	3	3	14	14	8	5
1841:	4	3	5	5	13	29	49	30
1849:	18	6	2	2	8	5	3	2
1857:	3	4	1	2	1	8	7	2
1865:	2	3	0	3	2	1	0	7
1873:	4	7	5	3	5	5	1	4
1881:	3	5	3	5	1	4	3	4
1889:	3	7	6	1	4	2	7	7
1897:	3	13	5	8	1	6	1	5
1905:	5	4	2	2	5	5	2	2
1913:	1	4	2	3	3	3	2	6
1921:	4	4	3	5	6	6	1	2
1929:	2	2	8	7	7	4	2	7
1937:	12	6	4	2	5	4	2	4
1945:	1	5	4	4	6	3	5	5
1953:	3	5	2	5	5	2	2	0
1961:	2	5	4	5	6	6	3	2
1969:	3	5	8	6	5	5	1	5
1977:	4	4	3	3	2	3	1	2
1985:	6	5	4	5	1	3	3	5
1993:	1	2	1	2	2	6	0	2
2001:	6	2	3	4	1	5	2	1
2009:	5	2	7	2	3	2	5	2
2017:	4	1	5	4	1	2	1	0
2025:	2	1	4	5	3	4	0	2
2033:	1	4	0	3	2	1	3	2
2041:	2	1	1	1	3	2	4	3
2049:	3	3	1	1	1	2	2	7
2057:	1	3	2	3	2	2	1	0
2065:	1	2	7	3	2	4	3	3
2073:	1	2	1	1	2	3	1	1
2081:	4	0	0	3	1	2	2	2
2089:	1	3	0	4	5	4	2	2

2097:	0	2	3	1	8	6	4	3

Sample Title: HTC-A02-S001-0612-01

Channel								
2105:	2	3	2	2	5	1	4	1
2113:	4	0	2	15	18	13	15	1
2121:	3	0	1	1	8	4	2	1
2129:	1	2	3	1	2	2	1	2
2137:	1	0	1	1	2	2	1	2
2145:	0	1	1	3	1	0	0	2
2153:	1	1	3	0	3	0	1	3
2161:	0	5	2	2	2	0	3	1
2169:	2	3	2	2	4	2	3	1
2177:	3	1	1	1	5	2	4	2
2185:	3	1	2	1	0	1	2	0
2193:	0	1	2	1	0	2	1	3
2201:	10	41	52	46	27	7	3	1
2209:	1	1	1	2	1	2	2	2
2217:	1	0	0	1	0	2	2	1
2225:	0	1	1	0	0	2	0	2
2233:	1	0	2	0	0	4	1	1
2241:	1	1	3	1	1	0	1	0
2249:	1	2	2	1	0	3	1	3
2257:	2	0	3	0	1	2	3	2
2265:	2	2	2	0	1	1	2	1
2273:	2	0	2	1	2	3	0	1
2281:	4	1	1	0	4	4	1	3
2289:	1	4	0	4	7	3	3	3
2297:	0	1	1	0	0	0	0	0
2305:	0	1	0	1	1	2	3	1
2313:	1	1	0	0	1	1	2	0
2321:	0	0	0	0	1	2	4	0
2329:	0	1	0	0	0	0	1	0
2337:	0	0	0	0	1	1	0	2
2345:	1	1	2	1	1	4	2	0
2353:	3	3	1	0	1	2	0	2
2361:	1	2	0	3	1	0	0	0
2369:	0	2	1	1	2	0	0	2
2377:	0	0	0	1	5	3	1	1
2385:	1	2	0	1	1	2	2	0
2393:	0	0	0	0	1	0	0	1
2401:	1	0	1	1	0	1	1	1
2409:	0	2	1	1	0	0	1	3
2417:	0	1	0	1	0	1	0	0
2425:	0	0	1	0	0	0	0	0
2433:	0	3	1	0	0	2	0	0
2441:	0	2	0	4	5	14	16	8
2449:	3	1	0	2	0	0	0	1
2457:	0	3	2	0	0	0	0	0
2465:	2	1	1	1	2	1	1	0
2473:	0	0	2	0	1	0	0	1
2481:	0	1	0	0	1	0	0	0
2489:	2	0	0	1	0	0	0	2
2497:	1	0	0	1	1	0	0	1
2505:	2	1	0	1	0	0	0	1
2513:	1	1	0	0	2	0	0	0
2521:	1	0	0	1	0	0	0	0

2529:	0	0	1	2	0	0	0	0

Sample Title: HTC-A02-S001-0612-01

Channel								
2537:	0	0	1	0	1	2	0	0
2545:	1	0	0	0	0	0	0	0
2553:	0	1	1	0	0	0	0	0
2561:	0	1	1	1	0	0	1	0
2569:	0	1	1	1	0	0	0	1
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	1	0	1	1
2593:	0	0	1	0	0	0	0	1
2601:	0	0	1	1	1	0	0	0
2609:	0	3	2	10	25	17	13	0
2617:	0	0	0	0	0	0	0	0
2625:	0	1	0	0	0	0	1	1
2633:	3	0	1	0	0	0	0	1
2641:	0	2	0	0	1	0	0	0
2649:	0	1	0	0	1	0	0	0
2657:	0	0	0	1	0	1	1	0
2665:	0	0	0	0	0	0	0	1
2673:	0	0	0	1	2	0	1	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	0	0	0	0	0	0
2697:	1	0	0	0	0	0	0	2
2705:	0	1	2	1	0	0	0	0
2713:	0	0	0	0	0	0	0	0
2721:	0	0	0	0	0	0	0	0
2729:	1	0	0	0	0	0	0	0
2737:	0	0	0	1	0	0	0	0
2745:	1	0	0	0	0	0	0	1
2753:	0	0	0	0	0	0	0	1
2761:	0	0	0	0	1	1	0	0
2769:	0	0	0	0	1	0	0	0
2777:	0	0	0	0	0	0	1	0
2785:	0	1	0	1	1	0	0	1
2793:	0	0	2	0	0	0	1	0
2801:	0	0	2	1	0	0	0	0
2809:	1	0	1	0	0	0	0	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	1	0	0
2841:	0	0	0	0	0	1	0	0
2849:	0	0	1	0	1	0	0	1
2857:	0	0	1	0	0	0	1	0
2865:	0	0	0	0	0	1	1	0
2873:	0	0	0	0	0	0	0	0
2881:	0	0	0	0	0	0	0	0
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	0	1	0	0
2905:	1	0	1	1	0	1	0	1
2913:	0	0	0	0	1	0	0	0
2921:	1	1	0	0	0	0	0	0
2929:	0	0	0	0	0	0	0	0
2937:	0	0	1	1	0	0	0	0
2945:	0	0	0	0	1	0	0	0
2953:	0	0	0	1	0	0	1	0

2961:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S001-0612-01

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

3393:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S001-0612-01

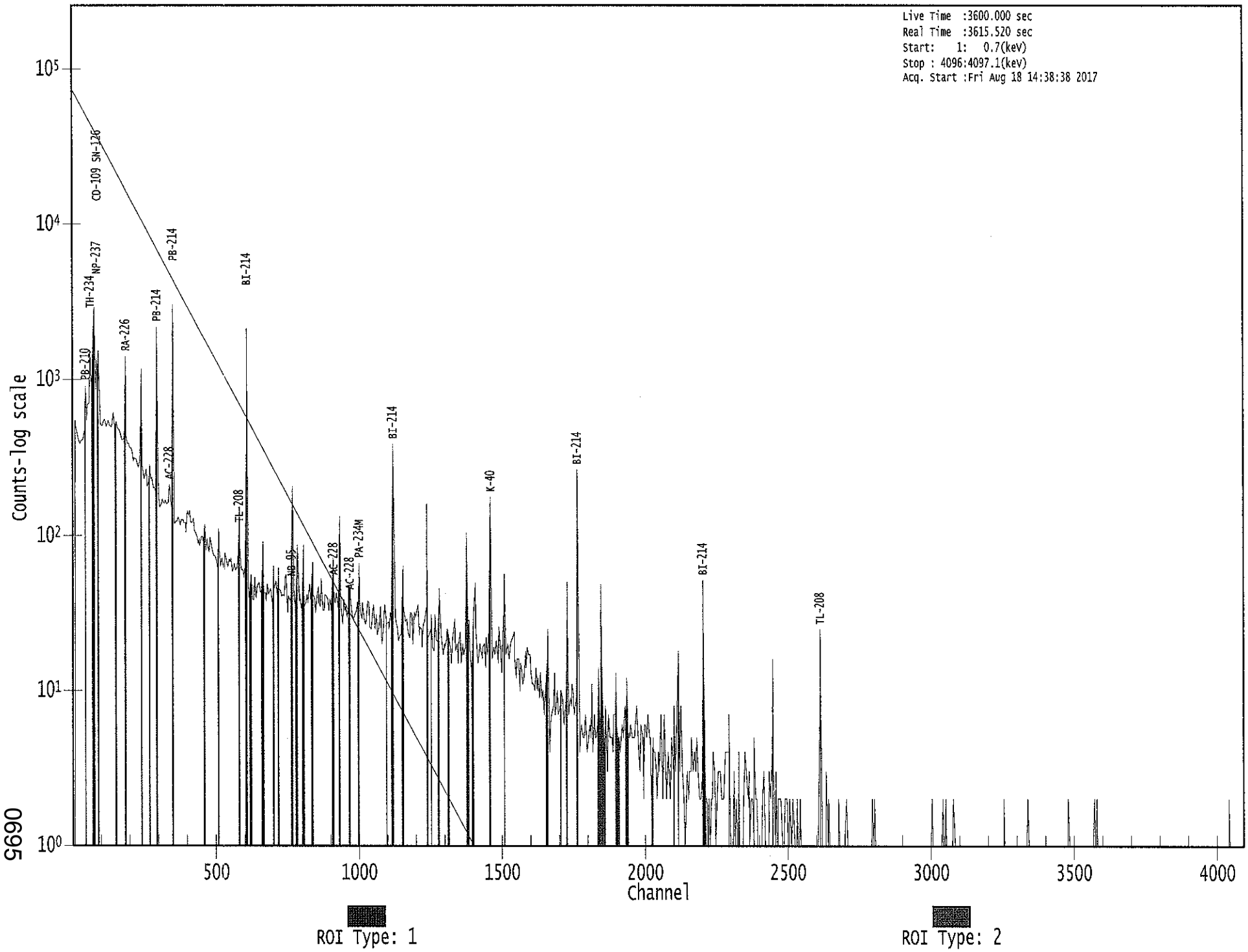
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	1	0	0	0	0	0
3417:	0	0	1	0	0	0	0	0
3425:	0	0	0	0	0	0	1	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	1	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	2	1
3481:	0	0	1	1	0	0	0	0
3489:	0	0	0	0	0	1	1	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S001-0612-01

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

0000055523.CNF



0696

Apex-Gamma

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-12
Sample Description	: HTC-A02-S001-1218-01
Sample Type	: SOIL
Sample Size	: 6.340E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:07:31AM
Acquisition Started	: 8/18/2017 3:12:20PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.6 seconds
Dead Time	: 0.07 %
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	: 55525

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

8/21/17

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 4:12:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	46.45	45.49	0.0000	0.00
2	63.51	62.56	0.0000	0.00
3	76.61	75.66	0.0000	0.00
4	87.41	86.47	0.0000	0.00
5	92.95	92.01	0.0000	0.00
6	144.13	143.21	0.0000	0.00
7	186.44	185.53	0.0000	0.00
8	238.92	238.03	0.0000	0.00
9	242.19	241.30	0.0000	0.00
10	258.46	257.57	0.0000	0.00
11	268.79	267.90	0.0000	0.00
12	295.51	294.64	0.0000	0.00
13	338.10	337.24	0.0000	0.00
14	352.05	351.19	0.0000	0.00
15	386.95	386.11	0.0000	0.00
16	510.79	509.99	0.0000	0.00
17	583.58	582.81	0.0000	0.00
18	609.45	608.69	0.0000	0.00
19	726.38	725.66	0.0000	0.00
20	768.50	767.80	0.0000	0.00
21	856.15	855.49	0.0000	0.00
22	860.82	860.16	0.0000	0.00
23	912.14	911.50	0.0000	0.00
24	934.07	933.44	0.0000	0.00
25	949.53	948.91	0.0000	0.00
26	968.46	967.84	0.0000	0.00
27	1026.48	1025.90	0.0000	0.00
28	1039.80	1039.22	0.0000	0.00
29	1119.88	1119.34	0.0000	0.00
30	1154.84	1154.31	0.0000	0.00
31	1238.99	1238.50	0.0000	0.00
32	1377.39	1376.97	0.0000	0.00
33	1460.66	1460.29	0.0000	0.00
34	1508.86	1508.51	0.0000	0.00
35	1728.64	1728.40	0.0000	0.00
36	1763.75	1763.53	0.0000	0.00
37	1846.89	1846.73	0.0000	0.00
38	1913.62	1913.49	0.0000	0.00
39	1968.46	1968.36	0.0000	0.00
40	2105.38	2105.36	0.0000	0.00
41	2116.16	2116.15	0.0000	0.00
42	2123.80	2123.80	0.0000	0.00

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2136.68	2136.68	0.0000	0.00
44	2202.81	2202.85	0.0000	0.00
45	2312.08	2312.19	0.0000	0.00
46	2431.81	2432.00	0.0000	0.00
47	2614.07	2614.39	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 4:12:24PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.45	43 -	48	45.49	1.06E+02	90.46	1.56E+03	2.16
	2	63.51	58 -	68	62.56	4.71E+02	185.65	4.37E+03	2.73
	3	76.61	70 -	81	75.66	2.00E+03	215.93	4.80E+03	3.97
M	4	87.41	82 -	96	86.47	5.02E+02	160.08	3.30E+03	3.87
m	5	92.95	82 -	96	92.01	6.26E+02	147.87	2.67E+03	3.10
	6	144.13	141 -	146	143.21	7.45E+01	83.61	1.34E+03	2.79
	7	186.44	181 -	191	185.53	4.51E+02	126.09	1.86E+03	2.72
M	8	238.92	233 -	247	238.03	7.32E+02	89.93	7.96E+02	2.27
m	9	242.19	233 -	247	241.30	4.05E+02	97.51	8.39E+02	2.82
	10	258.46	253 -	262	257.57	1.43E+02	78.91	7.89E+02	3.82
	11	268.79	263 -	273	267.90	1.53E+02	85.04	8.90E+02	2.97
	12	295.51	290 -	299	294.64	5.48E+02	93.72	9.45E+02	2.30
	13	338.10	332 -	342	337.24	1.73E+02	75.44	6.55E+02	2.49
	14	352.05	345 -	356	351.19	1.07E+03	98.51	6.77E+02	2.36
	15	386.95	382 -	390	386.11	5.60E+01	57.15	4.68E+02	2.14
	16	510.79	507 -	513	509.99	1.10E+02	42.44	2.63E+02	3.03
	17	583.58	579 -	589	582.81	1.50E+02	57.97	3.51E+02	2.47
	18	609.45	602 -	615	608.69	7.60E+02	75.41	2.93E+02	2.36
	19	726.38	720 -	730	725.66	7.39E+01	39.67	1.70E+02	4.28
	20	768.50	762 -	774	767.80	9.71E+01	51.38	2.60E+02	2.85
M	21	856.15	853 -	864	855.49	1.56E+01	19.64	7.61E+01	2.87
m	22	860.82	853 -	864	860.16	3.58E+01	32.43	1.41E+02	2.92
	23	912.14	906 -	919	911.50	1.29E+02	44.77	1.56E+02	2.91
	24	934.07	928 -	939	933.44	6.96E+01	37.09	1.53E+02	3.17
	25	949.53	945 -	953	948.91	2.77E+01	30.91	1.29E+02	1.45
	26	968.46	965 -	971	967.84	2.44E+01	29.29	1.35E+02	2.78
	27	1026.48	1023 -	1030	1025.90	2.10E+01	25.30	9.39E+01	3.07
	28	1039.80	1036 -	1044	1039.22	2.27E+01	27.23	1.03E+02	4.66
	29	1119.88	1115 -	1125	1119.34	1.44E+02	44.16	1.88E+02	2.42
	30	1154.84	1149 -	1160	1154.31	6.09E+01	35.94	1.28E+02	5.99
	31	1238.99	1234 -	1245	1238.50	5.87E+01	40.25	1.71E+02	3.88
	32	1377.39	1370 -	1383	1376.97	4.58E+01	31.64	9.04E+01	3.27
	33	1460.66	1456 -	1467	1460.29	4.51E+02	46.56	3.75E+01	2.83
	34	1508.86	1505 -	1512	1508.51	2.38E+01	17.66	3.63E+01	1.48
	35	1728.64	1722 -	1733	1728.40	3.42E+01	13.56	5.51E+00	2.23
	36	1763.75	1758 -	1767	1763.53	1.08E+02	21.56	4.45E+00	2.79
	37	1846.89	1844 -	1852	1846.73	1.00E+01	12.53	1.80E+01	1.45
	38	1913.62	1910 -	1915	1913.49	4.75E+00	5.74	2.50E+00	1.08
	39	1968.46	1964 -	1971	1968.36	9.86E+00	9.38	8.29E+00	3.81
	40	2105.38	2101 -	2109	2105.36	1.10E+01	6.63	0.00E+00	3.46

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	2116.16	2111 -	2120	2116.15	9.67E+00	8.54	4.67E+00	6.67
42	2123.80	2121 -	2126	2123.80	7.72E+00	6.71	2.56E+00	1.61
43	2136.68	2134 -	2139	2136.68	6.38E+00	6.40	3.25E+00	2.66
44	2202.81	2199 -	2207	2202.85	1.97E+01	14.04	1.86E+01	1.75
45	2312.08	2309 -	2314	2312.19	7.56E+00	6.71	2.89E+00	1.08
46	2431.81	2427 -	2434	2432.00	7.00E+00	8.72	8.00E+00	1.18
47	2614.07	2610 -	2620	2614.39	5.40E+01	14.70	0.00E+00	4.04

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 : 8/18/2017 4:12:24PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	46.45	43 -	48	1.06E+02	90.46	1.56E+03	7.24E+01
	2	63.51	58 -	68	4.71E+02	185.65	4.37E+03	1.48E+02
	3	76.61	70 -	81	2.00E+03	215.93	4.80E+03	1.62E+02
M	4	87.41	82 -	96	5.02E+02	160.08	3.30E+03	9.45E+01
m	5	92.95	82 -	96	6.26E+02	147.87	2.67E+03	8.50E+01
	6	144.13	141 -	146	7.45E+01	83.61	1.34E+03	6.72E+01
	7	186.44	181 -	191	4.51E+02	126.09	1.86E+03	9.76E+01
M	8	238.92	233 -	247	7.32E+02	89.93	7.96E+02	4.64E+01
m	9	242.19	233 -	247	4.05E+02	97.51	8.39E+02	4.76E+01
	10	258.46	253 -	262	1.43E+02	78.91	7.89E+02	6.18E+01
	11	268.79	263 -	273	1.53E+02	85.04	8.90E+02	6.69E+01
	12	295.51	290 -	299	5.48E+02	93.72	9.45E+02	6.67E+01
	13	338.10	332 -	342	1.73E+02	75.44	6.55E+02	5.81E+01
	14	352.05	345 -	356	1.07E+03	98.51	6.77E+02	6.05E+01
	15	386.95	382 -	390	5.60E+01	57.15	4.68E+02	4.53E+01
	16	510.79	507 -	513	1.10E+02	42.44	2.63E+02	5.60E+01
	17	583.58	579 -	589	1.50E+02	57.97	3.51E+02	4.32E+01
	18	609.45	602 -	615	7.60E+02	75.41	2.93E+02	4.23E+01
	19	726.38	720 -	730	7.39E+01	39.67	1.70E+02	2.94E+01
	20	768.50	762 -	774	9.71E+01	51.38	2.60E+02	3.90E+01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	21	856.15	853 -	864	1.56E+01	19.64	7.61E+01	1.43E+01
m	22	860.82	853 -	864	3.58E+01	32.43	1.41E+02	1.95E+01
	23	912.14	906 -	919	1.29E+02	44.77	1.56E+02	3.17E+01
	24	934.07	928 -	939	6.96E+01	37.09	1.53E+02	3.87E+01
	25	949.53	945 -	953	2.77E+01	30.91	1.29E+02	2.39E+01
	26	968.46	965 -	971	2.44E+01	29.29	1.35E+02	2.27E+01
	27	1026.48	1023 -	1030	2.10E+01	25.30	9.39E+01	1.94E+01
	28	1039.80	1036 -	1044	2.27E+01	27.23	1.03E+02	2.10E+01
	29	1119.88	1115 -	1125	1.44E+02	44.16	1.88E+02	3.05E+01
	30	1154.84	1149 -	1160	6.09E+01	35.94	1.28E+02	2.66E+01
	31	1238.99	1234 -	1245	5.87E+01	40.25	1.71E+02	3.06E+01
	32	1377.39	1370 -	1383	4.58E+01	31.64	9.04E+01	2.35E+01
	33	1460.66	1456 -	1467	4.51E+02	46.56	3.75E+01	1.57E+01
	34	1508.86	1505 -	1512	2.38E+01	17.66	3.63E+01	1.21E+01
	35	1728.64	1722 -	1733	3.42E+01	13.56	5.51E+00	5.64E+00
	36	1763.75	1758 -	1767	1.08E+02	21.56	4.45E+00	4.79E+00
	37	1846.89	1844 -	1852	1.00E+01	12.53	1.80E+01	8.89E+00
	38	1913.62	1910 -	1915	4.75E+00	5.74	2.50E+00	3.08E+00
	39	1968.46	1964 -	1971	9.86E+00	9.38	8.29E+00	5.73E+00
	40	2105.38	2101 -	2109	1.10E+01	6.63	0.00E+00	0.00E+00
	41	2116.16	2111 -	2120	9.67E+00	8.54	4.67E+00	4.82E+00
	42	2123.80	2121 -	2126	7.72E+00	6.71	2.56E+00	3.09E+00
	43	2136.68	2134 -	2139	6.38E+00	6.40	3.25E+00	3.24E+00
	44	2202.81	2199 -	2207	1.97E+01	14.04	1.86E+01	8.94E+00
	45	2312.08	2309 -	2314	7.56E+00	6.71	2.89E+00	3.16E+00
	46	2431.81	2427 -	2434	7.00E+00	8.72	8.00E+00	5.70E+00
	47	2614.07	2610 -	2620	5.40E+01	14.70	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 : 8/18/2017 4:12:24PM

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

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

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.45	43 -	48	45.49	1.06E+02	90.46	1.56E+03	PB-210
	2	63.51	58 -	68	62.56	4.71E+02	185.65	4.37E+03	TH-234 TH-230
	3	76.61	70 -	81	75.66	2.00E+03	215.93	4.80E+03	.....
M	4	87.41	82 -	96	86.47	5.02E+02	160.08	3.30E+03	SN-126 CD-109 NP-237 EU-155 LU-176
m	5	92.95	82 -	96	92.01	6.26E+02	147.87	2.67E+03	GA-67
	6	144.13	141 -	146	143.21	7.45E+01	83.61	1.34E+03	U-235
	7	186.44	181 -	191	185.53	4.51E+02	126.09	1.86E+03	RA-226
M	8	238.92	233 -	247	238.03	7.32E+02	89.93	7.96E+02	PB-212
m	9	242.19	233 -	247	241.30	4.05E+02	97.51	8.39E+02	.....
	10	258.46	253 -	262	257.57	1.43E+02	78.91	7.89E+02	.....
	11	268.79	263 -	273	267.90	1.53E+02	85.04	8.90E+02	CS-135
	12	295.51	290 -	299	294.64	5.48E+02	93.72	9.45E+02	PB-214
	13	338.10	332 -	342	337.24	1.73E+02	75.44	6.55E+02	AC-228
	14	352.05	345 -	356	351.19	1.07E+03	98.51	6.77E+02	PB-214
	15	386.95	382 -	390	386.11	5.60E+01	57.15	4.68E+02	.....
	16	510.79	507 -	513	509.99	1.10E+02	42.44	2.63E+02	.....
	17	583.58	579 -	589	582.81	1.50E+02	57.97	3.51E+02	TL-208
	18	609.45	602 -	615	608.69	7.60E+02	75.41	2.93E+02	BI-214
	19	726.38	720 -	730	725.66	7.39E+01	39.67	1.70E+02	BI-212
	20	768.50	762 -	774	767.80	9.71E+01	51.38	2.60E+02	.....
M	21	856.15	853 -	864	855.49	1.56E+01	19.64	7.61E+01	.....
m	22	860.82	853 -	864	860.16	3.58E+01	32.43	1.41E+02	TL-208
	23	912.14	906 -	919	911.50	1.29E+02	44.77	1.56E+02	TL-204
	24	934.07	928 -	939	933.44	6.96E+01	37.09	1.53E+02	.....
	25	949.53	945 -	953	948.91	2.77E+01	30.91	1.29E+02	.....
	26	968.46	965 -	971	967.84	2.44E+01	29.29	1.35E+02	AC-228
	27	1026.48	1023 -	1030	1025.90	2.10E+01	25.30	9.39E+01	.....
	28	1039.80	1036 -	1044	1039.22	2.27E+01	27.23	1.03E+02	.....
	29	1119.88	1115 -	1125	1119.34	1.44E+02	44.16	1.88E+02	BI-214 SC-46
	30	1154.84	1149 -	1160	1154.31	6.09E+01	35.94	1.28E+02	.....
	31	1238.99	1234 -	1245	1238.50	5.87E+01	40.25	1.71E+02	CO-56
	32	1377.39	1370 -	1383	1376.97	4.58E+01	31.64	9.04E+01	.....
	33	1460.66	1456 -	1467	1460.29	4.51E+02	46.56	3.75E+01	K-40
	34	1508.86	1505 -	1512	1508.51	2.38E+01	17.66	3.63E+01	.....
	35	1728.64	1722 -	1733	1728.40	3.42E+01	13.56	5.51E+00	.....
	36	1763.75	1758 -	1767	1763.53	1.08E+02	21.56	4.45E+00	BI-214
	37	1846.89	1844 -	1852	1846.73	1.00E+01	12.53	1.80E+01	.....
	38	1913.62	1910 -	1915	1913.49	4.75E+00	5.74	2.50E+00	.....
	39	1968.46	1964 -	1971	1968.36	9.86E+00	9.38	8.29E+00	.....
	40	2105.38	2101 -	2109	2105.36	1.10E+01	6.63	0.00E+00	.....
	41	2116.16	2111 -	2120	2116.15	9.67E+00	8.54	4.67E+00	.....
	42	2123.80	2121 -	2126	2123.80	7.72E+00	6.71	2.56E+00	.....
	43	2136.68	2134 -	2139	2136.68	6.38E+00	6.40	3.25E+00	.....
	44	2202.81	2199 -	2207	2202.85	1.97E+01	14.04	1.86E+01	.....
	45	2312.08	2309 -	2314	2312.19	7.56E+00	6.71	2.89E+00	.....
	46	2431.81	2427 -	2434	2432.00	7.00E+00	8.72	8.00E+00	.....
	47	2614.07	2610 -	2620	2614.39	5.40E+01	14.70	0.00E+00	TL-208

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/18/2017 4:12:24PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.45	1.06E+02	90.46	1.64E-02	1.56E-03
	2	63.51	4.71E+02	185.65	2.16E-02	1.64E-03
	3	76.61	2.00E+03	215.93	2.33E-02	1.92E-03
M	4	87.41	5.02E+02	160.08	2.37E-02	2.15E-03
m	5	92.95	6.26E+02	147.87	2.37E-02	2.09E-03
	6	144.13	7.45E+01	83.61	2.03E-02	1.57E-03
	7	186.44	4.51E+02	126.09	1.69E-02	1.39E-03
M	8	238.92	7.32E+02	89.93	1.36E-02	1.14E-03
m	9	242.19	4.05E+02	97.51	1.34E-02	1.13E-03
	10	258.46	1.43E+02	78.91	1.26E-02	1.05E-03
	11	268.79	1.53E+02	85.04	1.21E-02	9.97E-04
	12	295.51	5.48E+02	93.72	1.10E-02	9.13E-04
	13	338.10	1.73E+02	75.44	9.61E-03	8.23E-04
	14	352.05	1.07E+03	98.51	9.21E-03	7.94E-04
	15	386.95	5.60E+01	57.15	8.36E-03	7.21E-04
	16	510.79	1.10E+02	42.44	6.28E-03	6.61E-04
	17	583.58	1.50E+02	57.97	5.50E-03	6.31E-04
	18	609.45	7.60E+02	75.41	5.27E-03	6.20E-04
	19	726.38	7.39E+01	39.67	4.46E-03	5.17E-04
	20	768.50	9.71E+01	51.38	4.23E-03	4.65E-04
M	21	856.15	1.56E+01	19.64	3.83E-03	3.55E-04
m	22	860.82	3.58E+01	32.43	3.81E-03	3.49E-04
	23	912.14	1.29E+02	44.77	3.62E-03	2.99E-04
	24	934.07	6.96E+01	37.09	3.54E-03	2.93E-04
	25	949.53	2.77E+01	30.91	3.49E-03	2.90E-04
	26	968.46	2.44E+01	29.29	3.43E-03	2.85E-04
	27	1026.48	2.10E+01	25.30	3.26E-03	2.72E-04
	28	1039.80	2.27E+01	27.23	3.22E-03	2.69E-04
	29	1119.88	1.44E+02	44.16	3.02E-03	2.50E-04
	30	1154.84	6.09E+01	35.94	2.94E-03	2.42E-04
	31	1238.99	5.87E+01	40.25	2.76E-03	2.33E-04
	32	1377.39	4.58E+01	31.64	2.51E-03	2.20E-04
	33	1460.66	4.51E+02	46.56	2.38E-03	2.08E-04
	34	1508.86	2.38E+01	17.66	2.32E-03	2.01E-04

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1728.64	3.42E+01	13.56	2.04E-03	1.67E-04
36	1763.75	1.08E+02	21.56	2.00E-03	1.62E-04
37	1846.89	1.00E+01	12.53	1.91E-03	1.51E-04
38	1913.62	4.75E+00	5.74	1.84E-03	1.51E-04
39	1968.46	9.86E+00	9.38	1.79E-03	1.51E-04
40	2105.38	1.10E+01	6.63	1.66E-03	1.51E-04
41	2116.16	9.67E+00	8.54	1.66E-03	1.51E-04
42	2123.80	7.72E+00	6.71	1.65E-03	1.51E-04
43	2136.68	6.38E+00	6.40	1.64E-03	1.51E-04
44	2202.81	1.97E+01	14.04	1.58E-03	1.51E-04
45	2312.08	7.56E+00	6.71	1.50E-03	1.51E-04
46	2431.81	7.00E+00	8.72	1.41E-03	1.51E-04
47	2614.07	5.40E+01	14.70	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 : 8/18/2017 4:12:24PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.45	1.06E+02	90.46	2.70E+01	8.29E+00	7.85E+01	9.08E+01
	2	63.51	4.71E+02	185.65	5.43E+01	8.76E+00	4.17E+02	1.86E+02
	3	76.61	2.00E+03	215.93			2.00E+03	2.16E+02
M	4	87.41	5.02E+02	160.08			5.02E+02	1.60E+02
m	5	92.95	6.26E+02	147.87	6.28E+01	7.82E+00	5.63E+02	1.48E+02
	6	144.13	7.45E+01	83.61			7.45E+01	8.36E+01
	7	186.44	4.51E+02	126.09	2.54E+01	6.86E+00	4.26E+02	1.26E+02
M	8	238.92	7.32E+02	89.93	8.10E+00	6.12E+00	7.24E+02	9.01E+01
m	9	242.19	4.05E+02	97.51			4.05E+02	9.75E+01
	10	258.46	1.43E+02	78.91			1.43E+02	7.89E+01
	11	268.79	1.53E+02	85.04			1.53E+02	8.50E+01
	12	295.51	5.48E+02	93.72			5.48E+02	9.37E+01
	13	338.10	1.73E+02	75.44			1.73E+02	7.54E+01
	14	352.05	1.07E+03	98.51			1.07E+03	9.85E+01
	15	386.95	5.60E+01	57.15			5.60E+01	5.71E+01
	16	510.79	1.10E+02	42.44	3.93E+01	5.03E+00	7.11E+01	4.27E+01
	17	583.58	1.50E+02	57.97			1.50E+02	5.80E+01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	18	609.45	7.60E+02	75.41			7.60E+02	7.54E+01
	19	726.38	7.39E+01	39.67			7.39E+01	3.97E+01
	20	768.50	9.71E+01	51.38			9.71E+01	5.14E+01
M	21	856.15	1.56E+01	19.64			1.56E+01	1.96E+01
m	22	860.82	3.58E+01	32.43			3.58E+01	3.24E+01
	23	912.14	1.29E+02	44.77	5.69E-01	2.37E+00	1.28E+02	4.48E+01
	24	934.07	6.96E+01	37.09			6.96E+01	3.71E+01
	25	949.53	2.77E+01	30.91			2.77E+01	3.09E+01
	26	968.46	2.44E+01	29.29			2.44E+01	2.93E+01
	27	1026.48	2.10E+01	25.30			2.10E+01	2.53E+01
	28	1039.80	2.27E+01	27.23			2.27E+01	2.72E+01
	29	1119.88	1.44E+02	44.16			1.44E+02	4.42E+01
	30	1154.84	6.09E+01	35.94			6.09E+01	3.59E+01
	31	1238.99	5.87E+01	40.25			5.87E+01	4.02E+01
	32	1377.39	4.58E+01	31.64			4.58E+01	3.16E+01
	33	1460.66	4.51E+02	46.56	1.35E+00	1.57E+00	4.50E+02	4.66E+01
	34	1508.86	2.38E+01	17.66			2.38E+01	1.77E+01
	35	1728.64	3.42E+01	13.56			3.42E+01	1.36E+01
	36	1763.75	1.08E+02	21.56			1.08E+02	2.16E+01
	37	1846.89	1.00E+01	12.53			1.00E+01	1.25E+01
	38	1913.62	4.75E+00	5.74			4.75E+00	5.74E+00
	39	1968.46	9.86E+00	9.38			9.86E+00	9.38E+00
	40	2105.38	1.10E+01	6.63			1.10E+01	6.63E+00
	41	2116.16	9.67E+00	8.54			9.67E+00	8.54E+00
	42	2123.80	7.72E+00	6.71			7.72E+00	6.71E+00
	43	2136.68	6.38E+00	6.40			6.38E+00	6.40E+00
	44	2202.81	1.97E+01	14.04			1.97E+01	1.40E+01
	45	2312.08	7.56E+00	6.71			7.56E+00	6.71E+00
	46	2431.81	7.00E+00	8.72			7.00E+00	8.72E+00
	47	2614.07	5.40E+01	14.70			5.40E+01	1.47E+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 : 8/18/2017 4:12:24PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.45	1.06E+02	90.46	2.70E+01	8.29E+00	7.85E+01	9.08E+01
	2	63.51	4.71E+02	185.65	5.43E+01	8.76E+00	4.17E+02	1.86E+02
	3	76.61	2.00E+03	215.93			2.00E+03	2.16E+02
M	4	87.41	5.02E+02	160.08			5.02E+02	1.60E+02
m	5	92.95	6.26E+02	147.87	6.28E+01	7.82E+00	5.63E+02	1.48E+02
	6	144.13	7.45E+01	83.61			7.45E+01	8.36E+01
	7	186.44	4.51E+02	126.09	2.54E+01	6.86E+00	4.26E+02	1.26E+02
M	8	238.92	7.32E+02	89.93	8.10E+00	6.12E+00	7.24E+02	9.01E+01
m	9	242.19	4.05E+02	97.51			4.05E+02	9.75E+01
	10	258.46	1.43E+02	78.91			1.43E+02	7.89E+01
	11	268.79	1.53E+02	85.04			1.53E+02	8.50E+01
	12	295.51	5.48E+02	93.72			5.48E+02	9.37E+01
	13	338.10	1.73E+02	75.44			1.73E+02	7.54E+01
	14	352.05	1.07E+03	98.51			1.07E+03	9.85E+01
	15	386.95	5.60E+01	57.15			5.60E+01	5.71E+01
	16	510.79	1.10E+02	42.44	3.93E+01	5.03E+00	7.11E+01	4.27E+01
	17	583.58	1.50E+02	57.97			1.50E+02	5.80E+01
	18	609.45	7.60E+02	75.41			7.60E+02	7.54E+01
	19	726.38	7.39E+01	39.67			7.39E+01	3.97E+01
	20	768.50	9.71E+01	51.38			9.71E+01	5.14E+01
M	21	856.15	1.56E+01	19.64			1.56E+01	1.96E+01
m	22	860.82	3.58E+01	32.43			3.58E+01	3.24E+01
	23	912.14	1.29E+02	44.77	5.69E-01	2.37E+00	1.28E+02	4.48E+01
	24	934.07	6.96E+01	37.09			6.96E+01	3.71E+01
	25	949.53	2.77E+01	30.91			2.77E+01	3.09E+01
	26	968.46	2.44E+01	29.29			2.44E+01	2.93E+01
	27	1026.48	2.10E+01	25.30			2.10E+01	2.53E+01
	28	1039.80	2.27E+01	27.23			2.27E+01	2.72E+01
	29	1119.88	1.44E+02	44.16			1.44E+02	4.42E+01
	30	1154.84	6.09E+01	35.94			6.09E+01	3.59E+01
	31	1238.99	5.87E+01	40.25			5.87E+01	4.02E+01
	32	1377.39	4.58E+01	31.64			4.58E+01	3.16E+01
	33	1460.66	4.51E+02	46.56	1.35E+00	1.57E+00	4.50E+02	4.66E+01
	34	1508.86	2.38E+01	17.66			2.38E+01	1.77E+01
	35	1728.64	3.42E+01	13.56			3.42E+01	1.36E+01
	36	1763.75	1.08E+02	21.56			1.08E+02	2.16E+01
	37	1846.89	1.00E+01	12.53			1.00E+01	1.25E+01
	38	1913.62	4.75E+00	5.74			4.75E+00	5.74E+00
	39	1968.46	9.86E+00	9.38			9.86E+00	9.38E+00
	40	2105.38	1.10E+01	6.63			1.10E+01	6.63E+00
	41	2116.16	9.67E+00	8.54			9.67E+00	8.54E+00
	42	2123.80	7.72E+00	6.71			7.72E+00	6.71E+00
	43	2136.68	6.38E+00	6.40			6.38E+00	6.40E+00
	44	2202.81	1.97E+01	14.04			1.97E+01	1.40E+01
	45	2312.08	7.56E+00	6.71			7.56E+00	6.71E+00
	46	2431.81	7.00E+00	8.72			7.00E+00	8.72E+00
	47	2614.07	5.40E+01	14.70			5.40E+01	1.47E+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 1707084-12

HTC-A02-S001-1218-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.997	1460.81	*	10.67	2.09E+01	2.87E+00
CD-109	0.939	88.03	*	3.72	7.77E+00	2.62E+00
SN-126	0.996	87.57	*	37.00	6.78E-01	2.25E-01
CS-135	0.953	268.24	*	16.00	9.36E-01	5.25E-01
TL-208	0.957	583.14	*	30.22	1.07E+00	4.31E-01
		860.37	*	4.48	2.49E+00	2.26E+00
		2614.66	*	35.85	1.39E+00	4.13E-01
PB-210	1.000	46.50	*	4.25	1.34E+00	1.56E+00
BI-212	0.698	727.17	*	11.80	1.66E+00	9.14E-01
		1620.62		2.75		
PB-212	0.885	238.63	*	44.60	1.42E+00	2.13E-01
		300.09		3.41		
BI-214	0.914	609.31	*	46.30	3.69E+00	5.68E-01
		1120.29	*	15.10	3.74E+00	1.19E+00
		1764.49	*	15.80	4.04E+00	8.72E-01
		2204.22		4.98		
PB-214	0.994	295.21	*	19.19	3.07E+00	5.83E-01
		351.92	*	37.19	3.70E+00	4.66E-01
RA-226	0.992	186.21	*	3.28	9.10E+00	1.69E+01
TH-234	0.992	63.29	*	3.80	6.02E+00	2.72E+00
NP-237	0.878	86.50	*	12.60	1.99E+00	6.61E-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 : 8/18/2017 4:12:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.61	5.56607E-01	5.39		
m	5	92.95	1.56421E-01	13.15	Sum	
	6	144.13	2.06959E-02	56.11	Tol.	U-235
m	9	242.19	1.12617E-01	12.03		
	10	258.46	3.98110E-02	27.53		
	13	338.10	4.79411E-02	21.85	Tol.	AC-228
	15	386.95	1.55556E-02	51.03		
	16	510.79	1.97390E-02	30.07		
	20	768.50	2.69750E-02	26.46		
M	21	856.15	4.32990E-03	63.00		
	23	912.14	3.56510E-02	17.46	Sum	
	24	934.07	1.93468E-02	26.63		
	25	949.53	7.69324E-03	55.80	S-Esc	
	26	968.46	6.78140E-03	59.99	Tol.	AC-228
	27	1026.48	5.84150E-03	60.15		
	28	1039.80	6.31757E-03	59.87		
	30	1154.84	1.69178E-02	29.51		
	31	1238.99	1.63050E-02	34.29		
	32	1377.39	1.27259E-02	34.53		
	34	1508.86	6.62037E-03	37.06		
	35	1728.64	9.51201E-03	19.81	Sum	
	37	1846.89	2.77778E-03	62.65	Sum	
	38	1913.62	1.31944E-03	60.47		
	39	1968.46	2.73810E-03	47.58		
	40	2105.38	3.05556E-03	30.15		
	41	2116.16	2.68519E-03	44.19	Sum	
	42	2123.80	2.14506E-03	43.43		
	43	2136.68	1.77083E-03	50.22		
	44	2202.81	5.46935E-03	35.64		
	45	2312.08	2.09877E-03	44.39		
	46	2431.81	1.94444E-03	62.27		

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 1707084-12

HTC-A02-S001-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.09E+01	2.87E+00
CD-109	0.93	88.03	*	3.72	7.77E+00	2.62E+00
SN-126	0.99	87.57	*	37.00	6.78E-01	2.25E-01
CS-135	0.95	268.24	*	16.00	9.36E-01	5.25E-01
TL-208	0.95	583.14	*	30.22	1.07E+00	4.31E-01
		860.37	*	4.48	2.49E+00	2.26E+00
		2614.66	*	35.85	1.39E+00	4.13E-01
PB-210	1.00	46.50	*	4.25	1.34E+00	1.56E+00
BI-212	0.69	727.17	*	11.80	1.66E+00	9.14E-01
		1620.62		2.75		
PB-212	0.88	238.63	*	44.60	1.42E+00	2.13E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	3.69E+00	5.68E-01
		1120.29	*	15.10	3.74E+00	1.19E+00
		1764.49	*	15.80	4.04E+00	8.72E-01
		2204.22		4.98		
PB-214	0.99	295.21	*	19.19	3.07E+00	5.83E-01
		351.92	*	37.19	3.70E+00	4.66E-01
RA-226	0.99	186.21	*	3.28	9.10E+00	1.69E+01
TH-234	0.99	63.29	*	3.80	6.02E+00	2.72E+00
NP-237	0.87	86.50	*	12.60	1.99E+00	6.61E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.997	2.09E+01	2.87E+00	
?	CD-109	0.939	7.77E+00	2.62E+00	
?	SN-126	0.996	6.78E-01	2.25E-01	
	CS-135	0.953	9.36E-01	5.25E-01	
	TL-208	0.957	1.26E+00	2.96E-01	
	PB-210	1.000	1.34E+00	1.56E+00	

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	BI-212	0.698	1.66E+00	9.14E-01	
	PB-212	0.885	1.42E+00	2.13E-01	
	BI-214	0.914	3.79E+00	4.42E-01	
	PB-214	0.994	3.45E+00	3.64E-01	
	RA-226	0.992	9.10E+00	1.69E+01	
	TH-234	0.992	6.02E+00	2.72E+00	
?	NP-237	0.878	1.99E+00	6.61E-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 1707084-12

HTC-A02-S001-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 4:12:24PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.61	5.56607E-01	5.39		
m	5	92.95	1.56421E-01	13.15	Sum	
	6	144.13	2.06959E-02	56.11	Tol.	U-235
m	9	242.19	1.12617E-01	12.03		
	10	258.46	3.98110E-02	27.53		
	13	338.10	4.79411E-02	21.85	Tol.	AC-228
	15	386.95	1.55556E-02	51.03		
	16	510.79	1.97390E-02	30.07		
	20	768.50	2.69750E-02	26.46		
M	21	856.15	4.32990E-03	63.00		
	23	912.14	3.56510E-02	17.46	Sum	
	24	934.07	1.93468E-02	26.63		
	25	949.53	7.69324E-03	55.80	S-Esc	
	26	968.46	6.78140E-03	59.99	Tol.	AC-228
	27	1026.48	5.84150E-03	60.15		
	28	1039.80	6.31757E-03	59.87		
	30	1154.84	1.69178E-02	29.51		
	31	1238.99	1.63050E-02	34.29		
	32	1377.39	1.27259E-02	34.53		
	34	1508.86	6.62037E-03	37.06		
	35	1728.64	9.51201E-03	19.81	Sum	
	37	1846.89	2.77778E-03	62.65	Sum	
	38	1913.62	1.31944E-03	60.47		
	39	1968.46	2.73810E-03	47.58		
	40	2105.38	3.05556E-03	30.15		
	41	2116.16	2.68519E-03	44.19	Sum	
	42	2123.80	2.14506E-03	43.43		
	43	2136.68	1.77083E-03	50.22		
	44	2202.81	5.46935E-03	35.64		
	45	2312.08	2.09877E-03	44.39		
	46	2431.81	1.94444E-03	62.27		

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

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

NUCLIDE 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	-1.14E+00	3.31E+00	3.31E+00
+	NA-22	1274.54		99.94	-7.50E-02	1.66E-01	1.66E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	3.04E-02	1.10E-01	1.10E-01
+	K-40	1460.81	*	10.67	2.09E+01	1.60E+00	1.60E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-2.03E-01	1.06E-01	1.06E-01
		78.34		96.00	8.08E-01		1.39E-01
+	SC-46	889.25		99.98	4.30E-02	3.40E-01	3.40E-01
		1120.51		99.99	1.23E+00		6.25E-01
+	V-48	983.52		99.98	6.02E+00	9.12E+00	9.12E+00
		1312.10		97.50	5.67E-01		1.04E+01
+	CR-51	320.08		9.83	4.11E+00	1.04E+01	1.04E+01
+	MN-54	834.83		99.97	-1.05E-02	1.81E-01	1.81E-01
+	CO-56	846.75		99.96	1.08E-02	3.28E-01	3.28E-01
		1037.75		14.03	-2.39E-01		2.65E+00
		1238.25		67.00	4.83E-01		7.91E-01
		1771.40		15.51	-2.14E+00		1.78E+00
		2598.48		16.90	0.00E+00		3.40E-01
+	CO-57	122.06		85.51	-2.75E-02	1.07E-01	1.07E-01
		136.48		10.60	-3.03E-02		9.07E-01
+	CO-58	810.76		99.40	-4.00E-02	3.65E-01	3.65E-01
+	FE-59	1099.22		56.50	6.14E-01	1.28E+00	1.28E+00
		1291.56		43.20	-2.26E-01		1.60E+00
+	CO-60	1173.22		100.00	-3.15E-02	1.49E-01	1.92E-01
		1332.49		100.00	-8.62E-02		1.49E-01
+	ZN-65	1115.52		50.75	-8.32E-02	5.89E-01	5.89E-01
+	GA-67	93.31		35.70	3.57E+08	1.71E+08	1.71E+08
		208.95		2.24	1.99E+09		2.50E+09
		300.22		16.00	1.59E+08		4.24E+08
+	SE-75	121.11		16.70	-7.42E-01	2.18E-01	7.28E-01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-1.93E-01	2.18E-01	2.18E-01
		264.65		59.80	-4.83E-01		2.34E-01
		279.53		25.20	2.05E-01		6.26E-01
		400.65		11.40	1.55E+00		1.65E+00
+	RB-82	776.52		13.00	-7.02E+00	1.26E+01	1.26E+01
+	RB-83	520.41		46.00	6.78E-02	4.90E-01	4.90E-01
		529.64		30.30	9.92E-02		7.39E-01
		552.65		16.40	-7.32E-01		1.23E+00
+	KR-85	513.99		0.43	2.89E+00	3.09E+01	3.09E+01
+	SR-85	513.99		99.27	3.44E-02	3.68E-01	3.68E-01
+	Y-88	898.02		93.40	-9.32E-02	2.01E-01	3.13E-01
		1836.01		99.38	-4.53E-02		2.01E-01
+	MO-93	263.06		56.72	-1.21E-01	1.31E-01	1.47E-01
		684.67		99.68	-2.46E-02		1.31E-01
		1477.11		99.08	1.05E-01		1.54E-01
+	NB-93M	16.57		9.43	2.55E+01	9.79E+00	9.79E+00
+	NB-94	702.63		100.00	-4.55E-02	1.47E-01	1.47E-01
		871.10		100.00	1.18E-01		1.52E-01
+	NB-95	765.79		99.81	1.15E+00	1.22E+00	1.22E+00
+	NB-95M	235.69		25.00	4.34E+07	4.45E+07	4.45E+07
+	ZR-95	724.18		43.70	7.42E-02	6.90E-01	9.45E-01
		756.72		55.30	-1.75E-01		6.90E-01
+	MO-99	181.06		6.20	1.41E+10	2.83E+10	3.66E+10
		739.58		12.80	1.29E+09		2.83E+10
		778.00		4.50	-1.29E+10		7.66E+10
+	RU-103	497.08		89.00	2.45E-01	6.35E-01	6.35E-01
+	RU-106	621.84		9.80	3.55E-01	1.36E+00	1.36E+00
+	AG-108M	433.93		89.90	-5.92E-02	1.08E-01	1.08E-01
		614.37		90.40	-2.07E-02		1.30E-01
		722.95		90.50	-9.76E-04		1.58E-01
+	CD-109	88.03	*	3.72	7.77E+00	5.28E+00	5.28E+00
+	AG-110M	657.75		93.14	-1.04E-01	1.80E-01	1.80E-01
		677.61		10.53	9.23E-01		1.68E+00
		706.67		16.46	3.11E-01		1.19E+00
		763.93		21.98	2.61E-01		1.00E+00
		884.67		71.63	-3.68E-02		2.71E-01
		1384.27		23.94	-4.74E-02		8.46E-01
+	CD-113M	263.70		0.02	-6.66E+02	3.53E+02	3.53E+02
+	SN-113	255.12		1.93	-7.53E-01	2.71E-01	7.94E+00
		391.69		64.90	4.10E-02		2.71E-01
+	TE123M	159.00		84.10	2.12E-02	1.73E-01	1.73E-01
+	SB-124	602.71		97.87	-3.07E-02	3.27E-01	3.27E-01
		645.85		7.26	3.13E+00		5.01E+00
		722.78		11.10	-2.38E-02		3.86E+00
		1691.02		49.00	2.26E-01		7.20E-01
+	I-125	35.49		6.49	-1.92E+00	6.50E+00	6.50E+00
+	SB-125	176.33		6.89	-1.56E-01	3.76E-01	1.29E+00
		427.89		29.33	1.81E-01		3.76E-01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	5.92E-01	3.76E-01	1.10E+00
		600.56		17.80	-1.07E-01		6.28E-01
		635.90		11.32	4.78E-01		9.95E-01
+	SB-126	414.70		83.30	-4.76E+00	2.71E+01	2.71E+01
		666.33		99.60	1.33E+01		2.87E+01
		695.00		99.60	-1.64E+00		3.01E+01
		720.50		53.80	8.49E+00		5.03E+01
+	SN-126	87.57	*	37.00	6.78E-01	4.60E-01	4.60E-01
+	SB-127	473.00		25.00	2.65E+05	1.02E+07	1.08E+07
		685.20		35.70	-1.91E+06		1.02E+07
		783.80		14.70	8.59E+05		2.66E+07
+	I-129	29.78		57.00	4.83E-02	3.46E-01	3.46E-01
		33.60		13.20	-9.46E-02		1.17E+00
		39.58		7.52	6.68E-01		1.64E+00
+	I-131	284.30		6.05	2.16E+03	4.07E+02	5.56E+03
		364.48		81.20	-9.63E+01		4.07E+02
		636.97		7.26	3.30E+03		5.44E+03
		722.89		1.80	-1.81E+02		2.94E+04
+	TE-132	49.72		13.10	4.27E+06	6.29E+07	5.10E+08
		228.16		88.00	1.18E+07		6.29E+07
+	BA-133	81.00		33.00	-7.90E-01	2.64E-01	3.23E-01
		302.84		17.80	1.50E-01		5.29E-01
		356.01		60.00	1.59E-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	-1.99E+05	8.15E+04	8.15E+04
+	CS-134	563.23		8.38	-3.91E-02	1.58E-01	1.38E+00
		569.32		15.43	9.71E-02		8.01E-01
		604.70		97.60	-1.45E+00		1.58E-01
		795.84		85.40	-9.86E-02		1.76E-01
		801.93		8.73	-3.46E-01		1.82E+00
+	CS-135	268.24	*	16.00	9.36E-01	8.34E-01	8.34E-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	1.58E+01	2.06E+01	1.68E+02
		163.89		4.61	1.47E+02		2.75E+02
		176.55		13.56	1.40E+00		9.30E+01
		273.65		12.66	1.95E+01		1.09E+02
		340.57		48.50	3.31E+01		3.28E+01
		818.50		99.70	-5.31E+00		2.06E+01
		1048.07		79.60	7.50E+00		3.12E+01
		1235.34		19.70	5.60E+00		1.78E+02
+	CS-137	661.65		85.12	1.60E-01	1.74E-01	1.74E-01
+	LA-138	788.74		34.00	3.78E-02	1.96E-01	4.29E-01
		1435.80		66.00	3.89E-03		1.96E-01
+	CE-139	165.85		80.35	-6.61E-02	1.65E-01	1.65E-01
+	BA-140	162.64		6.70	1.25E+02	6.89E+01	2.19E+02
		304.84		4.50	-1.36E+02		3.47E+02
		423.70		3.20	-3.03E+00		5.65E+02

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	4.73E+02	6.89E+01	9.01E+02
			537.32	25.00	-2.33E+01		6.89E+01
+		LA-140	328.77	20.50	1.60E+01	2.56E+01	8.42E+01
			487.03	45.50	-2.25E+01		3.80E+01
			815.85	23.50	7.87E+01		1.08E+02
			1596.49	95.49	8.28E-01		2.56E+01
+		CE-141	145.44	48.40	6.47E-02	1.30E+00	1.30E+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	-3.52E-01	8.73E-01	8.73E-01
+		PM-144	476.78	42.00	-2.30E-01	1.30E-01	2.73E-01
			618.01	98.60	-2.43E-02		1.30E-01
			696.49	99.49	4.93E-02		1.79E-01
+		PM-145	36.85	21.70	4.83E-02	3.31E-01	6.20E-01
			37.36	39.70	2.58E-02		3.31E-01
			42.30	15.10	-6.00E-02		7.47E-01
			72.40	2.31	-1.81E+01		4.83E+00
+		PM-146	453.90	39.94	-2.52E-02	2.64E-01	2.64E-01
			735.90	14.01	3.47E-01		9.49E-01
			747.13	13.10	6.78E-01		1.10E+00
+		ND-147	91.11	28.90	4.31E+02	1.48E+02	1.48E+02
			531.02	13.10	1.36E+02		3.32E+02
+		PM-149	285.90	3.10	-5.27E+12	2.64E+13	2.64E+13
+		EU-152	121.78	20.50	-9.10E-02	3.53E-01	3.53E-01
			244.69	5.40	1.39E-02		2.05E+00
			344.27	19.13	-8.85E-02		4.48E-01
			778.89	9.20	-6.74E-01		1.39E+00
			964.01	10.40	3.97E-01		1.74E+00
			1085.78	7.22	-7.13E-01		2.32E+00
			1112.02	9.60	5.38E-01		1.77E+00
			1407.95	14.94	6.29E-01		1.17E+00
+		GD-153	97.43	31.30	6.30E-02	3.39E-01	3.39E-01
			103.18	22.20	4.31E-02		4.27E-01
+		EU-154	123.07	40.50	1.24E-01	1.86E-01	1.86E-01
			723.30	19.70	5.98E-02		7.62E-01
			873.19	11.50	-5.47E-01		1.25E+00
			996.32	10.30	1.13E+00		1.67E+00
			1004.76	17.90	-5.02E-03		8.64E-01
			1274.45	35.50	-2.01E-01		4.46E-01
+		EU-155	86.50	30.90	2.18E-01	3.32E-01	3.32E-01
			105.30	20.70	-2.68E-01		3.59E-01
+		EU-156	811.77	10.40	6.91E+00	1.05E+02	1.05E+02
			1153.47	7.20	1.94E+02		2.22E+02
			1230.71	8.90	9.03E+00		1.72E+02
+		HO-166M	184.41	72.60	3.97E-01	1.47E-01	1.47E-01
			280.45	29.60	4.29E-02		3.07E-01
			410.94	11.10	1.28E-01		9.79E-01
			711.69	54.10	9.64E-03		2.67E-01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	7.06E-01	8.24E+01	8.24E+01
+	HF-172	67.35		5.31	1.86E-02	7.48E-01	2.17E+00
		125.81		11.30	2.67E-01		7.48E-01
+	LU-172	181.53		20.60	2.18E+03	4.86E+03	8.24E+03
		900.72		29.81	7.40E+02		9.91E+03
		1093.66		62.50	-1.25E+03		4.86E+03
+	LU-173	100.72		5.24	-3.55E-01	5.20E-01	1.56E+00
		272.11		21.20	2.98E-01		5.20E-01
+	HF-175	343.40		84.00	-5.10E-02	2.58E-01	2.58E-01
+	LU-176	88.34		13.30	-2.70E-01	9.31E-02	7.44E-01
		201.83		86.00	-4.71E-02		9.78E-02
		306.78		94.00	-3.81E-02		9.31E-02
+	HF-181	133.02		41.70	-3.10E-01	5.98E-01	8.44E-01
		345.85		17.20	-4.64E-01		2.37E+00
		482.03		82.80	2.29E-01		5.98E-01
+	TA-182	67.75		41.20	-8.28E-01	4.33E-01	4.33E-01
		1121.30		34.90	2.97E+00		1.45E+00
		1189.05		16.23	2.27E-01		1.98E+00
		1221.41		26.98	7.45E-02		1.28E+00
		1231.02		11.44	5.69E-01		3.11E+00
+	IR-192	308.46		29.68	-1.26E-01	4.82E-01	7.27E-01
		468.07		48.10	-5.06E-01		4.82E-01
+	HG-203	279.19		77.30	1.44E-01	4.91E-01	4.91E-01
+	TL-204	374.74		94.11	6.29E-02	1.05E-01	1.05E-01
		899.15		99.16	2.88E-02		1.68E-01
		911.74		91.10	3.03E-01		2.38E-01
+	BI-207	569.67		97.72	1.41E-02	1.17E-01	1.17E-01
		1063.62		74.90	-5.29E-02		2.04E-01
+	TL-208	583.14	*	30.22	1.07E+00	6.98E-02	6.35E-01
		860.37	*	4.48	2.49E+00		4.46E+00
		2614.66	*	35.85	1.39E+00		6.98E-02
+	BI-210M	262.00		45.00	-6.92E-02	1.87E-01	1.87E-01
		300.00		23.00	1.77E-01		4.72E-01
+	PB-210	46.50	*	4.25	1.34E+00	2.55E+00	2.55E+00
+	PB-211	404.84		2.90	-6.45E-01	3.60E+00	3.60E+00
		831.96		2.90	-2.80E-01		4.89E+00
+	BI-212	727.17	*	11.80	1.66E+00	1.39E+00	1.39E+00
		1620.62		2.75	-1.32E-01		4.67E+00
+	PB-212	238.63	*	44.60	1.42E+00	3.88E-01	3.88E-01
		300.09		3.41	1.19E+00		3.19E+00
+	BI-214	609.31	*	46.30	3.69E+00	4.24E-01	4.24E-01
		1120.29	*	15.10	3.74E+00		1.66E+00
		1764.49	*	15.80	4.04E+00		4.61E-01
		2204.22		4.98	4.03E+00		4.36E+00
+	PB-214	295.21	*	19.19	3.07E+00	4.28E-01	7.63E-01
		351.92	*	37.19	3.70E+00		4.28E-01
+	RN-219	401.80		6.50	9.64E-01	1.66E+00	1.66E+00
+	RA-223	323.87		3.88	4.43E-01	2.47E+00	2.47E+00

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	2.08E+01	3.97E+00	3.97E+00
+	RA-225	40.00		31.00	1.38E+01	3.39E+01	3.39E+01
+	RA-226	186.21	*	3.28	9.10E+00	4.25E+00	4.25E+00
+	TH-227	50.10		8.40	1.04E-02	1.10E+00	1.24E+00
		236.00		11.50	1.07E+00		1.10E+00
		256.20		6.30	-4.80E-02		1.42E+00
+	AC-228	338.32		11.40	1.06E+00	7.42E-01	9.74E-01
		911.07		27.70	9.58E-01		7.42E-01
		969.11		16.60	-7.25E-02		1.10E+00
+	TH-230	48.44		16.90	-1.06E-01	6.34E-01	6.34E-01
		62.85		4.60	5.75E+00		2.43E+00
		67.67		0.37	-5.18E+01		2.71E+01
+	PA-231	283.67		1.60	2.20E+00	4.03E+00	5.68E+00
		302.67		2.30	1.14E+00		4.03E+00
+	TH-231	25.64		14.70	-1.24E-01	1.45E+00	1.91E+00
		84.21		6.40	-2.84E+00		1.45E+00
+	PA-233	311.98		38.60	7.29E-01	2.74E+00	2.74E+00
+	PA-234	131.20		20.40	1.77E-01	3.75E-01	3.75E-01
		733.99		8.80	-4.45E-01		1.38E+00
		946.00		12.00	1.90E-01		1.37E+00
+	PA-234M	1001.03		0.92	-2.43E-01	1.72E+01	1.72E+01
+	TH-234	63.29	*	3.80	6.02E+00	4.35E+00	4.35E+00
+	U-235	143.76		10.50	-5.13E-02	7.74E-01	7.74E-01
		163.35		4.70	1.02E+00		1.79E+00
		205.31		4.70	-1.46E-01		1.86E+00
+	NP-237	86.50	*	12.60	1.99E+00	1.35E+00	1.35E+00
+	NP-239	106.10		22.70	1.66E+11	4.85E+11	4.85E+11
		228.18		10.70	2.31E+11		1.23E+12
		277.60		14.10	-1.18E+10		9.64E+11
+	AM-241	59.54		35.90	-3.82E-02	2.89E-01	2.89E-01
+	AM-243	74.67		66.00	1.18E+00	2.07E-01	2.07E-01
+	CM-243	209.75		3.29	2.38E+00	6.47E-01	2.72E+00
		228.14		10.60	1.55E-01		8.28E-01
		277.60		14.00	-7.95E-03		6.47E-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 1707084-12

HTC-A02-S001-1218-01

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	3.31E+00	3.31E+00	-1.14E+00	1.58E+00
	NA-22	1274.54		99.94	1.66E-01	1.66E-01	-7.50E-02	7.68E-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	1.10E-01	1.10E-01	3.04E-02	4.70E-02
+	K-40	1460.81	*	10.67	1.60E+00	1.60E+00	2.09E+01	7.37E-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	1.06E-01	1.06E-01	-2.03E-01	5.24E-02
		78.34		96.00	1.39E-01		8.08E-01	6.88E-02
	SC-46	889.25		99.98	3.40E-01	3.40E-01	4.30E-02	1.60E-01
		1120.51		99.99	6.25E-01		1.23E+00	3.01E-01
	V-48	983.52		99.98	9.12E+00	9.12E+00	6.02E+00	4.26E+00
		1312.10		97.50	1.04E+01		5.67E-01	4.81E+00
	CR-51	320.08		9.83	1.04E+01	1.04E+01	4.11E+00	5.04E+00
	MN-54	834.83		99.97	1.81E-01	1.81E-01	-1.05E-02	8.56E-02
	CO-56	846.75		99.96	3.28E-01	3.28E-01	1.08E-02	1.55E-01
		1037.75		14.03	2.65E+00		-2.39E-01	1.24E+00
		1238.25		67.00	7.91E-01		4.83E-01	3.76E-01
		1771.40		15.51	1.78E+00		-2.14E+00	7.72E-01
		2598.48		16.90	3.40E-01		0.00E+00	0.00E+00
	CO-57	122.06		85.51	1.07E-01	1.07E-01	-2.75E-02	5.23E-02
		136.48		10.60	9.07E-01		-3.03E-02	4.44E-01
	CO-58	810.76		99.40	3.65E-01	3.65E-01	-4.00E-02	1.72E-01
	FE-59	1099.22		56.50	1.28E+00	1.28E+00	6.14E-01	6.01E-01
		1291.56		43.20	1.60E+00		-2.26E-01	7.37E-01
	CO-60	1173.22		100.00	1.92E-01	1.49E-01	-3.15E-02	9.02E-02
		1332.49		100.00	1.49E-01		-8.62E-02	6.79E-02
	ZN-65	1115.52		50.75	5.89E-01	5.89E-01	-8.32E-02	2.81E-01
	GA-67	93.31		35.70	1.71E+08	1.71E+08	3.57E+08	8.44E+07
		208.95		2.24	2.50E+09		1.99E+09	1.22E+09
		300.22		16.00	4.24E+08		1.59E+08	2.06E+08
	SE-75	121.11		16.70	7.28E-01	2.18E-01	-7.42E-01	3.56E-01
		136.00		59.20	2.18E-01		-1.93E-01	1.07E-01
		264.65		59.80	2.34E-01		-4.83E-01	1.13E-01
		279.53		25.20	6.26E-01		2.05E-01	3.04E-01
		400.65		11.40	1.65E+00		1.55E+00	7.94E-01
	RB-82	776.52		13.00	1.26E+01	1.26E+01	-7.02E+00	5.93E+00
	RB-83	520.41		46.00	4.90E-01	4.90E-01	6.78E-02	2.33E-01
		529.64		30.30	7.39E-01		9.92E-02	3.51E-01
		552.65		16.40	1.23E+00		-7.32E-01	5.80E-01
	KR-85	513.99		0.43	3.09E+01	3.09E+01	2.89E+00	1.49E+01
	SR-85	513.99		99.27	3.68E-01	3.68E-01	3.44E-02	1.77E-01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	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	3.13E-01	2.01E-01	-9.32E-02	1.48E-01
		1836.01		99.38	2.01E-01		-4.53E-02	8.47E-02
	MO-93	263.06		56.72	1.47E-01	1.31E-01	-1.21E-01	7.12E-02
		684.67		99.68	1.31E-01		-2.46E-02	6.23E-02
		1477.11		99.08	1.54E-01		1.05E-01	6.98E-02
	NB-93M	16.57		9.43	9.79E+00	9.79E+00	2.55E+01	4.78E+00
	NB-94	702.63		100.00	1.47E-01	1.47E-01	-4.55E-02	6.99E-02
		871.10		100.00	1.52E-01		1.18E-01	7.20E-02
	NB-95	765.79		99.81	1.22E+00	1.22E+00	1.15E+00	5.85E-01
	NB-95M	235.69		25.00	4.45E+07	4.45E+07	4.34E+07	2.18E+07
	ZR-95	724.18		43.70	9.45E-01	6.90E-01	7.42E-02	4.50E-01
		756.72		55.30	6.90E-01		-1.75E-01	3.26E-01
	MO-99	181.06		6.20	3.66E+10	2.83E+10	1.41E+10	1.79E+10
		739.58		12.80	2.83E+10		1.29E+09	1.34E+10
		778.00		4.50	7.66E+10		-1.29E+10	3.60E+10
	RU-103	497.08		89.00	6.35E-01	6.35E-01	2.45E-01	3.03E-01
	RU-106	621.84		9.80	1.36E+00	1.36E+00	3.55E-01	6.44E-01
	AG-108M	433.93		89.90	1.08E-01	1.08E-01	-5.92E-02	5.16E-02
		614.37		90.40	1.30E-01		-2.07E-02	6.17E-02
		722.95		90.50	1.58E-01		-9.76E-04	7.52E-02
+	CD-109	88.03	*	3.72	5.28E+00	5.28E+00	7.77E+00	2.62E+00
	AG-110M	657.75		93.14	1.80E-01	1.80E-01	-1.04E-01	8.55E-02
		677.61		10.53	1.68E+00		9.23E-01	7.97E-01
		706.67		16.46	1.19E+00		3.11E-01	5.68E-01
		763.93		21.98	1.00E+00		2.61E-01	4.80E-01
		884.67		71.63	2.71E-01		-3.68E-02	1.28E-01
		1384.27		23.94	8.46E-01		-4.74E-02	3.88E-01
	CD-113M	263.70		0.02	3.53E+02	3.53E+02	-6.66E+02	1.71E+02
	SN-113	255.12		1.93	7.94E+00	2.71E-01	-7.53E-01	3.85E+00
		391.69		64.90	2.71E-01		4.10E-02	1.30E-01
	TE123M	159.00		84.10	1.73E-01	1.73E-01	2.12E-02	8.48E-02
	SB-124	602.71		97.87	3.27E-01	3.27E-01	-3.07E-02	1.54E-01
		645.85		7.26	5.01E+00		3.13E+00	2.37E+00
		722.78		11.10	3.86E+00		-2.38E-02	1.83E+00
		1691.02		49.00	7.20E-01		2.26E-01	3.13E-01
	I-125	35.49		6.49	6.50E+00	6.50E+00	-1.92E+00	3.18E+00
	SB-125	176.33		6.89	1.29E+00	3.76E-01	-1.56E-01	6.32E-01
		427.89		29.33	3.76E-01		1.81E-01	1.80E-01
		463.38		10.35	1.10E+00		5.92E-01	5.28E-01
		600.56		17.80	6.28E-01		-1.07E-01	2.96E-01
		635.90		11.32	9.95E-01		4.78E-01	4.68E-01
	SB-126	414.70		83.30	2.71E+01	2.71E+01	-4.76E+00	1.31E+01
		666.33		99.60	2.87E+01		1.33E+01	1.37E+01
		695.00		99.60	3.01E+01		-1.64E+00	1.43E+01
		720.50		53.80	5.03E+01		8.49E+00	2.38E+01
+	SN-126	87.57	*	37.00	4.60E-01	4.60E-01	6.78E-01	2.28E-01
	SB-127	473.00		25.00	1.08E+07	1.02E+07	2.65E+05	5.14E+06
		685.20		35.70	1.02E+07		-1.91E+06	4.82E+06
		783.80		14.70	2.66E+07		8.59E+05	1.26E+07
	I-129	29.78		57.00	3.46E-01	3.46E-01	4.83E-02	1.70E-01
		33.60		13.20	1.17E+00		-9.46E-02	5.72E-01
		39.58		7.52	1.64E+00		6.68E-01	8.02E-01
	I-131	284.30		6.05	5.56E+03	4.07E+02	2.16E+03	2.69E+03

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	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	4.07E+02	4.07E+02	-9.63E+01	1.95E+02
		636.97		7.26	5.44E+03		3.30E+03	2.56E+03
		722.89		1.80	2.94E+04		-1.81E+02	1.39E+04
	TE-132	49.72		13.10	5.10E+08	6.29E+07	4.27E+06	2.51E+08
		228.16		88.00	6.29E+07		1.18E+07	3.06E+07
	BA-133	81.00		33.00	3.23E-01	2.64E-01	-7.90E-01	1.60E-01
		302.84		17.80	5.29E-01		1.50E-01	2.56E-01
		356.01		60.00	2.64E-01		1.59E-02	1.29E-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	8.15E+04	8.15E+04	-1.99E+05	4.02E+04
	CS-134	563.23		8.38	1.38E+00	1.58E-01	-3.91E-02	6.54E-01
		569.32		15.43	8.01E-01		9.71E-02	3.80E-01
		604.70		97.60	1.58E-01		-1.45E+00	7.58E-02
		795.84		85.40	1.76E-01		-9.86E-02	8.30E-02
		801.93		8.73	1.82E+00		-3.46E-01	8.60E-01
+	CS-135	268.24	*	16.00	8.34E-01	8.34E-01	9.36E-01	4.09E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	1.68E+02	2.06E+01	1.58E+01	8.25E+01
		163.89		4.61	2.75E+02		1.47E+02	1.35E+02
		176.55		13.56	9.30E+01		1.40E+00	4.55E+01
		273.65		12.66	1.09E+02		1.95E+01	5.29E+01
		340.57		48.50	3.28E+01		3.31E+01	1.59E+01
		818.50		99.70	2.06E+01		-5.31E+00	9.71E+00
		1048.07		79.60	3.12E+01		7.50E+00	1.46E+01
		1235.34		19.70	1.78E+02		5.60E+00	8.47E+01
	CS-137	661.65		85.12	1.74E-01	1.74E-01	1.60E-01	8.30E-02
	LA-138	788.74		34.00	4.29E-01	1.96E-01	3.78E-02	2.03E-01
		1435.80		66.00	1.96E-01		3.89E-03	8.79E-02
	CE-139	165.85		80.35	1.65E-01	1.65E-01	-6.61E-02	8.09E-02
	BA-140	162.64		6.70	2.19E+02	6.89E+01	1.25E+02	1.07E+02
		304.84		4.50	3.47E+02		-1.36E+02	1.68E+02
		423.70		3.20	5.65E+02		-3.03E+00	2.71E+02
		437.55		2.00	9.01E+02		4.73E+02	4.32E+02
		537.32		25.00	6.89E+01		-2.33E+01	3.26E+01
	LA-140	328.77		20.50	8.42E+01	2.56E+01	1.60E+01	4.07E+01
		487.03		45.50	3.80E+01		-2.25E+01	1.81E+01
		815.85		23.50	1.08E+02		7.87E+01	5.12E+01
		1596.49		95.49	2.56E+01		8.28E-01	1.15E+01
	CE-141	145.44		48.40	1.30E+00	1.30E+00	6.47E-02	6.38E-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	8.73E-01	8.73E-01	-3.52E-01	4.28E-01
	PM-144	476.78		42.00	2.73E-01	1.30E-01	-2.30E-01	1.29E-01
		618.01		98.60	1.30E-01		-2.43E-02	6.15E-02
		696.49		99.49	1.79E-01		4.93E-02	8.54E-02
	PM-145	36.85		21.70	6.20E-01	3.31E-01	4.83E-02	3.04E-01
		37.36		39.70	3.31E-01		2.58E-02	1.62E-01
		42.30		15.10	7.47E-01		-6.00E-02	3.66E-01
		72.40		2.31	4.83E+00		-1.81E+01	2.38E+00
	PM-146	453.90		39.94	2.64E-01	2.64E-01	-2.52E-02	1.26E-01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

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	9.49E-01	2.64E-01	3.47E-01	4.48E-01
	747.13	13.10	1.10E+00		6.78E-01	5.20E-01
ND-147	91.11	28.90	1.48E+02	1.48E+02	4.31E+02	7.29E+01
	531.02	13.10	3.32E+02		1.36E+02	1.58E+02
PM-149	285.90	3.10	2.64E+13	2.64E+13	-5.27E+12	1.28E+13
EU-152	121.78	20.50	3.53E-01	3.53E-01	-9.10E-02	1.73E-01
	244.69	5.40	2.05E+00		1.39E-02	1.00E+00
	344.27	19.13	4.48E-01		-8.85E-02	2.15E-01
	778.89	9.20	1.39E+00		-6.74E-01	6.50E-01
	964.01	10.40	1.74E+00		3.97E-01	8.25E-01
	1085.78	7.22	2.32E+00		-7.13E-01	1.09E+00
	1112.02	9.60	1.77E+00		5.38E-01	8.30E-01
	1407.95	14.94	1.17E+00		6.29E-01	5.41E-01
GD-153	97.43	31.30	3.39E-01	3.39E-01	6.30E-02	1.66E-01
	103.18	22.20	4.27E-01		4.31E-02	2.09E-01
EU-154	123.07	40.50	1.86E-01	1.86E-01	1.24E-01	9.11E-02
	723.30	19.70	7.62E-01		5.98E-02	3.62E-01
	873.19	11.50	1.25E+00		-5.47E-01	5.85E-01
	996.32	10.30	1.67E+00		1.13E+00	7.88E-01
	1004.76	17.90	8.64E-01		-5.02E-03	4.05E-01
	1274.45	35.50	4.46E-01		-2.01E-01	2.06E-01
EU-155	86.50	30.90	3.32E-01	3.32E-01	2.18E-01	1.64E-01
	105.30	20.70	3.59E-01		-2.68E-01	1.76E-01
EU-156	811.77	10.40	1.05E+02	1.05E+02	6.91E+00	4.94E+01
	1153.47	7.20	2.22E+02		1.94E+02	1.05E+02
	1230.71	8.90	1.72E+02		9.03E+00	8.08E+01
HO-166M	184.41	72.60	1.47E-01	1.47E-01	3.97E-01	7.22E-02
	280.45	29.60	3.07E-01		4.29E-02	1.49E-01
	410.94	11.10	9.79E-01		1.28E-01	4.71E-01
	711.69	54.10	2.67E-01		9.64E-03	1.27E-01
TM-171	66.72	0.14	8.24E+01	8.24E+01	7.06E-01	4.06E+01
HF-172	67.35	5.31	2.17E+00	7.48E-01	1.86E-02	1.07E+00
	125.81	11.30	7.48E-01		2.67E-01	3.67E-01
LU-172	181.53	20.60	8.24E+03	4.86E+03	2.18E+03	4.04E+03
	900.72	29.81	9.91E+03		7.40E+02	4.68E+03
	1093.66	62.50	4.86E+03		-1.25E+03	2.27E+03
LU-173	100.72	5.24	1.56E+00	5.20E-01	-3.55E-01	7.64E-01
	272.11	21.20	5.20E-01		2.98E-01	2.53E-01
HF-175	343.40	84.00	2.58E-01	2.58E-01	-5.10E-02	1.24E-01
LU-176	88.34	13.30	7.44E-01	9.31E-02	-2.70E-01	3.67E-01
	201.83	86.00	9.78E-02		-4.71E-02	4.77E-02
	306.78	94.00	9.31E-02		-3.81E-02	4.50E-02
HF-181	133.02	41.70	8.44E-01	5.98E-01	-3.10E-01	4.13E-01
	345.85	17.20	2.37E+00		-4.64E-01	1.14E+00
	482.03	82.80	5.98E-01		2.29E-01	2.85E-01
TA-182	67.75	41.20	4.33E-01	4.33E-01	-8.28E-01	2.14E-01
	1121.30	34.90	1.45E+00		2.97E+00	6.98E-01
	1189.05	16.23	1.98E+00		2.27E-01	9.27E-01
	1221.41	26.98	1.28E+00		7.45E-02	6.03E-01
	1231.02	11.44	3.11E+00		5.69E-01	1.47E+00
IR-192	308.46	29.68	7.27E-01	4.82E-01	-1.26E-01	3.51E-01
	468.07	48.10	4.82E-01		-5.06E-01	2.29E-01
HG-203	279.19	77.30	4.91E-01	4.91E-01	1.44E-01	2.38E-01

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

	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	1.05E-01	1.05E-01	6.29E-02	5.04E-02
		899.15		99.16	1.68E-01		2.88E-02	7.92E-02
		911.74		91.10	2.38E-01		3.03E-01	1.14E-01
	BI-207	569.67		97.72	1.17E-01	1.17E-01	1.41E-02	5.53E-02
		1063.62		74.90	2.04E-01		-5.29E-02	9.52E-02
+	TL-208	583.14	*	30.22	6.35E-01	6.98E-02	1.07E+00	3.08E-01
		860.37	*	4.48	4.46E+00		2.49E+00	2.13E+00
		2614.66	*	35.85	6.98E-02		1.39E+00	0.00E+00
	BI-210M	262.00		45.00	1.87E-01	1.87E-01	-6.92E-02	9.06E-02
		300.00		23.00	4.72E-01		1.77E-01	2.30E-01
+	PB-210	46.50	*	4.25	2.55E+00	2.55E+00	1.34E+00	1.25E+00
	PB-211	404.84		2.90	3.60E+00	3.60E+00	-6.45E-01	1.73E+00
		831.96		2.90	4.89E+00		-2.80E-01	2.31E+00
+	BI-212	727.17	*	11.80	1.39E+00	1.39E+00	1.66E+00	6.62E-01
		1620.62		2.75	4.67E+00		-1.32E-01	2.07E+00
+	PB-212	238.63	*	44.60	3.88E-01	3.88E-01	1.42E+00	1.91E-01
		300.09		3.41	3.19E+00		1.19E+00	1.55E+00
+	BI-214	609.31	*	46.30	4.24E-01	4.24E-01	3.69E+00	2.05E-01
		1120.29	*	15.10	1.66E+00		3.74E+00	7.93E-01
		1764.49	*	15.80	4.61E-01		4.04E+00	1.80E-01
		2204.22		4.98	4.36E+00		4.03E+00	1.98E+00
+	PB-214	295.21	*	19.19	7.63E-01	4.28E-01	3.07E+00	3.74E-01
		351.92	*	37.19	4.28E-01		3.70E+00	2.09E-01
	RN-219	401.80		6.50	1.66E+00	1.66E+00	9.64E-01	8.02E-01
	RA-223	323.87		3.88	2.47E+00	2.47E+00	4.43E-01	1.19E+00
	RA-224	240.98		3.95	3.97E+00	3.97E+00	2.08E+01	1.96E+00
	RA-225	40.00		31.00	3.39E+01	3.39E+01	1.38E+01	1.66E+01
+	RA-226	186.21	*	3.28	4.25E+00	4.25E+00	9.10E+00	2.10E+00
	TH-227	50.10		8.40	1.24E+00	1.10E+00	1.04E-02	6.12E-01
		236.00		11.50	1.10E+00		1.07E+00	5.40E-01
		256.20		6.30	1.42E+00		-4.80E-02	6.88E-01
	AC-228	338.32		11.40	9.74E-01	7.42E-01	1.06E+00	4.72E-01
		911.07		27.70	7.42E-01		9.58E-01	3.55E-01
		969.11		16.60	1.10E+00		-7.25E-02	5.22E-01
	TH-230	48.44		16.90	6.34E-01	6.34E-01	-1.06E-01	3.12E-01
		62.85		4.60	2.43E+00		5.75E+00	1.20E+00
		67.67		0.37	2.71E+01		-5.18E+01	1.34E+01
	PA-231	283.67		1.60	5.68E+00	4.03E+00	2.20E+00	2.75E+00
		302.67		2.30	4.03E+00		1.14E+00	1.95E+00
	TH-231	25.64		14.70	1.91E+00	1.45E+00	-1.24E-01	9.37E-01
		84.21		6.40	1.45E+00		-2.84E+00	7.14E-01
	PA-233	311.98		38.60	2.74E+00	2.74E+00	7.29E-01	1.33E+00
	PA-234	131.20		20.40	3.75E-01	3.75E-01	1.77E-01	1.84E-01
		733.99		8.80	1.38E+00		-4.45E-01	6.46E-01
		946.00		12.00	1.37E+00		1.90E-01	6.46E-01
	PA-234M	1001.03		0.92	1.72E+01	1.72E+01	-2.43E-01	8.10E+00
+	TH-234	63.29	*	3.80	4.35E+00	4.35E+00	6.02E+00	2.15E+00
	U-235	143.76		10.50	7.74E-01	7.74E-01	-5.13E-02	3.80E-01
		163.35		4.70	1.79E+00		1.02E+00	8.76E-01
		205.31		4.70	1.86E+00		-1.46E-01	9.07E-01
+	NP-237	86.50	*	12.60	1.35E+00	1.35E+00	1.99E+00	6.71E-01
	NP-239	106.10		22.70	4.85E+11	4.85E+11	1.66E+11	2.38E+11
		228.18		10.70	1.23E+12		2.31E+11	5.99E+11

Analysis Report for 1707084-12

HTC-A02-S001-1218-01

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	9.64E+11	4.85E+11	-1.18E+10	4.67E+11
AM-241	59.54	35.90	2.89E-01	2.89E-01	-3.82E-02	1.42E-01
AM-243	74.67	66.00	2.07E-01	2.07E-01	1.18E+00	1.03E-01
CM-243	209.75	3.29	2.72E+00	6.47E-01	2.38E+00	1.33E+00
	228.14	10.60	8.28E-01		1.55E-01	4.03E-01
	277.60	14.00	6.47E-01		-7.95E-03	3.14E-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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S001-1218-01

Elapsed Live time: 3600
Elapsed Real Time: 3603

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	6	162
17:	139	136	140	115	104	128	89	104
25:	110	104	126	99	109	111	99	105
33:	108	99	100	127	116	108	121	123
41:	109	134	100	142	171	191	150	133
49:	148	150	180	158	161	178	158	144
57:	181	166	188	214	252	332	345	273
65:	245	204	225	213	228	212	226	253
73:	379	541	526	708	595	304	238	212
81:	208	158	238	232	214	276	301	243
89:	248	247	293	329	298	170	133	144
97:	123	126	154	120	113	125	130	133
105:	121	138	116	143	142	112	130	147
113:	128	123	125	129	96	88	100	115
121:	117	121	124	126	131	114	121	151
129:	106	139	113	118	98	98	110	116
137:	97	134	134	121	101	134	140	140
145:	115	114	110	126	110	119	107	110
153:	134	126	127	109	124	92	111	131
161:	112	99	101	121	106	103	88	111
169:	115	93	107	95	94	97	96	100
177:	101	100	95	104	85	79	117	165
185:	222	239	144	85	79	95	71	83
193:	84	78	96	103	79	77	74	81
201:	87	82	76	78	81	87	90	85
209:	94	91	67	68	68	55	69	73
217:	66	67	53	70	72	62	76	83
225:	60	77	60	64	68	66	60	66
233:	63	73	61	111	210	374	240	164
241:	182	182	76	61	63	57	40	53
249:	52	64	52	46	52	52	61	61
257:	52	75	63	51	42	29	36	42
265:	55	47	53	73	83	69	55	42
273:	43	52	55	50	50	48	51	40
281:	63	46	48	31	57	52	40	37
289:	46	41	41	44	96	250	271	128
297:	61	47	42	59	54	42	35	39
305:	35	35	40	35	46	42	34	44
313:	41	40	32	42	47	36	30	37
321:	53	39	37	35	41	42	49	36
329:	45	48	33	40	45	33	41	52
337:	76	79	45	26	36	27	22	24
345:	28	30	27	39	59	216	447	345
353:	124	35	34	25	36	34	36	28
361:	33	26	20	33	25	24	31	34

369:	22	18	34	26	28	22	26	33

Sample Title: HTC-A02-S001-1218-01

Channel								
377:	32	19	31	27	24	28	31	30
385:	33	39	43	26	31	29	23	32
393:	36	26	22	27	28	41	22	30
401:	34	47	31	26	19	34	20	32
409:	39	39	26	33	33	38	29	28
417:	36	30	29	31	23	27	24	31
425:	27	25	28	22	31	19	21	17
433:	26	27	22	24	29	26	26	20
441:	17	21	21	14	17	24	29	23
449:	25	27	34	16	14	19	25	23
457:	27	19	20	17	21	40	30	21
465:	17	20	19	18	16	16	20	21
473:	11	21	22	14	21	15	19	24
481:	30	24	17	16	15	20	22	25
489:	12	22	17	14	29	17	18	19
497:	16	18	22	13	22	22	19	14
505:	15	23	15	32	45	58	55	26
513:	11	19	19	19	12	20	20	25
521:	21	20	6	19	11	12	17	19
529:	18	17	21	14	17	16	17	14
537:	15	10	15	15	13	23	14	17
545:	12	9	18	17	16	9	15	12
553:	8	14	13	16	15	23	12	21
561:	10	17	18	12	18	14	12	19
569:	20	17	23	16	18	17	16	21
577:	21	22	20	19	29	75	70	44
585:	23	12	11	12	11	15	11	18
593:	16	10	15	15	7	20	11	16
601:	10	12	16	18	12	19	84	232
609:	293	129	37	19	11	11	14	6
617:	14	18	12	16	20	14	11	7
625:	11	16	11	10	16	12	4	8
633:	9	8	14	16	14	14	10	9
641:	11	17	13	17	10	23	15	13
649:	10	13	16	14	14	11	6	9
657:	17	16	11	20	14	20	16	16
665:	24	14	14	8	10	13	10	8
673:	16	10	23	14	13	10	10	14
681:	14	13	10	16	10	6	14	12
689:	17	14	14	17	9	18	15	15
697:	18	17	20	13	9	19	19	11
705:	15	13	17	18	11	19	18	15
713:	5	15	10	14	14	11	7	9
721:	7	12	14	15	24	23	18	20
729:	11	6	9	9	10	6	11	8
737:	13	16	12	11	6	16	11	9
745:	19	9	13	12	8	11	14	3
753:	10	9	12	11	15	11	16	13
761:	18	7	11	15	19	28	29	41
769:	19	12	14	11	12	9	7	11
777:	7	7	9	5	18	7	13	12
785:	11	10	13	14	14	12	9	12
793:	11	14	13	12	7	9	6	10

801:	17	10	15	19	10	16	9	13

Sample Title: HTC-A02-S001-1218-01

Channel								
809:	4	8	14	13	11	9	13	5
817:	10	11	14	8	8	8	8	12
825:	9	9	12	8	11	9	13	11
833:	7	9	11	10	13	14	13	12
841:	11	12	7	10	7	12	8	8
849:	12	12	9	7	8	11	10	14
857:	5	6	15	22	15	13	8	8
865:	8	9	14	13	8	8	15	10
873:	5	15	7	4	9	9	10	18
881:	12	10	9	6	5	8	10	12
889:	7	16	17	8	13	11	14	9
897:	15	10	5	8	13	9	16	9
905:	8	8	11	13	20	34	36	22
913:	9	14	9	12	10	5	4	4
921:	5	9	9	8	10	12	7	5
929:	10	10	10	16	28	12	20	10
937:	11	10	4	6	11	11	11	7
945:	9	11	7	10	20	12	8	7
953:	8	5	8	7	7	9	12	6
961:	9	13	17	11	12	9	23	16
969:	19	9	4	13	12	12	8	9
977:	5	5	6	7	13	4	11	5
985:	7	12	5	6	3	9	5	8
993:	8	9	11	11	10	8	14	14
1001:	8	5	5	6	9	8	13	5
1009:	6	6	11	6	6	4	10	12
1017:	6	7	3	7	9	6	4	9
1025:	12	10	16	7	4	6	7	9
1033:	6	9	4	5	10	10	13	8
1041:	13	5	8	2	11	9	9	12
1049:	9	13	7	12	10	9	7	5
1057:	10	7	5	6	9	10	5	6
1065:	9	5	11	9	8	9	8	8
1073:	9	4	7	7	8	6	7	18
1081:	10	7	9	9	9	5	15	7
1089:	5	5	11	10	7	7	11	3
1097:	10	6	8	8	5	11	12	1
1105:	9	5	7	13	8	13	10	7
1113:	6	8	3	11	13	27	58	56
1121:	24	15	7	13	11	11	12	4
1129:	8	9	9	6	16	9	8	13
1137:	11	7	11	8	6	8	10	9
1145:	9	9	11	7	6	9	14	12
1153:	14	11	17	17	9	7	8	1
1161:	8	7	8	7	6	6	13	8
1169:	15	11	7	11	2	11	6	8
1177:	13	9	12	12	5	7	12	5
1185:	8	5	11	4	11	7	12	9
1193:	10	11	6	7	5	16	10	5
1201:	9	12	4	12	5	10	8	8
1209:	8	11	7	11	13	10	10	6
1217:	14	9	12	7	9	10	9	7
1225:	9	6	6	17	7	9	11	16

1233:	7	9	8	15	26	20	11	17

Sample Title: HTC-A02-S001-1218-01

Channel								
1241:	7	6	5	14	6	7	11	5
1249:	5	10	8	6	6	14	10	8
1257:	12	3	5	19	6	5	5	6
1265:	3	8	7	9	4	4	6	7
1273:	4	7	4	4	7	6	7	8
1281:	8	9	5	8	9	1	9	5
1289:	5	4	7	4	5	6	4	7
1297:	4	7	2	2	2	6	7	9
1305:	9	3	6	4	8	4	8	5
1313:	7	1	7	7	3	7	5	3
1321:	6	9	5	4	9	7	5	3
1329:	5	1	2	1	7	6	5	8
1337:	7	5	4	3	4	10	2	3
1345:	7	5	4	6	5	6	4	4
1353:	1	3	6	8	6	4	7	3
1361:	6	3	8	2	3	2	1	7
1369:	2	3	5	2	0	7	4	14
1377:	13	14	8	6	4	7	4	4
1385:	4	8	3	2	7	0	6	1
1393:	4	6	6	3	2	2	7	4
1401:	6	5	2	7	5	7	7	9
1409:	4	3	6	3	2	5	2	3
1417:	4	3	5	5	3	1	2	1
1425:	5	3	8	4	1	3	3	2
1433:	4	0	1	3	6	2	5	2
1441:	4	3	3	1	2	3	6	2
1449:	4	2	4	2	4	7	6	1
1457:	7	24	95	151	133	40	10	4
1465:	3	2	0	1	5	4	1	1
1473:	1	2	4	7	4	4	3	2
1481:	7	0	2	1	3	3	3	1
1489:	2	0	5	5	2	3	2	7
1497:	2	3	1	1	3	5	1	3
1505:	1	4	6	7	13	4	4	3
1513:	2	4	7	5	3	2	5	3
1521:	4	2	6	3	4	4	3	3
1529:	1	2	4	1	2	3	3	5
1537:	5	0	2	4	1	3	4	6
1545:	3	2	6	1	0	4	1	2
1553:	5	0	0	3	0	1	1	1
1561:	1	1	1	3	3	0	2	3
1569:	1	0	3	2	6	2	1	6
1577:	4	5	1	3	6	2	4	4
1585:	2	4	4	7	2	6	4	1
1593:	2	4	2	4	0	4	6	2
1601:	1	3	0	1	2	2	3	3
1609:	0	4	3	1	4	3	2	2
1617:	0	2	4	4	2	1	3	2
1625:	1	2	2	3	4	1	1	2
1633:	1	3	3	1	2	1	4	1
1641:	0	2	1	4	2	2	4	0
1649:	0	3	2	2	2	1	4	2
1657:	0	5	3	5	3	3	2	1

1665:	2	3	1	1	0	1	1	3

Sample Title: HTC-A02-S001-1218-01

Channel								
1673:	2	4	2	3	2	2	0	0
1681:	0	0	1	2	1	2	1	1
1689:	2	2	4	0	1	3	1	0
1697:	1	0	0	2	4	0	3	0
1705:	2	1	4	2	0	0	1	3
1713:	3	0	1	2	1	0	0	0
1721:	0	0	1	2	1	1	4	7
1729:	11	4	3	3	0	1	2	1
1737:	0	1	3	1	1	3	1	1
1745:	2	2	2	4	0	1	2	0
1753:	0	0	2	2	0	0	2	3
1761:	5	11	26	35	21	7	0	1
1769:	1	3	2	1	3	0	3	2
1777:	0	0	2	2	1	1	1	0
1785:	1	0	1	0	3	1	0	2
1793:	2	1	1	1	0	1	3	2
1801:	1	0	1	1	2	2	0	1
1809:	1	2	1	1	0	1	1	4
1817:	1	1	0	0	1	1	2	0
1825:	3	1	0	2	1	1	2	1
1833:	0	2	4	1	0	2	0	0
1841:	2	1	2	0	3	3	6	2
1849:	2	1	1	1	1	2	1	1
1857:	0	0	1	1	1	1	3	3
1865:	1	1	1	1	2	1	2	2
1873:	1	0	0	0	2	0	1	0
1881:	0	2	1	0	2	0	1	2
1889:	0	3	2	3	1	2	3	1
1897:	1	1	1	4	2	1	1	0
1905:	1	1	4	0	0	0	0	1
1913:	1	4	0	1	0	0	0	1
1921:	0	1	0	1	0	0	0	1
1929:	1	0	1	1	1	2	2	1
1937:	1	2	1	1	1	2	0	0
1945:	1	1	1	0	0	0	3	2
1953:	2	3	1	1	1	0	3	1
1961:	0	0	2	0	0	1	4	4
1969:	2	3	0	0	1	0	2	1
1977:	1	1	2	2	0	3	1	1
1985:	1	0	0	2	0	2	2	1
1993:	0	2	1	1	1	0	1	1
2001:	2	0	1	0	2	0	1	4
2009:	1	1	3	1	0	0	0	1
2017:	0	2	1	1	0	0	0	0
2025:	2	1	1	0	2	0	2	1
2033:	1	1	0	3	1	0	2	1
2041:	0	0	1	0	0	2	0	0
2049:	0	1	0	0	1	0	0	1
2057:	2	0	1	1	0	0	1	0
2065:	1	3	1	0	0	1	0	1
2073:	1	1	0	3	1	0	0	2
2081:	1	1	0	1	0	1	1	0
2089:	1	1	0	0	0	1	1	0

2097:	2	2	1	0	0	1	0	2

Sample Title: HTC-A02-S001-1218-01

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

2529:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1218-01

Channel								
2537:	0	0	1	0	1	0	0	0
2545:	0	0	0	0	1	0	0	1
2553:	0	0	0	0	1	0	1	0
2561:	0	1	0	0	0	0	0	0
2569:	0	0	0	0	0	0	0	1
2577:	0	0	0	0	0	1	1	0
2585:	0	1	0	1	0	1	0	1
2593:	1	1	0	0	0	0	0	0
2601:	0	0	0	0	0	1	0	1
2609:	0	0	4	3	11	12	9	9
2617:	2	3	1	0	0	0	0	0
2625:	1	0	0	0	0	0	0	0
2633:	0	1	1	0	0	0	0	0
2641:	0	2	0	0	0	0	0	0
2649:	0	0	1	0	0	0	0	0
2657:	0	0	0	0	0	0	0	2
2665:	0	0	0	0	0	0	0	0
2673:	0	0	0	0	0	0	0	1
2681:	0	0	0	0	0	1	0	0
2689:	0	1	0	0	0	1	1	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	1	0	0	0
2713:	0	0	0	0	0	0	1	1
2721:	0	0	0	0	1	0	0	1
2729:	1	0	0	0	1	0	0	0
2737:	0	0	0	1	0	1	0	0
2745:	0	1	0	0	0	0	0	2
2753:	0	0	1	0	0	0	0	0
2761:	0	0	0	0	0	0	0	0
2769:	0	0	0	0	0	0	1	1
2777:	0	0	0	0	0	0	0	0
2785:	0	0	0	0	0	0	0	0
2793:	0	0	0	0	0	1	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	1	0
2825:	0	0	0	0	0	2	1	0
2833:	1	1	0	0	0	0	0	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	0	0	0	0	0	0
2857:	0	0	0	0	0	0	0	0
2865:	1	1	0	0	0	0	1	0
2873:	0	0	0	1	0	0	0	0
2881:	0	0	1	1	1	0	2	0
2889:	0	1	0	0	0	0	0	0
2897:	0	0	0	0	0	0	0	0
2905:	0	1	1	2	1	0	0	1
2913:	1	0	0	0	0	0	0	1
2921:	0	1	0	0	1	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	0	0	1	1	0	1	0
2945:	1	0	0	0	0	0	1	0
2953:	0	0	0	0	0	1	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1218-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1218-01

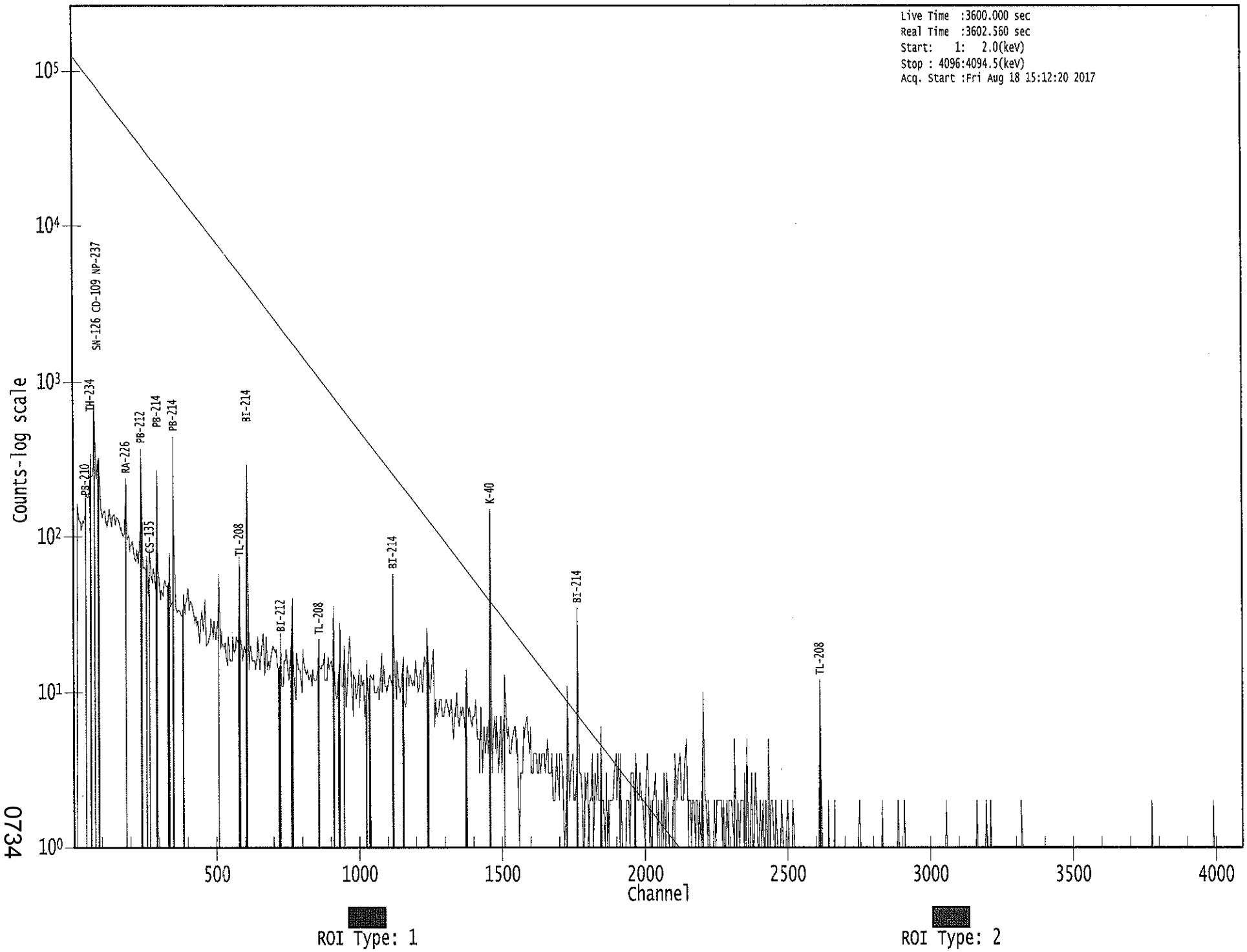
Channel								
3401:	0	1	0	0	0	0	0	1
3409:	0	0	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	1	0	0	0	0
3441:	0	0	1	0	0	0	0	0
3449:	0	0	0	0	0	1	0	0
3457:	0	1	0	0	0	0	0	0
3465:	0	1	0	0	0	0	0	0
3473:	0	0	0	0	0	0	1	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	1	0	0	0
3497:	1	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1218-01

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

0000055525.CNF



0734

Apex-Gamma

Analysis Report for 1707084-13
HTC-A02-S001-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-13
Sample Description	: HTC-A02-S001-1824-01
Sample Type	: SOIL
Sample Size	: 5.779E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:08:01AM
Acquisition Started	: 8/18/2017 3:39:39PM
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	: 55526

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/21/17

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 4:39:43PM
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	45.87	46.49	0.0000	0.00
2	62.85	63.45	0.0000	0.00
3	74.56	75.15	0.0000	0.00
4	77.30	77.89	0.0000	0.00
5	87.37	87.95	0.0000	0.00
6	92.71	93.29	0.0000	0.00
7	185.68	186.16	0.0000	0.00
8	209.13	209.58	0.0000	0.00
9	235.42	235.84	0.0000	0.00
10	238.69	239.11	0.0000	0.00
11	241.67	242.09	0.0000	0.00
12	256.17	256.58	0.0000	0.00
13	270.01	270.40	0.0000	0.00
14	295.32	295.69	0.0000	0.00
15	300.26	300.63	0.0000	0.00
16	327.40	327.73	0.0000	0.00
17	338.42	338.75	0.0000	0.00
18	351.94	352.25	0.0000	0.00
19	433.07	433.29	0.0000	0.00
20	463.29	463.49	0.0000	0.00
21	510.92	511.07	0.0000	0.00
22	583.31	583.39	0.0000	0.00
23	609.41	609.46	0.0000	0.00
24	615.34	615.38	0.0000	0.00
25	620.58	620.62	0.0000	0.00
26	627.35	627.38	0.0000	0.00
27	674.56	674.55	0.0000	0.00
28	727.43	727.36	0.0000	0.00
29	768.28	768.17	0.0000	0.00
30	785.27	785.15	0.0000	0.00
31	795.12	794.99	0.0000	0.00
32	842.41	842.23	0.0000	0.00
33	863.13	862.93	0.0000	0.00
34	893.50	893.26	0.0000	0.00
35	911.64	911.39	0.0000	0.00
36	969.55	969.24	0.0000	0.00
37	1000.86	1000.51	0.0000	0.00
38	1053.50	1053.10	0.0000	0.00
39	1121.01	1120.55	0.0000	0.00
40	1148.12	1147.63	0.0000	0.00
41	1238.45	1237.87	0.0000	0.00
42	1292.36	1291.73	0.0000	0.00

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1304.78	1304.14	0.0000	0.00
44	1367.90	1367.19	0.0000	0.00
45	1377.28	1376.57	0.0000	0.00
46	1407.86	1407.11	0.0000	0.00
47	1414.06	1413.31	0.0000	0.00
48	1420.55	1419.80	0.0000	0.00
49	1461.21	1460.41	0.0000	0.00
50	1513.91	1513.06	0.0000	0.00
51	1588.45	1587.53	0.0000	0.00
52	1592.92	1592.00	0.0000	0.00
53	1621.18	1620.22	0.0000	0.00
54	1631.18	1630.22	0.0000	0.00
55	1731.07	1730.01	0.0000	0.00
56	1765.01	1763.92	0.0000	0.00
57	1784.73	1783.62	0.0000	0.00
58	1825.26	1824.11	0.0000	0.00
59	1847.47	1846.30	0.0000	0.00
60	1889.87	1888.66	0.0000	0.00
61	2011.39	2010.06	0.0000	0.00
62	2077.39	2076.00	0.0000	0.00
63	2104.22	2102.80	0.0000	0.00
64	2173.32	2171.83	0.0000	0.00
65	2204.14	2202.62	0.0000	0.00
66	2257.77	2256.20	0.0000	0.00
67	2448.04	2446.29	0.0000	0.00
68	2614.98	2613.08	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 4:39:43PM

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	45.87	43 -	49	46.49	1.94E+02	84.11	1.15E+03	1.84
	2	62.85	59 -	66	63.45	2.33E+02	119.47	2.23E+03	1.41
M	3	74.56	72 -	82	75.15	3.81E+02	100.03	1.64E+03	1.65
m	4	77.30	72 -	82	77.89	6.84E+02	107.97	1.52E+03	1.65
	5	87.37	86 -	89	87.95	6.49E+01	78.26	1.47E+03	0.99
	6	92.71	90 -	97	93.29	4.52E+02	124.84	2.20E+03	1.98
	7	185.68	182 -	190	186.16	3.07E+02	93.14	1.15E+03	2.31
	8	209.13	205 -	215	209.58	1.34E+02	102.47	1.32E+03	2.42
M	9	235.42	234 -	250	235.84	4.52E+01	42.52	4.24E+02	1.93
m	10	238.69	234 -	250	239.11	1.02E+03	81.79	5.01E+02	1.70
m	11	241.67	234 -	250	242.09	3.43E+02	101.13	7.69E+02	2.67
	12	256.17	253 -	260	256.58	5.33E+01	64.09	6.51E+02	4.83
	13	270.01	266 -	274	270.40	1.15E+02	68.74	6.54E+02	2.26
M	14	295.32	291 -	303	295.69	3.52E+02	54.06	3.48E+02	1.64
m	15	300.26	291 -	303	300.63	9.89E+01	55.41	4.69E+02	2.22
	16	327.40	324 -	332	327.73	7.81E+01	62.60	5.58E+02	1.42
	17	338.42	334 -	343	338.75	2.61E+02	72.90	6.09E+02	1.77
	18	351.94	347 -	357	352.25	5.71E+02	87.72	7.23E+02	1.87
	19	433.07	431 -	436	433.29	3.05E+01	35.07	2.21E+02	2.99
m	20	463.29	449 -	468	463.49	8.51E+01	49.79	3.27E+02	2.89
	21	510.92	506 -	516	511.07	2.07E+02	59.28	3.60E+02	2.10
	22	583.31	578 -	588	583.39	3.39E+02	63.21	3.52E+02	2.13
M	23	609.41	605 -	630	609.46	4.85E+02	50.97	1.48E+02	2.01
m	24	615.34	605 -	630	615.38	3.76E+01	32.49	1.48E+02	2.49
m	25	620.58	605 -	630	620.62	2.18E+01	31.23	1.43E+02	2.50
m	26	627.35	605 -	630	627.38	3.36E+01	31.36	1.36E+02	2.50
	27	674.56	670 -	680	674.55	3.70E+01	43.30	2.28E+02	4.24
	28	727.43	724 -	731	727.36	5.35E+01	38.26	2.09E+02	1.74
	29	768.28	762 -	774	768.17	1.21E+02	45.02	1.80E+02	2.86
	30	785.27	781 -	789	785.15	3.96E+01	37.99	1.97E+02	2.43
	31	795.12	791 -	798	794.99	4.36E+01	34.64	1.69E+02	1.32
	32	842.41	839 -	845	842.23	2.25E+01	26.53	1.11E+02	1.14
	33	863.13	855 -	872	862.93	9.63E+01	56.96	2.55E+02	3.60
	34	893.50	890 -	896	893.26	2.99E+01	25.99	1.00E+02	3.80
	35	911.64	909 -	915	911.39	2.36E+02	38.72	1.00E+02	2.53
	36	969.55	966 -	973	969.24	1.06E+02	44.14	2.34E+02	1.61
	37	1000.86	997 -	1004	1000.51	3.17E+01	26.61	9.85E+01	1.36
	38	1053.50	1049 -	1057	1053.10	4.96E+01	29.97	1.07E+02	5.09
	39	1121.01	1116 -	1125	1120.55	9.53E+01	43.77	2.17E+02	2.37
	40	1148.12	1145 -	1151	1147.63	2.80E+01	25.51	9.80E+01	2.60

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1238.45	1231	1244	1237.87	5.55E+01	59.13	3.63E+02	2.57
	42	1292.36	1288	1295	1291.73	1.68E+01	21.82	6.84E+01	4.56
	43	1304.78	1301	1308	1304.14	2.49E+01	22.18	6.01E+01	2.08
	44	1367.90	1362	1372	1367.19	2.22E+01	21.36	4.75E+01	1.28
	45	1377.28	1373	1380	1376.57	1.96E+01	20.40	5.68E+01	2.03
M	46	1407.86	1397	1416	1407.11	2.16E+01	17.44	1.81E+01	3.18
m	47	1414.06	1397	1416	1413.31	1.01E+01	9.80	6.84E+00	3.85
	48	1420.55	1417	1423	1419.80	1.01E+01	11.72	1.79E+01	2.81
	49	1461.21	1454	1466	1460.41	1.37E+03	83.41	1.76E+02	2.26
	50	1513.91	1511	1516	1513.06	1.12E+01	12.49	1.96E+01	1.24
M	51	1588.45	1583	1598	1587.53	1.24E+01	15.14	2.87E+01	3.58
m	52	1592.92	1583	1598	1592.00	1.93E+01	13.46	1.31E+01	2.22
	53	1621.18	1614	1625	1620.22	2.54E+01	14.00	1.12E+01	2.75
	54	1631.18	1626	1635	1630.22	2.05E+01	12.41	1.10E+01	2.05
	55	1731.07	1726	1736	1730.01	2.23E+01	14.24	1.15E+01	5.16
	56	1765.01	1759	1768	1763.92	9.50E+01	22.80	2.00E+01	2.38
	57	1784.73	1780	1786	1783.62	5.36E+00	6.34	3.29E+00	1.24
	58	1825.26	1820	1827	1824.11	9.00E+00	6.00	0.00E+00	1.47
	59	1847.47	1843	1849	1846.30	2.15E+01	12.69	1.30E+01	2.12
	60	1889.87	1886	1890	1888.66	4.83E+00	5.50	2.33E+00	1.44
	61	2011.39	2005	2014	2010.06	1.26E+01	9.22	4.80E+00	4.54
	62	2077.39	2074	2078	2076.00	6.00E+00	4.90	0.00E+00	2.88
	63	2104.22	2098	2107	2102.80	1.50E+01	14.00	1.80E+01	3.89
	64	2173.32	2169	2174	2171.83	5.00E+00	7.07	6.00E+00	1.13
	65	2204.14	2198	2207	2202.62	2.27E+01	15.23	2.07E+01	3.54
	66	2257.77	2252	2261	2256.20	8.27E+00	8.31	5.45E+00	1.36
	67	2448.04	2443	2450	2446.29	1.04E+01	8.00	3.17E+00	1.28
	68	2614.98	2609	2617	2613.08	1.32E+02	22.98	0.00E+00	2.61

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 4:39:43PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	45.87	43 -	49	1.94E+02	84.11	1.15E+03	6.52E+01
	2	62.85	59 -	66	2.33E+02	119.47	2.23E+03	9.49E+01
M	3	74.56	72 -	82	3.81E+02	100.03	1.64E+03	6.65E+01
m	4	77.30	72 -	82	6.84E+02	107.97	1.52E+03	6.40E+01
	5	87.37	86 -	89	6.49E+01	78.26	1.47E+03	6.29E+01
	6	92.71	90 -	97	4.52E+02	124.84	2.20E+03	9.65E+01
	7	185.68	182 -	190	3.07E+02	93.14	1.15E+03	7.09E+01
	8	209.13	205 -	215	1.34E+02	102.47	1.32E+03	8.21E+01
M	9	235.42	234 -	250	4.52E+01	42.52	4.24E+02	3.38E+01
m	10	238.69	234 -	250	1.02E+03	81.79	5.01E+02	3.68E+01
m	11	241.67	234 -	250	3.43E+02	101.13	7.69E+02	4.56E+01
	12	256.17	253 -	260	5.33E+01	64.09	6.51E+02	5.13E+01
	13	270.01	266 -	274	1.15E+02	68.74	6.54E+02	5.37E+01
M	14	295.32	291 -	303	3.52E+02	54.06	3.48E+02	3.07E+01
m	15	300.26	291 -	303	9.89E+01	55.41	4.69E+02	3.56E+01
	16	327.40	324 -	332	7.81E+01	62.60	5.58E+02	4.94E+01
	17	338.42	334 -	343	2.61E+02	72.90	6.09E+02	5.37E+01
	18	351.94	347 -	357	5.71E+02	87.72	7.23E+02	6.05E+01
	19	433.07	431 -	436	3.05E+01	35.07	2.21E+02	2.74E+01
m	20	463.29	449 -	468	8.51E+01	49.79	3.27E+02	2.97E+01
	21	510.92	506 -	516	2.07E+02	59.28	3.60E+02	4.26E+01
	22	583.31	578 -	588	3.39E+02	63.21	3.52E+02	4.22E+01
M	23	609.41	605 -	630	4.85E+02	50.97	1.48E+02	2.00E+01
m	24	615.34	605 -	630	3.76E+01	32.49	1.48E+02	2.00E+01
m	25	620.58	605 -	630	2.18E+01	31.23	1.43E+02	1.96E+01
m	26	627.35	605 -	630	3.36E+01	31.36	1.36E+02	1.92E+01
	27	674.56	670 -	680	3.70E+01	43.30	2.28E+02	3.42E+01
	28	727.43	724 -	731	5.35E+01	38.26	2.09E+02	2.91E+01
	29	768.28	762 -	774	1.21E+02	45.02	1.80E+02	3.23E+01
	30	785.27	781 -	789	3.96E+01	37.99	1.97E+02	2.95E+01
	31	795.12	791 -	798	4.36E+01	34.64	1.69E+02	2.63E+01
	32	842.41	839 -	845	2.25E+01	26.53	1.11E+02	2.04E+01
	33	863.13	855 -	872	9.63E+01	56.96	2.55E+02	4.40E+01
	34	893.50	890 -	896	2.99E+01	25.99	1.00E+02	1.94E+01
	35	911.64	909 -	915	2.36E+02	38.72	1.00E+02	1.94E+01
	36	969.55	966 -	973	1.06E+02	44.14	2.34E+02	3.21E+01
	37	1000.86	997 -	1004	3.17E+01	26.61	9.85E+01	1.98E+01
	38	1053.50	1049 -	1057	4.96E+01	29.97	1.07E+02	2.17E+01
	39	1121.01	1116 -	1125	9.53E+01	43.77	2.17E+02	3.22E+01
	40	1148.12	1145 -	1151	2.80E+01	25.51	9.80E+01	1.91E+01
	41	1238.45	1231 -	1244	5.55E+01	59.13	3.63E+02	4.70E+01
	42	1292.36	1288 -	1295	1.68E+01	21.82	6.84E+01	1.66E+01
	43	1304.78	1301 -	1308	2.49E+01	22.18	6.01E+01	1.63E+01
	44	1367.90	1362 -	1372	2.22E+01	21.36	4.75E+01	1.58E+01
	45	1377.28	1373 -	1380	1.96E+01	20.40	5.68E+01	1.51E+01
M	46	1407.86	1397 -	1416	2.16E+01	17.44	1.81E+01	6.99E+00
m	47	1414.06	1397 -	1416	1.01E+01	9.80	6.84E+00	4.30E+00
	48	1420.55	1417 -	1423	1.01E+01	11.72	1.79E+01	8.10E+00
	49	1461.21	1454 -	1466	1.37E+03	83.41	1.76E+02	3.18E+01
	50	1513.91	1511 -	1516	1.12E+01	12.49	1.96E+01	8.67E+00
M	51	1588.45	1583 -	1598	1.24E+01	15.14	2.87E+01	8.81E+00

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	52	1592.92	1583 -	1598	1.93E+01	13.46	1.31E+01	5.95E+00
	53	1621.18	1614 -	1625	2.54E+01	14.00	1.12E+01	7.99E+00
	54	1631.18	1626 -	1635	2.05E+01	12.41	1.10E+01	6.97E+00
	55	1731.07	1726 -	1736	2.23E+01	14.24	1.15E+01	8.76E+00
	56	1765.01	1759 -	1768	9.50E+01	22.80	2.00E+01	9.73E+00
	57	1784.73	1780 -	1786	5.36E+00	6.34	3.29E+00	3.57E+00
	58	1825.26	1820 -	1827	9.00E+00	6.00	0.00E+00	0.00E+00
	59	1847.47	1843 -	1849	2.15E+01	12.69	1.30E+01	7.12E+00
	60	1889.87	1886 -	1890	4.83E+00	5.50	2.33E+00	2.72E+00
	61	2011.39	2005 -	2014	1.26E+01	9.22	4.80E+00	4.84E+00
	62	2077.39	2074 -	2078	6.00E+00	4.90	0.00E+00	0.00E+00
	63	2104.22	2098 -	2107	1.50E+01	14.00	1.80E+01	9.59E+00
	64	2173.32	2169 -	2174	5.00E+00	7.07	6.00E+00	4.50E+00
	65	2204.14	2198 -	2207	2.27E+01	15.23	2.07E+01	9.77E+00
	66	2257.77	2252 -	2261	8.27E+00	8.31	5.45E+00	4.93E+00
	67	2448.04	2443 -	2450	1.04E+01	8.00	3.17E+00	3.88E+00
	68	2614.98	2609 -	2617	1.32E+02	22.98	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 : 8/18/2017 4:39:43PM

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	45.87	43 -	49	46.49	1.94E+02	84.11	1.15E+03	PB-210
	2	62.85	59 -	66	63.45	2.33E+02	119.47	2.23E+03	TH-230
									TH-234
M	3	74.56	72 -	82	75.15	3.81E+02	100.03	1.64E+03	AM-243
m	4	77.30	72 -	82	77.89	6.84E+02	107.97	1.52E+03	.....
	5	87.37	86 -	89	87.95	6.49E+01	78.26	1.47E+03	SN-126
									CD-109
									NP-237

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									EU-155
									LU-176
	6	92.71	90 -	97	93.29	4.52E+02	124.84	2.20E+03	GA-67
	7	185.68	182 -	190	186.16	3.07E+02	93.14	1.15E+03	RA-226
	8	209.13	205 -	215	209.58	1.34E+02	102.47	1.32E+03	GA-67
									CM-243
M	9	235.42	234 -	250	235.84	4.52E+01	42.52	4.24E+02	NB-95M
									TH-227
m	10	238.69	234 -	250	239.11	1.02E+03	81.79	5.01E+02	PB-212
m	11	241.67	234 -	250	242.09	3.43E+02	101.13	7.69E+02	RA-224
	12	256.17	253 -	260	256.58	5.33E+01	64.09	6.51E+02	TH-227
	13	270.01	266 -	274	270.40	1.15E+02	68.74	6.54E+02	.....
M	14	295.32	291 -	303	295.69	3.52E+02	54.06	3.48E+02	PB-214
m	15	300.26	291 -	303	300.63	9.89E+01	55.41	4.69E+02	GA-67
									PB-212
									BI-210M
	16	327.40	324 -	332	327.73	7.81E+01	62.60	5.58E+02	.....
	17	338.42	334 -	343	338.75	2.61E+02	72.90	6.09E+02	AC-228
	18	351.94	347 -	357	352.25	5.71E+02	87.72	7.23E+02	PB-214
	19	433.07	431 -	436	433.29	3.05E+01	35.07	2.21E+02	AG-108M
m	20	463.29	449 -	468	463.49	8.51E+01	49.79	3.27E+02	SB-125
	21	510.92	506 -	516	511.07	2.07E+02	59.28	3.60E+02	.....
	22	583.31	578 -	588	583.39	3.39E+02	63.21	3.52E+02	TL-208
M	23	609.41	605 -	630	609.46	4.85E+02	50.97	1.48E+02	BI-214
m	24	615.34	605 -	630	615.38	3.76E+01	32.49	1.48E+02	AG-108M
m	25	620.58	605 -	630	620.62	2.18E+01	31.23	1.43E+02	.....
m	26	627.35	605 -	630	627.38	3.36E+01	31.36	1.36E+02	.....
	27	674.56	670 -	680	674.55	3.70E+01	43.30	2.28E+02	.....
	28	727.43	724 -	731	727.36	5.35E+01	38.26	2.09E+02	BI-212
	29	768.28	762 -	774	768.17	1.21E+02	45.02	1.80E+02	.....
	30	785.27	781 -	789	785.15	3.96E+01	37.99	1.97E+02	.....
	31	795.12	791 -	798	794.99	4.36E+01	34.64	1.69E+02	CS-134
	32	842.41	839 -	845	842.23	2.25E+01	26.53	1.11E+02	.....
	33	863.13	855 -	872	862.93	9.63E+01	56.96	2.55E+02	.....
	34	893.50	890 -	896	893.26	2.99E+01	25.99	1.00E+02	.....
	35	911.64	909 -	915	911.39	2.36E+02	38.72	1.00E+02	TL-204
									AC-228
	36	969.55	966 -	973	969.24	1.06E+02	44.14	2.34E+02	AC-228
	37	1000.86	997 -	1004	1000.51	3.17E+01	26.61	9.85E+01	PA-234M
	38	1053.50	1049 -	1057	1053.10	4.96E+01	29.97	1.07E+02	.....
	39	1121.01	1116 -	1125	1120.55	9.53E+01	43.77	2.17E+02	TA-182
									SC-46
									BI-214
	40	1148.12	1145 -	1151	1147.63	2.80E+01	25.51	9.80E+01	.....
	41	1238.45	1231 -	1244	1237.87	5.55E+01	59.13	3.63E+02	CO-56
	42	1292.36	1288 -	1295	1291.73	1.68E+01	21.82	6.84E+01	FE-59
	43	1304.78	1301 -	1308	1304.14	2.49E+01	22.18	6.01E+01	.....
	44	1367.90	1362 -	1372	1367.19	2.22E+01	21.36	4.75E+01	NA-24
	45	1377.28	1373 -	1380	1376.57	1.96E+01	20.40	5.68E+01	.....
M	46	1407.86	1397 -	1416	1407.11	2.16E+01	17.44	1.81E+01	EU-152
m	47	1414.06	1397 -	1416	1413.31	1.01E+01	9.80	6.84E+00	.....
	48	1420.55	1417 -	1423	1419.80	1.01E+01	11.72	1.79E+01	.....
	49	1461.21	1454 -	1466	1460.41	1.37E+03	83.41	1.76E+02	K-40
	50	1513.91	1511 -	1516	1513.06	1.12E+01	12.49	1.96E+01	.....

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	51	1588.45	1583 -	1598	1587.53	1.24E+01	15.14	2.87E+01	.....
m	52	1592.92	1583 -	1598	1592.00	1.93E+01	13.46	1.31E+01	.....
	53	1621.18	1614 -	1625	1620.22	2.54E+01	14.00	1.12E+01	BI-212
	54	1631.18	1626 -	1635	1630.22	2.05E+01	12.41	1.10E+01	.....
	55	1731.07	1726 -	1736	1730.01	2.23E+01	14.24	1.15E+01	.....
	56	1765.01	1759 -	1768	1763.92	9.50E+01	22.80	2.00E+01	BI-214
	57	1784.73	1780 -	1786	1783.62	5.36E+00	6.34	3.29E+00	.....
	58	1825.26	1820 -	1827	1824.11	9.00E+00	6.00	0.00E+00	.....
	59	1847.47	1843 -	1849	1846.30	2.15E+01	12.69	1.30E+01	.....
	60	1889.87	1886 -	1890	1888.66	4.83E+00	5.50	2.33E+00	.....
	61	2011.39	2005 -	2014	2010.06	1.26E+01	9.22	4.80E+00	.....
	62	2077.39	2074 -	2078	2076.00	6.00E+00	4.90	0.00E+00	.....
	63	2104.22	2098 -	2107	2102.80	1.50E+01	14.00	1.80E+01	.....
	64	2173.32	2169 -	2174	2171.83	5.00E+00	7.07	6.00E+00	.....
	65	2204.14	2198 -	2207	2202.62	2.27E+01	15.23	2.07E+01	BI-214
	66	2257.77	2252 -	2261	2256.20	8.27E+00	8.31	5.45E+00	.....
	67	2448.04	2443 -	2450	2446.29	1.04E+01	8.00	3.17E+00	.....
	68	2614.98	2609 -	2617	2613.08	1.32E+02	22.98	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 : 8/18/2017 4:39:43PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	45.87	1.94E+02	84.11	2.45E-02	2.22E-03
	2	62.85	2.33E+02	119.47	2.70E-02	2.25E-03
M	3	74.56	3.81E+02	100.03	2.75E-02	2.38E-03
m	4	77.30	6.84E+02	107.97	2.75E-02	2.41E-03
	5	87.37	6.49E+01	78.26	2.74E-02	2.51E-03
	6	92.71	4.52E+02	124.84	2.73E-02	2.45E-03
	7	185.68	3.07E+02	93.14	2.17E-02	1.68E-03
	8	209.13	1.34E+02	102.47	2.04E-02	1.61E-03
M	9	235.42	4.52E+01	42.52	1.90E-02	1.54E-03
m	10	238.69	1.02E+03	81.79	1.89E-02	1.53E-03
m	11	241.67	3.43E+02	101.13	1.87E-02	1.52E-03
	12	256.17	5.33E+01	64.09	1.80E-02	1.48E-03

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	13	270.01	1.15E+02	68.74	1.74E-02	1.43E-03
M	14	295.32	3.52E+02	54.06	1.64E-02	1.37E-03
m	15	300.26	9.89E+01	55.41	1.62E-02	1.36E-03
	16	327.40	7.81E+01	62.60	1.53E-02	1.30E-03
	17	338.42	2.61E+02	72.90	1.50E-02	1.27E-03
	18	351.94	5.71E+02	87.72	1.45E-02	1.24E-03
	19	433.07	3.05E+01	35.07	1.25E-02	1.12E-03
m	20	463.29	8.51E+01	49.79	1.19E-02	1.10E-03
	21	510.92	2.07E+02	59.28	1.10E-02	1.07E-03
	22	583.31	3.39E+02	63.21	9.96E-03	1.02E-03
M	23	609.41	4.85E+02	50.97	9.63E-03	1.01E-03
m	24	615.34	3.76E+01	32.49	9.56E-03	1.00E-03
m	25	620.58	2.18E+01	31.23	9.50E-03	9.98E-04
m	26	627.35	3.36E+01	31.36	9.42E-03	9.94E-04
	27	674.56	3.70E+01	43.30	8.91E-03	9.51E-04
	28	727.43	5.35E+01	38.26	8.41E-03	8.67E-04
	29	768.28	1.21E+02	45.02	8.07E-03	8.03E-04
	30	785.27	3.96E+01	37.99	7.93E-03	7.76E-04
	31	795.12	4.36E+01	34.64	7.86E-03	7.60E-04
	32	842.41	2.25E+01	26.53	7.52E-03	6.85E-04
	33	863.13	9.63E+01	56.96	7.38E-03	6.52E-04
	34	893.50	2.99E+01	25.99	7.19E-03	6.04E-04
	35	911.64	2.36E+02	38.72	7.08E-03	5.91E-04
	36	969.55	1.06E+02	44.14	6.76E-03	5.69E-04
	37	1000.86	3.17E+01	26.61	6.60E-03	5.57E-04
	38	1053.50	4.96E+01	29.97	6.36E-03	5.37E-04
	39	1121.01	9.53E+01	43.77	6.07E-03	5.11E-04
	40	1148.12	2.80E+01	25.51	5.96E-03	5.01E-04
	41	1238.45	5.55E+01	59.13	5.64E-03	4.76E-04
	42	1292.36	1.68E+01	21.82	5.47E-03	4.64E-04
	43	1304.78	2.49E+01	22.18	5.43E-03	4.61E-04
	44	1367.90	2.22E+01	21.36	5.25E-03	4.46E-04
	45	1377.28	1.96E+01	20.40	5.22E-03	4.44E-04
M	46	1407.86	2.16E+01	17.44	5.14E-03	4.37E-04
m	47	1414.06	1.01E+01	9.80	5.12E-03	4.36E-04
	48	1420.55	1.01E+01	11.72	5.11E-03	4.34E-04
	49	1461.21	1.37E+03	83.41	5.01E-03	4.25E-04
	50	1513.91	1.12E+01	12.49	4.88E-03	4.12E-04
M	51	1588.45	1.24E+01	15.14	4.71E-03	3.95E-04
m	52	1592.92	1.93E+01	13.46	4.71E-03	3.94E-04
	53	1621.18	2.54E+01	14.00	4.65E-03	3.88E-04
	54	1631.18	2.05E+01	12.41	4.63E-03	3.85E-04
	55	1731.07	2.23E+01	14.24	4.43E-03	3.62E-04
	56	1765.01	9.50E+01	22.80	4.37E-03	3.54E-04
	57	1784.73	5.36E+00	6.34	4.34E-03	3.50E-04
	58	1825.26	9.00E+00	6.00	4.27E-03	3.40E-04
	59	1847.47	2.15E+01	12.69	4.23E-03	3.38E-04
	60	1889.87	4.83E+00	5.50	4.17E-03	3.38E-04
	61	2011.39	1.26E+01	9.22	3.99E-03	3.38E-04
	62	2077.39	6.00E+00	4.90	3.90E-03	3.38E-04
	63	2104.22	1.50E+01	14.00	3.86E-03	3.38E-04
	64	2173.32	5.00E+00	7.07	3.77E-03	3.38E-04
	65	2204.14	2.27E+01	15.23	3.74E-03	3.38E-04

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
66	2257.77	8.27E+00	8.31	3.67E-03	3.38E-04
67	2448.04	1.04E+01	8.00	3.47E-03	3.38E-04
68	2614.98	1.32E+02	22.98	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 : 8/18/2017 4:39:43PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	45.87	1.94E+02	84.11	3.93E+01	8.32E+00	1.55E+02	8.45E+01
	2	62.85	2.33E+02	119.47	9.62E+01	1.46E+01	1.37E+02	1.20E+02
M	3	74.56	3.81E+02	100.03			3.81E+02	1.00E+02
m	4	77.30	6.84E+02	107.97			6.84E+02	1.08E+02
	5	87.37	6.49E+01	78.26			6.49E+01	7.83E+01
	6	92.71	4.52E+02	124.84	1.35E+02	2.05E+01	3.17E+02	1.27E+02
	7	185.68	3.07E+02	93.14	4.68E+01	7.65E+00	2.60E+02	9.35E+01
	8	209.13	1.34E+02	102.47			1.34E+02	1.02E+02
M	9	235.42	4.52E+01	42.52			4.52E+01	4.25E+01
m	10	238.69	1.02E+03	81.79	2.06E+01	6.26E+00	1.00E+03	8.20E+01
m	11	241.67	3.43E+02	101.13			3.43E+02	1.01E+02
	12	256.17	5.33E+01	64.09			5.33E+01	6.41E+01
	13	270.01	1.15E+02	68.74			1.15E+02	6.87E+01
M	14	295.32	3.52E+02	54.06			3.52E+02	5.41E+01
m	15	300.26	9.89E+01	55.41			9.89E+01	5.54E+01
	16	327.40	7.81E+01	62.60			7.81E+01	6.26E+01
	17	338.42	2.61E+02	72.90			2.61E+02	7.29E+01
	18	351.94	5.71E+02	87.72	3.12E+00	4.40E+00	5.68E+02	8.78E+01
	19	433.07	3.05E+01	35.07			3.05E+01	3.51E+01
m	20	463.29	8.51E+01	49.79			8.51E+01	4.98E+01
	21	510.92	2.07E+02	59.28	7.85E+01	5.73E+00	1.28E+02	5.96E+01
	22	583.31	3.39E+02	63.21			3.39E+02	6.32E+01
M	23	609.41	4.85E+02	50.97	6.00E+00	4.13E+00	4.79E+02	5.11E+01
m	24	615.34	3.76E+01	32.49			3.76E+01	3.25E+01
m	25	620.58	2.18E+01	31.23			2.18E+01	3.12E+01
m	26	627.35	3.36E+01	31.36			3.36E+01	3.14E+01
	27	674.56	3.70E+01	43.30			3.70E+01	4.33E+01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	28	727.43	5.35E+01	38.26			5.35E+01	3.83E+01
	29	768.28	1.21E+02	45.02			1.21E+02	4.50E+01
	30	785.27	3.96E+01	37.99			3.96E+01	3.80E+01
	31	795.12	4.36E+01	34.64			4.36E+01	3.46E+01
	32	842.41	2.25E+01	26.53			2.25E+01	2.65E+01
	33	863.13	9.63E+01	56.96			9.63E+01	5.70E+01
	34	893.50	2.99E+01	25.99			2.99E+01	2.60E+01
	35	911.64	2.36E+02	38.72	5.15E+00	3.10E+00	2.31E+02	3.88E+01
	36	969.55	1.06E+02	44.14	0.00E+00	0.00E+00	1.06E+02	4.41E+01
	37	1000.86	3.17E+01	26.61	4.17E+00	2.92E+00	2.76E+01	2.68E+01
	38	1053.50	4.96E+01	29.97			4.96E+01	3.00E+01
	39	1121.01	9.53E+01	43.77			9.53E+01	4.38E+01
	40	1148.12	2.80E+01	25.51			2.80E+01	2.55E+01
	41	1238.45	5.55E+01	59.13			5.55E+01	5.91E+01
	42	1292.36	1.68E+01	21.82			1.68E+01	2.18E+01
	43	1304.78	2.49E+01	22.18			2.49E+01	2.22E+01
	44	1367.90	2.22E+01	21.36			2.22E+01	2.14E+01
	45	1377.28	1.96E+01	20.40			1.96E+01	2.04E+01
M	46	1407.86	2.16E+01	17.44			2.16E+01	1.74E+01
m	47	1414.06	1.01E+01	9.80			1.01E+01	9.80E+00
	48	1420.55	1.01E+01	11.72			1.01E+01	1.17E+01
	49	1461.21	1.37E+03	83.41	4.04E+00	2.32E+00	1.36E+03	8.34E+01
	50	1513.91	1.12E+01	12.49			1.12E+01	1.25E+01
M	51	1588.45	1.24E+01	15.14			1.24E+01	1.51E+01
m	52	1592.92	1.93E+01	13.46			1.93E+01	1.35E+01
	53	1621.18	2.54E+01	14.00			2.54E+01	1.40E+01
	54	1631.18	2.05E+01	12.41			2.05E+01	1.24E+01
	55	1731.07	2.23E+01	14.24			2.23E+01	1.42E+01
	56	1765.01	9.50E+01	22.80			9.50E+01	2.28E+01
	57	1784.73	5.36E+00	6.34			5.36E+00	6.34E+00
	58	1825.26	9.00E+00	6.00			9.00E+00	6.00E+00
	59	1847.47	2.15E+01	12.69			2.15E+01	1.27E+01
	60	1889.87	4.83E+00	5.50			4.83E+00	5.50E+00
	61	2011.39	1.26E+01	9.22			1.26E+01	9.22E+00
	62	2077.39	6.00E+00	4.90			6.00E+00	4.90E+00
	63	2104.22	1.50E+01	14.00			1.50E+01	1.40E+01
	64	2173.32	5.00E+00	7.07			5.00E+00	7.07E+00
	65	2204.14	2.27E+01	15.23			2.27E+01	1.52E+01
	66	2257.77	8.27E+00	8.31			8.27E+00	8.31E+00
	67	2448.04	1.04E+01	8.00			1.04E+01	8.00E+00
	68	2614.98	1.32E+02	22.98	6.52E+00	1.61E+00	1.25E+02	2.30E+01

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

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 4:39:43PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.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	45.87	1.94E+02	84.11	3.93E+01	8.32E+00	1.55E+02	8.45E+01
	2	62.85	2.33E+02	119.47	9.62E+01	1.46E+01	1.37E+02	1.20E+02
M	3	74.56	3.81E+02	100.03			3.81E+02	1.00E+02
m	4	77.30	6.84E+02	107.97			6.84E+02	1.08E+02
	5	87.37	6.49E+01	78.26			6.49E+01	7.83E+01
	6	92.71	4.52E+02	124.84	1.35E+02	2.05E+01	3.17E+02	1.27E+02
	7	185.68	3.07E+02	93.14	4.68E+01	7.65E+00	2.60E+02	9.35E+01
	8	209.13	1.34E+02	102.47			1.34E+02	1.02E+02
M	9	235.42	4.52E+01	42.52			4.52E+01	4.25E+01
m	10	238.69	1.02E+03	81.79	2.06E+01	6.26E+00	1.00E+03	8.20E+01
m	11	241.67	3.43E+02	101.13			3.43E+02	1.01E+02
	12	256.17	5.33E+01	64.09			5.33E+01	6.41E+01
	13	270.01	1.15E+02	68.74			1.15E+02	6.87E+01
M	14	295.32	3.52E+02	54.06			3.52E+02	5.41E+01
m	15	300.26	9.89E+01	55.41			9.89E+01	5.54E+01
	16	327.40	7.81E+01	62.60			7.81E+01	6.26E+01
	17	338.42	2.61E+02	72.90			2.61E+02	7.29E+01
	18	351.94	5.71E+02	87.72	3.12E+00	4.40E+00	5.68E+02	8.78E+01
	19	433.07	3.05E+01	35.07			3.05E+01	3.51E+01
m	20	463.29	8.51E+01	49.79			8.51E+01	4.98E+01
	21	510.92	2.07E+02	59.28	7.85E+01	5.73E+00	1.28E+02	5.96E+01
	22	583.31	3.39E+02	63.21			3.39E+02	6.32E+01
M	23	609.41	4.85E+02	50.97	6.00E+00	4.13E+00	4.79E+02	5.11E+01
m	24	615.34	3.76E+01	32.49			3.76E+01	3.25E+01
m	25	620.58	2.18E+01	31.23			2.18E+01	3.12E+01
m	26	627.35	3.36E+01	31.36			3.36E+01	3.14E+01
	27	674.56	3.70E+01	43.30			3.70E+01	4.33E+01
	28	727.43	5.35E+01	38.26			5.35E+01	3.83E+01
	29	768.28	1.21E+02	45.02			1.21E+02	4.50E+01
	30	785.27	3.96E+01	37.99			3.96E+01	3.80E+01
	31	795.12	4.36E+01	34.64			4.36E+01	3.46E+01
	32	842.41	2.25E+01	26.53			2.25E+01	2.65E+01
	33	863.13	9.63E+01	56.96			9.63E+01	5.70E+01
	34	893.50	2.99E+01	25.99			2.99E+01	2.60E+01
	35	911.64	2.36E+02	38.72	5.15E+00	3.10E+00	2.31E+02	3.88E+01
	36	969.55	1.06E+02	44.14	0.00E+00	0.00E+00	1.06E+02	4.41E+01
	37	1000.86	3.17E+01	26.61	4.17E+00	2.92E+00	2.76E+01	2.68E+01
	38	1053.50	4.96E+01	29.97			4.96E+01	3.00E+01
	39	1121.01	9.53E+01	43.77			9.53E+01	4.38E+01
	40	1148.12	2.80E+01	25.51			2.80E+01	2.55E+01
	41	1238.45	5.55E+01	59.13			5.55E+01	5.91E+01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	42	1292.36	1.68E+01	21.82			1.68E+01	2.18E+01
	43	1304.78	2.49E+01	22.18			2.49E+01	2.22E+01
	44	1367.90	2.22E+01	21.36			2.22E+01	2.14E+01
	45	1377.28	1.96E+01	20.40			1.96E+01	2.04E+01
M	46	1407.86	2.16E+01	17.44			2.16E+01	1.74E+01
m	47	1414.06	1.01E+01	9.80			1.01E+01	9.80E+00
	48	1420.55	1.01E+01	11.72			1.01E+01	1.17E+01
	49	1461.21	1.37E+03	83.41	4.04E+00	2.32E+00	1.36E+03	8.34E+01
	50	1513.91	1.12E+01	12.49			1.12E+01	1.25E+01
M	51	1588.45	1.24E+01	15.14			1.24E+01	1.51E+01
m	52	1592.92	1.93E+01	13.46			1.93E+01	1.35E+01
	53	1621.18	2.54E+01	14.00			2.54E+01	1.40E+01
	54	1631.18	2.05E+01	12.41			2.05E+01	1.24E+01
	55	1731.07	2.23E+01	14.24			2.23E+01	1.42E+01
	56	1765.01	9.50E+01	22.80			9.50E+01	2.28E+01
	57	1784.73	5.36E+00	6.34			5.36E+00	6.34E+00
	58	1825.26	9.00E+00	6.00			9.00E+00	6.00E+00
	59	1847.47	2.15E+01	12.69			2.15E+01	1.27E+01
	60	1889.87	4.83E+00	5.50			4.83E+00	5.50E+00
	61	2011.39	1.26E+01	9.22			1.26E+01	9.22E+00
	62	2077.39	6.00E+00	4.90			6.00E+00	4.90E+00
	63	2104.22	1.50E+01	14.00			1.50E+01	1.40E+01
	64	2173.32	5.00E+00	7.07			5.00E+00	7.07E+00
	65	2204.14	2.27E+01	15.23			2.27E+01	1.52E+01
	66	2257.77	8.27E+00	8.31			8.27E+00	8.31E+00
	67	2448.04	1.04E+01	8.00			1.04E+01	8.00E+00
	68	2614.98	1.32E+02	22.98	6.52E+00	1.61E+00	1.25E+02	2.30E+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	0.975	1460.81	*	10.67	3.31E+01	3.53E+00
AG-108M	0.425	433.93	*	89.90	3.53E-02	4.08E-02
		614.37	*	90.40	5.66E-02	4.93E-02
		722.95		90.50		

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
CD-109	0.932	88.03	*	3.72	9.53E-01	1.15E+00
SN-126	0.994	87.57	*	37.00	8.31E-02	1.01E-01
TL-208	0.877	583.14	*	30.22	1.46E+00	3.11E-01
		860.37		4.48		
		2614.66	*	35.85	1.38E+00	2.89E-01
PB-210	0.938	46.50	*	4.25	1.94E+00	1.08E+00
BI-212	0.982	727.17	*	11.80	7.00E-01	5.06E-01
		1620.62	*	2.75	2.58E+00	1.44E+00
PB-212	0.999	238.63	*	44.60	1.55E+00	1.78E-01
		300.09	*	3.41	2.32E+00	1.31E+00
BI-214	0.976	609.31	*	46.30	1.39E+00	2.08E-01
		1120.29	*	15.10	1.35E+00	6.31E-01
		1764.49	*	15.80	1.79E+00	4.52E-01
		2204.22	*	4.98	1.58E+00	1.07E+00
PB-214	0.999	295.21	*	19.19	1.45E+00	2.53E-01
		351.92	*	37.19	1.36E+00	2.41E-01
RA-224	0.927	240.98	*	3.95	6.03E+00	1.84E+00
RA-226	0.956	186.21	*	3.28	4.74E+00	8.84E+00
TH-227	0.408	50.10		8.40		
		236.00	*	11.50	2.69E-01	2.54E-01
		256.20	*	6.30	6.09E-01	7.34E-01
AC-228	0.965	338.32	*	11.40	1.99E+00	5.81E-01
		911.07	*	27.70	1.53E+00	2.87E-01
		969.11	*	16.60	1.23E+00	5.21E-01
PA-234M	0.995	1001.03	*	0.92	5.90E+00	5.75E+00
TH-234	0.969	63.29	*	3.80	1.74E+00	1.53E+00
NP-237	0.887	86.50	*	12.60	2.44E-01	2.95E-01
AM-243	0.998	74.67	*	66.00	2.73E-01	7.55E-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 : 8/18/2017 4:39:43PM
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	77.30	1.90131E-01	7.89		

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	6	92.71	8.79796E-02	19.97	Sum	
	8	209.13	3.71200E-02	38.34	Tol.	CM-243
	13	270.01	3.18973E-02	29.93		
	16	327.40	2.16912E-02	40.08		
m	20	463.29	2.36271E-02	29.27	Tol.	SB-125
	21	510.92	3.56789E-02	23.18		
m	25	620.58	6.06602E-03	71.51		
m	26	627.35	9.33956E-03	46.64		
	27	674.56	1.02640E-02	58.59	Sum	
	29	768.28	3.36690E-02	18.57	Sum	
	30	785.27	1.09984E-02	47.97	Sum	
	31	795.12	1.20996E-02	39.76	Sum	
	32	842.41	6.24644E-03	59.00		
	33	863.13	2.67380E-02	29.59		
	34	893.50	8.31250E-03	43.42		
	38	1053.50	1.37824E-02	30.20		
	40	1148.12	7.77778E-03	45.56		
	41	1238.45	1.54149E-02	53.27		
	42	1292.36	4.66776E-03	64.92		
	43	1304.78	6.92929E-03	44.46		
	44	1367.90	6.17452E-03	48.05		
	45	1377.28	5.43982E-03	52.08	Sum	
M	46	1407.86	6.00453E-03	40.33	Tol.	EU-152
m	47	1414.06	2.81731E-03	48.30		
	48	1420.55	2.79240E-03	58.27	Sum	
	50	1513.91	3.10847E-03	55.81		
M	51	1588.45	3.45047E-03	60.95		
m	52	1592.92	5.35461E-03	34.92	D-Esc	
	54	1631.18	5.69444E-03	30.27		
	55	1731.07	6.18552E-03	31.97	Sum	
	57	1784.73	1.48810E-03	59.21		
	58	1825.26	2.50000E-03	33.33		
	59	1847.47	5.97222E-03	29.51	Sum	
	60	1889.87	1.34259E-03	56.90		
	61	2011.39	3.50000E-03	36.59		
	62	2077.39	1.66667E-03	40.82	Sum	
	63	2104.22	4.16667E-03	46.67	S-Esc	
	64	2173.32	1.38889E-03	70.71		
	66	2257.77	2.29798E-03	50.20		
	67	2448.04	2.89352E-03	38.40		

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

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.97	1460.81	*	10.67	3.31E+01	3.53E+00
AG-108M	0.42	433.93	*	89.90	3.53E-02	4.08E-02
		614.37	*	90.40	5.66E-02	4.93E-02
		722.95		90.50		
CD-109	0.93	88.03	*	3.72	9.53E-01	1.15E+00
SN-126	0.99	87.57	*	37.00	8.31E-02	1.01E-01
TL-208	0.87	583.14	*	30.22	1.46E+00	3.11E-01
		860.37		4.48		
		2614.66	*	35.85	1.38E+00	2.89E-01
PB-210	0.93	46.50	*	4.25	1.94E+00	1.08E+00
BI-212	0.98	727.17	*	11.80	7.00E-01	5.06E-01
		1620.62	*	2.75	2.58E+00	1.44E+00
PB-212	0.99	238.63	*	44.60	1.55E+00	1.78E-01
		300.09	*	3.41	2.32E+00	1.31E+00
BI-214	0.97	609.31	*	46.30	1.39E+00	2.08E-01
		1120.29	*	15.10	1.35E+00	6.31E-01
		1764.49	*	15.80	1.79E+00	4.52E-01
		2204.22	*	4.98	1.58E+00	1.07E+00
PB-214	0.99	295.21	*	19.19	1.45E+00	2.53E-01
		351.92	*	37.19	1.36E+00	2.41E-01
RA-224	0.92	240.98	*	3.95	6.03E+00	1.84E+00
RA-226	0.95	186.21	*	3.28	4.74E+00	8.84E+00
TH-227	0.40	50.10		8.40		
		236.00	*	11.50	2.69E-01	2.54E-01
		256.20	*	6.30	6.09E-01	7.34E-01
AC-228	0.96	338.32	*	11.40	1.99E+00	5.81E-01
		911.07	*	27.70	1.53E+00	2.87E-01
		969.11	*	16.60	1.23E+00	5.21E-01
PA-234M	0.99	1001.03	*	0.92	5.90E+00	5.75E+00
TH-234	0.96	63.29	*	3.80	1.74E+00	1.53E+00
NP-237	0.88	86.50	*	12.60	2.44E-01	2.95E-01
AM-243	0.99	74.67	*	66.00	2.73E-01	7.55E-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 1707084-13

HTC-A02-S001-1824-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.975	3.31E+01	3.53E+00	
	AG-108M	0.425	4.40E-02	3.14E-02	
?	CD-109	0.932	9.53E-01	1.15E+00	
?	SN-126	0.994	8.31E-02	1.01E-01	
	TL-208	0.877	1.42E+00	2.12E-01	
	PB-210	0.938	1.94E+00	1.08E+00	
	BI-212	0.982	9.07E-01	4.77E-01	
	PB-212	0.999	1.56E+00	1.77E-01	
	BI-214	0.976	1.46E+00	1.79E-01	
	PB-214	0.999	1.41E+00	1.75E-01	
	RA-224	0.927	6.03E+00	1.84E+00	
	RA-226	0.956	4.74E+00	8.84E+00	
	TH-227	0.408	3.05E-01	2.40E-01	
	AC-228	0.965	1.54E+00	2.31E-01	
	PA-234M	0.995	5.90E+00	5.75E+00	
	TH-234	0.969	1.74E+00	1.53E+00	
?	NP-237	0.887	2.44E-01	2.95E-01	
	AM-243	0.998	2.73E-01	7.55E-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 1707084-13

HTC-A02-S001-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 4:39:43PM
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	77.30	1.90131E-01	7.89		
	6	92.71	8.79796E-02	19.97	Sum	
	8	209.13	3.71200E-02	38.34	Tol.	CM-243
	13	270.01	3.18973E-02	29.93		
	16	327.40	2.16912E-02	40.08		
m	20	463.29	2.36271E-02	29.27	Tol.	SB-125
	21	510.92	3.56789E-02	23.18		
m	25	620.58	6.06602E-03	71.51		
m	26	627.35	9.33956E-03	46.64		
	27	674.56	1.02640E-02	58.59	Sum	
	29	768.28	3.36690E-02	18.57	Sum	
	30	785.27	1.09984E-02	47.97	Sum	
	31	795.12	1.20996E-02	39.76	Sum	
	32	842.41	6.24644E-03	59.00		
	33	863.13	2.67380E-02	29.59		
	34	893.50	8.31250E-03	43.42		
	38	1053.50	1.37824E-02	30.20		
	40	1148.12	7.77778E-03	45.56		
	41	1238.45	1.54149E-02	53.27		
	42	1292.36	4.66776E-03	64.92		
	43	1304.78	6.92929E-03	44.46		
	44	1367.90	6.17452E-03	48.05		
	45	1377.28	5.43982E-03	52.08	Sum	
M	46	1407.86	6.00453E-03	40.33	Tol.	EU-152
m	47	1414.06	2.81731E-03	48.30		
	48	1420.55	2.79240E-03	58.27	Sum	
	50	1513.91	3.10847E-03	55.81		
M	51	1588.45	3.45047E-03	60.95		
m	52	1592.92	5.35461E-03	34.92	D-Esc	
	54	1631.18	5.69444E-03	30.27		
	55	1731.07	6.18552E-03	31.97	Sum	
	57	1784.73	1.48810E-03	59.21		
	58	1825.26	2.50000E-03	33.33		
	59	1847.47	5.97222E-03	29.51	Sum	

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
60	1889.87	1.34259E-03	56.90		
61	2011.39	3.50000E-03	36.59		
62	2077.39	1.66667E-03	40.82	Sum	
63	2104.22	4.16667E-03	46.67	S-Esc	
64	2173.32	1.38889E-03	70.71		
66	2257.77	2.29798E-03	50.20		
67	2448.04	2.89352E-03	38.40		

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	1.04E+00	2.19E+00	2.19E+00
+	NA-22	1274.54		99.94	3.24E-02	9.92E-02	9.92E-02
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-1.31E-02	4.81E-02	4.81E-02
+	K-40	1460.81	*	10.67	3.31E+01	1.62E+00	1.62E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	8.29E-03	6.80E-02	6.80E-02
		78.34		96.00	2.44E-01		9.02E-02
+	SC-46	889.25		99.98	8.45E-02	1.83E-01	1.83E-01
		1120.51		99.99	4.01E-01		2.97E-01
+	V-48	983.52		99.98	-2.98E-01	4.07E+00	4.85E+00
		1312.10		97.50	-5.30E-01		4.07E+00
+	CR-51	320.08		9.83	-1.48E+00	6.73E+00	6.73E+00
+	MN-54	834.83		99.97	2.86E-02	9.40E-02	9.40E-02
+	CO-56	846.75		99.96	3.12E-02	1.69E-01	1.69E-01
		1037.75		14.03	8.92E-01		1.43E+00
		1238.25		67.00	5.96E-01		4.83E-01
		1771.40		15.51	2.92E-01		8.65E-01
		2598.48		16.90	-4.28E-02		7.02E-01
+	CO-57	122.06		85.51	4.05E-03	7.57E-02	7.57E-02
		136.48		10.60	-7.34E-02		6.55E-01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CO-58	810.76		99.40	5.76E-02	1.87E-01	1.87E-01
+	FE-59	1099.22		56.50	1.64E-01	6.87E-01	6.87E-01
		1291.56		43.20	5.06E-01		8.52E-01
+	CO-60	1173.22		100.00	-8.40E-03	8.08E-02	9.66E-02
		1332.49		100.00	3.95E-02		8.08E-02
+	ZN-65	1115.52		50.75	2.21E-02	2.21E-01	2.21E-01
+	GA-67	93.31		35.70	2.87E+08	1.28E+08	1.28E+08
		208.95		2.24	1.84E+09		1.76E+09
		300.22		16.00	-7.15E+08		2.73E+08
+	SE-75	121.11		16.70	1.17E-01	1.59E-01	5.25E-01
		136.00		59.20	-1.79E-02		1.59E-01
		264.65		59.80	5.32E-02		1.79E-01
		279.53		25.20	1.43E-01		4.24E-01
		400.65		11.40	-7.47E-02		9.47E-01
+	RB-82	776.52		13.00	1.59E+00	7.60E+00	7.60E+00
+	RB-83	520.41		46.00	-1.11E-02	3.12E-01	3.12E-01
		529.64		30.30	-5.84E-02		4.49E-01
		552.65		16.40	4.98E-02		8.88E-01
+	KR-85	513.99		0.43	3.65E+01	2.23E+01	2.23E+01
+	SR-85	513.99		99.27	4.35E-01	2.65E-01	2.65E-01
+	Y-88	898.02		93.40	-4.96E-02	9.95E-02	1.42E-01
		1836.01		99.38	-2.28E-03		9.95E-02
+	MO-93	263.06		56.72	2.12E-02	6.45E-02	1.09E-01
		684.67		99.68	2.03E-02		6.74E-02
		1477.11		99.08	-3.21E-02		6.45E-02
+	NB-93M	16.57		9.43	1.33E-02	6.04E-01	6.04E-01
+	NB-94	702.63		100.00	3.26E-02	7.28E-02	7.65E-02
		871.10		100.00	-4.17E-03		7.28E-02
+	NB-95	765.79		99.81	6.01E-01	6.03E-01	6.03E-01
+	NB-95M	235.69		25.00	-1.90E+08	2.50E+07	2.50E+07
+	ZR-95	724.18		43.70	8.82E-03	3.54E-01	5.35E-01
		756.72		55.30	-7.35E-02		3.54E-01
+	MO-99	181.06		6.20	6.88E+08	1.56E+10	2.25E+10
		739.58		12.80	1.50E+08		1.56E+10
		778.00		4.50	5.26E+09		4.49E+10
+	RU-103	497.08		89.00	-5.56E-02	3.70E-01	3.70E-01
+	RU-106	621.84		9.80	-3.46E-02	8.35E-01	8.35E-01
+	AG-108M	433.93	*	89.90	3.53E-02	6.66E-02	6.66E-02
		614.37	*	90.40	5.66E-02		2.27E-01
		722.95		90.50	7.56E-03		8.01E-02
+	CD-109	88.03	*	3.72	9.53E-01	1.89E+00	1.89E+00
+	AG-110M	657.75		93.14	2.09E-02	1.00E-01	1.00E-01
		677.61		10.53	-2.51E-01		8.34E-01
		706.67		16.46	-1.86E-01		5.60E-01
		763.93		21.98	-3.13E-01		4.63E-01
		884.67		71.63	-9.78E-03		1.45E-01
		1384.27		23.94	1.83E-01		4.36E-01
+	CD-113M	263.70		0.02	5.23E+01	2.67E+02	2.67E+02

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	SN-113	255.12		1.93	1.41E+00	1.83E-01	4.98E+00
		391.69		64.90	9.90E-02		1.83E-01
+	TE123M	159.00		84.10	-2.97E-02	1.07E-01	1.07E-01
+	SB-124	602.71		97.87	4.73E-02	2.03E-01	2.03E-01
		645.85		7.26	-8.81E-01		2.65E+00
		722.78		11.10	1.84E-01		1.95E+00
		1691.02		49.00	-3.52E-02		2.65E-01
+	I-125	35.49		6.49	-1.82E+00	2.61E+00	2.61E+00
+	SB-125	176.33		6.89	4.26E-01	2.30E-01	8.28E-01
		427.89		29.33	-2.19E-03		2.30E-01
		463.38		10.35	1.07E+00		7.92E-01
		600.56		17.80	2.17E-01		4.15E-01
		635.90		11.32	1.02E-01		6.41E-01
+	SB-126	414.70		83.30	1.77E+00	1.43E+01	1.67E+01
		666.33		99.60	3.81E+00		1.43E+01
		695.00		99.60	-7.27E-01		1.48E+01
		720.50		53.80	1.09E+01		2.82E+01
+	SN-126	87.57	*	37.00	8.31E-02	1.65E-01	1.65E-01
+	SB-127	473.00		25.00	2.71E+06	5.23E+06	7.40E+06
		685.20		35.70	1.58E+06		5.23E+06
		783.80		14.70	1.47E+07		1.69E+07
+	I-129	29.78		57.00	1.58E-03	1.14E-01	1.14E-01
		33.60		13.20	-2.54E-02		4.52E-01
		39.58		7.52	3.57E-01		7.52E-01
+	I-131	284.30		6.05	-1.22E+03	2.61E+02	3.75E+03
		364.48		81.20	1.44E+01		2.61E+02
		636.97		7.26	-9.62E+02		3.38E+03
		722.89		1.80	1.40E+03		1.49E+04
+	TE-132	49.72		13.10	-5.77E+07	4.08E+07	2.69E+08
		228.16		88.00	6.63E+06		4.08E+07
+	BA-133	81.00		33.00	-4.51E-02	1.55E-01	1.90E-01
		302.84		17.80	8.30E-02		4.04E-01
		356.01		60.00	1.13E-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	-1.14E+04	4.80E+04	4.80E+04
+	CS-134	563.23		8.38	3.80E-01	8.84E-02	9.36E-01
		569.32		15.43	-5.25E-03		4.84E-01
		604.70		97.60	9.26E-03		8.84E-02
		795.84		85.40	1.08E-01		1.13E-01
		801.93		8.73	-2.12E-01		8.49E-01
+	CS-135	268.24		16.00	3.93E-01	4.28E-01	4.28E-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	4.60E+01	1.02E+01	1.12E+02
		163.89		4.61	7.57E+01		1.76E+02
		176.55		13.56	3.07E+01		5.96E+01
		273.65		12.66	6.80E+00		7.76E+01
		340.57		48.50	6.11E+01		2.79E+01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	818.50	99.70	-4.89E+00	1.02E+01	1.02E+01
			1048.07	79.60	1.32E+00		1.58E+01
			1235.34	19.70	3.69E+01		9.95E+01
+		CS-137	661.65	85.12	5.34E-03	8.44E-02	8.44E-02
+		LA-138	788.74	34.00	-1.85E-01	9.90E-02	2.26E-01
			1435.80	66.00	-6.07E-03		9.90E-02
+		CE-139	165.85	80.35	-2.04E-02	1.06E-01	1.06E-01
+		BA-140	162.64	6.70	5.07E+01	4.28E+01	1.39E+02
			304.84	4.50	6.59E+01		2.41E+02
			423.70	3.20	1.18E+01		3.54E+02
			437.55	2.00	1.84E+02		5.54E+02
			537.32	25.00	-1.86E+00		4.28E+01
+		LA-140	328.77	20.50	4.07E+01	9.54E+00	5.91E+01
			487.03	45.50	7.18E+00		2.42E+01
			815.85	23.50	-3.27E+00		5.16E+01
			1596.49	95.49	-8.11E+00		9.54E+00
+		CE-141	145.44	48.40	-8.01E-02	8.53E-01	8.53E-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	8.01E-02	6.44E-01	6.44E-01
+		PM-144	476.78	42.00	1.60E-02	8.17E-02	1.88E-01
			618.01	98.60	1.79E-02		8.97E-02
			696.49	99.49	-6.85E-02		8.17E-02
+		PM-145	36.85	21.70	-2.27E-02	1.46E-01	2.64E-01
			37.36	39.70	-2.69E-02		1.46E-01
			42.30	15.10	5.69E-02		3.79E-01
			72.40	2.31	-6.85E+00		3.23E+00
+		PM-146	453.90	39.94	1.31E-01	1.77E-01	1.77E-01
			735.90	14.01	1.72E-02		5.55E-01
			747.13	13.10	-7.44E-02		5.73E-01
+		ND-147	91.11	28.90	1.99E+02	1.10E+02	1.10E+02
			531.02	13.10	8.14E+00		1.97E+02
+		PM-149	285.90	3.10	2.97E+12	1.89E+13	1.89E+13
+		EU-152	121.78	20.50	5.59E-02	2.50E-01	2.50E-01
			244.69	5.40	1.40E-01		1.23E+00
			344.27	19.13	2.32E-02		3.36E-01
			778.89	9.20	3.06E-01		8.62E-01
			964.01	10.40	2.99E-01		1.00E+00
			1085.78	7.22	-1.66E-01		1.12E+00
			1112.02	9.60	-5.61E-02		9.29E-01
			1407.95	14.94	-1.54E-02		5.11E-01
+		GD-153	97.43	31.30	6.87E-02	2.25E-01	2.25E-01
			103.18	22.20	3.04E-02		3.15E-01
+		EU-154	123.07	40.50	-2.06E-03	1.27E-01	1.27E-01
			723.30	19.70	3.54E-02		3.75E-01
			873.19	11.50	4.56E-02		6.38E-01
			996.32	10.30	-4.89E-02		7.11E-01
			1004.76	17.90	7.88E-02		4.99E-01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	1274.45		35.50	8.69E-02	1.27E-01	2.66E-01
+	EU-155	86.50		30.90	1.40E-01	2.38E-01	2.38E-01
		105.30		20.70	1.25E-01		2.69E-01
+	EU-156	811.77		10.40	2.59E+01	5.44E+01	5.44E+01
		1153.47		7.20	2.95E+01		9.38E+01
		1230.71		8.90	-1.90E+01		9.23E+01
+	HO-166M	184.41		72.60	1.91E-01	9.45E-02	9.45E-02
		280.45		29.60	5.45E-03		2.05E-01
		410.94		11.10	1.17E-01		6.13E-01
		711.69		54.10	7.07E-02		1.38E-01
+	TM-171	66.72		0.14	1.75E+01	5.08E+01	5.08E+01
+	HF-172	67.35		5.31	1.62E-01	4.87E-01	1.33E+00
		125.81		11.30	-4.57E-01		4.87E-01
+	LU-172	181.53		20.60	1.48E+02	2.59E+03	4.85E+03
		900.72		29.81	-8.95E+02		4.72E+03
		1093.66		62.50	3.71E+01		2.59E+03
+	LU-173	100.72		5.24	-1.67E-01	3.62E-01	1.15E+00
		272.11		21.20	-2.81E-02		3.62E-01
+	HF-175	343.40		84.00	1.33E-02	1.95E-01	1.95E-01
+	LU-176	88.34		13.30	2.21E-02	6.29E-02	5.48E-01
		201.83		86.00	-1.45E-03		6.29E-02
		306.78		94.00	-1.55E-02		6.36E-02
+	HF-181	133.02		41.70	7.80E-02	3.58E-01	6.28E-01
		345.85		17.20	1.21E-01		1.72E+00
		482.03		82.80	-1.52E-04		3.58E-01
+	TA-182	67.75		41.20	3.37E-02	2.77E-01	2.77E-01
		1121.30		34.90	1.23E+00		7.04E-01
		1189.05		16.23	2.03E-01		1.02E+00
		1221.41		26.98	-5.51E-01		6.67E-01
		1231.02		11.44	-3.41E-01		1.65E+00
+	IR-192	308.46		29.68	-2.30E-01	3.19E-01	4.86E-01
		468.07		48.10	-2.62E-02		3.19E-01
+	HG-203	279.19		77.30	1.11E-01	3.29E-01	3.29E-01
+	TL-204	374.74		94.11	5.93E-04	6.79E-02	6.79E-02
		899.15		99.16	-1.07E-02		7.61E-02
		911.74		91.10	4.79E-01		1.73E-01
+	BI-207	569.67		97.72	-1.31E-02	7.04E-02	7.04E-02
		1063.62		74.90	-4.37E-02		1.06E-01
+	TL-208	583.14	*	30.22	1.46E+00	1.26E-01	3.76E-01
		860.37		4.48	8.74E-01		2.00E+00
		2614.66	*	35.85	1.38E+00		1.26E-01
+	BI-210M	262.00		45.00	2.63E-02	1.39E-01	1.39E-01
		300.00		23.00	-1.27E+00		3.10E-01
+	PB-210	46.50	*	4.25	1.94E+00	1.70E+00	1.70E+00
+	PB-211	404.84		2.90	-1.36E+00	2.13E+00	2.13E+00
		831.96		2.90	-1.30E+00		2.49E+00
+	BI-212	727.17	*	11.80	7.00E-01	7.97E-01	7.97E-01
		1620.62	*	2.75	2.58E+00		1.90E+00

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-212	238.63	*	44.60	1.55E+00	3.20E-01	3.20E-01
		300.09	*	3.41	2.32E+00		3.24E+00
+	BI-214	609.31	*	46.30	1.39E+00	4.17E-01	4.39E-01
		1120.29	*	15.10	1.35E+00		9.52E-01
		1764.49	*	15.80	1.79E+00		4.17E-01
		2204.22	*	4.98	1.58E+00		1.55E+00
+	PB-214	295.21	*	19.19	1.45E+00	2.98E-01	5.59E-01
		351.92	*	37.19	1.36E+00		2.98E-01
+	RN-219	401.80		6.50	1.65E-01	9.59E-01	9.59E-01
+	RA-223	323.87		3.88	-3.72E-02	1.63E+00	1.63E+00
+	RA-224	240.98	*	3.95	6.03E+00	3.69E+00	3.69E+00
+	RA-225	40.00		31.00	8.85E+00	1.58E+01	1.58E+01
+	RA-226	186.21	*	3.28	4.74E+00	2.68E+00	2.68E+00
+	TH-227	50.10		8.40	3.11E-01	6.61E-01	6.61E-01
		236.00	*	11.50	2.69E-01		1.22E+00
		256.20	*	6.30	6.09E-01		1.20E+00
+	AC-228	338.32	*	11.40	1.99E+00	2.82E-01	8.40E-01
		911.07	*	27.70	1.53E+00		2.82E-01
		969.11	*	16.60	1.23E+00		7.75E-01
+	TH-230	48.44		16.90	-1.98E-02	3.46E-01	3.46E-01
		62.85		4.60	2.74E+00		1.54E+00
		67.67		0.37	2.11E+00		1.73E+01
+	PA-231	283.67		1.60	-1.65E+00	3.07E+00	3.80E+00
		302.67		2.30	6.31E-01		3.07E+00
+	TH-231	25.64		14.70	-3.09E+00	5.65E-01	5.65E-01
		84.21		6.40	1.66E-01		1.02E+00
+	PA-233	311.98		38.60	2.63E-01	1.80E+00	1.80E+00
+	PA-234	131.20		20.40	2.56E-02	2.69E-01	2.69E-01
		733.99		8.80	6.65E-02		8.45E-01
		946.00		12.00	2.48E-01		6.97E-01
+	PA-234M	1001.03	*	0.92	5.90E+00	9.24E+00	9.24E+00
+	TH-234	63.29	*	3.80	1.74E+00	2.50E+00	2.50E+00
+	U-235	143.76		10.50	1.89E-01	5.26E-01	5.26E-01
		163.35		4.70	4.90E-01		1.14E+00
		205.31		4.70	-1.18E+00		1.19E+00
+	NP-237	86.50	*	12.60	2.44E-01	4.84E-01	4.84E-01
+	NP-239	106.10		22.70	1.43E+10	3.52E+11	3.52E+11
		228.18		10.70	1.30E+11		7.99E+11
		277.60		14.10	1.09E+11		6.57E+11
+	AM-241	59.54		35.90	-2.67E-01	1.67E-01	1.67E-01
+	AM-243	74.67	*	66.00	2.73E-01	1.77E-01	1.77E-01
+	CM-243	209.75		3.29	1.76E+00	4.39E-01	1.91E+00
		228.14		10.60	8.70E-02		5.35E-01
		277.60		14.00	7.27E-02		4.39E-01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

+ = 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	2.19E+00	2.19E+00	1.04E+00	1.04E+00
	NA-22	1274.54		99.94	9.92E-02	9.92E-02	3.24E-02	4.62E-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	4.81E-02	4.81E-02	-1.31E-02	1.99E-02
+	K-40	1460.81	*	10.67	1.62E+00	1.62E+00	3.31E+01	7.78E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.80E-02	6.80E-02	8.29E-03	3.33E-02
		78.34		96.00	9.02E-02		2.44E-01	4.45E-02
	SC-46	889.25		99.98	1.83E-01	1.83E-01	8.45E-02	8.59E-02
		1120.51		99.99	2.97E-01		4.01E-01	1.42E-01
	V-48	983.52		99.98	4.85E+00	4.07E+00	-2.98E-01	2.26E+00
		1312.10		97.50	4.07E+00		-5.30E-01	1.83E+00
	CR-51	320.08		9.83	6.73E+00	6.73E+00	-1.48E+00	3.24E+00
	MN-54	834.83		99.97	9.40E-02	9.40E-02	2.86E-02	4.41E-02
	CO-56	846.75		99.96	1.69E-01	1.69E-01	3.12E-02	7.92E-02
		1037.75		14.03	1.43E+00		8.92E-01	6.71E-01
		1238.25		67.00	4.83E-01		5.96E-01	2.31E-01
		1771.40		15.51	8.65E-01		2.92E-01	3.73E-01
		2598.48		16.90	7.02E-01		-4.28E-02	2.79E-01
	CO-57	122.06		85.51	7.57E-02	7.57E-02	4.05E-03	3.69E-02
		136.48		10.60	6.55E-01		-7.34E-02	3.19E-01
	CO-58	810.76		99.40	1.87E-01	1.87E-01	5.76E-02	8.76E-02
	FE-59	1099.22		56.50	6.87E-01	6.87E-01	1.64E-01	3.21E-01
		1291.56		43.20	8.52E-01		5.06E-01	3.93E-01
	CO-60	1173.22		100.00	9.66E-02	8.08E-02	-8.40E-03	4.52E-02
		1332.49		100.00	8.08E-02		3.95E-02	3.70E-02
	ZN-65	1115.52		50.75	2.21E-01	2.21E-01	2.21E-02	1.03E-01
	GA-67	93.31		35.70	1.28E+08	1.28E+08	2.87E+08	6.28E+07

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	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	1.76E+09	1.28E+08	1.84E+09	8.55E+08
		300.22		16.00	2.73E+08		-7.15E+08	1.32E+08
	SE-75	121.11		16.70	5.25E-01	1.59E-01	1.17E-01	2.55E-01
		136.00		59.20	1.59E-01		-1.79E-02	7.76E-02
		264.65		59.80	1.79E-01		5.32E-02	8.64E-02
		279.53		25.20	4.24E-01		1.43E-01	2.05E-01
		400.65		11.40	9.47E-01		-7.47E-02	4.53E-01
	RB-82	776.52		13.00	7.60E+00	7.60E+00	1.59E+00	3.58E+00
	RB-83	520.41		46.00	3.12E-01	3.12E-01	-1.11E-02	1.48E-01
		529.64		30.30	4.49E-01		-5.84E-02	2.13E-01
		552.65		16.40	8.88E-01		4.98E-02	4.22E-01
	KR-85	513.99		0.43	2.23E+01	2.23E+01	3.65E+01	1.08E+01
	SR-85	513.99		99.27	2.65E-01	2.65E-01	4.35E-01	1.28E-01
	Y-88	898.02		93.40	1.42E-01	9.95E-02	-4.96E-02	6.61E-02
		1836.01		99.38	9.95E-02		-2.28E-03	4.20E-02
	MO-93	263.06		56.72	1.09E-01	6.45E-02	2.12E-02	5.25E-02
		684.67		99.68	6.74E-02		2.03E-02	3.17E-02
		1477.11		99.08	6.45E-02		-3.21E-02	2.86E-02
	NB-93M	16.57		9.43	6.04E-01	6.04E-01	1.33E-02	2.85E-01
	NB-94	702.63		100.00	7.65E-02	7.28E-02	3.26E-02	3.62E-02
		871.10		100.00	7.28E-02		-4.17E-03	3.40E-02
	NB-95	765.79		99.81	6.03E-01	6.03E-01	6.01E-01	2.87E-01
	NB-95M	235.69		25.00	2.50E+07	2.50E+07	-1.90E+08	1.22E+07
	ZR-95	724.18		43.70	5.35E-01	3.54E-01	8.82E-03	2.54E-01
		756.72		55.30	3.54E-01		-7.35E-02	1.66E-01
	MO-99	181.06		6.20	2.25E+10	1.56E+10	6.88E+08	1.09E+10
		739.58		12.80	1.56E+10		1.50E+08	7.35E+09
		778.00		4.50	4.49E+10		5.26E+09	2.11E+10
	RU-103	497.08		89.00	3.70E-01	3.70E-01	-5.56E-02	1.76E-01
	RU-106	621.84		9.80	8.35E-01	8.35E-01	-3.46E-02	3.95E-01
+	AG-108M	433.93	*	89.90	6.66E-02	6.66E-02	3.53E-02	3.17E-02
		614.37	*	90.40	2.27E-01		5.66E-02	1.11E-01
		722.95		90.50	8.01E-02		7.56E-03	3.78E-02
+	CD-109	88.03	*	3.72	1.89E+00	1.89E+00	9.53E-01	9.25E-01
	AG-110M	657.75		93.14	1.00E-01	1.00E-01	2.09E-02	4.74E-02
		677.61		10.53	8.34E-01		-2.51E-01	3.93E-01
		706.67		16.46	5.60E-01		-1.86E-01	2.64E-01
		763.93		21.98	4.63E-01		-3.13E-01	2.19E-01
		884.67		71.63	1.45E-01		-9.78E-03	6.83E-02
		1384.27		23.94	4.36E-01		1.83E-01	2.00E-01
	CD-113M	263.70		0.02	2.67E+02	2.67E+02	5.23E+01	1.29E+02
	SN-113	255.12		1.93	4.98E+00	1.83E-01	1.41E+00	2.40E+00
		391.69		64.90	1.83E-01		9.90E-02	8.78E-02
	TE123M	159.00		84.10	1.07E-01	1.07E-01	-2.97E-02	5.18E-02
	SB-124	602.71		97.87	2.03E-01	2.03E-01	4.73E-02	9.62E-02
		645.85		7.26	2.65E+00		-8.81E-01	1.25E+00
		722.78		11.10	1.95E+00		1.84E-01	9.21E-01
		1691.02		49.00	2.65E-01		-3.52E-02	1.08E-01
	I-125	35.49		6.49	2.61E+00	2.61E+00	-1.82E+00	1.26E+00
	SB-125	176.33		6.89	8.28E-01	2.30E-01	4.26E-01	4.02E-01
		427.89		29.33	2.30E-01		-2.19E-03	1.10E-01
		463.38		10.35	7.92E-01		1.07E+00	3.81E-01
		600.56		17.80	4.15E-01		2.17E-01	1.97E-01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	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	6.41E-01	2.30E-01	1.02E-01	3.03E-01
	SB-126	414.70		83.30	1.67E+01	1.43E+01	1.77E+00	8.02E+00
		666.33		99.60	1.43E+01		3.81E+00	6.77E+00
		695.00		99.60	1.48E+01		-7.27E-01	6.99E+00
		720.50		53.80	2.82E+01		1.09E+01	1.33E+01
+	SN-126	87.57	*	37.00	1.65E-01	1.65E-01	8.31E-02	8.07E-02
	SB-127	473.00		25.00	7.40E+06	5.23E+06	2.71E+06	3.53E+06
		685.20		35.70	5.23E+06		1.58E+06	2.46E+06
		783.80		14.70	1.69E+07		1.47E+07	8.01E+06
	I-129	29.78		57.00	1.14E-01	1.14E-01	1.58E-03	5.51E-02
		33.60		13.20	4.52E-01		-2.54E-02	2.19E-01
		39.58		7.52	7.52E-01		3.57E-01	3.66E-01
	I-131	284.30		6.05	3.75E+03	2.61E+02	-1.22E+03	1.81E+03
		364.48		81.20	2.61E+02		1.44E+01	1.25E+02
		636.97		7.26	3.38E+03		-9.62E+02	1.59E+03
		722.89		1.80	1.49E+04		1.40E+03	7.01E+03
	TE-132	49.72		13.10	2.69E+08	4.08E+07	-5.77E+07	1.31E+08
		228.16		88.00	4.08E+07		6.63E+06	1.97E+07
	BA-133	81.00		33.00	1.90E-01	1.55E-01	-4.51E-02	9.31E-02
		302.84		17.80	4.04E-01		8.30E-02	1.96E-01
		356.01		60.00	1.55E-01		1.13E-02	7.53E-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	4.80E+04	4.80E+04	-1.14E+04	2.35E+04
	CS-134	563.23		8.38	9.36E-01	8.84E-02	3.80E-01	4.45E-01
		569.32		15.43	4.84E-01		-5.25E-03	2.30E-01
		604.70		97.60	8.84E-02		9.26E-03	4.22E-02
		795.84		85.40	1.13E-01		1.08E-01	5.37E-02
		801.93		8.73	8.49E-01		-2.12E-01	3.96E-01
	CS-135	268.24		16.00	4.28E-01	4.28E-01	3.93E-01	2.08E-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	1.02E+01	4.60E+01	5.46E+01
		163.89		4.61	1.76E+02		7.57E+01	8.56E+01
		176.55		13.56	5.96E+01		3.07E+01	2.89E+01
		273.65		12.66	7.76E+01		6.80E+00	3.76E+01
		340.57		48.50	2.79E+01		6.11E+01	1.36E+01
		818.50		99.70	1.02E+01		-4.89E+00	4.74E+00
		1048.07		79.60	1.58E+01		1.32E+00	7.37E+00
		1235.34		19.70	9.95E+01		3.69E+01	4.74E+01
	CS-137	661.65		85.12	8.44E-02	8.44E-02	5.34E-03	3.99E-02
	LA-138	788.74		34.00	2.26E-01	9.90E-02	-1.85E-01	1.07E-01
		1435.80		66.00	9.90E-02		-6.07E-03	4.43E-02
	CE-139	165.85		80.35	1.06E-01	1.06E-01	-2.04E-02	5.15E-02
	BA-140	162.64		6.70	1.39E+02	4.28E+01	5.07E+01	6.76E+01
		304.84		4.50	2.41E+02		6.59E+01	1.16E+02
		423.70		3.20	3.54E+02		1.18E+01	1.69E+02
		437.55		2.00	5.54E+02		1.84E+02	2.65E+02
		537.32		25.00	4.28E+01		-1.86E+00	2.02E+01
	LA-140	328.77		20.50	5.91E+01	9.54E+00	4.07E+01	2.86E+01
		487.03		45.50	2.42E+01		7.18E+00	1.15E+01
		815.85		23.50	5.16E+01		-3.27E+00	2.41E+01
		1596.49		95.49	9.54E+00		-8.11E+00	4.08E+00

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

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	8.53E-01	8.53E-01	-8.01E-02	4.15E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	6.44E-01	6.44E-01	8.01E-02	3.14E-01
PM-144	476.78	42.00	1.88E-01	8.17E-02	1.60E-02	8.95E-02
	618.01	98.60	8.97E-02		1.79E-02	4.26E-02
	696.49	99.49	8.17E-02		-6.85E-02	3.84E-02
PM-145	36.85	21.70	2.64E-01	1.46E-01	-2.27E-02	1.28E-01
	37.36	39.70	1.46E-01		-2.69E-02	7.10E-02
	42.30	15.10	3.79E-01		5.69E-02	1.84E-01
	72.40	2.31	3.23E+00		-6.85E+00	1.59E+00
PM-146	453.90	39.94	1.77E-01	1.77E-01	1.31E-01	8.48E-02
	735.90	14.01	5.55E-01		1.72E-02	2.62E-01
	747.13	13.10	5.73E-01		-7.44E-02	2.70E-01
ND-147	91.11	28.90	1.10E+02	1.10E+02	1.99E+02	5.39E+01
	531.02	13.10	1.97E+02		8.14E+00	9.35E+01
PM-149	285.90	3.10	1.89E+13	1.89E+13	2.97E+12	9.14E+12
EU-152	121.78	20.50	2.50E-01	2.50E-01	5.59E-02	1.22E-01
	244.69	5.40	1.23E+00		1.40E-01	5.97E-01
	344.27	19.13	3.36E-01		2.32E-02	1.62E-01
	778.89	9.20	8.62E-01		3.06E-01	4.07E-01
	964.01	10.40	1.00E+00		2.99E-01	4.75E-01
	1085.78	7.22	1.12E+00		-1.66E-01	5.20E-01
	1112.02	9.60	9.29E-01		-5.61E-02	4.34E-01
	1407.95	14.94	5.11E-01		-1.54E-02	2.33E-01
GD-153	97.43	31.30	2.25E-01	2.25E-01	6.87E-02	1.10E-01
	103.18	22.20	3.15E-01		3.04E-02	1.53E-01
EU-154	123.07	40.50	1.27E-01	1.27E-01	-2.06E-03	6.18E-02
	723.30	19.70	3.75E-01		3.54E-02	1.77E-01
	873.19	11.50	6.38E-01		4.56E-02	2.98E-01
	996.32	10.30	7.11E-01		-4.89E-02	3.29E-01
	1004.76	17.90	4.99E-01		7.88E-02	2.34E-01
	1274.45	35.50	2.66E-01		8.69E-02	1.24E-01
EU-155	86.50	30.90	2.38E-01	2.38E-01	1.40E-01	1.17E-01
	105.30	20.70	2.69E-01		1.25E-01	1.31E-01
EU-156	811.77	10.40	5.44E+01	5.44E+01	2.59E+01	2.55E+01
	1153.47	7.20	9.38E+01		2.95E+01	4.37E+01
	1230.71	8.90	9.23E+01		-1.90E+01	4.35E+01
HO-166M	184.41	72.60	9.45E-02	9.45E-02	1.91E-01	4.61E-02
	280.45	29.60	2.05E-01		5.45E-03	9.90E-02
	410.94	11.10	6.13E-01		1.17E-01	2.94E-01
	711.69	54.10	1.38E-01		7.07E-02	6.50E-02
TM-171	66.72	0.14	5.08E+01	5.08E+01	1.75E+01	2.49E+01
HF-172	67.35	5.31	1.33E+00	4.87E-01	1.62E-01	6.51E-01
	125.81	11.30	4.87E-01		-4.57E-01	2.37E-01
LU-172	181.53	20.60	4.85E+03	2.59E+03	1.48E+02	2.35E+03
	900.72	29.81	4.72E+03		-8.95E+02	2.20E+03
	1093.66	62.50	2.59E+03		3.71E+01	1.21E+03
LU-173	100.72	5.24	1.15E+00	3.62E-01	-1.67E-01	5.58E-01
	272.11	21.20	3.62E-01		-2.81E-02	1.76E-01
HF-175	343.40	84.00	1.95E-01	1.95E-01	1.33E-02	9.37E-02
LU-176	88.34	13.30	5.48E-01	6.29E-02	2.21E-02	2.69E-01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	6.29E-02	6.29E-02	-1.45E-03	3.05E-02
		306.78		94.00	6.36E-02		-1.55E-02	3.06E-02
	HF-181	133.02		41.70	6.28E-01	3.58E-01	7.80E-02	3.06E-01
		345.85		17.20	1.72E+00		1.21E-01	8.25E-01
		482.03		82.80	3.58E-01		-1.52E-04	1.70E-01
	TA-182	67.75		41.20	2.77E-01	2.77E-01	3.37E-02	1.36E-01
		1121.30		34.90	7.04E-01		1.23E+00	3.37E-01
		1189.05		16.23	1.02E+00		2.03E-01	4.77E-01
		1221.41		26.98	6.67E-01		-5.51E-01	3.13E-01
		1231.02		11.44	1.65E+00		-3.41E-01	7.79E-01
	IR-192	308.46		29.68	4.86E-01	3.19E-01	-2.30E-01	2.34E-01
		468.07		48.10	3.19E-01		-2.62E-02	1.52E-01
	HG-203	279.19		77.30	3.29E-01	3.29E-01	1.11E-01	1.59E-01
	TL-204	374.74		94.11	6.79E-02	6.79E-02	5.93E-04	3.25E-02
		899.15		99.16	7.61E-02		-1.07E-02	3.55E-02
		911.74		91.10	1.73E-01		4.79E-01	8.35E-02
	BI-207	569.67		97.72	7.04E-02	7.04E-02	-1.31E-02	3.34E-02
		1063.62		74.90	1.06E-01		-4.37E-02	4.94E-02
+	TL-208	583.14	*	30.22	3.76E-01	1.26E-01	1.46E+00	1.82E-01
		860.37		4.48	2.00E+00		8.74E-01	9.47E-01
		2614.66	*	35.85	1.26E-01		1.38E+00	4.83E-02
	BI-210M	262.00		45.00	1.39E-01	1.39E-01	2.63E-02	6.76E-02
		300.00		23.00	3.10E-01		-1.27E+00	1.50E-01
+	PB-210	46.50	*	4.25	1.70E+00	1.70E+00	1.94E+00	8.35E-01
	PB-211	404.84		2.90	2.13E+00	2.13E+00	-1.36E+00	1.02E+00
		831.96		2.90	2.49E+00		-1.30E+00	1.16E+00
+	BI-212	727.17	*	11.80	7.97E-01	7.97E-01	7.00E-01	3.81E-01
		1620.62	*	2.75	1.90E+00		2.58E+00	8.13E-01
+	PB-212	238.63	*	44.60	3.20E-01	3.20E-01	1.55E+00	1.58E-01
		300.09	*	3.41	3.24E+00		2.32E+00	1.59E+00
+	BI-214	609.31	*	46.30	4.39E-01	4.17E-01	1.39E+00	2.16E-01
		1120.29	*	15.10	9.52E-01		1.35E+00	4.57E-01
		1764.49	*	15.80	4.17E-01		1.79E+00	1.83E-01
		2204.22	*	4.98	1.55E+00		1.58E+00	6.83E-01
+	PB-214	295.21	*	19.19	5.59E-01	2.98E-01	1.45E+00	2.74E-01
		351.92	*	37.19	2.98E-01		1.36E+00	1.46E-01
	RN-219	401.80		6.50	9.59E-01	9.59E-01	1.65E-01	4.59E-01
	RA-223	323.87		3.88	1.63E+00	1.63E+00	-3.72E-02	7.86E-01
+	RA-224	240.98	*	3.95	3.69E+00	3.69E+00	6.03E+00	1.82E+00
	RA-225	40.00		31.00	1.58E+01	1.58E+01	8.85E+00	7.70E+00
+	RA-226	186.21	*	3.28	2.68E+00	2.68E+00	4.74E+00	1.32E+00
+	TH-227	50.10		8.40	6.61E-01	6.61E-01	3.11E-01	3.22E-01
		236.00	*	11.50	1.22E+00		2.69E-01	6.01E-01
		256.20	*	6.30	1.20E+00		6.09E-01	5.87E-01
+	AC-228	338.32	*	11.40	8.40E-01	2.82E-01	1.99E+00	4.10E-01
		911.07	*	27.70	2.82E-01		1.53E+00	1.32E-01
		969.11	*	16.60	7.75E-01		1.23E+00	3.72E-01
	TH-230	48.44		16.90	3.46E-01	3.46E-01	-1.98E-02	1.69E-01
		62.85		4.60	1.54E+00		2.74E+00	7.58E-01
		67.67		0.37	1.73E+01		2.11E+00	8.48E+00
	PA-231	283.67		1.60	3.80E+00	3.07E+00	-1.65E+00	1.83E+00
		302.67		2.30	3.07E+00		6.31E-01	1.49E+00
	TH-231	25.64		14.70	5.65E-01	5.65E-01	-3.09E+00	2.75E-01

Analysis Report for 1707084-13

HTC-A02-S001-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TH-231	84.21		6.40	1.02E+00	5.65E-01	1.66E-01	5.01E-01
	PA-233	311.98		38.60	1.80E+00	1.80E+00	2.63E-01	8.66E-01
	PA-234	131.20		20.40	2.69E-01	2.69E-01	2.56E-02	1.31E-01
		733.99		8.80	8.45E-01		6.65E-02	3.99E-01
		946.00		12.00	6.97E-01		2.48E-01	3.27E-01
+	PA-234M	1001.03	*	0.92	9.24E+00	9.24E+00	5.90E+00	4.33E+00
+	TH-234	63.29	*	3.80	2.50E+00	2.50E+00	1.74E+00	1.23E+00
	U-235	143.76		10.50	5.26E-01	5.26E-01	1.89E-01	2.56E-01
		163.35		4.70	1.14E+00		4.90E-01	5.54E-01
		205.31		4.70	1.19E+00		-1.18E+00	5.76E-01
+	NP-237	86.50	*	12.60	4.84E-01	4.84E-01	2.44E-01	2.37E-01
	NP-239	106.10		22.70	3.52E+11	3.52E+11	1.43E+10	1.72E+11
		228.18		10.70	7.99E+11		1.30E+11	3.87E+11
		277.60		14.10	6.57E+11		1.09E+11	3.18E+11
	AM-241	59.54		35.90	1.67E-01	1.67E-01	-2.67E-01	8.16E-02
+	AM-243	74.67	*	66.00	1.77E-01	1.77E-01	2.73E-01	8.76E-02
	CM-243	209.75		3.29	1.91E+00	4.39E-01	1.76E+00	9.27E-01
		228.14		10.60	5.35E-01		8.70E-02	2.59E-01
		277.60		14.00	4.39E-01		7.27E-02	2.12E-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 1707084-13

HTC-A02-S001-1824-01

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

Sample Title: HTC-A02-S001-1824-01

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	88	87	96	158	559	214
25:	85	67	63	74	85	67	86	76
33:	87	66	75	88	75	72	89	92
41:	95	83	78	93	115	118	163	120
49:	80	86	112	111	128	108	125	114
57:	126	146	96	149	137	139	205	311
65:	176	135	178	155	171	161	178	179
73:	169	196	363	392	408	578	200	144
81:	170	132	134	175	202	153	187	279
89:	181	195	211	156	304	316	157	109
97:	104	106	109	122	98	98	96	116
105:	103	117	104	95	97	96	104	99
113:	103	113	88	112	91	84	84	74
121:	98	87	104	78	77	90	96	81
129:	97	119	85	92	91	109	92	113
137:	98	88	85	91	101	82	105	104
145:	102	79	78	84	88	92	86	84
153:	85	101	105	74	75	78	81	71
161:	72	75	85	84	78	75	63	79
169:	75	83	82	70	59	66	87	78
177:	70	55	76	73	56	54	71	85
185:	100	152	176	99	71	75	69	77
193:	74	63	67	68	65	74	61	69
201:	61	61	69	65	62	66	79	68
209:	98	102	79	69	61	60	51	64
217:	50	59	74	67	55	67	69	54
225:	65	58	58	66	67	58	57	53
233:	60	47	73	69	65	215	635	322
241:	126	187	137	81	62	57	45	40
249:	41	38	53	39	38	44	56	44
257:	60	40	55	42	43	46	41	48
265:	45	31	42	50	46	72	79	51
273:	44	27	43	35	45	44	36	33
281:	44	40	40	35	34	41	35	48
289:	51	41	31	45	38	42	159	220
297:	56	37	34	70	72	51	25	41
305:	36	40	29	32	30	25	36	33
313:	37	35	34	34	30	38	33	27
321:	40	33	27	30	41	30	41	67
329:	42	41	33	32	34	28	38	37
337:	38	106	159	56	40	38	26	34
345:	28	36	23	38	27	28	97	334
353:	233	51	26	40	36	36	27	25
361:	25	37	18	21	18	26	21	25

369:	27	17	20	24	23	27	36	21

Sample Title: HTC-A02-S001-1824-01

Channel								
377:	22	27	27	35	22	20	30	21
385:	16	23	24	20	32	25	38	33
393:	28	23	25	32	18	24	28	22
401:	21	26	26	23	24	26	22	18
409:	39	30	24	31	34	21	24	32
417:	20	30	20	32	15	24	22	31
425:	26	26	25	22	22	23	15	30
433:	24	32	22	18	18	31	20	24
441:	21	17	19	18	22	18	13	20
449:	20	16	16	32	19	33	19	30
457:	22	22	13	17	21	34	47	42
465:	24	24	18	17	18	21	14	21
473:	19	22	27	22	22	14	15	23
481:	24	16	13	15	22	22	15	19
489:	16	19	18	16	20	19	18	19
497:	13	15	17	17	17	19	13	31
505:	10	19	16	23	25	46	96	68
513:	32	25	21	16	20	18	14	25
521:	13	28	15	17	20	19	16	17
529:	15	25	14	15	11	15	16	13
537:	13	20	13	13	15	18	16	14
545:	16	19	13	20	27	15	19	18
553:	24	20	14	12	12	13	17	16
561:	16	23	21	26	19	13	23	10
569:	21	21	18	13	13	13	27	16
577:	13	18	15	18	18	55	156	142
585:	33	23	21	16	17	15	14	18
593:	11	13	12	15	11	20	13	17
601:	16	11	21	14	13	10	25	52
609:	203	212	44	14	15	18	20	30
617:	12	14	10	21	15	16	15	8
625:	18	15	18	27	15	4	15	9
633:	18	10	14	19	13	11	13	13
641:	14	19	14	14	21	8	9	8
649:	11	16	10	18	11	8	19	12
657:	15	15	16	18	9	18	14	12
665:	15	21	6	14	13	10	11	16
673:	21	16	17	17	10	12	12	9
681:	10	13	11	9	10	15	14	10
689:	10	10	8	21	13	14	10	14
697:	8	15	10	24	15	12	17	16
705:	12	11	10	14	16	11	15	16
713:	16	13	12	11	8	18	15	17
721:	18	7	12	13	8	16	48	36
729:	13	15	9	18	17	8	16	15
737:	11	12	17	13	14	17	9	12
745:	11	13	13	13	14	11	14	13
753:	24	7	14	16	9	11	12	9
761:	7	9	17	13	18	13	21	30
769:	24	14	15	16	17	4	8	16
777:	13	16	12	12	11	15	11	18
785:	27	21	17	11	7	14	11	9
793:	15	17	40	18	11	7	11	7

801:	12	8	11	10	8	16	9	10

Sample Title: HTC-A02-S001-1824-01

Channel								
809:	13	8	13	9	16	8	10	3
817:	11	15	5	9	10	12	11	7
825:	10	6	12	16	9	11	8	15
833:	9	5	15	19	7	10	7	12
841:	12	10	22	9	6	9	13	13
849:	9	13	11	12	8	8	9	11
857:	5	18	18	25	17	15	10	14
865:	14	9	8	10	13	14	11	3
873:	9	8	9	12	9	11	8	16
881:	7	8	19	11	6	16	14	15
889:	9	7	9	17	14	13	13	7
897:	6	9	10	8	9	14	10	11
905:	11	13	9	8	7	53	96	86
913:	23	16	5	9	12	10	7	10
921:	3	9	8	14	10	8	10	10
929:	7	13	11	11	12	20	16	11
937:	13	14	7	7	11	12	8	7
945:	18	7	10	13	17	9	5	9
953:	9	12	16	8	9	11	13	11
961:	10	11	14	24	28	21	12	44
969:	73	31	20	13	9	8	16	8
977:	11	11	11	10	16	6	5	9
985:	9	9	7	10	10	10	13	7
993:	10	7	9	3	6	8	10	11
1001:	21	9	12	4	11	12	11	11
1009:	8	6	10	8	14	9	14	15
1017:	13	12	16	10	8	10	7	3
1025:	10	8	4	12	11	6	5	5
1033:	6	11	10	7	12	12	13	10
1041:	10	6	8	10	14	9	9	6
1049:	7	10	12	19	18	6	13	15
1057:	3	8	15	5	4	13	13	7
1065:	9	8	10	10	9	5	7	15
1073:	9	10	9	8	9	13	13	6
1081:	16	6	8	8	8	8	15	5
1089:	8	7	8	6	16	9	9	10
1097:	13	10	7	7	12	12	6	11
1105:	12	9	7	18	9	6	14	15
1113:	10	2	13	12	5	8	29	51
1121:	46	17	13	12	11	8	18	10
1129:	11	13	11	5	5	13	13	4
1137:	7	12	5	14	7	13	12	6
1145:	8	12	13	18	13	8	5	9
1153:	13	9	7	13	9	8	14	12
1161:	8	18	11	14	8	6	13	9
1169:	11	11	8	12	5	11	9	16
1177:	12	11	9	12	8	13	9	7
1185:	14	13	8	7	12	7	9	14
1193:	7	8	9	15	11	13	11	9
1201:	14	17	10	20	12	7	6	12
1209:	8	13	16	14	10	18	12	15
1217:	16	16	8	11	11	11	9	14
1225:	19	16	8	13	16	13	14	12

1233:	12	10	11	26	35	27	20	18

Sample Title: HTC-A02-S001-1824-01

Channel								
1241:	19	14	10	9	16	7	16	14
1249:	6	12	13	9	13	9	12	14
1257:	9	8	11	7	5	10	10	7
1265:	8	8	6	5	6	13	12	8
1273:	11	10	8	5	8	9	2	6
1281:	9	3	7	11	7	2	5	3
1289:	3	11	8	8	7	9	2	7
1297:	9	9	7	4	8	7	6	13
1305:	11	5	4	1	4	3	6	3
1313:	3	6	5	8	11	4	6	9
1321:	7	7	6	4	8	6	6	2
1329:	4	9	2	4	5	9	7	4
1337:	2	7	4	6	9	3	6	4
1345:	5	4	4	4	6	2	5	4
1353:	7	10	5	7	3	6	5	4
1361:	4	2	6	6	3	3	3	9
1369:	4	5	3	2	1	3	3	11
1377:	15	8	4	3	8	5	4	7
1385:	4	7	5	3	5	4	2	3
1393:	4	2	1	2	1	0	3	5
1401:	8	9	6	4	1	5	10	7
1409:	6	1	2	4	1	5	2	1
1417:	0	1	6	3	5	2	2	2
1425:	6	1	5	3	3	2	2	4
1433:	5	4	5	3	1	2	5	4
1441:	1	3	4	1	4	2	1	2
1449:	5	1	4	2	5	3	3	8
1457:	14	34	186	536	469	120	29	22
1465:	19	11	8	3	2	4	10	5
1473:	3	3	4	2	3	0	6	3
1481:	2	3	1	1	2	4	0	2
1489:	6	0	4	4	3	3	7	2
1497:	3	3	2	6	6	2	4	1
1505:	2	1	2	7	3	4	2	8
1513:	4	4	3	0	2	3	3	1
1521:	5	4	1	2	0	3	1	6
1529:	2	2	2	3	0	2	0	1
1537:	4	1	2	2	1	1	6	3
1545:	1	1	3	1	0	2	1	4
1553:	1	2	2	5	0	0	1	4
1561:	4	3	1	0	0	3	2	2
1569:	2	2	2	1	1	1	2	2
1577:	3	7	0	4	2	3	1	0
1585:	3	4	4	7	3	5	5	9
1593:	1	3	4	1	2	0	1	3
1601:	2	0	3	1	0	0	1	4
1609:	1	1	1	3	1	1	1	2
1617:	3	2	3	8	4	4	1	2
1625:	0	0	1	2	5	8	3	2
1633:	2	3	0	2	2	1	2	2
1641:	0	2	2	3	3	0	3	0
1649:	1	1	1	0	3	0	0	3
1657:	3	0	5	4	1	3	1	2

1665:	3	2	1	3	1	1	0	2

Sample Title: HTC-A02-S001-1824-01

Channel								
1673:	1	4	4	1	2	1	3	2
1681:	0	2	1	1	0	2	0	2
1689:	0	2	2	1	0	2	1	1
1697:	2	0	0	0	2	0	0	1
1705:	1	1	0	1	2	1	3	1
1713:	1	1	3	4	0	2	0	2
1721:	1	1	4	1	3	0	4	5
1729:	6	4	2	3	2	1	1	0
1737:	0	2	3	1	1	1	1	1
1745:	2	0	1	2	0	0	1	1
1753:	1	1	4	3	2	1	1	2
1761:	1	9	22	39	24	6	1	0
1769:	2	3	3	0	4	1	2	0
1777:	0	1	0	0	0	1	1	4
1785:	1	0	1	3	3	0	1	1
1793:	1	0	1	0	0	1	1	0
1801:	1	0	2	1	0	2	1	1
1809:	1	2	1	1	3	2	0	0
1817:	0	0	0	0	0	0	4	2
1825:	1	2	0	0	2	1	1	0
1833:	1	3	1	2	0	3	0	4
1841:	3	1	2	2	4	10	6	4
1849:	0	1	1	2	2	1	3	3
1857:	2	1	0	1	0	1	1	2
1865:	3	2	2	1	0	3	0	3
1873:	2	2	1	1	1	2	1	0
1881:	1	1	0	1	0	0	0	2
1889:	4	0	1	0	1	0	2	1
1897:	0	1	0	0	1	0	2	2
1905:	1	3	1	1	2	0	1	1
1913:	0	1	1	1	2	1	2	1
1921:	0	2	0	2	1	0	3	0
1929:	0	0	2	1	2	1	1	1
1937:	1	1	0	1	1	2	3	1
1945:	1	2	1	1	1	0	1	0
1953:	1	1	2	1	1	1	1	2
1961:	1	1	1	0	0	3	1	1
1969:	1	1	0	1	0	2	1	3
1977:	1	2	1	2	0	2	1	1
1985:	2	0	1	1	0	0	1	0
1993:	1	1	0	2	0	1	2	0
2001:	0	1	1	0	0	1	1	0
2009:	3	4	2	1	3	0	1	0
2017:	2	0	0	2	1	0	5	0
2025:	0	2	0	2	3	0	0	1
2033:	0	2	1	1	0	2	2	1
2041:	1	1	2	3	1	2	0	3
2049:	1	3	0	2	3	4	3	1
2057:	0	1	0	4	1	1	1	1
2065:	0	2	2	2	1	0	3	1
2073:	0	0	2	2	2	0	0	0
2081:	1	2	0	0	1	1	0	1
2089:	1	2	1	0	3	0	1	0

2097:	4	0	0	4	3	6	4	3

Sample Title: HTC-A02-S001-1824-01

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

2529:	0	1	0	0	1	0	1	1

Sample Title: HTC-A02-S001-1824-01

Channel								
2537:	0	0	1	1	0	2	1	0
2545:	2	0	0	1	0	0	0	1
2553:	0	0	0	1	0	1	0	1
2561:	1	0	0	1	0	1	0	2
2569:	1	0	2	0	0	0	1	1
2577:	0	1	0	0	1	0	1	0
2585:	0	0	0	0	1	0	1	1
2593:	0	0	1	0	0	0	2	1
2601:	1	0	0	0	2	0	1	0
2609:	0	3	8	25	46	41	8	1
2617:	0	0	1	1	0	1	0	0
2625:	0	0	1	0	0	0	0	1
2633:	0	0	0	2	0	1	0	0
2641:	0	1	1	0	0	2	1	0
2649:	0	0	0	0	1	0	1	0
2657:	0	0	0	0	0	0	0	0
2665:	0	1	0	1	0	0	1	1
2673:	0	0	0	0	0	0	0	0
2681:	0	1	0	0	0	0	1	0
2689:	1	0	0	0	0	0	0	0
2697:	0	0	1	0	1	0	0	1
2705:	1	1	0	0	0	0	1	0
2713:	0	0	0	0	0	1	0	0
2721:	0	0	0	0	1	0	0	0
2729:	0	0	0	0	0	0	0	0
2737:	0	1	1	0	0	0	0	0
2745:	0	0	1	1	0	0	0	0
2753:	0	0	1	0	1	0	1	0
2761:	0	0	1	0	0	0	1	0
2769:	0	0	1	0	1	0	0	0
2777:	1	0	0	0	0	1	0	0
2785:	0	0	0	0	0	0	1	0
2793:	0	0	1	0	2	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	2	0	1	0	0	0
2817:	0	0	1	0	0	1	0	0
2825:	0	0	0	0	0	2	0	0
2833:	0	1	0	1	0	0	0	1
2841:	0	0	1	0	2	0	0	0
2849:	0	0	3	0	0	0	0	0
2857:	1	0	0	1	0	0	0	0
2865:	0	0	0	1	0	0	0	0
2873:	1	0	0	0	0	0	0	0
2881:	0	0	1	0	0	0	1	1
2889:	0	0	0	0	1	1	0	0
2897:	0	0	0	0	1	0	0	0
2905:	1	0	0	0	0	1	0	1
2913:	0	1	1	0	0	0	0	0
2921:	0	0	0	0	0	0	0	0
2929:	1	0	0	0	0	0	1	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	1	0	0	0	0	0
2953:	1	1	0	0	0	0	0	0

2961:	1	2	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1824-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1824-01

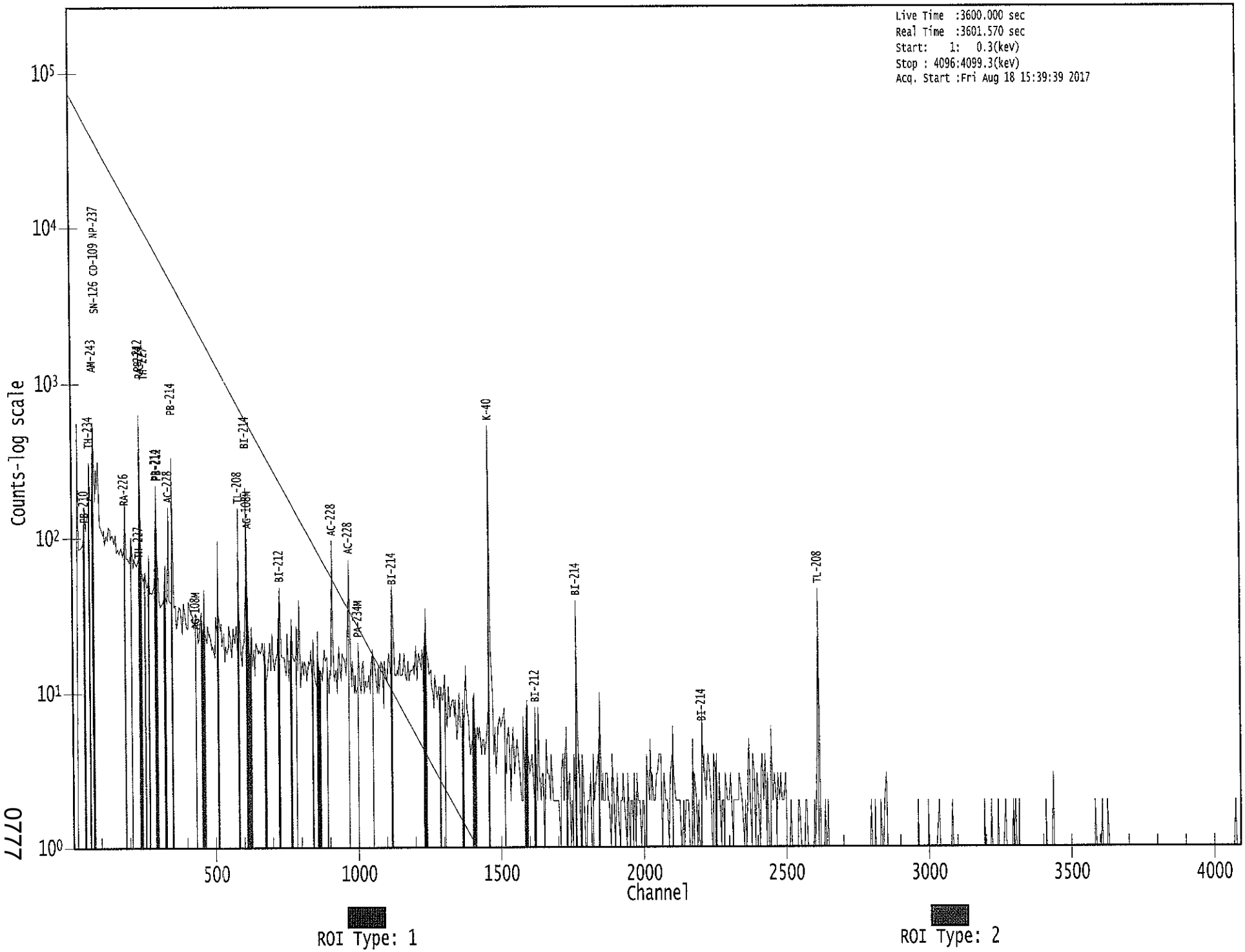
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	2	1	0	0	1	0	0	0
3417:	0	0	0	1	0	0	0	0
3425:	0	0	0	0	0	1	1	0
3433:	0	0	0	3	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	1	0	0	0	0
3457:	0	0	1	0	0	0	0	0
3465:	0	0	0	0	0	0	1	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	1	0	0
3489:	0	0	0	0	1	0	0	0
3497:	0	0	0	0	0	0	1	0
3505:	0	0	0	0	0	1	0	1
3513:	1	0	0	1	0	0	0	0
3521:	0	1	0	0	0	0	0	1
3529:	0	0	0	0	0	0	1	1
3537:	0	0	0	0	0	1	1	0
3545:	1	0	0	0	0	0	0	0
3553:	0	0	0	0	0	0	0	0
3561:	0	0	0	0	0	0	1	0
3569:	0	0	0	1	0	0	0	0
3577:	0	0	0	0	0	2	1	0
3585:	0	0	1	0	0	0	0	1
3593:	0	0	0	0	1	0	0	0
3601:	0	0	1	0	0	0	2	0
3609:	0	0	0	0	0	0	0	0
3617:	0	0	0	0	0	0	0	0
3625:	2	0	0	0	0	0	0	1
3633:	0	1	0	1	1	0	0	0
3641:	0	0	1	0	0	1	0	0
3649:	1	0	0	0	0	0	0	0
3657:	0	0	0	0	0	0	0	0
3665:	1	0	0	0	0	0	0	0
3673:	0	1	1	0	1	0	0	0
3681:	0	0	1	0	0	0	0	0
3689:	0	0	0	0	0	0	1	1
3697:	0	0	0	1	0	1	0	0
3705:	0	0	0	0	0	0	0	0
3713:	1	0	0	0	0	0	0	0
3721:	0	0	0	0	0	0	0	1
3729:	0	1	0	0	0	0	0	0
3737:	0	0	0	0	0	0	0	0
3745:	0	0	0	0	0	0	0	1
3753:	0	0	0	0	0	1	0	0
3761:	0	0	1	1	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	0	0	0	0	0
3793:	0	1	1	0	0	0	0	0
3801:	0	0	0	0	0	0	0	0
3809:	0	0	0	0	1	0	0	0
3817:	0	0	0	0	0	1	0	0

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-1824-01

Channel								
3833:	1	0	0	0	0	0	0	1
3841:	0	0	0	0	0	0	1	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	0
3865:	0	0	0	1	0	0	0	0
3873:	0	0	0	0	0	1	0	0
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	0	0	0	0
3913:	0	0	1	0	0	0	0	0
3921:	1	0	0	0	0	0	0	0
3929:	1	1	0	0	0	0	0	1
3937:	0	0	0	0	0	0	0	0
3945:	0	1	0	0	0	0	0	0
3953:	0	0	0	0	0	1	0	0
3961:	0	1	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	1
3977:	0	0	0	0	0	0	0	0
3985:	0	1	0	0	0	0	0	0
3993:	0	0	0	0	0	1	0	1
4001:	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0
4041:	0	0	0	0	0	0	0	0
4049:	0	0	0	0	0	0	0	0
4057:	0	0	0	0	0	0	0	0
4065:	0	0	0	0	1	1	0	0
4073:	1	0	2	0	0	0	1	0
4081:	0	0	0	0	0	0	0	0
4089:	0	0	0	0	2	0	2	0

0000055526.CNF



0777

KB 8/21/17

Apex-Gamma

Analysis Report for 1707084-14
HTC-A02-S001-2430-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-14
Sample Description	: HTC-A02-S001-2430-01
Sample Type	: SOIL
Sample Size	: 5.682E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:08:28AM
Acquisition Started	: 8/18/2017 3:39:49PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.6 seconds
Dead Time	: 0.24 %
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	: 55527

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 4:40:11PM
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	64.19	64.50	0.0000	0.00
2	72.62	72.92	0.0000	0.00
3	75.11	75.42	0.0000	0.00
4	77.64	77.94	0.0000	0.00
5	87.50	87.80	0.0000	0.00
6	90.28	90.57	0.0000	0.00
7	93.62	93.92	0.0000	0.00
8	111.20	111.49	0.0000	0.00
9	138.10	138.38	0.0000	0.00
10	144.16	144.44	0.0000	0.00
11	183.90	184.16	0.0000	0.00
12	186.90	187.16	0.0000	0.00
13	239.23	239.48	0.0000	0.00
14	242.35	242.59	0.0000	0.00
15	295.69	295.92	0.0000	0.00
16	338.76	338.97	0.0000	0.00
17	352.38	352.59	0.0000	0.00
18	409.83	410.02	0.0000	0.00
19	413.00	413.18	0.0000	0.00
20	451.29	451.47	0.0000	0.00
21	511.34	511.49	0.0000	0.00
22	583.42	583.55	0.0000	0.00
23	590.69	590.82	0.0000	0.00
24	609.74	609.86	0.0000	0.00
25	727.27	727.36	0.0000	0.00
26	801.19	801.25	0.0000	0.00
27	849.80	849.84	0.0000	0.00
28	853.33	853.37	0.0000	0.00
29	861.48	861.52	0.0000	0.00
30	911.49	911.51	0.0000	0.00
31	964.21	964.21	0.0000	0.00
32	969.21	969.21	0.0000	0.00
33	1023.49	1023.47	0.0000	0.00
34	1120.23	1120.18	0.0000	0.00
35	1154.41	1154.34	0.0000	0.00
36	1238.01	1237.92	0.0000	0.00
37	1279.93	1279.83	0.0000	0.00
38	1413.46	1413.31	0.0000	0.00
39	1460.74	1460.58	0.0000	0.00
40	1510.41	1510.23	0.0000	0.00
41	1587.72	1587.51	0.0000	0.00
42	1592.21	1592.00	0.0000	0.00

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1630.87	1630.65	0.0000	0.00
44	1639.04	1638.82	0.0000	0.00
45	1764.40	1764.14	0.0000	0.00
46	2102.69	2102.31	0.0000	0.00
47	2291.45	2291.00	0.0000	0.00
48	2339.82	2339.36	0.0000	0.00
49	2391.69	2391.21	0.0000	0.00
50	2613.99	2613.43	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 4:40:11PM

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	64.19	61 -	69	64.50	1.95E+02	123.74	2.24E+03	1.91
M	2	72.62	71 -	82	72.92	5.99E+01	65.91	1.01E+03	2.58
m	3	75.11	71 -	82	75.42	4.20E+02	115.10	1.70E+03	2.27
m	4	77.64	71 -	82	77.94	7.55E+02	117.28	1.65E+03	2.38
M	5	87.50	83 -	99	87.80	2.59E+02	95.81	1.45E+03	2.24
m	6	90.28	83 -	99	90.57	1.28E+02	97.40	1.39E+03	2.25
m	7	93.62	83 -	99	93.92	2.76E+02	94.42	1.32E+03	2.25
	8	111.20	109 -	114	111.49	5.92E+01	68.00	8.80E+02	1.77
	9	138.10	135 -	141	138.38	8.60E+01	72.42	8.82E+02	2.47
	10	144.16	142 -	147	144.44	5.58E+01	61.00	7.00E+02	3.46
M	11	183.90	182 -	193	184.16	3.48E+01	34.97	3.37E+02	1.81
m	12	186.90	182 -	193	187.16	2.06E+02	57.16	5.52E+02	1.82
M	13	239.23	234 -	249	239.48	7.45E+02	79.67	5.56E+02	2.28
m	14	242.35	234 -	249	242.59	2.20E+02	86.00	5.90E+02	2.76
	15	295.69	292 -	298	295.92	2.23E+02	56.91	4.27E+02	2.11
	16	338.76	335 -	343	338.97	9.75E+01	58.63	4.71E+02	1.90
	17	352.38	348 -	358	352.59	3.62E+02	77.33	6.02E+02	2.02
M	18	409.83	406 -	417	410.02	4.68E+01	34.34	1.60E+02	2.22
m	19	413.00	406 -	417	413.18	2.94E+01	30.63	1.40E+02	2.02
	20	451.29	448 -	454	451.47	2.97E+01	32.93	1.77E+02	2.71
	21	511.34	507 -	515	511.49	1.02E+02	43.83	2.30E+02	2.34
	22	583.42	579 -	590	583.55	1.57E+02	55.28	3.13E+02	2.42
	23	590.69	590 -	593	590.82	1.43E+01	18.44	6.33E+01	2.96
	24	609.74	605 -	614	609.86	2.78E+02	49.38	1.87E+02	2.38
	25	727.27	724 -	731	727.36	3.08E+01	31.50	1.46E+02	1.48
	26	801.19	799 -	805	801.25	1.84E+01	21.47	7.12E+01	2.03
M	27	849.80	849 -	865	849.84	1.35E+01	5.29	9.85E+00	2.29
m	28	853.33	849 -	865	853.37	2.46E+01	25.22	7.97E+01	3.06
m	29	861.48	849 -	865	861.52	3.74E+01	25.61	6.24E+01	3.06
	30	911.49	907 -	917	911.51	1.14E+02	45.05	2.13E+02	2.09
M	31	964.21	959 -	973	964.21	3.91E+01	25.50	9.43E+01	2.35
m	32	969.21	959 -	973	969.21	6.15E+01	27.61	7.94E+01	2.35
	33	1023.49	1021 -	1026	1023.47	1.41E+01	17.72	4.79E+01	2.31
	34	1120.23	1115 -	1125	1120.18	7.80E+01	31.18	8.80E+01	2.08
	35	1154.41	1149 -	1159	1154.34	4.53E+01	30.41	9.94E+01	3.07
	36	1238.01	1234 -	1241	1237.92	3.21E+01	28.71	1.08E+02	2.24
	37	1279.93	1276 -	1283	1279.83	2.71E+01	22.09	6.18E+01	2.29
	38	1413.46	1411 -	1416	1413.31	1.08E+01	9.33	8.40E+00	3.03
	39	1460.74	1453 -	1468	1460.58	7.02E+02	55.21	2.35E+01	2.80
	40	1510.41	1506 -	1514	1510.23	1.30E+01	13.00	1.80E+01	3.82

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
M	41	1587.72	1584 -	1596	1587.51	2.38E+01	13.42	1.87E+01	2.52
m	42	1592.21	1584 -	1596	1592.00	1.87E+01	13.30	1.10E+01	2.39
	43	1630.87	1627 -	1634	1630.65	2.00E+01	8.94	0.00E+00	1.80
	44	1639.04	1635 -	1641	1638.82	1.10E+01	6.63	0.00E+00	1.00
	45	1764.40	1758 -	1767	1764.14	5.00E+01	15.39	6.00E+00	3.34
	46	2102.69	2099 -	2105	2102.31	1.34E+01	8.50	3.20E+00	2.22
	47	2291.45	2287 -	2294	2291.00	1.20E+01	8.49	3.93E+00	2.88
	48	2339.82	2336 -	2342	2339.36	5.50E+00	7.78	7.00E+00	4.25
	49	2391.69	2387 -	2395	2391.21	1.40E+01	7.48	0.00E+00	1.67
	50	2613.99	2609 -	2618	2613.43	7.20E+01	16.97	0.00E+00	3.28

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 : 8/18/2017 4:40:11PM

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	64.19	61 -	69	1.95E+02	123.74	2.24E+03	9.91E+01
M	2	72.62	71 -	82	5.99E+01	65.91	1.01E+03	5.23E+01
m	3	75.11	71 -	82	4.20E+02	115.10	1.70E+03	6.79E+01
m	4	77.64	71 -	82	7.55E+02	117.28	1.65E+03	6.67E+01
M	5	87.50	83 -	99	2.59E+02	95.81	1.45E+03	6.26E+01
m	6	90.28	83 -	99	1.28E+02	97.40	1.39E+03	6.13E+01
m	7	93.62	83 -	99	2.76E+02	94.42	1.32E+03	5.96E+01
	8	111.20	109 -	114	5.92E+01	68.00	8.80E+02	5.44E+01
	9	138.10	135 -	141	8.60E+01	72.42	8.82E+02	5.75E+01
	10	144.16	142 -	147	5.58E+01	61.00	7.00E+02	4.86E+01
M	11	183.90	182 -	193	3.48E+01	34.97	3.37E+02	3.02E+01
m	12	186.90	182 -	193	2.06E+02	57.16	5.52E+02	3.86E+01
M	13	239.23	234 -	249	7.45E+02	79.67	5.56E+02	3.88E+01
m	14	242.35	234 -	249	2.20E+02	86.00	5.90E+02	3.99E+01
	15	295.69	292 -	298	2.23E+02	56.91	4.27E+02	3.98E+01
	16	338.76	335 -	343	9.75E+01	58.63	4.71E+02	4.54E+01
	17	352.38	348 -	358	3.62E+02	77.33	6.02E+02	5.53E+01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
M	18	409.83	406 -	417	4.68E+01	34.34	1.60E+02	2.08E+01
m	19	413.00	406 -	417	2.94E+01	30.63	1.40E+02	1.94E+01
	20	451.29	448 -	454	2.97E+01	32.93	1.77E+02	2.55E+01
	21	511.34	507 -	515	1.02E+02	43.83	2.30E+02	3.20E+01
	22	583.42	579 -	590	1.57E+02	55.28	3.13E+02	4.05E+01
	23	590.69	590 -	593	1.43E+01	18.44	6.33E+01	1.38E+01
	24	609.74	605 -	614	2.78E+02	49.38	1.87E+02	2.99E+01
	25	727.27	724 -	731	3.08E+01	31.50	1.46E+02	2.42E+01
	26	801.19	799 -	805	1.84E+01	21.47	7.12E+01	1.62E+01
M	27	849.80	849 -	865	1.35E+01	5.29	9.85E+00	5.16E+00
m	28	853.33	849 -	865	2.46E+01	25.22	7.97E+01	1.47E+01
m	29	861.48	849 -	865	3.74E+01	25.61	6.24E+01	1.30E+01
	30	911.49	907 -	917	1.14E+02	45.05	2.13E+02	3.26E+01
M	31	964.21	959 -	973	3.91E+01	25.50	9.43E+01	1.60E+01
m	32	969.21	959 -	973	6.15E+01	27.61	7.94E+01	1.46E+01
	33	1023.49	1021 -	1026	1.41E+01	17.72	4.79E+01	1.32E+01
	34	1120.23	1115 -	1125	7.80E+01	31.18	8.80E+01	2.11E+01
	35	1154.41	1149 -	1159	4.53E+01	30.41	9.94E+01	2.24E+01
	36	1238.01	1234 -	1241	3.21E+01	28.71	1.08E+02	2.17E+01
	37	1279.93	1276 -	1283	2.71E+01	22.09	6.18E+01	1.60E+01
	38	1413.46	1411 -	1416	1.08E+01	9.33	8.40E+00	5.44E+00
	39	1460.74	1453 -	1468	7.02E+02	55.21	2.35E+01	1.27E+01
	40	1510.41	1506 -	1514	1.30E+01	13.00	1.80E+01	8.89E+00
M	41	1587.72	1584 -	1596	2.38E+01	13.42	1.87E+01	7.11E+00
m	42	1592.21	1584 -	1596	1.87E+01	13.30	1.10E+01	5.45E+00
	43	1630.87	1627 -	1634	2.00E+01	8.94	0.00E+00	0.00E+00
	44	1639.04	1635 -	1641	1.10E+01	6.63	0.00E+00	0.00E+00
	45	1764.40	1758 -	1767	5.00E+01	15.39	6.00E+00	5.00E+00
	46	2102.69	2099 -	2105	1.34E+01	8.50	3.20E+00	3.55E+00
	47	2291.45	2287 -	2294	1.20E+01	8.49	3.93E+00	4.02E+00
	48	2339.82	2336 -	2342	5.50E+00	7.78	7.00E+00	5.10E+00
	49	2391.69	2387 -	2395	1.40E+01	7.48	0.00E+00	0.00E+00
	50	2613.99	2609 -	2618	7.20E+01	16.97	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 1707084-14

HTC-A02-S001-2430-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 4:40:11PM

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	64.19	61 -	69	64.50	1.95E+02	123.74	2.24E+03	TH-234
M	2	72.62	71 -	82	72.92	5.99E+01	65.91	1.01E+03	PM-145
m	3	75.11	71 -	82	75.42	4.20E+02	115.10	1.70E+03	AM-243
m	4	77.64	71 -	82	77.94	7.55E+02	117.28	1.65E+03	TI-44
M	5	87.50	83 -	99	87.80	2.59E+02	95.81	1.45E+03	SN-126
									CD-109
									LU-176
									NP-237
									EU-155
m	6	90.28	83 -	99	90.57	1.28E+02	97.40	1.39E+03	ND-147
m	7	93.62	83 -	99	93.92	2.76E+02	94.42	1.32E+03	GA-67
	8	111.20	109 -	114	111.49	5.92E+01	68.00	8.80E+02	.....
	9	138.10	135 -	141	138.38	8.60E+01	72.42	8.82E+02	.....
	10	144.16	142 -	147	144.44	5.58E+01	61.00	7.00E+02	U-235
M	11	183.90	182 -	193	184.16	3.48E+01	34.97	3.37E+02	HO-166M
m	12	186.90	182 -	193	187.16	2.06E+02	57.16	5.52E+02	RA-226
M	13	239.23	234 -	249	239.48	7.45E+02	79.67	5.56E+02	PB-212
m	14	242.35	234 -	249	242.59	2.20E+02	86.00	5.90E+02	.....
	15	295.69	292 -	298	295.92	2.23E+02	56.91	4.27E+02	PB-214
	16	338.76	335 -	343	338.97	9.75E+01	58.63	4.71E+02	AC-228
	17	352.38	348 -	358	352.59	3.62E+02	77.33	6.02E+02	PB-214
M	18	409.83	406 -	417	410.02	4.68E+01	34.34	1.60E+02	.....
m	19	413.00	406 -	417	413.18	2.94E+01	30.63	1.40E+02	.....
	20	451.29	448 -	454	451.47	2.97E+01	32.93	1.77E+02	.....
	21	511.34	507 -	515	511.49	1.02E+02	43.83	2.30E+02	.....
	22	583.42	579 -	590	583.55	1.57E+02	55.28	3.13E+02	TL-208
	23	590.69	590 -	593	590.82	1.43E+01	18.44	6.33E+01	.....
	24	609.74	605 -	614	609.86	2.78E+02	49.38	1.87E+02	BI-214
	25	727.27	724 -	731	727.36	3.08E+01	31.50	1.46E+02	BI-212
	26	801.19	799 -	805	801.25	1.84E+01	21.47	7.12E+01	CS-134
M	27	849.80	849 -	865	849.84	1.35E+01	5.29	9.85E+00	.....
m	28	853.33	849 -	865	853.37	2.46E+01	25.22	7.97E+01	.....
m	29	861.48	849 -	865	861.52	3.74E+01	25.61	6.24E+01	.....
	30	911.49	907 -	917	911.51	1.14E+02	45.05	2.13E+02	TL-204
									AC-228
M	31	964.21	959 -	973	964.21	3.91E+01	25.50	9.43E+01	EU-152
m	32	969.21	959 -	973	969.21	6.15E+01	27.61	7.94E+01	AC-228
	33	1023.49	1021 -	1026	1023.47	1.41E+01	17.72	4.79E+01	.....
	34	1120.23	1115 -	1125	1120.18	7.80E+01	31.18	8.80E+01	BI-214
									SC-46
	35	1154.41	1149 -	1159	1154.34	4.53E+01	30.41	9.94E+01	EU-156

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	36	1238.01	1234 -	1241	1237.92	3.21E+01	28.71	1.08E+02	CO-56
	37	1279.93	1276 -	1283	1279.83	2.71E+01	22.09	6.18E+01	.....
	38	1413.46	1411 -	1416	1413.31	1.08E+01	9.33	8.40E+00	.....
	39	1460.74	1453 -	1468	1460.58	7.02E+02	55.21	2.35E+01	K-40
	40	1510.41	1506 -	1514	1510.23	1.30E+01	13.00	1.80E+01	.....
M	41	1587.72	1584 -	1596	1587.51	2.38E+01	13.42	1.87E+01	.....
m	42	1592.21	1584 -	1596	1592.00	1.87E+01	13.30	1.10E+01	.....
	43	1630.87	1627 -	1634	1630.65	2.00E+01	8.94	0.00E+00	.....
	44	1639.04	1635 -	1641	1638.82	1.10E+01	6.63	0.00E+00	.....
	45	1764.40	1758 -	1767	1764.14	5.00E+01	15.39	6.00E+00	BI-214
	46	2102.69	2099 -	2105	2102.31	1.34E+01	8.50	3.20E+00	.....
	47	2291.45	2287 -	2294	2291.00	1.20E+01	8.49	3.93E+00	.....
	48	2339.82	2336 -	2342	2339.36	5.50E+00	7.78	7.00E+00	.....
	49	2391.69	2387 -	2395	2391.21	1.40E+01	7.48	0.00E+00	.....
	50	2613.99	2609 -	2618	2613.43	7.20E+01	16.97	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 : 8/18/2017 4:40:11PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	64.19	1.95E+02	123.74	2.47E-02	1.81E-03
M	2	72.62	5.99E+01	65.91	2.62E-02	1.97E-03
m	3	75.11	4.20E+02	115.10	2.65E-02	2.02E-03
m	4	77.64	7.55E+02	117.28	2.68E-02	2.06E-03
M	5	87.50	2.59E+02	95.81	2.72E-02	2.25E-03
m	6	90.28	1.28E+02	97.40	2.71E-02	2.25E-03
m	7	93.62	2.76E+02	94.42	2.71E-02	2.24E-03
	8	111.20	5.92E+01	68.00	2.61E-02	2.17E-03
	9	138.10	8.60E+01	72.42	2.37E-02	1.94E-03
	10	144.16	5.58E+01	61.00	2.32E-02	1.87E-03
M	11	183.90	3.48E+01	34.97	1.98E-02	1.56E-03
m	12	186.90	2.06E+02	57.16	1.95E-02	1.54E-03
M	13	239.23	7.45E+02	79.67	1.61E-02	1.34E-03
m	14	242.35	2.20E+02	86.00	1.59E-02	1.32E-03
	15	295.69	2.23E+02	56.91	1.35E-02	1.15E-03

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	16	338.76	9.75E+01	58.63	1.19E-02	1.06E-03
	17	352.38	3.62E+02	77.33	1.15E-02	1.03E-03
M	18	409.83	4.68E+01	34.34	1.01E-02	9.28E-04
m	19	413.00	2.94E+01	30.63	1.00E-02	9.24E-04
	20	451.29	2.97E+01	32.93	9.23E-03	8.73E-04
	21	511.34	1.02E+02	43.83	8.25E-03	7.94E-04
	22	583.42	1.57E+02	55.28	7.32E-03	6.98E-04
	23	590.69	1.43E+01	18.44	7.24E-03	6.89E-04
	24	609.74	2.78E+02	49.38	7.04E-03	6.63E-04
	25	727.27	3.08E+01	31.50	6.01E-03	5.37E-04
	26	801.19	1.84E+01	21.47	5.51E-03	4.71E-04
M	27	849.80	1.35E+01	5.29	5.23E-03	4.29E-04
m	28	853.33	2.46E+01	25.22	5.21E-03	4.25E-04
m	29	861.48	3.74E+01	25.61	5.17E-03	4.18E-04
	30	911.49	1.14E+02	45.05	4.92E-03	3.84E-04
M	31	964.21	3.91E+01	25.50	4.68E-03	3.75E-04
m	32	969.21	6.15E+01	27.61	4.66E-03	3.74E-04
	33	1023.49	1.41E+01	17.72	4.45E-03	3.65E-04
	34	1120.23	7.80E+01	31.18	4.12E-03	3.50E-04
	35	1154.41	4.53E+01	30.41	4.01E-03	3.44E-04
	36	1238.01	3.21E+01	28.71	3.79E-03	3.22E-04
	37	1279.93	2.71E+01	22.09	3.68E-03	3.11E-04
	38	1413.46	1.08E+01	9.33	3.40E-03	2.83E-04
	39	1460.74	7.02E+02	55.21	3.31E-03	2.75E-04
	40	1510.41	1.30E+01	13.00	3.22E-03	2.67E-04
M	41	1587.72	2.38E+01	13.42	3.10E-03	2.55E-04
m	42	1592.21	1.87E+01	13.30	3.09E-03	2.54E-04
	43	1630.87	2.00E+01	8.94	3.04E-03	2.48E-04
	44	1639.04	1.10E+01	6.63	3.03E-03	2.47E-04
	45	1764.40	5.00E+01	15.39	2.87E-03	2.26E-04
	46	2102.69	1.34E+01	8.50	2.54E-03	2.15E-04
	47	2291.45	1.20E+01	8.49	2.41E-03	2.15E-04
	48	2339.82	5.50E+00	7.78	2.38E-03	2.15E-04
	49	2391.69	1.40E+01	7.48	2.35E-03	2.15E-04
	50	2613.99	7.20E+01	16.97	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 : 8/18/2017 4:40:11PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	64.19	1.95E+02	123.74	3.11E+01	1.15E+01	1.64E+02	1.24E+02
M	2	72.62	5.99E+01	65.91			5.99E+01	6.59E+01
m	3	75.11	4.20E+02	115.10			4.20E+02	1.15E+02
m	4	77.64	7.55E+02	117.28			7.55E+02	1.17E+02
M	5	87.50	2.59E+02	95.81			2.59E+02	9.58E+01
m	6	90.28	1.28E+02	97.40			1.28E+02	9.74E+01
m	7	93.62	2.76E+02	94.42	7.43E+01	4.99E+00	2.02E+02	9.46E+01
	8	111.20	5.92E+01	68.00			5.92E+01	6.80E+01
	9	138.10	8.60E+01	72.42			8.60E+01	7.24E+01
	10	144.16	5.58E+01	61.00	1.25E+00	7.51E+00	5.45E+01	6.15E+01
M	11	183.90	3.48E+01	34.97			3.48E+01	3.50E+01
m	12	186.90	2.06E+02	57.16	3.36E+01	5.83E+00	1.72E+02	5.75E+01
M	13	239.23	7.45E+02	79.67	1.14E+01	5.08E+00	7.34E+02	7.98E+01
m	14	242.35	2.20E+02	86.00			2.20E+02	8.60E+01
	15	295.69	2.23E+02	56.91			2.23E+02	5.69E+01
	16	338.76	9.75E+01	58.63	0.00E+00	0.00E+00	9.75E+01	5.86E+01
	17	352.38	3.62E+02	77.33			3.62E+02	7.73E+01
M	18	409.83	4.68E+01	34.34			4.68E+01	3.43E+01
m	19	413.00	2.94E+01	30.63			2.94E+01	3.06E+01
	20	451.29	2.97E+01	32.93			2.97E+01	3.29E+01
	21	511.34	1.02E+02	43.83	5.38E+01	4.80E+00	4.79E+01	4.41E+01
	22	583.42	1.57E+02	55.28	1.58E+00	2.86E+00	1.56E+02	5.54E+01
	23	590.69	1.43E+01	18.44			1.43E+01	1.84E+01
	24	609.74	2.78E+02	49.38	3.58E+00	2.96E+00	2.75E+02	4.95E+01
	25	727.27	3.08E+01	31.50			3.08E+01	3.15E+01
	26	801.19	1.84E+01	21.47			1.84E+01	2.15E+01
M	27	849.80	1.35E+01	5.29			1.35E+01	5.29E+00
m	28	853.33	2.46E+01	25.22			2.46E+01	2.52E+01
m	29	861.48	3.74E+01	25.61			3.74E+01	2.56E+01
	30	911.49	1.14E+02	45.05			1.14E+02	4.50E+01
M	31	964.21	3.91E+01	25.50			3.91E+01	2.55E+01
m	32	969.21	6.15E+01	27.61			6.15E+01	2.76E+01
	33	1023.49	1.41E+01	17.72			1.41E+01	1.77E+01
	34	1120.23	7.80E+01	31.18			7.80E+01	3.12E+01
	35	1154.41	4.53E+01	30.41			4.53E+01	3.04E+01
	36	1238.01	3.21E+01	28.71			3.21E+01	2.87E+01
	37	1279.93	2.71E+01	22.09			2.71E+01	2.21E+01
	38	1413.46	1.08E+01	9.33			1.08E+01	9.33E+00
	39	1460.74	7.02E+02	55.21	3.11E+00	2.06E+00	6.99E+02	5.52E+01
	40	1510.41	1.30E+01	13.00			1.30E+01	1.30E+01
M	41	1587.72	2.38E+01	13.42			2.38E+01	1.34E+01
m	42	1592.21	1.87E+01	13.30			1.87E+01	1.33E+01
	43	1630.87	2.00E+01	8.94			2.00E+01	8.94E+00
	44	1639.04	1.10E+01	6.63			1.10E+01	6.63E+00
	45	1764.40	5.00E+01	15.39			5.00E+01	1.54E+01
	46	2102.69	1.34E+01	8.50			1.34E+01	8.50E+00
	47	2291.45	1.20E+01	8.49			1.20E+01	8.49E+00
	48	2339.82	5.50E+00	7.78			5.50E+00	7.78E+00
	49	2391.69	1.40E+01	7.48			1.40E+01	7.48E+00
	50	2613.99	7.20E+01	16.97	1.69E+00	9.96E-01	7.03E+01	1.70E+01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 4:40:11PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	64.19	1.95E+02	123.74	3.11E+01	1.15E+01	1.64E+02	1.24E+02
M	2	72.62	5.99E+01	65.91			5.99E+01	6.59E+01
m	3	75.11	4.20E+02	115.10			4.20E+02	1.15E+02
m	4	77.64	7.55E+02	117.28			7.55E+02	1.17E+02
M	5	87.50	2.59E+02	95.81			2.59E+02	9.58E+01
m	6	90.28	1.28E+02	97.40			1.28E+02	9.74E+01
m	7	93.62	2.76E+02	94.42	7.43E+01	4.99E+00	2.02E+02	9.46E+01
	8	111.20	5.92E+01	68.00			5.92E+01	6.80E+01
	9	138.10	8.60E+01	72.42			8.60E+01	7.24E+01
	10	144.16	5.58E+01	61.00	1.25E+00	7.51E+00	5.45E+01	6.15E+01
M	11	183.90	3.48E+01	34.97			3.48E+01	3.50E+01
m	12	186.90	2.06E+02	57.16	3.36E+01	5.83E+00	1.72E+02	5.75E+01
M	13	239.23	7.45E+02	79.67	1.14E+01	5.08E+00	7.34E+02	7.98E+01
m	14	242.35	2.20E+02	86.00			2.20E+02	8.60E+01
	15	295.69	2.23E+02	56.91			2.23E+02	5.69E+01
	16	338.76	9.75E+01	58.63	0.00E+00	0.00E+00	9.75E+01	5.86E+01
	17	352.38	3.62E+02	77.33			3.62E+02	7.73E+01
M	18	409.83	4.68E+01	34.34			4.68E+01	3.43E+01
m	19	413.00	2.94E+01	30.63			2.94E+01	3.06E+01
	20	451.29	2.97E+01	32.93			2.97E+01	3.29E+01
	21	511.34	1.02E+02	43.83	5.38E+01	4.80E+00	4.79E+01	4.41E+01
	22	583.42	1.57E+02	55.28	1.58E+00	2.86E+00	1.56E+02	5.54E+01
	23	590.69	1.43E+01	18.44			1.43E+01	1.84E+01
	24	609.74	2.78E+02	49.38	3.58E+00	2.96E+00	2.75E+02	4.95E+01
	25	727.27	3.08E+01	31.50			3.08E+01	3.15E+01
	26	801.19	1.84E+01	21.47			1.84E+01	2.15E+01
M	27	849.80	1.35E+01	5.29			1.35E+01	5.29E+00
m	28	853.33	2.46E+01	25.22			2.46E+01	2.52E+01
m	29	861.48	3.74E+01	25.61			3.74E+01	2.56E+01
	30	911.49	1.14E+02	45.05			1.14E+02	4.50E+01
M	31	964.21	3.91E+01	25.50			3.91E+01	2.55E+01
m	32	969.21	6.15E+01	27.61			6.15E+01	2.76E+01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	33	1023.49	1.41E+01	17.72			1.41E+01	1.77E+01
	34	1120.23	7.80E+01	31.18			7.80E+01	3.12E+01
	35	1154.41	4.53E+01	30.41			4.53E+01	3.04E+01
	36	1238.01	3.21E+01	28.71			3.21E+01	2.87E+01
	37	1279.93	2.71E+01	22.09			2.71E+01	2.21E+01
	38	1413.46	1.08E+01	9.33			1.08E+01	9.33E+00
	39	1460.74	7.02E+02	55.21	3.11E+00	2.06E+00	6.99E+02	5.52E+01
	40	1510.41	1.30E+01	13.00			1.30E+01	1.30E+01
M	41	1587.72	2.38E+01	13.42			2.38E+01	1.34E+01
m	42	1592.21	1.87E+01	13.30			1.87E+01	1.33E+01
	43	1630.87	2.00E+01	8.94			2.00E+01	8.94E+00
	44	1639.04	1.10E+01	6.63			1.10E+01	6.63E+00
	45	1764.40	5.00E+01	15.39			5.00E+01	1.54E+01
	46	2102.69	1.34E+01	8.50			1.34E+01	8.50E+00
	47	2291.45	1.20E+01	8.49			1.20E+01	8.49E+00
	48	2339.82	5.50E+00	7.78			5.50E+00	7.78E+00
	49	2391.69	1.40E+01	7.48			1.40E+01	7.48E+00
	50	2613.99	7.20E+01	16.97	1.69E+00	9.96E-01	7.03E+01	1.70E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.999	1460.81	*	10.67	2.62E+01	3.05E+00
CD-109	0.955	88.03	*	3.72	3.90E+00	1.50E+00
SN-126	0.999	87.57	*	37.00	3.40E-01	1.29E-01
ND-147	0.419	91.11	*	28.90	8.84E+01	6.76E+01
		531.02		13.10		
TL-208	0.847	583.14	*	30.22	9.30E-01	3.42E-01
		860.37		4.48		
		2614.66	*	35.85	1.16E+00	3.01E-01
BI-212	0.771	727.17	*	11.80	5.73E-01	5.89E-01
		1620.62		2.75		
PB-212	0.844	238.63	*	44.60	1.35E+00	1.85E-01
		300.09		3.41		
BI-214	0.917	609.31	*	46.30	1.11E+00	2.26E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.917	1120.29	*	15.10	1.66E+00	6.77E-01
		1764.49	*	15.80	1.46E+00	4.64E-01
		2204.22		4.98		
PB-214	0.966	295.21	*	19.19	1.14E+00	3.07E-01
		351.92	*	37.19	1.12E+00	2.58E-01
RA-226	0.927	186.21	*	3.28	3.55E+00	6.61E+00
AC-228	0.979	338.32	*	11.40	9.46E-01	5.75E-01
		911.07	*	27.70	1.10E+00	4.45E-01
		969.11	*	16.60	1.05E+00	4.79E-01
TH-234	0.878	63.29	*	3.80	2.31E+00	1.76E+00
NP-237	0.853	86.50	*	12.60	9.99E-01	3.79E-01
AM-243	0.969	74.67	*	66.00	3.17E-01	9.01E-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

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 4:40:11PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	72.62	1.66436E-02	55.00	Tol.	PM-145
m	4	77.64	2.09750E-01	7.77	Tol.	TI-44
m	7	93.62	5.59788E-02	23.46	Tol.	GA-67
	8	111.20	1.64568E-02	57.39		
	9	138.10	2.38939E-02	42.09		
	10	144.16	1.51503E-02	56.34	Tol.	U-235
M	11	183.90	9.65299E-03	50.32	Tol.	HO-166M
m	14	242.35	6.10244E-02	19.57		
M	18	409.83	1.29961E-02	36.70		
m	19	413.00	8.17624E-03	52.03	Sum	
	20	451.29	8.26036E-03	55.37		
	21	511.34	1.33103E-02	46.01		
	23	590.69	3.98249E-03	64.31	Sum	
	26	801.19	5.10802E-03	58.38	Tol.	CS-134
M	27	849.80	3.75555E-03	19.57	Sum	
m	28	853.33	6.84140E-03	51.20		
m	29	861.48	1.03972E-02	34.21		

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	31	964.21	1.08640E-02	32.60	Tol.	EU-152
	33	1023.49	3.90351E-03	63.05	Sum	
	35	1154.41	1.25819E-02	33.56	Tol.	EU-156
	36	1238.01	8.91796E-03	44.71		
	37	1279.93	7.52874E-03	40.75		
	38	1413.46	3.00000E-03	43.18		
	40	1510.41	3.61111E-03	50.00		
M	41	1587.72	6.60002E-03	28.23		
m	42	1592.21	5.18275E-03	35.65	D-Esc	
	43	1630.87	5.55556E-03	22.36		
	44	1639.04	3.05556E-03	30.15	Sum	
	46	2102.69	3.72222E-03	31.72	S-Esc	
	47	2291.45	3.34325E-03	35.25		
	48	2339.82	1.52778E-03	70.71		
	49	2391.69	3.88889E-03	26.73		

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.62E+01	3.05E+00
CD-109	0.95	88.03	*	3.72	3.90E+00	1.50E+00
SN-126	0.99	87.57	*	37.00	3.40E-01	1.29E-01
ND-147	0.41	91.11	*	28.90	8.84E+01	6.76E+01
		531.02		13.10		
TL-208	0.84	583.14	*	30.22	9.30E-01	3.42E-01
		860.37		4.48		
		2614.66	*	35.85	1.16E+00	3.01E-01
BI-212	0.77	727.17	*	11.80	5.73E-01	5.89E-01
		1620.62		2.75		
PB-212	0.84	238.63	*	44.60	1.35E+00	1.85E-01
		300.09		3.41		
BI-214	0.91	609.31	*	46.30	1.11E+00	2.26E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
BI-214	0.91	1120.29	*	15.10	1.66E+00	6.77E-01
		1764.49	*	15.80	1.46E+00	4.64E-01
		2204.22		4.98		
PB-214	0.96	295.21	*	19.19	1.14E+00	3.07E-01
		351.92	*	37.19	1.12E+00	2.58E-01
RA-226	0.92	186.21	*	3.28	3.55E+00	6.61E+00
AC-228	0.97	338.32	*	11.40	9.46E-01	5.75E-01
		911.07	*	27.70	1.10E+00	4.45E-01
		969.11	*	16.60	1.05E+00	4.79E-01
TH-234	0.87	63.29	*	3.80	2.31E+00	1.76E+00
NP-237	0.85	86.50	*	12.60	9.99E-01	3.79E-01
AM-243	0.96	74.67	*	66.00	3.17E-01	9.01E-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	0.999	2.62E+01	3.05E+00	
?	CD-109	0.955	3.90E+00	1.50E+00	
?	SN-126	0.999	3.40E-01	1.29E-01	
	ND-147	0.419	8.84E+01	6.76E+01	
	TL-208	0.847	1.06E+00	2.26E-01	
	BI-212	0.771	5.73E-01	5.89E-01	
	PB-212	0.844	1.35E+00	1.85E-01	
	BI-214	0.917	1.22E+00	1.95E-01	
	PB-214	0.966	1.13E+00	1.98E-01	
	RA-226	0.927	3.55E+00	6.61E+00	
	AC-228	0.979	1.05E+00	2.84E-01	
	TH-234	0.878	2.31E+00	1.76E+00	
?	NP-237	0.853	9.99E-01	3.79E-01	
	AM-243	0.969	3.17E-01	9.01E-02	

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

? = 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 1707084-14

HTC-A02-S001-2430-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 4:40:11PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	2	72.62	1.66436E-02	55.00	Tol.	PM-145
m	4	77.64	2.09750E-01	7.77	Tol.	TI-44
m	7	93.62	5.59788E-02	23.46	Tol.	GA-67
	8	111.20	1.64568E-02	57.39		
	9	138.10	2.38939E-02	42.09		
	10	144.16	1.51503E-02	56.34	Tol.	U-235
M	11	183.90	9.65299E-03	50.32	Tol.	HO-166M
m	14	242.35	6.10244E-02	19.57		
M	18	409.83	1.29961E-02	36.70		
m	19	413.00	8.17624E-03	52.03	Sum	
	20	451.29	8.26036E-03	55.37		
	21	511.34	1.33103E-02	46.01		
	23	590.69	3.98249E-03	64.31	Sum	
	26	801.19	5.10802E-03	58.38	Tol.	CS-134
M	27	849.80	3.75555E-03	19.57	Sum	
m	28	853.33	6.84140E-03	51.20		
m	29	861.48	1.03972E-02	34.21		
M	31	964.21	1.08640E-02	32.60	Tol.	EU-152
	33	1023.49	3.90351E-03	63.05	Sum	
	35	1154.41	1.25819E-02	33.56	Tol.	EU-156
	36	1238.01	8.91796E-03	44.71		
	37	1279.93	7.52874E-03	40.75		
	38	1413.46	3.00000E-03	43.18		
	40	1510.41	3.61111E-03	50.00		
M	41	1587.72	6.60002E-03	28.23		
m	42	1592.21	5.18275E-03	35.65	D-Esc	
	43	1630.87	5.55556E-03	22.36		
	44	1639.04	3.05556E-03	30.15	Sum	
	46	2102.69	3.72222E-03	31.72	S-Esc	
	47	2291.45	3.34325E-03	35.25		
	48	2339.82	1.52778E-03	70.71		
	49	2391.69	3.88889E-03	26.73		

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

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

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	-1.55E+00	2.20E+00	2.20E+00
+	NA-22	1274.54		99.94	-1.05E-02	1.26E-01	1.26E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	7.06E-03	8.86E-02	8.86E-02
+	K-40	1460.81	*	10.67	2.62E+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	-2.27E-02	6.84E-02	6.84E-02
		78.34		96.00	2.49E-01		8.84E-02
+	SC-46	889.25		99.98	-3.18E-02	2.02E-01	2.02E-01
		1120.51		99.99	4.16E-01		3.46E-01
+	V-48	983.52		99.98	-7.48E-02	6.62E+00	6.62E+00
		1312.10		97.50	1.09E+00		7.28E+00
+	CR-51	320.08		9.83	4.07E+00	8.02E+00	8.02E+00
+	MN-54	834.83		99.97	-1.93E-03	1.29E-01	1.29E-01
+	CO-56	846.75		99.96	3.11E-02	2.19E-01	2.19E-01
		1037.75		14.03	-7.34E-01		1.70E+00
		1238.25		67.00	2.03E-01		5.21E-01
		1771.40		15.51	-1.13E+00		1.04E+00
		2598.48		16.90	-2.42E-01		5.93E-01
+	CO-57	122.06		85.51	-1.65E-02	7.06E-02	7.06E-02
		136.48		10.60	2.68E-01		6.32E-01
+	CO-58	810.76		99.40	2.00E-02	2.32E-01	2.32E-01
+	FE-59	1099.22		56.50	-3.68E-02	8.24E-01	8.24E-01
		1291.56		43.20	4.87E-01		1.25E+00
+	CO-60	1173.22		100.00	6.75E-02	1.11E-01	1.34E-01
		1332.49		100.00	3.07E-02		1.11E-01
+	ZN-65	1115.52		50.75	0.00E+00	2.88E-01	2.88E-01
+	GA-67	93.31		35.70	1.37E+08	1.12E+08	1.12E+08
		208.95		2.24	7.64E+08		1.95E+09
		300.22		16.00	-4.47E+06		3.26E+08
+	SE-75	121.11		16.70	-1.63E-01	1.52E-01	4.83E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-5.81E-03	1.52E-01	1.52E-01
		264.65		59.80	-6.91E-02		1.86E-01
		279.53		25.20	4.35E-02		4.81E-01
		400.65		11.40	7.03E-01		1.15E+00
+	RB-82	776.52		13.00	-5.22E+00	8.78E+00	8.78E+00
+	RB-83	520.41		46.00	-7.30E-02	3.29E-01	3.29E-01
		529.64		30.30	1.24E-01		5.11E-01
		552.65		16.40	1.15E-02		1.05E+00
+	KR-85	513.99		0.43	3.49E+00	2.43E+01	2.43E+01
+	SR-85	513.99		99.27	4.15E-02	2.89E-01	2.89E-01
+	Y-88	898.02		93.40	-6.78E-02	1.41E-01	1.83E-01
		1836.01		99.38	-3.22E-02		1.41E-01
+	MO-93	263.06		56.72	-6.65E-02	9.28E-02	1.10E-01
		684.67		99.68	3.19E-03		9.53E-02
		1477.11		99.08	1.39E-02		9.28E-02
+	NB-93M	16.57		9.43	-1.62E+00	7.55E+01	7.55E+01
+	NB-94	702.63		100.00	2.11E-02	7.70E-02	9.99E-02
		871.10		100.00	-6.11E-03		7.70E-02
+	NB-95	765.79		99.81	5.10E-02	6.53E-01	6.53E-01
+	NB-95M	235.69		25.00	-3.50E+07	3.58E+07	3.58E+07
+	ZR-95	724.18		43.70	6.52E-02	4.85E-01	6.31E-01
		756.72		55.30	6.89E-02		4.85E-01
+	MO-99	181.06		6.20	9.20E+09	1.85E+10	2.38E+10
		739.58		12.80	1.30E+08		1.85E+10
		778.00		4.50	-8.67E+09		5.35E+10
+	RU-103	497.08		89.00	1.19E-01	4.63E-01	4.63E-01
+	RU-106	621.84		9.80	-3.09E-01	1.01E+00	1.01E+00
+	AG-108M	433.93		89.90	-1.63E-02	8.52E-02	8.52E-02
		614.37		90.40	-8.81E-03		1.19E-01
		722.95		90.50	8.95E-03		1.04E-01
+	CD-109	88.03	*	3.72	3.90E+00	4.45E+00	4.45E+00
+	AG-110M	657.75		93.14	1.13E-02	1.25E-01	1.25E-01
		677.61		10.53	4.20E-01		1.12E+00
		706.67		16.46	-2.14E-01		7.52E-01
		763.93		21.98	-1.35E-01		5.63E-01
		884.67		71.63	-9.50E-02		1.76E-01
		1384.27		23.94	-1.12E-01		4.05E-01
+	CD-113M	263.70		0.02	-1.40E+02	2.78E+02	2.78E+02
+	SN-113	255.12		1.93	1.49E+00	2.07E-01	6.00E+00
		391.69		64.90	1.54E-02		2.07E-01
+	TE123M	159.00		84.10	-1.19E-02	1.07E-01	1.07E-01
+	SB-124	602.71		97.87	1.56E-01	2.72E-01	2.72E-01
		645.85		7.26	-5.96E-01		3.42E+00
		722.78		11.10	2.18E-01		2.54E+00
		1691.02		49.00	1.40E-01		5.14E-01
+	I-125	35.49		6.49	-1.58E+00	6.45E+00	6.45E+00
+	SB-125	176.33		6.89	-8.63E-03	2.58E-01	8.33E-01
		427.89		29.33	-4.69E-02		2.58E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	-1.36E-01	2.58E-01	8.24E-01
		600.56		17.80	4.57E-02		5.20E-01
		635.90		11.32	-1.46E-01		7.81E-01
+	SB-126	414.70		83.30	-1.68E+01	1.75E+01	1.75E+01
		666.33		99.60	-2.63E+00		1.82E+01
		695.00		99.60	-1.07E+01		1.91E+01
		720.50		53.80	-7.53E+00		3.52E+01
+	SN-126	87.57	*	37.00	3.40E-01	3.88E-01	3.88E-01
+	SB-127	473.00		25.00	-4.76E+06	7.40E+06	7.73E+06
		685.20		35.70	2.47E+05		7.40E+06
		783.80		14.70	1.40E+07		2.00E+07
+	I-129	29.78		57.00	-1.77E-01	4.17E-01	4.17E-01
		33.60		13.20	6.68E-01		1.25E+00
		39.58		7.52	5.71E-01		1.46E+00
+	I-131	284.30		6.05	-5.56E+02	3.14E+02	4.05E+03
		364.48		81.20	1.10E+01		3.14E+02
		636.97		7.26	7.64E+02		4.30E+03
		722.89		1.80	1.66E+03		1.93E+04
+	TE-132	49.72		13.10	-2.15E+08	4.83E+07	3.72E+08
		228.16		88.00	-2.88E+06		4.83E+07
+	BA-133	81.00		33.00	-3.38E-01	1.87E-01	2.00E-01
		302.84		17.80	1.59E-01		4.20E-01
		356.01		60.00	2.78E-01		1.87E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-8.54E+04	5.06E+04	5.06E+04
+	CS-134	563.23		8.38	-2.03E-02	1.04E-01	9.79E-01
		569.32		15.43	-2.92E-01		5.27E-01
		604.70		97.60	-1.32E-03		1.04E-01
		795.84		85.40	3.19E-02		1.22E-01
		801.93		8.73	1.07E-01		1.11E+00
+	CS-135	268.24		16.00	1.05E-01	4.44E-01	4.44E-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	3.48E+01	1.46E+01	1.09E+02
		163.89		4.61	2.37E-01		1.80E+02
		176.55		13.56	-6.22E-01		6.01E+01
		273.65		12.66	2.36E+01		8.98E+01
		340.57		48.50	5.09E+01		2.87E+01
		818.50		99.70	-1.84E+00		1.46E+01
		1048.07		79.60	-1.44E+00		2.03E+01
		1235.34		19.70	-4.41E+00		1.19E+02
+	CS-137	661.65		85.12	2.08E-02	1.10E-01	1.10E-01
+	LA-138	788.74		34.00	-6.95E-02	1.34E-01	3.10E-01
		1435.80		66.00	5.57E-02		1.34E-01
+	CE-139	165.85		80.35	5.91E-02	1.13E-01	1.13E-01
+	BA-140	162.64		6.70	-2.43E+01	5.14E+01	1.40E+02
		304.84		4.50	-5.94E+01		2.67E+02
		423.70		3.20	6.44E+01		4.11E+02

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	2.16E+02	5.14E+01	7.01E+02
			537.32		25.00	-8.19E+00		5.14E+01
+		LA-140	328.77		20.50	3.21E+01	1.76E+01	6.58E+01
			487.03		45.50	-1.02E+01		2.73E+01
			815.85		23.50	-9.78E+00		6.92E+01
			1596.49		95.49	-3.14E-01		1.76E+01
+		CE-141	145.44		48.40	1.32E-01	8.03E-01	8.03E-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	-3.28E-02	5.96E-01	5.96E-01
+		PM-144	476.78		42.00	-4.51E-02	1.05E-01	1.97E-01
			618.01		98.60	1.21E-02		1.05E-01
			696.49		99.49	2.71E-02		1.18E-01
+		PM-145	36.85		21.70	1.30E-03	3.16E-01	5.96E-01
			37.36		39.70	-8.75E-02		3.16E-01
			42.30		15.10	-5.92E-01		6.23E-01
			72.40		2.31	-5.61E+00		3.13E+00
+		PM-146	453.90		39.94	3.88E-02	2.12E-01	2.12E-01
			735.90		14.01	1.72E-01		6.45E-01
			747.13		13.10	-1.45E-01		6.83E-01
+		ND-147	91.11	*	28.90	8.84E+01	2.03E+02	2.03E+02
			531.02		13.10	5.93E+01		2.31E+02
+		PM-149	285.90		3.10	4.93E+12	2.05E+13	2.05E+13
+		EU-152	121.78		20.50	-5.44E-02	2.34E-01	2.34E-01
			244.69		5.40	-3.28E+00		1.58E+00
			344.27		19.13	-2.53E-02		3.99E-01
			778.89		9.20	-2.83E-01		9.58E-01
			964.01		10.40	-5.90E-01		1.26E+00
			1085.78		7.22	-5.00E-01		1.58E+00
			1112.02		9.60	1.36E-01		1.12E+00
			1407.95		14.94	2.79E-01		6.95E-01
+		GD-153	97.43		31.30	-2.59E-01	2.15E-01	2.15E-01
			103.18		22.20	-1.15E-01		2.73E-01
+		EU-154	123.07		40.50	-1.30E-03	1.24E-01	1.24E-01
			723.30		19.70	4.19E-02		4.88E-01
			873.19		11.50	-7.90E-02		6.76E-01
			996.32		10.30	-1.44E-01		9.65E-01
			1004.76		17.90	-2.60E-01		6.04E-01
			1274.45		35.50	-2.83E-02		3.38E-01
+		EU-155	86.50		30.90	1.83E-01	2.20E-01	2.20E-01
			105.30		20.70	4.52E-03		2.33E-01
+		EU-156	811.77		10.40	-5.41E-01	6.71E+01	6.71E+01
			1153.47		7.20	1.07E+02		1.49E+02
			1230.71		8.90	-1.51E+01		1.19E+02
+		HO-166M	184.41		72.60	1.37E-01	9.43E-02	9.43E-02
			280.45		29.60	-8.67E-02		2.30E-01
			410.94		11.10	4.08E-01		7.19E-01
			711.69		54.10	-3.10E-02		1.78E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-2.77E+01	5.24E+01	5.24E+01
+	HF-172	67.35		5.31	-4.45E-01	5.00E-01	1.34E+00
		125.81		11.30	-8.43E-02		5.00E-01
+	LU-172	181.53		20.60	4.73E+02	3.55E+03	5.14E+03
		900.72		29.81	-4.53E+02		6.13E+03
		1093.66		62.50	9.89E+02		3.55E+03
+	LU-173	100.72		5.24	7.16E-02	4.05E-01	1.04E+00
		272.11		21.20	1.14E-01		4.05E-01
+	HF-175	343.40		84.00	-1.46E-02	2.30E-01	2.30E-01
+	LU-176	88.34		13.30	6.62E-01	6.98E-02	5.11E-01
		201.83		86.00	5.33E-02		6.98E-02
		306.78		94.00	-1.90E-02		7.03E-02
+	HF-181	133.02		41.70	1.90E-02	4.10E-01	5.87E-01
		345.85		17.20	-1.32E-01		2.03E+00
		482.03		82.80	-7.47E-03		4.10E-01
+	TA-182	67.75		41.20	-9.25E-02	2.78E-01	2.78E-01
		1121.30		34.90	1.03E+00		8.07E-01
		1189.05		16.23	1.15E-01		1.53E+00
		1221.41		26.98	-8.96E-02		9.42E-01
		1231.02		11.44	-2.70E-01		2.13E+00
+	IR-192	308.46		29.68	3.53E-02	3.80E-01	5.46E-01
		468.07		48.10	-1.73E-01		3.80E-01
+	HG-203	279.19		77.30	-1.03E-02	3.75E-01	3.75E-01
+	TL-204	374.74		94.11	1.76E-02	8.16E-02	8.16E-02
		899.15		99.16	-1.40E-02		9.90E-02
		911.74		91.10	3.12E-01		2.00E-01
+	BI-207	569.67		97.72	-1.20E-02	7.91E-02	7.91E-02
		1063.62		74.90	-6.35E-02		1.28E-01
+	TL-208	583.14	*	30.22	9.30E-01	1.20E-01	5.01E-01
		860.37		4.48	1.62E+00		2.44E+00
		2614.66	*	35.85	1.16E+00		1.20E-01
+	BI-210M	262.00		45.00	-5.18E-02	1.38E-01	1.38E-01
		300.00		23.00	-4.96E-03		3.62E-01
+	PB-210	46.50		4.25	1.36E+00	2.06E+00	2.06E+00
+	PB-211	404.84		2.90	-3.34E-01	2.31E+00	2.31E+00
		831.96		2.90	-7.49E-01		3.41E+00
+	BI-212	727.17	*	11.80	5.73E-01	9.54E-01	9.54E-01
		1620.62		2.75	1.65E+00		3.07E+00
+	PB-212	238.63	*	44.60	1.35E+00	3.24E-01	3.24E-01
		300.09		3.41	-3.34E-02		2.44E+00
+	BI-214	609.31	*	46.30	1.11E+00	2.56E-01	2.56E-01
		1120.29	*	15.10	1.66E+00		9.56E-01
		1764.49	*	15.80	1.46E+00		3.71E-01
		2204.22		4.98	9.69E-01		2.59E+00
+	PB-214	295.21	*	19.19	1.14E+00	3.50E-01	4.22E-01
		351.92	*	37.19	1.12E+00		3.50E-01
+	RN-219	401.80		6.50	3.42E-01	1.12E+00	1.12E+00
+	RA-223	323.87		3.88	-7.97E-01	1.90E+00	1.90E+00

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.84E+01	3.40E+00	3.40E+00
+	RA-225	40.00		31.00	1.17E+01	3.01E+01	3.01E+01
+	RA-226	186.21	*	3.28	3.55E+00	3.31E+00	3.31E+00
+	TH-227	50.10		8.40	-5.22E-01	8.81E-01	9.02E-01
		236.00		11.50	-8.61E-01		8.81E-01
		256.20		6.30	7.21E-01		1.05E+00
+	AC-228	338.32	*	11.40	9.46E-01	6.59E-01	9.08E-01
		911.07	*	27.70	1.10E+00		6.59E-01
		969.11	*	16.60	1.05E+00		1.16E+00
+	TH-230	48.44		16.90	1.30E-01	4.82E-01	4.82E-01
		62.85		4.60	1.48E+00		1.56E+00
		67.67		0.37	-5.78E+00		1.74E+01
+	PA-231	283.67		1.60	8.51E-01	3.19E+00	4.26E+00
		302.67		2.30	1.21E+00		3.19E+00
+	TH-231	25.64		14.70	1.10E+00	9.29E-01	3.10E+00
		84.21		6.40	-1.19E+00		9.29E-01
+	PA-233	311.98		38.60	-4.30E-01	1.95E+00	1.95E+00
+	PA-234	131.20		20.40	1.39E-01	2.63E-01	2.63E-01
		733.99		8.80	4.32E-01		1.03E+00
		946.00		12.00	-2.38E-01		8.96E-01
+	PA-234M	1001.03		0.92	-5.36E-01	1.15E+01	1.15E+01
+	TH-234	63.29	*	3.80	2.31E+00	2.86E+00	2.86E+00
+	U-235	143.76		10.50	2.16E-01	4.88E-01	4.88E-01
		163.35		4.70	1.53E-03		1.16E+00
		205.31		4.70	-1.38E+00		1.43E+00
+	NP-237	86.50	*	12.60	9.99E-01	1.14E+00	1.14E+00
+	NP-239	106.10		22.70	6.04E+09	3.12E+11	3.12E+11
		228.18		10.70	-5.64E+10		9.46E+11
		277.60		14.10	5.70E+11		7.85E+11
+	AM-241	59.54		35.90	3.61E-02	1.86E-01	1.86E-01
+	AM-243	74.67	*	66.00	3.17E-01	1.80E-01	1.80E-01
+	CM-243	209.75		3.29	5.03E-01	5.25E-01	2.13E+00
		228.14		10.60	-3.78E-02		6.33E-01
		277.60		14.00	3.81E-01		5.25E-01

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

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.20E+00	2.20E+00	-1.55E+00	1.04E+00
	NA-22	1274.54		99.94	1.26E-01	1.26E-01	-1.05E-02	5.78E-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	8.86E-02	8.86E-02	7.06E-03	3.79E-02
+	K-40	1460.81	*	10.67	1.09E+00	1.09E+00	2.62E+01	4.92E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	6.84E-02	6.84E-02	-2.27E-02	3.34E-02
		78.34		96.00	8.84E-02		2.49E-01	4.35E-02
	SC-46	889.25		99.98	2.02E-01	2.02E-01	-3.18E-02	9.32E-02
		1120.51		99.99	3.46E-01		4.16E-01	1.63E-01
	V-48	983.52		99.98	6.62E+00	6.62E+00	-7.48E-02	3.07E+00
		1312.10		97.50	7.28E+00		1.09E+00	3.32E+00
	CR-51	320.08		9.83	8.02E+00	8.02E+00	4.07E+00	3.85E+00
	MN-54	834.83		99.97	1.29E-01	1.29E-01	-1.93E-03	6.02E-02
	CO-56	846.75		99.96	2.19E-01	2.19E-01	3.11E-02	1.01E-01
		1037.75		14.03	1.70E+00		-7.34E-01	7.82E-01
		1238.25		67.00	5.21E-01		2.03E-01	2.44E-01
		1771.40		15.51	1.04E+00		-1.13E+00	4.25E-01
		2598.48		16.90	5.93E-01		-2.42E-01	1.87E-01
	CO-57	122.06		85.51	7.06E-02	7.06E-02	-1.65E-02	3.43E-02
		136.48		10.60	6.32E-01		2.68E-01	3.07E-01
	CO-58	810.76		99.40	2.32E-01	2.32E-01	2.00E-02	1.08E-01
	FE-59	1099.22		56.50	8.24E-01	8.24E-01	-3.68E-02	3.79E-01
		1291.56		43.20	1.25E+00		4.87E-01	5.74E-01
	CO-60	1173.22		100.00	1.34E-01	1.11E-01	6.75E-02	6.22E-02
		1332.49		100.00	1.11E-01		3.07E-02	5.05E-02
	ZN-65	1115.52		50.75	2.88E-01	2.88E-01	0.00E+00	1.33E-01
	GA-67	93.31		35.70	1.12E+08	1.12E+08	1.37E+08	5.49E+07
		208.95		2.24	1.95E+09		7.64E+08	9.47E+08
		300.22		16.00	3.26E+08		-4.47E+06	1.58E+08
	SE-75	121.11		16.70	4.83E-01	1.52E-01	-1.63E-01	2.34E-01
		136.00		59.20	1.52E-01		-5.81E-03	7.37E-02
		264.65		59.80	1.86E-01		-6.91E-02	8.93E-02
		279.53		25.20	4.81E-01		4.35E-02	2.32E-01
		400.65		11.40	1.15E+00		7.03E-01	5.46E-01
	RB-82	776.52		13.00	8.78E+00	8.78E+00	-5.22E+00	4.07E+00
	RB-83	520.41		46.00	3.29E-01	3.29E-01	-7.30E-02	1.54E-01
		529.64		30.30	5.11E-01		1.24E-01	2.40E-01
		552.65		16.40	1.05E+00		1.15E-02	4.92E-01
	KR-85	513.99		0.43	2.43E+01	2.43E+01	3.49E+00	1.16E+01
	SR-85	513.99		99.27	2.89E-01	2.89E-01	4.15E-02	1.39E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	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	1.83E-01	1.41E-01	-6.78E-02	8.41E-02
		1836.01		99.38	1.41E-01		-3.22E-02	5.84E-02
	MO-93	263.06		56.72	1.10E-01	9.28E-02	-6.65E-02	5.27E-02
		684.67		99.68	9.53E-02		3.19E-03	4.48E-02
		1477.11		99.08	9.28E-02		1.39E-02	4.08E-02
	NB-93M	16.57		9.43	7.55E+01	7.55E+01	-1.62E+00	3.68E+01
	NB-94	702.63		100.00	9.99E-02	7.70E-02	2.11E-02	4.71E-02
		871.10		100.00	7.70E-02		-6.11E-03	3.50E-02
	NB-95	765.79		99.81	6.53E-01	6.53E-01	5.10E-02	3.06E-01
	NB-95M	235.69		25.00	3.58E+07	3.58E+07	-3.50E+07	1.75E+07
	ZR-95	724.18		43.70	6.31E-01	4.85E-01	6.52E-02	2.96E-01
		756.72		55.30	4.85E-01		6.89E-02	2.27E-01
	MO-99	181.06		6.20	2.38E+10	1.85E+10	9.20E+09	1.15E+10
		739.58		12.80	1.85E+10		1.30E+08	8.63E+09
		778.00		4.50	5.35E+10		-8.67E+09	2.49E+10
	RU-103	497.08		89.00	4.63E-01	4.63E-01	1.19E-01	2.19E-01
	RU-106	621.84		9.80	1.01E+00	1.01E+00	-3.09E-01	4.73E-01
	AG-108M	433.93		89.90	8.52E-02	8.52E-02	-1.63E-02	4.05E-02
		614.37		90.40	1.19E-01		-8.81E-03	5.66E-02
		722.95		90.50	1.04E-01		8.95E-03	4.88E-02
+	CD-109	88.03	*	3.72	4.45E+00	4.45E+00	3.90E+00	2.20E+00
	AG-110M	657.75		93.14	1.25E-01	1.25E-01	1.13E-02	5.85E-02
		677.61		10.53	1.12E+00		4.20E-01	5.25E-01
		706.67		16.46	7.52E-01		-2.14E-01	3.53E-01
		763.93		21.98	5.63E-01		-1.35E-01	2.63E-01
		884.67		71.63	1.76E-01		-9.50E-02	8.13E-02
		1384.27		23.94	4.05E-01		-1.12E-01	1.75E-01
	CD-113M	263.70		0.02	2.78E+02	2.78E+02	-1.40E+02	1.33E+02
	SN-113	255.12		1.93	6.00E+00	2.07E-01	1.49E+00	2.89E+00
		391.69		64.90	2.07E-01		1.54E-02	9.88E-02
	TE123M	159.00		84.10	1.07E-01	1.07E-01	-1.19E-02	5.20E-02
	SB-124	602.71		97.87	2.72E-01	2.72E-01	1.56E-01	1.28E-01
		645.85		7.26	3.42E+00		-5.96E-01	1.60E+00
		722.78		11.10	2.54E+00		2.18E-01	1.19E+00
		1691.02		49.00	5.14E-01		1.40E-01	2.20E-01
	I-125	35.49		6.49	6.45E+00	6.45E+00	-1.58E+00	3.14E+00
	SB-125	176.33		6.89	8.33E-01	2.58E-01	-8.63E-03	4.03E-01
		427.89		29.33	2.58E-01		-4.69E-02	1.22E-01
		463.38		10.35	8.24E-01		-1.36E-01	3.92E-01
		600.56		17.80	5.20E-01		4.57E-02	2.45E-01
		635.90		11.32	7.81E-01		-1.46E-01	3.65E-01
	SB-126	414.70		83.30	1.75E+01	1.75E+01	-1.68E+01	8.31E+00
		666.33		99.60	1.82E+01		-2.63E+00	8.52E+00
		695.00		99.60	1.91E+01		-1.07E+01	8.96E+00
		720.50		53.80	3.52E+01		-7.53E+00	1.65E+01
+	SN-126	87.57	*	37.00	3.88E-01	3.88E-01	3.40E-01	1.92E-01
	SB-127	473.00		25.00	7.73E+06	7.40E+06	-4.76E+06	3.64E+06
		685.20		35.70	7.40E+06		2.47E+05	3.47E+06
		783.80		14.70	2.00E+07		1.40E+07	9.40E+06
	I-129	29.78		57.00	4.17E-01	4.17E-01	-1.77E-01	2.03E-01
		33.60		13.20	1.25E+00		6.68E-01	6.07E-01
		39.58		7.52	1.46E+00		5.71E-01	7.13E-01
	I-131	284.30		6.05	4.05E+03	3.14E+02	-5.56E+02	1.95E+03

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	3.14E+02	3.14E+02	1.10E+01	1.50E+02
	636.97	7.26	4.30E+03		7.64E+02	2.02E+03
	722.89	1.80	1.93E+04		1.66E+03	9.05E+03
TE-132	49.72	13.10	3.72E+08	4.83E+07	-2.15E+08	1.81E+08
	228.16	88.00	4.83E+07		-2.88E+06	2.34E+07
BA-133	81.00	33.00	2.00E-01	1.87E-01	-3.38E-01	9.80E-02
	302.84	17.80	4.20E-01		1.59E-01	2.02E-01
	356.01	60.00	1.87E-01		2.78E-01	9.10E-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	5.06E+04	5.06E+04	-8.54E+04	2.48E+04
CS-134	563.23	8.38	9.79E-01	1.04E-01	-2.03E-02	4.59E-01
	569.32	15.43	5.27E-01		-2.92E-01	2.46E-01
	604.70	97.60	1.04E-01		-1.32E-03	4.90E-02
	795.84	85.40	1.22E-01		3.19E-02	5.67E-02
	801.93	8.73	1.11E+00		1.07E-01	5.13E-01
CS-135	268.24	16.00	4.44E-01	4.44E-01	1.05E-01	2.14E-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	1.09E+02	1.46E+01	3.48E+01	5.28E+01
	163.89	4.61	1.80E+02		2.37E-01	8.72E+01
	176.55	13.56	6.01E+01		-6.22E-01	2.91E+01
	273.65	12.66	8.98E+01		2.36E+01	4.34E+01
	340.57	48.50	2.87E+01		5.09E+01	1.39E+01
	818.50	99.70	1.46E+01		-1.84E+00	6.79E+00
	1048.07	79.60	2.03E+01		-1.44E+00	9.38E+00
	1235.34	19.70	1.19E+02		-4.41E+00	5.57E+01
CS-137	661.65	85.12	1.10E-01	1.10E-01	2.08E-02	5.15E-02
LA-138	788.74	34.00	3.10E-01	1.34E-01	-6.95E-02	1.46E-01
	1435.80	66.00	1.34E-01		5.57E-02	5.89E-02
CE-139	165.85	80.35	1.13E-01	1.13E-01	5.91E-02	5.47E-02
BA-140	162.64	6.70	1.40E+02	5.14E+01	-2.43E+01	6.80E+01
	304.84	4.50	2.67E+02		-5.94E+01	1.28E+02
	423.70	3.20	4.11E+02		6.44E+01	1.95E+02
	437.55	2.00	7.01E+02		2.16E+02	3.34E+02
	537.32	25.00	5.14E+01		-8.19E+00	2.41E+01
LA-140	328.77	20.50	6.58E+01	1.76E+01	3.21E+01	3.17E+01
	487.03	45.50	2.73E+01		-1.02E+01	1.29E+01
	815.85	23.50	6.92E+01		-9.78E+00	3.21E+01
	1596.49	95.49	1.76E+01		-3.14E-01	7.74E+00
CE-141	145.44	48.40	8.03E-01	8.03E-01	1.32E-01	3.89E-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	5.96E-01	5.96E-01	-3.28E-02	2.89E-01
PM-144	476.78	42.00	1.97E-01	1.05E-01	-4.51E-02	9.27E-02
	618.01	98.60	1.05E-01		1.21E-02	4.96E-02
	696.49	99.49	1.18E-01		2.71E-02	5.54E-02
PM-145	36.85	21.70	5.96E-01	3.16E-01	1.30E-03	2.90E-01
	37.36	39.70	3.16E-01		-8.75E-02	1.54E-01
	42.30	15.10	6.23E-01		-5.92E-01	3.03E-01
	72.40	2.31	3.13E+00		-5.61E+00	1.54E+00
PM-146	453.90	39.94	2.12E-01	2.12E-01	3.88E-02	1.01E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	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	6.45E-01	2.12E-01	1.72E-01	3.00E-01
		747.13		13.10	6.83E-01		-1.45E-01	3.18E-01
+	ND-147	91.11	*	28.90	2.03E+02	2.03E+02	8.84E+01	1.01E+02
		531.02		13.10	2.31E+02		5.93E+01	1.09E+02
	PM-149	285.90		3.10	2.05E+13	2.05E+13	4.93E+12	9.85E+12
	EU-152	121.78		20.50	2.34E-01	2.34E-01	-5.44E-02	1.13E-01
		244.69		5.40	1.58E+00		-3.28E+00	7.67E-01
		344.27		19.13	3.99E-01		-2.53E-02	1.91E-01
		778.89		9.20	9.58E-01		-2.83E-01	4.44E-01
		964.01		10.40	1.26E+00		-5.90E-01	5.93E-01
		1085.78		7.22	1.58E+00		-5.00E-01	7.29E-01
		1112.02		9.60	1.12E+00		1.36E-01	5.14E-01
		1407.95		14.94	6.95E-01		2.79E-01	3.12E-01
	GD-153	97.43		31.30	2.15E-01	2.15E-01	-2.59E-01	1.05E-01
		103.18		22.20	2.73E-01		-1.15E-01	1.33E-01
	EU-154	123.07		40.50	1.24E-01	1.24E-01	-1.30E-03	6.01E-02
		723.30		19.70	4.88E-01		4.19E-02	2.28E-01
		873.19		11.50	6.76E-01		-7.90E-02	3.07E-01
		996.32		10.30	9.65E-01		-1.44E-01	4.44E-01
		1004.76		17.90	6.04E-01		-2.60E-01	2.80E-01
		1274.45		35.50	3.38E-01		-2.83E-02	1.55E-01
	EU-155	86.50		30.90	2.20E-01	2.20E-01	1.83E-01	1.08E-01
		105.30		20.70	2.33E-01		4.52E-03	1.13E-01
	EU-156	811.77		10.40	6.71E+01	6.71E+01	-5.41E-01	3.11E+01
		1153.47		7.20	1.49E+02		1.07E+02	6.98E+01
		1230.71		8.90	1.19E+02		-1.51E+01	5.53E+01
	HO-166M	184.41		72.60	9.43E-02	9.43E-02	1.37E-01	4.59E-02
		280.45		29.60	2.30E-01		-8.67E-02	1.11E-01
		410.94		11.10	7.19E-01		4.08E-01	3.43E-01
		711.69		54.10	1.78E-01		-3.10E-02	8.35E-02
	TM-171	66.72		0.14	5.24E+01	5.24E+01	-2.77E+01	2.57E+01
	HF-172	67.35		5.31	1.34E+00	5.00E-01	-4.45E-01	6.56E-01
		125.81		11.30	5.00E-01		-8.43E-02	2.43E-01
	LU-172	181.53		20.60	5.14E+03	3.55E+03	4.73E+02	2.49E+03
		900.72		29.81	6.13E+03		-4.53E+02	2.83E+03
		1093.66		62.50	3.55E+03		9.89E+02	1.64E+03
	LU-173	100.72		5.24	1.04E+00	4.05E-01	7.16E-02	5.07E-01
		272.11		21.20	4.05E-01		1.14E-01	1.96E-01
	HF-175	343.40		84.00	2.30E-01	2.30E-01	-1.46E-02	1.10E-01
	LU-176	88.34		13.30	5.11E-01	6.98E-02	6.62E-01	2.50E-01
		201.83		86.00	6.98E-02		5.33E-02	3.38E-02
		306.78		94.00	7.03E-02		-1.90E-02	3.37E-02
	HF-181	133.02		41.70	5.87E-01	4.10E-01	1.90E-02	2.85E-01
		345.85		17.20	2.03E+00		-1.32E-01	9.72E-01
		482.03		82.80	4.10E-01		-7.47E-03	1.93E-01
	TA-182	67.75		41.20	2.78E-01	2.78E-01	-9.25E-02	1.36E-01
		1121.30		34.90	8.07E-01		1.03E+00	3.81E-01
		1189.05		16.23	1.53E+00		1.15E-01	7.16E-01
		1221.41		26.98	9.42E-01		-8.96E-02	4.40E-01
		1231.02		11.44	2.13E+00		-2.70E-01	9.91E-01
	IR-192	308.46		29.68	5.46E-01	3.80E-01	3.53E-02	2.62E-01
		468.07		48.10	3.80E-01		-1.73E-01	1.80E-01
	HG-203	279.19		77.30	3.75E-01	3.75E-01	-1.03E-02	1.81E-01

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	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	8.16E-02	8.16E-02	1.76E-02	3.90E-02
		899.15		99.16	9.90E-02		-1.40E-02	4.57E-02
		911.74		91.10	2.00E-01		3.12E-01	9.60E-02
	BI-207	569.67		97.72	7.91E-02	7.91E-02	-1.20E-02	3.71E-02
		1063.62		74.90	1.28E-01		-6.35E-02	5.83E-02
+	TL-208	583.14	*	30.22	5.01E-01	1.20E-01	9.30E-01	2.43E-01
		860.37		4.48	2.44E+00		1.62E+00	1.14E+00
		2614.66	*	35.85	1.20E-01		1.16E+00	3.77E-02
	BI-210M	262.00		45.00	1.38E-01	1.38E-01	-5.18E-02	6.62E-02
		300.00		23.00	3.62E-01		-4.96E-03	1.75E-01
	PB-210	46.50		4.25	2.06E+00	2.06E+00	1.36E+00	1.01E+00
	PB-211	404.84		2.90	2.31E+00	2.31E+00	-3.34E-01	1.10E+00
		831.96		2.90	3.41E+00		-7.49E-01	1.59E+00
+	BI-212	727.17	*	11.80	9.54E-01	9.54E-01	5.73E-01	4.52E-01
		1620.62		2.75	3.07E+00		1.65E+00	1.32E+00
+	PB-212	238.63	*	44.60	3.24E-01	3.24E-01	1.35E+00	1.60E-01
		300.09		3.41	2.44E+00		-3.34E-02	1.18E+00
+	BI-214	609.31	*	46.30	2.56E-01	2.56E-01	1.11E+00	1.22E-01
		1120.29	*	15.10	9.56E-01		1.66E+00	4.49E-01
		1764.49	*	15.80	3.71E-01		1.46E+00	1.46E-01
		2204.22		4.98	2.59E+00		9.69E-01	1.15E+00
+	PB-214	295.21	*	19.19	4.22E-01	3.50E-01	1.14E+00	2.04E-01
		351.92	*	37.19	3.50E-01		1.12E+00	1.71E-01
	RN-219	401.80		6.50	1.12E+00	1.12E+00	3.42E-01	5.32E-01
	RA-223	323.87		3.88	1.90E+00	1.90E+00	-7.97E-01	9.11E-01
	RA-224	240.98		3.95	3.40E+00	3.40E+00	1.84E+01	1.67E+00
	RA-225	40.00		31.00	3.01E+01	3.01E+01	1.17E+01	1.47E+01
+	RA-226	186.21	*	3.28	3.31E+00	3.31E+00	3.55E+00	1.63E+00
	TH-227	50.10		8.40	9.02E-01	8.81E-01	-5.22E-01	4.40E-01
		236.00		11.50	8.81E-01		-8.61E-01	4.31E-01
		256.20		6.30	1.05E+00		7.21E-01	5.07E-01
+	AC-228	338.32	*	11.40	9.08E-01	6.59E-01	9.46E-01	4.41E-01
		911.07	*	27.70	6.59E-01		1.10E+00	3.17E-01
		969.11	*	16.60	1.16E+00		1.05E+00	5.55E-01
	TH-230	48.44		16.90	4.82E-01	4.82E-01	1.30E-01	2.35E-01
		62.85		4.60	1.56E+00		1.48E+00	7.63E-01
		67.67		0.37	1.74E+01		-5.78E+00	8.52E+00
	PA-231	283.67		1.60	4.26E+00	3.19E+00	8.51E-01	2.05E+00
		302.67		2.30	3.19E+00		1.21E+00	1.54E+00
	TH-231	25.64		14.70	3.10E+00	9.29E-01	1.10E+00	1.51E+00
		84.21		6.40	9.29E-01		-1.19E+00	4.54E-01
	PA-233	311.98		38.60	1.95E+00	1.95E+00	-4.30E-01	9.34E-01
	PA-234	131.20		20.40	2.63E-01	2.63E-01	1.39E-01	1.28E-01
		733.99		8.80	1.03E+00		4.32E-01	4.80E-01
		946.00		12.00	8.96E-01		-2.38E-01	4.17E-01
	PA-234M	1001.03		0.92	1.15E+01	1.15E+01	-5.36E-01	5.31E+00
+	TH-234	63.29	*	3.80	2.86E+00	2.86E+00	2.31E+00	1.41E+00
	U-235	143.76		10.50	4.88E-01	4.88E-01	2.16E-01	2.37E-01
		163.35		4.70	1.16E+00		1.53E-03	5.64E-01
		205.31		4.70	1.43E+00		-1.38E+00	6.93E-01
+	NP-237	86.50	*	12.60	1.14E+00	1.14E+00	9.99E-01	5.65E-01
	NP-239	106.10		22.70	3.12E+11	3.12E+11	6.04E+09	1.51E+11
		228.18		10.70	9.46E+11		-5.64E+10	4.58E+11

Analysis Report for 1707084-14

HTC-A02-S001-2430-01

	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	7.85E+11	3.12E+11	5.70E+11	3.79E+11
	AM-241	59.54		35.90	1.86E-01	1.86E-01	3.61E-02	9.09E-02
+	AM-243	74.67	*	66.00	1.80E-01	1.80E-01	3.17E-01	8.90E-02
	CM-243	209.75		3.29	2.13E+00	5.25E-01	5.03E-01	1.04E+00
		228.14		10.60	6.33E-01		-3.78E-02	3.07E-01
		277.60		14.00	5.25E-01		3.81E-01	2.53E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S001-2430-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	3	145	198	163	156	127	94	104
17:	118	87	93	82	71	83	90	108
25:	91	70	97	93	81	84	71	96
33:	91	85	95	91	87	93	98	98
41:	102	94	90	79	95	120	127	124
49:	102	112	100	99	116	116	106	114
57:	115	116	116	126	110	144	144	199
65:	172	131	142	147	128	132	126	161
73:	136	186	287	320	323	438	276	148
81:	136	107	112	128	115	133	169	218
89:	171	145	163	122	168	219	151	102
97:	88	111	82	96	79	80	74	63
105:	81	72	87	78	64	86	102	85
113:	77	85	65	94	71	64	65	60
121:	68	84	67	75	85	80	91	75
129:	82	99	87	82	79	72	69	77
137:	76	89	82	68	66	49	78	71
145:	81	73	54	64	66	68	70	75
153:	71	74	68	68	62	65	61	72
161:	60	63	66	81	62	70	73	67
169:	71	47	57	46	63	55	51	60
177:	56	56	74	57	63	50	56	76
185:	59	104	162	72	62	65	56	69
193:	49	58	55	54	43	48	53	58
201:	64	59	62	60	45	47	58	58
209:	42	63	75	48	45	53	61	55
217:	38	48	43	49	47	60	29	46
225:	42	41	49	45	46	36	50	49
233:	52	37	56	46	57	121	320	314
241:	144	110	108	68	44	35	29	47
249:	30	36	26	34	35	45	38	30
257:	34	28	40	26	28	24	27	33
265:	31	33	38	33	43	41	47	49
273:	31	39	42	36	45	39	32	31
281:	40	20	32	31	28	38	32	27
289:	29	26	29	26	32	30	91	142
297:	89	26	41	34	50	33	30	28
305:	24	31	29	23	23	22	29	23
313:	21	28	24	24	29	16	27	33
321:	37	31	30	27	21	31	27	37
329:	34	30	30	30	31	25	23	29
337:	15	55	76	45	38	26	26	30
345:	20	22	29	28	25	20	61	159
353:	201	62	29	26	27	25	28	18
361:	15	26	14	15	24	22	15	27

369:	25	21	21	22	21	14	34	27

Sample Title: HTC-A02-S001-2430-01

Channel								
377:	18	18	25	14	27	21	17	23
385:	16	19	23	18	16	23	28	19
393:	31	18	17	23	20	21	17	27
401:	24	15	17	23	10	12	16	18
409:	21	36	24	12	27	17	15	24
417:	11	13	17	24	14	21	17	24
425:	13	15	25	11	18	15	15	16
433:	14	23	25	19	16	16	29	16
441:	18	14	19	9	19	10	10	13
449:	17	12	22	19	25	10	17	23
457:	20	13	19	19	15	15	25	26
465:	14	18	11	21	17	16	9	11
473:	16	14	12	8	15	14	10	13
481:	8	20	13	17	10	12	12	11
489:	11	15	13	15	11	6	15	16
497:	17	11	17	18	13	11	16	13
505:	9	16	14	21	12	24	50	45
513:	25	19	7	15	15	8	11	10
521:	14	14	6	13	13	7	5	10
529:	12	11	12	11	16	9	9	17
537:	7	8	15	13	12	10	9	12
545:	17	18	14	18	10	14	10	15
553:	20	9	10	10	11	12	12	10
561:	15	7	9	14	11	9	13	7
569:	10	12	12	9	14	15	12	11
577:	14	7	11	12	13	22	78	75
585:	46	14	8	8	10	17	15	10
593:	4	8	16	7	23	7	9	24
601:	12	11	13	14	9	11	16	28
609:	84	123	70	11	12	8	7	14
617:	13	15	14	10	12	13	12	11
625:	4	20	4	19	6	10	12	9
633:	10	12	10	4	9	8	20	13
641:	12	8	10	13	10	7	15	8
649:	8	13	11	6	8	10	6	13
657:	7	21	5	15	13	13	12	18
665:	10	11	6	9	10	9	13	10
673:	4	8	9	13	10	11	12	11
681:	12	13	9	16	11	6	10	17
689:	9	14	18	13	5	12	12	9
697:	12	15	12	15	10	15	16	10
705:	12	12	15	5	15	11	9	14
713:	14	6	12	14	15	13	6	10
721:	12	15	6	10	10	12	17	28
729:	13	8	6	14	11	9	9	5
737:	13	5	10	7	4	12	12	12
745:	9	7	7	5	13	6	8	8
753:	10	10	12	12	10	7	7	13
761:	13	6	6	9	5	9	21	12
769:	13	7	15	11	12	6	14	9
777:	11	7	4	3	11	10	9	9
785:	17	8	16	8	12	15	12	10
793:	12	14	10	10	9	6	3	11

801:	13	8	6	7	6	5	9	5

Sample Title: HTC-A02-S001-2430-01

Channel								
809:	11	5	9	8	7	11	4	12
817:	5	9	10	12	7	7	15	7
825:	6	11	11	7	8	10	7	13
833:	8	5	13	16	7	9	6	17
841:	9	5	2	10	7	8	10	4
849:	6	11	6	9	16	8	12	5
857:	5	7	10	8	21	12	11	6
865:	3	3	8	5	6	5	7	4
873:	2	5	6	4	6	4	8	15
881:	13	8	11	8	9	6	8	4
889:	11	6	7	6	6	8	8	7
897:	6	11	5	7	3	10	9	6
905:	7	10	5	11	9	21	57	47
913:	19	14	11	11	15	8	5	4
921:	7	9	9	9	6	7	5	10
929:	6	8	3	13	9	13	12	8
937:	7	12	8	11	9	8	11	3
945:	7	6	10	9	14	18	5	7
953:	16	9	3	12	5	9	6	7
961:	11	5	9	21	16	15	9	13
969:	33	30	5	9	4	6	5	8
977:	5	5	11	9	3	8	4	8
985:	12	11	8	3	8	5	7	7
993:	7	3	8	4	6	12	4	8
1001:	6	6	10	6	9	10	6	5
1009:	10	13	9	8	7	3	8	8
1017:	6	6	3	10	3	8	12	8
1025:	6	1	4	6	9	8	6	4
1033:	9	5	8	4	4	10	7	7
1041:	6	10	10	9	6	9	7	10
1049:	8	6	3	5	7	9	10	3
1057:	10	8	6	3	2	0	7	11
1065:	7	5	5	9	12	8	7	8
1073:	11	7	6	6	5	7	8	14
1081:	6	4	11	4	9	7	6	9
1089:	5	11	12	7	5	4	9	10
1097:	7	4	6	6	5	6	5	8
1105:	9	8	7	4	9	8	4	11
1113:	3	4	4	8	7	11	10	27
1121:	29	7	8	8	3	5	4	6
1129:	9	5	10	9	5	8	7	7
1137:	4	11	12	3	5	2	12	16
1145:	8	9	8	5	3	7	9	7
1153:	9	11	13	16	8	8	4	6
1161:	7	7	6	5	4	13	9	7
1169:	8	6	9	12	8	10	8	7
1177:	3	6	7	10	7	14	11	13
1185:	10	8	8	10	8	9	13	13
1193:	8	7	9	5	12	11	11	13
1201:	8	11	6	12	8	10	14	8
1209:	11	9	15	12	9	12	7	16
1217:	10	11	10	12	7	6	11	12
1225:	11	6	13	9	8	5	13	5

1233:	12	10	9	14	12	18	16	5

Sample Title: HTC-A02-S001-2430-01

Channel								
1241:	2	6	8	12	9	9	9	6
1249:	4	8	9	9	6	9	3	9
1257:	9	7	4	3	9	6	6	7
1265:	2	6	5	5	8	7	10	4
1273:	3	7	6	4	8	8	6	13
1281:	10	7	2	4	2	5	3	4
1289:	8	5	5	7	11	5	3	7
1297:	3	7	10	4	7	1	9	5
1305:	3	6	5	6	3	4	11	6
1313:	5	4	4	2	6	6	2	5
1321:	11	4	6	7	5	4	2	6
1329:	2	5	6	7	5	4	3	3
1337:	3	4	4	4	6	1	5	2
1345:	2	4	4	5	5	6	3	4
1353:	3	3	4	4	4	6	4	5
1361:	4	2	4	1	2	2	1	0
1369:	4	2	3	4	4	2	4	5
1377:	3	7	5	3	1	1	2	3
1385:	3	3	0	0	3	2	4	2
1393:	0	2	4	4	1	4	5	2
1401:	5	5	1	3	2	2	8	8
1409:	4	2	0	6	1	5	2	1
1417:	0	3	4	3	1	2	3	1
1425:	0	1	3	6	0	2	2	1
1433:	1	2	4	3	2	3	3	0
1441:	2	1	2	2	1	4	2	3
1449:	4	3	2	1	1	2	5	2
1457:	1	25	93	199	232	123	23	3
1465:	1	2	2	0	1	2	2	4
1473:	2	2	2	2	2	1	2	4
1481:	1	1	0	2	0	2	2	1
1489:	1	2	2	3	0	1	0	0
1497:	0	1	1	4	3	2	2	2
1505:	1	1	1	2	4	5	3	4
1513:	1	1	1	1	2	1	3	1
1521:	2	1	1	1	3	3	0	1
1529:	4	2	4	1	0	1	3	3
1537:	1	2	2	7	1	0	3	0
1545:	0	1	7	1	0	3	1	1
1553:	1	1	0	2	1	1	1	3
1561:	2	3	2	3	0	4	1	0
1569:	1	1	2	0	1	1	1	1
1577:	1	4	1	1	3	0	1	2
1585:	1	1	4	12	2	1	6	8
1593:	2	1	2	0	1	2	2	0
1601:	1	2	0	0	0	1	0	0
1609:	0	1	1	1	2	0	0	0
1617:	2	3	2	0	2	2	1	1
1625:	1	0	0	2	2	3	8	4
1633:	1	0	0	0	3	2	0	6
1641:	0	0	3	0	1	0	3	0
1649:	1	1	2	2	4	0	1	1
1657:	2	1	0	3	3	0	2	2

1665:	1	1	1	0	0	0	0	0

Sample Title: HTC-A02-S001-2430-01

Channel								
1673:	2	3	0	3	1	0	2	1
1681:	1	2	1	0	0	2	1	1
1689:	0	0	2	4	1	2	1	0
1697:	1	2	1	0	1	1	0	2
1705:	3	0	0	0	2	2	3	2
1713:	1	0	2	2	0	0	1	2
1721:	1	0	0	0	1	2	1	3
1729:	3	3	1	3	1	1	3	2
1737:	2	0	2	4	0	1	3	2
1745:	0	0	2	2	0	1	1	0
1753:	0	0	1	1	1	0	1	1
1761:	2	3	10	13	15	8	0	0
1769:	0	2	1	0	1	1	2	1
1777:	2	1	1	0	1	0	1	0
1785:	1	1	1	0	1	0	1	1
1793:	0	0	0	2	1	1	0	0
1801:	1	3	2	2	3	1	1	1
1809:	1	2	1	0	0	1	1	0
1817:	1	1	1	2	0	1	0	1
1825:	1	0	1	0	0	0	2	0
1833:	0	2	2	2	1	0	1	0
1841:	1	2	0	2	1	0	2	1
1849:	2	2	0	0	1	0	0	3
1857:	0	0	1	2	1	1	0	2
1865:	1	1	0	1	2	1	1	1
1873:	1	2	2	3	1	0	1	1
1881:	3	0	0	2	0	2	1	2
1889:	1	2	0	1	0	1	0	0
1897:	0	1	1	2	2	2	0	2
1905:	0	3	0	0	2	0	2	2
1913:	0	2	0	0	0	1	1	1
1921:	1	1	1	0	0	0	1	0
1929:	1	1	1	0	0	0	2	2
1937:	0	0	3	1	0	1	1	0
1945:	0	1	0	1	0	0	1	0
1953:	0	1	1	1	3	2	2	0
1961:	2	1	0	0	0	1	0	1
1969:	1	0	0	0	0	1	1	1
1977:	0	0	2	1	0	0	0	0
1985:	1	1	1	1	1	0	1	2
1993:	1	0	1	0	1	2	2	0
2001:	0	0	1	0	0	0	0	4
2009:	1	1	1	2	0	1	0	1
2017:	1	0	2	1	0	2	2	3
2025:	1	0	1	1	1	1	1	1
2033:	2	2	1	0	4	0	1	0
2041:	1	0	2	0	0	0	2	4
2049:	0	1	1	1	1	1	0	2
2057:	0	1	1	0	1	0	0	0
2065:	2	2	0	1	2	1	0	1
2073:	0	0	0	0	1	1	1	2
2081:	2	0	0	1	1	1	1	1
2089:	0	0	1	2	4	0	2	2

2097:	0	1	0	1	3	4	6	1

Sample Title: HTC-A02-S001-2430-01

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

2529:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S001-2430-01

Channel								
2537:	0	0	1	0	0	0	0	1
2545:	1	1	0	0	1	1	1	0
2553:	2	0	0	0	0	0	1	0
2561:	0	1	0	0	0	0	1	0
2569:	0	0	1	0	0	0	0	1
2577:	1	0	0	0	0	0	0	0
2585:	0	1	0	2	0	0	0	1
2593:	0	0	0	0	0	0	0	1
2601:	0	0	1	0	1	1	0	0
2609:	0	2	2	13	23	15	13	3
2617:	1	0	0	0	0	0	1	0
2625:	1	0	0	0	0	0	0	0
2633:	1	0	0	0	0	1	0	0
2641:	0	0	0	0	0	0	0	0
2649:	1	0	0	0	0	1	0	0
2657:	1	0	1	0	0	0	0	1
2665:	0	0	0	0	0	0	0	0
2673:	0	1	1	0	0	1	0	0
2681:	1	0	1	0	0	0	0	0
2689:	0	0	0	0	1	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	1	0	1	0	1	0	2
2713:	1	0	0	1	0	1	0	0
2721:	0	0	1	1	0	0	1	0
2729:	0	1	0	0	0	0	0	0
2737:	0	0	0	0	0	0	0	0
2745:	0	1	0	0	0	0	0	0
2753:	0	0	1	0	0	0	0	0
2761:	0	1	0	0	1	0	0	0
2769:	1	0	0	0	0	0	0	0
2777:	0	1	0	0	0	0	0	0
2785:	0	0	0	1	0	0	1	1
2793:	0	0	0	0	0	0	0	0
2801:	1	0	0	0	0	0	1	0
2809:	0	0	0	0	0	0	0	1
2817:	0	1	0	1	0	0	0	1
2825:	0	0	1	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	0	1	0	0	0	0	0	0
2849:	0	0	0	1	0	0	0	0
2857:	0	1	0	0	0	0	1	0
2865:	1	0	0	0	1	0	0	0
2873:	1	0	1	0	0	0	1	0
2881:	0	0	0	1	0	0	0	0
2889:	0	1	0	0	1	1	0	1
2897:	0	0	0	0	0	0	1	0
2905:	0	1	0	0	0	1	0	0
2913:	0	0	0	0	0	0	1	1
2921:	1	0	0	0	0	0	0	0
2929:	0	0	0	0	0	0	1	0
2937:	1	2	0	0	0	1	0	0
2945:	0	0	0	0	0	1	0	0
2953:	0	0	0	0	0	1	0	0

2961:	0	0	0	1	0	0	1	0

Sample Title: HTC-A02-S001-2430-01

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

3393:	0	0	1	0	0	0	0	0

Sample Title: HTC-A02-S001-2430-01

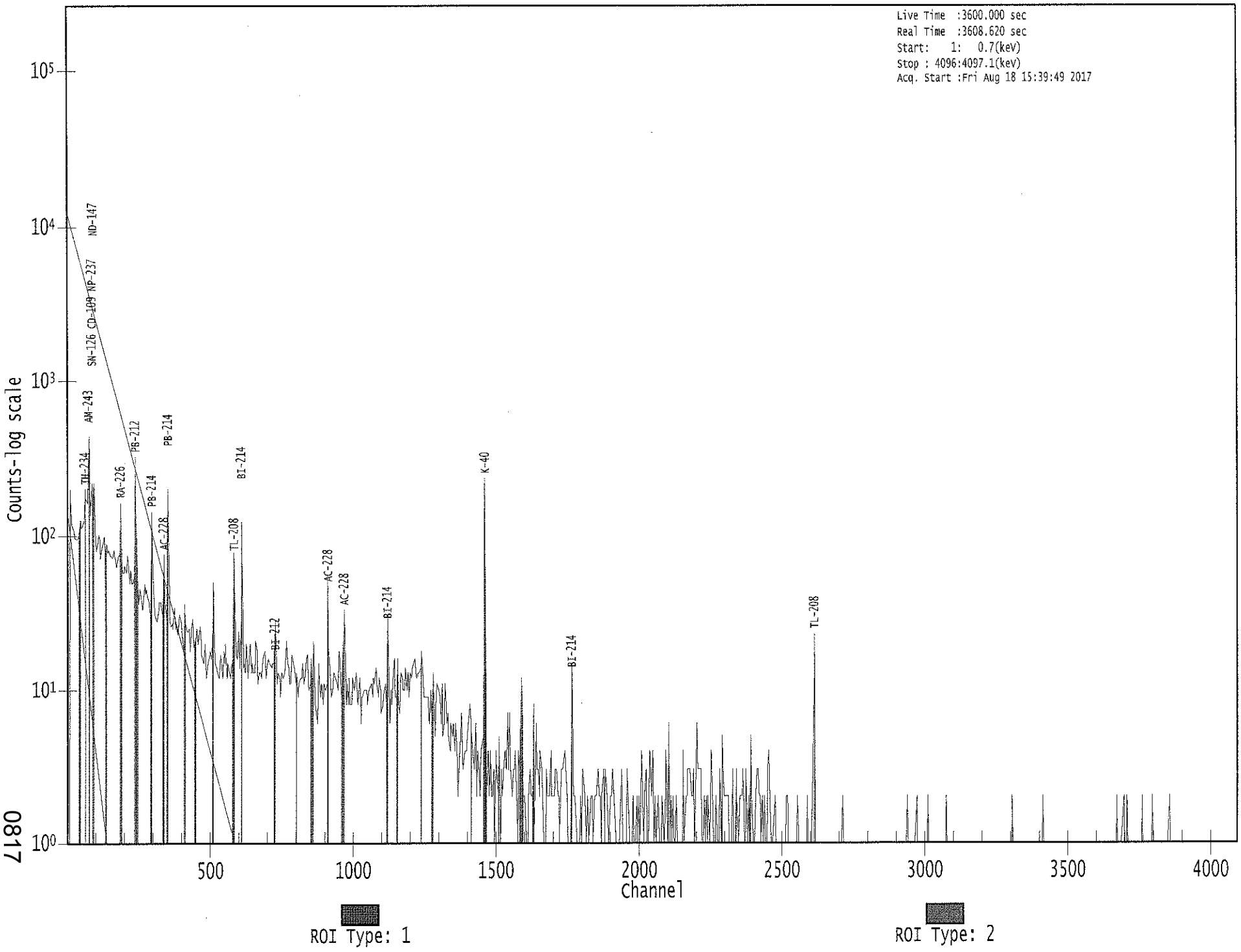
Channel								
3401:	0	0	1	0	0	0	0	0
3409:	0	0	0	2	0	0	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	1	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	1	0	0	0	0	0	0
3465:	0	0	0	0	0	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	1	1	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-2430-01

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

0000055527.CNF



0817

VB 8/18/17

Apex-Gamma

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-15
Sample Description	: HTC-A02-S001-3036-01
Sample Type	: SOIL
Sample Size	: 5.697E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:08:57AM
Acquisition Started	: 8/18/2017 4:13:36PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE4
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3602.0 seconds
Dead Time	: 0.06 %
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	: 55529

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 5:13:40PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	40.09	39.14	0.0000	0.00
2	46.70	45.75	0.0000	0.00
3	63.57	62.62	0.0000	0.00
4	76.52	75.58	0.0000	0.00
5	87.41	86.47	0.0000	0.00
6	92.89	91.95	0.0000	0.00
7	129.01	128.08	0.0000	0.00
8	144.33	143.41	0.0000	0.00
9	186.18	185.27	0.0000	0.00
10	209.59	208.69	0.0000	0.00
11	238.82	237.93	0.0000	0.00
12	242.12	241.23	0.0000	0.00
13	266.84	265.96	0.0000	0.00
14	270.39	269.51	0.0000	0.00
15	279.84	278.96	0.0000	0.00
16	295.55	294.68	0.0000	0.00
17	300.50	299.63	0.0000	0.00
18	338.41	337.55	0.0000	0.00
19	352.09	351.24	0.0000	0.00
20	511.36	510.56	0.0000	0.00
21	534.10	533.31	0.0000	0.00
22	583.09	582.32	0.0000	0.00
23	609.32	608.56	0.0000	0.00
24	663.82	663.08	0.0000	0.00
25	768.27	767.57	0.0000	0.00
26	859.99	859.33	0.0000	0.00
27	911.38	910.74	0.0000	0.00
28	969.09	968.47	0.0000	0.00
29	1012.64	1012.05	0.0000	0.00
30	1119.83	1119.28	0.0000	0.00
31	1310.33	1309.87	0.0000	0.00
32	1377.87	1377.45	0.0000	0.00
33	1451.57	1451.18	0.0000	0.00
34	1460.60	1460.22	0.0000	0.00
35	1567.86	1567.54	0.0000	0.00
36	1613.10	1612.80	0.0000	0.00
37	1620.61	1620.32	0.0000	0.00
38	1661.68	1661.41	0.0000	0.00
39	1729.19	1728.96	0.0000	0.00
40	1764.57	1764.36	0.0000	0.00
41	1872.70	1872.55	0.0000	0.00
42	2042.34	2042.29	0.0000	0.00

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2102.94	2102.92	0.0000	0.00
44	2203.95	2204.00	0.0000	0.00
45	2446.65	2446.86	0.0000	0.00
46	2614.08	2614.40	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 5:13:40PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	40.09	36 -	42	39.14	6.54E+01	75.84	1.01E+03	4.19
	2	46.70	43 -	50	45.75	1.16E+02	95.67	1.46E+03	2.12
	3	63.57	58 -	66	62.62	1.83E+02	125.22	2.31E+03	2.34
	4	76.52	71 -	81	75.58	1.15E+03	168.97	3.18E+03	3.64
	5	87.41	83 -	89	86.47	1.23E+02	112.47	2.22E+03	1.58
	6	92.89	89 -	96	91.95	2.52E+02	118.05	2.06E+03	1.83
	7	129.01	123 -	133	128.08	1.38E+02	113.95	1.65E+03	2.86
	8	144.33	139 -	147	143.41	9.63E+01	94.58	1.31E+03	3.70
	9	186.18	181 -	189	185.27	2.74E+02	89.93	1.07E+03	2.61
	10	209.59	206 -	213	208.69	8.43E+01	70.23	7.69E+02	3.01
M	11	238.82	232 -	245	237.93	6.24E+02	83.71	6.55E+02	2.56
m	12	242.12	232 -	245	241.23	1.99E+02	84.07	6.38E+02	2.56
M	13	266.84	264 -	273	265.96	2.60E+01	32.74	2.49E+02	1.89
m	14	270.39	264 -	273	269.51	8.16E+01	57.79	4.91E+02	2.75
	15	279.84	274 -	284	278.96	7.81E+01	69.23	5.92E+02	7.75
M	16	295.55	289 -	303	294.68	4.25E+02	63.40	3.98E+02	2.57
m	17	300.50	289 -	303	299.63	8.00E+01	62.97	4.18E+02	2.87
	18	338.41	333 -	341	337.55	1.00E+02	59.45	4.84E+02	2.77
	19	352.09	347 -	357	351.24	6.17E+02	79.25	5.00E+02	2.50
	20	511.36	506 -	516	510.56	1.16E+02	48.05	2.41E+02	2.89
	21	534.10	528 -	538	533.31	4.09E+01	41.49	2.04E+02	7.86
	22	583.09	576 -	589	582.32	1.92E+02	53.34	2.30E+02	2.93
	23	609.32	602 -	613	608.56	4.50E+02	62.58	2.65E+02	2.27
	24	663.82	656 -	669	663.08	3.94E+01	43.12	1.89E+02	10.52
	25	768.27	760 -	773	767.57	5.23E+01	42.97	1.81E+02	2.66
	26	859.99	855 -	863	859.33	3.51E+01	31.03	1.28E+02	2.34
	27	911.38	905 -	916	910.74	9.96E+01	39.95	1.49E+02	2.09
	28	969.09	965 -	973	968.47	3.17E+01	32.50	1.41E+02	2.44
	29	1012.64	1010 -	1014	1012.05	2.10E+01	13.19	2.00E+01	2.87
	30	1119.83	1114 -	1123	1119.28	1.04E+02	33.35	9.87E+01	3.42
	31	1310.33	1304 -	1315	1309.87	3.48E+01	21.82	4.24E+01	8.75
	32	1377.87	1373 -	1381	1377.45	2.15E+01	16.17	2.70E+01	3.55
	33	1451.57	1448 -	1454	1451.18	1.60E+01	10.99	9.95E+00	1.33
	34	1460.60	1455 -	1465	1460.22	4.72E+02	44.84	1.68E+01	2.92
	35	1567.86	1564 -	1571	1567.54	1.30E+01	7.21	0.00E+00	1.25
	36	1613.10	1610 -	1615	1612.80	7.00E+00	7.62	6.00E+00	2.80
	37	1620.61	1617 -	1623	1620.32	8.50E+00	8.51	7.00E+00	1.76
	38	1661.68	1658 -	1664	1661.41	1.43E+01	8.73	3.31E+00	1.71
	39	1729.19	1722 -	1734	1728.96	1.86E+01	15.45	1.88E+01	3.04
	40	1764.57	1759 -	1768	1764.36	4.77E+01	20.86	3.45E+01	1.70

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1872.70	1868 -	1876	1872.55	1.10E+01	6.63	0.00E+00	2.37
42	2042.34	2039 -	2045	2042.29	5.21E+00	6.34	3.57E+00	1.95
43	2102.94	2098 -	2107	2102.92	1.30E+01	7.21	0.00E+00	6.22
44	2203.95	2199 -	2209	2204.00	2.26E+01	11.41	4.84E+00	4.36
45	2446.65	2442 -	2449	2446.86	7.00E+00	5.29	0.00E+00	1.98
46	2614.08	2609 -	2618	2614.40	3.44E+01	13.15	5.30E+00	2.18

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 5:13:40PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	40.09	36 -	42	6.54E+01	75.84	1.01E+03	6.09E+01
	2	46.70	43 -	50	1.16E+02	95.67	1.46E+03	7.66E+01
	3	63.57	58 -	66	1.83E+02	125.22	2.31E+03	1.00E+02
	4	76.52	71 -	81	1.15E+03	168.97	3.18E+03	1.27E+02
	5	87.41	83 -	89	1.23E+02	112.47	2.22E+03	9.06E+01
	6	92.89	89 -	96	2.52E+02	118.05	2.06E+03	9.35E+01
	7	129.01	123 -	133	1.38E+02	113.95	1.65E+03	9.16E+01
	8	144.33	139 -	147	9.63E+01	94.58	1.31E+03	7.61E+01
	9	186.18	181 -	189	2.74E+02	89.93	1.07E+03	6.87E+01
	10	209.59	206 -	213	8.43E+01	70.23	7.69E+02	5.57E+01
M	11	238.82	232 -	245	6.24E+02	83.71	6.55E+02	4.21E+01
m	12	242.12	232 -	245	1.99E+02	84.07	6.38E+02	4.15E+01
M	13	266.84	264 -	273	2.60E+01	32.74	2.49E+02	2.60E+01
m	14	270.39	264 -	273	8.16E+01	57.79	4.91E+02	3.64E+01
	15	279.84	274 -	284	7.81E+01	69.23	5.92E+02	5.50E+01
M	16	295.55	289 -	303	4.25E+02	63.40	3.98E+02	3.28E+01
m	17	300.50	289 -	303	8.00E+01	62.97	4.18E+02	3.36E+01
	18	338.41	333 -	341	1.00E+02	59.45	4.84E+02	4.60E+01
	19	352.09	347 -	357	6.17E+02	79.25	5.00E+02	5.08E+01
	20	511.36	506 -	516	1.16E+02	48.05	2.41E+02	3.53E+01
	21	534.10	528 -	538	4.09E+01	41.49	2.04E+02	3.24E+01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
22	583.09	576 -	589	1.92E+02	53.34	2.30E+02	3.75E+01
23	609.32	602 -	613	4.50E+02	62.58	2.65E+02	3.78E+01
24	663.82	656 -	669	3.94E+01	43.12	1.89E+02	3.39E+01
25	768.27	760 -	773	5.23E+01	42.97	1.81E+02	3.33E+01
26	859.99	855 -	863	3.51E+01	31.03	1.28E+02	2.36E+01
27	911.38	905 -	916	9.96E+01	39.95	1.49E+02	2.84E+01
28	969.09	965 -	973	3.17E+01	32.50	1.41E+02	2.51E+01
29	1012.64	1010 -	1014	2.10E+01	13.19	2.00E+01	7.80E+00
30	1119.83	1114 -	1123	1.04E+02	33.35	9.87E+01	2.17E+01
31	1310.33	1304 -	1315	3.48E+01	21.82	4.24E+01	1.51E+01
32	1377.87	1373 -	1381	2.15E+01	16.17	2.70E+01	1.09E+01
33	1451.57	1448 -	1454	1.60E+01	10.99	9.95E+00	6.19E+00
34	1460.60	1455 -	1465	4.72E+02	44.84	1.68E+01	9.16E+00
35	1567.86	1564 -	1571	1.30E+01	7.21	0.00E+00	0.00E+00
36	1613.10	1610 -	1615	7.00E+00	7.62	6.00E+00	4.50E+00
37	1620.61	1617 -	1623	8.50E+00	8.51	7.00E+00	5.10E+00
38	1661.68	1658 -	1664	1.43E+01	8.73	3.31E+00	3.57E+00
39	1729.19	1722 -	1734	1.86E+01	15.45	1.88E+01	1.05E+01
40	1764.57	1759 -	1768	4.77E+01	20.86	3.45E+01	1.28E+01
41	1872.70	1868 -	1876	1.10E+01	6.63	0.00E+00	0.00E+00
42	2042.34	2039 -	2045	5.21E+00	6.34	3.57E+00	3.62E+00
43	2102.94	2098 -	2107	1.30E+01	7.21	0.00E+00	0.00E+00
44	2203.95	2199 -	2209	2.26E+01	11.41	4.84E+00	5.19E+00
45	2446.65	2442 -	2449	7.00E+00	5.29	0.00E+00	0.00E+00
46	2614.08	2609 -	2618	3.44E+01	13.15	5.30E+00	4.90E+00

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

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 5:13:40PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	40.09	36 -	42	39.14	6.54E+01	75.84	1.01E+03	RA-225
									I-129
	2	46.70	43 -	50	45.75	1.16E+02	95.67	1.46E+03	PB-210
	3	63.57	58 -	66	62.62	1.83E+02	125.22	2.31E+03	TH-234
									TH-230
	4	76.52	71 -	81	75.58	1.15E+03	168.97	3.18E+03	.....
	5	87.41	83 -	89	86.47	1.23E+02	112.47	2.22E+03	SN-126
									CD-109
									NP-237
									EU-155
									LU-176
	6	92.89	89 -	96	91.95	2.52E+02	118.05	2.06E+03	GA-67
	7	129.01	123 -	133	128.08	1.38E+02	113.95	1.65E+03	.....
	8	144.33	139 -	147	143.41	9.63E+01	94.58	1.31E+03	U-235
	9	186.18	181 -	189	185.27	2.74E+02	89.93	1.07E+03	RA-226
	10	209.59	206 -	213	208.69	8.43E+01	70.23	7.69E+02	CM-243
									GA-67
M	11	238.82	232 -	245	237.93	6.24E+02	83.71	6.55E+02	PB-212
m	12	242.12	232 -	245	241.23	1.99E+02	84.07	6.38E+02	.....
M	13	266.84	264 -	273	265.96	2.60E+01	32.74	2.49E+02	.....
m	14	270.39	264 -	273	269.51	8.16E+01	57.79	4.91E+02	.....
	15	279.84	274 -	284	278.96	7.81E+01	69.23	5.92E+02	SE-75
									HO-166M
									HG-203
M	16	295.55	289 -	303	294.68	4.25E+02	63.40	3.98E+02	PB-214
m	17	300.50	289 -	303	299.63	8.00E+01	62.97	4.18E+02	GA-67
									PB-212
									BI-210M
	18	338.41	333 -	341	337.55	1.00E+02	59.45	4.84E+02	AC-228
	19	352.09	347 -	357	351.24	6.17E+02	79.25	5.00E+02	PB-214
	20	511.36	506 -	516	510.56	1.16E+02	48.05	2.41E+02	.....
	21	534.10	528 -	538	533.31	4.09E+01	41.49	2.04E+02	.....
	22	583.09	576 -	589	582.32	1.92E+02	53.34	2.30E+02	TL-208
	23	609.32	602 -	613	608.56	4.50E+02	62.58	2.65E+02	BI-214
	24	663.82	656 -	669	663.08	3.94E+01	43.12	1.89E+02	CE-143
	25	768.27	760 -	773	767.57	5.23E+01	42.97	1.81E+02	.....
	26	859.99	855 -	863	859.33	3.51E+01	31.03	1.28E+02	TL-208
	27	911.38	905 -	916	910.74	9.96E+01	39.95	1.49E+02	AC-228
									TL-204
	28	969.09	965 -	973	968.47	3.17E+01	32.50	1.41E+02	AC-228
	29	1012.64	1010 -	1014	1012.05	2.10E+01	13.19	2.00E+01	.....
	30	1119.83	1114 -	1123	1119.28	1.04E+02	33.35	9.87E+01	BI-214
									SC-46
	31	1310.33	1304 -	1315	1309.87	3.48E+01	21.82	4.24E+01	.....
	32	1377.87	1373 -	1381	1377.45	2.15E+01	16.17	2.70E+01	.....
	33	1451.57	1448 -	1454	1451.18	1.60E+01	10.99	9.95E+00	.....
	34	1460.60	1455 -	1465	1460.22	4.72E+02	44.84	1.68E+01	K-40
	35	1567.86	1564 -	1571	1567.54	1.30E+01	7.21	0.00E+00	.....
	36	1613.10	1610 -	1615	1612.80	7.00E+00	7.62	6.00E+00	.....
	37	1620.61	1617 -	1623	1620.32	8.50E+00	8.51	7.00E+00	BI-212
	38	1661.68	1658 -	1664	1661.41	1.43E+01	8.73	3.31E+00	.....
	39	1729.19	1722 -	1734	1728.96	1.86E+01	15.45	1.88E+01	.....
	40	1764.57	1759 -	1768	1764.36	4.77E+01	20.86	3.45E+01	BI-214
	41	1872.70	1868 -	1876	1872.55	1.10E+01	6.63	0.00E+00	.....

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
42	2042.34	2039 -	2045	2042.29	5.21E+00	6.34	3.57E+00	.....
43	2102.94	2098 -	2107	2102.92	1.30E+01	7.21	0.00E+00	.....
44	2203.95	2199 -	2209	2204.00	2.26E+01	11.41	4.84E+00	BI-214
45	2446.65	2442 -	2449	2446.86	7.00E+00	5.29	0.00E+00	.....
46	2614.08	2609 -	2618	2614.40	3.44E+01	13.15	5.30E+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 : 8/18/2017 5:13:40PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	40.09	6.54E+01	75.84	1.35E-02	1.56E-03
	2	46.70	1.16E+02	95.67	1.65E-02	1.56E-03
	3	63.57	1.83E+02	125.22	2.16E-02	1.65E-03
	4	76.52	1.15E+03	168.97	2.33E-02	1.92E-03
	5	87.41	1.23E+02	112.47	2.37E-02	2.15E-03
	6	92.89	2.52E+02	118.05	2.37E-02	2.09E-03
	7	129.01	1.38E+02	113.95	2.15E-02	1.63E-03
	8	144.33	9.63E+01	94.58	2.03E-02	1.57E-03
	9	186.18	2.74E+02	89.93	1.69E-02	1.40E-03
	10	209.59	8.43E+01	70.23	1.53E-02	1.28E-03
M	11	238.82	6.24E+02	83.71	1.36E-02	1.14E-03
m	12	242.12	1.99E+02	84.07	1.34E-02	1.13E-03
M	13	266.84	2.60E+01	32.74	1.22E-02	1.01E-03
m	14	270.39	8.16E+01	57.79	1.20E-02	9.89E-04
	15	279.84	7.81E+01	69.23	1.16E-02	9.45E-04
M	16	295.55	4.25E+02	63.40	1.10E-02	9.12E-04
m	17	300.50	8.00E+01	62.97	1.08E-02	9.02E-04
	18	338.41	1.00E+02	59.45	9.60E-03	8.22E-04
	19	352.09	6.17E+02	79.25	9.21E-03	7.94E-04
	20	511.36	1.16E+02	48.05	6.28E-03	6.61E-04
	21	534.10	4.09E+01	41.49	6.01E-03	6.52E-04
	22	583.09	1.92E+02	53.34	5.51E-03	6.31E-04
	23	609.32	4.50E+02	62.58	5.27E-03	6.20E-04
	24	663.82	3.94E+01	43.12	4.85E-03	5.96E-04
	25	768.27	5.23E+01	42.97	4.23E-03	4.65E-04

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
26	859.99	3.51E+01	31.03	3.81E-03	3.50E-04
27	911.38	9.96E+01	39.95	3.62E-03	2.99E-04
28	969.09	3.17E+01	32.50	3.43E-03	2.85E-04
29	1012.64	2.10E+01	13.19	3.29E-03	2.75E-04
30	1119.83	1.04E+02	33.35	3.02E-03	2.50E-04
31	1310.33	3.48E+01	21.82	2.63E-03	2.29E-04
32	1377.87	2.15E+01	16.17	2.51E-03	2.20E-04
33	1451.57	1.60E+01	10.99	2.40E-03	2.09E-04
34	1460.60	4.72E+02	44.84	2.39E-03	2.08E-04
35	1567.86	1.30E+01	7.21	2.24E-03	1.92E-04
36	1613.10	7.00E+00	7.62	2.18E-03	1.85E-04
37	1620.61	8.50E+00	8.51	2.17E-03	1.84E-04
38	1661.68	1.43E+01	8.73	2.12E-03	1.77E-04
39	1729.19	1.86E+01	15.45	2.04E-03	1.67E-04
40	1764.57	4.77E+01	20.86	2.00E-03	1.62E-04
41	1872.70	1.10E+01	6.63	1.88E-03	1.51E-04
42	2042.34	5.21E+00	6.34	1.72E-03	1.51E-04
43	2102.94	1.30E+01	7.21	1.67E-03	1.51E-04
44	2203.95	2.26E+01	11.41	1.58E-03	1.51E-04
45	2446.65	7.00E+00	5.29	1.40E-03	1.51E-04
46	2614.08	3.44E+01	13.15	1.28E-03	1.51E-04

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/18/2017 5:13:40PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
1	40.09	6.54E+01	75.84			6.54E+01	7.58E+01
2	46.70	1.16E+02	95.67	2.70E+01	8.29E+00	8.91E+01	9.60E+01
3	63.57	1.83E+02	125.22	5.43E+01	8.76E+00	1.29E+02	1.26E+02
4	76.52	1.15E+03	168.97			1.15E+03	1.69E+02
5	87.41	1.23E+02	112.47			1.23E+02	1.12E+02
6	92.89	2.52E+02	118.05	6.28E+01	7.82E+00	1.89E+02	1.18E+02
7	129.01	1.38E+02	113.95			1.38E+02	1.14E+02
8	144.33	9.63E+01	94.58			9.63E+01	9.46E+01
9	186.18	2.74E+02	89.93	2.54E+01	6.86E+00	2.49E+02	9.02E+01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	10	209.59	8.43E+01	70.23			8.43E+01	7.02E+01
M	11	238.82	6.24E+02	83.71	8.10E+00	6.12E+00	6.16E+02	8.39E+01
m	12	242.12	1.99E+02	84.07			1.99E+02	8.41E+01
M	13	266.84	2.60E+01	32.74			2.60E+01	3.27E+01
m	14	270.39	8.16E+01	57.79	4.54E+00	5.58E+00	7.71E+01	5.81E+01
	15	279.84	7.81E+01	69.23			7.81E+01	6.92E+01
M	16	295.55	4.25E+02	63.40			4.25E+02	6.34E+01
m	17	300.50	8.00E+01	62.97			8.00E+01	6.30E+01
	18	338.41	1.00E+02	59.45			1.00E+02	5.95E+01
	19	352.09	6.17E+02	79.25			6.17E+02	7.93E+01
	20	511.36	1.16E+02	48.05	3.93E+01	5.03E+00	7.70E+01	4.83E+01
	21	534.10	4.09E+01	41.49			4.09E+01	4.15E+01
	22	583.09	1.92E+02	53.34			1.92E+02	5.33E+01
	23	609.32	4.50E+02	62.58			4.50E+02	6.26E+01
	24	663.82	3.94E+01	43.12			3.94E+01	4.31E+01
	25	768.27	5.23E+01	42.97			5.23E+01	4.30E+01
	26	859.99	3.51E+01	31.03			3.51E+01	3.10E+01
	27	911.38	9.96E+01	39.95	5.69E-01	2.37E+00	9.90E+01	4.00E+01
	28	969.09	3.17E+01	32.50			3.17E+01	3.25E+01
	29	1012.64	2.10E+01	13.19			2.10E+01	1.32E+01
	30	1119.83	1.04E+02	33.35			1.04E+02	3.33E+01
	31	1310.33	3.48E+01	21.82			3.48E+01	2.18E+01
	32	1377.87	2.15E+01	16.17			2.15E+01	1.62E+01
	33	1451.57	1.60E+01	10.99			1.60E+01	1.10E+01
	34	1460.60	4.72E+02	44.84	1.35E+00	1.57E+00	4.70E+02	4.49E+01
	35	1567.86	1.30E+01	7.21			1.30E+01	7.21E+00
	36	1613.10	7.00E+00	7.62			7.00E+00	7.62E+00
	37	1620.61	8.50E+00	8.51			8.50E+00	8.51E+00
	38	1661.68	1.43E+01	8.73			1.43E+01	8.73E+00
	39	1729.19	1.86E+01	15.45			1.86E+01	1.55E+01
	40	1764.57	4.77E+01	20.86			4.77E+01	2.09E+01
	41	1872.70	1.10E+01	6.63			1.10E+01	6.63E+00
	42	2042.34	5.21E+00	6.34			5.21E+00	6.34E+00
	43	2102.94	1.30E+01	7.21			1.30E+01	7.21E+00
	44	2203.95	2.26E+01	11.41			2.26E+01	1.14E+01
	45	2446.65	7.00E+00	5.29			7.00E+00	5.29E+00
	46	2614.08	3.44E+01	13.15			3.44E+01	1.32E+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 1707084-15

HTC-A02-S001-3036-01

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 5:13:40PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.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	40.09	6.54E+01	75.84			6.54E+01	7.58E+01
	2	46.70	1.16E+02	95.67	2.70E+01	8.29E+00	8.91E+01	9.60E+01
	3	63.57	1.83E+02	125.22	5.43E+01	8.76E+00	1.29E+02	1.26E+02
	4	76.52	1.15E+03	168.97			1.15E+03	1.69E+02
	5	87.41	1.23E+02	112.47			1.23E+02	1.12E+02
	6	92.89	2.52E+02	118.05	6.28E+01	7.82E+00	1.89E+02	1.18E+02
	7	129.01	1.38E+02	113.95			1.38E+02	1.14E+02
	8	144.33	9.63E+01	94.58			9.63E+01	9.46E+01
	9	186.18	2.74E+02	89.93	2.54E+01	6.86E+00	2.49E+02	9.02E+01
	10	209.59	8.43E+01	70.23			8.43E+01	7.02E+01
M	11	238.82	6.24E+02	83.71	8.10E+00	6.12E+00	6.16E+02	8.39E+01
m	12	242.12	1.99E+02	84.07			1.99E+02	8.41E+01
M	13	266.84	2.60E+01	32.74			2.60E+01	3.27E+01
m	14	270.39	8.16E+01	57.79	4.54E+00	5.58E+00	7.71E+01	5.81E+01
	15	279.84	7.81E+01	69.23			7.81E+01	6.92E+01
M	16	295.55	4.25E+02	63.40			4.25E+02	6.34E+01
m	17	300.50	8.00E+01	62.97			8.00E+01	6.30E+01
	18	338.41	1.00E+02	59.45			1.00E+02	5.95E+01
	19	352.09	6.17E+02	79.25			6.17E+02	7.93E+01
	20	511.36	1.16E+02	48.05	3.93E+01	5.03E+00	7.70E+01	4.83E+01
	21	534.10	4.09E+01	41.49			4.09E+01	4.15E+01
	22	583.09	1.92E+02	53.34			1.92E+02	5.33E+01
	23	609.32	4.50E+02	62.58			4.50E+02	6.26E+01
	24	663.82	3.94E+01	43.12			3.94E+01	4.31E+01
	25	768.27	5.23E+01	42.97			5.23E+01	4.30E+01
	26	859.99	3.51E+01	31.03			3.51E+01	3.10E+01
	27	911.38	9.96E+01	39.95	5.69E-01	2.37E+00	9.90E+01	4.00E+01
	28	969.09	3.17E+01	32.50			3.17E+01	3.25E+01
	29	1012.64	2.10E+01	13.19			2.10E+01	1.32E+01
	30	1119.83	1.04E+02	33.35			1.04E+02	3.33E+01
	31	1310.33	3.48E+01	21.82			3.48E+01	2.18E+01
	32	1377.87	2.15E+01	16.17			2.15E+01	1.62E+01
	33	1451.57	1.60E+01	10.99			1.60E+01	1.10E+01
	34	1460.60	4.72E+02	44.84	1.35E+00	1.57E+00	4.70E+02	4.49E+01
	35	1567.86	1.30E+01	7.21			1.30E+01	7.21E+00
	36	1613.10	7.00E+00	7.62			7.00E+00	7.62E+00
	37	1620.61	8.50E+00	8.51			8.50E+00	8.51E+00
	38	1661.68	1.43E+01	8.73			1.43E+01	8.73E+00
	39	1729.19	1.86E+01	15.45			1.86E+01	1.55E+01
	40	1764.57	4.77E+01	20.86			4.77E+01	2.09E+01
	41	1872.70	1.10E+01	6.63			1.10E+01	6.63E+00

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
42	2042.34	5.21E+00	6.34			5.21E+00	6.34E+00
43	2102.94	1.30E+01	7.21			1.30E+01	7.21E+00
44	2203.95	2.26E+01	11.41			2.26E+01	1.14E+01
45	2446.65	7.00E+00	5.29			7.00E+00	5.29E+00
46	2614.08	3.44E+01	13.15			3.44E+01	1.32E+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	2.44E+01	3.19E+00
CD-109	0.939	88.03	*	3.72	2.12E+00	1.95E+00
SN-126	0.996	87.57	*	37.00	1.85E-01	1.70E-01
HG-203	0.916	279.19	*	77.30	4.72E-01	4.20E-01
TL-208	0.972	583.14	*	30.22	1.52E+00	4.57E-01
		860.37	*	4.48	2.70E+00	2.41E+00
		2614.66	*	35.85	9.87E-01	3.95E-01
PB-210	0.993	46.50	*	4.25	1.69E+00	1.82E+00
PB-212	0.993	238.63	*	44.60	1.34E+00	2.15E-01
		300.09	*	3.41	2.85E+00	2.26E+00
BI-214	0.993	609.31	*	46.30	2.43E+00	4.43E-01
		1120.29	*	15.10	3.00E+00	9.97E-01
		1764.49	*	15.80	1.99E+00	8.85E-01
		2204.22	*	4.98	3.78E+00	1.94E+00
PB-214	0.991	295.21	*	19.19	2.65E+00	4.52E-01
		351.92	*	37.19	2.37E+00	3.67E-01
RA-225	0.812	40.00	*	31.00	1.79E+01	2.09E+01
RA-226	1.000	186.21	*	3.28	5.91E+00	1.10E+01
AC-228	0.992	338.32	*	11.40	1.21E+00	7.24E-01
		911.07	*	27.70	1.30E+00	5.37E-01
		969.11	*	16.60	7.34E-01	7.56E-01
TH-234	0.988	63.29	*	3.80	2.07E+00	2.02E+00
NP-237	0.877	86.50	*	12.60	5.43E-01	4.99E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

* = 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 : 8/18/2017 5:13:40PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	4	76.52	3.20823E-01	7.32		
	6	92.89	5.26273E-02	31.22	Sum	
	7	129.01	3.83642E-02	41.25		
	8	144.33	2.67427E-02	49.12	Tol.	U-235
	10	209.59	2.34071E-02	41.67	Tol.	CM-243
m	12	242.12	5.53918E-02	21.08		
M	13	266.84	7.21296E-03	63.05		
m	14	270.39	2.14171E-02	37.65		
	20	511.36	2.13991E-02	31.36		
	21	534.10	1.13588E-02	50.73	Sum	
	24	663.82	1.09556E-02	54.66	Tol.	CE-143
	25	768.27	1.45144E-02	41.11		
	29	1012.64	5.83333E-03	31.41		
	31	1310.33	9.67014E-03	31.34		
	32	1377.87	5.97222E-03	37.61		
	33	1451.57	4.45106E-03	34.29		
	35	1567.86	3.61111E-03	27.74		
	36	1613.10	1.94444E-03	54.40		
	37	1620.61	2.36111E-03	50.09	Tol.	BI-212
	38	1661.68	3.98437E-03	30.44		
	39	1729.19	5.17361E-03	41.48	Sum	
	41	1872.70	3.05556E-03	30.15		
	42	2042.34	1.44841E-03	60.84		
	43	2102.94	3.61111E-03	27.74	S-Esc	
	45	2446.65	1.94444E-03	37.80		

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

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.44E+01	3.19E+00
CD-109	0.93	88.03	*	3.72	2.12E+00	1.95E+00
SN-126	0.99	87.57	*	37.00	1.85E-01	1.70E-01
HG-203	0.91	279.19	*	77.30	4.72E-01	4.20E-01
TL-208	0.97	583.14	*	30.22	1.52E+00	4.57E-01
		860.37	*	4.48	2.70E+00	2.41E+00
		2614.66	*	35.85	9.87E-01	3.95E-01
PB-210	0.99	46.50	*	4.25	1.69E+00	1.82E+00
PB-212	0.99	238.63	*	44.60	1.34E+00	2.15E-01
		300.09	*	3.41	2.85E+00	2.26E+00
BI-214	0.99	609.31	*	46.30	2.43E+00	4.43E-01
		1120.29	*	15.10	3.00E+00	9.97E-01
		1764.49	*	15.80	1.99E+00	8.85E-01
		2204.22	*	4.98	3.78E+00	1.94E+00
PB-214	0.99	295.21	*	19.19	2.65E+00	4.52E-01
		351.92	*	37.19	2.37E+00	3.67E-01
RA-225	0.81	40.00	*	31.00	1.79E+01	2.09E+01
RA-226	1.00	186.21	*	3.28	5.91E+00	1.10E+01
AC-228	0.99	338.32	*	11.40	1.21E+00	7.24E-01
		911.07	*	27.70	1.30E+00	5.37E-01
		969.11	*	16.60	7.34E-01	7.56E-01
TH-234	0.98	63.29	*	3.80	2.07E+00	2.02E+00
NP-237	0.87	86.50	*	12.60	5.43E-01	4.99E-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 1707084-15

HTC-A02-S001-3036-01

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.993	2.44E+01	3.19E+00	
?	CD-109	0.939	2.12E+00	1.95E+00	
?	SN-126	0.996	1.85E-01	1.70E-01	
	HG-203	0.916	4.72E-01	4.20E-01	
	TL-208	0.972	1.24E+00	2.97E-01	
	PB-210	0.993	1.69E+00	1.82E+00	
	PB-212	0.993	1.35E+00	2.14E-01	
	BI-214	0.993	2.48E+00	3.62E-01	
	PB-214	0.991	2.48E+00	2.85E-01	
	RA-225	0.812	1.79E+01	2.09E+01	
	RA-226	1.000	5.91E+00	1.10E+01	
	AC-228	0.992	1.14E+00	3.75E-01	
	TH-234	0.988	2.07E+00	2.02E+00	
?	NP-237	0.877	5.43E-01	4.99E-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 1707084-15

HTC-A02-S001-3036-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 5:13:40PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	4	76.52	3.20823E-01	7.32		
	6	92.89	5.26273E-02	31.22	Sum	
	7	129.01	3.83642E-02	41.25		
	8	144.33	2.67427E-02	49.12	Tol.	U-235
	10	209.59	2.34071E-02	41.67	Tol.	CM-243
m	12	242.12	5.53918E-02	21.08		
M	13	266.84	7.21296E-03	63.05		
m	14	270.39	2.14171E-02	37.65		
	20	511.36	2.13991E-02	31.36		
	21	534.10	1.13588E-02	50.73	Sum	
	24	663.82	1.09556E-02	54.66	Tol.	CE-143
	25	768.27	1.45144E-02	41.11		
	29	1012.64	5.83333E-03	31.41		
	31	1310.33	9.67014E-03	31.34		
	32	1377.87	5.97222E-03	37.61		
	33	1451.57	4.45106E-03	34.29		
	35	1567.86	3.61111E-03	27.74		
	36	1613.10	1.94444E-03	54.40		
	37	1620.61	2.36111E-03	50.09	Tol.	BI-212
	38	1661.68	3.98437E-03	30.44		
	39	1729.19	5.17361E-03	41.48	Sum	
	41	1872.70	3.05556E-03	30.15		
	42	2042.34	1.44841E-03	60.84		
	43	2102.94	3.61111E-03	27.74	S-Esc	
	45	2446.65	1.94444E-03	37.80		

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

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	1.12E+00	3.17E+00	3.17E+00
+	NA-22	1274.54		99.94	-3.67E-03	1.73E-01	1.73E-01
+	@ NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	-2.14E-02	9.55E-02	9.55E-02
+	K-40	1460.81	*	10.67	2.44E+01	1.12E+00	1.12E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	9.19E-03	9.60E-02	9.60E-02
		78.34		96.00	5.57E-01		1.26E-01
+	SC-46	889.25		99.98	-1.42E-02	3.17E-01	3.17E-01
		1120.51		99.99	9.10E-01		5.68E-01
+	V-48	983.52		99.98	-2.46E+00	8.77E+00	8.77E+00
		1312.10		97.50	2.72E+00		1.09E+01
+	CR-51	320.08		9.83	1.33E+00	9.48E+00	9.48E+00
+	MN-54	834.83		99.97	2.05E-02	1.83E-01	1.83E-01
+	CO-56	846.75		99.96	-5.64E-02	3.33E-01	3.33E-01
		1037.75		14.03	1.52E-01		2.81E+00
		1238.25		67.00	3.22E-01		7.39E-01
		1771.40		15.51	-4.73E-01		1.72E+00
		2598.48		16.90	2.33E-02		1.30E+00
+	CO-57	122.06		85.51	-1.29E-02	1.01E-01	1.01E-01
		136.48		10.60	1.93E-01		8.12E-01
+	CO-58	810.76		99.40	8.80E-02	3.53E-01	3.53E-01
+	FE-59	1099.22		56.50	6.71E-01	1.42E+00	1.45E+00
		1291.56		43.20	-1.01E+00		1.42E+00
+	CO-60	1173.22		100.00	2.18E-02	1.67E-01	2.03E-01
		1332.49		100.00	-1.85E-03		1.67E-01
+	ZN-65	1115.52		50.75	-3.62E-02	5.30E-01	5.30E-01
+	GA-67	93.31		35.70	2.60E+08	1.61E+08	1.61E+08
		208.95		2.24	2.98E+08		2.34E+09
		300.22		16.00	-9.38E+08		3.97E+08
+	SE-75	121.11		16.70	-9.31E-02	1.99E-01	7.04E-01
		136.00		59.20	4.69E-02		1.99E-01
		264.65		59.80	3.03E-02		2.38E-01
		279.53		25.20	3.18E-01		5.98E-01
		400.65		11.40	2.42E-01		1.46E+00
+	RB-82	776.52		13.00	3.25E+00	1.42E+01	1.42E+01
+	RB-83	520.41		46.00	-1.09E-01	4.73E-01	4.73E-01
		529.64		30.30	6.40E-02		7.57E-01
		552.65		16.40	-3.56E-01		1.39E+00
+	KR-85	513.99		0.43	2.17E+01	3.07E+01	3.07E+01
+	SR-85	513.99		99.27	2.59E-01	3.66E-01	3.66E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	Y-88	898.02		93.40	-5.08E-02	2.50E-01	2.98E-01
		1836.01		99.38	5.92E-02		2.50E-01
+	MO-93	263.06		56.72	6.84E-03	1.30E-01	1.42E-01
		684.67		99.68	8.00E-02		1.30E-01
		1477.11		99.08	3.95E-02		1.43E-01
+	NB-93M	16.57		9.43	1.82E+01	9.20E+00	9.20E+00
+	NB-94	702.63		100.00	7.41E-03	1.38E-01	1.38E-01
		871.10		100.00	-1.18E-02		1.52E-01
+	NB-95	765.79		99.81	7.12E-01	1.01E+00	1.01E+00
+	NB-95M	235.69		25.00	5.28E+07	4.49E+07	4.49E+07
+	ZR-95	724.18		43.70	1.98E-01	6.18E-01	1.01E+00
		756.72		55.30	3.21E-01		6.18E-01
+	MO-99	181.06		6.20	-8.05E+08	2.77E+10	3.45E+10
		739.58		12.80	6.82E+08		2.77E+10
		778.00		4.50	1.57E+10		7.97E+10
+	RU-103	497.08		89.00	-4.23E-02	5.87E-01	5.87E-01
+	RU-106	621.84		9.80	3.69E-01	1.28E+00	1.28E+00
+	AG-108M	433.93		89.90	6.79E-03	1.07E-01	1.07E-01
		614.37		90.40	-1.37E-02		1.24E-01
		722.95		90.50	-6.23E-02		1.69E-01
+	CD-109	88.03	*	3.72	2.12E+00	3.18E+00	3.18E+00
+	AG-110M	657.75		93.14	-2.52E-02	1.50E-01	1.50E-01
		677.61		10.53	-3.92E-01		1.59E+00
		706.67		16.46	-4.41E-02		1.07E+00
		763.93		21.98	-2.01E-01		8.24E-01
		884.67		71.63	-3.78E-02		2.65E-01
		1384.27		23.94	-2.52E-01		7.17E-01
+	CD-113M	263.70		0.02	3.11E+01	3.59E+02	3.59E+02
+	SN-113	255.12		1.93	3.06E-01	2.58E-01	7.58E+00
		391.69		64.90	9.04E-03		2.58E-01
+	TE123M	159.00		84.10	1.42E-02	1.54E-01	1.54E-01
+	SB-124	602.71		97.87	7.19E-02	3.85E-01	3.85E-01
		645.85		7.26	-7.25E-01		4.45E+00
		722.78		11.10	-1.52E+00		4.13E+00
		1691.02		49.00	5.80E-02		7.28E-01
+	I-125	35.49		6.49	-5.62E-01	5.88E+00	5.88E+00
+	SB-125	176.33		6.89	-5.54E-02	3.60E-01	1.19E+00
		427.89		29.33	5.96E-02		3.60E-01
		463.38		10.35	3.75E-01		1.11E+00
		600.56		17.80	1.25E-01		7.17E-01
		635.90		11.32	-1.03E-01		1.11E+00
+	SB-126	414.70		83.30	-9.16E+00	2.37E+01	2.37E+01
		666.33		99.60	1.88E+01		2.80E+01
		695.00		99.60	-8.73E-01		2.60E+01
		720.50		53.80	-1.12E+00		5.66E+01
+	SN-126	87.57	*	37.00	1.85E-01	2.77E-01	2.77E-01
+	SB-127	473.00		25.00	-4.07E+05	1.01E+07	1.08E+07
		685.20		35.70	6.23E+06		1.01E+07

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-127	783.80	14.70	2.48E+07	1.01E+07	2.87E+07
+		I-129	29.78	57.00	-5.81E-02	3.23E-01	3.23E-01
			33.60	13.20	-2.41E-02		1.05E+00
			39.58	7.52	5.57E-01		1.51E+00
+		I-131	284.30	6.05	-6.65E+02	4.38E+02	4.86E+03
			364.48	81.20	2.84E+02		4.38E+02
			636.97	7.26	-4.06E+02		5.90E+03
			722.89	1.80	-1.16E+04		3.15E+04
+		TE-132	49.72	13.10	1.34E+07	6.08E+07	4.77E+08
			228.16	88.00	3.08E+06		6.08E+07
+		BA-133	81.00	33.00	-7.27E-01	2.33E-01	2.95E-01
			302.84	17.80	6.31E-02		5.08E-01
			356.01	60.00	6.73E-02		2.33E-01
+	@	I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+		XE-133	81.00	38.00	-1.84E+05	7.48E+04	7.48E+04
+		CS-134	563.23	8.38	-1.54E-01	1.64E-01	1.47E+00
			569.32	15.43	1.11E-01		8.26E-01
			604.70	97.60	-1.14E+00		1.64E-01
			795.84	85.40	6.43E-04		1.64E-01
			801.93	8.73	-7.10E-01		1.67E+00
+		CS-135	268.24	16.00	2.06E-01	5.55E-01	5.55E-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	6.20E+00	1.93E+01	1.50E+02
			163.89	4.61	1.07E+02		2.46E+02
			176.55	13.56	-7.07E+00		8.57E+01
			273.65	12.66	-7.27E+01		1.02E+02
			340.57	48.50	5.75E+00		3.55E+01
			818.50	99.70	-6.06E+00		1.93E+01
			1048.07	79.60	-6.45E-01		3.02E+01
			1235.34	19.70	4.40E+00		1.60E+02
+		CS-137	661.65	85.12	6.93E-02	1.54E-01	1.54E-01
+		LA-138	788.74	34.00	-2.89E-03	2.02E-01	4.11E-01
			1435.80	66.00	-3.75E-02		2.02E-01
+		CE-139	165.85	80.35	-4.81E-02	1.47E-01	1.47E-01
+		BA-140	162.64	6.70	6.98E+01	6.73E+01	1.96E+02
			304.84	4.50	-1.73E+01		3.25E+02
			423.70	3.20	7.61E+01		5.42E+02
			437.55	2.00	3.79E+02		8.75E+02
			537.32	25.00	-7.73E+00		6.73E+01
+		LA-140	328.77	20.50	3.91E+01	2.47E+01	7.89E+01
			487.03	45.50	2.09E+01		3.93E+01
			815.85	23.50	-2.17E+00		9.80E+01
			1596.49	95.49	3.26E-01		2.47E+01
+		CE-141	145.44	48.40	4.98E-01	1.19E+00	1.19E+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 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-144	133.54	10.80	8.21E-02	7.98E-01	7.98E-01
+	PM-144	476.78	42.00	2.05E-01	1.29E-01	2.86E-01
		618.01	98.60	8.38E-03		1.29E-01
		696.49	99.49	-7.57E-02		1.55E-01
+	PM-145	36.85	21.70	-1.46E-01	3.00E-01	5.62E-01
		37.36	39.70	-7.80E-02		3.00E-01
		42.30	15.10	-1.16E+00		6.98E-01
		72.40	2.31	2.26E-01		4.34E+00
+	PM-146	453.90	39.94	5.56E-02	2.65E-01	2.65E-01
		735.90	14.01	-1.69E-01		9.44E-01
		747.13	13.10	3.62E-01		1.11E+00
+	ND-147	91.11	28.90	2.20E+02	1.36E+02	1.36E+02
		531.02	13.10	4.37E+01		3.35E+02
+	PM-149	285.90	3.10	1.20E+12	2.49E+13	2.49E+13
+	EU-152	121.78	20.50	-4.27E-02	3.34E-01	3.34E-01
		244.69	5.40	1.12E-01		1.88E+00
		344.27	19.13	3.00E-01		5.06E-01
		778.89	9.20	-5.99E-01		1.46E+00
		964.01	10.40	6.31E-02		1.69E+00
		1085.78	7.22	5.85E-01		2.31E+00
		1112.02	9.60	8.39E-02		1.78E+00
		1407.95	14.94	3.51E-01		1.05E+00
+	GD-153	97.43	31.30	2.54E-02	3.12E-01	3.12E-01
		103.18	22.20	-1.28E-01		4.01E-01
+	EU-154	123.07	40.50	-1.39E-02	1.73E-01	1.73E-01
		723.30	19.70	1.59E-01		8.16E-01
		873.19	11.50	-5.85E-02		1.30E+00
		996.32	10.30	-3.93E-01		1.59E+00
		1004.76	17.90	2.47E-01		8.91E-01
		1274.45	35.50	-9.83E-03		4.62E-01
+	EU-155	86.50	30.90	2.28E-01	3.10E-01	3.10E-01
		105.30	20.70	4.08E-02		3.44E-01
+	EU-156	811.77	10.40	-1.91E+01	9.89E+01	9.89E+01
		1153.47	7.20	7.56E+01		1.99E+02
		1230.71	8.90	-2.46E+01		1.80E+02
+	HO-166M	184.41	72.60	2.81E-01	1.34E-01	1.34E-01
		280.45	29.60	1.66E-01		2.92E-01
		410.94	11.10	5.69E-01		9.28E-01
		711.69	54.10	-2.40E-02		2.49E-01
+	TM-171	66.72	0.14	4.35E-01	7.28E+01	7.28E+01
+	HF-172	67.35	5.31	1.15E-02	7.03E-01	1.92E+00
		125.81	11.30	-1.68E-02		7.03E-01
+	LU-172	181.53	20.60	-1.29E+01	5.20E+03	7.68E+03
		900.72	29.81	2.49E+03		1.00E+04
		1093.66	62.50	-5.94E+02		5.20E+03
+	LU-173	100.72	5.24	-9.09E-02	4.82E-01	1.50E+00
		272.11	21.20	8.15E-02		4.82E-01
+	HF-175	343.40	84.00	1.73E-01	2.91E-01	2.91E-01
+	LU-176	88.34	13.30	-4.29E-01	8.94E-02	7.00E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	LU-176	201.83		86.00	1.19E-01	8.94E-02	1.00E-01
		306.78		94.00	3.64E-02		8.94E-02
+	HF-181	133.02		41.70	6.94E-02	5.29E-01	8.02E-01
		345.85		17.20	1.57E+00		2.67E+00
		482.03		82.80	-1.37E-01		5.29E-01
+	TA-182	67.75		41.20	3.74E-02	3.91E-01	3.91E-01
		1121.30		34.90	8.19E-02		1.32E+00
		1189.05		16.23	-2.10E-01		1.97E+00
		1221.41		26.98	2.07E-01		1.45E+00
		1231.02		11.44	-2.37E+00		3.14E+00
+	IR-192	308.46		29.68	4.27E-01	4.95E-01	6.99E-01
		468.07		48.10	-2.73E-02		4.95E-01
+	HG-203	279.19	*	77.30	4.72E-01	6.82E-01	6.82E-01
+	TL-204	374.74		94.11	7.30E-02	1.14E-01	1.14E-01
		899.15		99.16	2.14E-02		1.62E-01
		911.74		91.10	4.35E-01		2.56E-01
+	BI-207	569.67		97.72	1.61E-02	1.20E-01	1.20E-01
		1063.62		74.90	-1.05E-01		2.03E-01
+	TL-208	583.14	*	30.22	1.52E+00	3.60E-01	6.15E-01
		860.37	*	4.48	2.70E+00		3.85E+00
		2614.66	*	35.85	9.87E-01		3.60E-01
+	BI-210M	262.00		45.00	-4.88E-03	1.80E-01	1.80E-01
		300.00		23.00	-1.04E+00		4.39E-01
+	PB-210	46.50	*	4.25	1.69E+00	2.98E+00	2.98E+00
+	PB-211	404.84		2.90	-6.44E-01	3.22E+00	3.22E+00
		831.96		2.90	-1.53E-01		4.65E+00
+	BI-212	727.17		11.80	4.76E-01	1.31E+00	1.31E+00
		1620.62		2.75	1.32E-01		4.45E+00
+	PB-212	238.63	*	44.60	1.34E+00	3.52E-01	3.52E-01
		300.09	*	3.41	2.85E+00		4.79E+00
+	BI-214	609.31	*	46.30	2.43E+00	4.23E-01	4.23E-01
		1120.29	*	15.10	3.00E+00		1.34E+00
		1764.49	*	15.80	1.99E+00		1.19E+00
		2204.22	*	4.98	3.78E+00		2.19E+00
+	PB-214	295.21	*	19.19	2.65E+00	4.01E-01	8.35E-01
		351.92	*	37.19	2.37E+00		4.01E-01
+	RN-219	401.80		6.50	-5.99E-02	1.44E+00	1.44E+00
+	RA-223	323.87		3.88	-1.07E+00	2.23E+00	2.23E+00
+	RA-224	240.98		3.95	1.82E+01	3.84E+00	3.84E+00
+	RA-225	40.00	*	31.00	1.79E+01	3.41E+01	3.41E+01
+	RA-226	186.21	*	3.28	5.91E+00	3.37E+00	3.37E+00
+	TH-227	50.10		8.40	3.25E-02	1.10E+00	1.15E+00
		236.00		11.50	1.30E+00		1.10E+00
		256.20		6.30	5.78E-01		1.33E+00
+	AC-228	338.32	*	11.40	1.21E+00	7.87E-01	1.14E+00
		911.07	*	27.70	1.30E+00		7.87E-01
		969.11	*	16.60	7.34E-01		1.22E+00
+	TH-230	48.44		16.90	3.54E-01	5.94E-01	5.94E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	TH-230	62.85		4.60	2.71E+00	5.94E-01	2.10E+00
		67.67		0.37	2.34E+00		2.45E+01
+	PA-231	283.67		1.60	-6.78E-01	3.86E+00	4.95E+00
		302.67		2.30	4.79E-01		3.86E+00
+	TH-231	25.64		14.70	1.14E+00	1.37E+00	1.87E+00
		84.21		6.40	-1.44E+00		1.37E+00
+	PA-233	311.98		38.60	6.56E-01	2.50E+00	2.50E+00
+	PA-234	131.20		20.40	1.58E-01	3.58E-01	3.58E-01
		733.99		8.80	-9.84E-01		1.48E+00
		946.00		12.00	3.57E-01		1.32E+00
+	PA-234M	1001.03		0.92	4.16E+00	1.82E+01	1.82E+01
+	TH-234	63.29	*	3.80	2.07E+00	3.31E+00	3.31E+00
+	U-235	143.76		10.50	6.04E-01	7.25E-01	7.25E-01
		163.35		4.70	5.70E-01		1.60E+00
		205.31		4.70	-1.90E-01		1.72E+00
+	NP-237	86.50	*	12.60	5.43E-01	8.13E-01	8.13E-01
+	NP-239	106.10		22.70	-8.35E+10	4.59E+11	4.59E+11
		228.18		10.70	6.05E+10		1.19E+12
		277.60		14.10	3.95E+11		9.28E+11
+	AM-241	59.54		35.90	2.23E-02	2.58E-01	2.58E-01
+	AM-243	74.67		66.00	8.40E-01	1.88E-01	1.88E-01
+	CM-243	209.75		3.29	1.51E+00	6.16E-01	2.57E+00
		228.14		10.60	4.03E-02		7.95E-01
		277.60		14.00	2.62E-01		6.16E-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
? = 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 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	3.17E+00	3.17E+00	1.12E+00	1.50E+00
	NA-22	1274.54		99.94	1.73E-01	1.73E-01	-3.67E-03	7.92E-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	9.55E-02	9.55E-02	-2.14E-02	3.86E-02
+	K-40	1460.81	*	10.67	1.12E+00	1.12E+00	2.44E+01	4.90E-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	9.60E-02	9.60E-02	9.19E-03	4.72E-02
		78.34		96.00	1.26E-01		5.57E-01	6.23E-02
	SC-46	889.25		99.98	3.17E-01	3.17E-01	-1.42E-02	1.48E-01
		1120.51		99.99	5.68E-01		9.10E-01	2.71E-01
	V-48	983.52		99.98	8.77E+00	8.77E+00	-2.46E+00	4.06E+00
		1312.10		97.50	1.09E+01		2.72E+00	5.03E+00
	CR-51	320.08		9.83	9.48E+00	9.48E+00	1.33E+00	4.54E+00
	MN-54	834.83		99.97	1.83E-01	1.83E-01	2.05E-02	8.60E-02
	CO-56	846.75		99.96	3.33E-01	3.33E-01	-5.64E-02	1.56E-01
		1037.75		14.03	2.81E+00		1.52E-01	1.31E+00
		1238.25		67.00	7.39E-01		3.22E-01	3.47E-01
		1771.40		15.51	1.72E+00		-4.73E-01	7.26E-01
		2598.48		16.90	1.30E+00		2.33E-02	4.60E-01
	CO-57	122.06		85.51	1.01E-01	1.01E-01	-1.29E-02	4.93E-02
		136.48		10.60	8.12E-01		1.93E-01	3.96E-01
	CO-58	810.76		99.40	3.53E-01	3.53E-01	8.80E-02	1.65E-01
	FE-59	1099.22		56.50	1.45E+00	1.42E+00	6.71E-01	6.78E-01
		1291.56		43.20	1.42E+00		-1.01E+00	6.42E-01
	CO-60	1173.22		100.00	2.03E-01	1.67E-01	2.18E-02	9.49E-02
		1332.49		100.00	1.67E-01		-1.85E-03	7.65E-02
	ZN-65	1115.52		50.75	5.30E-01	5.30E-01	-3.62E-02	2.50E-01
	GA-67	93.31		35.70	1.61E+08	1.61E+08	2.60E+08	7.89E+07
		208.95		2.24	2.34E+09		2.98E+08	1.14E+09
		300.22		16.00	3.97E+08		-9.38E+08	1.92E+08
	SE-75	121.11		16.70	7.04E-01	1.99E-01	-9.31E-02	3.44E-01
		136.00		59.20	1.99E-01		4.69E-02	9.68E-02
		264.65		59.80	2.38E-01		3.03E-02	1.15E-01
		279.53		25.20	5.98E-01		3.18E-01	2.88E-01
		400.65		11.40	1.46E+00		2.42E-01	6.97E-01
	RB-82	776.52		13.00	1.42E+01	1.42E+01	3.25E+00	6.65E+00
	RB-83	520.41		46.00	4.73E-01	4.73E-01	-1.09E-01	2.23E-01
		529.64		30.30	7.57E-01		6.40E-02	3.58E-01
		552.65		16.40	1.39E+00		-3.56E-01	6.54E-01
	KR-85	513.99		0.43	3.07E+01	3.07E+01	2.17E+01	1.47E+01
	SR-85	513.99		99.27	3.66E-01	3.66E-01	2.59E-01	1.75E-01
	Y-88	898.02		93.40	2.98E-01	2.50E-01	-5.08E-02	1.39E-01
		1836.01		99.38	2.50E-01		5.92E-02	1.08E-01
	MO-93	263.06		56.72	1.42E-01	1.30E-01	6.84E-03	6.87E-02
		684.67		99.68	1.30E-01		8.00E-02	6.12E-02
		1477.11		99.08	1.43E-01		3.95E-02	6.39E-02
	NB-93M	16.57		9.43	9.20E+00	9.20E+00	1.82E+01	4.47E+00
	NB-94	702.63		100.00	1.38E-01	1.38E-01	7.41E-03	6.50E-02
		871.10		100.00	1.52E-01		-1.18E-02	7.14E-02
	NB-95	765.79		99.81	1.01E+00	1.01E+00	7.12E-01	4.79E-01
	NB-95M	235.69		25.00	4.49E+07	4.49E+07	5.28E+07	2.20E+07
	ZR-95	724.18		43.70	1.01E+00	6.18E-01	1.98E-01	4.81E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	ZR-95	756.72		55.30	6.18E-01	6.18E-01	3.21E-01	2.88E-01
	MO-99	181.06		6.20	3.45E+10	2.77E+10	-8.05E+08	1.68E+10
		739.58		12.80	2.77E+10		6.82E+08	1.30E+10
		778.00		4.50	7.97E+10		1.57E+10	3.73E+10
	RU-103	497.08		89.00	5.87E-01	5.87E-01	-4.23E-02	2.77E-01
	RU-106	621.84		9.80	1.28E+00	1.28E+00	3.69E-01	5.97E-01
	AG-108M	433.93		89.90	1.07E-01	1.07E-01	6.79E-03	5.08E-02
		614.37		90.40	1.24E-01		-1.37E-02	5.84E-02
		722.95		90.50	1.69E-01		-6.23E-02	8.02E-02
+	CD-109	88.03	*	3.72	3.18E+00	3.18E+00	2.12E+00	1.56E+00
	AG-110M	657.75		93.14	1.50E-01	1.50E-01	-2.52E-02	7.01E-02
		677.61		10.53	1.59E+00		-3.92E-01	7.48E-01
		706.67		16.46	1.07E+00		-4.41E-02	5.03E-01
		763.93		21.98	8.24E-01		-2.01E-01	3.87E-01
		884.67		71.63	2.65E-01		-3.78E-02	1.24E-01
		1384.27		23.94	7.17E-01		-2.52E-01	3.20E-01
	CD-113M	263.70		0.02	3.59E+02	3.59E+02	3.11E+01	1.73E+02
	SN-113	255.12		1.93	7.58E+00	2.58E-01	3.06E-01	3.66E+00
		391.69		64.90	2.58E-01		9.04E-03	1.23E-01
	TE123M	159.00		84.10	1.54E-01	1.54E-01	1.42E-02	7.51E-02
	SB-124	602.71		97.87	3.85E-01	3.85E-01	7.19E-02	1.82E-01
		645.85		7.26	4.45E+00		-7.25E-01	2.08E+00
		722.78		11.10	4.13E+00		-1.52E+00	1.96E+00
		1691.02		49.00	7.28E-01		5.80E-02	3.12E-01
	I-125	35.49		6.49	5.88E+00	5.88E+00	-5.62E-01	2.87E+00
	SB-125	176.33		6.89	1.19E+00	3.60E-01	-5.54E-02	5.80E-01
		427.89		29.33	3.60E-01		5.96E-02	1.72E-01
		463.38		10.35	1.11E+00		3.75E-01	5.27E-01
		600.56		17.80	7.17E-01		1.25E-01	3.39E-01
		635.90		11.32	1.11E+00		-1.03E-01	5.21E-01
	SB-126	414.70		83.30	2.37E+01	2.37E+01	-9.16E+00	1.13E+01
		666.33		99.60	2.80E+01		1.88E+01	1.32E+01
		695.00		99.60	2.60E+01		-8.73E-01	1.22E+01
		720.50		53.80	5.66E+01		-1.12E+00	2.68E+01
+	SN-126	87.57	*	37.00	2.77E-01	2.77E-01	1.85E-01	1.36E-01
	SB-127	473.00		25.00	1.08E+07	1.01E+07	-4.07E+05	5.09E+06
		685.20		35.70	1.01E+07		6.23E+06	4.77E+06
		783.80		14.70	2.87E+07		2.48E+07	1.35E+07
	I-129	29.78		57.00	3.23E-01	3.23E-01	-5.81E-02	1.57E-01
		33.60		13.20	1.05E+00		-2.41E-02	5.12E-01
		39.58		7.52	1.51E+00		5.57E-01	7.35E-01
	I-131	284.30		6.05	4.86E+03	4.38E+02	-6.65E+02	2.33E+03
		364.48		81.20	4.38E+02		2.84E+02	2.10E+02
		636.97		7.26	5.90E+03		-4.06E+02	2.77E+03
		722.89		1.80	3.15E+04		-1.16E+04	1.49E+04
	TE-132	49.72		13.10	4.77E+08	6.08E+07	1.34E+07	2.33E+08
		228.16		88.00	6.08E+07		3.08E+06	2.95E+07
	BA-133	81.00		33.00	2.95E-01	2.33E-01	-7.27E-01	1.45E-01
		302.84		17.80	5.08E-01		6.31E-02	2.44E-01
		356.01		60.00	2.33E-01		6.73E-02	1.13E-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	7.48E+04	7.48E+04	-1.84E+05	3.68E+04
	CS-134	563.23		8.38	1.47E+00	1.64E-01	-1.54E-01	6.94E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
CS-134	569.32	15.43	8.26E-01	1.64E-01	1.11E-01	3.90E-01
	604.70	97.60	1.64E-01		-1.14E+00	7.83E-02
	795.84	85.40	1.64E-01		6.43E-04	7.66E-02
	801.93	8.73	1.67E+00		-7.10E-01	7.78E-01
CS-135	268.24	16.00	5.55E-01	5.55E-01	2.06E-01	2.68E-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	1.50E+02	1.93E+01	6.20E+00	7.30E+01
	163.89	4.61	2.46E+02		1.07E+02	1.20E+02
	176.55	13.56	8.57E+01		-7.07E+00	4.17E+01
	273.65	12.66	1.02E+02		-7.27E+01	4.94E+01
	340.57	48.50	3.55E+01		5.75E+00	1.72E+01
	818.50	99.70	1.93E+01		-6.06E+00	8.97E+00
	1048.07	79.60	3.02E+01		-6.45E-01	1.40E+01
	1235.34	19.70	1.60E+02		4.40E+00	7.52E+01
CS-137	661.65	85.12	1.54E-01	1.54E-01	6.93E-02	7.29E-02
LA-138	788.74	34.00	4.11E-01	2.02E-01	-2.89E-03	1.93E-01
	1435.80	66.00	2.02E-01		-3.75E-02	8.99E-02
CE-139	165.85	80.35	1.47E-01	1.47E-01	-4.81E-02	7.15E-02
BA-140	162.64	6.70	1.96E+02	6.73E+01	6.98E+01	9.53E+01
	304.84	4.50	3.25E+02		-1.73E+01	1.56E+02
	423.70	3.20	5.42E+02		7.61E+01	2.58E+02
	437.55	2.00	8.75E+02		3.79E+02	4.16E+02
	537.32	25.00	6.73E+01		-7.73E+00	3.16E+01
LA-140	328.77	20.50	7.89E+01	2.47E+01	3.91E+01	3.79E+01
	487.03	45.50	3.93E+01		2.09E+01	1.86E+01
	815.85	23.50	9.80E+01		-2.17E+00	4.57E+01
	1596.49	95.49	2.47E+01		3.26E-01	1.09E+01
CE-141	145.44	48.40	1.19E+00	1.19E+00	4.98E-01	5.82E-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	7.98E-01	7.98E-01	8.21E-02	3.89E-01
PM-144	476.78	42.00	2.86E-01	1.29E-01	2.05E-01	1.36E-01
	618.01	98.60	1.29E-01		8.38E-03	6.04E-02
	696.49	99.49	1.55E-01		-7.57E-02	7.31E-02
PM-145	36.85	21.70	5.62E-01	3.00E-01	-1.46E-01	2.74E-01
	37.36	39.70	3.00E-01		-7.80E-02	1.46E-01
	42.30	15.10	6.98E-01		-1.16E+00	3.41E-01
	72.40	2.31	4.34E+00		2.26E-01	2.14E+00
PM-146	453.90	39.94	2.65E-01	2.65E-01	5.56E-02	1.26E-01
	735.90	14.01	9.44E-01		-1.69E-01	4.42E-01
	747.13	13.10	1.11E+00		3.62E-01	5.23E-01
ND-147	91.11	28.90	1.36E+02	1.36E+02	2.20E+02	6.71E+01
	531.02	13.10	3.35E+02		4.37E+01	1.58E+02
PM-149	285.90	3.10	2.49E+13	2.49E+13	1.20E+12	1.20E+13
EU-152	121.78	20.50	3.34E-01	3.34E-01	-4.27E-02	1.63E-01
	244.69	5.40	1.88E+00		1.12E-01	9.13E-01
	344.27	19.13	5.06E-01		3.00E-01	2.43E-01
	778.89	9.20	1.46E+00		-5.99E-01	6.82E-01
	964.01	10.40	1.69E+00		6.31E-02	7.96E-01
	1085.78	7.22	2.31E+00		5.85E-01	1.08E+00

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	EU-152	1112.02		9.60	1.78E+00	3.34E-01	8.39E-02	8.26E-01
		1407.95		14.94	1.05E+00		3.51E-01	4.77E-01
	GD-153	97.43		31.30	3.12E-01	3.12E-01	2.54E-02	1.53E-01
		103.18		22.20	4.01E-01		-1.28E-01	1.96E-01
	EU-154	123.07		40.50	1.73E-01	1.73E-01	-1.39E-02	8.42E-02
		723.30		19.70	8.16E-01		1.59E-01	3.87E-01
		873.19		11.50	1.30E+00		-5.85E-02	6.10E-01
		996.32		10.30	1.59E+00		-3.93E-01	7.44E-01
		1004.76		17.90	8.91E-01		2.47E-01	4.15E-01
		1274.45		35.50	4.62E-01		-9.83E-03	2.12E-01
	EU-155	86.50		30.90	3.10E-01	3.10E-01	2.28E-01	1.53E-01
		105.30		20.70	3.44E-01		4.08E-02	1.68E-01
	EU-156	811.77		10.40	9.89E+01	9.89E+01	-1.91E+01	4.61E+01
		1153.47		7.20	1.99E+02		7.56E+01	9.32E+01
		1230.71		8.90	1.80E+02		-2.46E+01	8.43E+01
	HO-166M	184.41		72.60	1.34E-01	1.34E-01	2.81E-01	6.54E-02
		280.45		29.60	2.92E-01		1.66E-01	1.41E-01
		410.94		11.10	9.28E-01		5.69E-01	4.44E-01
		711.69		54.10	2.49E-01		-2.40E-02	1.17E-01
	TM-171	66.72		0.14	7.28E+01	7.28E+01	4.35E-01	3.58E+01
	HF-172	67.35		5.31	1.92E+00	7.03E-01	1.15E-02	9.41E-01
		125.81		11.30	7.03E-01		-1.68E-02	3.43E-01
	LU-172	181.53		20.60	7.68E+03	5.20E+03	-1.29E+01	3.75E+03
		900.72		29.81	1.00E+04		2.49E+03	4.70E+03
		1093.66		62.50	5.20E+03		-5.94E+02	2.42E+03
	LU-173	100.72		5.24	1.50E+00	4.82E-01	-9.09E-02	7.33E-01
		272.11		21.20	4.82E-01		8.15E-02	2.33E-01
	HF-175	343.40		84.00	2.91E-01	2.91E-01	1.73E-01	1.40E-01
	LU-176	88.34		13.30	7.00E-01	8.94E-02	-4.29E-01	3.44E-01
		201.83		86.00	1.00E-01		1.19E-01	4.88E-02
		306.78		94.00	8.94E-02		3.64E-02	4.29E-02
	HF-181	133.02		41.70	8.02E-01	5.29E-01	6.94E-02	3.91E-01
		345.85		17.20	2.67E+00		1.57E+00	1.28E+00
		482.03		82.80	5.29E-01		-1.37E-01	2.49E-01
	TA-182	67.75		41.20	3.91E-01	3.91E-01	3.74E-02	1.92E-01
		1121.30		34.90	1.32E+00		8.19E-02	6.32E-01
		1189.05		16.23	1.97E+00		-2.10E-01	9.18E-01
		1221.41		26.98	1.45E+00		2.07E-01	6.83E-01
		1231.02		11.44	3.14E+00		-2.37E+00	1.47E+00
	IR-192	308.46		29.68	6.99E-01	4.95E-01	4.27E-01	3.35E-01
		468.07		48.10	4.95E-01		-2.73E-02	2.34E-01
+	HG-203	279.19	*	77.30	6.82E-01	6.82E-01	4.72E-01	3.33E-01
	TL-204	374.74		94.11	1.14E-01	1.14E-01	7.30E-02	5.47E-02
		899.15		99.16	1.62E-01		2.14E-02	7.57E-02
		911.74		91.10	2.56E-01		4.35E-01	1.22E-01
	BI-207	569.67		97.72	1.20E-01	1.20E-01	1.61E-02	5.68E-02
		1063.62		74.90	2.03E-01		-1.05E-01	9.41E-02
+	TL-208	583.14	*	30.22	6.15E-01	3.60E-01	1.52E+00	2.97E-01
		860.37	*	4.48	3.85E+00		2.70E+00	1.82E+00
		2614.66	*	35.85	3.60E-01		9.87E-01	1.41E-01
	BI-210M	262.00		45.00	1.80E-01	1.80E-01	-4.88E-03	8.67E-02
		300.00		23.00	4.39E-01		-1.04E+00	2.12E-01
+	PB-210	46.50	*	4.25	2.98E+00	2.98E+00	1.69E+00	1.46E+00

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PB-211	404.84		2.90	3.22E+00	3.22E+00	-6.44E-01	1.53E+00
		831.96		2.90	4.65E+00		-1.53E-01	2.17E+00
	BI-212	727.17		11.80	1.31E+00	1.31E+00	4.76E-01	6.23E-01
		1620.62		2.75	4.45E+00		1.32E-01	1.92E+00
+	PB-212	238.63	*	44.60	3.52E-01	3.52E-01	1.34E+00	1.73E-01
		300.09	*	3.41	4.79E+00		2.85E+00	2.35E+00
+	BI-214	609.31	*	46.30	4.23E-01	4.23E-01	2.43E+00	2.04E-01
		1120.29	*	15.10	1.34E+00		3.00E+00	6.29E-01
		1764.49	*	15.80	1.19E+00		1.99E+00	5.36E-01
		2204.22	*	4.98	2.19E+00		3.78E+00	8.70E-01
+	PB-214	295.21	*	19.19	8.35E-01	4.01E-01	2.65E+00	4.09E-01
		351.92	*	37.19	4.01E-01		2.37E+00	1.95E-01
	RN-219	401.80		6.50	1.44E+00	1.44E+00	-5.99E-02	6.87E-01
	RA-223	323.87		3.88	2.23E+00	2.23E+00	-1.07E+00	1.07E+00
	RA-224	240.98		3.95	3.84E+00	3.84E+00	1.82E+01	1.89E+00
+	RA-225	40.00	*	31.00	3.41E+01	3.41E+01	1.79E+01	1.67E+01
+	RA-226	186.21	*	3.28	3.37E+00	3.37E+00	5.91E+00	1.65E+00
	TH-227	50.10		8.40	1.15E+00	1.10E+00	3.25E-02	5.64E-01
		236.00		11.50	1.10E+00		1.30E+00	5.40E-01
		256.20		6.30	1.33E+00		5.78E-01	6.43E-01
+	AC-228	338.32	*	11.40	1.14E+00	7.87E-01	1.21E+00	5.55E-01
		911.07	*	27.70	7.87E-01		1.30E+00	3.76E-01
		969.11	*	16.60	1.22E+00		7.34E-01	5.81E-01
	TH-230	48.44		16.90	5.94E-01	5.94E-01	3.54E-01	2.91E-01
		62.85		4.60	2.10E+00		2.71E+00	1.03E+00
		67.67		0.37	2.45E+01		2.34E+00	1.20E+01
	PA-231	283.67		1.60	4.95E+00	3.86E+00	-6.78E-01	2.38E+00
		302.67		2.30	3.86E+00		4.79E-01	1.86E+00
	TH-231	25.64		14.70	1.87E+00	1.37E+00	1.14E+00	9.14E-01
		84.21		6.40	1.37E+00		-1.44E+00	6.73E-01
	PA-233	311.98		38.60	2.50E+00	2.50E+00	6.56E-01	1.20E+00
	PA-234	131.20		20.40	3.58E-01	3.58E-01	1.58E-01	1.75E-01
		733.99		8.80	1.48E+00		-9.84E-01	6.93E-01
		946.00		12.00	1.32E+00		3.57E-01	6.19E-01
	PA-234M	1001.03		0.92	1.82E+01	1.82E+01	4.16E+00	8.50E+00
+	TH-234	63.29	*	3.80	3.31E+00	3.31E+00	2.07E+00	1.63E+00
	U-235	143.76		10.50	7.25E-01	7.25E-01	6.04E-01	3.54E-01
		163.35		4.70	1.60E+00		5.70E-01	7.78E-01
		205.31		4.70	1.72E+00		-1.90E-01	8.34E-01
+	NP-237	86.50	*	12.60	8.13E-01	8.13E-01	5.43E-01	4.01E-01
	NP-239	106.10		22.70	4.59E+11	4.59E+11	-8.35E+10	2.24E+11
		228.18		10.70	1.19E+12		6.05E+10	5.79E+11
		277.60		14.10	9.28E+11		3.95E+11	4.47E+11
	AM-241	59.54		35.90	2.58E-01	2.58E-01	2.23E-02	1.27E-01
	AM-243	74.67		66.00	1.88E-01	1.88E-01	8.40E-01	9.27E-02
	CM-243	209.75		3.29	2.57E+00	6.16E-01	1.51E+00	1.25E+00
		228.14		10.60	7.95E-01		4.03E-02	3.85E-01
		277.60		14.00	6.16E-01		2.62E-01	2.97E-01

Analysis Report for 1707084-15

HTC-A02-S001-3036-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S001-3036-01

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	5	111
17:	95	107	94	95	76	77	81	105
25:	82	76	89	74	60	69	73	83
33:	63	69	64	64	82	74	96	90
41:	90	72	84	80	145	133	119	89
49:	103	95	109	115	124	104	106	126
57:	120	113	128	139	131	188	195	162
65:	159	123	154	139	151	157	145	155
73:	249	336	357	488	398	218	137	136
81:	125	154	140	157	165	224	195	173
89:	179	157	203	252	171	120	111	87
97:	112	100	80	85	98	104	82	92
105:	94	96	81	86	106	85	92	86
113:	104	93	94	80	89	79	78	88
121:	77	80	81	84	88	91	98	106
129:	112	81	86	77	58	83	68	76
137:	67	81	71	72	87	91	99	97
145:	83	79	74	67	78	74	61	78
153:	92	70	71	72	82	55	68	84
161:	78	74	54	69	70	62	65	65
169:	62	63	66	69	70	64	66	71
177:	65	60	66	72	62	68	82	104
185:	150	143	88	58	52	54	55	68
193:	57	64	59	61	49	79	72	70
201:	60	61	63	63	43	48	59	73
209:	75	65	46	50	53	47	45	46
217:	59	40	56	50	53	66	53	67
225:	51	42	39	45	46	62	43	42
233:	53	47	61	76	202	292	189	108
241:	125	92	65	42	37	41	41	32
249:	43	30	37	32	45	31	31	56
257:	42	44	37	36	40	30	36	27
265:	33	49	36	43	58	43	50	31
273:	30	30	30	43	42	39	43	23
281:	32	31	39	22	27	29	34	33
289:	21	38	26	35	61	161	171	99
297:	26	30	52	30	30	32	20	25
305:	36	25	27	28	34	25	22	25
313:	19	32	23	22	30	27	24	29
321:	27	27	19	28	30	25	35	35
329:	28	29	23	26	24	28	22	39
337:	69	63	53	18	26	31	33	31
345:	22	38	14	33	42	144	259	217
353:	69	23	20	22	24	17	21	19
361:	20	28	25	29	27	26	23	15

369:	23	21	22	34	26	25	23	34

Sample Title: HTC-A02-S001-3036-01

Channel								
377:	27	23	18	15	34	16	16	23
385:	22	22	20	20	33	18	16	19
393:	18	23	24	17	24	18	23	23
401:	13	30	14	16	21	18	22	15
409:	23	31	14	23	31	16	15	20
417:	15	18	20	15	25	18	17	30
425:	16	16	22	14	21	15	19	17
433:	16	19	19	17	12	21	19	23
441:	16	12	18	20	24	15	17	13
449:	10	18	21	13	26	17	18	14
457:	25	15	19	21	17	20	25	19
465:	17	15	19	13	15	9	12	11
473:	21	11	20	12	14	15	16	11
481:	8	9	13	17	12	19	14	15
489:	18	16	12	18	12	11	17	12
497:	12	6	24	14	12	11	10	14
505:	15	11	12	20	31	45	46	26
513:	13	12	13	8	11	17	9	12
521:	17	12	14	16	20	12	16	7
529:	12	21	12	19	12	11	11	16
537:	16	6	9	8	13	9	10	12
545:	17	12	14	16	14	14	13	10
553:	13	10	15	15	13	17	9	15
561:	15	14	13	14	18	13	16	16
569:	11	17	12	18	7	17	6	11
577:	11	18	18	13	28	56	57	37
585:	13	13	12	11	9	7	5	8
593:	13	18	17	9	15	10	16	18
601:	13	11	14	17	18	24	50	136
609:	186	84	19	14	10	10	9	11
617:	8	15	5	13	6	10	9	10
625:	7	7	10	4	11	18	14	14
633:	6	12	10	15	12	14	11	8
641:	12	6	7	7	15	10	13	9
649:	14	8	10	15	9	3	10	3
657:	13	8	4	8	6	15	15	15
665:	12	8	12	11	4	10	8	8
673:	10	12	7	11	12	4	11	8
681:	13	22	5	4	5	6	8	14
689:	3	8	7	9	11	11	9	6
697:	14	5	12	7	17	13	10	11
705:	9	11	12	9	9	6	9	9
713:	16	8	10	15	6	13	13	9
721:	16	13	5	15	9	19	20	16
729:	13	4	11	7	5	11	9	11
737:	6	6	8	11	8	10	9	8
745:	10	12	11	11	12	5	4	10
753:	6	10	8	5	7	6	7	4
761:	6	11	5	11	7	8	23	14
769:	16	9	10	15	4	11	11	10
777:	5	4	5	14	8	3	9	11
785:	16	14	10	7	6	6	4	4
793:	9	11	9	10	5	6	6	9

801:	7	6	12	8	9	8	11	5

Sample Title: HTC-A02-S001-3036-01

Channel								
809:	9	6	7	9	9	8	2	9
817:	7	9	4	5	9	6	9	5
825:	5	7	1	8	3	5	6	16
833:	8	7	11	12	6	8	11	10
841:	7	13	8	7	7	8	7	6
849:	8	8	9	9	8	4	6	8
857:	8	6	22	21	16	5	7	11
865:	8	11	5	10	9	9	13	4
873:	7	9	6	11	3	7	10	7
881:	10	10	10	4	4	9	8	6
889:	6	10	10	5	8	8	8	8
897:	4	4	9	12	9	11	8	11
905:	3	10	5	11	12	46	37	18
913:	10	5	13	4	7	7	7	8
921:	7	9	8	8	9	2	9	7
929:	10	5	11	9	6	13	8	9
937:	4	1	6	7	3	8	3	10
945:	9	9	9	7	14	7	7	7
953:	6	8	9	4	4	9	9	7
961:	4	10	11	11	7	13	12	19
969:	16	12	10	8	5	9	6	9
977:	4	11	2	2	7	6	8	2
985:	8	11	5	6	6	5	8	7
993:	5	8	8	6	3	9	14	7
1001:	10	11	3	9	8	4	5	5
1009:	2	2	9	8	10	2	2	7
1017:	7	5	4	12	5	6	9	2
1025:	8	8	5	5	8	7	5	9
1033:	2	11	7	13	5	6	9	6
1041:	11	8	8	9	9	3	3	6
1049:	5	8	8	3	6	8	8	3
1057:	8	6	3	7	9	6	5	7
1065:	4	8	3	10	7	9	13	8
1073:	4	7	6	9	7	4	5	8
1081:	11	8	6	8	5	4	8	4
1089:	6	1	9	4	8	9	12	9
1097:	5	7	11	9	5	10	8	7
1105:	2	7	7	9	6	6	9	5
1113:	3	4	11	5	1	24	29	38
1121:	27	10	4	9	6	4	7	0
1129:	7	10	9	7	14	4	8	11
1137:	3	8	8	14	6	6	5	2
1145:	8	4	5	5	10	3	8	6
1153:	6	9	14	8	5	3	9	9
1161:	6	8	8	9	6	2	7	10
1169:	9	7	10	4	9	11	11	9
1177:	5	9	9	9	6	7	11	8
1185:	5	5	2	6	8	9	10	4
1193:	12	6	6	5	10	6	7	2
1201:	4	6	6	7	9	9	13	9
1209:	10	13	8	10	5	12	10	6
1217:	13	9	9	10	5	9	10	10
1225:	14	11	8	8	13	8	5	6

1233:	7	11	7	5	11	19	7	3

Sample Title: HTC-A02-S001-3036-01

Channel								
1241:	10	9	7	6	10	8	13	3
1249:	8	5	6	4	8	5	4	5
1257:	4	11	8	3	5	9	5	2
1265:	4	6	3	3	7	7	5	3
1273:	6	6	4	7	2	2	8	1
1281:	6	4	4	5	6	9	2	6
1289:	2	3	6	1	2	3	5	5
1297:	3	6	6	3	6	4	1	1
1305:	3	7	5	2	6	4	8	7
1313:	7	6	0	5	4	3	3	3
1321:	4	3	2	4	4	5	3	4
1329:	6	7	2	3	3	2	6	6
1337:	5	4	5	3	5	3	6	5
1345:	0	6	2	1	3	3	4	2
1353:	4	1	5	3	6	2	4	1
1361:	7	7	4	3	4	4	2	1
1369:	2	3	4	3	0	5	2	2
1377:	10	6	4	6	0	3	1	2
1385:	3	2	2	4	3	7	2	1
1393:	4	4	2	2	2	1	2	4
1401:	0	4	4	1	2	8	5	4
1409:	4	2	3	3	4	2	1	1
1417:	2	3	0	2	2	3	3	4
1425:	1	2	3	0	2	5	4	2
1433:	4	1	2	5	1	0	3	3
1441:	3	4	1	6	2	5	0	2
1449:	1	4	4	9	1	0	1	3
1457:	5	28	91	143	145	52	10	2
1465:	0	2	1	4	1	4	0	2
1473:	5	4	2	1	3	1	2	4
1481:	1	1	3	1	1	1	2	2
1489:	1	1	2	0	1	4	2	1
1497:	2	1	3	1	2	0	1	5
1505:	4	3	5	3	6	1	1	3
1513:	4	1	1	3	0	1	0	3
1521:	0	1	4	1	1	1	2	4
1529:	1	2	4	1	1	0	2	0
1537:	1	2	4	2	1	2	2	0
1545:	1	0	2	2	0	1	3	1
1553:	2	3	0	2	1	3	1	2
1561:	0	2	0	0	2	2	1	5
1569:	1	2	0	0	1	0	2	3
1577:	0	2	3	1	3	0	2	1
1585:	3	3	6	7	1	5	2	2
1593:	2	2	0	3	2	3	1	3
1601:	2	1	1	0	1	1	3	1
1609:	0	1	1	3	1	4	0	1
1617:	0	1	2	3	5	1	0	1
1625:	1	3	0	2	0	0	4	0
1633:	0	1	1	3	3	2	2	3
1641:	3	2	1	3	4	0	1	0
1649:	0	1	1	0	1	1	1	0
1657:	1	0	2	3	2	6	3	0

1665:	0	0	0	4	0	1	1	1

Sample Title: HTC-A02-S001-3036-01

Channel								
1673:	3	1	1	0	0	1	0	1
1681:	1	2	1	1	1	0	1	2
1689:	0	2	0	3	0	1	3	1
1697:	3	1	0	2	1	1	2	0
1705:	0	1	2	0	0	0	1	1
1713:	1	1	0	0	0	1	1	0
1721:	2	1	1	1	0	0	7	4
1729:	7	2	3	1	1	0	0	2
1737:	0	0	1	0	2	1	2	0
1745:	2	0	0	1	0	1	0	2
1753:	2	3	1	1	1	3	3	2
1761:	0	6	10	14	24	4	1	1
1769:	0	3	0	1	0	3	1	2
1777:	2	1	0	1	3	0	3	1
1785:	0	0	0	0	0	2	0	3
1793:	0	1	0	1	0	0	1	1
1801:	1	0	1	0	0	0	1	0
1809:	1	2	1	1	3	1	1	2
1817:	1	0	0	0	1	0	0	1
1825:	1	3	1	0	0	2	2	0
1833:	0	1	2	1	3	1	3	2
1841:	1	0	0	1	1	3	2	2
1849:	1	1	2	0	0	1	1	1
1857:	0	0	2	0	2	0	2	1
1865:	0	1	0	0	1	1	1	1
1873:	3	3	1	0	0	0	0	0
1881:	1	0	0	0	2	1	1	1
1889:	1	3	2	0	1	1	3	0
1897:	0	0	1	0	3	0	2	1
1905:	1	2	0	0	1	1	1	0
1913:	0	0	1	1	0	1	2	2
1921:	1	0	2	1	0	0	0	1
1929:	0	0	0	1	2	1	1	0
1937:	0	2	2	0	2	0	1	1
1945:	0	1	1	0	2	0	1	0
1953:	1	0	0	2	0	0	1	0
1961:	2	1	2	1	0	0	1	2
1969:	0	1	0	1	0	1	0	0
1977:	3	0	2	0	0	1	0	0
1985:	0	1	1	1	1	1	1	1
1993:	1	1	0	0	0	0	1	2
2001:	1	2	0	0	1	2	2	1
2009:	0	0	0	0	0	0	1	2
2017:	0	2	1	0	1	0	0	0
2025:	0	1	3	1	0	1	1	1
2033:	0	0	0	0	0	0	0	0
2041:	1	3	2	1	0	1	1	2
2049:	0	1	0	1	0	0	2	2
2057:	0	1	3	0	1	1	1	0
2065:	0	1	0	2	0	0	0	0
2073:	1	0	0	1	1	1	1	2
2081:	0	0	2	1	0	1	0	1
2089:	0	2	3	0	1	1	1	2

2097:	0	0	1	2	1	0	3	2

Sample Title: HTC-A02-S001-3036-01

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

2529:	0	1	0	0	1	0	0	0

Sample Title: HTC-A02-S001-3036-01

Channel								
2537:	0	0	0	0	1	0	1	0
2545:	0	0	0	0	0	0	0	1
2553:	0	0	1	1	0	0	0	0
2561:	0	0	1	0	0	0	0	1
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	0	0	0	0	0	0	0	1
2593:	0	0	0	0	0	0	0	1
2601:	1	0	0	0	0	0	0	1
2609:	0	1	0	5	3	8	13	6
2617:	1	0	0	1	0	0	0	0
2625:	0	0	0	0	0	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	2	0	0	1	0	1	0
2649:	0	2	1	0	1	0	0	0
2657:	1	1	0	0	0	0	0	0
2665:	0	0	0	0	0	1	0	1
2673:	1	0	0	0	0	0	0	0
2681:	0	0	0	0	0	0	0	0
2689:	0	0	0	0	0	0	0	0
2697:	0	0	0	1	1	0	0	0
2705:	0	0	0	0	0	0	2	0
2713:	0	1	0	0	1	0	1	1
2721:	0	0	0	0	0	0	0	1
2729:	0	0	0	0	0	0	0	0
2737:	0	0	0	1	2	0	1	0
2745:	1	0	0	1	0	0	1	0
2753:	0	0	0	1	2	0	0	0
2761:	0	0	0	1	0	0	2	0
2769:	0	0	0	0	0	0	0	0
2777:	0	0	0	0	1	0	1	0
2785:	0	0	1	0	0	0	0	0
2793:	0	0	0	0	1	1	0	1
2801:	0	0	0	1	0	1	0	2
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	0	0	0
2833:	0	0	0	0	0	0	0	0
2841:	1	0	0	1	0	1	0	1
2849:	0	1	0	0	0	1	0	1
2857:	0	0	0	0	0	0	0	0
2865:	0	1	0	0	0	0	0	0
2873:	0	1	0	0	1	0	0	0
2881:	0	1	0	0	0	0	0	0
2889:	0	0	0	1	0	0	0	0
2897:	0	0	0	0	0	0	0	1
2905:	1	0	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	0	0	2
2929:	0	0	0	1	0	0	0	0
2937:	1	1	1	0	0	0	0	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	1	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-3036-01

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

3393:	0	0	1	1	0	0	1	0

Sample Title: HTC-A02-S001-3036-01

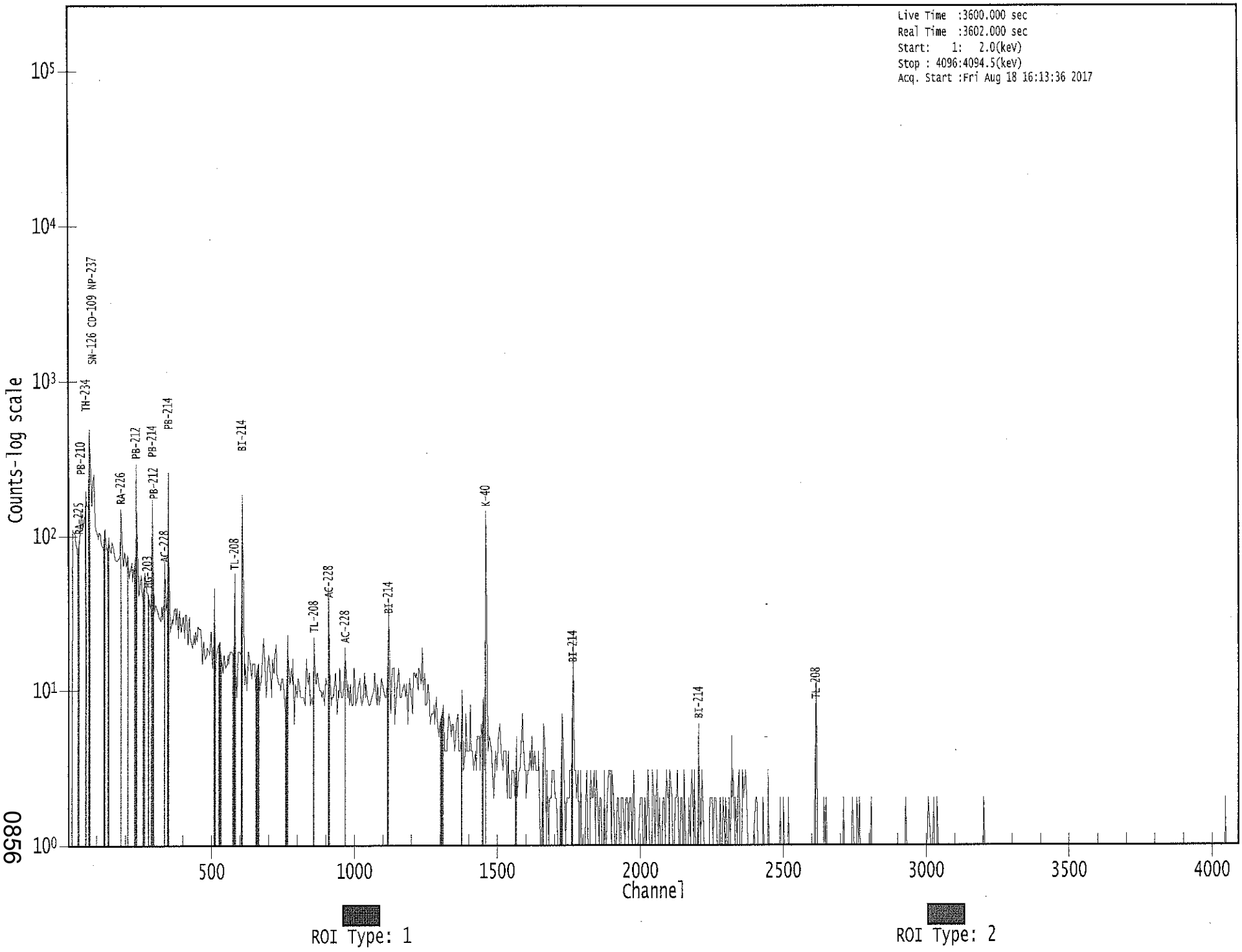
Channel								
3401:	0	0	0	1	1	0	0	0
3409:	1	0	1	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	1	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	1	0	1	0	0
3449:	0	0	0	0	0	0	1	0
3457:	0	0	0	0	0	0	0	0
3465:	1	0	0	0	1	0	0	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	1	0	0	0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

3825:	0	0	0	0	1	1	0	0

Sample Title: HTC-A02-S001-3036-01

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

0000055529.CNF



0856

KB 8/18/17

Apex-Gamma

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-16
Sample Description	: HTC-A02-S001-3642-01
Sample Type	: SOIL
Sample Size	: 5.382E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:09:23AM
Acquisition Started	: 8/18/2017 4:40:16PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3615.4 seconds
Dead Time	: 0.43 %
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	: 55530

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 5:41:00PM
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	46.45	47.07	0.0000	0.00
2	53.16	53.77	0.0000	0.00
3	63.24	63.84	0.0000	0.00
4	68.16	68.76	0.0000	0.00
5	74.72	75.31	0.0000	0.00
6	77.16	77.75	0.0000	0.00
7	87.57	88.15	0.0000	0.00
8	92.37	92.94	0.0000	0.00
9	112.83	113.38	0.0000	0.00
10	143.68	144.20	0.0000	0.00
11	153.82	154.33	0.0000	0.00
12	163.59	164.10	0.0000	0.00
13	170.14	170.63	0.0000	0.00
14	185.94	186.42	0.0000	0.00
15	205.50	205.96	0.0000	0.00
16	242.05	242.47	0.0000	0.00
17	257.69	258.10	0.0000	0.00
18	270.91	271.30	0.0000	0.00
19	295.27	295.64	0.0000	0.00
20	299.93	300.29	0.0000	0.00
21	323.05	323.39	0.0000	0.00
22	351.97	352.28	0.0000	0.00
23	356.71	357.02	0.0000	0.00
24	388.12	388.40	0.0000	0.00
25	403.78	404.04	0.0000	0.00
26	462.26	462.46	0.0000	0.00
27	480.25	480.43	0.0000	0.00
28	486.87	487.05	0.0000	0.00
29	510.90	511.05	0.0000	0.00
30	533.02	533.15	0.0000	0.00
31	544.12	544.24	0.0000	0.00
32	580.31	580.39	0.0000	0.00
33	583.53	583.61	0.0000	0.00
34	609.45	609.50	0.0000	0.00
35	614.08	614.13	0.0000	0.00
36	665.55	665.55	0.0000	0.00
37	689.66	689.63	0.0000	0.00
38	699.64	699.60	0.0000	0.00
39	703.38	703.34	0.0000	0.00
40	720.23	720.17	0.0000	0.00
41	743.01	742.93	0.0000	0.00
42	763.75	763.64	0.0000	0.00

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	768.53	768.42	0.0000	0.00
44	786.17	786.04	0.0000	0.00
45	806.39	806.24	0.0000	0.00
46	839.64	839.46	0.0000	0.00
47	911.54	911.29	0.0000	0.00
48	925.50	925.23	0.0000	0.00
49	934.26	933.98	0.0000	0.00
50	964.43	964.13	0.0000	0.00
51	1001.08	1000.73	0.0000	0.00
52	1052.63	1052.24	0.0000	0.00
53	1120.56	1120.10	0.0000	0.00
54	1155.50	1155.01	0.0000	0.00
55	1181.61	1181.09	0.0000	0.00
56	1208.49	1207.94	0.0000	0.00
57	1238.48	1237.91	0.0000	0.00
58	1254.47	1253.87	0.0000	0.00
59	1281.38	1280.76	0.0000	0.00
60	1304.11	1303.47	0.0000	0.00
61	1378.07	1377.35	0.0000	0.00
62	1385.33	1384.61	0.0000	0.00
63	1401.78	1401.04	0.0000	0.00
64	1408.53	1407.78	0.0000	0.00
65	1416.27	1415.52	0.0000	0.00
66	1461.07	1460.28	0.0000	0.00
67	1509.39	1508.54	0.0000	0.00
68	1539.12	1538.25	0.0000	0.00
69	1543.66	1542.79	0.0000	0.00
70	1583.34	1582.42	0.0000	0.00
71	1597.03	1596.11	0.0000	0.00
72	1661.77	1660.78	0.0000	0.00
73	1665.22	1664.22	0.0000	0.00
74	1688.02	1687.00	0.0000	0.00
75	1692.75	1691.73	0.0000	0.00
76	1696.28	1695.25	0.0000	0.00
77	1730.12	1729.06	0.0000	0.00
78	1765.00	1763.91	0.0000	0.00
79	1802.61	1801.48	0.0000	0.00
80	1838.92	1837.76	0.0000	0.00
81	1847.96	1846.79	0.0000	0.00
82	1853.42	1852.24	0.0000	0.00
83	1872.18	1870.98	0.0000	0.00
84	1937.47	1936.21	0.0000	0.00
85	2054.51	2053.14	0.0000	0.00
86	2119.18	2117.74	0.0000	0.00
87	2142.98	2141.52	0.0000	0.00
88	2204.67	2203.15	0.0000	0.00
89	2255.16	2253.60	0.0000	0.00
90	2293.83	2292.23	0.0000	0.00
91	2313.49	2311.87	0.0000	0.00
92	2417.15	2415.43	0.0000	0.00
93	2448.31	2446.56	0.0000	0.00
94	2614.92	2613.02	0.0000	0.00

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 5:41:00PM

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	46.45	44 -	49	47.07	1.42E+03	252.29	1.16E+04	1.32
	2	53.16	52 -	57	53.77	3.31E+02	278.00	1.53E+04	1.18
	3	63.24	61 -	66	63.84	3.24E+03	339.58	2.06E+04	1.36
	4	68.16	67 -	71	68.76	4.03E+02	296.83	1.93E+04	2.20
M	5	74.72	71 -	83	75.31	5.76E+03	361.24	2.05E+04	1.81
m	6	77.16	71 -	83	77.75	1.05E+04	391.31	2.08E+04	1.82
M	7	87.57	83 -	97	88.15	2.90E+03	301.35	1.76E+04	1.67
m	8	92.37	83 -	97	92.94	4.79E+03	312.50	1.57E+04	1.67
	9	112.83	112 -	116	113.38	4.00E+02	239.93	1.24E+04	2.07
	10	143.68	141 -	147	144.20	7.16E+02	316.48	1.77E+04	1.95
	11	153.82	152 -	157	154.33	5.96E+02	274.76	1.46E+04	2.41
	12	163.59	162 -	166	164.10	2.59E+02	225.71	1.10E+04	1.86
	13	170.14	168 -	173	170.63	2.05E+02	250.63	1.24E+04	1.56
	14	185.94	182 -	190	186.42	6.24E+03	378.51	1.82E+04	2.04
	15	205.50	204 -	208	205.96	3.02E+02	194.62	8.11E+03	1.95
m	16	242.05	238 -	245	242.47	5.68E+03	235.68	7.15E+03	1.55
	17	257.69	254 -	262	258.10	7.37E+02	258.64	9.84E+03	1.66
	18	270.91	266 -	276	271.30	8.81E+02	302.70	1.18E+04	3.04
M	19	295.27	290 -	304	295.64	1.31E+04	271.04	4.64E+03	1.67
m	20	299.93	290 -	304	300.29	6.87E+02	277.68	6.96E+03	2.74
	21	323.05	321 -	326	323.39	1.71E+02	151.65	4.47E+03	3.10
M	22	351.97	346 -	361	352.28	2.25E+04	324.77	3.31E+03	1.72
m	23	356.71	346 -	361	357.02	7.74E+02	259.08	4.56E+03	2.80
	24	388.12	386 -	391	388.40	2.67E+02	135.66	3.45E+03	3.69
	25	403.78	400 -	409	404.04	4.60E+02	199.32	5.43E+03	6.05
	26	462.26	460 -	465	462.46	1.11E+02	110.62	2.35E+03	1.64
	27	480.25	478 -	482	480.43	1.91E+02	91.42	1.68E+03	1.30
	28	486.87	484 -	490	487.05	1.83E+02	117.84	2.39E+03	1.81
	29	510.90	507 -	515	511.05	3.73E+02	139.85	2.79E+03	3.32
	30	533.02	529 -	537	533.15	1.18E+02	135.41	2.76E+03	2.90
	31	544.12	542 -	548	544.24	1.09E+02	102.05	1.82E+03	1.95
M	32	580.31	577 -	587	580.39	1.20E+02	104.02	1.85E+03	2.25
m	33	583.53	577 -	587	583.61	9.50E+01	105.11	1.85E+03	2.25
M	34	609.45	603 -	619	609.50	1.70E+04	271.66	1.20E+03	1.83
m	35	614.08	603 -	619	614.13	7.79E+02	226.10	1.76E+03	3.02
	36	665.55	662 -	670	665.55	3.99E+02	119.86	1.96E+03	1.99
	37	689.66	686 -	693	689.63	1.37E+02	91.06	1.27E+03	4.49
M	38	699.64	694 -	717	699.60	1.12E+02	80.71	1.01E+03	2.31
m	39	703.38	694 -	717	703.34	2.51E+02	92.84	1.18E+03	2.55
	40	720.23	717 -	723	720.17	7.73E+01	85.19	1.27E+03	1.51

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	743.01	740 -	745	742.93	9.24E+01	75.52	1.07E+03	1.87
M	42	763.75	762 -	772	763.64	8.53E+01	53.63	6.61E+02	2.58
m	43	768.53	762 -	772	768.42	1.66E+03	110.05	1.03E+03	2.02
	44	786.17	782 -	790	786.04	3.90E+02	108.90	1.58E+03	2.37
	45	806.39	803 -	810	806.24	4.05E+02	96.06	1.28E+03	2.14
	46	839.64	836 -	843	839.46	1.30E+02	95.16	1.41E+03	2.10
	47	911.54	908 -	915	911.29	1.05E+02	92.67	1.36E+03	2.05
	48	925.50	922 -	929	925.23	8.97E+01	84.85	1.14E+03	4.20
	49	934.26	930 -	937	933.98	7.89E+02	103.00	1.25E+03	1.72
	50	964.43	961 -	966	964.13	1.42E+02	66.79	7.73E+02	1.96
	51	1001.08	996 -	1005	1000.73	2.86E+02	99.99	1.26E+03	2.01
	52	1052.63	1047 -	1057	1052.24	1.34E+02	96.93	1.18E+03	3.55
	53	1120.56	1114 -	1125	1120.10	3.70E+03	168.72	1.70E+03	2.08
	54	1155.50	1150 -	1159	1155.01	3.63E+02	96.42	1.12E+03	2.19
	55	1181.61	1177 -	1186	1181.09	6.53E+01	78.54	8.41E+02	3.47
	56	1208.49	1203 -	1213	1207.94	1.67E+02	88.35	9.53E+02	2.36
	57	1238.48	1232 -	1241	1237.91	1.31E+03	109.38	9.54E+02	2.16
	58	1254.47	1251 -	1257	1253.87	5.89E+01	57.72	5.68E+02	2.32
	59	1281.38	1276 -	1284	1280.76	3.75E+02	77.63	6.95E+02	2.43
	60	1304.11	1300 -	1306	1303.47	5.15E+01	53.16	4.77E+02	3.72
M	61	1378.07	1372 -	1392	1377.35	9.75E+02	81.41	5.07E+02	2.28
m	62	1385.33	1372 -	1392	1384.61	2.00E+02	78.66	6.95E+02	3.48
M	63	1401.78	1397 -	1412	1401.04	2.94E+02	61.73	4.87E+02	2.38
m	64	1408.53	1397 -	1412	1407.78	5.43E+02	69.39	4.81E+02	2.36
	65	1416.27	1413 -	1419	1415.52	6.14E+01	51.33	4.29E+02	1.36
	66	1461.07	1456 -	1465	1460.28	2.25E+02	78.94	7.67E+02	2.43
	67	1509.39	1504 -	1513	1508.54	4.03E+02	89.06	9.10E+02	2.07
M	68	1539.12	1533 -	1545	1538.25	7.96E+01	50.78	4.67E+02	1.96
m	69	1543.66	1533 -	1545	1542.79	1.14E+02	51.29	4.19E+02	1.84
	70	1583.34	1578 -	1586	1582.42	1.33E+02	63.16	5.34E+02	2.36
	71	1597.03	1589 -	1602	1596.11	1.31E+02	84.07	7.25E+02	6.04
M	72	1661.77	1653 -	1669	1660.78	2.07E+02	43.92	1.88E+02	2.47
m	73	1665.22	1653 -	1669	1664.22	3.22E+01	40.36	1.65E+02	2.47
M	74	1688.02	1680 -	1704	1687.00	2.59E+01	31.67	1.56E+02	2.25
m	75	1692.75	1680 -	1704	1691.73	5.99E+01	33.51	1.49E+02	2.46
m	76	1696.28	1680 -	1704	1695.25	4.25E+01	40.03	1.83E+02	3.00
	77	1730.12	1724 -	1735	1729.06	6.33E+02	74.00	3.74E+02	2.37
	78	1765.00	1757 -	1770	1763.91	3.02E+03	132.51	6.09E+02	2.38
	79	1802.61	1798 -	1805	1801.48	3.39E+01	28.21	1.06E+02	3.90
M	80	1838.92	1833 -	1857	1837.76	7.64E+01	36.39	1.74E+02	3.05
m	81	1847.96	1833 -	1857	1846.79	4.09E+02	49.48	1.32E+02	2.68
m	82	1853.42	1833 -	1857	1852.24	3.04E+01	38.99	1.30E+02	3.06
	83	1872.18	1864 -	1879	1870.98	1.07E+02	50.12	2.10E+02	7.33
	84	1937.47	1931 -	1940	1936.21	3.42E+01	35.44	1.60E+02	4.21
	85	2054.51	2049 -	2058	2053.14	3.32E+01	26.08	7.36E+01	5.16
	86	2119.18	2113 -	2124	2117.74	2.19E+02	40.00	9.11E+01	2.49
	87	2142.98	2134 -	2149	2141.52	3.05E+01	22.72	3.69E+01	11.00
	88	2204.67	2196 -	2209	2203.15	7.88E+02	67.36	1.54E+02	2.59
	89	2255.16	2251 -	2258	2253.60	1.14E+01	12.96	2.11E+01	3.33
	90	2293.83	2289 -	2295	2292.23	3.99E+01	16.54	2.02E+01	1.87
	91	2313.49	2310 -	2314	2311.87	5.89E+00	7.81	6.22E+00	1.67
	92	2417.15	2411 -	2418	2415.43	7.00E+00	5.29	0.00E+00	3.00
	93	2448.31	2442 -	2454	2446.56	2.38E+02	30.85	0.00E+00	2.83

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
94	2614.92	2608 -	2619	2613.02	5.56E+01	19.18	1.88E+01	2.55

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 : 8/18/2017 5:41:00PM

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	46.45	44 -	49	1.42E+03	252.29	1.16E+04	1.98E+02
	2	53.16	52 -	57	3.31E+02	278.00	1.53E+04	2.27E+02
	3	63.24	61 -	66	3.24E+03	339.58	2.06E+04	2.63E+02
	4	68.16	67 -	71	4.03E+02	296.83	1.93E+04	2.42E+02
M	5	74.72	71 -	83	5.76E+03	361.24	2.05E+04	2.35E+02
m	6	77.16	71 -	83	1.05E+04	391.31	2.08E+04	2.37E+02
M	7	87.57	83 -	97	2.90E+03	301.35	1.76E+04	2.18E+02
m	8	92.37	83 -	97	4.79E+03	312.50	1.57E+04	2.06E+02
	9	112.83	112 -	116	4.00E+02	239.93	1.24E+04	1.94E+02
	10	143.68	141 -	147	7.16E+02	316.48	1.77E+04	2.56E+02
	11	153.82	152 -	157	5.96E+02	274.76	1.46E+04	2.22E+02
	12	163.59	162 -	166	2.59E+02	225.71	1.10E+04	1.84E+02
	13	170.14	168 -	173	2.05E+02	250.63	1.24E+04	2.05E+02
	14	185.94	182 -	190	6.24E+03	378.51	1.82E+04	2.83E+02
	15	205.50	204 -	208	3.02E+02	194.62	8.11E+03	1.57E+02
m	16	242.05	238 -	245	5.68E+03	235.68	7.15E+03	1.39E+02
	17	257.69	254 -	262	7.37E+02	258.64	9.84E+03	2.08E+02
	18	270.91	266 -	276	8.81E+02	302.70	1.18E+04	2.44E+02
M	19	295.27	290 -	304	1.31E+04	271.04	4.64E+03	1.12E+02
m	20	299.93	290 -	304	6.87E+02	277.68	6.96E+03	1.37E+02
	21	323.05	321 -	326	1.71E+02	151.65	4.47E+03	1.23E+02
M	22	351.97	346 -	361	2.25E+04	324.77	3.31E+03	9.45E+01
m	23	356.71	346 -	361	7.74E+02	259.08	4.56E+03	1.11E+02
	24	388.12	386 -	391	2.67E+02	135.66	3.45E+03	1.08E+02
	25	403.78	400 -	409	4.60E+02	199.32	5.43E+03	1.60E+02
	26	462.26	460 -	465	1.11E+02	110.62	2.35E+03	8.93E+01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	27	480.25	478 -	482	1.91E+02	91.42	1.68E+03	7.16E+01
	28	486.87	484 -	490	1.83E+02	117.84	2.39E+03	9.43E+01
	29	510.90	507 -	515	3.73E+02	139.85	2.79E+03	1.10E+02
	30	533.02	529 -	537	1.18E+02	135.41	2.76E+03	1.10E+02
	31	544.12	542 -	548	1.09E+02	102.05	1.82E+03	8.21E+01
M	32	580.31	577 -	587	1.20E+02	104.02	1.85E+03	7.07E+01
m	33	583.53	577 -	587	9.50E+01	105.11	1.85E+03	7.06E+01
M	34	609.45	603 -	619	1.70E+04	271.66	1.20E+03	5.71E+01
m	35	614.08	603 -	619	7.79E+02	226.10	1.76E+03	6.89E+01
	36	665.55	662 -	670	3.99E+02	119.86	1.96E+03	9.29E+01
	37	689.66	686 -	693	1.37E+02	91.06	1.27E+03	7.23E+01
M	38	699.64	694 -	717	1.12E+02	80.71	1.01E+03	5.23E+01
m	39	703.38	694 -	717	2.51E+02	92.84	1.18E+03	5.66E+01
	40	720.23	717 -	723	7.73E+01	85.19	1.27E+03	6.85E+01
	41	743.01	740 -	745	9.24E+01	75.52	1.07E+03	6.00E+01
M	42	763.75	762 -	772	8.53E+01	53.63	6.61E+02	4.23E+01
m	43	768.53	762 -	772	1.66E+03	110.05	1.03E+03	5.28E+01
	44	786.17	782 -	790	3.90E+02	108.90	1.58E+03	8.34E+01
	45	806.39	803 -	810	4.05E+02	96.06	1.28E+03	7.17E+01
	46	839.64	836 -	843	1.30E+02	95.16	1.41E+03	7.59E+01
	47	911.54	908 -	915	1.05E+02	92.67	1.36E+03	7.43E+01
	48	925.50	922 -	929	8.97E+01	84.85	1.14E+03	6.80E+01
	49	934.26	930 -	937	7.89E+02	103.00	1.25E+03	7.10E+01
	50	964.43	961 -	966	1.42E+02	66.79	7.73E+02	5.13E+01
	51	1001.08	996 -	1005	2.86E+02	99.99	1.26E+03	7.73E+01
	52	1052.63	1047 -	1057	1.34E+02	96.93	1.18E+03	7.74E+01
	53	1120.56	1114 -	1125	3.70E+03	168.72	1.70E+03	9.61E+01
	54	1155.50	1150 -	1159	3.63E+02	96.42	1.12E+03	7.28E+01
	55	1181.61	1177 -	1186	6.53E+01	78.54	8.41E+02	6.32E+01
	56	1208.49	1203 -	1213	1.67E+02	88.35	9.53E+02	6.95E+01
	57	1238.48	1232 -	1241	1.31E+03	109.38	9.54E+02	6.75E+01
	58	1254.47	1251 -	1257	5.89E+01	57.72	5.68E+02	4.57E+01
	59	1281.38	1276 -	1284	3.75E+02	77.63	6.95E+02	5.53E+01
	60	1304.11	1300 -	1306	5.15E+01	53.16	4.77E+02	4.21E+01
M	61	1378.07	1372 -	1392	9.75E+02	81.41	5.07E+02	3.70E+01
m	62	1385.33	1372 -	1392	2.00E+02	78.66	6.95E+02	4.33E+01
M	63	1401.78	1397 -	1412	2.94E+02	61.73	4.87E+02	3.63E+01
m	64	1408.53	1397 -	1412	5.43E+02	69.39	4.81E+02	3.60E+01
	65	1416.27	1413 -	1419	6.14E+01	51.33	4.29E+02	4.02E+01
	66	1461.07	1456 -	1465	2.25E+02	78.94	7.67E+02	6.00E+01
	67	1509.39	1504 -	1513	4.03E+02	89.06	9.10E+02	6.53E+01
M	68	1539.12	1533 -	1545	7.96E+01	50.78	4.67E+02	3.55E+01
m	69	1543.66	1533 -	1545	1.14E+02	51.29	4.19E+02	3.36E+01
	70	1583.34	1578 -	1586	1.33E+02	63.16	5.34E+02	4.83E+01
	71	1597.03	1589 -	1602	1.31E+02	84.07	7.25E+02	6.65E+01
M	72	1661.77	1653 -	1669	2.07E+02	43.92	1.88E+02	2.25E+01
m	73	1665.22	1653 -	1669	3.22E+01	40.36	1.65E+02	2.11E+01
M	74	1688.02	1680 -	1704	2.59E+01	31.67	1.56E+02	2.05E+01
m	75	1692.75	1680 -	1704	5.99E+01	33.51	1.49E+02	2.01E+01
m	76	1696.28	1680 -	1704	4.25E+01	40.03	1.83E+02	2.22E+01
	77	1730.12	1724 -	1735	6.33E+02	74.00	3.74E+02	4.46E+01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	78	1765.00	1757 -	1770	3.02E+03	132.51	6.09E+02	6.09E+01
	79	1802.61	1798 -	1805	3.39E+01	28.21	1.06E+02	2.11E+01
M	80	1838.92	1833 -	1857	7.64E+01	36.39	1.74E+02	2.17E+01
m	81	1847.96	1833 -	1857	4.09E+02	49.48	1.32E+02	1.89E+01
m	82	1853.42	1833 -	1857	3.04E+01	38.99	1.30E+02	1.88E+01
	83	1872.18	1864 -	1879	1.07E+02	50.12	2.10E+02	3.75E+01
	84	1937.47	1931 -	1940	3.42E+01	35.44	1.60E+02	2.75E+01
	85	2054.51	2049 -	2058	3.32E+01	26.08	7.36E+01	1.92E+01
	86	2119.18	2113 -	2124	2.19E+02	40.00	9.11E+01	2.21E+01
	87	2142.98	2134 -	2149	3.05E+01	22.72	3.69E+01	1.63E+01
	88	2204.67	2196 -	2209	7.88E+02	67.36	1.54E+02	3.06E+01
	89	2255.16	2251 -	2258	1.14E+01	12.96	2.11E+01	9.09E+00
	90	2293.83	2289 -	2295	3.99E+01	16.54	2.02E+01	8.77E+00
	91	2313.49	2310 -	2314	5.89E+00	7.81	6.22E+00	5.03E+00
	92	2417.15	2411 -	2418	7.00E+00	5.29	0.00E+00	0.00E+00
	93	2448.31	2442 -	2454	2.38E+02	30.85	0.00E+00	0.00E+00
	94	2614.92	2608 -	2619	5.56E+01	19.18	1.88E+01	9.92E+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 : 8/18/2017 5:41:00PM

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	46.45	44 -	49	47.07	1.42E+03	252.29	1.16E+04	PB-210
2	53.16	52 -	57	53.77	3.31E+02	278.00	1.53E+04	.....
3	63.24	61 -	66	63.84	3.24E+03	339.58	2.06E+04	TH-234
								TH-230
4	68.16	67 -	71	68.76	4.03E+02	296.83	1.93E+04	TI-44
								TA-182
								TH-230
								HF-172

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
M	5	74.72	71 -	83	75.31	5.76E+03	361.24	2.05E+04	AM-243
m	6	77.16	71 -	83	77.75	1.05E+04	391.31	2.08E+04	.....
M	7	87.57	83 -	97	88.15	2.90E+03	301.35	1.76E+04	SN-126
									CD-109
									LU-176
m	8	92.37	83 -	97	92.94	4.79E+03	312.50	1.57E+04	GA-67
	9	112.83	112 -	116	113.38	4.00E+02	239.93	1.24E+04	.....
	10	143.68	141 -	147	144.20	7.16E+02	316.48	1.77E+04	U-235
	11	153.82	152 -	157	154.33	5.96E+02	274.76	1.46E+04	CS-136
	12	163.59	162 -	166	164.10	2.59E+02	225.71	1.10E+04	U-235
									CS-136
									BA-140
	13	170.14	168 -	173	170.63	2.05E+02	250.63	1.24E+04	.....
	14	185.94	182 -	190	186.42	6.24E+03	378.51	1.82E+04	RA-226
	15	205.50	204 -	208	205.96	3.02E+02	194.62	8.11E+03	U-235
m	16	242.05	238 -	245	242.47	5.68E+03	235.68	7.15E+03	.....
	17	257.69	254 -	262	258.10	7.37E+02	258.64	9.84E+03	.....
	18	270.91	266 -	276	271.30	8.81E+02	302.70	1.18E+04	.....
M	19	295.27	290 -	304	295.64	1.31E+04	271.04	4.64E+03	PB-214
m	20	299.93	290 -	304	300.29	6.87E+02	277.68	6.96E+03	BI-210M
									PB-212
									GA-67
	21	323.05	321 -	326	323.39	1.71E+02	151.65	4.47E+03	RA-223
M	22	351.97	346 -	361	352.28	2.25E+04	324.77	3.31E+03	PB-214
m	23	356.71	346 -	361	357.02	7.74E+02	259.08	4.56E+03	BA-133
	24	388.12	386 -	391	388.40	2.67E+02	135.66	3.45E+03	.....
	25	403.78	400 -	409	404.04	4.60E+02	199.32	5.43E+03	.....
	26	462.26	460 -	465	462.46	1.11E+02	110.62	2.35E+03	.....
	27	480.25	478 -	482	480.43	1.91E+02	91.42	1.68E+03	.....
	28	486.87	484 -	490	487.05	1.83E+02	117.84	2.39E+03	LA-140
	29	510.90	507 -	515	511.05	3.73E+02	139.85	2.79E+03	.....
	30	533.02	529 -	537	533.15	1.18E+02	135.41	2.76E+03	.....
	31	544.12	542 -	548	544.24	1.09E+02	102.05	1.82E+03	.....
M	32	580.31	577 -	587	580.39	1.20E+02	104.02	1.85E+03	.....
m	33	583.53	577 -	587	583.61	9.50E+01	105.11	1.85E+03	TL-208
M	34	609.45	603 -	619	609.50	1.70E+04	271.66	1.20E+03	BI-214
m	35	614.08	603 -	619	614.13	7.79E+02	226.10	1.76E+03	AG-108M
	36	665.55	662 -	670	665.55	3.99E+02	119.86	1.96E+03	SB-126
	37	689.66	686 -	693	689.63	1.37E+02	91.06	1.27E+03	.....
M	38	699.64	694 -	717	699.60	1.12E+02	80.71	1.01E+03	.....
m	39	703.38	694 -	717	703.34	2.51E+02	92.84	1.18E+03	NB-94
	40	720.23	717 -	723	720.17	7.73E+01	85.19	1.27E+03	SB-126
	41	743.01	740 -	745	742.93	9.24E+01	75.52	1.07E+03	.....
M	42	763.75	762 -	772	763.64	8.53E+01	53.63	6.61E+02	AG-110M
m	43	768.53	762 -	772	768.42	1.66E+03	110.05	1.03E+03	.....
	44	786.17	782 -	790	786.04	3.90E+02	108.90	1.58E+03	.....
	45	806.39	803 -	810	806.24	4.05E+02	96.06	1.28E+03	.....
	46	839.64	836 -	843	839.46	1.30E+02	95.16	1.41E+03	.....
	47	911.54	908 -	915	911.29	1.05E+02	92.67	1.36E+03	TL-204
									AC-228
	48	925.50	922 -	929	925.23	8.97E+01	84.85	1.14E+03	.....
	49	934.26	930 -	937	933.98	7.89E+02	103.00	1.25E+03	.....
	50	964.43	961 -	966	964.13	1.42E+02	66.79	7.73E+02	EU-152
	51	1001.08	996 -	1005	1000.73	2.86E+02	99.99	1.26E+03	PA-234M

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	52	1052.63	1047 -	1057	1052.24	1.34E+02	96.93	1.18E+03	.....
	53	1120.56	1114 -	1125	1120.10	3.70E+03	168.72	1.70E+03	SC-46 BI-214 TA-182
	54	1155.50	1150 -	1159	1155.01	3.63E+02	96.42	1.12E+03	.....
	55	1181.61	1177 -	1186	1181.09	6.53E+01	78.54	8.41E+02	.....
	56	1208.49	1203 -	1213	1207.94	1.67E+02	88.35	9.53E+02	.....
	57	1238.48	1232 -	1241	1237.91	1.31E+03	109.38	9.54E+02	CO-56
	58	1254.47	1251 -	1257	1253.87	5.89E+01	57.72	5.68E+02	.....
	59	1281.38	1276 -	1284	1280.76	3.75E+02	77.63	6.95E+02	.....
	60	1304.11	1300 -	1306	1303.47	5.15E+01	53.16	4.77E+02	.....
M	61	1378.07	1372 -	1392	1377.35	9.75E+02	81.41	5.07E+02	.....
m	62	1385.33	1372 -	1392	1384.61	2.00E+02	78.66	6.95E+02	.....
M	63	1401.78	1397 -	1412	1401.04	2.94E+02	61.73	4.87E+02	.....
m	64	1408.53	1397 -	1412	1407.78	5.43E+02	69.39	4.81E+02	EU-152
	65	1416.27	1413 -	1419	1415.52	6.14E+01	51.33	4.29E+02	.....
	66	1461.07	1456 -	1465	1460.28	2.25E+02	78.94	7.67E+02	K-40
	67	1509.39	1504 -	1513	1508.54	4.03E+02	89.06	9.10E+02	.....
M	68	1539.12	1533 -	1545	1538.25	7.96E+01	50.78	4.67E+02	.....
m	69	1543.66	1533 -	1545	1542.79	1.14E+02	51.29	4.19E+02	.....
	70	1583.34	1578 -	1586	1582.42	1.33E+02	63.16	5.34E+02	.....
	71	1597.03	1589 -	1602	1596.11	1.31E+02	84.07	7.25E+02	LA-140
M	72	1661.77	1653 -	1669	1660.78	2.07E+02	43.92	1.88E+02	.....
m	73	1665.22	1653 -	1669	1664.22	3.22E+01	40.36	1.65E+02	.....
M	74	1688.02	1680 -	1704	1687.00	2.59E+01	31.67	1.56E+02	.....
m	75	1692.75	1680 -	1704	1691.73	5.99E+01	33.51	1.49E+02	.....
m	76	1696.28	1680 -	1704	1695.25	4.25E+01	40.03	1.83E+02	.....
	77	1730.12	1724 -	1735	1729.06	6.33E+02	74.00	3.74E+02	.....
	78	1765.00	1757 -	1770	1763.91	3.02E+03	132.51	6.09E+02	BI-214
	79	1802.61	1798 -	1805	1801.48	3.39E+01	28.21	1.06E+02	.....
M	80	1838.92	1833 -	1857	1837.76	7.64E+01	36.39	1.74E+02	.....
m	81	1847.96	1833 -	1857	1846.79	4.09E+02	49.48	1.32E+02	.....
m	82	1853.42	1833 -	1857	1852.24	3.04E+01	38.99	1.30E+02	.....
	83	1872.18	1864 -	1879	1870.98	1.07E+02	50.12	2.10E+02	.....
	84	1937.47	1931 -	1940	1936.21	3.42E+01	35.44	1.60E+02	.....
	85	2054.51	2049 -	2058	2053.14	3.32E+01	26.08	7.36E+01	.....
	86	2119.18	2113 -	2124	2117.74	2.19E+02	40.00	9.11E+01	.....
	87	2142.98	2134 -	2149	2141.52	3.05E+01	22.72	3.69E+01	.....
	88	2204.67	2196 -	2209	2203.15	7.88E+02	67.36	1.54E+02	BI-214
	89	2255.16	2251 -	2258	2253.60	1.14E+01	12.96	2.11E+01	.....
	90	2293.83	2289 -	2295	2292.23	3.99E+01	16.54	2.02E+01	.....
	91	2313.49	2310 -	2314	2311.87	5.89E+00	7.81	6.22E+00	.....
	92	2417.15	2411 -	2418	2415.43	7.00E+00	5.29	0.00E+00	.....
	93	2448.31	2442 -	2454	2446.56	2.38E+02	30.85	0.00E+00	.....
	94	2614.92	2608 -	2619	2613.02	5.56E+01	19.18	1.88E+01	TL-208

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/18/2017 5:41:00PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.45	1.42E+03	252.29	2.46E-02	2.22E-03
	2	53.16	3.31E+02	278.00	2.59E-02	2.22E-03
	3	63.24	3.24E+03	339.58	2.70E-02	2.26E-03
	4	68.16	4.03E+02	296.83	2.73E-02	2.31E-03
M	5	74.72	5.76E+03	361.24	2.75E-02	2.38E-03
m	6	77.16	1.05E+04	391.31	2.75E-02	2.40E-03
M	7	87.57	2.90E+03	301.35	2.74E-02	2.52E-03
m	8	92.37	4.79E+03	312.50	2.73E-02	2.45E-03
	9	112.83	4.00E+02	239.93	2.63E-02	2.12E-03
	10	143.68	7.16E+02	316.48	2.44E-02	1.86E-03
	11	153.82	5.96E+02	274.76	2.37E-02	1.80E-03
	12	163.59	2.59E+02	225.71	2.31E-02	1.75E-03
	13	170.14	2.05E+02	250.63	2.27E-02	1.73E-03
	14	185.94	6.24E+03	378.51	2.17E-02	1.68E-03
	15	205.50	3.02E+02	194.62	2.06E-02	1.62E-03
m	16	242.05	5.68E+03	235.68	1.87E-02	1.52E-03
	17	257.69	7.37E+02	258.64	1.80E-02	1.47E-03
	18	270.91	8.81E+02	302.70	1.74E-02	1.43E-03
M	19	295.27	1.31E+04	271.04	1.64E-02	1.37E-03
m	20	299.93	6.87E+02	277.68	1.63E-02	1.36E-03
	21	323.05	1.71E+02	151.65	1.54E-02	1.31E-03
M	22	351.97	2.25E+04	324.77	1.45E-02	1.24E-03
m	23	356.71	7.74E+02	259.08	1.44E-02	1.23E-03
	24	388.12	2.67E+02	135.66	1.35E-02	1.15E-03
	25	403.78	4.60E+02	199.32	1.32E-02	1.14E-03
	26	462.26	1.11E+02	110.62	1.19E-02	1.10E-03
	27	480.25	1.91E+02	91.42	1.16E-02	1.09E-03
	28	486.87	1.83E+02	117.84	1.14E-02	1.08E-03
	29	510.90	3.73E+02	139.85	1.10E-02	1.07E-03
	30	533.02	1.18E+02	135.41	1.07E-02	1.05E-03
	31	544.12	1.09E+02	102.05	1.05E-02	1.05E-03
M	32	580.31	1.20E+02	104.02	1.00E-02	1.02E-03
m	33	583.53	9.50E+01	105.11	9.96E-03	1.02E-03
M	34	609.45	1.70E+04	271.66	9.63E-03	1.01E-03

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	35	614.08	7.79E+02	226.10	9.58E-03	1.00E-03
	36	665.55	3.99E+02	119.86	9.00E-03	9.66E-04
	37	689.66	1.37E+02	91.06	8.76E-03	9.27E-04
M	38	699.64	1.12E+02	80.71	8.66E-03	9.12E-04
m	39	703.38	2.51E+02	92.84	8.63E-03	9.06E-04
	40	720.23	7.73E+01	85.19	8.47E-03	8.79E-04
	41	743.01	9.24E+01	75.52	8.27E-03	8.43E-04
M	42	763.75	8.53E+01	53.63	8.10E-03	8.10E-04
m	43	768.53	1.66E+03	110.05	8.06E-03	8.02E-04
	44	786.17	3.90E+02	108.90	7.93E-03	7.74E-04
	45	806.39	4.05E+02	96.06	7.77E-03	7.42E-04
	46	839.64	1.30E+02	95.16	7.54E-03	6.89E-04
	47	911.54	1.05E+02	92.67	7.08E-03	5.91E-04
	48	925.50	8.97E+01	84.85	7.00E-03	5.86E-04
	49	934.26	7.89E+02	103.00	6.95E-03	5.83E-04
	50	964.43	1.42E+02	66.79	6.79E-03	5.71E-04
	51	1001.08	2.86E+02	99.99	6.60E-03	5.57E-04
	52	1052.63	1.34E+02	96.93	6.36E-03	5.37E-04
	53	1120.56	3.70E+03	168.72	6.07E-03	5.11E-04
	54	1155.50	3.63E+02	96.42	5.94E-03	4.98E-04
	55	1181.61	6.53E+01	78.54	5.84E-03	4.89E-04
	56	1208.49	1.67E+02	88.35	5.74E-03	4.83E-04
	57	1238.48	1.31E+03	109.38	5.64E-03	4.76E-04
	58	1254.47	5.89E+01	57.72	5.59E-03	4.72E-04
	59	1281.38	3.75E+02	77.63	5.50E-03	4.66E-04
	60	1304.11	5.15E+01	53.16	5.43E-03	4.61E-04
M	61	1378.07	9.75E+02	81.41	5.22E-03	4.44E-04
m	62	1385.33	2.00E+02	78.66	5.20E-03	4.42E-04
M	63	1401.78	2.94E+02	61.73	5.16E-03	4.38E-04
m	64	1408.53	5.43E+02	69.39	5.14E-03	4.37E-04
	65	1416.27	6.14E+01	51.33	5.12E-03	4.35E-04
	66	1461.07	2.25E+02	78.94	5.01E-03	4.25E-04
	67	1509.39	4.03E+02	89.06	4.89E-03	4.13E-04
M	68	1539.12	7.96E+01	50.78	4.82E-03	4.07E-04
m	69	1543.66	1.14E+02	51.29	4.81E-03	4.06E-04
	70	1583.34	1.33E+02	63.16	4.73E-03	3.96E-04
	71	1597.03	1.31E+02	84.07	4.70E-03	3.93E-04
M	72	1661.77	2.07E+02	43.92	4.57E-03	3.78E-04
m	73	1665.22	3.22E+01	40.36	4.56E-03	3.77E-04
M	74	1688.02	2.59E+01	31.67	4.51E-03	3.72E-04
m	75	1692.75	5.99E+01	33.51	4.51E-03	3.71E-04
m	76	1696.28	4.25E+01	40.03	4.50E-03	3.70E-04
	77	1730.12	6.33E+02	74.00	4.44E-03	3.62E-04
	78	1765.00	3.02E+03	132.51	4.37E-03	3.54E-04
	79	1802.61	3.39E+01	28.21	4.31E-03	3.46E-04
M	80	1838.92	7.64E+01	36.39	4.25E-03	3.38E-04
m	81	1847.96	4.09E+02	49.48	4.23E-03	3.38E-04
m	82	1853.42	3.04E+01	38.99	4.22E-03	3.38E-04
	83	1872.18	1.07E+02	50.12	4.19E-03	3.38E-04
	84	1937.47	3.42E+01	35.44	4.09E-03	3.38E-04
	85	2054.51	3.32E+01	26.08	3.93E-03	3.38E-04
	86	2119.18	2.19E+02	40.00	3.84E-03	3.38E-04
	87	2142.98	3.05E+01	22.72	3.81E-03	3.38E-04

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
88	2204.67	7.88E+02	67.36	3.74E-03	3.38E-04
89	2255.16	1.14E+01	12.96	3.68E-03	3.38E-04
90	2293.83	3.99E+01	16.54	3.63E-03	3.38E-04
91	2313.49	5.89E+00	7.81	3.61E-03	3.38E-04
92	2417.15	7.00E+00	5.29	3.50E-03	3.38E-04
93	2448.31	2.38E+02	30.85	3.47E-03	3.38E-04
94	2614.92	5.56E+01	19.18	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 : 8/18/2017 5:41:00PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.45	1.42E+03	252.29	3.93E+01	8.32E+00	1.38E+03	2.52E+02
	2	53.16	3.31E+02	278.00			3.31E+02	2.78E+02
	3	63.24	3.24E+03	339.58	9.62E+01	1.46E+01	3.14E+03	3.40E+02
	4	68.16	4.03E+02	296.83			4.03E+02	2.97E+02
M	5	74.72	5.76E+03	361.24			5.76E+03	3.61E+02
m	6	77.16	1.05E+04	391.31			1.05E+04	3.91E+02
M	7	87.57	2.90E+03	301.35			2.90E+03	3.01E+02
m	8	92.37	4.79E+03	312.50	1.35E+02	2.05E+01	4.66E+03	3.13E+02
	9	112.83	4.00E+02	239.93			4.00E+02	2.40E+02
	10	143.68	7.16E+02	316.48	1.15E+01	3.83E+00	7.05E+02	3.17E+02
	11	153.82	5.96E+02	274.76			5.96E+02	2.75E+02
	12	163.59	2.59E+02	225.71			2.59E+02	2.26E+02
	13	170.14	2.05E+02	250.63			2.05E+02	2.51E+02
	14	185.94	6.24E+03	378.51	4.68E+01	7.65E+00	6.19E+03	3.79E+02
	15	205.50	3.02E+02	194.62			3.02E+02	1.95E+02
m	16	242.05	5.68E+03	235.68			5.68E+03	2.36E+02
	17	257.69	7.37E+02	258.64			7.37E+02	2.59E+02
	18	270.91	8.81E+02	302.70			8.81E+02	3.03E+02
M	19	295.27	1.31E+04	271.04			1.31E+04	2.71E+02
m	20	299.93	6.87E+02	277.68			6.87E+02	2.78E+02
	21	323.05	1.71E+02	151.65			1.71E+02	1.52E+02
M	22	351.97	2.25E+04	324.77	3.12E+00	4.40E+00	2.25E+04	3.25E+02
m	23	356.71	7.74E+02	259.08			7.74E+02	2.59E+02

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	24	388.12	2.67E+02	135.66			2.67E+02	1.36E+02
	25	403.78	4.60E+02	199.32			4.60E+02	1.99E+02
	26	462.26	1.11E+02	110.62			1.11E+02	1.11E+02
	27	480.25	1.91E+02	91.42			1.91E+02	9.14E+01
	28	486.87	1.83E+02	117.84			1.83E+02	1.18E+02
	29	510.90	3.73E+02	139.85	7.85E+01	5.73E+00	2.95E+02	1.40E+02
	30	533.02	1.18E+02	135.41			1.18E+02	1.35E+02
	31	544.12	1.09E+02	102.05			1.09E+02	1.02E+02
M	32	580.31	1.20E+02	104.02			1.20E+02	1.04E+02
m	33	583.53	9.50E+01	105.11			9.50E+01	1.05E+02
M	34	609.45	1.70E+04	271.66	6.00E+00	4.13E+00	1.70E+04	2.72E+02
m	35	614.08	7.79E+02	226.10			7.79E+02	2.26E+02
	36	665.55	3.99E+02	119.86			3.99E+02	1.20E+02
	37	689.66	1.37E+02	91.06			1.37E+02	9.11E+01
M	38	699.64	1.12E+02	80.71			1.12E+02	8.07E+01
m	39	703.38	2.51E+02	92.84			2.51E+02	9.28E+01
	40	720.23	7.73E+01	85.19			7.73E+01	8.52E+01
	41	743.01	9.24E+01	75.52	7.47E-01	3.10E+00	9.16E+01	7.56E+01
M	42	763.75	8.53E+01	53.63			8.53E+01	5.36E+01
m	43	768.53	1.66E+03	110.05			1.66E+03	1.10E+02
	44	786.17	3.90E+02	108.90			3.90E+02	1.09E+02
	45	806.39	4.05E+02	96.06			4.05E+02	9.61E+01
	46	839.64	1.30E+02	95.16			1.30E+02	9.52E+01
	47	911.54	1.05E+02	92.67	5.15E+00	3.10E+00	9.95E+01	9.27E+01
	48	925.50	8.97E+01	84.85			8.97E+01	8.49E+01
	49	934.26	7.89E+02	103.00			7.89E+02	1.03E+02
	50	964.43	1.42E+02	66.79			1.42E+02	6.68E+01
	51	1001.08	2.86E+02	99.99	4.17E+00	2.92E+00	2.82E+02	1.00E+02
	52	1052.63	1.34E+02	96.93			1.34E+02	9.69E+01
	53	1120.56	3.70E+03	168.72			3.70E+03	1.69E+02
	54	1155.50	3.63E+02	96.42			3.63E+02	9.64E+01
	55	1181.61	6.53E+01	78.54			6.53E+01	7.85E+01
	56	1208.49	1.67E+02	88.35			1.67E+02	8.83E+01
	57	1238.48	1.31E+03	109.38			1.31E+03	1.09E+02
	58	1254.47	5.89E+01	57.72			5.89E+01	5.77E+01
	59	1281.38	3.75E+02	77.63			3.75E+02	7.76E+01
	60	1304.11	5.15E+01	53.16			5.15E+01	5.32E+01
M	61	1378.07	9.75E+02	81.41			9.75E+02	8.14E+01
m	62	1385.33	2.00E+02	78.66			2.00E+02	7.87E+01
M	63	1401.78	2.94E+02	61.73			2.94E+02	6.17E+01
m	64	1408.53	5.43E+02	69.39			5.43E+02	6.94E+01
	65	1416.27	6.14E+01	51.33			6.14E+01	5.13E+01
	66	1461.07	2.25E+02	78.94	4.04E+00	2.32E+00	2.20E+02	7.90E+01
	67	1509.39	4.03E+02	89.06			4.03E+02	8.91E+01
M	68	1539.12	7.96E+01	50.78			7.96E+01	5.08E+01
m	69	1543.66	1.14E+02	51.29			1.14E+02	5.13E+01
	70	1583.34	1.33E+02	63.16			1.33E+02	6.32E+01
	71	1597.03	1.31E+02	84.07			1.31E+02	8.41E+01
M	72	1661.77	2.07E+02	43.92			2.07E+02	4.39E+01
m	73	1665.22	3.22E+01	40.36			3.22E+01	4.04E+01
M	74	1688.02	2.59E+01	31.67			2.59E+01	3.17E+01
m	75	1692.75	5.99E+01	33.51			5.99E+01	3.35E+01
m	76	1696.28	4.25E+01	40.03			4.25E+01	4.00E+01
	77	1730.12	6.33E+02	74.00			6.33E+02	7.40E+01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	78	1765.00	3.02E+03	132.51			3.02E+03	1.33E+02
	79	1802.61	3.39E+01	28.21			3.39E+01	2.82E+01
M	80	1838.92	7.64E+01	36.39			7.64E+01	3.64E+01
m	81	1847.96	4.09E+02	49.48			4.09E+02	4.95E+01
m	82	1853.42	3.04E+01	38.99			3.04E+01	3.90E+01
	83	1872.18	1.07E+02	50.12			1.07E+02	5.01E+01
	84	1937.47	3.42E+01	35.44			3.42E+01	3.54E+01
	85	2054.51	3.32E+01	26.08			3.32E+01	2.61E+01
	86	2119.18	2.19E+02	40.00			2.19E+02	4.00E+01
	87	2142.98	3.05E+01	22.72			3.05E+01	2.27E+01
	88	2204.67	7.88E+02	67.36			7.88E+02	6.74E+01
	89	2255.16	1.14E+01	12.96			1.14E+01	1.30E+01
	90	2293.83	3.99E+01	16.54			3.99E+01	1.65E+01
	91	2313.49	5.89E+00	7.81			5.89E+00	7.81E+00
	92	2417.15	7.00E+00	5.29			7.00E+00	5.29E+00
	93	2448.31	2.38E+02	30.85			2.38E+02	3.09E+01
	94	2614.92	5.56E+01	19.18	6.52E+00	1.61E+00	4.91E+01	1.93E+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 : 8/18/2017 5:41:00PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.45	1.42E+03	252.29	3.93E+01	8.32E+00	1.38E+03	2.52E+02
	2	53.16	3.31E+02	278.00			3.31E+02	2.78E+02
	3	63.24	3.24E+03	339.58	9.62E+01	1.46E+01	3.14E+03	3.40E+02
	4	68.16	4.03E+02	296.83			4.03E+02	2.97E+02
M	5	74.72	5.76E+03	361.24			5.76E+03	3.61E+02
m	6	77.16	1.05E+04	391.31			1.05E+04	3.91E+02
M	7	87.57	2.90E+03	301.35			2.90E+03	3.01E+02
m	8	92.37	4.79E+03	312.50	1.35E+02	2.05E+01	4.66E+03	3.13E+02
	9	112.83	4.00E+02	239.93			4.00E+02	2.40E+02
	10	143.68	7.16E+02	316.48	1.15E+01	3.83E+00	7.05E+02	3.17E+02
	11	153.82	5.96E+02	274.76			5.96E+02	2.75E+02

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	12	163.59	2.59E+02	225.71			2.59E+02	2.26E+02
	13	170.14	2.05E+02	250.63			2.05E+02	2.51E+02
	14	185.94	6.24E+03	378.51	4.68E+01	7.65E+00	6.19E+03	3.79E+02
	15	205.50	3.02E+02	194.62			3.02E+02	1.95E+02
m	16	242.05	5.68E+03	235.68			5.68E+03	2.36E+02
	17	257.69	7.37E+02	258.64			7.37E+02	2.59E+02
	18	270.91	8.81E+02	302.70			8.81E+02	3.03E+02
M	19	295.27	1.31E+04	271.04			1.31E+04	2.71E+02
m	20	299.93	6.87E+02	277.68			6.87E+02	2.78E+02
	21	323.05	1.71E+02	151.65			1.71E+02	1.52E+02
M	22	351.97	2.25E+04	324.77	3.12E+00	4.40E+00	2.25E+04	3.25E+02
m	23	356.71	7.74E+02	259.08			7.74E+02	2.59E+02
	24	388.12	2.67E+02	135.66			2.67E+02	1.36E+02
	25	403.78	4.60E+02	199.32			4.60E+02	1.99E+02
	26	462.26	1.11E+02	110.62			1.11E+02	1.11E+02
	27	480.25	1.91E+02	91.42			1.91E+02	9.14E+01
	28	486.87	1.83E+02	117.84			1.83E+02	1.18E+02
	29	510.90	3.73E+02	139.85	7.85E+01	5.73E+00	2.95E+02	1.40E+02
	30	533.02	1.18E+02	135.41			1.18E+02	1.35E+02
	31	544.12	1.09E+02	102.05			1.09E+02	1.02E+02
M	32	580.31	1.20E+02	104.02			1.20E+02	1.04E+02
m	33	583.53	9.50E+01	105.11			9.50E+01	1.05E+02
M	34	609.45	1.70E+04	271.66	6.00E+00	4.13E+00	1.70E+04	2.72E+02
m	35	614.08	7.79E+02	226.10			7.79E+02	2.26E+02
	36	665.55	3.99E+02	119.86			3.99E+02	1.20E+02
	37	689.66	1.37E+02	91.06			1.37E+02	9.11E+01
M	38	699.64	1.12E+02	80.71			1.12E+02	8.07E+01
m	39	703.38	2.51E+02	92.84			2.51E+02	9.28E+01
	40	720.23	7.73E+01	85.19			7.73E+01	8.52E+01
	41	743.01	9.24E+01	75.52	7.47E-01	3.10E+00	9.16E+01	7.56E+01
M	42	763.75	8.53E+01	53.63			8.53E+01	5.36E+01
m	43	768.53	1.66E+03	110.05			1.66E+03	1.10E+02
	44	786.17	3.90E+02	108.90			3.90E+02	1.09E+02
	45	806.39	4.05E+02	96.06			4.05E+02	9.61E+01
	46	839.64	1.30E+02	95.16			1.30E+02	9.52E+01
	47	911.54	1.05E+02	92.67	5.15E+00	3.10E+00	9.95E+01	9.27E+01
	48	925.50	8.97E+01	84.85			8.97E+01	8.49E+01
	49	934.26	7.89E+02	103.00			7.89E+02	1.03E+02
	50	964.43	1.42E+02	66.79			1.42E+02	6.68E+01
	51	1001.08	2.86E+02	99.99	4.17E+00	2.92E+00	2.82E+02	1.00E+02
	52	1052.63	1.34E+02	96.93			1.34E+02	9.69E+01
	53	1120.56	3.70E+03	168.72			3.70E+03	1.69E+02
	54	1155.50	3.63E+02	96.42			3.63E+02	9.64E+01
	55	1181.61	6.53E+01	78.54			6.53E+01	7.85E+01
	56	1208.49	1.67E+02	88.35			1.67E+02	8.83E+01
	57	1238.48	1.31E+03	109.38			1.31E+03	1.09E+02
	58	1254.47	5.89E+01	57.72			5.89E+01	5.77E+01
	59	1281.38	3.75E+02	77.63			3.75E+02	7.76E+01
	60	1304.11	5.15E+01	53.16			5.15E+01	5.32E+01
M	61	1378.07	9.75E+02	81.41			9.75E+02	8.14E+01
m	62	1385.33	2.00E+02	78.66			2.00E+02	7.87E+01
M	63	1401.78	2.94E+02	61.73			2.94E+02	6.17E+01
m	64	1408.53	5.43E+02	69.39			5.43E+02	6.94E+01
	65	1416.27	6.14E+01	51.33			6.14E+01	5.13E+01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	66	1461.07	2.25E+02	78.94	4.04E+00	2.32E+00	2.20E+02	7.90E+01
	67	1509.39	4.03E+02	89.06			4.03E+02	8.91E+01
M	68	1539.12	7.96E+01	50.78			7.96E+01	5.08E+01
m	69	1543.66	1.14E+02	51.29			1.14E+02	5.13E+01
	70	1583.34	1.33E+02	63.16			1.33E+02	6.32E+01
	71	1597.03	1.31E+02	84.07			1.31E+02	8.41E+01
M	72	1661.77	2.07E+02	43.92			2.07E+02	4.39E+01
m	73	1665.22	3.22E+01	40.36			3.22E+01	4.04E+01
M	74	1688.02	2.59E+01	31.67			2.59E+01	3.17E+01
m	75	1692.75	5.99E+01	33.51			5.99E+01	3.35E+01
m	76	1696.28	4.25E+01	40.03			4.25E+01	4.00E+01
	77	1730.12	6.33E+02	74.00			6.33E+02	7.40E+01
	78	1765.00	3.02E+03	132.51			3.02E+03	1.33E+02
	79	1802.61	3.39E+01	28.21			3.39E+01	2.82E+01
M	80	1838.92	7.64E+01	36.39			7.64E+01	3.64E+01
m	81	1847.96	4.09E+02	49.48			4.09E+02	4.95E+01
m	82	1853.42	3.04E+01	38.99			3.04E+01	3.90E+01
	83	1872.18	1.07E+02	50.12			1.07E+02	5.01E+01
	84	1937.47	3.42E+01	35.44			3.42E+01	3.54E+01
	85	2054.51	3.32E+01	26.08			3.32E+01	2.61E+01
	86	2119.18	2.19E+02	40.00			2.19E+02	4.00E+01
	87	2142.98	3.05E+01	22.72			3.05E+01	2.27E+01
	88	2204.67	7.88E+02	67.36			7.88E+02	6.74E+01
	89	2255.16	1.14E+01	12.96			1.14E+01	1.30E+01
	90	2293.83	3.99E+01	16.54			3.99E+01	1.65E+01
	91	2313.49	5.89E+00	7.81			5.89E+00	7.81E+00
	92	2417.15	7.00E+00	5.29			7.00E+00	5.29E+00
	93	2448.31	2.38E+02	30.85			2.38E+02	3.09E+01
	94	2614.92	5.56E+01	19.18	6.52E+00	1.61E+00	4.91E+01	1.93E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.989	1460.81	*	10.67	5.76E+00	2.12E+00
CD-109	0.966	88.03	*	3.72	4.58E+01	6.90E+00

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
SN-126	1.000	87.57	*	37.00	3.99E+00	5.53E-01
LA-140	0.391	328.77		20.50		
		487.03	*	45.50	8.58E+01	5.60E+01
		815.85		23.50		
		1596.49	*	95.49	7.13E+01	4.62E+01
TA-182	0.483	67.75	*	41.20	8.92E-01	6.61E-01
		1121.30	*	34.90	4.34E+01	4.15E+00
		1189.05		16.23		
		1221.41		26.98		
		1231.02		11.44		
TL-208	0.871	583.14	*	30.22	4.40E-01	4.89E-01
		860.37		4.48		
		2614.66	*	35.85	5.78E-01	2.34E-01
PB-210	1.000	46.50	*	4.25	1.86E+01	3.78E+00
BI-214	0.986	609.31	*	46.30	5.33E+01	5.63E+00
		1120.29	*	15.10	5.63E+01	5.39E+00
		1764.49	*	15.80	6.09E+01	5.62E+00
		2204.22	*	4.98	5.91E+01	7.35E+00
PB-214	1.000	295.21	*	19.19	5.81E+01	4.99E+00
		351.92	*	37.19	5.81E+01	5.01E+00
RA-223	0.899	323.87	*	3.88	3.97E+00	3.54E+00
RA-226	0.989	186.21	*	3.28	1.21E+02	2.22E+02
PA-234M	1.000	1001.03	*	0.92	6.47E+01	2.36E+01
TH-234	1.000	63.29	*	3.80	4.27E+01	5.84E+00
U-235	0.996	143.76	*	10.50	3.84E+00	1.84E+00
		163.35	*	4.70	3.32E+00	2.96E+00
		205.31	*	4.70	4.36E+00	2.92E+00
AM-243	1.000	74.67	*	66.00	4.43E+00	4.74E-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 : 8/18/2017 5:41:00PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
2	53.16	9.19926E-02	41.97		

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
m	6	77.16	2.90691E+00	1.87		
m	8	92.37	1.29311E+00	3.36	Sum	
	9	112.83	1.11236E-01	29.96		
	11	153.82	1.65668E-01	23.03	Tol.	CS-136
	13	170.14	5.70486E-02	61.02		
m	16	242.05	1.57665E+00	2.08		
	17	257.69	2.04860E-01	17.54		
	18	270.91	2.44827E-01	17.17		
m	20	299.93	1.90821E-01	20.21	Tol.	GA-67 PB-212
m	23	356.71	2.15089E-01	16.73	Tol.	BA-133
	24	388.12	7.40626E-02	25.44		
	25	403.78	1.27877E-01	21.65		
	26	462.26	3.09203E-02	49.69		
	27	480.25	5.30702E-02	23.92	Sum	
	29	510.90	8.18975E-02	23.74		
	30	533.02	3.27263E-02	57.47	Sum	
	31	544.12	3.02180E-02	46.90		
M	32	580.31	3.33083E-02	43.37		
m	35	614.08	2.16371E-01	14.51		
	36	665.55	1.10896E-01	15.01	Tol.	SB-126
	37	689.66	3.79215E-02	33.35		
M	38	699.64	3.11468E-02	35.99		
m	39	703.38	6.95870E-02	18.53	Sum	
	40	720.23	2.14724E-02	55.11	Tol.	SB-126
	41	743.01	2.54463E-02	41.26	D-Esc	
M	42	763.75	2.36968E-02	31.43	Tol.	AG-110M
m	43	768.53	4.60798E-01	3.32	Sum	
	44	786.17	1.08325E-01	13.96		
	45	806.39	1.12518E-01	11.86		
	46	839.64	3.61726E-02	36.54	Sum	
	47	911.54	2.76429E-02	46.59	Tol.	TL-204 AC-228
	48	925.50	2.49255E-02	47.28		
	49	934.26	2.19289E-01	6.52		
	50	964.43	3.93305E-02	23.59	Tol.	EU-152
	52	1052.63	3.70901E-02	36.30		
	54	1155.50	1.00782E-01	13.29		
	55	1181.61	1.81333E-02	60.16		
	56	1208.49	4.62558E-02	26.53	Sum	
	57	1238.48	3.63303E-01	4.18		
	58	1254.47	1.63739E-02	48.96	S-Esc	
	59	1281.38	1.04076E-01	10.36		
	60	1304.11	1.43171E-02	51.57		
M	61	1378.07	2.70811E-01	4.18		
m	62	1385.33	5.54742E-02	19.69		
M	63	1401.78	8.16204E-02	10.50		
m	64	1408.53	1.50949E-01	6.38	Tol.	EU-152
	65	1416.27	1.70431E-02	41.83	Sum	
	67	1509.39	1.11976E-01	11.05		
M	68	1539.12	2.21244E-02	31.88		
m	69	1543.66	3.18017E-02	22.40		
	70	1583.34	3.68889E-02	23.78		

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	72	1661.77	5.75486E-02	10.60		
m	73	1665.22	8.94458E-03	62.68	Sum	
M	74	1688.02	7.20633E-03	61.03		
m	75	1692.75	1.66510E-02	27.95	S-Esc	
m	76	1696.28	1.18139E-02	47.07		
	77	1730.12	1.75830E-01	5.85	Sum	
	79	1802.61	9.42848E-03	41.56	Sum	
M	80	1838.92	2.12305E-02	23.81	Sum	
m	81	1847.96	1.13503E-01	6.05		
m	82	1853.42	8.43271E-03	64.22	Sum	
	83	1872.18	2.97170E-02	23.42		
	84	1937.47	9.50780E-03	51.77		
	85	2054.51	9.22619E-03	39.26		
	86	2119.18	6.09523E-02	9.11		
	87	2142.98	8.48072E-03	37.20		
	89	2255.16	3.17550E-03	56.69		
	90	2293.83	1.10889E-02	20.71		
	91	2313.49	1.63580E-03	66.31		
	92	2417.15	1.94444E-03	37.80		
	93	2448.31	6.61111E-02	6.48		

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	5.76E+00	2.12E+00
CD-109	0.96	88.03	*	3.72	4.58E+01	6.90E+00
SN-126	1.00	87.57	*	37.00	3.99E+00	5.53E-01
LA-140	0.39	328.77		20.50		
		487.03	*	45.50	8.58E+01	5.60E+01
		815.85		23.50		
		1596.49	*	95.49	7.13E+01	4.62E+01
TA-182	0.48	67.75	*	41.20	8.92E-01	6.61E-01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
TA-182	0.48	1121.30	*	34.90	4.34E+01	4.15E+00
		1189.05		16.23		
		1221.41		26.98		
		1231.02		11.44		
TL-208	0.87	583.14	*	30.22	4.40E-01	4.89E-01
		860.37		4.48		
		2614.66	*	35.85	5.78E-01	2.34E-01
PB-210	1.00	46.50	*	4.25	1.86E+01	3.78E+00
BI-214	0.98	609.31	*	46.30	5.33E+01	5.63E+00
		1120.29	*	15.10	5.63E+01	5.39E+00
		1764.49	*	15.80	6.09E+01	5.62E+00
		2204.22	*	4.98	5.91E+01	7.35E+00
PB-214	1.00	295.21	*	19.19	5.81E+01	4.99E+00
		351.92	*	37.19	5.81E+01	5.01E+00
RA-223	0.89	323.87	*	3.88	3.97E+00	3.54E+00
RA-226	0.98	186.21	*	3.28	1.21E+02	2.22E+02
PA-234M	1.00	1001.03	*	0.92	6.47E+01	2.36E+01
TH-234	1.00	63.29	*	3.80	4.27E+01	5.84E+00
U-235	0.99	143.76	*	10.50	3.84E+00	1.84E+00
		163.35	*	4.70	3.32E+00	2.96E+00
		205.31	*	4.70	4.36E+00	2.92E+00
AM-243	1.00	74.67	*	66.00	4.43E+00	4.74E-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	0.989	5.76E+00	2.12E+00	
?	CD-109	0.966	4.58E+01	6.90E+00	
?	SN-126	1.000	3.99E+00	5.53E-01	
	LA-140	0.391	7.72E+01	3.56E+01	
	TA-182	0.483	8.59E-01	6.55E-01	

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
TL-208	0.871	5.52E-01	2.11E-01	
PB-210	1.000	1.86E+01	3.78E+00	
BI-214	0.986	5.69E+01	2.94E+00	
PB-214	1.000	5.81E+01	3.54E+00	
RA-223	0.899	3.97E+00	3.54E+00	
RA-226	0.989	1.21E+02	2.22E+02	
PA-234M	1.000	6.47E+01	2.36E+01	
TH-234	1.000	4.27E+01	5.84E+00	
U-235	0.996	3.84E+00	1.38E+00	
AM-243	1.000	4.43E+00	4.74E-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 1707084-16

HTC-A02-S001-3642-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 5:41:00PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	2	53.16	9.19926E-02	41.97		
m	6	77.16	2.90691E+00	1.87		
m	8	92.37	1.29311E+00	3.36	Sum	
	9	112.83	1.11236E-01	29.96		
	11	153.82	1.65668E-01	23.03	Tol.	CS-136
	13	170.14	5.70486E-02	61.02		
m	16	242.05	1.57665E+00	2.08		
	17	257.69	2.04860E-01	17.54		
	18	270.91	2.44827E-01	17.17		
m	20	299.93	1.90821E-01	20.21	Tol.	GA-67 PB-212
m	23	356.71	2.15089E-01	16.73	Tol.	BA-133
	24	388.12	7.40626E-02	25.44		
	25	403.78	1.27877E-01	21.65		
	26	462.26	3.09203E-02	49.69		
	27	480.25	5.30702E-02	23.92	Sum	
	29	510.90	8.18975E-02	23.74		
	30	533.02	3.27263E-02	57.47	Sum	
	31	544.12	3.02180E-02	46.90		
M	32	580.31	3.33083E-02	43.37		
m	35	614.08	2.16371E-01	14.51		
	36	665.55	1.10896E-01	15.01	Tol.	SB-126
	37	689.66	3.79215E-02	33.35		
M	38	699.64	3.11468E-02	35.99		
m	39	703.38	6.95870E-02	18.53	Sum	
	40	720.23	2.14724E-02	55.11	Tol.	SB-126
	41	743.01	2.54463E-02	41.26	D-Esc	
M	42	763.75	2.36968E-02	31.43	Tol.	AG-110M
m	43	768.53	4.60798E-01	3.32	Sum	
	44	786.17	1.08325E-01	13.96		
	45	806.39	1.12518E-01	11.86		
	46	839.64	3.61726E-02	36.54	Sum	
	47	911.54	2.76429E-02	46.59	Tol.	TL-204 AC-228

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	48	925.50	2.49255E-02	47.28		
	49	934.26	2.19289E-01	6.52		
	50	964.43	3.93305E-02	23.59	Tol.	EU-152
	52	1052.63	3.70901E-02	36.30		
	54	1155.50	1.00782E-01	13.29		
	55	1181.61	1.81333E-02	60.16		
	56	1208.49	4.62558E-02	26.53	Sum	
	57	1238.48	3.63303E-01	4.18		
	58	1254.47	1.63739E-02	48.96	S-Esc	
	59	1281.38	1.04076E-01	10.36		
	60	1304.11	1.43171E-02	51.57		
M	61	1378.07	2.70811E-01	4.18		
m	62	1385.33	5.54742E-02	19.69		
M	63	1401.78	8.16204E-02	10.50		
m	64	1408.53	1.50949E-01	6.38	Tol.	EU-152
	65	1416.27	1.70431E-02	41.83	Sum	
	67	1509.39	1.11976E-01	11.05		
M	68	1539.12	2.21244E-02	31.88		
m	69	1543.66	3.18017E-02	22.40		
	70	1583.34	3.68889E-02	23.78		
M	72	1661.77	5.75486E-02	10.60		
m	73	1665.22	8.94458E-03	62.68	Sum	
M	74	1688.02	7.20633E-03	61.03		
m	75	1692.75	1.66510E-02	27.95	S-Esc	
m	76	1696.28	1.18139E-02	47.07		
	77	1730.12	1.75830E-01	5.85	Sum	
	79	1802.61	9.42848E-03	41.56	Sum	
M	80	1838.92	2.12305E-02	23.81	Sum	
m	81	1847.96	1.13503E-01	6.05		
m	82	1853.42	8.43271E-03	64.22	Sum	
	83	1872.18	2.97170E-02	23.42		
	84	1937.47	9.50780E-03	51.77		
	85	2054.51	9.22619E-03	39.26		
	86	2119.18	6.09523E-02	9.11		
	87	2142.98	8.48072E-03	37.20		
	89	2255.16	3.17550E-03	56.69		
	90	2293.83	1.10889E-02	20.71		
	91	2313.49	1.63580E-03	66.31		
	92	2417.15	1.94444E-03	37.80		
	93	2448.31	6.61111E-02	6.48		

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

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

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	-3.83E-01	7.07E+00	7.07E+00
+		NA-22	1274.54		99.94	1.04E-01	2.26E-01	2.26E-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	-1.43E-02	1.20E-01	1.20E-01
+		K-40	1460.81	*	10.67	5.76E+00	3.21E+00	3.21E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.69E-01	2.54E-01	2.54E-01
			78.34		96.00	3.38E+00		3.53E-01
+		SC-46	889.25		99.98	-3.89E-02	4.96E-01	4.96E-01
			1120.51		99.99	1.84E+01		1.53E+00
+		V-48	983.52		99.98	-6.43E+00	1.30E+01	1.35E+01
			1312.10		97.50	2.58E+00		1.30E+01
+		CR-51	320.08		9.83	-8.77E+00	2.40E+01	2.40E+01
+		MN-54	834.83		99.97	1.14E-01	2.90E-01	2.90E-01
+		CO-56	846.75		99.96	-1.63E-01	4.94E-01	4.94E-01
			1037.75		14.03	-1.44E+00		3.41E+00
			1238.25		67.00	1.06E+01		1.63E+00
			1771.40		15.51	7.62E-02		3.28E+00
			2598.48		16.90	2.01E-01		8.11E-01
+		CO-57	122.06		85.51	5.74E-03	2.95E-01	2.95E-01
			136.48		10.60	-3.23E-01		2.48E+00
+		CO-58	810.76		99.40	-5.62E-02	5.45E-01	5.45E-01
+		FE-59	1099.22		56.50	-4.24E-01	1.71E+00	1.71E+00
			1291.56		43.20	-3.94E-01		2.08E+00
+		CO-60	1173.22		100.00	-3.26E-02	2.09E-01	2.18E-01
			1332.49		100.00	-4.65E-02		2.09E-01
+		ZN-65	1115.52		50.75	6.85E-02	6.52E-01	6.52E-01
+		GA-67	93.31		35.70	3.88E+09	4.76E+08	4.76E+08
			208.95		2.24	2.23E+09		5.82E+09
			300.22		16.00	-3.42E+10		9.74E+08
+		SE-75	121.11		16.70	-4.50E-02	6.03E-01	2.05E+00

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-7.85E-02	6.03E-01	6.03E-01
		264.65		59.80	1.90E-01		6.54E-01
		279.53		25.20	-1.16E+00		1.58E+00
		400.65		11.40	-6.08E-01		3.49E+00
+	RB-82	776.52		13.00	-1.37E+01	2.03E+01	2.03E+01
+	RB-83	520.41		46.00	8.84E-02	9.25E-01	9.25E-01
		529.64		30.30	1.01E-01		1.45E+00
		552.65		16.40	7.36E-01		2.68E+00
+	KR-85	513.99		0.43	1.22E+01	5.18E+01	5.18E+01
+	SR-85	513.99		99.27	1.45E-01	6.17E-01	6.17E-01
+	Y-88	898.02		93.40	6.83E-02	3.37E-01	4.62E-01
		1836.01		99.38	2.79E-01		3.37E-01
+	MO-93	263.06		56.72	1.17E-01	2.00E-01	4.12E-01
		684.67		99.68	7.38E-02		2.00E-01
		1477.11		99.08	-4.79E-02		2.26E-01
+	NB-93M	16.57		9.43	-1.72E+00	1.78E+00	1.78E+00
+	NB-94	702.63		100.00	2.24E-01	2.23E-01	2.23E-01
		871.10		100.00	-6.35E-03		2.23E-01
+	NB-95	765.79		99.81	1.62E+01	2.52E+00	2.52E+00
+	NB-95M	235.69		25.00	-1.64E+07	7.71E+07	7.71E+07
+	ZR-95	724.18		43.70	-2.83E-01	1.03E+00	1.32E+00
		756.72		55.30	-2.18E-01		1.03E+00
+	MO-99	181.06		6.20	-1.02E+10	4.51E+10	9.32E+10
		739.58		12.80	5.64E+09		4.51E+10
		778.00		4.50	-1.27E+11		1.18E+11
+	RU-103	497.08		89.00	1.05E-01	1.20E+00	1.20E+00
+	RU-106	621.84		9.80	7.14E-01	2.23E+00	2.23E+00
+	AG-108M	433.93		89.90	-1.80E-01	2.34E-01	2.34E-01
		614.37		90.40	-1.53E+01		4.09E-01
		722.95		90.50	-2.25E-02		2.36E-01
+	CD-109	88.03	*	3.72	4.58E+01	1.68E+01	1.68E+01
+	AG-110M	657.75		93.14	7.81E-03	2.69E-01	2.69E-01
		677.61		10.53	-1.15E+00		2.24E+00
		706.67		16.46	-1.50E+00		1.68E+00
		763.93		21.98	-1.85E+01		1.45E+00
		884.67		71.63	7.28E-02		4.10E-01
		1384.27		23.94	4.02E-01		1.46E+00
+	CD-113M	263.70		0.02	2.87E+02	9.88E+02	9.88E+02
+	SN-113	255.12		1.93	-1.91E+01	6.17E-01	1.85E+01
		391.69		64.90	-2.00E-01		6.17E-01
+	TE123M	159.00		84.10	5.29E-02	4.44E-01	4.44E-01
+	SB-124	602.71		97.87	1.03E-01	6.76E-01	6.76E-01
		645.85		7.26	4.30E-01		7.85E+00
		722.78		11.10	-5.50E-01		5.76E+00
		1691.02		49.00	3.44E-01		1.11E+00
+	I-125	35.49		6.49	-4.50E+00	8.70E+00	8.70E+00
+	SB-125	176.33		6.89	1.60E+00	8.40E-01	3.28E+00
		427.89		29.33	6.87E-01		8.40E-01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	3.12E-01	8.40E-01	2.21E+00
		600.56		17.80	3.57E-01		1.26E+00
		635.90		11.32	-8.63E-03		1.76E+00
+	SB-126	414.70		83.30	6.03E+00	3.95E+01	5.65E+01
		666.33		99.60	1.27E+02		5.17E+01
		695.00		99.60	-2.68E+01		3.95E+01
		720.50		53.80	1.41E+01		8.01E+01
+	SN-126	87.57	*	37.00	3.99E+00	1.46E+00	1.46E+00
+	SB-127	473.00		25.00	1.27E+07	1.57E+07	2.35E+07
		685.20		35.70	5.77E+06		1.57E+07
		783.80		14.70	1.40E+08		5.13E+07
+	I-129	29.78		57.00	2.33E-02	3.67E-01	3.67E-01
		33.60		13.20	-7.50E-02		1.47E+00
		39.58		7.52	-1.33E+00		2.44E+00
+	I-131	284.30		6.05	-9.53E+02	9.49E+02	1.42E+04
		364.48		81.20	3.90E+02		9.49E+02
		636.97		7.26	2.26E+03		9.57E+03
		722.89		1.80	-4.20E+03		4.40E+04
+	TE-132	49.72		13.10	8.04E+07	1.46E+08	9.53E+08
		228.16		88.00	-7.80E+07		1.46E+08
+	BA-133	81.00		33.00	-8.63E+00	7.65E-01	7.65E-01
		302.84		17.80	1.81E-01		1.37E+00
		356.01		60.00	4.72E+00		8.11E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-2.19E+06	1.94E+05	1.94E+05
+	CS-134	563.23		8.38	-5.75E-01	2.69E-01	2.61E+00
		569.32		15.43	1.18E+00		1.46E+00
		604.70		97.60	-2.41E+01		3.77E-01
		795.84		85.40	-2.63E-02		2.69E-01
		801.93		8.73	6.18E-01		2.72E+00
+	CS-135	268.24		16.00	2.23E+00	1.54E+00	1.54E+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	6.42E+02	3.38E+01	4.57E+02
		163.89		4.61	4.60E+02		7.08E+02
		176.55		13.56	1.15E+02		2.37E+02
		273.65		12.66	3.49E+02		3.00E+02
		340.57		48.50	-4.04E+00		7.02E+01
		818.50		99.70	1.57E+01		3.38E+01
		1048.07		79.60	-3.13E+00		4.12E+01
		1235.34		19.70	1.19E+03		3.24E+02
+	CS-137	661.65		85.12	1.93E-02	2.65E-01	2.65E-01
+	LA-138	788.74		34.00	-6.99E-02	3.25E-01	7.29E-01
		1435.80		66.00	-5.51E-02		3.25E-01
+	CE-139	165.85		80.35	-2.24E-03	4.29E-01	4.29E-01
+	BA-140	162.64		6.70	4.59E+02	1.49E+02	5.68E+02
		304.84		4.50	1.03E+02		8.68E+02
		423.70		3.20	3.69E+02		1.28E+03

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	7.14E+02	1.49E+02	1.84E+03
			537.32		25.00	4.39E+01		1.49E+02
+		LA-140	328.77		20.50	-3.32E+01	7.40E+01	1.91E+02
			487.03	*	45.50	8.58E+01		9.00E+01
			815.85		23.50	2.33E+01		1.65E+02
			1596.49	*	95.49	7.13E+01		7.40E+01
+		CE-141	145.44		48.40	4.37E+00	3.53E+00	3.53E+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	-5.09E-01	2.36E+00	2.36E+00
+		PM-144	476.78		42.00	5.77E-02	2.29E-01	5.89E-01
			618.01		98.60	-1.04E-03		2.71E-01
			696.49		99.49	-1.66E-01		2.29E-01
+		PM-145	36.85		21.70	5.39E-02	4.73E-01	8.66E-01
			37.36		39.70	-7.41E-02		4.73E-01
			42.30		15.10	-2.41E-02		1.23E+00
			72.40		2.31	-7.81E+01		1.21E+01
+		PM-146	453.90		39.94	5.64E-01	5.60E-01	5.60E-01
			735.90		14.01	2.73E-01		1.49E+00
			747.13		13.10	1.39E-01		1.63E+00
+		ND-147	91.11		28.90	2.29E+03	4.00E+02	4.00E+02
			531.02		13.10	2.41E+02		6.57E+02
+		PM-149	285.90		3.10	-3.74E+12	7.05E+13	7.05E+13
+		EU-152	121.78		20.50	-2.14E-02	9.77E-01	9.77E-01
			244.69		5.40	-8.35E-01		5.12E+00
			344.27		19.13	3.44E-01		1.20E+00
			778.89		9.20	-1.59E+00		2.20E+00
			964.01		10.40	-1.44E-01		2.31E+00
			1085.78		7.22	-9.32E-02		2.99E+00
			1112.02		9.60	-7.69E-01		2.28E+00
			1407.95		14.94	7.20E+00		2.44E+00
+		GD-153	97.43		31.30	9.33E-01	8.52E-01	8.52E-01
			103.18		22.20	-2.09E-01		1.13E+00
+		EU-154	123.07		40.50	-1.01E-01	4.98E-01	4.98E-01
			723.30		19.70	-1.06E-01		1.11E+00
			873.19		11.50	1.48E-01		2.01E+00
			996.32		10.30	1.47E-01		2.20E+00
			1004.76		17.90	3.39E-02		1.43E+00
			1274.45		35.50	2.78E-01		6.07E-01
+		EU-155	86.50		30.90	2.09E+00	8.81E-01	8.81E-01
			105.30		20.70	-4.19E-01		9.59E-01
+		EU-156	811.77		10.40	9.52E+00	1.58E+02	1.58E+02
			1153.47		7.20	9.43E+02		3.28E+02
			1230.71		8.90	-7.13E+01		1.74E+02
+		HO-166M	184.41		72.60	4.87E+00	3.79E-01	4.32E-01
			280.45		29.60	-2.56E-01		7.74E-01
			410.94		11.10	-7.22E-01		2.03E+00
			711.69		54.10	1.41E-01		3.79E-01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-1.53E+03	1.89E+02	1.89E+02
+	HF-172	67.35		5.31	-3.30E+00	1.93E+00	4.96E+00
		125.81		11.30	-2.88E-01		1.93E+00
+	LU-172	181.53		20.60	-2.19E+03	6.66E+03	1.99E+04
		900.72		29.81	1.26E+03		1.50E+04
		1093.66		62.50	1.34E+03		6.66E+03
+	LU-173	100.72		5.24	1.11E+00	1.38E+00	4.25E+00
		272.11		21.20	3.23E+00		1.38E+00
+	HF-175	343.40		84.00	4.63E-03	6.85E-01	6.85E-01
+	LU-176	88.34		13.30	-5.52E+00	2.31E-01	2.01E+00
		201.83		86.00	2.40E-02		2.44E-01
		306.78		94.00	-3.84E-02		2.31E-01
+	HF-181	133.02		41.70	-4.96E-01	1.22E+00	2.30E+00
		345.85		17.20	2.35E+00		6.38E+00
		482.03		82.80	-3.66E-01		1.22E+00
+	TA-182	67.75	*	41.20	8.92E-01	1.08E+00	1.08E+00
		1121.30	*	34.90	4.34E+01		2.29E+00
		1189.05		16.23	2.06E-01		2.25E+00
		1221.41		26.98	-2.08E-01		1.40E+00
		1231.02		11.44	-1.28E+00		3.12E+00
+	IR-192	308.46		29.68	-9.23E-01	1.05E+00	1.77E+00
		468.07		48.10	6.33E-01		1.05E+00
+	HG-203	279.19		77.30	-9.00E-01	1.23E+00	1.23E+00
+	TL-204	374.74		94.11	1.73E-01	2.39E-01	2.39E-01
		899.15		99.16	9.02E-02		2.48E-01
		911.74		91.10	1.91E-01		2.86E-01
+	BI-207	569.67		97.72	6.91E-02	2.10E-01	2.10E-01
		1063.62		74.90	1.51E-01		2.88E-01
+	TL-208	583.14	*	30.22	4.40E-01	2.87E-01	1.08E+00
		860.37		4.48	1.83E+00		4.96E+00
		2614.66	*	35.85	5.78E-01		2.87E-01
+	BI-210M	262.00		45.00	1.44E-01	5.29E-01	5.29E-01
		300.00		23.00	-4.26E+01		1.23E+00
+	PB-210	46.50	*	4.25	1.86E+01	5.36E+00	5.36E+00
+	PB-211	404.84		2.90	1.05E+01	8.18E+00	8.27E+00
		831.96		2.90	6.93E+00		8.18E+00
+	BI-212	727.17		11.80	6.23E-01	1.73E+00	1.73E+00
		1620.62		2.75	2.33E+00		7.13E+00
+	PB-212	238.63		44.60	-1.12E+01	5.19E-01	5.19E-01
		300.09		3.41	-2.87E+02		8.26E+00
+	BI-214	609.31	*	46.30	5.33E+01	9.98E-01	9.98E-01
		1120.29	*	15.10	5.63E+01		2.97E+00
		1764.49	*	15.80	6.09E+01		2.51E+00
		2204.22	*	4.98	5.91E+01		4.80E+00
+	PB-214	295.21	*	19.19	5.81E+01	1.29E+00	2.46E+00
		351.92	*	37.19	5.81E+01		1.29E+00
+	RN-219	401.80		6.50	-9.62E-01	3.57E+00	3.57E+00
+	RA-223	323.87	*	3.88	3.97E+00	5.78E+00	5.78E+00

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.02E+02	8.53E+00	8.53E+00
+	RA-225	40.00		31.00	-9.91E+00	5.18E+01	5.18E+01
+	RA-226	186.21	*	3.28	1.21E+02	1.11E+01	1.11E+01
+	TH-227	50.10		8.40	1.95E-01	1.88E+00	2.32E+00
		236.00		11.50	-4.01E-01		1.88E+00
		256.20		6.30	9.33E+00		3.90E+00
+	AC-228	338.32		11.40	-4.21E-01	8.95E-01	1.96E+00
		911.07		27.70	5.98E-01		8.95E-01
		969.11		16.60	-6.06E-01		1.38E+00
+	TH-230	48.44		16.90	9.80E-02	1.24E+00	1.24E+00
		62.85		4.60	3.53E+01		5.69E+00
		67.67		0.37	-4.30E+01		6.46E+01
+	PA-231	283.67		1.60	3.69E+00	1.04E+01	1.44E+01
		302.67		2.30	1.38E+00		1.04E+01
+	TH-231	25.64		14.70	-5.22E+00	1.63E+00	1.63E+00
		84.21		6.40	-1.40E+01		3.87E+00
+	PA-233	311.98		38.60	6.15E-01	6.48E+00	6.48E+00
+	PA-234	131.20		20.40	-3.65E-01	9.80E-01	9.80E-01
		733.99		8.80	-1.74E-01		2.27E+00
		946.00		12.00	-2.75E-01		1.82E+00
+	PA-234M	1001.03	*	0.92	6.47E+01	3.62E+01	3.62E+01
+	TH-234	63.29	*	3.80	4.27E+01	7.22E+00	7.22E+00
+	U-235	143.76	*	10.50	3.84E+00	2.81E+00	2.81E+00
		163.35	*	4.70	3.32E+00		4.76E+00
		205.31	*	4.70	4.36E+00		4.58E+00
+	NP-237	86.50		12.60	4.95E+00	2.08E+00	2.08E+00
+	NP-239	106.10		22.70	5.73E+11	1.31E+12	1.31E+12
		228.18		10.70	-1.53E+12		2.88E+12
		277.60		14.10	-1.41E+12		2.56E+12
+	AM-241	59.54		35.90	2.39E-01	6.02E-01	6.02E-01
+	AM-243	74.67	*	66.00	4.43E+00	7.93E-01	7.93E-01
+	CM-243	209.75		3.29	3.95E+00	1.69E+00	6.27E+00
		228.14		10.60	-1.02E+00		1.90E+00
		277.60		14.00	-9.31E-01		1.69E+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 1707084-16

HTC-A02-S001-3642-01

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	7.07E+00	7.07E+00	-3.83E-01	3.48E+00
	NA-22	1274.54		99.94	2.26E-01	2.26E-01	1.04E-01	1.09E-01
@	NA-24	1368.53		99.99	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		2754.09		99.86	1.00E+26		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	1.20E-01	1.20E-01	-1.43E-02	5.56E-02
+	K-40	1460.81	*	10.67	3.21E+00	3.21E+00	5.76E+00	1.57E+00
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	2.54E-01	2.54E-01	-1.69E-01	1.26E-01
		78.34		96.00	3.53E-01		3.38E+00	1.76E-01
	SC-46	889.25		99.98	4.96E-01	4.96E-01	-3.89E-02	2.42E-01
		1120.51		99.99	1.53E+00		1.84E+01	7.61E-01
	V-48	983.52		99.98	1.35E+01	1.30E+01	-6.43E+00	6.58E+00
		1312.10		97.50	1.30E+01		2.58E+00	6.25E+00
	CR-51	320.08		9.83	2.40E+01	2.40E+01	-8.77E+00	1.19E+01
	MN-54	834.83		99.97	2.90E-01	2.90E-01	1.14E-01	1.42E-01
	CO-56	846.75		99.96	4.94E-01	4.94E-01	-1.63E-01	2.41E-01
		1037.75		14.03	3.41E+00		-1.44E+00	1.66E+00
		1238.25		67.00	1.63E+00		1.06E+01	8.05E-01
		1771.40		15.51	3.28E+00		7.62E-02	1.58E+00
		2598.48		16.90	8.11E-01		2.01E-01	3.28E-01
	CO-57	122.06		85.51	2.95E-01	2.95E-01	5.74E-03	1.46E-01
		136.48		10.60	2.48E+00		-3.23E-01	1.23E+00
	CO-58	810.76		99.40	5.45E-01	5.45E-01	-5.62E-02	2.66E-01
	FE-59	1099.22		56.50	1.71E+00	1.71E+00	-4.24E-01	8.29E-01
		1291.56		43.20	2.08E+00		-3.94E-01	1.00E+00
	CO-60	1173.22		100.00	2.18E-01	2.09E-01	-3.26E-02	1.05E-01
		1332.49		100.00	2.09E-01		-4.65E-02	1.01E-01
	ZN-65	1115.52		50.75	6.52E-01	6.52E-01	6.85E-02	3.18E-01
	GA-67	93.31		35.70	4.76E+08	4.76E+08	3.88E+09	2.37E+08
		208.95		2.24	5.82E+09		2.23E+09	2.88E+09
		300.22		16.00	9.74E+08		-3.42E+10	4.83E+08
	SE-75	121.11		16.70	2.05E+00	6.03E-01	-4.50E-02	1.02E+00
		136.00		59.20	6.03E-01		-7.85E-02	2.99E-01
		264.65		59.80	6.54E-01		1.90E-01	3.24E-01
		279.53		25.20	1.58E+00		-1.16E+00	7.84E-01
		400.65		11.40	3.49E+00		-6.08E-01	1.72E+00
	RB-82	776.52		13.00	2.03E+01	2.03E+01	-1.37E+01	9.92E+00
	RB-83	520.41		46.00	9.25E-01	9.25E-01	8.84E-02	4.54E-01
		529.64		30.30	1.45E+00		1.01E-01	7.13E-01
		552.65		16.40	2.68E+00		7.36E-01	1.32E+00
	KR-85	513.99		0.43	5.18E+01	5.18E+01	1.22E+01	2.55E+01
	SR-85	513.99		99.27	6.17E-01	6.17E-01	1.45E-01	3.04E-01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	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	4.62E-01	3.37E-01	6.83E-02	2.26E-01
		1836.01		99.38	3.37E-01		2.79E-01	1.60E-01
	MO-93	263.06		56.72	4.12E-01	2.00E-01	1.17E-01	2.04E-01
		684.67		99.68	2.00E-01		7.38E-02	9.80E-02
		1477.11		99.08	2.26E-01		-4.79E-02	1.09E-01
	NB-93M	16.57		9.43	1.78E+00	1.78E+00	-1.72E+00	8.71E-01
	NB-94	702.63		100.00	2.23E-01	2.23E-01	2.24E-01	1.09E-01
		871.10		100.00	2.23E-01		-6.35E-03	1.09E-01
	NB-95	765.79		99.81	2.52E+00	2.52E+00	1.62E+01	1.25E+00
	NB-95M	235.69		25.00	7.71E+07	7.71E+07	-1.64E+07	3.82E+07
	ZR-95	724.18		43.70	1.32E+00	1.03E+00	-2.83E-01	6.47E-01
		756.72		55.30	1.03E+00		-2.18E-01	5.01E-01
	MO-99	181.06		6.20	9.32E+10	4.51E+10	-1.02E+10	4.62E+10
		739.58		12.80	4.51E+10		5.64E+09	2.21E+10
		778.00		4.50	1.18E+11		-1.27E+11	5.77E+10
	RU-103	497.08		89.00	1.20E+00	1.20E+00	1.05E-01	5.91E-01
	RU-106	621.84		9.80	2.23E+00	2.23E+00	7.14E-01	1.09E+00
	AG-108M	433.93		89.90	2.34E-01	2.34E-01	-1.80E-01	1.15E-01
		614.37		90.40	4.09E-01		-1.53E+01	2.02E-01
		722.95		90.50	2.36E-01		-2.25E-02	1.16E-01
+	CD-109	88.03	*	3.72	1.68E+01	1.68E+01	4.58E+01	8.36E+00
	AG-110M	657.75		93.14	2.69E-01	2.69E-01	7.81E-03	1.32E-01
		677.61		10.53	2.24E+00		-1.15E+00	1.09E+00
		706.67		16.46	1.68E+00		-1.50E+00	8.22E-01
		763.93		21.98	1.45E+00		-1.85E+01	7.11E-01
		884.67		71.63	4.10E-01		7.28E-02	2.00E-01
		1384.27		23.94	1.46E+00		4.02E-01	7.13E-01
	CD-113M	263.70		0.02	9.88E+02	9.88E+02	2.87E+02	4.89E+02
	SN-113	255.12		1.93	1.85E+01	6.17E-01	-1.91E+01	9.17E+00
		391.69		64.90	6.17E-01		-2.00E-01	3.05E-01
	TE123M	159.00		84.10	4.44E-01	4.44E-01	5.29E-02	2.20E-01
	SB-124	602.71		97.87	6.76E-01	6.76E-01	1.03E-01	3.32E-01
		645.85		7.26	7.85E+00		4.30E-01	3.84E+00
		722.78		11.10	5.76E+00		-5.50E-01	2.82E+00
		1691.02		49.00	1.11E+00		3.44E-01	5.30E-01
	I-125	35.49		6.49	8.70E+00	8.70E+00	-4.50E+00	4.31E+00
	SB-125	176.33		6.89	3.28E+00	8.40E-01	1.60E+00	1.63E+00
		427.89		29.33	8.40E-01		6.87E-01	4.14E-01
		463.38		10.35	2.21E+00		3.12E-01	1.09E+00
		600.56		17.80	1.26E+00		3.57E-01	6.20E-01
		635.90		11.32	1.76E+00		-8.63E-03	8.62E-01
	SB-126	414.70		83.30	5.65E+01	3.95E+01	6.03E+00	2.79E+01
		666.33		99.60	5.17E+01		1.27E+02	2.54E+01
		695.00		99.60	3.95E+01		-2.68E+01	1.93E+01
		720.50		53.80	8.01E+01		1.41E+01	3.92E+01
+	SN-126	87.57	*	37.00	1.46E+00	1.46E+00	3.99E+00	7.29E-01
	SB-127	473.00		25.00	2.35E+07	1.57E+07	1.27E+07	1.16E+07
		685.20		35.70	1.57E+07		5.77E+06	7.67E+06
		783.80		14.70	5.13E+07		1.40E+08	2.52E+07
	I-129	29.78		57.00	3.67E-01	3.67E-01	2.33E-02	1.82E-01
		33.60		13.20	1.47E+00		-7.50E-02	7.26E-01
		39.58		7.52	2.44E+00		-1.33E+00	1.21E+00
	I-131	284.30		6.05	1.42E+04	9.49E+02	-9.53E+02	7.01E+03

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	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	9.49E+02	9.49E+02	3.90E+02	4.68E+02
		636.97		7.26	9.57E+03		2.26E+03	4.68E+03
		722.89		1.80	4.40E+04		-4.20E+03	2.15E+04
	TE-132	49.72		13.10	9.53E+08	1.46E+08	8.04E+07	4.73E+08
		228.16		88.00	1.46E+08		-7.80E+07	7.25E+07
	BA-133	81.00		33.00	7.65E-01	7.65E-01	-8.63E+00	3.80E-01
		302.84		17.80	1.37E+00		1.81E-01	6.80E-01
		356.01		60.00	8.11E-01		4.72E+00	4.03E-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	1.94E+05	1.94E+05	-2.19E+06	9.66E+04
	CS-134	563.23		8.38	2.61E+00	2.69E-01	-5.75E-01	1.28E+00
		569.32		15.43	1.46E+00		1.18E+00	7.15E-01
		604.70		97.60	3.77E-01		-2.41E+01	1.86E-01
		795.84		85.40	2.69E-01		-2.63E-02	1.31E-01
		801.93		8.73	2.72E+00		6.18E-01	1.33E+00
	CS-135	268.24		16.00	1.54E+00	1.54E+00	2.23E+00	7.65E-01
@	I-135	1131.51		22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		1260.41		28.60	1.00E+26		1.00E+26	1.00E+20
@		1678.03		9.54	1.00E+26		1.00E+26	1.00E+20
	CS-136	153.22		7.46	4.57E+02	3.38E+01	6.42E+02	2.27E+02
		163.89		4.61	7.08E+02		4.60E+02	3.51E+02
		176.55		13.56	2.37E+02		1.15E+02	1.17E+02
		273.65		12.66	3.00E+02		3.49E+02	1.49E+02
		340.57		48.50	7.02E+01		-4.04E+00	3.47E+01
		818.50		99.70	3.38E+01		1.57E+01	1.65E+01
		1048.07		79.60	4.12E+01		-3.13E+00	2.00E+01
		1235.34		19.70	3.24E+02		1.19E+03	1.59E+02
	CS-137	661.65		85.12	2.65E-01	2.65E-01	1.93E-02	1.30E-01
	LA-138	788.74		34.00	7.29E-01	3.25E-01	-6.99E-02	3.57E-01
		1435.80		66.00	3.25E-01		-5.51E-02	1.57E-01
	CE-139	165.85		80.35	4.29E-01	4.29E-01	-2.24E-03	2.13E-01
	BA-140	162.64		6.70	5.68E+02	1.49E+02	4.59E+02	2.82E+02
		304.84		4.50	8.68E+02		1.03E+02	4.30E+02
		423.70		3.20	1.28E+03		3.69E+02	6.32E+02
		437.55		2.00	1.84E+03		7.14E+02	9.08E+02
		537.32		25.00	1.49E+02		4.39E+01	7.32E+01
+	LA-140	328.77		20.50	1.91E+02	7.40E+01	-3.32E+01	9.42E+01
		487.03	*	45.50	9.00E+01		8.58E+01	4.43E+01
		815.85		23.50	1.65E+02		2.33E+01	8.05E+01
		1596.49	*	95.49	7.40E+01		7.13E+01	3.63E+01
	CE-141	145.44		48.40	3.53E+00	3.53E+00	4.37E+00	1.75E+00
@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@		293.26		42.00	1.00E+26		1.00E+26	1.00E+20
@		664.55		5.20	1.00E+26		1.00E+26	1.00E+20
	CE-144	133.54		10.80	2.36E+00	2.36E+00	-5.09E-01	1.17E+00
	PM-144	476.78		42.00	5.89E-01	2.29E-01	5.77E-02	2.90E-01
		618.01		98.60	2.71E-01		-1.04E-03	1.33E-01
		696.49		99.49	2.29E-01		-1.66E-01	1.12E-01
	PM-145	36.85		21.70	8.66E-01	4.73E-01	5.39E-02	4.29E-01
		37.36		39.70	4.73E-01		-7.41E-02	2.34E-01
		42.30		15.10	1.23E+00		-2.41E-02	6.10E-01
		72.40		2.31	1.21E+01		-7.81E+01	6.01E+00
	PM-146	453.90		39.94	5.60E-01	5.60E-01	5.64E-01	2.76E-01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	PM-146	735.90		14.01	1.49E+00	5.60E-01	2.73E-01	7.28E-01
		747.13		13.10	1.63E+00		1.39E-01	7.95E-01
	ND-147	91.11		28.90	4.00E+02	4.00E+02	2.29E+03	1.99E+02
		531.02		13.10	6.57E+02		2.41E+02	3.23E+02
	PM-149	285.90		3.10	7.05E+13	7.05E+13	-3.74E+12	3.49E+13
	EU-152	121.78		20.50	9.77E-01	9.77E-01	-2.14E-02	4.85E-01
		244.69		5.40	5.12E+00		-8.35E-01	2.54E+00
		344.27		19.13	1.20E+00		3.44E-01	5.93E-01
		778.89		9.20	2.20E+00		-1.59E+00	1.07E+00
		964.01		10.40	2.31E+00		-1.44E-01	1.13E+00
		1085.78		7.22	2.99E+00		-9.32E-02	1.45E+00
		1112.02		9.60	2.28E+00		-7.69E-01	1.11E+00
		1407.95		14.94	2.44E+00		7.20E+00	1.20E+00
	GD-153	97.43		31.30	8.52E-01	8.52E-01	9.33E-01	4.23E-01
		103.18		22.20	1.13E+00		-2.09E-01	5.60E-01
	EU-154	123.07		40.50	4.98E-01	4.98E-01	-1.01E-01	2.47E-01
		723.30		19.70	1.11E+00		-1.06E-01	5.42E-01
		873.19		11.50	2.01E+00		1.48E-01	9.82E-01
		996.32		10.30	2.20E+00		1.47E-01	1.07E+00
		1004.76		17.90	1.43E+00		3.39E-02	6.97E-01
		1274.45		35.50	6.07E-01		2.78E-01	2.93E-01
	EU-155	86.50		30.90	8.81E-01	8.81E-01	2.09E+00	4.38E-01
		105.30		20.70	9.59E-01		-4.19E-01	4.76E-01
	EU-156	811.77		10.40	1.58E+02	1.58E+02	9.52E+00	7.74E+01
		1153.47		7.20	3.28E+02		9.43E+02	1.61E+02
		1230.71		8.90	1.74E+02		-7.13E+01	8.43E+01
	HO-166M	184.41		72.60	4.32E-01	3.79E-01	4.87E+00	2.15E-01
		280.45		29.60	7.74E-01		-2.56E-01	3.83E-01
		410.94		11.10	2.03E+00		-7.22E-01	1.00E+00
		711.69		54.10	3.79E-01		1.41E-01	1.86E-01
	TM-171	66.72		0.14	1.89E+02	1.89E+02	-1.53E+03	9.41E+01
	HF-172	67.35		5.31	4.96E+00	1.93E+00	-3.30E+00	2.47E+00
		125.81		11.30	1.93E+00		-2.88E-01	9.59E-01
	LU-172	181.53		20.60	1.99E+04	6.66E+03	-2.19E+03	9.88E+03
		900.72		29.81	1.50E+04		1.26E+03	7.32E+03
		1093.66		62.50	6.66E+03		1.34E+03	3.24E+03
	LU-173	100.72		5.24	4.25E+00	1.38E+00	1.11E+00	2.11E+00
		272.11		21.20	1.38E+00		3.23E+00	6.82E-01
	HF-175	343.40		84.00	6.85E-01	6.85E-01	4.63E-03	3.39E-01
	LU-176	88.34		13.30	2.01E+00	2.31E-01	-5.52E+00	9.99E-01
		201.83		86.00	2.44E-01		2.40E-02	1.21E-01
		306.78		94.00	2.31E-01		-3.84E-02	1.14E-01
	HF-181	133.02		41.70	2.30E+00	1.22E+00	-4.96E-01	1.14E+00
		345.85		17.20	6.38E+00		2.35E+00	3.16E+00
		482.03		82.80	1.22E+00		-3.66E-01	6.00E-01
+	TA-182	67.75	*	41.20	1.08E+00	1.08E+00	8.92E-01	5.35E-01
		1121.30	*	34.90	2.29E+00		4.34E+01	1.13E+00
		1189.05		16.23	2.25E+00		2.06E-01	1.09E+00
		1221.41		26.98	1.40E+00		-2.08E-01	6.76E-01
		1231.02		11.44	3.12E+00		-1.28E+00	1.51E+00
	IR-192	308.46		29.68	1.77E+00	1.05E+00	-9.23E-01	8.75E-01
		468.07		48.10	1.05E+00		6.33E-01	5.17E-01
	HG-203	279.19		77.30	1.23E+00	1.23E+00	-9.00E-01	6.07E-01

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	TL-204	374.74		94.11	2.39E-01	2.39E-01	1.73E-01	1.18E-01
		899.15		99.16	2.48E-01		9.02E-02	1.21E-01
		911.74		91.10	2.86E-01		1.91E-01	1.40E-01
	BI-207	569.67		97.72	2.10E-01	2.10E-01	6.91E-02	1.03E-01
		1063.62		74.90	2.88E-01		1.51E-01	1.40E-01
+	TL-208	583.14	*	30.22	1.08E+00	2.87E-01	4.40E-01	5.35E-01
		860.37		4.48	4.96E+00		1.83E+00	2.42E+00
		2614.66	*	35.85	2.87E-01		5.78E-01	1.28E-01
	BI-210M	262.00		45.00	5.29E-01	5.29E-01	1.44E-01	2.62E-01
		300.00		23.00	1.23E+00		-4.26E+01	6.07E-01
+	PB-210	46.50	*	4.25	5.36E+00	5.36E+00	1.86E+01	2.66E+00
	PB-211	404.84		2.90	8.27E+00	8.18E+00	1.05E+01	4.09E+00
		831.96		2.90	8.18E+00		6.93E+00	4.00E+00
	BI-212	727.17		11.80	1.73E+00	1.73E+00	6.23E-01	8.44E-01
		1620.62		2.75	7.13E+00		2.33E+00	3.42E+00
	PB-212	238.63		44.60	5.19E-01	5.19E-01	-1.12E+01	2.57E-01
		300.09		3.41	8.26E+00		-2.87E+02	4.10E+00
+	BI-214	609.31	*	46.30	9.98E-01	9.98E-01	5.33E+01	4.95E-01
		1120.29	*	15.10	2.97E+00		5.63E+01	1.46E+00
		1764.49	*	15.80	2.51E+00		6.09E+01	1.23E+00
		2204.22	*	4.98	4.80E+00		5.91E+01	2.30E+00
+	PB-214	295.21	*	19.19	2.46E+00	1.29E+00	5.81E+01	1.22E+00
		351.92	*	37.19	1.29E+00		5.81E+01	6.43E-01
	RN-219	401.80		6.50	3.57E+00	3.57E+00	-9.62E-01	1.76E+00
+	RA-223	323.87	*	3.88	5.78E+00	5.78E+00	3.97E+00	2.86E+00
	RA-224	240.98		3.95	8.53E+00	8.53E+00	1.02E+02	4.24E+00
	RA-225	40.00		31.00	5.18E+01	5.18E+01	-9.91E+00	2.57E+01
+	RA-226	186.21	*	3.28	1.11E+01	1.11E+01	1.21E+02	5.55E+00
	TH-227	50.10		8.40	2.32E+00	1.88E+00	1.95E-01	1.15E+00
		236.00		11.50	1.88E+00		-4.01E-01	9.33E-01
		256.20		6.30	3.90E+00		9.33E+00	1.93E+00
	AC-228	338.32		11.40	1.96E+00	8.95E-01	-4.21E-01	9.67E-01
		911.07		27.70	8.95E-01		5.98E-01	4.38E-01
		969.11		16.60	1.38E+00		-6.06E-01	6.73E-01
	TH-230	48.44		16.90	1.24E+00	1.24E+00	9.80E-02	6.18E-01
		62.85		4.60	5.69E+00		3.53E+01	2.83E+00
		67.67		0.37	6.46E+01		-4.30E+01	3.21E+01
	PA-231	283.67		1.60	1.44E+01	1.04E+01	3.69E+00	7.15E+00
		302.67		2.30	1.04E+01		1.38E+00	5.17E+00
	TH-231	25.64		14.70	1.63E+00	1.63E+00	-5.22E+00	8.07E-01
		84.21		6.40	3.87E+00		-1.40E+01	1.93E+00
	PA-233	311.98		38.60	6.48E+00	6.48E+00	6.15E-01	3.21E+00
	PA-234	131.20		20.40	9.80E-01	9.80E-01	-3.65E-01	4.86E-01
		733.99		8.80	2.27E+00		-1.74E-01	1.11E+00
		946.00		12.00	1.82E+00		-2.75E-01	8.88E-01
+	PA-234M	1001.03	*	0.92	3.62E+01	3.62E+01	6.47E+01	1.78E+01
+	TH-234	63.29	*	3.80	7.22E+00	7.22E+00	4.27E+01	3.59E+00
+	U-235	143.76	*	10.50	2.81E+00	2.81E+00	3.84E+00	1.40E+00
		163.35	*	4.70	4.76E+00		3.32E+00	2.36E+00
		205.31	*	4.70	4.58E+00		4.36E+00	2.27E+00
	NP-237	86.50		12.60	2.08E+00	2.08E+00	4.95E+00	1.04E+00
	NP-239	106.10		22.70	1.31E+12	1.31E+12	5.73E+11	6.50E+11
		228.18		10.70	2.88E+12		-1.53E+12	1.43E+12

Analysis Report for 1707084-16

HTC-A02-S001-3642-01

	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	2.56E+12	1.31E+12	-1.41E+12	1.27E+12
	AM-241	59.54		35.90	6.02E-01	6.02E-01	2.39E-01	2.99E-01
+	AM-243	74.67	*	66.00	7.93E-01	7.93E-01	4.43E+00	3.95E-01
	CM-243	209.75		3.29	6.27E+00	1.69E+00	3.95E+00	3.11E+00
		228.14		10.60	1.90E+00		-1.02E+00	9.43E-01
		277.60		14.00	1.69E+00		-9.31E-01	8.38E-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-A02-S001-3642-01

Elapsed Live time: 3600
Elapsed Real Time: 3615

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	5	719	842	791	870	1265	803
25:	741	754	704	745	720	723	722	745
33:	743	729	745	759	764	788	817	800
41:	829	847	907	896	926	1142	1985	1298
49:	996	1054	1174	1136	1338	1667	1280	1265
57:	1302	1425	1499	1573	1519	1760	2341	3853
65:	2230	1832	1873	2129	2049	2070	1928	2033
73:	2220	2493	4834	4700	5444	7580	2791	2326
81:	2172	2151	1848	2431	2308	1763	2535	3445
89:	2133	2267	2192	2113	4395	2888	1762	1462
97:	1359	1400	1499	1356	1170	1245	1204	1196
105:	1227	1254	1176	1269	1325	1231	1229	1317
113:	1429	1395	1223	1238	1201	1271	1232	1225
121:	1212	1247	1258	1146	1199	1197	1202	1254
129:	1164	1199	1192	1221	1169	1164	1227	1214
137:	1222	1233	1236	1255	1310	1230	1344	1619
145:	1548	1241	1258	1235	1273	1291	1211	1236
153:	1320	1447	1407	1273	1221	1207	1239	1164
161:	1182	1127	1177	1255	1170	1051	1092	1045
169:	1064	1146	1078	1018	1033	972	1059	1023
177:	1057	1035	1023	1014	1004	1019	1035	1084
185:	1470	3715	3659	1315	1041	1001	1021	1019
193:	1005	953	953	900	932	975	893	930
201:	887	918	873	828	914	980	873	762
209:	809	829	854	799	759	742	799	725
217:	729	716	722	722	734	756	718	738
225:	749	695	699	740	732	665	683	760
233:	722	705	693	899	874	769	939	804
241:	1069	3373	3179	894	626	654	653	695
249:	620	570	590	588	539	552	568	664
257:	683	624	820	679	539	528	567	542
265:	504	510	488	550	624	765	745	684
273:	584	600	640	579	541	510	472	529
281:	514	513	492	508	468	507	543	491
289:	495	493	496	535	505	1016	5383	7007
297:	1577	533	548	661	655	474	453	422
305:	432	414	408	380	368	392	400	369
313:	375	415	407	386	374	378	380	344
321:	378	398	407	433	408	384	379	391
329:	371	397	402	362	373	401	398	347
337:	357	409	409	365	350	345	366	352
345:	426	349	358	399	433	572	2871	11921
353:	7857	1067	397	468	521	553	309	280
361:	275	282	287	298	314	278	265	281

369:	272	271	272	323	270	282	264	320

Sample Title: HTC-A02-S001-3642-01

Channel								
377:	288	316	283	264	284	263	321	308
385:	304	297	396	320	366	349	265	293
393:	284	301	277	315	297	303	251	263
401:	323	329	338	324	346	361	309	292
409:	291	276	300	277	263	282	306	287
417:	305	285	281	278	302	316	268	278
425:	295	291	288	290	279	284	229	257
433:	228	212	214	223	219	229	214	217
441:	249	222	194	218	207	237	207	211
449:	201	190	233	202	209	233	262	220
457:	214	181	218	196	206	269	233	203
465:	177	198	201	181	190	225	193	157
473:	190	190	200	184	165	180	189	214
481:	285	165	166	171	187	195	257	219
489:	186	165	181	163	159	166	156	160
497:	182	164	170	159	145	185	147	160
505:	132	149	150	141	184	260	270	264
513:	189	165	143	175	150	138	139	163
521:	187	133	135	162	133	144	141	158
529:	132	160	164	173	171	196	170	166
537:	164	156	152	161	119	137	142	177
545:	164	129	134	134	128	139	151	145
553:	138	152	152	151	142	155	141	146
561:	134	158	142	113	129	143	143	134
569:	139	126	147	168	128	130	134	131
577:	134	128	131	180	185	155	175	181
585:	134	135	139	124	115	134	113	113
593:	126	135	114	126	133	136	137	138
601:	136	151	137	128	158	206	241	1450
609:	7223	7361	1428	245	274	304	340	192
617:	115	101	88	102	91	108	87	109
625:	94	90	90	94	108	83	103	90
633:	101	105	106	88	89	92	108	102
641:	98	89	101	99	111	78	84	115
649:	109	102	103	99	95	93	95	94
657:	100	93	104	97	110	114	90	122
665:	300	301	133	109	103	107	106	95
673:	98	80	83	78	97	83	83	85
681:	75	85	103	103	98	86	93	113
689:	117	109	97	91	67	74	89	88
697:	112	106	80	119	92	119	175	148
705:	101	94	115	100	99	100	106	114
713:	90	98	93	98	68	89	96	150
721:	121	90	98	96	106	79	95	104
729:	105	81	90	80	100	86	81	91
737:	104	84	97	84	99	107	139	117
745:	79	96	78	90	100	95	78	90
753:	119	83	84	88	103	79	97	83
761:	84	80	106	84	105	165	272	784
769:	700	228	111	82	98	99	81	79
777:	72	72	72	92	89	98	93	89
785:	201	258	185	79	102	73	93	86
793:	97	101	86	77	92	74	92	96

801:	85	75	73	84	151	264	210	99

Sample Title: HTC-A02-S001-3642-01

Channel								
809:	94	68	100	78	87	91	95	102
817:	86	88	107	83	103	84	86	92
825:	91	98	89	96	90	103	114	111
833:	128	89	102	91	84	114	151	137
841:	81	94	84	80	93	81	77	93
849:	83	70	94	80	70	84	86	77
857:	94	89	82	70	112	80	85	81
865:	81	91	76	79	85	100	82	88
873:	85	88	91	89	84	100	82	94
881:	81	85	91	86	92	78	90	85
889:	74	104	87	82	81	90	86	92
897:	90	84	88	95	93	96	81	84
905:	91	100	93	84	98	94	129	119
913:	93	85	81	83	77	81	70	77
921:	73	69	82	95	91	90	86	78
929:	69	74	85	100	230	484	263	111
937:	65	102	84	87	66	75	78	85
945:	72	61	79	61	76	75	83	77
953:	66	69	78	71	75	65	88	69
961:	74	77	79	117	122	59	59	82
969:	97	95	58	93	95	80	77	86
977:	64	59	76	70	61	74	70	69
985:	66	58	68	89	65	74	74	47
993:	72	72	58	70	64	59	92	140
1001:	187	101	68	71	66	59	63	62
1009:	51	61	73	56	61	75	57	71
1017:	56	70	63	64	64	65	74	73
1025:	40	55	72	63	58	55	92	52
1033:	62	60	59	65	62	48	48	54
1041:	61	71	51	70	54	55	56	59
1049:	55	68	81	87	79	67	56	63
1057:	52	52	58	52	67	57	51	68
1065:	54	63	52	46	64	94	77	63
1073:	55	46	67	49	64	46	54	53
1081:	70	62	61	62	57	55	41	54
1089:	46	60	47	57	63	64	53	59
1097:	52	65	51	54	61	67	64	65
1105:	66	70	56	60	58	49	34	77
1113:	49	59	63	68	75	143	755	1751
1121:	1125	264	73	82	94	83	57	37
1129:	53	57	51	60	73	50	57	70
1137:	47	48	54	41	38	57	51	57
1145:	45	51	51	43	52	55	46	50
1153:	74	135	224	165	68	56	51	66
1161:	53	46	62	50	41	47	49	69
1169:	47	46	45	57	63	38	45	46
1177:	41	49	47	58	69	52	61	40
1185:	36	33	49	47	42	56	44	44
1193:	55	52	37	48	46	50	41	44
1201:	55	43	42	57	47	55	90	79
1209:	63	55	50	60	45	43	55	48
1217:	51	52	62	43	41	44	44	37
1225:	56	38	26	47	40	38	45	42

1233:	48	51	45	115	373	627	344	102

Sample Title: HTC-A02-S001-3642-01

Channel								
1241:	38	68	61	66	58	34	40	56
1249:	37	34	37	44	62	55	52	53
1257:	40	49	39	61	47	49	39	37
1265:	43	30	36	47	39	27	51	46
1273:	36	41	49	37	42	56	65	148
1281:	179	107	54	34	35	49	55	41
1289:	35	43	41	38	36	43	38	30
1297:	42	32	33	34	37	48	42	50
1305:	51	28	41	39	31	38	41	38
1313:	38	38	34	38	51	49	49	35
1321:	38	38	45	51	28	47	33	39
1329:	36	42	38	30	40	34	37	39
1337:	44	34	32	41	41	44	40	41
1345:	37	39	31	33	41	32	33	34
1353:	49	29	42	35	40	28	42	43
1361:	29	41	36	39	36	32	32	34
1369:	34	29	40	35	44	34	47	193
1377:	408	366	119	52	44	50	63	77
1385:	94	74	39	41	34	44	45	27
1393:	41	36	43	39	31	33	65	79
1401:	164	106	52	40	38	82	195	258
1409:	104	64	35	30	38	42	59	35
1417:	39	39	24	33	30	43	40	35
1425:	32	36	42	46	44	37	33	37
1433:	28	40	37	43	37	39	42	43
1441:	34	41	39	39	38	33	30	36
1449:	35	39	38	35	44	39	34	35
1457:	30	46	77	125	122	55	36	45
1465:	37	46	36	39	33	30	33	35
1473:	37	20	49	41	27	45	46	55
1481:	36	47	31	42	31	37	43	32
1489:	45	40	25	46	31	38	47	49
1497:	42	37	46	36	46	48	44	30
1505:	50	43	82	162	234	114	48	47
1513:	48	58	42	51	42	35	41	48
1521:	38	39	41	45	41	36	50	39
1529:	36	46	44	36	49	34	35	38
1537:	54	71	67	40	35	76	79	61
1545:	27	39	37	34	26	25	27	32
1553:	28	24	28	31	28	30	32	27
1561:	33	20	32	35	24	20	22	31
1569:	27	33	28	29	26	19	30	32
1577:	27	27	29	37	40	83	74	54
1585:	33	23	41	29	27	29	34	21
1593:	35	48	52	42	33	47	47	24
1601:	27	27	21	30	25	28	30	26
1609:	30	22	27	25	22	18	17	28
1617:	28	29	31	29	18	22	24	23
1625:	23	28	10	20	32	22	23	17
1633:	16	23	20	18	22	20	13	19
1641:	17	21	21	20	23	20	13	11
1649:	14	16	14	18	13	20	13	16
1657:	20	17	33	82	97	52	19	26

1665:	17	17	17	17	11	11	22	14

Sample Title: HTC-A02-S001-3642-01

Channel								
1673:	19	15	8	22	11	10	15	9
1681:	12	18	29	27	12	18	22	11
1689:	17	12	32	27	24	26	16	25
1697:	14	9	10	16	12	7	8	4
1705:	15	9	14	10	12	13	11	11
1713:	13	14	15	12	14	8	10	9
1721:	10	13	15	10	13	14	36	165
1729:	281	178	50	21	17	16	19	17
1737:	12	12	19	18	8	10	15	12
1745:	12	11	11	9	11	13	11	11
1753:	7	22	10	16	11	12	15	17
1761:	52	239	790	1211	647	174	35	41
1769:	45	35	25	11	10	5	10	6
1777:	9	8	10	9	9	11	8	7
1785:	4	9	12	10	13	9	11	7
1793:	6	14	16	4	8	10	15	6
1801:	13	18	9	11	5	5	12	10
1809:	7	10	5	8	11	10	5	6
1817:	9	6	9	8	14	8	8	9
1825:	11	12	12	12	11	6	6	12
1833:	8	5	11	16	36	38	24	15
1841:	6	13	6	16	51	117	153	91
1849:	26	16	15	14	20	10	7	9
1857:	9	5	4	15	12	5	8	3
1865:	15	15	17	11	6	8	18	27
1873:	24	17	15	12	9	9	6	9
1881:	4	10	6	11	13	10	11	8
1889:	17	15	14	11	10	17	22	22
1897:	7	7	11	8	5	12	13	5
1905:	6	9	6	14	9	6	13	8
1913:	9	11	9	6	9	14	11	4
1921:	12	17	5	14	11	6	9	2
1929:	8	13	4	8	8	15	16	20
1937:	12	14	12	5	10	10	4	9
1945:	10	9	4	11	9	16	12	10
1953:	8	16	15	9	11	9	9	13
1961:	11	8	12	8	8	10	9	5
1969:	11	9	7	7	4	6	13	9
1977:	2	8	8	8	11	8	8	7
1985:	9	11	11	12	5	12	3	7
1993:	3	8	8	1	7	7	5	3
2001:	3	8	8	5	5	7	8	3
2009:	12	7	9	9	9	4	11	11
2017:	9	6	4	9	7	6	11	8
2025:	11	5	5	9	9	8	6	10
2033:	8	7	7	11	3	6	4	0
2041:	6	10	10	6	6	8	9	6
2049:	5	11	7	6	12	11	7	3
2057:	6	2	3	5	3	4	4	7
2065:	7	5	3	7	4	2	4	5
2073:	5	10	4	1	8	3	3	5
2081:	3	4	4	3	6	5	3	11
2089:	7	4	9	4	4	5	2	3

2097:	5	6	7	3	9	3	6	7

Sample Title: HTC-A02-S001-3642-01

Channel								
2105:	0	7	7	6	7	9	3	3
2113:	4	4	9	31	61	82	39	16
2121:	7	6	4	2	6	7	6	1
2129:	7	4	3	2	3	1	2	5
2137:	7	5	2	4	2	2	1	3
2145:	4	5	3	2	1	0	3	3
2153:	3	5	4	3	3	4	3	2
2161:	1	3	1	1	3	2	4	3
2169:	2	1	3	2	6	4	2	4
2177:	3	3	3	3	4	5	7	3
2185:	5	3	2	2	3	8	7	5
2193:	8	4	5	6	4	4	6	10
2201:	58	175	292	199	60	18	16	10
2209:	7	4	1	2	2	5	1	4
2217:	0	2	3	3	1	2	2	2
2225:	3	4	1	0	2	3	3	2
2233:	2	2	2	3	1	3	2	1
2241:	0	1	1	0	4	2	5	4
2249:	3	0	2	3	5	4	4	2
2257:	2	0	3	4	0	2	4	1
2265:	5	5	2	4	5	1	0	2
2273:	1	1	2	1	3	0	3	2
2281:	2	2	1	2	2	4	4	3
2289:	1	2	10	21	11	5	0	2
2297:	1	3	1	2	1	3	4	2
2305:	3	0	3	0	3	1	3	4
2313:	1	0	0	0	1	1	0	1
2321:	1	1	3	0	2	1	1	3
2329:	1	2	3	1	2	2	0	2
2337:	0	4	4	2	1	0	1	4
2345:	0	2	2	1	1	1	3	2
2353:	1	2	1	0	1	1	1	2
2361:	1	1	0	3	0	0	3	1
2369:	1	2	1	0	4	1	1	2
2377:	2	0	1	1	2	1	0	1
2385:	0	0	0	4	1	0	2	0
2393:	1	0	0	2	0	2	0	2
2401:	1	2	1	1	1	0	0	0
2409:	3	0	0	0	0	2	1	3
2417:	1	0	0	0	5	1	2	1
2425:	1	0	2	0	2	0	0	1
2433:	1	0	2	1	0	2	0	0
2441:	0	0	3	7	43	72	71	22
2449:	9	3	4	3	1	0	0	0
2457:	0	0	0	0	1	1	0	1
2465:	0	1	1	1	0	0	0	1
2473:	0	0	0	2	1	1	0	1
2481:	2	1	1	1	2	2	1	1
2489:	0	0	0	0	1	1	1	2
2497:	0	1	2	0	1	0	1	1
2505:	2	0	0	0	0	1	0	1
2513:	1	2	0	0	1	1	0	0
2521:	1	1	0	1	0	1	1	0

2529:	1	1	0	2	0	2	2	1

Sample Title: HTC-A02-S001-3642-01

Channel								
2537:	1	1	0	1	1	0	0	0
2545:	0	1	3	0	1	0	1	1
2553:	0	1	0	0	0	0	1	0
2561:	0	0	0	0	0	2	0	1
2569:	0	1	0	0	0	0	0	1
2577:	0	0	0	0	0	0	0	1
2585:	0	0	0	0	0	1	1	0
2593:	0	2	0	0	0	0	1	2
2601:	1	0	0	0	0	0	1	0
2609:	3	3	4	7	19	16	9	1
2617:	1	1	1	1	0	0	0	0
2625:	2	0	1	1	1	0	0	0
2633:	0	0	0	1	1	0	0	1
2641:	0	0	1	1	0	0	0	0
2649:	0	0	2	0	0	0	1	1
2657:	0	0	0	0	0	1	1	1
2665:	0	0	0	0	0	1	0	1
2673:	0	0	0	1	0	2	0	0
2681:	0	1	0	0	1	0	0	1
2689:	0	0	0	1	2	2	0	1
2697:	1	1	0	0	0	0	1	0
2705:	0	0	0	0	1	1	1	0
2713:	0	0	0	0	1	0	1	0
2721:	0	0	0	0	0	0	0	1
2729:	0	1	0	0	0	0	1	0
2737:	0	0	0	0	1	0	1	0
2745:	0	0	1	0	1	2	0	0
2753:	0	1	0	0	0	1	0	0
2761:	0	0	0	0	0	0	0	0
2769:	2	1	1	0	0	2	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	0	0	0	1	0	1
2793:	0	1	0	1	0	0	0	0
2801:	0	0	0	1	0	0	0	0
2809:	0	0	0	0	0	1	0	0
2817:	0	1	2	1	0	1	0	0
2825:	0	2	1	0	1	0	0	0
2833:	3	1	0	0	1	0	0	0
2841:	0	2	1	0	0	0	0	0
2849:	0	1	0	0	0	0	0	0
2857:	0	0	1	0	0	0	0	0
2865:	0	2	0	0	0	1	0	0
2873:	0	0	1	0	3	0	2	1
2881:	0	0	2	0	1	1	0	0
2889:	0	0	2	2	0	0	0	1
2897:	0	0	1	1	0	0	0	1
2905:	0	0	0	0	0	1	0	1
2913:	0	1	0	0	0	0	1	2
2921:	1	0	1	0	0	0	0	0
2929:	0	0	0	1	0	0	0	0
2937:	0	0	1	0	0	1	1	0
2945:	0	0	0	0	0	0	0	0
2953:	0	0	1	0	0	0	0	2

2961:	1	0	0	0	0	0	0	0

Sample Title: HTC-A02-S001-3642-01

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

3393:	0	0	0	0	0	0	1	0

Sample Title: HTC-A02-S001-3642-01

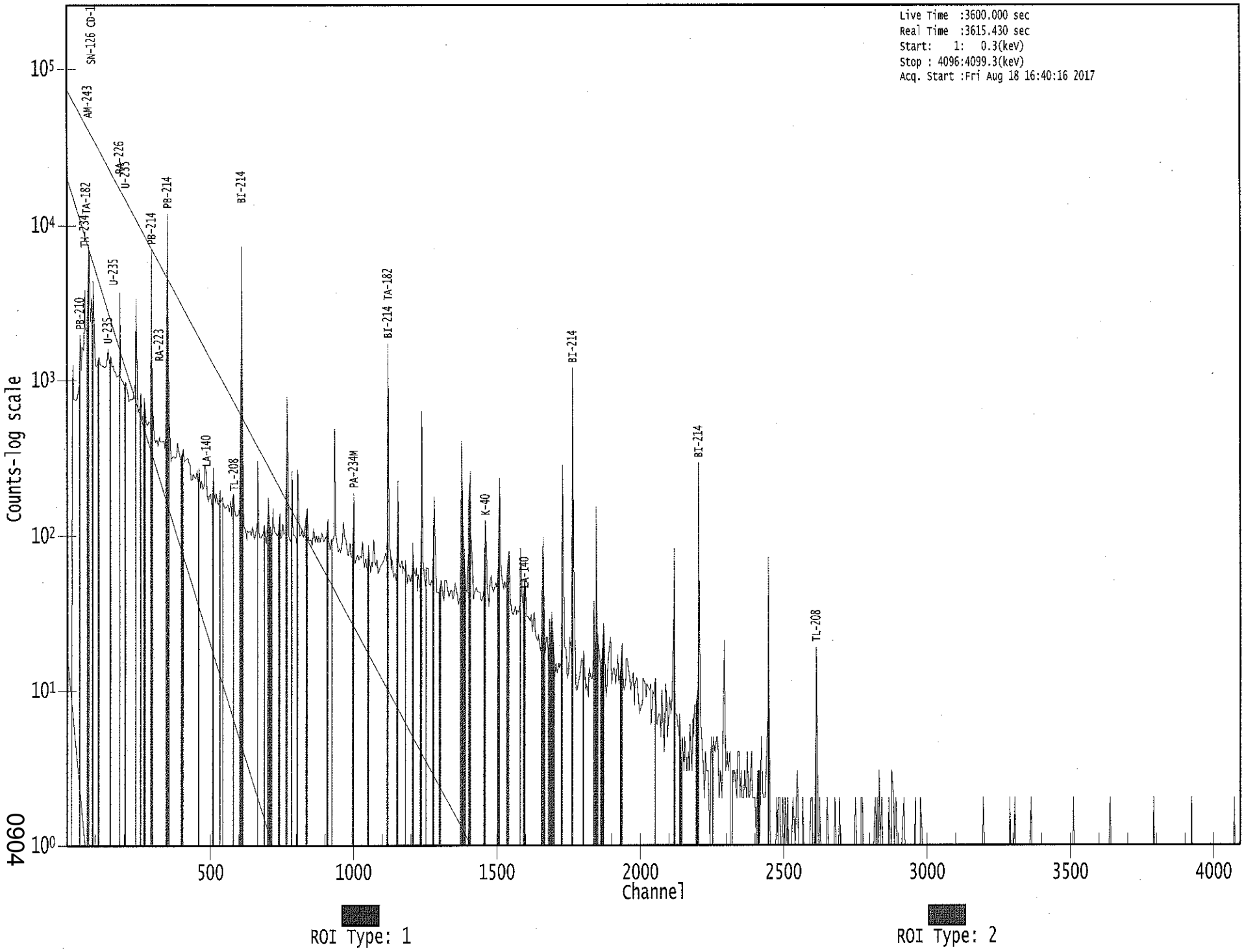
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	0	0	0	0	0	0
3417:	0	0	0	0	0	0	0	0
3425:	1	1	1	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	1	0	0	0	0	0
3473:	0	0	0	0	1	1	0	0
3481:	1	0	0	0	1	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	1	0	0	0	0

Sample Title: HTC-A02-S001-3642-01

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

0000055530.CNF



0904

KB 8/18/17

Apex-Gamma

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-17
Sample Description	: HTC-A02-S002-0006-01
Sample Type	: SOIL
Sample Size	: 7.550E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:09:51AM
Acquisition Started	: 8/18/2017 4:40:23PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE3
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3608.9 seconds
Dead Time	: 0.25 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 10 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55531

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG
8/21/17

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 5:40:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	76.78	77.08	0.0000	0.00
2	88.64	88.94	0.0000	0.00
3	93.57	93.86	0.0000	0.00
4	129.39	129.68	0.0000	0.00
5	155.13	155.41	0.0000	0.00
6	162.66	162.93	0.0000	0.00
7	168.75	169.03	0.0000	0.00
8	186.32	186.58	0.0000	0.00
9	209.86	210.12	0.0000	0.00
10	239.27	239.52	0.0000	0.00
11	242.42	242.67	0.0000	0.00
12	270.15	270.38	0.0000	0.00
13	295.92	296.15	0.0000	0.00
14	339.39	339.60	0.0000	0.00
15	352.50	352.70	0.0000	0.00
16	418.88	419.07	0.0000	0.00
17	425.29	425.47	0.0000	0.00
18	511.11	511.27	0.0000	0.00
19	519.97	520.12	0.0000	0.00
20	542.76	542.91	0.0000	0.00
21	583.44	583.57	0.0000	0.00
22	609.65	609.77	0.0000	0.00
23	735.83	735.90	0.0000	0.00
24	794.47	794.53	0.0000	0.00
25	911.59	911.61	0.0000	0.00
26	934.89	934.91	0.0000	0.00
27	968.39	968.40	0.0000	0.00
28	1121.34	1121.29	0.0000	0.00
29	1145.03	1144.97	0.0000	0.00
30	1182.27	1182.19	0.0000	0.00
31	1212.17	1212.08	0.0000	0.00
32	1262.24	1262.14	0.0000	0.00
33	1377.67	1377.54	0.0000	0.00
34	1461.00	1460.83	0.0000	0.00
35	1511.18	1511.00	0.0000	0.00
36	1620.63	1620.41	0.0000	0.00
37	1632.37	1632.15	0.0000	0.00
38	1666.49	1666.25	0.0000	0.00
39	1730.26	1730.00	0.0000	0.00
40	1740.39	1740.13	0.0000	0.00
41	1750.56	1750.30	0.0000	0.00
42	1764.36	1764.10	0.0000	0.00

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	2149.74	2149.34	0.0000	0.00
44	2202.18	2201.76	0.0000	0.00
45	2614.17	2613.61	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 5:40:34PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	76.78	73 -	81	77.08	9.70E+02	132.23	2.07E+03	3.35
	2	88.64	86 -	91	88.94	1.04E+02	92.01	1.61E+03	1.47
	3	93.57	91 -	97	93.86	2.56E+02	95.48	1.38E+03	2.60
	4	129.39	127 -	132	129.68	5.73E+01	64.95	7.94E+02	3.11
	5	155.13	152 -	158	155.41	6.44E+01	65.71	7.25E+02	1.67
M	6	162.66	159 -	178	162.93	7.62E+01	66.45	6.72E+02	2.62
m	7	168.75	159 -	178	169.03	5.19E+01	65.08	6.19E+02	2.63
	8	186.32	182 -	190	186.58	1.69E+02	81.38	9.17E+02	1.89
	9	209.86	205 -	216	210.12	1.55E+02	93.47	9.98E+02	2.47
M	10	239.27	234 -	245	239.52	6.94E+02	69.27	4.01E+02	2.04
m	11	242.42	234 -	245	242.67	1.62E+02	62.56	3.45E+02	2.05
	12	270.15	265 -	274	270.38	1.15E+02	63.19	5.03E+02	2.66
	13	295.92	291 -	300	296.15	1.61E+02	73.79	6.87E+02	1.52
	14	339.39	336 -	345	339.60	1.86E+02	54.09	3.15E+02	2.47
	15	352.50	348 -	356	352.70	3.63E+02	60.39	3.37E+02	2.04
	16	418.88	417 -	421	419.07	2.93E+01	27.06	1.29E+02	2.90
	17	425.29	422 -	429	425.47	3.84E+01	35.89	1.91E+02	5.00
	18	511.11	506 -	519	511.27	1.04E+02	61.49	3.83E+02	3.04
	19	519.97	519 -	522	520.12	2.03E+01	20.20	7.53E+01	3.49
	20	542.76	539 -	546	542.91	2.97E+01	30.46	1.33E+02	1.63
	21	583.44	579 -	588	583.57	2.24E+02	46.12	1.78E+02	2.63
	22	609.65	604 -	615	609.77	2.69E+02	55.61	2.52E+02	2.19
	23	735.83	732 -	739	735.90	2.47E+01	29.46	1.29E+02	1.24
	24	794.47	791 -	797	794.53	2.61E+01	25.03	9.58E+01	1.82
	25	911.59	907 -	917	911.61	1.01E+02	37.85	1.37E+02	2.08
	26	934.89	931 -	938	934.91	2.14E+01	22.09	6.52E+01	2.49
	27	968.39	962 -	971	968.40	6.34E+01	35.16	1.41E+02	2.85
	28	1121.34	1117 -	1126	1121.29	5.00E+01	36.33	1.60E+02	2.00
	29	1145.03	1139 -	1151	1144.97	4.26E+01	33.20	1.07E+02	7.85
	30	1182.27	1179 -	1186	1182.19	2.17E+01	23.32	7.65E+01	3.29
	31	1212.17	1210 -	1214	1212.08	1.59E+01	17.77	5.42E+01	2.65
	32	1262.24	1255 -	1271	1262.14	3.94E+01	37.46	1.17E+02	6.85
	33	1377.67	1373 -	1380	1377.54	1.50E+01	15.10	2.80E+01	3.54
	34	1461.00	1456 -	1465	1460.83	6.36E+02	52.12	2.40E+01	2.28
	35	1511.18	1505 -	1516	1511.00	2.01E+01	14.97	1.79E+01	6.28
	36	1620.63	1616 -	1624	1620.41	1.70E+01	8.25	0.00E+00	3.45
	37	1632.37	1628 -	1635	1632.15	9.00E+00	9.17	8.00E+00	3.83
	38	1666.49	1664 -	1668	1666.25	8.00E+00	5.66	0.00E+00	1.96
	39	1730.26	1725 -	1736	1730.00	2.10E+01	9.17	0.00E+00	3.81
	40	1740.39	1737 -	1743	1740.13	8.00E+00	5.66	0.00E+00	4.49

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1750.56	1746 -	1754	1750.30	1.00E+01	6.32	0.00E+00	1.47
42	1764.36	1759 -	1769	1764.10	4.51E+01	14.91	5.81E+00	3.05
43	2149.74	2146 -	2151	2149.34	4.33E+00	5.74	3.33E+00	1.44
44	2202.18	2197 -	2205	2201.76	1.49E+01	9.39	4.18E+00	4.36
45	2614.17	2608 -	2618	2613.61	6.20E+01	15.75	0.00E+00	2.04

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 : 8/18/2017 5:40:34PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	76.78	73 -	81	9.70E+02	132.23	2.07E+03	9.59E+01
	2	88.64	86 -	91	1.04E+02	92.01	1.61E+03	7.38E+01
	3	93.57	91 -	97	2.56E+02	95.48	1.38E+03	7.39E+01
	4	129.39	127 -	132	5.73E+01	64.95	7.94E+02	5.19E+01
	5	155.13	152 -	158	6.44E+01	65.71	7.25E+02	5.24E+01
M	6	162.66	159 -	178	7.62E+01	66.45	6.72E+02	4.26E+01
m	7	168.75	159 -	178	5.19E+01	65.08	6.19E+02	4.09E+01
	8	186.32	182 -	190	1.69E+02	81.38	9.17E+02	6.34E+01
	9	209.86	205 -	216	1.55E+02	93.47	9.98E+02	7.41E+01
M	10	239.27	234 -	245	6.94E+02	69.27	4.01E+02	3.29E+01
m	11	242.42	234 -	245	1.62E+02	62.56	3.45E+02	3.05E+01
	12	270.15	265 -	274	1.15E+02	63.19	5.03E+02	4.89E+01
	13	295.92	291 -	300	1.61E+02	73.79	6.87E+02	5.70E+01
	14	339.39	336 -	345	1.86E+02	54.09	3.15E+02	3.84E+01
	15	352.50	348 -	356	3.63E+02	60.39	3.37E+02	3.85E+01
	16	418.88	417 -	421	2.93E+01	27.06	1.29E+02	2.04E+01
	17	425.29	422 -	429	3.84E+01	35.89	1.91E+02	2.77E+01
	18	511.11	506 -	519	1.04E+02	61.49	3.83E+02	4.77E+01
	19	519.97	519 -	522	2.03E+01	20.20	7.53E+01	1.49E+01
	20	542.76	539 -	546	2.97E+01	30.46	1.33E+02	2.34E+01
	21	583.44	579 -	588	2.24E+02	46.12	1.78E+02	2.88E+01
	22	609.65	604 -	615	2.69E+02	55.61	2.52E+02	3.69E+01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
23	735.83	732 -	739	2.47E+01	29.46	1.29E+02	2.28E+01
24	794.47	791 -	797	2.61E+01	25.03	9.58E+01	1.88E+01
25	911.59	907 -	917	1.01E+02	37.85	1.37E+02	2.64E+01
26	934.89	931 -	938	2.14E+01	22.09	6.52E+01	1.65E+01
27	968.39	962 -	971	6.34E+01	35.16	1.41E+02	2.58E+01
28	1121.34	1117 -	1126	5.00E+01	36.33	1.60E+02	2.75E+01
29	1145.03	1139 -	1151	4.26E+01	33.20	1.07E+02	2.51E+01
30	1182.27	1179 -	1186	2.17E+01	23.32	7.65E+01	1.76E+01
31	1212.17	1210 -	1214	1.59E+01	17.77	5.42E+01	1.31E+01
32	1262.24	1255 -	1271	3.94E+01	37.46	1.17E+02	2.90E+01
33	1377.67	1373 -	1380	1.50E+01	15.10	2.80E+01	1.07E+01
34	1461.00	1456 -	1465	6.36E+02	52.12	2.40E+01	1.08E+01
35	1511.18	1505 -	1516	2.01E+01	14.97	1.79E+01	9.86E+00
36	1620.63	1616 -	1624	1.70E+01	8.25	0.00E+00	0.00E+00
37	1632.37	1628 -	1635	9.00E+00	9.17	8.00E+00	5.70E+00
38	1666.49	1664 -	1668	8.00E+00	5.66	0.00E+00	0.00E+00
39	1730.26	1725 -	1736	2.10E+01	9.17	0.00E+00	0.00E+00
40	1740.39	1737 -	1743	8.00E+00	5.66	0.00E+00	0.00E+00
41	1750.56	1746 -	1754	1.00E+01	6.32	0.00E+00	0.00E+00
42	1764.36	1759 -	1769	4.51E+01	14.91	5.81E+00	5.32E+00
43	2149.74	2146 -	2151	4.33E+00	5.74	3.33E+00	3.25E+00
44	2202.18	2197 -	2205	1.49E+01	9.39	4.18E+00	4.40E+00
45	2614.17	2608 -	2618	6.20E+01	15.75	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 : 8/18/2017 5:40:34PM

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

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

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
1	76.78	73 -	81	77.08	9.70E+02	132.23	2.07E+03	.....
2	88.64	86 -	91	88.94	1.04E+02	92.01	1.61E+03	LU-176

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
									CD-109
	3	93.57	91 -	97	93.86	2.56E+02	95.48	1.38E+03	GA-67
	4	129.39	127 -	132	129.68	5.73E+01	64.95	7.94E+02	.....
	5	155.13	152 -	158	155.41	6.44E+01	65.71	7.25E+02	.....
M	6	162.66	159 -	178	162.93	7.62E+01	66.45	6.72E+02	BA-140
									U-235
m	7	168.75	159 -	178	169.03	5.19E+01	65.08	6.19E+02	.....
	8	186.32	182 -	190	186.58	1.69E+02	81.38	9.17E+02	RA-226
	9	209.86	205 -	216	210.12	1.55E+02	93.47	9.98E+02	CM-243
									GA-67
M	10	239.27	234 -	245	239.52	6.94E+02	69.27	4.01E+02	PB-212
m	11	242.42	234 -	245	242.67	1.62E+02	62.56	3.45E+02	.....
	12	270.15	265 -	274	270.38	1.15E+02	63.19	5.03E+02	.....
	13	295.92	291 -	300	296.15	1.61E+02	73.79	6.87E+02	PB-214
	14	339.39	336 -	345	339.60	1.86E+02	54.09	3.15E+02	.....
	15	352.50	348 -	356	352.70	3.63E+02	60.39	3.37E+02	PB-214
	16	418.88	417 -	421	419.07	2.93E+01	27.06	1.29E+02	.....
	17	425.29	422 -	429	425.47	3.84E+01	35.89	1.91E+02	.....
	18	511.11	506 -	519	511.27	1.04E+02	61.49	3.83E+02	.....
	19	519.97	519 -	522	520.12	2.03E+01	20.20	7.53E+01	RB-83
	20	542.76	539 -	546	542.91	2.97E+01	30.46	1.33E+02	.....
	21	583.44	579 -	588	583.57	2.24E+02	46.12	1.78E+02	TL-208
	22	609.65	604 -	615	609.77	2.69E+02	55.61	2.52E+02	BI-214
	23	735.83	732 -	739	735.90	2.47E+01	29.46	1.29E+02	PM-146
	24	794.47	791 -	797	794.53	2.61E+01	25.03	9.58E+01	.....
	25	911.59	907 -	917	911.61	1.01E+02	37.85	1.37E+02	TL-204
									AC-228
	26	934.89	931 -	938	934.91	2.14E+01	22.09	6.52E+01	.....
	27	968.39	962 -	971	968.40	6.34E+01	35.16	1.41E+02	AC-228
	28	1121.34	1117 -	1126	1121.29	5.00E+01	36.33	1.60E+02	TA-182
									SC-46
	29	1145.03	1139 -	1151	1144.97	4.26E+01	33.20	1.07E+02	.....
	30	1182.27	1179 -	1186	1182.19	2.17E+01	23.32	7.65E+01	.....
	31	1212.17	1210 -	1214	1212.08	1.59E+01	17.77	5.42E+01	.....
	32	1262.24	1255 -	1271	1262.14	3.94E+01	37.46	1.17E+02	.....
	33	1377.67	1373 -	1380	1377.54	1.50E+01	15.10	2.80E+01	.....
	34	1461.00	1456 -	1465	1460.83	6.36E+02	52.12	2.40E+01	K-40
	35	1511.18	1505 -	1516	1511.00	2.01E+01	14.97	1.79E+01	.....
	36	1620.63	1616 -	1624	1620.41	1.70E+01	8.25	0.00E+00	BI-212
	37	1632.37	1628 -	1635	1632.15	9.00E+00	9.17	8.00E+00	.....
	38	1666.49	1664 -	1668	1666.25	8.00E+00	5.66	0.00E+00	.....
	39	1730.26	1725 -	1736	1730.00	2.10E+01	9.17	0.00E+00	.....
	40	1740.39	1737 -	1743	1740.13	8.00E+00	5.66	0.00E+00	.....
	41	1750.56	1746 -	1754	1750.30	1.00E+01	6.32	0.00E+00	.....
	42	1764.36	1759 -	1769	1764.10	4.51E+01	14.91	5.81E+00	BI-214
	43	2149.74	2146 -	2151	2149.34	4.33E+00	5.74	3.33E+00	.....
	44	2202.18	2197 -	2205	2201.76	1.49E+01	9.39	4.18E+00	.....
	45	2614.17	2608 -	2618	2613.61	6.20E+01	15.75	0.00E+00	TL-208

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/18/2017 5:40:34PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.78	9.70E+02	132.23	2.67E-02	2.05E-03
	2	88.64	1.04E+02	92.01	2.72E-02	2.26E-03
	3	93.57	2.56E+02	95.48	2.71E-02	2.24E-03
	4	129.39	5.73E+01	64.95	2.45E-02	2.04E-03
	5	155.13	6.44E+01	65.71	2.22E-02	1.75E-03
M	6	162.66	7.62E+01	66.45	2.15E-02	1.66E-03
m	7	168.75	5.19E+01	65.08	2.10E-02	1.62E-03
	8	186.32	1.69E+02	81.38	1.96E-02	1.55E-03
	9	209.86	1.55E+02	93.47	1.79E-02	1.45E-03
M	10	239.27	6.94E+02	69.27	1.61E-02	1.34E-03
m	11	242.42	1.62E+02	62.56	1.59E-02	1.32E-03
	12	270.15	1.15E+02	63.19	1.45E-02	1.21E-03
	13	295.92	1.61E+02	73.79	1.34E-02	1.15E-03
	14	339.39	1.86E+02	54.09	1.19E-02	1.06E-03
	15	352.50	3.63E+02	60.39	1.15E-02	1.03E-03
	16	418.88	2.93E+01	27.06	9.87E-03	9.16E-04
	17	425.29	3.84E+01	35.89	9.74E-03	9.08E-04
	18	511.11	1.04E+02	61.49	8.25E-03	7.94E-04
	19	519.97	2.03E+01	20.20	8.12E-03	7.82E-04
	20	542.76	2.97E+01	30.46	7.82E-03	7.52E-04
	21	583.44	2.24E+02	46.12	7.32E-03	6.98E-04
	22	609.65	2.69E+02	55.61	7.04E-03	6.64E-04
	23	735.83	2.47E+01	29.46	5.95E-03	5.29E-04
	24	794.47	2.61E+01	25.03	5.55E-03	4.77E-04
	25	911.59	1.01E+02	37.85	4.92E-03	3.84E-04
	26	934.89	2.14E+01	22.09	4.81E-03	3.80E-04
	27	968.39	6.34E+01	35.16	4.67E-03	3.75E-04
	28	1121.34	5.00E+01	36.33	4.11E-03	3.49E-04
	29	1145.03	4.26E+01	33.20	4.04E-03	3.46E-04
	30	1182.27	2.17E+01	23.32	3.93E-03	3.38E-04
	31	1212.17	1.59E+01	17.77	3.85E-03	3.30E-04
	32	1262.24	3.94E+01	37.46	3.73E-03	3.16E-04
	33	1377.67	1.50E+01	15.10	3.47E-03	2.88E-04
	34	1461.00	6.36E+02	52.12	3.31E-03	2.75E-04

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
35	1511.18	2.01E+01	14.97	3.22E-03	2.67E-04
36	1620.63	1.70E+01	8.25	3.05E-03	2.49E-04
37	1632.37	9.00E+00	9.17	3.04E-03	2.48E-04
38	1666.49	8.00E+00	5.66	2.99E-03	2.42E-04
39	1730.26	2.10E+01	9.17	2.91E-03	2.32E-04
40	1740.39	8.00E+00	5.66	2.89E-03	2.30E-04
41	1750.56	1.00E+01	6.32	2.88E-03	2.29E-04
42	1764.36	4.51E+01	14.91	2.87E-03	2.26E-04
43	2149.74	4.33E+00	5.74	2.50E-03	2.15E-04
44	2202.18	1.49E+01	9.39	2.47E-03	2.15E-04
45	2614.17	6.20E+01	15.75	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 : 8/18/2017 5:40:34PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.78	9.70E+02	132.23			9.70E+02	1.32E+02
	2	88.64	1.04E+02	92.01			1.04E+02	9.20E+01
	3	93.57	2.56E+02	95.48	7.43E+01	4.99E+00	1.82E+02	9.56E+01
	4	129.39	5.73E+01	64.95			5.73E+01	6.50E+01
	5	155.13	6.44E+01	65.71			6.44E+01	6.57E+01
M	6	162.66	7.62E+01	66.45			7.62E+01	6.65E+01
m	7	168.75	5.19E+01	65.08			5.19E+01	6.51E+01
	8	186.32	1.69E+02	81.38	3.36E+01	5.83E+00	1.36E+02	8.16E+01
	9	209.86	1.55E+02	93.47			1.55E+02	9.35E+01
M	10	239.27	6.94E+02	69.27	1.14E+01	5.08E+00	6.83E+02	6.95E+01
m	11	242.42	1.62E+02	62.56			1.62E+02	6.26E+01
	12	270.15	1.15E+02	63.19			1.15E+02	6.32E+01
	13	295.92	1.61E+02	73.79			1.61E+02	7.38E+01
	14	339.39	1.86E+02	54.09	0.00E+00	0.00E+00	1.86E+02	5.41E+01
	15	352.50	3.63E+02	60.39			3.63E+02	6.04E+01
	16	418.88	2.93E+01	27.06			2.93E+01	2.71E+01
	17	425.29	3.84E+01	35.89			3.84E+01	3.59E+01
	18	511.11	1.04E+02	61.49	5.38E+01	4.80E+00	5.06E+01	6.17E+01
	19	519.97	2.03E+01	20.20			2.03E+01	2.02E+01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
20	542.76	2.97E+01	30.46			2.97E+01	3.05E+01
21	583.44	2.24E+02	46.12	1.58E+00	2.86E+00	2.23E+02	4.62E+01
22	609.65	2.69E+02	55.61	3.58E+00	2.96E+00	2.65E+02	5.57E+01
23	735.83	2.47E+01	29.46			2.47E+01	2.95E+01
24	794.47	2.61E+01	25.03			2.61E+01	2.50E+01
25	911.59	1.01E+02	37.85			1.01E+02	3.78E+01
26	934.89	2.14E+01	22.09			2.14E+01	2.21E+01
27	968.39	6.34E+01	35.16			6.34E+01	3.52E+01
28	1121.34	5.00E+01	36.33			5.00E+01	3.63E+01
29	1145.03	4.26E+01	33.20			4.26E+01	3.32E+01
30	1182.27	2.17E+01	23.32			2.17E+01	2.33E+01
31	1212.17	1.59E+01	17.77			1.59E+01	1.78E+01
32	1262.24	3.94E+01	37.46			3.94E+01	3.75E+01
33	1377.67	1.50E+01	15.10			1.50E+01	1.51E+01
34	1461.00	6.36E+02	52.12	3.11E+00	2.06E+00	6.33E+02	5.22E+01
35	1511.18	2.01E+01	14.97			2.01E+01	1.50E+01
36	1620.63	1.70E+01	8.25			1.70E+01	8.25E+00
37	1632.37	9.00E+00	9.17			9.00E+00	9.17E+00
38	1666.49	8.00E+00	5.66			8.00E+00	5.66E+00
39	1730.26	2.10E+01	9.17			2.10E+01	9.17E+00
40	1740.39	8.00E+00	5.66			8.00E+00	5.66E+00
41	1750.56	1.00E+01	6.32			1.00E+01	6.32E+00
42	1764.36	4.51E+01	14.91			4.51E+01	1.49E+01
43	2149.74	4.33E+00	5.74			4.33E+00	5.74E+00
44	2202.18	1.49E+01	9.39			1.49E+01	9.39E+00
45	2614.17	6.20E+01	15.75	1.69E+00	9.96E-01	6.03E+01	1.58E+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 : 8/18/2017 5:40:34PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055113.CNF

Corrected Area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	76.78	9.70E+02	132.23			9.70E+02	1.32E+02
2	88.64	1.04E+02	92.01			1.04E+02	9.20E+01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	3	93.57	2.56E+02	95.48	7.43E+01	4.99E+00	1.82E+02	9.56E+01
	4	129.39	5.73E+01	64.95			5.73E+01	6.50E+01
	5	155.13	6.44E+01	65.71			6.44E+01	6.57E+01
M	6	162.66	7.62E+01	66.45			7.62E+01	6.65E+01
m	7	168.75	5.19E+01	65.08			5.19E+01	6.51E+01
	8	186.32	1.69E+02	81.38	3.36E+01	5.83E+00	1.36E+02	8.16E+01
	9	209.86	1.55E+02	93.47			1.55E+02	9.35E+01
M	10	239.27	6.94E+02	69.27	1.14E+01	5.08E+00	6.83E+02	6.95E+01
m	11	242.42	1.62E+02	62.56			1.62E+02	6.26E+01
	12	270.15	1.15E+02	63.19			1.15E+02	6.32E+01
	13	295.92	1.61E+02	73.79			1.61E+02	7.38E+01
	14	339.39	1.86E+02	54.09	0.00E+00	0.00E+00	1.86E+02	5.41E+01
	15	352.50	3.63E+02	60.39			3.63E+02	6.04E+01
	16	418.88	2.93E+01	27.06			2.93E+01	2.71E+01
	17	425.29	3.84E+01	35.89			3.84E+01	3.59E+01
	18	511.11	1.04E+02	61.49	5.38E+01	4.80E+00	5.06E+01	6.17E+01
	19	519.97	2.03E+01	20.20			2.03E+01	2.02E+01
	20	542.76	2.97E+01	30.46			2.97E+01	3.05E+01
	21	583.44	2.24E+02	46.12	1.58E+00	2.86E+00	2.23E+02	4.62E+01
	22	609.65	2.69E+02	55.61	3.58E+00	2.96E+00	2.65E+02	5.57E+01
	23	735.83	2.47E+01	29.46			2.47E+01	2.95E+01
	24	794.47	2.61E+01	25.03			2.61E+01	2.50E+01
	25	911.59	1.01E+02	37.85			1.01E+02	3.78E+01
	26	934.89	2.14E+01	22.09			2.14E+01	2.21E+01
	27	968.39	6.34E+01	35.16			6.34E+01	3.52E+01
	28	1121.34	5.00E+01	36.33			5.00E+01	3.63E+01
	29	1145.03	4.26E+01	33.20			4.26E+01	3.32E+01
	30	1182.27	2.17E+01	23.32			2.17E+01	2.33E+01
	31	1212.17	1.59E+01	17.77			1.59E+01	1.78E+01
	32	1262.24	3.94E+01	37.46			3.94E+01	3.75E+01
	33	1377.67	1.50E+01	15.10			1.50E+01	1.51E+01
	34	1461.00	6.36E+02	52.12	3.11E+00	2.06E+00	6.33E+02	5.22E+01
	35	1511.18	2.01E+01	14.97			2.01E+01	1.50E+01
	36	1620.63	1.70E+01	8.25			1.70E+01	8.25E+00
	37	1632.37	9.00E+00	9.17			9.00E+00	9.17E+00
	38	1666.49	8.00E+00	5.66			8.00E+00	5.66E+00
	39	1730.26	2.10E+01	9.17			2.10E+01	9.17E+00
	40	1740.39	8.00E+00	5.66			8.00E+00	5.66E+00
	41	1750.56	1.00E+01	6.32			1.00E+01	6.32E+00
	42	1764.36	4.51E+01	14.91			4.51E+01	1.49E+01
	43	2149.74	4.33E+00	5.74			4.33E+00	5.74E+00
	44	2202.18	1.49E+01	9.39			1.49E+01	9.39E+00
	45	2614.17	6.20E+01	15.75	1.69E+00	9.96E-01	6.03E+01	1.58E+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 1707084-17

HTC-A02-S002-0006-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.994	1460.81	*	10.67	1.78E+01	2.12E+00
CD-109	0.942	88.03	*	3.72	1.18E+00	1.05E+00
TL-208	0.862	583.14	*	30.22	1.00E+00	2.28E-01
		860.37		4.48		
		2614.66	*	35.85	7.47E-01	2.08E-01
PB-212	0.836	238.63	*	44.60	9.46E-01	1.24E-01
		300.09		3.41		
BI-214	0.662	609.31	*	46.30	8.10E-01	1.86E-01
		1120.29		15.10		
		1764.49	*	15.80	9.90E-01	3.37E-01
		2204.22		4.98		
PB-214	0.940	295.21	*	19.19	6.22E-01	2.89E-01
		351.92	*	37.19	8.43E-01	1.59E-01
RA-226	0.998	186.21	*	3.28	2.10E+00	4.06E+00
AC-228	0.494	338.32		11.40		
		911.07	*	27.70	7.34E-01	2.82E-01
		969.11	*	16.60	8.13E-01	4.56E-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 : 8/18/2017 5:40:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.78	2.69431E-01	6.82		
	3	93.57	5.04879E-02	26.30	Tol.	GA-67
	4	129.39	1.59028E-02	56.73		
	5	155.13	1.78871E-02	51.02		
M	6	162.66	2.11727E-02	43.59	Tol.	BA-140 U-235
m	7	168.75	1.44305E-02	62.64		
	9	209.86	4.30866E-02	30.13	Tol.	GA-67 CM-243
m	11	242.42	4.51208E-02	19.26		
	12	270.15	3.20232E-02	27.41		
	14	339.39	5.17393E-02	14.52		
	16	418.88	8.14421E-03	46.15		
	17	425.29	1.06540E-02	46.79	Sum	
	18	511.11	1.40417E-02	61.01		
	19	519.97	5.65134E-03	49.64		
	20	542.76	8.23785E-03	51.36		
	23	735.83	6.85393E-03	59.70	Tol.	PM-146
	24	794.47	7.24662E-03	47.98		
	26	934.89	5.94136E-03	51.64		
	28	1121.34	1.38889E-02	36.33	Tol.	TA-182
	29	1145.03	1.18258E-02	38.99		
	30	1182.27	6.03704E-03	53.66		
	31	1212.17	4.41860E-03	55.85		
	32	1262.24	1.09439E-02	47.54		
	33	1377.67	4.16188E-03	50.39		
	35	1511.18	5.56992E-03	37.32		
	36	1620.63	4.72222E-03	24.25	Tol.	BI-212
	37	1632.37	2.50000E-03	50.92		
	38	1666.49	2.22222E-03	35.36		
	39	1730.26	5.83333E-03	21.82		
	40	1740.39	2.22222E-03	35.36		
	41	1750.56	2.77778E-03	31.62		
	43	2149.74	1.20370E-03	66.28		
	44	2202.18	4.14216E-03	31.50		

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

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	1.78E+01	2.12E+00
CD-109	0.94	88.03	*	3.72	1.18E+00	1.05E+00
TL-208	0.86	583.14	*	30.22	1.00E+00	2.28E-01
		860.37		4.48		
		2614.66	*	35.85	7.47E-01	2.08E-01
PB-212	0.83	238.63	*	44.60	9.46E-01	1.24E-01
		300.09		3.41		
BI-214	0.66	609.31	*	46.30	8.10E-01	1.86E-01
		1120.29		15.10		
		1764.49	*	15.80	9.90E-01	3.37E-01
		2204.22		4.98		
PB-214	0.94	295.21	*	19.19	6.22E-01	2.89E-01
		351.92	*	37.19	8.43E-01	1.59E-01
RA-226	0.99	186.21	*	3.28	2.10E+00	4.06E+00
AC-228	0.49	338.32		11.40		
		911.07	*	27.70	7.34E-01	2.82E-01
		969.11	*	16.60	8.13E-01	4.56E-01

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.994	1.78E+01	2.12E+00	
CD-109	0.942	1.18E+00	1.05E+00	
TL-208	0.862	8.62E-01	1.54E-01	
PB-212	0.836	9.46E-01	1.24E-01	
BI-214	0.662	8.52E-01	1.63E-01	
PB-214	0.940	7.92E-01	1.39E-01	
RA-226	0.998	2.10E+00	4.06E+00	
AC-228	0.494	7.56E-01	2.40E-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 1707084-17

HTC-A02-S002-0006-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 5:40:34PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.78	2.69431E-01	6.82		
	3	93.57	5.04879E-02	26.30	Tol.	GA-67
	4	129.39	1.59028E-02	56.73		
	5	155.13	1.78871E-02	51.02		
M	6	162.66	2.11727E-02	43.59	Tol.	BA-140 U-235
m	7	168.75	1.44305E-02	62.64		
	9	209.86	4.30866E-02	30.13	Tol.	GA-67 CM-243
m	11	242.42	4.51208E-02	19.26		
	12	270.15	3.20232E-02	27.41		
	14	339.39	5.17393E-02	14.52		
	16	418.88	8.14421E-03	46.15		
	17	425.29	1.06540E-02	46.79	Sum	
	18	511.11	1.40417E-02	61.01		
	19	519.97	5.65134E-03	49.64		
	20	542.76	8.23785E-03	51.36		
	23	735.83	6.85393E-03	59.70	Tol.	PM-146
	24	794.47	7.24662E-03	47.98		
	26	934.89	5.94136E-03	51.64		
	28	1121.34	1.38889E-02	36.33	Tol.	TA-182
	29	1145.03	1.18258E-02	38.99		
	30	1182.27	6.03704E-03	53.66		
	31	1212.17	4.41860E-03	55.85		
	32	1262.24	1.09439E-02	47.54		
	33	1377.67	4.16188E-03	50.39		
	35	1511.18	5.56992E-03	37.32		
	36	1620.63	4.72222E-03	24.25	Tol.	BI-212
	37	1632.37	2.50000E-03	50.92		
	38	1666.49	2.22222E-03	35.36		
	39	1730.26	5.83333E-03	21.82		
	40	1740.39	2.22222E-03	35.36		
	41	1750.56	2.77778E-03	31.62		
	43	2149.74	1.20370E-03	66.28		

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
44	2202.18	4.14216E-03	31.50		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-1.78E-01	1.80E+00	1.80E+00
+	NA-22	1274.54		99.94	6.47E-03	8.84E-02	8.84E-02
+	@ NA-24	1368.53		99.99	0.00E+00	1.00E+26	1.00E+26
	@	2754.09		99.86	1.00E+26		1.00E+26
+	AL-26	1808.65		99.76	2.08E-02	5.62E-02	5.62E-02
+	K-40	1460.81	*	10.67	1.78E+01	7.14E-01	7.14E-01
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-7.72E-02	4.84E-02	4.84E-02
		78.34		96.00	1.42E-01		6.28E-02
+	SC-46	889.25		99.98	3.96E-02	1.53E-01	1.53E-01
		1120.51		99.99	2.13E-01		2.62E-01
+	V-48	983.52		99.98	-4.06E-01	4.60E+00	4.64E+00
		1312.10		97.50	-2.20E-01		4.60E+00
+	CR-51	320.08		9.83	-1.91E+00	5.34E+00	5.34E+00
+	MN-54	834.83		99.97	-2.96E-02	8.31E-02	8.31E-02
+	CO-56	846.75		99.96	-4.17E-02	1.41E-01	1.41E-01
		1037.75		14.03	3.11E-01		1.28E+00
		1238.25		67.00	4.67E-01		4.16E-01
		1771.40		15.51	4.52E-01		9.77E-01
		2598.48		16.90	-1.52E-01		5.63E-01
+	CO-57	122.06		85.51	1.65E-03	5.13E-02	5.13E-02
		136.48		10.60	-5.01E-02		4.31E-01
+	CO-58	810.76		99.40	-1.21E-01	1.39E-01	1.39E-01
+	FE-59	1099.22		56.50	-1.72E-01	5.94E-01	5.94E-01
		1291.56		43.20	1.57E-01		8.69E-01
+	CO-60	1173.22		100.00	1.82E-02	7.08E-02	9.75E-02
		1332.49		100.00	-1.37E-02		7.08E-02
+	ZN-65	1115.52		50.75	-2.86E-03	2.27E-01	2.27E-01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	GA-67	93.31		35.70	1.54E+08	8.34E+07	8.34E+07
		208.95		2.24	1.43E+09		1.54E+09
		300.22		16.00	4.43E+07		2.45E+08
+	SE-75	121.11		16.70	-1.38E-01	1.06E-01	3.44E-01
		136.00		59.20	2.02E-02		1.06E-01
		264.65		59.80	-1.34E-02		1.34E-01
		279.53		25.20	8.33E-02		3.37E-01
		400.65		11.40	-9.11E-03		8.24E-01
+	RB-82	776.52		13.00	-4.01E+00	5.69E+00	5.69E+00
+	RB-83	520.41		46.00	1.96E-01	2.68E-01	2.68E-01
		529.64		30.30	2.39E-01		4.05E-01
		552.65		16.40	-6.71E-02		7.39E-01
+	KR-85	513.99		0.43	1.64E+01	1.86E+01	1.86E+01
+	SR-85	513.99		99.27	1.96E-01	2.21E-01	2.21E-01
+	Y-88	898.02		93.40	6.95E-02	1.26E-01	1.49E-01
		1836.01		99.38	2.00E-02		1.26E-01
+	MO-93	263.06		56.72	-1.08E-02	6.48E-02	8.15E-02
		684.67		99.68	9.60E-03		6.48E-02
		1477.11		99.08	4.20E-02		6.98E-02
+	NB-93M	16.57		9.43	-6.27E+00	5.53E+01	5.53E+01
+	NB-94	702.63		100.00	-1.87E-02	6.02E-02	6.59E-02
		871.10		100.00	-5.55E-02		6.02E-02
+	NB-95	765.79		99.81	-2.66E-02	4.73E-01	4.73E-01
+	NB-95M	235.69		25.00	-2.93E+07	2.57E+07	2.57E+07
+	ZR-95	724.18		43.70	-1.00E-01	3.45E-01	4.64E-01
		756.72		55.30	-5.62E-02		3.45E-01
+	MO-99	181.06		6.20	-3.27E+08	1.54E+10	1.65E+10
		739.58		12.80	7.01E+08		1.54E+10
		778.00		4.50	-3.39E+10		3.24E+10
+	RU-103	497.08		89.00	-1.68E-02	3.23E-01	3.23E-01
+	RU-106	621.84		9.80	8.26E-03	7.21E-01	7.21E-01
+	AG-108M	433.93		89.90	9.38E-03	5.75E-02	5.75E-02
		614.37		90.40	8.04E-03		8.82E-02
		722.95		90.50	-3.80E-02		7.68E-02
+	CD-109	88.03	*	3.72	1.18E+00	1.71E+00	1.71E+00
+	AG-110M	657.75		93.14	1.38E-02	9.38E-02	9.38E-02
		677.61		10.53	8.75E-02		8.42E-01
		706.67		16.46	-3.03E-01		4.98E-01
		763.93		21.98	-5.71E-02		4.15E-01
		884.67		71.63	5.11E-02		1.27E-01
		1384.27		23.94	-3.92E-02		3.34E-01
+	CD-113M	263.70		0.02	-4.72E+01	2.02E+02	2.02E+02
+	SN-113	255.12		1.93	4.99E-01	1.47E-01	4.47E+00
		391.69		64.90	-2.69E-02		1.47E-01
+	TE123M	159.00		84.10	-8.10E-02	7.34E-02	7.34E-02
+	SB-124	602.71		97.87	-3.11E-02	1.85E-01	1.85E-01
		645.85		7.26	-9.07E-01		2.45E+00
		722.78		11.10	-9.28E-01		1.87E+00

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-124	1691.02	49.00	1.32E-02	1.85E-01	3.09E-01
+	I-125	35.49	6.49	-8.75E-02	4.58E+00	4.58E+00
+	SB-125	176.33	6.89	-1.10E-01	2.02E-01	5.74E-01
		427.89	29.33	0.00E+00		2.02E-01
		463.38	10.35	3.18E-01		6.32E-01
		600.56	17.80	-2.66E-02		3.50E-01
		635.90	11.32	-7.10E-02		5.88E-01
+	SB-126	414.70	83.30	-4.59E+00	1.29E+01	1.41E+01
		666.33	99.60	-6.97E+00		1.29E+01
		695.00	99.60	1.68E+00		1.38E+01
		720.50	53.80	2.83E+00		2.57E+01
+	SN-126	87.57	37.00	8.69E-02	1.29E-01	1.29E-01
+	SB-127	473.00	25.00	-1.32E+06	5.07E+06	5.96E+06
		685.20	35.70	7.50E+05		5.07E+06
		783.80	14.70	7.19E+06		1.36E+07
+	I-129	29.78	57.00	1.52E-01	3.16E-01	3.16E-01
		33.60	13.20	5.51E-02		8.90E-01
		39.58	7.52	-1.96E-01		1.05E+00
+	I-131	284.30	6.05	-7.52E+02	2.30E+02	2.85E+03
		364.48	81.20	2.72E+01		2.30E+02
		636.97	7.26	1.27E+03		3.29E+03
		722.89	1.80	-7.08E+03		1.43E+04
+	TE-132	49.72	13.10	-3.17E+07	3.57E+07	2.73E+08
		228.16	88.00	-2.58E+06		3.57E+07
+	BA-133	81.00	33.00	-3.47E-02	1.32E-01	1.41E-01
		302.84	17.80	1.23E-01		3.13E-01
		356.01	60.00	-3.77E-03		1.32E-01
+	@ I-133	529.87	86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00	38.00	-8.82E+03	3.59E+04	3.59E+04
+	CS-134	563.23	8.38	-9.96E-02	7.69E-02	7.90E-01
		569.32	15.43	3.07E-01		4.40E-01
		604.70	97.60	3.24E-03		7.69E-02
		795.84	85.40	1.31E-03		1.01E-01
		801.93	8.73	-4.15E-02		8.88E-01
+	CS-135	268.24	16.00	1.47E-01	3.33E-01	3.33E-01
+	@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26
	@	1260.41	28.60	1.00E+26		1.00E+26
	@	1678.03	9.54	1.00E+26		1.00E+26
+	CS-136	153.22	7.46	2.51E+01	9.67E+00	7.86E+01
		163.89	4.61	6.19E+01		1.31E+02
		176.55	13.56	-7.96E+00		4.14E+01
		273.65	12.66	1.39E+00		6.38E+01
		340.57	48.50	4.55E+01		2.16E+01
		818.50	99.70	1.79E+00		9.67E+00
		1048.07	79.60	-4.51E+00		1.41E+01
		1235.34	19.70	-2.52E+01		8.29E+01
+	CS-137	661.65	85.12	8.90E-03	7.97E-02	7.97E-02
+	LA-138	788.74	34.00	-7.04E-02	9.57E-02	1.81E-01
		1435.80	66.00	5.61E-02		9.57E-02

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	CE-139	165.85	80.35	-1.50E-02	7.70E-02	7.70E-02
+	BA-140	162.64	6.70	7.05E+01	3.85E+01	1.04E+02
		304.84	4.50	-3.99E+00		2.03E+02
		423.70	3.20	-8.29E+01		2.88E+02
		437.55	2.00	-1.38E+02		4.41E+02
		537.32	25.00	3.00E-01		3.85E+01
+	LA-140	328.77	20.50	1.80E+01	1.39E+01	4.82E+01
		487.03	45.50	-6.68E+00		2.04E+01
		815.85	23.50	5.23E+00		4.54E+01
		1596.49	95.49	6.98E+00		1.39E+01
+	CE-141	145.44	48.40	8.49E-02	5.93E-01	5.93E-01
+	@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26
	@	293.26	42.00	1.00E+26		1.00E+26
	@	664.55	5.20	1.00E+26		1.00E+26
+	CE-144	133.54	10.80	-1.67E-02	4.16E-01	4.16E-01
+	PM-144	476.78	42.00	-2.28E-02	6.85E-02	1.55E-01
		618.01	98.60	2.61E-03		6.85E-02
		696.49	99.49	9.44E-03		8.20E-02
+	PM-145	36.85	21.70	-3.83E-01	2.23E-01	4.13E-01
		37.36	39.70	-8.88E-02		2.23E-01
		42.30	15.10	-9.99E-02		4.67E-01
		72.40	2.31	3.24E-01		2.22E+00
+	PM-146	453.90	39.94	-7.83E-03	1.37E-01	1.37E-01
		735.90	14.01	2.91E-01		5.40E-01
		747.13	13.10	-3.04E-01		4.44E-01
+	ND-147	91.11	28.90	-2.62E+01	6.86E+01	6.86E+01
		531.02	13.10	-8.48E+00		1.74E+02
+	PM-149	285.90	3.10	-6.80E+12	1.41E+13	1.41E+13
+	EU-152	121.78	20.50	5.45E-03	1.70E-01	1.70E-01
		244.69	5.40	7.66E-02		1.09E+00
		344.27	19.13	2.33E-02		2.74E-01
		778.89	9.20	-2.01E-01		6.44E-01
		964.01	10.40	-9.35E-01		8.32E-01
		1085.78	7.22	-4.29E-01		1.02E+00
		1112.02	9.60	9.73E-02		9.02E-01
		1407.95	14.94	-3.96E-02		4.55E-01
+	GD-153	97.43	31.30	-3.60E-03	1.48E-01	1.48E-01
		103.18	22.20	0.00E+00		2.12E-01
+	EU-154	123.07	40.50	1.60E-02	8.81E-02	8.81E-02
		723.30	19.70	-1.78E-01		3.60E-01
		873.19	11.50	2.31E-01		5.98E-01
		996.32	10.30	2.92E-01		7.71E-01
		1004.76	17.90	1.55E-01		4.94E-01
		1274.45	35.50	1.73E-02		2.37E-01
+	EU-155	86.50	30.90	8.16E-02	1.61E-01	1.61E-01
		105.30	20.70	1.84E-02		1.76E-01
+	EU-156	811.77	10.40	-3.71E+01	3.95E+01	3.95E+01
		1153.47	7.20	6.63E+00		9.40E+01
		1230.71	8.90	-3.02E+01		9.28E+01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	HO-166M	184.41		72.60	8.38E-02	6.72E-02	6.72E-02
		280.45		29.60	4.53E-02		1.64E-01
		410.94		11.10	1.62E-01		5.36E-01
		711.69		54.10	6.28E-03		1.26E-01
+	TM-171	66.72		0.14	5.71E+00	3.84E+01	3.84E+01
+	HF-172	67.35		5.31	-1.51E+00	3.55E-01	9.50E-01
		125.81		11.30	6.84E-02		3.55E-01
+	LU-172	181.53		20.60	5.66E+02	2.36E+03	3.61E+03
		900.72		29.81	-8.59E+02		4.75E+03
		1093.66		62.50	4.91E+02		2.36E+03
+	LU-173	100.72		5.24	2.14E-01	2.95E-01	7.81E-01
		272.11		21.20	1.73E-01		2.95E-01
+	HF-175	343.40		84.00	1.34E-02	1.58E-01	1.58E-01
+	LU-176	88.34		13.30	2.68E-01	4.79E-02	3.66E-01
		201.83		86.00	-1.06E-02		4.79E-02
		306.78		94.00	-2.24E-05		5.30E-02
+	HF-181	133.02		41.70	7.89E-02	3.04E-01	4.22E-01
		345.85		17.20	1.22E-01		1.36E+00
		482.03		82.80	-7.99E-02		3.04E-01
+	TA-182	67.75		41.20	-3.14E-01	1.97E-01	1.97E-01
		1121.30		34.90	4.21E-01		6.07E-01
		1189.05		16.23	-3.27E-02		1.03E+00
		1221.41		26.98	5.08E-02		7.00E-01
		1231.02		11.44	-5.41E-01		1.66E+00
+	IR-192	308.46		29.68	-2.64E-01	2.73E-01	3.91E-01
		468.07		48.10	-2.07E-01		2.73E-01
+	HG-203	279.19		77.30	1.54E-01	2.67E-01	2.67E-01
+	TL-204	374.74		94.11	6.07E-03	5.54E-02	5.54E-02
		899.15		99.16	-3.53E-03		7.66E-02
		911.74		91.10	2.10E-01		1.35E-01
+	BI-207	569.67		97.72	2.94E-02	6.34E-02	6.34E-02
		1063.62		74.90	1.98E-02		1.14E-01
+	TL-208	583.14	*	30.22	1.00E+00	9.03E-02	2.73E-01
		860.37		4.48	1.32E+00		1.82E+00
		2614.66	*	35.85	7.47E-01		9.03E-02
+	BI-210M	262.00		45.00	8.52E-03	1.03E-01	1.03E-01
		300.00		23.00	4.88E-02		2.70E-01
+	PB-210	46.50		4.25	1.32E+00	1.52E+00	1.52E+00
+	PB-211	404.84		2.90	-3.45E-01	1.96E+00	1.96E+00
		831.96		2.90	-2.82E-03		2.43E+00
+	BI-212	727.17		11.80	2.16E-01	6.18E-01	6.18E-01
		1620.62		2.75	2.01E+00		2.59E+00
+	PB-212	238.63	*	44.60	9.46E-01	1.74E-01	1.74E-01
		300.09		3.41	3.29E-01		1.82E+00
+	BI-214	609.31	*	46.30	8.10E-01	2.35E-01	2.35E-01
		1120.29		15.10	6.42E-01		7.87E-01
		1764.49	*	15.80	9.90E-01		2.93E-01
		2204.22		4.98	-1.49E-01		1.77E+00

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	PB-214	295.21	*	19.19	6.22E-01	1.85E-01	4.50E-01
		351.92	*	37.19	8.43E-01		1.85E-01
+	RN-219	401.80		6.50	1.51E-01	8.53E-01	8.53E-01
+	RA-223	323.87		3.88	-1.32E+00	1.29E+00	1.29E+00
+	RA-224	240.98		3.95	1.31E+01	2.43E+00	2.43E+00
+	RA-225	40.00		31.00	-4.04E+00	2.15E+01	2.15E+01
+	RA-226	186.21	*	3.28	2.10E+00	2.03E+00	2.03E+00
+	TH-227	50.10		8.40	-7.62E-02	6.27E-01	6.55E-01
		236.00		11.50	-7.17E-01		6.27E-01
		256.20		6.30	1.93E-01		7.79E-01
+	AC-228	338.32		11.40	8.88E-01	4.05E-01	5.87E-01
		911.07	*	27.70	7.34E-01		4.05E-01
		969.11	*	16.60	8.13E-01		6.97E-01
+	TH-230	48.44		16.90	2.92E-01	3.52E-01	3.52E-01
		62.85		4.60	1.12E+00		1.13E+00
		67.67		0.37	-1.97E+01		1.23E+01
+	PA-231	283.67		1.60	-5.26E-01	2.38E+00	2.93E+00
		302.67		2.30	9.35E-01		2.38E+00
+	TH-231	25.64		14.70	-2.12E+00	6.95E-01	2.21E+00
		84.21		6.40	2.03E-01		6.95E-01
+	PA-233	311.98		38.60	-5.11E-02	1.45E+00	1.45E+00
+	PA-234	131.20		20.40	5.74E-02	1.87E-01	1.87E-01
		733.99		8.80	5.69E-02		8.05E-01
		946.00		12.00	-1.82E-01		6.08E-01
+	PA-234M	1001.03		0.92	2.70E+00	8.49E+00	8.49E+00
+	TH-234	63.29		3.80	1.16E+00	1.37E+00	1.37E+00
+	U-235	143.76		10.50	2.04E-01	3.66E-01	3.66E-01
		163.35		4.70	4.00E-01		8.46E-01
		205.31		4.70	-2.55E-01		1.07E+00
+	NP-237	86.50		12.60	1.93E-01	3.80E-01	3.80E-01
+	NP-239	106.10		22.70	2.49E+10	2.38E+11	2.38E+11
		228.18		10.70	-5.08E+10		7.02E+11
		277.60		14.10	2.17E+11		5.41E+11
+	AM-241	59.54		35.90	4.10E-02	1.36E-01	1.36E-01
+	AM-243	74.67		66.00	-1.13E-03	9.09E-02	9.09E-02
+	CM-243	209.75		3.29	1.15E+00	3.57E-01	1.66E+00
		228.14		10.60	-3.36E-02		4.65E-01
		277.60		14.00	1.43E-01		3.57E-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 1707084-17

HTC-A02-S002-0006-01

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	1.80E+00	1.80E+00	-1.78E-01	8.49E-01
	NA-22	1274.54		99.94	8.84E-02	8.84E-02	6.47E-03	4.03E-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		1.00E+26	1.00E+20
	AL-26	1808.65		99.76	5.62E-02	5.62E-02	2.08E-02	2.33E-02
+	K-40	1460.81	*	10.67	7.14E-01	7.14E-01	1.78E+01	3.19E-01
@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26	1.00E+20
	TI-44	67.88		94.40	4.84E-02	4.84E-02	-7.72E-02	2.37E-02
		78.34		96.00	6.28E-02		1.42E-01	3.09E-02
	SC-46	889.25		99.98	1.53E-01	1.53E-01	3.96E-02	7.09E-02
		1120.51		99.99	2.62E-01		2.13E-01	1.24E-01
	V-48	983.52		99.98	4.64E+00	4.60E+00	-4.06E-01	2.14E+00
		1312.10		97.50	4.60E+00		-2.20E-01	2.06E+00
	CR-51	320.08		9.83	5.34E+00	5.34E+00	-1.91E+00	2.55E+00
	MN-54	834.83		99.97	8.31E-02	8.31E-02	-2.96E-02	3.84E-02
	CO-56	846.75		99.96	1.41E-01	1.41E-01	-4.17E-02	6.45E-02
		1037.75		14.03	1.28E+00		3.11E-01	5.89E-01
		1238.25		67.00	4.16E-01		4.67E-01	1.96E-01
		1771.40		15.51	9.77E-01		4.52E-01	4.18E-01
		2598.48		16.90	5.63E-01		-1.52E-01	1.99E-01
	CO-57	122.06		85.51	5.13E-02	5.13E-02	1.65E-03	2.48E-02
		136.48		10.60	4.31E-01		-5.01E-02	2.09E-01
	CO-58	810.76		99.40	1.39E-01	1.39E-01	-1.21E-01	6.33E-02
	FE-59	1099.22		56.50	5.94E-01	5.94E-01	-1.72E-01	2.72E-01
		1291.56		43.20	8.69E-01		1.57E-01	3.97E-01
	CO-60	1173.22		100.00	9.75E-02	7.08E-02	1.82E-02	4.52E-02
		1332.49		100.00	7.08E-02		-1.37E-02	3.15E-02
	ZN-65	1115.52		50.75	2.27E-01	2.27E-01	-2.86E-03	1.05E-01
	GA-67	93.31		35.70	8.34E+07	8.34E+07	1.54E+08	4.08E+07
		208.95		2.24	1.54E+09		1.43E+09	7.49E+08
		300.22		16.00	2.45E+08		4.43E+07	1.19E+08
	SE-75	121.11		16.70	3.44E-01	1.06E-01	-1.38E-01	1.66E-01
		136.00		59.20	1.06E-01		2.02E-02	5.13E-02
		264.65		59.80	1.34E-01		-1.34E-02	6.44E-02
		279.53		25.20	3.37E-01		8.33E-02	1.62E-01
		400.65		11.40	8.24E-01		-9.11E-03	3.92E-01
	RB-82	776.52		13.00	5.69E+00	5.69E+00	-4.01E+00	2.60E+00

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	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	2.68E-01	2.68E-01	1.96E-01	1.26E-01
		529.64		30.30	4.05E-01		2.39E-01	1.91E-01
		552.65		16.40	7.39E-01		-6.71E-02	3.46E-01
	KR-85	513.99		0.43	1.86E+01	1.86E+01	1.64E+01	8.91E+00
	SR-85	513.99		99.27	2.21E-01	2.21E-01	1.96E-01	1.06E-01
	Y-88	898.02		93.40	1.49E-01	1.26E-01	6.95E-02	6.91E-02
		1836.01		99.38	1.26E-01		2.00E-02	5.38E-02
	MO-93	263.06		56.72	8.15E-02	6.48E-02	-1.08E-02	3.91E-02
		684.67		99.68	6.48E-02		9.60E-03	3.02E-02
		1477.11		99.08	6.98E-02		4.20E-02	3.07E-02
	NB-93M	16.57		9.43	5.53E+01	5.53E+01	-6.27E+00	2.69E+01
	NB-94	702.63		100.00	6.59E-02	6.02E-02	-1.87E-02	3.08E-02
		871.10		100.00	6.02E-02		-5.55E-02	2.75E-02
	NB-95	765.79		99.81	4.73E-01	4.73E-01	-2.66E-02	2.21E-01
	NB-95M	235.69		25.00	2.57E+07	2.57E+07	-2.93E+07	1.25E+07
	ZR-95	724.18		43.70	4.64E-01	3.45E-01	-1.00E-01	2.18E-01
		756.72		55.30	3.45E-01		-5.62E-02	1.61E-01
	MO-99	181.06		6.20	1.65E+10	1.54E+10	-3.27E+08	7.95E+09
		739.58		12.80	1.54E+10		7.01E+08	7.21E+09
		778.00		4.50	3.24E+10		-3.39E+10	1.48E+10
	RU-103	497.08		89.00	3.23E-01	3.23E-01	-1.68E-02	1.52E-01
	RU-106	621.84		9.80	7.21E-01	7.21E-01	8.26E-03	3.37E-01
	AG-108M	433.93		89.90	5.75E-02	5.75E-02	9.38E-03	2.72E-02
		614.37		90.40	8.82E-02		8.04E-03	4.20E-02
		722.95		90.50	7.68E-02		-3.80E-02	3.60E-02
+	CD-109	88.03	*	3.72	1.71E+00	1.71E+00	1.18E+00	8.38E-01
	AG-110M	657.75		93.14	9.38E-02	9.38E-02	1.38E-02	4.40E-02
		677.61		10.53	8.42E-01		8.75E-02	3.95E-01
		706.67		16.46	4.98E-01		-3.03E-01	2.32E-01
		763.93		21.98	4.15E-01		-5.71E-02	1.94E-01
		884.67		71.63	1.27E-01		5.11E-02	5.89E-02
		1384.27		23.94	3.34E-01		-3.92E-02	1.46E-01
	CD-113M	263.70		0.02	2.02E+02	2.02E+02	-4.72E+01	9.68E+01
	SN-113	255.12		1.93	4.47E+00	1.47E-01	4.99E-01	2.15E+00
		391.69		64.90	1.47E-01		-2.69E-02	6.98E-02
	TE123M	159.00		84.10	7.34E-02	7.34E-02	-8.10E-02	3.54E-02
	SB-124	602.71		97.87	1.85E-01	1.85E-01	-3.11E-02	8.68E-02
		645.85		7.26	2.45E+00		-9.07E-01	1.14E+00
		722.78		11.10	1.87E+00		-9.28E-01	8.77E-01
		1691.02		49.00	3.09E-01		1.32E-02	1.27E-01
	I-125	35.49		6.49	4.58E+00	4.58E+00	-8.75E-02	2.23E+00
	SB-125	176.33		6.89	5.74E-01	2.02E-01	-1.10E-01	2.77E-01
		427.89		29.33	2.02E-01		0.00E+00	9.60E-02
		463.38		10.35	6.32E-01		3.18E-01	3.01E-01
		600.56		17.80	3.50E-01		-2.66E-02	1.64E-01
		635.90		11.32	5.88E-01		-7.10E-02	2.75E-01
	SB-126	414.70		83.30	1.41E+01	1.29E+01	-4.59E+00	6.73E+00
		666.33		99.60	1.29E+01		-6.97E+00	6.03E+00
		695.00		99.60	1.38E+01		1.68E+00	6.45E+00
		720.50		53.80	2.57E+01		2.83E+00	1.20E+01
	SN-126	87.57		37.00	1.29E-01	1.29E-01	8.69E-02	6.34E-02
	SB-127	473.00		25.00	5.96E+06	5.07E+06	-1.32E+06	2.81E+06
		685.20		35.70	5.07E+06		7.50E+05	2.36E+06

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

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	1.36E+07	5.07E+06	7.19E+06	6.32E+06
I-129	29.78	57.00	3.16E-01	3.16E-01	1.52E-01	1.53E-01
	33.60	13.20	8.90E-01		5.51E-02	4.33E-01
	39.58	7.52	1.05E+00		-1.96E-01	5.09E-01
I-131	284.30	6.05	2.85E+03	2.30E+02	-7.52E+02	1.36E+03
	364.48	81.20	2.30E+02		2.72E+01	1.09E+02
	636.97	7.26	3.29E+03		1.27E+03	1.54E+03
	722.89	1.80	1.43E+04		-7.08E+03	6.70E+03
TE-132	49.72	13.10	2.73E+08	3.57E+07	-3.17E+07	1.33E+08
	228.16	88.00	3.57E+07		-2.58E+06	1.73E+07
BA-133	81.00	33.00	1.41E-01	1.32E-01	-3.47E-02	6.91E-02
	302.84	17.80	3.13E-01		1.23E-01	1.51E-01
	356.01	60.00	1.32E-01		-3.77E-03	6.42E-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	3.59E+04	3.59E+04	-8.82E+03	1.75E+04
CS-134	563.23	8.38	7.90E-01	7.69E-02	-9.96E-02	3.72E-01
	569.32	15.43	4.40E-01		3.07E-01	2.07E-01
	604.70	97.60	7.69E-02		3.24E-03	3.63E-02
	795.84	85.40	1.01E-01		1.31E-03	4.74E-02
	801.93	8.73	8.88E-01		-4.15E-02	4.14E-01
CS-135	268.24	16.00	3.33E-01	3.33E-01	1.47E-01	1.61E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	7.86E+01	9.67E+00	2.51E+01	3.81E+01
	163.89	4.61	1.31E+02		6.19E+01	6.35E+01
	176.55	13.56	4.14E+01		-7.96E+00	2.00E+01
	273.65	12.66	6.38E+01		1.39E+00	3.08E+01
	340.57	48.50	2.16E+01		4.55E+01	1.04E+01
	818.50	99.70	9.67E+00		1.79E+00	4.46E+00
	1048.07	79.60	1.41E+01		-4.51E+00	6.47E+00
	1235.34	19.70	8.29E+01		-2.52E+01	3.87E+01
CS-137	661.65	85.12	7.97E-02	7.97E-02	8.90E-03	3.74E-02
LA-138	788.74	34.00	1.81E-01	9.57E-02	-7.04E-02	8.34E-02
	1435.80	66.00	9.57E-02		5.61E-02	4.18E-02
CE-139	165.85	80.35	7.70E-02	7.70E-02	-1.50E-02	3.72E-02
BA-140	162.64	6.70	1.04E+02	3.85E+01	7.05E+01	5.05E+01
	304.84	4.50	2.03E+02		-3.99E+00	9.73E+01
	423.70	3.20	2.88E+02		-8.29E+01	1.37E+02
	437.55	2.00	4.41E+02		-1.38E+02	2.08E+02
	537.32	25.00	3.85E+01		3.00E-01	1.81E+01
LA-140	328.77	20.50	4.82E+01	1.39E+01	1.80E+01	2.32E+01
	487.03	45.50	2.04E+01		-6.68E+00	9.59E+00
	815.85	23.50	4.54E+01		5.23E+00	2.09E+01
	1596.49	95.49	1.39E+01		6.98E+00	6.15E+00
CE-141	145.44	48.40	5.93E-01	5.93E-01	8.49E-02	2.87E-01
@ CE-143	57.36	11.80	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	293.26	42.00	1.00E+26		1.00E+26	1.00E+20
@	664.55	5.20	1.00E+26		1.00E+26	1.00E+20
CE-144	133.54	10.80	4.16E-01	4.16E-01	-1.67E-02	2.02E-01
PM-144	476.78	42.00	1.55E-01	6.85E-02	-2.28E-02	7.33E-02
	618.01	98.60	6.85E-02		2.61E-03	3.19E-02
	696.49	99.49	8.20E-02		9.44E-03	3.84E-02

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

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	4.13E-01	2.23E-01	-3.83E-01	2.01E-01
	37.36	39.70	2.23E-01		-8.88E-02	1.09E-01
	42.30	15.10	4.67E-01		-9.99E-02	2.27E-01
	72.40	2.31	2.22E+00		3.24E-01	1.09E+00
PM-146	453.90	39.94	1.37E-01	1.37E-01	-7.83E-03	6.45E-02
	735.90	14.01	5.40E-01		2.91E-01	2.53E-01
	747.13	13.10	4.44E-01		-3.04E-01	2.04E-01
ND-147	91.11	28.90	6.86E+01	6.86E+01	-2.62E+01	3.36E+01
	531.02	13.10	1.74E+02		-8.48E+00	8.19E+01
PM-149	285.90	3.10	1.41E+13	1.41E+13	-6.80E+12	6.74E+12
EU-152	121.78	20.50	1.70E-01	1.70E-01	5.45E-03	8.22E-02
	244.69	5.40	1.09E+00		7.66E-02	5.27E-01
	344.27	19.13	2.74E-01		2.33E-02	1.31E-01
	778.89	9.20	6.44E-01		-2.01E-01	2.96E-01
	964.01	10.40	8.32E-01		-9.35E-01	3.88E-01
	1085.78	7.22	1.02E+00		-4.29E-01	4.67E-01
	1112.02	9.60	9.02E-01		9.73E-02	4.17E-01
	1407.95	14.94	4.55E-01		-3.96E-02	2.01E-01
GD-153	97.43	31.30	1.48E-01	1.48E-01	-3.60E-03	7.18E-02
	103.18	22.20	2.12E-01		0.00E+00	1.03E-01
EU-154	123.07	40.50	8.81E-02	8.81E-02	1.60E-02	4.27E-02
	723.30	19.70	3.60E-01		-1.78E-01	1.68E-01
	873.19	11.50	5.98E-01		2.31E-01	2.76E-01
	996.32	10.30	7.71E-01		2.92E-01	3.56E-01
	1004.76	17.90	4.94E-01		1.55E-01	2.30E-01
	1274.45	35.50	2.37E-01		1.73E-02	1.08E-01
EU-155	86.50	30.90	1.61E-01	1.61E-01	8.16E-02	7.87E-02
	105.30	20.70	1.76E-01		1.84E-02	8.55E-02
EU-156	811.77	10.40	3.95E+01	3.95E+01	-3.71E+01	1.79E+01
	1153.47	7.20	9.40E+01		6.63E+00	4.34E+01
	1230.71	8.90	9.28E+01		-3.02E+01	4.33E+01
HO-166M	184.41	72.60	6.72E-02	6.72E-02	8.38E-02	3.27E-02
	280.45	29.60	1.64E-01		4.53E-02	7.87E-02
	410.94	11.10	5.36E-01		1.62E-01	2.56E-01
	711.69	54.10	1.26E-01		6.28E-03	5.88E-02
TM-171	66.72	0.14	3.84E+01	3.84E+01	5.71E+00	1.88E+01
HF-172	67.35	5.31	9.50E-01	3.55E-01	-1.51E+00	4.64E-01
	125.81	11.30	3.55E-01		6.84E-02	1.72E-01
LU-172	181.53	20.60	3.61E+03	2.36E+03	5.66E+02	1.74E+03
	900.72	29.81	4.75E+03		-8.59E+02	2.20E+03
	1093.66	62.50	2.36E+03		4.91E+02	1.08E+03
LU-173	100.72	5.24	7.81E-01	2.95E-01	2.14E-01	3.79E-01
	272.11	21.20	2.95E-01		1.73E-01	1.42E-01
HF-175	343.40	84.00	1.58E-01	1.58E-01	1.34E-02	7.54E-02
LU-176	88.34	13.30	3.66E-01	4.79E-02	2.68E-01	1.79E-01
	201.83	86.00	4.79E-02		-1.06E-02	2.31E-02
	306.78	94.00	5.30E-02		-2.24E-05	2.54E-02
HF-181	133.02	41.70	4.22E-01	3.04E-01	7.89E-02	2.05E-01
	345.85	17.20	1.36E+00		1.22E-01	6.48E-01
	482.03	82.80	3.04E-01		-7.99E-02	1.43E-01
TA-182	67.75	41.20	1.97E-01	1.97E-01	-3.14E-01	9.64E-02
	1121.30	34.90	6.07E-01		4.21E-01	2.87E-01
	1189.05	16.23	1.03E+00		-3.27E-02	4.77E-01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

	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	7.00E-01	1.97E-01	5.08E-02	3.27E-01
		1231.02		11.44	1.66E+00		-5.41E-01	7.75E-01
	IR-192	308.46		29.68	3.91E-01	2.73E-01	-2.64E-01	1.87E-01
		468.07		48.10	2.73E-01		-2.07E-01	1.29E-01
	HG-203	279.19		77.30	2.67E-01	2.67E-01	1.54E-01	1.28E-01
	TL-204	374.74		94.11	5.54E-02	5.54E-02	6.07E-03	2.63E-02
		899.15		99.16	7.66E-02		-3.53E-03	3.54E-02
		911.74		91.10	1.35E-01		2.10E-01	6.43E-02
	BI-207	569.67		97.72	6.34E-02	6.34E-02	2.94E-02	2.98E-02
		1063.62		74.90	1.14E-01		1.98E-02	5.30E-02
+	TL-208	583.14	*	30.22	2.73E-01	9.03E-02	1.00E+00	1.30E-01
		860.37		4.48	1.82E+00		1.32E+00	8.52E-01
		2614.66	*	35.85	9.03E-02		7.47E-01	2.84E-02
	BI-210M	262.00		45.00	1.03E-01	1.03E-01	8.52E-03	4.96E-02
		300.00		23.00	2.70E-01		4.88E-02	1.30E-01
	PB-210	46.50		4.25	1.52E+00	1.52E+00	1.32E+00	7.42E-01
	PB-211	404.84		2.90	1.96E+00	1.96E+00	-3.45E-01	9.34E-01
		831.96		2.90	2.43E+00		-2.82E-03	1.13E+00
	BI-212	727.17		11.80	6.18E-01	6.18E-01	2.16E-01	2.90E-01
		1620.62		2.75	2.59E+00		2.01E+00	1.14E+00
+	PB-212	238.63	*	44.60	1.74E-01	1.74E-01	9.46E-01	8.49E-02
		300.09		3.41	1.82E+00		3.29E-01	8.80E-01
+	BI-214	609.31	*	46.30	2.35E-01	2.35E-01	8.10E-01	1.13E-01
		1120.29		15.10	7.87E-01		6.42E-01	3.72E-01
		1764.49	*	15.80	2.93E-01		9.90E-01	1.17E-01
		2204.22		4.98	1.77E+00		-1.49E-01	7.77E-01
+	PB-214	295.21	*	19.19	4.50E-01	1.85E-01	6.22E-01	2.20E-01
		351.92	*	37.19	1.85E-01		8.43E-01	8.94E-02
	RN-219	401.80		6.50	8.53E-01	8.53E-01	1.51E-01	4.06E-01
	RA-223	323.87		3.88	1.29E+00	1.29E+00	-1.32E+00	6.18E-01
	RA-224	240.98		3.95	2.43E+00	2.43E+00	1.31E+01	1.19E+00
	RA-225	40.00		31.00	2.15E+01	2.15E+01	-4.04E+00	1.05E+01
+	RA-226	186.21	*	3.28	2.03E+00	2.03E+00	2.10E+00	9.96E-01
	TH-227	50.10		8.40	6.55E-01	6.27E-01	-7.62E-02	3.19E-01
		236.00		11.50	6.27E-01		-7.17E-01	3.06E-01
		256.20		6.30	7.79E-01		1.93E-01	3.76E-01
+	AC-228	338.32		11.40	5.87E-01	4.05E-01	8.88E-01	2.84E-01
		911.07	*	27.70	4.05E-01		7.34E-01	1.93E-01
		969.11	*	16.60	6.97E-01		8.13E-01	3.31E-01
	TH-230	48.44		16.90	3.52E-01	3.52E-01	2.92E-01	1.72E-01
		62.85		4.60	1.13E+00		1.12E+00	5.55E-01
		67.67		0.37	1.23E+01		-1.97E+01	6.03E+00
	PA-231	283.67		1.60	2.93E+00	2.38E+00	-5.26E-01	1.40E+00
		302.67		2.30	2.38E+00		9.35E-01	1.15E+00
	TH-231	25.64		14.70	2.21E+00	6.95E-01	-2.12E+00	1.07E+00
		84.21		6.40	6.95E-01		2.03E-01	3.40E-01
	PA-233	311.98		38.60	1.45E+00	1.45E+00	-5.11E-02	6.95E-01
	PA-234	131.20		20.40	1.87E-01	1.87E-01	5.74E-02	9.08E-02
		733.99		8.80	8.05E-01		5.69E-02	3.77E-01
		946.00		12.00	6.08E-01		-1.82E-01	2.80E-01
	PA-234M	1001.03		0.92	8.49E+00	8.49E+00	2.70E+00	3.92E+00
	TH-234	63.29		3.80	1.37E+00	1.37E+00	1.16E+00	6.69E-01
	U-235	143.76		10.50	3.66E-01	3.66E-01	2.04E-01	1.78E-01

Analysis Report for 1707084-17

HTC-A02-S002-0006-01

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	8.46E-01	3.66E-01	4.00E-01	4.10E-01
	205.31	4.70	1.07E+00		-2.55E-01	5.21E-01
NP-237	86.50	12.60	3.80E-01	3.80E-01	1.93E-01	1.86E-01
NP-239	106.10	22.70	2.38E+11	2.38E+11	2.49E+10	1.16E+11
	228.18	10.70	7.02E+11		-5.08E+10	3.40E+11
	277.60	14.10	5.41E+11		2.17E+11	2.60E+11
AM-241	59.54	35.90	1.36E-01	1.36E-01	4.10E-02	6.62E-02
AM-243	74.67	66.00	9.09E-02	9.09E-02	-1.13E-03	4.47E-02
CM-243	209.75	3.29	1.66E+00	3.57E-01	1.15E+00	8.09E-01
	228.14	10.60	4.65E-01		-3.36E-02	2.25E-01
	277.60	14.00	3.57E-01		1.43E-01	1.72E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-0006-01

Elapsed Live time: 3600
Elapsed Real Time: 3609

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	148	191	170	140	132	109	98
17:	96	84	82	75	74	83	91	96
25:	83	78	79	73	106	82	81	89
33:	75	93	78	76	81	73	84	98
41:	99	82	98	94	83	94	118	137
49:	112	86	79	85	94	96	100	94
57:	96	102	112	122	115	122	116	178
65:	189	116	128	126	124	107	137	144
73:	115	157	240	320	309	413	218	133
81:	102	106	124	123	147	124	132	191
89:	163	147	151	115	193	190	141	90
97:	67	70	85	84	75	88	75	86
105:	76	85	69	67	65	76	88	64
113:	64	61	70	73	70	56	53	58
121:	64	71	60	76	67	79	62	77
129:	92	78	85	60	66	66	76	57
137:	61	67	59	64	68	70	63	77
145:	77	63	57	55	63	60	68	56
153:	62	63	79	62	56	49	40	57
161:	60	76	62	63	61	57	54	54
169:	50	62	45	48	51	51	58	60
177:	61	29	39	55	51	45	57	51
185:	62	102	137	76	59	39	68	49
193:	53	44	48	47	43	51	58	46
201:	55	63	45	42	56	50	61	57
209:	60	78	69	50	43	50	46	34
217:	38	54	41	46	55	49	47	44
225:	37	47	41	40	35	41	52	48
233:	33	42	50	47	41	106	296	311
241:	106	94	91	62	22	33	30	36
249:	26	24	34	35	36	29	41	38
257:	34	25	39	32	28	31	24	25
265:	28	29	34	30	39	44	60	48
273:	34	21	27	34	31	29	34	27
281:	33	27	25	26	23	20	29	29
289:	23	30	28	31	22	26	62	148
297:	83	46	27	32	47	37	25	29
305:	35	21	25	28	21	22	21	24
313:	26	28	24	26	18	21	20	28
321:	19	25	26	25	27	26	18	35
329:	44	35	22	26	28	23	16	12
337:	23	49	80	63	27	25	27	23
345:	15	19	22	18	17	24	36	143
353:	188	69	22	15	20	18	18	21
361:	19	20	19	24	24	14	22	11

369:	18	16	16	16	22	17	18	16

Sample Title: HTC-A02-S002-0006-01

Channel								
377:	14	21	20	15	15	21	28	21
385:	17	15	23	24	15	21	23	24
393:	14	18	19	18	19	19	21	24
401:	20	18	13	16	25	13	22	35
409:	22	21	22	27	13	12	19	21
417:	17	28	14	26	9	10	14	20
425:	20	21	17	20	12	16	16	18
433:	14	13	11	13	17	10	16	14
441:	14	19	16	13	12	10	14	15
449:	16	10	12	13	13	16	15	19
457:	10	18	13	21	11	14	22	33
465:	27	10	12	10	15	10	12	16
473:	12	13	15	11	17	14	13	12
481:	13	17	14	9	10	7	20	13
489:	17	10	11	16	14	13	7	18
497:	12	7	13	15	15	6	11	11
505:	12	7	14	11	17	35	56	45
513:	36	12	14	8	11	11	19	15
521:	17	7	7	14	5	9	13	14
529:	8	10	17	13	11	8	11	14
537:	13	10	10	11	9	20	14	13
545:	12	7	7	13	6	8	16	11
553:	12	11	11	8	10	16	15	17
561:	14	19	9	9	10	9	11	13
569:	11	15	16	15	7	7	12	14
577:	14	7	6	15	16	22	77	84
585:	51	18	13	11	11	14	15	7
593:	11	13	10	10	8	9	13	6
601:	9	13	11	10	14	13	10	28
609:	83	126	64	20	9	8	10	11
617:	9	5	9	6	12	8	8	12
625:	13	12	12	8	7	10	10	9
633:	9	8	14	11	9	9	13	14
641:	11	6	12	9	12	7	8	8
649:	8	14	12	7	14	7	7	15
657:	6	13	11	19	9	11	10	12
665:	8	13	10	5	9	19	10	6
673:	7	11	19	9	7	12	7	11
681:	13	10	13	8	11	13	6	5
689:	4	9	7	7	11	14	11	8
697:	8	12	7	14	10	11	11	4
705:	11	7	14	11	5	9	10	16
713:	8	14	9	7	8	10	5	11
721:	14	8	14	5	14	6	17	17
729:	15	5	4	11	8	10	10	10
737:	20	11	9	8	8	10	10	6
745:	9	7	4	6	6	5	7	11
753:	12	6	8	11	6	11	9	12
761:	9	8	10	12	5	9	13	10
769:	10	15	8	9	12	9	2	5
777:	6	5	7	5	6	9	9	10
785:	12	7	10	8	4	2	8	8
793:	8	10	15	19	6	11	10	11

801:	8	12	7	10	4	10	9	9

Sample Title: HTC-A02-S002-0006-01

Channel								
809:	3	5	4	5	4	4	7	9
817:	7	9	3	3	10	6	6	6
825:	10	4	8	7	10	13	10	7
833:	5	6	6	12	5	10	7	7
841:	5	8	5	7	5	4	9	3
849:	4	8	7	8	6	14	6	4
857:	6	10	11	8	13	13	12	10
865:	4	10	6	7	4	5	2	6
873:	5	8	10	11	6	2	10	2
881:	4	7	7	6	6	5	5	14
889:	11	3	7	4	4	7	10	5
897:	7	10	5	11	8	6	5	9
905:	12	9	4	8	8	17	48	37
913:	15	9	7	10	6	6	6	6
921:	7	5	11	1	4	5	6	9
929:	5	5	6	4	6	11	11	7
937:	5	4	2	2	10	4	10	5
945:	3	7	4	8	11	8	11	7
953:	9	5	9	10	9	7	9	6
961:	8	9	7	10	12	10	9	25
969:	20	28	4	7	8	10	11	8
977:	7	7	7	7	9	6	4	8
985:	9	7	3	8	6	6	8	3
993:	7	8	10	2	4	12	7	5
1001:	5	12	5	4	9	5	15	12
1009:	10	8	3	13	6	7	8	5
1017:	5	9	9	4	6	1	6	8
1025:	5	3	5	6	7	9	9	11
1033:	9	5	8	3	3	13	4	6
1041:	9	2	6	5	4	5	5	8
1049:	5	7	7	13	5	10	9	6
1057:	6	7	8	9	3	13	8	8
1065:	8	5	9	6	5	7	9	7
1073:	7	3	8	7	8	11	14	11
1081:	10	10	7	6	4	4	4	3
1089:	9	3	7	3	5	9	2	10
1097:	5	5	3	6	7	4	4	12
1105:	6	9	3	7	3	6	10	7
1113:	9	9	6	7	9	6	9	22
1121:	29	15	10	9	12	9	7	4
1129:	13	7	11	11	10	9	13	8
1137:	6	8	3	10	11	11	4	9
1145:	7	4	6	15	5	7	4	2
1153:	5	8	10	13	8	10	9	8
1161:	6	9	4	6	5	8	5	7
1169:	7	8	4	9	11	10	8	6
1177:	9	5	4	7	10	9	12	7
1185:	6	5	5	5	9	11	10	9
1193:	8	14	6	9	6	8	11	5
1201:	9	7	6	7	13	7	15	8
1209:	7	7	11	10	12	3	6	6
1217:	7	11	12	8	8	8	11	9
1225:	10	12	9	13	11	10	13	9

1233:	6	5	12	12	10	14	16	7

Sample Title: HTC-A02-S002-0006-01

Channel								
1241:	15	5	4	9	7	6	6	9
1249:	8	9	6	4	2	7	1	7
1257:	5	4	12	9	8	6	5	5
1265:	9	5	4	7	4	4	3	3
1273:	4	4	6	4	12	3	11	9
1281:	13	4	2	5	7	4	4	5
1289:	7	8	4	6	5	3	4	6
1297:	7	4	7	6	3	4	4	2
1305:	4	5	3	1	1	4	7	4
1313:	5	1	3	6	4	4	4	2
1321:	4	1	8	5	5	3	4	6
1329:	5	2	2	2	5	5	1	2
1337:	4	3	2	2	5	4	9	2
1345:	3	3	5	1	6	3	6	3
1353:	3	0	2	1	2	4	4	3
1361:	5	4	3	3	1	4	1	5
1369:	2	2	2	3	1	2	2	5
1377:	7	5	6	1	2	2	2	4
1385:	2	2	2	1	3	2	2	5
1393:	5	3	1	2	1	2	1	2
1401:	1	5	3	3	2	3	1	6
1409:	3	4	0	5	1	3	0	3
1417:	3	2	1	1	5	2	2	6
1425:	2	0	4	3	0	3	1	0
1433:	1	5	1	1	2	5	1	1
1441:	0	2	1	2	1	0	0	2
1449:	1	3	2	3	4	4	4	1
1457:	5	9	69	150	251	125	33	5
1465:	0	0	1	2	2	1	1	0
1473:	0	4	1	2	2	1	1	2
1481:	5	0	1	3	1	1	2	1
1489:	4	1	1	4	2	2	3	4
1497:	3	3	1	3	3	3	1	1
1505:	0	1	0	3	6	4	1	5
1513:	2	4	3	0	2	0	1	0
1521:	1	6	1	3	1	2	3	0
1529:	4	0	1	0	2	2	1	2
1537:	0	1	1	1	2	2	2	4
1545:	0	1	3	1	4	4	0	1
1553:	2	1	3	1	2	1	2	2
1561:	1	0	1	1	1	1	2	1
1569:	0	1	0	1	1	0	1	3
1577:	0	2	1	2	0	2	2	2
1585:	1	1	2	5	1	1	2	2
1593:	3	3	2	3	1	2	2	2
1601:	0	1	0	0	3	1	1	3
1609:	1	1	1	4	2	0	0	0
1617:	2	0	2	5	2	5	1	0
1625:	0	0	1	0	1	1	4	1
1633:	3	3	0	1	0	1	1	1
1641:	3	2	1	2	2	1	2	0
1649:	0	2	1	2	0	0	3	0
1657:	0	0	0	2	3	0	0	0

1665:	1	4	3	0	0	0	0	3

Sample Title: HTC-A02-S002-0006-01

Channel								
1673:	1	0	0	1	0	0	1	2
1681:	0	1	1	0	0	2	1	1
1689:	1	0	1	1	1	0	1	0
1697:	1	1	1	0	1	0	1	3
1705:	1	0	1	1	4	1	1	2
1713:	1	1	0	1	2	0	0	1
1721:	1	0	2	0	0	1	2	3
1729:	4	4	2	1	1	2	1	0
1737:	0	2	0	3	1	2	0	0
1745:	0	0	2	1	0	0	4	2
1753:	1	0	0	1	0	0	0	1
1761:	0	1	15	12	11	6	1	1
1769:	0	1	2	2	2	1	2	0
1777:	0	1	1	0	0	0	0	2
1785:	0	0	2	0	2	1	1	2
1793:	0	1	0	1	2	2	0	0
1801:	2	0	0	1	1	0	0	1
1809:	1	1	2	1	1	0	0	0
1817:	0	1	0	0	0	2	2	2
1825:	1	0	2	0	1	0	2	1
1833:	0	3	4	0	3	1	0	0
1841:	2	0	1	1	0	0	0	1
1849:	1	0	2	0	2	2	1	0
1857:	0	0	2	0	1	1	0	1
1865:	1	4	0	0	0	1	2	0
1873:	0	0	1	0	2	1	0	1
1881:	1	0	1	1	0	0	0	1
1889:	3	1	1	2	1	0	3	0
1897:	0	0	1	1	1	1	0	0
1905:	2	0	2	1	1	0	1	0
1913:	2	0	2	0	2	0	1	0
1921:	1	0	2	1	3	0	1	1
1929:	2	0	2	3	0	1	0	0
1937:	3	1	2	0	1	1	1	0
1945:	0	1	1	1	1	1	0	0
1953:	0	0	1	1	0	1	1	1
1961:	2	0	1	1	2	0	1	2
1969:	1	1	1	1	0	1	0	3
1977:	1	2	2	0	0	0	0	0
1985:	0	0	1	1	0	0	2	0
1993:	0	0	0	0	0	0	1	0
2001:	1	1	0	0	1	1	1	0
2009:	0	0	0	1	0	1	2	1
2017:	0	1	2	1	0	0	2	1
2025:	2	1	0	0	0	1	1	2
2033:	0	0	1	0	0	0	0	0
2041:	2	1	0	0	2	0	2	0
2049:	0	0	1	0	2	0	0	0
2057:	0	1	0	1	0	0	1	0
2065:	0	0	0	0	1	0	2	1
2073:	0	0	1	0	2	0	1	0
2081:	3	0	1	1	0	0	0	0
2089:	0	1	0	1	2	0	1	0

2097:	1	1	1	1	1	3	1	0

Sample Title: HTC-A02-S002-0006-01

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

2529:	0	0	0	0	1	2	0	1

Sample Title: HTC-A02-S002-0006-01

Channel								
2537:	0	1	1	0	0	0	1	0
2545:	1	0	0	0	2	0	0	0
2553:	0	0	0	0	0	0	1	0
2561:	0	0	1	1	0	1	0	0
2569:	0	0	0	0	0	0	1	0
2577:	1	0	0	1	1	0	0	0
2585:	0	0	0	0	1	0	1	1
2593:	1	0	0	1	0	0	0	0
2601:	1	0	0	0	0	0	0	0
2609:	1	0	3	7	22	12	9	7
2617:	1	0	0	0	0	0	0	1
2625:	2	1	0	0	0	0	0	0
2633:	0	0	0	0	0	0	0	0
2641:	0	0	1	0	1	0	0	1
2649:	0	1	2	0	0	0	0	1
2657:	0	1	0	0	1	1	0	0
2665:	0	0	1	0	0	1	0	1
2673:	0	0	0	1	0	0	1	0
2681:	0	1	0	0	0	0	0	0
2689:	0	0	1	0	0	0	0	0
2697:	0	0	0	0	0	0	0	0
2705:	0	0	0	0	1	1	0	0
2713:	1	0	0	0	0	0	2	0
2721:	0	0	0	0	0	0	0	0
2729:	1	1	0	0	0	0	1	0
2737:	0	2	1	1	0	1	0	0
2745:	2	0	1	0	0	0	0	0
2753:	1	1	0	0	0	2	0	0
2761:	0	0	0	1	0	1	1	0
2769:	1	0	0	0	0	0	0	0
2777:	0	0	0	0	0	0	0	1
2785:	0	0	0	1	0	1	0	0
2793:	0	0	1	2	1	0	0	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	0	0	0	0	0
2817:	0	0	1	0	0	0	1	1
2825:	0	0	1	0	0	0	0	0
2833:	0	1	0	0	0	0	1	0
2841:	0	0	0	0	0	0	0	0
2849:	0	0	1	0	0	0	1	0
2857:	0	0	0	0	0	0	0	0
2865:	0	1	0	0	0	0	0	1
2873:	0	0	0	0	0	1	0	0
2881:	0	0	1	0	0	0	0	0
2889:	0	0	0	0	0	0	0	0
2897:	0	1	0	0	0	0	0	0
2905:	0	0	0	0	1	0	0	0
2913:	0	0	0	0	0	1	0	0
2921:	1	0	0	1	0	0	0	1
2929:	0	1	0	0	0	0	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	1	0	0	1	1	0	0
2953:	0	0	0	1	0	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-0006-01

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

Sample Title: HTC-A02-S002-0006-01

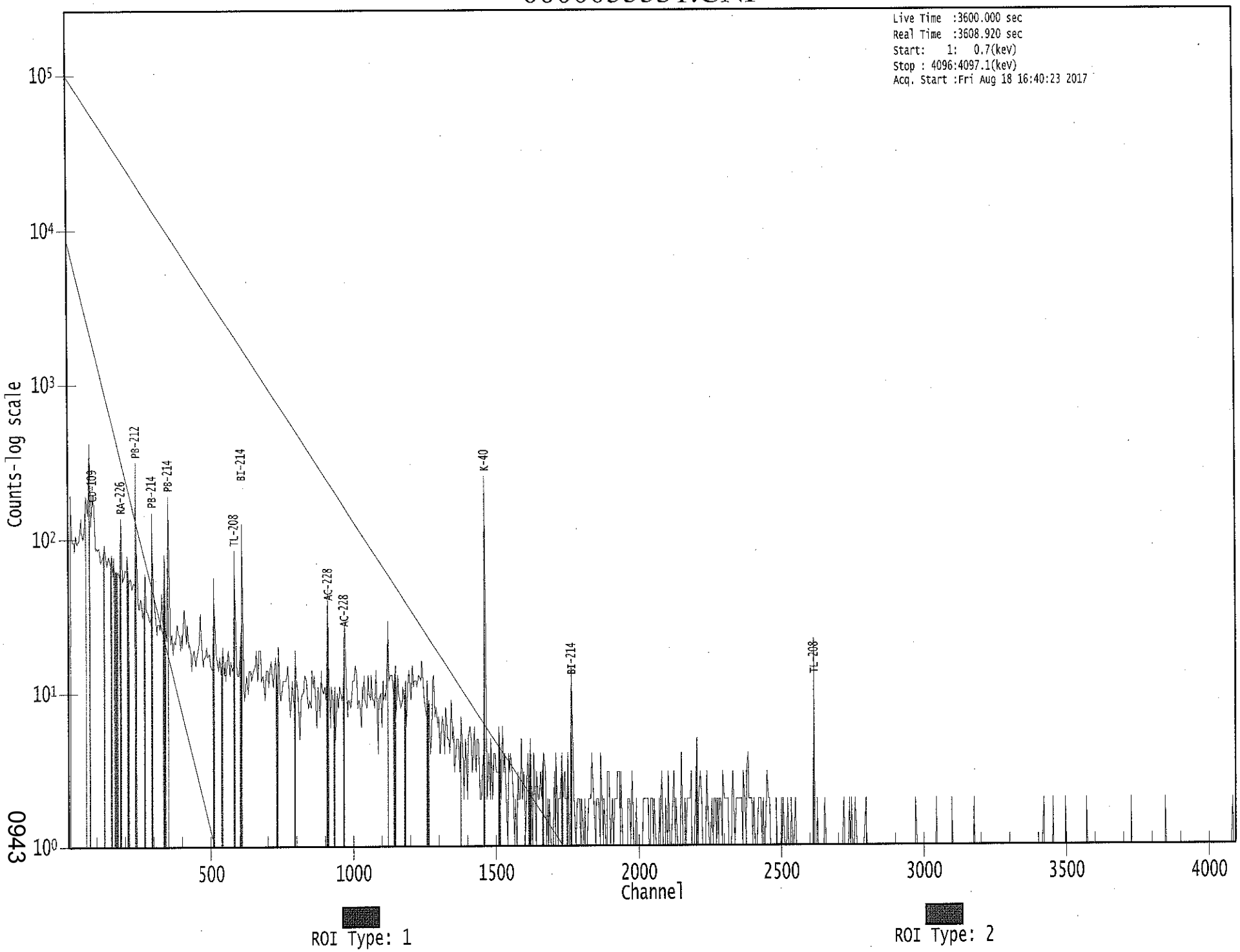
Channel								
3401:	0	0	0	0	1	1	0	1
3409:	0	0	0	0	0	0	1	0
3417:	0	1	0	2	0	0	0	0
3425:	0	0	0	0	0	0	0	1
3433:	0	0	0	1	0	0	0	0
3441:	0	0	0	0	0	0	0	0
3449:	0	1	0	2	0	0	0	0
3457:	0	0	0	0	0	0	0	0
3465:	0	0	0	1	1	0	0	0
3473:	0	0	0	0	0	0	0	1
3481:	0	0	0	0	0	0	1	0
3489:	0	0	0	0	0	0	0	2
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	1	0	0	0

Sample Title: HTC-A02-S002-0006-01

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

0000055531.CNF



0943

KB 8/21/17

Apex-Gamma

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-18
Sample Description	: HTC-A02-S002-0612-01
Sample Type	: SOIL
Sample Size	: 5.841E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:10:23AM
Acquisition Started	: 8/18/2017 5:15:12PM
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	: 55533

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 6:15:15PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	76.51	75.56	0.0000	0.00
2	85.15	84.21	0.0000	0.00
3	88.22	87.28	0.0000	0.00
4	93.12	92.18	0.0000	0.00
5	129.03	128.11	0.0000	0.00
6	139.45	138.53	0.0000	0.00
7	144.81	143.89	0.0000	0.00
8	186.17	185.27	0.0000	0.00
9	209.65	208.75	0.0000	0.00
10	238.79	237.90	0.0000	0.00
11	242.16	241.27	0.0000	0.00
12	271.17	270.29	0.0000	0.00
13	278.54	277.66	0.0000	0.00
14	295.38	294.51	0.0000	0.00
15	338.45	337.59	0.0000	0.00
16	352.14	351.29	0.0000	0.00
17	510.48	509.68	0.0000	0.00
18	526.44	525.65	0.0000	0.00
19	582.97	582.20	0.0000	0.00
20	589.94	589.17	0.0000	0.00
21	609.35	608.59	0.0000	0.00
22	664.97	664.23	0.0000	0.00
23	727.74	727.03	0.0000	0.00
24	741.11	740.40	0.0000	0.00
25	769.09	768.39	0.0000	0.00
26	785.93	785.24	0.0000	0.00
27	794.69	794.00	0.0000	0.00
28	798.68	798.00	0.0000	0.00
29	824.32	823.64	0.0000	0.00
30	878.45	877.80	0.0000	0.00
31	904.44	903.80	0.0000	0.00
32	911.29	910.65	0.0000	0.00
33	969.64	969.03	0.0000	0.00
34	976.03	975.42	0.0000	0.00
35	1081.26	1080.70	0.0000	0.00
36	1119.88	1119.34	0.0000	0.00
37	1156.13	1155.61	0.0000	0.00
38	1237.81	1237.32	0.0000	0.00
39	1317.88	1317.43	0.0000	0.00
40	1346.10	1345.67	0.0000	0.00
41	1409.49	1409.09	0.0000	0.00
42	1460.67	1460.29	0.0000	0.00

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1509.00	1508.65	0.0000	0.00
44	1555.65	1555.32	0.0000	0.00
45	1592.46	1592.15	0.0000	0.00
46	1729.63	1729.39	0.0000	0.00
47	1764.49	1764.28	0.0000	0.00
48	1827.13	1826.95	0.0000	0.00
49	1838.53	1838.36	0.0000	0.00
50	1847.05	1846.88	0.0000	0.00
51	2203.54	2203.59	0.0000	0.00
52	2374.76	2374.92	0.0000	0.00
53	2613.75	2614.07	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 6:15:15PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	76.51	71 -	81	75.56	1.29E+03	173.87	3.30E+03	4.00
M	2	85.15	81 -	96	84.21	1.65E+02	101.45	1.73E+03	3.06
m	3	88.22	81 -	96	87.28	3.81E+02	136.89	2.25E+03	3.17
m	4	93.12	81 -	96	92.18	4.40E+02	134.20	2.00E+03	3.21
	5	129.03	125 -	131	128.11	7.20E+01	83.27	1.21E+03	1.65
	6	139.45	136 -	141	138.53	7.86E+01	70.50	9.33E+02	3.78
	7	144.81	142 -	147	143.89	6.68E+01	70.65	9.44E+02	1.67
	8	186.17	180 -	189	185.27	1.84E+02	104.77	1.46E+03	2.51
	9	209.65	204 -	212	208.75	1.11E+02	83.33	9.92E+02	2.03
M	10	238.79	231 -	247	237.90	6.50E+02	77.59	5.87E+02	2.40
m	11	242.16	231 -	247	241.27	3.00E+02	95.82	7.47E+02	3.41
	12	271.17	266 -	274	270.29	1.07E+02	67.16	6.23E+02	3.38
	13	278.54	275 -	282	277.66	5.19E+01	55.71	4.80E+02	1.99
	14	295.38	289 -	297	294.51	3.91E+02	71.80	5.50E+02	2.35
	15	338.45	333 -	341	337.59	1.53E+02	60.42	4.66E+02	1.54
	16	352.14	347 -	356	351.29	5.38E+02	76.22	5.16E+02	2.47
	17	510.48	504 -	515	509.68	1.59E+02	53.37	2.77E+02	3.06
	18	526.44	523 -	528	525.65	2.70E+01	26.61	1.20E+02	3.32
M	19	582.97	578 -	592	582.20	8.49E+01	43.55	1.60E+02	3.66
m	20	589.94	578 -	592	589.17	2.18E+01	35.96	1.69E+02	4.50
	21	609.35	602 -	615	608.59	3.82E+02	67.47	3.36E+02	2.39
	22	664.97	660 -	669	664.23	4.86E+01	35.71	1.53E+02	2.74
	23	727.74	722 -	733	727.03	4.68E+01	41.76	1.84E+02	2.57
	24	741.11	738 -	743	740.40	1.77E+01	21.10	7.45E+01	1.77
	25	769.09	762 -	774	768.39	4.45E+01	42.84	1.95E+02	2.56
M	26	785.93	782 -	804	785.24	3.05E+01	18.17	3.30E+01	2.63
m	27	794.69	782 -	804	794.00	3.40E+01	21.99	4.90E+01	2.39
m	28	798.68	782 -	804	798.00	2.77E+01	22.70	5.52E+01	2.39
	29	824.32	821 -	827	823.64	2.34E+01	22.21	7.12E+01	3.58
	30	878.45	875 -	881	877.80	1.93E+01	20.01	5.75E+01	3.09
M	31	904.44	901 -	917	903.80	2.13E+01	22.76	9.00E+01	3.23
m	32	911.29	901 -	917	910.65	1.26E+02	36.87	1.35E+02	2.86
M	33	969.64	962 -	978	969.03	6.51E+01	35.01	1.15E+02	3.65
m	34	976.03	962 -	978	975.42	1.29E+01	20.72	4.76E+01	3.09
	35	1081.26	1074 -	1086	1080.70	3.59E+01	34.45	1.20E+02	2.01
	36	1119.88	1113 -	1122	1119.34	6.40E+01	34.68	1.36E+02	2.78
	37	1156.13	1153 -	1159	1155.61	2.37E+01	23.28	8.27E+01	2.31
	38	1237.81	1233 -	1241	1237.32	3.35E+01	31.68	1.31E+02	2.79
	39	1317.88	1314 -	1320	1317.43	1.55E+01	15.95	3.49E+01	3.28
	40	1346.10	1342 -	1349	1345.67	1.50E+01	17.32	4.00E+01	1.57

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1409.49	1405 -	1414	1409.09	2.02E+01	16.91	2.76E+01	3.49
42	1460.67	1454 -	1465	1460.29	5.00E+02	47.37	3.11E+01	2.34
43	1509.00	1505 -	1513	1508.65	2.54E+01	15.79	2.32E+01	2.92
44	1555.65	1550 -	1559	1555.32	1.32E+01	11.05	9.67E+00	6.15
45	1592.46	1586 -	1597	1592.15	1.91E+01	22.27	4.78E+01	3.31
46	1729.63	1724 -	1733	1729.39	2.80E+01	10.58	0.00E+00	3.16
47	1764.49	1759 -	1769	1764.28	4.55E+01	20.63	3.09E+01	1.95
48	1827.13	1822 -	1832	1826.95	7.50E+00	10.61	1.10E+01	7.58
49	1838.53	1834 -	1841	1838.36	9.88E+00	8.00	4.25E+00	4.68
50	1847.05	1843 -	1850	1846.88	1.11E+01	9.59	7.87E+00	1.79
51	2203.54	2198 -	2207	2203.59	1.94E+01	13.53	1.52E+01	1.65
52	2374.76	2372 -	2377	2374.92	6.56E+00	6.40	2.88E+00	1.37
53	2613.75	2608 -	2618	2614.07	4.30E+01	13.11	0.00E+00	3.30

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 6:15:15PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	76.51	71 -	81	1.29E+03	173.87	3.30E+03	1.30E+02
M	2	85.15	81 -	96	1.65E+02	101.45	1.73E+03	6.84E+01
m	3	88.22	81 -	96	3.81E+02	136.89	2.25E+03	7.80E+01
m	4	93.12	81 -	96	4.40E+02	134.20	2.00E+03	7.35E+01
	5	129.03	125 -	131	7.20E+01	83.27	1.21E+03	6.70E+01
	6	139.45	136 -	141	7.86E+01	70.50	9.33E+02	5.61E+01
	7	144.81	142 -	147	6.68E+01	70.65	9.44E+02	5.65E+01
	8	186.17	180 -	189	1.84E+02	104.77	1.46E+03	8.32E+01
	9	209.65	204 -	212	1.11E+02	83.33	9.92E+02	6.63E+01
M	10	238.79	231 -	247	6.50E+02	77.59	5.87E+02	3.98E+01
m	11	242.16	231 -	247	3.00E+02	95.82	7.47E+02	4.49E+01
	12	271.17	266 -	274	1.07E+02	67.16	6.23E+02	5.25E+01
	13	278.54	275 -	282	5.19E+01	55.71	4.80E+02	4.42E+01
	14	295.38	289 -	297	3.91E+02	71.80	5.50E+02	4.93E+01
	15	338.45	333 -	341	1.53E+02	60.42	4.66E+02	4.53E+01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	16	352.14	347 -	356	5.38E+02	76.22	5.16E+02	4.97E+01
	17	510.48	504 -	515	1.59E+02	53.37	2.77E+02	3.87E+01
	18	526.44	523 -	528	2.70E+01	26.61	1.20E+02	2.01E+01
M	19	582.97	578 -	592	8.49E+01	43.55	1.60E+02	2.08E+01
m	20	589.94	578 -	592	2.18E+01	35.96	1.69E+02	2.14E+01
	21	609.35	602 -	615	3.82E+02	67.47	3.36E+02	4.52E+01
	22	664.97	660 -	669	4.86E+01	35.71	1.53E+02	2.70E+01
	23	727.74	722 -	733	4.68E+01	41.76	1.84E+02	3.24E+01
	24	741.11	738 -	743	1.77E+01	21.10	7.45E+01	1.59E+01
	25	769.09	762 -	774	4.45E+01	42.84	1.95E+02	1.80E+01
M	26	785.93	782 -	804	3.05E+01	18.17	3.30E+01	9.45E+00
m	27	794.69	782 -	804	3.40E+01	21.99	4.90E+01	1.15E+01
m	28	798.68	782 -	804	2.77E+01	22.70	5.52E+01	1.22E+01
	29	824.32	821 -	827	2.34E+01	22.21	7.12E+01	1.64E+01
	30	878.45	875 -	881	1.93E+01	20.01	5.75E+01	1.48E+01
M	31	904.44	901 -	917	2.13E+01	22.76	9.00E+01	1.56E+01
m	32	911.29	901 -	917	1.26E+02	36.87	1.35E+02	1.91E+01
M	33	969.64	962 -	978	6.51E+01	35.01	1.15E+02	1.76E+01
m	34	976.03	962 -	978	1.29E+01	20.72	4.76E+01	1.13E+01
	35	1081.26	1074 -	1086	3.59E+01	34.45	1.20E+02	1.22E+01
	36	1119.88	1113 -	1122	6.40E+01	34.68	1.36E+02	2.53E+01
	37	1156.13	1153 -	1159	2.37E+01	23.28	8.27E+01	1.74E+01
	38	1237.81	1233 -	1241	3.35E+01	31.68	1.31E+02	2.42E+01
	39	1317.88	1314 -	1320	1.55E+01	15.95	3.49E+01	1.14E+01
	40	1346.10	1342 -	1349	1.50E+01	17.32	4.00E+01	1.27E+01
	41	1409.49	1405 -	1414	2.02E+01	16.91	2.76E+01	1.18E+01
	42	1460.67	1454 -	1465	5.00E+02	47.37	3.11E+01	1.28E+01
	43	1509.00	1505 -	1513	2.54E+01	15.79	2.32E+01	9.99E+00
	44	1555.65	1550 -	1559	1.32E+01	11.05	9.67E+00	6.84E+00
	45	1592.46	1586 -	1597	1.91E+01	22.27	4.78E+01	1.68E+01
	46	1729.63	1724 -	1733	2.80E+01	10.58	0.00E+00	0.00E+00
	47	1764.49	1759 -	1769	4.55E+01	20.63	3.09E+01	1.28E+01
	48	1827.13	1822 -	1832	7.50E+00	10.61	1.10E+01	7.47E+00
	49	1838.53	1834 -	1841	9.88E+00	8.00	4.25E+00	4.07E+00
	50	1847.05	1843 -	1850	1.11E+01	9.59	7.87E+00	5.68E+00
	51	2203.54	2198 -	2207	1.94E+01	13.53	1.52E+01	8.44E+00
	52	2374.76	2372 -	2377	6.56E+00	6.40	2.88E+00	3.16E+00
	53	2613.75	2608 -	2618	4.30E+01	13.11	0.00E+00	0.00E+00

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

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/18/2017 6:15:15PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	76.51	71 -	81	75.56	1.29E+03	173.87	3.30E+03	.....
M	2	85.15	81 -	96	84.21	1.65E+02	101.45	1.73E+03	TH-231
m	3	88.22	81 -	96	87.28	3.81E+02	136.89	2.25E+03	LU-176
									CD-109
									SN-126
m	4	93.12	81 -	96	92.18	4.40E+02	134.20	2.00E+03	GA-67
	5	129.03	125 -	131	128.11	7.20E+01	83.27	1.21E+03	.....
	6	139.45	136 -	141	138.53	7.86E+01	70.50	9.33E+02	.....
	7	144.81	142 -	147	143.89	6.68E+01	70.65	9.44E+02	CE-141
	8	186.17	180 -	189	185.27	1.84E+02	104.77	1.46E+03	RA-226
	9	209.65	204 -	212	208.75	1.11E+02	83.33	9.92E+02	CM-243
									GA-67
M	10	238.79	231 -	247	237.90	6.50E+02	77.59	5.87E+02	PB-212
m	11	242.16	231 -	247	241.27	3.00E+02	95.82	7.47E+02	.....
	12	271.17	266 -	274	270.29	1.07E+02	67.16	6.23E+02	LU-173
	13	278.54	275 -	282	277.66	5.19E+01	55.71	4.80E+02	HG-203
									CM-243
									NP-239
									SE-75
	14	295.38	289 -	297	294.51	3.91E+02	71.80	5.50E+02	PB-214
	15	338.45	333 -	341	337.59	1.53E+02	60.42	4.66E+02	AC-228
	16	352.14	347 -	356	351.29	5.38E+02	76.22	5.16E+02	PB-214
	17	510.48	504 -	515	509.68	1.59E+02	53.37	2.77E+02	.....
	18	526.44	523 -	528	525.65	2.70E+01	26.61	1.20E+02	.....
M	19	582.97	578 -	592	582.20	8.49E+01	43.55	1.60E+02	TL-208
m	20	589.94	578 -	592	589.17	2.18E+01	35.96	1.69E+02	.....
	21	609.35	602 -	615	608.59	3.82E+02	67.47	3.36E+02	BI-214
	22	664.97	660 -	669	664.23	4.86E+01	35.71	1.53E+02	CE-143
	23	727.74	722 -	733	727.03	4.68E+01	41.76	1.84E+02	BI-212
	24	741.11	738 -	743	740.40	1.77E+01	21.10	7.45E+01	.....
	25	769.09	762 -	774	768.39	4.45E+01	42.84	1.95E+02	.....
M	26	785.93	782 -	804	785.24	3.05E+01	18.17	3.30E+01	.....
m	27	794.69	782 -	804	794.00	3.40E+01	21.99	4.90E+01	.....
m	28	798.68	782 -	804	798.00	2.77E+01	22.70	5.52E+01	.....
	29	824.32	821 -	827	823.64	2.34E+01	22.21	7.12E+01	.....
	30	878.45	875 -	881	877.80	1.93E+01	20.01	5.75E+01	.....
M	31	904.44	901 -	917	903.80	2.13E+01	22.76	9.00E+01	.....
m	32	911.29	901 -	917	910.65	1.26E+02	36.87	1.35E+02	AC-228
									TL-204
M	33	969.64	962 -	978	969.03	6.51E+01	35.01	1.15E+02	AC-228
m	34	976.03	962 -	978	975.42	1.29E+01	20.72	4.76E+01	..

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
35	1081.26	1074 -	1086	1080.70	3.59E+01	34.45	1.20E+02	.....
36	1119.88	1113 -	1122	1119.34	6.40E+01	34.68	1.36E+02	BI-214 SC-46
37	1156.13	1153 -	1159	1155.61	2.37E+01	23.28	8.27E+01	.....
38	1237.81	1233 -	1241	1237.32	3.35E+01	31.68	1.31E+02	CO-56
39	1317.88	1314 -	1320	1317.43	1.55E+01	15.95	3.49E+01	.....
40	1346.10	1342 -	1349	1345.67	1.50E+01	17.32	4.00E+01	.....
41	1409.49	1405 -	1414	1409.09	2.02E+01	16.91	2.76E+01	.....
42	1460.67	1454 -	1465	1460.29	5.00E+02	47.37	3.11E+01	K-40
43	1509.00	1505 -	1513	1508.65	2.54E+01	15.79	2.32E+01	.....
44	1555.65	1550 -	1559	1555.32	1.32E+01	11.05	9.67E+00	.....
45	1592.46	1586 -	1597	1592.15	1.91E+01	22.27	4.78E+01	.....
46	1729.63	1724 -	1733	1729.39	2.80E+01	10.58	0.00E+00	.....
47	1764.49	1759 -	1769	1764.28	4.55E+01	20.63	3.09E+01	BI-214
48	1827.13	1822 -	1832	1826.95	7.50E+00	10.61	1.10E+01	.....
49	1838.53	1834 -	1841	1838.36	9.88E+00	8.00	4.25E+00	.....
50	1847.05	1843 -	1850	1846.88	1.11E+01	9.59	7.87E+00	.....
51	2203.54	2198 -	2207	2203.59	1.94E+01	13.53	1.52E+01	BI-214
52	2374.76	2372 -	2377	2374.92	6.56E+00	6.40	2.88E+00	.....
53	2613.75	2608 -	2618	2614.07	4.30E+01	13.11	0.00E+00	TL-208

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/18/2017 6:15:15PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	76.51	1.29E+03	173.87	2.33E-02	1.92E-03
M	2	85.15	1.65E+02	101.45	2.36E-02	2.10E-03
m	3	88.22	3.81E+02	136.89	2.37E-02	2.16E-03
m	4	93.12	4.40E+02	134.20	2.36E-02	2.09E-03
	5	129.03	7.20E+01	83.27	2.15E-02	1.63E-03
	6	139.45	7.86E+01	70.50	2.07E-02	1.59E-03
	7	144.81	6.68E+01	70.65	2.02E-02	1.57E-03
	8	186.17	1.84E+02	104.77	1.69E-02	1.40E-03
	9	209.65	1.11E+02	83.33	1.53E-02	1.28E-03
M	10	238.79	6.50E+02	77.59	1.36E-02	1.14E-03

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	11	242.16	3.00E+02	95.82	1.34E-02	1.13E-03
	12	271.17	1.07E+02	67.16	1.20E-02	9.86E-04
	13	278.54	5.19E+01	55.71	1.17E-02	9.50E-04
	14	295.38	3.91E+02	71.80	1.10E-02	9.13E-04
	15	338.45	1.53E+02	60.42	9.60E-03	8.22E-04
	16	352.14	5.38E+02	76.22	9.21E-03	7.94E-04
	17	510.48	1.59E+02	53.37	6.29E-03	6.61E-04
	18	526.44	2.70E+01	26.61	6.10E-03	6.55E-04
M	19	582.97	8.49E+01	43.55	5.51E-03	6.31E-04
m	20	589.94	2.18E+01	35.96	5.44E-03	6.28E-04
	21	609.35	3.82E+02	67.47	5.27E-03	6.20E-04
	22	664.97	4.86E+01	35.71	4.85E-03	5.95E-04
	23	727.74	4.68E+01	41.76	4.45E-03	5.16E-04
	24	741.11	1.77E+01	21.10	4.37E-03	4.99E-04
	25	769.09	4.45E+01	42.84	4.22E-03	4.64E-04
M	26	785.93	3.05E+01	18.17	4.14E-03	4.43E-04
m	27	794.69	3.40E+01	21.99	4.10E-03	4.32E-04
m	28	798.68	2.77E+01	22.70	4.08E-03	4.27E-04
	29	824.32	2.34E+01	22.21	3.96E-03	3.94E-04
	30	878.45	1.93E+01	20.01	3.74E-03	3.27E-04
M	31	904.44	2.13E+01	22.76	3.64E-03	3.00E-04
m	32	911.29	1.26E+02	36.87	3.62E-03	2.99E-04
M	33	969.64	6.51E+01	35.01	3.42E-03	2.85E-04
m	34	976.03	1.29E+01	20.72	3.40E-03	2.84E-04
	35	1081.26	3.59E+01	34.45	3.11E-03	2.59E-04
	36	1119.88	6.40E+01	34.68	3.02E-03	2.50E-04
	37	1156.13	2.37E+01	23.28	2.93E-03	2.42E-04
	38	1237.81	3.35E+01	31.68	2.76E-03	2.33E-04
	39	1317.88	1.55E+01	15.95	2.61E-03	2.28E-04
	40	1346.10	1.50E+01	17.32	2.57E-03	2.25E-04
	41	1409.49	2.02E+01	16.91	2.46E-03	2.16E-04
	42	1460.67	5.00E+02	47.37	2.38E-03	2.08E-04
	43	1509.00	2.54E+01	15.79	2.32E-03	2.01E-04
	44	1555.65	1.32E+01	11.05	2.25E-03	1.93E-04
	45	1592.46	1.91E+01	22.27	2.20E-03	1.88E-04
	46	1729.63	2.80E+01	10.58	2.04E-03	1.67E-04
	47	1764.49	4.55E+01	20.63	2.00E-03	1.62E-04
	48	1827.13	7.50E+00	10.61	1.93E-03	1.53E-04
	49	1838.53	9.88E+00	8.00	1.92E-03	1.51E-04
	50	1847.05	1.11E+01	9.59	1.91E-03	1.51E-04
	51	2203.54	1.94E+01	13.53	1.58E-03	1.51E-04
	52	2374.76	6.56E+00	6.40	1.45E-03	1.51E-04
	53	2613.75	4.30E+01	13.11	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 1707084-18

HTC-A02-S002-0612-01

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/18/2017 6:15:15PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	76.51	1.29E+03	173.87			1.29E+03	1.74E+02
M	2	85.15	1.65E+02	101.45			1.65E+02	1.01E+02
m	3	88.22	3.81E+02	136.89			3.81E+02	1.37E+02
m	4	93.12	4.40E+02	134.20	6.28E+01	7.82E+00	3.77E+02	1.34E+02
	5	129.03	7.20E+01	83.27			7.20E+01	8.33E+01
	6	139.45	7.86E+01	70.50	0.00E+00	0.00E+00	7.86E+01	7.05E+01
	7	144.81	6.68E+01	70.65			6.68E+01	7.06E+01
	8	186.17	1.84E+02	104.77	2.54E+01	6.86E+00	1.59E+02	1.05E+02
	9	209.65	1.11E+02	83.33			1.11E+02	8.33E+01
M	10	238.79	6.50E+02	77.59	8.10E+00	6.12E+00	6.42E+02	7.78E+01
m	11	242.16	3.00E+02	95.82			3.00E+02	9.58E+01
	12	271.17	1.07E+02	67.16	4.54E+00	5.58E+00	1.03E+02	6.74E+01
	13	278.54	5.19E+01	55.71			5.19E+01	5.57E+01
	14	295.38	3.91E+02	71.80			3.91E+02	7.18E+01
	15	338.45	1.53E+02	60.42			1.53E+02	6.04E+01
	16	352.14	5.38E+02	76.22			5.38E+02	7.62E+01
	17	510.48	1.59E+02	53.37	3.93E+01	5.03E+00	1.20E+02	5.36E+01
	18	526.44	2.70E+01	26.61			2.70E+01	2.66E+01
M	19	582.97	8.49E+01	43.55			8.49E+01	4.36E+01
m	20	589.94	2.18E+01	35.96			2.18E+01	3.60E+01
	21	609.35	3.82E+02	67.47			3.82E+02	6.75E+01
	22	664.97	4.86E+01	35.71			4.86E+01	3.57E+01
	23	727.74	4.68E+01	41.76			4.68E+01	4.18E+01
	24	741.11	1.77E+01	21.10			1.77E+01	2.11E+01
	25	769.09	4.45E+01	42.84			4.45E+01	4.28E+01
M	26	785.93	3.05E+01	18.17			3.05E+01	1.82E+01
m	27	794.69	3.40E+01	21.99			3.40E+01	2.20E+01
m	28	798.68	2.77E+01	22.70			2.77E+01	2.27E+01
	29	824.32	2.34E+01	22.21			2.34E+01	2.22E+01
	30	878.45	1.93E+01	20.01			1.93E+01	2.00E+01
M	31	904.44	2.13E+01	22.76			2.13E+01	2.28E+01
m	32	911.29	1.26E+02	36.87	5.69E-01	2.37E+00	1.25E+02	3.69E+01
M	33	969.64	6.51E+01	35.01			6.51E+01	3.50E+01
m	34	976.03	1.29E+01	20.72			1.29E+01	2.07E+01
	35	1081.26	3.59E+01	34.45			3.59E+01	3.44E+01
	36	1119.88	6.40E+01	34.68			6.40E+01	3.47E+01
	37	1156.13	2.37E+01	23.28			2.37E+01	2.33E+01
	38	1237.81	3.35E+01	31.68			3.35E+01	3.17E+01
	39	1317.88	1.55E+01	15.95			1.55E+01	1.60E+01
	40	1346.10	1.50E+01	17.32			1.50E+01	1.73E+01
	41	1409.49	2.02E+01	16.91			2.02E+01	1.69E+01
	42	1460.67	5.00E+02	47.37	1.35E+00	1.57E+00	4.99E+02	4.74E+01
	43	1509.00	2.54E+01	15.79			2.54E+01	1.58E+01
	44	1555.65	1.32E+01	11.05			1.32E+01	1.10E+01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
45	1592.46	1.91E+01	22.27			1.91E+01	2.23E+01
46	1729.63	2.80E+01	10.58			2.80E+01	1.06E+01
47	1764.49	4.55E+01	20.63			4.55E+01	2.06E+01
48	1827.13	7.50E+00	10.61			7.50E+00	1.06E+01
49	1838.53	9.88E+00	8.00			9.88E+00	8.00E+00
50	1847.05	1.11E+01	9.59			1.11E+01	9.59E+00
51	2203.54	1.94E+01	13.53			1.94E+01	1.35E+01
52	2374.76	6.56E+00	6.40			6.56E+00	6.40E+00
53	2613.75	4.30E+01	13.11			4.30E+01	1.31E+01

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 6:15:15PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055114.CNF

Corrected Area is: Original * Peak Ratio - Background

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	76.51	1.29E+03	173.87			1.29E+03	1.74E+02
M	2	85.15	1.65E+02	101.45			1.65E+02	1.01E+02
m	3	88.22	3.81E+02	136.89			3.81E+02	1.37E+02
m	4	93.12	4.40E+02	134.20	6.28E+01	7.82E+00	3.77E+02	1.34E+02
	5	129.03	7.20E+01	83.27			7.20E+01	8.33E+01
	6	139.45	7.86E+01	70.50	0.00E+00	0.00E+00	7.86E+01	7.05E+01
	7	144.81	6.68E+01	70.65			6.68E+01	7.06E+01
	8	186.17	1.84E+02	104.77	2.54E+01	6.86E+00	1.59E+02	1.05E+02
	9	209.65	1.11E+02	83.33			1.11E+02	8.33E+01
M	10	238.79	6.50E+02	77.59	8.10E+00	6.12E+00	6.42E+02	7.78E+01
m	11	242.16	3.00E+02	95.82			3.00E+02	9.58E+01
	12	271.17	1.07E+02	67.16	4.54E+00	5.58E+00	1.03E+02	6.74E+01
	13	278.54	5.19E+01	55.71			5.19E+01	5.57E+01
	14	295.38	3.91E+02	71.80			3.91E+02	7.18E+01
	15	338.45	1.53E+02	60.42			1.53E+02	6.04E+01
	16	352.14	5.38E+02	76.22			5.38E+02	7.62E+01
	17	510.48	1.59E+02	53.37	3.93E+01	5.03E+00	1.20E+02	5.36E+01
	18	526.44	2.70E+01	26.61			2.70E+01	2.66E+01
M	19	582.97	8.49E+01	43.55			8.49E+01	4.36E+01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
m	20	589.94	2.18E+01	35.96			2.18E+01	3.60E+01
	21	609.35	3.82E+02	67.47			3.82E+02	6.75E+01
	22	664.97	4.86E+01	35.71			4.86E+01	3.57E+01
	23	727.74	4.68E+01	41.76			4.68E+01	4.18E+01
	24	741.11	1.77E+01	21.10			1.77E+01	2.11E+01
	25	769.09	4.45E+01	42.84			4.45E+01	4.28E+01
M	26	785.93	3.05E+01	18.17			3.05E+01	1.82E+01
m	27	794.69	3.40E+01	21.99			3.40E+01	2.20E+01
m	28	798.68	2.77E+01	22.70			2.77E+01	2.27E+01
	29	824.32	2.34E+01	22.21			2.34E+01	2.22E+01
	30	878.45	1.93E+01	20.01			1.93E+01	2.00E+01
M	31	904.44	2.13E+01	22.76			2.13E+01	2.28E+01
m	32	911.29	1.26E+02	36.87	5.69E-01	2.37E+00	1.25E+02	3.69E+01
M	33	969.64	6.51E+01	35.01			6.51E+01	3.50E+01
m	34	976.03	1.29E+01	20.72			1.29E+01	2.07E+01
	35	1081.26	3.59E+01	34.45			3.59E+01	3.44E+01
	36	1119.88	6.40E+01	34.68			6.40E+01	3.47E+01
	37	1156.13	2.37E+01	23.28			2.37E+01	2.33E+01
	38	1237.81	3.35E+01	31.68			3.35E+01	3.17E+01
	39	1317.88	1.55E+01	15.95			1.55E+01	1.60E+01
	40	1346.10	1.50E+01	17.32			1.50E+01	1.73E+01
	41	1409.49	2.02E+01	16.91			2.02E+01	1.69E+01
	42	1460.67	5.00E+02	47.37	1.35E+00	1.57E+00	4.99E+02	4.74E+01
	43	1509.00	2.54E+01	15.79			2.54E+01	1.58E+01
	44	1555.65	1.32E+01	11.05			1.32E+01	1.10E+01
	45	1592.46	1.91E+01	22.27			1.91E+01	2.23E+01
	46	1729.63	2.80E+01	10.58			2.80E+01	1.06E+01
	47	1764.49	4.55E+01	20.63			4.55E+01	2.06E+01
	48	1827.13	7.50E+00	10.61			7.50E+00	1.06E+01
	49	1838.53	9.88E+00	8.00			9.88E+00	8.00E+00
	50	1847.05	1.11E+01	9.59			1.11E+01	9.59E+00
	51	2203.54	1.94E+01	13.53			1.94E+01	1.35E+01
	52	2374.76	6.56E+00	6.40			6.56E+00	6.40E+00
	53	2613.75	4.30E+01	13.11			4.30E+01	1.31E+01

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

NUCLIDE IDENTIFICATION REPORT

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

IDENTIFIED NUCLIDES

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.997	1460.81	*	10.67	2.52E+01	3.29E+00
CD-109	0.994	88.03	*	3.72	6.42E+00	2.41E+00
SN-126	0.935	87.57	*	37.00	5.59E-01	2.07E-01
CE-141	0.899	145.44	*	48.40	6.71E-01	7.94E-01
LU-173	0.482	100.72		5.24		
		272.11	*	21.20	5.93E-01	3.91E-01
HG-203	0.914	279.19	*	77.30	3.05E-01	3.28E-01
TL-208	0.817	583.14	*	30.22	6.56E-01	3.45E-01
		860.37		4.48		
		2614.66	*	35.85	1.20E+00	3.94E-01
BI-212	0.734	727.17	*	11.80	1.15E+00	1.03E+00
		1620.62		2.75		
PB-212	0.894	238.63	*	44.60	1.36E+00	2.01E-01
		300.09		3.41		
BI-214	0.991	609.31	*	46.30	2.01E+00	4.27E-01
		1120.29	*	15.10	1.81E+00	9.91E-01
		1764.49	*	15.80	1.85E+00	8.53E-01
		2204.22	*	4.98	3.16E+00	2.23E+00
PB-214	0.993	295.21	*	19.19	2.38E+00	4.79E-01
		351.92	*	37.19	2.02E+00	3.35E-01
RA-226	1.000	186.21	*	3.28	3.68E+00	7.17E+00
AC-228	0.982	338.32	*	11.40	1.80E+00	7.26E-01
		911.07	*	27.70	1.61E+00	4.92E-01
		969.11	*	16.60	1.47E+00	8.01E-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 : 8/18/2017 6:15:15PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.51	3.57251E-01	6.76		
M	2	85.15	4.59019E-02	30.70	Tol.	TH-231
m	4	93.12	1.04775E-01	17.82	Tol.	GA-67
	5	129.03	2.00103E-02	57.80		
	6	139.45	2.18247E-02	44.86		

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	9	209.65	3.07754E-02	37.61	Tol.	GA-67 CM-243
m	11	242.16	8.32643E-02	15.98		
	17	510.48	3.33323E-02	22.34	Sum	
	18	526.44	7.50000E-03	49.27		
m	20	589.94	6.04896E-03	82.56	Sum	
	22	664.97	1.34944E-02	36.75	Tol.	CE-143
	24	741.11	4.92424E-03	59.50		
	25	769.09	1.23611E-02	48.14	Sum	
M	26	785.93	8.47126E-03	29.78		
m	27	794.69	9.43427E-03	32.37	Sum	
m	28	798.68	7.68181E-03	41.05		
	29	824.32	6.49482E-03	47.49		
	30	878.45	5.34722E-03	51.96	Sum	
M	31	904.44	5.90344E-03	53.55	Sum	
m	34	976.03	3.57985E-03	80.41		
	35	1081.26	9.96962E-03	47.99		
	37	1156.13	6.57051E-03	49.20	Sum	
	38	1237.81	9.31678E-03	47.22		
	39	1317.88	4.31818E-03	51.31		
	40	1346.10	4.16667E-03	57.74		
	41	1409.49	5.60457E-03	41.91		
	43	1509.00	7.05706E-03	31.07		
	44	1555.65	3.65741E-03	41.94		
	45	1592.46	5.30362E-03	58.32	D-Esc	
	46	1729.63	7.77778E-03	18.90	Sum	
	48	1827.13	2.08333E-03	70.71		
	49	1838.53	2.74306E-03	40.51		
	50	1847.05	3.07407E-03	43.34	Sum	
	52	2374.76	1.82292E-03	48.79	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

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
K-40	0.99	1460.81	*	10.67	2.52E+01	3.29E+00
CD-109	0.99	88.03	*	3.72	6.42E+00	2.41E+00
SN-126	0.93	87.57	*	37.00	5.59E-01	2.07E-01
CE-141	0.89	145.44	*	48.40	6.71E-01	7.94E-01
LU-173	0.48	100.72		5.24		
		272.11	*	21.20	5.93E-01	3.91E-01
HG-203	0.91	279.19	*	77.30	3.05E-01	3.28E-01
TL-208	0.81	583.14	*	30.22	6.56E-01	3.45E-01
		860.37		4.48		
		2614.66	*	35.85	1.20E+00	3.94E-01
BI-212	0.73	727.17	*	11.80	1.15E+00	1.03E+00
		1620.62		2.75		
PB-212	0.89	238.63	*	44.60	1.36E+00	2.01E-01
		300.09		3.41		
BI-214	0.99	609.31	*	46.30	2.01E+00	4.27E-01
		1120.29	*	15.10	1.81E+00	9.91E-01
		1764.49	*	15.80	1.85E+00	8.53E-01
		2204.22	*	4.98	3.16E+00	2.23E+00
PB-214	0.99	295.21	*	19.19	2.38E+00	4.79E-01
		351.92	*	37.19	2.02E+00	3.35E-01
RA-226	1.00	186.21	*	3.28	3.68E+00	7.17E+00
AC-228	0.98	338.32	*	11.40	1.80E+00	7.26E-01
		911.07	*	27.70	1.61E+00	4.92E-01
		969.11	*	16.60	1.47E+00	8.01E-01

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

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.997	2.52E+01	3.29E+00	
?	CD-109	0.994	6.42E+00	2.41E+00	
?	SN-126	0.935	5.59E-01	2.07E-01	

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
CE-141	0.899	6.71E-01	7.94E-01	
LU-173	0.482	5.93E-01	3.91E-01	
HG-203	0.914	3.05E-01	3.28E-01	
TL-208	0.817	8.94E-01	2.59E-01	
BI-212	0.734	1.15E+00	1.03E+00	
PB-212	0.894	1.36E+00	2.01E-01	
BI-214	0.991	1.99E+00	3.52E-01	
PB-214	0.993	2.14E+00	2.74E-01	
RA-226	1.000	3.68E+00	7.17E+00	
AC-228	0.982	1.63E+00	3.63E-01	

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

Errors quoted at 2.000sigma

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 6:15:15PM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	1	76.51	3.57251E-01	6.76		
M	2	85.15	4.59019E-02	30.70	Tol.	TH-231
m	4	93.12	1.04775E-01	17.82	Tol.	GA-67
	5	129.03	2.00103E-02	57.80		
	6	139.45	2.18247E-02	44.86		
	9	209.65	3.07754E-02	37.61	Tol.	GA-67
						CM-243
m	11	242.16	8.32643E-02	15.98		
	17	510.48	3.33323E-02	22.34	Sum	
	18	526.44	7.50000E-03	49.27		
m	20	589.94	6.04896E-03	82.56	Sum	
	22	664.97	1.34944E-02	36.75	Tol.	CE-143
	24	741.11	4.92424E-03	59.50		
	25	769.09	1.23611E-02	48.14	Sum	
M	26	785.93	8.47126E-03	29.78		
m	27	794.69	9.43427E-03	32.37	Sum	
m	28	798.68	7.68181E-03	41.05		
	29	824.32	6.49482E-03	47.49		
	30	878.45	5.34722E-03	51.96	Sum	
M	31	904.44	5.90344E-03	53.55	Sum	
m	34	976.03	3.57985E-03	80.41		
	35	1081.26	9.96962E-03	47.99		
	37	1156.13	6.57051E-03	49.20	Sum	
	38	1237.81	9.31678E-03	47.22		
	39	1317.88	4.31818E-03	51.31		
	40	1346.10	4.16667E-03	57.74		
	41	1409.49	5.60457E-03	41.91		
	43	1509.00	7.05706E-03	31.07		
	44	1555.65	3.65741E-03	41.94		
	45	1592.46	5.30362E-03	58.32	D-Esc	
	46	1729.63	7.77778E-03	18.90	Sum	
	48	1827.13	2.08333E-03	70.71		
	49	1838.53	2.74306E-03	40.51		
	50	1847.05	3.07407E-03	43.34	Sum	
	52	2374.76	1.82292E-03	48.79	Sum	

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

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

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	9.75E-01	3.04E+00	3.04E+00
+	NA-22	1274.54		99.94	7.14E-02	2.17E-01	2.17E-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	1.73E-02	1.05E-01	1.05E-01
+	K-40	1460.81	*	10.67	2.52E+01	1.45E+00	1.45E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	-9.75E-02	9.85E-02	9.85E-02
		78.34		96.00	6.12E-01		1.27E-01
+	SC-46	889.25		99.98	-1.15E-01	3.10E-01	3.10E-01
		1120.51		99.99	-3.91E-02		5.06E-01
+	V-48	983.52		99.98	5.94E+00	8.88E+00	1.01E+01
		1312.10		97.50	7.69E-01		8.88E+00
+	CR-51	320.08		9.83	5.68E+00	9.58E+00	9.58E+00
+	MN-54	834.83		99.97	4.04E-02	1.96E-01	1.96E-01
+	CO-56	846.75		99.96	-1.14E-01	2.91E-01	2.91E-01
		1037.75		14.03	-1.01E+00		2.38E+00
		1238.25		67.00	2.25E-01		7.95E-01
		1771.40		15.51	-6.53E-01		1.61E+00
		2598.48		16.90	-2.27E-01		1.00E+00
+	CO-57	122.06		85.51	-2.44E-02	1.02E-01	1.02E-01
		136.48		10.60	-1.52E-01		8.67E-01
+	CO-58	810.76		99.40	1.80E-01	3.58E-01	3.58E-01
+	FE-59	1099.22		56.50	-1.23E-01	1.37E+00	1.37E+00
		1291.56		43.20	6.36E-01		1.88E+00
+	CO-60	1173.22		100.00	-6.13E-02	1.69E-01	1.86E-01
		1332.49		100.00	9.05E-03		1.69E-01
+	ZN-65	1115.52		50.75	-1.63E-02	5.35E-01	5.35E-01
+	GA-67	93.31		35.70	2.35E+08	1.59E+08	1.59E+08
		208.95		2.24	2.30E+09		2.49E+09
		300.22		16.00	-9.88E+07		4.11E+08
+	SE-75	121.11		16.70	5.75E-02	2.10E-01	7.14E-01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-2.94E-02	2.10E-01	2.10E-01
		264.65		59.80	-1.44E-02		2.31E-01
		279.53		25.20	1.70E-01		5.96E-01
		400.65		11.40	-3.16E-01		1.41E+00
+	RB-82	776.52		13.00	5.05E+00	1.40E+01	1.40E+01
+	RB-83	520.41		46.00	5.33E-02	4.57E-01	4.57E-01
		529.64		30.30	-2.78E-02		7.42E-01
		552.65		16.40	-6.77E-01		1.28E+00
+	KR-85	513.99		0.43	2.62E+01	3.22E+01	3.22E+01
+	SR-85	513.99		99.27	3.12E-01	3.83E-01	3.83E-01
+	Y-88	898.02		93.40	1.31E-01	2.44E-01	3.09E-01
		1836.01		99.38	4.07E-02		2.44E-01
+	MO-93	263.06		56.72	2.91E-03	1.22E-01	1.46E-01
		684.67		99.68	-1.41E-02		1.25E-01
		1477.11		99.08	6.02E-02		1.22E-01
+	NB-93M	16.57		9.43	2.41E+01	9.86E+00	9.86E+00
+	NB-94	702.63		100.00	5.01E-02	1.29E-01	1.51E-01
		871.10		100.00	-4.19E-03		1.29E-01
+	NB-95	765.79		99.81	3.12E-01	9.80E-01	9.80E-01
+	NB-95M	235.69		25.00	6.63E+07	4.53E+07	4.53E+07
+	ZR-95	724.18		43.70	8.65E-02	7.02E-01	9.96E-01
		756.72		55.30	8.74E-02		7.02E-01
+	MO-99	181.06		6.20	1.28E+09	2.78E+10	3.48E+10
		739.58		12.80	3.43E+09		2.78E+10
		778.00		4.50	4.23E+09		7.91E+10
+	RU-103	497.08		89.00	-3.06E-01	5.93E-01	5.93E-01
+	RU-106	621.84		9.80	2.77E-02	1.29E+00	1.29E+00
+	AG-108M	433.93		89.90	-6.90E-03	1.08E-01	1.08E-01
		614.37		90.40	6.45E-03		1.23E-01
		722.95		90.50	1.91E-02		1.61E-01
+	CD-109	88.03	*	3.72	6.42E+00	5.08E+00	5.08E+00
+	AG-110M	657.75		93.14	-1.65E-02	1.72E-01	1.72E-01
		677.61		10.53	4.57E-02		1.61E+00
		706.67		16.46	1.25E-02		1.18E+00
		763.93		21.98	-1.76E-02		8.31E-01
		884.67		71.63	8.60E-02		2.44E-01
		1384.27		23.94	-5.78E-02		7.26E-01
+	CD-113M	263.70		0.02	-1.20E+02	3.49E+02	3.49E+02
+	SN-113	255.12		1.93	-3.56E+00	2.61E-01	7.14E+00
		391.69		64.90	-6.85E-02		2.61E-01
+	TE123M	159.00		84.10	-1.32E-01	1.50E-01	1.50E-01
+	SB-124	602.71		97.87	5.06E-02	3.44E-01	3.44E-01
		645.85		7.26	-1.46E+00		4.13E+00
		722.78		11.10	4.65E-01		3.93E+00
		1691.02		49.00	1.07E-01		7.36E-01
+	I-125	35.49		6.49	-8.57E-01	6.41E+00	6.41E+00
+	SB-125	176.33		6.89	-5.76E-01	3.71E-01	1.16E+00
		427.89		29.33	-3.25E-02		3.71E-01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SB-125	463.38		10.35	7.95E-01	3.71E-01	1.10E+00
		600.56		17.80	-3.42E-02		6.04E-01
		635.90		11.32	1.59E-02		9.77E-01
+	SB-126	414.70		83.30	-8.72E+00	2.31E+01	2.31E+01
		666.33		99.60	1.27E+01		2.83E+01
		695.00		99.60	-9.31E-01		2.85E+01
		720.50		53.80	-1.03E+01		5.07E+01
+	SN-126	87.57	*	37.00	5.59E-01	4.43E-01	4.43E-01
+	SB-127	473.00		25.00	2.88E+06	9.80E+06	1.07E+07
		685.20		35.70	-1.11E+06		9.80E+06
		783.80		14.70	1.38E+06		2.52E+07
+	I-129	29.78		57.00	-3.46E-02	3.33E-01	3.33E-01
		33.60		13.20	2.90E-02		1.15E+00
		39.58		7.52	4.75E-02		1.59E+00
+	I-131	284.30		6.05	1.03E+03	4.14E+02	5.11E+03
		364.48		81.20	-5.43E+01		4.14E+02
		636.97		7.26	-1.38E+02		5.32E+03
		722.89		1.80	3.56E+03		3.00E+04
+	TE-132	49.72		13.10	2.16E+08	6.06E+07	5.02E+08
		228.16		88.00	-3.30E+06		6.06E+07
+	BA-133	81.00		33.00	-6.42E-01	2.29E-01	2.96E-01
		302.84		17.80	1.85E-01		5.29E-01
		356.01		60.00	4.08E-02		2.29E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-1.64E+05	7.53E+04	7.53E+04
+	CS-134	563.23		8.38	-6.48E-01	1.49E-01	1.46E+00
		569.32		15.43	2.09E-01		8.42E-01
		604.70		97.60	-1.06E+00		1.49E-01
		795.84		85.40	8.19E-02		1.99E-01
		801.93		8.73	-1.30E+00		1.71E+00
+	CS-135	268.24		16.00	1.61E-02	5.61E-01	5.61E-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	1.57E+02	2.12E+01	1.61E+02
		163.89		4.61	-3.06E+00		2.51E+02
		176.55		13.56	-5.79E+00		8.47E+01
		273.65		12.66	-3.62E+01		1.10E+02
		340.57		48.50	-2.33E+00		3.55E+01
		818.50		99.70	-6.57E+00		2.12E+01
		1048.07		79.60	-6.88E+00		3.02E+01
		1235.34		19.70	2.18E+01		1.84E+02
+	CS-137	661.65		85.12	2.86E-02	1.67E-01	1.67E-01
+	LA-138	788.74		34.00	-1.67E-02	2.13E-01	4.11E-01
		1435.80		66.00	-3.77E-02		2.13E-01
+	CE-139	165.85		80.35	1.08E-01	1.58E-01	1.58E-01
+	BA-140	162.64		6.70	-3.38E+01	7.41E+01	1.97E+02
		304.84		4.50	-8.51E+01		3.43E+02
		423.70		3.20	8.71E+01		5.50E+02

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55		2.00	-7.06E+02	7.41E+01	8.23E+02
			537.32		25.00	-2.66E+01		7.41E+01
+		LA-140	328.77		20.50	5.79E+01	2.74E+01	8.17E+01
			487.03		45.50	8.77E+00		3.97E+01
			815.85		23.50	3.70E+01		1.05E+02
			1596.49		95.49	2.51E+00		2.74E+01
+		CE-141	145.44	*	48.40	6.71E-01	1.16E+00	1.16E+00
+	@	CE-143	57.36		11.80	1.00E+26	1.00E+26	1.00E+26
	@		293.26		42.00	1.00E+26		1.00E+26
	@		664.55		5.20	1.00E+26		1.00E+26
+		CE-144	133.54		10.80	-1.16E-01	8.17E-01	8.17E-01
+		PM-144	476.78		42.00	-1.95E-01	1.23E-01	2.47E-01
			618.01		98.60	-1.80E-02		1.23E-01
			696.49		99.49	-3.14E-02		1.72E-01
+		PM-145	36.85		21.70	-7.90E-02	3.25E-01	6.08E-01
			37.36		39.70	-4.22E-02		3.25E-01
			42.30		15.10	-9.83E-01		7.43E-01
			72.40		2.31	4.87E-01		4.51E+00
+		PM-146	453.90		39.94	1.67E-01	2.59E-01	2.59E-01
			735.90		14.01	1.33E-01		8.66E-01
			747.13		13.10	-2.61E-01		1.04E+00
+		ND-147	91.11		28.90	2.88E+02	1.36E+02	1.36E+02
			531.02		13.10	7.12E+01		3.34E+02
+		PM-149	285.90		3.10	3.93E+12	2.51E+13	2.51E+13
+		EU-152	121.78		20.50	-8.09E-02	3.38E-01	3.38E-01
			244.69		5.40	1.32E-01		1.86E+00
			344.27		19.13	4.42E-02		5.01E-01
			778.89		9.20	7.71E-02		1.35E+00
			964.01		10.40	7.67E-02		1.64E+00
			1085.78		7.22	-3.04E-01		2.26E+00
			1112.02		9.60	-5.31E-02		1.90E+00
			1407.95		14.94	4.24E-01		1.06E+00
+		GD-153	97.43		31.30	1.05E-01	3.12E-01	3.12E-01
			103.18		22.20	8.38E-04		4.04E-01
+		EU-154	123.07		40.50	-4.57E-02	1.73E-01	1.73E-01
			723.30		19.70	6.97E-02		8.02E-01
			873.19		11.50	1.89E-01		1.20E+00
			996.32		10.30	-1.46E-01		1.45E+00
			1004.76		17.90	4.01E-01		9.56E-01
			1274.45		35.50	1.91E-01		5.83E-01
+		EU-155	86.50		30.90	3.85E-01	3.11E-01	3.11E-01
			105.30		20.70	1.64E-02		3.44E-01
+		EU-156	811.77		10.40	6.37E+00	1.03E+02	1.03E+02
			1153.47		7.20	2.79E+01		2.18E+02
			1230.71		8.90	4.95E+01		1.93E+02
+		HO-166M	184.41		72.60	1.96E-01	1.31E-01	1.31E-01
			280.45		29.60	-5.78E-02		2.85E-01
			410.94		11.10	4.90E-01		9.30E-01
			711.69		54.10	1.55E-01		2.64E-01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-2.02E+01	7.44E+01	7.44E+01
+	HF-172	67.35		5.31	-5.30E-01	6.97E-01	1.96E+00
		125.81		11.30	-1.20E-02		6.97E-01
+	LU-172	181.53		20.60	9.36E+02	5.02E+03	7.82E+03
		900.72		29.81	1.32E+03		1.04E+04
		1093.66		62.50	-5.60E+02		5.02E+03
+	LU-173	100.72		5.24	-1.10E+00	6.25E-01	1.44E+00
		272.11	*	21.20	5.93E-01		6.25E-01
+	HF-175	343.40		84.00	2.55E-02	2.89E-01	2.89E-01
+	LU-176	88.34		13.30	-3.55E-02	9.08E-02	6.96E-01
		201.83		86.00	-7.56E-03		9.47E-02
		306.78		94.00	-2.66E-02		9.08E-02
+	HF-181	133.02		41.70	-1.13E-01	5.61E-01	8.20E-01
		345.85		17.20	2.32E-01		2.56E+00
		482.03		82.80	-4.18E-03		5.61E-01
+	TA-182	67.75		41.20	-3.97E-01	4.01E-01	4.01E-01
		1121.30		34.90	-1.60E-01		1.17E+00
		1189.05		16.23	-1.09E+00		2.05E+00
		1221.41		26.98	3.82E-01		1.36E+00
		1231.02		11.44	8.09E-01		3.40E+00
+	IR-192	308.46		29.68	-1.03E-01	5.00E-01	7.13E-01
		468.07		48.10	-1.19E-01		5.00E-01
+	HG-203	279.19	*	77.30	3.05E-01	5.36E-01	5.36E-01
+	TL-204	374.74		94.11	-2.30E-02	9.71E-02	9.71E-02
		899.15		99.16	1.16E-02		1.67E-01
		911.74		91.10	4.27E-01		2.71E-01
+	BI-207	569.67		97.72	3.04E-02	1.22E-01	1.22E-01
		1063.62		74.90	1.03E-01		2.15E-01
+	TL-208	583.14	*	30.22	6.56E-01	7.58E-02	6.36E-01
		860.37		4.48	1.85E+00		3.43E+00
		2614.66	*	35.85	1.20E+00		7.58E-02
+	BI-210M	262.00		45.00	-2.59E-03	1.81E-01	1.81E-01
		300.00		23.00	-1.08E-01		4.50E-01
+	PB-210	46.50		4.25	2.03E+00	2.59E+00	2.59E+00
+	PB-211	404.84		2.90	-1.16E+00	3.34E+00	3.34E+00
		831.96		2.90	1.59E+00		5.03E+00
+	BI-212	727.17	*	11.80	1.15E+00	1.66E+00	1.66E+00
		1620.62		2.75	1.88E+00		4.84E+00
+	PB-212	238.63	*	44.60	1.36E+00	4.02E-01	4.02E-01
		300.09		3.41	-7.30E-01		3.03E+00
+	BI-214	609.31	*	46.30	2.01E+00	4.91E-01	4.91E-01
		1120.29	*	15.10	1.81E+00		1.51E+00
		1764.49	*	15.80	1.85E+00		1.15E+00
		2204.22	*	4.98	3.16E+00		3.20E+00
+	PB-214	295.21	*	19.19	2.38E+00	3.83E-01	6.15E-01
		351.92	*	37.19	2.02E+00		3.83E-01
+	RN-219	401.80		6.50	3.60E-01	1.45E+00	1.45E+00
+	RA-223	323.87		3.88	-9.13E-01	2.27E+00	2.27E+00

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98		3.95	1.85E+01	3.83E+00	3.83E+00
+	RA-225	40.00		31.00	9.86E-01	3.31E+01	3.31E+01
+	RA-226	186.21	*	3.28	3.68E+00	3.95E+00	3.95E+00
+	TH-227	50.10		8.40	5.17E-01	1.10E+00	1.20E+00
		236.00		11.50	1.61E+00		1.10E+00
		256.20		6.30	-2.80E-01		1.26E+00
+	AC-228	338.32	*	11.40	1.80E+00	1.08E+00	1.10E+00
		911.07	*	27.70	1.61E+00		1.08E+00
		969.11	*	16.60	1.47E+00		1.65E+00
+	TH-230	48.44		16.90	2.16E-01	6.17E-01	6.17E-01
		62.85		4.60	2.25E+00		2.15E+00
		67.67		0.37	-2.48E+01		2.51E+01
+	PA-231	283.67		1.60	1.05E+00	4.02E+00	5.19E+00
		302.67		2.30	1.40E+00		4.02E+00
+	TH-231	25.64		14.70	6.58E-02	1.34E+00	1.88E+00
		84.21		6.40	-2.23E+00		1.34E+00
+	PA-233	311.98		38.60	-7.49E-03	2.57E+00	2.57E+00
+	PA-234	131.20		20.40	7.75E-03	3.61E-01	3.61E-01
		733.99		8.80	2.04E-01		1.34E+00
		946.00		12.00	9.95E-01		1.30E+00
+	PA-234M	1001.03		0.92	3.15E-01	1.70E+01	1.70E+01
+	TH-234	63.29		3.80	2.72E+00	2.59E+00	2.59E+00
+	U-235	143.76		10.50	2.85E-01	7.33E-01	7.33E-01
		163.35		4.70	-2.75E-01		1.60E+00
		205.31		4.70	1.98E-01		1.77E+00
+	NP-237	86.50		12.60	9.10E-01	7.36E-01	7.36E-01
+	NP-239	106.10		22.70	2.77E+11	4.75E+11	4.75E+11
		228.18		10.70	-6.51E+10		1.19E+12
		277.60		14.10	2.35E+11		9.44E+11
+	AM-241	59.54		35.90	4.88E-03	2.67E-01	2.67E-01
+	AM-243	74.67		66.00	9.17E-01	1.91E-01	1.91E-01
+	CM-243	209.75		3.29	2.43E+00	6.19E-01	2.69E+00
		228.14		10.60	-4.28E-02		7.85E-01
		277.60		14.00	1.54E-01		6.19E-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 1707084-18

HTC-A02-S002-0612-01

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	3.04E+00	3.04E+00	9.75E-01	1.43E+00
	NA-22	1274.54		99.94	2.17E-01	2.17E-01	7.14E-02	1.02E-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	1.05E-01	1.05E-01	1.73E-02	4.35E-02
+	K-40	1460.81	*	10.67	1.45E+00	1.45E+00	2.52E+01	6.57E-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	9.85E-02	9.85E-02	-9.75E-02	4.84E-02
		78.34		96.00	1.27E-01		6.12E-01	6.27E-02
	SC-46	889.25		99.98	3.10E-01	3.10E-01	-1.15E-01	1.45E-01
		1120.51		99.99	5.06E-01		-3.91E-02	2.40E-01
	V-48	983.52		99.98	1.01E+01	8.88E+00	5.94E+00	4.74E+00
		1312.10		97.50	8.88E+00		7.69E-01	4.02E+00
	CR-51	320.08		9.83	9.58E+00	9.58E+00	5.68E+00	4.60E+00
	MN-54	834.83		99.97	1.96E-01	1.96E-01	4.04E-02	9.24E-02
	CO-56	846.75		99.96	2.91E-01	2.91E-01	-1.14E-01	1.35E-01
		1037.75		14.03	2.38E+00		-1.01E+00	1.10E+00
		1238.25		67.00	7.95E-01		2.25E-01	3.76E-01
		1771.40		15.51	1.61E+00		-6.53E-01	6.72E-01
		2598.48		16.90	1.00E+00		-2.27E-01	3.17E-01
	CO-57	122.06		85.51	1.02E-01	1.02E-01	-2.44E-02	4.99E-02
		136.48		10.60	8.67E-01		-1.52E-01	4.23E-01
	CO-58	810.76		99.40	3.58E-01	3.58E-01	1.80E-01	1.68E-01
	FE-59	1099.22		56.50	1.37E+00	1.37E+00	-1.23E-01	6.40E-01
		1291.56		43.20	1.88E+00		6.36E-01	8.71E-01
	CO-60	1173.22		100.00	1.86E-01	1.69E-01	-6.13E-02	8.68E-02
		1332.49		100.00	1.69E-01		9.05E-03	7.75E-02
	ZN-65	1115.52		50.75	5.35E-01	5.35E-01	-1.63E-02	2.53E-01
	GA-67	93.31		35.70	1.59E+08	1.59E+08	2.35E+08	7.81E+07
		208.95		2.24	2.49E+09		2.30E+09	1.21E+09
		300.22		16.00	4.11E+08		-9.88E+07	1.99E+08
	SE-75	121.11		16.70	7.14E-01	2.10E-01	5.75E-02	3.49E-01
		136.00		59.20	2.10E-01		-2.94E-02	1.03E-01
		264.65		59.80	2.31E-01		-1.44E-02	1.11E-01
		279.53		25.20	5.96E-01		1.70E-01	2.88E-01
		400.65		11.40	1.41E+00		-3.16E-01	6.71E-01
	RB-82	776.52		13.00	1.40E+01	1.40E+01	5.05E+00	6.57E+00
	RB-83	520.41		46.00	4.57E-01	4.57E-01	5.33E-02	2.15E-01
		529.64		30.30	7.42E-01		-2.78E-02	3.51E-01
		552.65		16.40	1.28E+00		-6.77E-01	6.01E-01
	KR-85	513.99		0.43	3.22E+01	3.22E+01	2.62E+01	1.54E+01
	SR-85	513.99		99.27	3.83E-01	3.83E-01	3.12E-01	1.84E-01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	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	3.09E-01	2.44E-01	1.31E-01	1.45E-01
		1836.01		99.38	2.44E-01		4.07E-02	1.05E-01
	MO-93	263.06		56.72	1.46E-01	1.22E-01	2.91E-03	7.05E-02
		684.67		99.68	1.25E-01		-1.41E-02	5.86E-02
		1477.11		99.08	1.22E-01		6.02E-02	5.36E-02
	NB-93M	16.57		9.43	9.86E+00	9.86E+00	2.41E+01	4.81E+00
	NB-94	702.63		100.00	1.51E-01	1.29E-01	5.01E-02	7.18E-02
		871.10		100.00	1.29E-01		-4.19E-03	5.99E-02
	NB-95	765.79		99.81	9.80E-01	9.80E-01	3.12E-01	4.63E-01
	NB-95M	235.69		25.00	4.53E+07	4.53E+07	6.63E+07	2.22E+07
	ZR-95	724.18		43.70	9.96E-01	7.02E-01	8.65E-02	4.73E-01
		756.72		55.30	7.02E-01		8.74E-02	3.30E-01
	MO-99	181.06		6.20	3.48E+10	2.78E+10	1.28E+09	1.70E+10
		739.58		12.80	2.78E+10		3.43E+09	1.31E+10
		778.00		4.50	7.91E+10		4.23E+09	3.70E+10
	RU-103	497.08		89.00	5.93E-01	5.93E-01	-3.06E-01	2.80E-01
	RU-106	621.84		9.80	1.29E+00	1.29E+00	2.77E-02	6.03E-01
	AG-108M	433.93		89.90	1.08E-01	1.08E-01	-6.90E-03	5.14E-02
		614.37		90.40	1.23E-01		6.45E-03	5.77E-02
		722.95		90.50	1.61E-01		1.91E-02	7.61E-02
+	CD-109	88.03	*	3.72	5.08E+00	5.08E+00	6.42E+00	2.52E+00
	AG-110M	657.75		93.14	1.72E-01	1.72E-01	-1.65E-02	8.10E-02
		677.61		10.53	1.61E+00		4.57E-02	7.58E-01
		706.67		16.46	1.18E+00		1.25E-02	5.58E-01
		763.93		21.98	8.31E-01		-1.76E-02	3.91E-01
		884.67		71.63	2.44E-01		8.60E-02	1.13E-01
		1384.27		23.94	7.26E-01		-5.78E-02	3.25E-01
	CD-113M	263.70		0.02	3.49E+02	3.49E+02	-1.20E+02	1.68E+02
	SN-113	255.12		1.93	7.14E+00	2.61E-01	-3.56E+00	3.45E+00
		391.69		64.90	2.61E-01		-6.85E-02	1.25E-01
	TE123M	159.00		84.10	1.50E-01	1.50E-01	-1.32E-01	7.32E-02
	SB-124	602.71		97.87	3.44E-01	3.44E-01	5.06E-02	1.62E-01
		645.85		7.26	4.13E+00		-1.46E+00	1.92E+00
		722.78		11.10	3.93E+00		4.65E-01	1.86E+00
		1691.02		49.00	7.36E-01		1.07E-01	3.17E-01
	I-125	35.49		6.49	6.41E+00	6.41E+00	-8.57E-01	3.13E+00
	SB-125	176.33		6.89	1.16E+00	3.71E-01	-5.76E-01	5.66E-01
		427.89		29.33	3.71E-01		-3.25E-02	1.77E-01
		463.38		10.35	1.10E+00		7.95E-01	5.24E-01
		600.56		17.80	6.04E-01		-3.42E-02	2.83E-01
		635.90		11.32	9.77E-01		1.59E-02	4.56E-01
	SB-126	414.70		83.30	2.31E+01	2.31E+01	-8.72E+00	1.10E+01
		666.33		99.60	2.83E+01		1.27E+01	1.34E+01
		695.00		99.60	2.85E+01		-9.31E-01	1.35E+01
		720.50		53.80	5.07E+01		-1.03E+01	2.38E+01
+	SN-126	87.57	*	37.00	4.43E-01	4.43E-01	5.59E-01	2.19E-01
	SB-127	473.00		25.00	1.07E+07	9.80E+06	2.88E+06	5.06E+06
		685.20		35.70	9.80E+06		-1.11E+06	4.60E+06
		783.80		14.70	2.52E+07		1.38E+06	1.18E+07
	I-129	29.78		57.00	3.33E-01	3.33E-01	-3.46E-02	1.63E-01
		33.60		13.20	1.15E+00		2.90E-02	5.60E-01
		39.58		7.52	1.59E+00		4.75E-02	7.80E-01
	I-131	284.30		6.05	5.11E+03	4.14E+02	1.03E+03	2.46E+03

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	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	4.14E+02	4.14E+02	-5.43E+01	1.98E+02
		636.97		7.26	5.32E+03		-1.38E+02	2.48E+03
		722.89		1.80	3.00E+04		3.56E+03	1.42E+04
	TE-132	49.72		13.10	5.02E+08	6.06E+07	2.16E+08	2.46E+08
		228.16		88.00	6.06E+07		-3.30E+06	2.94E+07
	BA-133	81.00		33.00	2.96E-01	2.29E-01	-6.42E-01	1.46E-01
		302.84		17.80	5.29E-01		1.85E-01	2.55E-01
		356.01		60.00	2.29E-01		4.08E-02	1.11E-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	7.53E+04	7.53E+04	-1.64E+05	3.71E+04
	CS-134	563.23		8.38	1.46E+00	1.49E-01	-6.48E-01	6.90E-01
		569.32		15.43	8.42E-01		2.09E-01	3.99E-01
		604.70		97.60	1.49E-01		-1.06E+00	7.07E-02
		795.84		85.40	1.99E-01		8.19E-02	9.39E-02
		801.93		8.73	1.71E+00		-1.30E+00	8.02E-01
	CS-135	268.24		16.00	5.61E-01	5.61E-01	1.61E-02	2.72E-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	2.12E+01	1.57E+02	7.89E+01
		163.89		4.61	2.51E+02		-3.06E+00	1.22E+02
		176.55		13.56	8.47E+01		-5.79E+00	4.12E+01
		273.65		12.66	1.10E+02		-3.62E+01	5.35E+01
		340.57		48.50	3.55E+01		-2.33E+00	1.72E+01
		818.50		99.70	2.12E+01		-6.57E+00	9.95E+00
		1048.07		79.60	3.02E+01		-6.88E+00	1.40E+01
		1235.34		19.70	1.84E+02		2.18E+01	8.69E+01
	CS-137	661.65		85.12	1.67E-01	1.67E-01	2.86E-02	7.95E-02
	LA-138	788.74		34.00	4.11E-01	2.13E-01	-1.67E-02	1.93E-01
		1435.80		66.00	2.13E-01		-3.77E-02	9.54E-02
	CE-139	165.85		80.35	1.58E-01	1.58E-01	1.08E-01	7.71E-02
	BA-140	162.64		6.70	1.97E+02	7.41E+01	-3.38E+01	9.60E+01
		304.84		4.50	3.43E+02		-8.51E+01	1.65E+02
		423.70		3.20	5.50E+02		8.71E+01	2.62E+02
		437.55		2.00	8.23E+02		-7.06E+02	3.91E+02
		537.32		25.00	7.41E+01		-2.66E+01	3.50E+01
	LA-140	328.77		20.50	8.17E+01	2.74E+01	5.79E+01	3.94E+01
		487.03		45.50	3.97E+01		8.77E+00	1.88E+01
		815.85		23.50	1.05E+02		3.70E+01	4.93E+01
		1596.49		95.49	2.74E+01		2.51E+00	1.22E+01
+	CE-141	145.44	*	48.40	1.16E+00	1.16E+00	6.71E-01	5.67E-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	8.17E-01	8.17E-01	-1.16E-01	3.99E-01
	PM-144	476.78		42.00	2.47E-01	1.23E-01	-1.95E-01	1.16E-01
		618.01		98.60	1.23E-01		-1.80E-02	5.73E-02
		696.49		99.49	1.72E-01		-3.14E-02	8.16E-02
	PM-145	36.85		21.70	6.08E-01	3.25E-01	-7.90E-02	2.97E-01
		37.36		39.70	3.25E-01		-4.22E-02	1.59E-01
		42.30		15.10	7.43E-01		-9.83E-01	3.63E-01
		72.40		2.31	4.51E+00		4.87E-01	2.22E+00
	PM-146	453.90		39.94	2.59E-01	2.59E-01	1.67E-01	1.23E-01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	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	8.66E-01	2.59E-01	1.33E-01	4.04E-01
		747.13		13.10	1.04E+00		-2.61E-01	4.89E-01
	ND-147	91.11		28.90	1.36E+02	1.36E+02	2.88E+02	6.71E+01
		531.02		13.10	3.34E+02		7.12E+01	1.58E+02
	PM-149	285.90		3.10	2.51E+13	2.51E+13	3.93E+12	1.21E+13
	EU-152	121.78		20.50	3.38E-01	3.38E-01	-8.09E-02	1.65E-01
		244.69		5.40	1.86E+00		1.32E-01	9.07E-01
		344.27		19.13	5.01E-01		4.42E-02	2.41E-01
		778.89		9.20	1.35E+00		7.71E-02	6.31E-01
		964.01		10.40	1.64E+00		7.67E-02	7.71E-01
		1085.78		7.22	2.26E+00		-3.04E-01	1.05E+00
		1112.02		9.60	1.90E+00		-5.31E-02	8.89E-01
		1407.95		14.94	1.06E+00		4.24E-01	4.80E-01
	GD-153	97.43		31.30	3.12E-01	3.12E-01	1.05E-01	1.53E-01
		103.18		22.20	4.04E-01		8.38E-04	1.98E-01
	EU-154	123.07		40.50	1.73E-01	1.73E-01	-4.57E-02	8.44E-02
		723.30		19.70	8.02E-01		6.97E-02	3.81E-01
		873.19		11.50	1.20E+00		1.89E-01	5.60E-01
		996.32		10.30	1.45E+00		-1.46E-01	6.75E-01
		1004.76		17.90	9.56E-01		4.01E-01	4.48E-01
		1274.45		35.50	5.83E-01		1.91E-01	2.73E-01
	EU-155	86.50		30.90	3.11E-01	3.11E-01	3.85E-01	1.53E-01
		105.30		20.70	3.44E-01		1.64E-02	1.68E-01
	EU-156	811.77		10.40	1.03E+02	1.03E+02	6.37E+00	4.84E+01
		1153.47		7.20	2.18E+02		2.79E+01	1.03E+02
		1230.71		8.90	1.93E+02		4.95E+01	9.10E+01
	HO-166M	184.41		72.60	1.31E-01	1.31E-01	1.96E-01	6.39E-02
		280.45		29.60	2.85E-01		-5.78E-02	1.37E-01
		410.94		11.10	9.30E-01		4.90E-01	4.45E-01
		711.69		54.10	2.64E-01		1.55E-01	1.25E-01
	TM-171	66.72		0.14	7.44E+01	7.44E+01	-2.02E+01	3.66E+01
	HF-172	67.35		5.31	1.96E+00	6.97E-01	-5.30E-01	9.62E-01
		125.81		11.30	6.97E-01		-1.20E-02	3.41E-01
	LU-172	181.53		20.60	7.82E+03	5.02E+03	9.36E+02	3.81E+03
		900.72		29.81	1.04E+04		1.32E+03	4.90E+03
		1093.66		62.50	5.02E+03		-5.60E+02	2.34E+03
+	LU-173	100.72		5.24	1.44E+00	6.25E-01	-1.10E+00	7.05E-01
		272.11	*	21.20	6.25E-01		5.93E-01	3.05E-01
	HF-175	343.40		84.00	2.89E-01	2.89E-01	2.55E-02	1.39E-01
	LU-176	88.34		13.30	6.96E-01	9.08E-02	-3.55E-02	3.42E-01
		201.83		86.00	9.47E-02		-7.56E-03	4.61E-02
		306.78		94.00	9.08E-02		-2.66E-02	4.37E-02
	HF-181	133.02		41.70	8.20E-01	5.61E-01	-1.13E-01	4.00E-01
		345.85		17.20	2.56E+00		2.32E-01	1.23E+00
		482.03		82.80	5.61E-01		-4.18E-03	2.65E-01
	TA-182	67.75		41.20	4.01E-01	4.01E-01	-3.97E-01	1.97E-01
		1121.30		34.90	1.17E+00		-1.60E-01	5.57E-01
		1189.05		16.23	2.05E+00		-1.09E+00	9.60E-01
		1221.41		26.98	1.36E+00		3.82E-01	6.40E-01
		1231.02		11.44	3.40E+00		8.09E-01	1.60E+00
	IR-192	308.46		29.68	7.13E-01	5.00E-01	-1.03E-01	3.43E-01
		468.07		48.10	5.00E-01		-1.19E-01	2.37E-01
+	HG-203	279.19	*	77.30	5.36E-01	5.36E-01	3.05E-01	2.60E-01

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

	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	9.71E-02	9.71E-02	-2.30E-02	4.63E-02
		899.15		99.16	1.67E-01		1.16E-02	7.87E-02
		911.74		91.10	2.71E-01		4.27E-01	1.30E-01
	BI-207	569.67		97.72	1.22E-01	1.22E-01	3.04E-02	5.80E-02
		1063.62		74.90	2.15E-01		1.03E-01	1.00E-01
+	TL-208	583.14	*	30.22	6.36E-01	7.58E-02	6.56E-01	3.08E-01
		860.37		4.48	3.43E+00		1.85E+00	1.61E+00
		2614.66	*	35.85	7.58E-02		1.20E+00	0.00E+00
	BI-210M	262.00		45.00	1.81E-01	1.81E-01	-2.59E-03	8.74E-02
		300.00		23.00	4.50E-01		-1.08E-01	2.18E-01
	PB-210	46.50		4.25	2.59E+00	2.59E+00	2.03E+00	1.27E+00
	PB-211	404.84		2.90	3.34E+00	3.34E+00	-1.16E+00	1.59E+00
		831.96		2.90	5.03E+00		1.59E+00	2.36E+00
+	BI-212	727.17	*	11.80	1.66E+00	1.66E+00	1.15E+00	7.95E-01
		1620.62		2.75	4.84E+00		1.88E+00	2.13E+00
+	PB-212	238.63	*	44.60	4.02E-01	4.02E-01	1.36E+00	1.98E-01
		300.09		3.41	3.03E+00		-7.30E-01	1.47E+00
+	BI-214	609.31	*	46.30	4.91E-01	4.91E-01	2.01E+00	2.38E-01
		1120.29	*	15.10	1.51E+00		1.81E+00	7.14E-01
		1764.49	*	15.80	1.15E+00		1.85E+00	5.22E-01
		2204.22	*	4.98	3.20E+00		3.16E+00	1.38E+00
+	PB-214	295.21	*	19.19	6.15E-01	3.83E-01	2.38E+00	2.99E-01
		351.92	*	37.19	3.83E-01		2.02E+00	1.87E-01
	RN-219	401.80		6.50	1.45E+00	1.45E+00	3.60E-01	6.92E-01
	RA-223	323.87		3.88	2.27E+00	2.27E+00	-9.13E-01	1.09E+00
	RA-224	240.98		3.95	3.83E+00	3.83E+00	1.85E+01	1.88E+00
	RA-225	40.00		31.00	3.31E+01	3.31E+01	9.86E-01	1.62E+01
+	RA-226	186.21	*	3.28	3.95E+00	3.95E+00	3.68E+00	1.94E+00
	TH-227	50.10		8.40	1.20E+00	1.10E+00	5.17E-01	5.90E-01
		236.00		11.50	1.10E+00		1.61E+00	5.41E-01
		256.20		6.30	1.26E+00		-2.80E-01	6.07E-01
+	AC-228	338.32	*	11.40	1.10E+00	1.08E+00	1.80E+00	5.33E-01
		911.07	*	27.70	1.08E+00		1.61E+00	5.22E-01
		969.11	*	16.60	1.65E+00		1.47E+00	7.93E-01
	TH-230	48.44		16.90	6.17E-01	6.17E-01	2.16E-01	3.03E-01
		62.85		4.60	2.15E+00		2.25E+00	1.06E+00
		67.67		0.37	2.51E+01		-2.48E+01	1.23E+01
	PA-231	283.67		1.60	5.19E+00	4.02E+00	1.05E+00	2.50E+00
		302.67		2.30	4.02E+00		1.40E+00	1.94E+00
	TH-231	25.64		14.70	1.88E+00	1.34E+00	6.58E-02	9.19E-01
		84.21		6.40	1.34E+00		-2.23E+00	6.59E-01
	PA-233	311.98		38.60	2.57E+00	2.57E+00	-7.49E-03	1.24E+00
	PA-234	131.20		20.40	3.61E-01	3.61E-01	7.75E-03	1.76E-01
		733.99		8.80	1.34E+00		2.04E-01	6.26E-01
		946.00		12.00	1.30E+00		9.95E-01	6.08E-01
	PA-234M	1001.03		0.92	1.70E+01	1.70E+01	3.15E-01	7.93E+00
	TH-234	63.29		3.80	2.59E+00	2.59E+00	2.72E+00	1.27E+00
	U-235	143.76		10.50	7.33E-01	7.33E-01	2.85E-01	3.58E-01
		163.35		4.70	1.60E+00		-2.75E-01	7.82E-01
		205.31		4.70	1.77E+00		1.98E-01	8.61E-01
	NP-237	86.50		12.60	7.36E-01	7.36E-01	9.10E-01	3.62E-01
	NP-239	106.10		22.70	4.75E+11	4.75E+11	2.77E+11	2.32E+11
		228.18		10.70	1.19E+12		-6.51E+10	5.79E+11

Analysis Report for 1707084-18

HTC-A02-S002-0612-01

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	9.44E+11	4.75E+11	2.35E+11	4.56E+11
AM-241	59.54	35.90	2.67E-01	2.67E-01	4.88E-03	1.31E-01
AM-243	74.67	66.00	1.91E-01	1.91E-01	9.17E-01	9.43E-02
CM-243	209.75	3.29	2.69E+00	6.19E-01	2.43E+00	1.31E+00
	228.14	10.60	7.85E-01		-4.28E-02	3.81E-01
	277.60	14.00	6.19E-01		1.54E-01	2.99E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-0612-01

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	7	136
17:	114	122	121	92	94	96	98	93
25:	81	93	77	82	81	88	77	91
33:	81	89	97	86	82	99	99	98
41:	101	107	93	102	148	159	149	105
49:	111	94	129	128	115	106	111	120
57:	132	145	145	150	148	222	211	169
65:	167	150	163	162	169	178	163	170
73:	267	404	363	501	446	210	144	136
81:	133	137	173	164	163	203	234	191
89:	178	168	179	244	200	143	93	85
97:	92	106	100	89	74	87	95	116
105:	117	101	89	93	102	88	104	88
113:	102	88	85	94	86	94	96	74
121:	84	100	84	78	92	92	79	125
129:	111	96	82	93	76	85	78	74
137:	98	97	98	101	77	81	103	122
145:	85	85	63	94	78	101	99	88
153:	101	94	80	73	71	80	81	50
161:	75	70	87	81	83	92	68	80
169:	77	71	64	74	68	57	73	65
177:	62	67	80	77	59	74	80	118
185:	153	125	91	65	71	65	73	73
193:	68	68	70	60	66	54	57	62
201:	66	77	54	69	57	60	62	78
209:	94	70	62	55	45	54	69	60
217:	49	50	51	57	52	52	52	46
225:	47	56	55	51	57	49	47	58
233:	52	51	59	81	203	311	186	121
241:	119	110	73	48	37	36	37	28
249:	27	43	33	32	42	29	43	32
257:	44	42	53	31	40	37	33	31
265:	40	37	31	45	69	58	61	46
273:	36	36	27	51	52	36	29	35
281:	39	23	35	38	36	30	39	23
289:	34	30	32	36	66	149	187	100
297:	32	34	44	51	39	31	33	27
305:	33	34	32	30	23	29	35	30
313:	38	22	23	31	28	25	18	30
321:	29	39	23	23	30	27	35	46
329:	34	31	28	32	23	28	35	47
337:	60	96	36	38	23	26	28	30
345:	29	31	28	23	35	129	235	218
353:	62	24	23	19	27	26	14	20
361:	27	24	29	18	25	21	21	25

369:	35	26	14	20	27	22	23	24

Sample Title: HTC-A02-S002-0612-01

Channel								
377:	14	17	16	23	22	30	27	19
385:	28	32	27	26	33	24	18	17
393:	20	20	28	16	17	24	17	22
401:	15	26	20	22	22	19	28	31
409:	27	27	17	16	22	17	20	19
417:	22	16	20	29	16	22	24	21
425:	18	18	25	17	30	21	15	28
433:	20	21	14	12	16	17	19	21
441:	19	28	18	18	19	13	17	18
449:	7	15	19	20	20	17	20	16
457:	15	12	11	24	19	24	19	20
465:	16	17	18	13	18	13	23	9
473:	7	14	17	7	14	14	11	18
481:	18	10	19	16	17	21	14	21
489:	8	12	19	15	8	11	22	14
497:	15	17	14	20	18	18	12	7
505:	15	18	24	24	34	52	46	30
513:	22	12	14	13	14	17	11	15
521:	13	11	9	15	20	17	19	7
529:	13	11	12	21	20	12	15	16
537:	22	11	12	11	15	13	10	7
545:	18	12	12	12	14	9	13	7
553:	15	10	11	11	22	14	17	9
561:	11	21	12	15	17	21	14	11
569:	18	13	17	19	11	15	17	9
577:	10	7	17	11	41	69	76	45
585:	15	11	14	6	12	19	12	7
593:	12	13	8	9	5	7	13	11
601:	12	12	11	17	13	18	43	143
609:	156	73	22	10	12	9	11	13
617:	6	7	9	12	12	10	8	15
625:	12	10	7	8	11	8	8	12
633:	10	10	9	6	9	11	12	9
641:	10	7	9	7	4	8	13	12
649:	12	11	12	9	18	7	5	4
657:	10	17	8	9	12	15	9	22
665:	18	17	7	7	9	5	7	11
673:	11	12	9	7	14	10	14	10
681:	8	12	11	10	9	5	7	10
689:	7	9	11	11	13	12	13	12
697:	10	11	13	15	20	12	12	17
705:	11	11	16	8	13	16	11	7
713:	12	15	7	8	5	9	14	8
721:	11	11	10	11	14	18	24	18
729:	8	8	6	7	4	7	9	8
737:	9	4	11	15	9	8	8	4
745:	15	11	7	12	9	7	15	11
753:	12	7	10	10	7	11	7	12
761:	6	9	8	6	5	16	19	22
769:	8	4	14	11	11	9	6	13
777:	7	7	7	10	3	2	9	9
785:	15	8	8	7	9	11	9	6
793:	7	17	14	14	10	15	9	7

801:	9	9	8	2	7	12	10	7

Sample Title: HTC-A02-S002-0612-01

Channel								
809:	11	5	2	10	15	6	10	5
817:	9	10	11	8	4	13	11	11
825:	9	8	3	6	10	5	13	8
833:	11	8	17	15	6	13	12	10
841:	9	9	7	8	6	3	9	6
849:	6	3	9	5	9	6	8	7
857:	6	13	16	15	8	5	9	6
865:	8	5	6	5	3	11	9	5
873:	7	6	4	8	10	10	7	4
881:	5	2	9	9	9	11	5	6
889:	7	5	6	7	10	10	8	6
897:	9	13	9	8	7	7	16	11
905:	13	8	5	6	27	46	42	31
913:	15	8	6	10	6	9	6	6
921:	7	5	8	2	7	4	6	7
929:	11	3	13	14	6	17	5	8
937:	8	8	2	7	3	7	9	11
945:	6	14	4	10	9	4	5	4
953:	6	10	9	4	9	7	7	11
961:	10	6	12	14	6	9	8	34
969:	22	20	9	8	6	4	10	5
977:	5	2	4	10	8	9	6	7
985:	14	5	10	7	7	2	8	5
993:	8	7	6	6	2	9	5	10
1001:	5	12	11	6	9	7	7	9
1009:	4	8	5	9	4	7	1	3
1017:	5	6	9	6	11	5	14	8
1025:	9	8	7	6	4	7	7	7
1033:	6	2	4	3	4	9	11	5
1041:	8	12	4	11	6	3	6	8
1049:	7	11	6	8	4	3	6	7
1057:	3	5	8	7	4	5	6	5
1065:	10	10	7	0	11	4	5	6
1073:	8	4	6	7	11	5	8	9
1081:	16	11	6	4	8	1	6	6
1089:	2	5	9	3	10	11	8	7
1097:	6	10	7	9	6	13	5	3
1105:	10	11	9	7	9	8	7	8
1113:	7	7	11	7	8	13	30	24
1121:	20	5	7	7	7	8	5	5
1129:	9	8	4	8	3	2	4	7
1137:	9	8	9	10	5	0	8	11
1145:	7	7	5	8	8	13	11	5
1153:	4	8	13	16	10	7	7	7
1161:	8	6	8	9	8	12	6	9
1169:	5	12	7	5	7	8	7	5
1177:	10	8	11	7	8	12	12	9
1185:	6	12	6	9	10	7	7	9
1193:	4	10	9	10	6	7	8	16
1201:	3	11	6	3	8	13	9	9
1209:	8	2	11	8	11	3	7	7
1217:	10	9	7	10	13	6	8	9
1225:	10	9	12	7	9	13	10	14

1233:	5	15	6	11	20	15	13	10

Sample Title: HTC-A02-S002-0612-01

Channel								
1241:	4	7	15	6	8	4	5	4
1249:	9	5	10	8	6	9	5	3
1257:	3	3	2	5	5	9	1	6
1265:	5	4	2	6	5	6	9	13
1273:	4	10	5	10	9	7	8	9
1281:	8	5	5	5	3	9	4	7
1289:	7	3	6	7	5	7	12	6
1297:	4	3	4	10	7	3	4	4
1305:	3	4	6	3	5	5	5	3
1313:	1	1	2	5	9	5	9	2
1321:	6	4	3	4	5	3	2	1
1329:	6	10	2	6	7	2	4	4
1337:	7	3	6	2	3	2	4	2
1345:	10	7	2	5	3	2	1	3
1353:	4	3	1	4	5	4	3	3
1361:	3	0	5	2	4	0	2	4
1369:	2	1	6	0	5	3	2	3
1377:	6	3	5	4	1	3	5	5
1385:	3	1	2	1	0	4	2	2
1393:	7	3	4	3	2	1	4	5
1401:	3	3	5	2	2	4	3	6
1409:	5	7	4	1	2	0	2	3
1417:	1	2	0	1	3	2	1	5
1425:	5	2	3	4	3	5	5	3
1433:	1	1	7	3	1	1	4	4
1441:	2	3	3	0	0	3	1	3
1449:	1	5	5	2	5	0	6	4
1457:	9	20	72	190	145	60	9	1
1465:	0	0	2	2	1	0	3	0
1473:	0	2	2	0	4	2	2	2
1481:	3	1	0	0	1	0	1	2
1489:	1	1	1	1	3	3	3	3
1497:	4	5	1	8	3	2	3	0
1505:	2	5	1	7	7	9	3	2
1513:	1	2	5	1	6	2	4	1
1521:	1	0	2	2	3	2	1	1
1529:	3	3	4	1	3	2	1	1
1537:	5	3	0	3	0	2	0	4
1545:	3	2	1	0	2	0	1	3
1553:	2	2	1	4	3	2	0	0
1561:	1	1	1	1	1	1	1	1
1569:	0	1	4	2	2	0	3	0
1577:	5	2	3	3	1	4	0	0
1585:	6	2	1	4	4	3	10	5
1593:	8	4	1	1	0	1	3	1
1601:	0	2	1	0	1	1	1	0
1609:	1	1	1	0	0	2	0	3
1617:	0	2	2	2	4	1	3	1
1625:	1	3	0	5	2	1	2	3
1633:	1	2	1	2	2	0	3	1
1641:	4	0	0	1	2	0	1	2
1649:	0	1	2	3	0	0	0	0
1657:	0	0	0	0	3	0	1	1

1665:	0	1	2	1	2	2	1	1

Sample Title: HTC-A02-S002-0612-01

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

2097:	2	0	1	0	0	2	1	2

Sample Title: HTC-A02-S002-0612-01

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

2529:	0	0	1	1	0	1	0	1

Sample Title: HTC-A02-S002-0612-01

Channel								
2537:	1	0	0	0	0	0	0	0
2545:	0	0	0	0	1	0	0	0
2553:	1	0	1	0	0	0	0	0
2561:	0	0	1	0	0	0	0	0
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	0	0	0	0	0
2585:	0	1	0	1	2	0	1	0
2593:	0	1	0	0	0	0	0	0
2601:	0	0	1	0	0	0	0	0
2609:	1	1	1	4	7	10	11	5
2617:	3	0	0	1	0	0	0	0
2625:	0	0	0	0	1	0	0	0
2633:	0	1	0	0	0	1	0	0
2641:	0	0	0	0	0	0	0	0
2649:	0	1	1	2	0	0	0	0
2657:	0	0	0	1	0	0	0	0
2665:	0	0	0	0	1	0	0	0
2673:	0	0	0	0	0	0	0	0
2681:	1	0	0	0	0	0	0	0
2689:	1	1	0	0	0	0	0	0
2697:	0	1	1	0	0	0	0	1
2705:	0	1	1	0	0	0	1	0
2713:	0	1	0	0	1	0	0	0
2721:	0	0	1	0	1	0	0	0
2729:	1	0	0	0	0	0	0	2
2737:	0	1	0	0	0	0	0	0
2745:	0	0	0	0	0	0	0	0
2753:	0	0	0	0	0	0	0	0
2761:	0	0	1	0	0	1	0	1
2769:	0	0	0	0	1	0	0	1
2777:	0	0	0	0	0	0	0	0
2785:	0	1	0	0	0	0	0	0
2793:	0	0	0	0	2	0	1	0
2801:	0	0	0	0	0	0	0	0
2809:	0	0	0	1	0	1	0	0
2817:	0	0	0	0	0	0	0	0
2825:	0	0	0	0	0	1	0	1
2833:	0	0	0	1	0	0	0	0
2841:	0	0	0	0	1	0	0	0
2849:	0	0	1	1	0	0	1	0
2857:	1	0	0	0	0	0	0	0
2865:	0	0	0	1	0	0	0	0
2873:	0	0	1	0	0	0	1	0
2881:	0	0	0	0	0	0	0	1
2889:	0	0	0	0	1	0	0	0
2897:	1	1	0	0	0	0	0	0
2905:	0	1	0	0	0	0	0	0
2913:	0	0	0	0	0	0	0	2
2921:	0	1	0	0	0	0	0	0
2929:	1	0	0	2	0	0	0	0
2937:	1	0	0	0	0	0	0	0
2945:	0	1	0	0	0	0	0	0
2953:	0	0	0	0	0	0	0	0

2961:	0	0	0	0	0	1	0	0

Sample Title: HTC-A02-S002-0612-01

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

3393:	0	1	1	0	0	0	0	0

Sample Title: HTC-A02-S002-0612-01

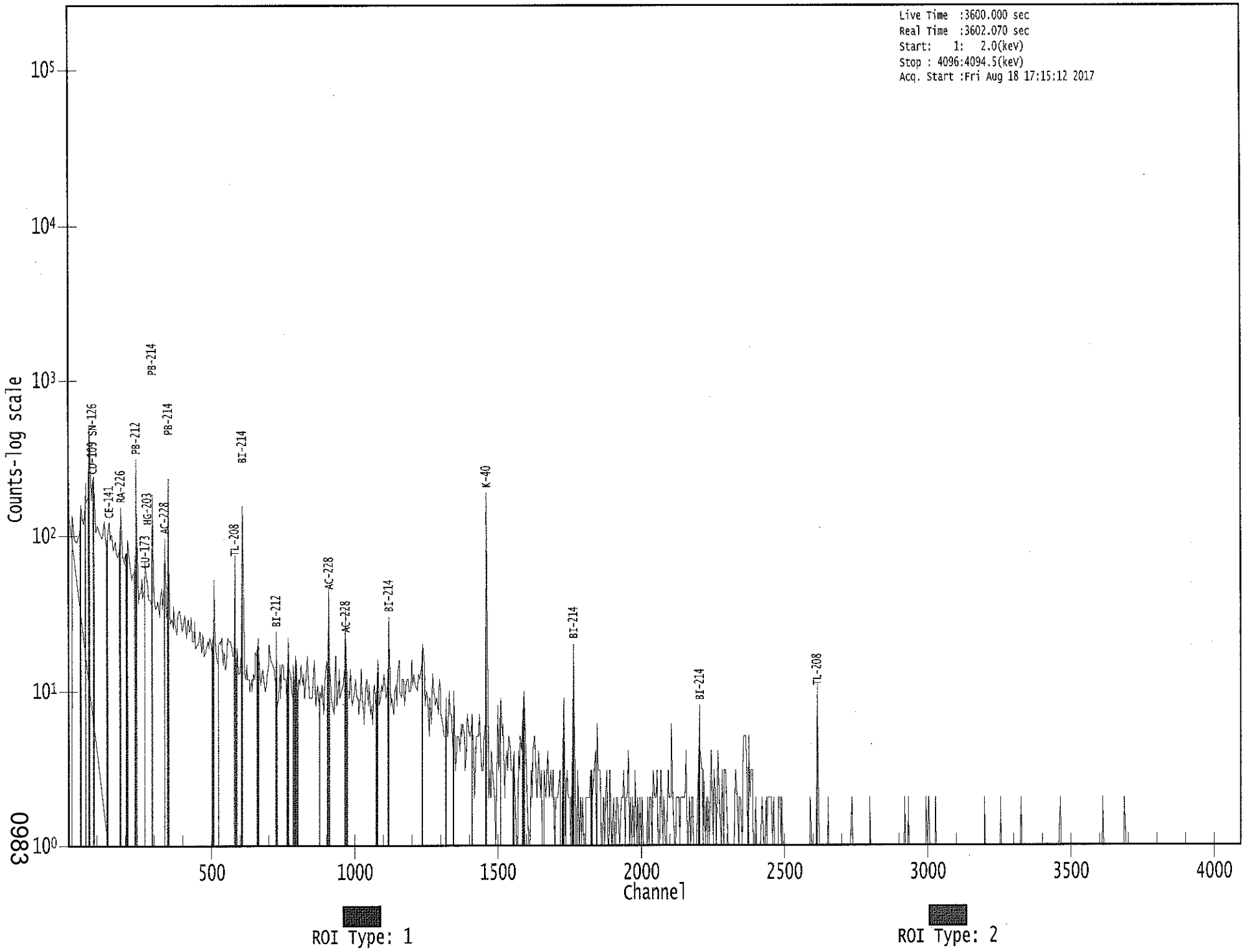
Channel								
3401:	0	1	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	1
3417:	1	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	0	0	0
3441:	0	0	1	0	1	0	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	1	0	0	0	0	2	0
3465:	0	0	0	0	0	0	1	0
3473:	0	0	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	0	0	0	0	0	0	0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

3825:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-0612-01

Channel								
3833:	0	0	0	0	0	0	0	1
3841:	0	0	0	0	0	0	0	0
3849:	0	0	0	0	0	0	0	0
3857:	0	0	0	0	0	0	0	1
3865:	0	0	0	0	1	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	1
3897:	0	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	1	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	1	0	0	0	0	0
3961:	0	0	0	0	0	0	0	0
3969:	0	0	0	0	0	0	0	0
3977:	0	0	0	0	0	0	0	0
3985:	0	0	0	0	0	0	0	0
3993:	0	0	1	0	0	0	0	0
4001:	0	0	0	0	0	0	0	0
4009:	0	0	0	0	0	0	0	0
4017:	0	0	0	0	0	0	0	0
4025:	0	0	0	0	0	0	1	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	0	0
4057:	0	0	0	1	0	0	0	0
4065:	0	0	0	0	0	0	0	0
4073:	0	0	1	0	1	0	0	0
4081:	1	0	0	0	0	0	1	0
4089:	0	0	1	0	0	1	0	0

0000055533.CNF



0983

UB 8/19/17

Apex-Gamma

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-19
Sample Description	: HTC-A02-S002-1218-01
Sample Type	: SOIL
Sample Size	: 5.752E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:10:50AM
Acquisition Started	: 8/18/2017 5:42:19PM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
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)	: 17 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55534

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/18/2017 6:42:23PM
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	46.43	47.05	0.0000	0.00
2	62.86	63.47	0.0000	0.00
3	74.72	75.31	0.0000	0.00
4	77.28	77.87	0.0000	0.00
5	84.37	84.96	0.0000	0.00
6	87.30	87.88	0.0000	0.00
7	92.78	93.35	0.0000	0.00
8	142.06	142.58	0.0000	0.00
9	155.43	155.94	0.0000	0.00
10	185.86	186.34	0.0000	0.00
11	195.61	196.08	0.0000	0.00
12	209.51	209.96	0.0000	0.00
13	238.57	239.00	0.0000	0.00
14	241.93	242.35	0.0000	0.00
15	269.89	270.28	0.0000	0.00
16	295.29	295.66	0.0000	0.00
17	300.30	300.66	0.0000	0.00
18	327.30	327.64	0.0000	0.00
19	338.83	339.16	0.0000	0.00
20	351.94	352.25	0.0000	0.00
21	375.00	375.28	0.0000	0.00
22	511.10	511.25	0.0000	0.00
23	551.25	551.36	0.0000	0.00
24	583.01	583.08	0.0000	0.00
25	609.44	609.49	0.0000	0.00
26	727.46	727.39	0.0000	0.00
27	756.28	756.19	0.0000	0.00
28	768.42	768.31	0.0000	0.00
29	786.11	785.98	0.0000	0.00
30	840.74	840.56	0.0000	0.00
31	856.48	856.29	0.0000	0.00
32	860.86	860.65	0.0000	0.00
33	911.57	911.32	0.0000	0.00
34	934.16	933.89	0.0000	0.00
35	944.04	943.76	0.0000	0.00
36	960.72	960.42	0.0000	0.00
37	964.24	963.94	0.0000	0.00
38	969.43	969.12	0.0000	0.00
39	983.54	983.21	0.0000	0.00
40	1010.77	1010.42	0.0000	0.00
41	1069.19	1068.78	0.0000	0.00
42	1086.89	1086.47	0.0000	0.00

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1120.72	1120.26	0.0000	0.00
44	1156.96	1156.47	0.0000	0.00
45	1238.81	1238.24	0.0000	0.00
46	1377.88	1377.16	0.0000	0.00
47	1405.15	1404.41	0.0000	0.00
48	1408.20	1407.46	0.0000	0.00
49	1461.31	1460.52	0.0000	0.00
50	1497.56	1496.73	0.0000	0.00
51	1509.52	1508.68	0.0000	0.00
52	1588.62	1587.70	0.0000	0.00
53	1593.96	1593.03	0.0000	0.00
54	1621.51	1620.56	0.0000	0.00
55	1631.55	1630.59	0.0000	0.00
56	1729.82	1728.76	0.0000	0.00
57	1764.89	1763.80	0.0000	0.00
58	1848.67	1847.50	0.0000	0.00
59	2007.76	2006.43	0.0000	0.00
60	2015.88	2014.55	0.0000	0.00
61	2104.14	2102.72	0.0000	0.00
62	2119.41	2117.97	0.0000	0.00
63	2204.61	2203.09	0.0000	0.00
64	2359.49	2357.82	0.0000	0.00
65	2448.37	2446.62	0.0000	0.00
66	2615.35	2613.44	0.0000	0.00
67	3046.71	3044.40	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 6:42:23PM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	46.43	44 -	49	47.05	1.42E+02	89.74	1.51E+03	1.29
	2	62.86	59 -	66	63.47	3.63E+02	141.35	3.10E+03	1.32
M	3	74.72	71 -	82	75.31	7.45E+02	118.19	2.07E+03	1.81
m	4	77.28	71 -	82	77.87	1.13E+03	128.37	2.01E+03	1.82
M	5	84.37	83 -	90	84.96	1.36E+02	101.04	2.09E+03	1.62
m	6	87.30	83 -	90	87.88	1.94E+02	88.41	1.81E+03	1.47
	7	92.78	90 -	97	93.35	5.75E+02	140.93	2.81E+03	2.05
	8	142.06	139 -	146	142.58	1.62E+02	106.60	1.79E+03	4.60
	9	155.43	152 -	160	155.94	1.14E+02	112.29	1.85E+03	3.10
	10	185.86	182 -	189	186.34	4.63E+02	107.37	1.61E+03	2.01
	11	195.61	193 -	199	196.08	7.10E+01	84.00	1.23E+03	2.11
	12	209.51	207 -	213	209.96	9.86E+01	82.85	1.17E+03	2.17
M	13	238.57	234 -	251	239.00	9.92E+02	90.09	7.85E+02	2.00
m	14	241.93	234 -	251	242.35	4.23E+02	93.88	7.34E+02	2.01
	15	269.89	267 -	274	270.28	8.94E+01	75.45	8.99E+02	4.00
	16	295.29	292 -	298	295.66	7.34E+02	83.65	7.39E+02	1.87
	17	300.30	299 -	304	300.66	7.10E+01	59.62	6.54E+02	1.80
	18	327.30	324 -	332	327.64	6.65E+01	72.29	7.69E+02	1.82
	19	338.83	335 -	343	339.16	2.34E+02	71.21	6.29E+02	2.00
	20	351.94	346 -	355	352.25	1.39E+03	105.41	7.98E+02	1.97
	21	375.00	372 -	378	375.28	4.12E+01	48.80	3.98E+02	1.13
	22	511.10	507 -	517	511.25	2.75E+02	65.69	4.29E+02	2.78
	23	551.25	547 -	555	551.36	5.12E+01	46.22	2.88E+02	3.28
	24	583.01	578 -	588	583.08	3.38E+02	66.41	4.11E+02	2.08
	25	609.44	605 -	614	609.49	9.88E+02	85.12	4.73E+02	2.07
	26	727.46	724 -	731	727.39	5.86E+01	42.05	2.55E+02	1.87
	27	756.28	753 -	760	756.19	3.11E+01	35.89	1.90E+02	2.97
	28	768.42	765 -	772	768.31	5.44E+01	46.04	3.19E+02	2.13
	29	786.11	781 -	790	785.98	4.22E+01	46.80	2.86E+02	2.47
	30	840.74	837 -	845	840.56	5.81E+01	36.90	1.70E+02	3.25
M	31	856.48	854 -	866	856.29	2.43E+01	19.39	7.74E+01	2.54
m	32	860.86	854 -	866	860.65	4.91E+01	33.59	1.41E+02	2.63
	33	911.57	907 -	916	911.32	2.14E+02	52.13	2.57E+02	2.08
	34	934.16	929 -	939	933.89	9.31E+01	39.51	1.56E+02	3.25
	35	944.04	940 -	948	943.76	3.29E+01	31.87	1.38E+02	1.71
M	36	960.72	958 -	978	960.42	1.71E+01	19.94	8.80E+01	2.44
m	37	964.24	958 -	978	963.94	4.50E+01	32.06	1.35E+02	2.64
m	38	969.43	958 -	978	969.12	1.39E+02	35.66	1.07E+02	2.50
	39	983.54	980 -	987	983.21	2.33E+01	28.14	1.17E+02	1.68
	40	1010.77	997 -	1024	1010.42	9.10E+01	89.26	4.70E+02	24.29

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	41	1069.19	1065 -	1071	1068.78	2.23E+01	28.02	1.21E+02	1.46
	42	1086.89	1076 -	1098	1086.47	1.35E+02	60.41	2.31E+02	19.83
	43	1120.72	1115 -	1125	1120.26	1.81E+02	51.22	2.54E+02	1.90
	44	1156.96	1153 -	1162	1156.47	4.38E+01	40.93	2.12E+02	3.09
	45	1238.81	1232 -	1247	1238.24	1.36E+02	59.97	3.09E+02	2.18
	46	1377.88	1372 -	1382	1377.16	5.69E+01	30.50	9.42E+01	1.76
M	47	1405.15	1403 -	1411	1404.41	1.19E+01	12.81	2.96E+01	1.88
m	48	1408.20	1403 -	1411	1407.46	3.81E+01	22.80	4.91E+01	2.62
	49	1461.31	1455 -	1467	1460.52	1.26E+03	81.00	1.87E+02	2.29
	50	1497.56	1493 -	1500	1496.73	1.29E+01	16.25	3.41E+01	4.80
	51	1509.52	1504 -	1512	1508.68	1.82E+01	22.62	6.76E+01	3.40
M	52	1588.62	1582 -	1597	1587.70	2.04E+01	21.44	4.98E+01	3.58
m	53	1593.96	1582 -	1597	1593.03	2.76E+01	19.77	1.63E+01	3.26
	54	1621.51	1616 -	1627	1620.56	2.17E+01	18.00	2.86E+01	2.93
	55	1631.55	1627 -	1635	1630.59	1.87E+01	12.68	1.27E+01	1.83
	56	1729.82	1723 -	1732	1728.76	3.87E+01	19.13	3.06E+01	2.20
	57	1764.89	1758 -	1768	1763.80	1.79E+02	27.54	5.19E+00	3.33
	58	1848.67	1843 -	1853	1847.50	3.60E+01	12.00	0.00E+00	3.26
	59	2007.76	2004 -	2009	2006.43	7.00E+00	5.29	0.00E+00	2.22
	60	2015.88	2011 -	2018	2014.55	1.10E+01	6.63	0.00E+00	4.98
	61	2104.14	2098 -	2107	2102.72	1.84E+01	13.38	1.52E+01	4.04
	62	2119.41	2114 -	2120	2117.97	1.38E+01	12.22	1.64E+01	1.65
	63	2204.61	2199 -	2206	2203.09	3.21E+01	15.75	1.99E+01	2.14
	64	2359.49	2354 -	2361	2357.82	7.00E+00	8.72	8.00E+00	1.91
	65	2448.37	2442 -	2451	2446.62	1.74E+01	13.23	1.52E+01	1.61
	66	2615.35	2610 -	2618	2613.44	9.37E+01	21.56	1.45E+01	2.46
	67	3046.71	3041 -	3046	3044.40	5.00E+00	4.47	0.00E+00	1.70

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

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/18/2017 6:42:23PM

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

Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
1	46.43	44 -	49	1.42E+02	89.74	1.51E+03	7.11E+01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	2	62.86	59 -	66	3.63E+02	141.35	3.10E+03	1.12E+02
M	3	74.72	71 -	82	7.45E+02	118.19	2.07E+03	7.49E+01
m	4	77.28	71 -	82	1.13E+03	128.37	2.01E+03	7.37E+01
M	5	84.37	83 -	90	1.36E+02	101.04	2.09E+03	7.51E+01
m	6	87.30	83 -	90	1.94E+02	88.41	1.81E+03	6.99E+01
	7	92.78	90 -	97	5.75E+02	140.93	2.81E+03	1.09E+02
	8	142.06	139 -	146	1.62E+02	106.60	1.79E+03	8.51E+01
	9	155.43	152 -	160	1.14E+02	112.29	1.85E+03	9.06E+01
	10	185.86	182 -	189	4.63E+02	107.37	1.61E+03	8.09E+01
	11	195.61	193 -	199	7.10E+01	84.00	1.23E+03	6.76E+01
	12	209.51	207 -	213	9.86E+01	82.85	1.17E+03	6.61E+01
M	13	238.57	234 -	251	9.92E+02	90.09	7.85E+02	4.61E+01
m	14	241.93	234 -	251	4.23E+02	93.88	7.34E+02	4.45E+01
	15	269.89	267 -	274	8.94E+01	75.45	8.99E+02	6.00E+01
	16	295.29	292 -	298	7.34E+02	83.65	7.39E+02	5.24E+01
	17	300.30	299 -	304	7.10E+01	59.62	6.54E+02	4.70E+01
	18	327.30	324 -	332	6.65E+01	72.29	7.69E+02	5.79E+01
	19	338.83	335 -	343	2.34E+02	71.21	6.29E+02	5.29E+01
	20	351.94	346 -	355	1.39E+03	105.41	7.98E+02	6.13E+01
	21	375.00	372 -	378	4.12E+01	48.80	3.98E+02	3.87E+01
	22	511.10	507 -	517	2.75E+02	65.69	4.29E+02	4.66E+01
	23	551.25	547 -	555	5.12E+01	46.22	2.88E+02	3.61E+01
	24	583.01	578 -	588	3.38E+02	66.41	4.11E+02	4.55E+01
	25	609.44	605 -	614	9.88E+02	85.12	4.73E+02	4.72E+01
	26	727.46	724 -	731	5.86E+01	42.05	2.55E+02	3.22E+01
	27	756.28	753 -	760	3.11E+01	35.89	1.90E+02	2.80E+01
	28	768.42	765 -	772	5.44E+01	46.04	3.19E+02	3.59E+01
	29	786.11	781 -	790	4.22E+01	46.80	2.86E+02	3.70E+01
	30	840.74	837 -	845	5.81E+01	36.90	1.70E+02	2.76E+01
M	31	856.48	854 -	866	2.43E+01	19.39	7.74E+01	1.45E+01
m	32	860.86	854 -	866	4.91E+01	33.59	1.41E+02	1.95E+01
	33	911.57	907 -	916	2.14E+02	52.13	2.57E+02	3.55E+01
	34	934.16	929 -	939	9.31E+01	39.51	1.56E+02	2.83E+01
	35	944.04	940 -	948	3.29E+01	31.87	1.38E+02	2.44E+01
M	36	960.72	958 -	978	1.71E+01	19.94	8.80E+01	1.54E+01
m	37	964.24	958 -	978	4.50E+01	32.06	1.35E+02	1.91E+01
m	38	969.43	958 -	978	1.39E+02	35.66	1.07E+02	1.70E+01
	39	983.54	980 -	987	2.33E+01	28.14	1.17E+02	2.17E+01
	40	1010.77	997 -	1024	9.10E+01	89.26	4.70E+02	7.17E+01
	41	1069.19	1065 -	1071	2.23E+01	28.02	1.21E+02	2.17E+01
	42	1086.89	1076 -	1098	1.35E+02	60.41	2.31E+02	4.58E+01
	43	1120.72	1115 -	1125	1.81E+02	51.22	2.54E+02	3.58E+01
	44	1156.96	1153 -	1162	4.38E+01	40.93	2.12E+02	3.18E+01
	45	1238.81	1232 -	1247	1.36E+02	59.97	3.09E+02	2.00E+01
	46	1377.88	1372 -	1382	5.69E+01	30.50	9.42E+01	2.18E+01
M	47	1405.15	1403 -	1411	1.19E+01	12.81	2.96E+01	8.94E+00
m	48	1408.20	1403 -	1411	3.81E+01	22.80	4.91E+01	1.15E+01
	49	1461.31	1455 -	1467	1.26E+03	81.00	1.87E+02	3.20E+01
	50	1497.56	1493 -	1500	1.29E+01	16.25	3.41E+01	1.20E+01
	51	1509.52	1504 -	1512	1.82E+01	22.62	6.76E+01	1.72E+01
M	52	1588.62	1582 -	1597	2.04E+01	21.44	4.98E+01	1.16E+01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	53	1593.96	1582 -	1597	2.76E+01	19.77	1.63E+01	6.63E+00
	54	1621.51	1616 -	1627	2.17E+01	18.00	2.86E+01	1.27E+01
	55	1631.55	1627 -	1635	1.87E+01	12.68	1.27E+01	7.63E+00
	56	1729.82	1723 -	1732	3.87E+01	19.13	3.06E+01	1.19E+01
	57	1764.89	1758 -	1768	1.79E+02	27.54	5.19E+00	5.24E+00
	58	1848.67	1843 -	1853	3.60E+01	12.00	0.00E+00	0.00E+00
	59	2007.76	2004 -	2009	7.00E+00	5.29	0.00E+00	0.00E+00
	60	2015.88	2011 -	2018	1.10E+01	6.63	0.00E+00	0.00E+00
	61	2104.14	2098 -	2107	1.84E+01	13.38	1.52E+01	8.44E+00
	62	2119.41	2114 -	2120	1.38E+01	12.22	1.64E+01	7.97E+00
	63	2204.61	2199 -	2206	3.21E+01	15.75	1.99E+01	9.00E+00
	64	2359.49	2354 -	2361	7.00E+00	8.72	8.00E+00	5.70E+00
	65	2448.37	2442 -	2451	1.74E+01	13.23	1.52E+01	8.44E+00
	66	2615.35	2610 -	2618	9.37E+01	21.56	1.45E+01	7.79E+00
	67	3046.71	3041 -	3046	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 : 8/18/2017 6:42:23PM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	46.43	44 -	49	47.05	1.42E+02	89.74	1.51E+03	PB-210
	2	62.86	59 -	66	63.47	3.63E+02	141.35	3.10E+03	TH-230
									TH-234
M	3	74.72	71 -	82	75.31	7.45E+02	118.19	2.07E+03	AM-243
m	4	77.28	71 -	82	77.87	1.13E+03	128.37	2.01E+03	.....
M	5	84.37	83 -	90	84.96	1.36E+02	101.04	2.09E+03	TH-231
m	6	87.30	83 -	90	87.88	1.94E+02	88.41	1.81E+03	SN-126
									CD-109
									NP-237
									EU-155

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	7	92.78	90 -	97	93.35	5.75E+02	140.93	2.81E+03	GA-67
	8	142.06	139 -	146	142.58	1.62E+02	106.60	1.79E+03	.....
	9	155.43	152 -	160	155.94	1.14E+02	112.29	1.85E+03	.....
	10	185.86	182 -	189	186.34	4.63E+02	107.37	1.61E+03	RA-226
	11	195.61	193 -	199	196.08	7.10E+01	84.00	1.23E+03	.....
	12	209.51	207 -	213	209.96	9.86E+01	82.85	1.17E+03	CM-243 GA-67
M	13	238.57	234 -	251	239.00	9.92E+02	90.09	7.85E+02	PB-212
m	14	241.93	234 -	251	242.35	4.23E+02	93.88	7.34E+02	RA-224
	15	269.89	267 -	274	270.28	8.94E+01	75.45	8.99E+02	.....
	16	295.29	292 -	298	295.66	7.34E+02	83.65	7.39E+02	PB-214
	17	300.30	299 -	304	300.66	7.10E+01	59.62	6.54E+02	GA-67 PB-212 BI-210M
	18	327.30	324 -	332	327.64	6.65E+01	72.29	7.69E+02	.....
	19	338.83	335 -	343	339.16	2.34E+02	71.21	6.29E+02	AC-228
	20	351.94	346 -	355	352.25	1.39E+03	105.41	7.98E+02	PB-214
	21	375.00	372 -	378	375.28	4.12E+01	48.80	3.98E+02	TL-204
	22	511.10	507 -	517	511.25	2.75E+02	65.69	4.29E+02	.....
	23	551.25	547 -	555	551.36	5.12E+01	46.22	2.88E+02	.....
	24	583.01	578 -	588	583.08	3.38E+02	66.41	4.11E+02	TL-208
	25	609.44	605 -	614	609.49	9.88E+02	85.12	4.73E+02	BI-214
	26	727.46	724 -	731	727.39	5.86E+01	42.05	2.55E+02	BI-212
	27	756.28	753 -	760	756.19	3.11E+01	35.89	1.90E+02	ZR-95
	28	768.42	765 -	772	768.31	5.44E+01	46.04	3.19E+02	.....
	29	786.11	781 -	790	785.98	4.22E+01	46.80	2.86E+02	.....
	30	840.74	837 -	845	840.56	5.81E+01	36.90	1.70E+02	.....
M	31	856.48	854 -	866	856.29	2.43E+01	19.39	7.74E+01	.....
m	32	860.86	854 -	866	860.65	4.91E+01	33.59	1.41E+02	TL-208
	33	911.57	907 -	916	911.32	2.14E+02	52.13	2.57E+02	TL-204 AC-228
	34	934.16	929 -	939	933.89	9.31E+01	39.51	1.56E+02	.....
	35	944.04	940 -	948	943.76	3.29E+01	31.87	1.38E+02	.....
M	36	960.72	958 -	978	960.42	1.71E+01	19.94	8.80E+01	.....
m	37	964.24	958 -	978	963.94	4.50E+01	32.06	1.35E+02	EU-152
m	38	969.43	958 -	978	969.12	1.39E+02	35.66	1.07E+02	AC-228
	39	983.54	980 -	987	983.21	2.33E+01	28.14	1.17E+02	V-48
	40	1010.77	997 -	1024	1010.42	9.10E+01	89.26	4.70E+02	.....
	41	1069.19	1065 -	1071	1068.78	2.23E+01	28.02	1.21E+02	.....
	42	1086.89	1076 -	1098	1086.47	1.35E+02	60.41	2.31E+02	.....
	43	1120.72	1115 -	1125	1120.26	1.81E+02	51.22	2.54E+02	SC-46 BI-214 TA-182
	44	1156.96	1153 -	1162	1156.47	4.38E+01	40.93	2.12E+02	.....
	45	1238.81	1232 -	1247	1238.24	1.36E+02	59.97	3.09E+02	CO-56
	46	1377.88	1372 -	1382	1377.16	5.69E+01	30.50	9.42E+01	.....
M	47	1405.15	1403 -	1411	1404.41	1.19E+01	12.81	2.96E+01	.....
m	48	1408.20	1403 -	1411	1407.46	3.81E+01	22.80	4.91E+01	EU-152
	49	1461.31	1455 -	1467	1460.52	1.26E+03	81.00	1.87E+02	K-40
	50	1497.56	1493 -	1500	1496.73	1.29E+01	16.25	3.41E+01	.....
	51	1509.52	1504 -	1512	1508.68	1.82E+01	22.62	6.76E+01	.....
M	52	1588.62	1582 -	1597	1587.70	2.04E+01	21.44	4.98E+01	.....
m	53	1593.96	1582 -	1597	1593.03	2.76E+01	19.77	1.63E+01	.....
	54	1621.51	1616 -	1627	1620.56	2.17E+01	18.00	2.86E+01	BI-212

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
55	1631.55	1627 -	1635	1630.59	1.87E+01	12.68	1.27E+01	.....
56	1729.82	1723 -	1732	1728.76	3.87E+01	19.13	3.06E+01	.....
57	1764.89	1758 -	1768	1763.80	1.79E+02	27.54	5.19E+00	BI-214
58	1848.67	1843 -	1853	1847.50	3.60E+01	12.00	0.00E+00	.....
59	2007.76	2004 -	2009	2006.43	7.00E+00	5.29	0.00E+00	.....
60	2015.88	2011 -	2018	2014.55	1.10E+01	6.63	0.00E+00	.....
61	2104.14	2098 -	2107	2102.72	1.84E+01	13.38	1.52E+01	.....
62	2119.41	2114 -	2120	2117.97	1.38E+01	12.22	1.64E+01	.....
63	2204.61	2199 -	2206	2203.09	3.21E+01	15.75	1.99E+01	BI-214
64	2359.49	2354 -	2361	2357.82	7.00E+00	8.72	8.00E+00	.....
65	2448.37	2442 -	2451	2446.62	1.74E+01	13.23	1.52E+01	.....
66	2615.35	2610 -	2618	2613.44	9.37E+01	21.56	1.45E+01	TL-208
67	3046.71	3041 -	3046	3044.40	5.00E+00	4.47	0.00E+00	.....

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

PEAK EFFICIENCY REPORT

Peak Analysis Performed on : 8/18/2017 6:42:23PM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	46.43	1.42E+02	89.74	2.46E-02	2.22E-03
	2	62.86	3.63E+02	141.35	2.70E-02	2.25E-03
M	3	74.72	7.45E+02	118.19	2.75E-02	2.38E-03
m	4	77.28	1.13E+03	128.37	2.75E-02	2.41E-03
M	5	84.37	1.36E+02	101.04	2.75E-02	2.48E-03
m	6	87.30	1.94E+02	88.41	2.74E-02	2.51E-03
	7	92.78	5.75E+02	140.93	2.73E-02	2.44E-03
	8	142.06	1.62E+02	106.60	2.45E-02	1.87E-03
	9	155.43	1.14E+02	112.29	2.36E-02	1.79E-03
	10	185.86	4.63E+02	107.37	2.17E-02	1.68E-03
	11	195.61	7.10E+01	84.00	2.11E-02	1.65E-03
	12	209.51	9.86E+01	82.85	2.04E-02	1.61E-03
M	13	238.57	9.92E+02	90.09	1.89E-02	1.53E-03
m	14	241.93	4.23E+02	93.88	1.87E-02	1.52E-03
	15	269.89	8.94E+01	75.45	1.74E-02	1.44E-03
	16	295.29	7.34E+02	83.65	1.64E-02	1.37E-03
	17	300.30	7.10E+01	59.62	1.62E-02	1.36E-03

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	18	327.30	6.65E+01	72.29	1.53E-02	1.30E-03
	19	338.83	2.34E+02	71.21	1.49E-02	1.27E-03
	20	351.94	1.39E+03	105.41	1.45E-02	1.24E-03
	21	375.00	4.12E+01	48.80	1.39E-02	1.18E-03
	22	511.10	2.75E+02	65.69	1.10E-02	1.07E-03
	23	551.25	5.12E+01	46.22	1.04E-02	1.04E-03
	24	583.01	3.38E+02	66.41	9.97E-03	1.02E-03
	25	609.44	9.88E+02	85.12	9.63E-03	1.01E-03
	26	727.46	5.86E+01	42.05	8.41E-03	8.67E-04
	27	756.28	3.11E+01	35.89	8.16E-03	8.22E-04
	28	768.42	5.44E+01	46.04	8.06E-03	8.02E-04
	29	786.11	4.22E+01	46.80	7.93E-03	7.74E-04
	30	840.74	5.81E+01	36.90	7.53E-03	6.87E-04
M	31	856.48	2.43E+01	19.39	7.43E-03	6.62E-04
m	32	860.86	4.91E+01	33.59	7.40E-03	6.55E-04
	33	911.57	2.14E+02	52.13	7.08E-03	5.91E-04
	34	934.16	9.31E+01	39.51	6.95E-03	5.83E-04
	35	944.04	3.29E+01	31.87	6.90E-03	5.79E-04
M	36	960.72	1.71E+01	19.94	6.81E-03	5.72E-04
m	37	964.24	4.50E+01	32.06	6.79E-03	5.71E-04
m	38	969.43	1.39E+02	35.66	6.76E-03	5.69E-04
	39	983.54	2.33E+01	28.14	6.69E-03	5.64E-04
	40	1010.77	9.10E+01	89.26	6.56E-03	5.53E-04
	41	1069.19	2.23E+01	28.02	6.29E-03	5.31E-04
	42	1086.89	1.35E+02	60.41	6.21E-03	5.24E-04
	43	1120.72	1.81E+02	51.22	6.07E-03	5.11E-04
	44	1156.96	4.38E+01	40.93	5.93E-03	4.97E-04
	45	1238.81	1.36E+02	59.97	5.64E-03	4.76E-04
	46	1377.88	5.69E+01	30.50	5.22E-03	4.44E-04
M	47	1405.15	1.19E+01	12.81	5.15E-03	4.38E-04
m	48	1408.20	3.81E+01	22.80	5.14E-03	4.37E-04
	49	1461.31	1.26E+03	81.00	5.00E-03	4.25E-04
	50	1497.56	1.29E+01	16.25	4.92E-03	4.16E-04
	51	1509.52	1.82E+01	22.62	4.89E-03	4.13E-04
M	52	1588.62	2.04E+01	21.44	4.71E-03	3.95E-04
m	53	1593.96	2.76E+01	19.77	4.70E-03	3.94E-04
	54	1621.51	2.17E+01	18.00	4.65E-03	3.88E-04
	55	1631.55	1.87E+01	12.68	4.63E-03	3.85E-04
	56	1729.82	3.87E+01	19.13	4.44E-03	3.62E-04
	57	1764.89	1.79E+02	27.54	4.37E-03	3.54E-04
	58	1848.67	3.60E+01	12.00	4.23E-03	3.38E-04
	59	2007.76	7.00E+00	5.29	3.99E-03	3.38E-04
	60	2015.88	1.10E+01	6.63	3.98E-03	3.38E-04
	61	2104.14	1.84E+01	13.38	3.86E-03	3.38E-04
	62	2119.41	1.38E+01	12.22	3.84E-03	3.38E-04
	63	2204.61	3.21E+01	15.75	3.74E-03	3.38E-04
	64	2359.49	7.00E+00	8.72	3.56E-03	3.38E-04
	65	2448.37	1.74E+01	13.23	3.47E-03	3.38E-04
	66	2615.35	9.37E+01	21.56	3.31E-03	3.38E-04
	67	3046.71	5.00E+00	4.47	2.95E-03	3.38E-04

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/18/2017 6:42:23PM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	46.43	1.42E+02	89.74	3.93E+01	8.32E+00	1.03E+02	9.01E+01
	2	62.86	3.63E+02	141.35	9.62E+01	1.46E+01	2.67E+02	1.42E+02
M	3	74.72	7.45E+02	118.19			7.45E+02	1.18E+02
m	4	77.28	1.13E+03	128.37			1.13E+03	1.28E+02
M	5	84.37	1.36E+02	101.04	1.14E+01	7.66E+00	1.25E+02	1.01E+02
m	6	87.30	1.94E+02	88.41			1.94E+02	8.84E+01
	7	92.78	5.75E+02	140.93	1.35E+02	2.05E+01	4.40E+02	1.42E+02
	8	142.06	1.62E+02	106.60			1.62E+02	1.07E+02
	9	155.43	1.14E+02	112.29			1.14E+02	1.12E+02
	10	185.86	4.63E+02	107.37	4.68E+01	7.65E+00	4.16E+02	1.08E+02
	11	195.61	7.10E+01	84.00			7.10E+01	8.40E+01
	12	209.51	9.86E+01	82.85			9.86E+01	8.29E+01
M	13	238.57	9.92E+02	90.09	2.06E+01	6.26E+00	9.72E+02	9.03E+01
m	14	241.93	4.23E+02	93.88			4.23E+02	9.39E+01
	15	269.89	8.94E+01	75.45			8.94E+01	7.54E+01
	16	295.29	7.34E+02	83.65			7.34E+02	8.36E+01
	17	300.30	7.10E+01	59.62			7.10E+01	5.96E+01
	18	327.30	6.65E+01	72.29			6.65E+01	7.23E+01
	19	338.83	2.34E+02	71.21			2.34E+02	7.12E+01
	20	351.94	1.39E+03	105.41	3.12E+00	4.40E+00	1.38E+03	1.06E+02
	21	375.00	4.12E+01	48.80			4.12E+01	4.88E+01
	22	511.10	2.75E+02	65.69	7.85E+01	5.73E+00	1.96E+02	6.59E+01
	23	551.25	5.12E+01	46.22			5.12E+01	4.62E+01
	24	583.01	3.38E+02	66.41			3.38E+02	6.64E+01
	25	609.44	9.88E+02	85.12	6.00E+00	4.13E+00	9.82E+02	8.52E+01
	26	727.46	5.86E+01	42.05			5.86E+01	4.20E+01
	27	756.28	3.11E+01	35.89			3.11E+01	3.59E+01
	28	768.42	5.44E+01	46.04			5.44E+01	4.60E+01
	29	786.11	4.22E+01	46.80			4.22E+01	4.68E+01
	30	840.74	5.81E+01	36.90			5.81E+01	3.69E+01
M	31	856.48	2.43E+01	19.39			2.43E+01	1.94E+01
m	32	860.86	4.91E+01	33.59	3.72E-01	2.26E+00	4.88E+01	3.37E+01
	33	911.57	2.14E+02	52.13	5.15E+00	3.10E+00	2.09E+02	5.22E+01
	34	934.16	9.31E+01	39.51			9.31E+01	3.95E+01
	35	944.04	3.29E+01	31.87			3.29E+01	3.19E+01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
M	36	960.72	1.71E+01	19.94			1.71E+01	1.99E+01
m	37	964.24	4.50E+01	32.06			4.50E+01	3.21E+01
m	38	969.43	1.39E+02	35.66	0.00E+00	0.00E+00	1.39E+02	3.57E+01
	39	983.54	2.33E+01	28.14			2.33E+01	2.81E+01
	40	1010.77	9.10E+01	89.26			9.10E+01	8.93E+01
	41	1069.19	2.23E+01	28.02			2.23E+01	2.80E+01
	42	1086.89	1.35E+02	60.41			1.35E+02	6.04E+01
	43	1120.72	1.81E+02	51.22			1.81E+02	5.12E+01
	44	1156.96	4.38E+01	40.93			4.38E+01	4.09E+01
	45	1238.81	1.36E+02	59.97			1.36E+02	6.00E+01
	46	1377.88	5.69E+01	30.50			5.69E+01	3.05E+01
M	47	1405.15	1.19E+01	12.81			1.19E+01	1.28E+01
m	48	1408.20	3.81E+01	22.80			3.81E+01	2.28E+01
	49	1461.31	1.26E+03	81.00	4.04E+00	2.32E+00	1.26E+03	8.10E+01
	50	1497.56	1.29E+01	16.25			1.29E+01	1.62E+01
	51	1509.52	1.82E+01	22.62			1.82E+01	2.26E+01
M	52	1588.62	2.04E+01	21.44			2.04E+01	2.14E+01
m	53	1593.96	2.76E+01	19.77			2.76E+01	1.98E+01
	54	1621.51	2.17E+01	18.00			2.17E+01	1.80E+01
	55	1631.55	1.87E+01	12.68			1.87E+01	1.27E+01
	56	1729.82	3.87E+01	19.13			3.87E+01	1.91E+01
	57	1764.89	1.79E+02	27.54			1.79E+02	2.75E+01
	58	1848.67	3.60E+01	12.00			3.60E+01	1.20E+01
	59	2007.76	7.00E+00	5.29			7.00E+00	5.29E+00
	60	2015.88	1.10E+01	6.63			1.10E+01	6.63E+00
	61	2104.14	1.84E+01	13.38			1.84E+01	1.34E+01
	62	2119.41	1.38E+01	12.22			1.38E+01	1.22E+01
	63	2204.61	3.21E+01	15.75			3.21E+01	1.57E+01
	64	2359.49	7.00E+00	8.72			7.00E+00	8.72E+00
	65	2448.37	1.74E+01	13.23			1.74E+01	1.32E+01
	66	2615.35	9.37E+01	21.56	6.52E+00	1.61E+00	8.72E+01	2.16E+01
	67	3046.71	5.00E+00	4.47			5.00E+00	4.47E+00

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

AREA CORRECTION REPORT
REFERENCE PEAK / BKG. SUBTRACT

Peak Analysis Performed on : 8/18/2017 6:42:23PM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

Corrected Area is: Original * Peak Ratio - Background

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	1	46.43	1.42E+02	89.74	3.93E+01	8.32E+00	1.03E+02	9.01E+01
	2	62.86	3.63E+02	141.35	9.62E+01	1.46E+01	2.67E+02	1.42E+02
M	3	74.72	7.45E+02	118.19			7.45E+02	1.18E+02
m	4	77.28	1.13E+03	128.37			1.13E+03	1.28E+02
M	5	84.37	1.36E+02	101.04	1.14E+01	7.66E+00	1.25E+02	1.01E+02
m	6	87.30	1.94E+02	88.41			1.94E+02	8.84E+01
	7	92.78	5.75E+02	140.93	1.35E+02	2.05E+01	4.40E+02	1.42E+02
	8	142.06	1.62E+02	106.60			1.62E+02	1.07E+02
	9	155.43	1.14E+02	112.29			1.14E+02	1.12E+02
	10	185.86	4.63E+02	107.37	4.68E+01	7.65E+00	4.16E+02	1.08E+02
	11	195.61	7.10E+01	84.00			7.10E+01	8.40E+01
	12	209.51	9.86E+01	82.85			9.86E+01	8.29E+01
M	13	238.57	9.92E+02	90.09	2.06E+01	6.26E+00	9.72E+02	9.03E+01
m	14	241.93	4.23E+02	93.88			4.23E+02	9.39E+01
	15	269.89	8.94E+01	75.45			8.94E+01	7.54E+01
	16	295.29	7.34E+02	83.65			7.34E+02	8.36E+01
	17	300.30	7.10E+01	59.62			7.10E+01	5.96E+01
	18	327.30	6.65E+01	72.29			6.65E+01	7.23E+01
	19	338.83	2.34E+02	71.21			2.34E+02	7.12E+01
	20	351.94	1.39E+03	105.41	3.12E+00	4.40E+00	1.38E+03	1.06E+02
	21	375.00	4.12E+01	48.80			4.12E+01	4.88E+01
	22	511.10	2.75E+02	65.69	7.85E+01	5.73E+00	1.96E+02	6.59E+01
	23	551.25	5.12E+01	46.22			5.12E+01	4.62E+01
	24	583.01	3.38E+02	66.41			3.38E+02	6.64E+01
	25	609.44	9.88E+02	85.12	6.00E+00	4.13E+00	9.82E+02	8.52E+01
	26	727.46	5.86E+01	42.05			5.86E+01	4.20E+01
	27	756.28	3.11E+01	35.89			3.11E+01	3.59E+01
	28	768.42	5.44E+01	46.04			5.44E+01	4.60E+01
	29	786.11	4.22E+01	46.80			4.22E+01	4.68E+01
	30	840.74	5.81E+01	36.90			5.81E+01	3.69E+01
M	31	856.48	2.43E+01	19.39			2.43E+01	1.94E+01
m	32	860.86	4.91E+01	33.59	3.72E-01	2.26E+00	4.88E+01	3.37E+01
	33	911.57	2.14E+02	52.13	5.15E+00	3.10E+00	2.09E+02	5.22E+01
	34	934.16	9.31E+01	39.51			9.31E+01	3.95E+01
	35	944.04	3.29E+01	31.87			3.29E+01	3.19E+01
M	36	960.72	1.71E+01	19.94			1.71E+01	1.99E+01
m	37	964.24	4.50E+01	32.06			4.50E+01	3.21E+01
m	38	969.43	1.39E+02	35.66	0.00E+00	0.00E+00	1.39E+02	3.57E+01
	39	983.54	2.33E+01	28.14			2.33E+01	2.81E+01
	40	1010.77	9.10E+01	89.26			9.10E+01	8.93E+01
	41	1069.19	2.23E+01	28.02			2.23E+01	2.80E+01
	42	1086.89	1.35E+02	60.41			1.35E+02	6.04E+01
	43	1120.72	1.81E+02	51.22			1.81E+02	5.12E+01
	44	1156.96	4.38E+01	40.93			4.38E+01	4.09E+01
	45	1238.81	1.36E+02	59.97			1.36E+02	6.00E+01
	46	1377.88	5.69E+01	30.50			5.69E+01	3.05E+01
M	47	1405.15	1.19E+01	12.81			1.19E+01	1.28E+01
m	48	1408.20	3.81E+01	22.80			3.81E+01	2.28E+01
	49	1461.31	1.26E+03	81.00	4.04E+00	2.32E+00	1.26E+03	8.10E+01
	50	1497.56	1.29E+01	16.25			1.29E+01	1.62E+01
	51	1509.52	1.82E+01	22.62			1.82E+01	2.26E+01
M	52	1588.62	2.04E+01	21.44			2.04E+01	2.14E+01
m	53	1593.96	2.76E+01	19.77			2.76E+01	1.98E+01
	54	1621.51	2.17E+01	18.00			2.17E+01	1.80E+01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
55	1631.55	1.87E+01	12.68			1.87E+01	1.27E+01
56	1729.82	3.87E+01	19.13			3.87E+01	1.91E+01
57	1764.89	1.79E+02	27.54			1.79E+02	2.75E+01
58	1848.67	3.60E+01	12.00			3.60E+01	1.20E+01
59	2007.76	7.00E+00	5.29			7.00E+00	5.29E+00
60	2015.88	1.10E+01	6.63			1.10E+01	6.63E+00
61	2104.14	1.84E+01	13.38			1.84E+01	1.34E+01
62	2119.41	1.38E+01	12.22			1.38E+01	1.22E+01
63	2204.61	3.21E+01	15.75			3.21E+01	1.57E+01
64	2359.49	7.00E+00	8.72			7.00E+00	8.72E+00
65	2448.37	1.74E+01	13.23			1.74E+01	1.32E+01
66	2615.35	9.37E+01	21.56	6.52E+00	1.61E+00	8.72E+01	2.16E+01
67	3046.71	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	0.960	1460.81	*	10.67	3.07E+01	3.34E+00
CD-109	0.917	88.03	*	3.72	2.86E+00	1.34E+00
SN-126	0.988	87.57	*	37.00	2.49E-01	1.16E-01
EU-155	0.304	86.50	*	30.90	3.10E-01	1.44E-01
		105.30		20.70		
TL-208	0.959	583.14	*	30.22	1.46E+00	3.25E-01
		860.37	*	4.48	1.92E+00	1.34E+00
		2614.66	*	35.85	9.61E-01	2.58E-01
PB-210	0.999	46.50	*	4.25	1.29E+00	1.14E+00
BI-212	0.965	727.17	*	11.80	7.71E-01	5.59E-01
		1620.62	*	2.75	2.22E+00	1.85E+00
PB-212	0.999	238.63	*	44.60	1.51E+00	1.86E-01
		300.09	*	3.41	1.67E+00	1.41E+00
BI-214	0.987	609.31	*	46.30	2.87E+00	3.90E-01
		1120.29	*	15.10	2.58E+00	7.61E-01
		1764.49	*	15.80	3.39E+00	5.88E-01
		2204.22	*	4.98	2.25E+00	1.12E+00
PB-214	1.000	295.21	*	19.19	3.04E+00	4.29E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
PB-214	1.000	351.92	*	37.19	3.34E+00	3.81E-01
RA-224	0.867	240.98	*	3.95	7.47E+00	1.77E+00
RA-226	0.980	186.21	*	3.28	7.63E+00	1.41E+01
AC-228	0.967	338.32	*	11.40	1.80E+00	5.67E-01
		911.07	*	27.70	1.39E+00	3.66E-01
		969.11	*	16.60	1.62E+00	4.36E-01
TH-234	0.971	63.29	*	3.80	3.40E+00	1.83E+00
NP-237	0.904	86.50	*	12.60	7.33E-01	3.41E-01
AM-243	1.000	74.67	*	66.00	5.36E-01	9.69E-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 : 8/18/2017 6:42:23PM
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	4	77.28	3.13959E-01	5.68		
M	5	84.37	3.46532E-02	40.61	Tol.	TH-231
	7	92.78	1.22149E-01	16.19	Sum	
	8	142.06	4.48978E-02	32.98		
	9	155.43	3.17054E-02	49.19		
	11	195.61	1.97125E-02	59.18		
	12	209.51	2.73922E-02	42.01	Tol.	GA-67 CM-243
	15	269.89	2.48374E-02	42.19		
	18	327.30	1.84790E-02	54.34		
	21	375.00	1.14525E-02	59.18	Sum	
	22	511.10	5.44498E-02	16.82		
	23	551.25	1.42336E-02	45.11		
	27	756.28	8.65079E-03	57.62	Tol.	ZR-95
	28	768.42	1.51240E-02	42.28	Sum	
	29	786.11	1.17117E-02	55.50		
	30	840.74	1.61257E-02	31.78		
M	31	856.48	6.75915E-03	39.84		
	34	934.16	2.58528E-02	21.23	Sum	
	35	944.04	9.15033E-03	48.37		

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
M	36	960.72	4.76187E-03	58.17	Sum	
m	37	964.24	1.25106E-02	35.59	Tol.	EU-152
	39	983.54	6.47866E-03	60.33	Tol.	V-48
	40	1010.77	2.52906E-02	49.02		
	41	1069.19	6.18976E-03	62.88		
	42	1086.89	3.76134E-02	22.31		
	44	1156.96	1.21750E-02	46.69	Sum	
	45	1238.81	3.78981E-02	21.98	Tol.	CO-56
	46	1377.88	1.58026E-02	26.81		
M	47	1405.15	3.31635E-03	53.63		
m	48	1408.20	1.05734E-02	29.95	Tol.	EU-152
	50	1497.56	3.59722E-03	62.73		
	51	1509.52	5.05876E-03	62.11		
M	52	1588.62	5.67125E-03	52.51	Sum	
m	53	1593.96	7.67667E-03	35.78	D-Esc	
	55	1631.55	5.18333E-03	33.97		
	56	1729.82	1.07510E-02	24.71	Sum	
	58	1848.67	1.00000E-02	16.67	Sum	
	59	2007.76	1.94444E-03	37.80	Sum	
	60	2015.88	3.05556E-03	30.15		
	61	2104.14	5.10684E-03	36.39	S-Esc	
	62	2119.41	3.83838E-03	44.21		
	64	2359.49	1.94444E-03	62.27		
	65	2448.37	4.83889E-03	37.97		
	67	3046.71	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	0.96	1460.81	*	10.67	3.07E+01	3.34E+00
CD-109	0.91	88.03	*	3.72	2.86E+00	1.34E+00
SN-126	0.98	87.57	*	37.00	2.49E-01	1.16E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

Nuclide Name	Id Confidence	Energy (keV)		Yield(%)	Activity (pCi/grams)	Activity Uncertainty
EU-155	0.30	86.50	*	30.90	3.10E-01	1.44E-01
		105.30		20.70		
TL-208	0.95	583.14	*	30.22	1.46E+00	3.25E-01
		860.37	*	4.48	1.92E+00	1.34E+00
		2614.66	*	35.85	9.61E-01	2.58E-01
PB-210	0.99	46.50	*	4.25	1.29E+00	1.14E+00
BI-212	0.96	727.17	*	11.80	7.71E-01	5.59E-01
		1620.62	*	2.75	2.22E+00	1.85E+00
PB-212	0.99	238.63	*	44.60	1.51E+00	1.86E-01
		300.09	*	3.41	1.67E+00	1.41E+00
BI-214	0.98	609.31	*	46.30	2.87E+00	3.90E-01
		1120.29	*	15.10	2.58E+00	7.61E-01
		1764.49	*	15.80	3.39E+00	5.88E-01
		2204.22	*	4.98	2.25E+00	1.12E+00
PB-214	1.00	295.21	*	19.19	3.04E+00	4.29E-01
		351.92	*	37.19	3.34E+00	3.81E-01
RA-224	0.86	240.98	*	3.95	7.47E+00	1.77E+00
RA-226	0.98	186.21	*	3.28	7.63E+00	1.41E+01
AC-228	0.96	338.32	*	11.40	1.80E+00	5.67E-01
		911.07	*	27.70	1.39E+00	3.66E-01
		969.11	*	16.60	1.62E+00	4.36E-01
TH-234	0.97	63.29	*	3.80	3.40E+00	1.83E+00
NP-237	0.90	86.50	*	12.60	7.33E-01	3.41E-01
AM-243	1.00	74.67	*	66.00	5.36E-01	9.69E-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	0.960	3.07E+01	3.34E+00	
?	CD-109	0.917	2.86E+00	1.34E+00	
?	SN-126	0.988	2.49E-01	1.16E-01	

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
?	EU-155	0.304	3.10E-01	1.44E-01	
X	TL-204	0.501			
	TL-208	0.959	1.17E+00	2.00E-01	
	PB-210	0.999	1.29E+00	1.14E+00	
	BI-212	0.965	8.92E-01	5.35E-01	
	PB-212	0.999	1.51E+00	1.84E-01	
	BI-214	0.987	2.91E+00	2.89E-01	
	PB-214	1.000	3.20E+00	2.85E-01	
	RA-224	0.867	7.47E+00	1.77E+00	
	RA-226	0.980	7.63E+00	1.41E+01	
	AC-228	0.967	1.54E+00	2.51E-01	
	TH-234	0.971	3.40E+00	1.83E+00	
?	NP-237	0.904	7.33E-01	3.41E-01	
	AM-243	1.000	5.36E-01	9.69E-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 1707084-19

HTC-A02-S002-1218-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/18/2017 6:42:23PM
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	4	77.28	3.13959E-01	5.68		
M	5	84.37	3.46532E-02	40.61	Tol.	TH-231
	7	92.78	1.22149E-01	16.19	Sum	
	8	142.06	4.48978E-02	32.98		
	9	155.43	3.17054E-02	49.19		
	11	195.61	1.97125E-02	59.18		
	12	209.51	2.73922E-02	42.01	Tol.	GA-67 CM-243
	15	269.89	2.48374E-02	42.19		
	18	327.30	1.84790E-02	54.34		
	21	375.00	1.14525E-02	59.18	Sum	
	22	511.10	5.44498E-02	16.82		
	23	551.25	1.42336E-02	45.11		
	27	756.28	8.65079E-03	57.62	Tol.	ZR-95
	28	768.42	1.51240E-02	42.28	Sum	
	29	786.11	1.17117E-02	55.50		
	30	840.74	1.61257E-02	31.78		
M	31	856.48	6.75915E-03	39.84		
	34	934.16	2.58528E-02	21.23	Sum	
	35	944.04	9.15033E-03	48.37		
M	36	960.72	4.76187E-03	58.17	Sum	
m	37	964.24	1.25106E-02	35.59	Tol.	EU-152
	39	983.54	6.47866E-03	60.33	Tol.	V-48
	40	1010.77	2.52906E-02	49.02		
	41	1069.19	6.18976E-03	62.88		
	42	1086.89	3.76134E-02	22.31		
	44	1156.96	1.21750E-02	46.69	Sum	
	45	1238.81	3.78981E-02	21.98	Tol.	CO-56
	46	1377.88	1.58026E-02	26.81		
M	47	1405.15	3.31635E-03	53.63		
m	48	1408.20	1.05734E-02	29.95	Tol.	EU-152
	50	1497.56	3.59722E-03	62.73		
	51	1509.52	5.05876E-03	62.11		
M	52	1588.62	5.67125E-03	52.51	Sum	
m	53	1593.96	7.67667E-03	35.78	D-Esc	

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
55	1631.55	5.18333E-03	33.97		
56	1729.82	1.07510E-02	24.71	Sum	
58	1848.67	1.00000E-02	16.67	Sum	
59	2007.76	1.94444E-03	37.80	Sum	
60	2015.88	3.05556E-03	30.15		
61	2104.14	5.10684E-03	36.39	S-Esc	
62	2119.41	3.83838E-03	44.21		
64	2359.49	1.94444E-03	62.27		
65	2448.37	4.83889E-03	37.97		
67	3046.71	1.38889E-03	44.72		

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

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	BE-7	477.59		10.42	-5.86E-01	2.38E+00	2.38E+00
+	NA-22	1274.54		99.94	-1.65E-02	9.82E-02	9.82E-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	-1.52E-02	5.30E-02	5.30E-02
+	K-40	1460.81	*	10.67	3.07E+01	1.64E+00	1.64E+00
+	@ AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+	TI-44	67.88		94.40	1.91E-02	7.90E-02	7.90E-02
		78.34		96.00	3.49E-01		1.09E-01
+	SC-46	889.25		99.98	-8.09E-02	1.89E-01	1.89E-01
		1120.51		99.99	9.50E-01		3.74E-01
+	V-48	983.52		99.98	2.79E+00	5.23E+00	5.23E+00
		1312.10		97.50	-1.55E-01		5.73E+00
+	CR-51	320.08		9.83	-3.58E+00	7.73E+00	7.73E+00
+	MN-54	834.83		99.97	3.50E-02	1.07E-01	1.07E-01
+	CO-56	846.75		99.96	-5.91E-02	1.46E-01	1.70E-01
		1037.75		14.03	3.16E-01		1.46E+00
		1238.25		67.00	5.55E-01		5.11E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	CO-56	1771.40		15.51	-1.12E-01	1.46E-01	9.26E-01
		2598.48		16.90	0.00E+00		1.46E-01
+	CO-57	122.06		85.51	1.62E-02	9.11E-02	9.11E-02
		136.48		10.60	1.01E-01		7.29E-01
+	CO-58	810.76		99.40	-7.15E-02	2.01E-01	2.01E-01
+	FE-59	1099.22		56.50	-6.72E-02	7.27E-01	7.27E-01
		1291.56		43.20	-3.96E-01		7.80E-01
+	CO-60	1173.22		100.00	-1.05E-04	8.21E-02	1.00E-01
		1332.49		100.00	2.40E-02		8.21E-02
+	ZN-65	1115.52		50.75	2.23E-02	2.42E-01	2.42E-01
+	GA-67	93.31		35.70	4.28E+08	1.49E+08	1.49E+08
		208.95		2.24	1.20E+09		1.98E+09
		300.22		16.00	-1.90E+09		3.24E+08
+	SE-75	121.11		16.70	2.01E-02	1.77E-01	6.26E-01
		136.00		59.20	2.47E-02		1.77E-01
		264.65		59.80	-1.18E-02		1.99E-01
		279.53		25.20	1.17E-01		5.13E-01
		400.65		11.40	4.67E-01		1.12E+00
+	RB-82	776.52		13.00	-1.45E-02	8.99E+00	8.99E+00
+	RB-83	520.41		46.00	8.94E-02	3.54E-01	3.54E-01
		529.64		30.30	-8.65E-03		4.82E-01
		552.65		16.40	1.67E-01		9.60E-01
+	KR-85	513.99		0.43	3.41E+01	2.43E+01	2.43E+01
+	SR-85	513.99		99.27	4.07E-01	2.90E-01	2.90E-01
+	Y-88	898.02		93.40	4.20E-02	7.53E-02	1.80E-01
		1836.01		99.38	-1.38E-02		7.53E-02
+	MO-93	263.06		56.72	-4.02E-02	6.34E-02	1.23E-01
		684.67		99.68	1.28E-02		7.72E-02
		1477.11		99.08	-1.87E-02		6.34E-02
+	NB-93M	16.57		9.43	-2.12E-01	6.85E-01	6.85E-01
+	NB-94	702.63		100.00	3.32E-02	7.75E-02	8.91E-02
		871.10		100.00	1.32E-03		7.75E-02
+	NB-95	765.79		99.81	1.05E-01	7.18E-01	7.18E-01
+	NB-95M	235.69		25.00	-1.83E+08	2.77E+07	2.77E+07
+	ZR-95	724.18		43.70	-4.11E-03	4.27E-01	5.93E-01
		756.72		55.30	2.16E-01		4.27E-01
+	MO-99	181.06		6.20	6.76E+09	1.73E+10	2.82E+10
		739.58		12.80	-1.07E+08		1.73E+10
		778.00		4.50	-1.14E+09		5.31E+10
+	RU-103	497.08		89.00	1.39E-01	4.35E-01	4.35E-01
+	RU-106	621.84		9.80	2.04E-01	9.16E-01	9.16E-01
+	AG-108M	433.93		89.90	-9.99E-03	7.85E-02	7.85E-02
		614.37		90.40	1.44E-02		1.16E-01
		722.95		90.50	2.19E-02		9.36E-02
+	CD-109	88.03	*	3.72	2.86E+00	3.25E+00	3.25E+00
+	AG-110M	657.75		93.14	-8.34E-02	9.61E-02	9.61E-02
		677.61		10.53	-1.91E-01		9.21E-01
		706.67		16.46	3.65E-02		6.50E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	AG-110M	763.93		21.98	7.04E-02	9.61E-02	5.11E-01
		884.67		71.63	6.95E-02		1.62E-01
		1384.27		23.94	-1.15E-01		4.39E-01
+	CD-113M	263.70		0.02	-1.04E+02	2.97E+02	2.97E+02
+	SN-113	255.12		1.93	1.49E-01	2.00E-01	5.60E+00
		391.69		64.90	5.10E-02		2.00E-01
+	TE123M	159.00		84.10	-8.33E-03	1.23E-01	1.23E-01
+	SB-124	602.71		97.87	-4.90E-02	2.39E-01	2.39E-01
		645.85		7.26	1.28E+00		3.08E+00
		722.78		11.10	5.33E-01		2.28E+00
		1691.02		49.00	1.79E-01		4.52E-01
+	I-125	35.49		6.49	5.39E-01	3.05E+00	3.05E+00
+	SB-125	176.33		6.89	-4.27E-01	2.54E-01	9.50E-01
		427.89		29.33	2.87E-02		2.54E-01
		463.38		10.35	4.92E-01		8.24E-01
		600.56		17.80	-3.52E-01		4.46E-01
		635.90		11.32	3.46E-01		7.09E-01
+	SB-126	414.70		83.30	4.07E+00	1.65E+01	1.76E+01
		666.33		99.60	2.69E+00		1.76E+01
		695.00		99.60	3.01E+00		1.65E+01
		720.50		53.80	1.22E+01		3.20E+01
+	SN-126	87.57	*	37.00	2.49E-01	2.84E-01	2.84E-01
+	SB-127	473.00		25.00	2.99E+05	6.08E+06	8.30E+06
		685.20		35.70	1.01E+06		6.08E+06
		783.80		14.70	1.48E+07		1.88E+07
+	I-129	29.78		57.00	7.34E-02	1.28E-01	1.28E-01
		33.60		13.20	-3.89E-01		4.95E-01
		39.58		7.52	-2.97E-03		8.68E-01
+	I-131	284.30		6.05	-1.20E+03	3.01E+02	4.36E+03
		364.48		81.20	-1.22E+02		3.01E+02
		636.97		7.26	1.25E+03		3.88E+03
		722.89		1.80	4.09E+03		1.75E+04
+	TE-132	49.72		13.10	-2.24E+07	4.59E+07	3.27E+08
		228.16		88.00	-7.67E+06		4.59E+07
+	BA-133	81.00		33.00	-1.24E+00	2.10E-01	2.25E-01
		302.84		17.80	9.96E-02		4.67E-01
		356.01		60.00	-6.37E-03		2.10E-01
+	@ I-133	529.87		86.30	1.00E+26	1.00E+26	1.00E+26
+	XE-133	81.00		38.00	-3.16E+05	5.75E+04	5.75E+04
+	CS-134	563.23		8.38	3.44E-01	1.07E-01	9.92E-01
		569.32		15.43	-1.22E-01		4.87E-01
		604.70		97.60	-1.03E-02		1.07E-01
		795.84		85.40	8.52E-02		1.13E-01
		801.93		8.73	-6.19E-01		1.04E+00
+	CS-135	268.24		16.00	2.31E-01	4.80E-01	4.80E-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	4.70E+01	1.21E+01	1.32E+02

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		CS-136	163.89	4.61	4.32E+01	1.21E+01	2.02E+02
			176.55	13.56	-3.09E+01		6.87E+01
			273.65	12.66	2.24E-01		9.43E+01
			340.57	48.50	4.29E+01		2.78E+01
			818.50	99.70	6.82E-01		1.21E+01
			1048.07	79.60	8.17E+00		1.82E+01
			1235.34	19.70	6.90E+01		1.07E+02
+		CS-137	661.65	85.12	3.34E-02	9.68E-02	9.68E-02
+		LA-138	788.74	34.00	8.74E-03	1.05E-01	2.63E-01
			1435.80	66.00	-9.03E-03		1.05E-01
+		CE-139	165.85	80.35	4.97E-02	1.26E-01	1.26E-01
+		BA-140	162.64	6.70	1.69E+01	4.75E+01	1.59E+02
			304.84	4.50	-7.29E+01		2.86E+02
			423.70	3.20	2.82E+01		3.71E+02
			437.55	2.00	-6.22E+01		6.16E+02
			537.32	25.00	-7.69E+00		4.75E+01
+		LA-140	328.77	20.50	2.53E+01	1.20E+01	6.65E+01
			487.03	45.50	3.15E+00		2.79E+01
			815.85	23.50	-1.20E+01		5.78E+01
			1596.49	95.49	-1.02E+00		1.20E+01
+		CE-141	145.44	48.40	5.22E-02	1.04E+00	1.04E+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	-1.88E-01	7.23E-01	7.23E-01
+		PM-144	476.78	42.00	-2.03E-02	9.66E-02	2.05E-01
			618.01	98.60	1.30E-03		9.66E-02
			696.49	99.49	-4.53E-02		9.68E-02
+		PM-145	36.85	21.70	1.07E-01	1.68E-01	3.07E-01
			37.36	39.70	-1.72E-02		1.68E-01
			42.30	15.10	4.01E-02		4.30E-01
			72.40	2.31	-5.43E+00		3.88E+00
+		PM-146	453.90	39.94	4.13E-02	1.82E-01	1.82E-01
			735.90	14.01	-1.44E-01		5.63E-01
			747.13	13.10	-6.87E-02		6.44E-01
+		ND-147	91.11	28.90	2.29E+02	1.25E+02	1.25E+02
			531.02	13.10	2.56E+01		2.12E+02
+		PM-149	285.90	3.10	-1.08E+13	2.17E+13	2.17E+13
+		EU-152	121.78	20.50	9.59E-03	2.98E-01	2.98E-01
			244.69	5.40	4.39E-01		1.45E+00
			344.27	19.13	-6.30E-02		3.67E-01
			778.89	9.20	-1.26E-01		9.40E-01
			964.01	10.40	-1.98E+00		9.89E-01
			1085.78	7.22	7.86E-02		1.29E+00
			1112.02	9.60	-4.83E-02		9.76E-01
			1407.95	14.94	9.29E-01		7.45E-01
+		GD-153	97.43	31.30	5.06E-02	2.61E-01	2.61E-01
			103.18	22.20	-2.15E-02		3.59E-01
+		EU-154	123.07	40.50	-4.15E-02	1.54E-01	1.54E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	EU-154	723.30		19.70	1.02E-01	1.54E-01	4.38E-01
		873.19		11.50	-2.80E-01		6.89E-01
		996.32		10.30	1.41E-01		8.39E-01
		1004.76		17.90	-9.75E-02		5.35E-01
		1274.45		35.50	-4.42E-02		2.63E-01
+	EU-155	86.50	*	30.90	3.10E-01	3.01E-01	3.52E-01
		105.30		20.70	1.25E-02		3.01E-01
+	EU-156	811.77		10.40	-1.45E+01	5.75E+01	5.75E+01
		1153.47		7.20	1.80E+01		1.22E+02
		1230.71		8.90	1.70E+01		9.21E+01
+	HO-166M	184.41		72.60	3.80E-01	1.21E-01	1.21E-01
		280.45		29.60	1.99E-01		2.52E-01
		410.94		11.10	4.71E-01		6.83E-01
		711.69		54.10	2.40E-02		1.53E-01
+	TM-171	66.72		0.14	2.91E+01	5.96E+01	5.96E+01
+	HF-172	67.35		5.31	3.74E-01	6.10E-01	1.54E+00
		125.81		11.30	-1.94E-01		6.10E-01
+	LU-172	181.53		20.60	1.44E+03	2.90E+03	6.00E+03
		900.72		29.81	9.36E+02		5.90E+03
		1093.66		62.50	2.97E+02		2.90E+03
+	LU-173	100.72		5.24	1.04E+00	4.30E-01	1.37E+00
		272.11		21.20	3.39E-02		4.30E-01
+	HF-175	343.40		84.00	-3.63E-02	2.13E-01	2.13E-01
+	LU-176	88.34		13.30	-4.76E-01	7.37E-02	6.23E-01
		201.83		86.00	-3.62E-02		7.37E-02
		306.78		94.00	2.18E-02		7.70E-02
+	HF-181	133.02		41.70	-1.83E-01	4.07E-01	7.05E-01
		345.85		17.20	-3.30E-01		1.94E+00
		482.03		82.80	-1.24E-01		4.07E-01
+	TA-182	67.75		41.20	7.79E-02	3.22E-01	3.22E-01
		1121.30		34.90	2.02E+00		8.65E-01
		1189.05		16.23	3.45E-02		1.09E+00
		1221.41		26.98	1.35E-01		6.97E-01
		1231.02		11.44	3.04E-01		1.65E+00
+	IR-192	308.46		29.68	-1.72E-01	3.68E-01	5.66E-01
		468.07		48.10	-2.25E-01		3.68E-01
+	HG-203	279.19		77.30	9.06E-02	3.97E-01	3.97E-01
+	TL-204	374.74	*	94.11	4.32E-02	8.40E-02	8.40E-02
		899.15		99.16	-1.41E-02		9.54E-02
		911.74	*	91.10	4.43E-01		1.58E-01
+	BI-207	569.67		97.72	-3.19E-02	7.05E-02	7.05E-02
		1063.62		74.90	1.25E-02		1.25E-01
+	TL-208	583.14	*	30.22	1.46E+00	2.27E-01	4.06E-01
		860.37	*	4.48	1.92E+00		2.86E+00
		2614.66	*	35.85	9.61E-01		2.27E-01
+	BI-210M	262.00		45.00	4.47E-02	1.56E-01	1.56E-01
		300.00		23.00	-2.57E+00		3.78E-01
+	PB-210	46.50	*	4.25	1.29E+00	1.85E+00	1.85E+00
+	PB-211	404.84		2.90	-5.33E-01	2.54E+00	2.54E+00

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	PB-211	831.96		2.90	1.28E+00	2.54E+00	3.05E+00
+	BI-212	727.17	*	11.80	7.71E-01	8.83E-01	8.83E-01
		1620.62	*	2.75	2.22E+00		2.86E+00
+	PB-212	238.63	*	44.60	1.51E+00	3.84E-01	3.84E-01
		300.09	*	3.41	1.67E+00		2.28E+00
+	BI-214	609.31	*	46.30	2.87E+00	2.49E-01	2.86E-01
		1120.29	*	15.10	2.58E+00		1.06E+00
		1764.49	*	15.80	3.39E+00		2.49E-01
		2204.22	*	4.98	2.25E+00		1.45E+00
+	PB-214	295.21	*	19.19	3.04E+00	3.04E-01	4.45E-01
		351.92	*	37.19	3.34E+00		3.04E-01
+	RN-219	401.80		6.50	5.99E-01	1.15E+00	1.15E+00
+	RA-223	323.87		3.88	-3.43E-01	1.81E+00	1.81E+00
+	RA-224	240.98	*	3.95	7.47E+00	4.36E+00	4.36E+00
+	RA-225	40.00		31.00	1.77E+00	1.83E+01	1.83E+01
+	RA-226	186.21	*	3.28	7.63E+00	3.05E+00	3.05E+00
+	TH-227	50.10		8.40	-3.17E-02	6.72E-01	7.81E-01
		236.00		11.50	-4.44E+00		6.72E-01
		256.20		6.30	7.41E-01		1.14E+00
+	AC-228	338.32	*	11.40	1.80E+00	4.94E-01	8.31E-01
		911.07	*	27.70	1.39E+00		4.94E-01
		969.11	*	16.60	1.62E+00		1.18E+00
+	TH-230	48.44		16.90	3.47E-02	4.16E-01	4.16E-01
		62.85		4.60	3.59E+00		1.81E+00
		67.67		0.37	4.87E+00		2.01E+01
+	PA-231	283.67		1.60	-5.22E-01	3.55E+00	4.45E+00
		302.67		2.30	7.57E-01		3.55E+00
+	TH-231	25.64		14.70	-3.66E+00	6.08E-01	6.08E-01
		84.21		6.40	-8.12E-01		1.21E+00
+	PA-233	311.98		38.60	2.87E-01	2.10E+00	2.10E+00
+	PA-234	131.20		20.40	7.63E-02	3.12E-01	3.12E-01
		733.99		8.80	-1.14E-01		8.62E-01
		946.00		12.00	1.24E-01		7.40E-01
+	PA-234M	1001.03		0.92	7.72E+00	1.06E+01	1.06E+01
+	TH-234	63.29	*	3.80	3.40E+00	2.93E+00	2.93E+00
+	U-235	143.76		10.50	-5.32E-02	6.25E-01	6.25E-01
		163.35		4.70	2.79E-01		1.30E+00
		205.31		4.70	3.56E-01		1.40E+00
+	NP-237	86.50	*	12.60	7.33E-01	8.33E-01	8.33E-01
+	NP-239	106.10		22.70	1.51E+11	4.13E+11	4.13E+11
		228.18		10.70	-1.51E+11		9.06E+11
		277.60		14.10	4.67E+11		8.45E+11
+	AM-241	59.54		35.90	-1.48E-01	2.03E-01	2.03E-01
+	AM-243	74.67	*	66.00	5.36E-01	2.19E-01	2.19E-01
+	CM-243	209.75		3.29	2.24E+00	5.51E-01	2.16E+00
		228.14		10.60	-9.88E-02		5.92E-01
		277.60		14.00	3.04E-01		5.51E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

+ = 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
? = 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	2.38E+00	2.38E+00	-5.86E-01	1.14E+00
	NA-22	1274.54		99.94	9.82E-02	9.82E-02	-1.65E-02	4.57E-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	5.30E-02	5.30E-02	-1.52E-02	2.24E-02
+	K-40	1460.81	*	10.67	1.64E+00	1.64E+00	3.07E+01	7.88E-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	7.90E-02	7.90E-02	1.91E-02	3.88E-02
		78.34		96.00	1.09E-01		3.49E-01	5.37E-02
	SC-46	889.25		99.98	1.89E-01	1.89E-01	-8.09E-02	8.93E-02
		1120.51		99.99	3.74E-01		9.50E-01	1.80E-01
	V-48	983.52		99.98	5.23E+00	5.23E+00	2.79E+00	2.45E+00
		1312.10		97.50	5.73E+00		-1.55E-01	2.66E+00
	CR-51	320.08		9.83	7.73E+00	7.73E+00	-3.58E+00	3.74E+00
	MN-54	834.83		99.97	1.07E-01	1.07E-01	3.50E-02	5.08E-02
	CO-56	846.75		99.96	1.70E-01	1.46E-01	-5.91E-02	7.97E-02
		1037.75		14.03	1.46E+00		3.16E-01	6.84E-01
		1238.25		67.00	5.11E-01		5.55E-01	2.45E-01
		1771.40		15.51	9.26E-01		-1.12E-01	4.02E-01
		2598.48		16.90	1.46E-01		0.00E+00	0.00E+00
	CO-57	122.06		85.51	9.11E-02	9.11E-02	1.62E-02	4.45E-02
		136.48		10.60	7.29E-01		1.01E-01	3.56E-01
	CO-58	810.76		99.40	2.01E-01	2.01E-01	-7.15E-02	9.47E-02
	FE-59	1099.22		56.50	7.27E-01	7.27E-01	-6.72E-02	3.41E-01
		1291.56		43.20	7.80E-01		-3.96E-01	3.57E-01
	CO-60	1173.22		100.00	1.00E-01	8.21E-02	-1.05E-04	4.70E-02
		1332.49		100.00	8.21E-02		2.40E-02	3.76E-02
	ZN-65	1115.52		50.75	2.42E-01	2.42E-01	2.23E-02	1.14E-01
	GA-67	93.31		35.70	1.49E+08	1.49E+08	4.28E+08	7.35E+07

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	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	1.98E+09	1.49E+08	1.20E+09	9.66E+08
		300.22		16.00	3.24E+08		-1.90E+09	1.58E+08
	SE-75	121.11		16.70	6.26E-01	1.77E-01	2.01E-02	3.06E-01
		136.00		59.20	1.77E-01		2.47E-02	8.66E-02
		264.65		59.80	1.99E-01		-1.18E-02	9.68E-02
		279.53		25.20	5.13E-01		1.17E-01	2.49E-01
		400.65		11.40	1.12E+00		4.67E-01	5.39E-01
	RB-82	776.52		13.00	8.99E+00	8.99E+00	-1.45E-02	4.27E+00
	RB-83	520.41		46.00	3.54E-01	3.54E-01	8.94E-02	1.69E-01
		529.64		30.30	4.82E-01		-8.65E-03	2.29E-01
		552.65		16.40	9.60E-01		1.67E-01	4.58E-01
	KR-85	513.99		0.43	2.43E+01	2.43E+01	3.41E+01	1.18E+01
	SR-85	513.99		99.27	2.90E-01	2.90E-01	4.07E-01	1.40E-01
	Y-88	898.02		93.40	1.80E-01	7.53E-02	4.20E-02	8.52E-02
		1836.01		99.38	7.53E-02		-1.38E-02	2.99E-02
	MO-93	263.06		56.72	1.23E-01	6.34E-02	-4.02E-02	5.95E-02
		684.67		99.68	7.72E-02		1.28E-02	3.65E-02
		1477.11		99.08	6.34E-02		-1.87E-02	2.81E-02
	NB-93M	16.57		9.43	6.85E-01	6.85E-01	-2.12E-01	3.25E-01
	NB-94	702.63		100.00	8.91E-02	7.75E-02	3.32E-02	4.25E-02
		871.10		100.00	7.75E-02		1.32E-03	3.63E-02
	NB-95	765.79		99.81	7.18E-01	7.18E-01	1.05E-01	3.45E-01
	NB-95M	235.69		25.00	2.77E+07	2.77E+07	-1.83E+08	1.35E+07
	ZR-95	724.18		43.70	5.93E-01	4.27E-01	-4.11E-03	2.83E-01
		756.72		55.30	4.27E-01		2.16E-01	2.03E-01
	MO-99	181.06		6.20	2.82E+10	1.73E+10	6.76E+09	1.38E+10
		739.58		12.80	1.73E+10		-1.07E+08	8.20E+09
		778.00		4.50	5.31E+10		-1.14E+09	2.52E+10
	RU-103	497.08		89.00	4.35E-01	4.35E-01	1.39E-01	2.08E-01
	RU-106	621.84		9.80	9.16E-01	9.16E-01	2.04E-01	4.35E-01
	AG-108M	433.93		89.90	7.85E-02	7.85E-02	-9.99E-03	3.77E-02
		614.37		90.40	1.16E-01		1.44E-02	5.58E-02
		722.95		90.50	9.36E-02		2.19E-02	4.45E-02
+	CD-109	88.03	*	3.72	3.25E+00	3.25E+00	2.86E+00	1.61E+00
	AG-110M	657.75		93.14	9.61E-02	9.61E-02	-8.34E-02	4.53E-02
		677.61		10.53	9.21E-01		-1.91E-01	4.36E-01
		706.67		16.46	6.50E-01		3.65E-02	3.09E-01
		763.93		21.98	5.11E-01		7.04E-02	2.42E-01
		884.67		71.63	1.62E-01		6.95E-02	7.66E-02
		1384.27		23.94	4.39E-01		-1.15E-01	2.01E-01
	CD-113M	263.70		0.02	2.97E+02	2.97E+02	-1.04E+02	1.44E+02
	SN-113	255.12		1.93	5.60E+00	2.00E-01	1.49E-01	2.71E+00
		391.69		64.90	2.00E-01		5.10E-02	9.63E-02
	TE123M	159.00		84.10	1.23E-01	1.23E-01	-8.33E-03	6.01E-02
	SB-124	602.71		97.87	2.39E-01	2.39E-01	-4.90E-02	1.14E-01
		645.85		7.26	3.08E+00		1.28E+00	1.46E+00
		722.78		11.10	2.28E+00		5.33E-01	1.09E+00
		1691.02		49.00	4.52E-01		1.79E-01	2.02E-01
	I-125	35.49		6.49	3.05E+00	3.05E+00	5.39E-01	1.49E+00
	SB-125	176.33		6.89	9.50E-01	2.54E-01	-4.27E-01	4.63E-01
		427.89		29.33	2.54E-01		2.87E-02	1.22E-01
		463.38		10.35	8.24E-01		4.92E-01	3.97E-01
		600.56		17.80	4.46E-01		-3.52E-01	2.12E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	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	7.09E-01	2.54E-01	3.46E-01	3.36E-01
	SB-126	414.70		83.30	1.76E+01	1.65E+01	4.07E+00	8.47E+00
		666.33		99.60	1.76E+01		2.69E+00	8.41E+00
		695.00		99.60	1.65E+01		3.01E+00	7.83E+00
		720.50		53.80	3.20E+01		1.22E+01	1.52E+01
+	SN-126	87.57	*	37.00	2.84E-01	2.84E-01	2.49E-01	1.40E-01
	SB-127	473.00		25.00	8.30E+06	6.08E+06	2.99E+05	3.97E+06
		685.20		35.70	6.08E+06		1.01E+06	2.88E+06
		783.80		14.70	1.88E+07		1.48E+07	8.95E+06
	I-129	29.78		57.00	1.28E-01	1.28E-01	7.34E-02	6.25E-02
		33.60		13.20	4.95E-01		-3.89E-01	2.41E-01
		39.58		7.52	8.68E-01		-2.97E-03	4.24E-01
	I-131	284.30		6.05	4.36E+03	3.01E+02	-1.20E+03	2.12E+03
		364.48		81.20	3.01E+02		-1.22E+02	1.45E+02
		636.97		7.26	3.88E+03		1.25E+03	1.84E+03
		722.89		1.80	1.75E+04		4.09E+03	8.31E+03
	TE-132	49.72		13.10	3.27E+08	4.59E+07	-2.24E+07	1.60E+08
		228.16		88.00	4.59E+07		-7.67E+06	2.23E+07
	BA-133	81.00		33.00	2.25E-01	2.10E-01	-1.24E+00	1.11E-01
		302.84		17.80	4.67E-01		9.96E-02	2.27E-01
		356.01		60.00	2.10E-01		-6.37E-03	1.03E-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	5.75E+04	5.75E+04	-3.16E+05	2.83E+04
	CS-134	563.23		8.38	9.92E-01	1.07E-01	3.44E-01	4.74E-01
		569.32		15.43	4.87E-01		-1.22E-01	2.31E-01
		604.70		97.60	1.07E-01		-1.03E-02	5.15E-02
		795.84		85.40	1.13E-01		8.52E-02	5.37E-02
		801.93		8.73	1.04E+00		-6.19E-01	4.91E-01
	CS-135	268.24		16.00	4.80E-01	4.80E-01	2.31E-01	2.34E-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	1.32E+02	1.21E+01	4.70E+01	6.44E+01
		163.89		4.61	2.02E+02		4.32E+01	9.87E+01
		176.55		13.56	6.87E+01		-3.09E+01	3.35E+01
		273.65		12.66	9.43E+01		2.24E-01	4.59E+01
		340.57		48.50	2.78E+01		4.29E+01	1.35E+01
		818.50		99.70	1.21E+01		6.82E-01	5.68E+00
		1048.07		79.60	1.82E+01		8.17E+00	8.57E+00
		1235.34		19.70	1.07E+02		6.90E+01	5.11E+01
	CS-137	661.65		85.12	9.68E-02	9.68E-02	3.34E-02	4.61E-02
	LA-138	788.74		34.00	2.63E-01	1.05E-01	8.74E-03	1.25E-01
		1435.80		66.00	1.05E-01		-9.03E-03	4.72E-02
	CE-139	165.85		80.35	1.26E-01	1.26E-01	4.97E-02	6.14E-02
	BA-140	162.64		6.70	1.59E+02	4.75E+01	1.69E+01	7.77E+01
		304.84		4.50	2.86E+02		-7.29E+01	1.39E+02
		423.70		3.20	3.71E+02		2.82E+01	1.78E+02
		437.55		2.00	6.16E+02		-6.22E+01	2.95E+02
		537.32		25.00	4.75E+01		-7.69E+00	2.26E+01
	LA-140	328.77		20.50	6.65E+01	1.20E+01	2.53E+01	3.23E+01
		487.03		45.50	2.79E+01		3.15E+00	1.34E+01
		815.85		23.50	5.78E+01		-1.20E+01	2.72E+01
		1596.49		95.49	1.20E+01		-1.02E+00	5.32E+00

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	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	1.04E+00	1.04E+00	5.22E-02	5.10E-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	7.23E-01	7.23E-01	-1.88E-01	3.53E-01
	PM-144	476.78		42.00	2.05E-01	9.66E-02	-2.03E-02	9.79E-02
		618.01		98.60	9.66E-02		1.30E-03	4.60E-02
		696.49		99.49	9.68E-02		-4.53E-02	4.59E-02
	PM-145	36.85		21.70	3.07E-01	1.68E-01	1.07E-01	1.50E-01
		37.36		39.70	1.68E-01		-1.72E-02	8.22E-02
		42.30		15.10	4.30E-01		4.01E-02	2.10E-01
		72.40		2.31	3.88E+00		-5.43E+00	1.91E+00
	PM-146	453.90		39.94	1.82E-01	1.82E-01	4.13E-02	8.74E-02
		735.90		14.01	5.63E-01		-1.44E-01	2.66E-01
		747.13		13.10	6.44E-01		-6.87E-02	3.05E-01
	ND-147	91.11		28.90	1.25E+02	1.25E+02	2.29E+02	6.13E+01
		531.02		13.10	2.12E+02		2.56E+01	1.01E+02
	PM-149	285.90		3.10	2.17E+13	2.17E+13	-1.08E+13	1.05E+13
	EU-152	121.78		20.50	2.98E-01	2.98E-01	9.59E-03	1.46E-01
		244.69		5.40	1.45E+00		4.39E-01	7.09E-01
		344.27		19.13	3.67E-01		-6.30E-02	1.77E-01
		778.89		9.20	9.40E-01		-1.26E-01	4.46E-01
		964.01		10.40	9.89E-01		-1.98E+00	4.69E-01
		1085.78		7.22	1.29E+00		7.86E-02	6.06E-01
		1112.02		9.60	9.76E-01		-4.83E-02	4.58E-01
		1407.95		14.94	7.45E-01		9.29E-01	3.49E-01
	GD-153	97.43		31.30	2.61E-01	2.61E-01	5.06E-02	1.28E-01
		103.18		22.20	3.59E-01		-2.15E-02	1.75E-01
	EU-154	123.07		40.50	1.54E-01	1.54E-01	-4.15E-02	7.50E-02
		723.30		19.70	4.38E-01		1.02E-01	2.08E-01
		873.19		11.50	6.89E-01		-2.80E-01	3.23E-01
		996.32		10.30	8.39E-01		1.41E-01	3.93E-01
		1004.76		17.90	5.35E-01		-9.75E-02	2.52E-01
		1274.45		35.50	2.63E-01		-4.42E-02	1.22E-01
+	EU-155	86.50	*	30.90	3.52E-01	3.01E-01	3.10E-01	1.74E-01
		105.30		20.70	3.01E-01		1.25E-02	1.47E-01
	EU-156	811.77		10.40	5.75E+01	5.75E+01	-1.45E+01	2.70E+01
		1153.47		7.20	1.22E+02		1.80E+01	5.80E+01
		1230.71		8.90	9.21E+01		1.70E+01	4.33E+01
	HO-166M	184.41		72.60	1.21E-01	1.21E-01	3.80E-01	5.96E-02
		280.45		29.60	2.52E-01		1.99E-01	1.23E-01
		410.94		11.10	6.83E-01		4.71E-01	3.29E-01
		711.69		54.10	1.53E-01		2.40E-02	7.28E-02
	TM-171	66.72		0.14	5.96E+01	5.96E+01	2.91E+01	2.93E+01
	HF-172	67.35		5.31	1.54E+00	6.10E-01	3.74E-01	7.59E-01
		125.81		11.30	6.10E-01		-1.94E-01	2.98E-01
	LU-172	181.53		20.60	6.00E+03	2.90E+03	1.44E+03	2.92E+03
		900.72		29.81	5.90E+03		9.36E+02	2.79E+03
		1093.66		62.50	2.90E+03		2.97E+02	1.36E+03
	LU-173	100.72		5.24	1.37E+00	4.30E-01	1.04E+00	6.68E-01
		272.11		21.20	4.30E-01		3.39E-02	2.10E-01
	HF-175	343.40		84.00	2.13E-01	2.13E-01	-3.63E-02	1.03E-01
	LU-176	88.34		13.30	6.23E-01	7.37E-02	-4.76E-01	3.07E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	LU-176	201.83		86.00	7.37E-02	7.37E-02	-3.62E-02	3.59E-02
		306.78		94.00	7.70E-02		2.18E-02	3.73E-02
	HF-181	133.02		41.70	7.05E-01	4.07E-01	-1.83E-01	3.45E-01
		345.85		17.20	1.94E+00		-3.30E-01	9.37E-01
		482.03		82.80	4.07E-01		-1.24E-01	1.94E-01
	TA-182	67.75		41.20	3.22E-01	3.22E-01	7.79E-02	1.58E-01
		1121.30		34.90	8.65E-01		2.02E+00	4.17E-01
		1189.05		16.23	1.09E+00		3.45E-02	5.13E-01
		1221.41		26.98	6.97E-01		1.35E-01	3.28E-01
		1231.02		11.44	1.65E+00		3.04E-01	7.74E-01
	IR-192	308.46		29.68	5.66E-01	3.68E-01	-1.72E-01	2.74E-01
		468.07		48.10	3.68E-01		-2.25E-01	1.77E-01
	HG-203	279.19		77.30	3.97E-01	3.97E-01	9.06E-02	1.93E-01
	TL-204	374.74	*	94.11	8.40E-02	8.40E-02	4.32E-02	4.06E-02
		899.15		99.16	9.54E-02		-1.41E-02	4.51E-02
		911.74	*	91.10	1.58E-01		4.43E-01	7.59E-02
	BI-207	569.67		97.72	7.05E-02	7.05E-02	-3.19E-02	3.35E-02
		1063.62		74.90	1.25E-01		1.25E-02	5.88E-02
+	TL-208	583.14	*	30.22	4.06E-01	2.27E-01	1.46E+00	1.97E-01
		860.37	*	4.48	2.86E+00		1.92E+00	1.38E+00
		2614.66	*	35.85	2.27E-01		9.61E-01	9.86E-02
	BI-210M	262.00		45.00	1.56E-01	1.56E-01	4.47E-02	7.56E-02
		300.00		23.00	3.78E-01		-2.57E+00	1.84E-01
+	PB-210	46.50	*	4.25	1.85E+00	1.85E+00	1.29E+00	9.07E-01
	PB-211	404.84		2.90	2.54E+00	2.54E+00	-5.33E-01	1.23E+00
		831.96		2.90	3.05E+00		1.28E+00	1.45E+00
+	BI-212	727.17	*	11.80	8.83E-01	8.83E-01	7.71E-01	4.24E-01
		1620.62	*	2.75	2.86E+00		2.22E+00	1.29E+00
+	PB-212	238.63	*	44.60	3.84E-01	3.84E-01	1.51E+00	1.90E-01
		300.09	*	3.41	2.28E+00		1.67E+00	1.11E+00
+	BI-214	609.31	*	46.30	2.86E-01	2.49E-01	2.87E+00	1.39E-01
		1120.29	*	15.10	1.06E+00		2.58E+00	5.10E-01
		1764.49	*	15.80	2.49E-01		3.39E+00	9.90E-02
		2204.22	*	4.98	1.45E+00		2.25E+00	6.32E-01
+	PB-214	295.21	*	19.19	4.45E-01	3.04E-01	3.04E+00	2.17E-01
		351.92	*	37.19	3.04E-01		3.34E+00	1.49E-01
	RN-219	401.80		6.50	1.15E+00	1.15E+00	5.99E-01	5.54E-01
	RA-223	323.87		3.88	1.81E+00	1.81E+00	-3.43E-01	8.75E-01
+	RA-224	240.98	*	3.95	4.36E+00	4.36E+00	7.47E+00	2.15E+00
	RA-225	40.00		31.00	1.83E+01	1.83E+01	1.77E+00	8.93E+00
+	RA-226	186.21	*	3.28	3.05E+00	3.05E+00	7.63E+00	1.50E+00
	TH-227	50.10		8.40	7.81E-01	6.72E-01	-3.17E-02	3.82E-01
		236.00		11.50	6.72E-01		-4.44E+00	3.28E-01
		256.20		6.30	1.14E+00		7.41E-01	5.56E-01
+	AC-228	338.32	*	11.40	8.31E-01	4.94E-01	1.80E+00	4.05E-01
		911.07	*	27.70	4.94E-01		1.39E+00	2.38E-01
		969.11	*	16.60	1.18E+00		1.62E+00	5.76E-01
	TH-230	48.44		16.90	4.16E-01	4.16E-01	3.47E-02	2.04E-01
		62.85		4.60	1.81E+00		3.59E+00	8.93E-01
		67.67		0.37	2.01E+01		4.87E+00	9.88E+00
	PA-231	283.67		1.60	4.45E+00	3.55E+00	-5.22E-01	2.16E+00
		302.67		2.30	3.55E+00		7.57E-01	1.73E+00
	TH-231	25.64		14.70	6.08E-01	6.08E-01	-3.66E+00	2.97E-01

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

	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	1.21E+00	6.08E-01	-8.12E-01	5.97E-01
	PA-233	311.98		38.60	2.10E+00	2.10E+00	2.87E-01	1.01E+00
	PA-234	131.20		20.40	3.12E-01	3.12E-01	7.63E-02	1.53E-01
		733.99		8.80	8.62E-01		-1.14E-01	4.07E-01
		946.00		12.00	7.40E-01		1.24E-01	3.48E-01
	PA-234M	1001.03		0.92	1.06E+01	1.06E+01	7.72E+00	5.00E+00
+	TH-234	63.29	*	3.80	2.93E+00	2.93E+00	3.40E+00	1.45E+00
	U-235	143.76		10.50	6.25E-01	6.25E-01	-5.32E-02	3.05E-01
		163.35		4.70	1.30E+00		2.79E-01	6.36E-01
		205.31		4.70	1.40E+00		3.56E-01	6.84E-01
+	NP-237	86.50	*	12.60	8.33E-01	8.33E-01	7.33E-01	4.11E-01
	NP-239	106.10		22.70	4.13E+11	4.13E+11	1.51E+11	2.02E+11
		228.18		10.70	9.06E+11		-1.51E+11	4.40E+11
		277.60		14.10	8.45E+11		4.67E+11	4.11E+11
	AM-241	59.54		35.90	2.03E-01	2.03E-01	-1.48E-01	9.97E-02
+	AM-243	74.67	*	66.00	2.19E-01	2.19E-01	5.36E-01	1.08E-01
	CM-243	209.75		3.29	2.16E+00	5.51E-01	2.24E+00	1.05E+00
		228.14		10.60	5.92E-01		-9.88E-02	2.87E-01
		277.60		14.00	5.51E-01		3.04E-01	2.68E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

Analysis Report for 1707084-19

HTC-A02-S002-1218-01

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

Sample Title: HTC-A02-S002-1218-01

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	0	0
17:	1	0	114	129	112	211	578	186
25:	106	90	95	102	88	104	97	103
33:	81	85	99	101	119	109	112	111
41:	122	120	112	116	126	134	228	163
49:	128	141	150	144	158	163	146	199
57:	176	180	183	209	219	197	250	414
65:	250	189	219	234	227	207	226	223
73:	236	275	600	523	585	828	310	231
81:	218	200	182	226	302	217	269	361
89:	239	236	250	230	411	372	196	155
97:	131	140	165	148	139	146	144	110
105:	139	147	140	131	117	130	120	135
113:	141	141	134	120	137	128	107	124
121:	124	140	113	125	140	118	142	138
129:	144	156	129	126	124	134	106	133
137:	132	114	101	119	173	131	122	147
145:	146	118	113	142	127	116	112	114
153:	113	125	140	120	119	109	113	88
161:	103	90	98	102	118	110	89	114
169:	105	96	111	101	100	107	94	104
177:	91	103	89	115	99	96	91	110
185:	140	319	305	115	94	114	94	94
193:	84	95	115	106	96	97	93	81
201:	87	97	88	93	102	102	75	103
209:	100	126	116	86	78	82	82	88
217:	70	90	82	95	77	93	72	84
225:	83	91	70	74	87	71	71	74
233:	69	71	77	98	97	213	608	303
241:	141	267	205	110	83	69	67	59
249:	60	56	57	56	62	77	54	53
257:	62	62	64	61	48	48	54	68
265:	54	43	49	60	73	74	82	85
273:	58	58	71	67	54	80	53	59
281:	59	63	44	56	37	43	67	54
289:	52	54	53	49	49	81	315	437
297:	121	51	58	79	93	60	53	55
305:	54	53	40	38	55	47	39	34
313:	43	42	51	51	40	49	44	45
321:	44	47	31	43	50	43	39	68
329:	66	47	49	46	49	43	37	41
337:	48	97	132	68	42	47	37	25
345:	40	41	35	40	52	60	198	706
353:	528	90	34	44	54	41	44	40
361:	36	40	23	32	26	28	35	33

369:	36	30	30	35	31	28	55	34

Sample Title: HTC-A02-S002-1218-01

Channel								
377:	35	22	29	32	43	31	24	38
385:	37	32	43	30	48	35	36	24
393:	37	31	32	26	32	22	40	34
401:	39	36	31	36	29	31	31	42
409:	31	40	32	38	33	28	24	26
417:	34	27	21	23	22	26	35	27
425:	22	22	29	27	29	28	36	18
433:	27	31	38	22	21	26	32	26
441:	23	24	30	26	24	29	34	30
449:	21	21	28	25	20	34	23	29
457:	21	26	25	26	23	39	39	46
465:	28	28	23	29	24	26	24	22
473:	26	25	30	25	22	26	21	23
481:	26	27	29	14	25	25	31	33
489:	25	17	15	24	25	29	24	27
497:	17	25	25	17	10	26	20	27
505:	20	23	16	23	49	71	107	81
513:	40	34	24	23	21	18	20	31
521:	29	14	27	29	22	21	16	19
529:	19	21	17	13	25	14	19	14
537:	17	23	18	21	23	16	20	24
545:	24	23	20	21	22	31	25	26
553:	18	18	14	10	20	15	19	19
561:	26	23	27	15	21	19	22	17
569:	17	15	16	13	18	21	20	22
577:	19	12	21	29	30	54	161	142
585:	36	21	17	20	23	16	22	23
593:	23	22	22	19	32	18	17	17
601:	19	13	21	24	20	28	20	90
609:	451	434	103	28	25	25	25	27
617:	19	18	19	19	14	13	21	16
625:	22	12	16	18	14	12	15	17
633:	12	25	11	20	26	13	13	13
641:	10	20	20	20	10	9	19	13
649:	24	16	8	17	16	14	10	18
657:	15	11	18	9	13	25	20	16
665:	34	22	18	15	19	20	19	13
673:	14	21	15	14	11	20	17	21
681:	8	12	20	15	14	16	14	17
689:	18	10	14	14	14	22	14	18
697:	18	17	16	20	31	23	18	20
705:	18	16	17	20	12	19	9	20
713:	28	19	16	9	20	9	19	22
721:	20	13	19	14	18	19	47	47
729:	13	16	12	19	17	9	13	14
737:	13	20	12	20	12	15	18	11
745:	24	14	12	18	14	17	15	18
753:	11	17	23	20	17	15	11	12
761:	8	15	18	20	16	14	28	49
769:	48	22	17	20	23	12	23	18
777:	13	18	14	16	17	17	11	19
785:	24	31	25	15	11	15	10	15
793:	7	15	24	23	16	20	13	15

801:	5	24	12	11	22	24	15	16

Sample Title: HTC-A02-S002-1218-01

Channel								
809:	12	11	11	16	13	10	12	12
817:	13	13	12	12	15	16	10	14
825:	16	9	11	17	18	12	14	17
833:	12	11	26	14	9	16	23	22
841:	26	14	12	13	8	8	10	12
849:	12	9	9	21	12	8	13	22
857:	15	13	14	33	19	19	14	11
865:	11	9	7	12	14	5	16	9
873:	7	14	11	15	11	17	10	10
881:	12	9	17	20	18	13	12	17
889:	8	10	23	10	10	18	10	13
897:	18	14	14	17	16	9	15	18
905:	12	17	18	10	18	51	112	80
913:	19	17	11	6	13	9	8	8
921:	9	9	10	9	11	11	20	5
929:	12	12	13	9	29	29	27	14
937:	10	10	6	6	12	7	21	17
945:	8	13	13	5	13	13	13	15
953:	15	10	13	9	9	9	7	17
961:	9	9	21	13	36	16	12	41
969:	58	51	9	16	14	8	14	9
977:	9	6	7	6	8	12	18	11
985:	9	10	8	8	9	13	10	14
993:	13	11	9	12	8	8	14	19
1001:	18	17	13	11	4	13	16	11
1009:	15	8	12	5	8	15	12	10
1017:	16	7	7	13	15	9	17	5
1025:	9	10	9	7	13	13	9	10
1033:	15	10	12	14	6	13	10	12
1041:	9	6	13	9	7	11	14	14
1049:	7	20	16	8	9	5	11	6
1057:	8	11	10	16	7	11	13	13
1065:	12	11	11	14	19	8	8	4
1073:	12	12	5	2	12	16	12	16
1081:	5	9	10	9	11	11	13	15
1089:	9	13	5	9	15	15	11	13
1097:	12	8	5	14	14	13	11	18
1105:	10	13	10	17	10	8	14	14
1113:	8	13	9	11	12	11	42	102
1121:	62	28	12	10	9	15	11	10
1129:	11	10	15	12	8	9	14	7
1137:	11	7	7	7	10	9	12	14
1145:	9	15	9	11	8	14	14	15
1153:	8	18	18	24	23	14	14	11
1161:	12	8	12	7	17	11	8	11
1169:	14	10	7	19	14	12	8	7
1177:	10	10	10	14	12	10	16	18
1185:	9	13	5	9	20	14	11	8
1193:	11	8	13	12	19	15	15	13
1201:	12	12	11	7	12	16	15	17
1209:	8	11	15	19	11	10	12	13
1217:	12	14	4	13	14	15	12	15
1225:	9	11	12	12	13	17	9	7

1233:	16	13	16	24	29	47	27	14

Sample Title: HTC-A02-S002-1218-01

Channel								
1241:	16	12	18	9	18	14	11	11
1249:	15	14	11	11	10	9	4	12
1257:	10	9	7	10	9	14	11	7
1265:	8	6	8	9	8	9	5	8
1273:	11	3	7	13	13	9	12	14
1281:	13	17	8	4	10	8	11	5
1289:	7	6	5	7	5	5	7	7
1297:	6	10	12	8	11	10	9	7
1305:	7	5	7	12	6	9	8	5
1313:	8	6	11	7	5	10	8	9
1321:	9	8	5	8	5	4	4	5
1329:	7	4	4	6	6	7	7	6
1337:	3	4	6	5	4	6	6	8
1345:	4	5	8	2	4	5	3	5
1353:	4	8	3	5	5	6	2	7
1361:	10	3	3	7	10	7	4	7
1369:	4	3	1	5	5	3	7	11
1377:	28	17	8	4	9	7	4	5
1385:	5	8	2	5	6	2	1	4
1393:	5	4	6	1	3	3	4	8
1401:	6	5	3	10	9	6	18	16
1409:	9	8	2	3	7	4	2	5
1417:	3	3	5	2	5	4	4	5
1425:	3	0	1	6	2	5	4	3
1433:	5	7	5	1	3	3	4	4
1441:	4	4	3	1	6	3	2	2
1449:	9	3	1	5	4	5	2	5
1457:	14	39	147	433	481	149	29	11
1465:	15	16	14	6	3	4	4	2
1473:	2	3	3	4	2	4	2	6
1481:	3	3	5	3	5	3	1	4
1489:	2	5	0	5	1	3	8	4
1497:	6	2	6	0	3	4	3	4
1505:	3	1	7	10	10	8	6	3
1513:	5	2	8	3	5	2	4	7
1521:	5	2	1	3	4	5	4	2
1529:	3	1	4	2	2	1	5	4
1537:	2	4	1	4	4	5	6	5
1545:	1	5	2	0	1	2	6	3
1553:	2	0	3	4	3	3	2	2
1561:	4	1	5	1	4	2	3	4
1569:	4	3	4	5	1	6	2	2
1577:	2	1	0	3	5	2	4	4
1585:	3	7	6	11	4	4	4	13
1593:	7	5	3	3	0	0	2	4
1601:	1	5	4	4	5	4	4	3
1609:	2	0	2	3	2	4	1	2
1617:	2	2	8	6	7	1	1	3
1625:	2	2	0	2	6	8	1	3
1633:	1	3	1	0	2	2	0	1
1641:	0	2	0	0	1	2	1	1
1649:	0	1	1	1	2	1	2	0
1657:	1	4	2	3	2	4	1	1

1665:	1	3	3	1	1	2	3	3

Sample Title: HTC-A02-S002-1218-01

Channel								
1673:	2	0	1	0	3	4	0	2
1681:	3	2	4	3	2	1	1	4
1689:	2	3	5	5	4	1	4	2
1697:	0	1	0	3	1	2	3	1
1705:	2	1	1	3	5	2	2	4
1713:	3	4	0	1	2	1	1	1
1721:	3	4	1	4	4	2	5	7
1729:	14	15	2	0	1	1	0	2
1737:	3	3	3	0	1	5	4	3
1745:	1	1	1	1	1	3	1	2
1753:	3	4	1	0	0	0	2	2
1761:	4	19	46	50	43	11	5	0
1769:	1	3	1	3	2	3	2	0
1777:	1	1	2	2	1	2	0	2
1785:	1	3	4	2	1	2	2	2
1793:	1	1	2	1	1	2	0	3
1801:	0	1	0	3	2	1	2	2
1809:	2	0	1	3	2	2	1	1
1817:	3	3	2	1	2	4	1	5
1825:	1	2	2	2	0	0	4	1
1833:	1	0	1	1	1	0	0	1
1841:	1	0	0	0	3	8	10	7
1849:	4	1	1	2	0	0	0	1
1857:	3	1	1	0	3	3	2	1
1865:	3	1	2	3	0	1	3	4
1873:	1	1	1	0	2	1	1	1
1881:	1	2	1	1	2	1	0	0
1889:	0	0	4	0	1	1	1	4
1897:	3	1	0	2	4	0	2	6
1905:	0	1	2	0	1	0	2	1
1913:	0	1	0	2	0	0	1	1
1921:	0	2	1	0	1	0	0	1
1929:	0	1	2	3	0	2	3	3
1937:	0	2	0	1	1	0	3	1
1945:	0	0	0	0	2	1	2	1
1953:	1	1	2	3	5	0	3	4
1961:	1	0	3	1	0	1	2	0
1969:	2	2	2	0	2	2	1	1
1977:	1	1	1	0	0	3	1	1
1985:	0	2	1	1	0	0	1	2
1993:	1	0	1	2	0	1	5	1
2001:	1	2	0	0	1	3	2	1
2009:	0	0	0	2	1	2	2	3
2017:	1	0	0	0	1	0	3	0
2025:	2	0	0	1	2	1	3	3
2033:	1	3	3	1	0	3	2	0
2041:	3	1	2	1	2	0	2	1
2049:	0	1	1	0	0	3	1	2
2057:	1	1	0	1	1	0	1	2
2065:	2	1	0	1	0	0	0	2
2073:	0	0	3	1	0	1	1	1
2081:	1	1	1	1	3	4	3	0
2089:	2	0	1	1	1	2	3	0

2097:	0	1	0	1	5	4	5	6

Sample Title: HTC-A02-S002-1218-01

Channel								
2105:	2	2	0	2	0	0	0	5
2113:	3	2	1	5	2	5	7	0
2121:	0	3	1	0	2	3	1	1
2129:	2	2	2	1	1	2	0	0
2137:	1	0	2	2	0	0	1	0
2145:	1	1	2	0	1	0	1	1
2153:	0	0	1	2	1	1	0	1
2161:	1	2	0	1	3	3	1	2
2169:	1	2	1	1	3	1	0	1
2177:	2	1	1	0	0	2	1	0
2185:	0	2	0	1	1	0	1	0
2193:	1	4	1	1	0	2	1	1
2201:	4	6	15	14	1	0	2	1
2209:	4	1	0	2	2	2	2	0
2217:	4	2	1	3	0	1	2	3
2225:	0	1	3	0	2	0	2	2
2233:	1	1	0	1	2	3	0	0
2241:	1	0	1	3	1	0	1	1
2249:	1	0	2	0	0	1	0	1
2257:	1	0	1	2	3	2	2	1
2265:	1	0	0	0	6	3	4	1
2273:	1	2	3	1	1	0	1	0
2281:	1	1	2	1	1	3	2	3
2289:	3	0	0	2	3	0	1	0
2297:	2	2	3	1	2	0	3	1
2305:	2	1	1	0	0	1	0	1
2313:	2	2	0	0	1	1	0	1
2321:	1	3	5	2	1	1	2	1
2329:	1	1	2	1	0	1	4	0
2337:	1	1	3	4	0	0	2	3
2345:	0	0	0	1	0	1	0	0
2353:	1	0	2	0	1	4	3	1
2361:	0	1	2	1	2	1	3	1
2369:	1	2	0	0	1	2	3	0
2377:	1	0	0	1	1	0	2	1
2385:	0	1	1	0	0	1	1	1
2393:	2	1	2	0	1	2	2	1
2401:	1	0	0	0	3	0	0	0
2409:	2	3	2	2	1	0	3	1
2417:	1	1	1	1	2	0	1	0
2425:	1	0	0	0	2	1	0	0
2433:	1	1	0	0	0	3	1	2
2441:	0	1	2	0	4	1	8	5
2449:	1	1	2	0	1	1	0	1
2457:	0	1	0	0	3	0	1	1
2465:	0	0	0	0	1	1	2	2
2473:	2	1	0	0	1	0	0	3
2481:	0	1	1	2	0	0	0	0
2489:	1	2	0	0	0	1	2	0
2497:	0	1	0	0	1	1	0	1
2505:	1	0	1	0	0	0	2	0
2513:	1	2	2	0	2	0	0	1
2521:	1	0	0	1	1	0	0	0

2529:	1	1	0	0	1	1	0	0

Sample Title: HTC-A02-S002-1218-01

Channel								
2537:	1	0	1	1	0	2	0	1
2545:	0	0	1	0	0	0	0	0
2553:	0	0	0	0	0	1	0	1
2561:	0	0	0	0	1	0	0	0
2569:	1	0	1	0	1	0	1	0
2577:	0	0	1	0	0	0	0	0
2585:	0	0	0	1	0	0	0	0
2593:	0	0	0	0	0	0	0	0
2601:	0	0	0	2	0	0	0	1
2609:	1	0	5	15	33	31	9	6
2617:	2	0	2	0	0	0	0	1
2625:	1	0	0	2	0	0	0	0
2633:	1	0	1	0	0	1	0	0
2641:	0	0	0	0	0	0	1	0
2649:	0	1	0	0	0	0	0	0
2657:	1	1	1	1	3	0	2	1
2665:	1	1	0	0	0	1	0	0
2673:	0	1	0	1	0	1	0	0
2681:	1	1	1	1	0	0	2	0
2689:	0	0	1	0	0	0	0	0
2697:	1	0	0	0	1	0	0	0
2705:	2	1	0	2	0	0	3	0
2713:	0	0	0	2	0	1	0	0
2721:	0	0	0	0	0	0	0	0
2729:	0	0	0	1	0	1	0	0
2737:	0	0	1	1	0	1	0	1
2745:	0	0	0	0	0	1	0	0
2753:	0	1	1	1	0	1	0	0
2761:	0	0	1	0	0	1	0	1
2769:	1	1	0	0	0	0	0	1
2777:	0	0	2	1	0	0	0	0
2785:	0	1	0	1	0	0	1	0
2793:	0	1	0	0	1	0	1	0
2801:	1	0	0	0	1	0	1	0
2809:	1	0	0	1	0	1	2	2
2817:	0	0	0	0	0	1	0	0
2825:	0	2	0	1	0	1	2	0
2833:	0	0	0	1	0	0	1	1
2841:	1	0	0	0	1	0	0	0
2849:	0	0	0	0	0	0	0	2
2857:	1	0	1	1	0	0	0	0
2865:	0	0	0	0	0	0	0	0
2873:	0	0	0	0	0	0	1	0
2881:	0	0	0	0	0	0	0	1
2889:	1	0	0	1	0	1	0	1
2897:	0	0	1	0	0	0	0	0
2905:	1	0	0	2	0	0	1	0
2913:	0	0	0	0	0	0	0	0
2921:	0	0	0	0	0	1	0	0
2929:	0	0	0	0	0	1	0	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	1	0	1	0
2953:	1	0	1	0	0	0	0	1

2961:	1	0	1	0	0	0	0	0

Sample Title: HTC-A02-S002-1218-01

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

3393:	0	0	0	0	1	0	0	0

Sample Title: HTC-A02-S002-1218-01

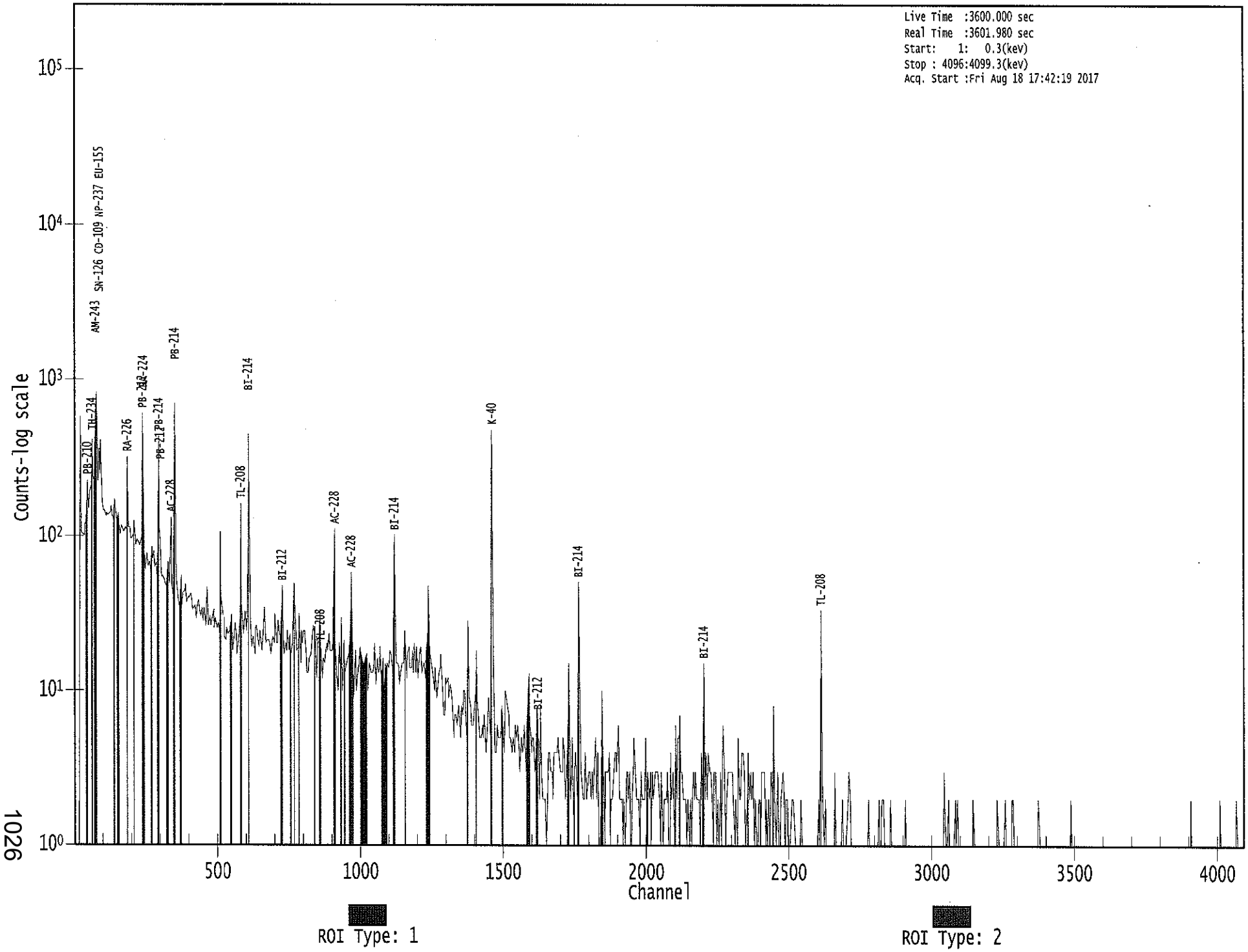
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	1	1	0	0	1	0	0
3417:	0	1	0	1	0	0	0	0
3425:	0	1	0	1	0	0	0	0
3433:	0	0	0	1	0	0	0	0
3441:	0	0	1	0	0	0	1	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	0	0	1	0
3465:	1	0	0	0	0	0	0	0
3473:	1	0	0	1	0	0	0	0
3481:	0	0	0	0	0	0	2	1
3489:	1	1	1	0	0	0	0	1
3497:	1	0	0	0	1	0	0	1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

3825:	0	0	0	0	0	0	1	1

Sample Title: HTC-A02-S002-1218-01

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

0000055534.CNF



1026

KB 8/19/17

Apex-Gamma

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

GAMMA SPECTRUM ANALYSIS

Sample Identification	: 1707084-20
Sample Description	: HTC-A02-S002-1824-01
Sample Type	: SOIL
Sample Size	: 5.393E+02 grams
Facility	: Countroom
Sample Taken On	: 5/15/2017 9:11:18AM
Acquisition Started	: 8/19/2017 6:37:26AM
Procedure	: GAS-1602 pCi
Operator	: Administrator
Detector Name	: GE1
Geometry	: GAS-1602
Live Time	: 3600.0 seconds
Real Time	: 3601.4 seconds
Dead Time	: 0.04 %
Peak Locate Threshold	: 2.50
Peak Locate Range (in channels)	: 1 - 4096
Peak Area Range (in channels)	: 19 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 1/14/2017
Efficiency Calibration Used Done On	: 1/14/2017
Efficiency Calibration Description	:
Sample Number	: 55545

PEAK-TO-TOTAL CALIBRATION REPORT

Peak-to-Total Efficiency Calibration Equation

AG 8/21/17

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

PEAK LOCATE REPORT

Peak Locate Performed on : 8/19/2017 7:37:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096
Peak Search Sensitivity : 2.50

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
1	45.81	46.43	0.0000	0.00
2	62.62	63.22	0.0000	0.00
3	76.11	76.70	0.0000	0.00
4	87.60	88.18	0.0000	0.00
5	92.89	93.46	0.0000	0.00
6	129.34	129.87	0.0000	0.00
7	185.75	186.23	0.0000	0.00
8	238.56	238.99	0.0000	0.00
9	241.74	242.17	0.0000	0.00
10	270.39	270.78	0.0000	0.00
11	277.06	277.45	0.0000	0.00
12	295.16	295.53	0.0000	0.00
13	300.22	300.59	0.0000	0.00
14	327.95	328.28	0.0000	0.00
15	338.29	338.61	0.0000	0.00
16	351.66	351.97	0.0000	0.00
17	463.53	463.73	0.0000	0.00
18	510.97	511.12	0.0000	0.00
19	579.92	580.00	0.0000	0.00
20	583.53	583.61	0.0000	0.00
21	609.34	609.39	0.0000	0.00
22	726.83	726.76	0.0000	0.00
23	768.77	768.66	0.0000	0.00
24	795.46	795.32	0.0000	0.00
25	855.20	855.00	0.0000	0.00
26	861.55	861.35	0.0000	0.00
27	911.80	911.55	0.0000	0.00
28	969.50	969.19	0.0000	0.00
29	1121.12	1120.66	0.0000	0.00
30	1156.68	1156.19	0.0000	0.00
31	1238.91	1238.33	0.0000	0.00
32	1321.23	1320.57	0.0000	0.00
33	1363.79	1363.09	0.0000	0.00
34	1407.13	1406.39	0.0000	0.00
35	1461.51	1460.71	0.0000	0.00
36	1466.48	1465.68	0.0000	0.00
37	1588.86	1587.94	0.0000	0.00
38	1592.70	1591.78	0.0000	0.00
39	1595.71	1594.78	0.0000	0.00
40	1694.71	1693.68	0.0000	0.00
41	1703.41	1702.38	0.0000	0.00
42	1731.07	1730.01	0.0000	0.00

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

Peak No.	Energy (keV)	Centroid Channel	Centroid Uncertainty	Peak Significance
43	1765.17	1764.08	0.0000	0.00
44	1799.08	1797.96	0.0000	0.00
45	1836.66	1835.50	0.0000	0.00
46	1848.92	1847.75	0.0000	0.00
47	1883.99	1882.78	0.0000	0.00
48	1890.99	1889.78	0.0000	0.00
49	2104.51	2103.09	0.0000	0.00
50	2204.23	2202.72	0.0000	0.00
51	2233.34	2231.80	0.0000	0.00
52	2334.85	2333.21	0.0000	0.00
53	2396.47	2394.77	0.0000	0.00
54	2615.60	2613.70	0.0000	0.00

? = Adjacent peak noted
Errors quoted at 2.000sigma

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

PEAK ANALYSIS REPORT

Peak Analysis Performed on : 8/19/2017 7:37:31AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
	1	45.81	43 -	49	46.43	1.12E+02	83.06	1.18E+03	1.17
	2	62.62	58 -	68	63.22	3.14E+02	146.62	2.71E+03	1.93
	3	76.11	72 -	86	76.70	8.59E+02	225.37	5.00E+03	3.68
	4	87.60	86 -	91	88.18	1.31E+02	100.47	1.93E+03	1.58
	5	92.89	91 -	97	93.46	2.64E+02	109.00	1.86E+03	1.85
	6	129.34	126 -	134	129.87	9.21E+01	97.27	1.40E+03	3.78
	7	185.75	182 -	190	186.23	2.57E+02	88.03	1.03E+03	1.88
M	8	238.56	234 -	247	238.99	9.65E+02	76.62	4.78E+02	1.78
m	9	241.74	234 -	247	242.17	2.03E+02	78.12	5.00E+02	1.82
	10	270.39	267 -	274	270.78	1.12E+02	60.70	5.30E+02	2.13
	11	277.06	275 -	281	277.45	6.44E+01	51.76	4.45E+02	2.46
M	12	295.16	292 -	304	295.53	3.50E+02	54.63	3.19E+02	1.93
m	13	300.22	292 -	304	300.59	1.18E+02	64.48	4.35E+02	3.01
M	14	327.95	324 -	344	328.28	5.66E+01	47.07	3.30E+02	2.29
m	15	338.29	324 -	344	338.61	2.37E+02	53.44	3.34E+02	2.30
	16	351.66	347 -	356	351.97	5.39E+02	77.29	5.46E+02	1.82
	17	463.53	459 -	468	463.73	6.38E+01	47.73	2.86E+02	2.16
	18	510.97	507 -	515	511.12	2.30E+02	49.12	2.30E+02	2.54
M	19	579.92	578 -	593	580.00	2.46E+01	19.49	7.60E+01	1.86
m	20	583.53	578 -	593	583.61	3.14E+02	42.97	1.14E+02	2.10
	21	609.34	604 -	613	609.39	4.23E+02	60.12	2.74E+02	2.06
	22	726.83	722 -	731	726.76	8.56E+01	42.20	2.07E+02	2.59
	23	768.77	766 -	773	768.66	3.80E+01	34.06	1.68E+02	1.52
	24	795.46	792 -	799	795.32	3.99E+01	32.31	1.46E+02	3.31
M	25	855.20	854 -	864	855.00	1.42E+01	10.30	2.92E+01	1.98
m	26	861.55	854 -	864	861.35	4.41E+01	26.50	8.52E+01	2.36
	27	911.80	907 -	917	911.55	2.05E+02	46.80	1.86E+02	2.16
	28	969.50	965 -	975	969.19	1.14E+02	51.90	2.72E+02	2.25
	29	1121.12	1117 -	1125	1120.66	1.03E+02	36.33	1.40E+02	2.06
	30	1156.68	1152 -	1159	1156.19	2.30E+01	29.12	1.22E+02	4.16
	31	1238.91	1234 -	1244	1238.33	5.01E+01	42.87	2.14E+02	2.36
	32	1321.23	1317 -	1323	1320.57	1.95E+01	18.43	4.50E+01	2.78
	33	1363.79	1361 -	1365	1363.09	1.20E+01	10.16	1.20E+01	1.41
	34	1407.13	1398 -	1412	1406.39	3.77E+01	26.80	5.85E+01	9.94
M	35	1461.51	1455 -	1478	1460.71	1.21E+03	71.07	4.02E+01	2.31
m	36	1466.48	1455 -	1478	1465.68	4.41E+01	57.85	2.97E+01	2.91
M	37	1588.86	1584 -	1606	1587.94	2.60E+01	12.36	1.26E+01	2.45
m	38	1592.70	1584 -	1606	1591.78	1.69E+01	13.44	1.05E+01	2.45
m	39	1595.71	1584 -	1606	1594.78	1.48E+01	12.20	9.18E+00	2.45
	40	1694.71	1689 -	1698	1693.68	1.90E+01	8.72	0.00E+00	4.43

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	FWHM (keV)
41	1703.41	1699 -	1705	1702.38	8.00E+00	5.66	0.00E+00	3.32
42	1731.07	1726 -	1735	1730.01	1.69E+01	15.52	2.42E+01	2.08
43	1765.17	1758 -	1767	1764.08	6.69E+01	21.77	2.82E+01	2.75
44	1799.08	1795 -	1800	1797.96	6.50E+00	6.40	3.00E+00	2.84
45	1836.66	1832 -	1838	1835.50	6.50E+00	8.03	7.00E+00	3.80
46	1848.92	1842 -	1853	1847.75	2.13E+01	14.97	1.53E+01	1.37
47	1883.99	1880 -	1886	1882.78	9.00E+00	6.00	0.00E+00	2.38
48	1890.99	1887 -	1892	1889.78	9.00E+00	6.00	0.00E+00	1.77
49	2104.51	2099 -	2108	2103.09	1.47E+01	11.40	1.06E+01	1.36
50	2204.23	2197 -	2206	2202.72	2.59E+01	11.70	4.25E+00	2.43
51	2233.34	2228 -	2234	2231.80	5.00E+00	4.47	0.00E+00	2.41
52	2334.85	2329 -	2337	2333.21	1.90E+01	8.72	0.00E+00	5.97
53	2396.47	2391 -	2397	2394.77	5.50E+00	7.78	7.00E+00	2.59
54	2615.60	2608 -	2620	2613.70	9.52E+01	20.84	5.63E+00	2.27

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 : 8/19/2017 7:37:31AM

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

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
	1	45.81	43 -	49	1.12E+02	83.06	1.18E+03	6.60E+01
	2	62.62	58 -	68	3.14E+02	146.62	2.71E+03	1.17E+02
	3	76.11	72 -	86	8.59E+02	225.37	5.00E+03	1.79E+02
	4	87.60	86 -	91	1.31E+02	100.47	1.93E+03	8.04E+01
	5	92.89	91 -	97	2.64E+02	109.00	1.86E+03	8.55E+01
	6	129.34	126 -	134	9.21E+01	97.27	1.40E+03	7.84E+01
	7	185.75	182 -	190	2.57E+02	88.03	1.03E+03	6.74E+01
M	8	238.56	234 -	247	9.65E+02	76.62	4.78E+02	3.60E+01
m	9	241.74	234 -	247	2.03E+02	78.12	5.00E+02	3.68E+01
	10	270.39	267 -	274	1.12E+02	60.70	5.30E+02	4.68E+01
	11	277.06	275 -	281	6.44E+01	51.76	4.45E+02	4.05E+01
M	12	295.16	292 -	304	3.50E+02	54.63	3.19E+02	2.94E+01
m	13	300.22	292 -	304	1.18E+02	64.48	4.35E+02	3.43E+01
M	14	327.95	324 -	344	5.66E+01	47.07	3.30E+02	2.99E+01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Net Peak Area	Net Area Uncertainty	Continuum Counts	Critical Level
m	15	338.29	324 -	344	2.37E+02	53.44	3.34E+02	3.00E+01
	16	351.66	347 -	356	5.39E+02	77.29	5.46E+02	5.08E+01
	17	463.53	459 -	468	6.38E+01	47.73	2.86E+02	3.70E+01
	18	510.97	507 -	515	2.30E+02	49.12	2.30E+02	3.18E+01
M	19	579.92	578 -	593	2.46E+01	19.49	7.60E+01	1.43E+01
m	20	583.53	578 -	593	3.14E+02	42.97	1.14E+02	1.76E+01
	21	609.34	604 -	613	4.23E+02	60.12	2.74E+02	3.60E+01
	22	726.83	722 -	731	8.56E+01	42.20	2.07E+02	3.12E+01
	23	768.77	766 -	773	3.80E+01	34.06	1.68E+02	2.61E+01
	24	795.46	792 -	799	3.99E+01	32.31	1.46E+02	2.44E+01
M	25	855.20	854 -	864	1.42E+01	10.30	2.92E+01	8.88E+00
m	26	861.55	854 -	864	4.41E+01	26.50	8.52E+01	1.52E+01
	27	911.80	907 -	917	2.05E+02	46.80	1.86E+02	3.04E+01
	28	969.50	965 -	975	1.14E+02	51.90	2.72E+02	3.89E+01
	29	1121.12	1117 -	1125	1.03E+02	36.33	1.40E+02	2.48E+01
	30	1156.68	1152 -	1159	2.30E+01	29.12	1.22E+02	2.26E+01
	31	1238.91	1234 -	1244	5.01E+01	42.87	2.14E+02	3.33E+01
	32	1321.23	1317 -	1323	1.95E+01	18.43	4.50E+01	1.33E+01
	33	1363.79	1361 -	1365	1.20E+01	10.16	1.20E+01	6.11E+00
	34	1407.13	1398 -	1412	3.77E+01	26.80	5.85E+01	1.96E+01
M	35	1461.51	1455 -	1478	1.21E+03	71.07	4.02E+01	1.04E+01
m	36	1466.48	1455 -	1478	4.41E+01	57.85	2.97E+01	8.96E+00
M	37	1588.86	1584 -	1606	2.60E+01	12.36	1.26E+01	5.83E+00
m	38	1592.70	1584 -	1606	1.69E+01	13.44	1.05E+01	5.32E+00
m	39	1595.71	1584 -	1606	1.48E+01	12.20	9.18E+00	4.98E+00
	40	1694.71	1689 -	1698	1.90E+01	8.72	0.00E+00	0.00E+00
	41	1703.41	1699 -	1705	8.00E+00	5.66	0.00E+00	0.00E+00
	42	1731.07	1726 -	1735	1.69E+01	15.52	2.42E+01	1.08E+01
	43	1765.17	1758 -	1767	6.69E+01	21.77	2.82E+01	1.18E+01
	44	1799.08	1795 -	1800	6.50E+00	6.40	3.00E+00	3.18E+00
	45	1836.66	1832 -	1838	6.50E+00	8.03	7.00E+00	5.10E+00
	46	1848.92	1842 -	1853	2.13E+01	14.97	1.53E+01	9.68E+00
	47	1883.99	1880 -	1886	9.00E+00	6.00	0.00E+00	0.00E+00
	48	1890.99	1887 -	1892	9.00E+00	6.00	0.00E+00	0.00E+00
	49	2104.51	2099 -	2108	1.47E+01	11.40	1.06E+01	6.94E+00
	50	2204.23	2197 -	2206	2.59E+01	11.70	4.25E+00	4.76E+00
	51	2233.34	2228 -	2234	5.00E+00	4.47	0.00E+00	0.00E+00
	52	2334.85	2329 -	2337	1.90E+01	8.72	0.00E+00	0.00E+00
	53	2396.47	2391 -	2397	5.50E+00	7.78	7.00E+00	5.10E+00
	54	2615.60	2608 -	2620	9.52E+01	20.84	5.63E+00	6.01E+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 1707084-20

HTC-A02-S002-1824-01

PEAK WITH NID REPORT

Peak Analysis Performed on : 8/19/2017 7:37:31AM

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

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

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	1	45.81	43 -	49	46.43	1.12E+02	83.06	1.18E+03	PB-210
	2	62.62	58 -	68	63.22	3.14E+02	146.62	2.71E+03	TH-230
									TH-234
	3	76.11	72 -	86	76.70	8.59E+02	225.37	5.00E+03	.....
	4	87.60	86 -	91	88.18	1.31E+02	100.47	1.93E+03	SN-126
									CD-109
									LU-176
	5	92.89	91 -	97	93.46	2.64E+02	109.00	1.86E+03	GA-67
	6	129.34	126 -	134	129.87	9.21E+01	97.27	1.40E+03	.....
	7	185.75	182 -	190	186.23	2.57E+02	88.03	1.03E+03	RA-226
M	8	238.56	234 -	247	238.99	9.65E+02	76.62	4.78E+02	PB-212
m	9	241.74	234 -	247	242.17	2.03E+02	78.12	5.00E+02	RA-224
	10	270.39	267 -	274	270.78	1.12E+02	60.70	5.30E+02	.....
	11	277.06	275 -	281	277.45	6.44E+01	51.76	4.45E+02	CM-243
									NP-239
M	12	295.16	292 -	304	295.53	3.50E+02	54.63	3.19E+02	PB-214
m	13	300.22	292 -	304	300.59	1.18E+02	64.48	4.35E+02	GA-67
									PB-212
									BI-210M
M	14	327.95	324 -	344	328.28	5.66E+01	47.07	3.30E+02	LA-140
m	15	338.29	324 -	344	338.61	2.37E+02	53.44	3.34E+02	AC-228
	16	351.66	347 -	356	351.97	5.39E+02	77.29	5.46E+02	PB-214
	17	463.53	459 -	468	463.73	6.38E+01	47.73	2.86E+02	SB-125
	18	510.97	507 -	515	511.12	2.30E+02	49.12	2.30E+02	.....
M	19	579.92	578 -	593	580.00	2.46E+01	19.49	7.60E+01	.....
m	20	583.53	578 -	593	583.61	3.14E+02	42.97	1.14E+02	TL-208
	21	609.34	604 -	613	609.39	4.23E+02	60.12	2.74E+02	BI-214
	22	726.83	722 -	731	726.76	8.56E+01	42.20	2.07E+02	BI-212
	23	768.77	766 -	773	768.66	3.80E+01	34.06	1.68E+02	.....
	24	795.46	792 -	799	795.32	3.99E+01	32.31	1.46E+02	CS-134
M	25	855.20	854 -	864	855.00	1.42E+01	10.30	2.92E+01	.....
m	26	861.55	854 -	864	861.35	4.41E+01	26.50	8.52E+01	.....
	27	911.80	907 -	917	911.55	2.05E+02	46.80	1.86E+02	TL-204
									AC-228
	28	969.50	965 -	975	969.19	1.14E+02	51.90	2.72E+02	AC-228
	29	1121.12	1117 -	1125	1120.66	1.03E+02	36.33	1.40E+02	TA-182
									SC-46
									BI-214
	30	1156.68	1152 -	1159	1156.19	2.30E+01	29.12	1.22E+02	.....
	31	1238.91	1234 -	1244	1238.33	5.01E+01	42.87	2.14E+02	CO-56
	32	1321.23	1317 -	1323	1320.57	1.95E+01	18.43	4.50E+01	.....

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Peak No.	Energy (keV)	ROI start	ROI end	Peak Centroid	Net Peak Area	Net Area Uncertainty	Continuum Counts	Tentative Nuclide
	33	1363.79	1361 -	1365	1363.09	1.20E+01	10.16	1.20E+01	.....
	34	1407.13	1398 -	1412	1406.39	3.77E+01	26.80	5.85E+01	EU-152
M	35	1461.51	1455 -	1478	1460.71	1.21E+03	71.07	4.02E+01	K-40
m	36	1466.48	1455 -	1478	1465.68	4.41E+01	57.85	2.97E+01	.....
M	37	1588.86	1584 -	1606	1587.94	2.60E+01	12.36	1.26E+01	.....
m	38	1592.70	1584 -	1606	1591.78	1.69E+01	13.44	1.05E+01	.....
m	39	1595.71	1584 -	1606	1594.78	1.48E+01	12.20	9.18E+00	LA-140
	40	1694.71	1689 -	1698	1693.68	1.90E+01	8.72	0.00E+00	.....
	41	1703.41	1699 -	1705	1702.38	8.00E+00	5.66	0.00E+00	.....
	42	1731.07	1726 -	1735	1730.01	1.69E+01	15.52	2.42E+01	.....
	43	1765.17	1758 -	1767	1764.08	6.69E+01	21.77	2.82E+01	BI-214
	44	1799.08	1795 -	1800	1797.96	6.50E+00	6.40	3.00E+00	.....
	45	1836.66	1832 -	1838	1835.50	6.50E+00	8.03	7.00E+00	Y-88
	46	1848.92	1842 -	1853	1847.75	2.13E+01	14.97	1.53E+01	.....
	47	1883.99	1880 -	1886	1882.78	9.00E+00	6.00	0.00E+00	.....
	48	1890.99	1887 -	1892	1889.78	9.00E+00	6.00	0.00E+00	.....
	49	2104.51	2099 -	2108	2103.09	1.47E+01	11.40	1.06E+01	.....
	50	2204.23	2197 -	2206	2202.72	2.59E+01	11.70	4.25E+00	BI-214
	51	2233.34	2228 -	2234	2231.80	5.00E+00	4.47	0.00E+00	.....
	52	2334.85	2329 -	2337	2333.21	1.90E+01	8.72	0.00E+00	.....
	53	2396.47	2391 -	2397	2394.77	5.50E+00	7.78	7.00E+00	.....
	54	2615.60	2608 -	2620	2613.70	9.52E+01	20.84	5.63E+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 : 8/19/2017 7:37:31AM

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
	1	45.81	1.12E+02	83.06	2.45E-02	2.22E-03
	2	62.62	3.14E+02	146.62	2.69E-02	2.25E-03
	3	76.11	8.59E+02	225.37	2.75E-02	2.39E-03
	4	87.60	1.31E+02	100.47	2.74E-02	2.52E-03
	5	92.89	2.64E+02	109.00	2.73E-02	2.44E-03
	6	129.34	9.21E+01	97.27	2.53E-02	1.93E-03
	7	185.75	2.57E+02	88.03	2.17E-02	1.68E-03
M	8	238.56	9.65E+02	76.62	1.89E-02	1.53E-03

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Peak No.	Energy (keV)	Net Peak Area	Net Area Uncertainty	Peak Efficiency	Efficiency Uncertainty
m	9	241.74	2.03E+02	78.12	1.87E-02	1.52E-03
	10	270.39	1.12E+02	60.70	1.74E-02	1.43E-03
	11	277.06	6.44E+01	51.76	1.71E-02	1.41E-03
M	12	295.16	3.50E+02	54.63	1.64E-02	1.37E-03
m	13	300.22	1.18E+02	64.48	1.63E-02	1.36E-03
M	14	327.95	5.66E+01	47.07	1.53E-02	1.29E-03
m	15	338.29	2.37E+02	53.44	1.50E-02	1.27E-03
	16	351.66	5.39E+02	77.29	1.45E-02	1.24E-03
	17	463.53	6.38E+01	47.73	1.19E-02	1.10E-03
	18	510.97	2.30E+02	49.12	1.10E-02	1.07E-03
M	19	579.92	2.46E+01	19.49	1.00E-02	1.02E-03
m	20	583.53	3.14E+02	42.97	9.96E-03	1.02E-03
	21	609.34	4.23E+02	60.12	9.63E-03	1.01E-03
	22	726.83	8.56E+01	42.20	8.41E-03	8.68E-04
	23	768.77	3.80E+01	34.06	8.06E-03	8.02E-04
	24	795.46	3.99E+01	32.31	7.85E-03	7.59E-04
M	25	855.20	1.42E+01	10.30	7.43E-03	6.64E-04
m	26	861.55	4.41E+01	26.50	7.39E-03	6.54E-04
	27	911.80	2.05E+02	46.80	7.08E-03	5.91E-04
	28	969.50	1.14E+02	51.90	6.76E-03	5.69E-04
	29	1121.12	1.03E+02	36.33	6.07E-03	5.11E-04
	30	1156.68	2.30E+01	29.12	5.93E-03	4.97E-04
	31	1238.91	5.01E+01	42.87	5.64E-03	4.76E-04
	32	1321.23	1.95E+01	18.43	5.38E-03	4.57E-04
	33	1363.79	1.20E+01	10.16	5.26E-03	4.47E-04
	34	1407.13	3.77E+01	26.80	5.14E-03	4.37E-04
M	35	1461.51	1.21E+03	71.07	5.00E-03	4.25E-04
m	36	1466.48	4.41E+01	57.85	4.99E-03	4.23E-04
M	37	1588.86	2.60E+01	12.36	4.71E-03	3.95E-04
m	38	1592.70	1.69E+01	13.44	4.71E-03	3.94E-04
m	39	1595.71	1.48E+01	12.20	4.70E-03	3.94E-04
	40	1694.71	1.90E+01	8.72	4.50E-03	3.71E-04
	41	1703.41	8.00E+00	5.66	4.49E-03	3.69E-04
	42	1731.07	1.69E+01	15.52	4.43E-03	3.62E-04
	43	1765.17	6.69E+01	21.77	4.37E-03	3.54E-04
	44	1799.08	6.50E+00	6.40	4.32E-03	3.46E-04
	45	1836.66	6.50E+00	8.03	4.25E-03	3.38E-04
	46	1848.92	2.13E+01	14.97	4.23E-03	3.38E-04
	47	1883.99	9.00E+00	6.00	4.18E-03	3.38E-04
	48	1890.99	9.00E+00	6.00	4.17E-03	3.38E-04
	49	2104.51	1.47E+01	11.40	3.86E-03	3.38E-04
	50	2204.23	2.59E+01	11.70	3.74E-03	3.38E-04
	51	2233.34	5.00E+00	4.47	3.70E-03	3.38E-04
	52	2334.85	1.90E+01	8.72	3.59E-03	3.38E-04
	53	2396.47	5.50E+00	7.78	3.52E-03	3.38E-04
	54	2615.60	9.52E+01	20.84	3.30E-03	3.38E-04

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

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

BACKGROUND SUBTRACT REPORT

Peak Analysis Performed on : 8/19/2017 7:37:31AM

Env. Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.CNF

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
	1	45.81	1.12E+02	83.06	3.93E+01	8.32E+00	7.32E+01	8.35E+01
	2	62.62	3.14E+02	146.62	9.62E+01	1.46E+01	2.18E+02	1.47E+02
	3	76.11	8.59E+02	225.37			8.59E+02	2.25E+02
	4	87.60	1.31E+02	100.47			1.31E+02	1.00E+02
	5	92.89	2.64E+02	109.00	1.35E+02	2.05E+01	1.29E+02	1.11E+02
	6	129.34	9.21E+01	97.27			9.21E+01	9.73E+01
	7	185.75	2.57E+02	88.03	4.68E+01	7.65E+00	2.11E+02	8.84E+01
M	8	238.56	9.65E+02	76.62	2.06E+01	6.26E+00	9.44E+02	7.69E+01
m	9	241.74	2.03E+02	78.12			2.03E+02	7.81E+01
	10	270.39	1.12E+02	60.70			1.12E+02	6.07E+01
	11	277.06	6.44E+01	51.76			6.44E+01	5.18E+01
M	12	295.16	3.50E+02	54.63			3.50E+02	5.46E+01
m	13	300.22	1.18E+02	64.48			1.18E+02	6.45E+01
M	14	327.95	5.66E+01	47.07			5.66E+01	4.71E+01
m	15	338.29	2.37E+02	53.44			2.37E+02	5.34E+01
	16	351.66	5.39E+02	77.29	3.12E+00	4.40E+00	5.36E+02	7.74E+01
	17	463.53	6.38E+01	47.73			6.38E+01	4.77E+01
	18	510.97	2.30E+02	49.12	7.85E+01	5.73E+00	1.52E+02	4.95E+01
M	19	579.92	2.46E+01	19.49			2.46E+01	1.95E+01
m	20	583.53	3.14E+02	42.97			3.14E+02	4.30E+01
	21	609.34	4.23E+02	60.12	6.00E+00	4.13E+00	4.17E+02	6.03E+01
	22	726.83	8.56E+01	42.20			8.56E+01	4.22E+01
	23	768.77	3.80E+01	34.06			3.80E+01	3.41E+01
	24	795.46	3.99E+01	32.31			3.99E+01	3.23E+01
M	25	855.20	1.42E+01	10.30			1.42E+01	1.03E+01
m	26	861.55	4.41E+01	26.50	3.72E-01	2.26E+00	4.37E+01	2.66E+01
	27	911.80	2.05E+02	46.80	5.15E+00	3.10E+00	2.00E+02	4.69E+01
	28	969.50	1.14E+02	51.90	0.00E+00	0.00E+00	1.14E+02	5.19E+01
	29	1121.12	1.03E+02	36.33			1.03E+02	3.63E+01
	30	1156.68	2.30E+01	29.12			2.30E+01	2.91E+01
	31	1238.91	5.01E+01	42.87			5.01E+01	4.29E+01
	32	1321.23	1.95E+01	18.43			1.95E+01	1.84E+01
	33	1363.79	1.20E+01	10.16			1.20E+01	1.02E+01
	34	1407.13	3.77E+01	26.80			3.77E+01	2.68E+01
M	35	1461.51	1.21E+03	71.07	4.04E+00	2.32E+00	1.20E+03	7.11E+01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Subtracted Area	Subtracted Uncert.
m	36	1466.48	4.41E+01	57.85			4.41E+01	5.79E+01
M	37	1588.86	2.60E+01	12.36			2.60E+01	1.24E+01
m	38	1592.70	1.69E+01	13.44			1.69E+01	1.34E+01
m	39	1595.71	1.48E+01	12.20			1.48E+01	1.22E+01
	40	1694.71	1.90E+01	8.72			1.90E+01	8.72E+00
	41	1703.41	8.00E+00	5.66			8.00E+00	5.66E+00
	42	1731.07	1.69E+01	15.52			1.69E+01	1.55E+01
	43	1765.17	6.69E+01	21.77			6.69E+01	2.18E+01
	44	1799.08	6.50E+00	6.40			6.50E+00	6.40E+00
	45	1836.66	6.50E+00	8.03			6.50E+00	8.03E+00
	46	1848.92	2.13E+01	14.97			2.13E+01	1.50E+01
	47	1883.99	9.00E+00	6.00			9.00E+00	6.00E+00
	48	1890.99	9.00E+00	6.00			9.00E+00	6.00E+00
	49	2104.51	1.47E+01	11.40			1.47E+01	1.14E+01
	50	2204.23	2.59E+01	11.70			2.59E+01	1.17E+01
	51	2233.34	5.00E+00	4.47			5.00E+00	4.47E+00
	52	2334.85	1.90E+01	8.72			1.90E+01	8.72E+00
	53	2396.47	5.50E+00	7.78			5.50E+00	7.78E+00
	54	2615.60	9.52E+01	20.84	6.52E+00	1.61E+00	8.87E+01	2.09E+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 : 8/19/2017 7:37:31AM

Ref. Peak Energy : 0.00 Reference Date :
Peak Ratio : 0.00 Uncertainty : 0.00
Background File : \\OR-GAMMA1\ApexRoot\Countroom\Data\0000055111.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	45.81	1.12E+02	83.06	3.93E+01	8.32E+00	7.32E+01	8.35E+01
	2	62.62	3.14E+02	146.62	9.62E+01	1.46E+01	2.18E+02	1.47E+02
	3	76.11	8.59E+02	225.37			8.59E+02	2.25E+02
	4	87.60	1.31E+02	100.47			1.31E+02	1.00E+02
	5	92.89	2.64E+02	109.00	1.35E+02	2.05E+01	1.29E+02	1.11E+02
	6	129.34	9.21E+01	97.27			9.21E+01	9.73E+01
	7	185.75	2.57E+02	88.03	4.68E+01	7.65E+00	2.11E+02	8.84E+01
M	8	238.56	9.65E+02	76.62	2.06E+01	6.26E+00	9.44E+02	7.69E+01
m	9	241.74	2.03E+02	78.12			2.03E+02	7.81E+01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Peak No.	Energy (keV)	Original Area	Orig. Area Uncertainty	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
	10	270.39	1.12E+02	60.70			1.12E+02	6.07E+01
	11	277.06	6.44E+01	51.76			6.44E+01	5.18E+01
M	12	295.16	3.50E+02	54.63			3.50E+02	5.46E+01
m	13	300.22	1.18E+02	64.48			1.18E+02	6.45E+01
M	14	327.95	5.66E+01	47.07			5.66E+01	4.71E+01
m	15	338.29	2.37E+02	53.44			2.37E+02	5.34E+01
	16	351.66	5.39E+02	77.29	3.12E+00	4.40E+00	5.36E+02	7.74E+01
	17	463.53	6.38E+01	47.73			6.38E+01	4.77E+01
	18	510.97	2.30E+02	49.12	7.85E+01	5.73E+00	1.52E+02	4.95E+01
M	19	579.92	2.46E+01	19.49			2.46E+01	1.95E+01
m	20	583.53	3.14E+02	42.97			3.14E+02	4.30E+01
	21	609.34	4.23E+02	60.12	6.00E+00	4.13E+00	4.17E+02	6.03E+01
	22	726.83	8.56E+01	42.20			8.56E+01	4.22E+01
	23	768.77	3.80E+01	34.06			3.80E+01	3.41E+01
	24	795.46	3.99E+01	32.31			3.99E+01	3.23E+01
M	25	855.20	1.42E+01	10.30			1.42E+01	1.03E+01
m	26	861.55	4.41E+01	26.50	3.72E-01	2.26E+00	4.37E+01	2.66E+01
	27	911.80	2.05E+02	46.80	5.15E+00	3.10E+00	2.00E+02	4.69E+01
	28	969.50	1.14E+02	51.90	0.00E+00	0.00E+00	1.14E+02	5.19E+01
	29	1121.12	1.03E+02	36.33			1.03E+02	3.63E+01
	30	1156.68	2.30E+01	29.12			2.30E+01	2.91E+01
	31	1238.91	5.01E+01	42.87			5.01E+01	4.29E+01
	32	1321.23	1.95E+01	18.43			1.95E+01	1.84E+01
	33	1363.79	1.20E+01	10.16			1.20E+01	1.02E+01
	34	1407.13	3.77E+01	26.80			3.77E+01	2.68E+01
M	35	1461.51	1.21E+03	71.07	4.04E+00	2.32E+00	1.20E+03	7.11E+01
m	36	1466.48	4.41E+01	57.85			4.41E+01	5.79E+01
M	37	1588.86	2.60E+01	12.36			2.60E+01	1.24E+01
m	38	1592.70	1.69E+01	13.44			1.69E+01	1.34E+01
m	39	1595.71	1.48E+01	12.20			1.48E+01	1.22E+01
	40	1694.71	1.90E+01	8.72			1.90E+01	8.72E+00
	41	1703.41	8.00E+00	5.66			8.00E+00	5.66E+00
	42	1731.07	1.69E+01	15.52			1.69E+01	1.55E+01
	43	1765.17	6.69E+01	21.77			6.69E+01	2.18E+01
	44	1799.08	6.50E+00	6.40			6.50E+00	6.40E+00
	45	1836.66	6.50E+00	8.03			6.50E+00	8.03E+00
	46	1848.92	2.13E+01	14.97			2.13E+01	1.50E+01
	47	1883.99	9.00E+00	6.00			9.00E+00	6.00E+00
	48	1890.99	9.00E+00	6.00			9.00E+00	6.00E+00
	49	2104.51	1.47E+01	11.40			1.47E+01	1.14E+01
	50	2204.23	2.59E+01	11.70			2.59E+01	1.17E+01
	51	2233.34	5.00E+00	4.47			5.00E+00	4.47E+00
	52	2334.85	1.90E+01	8.72			1.90E+01	8.72E+00
	53	2396.47	5.50E+00	7.78			5.50E+00	7.78E+00
	54	2615.60	9.52E+01	20.84	6.52E+00	1.61E+00	8.87E+01	2.09E+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 1707084-20

HTC-A02-S002-1824-01

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	0.926	1460.81	*	10.67	3.14E+01	3.31E+00
CD-109	0.970	88.03	*	3.72	2.06E+00	1.60E+00
SN-126	1.000	87.57	*	37.00	1.80E-01	1.39E-01
TL-208	0.807	583.14	*	30.22	1.45E+00	2.49E-01
		860.37		4.48		
		2614.66	*	35.85	1.04E+00	2.68E-01
PB-210	0.926	46.50	*	4.25	9.86E-01	1.13E+00
BI-212	0.749	727.17	*	11.80	1.20E+00	6.05E-01
		1620.62		2.75		
PB-212	0.999	238.63	*	44.60	1.56E+00	1.79E-01
		300.09	*	3.41	2.97E+00	1.64E+00
BI-214	0.966	609.31	*	46.30	1.30E+00	2.32E-01
		1120.29	*	15.10	1.56E+00	5.67E-01
		1764.49	*	15.80	1.35E+00	4.52E-01
		2204.22	*	4.98	1.94E+00	8.93E-01
PB-214	0.993	295.21	*	19.19	1.54E+00	2.73E-01
		351.92	*	37.19	1.38E+00	2.31E-01
RA-224	0.911	240.98	*	3.95	3.82E+00	1.50E+00
RA-226	0.967	186.21	*	3.28	4.11E+00	7.73E+00
AC-228	0.951	338.32	*	11.40	1.94E+00	4.66E-01
		911.07	*	27.70	1.42E+00	3.53E-01
		969.11	*	16.60	1.41E+00	6.54E-01
TH-234	0.930	63.29	*	3.80	2.96E+00	2.02E+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 : 8/19/2017 7:37:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.11	2.38728E-01	13.11		
	5	92.89	3.57944E-02	43.04	Tol.	GA-67
	6	129.34	2.55824E-02	52.81		
	10	270.39	3.11030E-02	27.10		
	11	277.06	1.78857E-02	40.19	Tol.	NP-239
						CM-243
M	14	327.95	1.57329E-02	41.55	Tol.	LA-140
	17	463.53	1.77335E-02	37.38	Tol.	SB-125
	18	510.97	4.21023E-02	16.31		
M	19	579.92	6.82624E-03	39.66	Sum	
	23	768.77	1.05556E-02	44.81	Sum	
	24	795.46	1.10730E-02	40.53	Sum	
M	25	855.20	3.95689E-03	36.14		
m	26	861.55	1.21446E-02	30.42		
	30	1156.68	6.39881E-03	63.21		
	31	1238.91	1.39128E-02	42.80		
	32	1321.23	5.41667E-03	47.24	Sum	
	33	1363.79	3.33333E-03	42.34	Sum	
	34	1407.13	1.04830E-02	35.50	Tol.	EU-152
m	36	1466.48	1.22559E-02	65.56		
M	37	1588.86	7.22725E-03	23.75		
m	38	1592.70	4.70325E-03	39.70	D-Esc	
m	39	1595.71	4.11124E-03	41.20	Tol.	LA-140
	40	1694.71	5.27778E-03	22.94		
	41	1703.41	2.22222E-03	35.36	Sum	
	42	1731.07	4.68870E-03	45.99	Sum	
	44	1799.08	1.80556E-03	49.25	Sum	
	45	1836.66	1.80556E-03	61.78	Tol.	Y-88
	46	1848.92	5.92912E-03	35.06	Sum	
	47	1883.99	2.50000E-03	33.33		
	48	1890.99	2.50000E-03	33.33		
	49	2104.51	4.08333E-03	38.78	S-Esc	
	51	2233.34	1.38889E-03	44.72		
	52	2334.85	5.27778E-03	22.94		
	53	2396.47	1.52778E-03	70.71		

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

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

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	0.92	1460.81	*	10.67	3.14E+01	3.31E+00
CD-109	0.97	88.03	*	3.72	2.06E+00	1.60E+00
SN-126	1.00	87.57	*	37.00	1.80E-01	1.39E-01
TL-208	0.80	583.14	*	30.22	1.45E+00	2.49E-01
		860.37		4.48		
		2614.66	*	35.85	1.04E+00	2.68E-01
PB-210	0.92	46.50	*	4.25	9.86E-01	1.13E+00
BI-212	0.74	727.17	*	11.80	1.20E+00	6.05E-01
		1620.62		2.75		
PB-212	0.99	238.63	*	44.60	1.56E+00	1.79E-01
		300.09	*	3.41	2.97E+00	1.64E+00
BI-214	0.96	609.31	*	46.30	1.30E+00	2.32E-01
		1120.29	*	15.10	1.56E+00	5.67E-01
		1764.49	*	15.80	1.35E+00	4.52E-01
		2204.22	*	4.98	1.94E+00	8.93E-01
PB-214	0.99	295.21	*	19.19	1.54E+00	2.73E-01
		351.92	*	37.19	1.38E+00	2.31E-01
RA-224	0.91	240.98	*	3.95	3.82E+00	1.50E+00
RA-226	0.96	186.21	*	3.28	4.11E+00	7.73E+00
AC-228	0.95	338.32	*	11.40	1.94E+00	4.66E-01
		911.07	*	27.70	1.42E+00	3.53E-01
		969.11	*	16.60	1.41E+00	6.54E-01
TH-234	0.93	63.29	*	3.80	2.96E+00	2.02E+00

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

INTERFERENCE CORRECTED REPORT

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.926	3.14E+01	3.31E+00	
?	CD-109	0.970	2.06E+00	1.60E+00	
?	SN-126	1.000	1.80E-01	1.39E-01	
	TL-208	0.807	1.26E+00	1.82E-01	
	PB-210	0.926	9.86E-01	1.13E+00	
	BI-212	0.749	1.20E+00	6.05E-01	
	PB-212	0.999	1.58E+00	1.78E-01	
	BI-214	0.966	1.37E+00	1.90E-01	
	PB-214	0.993	1.45E+00	1.77E-01	
	RA-224	0.911	3.82E+00	1.50E+00	
	RA-226	0.967	4.11E+00	7.73E+00	
	AC-228	0.951	1.58E+00	2.59E-01	
	TH-234	0.930	2.96E+00	2.02E+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 1707084-20

HTC-A02-S002-1824-01

UNIDENTIFIED PEAKS

Peak Locate Performed on : 8/19/2017 7:37:31AM
Peak Locate From Channel : 1
Peak Locate To Channel : 4096

	Peak No.	Energy (keV)	Peak Size (CPS)	Peak CPS (%) Uncertainty	Peak Type	Tolerance Nuclide
	3	76.11	2.38728E-01	13.11		
	5	92.89	3.57944E-02	43.04	Tol.	GA-67
	6	129.34	2.55824E-02	52.81		
	10	270.39	3.11030E-02	27.10		
	11	277.06	1.78857E-02	40.19	Tol.	NP-239
						CM-243
M	14	327.95	1.57329E-02	41.55	Tol.	LA-140
	17	463.53	1.77335E-02	37.38	Tol.	SB-125
	18	510.97	4.21023E-02	16.31		
M	19	579.92	6.82624E-03	39.66	Sum	
	23	768.77	1.05556E-02	44.81	Sum	
	24	795.46	1.10730E-02	40.53	Sum	
M	25	855.20	3.95689E-03	36.14		
m	26	861.55	1.21446E-02	30.42		
	30	1156.68	6.39881E-03	63.21		
	31	1238.91	1.39128E-02	42.80		
	32	1321.23	5.41667E-03	47.24	Sum	
	33	1363.79	3.33333E-03	42.34	Sum	
	34	1407.13	1.04830E-02	35.50	Tol.	EU-152
m	36	1466.48	1.22559E-02	65.56		
M	37	1588.86	7.22725E-03	23.75		
m	38	1592.70	4.70325E-03	39.70	D-Esc	
m	39	1595.71	4.11124E-03	41.20	Tol.	LA-140
	40	1694.71	5.27778E-03	22.94		
	41	1703.41	2.22222E-03	35.36	Sum	
	42	1731.07	4.68870E-03	45.99	Sum	
	44	1799.08	1.80556E-03	49.25	Sum	
	45	1836.66	1.80556E-03	61.78	Tol.	Y-88
	46	1848.92	5.92912E-03	35.06	Sum	
	47	1883.99	2.50000E-03	33.33		
	48	1890.99	2.50000E-03	33.33		
	49	2104.51	4.08333E-03	38.78	S-Esc	
	51	2233.34	1.38889E-03	44.72		
	52	2334.85	5.27778E-03	22.94		
	53	2396.47	1.52778E-03	70.71		

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

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

NUCLIDE MDA REPORT

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

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+		BE-7	477.59		10.42	-2.53E-01	2.14E+00	2.14E+00
+		NA-22	1274.54		99.94	1.25E-03	9.98E-02	9.98E-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	-1.28E-02	5.41E-02	5.41E-02
+		K-40	1460.81	*	10.67	3.14E+01	1.83E+00	1.83E+00
+	@	AR-41	1293.64		99.16	1.00E+26	1.00E+26	1.00E+26
+		TI-44	67.88		94.40	-1.70E-02	6.84E-02	6.84E-02
			78.34		96.00	2.22E-01		9.47E-02
+		SC-46	889.25		99.98	2.13E-03	1.64E-01	1.64E-01
			1120.51		99.99	3.95E-01		3.02E-01
+		V-48	983.52		99.98	-1.40E+00	5.22E+00	5.22E+00
			1312.10		97.50	1.23E+00		5.75E+00
+		CR-51	320.08		9.83	1.11E+00	7.01E+00	7.01E+00
+		MN-54	834.83		99.97	8.37E-03	9.96E-02	9.96E-02
+		CO-56	846.75		99.96	-1.85E-02	1.65E-01	1.65E-01
			1037.75		14.03	-9.35E-01		1.35E+00
			1238.25		67.00	4.41E-01		4.63E-01
			1771.40		15.51	3.45E-01		9.92E-01
			2598.48		16.90	1.38E-01		7.56E-01
+		CO-57	122.06		85.51	-3.40E-03	7.74E-02	7.74E-02
			136.48		10.60	-2.74E-02		6.30E-01
+		CO-58	810.76		99.40	-8.63E-02	1.62E-01	1.62E-01
+		FE-59	1099.22		56.50	-1.43E-01	6.93E-01	6.93E-01
			1291.56		43.20	3.38E-01		8.95E-01
+		CO-60	1173.22		100.00	-1.71E-02	8.66E-02	9.87E-02
			1332.49		100.00	1.18E-02		8.66E-02
+		ZN-65	1115.52		50.75	-8.83E-02	2.27E-01	2.27E-01
+		GA-67	93.31		35.70	2.67E+08	1.47E+08	1.47E+08
			208.95		2.24	1.16E+09		1.99E+09
			300.22		16.00	-6.41E+08		3.10E+08
+		SE-75	121.11		16.70	1.32E-01	1.53E-01	5.41E-01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
	SE-75	136.00		59.20	-6.67E-03	1.53E-01	1.53E-01
		264.65		59.80	2.87E-02		1.86E-01
		279.53		25.20	-1.41E-03		4.69E-01
		400.65		11.40	-8.57E-02		1.02E+00
+	RB-82	776.52		13.00	5.45E-01	7.47E+00	7.47E+00
+	RB-83	520.41		46.00	-7.22E-02	3.03E-01	3.03E-01
		529.64		30.30	-6.78E-03		4.45E-01
		552.65		16.40	5.75E-02		8.87E-01
+	KR-85	513.99		0.43	3.18E+00	2.37E+01	2.37E+01
+	SR-85	513.99		99.27	3.81E-02	2.84E-01	2.84E-01
+	Y-88	898.02		93.40	8.23E-03	1.07E-01	1.54E-01
		1836.01		99.38	3.99E-02		1.07E-01
+	MO-93	263.06		56.72	-1.10E-02	6.13E-02	1.14E-01
		684.67		99.68	9.83E-04		7.94E-02
		1477.11		99.08	-7.55E-03		6.13E-02
+	NB-93M	16.57		9.43	-2.08E-01	5.94E-01	5.94E-01
+	NB-94	702.63		100.00	-3.56E-02	7.43E-02	7.43E-02
		871.10		100.00	-3.60E-03		7.53E-02
+	NB-95	765.79		99.81	-8.67E-02	5.92E-01	5.92E-01
+	NB-95M	235.69		25.00	-1.87E+08	2.90E+07	2.90E+07
+	ZR-95	724.18		43.70	-3.37E-01	4.06E-01	5.63E-01
		756.72		55.30	2.29E-02		4.06E-01
+	MO-99	181.06		6.20	-1.29E+09	1.82E+10	2.76E+10
		739.58		12.80	-1.91E+09		1.82E+10
		778.00		4.50	-3.03E+10		4.81E+10
+	RU-103	497.08		89.00	-6.68E-02	3.94E-01	3.94E-01
+	RU-106	621.84		9.80	6.28E-02	8.75E-01	8.75E-01
+	AG-108M	433.93		89.90	2.21E-02	6.62E-02	6.62E-02
		614.37		90.40	1.73E-02		9.56E-02
		722.95		90.50	-9.44E-03		8.98E-02
+	CD-109	88.03	*	3.72	2.06E+00	2.58E+00	2.58E+00
+	AG-110M	657.75		93.14	3.06E-02	1.02E-01	1.02E-01
		677.61		10.53	-5.25E-01		8.96E-01
		706.67		16.46	1.08E-01		6.29E-01
		763.93		21.98	-4.17E-02		4.65E-01
		884.67		71.63	4.25E-02		1.40E-01
		1384.27		23.94	-1.72E-01		3.98E-01
+	CD-113M	263.70		0.02	5.86E+01	2.78E+02	2.78E+02
+	SN-113	255.12		1.93	2.09E+00	1.71E-01	5.14E+00
		391.69		64.90	-9.88E-02		1.71E-01
+	TE123M	159.00		84.10	1.93E-02	1.15E-01	1.15E-01
+	SB-124	602.71		97.87	2.02E-02	2.31E-01	2.31E-01
		645.85		7.26	-1.53E+00		2.77E+00
		722.78		11.10	-2.32E-01		2.20E+00
		1691.02		49.00	0.00E+00		3.31E-01
+	I-125	35.49		6.49	-1.63E+00	2.75E+00	2.75E+00
+	SB-125	176.33		6.89	4.32E-01	2.30E-01	8.74E-01
		427.89		29.33	-3.13E-03		2.30E-01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

		Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		SB-125	463.38		10.35	7.09E-01	2.30E-01	7.52E-01
			600.56		17.80	-8.01E-02		4.42E-01
			635.90		11.32	1.92E-01		6.63E-01
+		SB-126	414.70		83.30	-4.81E+00	1.70E+01	1.74E+01
			666.33		99.60	-2.32E-01		1.70E+01
			695.00		99.60	4.82E+00		1.71E+01
			720.50		53.80	-4.91E-01		2.88E+01
+		SN-126	87.57	*	37.00	1.80E-01	2.25E-01	2.25E-01
+		SB-127	473.00		25.00	4.81E+06	6.89E+06	8.05E+06
			685.20		35.70	8.53E+04		6.89E+06
			783.80		14.70	8.54E+06		1.85E+07
+		I-129	29.78		57.00	-4.99E-02	1.20E-01	1.20E-01
			33.60		13.20	1.62E-01		4.72E-01
			39.58		7.52	7.53E-01		7.94E-01
+		I-131	284.30		6.05	2.63E+03	3.03E+02	4.23E+03
			364.48		81.20	2.85E+01		3.03E+02
			636.97		7.26	-6.55E+02		3.76E+03
			722.89		1.80	-1.85E+03		1.76E+04
+		TE-132	49.72		13.10	-7.84E+07	4.57E+07	3.21E+08
			228.16		88.00	1.57E+06		4.57E+07
+		BA-133	81.00		33.00	-5.30E-01	1.55E-01	2.04E-01
			302.84		17.80	1.27E-02		3.92E-01
			356.01		60.00	5.36E-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	-1.45E+05	5.58E+04	5.58E+04
+		CS-134	563.23		8.38	3.25E-01	9.13E-02	9.85E-01
			569.32		15.43	-1.32E-01		5.00E-01
			604.70		97.60	-9.92E-03		9.13E-02
			795.84		85.40	9.17E-02		1.14E-01
			801.93		8.73	5.17E-02		9.47E-01
+		CS-135	268.24		16.00	4.62E-01	4.50E-01	4.50E-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	4.85E+01	1.14E+01	1.19E+02
			163.89		4.61	5.22E+01		1.86E+02
			176.55		13.56	3.22E+01		6.51E+01
			273.65		12.66	-5.27E+01		8.44E+01
			340.57		48.50	6.49E+01		2.87E+01
			818.50		99.70	-3.42E+00		1.14E+01
			1048.07		79.60	6.38E+00		1.71E+01
			1235.34		19.70	4.40E+00		1.01E+02
+		CS-137	661.65		85.12	1.64E-02	9.13E-02	9.13E-02
+		LA-138	788.74		34.00	3.94E-02	9.79E-02	2.38E-01
			1435.80		66.00	-3.29E-02		9.79E-02
+		CE-139	165.85		80.35	-7.02E-03	1.10E-01	1.10E-01
+		BA-140	162.64		6.70	-2.75E+01	4.57E+01	1.47E+02
			304.84		4.50	1.30E+01		2.49E+02
			423.70		3.20	-8.42E+00		3.76E+02

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

		Nuclide Name	Energy (keV)	Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
		BA-140	437.55	2.00	-2.73E+02	4.57E+01	5.24E+02
			537.32	25.00	6.73E+00		4.57E+01
+		LA-140	328.77	20.50	3.02E+01	1.32E+01	6.40E+01
			487.03	45.50	-2.12E-01		2.61E+01
			815.85	23.50	2.67E+01		5.63E+01
			1596.49	95.49	-1.36E+00		1.32E+01
+		CE-141	145.44	48.40	5.52E-01	9.33E-01	9.33E-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	1.07E-01	6.23E-01	6.23E-01
+		PM-144	476.78	42.00	8.38E-02	8.97E-02	1.90E-01
			618.01	98.60	-2.31E-02		8.97E-02
			696.49	99.49	-3.26E-04		9.29E-02
+		PM-145	36.85	21.70	-7.20E-02	1.52E-01	2.74E-01
			37.36	39.70	-5.03E-03		1.52E-01
			42.30	15.10	5.91E-02		3.86E-01
			72.40	2.31	-3.24E+00		3.37E+00
+		PM-146	453.90	39.94	2.87E-02	1.68E-01	1.68E-01
			735.90	14.01	3.87E-01		5.80E-01
			747.13	13.10	-4.66E-02		5.98E-01
+		ND-147	91.11	28.90	2.66E+02	1.17E+02	1.17E+02
			531.02	13.10	6.17E+01		2.04E+02
+		PM-149	285.90	3.10	6.19E+12	2.38E+13	2.38E+13
+		EU-152	121.78	20.50	6.24E-02	2.57E-01	2.57E-01
			244.69	5.40	-7.30E-01		1.24E+00
			344.27	19.13	-8.05E-02		3.25E-01
			778.89	9.20	-7.84E-01		7.56E-01
			964.01	10.40	-1.06E-02		9.69E-01
			1085.78	7.22	-2.37E-01		1.29E+00
			1112.02	9.60	3.42E-01		9.89E-01
			1407.95	14.94	-7.83E-02		5.48E-01
+		GD-153	97.43	31.30	7.39E-02	2.37E-01	2.37E-01
			103.18	22.20	-1.60E-01		3.09E-01
+		EU-154	123.07	40.50	-4.02E-02	1.30E-01	1.30E-01
			723.30	19.70	-4.42E-02		4.21E-01
			873.19	11.50	1.25E-01		6.79E-01
			996.32	10.30	-4.09E-01		7.48E-01
			1004.76	17.90	-7.84E-02		5.15E-01
			1274.45	35.50	3.35E-03		2.67E-01
+		EU-155	86.50	30.90	4.40E-02	2.39E-01	2.39E-01
			105.30	20.70	1.06E-01		2.67E-01
+		EU-156	811.77	10.40	-3.54E+01	4.77E+01	4.77E+01
			1153.47	7.20	2.00E+01		1.15E+02
			1230.71	8.90	1.44E+01		1.00E+02
+		HO-166M	184.41	72.60	2.09E-01	9.69E-02	9.69E-02
			280.45	29.60	6.60E-02		2.27E-01
			410.94	11.10	3.43E-01		6.44E-01
			711.69	54.10	1.32E-02		1.40E-01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	TM-171	66.72		0.14	-5.35E+01	5.14E+01	5.14E+01
+	HF-172	67.35		5.31	-3.33E-01	5.13E-01	1.34E+00
		125.81		11.30	-5.28E-02		5.13E-01
+	LU-172	181.53		20.60	-2.53E+02	3.16E+03	5.41E+03
		900.72		29.81	-1.56E+03		5.20E+03
		1093.66		62.50	1.36E+03		3.16E+03
+	LU-173	100.72		5.24	2.12E-01	3.77E-01	1.18E+00
		272.11		21.20	-1.12E-01		3.77E-01
+	HF-175	343.40		84.00	-4.67E-02	1.88E-01	1.88E-01
+	LU-176	88.34		13.30	5.26E-01	6.58E-02	5.63E-01
		201.83		86.00	-1.23E-02		6.86E-02
		306.78		94.00	2.84E-02		6.58E-02
+	HF-181	133.02		41.70	1.05E-01	3.89E-01	6.12E-01
		345.85		17.20	-4.25E-01		1.75E+00
		482.03		82.80	1.05E-01		3.89E-01
+	TA-182	67.75		41.20	-6.96E-02	2.79E-01	2.79E-01
		1121.30		34.90	1.20E+00		7.17E-01
		1189.05		16.23	-5.17E-01		1.13E+00
		1221.41		26.98	1.66E-01		7.42E-01
		1231.02		11.44	2.52E-01		1.75E+00
+	IR-192	308.46		29.68	9.61E-02	3.19E-01	5.19E-01
		468.07		48.10	2.59E-02		3.19E-01
+	HG-203	279.19		77.30	-1.10E-03	3.65E-01	3.65E-01
+	TL-204	374.74		94.11	2.02E-02	6.98E-02	6.98E-02
		899.15		99.16	-3.71E-02		7.79E-02
		911.74		91.10	4.11E-01		1.73E-01
+	BI-207	569.67		97.72	1.08E-02	7.43E-02	7.43E-02
		1063.62		74.90	3.43E-02		1.11E-01
+	TL-208	583.14	*	30.22	1.45E+00	2.07E-01	4.05E-01
		860.37		4.48	2.19E+00		2.09E+00
		2614.66	*	35.85	1.04E+00		2.07E-01
+	BI-210M	262.00		45.00	-5.28E-02	1.38E-01	1.38E-01
		300.00		23.00	-1.04E+00		3.16E-01
+	PB-210	46.50	*	4.25	9.86E-01	1.85E+00	1.85E+00
+	PB-211	404.84		2.90	-1.81E+00	2.28E+00	2.28E+00
		831.96		2.90	-1.43E+00		2.51E+00
+	BI-212	727.17	*	11.80	1.20E+00	9.13E-01	9.13E-01
		1620.62		2.75	6.67E-01		2.83E+00
+	PB-212	238.63	*	44.60	1.56E+00	2.85E-01	2.85E-01
		300.09	*	3.41	2.97E+00		3.07E+00
+	BI-214	609.31	*	46.30	1.30E+00	2.36E-01	2.36E-01
		1120.29	*	15.10	1.56E+00		7.94E-01
		1764.49	*	15.80	1.35E+00		5.31E-01
		2204.22	*	4.98	1.94E+00		9.15E-01
+	PB-214	295.21	*	19.19	1.54E+00	2.70E-01	5.27E-01
		351.92	*	37.19	1.38E+00		2.70E-01
+	RN-219	401.80		6.50	5.41E-01	1.05E+00	1.05E+00
+	RA-223	323.87		3.88	-8.12E-04	1.64E+00	1.64E+00

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	Nuclide Name	Energy (keV)		Yield(%)	Activity (pCi/grams)	Nuclide MDA (pCi/grams)	Line MDA (pCi/grams)
+	RA-224	240.98	*	3.95	3.82E+00	3.23E+00	3.23E+00
+	RA-225	40.00		31.00	5.08E+00	1.67E+01	1.67E+01
+	RA-226	186.21	*	3.28	4.11E+00	2.74E+00	2.74E+00
+	TH-227	50.10		8.40	-1.71E-01	6.35E-01	6.94E-01
		236.00		11.50	-4.08E+00		6.35E-01
		256.20		6.30	3.63E-01		1.02E+00
+	AC-228	338.32	*	11.40	1.94E+00	4.56E-01	1.44E+00
		911.07	*	27.70	1.42E+00		4.56E-01
		969.11	*	16.60	1.41E+00		9.99E-01
+	TH-230	48.44		16.90	1.01E-02	3.66E-01	3.66E-01
		62.85		4.60	1.64E+00		1.56E+00
		67.67		0.37	-4.34E+00		1.74E+01
+	PA-231	283.67		1.60	2.39E+00	2.98E+00	4.06E+00
		302.67		2.30	9.65E-02		2.98E+00
+	TH-231	25.64		14.70	-4.32E+00	5.75E-01	5.75E-01
		84.21		6.40	-6.34E-01		1.06E+00
+	PA-233	311.98		38.60	5.27E-01	1.89E+00	1.89E+00
+	PA-234	131.20		20.40	7.18E-02	2.72E-01	2.72E-01
		733.99		8.80	-1.49E-01		8.44E-01
		946.00		12.00	8.68E-02		6.72E-01
+	PA-234M	1001.03		0.92	5.36E-01	9.67E+00	9.67E+00
+	TH-234	63.29	*	3.80	2.96E+00	3.27E+00	3.27E+00
+	U-235	143.76		10.50	3.03E-01	5.53E-01	5.53E-01
		163.35		4.70	3.27E-01		1.17E+00
		205.31		4.70	-8.25E-01		1.25E+00
+	NP-237	86.50		12.60	1.04E-01	5.66E-01	5.66E-01
+	NP-239	106.10		22.70	6.10E+10	4.25E+11	4.25E+11
		228.18		10.70	3.24E+10		9.41E+11
		277.60		14.10	3.02E+11		8.56E+11
+	AM-241	59.54		35.90	-1.09E-01	1.79E-01	1.79E-01
+	AM-243	74.67		66.00	-1.33E-01	1.39E-01	1.39E-01
+	CM-243	209.75		3.29	1.34E+00	4.76E-01	1.90E+00
		228.14		10.60	1.81E-02		5.25E-01
		277.60		14.00	1.68E-01		4.76E-01

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

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

NUCLIDE MDA REPORT

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

	Nuclide Name	Energy (keV)		Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
	BE-7	477.59		10.42	2.14E+00	2.14E+00	-2.53E-01	1.02E+00
	NA-22	1274.54		99.94	9.98E-02	9.98E-02	1.25E-03	4.62E-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	5.41E-02	5.41E-02	-1.28E-02	2.27E-02
+	K-40	1460.81	*	10.67	1.83E+00	1.83E+00	3.14E+01	8.81E-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	6.84E-02	6.84E-02	-1.70E-02	3.35E-02
		78.34		96.00	9.47E-02		2.22E-01	4.66E-02
	SC-46	889.25		99.98	1.64E-01	1.64E-01	2.13E-03	7.62E-02
		1120.51		99.99	3.02E-01		3.95E-01	1.44E-01
	V-48	983.52		99.98	5.22E+00	5.22E+00	-1.40E+00	2.43E+00
		1312.10		97.50	5.75E+00		1.23E+00	2.65E+00
	CR-51	320.08		9.83	7.01E+00	7.01E+00	1.11E+00	3.37E+00
	MN-54	834.83		99.97	9.96E-02	9.96E-02	8.37E-03	4.67E-02
	CO-56	846.75		99.96	1.65E-01	1.65E-01	-1.85E-02	7.66E-02
		1037.75		14.03	1.35E+00		-9.35E-01	6.25E-01
		1238.25		67.00	4.63E-01		4.41E-01	2.20E-01
		1771.40		15.51	9.92E-01		3.45E-01	4.31E-01
		2598.48		16.90	7.56E-01		1.38E-01	3.00E-01
	CO-57	122.06		85.51	7.74E-02	7.74E-02	-3.40E-03	3.76E-02
		136.48		10.60	6.30E-01		-2.74E-02	3.06E-01
	CO-58	810.76		99.40	1.62E-01	1.62E-01	-8.63E-02	7.46E-02
	FE-59	1099.22		56.50	6.93E-01	6.93E-01	-1.43E-01	3.22E-01
		1291.56		43.20	8.95E-01		3.38E-01	4.12E-01
	CO-60	1173.22		100.00	9.87E-02	8.66E-02	-1.71E-02	4.60E-02
		1332.49		100.00	8.66E-02		1.18E-02	3.96E-02
	ZN-65	1115.52		50.75	2.27E-01	2.27E-01	-8.83E-02	1.06E-01
	GA-67	93.31		35.70	1.47E+08	1.47E+08	2.67E+08	7.19E+07
		208.95		2.24	1.99E+09		1.16E+09	9.68E+08
		300.22		16.00	3.10E+08		-6.41E+08	1.50E+08
	SE-75	121.11		16.70	5.41E-01	1.53E-01	1.32E-01	2.63E-01
		136.00		59.20	1.53E-01		-6.67E-03	7.45E-02
		264.65		59.80	1.86E-01		2.87E-02	8.97E-02
		279.53		25.20	4.69E-01		-1.41E-03	2.27E-01
		400.65		11.40	1.02E+00		-8.57E-02	4.86E-01
	RB-82	776.52		13.00	7.47E+00	7.47E+00	5.45E-01	3.49E+00
	RB-83	520.41		46.00	3.03E-01	3.03E-01	-7.22E-02	1.44E-01
		529.64		30.30	4.45E-01		-6.78E-03	2.10E-01
		552.65		16.40	8.87E-01		5.75E-02	4.19E-01
	KR-85	513.99		0.43	2.37E+01	2.37E+01	3.18E+00	1.14E+01
	SR-85	513.99		99.27	2.84E-01	2.84E-01	3.81E-02	1.37E-01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	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	1.54E-01	1.07E-01	8.23E-03	7.17E-02
		1836.01		99.38	1.07E-01		3.99E-02	4.52E-02
	MO-93	263.06		56.72	1.14E-01	6.13E-02	-1.10E-02	5.50E-02
		684.67		99.68	7.94E-02		9.83E-04	3.75E-02
		1477.11		99.08	6.13E-02		-7.55E-03	2.68E-02
	NB-93M	16.57		9.43	5.94E-01	5.94E-01	-2.08E-01	2.78E-01
	NB-94	702.63		100.00	7.43E-02	7.43E-02	-3.56E-02	3.50E-02
		871.10		100.00	7.53E-02		-3.60E-03	3.51E-02
	NB-95	765.79		99.81	5.92E-01	5.92E-01	-8.67E-02	2.80E-01
	NB-95M	235.69		25.00	2.90E+07	2.90E+07	-1.87E+08	1.41E+07
	ZR-95	724.18		43.70	5.63E-01	4.06E-01	-3.37E-01	2.67E-01
		756.72		55.30	4.06E-01		2.29E-02	1.91E-01
	MO-99	181.06		6.20	2.76E+10	1.82E+10	-1.29E+09	1.34E+10
		739.58		12.80	1.82E+10		-1.91E+09	8.54E+09
		778.00		4.50	4.81E+10		-3.03E+10	2.24E+10
	RU-103	497.08		89.00	3.94E-01	3.94E-01	-6.68E-02	1.87E-01
	RU-106	621.84		9.80	8.75E-01	8.75E-01	6.28E-02	4.13E-01
	AG-108M	433.93		89.90	6.62E-02	6.62E-02	2.21E-02	3.14E-02
		614.37		90.40	9.56E-02		1.73E-02	4.56E-02
		722.95		90.50	8.98E-02		-9.44E-03	4.24E-02
+	CD-109	88.03	*	3.72	2.58E+00	2.58E+00	2.06E+00	1.27E+00
	AG-110M	657.75		93.14	1.02E-01	1.02E-01	3.06E-02	4.79E-02
		677.61		10.53	8.96E-01		-5.25E-01	4.22E-01
		706.67		16.46	6.29E-01		1.08E-01	2.97E-01
		763.93		21.98	4.65E-01		-4.17E-02	2.19E-01
		884.67		71.63	1.40E-01		4.25E-02	6.51E-02
		1384.27		23.94	3.98E-01		-1.72E-01	1.79E-01
	CD-113M	263.70		0.02	2.78E+02	2.78E+02	5.86E+01	1.35E+02
	SN-113	255.12		1.93	5.14E+00	1.71E-01	2.09E+00	2.47E+00
		391.69		64.90	1.71E-01		-9.88E-02	8.15E-02
	TE123M	159.00		84.10	1.15E-01	1.15E-01	1.93E-02	5.58E-02
	SB-124	602.71		97.87	2.31E-01	2.31E-01	2.02E-02	1.10E-01
		645.85		7.26	2.77E+00		-1.53E+00	1.30E+00
		722.78		11.10	2.20E+00		-2.32E-01	1.04E+00
		1691.02		49.00	3.31E-01		0.00E+00	1.40E-01
	I-125	35.49		6.49	2.75E+00	2.75E+00	-1.63E+00	1.34E+00
	SB-125	176.33		6.89	8.74E-01	2.30E-01	4.32E-01	4.24E-01
		427.89		29.33	2.30E-01		-3.13E-03	1.10E-01
		463.38		10.35	7.52E-01		7.09E-01	3.59E-01
		600.56		17.80	4.42E-01		-8.01E-02	2.09E-01
		635.90		11.32	6.63E-01		1.92E-01	3.13E-01
	SB-126	414.70		83.30	1.74E+01	1.70E+01	-4.81E+00	8.35E+00
		666.33		99.60	1.70E+01		-2.32E-01	8.04E+00
		695.00		99.60	1.71E+01		4.82E+00	8.07E+00
		720.50		53.80	2.88E+01		-4.91E-01	1.35E+01
+	SN-126	87.57	*	37.00	2.25E-01	2.25E-01	1.80E-01	1.10E-01
	SB-127	473.00		25.00	8.05E+06	6.89E+06	4.81E+06	3.82E+06
		685.20		35.70	6.89E+06		8.53E+04	3.25E+06
		783.80		14.70	1.85E+07		8.54E+06	8.72E+06
	I-129	29.78		57.00	1.20E-01	1.20E-01	-4.99E-02	5.83E-02
		33.60		13.20	4.72E-01		1.62E-01	2.29E-01
		39.58		7.52	7.94E-01		7.53E-01	3.86E-01
	I-131	284.30		6.05	4.23E+03	3.03E+02	2.63E+03	2.04E+03

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
I-131	364.48	81.20	3.03E+02	3.03E+02	2.85E+01	1.45E+02
	636.97	7.26	3.76E+03		-6.55E+02	1.77E+03
	722.89	1.80	1.76E+04		-1.85E+03	8.31E+03
TE-132	49.72	13.10	3.21E+08	4.57E+07	-7.84E+07	1.56E+08
	228.16	88.00	4.57E+07		1.57E+06	2.20E+07
BA-133	81.00	33.00	2.04E-01	1.55E-01	-5.30E-01	9.97E-02
	302.84	17.80	3.92E-01		1.27E-02	1.89E-01
	356.01	60.00	1.55E-01		5.36E-02	7.55E-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	5.58E+04	5.58E+04	-1.45E+05	2.73E+04
CS-134	563.23	8.38	9.85E-01	9.13E-02	3.25E-01	4.69E-01
	569.32	15.43	5.00E-01		-1.32E-01	2.37E-01
	604.70	97.60	9.13E-02		-9.92E-03	4.35E-02
	795.84	85.40	1.14E-01		9.17E-02	5.38E-02
	801.93	8.73	9.47E-01		5.17E-02	4.44E-01
CS-135	268.24	16.00	4.50E-01	4.50E-01	4.62E-01	2.18E-01
@ I-135	1131.51	22.50	1.00E+26	1.00E+26	1.00E+26	1.00E+20
@	1260.41	28.60	1.00E+26		1.00E+26	1.00E+20
@	1678.03	9.54	1.00E+26		1.00E+26	1.00E+20
CS-136	153.22	7.46	1.19E+02	1.14E+01	4.85E+01	5.79E+01
	163.89	4.61	1.86E+02		5.22E+01	9.04E+01
	176.55	13.56	6.51E+01		3.22E+01	3.16E+01
	273.65	12.66	8.44E+01		-5.27E+01	4.09E+01
	340.57	48.50	2.87E+01		6.49E+01	1.39E+01
	818.50	99.70	1.14E+01		-3.42E+00	5.33E+00
	1048.07	79.60	1.71E+01		6.38E+00	7.97E+00
	1235.34	19.70	1.01E+02		4.40E+00	4.79E+01
CS-137	661.65	85.12	9.13E-02	9.13E-02	1.64E-02	4.32E-02
LA-138	788.74	34.00	2.38E-01	9.79E-02	3.94E-02	1.12E-01
	1435.80	66.00	9.79E-02		-3.29E-02	4.33E-02
CE-139	165.85	80.35	1.10E-01	1.10E-01	-7.02E-03	5.35E-02
BA-140	162.64	6.70	1.47E+02	4.57E+01	-2.75E+01	7.12E+01
	304.84	4.50	2.49E+02		1.30E+01	1.20E+02
	423.70	3.20	3.76E+02		-8.42E+00	1.80E+02
	437.55	2.00	5.24E+02		-2.73E+02	2.48E+02
	537.32	25.00	4.57E+01		6.73E+00	2.15E+01
LA-140	328.77	20.50	6.40E+01	1.32E+01	3.02E+01	3.09E+01
	487.03	45.50	2.61E+01		-2.12E-01	1.24E+01
	815.85	23.50	5.63E+01		2.67E+01	2.63E+01
	1596.49	95.49	1.32E+01		-1.36E+00	5.84E+00
CE-141	145.44	48.40	9.33E-01	9.33E-01	5.52E-01	4.54E-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	6.23E-01	6.23E-01	1.07E-01	3.03E-01
PM-144	476.78	42.00	1.90E-01	8.97E-02	8.38E-02	9.05E-02
	618.01	98.60	8.97E-02		-2.31E-02	4.24E-02
	696.49	99.49	9.29E-02		-3.26E-04	4.38E-02
PM-145	36.85	21.70	2.74E-01	1.52E-01	-7.20E-02	1.33E-01
	37.36	39.70	1.52E-01		-5.03E-03	7.36E-02
	42.30	15.10	3.86E-01		5.91E-02	1.88E-01
	72.40	2.31	3.37E+00		-3.24E+00	1.66E+00
PM-146	453.90	39.94	1.68E-01	1.68E-01	2.87E-02	7.99E-02

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

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	5.80E-01	1.68E-01	3.87E-01	2.73E-01
	747.13	13.10	5.98E-01		-4.66E-02	2.81E-01
ND-147	91.11	28.90	1.17E+02	1.17E+02	2.66E+02	5.73E+01
	531.02	13.10	2.04E+02		6.17E+01	9.64E+01
PM-149	285.90	3.10	2.38E+13	2.38E+13	6.19E+12	1.15E+13
EU-152	121.78	20.50	2.57E-01	2.57E-01	6.24E-02	1.25E-01
	244.69	5.40	1.24E+00		-7.30E-01	6.03E-01
	344.27	19.13	3.25E-01		-8.05E-02	1.56E-01
	778.89	9.20	7.56E-01		-7.84E-01	3.52E-01
	964.01	10.40	9.69E-01		-1.06E-02	4.58E-01
	1085.78	7.22	1.29E+00		-2.37E-01	6.03E-01
	1112.02	9.60	9.89E-01		3.42E-01	4.62E-01
	1407.95	14.94	5.48E-01		-7.83E-02	2.49E-01
GD-153	97.43	31.30	2.37E-01	2.37E-01	7.39E-02	1.16E-01
	103.18	22.20	3.09E-01		-1.60E-01	1.50E-01
EU-154	123.07	40.50	1.30E-01	1.30E-01	-4.02E-02	6.29E-02
	723.30	19.70	4.21E-01		-4.42E-02	1.99E-01
	873.19	11.50	6.79E-01		1.25E-01	3.17E-01
	996.32	10.30	7.48E-01		-4.09E-01	3.46E-01
	1004.76	17.90	5.15E-01		-7.84E-02	2.41E-01
	1274.45	35.50	2.67E-01		3.35E-03	1.24E-01
EU-155	86.50	30.90	2.39E-01	2.39E-01	4.40E-02	1.17E-01
	105.30	20.70	2.67E-01		1.06E-01	1.30E-01
EU-156	811.77	10.40	4.77E+01	4.77E+01	-3.54E+01	2.20E+01
	1153.47	7.20	1.15E+02		2.00E+01	5.39E+01
	1230.71	8.90	1.00E+02		1.44E+01	4.71E+01
HO-166M	184.41	72.60	9.69E-02	9.69E-02	2.09E-01	4.73E-02
	280.45	29.60	2.27E-01		6.60E-02	1.10E-01
	410.94	11.10	6.44E-01		3.43E-01	3.09E-01
	711.69	54.10	1.40E-01		1.32E-02	6.57E-02
TM-171	66.72	0.14	5.14E+01	5.14E+01	-5.35E+01	2.52E+01
HF-172	67.35	5.31	1.34E+00	5.13E-01	-3.33E-01	6.54E-01
	125.81	11.30	5.13E-01		-5.28E-02	2.49E-01
LU-172	181.53	20.60	5.41E+03	3.16E+03	-2.53E+02	2.62E+03
	900.72	29.81	5.20E+03		-1.56E+03	2.42E+03
	1093.66	62.50	3.16E+03		1.36E+03	1.48E+03
LU-173	100.72	5.24	1.18E+00	3.77E-01	2.12E-01	5.76E-01
	272.11	21.20	3.77E-01		-1.12E-01	1.83E-01
HF-175	343.40	84.00	1.88E-01	1.88E-01	-4.67E-02	8.99E-02
LU-176	88.34	13.30	5.63E-01	6.58E-02	5.26E-01	2.77E-01
	201.83	86.00	6.86E-02		-1.23E-02	3.33E-02
	306.78	94.00	6.58E-02		2.84E-02	3.16E-02
HF-181	133.02	41.70	6.12E-01	3.89E-01	1.05E-01	2.97E-01
	345.85	17.20	1.75E+00		-4.25E-01	8.39E-01
	482.03	82.80	3.89E-01		1.05E-01	1.85E-01
TA-182	67.75	41.20	2.79E-01	2.79E-01	-6.96E-02	1.37E-01
	1121.30	34.90	7.17E-01		1.20E+00	3.43E-01
	1189.05	16.23	1.13E+00		-5.17E-01	5.28E-01
	1221.41	26.98	7.42E-01		1.66E-01	3.49E-01
	1231.02	11.44	1.75E+00		2.52E-01	8.23E-01
IR-192	308.46	29.68	5.19E-01	3.19E-01	9.61E-02	2.50E-01
	468.07	48.10	3.19E-01		2.59E-02	1.51E-01
HG-203	279.19	77.30	3.65E-01	3.65E-01	-1.10E-03	1.77E-01

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

	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	6.98E-02	6.98E-02	2.02E-02	3.34E-02
		899.15		99.16	7.79E-02		-3.71E-02	3.62E-02
		911.74		91.10	1.73E-01		4.11E-01	8.34E-02
	BI-207	569.67		97.72	7.43E-02	7.43E-02	1.08E-02	3.52E-02
		1063.62		74.90	1.11E-01		3.43E-02	5.15E-02
+	TL-208	583.14	*	30.22	4.05E-01	2.07E-01	1.45E+00	1.96E-01
		860.37		4.48	2.09E+00		2.19E+00	9.87E-01
		2614.66	*	35.85	2.07E-01		1.04E+00	8.76E-02
	BI-210M	262.00		45.00	1.38E-01	1.38E-01	-5.28E-02	6.69E-02
		300.00		23.00	3.16E-01		-1.04E+00	1.53E-01
+	PB-210	46.50	*	4.25	1.85E+00	1.85E+00	9.86E-01	9.06E-01
	PB-211	404.84		2.90	2.28E+00	2.28E+00	-1.81E+00	1.09E+00
		831.96		2.90	2.51E+00		-1.43E+00	1.17E+00
+	BI-212	727.17	*	11.80	9.13E-01	9.13E-01	1.20E+00	4.37E-01
		1620.62		2.75	2.83E+00		6.67E-01	1.27E+00
+	PB-212	238.63	*	44.60	2.85E-01	2.85E-01	1.56E+00	1.40E-01
		300.09	*	3.41	3.07E+00		2.97E+00	1.50E+00
+	BI-214	609.31	*	46.30	2.36E-01	2.36E-01	1.30E+00	1.14E-01
		1120.29	*	15.10	7.94E-01		1.56E+00	3.77E-01
		1764.49	*	15.80	5.31E-01		1.35E+00	2.38E-01
		2204.22	*	4.98	9.15E-01		1.94E+00	3.56E-01
+	PB-214	295.21	*	19.19	5.27E-01	2.70E-01	1.54E+00	2.57E-01
		351.92	*	37.19	2.70E-01		1.38E+00	1.31E-01
	RN-219	401.80		6.50	1.05E+00	1.05E+00	5.41E-01	5.05E-01
	RA-223	323.87		3.88	1.64E+00	1.64E+00	-8.12E-04	7.86E-01
+	RA-224	240.98	*	3.95	3.23E+00	3.23E+00	3.82E+00	1.59E+00
	RA-225	40.00		31.00	1.67E+01	1.67E+01	5.08E+00	8.12E+00
+	RA-226	186.21	*	3.28	2.74E+00	2.74E+00	4.11E+00	1.34E+00
	TH-227	50.10		8.40	6.94E-01	6.35E-01	-1.71E-01	3.38E-01
		236.00		11.50	6.35E-01		-4.08E+00	3.09E-01
		256.20		6.30	1.02E+00		3.63E-01	4.92E-01
+	AC-228	338.32	*	11.40	1.44E+00	4.56E-01	1.94E+00	7.09E-01
		911.07	*	27.70	4.56E-01		1.42E+00	2.18E-01
		969.11	*	16.60	9.99E-01		1.41E+00	4.83E-01
	TH-230	48.44		16.90	3.66E-01	3.66E-01	1.01E-02	1.79E-01
		62.85		4.60	1.56E+00		1.64E+00	7.63E-01
		67.67		0.37	1.74E+01		-4.34E+00	8.52E+00
	PA-231	283.67		1.60	4.06E+00	2.98E+00	2.39E+00	1.96E+00
		302.67		2.30	2.98E+00		9.65E-02	1.44E+00
	TH-231	25.64		14.70	5.75E-01	5.75E-01	-4.32E+00	2.80E-01
		84.21		6.40	1.06E+00		-6.34E-01	5.17E-01
	PA-233	311.98		38.60	1.89E+00	1.89E+00	5.27E-01	9.10E-01
	PA-234	131.20		20.40	2.72E-01	2.72E-01	7.18E-02	1.32E-01
		733.99		8.80	8.44E-01		-1.49E-01	3.97E-01
		946.00		12.00	6.72E-01		8.68E-02	3.13E-01
	PA-234M	1001.03		0.92	9.67E+00	9.67E+00	5.36E-01	4.52E+00
+	TH-234	63.29	*	3.80	3.27E+00	3.27E+00	2.96E+00	1.61E+00
	U-235	143.76		10.50	5.53E-01	5.53E-01	3.03E-01	2.69E-01
		163.35		4.70	1.17E+00		3.27E-01	5.66E-01
		205.31		4.70	1.25E+00		-8.25E-01	6.06E-01
	NP-237	86.50		12.60	5.66E-01	5.66E-01	1.04E-01	2.78E-01
	NP-239	106.10		22.70	4.25E+11	4.25E+11	6.10E+10	2.07E+11
		228.18		10.70	9.41E+11		3.24E+10	4.54E+11

Analysis Report for 1707084-20

HTC-A02-S002-1824-01

Nuclide Name	Energy (keV)	Yield(%)	Line MDA (pCi/grams)	Nuclide MDA (pCi/grams)	Activity (pCi/grams)	Dec. Level (pCi/grams)
NP-239	277.60	14.10	8.56E+11	4.25E+11	3.02E+11	4.14E+11
AM-241	59.54	35.90	1.79E-01	1.79E-01	-1.09E-01	8.75E-02
AM-243	74.67	66.00	1.39E-01	1.39E-01	-1.33E-01	6.86E-02
CM-243	209.75	3.29	1.90E+00	4.76E-01	1.34E+00	9.24E-01
	228.14	10.60	5.25E-01		1.81E-02	2.53E-01
	277.60	14.00	4.76E-01		1.68E-01	2.30E-01

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

No Action Level results available for reporting purposes.

DATA REVIEW COMMENTS REPORT

Creation Date	Comment	User

No Data Review Comments Entered.

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

Sample Title: HTC-A02-S002-1824-01

Elapsed Live time: 3600
Elapsed Real Time: 3601

Channel								
1:	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0
17:	0	0	74	89	97	164	548	127
25:	100	65	76	84	78	64	79	73
33:	88	65	75	71	61	88	79	90
41:	81	81	68	93	95	94	158	100
49:	94	91	103	96	111	115	111	108
57:	101	120	125	138	141	144	183	228
65:	157	144	154	135	134	136	156	168
73:	168	152	384	328	444	491	180	158
81:	164	148	143	141	164	127	213	233
89:	141	201	180	164	280	248	114	107
97:	101	98	105	118	94	88	78	82
105:	96	96	99	87	74	95	89	97
113:	104	97	103	99	84	77	69	79
121:	90	77	77	82	75	82	89	79
129:	101	100	96	95	79	70	84	73
137:	71	67	84	79	77	80	80	103
145:	100	90	77	84	79	77	69	76
153:	85	87	87	77	56	95	75	69
161:	67	72	69	83	64	73	79	54
169:	80	65	60	76	71	55	78	74
177:	79	58	66	64	59	60	68	72
185:	70	176	148	64	54	61	50	70
193:	73	57	67	52	58	59	87	82
201:	64	48	77	66	60	78	68	56
209:	81	92	68	63	52	48	56	44
217:	47	45	57	63	56	59	52	50
225:	47	45	46	57	46	58	48	65
233:	42	50	50	57	67	209	611	219
241:	120	160	111	69	57	54	48	55
249:	44	47	34	43	40	39	42	48
257:	41	54	36	38	39	33	40	47
265:	40	45	35	42	39	75	77	44
273:	39	26	30	39	57	55	43	34
281:	29	40	40	49	37	37	36	33
289:	32	32	38	20	35	51	160	180
297:	49	37	39	57	62	30	37	22
305:	24	41	30	34	31	34	24	27
313:	33	35	30	28	21	38	31	32
321:	31	34	21	26	29	32	38	52
329:	41	33	38	38	40	36	29	35
337:	40	104	124	56	35	24	29	23
345:	25	18	24	37	31	25	108	302
353:	183	43	30	29	38	36	34	19
361:	27	27	23	29	23	18	23	32

369:	32	18	19	28	26	29	29	21

Sample Title: HTC-A02-S002-1824-01

Channel								
377:	10	22	21	24	24	26	23	19
385:	19	11	27	28	24	19	14	23
393:	23	19	30	30	22	15	22	33
401:	26	20	29	24	25	23	22	22
409:	27	36	26	25	27	26	20	23
417:	25	23	27	20	24	23	22	21
425:	22	22	21	20	23	12	17	18
433:	19	14	16	17	17	9	15	12
441:	24	22	22	18	16	13	15	15
449:	22	17	15	27	19	15	17	20
457:	19	13	19	16	13	23	37	32
465:	16	24	18	9	17	20	12	14
473:	17	23	16	17	17	7	30	19
481:	14	15	18	13	20	19	19	13
489:	21	16	18	18	16	11	16	22
497:	16	16	14	19	16	20	16	14
505:	15	15	10	20	33	52	89	77
513:	28	25	11	15	29	17	15	14
521:	8	16	15	20	14	11	14	17
529:	13	12	15	9	15	15	14	8
537:	17	12	10	19	15	11	11	16
545:	15	11	19	21	11	22	14	17
553:	19	15	7	10	12	15	10	23
561:	18	20	15	20	21	12	17	19
569:	17	13	18	14	17	14	15	12
577:	10	9	10	22	16	50	126	136
585:	26	15	14	19	19	11	17	11
593:	9	10	15	24	14	15	13	17
601:	22	18	9	16	16	16	22	38
609:	187	188	43	22	12	18	21	16
617:	16	11	17	12	12	20	16	9
625:	12	16	11	14	12	14	6	10
633:	13	9	13	13	16	17	10	12
641:	15	17	18	9	11	12	11	8
649:	10	15	13	18	7	12	12	11
657:	16	9	11	13	20	9	16	16
665:	19	19	10	9	20	13	20	15
673:	11	13	12	14	12	10	10	21
681:	8	22	17	9	8	15	15	14
689:	10	18	11	18	16	17	12	11
697:	15	14	10	13	13	13	14	16
705:	8	10	19	17	18	11	9	16
713:	15	8	11	7	9	13	13	13
721:	7	11	14	14	13	28	29	46
729:	16	11	7	16	11	14	12	11
737:	10	18	15	3	9	16	9	12
745:	13	12	10	12	8	15	11	13
753:	8	16	17	13	8	11	14	10
761:	13	14	10	9	13	8	18	21
769:	31	11	9	14	10	11	11	9
777:	9	7	12	6	9	10	18	17
785:	17	17	11	10	15	13	11	9
793:	7	22	21	22	15	9	8	9

801:	8	10	16	13	9	8	16	7

Sample Title: HTC-A02-S002-1824-01

Channel								
809:	7	7	6	3	8	10	6	9
817:	10	17	6	12	5	12	13	8
825:	11	5	15	10	6	11	6	10
833:	7	7	16	16	8	14	9	16
841:	14	6	16	14	5	10	6	5
849:	9	9	9	6	9	6	14	4
857:	11	14	6	16	25	23	7	5
865:	6	9	9	9	8	9	9	6
873:	7	15	10	9	7	9	7	9
881:	10	13	8	9	6	6	12	8
889:	6	11	9	7	10	8	14	5
897:	11	11	5	8	9	8	9	12
905:	10	6	7	10	11	30	85	85
913:	18	12	11	15	14	6	9	6
921:	14	5	14	14	9	10	10	7
929:	10	12	8	9	11	18	11	6
937:	2	13	5	6	3	10	7	8
945:	8	10	12	12	7	3	17	11
953:	10	7	15	9	9	6	4	9
961:	8	9	13	18	23	11	15	44
969:	64	39	21	8	8	7	10	5
977:	4	12	9	11	5	10	8	10
985:	10	7	10	10	9	8	9	8
993:	7	4	7	9	7	7	10	13
1001:	10	11	13	8	13	10	9	10
1009:	13	7	7	7	11	8	13	9
1017:	9	13	8	11	5	5	10	8
1025:	9	5	8	8	7	6	6	12
1033:	9	10	12	5	9	5	6	9
1041:	12	13	7	6	7	5	11	9
1049:	10	9	13	9	6	2	10	4
1057:	10	10	6	6	13	2	7	11
1065:	8	9	6	4	6	9	13	8
1073:	9	3	7	10	11	12	11	11
1081:	7	11	11	12	6	9	11	8
1089:	11	13	8	12	12	6	12	12
1097:	8	6	8	9	8	10	8	13
1105:	5	11	10	6	13	13	11	10
1113:	5	8	8	8	7	13	18	46
1121:	41	9	15	15	9	7	10	10
1129:	16	12	7	5	12	6	11	5
1137:	12	8	9	6	8	18	8	11
1145:	13	4	13	7	6	12	11	10
1153:	6	12	15	14	11	13	3	8
1161:	9	8	12	11	9	6	13	6
1169:	17	10	12	12	6	8	11	6
1177:	10	9	15	7	9	15	12	14
1185:	16	10	6	11	10	16	11	10
1193:	11	13	14	10	10	12	11	12
1201:	12	9	11	8	18	13	18	15
1209:	10	11	8	10	11	11	9	8
1217:	12	8	16	12	15	8	8	19
1225:	11	12	12	17	11	12	9	12

1233:	12	11	11	11	22	32	26	9

Sample Title: HTC-A02-S002-1824-01

Channel								
1241:	11	8	10	6	11	8	6	10
1249:	10	11	11	8	10	9	12	11
1257:	15	4	8	4	11	7	4	12
1265:	8	6	12	5	9	10	7	7
1273:	9	4	5	11	11	7	5	11
1281:	8	10	7	6	12	4	6	4
1289:	5	13	3	7	7	7	5	4
1297:	6	5	13	12	12	7	5	3
1305:	12	11	3	4	5	6	9	8
1313:	8	5	4	4	6	5	5	9
1321:	8	9	0	4	4	4	8	5
1329:	8	5	6	2	4	7	8	6
1337:	2	6	4	4	2	5	1	1
1345:	4	6	3	2	5	4	1	8
1353:	1	3	3	6	4	3	4	0
1361:	3	3	4	7	1	1	2	3
1369:	5	4	2	6	2	4	1	7
1377:	11	8	8	5	3	4	4	2
1385:	6	6	3	5	5	1	3	5
1393:	4	3	1	5	3	4	1	1
1401:	4	8	8	3	4	6	7	5
1409:	7	2	7	0	1	2	4	4
1417:	3	2	2	6	1	4	6	2
1425:	4	2	3	3	2	5	5	2
1433:	4	1	3	2	2	6	2	4
1441:	4	2	1	2	3	4	1	3
1449:	1	0	1	5	4	4	4	4
1457:	4	23	95	381	491	201	34	9
1465:	16	14	11	3	2	1	1	2
1473:	2	2	3	1	5	2	1	3
1481:	4	5	0	2	2	1	3	4
1489:	5	1	2	3	4	2	2	1
1497:	7	3	2	2	2	2	3	4
1505:	3	3	3	4	10	1	1	3
1513:	2	1	3	1	4	6	2	1
1521:	1	0	4	1	0	0	1	3
1529:	2	0	2	2	2	1	2	2
1537:	5	1	2	1	1	1	3	3
1545:	1	2	1	2	2	3	2	3
1553:	4	1	3	2	5	0	1	0
1561:	1	1	0	2	5	2	1	1
1569:	1	1	0	2	3	3	1	1
1577:	1	0	2	4	1	2	1	1
1585:	1	3	5	12	5	2	4	8
1593:	2	3	7	2	2	2	2	2
1601:	1	1	1	1	1	0	1	2
1609:	3	0	1	1	2	2	6	2
1617:	1	0	2	5	5	12	0	1
1625:	1	1	3	1	3	5	3	2
1633:	3	1	1	2	1	3	0	2
1641:	0	0	2	0	0	2	0	2
1649:	0	1	1	5	0	1	1	1
1657:	0	2	3	4	4	2	3	2

1665:	3	4	3	1	0	3	1	1

Sample Title: HTC-A02-S002-1824-01

Channel								
1673:	1	2	2	1	0	2	0	2
1681:	2	1	3	3	1	1	1	0
1689:	0	1	0	4	4	4	3	2
1697:	1	0	0	1	1	2	2	2
1705:	0	0	0	0	2	2	0	4
1713:	1	0	1	0	1	0	1	2
1721:	2	0	0	0	3	0	2	2
1729:	7	8	3	3	2	1	1	1
1737:	1	0	0	0	1	2	1	1
1745:	0	2	0	5	1	2	1	1
1753:	3	2	0	3	1	1	1	2
1761:	0	3	18	25	26	5	0	4
1769:	0	2	5	3	1	1	0	3
1777:	1	2	0	2	1	1	0	2
1785:	2	2	2	1	1	1	0	1
1793:	0	0	0	0	3	2	3	0
1801:	1	1	2	1	3	0	2	2
1809:	1	1	0	3	1	1	1	1
1817:	0	4	0	3	1	5	0	3
1825:	2	1	0	0	2	0	1	0
1833:	0	3	2	2	3	0	1	0
1841:	2	1	1	1	4	2	10	4
1849:	1	2	2	1	0	0	0	0
1857:	2	1	0	3	0	0	1	0
1865:	0	1	1	1	1	0	2	5
1873:	3	1	2	0	2	2	0	0
1881:	1	3	3	1	1	0	0	0
1889:	3	5	1	0	0	2	1	3
1897:	0	2	0	0	1	1	2	0
1905:	0	0	0	0	0	1	0	1
1913:	1	1	1	1	1	1	1	0
1921:	1	0	0	1	3	1	2	3
1929:	0	0	1	1	1	1	2	0
1937:	1	1	1	3	2	1	1	1
1945:	1	2	0	1	2	0	0	1
1953:	1	1	0	0	1	1	5	1
1961:	0	3	1	1	0	2	2	1
1969:	0	3	1	2	0	0	4	0
1977:	1	0	1	0	2	2	0	2
1985:	3	0	2	1	0	0	1	4
1993:	0	2	1	1	1	0	1	0
2001:	1	3	0	1	1	0	1	0
2009:	1	1	0	0	2	0	0	1
2017:	3	1	0	0	1	1	1	2
2025:	1	2	1	0	1	0	0	4
2033:	1	2	3	0	5	0	1	0
2041:	1	2	1	0	2	0	0	2
2049:	0	1	1	1	1	2	0	0
2057:	1	2	1	2	3	0	1	0
2065:	2	0	1	2	0	0	3	2
2073:	0	0	1	1	1	1	1	1
2081:	0	0	1	0	1	0	2	1
2089:	3	1	2	1	0	1	0	2

2097:	2	0	0	2	2	2	2	6

Sample Title: HTC-A02-S002-1824-01

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

2529:	0	0	0	0	0	0	1	1

Sample Title: HTC-A02-S002-1824-01

Channel								
2537:	1	0	0	1	1	0	0	0
2545:	0	0	1	1	1	0	0	1
2553:	0	0	0	0	0	0	0	0
2561:	0	0	0	1	1	0	1	1
2569:	0	0	0	0	0	0	0	0
2577:	0	0	0	1	1	0	0	0
2585:	0	0	0	0	0	1	0	2
2593:	0	3	1	0	0	0	0	0
2601:	1	0	0	0	0	0	1	0
2609:	1	1	1	12	30	36	10	4
2617:	1	1	1	0	0	0	3	0
2625:	0	1	0	0	0	0	0	1
2633:	0	1	1	0	0	0	0	0
2641:	2	1	1	0	0	0	0	0
2649:	0	0	0	0	0	0	1	0
2657:	0	0	2	0	0	0	0	1
2665:	1	0	0	0	0	1	0	0
2673:	0	0	1	1	2	0	0	0
2681:	1	0	0	1	0	0	0	0
2689:	1	0	1	0	0	0	0	0
2697:	0	0	1	1	0	0	0	0
2705:	0	0	0	0	0	0	0	0
2713:	0	1	0	0	1	0	0	0
2721:	0	0	1	0	0	0	0	1
2729:	0	0	0	0	1	1	0	0
2737:	1	0	0	0	0	0	1	0
2745:	0	0	0	1	0	1	0	0
2753:	0	0	0	0	1	0	0	0
2761:	0	0	1	0	2	0	0	0
2769:	0	0	0	0	0	0	2	0
2777:	2	0	1	0	0	1	0	2
2785:	0	0	0	0	1	1	0	0
2793:	0	0	0	0	0	0	0	0
2801:	0	0	1	0	0	0	0	1
2809:	0	0	0	0	0	0	0	0
2817:	0	0	0	0	2	0	1	1
2825:	1	0	0	0	0	0	0	0
2833:	0	1	1	0	0	1	0	1
2841:	0	0	0	0	1	1	0	0
2849:	0	0	0	0	1	0	0	0
2857:	1	0	0	0	0	1	1	0
2865:	0	1	1	0	1	0	1	0
2873:	0	0	1	1	0	0	1	1
2881:	0	0	0	0	0	0	1	0
2889:	0	1	0	0	0	0	0	0
2897:	1	0	1	0	0	0	3	0
2905:	0	0	1	0	1	0	0	1
2913:	0	0	1	1	0	0	0	1
2921:	1	0	0	0	1	0	0	0
2929:	0	0	0	0	0	0	1	0
2937:	0	0	0	0	0	0	0	0
2945:	0	0	0	0	0	0	1	0
2953:	0	0	0	0	1	0	0	0

2961:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-1824-01

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

3393:	0	0	0	0	0	0	0	0

Sample Title: HTC-A02-S002-1824-01

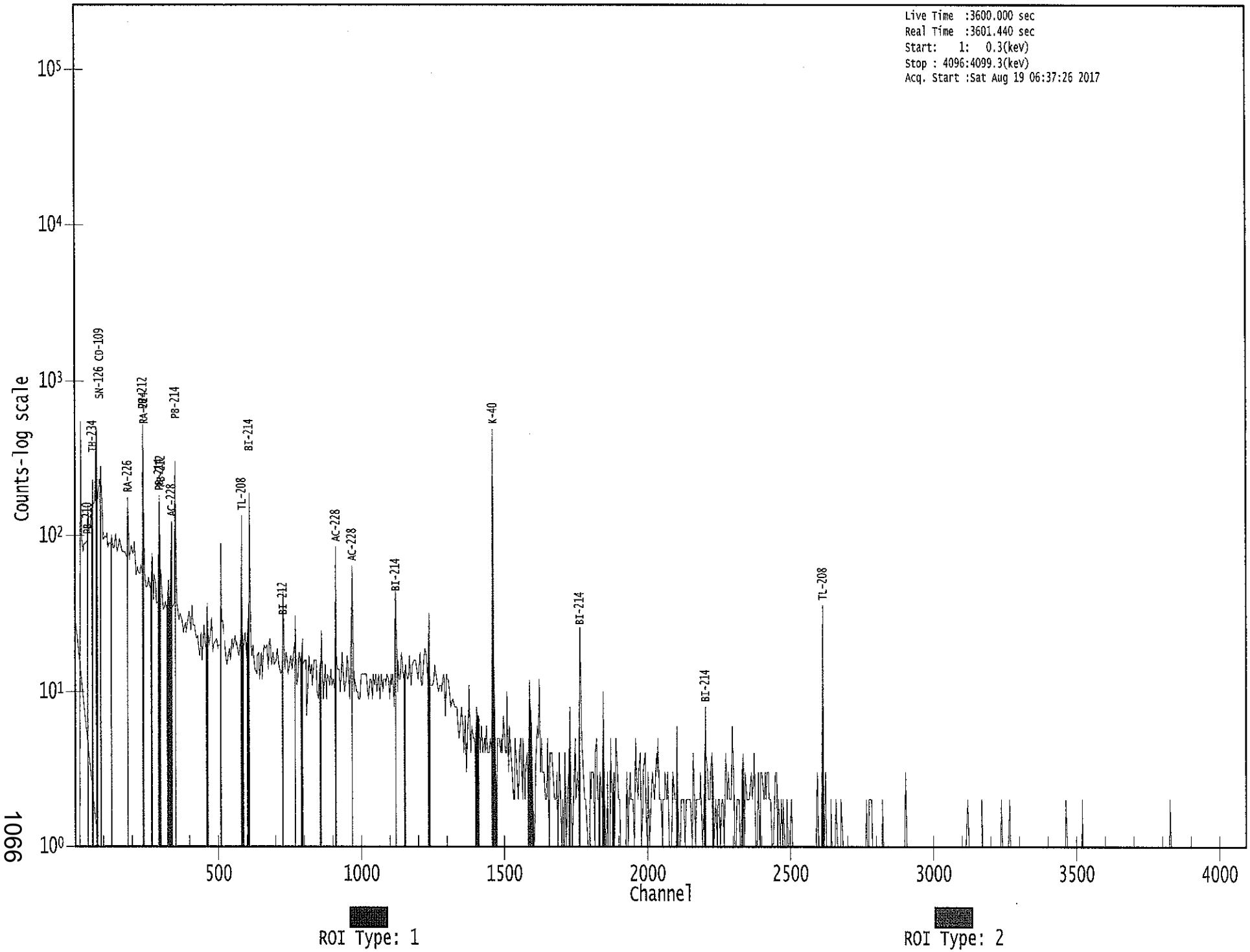
Channel								
3401:	0	0	0	0	0	0	0	0
3409:	0	0	0	0	0	0	0	1
3417:	0	0	0	0	0	0	0	0
3425:	0	0	0	0	0	0	0	0
3433:	0	0	0	0	0	1	0	0
3441:	0	1	0	0	0	1	0	0
3449:	0	0	0	0	0	0	0	0
3457:	0	0	0	0	1	2	0	0
3465:	0	0	1	0	0	1	0	0
3473:	0	1	0	0	0	0	0	0
3481:	0	0	0	0	0	0	0	0
3489:	0	0	0	0	0	0	0	0
3497:	0	1	0	0	0	1	0	1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

3825:	0	0	2	0	0	0	1	0

Sample Title: HTC-A02-S002-1824-01

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

0000055545.CNF



```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/18/17 5:57:45 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: 8/18/17 5:42:24 AM
Measurement Date: 8/18/17 5:42:26 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: 7.1535E+000+/-131.39]	1.5089E+000	-4.2961E-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)

8W8

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/18/17 5:57:36 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: 8/18/17 5:42:18 AM
Measurement Date: 8/18/17 5:42:20 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 901.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
DAILY BKG CT RATE GE3 [SD: 2.1810E+003+/-1176.5]	1.9850E+003	-1.6656E-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 *****
****

Last Results Report
8/18/17 5:57:27 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: 8/18/17 5:42:12 AM
Measurement Date: 8/18/17 5:42:14 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+/- 1.247]	2.2267E+000	-3.9969E-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)

8/18

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/18/17 5:36:08 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: 8/18/17 5:19:39 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 975.5 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.8342E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Peak centroid 661.65 kev	6.6064E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3317E+003	
Boundary Limits: [1.331E+003, 1.335E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1836.01 ke	1.8355E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	2.0808E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	2.5761E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6579E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.9098E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.2640E+005	
Boundary Limits: [1.196E-001, 1.793E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	6.2362E+004	

Boundary Limits: [4.890E-002, 7.335E-002] < : : : >

Decay corrected activity 9.0383E+004
Boundary Limits: [7.743E-002, 1.161E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.8736E+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)

8118

```
*********************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*********************************************************************
```

Last Results Report
8/18/17 5:35:19 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: 8/18/17 5:19:33 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 933.8 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9909E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6205E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Peak centroid 1332.49 ke	1.3327E+003	
Boundary Limits: [1.330E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8362E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Peak FWHM Am-241	2.0437E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Cs-137	2.3265E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.6869E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7760E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.5821E+005	
Boundary Limits: [1.189E-001, 1.784E-001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Decay corrected activity	6.1029E+004	
Boundary Limits: [4.862E-002, 7.293E-002]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 9.2639E+004
Boundary Limits: [7.700E-002, 1.155E-001] < : : : >
Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.9131E+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          *****
*************************************************************************
```

C 8/18

Last Results Report
8/18/17 5:35:08 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: 8/18/17 5:19:26 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 927.7 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9984E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6182E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3325E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8358E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4212E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8196E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.3459E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.7239E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.4515E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.7105E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.0154E+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]	1.8593E+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)

 KB 8/19/17

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/19/17 6:17:11 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: 8/19/17 6:01:54 AM
Measurement Date: 8/19/17 6:01:56 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+/- 1.246]	2.1944E+000	-6.5805E-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)

KCB 8/19/17

```
*************************************************************************
*****          G E N I E   Q U A L I T Y   A S S U R A N C E          *****
*************************************************************************
```

Last Results Report
8/19/17 6:34:19 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: 8/19/17 6:18:36 AM
Elapsed Live Time: 900.0 seconds
Elapsed Real Time: 927.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
Peak centroid 59.54 kev	5.9993E+001	
Boundary Limits: [5.800E+001, 6.100E+001]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 661.65 kev	6.6179E+002	
Boundary Limits: [6.600E+002, 6.630E+002]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak centroid 1332.49 ke	1.3324E+003	
Boundary Limits: [1.331E+003, 1.334E+003]		< : : : >
Peak centroid 1836.01 ke	1.8357E+003	
Boundary Limits: [1.834E+003, 1.838E+003]		< : : : >
Trend Test: The last 9 samples exhibit a bias trend.		
Peak FWHM Am-241	1.4622E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Cs-137	1.8549E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Co-60	2.2254E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Peak FWHM Y-88	2.5365E+000	
Boundary Limits: [5.000E-001, 3.000E+000]		< : : : >
Decay corrected activity	1.4550E+004	
Boundary Limits: [1.254E-002, 1.881E-002]		< : : : >
Decay corrected activity	6.6637E+003	
Boundary Limits: [5.134E-003, 7.700E-003]		< : : : >

Trend Test: The last 9 samples exhibit a bias trend.

Decay corrected activity 1.0646E+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]	1.9172E+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)